



PRODUCT CATALOG 2016



THE SOURCE FOR ALL YOUR FLUID POWER NEEDS

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> Power Team®



Precision-controlled high force tools and equipment

- | | |
|------------|-------------|
| ↑ LIFTING | ← PULLING |
| ↓ LOWERING | → PUSHING |
| ↻ TURNING | ↗ CUTTING |
| ↷ BENDING | ↔ SPREADING |

Visit www.powerteam.com to learn more.

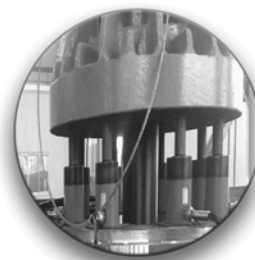
Customer Service: 1-800-541-1418

Technical Service: 1-800-477-8326

2016 Hydraulic Technologies



Products Engineered For Demanding Industrial Applications



Building

Bridge

Industrial MRO

Ship

Offshore

Wind

Mining

Drilling

Power Generation

Production Automation

SPXFLOW



Scan us today!



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Hydraulic Power & Control

Pneumatic Power & Control

Fluid Conveying

Miscellaneous Products

Indexes & Technical Information



Our Commitment



SINCE 1947



Core Purpose

To make every experience with our organization a positive one.

Core Values

Honesty, integrity, and ethics in everything we do.

Provide the opportunity to grow and advance.

Provide an atmosphere of cooperation, friendliness, and mutual respect.

Continuous Improvement

Empower all associates to challenge our processes and make changes that result in value added improvements.

Customer Satisfaction

Partner with our customers to make every experience a positive one.

Employee Satisfaction

Associates make the difference. We want you to want to be here.

Goals

Growth Of Sales

Identify customer's needs and provide solutions that exceed their expectations to grow our business.

Make a Profit

Maximize the use of our resources to reduce costs while maintaining a fair gross profit margin.

Partnership With Vendors

Establish a relationship with our vendors that promotes open and honest communication which results in a win/win situation for all.



Company Profile

The Source For All Your Fluid Power Needs



**Orders received by 4:00 PM
ship the same day.**

At Hydraulic Supply Company, our goal goes far beyond just "selling parts." Our approach is simple — get to know the customers and their specific needs, analyze the possibilities, and help them design new better fluid power systems at the most reasonable cost possible.

We recognize that providing fast response times and high quality, economical solutions to our customers' needs is the only way to build long lasting relationships.



5 EASY WAYS TO ORDER FROM US

Ordering from us is easy, simply choose the more convenient way to process your order and our team will be here to provide you with 100% customer satisfaction.



PHONE
800-507-9651



FAX
954-845-9113



E-MAIL
sales@hydraulic-
supply.com



ON-LINE
www.hydraulic-
supply.com



EDI
Contact Us



This page is part of a complete catalog which contains technical and safety data that must be reviewed when selecting a product

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Hydraulic Power & Control

Pneumatic Power & Control

Fluid Conveying

Miscellaneous Products

Indexes & Technical Information



Company Profile

HSC At-A-Glance



Since our beginning in 1947, Hydraulic Supply Company (HSC) has been dedicated to fulfilling customers needs as a full-service distributor of hydraulic and pneumatic products.

Our goal is to provide customers with a large selection of hydraulic and pneumatic products with the best professional services, right when you need them, to keep your operations productive and reduce downtime.

60,000 sq. ft. Central Distribution

Center that houses two manufacturing departments to produce finished products for our customers.



Over **20,000** in-stock products from over **100** recognized brands in the industry.

Retail Stores

conveniently located in Florida, Georgia, South Carolina, North Carolina, & Tennessee. Coming soon, locations in Alabama.



An **Engineering Center** with a team of expert system design engineers.

State-of-the-art
Hydraulic Repair Service Center of Excellence.



A knowledgeable **Sales & Customer Service Department** to support our customers' individual needs.



Industrial & Hydraulic Hose Assemblies

Services available at all HSC locations.



Custom Build Programs

for hydraulic components.



Retail Stores



Fast turnaround service to get you back up and running quickly and economically

Fluid Power Products Right When You Need Them at a Location Near You

Because managing your inventory can be costly for your company, having a conveniently located Hydraulic Supply Company store near your facility gives you access to our large inventory of hydraulic and pneumatic components and parts right when you need them.

HSC STORE COMMITMENT

All HSC Retail Store locations offer:

- **Large selection of products** -over 8000 products in stock at our retail stores and access to thousands more from our Central Distribution Center.
- **Knowledgeable and factory certified staff.**
- **Professional service and support.** Our friendly and knowledgeable staff are ready to help you with all of your fluid power needs.



Hydraulic Supply Company retail stores are certified Eaton Aeroquip® Hose Centers. Our dedicated hose specialist can build your hoses right when you need them at one of our locations.

24 HOUR EMERGENCY SERVICE

Because things don't always go as planned and unforeseen events do occur, we also offer 24 hour emergency service. Please contact us a (800) 507-9651.

24H SERVICE

Company Profile

RETAIL STORES PRODUCTS & SERVICES



Our retail stores carry over 8,000 Hydraulic & Pneumatic products in stock and offer a full range of fabrication services.

IN-STORE FABRICATION SERVICES

Hydraulic & Industrial Hose Assemblies

We are a complete hose fabrication shop. As an Aeroquip Premier Distributor, we carry a large selection of Aeroquip hoses, fittings and adapter, including Matchmate Plus™ hoses.

Air Lines - Fuel Lines - Power Steering & Transmission Lines



Cut & Weld



**Cable
Assemblies**



**Tube Bending
& Assemblies**

PRODUCTS AVAILABLE AT THE STORES

- Adapters & Fittings
- Cylinders
- Couplers
- Hoses
- Hydraulic Filters
- Hydraulic Fluids
- High-Force Hydraulics
- Motors
- Power Units
- Pumps
- Pneumatic Products
- Seal Kits
- Tubing
- Valves
- Others

**Several of our stores
carry a selection of
Specialty Marine
Products.**



HSC Engineering Center



A Team of Expert Design Engineers

Our Engineering Center offers a team of expert system design engineers that specialize in hydraulic, pneumatic, and electric power solutions. They can assist you in everything from component selection to full system design.

HSC Engineering Center Advantages

- Experienced, degreed engineers ready to work on your projects.
- Ability to create 2D schematics and 3D solid models using the latest versions of the software, including SOLIDWORKS.
- We can help you with everything from component design to full product design.
- System commissioning, troubleshooting, and testing in our facility or on-site.
- System components can be stocked in our warehouse to ease supply chain issues.
- Single-source responsibility.

Capabilities

From designing, construction to installation and training, we offer you a complete solution for all your engineering needs.

- **Complete System Design**
- **Prototyping**
- **Application Engineering Support**
- **System Retrofits**
- **Fabrication**
- **Installation and Testing**
- **Control System Design**
- **PLC and Control Programming**
- **User Interface Design**



Custom Build Services

Hydraulic Supply Company offer a wide range of custom build programs that meet and exceed OEM standards.

Hose Assembly



At HSC's Hose Assembly area a full range of hydraulic & industrial hoses are assembled — from 3/16" diameter through 10" diameter in pressure ranges from vacuum to 10,000 psi. The hose assembly area has full cleaning and pressure testing capabilities to meet the varying needs of our customers. We have the capability to provide high production hose assemblies in a clean, controlled environment. We have multiple high speed crimp machines capable of up to 1200 crimps per hour.

Custom Hydraulic Components



We can assemble and test custom hydraulic components to the customers' specifications. Technicians can perform anything from a simple shaft change on a hydraulic pump to a complete custom power unit.

Custom Hose Kitting



Our custom hose kitting capabilities allow us to provide you with custom hose kits built to your specifications and needs. All hose kits are bar coded and labeled for easy identification. All kits are inspected in-house.

Tube Bending



We can custom form hydraulic tubing assemblies to exacting tolerances and specifications. An electronically controlled tube-bending machine insures accuracy and consistency in a wide variety of tubing sizes and wall thicknesses.

Vane Pump Program



Through our vane pump program we can build a wide variety combination of Eaton's pumps (models V10, V20, 25VQ through 45VQ, V2010 and V2020). Built with genuine, new Eaton parts and tested to factory specifications.

Other Custom Programs Available

- Eaton's 25M through 50M vane motors.
- Eaton's X-20 Piston pumps.
- Salami gear pumps, motors, and flow dividers.
- Salami sectional valves.
- Walvoil sectional valves.

Ask Us About Our New Industrial Hose Program



- Air & Multipurpose
- Cement, Plaster and Grout
- Chemical - Suction & Discharge
- Food & Beverage
- Gaseous - LPG
- Material Handling
- Oil and Gas Exploration
- Petroleum
- Specialty - Steel Mill
- Steam
- Water - Suction & Discharge
- Couplings
- Chemical Resistant
- Others

Repair Services

HYDRAULIC REPAIR & SERVICE CENTER OF EXCELLENCE*

Hydraulic Repair & Service (HRS) Center of Excellence specializes in the repair, reconditioning and overhaul of leading brands of hydraulic components including cylinder, motors, pumps, valves, and power units.

HRS technical capabilities allow us to manufacture and refurbish hydraulic components with quick turnaround to get your equipment back up!

HRS maintains repair and testing facilities staffed by factory trained technicians.

We meet OEM performance specifications and quality standards. Our stringent testing procedures and capabilities are unparalleled.

WE REPAIR:

- CYLINDERS
- MOTORS
- PUMPS
- VALVES
- POWER UNITS

OTHER SERVICES:

- TUBE HONING
- WELDING
- ROD POLISHING
- LAPPING
- TESTING



TESTING CAPABILITIES

All testing is performed in-house using test methods designed to ensure your repair is guaranteed to work when installed; thus reducing time from removal to reinstallation.

We have a 200 HP test stand with VFD control and data gathering capabilities for all pumps and motors, whether open loop or closed loop systems.

*Contact us for locations in your area.



FABRICATION | REPAIR | ASSEMBLY | TEST | RECONDITIONING

Pumps - Hyd - Single - Fixed - Vane



Vickers® V10 Vane Pumps
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Vickers® V10F Vane Pumps
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Vickers® V20 Vane Pumps
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Vickers® V20F Vane Pumps
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Vickers® 25VQ, 35VQ, 45VQ
Vane Pumps
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Miscellaneous Single & Tandem
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Pumps - Hyd - Single - Fixed - Gear



Salami 1.5PE Gear Pumps
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Salami 1.5PE Gear Pump
Tandem Sections
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Concentric GC Series Pump
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Salami 2PE Gear Pumps
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Haldex Barnes W900 Series
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Hydreco 1500M Series Gear
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Salami 2.5PB Gear Pumps
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Hydreco 1500K Series Gear
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Eaton Series 26 Gear Pumps
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Eaton L2 Series Gear Pumps
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Salami 3PE Gear Pumps
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Salami PG331 Series Gear
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Permco Box Pumps For PTO
Applications
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Miscellaneous Single Gear
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Pumps - Hyd - Single - Variable - Piston



Vickers® PVQ Piston Pumps
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Eaton Medium Duty Piston
Pumps For Mobile Applications
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Eaton 420 Mobile Piston Pumps
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Eaton PVM Series Piston
Pumps
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Eaton Duraforce™ HPR Series
Pumps
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Eaton Hydrokraft™ PVW Series
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Pumps - Hyd - Double - Fixed - Vane



Vickers® V2010 Double Vane
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Vickers® V2010 Double Pumps
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Miscellaneous Double Vane
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Pumps - Hyd - Double - Fixed - Gear



Concentric Hi-Lo Log Splitter
Pump
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Miscellaneous Double Gear Pumps
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Pumps - Dump Pumps



Permco DM400 Series Dump Pumps
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Permco DMD/DM640 Series Dump Pumps
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Pumps - Refuse Pump System



Permco Versa-Pak Refuse Pump System
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Pumps - Hand Pumps



Doering Series 241 Cartridge Hand Pumps
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Pumps - Air Operated Diaphragm



Aro® 1/4 Inch Diaphragm Pumps
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Aro® 1/2 Inch Diaphragm Pumps
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Aro® 1 Inch Diaphragm Pumps
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Pumps - Centrifugal



Hypro® 9300C Series Hydraulic Motor Driven Centrifugal Pumps
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Pumps - Accessories



Vickers® Foot Brackets (Cast Iron)
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Foot Valves, Strainers and Skimmers
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Hydraulic Motors - Geroter



Char-Lynn® H Series Geroter Motors
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Char-Lynn® J Series Geroler® Motors
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Char-Lynn® S Series Geroler® Motors
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Char-Lynn® H & S Series Base Block Mounting Kits
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Char-Lynn® 2000 Series Geroler® Motors
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Char-Lynn Delta Series
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Char-Lynn® 4000 Series Geroler® Motors
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Char-Lynn® 6000 Series Geroler® Motors
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Char-Lynn® 10,000 Series Geroler® Motors
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Hydraulic Motors - Gear



Cross 40 Series Gear Motors
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Hydreco 1500K Series Gear Motors
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Hydreco 1500M Series Gear Motors
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Permco Box Motors
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Miscellaneous Gear Motors
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Hydraulic Motors - Vane



Vickers® 35M Vane Motors
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Hydraulic Motors - Piston



Eaton Medium Duty Piston Motors
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Hydraulic Motors - Accessories



Helland Overhung Load Adapters, 4-Bolt for Char-Lynn® H & S Series Motors
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Hydrostatic Transmissions



Eaton Medium Duty Hydrostatic Transmissions
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Eaton Heavy Duty Hydrostatic Pumps
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Eaton Heavy Duty Hydrostatic Motors
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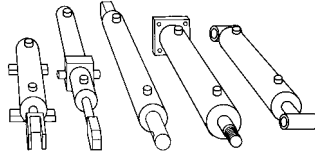
Cylinders - Hydraulic



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Custom 2.5TR Series
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Georgia Hydraulic Cylinders
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HDM Hydraulics LLC Cylinders
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Steering



Char-Lynn® Steering Control Units
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Char-Lynn® Steering Columns
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Char-Lynn® Steering Wheels & Accessories
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Valves - Ball - Bronze



Apollo® 70-100 Series
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Stauff 2BVL Series
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Stauff 2BVL Port Adaptors
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Valves - Ball - Steel



Apollo® 73-100 Series
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Stauff 2BVM
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Stauff BBVM Series
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Stauff FBV Series
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Valves - Ball - Stainless Steel



Stauff 2BVM Series
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Deltrol C Series
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Strataflo 400 Series
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Deltrol EC Series
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Deltrol CMM/CMMO/CMMQ Series
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Vickers® CV13-10 Series
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Vickers® CV1-16 Series
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Integrated Hydraulics 3CA300 Series
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Vickers® DS8P1 & DT8P1 Series
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Stauff RV Series
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DMIC CVH Series
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Vickers® C2-8 Series
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Vickers® C5G & C5GV Series
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Vickers® SPC2-10 Series
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Integrated Hydraulics 4CK30 Series
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Vickers® SPC1-10 Series
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Brand PC-50 Series
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Integrated Hydraulics 4CKD90 Series
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Vickers® SPC1-16 Series
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Integrated Hydraulics 4CKKT50 Series
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Vickers® DPC1-10 Series
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Eaton 1CE20 Series
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Eaton 1CE30 Series
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Eaton 1CEV30 Series
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Eaton 1SE30 Series
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Eaton 1SE90 Series
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Eaton 1SEB90
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Eaton 1CE90 Series
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Eaton 1CEV90 Series
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Eaton 1CEB90 Balanced Counterbalance Valve
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Eaton 1CE300 Series
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Valves - Cushion



Vickers® CRV-10 Series
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Cross Series RC
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Eaton 1CLLR100 Series
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Valves - Directional Hyd - Manual



Eaton 3CP2 Series
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Vickers® MPV1-10 Series
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Vickers® DG17V-3 Series
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Vickers® DG17V8 D08 Subplate Mounted Valve
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Valves - Directional Hyd - Monoblock



Eaton 30900 Series
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Salami VDM6 Series
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Walvoil SD4 Series
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Walvoil SD5 Series
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Walvoil SD11 Series
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Brand AO755 Series
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Brand LS755 Series
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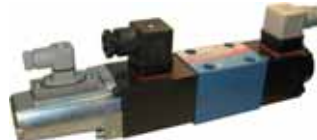
Brand SDCF Series
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Salami VDM8
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Valves - Directional Hyd - Proportional



Vickers® KDG4V-3 &
KDG4V-3S Series
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Vickers® KFDG4V-3 Series
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Valves - Directional Hyd - Sectional



Salami VD6A Series
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Walvoil SD6 Series
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Salami VD8A Series
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Husco Model 5000
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Walvoil SD8 Series
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Husco Model 6000
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Vickers® Screw-In Cartridge
Solenoid Valves - 2 Way, 3
Way, 4 Way, Starting on
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Vickers® DG4V-3S / DG4V-3
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Vickers® DG4V-3 Series Soft
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Vickers® DG4S4-01 60 Series
D05
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Vickers® DG4V5 20 Series D05
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Vickers® DG4S4-01 60 Series
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Vickers® DG5V-10 Series D10
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Watts GV Series
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Vickers® Logic Elements
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Marsh N Series
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Vickers® NV1-10 Series
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Anderson Brass 130 Series
2-Way
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Anderson Brass 3-Way Side
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Anderson Brass 4-Way Bottom
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Vickers® PRV1-10 Series
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Valves - Pressure Relief - Direct Ball



Valves - Pressure Relief - Direct Poppet



Valves - Pressure Relief - Direct Differential Poppet



Valves - Pressure Relief - Pilot Op Poppet



Valves - Pressure Relief - Pilot Op Spool



Valves - Pressure Relief - Guided Piston



Valves - Sandwich



Valves - Selector



Valves - Slip-In Cartridge



Valves - Stack



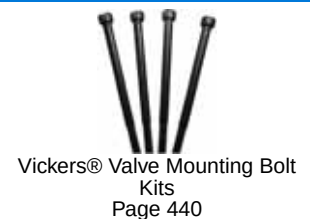
Valves - System Accessories



Valves - Truck Valves



Valve Accessories - Bolt Kits & Extenders





Vickers® SystemStak™ Bolt Extender Kits
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Vickers® 2-Way Cartridge Valve Housings
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Vickers® 3-Way Cartridge Valve Housings
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Vickers® Cartridge Valve Coils
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Stauff SSF150/180 Filter Head
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Stauff SSF-24/25 Series
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Vickers® HF4RT Series
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Vickers® HF2P Series
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Hydraulic Power & Control

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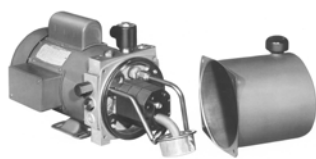
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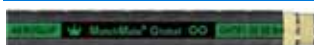
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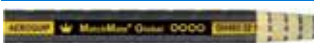


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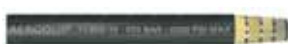
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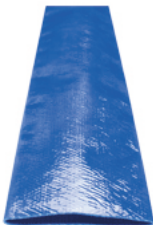


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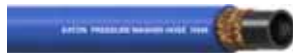
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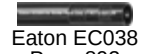


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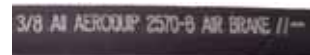


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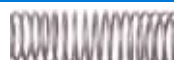


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FLA SAE Code 61 Split Flange 45° Elbow
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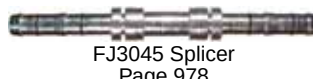
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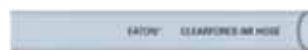
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U Union
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RU Reducing Union
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BU Bulkhead Union
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ANU AN Union
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1107 Union "Y"
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Aeroquip® FF1851 ORS® /
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Aeroquip® FC2326 ORS®-BR
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Adapters - Steel - O-Ring Face Seal To O-Ring Boss



Aeroquip® FF1852T ORS® /
SAE O-Ring Boss
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Aeroquip® FF1854T ORS® /
SAE O-Ring Boss (Long)
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Aeroquip® FF2068T ORS® /
SAE O-Ring Boss 45° Elbow
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Aeroquip® FF1868T ORS® /
SAE O-Ring Boss 90° Elbow
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Aeroquip® FF1865T ORS® /
ORS® / SAE O-Ring Boss Tee
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Aeroquip® FF2031T ORS® /
Male Pipe
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Aeroquip® FF2032 ORS® /
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Adapters - Steel - O-Ring Face Seal To 37° Flare



Brennan FS6504 Female ORFS
/ Male 37° Flare
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Brennan FS6402 Male ORFS /
Female 37° Flare Swivel
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Brennan FS6403 Male ORFS /
Male 37° Flare
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Adapters - Steel - O-Ring Face Seal To O-Ring Face Seal



Aeroquip® FF2000T ORS® /
ORS®
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Aeroquip® FF2281T ORS® /
ORS® Reducer Adapter
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Aeroquip® FF1994T ORS® /
ORS® Bulkhead Adapter
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Aeroquip® FF2098T Female
ORS® / ORS® 90° Elbow
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Aeroquip® FF2114T Female
ORS® / ORS® / ORS® Tee
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Aeroquip® FF1898T ORS® /
ORS® / ORS® Tee
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Aeroquip® FF1857T ORS® /
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Aeroquip® 2046 Female Pipe Swivel / Female Pipe
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Aeroquip® 2247 Male Pipe / Male Pipe 45° Elbow
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Aeroquip® 2049 Female Pipe Swivel / Male Pipe 45° Elbow
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Aeroquip® 2092 Male Pipe / Female Pipe / Female Pipe Tee
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Aeroquip® 2254 Female Pipe Swivel / Male Pipe / Female Pipe Swivel Tee
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Aeroquip® 2091 Male Pipe / Female Pipe / Female Pipe Tee
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Aeroquip® 2080 Female Pipe Cross
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Aeroquip® 202113 Male Pipe / 37° Male Flare (Long)
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Aeroquip® 2240 Male Pipe / Male 37° Flare Bulkhead
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Aeroquip® 2239 Female Pipe / Male 37° Flare Bulkhead
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Aeroquip® 2022 Female Pipe / Male 37° Flare
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Aeroquip® 2242 Female Pipe / Female 37° Flare Swivel
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Aeroquip® 202411 Male Pipe / Male 37° Flare 90° Elbow (Long)
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Aeroquip® 202413 Male Pipe / Male 37° Flare 90° Elbow (Longer)
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Aeroquip® 2249 Male Pipe Swivel / Male 37° Flare 90° Elbow
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Aeroquip® 15.063 Male Metric 24° (DIN 3901/3902 1.Rh) / Male 37° Flare
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SSP FMF Male Pipe Run Tee
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SSP J-ME-45 Male 37° Flare /
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SSP J-TTM Male 37° Flare / Male Pipe / Male 37° Flare Tee
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Countersunk Hex Pipe Plug
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Pipe Cap
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Bulkhead Coupling
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Eaton Bulkhead Coupling
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Eaton 3600 Female Pipe / Male Pipe / Female Pipe Tee
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Female 45° Flare Swivel / Male
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Aeroquip® 200001 Male 42°
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Female 42° Inverted Flare /
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Oetiker Swing Coupling Female
Half - Safety Vent Female Pipe -
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Oetiker Swing Coupling Female
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Milton Multi Series Female Half -
Valved Female Pipe - Brass
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Dixon Female Half Hose Shank
Valved
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FD40-1013 Male Half Female
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Dixon Male Half Hose Shank
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Oetiker Swing Coupling Female Half - Safety Vent Female Pipe - Valved
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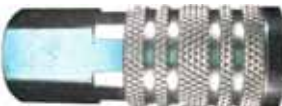


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FD41-1013 Male Half Female Pipe - Non-Valved
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Caps For O-Ring Face Fittings
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Single Weld Plate, Hex Head
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Single Weld Plate, Hex Head
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Male Pipe
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FS65005 Female Pipe Swivel / Female Pipe
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FS65008 Female Pipe (Fixed) / Female Pipe
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FBU StartLite® Racing Hose
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FC332 AQP® SOCKETLESS™ Hose
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FBF A/C Hose
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2807 Teflon® Racing Hose
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FC300 AQP® High Pressure Hose
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Aeroquip® Performance - Fittings - Reusable - AQP® Racing & StartLite® Hose



Red/Blue Anodized Aluminum 37° Flare Swivel
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Nickel-Plated Aluminum 37° Flare Swivel
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Red/Silver Plated Steel 37° Flare Swivel
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Red/Blue Anodized Aluminum 37° Flare Swivel 45° Elbow
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Nickel-Plated Aluminum 37° Flare Swivel 45° Elbow
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Red/Silver Plated Steel 37° Flare Swivel 45° Elbow
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Red/Blue Anodized Aluminum 37° Flare Swivel 60° Elbow
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Red/Blue Anodized Aluminum 37° Flare Swivel 90° Elbow
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Nickel-Plated Aluminum 37° Flare Swivel 90° Elbow
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Red/Silver Plated Steel 37° Flare Swivel 90° Elbow
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Red/Blue Anodized Aluminum 37° Flare Swivel 150° Elbow
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Red/Blue Anodized Aluminum 37° Flare Swivel, 180° Elbow
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Red/Blue Anodized Aluminum Banjo
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Aeroquip® Performance - Fittings - Crimp - AQP® Racing & StartLite® Hose



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Red/Silver Anodized Aluminum 37° Flare Swivel, 45° Elbow
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Red/Silver Anodized Aluminum 37° Flare Swivel, 90° Elbow
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Aeroquip® Performance - Fittings - AQP® SOCKETLESS™ Hose



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Nickel-Plated Aluminum 37° Flare Swivel
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Brass 37° Flare Swivel
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Nickel-Plated Aluminum 37°
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Plated Steel 37° Flare Swivel,
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Red/Blue Anodized Aluminum
37° Flare Swivel, 90° Elbow
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Nickel-Plated Aluminum 37°
Flare Swivel, 90° Elbow
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Plated Steel 37° Flare Swivel,
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Red/Blue Anodized Aluminum
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Brass Male Inverted Flare
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Brass Male Pipe
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**Aeroquip® Performance -
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Hose**



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Female O-Ring Pilot with
Charge Port
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Female O-Ring Pilot 45° Elbow
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Female O-Ring Pilot 90° Elbow
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Female O-Ring Pilot 90° Elbow
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Stainless Steel 37° Flare Swivel
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Plated Steel 37° Flare Swivel,
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Plated Steel 37° Flare Swivel,
90° Elbow
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Forged Stainless Steel 37° Flare
Swivel, 90° Elbow
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Plated Steel, Brass Nipple, 45°
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Plated Steel 45° Flare Swivel,
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Plated Steel 10mm Banjo, 17°
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Fittings - Reusable - AQP®
High Pressure Hose**



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45° Elbow
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Plated Steel 37° Flare Swivel,
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Plated Steel Male Inverted Flare
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Plated Steel Male Inverted
Flare, 45° Elbow
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Plated Steel Male Inverted
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Flare Blue Anodized Aluminum
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Female 37° Flare Swivel / Male
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Male 37° Flare / Male Pipe
Aluminum (AN 816) Black
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Aluminum (AN 825)
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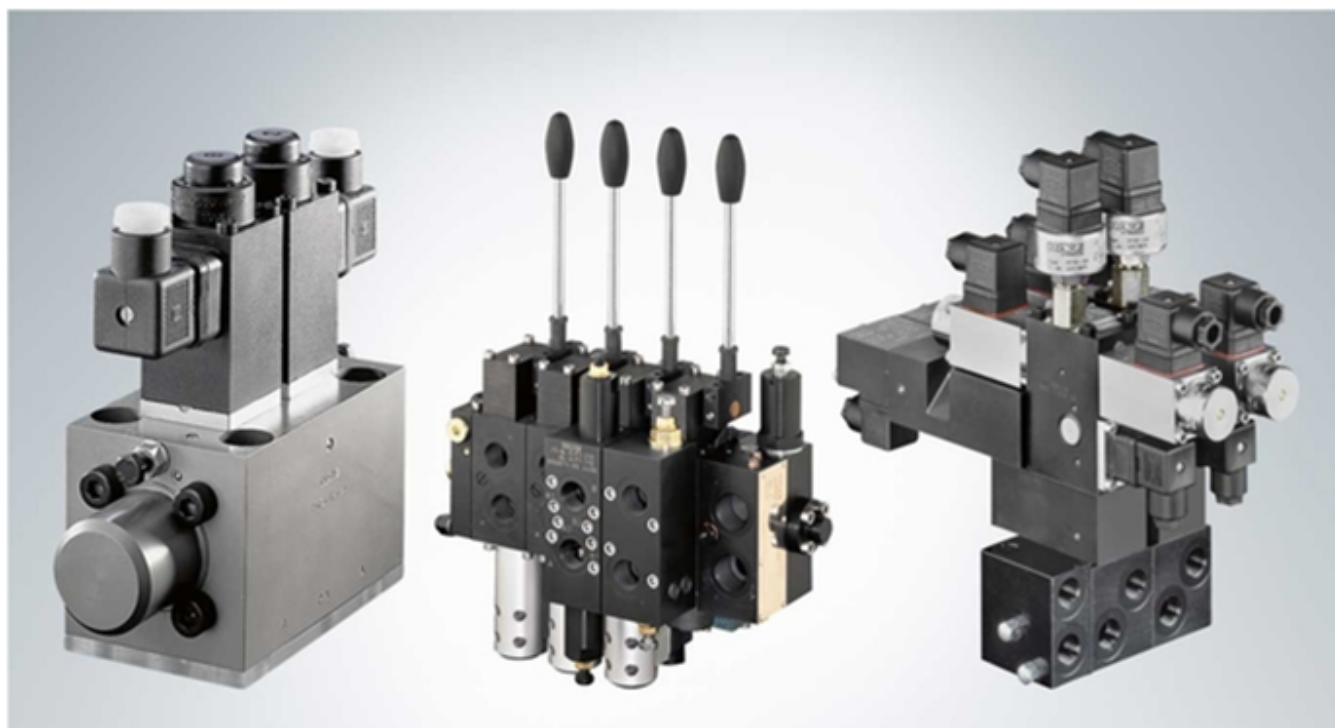
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HAWE

HYDRAULIK

- Valves
- Pumps
- Cylinders
- Motors



**Hawe Hydraulik products
are now available at HSC**



Stock Item Catalog

Only items we stock are shown in this catalog (Some exceptions, see below). If you do not find what you are looking for, please contact us. We should be able to help you. A substantial percentage of our sales is for "non-stock" items.

Normal and Bold fonts, and bullets are used in the tables to specify where the item is stocked:

- | | |
|------------------------------|---|
| Normal Catalog Part No. | Item is stocked only at our Distribution Center. |
| Bold Catalog Part No. | Item is stocked at our Distribution Center and at <u>every</u> branch location. |
| • Bulleted Catalog Part No. | Item is stocked at our Distribution Center and at <u>certain</u> branch locations.
(All are subject to change) |

Some Non-Stock Items Shown

An underlined Model Number or Part Number in the second column in the tables designates a non-stock item. Any table with non-stock items in it will have a note that calls this to your attention.

Dimensions

All dimensions are in inches unless stated otherwise.

Weights

All weights are in pounds. All weights are unit weights, unless stated otherwise.
Weight listed on some products may vary due to different packaging used by product manufacturer.

Prices

Prices are not shown. For your current price, contact Customer Service, or visit our web site at www.hydraulic-supply.com and click on "Join" to access the e-commerce features of our site.

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Digital Stock Products Catalog

This catalog is also available digitally on a CD or from our web site. The digital version uses Adobe Acrobat Reader software. A powerful Search Index is included which can rapidly locate products when using the Search feature. Catalog CD's may be requested by phone (800-507-9651), by fax (954-845-9113) or downloaded on-line at <http://www.hydraulic-supply.com>.

Abbreviations and Symbols Used

@	At	ft.	Feet	%	Percent
Cd.	Code	gpm	Gallons per minute	Pkg.	Package
cc	Cubic centimeter	Hz	Hertz	PSI	Pounds per square inch
cSt	Centistokes	I.D.	Inside diameter	Qty.	Quantity
cu.in.	Cubic inch	in.	Inch	rpm	Revolutions per minute
cu.in./rev	Cubic inch per revolution	in./Hg.	Inches of mercury	sq.in.	Square inches
Dec.	Decimal	lb	Pounds	ss	Stainless steel
deg.F.	Degrees Farenheit	lb-ft	Foot pounds	St.Thd.	Straight thread
°	Degrees	lb-in	Inch pounds	SUS	Saybolt Universal Seconds
°F	Degrees Farenheit	Min.	Minimum	Temp.	Temperature
Dia.	Diameter	Max.	Maximum	Wt.	Weight
ΔP	Differential Pressure	mm	Millimeter		
Displ.	Displacement	Nom.	Nominal		
Freq.	Frequency	O.D.	Outside diameter		

Ordering Information

Hydraulic Power & Control

Product Selection & Application

The determination and methods of the use, suitability, installation and design application for the parts and assemblies we sell is the responsibility of the purchaser.

Hose conforms to the specification and requirements specified by the hose manufacturer.

If you need specific product information on our products or assemblies, we are glad to provide it upon request.

We also have available, upon request, brochures and information regarding general use and safety issues for hydraulic products and assemblies.

Warranty

Our warranty is in this catalog (page 70), on our credit application, on our web site, and is available at all our local stores and on request. We provide our warranty or we extend the manufacturer's warranty where applicable.



Hose Application Warnings

Agency and industry standards may apply to your application. It is your responsibility to decide what regulations and/or standards apply, and inform us. We will then advise you if the products selected meet those standards.

Improper selection, installation and/or routing may significantly shorten the life of a hydraulic hose, which could result in hose rupture and failure, which may then result in serious personal injury or property damage.

Most hydraulic fluids are flammable and proper safeguards have to be taken to contain any fluid if a hose failure occurs in an environment with a source of ignition.

Hoses have a service life, and high, repetitive shock reduces hose service life. You need to inspect and change out hoses within their service life for your application or hose rupture and failure may occur.

S. T. A. M. P. - You must consider the **Size**, **Temperature**, **Application**, **Medium** and **Pressure** when selecting hose and hose fittings.

For your application, review the **Important Safety Information** starting on page 1509 .

If you don't already have the proper training or information, ask for:

Eaton/Aeroquip Fluid Conveyance Products Catalog A-HOOV-MC001-E1

Warnings - pages 11-12

Fluid Compatibility - pages 349-355 (this catalog page 1511)

SAE Recommended Practices (SAE J1273) - page 356 (this catalog page 1509)

Hose Routing & Installation - page 359 (this catalog page 1518)

Thread Style Pressure Performance - page 376 (this catalog page 1503)

Aeroquip's "How to Identify Fluid Ports and Connectors" (E-SROV-TS009-E)

Aeroquip's "Matchmate Plus™ The 3 Minute Crimp Hose Assembly System" (A-HX-MC-001-E)

Aeroquip's "Routing Hose and Tubing" (JA412)

Aeroquip's "Performance Products" (A-SPPE-MC001-E2)

Eaton/Aeroquip catalogs are also available for download at <http://hydraulics.eaton.com/products/>

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Ordering Information

Placing an Order

By Phone **800-507-9651** Toll-free from USA and the Caribbean.
 954-845-1040 Local phone number.
 800-507-9651 24 hour Emergency Service.

By Fax or E-Mail or Mail

When ordering by fax (**954-845-9113**) or E-mail (**sales@hydraulic-supply.com**) or Mail, please be sure to include the following:

Purchase Order Number (if we need one).

Your name, area code, phone number, fax number and e-mail address.

"Ship to" address if different from "Bill to".

Shipping instructions (carrier).

Complete catalog description including catalog part number, model number, quantity, etc.

If it's your policy to issue a confirming order following phone orders, please mark the order "confirming".

Mailing Address - Hydraulic Supply Co. 300 International Parkway Sunrise, FL 33325.

By visiting a branch office Local service is provided at our branch locations listed on page 73 .

By Internet Visit Our web site at www.hydraulic-supply.com and click on "Join" to access the e-commerce features of our site

By EDI Please call for details.

By Bin Management System / Modem Please call for details.

Minimum Order No minimum order is required.

Opening an Account

Fill out credit application on page 71 and fax in.

If purchases are exempt from Florida sales tax, please furnish a signed copy of your Annual Resale Certificate (Form DR-13).

In Georgia, please furnish a signed copy of your Georgia State Sales Tax Exemption Certificate.

In Tennessee, please furnish a signed copy of your Tennessee Department of Revenue Blanket Certificate of Resale.

Credit Cards We accept MasterCard, Visa and American Express.

Same Day Shipping Orders placed by 4pm will ship the same day.
 Orders placed after 4pm can ship same day provided special arrangements are made.

Quotations If you need a written quotation, please let us know.

Terms & Conditions See page 70 .

Note: Some items are only available for sale in our Approved Trading Areas.

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Terms & Conditions

Hydraulic Power & Control

Pricing - Prices shown in this catalog are subject to change without notice and are not to be construed as a definite quotation or offer to sell by Hydraulic Supply Co. This catalog is maintained only as a source of general information, and any prices shown herein are subject to confirmation with a specific quotation. Orders are billed at the prices in effect at the time of shipment. Prices are FOB Factory.

Specifications - Specifications are subject to change without notice.

Cross Reference Information - Product cross-reference comparisons do not imply that all products compared are available, or in the case of functional equivalency, that performance and other characteristics are exactly comparable. For critical applications, review specifications prior to purchase.

Quotations - Quotations on large quantities are available on request. All written quotations automatically expire within thirty (30) days from the date quoted.

Taxes - Hydraulic Supply Co. is required to charge state and local tax on items for which a sales tax exemption certificate has not been provided.

Freight Policy - Unless otherwise requested by the buyer, material will be shipped via carriers of our choice with shipping, handling and packaging charges prepaid and added to the invoice. Note: We only insure if specifically requested by the buyer, with insurance charges prepaid and added to the invoice.

Order Cancellation - Any cancellation must be approved by Hydraulic Supply Co., and may be subject to restocking and other charges.

Payment Terms - Payment terms to Customers with satisfactory credit are Net 30 Days, meaning payment is due within 30 days from date of invoice. Customers agree to collection and/or attorney fees not exceeding 30% of amount past due in case of default of payment.

Damaged Shipment - Merchandise shipped is carefully packed in compliance with carrier requirements. Title and risk of loss pass to the customer upon tender of shipment to the carrier. If product is damaged in transit, consignee must file claim with the carrier.

Shortages - All claims for shortage or shipment errors must be made within 10 days after receipt of shipment.

Returned Material Policy - We will normally accept returned material under the following conditions: A copy of the invoice is furnished. The material is returned within 30 days from date of invoice. The material is in new resalable condition (unused, unpainted, etc.). The material is normal stock for us (not special order). Please call for a Return Authorization Number (RMA) prior to returning any material. Returned material must be accompanied with the RMA Number.

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Limited Warranty - Seller warrants for 90 days from the date of sale that the equipment sold, as described hereon, shall be free from defects in material and workmanship. Seller's liability under this warranty is limited to repair or replacement of any part or parts of said equipment which shall be returned to seller, shipping charges prepaid and which seller's examination discloses to its sole satisfaction to be defective. This is seller's only warranty. By accepting the equipment under this warranty, buyer acknowledges that said equipment is being sold under no other written or oral warranties, neither expressed or implied, of any kind whatsoever such as, but not necessarily limited to, warranty of merchantability of fitness.

Warranty Disclaimer - Hydraulic Supply Co. has made a great effort to illustrate and describe the products in this catalog accurately. However, such illustrations and descriptions are for the sole purpose of identification, and do not express or imply a warranty that the products are MERCHANTABLE, or FIT FOR A PARTICULAR PURPOSE, or that the products will necessarily conform to the illustrations or descriptions. No warranty or affirmation of fact, express or implied, other than as set forth in the limited warranty statement above is made or authorized by Hydraulic Supply Co.

Repair Warranty - All repairs are warranted for 90 days from the date of invoice. This warranty is limited to the cost of the repair only.

Limitation of Liability - Any liability for consequential and incidental damages is expressly disclaimed. Hydraulic Supply Co.'s liability in all events is limited to, and shall not exceed, the purchase price paid.

Manufacturers' Warranties / MSDS Sheets - Most of the products listed in this catalog are warranted by their manufacturer. Copies of such warranties are available free of charge. Requests should include the catalog part number (if any) and the manufacturer's model number for each item involved. Material Safety Data Sheets (MSDS) are also available upon request. Address requests to: Hydraulic Supply Co., 300 Int'l Pkwy, Sunrise, FL 33325.

*** NOTE ***

Please see our website for the most up-to-date terms:
<http://www.hydraulic-supply.com/html/terms.htm>



Credit Application

Request by: Name: _____ E-mail: _____

Billing Information:

Company Name: _____

Street Address: _____

City: _____ State: _____ Zip: _____

Telephone: _____ Fax: _____

Contact: _____ E-mail: _____

Shipping Information:

Company Name: _____

Street Address: _____

City: _____ State: _____ Zip: _____

Telephone: _____ Fax: _____

Contact: _____ E-mail: _____

Company Information:

Accounts Payable Contact: _____

Sales Contact: _____

Line of Business: _____ Year Established: _____

Size of Business (Small/Large): _____ Own/Rent/Lease: _____

Length of time at present address: _____ Number of employees: _____

Anticipated amount of monthly credit: _____ Owner/President: _____

Secretary: _____ Treasurer: _____

Please indicate FL/GA/NC/SC/TN/AL Sales Tax Status: Charge tax (Yes/No): ____ Is Purchase Order Required (Yes/No): ____

Trade References:

#1: Company Name: _____ Contact: _____

Street Address: _____

City: _____ State: _____ Zip: _____

Telephone: _____ Fax: _____ E-mail: _____

#2: Company Name: _____ Contact: _____

Street Address: _____

City: _____ State: _____ Zip: _____

Telephone: _____ Fax: _____ E-mail: _____

#3: Company Name: _____ Contact: _____

Street Address: _____

City: _____ State: _____ Zip: _____

Telephone: _____ Fax: _____ E-mail: _____

Payment Terms Our terms are Net 30 Days, meaning payment is due within 30 days from date of invoice. In case of default of payment, customers agree to collection and/or attorney fees not exceeding 30% of amount past due.

Returned Material Policy We will normally accept returned material under the following conditions: 1. A copy of the invoice is furnished. 2. The material is returned within 30 days from date of invoice. 3. The material is in new resalable condition (unused, unpainted, etc.). 4. The material is normal stock for us (not special order). Returned material should be paid for when due. Restocking charges may apply.

Retained Title / Warranty Our invoice contains a retained title and warranty as follows:

The buyer hereby grants to Aero Hardware & Supply, Inc. a security interest in the equipment described in this invoice. To secure the debtor's payment for the equipment, title to said equipment shall remain in the seller until payment in full is made by the buyer. If the buyer defaults in such payment, the seller may declare all sums payable by the buyer hereunder immediately due payable and the seller may replevin the equipment and or exercise all of the rights and remedies of a secured party under the Uniform Commercial Code. Reasonable attorney's fees of the secured party in enforcing any right or exercising any remedy hereunder upon default of the buyer shall be paid to the seller by the buyer.

Seller warrants for 90 days from the date of sale that the equipment sold, as described hereon, shall be free from defects in material and workmanship. Seller's liability under this warranty is limited to repair or replacement of any part or parts of said equipment which shall be returned to seller, shipping charged prepaid and which seller's examination discloses to its sole satisfaction to be defective. This is seller's only warranty. By accepting the equipment under this warranty, buyer acknowledges that said equipment is being sold under no other written or oral warranties, neither expressed or implied, of any kind whatsoever such as, but not necessarily limited to, warranty of merchantability of fitness.

If you have any questions concerning our policy, please give us a call.

We authorize Hydraulic Supply Co. to obtain information from our bank and from our creditors. We further understand that this information will be confidential.

Applicant's Signature: _____ Date: _____

Applicant's Title: _____

HSC Credit Fax Number: (954) 851-9865





Representative Lines

Hydraulic Power & Control	Accumulators, Inc. Adaptall Aeroquip® Air Logic AIRTEC Pneumatics Alemite Alkon Allied Witan American Couplings American Cylinder Anchor Brass Anchor Fluid Power Anderson Brass Apollo® Aro® (Ingersoll-Rand) Arrow Hose (Eaton) Ashcroft Attica Hydraulic Auburn Gear Ausco Products BSF Inc. Band-It Barco Barksdale Black Bruin Brennan Industries Boston Industrial Hose (Eaton) Brand Hydraulics Canfield Connector C.W. Mill Equipment Char-Lynn® (Eaton) Concentric AB Cross Manufacturing Cylinders & Valves	Daman Products David Brown Delsteel Delta Power Hydraulic Deltrol Fluid Products Dill Tire Service Products Dixon Valve & Coupling DMIC Doering Company Durst Power Transmission ENFM Eaton Corporation Enerpac Europower Felsted Flexfab Flo-Ezy Filters Flo-Tork Fulflo Specialties Funk Mfg. Galtech Generant Company Hannay Reels Hawe HDM Hydraulics Hedland Products Helland (Zero-Max) Hercules Sealing Products Hetricon USA Hub City Husco Hyco Hydra-Zorb	Hydreco Hypac Hypro Ingersoll-Rand / ARO® Jefferson Solenoid Valves Kar-Tech Kawasaki Kinedyne Kocsis Technologies Kuriyama L & L Fittings Lantec Industries Lincoln Lube Lindermere Copper Tubing Lion Lovejoy Lube Devices Magnaloy Coupling Marion Manufacturing Maurey Manufacturing Mazzer Industries Midway Manufacturing Mobil Oil Monarch Industries Muncie Power Products Oetiker Pacific Echo Permco PowerTeam/SPX Pressure Devices Pullmaster Rawson-Koenig Winch Ray Snubbers Red Lion	Reel Craft Industries SAI Hydraulics Salami Schroeder SLI (Control Enterprises) Snap Tite Spartan Scientific Speciality Fittings America SPX SSP Fittings SSP Instrumentation Staffa® (Kawasaki) Stauff Stone/SPX Sun-Flow Synflex® (Eaton) TR Engineering Telepneumatic (Parker) Thermal Transfer Tobul Accumulator Trident Marine Vector Engineering Vescor Vickers® Voss Walterscheid® (Eaton) Walvoil Ward Manufacturing Williams Controls Winner® (Eaton) Winzeler Brass World Wide Fittings Yates Industries Zeromax / Helland
Pneumatic Power & Control				
Fluid Conveying				
Miscellaneous Products				

Factory Authorized Repair Services

Manufacturer	Service Program
Alemite	Service Center
Char-Lynn®	Service Center
Enerpac	Service Center
Hein-Werner	Service Center
SPX Power Team	Service Center
Stanley	Warranty Repair Location, Handheld Tools and Railroad Tools
Vickers	QA Service Center



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300 International Parkway
Sunrise, FL 33325

Tel: (800) 507-9651
Fax: (954) 845-9113

Hours
Mon-Fri 8am-5pm

FLORIDA BRANCH LOCATIONS

Belle Glade

326 S.E. 1st Street
Belle Glade, FL 33430
Tel: 561-996-4431 Fax: 561-996-8531
Hours: Mon-Fri 7:30am-5pm Repair: No

Miami Springs

4301 N.W. 36th Street
Miami Springs, FL 33166-7396
Tel: 305-888-2415 Fax: 305-884-4066
Hours: Mon-Fri 7:30am-5pm Repair: No
Sat 8am-12noon

Ft. Lauderdale

2601 S.W. 2nd Avenue
Ft. Lauderdale, FL 33315-3115
Tel: 954-463-6460 Fax: 954-463-3635
Hours: Mon-Fri 7:30am-5pm Repair: No
Sat 8am-12noon

Naples

4376 Corporate Square Blvd #2 & #3
Naples, FL 34104
Tel: 239-435-1642 Fax: 239-643-2985
Hours: Mon-Fri 8:00am-5pm Repair: No

Ft. Myers

12900 Metro Parkway
Ft. Myers, FL 33966
Tel: 239-274-9229 Fax: 239-274-0225
Hours: Mon-Fri 7:30am-5pm Repair: No
Sat 8am-12noon

Orlando

680 Montgomery Street
Orlando, FL 32808-8193
Tel: 407-295-4537 Fax: 407-291-9982
Hours: Mon-Fri 7:30am-5pm Repair: Yes

Homestead

51 S.E. 3rd Terrace
Florida City, FL 33034
Tel: 305-248-3713 Fax: 305-248-3742
Hours: Mon-Fri 7:30am-5pm Repair: No

Pompano

2600 W. Sample Rd.
Pompano Beach, FL 33073
Tel: 954-973-5900 Fax: 954-973-4070
Hours: Mon-Fri 7:30am-5pm Repair: No
Sat 8am-12noon

Jacksonville

30 South Lane Avenue
Jacksonville, FL 32254-3522
Tel: 904-783-4401 Fax: 904-781-9636
Hours: Mon-Fri 8:00am-5pm Repair: Yes
Sat 8am-12noon

Tampa

7200 Dr. Martin Luther King Jr. Blvd
Tampa, FL 33619-1130
Tel: 813-621-0790 Fax: 813-628-0667
Hours: Mon-Fri 7:30am-5pm Repair: Yes

Lakeland

3222 Winter Lake Rd. Bays 9-10
Lakeland, FL 33803
Tel: 863-665-3589 Fax: 863-665-3758
Hours: Mon-Fri 7:30am-5pm Repair: No

West Palm Beach

7680 Central Industrial Drive
West Palm Beach, FL 33404-3432
Tel: 561-863-6258 Fax: 561-863-6034
Hours: Mon-Fri 7:30am-5pm Repair: No

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GEORGIA BRANCH LOCATIONS

Atlanta (Forest Park)

937 Forest Parkway
Forest Park, GA 30297
Tel: 404-608-0995 Fax: 404-608-1055
Hours: Mon-Fri 8:00am-5pm Repair: No

Atlanta (Mableton)

6310 Mableton Parkway Suite 100
Mableton, GA 30126
Tel: 678-398-6673 Fax: 678-398-6817
Hours: Mon-Fri 7:30am-5pm Repair: No

Atlanta (Marietta)

1200 Cobb Parkway N, Suite 500
Marietta, GA 30062
Tel: 678-290-9227 Fax: 678-290-9265
Hours: Mon-Fri 8:00am-5:00pm Repair: No

Augusta

2722 Mike Padgett Hwy, Lot A
Augusta, GA 30906
Tel: 706-790-0628 Fax: 706-790-7043
Hours: Mon-Fri 7:30am-5pm Repair: No

Columbus

6440 West Hamilton Park Drive, Suite J
Columbus, GA 31904
Tel: 706-322-0707 Fax: 706-322-7430
Hours: Mon-Fri 8:00am-5pm Repair: No

Savannah

1370 US Hwy 80 East
Suites I & J
Pooler, GA 31322
Tel: 912-965-6771 Fax: 912-965-9219
Hours: Mon-Fri 7:30am-5pm Repair: No

NORTH CAROLINA BRANCH LOCATIONS

Charlotte

646 Westinghouse Blvd
Charlotte, NC 28273
Tel: 423-553-8854 Fax: 423-553-8995
Hours: Mon-Fri 8:00am-5pm Repair: No
Sat 8am-12noon

Greensboro

3004 S. Elm Eugene Street
Greensboro, NC 27406
Tel: 706-322-0707 Fax: 706-322-7430
Hours: Mon-Fri 8:00am-5pm Repair: No

SOUTH CAROLINA BRANCH LOCATIONS

Columbia

1633 Key Road
Columbia, SC 29201
Chattanooga, TN 37421
Tel: 803-567-4098 Fax: 803-567-4099
Hours: Mon-Fri 7:30am-5pm Repair: No

TENNESSEE BRANCH LOCATIONS

Chattanooga

Shallowford Business Park
5959 Shallowford Rd. Suite 111
Chattanooga, TN 37421
Tel: 423-553-8854 Fax: 423-553-8995
Hours: Mon-Fri 8:00am-5pm Repair: No



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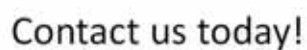
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Pumps & Accessories

Single Hydraulic Pumps • Fixed Displacement
Vickers V10 Series Vane Pumps • To 10.5 GPM @ 1800 RPM

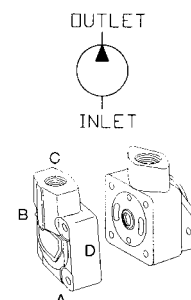


Vickers® V10 Vane Pumps



Mounting Flange: 2-Bolt SAE A or 2-Bolt SAE B Mounting Flange.
Porting: NPT: 1" NPT Inlet, 1/2" NPT Outlet. SAE: 1-5/16-12 Straight Thread Inlet, 3/4-16 Straight Thread Outlet.
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Pumps are available as shown in table.

Additional configurations available for delivery in 24-48 hours.

See Model Codes page to select a different configuration.

Items ending with "-B" are assembled and tested in-house using genuine Eaton/Vickers parts and are not painted.

Vickers® V10 Vane Pumps

Catalog Part No.	Vickers Part No. See Note Above	Vickers Model Code. See Note Above	Shaft	Ports	Displ	Ring Size 1200 RPM	Flow GPM 1800 RPM	Outlet Position	Rot.	Max. PSI & Max. RPM	Wt.	Price Each
C1LD24	382061-1-B	V10-1P1P-11A20	9 Tooth SAE A Splined	NPT	0.2	01	1.55	Opposite Inlet Port	CW	2500 PSI 4800 RPM	15.00	
C1LD25	382061-5-B	V10-1P1P-11A20-LH	9 Tooth SAE A Splined	NPT	0.2	01	1.55	Opposite Inlet Port	CCW	2500 PSI 4800 RPM	15.00	
C1LD26	382061-2-B	V10-1P1P-11B20	9 Tooth SAE A Splined	NPT	0.2	01	1.55	90° CCW from Inlet	CW	2500 PSI 4800 RPM	15.00	
C1LD27	382061-6-B	V10-1P1P-11B20-LH	9 Tooth SAE A Splined	NPT	0.2	01	1.55	90° CW from Outlet	CCW	2500 PSI 4800 RPM	15.00	
C1LD28	382061-3-B	V10-1P1P-11C20	9 Tooth SAE A Splined	NPT	0.2	01	1.55	in-Line with Inlet	CW	2500 PSI 4800 RPM	15.00	
C1LD29	382061-7-B	V10-1P1P-11C20-LH	9 Tooth SAE A Splined	NPT	0.2	01	1.55	in-Line with Inlet	CCW	2500 PSI 4800 RPM	15.00	
C1LD30	382061-4-B	V10-1P1P-11D20	9 Tooth SAE A Splined	NPT	0.2	01	1.55	90° CW from Inlet	CW	2500 PSI 4800 RPM	15.00	
C1LD31	382061-8-B	V10-1P1P-11D20-LH	9 Tooth SAE A Splined	NPT	0.2	01	1.55	90° CW from Inlet	CCW	2500 PSI 4800 RPM	15.00	
C1LD32	586376-1-B	V10-1P1P-12A20	13 Tooth SAE B Splined	NPT	0.2	01	1.55	Opposite Inlet Port	CW	2500 PSI 4800 RPM	15.00	
C1LD33	586376-5-B	V10-1P1P-12A20-LH	13 Tooth SAE B Splined	NPT	0.2	01	1.55	Opposite Inlet Port	CCW	2500 PSI 4800 RPM	15.00	
C1LD34	586376-2-B	V10-1P1P-12B20	13 Tooth SAE B Splined	NPT	0.2	01	1.55	90° CCW from Inlet	CW	2500 PSI 4800 RPM	15.00	
C1LD35	586376-6-B	V10-1P1P-12B20-LH	13 Tooth SAE B Splined	NPT	0.2	01	1.55	90° CW from Outlet	CCW	2500 PSI 4800 RPM	15.00	
C1LD36	586376-3-B	V10-1P1P-12C20	13 Tooth SAE B Splined	NPT	0.2	01	1.55	in-Line with Inlet	CW	2500 PSI 4800 RPM	15.00	
C1LD37	586376-7-B	V10-1P1P-12C20-LH	13 Tooth SAE B Splined	NPT	0.2	01	1.55	in-Line with Inlet	CCW	2500 PSI 4800 RPM	15.00	
C1LD38	586376-4-B	V10-1P1P-12D20	13 Tooth SAE B Splined	NPT	0.2	01	1.55	90° CW from Inlet	CW	2500 PSI 4800 RPM	15.00	
C1LD39	586376-8-B	V10-1P1P-12D20-LH	13 Tooth SAE B Splined	NPT	0.2	01	1.55	90° CW from Inlet	CCW	2500 PSI 4800 RPM	15.00	



Pumps & Accessories

Single Hydraulic Pumps • Fixed Displacement
Vickers V10 Series Vane Pumps • To 10.5 GPM @ 1800 RPM



Vickers® V10 Vane Pumps

Catalog Part No.	Vickers Part No. See Note Above	Vickers Model Code. See Note Above	Shaft	Ports	Displ	Ring Size 1200 RPM	Flow GPM 1800 RPM	Outlet Position	Rot.	Max. PSI & Max. RPM	Wt.	Price Each
C1LD40	375655-1-B	V10-1P1P-1A20	3/4 Straight Keyed	NPT	0.2	01	1.55	Opposite Inlet Port	CW	2500 PSI 4800 RPM	15.00	
C1LD41	375655-5-B	V10-1P1P-1A20-LH	3/4 Straight Keyed	NPT	0.2	01	1.55	Opposite Inlet Port	CCW	2500 PSI 4800 RPM	15.00	
C1LD42	375655-2-B	V10-1P1P-1B20	3/4 Straight Keyed	NPT	0.2	01	1.55	90° CCW from Inlet	CW	2500 PSI 4800 RPM	15.00	
C1LD43	375655-6-B	V10-1P1P-1B20-LH	3/4 Straight Keyed	NPT	0.2	01	1.55	90° CW from Outlet	CCW	2500 PSI 4800 RPM	15.00	
C1LD44	375655-3-B	V10-1P1P-1C20	3/4 Straight Keyed	NPT	0.2	01	1.55	in-Line with Inlet	CW	2500 PSI 4800 RPM	15.00	
C1LD45	375655-7-B	V10-1P1P-1C20-LH	3/4 Straight Keyed	NPT	0.2	01	1.55	in-Line with Inlet	CCW	2500 PSI 4800 RPM	15.00	
C1LD46	375655-4-B	V10-1P1P-1D20	3/4 Straight Keyed	NPT	0.2	01	1.55	90° CW from Inlet	CW	2500 PSI 4800 RPM	15.00	
C1LD47	375655-8-B	V10-1P1P-1D20-LH	3/4 Straight Keyed	NPT	0.2	01	1.55	90° CW from Inlet	CCW	2500 PSI 4800 RPM	15.00	
C1LD48	574768-1-B	V10-1P1P-38A20	3/4 - 11 Tooth Splined	NPT	0.2	01	1.55	Opposite Inlet Port	CW	2500 PSI 4800 RPM	15.00	
C1LD49	574768-5-B	V10-1P1P-38A20-LH	3/4 - 11 Tooth Splined	NPT	0.2	01	1.55	Opposite Inlet Port	CCW	2500 PSI 4800 RPM	15.00	
C1LD50	574768-2-B	V10-1P1P-38B20	3/4 - 11 Tooth Splined	NPT	0.2	01	1.55	90° CCW from Inlet	CW	2500 PSI 4800 RPM	15.00	
C1LD51	574768-6-B	V10-1P1P-38B20-LH	3/4 - 11 Tooth Splined	NPT	0.2	01	1.55	90° CW from Outlet	CCW	2500 PSI 4800 RPM	15.00	
C1LD52	574768-3-B	V10-1P1P-38C20	3/4 - 11 Tooth Splined	NPT	0.2	01	1.55	in-Line with Inlet	CW	2500 PSI 4800 RPM	15.00	
C1LD53	574768-7-B	V10-1P1P-38C20-LH	3/4 - 11 Tooth Splined	NPT	0.2	01	1.55	in-Line with Inlet	CCW	2500 PSI 4800 RPM	15.00	
C1LD54	574768-4-B	V10-1P1P-38D20	3/4 - 11 Tooth Splined	NPT	0.2	01	1.55	90° CW from Inlet	CW	2500 PSI 4800 RPM	15.00	
C1LD55	574768-8-B	V10-1P1P-38D20-LH	3/4 - 11 Tooth Splined	NPT	0.2	01	1.55	90° CW from Inlet	CCW	2500 PSI 4800 RPM	15.00	
C1LF70	588681-1-B	V10-1S1S-11A20	9 Tooth SAE A Splined	SAE	0.2	01	1.55	Opposite Inlet Port	CW	2500 PSI 4800 RPM	15.00	
C1LF71	588681-5-B	V10-1S1S-11A20-LH	9 Tooth SAE A Splined	SAE	0.2	01	1.55	Opposite Inlet Port	CCW	2500 PSI 4800 RPM	15.00	
C1LF72	588681-2-B	V10-1S1S-11B20	9 Tooth SAE A Splined	SAE	0.2	01	1.55	90° CCW from Inlet	CW	2500 PSI 4800 RPM	15.00	
C1LF73	588681-6-B	V10-1S1S-11B20-LH	9 Tooth SAE A Splined	SAE	0.2	01	1.55	90° CW from Outlet	CCW	2500 PSI 4800 RPM	15.00	
C1LF74	588681-3-B	V10-1S1S-11C20	9 Tooth SAE A Splined	SAE	0.2	01	1.55	in-Line with Inlet	CW	2500 PSI 4800 RPM	15.00	
C1LF75	588681-7-B	V10-1S1S-11C20-LH	9 Tooth SAE A Splined	SAE	0.2	01	1.55	in-Line with Inlet	CCW	2500 PSI 4800 RPM	15.00	
C1LF76	588681-4-B	V10-1S1S-11D20	9 Tooth SAE A Splined	SAE	0.2	01	1.55	90° CW from Inlet	CW	2500 PSI 4800 RPM	15.00	
C1LF77	588681-8-B	V10-1S1S-11D20-LH	9 Tooth SAE A Splined	SAE	0.2	01	1.55	90° CW from Inlet	CCW	2500 PSI 4800 RPM	15.00	
C1LF78	452506-1-B	V10-1S1S-12A20	13 Tooth SAE B Splined	SAE	0.2	01	1.55	Opposite Inlet Port	CW	2500 PSI 4800 RPM	15.00	
C1LF79	452506-5-B	V10-1S1S-12A20-LH	13 Tooth SAE B Splined	SAE	0.2	01	1.55	Opposite Inlet Port	CCW	2500 PSI 4800 RPM	15.00	
C1LF80	452506-2-B	V10-1S1S-12B20	13 Tooth SAE B Splined	SAE	0.2	01	1.55	90° CCW from Inlet	CW	2500 PSI 4800 RPM	15.00	
C1LF81	452506-6-B	V10-1S1S-12B20-LH	13 Tooth SAE B Splined	SAE	0.2	01	1.55	90° CW from Outlet	CCW	2500 PSI 4800 RPM	15.00	
C1LF82	452506-3-B	V10-1S1S-12C20	13 Tooth SAE B Splined	SAE	0.2	01	1.55	in-Line with Inlet	CW	2500 PSI 4800 RPM	15.00	



This page is part of a complete catalog which contains technical and safety data that must be reviewed when selecting a product

Pumps & Accessories



Single Hydraulic Pumps • Fixed Displacement
Vickers V10 Series Vane Pumps • To 10.5 GPM @ 1800 RPM



Vickers® V10 Vane Pumps

Catalog Part No.	Vickers Part No. See Note Above	Vickers Model Code. See Note Above	Shaft	Ports	Displ	Ring Size 1200 RPM	Flow GPM 1800 RPM	Outlet Position	Rot.	Max. PSI & Max. RPM	Wt.	Price Each
C1LF83	452506-7-B	V10-1S1S-12C20-LH	13 Tooth SAE B Splined	SAE	0.2	01	1.55	in-Line with Inlet	CCW	2500 PSI 4800 RPM	15.00	
C1LF84	452506-4-B	V10-1S1S-12D20	13 Tooth SAE B Splined	SAE	0.2	01	1.55	90° CW from Inlet	CW	2500 PSI 4800 RPM	15.00	
C1LF85	452506-8-B	V10-1S1S-12D20-LH	13 Tooth SAE B Splined	SAE	0.2	01	1.55	90° CW from Inlet	CCW	2500 PSI 4800 RPM	15.00	
C1LF86	386496-1-B	V10-1S1S-1A20	3/4 Straight Keyed	SAE	0.2	01	1.55	Opposite Inlet Port	CW	2500 PSI 4800 RPM	15.00	
C1LF87	386496-5-B	V10-1S1S-1A20-LH	3/4 Straight Keyed	SAE	0.2	01	1.55	Opposite Inlet Port	CCW	2500 PSI 4800 RPM	15.00	
C1LF88	386496-2-B	V10-1S1S-1B20	3/4 Straight Keyed	SAE	0.2	01	1.55	90° CCW from Inlet	CW	2500 PSI 4800 RPM	15.00	
C1LF89	386496-6-B	V10-1S1S-1B20-LH	3/4 Straight Keyed	SAE	0.2	01	1.55	90° CW from Outlet	CCW	2500 PSI 4800 RPM	15.00	
C1LF90	386496-3-B	V10-1S1S-1C20	3/4 Straight Keyed	SAE	0.2	01	1.55	in-Line with Inlet	CW	2500 PSI 4800 RPM	15.00	
C1LF91	386496-7-B	V10-1S1S-1C20-LH	3/4 Straight Keyed	SAE	0.2	01	1.55	in-Line with Inlet	CCW	2500 PSI 4800 RPM	15.00	
C1LF92	386496-4-B	V10-1S1S-1D20	3/4 Straight Keyed	SAE	0.2	01	1.55	90° CW from Inlet	CW	2500 PSI 4800 RPM	15.00	
C1LF93	386496-8-B	V10-1S1S-1D20-LH	3/4 Straight Keyed	SAE	0.2	01	1.55	90° CW from Inlet	CCW	2500 PSI 4800 RPM	15.00	
C1LF94	503185-1-B	V10-1S1S-38A20	3/4 - 11 Tooth Splined	SAE	0.2	01	1.55	Opposite Inlet Port	CW	2500 PSI 4800 RPM	15.00	
C1LF95	503185-5-B	V10-1S1S-38A20-LH	3/4 - 11 Tooth Splined	SAE	0.2	01	1.55	Opposite Inlet Port	CCW	2500 PSI 4800 RPM	15.00	
C1LF96	503185-2-B	V10-1S1S-38B20	3/4 - 11 Tooth Splined	SAE	0.2	01	1.55	90° CCW from Inlet	CW	2500 PSI 4800 RPM	15.00	
C1LF97	503185-6-B	V10-1S1S-38B20-LH	3/4 - 11 Tooth Splined	SAE	0.2	01	1.55	90° CW from Outlet	CCW	2500 PSI 4800 RPM	15.00	
C1LF98	503185-3-B	V10-1S1S-38C20	3/4 - 11 Tooth Splined	SAE	0.2	01	1.55	in-Line with Inlet	CW	2500 PSI 4800 RPM	15.00	
C1LF99	503185-7-B	V10-1S1S-38C20-LH	3/4 - 11 Tooth Splined	SAE	0.2	01	1.55	in-Line with Inlet	CCW	2500 PSI 4800 RPM	15.00	
C1LG11	503185-4-B	V10-1S1S-38D20	3/4 - 11 Tooth Splined	SAE	0.2	01	1.55	90° CW from Inlet	CW	2500 PSI 4800 RPM	15.00	
C1LG12	503185-8-B	V10-1S1S-38D20-LH	3/4 - 11 Tooth Splined	SAE	0.2	01	1.55	90° CW from Inlet	CCW	2500 PSI 4800 RPM	15.00	
C1LJ32	719AR00047A-B	V10-6S1S-11C20-LH	9 Tooth SAE A Splined	SAE	0.2	01	1.55	in-Line with Inlet	CCW	2500 PSI 4800 RPM	15.00	
C1LJ40	719AR00053A-B	V10-6S1S-12C20-LH	13 Tooth SAE B Splined	SAE	0.2	01	1.55	in-Line with Inlet	CCW	2500 PSI 4800 RPM	15.00	
C1LD56	390902-1-B	V10-1P2P-11A20	9 Tooth SAE A Splined	NPT	0.4	02	3	Opposite Inlet Port	CW	2500 PSI 4500 RPM	12.00	
C1LD57	390902-5-B	V10-1P2P-11A20-LH	9 Tooth SAE A Splined	NPT	0.4	02	3	Opposite Inlet Port	CCW	2500 PSI 4500 RPM	12.00	
C1LD58	390902-2-B	V10-1P2P-11B20	9 Tooth SAE A Splined	NPT	0.4	02	3	90° CCW from Inlet	CW	2500 PSI 4500 RPM	12.00	
C1LD59	390902-6-B	V10-1P2P-11B20-LH	9 Tooth SAE A Splined	NPT	0.4	02	3	90° CW from Outlet	CCW	2500 PSI 4500 RPM	12.00	
C1LD60	390902-3-B	V10-1P2P-11C20	9 Tooth SAE A Splined	NPT	0.4	02	3	in-Line with Inlet	CW	2500 PSI 4500 RPM	12.00	
C1LD61	390902-7-B	V10-1P2P-11C20-LH	9 Tooth SAE A Splined	NPT	0.4	02	3	in-Line with Inlet	CCW	2500 PSI 4500 RPM	12.00	
C1LD62	390902-4-B	V10-1P2P-11D20	9 Tooth SAE A Splined	NPT	0.4	02	3	90° CW from Inlet	CW	2500 PSI 4500 RPM	12.00	
C1LD63	390902-8-B	V10-1P2P-11D20-LH	9 Tooth SAE A Splined	NPT	0.4	02	3	90° CW from Inlet	CCW	2500 PSI 4500 RPM	12.00	





Pumps & Accessories

Single Hydraulic Pumps • Fixed Displacement
Vickers V10 Series Vane Pumps • To 10.5 GPM @ 1800 RPM



Vickers® V10 Vane Pumps

Catalog Part No.	Vickers Part No. See Note Above	Vickers Model Code. See Note Above	Shaft	Ports	Displ	Ring Size 1200 RPM	Flow GPM 1800 RPM	Outlet Position	Rot.	Max. PSI & Max. RPM	Wt.	Price Each
C1LD64	452099-1-B	V10-1P2P-12A20	13 Tooth SAE B Splined	NPT	0.4	02	3	Opposite Inlet Port	CW	2500 PSI 4500 RPM	12.00	
C1LD65	452099-5-B	V10-1P2P-12A20-LH	13 Tooth SAE B Splined	NPT	0.4	02	3	Opposite Inlet Port	CCW	2500 PSI 4500 RPM	12.00	
C1LD66	452099-2-B	V10-1P2P-12B20	13 Tooth SAE B Splined	NPT	0.4	02	3	90° CCW from Inlet	CW	2500 PSI 4500 RPM	12.00	
C1LD67	452099-6-B	V10-1P2P-12B20-LH	13 Tooth SAE B Splined	NPT	0.4	02	3	90° CW from Outlet	CCW	2500 PSI 4500 RPM	12.00	
C1LD68	452099-3-B	V10-1P2P-12C20	13 Tooth SAE B Splined	NPT	0.4	02	3	in-Line with Inlet	CW	2500 PSI 4500 RPM	12.00	
C1LD69	452099-7-B	V10-1P2P-12C20-LH	13 Tooth SAE B Splined	NPT	0.4	02	3	in-Line with Inlet	CCW	2500 PSI 4500 RPM	12.00	
C1LD70	452099-4-B	V10-1P2P-12D20	13 Tooth SAE B Splined	NPT	0.4	02	3	90° CW from Inlet	CW	2500 PSI 4500 RPM	12.00	
C1LD71	452099-8-B	V10-1P2P-12D20-LH	13 Tooth SAE B Splined	NPT	0.4	02	3	90° CW from Inlet	CCW	2500 PSI 4500 RPM	12.00	
C1LD72	390102-1-B	V10-1P2P-1A20	3/4 Straight Keyed	NPT	0.4	02	3	Opposite Inlet Port	CW	2500 PSI 4500 RPM	12.00	
C1LD73	382075-5-B	V10-1P2P-1A20-LH	3/4 Straight Keyed	NPT	0.4	02	3	Opposite Inlet Port	CCW	2500 PSI 4500 RPM	12.00	
C1LD74	390102-2-B	V10-1P2P-1B20	3/4 Straight Keyed	NPT	0.4	02	3	90° CCW from Inlet	CW	2500 PSI 4500 RPM	12.00	
C1LD75	382075-6-B	V10-1P2P-1B20-LH	3/4 Straight Keyed	NPT	0.4	02	3	90° CW from Outlet	CCW	2500 PSI 4500 RPM	12.00	
C1LD76	382075-3-B	V10-1P2P-1C20	3/4 Straight Keyed	NPT	0.4	02	3	In-line with inlet ©	CW	2500 PSI 4500 RPM	10.52	
C1LD76	390102-3-B	V10-1P2P-1C20	3/4 Straight Keyed	NPT	0.4	02	3	in-Line with Inlet	CW	2500 PSI 4500 RPM	12.00	
C1LD77	382075-7-B	V10-1P2P-1C20-LH	3/4 Straight Keyed	NPT	0.4	02	3	in-Line with Inlet	CCW	2500 PSI 4500 RPM	12.00	
C1LD78	390102-4-B	V10-1P2P-1D20	3/4 Straight Keyed	NPT	0.4	02	3	90° CW from Inlet	CW	2500 PSI 4500 RPM	12.00	
C1LD79	382075-8-B	V10-1P2P-1D20-LH	3/4 Straight Keyed	NPT	0.4	02	3	90° CW from Inlet	CCW	2500 PSI 4500 RPM	12.00	
C1LD80	574736-1-B	V10-1P2P-38A20	3/4 - 11 Tooth Splined	NPT	0.4	02	3	Opposite Inlet Port	CW	2500 PSI 4500 RPM	12.00	
C1LD81	574736-5-B	V10-1P2P-38A20-LH	3/4 - 11 Tooth Splined	NPT	0.4	02	3	Opposite Inlet Port	CCW	2500 PSI 4500 RPM	12.00	
C1LD82	574736-2-B	V10-1P2P-38B20	3/4 - 11 Tooth Splined	NPT	0.4	02	3	90° CCW from Inlet	CW	2500 PSI 4500 RPM	12.00	
C1LD83	574736-6-B	V10-1P2P-38B20-LH	3/4 - 11 Tooth Splined	NPT	0.4	02	3	90° CW from Outlet	CCW	2500 PSI 4500 RPM	12.00	
C1LD84	574736-3-B	V10-1P2P-38C20	3/4 - 11 Tooth Splined	NPT	0.4	02	3	in-Line with Inlet	CW	2500 PSI 4500 RPM	12.00	
C1LD85	574736-7-B	V10-1P2P-38C20-LH	3/4 - 11 Tooth Splined	NPT	0.4	02	3	in-Line with Inlet	CCW	2500 PSI 4500 RPM	12.00	
C1LD86	574736-4-B	V10-1P2P-38D20	3/4 - 11 Tooth Splined	NPT	0.4	02	3	90° CW from Inlet	CW	2500 PSI 4500 RPM	12.00	
C1LD87	574736-8-B	V10-1P2P-38D20-LH	3/4 - 11 Tooth Splined	NPT	0.4	02	3	90° CW from Inlet	CCW	2500 PSI 4500 RPM	12.00	
C1LG13	382065-1-B	V10-1S2S-11A20	9 Tooth SAE A Splined	SAE	0.4	02	3	Opposite Inlet Port	CW	2500 PSI 4500 RPM	12.00	
C1LG14	382065-5-B	V10-1S2S-11A20-LH	9 Tooth SAE A Splined	SAE	0.4	02	3	Opposite Inlet Port	CCW	2500 PSI 4500 RPM	12.00	
C1LG15	382065-2-B	V10-1S2S-11B20	9 Tooth SAE A Splined	SAE	0.4	02	3	90° CCW from Inlet	CW	2500 PSI 4500 RPM	12.00	
C1LG16	382065-6-B	V10-1S2S-11B20-LH	9 Tooth SAE A Splined	SAE	0.4	02	3	90° CW from Outlet	CCW	2500 PSI 4500 RPM	12.00	



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Pumps & Accessories



Single Hydraulic Pumps • Fixed Displacement
Vickers V10 Series Vane Pumps • To 10.5 GPM @ 1800 RPM



Vickers® V10 Vane Pumps

Catalog Part No.	Vickers Part No. See Note Above	Vickers Model Code. See Note Above	Shaft	Ports	Displ	Ring Size 1200 RPM	Flow GPM 1800 RPM	Outlet Position	Rot.	Max. PSI & Max. RPM	Wt.	Price Each
C1LG17	382065-3-B	V10-1S2S-11C20	9 Tooth SAE A Splined	SAE	0.4	02	3	in-Line with Inlet	CW	2500 PSI 4500 RPM	12.00	
C1LG18	382065-7-B	V10-1S2S-11C20-LH	9 Tooth SAE A Splined	SAE	0.4	02	3	in-Line with Inlet	CCW	2500 PSI 4500 RPM	12.00	
C1LG19	382065-4-B	V10-1S2S-11D20	9 Tooth SAE A Splined	SAE	0.4	02	3	90° CW from Inlet	CW	2500 PSI 4500 RPM	12.00	
C1LG20	382065-8-B	V10-1S2S-11D20-LH	9 Tooth SAE A Splined	SAE	0.4	02	3	90° CW from Inlet	CCW	2500 PSI 4500 RPM	12.00	
C1LG29	382063-1-B	V10-1S2S-1A20	3/4 Straight Keyed	SAE	0.4	02	3	Opposite Inlet Port	CW	2500 PSI 4500 RPM	12.00	
C1LG30	382063-5-B	V10-1S2S-1A20-LH	3/4 Straight Keyed	SAE	0.4	02	3	Opposite Inlet Port	CCW	2500 PSI 4500 RPM	12.00	
C1LG31	382063-2-B	V10-1S2S-1B20	3/4 Straight Keyed	SAE	0.4	02	3	90° CCW from Inlet	CW	2500 PSI 4500 RPM	12.00	
C1LG32	382063-6-B	V10-1S2S-1B20-LH	3/4 Straight Keyed	SAE	0.4	02	3	90° CW from Outlet	CCW	2500 PSI 4500 RPM	12.00	
C1LG33	382063-3-B	V10-1S2S-1C20	3/4 Straight Keyed	SAE	0.4	02	3	in-Line with Inlet	CW	2500 PSI 4500 RPM	12.00	
C1LG34	382063-7-B	V10-1S2S-1C20-LH	3/4 Straight Keyed	SAE	0.4	02	3	in-Line with Inlet	CCW	2500 PSI 4500 RPM	12.00	
C1LG35	382063-4-B	V10-1S2S-1D20	3/4 Straight Keyed	SAE	0.4	02	3	90° CW from Inlet	CW	2500 PSI 4500 RPM	12.00	
C1LG36	382063-8-B	V10-1S2S-1D20-LH	3/4 Straight Keyed	SAE	0.4	02	3	90° CW from Inlet	CCW	2500 PSI 4500 RPM	12.00	
C1LG37	588684-1-B	V10-1S2S-38A20	3/4 - 11 Tooth Splined	SAE	0.4	02	3	Opposite Inlet Port	CW	2500 PSI 4500 RPM	12.00	
C1LG38	588684-5-B	V10-1S2S-38A20-LH	3/4 - 11 Tooth Splined	SAE	0.4	02	3	Opposite Inlet Port	CCW	2500 PSI 4500 RPM	12.00	
C1LG39	588684-2-B	V10-1S2S-38B20	3/4 - 11 Tooth Splined	SAE	0.4	02	3	90° CCW from Inlet	CW	2500 PSI 4500 RPM	12.00	
C1LG40	588684-6-B	V10-1S2S-38B20-LH	3/4 - 11 Tooth Splined	SAE	0.4	02	3	90° CW from Outlet	CCW	2500 PSI 4500 RPM	12.00	
C1LG41	588684-3-B	V10-1S2S-38C20	3/4 - 11 Tooth Splined	SAE	0.4	02	3	in-Line with Inlet	CW	2500 PSI 4500 RPM	12.00	
C1LG42	588684-7-B	V10-1S2S-38C20-LH	3/4 - 11 Tooth Splined	SAE	0.4	02	3	in-Line with Inlet	CCW	2500 PSI 4500 RPM	12.00	
C1LG43	588684-4-B	V10-1S2S-38D20	3/4 - 11 Tooth Splined	SAE	0.4	02	3	90° CW from Inlet	CW	2500 PSI 4500 RPM	12.00	
C1LG44	588684-8-B	V10-1S2S-38D20-LH	3/4 - 11 Tooth Splined	SAE	0.4	02	3	90° CW from Inlet	CCW	2500 PSI 4500 RPM	12.00	
C1LJ67	02-348752-1-B	V10-6S2S-12A20	13 Tooth SAE B Splined	SAE	0.4	02	3	Opposite Inlet Port	CW	2500 PSI 4500 RPM	12.00	
C1LJ68	02-348752-5-B	V10-6S2S-12A20-LH	13 Tooth SAE B Splined	SAE	0.4	02	3	Opposite Inlet Port	CCW	2500 PSI 4500 RPM	12.00	
C1LJ69	02-348752-2-B	V10-6S2S-12B20	13 Tooth SAE B Splined	SAE	0.4	02	3	90° CCW from Inlet	CW	2500 PSI 4500 RPM	12.00	
C1LJ70	02-348752-6-B	V10-6S2S-12B20-LH	13 Tooth SAE B Splined	SAE	0.4	02	3	90° CW from Outlet	CCW	2500 PSI 4500 RPM	12.00	
C1LJ71	02-348752-3-B	V10-6S2S-12C20	13 Tooth SAE B Splined	SAE	0.4	02	3	in-Line with Inlet	CW	2500 PSI 4500 RPM	12.00	
C1LJ72	02-348752-7-B	V10-6S2S-12C20-LH	13 Tooth SAE B Splined	SAE	0.4	02	3	in-Line with Inlet	CCW	2500 PSI 4500 RPM	12.00	
C1LJ73	02-348752-4-B	V10-6S2S-12D20	13 Tooth SAE B Splined	SAE	0.4	02	3	90° CW from Inlet	CW	2500 PSI 4500 RPM	12.00	
C1LJ74	02-348752-8-B	V10-6S2S-12D20-LH	13 Tooth SAE B Splined	SAE	0.4	02	3	90° CW from Inlet	CCW	2500 PSI 4500 RPM	12.00	
C1LD88	382079-1-B	V10-1P3P-11A20	9 Tooth SAE A Splined	NPT	0.6	03	4.5	Opposite Inlet Port	CW	2500 PSI 4000 RPM	12.00	





Pumps & Accessories

Single Hydraulic Pumps • Fixed Displacement
Vickers V10 Series Vane Pumps • To 10.5 GPM @ 1800 RPM



Vickers® V10 Vane Pumps

Catalog Part No.	Vickers Part No. See Note Above	Vickers Model Code. See Note Above	Shaft	Ports	Displ	Ring Size 1200 RPM	Flow GPM 1800 RPM	Outlet Position	Rot.	Max. PSI & Max. RPM	Wt.	Price Each
C1LD89	382079-5-B	V10-1P3P-11A20-LH	9 Tooth SAE A Splined	NPT	0.6	03	4.5	Opposite Inlet Port	CCW	2500 PSI 4000 RPM	12.00	
C1LD90	382079-2-B	V10-1P3P-11B20	9 Tooth SAE A Splined	NPT	0.6	03	4.5	90° CCW from Inlet	CW	2500 PSI 4000 RPM	12.00	
C1LD91	382079-6-B	V10-1P3P-11B20-LH	9 Tooth SAE A Splined	NPT	0.6	03	4.5	90° CW from Outlet	CCW	2500 PSI 4000 RPM	12.00	
C1LD92	382079-3-B	V10-1P3P-11C20	9 Tooth SAE A Splined	NPT	0.6	03	4.5	in-Line with Inlet	CW	2500 PSI 4000 RPM	12.00	
C1LD93	382079-7-B	V10-1P3P-11C20-LH	9 Tooth SAE A Splined	NPT	0.6	03	4.5	in-Line with Inlet	CCW	2500 PSI 4000 RPM	12.00	
C1LD94	382079-4-B	V10-1P3P-11D20	9 Tooth SAE A Splined	NPT	0.6	03	4.5	90° CW from Inlet	CW	2500 PSI 4000 RPM	12.00	
C1LD95	382079-8-B	V10-1P3P-11D20-LH	9 Tooth SAE A Splined	NPT	0.6	03	4.5	90° CW from Inlet	CCW	2500 PSI 4000 RPM	12.00	
C1LD96	382089-1-B	V10-1P3P-12A20	13 Tooth SAE B Splined	NPT	0.6	03	4.5	Opposite Inlet Port	CW	2500 PSI 4000 RPM	12.00	
C1LD97	382089-5-B	V10-1P3P-12A20-LH	13 Tooth SAE B Splined	NPT	0.6	03	4.5	Opposite Inlet Port	CCW	2500 PSI 4000 RPM	12.00	
C1LD98	382089-2-B	V10-1P3P-12B20	13 Tooth SAE B Splined	NPT	0.6	03	4.5	90° CCW from Inlet	CW	2500 PSI 4000 RPM	12.00	
C1LD99	382089-6-B	V10-1P3P-12B20-LH	13 Tooth SAE B Splined	NPT	0.6	03	4.5	90° CW from Outlet	CCW	2500 PSI 4000 RPM	12.00	
C1LE11	382089-3-B	V10-1P3P-12C20	13 Tooth SAE B Splined	NPT	0.6	03	4.5	in-Line with Inlet	CW	2500 PSI 4000 RPM	12.00	
C1LE12	382089-7-B	V10-1P3P-12C20-LH	13 Tooth SAE B Splined	NPT	0.6	03	4.5	in-Line with Inlet	CCW	2500 PSI 4000 RPM	12.00	
C1LE13	382089-4-B	V10-1P3P-12D20	13 Tooth SAE B Splined	NPT	0.6	03	4.5	90° CW from Inlet	CW	2500 PSI 4000 RPM	12.00	
C1LE14	382089-8-B	V10-1P3P-12D20-LH	13 Tooth SAE B Splined	NPT	0.6	03	4.5	90° CW from Inlet	CCW	2500 PSI 4000 RPM	12.00	
C1LE15	382077-1-B	V10-1P3P-1A20	3/4 Straight Keyed	NPT	0.6	03	4.5	Opposite Inlet Port	CW	2500 PSI 4000 RPM	12.00	
C1LE16	382077-5-B	V10-1P3P-1A20-LH	3/4 Straight Keyed	NPT	0.6	03	4.5	Opposite Inlet Port	CCW	2500 PSI 4000 RPM	12.00	
C1LE17	382077-2-B	V10-1P3P-1B20	3/4 Straight Keyed	NPT	0.6	03	4.5	90° CCW from Inlet	CW	2500 PSI 4000 RPM	12.00	
C1LE18	382077-6-B	V10-1P3P-1B20-LH	3/4 Straight Keyed	NPT	0.6	03	4.5	90° CW from Outlet	CCW	2500 PSI 4000 RPM	12.00	
C1LE19	382077-3-B	V10-1P3P-1C20	3/4 Straight Keyed	NPT	0.6	03	4.5	in-Line with Inlet	CW	2500 PSI 4000 RPM	12.00	
C1LE20	382077-7-B	V10-1P3P-1C20-LH	3/4 Straight Keyed	NPT	0.6	03	4.5	in-Line with Inlet	CCW	2500 PSI 4000 RPM	12.00	
C1LE21	382077-4-B	V10-1P3P-1D20	3/4 Straight Keyed	NPT	0.6	03	4.5	90° CW from Inlet	CW	2500 PSI 4000 RPM	12.00	
C1LE22	382077-8-B	V10-1P3P-1D20-LH	3/4 Straight Keyed	NPT	0.6	03	4.5	90° CW from Inlet	CCW	2500 PSI 4000 RPM	12.00	
C1LE23	393720-1-B	V10-1P3P-38A20	3/4 - 11 Tooth Splined	NPT	0.6	03	4.5	Opposite Inlet Port	CW	2500 PSI 4000 RPM	12.00	
C1LE24	393720-5-B	V10-1P3P-38A20-LH	3/4 - 11 Tooth Splined	NPT	0.6	03	4.5	Opposite Inlet Port	CCW	2500 PSI 4000 RPM	12.00	
C1LE25	393720-2-B	V10-1P3P-38B20	3/4 - 11 Tooth Splined	NPT	0.6	03	4.5	90° CCW from Inlet	CW	2500 PSI 4000 RPM	12.00	
C1LE26	393720-6-B	V10-1P3P-38B20-LH	3/4 - 11 Tooth Splined	NPT	0.6	03	4.5	90° CW from Outlet	CCW	2500 PSI 4000 RPM	12.00	
C1LE27	393720-3-B	V10-1P3P-38C20	3/4 - 11 Tooth Splined	NPT	0.6	03	4.5	in-Line with Inlet	CW	2500 PSI 4000 RPM	12.00	
C1LE28	393720-7-B	V10-1P3P-38C20-LH	3/4 - 11 Tooth Splined	NPT	0.6	03	4.5	in-Line with Inlet	CCW	2500 PSI 4000 RPM	12.00	



This page is part of a complete catalog which contains technical and safety data that must be reviewed when selecting a product

Pumps & Accessories



Single Hydraulic Pumps • Fixed Displacement
Vickers V10 Series Vane Pumps • To 10.5 GPM @ 1800 RPM



Vickers® V10 Vane Pumps

Catalog Part No.	Vickers Part No. See Note Above	Vickers Model Code. See Note Above	Shaft	Ports	Displ	Ring Size 1200 RPM	Flow GPM 1800 RPM	Outlet Position	Rot.	Max. PSI & Max. RPM	Wt.	Price Each
C1LE29	393720-4-B	V10-1P3P-38D20	3/4 - 11 Tooth Splined	NPT	0.6	03	4.5	90° CW from Inlet	CW	2500 PSI 4000 RPM	12.00	
C1LE30	393720-8-B	V10-1P3P-38D20-LH	3/4 - 11 Tooth Splined	NPT	0.6	03	4.5	90° CW from Inlet	CCW	2500 PSI 4000 RPM	12.00	
C1LG45	382069-1-B	V10-1S3S-11A20	9 Tooth SAE A Splined	SAE	0.6	03	4.5	Opposite Inlet Port	CW	2500 PSI 4000 RPM	12.00	
C1LG46	382069-5-B	V10-1S3S-11A20-LH	9 Tooth SAE A Splined	SAE	0.6	03	4.5	Opposite Inlet Port	CCW	2500 PSI 4000 RPM	12.00	
C1LG47	382069-2-B	V10-1S3S-11B20	9 Tooth SAE A Splined	SAE	0.6	03	4.5	90° CCW from Inlet	CW	2500 PSI 4000 RPM	12.00	
C1LG48	382069-6-B	V10-1S3S-11B20-LH	9 Tooth SAE A Splined	SAE	0.6	03	4.5	90° CW from Outlet	CCW	2500 PSI 4000 RPM	12.00	
C1LG49	382069-3-B	V10-1S3S-11C20	9 Tooth SAE A Splined	SAE	0.6	03	4.5	in-Line with Inlet	CW	2500 PSI 4000 RPM	12.00	
C1LG50	382069-7-B	V10-1S3S-11C20-LH	9 Tooth SAE A Splined	SAE	0.6	03	4.5	in-Line with Inlet	CCW	2500 PSI 4000 RPM	12.00	
C1LG51	382069-4-B	V10-1S3S-11D20	9 Tooth SAE A Splined	SAE	0.6	03	4.5	90° CW from Inlet	CW	2500 PSI 4000 RPM	12.00	
C1LG52	382069-8-B	V10-1S3S-11D20-LH	9 Tooth SAE A Splined	SAE	0.6	03	4.5	90° CW from Inlet	CCW	2500 PSI 4000 RPM	12.00	
C1LG53	397926-1-B	V10-1S3S-12A20	13 Tooth SAE B Splined	SAE	0.6	03	4.5	Opposite Inlet Port	CW	2500 PSI 4000 RPM	12.00	
C1LG54	397926-5-B	V10-1S3S-12A20-LH	13 Tooth SAE B Splined	SAE	0.6	03	4.5	Opposite Inlet Port	CCW	2500 PSI 4000 RPM	12.00	
C1LG55	397926-2-B	V10-1S3S-12B20	13 Tooth SAE B Splined	SAE	0.6	03	4.5	90° CCW from Inlet	CW	2500 PSI 4000 RPM	12.00	
C1LG56	397926-6-B	V10-1S3S-12B20-LH	13 Tooth SAE B Splined	SAE	0.6	03	4.5	90° CW from Outlet	CCW	2500 PSI 4000 RPM	12.00	
C1LG57	397926-3-B	V10-1S3S-12C20	13 Tooth SAE B Splined	SAE	0.6	03	4.5	in-Line with Inlet	CW	2500 PSI 4000 RPM	12.00	
C1LG58	397926-7-B	V10-1S3S-12C20-LH	13 Tooth SAE B Splined	SAE	0.6	03	4.5	in-Line with Inlet	CCW	2500 PSI 4000 RPM	12.00	
C1LG59	397926-4-B	V10-1S3S-12D20	13 Tooth SAE B Splined	SAE	0.6	03	4.5	90° CW from Inlet	CW	2500 PSI 4000 RPM	12.00	
C1LG60	397926-8-B	V10-1S3S-12D20-LH	13 Tooth SAE B Splined	SAE	0.6	03	4.5	90° CW from Inlet	CCW	2500 PSI 4000 RPM	12.00	
C1LG61	382067-1-B	V10-1S3S-1A20	3/4 Straight Keyed	SAE	0.6	03	4.5	Opposite Inlet Port	CW	2500 PSI 4000 RPM	12.00	
C1LG62	382067-5-B	V10-1S3S-1A20-LH	3/4 Straight Keyed	SAE	0.6	03	4.5	Opposite Inlet Port	CCW	2500 PSI 4000 RPM	12.00	
C1LG63	382067-2-B	V10-1S3S-1B20	3/4 Straight Keyed	SAE	0.6	03	4.5	90° CCW from Inlet	CW	2500 PSI 4000 RPM	12.00	
C1LG64	382067-6-B	V10-1S3S-1B20-LH	3/4 Straight Keyed	SAE	0.6	03	4.5	90° CW from Outlet	CCW	2500 PSI 4000 RPM	12.00	
C1LG65	382067-3-B	V10-1S3S-1C20	3/4 Straight Keyed	SAE	0.6	03	4.5	in-Line with Inlet	CW	2500 PSI 4000 RPM	12.00	
C1LG66	382067-7-B	V10-1S3S-1C20-LH	3/4 Straight Keyed	SAE	0.6	03	4.5	in-Line with Inlet	CCW	2500 PSI 4000 RPM	12.00	
C1LG67	382067-4-B	V10-1S3S-1D20	3/4 Straight Keyed	SAE	0.6	03	4.5	90° CW from Inlet	CW	2500 PSI 4000 RPM	12.00	
C1LG68	382067-8-B	V10-1S3S-1D20-LH	3/4 Straight Keyed	SAE	0.6	03	4.5	90° CW from Inlet	CCW	2500 PSI 4000 RPM	12.00	
C1LG69	502495-1-B	V10-1S3S-38A20	3/4 - 11 Tooth Splined	SAE	0.6	03	4.5	Opposite Inlet Port	CW	2500 PSI 4000 RPM	12.00	
C1LG70	502495-5-B	V10-1S3S-38A20-LH	3/4 - 11 Tooth Splined	SAE	0.6	03	4.5	Opposite Inlet Port	CCW	2500 PSI 4000 RPM	12.00	
C1LG71	502495-2-B	V10-1S3S-38B20	3/4 - 11 Tooth Splined	SAE	0.6	03	4.5	90° CCW from Inlet	CW	2500 PSI 4000 RPM	12.00	





Pumps & Accessories

Single Hydraulic Pumps • Fixed Displacement
Vickers V10 Series Vane Pumps • To 10.5 GPM @ 1800 RPM



Vickers® V10 Vane Pumps

Catalog Part No.	Vickers Part No. See Note Above	Vickers Model Code. See Note Above	Shaft	Ports	Displ	Ring Size 1200 RPM	Flow GPM 1800 RPM	Outlet Position	Rot.	Max. PSI & Max. RPM	Wt.	Price Each
C1LG72	502495-6-B	V10-1S3S-38B20-LH	3/4 - 11 Tooth Splined	SAE	0.6	03	4.5	90° CW from Outlet	CCW	2500 PSI 4000 RPM	12.00	
C1LG73	502495-3-B	V10-1S3S-38C20	3/4 - 11 Tooth Splined	SAE	0.6	03	4.5	in-Line with Inlet	CW	2500 PSI 4000 RPM	12.00	
C1LG74	502495-7-B	V10-1S3S-38C20-LH	3/4 - 11 Tooth Splined	SAE	0.6	03	4.5	in-Line with Inlet	CCW	2500 PSI 4000 RPM	12.00	
C1LG75	502495-4-B	V10-1S3S-38D20	3/4 - 11 Tooth Splined	SAE	0.6	03	4.5	90° CW from Inlet	CW	2500 PSI 4000 RPM	12.00	
C1LG76	502495-8-B	V10-1S3S-38D20-LH	3/4 - 11 Tooth Splined	SAE	0.6	03	4.5	90° CW from Inlet	CCW	2500 PSI 4000 RPM	12.00	
C1LJ99	02-347564-1-B	V10-6S3S-12A20	13 Tooth SAE B Splined	SAE	0.6	03	4.5	Opposite Inlet Port	CW	2500 PSI 4000 RPM	12.00	
C1LK11	02-347564-5-B	V10-6S3S-12A20-LH	13 Tooth SAE B Splined	SAE	0.6	03	4.5	Opposite Inlet Port	CCW	2500 PSI 4000 RPM	12.00	
C1LK12	02-347564-2-B	V10-6S3S-12B20	13 Tooth SAE B Splined	SAE	0.6	03	4.5	90° CCW from Inlet	CW	2500 PSI 4000 RPM	12.00	
C1LK13	02-347564-6-B	V10-6S3S-12B20-LH	13 Tooth SAE B Splined	SAE	0.6	03	4.5	90° CW from Outlet	CCW	2500 PSI 4000 RPM	12.00	
C1LK14	02-347564-3-B	V10-6S3S-12C20	13 Tooth SAE B Splined	SAE	0.6	03	4.5	in-Line with Inlet	CW	2500 PSI 4000 RPM	12.00	
C1LK15	02-347564-7-B	V10-6S3S-12C20-LH	13 Tooth SAE B Splined	SAE	0.6	03	4.5	in-Line with Inlet	CCW	2500 PSI 4000 RPM	12.00	
C1LK16	02-347564-4-B	V10-6S3S-12D20	13 Tooth SAE B Splined	SAE	0.6	03	4.5	90° CW from Inlet	CW	2500 PSI 4000 RPM	12.00	
C1LK17	02-347564-8-B	V10-6S3S-12D20-LH	13 Tooth SAE B Splined	SAE	0.6	03	4.5	90° CW from Inlet	CCW	2500 PSI 4000 RPM	12.00	
C1LK18	02-346503-1-B	V10-6S3S-1A20	3/4 Straight Keyed	SAE	0.6	03	4.5	Opposite Inlet Port	CW	2500 PSI 4000 RPM	12.00	
C1LK19	02-346503-5-B	V10-6S3S-1A20-LH	3/4 Straight Keyed	SAE	0.6	03	4.5	Opposite Inlet Port	CCW	2500 PSI 4000 RPM	12.00	
C1LK20	02-346503-2-B	V10-6S3S-1B20	3/4 Straight Keyed	SAE	0.6	03	4.5	90° CCW from Inlet	CW	2500 PSI 4000 RPM	12.00	
C1LK21	02-346503-6-B	V10-6S3S-1B20-LH	3/4 Straight Keyed	SAE	0.6	03	4.5	90° CW from Outlet	CCW	2500 PSI 4000 RPM	12.00	
C1LK22	02-346503-3-B	V10-6S3S-1C20	3/4 Straight Keyed	SAE	0.6	03	4.5	in-Line with Inlet	CW	2500 PSI 4000 RPM	12.00	
C1LK23	02-346503-7-B	V10-6S3S-1C20-LH	3/4 Straight Keyed	SAE	0.6	03	4.5	in-Line with Inlet	CCW	2500 PSI 4000 RPM	12.00	
C1LK24	02-346503-4-B	V10-6S3S-1D20	3/4 Straight Keyed	SAE	0.6	03	4.5	90° CW from Inlet	CW	2500 PSI 4000 RPM	12.00	
C1LK25	02-346503-8-B	V10-6S3S-1D20-LH	3/4 Straight Keyed	SAE	0.6	03	4.5	90° CW from Inlet	CCW	2500 PSI 4000 RPM	12.00	
C1LE31	383515-1-B	V10-1P4P-11A20	9 Tooth SAE A Splined	NPT	0.8	04	6	Opposite Inlet Port	CW	2500 PSI 3400 RPM	12.00	
C1LE32	383515-5-B	V10-1P4P-11A20-LH	9 Tooth SAE A Splined	NPT	0.8	04	6	Opposite Inlet Port	CCW	2500 PSI 3400 RPM	12.00	
C1LE33	383515-2-B	V10-1P4P-11B20	9 Tooth SAE A Splined	NPT	0.8	04	6	90° CCW from Inlet	CW	2500 PSI 3400 RPM	12.00	
C1LE34	383515-6-B	V10-1P4P-11B20-LH	9 Tooth SAE A Splined	NPT	0.8	04	6	90° CW from Outlet	CCW	2500 PSI 3400 RPM	12.00	
C1LE35	383515-3-B	V10-1P4P-11C20	9 Tooth SAE A Splined	NPT	0.8	04	6	in-Line with Inlet	CW	2500 PSI 3400 RPM	12.00	
C1LE36	383515-7-B	V10-1P4P-11C20-LH	9 Tooth SAE A Splined	NPT	0.8	04	6	in-Line with Inlet	CCW	2500 PSI 3400 RPM	12.00	
C1LE37	383515-4-B	V10-1P4P-11D20	9 Tooth SAE A Splined	NPT	0.8	04	6	90° CW from Inlet	CW	2500 PSI 3400 RPM	12.00	
C1LE38	383515-8-B	V10-1P4P-11D20-LH	9 Tooth SAE A Splined	NPT	0.8	04	6	90° CW from Inlet	CCW	2500 PSI 3400 RPM	12.00	



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Pumps & Accessories



Single Hydraulic Pumps • Fixed Displacement
Vickers V10 Series Vane Pumps • To 10.5 GPM @ 1800 RPM



Vickers® V10 Vane Pumps

Catalog Part No.	Vickers Part No. See Note Above	Vickers Model Code. See Note Above	Shaft	Ports	Displ	Ring Size 1200 RPM	Flow GPM 1800 RPM	Outlet Position	Rot.	Max. PSI & Max. RPM	Wt.	Price Each
C1LE39	401938-1-B	V10-1P4P-12A20	13 Tooth SAE B Splined	NPT	0.8	04	6	Opposite Inlet Port	CW	2500 PSI 3400 RPM	12.00	
C1LE40	401938-5-B	V10-1P4P-12A20-LH	13 Tooth SAE B Splined	NPT	0.8	04	6	Opposite Inlet Port	CCW	2500 PSI 3400 RPM	12.00	
C1LE41	401938-2-B	V10-1P4P-12B20	13 Tooth SAE B Splined	NPT	0.8	04	6	90° CCW from Inlet	CW	2500 PSI 3400 RPM	12.00	
C1LE42	401938-6-B	V10-1P4P-12B20-LH	13 Tooth SAE B Splined	NPT	0.8	04	6	90° CW from Outlet	CCW	2500 PSI 3400 RPM	12.00	
C1LE43	401938-3-B	V10-1P4P-12C20	13 Tooth SAE B Splined	NPT	0.8	04	6	in-Line with Inlet	CW	2500 PSI 3400 RPM	12.00	
C1LE44	401938-7-B	V10-1P4P-12C20-LH	13 Tooth SAE B Splined	NPT	0.8	04	6	in-Line with Inlet	CCW	2500 PSI 3400 RPM	12.00	
C1LE45	401938-4-B	V10-1P4P-12D20	13 Tooth SAE B Splined	NPT	0.8	04	6	90° CW from Inlet	CW	2500 PSI 3400 RPM	12.00	
C1LE46	401938-8-B	V10-1P4P-12D20-LH	13 Tooth SAE B Splined	NPT	0.8	04	6	90° CW from Inlet	CCW	2500 PSI 3400 RPM	12.00	
C1LE47	382082-1-B	V10-1P4P-1A20	3/4 Straight Keyed	NPT	0.8	04	6	Opposite Inlet Port	CW	2500 PSI 3400 RPM	12.00	
C1LE48	382082-5-B	V10-1P4P-1A20-LH	3/4 Straight Keyed	NPT	0.8	04	6	Opposite Inlet Port	CCW	2500 PSI 3400 RPM	12.00	
C1LE49	382082-2-B	V10-1P4P-1B20	3/4 Straight Keyed	NPT	0.8	04	6	90° CCW from Inlet	CW	2500 PSI 3400 RPM	12.00	
C1LE50	382082-6-B	V10-1P4P-1B20-LH	3/4 Straight Keyed	NPT	0.8	04	6	90° CW from Outlet	CCW	2500 PSI 3400 RPM	12.00	
C1LE51	382082-3-B	V10-1P4P-1C20	3/4 Straight Keyed	NPT	0.8	04	6	in-Line with Inlet	CW	2500 PSI 3400 RPM	12.00	
C1LE52	382082-7-B	V10-1P4P-1C20-LH	3/4 Straight Keyed	NPT	0.8	04	6	in-Line with Inlet	CCW	2500 PSI 3400 RPM	12.00	
C1LE53	382082-4-B	V10-1P4P-1D20	3/4 Straight Keyed	NPT	0.8	04	6	90° CW from Inlet	CW	2500 PSI 3400 RPM	12.00	
C1LE54	382082-8-B	V10-1P4P-1D20-LH	3/4 Straight Keyed	NPT	0.8	04	6	90° CW from Inlet	CCW	2500 PSI 3400 RPM	12.00	
C1LE55	591059-1-B	V10-1P4P-38A20	3/4 - 11 Tooth Splined	NPT	0.8	04	6	Opposite Inlet Port	CW	2500 PSI 3400 RPM	12.00	
C1LE56	591059-5-B	V10-1P4P-38A20-LH	3/4 - 11 Tooth Splined	NPT	0.8	04	6	Opposite Inlet Port	CCW	2500 PSI 3400 RPM	12.00	
C1LE57	591059-2-B	V10-1P4P-38B20	3/4 - 11 Tooth Splined	NPT	0.8	04	6	90° CCW from Inlet	CW	2500 PSI 3400 RPM	12.00	
C1LE58	591059-6-B	V10-1P4P-38B20-LH	3/4 - 11 Tooth Splined	NPT	0.8	04	6	90° CW from Outlet	CCW	2500 PSI 3400 RPM	12.00	
C1LE59	591059-3-B	V10-1P4P-38C20	3/4 - 11 Tooth Splined	NPT	0.8	04	6	in-Line with Inlet	CW	2500 PSI 3400 RPM	12.00	
C1LE60	591059-7-B	V10-1P4P-38C20-LH	3/4 - 11 Tooth Splined	NPT	0.8	04	6	in-Line with Inlet	CCW	2500 PSI 3400 RPM	12.00	
C1LE61	591059-4-B	V10-1P4P-38D20	3/4 - 11 Tooth Splined	NPT	0.8	04	6	90° CW from Inlet	CW	2500 PSI 3400 RPM	12.00	
C1LE62	591059-8-B	V10-1P4P-38D20-LH	3/4 - 11 Tooth Splined	NPT	0.8	04	6	90° CW from Inlet	CCW	2500 PSI 3400 RPM	12.00	
C1LG77	390099-1-B	V10-1S4S-11A20	9 Tooth SAE A Splined	SAE	0.8	04	6	Opposite Inlet Port	CW	2500 PSI 3400 RPM	12.00	
C1LG78	390099-5-B	V10-1S4S-11A20-LH	9 Tooth SAE A Splined	SAE	0.8	04	6	Opposite Inlet Port	CCW	2500 PSI 3400 RPM	12.00	
C1LG79	390099-2-B	V10-1S4S-11B20	9 Tooth SAE A Splined	SAE	0.8	04	6	90° CCW from Inlet	CW	2500 PSI 3400 RPM	12.00	
C1LG80	390099-6-B	V10-1S4S-11B20-LH	9 Tooth SAE A Splined	SAE	0.8	04	6	90° CW from Outlet	CCW	2500 PSI 3400 RPM	12.00	
C1LG81	390099-3-B	V10-1S4S-11C20	9 Tooth SAE A Splined	SAE	0.8	04	6	in-Line with Inlet	CW	2500 PSI 3400 RPM	12.00	





Pumps & Accessories

Single Hydraulic Pumps • Fixed Displacement
Vickers V10 Series Vane Pumps • To 10.5 GPM @ 1800 RPM



Vickers® V10 Vane Pumps

Catalog Part No.	Vickers Part No. See Note Above	Vickers Model Code. See Note Above	Shaft	Ports	Displ	Ring Size 1200 RPM	Flow GPM 1800 RPM	Outlet Position	Rot.	Max. PSI & Max. RPM	Wt.	Price Each
C1LG82	390099-7-B	V10-1S4S-11C20-LH	9 Tooth SAE A Splined	SAE	0.8	04	6	in-Line with Inlet	CCW	2500 PSI 3400 RPM	12.00	
C1LG83	390099-4-B	V10-1S4S-11D20	9 Tooth SAE A Splined	SAE	0.8	04	6	90° CW from Inlet	CW	2500 PSI 3400 RPM	12.00	
C1LG84	390099-8-B	V10-1S4S-11D20-LH	9 Tooth SAE A Splined	SAE	0.8	04	6	90° CW from Inlet	CCW	2500 PSI 3400 RPM	12.00	
C1LG85	382073-1-B	V10-1S4S-12A20	13 Tooth SAE B Splined	SAE	0.8	04	6	Opposite Inlet Port	CW	2500 PSI 3400 RPM	12.00	
C1LG86	382073-5-B	V10-1S4S-12A20-LH	13 Tooth SAE B Splined	SAE	0.8	04	6	Opposite Inlet Port	CCW	2500 PSI 3400 RPM	12.00	
C1LG87	382073-2-B	V10-1S4S-12B20	13 Tooth SAE B Splined	SAE	0.8	04	6	90° CCW from Inlet	CW	2500 PSI 3400 RPM	12.00	
C1LG88	382073-6-B	V10-1S4S-12B20-LH	13 Tooth SAE B Splined	SAE	0.8	04	6	90° CW from Outlet	CCW	2500 PSI 3400 RPM	12.00	
C1LG89	382073-3-B	V10-1S4S-12C20	13 Tooth SAE B Splined	SAE	0.8	04	6	in-Line with Inlet	CW	2500 PSI 3400 RPM	12.00	
C1LG90	382073-7-B	V10-1S4S-12C20-LH	13 Tooth SAE B Splined	SAE	0.8	04	6	in-Line with Inlet	CCW	2500 PSI 3400 RPM	12.00	
C1LG91	382073-4-B	V10-1S4S-12D20	13 Tooth SAE B Splined	SAE	0.8	04	6	90° CW from Inlet	CW	2500 PSI 3400 RPM	12.00	
C1LG92	382073-8-B	V10-1S4S-12D20-LH	13 Tooth SAE B Splined	SAE	0.8	04	6	90° CW from Inlet	CCW	2500 PSI 3400 RPM	12.00	
C1LG93	382071-1-B	V10-1S4S-1A20	3/4 Straight Keyed	SAE	0.8	04	6	Opposite Inlet Port	CW	2500 PSI 3400 RPM	12.00	
C1LG94	382071-5-B	V10-1S4S-1A20-LH	3/4 Straight Keyed	SAE	0.8	04	6	Opposite Inlet Port	CCW	2500 PSI 3400 RPM	12.00	
C1LG95	382071-2-B	V10-1S4S-1B20	3/4 Straight Keyed	SAE	0.8	04	6	90° CCW from Inlet	CW	2500 PSI 3400 RPM	12.00	
C1LG96	382071-6-B	V10-1S4S-1B20-LH	3/4 Straight Keyed	SAE	0.8	04	6	90° CW from Outlet	CCW	2500 PSI 3400 RPM	12.00	
C1LG97	382071-3-B	V10-1S4S-1C20	3/4 Straight Keyed	SAE	0.8	04	6	in-Line with Inlet	CW	2500 PSI 3400 RPM	12.00	
C1LG98	382071-7-B	V10-1S4S-1C20-LH	3/4 Straight Keyed	SAE	0.8	04	6	in-Line with Inlet	CCW	2500 PSI 3400 RPM	12.00	
C1LG99	382071-4-B	V10-1S4S-1D20	3/4 Straight Keyed	SAE	0.8	04	6	90° CW from Inlet	CW	2500 PSI 3400 RPM	12.00	
C1LH11	382071-8-B	V10-1S4S-1D20-LH	3/4 Straight Keyed	SAE	0.8	04	6	90° CW from Inlet	CCW	2500 PSI 3400 RPM	12.00	
C1LH12	574699-1-B	V10-1S4S-38A20	3/4 - 11 Tooth Splined	SAE	0.8	04	6	Opposite Inlet Port	CW	2500 PSI 3400 RPM	12.00	
C1LH13	574699-5-B	V10-1S4S-38A20-LH	3/4 - 11 Tooth Splined	SAE	0.8	04	6	Opposite Inlet Port	CCW	2500 PSI 3400 RPM	12.00	
C1LH14	574699-2-B	V10-1S4S-38B20	3/4 - 11 Tooth Splined	SAE	0.8	04	6	90° CCW from Inlet	CW	2500 PSI 3400 RPM	12.00	
C1LH15	574699-6-B	V10-1S4S-38B20-LH	3/4 - 11 Tooth Splined	SAE	0.8	04	6	90° CW from Outlet	CCW	2500 PSI 3400 RPM	12.00	
C1LH16	574699-3-B	V10-1S4S-38C20	3/4 - 11 Tooth Splined	SAE	0.8	04	6	in-Line with Inlet	CW	2500 PSI 3400 RPM	12.00	
C1LH17	574699-7-B	V10-1S4S-38C20-LH	3/4 - 11 Tooth Splined	SAE	0.8	04	6	in-Line with Inlet	CCW	2500 PSI 3400 RPM	12.00	
C1LH18	574699-4-B	V10-1S4S-38D20	3/4 - 11 Tooth Splined	SAE	0.8	04	6	90° CW from Inlet	CW	2500 PSI 3400 RPM	12.00	
C1LH19	574699-8-B	V10-1S4S-38D20-LH	3/4 - 11 Tooth Splined	SAE	0.8	04	6	90° CW from Inlet	CCW	2500 PSI 3400 RPM	12.00	
C1LK42	02-335181-1-B	V10-6S4S-12A20	13 Tooth SAE B Splined	SAE	0.8	04	6	Opposite Inlet Port	CW	2500 PSI 3400 RPM	12.00	
C1LK43	02-335181-5-B	V10-6S4S-12A20-LH	13 Tooth SAE B Splined	SAE	0.8	04	6	Opposite Inlet Port	CCW	2500 PSI 3400 RPM	12.00	



This page is part of a complete catalog which contains technical and safety data that must be reviewed when selecting a product

Pumps & Accessories



Single Hydraulic Pumps • Fixed Displacement
Vickers V10 Series Vane Pumps • To 10.5 GPM @ 1800 RPM



Vickers® V10 Vane Pumps

Catalog Part No.	Vickers Part No. See Note Above	Vickers Model Code. See Note Above	Shaft	Ports	Displ	Ring Size 1200 RPM	Flow GPM 1800 RPM	Outlet Position	Rot.	Max. PSI & Max. RPM	Wt.	Price Each
C1LK44	02-335181-2-B	V10-6S4S-12B20	13 Tooth SAE B Splined	SAE	0.8	04	6	90° CCW from Inlet	CW	2500 PSI 3400 RPM	12.00	
C1LK45	02-335181-6-B	V10-6S4S-12B20-LH	13 Tooth SAE B Splined	SAE	0.8	04	6	90° CW from Outlet	CCW	2500 PSI 3400 RPM	12.00	
C1LK46	02-335181-3-B	V10-6S4S-12C20	13 Tooth SAE B Splined	SAE	0.8	04	6	in-Line with Inlet	CW	2500 PSI 3400 RPM	12.00	
C1LK47	02-335181-7-B	V10-6S4S-12C20-LH	13 Tooth SAE B Splined	SAE	0.8	04	6	in-Line with Inlet	CCW	2500 PSI 3400 RPM	12.00	
C1LK48	02-335181-4-B	V10-6S4S-12D20	13 Tooth SAE B Splined	SAE	0.8	04	6	90° CW from Inlet	CW	2500 PSI 3400 RPM	12.00	
C1LK49	02-335181-8-B	V10-6S4S-12D20-LH	13 Tooth SAE B Splined	SAE	0.8	04	6	90° CW from Inlet	CCW	2500 PSI 3400 RPM	12.00	
C1LE63	382085-1-B	V10-1P5P-11A20	9 Tooth SAE A Splined	NPT	1	05	7.5	Opposite Inlet Port	CW	2500 PSI 3200 RPM	12.00	
C1LE64	382085-5-B	V10-1P5P-11A20-LH	9 Tooth SAE A Splined	NPT	1	05	7.5	Opposite Inlet Port	CCW	2500 PSI 3200 RPM	12.00	
C1LE65	382085-2-B	V10-1P5P-11B20	9 Tooth SAE A Splined	NPT	1	05	7.5	90° CCW from Inlet	CW	2500 PSI 3200 RPM	12.00	
C1LE66	382085-6-B	V10-1P5P-11B20-LH	9 Tooth SAE A Splined	NPT	1	05	7.5	90° CW from Outlet	CCW	2500 PSI 3200 RPM	12.00	
C1LE67	382085-3-B	V10-1P5P-11C20	9 Tooth SAE A Splined	NPT	1	05	7.5	in-Line with Inlet	CW	2500 PSI 3200 RPM	12.00	
C1LE68	382085-7-B	V10-1P5P-11C20-LH	9 Tooth SAE A Splined	NPT	1	05	7.5	in-Line with Inlet	CCW	2500 PSI 3200 RPM	12.00	
C1LE69	382085-4-B	V10-1P5P-11D20	9 Tooth SAE A Splined	NPT	1	05	7.5	90° CW from Inlet	CW	2500 PSI 3200 RPM	12.00	
C1LE70	382085-8-B	V10-1P5P-11D20-LH	9 Tooth SAE A Splined	NPT	1	05	7.5	90° CW from Inlet	CCW	2500 PSI 3200 RPM	12.00	
C1LE71	401086-1-B	V10-1P5P-12A20	13 Tooth SAE B Splined	NPT	1	05	7.5	Opposite Inlet Port	CW	2500 PSI 3200 RPM	12.00	
C1LE72	401086-5-B	V10-1P5P-12A20-LH	13 Tooth SAE B Splined	NPT	1	05	7.5	Opposite Inlet Port	CCW	2500 PSI 3200 RPM	12.00	
C1LE73	401086-2-B	V10-1P5P-12B20	13 Tooth SAE B Splined	NPT	1	05	7.5	90° CCW from Inlet	CW	2500 PSI 3200 RPM	12.00	
C1LE74	401086-6-B	V10-1P5P-12B20-LH	13 Tooth SAE B Splined	NPT	1	05	7.5	90° CW from Outlet	CCW	2500 PSI 3200 RPM	12.00	
C1LE75	401086-3-B	V10-1P5P-12C20	13 Tooth SAE B Splined	NPT	1	05	7.5	in-Line with Inlet	CW	2500 PSI 3200 RPM	12.00	
C1LE76	401086-7-B	V10-1P5P-12C20-LH	13 Tooth SAE B Splined	NPT	1	05	7.5	in-Line with Inlet	CCW	2500 PSI 3200 RPM	12.00	
C1LE77	401086-4-B	V10-1P5P-12D20	13 Tooth SAE B Splined	NPT	1	05	7.5	90° CW from Inlet	CW	2500 PSI 3200 RPM	12.00	
C1LE78	401086-8-B	V10-1P5P-12D20-LH	13 Tooth SAE B Splined	NPT	1	05	7.5	90° CW from Inlet	CCW	2500 PSI 3200 RPM	12.00	
C1LE79	382084-1-B	V10-1P5P-1A20	3/4 Straight Keyed	NPT	1	05	7.5	Opposite Inlet Port	CW	2500 PSI 3200 RPM	12.00	
C1LE80	382084-5-B	V10-1P5P-1A20-LH	3/4 Straight Keyed	NPT	1	05	7.5	Opposite Inlet Port	CCW	2500 PSI 3200 RPM	12.00	
C1LE81	382084-2-B	V10-1P5P-1B20	3/4 Straight Keyed	NPT	1	05	7.5	90° CCW from Inlet	CW	2500 PSI 3200 RPM	12.00	
C1LE82	382084-6-B	V10-1P5P-1B20-LH	3/4 Straight Keyed	NPT	1	05	7.5	90° CW from Outlet	CCW	2500 PSI 3200 RPM	12.00	
C1LE83	382084-3-B	V10-1P5P-1C20	3/4 Straight Keyed	NPT	1	05	7.5	in-Line with Inlet	CW	2500 PSI 3200 RPM	12.00	
C1LE84	382084-7-B	V10-1P5P-1C20-LH	3/4 Straight Keyed	NPT	1	05	7.5	in-Line with Inlet	CCW	2500 PSI 3200 RPM	12.00	
C1LE85	382084-4-B	V10-1P5P-1D20	3/4 Straight Keyed	NPT	1	05	7.5	90° CW from Inlet	CW	2500 PSI 3200 RPM	12.00	





Pumps & Accessories

Single Hydraulic Pumps • Fixed Displacement
Vickers V10 Series Vane Pumps • To 10.5 GPM @ 1800 RPM



Vickers® V10 Vane Pumps

Catalog Part No.	Vickers Part No. See Note Above	Vickers Model Code. See Note Above	Shaft	Ports	Displ	Ring Size 1200 RPM	Flow GPM 1800 RPM	Outlet Position	Rot.	Max. PSI & Max. RPM	Wt.	Price Each
C1LE86	382084-8-B	V10-1P5P-1D20-LH	3/4 Straight Keyed	NPT	1	05	7.5	90° CW from Inlet	CCW	2500 PSI 3200 RPM	12.00	
C1LE87	576291-1-B	V10-1P5P-38A20	3/4 - 11 Tooth Splined	NPT	1	05	7.5	Opposite Inlet Port	CW	2500 PSI 3200 RPM	12.00	
C1LE88	576291-5-B	V10-1P5P-38A20-LH	3/4 - 11 Tooth Splined	NPT	1	05	7.5	Opposite Inlet Port	CCW	2500 PSI 3200 RPM	12.00	
C1LE89	576291-2-B	V10-1P5P-38B20	3/4 - 11 Tooth Splined	NPT	1	05	7.5	90° CCW from Inlet	CW	2500 PSI 3200 RPM	12.00	
C1LE90	576291-6-B	V10-1P5P-38B20-LH	3/4 - 11 Tooth Splined	NPT	1	05	7.5	90° CW from Outlet	CCW	2500 PSI 3200 RPM	12.00	
C1LE91	576291-3-B	V10-1P5P-38C20	3/4 - 11 Tooth Splined	NPT	1	05	7.5	in-Line with Inlet	CW	2500 PSI 3200 RPM	12.00	
C1LE92	576291-7-B	V10-1P5P-38C20-LH	3/4 - 11 Tooth Splined	NPT	1	05	7.5	in-Line with Inlet	CCW	2500 PSI 3200 RPM	12.00	
C1LE93	576291-4-B	V10-1P5P-38D20	3/4 - 11 Tooth Splined	NPT	1	05	7.5	90° CW from Inlet	CW	2500 PSI 3200 RPM	12.00	
C1LE94	576291-8-B	V10-1P5P-38D20-LH	3/4 - 11 Tooth Splined	NPT	1	05	7.5	90° CW from Inlet	CCW	2500 PSI 3200 RPM	12.00	
C1LH20	382092-1-B	V10-1S5S-11A20	9 Tooth SAE A Splined	SAE	1	05	7.5	Opposite Inlet Port	CW	2500 PSI 3200 RPM	12.00	
C1LH21	382092-5-B	V10-1S5S-11A20-LH	9 Tooth SAE A Splined	SAE	1	05	7.5	Opposite Inlet Port	CCW	2500 PSI 3200 RPM	12.00	
C1LH22	382092-2-B	V10-1S5S-11B20	9 Tooth SAE A Splined	SAE	1	05	7.5	90° CCW from Inlet	CW	2500 PSI 3200 RPM	12.00	
C1LH23	382092-6-B	V10-1S5S-11B20-LH	9 Tooth SAE A Splined	SAE	1	05	7.5	90° CW from Outlet	CCW	2500 PSI 3200 RPM	12.00	
C1LH24	382092-3-B	V10-1S5S-11C20	9 Tooth SAE A Splined	SAE	1	05	7.5	in-Line with Inlet	CW	2500 PSI 3200 RPM	12.00	
C1LH25	382092-7-B	V10-1S5S-11C20-LH	9 Tooth SAE A Splined	SAE	1	05	7.5	in-Line with Inlet	CCW	2500 PSI 3200 RPM	12.00	
C1LH26	382092-4-B	V10-1S5S-11D20	9 Tooth SAE A Splined	SAE	1	05	7.5	90° CW from Inlet	CW	2500 PSI 3200 RPM	12.00	
C1LH27	382092-8-B	V10-1S5S-11D20-LH	9 Tooth SAE A Splined	SAE	1	05	7.5	90° CW from Inlet	CCW	2500 PSI 3200 RPM	12.00	
C1LH28	382093-1-B	V10-1S5S-12A20	13 Tooth SAE B Splined	SAE	1	05	7.5	Opposite Inlet Port	CW	2500 PSI 3200 RPM	12.00	
C1LH29	382093-5-B	V10-1S5S-12A20-LH	13 Tooth SAE B Splined	SAE	1	05	7.5	Opposite Inlet Port	CCW	2500 PSI 3200 RPM	12.00	
C1LH30	382093-2-B	V10-1S5S-12B20	13 Tooth SAE B Splined	SAE	1	05	7.5	90° CCW from Inlet	CW	2500 PSI 3200 RPM	12.00	
C1LH31	382093-6-B	V10-1S5S-12B20-LH	13 Tooth SAE B Splined	SAE	1	05	7.5	90° CW from Outlet	CCW	2500 PSI 3200 RPM	12.00	
C1LH32	382093-3-B	V10-1S5S-12C20	13 Tooth SAE B Splined	SAE	1	05	7.5	in-Line with Inlet	CW	2500 PSI 3200 RPM	12.00	
C1LH33	382093-7-B	V10-1S5S-12C20-LH	13 Tooth SAE B Splined	SAE	1	05	7.5	in-Line with Inlet	CCW	2500 PSI 3200 RPM	12.00	
C1LH34	382093-4-B	V10-1S5S-12D20	13 Tooth SAE B Splined	SAE	1	05	7.5	90° CW from Inlet	CW	2500 PSI 3200 RPM	12.00	
C1LH35	382093-8-B	V10-1S5S-12D20-LH	13 Tooth SAE B Splined	SAE	1	05	7.5	90° CW from Inlet	CCW	2500 PSI 3200 RPM	12.00	
C1LH36	382074-1-B	V10-1S5S-1A20	3/4 Straight Keyed	SAE	1	05	7.5	Opposite Inlet Port	CW	2500 PSI 3200 RPM	12.00	
C1LH37	382074-5-B	V10-1S5S-1A20-LH	3/4 Straight Keyed	SAE	1	05	7.5	Opposite Inlet Port	CCW	2500 PSI 3200 RPM	12.00	
C1LH38	382074-2-B	V10-1S5S-1B20	3/4 Straight Keyed	SAE	1	05	7.5	90° CCW from Inlet	CW	2500 PSI 3200 RPM	12.00	
C1LH39	382074-6-B	V10-1S5S-1B20-LH	3/4 Straight Keyed	SAE	1	05	7.5	90° CW from Outlet	CCW	2500 PSI 3200 RPM	12.00	



Pumps & Accessories



Single Hydraulic Pumps • Fixed Displacement
Vickers V10 Series Vane Pumps • To 10.5 GPM @ 1800 RPM



Vickers® V10 Vane Pumps

Catalog Part No.	Vickers Part No. See Note Above	Vickers Model Code. See Note Above	Shaft	Ports	Displ	Ring Size 1200 RPM	Flow GPM 1800 RPM	Outlet Position	Rot.	Max. PSI & Max. RPM	Wt.	Price Each
C1LH40	382074-3-B	V10-1S5S-1C20	3/4 Straight Keyed	SAE	1	05	7.5	in-Line with Inlet	CW	2500 PSI 3200 RPM	12.00	
C1LH41	382074-7-B	V10-1S5S-1C20-LH	3/4 Straight Keyed	SAE	1	05	7.5	in-Line with Inlet	CCW	2500 PSI 3200 RPM	12.00	
C1LH42	382074-4-B	V10-1S5S-1D20	3/4 Straight Keyed	SAE	1	05	7.5	90° CW from Inlet	CW	2500 PSI 3200 RPM	12.00	
C1LH43	382074-8-B	V10-1S5S-1D20-LH	3/4 Straight Keyed	SAE	1	05	7.5	90° CW from Inlet	CCW	2500 PSI 3200 RPM	12.00	
C1LH44	503071-1-B	V10-1S5S-38A20	3/4 - 11 Tooth Splined	SAE	1	05	7.5	Opposite Inlet Port	CW	2500 PSI 3200 RPM	12.00	
C1LH45	503071-5-B	V10-1S5S-38A20-LH	3/4 - 11 Tooth Splined	SAE	1	05	7.5	Opposite Inlet Port	CCW	2500 PSI 3200 RPM	12.00	
C1LH46	503071-2-B	V10-1S5S-38B20	3/4 - 11 Tooth Splined	SAE	1	05	7.5	90° CCW from Inlet	CW	2500 PSI 3200 RPM	12.00	
C1LH47	503071-6-B	V10-1S5S-38B20-LH	3/4 - 11 Tooth Splined	SAE	1	05	7.5	90° CW from Outlet	CCW	2500 PSI 3200 RPM	12.00	
C1LH48	503071-3-B	V10-1S5S-38C20	3/4 - 11 Tooth Splined	SAE	1	05	7.5	in-Line with Inlet	CW	2500 PSI 3200 RPM	12.00	
C1LH49	503071-7-B	V10-1S5S-38C20-LH	3/4 - 11 Tooth Splined	SAE	1	05	7.5	in-Line with Inlet	CCW	2500 PSI 3200 RPM	12.00	
C1LH50	503071-4-B	V10-1S5S-38D20	3/4 - 11 Tooth Splined	SAE	1	05	7.5	90° CW from Inlet	CW	2500 PSI 3200 RPM	12.00	
C1LH51	503071-8-B	V10-1S5S-38D20-LH	3/4 - 11 Tooth Splined	SAE	1	05	7.5	90° CW from Inlet	CCW	2500 PSI 3200 RPM	12.00	
C1LK74	02-346573-1-B	V10-6S5S-12A20	13 Tooth SAE B Splined	SAE	1	05	7.5	Opposite Inlet Port	CW	2500 PSI 3200 RPM	12.00	
C1LK75	02-346573-5-B	V10-6S5S-12A20-LH	13 Tooth SAE B Splined	SAE	1	05	7.5	Opposite Inlet Port	CCW	2500 PSI 3200 RPM	12.00	
C1LK76	02-346573-2-B	V10-6S5S-12B20	13 Tooth SAE B Splined	SAE	1	05	7.5	90° CCW from Inlet	CW	2500 PSI 3200 RPM	12.00	
C1LK77	02-346573-6-B	V10-6S5S-12B20-LH	13 Tooth SAE B Splined	SAE	1	05	7.5	90° CW from Outlet	CCW	2500 PSI 3200 RPM	12.00	
C1LK78	02-346573-3-B	V10-6S5S-12C20	13 Tooth SAE B Splined	SAE	1	05	7.5	in-Line with Inlet	CW	2500 PSI 3200 RPM	12.00	
C1LK79	02-346573-7-B	V10-6S5S-12C20-LH	13 Tooth SAE B Splined	SAE	1	05	7.5	in-Line with Inlet	CCW	2500 PSI 3200 RPM	12.00	
C1LK80	02-346573-4-B	V10-6S5S-12D20	13 Tooth SAE B Splined	SAE	1	05	7.5	90° CW from Inlet	CW	2500 PSI 3200 RPM	12.00	
C1LK81	02-346573-8-B	V10-6S5S-12D20-LH	13 Tooth SAE B Splined	SAE	1	05	7.5	90° CW from Inlet	CCW	2500 PSI 3200 RPM	12.00	
C1LE95	386931-1-B	V10-1P6P-11A20	9 Tooth SAE A Splined	NPT	1.19	06	9	Opposite Inlet Port	CW	2200 PSI 3000 RPM	12.00	
C1LE96	386931-5-B	V10-1P6P-11A20-LH	9 Tooth SAE A Splined	NPT	1.19	06	9	Opposite Inlet Port	CCW	2200 PSI 3000 RPM	12.00	
C1LE97	386931-2-B	V10-1P6P-11B20	9 Tooth SAE A Splined	NPT	1.19	06	9	90° CCW from Inlet	CW	2200 PSI 3000 RPM	12.00	
C1LE98	386931-6-B	V10-1P6P-11B20-LH	9 Tooth SAE A Splined	NPT	1.19	06	9	90° CW from Outlet	CCW	2200 PSI 3000 RPM	12.00	
C1LE99	386931-3-B	V10-1P6P-11C20	9 Tooth SAE A Splined	NPT	1.19	06	9	in-Line with Inlet	CW	2200 PSI 3000 RPM	12.00	
C1LF11	386931-7-B	V10-1P6P-11C20-LH	9 Tooth SAE A Splined	NPT	1.19	06	9	in-Line with Inlet	CCW	2200 PSI 3000 RPM	12.00	
C1LF12	386931-4-B	V10-1P6P-11D20	9 Tooth SAE A Splined	NPT	1.19	06	9	90° CW from Inlet	CW	2200 PSI 3000 RPM	12.00	
C1LF13	386931-8-B	V10-1P6P-11D20-LH	9 Tooth SAE A Splined	NPT	1.19	06	9	90° CW from Inlet	CCW	2200 PSI 3000 RPM	12.00	
C1LF14	574644-1-B	V10-1P6P-12A20	13 Tooth SAE B Splined	NPT	1.19	06	9	Opposite Inlet Port	CW	2200 PSI 3000 RPM	12.00	





Pumps & Accessories

Single Hydraulic Pumps • Fixed Displacement
Vickers V10 Series Vane Pumps • To 10.5 GPM @ 1800 RPM



Vickers® V10 Vane Pumps

Catalog Part No.	Vickers Part No. See Note Above	Vickers Model Code. See Note Above	Shaft	Ports	Displ	Ring Size 1200 RPM	Flow GPM 1800 RPM	Outlet Position	Rot.	Max. PSI & Max. RPM	Wt.	Price Each
C1LF15	574644-5-B	V10-1P6P-12A20-LH	13 Tooth SAE B Splined	NPT	1.19	06	9	Opposite Inlet Port	CCW	2200 PSI 3000 RPM	12.00	
C1LF16	574644-2-B	V10-1P6P-12B20	13 Tooth SAE B Splined	NPT	1.19	06	9	90° CCW from Inlet	CW	2200 PSI 3000 RPM	12.00	
C1LF17	574644-6-B	V10-1P6P-12B20-LH	13 Tooth SAE B Splined	NPT	1.19	06	9	90° CW from Outlet	CCW	2200 PSI 3000 RPM	12.00	
C1LF18	574644-3-B	V10-1P6P-12C20	13 Tooth SAE B Splined	NPT	1.19	06	9	in-Line with Inlet	CW	2200 PSI 3000 RPM	12.00	
C1LF19	574644-7-B	V10-1P6P-12C20-LH	13 Tooth SAE B Splined	NPT	1.19	06	9	in-Line with Inlet	CCW	2200 PSI 3000 RPM	12.00	
C1LF20	574644-4-B	V10-1P6P-12D20	13 Tooth SAE B Splined	NPT	1.19	06	9	90° CW from Inlet	CW	2200 PSI 3000 RPM	12.00	
C1LF21	574644-8-B	V10-1P6P-12D20-LH	13 Tooth SAE B Splined	NPT	1.19	06	9	90° CW from Inlet	CCW	2200 PSI 3000 RPM	12.00	
C1LF22	382086-1-B	V10-1P6P-1A20	3/4 Straight Keyed	NPT	1.19	06	9	Opposite Inlet Port	CW	2200 PSI 3000 RPM	12.00	
C1LF23	382086-5-B	V10-1P6P-1A20-LH	3/4 Straight Keyed	NPT	1.19	06	9	Opposite Inlet Port	CCW	2200 PSI 3000 RPM	12.00	
C1LF24	382086-2-B	V10-1P6P-1B20	3/4 Straight Keyed	NPT	1.19	06	9	90° CCW from Inlet	CW	2200 PSI 3000 RPM	12.00	
C1LF25	382086-6-B	V10-1P6P-1B20-LH	3/4 Straight Keyed	NPT	1.19	06	9	90° CW from Outlet	CCW	2200 PSI 3000 RPM	12.00	
C1LF26	382086-3-B	V10-1P6P-1C20	3/4 Straight Keyed	NPT	1.19	06	9	in-Line with Inlet	CW	2200 PSI 3000 RPM	12.00	
C1LF27	382086-7-B	V10-1P6P-1C20-LH	3/4 Straight Keyed	NPT	1.19	06	9	in-Line with Inlet	CCW	2200 PSI 3000 RPM	12.00	
C1LF28	382086-4-B	V10-1P6P-1D20	3/4 Straight Keyed	NPT	1.19	06	9	90° CW from Inlet	CW	2200 PSI 3000 RPM	12.00	
C1LF29	382086-8-B	V10-1P6P-1D20-LH	3/4 Straight Keyed	NPT	1.19	06	9	90° CW from Inlet	CCW	2200 PSI 3000 RPM	12.00	
C1LF30	397945-1-B	V10-1P6P-38A20	3/4 - 11 Tooth Splined	NPT	1.19	06	9	Opposite Inlet Port	CW	2200 PSI 3000 RPM	12.00	
C1LF31	397945-5-B	V10-1P6P-38A20-LH	3/4 - 11 Tooth Splined	NPT	1.19	06	9	Opposite Inlet Port	CCW	2200 PSI 3000 RPM	12.00	
C1LF32	397945-2-B	V10-1P6P-38B20	3/4 - 11 Tooth Splined	NPT	1.19	06	9	90° CCW from Inlet	CW	2200 PSI 3000 RPM	12.00	
C1LF33	397945-6-B	V10-1P6P-38B20-LH	3/4 - 11 Tooth Splined	NPT	1.19	06	9	90° CW from Outlet	CCW	2200 PSI 3000 RPM	12.00	
C1LF34	397945-3-B	V10-1P6P-38C20	3/4 - 11 Tooth Splined	NPT	1.19	06	9	in-Line with Inlet	CW	2200 PSI 3000 RPM	12.00	
C1LF35	397945-7-B	V10-1P6P-38C20-LH	3/4 - 11 Tooth Splined	NPT	1.19	06	9	in-Line with Inlet	CCW	2200 PSI 3000 RPM	12.00	
C1LF36	397945-4-B	V10-1P6P-38D20	3/4 - 11 Tooth Splined	NPT	1.19	06	9	90° CW from Inlet	CW	2200 PSI 3000 RPM	12.00	
C1LF37	397945-8-B	V10-1P6P-38D20-LH	3/4 - 11 Tooth Splined	NPT	1.19	06	9	90° CW from Inlet	CCW	2200 PSI 3000 RPM	12.00	
C1LH52	382094-1-B	V10-1S6S-11A20	9 Tooth SAE A Splined	SAE	1.19	06	9	Opposite Inlet Port	CW	2200 PSI 3000 RPM	12.00	
C1LH53	382094-5-B	V10-1S6S-11A20-LH	9 Tooth SAE A Splined	SAE	1.19	06	9	Opposite Inlet Port	CCW	2200 PSI 3000 RPM	12.00	
C1LH54	382094-2-B	V10-1S6S-11B20	9 Tooth SAE A Splined	SAE	1.19	06	9	90° CCW from Inlet	CW	2200 PSI 3000 RPM	12.00	
C1LH55	382094-6-B	V10-1S6S-11B20-LH	9 Tooth SAE A Splined	SAE	1.19	06	9	90° CW from Outlet	CCW	2200 PSI 3000 RPM	12.00	
C1LH56	382094-3-B	V10-1S6S-11C20	9 Tooth SAE A Splined	SAE	1.19	06	9	in-Line with Inlet	CW	2200 PSI 3000 RPM	12.00	
C1LH57	382094-7-B	V10-1S6S-11C20-LH	9 Tooth SAE A Splined	SAE	1.19	06	9	in-Line with Inlet	CCW	2200 PSI 3000 RPM	12.00	



This page is part of a complete catalog which contains technical and safety data that must be reviewed when selecting a product

Pumps & Accessories



Single Hydraulic Pumps • Fixed Displacement
Vickers V10 Series Vane Pumps • To 10.5 GPM @ 1800 RPM



Vickers® V10 Vane Pumps

Catalog Part No.	Vickers Part No. See Note Above	Vickers Model Code. See Note Above	Shaft	Ports	Displ	Ring Size 1200 RPM	Flow GPM 1800 RPM	Outlet Position	Rot.	Max. PSI & Max. RPM	Wt.	Price Each
C1LH58	382094-4-B	V10-1S6S-11D20	9 Tooth SAE A Splined	SAE	1.19	06	9	90° CW from Inlet	CW	2200 PSI 3000 RPM	12.00	
C1LH59	382094-8-B	V10-1S6S-11D20-LH	9 Tooth SAE A Splined	SAE	1.19	06	9	90° CW from Inlet	CCW	2200 PSI 3000 RPM	12.00	
C1LH60	387516-1-B	V10-1S6S-12A20	13 Tooth SAE B Splined	SAE	1.19	06	9	Opposite Inlet Port	CW	2200 PSI 3000 RPM	12.00	
C1LH61	387516-5-B	V10-1S6S-12A20-LH	13 Tooth SAE B Splined	SAE	1.19	06	9	Opposite Inlet Port	CCW	2200 PSI 3000 RPM	12.00	
C1LH62	387516-2-B	V10-1S6S-12B20	13 Tooth SAE B Splined	SAE	1.19	06	9	90° CCW from Inlet	CW	2200 PSI 3000 RPM	12.00	
C1LH63	387516-6-B	V10-1S6S-12B20-LH	13 Tooth SAE B Splined	SAE	1.19	06	9	90° CW from Outlet	CCW	2200 PSI 3000 RPM	12.00	
C1LH64	387516-3-B	V10-1S6S-12C20	13 Tooth SAE B Splined	SAE	1.19	06	9	in-Line with Inlet	CW	2200 PSI 3000 RPM	12.00	
C1LH65	387516-7-B	V10-1S6S-12C20-LH	13 Tooth SAE B Splined	SAE	1.19	06	9	in-Line with Inlet	CCW	2200 PSI 3000 RPM	12.00	
C1LH66	387516-4-B	V10-1S6S-12D20	13 Tooth SAE B Splined	SAE	1.19	06	9	90° CW from Inlet	CW	2200 PSI 3000 RPM	12.00	
C1LH67	387516-8-B	V10-1S6S-12D20-LH	13 Tooth SAE B Splined	SAE	1.19	06	9	90° CW from Inlet	CCW	2200 PSI 3000 RPM	12.00	
C1LH68	387500-1-B	V10-1S6S-1A20	3/4 Straight Keyed	SAE	1.19	06	9	Opposite Inlet Port	CW	2200 PSI 3000 RPM	12.00	
C1LH69	387500-5-B	V10-1S6S-1A20-LH	3/4 Straight Keyed	SAE	1.19	06	9	Opposite Inlet Port	CCW	2200 PSI 3000 RPM	12.00	
C1LH70	387500-2-B	V10-1S6S-1B20	3/4 Straight Keyed	SAE	1.19	06	9	90° CCW from Inlet	CW	2200 PSI 3000 RPM	12.00	
C1LH71	387500-6-B	V10-1S6S-1B20-LH	3/4 Straight Keyed	SAE	1.19	06	9	90° CW from Outlet	CCW	2200 PSI 3000 RPM	12.00	
C1LH72	387500-3-B	V10-1S6S-1C20	3/4 Straight Keyed	SAE	1.19	06	9	in-Line with Inlet	CW	2200 PSI 3000 RPM	12.00	
C1LH73	387500-7-B	V10-1S6S-1C20-LH	3/4 Straight Keyed	SAE	1.19	06	9	in-Line with Inlet	CCW	2200 PSI 3000 RPM	12.00	
C1LH74	387500-4-B	V10-1S6S-1D20	3/4 Straight Keyed	SAE	1.19	06	9	90° CW from Inlet	CW	2200 PSI 3000 RPM	12.00	
C1LH75	387500-8-B	V10-1S6S-1D20-LH	3/4 Straight Keyed	SAE	1.19	06	9	90° CW from Inlet	CCW	2200 PSI 3000 RPM	12.00	
C1LH76	579781-1-B	V10-1S6S-38A20	3/4 - 11 Tooth Splined	SAE	1.19	06	9	Opposite Inlet Port	CW	2200 PSI 3000 RPM	12.00	
C1LH77	579781-5-B	V10-1S6S-38A20-LH	3/4 - 11 Tooth Splined	SAE	1.19	06	9	Opposite Inlet Port	CCW	2200 PSI 3000 RPM	12.00	
C1LH78	579781-2-B	V10-1S6S-38B20	3/4 - 11 Tooth Splined	SAE	1.19	06	9	90° CCW from Inlet	CW	2200 PSI 3000 RPM	12.00	
C1LH79	579781-6-B	V10-1S6S-38B20-LH	3/4 - 11 Tooth Splined	SAE	1.19	06	9	90° CW from Outlet	CCW	2200 PSI 3000 RPM	12.00	
C1LH80	579781-3-B	V10-1S6S-38C20	3/4 - 11 Tooth Splined	SAE	1.19	06	9	in-Line with Inlet	CW	2200 PSI 3000 RPM	12.00	
C1LH81	579781-7-B	V10-1S6S-38C20-LH	3/4 - 11 Tooth Splined	SAE	1.19	06	9	in-Line with Inlet	CCW	2200 PSI 3000 RPM	12.00	
C1LH82	579781-4-B	V10-1S6S-38D20	3/4 - 11 Tooth Splined	SAE	1.19	06	9	90° CW from Inlet	CW	2200 PSI 3000 RPM	12.00	
C1LH83	579781-8-B	V10-1S6S-38D20-LH	3/4 - 11 Tooth Splined	SAE	1.19	06	9	90° CW from Inlet	CCW	2200 PSI 3000 RPM	12.00	
C1LL17	02-347567-1-B	V10-6S6S-12A20	13 Tooth SAE B Splined	SAE	1.19	06	9	Opposite Inlet Port	CW	2200 PSI 3000 RPM	12.00	
C1LL18	02-347567-5-B	V10-6S6S-12A20-LH	13 Tooth SAE B Splined	SAE	1.19	06	9	Opposite Inlet Port	CCW	2200 PSI 3000 RPM	12.00	
C1LL19	02-347567-2-B	V10-6S6S-12B20	13 Tooth SAE B Splined	SAE	1.19	06	9	90° CCW from Inlet	CW	2200 PSI 3000 RPM	12.00	





Pumps & Accessories

Single Hydraulic Pumps • Fixed Displacement
Vickers V10 Series Vane Pumps • To 10.5 GPM @ 1800 RPM



Vickers® V10 Vane Pumps

Catalog Part No.	Vickers Part No. See Note Above	Vickers Model Code. See Note Above	Shaft	Ports	Displ	Ring Size 1200 RPM	Flow GPM 1800 RPM	Outlet Position	Rot.	Max. PSI & Max. RPM	Wt.	Price Each
C11L20	02-347567-6-B	V10-6S6S-12B20-LH	13 Tooth SAE B Splined	SAE	1.19	06	9	90° CW from Outlet	CCW	2200 PSI 3000 RPM	12.00	
C11L21	02-347567-3-B	V10-6S6S-12C20	13 Tooth SAE B Splined	SAE	1.19	06	9	in-Line with Inlet	CW	2200 PSI 3000 RPM	12.00	
C11L22	02-347567-7-B	V10-6S6S-12C20-LH	13 Tooth SAE B Splined	SAE	1.19	06	9	in-Line with Inlet	CCW	2200 PSI 3000 RPM	12.00	
C11L23	02-347567-4-B	V10-6S6S-12D20	13 Tooth SAE B Splined	SAE	1.19	06	9	90° CW from Inlet	CW	2200 PSI 3000 RPM	12.00	
C11L24	02-347567-8-B	V10-6S6S-12D20-LH	13 Tooth SAE B Splined	SAE	1.19	06	9	90° CW from Inlet	CCW	2200 PSI 3000 RPM	12.00	
C11F38	382062-1-B	V10-1P7P-11A20	9 Tooth SAE A Splined	NPT	1.39	07	10.5	Opposite Inlet Port	CW	2000 PSI 2800 RPM	12.00	
C11F39	382062-5-B	V10-1P7P-11A20-LH	9 Tooth SAE A Splined	NPT	1.39	07	10.5	Opposite Inlet Port	CCW	2000 PSI 2800 RPM	12.00	
C11F40	382062-2-B	V10-1P7P-11B20	9 Tooth SAE A Splined	NPT	1.39	07	10.5	90° CCW from Inlet	CW	2000 PSI 2800 RPM	12.00	
C11F41	382062-6-B	V10-1P7P-11B20-LH	9 Tooth SAE A Splined	NPT	1.39	07	10.5	90° CW from Outlet	CCW	2000 PSI 2800 RPM	12.00	
C11F42	382062-3-B	V10-1P7P-11C20	9 Tooth SAE A Splined	NPT	1.39	07	10.5	in-Line with Inlet	CW	2000 PSI 2800 RPM	12.00	
C11F43	382062-7-B	V10-1P7P-11C20-LH	9 Tooth SAE A Splined	NPT	1.39	07	10.5	in-Line with Inlet	CCW	2000 PSI 2800 RPM	12.00	
C11F44	382062-4-B	V10-1P7P-11D20	9 Tooth SAE A Splined	NPT	1.39	07	10.5	90° CW from Inlet	CW	2000 PSI 2800 RPM	12.00	
C11F45	382062-8-B	V10-1P7P-11D20-LH	9 Tooth SAE A Splined	NPT	1.39	07	10.5	90° CW from Inlet	CCW	2000 PSI 2800 RPM	12.00	
C11F46	408629-1-B	V10-1P7P-12A20	13 Tooth SAE B Splined	NPT	1.39	07	10.5	Opposite Inlet Port	CW	2000 PSI 2800 RPM	12.00	
C11F47	408629-5-B	V10-1P7P-12A20-LH	13 Tooth SAE B Splined	NPT	1.39	07	10.5	Opposite Inlet Port	CCW	2000 PSI 2800 RPM	12.00	
C11F48	408629-2-B	V10-1P7P-12B20	13 Tooth SAE B Splined	NPT	1.39	07	10.5	90° CCW from Inlet	CW	2000 PSI 2800 RPM	12.00	
C11F49	408629-6-B	V10-1P7P-12B20-LH	13 Tooth SAE B Splined	NPT	1.39	07	10.5	90° CW from Outlet	CCW	2000 PSI 2800 RPM	12.00	
C11F50	408629-3-B	V10-1P7P-12C20	13 Tooth SAE B Splined	NPT	1.39	07	10.5	in-Line with Inlet	CW	2000 PSI 2800 RPM	12.00	
C11F51	408629-7-B	V10-1P7P-12C20-LH	13 Tooth SAE B Splined	NPT	1.39	07	10.5	in-Line with Inlet	CCW	2000 PSI 2800 RPM	12.00	
C11F52	408629-4-B	V10-1P7P-12D20	13 Tooth SAE B Splined	NPT	1.39	07	10.5	90° CW from Inlet	CW	2000 PSI 2800 RPM	12.00	
C11F53	408629-8-B	V10-1P7P-12D20-LH	13 Tooth SAE B Splined	NPT	1.39	07	10.5	90° CW from Inlet	CCW	2000 PSI 2800 RPM	12.00	
C11F54	382087-1-B	V10-1P7P-1A20	3/4 Straight Keyed	NPT	1.39	07	10.5	Opposite Inlet Port	CW	2000 PSI 2800 RPM	12.00	
C11F55	382087-5-B	V10-1P7P-1A20-LH	3/4 Straight Keyed	NPT	1.39	07	10.5	Opposite Inlet Port	CCW	2000 PSI 2800 RPM	12.00	
C11F56	382087-2-B	V10-1P7P-1B20	3/4 Straight Keyed	NPT	1.39	07	10.5	90° CCW from Inlet	CW	2000 PSI 2800 RPM	12.00	
C11F57	382087-6-B	V10-1P7P-1B20-LH	3/4 Straight Keyed	NPT	1.39	07	10.5	90° CW from Outlet	CCW	2000 PSI 2800 RPM	12.00	
C11F58	382087-3-B	V10-1P7P-1C20	3/4 Straight Keyed	NPT	1.39	07	10.5	in-Line with Inlet	CW	2000 PSI 2800 RPM	12.00	
C11F59	382087-7-B	V10-1P7P-1C20-LH	3/4 Straight Keyed	NPT	1.39	07	10.5	in-Line with Inlet	CCW	2000 PSI 2800 RPM	12.00	
C11F60	382087-4-B	V10-1P7P-1D20	3/4 Straight Keyed	NPT	1.39	07	10.5	90° CW from Inlet	CW	2000 PSI 2800 RPM	12.00	
C11F61	382087-8-B	V10-1P7P-1D20-LH	3/4 Straight Keyed	NPT	1.39	07	10.5	90° CW from Inlet	CCW	2000 PSI 2800 RPM	12.00	



Pumps & Accessories



Single Hydraulic Pumps • Fixed Displacement
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Vickers® V10 Vane Pumps

Catalog Part No.	Vickers Part No. See Note Above	Vickers Model Code. See Note Above	Shaft	Ports	Displ	Ring Size 1200 RPM	Flow GPM 1800 RPM	Outlet Position	Rot.	Max. PSI & Max. RPM	Wt.	Price Each
C1LF62	586405-1-B	V10-1P7P-38A20	3/4 - 11 Tooth Splined	NPT	1.39	07	10.5	Opposite Inlet Port	CW	2000 PSI 2800 RPM	12.00	
C1LF63	586405-5-B	V10-1P7P-38A20-LH	3/4 - 11 Tooth Splined	NPT	1.39	07	10.5	Opposite Inlet Port	CCW	2000 PSI 2800 RPM	12.00	
C1LF64	586405-2-B	V10-1P7P-38B20	3/4 - 11 Tooth Splined	NPT	1.39	07	10.5	90° CCW from Inlet	CW	2000 PSI 2800 RPM	12.00	
C1LF65	586405-6-B	V10-1P7P-38B20-LH	3/4 - 11 Tooth Splined	NPT	1.39	07	10.5	90° CW from Outlet	CCW	2000 PSI 2800 RPM	12.00	
C1LF66	586405-3-B	V10-1P7P-38C20	3/4 - 11 Tooth Splined	NPT	1.39	07	10.5	in-Line with Inlet	CW	2000 PSI 2800 RPM	12.00	
C1LF67	586405-7-B	V10-1P7P-38C20-LH	3/4 - 11 Tooth Splined	NPT	1.39	07	10.5	in-Line with Inlet	CCW	2000 PSI 2800 RPM	12.00	
C1LF68	586405-4-B	V10-1P7P-38D20	3/4 - 11 Tooth Splined	NPT	1.39	07	10.5	90° CW from Inlet	CW	2000 PSI 2800 RPM	12.00	
C1LF69	586405-8-B	V10-1P7P-38D20-LH	3/4 - 11 Tooth Splined	NPT	1.39	07	10.5	90° CW from Inlet	CCW	2000 PSI 2800 RPM	12.00	
C1LH84	385857-1-B	V10-1S7S-11A20	9 Tooth SAE A Splined	SAE	1.39	07	10.5	Opposite Inlet Port	CW	2000 PSI 2800 RPM	12.00	
C1LH85	385857-5-B	V10-1S7S-11A20-LH	9 Tooth SAE A Splined	SAE	1.39	07	10.5	Opposite Inlet Port	CCW	2000 PSI 2800 RPM	12.00	
C1LH86	385857-2-B	V10-1S7S-11B20	9 Tooth SAE A Splined	SAE	1.39	07	10.5	90° CCW from Inlet	CW	2000 PSI 2800 RPM	12.00	
C1LH87	385857-6-B	V10-1S7S-11B20-LH	9 Tooth SAE A Splined	SAE	1.39	07	10.5	90° CW from Outlet	CCW	2000 PSI 2800 RPM	12.00	
C1LH88	385857-3-B	V10-1S7S-11C20	9 Tooth SAE A Splined	SAE	1.39	07	10.5	in-Line with Inlet	CW	2000 PSI 2800 RPM	12.00	
C1LH89	385857-7-B	V10-1S7S-11C20-LH	9 Tooth SAE A Splined	SAE	1.39	07	10.5	in-Line with Inlet	CCW	2000 PSI 2800 RPM	12.00	
C1LH90	385857-4-B	V10-1S7S-11D20	9 Tooth SAE A Splined	SAE	1.39	07	10.5	90° CW from Inlet	CW	2000 PSI 2800 RPM	12.00	
C1LH91	385857-8-B	V10-1S7S-11D20-LH	9 Tooth SAE A Splined	SAE	1.39	07	10.5	90° CW from Inlet	CCW	2000 PSI 2800 RPM	12.00	
C1LH92	401055-1-B	V10-1S7S-12A20	13 Tooth SAE B Splined	SAE	1.39	07	10.5	Opposite Inlet Port	CW	2000 PSI 2800 RPM	12.00	
C1LH93	401055-5-B	V10-1S7S-12A20-LH	13 Tooth SAE B Splined	SAE	1.39	07	10.5	Opposite Inlet Port	CCW	2000 PSI 2800 RPM	12.00	
C1LH94	401055-2-B	V10-1S7S-12B20	13 Tooth SAE B Splined	SAE	1.39	07	10.5	90° CCW from Inlet	CW	2000 PSI 2800 RPM	12.00	
C1LH95	401055-6-B	V10-1S7S-12B20-LH	13 Tooth SAE B Splined	SAE	1.39	07	10.5	90° CW from Outlet	CCW	2000 PSI 2800 RPM	12.00	
C1LH96	401055-3-B	V10-1S7S-12C20	13 Tooth SAE B Splined	SAE	1.39	07	10.5	in-Line with Inlet	CW	2000 PSI 2800 RPM	12.00	
C1LH97	401055-7-B	V10-1S7S-12C20-LH	13 Tooth SAE B Splined	SAE	1.39	07	10.5	in-Line with Inlet	CCW	2000 PSI 2800 RPM	12.00	
C1LH98	401055-4-B	V10-1S7S-12D20	13 Tooth SAE B Splined	SAE	1.39	07	10.5	90° CW from Inlet	CW	2000 PSI 2800 RPM	12.00	
C1LH99	401055-8-B	V10-1S7S-12D20-LH	13 Tooth SAE B Splined	SAE	1.39	07	10.5	90° CW from Inlet	CCW	2000 PSI 2800 RPM	12.00	
C1LJ11	382095-1-B	V10-1S7S-1A20	3/4 Straight Keyed	SAE	1.39	07	10.5	Opposite Inlet Port	CW	2000 PSI 2800 RPM	12.00	
C1LJ12	382095-5-B	V10-1S7S-1A20-LH	3/4 Straight Keyed	SAE	1.39	07	10.5	Opposite Inlet Port	CCW	2000 PSI 2800 RPM	12.00	
C1LJ13	382095-2-B	V10-1S7S-1B20	3/4 Straight Keyed	SAE	1.39	07	10.5	90° CCW from Inlet	CW	2000 PSI 2800 RPM	12.00	
C1LJ14	382095-6-B	V10-1S7S-1B20-LH	3/4 Straight Keyed	SAE	1.39	07	10.5	90° CW from Outlet	CCW	2000 PSI 2800 RPM	12.00	
C1LJ15	382095-3-B	V10-1S7S-1C20	3/4 Straight Keyed	SAE	1.39	07	10.5	in-Line with Inlet	CW	2000 PSI 2800 RPM	12.00	





Pumps & Accessories

Single Hydraulic Pumps • Fixed Displacement
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Vickers® V10 Vane Pumps

Catalog Part No.	Vickers Part No. See Note Above	Vickers Model Code. See Note Above	Shaft	Ports	Displ	Ring Size 1200 RPM	Flow GPM 1800 RPM	Outlet Position	Rot.	Max. PSI & Max. RPM	Wt.	Price Each
C1LJ16	382095-7-B	V10-1S7S-1C20-LH	3/4 Straight Keyed	SAE	1.39	07	10.5	in-Line with Inlet	CCW	2000 PSI 2800 RPM	12.00	
C1LJ17	382095-4-B	V10-1S7S-1D20	3/4 Straight Keyed	SAE	1.39	07	10.5	90° CW from Inlet	CW	2000 PSI 2800 RPM	12.00	
C1LJ18	382095-8-B	V10-1S7S-1D20-LH	3/4 Straight Keyed	SAE	1.39	07	10.5	90° CW from Inlet	CCW	2000 PSI 2800 RPM	12.00	
C1LJ19	452380-1-B	V10-1S7S-38A20	3/4 - 11 Tooth Splined	SAE	1.39	07	10.5	Opposite Inlet Port	CW	2000 PSI 2800 RPM	12.00	
C1LJ20	452380-5-B	V10-1S7S-38A20-LH	3/4 - 11 Tooth Splined	SAE	1.39	07	10.5	Opposite Inlet Port	CCW	2000 PSI 2800 RPM	12.00	
C1LJ21	452380-2-B	V10-1S7S-38B20	3/4 - 11 Tooth Splined	SAE	1.39	07	10.5	90° CCW from Inlet	CW	2000 PSI 2800 RPM	12.00	
C1LJ22	452380-6-B	V10-1S7S-38B20-LH	3/4 - 11 Tooth Splined	SAE	1.39	07	10.5	90° CW from Outlet	CCW	2000 PSI 2800 RPM	12.00	
C1LJ23	452380-3-B	V10-1S7S-38C20	3/4 - 11 Tooth Splined	SAE	1.39	07	10.5	in-Line with Inlet	CW	2000 PSI 2800 RPM	12.00	
C1LJ24	452380-7-B	V10-1S7S-38C20-LH	3/4 - 11 Tooth Splined	SAE	1.39	07	10.5	in-Line with Inlet	CCW	2000 PSI 2800 RPM	12.00	
C1LJ25	452380-4-B	V10-1S7S-38D20	3/4 - 11 Tooth Splined	SAE	1.39	07	10.5	90° CW from Inlet	CW	2000 PSI 2800 RPM	12.00	
C1LJ26	452380-8-B	V10-1S7S-38D20-LH	3/4 - 11 Tooth Splined	SAE	1.39	07	10.5	90° CW from Inlet	CCW	2000 PSI 2800 RPM	12.00	
C1LL53	719AR00056A-B	V10-6S7S-12C20	13 Tooth SAE B Splined	SAE	1.39	07	10.5	in-Line with Inlet	CW	2000 PSI 2800 RPM	12.00	
C1LL54	719AR00014A-B	V10-6S7S-12C20-LH	13 Tooth SAE B Splined	SAE	1.39	07	10.5	in-Line with Inlet	CCW	2000 PSI 2800 RPM	12.00	

Note: Flow: GPM @ 1800 RPM & 100 PSI. Displacement: Cubic inches per revolution. Max PSI & Max RPM based on using petroleum oil at 120°F / 100SUS and at 0 PSI inlet pressure. Min Speed: 600 RPM.

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Single Hydraulic Pumps • Fixed Displacement
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Parts for Vickers® V10 Vane Pumps



1	Mounting & Inlet Port Connection			
Code	Description	Body	Qty	
1P	SAE "A" with 1" NPT Pipe Thread	352699	1	
1S	SAE "A" with 1-5/16-12 Straight Thread	317668	1	
6S	SAE "B" with Straight Thread	452305	1	

2	GPM Ring Assembly					
Code	Description	Cart Kit	Qty	Boils	Qty	Pins Qty
1	1 GPM at 1200 rpm	923471	1	011156	4	002460 2
2	2 GPM at 1200 rpm	923470	1	011156	4	002460 2
3	3 GPM at 1200 rpm	923496	1	011156	4	002460 2
4	4 GPM at 1200 rpm	923469	1	001278	4	039640 2
5	5 GPM at 1200 rpm	923468	1	001278	4	039640 2
6	6 GPM at 1200 rpm	923497	1	001278	4	016662 2
7	7 GPM at 1200 rpm	923498	1	001278	4	016662 2

3	Outlet Port Connection			
Code	Description	Cover	Qty	
P	1" NPT Pipe Thread	372863	1	
S	1-5/16-12 Straight Thread	372865	1	

4	Shaft				
Code	Description	Shaft	Qty	Key	Qty
1	3/4" Straight Keyed Shaft	374338	1	142843	1
11	9 Tooth Spline	374339	1	N/A	0
12	13 Tooth Spline	375480	1	N/A	0
38	11 Tooth Spline	387481	1	N/A	0

5	Pressure Port Position (viewed from cover end)	
Code	Description	
A	Opposite inlet	
B	90 degree CCW from inlet	
C	Inline with inlet	
D	90 degree CW from inlet	

6	Pump Rotation (viewed from shaft end)	
Code	Description	
LH	Left Hand rotation (CCW)	
Blank	Right Hand rotation (CW)	

Used in All Pump Assemblies		
Description	P/N	Qty
Spring	345262	1
Pressure Plate	374343	1
Shaft seal	263585	1
Retaining ring	106641	1
Bearing	148423	1
Retaining ring	087541	1

Parts for Vickers® V10 Vane Pumps

Catalog Part No.	Vickers Model	Description	Wt.	Price Each
•C1AK63	148423	Bearing	0.16	
C1LB42	352699	Body, SAE-A, 1" NPT Inlet		
C1LB39	317668	Body, SAE-A, Straight Thread Inlet		
C1LB52	452305	Body, SAE-B, Straight Thread Inlet	6.62	
C1CC33	923471	Cartridge Kit, Ring Size 01	1.31	
C1CC32	923470	Cartridge Kit, Ring Size 02	1.33	
C1CC35	923496	Cartridge Kit, Ring Size 03	1.30	
C1CC31	923469	Cartridge Kit, Ring Size 04	1.82	
C1CC30	923468	Cartridge Kit, Ring Size 05	1.79	
C1CC36	923497	Cartridge Kit, Ring Size 06	2.23	
•C1CC37	923498	Cartridge Kit, Ring Size 07	2.20	
C1LB44	372863	Outlet Port, 1" NPT		
C1LB45	372865	Outlet Port, Straight Thread		
C1AB15	002460	Pin for Pumps with Ring Size 01 02 03	0.01	
C1AD66	039640	Pin for Pumps with Ring Size 04 05	0.15	
C1AB97	016662	Pin for Pumps with Ring Size 06 07	0.02	
C1JZ38	374343	Pressure Plate Sub Assy	0.67	
C1LA92	106641	Retaining Ring		
C1LA90	087541	Retaining Ring	0.10	
C1AB92	011156	Bolts for Pumps with Ring Size 01 02 03	0.11	



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Parts for Vickers® V10 Vane Pumps

Catalog Part No.	Vickers Model	Description	Wt.	Price Each
C1AA63	001278	Bolts for Pumps with Ring Size 04 05 06 07	0.12	
•C1CC38	923548	Seal Kit, Buna-N	0.04	
C1BM54	374338	#1 Shaft, 3/4" Straight Keyed	0.43	
•C1BM55	374339	#11 Shaft, 9 Tooth SAE A Splined	0.32	
•C1EH16	387481	#38 Shft, 11 Tooth Splined	0.35	
•C1BM56	375480	#12 Shaft, 13 Tooth SAE B Splined	0.44	
C1AK61	142843	Shaft Key, 3/16 x 1	0.01	
•C1BH93	263585	Shaft Seal, Buna-N	0.02	
C1LB40	345262	Spring		

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Pumps & Accessories

Single Hydraulic Pumps • Fixed Displacement
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Vickers® V10F Vane Pumps Flow Control Cover



The Flow Control Cover limits flow to the operating system to the desired maximum. Excess flow is diverted to tank. A relief valve is included that limits maximum system pressure.

Unless noted otherwise, all pumps have: 2-Bolt SAE A Mounting Flange. 1" NPT Inlet, 3/4-16 St.Thd. Outlet, 1/2" NPT Tank.

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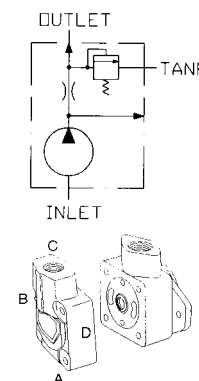
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Pumps are stocked as shown in table.
ANY inlet position and rotation is available for same-day shipment.
See Model Codes page to select a different model code.

Vickers® V10F Vane Pumps • Flow Control Cover

Catalog Part No.	Vickers Part No. See Note Above	Vickers Model See Note Above	Shaft	Displ	Ring Size 1200 RPM	Flow Rate & Relief Setting	Outlet Position	Rot.	Max. PSI & Max. RPM	Wt.	Price Each
C1AD43	02-306253-1	V10F-1P4P-11A4D20	9 Tooth SAE A Splined	0.80	04	4.0 GPM 1000 PSI	Opposite inlet (A)	CW	2500 PSI 3400 RPM	12.67	

Flow Rate: Orifice Flow Rate (GPM). Non-adjustable pressure compensated fixed orifice in rear cover.

Relief Setting: Non-adjustable replaceable cartridge.

Displacement: Cubic inches per revolution.

Max. PSI & Max. RPM: Based on using petroleum oil at 120°F / 100SUS and at 0 PSI inlet pressure.

Minimum Speed: 600 RPM.

Vickers Part No.	Vickers Model	Ring Size	Cartridge Kit	Shaft	Shaft Key	Shaft Seal	Seal Kit
02-306253-1	V10F-1P4P-11A4D20	04	02-341777	374339 9Tooth-SAE-A-Splined	--	263585	923548

Vickers® V10F Vane Pumps • Replacement Parts List

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1MG55	432509	Bolt, Sizes 01-03		
C1MG36	295344	Bolt, Sizes 04-05		
C1MG56	432511	Bolt, Sizes 06-07		
C1CC33	923471	Cartridge Kit, Ring Size 01	1.31	
C1CC32	923470	Cartridge Kit, Ring Size 02	1.33	
C1CC35	923496	Cartridge Kit, Ring Size 03	1.30	
C1CC31	923469	Cartridge Kit, Ring Size 04	1.82	
C1CC30	923468	Cartridge Kit, Ring Size 05	1.79	
C1CC36	923497	Cartridge Kit, Ring Size 06	2.23	
C1CC37	923498	Cartridge Kit, Ring Size 07	2.20	
C1MG40	372851	Cover, "T" Connection		



Pumps & Accessories

Single Hydraulic Pumps • Fixed Displacement
Vickers V10F Series Vane Pumps • To 10.5 GPM @ 1800 RPM



Vickers® V10F Vane Pumps • Replacement Parts List

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1MG42	379543	Cover, "P" Connection		
C1JS74	002456	Pin for Sizes 04 and 05	0.01	
C1MG41	374865	Plug		
C1JZ38	374343	Pressure Plate Sub Assy	0.67	
C1MG26	155023	Ring		
•C1CC38	923548	Seal Kit, Buna-N	0.04	
•C1BH93	263585	Shaft Seal, Buna-N	0.02	
C1BM54	374338	#1 Shaft, 3/4" Straight Keyed	0.43	
•C1BM55	374339	#11 Shaft, 9Tooth SAE A Splined	0.32	
•C1BM56	375480	#12 Shaft, 13Tooth SAE B Splined	0.44	
•C1EH16	387481	#38 Shaft, 11 Tooth Splined	0.35	
C1AK61	142843	Shaft Key, 3/16 x 1	0.01	

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Single Hydraulic Pumps • Fixed Displacement
Vickers V20 Series Vane Pumps • To 19.5 GPM @ 1800 RPM

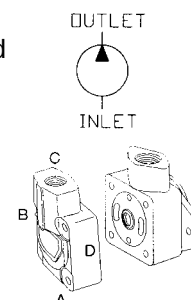


Vickers® V20 Vane Pumps



Mounting Flange: 2-Bolt SAE A or 2-Bolt SAE B
Ports: 1-1/4" NPT inlet and 3/4" NPT outlet, or 1-5/8"-12 SAE inlet and 1-1/16"-12 outlet.
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Pumps are available as shown in table.

Additional configurations are available for delivery in 24-48 hours.

See Model Codes page to select a different configuration.

Items ending with "-B" are assembled and tested in-house using genuine Eaton/Vickers parts and are not painted.

Vickers® V20 Vane Pumps

Catalog Part No.	Vickers Part No. See Note Above	Vickers Model Code See Note Above	Shaft	Ports	Displ	Ring Size 1200 RPM	Flow GPM 1800 RPM	Outlet Position	Rot.	Max. PSI & Max. RPM	Wt.	Price Each
C1LN23	02-143242-1-B	V20-1P5P-11A11	11 Tooth Splined Extended Length	NPT	1	05	7.5	Opposite Inlet	CW	2500 PSI 3400 RPM	16.00	
C1LN24	02-143242-5-B	V20-1P5P-11A11-L	11 Tooth Splined Extended Length	NPT	1	05	7.5	Opposite Inlet	CCW	2500 PSI 3400 RPM	16.00	
C1LN25	02-143242-2-B	V20-1P5P-11B11	11 Tooth Splined Extended Length	NPT	1	05	7.5	90° CCW from Inlet	CW	2500 PSI 3400 RPM	16.00	
C1LN26	02-143242-6-B	V20-1P5P-11B11-L	11 Tooth Splined Extended Length	NPT	1	05	7.5	90° CCW from Inlet	CCW	2500 PSI 3400 RPM	16.00	
C1LN27	02-143242-3-B	V20-1P5P-11C11	11 Tooth Splined Extended Length	NPT	1	05	7.5	Inline with Inlet	CW	2500 PSI 3400 RPM	16.00	
C1LN28	02-143242-7-B	V20-1P5P-11C11-L	11 Tooth Splined Extended Length	NPT	1	05	7.5	Inline with Inlet	CCW	2500 PSI 3400 RPM	16.00	
C1LN29	02-143242-4-B	V20-1P5P-11D11	11 Tooth Splined Extended Length	NPT	1	05	7.5	90° CW from Inlet	CW	2500 PSI 3400 RPM	16.00	
C1LN30	02-143242-8-B	V20-1P5P-11D11-L	11 Tooth Splined Extended Length	NPT	1	05	7.5	90° CW from Inlet	CCW	2500 PSI 3400 RPM	16.00	
C1LN31	02-322277-1-B	V20-1P5P-15A11	13 Tooth SAE B Splined	NPT	1	05	7.5	Opposite Inlet	CW	2500 PSI 3400 RPM	16.00	
C1LN32	02-322277-5-B	V20-1P5P-15A11-L	13 Tooth SAE B Splined	NPT	1	05	7.5	Opposite Inlet	CCW	2500 PSI 3400 RPM	16.00	
C1LN33	02-322277-2-B	V20-1P5P-15B11	13 Tooth SAE B Splined	NPT	1	05	7.5	90° CCW from Inlet	CW	2500 PSI 3400 RPM	16.00	
C1LN34	02-322277-6-B	V20-1P5P-15B11-L	13 Tooth SAE B Splined	NPT	1	05	7.5	90° CCW from Inlet	CCW	2500 PSI 3400 RPM	16.00	
C1LN35	02-322277-3-B	V20-1P5P-15C11	13 Tooth SAE B Splined	NPT	1	05	7.5	Inline with Inlet	CW	2500 PSI 3400 RPM	16.00	
C1LN36	02-322277-7-B	V20-1P5P-15C11-L	13 Tooth SAE B Splined	NPT	1	05	7.5	Inline with Inlet	CCW	2500 PSI 3400 RPM	16.00	
C1LN37	02-322277-4-B	V20-1P5P-15D11	13 Tooth SAE B Splined	NPT	1	05	7.5	90° CW from Inlet	CW	2500 PSI 3400 RPM	16.00	
C1LN38	02-322277-8-B	V20-1P5P-15D11-L	13 Tooth SAE B Splined	NPT	1	05	7.5	90° CW from Inlet	CCW	2500 PSI 3400 RPM	16.00	



Pumps & Accessories

Single Hydraulic Pumps • Fixed Displacement
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Vickers® V20 Vane Pumps

Catalog Part No.	Vickers Part No. See Note Above	Vickers Model Code See Note Above	Shaft	Ports	Displ	Ring Size 1200 RPM	Flow GPM 1800 RPM	Outlet Position	Rot.	Max. PSI & Max. RPM	Wt.	Price Each
C1LN39	875445-1-B	V20-1P5P-1A11	3/4 Stright Keyed	NPT	1	05	7.5	Opposite Inlet	CW	2500 PSI 3400 RPM	16.00	
C1LN40	875445-5-B	V20-1P5P-1A11-L	3/4 Stright Keyed	NPT	1	05	7.5	Opposite Inlet	CCW	2500 PSI 3400 RPM	16.00	
C1LN41	875445-2-B	V20-1P5P-1B11	3/4 Stright Keyed	NPT	1	05	7.5	90° CCW from Inlet	CW	2500 PSI 3400 RPM	16.00	
C1LN42	875445-6-B	V20-1P5P-1B11-L	3/4 Stright Keyed	NPT	1	05	7.5	90° CCW from Inlet	CCW	2500 PSI 3400 RPM	16.00	
C1LN43	875445-3-B	V20-1P5P-1C11	3/4 Stright Keyed	NPT	1	05	7.5	Inline with Inlet	CW	2500 PSI 3400 RPM	16.00	
C1LN44	875445-7-B	V20-1P5P-1C11-L	3/4 Stright Keyed	NPT	1	05	7.5	Inline with Inlet	CCW	2500 PSI 3400 RPM	16.00	
C1LN45	875445-4-B	V20-1P5P-1D11	3/4 Stright Keyed	NPT	1	05	7.5	90° CW from Inlet	CW	2500 PSI 3400 RPM	16.00	
C1LN46	875445-8-B	V20-1P5P-1D11-L	3/4 Stright Keyed	NPT	1	05	7.5	90° CW from Inlet	CCW	2500 PSI 3400 RPM	16.00	
C1LR60	02-345217-1-B	V20-1S5S-1A11	3/4 Stright Keyed	SAE	1	05	7.5	Opposite Inlet	CW	2500 PSI 3400 RPM	16.00	
C1LR61	02-345217-5-B	V20-1S5S-1A11-L	3/4 Stright Keyed	SAE	1	05	7.5	Opposite Inlet	CCW	2500 PSI 3400 RPM	16.00	
C1LR62	02-345217-2-B	V20-1S5S-1B11	3/4 Stright Keyed	SAE	1	05	7.5	90° CCW from Inlet	CW	2500 PSI 3400 RPM	16.00	
C1LR63	02-345217-6-B	V20-1S5S-1B11-L	3/4 Stright Keyed	SAE	1	05	7.5	90° CCW from Inlet	CCW	2500 PSI 3400 RPM	16.00	
C1LR64	02-345217-3-B	V20-1S5S-1C11	3/4 Stright Keyed	SAE	1	05	7.5	Inline with Inlet	CW	2500 PSI 3400 RPM	16.00	
C1LR65	02-345217-7-B	V20-1S5S-1C11-L	3/4 Stright Keyed	SAE	1	05	7.5	Inline with Inlet	CCW	2500 PSI 3400 RPM	16.00	
C1LR66	02-345217-4-B	V20-1S5S-1D11	3/4 Stright Keyed	SAE	1	05	7.5	90° CW from Inlet	CW	2500 PSI 3400 RPM	16.00	
C1LR67	02-345217-8-B	V20-1S5S-1D11-L	3/4 Stright Keyed	SAE	1	05	7.5	90° CW from Inlet	CCW	2500 PSI 3400 RPM	16.00	
C1LU77	720AR00005A-B	V20-6S5S-15C11	13 Tooth SAE B Splined	SAE	1	05	7.5	Inline with Inlet	CW	2500 PSI 3400 RPM	16.00	
C1LU78	720AR00004A-B	V20-6S5S-15C11-L	13 Tooth SAE B Splined	SAE	1	05	7.5	Inline with Inlet	CCW	2500 PSI 3400 RPM	16.00	
C1LU81	02-334118-1-B	V20-6S5S-1A11	3/4 Stright Keyed	SAE	1	05	7.5	Opposite Inlet	CW	2500 PSI 3400 RPM	16.00	
C1LU82	02-334118-5-B	V20-6S5S-1A11-L	3/4 Stright Keyed	SAE	1	05	7.5	Opposite Inlet	CCW	2500 PSI 3400 RPM	16.00	
C1LU83	02-334118-2-B	V20-6S5S-1B11	3/4 Stright Keyed	SAE	1	05	7.5	90° CCW from Inlet	CW	2500 PSI 3400 RPM	16.00	
C1LU84	02-334118-6-B	V20-6S5S-1B11-L	3/4 Stright Keyed	SAE	1	05	7.5	90° CCW from Inlet	CCW	2500 PSI 3400 RPM	16.00	
C1LU85	02-334118-3-B	V20-6S5S-1C11	3/4 Stright Keyed	SAE	1	05	7.5	Inline with Inlet	CW	2500 PSI 3400 RPM	16.00	
C1LU86	02-334118-7-B	V20-6S5S-1C11-L	3/4 Stright Keyed	SAE	1	05	7.5	Inline with Inlet	CCW	2500 PSI 3400 RPM	16.00	
C1LU87	02-334118-4-B	V20-6S5S-1D11	3/4 Stright Keyed	SAE	1	05	7.5	90° CW from Inlet	CW	2500 PSI 3400 RPM	16.00	
C1LU88	02-334118-8-B	V20-6S5S-1D11-L	3/4 Stright Keyed	SAE	1	05	7.5	90° CW from Inlet	CCW	2500 PSI 3400 RPM	16.00	
C1LN55	372746-1-B	V20-1P6P-11A11	11 Tooth Splined Extended Length	NPT	1.19	06	9	Opposite Inlet	CW	2500 PSI 3400 RPM	16.00	
C1LN56	372746-5-B	V20-1P6P-11A11-L	11 Tooth Splined Extended Length	NPT	1.19	06	9	Opposite Inlet	CCW	2500 PSI 3400 RPM	16.00	
C1LN57	372746-2-B	V20-1P6P-11B11	11 Tooth Splined Extended Length	NPT	1.19	06	9	90° CCW from Inlet	CW	2500 PSI 3400 RPM	16.00	



This page is part of a complete catalog which contains technical and safety data that must be reviewed when selecting a product

Pumps & Accessories



Single Hydraulic Pumps • Fixed Displacement
Vickers V20 Series Vane Pumps • To 19.5 GPM @ 1800 RPM



Vickers® V20 Vane Pumps

Catalog Part No.	Vickers Part No. See Note Above	Vickers Model Code See Note Above	Shaft	Ports	Displ	Ring Size 1200 RPM	Flow GPM 1800 RPM	Outlet Position	Rot.	Max. PSI & Max. RPM	Wt.	Price Each
C1LN58	372746-6-B	V20-1P6P-11B11-L	11 Tooth Splined Extended Length	NPT	1.19	06	9	90° CCW from Inlet	CCW	2500 PSI 3400 RPM	16.00	
C1LN59	372746-3-B	V20-1P6P-11C11	11 Tooth Splined Extended Length	NPT	1.19	06	9	Inline with Inlet	CW	2500 PSI 3400 RPM	16.00	
C1LN60	372746-7-B	V20-1P6P-11C11-L	11 Tooth Splined Extended Length	NPT	1.19	06	9	Inline with Inlet	CCW	2500 PSI 3400 RPM	16.00	
C1LN61	372746-4-B	V20-1P6P-11D11	11 Tooth Splined Extended Length	NPT	1.19	06	9	90° CW from Inlet	CW	2500 PSI 3400 RPM	16.00	
C1LN62	372746-8-B	V20-1P6P-11D11-L	11 Tooth Splined Extended Length	NPT	1.19	06	9	90° CW from Inlet	CCW	2500 PSI 3400 RPM	16.00	
C1LN63	385535-1-B	V20-1P6P-15A11	13 Tooth SAE B Splined	NPT	1.19	06	9	Opposite Inlet	CW	2500 PSI 3400 RPM	16.00	
C1LN64	385535-5-B	V20-1P6P-15A11-L	13 Tooth SAE B Splined	NPT	1.19	06	9	Opposite Inlet	CCW	2500 PSI 3400 RPM	16.00	
C1LN65	385535-2-B	V20-1P6P-15B11	13 Tooth SAE B Splined	NPT	1.19	06	9	90° CCW from Inlet	CW	2500 PSI 3400 RPM	16.00	
C1LN66	385535-6-B	V20-1P6P-15B11-L	13 Tooth SAE B Splined	NPT	1.19	06	9	90° CCW from Inlet	CCW	2500 PSI 3400 RPM	16.00	
C1LN67	385535-3-B	V20-1P6P-15C11	13 Tooth SAE B Splined	NPT	1.19	06	9	Inline with Inlet	CW	2500 PSI 3400 RPM	16.00	
C1LN68	385535-7-B	V20-1P6P-15C11-L	13 Tooth SAE B Splined	NPT	1.19	06	9	Inline with Inlet	CCW	2500 PSI 3400 RPM	16.00	
C1LN69	385535-4-B	V20-1P6P-15D11	13 Tooth SAE B Splined	NPT	1.19	06	9	90° CW from Inlet	CW	2500 PSI 3400 RPM	16.00	
C1LN70	385535-8-B	V20-1P6P-15D11-L	13 Tooth SAE B Splined	NPT	1.19	06	9	90° CW from Inlet	CCW	2500 PSI 3400 RPM	16.00	
C1LN71	372613-1-B	V20-1P6P-1A11	3/4 Stright Keyed	NPT	1.19	06	9	Opposite Inlet	CW	2500 PSI 3400 RPM	16.00	
C1LN72	372613-5-B	V20-1P6P-1A11-L	3/4 Stright Keyed	NPT	1.19	06	9	Opposite Inlet	CCW	2500 PSI 3400 RPM	16.00	
C1LN73	372613-2-B	V20-1P6P-1B11	3/4 Stright Keyed	NPT	1.19	06	9	90° CCW from Inlet	CW	2500 PSI 3400 RPM	16.00	
C1LN74	372613-6-B	V20-1P6P-1B11-L	3/4 Stright Keyed	NPT	1.19	06	9	90° CCW from Inlet	CCW	2500 PSI 3400 RPM	16.00	
C1LN75	372613-3-B	V20-1P6P-1C11	3/4 Stright Keyed	NPT	1.19	06	9	Inline with Inlet	CW	2500 PSI 3400 RPM	16.00	
C1LN76	372613-7-B	V20-1P6P-1C11-L	3/4 Stright Keyed	NPT	1.19	06	9	Inline with Inlet	CCW	2500 PSI 3400 RPM	16.00	
C1LN77	372613-4-B	V20-1P6P-1D11	3/4 Stright Keyed	NPT	1.19	06	9	90° CW from Inlet	CW	2500 PSI 3400 RPM	16.00	
C1LN78	372613-8-B	V20-1P6P-1D11-L	3/4 Stright Keyed	NPT	1.19	06	9	90° CW from Inlet	CCW	2500 PSI 3400 RPM	16.00	
C1LN79	389463-1-B	V20-1P6P-38A11	11 Tooth Splined - Short	NPT	1.19	06	9	Opposite Inlet	CW	2500 PSI 3400 RPM	16.00	
C1LN80	389463-5-B	V20-1P6P-38A11-L	11 Tooth Splined - Short	NPT	1.19	06	9	Opposite Inlet	CCW	2500 PSI 3400 RPM	16.00	
C1LN81	389463-2-B	V20-1P6P-38B11	11 Tooth Splined - Short	NPT	1.19	06	9	90° CCW from Inlet	CW	2500 PSI 3400 RPM	16.00	
C1LN82	389463-6-B	V20-1P6P-38B11-L	11 Tooth Splined - Short	NPT	1.19	06	9	90° CCW from Inlet	CCW	2500 PSI 3400 RPM	16.00	
C1LN83	389463-3-B	V20-1P6P-38C11	11 Tooth Splined - Short	NPT	1.19	06	9	Inline with Inlet	CW	2500 PSI 3400 RPM	16.00	
C1LN84	389463-7-B	V20-1P6P-38C11-L	11 Tooth Splined - Short	NPT	1.19	06	9	Inline with Inlet	CCW	2500 PSI 3400 RPM	16.00	
C1LN85	389463-4-B	V20-1P6P-38D11	11 Tooth Splined - Short	NPT	1.19	06	9	90° CW from Inlet	CW	2500 PSI 3400 RPM	16.00	
C1LN86	389463-8-B	V20-1P6P-38D11-L	11 Tooth Splined - Short	NPT	1.19	06	9	90° CW from Inlet	CCW	2500 PSI 3400 RPM	16.00	





Pumps & Accessories

Single Hydraulic Pumps • Fixed Displacement
Vickers V20 Series Vane Pumps • To 19.5 GPM @ 1800 RPM



Vickers® V20 Vane Pumps

Catalog Part No.	Vickers Part No. See Note Above	Vickers Model Code See Note Above	Shaft	Ports	Displ	Ring Size 1200 RPM	Flow GPM 1800 RPM	Outlet Position	Rot.	Max. PSI & Max. RPM	Wt.	Price Each
C1LR76	372594-1-B	V20-1S6S-11A11	11 Tooth Splined Extended Length	SAE	1.19	06	9	Opposite Inlet	CW	2500 PSI 3400 RPM	16.00	
C1LR77	372594-5-B	V20-1S6S-11A11-L	11 Tooth Splined Extended Length	SAE	1.19	06	9	Opposite Inlet	CCW	2500 PSI 3400 RPM	16.00	
C1LR78	372594-2-B	V20-1S6S-11B11	11 Tooth Splined Extended Length	SAE	1.19	06	9	90° CCW from Inlet	CW	2500 PSI 3400 RPM	16.00	
C1LR79	372594-6-B	V20-1S6S-11B11-L	11 Tooth Splined Extended Length	SAE	1.19	06	9	90° CCW from Inlet	CCW	2500 PSI 3400 RPM	16.00	
C1LR80	372594-3-B	V20-1S6S-11C11	11 Tooth Splined Extended Length	SAE	1.19	06	9	Inline with Inlet	CW	2500 PSI 3400 RPM	16.00	
C1LR81	372594-7-B	V20-1S6S-11C11-L	11 Tooth Splined Extended Length	SAE	1.19	06	9	Inline with Inlet	CCW	2500 PSI 3400 RPM	16.00	
C1LR82	372594-4-B	V20-1S6S-11D11	11 Tooth Splined Extended Length	SAE	1.19	06	9	90° CW from Inlet	CW	2500 PSI 3400 RPM	16.00	
C1LR83	372594-8-B	V20-1S6S-11D11-L	11 Tooth Splined Extended Length	SAE	1.19	06	9	90° CW from Inlet	CCW	2500 PSI 3400 RPM	16.00	
C1LR84	385520-1-B	V20-1S6S-15A11	13 Tooth SAE B Splined	SAE	1.19	06	9	Opposite Inlet	CW	2500 PSI 3400 RPM	16.00	
C1LR85	385520-5-B	V20-1S6S-15A11-L	13 Tooth SAE B Splined	SAE	1.19	06	9	Opposite Inlet	CCW	2500 PSI 3400 RPM	16.00	
C1LR86	385520-2-B	V20-1S6S-15B11	13 Tooth SAE B Splined	SAE	1.19	06	9	90° CCW from Inlet	CW	2500 PSI 3400 RPM	16.00	
C1LR87	385520-6-B	V20-1S6S-15B11-L	13 Tooth SAE B Splined	SAE	1.19	06	9	90° CCW from Inlet	CCW	2500 PSI 3400 RPM	16.00	
C1LR88	385520-3-B	V20-1S6S-15C11	13 Tooth SAE B Splined	SAE	1.19	06	9	Inline with Inlet	CW	2500 PSI 3400 RPM	16.00	
C1LR89	385520-7-B	V20-1S6S-15C11-L	13 Tooth SAE B Splined	SAE	1.19	06	9	Inline with Inlet	CCW	2500 PSI 3400 RPM	16.00	
C1LR90	385520-4-B	V20-1S6S-15D11	13 Tooth SAE B Splined	SAE	1.19	06	9	90° CW from Inlet	CW	2500 PSI 3400 RPM	16.00	
C1LR91	385520-8-B	V20-1S6S-15D11-L	13 Tooth SAE B Splined	SAE	1.19	06	9	90° CW from Inlet	CCW	2500 PSI 3400 RPM	16.00	
C1LR92	372585-1-B	V20-1S6S-1A11	3/4 Stright Keyed	SAE	1.19	06	9	Opposite Inlet	CW	2500 PSI 3400 RPM	16.00	
C1LR93	372585-5-B	V20-1S6S-1A11-L	3/4 Stright Keyed	SAE	1.19	06	9	Opposite Inlet	CCW	2500 PSI 3400 RPM	16.00	
C1LR94	372585-2-B	V20-1S6S-1B11	3/4 Stright Keyed	SAE	1.19	06	9	90° CCW from Inlet	CW	2500 PSI 3400 RPM	16.00	
C1LR95	372585-6-B	V20-1S6S-1B11-L	3/4 Stright Keyed	SAE	1.19	06	9	90° CCW from Inlet	CCW	2500 PSI 3400 RPM	16.00	
C1LR96	372585-3-B	V20-1S6S-1C11	3/4 Stright Keyed	SAE	1.19	06	9	Inline with Inlet	CW	2500 PSI 3400 RPM	16.00	
C1LR97	372585-7-B	V20-1S6S-1C11-L	3/4 Stright Keyed	SAE	1.19	06	9	Inline with Inlet	CCW	2500 PSI 3400 RPM	16.00	
C1LR98	372585-4-B	V20-1S6S-1D11	3/4 Stright Keyed	SAE	1.19	06	9	90° CW from Inlet	CW	2500 PSI 3400 RPM	16.00	
C1LR99	372585-8-B	V20-1S6S-1D11-L	3/4 Stright Keyed	SAE	1.19	06	9	90° CW from Inlet	CCW	2500 PSI 3400 RPM	16.00	
C1LS11	418930-1-B	V20-1S6S-38A11	11 Tooth Splined - Short	SAE	1.19	06	9	Opposite Inlet	CW	2500 PSI 3400 RPM	16.00	
C1LS12	418930-5-B	V20-1S6S-38A11-L	11 Tooth Splined - Short	SAE	1.19	06	9	Opposite Inlet	CCW	2500 PSI 3400 RPM	16.00	
C1LS13	418930-2-B	V20-1S6S-38B11	11 Tooth Splined - Short	SAE	1.19	06	9	90° CCW from Inlet	CW	2500 PSI 3400 RPM	16.00	
C1LS14	418930-6-B	V20-1S6S-38B11-L	11 Tooth Splined - Short	SAE	1.19	06	9	90° CCW from Inlet	CCW	2500 PSI 3400 RPM	16.00	
C1LS15	418930-3-B	V20-1S6S-38C11	11 Tooth Splined - Short	SAE	1.19	06	9	Inline with Inlet	CW	2500 PSI 3400 RPM	16.00	



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Pumps & Accessories



Single Hydraulic Pumps • Fixed Displacement
Vickers V20 Series Vane Pumps • To 19.5 GPM @ 1800 RPM



Vickers® V20 Vane Pumps

Catalog Part No.	Vickers Part No. See Note Above	Vickers Model Code See Note Above	Shaft	Ports	Displ	Ring Size 1200 RPM	Flow GPM 1800 RPM	Outlet Position	Rot.	Max. PSI & Max. RPM	Wt.	Price Each
C1LS16	418930-7-B	V20-1S6S-38C11-L	11 Tooth Splined - Short	SAE	1.19	06	9	Inline with Inlet	CCW	2500 PSI 3400 RPM	16.00	
C1LS17	418930-4-B	V20-1S6S-38D11	11 Tooth Splined - Short	SAE	1.19	06	9	90° CW from Inlet	CW	2500 PSI 3400 RPM	16.00	
C1LS18	418930-8-B	V20-1S6S-38D11-L	11 Tooth Splined - Short	SAE	1.19	06	9	90° CW from Inlet	CCW	2500 PSI 3400 RPM	16.00	
C1LV14	720AR00014A-B	V20-6S6S-11D11	11 Tooth Splined Extended Length	SAE	1.19	06	9	90° CW from Inlet	CW	2500 PSI 3400 RPM	16.00	
C1LV15	720AR00015A-B	V20-6S6S-11D11-L	11 Tooth Splined Extended Length	SAE	1.19	06	9	90° CW from Inlet	CCW	2500 PSI 3400 RPM	16.00	
C1LV16	02-102226-1-B	V20-6S6S-15A11	13 Tooth SAE B Splined	SAE	1.19	06	9	Opposite Inlet	CW	2500 PSI 3400 RPM	16.00	
C1LV17	02-102226-5-B	V20-6S6S-15A11-L	13 Tooth SAE B Splined	SAE	1.19	06	9	Opposite Inlet	CCW	2500 PSI 3400 RPM	16.00	
C1LV18	02-102226-2-B	V20-6S6S-15B11	13 Tooth SAE B Splined	SAE	1.19	06	9	90° CCW from Inlet	CW	2500 PSI 3400 RPM	16.00	
C1LV19	02-102226-6-B	V20-6S6S-15B11-L	13 Tooth SAE B Splined	SAE	1.19	06	9	90° CCW from Inlet	CCW	2500 PSI 3400 RPM	16.00	
C1LV20	02-102226-3-B	V20-6S6S-15C11	13 Tooth SAE B Splined	SAE	1.19	06	9	Inline with Inlet	CW	2500 PSI 3400 RPM	16.00	
C1LV21	02-102226-7-B	V20-6S6S-15C11-L	13 Tooth SAE B Splined	SAE	1.19	06	9	Inline with Inlet	CCW	2500 PSI 3400 RPM	16.00	
C1LV22	02-102226-4-B	V20-6S6S-15D11	13 Tooth SAE B Splined	SAE	1.19	06	9	90° CW from Inlet	CW	2500 PSI 3400 RPM	16.00	
C1LV23	02-102226-8-B	V20-6S6S-15D11-L	13 Tooth SAE B Splined	SAE	1.19	06	9	90° CW from Inlet	CCW	2500 PSI 3400 RPM	16.00	
C1LN87	399221-1-B	V20-1P7P-11A11	11 Tooth Splined Extended Length	NPT	1.39	07	10.5	Opposite Inlet	CW	2500 PSI 3000 RPM	16.00	
C1LN88	399221-5-B	V20-1P7P-11A11-L	11 Tooth Splined Extended Length	NPT	1.39	07	10.5	Opposite Inlet	CCW	2500 PSI 3000 RPM	16.00	
C1LN89	399221-2-B	V20-1P7P-11B11	11 Tooth Splined Extended Length	NPT	1.39	07	10.5	90° CCW from Inlet	CW	2500 PSI 3000 RPM	16.00	
C1LN90	399221-6-B	V20-1P7P-11B11-L	11 Tooth Splined Extended Length	NPT	1.39	07	10.5	90° CCW from Inlet	CCW	2500 PSI 3000 RPM	16.00	
C1LN91	399221-3-B	V20-1P7P-11C11	11 Tooth Splined Extended Length	NPT	1.39	07	10.5	Inline with Inlet	CW	2500 PSI 3000 RPM	16.00	
C1LN92	399221-7-B	V20-1P7P-11C11-L	11 Tooth Splined Extended Length	NPT	1.39	07	10.5	Inline with Inlet	CCW	2500 PSI 3000 RPM	16.00	
C1LN93	399221-4-B	V20-1P7P-11D11	11 Tooth Splined Extended Length	NPT	1.39	07	10.5	90° CW from Inlet	CW	2500 PSI 3000 RPM	16.00	
C1LN94	399221-8-B	V20-1P7P-11D11-L	11 Tooth Splined Extended Length	NPT	1.39	07	10.5	90° CW from Inlet	CCW	2500 PSI 3000 RPM	16.00	
C1LN95	393711-1-B	V20-1P7P-15A11	13 Tooth SAE B Splined	NPT	1.39	07	10.5	Opposite Inlet	CW	2500 PSI 3000 RPM	16.00	
C1LN96	393711-5-B	V20-1P7P-15A11-L	13 Tooth SAE B Splined	NPT	1.39	07	10.5	Opposite Inlet	CCW	2500 PSI 3000 RPM	16.00	
C1LN97	393711-2-B	V20-1P7P-15B11	13 Tooth SAE B Splined	NPT	1.39	07	10.5	90° CCW from Inlet	CW	2500 PSI 3000 RPM	16.00	
C1LN98	393711-6-B	V20-1P7P-15B11-L	13 Tooth SAE B Splined	NPT	1.39	07	10.5	90° CCW from Inlet	CCW	2500 PSI 3000 RPM	16.00	
C1LN99	393711-3-B	V20-1P7P-15C11	13 Tooth SAE B Splined	NPT	1.39	07	10.5	Inline with Inlet	CW	2500 PSI 3000 RPM	16.00	
C1LP11	393711-7-B	V20-1P7P-15C11-L	13 Tooth SAE B Splined	NPT	1.39	07	10.5	Inline with Inlet	CCW	2500 PSI 3000 RPM	16.00	
C1LP12	393711-4-B	V20-1P7P-15D11	13 Tooth SAE B Splined	NPT	1.39	07	10.5	90° CW from Inlet	CW	2500 PSI 3000 RPM	16.00	
C1LP13	393711-8-B	V20-1P7P-15D11-L	13 Tooth SAE B Splined	NPT	1.39	07	10.5	90° CW from Inlet	CCW	2500 PSI 3000 RPM	16.00	





Pumps & Accessories

Single Hydraulic Pumps • Fixed Displacement
Vickers V20 Series Vane Pumps • To 19.5 GPM @ 1800 RPM



Vickers® V20 Vane Pumps

Catalog Part No.	Vickers Part No. See Note Above	Vickers Model Code See Note Above	Shaft	Ports	Displ	Ring Size 1200 RPM	Flow GPM 1800 RPM	Outlet Position	Rot.	Max. PSI & Max. RPM	Wt.	Price Each
C1LP14	394450-1-B	V20-1P7P-1A11	3/4 Stright Keyed	NPT	1.39	07	10.5	Opposite Inlet	CW	2500 PSI 3000 RPM	16.00	
C1LP15	394450-5-B	V20-1P7P-1A11-L	3/4 Stright Keyed	NPT	1.39	07	10.5	Opposite Inlet	CCW	2500 PSI 3000 RPM	16.00	
C1LP16	394450-2-B	V20-1P7P-1B11	3/4 Stright Keyed	NPT	1.39	07	10.5	90° CCW from Inlet	CW	2500 PSI 3000 RPM	16.00	
C1LP17	394450-6-B	V20-1P7P-1B11-L	3/4 Stright Keyed	NPT	1.39	07	10.5	90° CCW from Inlet	CCW	2500 PSI 3000 RPM	16.00	
C1LP18	394450-3-B	V20-1P7P-1C11	3/4 Stright Keyed	NPT	1.39	07	10.5	Inline with Inlet	CW	2500 PSI 3000 RPM	16.00	
C1LP19	394450-7-B	V20-1P7P-1C11-L	3/4 Stright Keyed	NPT	1.39	07	10.5	Inline with Inlet	CCW	2500 PSI 3000 RPM	16.00	
C1LP20	394450-4-B	V20-1P7P-1D11	3/4 Stright Keyed	NPT	1.39	07	10.5	90° CW from Inlet	CW	2500 PSI 3000 RPM	16.00	
C1LP21	394450-8-B	V20-1P7P-1D11-L	3/4 Stright Keyed	NPT	1.39	07	10.5	90° CW from Inlet	CCW	2500 PSI 3000 RPM	16.00	
C1LP22	431789-1-B	V20-1P7P-38A11	11 Tooth Splined - Short	NPT	1.39	07	10.5	Opposite Inlet	CW	2500 PSI 3000 RPM	16.00	
C1LP23	431789-5-B	V20-1P7P-38A11-L	11 Tooth Splined - Short	NPT	1.39	07	10.5	Opposite Inlet	CCW	2500 PSI 3000 RPM	16.00	
C1LP24	431789-2-B	V20-1P7P-38B11	11 Tooth Splined - Short	NPT	1.39	07	10.5	90° CCW from Inlet	CW	2500 PSI 3000 RPM	16.00	
C1LP25	431789-6-B	V20-1P7P-38B11-L	11 Tooth Splined - Short	NPT	1.39	07	10.5	90° CCW from Inlet	CCW	2500 PSI 3000 RPM	16.00	
C1LP26	431789-3-B	V20-1P7P-38C11	11 Tooth Splined - Short	NPT	1.39	07	10.5	Inline with Inlet	CW	2500 PSI 3000 RPM	16.00	
C1LP27	431789-7-B	V20-1P7P-38C11-L	11 Tooth Splined - Short	NPT	1.39	07	10.5	Inline with Inlet	CCW	2500 PSI 3000 RPM	16.00	
C1LP28	431789-4-B	V20-1P7P-38D11	11 Tooth Splined - Short	NPT	1.39	07	10.5	90° CW from Inlet	CW	2500 PSI 3000 RPM	16.00	
C1LP29	431789-8-B	V20-1P7P-38D11-L	11 Tooth Splined - Short	NPT	1.39	07	10.5	90° CW from Inlet	CCW	2500 PSI 3000 RPM	16.00	
C1LS19	401088-1-B	V20-1S7S-11A11	11 Tooth Splined Extended Length	SAE	1.39	07	10.5	Opposite Inlet	CW	2500 PSI 3000 RPM	16.00	
C1LS20	401088-5-B	V20-1S7S-11A11-L	11 Tooth Splined Extended Length	SAE	1.39	07	10.5	Opposite Inlet	CCW	2500 PSI 3000 RPM	16.00	
C1LS21	401088-2-B	V20-1S7S-11B11	11 Tooth Splined Extended Length	SAE	1.39	07	10.5	90° CCW from Inlet	CW	2500 PSI 3000 RPM	16.00	
C1LS22	401088-6-B	V20-1S7S-11B11-L	11 Tooth Splined Extended Length	SAE	1.39	07	10.5	90° CCW from Inlet	CCW	2500 PSI 3000 RPM	16.00	
C1LS23	401088-3-B	V20-1S7S-11C11	11 Tooth Splined Extended Length	SAE	1.39	07	10.5	Inline with Inlet	CW	2500 PSI 3000 RPM	16.00	
C1LS24	401088-7-B	V20-1S7S-11C11-L	11 Tooth Splined Extended Length	SAE	1.39	07	10.5	Inline with Inlet	CCW	2500 PSI 3000 RPM	16.00	
C1LS25	401088-4-B	V20-1S7S-11D11	11 Tooth Splined Extended Length	SAE	1.39	07	10.5	90° CW from Inlet	CW	2500 PSI 3000 RPM	16.00	
C1LS26	401088-8-B	V20-1S7S-11D11-L	11 Tooth Splined Extended Length	SAE	1.39	07	10.5	90° CW from Inlet	CCW	2500 PSI 3000 RPM	16.00	
C1LS27	574677-1-B	V20-1S7S-15A11	13 Tooth SAE B Splined	SAE	1.39	07	10.5	Opposite Inlet	CW	2500 PSI 3000 RPM	16.00	
C1LS28	574677-5-B	V20-1S7S-15A11-L	13 Tooth SAE B Splined	SAE	1.39	07	10.5	Opposite Inlet	CCW	2500 PSI 3000 RPM	16.00	
C1LS29	574677-2-B	V20-1S7S-15B11	13 Tooth SAE B Splined	SAE	1.39	07	10.5	90° CCW from Inlet	CW	2500 PSI 3000 RPM	16.00	
C1LS30	574677-6-B	V20-1S7S-15B11-L	13 Tooth SAE B Splined	SAE	1.39	07	10.5	90° CCW from Inlet	CCW	2500 PSI 3000 RPM	16.00	
C1LS31	574677-3-B	V20-1S7S-15C11	13 Tooth SAE B Splined	SAE	1.39	07	10.5	Inline with Inlet	CW	2500 PSI 3000 RPM	16.00	



This page is part of a complete catalog which contains technical and safety data that must be reviewed when selecting a product

Pumps & Accessories



Single Hydraulic Pumps • Fixed Displacement
Vickers V20 Series Vane Pumps • To 19.5 GPM @ 1800 RPM



Vickers® V20 Vane Pumps

Catalog Part No.	Vickers Part No. See Note Above	Vickers Model Code See Note Above	Shaft	Ports	Displ	Ring Size 1200 RPM	Flow GPM 1800 RPM	Outlet Position	Rot.	Max. PSI & Max. RPM	Wt.	Price Each
C1LS32	574677-7-B	V20-1S7S-15C11-L	13 Tooth SAE B Splined	SAE	1.39	07	10.5	Inline with Inlet	CCW	2500 PSI 3000 RPM	16.00	
C1LS33	574677-4-B	V20-1S7S-15D11	13 Tooth SAE B Splined	SAE	1.39	07	10.5	90° CW from Inlet	CW	2500 PSI 3000 RPM	16.00	
C1LS34	574677-8-B	V20-1S7S-15D11-L	13 Tooth SAE B Splined	SAE	1.39	07	10.5	90° CW from Inlet	CCW	2500 PSI 3000 RPM	16.00	
C1LS35	393719-1-B	V20-1S7S-1A11	3/4 Stright Keyed	SAE	1.39	07	10.5	Opposite Inlet	CW	2500 PSI 3000 RPM	16.00	
C1LS36	393719-5-B	V20-1S7S-1A11-L	3/4 Stright Keyed	SAE	1.39	07	10.5	Opposite Inlet	CCW	2500 PSI 3000 RPM	16.00	
C1LS37	393719-2-B	V20-1S7S-1B11	3/4 Stright Keyed	SAE	1.39	07	10.5	90° CCW from Inlet	CW	2500 PSI 3000 RPM	16.00	
C1LS38	393719-6-B	V20-1S7S-1B11-L	3/4 Stright Keyed	SAE	1.39	07	10.5	90° CCW from Inlet	CCW	2500 PSI 3000 RPM	16.00	
C1LS39	393719-3-B	V20-1S7S-1C11	3/4 Stright Keyed	SAE	1.39	07	10.5	Inline with Inlet	CW	2500 PSI 3000 RPM	16.00	
C1LS40	393719-7-B	V20-1S7S-1C11-L	3/4 Stright Keyed	SAE	1.39	07	10.5	Inline with Inlet	CCW	2500 PSI 3000 RPM	16.00	
C1LS41	393719-4-B	V20-1S7S-1D11	3/4 Stright Keyed	SAE	1.39	07	10.5	90° CW from Inlet	CW	2500 PSI 3000 RPM	16.00	
C1LS42	393719-8-B	V20-1S7S-1D11-L	3/4 Stright Keyed	SAE	1.39	07	10.5	90° CW from Inlet	CCW	2500 PSI 3000 RPM	16.00	
C1LS43	02-334748-1-B	V20-1S7S-38A11	11 Tooth Splined - Short	SAE	1.39	07	10.5	Opposite Inlet	CW	2500 PSI 3000 RPM	16.00	
C1LS44	02-334748-5-B	V20-1S7S-38A11-L	11 Tooth Splined - Short	SAE	1.39	07	10.5	Opposite Inlet	CCW	2500 PSI 3000 RPM	16.00	
C1LS45	02-334748-2-B	V20-1S7S-38B11	11 Tooth Splined - Short	SAE	1.39	07	10.5	90° CCW from Inlet	CW	2500 PSI 3000 RPM	16.00	
C1LS46	02-334748-6-B	V20-1S7S-38B11-L	11 Tooth Splined - Short	SAE	1.39	07	10.5	90° CCW from Inlet	CCW	2500 PSI 3000 RPM	16.00	
C1LS47	02-334748-3-B	V20-1S7S-38C11	11 Tooth Splined - Short	SAE	1.39	07	10.5	Inline with Inlet	CW	2500 PSI 3000 RPM	16.00	
C1LS48	02-334748-7-B	V20-1S7S-38C11-L	11 Tooth Splined - Short	SAE	1.39	07	10.5	Inline with Inlet	CCW	2500 PSI 3000 RPM	16.00	
C1LS49	02-334748-4-B	V20-1S7S-38D11	11 Tooth Splined - Short	SAE	1.39	07	10.5	90° CW from Inlet	CW	2500 PSI 3000 RPM	16.00	
C1LS50	02-334748-8-B	V20-1S7S-38D11-L	11 Tooth Splined - Short	SAE	1.39	07	10.5	90° CW from Inlet	CCW	2500 PSI 3000 RPM	16.00	
C1LV48	478057-1-B	V20-6S7S-15A11	13 Tooth SAE B Splined	SAE	1.39	07	10.5	Opposite Inlet	CW	2500 PSI 3000 RPM	16.00	
C1LV49	478057-5-B	V20-6S7S-15A11-L	13 Tooth SAE B Splined	SAE	1.39	07	10.5	Opposite Inlet	CCW	2500 PSI 3000 RPM	16.00	
C1LV50	478057-2-B	V20-6S7S-15B11	13 Tooth SAE B Splined	SAE	1.39	07	10.5	90° CCW from Inlet	CW	2500 PSI 3000 RPM	16.00	
C1LV51	478057-6-B	V20-6S7S-15B11-L	13 Tooth SAE B Splined	SAE	1.39	07	10.5	90° CCW from Inlet	CCW	2500 PSI 3000 RPM	16.00	
C1LV52	478057-3-B	V20-6S7S-15C11	13 Tooth SAE B Splined	SAE	1.39	07	10.5	Inline with Inlet	CW	2500 PSI 3000 RPM	16.00	
C1LV53	478057-7-B	V20-6S7S-15C11-L	13 Tooth SAE B Splined	SAE	1.39	07	10.5	Inline with Inlet	CCW	2500 PSI 3000 RPM	16.00	
C1LV54	478057-4-B	V20-6S7S-15D11	13 Tooth SAE B Splined	SAE	1.39	07	10.5	90° CW from Inlet	CW	2500 PSI 3000 RPM	16.00	
C1LV55	478057-8-B	V20-6S7S-15D11-L	13 Tooth SAE B Splined	SAE	1.39	07	10.5	90° CW from Inlet	CCW	2500 PSI 3000 RPM	16.00	
C1LP30	372756-1-B	V20-1P8P-11A11	11 Tooth Splined Extended Length	NPT	1.62	08	12	Opposite Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LP31	372756-5-B	V20-1P8P-11A11-L	11 Tooth Splined Extended Length	NPT	1.62	08	12	Opposite Inlet	CCW	2500 PSI 2800 RPM	16.00	





Pumps & Accessories

Single Hydraulic Pumps • Fixed Displacement
Vickers V20 Series Vane Pumps • To 19.5 GPM @ 1800 RPM



Vickers® V20 Vane Pumps

Catalog Part No.	Vickers Part No. See Note Above	Vickers Model Code See Note Above	Shaft	Ports	Displ	Ring Size 1200 RPM	Flow GPM 1800 RPM	Outlet Position	Rot.	Max. PSI & Max. RPM	Wt.	Price Each
C1LP32	372756-2-B	V20-1P8P-11B11	11 Tooth Splined Extended Length	NPT	1.62	08	12	90° CCW from Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LP33	372756-6-B	V20-1P8P-11B11-L	11 Tooth Splined Extended Length	NPT	1.62	08	12	90° CCW from Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LP34	372756-3-B	V20-1P8P-11C11	11 Tooth Splined Extended Length	NPT	1.62	08	12	Inline with Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LP35	372756-7-B	V20-1P8P-11C11-L	11 Tooth Splined Extended Length	NPT	1.62	08	12	Inline with Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LP36	372756-4-B	V20-1P8P-11D11	11 Tooth Splined Extended Length	NPT	1.62	08	12	90° CW from Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LP37	372756-8-B	V20-1P8P-11D11-L	11 Tooth Splined Extended Length	NPT	1.62	08	12	90° CW from Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LP38	372736-1-B	V20-1P8P-15A11	13 Tooth SAE B Splined	NPT	1.62	08	12	Opposite Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LP39	372736-5-B	V20-1P8P-15A11-L	13 Tooth SAE B Splined	NPT	1.62	08	12	Opposite Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LP40	372736-2-B	V20-1P8P-15B11	13 Tooth SAE B Splined	NPT	1.62	08	12	90° CCW from Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LP41	372736-6-B	V20-1P8P-15B11-L	13 Tooth SAE B Splined	NPT	1.62	08	12	90° CCW from Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LP42	372736-3-B	V20-1P8P-15C11	13 Tooth SAE B Splined	NPT	1.62	08	12	Inline with Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LP43	372736-7-B	V20-1P8P-15C11-L	13 Tooth SAE B Splined	NPT	1.62	08	12	Inline with Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LP44	372736-4-B	V20-1P8P-15D11	13 Tooth SAE B Splined	NPT	1.62	08	12	90° CW from Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LP45	372736-8-B	V20-1P8P-15D11-L	13 Tooth SAE B Splined	NPT	1.62	08	12	90° CW from Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LP46	372639-1-B	V20-1P8P-1A11	3/4 Stright Keyed	NPT	1.62	08	12	Opposite Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LP47	372639-5-B	V20-1P8P-1A11-L	3/4 Stright Keyed	NPT	1.62	08	12	Opposite Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LP48	372639-2-B	V20-1P8P-1B11	3/4 Stright Keyed	NPT	1.62	08	12	90° CCW from Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LP49	372639-6-B	V20-1P8P-1B11-L	3/4 Stright Keyed	NPT	1.62	08	12	90° CCW from Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LP50	372639-3-B	V20-1P8P-1C11	3/4 Stright Keyed	NPT	1.62	08	12	Inline with Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LP51	372639-7-B	V20-1P8P-1C11-L	3/4 Stright Keyed	NPT	1.62	08	12	Inline with Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LP52	372639-4-B	V20-1P8P-1D11	3/4 Stright Keyed	NPT	1.62	08	12	90° CW from Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LP53	372639-8-B	V20-1P8P-1D11-L	3/4 Stright Keyed	NPT	1.62	08	12	90° CW from Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LP54	433338-1-B	V20-1P8P-38A11	11 Tooth Splined - Short	NPT	1.62	08	12	Opposite Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LP55	433338-5-B	V20-1P8P-38A11-L	11 Tooth Splined - Short	NPT	1.62	08	12	Opposite Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LP56	433338-2-B	V20-1P8P-38B11	11 Tooth Splined - Short	NPT	1.62	08	12	90° CCW from Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LP57	433338-6-B	V20-1P8P-38B11-L	11 Tooth Splined - Short	NPT	1.62	08	12	90° CCW from Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LP58	433338-3-B	V20-1P8P-38C11	11 Tooth Splined - Short	NPT	1.62	08	12	Inline with Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LP59	433338-7-B	V20-1P8P-38C11-L	11 Tooth Splined - Short	NPT	1.62	08	12	Inline with Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LP60	433338-4-B	V20-1P8P-38D11	11 Tooth Splined - Short	NPT	1.62	08	12	90° CW from Inlet	CW	2500 PSI 2800 RPM	16.00	



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Pumps & Accessories



Single Hydraulic Pumps • Fixed Displacement
Vickers V20 Series Vane Pumps • To 19.5 GPM @ 1800 RPM



Vickers® V20 Vane Pumps

Catalog Part No.	Vickers Part No. See Note Above	Vickers Model Code See Note Above	Shaft	Ports	Displ	Ring Size 1200 RPM	Flow GPM 1800 RPM	Outlet Position	Rot.	Max. PSI & Max. RPM	Wt.	Price Each
C1LP61	433338-8-B	V20-1P8P-38D11-L	11 Tooth Splined - Short	NPT	1.62	08	12	90° CW from Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LS51	385533-1-B	V20-1S8S-11A11	11 Tooth Splined Extended Length	SAE	1.62	08	12	Opposite Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LS52	385533-5-B	V20-1S8S-11A11-L	11 Tooth Splined Extended Length	SAE	1.62	08	12	Opposite Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LS53	385533-2-B	V20-1S8S-11B11	11 Tooth Splined Extended Length	SAE	1.62	08	12	90° CCW from Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LS54	385533-6-B	V20-1S8S-11B11-L	11 Tooth Splined Extended Length	SAE	1.62	08	12	90° CCW from Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LS55	385533-3-B	V20-1S8S-11C11	11 Tooth Splined Extended Length	SAE	1.62	08	12	Inline with Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LS56	385533-7-B	V20-1S8S-11C11-L	11 Tooth Splined Extended Length	SAE	1.62	08	12	Inline with Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LS57	385533-4-B	V20-1S8S-11D11	11 Tooth Splined Extended Length	SAE	1.62	08	12	90° CW from Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LS58	385533-8-B	V20-1S8S-11D11-L	11 Tooth Splined Extended Length	SAE	1.62	08	12	90° CW from Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LS59	373670-1-B	V20-1S8S-15A11	13 Tooth SAE B Splined	SAE	1.62	08	12	Opposite Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LS60	373670-5-B	V20-1S8S-15A11-L	13 Tooth SAE B Splined	SAE	1.62	08	12	Opposite Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LS61	373670-2-B	V20-1S8S-15B11	13 Tooth SAE B Splined	SAE	1.62	08	12	90° CCW from Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LS62	373670-6-B	V20-1S8S-15B11-L	13 Tooth SAE B Splined	SAE	1.62	08	12	90° CCW from Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LS63	373670-3-B	V20-1S8S-15C11	13 Tooth SAE B Splined	SAE	1.62	08	12	Inline with Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LS64	373670-7-B	V20-1S8S-15C11-L	13 Tooth SAE B Splined	SAE	1.62	08	12	Inline with Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LS65	373670-4-B	V20-1S8S-15D11	13 Tooth SAE B Splined	SAE	1.62	08	12	90° CW from Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LS66	373670-8-B	V20-1S8S-15D11-L	13 Tooth SAE B Splined	SAE	1.62	08	12	90° CW from Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LS67	372564-1-B	V20-1S8S-1A11	3/4 Stright Keyed	SAE	1.62	08	12	Opposite Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LS68	372564-5-B	V20-1S8S-1A11-L	3/4 Stright Keyed	SAE	1.62	08	12	Opposite Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LS69	372564-2-B	V20-1S8S-1B11	3/4 Stright Keyed	SAE	1.62	08	12	90° CCW from Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LS70	372564-6-B	V20-1S8S-1B11-L	3/4 Stright Keyed	SAE	1.62	08	12	90° CCW from Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LS71	372564-3-B	V20-1S8S-1C11	3/4 Stright Keyed	SAE	1.62	08	12	Inline with Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LS72	372564-7-B	V20-1S8S-1C11-L	3/4 Stright Keyed	SAE	1.62	08	12	Inline with Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LS73	372564-4-B	V20-1S8S-1D11	3/4 Stright Keyed	SAE	1.62	08	12	90° CW from Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LS74	372564-8-B	V20-1S8S-1D11-L	3/4 Stright Keyed	SAE	1.62	08	12	90° CW from Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LS75	576970-1-B	V20-1S8S-38A11	11 Tooth Splined - Short	SAE	1.62	08	12	Opposite Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LS76	576970-5-B	V20-1S8S-38A11-L	11 Tooth Splined - Short	SAE	1.62	08	12	Opposite Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LS77	576970-2-B	V20-1S8S-38B11	11 Tooth Splined - Short	SAE	1.62	08	12	90° CCW from Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LS78	576970-6-B	V20-1S8S-38B11-L	11 Tooth Splined - Short	SAE	1.62	08	12	90° CCW from Inlet	CCW	2500 PSI 2800 RPM	16.00	





Pumps & Accessories

Single Hydraulic Pumps • Fixed Displacement
Vickers V20 Series Vane Pumps • To 19.5 GPM @ 1800 RPM



Vickers® V20 Vane Pumps

Catalog Part No.	Vickers Part No. See Note Above	Vickers Model Code See Note Above	Shaft	Ports	Displ	Ring Size 1200 RPM	Flow GPM 1800 RPM	Outlet Position	Rot.	Max. PSI & Max. RPM	Wt.	Price Each
C1LS79	576970-3-B	V20-1S8S-38C11	11 Tooth Splined - Short	SAE	1.62	08	12	Inline with Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LS80	576970-7-B	V20-1S8S-38C11-L	11 Tooth Splined - Short	SAE	1.62	08	12	Inline with Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LS81	576970-4-B	V20-1S8S-38D11	11 Tooth Splined - Short	SAE	1.62	08	12	90° CW from Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LS82	576970-8-B	V20-1S8S-38D11-L	11 Tooth Splined - Short	SAE	1.62	08	12	90° CW from Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LV80	02-151574-1-B	V20-6S8S-15A11	13 Tooth SAE B Splined	SAE	1.62	08	12	Opposite Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LV81	02-151574-5-B	V20-6S8S-15A11-L	13 Tooth SAE B Splined	SAE	1.62	08	12	Opposite Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LV82	02-151574-2-B	V20-6S8S-15B11	13 Tooth SAE B Splined	SAE	1.62	08	12	90° CCW from Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LV83	02-151574-6-B	V20-6S8S-15B11-L	13 Tooth SAE B Splined	SAE	1.62	08	12	90° CCW from Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LV84	02-151574-3-B	V20-6S8S-15C11	13 Tooth SAE B Splined	SAE	1.62	08	12	Inline with Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LV85	02-151574-7-B	V20-6S8S-15C11-L	13 Tooth SAE B Splined	SAE	1.62	08	12	Inline with Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LV86	02-151574-4-B	V20-6S8S-15D11	13 Tooth SAE B Splined	SAE	1.62	08	12	90° CW from Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LV87	02-151574-8-B	V20-6S8S-15D11-L	13 Tooth SAE B Splined	SAE	1.62	08	12	90° CW from Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LV88	02-466262-1-B	V20-6S8S-1A11	3/4 Stright Keyed	SAE	1.62	08	12	Opposite Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LV89	02-466262-5-B	V20-6S8S-1A11-L	3/4 Stright Keyed	SAE	1.62	08	12	Opposite Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LV90	02-466262-2-B	V20-6S8S-1B11	3/4 Stright Keyed	SAE	1.62	08	12	90° CCW from Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LV91	02-466262-6-B	V20-6S8S-1B11-L	3/4 Stright Keyed	SAE	1.62	08	12	90° CCW from Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LV92	02-466262-3-B	V20-6S8S-1C11	3/4 Stright Keyed	SAE	1.62	08	12	Inline with Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LV93	02-466262-7-B	V20-6S8S-1C11-L	3/4 Stright Keyed	SAE	1.62	08	12	Inline with Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LV94	02-466262-4-B	V20-6S8S-1D11	3/4 Stright Keyed	SAE	1.62	08	12	90° CW from Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LV95	02-466262-8-B	V20-6S8S-1D11-L	3/4 Stright Keyed	SAE	1.62	08	12	90° CW from Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LP62	383526-1-B	V20-1P9P-11A11	11 Tooth Splined Extended Length	NPT	1.81	09	13.5	Opposite Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LP63	383526-5-B	V20-1P9P-11A11-L	11 Tooth Splined Extended Length	NPT	1.81	09	13.5	Opposite Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LP64	383526-2-B	V20-1P9P-11B11	11 Tooth Splined Extended Length	NPT	1.81	09	13.5	90° CCW from Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LP65	383526-6-B	V20-1P9P-11B11-L	11 Tooth Splined Extended Length	NPT	1.81	09	13.5	90° CCW from Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LP66	383526-3-B	V20-1P9P-11C11	11 Tooth Splined Extended Length	NPT	1.81	09	13.5	Inline with Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LP67	383526-7-B	V20-1P9P-11C11-L	11 Tooth Splined Extended Length	NPT	1.81	09	13.5	Inline with Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LP68	383526-4-B	V20-1P9P-11D11	11 Tooth Splined Extended Length	NPT	1.81	09	13.5	90° CW from Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LP69	383526-8-B	V20-1P9P-11D11-L	11 Tooth Splined Extended Length	NPT	1.81	09	13.5	90° CW from Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LP70	407502-1-B	V20-1P9P-15A11	13 Tooth SAE B Splined	NPT	1.81	09	13.5	Opposite Inlet	CW	2500 PSI 2800 RPM	16.00	



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Pumps & Accessories



Single Hydraulic Pumps • Fixed Displacement
Vickers V20 Series Vane Pumps • To 19.5 GPM @ 1800 RPM



Vickers® V20 Vane Pumps

Catalog Part No.	Vickers Part No. See Note Above	Vickers Model Code See Note Above	Shaft	Ports	Displ	Ring Size 1200 RPM	Flow GPM 1800 RPM	Outlet Position	Rot.	Max. PSI & Max. RPM	Wt.	Price Each
C1LP71	407502-5-B	V20-1P9P-15A11-L	13 Tooth SAE B Splined	NPT	1.81	09	13.5	Opposite Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LP72	407502-2-B	V20-1P9P-15B11	13 Tooth SAE B Splined	NPT	1.81	09	13.5	90° CCW from Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LP73	407502-6-B	V20-1P9P-15B11-L	13 Tooth SAE B Splined	NPT	1.81	09	13.5	90° CCW from Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LP74	407502-3-B	V20-1P9P-15C11	13 Tooth SAE B Splined	NPT	1.81	09	13.5	Inline with Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LP75	407502-7-B	V20-1P9P-15C11-L	13 Tooth SAE B Splined	NPT	1.81	09	13.5	Inline with Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LP76	407502-4-B	V20-1P9P-15D11	13 Tooth SAE B Splined	NPT	1.81	09	13.5	90° CW from Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LP77	407502-8-B	V20-1P9P-15D11-L	13 Tooth SAE B Splined	NPT	1.81	09	13.5	90° CW from Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LP78	358357-1-B	V20-1P9P-1A11	3/4 Stright Keyed	NPT	1.81	09	13.5	Opposite Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LP79	358357-5-B	V20-1P9P-1A11-L	3/4 Stright Keyed	NPT	1.81	09	13.5	Opposite Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LP80	358357-2-B	V20-1P9P-1B11	3/4 Stright Keyed	NPT	1.81	09	13.5	90° CCW from Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LP81	358357-6-B	V20-1P9P-1B11-L	3/4 Stright Keyed	NPT	1.81	09	13.5	90° CCW from Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LP82	358357-3-B	V20-1P9P-1C11	3/4 Stright Keyed	NPT	1.81	09	13.5	Inline with Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LP83	358357-7-B	V20-1P9P-1C11-L	3/4 Stright Keyed	NPT	1.81	09	13.5	Inline with Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LP84	358357-4-B	V20-1P9P-1D11	3/4 Stright Keyed	NPT	1.81	09	13.5	90° CW from Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LP85	358357-8-B	V20-1P9P-1D11-L	3/4 Stright Keyed	NPT	1.81	09	13.5	90° CW from Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LP86	424838-1-B	V20-1P9P-38A11	11 Tooth Splined - Short	NPT	1.81	09	13.5	Opposite Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LP87	424838-5-B	V20-1P9P-38A11-L	11 Tooth Splined - Short	NPT	1.81	09	13.5	Opposite Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LP88	424838-2-B	V20-1P9P-38B11	11 Tooth Splined - Short	NPT	1.81	09	13.5	90° CCW from Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LP89	424838-6-B	V20-1P9P-38B11-L	11 Tooth Splined - Short	NPT	1.81	09	13.5	90° CCW from Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LP90	424838-3-B	V20-1P9P-38C11	11 Tooth Splined - Short	NPT	1.81	09	13.5	Inline with Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LP91	424838-7-B	V20-1P9P-38C11-L	11 Tooth Splined - Short	NPT	1.81	09	13.5	Inline with Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LP92	424838-4-B	V20-1P9P-38D11	11 Tooth Splined - Short	NPT	1.81	09	13.5	90° CW from Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LP93	424838-8-B	V20-1P9P-38D11-L	11 Tooth Splined - Short	NPT	1.81	09	13.5	90° CW from Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LS83	415716-1-B	V20-1S9S-11A11	11 Tooth Splined Extended Length	SAE	1.81	09	13.5	Opposite Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LS84	415716-5-B	V20-1S9S-11A11-L	11 Tooth Splined Extended Length	SAE	1.81	09	13.5	Opposite Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LS85	415716-2-B	V20-1S9S-11B11	11 Tooth Splined Extended Length	SAE	1.81	09	13.5	90° CCW from Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LS86	415716-6-B	V20-1S9S-11B11-L	11 Tooth Splined Extended Length	SAE	1.81	09	13.5	90° CCW from Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LS87	415716-3-B	V20-1S9S-11C11	11 Tooth Splined Extended Length	SAE	1.81	09	13.5	Inline with Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LS88	415716-7-B	V20-1S9S-11C11-L	11 Tooth Splined Extended Length	SAE	1.81	09	13.5	Inline with Inlet	CCW	2500 PSI 2800 RPM	16.00	





Pumps & Accessories

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Vickers® V20 Vane Pumps

Catalog Part No.	Vickers Part No. See Note Above	Vickers Model Code See Note Above	Shaft	Ports	Displ	Ring Size 1200 RPM	Flow GPM 1800 RPM	Outlet Position	Rot.	Max. PSI & Max. RPM	Wt.	Price Each
C1LS89	415716-4-B	V20-1S9S-11D11	11 Tooth Splined Extended Length	SAE	1.81	09	13.5	90° CW from Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LS90	415716-8-B	V20-1S9S-11D11-L	11 Tooth Splined Extended Length	SAE	1.81	09	13.5	90° CW from Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LS91	380297-1-B	V20-1S9S-15A11	13 Tooth SAE B Splined	SAE	1.81	09	13.5	Opposite Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LS92	380297-5-B	V20-1S9S-15A11-L	13 Tooth SAE B Splined	SAE	1.81	09	13.5	Opposite Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LS93	380297-2-B	V20-1S9S-15B11	13 Tooth SAE B Splined	SAE	1.81	09	13.5	90° CCW from Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LS94	380297-6-B	V20-1S9S-15B11-L	13 Tooth SAE B Splined	SAE	1.81	09	13.5	90° CCW from Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LS95	380297-3-B	V20-1S9S-15C11	13 Tooth SAE B Splined	SAE	1.81	09	13.5	Inline with Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LS96	380297-7-B	V20-1S9S-15C11-L	13 Tooth SAE B Splined	SAE	1.81	09	13.5	Inline with Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LS97	380297-4-B	V20-1S9S-15D11	13 Tooth SAE B Splined	SAE	1.81	09	13.5	90° CW from Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LS98	380297-8-B	V20-1S9S-15D11-L	13 Tooth SAE B Splined	SAE	1.81	09	13.5	90° CW from Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LS99	372586-1-B	V20-1S9S-1A11	3/4 Stright Keyed	SAE	1.81	09	13.5	Opposite Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LT11	372586-5-B	V20-1S9S-1A11-L	3/4 Stright Keyed	SAE	1.81	09	13.5	Opposite Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LT12	372586-2-B	V20-1S9S-1B11	3/4 Stright Keyed	SAE	1.81	09	13.5	90° CCW from Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LT13	372586-6-B	V20-1S9S-1B11-L	3/4 Stright Keyed	SAE	1.81	09	13.5	90° CCW from Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LT14	372586-3-B	V20-1S9S-1C11	3/4 Stright Keyed	SAE	1.81	09	13.5	Inline with Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LT15	372586-7-B	V20-1S9S-1C11-L	3/4 Stright Keyed	SAE	1.81	09	13.5	Inline with Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LT16	372586-4-B	V20-1S9S-1D11	3/4 Stright Keyed	SAE	1.81	09	13.5	90° CW from Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LT17	372586-8-B	V20-1S9S-1D11-L	3/4 Stright Keyed	SAE	1.81	09	13.5	90° CW from Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LT18	576980-1-B	V20-1S9S-38A11	11 Tooth Splined - Short	SAE	1.81	09	13.5	Opposite Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LT19	576980-5-B	V20-1S9S-38A11-L	11 Tooth Splined - Short	SAE	1.81	09	13.5	Opposite Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LT20	576980-2-B	V20-1S9S-38B11	11 Tooth Splined - Short	SAE	1.81	09	13.5	90° CCW from Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LT21	576980-6-B	V20-1S9S-38B11-L	11 Tooth Splined - Short	SAE	1.81	09	13.5	90° CCW from Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LT22	576980-3-B	V20-1S9S-38C11	11 Tooth Splined - Short	SAE	1.81	09	13.5	Inline with Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LT23	576980-7-B	V20-1S9S-38C11-L	11 Tooth Splined - Short	SAE	1.81	09	13.5	Inline with Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LT24	576980-4-B	V20-1S9S-38D11	11 Tooth Splined - Short	SAE	1.81	09	13.5	90° CW from Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LT25	576980-8-B	V20-1S9S-38D11-L	11 Tooth Splined - Short	SAE	1.81	09	13.5	90° CW from Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LW23	02-345506-1-B	V20-6S9S-15A11	13 Tooth SAE B Splined	SAE	1.81	09	13.5	Opposite Inlet	CW	2500 PSI 2800 RPM	16.00	
C1LW24	02-345506-5-B	V20-6S9S-15A11-L	13 Tooth SAE B Splined	SAE	1.81	09	13.5	Opposite Inlet	CCW	2500 PSI 2800 RPM	16.00	
C1LW25	02-345506-2-B	V20-6S9S-15B11	13 Tooth SAE B Splined	SAE	1.81	09	13.5	90° CCW from Inlet	CW	2500 PSI 2800 RPM	16.00	



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Vickers® V20 Vane Pumps

Catalog Part No.	Vickers Part No. See Note Above	Vickers Model Code See Note Above	Shaft	Ports	Displ	Ring Size 1200 RPM	Flow GPM 1800 RPM	Outlet Position	Rot.	Max. PSI & Max. RPM	Wt.	Price Each
C11W26	02-345506-6-B	V20-6S9S-15B11-L	13 Tooth SAE B Splined	SAE	1.81	09	13.5	90° CCW from Inlet	CCW	2500 PSI 2800 RPM	16.00	
C11W27	02-345506-3-B	V20-6S9S-15C11	13 Tooth SAE B Splined	SAE	1.81	09	13.5	Inline with Inlet	CW	2500 PSI 2800 RPM	16.00	
C11W28	02-345506-7-B	V20-6S9S-15C11-L	13 Tooth SAE B Splined	SAE	1.81	09	13.5	Inline with Inlet	CCW	2500 PSI 2800 RPM	16.00	
C11W29	02-345506-4-B	V20-6S9S-15D11	13 Tooth SAE B Splined	SAE	1.81	09	13.5	90° CW from Inlet	CW	2500 PSI 2800 RPM	16.00	
C11W30	02-345506-8-B	V20-6S9S-15D11-L	13 Tooth SAE B Splined	SAE	1.81	09	13.5	90° CW from Inlet	CCW	2500 PSI 2800 RPM	16.00	
C11W31	02-346200-1-B	V20-6S9S-1A11	3/4 Stright Keyed	SAE	1.81	09	13.5	Opposite Inlet	CW	2500 PSI 2800 RPM	16.00	
C11W32	02-346200-5-B	V20-6S9S-1A11-L	3/4 Stright Keyed	SAE	1.81	09	13.5	Opposite Inlet	CCW	2500 PSI 2800 RPM	16.00	
C11W33	02-346200-2-B	V20-6S9S-1B11	3/4 Stright Keyed	SAE	1.81	09	13.5	90° CCW from Inlet	CW	2500 PSI 2800 RPM	16.00	
C11W34	02-346200-6-B	V20-6S9S-1B11-L	3/4 Stright Keyed	SAE	1.81	09	13.5	90° CCW from Inlet	CCW	2500 PSI 2800 RPM	16.00	
C11W35	02-346200-3-B	V20-6S9S-1C11	3/4 Stright Keyed	SAE	1.81	09	13.5	Inline with Inlet	CW	2500 PSI 2800 RPM	16.00	
C11W36	02-346200-7-B	V20-6S9S-1C11-L	3/4 Stright Keyed	SAE	1.81	09	13.5	Inline with Inlet	CCW	2500 PSI 2800 RPM	16.00	
C11W37	02-346200-4-B	V20-6S9S-1D11	3/4 Stright Keyed	SAE	1.81	09	13.5	90° CW from Inlet	CW	2500 PSI 2800 RPM	16.00	
C11W38	02-346200-8-B	V20-6S9S-1D11-L	3/4 Stright Keyed	SAE	1.81	09	13.5	90° CW from Inlet	CCW	2500 PSI 2800 RPM	16.00	
C11L85	720AR00195A-B	V20-1P10P-15C11	13 Tooth SAE B Splined	NPT	2	10	15	Inline with Inlet	CW	2500 PSI 2800 RPM	17.00	
C11L89	391763-1-B	V20-1P10P-1A11	3/4 Stright Keyed	NPT	2	10	15	Opposite Inlet	CW	2500 PSI 2800 RPM	17.00	
C11L90	391763-5-B	V20-1P10P-1A11-L	3/4 Stright Keyed	NPT	2	10	15	Opposite Inlet	CCW	2500 PSI 2800 RPM	17.00	
C11L91	391763-2-B	V20-1P10P-1B11	3/4 Stright Keyed	NPT	2	10	15	90° CCW from Inlet	CW	2500 PSI 2800 RPM	17.00	
C11L92	391763-6-B	V20-1P10P-1B11-L	3/4 Stright Keyed	NPT	2	10	15	90° CCW from Inlet	CCW	2500 PSI 2800 RPM	17.00	
C11L93	391763-3-B	V20-1P10P-1C11	3/4 Stright Keyed	NPT	2	10	15	Inline with Inlet	CW	2500 PSI 2800 RPM	17.00	
C11L94	391763-7-B	V20-1P10P-1C11-L	3/4 Stright Keyed	NPT	2	10	15	Inline with Inlet	CCW	2500 PSI 2800 RPM	17.00	
C11L95	391763-4-B	V20-1P10P-1D11	3/4 Stright Keyed	NPT	2	10	15	90° CW from Inlet	CW	2500 PSI 2800 RPM	17.00	
C11L96	391763-8-B	V20-1P10P-1D11-L	3/4 Stright Keyed	NPT	2	10	15	90° CW from Inlet	CCW	2500 PSI 2800 RPM	17.00	
C11L97	02-125318-1-B	V20-1P10P-38A11	11 Tooth Splined - Short	NPT	2	10	15	Opposite Inlet	CW	2500 PSI 2800 RPM	17.00	
C11L98	02-125318-5-B	V20-1P10P-38A11-L	11 Tooth Splined - Short	NPT	2	10	15	Opposite Inlet	CCW	2500 PSI 2800 RPM	17.00	
C11L99	02-125318-2-B	V20-1P10P-38B11	11 Tooth Splined - Short	NPT	2	10	15	90° CCW from Inlet	CW	2500 PSI 2800 RPM	17.00	
C11M11	02-125318-6-B	V20-1P10P-38B11-L	11 Tooth Splined - Short	NPT	2	10	15	90° CCW from Inlet	CCW	2500 PSI 2800 RPM	17.00	
C11M12	02-125318-3-B	V20-1P10P-38C11	11 Tooth Splined - Short	NPT	2	10	15	Inline with Inlet	CW	2500 PSI 2800 RPM	17.00	
C11M13	02-125318-7-B	V20-1P10P-38C11-L	11 Tooth Splined - Short	NPT	2	10	15	Inline with Inlet	CCW	2500 PSI 2800 RPM	17.00	
C11M14	02-125318-4-B	V20-1P10P-38D11	11 Tooth Splined - Short	NPT	2	10	15	90° CW from Inlet	CW	2500 PSI 2800 RPM	17.00	





Pumps & Accessories

Single Hydraulic Pumps • Fixed Displacement
Vickers V20 Series Vane Pumps • To 19.5 GPM @ 1800 RPM



Vickers® V20 Vane Pumps

Catalog Part No.	Vickers Part No. See Note Above	Vickers Model Code See Note Above	Shaft	Ports	Displ	Ring Size 1200 RPM	Flow GPM 1800 RPM	Outlet Position	Rot.	Max. PSI & Max. RPM	Wt.	Price Each
C1LM15	02-125318-8-B	V20-1P10P-38D1 1-L	11 Tooth Splined - Short	NPT	2	10	15	90° CW from Inlet	CCW	2500 PSI 2800 RPM	17.00	
C1LQ13	02-466627-1-B	V20-1S10S-15A1 1	13 Tooth SAE B Splined	SAE	2	10	15	Opposite Inlet	CW	2500 PSI 2800 RPM	17.00	
C1LQ14	02-466627-5-B	V20-1S10S-15A1 1-L	13 Tooth SAE B Splined	SAE	2	10	15	Opposite Inlet	CCW	2500 PSI 2800 RPM	17.00	
C1LQ15	02-466627-2-B	V20-1S10S-15B1 1	13 Tooth SAE B Splined	SAE	2	10	15	90° CCW from Inlet	CW	2500 PSI 2800 RPM	17.00	
C1LQ16	02-466627-6-B	V20-1S10S-15B1 1-L	13 Tooth SAE B Splined	SAE	2	10	15	90° CCW from Inlet	CCW	2500 PSI 2800 RPM	17.00	
C1LQ17	02-466627-3-B	V20-1S10S-15C1 1	13 Tooth SAE B Splined	SAE	2	10	15	Inline with Inlet	CW	2500 PSI 2800 RPM	17.00	
C1LQ18	02-466627-7-B	V20-1S10S-15C1 1-L	13 Tooth SAE B Splined	SAE	2	10	15	Inline with Inlet	CCW	2500 PSI 2800 RPM	17.00	
C1LQ19	02-466627-4-B	V20-1S10S-15D1 1	13 Tooth SAE B Splined	SAE	2	10	15	90° CW from Inlet	CW	2500 PSI 2800 RPM	17.00	
C1LQ20	02-466627-8-B	V20-1S10S-15D1 1-L	13 Tooth SAE B Splined	SAE	2	10	15	90° CW from Inlet	CCW	2500 PSI 2800 RPM	17.00	
C1LQ21	02-322148-1-B	V20-1S10S-1A11	3/4 Stright Keyed	SAE	2	10	15	Opposite Inlet	CW	2500 PSI 2800 RPM	17.00	
C1LQ22	02-322148-5-B	V20-1S10S-1A11 -L	3/4 Stright Keyed	SAE	2	10	15	Opposite Inlet	CCW	2500 PSI 2800 RPM	17.00	
C1LQ23	02-322148-2-B	V20-1S10S-1B11	3/4 Stright Keyed	SAE	2	10	15	90° CCW from Inlet	CW	2500 PSI 2800 RPM	17.00	
C1LQ24	02-322148-6-B	V20-1S10S-1B11 -L	3/4 Stright Keyed	SAE	2	10	15	90° CCW from Inlet	CCW	2500 PSI 2800 RPM	17.00	
C1LQ25	02-322148-3-B	V20-1S10S-1C11	3/4 Stright Keyed	SAE	2	10	15	Inline with Inlet	CW	2500 PSI 2800 RPM	17.00	
C1LQ26	02-322148-7-B	V20-1S10S-1C11 -L	3/4 Stright Keyed	SAE	2	10	15	Inline with Inlet	CCW	2500 PSI 2800 RPM	17.00	
C1LQ27	02-322148-4-B	V20-1S10S-1D11	3/4 Stright Keyed	SAE	2	10	15	90° CW from Inlet	CW	2500 PSI 2800 RPM	17.00	
C1LQ28	02-322148-8-B	V20-1S10S-1D11 -L	3/4 Stright Keyed	SAE	2	10	15	90° CW from Inlet	CCW	2500 PSI 2800 RPM	17.00	
C1LQ29	02-151688-1-B	V20-1S10S-38A1 1	11 Tooth Splined - Short	SAE	2	10	15	Opposite Inlet	CW	2500 PSI 2800 RPM	17.00	
C1LQ30	02-151688-5-B	V20-1S10S-38A1 1-L	11 Tooth Splined - Short	SAE	2	10	15	Opposite Inlet	CCW	2500 PSI 2800 RPM	17.00	
C1LQ31	02-151688-2-B	V20-1S10S-38B1 1	11 Tooth Splined - Short	SAE	2	10	15	90° CCW from Inlet	CW	2500 PSI 2800 RPM	17.00	
C1LQ32	02-151688-6-B	V20-1S10S-38B1 1-L	11 Tooth Splined - Short	SAE	2	10	15	90° CCW from Inlet	CCW	2500 PSI 2800 RPM	17.00	
C1LQ33	02-151688-3-B	V20-1S10S-38C1 1	11 Tooth Splined - Short	SAE	2	10	15	Inline with Inlet	CW	2500 PSI 2800 RPM	17.00	
C1LQ34	02-151688-7-B	V20-1S10S-38C1 1-L	11 Tooth Splined - Short	SAE	2	10	15	Inline with Inlet	CCW	2500 PSI 2800 RPM	17.00	
C1LQ35	02-151688-4-B	V20-1S10S-38D1 1	11 Tooth Splined - Short	SAE	2	10	15	90° CW from Inlet	CW	2500 PSI 2800 RPM	17.00	
C1LQ36	02-151688-8-B	V20-1S10S-38D1 1-L	11 Tooth Splined - Short	SAE	2	10	15	90° CW from Inlet	CCW	2500 PSI 2800 RPM	17.00	
C1LT34	478237-1-B	V20-6S10S-15A1 1	13 Tooth SAE B Splined	SAE	2	10	15	Opposite Inlet	CW	2500 PSI 2800 RPM	17.00	
C1LT35	478237-5-B	V20-6S10S-15A1 1-L	13 Tooth SAE B Splined	SAE	2	10	15	Opposite Inlet	CCW	2500 PSI 2800 RPM	17.00	
C1LT36	478237-2-B	V20-6S10S-15B1 1	13 Tooth SAE B Splined	SAE	2	10	15	90° CCW from Inlet	CW	2500 PSI 2800 RPM	17.00	
C1LT37	478237-6-B	V20-6S10S-15B1 1-L	13 Tooth SAE B Splined	SAE	2	10	15	90° CCW from Inlet	CCW	2500 PSI 2800 RPM	17.00	



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Pumps & Accessories



Single Hydraulic Pumps • Fixed Displacement
Vickers V20 Series Vane Pumps • To 19.5 GPM @ 1800 RPM



Vickers® V20 Vane Pumps

Catalog Part No.	Vickers Part No. See Note Above	Vickers Model Code See Note Above	Shaft	Ports	Displ	Ring Size 1200 RPM	Flow GPM 1800 RPM	Outlet Position	Rot.	Max. PSI & Max. RPM	Wt.	Price Each
C1LT38	478237-3-B	V20-6S10S-15C1 1	13 Tooth SAE B Splined	SAE	2	10	15	Inline with Inlet	CW	2500 PSI 2800 RPM	17.00	
C1LT39	478237-7-B	V20-6S10S-15C1 1-L	13 Tooth SAE B Splined	SAE	2	10	15	Inline with Inlet	CCW	2500 PSI 2800 RPM	17.00	
C1LT40	478237-4-B	V20-6S10S-15D1 1	13 Tooth SAE B Splined	SAE	2	10	15	90° CW from Inlet	CW	2500 PSI 2800 RPM	17.00	
C1LT41	478237-8-B	V20-6S10S-15D1 1-L	13 Tooth SAE B Splined	SAE	2	10	15	90° CW from Inlet	CCW	2500 PSI 2800 RPM	17.00	
C1LM16	390925-1-B	V20-1P11P-11A1 1	11 Tooth Splined Extended Length	NPT	2.22	11	16.5	Opposite Inlet	CW	2500 PSI 2500 RPM	17.00	
C1LM17	390925-5-B	V20-1P11P-11A1 1-L	11 Tooth Splined Extended Length	NPT	2.22	11	16.5	Opposite Inlet	CCW	2500 PSI 2500 RPM	17.00	
C1LM18	390925-2-B	V20-1P11P-11B1 1	11 Tooth Splined Extended Length	NPT	2.22	11	16.5	90° CCW from Inlet	CW	2500 PSI 2500 RPM	17.00	
C1LM19	390925-6-B	V20-1P11P-11B1 1-L	11 Tooth Splined Extended Length	NPT	2.22	11	16.5	90° CCW from Inlet	CCW	2500 PSI 2500 RPM	17.00	
C1LM20	390925-3-B	V20-1P11P-11C1 1	11 Tooth Splined Extended Length	NPT	2.22	11	16.5	Inline with Inlet	CW	2500 PSI 2500 RPM	17.00	
C1LM21	390925-7-B	V20-1P11P-11C1 1-L	11 Tooth Splined Extended Length	NPT	2.22	11	16.5	Inline with Inlet	CCW	2500 PSI 2500 RPM	17.00	
C1LM22	390925-4-B	V20-1P11P-11D1 1	11 Tooth Splined Extended Length	NPT	2.22	11	16.5	90° CW from Inlet	CW	2500 PSI 2500 RPM	17.00	
C1LM23	390925-8-B	V20-1P11P-11D1 1-L	11 Tooth Splined Extended Length	NPT	2.22	11	16.5	90° CW from Inlet	CCW	2500 PSI 2500 RPM	17.00	
C1LM24	372646-1-B	V20-1P11P-15A1 1	13 Tooth SAE B Splined	NPT	2.22	11	16.5	Opposite Inlet	CW	2500 PSI 2500 RPM	17.00	
C1LM25	372646-5-B	V20-1P11P-15A1 1-L	13 Tooth SAE B Splined	NPT	2.22	11	16.5	Opposite Inlet	CCW	2500 PSI 2500 RPM	17.00	
C1LM26	372646-2-B	V20-1P11P-15B1 1	13 Tooth SAE B Splined	NPT	2.22	11	16.5	90° CCW from Inlet	CW	2500 PSI 2500 RPM	17.00	
C1LM27	372646-6-B	V20-1P11P-15B1 1-L	13 Tooth SAE B Splined	NPT	2.22	11	16.5	90° CCW from Inlet	CCW	2500 PSI 2500 RPM	17.00	
C1LM28	372646-3-B	V20-1P11P-15C1 1	13 Tooth SAE B Splined	NPT	2.22	11	16.5	Inline with Inlet	CW	2500 PSI 2500 RPM	17.00	
C1LM29	372646-7-B	V20-1P11P-15C1 1-L	13 Tooth SAE B Splined	NPT	2.22	11	16.5	Inline with Inlet	CCW	2500 PSI 2500 RPM	17.00	
C1LM30	372646-4-B	V20-1P11P-15D1 1	13 Tooth SAE B Splined	NPT	2.22	11	16.5	90° CW from Inlet	CW	2500 PSI 2500 RPM	17.00	
C1LM31	372646-8-B	V20-1P11P-15D1 1-L	13 Tooth SAE B Splined	NPT	2.22	11	16.5	90° CW from Inlet	CCW	2500 PSI 2500 RPM	17.00	
C1LM32	372617-1-B	V20-1P11P-1A11	3/4 Stright Keyed	NPT	2.22	11	16.5	Opposite Inlet	CW	2500 PSI 2500 RPM	17.00	
C1LM33	372617-5-B	V20-1P11P-1A11 -L	3/4 Stright Keyed	NPT	2.22	11	16.5	Opposite Inlet	CCW	2500 PSI 2500 RPM	17.00	
C1LM34	372617-2-B	V20-1P11P-1B11	3/4 Stright Keyed	NPT	2.22	11	16.5	90° CCW from Inlet	CW	2500 PSI 2500 RPM	17.00	
C1LM35	372617-6-B	V20-1P11P-1B11 -L	3/4 Stright Keyed	NPT	2.22	11	16.5	90° CCW from Inlet	CCW	2500 PSI 2500 RPM	17.00	
C1LM36	372617-3-B	V20-1P11P-1C11	3/4 Stright Keyed	NPT	2.22	11	16.5	Inline with Inlet	CW	2500 PSI 2500 RPM	17.00	
C1LM37	372617-7-B	V20-1P11P-1C11 -L	3/4 Stright Keyed	NPT	2.22	11	16.5	Inline with Inlet	CCW	2500 PSI 2500 RPM	17.00	
C1LM38	372617-4-B	V20-1P11P-1D11	3/4 Stright Keyed	NPT	2.22	11	16.5	90° CW from Inlet	CW	2500 PSI 2500 RPM	17.00	
C1LM39	372617-8-B	V20-1P11P-1D11 -L	3/4 Stright Keyed	NPT	2.22	11	16.5	90° CW from Inlet	CCW	2500 PSI 2500 RPM	17.00	
C1LM40	406555-1-B	V20-1P11P-38A1 1	11 Tooth Splined - Short	NPT	2.22	11	16.5	Opposite Inlet	CW	2500 PSI 2500 RPM	17.00	





Pumps & Accessories

Single Hydraulic Pumps • Fixed Displacement
Vickers V20 Series Vane Pumps • To 19.5 GPM @ 1800 RPM



Vickers® V20 Vane Pumps

Catalog Part No.	Vickers Part No. See Note Above	Vickers Model Code See Note Above	Shaft	Ports	Displ	Ring Size 1200 RPM	Flow GPM 1800 RPM	Outlet Position	Rot.	Max. PSI & Max. RPM	Wt.	Price Each
C1LM41	406555-5-B	V20-1P11P-38A1 1-L	11 Tooth Splined - Short	NPT	2.22	11	16.5	Opposite Inlet	CCW	2500 PSI 2500 RPM	17.00	
C1LM42	406555-2-B	V20-1P11P-38B1 1	11 Tooth Splined - Short	NPT	2.22	11	16.5	90° CCW from Inlet	CW	2500 PSI 2500 RPM	17.00	
C1LM43	406555-6-B	V20-1P11P-38B1 1-L	11 Tooth Splined - Short	NPT	2.22	11	16.5	90° CCW from Inlet	CCW	2500 PSI 2500 RPM	17.00	
C1LM44	406555-3-B	V20-1P11P-38C1 1	11 Tooth Splined - Short	NPT	2.22	11	16.5	Inline with Inlet	CW	2500 PSI 2500 RPM	17.00	
C1LM45	406555-7-B	V20-1P11P-38C1 1-L	11 Tooth Splined - Short	NPT	2.22	11	16.5	Inline with Inlet	CCW	2500 PSI 2500 RPM	17.00	
C1LM46	406555-4-B	V20-1P11P-38D1 1	11 Tooth Splined - Short	NPT	2.22	11	16.5	90° CW from Inlet	CW	2500 PSI 2500 RPM	17.00	
C1LM47	406555-8-B	V20-1P11P-38D1 1-L	11 Tooth Splined - Short	NPT	2.22	11	16.5	90° CW from Inlet	CCW	2500 PSI 2500 RPM	17.00	
C1LQ37	372580-1-B	V20-1S11S-11A1 1	11 Tooth Splined Extended Length	SAE	2.22	11	16.5	Opposite Inlet	CW	2500 PSI 2500 RPM	17.00	
C1LQ38	372580-5-B	V20-1S11S-11A1 1-L	11 Tooth Splined Extended Length	SAE	2.22	11	16.5	Opposite Inlet	CCW	2500 PSI 2500 RPM	17.00	
C1LQ39	372580-2-B	V20-1S11S-11B1 1	11 Tooth Splined Extended Length	SAE	2.22	11	16.5	90° CCW from Inlet	CW	2500 PSI 2500 RPM	17.00	
C1LQ40	372580-6-B	V20-1S11S-11B1 1-L	11 Tooth Splined Extended Length	SAE	2.22	11	16.5	90° CCW from Inlet	CCW	2500 PSI 2500 RPM	17.00	
C1LQ41	372580-3-B	V20-1S11S-11C1 1	11 Tooth Splined Extended Length	SAE	2.22	11	16.5	Inline with Inlet	CW	2500 PSI 2500 RPM	17.00	
C1LQ42	372580-7-B	V20-1S11S-11C1 1-L	11 Tooth Splined Extended Length	SAE	2.22	11	16.5	Inline with Inlet	CCW	2500 PSI 2500 RPM	17.00	
C1LQ43	372580-4-B	V20-1S11S-11D1 1	11 Tooth Splined Extended Length	SAE	2.22	11	16.5	90° CW from Inlet	CW	2500 PSI 2500 RPM	17.00	
C1LQ44	372580-8-B	V20-1S11S-11D1 1-L	11 Tooth Splined Extended Length	SAE	2.22	11	16.5	90° CW from Inlet	CCW	2500 PSI 2500 RPM	17.00	
C1LQ45	372591-1-B	V20-1S11S-15A1 1	13 Tooth SAE B Splined	SAE	2.22	11	16.5	Opposite Inlet	CW	2500 PSI 2500 RPM	17.00	
C1LQ46	372591-5-B	V20-1S11S-15A1 1-L	13 Tooth SAE B Splined	SAE	2.22	11	16.5	Opposite Inlet	CCW	2500 PSI 2500 RPM	17.00	
C1LQ47	372591-2-B	V20-1S11S-15B1 1	13 Tooth SAE B Splined	SAE	2.22	11	16.5	90° CCW from Inlet	CW	2500 PSI 2500 RPM	17.00	
C1LQ48	372591-6-B	V20-1S11S-15B1 1-L	13 Tooth SAE B Splined	SAE	2.22	11	16.5	90° CCW from Inlet	CCW	2500 PSI 2500 RPM	17.00	
C1LQ49	372591-3-B	V20-1S11S-15C1 1	13 Tooth SAE B Splined	SAE	2.22	11	16.5	Inline with Inlet	CW	2500 PSI 2500 RPM	17.00	
C1LQ50	372591-7-B	V20-1S11S-15C1 1-L	13 Tooth SAE B Splined	SAE	2.22	11	16.5	Inline with Inlet	CCW	2500 PSI 2500 RPM	17.00	
C1LQ51	372591-4-B	V20-1S11S-15D1 1	13 Tooth SAE B Splined	SAE	2.22	11	16.5	90° CW from Inlet	CW	2500 PSI 2500 RPM	17.00	
C1LQ52	372591-8-B	V20-1S11S-15D1 1-L	13 Tooth SAE B Splined	SAE	2.22	11	16.5	90° CW from Inlet	CCW	2500 PSI 2500 RPM	17.00	
C1LQ53	358358-1-B	V20-1S11S-1A11	3/4 Stright Keyed	SAE	2.22	11	16.5	Opposite Inlet	CW	2500 PSI 2500 RPM	17.00	
C1LQ54	358358-5-B	V20-1S11S-1A11 -L	3/4 Stright Keyed	SAE	2.22	11	16.5	Opposite Inlet	CCW	2500 PSI 2500 RPM	17.00	
C1LQ55	358358-2-B	V20-1S11S-1B11	3/4 Stright Keyed	SAE	2.22	11	16.5	90° CCW from Inlet	CW	2500 PSI 2500 RPM	17.00	
C1LQ56	358358-6-B	V20-1S11S-1B11 -L	3/4 Stright Keyed	SAE	2.22	11	16.5	90° CCW from Inlet	CCW	2500 PSI 2500 RPM	17.00	
C1LQ57	358358-3-B	V20-1S11S-1C11	3/4 Stright Keyed	SAE	2.22	11	16.5	Inline with Inlet	CW	2500 PSI 2500 RPM	17.00	
C1LQ58	358358-7-B	V20-1S11S-1C11 -L	3/4 Stright Keyed	SAE	2.22	11	16.5	Inline with Inlet	CCW	2500 PSI 2500 RPM	17.00	



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Pumps & Accessories



Single Hydraulic Pumps • Fixed Displacement
Vickers V20 Series Vane Pumps • To 19.5 GPM @ 1800 RPM



Vickers® V20 Vane Pumps

Catalog Part No.	Vickers Part No. See Note Above	Vickers Model Code See Note Above	Shaft	Ports	Displ	Ring Size 1200 RPM	Flow GPM 1800 RPM	Outlet Position	Rot.	Max. PSI & Max. RPM	Wt.	Price Each
C1LQ59	358358-4-B	V20-1S11S-1D11	3/4 Stright Keyed	SAE	2.22	11	16.5	90° CW from Inlet	CW	2500 PSI 2500 RPM	17.00	
C1LQ60	358358-8-B	V20-1S11S-1D11-L	3/4 Stright Keyed	SAE	2.22	11	16.5	90° CW from Inlet	CCW	2500 PSI 2500 RPM	17.00	
C1LQ61	426653-1-B	V20-1S11S-38A1-1	11 Tooth Splined - Short	SAE	2.22	11	16.5	Opposite Inlet	CW	2500 PSI 2500 RPM	17.00	
C1LQ62	426653-5-B	V20-1S11S-38A1-1-L	11 Tooth Splined - Short	SAE	2.22	11	16.5	Opposite Inlet	CCW	2500 PSI 2500 RPM	17.00	
C1LQ63	426653-2-B	V20-1S11S-38B1-1	11 Tooth Splined - Short	SAE	2.22	11	16.5	90° CCW from Inlet	CW	2500 PSI 2500 RPM	17.00	
C1LQ64	426653-6-B	V20-1S11S-38B1-1-L	11 Tooth Splined - Short	SAE	2.22	11	16.5	90° CCW from Inlet	CCW	2500 PSI 2500 RPM	17.00	
C1LQ65	426653-3-B	V20-1S11S-38C1-1	11 Tooth Splined - Short	SAE	2.22	11	16.5	Inline with Inlet	CW	2500 PSI 2500 RPM	17.00	
C1LQ66	426653-7-B	V20-1S11S-38C1-1-L	11 Tooth Splined - Short	SAE	2.22	11	16.5	Inline with Inlet	CCW	2500 PSI 2500 RPM	17.00	
C1LQ67	426653-4-B	V20-1S11S-38D1-1	11 Tooth Splined - Short	SAE	2.22	11	16.5	90° CW from Inlet	CW	2500 PSI 2500 RPM	17.00	
C1LQ68	426653-8-B	V20-1S11S-38D1-1-L	11 Tooth Splined - Short	SAE	2.22	11	16.5	90° CW from Inlet	CCW	2500 PSI 2500 RPM	17.00	
C1LT58	02-102398-1-B	V20-6S11S-11A1-1	11 Tooth Splined Extended Length	SAE	2.22	11	16.5	Opposite Inlet	CW	2500 PSI 2500 RPM	17.00	
C1LT59	02-102398-5-B	V20-6S11S-11A1-1-L	11 Tooth Splined Extended Length	SAE	2.22	11	16.5	Opposite Inlet	CCW	2500 PSI 2500 RPM	17.00	
C1LT60	02-102398-2-B	V20-6S11S-11B1-1	11 Tooth Splined Extended Length	SAE	2.22	11	16.5	90° CCW from Inlet	CW	2500 PSI 2500 RPM	17.00	
C1LT61	02-102398-6-B	V20-6S11S-11B1-1-L	11 Tooth Splined Extended Length	SAE	2.22	11	16.5	90° CCW from Inlet	CCW	2500 PSI 2500 RPM	17.00	
C1LT62	02-102398-3-B	V20-6S11S-11C1-1	11 Tooth Splined Extended Length	SAE	2.22	11	16.5	Inline with Inlet	CW	2500 PSI 2500 RPM	17.00	
C1LT63	02-102398-7-B	V20-6S11S-11C1-1-L	11 Tooth Splined Extended Length	SAE	2.22	11	16.5	Inline with Inlet	CCW	2500 PSI 2500 RPM	17.00	
C1LT64	02-102398-4-B	V20-6S11S-11D1-1	11 Tooth Splined Extended Length	SAE	2.22	11	16.5	90° CW from Inlet	CW	2500 PSI 2500 RPM	17.00	
C1LT65	02-102398-8-B	V20-6S11S-11D1-1-L	11 Tooth Splined Extended Length	SAE	2.22	11	16.5	90° CW from Inlet	CCW	2500 PSI 2500 RPM	17.00	
C1LT66	591418-1-B	V20-6S11S-15A1-1	13 Tooth SAE B Splined	SAE	2.22	11	16.5	Opposite Inlet	CW	2500 PSI 2500 RPM	17.00	
C1LT67	591418-5-B	V20-6S11S-15A1-1-L	13 Tooth SAE B Splined	SAE	2.22	11	16.5	Opposite Inlet	CCW	2500 PSI 2500 RPM	17.00	
C1LT68	591418-2-B	V20-6S11S-15B1-1	13 Tooth SAE B Splined	SAE	2.22	11	16.5	90° CCW from Inlet	CW	2500 PSI 2500 RPM	17.00	
C1LT69	591418-6-B	V20-6S11S-15B1-1-L	13 Tooth SAE B Splined	SAE	2.22	11	16.5	90° CCW from Inlet	CCW	2500 PSI 2500 RPM	17.00	
C1LT70	591418-3-B	V20-6S11S-15C1-1	13 Tooth SAE B Splined	SAE	2.22	11	16.5	Inline with Inlet	CW	2500 PSI 2500 RPM	17.00	
C1LT71	591418-7-B	V20-6S11S-15C1-1-L	13 Tooth SAE B Splined	SAE	2.22	11	16.5	Inline with Inlet	CCW	2500 PSI 2500 RPM	17.00	
C1LT72	591418-4-B	V20-6S11S-15D1-1	13 Tooth SAE B Splined	SAE	2.22	11	16.5	90° CW from Inlet	CW	2500 PSI 2500 RPM	17.00	
C1LT73	591418-8-B	V20-6S11S-15D1-1-L	13 Tooth SAE B Splined	SAE	2.22	11	16.5	90° CW from Inlet	CCW	2500 PSI 2500 RPM	17.00	
C1LM48	584195-1-B	V20-1P12P-11A1-1	11 Tooth Splined Extended Length	NPT	2.38	12	18	Opposite Inlet	CW	2200 PSI 2400 RPM	18.00	
C1LM49	584195-5-B	V20-1P12P-11A1-1-L	11 Tooth Splined Extended Length	NPT	2.38	12	18	Opposite Inlet	CCW	2200 PSI 2400 RPM	18.00	
C1LM50	584195-2-B	V20-1P12P-11B1-1	11 Tooth Splined Extended Length	NPT	2.38	12	18	90° CCW from Inlet	CW	2200 PSI 2400 RPM	18.00	





Pumps & Accessories

Single Hydraulic Pumps • Fixed Displacement
Vickers V20 Series Vane Pumps • To 19.5 GPM @ 1800 RPM



Vickers® V20 Vane Pumps

Catalog Part No.	Vickers Part No. See Note Above	Vickers Model Code See Note Above	Shaft	Ports	Displ	Ring Size 1200 RPM	Flow GPM 1800 RPM	Outlet Position	Rot.	Max. PSI & Max. RPM	Wt.	Price Each
C1LM51	584195-6-B	V20-1P12P-11B1 1-L	11 Tooth Splined Extended Length	NPT	2.38	12	18	90° CCW from Inlet	CCW	2200 PSI 2400 RPM	18.00	
C1LM52	584195-3-B	V20-1P12P-11C1 1	11 Tooth Splined Extended Length	NPT	2.38	12	18	Inline with Inlet	CW	2200 PSI 2400 RPM	18.00	
C1LM53	584195-7-B	V20-1P12P-11C1 1-L	11 Tooth Splined Extended Length	NPT	2.38	12	18	Inline with Inlet	CCW	2200 PSI 2400 RPM	18.00	
C1LM54	584195-4-B	V20-1P12P-11D1 1	11 Tooth Splined Extended Length	NPT	2.38	12	18	90° CW from Inlet	CW	2200 PSI 2400 RPM	18.00	
C1LM55	584195-8-B	V20-1P12P-11D1 1-L	11 Tooth Splined Extended Length	NPT	2.38	12	18	90° CW from Inlet	CCW	2200 PSI 2400 RPM	18.00	
C1LM56	399748-1-B	V20-1P12P-15A1 1	13 Tooth SAE B Splined	NPT	2.38	12	18	Opposite Inlet	CW	2200 PSI 2400 RPM	18.00	
C1LM57	399748-5-B	V20-1P12P-15A1 1-L	13 Tooth SAE B Splined	NPT	2.38	12	18	Opposite Inlet	CCW	2200 PSI 2400 RPM	18.00	
C1LM58	399748-2-B	V20-1P12P-15B1 1	13 Tooth SAE B Splined	NPT	2.38	12	18	90° CCW from Inlet	CW	2200 PSI 2400 RPM	18.00	
C1LM59	399748-6-B	V20-1P12P-15B1 1-L	13 Tooth SAE B Splined	NPT	2.38	12	18	90° CCW from Inlet	CCW	2200 PSI 2400 RPM	18.00	
C1LM60	399748-3-B	V20-1P12P-15C1 1	13 Tooth SAE B Splined	NPT	2.38	12	18	Inline with Inlet	CW	2200 PSI 2400 RPM	18.00	
C1LM61	399748-7-B	V20-1P12P-15C1 1-L	13 Tooth SAE B Splined	NPT	2.38	12	18	Inline with Inlet	CCW	2200 PSI 2400 RPM	18.00	
C1LM62	399748-4-B	V20-1P12P-15D1 1	13 Tooth SAE B Splined	NPT	2.38	12	18	90° CW from Inlet	CW	2200 PSI 2400 RPM	18.00	
C1LM63	399748-8-B	V20-1P12P-15D1 1-L	13 Tooth SAE B Splined	NPT	2.38	12	18	90° CW from Inlet	CCW	2200 PSI 2400 RPM	18.00	
C1LM64	393723-1-B	V20-1P12P-1A11	3/4 Stright Keyed	NPT	2.38	12	18	Opposite Inlet	CW	2200 PSI 2400 RPM	18.00	
C1LM65	393723-5-B	V20-1P12P-1A11 -L	3/4 Stright Keyed	NPT	2.38	12	18	Opposite Inlet	CCW	2200 PSI 2400 RPM	18.00	
C1LM66	393723-2-B	V20-1P12P-1B11	3/4 Stright Keyed	NPT	2.38	12	18	90° CCW from Inlet	CW	2200 PSI 2400 RPM	18.00	
C1LM67	393723-6-B	V20-1P12P-1B11 -L	3/4 Stright Keyed	NPT	2.38	12	18	90° CCW from Inlet	CCW	2200 PSI 2400 RPM	18.00	
C1LM68	393723-3-B	V20-1P12P-1C11	3/4 Stright Keyed	NPT	2.38	12	18	Inline with Inlet	CW	2200 PSI 2400 RPM	18.00	
C1LM69	393723-7-B	V20-1P12P-1C11 -L	3/4 Stright Keyed	NPT	2.38	12	18	Inline with Inlet	CCW	2200 PSI 2400 RPM	18.00	
C1LM70	393723-4-B	V20-1P12P-1D11	3/4 Stright Keyed	NPT	2.38	12	18	90° CW from Inlet	CW	2200 PSI 2400 RPM	18.00	
C1LM71	393723-8-B	V20-1P12P-1D11 -L	3/4 Stright Keyed	NPT	2.38	12	18	90° CW from Inlet	CCW	2200 PSI 2400 RPM	18.00	
C1LM72	578167-1-B	V20-1P12P-38A1 1	11 Tooth Splined - Short	NPT	2.38	12	18	Opposite Inlet	CW	2200 PSI 2400 RPM	18.00	
C1LM73	578167-5-B	V20-1P12P-38A1 1-L	11 Tooth Splined - Short	NPT	2.38	12	18	Opposite Inlet	CCW	2200 PSI 2400 RPM	18.00	
C1LM74	578167-2-B	V20-1P12P-38B1 1	11 Tooth Splined - Short	NPT	2.38	12	18	90° CCW from Inlet	CW	2200 PSI 2400 RPM	18.00	
C1LM75	578167-6-B	V20-1P12P-38B1 1-L	11 Tooth Splined - Short	NPT	2.38	12	18	90° CCW from Inlet	CCW	2200 PSI 2400 RPM	18.00	
C1LM76	578167-3-B	V20-1P12P-38C1 1	11 Tooth Splined - Short	NPT	2.38	12	18	Inline with Inlet	CW	2200 PSI 2400 RPM	18.00	
C1LM77	578167-7-B	V20-1P12P-38C1 1-L	11 Tooth Splined - Short	NPT	2.38	12	18	Inline with Inlet	CCW	2200 PSI 2400 RPM	18.00	
C1LM78	578167-4-B	V20-1P12P-38D1 1	11 Tooth Splined - Short	NPT	2.38	12	18	90° CW from Inlet	CW	2200 PSI 2400 RPM	18.00	
C1LM79	578167-8-B	V20-1P12P-38D1 1-L	11 Tooth Splined - Short	NPT	2.38	12	18	90° CW from Inlet	CCW	2200 PSI 2400 RPM	18.00	



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Pumps & Accessories



Single Hydraulic Pumps • Fixed Displacement
Vickers V20 Series Vane Pumps • To 19.5 GPM @ 1800 RPM



Vickers® V20 Vane Pumps

Catalog Part No.	Vickers Part No. See Note Above	Vickers Model Code See Note Above	Shaft	Ports	Displ	Ring Size 1200 RPM	Flow GPM 1800 RPM	Outlet Position	Rot.	Max. PSI & Max. RPM	Wt.	Price Each
C1LQ69	588701-1-B	V20-1S12S-11A1 1	11 Tooth Splined Extended Length	SAE	2.38	12	18	Opposite Inlet	CW	2200 PSI 2400 RPM	18.00	
C1LQ70	588701-5-B	V20-1S12S-11A1 1-L	11 Tooth Splined Extended Length	SAE	2.38	12	18	Opposite Inlet	CCW	2200 PSI 2400 RPM	18.00	
C1LQ71	588701-2-B	V20-1S12S-11B1 1	11 Tooth Splined Extended Length	SAE	2.38	12	18	90° CCW from Inlet	CW	2200 PSI 2400 RPM	18.00	
C1LQ72	588701-6-B	V20-1S12S-11B1 1-L	11 Tooth Splined Extended Length	SAE	2.38	12	18	90° CCW from Inlet	CCW	2200 PSI 2400 RPM	18.00	
C1LQ73	588701-3-B	V20-1S12S-11C1 1	11 Tooth Splined Extended Length	SAE	2.38	12	18	Inline with Inlet	CW	2200 PSI 2400 RPM	18.00	
C1LQ74	588701-7-B	V20-1S12S-11C1 1-L	11 Tooth Splined Extended Length	SAE	2.38	12	18	Inline with Inlet	CCW	2200 PSI 2400 RPM	18.00	
C1LQ75	588701-4-B	V20-1S12S-11D1 1	11 Tooth Splined Extended Length	SAE	2.38	12	18	90° CW from Inlet	CW	2200 PSI 2400 RPM	18.00	
C1LQ76	588701-8-B	V20-1S12S-11D1 1-L	11 Tooth Splined Extended Length	SAE	2.38	12	18	90° CW from Inlet	CCW	2200 PSI 2400 RPM	18.00	
C1LQ77	414762-1-B	V20-1S12S-15A1 1	13 Tooth SAE B Splined	SAE	2.38	12	18	Opposite Inlet	CW	2200 PSI 2400 RPM	18.00	
C1LQ78	414762-5-B	V20-1S12S-15A1 1-L	13 Tooth SAE B Splined	SAE	2.38	12	18	Opposite Inlet	CCW	2200 PSI 2400 RPM	18.00	
C1LQ79	414762-2-B	V20-1S12S-15B1 1	13 Tooth SAE B Splined	SAE	2.38	12	18	90° CCW from Inlet	CW	2200 PSI 2400 RPM	18.00	
C1LQ80	414762-6-B	V20-1S12S-15B1 1-L	13 Tooth SAE B Splined	SAE	2.38	12	18	90° CCW from Inlet	CCW	2200 PSI 2400 RPM	18.00	
C1LQ81	414762-3-B	V20-1S12S-15C1 1	13 Tooth SAE B Splined	SAE	2.38	12	18	Inline with Inlet	CW	2200 PSI 2400 RPM	18.00	
C1LQ82	414762-7-B	V20-1S12S-15C1 1-L	13 Tooth SAE B Splined	SAE	2.38	12	18	Inline with Inlet	CCW	2200 PSI 2400 RPM	18.00	
C1LQ83	414762-4-B	V20-1S12S-15D1 1	13 Tooth SAE B Splined	SAE	2.38	12	18	90° CW from Inlet	CW	2200 PSI 2400 RPM	18.00	
C1LQ84	414762-8-B	V20-1S12S-15D1 1-L	13 Tooth SAE B Splined	SAE	2.38	12	18	90° CW from Inlet	CCW	2200 PSI 2400 RPM	18.00	
C1LQ85	399722-1-B	V20-1S12S-1A11	3/4 Stright Keyed	SAE	2.38	12	18	Opposite Inlet	CW	2200 PSI 2400 RPM	18.00	
C1LQ86	399722-5-B	V20-1S12S-1A11 -L	3/4 Stright Keyed	SAE	2.38	12	18	Opposite Inlet	CCW	2200 PSI 2400 RPM	18.00	
C1LQ87	399722-2-B	V20-1S12S-1B11	3/4 Stright Keyed	SAE	2.38	12	18	90° CCW from Inlet	CW	2200 PSI 2400 RPM	18.00	
C1LQ88	399722-6-B	V20-1S12S-1B11 -L	3/4 Stright Keyed	SAE	2.38	12	18	90° CCW from Inlet	CCW	2200 PSI 2400 RPM	18.00	
C1LQ89	399722-3-B	V20-1S12S-1C11	3/4 Stright Keyed	SAE	2.38	12	18	Inline with Inlet	CW	2200 PSI 2400 RPM	18.00	
C1LQ90	399722-7-B	V20-1S12S-1C11 -L	3/4 Stright Keyed	SAE	2.38	12	18	Inline with Inlet	CCW	2200 PSI 2400 RPM	18.00	
C1LQ91	399722-4-B	V20-1S12S-1D11	3/4 Stright Keyed	SAE	2.38	12	18	90° CW from Inlet	CW	2200 PSI 2400 RPM	18.00	
C1LQ92	399722-8-B	V20-1S12S-1D11 -L	3/4 Stright Keyed	SAE	2.38	12	18	90° CW from Inlet	CCW	2200 PSI 2400 RPM	18.00	
C1LQ93	02-315408-1-B	V20-1S12S-38A1 1	11 Tooth Splined - Short	SAE	2.38	12	18	Opposite Inlet	CW	2200 PSI 2400 RPM	18.00	
C1LQ94	02-315408-5-B	V20-1S12S-38A1 1-L	11 Tooth Splined - Short	SAE	2.38	12	18	Opposite Inlet	CCW	2200 PSI 2400 RPM	18.00	
C1LQ95	02-315408-2-B	V20-1S12S-38B1 1	11 Tooth Splined - Short	SAE	2.38	12	18	90° CCW from Inlet	CW	2200 PSI 2400 RPM	18.00	
C1LQ96	02-315408-6-B	V20-1S12S-38B1 1-L	11 Tooth Splined - Short	SAE	2.38	12	18	90° CCW from Inlet	CCW	2200 PSI 2400 RPM	18.00	
C1LQ97	02-315408-3-B	V20-1S12S-38C1 1	11 Tooth Splined - Short	SAE	2.38	12	18	Inline with Inlet	CW	2200 PSI 2400 RPM	18.00	





Pumps & Accessories

Single Hydraulic Pumps • Fixed Displacement
Vickers V20 Series Vane Pumps • To 19.5 GPM @ 1800 RPM



Vickers® V20 Vane Pumps

Catalog Part No.	Vickers Part No. See Note Above	Vickers Model Code See Note Above	Shaft	Ports	Displ	Ring Size 1200 RPM	Flow GPM 1800 RPM	Outlet Position	Rot.	Max. PSI & Max. RPM	Wt.	Price Each
C1LQ98	02-315408-7-B	V20-1S12S-38C1 1-L	11 Tooth Splined - Short	SAE	2.38	12	18	Inline with Inlet	CCW	2200 PSI 2400 RPM	18.00	
C1LQ99	02-315408-4-B	V20-1S12S-38D1 1	11 Tooth Splined - Short	SAE	2.38	12	18	90° CW from Inlet	CW	2200 PSI 2400 RPM	18.00	
C1LR11	02-315408-8-B	V20-1S12S-38D1 1-L	11 Tooth Splined - Short	SAE	2.38	12	18	90° CW from Inlet	CCW	2200 PSI 2400 RPM	18.00	
C1LT98	02-142805-1-B	V20-6S12S-15A1 1	13 Tooth SAE B Splined	SAE	2.38	12	18	Opposite Inlet	CW	2200 PSI 2400 RPM	18.00	
C1LT99	02-142805-5-B	V20-6S12S-15A1 1-L	13 Tooth SAE B Splined	SAE	2.38	12	18	Opposite Inlet	CCW	2200 PSI 2400 RPM	18.00	
C1LU11	02-142805-2-B	V20-6S12S-15B1 1	13 Tooth SAE B Splined	SAE	2.38	12	18	90° CCW from Inlet	CW	2200 PSI 2400 RPM	18.00	
C1LU12	02-142805-6-B	V20-6S12S-15B1 1-L	13 Tooth SAE B Splined	SAE	2.38	12	18	90° CCW from Inlet	CCW	2200 PSI 2400 RPM	18.00	
C1LU13	02-142805-3-B	V20-6S12S-15C1 1	13 Tooth SAE B Splined	SAE	2.38	12	18	Inline with Inlet	CW	2200 PSI 2400 RPM	18.00	
C1LU14	02-142805-7-B	V20-6S12S-15C1 1-L	13 Tooth SAE B Splined	SAE	2.38	12	18	Inline with Inlet	CCW	2200 PSI 2400 RPM	18.00	
C1LU15	02-142805-4-B	V20-6S12S-15D1 1	13 Tooth SAE B Splined	SAE	2.38	12	18	90° CW from Inlet	CW	2200 PSI 2400 RPM	18.00	
C1LU16	02-142805-8-B	V20-6S12S-15D1 1-L	13 Tooth SAE B Splined	SAE	2.38	12	18	90° CW from Inlet	CCW	2200 PSI 2400 RPM	18.00	
C1LM80	374344-1-B	V20-1P13P-11A1 1	11 Tooth Splined Extended Length	NPT	2.59	13	19.5	Opposite Inlet	CW	2200 PSI 2400 RPM	18.00	
C1LM81	374344-5-B	V20-1P13P-11A1 1-L	11 Tooth Splined Extended Length	NPT	2.59	13	19.5	Opposite Inlet	CCW	2200 PSI 2400 RPM	18.00	
C1LM82	374344-2-B	V20-1P13P-11B1 1	11 Tooth Splined Extended Length	NPT	2.59	13	19.5	90° CCW from Inlet	CW	2200 PSI 2400 RPM	18.00	
C1LM83	374344-6-B	V20-1P13P-11B1 1-L	11 Tooth Splined Extended Length	NPT	2.59	13	19.5	90° CCW from Inlet	CCW	2200 PSI 2400 RPM	18.00	
C1LM84	374344-3-B	V20-1P13P-11C1 1	11 Tooth Splined Extended Length	NPT	2.59	13	19.5	Inline with Inlet	CW	2200 PSI 2400 RPM	18.00	
C1LM85	374344-7-B	V20-1P13P-11C1 1-L	11 Tooth Splined Extended Length	NPT	2.59	13	19.5	Inline with Inlet	CCW	2200 PSI 2400 RPM	18.00	
C1LM86	374344-4-B	V20-1P13P-11D1 1	11 Tooth Splined Extended Length	NPT	2.59	13	19.5	90° CW from Inlet	CW	2200 PSI 2400 RPM	18.00	
C1LM87	374344-8-B	V20-1P13P-11D1 1-L	11 Tooth Splined Extended Length	NPT	2.59	13	19.5	90° CW from Inlet	CCW	2200 PSI 2400 RPM	18.00	
C1LM88	373669-1-B	V20-1P13P-15A1 1	13 Tooth SAE B Splined	NPT	2.59	13	19.5	Opposite Inlet	CW	2200 PSI 2400 RPM	18.00	
C1LM89	373669-5-B	V20-1P13P-15A1 1-L	13 Tooth SAE B Splined	NPT	2.59	13	19.5	Opposite Inlet	CCW	2200 PSI 2400 RPM	18.00	
C1LM90	373669-2-B	V20-1P13P-15B1 1	13 Tooth SAE B Splined	NPT	2.59	13	19.5	90° CCW from Inlet	CW	2200 PSI 2400 RPM	18.00	
C1LM91	373669-6-B	V20-1P13P-15B1 1-L	13 Tooth SAE B Splined	NPT	2.59	13	19.5	90° CCW from Inlet	CCW	2200 PSI 2400 RPM	18.00	
C1LM92	373669-3-B	V20-1P13P-15C1 1	13 Tooth SAE B Splined	NPT	2.59	13	19.5	Inline with Inlet	CW	2200 PSI 2400 RPM	18.00	
C1LM93	373669-7-B	V20-1P13P-15C1 1-L	13 Tooth SAE B Splined	NPT	2.59	13	19.5	Inline with Inlet	CCW	2200 PSI 2400 RPM	18.00	
C1LM94	373669-4-B	V20-1P13P-15D1 1	13 Tooth SAE B Splined	NPT	2.59	13	19.5	90° CW from Inlet	CW	2200 PSI 2400 RPM	18.00	
C1LM95	373669-8-B	V20-1P13P-15D1 1-L	13 Tooth SAE B Splined	NPT	2.59	13	19.5	90° CW from Inlet	CCW	2200 PSI 2400 RPM	18.00	
C1LM96	372606-1-B	V20-1P13P-1A11	3/4 Stright Keyed	NPT	2.59	13	19.5	Opposite Inlet	CW	2200 PSI 2400 RPM	18.00	
C1LM97	372606-5-B	V20-1P13P-1A11 -L	3/4 Stright Keyed	NPT	2.59	13	19.5	Opposite Inlet	CCW	2200 PSI 2400 RPM	18.00	



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Pumps & Accessories



Single Hydraulic Pumps • Fixed Displacement
Vickers V20 Series Vane Pumps • To 19.5 GPM @ 1800 RPM



Vickers® V20 Vane Pumps

Catalog Part No.	Vickers Part No. See Note Above	Vickers Model Code See Note Above	Shaft	Ports	Displ	Ring Size 1200 RPM	Flow GPM 1800 RPM	Outlet Position	Rot.	Max. PSI & Max. RPM	Wt.	Price Each
C1LM98	372606-2-B	V20-1P13P-1B11	3/4 Stright Keyed	NPT	2.59	13	19.5	90° CCW from Inlet	CW	2200 PSI 2400 RPM	18.00	
C1LM99	372606-6-B	V20-1P13P-1B11-L	3/4 Stright Keyed	NPT	2.59	13	19.5	90° CCW from Inlet	CCW	2200 PSI 2400 RPM	18.00	
C1LN11	372606-3-B	V20-1P13P-1C11	3/4 Stright Keyed	NPT	2.59	13	19.5	Inline with Inlet	CW	2200 PSI 2400 RPM	18.00	
C1BM49	372606-3	V20-1P13P-1C11	3/4 Straight Keyed	NPT	2.59	13	19.5	In-line with inlet (C)	CW	2200 PSI 2400 RPM	18.05	
C1LN12	372606-7-B	V20-1P13P-1C11-L	3/4 Stright Keyed	NPT	2.59	13	19.5	Inline with Inlet	CCW	2200 PSI 2400 RPM	18.00	
C1LN13	372606-4-B	V20-1P13P-1D11	3/4 Stright Keyed	NPT	2.59	13	19.5	90° CW from Inlet	CW	2200 PSI 2400 RPM	18.00	
C1LN14	372606-8-B	V20-1P13P-1D11-L	3/4 Stright Keyed	NPT	2.59	13	19.5	90° CW from Inlet	CCW	2200 PSI 2400 RPM	18.00	
C1LN15	424884-1-B	V20-1P13P-38A1-1	11 Tooth Splined - Short	NPT	2.59	13	19.5	Opposite Inlet	CW	2200 PSI 2400 RPM	18.00	
C1LN16	424884-5-B	V20-1P13P-38A1-1-L	11 Tooth Splined - Short	NPT	2.59	13	19.5	Opposite Inlet	CCW	2200 PSI 2400 RPM	18.00	
C1LN17	424884-2-B	V20-1P13P-38B1-1	11 Tooth Splined - Short	NPT	2.59	13	19.5	90° CCW from Inlet	CW	2200 PSI 2400 RPM	18.00	
C1LN18	424884-6-B	V20-1P13P-38B1-1-L	11 Tooth Splined - Short	NPT	2.59	13	19.5	90° CCW from Inlet	CCW	2200 PSI 2400 RPM	18.00	
C1LN19	424884-3-B	V20-1P13P-38C1-1	11 Tooth Splined - Short	NPT	2.59	13	19.5	Inline with Inlet	CW	2200 PSI 2400 RPM	18.00	
C1LN20	424884-7-B	V20-1P13P-38C1-1-L	11 Tooth Splined - Short	NPT	2.59	13	19.5	Inline with Inlet	CCW	2200 PSI 2400 RPM	18.00	
C1LN21	424884-4-B	V20-1P13P-38D1-1	11 Tooth Splined - Short	NPT	2.59	13	19.5	90° CW from Inlet	CW	2200 PSI 2400 RPM	18.00	
C1LN22	424884-8-B	V20-1P13P-38D1-1-L	11 Tooth Splined - Short	NPT	2.59	13	19.5	90° CW from Inlet	CCW	2200 PSI 2400 RPM	18.00	
C1KK80	720AR00236A	V20-1P13S-38C1-1L-063	11 Tooth Splined - 3/4" OD	NPT	2.59	13	19.5	In-line with inlet (C)	CCW	2200 PSI 2400 RPM	17.70	
C1LR12	372579-1-B	V20-1S13S-11A1-1	11 Tooth Splined Extended Length	SAE	2.59	13	19.5	Opposite Inlet	CW	2200 PSI 2400 RPM	18.00	
C1LR13	372579-5-B	V20-1S13S-11A1-1-L	11 Tooth Splined Extended Length	SAE	2.59	13	19.5	Opposite Inlet	CCW	2200 PSI 2400 RPM	18.00	
C1LR14	372579-2-B	V20-1S13S-11B1-1	11 Tooth Splined Extended Length	SAE	2.59	13	19.5	90° CCW from Inlet	CW	2200 PSI 2400 RPM	18.00	
C1LR15	372579-6-B	V20-1S13S-11B1-1-L	11 Tooth Splined Extended Length	SAE	2.59	13	19.5	90° CCW from Inlet	CCW	2200 PSI 2400 RPM	18.00	
C1LR16	372579-3-B	V20-1S13S-11C1-1	11 Tooth Splined Extended Length	SAE	2.59	13	19.5	Inline with Inlet	CW	2200 PSI 2400 RPM	18.00	
C1LR17	372579-7-B	V20-1S13S-11C1-1-L	11 Tooth Splined Extended Length	SAE	2.59	13	19.5	Inline with Inlet	CCW	2200 PSI 2400 RPM	18.00	
C1LR18	372579-4-B	V20-1S13S-11D1-1	11 Tooth Splined Extended Length	SAE	2.59	13	19.5	90° CW from Inlet	CW	2200 PSI 2400 RPM	18.00	
C1LR19	372579-8-B	V20-1S13S-11D1-1-L	11 Tooth Splined Extended Length	SAE	2.59	13	19.5	90° CW from Inlet	CCW	2200 PSI 2400 RPM	18.00	
C1LR20	372598-1-B	V20-1S13S-15A1-1	13 Tooth SAE B Splined	SAE	2.59	13	19.5	Opposite Inlet	CW	2200 PSI 2400 RPM	18.00	
C1LR21	372598-5-B	V20-1S13S-15A1-1-L	13 Tooth SAE B Splined	SAE	2.59	13	19.5	Opposite Inlet	CCW	2200 PSI 2400 RPM	18.00	
C1LR22	372598-2-B	V20-1S13S-15B1-1	13 Tooth SAE B Splined	SAE	2.59	13	19.5	90° CCW from Inlet	CW	2200 PSI 2400 RPM	18.00	
C1LR23	372598-6-B	V20-1S13S-15B1-1-L	13 Tooth SAE B Splined	SAE	2.59	13	19.5	90° CCW from Inlet	CCW	2200 PSI 2400 RPM	18.00	
C1LR24	372598-3-B	V20-1S13S-15C1-1	13 Tooth SAE B Splined	SAE	2.59	13	19.5	Inline with Inlet	CW	2200 PSI 2400 RPM	18.00	





Pumps & Accessories

Single Hydraulic Pumps • Fixed Displacement
Vickers V20 Series Vane Pumps • To 19.5 GPM @ 1800 RPM



Vickers® V20 Vane Pumps

Catalog Part No.	Vickers Part No. See Note Above	Vickers Model Code See Note Above	Shaft	Ports	Displ	Ring Size 1200 RPM	Flow GPM 1800 RPM	Outlet Position	Rot.	Max. PSI & Max. RPM	Wt.	Price Each
C1LR25	372598-7-B	V20-1S13S-15C1 1-L	13 Tooth SAE B Splined	SAE	2.59	13	19.5	Inline with Inlet	CCW	2200 PSI 2400 RPM	18.00	
C1LR26	372598-4-B	V20-1S13S-15D1 1	13 Tooth SAE B Splined	SAE	2.59	13	19.5	90° CW from Inlet	CW	2200 PSI 2400 RPM	18.00	
C1LR27	372598-8-B	V20-1S13S-15D1 1-L	13 Tooth SAE B Splined	SAE	2.59	13	19.5	90° CW from Inlet	CCW	2200 PSI 2400 RPM	18.00	
C1LR28	372561-1-B	V20-1S13S-1A11	3/4 Stright Keyed	SAE	2.59	13	19.5	Opposite Inlet	CW	2200 PSI 2400 RPM	18.00	
C1LR29	372561-5-B	V20-1S13S-1A11 -L	3/4 Stright Keyed	SAE	2.59	13	19.5	Opposite Inlet	CCW	2200 PSI 2400 RPM	18.00	
C1LR30	372561-2-B	V20-1S13S-1B11	3/4 Stright Keyed	SAE	2.59	13	19.5	90° CCW from Inlet	CW	2200 PSI 2400 RPM	18.00	
C1LR31	372561-6-B	V20-1S13S-1B11 -L	3/4 Stright Keyed	SAE	2.59	13	19.5	90° CCW from Inlet	CCW	2200 PSI 2400 RPM	18.00	
C1LR32	372561-3-B	V20-1S13S-1C11	3/4 Stright Keyed	SAE	2.59	13	19.5	Inline with Inlet	CW	2200 PSI 2400 RPM	18.00	
C1LR33	372561-7-B	V20-1S13S-1C11 -L	3/4 Stright Keyed	SAE	2.59	13	19.5	Inline with Inlet	CCW	2200 PSI 2400 RPM	18.00	
C1LR34	372561-4-B	V20-1S13S-1D11	3/4 Stright Keyed	SAE	2.59	13	19.5	90° CW from Inlet	CW	2200 PSI 2400 RPM	18.00	
C1LR35	372561-8-B	V20-1S13S-1D11 -L	3/4 Stright Keyed	SAE	2.59	13	19.5	90° CW from Inlet	CCW	2200 PSI 2400 RPM	18.00	
C1LR36	428669-1-B	V20-1S13S-38A1 1	11 Tooth Splined - Short	SAE	2.59	13	19.5	Opposite Inlet	CW	2200 PSI 2400 RPM	18.00	
C1LR37	428669-5-B	V20-1S13S-38A1 1-L	11 Tooth Splined - Short	SAE	2.59	13	19.5	Opposite Inlet	CCW	2200 PSI 2400 RPM	18.00	
C1LA87	02-347239-2	V20-1S13S-38B1 1-063	11 Tooth Splined - Short	SAE	2.59	13	19.5	90° CCW from Inlet	CW	2200 PSI 2400 RPM	18.00	
C1LR38	428669-2-B	V20-1S13S-38B1 1	11 Tooth Splined - Short	SAE	2.59	13	19.5	90° CCW from Inlet	CW	2200 PSI 2400 RPM	18.00	
C1LR39	428669-6-B	V20-1S13S-38B1 1-L	11 Tooth Splined - Short	SAE	2.59	13	19.5	90° CCW from Inlet	CCW	2200 PSI 2400 RPM	18.00	
C1LR40	428669-3-B	V20-1S13S-38C1 1	11 Tooth Splined - Short	SAE	2.59	13	19.5	Inline with Inlet	CW	2200 PSI 2400 RPM	18.00	
C1KH71	02-347239-7	V20-1S13S-38C1 1LH-063	11 Tooth Splined - Short	SAE	2.59	13	19.5	Inline with Inlet	CCW	2200 PSI 2400 RPM	17.80	
C1LR41	428669-7-B	V20-1S13S-38C1 1-L	11 Tooth Splined - Short	SAE	2.59	13	19.5	Inline with Inlet	CCW	2200 PSI 2400 RPM	18.00	
C1LR42	428669-4-B	V20-1S13S-38D1 1	11 Tooth Splined - Short	SAE	2.59	13	19.5	90° CW from Inlet	CW	2200 PSI 2400 RPM	18.00	
C1LR43	428669-8-B	V20-1S13S-38D1 1-L	11 Tooth Splined - Short	SAE	2.59	13	19.5	90° CW from Inlet	CCW	2200 PSI 2400 RPM	18.00	
C1LU41	573212-1-B	V20-6S13S-15A1 1	13 Tooth SAE B Splined	SAE	2.59	13	19.5	Opposite Inlet	CW	2200 PSI 2400 RPM	18.00	
C1LU42	573212-5-B	V20-6S13S-15A1 1-L	13 Tooth SAE B Splined	SAE	2.59	13	19.5	Opposite Inlet	CCW	2200 PSI 2400 RPM	18.00	
C1LU43	573212-2-B	V20-6S13S-15B1 1	13 Tooth SAE B Splined	SAE	2.59	13	19.5	90° CCW from Inlet	CW	2200 PSI 2400 RPM	18.00	
C1LU44	573212-6-B	V20-6S13S-15B1 1-L	13 Tooth SAE B Splined	SAE	2.59	13	19.5	90° CCW from Inlet	CCW	2200 PSI 2400 RPM	18.00	
C1LU45	573212-3-B	V20-6S13S-15C1 1	13 Tooth SAE B Splined	SAE	2.59	13	19.5	Inline with Inlet	CW	2200 PSI 2400 RPM	18.00	
C1LU46	573212-7-B	V20-6S13S-15C1 1-L	13 Tooth SAE B Splined	SAE	2.59	13	19.5	Inline with Inlet	CCW	2200 PSI 2400 RPM	18.00	
C1LU47	573212-4-B	V20-6S13S-15D1 1	13 Tooth SAE B Splined	SAE	2.59	13	19.5	90° CW from Inlet	CW	2200 PSI 2400 RPM	18.00	
C1LU48	573212-8-B	V20-6S13S-15D1 1-L	13 Tooth SAE B Splined	SAE	2.59	13	19.5	90° CW from Inlet	CCW	2200 PSI 2400 RPM	18.00	



This page is part of a complete catalog which contains technical and safety data that must be reviewed when selecting a product

Pumps & Accessories

Single Hydraulic Pumps • Fixed Displacement Vickers V20 Series Vane Pumps • To 19.5 GPM @ 1800 RPM



Flow: GPM @ 1800 RPM and 100 PSI.

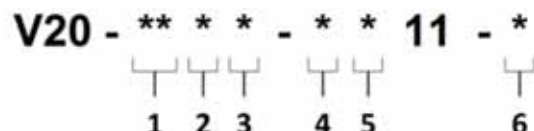
Displacement: Cubic inches per revolution.

Max. PSI & Max. RPM: Based on using petroleum oil at 120°F / 100SUS and at 0 PSI inlet pressure.

Minimum Speed: 600 RPM.

Note: -063 suffix is for application down to 0°F. Items in table with Vickers Part Number and Vickers model code reversed are assembled by Eaton/Vickers.

Parts for Vickers® V20 Vane Pumps



1 Mounting & Inlet Port Connection			
Code	Description	Body	Qty
1P	SAE "A" with 1-1/4" NPT Pipe Thread	280689	1
1S	SAE "A" with 1.625-12 Straight Thread	294266	1
6S	SAE "B" with 1.625-12 Straight Thread	295716	1
4P	Face Mount 1-1/4" Pipe Thread	308628	1

5 Pressure Port Position (viewed from cover end)	
Code	Description
A	Opposite inlet
B	90 degree CCW from inlet
C	Inline with inlet
D	90 degree CW from inlet

2 GPM Ring Assembly						
Code	Description	Cart Kit	Qty	Bolts	Qty	Pins
5	5 GPM at 1200 rpm	02-137559	1	295378	4	002161
6	6 GPM at 1200 rpm	02-137560	1	295378	4	002161
7	7 GPM at 1200 rpm	02-137561	1	001318	4	002478
8	8 GPM at 1200 rpm	02-137562	1	001318	4	002478
9	9 GPM at 1200 rpm	02-137563	1	001318	4	002478
10	10 GPM at 1200 rpm	02-137564	1	001318	4	016662
11	11 GPM at 1200 rpm	02-137565	1	001318	4	016662
12	12 GPM at 1200 rpm	02-137566	1	001319	4	009603
13	13 GPM at 1200 rpm	02-137567	1	001319	4	009603

6 Pump Rotation (viewed from shaft end)	
Code	Description
L	Left Hand rotation (CCW)
Blank	Right Hand rotation (CW)

Used in All Pump Assemblies		
Description	P/N	Qty
Spring	028422	1
Pressure Plate	359287	1
Shaft seal	229235	1
Retaining ring	098653	1
Bearing	098574	1
Retaining ring	109975	1

3 Outlet Port Connection			
Code	Description	Cover	Qty
P	3/4" NPT Pipe Thread	313657	1
S	1.062-12 Straight Thread	293373	1

4 Shaft				
Code	Description	Shaft	Qty	Key
1	3/4" Straight Keyed Shaft	280372	1	005881
11	11 Tooth Spline	280515	1	N/A
15	13 Tooth Spline	294922	1	N/A
38	11 Tooth Spline	328096	1	N/A

Parts for Vickers® V20 Vane Pumps

Catalog Part No.	Vickers Model	Description	Wt.	Price Each
•C1AD78	098574	Bearing	0.50	
C1LB29	280689	Body, SAE-A flange, 1-1/4" NPT port		
C1LB31	294266	Body, SAE-A flange, 1.625-12 Straight Thread port		
C1LB33	295716	Body, SAE-B flange, 1.625-12 Straight Thread port		
C1LB32	295378	Bolt for Pumps with Ring Size 05, 06		
C1JC15	001318	Bolt for Pumps with Ring Size 07, 08, 08, 10, 11	0.19	
C1AA64	001319	Bolt for Pumps with Ring Size 12, 13	0.20	
C1JC28	02-137559	Cartridge Kit, Ring Size 05	2.66	
C1AC75	02-137560	Cartridge Kit, Ring Size 06	8.00	
C1EG52	02-137561	Cartridge Kit, Ring Size 07	3.56	
C1EG53	02-137562	Cartridge Kit, Ring Size 08	3.58	
C1AC76	02-137563	Cartridge Kit, Ring Size 09	1.00	



Pumps & Accessories

Single Hydraulic Pumps • Fixed Displacement
Vickers V20 Series Vane Pumps • To 19.5 GPM @ 1800 RPM



Parts for Vickers® V20 Vane Pumps

Catalog Part No.	Vickers Model	Description	Wt.	Price Each
C1EG54	02-137564	Cartridge Kit, Ring Size 10	4.56	
C1AC77	02-137565	Cartridge Kit, Ring Size 11	5.00	
C1AC78	02-137566	Cartridge Kit, Ring Size 12	4.93	
C1AC79	02-137567	Cartridge Kit, Ring Size 13	2.00	
C1AB36	005881	Shaft Key for Shaft #1	0.02	
C1MF97	001615	Woodruff Key for Shaft #3	0.01	
C1LB37	313657	Outlet Port, 3/4" NPT		
C1LB30	293373	Outlet Port, 1.062-12 Straight Thread		
C1AA88	002161	Pin for Ring Size 05, 06	0.01	
C1AB16	002478	Pin for Ring Size 07, 08, 09	0.01	
C1AB97	016662	Pin for Ring Size 10, 11	0.01	
C1AB64	009603	Pin for Ring Size 12, 13	0.01	
C1JZ18	359287	Pressure Plate	1.18	
C1LA93	109975	Retaining Ring	0.01	
C1EX24	098653	Retaining Ring	0.01	
• C1BD92	229235	Shaft Seal	0.75	
C1BJ77	280372	Shaft, #1, 3/4" Keyed	0.76	
C1BJ78	280515	Shaft, #11, 11 Tooth Spline	0.75	
• C1BJ92	294922	Shaft, #15, 13 Tooth Spline	0.65	
• C1BM14	328096	Shaft, #38, 11 Tooth Spline	0.56	
C1LA88	028422	Spring		

Hydraulic Power & Control

Pneumatic Power & Control

Fluid Conveying

Miscellaneous Products

Indexes & Technical Information



Pumps & Accessories

Single Hydraulic Pumps • Fixed Displacement
Vickers V20F Series Vane Pumps • To 19.5 GPM @ 1800 RPM



Vickers® V20F Vane Pumps Flow Control Cover



The Flow Control Cover limits flow to the operating system to the desired maximum. Excess flow is diverted to tank. A relief valve is included that limits maximum system pressure.

Unless noted otherwise, all pumps have: 2-Bolt SAE A Mounting Flange. 1-1/4" NPT Inlet, 3/4-16 St.Thd. Outlet, 1/2" NPT Tank.

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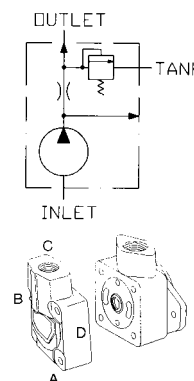
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Foot Brackets: page 201



Pumps are stocked as shown in table.
ANY inlet position and rotation is available for same-day shipment.
See Model Codes page to select a different model code.

Vickers® V20F Vane Pumps • Flow Control Cover

Catalog Part No.	Vickers Part No. - See Note Above	Vickers Model - See Note Above	Shaft	Displ	Ring Size 1200 RPM	Flow Rate & Relief Setting	Outlet Position	Rot.	Max. PSI & Max. RPM	Wt.	Price Each
C1FH73	02-141809-5	V20F-1P11P-38A8H-22L	11 Tooth .590 Dia Shorter Length	2.22	11	8.0 GPM 2000 PSI	Opposite inlet (A)	CCW	2500 PSI 2500 RPM	21.47	
C1MZ77	720AR00347A	V20F-1P13P-38D6L-22	11 Tooth .590 Dia Shorter Length	2.59	13	6.0 GPM 2150 PSI	90 Deg. CW from inlet (D)	CW	2200 PSI 2400 RPM	22.13	
C1MZ78	720AR00348A	V20F-1P13P-38C6L-22L	11 Tooth .590 Dia Shorter Length	2.59	13	6.0 GPM 2150 PSI	In-line with inlet ©	CCW	2200 PSI 2400 RPM	22.13	
C1ZZ86	02-141854-7	V20F-1P13P-38C8H22L	11 Tooth .590 Dia Shorter Length	2.59	13	8.0 GPM 2000 PSI	In-line with inlet (C)	CCW	2200 PSI 2400 RPM	22.55	
C1MZ79	720AR00349A	V20F-1P13P-38D8L-22	11 Tooth .590 Dia Shorter Length	2.59	13	8.0 GPM 2150 PSI	90 Deg. CW from inlet (D)	CW	2200 PSI 2400 RPM	22.55	
C1MZ80	720AR00350A	V20F-1P13P-38D8L-22L	11 Tooth .590 Dia Shorter Length	2.59	13	8.0 GPM 2150 PSI	90 Deg. CW from inlet (D)	CCW	2200 PSI 2400 RPM	22.55	

Flow Rate: Orifice Flow Rate (GPM). Non-adjustable pressure compensated fixed orifice in rear cover.

Relief Setting: Non-adjustable replaceable cartridge.

Displacement: Cubic inches per revolution.

Max. PSI & Max. RPM: Based on using petroleum oil at 120°F / 100SUS and at 0 PSI inlet pressure.

Minimum Speed: 600 RPM.

Vickers Part No.	Vickers Model	Ring Size	Cartridge Kit	Shaft	Shaft Key	Shaft Seal	Seal Kit
02-141809-5	V20F-1P11P-38A8H-22L	11	02-137565	328096 11Tooth-Splined Shorter	--	229235	922733
720AR00347A	V20F-1P13P-38D6L-22	13	02-137567	328096 11Tooth-Splined Shorter	--	229235	922733
720AR00348A	V20F-1P13P-38C6L-22L	13	02-137567	328096 11Tooth-Splined Shorter	--	229235	922733



Pumps & Accessories

Single Hydraulic Pumps • Fixed Displacement
Vickers V20F Series Vane Pumps • To 19.5 GPM @ 1800 RPM



Vickers Part No.	Vickers Model	Ring Size	Cartridge Kit	Shaft	Shaft Key	Shaft Seal	Seal Kit
02-141854-7	V20F-1P13P-38C8H-22L	13	02-137567	328096 11Tooth-Splined Shorter	--	229235	922733
720AR00349 A	V20F-1P13P-38D8L-22	13	02-137567	328096 11Tooth-Splined Shorter	--	229235	922733
720AR00350 A	V20F-1P13P-38D8L-22L	13	02-137567	328096 11Tooth-Splined Shorter	--	229235	922733

Vickers® V20F Vane Pumps • Replacement Parts List

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1MG60	583170	Inlet body, #1 SAE A 2-bolt flange, SAE -16 inlet port		
C1KJ92	308628	Inlet body, #4 Face mounting flange, 1-1/4" NPTF inlet port	6.30	
C1JC28	02-137559	Cartridge Kit, Ring Size 05	2.66	
C1AC75	02-137560	Cartridge Kit, Ring Size 06	8.00	
C1EG52	02-137561	Cartridge Kit, Ring Size 07	3.56	
C1EG53	02-137562	Cartridge Kit, Ring Size 08	3.58	
C1AC76	02-137563	Cartridge Kit, Ring Size 09	1.00	
C1EG54	02-137564	Cartridge Kit, Ring Size 10	4.56	
C1AC77	02-137565	Cartridge Kit, Ring Size 11	5.00	
C1AC78	02-137566	Cartridge Kit, Ring Size 12	4.93	
C1AC79	02-137567	Cartridge Kit, Ring Size 13	2.00	
C1MG61	860418	Cover, SAE -8 Pressure outlet port, 1/2" NPT Tank port		
C1MG62	860441	Cover, SAE -8 Pressure outlet port, SAE -12 Tank port		
C1MG25	154129	O-ring for housing plug 374865		
C1AB64	009603	Pin for Pumps with Ring Size 12 13	0.01	
C1MG27	205840	Pin, cover		
C1JZ18	359287	Pressure Plate Sub Assy, Includes 280267 Bushing	1.18	
C1EL28	011165	Screw for Cartridge Kits 05 & 06	0.50	
•C1CB91	922733	Seal Kit, Buna-N	0.08	
C1BJ77	280372	#1 Shaft, 3/4" Straight Keyed	0.76	
C1MG35	280504	#3 Shaft, Threaded straight shaft with woodruff key		
C1BJ78	280515	#11 Shaft, 11Tooth Splined Extended Length	0.75	
•C1BJ92	294922	#15 Shaft, 13 Tooth Splined	0.65	
•C1BM14	328096	#38 Shaft, 11Tooth Splined, Shorter Length	0.56	
C1AB36	005881	Shaft Key, 3/16 x 1-5/8	0.02	
C1MG24	132260	Nut for shaft 280504		
•C1BD92	229235	Shaft Seal, Buna-N	0.75	



Pumps & Accessories

Single Hydraulic Pumps • Fixed Displacement
Vickers 25VQ Series Vane Pumps • To 31.5 GPM @ 1800 RPM



Vickers® 25VQ Vane Pumps For Mobile Applications • High Pressure / High Speed Capability



Unless noted otherwise, all pumps have: 2-Bolt SAE B Mounting Flange. SAE 4-Bolt Flange Ports: 1-1/2" Inlet, 1" Outlet.

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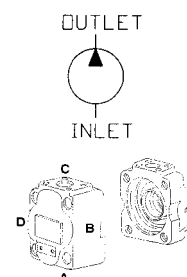
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Port Flange Kits: Flanges page 1252

Foot Brackets: page 201



Pumps are available as shown in table.

Additional configurations available for delivery in 24-48 hours.

See Model Codes page to select a different model code.

Items ending with "-B" are assembled and tested in-house using genuine Eaton/Vickers parts and are not painted.

Vickers® 25VQ Vane Pumps • For Mobile Applications • High Pressure / High Speed Capability

Catalog Part No.	Vickers Part No. See Note Above	Vickers Model See Note Above	Shaft	Displ	Ring Size 1200 RPM	Flow GPM 1800 RPM	Outlet Position	Rot.	Max. PSI & Max. RPM	Wt.	Price Each
C1MF41	429946-1-B	25VQ12A-11A20	13 Tooth SAE B Splined	2.45	12	18	Opposite Outlet	CW	3000 PSI 2700 RPM	32.00	
C1MF45	429946-5-B	25VQ12A-11A20-L	13 Tooth SAE B Splined	2.45	12	18	Opposite Outlet	CCW	3000 PSI 2700 RPM	32.00	
C1MF42	429946-2-B	25VQ12A-11B20	13 Tooth SAE B Splined	2.45	12	18	90° CW from Outlet	CW	3000 PSI 2700 RPM	32.00	
C1MF46	429946-6-B	25VQ12A-11B20-L	13 Tooth SAE B Splined	2.45	12	18	90° CW from Outlet	CCW	3000 PSI 2700 RPM	32.00	
C1MF43	429946-3-B	25VQ12A-11C20	13 Tooth SAE B Splined	2.45	12	18	in-Line with Outlet	CW	3000 PSI 2700 RPM	32.00	
C1MF47	429946-7-B	25VQ12A-11C20-L	13 Tooth SAE B Splined	2.45	12	18	in-Line with Outlet	CCW	3000 PSI 2700 RPM	32.00	
C1MF44	429946-4-B	25VQ12A-11D20	13 Tooth SAE B Splined	2.45	12	18	90° CCW from Outlet	CW	3000 PSI 2700 RPM	32.00	
C1MF48	429946-8-B	25VQ12A-11D20-L	13 Tooth SAE B Splined	2.45	12	18	90° CCW from Outlet	CCW	3000 PSI 2700 RPM	32.00	
C1ME98	417994-1-B	25VQ12A-1A20	7/8 Straight Keyed	2.45	12	18	Opposite Outlet	CW	3000 PSI 2700 RPM	32.00	
C1MF13	417994-5-B	25VQ12A-1A20-L	7/8 Straight Keyed	2.45	12	18	Opposite Outlet	CCW	3000 PSI 2700 RPM	32.00	
C1ME99	417994-2-B	25VQ12A-1B20	7/8 Straight Keyed	2.45	12	18	90° CW from Outlet	CW	3000 PSI 2700 RPM	32.00	
C1MF14	417994-6-B	25VQ12A-1B20-L	7/8 Straight Keyed	2.45	12	18	90° CW from Outlet	CCW	3000 PSI 2700 RPM	32.00	
C1MF11	417994-3-B	25VQ12A-1C20	7/8 Straight Keyed	2.45	12	18	in-Line with Outlet	CW	3000 PSI 2700 RPM	32.00	
C1MF15	417994-7-B	25VQ12A-1C20-L	7/8 Straight Keyed	2.45	12	18	in-Line with Outlet	CCW	3000 PSI 2700 RPM	32.00	
C1MF12	417994-4-B	25VQ12A-1D20	7/8 Straight Keyed	2.45	12	18	90° CCW from Outlet	CW	3000 PSI 2700 RPM	32.00	



Pumps & Accessories

Single Hydraulic Pumps • Fixed Displacement
Vickers 25VQ Series Vane Pumps • To 31.5 GPM @ 1800 RPM



Vickers® 25VQ Vane Pumps • For Mobile Applications • High Pressure / High Speed Capability

Catalog Part No.	Vickers Part No. See Note Above	Vickers Model See Note Above	Shaft	Displ	Ring Size 1200 RPM	Flow GPM 1800 RPM	Outlet Position	Rot.	Max. PSI & Max. RPM	Wt.	Price Each
C1MF16	417994-8-B	25VQ12A-1D20-L	7/8 Straight Keyed	2.45	12	18	90° CCW from Outlet	CCW	3000 PSI 2700 RPM	32.00	
C1MF17	421472-1-B	25VQ14A-11A20	13 Tooth SAE B Splined	2.77	14	21.5	Opposite Outlet	CW	3000 PSI 2700 RPM	32.00	
C1MF21	421472-5-B	25VQ14A-11A20-L	13 Tooth SAE B Splined	2.77	14	21.5	Opposite Outlet	CCW	3000 PSI 2700 RPM	32.00	
C1MF18	421472-2-B	25VQ14A-11B20	13 Tooth SAE B Splined	2.77	14	21.5	90° CW from Outlet	CW	3000 PSI 2700 RPM	32.00	
C1MF22	421472-6-B	25VQ14A-11B20-L	13 Tooth SAE B Splined	2.77	14	21.5	90° CW from Outlet	CCW	3000 PSI 2700 RPM	32.00	
C1MF19	421472-3-B	25VQ14A-11C20	13 Tooth SAE B Splined	2.77	14	21.5	in-Line with Outlet	CW	3000 PSI 2700 RPM	32.00	
C1MF23	421472-7-B	25VQ14A-11C20-L	13 Tooth SAE B Splined	2.77	14	21.5	in-Line with Outlet	CCW	3000 PSI 2700 RPM	32.00	
C1MF20	421472-4-B	25VQ14A-11D20	13 Tooth SAE B Splined	2.77	14	21.5	90° CCW from Outlet	CW	3000 PSI 2700 RPM	32.00	
C1MZ35	421472-8	25VQ14A-11D20L	13 Tooth SAE B Splined	2.77	14	21.5	90° CCW from Outlet	CCW	3000 PSI 2700 RPM	32.00	
C1MF24	421472-8-B	25VQ14A-11D20-L	13 Tooth SAE B Splined	2.77	14	21.5	90° CCW from Outlet	CCW	3000 PSI 2700 RPM	32.00	
C1ME90	417993-1-B	25VQ14A-1A20	7/8 Straight Keyed	2.77	14	21.5	Opposite Outlet	CW	3000 PSI 2700 RPM	32.00	
C1ME94	417993-5-B	25VQ14A-1A20-L	7/8 Straight Keyed	2.77	14	21.5	Opposite Outlet	CCW	3000 PSI 2700 RPM	32.00	
C1ME91	417993-2-B	25VQ14A-1B20	7/8 Straight Keyed	2.77	14	21.5	90° CW from Outlet	CW	3000 PSI 2700 RPM	32.00	
C1ME95	417993-6-B	25VQ14A-1B20-L	7/8 Straight Keyed	2.77	14	21.5	90° CW from Outlet	CCW	3000 PSI 2700 RPM	32.00	
C1ME92	417993-3-B	25VQ14A-1C20	7/8 Straight Keyed	2.77	14	21.5	in-Line with Outlet	CW	3000 PSI 2700 RPM	32.00	
C1ME96	417993-7-B	25VQ14A-1C20-L	7/8 Straight Keyed	2.77	14	21.5	in-Line with Outlet	CCW	3000 PSI 2700 RPM	32.00	
C1ME93	417993-4-B	25VQ14A-1D20	7/8 Straight Keyed	2.77	14	21.5	90° CCW from Outlet	CW	3000 PSI 2700 RPM	32.00	
C1ME97	417993-8-B	25VQ14A-1D20-L	7/8 Straight Keyed	2.77	14	21.5	90° CCW from Outlet	CCW	3000 PSI 2700 RPM	32.00	
C1MF25	421475-1-B	25VQ17A-11A20	13 Tooth SAE B Splined	3.37	17	25.5	Opposite Outlet	CW	3000 PSI 2500 RPM	32.00	
C1MF29	421475-5-B	25VQ17A-11A20-L	13 Tooth SAE B Splined	3.37	17	25.5	Opposite Outlet	CCW	3000 PSI 2500 RPM	32.00	
C1MF26	421475-2-B	25VQ17A-11B20	13 Tooth SAE B Splined	3.37	17	25.5	90° CW from Outlet	CW	3000 PSI 2500 RPM	32.00	
C1MF30	421475-6-B	25VQ17A-11B20-L	13 Tooth SAE B Splined	3.37	17	25.5	90° CW from Outlet	CCW	3000 PSI 2500 RPM	32.00	
C1MF27	421475-3-B	25VQ17A-11C20	13 Tooth SAE B Splined	3.37	17	25.5	in-Line with Outlet	CW	3000 PSI 2500 RPM	32.00	
C1MF31	421475-7-B	25VQ17A-11C20-L	13 Tooth SAE B Splined	3.37	17	25.5	in-Line with Outlet	CCW	3000 PSI 2500 RPM	32.00	
C1MF28	421475-4-B	25VQ17A-11D20	13 Tooth SAE B Splined	3.37	17	25.5	90° CCW from Outlet	CW	3000 PSI 2500 RPM	32.00	
C1MF32	421475-8-B	25VQ17A-11D20-L	13 Tooth SAE B Splined	3.37	17	25.5	90° CCW from Outlet	CCW	3000 PSI 2500 RPM	32.00	
C1ME82	417992-1-B	25VQ17A-1A20	7/8 Straight Keyed	3.37	17	25.5	Opposite Outlet	CW	3000 PSI 2500 RPM	32.00	
C1ME86	417992-5-B	25VQ17A-1A20-L	7/8 Straight Keyed	3.37	17	25.5	Opposite Outlet	CCW	3000 PSI 2500 RPM	32.00	
C1ME83	417992-2-B	25VQ17A-1B20	7/8 Straight Keyed	3.37	17	25.5	90° CW from Outlet	CW	3000 PSI 2500 RPM	32.00	



Pumps & Accessories



Single Hydraulic Pumps • Fixed Displacement
Vickers 25VQ Series Vane Pumps • To 31.5 GPM @ 1800 RPM



Vickers® 25VQ Vane Pumps • For Mobile Applications • High Pressure / High Speed Capability

Catalog Part No.	Vickers Part No. See Note Above	Vickers Model See Note Above	Shaft	Displ	Ring Size 1200 RPM	Flow GPM 1800 RPM	Outlet Position	Rot.	Max. PSI & Max. RPM	Wt.	Price Each
C1ME87	417992-6-B	25VQ17A-1B20-L	7/8 Straight Keyed	3.37	17	25.5	90° CW from Outlet	CCW	3000 PSI 2500 RPM	32.00	
C1ME84	417992-3-B	25VQ17A-1C20	7/8 Straight Keyed	3.37	17	25.5	in-Line with Outlet	CW	3000 PSI 2500 RPM	32.00	
C1ME88	417992-7-B	25VQ17A-1C20-L	7/8 Straight Keyed	3.37	17	25.5	in-Line with Outlet	CCW	3000 PSI 2500 RPM	32.00	
C1ME85	417992-4-B	25VQ17A-1D20-	7/8 Straight Keyed	3.37	17	25.5	90° CCW from Outlet	CW	3000 PSI 2500 RPM	32.00	
C1ME89	417992-8-B	25VQ17A-1D20-L	7/8 Straight Keyed	3.37	17	25.5	90° CCW from Outlet	CCW	3000 PSI 2500 RPM	32.00	
C1MF57	629379-1-B	25VQ19A-11A20	13 Tooth SAE B Splined	3.74	19	28.5	Opposite Outlet	CW	3000 PSI 2500 RPM	32.00	
C1MF61	629379-5-B	25VQ19A-11A20-L	13 Tooth SAE B Splined	3.74	19	28.5	Opposite Outlet	CCW	3000 PSI 2500 RPM	32.00	
C1MF58	629379-2-B	25VQ19A-11B20	13 Tooth SAE B Splined	3.74	19	28.5	90° CW from Outlet	CW	3000 PSI 2500 RPM	32.00	
C1MF62	629379-6-B	25VQ19A-11B20-L	13 Tooth SAE B Splined	3.74	19	28.5	90° CW from Outlet	CCW	3000 PSI 2500 RPM	32.00	
C1MF59	629379-3-B	25VQ19A-11C20	13 Tooth SAE B Splined	3.74	19	28.5	in-Line with Outlet	CW	3000 PSI 2500 RPM	32.00	
C1MF63	629379-7-B	25VQ19A-11C20-L	13 Tooth SAE B Splined	3.74	19	28.5	in-Line with Outlet	CCW	3000 PSI 2500 RPM	32.00	
C1MF60	629379-4-B	25VQ19A-11D20	13 Tooth SAE B Splined	3.74	19	28.5	90° CCW from Outlet	CW	3000 PSI 2500 RPM	32.00	
C1MF64	629379-8-B	25VQ19A-11D20-L	13 Tooth SAE B Splined	3.74	19	28.5	90° CCW from Outlet	CCW	3000 PSI 2500 RPM	32.00	
C1MF49	578308-1-B	25VQ19A-1A20	7/8 Straight Keyed	3.74	19	28.5	Opposite Outlet	CW	3000 PSI 2500 RPM	32.00	
C1MF53	578308-5-B	25VQ19A-1A20-L	7/8 Straight Keyed	3.74	19	28.5	Opposite Outlet	CCW	3000 PSI 2500 RPM	32.00	
C1MF50	578308-2-B	25VQ19A-1B20	7/8 Straight Keyed	3.74	19	28.5	90° CW from Outlet	CW	3000 PSI 2500 RPM	32.00	
C1MF54	578308-6-B	25VQ19A-1B20-L	7/8 Straight Keyed	3.74	19	28.5	90° CW from Outlet	CCW	3000 PSI 2500 RPM	32.00	
C1MF51	578308-3-B	25VQ19A-1C20	7/8 Straight Keyed	3.74	19	28.5	in-Line with Outlet	CW	3000 PSI 2500 RPM	32.00	
C1MF55	578308-7-B	25VQ19A-1C20 -L	7/8 Straight Keyed	3.74	19	28.5	in-Line with Outlet	CCW	3000 PSI 2500 RPM	32.00	
C1MF52	578308-4-B	25VQ19A-1D20	7/8 Straight Keyed	3.74	19	28.5	90° CCW from Outlet	CW	3000 PSI 2500 RPM	32.00	
C1MF56	578308-8-B	25VQ19A-1D20-L	7/8 Straight Keyed	3.74	19	28.5	90° CCW from Outlet	CCW	3000 PSI 2500 RPM	32.00	
C1MF33	421477-1-B	25VQ21A-11A20	13 Tooth SAE B Splined	4.12	21	31.5	Opposite Outlet	CW	3000 PSI 2500 RPM	32.00	
C1MF37	421477-5-B	25VQ21A-11A20-L	13 Tooth SAE B Splined	4.12	21	31.5	Opposite Outlet	CCW	3000 PSI 2500 RPM	32.00	
C1MF34	421477-2-B	25VQ21A-11B20	13 Tooth SAE B Splined	4.12	21	31.5	90° CW from Outlet	CW	3000 PSI 2500 RPM	32.00	
C1MF38	421477-6-B	25VQ21A-11B20-L	13 Tooth SAE B Splined	4.12	21	31.5	90° CW from Outlet	CCW	3000 PSI 2500 RPM	32.00	
C1BP80	421477-3	25VQ21A-11C20	13 Tooth SAE B Splined	4.12	21	31.5	In-line with inlet (C)	CW	3000 PSI 2500 RPM	31.32	
C1MF35	421477-3-B	25VQ21A-11C20	13 Tooth SAE B Splined	4.12	21	31.5	in-Line with Outlet	CW	3000 PSI 2500 RPM	32.00	
C1MF39	421477-7-B	25VQ21A-11C20-L	13 Tooth SAE B Splined	4.12	21	31.5	in-Line with Outlet	CCW	3000 PSI 2500 RPM	32.00	
C1MF36	421477-4-B	25VQ21A-11D20	13 Tooth SAE B Splined	4.12	21	31.5	90° CCW from Outlet	CW	3000 PSI 2500 RPM	32.00	





Pumps & Accessories

Single Hydraulic Pumps • Fixed Displacement
Vickers 25VQ Series Vane Pumps • To 31.5 GPM @ 1800 RPM



Vickers® 25VQ Vane Pumps • For Mobile Applications • High Pressure / High Speed Capability

Catalog Part No.	Vickers Part No. See Note Above	Vickers Model See Note Above	Shaft	Displ	Ring Size 1200 RPM	Flow GPM 1800 RPM	Outlet Position	Rot.	Max. PSI & Max. RPM	Wt.	Price Each
C1MF40	421477-8-B	25VQ21A-11D20-L	13 Tooth SAE B Splined	4.12	21	31.5	90° CCW from Outlet	CCW	3000 PSI 2500 RPM	32.00	
C1ME78	416457-5-B	25VQ21A-1A20	7/8 Straight Keyed	4.12	21	31.5	Opposite Outlet	CW	3000 PSI 2500 RPM	32.00	
C1ME74	416457-1-B	25VQ21A-1A20-L	7/8 Straight Keyed	4.12	21	31.5	Opposite Outlet	CCW	3000 PSI 2500 RPM	32.00	
C1ME75	416457-2-B	25VQ21A-1B20	7/8 Straight Keyed	4.12	21	31.5	90° CW from Outlet	CW	3000 PSI 2500 RPM	32.00	
C1ME79	416457-6-B	25VQ21A-1B20-L	7/8 Straight Keyed	4.12	21	31.5	90° CW from Outlet	CCW	3000 PSI 2500 RPM	32.00	
C1ME76	416457-3-B	25VQ21A-1C20	7/8 Straight Keyed	4.12	21	31.5	in-Line with Outlet	CW	3000 PSI 2500 RPM	32.00	
C1ME80	416457-7-B	25VQ21A-1C20-L	7/8 Straight Keyed	4.12	21	31.5	in-Line with Outlet	CCW	3000 PSI 2500 RPM	32.00	
C1ME77	416457-4-B	25VQ21A-1D20	7/8 Straight Keyed	4.12	21	31.5	90° CCW from Outlet	CW	3000 PSI 2500 RPM	32.00	
C1ME81	416457-8-B	25VQ21A-1D20-L	7/8 Straight Keyed	4.12	21	31.5	90° CCW from Outlet	CCW	3000 PSI 2500 RPM	32.00	

Flow: GPM @ 1800 RPM and 100 PSI.

Displacement: Cubic inches per revolution.

Max. PSI & Max. RPM: Based on using petroleum oil at 120°F / 100SUS and at 0 PSI inlet pressure.

Minimum Speed: 600 RPM.

Parts for Vickers® 25VQ Vane Pumps

25VQ - ** A - * * 20 - *

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1 GPM Ring Assembly		
Code	Description	Cart Kit
12	12 GPM at 1200 rpm	416439
14	14 GPM at 1200 rpm	416440
17	17 GPM at 1200 rpm	416441
19	19 GPM at 1200 rpm	421232
21	21 GPM at 1200 rpm	416442

2 Shaft				
Code	Description	Shaft Qty	Key Qty	Qty
1	3/4" Straight Keyed Shaft	238755	1	009955 1
11	SAE B - 7/8" - 13 Tooth Spline	238929	1	N/A 0

3 Pressure Port Position (viewed from cover end)	
Code	Description
A	Opposite inlet
B	90 degree CCW from inlet
C	Inline with inlet
D	90 degree CW from inlet

4 Pump Rotation (viewed from shaft end)	
Code	Description
L	Left Hand rotation (CCW)
Blank	Right Hand rotation (CW)

Used in All Pump Assemblies		
Description	P/N	Qty
Screw	096168	4
Cover	224309	1
Snap Ring	191400	1
Snap Ring	120128	1
Bearing	001705	1
Washer	190362	1
Shaft Seal	394976	1
Body	942353	1





Pumps & Accessories

Single Hydraulic Pumps • Fixed Displacement
Vickers 25VQ Series Vane Pumps • To 31.5 GPM @ 1800 RPM



Parts for Vickers® 25VQ Vane Pumps

Catalog Part No.	Vickers Model	Description	Wt.	Price Each
•C1AA76	001705	Bearing	0.31	
C1LB60	942353	Body		
C1EH19	416439	Cartridge Kit, 12 GPM	8.09	
C1BP57	416440	Cartridge Kit, 14 GPM	8.02	
C1BP58	416441	Cartridge Kit, 17 GPM	8.01	
C1LB50	421232	Cartridge Kit, 19 GPM	8.01	
C1EH20	416442	Cartridge Kit, 21 GPM	7.94	
C1LB17	224309	Cover		
C1DU27	009955	Shaft Key	0.01	
C1AJ46	120128	Snap Ring	0.01	
C1EG72	191400	Snap Ring	0.01	
C1EZ94	096168	Screw	0.25	
•C1BN21	394976	Shaft Seal	0.03	
C1EF55	238755	Shaft, 3/4" Straight Keyed Shaft	1.31	
C1BF31	238929	Shaft, SAE B - 7/8" - 13 Tooth Spline	1.18	
C1AM34	190362	Washer	0.02	

Hydraulic Power & Control

Pneumatic Power & Control

Fluid Conveying

Miscellaneous Products

Indexes & Technical Information





Pumps & Accessories

Single Hydraulic Pumps • Fixed Displacement
Vickers 30VQ Series Vane Pumps • To 42 GPM @ 1800 RPM



Vickers® 30VQ Vane Pumps For Mobile Applications • High Pressure / High Speed Capability



Unless noted otherwise, all pumps have: 2-Bolt SAE C Mounting Flange. SAE 4-Bolt Flange Ports: 2" Inlet, 1-1/4" Outlet.

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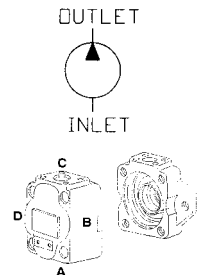
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Dimensions: page 584

Replacement Parts: page 141

Port Flange Kits: Flanges page 1252

Foot Brackets: page 201



Pumps are available as shown in table.

Additional configurations available for delivery in 24-48 hours.

See Model Codes page to select a different configuration.

Items ending with "-B" are assembled and tested in-house using genuine Eaton/Vickers parts and are not painted.

Vickers® 30VQ Vane Pumps • For Mobile Applications • High Pressure / High Speed Capability

Catalog Part No.	Vickers Part No. See Note Below	Vickers Model See Note Above	Shaft	Displ	Ring Size 1200 RPM	Flow GPM 1800 RPM	Outlet Position	Rot.	Max. PSI & Max. RPM	Wt.	Price Each
C1MF89	430202-1-B	30VQ24A-11A20	13 Tooth SAE B Splined	4.72	24	36.78	Opposite Outlet	CW	2000 PSI 2000 RPM	34.00	
C1MF93	430202-5-B	30VQ24A-11A20-L	13 Tooth SAE B Splined	4.72	24	36.78	Opposite Outlet	CCW	2000 PSI 2000 RPM	34.00	
C1MF90	430202-2-B	30VQ24A-11B20	13 Tooth SAE B Splined	4.72	24	36.78	90° CW from Outlet	CW	2000 PSI 2000 RPM	34.00	
C1MF94	430202-6-B	30VQ24A-11B20-L	13 Tooth SAE B Splined	4.72	24	36.78	90° CW from Outlet	CCW	2000 PSI 2000 RPM	34.00	
C1MF91	430202-3-B	30VQ24A-11C20	13 Tooth SAE B Splined	4.72	24	36.78	In-Line with Outlet	CW	2000 PSI 2000 RPM	34.00	
C1MF95	430202-7-B	30VQ24A-11C20-L	13 Tooth SAE B Splined	4.72	24	36.78	In-Line with Outlet	CCW	2000 PSI 2000 RPM	34.00	
C1MF92	430202-4-B	30VQ24A-11D20	13 Tooth SAE B Splined	4.72	24	36.78	90° CCW from Outlet	CW	2000 PSI 2000 RPM	34.00	
C1MF96	430202-8-B	30VQ24A-11D20-L	13 Tooth SAE B Splined	4.72	24	36.78	90° CCW from Outlet	CCW	2000 PSI 2000 RPM	34.00	
C1MF65	418616-1-B	30VQ24A-1A20	7/8 Straight Keyed	4.72	24	36.78	Opposite Outlet	CW	2000 PSI 2000 RPM	34.00	
C1MF69	418616-5-B	30VQ24A-1A20-L	7/8 Straight Keyed	4.72	24	36.78	Opposite Outlet	CCW	2000 PSI 2000 RPM	34.00	
C1MF66	418616-2-B	30VQ24A-1B20	7/8 Straight Keyed	4.72	24	36.78	90° CW from Outlet	CW	2000 PSI 2000 RPM	34.00	
C1MF70	418616-6-B	30VQ24A-1B20-L	7/8 Straight Keyed	4.72	24	36.78	90° CW from Outlet	CCW	2000 PSI 2000 RPM	34.00	
C1MF67	418616-3-B	30VQ24A-1C20	7/8 Straight Keyed	4.72	24	36.78	In-Line with Outlet	CW	2000 PSI 2000 RPM	34.00	
C1MF71	418616-7-B	30VQ24A-1C20-L	7/8 Straight Keyed	4.72	24	36.78	In-Line with Outlet	CCW	2000 PSI 2000 RPM	34.00	
C1MF68	418616-4-B	30VQ24A-1D20	7/8 Straight Keyed	4.72	24	36.78	90° CCW from Outlet	CW	2000 PSI 2000 RPM	34.00	



This page is part of a complete catalog which contains technical and safety data that must be reviewed when selecting a product

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Pumps & Accessories



Single Hydraulic Pumps • Fixed Displacement Vickers 30VQ Series Vane Pumps • To 42 GPM @ 1800 RPM



Vickers® 30VQ Vane Pumps • For Mobile Applications • High Pressure / High Speed Capability

Catalog Part No.	Vickers Part No. See Note Below	Vickers Model See Note Above	Shaft	Displ	Ring Size 1200 RPM	Flow GPM 1800 RPM	Outlet Position	Rot.	Max. PSI & Max. RPM	Wt.	Price Each
C1MF72	418616-8-B	30VQ24A-1D20-L	7/8 Straight Keyed	4.72	24	36.78	90° CCW from Outlet	CCW	2000 PSI 2000 RPM	34.00	
C1MF81	421492-1-B	30VQ28A-11A20	13 Tooth SAE B Splined	5.5	28	42.85	Opposite Outlet	CW	2000 PSI 2000 RPM	34.00	
C1MF85	421492-5-B	30VQ28A-11A20-L	13 Tooth SAE B Splined	5.5	28	42.85	Opposite Outlet	CCW	2000 PSI 2000 RPM	34.00	
C1MF82	421492-2-B	30VQ28A-11B20	13 Tooth SAE B Splined	5.5	28	42.85	90° CW from Outlet	CW	2000 PSI 2000 RPM	34.00	
C1MF86	421492-6-B	30VQ28A-11B20-L	13 Tooth SAE B Splined	5.5	28	42.85	90° CW from Outlet	CCW	2000 PSI 2000 RPM	34.00	
C1MF83	421492-3-B	30VQ28A-11C20	13 Tooth SAE B Splined	5.5	28	42.85	In-Line with Outlet	CW	2000 PSI 2000 RPM	34.00	
C1MF87	421492-7-B	30VQ28A-11C20-L	13 Tooth SAE B Splined	5.5	28	42.85	In-Line with Outlet	CCW	2000 PSI 2000 RPM	34.00	
C1MF84	421492-4-B	30VQ28A-11D20	13 Tooth SAE B Splined	5.5	28	42.85	90° CCW from Outlet	CW	2000 PSI 2000 RPM	34.00	
C1MF88	421492-8-B	30VQ28A-11D20-L	13 Tooth SAE B Splined	5.5	28	42.85	90° CCW from Outlet	CCW	2000 PSI 2000 RPM	34.00	
C1MF73	421490-1-B	30VQ28A-1A20	7/8 Straight Keyed	5.5	28	42.85	Opposite Outlet	CW	2000 PSI 2000 RPM	34.00	
C1MF77	421490-5-B	30VQ28A-1A20-L	7/8 Straight Keyed	5.5	28	42.85	Opposite Outlet	CCW	2000 PSI 2000 RPM	34.00	
C1MF74	421490-2-B	30VQ28A-1B20	7/8 Straight Keyed	5.5	28	42.85	90° CW from Outlet	CW	2000 PSI 2000 RPM	34.00	
C1MF78	421490-6-B	30VQ28A-1B20-L	7/8 Straight Keyed	5.5	28	42.85	90° CW from Outlet	CCW	2000 PSI 2000 RPM	34.00	
C1MF75	421490-3-B	30VQ28A-1C20	7/8 Straight Keyed	5.5	28	42.85	In-Line with Outlet	CW	2000 PSI 2000 RPM	34.00	
C1MF79	421490-7-B	30VQ28A-1C20-L	7/8 Straight Keyed	5.5	28	42.85	In-Line with Outlet	CCW	2000 PSI 2000 RPM	34.00	
C1MF76	421490-4-B	30VQ28A-1D20	7/8 Straight Keyed	5.5	28	42.85	90° CCW from Outlet	CW	2000 PSI 2000 RPM	34.00	
C1MF80	421490-8-B	30VQ28A-1D20-L	7/8 Straight Keyed	5.5	28	42.85	90° CCW from Outlet	CCW	2000 PSI 2000 RPM	34.00	

Note: Flow: GPM @ 1800 RPM and 100 PSI. Displ. cubic inches per revolution. Max. PSI & Max. RPM: Based on using petroleum oil at 120°F / 100SUS and at 0 PSI inlet pressure. Minimum Speed: 600 RPM.





Pumps & Accessories

Single Hydraulic Pumps • Fixed Displacement
Vickers 30VQ Series Vane Pumps • To 42 GPM @ 1800 RPM



Parts for Vickers® 30VQ Vane Pumps

30VQ - ** A - * * 20 - *

1 2 3 4

1	GPM Ring Assembly		
Code	Description	Cart Kit	
24	24 GPM at 1200 rpm	417052	
28	28 GPM at 1200 rpm	416452	

2	Shaft				
Code	Description	Shaft	Qty	Key	Qty
1	3/4" Straight Keyed Shaft	238755	1	009955	1
11	SAE B - 7/8" - 13 Tooth Spline	238929	1	N/A	0

3	Pressure Port Position (viewed from cover end)	
Code	Description	
A	Opposite inlet	
B	90 degree CCW from inlet	
C	Inline with inlet	
D	90 degree CW from inlet	

4	Pump Rotation (viewed from shaft end)	
Code	Description	
L	Left Hand rotation (CCW)	
Blank	Right Hand rotation (CW)	

Used in All Pump Assemblies			
Description	P/N	Qty	
Screw	119805	4	
Cover	224526	1	
Snap Ring	191400	1	
Snap Ring	120128	1	
Bearing	001705	1	
Washer	190362	1	
Shaft Seal	394976	1	
Body	942354	1	

Parts for Vickers® 30VQ Vane Pumps

Catalog Part No.	Vickers Model	Description	Wt.	Price Each
•C1AA76	001705	Bearing	0.31	
C1LB61	942354	Body	10.48	
C1LB48	417052	Cartridge Kit, 24 GPM	9.21	
C1LB47	416452	Cartridge Kit, 28 GPM		
C1LB18	224526	Cover	11.77	
C1DU27	009955	Key	0.01	
C1AJ46	120128	Snap Ring	0.01	
C1EG72	191400	Snap Ring	0.01	
C1LA97	119805	Screw		
•C1BN21	394976	Shaft Seal	0.03	
C1EF55	238755	Shaft, 7/8" Straight Keyed	1.31	
C1BF31	238929	Shaft, SAE B - 7/8" - 13 Toothe Spline	1.18	
C1AM34	190362	Washer	0.02	



Pumps & Accessories

Single Hydraulic Pumps • Fixed Displacement
Vickers 35VQ Series Vane Pumps • To 57 GPM @ 1800 RPM



Vickers® 35VQ Vane Pumps For Mobile Applications • High Pressure / High Speed Capability



Unless noted otherwise, all pumps have: 2-Bolt SAE C Mounting Flange. SAE 4-Bolt Flange Ports: 2" Inlet, 1-1/4" Outlet.

Application Information: page 574

Specifications: page 581

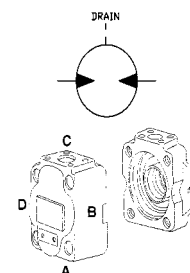
Model Codes: page 582

Dimensions: page 584

Replacement Parts: page 146

Port Flange Kits: Flanges page 1252

Foot Brackets: page 201



Pumps are available as shown in table.

Additional configurations available for delivery in 24-48 hours.

See Model Codes page to select a different configuration.

Items ending with "-B" are assembled and tested in-house using genuine Eaton/Vickers parts and are not painted.

Vickers® 35VQ Vane Pumps • For Mobile Applications • High Pressure / High Speed Capability

Catalog Part No.	Vickers Part No. See Note Above	Vickers Model See Note Above	Shaft	Displ	Ring Size 1200 RPM	Flow GPM 1800 RPM	Outlet Position	Rot.	Max. PSI & Max. RPM	Wt.	Price Each
C1MD94	420995-1-B	35VQ21A-11A20	14 Tooth SAE C Splined	4.04	21	31.5	Opposite Outlet	CW	3000 PSI 2500 RPM	50.00	
C1MD98	420995-5-B	35VQ21A-11A20-L	14 Tooth SAE C Splined	4.04	21	31.5	Opposite Outlet	CCW	3000 PSI 2500 RPM	50.00	
C1MD95	420995-2-B	35VQ21A-11B20	14 Tooth SAE C Splined	4.04	21	31.5	90° CW from Outlet	CW	3000 PSI 2500 RPM	50.00	
C1MD99	420995-6-B	35VQ21A-11B20-L	14 Tooth SAE C Splined	4.04	21	31.5	90° CW from Outlet	CCW	3000 PSI 2500 RPM	50.00	
C1MD96	420995-3-B	35VQ21A-11C20	14 Tooth SAE C Splined	4.04	21	31.5	in-Line with Outlet	CW	3000 PSI 2500 RPM	50.00	
C1ME11	420995-7-B	35VQ21A-11C20-L	14 Tooth SAE C Splined	4.04	21	31.5	in-Line with Outlet	CCW	3000 PSI 2500 RPM	50.00	
C1MD97	420995-4-B	35VQ21A-11D20	14 Tooth SAE C Splined	4.04	21	31.5	90° CCW from Outlet	CW	3000 PSI 2500 RPM	50.00	
C1ME12	420995-8-B	35VQ21A-11D20-L	14 Tooth SAE C Splined	4.04	21	31.5	90° CCW from Outlet	CCW	3000 PSI 2500 RPM	50.00	
C1ME66	591391-1-B	35VQ21A-1A20	1-1/4 Stright Keyed	4.04	21	31.5	Opposite Outlet	CW	3000 PSI 2500 RPM	50.00	
C1ME70	591391-5-B	35VQ21A-1A20-L	1-1/4 Stright Keyed	4.04	21	31.5	Opposite Outlet	CCW	3000 PSI 2500 RPM	50.00	
C1ME67	591391-2-B	35VQ21A-1B20	1-1/4 Stright Keyed	4.04	21	31.5	90° CW from Outlet	CW	3000 PSI 2500 RPM	50.00	
C1ME71	591391-6-B	35VQ21A-1B20-L	1-1/4 Stright Keyed	4.04	21	31.5	90° CW from Outlet	CCW	3000 PSI 2500 RPM	50.00	
C1ME68	591391-3-B	35VQ21A-1C20	1-1/4 Stright Keyed	4.04	21	31.5	in-Line with Outlet	CW	3000 PSI 2500 RPM	50.00	
C1ME72	591391-7-B	35VQ21A-1C20-L	1-1/4 Stright Keyed	4.04	21	31.5	in-Line with Outlet	CCW	3000 PSI 2500 RPM	50.00	
C1ME69	591391-4-B	35VQ21A-1D20	1-1/4 Stright Keyed	4.04	21	31.5	90° CCW from Outlet	CW	3000 PSI 2500 RPM	50.00	



Pumps & Accessories

Single Hydraulic Pumps • Fixed Displacement
Vickers 35VQ Series Vane Pumps • To 57 GPM @ 1800 RPM



Vickers® 35VQ Vane Pumps • For Mobile Applications • High Pressure / High Speed Capability

Catalog Part No.	Vickers Part No. See Note Above	Vickers Model See Note Above	Shaft	Displ	Ring Size 1200 RPM	Flow GPM 1800 RPM	Outlet Position	Rot.	Max. PSI & Max. RPM	Wt.	Price Each
C1ME73	591391-8-B	35VQ21A-1D20-L	1-1/4 Stright Keyed	4.04	21	31.5	90° CCW from Outlet	CCW	3000 PSI 2500 RPM	50.00	
C1ME58	427807-1-B	35VQ25A-11A20	14 Tooth SAE C Splined	4.98	25	38.5	Opposite Outlet	CW	3000 PSI 2500 RPM	50.00	
C1ME62	427807-5-B	35VQ25A-11A20-L	14 Tooth SAE C Splined	4.98	25	38.5	Opposite Outlet	CCW	3000 PSI 2500 RPM	50.00	
C1ME59	427807-2-B	35VQ25A-11B20	14 Tooth SAE C Splined	4.98	25	38.5	90° CW from Outlet	CW	3000 PSI 2500 RPM	50.00	
C1ME63	427807-6-B	35VQ25A-11B20-L	14 Tooth SAE C Splined	4.98	25	38.5	90° CW from Outlet	CCW	3000 PSI 2500 RPM	50.00	
C1ME60	427807-3-B	35VQ25A-11C20	14 Tooth SAE C Splined	4.98	25	38.5	in-Line with Outlet	CW	3000 PSI 2500 RPM	50.00	
C1ME64	427807-7-B	35VQ25A-11C20-L	14 Tooth SAE C Splined	4.98	25	38.5	in-Line with Outlet	CCW	3000 PSI 2500 RPM	50.00	
C1ME61	427807-4-B	35VQ25A-11D20	14 Tooth SAE C Splined	4.98	25	38.5	90° CCW from Outlet	CW	3000 PSI 2500 RPM	50.00	
C1ME65	427807-8-B	35VQ25A-11D20-L	14 Tooth SAE C Splined	4.98	25	38.5	90° CCW from Outlet	CCW	3000 PSI 2500 RPM	50.00	
C1ME25	421527-5-B	35VQ25A-1A20	1-1/4 Stright Keyed	4.98	25	38.5	Opposite Outlet	CW	3000 PSI 2500 RPM	50.00	
C1ME21	421527-1-B	35VQ25A-1A20-L	1-1/4 Stright Keyed	4.98	25	38.5	Opposite Outlet	CCW	3000 PSI 2500 RPM	50.00	
C1ME22	421527-2-B	35VQ25A-1B20	1-1/4 Stright Keyed	4.98	25	38.5	90° CW from Outlet	CW	3000 PSI 2500 RPM	50.00	
C1ME26	421527-6-B	35VQ25A-1B20-L	1-1/4 Stright Keyed	4.98	25	38.5	90° CW from Outlet	CCW	3000 PSI 2500 RPM	50.00	
C1ME23	421527-3-B	35VQ25A-1C20	1-1/4 Stright Keyed	4.98	25	38.5	in-Line with Outlet	CW	3000 PSI 2500 RPM	50.00	
C1ME27	421527-7-B	35VQ25A-1C20-L	1-1/4 Stright Keyed	4.98	25	38.5	in-Line with Outlet	CCW	3000 PSI 2500 RPM	50.00	
C1ME24	421527-4-B	35VQ25A-1D20	1-1/4 Stright Keyed	4.98	25	38.5	90° CCW from Outlet	CW	3000 PSI 2500 RPM	50.00	
C1ME28	421527-8-B	35VQ25A-1D20-L	1-1/4 Stright Keyed	4.98	25	38.5	90° CCW from Outlet	CCW	3000 PSI 2500 RPM	50.00	
C1ME13	421526-1-B	35VQ30A-11A20	14 Tooth SAE C Splined	5.96	30	46	Opposite Outlet	CW	3000 PSI 2500 RPM	50.00	
C1ME17	421526-5-B	35VQ30A-11A20-L	14 Tooth SAE C Splined	5.96	30	46	Opposite Outlet	CCW	3000 PSI 2500 RPM	50.00	
C1ME14	421526-2-B	35VQ30A-11B20	14 Tooth SAE C Splined	5.96	30	46	90° CW from Outlet	CW	3000 PSI 2500 RPM	50.00	
C1ME18	421526-6-B	35VQ30A-11B20-L	14 Tooth SAE C Splined	5.96	30	46	90° CW from Outlet	CCW	3000 PSI 2500 RPM	50.00	
C1ME15	421526-3-B	35VQ30A-11C20	14 Tooth SAE C Splined	5.96	30	46	in-Line with Outlet	CW	3000 PSI 2500 RPM	50.00	
C1ME19	421526-7-B	35VQ30A-11C20-L	14 Tooth SAE C Splined	5.96	30	46	in-Line with Outlet	CCW	3000 PSI 2500 RPM	50.00	
C1ME16	421526-4-B	35VQ30A-11D20	14 Tooth SAE C Splined	5.96	30	46	90° CCW from Outlet	CW	3000 PSI 2500 RPM	50.00	
C1ME20	421526-8-B	35VQ30A-11D20-L	14 Tooth SAE C Splined	5.96	30	46	90° CCW from Outlet	CCW	3000 PSI 2500 RPM	50.00	
C1ME43	421555-1-B	35VQ30A-1A20	1-1/4 Stright Keyed	5.96	30	46	Opposite Outlet	CW	3000 PSI 2500 RPM	50.00	
C1ME47	421555-5-B	35VQ30A-1A20-L	1-1/4 Stright Keyed	5.96	30	46	Opposite Outlet	CCW	3000 PSI 2500 RPM	50.00	
C1ME44	421555-2-B	35VQ30A-1B20	1-1/4 Stright Keyed	5.96	30	46	90° CW from Outlet	CW	3000 PSI 2500 RPM	50.00	
C1ME48	421555-6-B	35VQ30A-1B20-L	1-1/4 Stright Keyed	5.96	30	46	90° CW from Outlet	CCW	3000 PSI 2500 RPM	50.00	



Pumps & Accessories



Single Hydraulic Pumps • Fixed Displacement
Vickers 35VQ Series Vane Pumps • To 57 GPM @ 1800 RPM



Vickers® 35VQ Vane Pumps • For Mobile Applications • High Pressure / High Speed Capability

Catalog Part No.	Vickers Part No. See Note Above	Vickers Model See Note Above	Shaft	Displ	Ring Size 1200 RPM	Flow GPM 1800 RPM	Outlet Position	Rot.	Max. PSI & Max. RPM	Wt.	Price Each
C1ME45	421555-3-B	35VQ30A-1C20	1-1/4 Stright Keyed	5.96	30	46	in-Line with Outlet	CW	3000 PSI 2500 RPM	50.00	
C1ME49	421555-7-B	35VQ30A-1C20-L	1-1/4 Stright Keyed	5.96	30	46	in-Line with Outlet	CCW	3000 PSI 2500 RPM	50.00	
C1ME46	421555-4-B	35VQ30A-1D20	1-1/4 Stright Keyed	5.96	30	46	90° CCW from Outlet	CW	3000 PSI 2500 RPM	50.00	
C1ME50	421555-8-B	35VQ30A-1D20-L	1-1/4 Stright Keyed	5.96	30	46	90° CCW from Outlet	CCW	3000 PSI 2500 RPM	50.00	
C1MD86	419330-1-B	35VQ35A-11A20	14 Tooth SAE C Splined	6.88	35	53.6	Opposite Outlet	CW	3000 PSI 2400 RPM	50.00	
C1MD90	419330-5-B	35VQ35A-11A20-L	14 Tooth SAE C Splined	6.88	35	53.6	Opposite Outlet	CCW	3000 PSI 2400 RPM	50.00	
C1MD87	419330-2-B	35VQ35A-11B20	14 Tooth SAE C Splined	6.88	35	53.6	90° CW from Outlet	CW	3000 PSI 2400 RPM	50.00	
C1MD91	419330-6-B	35VQ35A-11B20-L	14 Tooth SAE C Splined	6.88	35	53.6	90° CW from Outlet	CCW	3000 PSI 2400 RPM	50.00	
C1MD88	419330-3-B	35VQ35A-11C20	14 Tooth SAE C Splined	6.88	35	53.6	in-Line with Outlet	CW	3000 PSI 2400 RPM	50.00	
C1MD92	419330-7-B	35VQ35A-11C20-L	14 Tooth SAE C Splined	6.88	35	53.6	in-Line with Outlet	CCW	3000 PSI 2400 RPM	50.00	
C1MD89	419330-4-B	35VQ35A-11D20	14 Tooth SAE C Splined	6.88	35	53.6	90° CCW from Outlet	CW	3000 PSI 2400 RPM	50.00	
C1MD93	419330-8-B	35VQ35A-11D20-L	14 Tooth SAE C Splined	6.88	35	53.6	90° CCW from Outlet	CCW	3000 PSI 2400 RPM	50.00	
C1ME33	421528-5-B	35VQ35A-1A20	1-1/4 Stright Keyed	6.88	35	53.6	Opposite Outlet	CW	3000 PSI 2400 RPM	50.00	
C1ME29	421528-1-B	35VQ35A-1A20-L	1-1/4 Stright Keyed	6.88	35	53.6	Opposite Outlet	CCW	3000 PSI 2400 RPM	50.00	
C1ME30	421528-2-B	35VQ35A-1B20	1-1/4 Stright Keyed	6.88	35	53.6	90° CW from Outlet	CW	3000 PSI 2400 RPM	50.00	
C1ME30	421528-2-B	35VQ35A-1B20-L	1-1/4 Stright Keyed	6.88	35	53.6	90° CW from Outlet	CCW	3000 PSI 2400 RPM	50.00	
C1ME34	421528-7-B	35VQ35A-1C20	1-1/4 Stright Keyed	6.88	35	53.6	in-Line with Outlet	CW	3000 PSI 2400 RPM	50.00	
C1ME31	421528-3-B	35VQ35A-1C20-L	1-1/4 Stright Keyed	6.88	35	53.6	in-Line with Outlet	CCW	3000 PSI 2400 RPM	50.00	
C1ME32	421528-4-B	35VQ35A-1D20	1-1/4 Stright Keyed	6.88	35	53.6	90° CCW from Outlet	CW	3000 PSI 2400 RPM	50.00	
C1ME32	421528-4-B	35VQ35A-1D20-L	1-1/4 Stright Keyed	6.88	35	53.6	90° CCW from Outlet	CCW	3000 PSI 2400 RPM	50.00	
C1ME51	427765-1-B	35VQ38A-11A20	14 Tooth SAE C Splined	7.42	38	57	Opposite Outlet	CW	3000 PSI 2400 RPM	50.00	
C1ME55	427765-5-B	35VQ38A-11A20-L	14 Tooth SAE C Splined	7.42	38	57	Opposite Outlet	CCW	3000 PSI 2400 RPM	50.00	
C1ME52	427765-2-B	35VQ38A-11B20	14 Tooth SAE C Splined	7.42	38	57	90° CW from Outlet	CW	3000 PSI 2400 RPM	50.00	
C1ME56	427765-7-B	35VQ38A-11B20-L	14 Tooth SAE C Splined	7.42	38	57	90° CW from Outlet	CCW	3000 PSI 2400 RPM	50.00	
C1ME53	427765-3-B	35VQ38A-11C20	14 Tooth SAE C Splined	7.42	38	57	in-Line with Outlet	CW	3000 PSI 2400 RPM	50.00	
C1ME56	427765-7-B	35VQ38A-11C20-L	14 Tooth SAE C Splined	7.42	38	57	in-Line with Outlet	CCW	3000 PSI 2400 RPM	50.00	
C1ME54	427765-4-B	35VQ38A-11D20	14 Tooth SAE C Splined	7.42	38	57	90° CCW from Outlet	CW	3000 PSI 2400 RPM	50.00	
C1ME57	427765-8-B	35VQ38A-11D20-L	14 Tooth SAE C Splined	7.42	38	57	90° CCW from Outlet	CCW	3000 PSI 2400 RPM	50.00	
C1ME35	421529-1-B	35VQ38A-1A20	1-1/4 Stright Keyed	7.42	38	57	Opposite Outlet	CW	3000 PSI 2400 RPM	50.00	





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Catalog Part No.	Vickers Part No. See Note Above	Vickers Model See Note Above	Shaft	Displ	Ring Size 1200 RPM	Flow GPM 1800 RPM	Outlet Position	Rot.	Max. PSI & Max. RPM	Wt.	Price Each
C1ME39	421529-5-B	35VQ38A-1A20-L	1-1/4 Stright Keyed	7.42	38	57	Opposite Outlet	CCW	3000 PSI 2400 RPM	50.00	
C1ME36	421529-2-B	35VQ38A-1B20	1-1/4 Stright Keyed	7.42	38	57	90° CW from Outlet	CW	3000 PSI 2400 RPM	50.00	
C1ME40	421529-6-B	35VQ38A-1B20-L	1-1/4 Stright Keyed	7.42	38	57	90° CW from Outlet	CCW	3000 PSI 2400 RPM	50.00	
C1ME37	421529-3-B	35VQ38A-1C20	1-1/4 Stright Keyed	7.42	38	57	in-Line with Outlet	CW	3000 PSI 2400 RPM	50.00	
C1ME41	421529-7-B	35VQ38A-1C20-L	1-1/4 Stright Keyed	7.42	38	57	in-Line with Outlet	CCW	3000 PSI 2400 RPM	50.00	
C1ME38	421529-4-B	35VQ38A-1D20	1-1/4 Stright Keyed	7.42	38	57	90° CCW from Outlet	CW	3000 PSI 2400 RPM	50.00	
C1ME42	421529-8-B	35VQ38A-1D20-L	1-1/4 Stright Keyed	7.42	38	57	90° CCW from Outlet	CCW	3000 PSI 2400 RPM	50.00	

Flow: GPM @ 1800 RPM and 100 PSI.

Displacement: Cubic inches per revolution.

Max. PSI & Max. RPM: Based on using petroleum oil at 120°F / 100SUS and at 0 PSI inlet pressure.

Minimum Speed: 600 RPM.

Hydraulic Power & Control

Pneumatic Power & Control

Fluid Conveying

Miscellaneous Products

Indexes & Technical Information



Pumps & Accessories

Single Hydraulic Pumps • Fixed Displacement
Vickers 35VQ Series Vane Pumps • To 57 GPM @ 1800 RPM



Parts for Vickers® 35VQ Vane Pumps

35VQ - ** A - * * 20 - *

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2 3
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4

1 GPM Ring Assembly		
Code	Description	Cart Kit
21	21 GPM at 1200 rpm	413420
25	25 GPM at 1200 rpm	413421
30	30 GPM at 1200 rpm	413422
35	35 GPM at 1200 rpm	413418
38	38 GPM at 1200 rpm	413419

2 Shaft					
Code	Description	Shaft	Qty	Key	Qty
1	1-1/4" Straight Keyed Shaft	233624	1	088678	1
11	1-1/4"-14 Tooth 12/24DP Spline	242287	1	N/A	0

3 Pressure Port Position (viewed from cover end)	
Code	Description
A	Opposite inlet
B	90 degree CCW from inlet
C	Inline with inlet
D	90 degree CW from inlet

4 Pump Rotation (viewed from shaft end)	
Code	Description
L	Left Hand rotation (CCW)
Blank	Right Hand rotation (CW)

Used in All Pump Assemblies			
Description	P/N	Qty	
Bolt	011173	4	
Cover	234248	1	
Snap Ring	193144	1	
Snap Ring	119982	1	
Bearing	038441	1	
Washer	193220	1	
Shaft Seal	394973	1	
Body	413016	1	

Parts for Vickers® 35VQ Vane Pumps

Catalog Part No.	Vickers Model	Description	Wt.	Price Each
•C1AD65	038441	Bearing	0.50	
C1LB46	413016	Body		
C1LA84	011173	Bolt	0.47	
C1KA17	413420	Cartridge Kit, 21 GPM	14.00	
C1BP46	413421	Cartridge Kit, 25 GPM	14.00	
C1DX24	413422	Cartridge Kit, 30 GPM	13.85	
C1BP45	413418	Cartridge Kit, 35 GPM	13.77	
C1DX23	413419	Cartridge Kit, 38 GPM	13.75	
C1LB22	234248	Cover		
C1EG58	088678	Key	0.04	
C1JX19	119982	Snap Ring	0.01	
C1EG73	193144	Snap Ring	0.02	
•C1BN19	394973	Shaft Seal	0.07	
C1EG78	233624	Shaft, 1-1/4" Straight Keyed	2.39	
C1EG79	242287	1-1/4" 14 Tooth 12/24DP Spline	2.13	
C1JX51	193220	Washer	0.10	
•C1CB83	920015	Seal Kit	0.13	



Pumps & Accessories

Single Hydraulic Pumps • Fixed Displacement
Vickers 45VQ Series Vane Pumps • To 90 GPM @ 1800 RPM



Vickers® 45VQ Vane Pumps For Mobile Applications • High Pressure / High Speed Capability



Unless noted otherwise, all pumps have: 2-Bolt SAE C Mounting Flange. SAE 4-Bolt Flange Ports: 3" Inlet, 1-1/2" Outlet.

Application Information: page 574

Specifications: page 581

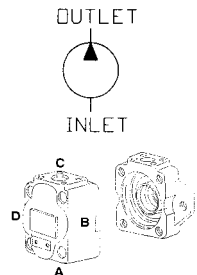
Model Codes: page 582

Dimensions: page 585

Replacement Parts: page 150

Port Flange Kits: Flanges page 1252

Foot Brackets: page 201



Pumps are available as shown in table.

Additional configurations available for delivery in 24-48 hours.

See Model Codes page to select a different configuration.

Items ending with "-B" are assembled and tested in-house using genuine Eaton/Vickers parts and are not painted.

Vickers® 45VQ Vane Pumps • For Mobile Applications • High Pressure / High Speed Capability

Catalog Part No.	Vickers Part No. See Note Above	Vickers Model See Note Above	Shaft	Displ	Ring Size 1200 RPM	Flow GPM 1800 RPM	Outlet Position	Rot.	Max. PSI & Max. RPM	Wt.	Price Each
C1MD12	420616-1-B	45VQ42A11A20	14 Tooth SAE D Splined	8.46	42	65.92	Opposite Outlet	CW	2500 PSI 2200 RPM	75.00	
C1MD16	420616-5-B	45VQ42A11A20-L	14 Tooth SAE D Splined	8.46	42	65.92	Opposite Outlet	CCW	2500 PSI 2200 RPM	75.00	
C1MD13	420616-2-B	45VQ42A11B20	14 Tooth SAE D Splined	8.46	42	65.92	90° CW from Outlet	CW	2500 PSI 2200 RPM	75.00	
C1MD17	420616-6-B	45VQ42A11B20-L	14 Tooth SAE D Splined	8.46	42	65.92	90° CW from Outlet	CCW	2500 PSI 2200 RPM	75.00	
C1MD14	420616-3-B	45VQ42A11C20	14 Tooth SAE D Splined	8.46	42	65.92	in-Line with Outlet	CW	2500 PSI 2200 RPM	75.00	
C1MD18	420616-7-B	45VQ42A11C20-L	14 Tooth SAE D Splined	8.46	42	65.92	in-Line with Outlet	CCW	2500 PSI 2200 RPM	75.00	
C1MD15	420616-4-B	45VQ42A11D20	14 Tooth SAE D Splined	8.46	42	65.92	90° CCW from Outlet	CW	2500 PSI 2200 RPM	75.00	
C1MD19	420616-8-B	45VQ42A11D20-L	14 Tooth SAE D Splined	8.46	42	65.92	90° CCW from Outlet	CCW	2500 PSI 2200 RPM	75.00	
C1MD60	432647-1-B	45VQ42A1A20	1-1/4 Straight Keyed	8.46	42	65.92	Opposite Outlet	CW	2500 PSI 2200 RPM	75.00	
C1MD64	432647-5-B	45VQ42A1A20-L	1-1/4 Straight Keyed	8.46	42	65.92	Opposite Outlet	CCW	2500 PSI 2200 RPM	75.00	
C1MD61	432647-2-B	45VQ42A1B20	1-1/4 Straight Keyed	8.46	42	65.92	90° CW from Outlet	CW	2500 PSI 2200 RPM	75.00	
C1MD65	432647-6-B	45VQ42A1B20-L	1-1/4 Straight Keyed	8.46	42	65.92	90° CW from Outlet	CCW	2500 PSI 2200 RPM	75.00	
C1MD62	432647-3-B	45VQ42A1C20	1-1/4 Straight Keyed	8.46	42	65.92	in-Line with Outlet	CW	2500 PSI 2200 RPM	75.00	
C1MD66	432647-7-B	45VQ42A1C20-L	1-1/4 Straight Keyed	8.46	42	65.92	in-Line with Outlet	CCW	2500 PSI 2200 RPM	75.00	
C1MD63	432647-4-B	45VQ42A1D20	1-1/4 Straight Keyed	8.46	42	65.92	90° CCW from Outlet	CW	2500 PSI 2200 RPM	75.00	



This page is part of a complete catalog which contains technical and safety data that must be reviewed when selecting a product

Pumps & Accessories



Single Hydraulic Pumps • Fixed Displacement
Vickers 45VQ Series Vane Pumps • To 90 GPM @ 1800 RPM



Vickers® 45VQ Vane Pumps • For Mobile Applications • High Pressure / High Speed Capability

Catalog Part No.	Vickers Part No. See Note Above	Vickers Model See Note Above	Shaft	Displ	Ring Size 1200 RPM	Flow GPM 1800 RPM	Outlet Position	Rot.	Max. PSI & Max. RPM	Wt.	Price Each
C1MD67	432647-8-B	45VQ42A1D20-L	1-1/4 Straight Keyed	8.46	42	65.92	90° CCW from Outlet	CCW	2500 PSI 2200 RPM	75.00	
C1MD36	421965-1-B	45VQ42A86A20	1-1/2 Straight Keyed	8.46	42	65.92	Opposite Outlet	CW	2500 PSI 2200 RPM	75.00	
C1MD40	421965-5-B	45VQ42A86A20-L	1-1/2 Straight Keyed	8.46	42	65.92	Opposite Outlet	CCW	2500 PSI 2200 RPM	75.00	
C1MD37	421965-2-B	45VQ42A86B20	1-1/2 Straight Keyed	8.46	42	65.92	90° CW from Outlet	CW	2500 PSI 2200 RPM	75.00	
C1MD41	421965-6-B	45VQ42A86B20-L	1-1/2 Straight Keyed	8.46	42	65.92	90° CW from Outlet	CCW	2500 PSI 2200 RPM	75.00	
C1MD38	421965-3-B	45VQ42A86C20	1-1/2 Straight Keyed	8.46	42	65.92	in-Line with Outlet	CW	2500 PSI 2200 RPM	75.00	
C1MD42	421965-7-B	45VQ42A86C20-L	1-1/2 Straight Keyed	8.46	42	65.92	in-Line with Outlet	CCW	2500 PSI 2200 RPM	75.00	
C1MD39	421965-4-B	45VQ42A86D20	1-1/2 Straight Keyed	8.46	42	65.92	90° CCW from Outlet	CW	2500 PSI 2200 RPM	75.00	
C1MD43	421965-8-B	45VQ42A86D20-L	1-1/2 Straight Keyed	8.46	42	65.92	90° CCW from Outlet	CCW	2500 PSI 2200 RPM	75.00	
C1MD76	576269-1-B	45VQ47A1A20	1-1/4 Straight Keyed	9.04	47	70.44	Opposite Outlet	CW	2500 PSI 2200 RPM	75.00	
C1MD77	576269-5-B	45VQ47A1A20-L	1-1/4 Straight Keyed	9.04	47	70.44	Opposite Outlet	CCW	2500 PSI 2200 RPM	75.00	
C1MD20	420617-1-B	45VQ50A11A20	14 Tooth SAE D Splined	9.9	50	77.14	Opposite Outlet	CW	2500 PSI 2200 RPM	75.00	
C1MD24	420617-5-B	45VQ50A11A20-L	14 Tooth SAE D Splined	9.9	50	77.14	Opposite Outlet	CCW	2500 PSI 2200 RPM	75.00	
C1MD21	420617-2-B	45VQ50A11B20	14 Tooth SAE D Splined	9.9	50	77.14	90° CW from Outlet	CW	2500 PSI 2200 RPM	75.00	
C1MD25	420617-6-B	45VQ50A11B20-L	14 Tooth SAE D Splined	9.9	50	77.14	90° CW from Outlet	CCW	2500 PSI 2200 RPM	75.00	
C1MD22	420617-3-B	45VQ50A11C20	14 Tooth SAE D Splined	9.9	50	77.14	in-Line with Outlet	CW	2500 PSI 2200 RPM	75.00	
C1MD26	420617-7-B	45VQ50A11C20-L	14 Tooth SAE D Splined	9.9	50	77.14	in-Line with Outlet	CCW	2500 PSI 2200 RPM	75.00	
C1MD23	420617-4-B	45VQ50A11D20	14 Tooth SAE D Splined	9.9	50	77.14	90° CCW from Outlet	CW	2500 PSI 2200 RPM	75.00	
C1MD27	420617-8-B	45VQ50A11D20-L	14 Tooth SAE D Splined	9.9	50	77.14	90° CCW from Outlet	CCW	2500 PSI 2200 RPM	75.00	
C1MD44	421966-1-B	45VQ50A1A20	1-1/4 Straight Keyed	9.9	50	77.14	Opposite Outlet	CW	2500 PSI 2200 RPM	75.00	
C1MD48	421966-5-B	45VQ50A1A20-L	1-1/4 Straight Keyed	9.9	50	77.14	Opposite Outlet	CCW	2500 PSI 2200 RPM	75.00	
C1MD45	421966-2-B	45VQ50A1B20	1-1/4 Straight Keyed	9.9	50	77.14	90° CW from Outlet	CW	2500 PSI 2200 RPM	75.00	
C1MD49	421966-6-B	45VQ50A1B20-L	1-1/4 Straight Keyed	9.9	50	77.14	90° CW from Outlet	CCW	2500 PSI 2200 RPM	75.00	
C1MD46	421966-3-B	45VQ50A1C20	1-1/4 Straight Keyed	9.9	50	77.14	in-Line with Outlet	CW	2500 PSI 2200 RPM	75.00	
C1MD50	421966-7-B	45VQ50A1C20-L	1-1/4 Straight Keyed	9.9	50	77.14	in-Line with Outlet	CCW	2500 PSI 2200 RPM	75.00	
C1MD47	421966-4-B	45VQ50A1D20	1-1/4 Straight Keyed	9.9	50	77.14	90° CCW from Outlet	CW	2500 PSI 2200 RPM	75.00	
C1MD51	421966-8-B	45VQ50A1D20-L	1-1/4 Straight Keyed	9.9	50	77.14	90° CCW from Outlet	CCW	2500 PSI 2200 RPM	75.00	
C1MD68	433252-1-B	45VQ50A86A20	1-1/2 Straight Keyed	9.9	50	77.14	Opposite Outlet	CW	2500 PSI 2200 RPM	75.00	
C1MD72	433252-5-B	45VQ50A86A20-L	1-1/2 Straight Keyed	9.9	50	77.14	Opposite Outlet	CCW	2500 PSI 2200 RPM	75.00	





Pumps & Accessories

Single Hydraulic Pumps • Fixed Displacement
Vickers 45VQ Series Vane Pumps • To 90 GPM @ 1800 RPM



Vickers® 45VQ Vane Pumps • For Mobile Applications • High Pressure / High Speed Capability

Catalog Part No.	Vickers Part No. See Note Above	Vickers Model See Note Above	Shaft	Displ	Ring Size 1200 RPM	Flow GPM 1800 RPM	Outlet Position	Rot.	Max. PSI & Max. RPM	Wt.	Price Each
C1MD69	433252-2-B	45VQ50A86B20	1-1/2 Straight Keyed	9.9	50	77.14	90° CW from Outlet	CW	2500 PSI 2200 RPM	75.00	
C1MD73	433252-6-B	45VQ50A86B20-L	1-1/2 Straight Keyed	9.9	50	77.14	90° CW from Outlet	CCW	2500 PSI 2200 RPM	75.00	
C1MD70	433252-3-B	45VQ50A86C20	1-1/2 Straight Keyed	9.9	50	77.14	in-Line with Outlet	CW	2500 PSI 2200 RPM	75.00	
C1MD74	433252-7-B	45VQ50A86C20-L	1-1/2 Straight Keyed	9.9	50	77.14	in-Line with Outlet	CCW	2500 PSI 2200 RPM	75.00	
C1MD71	433252-4-B	45VQ50A86D20	1-1/2 Straight Keyed	9.9	50	77.14	90° CCW from Outlet	CW	2500 PSI 2200 RPM	75.00	
C1MD75	433252-8-B	45VQ50A86D20-L	1-1/2 Straight Keyed	9.9	50	77.14	90° CCW from Outlet	CCW	2500 PSI 2200 RPM	75.00	
C1MD78	629213-1-B	45VQ57A1A20	1-1/4 Straight Keyed	10.97	57	85.48	Opposite Outlet	CW	2500 PSI 2200 RPM	75.00	
C1MD82	629213-5-B	45VQ57A1A20-L	1-1/4 Straight Keyed	10.97	57	85.48	Opposite Outlet	CCW	2500 PSI 2200 RPM	75.00	
C1MD79	629213-2-B	45VQ57A1B20	1-1/4 Straight Keyed	10.97	57	85.48	90° CW from Outlet	CW	2500 PSI 2200 RPM	75.00	
C1MD83	629213-6-B	45VQ57A1B20-L	1-1/4 Straight Keyed	10.97	57	85.48	90° CW from Outlet	CCW	2500 PSI 2200 RPM	75.00	
C1MD80	629213-3-B	45VQ57A1C20	1-1/4 Straight Keyed	10.97	57	85.48	in-Line with Outlet	CW	2500 PSI 2200 RPM	75.00	
C1MD84	629213-7-B	45VQ57A1C20-L	1-1/4 Straight Keyed	10.97	57	85.48	in-Line with Outlet	CCW	2500 PSI 2200 RPM	75.00	
C1MD81	629213-4-B	45VQ57A1D20	1-1/4 Straight Keyed	10.97	57	85.48	90° CCW from Outlet	CW	2500 PSI 2200 RPM	75.00	
C1MD85	629213-8-B	45VQ57A1D20-L	1-1/4 Straight Keyed	10.97	57	85.48	90° CCW from Outlet	CCW	2500 PSI 2200 RPM	75.00	
C1MD28	420618-1-B	45VQ60A11A20	14 Tooth SAE D Splined	11.8	60	91.94	Opposite Outlet	CW	2500 PSI 2200 RPM	75.00	
C1MD32	420618-5-B	45VQ60A11A20-L	14 Tooth SAE D Splined	11.8	60	91.94	Opposite Outlet	CCW	2500 PSI 2200 RPM	75.00	
C1MD29	420618-2-B	45VQ60A11B20	14 Tooth SAE D Splined	11.8	60	91.94	90° CW from Outlet	CW	2500 PSI 2200 RPM	75.00	
C1MD33	420618-6-B	45VQ60A11B20-L	14 Tooth SAE D Splined	11.8	60	91.94	90° CW from Outlet	CCW	2500 PSI 2200 RPM	75.00	
C1MD30	420618-3-B	45VQ60A11C20	14 Tooth SAE D Splined	11.8	60	91.94	in-Line with Outlet	CW	2500 PSI 2200 RPM	75.00	
C1MD34	420618-7-B	45VQ60A11C20-L	14 Tooth SAE D Splined	11.8	60	91.94	in-Line with Outlet	CCW	2500 PSI 2200 RPM	75.00	
C1MD31	420618-4-B	45VQ60A11D20	14 Tooth SAE D Splined	11.8	60	91.94	90° CCW from Outlet	CW	2500 PSI 2200 RPM	75.00	
C1MD35	420618-8-B	45VQ60A11D20-L	14 Tooth SAE D Splined	11.8	60	91.94	90° CCW from Outlet	CCW	2500 PSI 2200 RPM	75.00	
C1MD52	421967-1-B	45VQ60A1A20	1-1/4 Straight Keyed	11.8	60	91.94	Opposite Outlet	CW	2500 PSI 2200 RPM	75.00	
C1MD56	421967-5-B	45VQ60A1A20-L	1-1/4 Straight Keyed	11.8	60	91.94	Opposite Outlet	CCW	2500 PSI 2200 RPM	75.00	
C1MD53	421967-2-B	45VQ60A1B20	1-1/4 Straight Keyed	11.8	60	91.94	90° CW from Outlet	CW	2500 PSI 2200 RPM	75.00	
C1MD57	421967-6-B	45VQ60A1B20-L	1-1/4 Straight Keyed	11.8	60	91.94	90° CW from Outlet	CCW	2500 PSI 2200 RPM	75.00	
C1MD54	421967-3-B	45VQ60A1C20	1-1/4 Straight Keyed	11.8	60	91.94	in-Line with Outlet	CW	2500 PSI 2200 RPM	75.00	
C1MD58	421967-7-B	45VQ60A1C20-L	1-1/4 Straight Keyed	11.8	60	91.94	in-Line with Outlet	CCW	2500 PSI 2200 RPM	75.00	
C1MD55	421967-4-B	45VQ60A1D20	1-1/4 Straight Keyed	11.8	60	91.94	90° CCW from Outlet	CW	2500 PSI 2200 RPM	75.00	



Pumps & Accessories

Single Hydraulic Pumps • Fixed Displacement
Vickers 45VQ Series Vane Pumps • To 90 GPM @ 1800 RPM



Vickers® 45VQ Vane Pumps • For Mobile Applications • High Pressure / High Speed Capability

Catalog Part No.	Vickers Part No. See Note Above	Vickers Model See Note Above	Shaft	Displ	Ring Size 1200 RPM	Flow GPM 1800 RPM	Outlet Position	Rot.	Max. PSI & Max. RPM	Wt.	Price Each
C1MD59	421967-8-B	45VQ60A1D20-L	1-1/4 Straight Keyed	11.8	60	91.94	90° CCW from Outlet	CCW	2500 PSI 2200 RPM	75.00	
C1MC93	416458-1-B	45VQ60A86A20	1-1/2 Straight Keyed	11.8	60	91.94	Opposite Outlet	CW	2500 PSI 2200 RPM	75.00	
C1MC97	416458-5-B	45VQ60A86A20-L	1-1/2 Straight Keyed	11.8	60	91.94	Opposite Outlet	CCW	2500 PSI 2200 RPM	75.00	
C1MC94	416458-2-B	45VQ60A86B20	1-1/2 Straight Keyed	11.8	60	91.94	90° CW from Outlet	CW	2500 PSI 2200 RPM	75.00	
C1MC98	416458-6-B	45VQ60A86B20-L	1-1/2 Straight Keyed	11.8	60	91.94	90° CW from Outlet	CCW	2500 PSI 2200 RPM	75.00	
C1MC95	416458-3-B	45VQ60A86C20	1-1/2 Straight Keyed	11.8	60	91.94	in-Line with Outlet	CW	2500 PSI 2200 RPM	75.00	
C1MC99	416458-7-B	45VQ60A86C20-L	1-1/2 Straight Keyed	11.8	60	91.94	in-Line with Outlet	CCW	2500 PSI 2200 RPM	75.00	
C1MC96	416458-4-B	45VQ60A86D20	1-1/2 Straight Keyed	11.8	60	91.94	90° CCW from Outlet	CW	2500 PSI 2200 RPM	75.00	
C1MD11	416458-8-B	45VQ60A86D20-L	1-1/2 Straight Keyed	11.8	60	91.94	90° CCW from Outlet	CCW	2500 PSI 2200 RPM	75.00	

Flow: GPM @ 1800 RPM and 100 PSI.

Displacement: Cubic inches per revolution.

Max. PSI & Max. RPM: Based on using petroleum oil at 120°F / 100SUS and at 0 PSI inlet pressure.

Minimum Speed: 600 RPM.

Parts for Vickers® 45VQ Vane Pumps



1	GPM Ring Assembly		
Code	Description	Cart Kit	
42	42 GPM at 1200 rpm	416435	
47	47 GPM at 1200 rpm	421234	
50	50 GPM at 1200 rpm	416436	
57	57 GPM at 1200 rpm	421233	
60	60 GPM at 1200 rpm	416437	

2	Shaft			
Code	Description	Shaft	Qty	Key
1	1-1/4" Straight Keyed Shaft	233369	1	217596
11	1-1/4"-14 Tooth 12/24DP Spline	242885	1	N/A
86	1-1/2" Straight Keyed	361760	1	239701

3	Pressure Port Position (viewed from cover end)	
Code	Description	
A	Opposite inlet	
B	90 degree CCW from inlet	
C	In-line with inlet	
D	90 degree CW from inlet	

4	Pump Rotation (viewed from shaft end)	
Code	Description	
L	Left Hand rotation (CCW)	
Blank	Right Hand rotation (CW)	

Used in All Pump Assemblies		
Description	P/N	Qty
Bolt	061321	4
Cover	229633	1
Snap Ring	158630	1
Snap Ring	102949	1
Bearing	131812	1
Washer	194878	1
Shaft Seal	394974	1
Body	942356	1



Pumps & Accessories

Single Hydraulic Pumps • Fixed Displacement
Vickers 45VQ Series Vane Pumps • To 90 GPM @ 1800 RPM



Parts for Vickers® 45VQ Vane Pumps

Catalog Part No.	Vickers Model	Description	Wt.	Price Each
•C1AK38	131812	Bearing	1.02	
C1KF58	942356	Body	19.74	
C1LA89	061321	Bolt	0.85	
C1EH18	416435	Cartridge Kit - 42 GPM	22.04	
C1LB51	421234	Cartridge Kit - 47 GPM	21.91	
C1BP55	416436	Cartridge Kit - 50 GPM	21.88	
C1KA35	421233	Cartridge Kit - 57 GPM	21.79	
C1BP56	416437	Cartridge Kit - 60 GPM	21.82	
C1LB19	229633	Cover		
C1BC42	217596	Key	0.03	
C1LB23	239751	Key		
C1EG70	158630	Snap Ring	0.03	
C1EZ97	102949	Snap Ring	0.05	
•C1BN20	394974	Shaft Seal	0.06	
C1BE86	233369	Shaft, 1-1/4" Straight Keyed	31.35	
C1EG80	242885	Shaft, 1-1/4", 14 Tooth 12/24DP Spline	2.00	
C1LB43	361760	Shaft, 1-1/2" Straight Keyed		
C1FA30	194878	Washer	0.05	
•C1CB85	920025	Seal Kit	0.16	

Hydraulic Power & Control

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Pumps & Accessories

Single & Tandem Hydraulic Pumps • Fixed Displacement Vane Pumps

Miscellaneous Single & Tandem Vane Pumps



Miscellaneous Single & Tandem Vane Pumps

Catalog Part No.	Mfg. Part No. (Model No.)	Mfg. Name	Displ in ³ /rev	Mount	Shaft	Ports	Rot.	Other Features	Wt.	Price Each
C1LC93	PT7DSWB42XL01A1W (PT7DSWB42XL01A1W1)	Permco	8.39	SAE C 2-bolt	1-1/4 Straight Keyed	SAE 4-Bolt Flange, Inlet 2", Outlet 1-1/4"	CCW	Single pump	72.00	
C1KK69	710-0091-032	Vickers	14.65	2-Bolt SAE C	1-1/2 Straight Keyed	SAE 4-Bolt Flange, Inlet 3, Outlet 1-1/2	CW	VMQ Series Single Pump, SAE-B Spline Thru-Drive Coupling	45.00	
C1JC19	02-125443-7 (25VQTBS21A-2297CC-20L)	Vickers	4.12	2-Bolt SAE B	13 Tooth SAE B Splined	SAE 4-Bolt Flange, Inlet 2-1/2, Outlet 1	CCW	VQ Series Tandem Pump, 2-Bolt SAE-B Rear Pump Mount, SAE-B Spline Thru-Drive Coupling	19.91	
C1EL32	02-125553-7	Vickers	4.98	2-Bolt SAE C	14T SAE-C Splined	SAE 4-Bolt Flange, Inlet 3, Outlet 1-1/4	CCW	VQ Series Tandem Pump, 2-Bolt SAE-B Rear Pump Mount, SAE-B Spline Thru-Drive Coupling	61.00	

Parts for Miscellaneous Single & Tandem Fixed Vane Pumps

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1EG78	233624	35V Series, #1 Straight Keyed Shaft	2.39	
C1BE86	233369	45V Series, Shaft, 1-1/4" Straight Keyed	31.35	



Pumps & Accessories

Single Hydraulic Pumps • Fixed Displacement Gear Pumps

Salami 1.5PE Series Aluminium Gear Pumps

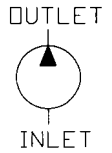
To 5 GPM @ 1800 RPM • Up to 4205 PSI • Up to 5000 RPM



Features: Constructed for high efficiency and long life in severe operating environments. The design includes an advanced bushing and seal configuration which optimizes performance even in high temperature and low viscosity conditions.

Application: Pumps are stocked with Clockwise rotation. Rotation can be changed by reversing the position of the drive shaft and driven shaft, and rotating the front flange.

Pressure Limits: Inlet pressure: 7.38 in. Hg to 21.7 PSI. Pump Outlet: Continuous working pressure varies with displacement (See table below). Peak pressure pressures up to 4205 PSI.



Speed Ratings: Continuous speed at working pressure varies with displacement (See table below). Intermittent speeds up to 5000 RPM.

Temperature Ratings: With Buna-N seals (standard): 5°F to 185°F. With FPM seals (Viton): -4°F to 230°F.

Fluids: Minimum Operating fluid viscosity: 66 SUS (with 80% reduction of working pressure and at minimum speed) to 3635 SUS (maximum starting viscosity). Normal operating range: 85 SUS to 297 SUS.

Recommended Filtration: ISO 4406: < 2900 PSI: 20/19/16; > 2900 PSI: 19/18/15

Dimensions: page 597

Foot Brackets: page 201

Salami 1.5PE Series Aluminium Gear Pumps • To 5 GPM @ 1800 RPM • Up to 4205 PSI • Up to 5000 RPM

Catalog Part No.	Salami Model	Displacement Pressure Rating (Continuous) Max Speed	Flow GPM 1800 RPM	Mtg Flange	Shaft	Ports	Rotation	Other Features	Wt.	Price Each
C1MQ96	610910302 (1.5PE1.4D-R80S0)	0.09 in ³ /rev 3625 PSI 4250 RPM	0.6	2-Bolt SAE AA	1/2 St. Keyed x 1.06 long, SAE AA	SAE -8 Side Inlet, SAE -6 Side Outlet	CW			
C1MV49	610910402 (1.5PE1.4D-R51S0)	0.09 in ³ /rev 3625 PSI 4250 RPM	0.6	2-Bolt SAE AA	9T 20/40 DP Spline, SAE AA	SAE -8 Side Inlet, SAE -6 Side Outlet	CW			
C1MV58	610910502 (1.5PE1.4D-R83S1)	0.09 in ³ /rev 3625 PSI 4250 RPM	0.6	4-Bolt SAE AA	1/2 St. Keyed x 1.5 long	SAE -8 Side Inlet, SAE -6 Side Outlet	CW			
C1MQ97	610910312 (1.5PE2.1D-R80S0)	0.13 in ³ /rev 3625 PSI 4250 RPM	0.9	2-Bolt SAE AA	1/2 St. Keyed x 1.06 long SAE AA	SAE -8 Side Inlet, SAE -6 Side Outlet	CW		5.00	
C1MV50	610910412 (1.5PE2.1D-R51S0)	0.13 in ³ /rev 3625 PSI 4250 RPM	0.9	2-Bolt SAE AA	9T 20/40 DP Spline, SAE AA	SAE -8 Side Inlet, SAE -6 Side Outlet	CW			
C1MR14	610910512 (1.5PE2.1D-R83S1)	0.13 in ³ /rev 3625 PSI 4250 RPM	0.9	4-Bolt SAE AA	1/2 St. Keyed x 1.5 long	SAE -8 Side Inlet, SAE -6 Side Outlet	CW			
C1MQ98	610910322 (1.5PE2.8D-R80S0)	0.17 in ³ /rev 3625 PSI 3825 RPM	1.2	2-Bolt SAE AA	1/2 St. Keyed x 1.06 long SAE AA	SAE -8 Side Inlet, SAE -6 Side Outlet	CW			
C1MV51	610910422 (1.5PE2.8D-R51S0)	0.17 in ³ /rev 3625 PSI 3825 RPM	1.2	2-Bolt SAE AA	9T 20/40 DP Spline, SAE AA	SAE -8 Side Inlet, SAE -6 Side Outlet	CW			
C1MV59	610910522 (1.5PE2.8D-R83S1)	0.17 in ³ /rev 3625 PSI 3825 RPM	1.2	4-Bolt SAE AA	1/2 St. Keyed x 1.5 long	SAE -8 Side Inlet, SAE -6 Side Outlet	CW			
C1MV45	610910332 (1.5PE3.5D-R80S0)	0.21 in ³ /rev 3625 PSI 3825 RPM	1.6	2-Bolt SAE AA	1/2 St. Keyed x 1.06 long SAE AA	SAE -8 Side Inlet, SAE -6 Side Outlet	CW			
C1MV52	610910432 (1.5PE3.5D-R51S0)	0.21 in ³ /rev 3625 PSI 3825 RPM	1.6	2-Bolt SAE AA	9T 20/40 DP Spline, SAE AA	SAE -8 Side Inlet, SAE -6 Side Outlet	CW			
C1MV60	610910532 (1.5PE3.5D-R83S1)	0.21 in ³ /rev 3625 PSI 3825 RPM	1.6	4-Bolt SAE AA	1/2 St. Keyed x 1.5 long	SAE -8 Side Inlet, SAE -6 Side Outlet	CW			



Pumps & Accessories

Single Hydraulic Pumps • Fixed Displacement Gear Pumps

Salami 1.5PE Series Aluminium Gear Pumps • To 5 GPM @ 1800 RPM • Up to 4205 PSI • Up to 5000 RPM

Catalog Part No.	Salami Model	Displacement Pressure Rating (Continuous) Max Speed	Flow GPM 1800 RPM	Mtg Flange	Shaft	Ports	Rotation	Other Features	Wt.	Price Each
C1MV46	610910342 (1.5PE4.1D-R80S0)	0.25 in ³ /rev 3625 PSI 3400 RPM	1.8	2-Bolt SAE AA	1/2 St. Keyed x 1.06 long SAE AA	SAE -8 Side Inlet, SAE -6 Side Outlet	CW			
C1MV53	610910442 (1.5PE4.1D-R51S0)	0.25 in ³ /rev 3625 PSI 3400 RPM	1.8	2-Bolt SAE AA	9T 20/40 DP Spline, SAE AA	SAE -8 Side Inlet, SAE -6 Side Outlet	CW			
C1MV61	610910542 (1.5PE4.1D-R83S1)	0.25 in ³ /rev 3625 PSI 3400 RPM	1.8	4-Bolt SAE AA	1/2 St. Keyed x 1.5 long	SAE -8 Side Inlet, SAE -6 Side Outlet	CW			
C1MV47	610910352 (1.5PE5.2D-R80S0)	0.32 in ³ /rev 3335 PSI 3400 RPM	2.3	2-Bolt SAE AA	1/2 St. Keyed x 1.06 long SAE AA	SAE -8 Side Inlet, SAE -6 Side Outlet	CW			
C1MV54	610910452 (1.5PE5.2D-R51S0)	0.32 in ³ /rev 3335 PSI 3400 RPM	2.3	2-Bolt SAE AA	9T 20/40 DP Spline, SAE AA	SAE -8 Side Inlet, SAE -6 Side Outlet	CW			
C1MV62	610910552 (1.5PE5.2D-R83S1)	0.32 in ³ /rev 3335 PSI 3400 RPM	2.3	4-Bolt SAE AA	1/2 St. Keyed x 1.5 long	SAE -8 Side Inlet, SAE -6 Side Outlet	CW			
C1MQ99	610910362 (1.5PE6.5D-R80S0)	0.38 in ³ /rev 3335 PSI 3060 RPM	2.9	2-Bolt SAE AA	1/2 St. Keyed x 1.06 long SAE AA	SAE -8 Side Inlet, SAE -6 Side Outlet	CW			
C1MR13	610910462 (1.5PE6.5D-R51S0)	0.38 in ³ /rev 3335 PSI 3060 RPM	2.9	2-Bolt SAE AA	9T 20/40 DP Spline, SAE AA	SAE -8 Side Inlet, SAE -6 Side Outlet	CW			
C1MR15	610910562 (1.5PE6.5D-R83S1)	0.38 in ³ /rev 3335 PSI 060 RPM	2.9	4-Bolt SAE AA	1/2 St. Keyed x 1.5 long	SAE -8 Side Inlet, SAE -6 Side Outlet	CW			
C1MV48	610910372 (1.5PE7.6D-R80S0)	0.46 in ³ /rev 2900 PSI 2805 RPM	3.4	2-Bolt SAE AA	1/2 St. Keyed x 1.06 long SAE AA	SAE -10 Side Inlet, SAE -8 Side Outlet	CW			
C1MV55	610910472 (1.5PE7.6D-R51S0)	0.46 in ³ /rev 2900 PSI 2805 RPM	3.4	2-Bolt SAE AA	9T 20/40 DP Spline, SAE AA	SAE -10 Side Inlet, SAE -8 Side Outlet	CW			
C1MV63	610910572 (1.5PE7.6D-R83S1)	0.46 in ³ /rev 2900 PSI 2805 RPM	3.4	4-Bolt SAE AA	1/2 St. Keyed x 1.5 long	SAE -10 Side Inlet, SAE -8 Side Outlet	CW			
C1MR11	610910382 (1.5PE9.3D-R80S0)	0.57 in ³ /rev 2610 PSI 2550 RPM	4.2	2-Bolt SAE AA	1/2 St. Keyed x 1.06 long SAE AA	SAE -10 Side Inlet, SAE -8 Side Outlet	CW			
C1MV56	610910482 (1.5PE9.3D-R51S0)	0.57 in ³ /rev 2610 PSI 2550 RPM	4.2	2-Bolt SAE AA	9T 20/40 DP Spline, SAE AA	SAE -10 Side Inlet, SAE -8 Side Outlet	CW			
C1MV64	610910582 (1.5PE9.3D-R83S1)	0.57 in ³ /rev 2610 PSI 2550 RPM	4.2	4-Bolt SAE AA	1/2 St. Keyed x 1.5 long	SAE -10 Side Inlet, SAE -8 Side Outlet	CW			
C1MR12	610910392 (1.5PE11D-R80S0)	0.67 in ³ /rev 2465 PSI 2550 RPM	4.7	2-Bolt SAE AA	1/2 St. Keyed x 1.06 long SAE AA	SAE -10 Side Inlet, SAE -8 Side Outlet	CW			
•C1MV57	610910492 (1.5PE11D-R51S0)	0.67 in ³ /rev 2465 PSI 2550 RPM	4.7	2-Bolt SAE AA	9T 20/40 DP Spline, SAE AA	SAE -10 Side Inlet, SAE -8 Side Outlet	CW			
C1MV65	610910592 (1.5PE11D-R83S1)	0.67 in ³ /rev 2465 PSI 2550 RPM	4.7	4-Bolt SAE AA	1/2 St. Keyed x 1.5 long	SAE -10 Side Inlet, SAE -8 Side Outlet	CW			



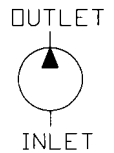
Pumps & Accessories

Single Hydraulic Pumps • Fixed Displacement Gear Pumps

Salami 1.5PE Series Pump Tandem Sections For assembly to 1.5PE Series Pumps



Features: Rear section of dual tandem, or center section of triple tandem pump using 1.5PE pump as front section. Assembly required. Tie-rods must be ordered separately. Tie-rods are shown in table following tandem sections.



Salami 1.5PE Series Pump Tandem Sections • For assembly to 1.5PE Series Pumps

Catalog Part No.	Salami Model	Displacement Pressure Rating (Continuous) Max Speed	Flow GPM 1800 RPM		Shaft	Ports	Rotation	Other Features	Wt.	Price Each
C1MR16	610930302 (1.5PE1.4D-R59R)	0.09 in ³ /rev 3625 PSI 4250 RPM	0.6	Connecting Plate	Connecting Spline Shaft	SAE -8 Side Inlet, SAE -6 Side Outlet	CW			
C1MR17	610930312 (1.5PE2.1D-R59R)	0.13 in ³ /rev 3625 PSI 4250 RPM	0.9	Connecting Plate	Connecting Spline Shaft	SAE -8 Side Inlet, SAE -6 Side Outlet	CW		5.00	
C1MR18	610930322 (1.5PE2.8D-R59R)	0.17 in ³ /rev 3625 PSI 3825 RPM	1.2	Connecting Plate	Connecting Spline Shaft	SAE -8 Side Inlet, SAE -6 Side Outlet	CW			
C1MR19	610930332 (1.5PE3.5D-R59R)	0.21 in ³ /rev 3625 PSI 3825 RPM	1.6	Connecting Plate	Connecting Spline Shaft	SAE -8 Side Inlet, SAE -6 Side Outlet	CW			
C1MR20	610930342 (1.5PE4.1D-R59R)	0.25 in ³ /rev 3625 PSI 3400 RPM	1.8	Connecting Plate	Connecting Spline Shaft	SAE -8 Side Inlet, SAE -6 Side Outlet	CW			
C1MR21	610930352 (1.5PE5.2D-R59R)	0.32 in ³ /rev 3335 PSI 3400 RPM	2.3	Connecting Plate	Connecting Spline Shaft	SAE -8 Side Inlet, SAE -6 Side Outlet	CW			
C1MR22	610930362 (1.5PE6.5D-R59R)	0.38 in ³ /rev 3335 PSI 3060 RPM	2.9	Connecting Plate	Connecting Spline Shaft	SAE -8 Side Inlet, SAE -6 Side Outlet	CW			
C1MV66	610930372 (1.5PE7.6D-R59R)	0.46 in ³ /rev 2900 PSI 2805 RPM	3.4	Connecting Plate	Connecting Spline Shaft	SAE -10 Side Inlet, SAE -8 Side Outlet	CW			
C1MV67	610930382 (1.5PE9.3D-R59R)	0.57 in ³ /rev 2610 PSI 2550 RPM	4.2	Connecting Plate	Connecting Spline Shaft	SAE -10 Side Inlet, SAE -8 Side Outlet	CW			
C1MV68	610930392 (1.5PE11D-R59R)	0.67 in ³ /rev 2465 PSI 2550 RPM	4.7	Connecting Plate	Connecting Spline Shaft	SAE -10 Side Inlet, SAE -8 Side Outlet	CW			

Salami 1.5PE Series Gear Pump • Parts

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1MS85	R10930010	Tandem Kit for 1.5PE-Double Pump		
C1MS86	R10980020	Seal Kit for 1.5PE Pump		



Pumps & Accessories

Single Hydraulic Pumps • Fixed Displacement Gear Pumps

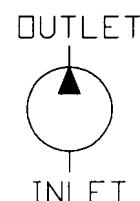
Concentric GC Series Gear Pump

To 5.5 GPM @ 1800 RPM • Up to 4000 PSI • Up to 4000 RPM



Concentric GC Series Hydraulic Pumps are compact, external gear models for use in pumping fluids with lubricating qualities. Suitable for use in a wide variety of material handling, agricultural, and construction equipment in addition to machine tools, robotics, and other types of machinery.

Features: Designed to provide reliable, long-life service under rugged conditions, G.C. Series pumps are built with cast iron bodies and hardened steel gears. Among their other standard, extra-value features are:



- Superior volumetric efficiency
- Needle bearing construction
- High mechanical efficiency
- Wide variety of options

Pressure Limits: Outlet: (Varies with displacement. See table below).

Rated Speed: Maximum shaft speed: 4000 RPM; Minimum shaft speed: 750 RPM

Maximum System Temperature: 250°F

Note: Ratings based on using anti wear hydraulic fluid with viscosity 200 SSU. For information on use with other fluids, contact us for assistance.

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Concentric GC Series Gear Pump • To 5.5 GPM @ 1800 RPM • Up to 4000 PSI • Up to 4000 RPM

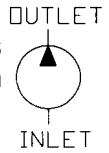
Catalog Part No.	ConcentricAB Model	Displacement PressureRating (Continuous) Max Speed	Flow GPM 1800 RPM	Mtg Flange	Shaft	Ports Size and Location	Rotation	Other Features	Wt.	Price Each
C1LW72	1300086	0.129 in ³ /rev 3000 PSI 4000 RPM	1 GPM	4-bolt 1.78 in. pilot	0.17 in. Tang w/Short Coupling	SAE-6 Side	Bi-Directional with check valves	Single Lip Buna-N Pressure Seal	4.66	
C1LW73	1300094	0.129 in ³ /rev 3000 PSI 4000 RPM	1 GPM	4-bolt 1.78 in. pilot	0.50 in. dia. X 1.50 in. extension	SAE-6 Side	Bi-Directional with check valves	Viton High-Pressure Seal w/Outboard Ball Bearing	8.00	
C1LW74	1300096	0.258 in ³ /rev 2300 PSI 4000 RPM	2 GPM	4-bolt 1.78 in. pilot	0.50 in. dia. X 1.50 in. extension	SAE-8 Side	Bi-Directional with check valves	Viton High-Pressure Seal w/Outboard Ball Bearing	7.00	
C1LW75	1300098	0.388 in ³ /rev 1600 PSI 4000 RPM	3 GPM	4-bolt 1.78 in. pilot	0.50 in. dia. X 1.50 in. extension	SAE-10 Side	Bi-Directional with check valves	Viton High-Pressure Seal w/Outboard Ball Bearing	5.52	

Salami 2PE Series Aluminium Gear Pump

To 12 GPM @ 1800 RPM • Up to 4350 PSI • Up to 4000 RPM



Features: All pumps are available as multiple units either of the same or different series. With all sizes, there are options of shafts, flanges and ports as for European, German and American standards. Salami gear pumps offer high volumetric efficiency by innovative design and accurate control of machining tolerances. Axial compensation achieved by the use of floating bushings that allow high volumetric efficiency throughout the working pressure range. DU bearings ensure high pressure capability.



Application: Pumps are stocked with Clockwise rotation. Rotation can be changed by reversing the position of the drive shaft and driven shaft, and rotating the front flange.

Pressure Limits: Inlet pressure: 7.38 in. Hg to 21.7 PSI. Pump Outlet: Continuous working pressure varies with displacement (See table below). Peak pressure pressures up to 4350 PSI.

Speed Ratings: Continuous speed at working pressure varies with displacement (See table below). Intermittent speeds up to 4000 RPM.

Temperature Ratings: With Buna-N seals (standard): -4°F to 185°F. With FPM seals (Viton): -4°F to 230°F.

Fluids: Minimum Operating fluid viscosity: 66 SUS (with 80% reduction of working pressure and at minimum speed) to 3635 SUS (maximum starting viscosity). Normal operating range: 85 SUS to 297 SUS.

Recommended Filtration: ISO 4406: < 2900 PSI: 20/19/16; > 2900 PSI: 19/18/15.

Dimensions: page 598

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Salami 2PE Series Aluminium Gear Pump • To 12 GPM @ 1800 RPM • Up to 4350 PSI • Up to 4000 RPM

Catalog Part No.	Salami Model	Displacement Pressure Rating (Continuous) Max Speed	Flow GPM 1800 RPM	Mtg Flange	Shaft	Ports	Rotation	Other Features	Wt.	Price Each
C1MV69	612033722 (2PE4.5D-R52S2)	0.27 in ³ /rev 3600 PSI 4000 RPM	2.0	2-Bolt SAE A	9 Tooth SAE A Splined	SAE -12 Inlet, SAE -10 Outlet	CW		4.40	
C1MR43	612081642 (2PE4.5D-R82S2)	0.27 in ³ /rev 3600 PSI 4000 RPM	2.0	2-Bolt SAE A	5/8 St. Keyed x 1.25, SAE A	SAE -12 Inlet, SAE -10 Outlet	CW		4.40	
C1MR54	612095962 (2PE6.5D-R52S2)	0.40 in ³ /rev 3600 PSI 4000 RPM	3.0	2-Bolt SAE A	9 Tooth SAE A Splined	SAE -12 Inlet, SAE -10 Outlet	CW		4.60	
C1MR52	612095942 (2PE6.5D-R82S2)	0.40 in ³ /rev 3600 PSI 4000 RPM	3.0	2-Bolt SAE A	5/8 St. Keyed x 1.25, SAE A	SAE -12 Inlet, SAE -10 Outlet	CW		4.60	
C1MR53	612095952 (2PE6.5D-R85S2)	0.40 in ³ /rev 3600 PSI 4000 RPM	3.0	2-Bolt SAE A	3/4 St Keyed x 1.25 long SAE A	SAE -12 Inlet, SAE -10 Outlet	CW		4.60	
C1MR40	612080552 (2PE8.3D-R52S2)	0.50 in ³ /rev 3600 PSI 3500 RPM	3.8	2-Bolt SAE A	9 Tooth SAE A Splined	SAE -12 Inlet, SAE -10 Outlet	CW		4.60	
C1MR28	612034752 (2PE8.3D-R54S2)	0.50 in ³ /rev 3600 PSI 3500 RPM	3.8	2-Bolt SAE A	11 Tooth SAE A Splined	SAE -12 Inlet, SAE -10 Outlet	CW		4.60	
C1MR44	612081662 (2PE8.3D-R82S2)	0.50 in ³ /rev 3600 PSI 3500 RPM	3.8	2-Bolt SAE A	5/8 St. Keyed x 1.25, SAE A	SAE -12 Inlet, SAE -10 Outlet	CW		4.60	
C1MR32	612035422 (2PE8.3D-R85S2)	0.50 in ³ /rev 3600 PSI 3500 RPM	3.8	2-Bolt SAE A	3/4 St Keyed x 1.25 long SAE A	SAE -12 Inlet, SAE -10 Outlet	CW		4.60	
C1MR36	612079042 (2PE11.3D-R52S2)	0.68 in ³ /rev 3600 PSI 3500 RPM	5.2	2-Bolt SAE A	9 Tooth SAE A Splined	SAE -12 Inlet, SAE -10 Outlet	CW		5.10	



Pumps & Accessories

Single Hydraulic Pumps • Fixed Displacement Gear Pumps

Salami 2PE Series Aluminium Gear Pump • To 12 GPM @ 1800 RPM • Up to 4350 PSI • Up to 4000 RPM

Catalog Part No.	Salami Model	Displacement Pressure Rating (Continuous) Max Speed	Flow GPM 1800 RPM	Mtg Flange	Shaft	Ports	Rotation	Other Features	Wt.	Price Each
C1MR29	612035122 (2PE11.3D-R54S2)	0.68 in ³ /rev 3600 PSI 3500 RPM	5.2	2-Bolt SAE A	11 Tooth SAE A Splined	SAE -12 Inlet, SAE -10 Outlet	CW		5.10	
C1MR45	612081672 (2PE11.3D-R82S2)	0.68 in ³ /rev 3600 PSI 3500 RPM	5.2	2-Bolt SAE A	5/8 St. Keyed x 1.25, SAE A	SAE -12 Inlet, SAE -10 Outlet	CW		5.10	
C1MR33	612035432 (2PE11.3D-R85S2)	0.68 in ³ /rev 3600 PSI 3500 RPM	5.2	2-Bolt SAE A	3/4 St Keyed x 1.25 long SAE A	SAE -12 Inlet, SAE -10 Outlet	CW		5.10	
C1MR41	612080562 (2PE13.8D-R52S2)	0.84 in ³ /rev 3600 PSI 3500 RPM	6.5	2-Bolt SAE A	9 Tooth SAE A Splined	SAE -12 Inlet, SAE -10 Outlet	CW		5.30	
C1MR35	612036832 (2PE13.8D-R54S2)	0.84 in ³ /rev 3600 PSI 3500 RPM	6.5	2-Bolt SAE A	11 Tooth SAE A Splined	SAE -12 Inlet, SAE -10 Outlet	CW		5.30	
C1MR46	612081682 (2PE13.8D-R82S2)	0.84 in ³ /rev 3600 PSI 3500 RPM	6.5	2-Bolt SAE A	5/8 St. Keyed x 1.25, SAE A	SAE -12 Inlet, SAE -10 Outlet	CW		5.30	
C1MR34	612035442 (2PE13.8D-R85S2)	0.84 in ³ /rev 3600 PSI 3500 RPM	6.5	2-Bolt SAE A	3/4 St Keyed x 1.25 long SAE A	SAE -12 Inlet, SAE -10 Outlet	CW		5.30	
C1MR51	612083092 (2PE16D-R52S2)	1.01 in ³ /rev 3600 PSI 3000 RPM	7.8	2-Bolt SAE A	9 Tooth SAE A Splined	SAE -12 Inlet, SAE -10 Outlet	CW		5.50	
C1MR23	612018082 (2PE16D-R54S2)	1.01 in ³ /rev 3600 PSI 3000 RPM	7.8	2-Bolt SAE A	11 Tooth SAE A Splined	SAE -12 Inlet, SAE -10 Outlet	CW		5.50	
C1MR47	612081692 (2PE16D-R82S2)	1.01 in ³ /rev 3600 PSI 3000 RPM	7.8	2-Bolt SAE A	5/8 St. Keyed x 1.25, SAE A	SAE -12 Inlet, SAE -10 Outlet	CW		5.50	
C1MR25	612034552 (2PE16D-R85S2)	1.01 in ³ /rev 3600 PSI 3000 RPM	7.8	2-Bolt SAE A	3/4 St Keyed x 1.25 long SAE A	SAE -12 Inlet, SAE -10 Outlet	CW		5.50	
C1MR37	612079062 (2PE19D-R52S2)	1.15 in ³ /rev 3140 PSI 3000 RPM	8.5	2-Bolt SAE A	9 Tooth SAE A Splined	SAE -12 Inlet, SAE -10 Outlet	CW		6.20	
C1MR30	612035142 (2PE19D-R54S2)	1.15 in ³ /rev 3140 PSI 3000 RPM	8.5	2-Bolt SAE A	11 Tooth SAE A Splined	SAE -12 Inlet, SAE -10 Outlet	CW		6.20	
C1MR48	612081702 (2PE19D-R82S2)	1.15 in ³ /rev 3140 PSI 3000 RPM	8.5	2-Bolt SAE A	5/8 St. Keyed x 1.25, SAE A	SAE -12 Inlet, SAE -10 Outlet	CW		6.20	
C1MR26	612034562 (2PE19D-R85S2)	1.15 in ³ /rev 3140 PSI 3000 RPM	8.5	2-Bolt SAE A	3/4 St Keyed x 1.25 long SAE A	SAE -12 Inlet, SAE -10 Outlet	CW		6.20	
C1MR38	612079072 (2PE22.5D-R52S2)	1.37 in ³ /rev 2900 PSI 2750 RPM	10.6	2-Bolt SAE A	9 Tooth SAE A Splined	SAE -12 Inlet, SAE -10 Outlet	CW		6.50	
C1MR31	612035322 (2PE22.5D-R54S2)	1.37 in ³ /rev 2900 PSI 2750 RPM	10.6	2-Bolt SAE A	11 Tooth SAE A Splined	SAE -12 Inlet, SAE -10 Outlet	CW		6.50	
C1MR49	612081712 (2PE22.5D-R82S2)	1.37 in ³ /rev 2900 PSI 2750 RPM	10.6	2-Bolt SAE A	5/8 St. Keyed x 1.25, SAE A	SAE -12 Inlet, SAE -10 Outlet	CW		6.50	
C1MR24	612032762 (2PE22.5D-R85S2)	1.37 in ³ /rev 2900 PSI 2750 RPM	10.6	2-Bolt SAE A	3/4 St Keyed x 1.25 long SAE A	SAE -12 Inlet, SAE -10 Outlet	CW		6.50	
C1MR39	612079082 (2PE26D-R52S2)	1.58 in ³ /rev 2600 PSI 2500 RPM	12.3	2-Bolt SAE A	9 Tooth SAE A Splined	SAE -12 Inlet, SAE -10 Outlet	CW		6.80	





Pumps & Accessories

Single Hydraulic Pumps • Fixed Displacement Gear Pumps

Salami 2PE Series Aluminium Gear Pump • To 12 GPM @ 1800 RPM • Up to 4350 PSI • Up to 4000 RPM

Catalog Part No.	Salami Model	Displacement Pressure Rating (Continuous) Max Speed	Flow GPM 1800 RPM	Mtg Flange	Shaft	Ports	Rotation	Other Features	Wt.	Price Each
C1MR42	612080662 (2PE26D-R54S2)	1.58 in ³ /rev 2600 PSI 2500 RPM	12.3	2-Bolt SAE A	11 Tooth SAE A Splined	SAE -12 Inlet, SAE -10 Outlet	CW		6.80	
C1MR50	612081722 (2PE26D-R82S2)	1.58 in ³ /rev 2600 PSI 2500 RPM	12.3	2-Bolt SAE A	5/8 St. Keyed x 1.25, SAE A	SAE -12 Inlet, SAE -10 Outlet	CW		6.80	
C1MR27	612034572 (2PE26D-R85S2)	1.58 in ³ /rev 2600 PSI 2500 RPM	12.3	2-Bolt SAE A	3/4 St Keyed x 1.25 long SAE A	SAE -12 Inlet, SAE -10 Outlet	CW		6.80	

Salami 2PE Series Gear Pump • Parts

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1MT19	R12292830	Seal Kit, Buna, 2PE/ME Pumps & Unidirectional Motors, 82S2-52S2 Shaft-Flange Type		
C1MT23	R12292950	Seal Kit, Viton, 2PE/ME Pumps & Unidirectional Motors, 82S2-52S2 Shaft-Flange Type		
C1MT20	R12292833	Seal Kit, Buna, 2PE/ME Pumps & Unidirectional Motors, 54S2-85S2 Shaft-Flange Type	1.00	
C1MT21	R12292834	Seal Kit, Viton, 2PE/ME Pumps & Unidirectional Motors, 54S2-85S2 Shaft-Flange Type		
C1MT22	R12292836	Seal Kit, Viton, 2PE/ME Pumps & Unidirectional Motors, 54S2-85S2 Shaft-Flange Type		
C1MQ37	312203529	Cover, Standard		
C1MQ38	312203535	Cover with Rear Ports - SAE -12 an SAE -10		
C1MT16	R12270100	Cover with Pressure Relief Valve "VS" setting range 2044 PSI to 3190 PSI		
C1MW32	R12273260	Cover, 2.6GPM Priority Flow SAE-6 Rear Port; SAE-8 Rear Excess Port; No Relief		
C1MW31	R12272080	Cover, 2.6GPM Priority Flow SAE-6 Rear Port; SAE-8 Rear Excess Port; 2030PSI Relief		
C1MW60	312212571	Cover with venting valve cavity for EV1 or EV2 valve		
C1MQ39	312203552	Cover for 2ME motor with external drain		
C1MT13	R12240038	Mounting Flange and Seal Kit for 2PE pump, SAE A (S6) for Shafts 52, 81 & 82		
C1MT14	R12240039	Mounting Flange and Seal Kit for 2PE pump, SAE A (S6) for Shafts 54 & 85		
C1MT15	R12240161	Mounting Flange for 2ME motor, SAE A (S2) for Shafts 54 & 85		
C1MT12	R12240032	Mounting Flange for 2ME motor, SAE A (S2) for Shafts 52 & 82		
C1MS95	R12030020	Tandem Kit for 2PE/2PE		
C1MT11	R12090020	Tandem Kit for 2PE/2PE with Separated Stages		
C1MQ20	312000314	Drive Gear (60) 2PE4.5		
C1MZ15	312050325	Drive Gear (60) 2PE4.5 with Separated Stages		
C1MQ35	312060302	Drive Gear (60) 2PE6.5	1.45	
C1MQ36	312060307	Drive Gear (60*) 2PE6.5 with Separated Stages		
C1MQ26	312050309	Drive Gear (60) 2PE8.3	1.50	
C1MQ28	312050327	Drive Gear (60*) 2PE8.3 with Separated Stages		
C1MQ27	312050312	Drive Gear (60) 2PE11.3		
C1MQ29	312050329	Drive Gear (60*) 2PE11.3 with Separated Stages		
C1MQ30	312050331	Drive Gear (60*) 2PE11.8 with Separated Stages		
C1MQ21	312000315	Drive Gear (60) 2PE13.8		
C1MQ22	312000316	Drive Gear (60) 2PE16		
C1MQ31	312050332	Drive Gear (60*) 2PE16 with Separated Stages		
C1MQ23	312000317	Drive Gear (60) 2PE19	1.12	
C1MQ32	312050333	Drive Gear (60*) 2PE19 with Separated Stages	1.18	
C1MQ24	312000318	Drive Gear (60) 2PE22.5		
C1MQ33	312050334	Drive Gear (60*) 2PE22.5 with Separated Stages	0.50	
C1MQ25	312000319	Drive Gear (60) 2PE26	0.74	
C1MQ34	312050335	Drive Gear (60*) 2PE26 with Separated Stages	0.89	



Pumps & Accessories

Single Hydraulic Pumps • Fixed Displacement Gear Pumps

Salami 2PE Series Gear Pump • Parts

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1MT17	R12273282	Vent valve, 12 VDC, for use with cover 312212586		
C1MT18	R12273283	Vent valve, 24 VDC, for use with cover 312212586		

Note: Solenoid coils accept connector DIN 43650-A/ISO 4400.

See: page 446

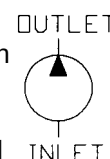
Concentric W900 Series Gear Pumps To 13 GPM @ 1800 RPM • Up to 4000 PSI • Up to 4000 RPM



Features: Through bore bushing type design constructed of high strength aluminum housings and cast iron end covers. Enhanced noise abatement with 13-tooth gears, superior trapping configuration and optimum gear profile. Efficiencies 90% overall, 98% volumetric, 92% mechanical.

Application: Recommended for direct axial drive. For applications with radial and/or thrust loads, please contact us for application assistance.

Pressure Limits: Outlet: (Varies with displacement. See table below). Inlet: 6 in. Hg vacuum to 29 PSI.



Rated Speeds: Maximum speed varies with displacement (See table below). Minimum speed is 500 RPM at maximum continuous pressure.

Maximum System Temperature: 200°F continuous.

Note: Ratings based on using anti wear hydraulic fluid. For information on use with other fluids, contact us for assistance.

Recommended Filtration: ISO 4406 Cleanliness Level 18/14 or cleaner.

Dimensions: page 586

Foot Brackets: page 201

Concentric W900 Series Gear Pumps • To 13 GPM @ 1800 RPM • Up to 4000 PSI • Up to 4000 RPM

Catalog Part No.	Barnes Model	Displacement PressureRating (Continuous) Max Speed	Flow GPM 1800 RPM	Mtg Flange	Shaft	Ports	Rotation	Other Features	Wt.	Price Each
C1AK31	1303193 (W9A108R3B01N)	0.488 in ³ /rev 4000 PSI 4000 RPM	3.8	2-Bolt SAE A	3/4 St.Keyed	SAE-12 Side Inlet, SAE-10 Side Outlet	CW		8.00	

Note: Minimum speed at Maximum Continuous Pressure is 500 RPM.



Pumps & Accessories

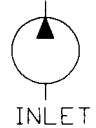
Single Hydraulic Pumps • Fixed Displacement Gear Pumps

Hydreco® 1500M Series Gear Pumps

To 19 GPM @ 1800 RPM • Up to 2000 PSI • Up to 3200 RPM



Features: Heavy duty iron castings for higher working pressures. 4-bolt design places all four assembly bolts within the area of greatest internal pressure, which maintains perfect alignment and thus eliminates any decrease in efficiency at high pressures. This greatly reduces internal distortion and the resulting wear of internal parts. Deflecting pressure-balanced wear plates maintain high volumetric efficiencies and minimize mechanical losses. Pressure-lubricated roller bearing design makes these units relatively insensitive to contamination and also makes the units fully repairable.



Application: Outboard bearing in some models (see tables) allows limited side loading of the input shaft. All models have mechanical face seal which allows for high inlet pressures with no case drain.

Pressure Limits: Outlet: 2000 PSI. Inlet: 5 in. Hg vacuum to 2000 psi.

Rated Speeds: Varies with displacement (See table below).

Maximum System Temperature: 180°F.

Note: Ratings based on using anti wear hydraulic fluid. For information on use with other fluids, contact us for assistance.

Recommended Filtration: 10 Micron Absolute for maximum pump life.

Dimensions: page 589

Foot Brackets: page 201

Hydreco® 1500M Series Gear Pumps • To 19 GPM @ 1800 RPM • Up to 2000 PSI • Up to 3200 RPM

Catalog Part No.	Hydreco Model	Displacement PressureRating Max Speed	Flow GPM 1800 RPM	Mtg Flange	Shaft	Ports	Rotation	Other Features	Wt.	Price Each
•C1AK78	1506MC3E1BB	0.738 in ³ /rev 2000 PSI 3200 RPM	5.8	2-Bolt SAE A	5/8 St.Keyed x 2.00 Long	3/4 NPT Rear Ports	Bi-Rot.	Shielded Outboard Bearing	17.07	
•C1AK83	1510MC3E1BB	1.180 in ³ /rev 2000 PSI 3000 RPM	8.3	2-Bolt SAE A	5/8 St.Keyed x 2.00 Long	3/4 NPT Rear Ports	Bi-Rot.	Shielded Outboard Bearing	16.79	
•C1AK88	1512MC3E1BB	1.467 in ³ /rev 2000 PSI 2000 RPM	10.4	2-Bolt SAE A	5/8 St.Keyed x 2.00 Long	3/4 NPT Rear Ports	Bi-Rot.	Shielded Outboard Bearing	24.75	
C1AK89	1512MC3G1BB	1.467 in ³ /rev 2000 PSI 2000 RPM	10.4	4-Bolt Foot Mount	5/8 St.Keyed x 2.00 Long	3/4 NPT Rear Ports	Bi-Rot.	Shielded Outboard Bearing	24.75	

Note: Minimum speed under load is 600 RPM.

Parts for Hydreco 1500M Series Pumps

Catalog Part No.	Part Number	Description	Wt.	Price Each
•C1DK90	SKO362	Seal Kit for 1500M Series Pumps	0.17	

Pumps & Accessories

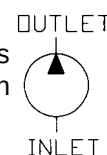
Single Hydraulic Pumps • Fixed Displacement Gear Pumps

Salami 2.5PB Series Gear Pumps

To 20 GPM @ 1800 RPM • Up to 3600 PSI • Up to 3000 RPM



Features: All pumps are available as multiple units either of the same or different series. With all sizes, there are options of shafts, flanges and ports as for European, German and American standards. Salami gear pumps offer high volumetric efficiency by innovative design and accurate control of machining tolerances. Axial compensation achieved by the use of floating bushings that allow high volumetric efficiency throughout the working pressure range. DU bearings ensure high pressure capability.



Application: Pumps are stocked with Clockwise rotation. Rotation can be changed by reversing the position of the drive shaft and driven shaft, and rotating the front flange.

Pressure Limits: Inlet pressure: 7.38 in. Hg to 21.7 PSI. Pump Outlet: Continuous working pressure varies with displacement (See table below). Peak pressure pressures up to 4300 PSI.

Speed Ratings: Continuous speed at working pressure varies with displacement (See table below).

Temperature Ratings: With Buna-N seals (standard): -4°F to 185°F. With FPM seals (Viton): -4°F to 230°F.

Fluids: Minimum Operating fluid viscosity: 66 SUS (with 80% reduction of working pressure and at minimum speed) to 3635 SUS (maximum starting viscosity). Normal operating range: 85 SUS to 297 SUS.

Recommended Filtration: ISO 4406: < 2900 PSI: 20/19/16; > 2900 PSI: 19/18/15.

Dimensions: page 599

Foot Brackets: page 201

Salami 2.5PB Series Gear Pumps • To 20 GPM @ 1800 RPM • Up to 3600 PSI • Up to 3000 RPM

Catalog Part No.	Salami Model	Displacement Pressure Rating (Continuous) Max Speed	Flow GPM 1800 RPM	Mtg Flange	Shaft	Ports	Rotation	Other Features	Wt.	Price Each
C1MR73	613874792 (2.5PB11.5D-R5 S3)	0.72 in ³ /rev 3600 PSI 3000 RPM	5.5	2-Bolt SAE B	7/8 13T Splined SAE B	SAE -12 Side Inlet, SAE -10 Side Outlet	CW		8.36	
C1MR72	613874702 (2.5PB13.8D-R5 S3)	0.86 in ³ /rev 3600 PSI 3000 RPM	6.6	2-Bolt SAE B	7/8 13T Splined SAE B	SAE -12 Side Inlet, SAE -10 Side Outlet	CW		9.02	
C1MR68	613873902 (2.5PB16D-R55 S3)	0.97 in ³ /rev 3600 PSI 3000 RPM	7.4	2-Bolt SAE B	7/8 13T Splined SAE B	SAE -12 Side Inlet, SAE -10 Side Outlet	CW		7.48	
C1MR69	613873912 (2.5PB16D-R87 S3)	0.97 in ³ /rev 3600 PSI 3000 RPM	7.4	2-Bolt SAE B	7/8 13T Splined SAE B	SAE -12 Side Inlet, SAE -10 Side Outlet	CW		7.48	
C1MR70	613873922 (2.5PB19D-R55 S3)	1.17 in ³ /rev 3600 PSI 3000 RPM	9.1	2-Bolt SAE B	7/8 13T Splined SAE B	SAE -12 Side Inlet, SAE -10 Side Outlet	CW		7.92	
C1MR71	613873932 (2.5PB19D-R87 S3)	1.17 in ³ /rev 3600 PSI 3000 RPM	9.1	2-Bolt SAE B	7/8 Straight Keyed SAE B	SAE -12 Side Inlet, SAE -10 Side Outlet	CW		7.92	
C1MR56	613871172 (2.5PB22D-R55 S3)	1.35 in ³ /rev 3600 PSI 3000 RPM	10.5	2-Bolt SAE B	7/8 13T Splined SAE B	SAE -12 Side Inlet, SAE -10 Side Outlet	CW		8.36	
C1MR61	613871252 (2.5PB22D-R87 S3)	1.35 in ³ /rev 3600 PSI 3000 RPM	10.5	2-Bolt SAE B	7/8 Straight Keyed SAE B	SAE -12 Side Inlet, SAE -10 Side Outlet	CW		8.36	
C1MR66	613873722 (2.5PB25D-R55 S3)	1.53 in ³ /rev 3600 PSI 3000 RPM	11.8	2-Bolt SAE B	7/8 13T Splined SAE B	SAE -16 Side Inlet, SAE -12 Side Outlet	CW		9.02	
C1MR67	613873732 (2.5PB16D-D-R 55S3)	1.53 in ³ /rev 3600 PSI 3000 RPM	11.8	2-Bolt SAE B	7/8 Straight Keyed SAE B	SAE -16 Side Inlet, SAE -12 Side Outlet	CW		9.02	
C1MR57	613871192 (2.5PB28D-R55 S3)	1.68 in ³ /rev 3600 PSI 3000 RPM	13.0	2-Bolt SAE B	7/8 13T Splined SAE B	SAE -16 Side Inlet, SAE -12 Side Outlet	CW		9.92	



Pumps & Accessories

Single Hydraulic Pumps • Fixed Displacement Gear Pumps

Salami 2.5PB Series Gear Pumps • To 20 GPM @ 1800 RPM • Up to 3600 PSI • Up to 3000 RPM

Catalog Part No.	Salami Model	Displacement Pressure Rating (Continuous) Max Speed	Flow GPM 1800 RPM	Mtg Flange	Shaft	Ports	Rotation	Other Features	Wt.	Price Each
C1MR62	613871272 (2.5PB28D-R87 S3)	1.68 in ³ /rev 3600 PSI 3000 RPM	13.0	2-Bolt SAE B	7/8 Straight Keyed SAE B	SAE -16 Side Inlet, SAE -12 Side Outlet	CW		9.92	
C1MR58	613871202 (2.5PB32D-R55 S3)	1.97 in ³ /rev 3300 PSI 3000 RPM	15.3	2-Bolt SAE B	7/8 13T Splined SAE B	SAE -16 Side Inlet, SAE -12 Side Outlet	CW		10.47	
C1MR63	613871282 (2.5PB32D-R87 S3)	1.97 in ³ /rev 3300 PSI 3000 RPM	15.3	2-Bolt SAE B	7/8 Straight Keyed SAE B	SAE -16 Side Inlet, SAE -12 Side Outlet	CW		10.47	
C1MR59	613871212 (2.5PB38D-R55 S3)	2.32 in ³ /rev 2900 PSI 3000 RPM	18.7	2-Bolt SAE B	7/8 13T Splined SAE B	SAE -16 Side Inlet, SAE -12 Side Outlet	CW		11.00	
C1MR64	613871292 (2.5PB38D-R87 S3)	2.32 in ³ /rev 2900 PSI 3000 RPM	18.7	2-Bolt SAE B	7/8 Straight Keyed SAE B	SAE -16 Side Inlet, SAE -12 Side Outlet	CW		11.00	
C1MR60	613871222 (2.5PB44D-R55 S3)	2.69 in ³ /rev 2465 PSI 3000 RPM	20.0	2-Bolt SAE B	7/8 13T Splined SAE B	SAE -16 Side Inlet, SAE -12 Side Outlet	CW		11.66	
C1MR65	613871302 (2.5PB44D-R87 S3)	2.69 in ³ /rev 2465 PSI 3000 RPM	20.0	2-Bolt SAE B	7/8 Straight Keyed SAE B	SAE -16 Side Inlet, SAE -12 Side Outlet	CW		11.66	

Salami 2.5PB Series Gear Pumps • Parts

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1MT30	R13880110	2.5PB VITON Pump Seak Kit		
C1MT28	R13840030	2.5PB Flange SAE A (S2) Flange with Seals		
C1MT31	R13880120	2.5PB/2.5PB TANDEM KIT		
C1MQ42	313800350	2nd Pump of Tandem Drive Gear 2.5PB11.5	0.50	
C1MQ51	313800359	2nd Pump of Tandem Drive Gear 2.5PB13.8	0.50	
C1MQ43	313800351	2nd Pump of Tandem Drive Gear 2.5PB16		
C1MQ44	313800352	2nd Pump of Tandem Drive Gear 2.5PB19	1.75	
C1MQ45	313800353	2nd Pump of Tandem Drive Gear 2.5PB22		
C1MQ46	313800354	2nd Pump of Tandem Drive Gear 2.5PB25		
C1MQ47	313800355	2nd Pump of Tandem Drive Gear 2.5PB28		
C1MQ48	313800356	2nd Pump of Tandem Drive Gear 2.5PB32		
C1MQ49	313800357	2nd Pump of Tandem Drive Gear 2.5PB38		
C1MQ50	313800358	2nd Pump of Tandem Drive Gear 2.5PB44	1.11	
C1MT34	R13880150	2.5PB/2PE Tandem Kit		
C1MV70	R13880151	2.5PB/2PE Tandem Kit Common Suction CCW Rotation		
C1MV71	R13880152	2.5PB/2PE Tandem Kit Common Suction CW Rotation		
C1MQ52	313803502	2.5PB/ Rear Ports Cover SAE 16-12		
C1MQ53	313812501	Rear cover machine for relief valve. Requires AR relief valve and 795461000 plug		
C1MS17	795461000	Relief Plug M18x1.5 Zero-leak with seal, for use in rear cover with relief valve		
C1MR84	794129301	Non Adjustable Relief Valve (AR) 362 PSI for rear cover 313812501 (requires plug)		
C1MR84	794129301	Non Adjustable Relief Valve (AR) 362 PSI for rear cover 313812501 (requires plug)		
C1MR84	794129301	Non Adjustable Relief Valve (AR) 362 PSI for rear cover 313812501 (requires plug)		
C1MR85	794129302	Non Adjustable Relief Valve (AR) 464 PSI for rear cover 313812501 (requires plug)		
C1MR85	794129302	Non Adjustable Relief Valve (AR) 464 PSI for rear cover 313812501 (requires plug)		
C1MR85	794129302	Non Adjustable Relief Valve (AR) 464 PSI for rear cover 313812501 (requires plug)		
C1MR86	794129303	Non Adjustable Relief Valve (AR) 580 PSI for rear cover 313812501 (requires plug)		
C1MR86	794129303	Non Adjustable Relief Valve (AR) 580 PSI for rear cover 313812501 (requires plug)		





Pumps & Accessories

Single Hydraulic Pumps • Fixed Displacement Gear Pumps

Salami 2.5PB Series Gear Pumps • Parts

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1MR86	794129303	Non Adjustable Relief Valve (AR) 580 PSI for rear cover 313812501 (requires plug)		
C1MR87	794129304	Non Adjustable Relief Valve (AR) 725 PSI for rear cover 313812501 (requires plug)		
C1MR87	794129304	Non Adjustable Relief Valve (AR) 725 PSI for rear cover 313812501 (requires plug)		
C1MR87	794129304	Non Adjustable Relief Valve (AR) 725 PSI for rear cover 313812501 (requires plug)		
C1MR88	794129305	Non Adjustable Relief Valve (AR) 910 PSI for rear cover 313812501 (requires plug)		
C1MR88	794129305	Non Adjustable Relief Valve (AR) 910 PSI for rear cover 313812501 (requires plug)		
C1MR88	794129305	Non Adjustable Relief Valve (AR) 910 PSI for rear cover 313812501 (requires plug)		
C1MR89	794129306	Non Adjustable Relief Valve (AR) 1160 PSI for rear cover 313812501 (requires plug)		
C1MR89	794129306	Non Adjustable Relief Valve (AR) 1160 PSI for rear cover 313812501 (requires plug)		
C1MR89	794129306	Non Adjustable Relief Valve (AR) 1160 PSI for rear cover 313812501 (requires plug)		
C1MR90	794129307	Non Adjustable Relief Valve (AR) 1450 PSI for rear cover 313812501 (requires plug)		
C1MR90	794129307	Non Adjustable Relief Valve (AR) 1450 PSI for rear cover 313812501 (requires plug)		
C1MR90	794129307	Non Adjustable Relief Valve (AR) 1450 PSI for rear cover 313812501 (requires plug)		
C1MR91	794129308	Non Adjustable Relief Valve (AR) 1810 PSI for rear cover 313812501 (requires plug)		
C1MR91	794129308	Non Adjustable Relief Valve (AR) 1810 PSI for rear cover 313812501 (requires plug)		
C1MR91	794129308	Non Adjustable Relief Valve (AR) 1810 PSI for rear cover 313812501 (requires plug)		
C1MR92	794129309	Non Adjustable Relief Valve (AR) 2000 PSI for rear cover 313812501 (requires plug)		
C1MR92	794129309	Non Adjustable Relief Valve (AR) 2000 PSI for rear cover 313812501 (requires plug)		
C1MR92	794129309	Non Adjustable Relief Valve (AR) 2000 PSI for rear cover 313812501 (requires plug)		
C1MR93	794129310	Non Adjustable Relief Valve (AR) 2300 PSI for rear cover 313812501 (requires plug)		
C1MR93	794129310	Non Adjustable Relief Valve (AR) 2300 PSI for rear cover 313812501 (requires plug)		
C1MR93	794129310	Non Adjustable Relief Valve (AR) 2300 PSI for rear cover 313812501 (requires plug)		
C1MR94	794129311	Non Adjustable Relief Valve (AR) 2530 PSI for rear cover 313812501 (requires plug)		
C1MR94	794129311	Non Adjustable Relief Valve (AR) 2530 PSI for rear cover 313812501 (requires plug)		
C1MR94	794129311	Non Adjustable Relief Valve (AR) 2530 PSI for rear cover 313812501 (requires plug)		
C1MR95	794129312	Non Adjustable Relief Valve (AR) 2715 PSI for rear cover 313812501 (requires plug)		
C1MR95	794129312	Non Adjustable Relief Valve (AR) 2715 PSI for rear cover 313812501 (requires plug)		
C1MR95	794129312	Non Adjustable Relief Valve (AR) 2715 PSI for rear cover 313812501 (requires plug)		
C1MR96	794129313	Non Adjustable Relief Valve (AR) 3000 PSI for rear cover 313812501 (requires plug)		
C1MR96	794129313	Non Adjustable Relief Valve (AR) 3000 PSI for rear cover 313812501 (requires plug)		
C1MR96	794129313	Non Adjustable Relief Valve (AR) 3000 PSI for rear cover 313812501 (requires plug)		
C1MR97	794129314	Non Adjustable Relief Valve (AR) 3300 PSI for rear cover 313812501 (requires plug)		
C1MR97	794129314	Non Adjustable Relief Valve (AR) 3300 PSI for rear cover 313812501 (requires plug)		
C1MR97	794129314	Non Adjustable Relief Valve (AR) 3300 PSI for rear cover 313812501 (requires plug)		
C1MR98	794129315	Non Adjustable Relief Valve (AR) 3600 PSI for rear cover 313812501 (requires plug)		
C1MR98	794129315	Non Adjustable Relief Valve (AR) 3600 PSI for rear cover 313812501 (requires plug)		
C1MR98	794129315	Non Adjustable Relief Valve (AR) 3600 PSI for rear cover 313812501 (requires plug)		
C1MR99	794129316	Non Adjustable Relief Valve (AR) 4000 PSI for rear cover 313812501 (requires plug)		
C1MR99	794129316	Non Adjustable Relief Valve (AR) 4000 PSI for rear cover 313812501 (requires plug)		
C1MR99	794129316	Non Adjustable Relief Valve (AR) 4000 PSI for rear cover 313812501 (requires plug)		
C1MS11	794129317	Non Adjustable Relief Valve (AR) 4569 PSI for rear cover 313812501 (requires plug)		
C1MS11	794129317	Non Adjustable Relief Valve (AR) 4569 PSI for rear cover 313812501 (requires plug)		
C1MS11	794129317	Non Adjustable Relief Valve (AR) 4569 PSI for rear cover 313812501 (requires plug)		
C1MS12	794129318	Non Adjustable Relief Valve (AR) 5076 PSI for rear cover 313812501 (requires plug)		
C1MS12	794129318	Non Adjustable Relief Valve (AR) 5076 PSI for rear cover 313812501 (requires plug)		
C1MS12	794129318	Non Adjustable Relief Valve (AR) 5076 PSI for rear cover 313812501 (requires plug)		





Pumps & Accessories

Single Hydraulic Pumps • Fixed Displacement Gear Pumps

Hydrec® 1500K Series Gear Pumps

To 22 GPM @ 1800 RPM • Up to 2500 PSI • Up to 4000 RPM



Features: Heavy duty iron castings for higher working pressures. 4-bolt design places all four assembly bolts within the area of greatest internal pressure, which maintains perfect alignment and thus eliminates any decrease in efficiency at high pressures. This greatly reduces internal distortion and the resulting wear of internal parts. Deflecting pressure-balanced wear plates maintain high volumetric efficiencies and minimize mechanical losses. Pressure-lubricated roller bearing design makes these units relatively insensitive to contamination and also makes the units fully repairable.



Application: Outboard bearing in some models (see tables) allows limited side loading of the input shaft. Bi-Rotational models have internal check valves that drain case

pressure back to the low pressure side.

Pressure Limits: Outlet: (Varies with displacement. See table below). Inlet: 5 in. Hg vacuum to 150 psi. Inlet pressures over 150 psi require a case drain line be installed.

Rated Speeds: Varies with displacement (See table below).

Maximum System Temperature: 180°F.

Note: Ratings based on using anti wear hydraulic fluid. For information on use with other fluids, contact us for assistance.

Recommended Filtration: 10 Micron Absolute for maximum pump life.

Dimensions: page 587

Foot Brackets: page 201

Hydrec® 1500K Series Gear Pumps • To 22 GPM @ 1800 RPM • Up to 2500 PSI • Up to 4000 RPM

Catalog Part No.	Hydrec Model	Displacement PressureRating Max Speed	Flow GPM 1800 RPM	Mtg Flange	Shaft	Ports	Rotation	Other Features	Wt.	Price Each
•C1AK92	1515KC3A1AB	1.771 in ³ /rev 2500 PSI 3200 RPM	12.4	2-Bolt SAE A	5/8 St.Keyed x 2.25 Long	3/4 NPT Side & Rear (Side Ports Plugged)	Bi-Rot.	Shielded Outboard Bearing	18.65	

Note: Minimum speed under load is 600 RPM.

Hydraulic Power & Control

Pneumatic Power & Control

Fluid Conveying

Miscellaneous Products

Indexes & Technical Information



Pumps & Accessories

Single Hydraulic Pumps • Fixed Displacement Gear Pumps

Eaton Series 26 Gear Pumps

To 24 GPM @ 1800 RPM • Up to 3000 PSI • Up to 3600 RPM



Features: 13-tooth gears minimize the flow ripple for reduced noise and vibration. Bearing lubrication system uses inlet oil instead of high pressure oil, improving volumetric efficiency. Innovative wear plate permits simple rotation change.

Application: Rotation may be reversed by reconfiguring internal parts - no extra parts are required. Simply open the pump, switch the drive gear and idler gear, reposition the plug and reassemble. Side Load Limits - contact us for assistance.

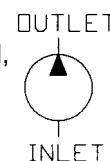
Pressure Limits: Outlet: Varies with displacement (See table below). Inlet: Maximum inlet vacuum at operating condition 6.0 In. Hg.

Rated Speeds: Varies with displacement (See table below).

Operating Temperatures: Minimum Operating -20°F. Maximum Continuous 220°F. Minimum Continuous Oil Viscosity 45 SSU.

Dimensions: page 591

Foot Brackets: page 201



Eaton Series 26 Gear Pumps • To 24 GPM @ 1800 RPM • Up to 3000 PSI • Up to 3600 RPM

Catalog Part No.	Eaton Model	Displacement Pressure Rating Max Speed	Flow GPM 1800 RPM	Mtg Flange	Shaft	Ports	Rotation	Other Features	Wt.	Price Each
C1JB79	26001-RZG	0.400 in ³ /rev 3000 PSI 3600 RPM	3.1	2-Bolt SAE A	5/8 St. Keyed	SAE-12 Side Inlet, SAE-10 Side Outlet	CW		4.78	
C1JB81	26002-RZC	0.500 in ³ /rev 3000 PSI 3600 RPM	3.9	2-Bolt SAE A	3/4 St. Keyed x 1-1/4 long	SAE-16 Side Inlet, SAE-10 Side Outlet	CW		4.86	
C1JB83	26003-RZG	0.580 in ³ /rev 3000 PSI 3600 RPM	4.5	2-Bolt SAE A	5/8 St. Keyed	SAE-12 Side Inlet, SAE-10 Side Outlet	CW		5.00	
C1JB84	26003-RZJ	0.580 in ³ /rev 3000 PSI 3600 RPM	4.5	2-Bolt SAE A	9 Tooth SAE A Splined	SAE-12 Side Inlet, SAE-10 Side Outlet	CW		4.93	
•C1EX65	26004-RAF	0.660 in ³ /rev 3000 PSI 3600 RPM	5.1	2-Bolt SAE A	3/4 St. Keyed x 2 inches long	SAE-16 Side Inlet, SAE-10 Side Outlet	CW		5.15	
•C1FD31	26004-RZC	0.660 in ³ /rev 3000 PSI 3600 RPM	5.1	2-Bolt SAE A	3/4 St. Keyed x 1-1/4 long	SAE-16 Side Inlet, SAE-10 Side Outlet	CW		5.64	
C1JB85	26004-RZE	0.660 in ³ /rev 3000 PSI 3600 RPM	5.1	2-Bolt SAE A	9 Tooth SAE A Splined	SAE-16 Side Inlet, SAE-10 Side Outlet	CW		5.08	
C1FP92	26005-RZC	0.840 in ³ /rev 3000 PSI 3600 RPM	6.5	2-Bolt SAE A	3/4 St. Keyed x 1-1/4 long	SAE-16 Side Inlet, SAE-10 Side Outlet	CW		5.45	
C1HH87	26005-RZE	0.840 in ³ /rev 3000 PSI 3600 RPM	6.5	2-Bolt SAE A	9 Tooth SAE A Splined	SAE-16 Side Inlet, SAE-10 Side Outlet	CW		6.55	
C1JB86	26006-RZC	1.020 in ³ /rev 3000 PSI 3200 RPM	7.9	2-Bolt SAE A	3/4 St. Keyed x 1-1/4 long	SAE-16 Side Inlet, SAE-10 Side Outlet	CW		5.65	
C1JY31	26007-LZC	1.200 in ³ /rev 3000 PSI 3200 RPM	9.3	2-Bolt SAE A	3/4 St. Keyed x 1-1/4 long	SAE-16 Side Inlet, SAE-10 Side Outlet	CCW		7.10	
•C1JB88	26007-RZC	1.200 in ³ /rev 3000 PSI 3200 RPM	9.3	2-Bolt SAE A	3/4 St. Keyed x 1-1/4 long	SAE-16 Side Inlet, SAE-10 Side Outlet	CW		4.84	



Pumps & Accessories

Single Hydraulic Pumps • Fixed Displacement Gear Pumps

Eaton Series 26 Gear Pumps • To 24 GPM @ 1800 RPM • Up to 3000 PSI • Up to 3600 RPM

Catalog Part No.	Eaton Model	Displacement PressureRating Max Speed	Flow GPM 1800 RPM	Mtg Flange	Shaft	Ports	Rotation	Other Features	Wt.	Price Each
C1JB89	26007-RZE	1.200 in ³ /rev 2850 PSI 3200 RPM	9.3	2-Bolt SAE A	9 Tooth SAE A Splined	SAE-16 Side Inlet, SAE-10 Side Outlet	CW		5.80	
C1JY32	26010-RZC	1.54 in ³ /rev 3000 PSI 3000 RPM	12.0	2-Bolt SAE A	3/4 St.Keyed x 1-1/4 long	SAE-16 Side Inlet, SAE-10 Side Outlet	CW		7.50	
C1JY34	26011-RZC	1.69 in ³ /rev 3000 PSI 3000 RPM	13.1	2-Bolt SAE A	3/4 St.Keyed x 1-1/4 long	SAE-16 Side Inlet, SAE-10 Side Outlet	CW		7.90	
C1JY36	26012-RZJ	1.77 in ³ /rev 1950 PSI 3000 RPM	13.7	2-Bolt SAE A	9 Tooth SAE A Splined	SAE-12 Side Inlet, SAE-10 Side Outlet	CW		7.99	
•C1JD39	26013-LZC	1.870 in ³ /rev 3000 PSI 3000 RPM	14.5	2-Bolt SAE A	3/4 St.Keyed x 1-1/4 long	SAE-16 Side Inlet, SAE-10 Side Outlet	CCW		6.81	

Note: Minimum speed at rated pressure is 750 RPM.

Hydraulic Power & Control

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Pumps & Accessories

Single Hydraulic Pumps • Fixed Displacement Gear Pumps

Eaton L2 Series Gear Pumps

To 26 GPM @ 1800 RPM • Up to 3600 PSI • Up to 3500 RPM



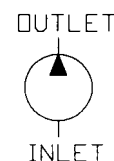
Pressure Limits: Outlet: Varies with displacement (See table below). Inlet: Maximum inlet vacuum at operating condition 6.0 In. Hg.

Rated Speeds: Varies with displacement (See table below).

Operating Temperatures: Minimum Operating -20°F. Maximum Continuous 225°F.

Dimensions: page 592

Foot Brackets: page 201



Eaton L2 Series Gear Pumps • To 26 GPM @ 1800 RPM • Up to 3600 PSI • Up to 3500 RPM

Catalog Part No.	Eaton Model	Displacement PressureRating Max Speed	Flow GPM 1800 RPM	Mtg Flange	Shaft	Ports	Rotation	Other Features	Wt.	Price Each
C1JX97	25501-RSC	1.55 in ³ /rev 3600 PSI 3000 RPM	12.0	2-Bolt SAE B	7/8 Straight Keyed	SAE-20 Side Inlet, SAE-12 Side Outlet	CW		14.00	
C1JX98	25503-RSA	2.05 in ³ /rev 3600 PSI 2750 RPM	15.9	2-Bolt SAE B	13 Tooth SAE B Splined	SAE-20 Side Inlet, SAE-12 Side Outlet	CW		14.00	
C1JY11	25504-LSC	2.33 in ³ /rev 3600 PSI 2750 RPM	18.1	2-Bolt SAE B	7/8 Straight Keyed	SAE-20 Side Inlet, SAE-12 Side Outlet	CCW		15.20	
C1JY12	25504-RSC	2.33 in ³ /rev 3600 PSI 2750 RPM	18.1	2-Bolt SAE B	7/8 Straight Keyed	SAE-20 Side Inlet, SAE-12 Side Outlet	CW		15.17	

Note: Minimum speed at rated pressure is 750 RPM.

Parts for Eaton L2 Series Gear Pumps

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1JX96	25500-901	Seal Kit for Plain Pump	0.20	



Pumps & Accessories

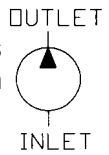
Single Hydraulic Pumps • Fixed Displacement Gear Pumps

Salami 3PE Aluminum Gear Pumps

To 34 GPM @ 1800 RPM • Up to 3625 PSI • Up to 2700 RPM



Features: All pumps are available as multiple units either of the same or different series. With all sizes, there are options of shafts, flanges and ports as for European, German and American standards. Salami gear pumps offer high volumetric efficiency by innovative design and accurate control of machining tolerances. Axial compensation achieved by the use of floating bushings that allow high volumetric efficiency throughout the working pressure range. DU bearings ensure high pressure capability.



Application: Pumps are stocked with Clockwise rotation. Rotation can be changed by reversing the position of the drive shaft and driven shaft, and rotating the front flange.

Pressure Limits: Inlet pressure: 7.38 in. Hg to 21.7 PSI. Pump Outlet: Continuous working pressure varies with displacement (See table below). Peak pressure pressures up to 4300 PSI.

Speed Ratings: Continuous speed at working pressure varies with displacement (See table below).

Temperature Ratings: With Buna-N seals (standard): -4°F to 185°F. With FPM seals (Viton): -4°F to 230°F.

Fluids: Minimum Operating fluid viscosity: 66 SUS (with 80% reduction of working pressure and at minimum speed) to 3635 SUS (maximum starting viscosity). Normal operating range: 85 SUS to 297 SUS.

Recommended Filtration: ISO 4406: < 2900 PSI: 20/19/16; > 2900 PSI: 19/18/15.

Dimensions: page 603

Foot Brackets: page 201

Salami 3PE Aluminum Gear Pumps • To 34 GPM @ 1800 RPM • Up to 3625 PSI • Up to 2700 RPM

Catalog Part No.	Salami Model	Displacement Pressure Rating (Continuous) Max Speed	Flow GPM 1800 RPM	Mtg Flange	Shaft	Ports	Rotation	Other Features	Wt.	Price Each
C1MV73	613011112 (3PE21D-R55S3)	1.26 in ³ /rev 3625 PSI 2700 RPM	9.8	2-Bolt SAE B	13T Splined x 1.61 long SAE B	SAE-16 Side Inlet, SAE-12 Side Outlet	CW		19.00	
C1MV78	613012412 (3PE21D-R87S3)	1.26 in ³ /rev 3625 PSI 2700 RPM	9.8	2-Bolt SAE B	7/8 St. Keyed x 1.61 long SAE B	SAE-16 Side Inlet, SAE-12 Side Outlet	CW		19.00	
C1MV93	613012812 (3PE21D-R88S3)	1.26 in ³ /rev 3625 PSI 2700 RPM	9.8	2-Bolt SAE B	1 St. Keyed x 1.81 long SAE BB	SAE-16 Side Inlet, SAE-12 Side Outlet	CW		19.00	
C1MV74	613011122 (3PE27D-R55S3)	1.65 in ³ /rev 3625 PSI 2700 RPM	12.7	2-Bolt SAE B	13T Splined x 1.61 long SAE B	SAE-16 Side Inlet, SAE-12 Side Outlet	CW		19.60	
C1MV79	613012422 (3PE27D-R56S3)	1.65 in ³ /rev 3625 PSI 2700 RPM	12.7	2-Bolt SAE B	15T Splined x 1.81 long SAE BB	SAE-16 Side Inlet, SAE-12 Side Outlet	CW		19.60	
C1MV86	613012622 (3PE27D-R87S3)	1.65 in ³ /rev 3625 PSI 2700 RPM	12.7	2-Bolt SAE B	7/8 St. Keyed x 1.61 long SAE B	SAE-16 Side Inlet, SAE-12 Side Outlet	CW		19.60	
C1MV94	613012822 (3PE27D-R88S3)	1.65 in ³ /rev 3625 PSI 2700 RPM	12.7	2-Bolt SAE B	1 St. Keyed x 1.81 long SAE BB	SAE-16 Side Inlet, SAE-12 Side Outlet	CW		19.60	
C1MV72	613011032 (3PE33D-R55S3)	2.04 in ³ /rev 3625 PSI 2700 RPM	15.5	2-Bolt SAE B	13T Splined x 1.61 long SAE B	SAE-16 Side Inlet, SAE-12 Side Outlet	CW		20.10	
C1MV80	613012432 (3PE33D-R56S3)	2.04 in ³ /rev 3625 PSI 2700 RPM	15.5	2-Bolt SAE B	15T Splined x 1.81 long SAE BB	SAE-16 Side Inlet, SAE-12 Side Outlet	CW		20.10	
C1MV87	613012632 (3PE33D-R87S3)	2.04 in ³ /rev 3625 PSI 2700 RPM	15.5	2-Bolt SAE B	7/8 St. Keyed x 1.61 long SAE B	SAE-16 Side Inlet, SAE-12 Side Outlet	CW		20.10	
C1MV95	613012832 (3PE33D-R88S3)	2.04 in ³ /rev 3625 PSI 2700 RPM	15.5	2-Bolt SAE B	1 St. Keyed x 1.81 long SAE BB	SAE-16 Side Inlet, SAE-12 Side Outlet	CW		20.10	



This page is part of a complete catalog which contains technical and safety data that must be reviewed when selecting a product



Pumps & Accessories

Single Hydraulic Pumps • Fixed Displacement Gear Pumps

Salami 3PE Aluminum Gear Pumps • To 34 GPM @ 1800 RPM • Up to 3625 PSI • Up to 2700 RPM

Catalog Part No.	Salami Model	Displacement Pressure Rating (Continuous) Max Speed	Flow GPM 1800 RPM	Mtg Flange	Shaft	Ports	Rotation	Other Features	Wt.	Price Each
C1MV75	613011132 (3PE38D-R55S3)	2.36 in ³ /rev 3480 PSI 2475 RPM	18.0	2-Bolt SAE B	13T Splined x 1.61 long SAE B	SAE-16 Side Inlet, SAE-12 Side Outlet	CW		20.60	
C1MV81	613012442 (3PE38D-R56S3)	2.36 in ³ /rev 3480 PSI 2475 RPM	18.0	2-Bolt SAE B	15T Splined x 1.81 long SAE BB	SAE-16 Side Inlet, SAE-12 Side Outlet	CW		20.60	
C1MV88	613012642 (3PE38D-R87S3)	2.36 in ³ /rev 3480 PSI 2475 RPM	18.0	2-Bolt SAE B	7/8 St. Keyed x 1.61 long SAE B	SAE-16 Side Inlet, SAE-12 Side Outlet	CW		20.60	
C1MV96	613012842 (3PE38D-R88S3)	2.36 in ³ /rev 3480 PSI 2475 RPM	18.0	2-Bolt SAE B	1 St. Keyed x 1.81 long SAE BB	SAE-16 Side Inlet, SAE-12 Side Outlet	CW		20.60	
C1MW12	613079672 (3PE46D-R55S3)	2.86 in ³ /rev 3625 PSI 2475 RPM	22.0	2-Bolt SAE B	13T Splined x 1.61 long SAE B	SAE-20 Side Inlet, SAE-16 Side Outlet	CW		22.30	
C1MV82	613012452 (3PE46D-R56S3)	2.86 in ³ /rev 3625 PSI 2475 RPM	22.0	2-Bolt SAE B	15T Splined x 1.81 long SAE BB	SAE-20 Side Inlet, SAE-16 Side Outlet	CW		22.30	
C1MV89	613012652 (3PE46D-R87S3)	2.86 in ³ /rev 3625 PSI 2475 RPM	22.0	2-Bolt SAE B	7/8 St. Keyed x 1.61 long SAE B	SAE-20 Side Inlet, SAE-16 Side Outlet	CW		22.30	
C1MV97	613012852 (3PE46D-R88S3)	2.86 in ³ /rev 3625 PSI 2475 RPM	22.0	2-Bolt SAE B	1 St. Keyed x 1.81 long SAE BB	SAE-20 Side Inlet, SAE-16 Side Outlet	CW		22.30	
C1MR55	613011042 (3PE55D-R55S3)	3.30 in ³ /rev 3190 PSI 2250 RPM	25.4	2-Bolt SAE B	13T Splined x 1.61 long SAE B	SAE-20 Side Inlet, SAE-16 Side Outlet	CW		23.00	
C1MV83	613012462 (3PE55D-R56S3)	3.30 in ³ /rev 3190 PSI 2250 RPM	25.4	2-Bolt SAE B	15T Splined x 1.81 long SAE BB	SAE-20 Side Inlet, SAE-16 Side Outlet	CW		23.00	
C1MV90	613012662 (3PE55D-R87S3)	3.30 in ³ /rev 3190 PSI 2250 RPM	25.4	2-Bolt SAE B	7/8 St. Keyed x 1.61 long SAE B	SAE-20 Side Inlet, SAE-16 Side Outlet	CW		23.00	
C1MV98	613012862 (3PE55D-R88S3)	3.30 in ³ /rev 3190 PSI 2250 RPM	25.4	2-Bolt SAE B	1 St. Keyed x 1.81 long SAE BB	SAE-20 Side Inlet, SAE-16 Side Outlet	CW		23.00	
C1MV76	613011142 (3PE65D-R55S3)	3.85 in ³ /rev 2900 PSI 2250 RPM	29.5	2-Bolt SAE B	13T Splined x 1.61 long SAE B	SAE-20 Side Inlet, SAE-16 Side Outlet	CW		23.80	
C1MV84	613012472 (3PE65D-R56S3)	3.85 in ³ /rev 2900 PSI 2250 RPM	29.5	2-Bolt SAE B	15T Splined x 1.81 long SAE BB	SAE-20 Side Inlet, SAE-16 Side Outlet	CW		23.80	
C1MV91	613012672 (3PE65D-R87S3)	3.85 in ³ /rev 2900 PSI 2250 RPM	29.5	2-Bolt SAE B	7/8 St. Keyed x 1.61 long SAE B	SAE-20 Side Inlet, SAE-16 Side Outlet	CW		23.80	
C1MV99	613012872 (3PE65D-R88S3)	3.85 in ³ /rev 2900 PSI 2250 RPM	29.5	2-Bolt SAE B	1 St. Keyed x 1.81 long SAE BB	SAE-20 Side Inlet, SAE-16 Side Outlet	CW		23.80	
C1MV77	613011152 (3PE75D-R55S3)	4.48 in ³ /rev 2610 PSI 2250 RPM	33.8	2-Bolt SAE B	13T Splined x 1.61 long SAE B	SAE-20 Side Inlet, SAE-16 Side Outlet	CW		24.60	
C1MV85	613012482 (3PE75D-R56S3)	4.48 in ³ /rev 2610 PSI 2250 RPM	33.8	2-Bolt SAE B	15T Splined x 1.81 long SAE BB	SAE-20 Side Inlet, SAE-16 Side Outlet	CW		24.60	
C1MV92	613012682 (3PE75D-R87S3)	4.48 in ³ /rev 2610 PSI 2250 RPM	33.8	2-Bolt SAE B	7/8 St. Keyed x 1.61 long SAE B	SAE-20 Side Inlet, SAE-16 Side Outlet	CW		24.60	
C1MW11	613012882 (3PE75D-R88S3)	4.48 in ³ /rev 2610 PSI 2250 RPM	33.8	2-Bolt SAE B	1 St. Keyed x 1.81 long SAE BB	SAE-20 Side Inlet, SAE-16 Side Outlet	CW		24.60	





Pumps & Accessories

Single Hydraulic Pumps • Fixed Displacement Gear Pumps

Salami 3PE Series Gear Pump • Parts

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1MQ40	313000311	For Multiple Pump Assemblies 2nd Pump Drive Gear 3PE21		
C1MW13	313000312	For Multiple Pump Assemblies 2nd Pump Drive Gear 3PE27		
C1MW14	313000313	For Multiple Pump Assemblies 2nd Pump Drive Gear 3PE33		
C1MQ41	313000314	For Multiple Pump Assemblies 2nd Pump Drive Gear 3PE38	0.87	
C1MW15	313000315	For Multiple Pump Assemblies 2nd Pump Drive Gear 3PE46		
C1MW16	313000316	For Multiple Pump Assemblies 2nd Pump Drive Gear 3PE55		
C1MW17	313000317	For Multiple Pump Assemblies 2nd Pump Drive Gear 3PE65		
C1MW18	313000318	For Multiple Pump Assemblies 2nd Pump Drive Gear 3PE75		
C1MW19	313003504	Rear Port Cover, Inlet Port SAE -16, Outlet Port SAE -12		
C1MT24	R13040010	S3 (SAE B 2-Bolt) Flange with Seals		
C1MT25	R13080030	Seal Kit for Pump with S3 Flange		
C1MT26	R13080031	Viton Seal Kit for Pump with S3 Flange		
C1MW20	R13090010	Tandem Kit 3PE/2PE		
C1MT27	R13090020	Tandem Kit 3PE/3PE		

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Pumps & Accessories

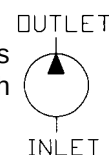
Single Hydraulic Pumps • Fixed Displacement Gear Pumps

Salami Series PG331 Cast Iron Gear Pumps

To 38 GPM @ 1800 RPM • Up to 4000 PSI • Up to 2700 RPM



Features: All pumps are available as multiple units either of the same or different series. With all sizes, there are options of shafts, flanges and ports as for European, German and American standards. Salami gear pumps offer high volumetric efficiency by innovative design and accurate control of machining tolerances. Axial compensation achieved by the use of floating bushings that allow high volumetric efficiency throughout the working pressure range. DU bearings ensure high pressure capability.



Application: Pumps are stocked with Clockwise rotation. Rotation can be changed by reversing the position of the drive shaft and driven shaft, and rotating the front flange.

Pressure Limits: Inlet pressure: 7.38 in. Hg to 21.7 PSI. Pump Outlet: Continuous working pressure varies with displacement (See table below). Peak pressure pressures up to 4350 PSI.

Speed Ratings: Continuous speed at working pressure varies with displacement (See table below).

Temperature Ratings: With Buna-N seals (standard): -4°F to 185°F. With FPM seals (Viton): -4°F to 230°F.

Fluids: Minimum Operating fluid viscosity: 66 SUS (with 80% reduction of working pressure and at minimum speed) to 3635 SUS (maximum starting viscosity). Normal operating range: 85 SUS to 297 SUS.

Recommended Filtration: ISO 4406: < 2900 PSI: 20/19/16; > 2900 PSI: 19/18/15.

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Salami Series PG331 Cast Iron Gear Pumps • To 38 GPM @ 1800 RPM • Up to 4000 PSI • Up to 2700 RPM

Catalog Part No.	Salami Model	Displacement Pressure Rating (Continuous) Max Speed	Flow GPM 1800 RPM	Mtg Flange	Shaft	Ports	Rotation	Other Features	Wt.	Price Each
C1MW21	615200002 (PG331-23D-R55 S3)	1.43 in ³ /rev 3800 PSI 2700 RPM	11.0	2/4-Bolt SAE B	13T Splined x 1.61 long SAE B	SAE -16 Side Inlet SAE -12 Side Outlet	CW		28.40	
C1MW22	615200022 (PG331-28D-R55 S3)	1.74 in ³ /rev 4000 PSI 2700 RPM	13.4	2/4-Bolt SAE B	13T Splined x 1.61 long SAE B	SAE -16 Side Inlet SAE -12 Side Outlet	CW		29.30	
C1MW23	615200032 (PG331-34D-R55 S3)	2.10 in ³ /rev 4000 PSI 2700 RPM	16.1	2/4-Bolt SAE B	13T Splined x 1.61 long SAE B	SAE -16 Side Inlet SAE -12 Side Outlet	CW		30.14	
C1MW24	615200042 (PG331-40D-R55 S3)	2.46 in ³ /rev 3800 PSI 2430 RPM	18.7	2/4-Bolt SAE B	13T Splined x 1.61 long SAE B	SAE -16 Side Inlet SAE -12 Side Outlet	CW		31.10	
C1MW25	615200052 (PG331-47D-R55 S3)	2.89 in ³ /rev 4000 PSI 2430 RPM	22.1	2/4-Bolt SAE B	13T Splined x 1.61 long SAE B	SAE -20 Side Inlet SAE -16 Side Outlet	CW		36.60	
C1MW26	615200062 (PG331-55D-R55 S3)	3.37 in ³ /rev 3335 PSI 2430 RPM	25.6	2/4-Bolt SAE B	13T Splined x 1.61 long SAE B	SAE -20 Side Inlet SAE -16 Side Outlet	CW		37.92	
C1MW27	615200072 (PG331-64D-R55 S3)	3.92 in ³ /rev 2900 PSI 2250 RPM	30.1	2/4-Bolt SAE B	13T Splined x 1.61 long SAE B	SAE -20 Side Inlet SAE -16 Side Outlet	CW		39.51	
C1MR74	615200082 (PG331-72D-R55 S3)	4.48 in ³ /rev 2465 PSI 250 RPM	33.3	2/4-Bolt SAE B	13T Splined x 1.61 long SAE B	SAE -20 Side Inlet SAE -16 Side Outlet	CW		40.98	

Salami PG331 Series Gear Pumps • Parts

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1MT35	R15200001	Multiple Pump Assembly Kit PGG331/2PE		
C1MT36	R15200002	Multiple Pump Assembly Kit PGG331/PGG331		



Pumps & Accessories

Single Hydraulic Pumps • Fixed Displacement Gear Pumps

Salami PG331 Series Gear Pumps • Parts

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1MQ54	315000341	Multiple Pump Drive Gear PG331-23		
C1MQ55	315000342	Multiple Pump Drive Gear PG331-28		
C1MQ56	315000343	Multiple Pump Drive Gear PG331-34		
C1MQ57	315000344	Multiple Pump Drive Gear PG331-40		
C1MW28	315000345	Multiple Pump Drive Gear PG331-47		
C1MQ58	315000346	Multiple Pump Drive Gear PG331-55		
C1MQ59	315000347	Multiple Pump Drive Gear PG331-64	1.11	
C1MW29	315000348	Multiple Pump Drive Gear PG331-72		
C1MW30	315000349	Multiple Pump Drive Gear PG331-80		
C1MZ33	415003501	Rear Cover for Tandem Pump PGG331-23-40cc		
C1MZ34	415003508	Rear Cover for Tandem Pump PGG331-47-72cc		

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Pumps & Accessories

Single Hydraulic Pumps • Fixed Displacement Gear Pumps

Permco Box Pumps For PTO Applications

To 46 GPM @ 1800 RPM • 2500 PSI • 2000 RPM



Features: Sized to interchange with Muncie PTO pumps (See table below for Muncie numbers). Special iron alloy used for shaft covers, gear housings, bearing carriers and port end cover castings. Gears are cut to extremely close tolerances, and are shaped (rather than hobbing and shaving) for maximum volumetric efficiency.

Application: Pumps are stocked with Permco's "Continental Shaft" (Shaft can be changed without pump disassembly by removing shaft retaining snap ring and pulling shaft and bearing out). This allows for an easy shaft change to satisfy various applications. All pumps have both side and rear ports (The 2 unused ports need to be plugged). All pumps are bi-rotational and may be used as bi-rotational motors (Case drain is drilled and plugged for use as a motor).

Pressure Limits: Outlet: 2500 PSI. Inlet: Not to exceed 10 in. Hg vacuum at 1200 RPM, 7 in. Hg vacuum at 1800 RPM, or a positive pressure greater than 20 PSI.

Rated Speeds: 2000 RPM.

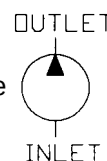
Maximum System Temperature: Under normal conditions of continuous operation, not to exceed 150°F. Never to exceed 185°F.

Note: Ratings based on using anti wear hydraulic fluid. For information on use with other fluids, contact us for assistance.

Recommended Filtration: 25 micron return filter with B10 rating of at least 2.2.

Dimensions: page 593

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Permco Box Pumps For PTO Applications • To 46 GPM @ 1800 RPM • 2500 PSI • 2000 RPM

Catalog Part No.	Permco Model	Displacement PressureRating Max Speed	Flow GPM 1800 RPM	Mtg Flange	Shaft	Ports	Rotation	Other Features	Wt.	Price Each
•C1DG97	PEL17C	4.500 in ³ /rev 2500 PSI 2000 RPM	33.0	4-Bolt SAE B	13 Tooth SAE B Splined	1-1/4 NPT Side and Rear	Bi-Rot.	Replaces Muncie PL19	47.00	
•C1DG98	PEL20C	5.150 in ³ /rev 2500 PSI 2000 RPM	37.0	4-Bolt SAE B	13 Tooth SAE B Splined	1-1/4 NPT Side and Rear	Bi-Rot.	Replaces Muncie PL23	47.00	
•C1DG99	PEL22C	5.790 in ³ /rev 2500 PSI 2000 RPM	41.0	4-Bolt SAE B	13 Tooth SAE B Splined	1-1/4 NPT Side and Rear	Bi-Rot.	Replaces Muncie PL25	49.52	
•C1DH11	PEL25C	6.400 in ³ /rev 2500 PSI 2000 RPM	46.0	4-Bolt SAE B	13 Tooth SAE B Splined	1-1/2 NPT Side, 1-1/4 NPT Rear	Bi-Rot.	Replaces Muncie PL27	47.00	



Pumps & Accessories

Single Hydraulic Pumps • Fixed Displacement Gear Pumps

Miscellaneous Single Gear Pumps



Miscellaneous Single Gear Pumps

Catalog Part No.	Mfg. Part No.	Mfg. Name	Displ in ³ /rev	Mount	Shaft	Ports	Rot.	Other Features	Wt.	Price Each
•C1AK60	1413A-F136	Hydreco	1.36	SAE-A-2-Bolt	5/8 Straight Keyed x 1-1/2" Long, Woodruff Key	1-11-1/2 NPT Inlet, SAE-10 Outlet, 1/2-14 NPT Tank Port	CCW	Integral Relief Valve, Tach Drive	11.05	
•C1FF44	1413A-F137	Hydreco	1.36	SAE-A-2-Bolt	5/8 Straight Keyed x 1-1/2" Long, Woodruff Key	1-11-1/2 NPT Inlet, SAE-10 Outlet, 1/2-14 NPT Tank Port	CW	Integral Relief Valve, Tach Drive	11.52	
C1LZ72	CP124N10ROR6X	Permco	2.48	SAE A-2 bolt		SAE -20 oring inlet, SAE-16 oring outlet, rear	CW	Clutch Pump, 120 lb. ft. (after burnishing) 6 Groove K Type Serpentine clutch. (switch kit not included)	31.42	
C1LZ73	CP124N10ROR8X	Permco	2.48	SAE A-2 bolt		SAE -20 oring inlet, SAE-16 oring outlet, rear	CW	Clutch Pump, 120 lb. ft. (after burnishing) 8 Groove K Type Serpentine clutch. (switch kit not included)	30.12	
C1JP97	P257A367SPLZA15-(P257A367SPLZA15-6)	Permco	3.86	SAE-C 4-Bolt	14T SAE-C Splined		CW	With outboard bearing, cast iron design, sleeve bearings	60.00	
•C1MC43	P360A167EDSPLZA-	Permco	9.00	SAE C 4-bolt	1-1/4 Keyed with end yoke	1-1/4 side split flange	CCW	Max. Speed 2400 RPM; Max. Pressure 3000 PSI; Heavy duty sleeve bushing design, outboard bearing and excluder seal.	37.00	
•C1JJ48	P5000C531AD XK251 (P5000C531AD XK25-1 4)	Permco	6.43	SAE-B 4-Bolt	13T SAE-B Splined	1-1/4 NPT Side	Bi-Rot	With outboard bearing, cast iron design, roller bearings	35.00	
•C1GH65	690506 (P5000C531ADZK25-1 4)	Permco	6.43	SAE-B 4-Bolt	13T SAE-B Splined	SAE-20 Side	Bi-Rot	With outboard bearing, cast iron design, roller bearings	52.68	
C1KZ50	P5151A224AAXQ25-	Permco	5.70	SAE B 2/4-bolt	SAE B 13T spline	1-1/2 NPT side and rear	Bi-Rot		48.00	
C1KY71	P5151A231AA12ZA2 (P5151A231AA12ZA25-87)	Permco	6.43	SAE B-4 bolt	13T SAE-B Splined	1-1/2 NPT	Bi-Rot		46.24	

Pumps & Accessories

Single Hydraulic Pumps • Variable Displacement
Vickers PVQ Series Piston Pumps • To 30 GPM @ 1800 RPM

EATON
Powering Business Worldwide

Vickers® PVQ Piston Pumps For Industrial Applications • Low Noise / 1800 RPM Capability



PVQ piston pumps are quiet, in-line, variable displacement units with pressure compensator and/or flow compensator (load-sense) controls. These pumps operate at quietness levels that meet today's demanding industrial conditions.

Pressure Limits: Outlet: (Varies with displacement. See table below). Case: 5 PSI.

Inlet: 5 in. Hg vacuum to 30 PSI.

Rated Speed: 1800 RPM.

Seals: Viton® standard.

Recommended Filtration: ISO level 18/16/14 (<2000 PSI), level 17/15/13 (2000-3000 PSI).

Recommended Fluid Viscosity: 80-180 SSU (Running), 2300 SSU Maximum at Startup.

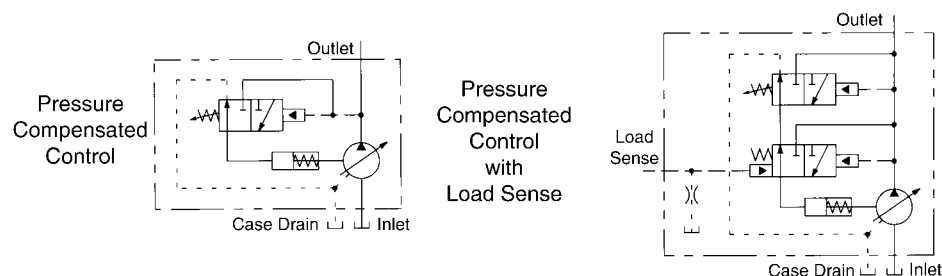
System Temperature: 0°F to 150°F (Optimum Range), 0°F to 180°F (Extreme Range).

Note: Ratings based on using anti wear hydraulic fluid or automotive type crankcase oil designations SC, SD, SE or SF per SAE J183FEB80. For information on use with fire resistant fluids, contact us for assistance.

CAUTION: Before the pump is started, fill the case through the uppermost drain port with hydraulic fluid of the type to be used. The case of the pump must remain full at all times. The case drain line must be connected directly to the reservoir and terminate below the oil level.

Dimensions: page 599

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Vickers® PVQ Piston Pumps • For Industrial Applications • Low Noise / 1800 RPM Capability

Catalog Part No.	Vickers Part No.	Vickers Model	Displacement & Pressure Rating	Flow GPM 1800 RPM	Control See Below	Mounting Flange	Shaft	Other Features	Wt.	Price Each
C1JR31	02-341576	PVQ10-A2R-SE1S-20-C21-12	0.64 in ³ /rev 3000 PSI	4.98	C21	2-Bolt SAE A	3/4 Straight Keyed	CW Rotation, SAE-12 Rear Main Ports, SAE-6 Case Drain	25.30	
C1JR28	02-341552	PVQ20-B2R-SE1S-21-C21-12	1.29 in ³ /rev 3000 PSI	10.0	C21	2-Bolt SAE B	7/8 Straight Keyed	CW Rotation, SAE-12 Rear Main Ports, SAE-8 Case Drain	31.00	
C1JV15	02-341685	PVQ32-B2R-SE1S-21-C14-12	2.01 in ³ /rev 2000 PSI	15.66	C14	2-Bolt SAE B	7/8 Straight Keyed	CW Rotation, SAE-12 Rear Main Ports, SAE-8 Case Drain	34.00	

CM7 Control: Pressure Compensated (350-1500 PSI range, set 1000 PSI)

C21V11B Control: Pressure Compensated (350-3000 PSI range, set 3000 PSI) and Load Sensing (150-250 PSI differential range, set at 160 PSI), with Bleed-Down orifice

C21 Control: Pressure Compensated (350-3000 PSI range, set 3000 PSI)

C19 Control: Pressure Compensated (350-3000 PSI range, set 2850 PSI)

C14 Control: Pressure Compensated (350-2000 PSI range, set 2000 PSI)

Parts for Vickers® PVQ Piston Pumps

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1DX95	626933	Standard Buna-N Shaft Seal for PVQ40/45	0.06	



Pumps & Accessories

Single Hydraulic Pumps • Variable Displacement
Eaton Medium Duty Piston Pumps • To 32 GPM @ 1800 RPM



Eaton Medium Duty Piston Pumps For Mobile Applications High Pressure / High Speed Capability



Features: Compact, lightweight aluminum housing.

Continuous Rated Pressure: 3000 PSI.

Maximum Intermittent Pressure: 4000 PSI for 1.16 in³ and 2.32 in³ models, 3800 PSI for 2.77 in³ models, 4500 PSI for 4.21 in³ models.

Continuous Allowable Case Pressure: 25 PSI.

Maximum Continuous Inlet Vacuum: 4 in. Hg. for 1.16 in³ models, 3 in. Hg. for 2.32 in³ models, 2 in. Hg. for 2.77 and 4.21 in³ models,

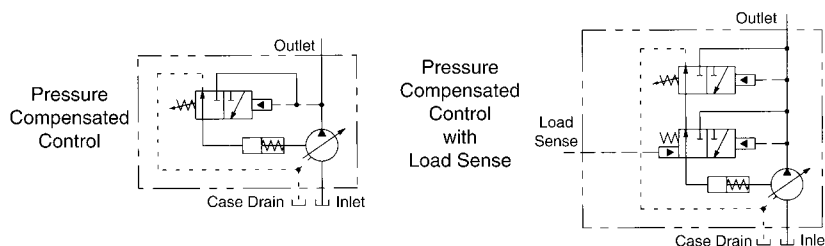
Temperature Limits: -20°F to 225°F.

Recommended Filtration: ISO 4406 Cleanliness Level 18/13 or cleaner.

CAUTION: Before the pump is started, fill the case through the uppermost drain port with hydraulic fluid of the type to be used. The case of the pump must remain full at all times. The case drain line must be connected directly to the reservoir and terminate below the oil level.

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Eaton Medium Duty Piston Pumps For Mobile Applications • High Pressure / High Speed Capability

Catalog Part No.	Eaton Part No.	Displacement & Speed Rating	Flow GPM 1800 RPM	Control	Mounting Flange	Shaft	Other Features	Wt.	Price Each
C1JM62	70122-RCA	1.16 in ³ /rev 2500 RPM	9.0	Pressure Compensated	2-Bolt SAE A	3/4 Straight Keyed	CW Rotation, Rear Ports (SAE-14 Inlet, SAE-12 Outlet), SAE-6 Case Drain, 3000 PSI Compensator Setting (Adjustable)	18.00	
C1KK68	70122-RCW	1.16 in ³ /rev 2500 RPM	9.0	Pressure Compensated	2-Bolt SAE A	9T SAE A Splined	CW Rotation, Rear Ports (SAE-14 Inlet, SAE-12 Outlet), SAE-6 Case Drain, 3000 PSI Compensator Setting (Adjustable)	18.00	
C1KC97	70122-RBB	1.16 in ³ /rev 2500 RPM	9.0	Pressure Compensated	2-Bolt SAE A	9T SAE A Splined	CW Rotation, Rear Ports (SAE-12 Inlet, SAE-10 Outlet), SAE-6 Case Drain, 2800 PSI Compensator Setting (Adjustable)	18.00	
C1BY63	70423-RBT	2.77 in ³ /rev 3000 RPM	21.5	Pressure Compensated Load Sense	2-Bolt SAE BB	13T SAE B Splined	CW Rotation, Rear Ports (SAE-20 Inlet, SAE-16 Outlet), SAE-6 Case Drain, 3000 PSI Compensator Setting (Adjustable), 200 PSI Load Sense Bias (Non-adjustable)	26.00	
C1BY64	70523-LAB	4.21 in ³ /rev 2500 RPM	32.8	Pressure Compensated Load Sense	2-4-Bolt SAE C	14T SAE C Splined	CCW Rotation, Side Ports (2 Inch Code 61 Flange Inlet, 1 Inch Code 61 Flange Outlet), SAE-10 Case Drain, 3000 PSI Compensator Setting (Adjustable), 200 PSI Load Sense Bias (Non-adjustable)	78.00	
C1KD62	70553-RAB	4.21 in ³ /rev 2500 RPM	32.8	Pressure Compensated Load Sense	2-4-Bolt SAE C	14T SAE C Splined	CW Rotation, Side Ports (2 Inch Code 61 Flange Inlet, 1 Inch Code 61 Flange Outlet), SAE-10 Case Drain, 3000 PSI Compensator Setting (Adjustable), 200 PSI Load Sense Bias (Non-adjustable)	78.00	





Pumps & Accessories

Single Hydraulic Pumps • Variable Displacement
Eaton Medium Duty Piston Pumps • To 32 GPM @ 1800 RPM



Parts for Eaton Medium Duty Piston Pumps

Catalog Part No.	Part Number	Description	Wt.	Price Each
•C1FA80	70422-915	Seal Kit for Models 70422 and 70423	0.16	
C1FA79	70422-900	Seal Repair Kit for Models 70122 and 70422	0.17	
C1KC99	70142-938	Seal Repair Kit, Models 70142-70144-70145	0.05	
C1KD57	70523-900	Seal Repair Kit, Model 70523	0.18	
C1JS78	0070122-902	Seal Repair Kit, Model 70122	0.08	
C1JX45	16253-16	Shaft Seal, Model 70122	0.02	
C1JX46	16253-18	Shaft Seal, Model 70422	0.04	
C1JX44	16232-22	Shaft Seal, Model 70523	0.14	

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Single Hydraulic Pumps • Variable Displacement
Eaton 420 Series Mobile Piston Pumps • To 38 GPM @ 1800 RPM

Eaton 420 Mobile Piston Pumps High Pressure / High Speed Capability



Eaton's 420 Series mobile pumps are open circuit, axial piston designs with displacements of 2.50 in³/rev, 3.00 in³/rev, 3.80 in³/rev and 4.88 in³/rev for operating speeds up to 2,650 rpm. They are available with a variety of control options to match their performance to a broad range of mobile applications.

Features: Highly efficient pump controls • Strong, field-proven rotating group • Saddle-type swashplate with steel-backed polymer bearings and a pressure lubrication passage to reduce wear • Stiff swashplate reduces deflection, allows for evenly loaded bearings & extends unit life • Single control piston reduces forces acting on swashplate & reduces package size • Bimetal timing plate improves pump filling characteristics which reduces fluid-borne noise and extends pump life.

Pressure Ratings: 2.50 in³/rev thru 3.80 in³/rev Models: 4060 psi Continuous, 4600 psi Intermittent, 5000 psi Peak. 4.88 in³/rev Models: 3050 psi Continuous, 3335 psi Intermittent, 3625 psi Peak.

Speed Ratings: 2.50 in³/rev & 3.00 in³/rev Models: 2650 rpm @ 0 psig, 2450 rpm @ 5 in.Hg, 2950 rpm @ 15 psig, 3600 rpm Max Standby. 3.80 in³/rev Models: 2600 rpm @ 0 psig, 2400 rpm @ 5 in.Hg, 2800 rpm @ 15 psig, 3600 rpm Max Standby. 4.88 in³/rev Models: 2200 rpm @ 0 psig, 1800 rpm @ 5 in.Hg, (N/A) rpm @ 15 psig, 3600 rpm Max Standby. Note: All models have a 600 RPM Minimum Speed.

Inlet Pressure: 0 PSIG Rated, 5 in.Hg Minimum, 50 PSIG Maximum.

Case Pressure: 5 psig Maximum Continuous, 30 psig Maximum Intermittent, 75 psig Peak.

Operating Temperature: 200°F Rated, -35°F Minimum, 220°F Maximum.

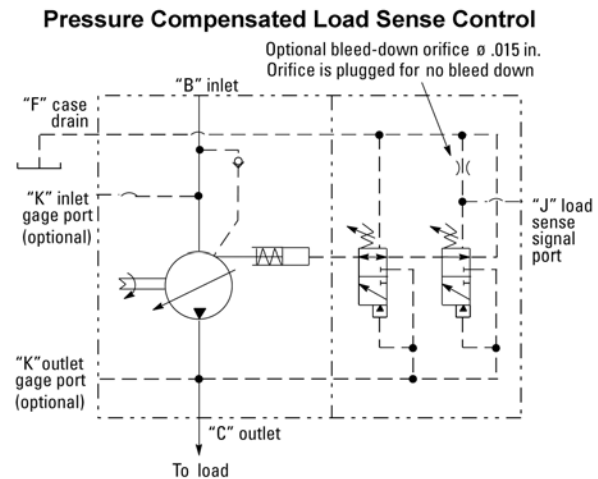
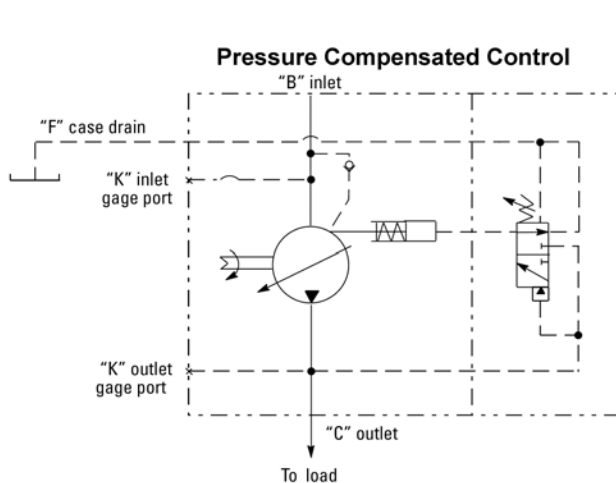
Recommended Hydraulic Fluid: Use antiwear hydraulic oil, or automotive type crankcase oil (designations SC, SD, SE or SF) per SAE J183 FEB80.

Hydraulic Fluid Viscosity: 80 to 188 SSU Recommended Operating Range, 1192 SSU Maximum Continuous, 9720 SSU Maximum at Startup.

Recommended Filtration: ISO 4406 Cleanliness Level 21/18/13 or cleaner.

CAUTION: Before the pump is started, fill the case through the uppermost drain port with hydraulic fluid of the type to be used. The case of the pump must remain full at all times. The case drain line must be connected directly to the reservoir and terminate below the oil level.

Dimensions: page 598



Pumps & Accessories



Single Hydraulic Pumps • Variable Displacement
Eaton 420 Series Mobile Piston Pumps • To 38 GPM @ 1800 RPM



Eaton 420 Mobile Piston Pumps • High Pressure / High Speed Capability

Catalog Part No.	Eaton Part No.	Displacement & Pressure Rating	Flow GPM 1800 RPM	Control	Mounting Flange	Shaft	Other Features	Wt. (lbs)	Price Each
C1LX33	421AK01152B ADU041L05AB10 A2814000020010 OCD0B	2.50 in ³ /rev 4060 PSI	19.5	Pressure Compensated Load Sense	2-Bolt SAE B	13T SAE B Splined	CCW Rotation, Code 61 Flange Side Ports 2" Inlet 1" Outlet, Top SAE-12 Case Drain, SAE-4 Load Sense, 3050 PSI Compensator Setting (Adjustable), 200 PSI Load Sense Bias (Adjustable), Standard Polyacrylate Shaft Seal, External Manual Stroke Adjustment	56.58	
C1KG78	421AK00694B ADU041R05AA10 A2814000020010 OCD0A	2.50 in ³ /rev 4060 PSI	19.5	Pressure Compensated Load Sense	2-Bolt SAE B	13T SAE B Splined	CW Rotation, Code 61 Flange Side Ports 2" Inlet 1" Outlet, Top SAE-12 Case Drain, SAE-4 Load Sense, 3050 PSI Compensator Setting (Adjustable), 200 PSI Load Sense Bias (Adjustable), Standard Polyacrylate Shaft Seal, External Manual Stroke Adjustment	57.00	
C1LX34	421AK01670B ADU062R08AB10 A3236000010010 OCD0B	3.80 in ³ /rev 4060 PSI	29.6	Pressure Compensated Load Sense	2-Bolt SAE BB	15T Splined	CW Rotation, Code 61 Flange Side Ports 2" Inlet 1" Outlet, Top SAE-12 Case Drain, SAE-4 Load Sense, 3335 PSI Compensator Setting (Adjustable), 262 PSI Load Sense Bias (Adjustable), Standard Polyacrylate Shaft Seal	64.95	
C1KK35	421AK01292B ADU062R08AB10 A2430000010010 OCD0B	3.80 in ³ /rev 4060 PSI	29.6	Pressure Compensated Load Sense	2-Bolt SAE BB	15T Splined	CW Rotation, Code 61 Flange Side Ports 2" Inlet 1" Outlet, Top SAE-12 Case Drain, SAE-4 Load Sense, 2850 PSI Compensator Setting (Adjustable), 455 PSI Load Sense Bias (Adjustable), Standard Polyacrylate Shaft Seal, External Manual Stroke Adjustment	35.00	
C1MZ36	421AK01944B ADU062R32AA11 A4324000010050 OCD0B	3.80 in ³ /rev 4060 PSI	29.6	Pressure Compensated Load Sense	2/4-Bolt SAE C	14T SAE C Splined	CW Rot., Code 61 Flange Rear Ports 2" Inlet 1" Outlet, Top SAE-12 Case Drain, SAE-4 Load Sense, 4050 PSI Compensator Setting (Adjustable), 350 PSI Load Sense Bias (Adjustable), Single Fluorocarbon Rubber Shaft Seal		
C1MZ38	421AK01979B ADU062R32AB10 A243000001AC5A ACD0B	3.80 in ³ /rev 4060 PSI	29.6	Pressure Compensated Load Sense	2/4-Bolt SAE C	14T SAE C Splined	CW Rot., Code 61 Flange Side Ports 2" Inlet 1" Outlet, Top SAE-12 Case Drain, SAE-4 Load Sense, 2800 PSI Compensator Setting (Adjustable), 425 PSI Load Sense Bias (Adjustable), Single Fluorocarbon Rubber Shaft Seal, SAE B-2 bolt Thru Drive w/13T spline		
C1LX36	421AK01677B ADU062R32AB10 A3517000010050 OCD0B	3.80 in ³ /rev 4060 PSI	29.6	Pressure Compensated Load Sense	2/4-Bolt SAE C	14T SAE C Splined	CW Rotation, Code 61 Flange Side Ports 2" Inlet 1" Outlet, Top SAE-12 Case Drain, SAE-4 Load Sense, 3550 PSI Compensator Setting (Adjustable), 145 PSI Load Sense Bias (Adjustable), Single Viton® Shaft Seal	64.95	
C1LX35	421AK01676B ADU062R32AB10 A352100001AD50 OCD0B	3.80 in ³ /rev 4060 PSI	29.6	Pressure Compensated Load Sense	2/4-Bolt SAE C	14T SAE C Splined	CW Rotation, Code 61 Flange Side Ports 2" Inlet 1" Outlet, Top SAE-12 Case Drain, SAE-4 Load Sense, 3550 PSI Compensator Setting (Adjustable), 300 PSI Load Sense Bias (Adjustable), Aux Rear Mount SAE B 2 Bolt 15T Spline, Single Viton® Shaft Seal	62.00	





Pumps & Accessories

Single Hydraulic Pumps • Variable Displacement
Eaton 420 Series Mobile Piston Pumps • To 38 GPM @ 1800 RPM



Eaton 420 Mobile Piston Pumps • High Pressure / High Speed Capability

Catalog Part No.	Eaton Part No.	Displacement & Pressure Rating	Flow GPM 1800 RPM	Control	Mounting Flange	Shaft	Other Features	Wt. (lbs)	Price Each
C1MZ37	421AK01945B ADU062R38AA11 A4324000010050 OCD0B	3.80 in ³ /rev 4060 PSI	29.6	Pressure Compensated Load Sense	2/4-Bolt SAE C	1.25 Dia. Tapered Key Shaft w/ 1-12UN F thd.	CW Rot., Code 61 Flange Side Ports 2" Inlet 1" Outlet, Top SAE-12 Case Drain, SAE-4 Load Sense, 4050 PSI Compensator Setting (Adjustable), 350 PSI Load Sense Bias (Adjustable), Single Fluorocarbon Rubber Shaft Seal		
C1LX37	421AK01678B ADU080R32AB10 A5524000010050 OCD0B	4.88 in ³ /rev 3050 PSI	38.0	Pressure Compensated Load Sense	2/4-Bolt SAE C	14T SAE C Splined	CW Rotation, Code 61 Flange Side Ports 2" Inlet 1" Outlet, Top SAE-12 Case Drain, SAE-4 Load Sense, 3200 PSI Compensator Setting (Adjustable), 350 PSI Load Sense Bias (Adjustable), Single Viton® Shaft Seal	57.00	

Hydraulic Power & Control

Pneumatic Power & Control

Fluid Conveying

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Pumps & Accessories

Single Hydraulic Pumps • Variable Displacement
Vickers M Series Piston Pumps • To 67 GPM @ 1800 RPM



Vickers® M Series Piston Pumps For Industrial & Mobile Applications



M Series pumps operate at a level of quietness that exceeds the requirements of today's demanding work conditions. M Series pumps are capable of operating with many types of hydraulic fluids used in industrial systems.

Pressure Limits: Outlet: (Varies with displacement. See table below). Case: 7 psi continuous, 30 psi intermittent, 50 psi peak. Inlet: 5 in. Hg vacuum to 30 psi.

Recommended Filtration: The M Series pumps are rated in anti-wear petroleum fluids with a contamination level of 20/18/13 (Eaton) or ISO 18/13.

Recommended Fluid Viscosity: 83 to 187 SUS running, 4550 SUS Maximum at Startup, 90

SUS Minimum

System Temperature: Maximum Operating 180°F, Maximum intermittent 220°F, minimum to maintain fluid viscosity.

Note: Ratings based on using anti wear hydraulic fluid or automotive type crankcase oil designations SC, SD, SE or SF per SAE J183FEB80. For information on use with fire resistant fluids, contact us for assistance.

CAUTION: Before the pump is started, fill the case through the uppermost drain port with hydraulic fluid of the type to be used. The case of the pump must remain full at all times. The case drain line must be connected directly to the reservoir and terminate below the oil level.

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Vickers® M Series Piston Pumps • For Industrial & Mobile Applications

Catalog Part No.	Vickers Part No.	Vickers Model	Displacement & Speed Rating	Flow GPM 1800 RPM	Control	Mounting Flange	Shaft	Other Features	Wt.	Price Each
C1LA98	123AL01174A	PVM131MR11GS02 AAC25200000A0A	8.00 in ³ /rev 2000 rpm	62	Pressure and Flow Compensator with Plugged Orifice	SAE C, 4-bolt	SAE C, 14T-Spline	Adjustable Maximum Displacement Stop	145.00	

Note: Please contact us for technical & application information on these pumps.

Parts for Vickers® M Series Piston Pumps

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1KE21	864200	Shaft Seal, Models 131-141	0.07	

Eaton Duraforce™ HPR Self-regulating Pump for Open Loop Operation For Mobile Applications



The extreme precision and durability of Eaton DuraForce HPR Series heavy-duty open-circuit pumps make them a top candidate for highly efficient vehicle control systems for agriculture, forestry, construction, mining and more. DuraForce pumps feature a flexible modular design that enables interchangeability across a variety of applications.

Features: • High pressure axial piston pump in swash plate design for open loop systems • Clockwise or counter clockwise rotation • Self-priming at high nominal speed

- Higher rotating speed by tank pressurization or swash angle reduction • Adaptive noise optimization SPU • Decompression fluid is drained via pump housing for suction side stability • Exact and rugged load sensing controls • SAE high pressure ports • SAE mounting flange with ANSI or SAE spline shaft • Through shaft SAE A, B, B-B, C, D and E • Optional tandem and multiple pumps

Pressure Ratings: Nominal: 6092 PSI; Peak: 7252 PSI; Permissible Housing Pressure (absolute): 36 PSI

Speed Ratings: Maximum operating speed (rated speed) without tank pressurization: 3.34 in³/rev Models: 2700 RPM; 4.63 in³/rev Models: 2600 RPM; 6.41 in³/rev & 8.27 in³/rev Models: 2300 RPM; 10.07 in³/rev Models: 2100 RPM; 12.81 in³/rev Models: 2000 RPM.

Operating Temperatures: Permissible Housing Temperature with min. permissible. viscosity > 10 cSt: 194°F [90°C]. Fluid temperature range: -4°F [-20°C] to 194°F [90°C].

Recommended Hydraulic Fluid: • Mineral oil HLP to DIN 51 524-2 • Biodegradable fluids in accordance with ISO 15 380 on request

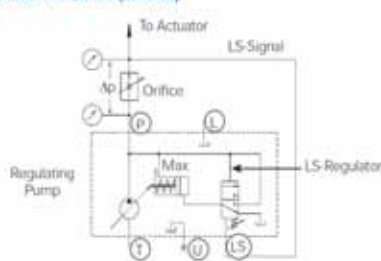
Hydraulic Fluid Viscosity: Working viscosity range: 10 to 80 cSt; Optimum working viscosity: 15 to 30 cSt; Max. viscosity (short time start up): 1000 cSt.

Recommended Filtration: 18/16/13 in accordance with ISO 4406 or better

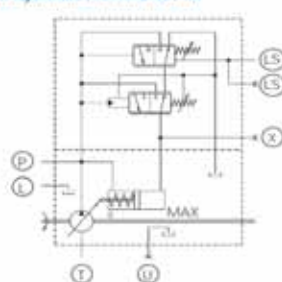
CAUTION: Before the pump is started, fill the case through the uppermost drain port with hydraulic fluid of the type to be used. The case of the pump must remain full at all times. The case drain line must be connected directly to the reservoir and terminate below the oil level.

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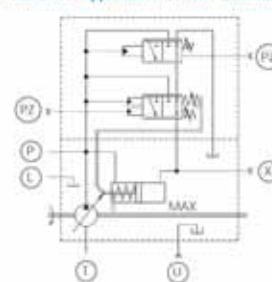
Regulating pump with LS-regulator and measure orifice (in valve)



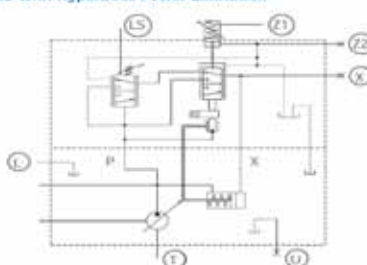
LP LS with Hydraulic Pressure Cut-off



TL1 LS with Linear Approximated Power Limitation



TL2 LS with Hyperbolic Power Limitation



E1L LS with electric override





Pumps & Accessories

Single & Multiple Hydraulic Pumps • Variable Displacement
Eaton Duraforce™ HPR Series Piston Pumps • To 158 GPM @ 1800 RPM



Eaton Duraforce™ HPR Self-regulating Pump for Open Loop Operation • For Mobile Applications

Catalog Part No.	Eaton Part No.	Eaton Model	Displacement & Pressure Rating	Flow at Rated RPM	Control	Mounting Flange	Shaft	Other Features	Wt.	Price Each
C1KX94	630AW00220A	HPR075L0S1DAA MAC00000000A	4.63 in ³ /rev 6092 PSI	52 GPM 2600 RPM	Load Sense with Hydraulic Pressure Cut-off (LP.LS)	2-Bolt SAE C	14T SAE C Splined	CCW Rotation, DIN 3852 ports, Compensator Setting (Adjustable), Load Sense Differential (Adjustable)	86.00	

Hydraulic Power & Control

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Pumps & Accessories

Single & Multiple Hydraulic Pumps • Variable Displacement
Eaton Hydrokraft™ PVW Series Piston Pumps • To 238 GPM @ 1800 RPM



Eaton Hydrokraft™ Open Loop Piston Pumps High Pressure / High Flow Capability



Axial piston pumps with swash plate design for reliable operation and long life. Pressure up to 6000 PSI. Rated speed up to 1800 RPM. Higher speeds possible.

Features: • Oversize shafts and bearings. • Rotating and pressure loaded parts are pressure balanced. • Through drive enable multiple pump installations from a single shaft. Multiple pump combinations are also available. • Integrated pilot pump, filter and pressure relief valves available. • “Building block” design gives these pumps a wide range of application. • Fast response times.

Pressure Ratings: Inlet Pressure: minimum 14.5 PSIA, maximum 725 PSI. Maximum operating pressure: 6090 PSI. Maximum Case Pressure: 7.2 PSI over inlet pressure, 58 PSI absolute.

Speed Ratings: Minimum: 150 RPM; Maximum: Size 250 & 500: 1800 RPM; Size 360: 1500 RPM; Size 750: 1200 RPM.

Fluid Operating Temperature: Minimum: -13°F; Maximum: 194°F.

Hydraulic Fluid: Pumps in the catalog are primarily designed to operate with conventional petroleum based hydraulic oil. Alternative fluids and restrictions: • Fluid maintenance is critical to the durability of all hydraulic components, and particularly with hydraulic pumps. This becomes even more of a factor when alternative fluids are used. All types of alternative fluids require extensive maintenance in order to maintain proper levels of water content, acidity, viscosity and contamination.

Hydraulic Fluid Viscosity: Continuous operating range: Minimum: 10 cSt; Maximum: 75 cSt. Maximum permissible start viscosity: 1000 cSt.

Recommended Filtration: ISO 4406 18/15/13

CAUTION: Before the pump is started, fill the case through the uppermost drain port with hydraulic fluid of the type to be used. The case of the pump must remain full at all times. The case drain line must be connected directly to the reservoir and terminate below the oil level.

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Eaton Hydrokraft™ Open Loop Piston Pumps • High Pressure / High Flow Capability

Catalog Part No.	Eaton Part No.	Eaton Model	Displacement (in ³ /rev)	Flow GPM 1800 RPM	Control	Mounting Flange	Shaft	Rotation	Wt.	Price Each
C1JS47	HC806172001518	PVWS-250M07R00C1 R01SVVALR000A2011 500000017841310	15.3	119	Power Control with Pressure Limiter	ISO 3019/2-20 0B4HW	ISO Straight Key, 65 mm dia., 18 mm key	CW	467.00	



Pumps & Accessories

Double Hydraulic Pumps • Fixed Displacement

Vickers V2010 & V2020 Series Vane Pumps • To 19.5/16.5 GPM @ 1800 RPM

EATON
Powering Business Worldwide

Vickers® V2010 Double Vane Pumps For Industrial & Mobile Applications



Double pumps provide a single power source capable of serving two separate hydraulic circuits, resulting in a more compact, simple installation.

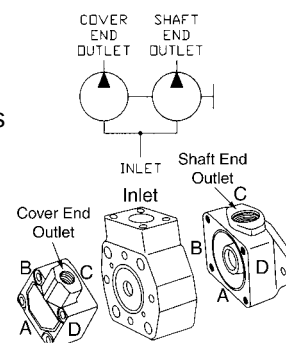
Features: Vickers balanced vane construction. Buna-N seals standard. Shaft rotation can be changed by changing the assembly of internal parts.

Ports: Inlet: 1-1/2 inch Code 61 Flange. Front Pump (Shaft End) Outlet: SAE-16 Straight Thread. Rear Pump (Cover End) Outlet: SAE-8 Straight Thread.

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Pumps are stocked as shown in table.

ANY outlet position and rotation is available for same-day shipment.

Vickers® V2010 Double Vane Pumps • For Industrial & Mobile Applications

Catalog Part No.	Vickers Part No.	Vickers Model	Shaft	Mtg Flange	Displ Front Rear	Ring Size 1200 RPM Front Rear	Flow GPM 1800 RPM Front Rear	Port Loc Front Rear	Max PSI Front Rear	Max RPM	Rot.	Wt.	Price Each
C1KV37	721AR00033A	V2010-1F9S5S-1AD-12L-167	7/8 Keyed	2-Bolt SAE B	1.81 1.00	9/5	13.5/7.5	A/D	2500 2500	2800	CCW	30.55	
C1KV36	721AR00032A	V2010-1F7S3S-1CC-12L-167	7/8 Keyed	2-Bolt SAE B	1.39 0.60	7/3	10.5/4.5	C/C	2500 2500	3000	CCW	30.55	
C1KV38	721AR00034A	V2010-1F9S3S-1BA-12L-167	7/8 Keyed	2-Bolt SAE B	1.81 0.60	9/3	13.5/4.5	B/A	2500 2500	2800	CCW	30.55	
C1ZV47	02-465603-5	V2010-1F6S2S-11AA-12L	13 Tooth SAE B Splined	2-Bolt SAE B	1.19 0.40	6/2	9.0/3.0	A/A	2500 2500	3000	CCW	30.00	

Note: Flow: GPM @ 1800 RPM and 100 PSI. Displacement: Cubic inches per revolution. Max PSI & RPM based on using petroleum oil at 120°F and at 0 PSI inlet pressure. Min speed: 600 RPM.

Vickers® V2010 Double Vane Pumps • Replacement Parts List

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1MJ80	357292	Inlet Body and Bushing Subassembly		
C1CC33	923471	Cartridge Kit, Cover End, Ring Size 01	1.31	
C1CC32	923470	Cartridge Kit, Cover End, Ring Size 02	1.33	
C1CC35	923496	Cartridge Kit, Cover End, Ring Size 03	1.30	
C1CC31	923469	Cartridge Kit, Cover End, Ring Size 04	1.82	
C1CC30	923468	Cartridge Kit, Cover End, Ring Size 05	1.79	
C1CC36	923497	Cartridge Kit, Cover End, Ring Size 06	2.23	
C1CC37	923498	Cartridge Kit, Cover End, Ring Size 07	2.20	
C1MG28	231042	Locating Pin, Cover End, Ring Sizes 01 thru 03		
C1MJ81	373795	Pressure Plate Subassembly, Cover End		
C1MH46	001277	Screw for bolting on Cover End, Ring Sizes 01 thru 03, (4) required	0.09	
C1MH83	108561	Screw	0.10	
C1AA63	001278	Screw for bolting on Cover End, Ring Sizes 06 & 07, (4) required	0.12	

Double Hydraulic Pumps • Fixed Displacement Vickers V2010 & V2020 Series Vane Pumps • To 19.5/16.5 GPM @ 1800 RPM

Vickers® V2010 Double Vane Pumps • Replacement Parts List

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1MJ30	295384	Screw for bolting Inlet Housing to Shaft End Body, Ring Sizes 11 thru 13		
C1CC39	923577	Seal Kit, Buna-N	0.09	
C1BD93	229236	Shaft Seal, Buna-N	0.04	
C1MJ79	351249	Shaft #3-Threaded and Keyed		
C1DU27	009955	Shaft Key, 3/16 x 1-1/4	0.01	

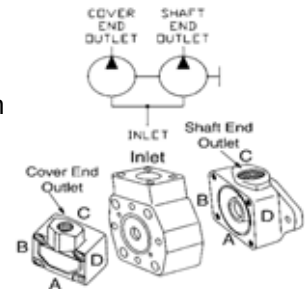
Vickers® V2020 Double Vane Pumps For Industrial & Mobile Applications



V2020 double pumps have capacities of 6 to 13 gpm and 6 to 11 gpm for their shaft-end and cover-end pumps, respectively.

Features: Vickers balanced vane construction. Buna-N seals are standard, Viton seals are available as an option. Shaft rotation can be changed by changing the assembly of internal parts.

Ports: Inlet: 2 inch Code 61 Flange. Front Pump (Shaft End) Outlet: SAE-12 Straight Thread. Rear Pump (Cover End Outlet: SAE-12 Straight Thread.



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Vickers® V2020 Double Vane Pumps • For Industrial & Mobile Applications

Catalog Part No.	Vickers Part No.	Vickers Model	Shaft	Mtg Flange	Displ Front Rear	Ring Size 1200 RPM Front Rear	Flow GPM 1800 RPM Front Rear	Port Loc Front Rear	Max PSI Front Rear	Max RPM	Rot.	Wt.	Price Each
C1KT95	02-143649-3	V2020-1F9S9S-11C C30-063	7/8 Straight keyed	2-bolt SAE B	1.81/1.81	09/09	13.5/13.5	CC	2500/2500	2800	CW	35.10	

Vickers® V2020 Double Vane Pumps • Replacement Parts List

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1MK24	850557	Cover, Outlet #2		
C1MH99	189378	Screw		
C1MH69	067464	Screw	0.09	
C1MH87	134249	Screw		
C1MH67	060226	Screw		
C1MH94	142713	Screw		
C1MK28	913529	Pressure Plate		
C1MK15	577701	Wave Washer		
C1MK14	513408	O-Ring		
C1JS74	002456	Pin	0.01	
C1AB97	016662	Pin	0.01	

Pumps & Accessories



Double Hydraulic Pumps • Fixed Displacement

Vickers V2010 & V2020 Series Vane Pumps • To 19.5/16.5 GPM @ 1800 RPM



Vickers® V2020 Double Vane Pumps • Replacement Parts List

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1AB97	016662	Pin	0.02	
C1JX48	179341	Pin	0.01	
C1MH48	007688	Pin	0.20	
C1MJ41	308681	Body, Inlet; includes 308934 bushing		
C1MH52	02-141747	Cartridge Kit, Cover End, Ring Size 05		
C1MH53	02-151998	Cartridge Kit, Cover End, Ring Size 06		
C1MH54	02-151999	Cartridge Kit, Cover End, Ring Size 07		
C1JT85	02-152000	Cartridge Kit, Cover End, Ring Size 08	3.61	
C1MH55	02-152001	Cartridge Kit, Cover End, Ring Size 09		
C1MH56	02-152002	Cartridge Kit, Cover End, Ring Size 10		
C1MH57	02-152003	Cartridge Kit, Cover End, Ring Size 11		
C1MH58	02-152004	Cartridge Kit, Cover End, Ring Size 12		
C1MH59	02-152005	Cartridge Kit, Cover End, Ring Size 13		
C1MH50	02-141745	Cartridge Kit, Shaft End, Ring Size 05		
C1MH51	02-141746	Cartridge Kit, Shaft End, Ring Size 06		
C1MH60	02-152006	Cartridge Kit, Shaft End, Ring Size 07		
C1MH61	02-152007	Cartridge Kit, Shaft End, Ring Size 08		
C1AD12	02-152008	Cartridge Kit, Shaft End, Ring Size 09	4.00	
C1MH62	02-152009	Cartridge Kit, Shaft End, Ring Size 10		
C1MH63	02-152010	Cartridge Kit, Shaft End, Ring Size 11		
C1EL34	02-152011	Cartridge Kit, Shaft End, Ring Size 12	5.00	
C1MH64	02-152012	Cartridge Kit, Shaft End, Ring Size 13		
C1MK29	913569	Pressure Plate		
C1MK22	849807	Wave Washer		
C1MJ19	200142	O-Ring		
C1MK23	850224	Body, Outlet #1, SAE B Flange Mount		
C1BD93	229236	Shaft Seal	0.04	
C1MK11	452556	Spacer		
C1MH96	160686	Retaining Ring		
C1AD75	082938	Bearing	0.50	
C1MJ42	308686	Shaft, #1, 3/4" Straight Keyed		
C1JY75	308926	Shaft, #11, 11T Spline Extended Length	1.10	
C1MK21	818132	Shaft, #38, 11T Spline, Short		
C1DU27	009955	Key for Shaft #1	0.01	
C1MH47	001617	Key for Shaft #3	0.02	
C1MH49	018755	Nut for Shaft #3		
C1MH93	140356	Retaining Ring		





Pumps & Accessories

Double Hydraulic Pumps • Fixed Displacement • Miscellaneous

Miscellaneous Double Vane Pumps



Miscellaneous Double Vane Pumps

Catalog Part No.	Mfg. Part No. (Model No.)	Mfg. Name	Displ in ³ /rev Front Rear	Mount	Shaft	Ports	Rot.	Other Features	Wt.	Price Each
C1MJ97	428649-5 (2520VQ21A14-11AA20-LH)	Vickers	4.12 Front 2.80 Rear	2-Bolt SAE B	13T SAE B Splined	SAE 4-Bolt Flange, Inlet 2-1/2, Outlets 1 Front 3/4 Rear	CCW	No. 2 outlet 135° CCW from inlet	45.00	
C1MK16	596631-7 (2520VQ21C14 11CC20LH)	Vickers	4.12 Front 2.80 Rear	2-Bolt SAE B	13T SAE B Splined	SAE 4-Bolt Flange, Inlet 2-1/2, Outlets 1 Front 3/4 Rear	CCW	No. 2 outlet 45° CW from inlet	45.00	
C1HE65	02-137210-2 (2520V21A14-1BB22R)	Vickers	4.10 Front 2.80 Rear	2-Bolt SAE B	7/8 Straight Keyed	SAE 4-Bolt Flange, Inlet 2-1/2, Outlets 1 Front 3/4 Rear	CW	V Series Double Pump	46.97	
C1KK70	711-0251-032 (VMQ23525S045032A00200A AA)	Vickers	2.75 Front 1.96 Rear	2-Bolt SAE B	15T SAE-BB Splined	SAE 4-Bolt Flange, Inlet 3, Outlets 1 Front 1 Rear	CW	VMQ Series Double Pump	30.50	
C1KK72	712-0157-032 (VMQ23525S112071B00100A AADCANL00A032)	Vickers	6.83 Front 4.33 Rear	2-Bolt SAE C	1-1/4 Straight Keyed	SAE 4-Bolt Flange, Inlet 3, Outlets 1-1/4 Front 1 Rear	CCW	VMQ Series Double Pump	114.00	
C1KK71	712-0156-032 (VMQ23525S112071B00100A AABBANR00A032)	Vickers	6.83 Front 4.33 Rear	2-Bolt SAE C	1-1/4 Straight Keyed	SAE 4-Bolt Flange, Inlet 3, Outlets 1-1/4 Front 1 Rear	CW	VMQ Series Double Pump	126.00	
C1KK74	714-0066-032 (VMQ24535S140112B00100A AADCANL00A032)	Vickers	8.54 Front 6.83 Rear	2-Bolt SAE C	1-1/2 Straight Keyed	SAE 4-Bolt Flange, Inlet 4, Outlets 1-1/2 Front 1-1/4 Rear	CCW	VMQ Series Double Pump	90.00	
C1JM66	714-0081-032 (VMQ24535S215125B00100A AADCANL00A032)	Vickers	13.12 Front 7.63 Rear	2-Bolt SAE C	1-1/2 Straight Keyed	SAE 4-Bolt Flange, Inlet 4, Outlets 1-1/2 Front 1-1/4 Rear	CCW	VMQ Series Double Pump	90.00	
C1JM65	714-0080-032 (VMQ24535S215125B00100A AABBANR00A032)	Vickers	13.12 Front 7.63 Rear	2-Bolt SAE C	1-1/2 Straight Keyed	SAE 4-Bolt Flange, Inlet 4, Outlets 1-1/2 Front 1-1/4 Rear	CW	VMQ Series Double Pump	90.00	
C1MZ72	713-0091-032 (VMQ24525S240025B00100A AABBANR00A032)	Vickers	14.65 Front 1.58 Rear	2-Bolt SAE C	1-1/2 Straight Keyed	SAE 4-Bolt Flange, Inlet 3-1/2, Outlets 1-1/2 Front 1 Rear	CW	VMQ Series Double Pump		
C1KK73	713-0068-032 (VMQ24525S240080B00100A AABBANR00A032)	Vickers	14.65 Front 4.88 Rear	2-Bolt SAE C	1-1/2 Straight Keyed	SAE 4-Bolt Flange, Inlet 3-1/2, Outlets 1-1/2 Front 1 Rear	CW	VMQ Series Double Pump	90.00	
C1JD62	714-0067-032 (VMQ24535S140112B00100A AABBANR00A032)	Vickers	8.54 Front 6.83 Rear	2-Bolt SAE C	1-1/2 Straight Keyed	SAE 4-Bolt Flange, Inlet 4, Outlets 1-1/2 Front 1-1/4 Rear	CW	VMQ Series Double Pump	90.00	



Pumps & Accessories

Double Hydraulic Pumps • Fixed Displacement • Miscellaneous

Miscellaneous Double Vane Pumps

Catalog Part No.	Mfg. Part No. (Model No.)	Mfg. Name	Displ in ³ /rev Front Rear	Mount	Shaft	Ports	Rot.	Other Features	Wt.	Price Each
C1HH36	02-142081-F (4520VQH-60A8-86AD-20L)	Vickers	11.80 Front 1.67 Rear	2-Bolt SAE C	1-1/2 Straight Keyed	SAE 4-Bolt Flange, Inlet 3-1/2, Outlets 1-1/2 Front 3/4 Rear	CCW	VQH Series Double Pump	30.00	
C1HH35	02-142081-1 (4520VQH60A8-86AA20)	Vickers	11.80 Front 1.67 Rear	2-Bolt SAE C	1-1/2 Straight Keyed	SAE 4-Bolt Flange, Inlet 3-1/2, Outlets 1-1/2 Front 3/4 Rear	CW	VQH Series Double Pump	97.00	

Parts for Miscellaneous Double Fixed Vane Pumps

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1AA76	001705	VQ Series, Bearing for 2520VQ	0.31	
C1BP54	416427	VQ Series, Cartridge Kit Cover End for **20VQ**11, Ring Size 11	5.02	
C1CB87	920040	VQ Series, Seal Kit for 2520VQ, Std Single Seal, Buna-N	0.15	
C1DZ94	920056	VQ Series, Seal Kit for 3525VQ, Std Single Seal, Buna-N	0.17	
C1EU37	920072	VQ Series, Seal Kit for 4535VQ, Optional Double Seal, Buna-N	0.21	
C1BH19	254848	VQ Series, #11 13T SAE-B Splined Shaft for 2520VQ	1.41	
C1KF95	920048	VQ Series, Shaft Seal Kit, Single Shaft Seal, 3520VQ	0.17	
C1AK38	131812	V Series, Bearing for 45**V	1.02	
C1KF58	942356	V Series, Body Kit, 4520V	19.74	
C1CB93	922856	V Series, Seal Kit for 2520V17, Buna-N	0.11	
C1EG73	193144	V Series, Snap Ring for 3525V	0.02	

Miscellaneous Double Gear Pumps

Miscellaneous Double Gear Pumps

Catalog Part No.	Mfg. Model	Mfg. Name	Displ in ³ /rev Front Rear	Mount	Shaft	Ports	Rot.	Other Features	Wt.	Price Each
C1ZT99	26504-RBN (ACMAR049904AC010016000 0A00000B0B)	Eaton	0.66 Front 0.66 Rear	2-Bolt SAE A	3/4" Straight Keyed	SAE-20 Inlet SAE-10 Outlets	CW	Longer Slip-Fit Key	9.78	



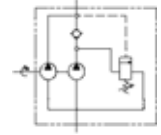
Pumps & Accessories

Double Hydraulic Pumps • Fixed Displacement • Miscellaneous

Two Stage High/Low Hydraulic Pumps "Log Splitter" Pumps



Features: Compact Design • Rugged Heavy Duty Cast Iron Construction
Pressure Rating: 3000 PSI Continuous
Speed Rating: 3600 RPM
Unloading Valve: Factory preset at 650 PSI, adjustable range 400 - 900 PSI.



Two Stage High/Low Hydraulic Pumps • "Log Splitter" Pumps

Catalog Part No.	Mfg. Model	Mfg. Name	Displ in ³ /rev Front Rear	Mount	Shaft	Ports	Rot.	Other Features	Wt.	Price Each
C1LW76	1300159	Concentric AB	0.194 0.517	4-bolt	1/2" Straight w/woodruff key	Inlet: 1" tube; Outlet: 1/2" NPTF	CW	Built in check valve and unloading valve	8.24	

Hydraulic Power & Control

Pneumatic Power & Control

Fluid Conveying

Miscellaneous Products

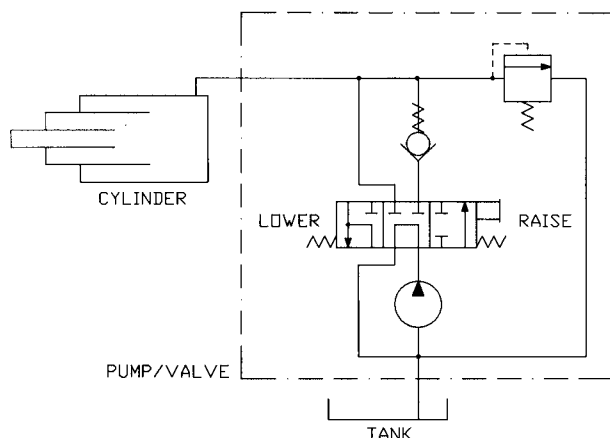
Indexes & Technical Information



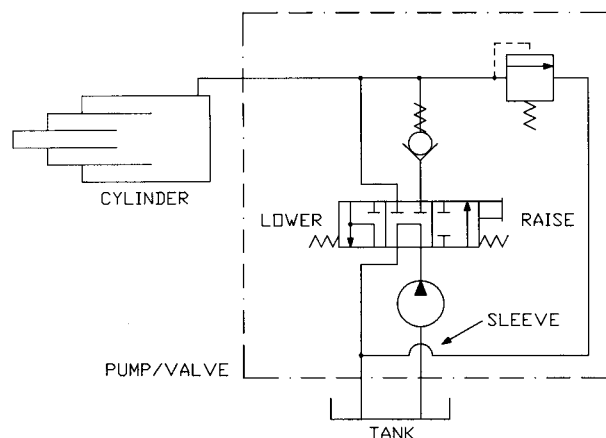
Pumps & Accessories

Dump Pumps Pump/Valve Assemblies For Dump Trucks & Trailers

Introduction to Dump Pumps



2-LINE OPERATION



3-LINE OPERATION

In applying the Permco Dump Pump, an understanding of the 2-Line and 3-Line circuits is essential for proper operation and maximum unit life.

2-Line Operation: In the 2-Line Operation, one line is connected from the oil tank to the inlet of the pump, and one line is connected from the cylinder port of the valve to the cylinder. With the pump engaged and the valve spool in the neutral position, oil will recirculate inside the unit. It has been determined through testing that the raise in temperature per every minute of operation in this mode is 7-1/2°F. If operation is allowed to continue beyond the recommended 5 minute time interval, a reduction in clearances of the rotating group due to excessive heat and subsequent expansion will occur. The result may lead to the unit locking up and premature failure of the drive shaft or other internal components.

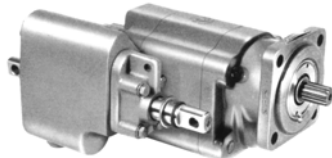
3-Line Operation: In the 3-Line Operation, one line is connected from the oil tank to the inlet of the pump, one line is connected from the cylinder port of the valve to the cylinder and one line is connected from the pump's return port back to the oil tank. A metal sleeve is inserted into the inlet port of the valve which diverts flow back to tank from either the cylinder retracting or from the valve spool being in neutral. Heating of the oil is reduced with a 3-Line circuit, but is not eliminated. 10 minutes is the maximum recommended time to allow the pump to be engaged and the valve spool in neutral with a 3-Line circuit.

CAUTION: Operation with the 3-Line Sleeve installed in a 2-Line application is potentially hazardous.

Shaft Seal Life: Like any control valve, there are inherent pressure drops within the dump pump due to internal core configurations. During cylinder retraction, fluid velocities may increase to a point that excessive back pressures may be seen at the pump shaft seal area. For this reason, Permco installs high pressure motor shaft seals in all dump pump units to prevent premature shaft seal failure. It is also suggested that movement of the valve spool from the neutral to the raise position in rapid succession be avoided as this may also contribute to the premature failure of the shaft seal.

Dump Pumps Pump/Valve Assemblies For Dump Trucks & Trailers

Permco DM400 Series Dump Pumps For Light & Medium Duty Dump Trucks



Direct Mount



Remote Mount

Features: Rugged cast iron, roller bearing pump construction. High strength alloy steel gear and shaft set. Pressure balanced wear plates maintain high pump efficiency throughout all operating ranges. 100% factory tested. 1-1/4 NPT inlet port, 3/4 NPT pressure port, 3/4 NPT return port (for 3rd line). Built in direct acting relief valve set at factory provides protection to both the pump and to the cylinder. Manual Shift standard. Built-in load check. Neutral Lockout device preventing accidental lowering of the dump body.

Application: See Introduction To Dump Pumps at the beginning of this section for details on 2-Line and 3-Line Operation.

Pressure Limit: 2500 PSI.

Rated Speed: 2400 RPM.

Maximum System Temperature: Under normal conditions of continuous operation, not to exceed 150°F. Never to exceed 185°F.

Note: Ratings based on using anti wear hydraulic fluid. For information on use with other fluids, contact us for assistance.

Recommended Filtration: 25 micron return filter with B10 rating of at least 2.2.

Dimensions: page 594

Permco DM400 Series Dump Pumps • For Light & Medium Duty Dump Trucks

Catalog Part No.	Permco Model	Mount	Displacement PressureRating Max Speed	Flow GPM 1800 RPM	Circuit Type	Remote Mount Valve Location	Direct Mount Rotation	Relief Setting (PSI)	Other Features	Wt.	Price Each
C1CN69	DMD-400-20-ZL-200	Direct	4.000 in ³ /rev 2500 PSI 2400 RPM	21.5	3-Line	--	CCW	2000	Replaces Commercial G102-2-20L	40.08	
•C1CN70	DMR40020ZL200	Remote	4.000 in ³ /rev 2500 PSI 2400 RPM	21.5	3-Line	Left Side	--	2000	Replaces Commercial G101-2-20	30.00	

Note: To convert a 3-Line model for use in a 2-Line circuit, remove the metal sleeve in the inlet port of the valve, and install a 3/4 NPT plug in the return port.

Pumps & Accessories

Dump Pumps Pump/Valve Assemblies For Dump Trucks & Trailers

Permco DMD/DM640 Series Dump Pumps For Medium & Heavy Duty Dump Trucks



REMOTE MOUNT



DIRECT MOUNT

Features: Rugged cast iron, roller bearing pump construction. High strength alloy steel gear and shaft set. Pressure balanced wear plates maintain high pump efficiency throughout all operating ranges. 100% factory tested. 1-1/4 NPT inlet port, 3/4 NPT pressure port, 3/4 NPT return port (for 3rd line). Built in direct acting relief valve set at factory provides protection to both the pump and to the cylinder. Manual Shift standard. Built-in load check. Neutral Lockout safety cap for use with pull-out cable. 2 extra long studs for easy installation of pump support bracket on Direct Mount models.

Application: See Introduction To Dump Pumps at the beginning of this section for details on 2-Line and 3-Line Operation.

Pressure Limit: 2500 PSI.

Rated Speed: 2400 RPM.

Maximum System Temperature: Under normal conditions of continuous operation, not to exceed 150°F. Never to exceed 185°F.

Note: Ratings based on using anti wear hydraulic fluid. For information on use with other fluids, contact us for assistance.

Recommended Filtration: 25 micron return filter with B10 rating of at least 2.2.

Dimensions: page 595

Permco DMD/DM640 Series Dump Pumps • For Medium & Heavy Duty Dump Trucks

Catalog Part No.	Permco Model	Mtg. Style	Displacement PressureRating Max Speed	Flow GPM 1800 RPM	Circuit Type	Remote Mount Valve Location	Direct Mount Rotation	Relief Setting (PSI)	Other Features	Wt.	Price Each
•C1CN68	DMD-25-Z-L-MS-20	Direct	6.400 in ³ /rev 2500 PSI 2400 RPM	46.0	3-Line	--	CCW	2000	Replaces Commercial C102D251	63.00	
C1CN66	DM-640-25-ZR-M-T-200	Remote	6.400 in ³ /rev 2500 PSI 2400 RPM	46.0	3-Line	Right Side	--	2000	Replaces Commercial C101D25		

Note: To convert a 3-Line model for use in a 2-Line circuit, remove the metal sleeve in the inlet port of the valve, and install a 3/4 NPT plug in the return port.

Refuse Pump System Permco Versa-Pak Refuse Pump System



Permco Versa-Pak Refuse Pump System



The Versa-Pak Refuse Pump System is available in two configurations.

Dry Valve System: The Versa-Pak Valve in a Dry Valve System functions as a pressure compensated flow control. This limits flow to the hydraulic system allowing a preset amount to the system with the excess flow being returned to the tank at low pressure. This reduces repairs and downtime associated with overspeeding and overpressurizing the hydraulic system. The Dry Valve eliminates heat build-up in the hydraulic system associated with large flows when the system is not in use (Operator controls with switch or air valve).

Unloader System: The Versa-Pak Valve in an Unloader System functions as a pressure compensated flow control and an unloader. The unloader diverts 100% of the flow back to tank at extremely low pressure when the hydraulic system is not required (Operator controls with switch).

Versa-Pak Pump Features: 25% longer idler gear bearings to reduce shaft deflection and extend life. Sealed outboard bearing with protective shield to keep out contamination. Dowel pin construction. Solid one-piece gear and shaft set. Bleed valve built into rear cover (Dry Valve models).

Versa-Pak Valve Features: Tamper-resistant flow regulation.

Dry Valves: Easily operated by a dash mounted electric over air switch or manual air valve. Includes breather vent, tubing and fittings.

Note: Please contact us for application assistance with the Versa-Pak System.



Catalog Part No.	Permco Model	Description	Wt.	Price Each
•C1KN74	VP42-4COFLFC55	Versa-Pak Pump, Flow Control Valve set at 55 GPM. 42 GPM @ 1200 RPM, 9.099 cu.in. per rev displacement, 4-Bolt SAE-C Mounting Flange, 1-1/4" Keyed Shaft, CCW Rot	50.00	
•C1DR58	VP42-4COFLDV	Versa-Pak Pump, Dry Valve Function. 42 GPM @ 1200 RPM, 9.099 cu.in. per rev displacement, 4-Bolt SAE-C Mounting Flange, 1-1/4" Keyed Shaft, CCW Rot	50.00	
C1CC88	999-00948	Solenoid, Unloader Function.	0.55	

Pumps & Accessories

Hand Pumps

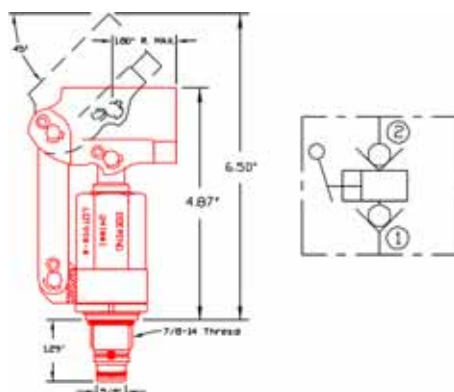
Doering Series 241 Cartridge Hand Pumps



Cavity Required: C-10-2.

Installation: Lubricate seals, using 1-1/4 wrench torque to approximately 50 foot pounds. Socket may be rotated 360° for handle positioning.

Performance and Operation: Maximum Operating Pressure: 5000 psi; Maximum Handle Torque: 80 ft.-lbs.; Displacement: 0.601 cu. in. per stroke.



Doering Series 241 Cartridge Hand Pumps

Catalog Part No.	Doering Model	Description	Wt.	Price Each
C1LB24	241871-S	Hand Pump, Push style, Stainless steel with Electroless Nickel plated carbon steel socket and collar	1.91	
C1MJ24	241009-LG	9 inch Handle for 241 Series Pumps		
C1EN21	241016	16 inch Handle, Zinc Plated Steel, for 241 Series Pumps	2.50	

Air-Operated Diaphragm Pumps



Air-Operated Diaphragm Pumps

Aro® Air-Operated Diaphragm pumps offer several performance advantages over other pump types in fluid transfer applications. (1) When you close the fluid outlet, the pump stops. No movement, no wear, no overload, no heat buildup, no power consumption. (2) Variable flow rates are achieved by simply adjusting air pressure to the pump or by restricting the discharge line. (3) Positive priming provides easy start-ups. Internal fluid check valves are located close to the diaphragm chambers, assuring positive self-priming, even from a dry start. (4) Pumping efficiency remains constant since there are no rotors, gears, vanes or pistons to wear out. (5) Runs dry without damage. (6) No foaming or shearing of material. Process fluids enter and exit unchanged. (7) No lubrication is required so there is less maintenance. (8) Pumps are lightweight and portable and can be carried from job to job with ease.

Features: Patented "Unbalanced" air valve design ensures pump will always resume pumping action when called on. Bolted construction for an improved seal and safer fluid handling. No rotating or sliding seals to leak or fail.

Dimensions & Performance Curves: page 614

1/4 Inch Ports • 5.3 GPM Capability Non-Metallic Wetted Parts



Maximum Flow Rate: 5.3 GPM.

Displacement: 0.019 Gallons per Cycle.

Maximum Operating Pressure: 125 PSI

Suspended Solids Capability: 1/16" maximum diameter solids

Fluid Ports: Hybrid 1/4" NPT/BSP

Air Inlet: Hybrid 1/4" NPT/BSP

Recommended Filter/Regulator: page 794

1/4 Inch Ports • 5.3 GPM Capability • Non-Metallic Wetted Parts

Catalog Part No.	Aro® Model	Center Section	Port	Wetted End	Seat Material	Ball / Diaphragm	Wt.	Price Each
C1MM73	PD01P-HPS-PAA-A	Polypropylene	Hybrid 1/4" NPT/BSP	Polypropylene	Polypropylene	Santoprene	3.78	
C1ML48	PD01P-HPS-PTT-A	Polypropylene	Hybrid 1/4" NPT/BSP	Polypropylene	Polypropylene	PTFE	3.78	

Pumps & Accessories

Air-Operated Diaphragm Pumps



1/2 Inch Ports • 13 GPM Capability Non-Metallic Wetted Parts



Maximum Flow Rate: 13 GPM.
Displacement: 0.04 Gallons per Cycle.
Maximum Operating Pressure: 100 PSI.
Suspended Solids Capability: 3/32 inch diameter.
Maximum Dry Suction Lift: 10 ft. (Teflon® fitted).
Fluid Ports: 1/2 NPT Inlet. 1/2 NPT Outlet.
Air Inlet: 1/4 NPT.
Recommended Filter/Regulator: page 794

1/2 Inch Ports • 13 GPM Capability • Non-Metallic Wetted Parts

Catalog Part No.	Aro® Model	Air Motor	Wetted Parts	Check Valve Seats	Ball Check / Diaphragm	Other Features	Wt.	Price Each
C1BX83	66605J-311	Polypropylene	Polypropylene	Polypropylene	Neoprene / Neoprene	Single Piece Manifold	9.00	
C1BX79	666053-322	Polypropylene	Polypropylene	Polypropylene	Nitrile / Nitrile		9.24	

Service Kits & Parts for Aro® 1/2 Inch Diaphragm Pumps

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1BW94	637140-11	Service Kit, Diaphragm Material, Neoprene	0.32	

Air-Operated Diaphragm Pumps



1 Inch Ports • 35 GPM Capability Metallic Wetted Parts



Maximum Flow Rate: 35 GPM.
Displacement: 0.16 Gallons per Cycle.
Maximum Operating Pressure: 120 PSI.
Suspended Solids Capability: 1/8 inch diameter.
Maximum Dry Suction Lift: 20 ft. (Rubber fitted).
Fluid Ports: 1 inch NPT Inlet. 1 inch NPT Outlet.
Air Inlet: 1/4 NPT.
Recommended Filter/Regulator: page 794

1 Inch Ports • 35 GPM Capability • Metallic Wetted Parts

Catalog Part No.	Aro® Model	Air Motor	Wetted Parts	Check Valve Seats	Ball Check / Diaphragm	Other Features	Wt.	Price Each
•C1BX87	666100-362-C	Aluminum	Aluminum	Polypropylene	Acetal / Buna-N		20.18	

Service Kits & Parts for Aro® 1 inch Metallic Diaphragm Pumps

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1CB70	90532-6	Ball, Acetal	0.10	
C1CB72	90533-2	Diaphragm, Buna-N	0.50	
C1DT74	Y325-126	O-Ring, Nitrile, 3/32 x 1-9/16 OD	0.01	
•C1BW93	637119-62-C	Service Kit, Diaphragm Material, Buna-N	0.93	

Pumps & Accessories

Centrifugal Pumps

Hypro

Centrifugal Pumps for Agricultural Spraying



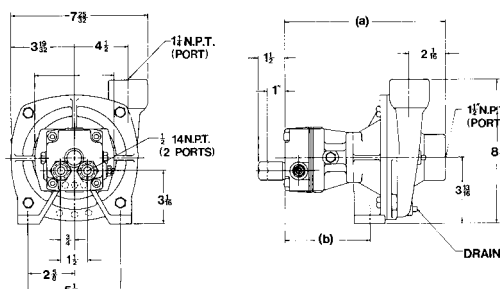
Hypro® centrifugal pumps are ruggedly built for reliability in higher capacity spraying systems. They handle a broad spectrum of spraying solutions from liquid fertilizers to ag chemicals to wettable powders. Housings are available in cast iron and polypropylene (Polypropylene pumps are light weight and provide maximum resistance to corrosive chemicals and acid fertilizers). Impellers are balanced for smooth operation and are precision molded of tough plastic for excellent corrosion resistance.

Hypro® 9300C Series Hydraulic Motor Driven Centrifugal Pumps To 114 GPM / 180 PSI



Ratings: 82-190 GPM Max. Flow, 130-180 PSI Max. Pressure, 140°F Max. Fluid Temperature.

Features: Hydraulic motor drive (for open and closed center systems). 9302 Model Ports: 1-1/4 NPT Inlet, 1 NPT Outlet. 9303C Model Ports: 1-1/2 NPT inlet, 1-1/4 NPT outlet. 9304C Model Ports: 2 NPT inlet, 1-1/2 NPT outlet. Hydraulic Motor Ports: 1/2 NPT Cast iron pump housing. Viton®/Ceramic pump shaft seals standard (Buna-N/Ceramic and Viton®/Silicon Carbide available). Double lip Teflon® hydraulic motor shaft seal.



Hypro® 9300C Series Hydraulic Motor Driven Centrifugal Pumps • To 114 GPM / 180 PSI

Catalog Part No.	Hypro Model	Hydraulic System Type	Hydraulic Motor Capacity	Seals	Performance At Hydraulic Motor Capacity	Wt.	Price Each
C1ZT55	9303C-HM1C	Open & Closed Center	13 GPM 2000 PSI	Viton®/Ceramic	123GPM 10PSI 110GPM 20PSI 109GPM 30PSI 107GPM 40PSI 105GPM 50PSI 104GPM 60PSI 102GPM 70PSI 96GPM 80PSI 85GPM 90PSI 76GPM 100PSI 63GPM 110PSI 33GPM 120PSI 13GPM 130PSI	26.10	

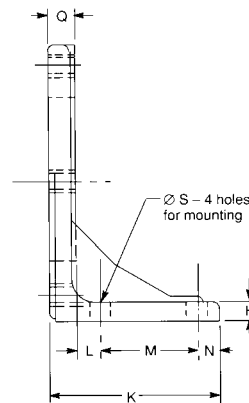
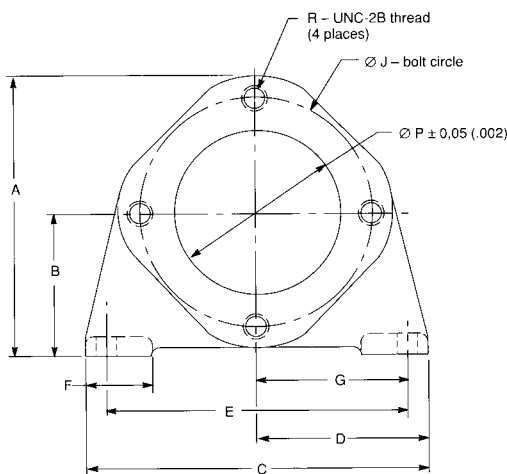
Pump Accessories Foot Brackets

Vickers® Foot Brackets (Cast Iron)

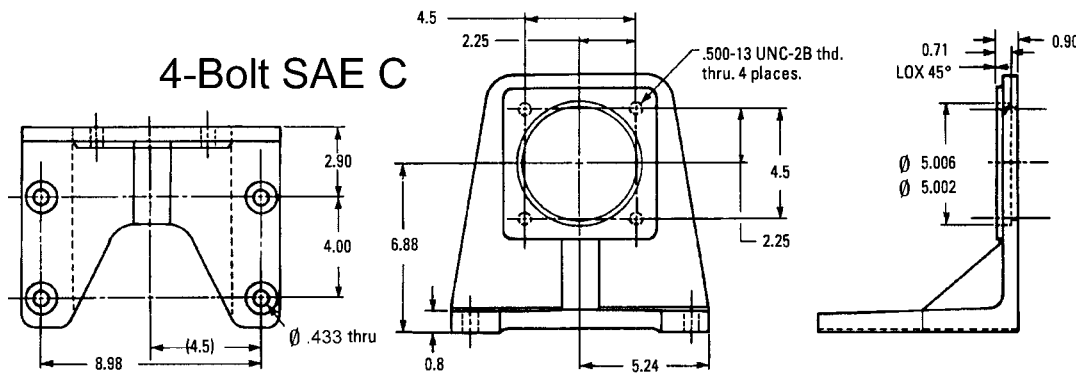


Features: Can be used to mount pumps or motors having standard SAE-J 744 2-Bolt mounting flanges. Either pair of diametrically opposed holes may be used. Bolts are included.

Material: Cast Iron.



2-Bolt Brackets



Vickers® Foot Brackets (Cast Iron)

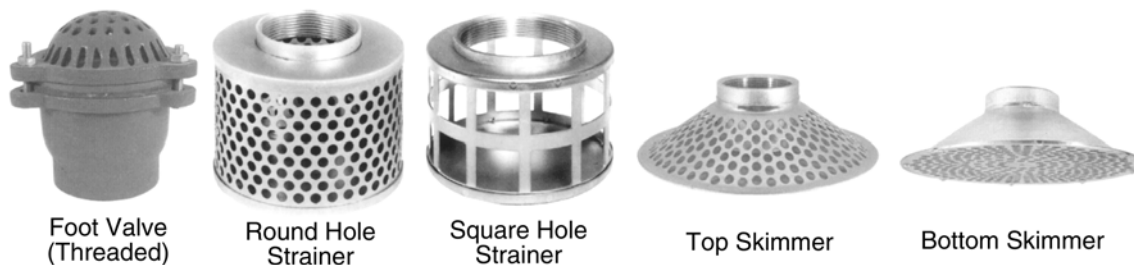
Catalog Part No.	Vickers Part No.	Vickers Model	Size	Dimensions (inches)	Wt.	Price Each
•C1BP87	422582	FB-A-10	2-Bolt SAE A	A=5.31 B=2.75 C=6.00 D=3.00 E=5.00 F=1.44 G=2.50 H=.50 J=4.19 K=3.78 L=.59 M=2.00 N=.50 P=3.253 Q=.69 R=3/8-16 S=.44	4.20	
•C1BP88	422583	FB-B-10	2-Bolt SAE B	A=7.12 B=3.63 C=6.75 D=3.38 E=5.75 F=1.44 G=2.88 H=.50 J=5.75 K=3.77 L=.59 M=2.00 N=.50 P=4.003 Q=.68 R=1/2-13 S=.68	5.94	

Pumps & Accessories

Water Pump Accessories

Foot Valves, Strainers, Skimmers

Foot Valves, Strainers and Skimmers



Foot Valves, Strainers and Skimmers

Catalog Part No.	Model	Type	Size (in)	Description	Mfg. Name	Wt.	Price Each
•C1FJ25	DFVS35	Foot Valve	3	Threaded Type, Painted	Dixon	8.08	
•C1GA20	RHS200	Round Hole Strainer	2	Zinc Plated Steel, Straight Pipe Threads (NPSM)	Kuriyama	1.78	
•C1DK11	RHS-35	Round Hole Strainer	3	Zinc Plated Steel, Pipe Threads (NPT)	Dixon	2.00	
•C1GA22	RHS300	Round Hole Strainer	3	Zinc Plated Steel, Straight Pipe Threads (NPSM)	Kuriyama	3.08	
•C1GA23	RHS400	Round Hole Strainer	4	Zinc Plated Steel, Straight Pipe Threads (NPSM)	Kuriyama	2.90	
•C1GA24	RHS600	Round Hole Strainer	6	Zinc Plated Steel, Straight Pipe Threads (NPSM)	Kuriyama	6.04	



Hydraulic Motors & Accessories

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Hydraulic Motors & Accessories

Char-Lynn® Low-Speed High-Torque Motors

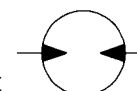


Char-Lynn® H Series Gerotor Motors

Up to 4600 lb-in Intermittent Torque, 1100 Intermittent RPM



Char-Lynn® H Series motors are economical, efficient, compact and powerful, and are designed for medium duty applications. These motors have the industry proven spool valve design combined with state-of-the-art gerotors. In addition, a wide variety of mounting flanges, shafts, ports and a low speed valving option provides design flexibility. Direction of shaft rotation and shaft speed can be controlled easily and smoothly throughout the speed range of the motor. Equipment can be driven direct eliminating costly mechanical components.



Maximum Case Pressure: 1500 PSI.

Fluid Viscosity: Minimum viscosity (at operating temperature) should be the highest of the following: 100SUS or (20 x PSI)/RPM = SUS.

Recommended Fluids: Premium quality, anti-wear type hydraulic fluid.

Recommended Filtration: Per ISO Cleanliness Code, level 18/13.

Maximum Recommended Operating Temperature: 180° F.

Recommended Break-In: To assure best motor life, run motor for approximately one hour at 30% of rated pressure before application to full load. Be sure motor is filled with fluid prior to any load applications.

Manifold Ported Motors: Base Block Mounting Kits page 209

Dimensions & Technical Information: page 617

Char-Lynn® H Series Gerotor Motors • Up to 4600 lb-in Intermittent Torque, 1100 Intermittent RPM

Catalog Part No.	Char-Lynn® Model	Displ. (cu.in./rev)	Mounting Flange	Shaft	Ports	Special Features	Wt.	Price Each
C1JW21	101-1700	2.2	2 Bolt	1 in. Straight Keyed	7/8-14 St.Thd O-Ring		11.70	
C1FE49	101-1704	2.2	2 Bolt	1 in. Straight Keyed	1/2 NPT		11.63	
C1LW53	101-1749	2.2	4 Bolt	1 in. Straight Keyed	7/8-14 St.Thd O-Ring			
C1FE53	101-1753	2.2	4 Bolt	1 in. Straight Keyed	1/2 NPT		10.91	
C1AG38	101-1033	2.8	2 Bolt	1 in. Straight Keyed	7/8-14 St.Thd O-Ring		11.75	
C1AG30	101-1025	2.8	2 Bolt	1 in. Straight Keyed	1/2 NPT		11.75	
C1KY88	101-1009	2.8	4 Bolt	1 in. Straight Keyed	7/8-14 St.Thd O-Ring			
C1AG21	101-1001	2.8	4 Bolt	1 in. Straight Keyed	1/2 NPT		11.25	
C1FE50	101-1705	3.6	2 Bolt	1 in. Straight Keyed	1/2 NPT		15.00	
C1FE54	101-1754	3.6	4 Bolt	1 in. Straight Keyed	1/2 NPT		11.20	
C1JW14	101-1034	4.5	2 Bolt	1 in. Straight Keyed	7/8-14 St.Thd O-Ring		12.10	
C1AG31	101-1026	4.5	2 Bolt	1 in. Straight Keyed	1/2 NPT		12.25	
C1KY89	101-1010	4.5	4 Bolt	1 in. Straight Keyed	7/8-14 St.Thd O-Ring			
C1AG22	101-1002	4.5	4 Bolt	1 in. Straight Keyed	1/2 NPT		11.50	
C1JW15	101-1035	5.9	2 Bolt	1 in. Straight Keyed	7/8-14 St.Thd O-Ring		12.34	
C1AG32	101-1027	5.9	2 Bolt	1 in. Straight Keyed	1/2 NPT		12.00	
C1JW11	101-1011	5.9	4 Bolt	1 in. Straight Keyed	7/8-14 St.Thd O-Ring		11.50	
C1AG23	101-1003	5.9	4 Bolt	1 in. Straight Keyed	1/2 NPT		12.00	
C1LW52	101-1702	7.3	2 Bolt	1 in. Straight Keyed	7/8-14 St.Thd O-Ring			
C1FE51	101-1706	7.3	2 Bolt	1 in. Straight Keyed	1/2 NPT		12.53	
C1FE55	101-1755	7.3	4 Bolt	1 in. Straight Keyed	1/2 NPT			
C1FE52	101-1707	8.9	2 Bolt	1 in. Straight Keyed	1/2 NPT		12.81	
C1GG40	101-1752	8.9	4 Bolt	1 in. Straight Keyed	7/8-14 St.Thd O-Ring			
C1AG33	101-1028	9.7	2 Bolt	1 in. Straight Keyed	1/2 NPT		13.25	
C1KY90	101-1012	9.7	4 Bolt	1 in. Straight Keyed	7/8-14 St.Thd O-Ring			
C1AG24	101-1004	9.7	4 Bolt	1 in. Straight Keyed	1/2 NPT		12.50	



Hydraulic Motors & Accessories

Char-Lynn® Low-Speed High-Torque Motors



Char-Lynn® H Series Geroter Motors • Up to 4600 lb-in Intermittent Torque, 1100 Intermittent RPM

Catalog Part No.	Char-Lynn® Model	Displ. (cu.in./rev)	Mounting Flange	Shaft	Ports	Special Features	Wt.	Price Each
•C1AG34	101-1029	11.3	2 Bolt	1 in. Straight Keyed	1/2 NPT		13.50	
C1KY91	101-1013	11.3	4 Bolt	1 in. Straight Keyed	7/8-14 St.Thd O-Ring			
•C1AG25	101-1005	11.3	4 Bolt	1 in. Straight Keyed	1/2 NPT		12.50	
•C1AG35	101-1030	14.1	2 Bolt	1 in. Straight Keyed	1/2 NPT		14.00	
C1KY92	101-1014	14.1	4 Bolt	1 in. Straight Keyed	7/8-14 St.Thd O-Ring			
•C1AG26	101-1006	14.1	4 Bolt	1 in. Straight Keyed	1/2 NPT		13.00	
•C1AG39	101-1039	17.9	2 Bolt	1 in. Straight Keyed	7/8-14 St.Thd O-Ring		10.00	
•C1AG36	101-1031	17.9	2 Bolt	1 in. Straight Keyed	1/2 NPT		14.42	
C1KY93	101-1015	17.9	4 Bolt	1 in. Straight Keyed	7/8-14 St.Thd O-Ring			
•C1AG27	101-1007	17.9	4 Bolt	1 in. Straight Keyed	1/2 NPT		13.80	
•C1AG40	101-1040	22.6	2 Bolt	1 in. Straight Keyed	7/8-14 St.Thd O-Ring		15.25	
•C1AG37	101-1032	22.6	2 Bolt	1 in. Straight Keyed	1/2 NPT		15.50	
C1KY94	101-1016	22.6	4 Bolt	1 in. Straight Keyed	7/8-14 St.Thd O-Ring			
•C1AG28	101-1008	22.6	4 Bolt	1 in. Straight Keyed	1/2 NPT		14.50	

Parts For Char-Lynn® H Series Geroter Motors

Catalog Part No.	Part Number	Description	Wt.	Price Each
•C1AB11	0022002-000	Backup Ring, H Series -008 -009	0.01	
•C1AA28	0007537-000	Thrust Needle Bearing, H Series -007, -008, -009	0.02	
•C1AA62	0009121-002	Dust Seal, H Series -007 -008 -009	0.02	
•C1AA60	0009091-001	Flange Seal, H Series -005 -007 -008 -009	0.01	
•C1AA98	0022000-001	Front Flange, 2-Bolt, -008-009 Series	1.83	
•C1AA98	0022000-001	Front Flange, 2-Bolt, H Series -008 -009	1.83	
•C1AA27	0007464-000	Front Flange, 4-Bolt, H Series -007	1.10	
•C1AA27	0007464-000	Front Flange, 4-Bolt, -007 Series	1.10	
•C1AA99	0022000-002	Front Flange, 4-Bolt, -008-009 Series	1.08	
•C1AA99	0022000-002	Front Flange, 4-Bolt, H Series -008 -009	1.08	
•C1AB40	0060036-000	Seal Kit, Buna-N, -005 Series	0.04	
•C1AB38	0060023-000	Seal Kit, Buna-N, -007 Series	0.05	
•C1AB43	0060540-000	Seal Kit, Buna-N, -008-009 Series	0.05	
•C1AA21	0007360-001	Shaft, 1 Inch Straight Keyed with Woodruff key slot, H Series -007 -008 -009	1.52	
•C1AA22	0007360-002	Shaft, SAE 6B Splined, H Series -007 -008 -009	1.49	
•C1AA53	0009057-001	Shaft Seal, H Series -007	0.01	
•C1AA56	0009057-014	Shaft Seal, H Series -008 -009	0.01	
•C1AA72	0016292-088	Torx Head Capscrew, H Series -007 -008 -009	0.03	
•C1AA66	0014193-000	Woodruff Key, H Series -005 -007 -008 -009	0.02	



Hydraulic Motors & Accessories

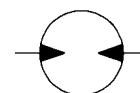
Char-Lynn® Low-Speed High-Torque Motors



Char-Lynn® J Series Geroler® Motors Up to 743 lb-in Intermittent Torque, 2458 Intermittent RPM



Char-Lynn® J Series motors pack a lot of power in a very small package. These motors feature a Geroler® design, spool valving, high radial shaft load capability and case drain port.



Maximum Case Pressure: 1100 PSI (Without case drain). For continuous back pressure over 1100 PSI, use an external case drain line. Install line so motor case remains full at all times.

Fluid Viscosity: Minimum: 70 SUS at operating temperature. Recommended Range: 100-200 SUS.

Recommended Fluids: Premium quality, anti-wear type hydraulic fluid.

Recommended Filtration: Per ISO Cleanliness Code, level 18/13.

Maximum Recommended Operating Temperature: 180° F.

Recommended Break-In: To assure best motor life, run motor for approximately one hour at 30% of rated pressure before application to full load. Be sure motor is filled with fluid prior to any load applications.

Dimensions & Technical Information: page 618

Seal Kit: Part number: 60580

Char-Lynn® J Series Geroler® Motors • Up to 743 lb-in Intermittent Torque, 2458 Intermittent RPM

Catalog Part No.	Char-Lynn® Model	Displ. (cu.in./rev)	Mounting Flange	Shaft	Ports	Special Features	Wt.	Price Each
C1AJ71	129-0018	0.79	5 Bolt 1/4-28UNF	5/8 in. Straight Keyed	9/16-18 St.Thd. O-Ring Side Ports	Case Drain 3/8-24 St.Thd., Low Gloss Black Paint	4.76	
•C1JX28	129-0019	1.21	5 Bolt 1/4-28UNF	5/8 in. Straight Keyed	9/16-18 St.Thd. O-Ring Side Ports	Case Drain 3/8-24 St.Thd., Low Gloss Black Paint	4.80	
C1AJ70	129-0004	1.93	5 Bolt 1/4-28UNF	5/8 in. Straight Keyed	9/16-18 St.Thd. O-Ring End Ports	Case Drain 3/8-24 St.Thd.	5.15	
C1JX29	129-0020	1.93	5 Bolt 1/4-28UNF	5/8 in. Straight Keyed	9/16-18 St.Thd. O-Ring Side Ports	Case Drain 3/8-24 St.Thd., Low Gloss Black Paint	5.00	

Parts For Char-Lynn® J Series Geroler® Motors

Catalog Part No.	Part Number	Description	Wt.	Price Each
•C1KH36	0060580-000	Seal Kit, Design -002	0.03	



Hydraulic Motors & Accessories

Char-Lynn® Low-Speed High-Torque Motors

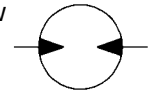


Char-Lynn® S Series Geroler® Motors

Up to 5190 lb-in Intermittent Torque, 963 Intermittent RPM



Char-Lynn® S Series motors with Geroler® offer the same advantage of low speed, high torque and compact size as the H Series with geroter. In the Geroler®, element precision machined rollers form the displacement chambers. The rollers provide support with rolling contact as the star rotates, minimizing friction and providing high efficiency, especially at start-up and at low speeds.



Maximum Case Pressure: 1500 PSI.

Fluid Viscosity: 70 SUS at operating temperature.

Recommended Fluids: Premium quality, anti-wear type hydraulic fluid.

Recommended Filtration: Per ISO Cleanliness Code, level 18/13.

Maximum Recommended Operating Temperature: 180° F.

Recommended Break-In: To assure best motor life, run motor for approximately one hour at 30% of rated pressure before application to full load. Be sure motor is filled with fluid prior to any load applications.

Manifold Ported Motors: Base Block Mounting Kits page 209

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Char-Lynn® S Series Geroler® Motors • Up to 5190 lb-in Intermittent Torque, 963 Intermittent RPM

Catalog Part No.	Char-Lynn® Model	Displ. (cu.in./rev)	Mounting Flange	Shaft	Ports	Special Features	Wt.	Price Each
C1JW30	103-1537	3.6	2 Bolt	1 in. Straight Keyed	7/8-14 St.Thd. O-Ring	Low Gloss Black Primer	14.80	
C1FE57	103-1540	3.6	2 Bolt	1 in. Straight Keyed	1/2 NPT	Low Gloss Black Primer	15.27	
C1FE60	103-1573	3.6	4 Bolt	1 in. Straight Keyed	1/2 NPT	Low Gloss Black Primer	14.63	
C1LW60	103-1570	3.6	4 Bolt	1 in. Straight Keyed	7/8-14 St.Thd. O-Ring	Low Gloss Black Primer	12.50	
C1MN21	103-3581	3.6	4 Bolt	1 in. Straight Keyed	7/8-14 St.Thd. O-Ring	Environmental Coating	14.63	
C1LW57	103-1034	4.6	2 Bolt	1 in. Straight Keyed	7/8-14 St.Thd. O-Ring	Low Gloss Black Primer	15.00	
C1AG78	103-1026	4.6	2 Bolt	1 in. Straight Keyed	1/2 NPT	Low Gloss Black Primer	15.50	
C1AG67	103-1002	4.6	4 Bolt	1 in. Straight Keyed	1/2 NPT	Low Gloss Black Primer	15.00	
C1FH58	103-1035	5.7	2 Bolt	1 in. Straight Keyed	7/8-14 St.Thd. O-Ring	Low Gloss Black Primer	15.67	
C1AG79	103-1027	5.7	2 Bolt	1 in. Straight Keyed	1/2 NPT	Low Gloss Black Primer	16.00	
C1KX62	103-1011	5.7	4 Bolt	1 in. Straight Keyed	7/8-14 St.Thd. O-Ring	Low Gloss Black Primer	14.62	
C1MN19	103-3575	5.7	4 Bolt	1 in. Straight Keyed	7/8-14 St.Thd. O-Ring	Environmental Coating	16.05	
C1AG68	103-1003	5.7	4 Bolt	1 in. Straight Keyed	1/2 NPT	Low Gloss Black Primer	15.50	
C1HC88	103-1538	7.3	2 Bolt	1 in. Straight Keyed	7/8-14 St.Thd. O-Ring	Low Gloss Black Primer	16.05	
C1BN40	103-1574	7.3	4 Bolt	1 in. Straight Keyed	1/2 NPT	Low Gloss Black Primer	15.46	
C1LW61	103-1571	7.3	4 Bolt	1 in. Straight Keyed	7/8-14 St.Thd. O-Ring	Low Gloss Black Primer	14.99	
C1FE59	103-1542	8.8	2 Bolt	1 in. Straight Keyed	1/2 NPT	Low Gloss Black Primer	16.00	
C1FE61	103-1575	8.8	4 Bolt	1 in. Straight Keyed	1/2 NPT	Low Gloss Black Primer	15.97	
C1LW62	103-1572	8.8	4 Bolt	1 in. Straight Keyed	7/8-14 St.Thd. O-Ring	Low Gloss Black Primer	15.35	
C1LW59	103-1539	8.8	2 Bolt	1 in. Straight Keyed	7/8-14 St.Thd. O-Ring	Low Gloss Black Primer	16.00	
C1ZZ49	103-1036	10.1	2 Bolt	1 in. Straight Keyed	7/8-14 St.Thd. O-Ring	Low Gloss Black Primer	17.02	
C1AG80	103-1028	10.1	2 Bolt	1 in. Straight Keyed	1/2 NPT	Low Gloss Black Primer	17.25	
C1AG69	103-1004	10.1	4 Bolt	1 in. Straight Keyed	1/2 NPT	Low Gloss Black Primer	16.50	
C1LW58	103-1037	11.4	2 Bolt	1 in. Straight Keyed	7/8-14 St.Thd. O-Ring	Low Gloss Black Primer	12.96	
C1AG81	103-1029	11.4	2 Bolt	1 in. Straight Keyed	1/2 NPT	Low Gloss Black Primer	17.55	
C1KZ14	103-1013	11.4	4 Bolt	1 in. Straight Keyed	7/8-14 St.Thd. O-Ring	Low Gloss Black Primer	16.11	
C1MN20	103-3577	11.4	4 Bolt	1 in. Straight Keyed	7/8-14 St.Thd. O-Ring	Environmental Coating	19.00	
C1AG70	103-1005	11.4	4 Bolt	1 in. Straight Keyed	1/2 NPT	Low Gloss Black Primer	17.00	



This page is part of a complete catalog which contains technical and safety data that must be reviewed when selecting a product

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Hydraulic Motors & Accessories



Char-Lynn® Low-Speed High-Torque Motors



Char-Lynn® S Series Geroler® Motors • Up to 5190 lb-in Intermittent Torque, 963 Intermittent RPM

Catalog Part No.	Char-Lynn® Model	Displ. (cu.in./rev)	Mounting Flange	Shaft	Ports	Special Features	Wt.	Price Each
•C1AG88	103-2038	13.7	2 Bolt	1 in. Straight Keyed	7/8-14 St.Thd. O-Ring	Case Drain Port	18.75	
C1AG85	103-1038	13.7	2 Bolt	1 in. Straight Keyed	7/8-14 St.Thd. O-Ring	Low Gloss Black Primer	20.00	
•C1AG82	103-1030	13.7	2 Bolt	1 in. Straight Keyed	1/2 NPT	Low Gloss Black Primer	18.50	
C1AG76	103-1014	13.7	4 Bolt	1 in. Straight Keyed	7/8-14 St.Thd. O-Ring	Low Gloss Black Primer	16.00	
•C1AG71	103-1006	13.7	4 Bolt	1 in. Straight Keyed	1/2 NPT	Low Gloss Black Primer	17.75	
C1HY39	103-2006	13.7	4 Bolt	1 in. Straight Keyed	1/2 NPT	1/4-20 End-of-Shaft Thread, 7/16-20 Case Drain	17.75	
C1EL53	103-1039	17.9	2 Bolt	1 in. Straight Keyed	7/8-14 St.Thd O-Ring	Low Gloss Black Primer	20.25	
•C1AG83	103-1031	18.2	2 Bolt	1 in. Straight Keyed	1/2 NPT	Low Gloss Black Primer	20.25	
•C1KZ15	103-1015	18.2	4 Bolt	1 in. Straight Keyed	7/8-14 St.Thd. O-Ring	Low Gloss Black Primer	18.75	
•C1AG72	103-1007	18.2	4 Bolt	1 in. Straight Keyed	1/2 NPT	Low Gloss Black Primer	18.75	
•C1AG86	103-1040	22.7	2 Bolt	1 in. Straight Keyed	7/8-14 St.Thd. O-Ring	Low Gloss Black Primer	20.70	
•C1AG84	103-1032	22.7	2 Bolt	1 in. Straight Keyed	1/2 NPT	Low Gloss Black Primer	20.75	
C1MX36	103-2016	22.7	4 Bolt	1 in. Straight Keyed	7/8-14 St.Thd. O-Ring	-4 SAE Case Drain Port, Low Gloss Black Primer	20.00	
C1JC41	103-1024	22.7	4 Bolt	1 in. Straight Keyed	Manifold	Low Gloss Black Primer	20.10	
•C1AG77	103-1016	22.7	4 Bolt	1 in. Straight Keyed	7/8-14 St.Thd. O-Ring	Low Gloss Black Primer	20.00	
•C1AG73	103-1008	22.7	4 Bolt	1 in. Straight Keyed	1/2 NPT	Low Gloss Black Primer	20.00	

Parts For Char-Lynn® S Series Geroler® Motors

Catalog Part No.	Part Number	Description	Wt.	Price Each
•C1AB11	0022002-000	Backup Ring, S Series -009 -010	0.01	
•C1AA28	0007537-000	Thrust Needle Bearing, S Series -008 -009 -010 -012	0.02	
•C1AA62	0009121-002	Dust Seal, S Series -008 -009 -010	0.02	
•C1AA60	0009091-001	Flange Seal, S Series -006 -007 -008 -009 -010	0.01	
•C1AA98	0022000-001	Front Flange, 2-Bolt, -009-010 Series	1.83	
•C1AA98	0022000-001	Front Flange, 2-Bolt, S Series -009 -010	1.83	
•C1AA27	0007464-000	Front Flange, 4-Bolt, -007-008 Series	1.10	
•C1AA27	0007464-000	Front Flange, 4-Bolt, S Series -007 -008	1.10	
•C1AA99	0022000-002	Front Flange, 4-Bolt, -009-010 Series	1.08	
•C1AA99	0022000-002	Front Flange, 4-Bolt, S Series -009 -010	1.08	
•C1AB39	0060026-000	Seal Kit, Buna-N, -007 Series	0.05	
•C1AB41	0060533-000	Seal Kit, Buna-N, -008 Series	0.05	
•C1AB42	0060539-000	Seal Kit, Buna-N, -009-010 Series	0.05	
•C1KH23	0060564-000	Shaft Seal, S Series -011 (R-002)	0.04	
•C1JC65	9900101-000	Seal Kit, Buna-N, contains poppet, -012 Series	0.05	
•C1AA21	0007360-001	Shaft, 1 Inch Straight Keyed with Woodruff key slot, S Series -008 -009 -010	1.52	
C1KU32	201616-001	Shaft, 1 Inch Straight Keyed with Woodruff key slot, S Series -012	1.53	
•C1AA22	0007360-002	Shaft, SAE 6B Splined, S Series -008 -009 -010	1.49	
C1KU33	201616-002	Shaft, SAE 6B Splined, S Series -012		
•C1AA53	0009057-001	Shaft Seal, S Series -007 -008	0.01	
•C1AA56	0009057-014	Shaft Seal, S Series -009 -010	0.01	
•C1AA72	0016292-088	Torx Head Capscrew, S Series -008 -009 -010	0.03	
•C1AA66	0014193-000	Woodruff Key, S Series -006 -007 -008 -009 -010	0.02	



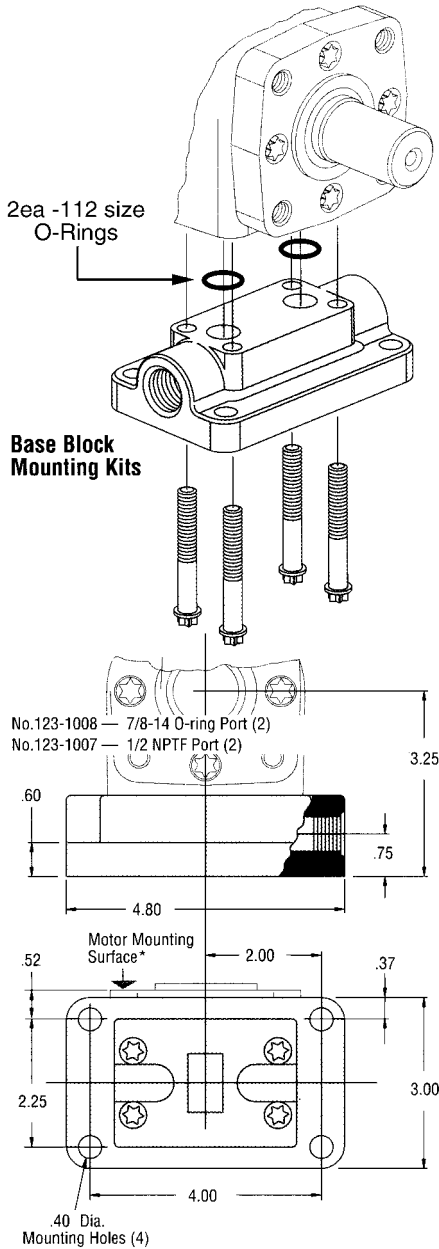


Hydraulic Motors & Accessories

Char-Lynn® Low-Speed High-Torque Motors



Char-Lynn® H & S Series Base Block Mounting Kits



Char-Lynn® H & S Series Base Block Mounting Kits

Catalog Part No.	Char-Lynn® Model	Description	Wt.	Price Each
C1AJ48	123-1007	7/8-14 St.Thd. O-Ring Ports	2.88	



Hydraulic Motors & Accessories

Char-Lynn® Low-Speed High-Torque Motors

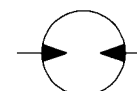


Char-Lynn® 2000 Series Geroler® Motors

Up to 8225 lb-in Intermittent Torque, 1042 Intermittent RPM



Char-Lynn® 2000 Series motors feature a geroler® displacement mechanism that provides high starting and running torque and smooth output shaft rotation even at very low speeds. A patented pressure-balanced, wear-compensated disc valve maintains minimal leakage as it distributes fluid to the geroler pockets. Heavy duty roller bearings permit high radial loads, and are matched to the torque capability of the motor. In addition to motors featured in this catalog, a wide selection of shafts, mounting flanges, ports, and other optional features are available. Contact us for assistance.



Maximum Case Pressure: 2000 PSI (Without case drain). For continuous back pressure over 2000 PSI, use an external case drain line. Install line so motor case remains full at all times.

Fluid Viscosity: Minimum: 70 SUS at operating temperature. Recommended Range: 100-200 SUS.

Recommended Fluids: Premium quality, anti-wear type hydraulic fluid.

Recommended Filtration: Per ISO Cleanliness Code, level 18/13.

Maximum Recommended Operating Temperature: 180° F.

Recommended Break-In: To assure best motor life, run motor for approximately one hour at 30% of rated pressure before application to full load. Be sure motor is filled with fluid prior to any load applications.

Dimensions & Technical Information: page 623

Char-Lynn® 2000 Series Geroler® Motors • Up to 8225 lb-in Intermittent Torque, 1042 Intermittent RPM

Catalog Part No.	Char-Lynn® Model	Displ. (cu.in./rev)	Mounting Flange	Shaft	Ports	Special Features	Wt.	Price Each
C1AG95	104-1001	4.9	2 Bolt SAE A	1 in. Straight Keyed	7/8-14 St.Thd. O-Ring		23.03	
C1AH12	104-1022	4.9	2 Bolt SAE A	1-1/4 in. Straight Keyed	7/8-14 St.Thd. O-Ring		23.00	
C1AH19	104-1029	4.9	2 Bolt SAE A	SAE C Splined 14T	7/8-14 St.Thd. O-Ring		25.00	
C1AG96	104-1002	6.2	2 Bolt SAE A	1 in. Straight Keyed	7/8-14 St.Thd. O-Ring		23.35	
C1MH82	104-1671	6.2	2 Bolt SAE A	1 in. Straight Keyed	7/8-14 St.Thd. O-Ring	Low Gloss Black Paint	24.00	
C1AH13	104-1023	6.2	2 Bolt SAE A	1-1/4 in. Straight Keyed	7/8-14 St.Thd. O-Ring		23.59	
C1EV49	104-1030	6.2	2 Bolt SAE A	SAE C Splined 14T	7/8-14 St.Thd. O-Ring		23.74	
C1LA91	104-3371	6.2	4 Bolt Magneto	SAE C Splined 14T	7/8-14 St.Thd. O-Ring	Black Paint		
C1AG97	104-1003	8.0	2 Bolt SAE A	1 in. Straight Keyed	7/8-14 St.Thd. O-Ring		24.11	
C1AH14	104-1024	8.0	2 Bolt SAE A	1-1/4 in. Straight Keyed	7/8-14 St.Thd. O-Ring		24.25	
C1JW42	104-1031	8.0	2 Bolt SAE A	SAE C Splined 14T	7/8-14 St.Thd. O-Ring		23.80	
C1JW54	104-1386	8.0	4 Bolt	32mm Straight Keyed	G 1/2 BSP		21.50	
C1JW39	104-1004	9.6	2 Bolt SAE A	1 in. Straight Keyed	7/8-14 St.Thd. O-Ring		22.00	
C1AH15	104-1025	9.6	2 Bolt SAE A	1-1/4 in. Straight Keyed	7/8-14 St.Thd. O-Ring		24.50	
C1JW47	104-1064	9.6	2 Bolt SAE A	1-1/4 in. Straight Keyed	1-1/16-12 St.Thd. O-Ring	Ports 180° Apart	22.00	
C1JB95	104-1011	9.6	2 Bolt SAE A	1-1/4 in. Tapered	7/8-14 St.Thd. O-Ring		2.68	
C1MH81	104-1196	9.6	2 Bolt SAE B	1 in. 6B Spline	7/8-14 St.Thd. O-Ring		24.50	
C1AG98	104-1005	11.9	2 Bolt SAE A	1 in. Straight Keyed	7/8-14 St.Thd. O-Ring		25.00	
C1AH16	104-1026	11.9	2 Bolt SAE A	1-1/4 in. Straight Keyed	7/8-14 St.Thd. O-Ring		25.25	
C1JW48	104-1065	11.9	2 Bolt SAE A	1-1/4 in. Straight Keyed	1-1/16-12 St.Thd. O-Ring	Ports 180° Apart	23.00	
C1JW43	104-1033	11.9	2 Bolt SAE A	SAE C Splined 14T	7/8-14 St.Thd. O-Ring		23.00	
C1HL55	106-1012	11.9	Bearingless	None	7/8-14 St.Thd. O-Ring		20.36	
C1JW40	104-1006	14.9	2 Bolt SAE A	1 in. Straight Keyed	7/8-14 St.Thd. O-Ring		18.00	
C1AH17	104-1027	14.9	2 Bolt SAE A	1-1/4 in. Straight Keyed	7/8-14 St.Thd. O-Ring		27.00	



Hydraulic Motors & Accessories

Char-Lynn® Low-Speed High-Torque Motors



Hydraulic Power & Control

Pneumatic Power & Control

Fluid Conveying

Miscellaneous Products

Indexes & Technical Information

Char-Lynn® 2000 Series Geroler® Motors • Up to 8225 lb-in Intermittent Torque, 1042 Intermittent RPM

Catalog Part No.	Char-Lynn® Model	Displ. (cu.in./rev)	Mounting Flange	Shaft	Ports	Special Features	Wt.	Price Each
C1AH20	104-1034	14.9	2 Bolt SAE A	SAE C Splined 14T	7/8-14 St.Thd. O-Ring		26.00	
C1AH53	106-1013	14.9	Bearingless	None	7/8-14 St.Thd. O-Ring		20.56	
•C1AG99	104-1007	18.7	2 Bolt SAE A	1 in. Straight Keyed	7/8-14 St.Thd. O-Ring		27.10	
•C1AH18	104-1028	18.7	2 Bolt SAE A	1-1/4 in. Straight Keyed	7/8-14 St.Thd. O-Ring		27.75	
C1AH22	104-1067	18.7	2 Bolt SAE A	1-1/4 in. Straight Keyed	1-1/16-12 St.Thd. O-Ring	Ports 180° Apart	27.75	
•C1AH21	104-1035	18.7	2 Bolt SAE A	SAE C Splined 14T	7/8-14 St.Thd. O-Ring		27.50	
C1KH83	104-4071	18.7	2 Bolt SAE A	SAE C Splined 14T	7/8-14 St.Thd. O-Ring	2000 psi cross-over relief	39.00	
C1GJ55	106-1014	18.7	Bearingless	None	7/8-14 St.Thd. O-Ring		22.46	
C1LW63	104-1143	24.0	2 Bolt SAE A	1 in. Straight Keyed	7/8-14 St.Thd. O-Ring			
C1JW45	104-1044	24.0	2 Bolt SAE A	1 in. Straight Keyed	1-1/16-12 St.Thd. O-Ring	Ports 180° Apart	26.00	
•C1AH23	104-1228	24.0	2 Bolt SAE A	1-1/4 in. Straight Keyed	7/8-14 St.Thd. O-Ring		29.75	
C1JW51	104-1068	24.0	2 Bolt SAE A	1-1/4 in. Straight Keyed	1-1/16-12 St.Thd. O-Ring	Ports 180° Apart	26.00	
•C1AH24	104-1229	24.0	2 Bolt SAE A	SAE C Splined 14T	7/8-14 St.Thd. O-Ring		29.50	
C1AH54	106-1015	24.0	Bearingless	None	7/8-14 St.Thd. O-Ring		24.23	
•C1JC18	105-1060	24.0	Wheel Motor	1-1/4 in. Tapered	7/8-14 St.Thd. O-Ring		32.46	
•C1AH25	104-1420	29.8	2 Bolt SAE A	1-1/4 in. Straight Keyed	7/8-14 St.Thd. O-Ring		32.00	
•C1AH26	104-1422	29.8	2 Bolt SAE A	SAE C Splined 14T	7/8-14 St.Thd. O-Ring		30.00	

Parts For Char-Lynn® 2000 Series Geroler® Motors

Catalog Part No.	Part Number	Description	Wt.	Price Each
•C1AA23	0007382-000	Backup Ring, 2000 Series -003 -004 -005 -006	0.01	
•C1AA81	0021371-008	Drive for 24 cu.in./rev, 2000 Series -003 -004 -006	0.95	
•C1AA82	0021371-012	Drive for 29.8 cu.in./rev, 2000 Series -006	1.00	
•C1AA61	0009121-001	Dust Seal, 2000 Series -003 -004 -005 -006	0.05	
C1JM36	0014392-006	Key for 1-1/4 Tapered Shaft	0.03	
C1AA65	0014163-000	Nut for 1-1/4 Tapered Shaft	0.13	
•C1AB50	0061252-000	Seal Kit, Buna-N, Standard & Wheel Motors, -003-004-005 Series	0.07	
•C1AB51	0061258-000	Seal Kit, Buna-N, Standard & Wheel Motors, -006 Series	0.07	
•C1AB52	0061259-000	Seal Kit, Buna-N, Bearingless Motors, -006 Series	0.04	
C1JL43	0061289-000	Seal Kit, Buna-N, Wheel Motors with Seal Guard, -006 Series	0.09	
C1AB53	0061263-000	Seal Kit, Viton®, Standard & Wheel Motors, -006 Series	0.07	
C1AA89	0021618-001	Shaft & Bearing Kit, 1 Inch Straight Keyed, 2000 Series -006	3.57	
C1JS71	0021618-005	Shaft & Bearing Kit, 1 inch 6B Splined, -006 Series	3.50	
C1AA90	0021618-002	Shaft & Bearing Kit, 1-1/4 Inch Straight Keyed, 2000 Series -006	3.86	
•C1AA92	0021618-004	Shaft & Bearing Kit, 14 Tooth Splined, 2000 Series -006	3.72	
•C1AA91	0021618-003	Shaft & Bearing Kit, 1-1/4 Inch Tapered, 2000 Series -006	3.58	
•C1AA54	0009057-009	Shaft Seal, 2000 Series -003 -004 -005 -006	0.02	
C1KZ27	5991881-001	Shaft Seal, 2000 Series -006 High Pressure	0.06	
•C1AB12	0022102-000	Wear Plate, 2000 Series -006	1.80	



This page is part of a complete catalog which contains technical and safety data that must be reviewed when selecting a product

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Hydraulic Motors & Accessories

Char-Lynn® Low-Speed High-Torque Motors

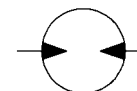


Char-Lynn Delta Series Geroler Motors

Up to 10,500 lb-in Intermittent Torque, 837 Intermittent RPM



The Delta motor provides torques up to 10,500 in-lbs. Eaton has packed this motor with many “best in class” features: the optimized geroler profile ensures smooth operation; the disc valve technology has the best performance and the bearing capacity is the highest in the industry for very demanding applications.



Maximum Case Pressure:

Fluid Viscosity: No less than 70 SUS at operating temperature.

Recommended Fluids: Premium quality, anti wear type hydraulic oil.

Recommended Filtration: Per ISO Cleanliness Code 20/18/13

Maximum Recommended Operating Temperature: 180 °F

Recommended Break-In: Top assure best motor life, run motor for approximately one hour at 30% of rated pressure before application to full load. Be sure motor is filled with fluid prior to any load applications.

Dimensions & Technical Information:

Char-Lynn Delta Series Geroler Motors • Up to 10,500 lb-in Intermittent Torque, 837 Intermittent RPM

Catalog Part No.	Char-Lynn® Model	Displ. (cu.in./rev)	Mounting Flange	Shaft	Ports	Special Features	Wt.	Price Each
C1LB11	184-0161	18.3	Wheel	1-1/2" Straight Keyed	7/8" O-Ring	Black Paint		
C1LW81	184-0010	33.1	Wheel	1-1/4" Tapered	7/8" O-Ring			



Hydraulic Motors & Accessories

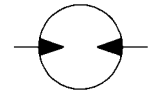
Char-Lynn® Low-Speed High-Torque Motors



Char-Lynn® 4000 Series Geroler® Motors Up to 10450 lb-in Intermittent Torque, 868 Intermittent RPM



Char-Lynn® 4000 Series motors feature a geroler® displacement mechanism that provides high starting and running torque and smooth output shaft rotation even at very low speeds. A patented pressure-balanced, wear-compensated disc valve maintains minimal leakage as it distributes fluid to the geroler pockets. Heavy duty roller bearings permit high radial loads, and are matched to the torque capability of the motor. In addition to motors featured in this catalog, a wide selection of shafts, mounting flanges, ports, and other optional features are available. Contact us for assistance.



Maximum Case Pressure: 1500 PSI (Without case drain). For continuous back pressure over 1500 PSI, use an external case drain line. Install line so motor case remains full at all times.

Fluid Viscosity: Minimum: 70 SUS at operating temperature. Recommended Range: 100-200 SUS.

Recommended Fluids: Premium quality, anti-wear type hydraulic fluid.

Recommended Filtration: Per ISO Cleanliness Code, level 18/13.

Maximum Recommended Operating Temperature: 180° F.

Recommended Break-in: To assure best motor life, run motor for approximately one hour at 30% of rated pressure before application to full load. Be sure motor is filled with fluid prior to any load applications.

Dimensions & Technical Information: page 628

Char-Lynn® 4000 Series Geroler® Motors • Up to 10450 lb-in Intermittent Torque, 868 Intermittent RPM

Catalog Part No.	Char-Lynn® Model	Displ. (cu.in./rev)	Mounting Flange	Shaft	Ports	Special Features	Wt.	Price Each
C1MN25	169-0201	29.8	2 Bolt SAE A	14T 12/24 DP Spline	7/8-14 St. Thd. O-Ring	Compact Series	12.20	
C1JW74	109-1101	7.9	4 Bolt SAE B	1-1/4 in. Straight Keyed	1-1/16-12 St.Thd. O-Ring		37.20	
C1JW75	109-1102	9.9	4 Bolt SAE B	1-1/4 in. Straight Keyed	1-1/16-12 St.Thd. O-Ring		38.10	
C1LW64	109-1103	12.5	4 Bolt SAE B	1-1/4 in. Straight Keyed	1-1/16-12 St.Thd. O-Ring			
C1JL75	109-1110	12.5	4 Bolt SAE B	1-5/8 in. Tapered	1-1/16-12 St.Thd. O-Ring		41.01	
C1AH64	109-1105	19.0	4 Bolt SAE B	1-1/4 in. Straight Keyed	1-1/16-12 St.Thd. O-Ring		40.00	
C1AH65	109-1106	24.0	4 Bolt SAE B	1-1/4 in. Straight Keyed	1-1/16-12 St.Thd. O-Ring		60.00	
C1LW65	109-1212	30.0	4 Bolt SAE B	1-1/4 in. Straight Keyed	1-1/16-12 St.Thd. O-Ring			

Parts For Char-Lynn® 4000 Series Geroler® Motors

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1AB46	0061234-000	Seal Kit, Rear, Buna-N, Standard & Wheel Motors, -004-006 Series	0.04	
C1AB55	0061281-000	Seal Kit, Shaft, Buna-N, Standard & Wheel Motors, -004-006 Series	0.06	
C1AB47	0061236-000	Seal Kit, Shaft, Buna-N, Standard & Wheel Motors, -004 Series	0.05	
C1FH88	0023310-001	Shaft & Bearing Kit, 1-1/4 Inch Straight Keyed, 4000 Series -006	5.19	
C1EZ85	0023310-002	Shaft & Bearing Kit, 1-5/8 Inch Tapered, 4000 Series -006	5.82	



Hydraulic Motors & Accessories

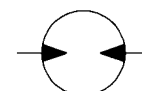
Char-Lynn® Low-Speed High-Torque Motors



Char-Lynn® 6000 Series Geroler® Motors Up to 16580 lb-in Intermittent Torque, 866 Intermittent RPM



Char-Lynn® 6000 Series motors feature a geroler® displacement mechanism that provides high starting and running torque and smooth output shaft rotation even at very low speeds. A patented pressure-balanced, wear-compensated disc valve maintains minimal leakage as it distributes fluid to the geroler pockets. Heavy duty roller bearings permit high radial loads, and are matched to the torque capability of the motor. In addition to motors featured in this catalog, a wide selection of shafts, mounting flanges, ports, and other optional features are available. Contact us for assistance.



Maximum Case Pressure: 1000 PSI (Without case drain). For continuous back pressure over 1000 PSI, use an external case drain line. Install line so motor case remains full at all times.

Fluid Viscosity: Minimum: 70 SUS at operating temperature. Recommended Range: 100-200 SUS.

Recommended Fluids: Premium quality, anti-wear type hydraulic fluid.

Recommended Filtration: Per ISO Cleanliness Code, level 18/13.

Maximum Recommended Operating Temperature: 180° F.

Recommended Break-In: To assure best motor life, run motor for approximately one hour at 30% of rated pressure before application to full load. Be sure motor is filled with fluid prior to any load applications.

Dimensions & Technical Information: page 631

Char-Lynn® 6000 Series Geroler® Motors • Up to 16580 lb-in Intermittent Torque, 866 Intermittent RPM

Catalog Part No.	Char-Lynn® Model	Displ. (cu.in./rev)	Mounting Flange	Shaft	Ports	Special Features	Wt.	Price Each
C1AH83	112-1066	19.0	4 Bolt SAE C	1-1/2 in. Straight Keyed	1-5/16-12 St.Thd. O-Ring		60.00	
C1AH84	112-1067	23.9	4 Bolt SAE C	1-1/2 in. Straight Keyed	1-5/16-12 St.Thd. O-Ring		63.00	
C1AH80	112-1061	23.9	4 Bolt SAE C	SAE CC Splined 17T	1-5/16-12 St.Thd. O-Ring		95.00	
C1AH85	112-1068	30.0	4 Bolt SAE C	1-1/2 in. Straight Keyed	1-5/16-12 St.Thd. O-Ring		65.00	
C1AH81	112-1062	30.0	4 Bolt SAE C	SAE CC Splined 17T	1-5/16-12 St.Thd. O-Ring		59.50	
C1JW96	113-1074	30.0	Wheel Motor	1-3/4 in. Tapered	1-5/16-12 St.Thd. O-Ring		37.00	
C1AH86	112-1069	60.0	4 Bolt SAE C	1-1/2 in. Straight Keyed	1-5/16-12 St.Thd. O-Ring		65.00	
C1AH82	112-1063	60.0	4 Bolt SAE C	SAE CC Splined 17T	1-5/16-12 St.Thd. O-Ring		76.00	

Parts For Char-Lynn® 6000 Series Geroler® Motors

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1FV49	0014394-007	Key for Tapered Shaft Models	0.07	
C1FV49	0014394-007	Key for Tapered Shaft, 6000 Series	0.07	
C1AB49	0061238-000	Seal Kit, Rear, Buna-N, Standard & Wheel Motors, -005 Series	0.05	
C1AB48	0061237-000	Seal Kit, Shaft, Buna-N, Standard & Wheel Motors, -005 Series	0.07	
C1KH37	0201837-001	Shaft and Bearing Kit (1-1/2 inch Straight), 6000 Series	7.30	
C1FW19	0201837-002	Shaft & Bearing Kit, 1-3/4 Inch Tapered, 6000 Series -006	7.75	



Hydraulic Motors & Accessories

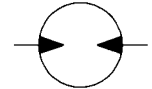
Char-Lynn® Low-Speed High-Torque Motors



Char-Lynn® 10,000 Series Geroler® Motors Up to 30460 lb-in Intermittent Torque, 784 Intermittent RPM



Char-Lynn® 10,000 Series motors feature a geroler® displacement mechanism that provides high starting and running torque and smooth output shaft rotation even at very low speeds. A patented pressure-balanced, wear-compensated disc valve maintains minimal leakage as it distributes fluid to the geroler pockets. Heavy duty roller bearings permit high radial loads, and are matched to the torque capability of the motor. In addition to motors featured in this catalog, a wide selection of shafts, mounting flanges, ports, and other optional features are available. Contact us for assistance.



Maximum Case Pressure: 300 PSI (Without case drain). For continuous back pressure over 300 PSI, use an external case drain line. Install line so motor case

remains full at all times.

Fluid Viscosity: Minimum: 70 SUS at operating temperature. Recommended Range: 100-200 SUS.

Recommended Fluids: Premium quality, anti-wear type hydraulic fluid.

Recommended Filtration: Per ISO Cleanliness Code, level 18/13.

Maximum Recommended Operating Temperature: 180° F.

Recommended Break-In: To assure best motor life, run motor for approximately one hour at 30% of rated pressure before application to full load. Be sure motor is filled with fluid prior to any load applications.

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Char-Lynn® 10,000 Series Geroler® Motors • Up to 30460 lb-in Intermittent Torque, 784 Intermittent RPM

Catalog Part No.	Char-Lynn® Model	Displ. (cu.in./rev)	Mounting Flange	Shaft	Ports	Special Features	Wt.	Price Each
C1AJ24	119-1028	21.0	4 Bolt SAE C	2-1/4 in. Straight Keyed	1-5/16-12 St.Thd. O-Ring		96.00	
C1AJ25	119-1029	29.3	4 Bolt SAE C	2-1/4 in. Straight Keyed	1-5/16-12 St.Thd. O-Ring		50.00	
C1AJ26	119-1030	40.6	4 Bolt SAE C	2-1/4 in. Straight Keyed	1-5/16-12 St.Thd. O-Ring		101.00	
C1JX18	119-1042	40.6	4 Bolt SAE C	2-1/4 in. Straight Keyed	1-1/4 Code 61 Split Flange		45.00	
C1JX24	121-1013	40.6	Bearingless	None	1-1/4 Code 61 Split Flange		73.00	
C1AJ27	119-1031	57.4	4 Bolt SAE C	2-1/4 in. Straight Keyed	1-5/16-12 St.Thd. O-Ring		106.00	
C1LW69	119-1043	57.4	4 Bolt SAE C	2-1/4 in. Straight Keyed	1-1/4 Code 61 Split Flange			

Parts For Char-Lynn® 10,000 Series Geroler® Motors

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1HY24	0009002-004	Front Thrust Bearing, 10,000 Series -002 -003 -004	0.05	
C1EZ84	0008573-004	Geroler, 57.3 cu.in./rev, 10,000 Series -002 -003 -004	17.16	
C1AA18	0006406-000	Seal Kit, Shaft, Buna-N, -002-003-004 Series	0.07	
C1AA17	0006405-000	Seal Kit, Motor, Buna-N, -002-003-004 Series	0.06	
C1ZZ94	0008484-000	Shaft, 2-1/4 Straight Keyed, 10,000 Series -002 -003 -004	11.36	
C1HY23	0009001-004	Thrust Washer, 10,000 Series -002 -003 -004	0.10	
C1HY21	0009001-002	Rear Thrust Washer, 10,000 Series -002 -003 -004	0.07	
C1HY22	0009001-003	Thrust Washer (Thin), 10,000 Series -002 -003 -004	0.03	
C1ZZ93	0008958-000	Wear Plate, 10,000 Series -002 -003 -004	8.46	



Hydraulic Motors & Accessories

Gear Motors

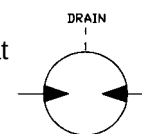
Cross 40 Series Gear Motors Internal Check Valves for Bi-Rotational Capability



Features: Improved gear tooth design and pressure-balanced loading plates provide for a high volumetric and overall efficiency, while operating at a low noise level. Bi-directional design using internal check valves. Die-cast aluminum alloy body and end covers. Sintered metal gears. Hardened steel shaft. Pressure lubricated, Teflon® impregnated sleeve bearings, Buna-N seals.

Application: Bi-Rotational models have internal check valves that drain case pressure back to the low pressure side.

Pressure Limits: Inlet: 3000 PSI Rated Working Pressure, 3500 PSI Maximum Shock Pressure. Outlet: Pressures over 250 PSI require a case drain line be installed.



Rated Speeds: Up to 3000 RPM.

Note: Ratings based on using anti wear hydraulic fluid.

Dimensions: page 638

Foot Brackets: page 201

Cross 40 Series Gear Motors • Internal Check Valves for Bi-Rotational Capability

Catalog Part No.	Cross Model	Displacement PressureRating Max Speed	Mtg Flange	Shaft	Ports	Other Features	Wt.	Price Each
•C1BN94	40MH05DACSC	0.50 in ³ /rev 3000 PSI 3000 RPM	2-Bolt SAE A	5/8 St.Keyed x 1.25 Long	SAE-12 Side Ports	Bi-Rotational	3.08	
•C1BN95	40MH07DACSC	0.75 in ³ /rev 3000 PSI 3000 RPM	2-Bolt SAE A	5/8 St.Keyed x 1.25 Long	SAE-12 Side Ports	Bi-Rotational	6.85	
•C1EN35	40MH10DACSC	1.00 in ³ /rev 3000 PSI 3000 RPM	2-Bolt SAE A	5/8 St.Keyed x 1.25 Long	SAE-12 Side Ports	Bi-Rotational	6.00	
•C1EN36	40MH12DACSC	1.25 in ³ /rev 3000 PSI 3000 RPM	2-Bolt SAE A	5/8 St.Keyed x 1.25 Long	SAE-12 Side Ports	Bi-Rotational	8.00	
•C1JD42	360036	1.80 in ³ /rev 3000 PSI 3000 RPM	2-Bolt SAE A	5/8 St.Keyed x 1.25 Long	SAE-12 Side Ports	Bi-Rotational	8.36	

Parts For Cross 40 Series Motors

Catalog Part No.	Part Number	Description	Wt.	Price Each
•C1BW20	5A0081	Shaft Seal, High Pressure (250 PSI)	0.04	
•C1HZ92	4P0021-026	Shaft only (no gear), 3/4 Straight Keyed, for 1.00 in ³ /rev model	0.72	



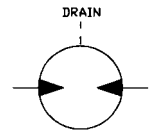
Hydraulic Motors & Accessories

Gear Motors

Hydreco® 1500K Series Gear Motors Internal Check Valves for Bi-Rotational Capability



Features: Heavy duty iron castings for higher working pressures. 4-bolt design places all four assembly bolts within the area of greatest internal pressure, which maintains perfect alignment and thus eliminates any decrease in efficiency at high pressures. This greatly reduces internal distortion and the resulting wear of internal parts. Deflecting pressure-balanced wear plates maintain high volumetric efficiencies and minimize mechanical losses. Pressure-lubricated roller bearing design makes these units relatively insensitive to contamination and also makes the units fully repairable.



Application: Outboard bearing in some models (see tables) allows limited side loading of the output shaft. Bi-Rotational models have internal check valves that drain case

pressure back to the low pressure side.

Pressure Limits: Inlet: (Varies with displacement. See table below). Outlet: Pressures over 150 psi require a case drain line be installed (Bi-Directional applications require a motor with Bi-Rotational feature, and a case drain line be installed).

Rated Speeds: Varies with displacement (See table below).

Maximum System Temperature: 180°F.

Note: Ratings based on using anti wear hydraulic fluid. For information on use with other fluids, contact us for assistance.

Recommended Filtration: 10 Micron Absolute for maximum motor life.

Dimensions & Technical Information: page 639

Foot Brackets: page 201

Hydreco® 1500K Series Gear Motors • Internal Check Valves for Bi-Rotational Capability

Catalog Part No.	Hydreco Model	Displacement PressureRating Max Speed	Mtg Flange	Shaft	Ports	Other Features	Wt.	Price Each
•C1AK92	1515KC3A1AB	1.771 in ³ /rev 2500 PSI 3600 RPM	2-Bolt SAE A	5/8 St.Keyed x 2.25 Long	3/4 NPT Side & Rear (Side Ports Plugged)	Bi-Rotational, Shielded Outboard Bearing	18.65	

Note: Minimum speed under load is 600 RPM.

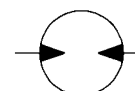
Hydraulic Motors & Accessories

Gear Motors

Hydreco® 1500M Series Gear Motors Mechanical Face Seal for Bi-Rotational Capability



Features: Heavy duty iron castings for higher working pressures. 4-bolt design places all four assembly bolts within the area of greatest internal pressure, which maintains perfect alignment and thus eliminates any decrease in efficiency at high pressures. This greatly reduces internal distortion and the resulting wear of internal parts. Deflecting pressure-balanced wear plates maintain high volumetric efficiencies and minimize mechanical losses. Pressure-lubricated roller bearing design makes these units relatively insensitive to contamination and also makes the units fully repairable.



Application: Outboard bearing in some models (see tables) allows limited side loading of the input shaft. All models have mechanical face seal which allows for high back pressures with no case drain.

Pressure Limits: 2000 PSI.

Rated Speeds: Varies with displacement (See table below).

Maximum System Temperature: 180°F.

Note: Ratings based on using anti wear hydraulic fluid. For information on use with other fluids, contact us for assistance.

Recommended Filtration: 10 Micron Absolute for maximum motor life.

Dimensions & Technical Information: page 641

Foot Brackets: page 201

Hydreco® 1500M Series Gear Motors • Mechanical Face Seal for Bi-Rotational Capability

Catalog Part No.	Hydreco Model	Displacement PressureRating Max Speed	Mtg Flange	Shaft	Ports	Other Features	Wt.	Price Each
•C1AK78	1506MC3E1BB	0.738 in ³ /rev 2000 PSI 3600 RPM	2-Bolt SAE A	5/8 St.Keyed x 2.00 Long	3/4 NPT Rear Ports	Bi-Rotational, Shielded Outboard Bearing	17.07	
•C1AK83	1510MC3E1BB	1.180 in ³ /rev 2000 PSI 3600 RPM	2-Bolt SAE A	5/8 St.Keyed x 2.00 Long	3/4 NPT Rear Ports	Bi-Rotational, Shielded Outboard Bearing	16.79	
•C1AK88	1512MC3E1BB	1.467 in ³ /rev 2000 PSI 3600 RPM	2-Bolt SAE A	5/8 St.Keyed x 2.00 Long	3/4 NPT Rear Ports	Bi-Rotational, Shielded Outboard Bearing	17.00	
C1AK89	1512MC3G1BB	1.467 in ³ /rev 2000 PSI 3600 RPM	4-Bolt Foot Mount	5/8 St.Keyed x 2.00 Long	3/4 NPT Rear Ports	Bi-Rotational, Shielded Outboard Bearing	20.00	

Note: Minimum speed under load is 600 RPM.

Parts for Hydreco 1500M Series Motors

Catalog Part No.	Part Number	Description	Wt.	Price Each
•C1DK90	SKO362	Seal Kit for 1500M Series Motors	0.17	

Gear Motors

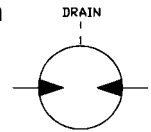
Permco Box Motors



Internal Check Valves for Bi-Rotational Capability



Features: Motors are stocked with Permco's "Continental Shaft" (Shaft can be changed without motor disassembly by removing shaft retaining snap ring and pulling shaft and bearing out). This allows for an easy shaft change to satisfy various applications. Special iron alloy used for shaft covers, gear housings, bearing carriers and port end cover castings. Gears are cut to extremely close tolerances, and are shaped (rather than hobbing and shaving) for maximum volumetric efficiency.



Application: All motors have both side and rear ports (The 2 unused ports need to be plugged). All motors are bi-rotational and may be used as bi-rotational pumps. All models have internal check valves that drain case pressure back to the low pressure side.

Pressure Limits: Inlet: 2500 PSI. Outlet: Pressures over 50 PSI require a case drain line be installed.

Rated Speeds: 2000 RPM.

Maximum System Temperature: Under normal conditions of continuous operation, not to exceed 150°F. Never to exceed 185°F.

Note: Ratings based on using anti wear hydraulic fluid. For information on use with other fluids, contact us for assistance.

Recommended Filtration: 25 micron return filter with B10 rating of at least 2.2.

Dimensions & Technical Information: page 644

Foot Brackets: page 201

Permco Box Motors • Internal Check Valves for Bi-Rotational Capability

Catalog Part No.	Permco Model	Displacement PressureRating Max Speed	Mtg Flange	Shaft	Ports	Other Features	Wt.	Price Each
•C1DG97	PEL17C	4.50 in ³ /rev 2500 PSI 2000 RPM	4 Bolt SAE B	13 Tooth SAE B Splined	1-1/4 NPT Side and Rear	Bi-Rotational, Case Drain	47.00	
•C1DG98	PEL20C	5.15 in ³ /rev 2500 PSI 2000 RPM	4 Bolt SAE B	13 Tooth SAE B Splined	1-1/4 NPT Side and Rear	Bi-Rotational, Case Drain	47.00	
•C1DG99	PEL22C	5.79 in ³ /rev 2500 PSI 2000 RPM	4 Bolt SAE B	13 Tooth SAE B Splined	1-1/4 NPT Side and Rear	Bi-Rotational, Case Drain	49.52	
•C1DH11	PEL25C	6.40 in ³ /rev 2500 PSI 2000 RPM	4 Bolt SAE B	13 Tooth SAE B Splined	1-1/2 NPT Side, 1-1/4 NPT Rear	Bi-Rotational, Case Drain	47.00	

Hydraulic Motors & Accessories

Gear Motors

Miscellaneous Gear Motors



Permco

Contact us for more information.

Miscellaneous Gear Motors

Catalog Part No.	Mfg. Part No.	Mfg Name	Displ (in ³ /rev)	Mount	Shaft	Ports	Rot.	Other Features	Wt.	Price Each
C1JC40	1010220	Concentric AB	0.194	SAE A 2-Bolt	0.561 Straight w/1/8 key	-8 SAE Rear	Bi-Rot	Continuous Ratings: 3000 PSI, 4950 RPM	4.70	
• C1DD58	M3000C783LDZA05- (M3000C783LDZA05-2 4)	Permco	1.00	SAE A 2-Bolt	3/4 Straight Keyed	3/4 NPT Rear	Bi-Rot		25.00	



Hydraulic Motors & Accessories

Vickers 35M Series Vane Motors

Up to 2875 lb-in Intermittent Torque • Up to 4000 Intermittent RPM



Vickers® 35M Series Vane Motors



Unless noted otherwise, all motors have: 2-Bolt SAE C Mounting Flange. 1-1/2" SAE 4-Bolt Flange Ports. 3/8 NPT Drain Port (in rear cover).

Application Information: page 645

Specifications: page 646

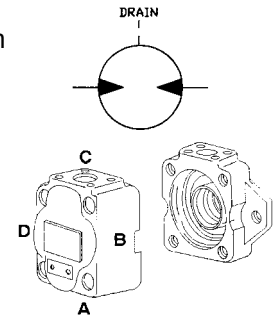
Model Codes: page 647

Dimensions: page 649

Replacement Parts: page 221

Port Flange Kits: Flanges page 1252

Foot Brackets: page 201



Maximum Continuous Speed & Pressure: 3600 RPM @ 500 PSI, 2600 RPM @ 2250 PSI.

Maximum Intermittent Speed & Pressure: 4000 RPM @ 500 PSI, 3000 RPM @ 2500 PSI.

Intermittent Ratings: (10% of total operating time; each application of pressure and/or speed not to exceed 6 seconds).

Motors are stocked as shown in table.

ANY cover position is available for same-day shipment.

See Model Codes page to select a different model code.

Vickers® 35M Series Vane Motors

Catalog Part No.	Vickers Part No. See Note Above	Vickers Model See Note Above	Shaft	Displ Cu.Inch Per Rev	Ring Size	Torque Per 100 PSI (lb-in)	Cover Position	Wt.	Price Each
C1BL65	312065-3	35M115A-1C20	1-1/4 Straight Keyed	7.44	115	115	Port Connections In-line (C)	64.00	
C1BL63	312062-3	35M115A-11C20	14 Tooth SAE C Splined	7.44	115	115	Port Connections In-line (C)	64.00	

Vickers Part No.	Vickers Model	Ring Size	Cartridge Kit	Shaft	Shaft Key	Shaft Seal	Seal Kit
312065-3	35M115A-1C20	115	923167	310872 1-1/4"-Straight-Keyed	217596	394973	923163
312062-3	35M115A-11C20	115	923167	310873 14Tooth-SAE-C-Splined	--	394973	923163

Vickers® 35M Vane Motors • Replacement Parts List

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1CC29	923167	Cartridge Kit, Ring Size 115	17.00	
C1CC26	923163	Seal Kit, Buna-N	0.10	
C1BL60	310872	#1 Shaft, 1-1/4" Straight Keyed	2.04	
C1BC42	217596	Shaft Key, 5/16 x 1-1/8	0.03	
C1BN19	394973	Shaft Seal, Buna-N	0.07	



Hydraulic Motors & Accessories

Eaton Piston Motors



Eaton Medium Duty Piston Motors

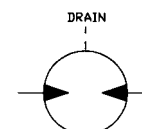


Features: Compact • Lightweight Durable Housing • Numerous Shaft Options • SAE Mounting Flanges • SAE O-Ring Porting • Dual Rotation • Various Porting Options • Fixed Displacements

Pressure Limits: Main Ports: Varies with displacement, see table below. Case: 25 PSI limit for 0.60 thru 2.48 cu.in./rev models, 100 PSI limit for 5.04 cu.in./rev model.

Rated Speed: Varies with displacement, see table below.

Inlet Temperature: 225°F maximum continuous.



Case Drain: CAUTION - Failure to meet these requirements may result in damage to the piston motor. • Install piston motors in such a position that the case drain assures an oil level at or above unit center line. • Before the pump is started, fill the case through the uppermost drain port with hydraulic fluid of the type to be used. • The case of the motor must remain full at all times. • The case drain line must be connected directly to the reservoir and terminate below the oil level. • Oil level must be at or above the unit center line before starting the piston motor. • Provide a case drain line of adequate size to limit the case pressure to specified maximum.

Fluid Recommendations: 60-180 SSU Optimum, 60 SSU Minimum, 2000 SSU Maximum (cold start).

Recommended Filtration: ISO 4406 Cleanliness Level 18/13 or cleaner.

Dimensions: page 643

Eaton Medium Duty Piston Motors

Catalog Part No.	Eaton Model	Displacement Max Speed	Pressure Ratings	Mounting Flange	Shaft	Ports	Other Features	Wt.	Price Each
C1LX51	74315-DBF	2.01 3600rpm	3000 PSI Continuous 5000 PSI Max Rated 5400 PSI Max Intermittent	SAE B 2-Bolt	13T SAE B Splined	Side Ports: SAE-16 Work, SAE-8 Case Drain		22.00	
C1HE22	74315-DCU	2.01 3600rpm	3000 PSI Continuous 5000 PSI Max Rated 5400 PSI Max Intermittent	SAE B 2-Bolt	13T SAE B Splined	Side Ports: SAE-16 Work, SAE-8 Case Drain	Port markings are reversed	20.00	
C1HE23	74318-DFW	2.48 3600rpm	3000 PSI Continuous 5000 PSI Max Rated 5400 PSI Max Intermittent	SAE B 2-Bolt	13T SAE B Splined	Side Ports: SAE-16 Work, SAE-8 Case Drain		20.00	

Parts for Eaton Medium Duty Piston Motors

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1KD34	70402-649	Rotating Kit Assembly, Model 74418	5.60	
C1KD43	70423-617	Rotating Kit Assembly, 2.77 in ³ , Model 70423	5.10	
C1KD85	74418-904	Seal Kit, Model 74418	0.05	

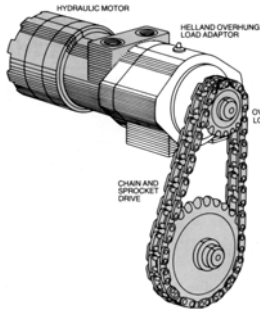


Hydraulic Motors & Accessories

Overhung Load Adaptors

///////ZERO-MAX / HELLAND

ZERO-MAX / HELLAND Overhung Load Adaptors



Features: Available in SAE flange sizes A, B, C, CC, D and sizes for Char-Lynn® H & S Series motors with 4-bolt flange. Housings drilled & tapped for convenient foot mounting. A wide variety of custom input and output shafts are available on special order.

Application: Used to protect motors, pumps and brakes from axial and radial stresses created by side loads. Also protects their shaft seals from invasive contaminants (a leading cause of motor failure).

Materials: Bodies are made of 25,000 tensile strength cast iron. Shafts are made of 130,000 PSI stress proof steel. Bearing types vary by series.

Mounting: Horizontal mounting is standard. (Vertical mounting requires special attention to upper bearing lubrication. Contact us for application assistance).

Lubrication: * ALL MODELS ARE SHIPPED WITHOUT LUBRICATION *. Product tables show the amount of lubricant needed for the recommended 2/3 cavity fill. Type of lubrication depends on RPM. 1800 RPM and under: Bearing grease (high quality NLGI No. 1 or No. 2), oil or force feed systems. 1800 to 2500 RPM: Low viscosity oil lubrication or force feed systems. Over 2500 RPM: Force feed oil systems. Contact us for application assistance with oil or force feed systems.

Calculating Overhung Load: Overhung Load (in pounds) = $(63000 \times \text{HP} \times F) / (\text{RPM} \times \text{RADIUS})$. HP = Horsepower. F = 1.00 for single chain drives, 1.10 for timing belt drives, 1.25 for double chain drives, 1.50 for v-belt drives, 2.50 for flat belt drives. RADIUS = Radius of sprocket or pulley in inches.

Note: Doubling the Load reduces life to about one-tenth. Doubling the Speed reduces life by one-half.

4-Bolt for Char-Lynn® H & S Series Motors



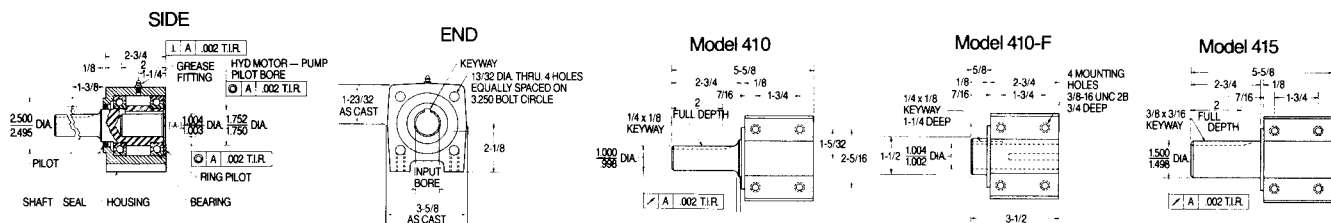
Input Shafts: 1 inch diameter or smaller.

Output Shafts: 1 inch male or female, 1-1/2 inch male.

Bearings: Deep-grooved ball bearings.

Working Life Calculation: Estimated Hours Working Life = $1500 \times [\text{Cn} / (2.378 \times \text{Overhung Load})]^3$. See table for model's Cn number, which varies with RPM.

Overhung load is in pounds. Calculation based on overhung load applied at 1-3/8 inches out from housing (see side view). Bearing life will increase significantly if load is positioned closer to unit.



4-Bolt for Char-Lynn® H & S Series Motors

Catalog Part No.	Helland Model	Input	Output	Lube Qty. (oz)	50 RPM Cn	100 RPM Cn	200 RPM Cn	500 RPM Cn	1000 RPM Cn	1800 RPM Cn	Wt.	Price Each
•C1BN99	410-OHLA	1 in. Straight Keyed with 1/4 x 1/8 Key	1 in. Straight Keyed with 1/4 x 1/8 Key	3.38	2500	1995	1580	1175	925	760	8.79	



Hydrostatic Transmissions

Eaton Medium Duty Hydrostatic Transmission Pumps
Displacements From 1.24 to 3.00 in³/rev



Eaton Medium Duty Hydrostatic Transmissions



Introduction: Variable displacement piston pumps are used in closed loop systems either as a single or tandem pump. Oil is circulated by the pump to the motor and then returned directly back to the pump. A charge supply is used to supplement the closed loop system with oil. The charge supply may be supplied by an internal charge pump (standard) or an external source.

Current Models: Manual Controlled: 70160 (1.24in³/rev & 1.44in³/rev), 70360 (2.48in³/rev & 3.00in³/rev). Servo Controlled: 72400 (2.48in³/rev & 3.00in³/rev).

Pressure Ratings: Outlet pressure ratings vary, see table below. All models have a 25

PSI maximum allowable case pressure.

Max Charge Inlet Vacuum: 6 in. Hg.

Max Case Drain Temperature: 225°F maximum continuous.

Hyd Fluid Viscosity: 60-180 SSU Optimum, 45 SSU Minimum, 10000 SSU Maximum (cold start).

Recommended Filtration: ISO 4406 Cleanliness Level 18/13 or cleaner.

Case Drain: CAUTION - Failure to meet these requirements may result in damage to the pump & motor • The mounting orientation of pumps and motors is unrestricted provided the case drain of the pump and motor remain full • Position the case drain such that it assures an oil level at or above unit center line at start-up • The case drain line that carries the flow leaving the pump or motor should be connected to the highest drain port on each of the units. This assures that the pump and motor cases remain full • Fill the case before starting • Oil level must be at or above the unit center line before starting the piston motor • Provide a case drain line of adequate size to limit the case pressure to specified maximum.

Dimensions: page 652

Eaton Medium Duty Hydrostatic Transmissions

Catalog Part No.	Eaton Part No.	Displ (in ³ /rev) & Speed Rating & Pressure Ratings	Mtg Flange	Shaft	Rot	Ports	Control	Chg Pump Displ (in ³ /rev)	Chg Press Relief (psi)	Other Features	Wt.	Price Each
C1KV39	72400-SNJ-04 (AADRAAC14E E2HHAMA0BB 00A000D)	2.48 3600rpm 3000psi continuous 5000psi intermittent	SAE BB 2-Bolt	15T SAE BB Splined	CW	SAE-16 ChPmp Inlet, SAE-16 Main, SAE-12 CaseDr	Manual Control Servo, Wide Deadband, Neutral Lockout Switch	0.42	275	SAE B 2-Bolt 13T SAE A Splined Auxiliary Pad, Remote Charge Filter Port, 3000 PSI Main Port Reliefs, Cross-Loop Bypass Valve	62.00	
C1JA21	72400-RZX-04 (ACGRALJ240 C2NNAMC000 00AAF0D)	3.00 3600rpm 3000psi continuous 5000psi intermittent	SAE BB 2-Bolt	15T SAE BB Splined	CW	SAE-16 ChPmp Inlet, SAE-16 Main, SAE-12 CaseDr	Manual Control Servo, Wide Deadband	0.84	250-300	SAE B 2-Bolt 13T SAE B Splined Auxiliary Pad, SAE-16 Chg Outlet Port C3, SAE-10 Chg Press Inlet Port C4, 4000 PSI Main Port Reliefs, Cross-Loop Bypass Valve	62.00	

Tandem Pumps, Parts for Eaton Medium Duty Hydrostatic Transmissions

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1KK51	6024304-003	Charge Pump Gerotor Outer Ring. 0.84 in ³ /rev, Model 72400	1.39	
C1KD18	70300-603	Rotating Kit Assembly, 2.48 in ³ , Model 70360	5.46	
C1KD14	70160-902	Seal Repair Kit, Model 70160	0.12	
C1KD25	70360-900	Seal Repair Kit, Single Pump, Model 70360	0.20	
C1JR87	70113-008	Valve Plate, CW Rotation, 1.24/1.44 in ³ , Model 70160	0.19	
C1KD19	70344-51	Valve Plate, CW Rotation, 2.48 in ³ , Model 72400	0.42	



Hydrostatic Transmissions

Eaton Heavy Duty Hydrostatic Transmission Pumps
Series 1 Models 33-76 • Series 2 Models 54-105



Eaton Heavy Duty Hydrostatic Pumps Series 1 & Series 2



Series 1 Features: 6000 PSI Pressure Rating. 10,000 Hour B10 Bearing Design Life. Advanced cylinder barrel design permits high speed and pressure. Pistons have long engagement with cylinder bore resulting in low leakage. Hydraulic Servo Control provides low effort operation with low control pressure. High strength swashplates resist deflection under high load. High strength cast iron housings provide greater noise damping and wall strength. Cast iron body gerotor charge pumps. Bi-metal bearing plate has steel for high speed and pressure and bronze for greater bearing properties. A wide variety of configurations and options are available (Contact us for additional information).

Series 2 Features: 6250 PSI Pressure Rating. Speeds to 4510 RPM. Electronic Controls. The Series 2 Pump's single piece pump housing provides exceptional strength and soundproofing. The high-strength, one-piece swashplate has the swashlever and servo-pin integrated into the swashplate, delivering increased reliability without adding extra weight. A large diameter single servo piston permits pump operation at lower charge pressures, minimizing parasitic charge pump losses for increased overall pump efficiency. A large centering spring, housed within the servo piston, returns the pump to neutral in the event of control pressure loss. The new integral gerotor type charge pump combines excellent suction/speed capabilities in a compact design. The pump mounted electronics and sensors have been specially designed to meet the rigors of the mobile - off road environment, including resistance to electromagnetic interference or emissions. The serviceable bi-metal bearing plate has steel for high pressure capability and a bronze bearing face for high speed capabilities. SAE auxiliary mounts: "A," "B," "B-B" and "C" are available with and without charge pump. Excellent torque capability allows high horsepower to work circuits without multiple pump drives. The main system ports – SAE code 61 and code 62 – are available with SAE or Metric threads. Opposite side and same side configurations are now available to accommodate a wide range of installations.

Peak Pressure: Series 1: 6000 PSI. Series 2: 6250 PSI. (Peak Pressure should not exceed 1% of operating time).

Maximum Shaft Speed: See table below. Main Pump and Charge Pump have different maximum speed ratings. Use the lower rating for the combination.

Recommended Fluid Viscosity: 80-180 SSU is optimum. 60 SSU is low intermittent limit. 10,000 SSU is high intermittent limit (cold start-up).

System Temperature: 180°F Normal Continuous Limit, 220°F Maximum Intermittent Limit.

Recommended Filtration: ISO 4406 Cleanliness Level 18/13 or cleaner.

CAUTION: Before the pump is started, fill the case through the uppermost drain port with hydraulic fluid of the type to be used. (The typical installation has the excess charge pump flow from the motor's charge pressure relief valve flushing the case on the pump. The motor's upper case drain line connects to the lower case port on the pump. The upper case port on the pump returns back to tank, often through a heat exchanger). The pump and motor cases must remain full at all times.

Dimensions: Series 1 page 653 Series 2 page 656

Eaton Heavy Duty Motors: page 227

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Hydrostatic Transmissions

Eaton Heavy Duty Hydrostatic Transmission Pumps Series 1 Models 33-76 • Series 2 Models 54-105



Eaton Heavy Duty Hydrostatic Pumps • Series 1 & Series 2

Catalog Part No.	Eaton Part No.	Displ (in ³ /rev) & Speed Rating	Mtg Flange	Shaft	Rot	Ports	Control	Chg Pump Displ (in ³ /rev) & Speed Rating	Chg Press Relief (psi)	Other Features	Wt.	Price Each
C1JE59	4623-524 (Series 1)	4.59 4160rpm	SAE C 4-Bolt	14T SAE C Splined	CW	1 Inch Code 61	Manual	1.28 3800rpm	280	SAE B 2-Bolt 13T SAE B Splined Auxiliary Pad with Shaft Seal (Dry), 0.073 Control Orifice, Charge Pump with Remote Pressure Filter Ports	70.00	
C1JE45	4623-477 (Series 1)	4.60 4160rpm	SAE C 4-Bolt	14T SAE C Splined	CCW	1 Inch Code 61	Manual	1.28 3800rpm	280	SAE B 2-Bolt 13T SAE B Splined Auxiliary Pad with Shaft Seal (Dry), 0.073 Control Orifice, Charge Pump with Remote Pressure Filter Ports	65.00	
C1JM28	0006422-272 (Series 2)	6.43 3720rpm	SAE C 4-Bolt	13T SAE D Splined	CW	1 Inch Code 62 with Gauge Ports	Manual with Neutral Lockout Switch	1.06 3700rpm	305	Propel Valve Plate, 4500 PSI Reliefs, 4000 PSI Pressure Overrides, 0.044 Control Orifices, 4-Bolt SAE C Auxiliary Mounting Pad with 14T SAE-C Spline and no shaft seal	150.00	

Remanufactured Units: Remanufactured Units are genuine Eaton Factory Remanufactured Units that carry the same warranty as new units, and require a trade-in of your old unit. (A Core Charge is added to your invoice, and is credited when your trade-in is received).

Parts for Eaton Heavy Duty Hydrostatic Pumps

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1AD87	0990287-000	Control Seal Kit, Series 1	0.01	
C1MH85	110011-000	Auxiliary Mounting Pad Cover, SAE B		
C1JL46	0111593-002	Destroke Valve for Series 2	2.73	
C1JL70	104508-007	Filter Element, Series 1 Charge Pump Pressure Side Filter	2.24	
C1JS14	0008826-000	Gasket, Mounting Flange, Series 1 Models 54-64	0.01	
C1KH74	0990088-000	Overhaul Seal kit, Series 1, Models 33/39	0.28	
C1AD82	0990091-000	Seal Kit Model 76	0.31	
C1JL44	0095912-150	Socket Head Capscrew, 5/16-18, for Manual Control, Series 2, Models 33 thru 64	0.03	
C1AB91	0105103-000	Valve Plate for Series 1 Model 54 CCW Standard	1.08	

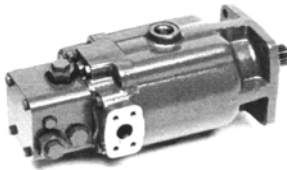


Hydrostatic Transmissions

Eaton Heavy Duty Hydrostatic Transmission Motors
Displacements From 3.32 to 7.62 in³/rev



Eaton Heavy Duty Hydrostatic Motors Models 33 through 76



Features: 6000 PSI Pressure Rating. 10,000 Hour B10 Bearing Design Life. Advanced cylinder barrel design permits high speed and pressure. Pistons have long engagement with cylinder bore resulting in low leakage. High strength cast iron housings provide greater noise damping and wall strength. Bi-metal bearing plate has steel for high speed and pressure and bronze for greater bearing properties. A wide variety of configurations and options are available (Contact us for additional information).

Peak Pressure: 6000 PSI (Peak Pressure should not exceed 1% of operating time).

Maximum Shaft Speed: See table below.

Recommended Fluid Viscosity: 80-180 SSU is optimum. 60 SSU is low intermittent limit. 10,000 SSU is high intermittent limit (cold start-up).

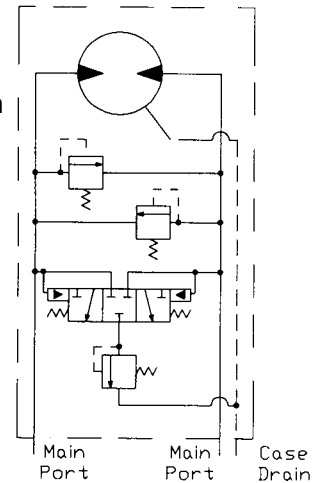
System Temperature: 180°F Normal Continuous Limit, 220°F Maximum Intermittent Limit.

Recommended Filtration: ISO 4406 Cleanliness Level 18/13 or cleaner.

CAUTION: Before the motor is started, fill the case through the uppermost drain port with hydraulic fluid of the type to be used. (The typical installation has the excess charge pump flow from the motor's charge pressure relief valve flushing the case on the pump. The motor's upper case drain line connects to the lower case port on the pump. The upper case port on the pump returns back to tank, often through a heat exchanger). The case of the pump and motor must remain full at all times.

Dimensions: page 653

Eaton Heavy Duty Pumps: page 225



Eaton Heavy Duty Hydrostatic Motors • Models 33 through 76

Catalog Part No.	Eaton Part No.	Displ (in ³ /rev) & Speed Rating	Mtg Flange	Shaft	Ports	High Pressure Reliefs (psi)	Charge Pressure Relief (psi)	Other Features	Wt.	Price Each
C1JM20	3333-059	3.32 4510RPM	SAE C 4-Bolt	14T SAE C Splined	1 Inch Code 62	None	240		83.00	
C1MH45	0003333-015	3.32 4510RPM	SAE C 4-Bolt	14T SAE C Splined	1 Inch Code 61	3000	160		83.00	
C1HW96	0003931-090	3.89 4160RPM	SAE C 4-Bolt	14T SAE C Splined	1 Inch Code 61	4000	220		83.00	
C1EL18	0003933-003	3.89 4160RPM	SAE C 4-Bolt	14T SAE C Splined	1 Inch Code 61	5000	160		83.00	
C1HJ42	4633-091	4.60 4160RPM	SAE C 4-Bolt	14T SAE C Splined	1 Inch Code 62	None	240		83.00	
C1JF57	5433-111	5.44 3720RPM	SAE C 4-Bolt	14T SAE C Splined	1 Inch Code 61	5000	220		106.00	
C1KG85	0005433-153	5.44 3720RPM	SAE C 4-Bolt	14T SAE C Splined	1 Inch Code 62	5500	220		110.00	
C1JM38	0006433-034	6.43 3720RPM	SAE C 4-Bolt	14T SAE C Splined	1 Inch Code 62	None	160		65.00	
C1JE78	6431-090	6.43 3720RPM	SAE C 4-Bolt	14T SAE C Splined	1 Inch Code 62	5500	220		30.00	

Remanufactured Units: Remanufactured Units are genuine Eaton Factory Remanufactured Units that carry the same warranty as new units, and require a trade-in of your old unit. (A Core Charge is added to your invoice, and is credited when your trade-in is received).





Hydrostatic Transmissions

Eaton Heavy Duty Hydrostatic Transmission Motors
Displacements From 3.32 to 7.62 in³/rev



Parts for Eaton Heavy Duty Hydrostatic Motors

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1AB87	0103852-000	Bearing Plate, Series 1 Fixed Motor, Model 54	1.08	
•C1AB88	0103877-000	End Cover Gasket, Series 1 Fixed Motor, Models 54 & 64	0.01	
•C1AB84	0103042-000	End Cover Gasket for Series 1 Variable Models 54 & 64	0.06	
•C1AD86	0990231-000	Face Seal, Series 1 Fixed Motor, for Motors P/N XX31-XX, Models 33 thru 64	1.00	
•C1HX48	0990709-000	Lip Seal, Series 1 Fixed Motor, for Motors P/N XX33-XXX, Models 33 thru 64	0.15	
•C1AD83	0990094-001	Overhaul Gasket Kit, Series 1 Fixed Motor, Models 54 & 64	0.01	
C1AB86	0103809-000	Thrust Plate, Fixed Clearance, Series 1 Fixed Motor, Models 54 & 64	0.21	

Hydraulic Power & Control

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Fluid Conveying

Miscellaneous Products

Indexes & Technical Information



Tie Rod

1-1/2" Bore Midway DA Series



Features: Ductile iron rod clevis, base clevis and cylinder head. Aluminum alloy piston with o-ring seal and backup rings. Self locking piston nut. Metal clad rod wiper. Ground & polished chrome plated rod. Precision honed cylinder tube. High tensile steel

tie rods. Zinc plated clevis pins and clips.

Maximum Operating Pressure: 2500 PSI.

Dimensions: page 658

1-1/2" Bore • Midway DA Series

Catalog Part No.	Midway Model	Bore (in)	Stroke (in)	Rod Dia (in)	Ports	Pin to Pin Retracted (in)	Pin to Pin Extended (in)	Pin Dia (in)	Wt.	Price Each
C1EG69	1504TR	1.50	4	0.75	1/4 NPT	13.25	17.25	0.625	9.75	
C1AK80	1506TR	1.50	6	0.75	1/4 NPT	15.25	21.25	0.625	10.70	
C1AK81	1508TR	1.50	8	0.75	1/4 NPT	17.25	25.25	0.625	11.90	
C1AK90	1512TR	1.50	12	0.75	1/4 NPT	21.25	33.25	0.625	13.85	

2" to 5" Bore Custom TR2.5 Agricultural Series



TR2.5 Series Features: 1045 cast steel clevises, 65-45-12 ductile iron cast head, Ductile iron piston, Heavy duty Grade 8 (100,000 psi yield piston nut torqued to specifications and held with thread/locker sealant, Double-acting piston seal with

single-acting capabilities, Double lip U-cup seal single acting on rod. Special snap-in type wiper seals, specially designed to prevent exterior contamination and moisture ingress; Molded ribs provide extra stability to the seal and help prevent pressure trapping. Induction hardened, chrome plated rods, 90 hrs minimum on ASTM B117-02 procedure salt spray tests. 100% tested. All cylinders are submitted to static and dynamic pressure tests to recommended specifications.

TX Series Features: Lighter weight / Lesser cost • Ductile iron castings • Double ported base caps • 2500 PSI working pressure, 5000 PSI proof pressure • Offered in red & black (standard stock models are red) • Offered in inline and 90° to pin port orientations (standard stock models are ports inline with pins).

Maximum Operating Pressure: 2500 PSI.

Note: ASAE cylinders (2" to 4" bore) have threaded shaft to accept optional mechanical stroke control.

Note: Cylinder rod end port (just one port) is inline with pin unless noted otherwise, blind end is double ported and is assembled inline with pin (unless noted otherwise).

Application Considerations: Long stroke cylinders have lower full extension ratings to prevent excessive column loading (buckling of shaft). See tables. Maximum pushing load suggested with a minimum safety factor of 2.

Column load data is based on a pin-to-pin mounting calculation.

Dimensions: page 658

2" to 5" Bore • Custom TR2.5 Agricultural Series

Catalog Part No.	Monarch Model	Bore (in)	Stroke (in)	Rod Dia (in)	Ports	Pin to Pin Retracted (in)	Pin to Pin Extended (in)	Pin Dia (in)	Full Extension Rated Pressure (psi)	Full Extension Rated Load (lbs)	Wt.	Price Each
C1ND14	TR2.5-2004	2	4	1.125	3/8 NPT	14.25	18.25	1.00	2500	7800	16.00	
C1MV39	TR2.5-2006	2	6	1.125	3/8 NPT	16.25	22.25	1.00	2500	7800	17.00	
C1ND15	TR2.5-2008	2	8	1.125	3/8 NPT	18.25	26.25	1.00	2500	7800	19.00	

Hydraulic Cylinders



Tie Rod

2" to 5" Bore • Custom TR2.5 Agricultural Series

Catalog Part No.	Monarch Model	Bore (in)	Stroke (in)	Rod Dia (in)	Ports	Pin to Pin Retracted (in)	Pin to Pin Extended (in)	Pin Dia (in)	Full Extension Rated Pressure (psi)	Full Extension Rated Load (lbs)	Wt.	Price Each
•C1MV34	TR2.5-2008-ASAE	2	8	1.125	3/8 NPT	20.25	28.25	1.00	2500	7800	22.00	
•C1MV40	TR2.5-2010	2	10	1.125	3/8 NPT	20.25	30.25	1.00	2500	7800	23.00	
•C1MV35	TR2.5-2012	2	12	1.125	3/8 NPT	22.25	34.25	1.00	2500	7800	25.00	
•C1ND16	TR2.5-2014	2	14	1.125	3/8 NPT	24.25	38.25	1.00	2500	7800	24.00	
•C1ND17	TR2.5-2016	2	16	1.125	3/8 NPT	26.25	42.25	1.00	2500	7800	25.00	
•C1ND18	TR2.5-2018	2	18	1.125	3/8 NPT	28.25	46.25	1.00	2200	7000	27.00	
•C1MV41	TR2.5-2020	2	20	1.125	3/8 NPT	30.25	50.25	1.00	1900	5900	28.00	
•C1ND19	TR2.5-2024	2	24	1.125	3/8 NPT	34.25	58.25	1.00	1400	4400	31.00	
•C1ND20	TR2.5-2030	2	30	1.125	3/8 NPT	40.25	70.25	1.00	950	3000	36.00	
•C1ND21	TR2.5-2036	2	36	1.125	3/8 NPT	46.25	82.25	1.00	700	2200	41.00	
C1MJ22	2036TX-BLACK	2	36	1.125	3/8 NPT	46.25	82.25	1.00	1090	3430	30.20	
•C1ND22	TR2.5-2504	2.5	4	1.125	3/8 NPT	14.25	18.25	1.00	2500	12200	19.00	
•C1ND23	TR2.5-2506	2.5	6	1.125	3/8 NPT	16.25	22.25	1.00	2500	12200	21.00	
C1MJ25	2506TX-BLACK	2.5	6	1.125	3/8 NPT	16.25	22.25	1.00	2500	12272	21.00	
C1MM46	2508TX-BLACK	2.5	8	1.125	3/8 NPT	18.25	26.25	1.00	2500	12272	14.25	
•C1ND24	TR2.5-2508	2.5	8	1.125	3/8 NPT	18.25	26.25	1.00	2500	12200	23.00	
•C1ND25	TR2.5-2508-ASAE	2.5	8	1.125	3/8 NPT	20.25	28.25	1.00	2500	12200	23.00	
•C1ND26	TR2.5-2510	2.5	10	1.125	3/8 NPT	20.25	30.25	1.00	2500	12200	24.00	
•C1ND27	TR2.5-2512	2.5	12	1.125	3/8 NPT	22.25	34.25	1.00	2500	12200	26.00	
•C1ND28	TR2.5-2514	2.5	14	1.125	3/8 NPT	24.25	38.25	1.00	2100	10300	28.00	
•C1ND29	TR2.5-2516	2.5	16	1.125	3/8 NPT	26.25	42.25	1.00	1700	8400	29.00	
C1ND30	TR2.5-2518	2.5	18	1.25	3/8 NPT	28.25	46.25	1.00	2150	10700	32.00	
C1MJ26	2518TX-90BLACK	2.5	18	1.25	3/8 NPT	28.25	46.25	1.00	2500	12272	24.00	
•C1ND31	TR2.5-2520	2.5	20	1.25	3/8 NPT	30.25	50.25	1.00	1850	9100	34.00	
•C1ND32	TR2.5-2524	2.5	24	1.25	3/8 NPT	34.25	58.25	1.00	1350	6700	38.00	
C1ND33	TR2.5-2530	2.5	30	1.25	3/8 NPT	40.25	70.25	1.00	900	4600	43.00	
C1ND34	TR2.5-2536	2.5	36	1.25	3/8 NPT	46.25	82.25	1.00	650	3400	49.00	
C1MM29	TR2.5-2548	2.5	48	1.25	3/8 NPT	58.25	106.25	1.00			78.36	
C1ND35	TR2.5-3002	3	2	1.25	1/2 NPT	12.25	14.25	1.00	2500	17600	22.00	
C1ND81	TR2.5-3004	3	4	1.25	1/2 NPT	14.25	18.25	1.00	2500	17600	24.00	
•C1ND36	TR2.5-3006	3	6	1.25	1/2 NPT	16.25	22.25	1.00	2500	17600	26.00	
•C1ND37	TR2.5-3008	3	8	1.25	1/2 NPT	18.25	26.25	1.00	2500	17600	28.00	
•C1ND38	TR2.5-3008-ASAE	3	8	1.25	1/2 NPT	20.25	28.25	1.00	2500	17600	29.00	
•C1ND39	TR2.5-3010	3	10	1.25	1/2 NPT	20.25	30.25	1.00	2500	17600	30.00	
•C1ND40	TR2.5-3012	3	12	1.25	1/2 NPT	22.25	34.25	1.00	2500	17600	33.00	
•C1ND41	TR2.5-3014	3	14	1.25	1/2 NPT	24.25	38.25	1.00	2200	15700	35.00	
•C1ND42	TR2.5-3016	3	16	1.25	1/2 NPT	26.25	42.25	1.00	1800	12800	37.00	
C1MJ40	3018TX-90BLACK	3	18	1.25	1/2 NPT	28.25	46.25	1.00	2340	16560	28.00	
•C1ND43	TR2.5-3018	3	18	1.50	1/2 NPT	28.25	46.25	1.00	2500	17600	42.00	
•C1ND44	TR2.5-3020	3	20	1.50	1/2 NPT	30.25	50.25	1.00	2500	17600	44.00	
•C1ND45	TR2.5-3024	3	24	1.50	1/2 NPT	34.25	58.25	1.00	1950	14000	49.00	
•C1ND46	TR2.5-3030	3	30	1.50	1/2 NPT	40.25	70.25	1.00	1350	9600	57.00	
•C1ND47	TR2.5-3036	3	36	1.50	1/2 NPT	46.25	82.25	1.00	950	7000	65.00	
•C1ND49	TR2.5-3508-ASAE	3.5	8	1.25	1/2 NPT	20.25	28.25	1.00	2500	24000	35.00	
•C1ND48	TR2.5-3508	3.5	8	1.25	1/2 NPT	18.25	26.25	1.00	2500	24000	34.00	
•C1ND50	TR2.5-3510	3.5	10	1.25	1/2 NPT	20.25	30.25	1.00	2500	24000	37.00	
•C1ND51	TR2.5-3512	3.5	12	1.25	1/2 NPT	22.25	34.25	1.00	2000	19600	39.00	



Hydraulic Cylinders

Tie Rod

2" to 5" Bore • Custom TR2.5 Agricultural Series

Catalog Part No.	Monarch Model	Bore (in)	Stroke (in)	Rod Dia (in)	Ports	Pin to Pin Retracted (in)	Pin to Pin Extended (in)	Pin Dia (in)	Full Extension Rated Pressure (psi)	Full Extension Rated Load (lbs)	Wt.	Price Each
•C1ND52	TR2.5-3514	3.5	14	1.25	1/2 NPT	24.25	38.25	1.00	1600	15700	42.00	
•C1ND53	TR2.5-3516	3.5	16	1.25	1/2 NPT	26.25	42.25	1.00	1300	12800	44.00	
•C1ND54	TR2.5-3516-ASAE	3.5	16	1.50	1/2 NPT	31.50	47.50	1.25	2150	21100	50.00	
•C1ND55	TR2.5-3518	3.5	18	1.25	1/2 NPT	28.25	46.25	1.00	1100	10700	47.00	
•C1ND56	TR2.5-3520	3.5	20	1.25	1/2 NPT	30.25	50.25	1.00	900	9100	49.00	
•C1ND57	TR2.5-3524	3.5	24	1.50	1/2 NPT	34.25	58.25	1.00	1450	14000	58.00	
•C1ND58	TR2.5-4008	4	8	1.25	1/2 NPT	18.25	26.25	1.00	2000	25400	38.00	
•C1ND59	TR2.5-4008-ASAE	4	8	1.25	1/2 NPT	20.25	28.25	1.00	1750	22200	39.00	
•C1MV42	TR2.5-4010	4	10	1.25	1/2 NPT	20.25	30.25	1.00	2000	25100	52.00	
•C1ND60	TR2.5-4012	4	12	1.25	1/2 NPT	22.25	34.25	1.00	1550	19600	44.00	
C1ND61	TR2.5-4014	4	14	1.25	1/2 NPT	24.25	38.25	1.00	1250	15700	46.00	
C1ND82	TR2.5-4016	4	16	1.25	1/2 NPT	26.25	42.25	1.00	1000	12800	49.00	
•C1MV43	TR2.5-4018	4	18	1.50	1/2 NPT	28.25	46.25	1.00	1750	22300	68.00	
•C1ND62	TR2.5-4020	4	20	1.500	1/2 NPT	30.25	50.25	1.00	1500	18800	58.00	
•C1MV36	TR2.5-4024	4	24	1.500	1/2 NPT	34.25	58.25	1.00	1100	14000	64.00	
C1ND63	TR2.5-4030	4	30	2.00	1/2 NPT	40.25	70.25	1.00	2400	30500	84.00	
C1ND64	TR2.5-4036	4	36	2.00	1/2 NPT	46.25	82.25	1.00	1750	22200	95.00	
C1KU97	4048TX	4	48	2.00	1/2 NPT	58.25	106.25	1.00	1635	20560	125.00	

Custom & Monarch Cylinders • Replacement Parts

Catalog Part No.	Part Number	Description	Wt.	Price Each
•C1ML55	SK-TR2.5-201125	TR2.5 Series Seal Kit, 2 Inch Bore, 1-1/8 Inch Rod	0.20	
•C1ML56	SK-TR2.5-251125	TR2.5 Series Seal Kit, 2-1/2 Inch Bore, 1-1/8 Inch Rod	0.48	
C1ML57	SK-TR2.5-251250	TR2.5 Series Seal Kit, 2-1/2 Inch Bore, 1-1/4 Inch Rod	0.50	
•C1ML58	SK-TR2.5-301250	TR2.5 Series Seal Kit, 3 Inch Bore, 1-1/4 Inch Rod		
•C1ML59	SK-TR2.5-301500	TR2.5 Series Seal Kit, 3 Inch Bore, 1-1/2 Inch Rod	0.06	
•C1ML60	SK-TR2.5-351250	TR2.5 Series Seal Kit, 3-1/2 Inch Bore, 1-1/4 Inch Rod	0.06	
•C1ML61	SK-TR2.5-351500	TR2.5 Series Seal Kit, 3-1/2 Inch Bore, 1-1/2 Inch Rod	0.06	
C1ML62	SK-TR2.5-401500	TR2.5 Series Seal Kit, 4 Inch Bore, 1-1/2 Inch Rod		
C1ML63	SK-TR2.5-401750	TR2.5 Series Seal Kit, 4 Inch Bore, 1-3/4 Inch Rod		
C1ML64	SK-TR2.5-402000	TR2.5 Series Seal Kit, 4 Inch Bore, 2 Inch Rod	0.30	
•C1FN18	492650	Rod Clevis for 2 & 2-1/2 Inch Bore TL Series Cylinders, 1 Inch Pin Size	1.84	
•C1GH54	492652	Rod Clevis for 3, 3-1/2 & 4 Inch Bore TL Series Cylinders, 1 Inch Pin Size	2.91	
•C1AT17	1D1551-16275	Clevis Pin, 1 inch diameter, use with 2A0308-1 clip (Cross Mfg.)	0.75	
•C1BK17	2A0308-1	Clevis Pin Clip for use with 1D1551-16275 clevis pin (Cross Mfg.)	0.04	
•C1ZX17	640110	Clevis Clips (1 Bag of 12 clips)	0.14	
•C1BX27	640091-MONARCH	Clevis Pin & Clip Kit, contains (2) Clevis Pins and (4) Clips	1.00	
•C1DK12	RK20L-112	TL Series Seal Kit, 2 Inch Bore, 1-1/8 Inch Rod	0.06	
•C1DK13	RK25L-112	TL Series Seal Kit, 2-1/2 Inch Bore, 1-1/8 Inch Rod	0.08	
•C1DK14	RK25L-125	TL Series Seal Kit, 2-1/2 Inch Bore, 1-1/4 Inch Rod	0.20	
•C1DK15	RK30L-125	TL Series Seal Kit, 3 Inch Bore, 1-1/4 Inch Rod	0.09	
•C1DK16	RK30L-150	TL Series Seal Kit, 3 Inch Bore, 1-1/2 Inch Rod	0.08	
•C1DK17	RK35L-125	TL Series Seal Kit, 3-1/2 Inch Bore, 1-1/4 Inch Rod	0.09	
•C1DK18	RK35L-150	TL Series Seal Kit, 3-1/2 Inch Bore, 1-1/2 Inch Rod	0.09	





Hydraulic Cylinders

Tie Rod

Custom & Monarch Cylinders • Replacement Parts

Catalog Part No.	Part Number	Description	Wt.	Price Each
•C1DK20	RK40L-150	TL Series Seal Kit, 4 Inch Bore, 1-1/2 Inch Rod	0.01	
•C1DK69	SB125-100	Steel Stop Bushing, 2-1/4" OD, 1" wide, for 1-1/4 Rod	0.76	

Hydraulic Power & Control

Pneumatic Power & Control

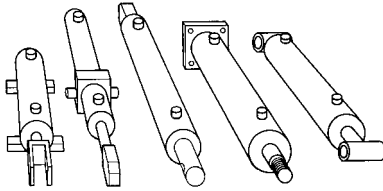
Fluid Conveying

Miscellaneous Products

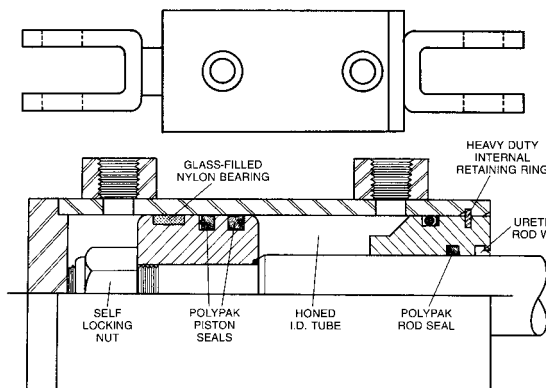
Indexes & Technical Information



Yates Industries, Inc.

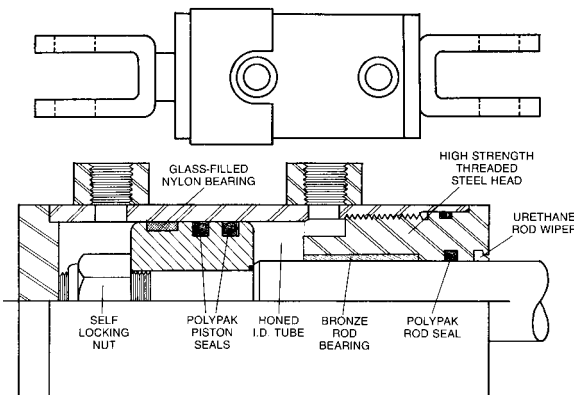


Yates Industries manufactures world-class hydraulic and pneumatic cylinders. Our mission is to offer our customers the utmost in quality, service and reliability. Operating with the highest degree of workmanship and pride, we strive to be the standard by which our competitors are judged. New applications, as well as replacing existing industrial or mobile cylinders, are welcome. Please contact us for application assistance.



2500 Series Welded - Medium Duty: Suitable for medium pressure hydraulic service • Cast iron head and piston are made from fine grained centrifugally cast bar • Piston rod is ground, polished and plated medium carbon steel • Teflon® piston seals are available • O-ring boss ports are available • Optional high temperature seals.

Dimensions: page 659



3000 Series Welded - Heavy Duty: Suitable for high pressure applications • Cast iron piston rings or Teflon® piston rings are available • Internal cushioning is available • O-ring boss ports are available • Optional high temperature seals.

Dimensions: page 660

TIE-ROD CYLINDERS: "H6" Hydraulic Heavy Duty: • JIC-NFPA Interchangeable, pressures up to 3,000 PSI hydraulic, bore sizes available from 1 ½" - 24", 20 mounting styles. "A4, H4, L4" Pneumatic Heavy Duty (steel): Hydraulic Medium Duty, Pneumatic Permanently Lubricated: • JIC-NFPA interchangeable, pressures up to 250 PSI pneumatic or 1,500 PSI hydraulic, bore sizes available from 1 ½" - 20", 23 mounting styles. "A2, H2" Pneumatic (Aluminum), Hydraulic Light Duty (Aluminum): • JIC-NFPA interchangeable, pressures up to 250 PSI pneumatic or 400 PSI hydraulic, bore sizes available from 1 ½" - 8", 20 mounting styles.

Custom Cylinders: Manufactured to your specifications • Bore sizes to 20 inches • Lengths to 20 feet.

Hydraulic Cylinders

Custom

HDM Hydraulics, LLC
Custom Hydraulic Cylinders

HDM Hydraulics, LLC Cylinders

HDM Hydraulics, LLC designs and manufactures single acting, double acting, and telescopic hydraulic cylinders for mobile equipment applications. Please contact us for application assistance.



Ram: HDM manufactures 1" to 3" solid rod rams and 3" to 5" hollow rod ram cylinders. HDM has various ram designs including an adjustable v-packing design, a polypak rod seal design and a heavy duty design to accommodate sidelading.

Double Acting: HDM custom designs and manufactures 1" to 6" bore double acting cylinders to meet the application's requirements. Standard double acting cylinders accommodate operating pressures up to 3,000 PSI.

Telescopic: HDM is considered the industry leader in small bore, single acting and double acting telescopic cylinders. They custom design their telescopic cylinders to meet the application's requirements.

Piggyback: HDM's piggyback cylinders are designed to accommodate applications that require additional stroke and require consistent extension and retraction speed.

Rephase: HDM's rephase cylinders are designed to synchronize the extension and retraction of two or more cylinders. These cylinders are custom designed to meet the specific requirements of the application.

Aluminum: HDM is the leading global manufacturer of aluminum hydraulic cylinders. These cylinders are very durable, lightweight and used in highly corrosive environments. The aluminum cylinders are rated to accommodate operating pressures up to 3,000 PSI.

Double Rod End: HDM manufactures double rod end cylinders for a variety of applications that require push and/or pull force from both ends of the cylinder.

Integrated Valving: Many of HDM's cylinder designs have integrated valving including counterbalance valves,

pilot-operated check valves, sequencing valves and thermal relief valves as required to meet the performance requirements of the application.

Linear Feedback: Linear feedback devices can be internally or externally mounted to provide precise cylinder position. These cylinders are used for accurate positioning and velocity control.

Heavy Duty: HDM's heavy duty cylinders are designed to meet the requirements of rugged applications including sidelading, operating pressures up to 5,000 PSI, pressure spikes up to 10,000 PSI, and high shock and vibration levels.

Locking: HDM designs and manufactures locking cylinders for applications that require a mechanical locking system. Their mechanical locking features are integrated into the design of the cylinder.

Screw Actuator: HDM also manufactures hydraulically driven screw actuators that are custom designed for applications required to move up to 10,000 lbs. or more at speeds of 100 in./min. The acme screw has mechanical self locking capability in any position.

Char-Lynn® Series 3-6-12 Steering Control Units Non-Load Reaction



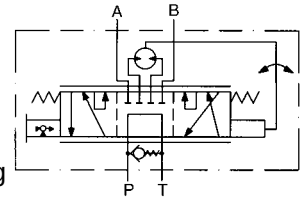
Traditional power steering units for applications that don't require integral valve capabilities.

Max. System Pressure: 2500 PSI.

Max. Back Pressure: 300 PSI.

Operating Temperatures: Maximum System Operating Temperature is 200° F. Maximum differential between steering unit and system temperature is 50° F.

Input Torque: 25-35 lb-in @ 100 PSI back pressure for powered applications. 100 lb-ft maximum for non-powered applications.



Fluids: Most petroleum based fluids and ATF Type A.

Recommended Filtration: ISO 18/13 Cleanliness Level.

Dimensions: page 661

Char-Lynn® Series 3-6-12 Steering Control Units • Non-Load Reaction

Catalog Part No.	Char-Lynn® Model	Displacement (cu.in./rev)	Rated Flow (GPM)	Ports	Special Features	Wt.	Price Each
•C1BC11	211-1001	4.5	2-4	9/16-18 St.Thd O-Ring	Open Center	11.68	
•C1BC12	211-1007	4.5	4-8	3/4-16 St.Thd O-Ring	Open Center	11.01	
•C1BC13	211-1008	5.9	4-8	3/4-16 St.Thd O-Ring	Open Center	11.31	
C1LW91	212-1011	7.3	4	9/16-18 St.Thd O-Ring	Closed Center	11.75	
•C1BC14	211-1009	7.3	4-8	3/4-16 St.Thd O-Ring	Open Center	11.44	
•C1BC15	211-1010	9.7	4-8	3/4-16 St.Thd O-Ring	Open Center	12.00	
•C1BC16	211-1011	11.3	4-8	3/4-16 St.Thd O-Ring	Open Center	12.17	
•C1BC17	211-1012	14.1	4-8	3/4-16 St.Thd O-Ring	Open Center	12.55	
C1BC18	211-1158	17.9	4-8	3/4-16 St.Thd O-Ring	Open Center	13.33	
C1BC21	211-1177	23.8	8-16	3/4-16 St.Thd O-Ring	Open Center	14.50	
•C1BC22	211-1178	29.7	8-16	3/4-16 St.Thd O-Ring	Open Center	15.05	
C1BC19	211-1160	35.9	8-16	3/4-16 St.Thd O-Ring	Open Center	16.33	
•C1KJ56	211-1179	45.1	8-16	3/4-16 St.Thd O-Ring	Open Center	18.30	

Parts For Char-Lynn® Series 3-6-12 Steering Control Units

Catalog Part No.	Part Number	Description	Wt.	Price Each
•C1AB58	0064418-000	Seal Kit, Buna-N, -001 Series. Quad Ring Shaft Seal.	0.04	
•C1AB61	0064466-000	Seal Kit, Buna-N, -001-002 Series.	0.04	
•C1AB62	0064470-000	Seal Kit, Buna-N, with Low Input Torque Seal (replaces Quad-Ring), -001-002 Series	0.03	

Steering Units & Accessories

Char-Lynn® Power Steering

Steering Columns for Char-Lynn® Series 3-6-12



Features: Column & mounting flange is a sturdy single weldment. The method of retaining bearing & shaft provides high thrust load and side load capacity. Dust seal protects against dirt and moisture. Available with serrated or keyed shaft. One or two horn wires are available with the serrated shaft.

Dimensions: page 661

Steering Columns for Char-Lynn® Series 3-6-12

Catalog Part No.	Char-Lynn® Model	Length (in)	Shaft Type	Horn Wire	Wt.	Price Each
•C1AY22	204-1002	2.5	Serrated	No	1.86	
•C1AY23	204-1004	6.0	Serrated	No	2.20	
C1HH76	204-1008	30.0	Serrated	1 Wire	5.17	

Note: As of February 28, 2008, mounting bolts are being furnished with the columns (4ea 3/8-16 x 3/4 12-point cap screws).

Accessories For Char-Lynn® Steering Columns

Catalog Part No.	Part Number	Description	Wt.	Price Each
•C1GM77	9900158-000	Bolt Kit containing (4) 3/8-16 x 3/4 12-point cap screws (to bolt the column to the steering unit)	0.14	

Steering Wheels & Accessories for Char-Lynn® Series 3-6-12



Steering Wheels & Accessories for Char-Lynn® Series 3-6-12

Catalog Part No.	Char-Lynn® Model	Description	Wt.	Price Each
•C1BB32	209-1007	Steering Wheel, Standard, 17 inch diameter, black. Fits 13/16-20 Serrated Columns.	4.45	
C1JD36	209-1014	Steering Wheel, thin 3-spoke design, 15 inch diameter. Fits 13/16-20 Serrated Columns.	4.31	
•C1AA78	0021084-000	Hex Nut for attaching Steering Wheel to Serrated Column. 13/16-20 UNF.	0.09	
•C1BB31	209-1005	Steering Wheel Cap (For installations without horn)	0.11	
•C1BA26	208-1013	Horn Button Kit	0.37	



Steering Units & Accessories

Char-Lynn® Power Steering



Other Char-Lynn® Steering Products

Other Char-Lynn® Steering Products

Catalog Part No.	Char-Lynn® Model	Description	Wt.	Price Each
•C1GM65	0064500-000	Seal Kit for 217 Series (Gerotor) Torque Generator	0.03	
C1JX53	200-0039	Series 10 Steering Control Unit, 12 GPM, 3000 PSI, 28.2 in ³ /rev, Open Center, Non-Load Reaction, 145 PSI Max Back Pressure, Manual Steering Check, SAE-8 Ports, 2 x M12 Mounting Threads Port Face, 4 x M10 Mounting Threads Mounting Face,	17.77	
C1JC53	606-1345-003-QA	VLE In-Line Priority Flow Control, 40 GPM Inlet, Standard Metering, Dynamic Load Sense Pilot with Standard 1.23 Boost, 100 lbf/in ² Control Spring, 2500 PSI Relief, Ports CF (SAE-10) P & EF (SAE-12) LS & T (SAE-4)	12.11	

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Hydraulic Valves & Accessories

Ball Valves

Bronze Apollo® 70-100 Series



Features: Chromium plated ball. RPTFE seats and stuffing box ring. Blow-out proof stem design. Adjustable packing gland.

Standard Materials: Zinc plated steel lever (with vinyl cover) and lever nut. RPTFE seats, stem packing and stem bearing. B16 chrome plated ball. B16 retainer (1/4 through 1 inch). B584-C84400 retainer (1-1/4 through 3 inch). B16 gland nut and stem. PTFE body seal (1-1/4 through 3 inch). B584-C84400 body.

Pressure Ratings: 600 psig WOG, Cold Non-Shock. 150 psig Saturated Steam. Vacuum service to 29 in./Hg.

Note: Valves have a reduced pressure rating at elevated temperatures. See "600# Bronze P-T Rating (Graph 4) on page 664

Note: Numerous options are available on special order. Contact us for assistance.

Seal Kits: page 246

Bronze • Apollo® 70-100 Series

Catalog Part No.	Apollo Model	Ports	Ball Orifice Dia.	CV Rating	Special Features	Seal Kit	Wt.	Price Each
•C1EN78	70-101-01	1/4 NPT	0.37	8.4		70-002-01	0.58	
C1EN82	70-103-01	1/2 NPT	0.50	15		70-003-01	0.63	
•C1EN84	70-104-01	3/4 NPT	0.68	30		70-004-01	1.39	
•C1EN86	70-105-01	1 NPT	0.87	43		70-005-01	1.72	
C1EN77	70-100-01	3 NPT	2.50	370		70-009-01	17.25	

Hydraulic Valves & Accessories

Ball Valves

Brass

Stauff 2BVL Series



Features: Brass Hot Stamping with Chrome Plated Brass Ball. Blow Out Proof Stem. Teflon Seats, Seals & Thrust Washer. Metal Handle.

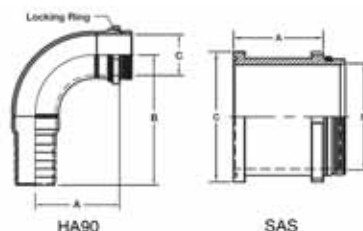
Maximum Operating Pressure: Up to 600 PSI

Temperature Range: Up to 320°F Up to 320°F at reduced pressure. See chart on page page 663

Brass • Stauff 2BVL Series

Catalog Part No.	Stauff Model	Ports	Maximum Working Pressure (psi)	Special Features	Wt.	Price Each
•C1KU42	2BVL2004F-OSSS	1/4 NPT	600	Stainless steel off-set handle	0.30	
•C1KU43	2BVL2006F-OSSS	3/8 NPT	600	Stainless steel off-set handle	0.30	
•C1KU44	2BVL2008F-OSSS	1/2 NPT	435	Stainless steel off-set handle	0.40	
•C1KU45	2BVL2012F-OSSS	3/4 NPT	435	Stainless steel off-set handle	0.71	
•C1KU46	2BVL2016F-OSSS	1 NPT	435	Stainless steel off-set handle	1.00	
•C1KU47	2BVL2020F-OSSS	1-1/4 NPT	435	Stainless steel off-set handle	1.70	
C1KJ71	2BVL2024F	1-1/2 NPT	362	Carbon Steel, zinc plated handle	2.20	
•C1KU48	2BVL2024F-OSSS	1-1/2 NPT	362	Stainless steel off-set handle	2.32	
C1MJ31	2BVL2032F/2	2 NPT	362	Carbon Steel, zinc plated handle	4.50	
•C1KU49	2BVL2032F-OSSS	2 NPT	362	Stainless steel off-set handle	4.20	
C1MJ32	2BVL2R40FL	2-1/2 NPT	362	Carbon Steel, zinc plated handle	12.90	

Stauff 2BVL Series Port Adaptors



Features: Leak Free O-Ring Sealing to 4" with a Variety of Connection Options: • Socket Weld • Hose Barb (Straight 45° & 90°) • Split Flange. Lock Nut Design Simplifies the Positioning of Valves and Eliminates Weld Damage to Valve.

Material: Carbon Steel Construction

Seals: Buna N Seals

Stauff 2BVL Series • Port Adaptors

Catalog Part No.	Stauff Model	Valve Size	Valve Thread Size	A (in)	B (in)	C (in)	Description	Wt.	Price Each
C1LB93	HA90-40	2-1/2	2-1/2 -11 BSPP	5.25	8.06	2.50	SAE Swivel to Hose Barb 90° Adapter	6.44	
C1LD11	SAS-40	2-1/2	2-1/2 -11 BSPP	3.18	2.50	3.31	SAE to Split Flange (Code 61) Adapter	2.43	



Hydraulic Valves & Accessories

Ball Valves

Steel - Barstock Body Apollo® 73-100 Series



Features: Barstock design. RPTFE seats and stuffing box ring. Fire safe design when ordered with graphite packing. Adjustable packing gland. Blow-out proof stem design. Nitride corrosion protection.

Standard Materials: Zinc plated steel lever (with vinyl cover) and lever nut. RPTFE seats, stem packing and stem bearing. A 108-CS chrome plated ball. A 108-CS retainer. A 108-CS gland nut and stem. PTFE body seal (1-1/4 through 2 inch). A 108-CS body.

Pressure Ratings: 1/4 to 1 inch: 2000 psig WOG, Cold Non-Shock. 1-1/4 to 2 inch: 1500 psig WOG, Cold Non-Shock. 150 psig Saturated Steam. Vacuum service to 29 in./Hg.

Note: Valves have a reduced pressure rating at elevated temperatures. For 1/4 inch to 1 inch sizes, see "2000# CS P-T Rating (Graph 13) on page 665. For 1-1/4 inch to 2 inch sizes, see "1500# CS P-T Rating (Graph 11) on page 665

Note: Numerous options are available on special order. Contact us for assistance.

Seal Kits: page 246

Steel - Barstock Body • Apollo® 73-100 Series

Catalog Part No.	Apollo Model	Ports	Ball Orifice Dia.	CV Rating	Special Features	Seal Kit	Wt.	Price Each
•C1EP14	73-104-01	3/4 NPT	0.68	30		70-004-01	1.58	

Hydraulic Valves & Accessories

Ball Valves

Steel - Barstock Body Stauff BBVM Series



Features: Fully ported. Carbon steel body. Chrome plated brass ball. 50,000 cycle seal life. Delrin seats. Viton® O-Rings.

Maximum Operating Pressure: Sizes 1/4 - 1/2: 7250 PSI. Sizes 3/4: 6000 PSI; Sizes 1 - 1-1/4: 4500 PSI; Size 1-1/2: 3600 PSI.

Temperature Range: -14°F to 212°F.

Steel - Barstock Body • Stauff BBVM Series

Catalog Part No.	Stauff Model	Ports	Maximum Working Pressure (psi)	Special Features	Wt.	Price Each
•C1FD90	BBVM20040201	1/4 NPT	7250		0.66	
•C1FD91	BBVM20060201	3/8 NPT	7250		1.10	
•C1NA73	BBVM20080200K	1/2 NPT	7250		1.65	
•C1KL30	BBVM20120200K	3/4 NPT	6000		3.60	
•C1NA74	BBVM20160200K	1 NPT	5000		5.06	
•C1FD97	BBVM21040201	SAE-04	7250		0.66	
•C1FD98	BBVM21060201	SAE-06	7250		1.10	
•C1EK49	BBVM21080200M	1/2 SAE	7250		1.65	
•C1JS23	BBVM21080200M/LD	SAE-08	7250	Locking Device	1.53	
•C1MG96	BBVM21120200M	SAE -12	6000		3.49	
•C1JS24	BBVM21120200M/LD	SAE-12	6000	Locking Device	3.59	
•C1NA75	BBVM21160200M	SAE-16	4500		5.19	
C1JS25	BBVM21160200M/LD	SAE-16	4500	Locking Device	5.21	

Steel - Barstock Body Stauff 2BVM Series



Features: Two-piece hex bar stock construction. Locking devices optional.

Standard Materials: Body: Carbon Steel, black phosphate-coated. Stem: Carbon Steel, nickel-plated. Ball: Carbon Steel, chrome-plated. Seals: Reinforced Teflon® (PTFE). Ball seats: Reinforced Teflon® (PTFE). Handle: Carbon Steel, zinc plated, vinyl grip.

Pressure Ratings: 1/4" to 1": 2000 PSI (cold, non-shock). 1-1/4" to 2": 1500 PSI (cold, non-shock).

Note: Valves have a reduced pressure rating at elevated temperatures. See Pressure / Temperature Rating chart on page 662

Steel - Barstock Body • Stauff 2BVM Series

Catalog Part No.	Stauff Model	Ports	Ball Orifice Dia.	CV Rating	Special Features	Wt.	Price Each
•C1KU51	2BVM2004S	1/4 NPT	0.39	6		0.60	
•C1LD20	STNA3104S 2BVM2006S	3/8 NPT	0.39	12		0.53	
•C1KU55	2BVM2008S	1/2 NPT	0.55	15		0.80	
•C1KU57	2BVM2012S	3/4 NPT	0.67	23		1.40	
•C1KU59	2BVM2016S	1 NPT	0.87	36		2.57	
C1KU61	2BVM2020S	1-1/4 NPT	0.98	44		2.70	
C1KU62	2BVM2024S	1-1/2 NPT	1.26	64		4.75	



Hydraulic Valves & Accessories

Ball Valves

Stainless Steel - Hex Body Stauff 2BVM Series



Features: Two piece hex body • Full and reduced bores • Blowout-proof stem • Anti-static device • Adjustable packing nut • Locking handle standard • Mounting pad

Materials: Body, Stem, and Ball: Stainless Steel A351-CF8M (316); Seals and Ball Seat: Teflon® (PTFE); Handle: 304 Stainless Steel with PVC grip

Pressure Ratings: 2000 PSI (cold, non-shock) up to 175°F. Pressure rating declines with temperature above 175°F.

Temperature Range: -20°F to 400°F

Note: Two-way Stainless Steel ball valves are designed for use as an on/off device.

Stainless Steel - Hex Body • Stauff 2BVM Series

Catalog Part No.	Stauff Model	Ports	Special Features	Wt.	Price Each
C1KU50	2BVM20041144C/LD	1/4 NPT	Full bore	0.60	
C1KU52	2BVM20061144G/LD	3/8 NPT	Full bore	0.62	
C1MW59	2BVM20081144G/LD	1/2 NPT	Full bore	0.64	
C1KU56	2BVM20121144G/LD	3/4 NPT	Full bore	1.40	
C1KU58	2BVM20161144G/LD	1 NPT	Reduced Bore	1.21	
C1KU60	2BVM20201144G/LD	1-1/4 NPT	Reduced Bore	2.80	
C1KW60	STNA30121 2BVM20241144C/LD	1-1/2 NPT	Reduced Bore	3.24	
C1KU63	STNA32685 2BVM20321144G-LD	2 NPT	Reduced Bore	4.70	

Steel - Forged Body Stauff FBV Series



Features: Forged Body, High Pressure Valves. Steel Handle. Delrin +MoS2 Ball Seats. Viton O-Rings. Zinc Plated Body.

Maximum Operating Pressure: 5000 PSI

Temperature Range: -20°F to 212°F

Steel - Forged Body • Stauff FBV Series

Catalog Part No.	Stauff Model	Ports	Maximum Working Pressure (psi)	Special Features	Wt.	Price Each
C1KL79	FBV21200001MLD	SAE-20	5000	Locking Device	8.60	
C1KL80	FBV21240001M/LD	SAE-24	5000	Locking Device	3.25	

Stauff FBV Series Handle Kits

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1ML98	STNA31170	LD6-SW17 Locking Handle Kit	0.38	





Hydraulic Valves & Accessories

Ball Valves

Apollo® Ball Valve Seal Kits



Apollo® Ball Valve • Seal Kits

Catalog Part No.	Apollo Model	Description	Wt.	Price Each
C1EN75	70-008-01	70-100, 70-800, 73-100 Series (2 in. size). 77-100 Series (1-1/2 in size). 70-600 Series (2 in. size).	0.12	

Hydraulic Power & Control

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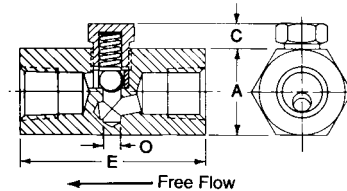
Hydraulic Valves & Accessories

Check Valves

Inline Check Valves

For Hydraulic (To 12 GPM) & Pneumatic Service

DELTROL
fluid products



Features: Low pressure differential required to open & close.

Application: Free flow is permitted in the direction of the arrow; positive check in the opposite direction. Brass valves for use in pneumatic systems and lower pressure hydraulic systems. Steel valves for use in hydraulic systems. Pressure ratings in tables are for non-shock service.

Materials: Body: Available in Brass, Carbon Steel or Stainless Steel.

Inline Check Valves • For Hydraulic (To 12 GPM) & Pneumatic Service

Catalog Part No.	Deltrol Model	Size	Threads	Body Material	Maximum Operating Pressure Non-Shock (psi)	Flow Rating (GPM)	CV Factor	Cracking Pressure (PSI)	A (in)	C (in)	E (in)	Wt.	Price Each
•C1CM26	C20B	1/4	1/4-18 NPT	Brass	2000	3.0	0.54	1 to 2.5	.88	0.36	2.00	0.36	
C1CM36	C30B	1/2	1/2-14 NPT	Brass	2000	8.0	1.47	1 to 2.5	1.31	0.47	2.66	0.89	

Inline Check Valves

For Water, Steam, Oil, Chemicals

STRATAFLO
PRODUCTS, INC.



Features: Fully-formed stainless steel poppet, metal-to-metal seal, ruggedly constructed. Less than 1 psi cracking pressure. No o-rings are used.

Application: For a wide variety of applications, including hot water, cold water, steam, oil, gas, compounds and chemicals. Not for air compressor service.

Materials: Cast brass 1-piece body, stainless steel poppet.

Maximum Working Pressure: 200 lbs. WOG, 75 lbs. steam.

Maximum Operating Temperature: 300°F.

Inline Check Valves • For Water, Steam, Oil, Chemicals

Catalog Part No.	Strataflo Model	Size	Ports	CV Factor	Dimensions (in)	Wt.	Price Each
•C1JR70	400-050	1/2	1/2-14 NPT	2.60	1.40 Diameter, 2.69 Long	0.65	

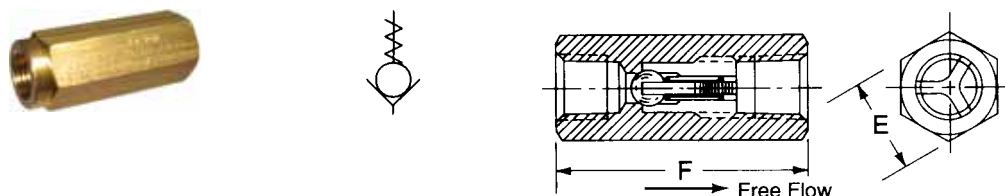
Hydraulic Valves & Accessories

Check Valves

Inline Check Valves

For Hydraulic (To 55 GPM) & Pneumatic Service

DELTROL
fluid products



Features: High flow rating. Low pressure differential required to open & close.

Application: Free flow is permitted in the direction of the arrow; positive check in the opposite direction. Brass valves for use in pneumatic systems and lower pressure hydraulic systems. Steel valves for use in hydraulic systems. Pressure ratings in tables are for non-shock service.

Materials: Body: Available in Brass, carbon steel or stainless steel (1" size available in naval bronze or ductile iron). Ball and Spring: Stainless steel. Ball Follower: Delrin. Retainer: Stainless steel.

Maximum Operating Temperature: 200°F.

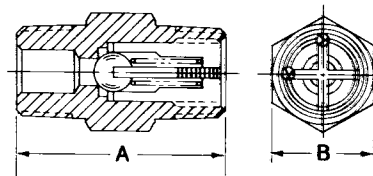
Inline Check Valves • For Hydraulic (To 55 GPM) & Pneumatic Service

Catalog Part No.	Deltrol Model	Size	Threads	Body Material	Maximum Operating Pressure Non-Shock (psi)	Flow Rating (GPM)	CV Factor	Cracking Pressure (PSI)	E (in)	F (in)	Wt.	Price Each
•C1CN88	EC10B	1/8	1/8-27 NPT	Brass	2000	3.0	0.75	1 to 2.5	0.63	1.69	0.15	
•C1CN89	EC20B	1/4	1/4-18 NPT	Brass	2000	6.0	1.47	1 to 2.5	0.75	2.00	0.22	
•C1CN90	EC20S	1/4	1/4-18 NPT	Steel	5000	6.0	1.47	1 to 2.5	0.75	2.00	0.20	
•C1CN93	EDC25B	3/8	3/8-18 NPT	Brass	2000	10.0	3.30	1 to 2.5	1.00	2.50	0.49	
•C1CN94	EDC25S	3/8	3/8-18 NPT	Steel	5000	10.0	3.30	1 to 2.5	1.00	2.50	0.45	
•C1CN95	EDC30B	1/2	1/2-14 NPT	Brass	2000	12.0	3.60	1 to 2.5	1.13	2.88	0.65	
•C1CN96	EDC30S	1/2	1/2-14 NPT	Steel	5000	12.0	3.60	1 to 2.5	1.13	2.88	0.59	
•C1CN97	EDC35B	3/4	3/4-14 NPT	Brass	2000	20.0	5.41	1 to 2.5	1.38	3.25	0.98	
•C1CN98	EDC35S	3/4	3/4-14 NPT	Steel	5000	20.0	5.41	1 to 2.5	1.38	3.25	0.98	
•C1CN92	EC40S	1	1-11-1/2 NPT	Steel	5000	55.0	9.60	3 to 5	1.75	4.50	2.48	

Check Valves

Inline Check Valves (Male Threads) For Hydraulic (To 15 GPM) & Pneumatic Service

DELTROL
fluid products



Features: Soft seat for bubble-tight seal (CMMO & CMMQ models). Compact overall length. Low pressure differential required to open & close.

Application: Free flow is permitted in the direction of the arrow; positive check in the opposite direction. Brass valves for use in pneumatic systems and lower pressure hydraulic systems. Steel valves for use in hydraulic systems. Pressure ratings in tables are for non-shock service.

Materials: Body: Available in Brass, Carbon Steel or Stainless Steel. Ball: Stainless steel. Retainer: Stainless steel.

Operating Temperature Range: -30°F to 250°F (Soft seat CMMO & CMMQ models).

Inline Check Valves (Male Threads) • For Hydraulic (To 15 GPM) & Pneumatic Service

Catalog Part No.	Deltrol Model	Size	Threads	Body Material	Maximum Operating Pressure Non-Shock (psi)	Flow Rating (GPM)	CV Factor	Cracking Pressure (PSI)	A (in)	B (in)	Wt.	Price Each
•C1CN38	CMMQ20B	1/4	1/4-18 NPT	Brass	2000	2.5	0.56	1 to 2.5	1.38	0.63	0.08	
•C1CN39	CMMQ20S	1/4	1/4-18 NPT	Steel	3000	2.5	0.56	1 to 2.5	1.38	0.63	0.08	
•C1CN40	CMMQ30B	1/2	1/2-14 NPT	Brass	1000	10.0	2.71	1 to 2.5	2.06	0.88	0.22	

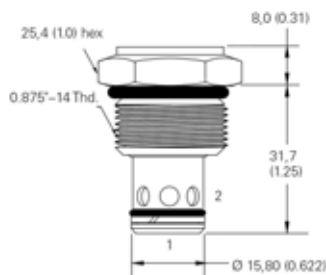
Note: CMMO and CMMQ models have soft seat. CMM models have metal-to-metal seat.

Hydraulic Valves & Accessories

Check Valves

Cartridge Type Check Valve

Vickers® CV13-10 Series • To 5000 PSI & 20 GPM



Description: This is a compact poppet type check valve ideal for use in manifolds for load sense or low flow applications.

Operation: The valve remains closed until the spring bias is reached at port 1 at which time the poppet lifts of the seat and allows flow from port 1 to port 2. in the other direction the valve is closed.

Rated Flow: 20 GPM.

Maximum Operating Pressure: 5000 PSI.

Temperature Range: -40° to 248° F

Recommended Filtration Level: ISO 4406 Cleanliness Level 18/16/13 or cleaner.

Internal Leakage: 5 drops/min. maximum @ 5000 psi.

Cartridge: Model CV13-10-*, sold separately.

Housing: Cavity Size C-10-2, sold separately, see page 441

Cartridge Type Check Valve • Vickers® CV13-10 Series • To 5000 PSI & 20 GPM

Catalog Part No.	Vickers Part No.	Vickers Model	Cracking Pressure (psi)	Housing	Seal Material	Wt.	Price Each
C1MG21	02-200444	CV13-10-P-0-210	210	None	Buna-N	0.17	

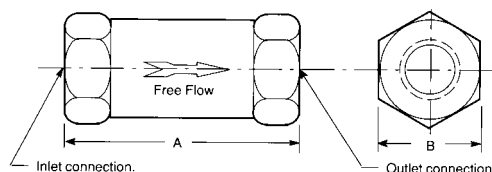


Hydraulic Valves & Accessories

Check Valves

Inline Check Valves

Vickers® DS8P1 & DT8P1 Series • To 3000 PSI & 50 GPM



Application: Used in hydraulic applications to allow free flow of fluid in one direction only.

Construction: Steel body. No elastomer seals.

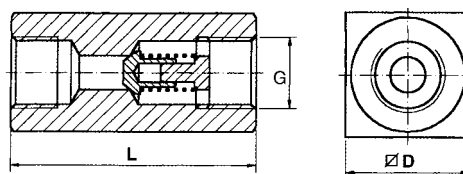
Maximum Operating Pressure: 3000 PSI (Designed for low shock service. Do NOT use this valve to check a high velocity reverse flow resulting in shock conditions).

Inline Check Valves • Vickers® DS8P1 & DT8P1 Series • To 3000 PSI & 50 GPM

Catalog Part No.	Vickers Part No.	Vickers Model	Size	Threads	Flow Rating (gpm)	Cracking Pressure (psi)	A	B	Wt.	Price Each
C1AH96	114088	DT8P1-02-5-10	1/4	1/4 NPT	3.2	5	2.25	0.88	0.50	
C1JM59	117378	DT8P1-03-5-10	3/8	3/8 NPT	8.0	5	3.00	1.00	0.75	
C1AJ60	125670	DT8P1-06-5-11	3/4	3/4 NPT	20	5	3.88	1.50	1.50	
C1AJ58	125667	DT8P1-10-5-11	1-1/4	1-1/4 NPT	50	5	5.25	2.50	6.00	

Inline Check Valves

Stauff RV Series • To 7250 PSI



Specifications: Sizes to 2 inch. Carbon steel body, zinc plated. Working pressure to 7250 PSI (see table for actual rating for a given size). Metal to metal seat.

Options: NPT or SAE ports. Two cracking pressures (7 PSI or 65 PSI). Special cracking pressures available on request.

Inline Check Valves • Stauff RV Series • To 7250 PSI

Catalog Part No.	Stauff Model	Size	Threads	Operating Pressure (PSI)	Cracking Pressure (psi)	D (in)	L (in)	Wt.	Price Each
C1HX34	RV127S	1/2	SAE-8	7250	7	1.38	2.87	1.54	
C1HX35	RV167S	3/4	SAE-12	7250	7	1.77	3.46	2.64	
C1HX36	RV207S	1	SAE-16	7250	7	1.97	5.00	4.40	

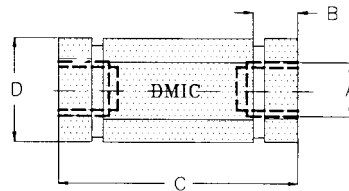


Hydraulic Valves & Accessories

Check Valves

Inline Check Valves

DMIC CVH Series • To 10,000 PSI (At Reduced Safety Factor)



Features: Capable of sustained high pressure operation to 10,000 PSI (Smaller sizes, with reduced safety factor). The precision ground seat and hardened poppet check element eliminate leakage. Superior check valve retainer design prevents spring from fully packing, thereby softening the opening impact and extending service life.

Construction: Allow steel body and piston. Black oxide coating on body. Precision hard seat piston seal. High strength spring steel spring.

Inline Check Valves • DMIC CVH Series • To 10,000 PSI (At Reduced Safety Factor)

Catalog Part No.	DMIC Model	Size	Threads	Flow Rating (GPM @ 300 PSI Drop)	Working Pressure (psi)	Minimum Burst Pressure (psi)	C (in)	D (in)	Wt.	Price Each
•C1EK50	CVH05-1000N	1	1 NPT	158	6,000	19,500	4.27	1.81	2.13	
C1EK51	CVH05-1250-N	1-1/4	1-1/4 NPT	200	6,000	19,500	4.88	2.17	3.42	

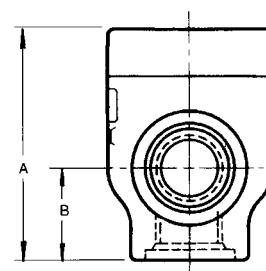
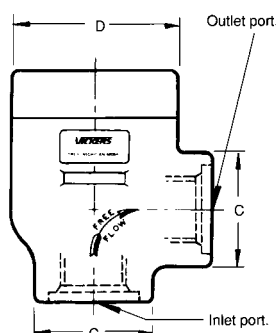
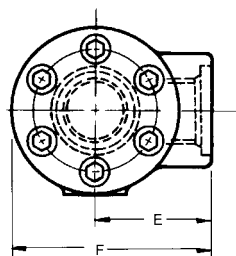
CAUTION: The manufacturer's pressure and flow ratings are extremely liberal and should be interpreted with caution (Low safety factors are used on pressure ratings, and high pressure drops are used on flow ratings).

Hydraulic Valves & Accessories

Check Valves

Right Angle Check Valves

Vickers® C2-8 Series • To 3000 PSI • To 100 GPM



Right Angle Check Valves are designed for higher flows with less pressure drop. The valves' seat and poppet are of hardened and ground steel for improved cycle life.

Maximum Operating Pressure: 3000 PSI.

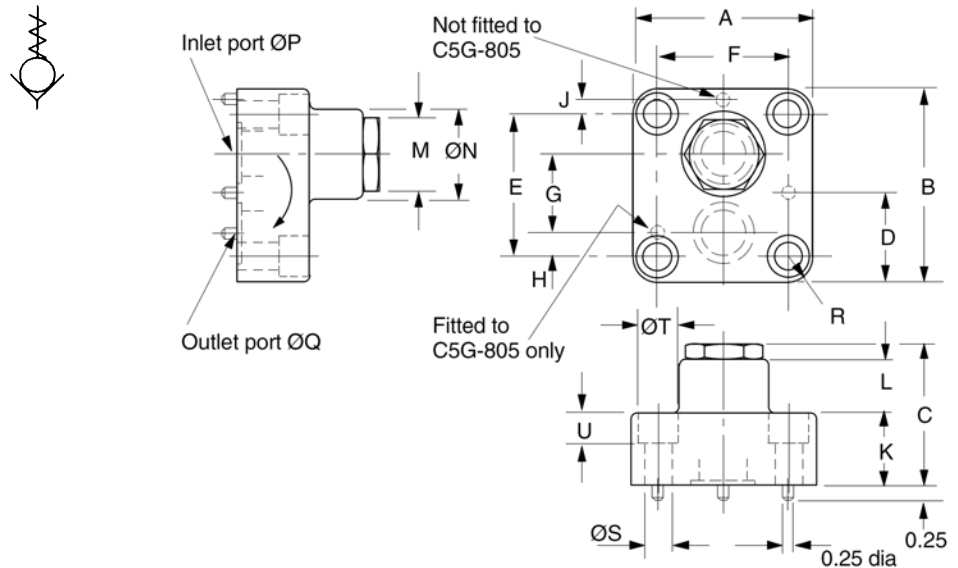
Right Angle Check Valves • Vickers® C2-8 Series • To 3000 PSI • To 100 GPM

Catalog Part No.	Vickers Part No.	Vickers Model	Ports	Cracking Pressure (PSI)	Nominal Flow Rating (GPM)	Apprx Pressure Drop at Rated Flow (PSI)	Seals & Options	Dimensions (in)	Wt.	Price Each
C1HH55	094029	C2-815	3/4 NPT	5	16	20	Buna-N	A=3.88 B=1.75 C=2.00 D=2.75 E=1.81 F=3.19	5.00	
C1HL46	094043	C2-820	1 NPT	5	28	14	Buna-N	A=4.56 B=1.84 C=2.25 D=3.25 E=2.25 F=3.88	7.44	

Check Valves

Subplate/Manifold Mount Check Valves

Vickers® C5G & C5GV Series • To 5000 PSI • To 100 GPM



Description: Subplate mounted check valve, allows flow in one direction only. Can be used with hydraulic oils, water-in-oil emulsions and water glycols.

Pressure & Flow Ratings: See table below.

Temperature Range: -4°F to 176°F.

Recommended Filtration Level: ISO 4406 Cleanliness Level 20/18/15 or cleaner.

Subplate/Manifold Mount Check Valves • Vickers® C5G & C5GV Series • To 5000 PSI • To 100 GPM

Catalog Part No.	Vickers Part No.	Vickers Model	Nominal Size	Nominal Flow Rating (gpm)	Pressure Rating (psi)	Cracking Pressure (psi)	Seals	Other Features	Wt.	Price Each
C1JM54	614374	C5GV-825UG	1-1/4	100	5000	5	Buna-N	Dual Metric/Inch Hold Down Bolt Facility	12.80	
C1JM55	614382	C5GV-825UG-S8	1-1/4	100	5000	75	Buna-N	Dual Metric/Inch Hold Down Bolt Facility	12.95	

Hydraulic Valves & Accessories

Pilot Operated Check Valves

Introduction to Pilot-Operated Check Valves (Lock Valves)

Application: Pilot Operated Check Valves (Lock Valves) are designed to lock a cylinder, without leakage, while a control valve is in a neutral position. Lock Valves function as Check Valves, allowing flow to a cylinder and blocking reverse flow until pilot pressure is applied to unlock the circuit. These valves may be used to prevent movement of a load while the pressure source is inactive. A 4-way control valve is required for all lock valve circuits, including single acting cylinders, in order to apply unlocking pressure to the pilot circuit. A control valve with a free-flow (motor) spool should be used on any circuit which includes a lock valve to prevent pressure build-up between the lock valve and the control valve.

Unlocking Pressure (Single Acting Cylinders): Pressure required in the pilot circuit = 25% of the locked pressure.

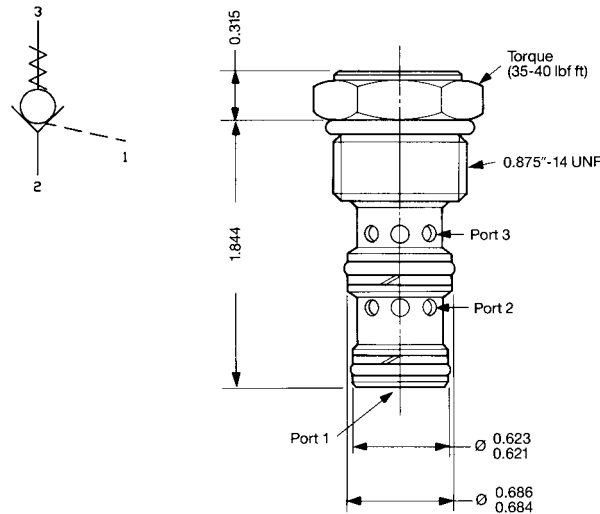
Unlocking Pressure (Double Acting Cylinders): To unlock Blind End of cylinder, pressure required in the pilot circuit = $\text{Blind End Locked Pressure} / [4.0 - (\text{Rod End Locked Pressure} / ((\text{Cyl Area} - \text{Rod Area}) / \text{Cyl Area}))]$. To unlock Rod End of cylinder, pressure required in the pilot circuit = $\text{Rod End Locked Pressure} / [4.0 - (\text{Head End Locked Pressure} / ((\text{Cyl Area} - \text{Rod Area}) / \text{Cyl Area}))]$.

Caution: When the rod end of a double acting cylinder is locked, if the rod diameter exceeds approximately 75% of the cylinder diameter, unlocking pressure becomes excessive and a lock valve should not be used.

Important Lock Valve Basics: Always follow catalog recommendations and application directions • Consult with our representative or the factory when in doubt • When applying lock valves to life carrying machines such as boom/utility type equipment, do not separate the valve from the actuator... close-couple the valve to the actuator • Do not use pilot operated check valves in load holding applications where either overrunning loads are possible, or load release speed is critical • Care should be taken to ensure the load is supported by mechanical means when servicing or removing the valve (CAUTION: When servicing the equipment, trapped pressure may be present in the holding valve circuit. Carefully bleed down the trapped pressure before disassembly) • The cylinder and it's seals must be in good condition.

Pilot Operated Check Valves

Cartridge Type Single Pilot Operated Check Valves Vickers® SPC2-10 Series • To 3000 PSI & 6 GPM



Application & Operation: See Introduction to Pilot-Operated Check Valves (Lock Valves) at the beginning of this section.

Ratio of Pilot Piston Area to Check Valve Seat Area: 4:1.

Rated Flow: 6 GPM.

Maximum Operating Pressure: 3000 PSI.

Recommended Fluid Temperature Range: -4°F to 150°F (180°F is extreme condition upper limit).

Recommended Filtration Level: ISO 4406 Cleanliness Level 18/16/13 or cleaner.

Cartridge: Model SPC2-10*, sold separately.

Housing: Cavity size C-10-3, sold separately, see page 442

Cartridge Type Single Pilot Operated Check Valves • Vickers® SPC2-10 Series • To 3000 PSI & 6 GPM

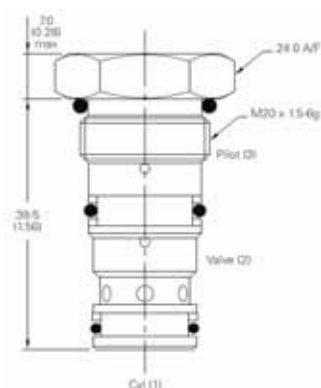
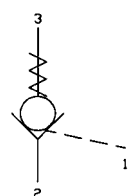
Catalog Part No.	Vickers Part No.	Vickers Model	Cracking Pressure (psi)	Seal Material	Wt.	Price Each
C1EN54	565619	SPC2-10-P-0-25	25	Buna-N	0.22	\$1.50

Note: Housing not included.

Hydraulic Valves & Accessories

Pilot Operated Check Valves

Cartridge Type Single Pilot Operated Check Valves Eaton 4CK30 Series • To 5000 PSI & 8 GPM



Application & Operation: See Instruction to Pilot-Operated Check Valves (Lock Valves) at the beginning of section.

Ratio of Pilot Piston to Check Valve Seat Area: 3:1

Rated Flow: 8 GPM

Maximum Operating Pressure: 5000 PSI

Recommended Fluid Temperature Range: -22° to +194°F

Recommended Filtration Level: Cleanliness level 19/13 or better

Cartridge: Model 4CK30, sold separately

Housing: Cavity Size A6610, sold separately. For single valve housings, see page 442. For dual valve housings, see page 444

Cartridge Type Single Pilot Operated Check Valves • Eaton 4CK30 Series • To 5000 PSI & 8 GPM

Catalog Part No.	Eaton Part No.	Eaton Model	Cracking Pressure (psi)	Seal Material	Special Features	Wt.	Price Each
C1MG43	401AA00001A	4CK301S	29	Nitrile	None		

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1NA61	AXP13032-02N	Cavity Plug for Cavity Size A6610		

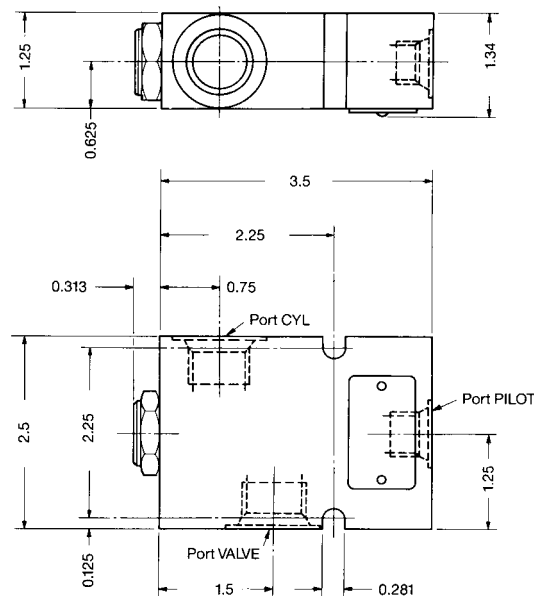
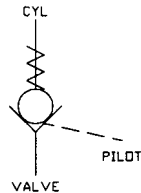


Hydraulic Valves & Accessories

Pilot Operated Check Valves

Inline Single Pilot Operated Check Valves

Vickers® SPC1-10 Series • To 3000 PSI & 12 GPM



Application & Operation: See Introduction to Pilot-Operated Check Valves (Lock Valves) at the beginning of this section.

Ratio of Pilot Piston Area to Check Valve Seat Area: 4:1.

Rated Flow: 12 GPM.

Maximum Operating Pressure: 3000 PSI.

Temperature Range: -40°F to 248°F (Extreme Limits).

Recommended Filtration Level: ISO 4406 Cleanliness Level 18/16/13 or cleaner.

Cracking Pressure: 15 PSI.

Inline Single Pilot Operated Check Valves • Vickers® SPC1-10 Series • To 3000 PSI & 12 GPM

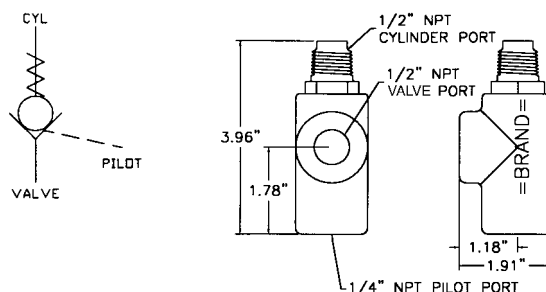
Catalog Part No.	Vickers Part No.	Vickers Model	Valve & Cylinder Port Size	Pilot Port Size	Pilot Piston Seal	Seals	Wt.	Price Each
•C1DU37	02-161199	SPC1-10-P-6T	SAE-6	SAE-4	No	Buna-N	1.13	
•C1FD38	565875	SPC1-10-P-8T	SAE-8	SAE-4	No	Buna-N	1.12	

Note: These valves are sold as a complete assembly.

Hydraulic Valves & Accessories

Pilot Operated Check Valves

Cylinder Port Single Pilot Operated Check Valves Brand PC-50 Series • To 3000 PSI & 16 GPM



Application & Operation: See Introduction to Pilot-Operated Check Valves (Lock Valves) at the beginning of this section.

Ratio of Pilot Piston Area to Check Valve Seat Area: 4:1.

Construction: Cast iron body. Chrome alloy steel ball. Delrin check seat. Buna-N O-Rings.

Nominal Flow Rating: Varies with size. See table below.

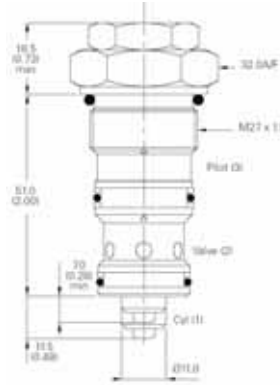
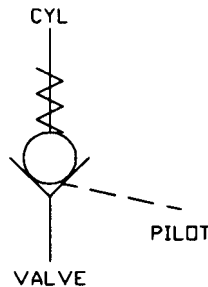
Maximum Operating Pressure: 3000 PSI.

Cylinder Port Single Pilot Operated Check Valves • Brand PC-50 Series • To 3000 PSI & 16 GPM

Catalog Part No.	Brand Model	Main Ports	Pilot Port	Nominal Flow Rating (GPM)	Wt.	Price Each
•C1HG65	PC37C	3/8 NPT	1/4 NPT	8 GPM	0.82	
•C1EF82	PC-50C	1/2 NPT	1/4 NPT	16 GPM	1.45	

Pilot Operated Check Valves

Cartridge Type Single Pilot Operated Check Valves Eaton 4CKD90 Series • To 6000 PSI & 24 GPM



Application & Operation: A decompression pilot check can be used in most applications that use a standard pilot operated check. Free flow in one direction and load holding in the other. The decompression feature allows locked-in pressure to decay in a controlled fashion, reducing hydraulic noise and instability caused by the rapid loss of energy from the actuator. The valve is effective in clamping circuits and when used with intensifiers or when there are high load induced pressures.

Pilot Ratio: 25:1 decompression stage, 3:1 main stage

Rated Flow: 24 GPM

Maximum Operating Pressure: Cylinder Port 1: 6000 psi, Ports 2 & 3: 5000 psi

Operating Temperature: -22° to +194°F

Recommended Filtrations Level: 18/13

Cartridge: Model 4CKD90, sold separately

Housing: Cavity Size A12336, sold separately. page 442

Cartridge Type Single Pilot Operated Check Valves • Eaton 4CKD90 Series • To 6000 PSI & 24 GPM

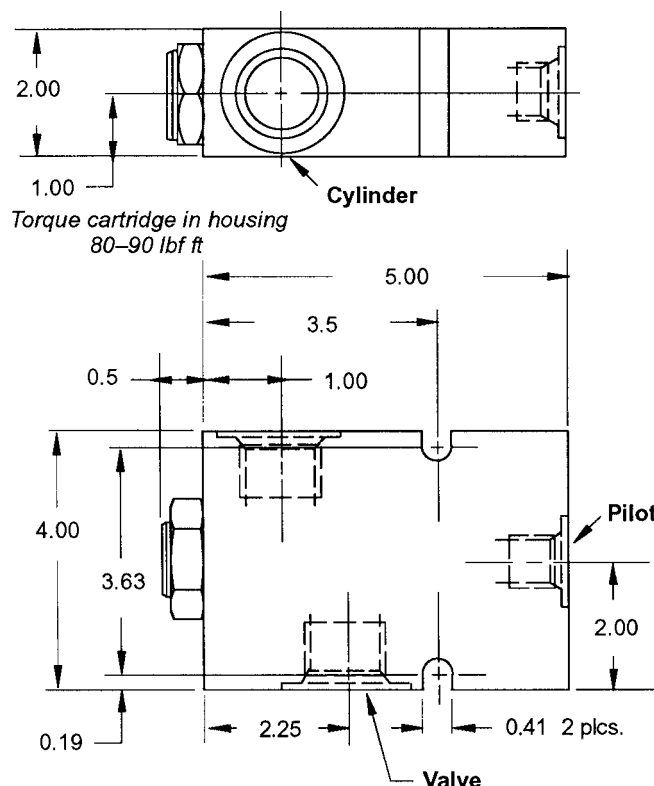
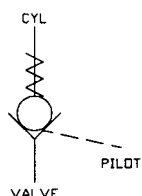
Catalog Part No.	Eaton Part No.	Eaton Model	Pilot Ratio	Seal Material	Wt.	Price Each
C1LX24	401AA00006A	4CKD901S3	25:1	Nitrile		

Hydraulic Valves & Accessories

Pilot Operated Check Valves

Inline Single Pilot Operated Check Valves

Vickers® SPC1-16 Series • To 3000 PSI & 40 GPM



Application & Operation: See Introduction to Pilot-Operated Check Valves (Lock Valves) at the beginning of this section.

Ratio of Pilot Piston Area to Check Valve Seat Area: 4:1.

Rated Flow: 40 GPM.

Maximum Operating Pressure: 3000 PSI.

Temperature Range: -40°F to 248°F (Extreme Limits).

Recommended Filtration Level: ISO 4406 Cleanliness Level 18/16/13 or cleaner.

Cracking Pressure: 20 PSI.

Inline Single Pilot Operated Check Valves • Vickers® SPC1-16 Series • To 3000 PSI & 40 GPM

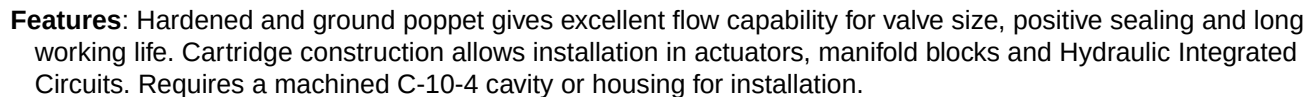
Catalog Part No.	Vickers Part No.	Vickers Model	Valve & Cylinder Port Size	Pilot Port Size	Pilot Piston Seal	Seals	Wt.	Price Each
•C1FR18	02-112763	SPC1-16-P-12T	SAE-12	SAE-6	No	Buna-N	4.17	

Note: These valves are sold as a complete assembly.



Cartridge Type Dual Pilot Operated Check Valves with Thermal Relief

Eaton 4CKKT Series • To 4350 PSI & 6.6 GPM



Application: Pilot check valves allow flow to pass in one direction, with a low pressure drop, then prevent reverse flow until pilot pressure is applied. There are many applications for this valve type, the most common being to lock and hold a cylinder, or another hydraulic actuator, in position. A pilot relief valve will protect the cylinder and hoses from thermal expansion of the hydraulic fluid. See Introduction to Pilot-Operated Check Valves (Lock Valves) at the beginning of this section.

Specifications: 6.6 gpm rated flow. 4350 psi maximum setting. CAUTION: Pressures over 3000 psi require a steel housing. -22° to +194°F operating temperature range. 5 drops per minute max internal leakage between ports 1 and 2. 15 drops per minute max internal leakage between ports 3 and 4. Based on oil temperature of 104°F and 150 SSU.

Recommended Filtration Level: ISO level 18/13 or better.

Installation: 22 ft-lbs torque cartridge into cavity. Unrestricted mounting position. For compatible C-10-4 bodies see page 443

**Cartridge Type Dual Pilot Operated Check Valves with Thermal Relief • Eaton 4CKKT Series • To 4350 PSI
& 6.6 GPM**

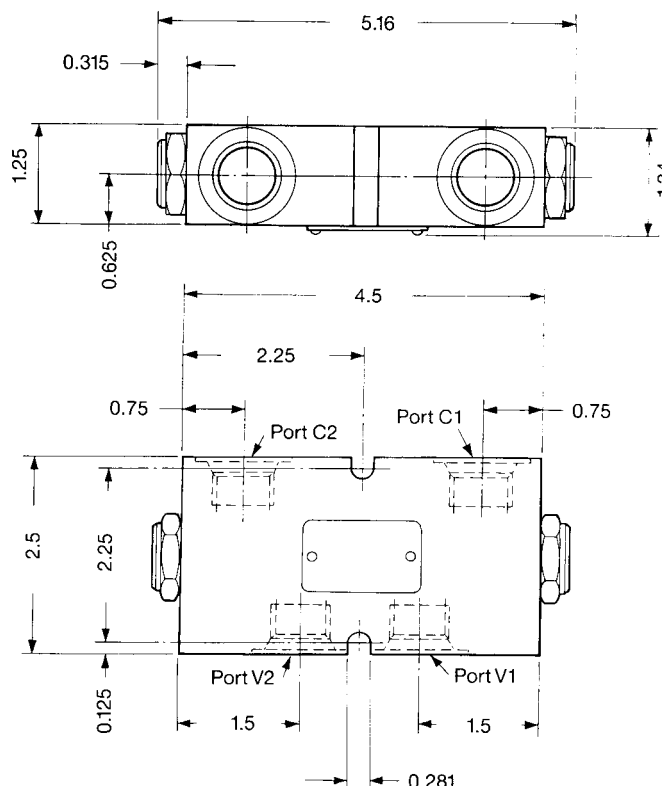
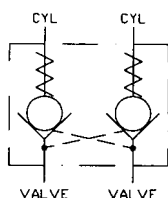


Hydraulic Valves & Accessories

Pilot Operated Check Valves

Inline Double Pilot Operated Check Valves

Vickers® DPC1-10 Series • To 3000 PSI & 12 GPM



Application & Operation: See Introduction to Pilot-Operated Check Valves (Lock Valves) at the beginning of this section.

Ratio of Pilot Piston Area to Check Valve Seat Area: 4:1.

Rated Flow: 12 GPM.

Maximum Operating Pressure: 3000 PSI.

Temperature Range: -40°F to 248°F (Extreme Limits).

Recommended Filtration Level: ISO 4406 Cleanliness Level 18/16/13 or cleaner.

Cracking Pressure: 15 PSI

Inline Double Pilot Operated Check Valves • Vickers® DPC1-10 Series • To 3000 PSI & 12 GPM

Catalog Part No.	Vickers Part No.	Vickers Model	Port Size	Pilot Piston Seal	Seal Material	Wt.	Price Each
•C1BT61	566314	DPC1-10-P-6T	SAE-6	No	Buna-N	1.58	

Note: These valves are sold as a complete assembly.



Hydraulic Valves & Accessories

Counterbalance Valves (Overcenter Valves)

Introduction to Counterbalance Valves (Overcenter Valves)

Overview: There are now many types of overcenter or counterbalance valves available to the designer of hydraulically operated machines, each one has its own place and specific benefits to the user. The function of these valves can be divided into three basic groups. 1. Load Holding; where the overcenter valve prevents the movement of a load when the directional valve is in the neutral position. Permitting the use of open center directional valves and negating leakage past the spool of closed centre directional valves. 2. Load Control; where the overcenter valve prevents the actuator running ahead of the pump due to the load induced energy thereby eliminating cavitation in the actuator and loss of control. 3. Load Safety. In the case of hose failure an overcenter valve mounted onto or into an actuator will prevent uncontrolled movement of the load. When a boom is used as a crane then hose failure protection is vital as the loss of load control could cause damage to people or property. Each of these functions is applicable to linear or rotary motion.

Application: Overcenter valves give static and dynamic control of loads by regulating the flow into and out of hydraulic actuators. When installed close to or within an actuator, the overcenter valve will stop runaway in the event of hose burst and if open center directional control valves are used, will allow thermal expansion relief of the hydraulic fluid. The overcenter cartridge is ideal for mounting directly into a cavity machined in the body of the cylinder, motor or rotary actuator. The cartridge can also be mounted directly to the ports via a specifically machined body as part of an integrated circuit or single unit, or contained within one of the standard line bodies. Single overcenter valves are normally used when the load is unidirectional, for example an aerial platform or crane and dual overcenter valves are used for controlling loads in both directions for motor applications or for cylinders going over center.

Back Pressure: Overcenter valves should not be subjected to back pressure, as this will affect performance and can cause unstable operation. If back pressure cannot be avoided, as an option, a vented spring cavity design should be selected.

Operation: The standard overcenter valve can be described as a pilot assisted relief valve with an integral free flow check. The difference between this design of valve and a pilot check is that the check valve will open fully as soon as the pilot pressure is sufficient to open the valve because the only resistance to opening is the pressure locked in to the cylinder port. With an overcenter valve the pilot pressure has to overcome the force of the spring which is reduced by load pressure. This ensures a gradual opening and a metering of the flow as it passes the poppet. Overcenter valves consist of a poppet that seals flow from an actuator, a check element, which permits free flow to the actuator and a pilot section that opens the poppet allowing flow from the actuator at a controlled rate.

Pilot Ratios: Generally, lower pilot ratios consume more energy for load control but provide more stability. Pilot ratios should then be selected to give good controllability with a minimum of energy loss. Overcenter valves are available with various pilot ratios.

Equal Area Valves: The equal area valve is used when pilot pressure must be set independent of any load-induced pressure, such as on a winch with a brake, where brake release pressure must be obtained before motion is allowed.

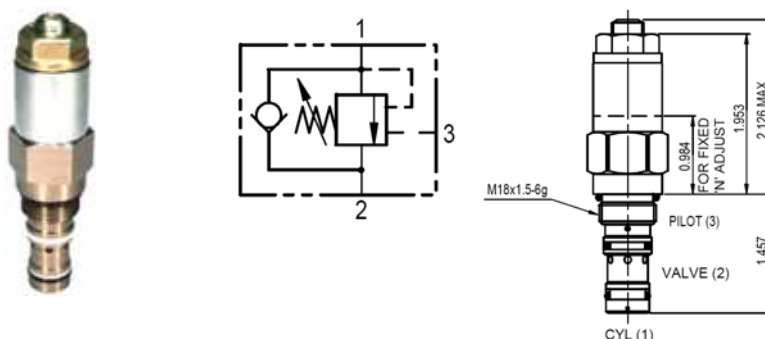
Pilot Pressure Formula: The check section allows free flow into the actuator then holds and locks the load against movement. The pilot assisted relief valve section will give controlled movement when pilot pressure is applied. For most applications the relief setting should be approximately 1.3 times higher than the maximum load induced pressure. This ensures that with the maximum load on the actuator the valve will remain closed until pilot pressure is applied. The pilot pressure required to open the valve will depend on the pilot ratio that is the ratio between the relief area and the pilot area. The pilot pressure can be calculated: Pilot pressure = (Valve Setting - Load Pressure)/Pilot Ratio. Example: Valve Setting is 4000 PSI. Load Pressure is 1000 PSI. Valve Ratio is 3:1. Pilot Pressure = $(4000-1000)/3$, resulting in 1000 PSI required to start to move the load.

Hydraulic Valves & Accessories

Counterbalance Valves (Overcenter Valves)

Important Holding Valve Basics: Apply in circuits to prevent loads from dropping faster than input flow would allow • Use on the outlet of the controlled device (meter out) • Always follow catalog recommendations and application directions • Consult with our representative or the factory when in doubt • NEVER apply a holding valve with a an unequal area to outriggers or stabilizers • Do not expect motors to hold without mechanical gearing or brakes. Motors have internal clearances which will allow rotation to occur even when the overcenter valve does not leak • When applying overcenter valves to life carrying machines such as boom/utility type equipment, do not separate the valve from the actuator... close-couple the valve to the actuator • Care should be taken to ensure the load is supported by mechanical means when servicing or removing the valve (CAUTION: When servicing the equipment, trapped pressure may be present in the overcenter valve circuit. Carefully bleed down the trapped pressure before disassembly) • When rebuilding machinery, you should replace rather than repair the overcenter valve • The cylinder and it's seals must be in good condition.

Cartridge Type Counterbalance Valves Eaton 1CE20 Series • To 5000 PSI & 5 GPM



Features: The 1CE20 is a 3 port, externally piloted, screw-in cartridge-type counterbalance (overcenter) valve. Requires a machined A22903 cavity or housing for installation.

Application: To control moving loads and prevent load runaway, giving load holding and hose failure safety. See Introduction to Counterbalance (Overcenter) Valves at the beginning of this section.

Pilot Ratios: 3:1 - Best suited for extremely unstable applications such as long booms or flexible frameworks.

4.5:1 - Best suited for applications where load varies and machine structure can induce instability.

8:1 - Best suited for applications where the load remains relatively constant.

Specifications: 5 gpm rated flow. 4000 psi max load induced pressure, 5000 psi max relief pressure. CAUTION: Pressures over 3000 psi require a steel housing. -22° to +194°F operating temperature range. 5 drops per minute max internal leakage. Based on oil temperature of 104°F and 150 SSU.

Recommended Filtration Level: ISO level 18/13 or better.

Installation: 30 ft-lbs torque cartridge into cavity. Unrestricted mounting position.

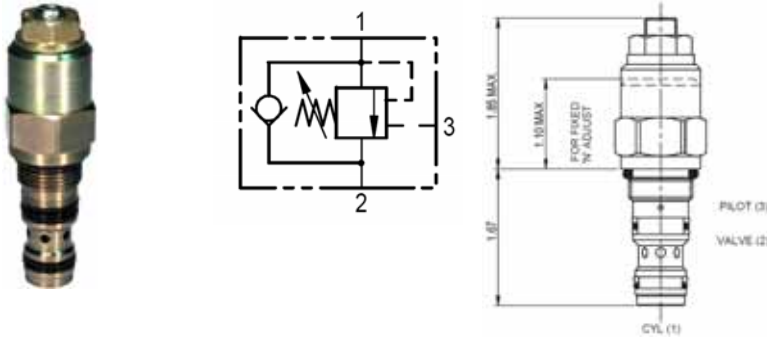
Housing: Cavity size A22903, sold separately. For single valve housings, see page 442; For dual valve housings, see page 444

Cartridge Type Counterbalance Valves • Eaton 1CE20 Series • To 5000 PSI & 5 GPM

Catalog Part No.	Eaton Part No.	Eaton Model	Pilot Ratio	Adjustment Means	Pressure Range (PSI)	Factory Setting (psi)	Body	Seal Material	Wt.	Price Each
C1JZ78	406AA00002A	1CE20F35S4	4.5:1	Screw with Locknut	2900-5075	3045	None (Select below)	Nitrile	0.35	

Counterbalance Valves (Overcenter Valves)

Cartridge Type Counterbalance Valves Eaton 1CE30 Series • To 5000 PSI & 8 GPM



Features: The 1CE30 is a 3 port, externally piloted, screw-in cartridge-type counterbalance (overcenter) valve.

Requires a machined A6610 cavity or housing for installation.

Application: To control moving loads and prevent load runaway, giving load holding and hose failure safety. See Introduction to Counterbalance (Overcenter) Valves at the beginning of this section.

Pilot Ratios: 2.5:1 - Best suited for extremely unstable applications such as long booms or flexible frameworks.

5:1 - (standard) Best suited for applications where load varies and machine structure can induce instability.

10:1 - Best suited for applications where the load remains relatively constant.

Specifications: 8 gpm rated flow. 4000 psi max load induced pressure, 5000 psi max relief pressure. CAUTION: Pressures over 3000 psi require a steel housing. -22° to +194°F operating temperature range. 5 drops per minute max internal leakage. Based on oil temperature of 104°F and 150 SSU.

Recommended Filtration Level: ISO level 18/13 or better.

Installation: 33 ft-lbs torque cartridge into cavity. Unrestricted mounting position.

Housings: Cavity A6610 single valve housings, see page 442; Cavity A6610 dual valve housings, see page 444

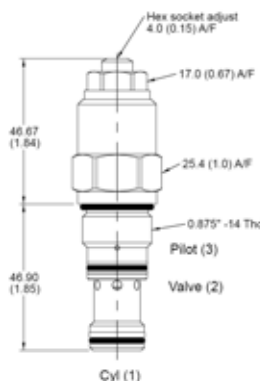
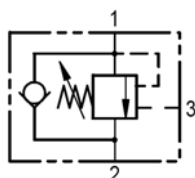
Cartridge Type Counterbalance Valves • Eaton 1CE30 Series • To 5000 PSI & 8 GPM

Catalog Part No.	Eaton Part No.	Eaton Model	Pilot Ratio	Adjustment Means	Pressure Range (PSI)	Factory Setting (psi)	Body	Seal Material	Wt.	Price Each
C1MG50	406AA00004A	1CE30F35S2	2.5:1	Screw with Locknut	1740-5075	3045	None	Nitrile	0.33	
C1JZ79	406AA00005A	1CE30F35S5	5:1	Screw with Locknut	1740-5075	3045	None	Nitrile	0.41	
C1JZ80	406AA00006A	1CE30F35S10	10:1	Screw with Locknut	1740-5075	3045	None	Nitrile	0.40	

Hydraulic Valves & Accessories

Counterbalance Valves (Overcenter Valves)

Cartridge Type Counterbalance Valves Eaton 1CEV30 Series • To 4000 PSI & 8 GPM



Features: The 1CEV30 is a 3 port, externally piloted, pressure balanced screw-in cartridge-type counterbalance (overcenter) valve. Requires a machined C-10-3S cavity or housing for installation.

Application: The pressure balanced valve is unaffected by back pressure, allowing service line reliefs to operate and for the valve to be used in regenerative or proportional valve systems.

Pilot Ratio: 5:1 - (standard) Best suited for applications where load varies and machine structure can induce instability. 7:1 - Best suited for applications where the load remains relatively constant.

Specifications: 8 gpm rated flow. 3000 psi max load induced pressure, 4000 psi max relief pressure. CAUTION: Pressures over 3000 psi require a steel housing. -22° to +194°F operating temperature range. 5 drops per minute max internal leakage. Based on oil temperature of 104°F and 150 SSU.

Recommended Filtration Level: ISO level 18/13 or better.

Installation: 33 ft-lbs torque cartridge into cavity. Unrestricted mounting position.

Cartridge: Model 1CEV30-*, sold separately.

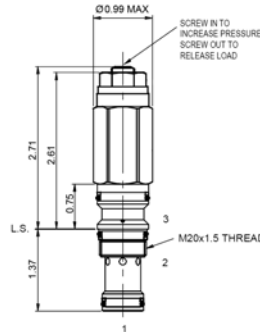
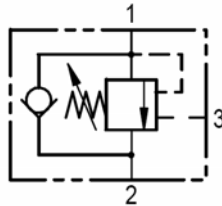
Housing: C-10-3S cavity, sold separately. For single valve housings, see page 442; For dual valve housings, see page 444

Cartridge Type Counterbalance Valves • Eaton 1CEV30 Series • To 4000 PSI & 8 GPM

Catalog Part No.	Eaton Part No.	Eaton Model	Control Ratio	Adjustment Style	Adjustment Range (psi)	Pre-Set Pressure (psi)	Housing	Seal Material	Wt.	Price Each
•C1MJ86	406AA02900A	1CEV30-F-20S-5	5:1	Screw	1000-3000	2030	None	Viton	0.30	
C1MG52	406AA02901A	1CEV30-F-30S-5	5:1	Screw	1450-4000	3500	None	Viton	0.30	

Counterbalance Valves (Overcenter Valves)

Cartridge Type Counterbalance Valves Eaton 1SE30 Series • To 5000 PSI & 8 GPM



Features: The 1SE30 is a 3 port, externally piloted, screw-in cartridge-type counterbalance (overcenter) valve.

Requires a machined T11A Sun cavity or housing for installation.

Application: To control moving loads and prevent load runaway, giving load holding and hose failure safety. See Introduction to Counterbalance (Overcenter) Valves at the beginning of this section.

Pilot Ratios: 2.5:1 - Best suited for extremely unstable applications such as long booms or flexible frameworks.

5:1 - (standard) Best suited for applications where load varies and machine structure can induce instability.

10:1 - Best suited for applications where the load remains relatively constant.

Specifications: 8 gpm rated flow. 4000 psi max load induced pressure, 5000 psi max relief pressure. CAUTION:

Pressures over 3000 psi require a steel housing. -22° to +194°F operating temperature range. 5 drops per minute max internal leakage. Based on oil temperature of 104°F and 150 SSU.

Recommended Filtration Level: ISO level 18/13 or better.

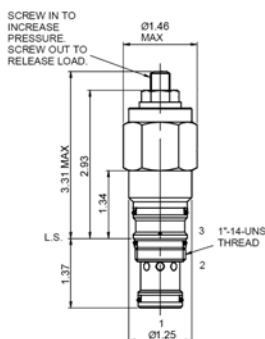
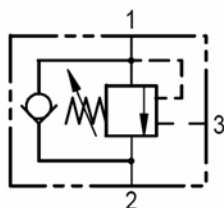
Installation: 33 ft-lbs torque cartridge into cavity. Unrestricted mounting position.

Cartridge Type Counterbalance Valves • Eaton 1SE30 Series • To 5000 PSI & 8 GPM

Catalog Part No.	Eaton Part No.	Eaton Model	Pilot Ratio	Adjustment Means	Pressure Range (PSI)	Factory Setting (psi)	Body	Seal Material	Wt.	Price Each
C1JZ83	406AA00049A	1SE30F35S5	5:1	Screw with Locknut	1015-5075	3045	None	Nitrile	0.45	

Counterbalance Valves (Overcenter Valves)

Cartridge Type Counterbalance Valves



Features: The 1SE90 is a 3 port, externally piloted, screw-in cartridge-type counterbalance (overcenter) valve. Requires a machined T2A Sun cavity or housing for installation.

Application: To control moving loads and prevent load runaway, giving load holding and hose failure safety. See Introduction to Counterbalance (Overcenter) Valves at the beginning of this section.

Pilot Ratios: 4:1 - Best suited for applications where the load remains relatively constant.

Specifications: 23 gpm rated flow. 4000 psi max load induced pressure, 5000 psi max relief pressure. CAUTION: Pressures over 3000 psi require a steel housing. -22° to +194°F operating temperature range. 5 drops per minute max internal leakage. Based on oil temperature of 104°F and 150 SSU.

Recommended Filtration Level: ISO level 18/13 or better.

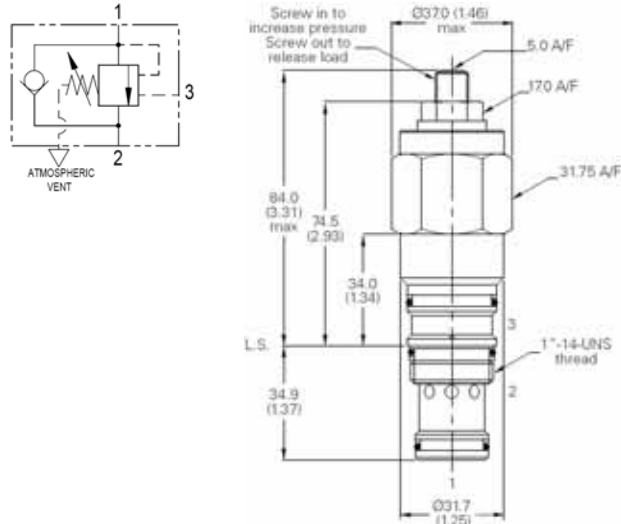
Installation: 44 ft-lbs torque cartridge into cavity. Unrestricted mounting position.

Cartridge Type Counterbalance Valves • Eaton 1SE90 Series • To 5000 PSI & 23 GPM

Catalog Part No.	Eaton Part No.	Eaton Model	Pilot Ratio	Adjustment Means	Pressure Range (PSI)	Factory Setting (psi)	Body	Seal Material	Wt.	Price Each
C1JZ85	406AA00054A	1SE90F35S4	4:1	Screw with Locknut	2537-5075	3045	None	Nitrile	0.90	



Cartridge Type Counterbalance Valves



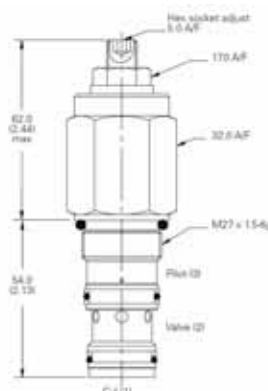
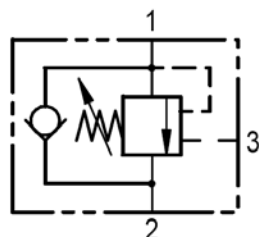
Housing: A20092-T2A or Sun T2A, sold separately

Catalog Part No.	Vickers Part No.	Vickers Model	Control Ratio	Adjustment Style	Adjustment Range (psi)	Pre-Set Pressure (psi)	Housing	Seal Material	Wt.	Price Each
C1LX28	406AA00056A	1SEB90F35S4	4:1	Screw	1088-5076	3046	None	Nitrile	0.92	

Hydraulic Valves & Accessories

Counterbalance Valves (Overcenter Valves)

Cartridge Type Counterbalance Valves Eaton 1CE90 Series • To 4000 PSI & 23 GPM



Features: Overcenter valves give static and dynamic control of loads by regulating the flow into and out of hydraulic actuators. The check section allows free flow into the actuator then holds and locks the load against movement. The pilot assisted relief valve section will give controlled movement when pilot pressure is applied.

Application: Single overcenter valves are normally used when the load is unidirectional, for example an aerial platform or crane and dual overcenter valves are used for controlling loads in both directional for motor applications or for cylinders going over center.

Pilot Ratios: 4:1 Best suited for applications where load varies and machine structure can induce instability. 8:1 Best suited for applications where the load remains relatively constant.

Pressure Rating: 5000 PSI (CAUTION: Pressures over 3000 PSI require steel housing)

Rated Flow: 23 GPM

Temperature Range: -22° to +194°F

Recommended Filtration Level: 18/13

Cartridge: Model 1CE90, sold separately.

Housing: Cavity size A12336, sold separately. page 442

Cartridge Type Counterbalance Valves • Eaton 1CE90 Series • To 4000 PSI & 23 GPM

Catalog Part No.	Eaton Part No.	Eaton Model	Control Ratio	Adjustment Style	Adjustment Range (psi)	Pre-Set Pressure (psi)	Housing	Seal Material	Wt.	Price Each
C1LX27	406AA00016A	1CE90F35S4	4:1	Screw	2900-5076	3045	None	Nitrile	0.63	

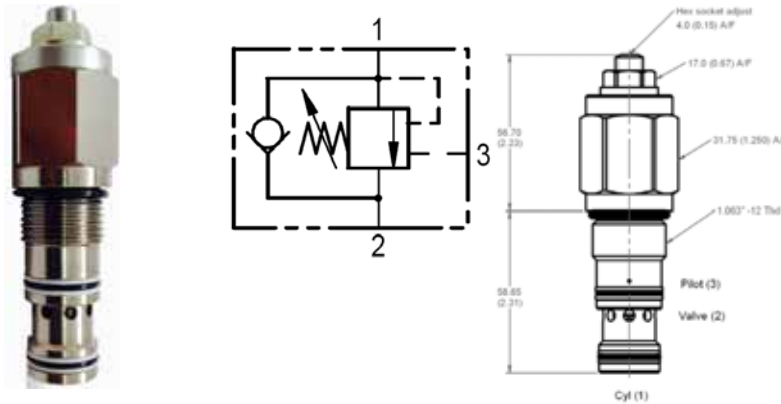


Hydraulic Valves & Accessories

Counterbalance Valves (Overcenter Valves)

Cartridge Type Counterbalance Valves

Eaton 1CEV90 Series • To 4000 PSI & 23 GPM



Features: Overcenter valves give static and dynamic control of loads by regulating the flow into and out of hydraulic actuators. The check section allows free flow into the actuator then holds and locks the load against movement. The pilot assisted relief valve section will give controlled movement when pilot pressure is applied.

Application: Single overcenter valves are normally used when the load is unidirectional, for example an aerial platform or crane and dual overcenter valves are used for controlling loads in both directional for motor applications or for cylinders going over center.

Pilot Ratios: 4:1 Best suited for applications where load varies and machine structure can induce instability. 8:1 Best suited for applications where the load remains relatively constant.

Pressure Rating: 4000 PSI (CAUTION: Pressures over 3000 PSI require steel housing)

Rated Flow: 23 GPM

Temperature Range: -22° to +194°F

Recommended Filtration Level: 18/13

Cartridge: Model 1CEV90, sold separately.

Housing: Cavity size C-12-3S, sold separately. page 442

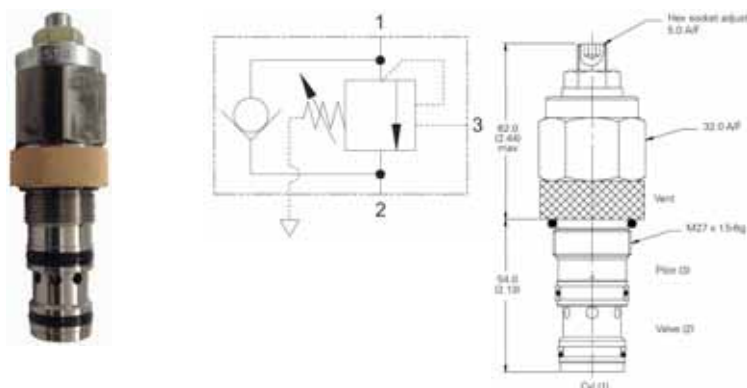
Cartridge Type Counterbalance Valves • Eaton 1CEV90 Series • To 4000 PSI & 23 GPM

Catalog Part No.	Eaton Part No.	Eaton Model	Control Ratio	Adjustment Style	Adjustment Range (psi)	Pre-Set Pressure (psi)	Housing	Seal Material	Wt.	Price Each
C1MJ88	406AA02959A	1CEV90F20S4	4:1	Screw adjustment	1015 - 3265	1450	None	Nitrile	0.92	
C1MJ90	406AA02964A	1CEV90F35S8	8:1	Screw adjustment	1450 - 5076	2900	None	Nitrile	0.92	

Hydraulic Valves & Accessories

Counterbalance Valves (Overcenter Valves)

Cartridge Type Counterbalance Valves Eaton 1CEB90 Series • To 4000 PSI & 23 GPM



Features: Cartridge is economical and fits simple cavity. Allows quick, easy field service - reduces down time. Interchangeable with pilot check valve of a similar size. The pressure balanced valve is unaffected by back pressure, allowing service line reliefs to operate and for the valve to be used in regenerative or proportional valve systems.

Application: Overcenter valves give static and dynamic control of loads by supplying a counterbalance pressure to the actuator. They prevent runaway in the event of hose burst and hold the load with minimal leakage. Single overcenter valves control unidirectional loads such as in aerial platforms, cranes or winches and dual overcenters are suited to bi-directional motion such as wheel motor applications or cylinders going over center.

Pilot Ratios: 4:1 Best suited for applications where load varies and machine structure can induce instability. Other ratios available upon request.

Specifications: 23 gpm rated flow. 4000 psi max load induced pressure, 5000 psi max relief pressure. CAUTION: Pressures over 3000 psi require a steel housing. -22°F to +194°F operating temperature range. 5 drops per minute max internal leakage. Based on oil temperature of 104°F and 150 SSU.

Recommended Filtration Level: BS5540/4 Class 18/13 (25 micron nominal).

Installation: 44 lbs-ft torque cartridge into cavity. Unrestricted mounting position.

Cartridge: Model 1CEB90, sold separately.

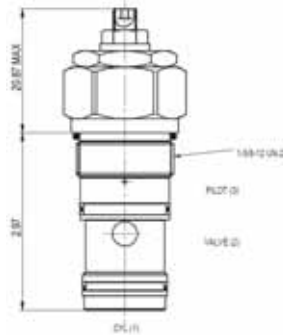
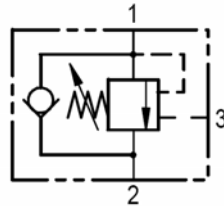
Housing: A12336 cavity, sold separately. For single valve housings, see page 442; For dual valve housings, see page 444

Cartridge Type Counterbalance Valves • Eaton 1CEB90 Series • To 4000 PSI & 23 GPM

Catalog Part No.	Eaton Part No.	Eaton Model	Control Ratio	Adjustment Style	Adjustment Range (psi)	Pre-Set Pressure (psi)	Housing	Seal Material	Wt.	Price Each
C1MJ85	406AA00020A	1CEB90F35S4	4:1	Screw adjustment	2900 - 5075	3000	None	Nitrile	0.63	

Counterbalance Valves (Overcenter Valves)

Cartridge Type Counterbalance Valves Eaton 1CE300 Series • To 5000 PSI & 80 GPM



Features: The 1CE300 is a 3 port, externally piloted, screw-in cartridge-type counterbalance (overcenter) valve. Requires a machined A6935 cavity or housing for installation.

Application: To control moving loads and prevent load runaway, giving load holding and hose failure safety. See Introduction to Counterbalance (Overcenter) Valves at the beginning of this section.

Pilot Ratios: 3:1 - Best suited for applications where load varies and machine structure can induce instability.
8:1 - Best suited for applications where the load remains relatively constant.

Specifications: 80 gpm rated flow. 4000 psi max load induced pressure, 5000 psi max relief pressure. CAUTION: Pressures over 3000 psi require a steel housing. -22° to +194°F operating temperature range. 60 drops per minute max internal leakage. Based on oil temperature of 104°F and 150 SSU.

Recommended Filtration Level: ISO level 18/13 or better.

Installation: 110 ft-lbs torque cartridge into cavity. Unrestricted mounting position.

Housing: Cavity size A6935 sold separately. For single valve housings, see page 442; For dual valve housings, see page 444

Cartridge Type Counterbalance Valves • Eaton 1CE300 Series • To 5000 PSI & 80 GPM

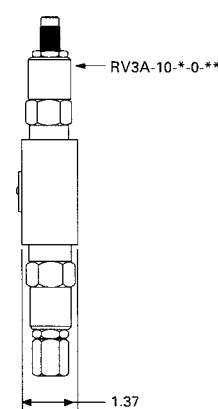
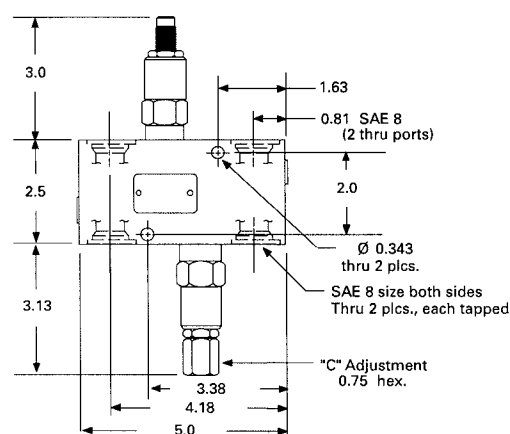
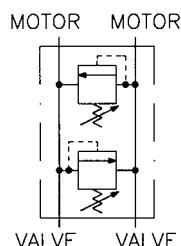
Catalog Part No.	Eaton Part No.	Eaton Model	Pilot Ratio	Adjustment Means	Pressure Range (PSI)	Factory Setting (psi)	Body	Seal Material	Wt.	Price Each
C1JZ82	406AA00031A	1CE300F35S3	3:1	Screw with Locknut	1015-5075	3045	None (Select below)	Nitrile	0.70	

Hydraulic Valves & Accessories

Cushion Valves

Cushion Valves (Double Relief Valves)

Vickers® CRV-10 Series • To 3000 PSI & 20 GPM



Features: Components can be purchased separately, see Note below. Aluminum in-line type housing. Relief cartridges can be removed from the housing without disturbing the plumbing.

Application: Cushion valves are used to provide pressure relief for bi-directional motors and cylinders. (For cylinder applications, cylinder displacement must be equal in both directions for oil to relieve from one side to the other).

Rated Flow: 20 GPM.

Maximum Operating Pressure: 3000 PSI.

Re-Seat Pressure: 90% of cracking pressure.

Temperature Range: -40°F to 248°F (Extreme limits).

Recommended Filtration Level: ISO 4406 Cleanliness Level 18/16/13 or better.

Note: Components can be purchased separately. One (1) Housing, Two (2) Cartridges and Two (2) Seal Kits are required to make the cushion valve assembly. For each cartridge, remove the standard back-up ring and install two (2) half-thickness back-up rings, one on each side of o-ring.

Cushion Valves (Double Relief Valves) • Vickers® CRV-10 Series • To 3000 PSI & 20 GPM

Catalog Part No.	Vickers Part No.	Vickers Model	Description	Wt.	Price Each
C1JR22	02-178481	CRV-10-S-A8T-36/	Complete Assembly. Aluminum Housing with SAE-8 Ports, 2ea Relief Cartridges with 600-3600 PSI adjustment range (not for use above 3000 PSI in this application), Adjusting screw with locknut, Buna-N seals.	2.43	
•C1ET93	566688	RV3-10-S-0-3/	Relief Cartridge, 50-300 PSI adjustment range, Adjusting screw with locknut, Buna-N seals (2 required per assembly)	0.51	
•C1BT34	565568	RV3-10-S-0-36/	Relief Cartridge, 600-3600 PSI adjustment range (not for use above 3000 PSI in this application), Adjusting screw with locknut, Buna-N seals (2 required per assembly)	0.53	
C1FK22	565806	SK2-10-2	Buna-N Seal Kit (2 required per assembly)	0.01	

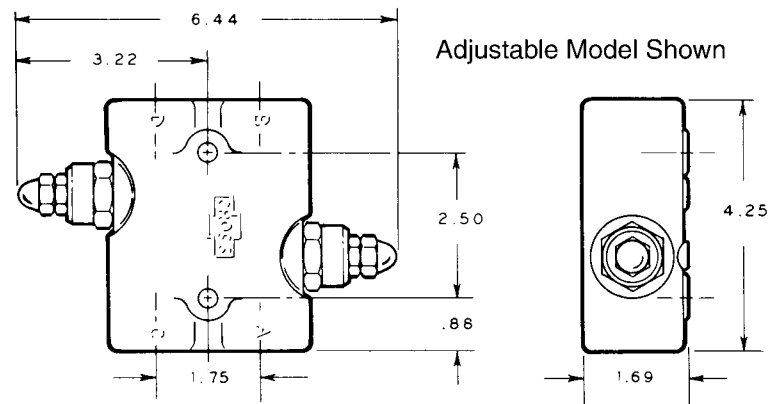
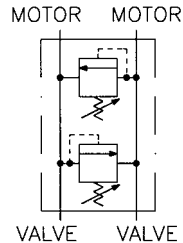
Note: Components can be purchased separately. One (1) Housing, Two (2) Cartridges and Two (2) Seal Kits are required to make the cushion valve assembly. For each cartridge, remove the standard back-up ring and install two (2) half-thickness back-up rings, one on each side of o-ring.



Hydraulic Valves & Accessories

Cushion Valves

Cushion Valves (Double Relief Valves) Cross Series RC • To 3000 PSI & 30 GPM



Features: Cartridge type hydraulically dampened poppet design. Quiet. Smaller differential between cracking and full-flow pressures.

Application: Cross model RC Cushion Valves are designed to protect equal displacement cylinders or motors from external or shock loads. Fluid which passes through one relief valve flows directly to the opposite side or circuit of the valve, thus preventing cavitation of the cylinder or motor as a result of relief discharge. (For cylinder applications, cylinder displacement must be equal in both directions for oil to relieve from one side to the other).

Materials: High tensile gray iron housing. Hardened and ground steel poppet. Buna-N seals.

Maximum Flow Rate: 30 GPM Maximum.

Maximum Operating Pressure: 3000 PSI.

Cushion Valves (Double Relief Valves) • Cross Series RC • To 3000 PSI & 30 GPM

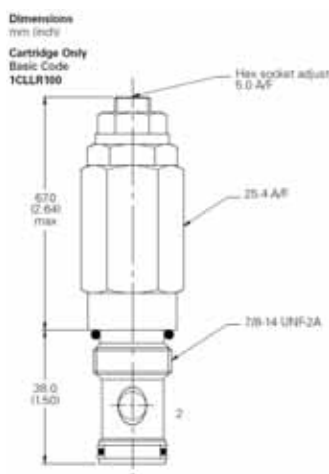
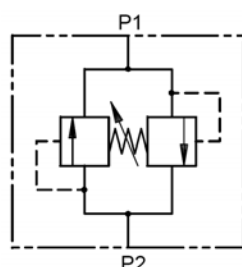
Catalog Part No.	Cross Model	Port Size	Adjustment Type	Adjustment Range (psi)	Pressure Setting (psi)	Wt.	Price Each
•C1DJ87	RC12BB	3/4 NPT	Screw Adjustment with Acorn Nut	500-1500	1000	4.00	

Hydraulic Valves & Accessories

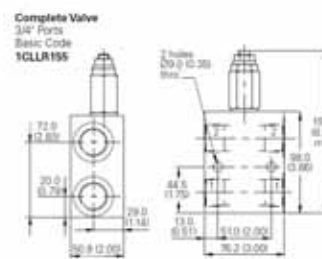
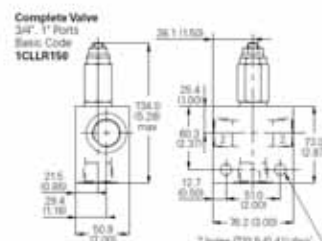
Cushion Valves

Cushion Valves (Double Relief Valves)

Eaton 1CLLR100 Series • To 5000 PSI & 40 GPM



Note: Tightening torque of "F" adjuster locknut - 20 to 25 Nm
Note: For applications above 210 bar please consult our technical department or site the steel body option.



Features: Single cartridge relieving in both directions cutting down space requirements, giving full adjustment through its range on both pressures at the same time. Requires a machined A878 cavity or housing for installation.

Application: To protect both lines in a circuit from over pressurization by relieving oil to the other line. Ideal for use with motors or directional valves as a safety relief. Differential area, fast acting, poppet valve.

Specifications: 12 gpm rated flow. 3500 psi maximum setting. CAUTION: Pressures over 3000 psi require a steel housing. -22° to +194°F operating temperature range. 0.31 cubic inches per minute max internal leakage. Based on oil temperature of 104°F and 150 SSU. 40 gpm rated flow. 5000 psi maximum setting. CAUTION: Pressures over 3000 psi require a steel housing. -22° to +194°F operating temperature range. 0.31 cubic inches per minute max internal leakage. Based on oil temperature of 104°F and 150 SSU.

Recommended Filtration Level: ISO level 18/13 or better.

Installation: 44 ft-lbs torque cartridge into cavity. Unrestricted mounting position.

Cushion Valves (Double Relief Valves) • Eaton 1CLLR100 Series • To 5000 PSI & 40 GPM

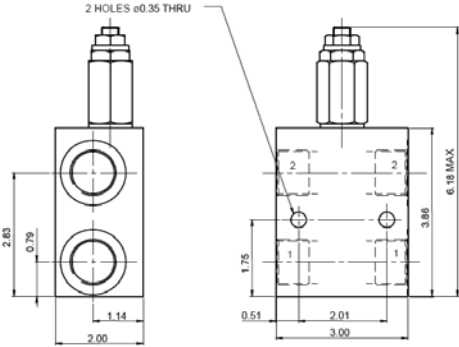
Catalog Part No.	Eaton Part No.	Eaton Model	Pressure Range (PSI)	Factory Setting (psi)	Adjustment Means	Body	Seal Material	Wt.	Price Each
C1JZ87	407AA00014A	1CLLR100F35S	1650-5075	4060	Screw	None	Nitrile	0.52	



Hydraulic Valves & Accessories

Cushion Valves

Valve Housings for 1CLLR100

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1LY61	B10623	1CLLR155 Aluminum through ported valve housing; 4 each SAE -12 ports; 3000 PSI max.		
				

Hydraulic Power & Control

Pneumatic Power & Control

Fluid Conveying

Miscellaneous Products

Indexes & Technical Information



Hydraulic Valves & Accessories

Directional Valves, Manually Operated

2-Way 2-Position Pull-To-Open Manual Valves Vickers® MPV1-10 Series • To 3000 PSI & 12 GPM



Features: Cartridge style (Requires a machined cavity or housing for installation). Pull-to-open knob.

Application: For on-off control of a single stream of fluid. Pull-to-open. Release to close (spring returns valve to closed).

Maximum Operating Pressure: 3000 PSI.

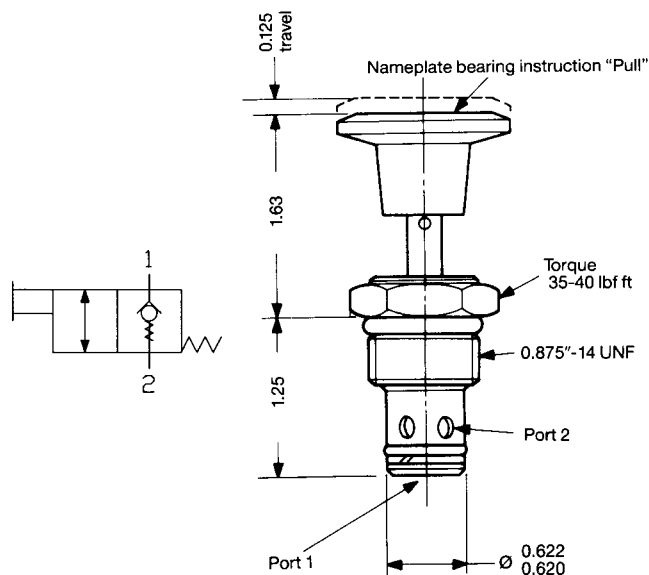
Rated Flow: 12 GPM.

Temperature Range: -40°F to 248°F (Extreme Limits).

Recommended Filtration Level: ISO 4406 Cleanliness Level 18/16/13 or cleaner.

Cartridge: Model MPV1-10*, sold separately.

Housing: Cavity size C-10-2, sold separately, see page 441



2-Way 2-Position Pull-To-Open Manual Valves • Vickers® MPV1-10 Series • To 3000 PSI & 12 GPM

Catalog Part No.	Vickers Part No.	Vickers Model	Housing	Seal Material	Wt.	Price Each
•C1BT36	565589	MPV1-10-K-0	None	Buna-N	0.25	



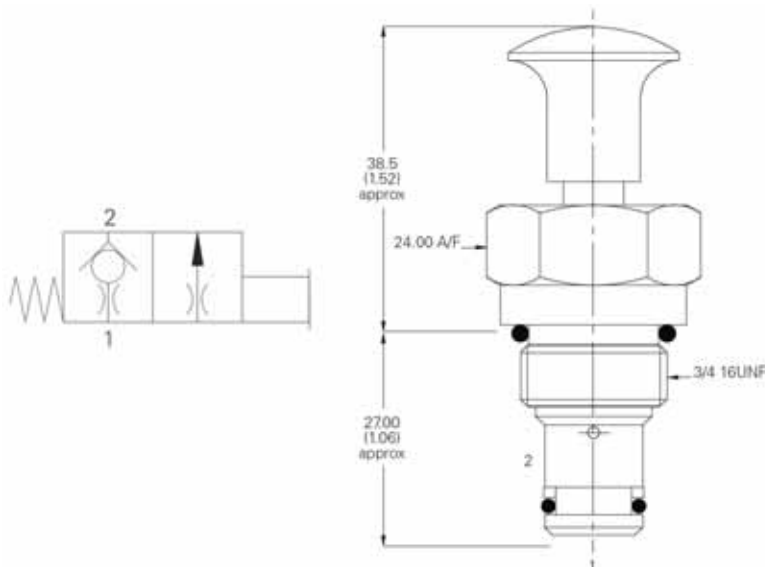
Hydraulic Valves & Accessories

Directional Valves, Manually Operated

2-Way 2-Position Pull-To-Open Manual Valves Eaton 3CP2 Series • To 3000 PSI & 4 GPM



Features: These cartridges permit a small regulated flow to pass when the hand knob is depressed.
Application: A typical application would be on an access platform to lower the boom in the event of a power failure.
Maximum Operating Pressure: 3000 PSI.
Rated Flow: 0.9 mm orifice 1.4 US gpm, 1.5 mm orifice 4 US gpm.
Temperature Range: -22° to 194°F
Recommended Filtration Level: Cleanliness level 18/13 or better
Cartridge: Model 3CP2*, sold separately.
Housing: Cavity size A879, sold separately, see page 441



2-Way 2-Position Pull-To-Open Manual Valves • Eaton 3CP2 Series • To 3000 PSI & 4 GPM

Catalog Part No.	Eaton Part No.	Eaton Model	Orifice Size (mm)	Flow Rate (GPM)	Housing	Seals	Wt.	Price Each
C1MG46	401AA00053A	3CP2-1.5S	1.5	4	None	Nitrile	0.11	

Hydraulic Valves & Accessories

Directional Valves, Manually Operated

Subplate/Manifold Mount NFPA Size D03 Manual Valves Vickers® DG17V-3 Series • To 5000 PSI & 20 GPM



Features: Subplate mounted. Viton® seals standard.

Application: Compact high-pressure manual control valve for double acting cylinders or reversible motors.

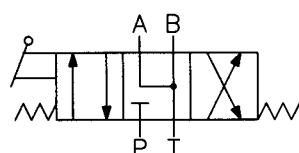
Maximum Flow Capacity: 20 GPM.

Maximum Operating Pressure: 5000 PSI Ports P, A and B. 100 PSI Port T (Intermittent to 1450 PSI) (CAUTION: Need steel subplate or manifold for pressures over 3000 PSI).

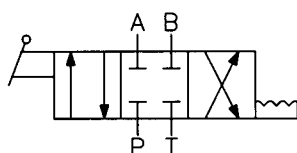
Recommended Filtration Level: ISO level 18/15 or cleaner.

Mounting Bolts: Standard mounting bolts are (4) 10-24 x 1-1/4 Grade 8 socket head capscrews (Vickers Bolt Kit 590716), torqued to 40-50 lb. in. See Bolt Kits on page 440

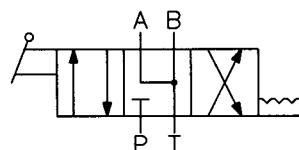
Size D03 Subplates & Manifolds: page 450



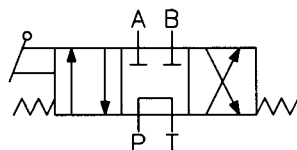
A
4-WAY 3-POSITION
SPRING CENTERED
IN CENTER P BLOCKED,
A & B TO TANK



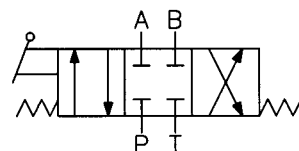
D
4-WAY 3-POSITION
DETENTED
IN CENTER P BLOCKED,
A & B BLOCKED



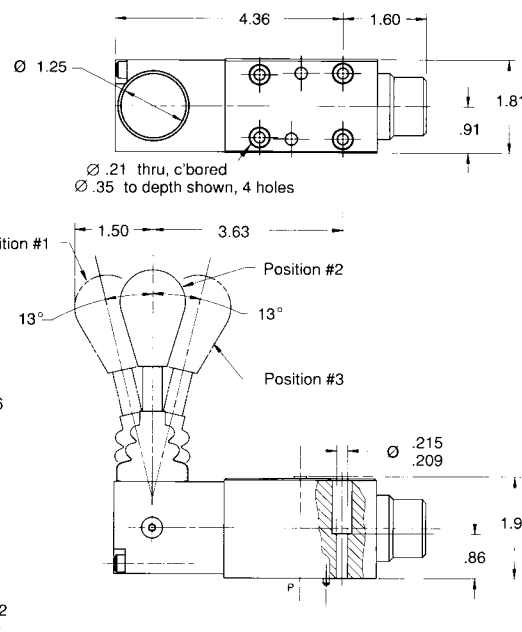
B
4-WAY 3-POSITION
DETENTED
IN CENTER P BLOCKED,
A & B TO TANK



E
4-WAY 3-POSITION
SPRING CENTERED
IN CENTER P TO T,
A & B BLOCKED



C
4-WAY 3-POSITION
SPRING CENTERED
IN CENTER P BLOCKED,
A & B BLOCKED



Subplate/Manifold Mount NFPA Size D03 Manual Valves • Vickers® DG17V-3 Series • To 5000 PSI & 20 GPM

Catalog Part No.	Vickers Part No.	Key	Vickers Model	Type	Spool Action	Spool Type	Other Features	Wt.	Price Each
C1AC70	02-135316	A	DG17V-3-6C-60	4-way 3-position	Spring Centered	In Center, P Blocked, A & B to Tank		4.10	



Hydraulic Valves & Accessories

Directional Valves, Manually Operated

Subplate/Manifold Mount NFPA Size D08 Manual Valves

Eaton DG17V-8 Series • Flows to 180 GPM • Pressures to 5000 PSI



Features: Available with a wide variety of spool and spring arrangements. Solid cast iron body and core passages for maximum strength and minimal pressure drop.

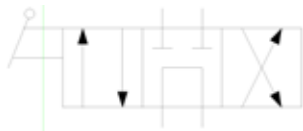
Maximum Operating Pressures: Ports P, A, B and T: 5000 PSI. (CAUTION: Pressures over 3000 PSI require steel subplate or manifold).

Maximum Flow Rates: Dependent on spool/spring combination.

Mounting Considerations: Detented models should mount with longitudinal axis horizontal. Other models may be mounted in any position.

Note: These valves are available in a wide variety of configurations not shown in this catalog. Contact us for detailed information

Size D08 Subplates & Manifolds: Subplates must be ordered separately. When a subplate is not used, a machined pad must be provided for mounting. The pad must be flat within 0.0005 in. and smooth within 32 microinch and conform to ISO 4401-08-07-0-94, NFPA T3.5.1 R2-2002 D08.



Subplate/Manifold Mount NFPA Size D08 Manual Valves • Eaton DG17V-8 Series • Flows to 180 GPM • Pressures to 5000 PSI

Catalog Part No.	Eaton Part No.	Eaton Model	Spool	Flow Rate (GPM)	Seals	Wt.	Price Each
C1JL60	02-398349	DG17V-8-8N-10-EN588	Tandem spool (P to T in neutral), Open crossover, 3-position detented. (Valve handle not included)	180	Buna-N	32.28	

Hydraulic Valves & Accessories

Directional Valves, Monoblock

1-2-3 Spool Monoblock Valves

Eaton 30900 Series • To 3000 PSI & 5 GPM



Features: Open Center Parallel Circuit design. Available in single spool, two spool and three spool configurations. Available in a variety of spool types and spool actions. Built-in load checks (not on Motor spools). Available with or without adjustable main relief valve, standard setting 2000 PSI.

Application: For general mobile and industrial hydraulic applications. 3-way models control a single acting cylinder or uni-directional motor. 4-way models control a double acting cylinder or reversible hydraulic motor.

Materials: Cast iron bodies. Precision ground induction hardened spools with chrome plating on exposed ends.

Pressure Ratings: Rated Pressure: 3000 PSI. Maximum Inlet Pressure: 3500 PSI. Maximum Work Port Pressure: 4500 PSI.

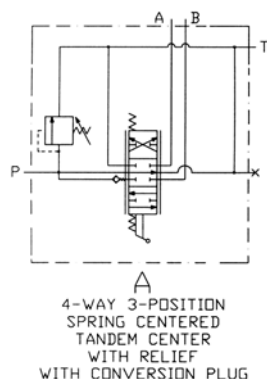
Flow Rating: 5 GPM.

Maximum System Temperature: 225°F.

Power Beyond: Body is bored for Power Beyond and is plugged. Valves can be converted to Power Beyond (High Pressure Carryover) with an option kit (31900-321 for SAE-6, 31900-341 for SAE-8). This option allows the installation of another valve downstream from the first valve. Hydraulic oil is available to the downstream valve only when the spool in the upstream valve is in neutral. A separate tank line is required from each control valve.

Closed Center: Valves can be converted to Closed Center with an option kit (31900-319).

Dimensions & Technical Information: page 669



1-2-3 Spool Monoblock Valves • Eaton 30900 Series • To 3000 PSI & 5 GPM

Catalog Part No.	Eaton Model	Spools	Spool Type	Power Beyond	Work Ports	Inlet Port	Outlet Port	Spool Action	Relief Setting (PSI)	Wt.	Price Each
•C1ES92	30922-DSC	2-Spool	4-way 3-position Tandem Center	Plugged	SAE-6	SAE-8	SAE-8	Spring Centered	2000	6.23	

Note: Handles are NOT included with valve, and are sold separately.

Parts & Accessories for Eaton 31900 Monoblock Directional Valves

Catalog Part No.	Part Number	Description	Wt.	Price Each
•C1EV79	30950-901	Handle Kit	0.21	

Directional Valves, Monoblock

1 to 7 Spool Monoblock Valves

Salami VDM6 Series • To 5100 PSI & 12 GPM



Features: Cast-iron monoblock construction up to 7 spools • Parallel circuit, load check valve protection • Tandem circuit available on first spool of circuit • Venting valve • Power beyond • Hardened steel, nickel-plated spools for higher surface hardness and corrosion resistance • Variety of spool types • Minimum tolerance between the spool and body to obtain a minimum of internal leakage • All spools interchangeable • Variety of spool control and positioning devices

Nominal Flow Rating: 12 GPM

Maximum Operating Pressure: 5100 PSI on ports "P", "A", & "B"

Maximum Back Pressure: 363 PSI

Internal Leakage A/B to T: 1.1 to 1.52 in³/min at 2285 PSI

Fluid Temperature Range: -4° to 185°F with NBR seals

Ambient Temperature Range: -22°F to 140°F

Fluid Viscosity: 10 to 400 cSt; Optimal range 12 to 75 cSt

Maximum Level of Contamination: ISO 4406: 19/16

Note: All technical data carried out using mineral oil with viscosity of 16 cSt and contamination level of 19/16 per ISO 4406

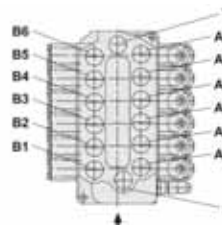
Dimensions & Technical Information: page 691



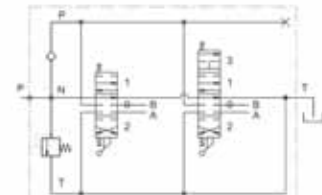
VDM6 - 6 working sections with cross levers for 2 spools L1/L2 and NL controls



VDM6 - 4 working sections with venting valve EV... , NL controls and C2 positionings



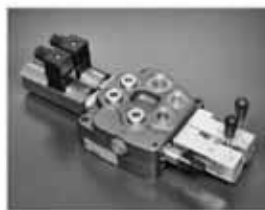
OPERATOR'S REFERENCE POINT



Example of 2-spool with 1) 3-position cylinder spool and 1) 4-position cylinder spool with float.



VDM6 - 1 working section with NL control and CM positioning spool



VDM6 - 2 working sections with solenoid push-pull control E7/E8 and safety lever ES



Schematic of standard 6-spool (VDM6/DDDDDD/U4S)

1 to 7 Spool Monoblock Valves • Salami VDM6 Series • To 5100 PSI & 12 GPM

Catalog Part No.	Salami Model	Key	Description & (Salami Type Code)	Wt.	Price Each
•C1MR75	623100110	Valve	Valve assy (VDM6/D/U4S) open ctr 1-spool, parallel 4w3p (01A), A&B closed in neutral, protected lever box (NL) on A side, spg ctr (C2) on B side. Direct pressure relief (VS) adj 2190 PSI to 3190 PSI set at 2540 PSI. SAE-8 ports P,A,B; SAE-10 port T.		
•C1MR76	623100120	Valve	Valve assy (VDM6/DD/U4S) open ctr 2-spool, parallel 4w3p (01A), A&B closed in neutral, lever box (NL) on A side, spg ctr (C2) on B side. Direct pressure relief (VS) adj 2190 PSI to 3190 PSI set at 2540 PSI. SAE-8 ports P,A,B; SAE-10 port T.		
•C1MN30	623100130	Valve	Valve assy (VDM6/DDD/U4S) open ctr 3-spool, parallel 4w3p (01A), A&B closed in neutral, lever box (NL) on A side, spg ctr (C2) on B side. Direct pressure relief (VS) adj 2190 PSI to 3190 PSI set at 2540 PSI. SAE-8 ports P,A,B; SAE-10 port T.		

Hydraulic Valves & Accessories

Directional Valves, Monoblock

1 to 7 Spool Monoblock Valves • Salami VDM6 Series • To 5100 PSI & 12 GPM

Catalog Part No.	Salami Model	Key	Description & (Salami Type Code)	Wt.	Price Each
•C1MR77	623100140	Valve	Valve assy (VDM6/DDDD/U4S) open ctr 4-spool, parallel 4w3p (01A), A&B closed in neutral, lever box (NL) on A side, spg ctr (C2) on B side. Direct pressure relief (VS) adj 2190 PSI to 3190 PSI set at 2540 PSI. SAE-8 ports P,A,B; SAE-10 port T.		
C1MR78	623100150	Valve	Valve assy (VDM6/DDDD/U4S) open ctr 5-spool, parallel 4w3p (01A), A&B closed in neutral, lever box (NL) on A side, spg ctr (C2) on B side. Direct pressure relief (VS) adj 2190 PSI to 3190 PSI set at 2540 PSI. SAE-8 ports P,A,B; SAE-10 port T.		
C1MW58	623100160	Valve	Valve assy (VDM6/DDDD/U4S) open ctr 6-spool, parallel 4w3p (01A), A&B closed in neutral, lever box (NL) on A side, spg ctr (C2) on B side. Direct pressure relief (VS) adj 2190 PSI to 3190 PSI set at 2540 PSI. SAE-8 ports P,A,B; SAE-10 port T.		
C1MR79	623105500	Valve	Valve assy (VDM6/DDDD/U4S) open ctr 7-spool, parallel 4w3p (01A), A&B closed in neutral, lever box (NL) on A side, spg ctr (C2) on B side. Direct pressure relief (VS) adj 2190 PSI to 3190 PSI set at 2540 PSI. SAE-8 ports P,A,B; SAE-10 port T.		
C1MQ94	420192000	A side actuator	Lever shaft handle with knob and nut M8 x160 mm long		
C1MT85	R23100033	A side actuator	Cross lever for 2-spools, 3-position. (L1) fulcrum on upstream spool, (L2) fulcrum on down-stream spool. Accepts M10 threaded handle (not included).		
C1MT86	R23100036	A side actuator	Cross lever for 2-spools, one 3-position and one 4-position float spool in. (L2) fulcrum on down-stream spool. Accepts M10 threaded handle (not included).		
•C1MU12	R23400060	A side actuator	Protected lever positioning kit (NL).		
C1MU11	R23400050	A side actuator	Spool seal retainer plate (SL)		
C1MU93	R360T0600	A side actuator	Cable control attachment kit (TC)		
C1MU20	R23400322	B side actuator	Detent (C0) on each intermediate positions.		
C1MU31	R23402000	B side actuator	Spool positioning for micro switch (CE). Pre-arrangement for electrical device.		
C1MT45	R20288881	B side actuator	Spool positioning with microswitch, conversion from (CE) to (CM), IP65.		
C1MT43	R20276730	B side actuator	Spool positioning with microswitch (CW), IP67 waterproof.		
C1MS18	796332550	B side actuator	Electric push-pull control (E7) 3-position, 12 VDC, 31 W, for flows up to 8 GPM, pressures up to 2750 PSI		
C1MS20	796332560	B side actuator	Electric push-pull control (E8) 3-position, 24 VDC, 31 W, for flows up to 8 GPM, pressures up to 2750 PSI		
C1MS19	796332555	B side actuator	Electric push-pull control (E9) 3-position, 12 VDC, 45 W, for flows up to 10.6 GPM, pressures up to 3050 PSI		
C1MT87	R23100080	B side actuator	Hydraulic proportional control kit (IP).		
C1MU13	R23400100	B side actuator	Pneumatic proportional control kit (PP).		
C1MU18	R23400320	B side actuator	Detent (R2) on positions 1 and 2, spring return to neutral.		
C1MU17	R23400280	B side actuator	Detent (R4) on position 1, spring return in neutral.		
C1MU16	R23400250	B side actuator	Detent (R5) on position 2, spring return in neutral.		
•C1MU19	R23400321	B side actuator	Detent (R9) on positions 1, 2 and neutral.		
C1MT37	R20270430	Relief	Inlet relief (740 PSI - 1090 PSI)		
C1MT38	R20270450	Relief	Inlet relief (2190 PSI - 3190 PSI)		
C1MT39	R20270460	Relief	Inlet relief (3205 PSI - 4785 PSI)		
C1MT40	R20270463	Relief	Inlet relief (4360 PSI - 5435 PSI)		
•C1MT41	R20270471	Relief	Inlet relief plug		
C1MT88	R23101031	Spool	Electric kit safety lever, 12 VDC direct acting, 3-position cylinder spool (01A-ESA-E7)		
C1MQ73	323411391	Spool	Double acting spool (01A) for "IP" (Hydraulic proportional) control.		
C1MQ71	323411307	Spool	Double acting spool (01A) for L1/L2 (Cross lever for 2-spools) control (and float spool (01A). A & B blocked in neutral.		



Hydraulic Valves & Accessories

Directional Valves, Monoblock

1 to 7 Spool Monoblock Valves • Salami VDM6 Series • To 5100 PSI & 12 GPM

Catalog Part No.	Salami Model	Key	Description & (Salami Type Code)	Wt.	Price Each
C1MQ66	323411302	Spool	Double acting motor spool (02A), "A" & "B" to tank in neutral.		
C1MT89	R23101053	Spool	Electric kit with safety lever, 12 VDC direct acting, 3-position motor spool (02A-ESA-E7)		
C1MQ74	323411392	Spool	Double acting motor spool (02A) for "IP" (Hydraulic proportional) control.		
C1MQ69	323411305	Spool	Single acting spool (05A), "A" working port. A & B blocked in neutral.		
C1MQ70	323411306	Spool	Single acting spool (06A), "B" working port. A & B blocked in neutral.		
C1MU33	R23480050	Spool	Spool kit (12A-NL-F5) includes 4-position float cylinder spool, A-side protected lever box, B-side 3-position spring center 4th-position detent.		
C1MU15	R23400210	Spool	Spool seal kit		
•C1MS13	795429200	Outlet	Plug for carry over		

Note: Handle is NOT included with lever box actuators. Handle must be purchased separately.

Abbreviations: assy=assembly; ctr=center; 4w3p=4-way, 3-position; spg=spring; adj=adjustable

Hydraulic Valves & Accessories

Directional Valves, Monoblock

1-Spool Monoblock Valves

Walvoil SD4 Series •To 3600 PSI & 12 GPM



Features: Simple, compact design, one-spool valve for open and closed center hydraulic systems • Main pressure relief valve • Optional rotary and detent kick-out controls • Optional cable control • Interchangeable spools.

Nominal Flow Rating: 12 GPM.

Maximum Operating Pressure: 3600 PSI.

Maximum Back Pressure: 360 PSI on outlet port T.

Internal Leakage A(B) to T: 0.18 in³/min at 1450 PSI differential pressure.

Fluid Temperature Range: -4°F to 176°F with standard Buna-N seals.

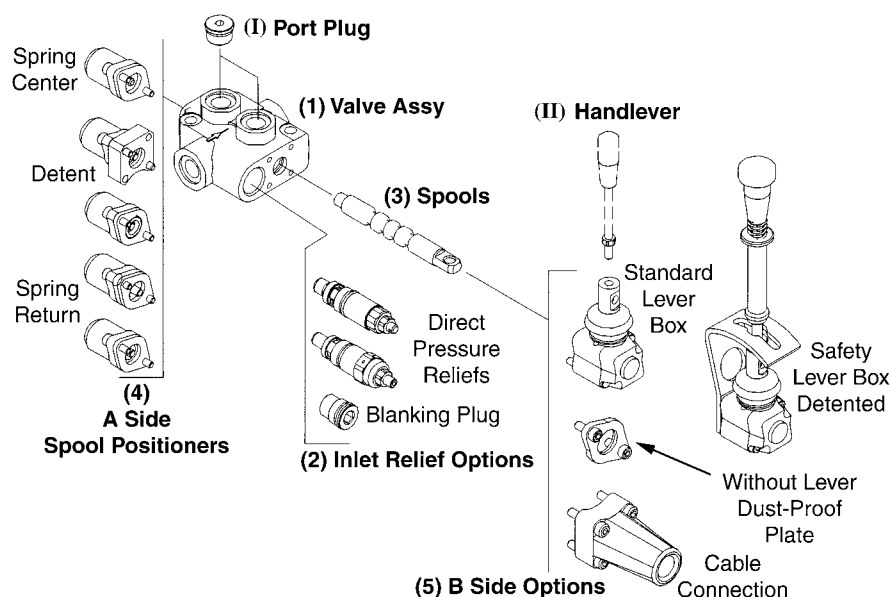
Ambient Temperature Range: -40°F to 140°F.

Viscosity: 80 to 400 SSU Operating, 70 SSU Minimum, 1950 SSU Maximum.

Maximum Level of Contamination: ISO 4406 19/16.

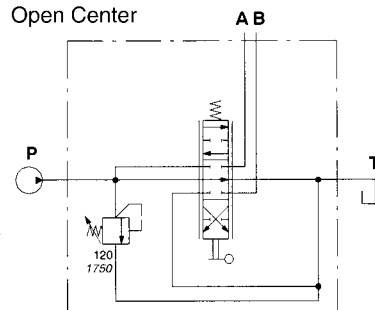
Note: Performance data measured with mineral oil of 215 SSU viscosity at 104°F.

Dimensions & Technical Information: page 683



Hydraulic Schematic Example

With inlet relief valve
4-way 3-position spring-centered
Handlever operated
A & B closed in neutral
Open Center



1-Spool Monoblock Valves • Walvoil SD4 Series •To 3600 PSI & 12 GPM

Catalog Part No.	Walvoil Model	Key	Description & (Walvoil Type Code)	Wt.	Price Each
•C1KV96	FVL101100201	(1)	Valve assy (SD4/1(KG3)/1CP8L-SAE), P to T in neutral, 4-way, 3-pos, A & B closed in neutral, spg ctr (4), relief (2) adj 900 to 2900 PSI (set at 1750 PSI), std lever box (5) does not include M8 thread handlever (II). SAE-8 ports P & T, SAE-6 ports A & B.	4.50	
•C1HV44	FVL101119018	(1)	Valve assy (SD4/1SV/68L-SAE), closed ctr, 4-way 3-pos, A & B closed in neutral, spring cent, no rlv. Rlv blanking plug (2), std lever box (5) does NOT include M8 thread handlever (II). SAE-8 ports P & T, SAE-6 ports A & B.	4.43	
•C1HV51	FVL5V11104000	(4)	"A" side spool positioner (Type 11), with detent in positions 1, neutral and 2	0.26	
•C1HX83	FVL5LEV105000	(5)	"B" side option (Type L), standard lever box, M8 thread (does NOT include M8 thread handlever)	0.33	
•C1AL39	170011012	(II)	Handlever (Type AL01/M8x120), for standard leverbox, M8 thread x 120mm long, with black knob	0.10	

Directional Valves, Monoblock

1 to 7 Spool Monoblock Valves

Walvoil SD5 Series •To 4600 PSI & 12 GPM



Features: Simple, compact and heavy duty designed monoblock valves from 1 to 7 sections for open and closed center hydraulic systems. • Fitted with a main pressure relief valve and a load check valve. • Available with parallel, series or tandem circuit. • Optional power beyond port (only for parallel or tandem circuit). • Diameter 0.63 inch interchangeable spools. • A wide variety of service port valve options. • Actuation is manual, pneumatic, electro-pneumatic, hydraulic, electro-hydraulic, with solenoid and remote with flexible cables spool control kits.

Nominal Flow Rating: 12 GPM.

Maximum Operating Pressure: 4600 PSI (Parallel or Tandem circuit), 3600 PSI (Series circuit).

Maximum Back Pressure: 360 PSI on outlet port T.

Internal Leakage A(B) to T: 0.18 in³/min at 1450 PSI differential pressure.

Fluid Temperature Range: -4°F to 176°F with standard Buna-N seals.

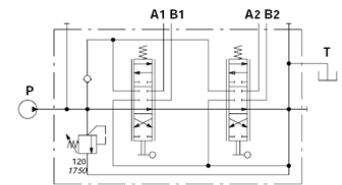
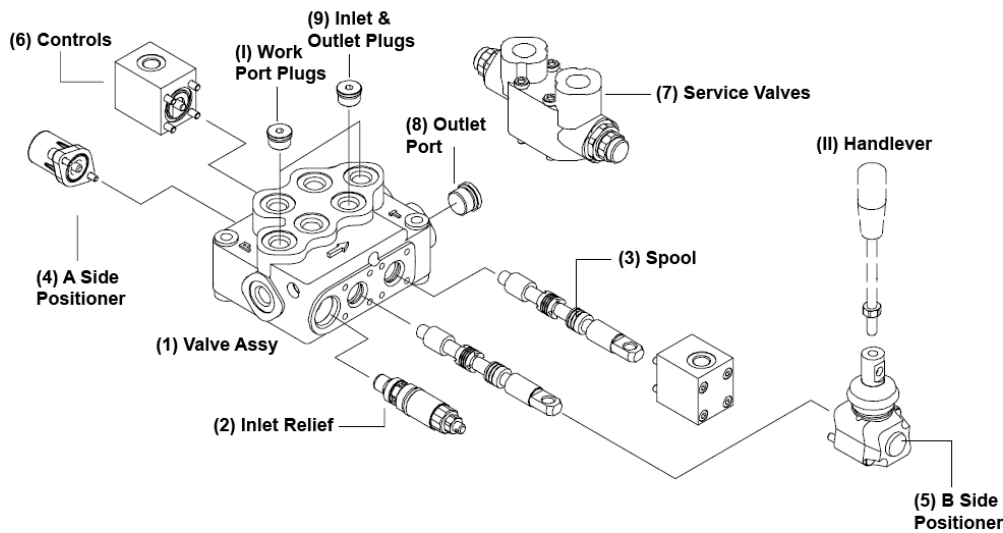
Ambient Temperature Range: -40°F to 140°F.

Viscosity: 80 to 400 SSU Operating, 70 SSU Minimum, 1950 SSU Maximum.

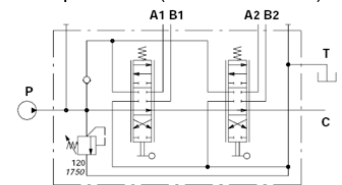
Maximum Level of Contamination: ISO 4406 19/16.

Note: Performance data measured with mineral oil of 215 SSU viscosity at 104°F.

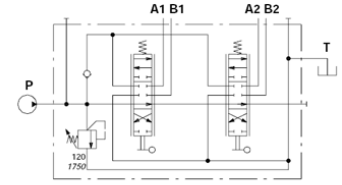
Dimensions & Technical Information: page 684



Open Center (SD5/ ... /AET-SAE)



Power Beyond (SD5/ ... /AE-SAE)



Closed Center (SD5/ ... /AEK-SAE)

1 to 7 Spool Monoblock Valves • Walvoil SD5 Series •To 4600 PSI & 12 GPM

Catalog Part No.	Walvoil Model	Key	Description & (Walvoil Type Code)	Wt.	Price Each
•C1AL39	170011012	(II)	Handlever (Type AL01/M8x120), for standard leverbox, M8 thread x 120mm long, with black knob	0.10	

Hydraulic Valves & Accessories

Directional Valves, Monoblock

1 to 6 Spool Monoblock Valves

Walvoil SD11 Series •To 4600 PSI & 18 GPM



Features: Simple, compact and heavy duty designed monoblock valves from 1 to 6 spools for open and closed center hydraulic systems • Main pressure relief valve and load check valve • Available with parallel or series circuit • Optional power beyond port (for parallel circuit) • Interchangeable spools • Wide variety of service ports and circuit valves • Spool control kits for manual, pneumatic, hydraulic, electro-hydraulic and remote with flexible cable controls.

Nominal Flow Rating: 18 GPM.

Maximum Operating Pressure: 4600 PSI (Parallel circuit), 3600 PSI (Series circuit).

Maximum Back Pressure: 360 PSI on outlet port T.

Internal Leakage A(B) to T: 0.18 in³/min at 1450 PSI differential pressure.

Fluid Temperature Range: -4°F to 176°F with standard Buna-N seals.

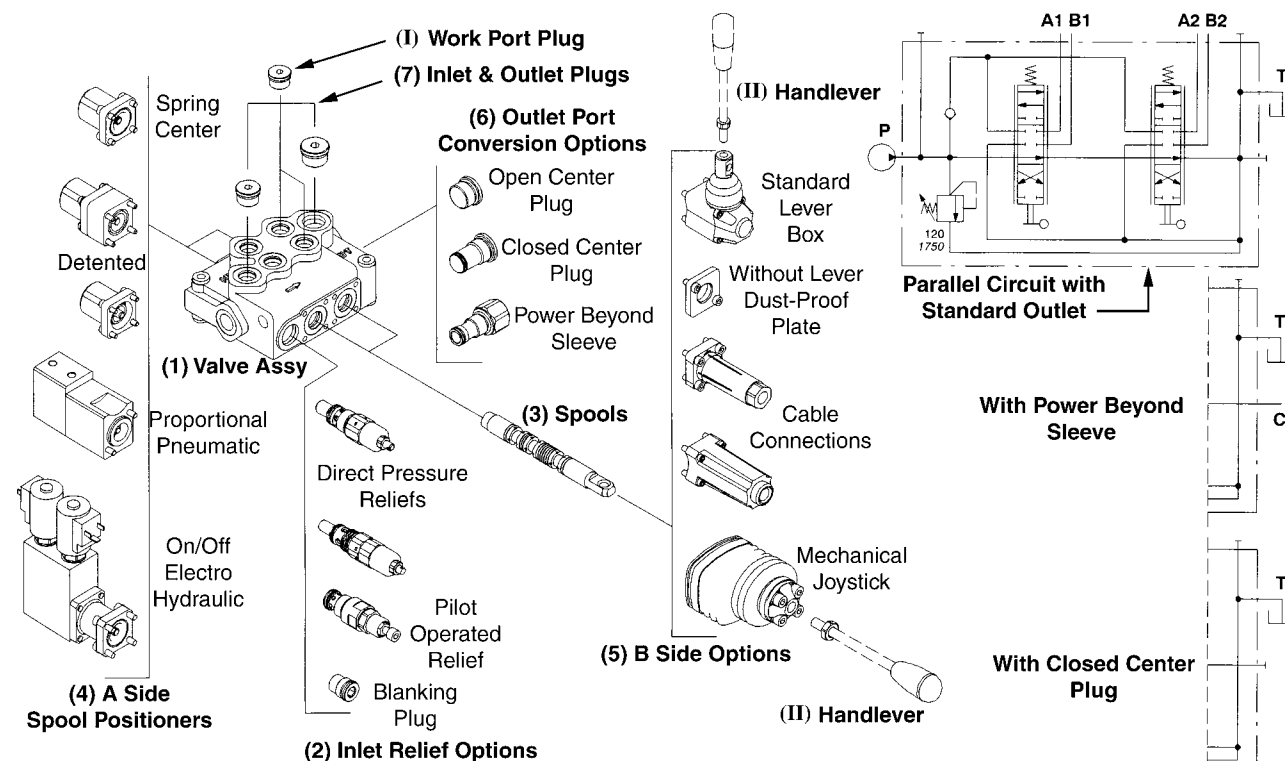
Ambient Temperature Range: -40°F to 140°F.

Viscosity: 80 to 400 SSU Operating, 70 SSU Minimum, 1950 SSU Maximum.

Maximum Level of Contamination: ISO 4406 19/16.

Note: Performance data measured with mineral oil of 215 SSU viscosity at 104°F.

Dimensions & Technical Information: page 687



1 to 6 Spool Monoblock Valves • Walvoil SD11 Series •To 4600 PSI & 18 GPM

Catalog Part No.	Walvoil Model	Key	Description & (Walvoil Type Code)	Wt.	Price Each
•C1HX82	FVL104130102	(1)	Valve assy (SD11/1-P(KG4-220)/18L/AET-SAE), open ctr 1-spool, parallel 4way3pos A&B closed in neutral spring cent. Dir press rlv (2) 2600-4600 PSI set 3200, std leverbox (5) does NOT include M10 handlever (II). SAE-10 P & T (top outlet), SAE-8 A & B.	13.70	
•C1HV54	FVL91110017	(1)	Valve assy (SD11/1-P(KG3)/28L/AET-SAE), open ctr 1-spool, parallel 4way3pos A&B open to tank in neutral, spring cent. Dir press rlv (2) 1150-2900 PSI set 1750, std leverbox (5) does NOT include M10 handlever (II). SAE-10 P & T (top outlet), SAE-8 A & B.	13.59	



Hydraulic Valves & Accessories

Directional Valves, Monoblock

1 to 6 Spool Monoblock Valves • Walvoil SD11 Series • To 4600 PSI & 18 GPM

Catalog Part No.	Walvoil Model	Key	Description & (Walvoil Type Code)	Wt.	Price Each
•C1HV45	FVL104219001	(1)	Valve assy (SD11/2-P(KG3)/18Lx2/AET-SAE) , open ctr 2-spool, parallel 4way3pos A&B closed in neutral spring cent. Dir press rlv (2) 1150-2900 PSI set 1750, std leverboxes (5) does NOT include M10 handlevers (II). SAE-10 P & T (top outlet), SAE-8 A & B.	21.67	
•C1HV46	FVL104319004	(1)	Valve assy (SD11/3-P(KG3)/18Lx3/AET-SAE), open ctr 3-spool, parallel 4way3pos A&B closed in neutral spring cent. Dir press rlv (2) 1150-2900 PSI set 1750, std leverboxes (5) does NOT include M10 handlevers (II). SAE-10 P & T (top outlet), SAE-8 A & B.	28.80	
•C1HT16	3XCAR110213	(2)	Direct pressure relief (Type YG3-175), 1800-3600 PSI range, standard setting 2500 PSI.	0.63	
C1HZ84	3CU1425130	(3)	Spool (Type 2), 4-way 3-position, A & B open to tank in neutral	0.76	
•C1HV52	FVL5V11110000	(4)	"A" side spool positioner (Type 11), with detent in positions 1, neutral and 2	0.56	
•C1JC50	5V08110701	(4)	"A" side spool positioner (Type 8P), On/Off pneumatic, NPT	1.41	
•C1HV50	FVL3XTAP532450	(6)	Outlet port conversion option (Type AEK), closed center plug	0.32	
•C1HV49	FVL3XGIU532660	(6)	Outlet port conversion option (Type AE), power beyond sleeve, SAE-10	0.38	
•C1HQ47	170012020	(II)	Handlever (Type AL01/M10x200), for standard leverbox, M10 thread x 200mm long, with black knob	0.28	
•C1HQ59	170013025	(II)	Handlever (Type AL01/M12x250), for mechanical joystick, M12 thread x 250mm long, with black knob	0.50	

Hydraulic Power & Control

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Hydraulic Valves & Accessories

Directional Valves, Monoblock

1-Spool Monoblock Valves

Brand AO755 Series • To 3000 PSI & 18 GPM



Features: Small and compact. Positive metering in either direction. Precision ground chrome plated spool for long life.

Application: AO755 manually operated valves provide metered flow to either work port. Work port flow is directly proportional to the movement of the lever. The tank port must go directly back to tank.

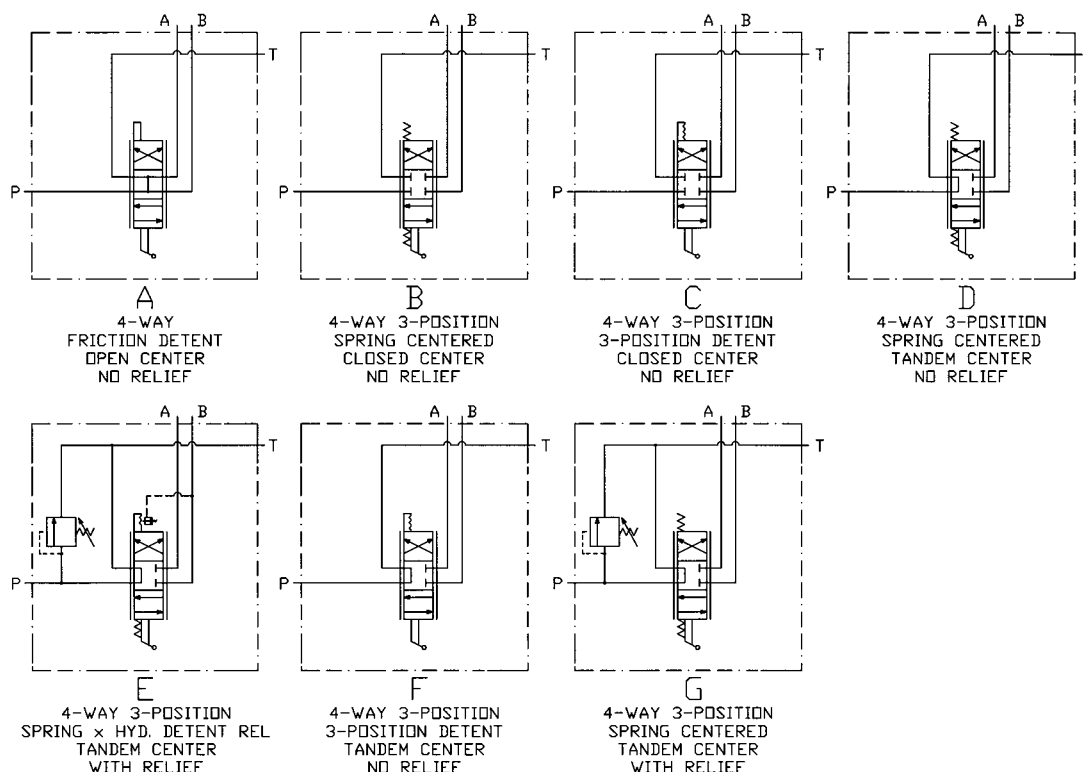
Materials: Cast iron body. Buna-N O-Rings. Chrome plated steel spool. Black nylon ball knob.

Maximum Operating Pressure: 3000 PSI.

Nominal Flow Rating: 18 GPM.

Recommended Filtration: 30 Micron.

Dimensions & Technical Information: page 667



1-Spool Monoblock Valves • Brand AO755 Series • To 3000 PSI & 18 GPM

Catalog Part No.	Brand Model	Key	Type	Spool Action	Spool Type	Ports	Other Features	Wt.	Price Each
C1MG87	AO755C4LD	C	4-way 3-position	Detented	Closed Center	3/4NPT Inlet & Outlet 1/2NPT Work Ports	No Relief	6.00	
C1JC68	AO755-04LF1	A	4-way	Friction Detent	Open Center	3/4NPT Inlet & Outlet 1/2NPT Work Ports	No Relief	6.19	
•C1EK85	AO755-T4-LS	D	4-way 3-position	Spring Centered	Tandem Center	3/4NPT Inlet & Outlet 1/2NPT Work Ports	No Relief	5.24	
•C1HE38	AO755-T4-LD	F	4-way 3-position	Detented	Tandem Center	3/4NPT Inlet & Outlet 1/2NPT Work Ports	No Relief	6.00	
•C1HE39	AO755-T4-LRS	G	4-way 3-position	Spring Centered	Tandem Center	3/4NPT Inlet & Outlet 1/2NPT Work Ports	Adjustable Relief (Set @ 1500 PSI)	6.06	



Hydraulic Valves & Accessories

Directional Valves, Monoblock

1-Spool Monoblock Valves (Log Splitter Valves) Brand LS755 Series •To 3000 PSI & 18 GPM



Features: Single Hydraulic Kick-Out designed primarily for log splitters. Small and compact. Fine positive metering in either direction. Precision ground chrome plated spool.

Application: Spring center hydraulic detent (SHA model) springs back to neutral from one position and pressure release detent in the other direction when the cylinder completes its return stroke. Hydraulic detent in both directions (HHA model, not recommended for log splitters) pressure detent in both directions and springs to center when out of detent.

Materials: Cast iron body. Buna-N O-Rings. Brass guide. Chrome plated steel spool.

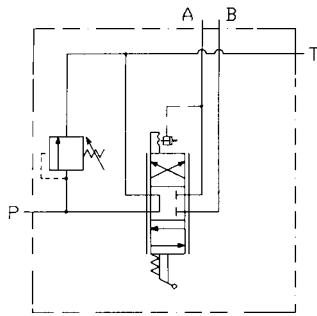
Black nylon ball knob.

Maximum Operating Pressure: 3000 PSI.

Nominal Flow Rating: 18 GPM.

Recommended Filtration: 30 Micron.

Dimensions & Technical Information: page 667



4-WAY 3-POSITION
SPRING x HYD. DETENT REL
TANDEM CENTER
WITH RELIEF

1-Spool Monoblock Valves (Log Splitter Valves) • Brand LS755 Series •To 3000 PSI & 18 GPM

Catalog Part No.	Brand Model	Key	Type	Spool Action	Spool Type	Ports	Other Features	Wt.	Price Each
•C1ZU70	LS755T4JRSHA	A	4-way 3-position	Log Splitter (See Below)	Tandem Center	3/4NPT Inlet & Outlet 1/2NPT Work Ports	Adjustable Relief (Set @ 2000 PSI), Adjustable Kick-Out (Set @ 800 PSI)	6.01	

Log Splitter Spool Action: Valve is spring centered in one direction (P to B) and has a hydraulic detent release in the other direction (P to A).

Hydraulic Valves & Accessories

Directional Valves, Monoblock

1-Spool Monoblock Valves (With Pressure Comp. Flow Control) Brand SDCF Series • To 3000 PSI & 18 GPM



Features: Full range pressure compensated bypass type flow control valve is built in. Pilot operated relief valve is standard. Fine positive metering in either direction. Precision ground chrome plated spool for long life.

Application: SDCF valves combine the features of a 4-way directional control valve, a full range pressure compensated by-pass type flow control valve and a pilot operated pressure relief valve all in one compact package. Flow to the work port is directly proportional to the movement of the lever. Flow out of each work port is constant regardless of load changes. The tank port must be plumbed directly back to tank.

Materials: Cast iron body. Buna-N O-Rings. Chrome plated steel spool.

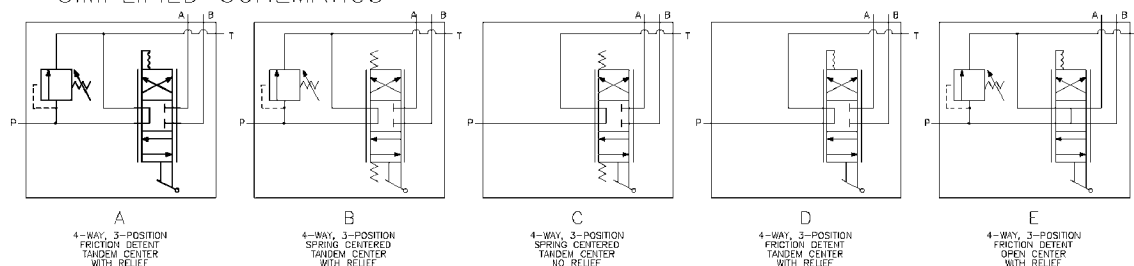
Maximum Operating Pressure: 3000 PSI.

Nominal Flow Rating: 18 GPM.

Recommended Filtration: 30 Micron.

Dimensions & Technical Information: page 668

SIMPLIFIED SCHEMATICS



1-Spool Monoblock Valves (With Pressure Comp. Flow Control) • Brand SDCF Series • To 3000 PSI & 18 GPM

Catalog Part No.	Brand Model	Key	Type	Spool Action	Spool Type	Flow Range (GPM)	Ports	Other Features	Wt.	Price Each
C1MH40	SDCF755M124LF1		4-way 3-position	Friction Detent	Open Center	0-12	3/4NPT Inlet & Outlet 1/2NPT Work Ports	Adjustable Relief	6.50	
•C1JD16	SDCF755TM12SLF1	A	4-way 3-position	Friction Detent	Tandem Center	0-12	3/4NPT Inlet & Outlet 1/2NPT Work Ports	Stainless Spool, Adjustable Relief	7.84	
•C1JD15	SDCF755TM124LSSS	B	4-way 3-position	Spring Centered	Tandem Center	0-12	3/4NPT Inlet & Outlet 1/2NPT Work Ports	Stainless Spool, Adjustable Relief	7.83	

Option Kits & Parts for Brand SDCF Series Valves

Catalog Part No.	Part Number	Description	Wt.	Price Each
•C1DK84	SDC-S	Spring Centering Kit	0.37	
C1JB77	SDC-F1	Ball Friction Detent Kit	0.63	

Directional Valves, Monoblock

1 to 5 Spool Monoblock Valves

Salami VDM8 Series • To 5100 PSI & 20 GPM



Features: Cast-iron monoblock construction up to 5 spools • Parallel circuit, load check valve protection • Venting valve • Power beyond • Hardened steel, nickel-plated spools for higher surface hardness and corrosion resistance • Variety of spool types • Minimum tolerance between the spool and body to obtain a minimum of internal leakage • All spools interchangeable • Variety of spool control and positioning devices • Auxiliary valves available on port A/B

Nominal Flow Rating: 20 GPM

Maximum Operating Pressure: 5100 PSI on ports "P", "A", & "B"

Maximum Back Pressure: 363 PSI

Internal Leakage A/B to T: 1.52 to 2.13 in³/min at 2285 PSI

Fluid Temperature Range: -4° to 185°F with NBR seals

Ambient Temperature Range: -22°F to 140°F

Fluid Viscosity: 10 to 400 cSt; Optimal range 12 to 75 cSt

Maximum Level of Contamination: ISO 4406: 19/16

Note: All technical data carried out using mineral oil with viscosity of 16 cSt and contamination level of 19/16 per ISO 4406

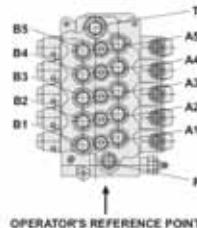
Dimensions & Technical Information: page 693



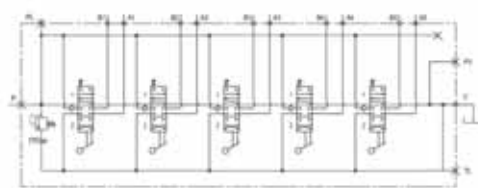
VDM8 - 3 working sections with electro-hydraulic controls H1/H2 - H3/H4



VDM8 - assembling for exhibitions with miscellaneous of controls IP - NP - E7/E8 - LS - C2



OPERATOR'S REFERENCE POINT



VDM8 - 3 working sections with pneumatic prop. control PP and electro-pneumatic control P1/P2



VDM8 - 5 working sections with hydraulic prop. control IP and hydraulic prop. control with float pos. IF

1 to 5 Spool Monoblock Valves • Salami VDM8 Series • To 5100 PSI & 20 GPM

Catalog Part No.	Salami Model	Key	Description & (Salami Type Code)	Wt.	Price Each
•C1MR80	623200110	Valve	Single spool, monoblock valve (VDM8/02D175/P01A/NPA/C2/U4S), direct acting relief set at 2538 PSI, double acting spool, std. protected lever control, spring centered, SAE ISO 176 ports (-10 P, -12 T, -10 A&B).		
•C1MR81	623200120	Valve	2-spool monoblock (VDM8/02D175/2xP01A/NPA/C2/U4S), direct acting relief set at 2538 PSI, double acting spool, std. protected lever control, spring centered, SAE ISO 176 ports (-10 P, -12 T, -10 A&B).		
•C1MR82	623200130	Valve	3-spool monoblock (VDM8/02D175/3xP01A/NPA/C2/U4S), direct acting relief set at 2538 PSI, double acting spool, std. protected lever control, spring centered, SAE ISO 176 ports (-10 P, -12 T, -10 A&B).		
C1MW44	623200140	Valve	4-spool monoblock (VDM8/02D175/4xP01A/NPA/C2/U4S), direct acting relief set at 2538 PSI, double acting spool, std. protected lever control, spring centered, SAE ISO 176 ports (-10 P, -12 T, -10 A&B).		



Hydraulic Valves & Accessories

Directional Valves, Monoblock

1 to 5 Spool Monoblock Valves • Salami VDM8 Series • To 5100 PSI & 20 GPM

Catalog Part No.	Salami Model	Key	Description & (Salami Type Code)	Wt.	Price Each
C1MR83	623200150	Valve	5-spool monoblock (VDM8/02D175/5xP01A/NPA/C2/U4S), direct acting relief set at 2538 PSI, double acting spool, std. protected lever control, spring centered, SAE ISO 176 ports (-10 P, -12 T, -10 A&B).		
C1MU90	R360T0200	A side actuator	Cable control attachment kit (TC)		
•C1MQ95	420290180	A side actuator	Lever Handle with knob, M8x180		
C1MU43	R23575322	A side actuator	Hydraulic Proportional Control Kit (IP), mounts on "A" and "B" side of work section.		
C1MU65	R23587640	A side actuator	Spool seal retainer (SL)		
C1MU48	R23576400	B side actuator	Detent Position Kit (C0), detent on each intermediate position.		
C1MU46	R23576140	B side actuator	Spool Positioning for Micro Switch (CE) for spool 01		
C1MT45	R20288881	B side actuator	Spool positioning with microswitch, conversion from (CE) to (CM), IP65.		
C1MT43	R20276730	B side actuator	Spool positioning with microswitch, conversion from (CE) to (CW), IP67 waterproof.		
C1MU63	R23587570	B side actuator	Cross Lever for 2 spools (L1) fulcrum on up-stream spool		
C1MU64	R23587580	B side actuator	Cross Lever for 2 spools (L2) fulcrum on up-stream spool		
C1MT44	R20287910	B side actuator	Standard Protected Lever (NP), lever handle NOT included.		
C1MU44	R23575370	B side actuator	Pneumatic proportional kit (PP)		
C1MU35	R23500300	B side actuator	Detent Positioning Kit (R2), Detent on position 1 & 2 with spring return in neutral.		
C1MU36	R23500400	B side actuator	Detent Positioning Kit (R4), Detent on position 1 with spring return in neutral.		
C1MU37	R23500500	B side actuator	Detent Positioning Kit (R5), Detent on position 2 with spring return in neutral.		
•C1MU45	R23575490	B side actuator	Detent Positioning Kit (R9), Detent on positions 1, 2, and neutral.		
C1MS22	796366200	Main relief	Main Relief and port relief valve (VA), direct operated, adjustable 290 PSI to 1015 PSI		
C1MS23	796366300	Main relief	Main Relief and port relief valve (VA), direct operated, adjustable 1030 PSI to 2175 PSI		
C1MS24	796366400	Main relief	Main Relief and port relief valve (VA), direct operated, adjustable 2190 PSI to 3118 PSI		
C1MW43	796366500	Main relief	Main Relief and port relief valve (VA), direct operated, adjustable 3130 PSI to 3845 PSI		
C1MS25	796366700	Main relief	Main Relief and port relief valve (AR), direct operated, adjustable 0 PSI to 6090 PSI		
•C1MS15	795429400	Outlet option	Plug for carry over for 1 spool valves. Install for power beyond.		
•C1MS14	795429300	Outlet option	Plug for carry over for 2 to 5 spool valves. Install for power beyond.		
C1MT96	R23277620	Port valve	Port relief and anti-cavitation valve (AR) kit, non-adjustable, 3000 PSI. Includes plug, seal and fixed setting valve (794129313).		
C1MR84	794129301	Port valve	Port relief and anti-cavitation valve (AR), non-adjustable, 362 PSI		
C1MT90	R23277500	Port valve	Port relief and anti-cavitation valve (AR) kit, non-adjustable, 362 PSI. Includes plug, seal and fixed setting valve (794129301).		
C1MR85	794129302	Port valve	Port relief and anti-cavitation valve (AR), non-adjustable, 464 PSI		
C1MR86	794129303	Port valve	Port relief and anti-cavitation valve (AR), non-adjustable, 580 PSI		
C1MT91	R23277520	Port valve	Port relief and anti-cavitation valve (AR) kit, non-adjustable, 580 PSI. Includes plug, seal and fixed setting valve (794129303).		
C1MR87	794129304	Port valve	Port relief and anti-cavitation valve (AR), non-adjustable, 725 PSI		
C1MR88	794129305	Port valve	Port relief and anti-cavitation valve (AR), non-adjustable, 910 PSI		
C1MT92	R23277540	Port valve	Port relief and anti-cavitation valve (AR) kit, non-adjustable, 910 PSI. Includes plug, seal and fixed setting valve (794129305).		



Hydraulic Valves & Accessories

Directional Valves, Monoblock

1 to 5 Spool Monoblock Valves • Salami VDM8 Series • To 5100 PSI & 20 GPM

Catalog Part No.	Salami Model	Key	Description & (Salami Type Code)	Wt.	Price Each
C1MR89	794129306	Port valve	Port relief and anti-cavitation valve (AR), non-adjustable, 1160 PSI		
C1MR90	794129307	Port valve	Port relief and anti-cavitation valve (AR), non-adjustable, 1450 PSI		
C1MT93	R23277560	Port valve	Port relief and anti-cavitation valve (AR) kit, non-adjustable, 1450 PSI. Includes plug, seal and fixed setting valve (794129307).		
C1MR91	794129308	Port valve	Port relief and anti-cavitation valve (AR), non-adjustable, 1810 PSI		
C1MR92	794129309	Port valve	Port relief and anti-cavitation valve (AR), non-adjustable, 2000 PSI		
C1MT94	R23277580	Port valve	Port relief and anti-cavitation valve (AR) kit, non-adjustable, 2000 PSI. Includes plug, seal and fixed setting valve (794129309).		
C1MR93	794129310	Port valve	Port relief and anti-cavitation valve (AR), non-adjustable, 2300 PSI		
C1MR94	794129311	Port valve	Port relief and anti-cavitation valve (AR), non-adjustable, 2530 PSI		
C1MT95	R23277600	Port valve	Port relief and anti-cavitation valve (AR) kit, non-adjustable, 2530 PSI. Includes plug, seal and fixed setting valve (794129311).		
C1MR95	794129312	Port valve	Port relief and anti-cavitation valve (AR), non-adjustable, 2715 PSI		
C1MR96	794129313	Port valve	Port relief and anti-cavitation valve (AR), non-adjustable, 3000 PSI		
C1MR97	794129314	Port valve	Port relief and anti-cavitation valve (AR), non-adjustable, 3300 PSI		
C1MR98	794129315	Port valve	Port relief and anti-cavitation valve (AR), non-adjustable, 3600 PSI		
C1MT97	R23277640	Port valve	Port relief and anti-cavitation valve (AR), non-adjustable, 3625 PSI		
C1MR99	794129316	Port valve	Port relief and anti-cavitation valve (AR), non-adjustable, 4000 PSI		
C1MS11	794129317	Port valve	Port relief and anti-cavitation valve (AR), non-adjustable, 4569 PSI		
C1MS12	794129318	Port valve	Port relief and anti-cavitation valve (AR), non-adjustable, 5076 PSI		
C1MU50	R23577520	Port valve	Port valve plug (PRA)/(PRB)		
C1MU74	R24177541	Port valve	Port relief valve cavity plug (VR)		
C1MU49	R23577511	Main relief	Anticavitation valve (VR)		
•C1MQ75	323511302	Spool	Double Acting Motor Spool (02), A & B to tank in neutral.		
•C1MQ76	323511305	Spool	Single Acting Spool, "A" Working Port (05)		
C1MQ77	323511306	Spool	Single Acting Spool, "B" Working Port (06)		
C1MQ78	323511311	Spool	Double Acting Spool with Float function in 4th position (spool in) (11)		
C1MU47	R23576301	Spool	Double Acting Spool kit with Float function in 4th position (spool out) (12A-NP-F5), includes standard protected lever and spring centered from offset positions, detent in float position		
C1MU41	R23573048	Spool	Electric kit push-pull 12 VDC with safety lever override (VMD8 01A ESA), includes spool.		
C1MU42	R23573049	Spool	Electric kit push-pull 12 VDC with safety lever override (VMD8 02A ESA), includes spool.		
C1MQ79	323511390	Spool	Double Acting Spool for Hydraulic Proportional Control (01)		
C1MQ80	323511391	Spool	Double Acting Motor Spool for Hydraulic Proportional Control (02)		
C1MT42	R20272590	Spool	Spool Seal Kit		

Hydraulic Power & Control

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Hydraulic Valves & Accessories

Directional Valves, Proportional • NFPA Size D03 • ISO 4401 Size 03
Vickers KDG4V-3 & KDG4V-3S Series • Without Feedback



Vickers® KDG4V-3 & KDG4V-3S Proportional Valves Without Feedback NFPA Size D03, ISO 4401 Size 03



Description: The primary function of these valves is to direct and meter fluid flow in proportion to current received by the solenoid. This fluid flow controls the velocity, direction and acceleration or deceleration of a cylinder or fluid motor. The valve is controlled by applying current to the coil. This current produces a force at the solenoid push pin which, in turn, causes spool travel. The spool will continue its motion until the solenoid force is balanced by the

return spring force.

Application: These valves are designed to fill the performance gap between conventional solenoid operated directional valves and servo valves or feedback-type proportional valves. They provide control of spool position and metered fluid flow in applications that don't require the high levels of accuracy, repeatability or response possible with feedback-type proportional valves or servos.

Features: NFPA fatigue rated at 5000 PSI. Fully encapsulated solenoid coils. NEMA 4 rated junction box. Standard Viton® seals.

Nominal Flow Rating: 5.8 GPM (72 PSI pressure drop P to A, 72 PSI pressure drop B to T).

Maximum Operating Pressure: 5000 PSI Ports P, A and B. (CAUTION: Pressures over 3000 PSI require steel subplate or manifold). Port T: 1450 PSI for Standard Performance Valves, 3000 PSI for High Performance Valves.

Operating Temperature Range: -4°F to 180°F.

Fluid Viscosity Range: 75 to 250 SSU.

Recommended Filtration: ISO 4406 Cleanliness Level 18/16/13 for pressures to 3000 PSI; Level 17/15/12 for pressures above 3000 PSI.

Note: Vickers publication 539 provides the additional technical information necessary for proper application of these proportional valves. Contact us for application assistance or to request a copy of the Vickers publication.

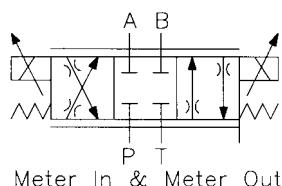
Electronic Accessories (Amplifier Cards, Power Plugs): page 449

Size D03 Subplates & Manifolds: page 450

Solenoid Connectors: page 446(Required for models that use DIN 43650 coils).

Mounting Bolts: Standard mounting bolts are (4) 10-24 x 1-1/4 Grade 8 socket head capscrews (Vickers Bolt Kit 590716 BK590716), torqued to 40-50 lb.in. with threads lubricated. See Bolts Kits on page 440

4-way, 3-position, Spring Centered All Ports Blocked in Center



Spool Flow Rating: P to A or B to T Flow at 72 PSI Pressure Drop.

Coil Rating: Current Controlled models are for use with Power Plugs, Amplifier Cards or Joystick Controllers in more demanding applications where current is varied across the coil. Direct Voltage models are for use in less sophisticated and intermittent duty applications where voltage is varied across the coil.

4-way, 3-position, Spring Centered • All Ports Blocked in Center

Catalog Part No.	Vickers Part No.	Vickers Model	Spool Flow Rating (GPM)	Metering Condition	Coil Rating	Coil Type	Other Features	Wt.	Price Each
C1AD14	02-154277	KDG4V-3S-2C08N-H-M-U-H5-60	2.0	Meter In & Meter Out	24VDC Current Controlled	DIN 43650	STD Performance, 1450 PSI Port T, Waterproof Manual Override	5.00	
C1MZ97	820AN00002F	KDG4V-3S-2C19N-M-KUP6-G5-60	5.0	Meter In & Meter Out	12VDC Current Controlled	Flying Leads	STD Performance, 1450 PSI Port T, Deutsch Connectors (male)	5.00	



Hydraulic Valves & Accessories

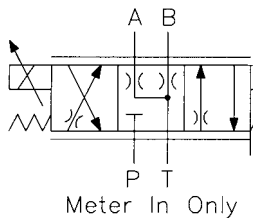
Directional Valves, Proportional • NFPA Size D03 • ISO 4401 Size 03
Vickers KDG4V-3 & KDG4V-3S Series • Without Feedback



4-way, 3-position, Spring Centered • All Ports Blocked in Center

Catalog Part No.	Vickers Part No.	Vickers Model	Spool Flow Rating (GPM)	Metering Condition	Coil Rating	Coil Type	Other Features	Wt.	Price Each
C1ER20	02-317856	KDG4V-3S-2C19N-H-M-U-H5-60	5.0	Meter In & Meter Out	24VDC Current Controlled	DIN 43650	STD Performance, 1450 PSI Port T, Waterproof Manual Override	4.89	
C1MX20	02-358824	KDG4V3-2C28S-M-U-G7-60	7.4	Meter Out	12VDC	DIN 43650	High Performance, 3000 PSI Port T, Standard Manual Override		

4-way, 3-position, Spring Centered Port P Blocked, Ports A & B Bleed to T in Center



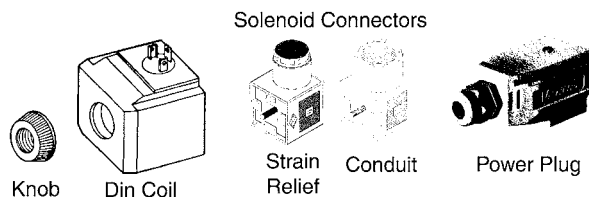
Spool Flow Rating: P to A or B to T Flow at 72 PSI Pressure Drop.

Coil Rating: Current Controlled models are for use with Power Plugs, Amplifier Cards or Joystick Controllers in more demanding applications where current is varied across the coil. Direct Voltage models are for use in less sophisticated and intermittent duty applications where voltage is varied across the coil.

4-way, 3-position, Spring Centered • Port P Blocked, Ports A & B Bleed to T in Center

Catalog Part No.	Vickers Part No.	Vickers Model	Spool Flow Rating (GPM)	Metering Condition	Coil Rating	Coil Type	Other Features	Wt.	Price Each
C1JC47	02-311985	KDG4V-3-33C03F-H-M-U-H7-60	0.8	Meter In Only	24VDC Current Controlled	DIN 43650	High Performance, 3000 PSI Port T, Waterproof Manual Overrides	5.27	
C1AD15	02-154278	KDG4V-3S-33C08A-H-M-U-H5-60	2.0	Meter In Only	24VDC Current Controlled	DIN 43650	STD Performance, 1450 PSI Port T, Waterproof Manual Overrides	5.00	
C1AD44	02-309901	KDG4V-3S-33C22A-H-M-U-H5-60	5.8	Meter In Only	24VDC Current Controlled	DIN 43650	STD Performance, 1450 PSI Port T, Waterproof Manual Overrides	5.00	

Vickers KDG4V-3 & KDG4V-3S Series Parts & Accessories



Vickers KDG4V-3 & KDG4V-3S Series Parts & Accessories

Catalog Part No.	Vickers Part No.	Description	Wt.	Price Each
C1BS52	5100-10900	DIN 43650 Solenoid Connector, Strain Relief Style for cable diameter 0.24 to 0.31, not wired, no light	0.25	
C1FK20	5103-1090000	DIN 43650 Solenoid Connector, Strain Relief Style for cable diameter 0.31 to 0.41, not wired, light for 6-48 VAC/VDC 50/60 Hz	0.05	

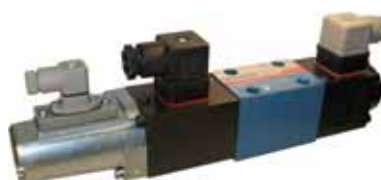


Hydraulic Valves & Accessories

Directional Valves, Proportional • NFPA Size D03 • ISO 4401 Size 03
Vickers KFDG4V-3 Series • With Feedback



Vickers® KFDG4V-3 Proportional Valves With Feedback NFPA Size D03, ISO 4401 Size 03



Description: The primary function of these valves is to direct and meter fluid flow in proportion to current received by the solenoid. This fluid flow controls the velocity, direction and acceleration or deceleration of a cylinder or fluid motor. The valve is controlled by applying current to the coil. This current produces a force at the solenoid push pin which, in turn, causes spool travel. The spool will continue its motion until the LVDT's feedback signal balances

with the input signal, ensuring accurate spool position control.

Application: These valves are designed to fill the performance gap between non-feedback type proportional valves and servo valves. They provide control of spool position and metered fluid flow in applications that don't require the highest levels of accuracy, repeatability or response possible with servo valves.

Features: Electronic feedback LVDT ensures accurate spool position control. Internal current feedback provides optimal control. Standard Viton® seals.

Nominal Flow Rating: 5.8 GPM (72 PSI pressure drop P to A, 72 PSI pressure drop B to T).

Maximum Operating Pressure: 5000 PSI Ports P, A and B. (CAUTION: Pressures over 3000 PSI require steel subplate or manifold). Port T: 1500 PSI. (Port L blocked by mounting surface).

Maximum Allowable Temperature Ranges: Ambient Air: 140°F. Fluid: 140°F.

Fluid Viscosity Range: 70-245 SSU Recommended, 70-2270 SSU Extreme.

Recommended Filtration: ISO 4406 Cleanliness Level 18/16/13 for pressures to 3000 PSI; Level 17/15/12 for pressures above 3000 PSI.

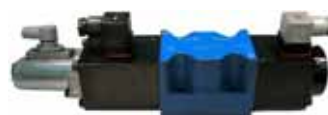
Note: Vickers publication 5071.00/EN/0298/A provides the additional technical information necessary for proper application of these proportional valves. Contact us for application assistance or to request a copy of the Vickers publication.

Electronic Accessories (Amplifier Cards): page 449

Size D03 Subplates & Manifolds: page 450

Mounting Bolts: Standard mounting bolts are (4) 10-24 x 1-1/4 Grade 8 socket head capscrews (Vickers Bolt Kit 590716 BK590716), torqued to 40-50 lb.in. with threads lubricated. See Bolts Kits on page 440

4-way, 3-position, Spring Centered All Ports Blocked in Center



Spool Flow Rating: P to A or B to T Flow at 72 PSI Pressure Drop.

Wiring Connectors: Solenoid coil and LVDT wiring connectors are included with valve. Cable for solenoid coils can range from 0.24-0.40 inch diameter. Cable for LVDT can range from 0.138-0.236 inch diameter.

4-way, 3-position, Spring Centered • All Ports Blocked in Center

Catalog Part No.	Vickers Part No.	Vickers Model	Spool Flow Rating (GPM)	Metering Condition	Coil Rating	Coil Type	Other Features	Wt.	Price Each
C1BT19	565376	KFDG4V-3-2C20N-Z-M-U1-H7-20	5.28	Meter In & Meter Out	24VDC Amplifier Supplied	DIN 43650	1500 PSI Port T, No Manual Override	6.35	



Hydraulic Valves & Accessories

Directional Valves, Sectional • Open & Closed Center
Salami VD6A • Flows to 12 GPM (Nominal) • Pressures to 5100 PSI



Sectional Control Valves for Open & Closed Center Systems Salami VD6A



Features: Cast-iron bodies • Up to 8 work sections • Parallel, Series, and Tandem circuits with Load Check valve protection on each section • Open and Closed center with Power Beyond options • Spools are hardened steel and nickel-plated • Interchangeable spools • Spool selections: double acting, single acting, motor, cylinder, float, etc. • Auxiliary valves available for ports A and B • Several types of Mid-Inlet modules • Venting valve available • Available Controls: manual, cable, electric, electro-hydraulic, proportional hydraulic, pneumatic, proportional pneumatic, electro-pneumatic.

Nominal Flow Rating: 12 GPM.

Maximum Operating Pressure: 5100 PSI on ports P, A, and B.

Maximum Back Pressure: 363 PSI on outlet port T.

Internal Leakage A(B) to T: 1.1 - 1.52 in³/min. at 2285 PSI.

Fluid Temperature Range: -4°F to 185°F with standard NBR seals.

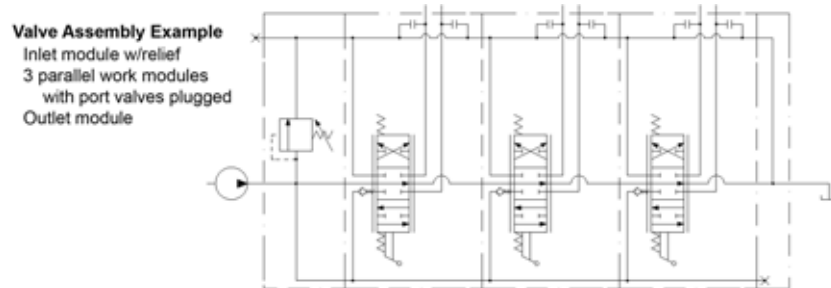
Ambient Temperature Range: -22°F to 140°F.

Viscosity: 12 cSt to 75 cSt Optimal; 10 cSt minimum, 400 cSt maximum.

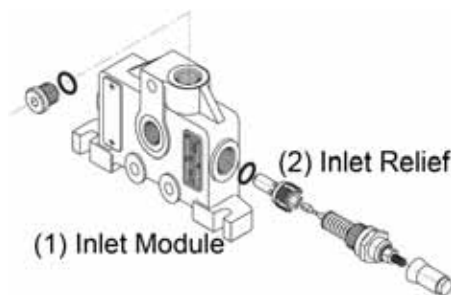
Maximum Level of Contamination: ISO 4406: 19/16

Note: All technical data carried out using mineral oil with viscosity of 16 cSt and contamination level 19/16 as ISO 4406.

Dimensions & Technical Information: page 695



VD6A Inlet Module & Options



VD6A Inlet Module & Options

Catalog Part No.	Salami Model	Key	Description & (Salami Commercial Codes)	Wt.	Price Each
C1MU32	R23470090	(1)	Inlet module (/02D175/) with direct main pressure relief valve (2) 2200 - 3200 PSI range and standard setting 2540 PSI. SAE -8 end inlet and plugged SAE -8 top inlet.		
•C1MT41	R20270471	(2)	Inlet relief plug		
C1MT37	R20270430	(2)	Inlet relief (740 PSI - 1090 PSI)		
C1MT38	R20270450	(2)	Inlet relief (2190 PSI - 3190 PSI)		



Hydraulic Valves & Accessories

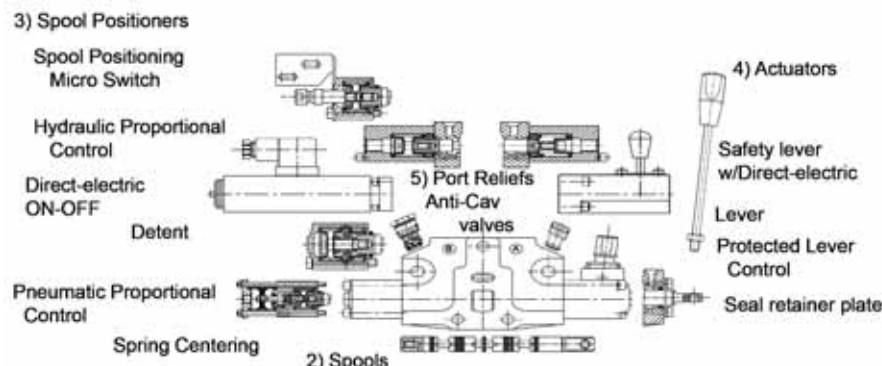
Directional Valves, Sectional • Open & Closed Center
Salami VD6A • Flows to 12 GPM (Nominal) • Pressures to 5100 PSI



VD6A Inlet Module & Options

Catalog Part No.	Salami Model	Key	Description & (Salami Commercial Codes)	Wt.	Price Each
C1MT39	R20270460	(2)	Inlet relief (3200 PSI - 4350 PSI)		
C1MT40	R20270463	(2)	Inlet relief (4360 PSI - 5435 PSI)		

VD6A Working Modules & Options



VD6A Working Modules & Options

Catalog Part No.	Salami Model	Key	Description & (Salami Commercial Codes)	Wt.	Price Each
C1MV20	S23480070	(1)	Working section (P01A-PRA.PRB-NLA-C2), parallel circuit, 4-way 3-pos. A&B closed in neutral, spring centered to neutral (3), standard protected lever control (4), aux. valve plugs (5). SAE-8 work ports. Does NOT include M8 threaded handle.		
C1MV23	S23480550	(1)	Working section (P02A-PRA.PRB-NLA-C2), parallel circuit, 4-way 3-pos. A&B to tank in neutral, spring centered to neutral (3), standard protected lever control (4), aux. valve plugs (5). SAE-8 work ports. Does NOT include M8 threaded handle.		
C1MV24	S23480580	(1)	Working section (T01A-PRA.PRB-NLA-C2), tandem circuit, 4-way 3-pos. A & B closed in neutral, spring centered to neutral (3), standard protected lever control (4), aux. valve plugs (5). SAE-8 work ports. Does NOT include M8 threaded handle.		
C1MV22	S23480480	(1)	Working section (S01A-PRA.PRB-NLA-C2), series circuit, 4-way 3-pos. A & B closed in neutral, spring centered to neutral (3), standard protected lever control (4), aux. valve plugs (5). SAE-8 work ports. Does NOT include M8 threaded handle.		
C1MV21	S23480270	(1)	Working section (P12A-PRA.PRB-NLA-F2), parallel circuit, 4-way 4-pos. A & B closed in neutral, spring centered to neutral, float detent (3), standard protected lever control (4), aux. valve plugs (5). SAE-8 work ports. Does NOT include M8 threaded handle.		
C1MW36	S23480542	(1)	Working section (P01A-PRA.PRB-ESA-E7B), parallel circuit, 4-way 3-pos. A&B closed in neutral, spring centered direct-electric ON-OFF control 12VDC (3), safety lever (4), aux. valve plugs (5). SAE-8 work ports.		
C1MV25	S23480761	(1)	Working section (P02A-PRA.PRB-ESA-E7B), parallel circuit, 4-way 3-pos. A&B to tank in neutral, spring centered direct-electric ON-OFF control 12VDC (3), safety lever (4), aux. valve plugs (5). SAE-8 work ports.		
C1MQ66	323411302	(2)	Double acting motor spool (02A), "A" & "B" to tank in neutral.		
C1MQ67	323411303	(2)	Double acting motor spool (03A), "A" port to tank, "B" port blocked.	24.00	
C1MQ68	323411304	(2)	Double acting motor spool (04A), "A" port blocked, "B" port to tank.	0.50	
C1MQ69	323411305	(2)	Single acting spool (05A), "A" working port.		
C1MQ70	323411306	(2)	Single acting spool (06A), "B" working port.	1.50	
C1MQ71	323411307	(2)	Double acting spool (01A) for L1/L2 (Cross lever for 2-spools) control (and float spool 01A).		
C1MQ73	323411391	(2)	Double acting spool (01A) for "IP" (Hydraulic proportional) control.		
C1MQ74	323411392	(2)	Double acting motor spool (02A) for "IP" (Hydraulic proportional) control.		
C1MU18	R23400320	(3)	Detent (R2) on positions 1 and 2, spring return to neutral.		
C1MU17	R23400280	(3)	Detent (R4) on position 1, spring return in neutral.		



Hydraulic Valves & Accessories

Directional Valves, Sectional • Open & Closed Center
Salami VD6A • Flows to 12 GPM (Nominal) • Pressures to 5100 PSI



VD6A Working Modules & Options

Catalog Part No.	Salami Model	Key	Description & (Salami Commercial Codes)	Wt.	Price Each
C1MU16	R23400250	(3)	Detent (R5) on position 2, spring return in neutral.		
C1MU20	R23400322	(3)	Detent (C0) on each intermediate positions.		
•C1MU19	R23400321	(3)	Detent (R9) on positions 1, 2 and neutral.		
C1MU31	R23402000	(3)	Spool positioning for micro switch (CE). Pre-arrangement for electrical device.		
C1MT45	R20288881	(3)	Spool positioning with microswitch (CM), IP65.		
C1MT43	R20276730	(3)	Spool positioning with microswitch (CW), IP67 waterproof.		
C1MT87	R23100080	(3)	Hydraulic proportional control kit (IP).		
C1MU13	R23400100	(3)	Pneumatic proportional control kit (PP).		
C1MS18	796332550	(3)	Electric push-pull control (E7) 3-position, 12 VDC, 31 W, for flows up to 8 GPM, pressures up to 2750 PSI		
C1MS19	796332555	(3)	Electric push-pull control (E9) 3-position, 12 VDC, 45 W, for flows up to 10.6 GPM, pressures up to 3050 PSI		
C1MS20	796332560	(3)	Electric push-pull control (E8) 3-position, 24 VDC, 31 W, for flows up to 8 GPM, pressures up to 2750 PSI		
•C1MU12	R23400060	(4)	Protected lever positioning kit (NL).		
C1MQ94	420192000	(4)	Lever shaft with knob and nut M8x160		
C1MT98	R23400033	(4)	Cross lever for 2 spools "L1-L2" fulcrum on up-stream spool		
C1MT99	R23400036	(4)	Cross lever for 2 spools "L2" double acting spool + float spool in		
C1MU11	R23400050	(4)	Seal Retainer Plate (SL)		
C1MT88	R23101031	(4)	Electric kit safety lever, 12 VDC direct acting, 3-position (01A-ESA-E7)		
C1MT89	R23101053	(4)	Electric kit with safety lever, 12 VDC direct acting, 3-position (02A-ESA-E7)		
C1MU22	R23400550	(5)	Anti-cavitation port valve (VR).		
C1MU93	R360T0600	(4)	Cable control actuator (TC)		
C1MU83	R25000611	(5)	Port relief (VA), adjustable 290 PSI to 1015 PSI		
C1MU84	R25000621	(5)	Port relief (VA), adjustable 1030 PSI to 1885 PSI		
C1MU85	R25000631	(5)	Port relief (VA), adjustable 1900 PSI to 2970 PSI		
C1MU86	R25000641	(5)	Port relief (VA), adjustable 2980 PSI to 4785 PSI		
C1MU87	R25001811	(5)	Port relief, anticavitation check (AR), adjustable 725 PSI to 1305 PSI		
C1MW34	R25001821	(5)	Port relief, anticavitation check (AR), adjustable 1320 PSI to 1885 PSI		
C1MU88	R25001831	(5)	Port relief, anticavitation check (AR), adjustable 1900 PSI to 2975 PSI		
C1MW35	R25001841	(5)	Port relief, anticavitation check (AR), adjustable 2985 PSI to 3990 PSI		
C1MU21	R23400500	(5)	Port valve plug (PRA-B).		
C1MU15	R23400210		Spool seal kit.		
C1MU14	R23400200		Work section side seal kit.		

Hydraulic Power & Control

Pneumatic Power & Control

Fluid Conveying

Miscellaneous Products

Indexes & Technical Information

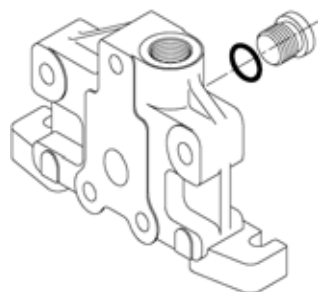


Hydraulic Valves & Accessories

Directional Valves, Sectional • Open & Closed Center
Salami VD6A • Flows to 12 GPM (Nominal) • Pressures to 5100 PSI



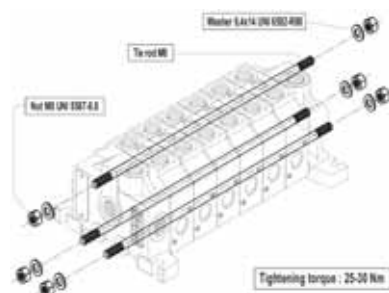
VD6A Outlet Section & Options



VD6A Outlet Section & Options

Catalog Part No.	Salami Model	Key	Description & (Salami Commercial Codes)	Wt.	Price Each
C1MU34	R23490030		Outlet section (U4S), T and TL outlet ports: 7/8-14 UNF-2B (SAE -10)		
C1MS13	795429200		Plug for carry over		

VD6A Assembly Kits



VD6A Assembly Kits

Catalog Part No.	Salami Model	Description & (Salami Commercial Codes)	Wt.	Price Each
C1MU23	R23400610	Kit for 1-section valve assembly		
C1NC38	R23400620	Kit for 2-section valve assembly		
C1MU24	R23400630	Kit for 3-section valve assembly		
C1MU25	R23400640	Kit for 4-section valve assembly		
C1MU26	R23400650	Kit for 5-section valve assembly		
C1MU27	R23400660	Kit for 6-section valve assembly		
C1MU28	R23400670	Kit for 7-section valve assembly		
C1MU29	R23400680	Kit for 8-section valve assembly		
C1MU30	R23400690	Kit for 9-section valve assembly		



Hydraulic Valves & Accessories

Directional Valves, Sectional • Open & Closed Center

Walvoil SD6 Series • Flows to 12 GPM (Nominal) • Pressures to 4600 PSI



Sectional Control Valves for Open & Closed Center Systems Walvoil SD6 Series



Features: Simple, compact and heavy duty designed sectional valve from 1 to 12 sections, for open and closed center hydraulic systems • Main pressure relief valve • Load check valve on every work section • Available with parallel, tandem or series circuit • Optional power beyond port • Available with manual, pneumatic, hydraulic, electro-hydraulic, solenoid or cable controls • Interchangeable spools.

Nominal Flow Rating: 12 GPM.

Maximum Operating Pressure: 4600 PSI (Parallel or Tandem circuit). 3050 PSI (Series circuit).

Maximum Back Pressure: 360 PSI on outlet port T.

Internal Leakage A(B) to T: 0.18 in³/min at 1450 PSI differential pressure.

Fluid Temperature Range: -4°F to 176°F with standard Buna-N seals.

Ambient Temperature Range: -40°F to 140°F.

Viscosity: 80 to 400 SSU Operating, 70 SSU Minimum, 1950 SSU Maximum.

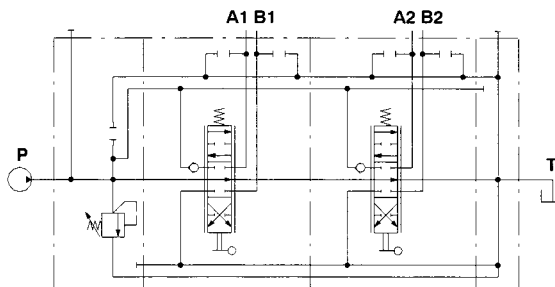
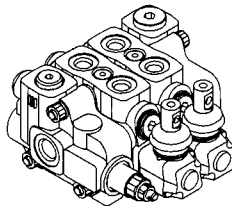
Maximum Level of Contamination: ISO 4406 19/16.

Note: Performance data measured with mineral oil of 215 SSU viscosity at 104°F.

Dimensions & Technical Information: page 685

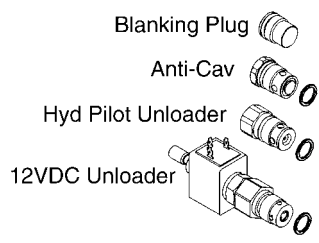
Valve Assembly Example

Inlet cover with relief
2 parallel work sections
Outlet cover



SD6 Inlet Covers & Options

(4) Inlet Valve Options



(2) Inlet Port Options

Plug (gauge port option also)

(3) Inlet Relief Options



(1) Inlet Cover

SD6 Inlet Covers & Options

Catalog Part No.	Walvoil Model	Key	Description & (Walvoil Type Code)	Wt.	Price Each
•C1HU98	612205001	(1)	Inlet cover (FE-SD6/AC(YG3)-SAE) with direct pressure relief (3) 1800-3600 PSI range and standard setting 2500 PSI, with blanking plug (4). SAE-8 top inlet port P and plugged SAE-8 end inlet.	3.61	

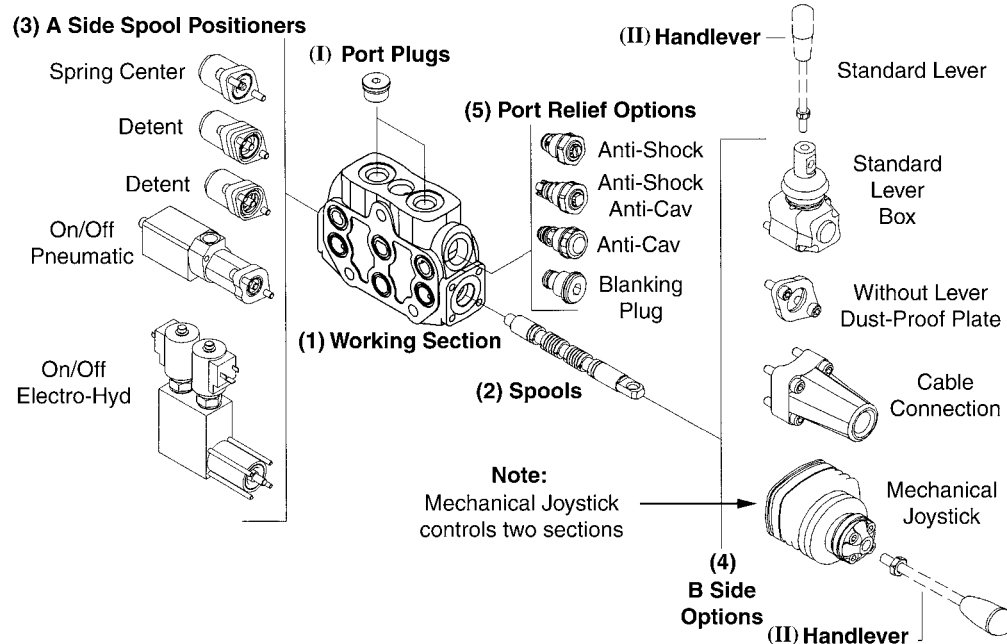


Hydraulic Valves & Accessories

Directional Valves, Sectional • Open & Closed Center
Walvoil SD6 Series • Flows to 12 GPM (Nominal) • Pressures to 4600 PSI



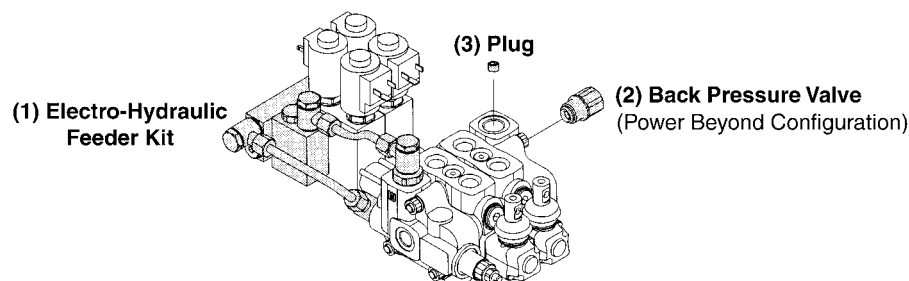
SD6 Working Sections & Options



SD6 Working Sections & Options

Catalog Part No.	Walvoil Model	Key	Description & (Walvoil Type Code)	Wt.	Price Each
•C1HU94	612105076	(1)	Working section (EL-SD6/P-18L-SAE), parallel circuit, 4-way 3-pos A & B closed in neutral, complete with spring centering positioner (3), standard lever box (4) and blanking plugs (5). SAE-6 work ports. Does NOT include M8 thread handlever.	4.99	
C1HU95	612105343	(1)	Working section (EL-SD6/P-28L-SAE), parallel circuit, 4way3-pos A & B open to tank in neutral, complete with spring centering positioner (3), standard lever box (4) and blanking plugs (5). SAE-6 work ports. Does NOT include M8 thread handlever.	5.00	
•C1AL39	170011012	(II)	Handlever (Type AL01/M8x120), for standard leverbox, M8 thread x 120mm long, with black knob	0.10	
•C1HN55	170012015	(II)	Handlever (Type AL01/M10x150), for optional leverbox, M10 thread x 150mm long, with black knob	0.23	
•C1HQ59	170013025	(II)	Handlever (Type AL01/M12x250), for mechanical joystick, M12 thread x 250mm long, with black knob	0.50	

SD6 Electro-Hydraulic Feeder Kits & Options





Hydraulic Valves & Accessories

Directional Valves, Sectional • Open & Closed Center

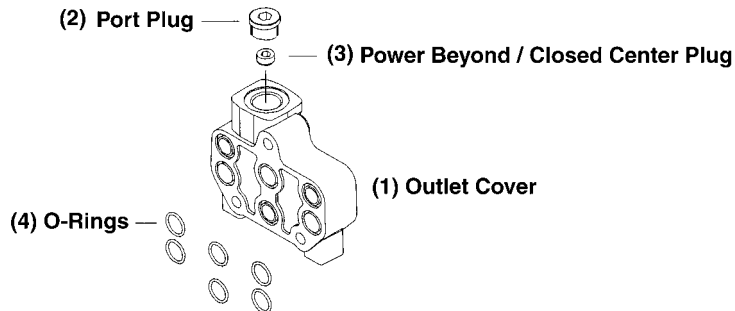
Walvoil SD6 Series • Flows to 12 GPM (Nominal) • Pressures to 4600 PSI



SD6 Electro-Hydraulic Feeder Kits & Options

Catalog Part No.	Walvoil Model	Key	Description & (Walvoil Type Code)	Wt.	Price Each
•C1HT30	4TAP413210	(3)	G 1/4 plug for power beyond / closed center option (Type RE)	0.01	

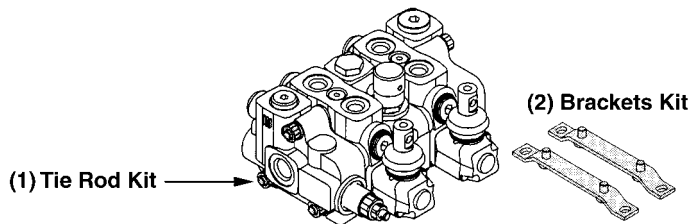
SD6 Outlet Cover & Options



SD6 Outlet Cover & Options

Catalog Part No.	Walvoil Model	Key	Description & (Walvoil Type Code)	Wt.	Price Each
•C1HV11	612305002	(1)	Outlet cover (FS-SD6/RD-SAE) , SAE-8 top outlet port T, plugged SAE-8 end outlet, machined for optional power beyond/closed center conversion	2.89	
•C1HT30	4TAP413210	(3)	G 1/4 plug for power beyond / closed center option	0.01	

SD6 Tie Rod & Mounting Bracket Kits



SD6 Tie Rod & Mounting Bracket Kits

Catalog Part No.	Walvoil Model	Key	Description & (Walvoil Type Code)	Wt.	Price Each
C1HU15	5TIR108117			0.37	
C1HU17	5TIR108155	(1)	Tie rod kit for a 2-section valve assembly	0.46	
C1HU20	5TIR108193	(1)	Tie rod kit for a 3-section valve assembly	0.57	
C1HU22	5TIR108231	(1)	Tie rod kit for a 4-section valve assembly	0.68	
•C1HT99	5STA120160	(2)	Brackets kit	0.52	

Hydraulic Valves & Accessories

Directional Valves, Sectional • Open & Closed Center
Salami VD8A • Flows to 20 GPM (Nominal) • Pressures to 5100 PSI



Sectional Control Valves for Open & Closed Center Systems Salami VD8A



Features: Cast-iron bodies • Up to 10 work modules • Parallel, Series, and Tandem circuits with Load Check valve protection on each section • Open and Closed center with Power Beyond options • Spools are hardened steel and chromium-plated • Interchangeable spools • Minimum tolerance between the spools and the body to obtain a minimum internal leakage • Spool selections: double acting, single acting, motor, cylinder, float, etc. • Auxiliary valves available for ports A and B • Several types of Mid-Inlet modules • Venting valve available • Available Controls: manual, cable, electric, electro-hydraulic, proportional hydraulic, pneumatic, proportional pneumatic, electro-pneumatic

Nominal Flow Rating: 20 GPM

Maximum Operating Pressure: 5100 PSI on ports "P", "A", and "B"

Maximum Back Pressure: 363 PSI on outlet port T

Internal Leakage A(B) to T: 1.52 - 2.13 in³/min. at 2285 PSI

Fluid Temperature Range: -4°F to 185°F with standard NBR seals

Ambient Temperature Range: 86°F to 140°F

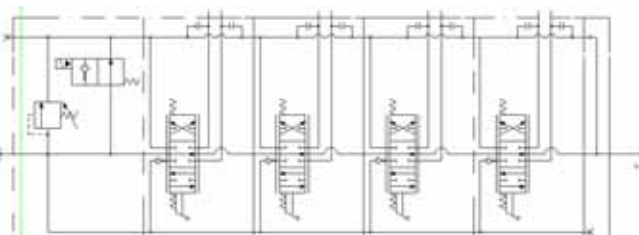
Viscosity: 12 cSt to 75 cSt Optimal; 10 cSt minimum, 400 cSt maximum

Maximum Level of Contamination: ISO 4406: 19/16

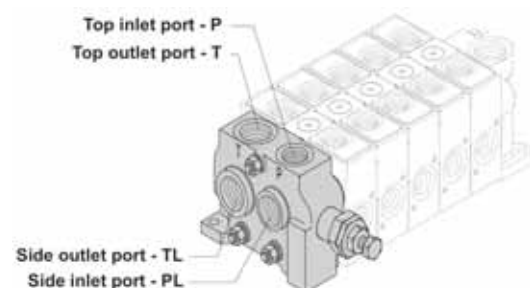
Note: All technical data carried out using mineral oil with viscosity of 16 cSt and contamination level 19/16 as ISO 4406

Dimensions & Technical Information: page 696

Valve Assembly Example
Inlet module with relief and solenoid unloading valve
4 parallel work modules
Outlet module



VD8A Inlet Module & Options



VD8A Inlet Module & Options

Catalog Part No.	Salami Model	Description	Wt.	Price Each
•C1MU38	R23570410	Inlet module (02D175), relief set at 2538 PSI, SAE -10 inlet port (no tank port)		
C1MU39	R23570790	Inlet module (08D175), relief set at 2538 PSI, -10 SAE inlet port, -12 SAE tank port		
C1MS22	796366200	Main Relief and port relief valve (VA), direct operated, adjustable 290 PSI to 1015 PSI		
C1MS23	796366300	Main Relief and port relief valve (VA), direct operated, adjustable 1030 PSI to 2175 PSI		
C1MS24	796366400	Main Relief and port relief valve (VA), direct operated, adjustable 2190 PSI to 3118 PSI		
C1MW43	796366500	Main Relief and port relief valve (VA), direct operated, adjustable 3132 PSI to 3842 PSI		
C1MU50	R23577520	Plug for main relief seat (PR)		

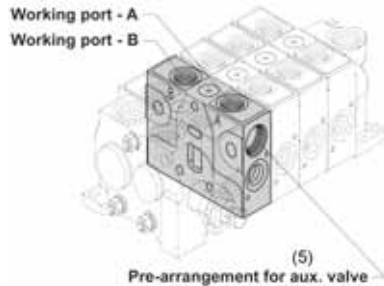


Hydraulic Valves & Accessories

Directional Valves, Sectional • Open & Closed Center
Salami VD8A • Flows to 20 GPM (Nominal) • Pressures to 5100 PSI



VD8A Working Sections and Options



VD8A Working Sections and Options

Catalog Part No.	Salami Model	Key	Description	Wt.	Price Each
C1MV27	S23582140	(1)	Dual working section (VD8A-2 X P01A-PRA.PR.B.NPA-C2/SAE). Two parallel circuit, 4-way, 3-position, A&B closed in neutral, complete with spring centering positioner, standard protected lever control, SAE -10 work ports. Does NOT include M8 thread lever.		
C1MV30	S23582720	(1)	Working section (/P01A-PRA.PR.B-LTA-E1B/S), parallel circuit, 4-way, 3-position, A&B closed in neutral, complete with spring centering positioner, emergency lever control on B side, 12VDC solenoid on A side, SAE -10 work ports.		
C1MV26	S23580290	(1)	Working section (/P01A-PRA.PR.B-NPA-C2), parallel circuit, 4-way, 3-position, A&B closed in neutral, complete with spring centering positioner, standard protected lever control, SAE -10 work ports. Does NOT include M8 thread lever.		
C1MV31	S23582810	(1)	Working section (/P02A-PRA.PR.B-LTA-E1B/S), parallel circuit, 4-way, 3-position, A&B to tank in neutral, complete with spring centering positioner, emergency lever control on B side, 12VDC solenoid on A side, SAE -10 work ports.		
C1MV32	S23582951	(1)	Working section (/P02A-PRA.PR.B-NPA-C2/S), parallel circuit, 4-way, 3-position, A&B to tank in neutral, complete with spring centering positioner, standard protected lever, SAE -10 work ports.		
C1MV29	S23582600	(1)	Working section (/P12A-PRA.PR.B-NPA-F5), parallel circuit, 4-way, 4-position, A&B closed in neutral, float in 4th position (spool out), standard protected lever control, SAE -10 work ports. Does NOT include M8 thread lever.		
C1MV28	S23582390	(1)	Working section (/S01A-PRA.PR.B-SLA-C2), series circuit, 4-way, 3-position, A&B closed in neutral, complete with spring centering positioner without lever box, SAE -10 work ports. Does NOT include M8 thread lever.		
C1MV33	S23583570	(1)	Working section (/T01A-PRA.PR.B-NPA-C2), tandem circuit, 4-way, 3-position, A&B closed in neutral, complete with spring centering positioner, standard protected lever control, SAE -10 work ports. Does NOT include M8 thread lever.		
C1MS25	796366700	(5)	Port relief and anti-cavitation valve (AR), adjustable 0 PSI to 6090 PSI		
C1MU50	R23577520	(5)	Plug for Port Relief Seat (PR) for sections pre-arranged for auxiliary valves.		
C1MS22	796366200	(5)	Main Relief and port relief valve (VA), direct operated, adjustable 290 PSI to 1015 PSI		
C1MS23	796366300	(5)	Main Relief and port relief valve (VA), direct operated, adjustable 1030 PSI to 2175 PSI		
C1MS24	796366400	(5)	Main Relief and port relief valve (VA), direct operated, adjustable 2190 PSI to 3118 PSI		
C1MW43	796366500	(5)	Main Relief and port relief valve (VA), direct operated, adjustable 3132 PSI to 3842 PSI		
C1MU49	R23577511	(5)	Anticavitation valve (VR) for sections pre-arranged for auxiliary valves.		
C1MU41	R23573048	A	Electric kit push-pull 12 VDC with safety lever override (VD8 01A ESA), includes spool.		
C1MU42	R23573049	A	Electric kit push-pull 12 VDC with safety lever override (VD8 02A ESA), includes spool.		
C1MU43	R23575322	A	Hydraulic Proportional Control Kit, mounts on "A" and "B" side of work section.		
C1MU63	R23587570	A	Cross Lever for 2 Spools (L1) fulcrum on up-stream spool		
C1MU64	R23587580	A	Cross Lever for 2 Spools (L2) fulcrum on up-stream spool		



This page is part of a complete catalog which contains technical and safety data that must be reviewed when selecting a product

Hydraulic Valves & Accessories

Directional Valves, Sectional • Open & Closed Center
Salami VD8A • Flows to 20 GPM (Nominal) • Pressures to 5100 PSI

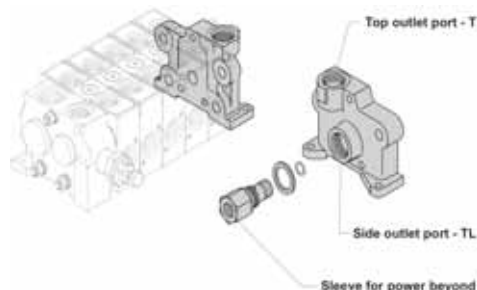


VD8A Working Sections and Options

Catalog Part No.	Salami Model	Key	Description	Wt.	Price Each
C1MT44	R20287910	A	Standard Protected Lever (NP), lever handle NOT included.		
•C1MQ95	420290180	A	Lever Handle with knob, M8x180		
C1MU44	R23575370	A	Pneumatic proportional kit (PP)		
C1MU65	R23587640	A	Spool seal retainer (SL)		
C1MU90	R360T0200	A	Cable control attachment kit (TC)		
C1MU48	R23576400	B	Detent Position Kit (C0), detent on each intermediate position.		
C1MU46	R23576140	B	Spool Positioning for Micro Switch (CE) for spool 01		
C1MT45	R20288881	B	Spool positioning with microswitch, conversion from (CE) to (CM), IP65.		
C1MT43	R20276730	B	Spool positioning with microswitch, conversion from (CE) to (CW), IP67 waterproof.		
C1MU35	R23500300	B	Detent Positioning Kit (R2), Detent on position 1 & 2 with spring return in neutral.		
C1MU36	R23500400	B	Detent Positioning Kit (R4), Detent on position 1 with spring return in neutral.		
C1MU37	R23500500	B	Detent Positioning Kit (R5), Detent on position 2 with spring return in neutral.		
•C1MU45	R23575490	B	Detent Positioning Kit (R9), Detent on positions 1, 2, and neutral.		
•C1MQ75	323511302	Spool	Double Acting Motor Spool (02), A & B to tank in neutral.		
•C1MQ76	323511305	Spool	Single Acting Spool, "A" Working Port (05)	24.00	
C1MQ77	323511306	Spool	Single Acting Spool, "B" Working Port (06)	0.50	
C1MQ78	323511311	Spool	Double Acting Spool with Float function in 4th position (spool in) (11)		
C1MU47	R23576301	Spool	Double Acting Spool kit with Float function in 4th position (spool out) (12A-NP-F5), includes standard protected lever and spring centered from offset positions, detent in float position		
C1MQ79	323511390	Spool	Double Acting Spool for Hydraulic Proportional Control (01)	1.50	
C1MQ80	323511391	Spool	Double Acting Motor Spool for Hydraulic Proportional Control (02)		

Note: Handle is not included with lever controls.

VD8A Outlet Section and Options



VD8A Outlet Section and Options

Catalog Part No.	Salami Model	Description	Wt.	Price Each
•C1MU52	R23580030	Outlet section (U4S), -12 SAE side and top outlet ports, side port plugged.		
C1MU51	R23580020	Power Beyond Sleeve Kit (Pressure Carry Over)		

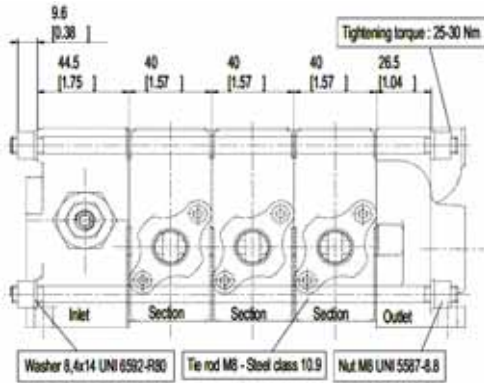


Hydraulic Valves & Accessories

Directional Valves, Sectional • Open & Closed Center
Salami VD8A • Flows to 20 GPM (Nominal) • Pressures to 5100 PSI



VD8A Assembly Kits



VD8A Assembly Kits

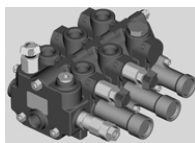
Catalog Part No.	Salami Model	Description	Wt.	Price Each
•C1MU53	R23585010	Assembling Kit for 1-section assembly		
•C1MU54	R23585020	Assembling Kit for 2-section assembly		
C1MU55	R23585030	Assembling Kit for 3-section assembly		
C1MU56	R23585040	Assembling Kit for 4-section assembly		
C1MU57	R23585050	Assembling Kit for 5-section assembly		
C1MU58	R23585060	Assembling Kit for 6-section assembly		
C1MU59	R23585070	Assembling Kit for 7-section assembly		
C1MU60	R23585080	Assembling Kit for 8-section assembly		
C1MU61	R23585090	Assembling Kit for 9-section assembly		
C1MU62	R23585100	Assembling Kit for 10-section assembly		
C1MU40	R23572500	Side Seal Kit		
C1MT42	R20272590	Spool Seal Kit		

Hydraulic Valves & Accessories

Directional Valves, Sectional • Open & Closed Center
Husco Model 5000 • Flows to 20 GPM (Nominal) • Pressures to 3000 PSI

HUSCO
INTERNATIONAL

Sectional Control Valves for Open & Closed Center Systems Husco Model 5000



Features: 3000 psi operating pressure rating • Open-center or closed-center operation • Hard chrome plated spools • Load check in each section • Single "low pressure" O-ring sealing between sections • Precision spool with metering notches.

Options: High pressure carryover (Power Beyond) • Lock-out spool section (Built-in pilot operated check valve section) • Mid-inlet flow combiner or separator • Left-hand spool sections •

Parallel, Conventional and Series circuitry • End mechanisms: Spring centered, Detent, 4th position float, Hydraulic remote, Pneumatic remote, Automatic kick-out • Auxiliary valves: Pilot-operated, anti-cavitation check combination relief cartridges, Anti-cavitation cartridges • Regenerative spools • Specialized spools.

Maximum Operating Pressure: 3000 PSI.

Maximum Outlet Port/Tank Core Pressure: 500 PSI.

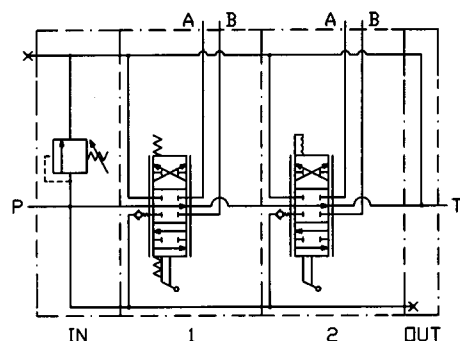
Seals: Buna-N standard, Viton® optional.

Parallel Circuits: In a Parallel Circuit valve assembly, two or more spools may be actuated at the same time and the oil will follow the path of least resistance. If the loads are different and the spools are fully shifted, the lightest load will operate first. If the spools are not fully shifted and the oil is metered, it is possible to direct partial flow to both loads.

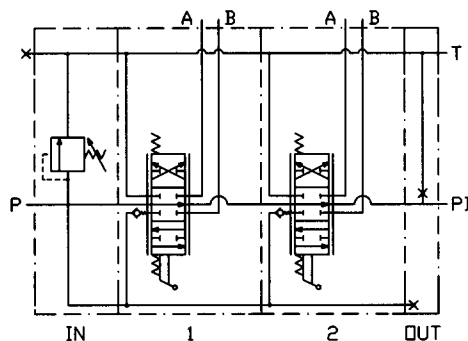
Power Beyond & Closed Center Options: Valve assemblies can be made Power Beyond or Closed Center by selecting and configuring the appropriate Outlet Cover.

Dimensions & Technical Information: page 670

HYDRAULIC SCHEMATIC EXAMPLES



IN INLET COVER WITH MAIN RELIEF OPTION
1 4-WAY 3-POSITION SPRING CENTERED WITH HANDLE KIT
2 4-WAY 3-POSITION WITH DETENT KIT & HANDLE KIT
OUT OUTLET COVER



IN INLET COVER WITH MAIN RELIEF OPTION
1 4-WAY 3-POSITION SPRING CENTERED WITH HANDLE KIT
2 4-WAY 3-POSITION SPRING CENTERED WITH HANDLE KIT
OUT OUTLET COVER WITH SHUT-OFF PLUG INSTALLED

Valve Components are on next page

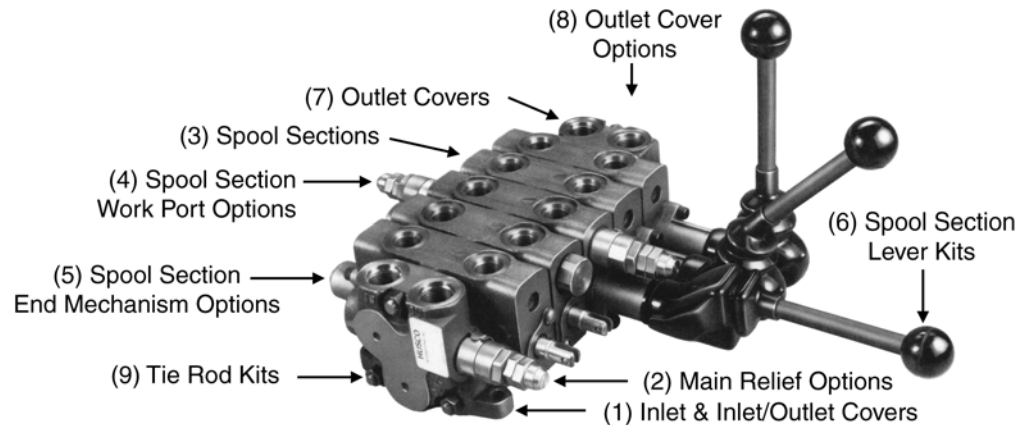


Hydraulic Valves & Accessories

Directional Valves, Sectional • Open & Closed Center
Husco Model 5000 • Flows to 20 GPM (Nominal) • Pressures to 3000 PSI

HUSCO
INTERNATIONAL

Husco Model 5000 Sectional Valve Components



Husco Model 5000 Sectional Valve Components

Catalog Part No.	Husco Model	Key	Description	Wt.	Price Each
C1JP46	N5002-A1	(3)	Spool Section (Std Parallel Circuit), Cylinder Spool, 4-way 3-position spring-centered, SAE-8 Work Ports, without Auxiliary Valve Ports. Requires 1ea Item (6)	5.10	
C1JP56	N52250-1	(6)	Lever Kit, Fixed Position, Vertical	0.83	

(1) **Inlet & Inlet/Outlet Cover:** One is required.

(2) **Main Relief Option:** One is required if Inlet/Outlet Cover is used.

(3) **Spool Section:** One or more is required.

(4) **Work Port Option:** Two are required for each Spool Section that has Auxiliary Valve Porting.

(5) **End Mechanism Option:** Optional.

(6) **Lever Kit:** One is required for each manually operated spool section.

(7) **Outlet Cover:** One is required.

(8) **Outlet Cover Option:** A Shut-Off Plug is required for power beyond or closed center capability when Universal Outlet Cover is used.

(9) **Tie Rod Kit:** One is required. The Inlet & Outlet covers are NOT included in counting the number of sections for a tie rod kit. Final torque the two 1/2" nuts to 14 ft-lb; Final torque the 9/16" nut to 33 ft-lb.

Hydraulic Valves & Accessories

Directional Valves, Sectional • Open & Closed Center
Walvoil SD8 Series • Flows to 21 GPM (Nominal) • Pressures to 4600 PSI



Sectional Control Valves for Open & Closed Center Systems Walvoil SD8 Series



Features: Simple, compact and heavy duty designed sectional valve from 1 to 12 sections, for open and closed center hydraulic systems • Main pressure relief valve • Load check valve on every work section • Available with parallel, tandem or series circuit • Optional power beyond port • Available with manual, pneumatic, hydraulic, electro-hydraulic, solenoid or cable controls • Interchangeable spools.

Nominal Flow Rating: 21 GPM.

Maximum Operating Pressure: 4600 PSI.

Maximum Back Pressure: 360 PSI on outlet port T.

Internal Leakage A(B) to T: 0.18 in³/min at 1450 PSI differential pressure.

Fluid Temperature Range: -4°F to 176°F with standard Buna-N seals.

Ambient Temperature Range: -40°F to 140°F.

Viscosity: 80 to 400 SSU Operating, 70 SSU Minimum, 1950 SSU Maximum.

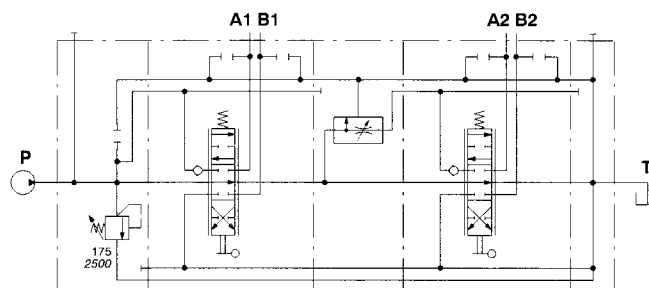
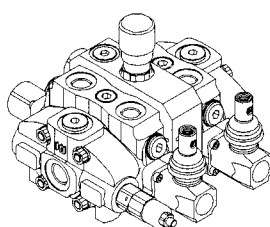
Maximum Level of Contamination: ISO 4406 19/16.

Note: Performance data measured with mineral oil of 215 SSU viscosity at 104°F.

Dimensions & Technical Information: page 686

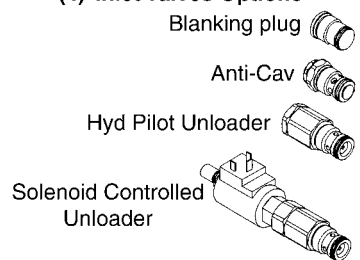
Valve Assembly Example

- Inlet cover with relief
- Parallel work section
- Intermediate flow control section
- Parallel work section
- Outlet cover



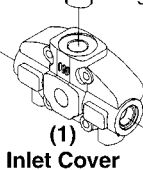
SD8 Inlet Covers & Options

(4) Inlet Valves Options

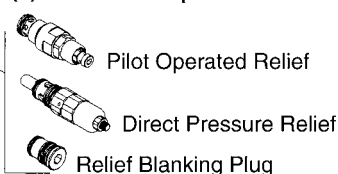


(2) Inlet Port Options

Plug (gauge port option also)



(3) Inlet Relief Options



SD8 Inlet Covers & Options

Catalog Part No.	Walvoil Model	Key	Description & (Walvoil Type Code)	Wt.	Price Each
•C1HV16	613205001	(1)	Inlet cover (FE-SD8/AC(YG3)-SAE) with direct pressure relief (3) 900-2900 PSI range and standard setting 1750 PSI, with blanking plug (4). SAE-10 end inlet port P and plugged SAE-10 top inlet.	4.93	
•C1HT16	3XCAR110213	(3)	Direct pressure relief (Type YG3-175), 1800-3600 PSI range, standard setting 2500 PSI.	0.63	

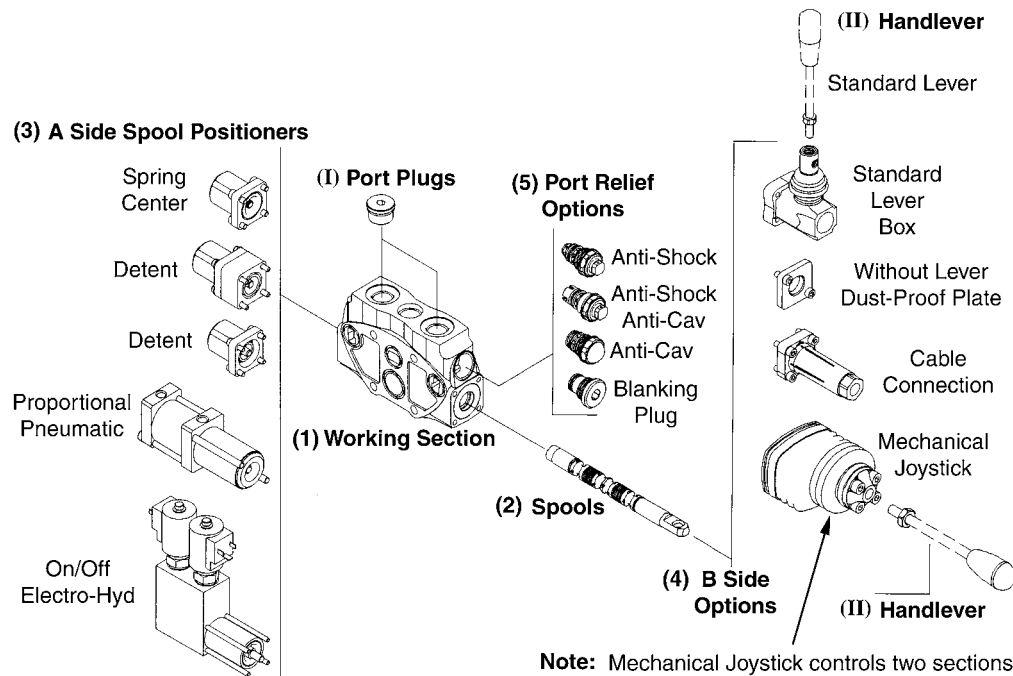


Hydraulic Valves & Accessories

Directional Valves, Sectional • Open & Closed Center
Walvoil SD8 Series • Flows to 21 GPM (Nominal) • Pressures to 4600 PSI



SD8 Working Sections & Options



SD8 Working Sections & Options

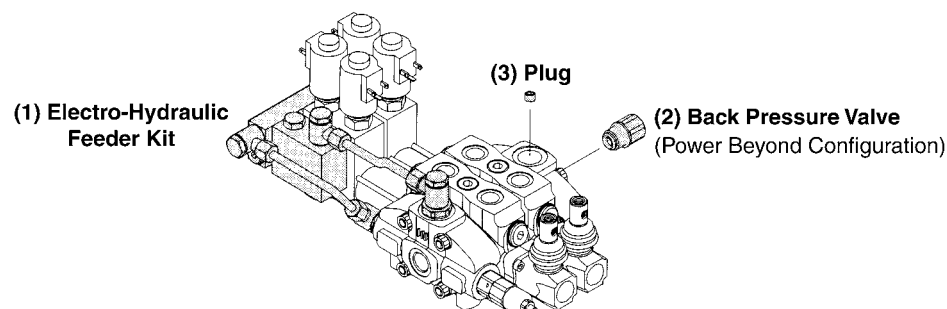
Catalog Part No.	Walvoil Model	Key	Description & (Walvoil Type Code)	Wt.	Price Each
•C1HV13	613105001	(1)	Working section (EL-SD8/P-18L-SAE), parallel circuit, 4way 3pos A&B closed in neutral, complete with spring centering positioner (3), standard lever box (4) and blanking plugs (5). SAE-8 work ports. Does NOT include M10 thread handlever.	7.01	
•C1HV14	613105301	(1)	Working section (EL-SD8/P-28L-SAE), parallel circuit, 4way 3-pos A & B open to tank in neutral, complete with spring centering positioner (3), standard lever box (4) and blanking plugs (5). SAE-8 work ports. Does NOT include M10 thread handlever.	6.97	
•C1HU84	5V11108000	(3)	"A" side spool positioner (Type 11), with detent in positions 1, neutral and 2	0.50	
•C1HQ47	170012020	(II)	Handlever (Type AL01/M10x200), for standard leverbox, M10 thread x 200mm long, with black knob	0.28	
•C1HQ59	170013025	(II)	Handlever (Type AL01/M12x250), for mechanical joystick, M12 thread x 250mm long, with black knob	0.50	

Hydraulic Valves & Accessories

Directional Valves, Sectional • Open & Closed Center
Walvoil SD8 Series • Flows to 21 GPM (Nominal) • Pressures to 4600 PSI



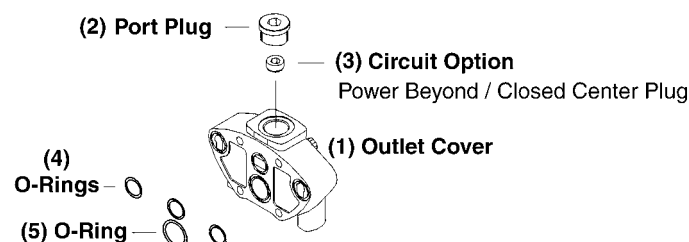
SD8 Electro-Hydraulic Feeder Kits & Options



SD8 Electro-Hydraulic Feeder Kits & Options

Catalog Part No.	Walvoil Model	Key	Description & (Walvoil Type Code)	Wt.	Price Each
•C1HT29	4TAP318010	(3)	M18 x 1.5 plug for power beyond / closed center option	0.03	

SD8 Outlet Cover & Options



SD8 Outlet Cover & Options

Catalog Part No.	Walvoil Model	Key	Description & (Walvoil Type Code)	Wt.	Price Each
•C1HV17	613305001	(1)	Outlet cover (FS-SD8/RC-SAE), SAE-10 end outlet port T, plugged SAE-10 top outlet, machined for optional power beyond/closed center conversion	3.85	
•C1HT29	4TAP318010	(3)	M18 x 1.5 plug for power beyond / closed center option	0.03	

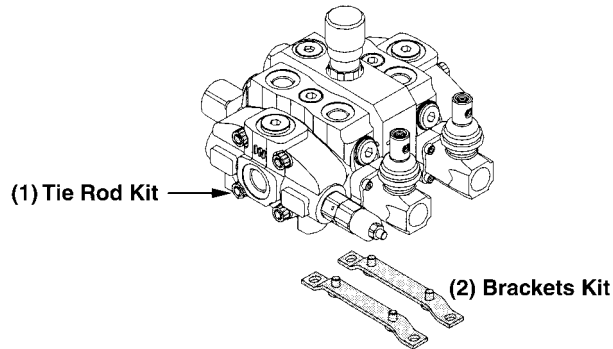


Hydraulic Valves & Accessories

Directional Valves, Sectional • Open & Closed Center
Walvoil SD8 Series • Flows to 21 GPM (Nominal) • Pressures to 4600 PSI



SD8 Tie Rod & Mounting Bracket Kits



SD8 Tie Rod & Mounting Bracket Kits

Catalog Part No.	Walvoil Model	Key	Description & (Walvoil Type Code)	Wt.	Price Each
•C1HU16	5TIR108128	(1)	Tie rod kit for a 1-section valve assembly	0.53	
•C1HU18	5TIR108169	(1)	Tie rod kit for a 2-section valve assembly	0.66	
•C1HU21	5TIR108210	(1)	Tie rod kit for a 3-section valve assembly	0.82	
•C1HU24	5TIR108251	(1)	Tie rod kit for a 4-section valve assembly	0.96	
•C1HU27	5TIR108292	(1)	Tie rod kit for a 5-section valve assembly	1.12	
•C1HU11	5STA125190	(2)	Brackets kit	0.76	

Hydraulic Valves & Accessories

Directional Valves, Sectional • Open & Closed Center

Walvoil SDS150 Series • Flows to 24 GPM (Nominal) • Pressures to 4600 PSI



Sectional Control Valves for Open & Closed Center Systems Walvoil SDS150 Series



Features: Simple, compact and heavy duty designed sectional valve from 1 to 12 sections, for open and closed center hydraulic systems • Main pressure relief valve • Load check valve on every work section • Available with parallel, tandem or series circuit • Optional power beyond port • Available with manual, pneumatic, hydraulic, electro-hydraulic or cable controls • Interchangeable spools.

Nominal Flow Rating: 24 GPM.

Maximum Operating Pressure: 4600 PSI (Parallel or Tandem circuit). 3050 PSI (Series circuit).

Maximum Back Pressure: 360 PSI on outlet port T.

Internal Leakage A(B) to T: 0.18 in³/min at 1450 PSI differential pressure.

Fluid Temperature Range: -4°F to 176°F with standard Buna-N seals.

Ambient Temperature Range: -40°F to 140°F.

Viscosity: 80 to 400 SSU Operating, 70 SSU Minimum, 1950 SSU Maximum.

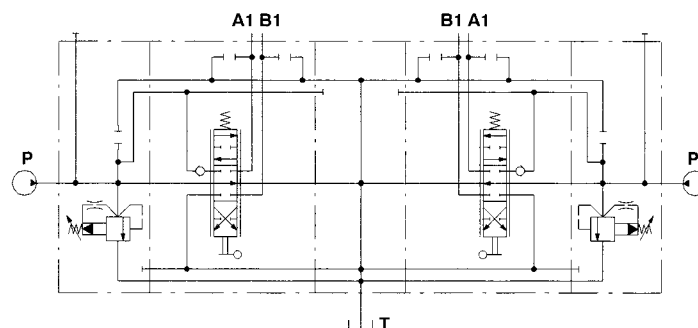
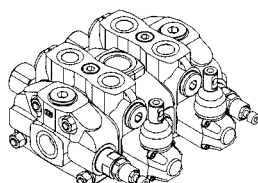
Maximum Level of Contamination: ISO 4406 19/16.

Note: Performance data measured with mineral oil of 215 SSU viscosity at 104°F.

Dimensions & Technical Information: page 690

Valve Assembly Example

Inlet cover with relief
Parallel work section
Mid return manifold section
Parallel work section
Inlet cover with relief



SDS150 Inlet Covers & Options

(4) Inlet Valve Option

Blanking Plug

Anti-Cav

Hyd Pilot Unloader

Solenoid Controlled Unloader

(2) Inlet Port Option

Plug (gauge port option also)

(3) Inlet Relief Options

Pilot Operated Relief

Direct Pressure Relief

Relief Blanking Plug

(1) Inlet Cover

SDS150 Inlet Covers & Options

Catalog Part No.	Walvoil Model	Key	Description & (Walvoil Type Code)	Wt.	Price Each
C1HV21	614266002	(1)	Inlet cover (FE-SDS150/AC(YG3)-SAE) with direct pressure relief (3): 1800-2900 PSI range and standard setting 1750 PSI, with blanking plug (4). SAE-12 end inlet port P and plugged SAE-12 top inlet.	7.27	
•C1HT16	3XCAR110213	(3)	Direct pressure relief (Type YG3-175), 1800-3600 PSI range, standard setting 2500 PSI.	0.63	



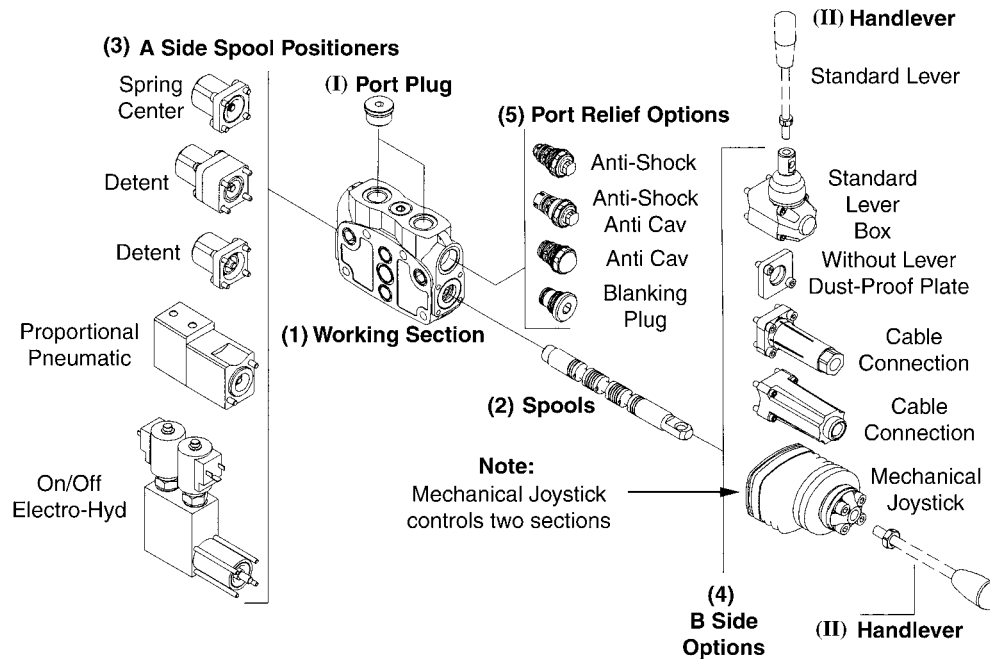
Hydraulic Valves & Accessories

Directional Valves, Sectional • Open & Closed Center

Walvoil SDS150 Series • Flows to 24 GPM (Nominal) • Pressures to 4600 PSI



SDS150 Working Sections & Options



SDS150 Working Sections & Options

Catalog Part No.	Walvoil Model	Key	Description & (Walvoil Type Code)	Wt.	Price Each
C1HV19	614166001	(1)	Working section (EL-SDS150/P-18L-SAE), parallel circuit, 4way 3-pos A&B closed in neutral, complete with spring centering positioner (3), standard lever box (4) and blanking plugs (5). SAE-10 work ports. Does NOT include M10 thread handlever.	10.05	
C1HV20	614166302	(1)	Working section (EL-SDS150/P-28L-SAE), parallel circuit, 4way 3-pos A&B open to tank in neutral, complete with spring centering positioner (3), standard lever box (4) and blanking plugs (5). SAE-10 work ports. Does NOT include M10 thread handlever.	10.02	
•C1HU85	5V11110000	(3)	"A" side spool positioner (11) 3-position detent kit	0.56	
•C1JC50	5V08110701	(3)	"A" side spool positioner (Type 8P), On/Off pneumatic, NPT	1.41	
•C1HQ47	170012020	(II)	Handlever (Type AL01/M10x200), for standard leverbox, M10 thread x 200mm long, with black knob	0.28	
•C1HQ59	170013025	(II)	Handlever (Type AL01/M12x250), for mechanical joystick, M12 thread x 250mm long, with black knob	0.50	

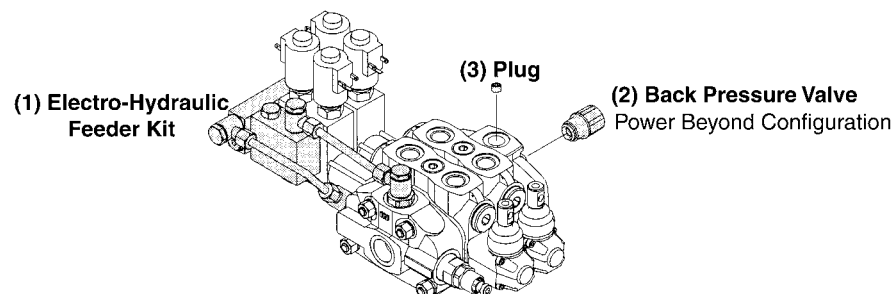
Hydraulic Valves & Accessories

Directional Valves, Sectional • Open & Closed Center

Walvoil SDS150 Series • Flows to 24 GPM (Nominal) • Pressures to 4600 PSI



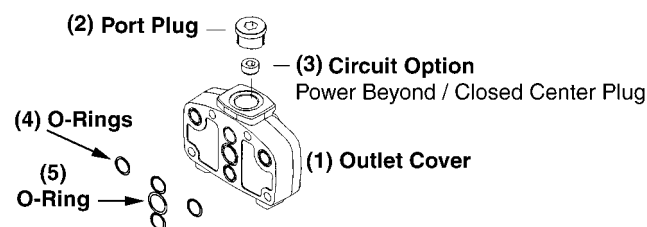
SDS150 Electro-Hydraulic Feeder Kits & Options



SDS150 Electro-Hydraulic Feeder Kits & Options

Catalog Part No.	Walvoil Model	Key	Description & (Walvoil Type Code)	Wt.	Price Each
C1HT29	4TAP318010	(3)	M18 x 1.5 plug for power beyond / closed center option	0.03	

SDS150 Outlet Cover & Options



SDS150 Outlet Cover & Options

Catalog Part No.	Walvoil Model	Key	Description & (Walvoil Type Code)	Wt.	Price Each
C1HV22	614366002	(1)	Outlet cover (Type FS-SDS150/RC-SAE), SAE-12 end outlet port T, plugged SAE-12 top outlet, machined for optional power beyond/closed center conversion	4.12	
C1HT29	4TAP318010	(3)	M18 x 1.5 plug for power beyond / closed center option	0.03	



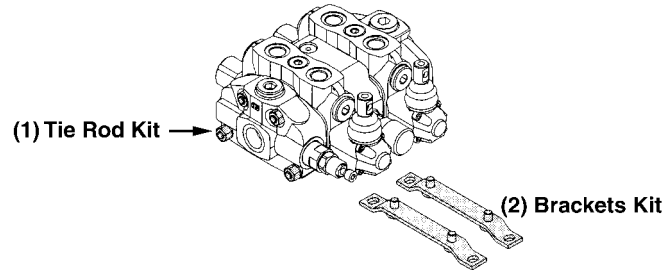
Hydraulic Valves & Accessories

Directional Valves, Sectional • Open & Closed Center

Walvoil SDS150 Series • Flows to 24 GPM (Nominal) • Pressures to 4600 PSI



SDS150 Tie Rod & Mounting Bracket Kits



SDS150 Tie Rod & Mounting Bracket Kits

Catalog Part No.	Walvoil Model	Key	Description & (Walvoil Type Code)	Wt.	Price Each
C1HU38	5TIR110149	(1)	Tie rod kit for a 1-section valve assembly	0.23	
C1HU41	5TIR110194	(1)	Tie rod kit for a 2-section valve assembly	1.34	
C1HU44	5TIR110239	(1)	Tie rod kit for a 3-section valve assembly	1.57	
C1HU54	5TIR110374	(1)	Tie rod kit for a 6-section valve assembly	2.33	
•C1HU11	5STA125190	(2)	Brackets kit	0.76	

Hydraulic Valves & Accessories

Directional Valves, Sectional • Open & Closed Center
Salami VDP08 • Flows to 25 GPM (Nominal) • Pressures to 4560 PSI



Sectional Control Valves for Open & Closed Center Systems Salami VDP08



Features: Load sensing directional control valve VDP08 offers a load-independent flow control (flow in each section depends only on the spool position and not on the load acting on any function), good metering curves and chance of energy saving. The spool acts as a variable throttling on which the pressure drop is maintained constant, so that each spool position arouses a determinate flow rate. There is a closed center version for variable displacement pumps and open center version for fixed displacement pumps. The valve, through the LS signal, sets the pump displacement required by the actuator plus a little leakage compensation flow, the pump always works almost at minimum power possible,

with clear advantages in terms of energy saving. When several spools are actuated, only the highest of the corresponding LS signals reaches the pump; in the remaining sections the compensators keep the pressure drop on the spool constant, maintaining the flow rate equal to that required by the actuator and independent of the pump pressure. When all the spools are in neutral position (pump stand-by), the pump requires a very little flow (leakage compensation) at the stand-by pressure (14 bar - 200 psi). Open center version for fixed displacement pumps, the flow regulator in the inlet module, controlled by the LS signal, drains to tank all the flow exceeding the value required by the actuators, generating in the valve the same working conditions as of a variable displacement pump. The advantages due to flow regulation hold, whereas energy saving is reduced. Salami directional control valves are modular construction and

consist of an inlet/outlet section, up to 8 working sections and an end plate. All these elements are secured in one block by

means of tie-rods. Salami directional control valves have the following features: Special cast-iron body; Spool construction in steel, hardened and chromium-plated to obtain a higher surface hardness, a better corrosion resistance,

and wearing reduction; Minimum tolerance between spools and body to obtain a minimum internal leakage; Interchangeability of all spools; Possibility of auxiliary valves on port A and B; Several spool controls.

Nominal Flow Rating: 25 GPM

Maximum Operating Pressure: 4560 PSI on ports "P"; 5000 PSI on ports "A", and "B"

Maximum Back Pressure: 145 PSI on outlet port "T"

Internal Leakage A(B) to T: 1.8 - 2.1 in³/min. at 2285 PSI

Fluid Temperature Range: -4°F to 185°F with standard NBR seals

Ambient Temperature Range: 86°F to 140°F

Viscosity: 12 cSt to 75 cSt Optimal; 10 cSt minimum, 460 cSt maximum

Maximum Level of Contamination: ISO 4406: 19/16

Note: All technical data carried out using mineral oil with viscosity of 16 cSt and contamination level 19/16 as ISO 4406

Dimensions & Technical Information: page 699

VDP08 Inlet Modules & Options





Hydraulic Valves & Accessories

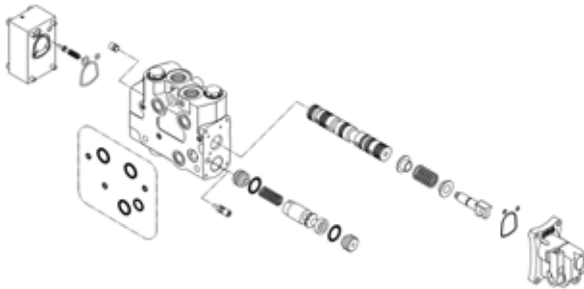
Directional Valves, Sectional • Open & Closed Center
Salami VDP08 • Flows to 25 GPM (Nominal) • Pressures to 4560 PSI



VDP08 Inlet Modules & Options

Catalog Part No.	Salami Model	Description & (Salami Commercial Codes)	Wt.	Price Each
C1MW57	R24178020	Inlet module open center (VDP08F*) configured for fixed displacement pump		
C1MW56	R24178040	Inlet module closed center (VDP08V*) configured for variable displacement pump		
C1MU69	R24170130	Inlet module kit (F) parts to convert for fixed displacement pump		
C1MU68	R24170120	Inlet module kit (V) parts to convert for variable displacement pump		

VDP08 Working Modules and Options



VDP08 Working Modules and Options

Catalog Part No.	Salami Model	Description & (Salami Commercial Codes)	Wt.	Price Each
C1MW55	S24180070	Work module, 2.2 GPM pressure compensated, manual control (NL), double acting cylinder spool, work port valves plugged (PRA.PRB), SAE -10 ports.		
C1MW53	S24180083	Work module, 4.2 GPM pressure compensated, hydraulic proportional control (IP) + manual control (NL), double acting cylinder spool, work port valves plugged (PRA.PRB), SAE -10 ports.		
C1MW54	S24180080	Work module, 4.2 GPM pressure compensated, manual control (NL), double acting cylinder spool, work port valves plugged (PRA.PRB), SAE -10 ports.		
C1MW45	S24180770	Work module, 4.2 GPM pressure compensated, manual control (NL), double acting cylinder spool, work port valves plugged (PRA.PRB), load sense valve ports plugged (PRLSA.PRLSB), SAE -10 ports.		
C1MW52	S24180090	Work module, 6.6 GPM pressure compensated, manual control (NL), double acting cylinder spool, work port valves plugged (PRA.PRB), SAE -10 ports.		
C1MW50	S24180103	Work module, 11.8 GPM pressure compensated, hydraulic proportional control (IP) + manual control (NL), double acting cylinder spool, work port valves plugged (PRA.PRB), SAE -10 ports.		
C1MW51	S24180100	Work module, 11.8 GPM pressure compensated, manual control (NL), double acting cylinder spool, work port valves plugged (PRA.PRB), SAE -10 ports.		
C1MW49	S24180110	Work module, 16.6 GPM pressure compensated, manual control (NL), double acting cylinder spool, work port valves plugged (PRA.PRB), SAE -10 ports.		
C1MW47	S24180645	Work module, 25 GPM pressure compensated, electro-proportional control 12VDC + manual control (NL), double acting cylinder spool, work port valves plugged (PRA.PRB), load sense valve ports plugged (PRLSA.PRLSB), SAE -10 ports.		
C1MW48	S24180120	Work module, 25 GPM pressure compensated, manual control (NL), double acting cylinder spool, work port valves plugged (PRA.PRB), SAE -10 ports.		
C1MW46	S24180681	Work module, 25 GPM pressure compensated, pneumatic proportional control (PP) + manual control (NL), double acting cylinder spool, work port valves plugged (PRA.PRB), SAE -10 ports.		
C1MR84	794129301	Port relief valve, non-adjustable, 362 PSI		
C1MR85	794129302	Port relief valve, non-adjustable, 464 PSI		
C1MR86	794129303	Port relief valve, non-adjustable, 580 PSI		
C1MR87	794129304	Port relief valve, non-adjustable, 725 PSI		
C1MR88	794129305	Port relief valve, non-adjustable, 910 PSI		
C1MR89	794129306	Port relief valve, non-adjustable, 1160 PSI		



This page is part of a complete catalog which contains technical and safety data that must be reviewed when selecting a product

Hydraulic Valves & Accessories

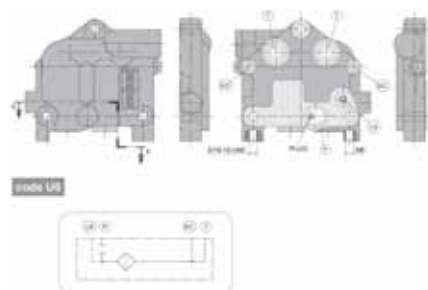
Directional Valves, Sectional • Open & Closed Center
Salami VDP08 • Flows to 25 GPM (Nominal) • Pressures to 4560 PSI



VDP08 Working Modules and Options

Catalog Part No.	Salami Model	Description & (Salami Commercial Codes)	Wt.	Price Each
C1MR90	794129307	Port relief valve, non-adjustable, 1450 PSI		
C1MR91	794129308	Port relief valve, non-adjustable, 1810 PSI		
C1MR92	794129309	Port relief valve, non-adjustable, 2000 PSI		
C1MR93	794129310	Port relief valve, non-adjustable, 2300 PSI		
C1MR94	794129311	Port relief valve, non-adjustable, 2530 PSI		
C1MR95	794129312	Port relief valve, non-adjustable, 2715 PSI		
C1MR96	794129313	Port relief valve, non-adjustable, 3000 PSI		
C1MR97	794129314	Port relief valve, non-adjustable, 3300 PSI		
C1MR98	794129315	Port relief valve, non-adjustable, 3600 PSI		
C1MR99	794129316	Port relief valve, non-adjustable, 4000 PSI		
C1MS11	794129317	Port relief valve, non-adjustable, 4569 PSI		
C1MS12	794129318	Port relief valve, non-adjustable, 5076 PSI		
C1MU67	R24170061	Port load sense relief valve (LSVS) adjustable 435 PSI to 1595 PSI		
C1MU66	R24170060	Port load sense relief valve (LSVS) adjustable 1595 PSI to 5510 PSI		
C1MU71	R24172751	LS port plug for ports A and B		
C1MU73	R24172780	LS port plug for single acting port A		
C1MU72	R24172770	LS port plug for single acting port B		
C1MU70	R24172580	Section side seal kit		

VDP08 End Plates & Options



VDP08 End Plates & Options

Catalog Part No.	Salami Model	Description & (Salami Commercial Codes)	Wt.	Price Each
C1MU81	R24190010	End Plate (U0) for work modules with manual control		
C1MU82	R24190020	End Plate (U1) for work modules with electro-proportional control		

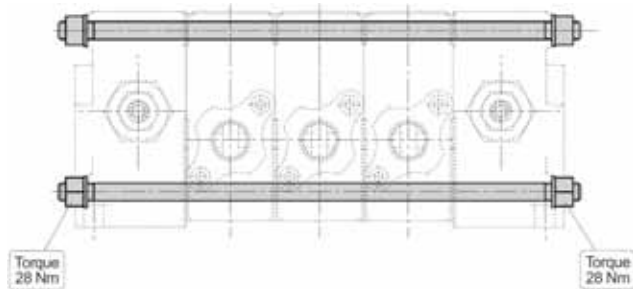


Hydraulic Valves & Accessories

Directional Valves, Sectional • Open & Closed Center
Salami VDP08 • Flows to 25 GPM (Nominal) • Pressures to 4560 PSI



VDP08 Assembly Kits



VDP08 Assembly Kits

Catalog Part No.	Salami Model	Description & (Salami Commercial Codes)	Wt.	Price Each
C1MU75	R24185010	Tie rod and nut kit for 1 section assembly with inlet and outlet		
C1MU76	R24185020	Tie rod and nut kit for 2 section assembly with inlet and outlet		
C1MU77	R24185030	Tie rod and nut kit for 3 section assembly with inlet and outlet		
C1MU78	R24185040	Tie rod and nut kit for 4 section assembly with inlet and outlet		
C1MU79	R24185050	Tie rod and nut kit for 5 section assembly with inlet and outlet		
C1MU80	R24185060	Tie rod and nut kit for 6 section assembly with inlet and outlet		

Hydraulic Valves & Accessories

Directional Valves, Sectional • Open & Closed Center
Salami VD10A • Flows to 32 GPM (Nominal) • Pressures to 4000 PSI



Sectional Control Valves for Open & Closed Center Systems Salami VD10A



Features: Cast-iron bodies • Up to 10 work modules • Parallel, Series, and Tandem circuits with Load Check valve protection on each section • Open and Closed center with Power Beyond options • Spools are hardened steel and chromium-plated • Interchangeable spools • Minimum tolerance between the spools and the body to obtain a minimum internal leakage • Spool selections: double acting, single acting, motor, cylinder, float, etc. • Auxiliary valves available for ports A and B • Several types of Mid-Inlet modules • Venting valve available • Available Controls: manual, cable, electric, electro-hydraulic, proportional hydraulic, pneumatic, proportional pneumatic, electro-pneumatic.

Nominal Flow Rating: 32 GPM

Maximum Operating Pressure: 4000 PSI on ports "P"; 4500 PSI on ports "A", and "B"

Maximum Back Pressure: 363 PSI on outlet port "T"

Internal Leakage A(B) to T: 2.43 - 3.34 in³/min. at 2285 PSI

Fluid Temperature Range: -4°F to 185°F with standard NBR seals

Ambient Temperature Range: 86°F to 140°F

Viscosity: 12 cSt to 75 cSt Optimal; 10 cSt minimum, 460 cSt maximum

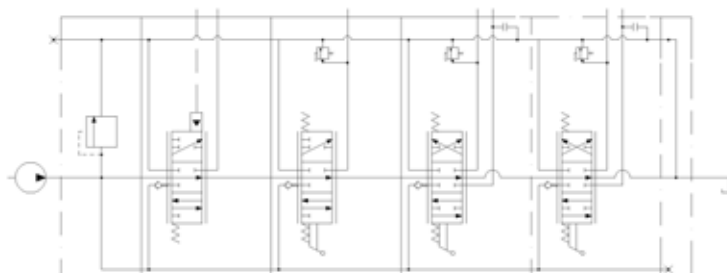
Maximum Level of Contamination: ISO 4406: 19/16

Note: All technical data carried out using mineral oil with viscosity of 16 cSt and contamination level 19/16 as ISO 4406

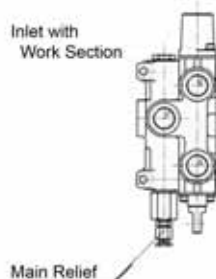
Dimensions & Technical Information: page 697

Valve Assembly Example

- Inlet module with relief valve
- 4 parallel work modules
 - 1 with hydraulic pilot actuator
 - 3 with lever actuators and B-port relief valves
- Outlet module



VD10A Inlet Modules & Options



VD10A Inlet Modules & Options

Catalog Part No.	Salami Model	Description & (Salami Commercial Codes)	Wt.	Price Each
C1MV15	S22081401	Inlet module + working section (/02D175/P01A-PRA.PRB-MLA-C2/) Relief set at 2538 PSI with SAE -12 ports		
C1MT46	R22070030	Main relief valve (VS) adjustable 1500 PSI to 3000 PSI		



Hydraulic Valves & Accessories

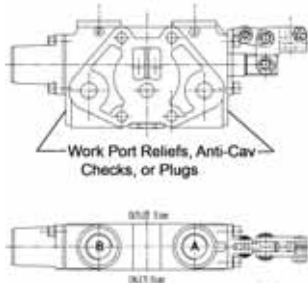
Directional Valves, Sectional • Open & Closed Center
Salami VD10A • Flows to 32 GPM (Nominal) • Pressures to 4000 PSI



VD10A Inlet Modules & Options

Catalog Part No.	Salami Model	Description & (Salami Commercial Codes)	Wt.	Price Each
C1MT47	R22070040	Main relief valve (VS) adjustable 3000 PSI to 4600 PSI		
C1MT48	R22070140	Main relief valve plug		

VD10A Working Sections and Options



VD10A Working Sections and Options

Catalog Part No.	Salami Model	Description & (Salami Commercial Codes)	Wt.	Price Each
C1MV14	S22081391	Work section (/P01A-PRA.PRB-MLA-C2/S) parallel circuit, 4-way 3-position, A & B closed in neutral, complete with spring centering positioner, not protected clamp lever control and port valve plugs. SAE -12 work ports.		
C1MW37	S22081501	Work section (/P02A-PRA.PRB-MLA-C2/S) parallel circuit, 4-way 3-position, A & B open to tank in neutral, complete with spring centering positioner, not protected clamp lever control and port valve plugs. SAE -12 work ports.		
C1MW38	S22081531	Work section (/P12A-PRA.PRB-MLA-F5/S) parallel circuit, 4-way 4-position, A & B closed in neutral, float position spool out, complete with spring centering positioner, not protected clamp lever control and port valve plugs. SAE -12 work ports.		
C1MW39	S22081880	Work section (/S01A-PRA.PRB-MLA-C2/S) series circuit, 4-way 3-position, A & B closed in neutral, complete with spring centering positioner, not protected clamp lever control and port valve plugs. SAE -12 work ports.		
C1MT68	R22470081	Pilot operated port relief valve, 725 PSI to 4060 PSI		
C1MT69	R22470082	Pilot operated port relief valve, 1450 PSI to 5800 PSI		
C1MT50	R22078410	Port relief valve (VA) adjustable 725 PSI to 1525 PSI		
C1MT51	R22078420	Port relief valve (VA) adjustable 1525 PSI to 3000 PSI		
C1MT49	R22078390	Port relief valve (VA) adjustable 3000 PSI to 5075 PSI		
C1MT52	R22078440	Port anticavitation valve (VR)		
C1MT67	R22470080	Port relief and anti-cavitation check (AR) adjustable to 4568 PSI		
C1MQ60	322011317	Double acting motor spool (02A-M)		
C1MQ63	322011321	Double acting motor spool, "A" port blocked (04A-G)		
C1MQ61	322011318	Single acting spool, "A" working port (05A-A)	1.50	
C1MQ62	322011319	Single acting spool, "B" working port (06A-B)		
C1MW40	322011324	Double acting cylinder spool for Hydraulic Proportional (IP) control (01A-M)		
C1MQ65	322011325	Double acting motor spool for Hydraulic Proportional (IP) control (02A-M)		
C1MT64	R22400309	Detent kit (R2) three position		
C1MT65	R22400409	Detent kit (R4) position 1		
C1MT66	R22400509	Detent kit (R5) position 2		
C1MT74	R22475079	Hydraulic proportional control kit (IP)		
C1MT62	R22176331	Pneumatic proportional control kit (PP)		
C1MU92	R360T0500	Cable remote control actuator		
C1MT63	R22187840	Joystick control for two spools (L1/L2)		
C1MT70	R22472519	Spool seal kit		



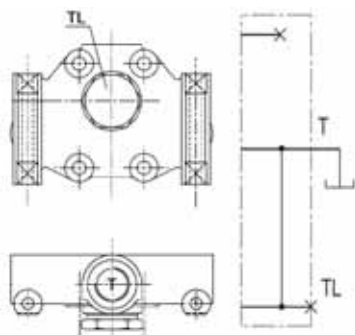
This page is part of a complete catalog which contains technical and safety data that must be reviewed when selecting a product

Hydraulic Valves & Accessories

Directional Valves, Sectional • Open & Closed Center
Salami VD10A • Flows to 32 GPM (Nominal) • Pressures to 4000 PSI



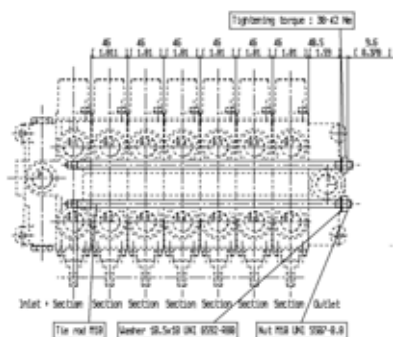
VD10A Outlet Section & Options



VD10A Outlet Section & Options

Catalog Part No.	Salami Model	Description & (Salami Commercial Codes)	Wt.	Price Each
C1MT61	R22090050	Outlet section (U4S-SAE) with two SAE -12 ports. End port (TL) plugged and top port (T).		
C1MT53	R22080130	Carry over kit, SAE -12 port		

VD10A Assembly Kits



VD10A Assembly Kits

Catalog Part No.	Salami Model	Description & (Salami Commercial Codes)	Wt.	Price Each
C1MW42	R22085110	Assembling kit for 1 section valve assembly		
C1MT54	R22085120	Assembling kit for 2 section valve assembly		
C1MT55	R22085130	Assembling kit for 3 section valve assembly		
C1MT56	R22085140	Assembling kit for 4 section valve assembly		
C1MT57	R22085150	Assembling kit for 5 section valve assembly		
C1MT58	R22085160	Assembling kit for 6 section valve assembly		
C1MT59	R22085170	Assembling kit for 7 section valve assembly		
C1MT60	R22085180	Assembling kit for 8 section valve assembly		



Hydraulic Valves & Accessories

Directional Valves, Sectional • Open & Closed Center

Walvoil SD16 Series • Flows to 37 GPM (Nominal) • Pressures to 4600 PSI



Sectional Control Valves for Open & Closed Center Systems Walvoil SD16 Series



Features: Simple, compact and heavy duty designed sectional valve from 1 to 12 sections, for open and closed center hydraulic systems • Main pressure relief valve • Load check valve on every work section • Available with parallel, tandem or series circuit • Optional power beyond port • Available with manual, pneumatic, hydraulic, electro-hydraulic or cable controls • Interchangeable spools.

Nominal Flow Rating: 37 GPM.

Maximum Operating Pressure: 4600 PSI (Parallel or Tandem circuit). 3050 PSI (Series circuit).

Maximum Back Pressure: 360 PSI on outlet port T.

Internal Leakage A(B) to T: 0.18 in³/min at 1450 PSI differential pressure.

Fluid Temperature Range: -4°F to 176°F with standard Buna-N seals.

Ambient Temperature Range: -40°F to 140°F.

Viscosity: 80 to 400 SSU Operating, 70 SSU Minimum, 1950 SSU Maximum.

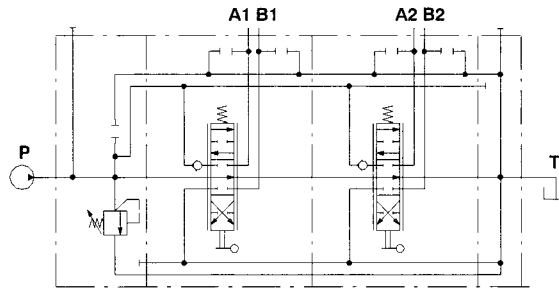
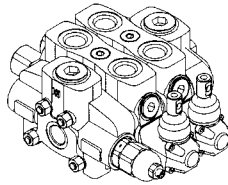
Maximum Level of Contamination: ISO 4406 19/16.

Note: Performance data measured with mineral oil of 215 SSU viscosity at 104°F.

Dimensions & Technical Information: page 688

Valve Assembly Example

Inlet cover with relief
2 parallel work sections
Outlet cover



SD16 Inlet Covers & Options

(4) Inlet Valve Options

Blanking Plug

Anti-Cav

Hyd Pilot Unloader

Solenoid Controlled Unloader

(2) Inlet Port Option

Plug (gauge port option also)

(3) Inlet Relief Options

Pilot Operated Relief

Direct Pressure Relief

Relief Blanking Plug

(1)
Inlet Cover

SD16 Inlet Covers & Options

Catalog Part No.	Walvoil Model	Key	Description & (Walvoil Type Code)	Wt.	Price Each
C1KK62	618205004	(1)	Inlet cover (FE SD16/AC(XG-120)F-SAE) with pilot-operated pressure relief (3) 360-4600 PSI range and standard setting 1750 PSI, with anit-cavitation plug (4). SAE-16 side inlet port P and plugged SAE-16 top inlet.	9.30	



Hydraulic Valves & Accessories

Directional Valves, Sectional • Open & Closed Center

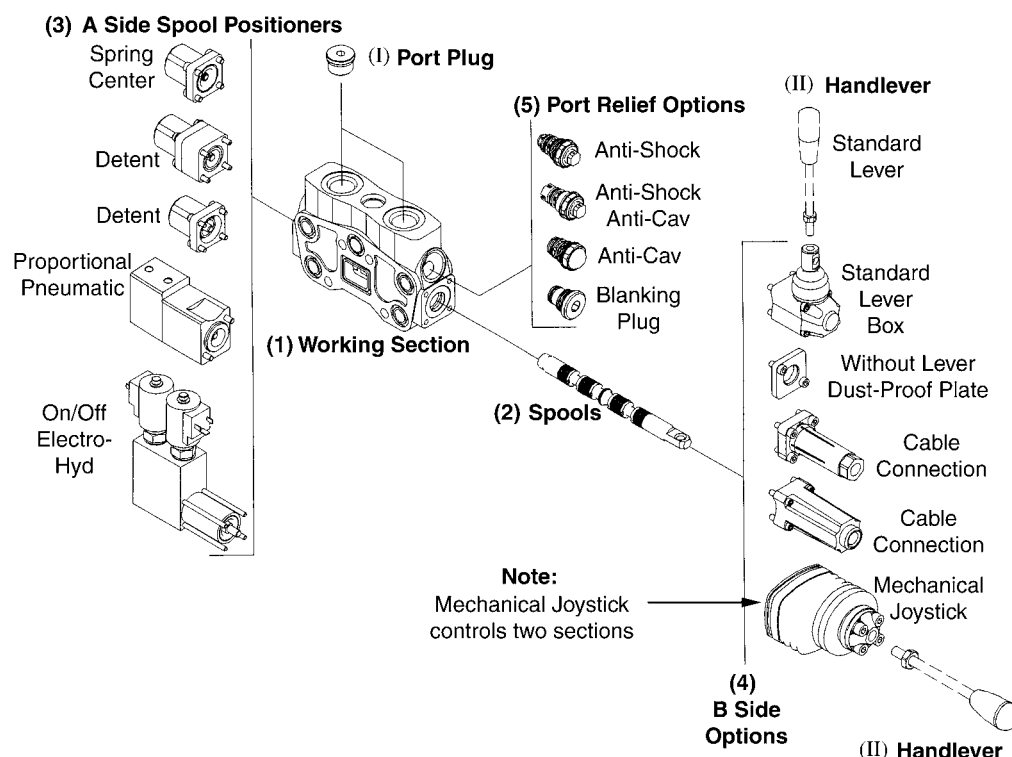
Walvoil SD16 Series • Flows to 37 GPM (Nominal) • Pressures to 4600 PSI



SD16 Inlet Covers & Options

Catalog Part No.	Walvoil Model	Key	Description & (Walvoil Type Code)	Wt.	Price Each
•C1KK61	618205001	(1)	Inlet cover (FE-SD16/AD(YG3)-SAE) with direct pressure relief (3) 1800-3600 PSI range and standard setting 2500 PSI, with blanking plug (4). SAE-16 top inlet port P and plugged SAE-16 end inlet.	9.50	
C1HV70	XGIU641250	(2)	Inlet port option, gauge port plug, SAE-16 x 1/4-19 BSPP	0.39	

SD16 Working Sections & Options

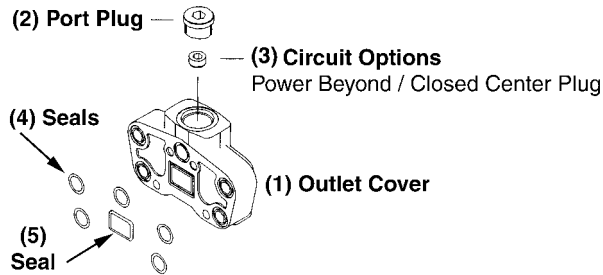


SD16 Working Sections & Options

Catalog Part No.	Walvoil Model	Key	Description & (Walvoil Type Code)	Wt.	Price Each
•C1KK60	618105004	(1)	Working section (EL-SD16/P-18L-SAE), parallel circuit, 4way 3pos A&B closed in neutral, complete with spring centering positioner (3), standard lever box (4) and blanking plugs (5). SAE-12 work ports. Does NOT include M10 thread handlever.	12.43	
•C1KK59	618101006	(1)	Working section (EL-SD16/P-28L-SAE), parallel circuit, 4way 3-pos A&B open to tank in neutral, complete with spring centering positioner (3), standard lever box (4) and blanking plugs (5). SAE-12 work ports. Does NOT include M10 thread handlever.	12.43	
•C1JC50	5V08110701	(3)	"A" side spool positioner (Type 8P), On/Off pneumatic, NPT	1.41	
C1KN76	X011411100	(5)	Port relief option (Type U(G3-100)), anti-shock & anti-cavitation valve, 1450-3600 PSI range, standard setting 1450 PSI	0.40	
•C1HQ47	170012020	(II)	Handlever (Type AL01/M10x200), for standard leverbox, M10 thread x 200mm long, with black knob	0.28	
•C1HQ59	170013025	(II)	Handlever (Type AL01/M12x250), for mechanical joystick, M12 thread x 250mm long, with black knob	0.50	

Directional Valves, Sectional • Open & Closed Center
Walvoil SD16 Series • Flows to 37 GPM (Nominal) • Pressures to 4600 PSI

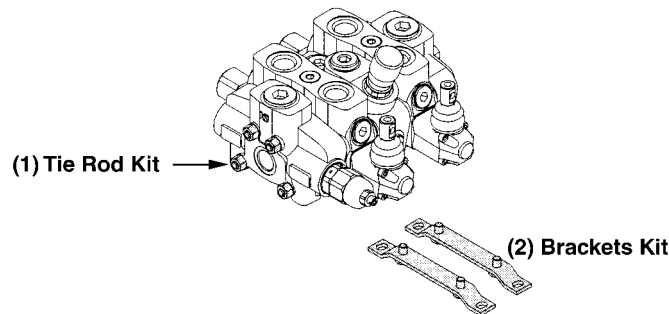
SD16 Outlet Cover & Options



SD16 Outlet Cover & Options

Catalog Part No.	Walvoil Model	Key	Description & (Walvoil Type Code)	Wt.	Price Each
•C1KF76	618305003	(1)	Outlet cover (FS-SD16/RC-SAE), SAE-16 end outlet port T, plugged SAE-16 top outlet, machined for optional power beyond/closed center conversion	6.52	
•C1HT29	4TAP318010	(3)	M18 x 1.5 plug for power beyond / closed center option	0.03	

SD16 Tie Rod & Mounting Bracket Kits



SD16 Tie Rod & Mounting Bracket Kits

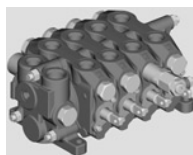
Catalog Part No.	Walvoil Model	Key	Description & (Walvoil Type Code)	Wt.	Price Each
C1MM60	5V09110000				
•C1HU39	5TIR110170	(1)	Tie rod kit for a 1-section valve assembly	1.21	
•C1HU43	5TIR110218	(1)	Tie rod kit for a 2-section valve assembly	1.47	
•C1HU46	5TIR110266	(1)	Tie rod kit for a 3-section valve assembly	1.73	
•C1HU49	5TIR110316	(1)	Tie rod kit for a 4-section valve assembly	2.01	
C1JR82	5TIR110554	(1)	Tie rod kit for a 9-section valve assembly	3.32	
C1HU12	5STA125220	(2)	Brackets kit	1.20	

Hydraulic Valves & Accessories

Directional Valves, Sectional • Open & Closed Center
Husco Model 6000 • Flows to 40 GPM (Nominal) • Pressures to 3400 PSI

HUSCO
INTERNATIONAL

Sectional Control Valves for Open & Closed Center Systems Husco Model 6000



Features: Low effort spools • Zero leak spool seals • Open center or closed center operation • Hard chrome plated spools • Load check in each section • Single low pressure o-ring sealing between sections • Precision metering.

Options: High pressure carryover (Power Beyond) • Lock-out spool section (Built-in pilot operated check valve section) • Mid-inlet flow combiner or separator • Left-hand spool sections •

Parallel, Conventional and Series circuitry • End mechanisms: Spring centered, Detent, 4th position float, Hydraulic pilot operated, Automatic kick-out, Magnetic detent • Auxiliary valves: Pilot-operated, anti-cavitation check combination relief cartridges, Anti-cavitation cartridges • Regenerative spools • Specialized spools.

Maximum Operating Pressure: 3400 PSI.

Maximum Outlet Port/Tank Core Pressure: 250 PSI.

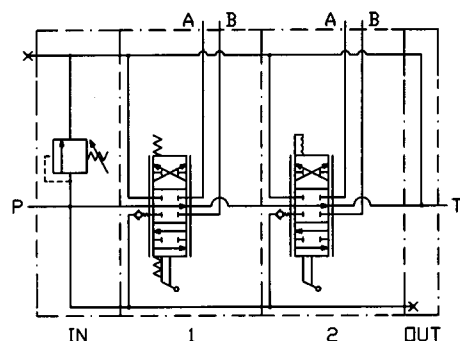
Seals: Buna-N standard, Viton® optional.

Parallel Circuits: In a Parallel Circuit valve assembly, two or more spools may be actuated at the same time and the oil will follow the path of least resistance. If the loads are different and the spools are fully shifted, the lightest load will operate first. If the spools are not fully shifted and the oil is metered, it is possible to direct partial flow to both loads.

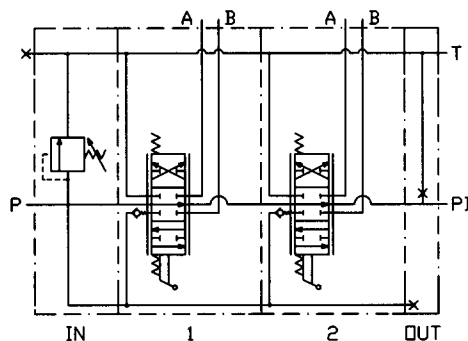
Power Beyond & Closed Center Options: Valve assemblies can be made Power Beyond or Closed Center by selecting and configuring the appropriate Outlet Cover.

Dimensions & Technical Information: page 671

HYDRAULIC SCHEMATIC EXAMPLES



IN INLET COVER WITH MAIN RELIEF OPTION
1 4-WAY 3-POSITION SPRING CENTERED WITH HANDLE KIT
2 4-WAY 3-POSITION WITH DETENT KIT & HANDLE KIT
OUT OUTLET COVER



IN INLET COVER WITH MAIN RELIEF OPTION
1 4-WAY 3-POSITION SPRING CENTERED WITH HANDLE KIT
2 4-WAY 3-POSITION SPRING CENTERED WITH HANDLE KIT
OUT OUTLET COVER WITH SHUT-OFF PLUG INSTALLED

Valve Components are on next page

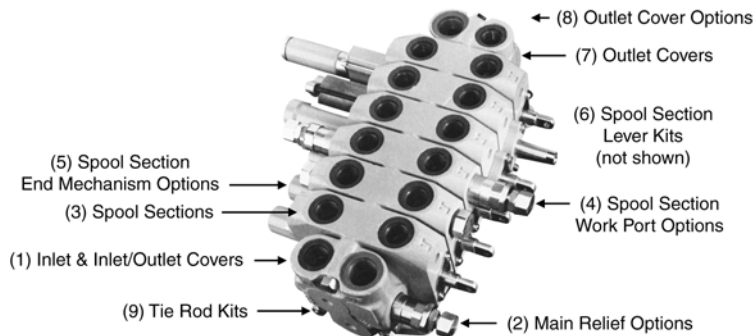


Hydraulic Valves & Accessories

Directional Valves, Sectional • Open & Closed Center
Husco Model 6000 • Flows to 40 GPM (Nominal) • Pressures to 3400 PSI

HUSCO
INTERNATIONAL

Husco Model 6000 Sectional Valve Components



Husco Model 6000 Sectional Valve Components

Catalog Part No.	Husco Model	Key	Description	Wt.	Price Each
C1JL48	N6105-A	(6)	Heavy Duty Lever Kit	2.01	

- (1) **Inlet & Inlet/Outlet Cover:** One is required.
- (2) **Main Relief Option:** One is required if Inlet/Outlet Cover is used.
- (3) **Spool Section:** One or more is required.
- (4) **Work Port Option:** Two are required for each Spool Section that has Auxiliary Valve Porting.
- (5) **End Mechanism Option:** Optional.
- (6) **Lever Kit:** One is required for each manually operated spool section.
- (7) **Outlet Cover:** One is required.
- (8) **Outlet Cover Option:** A Shut-Off Plug is required for power beyond or closed center capability when Universal Outlet Cover is used.
- (9) **Tie Rod Kit:** One is required. The Inlet & Outlet covers are NOT included in counting the number of sections for a tie rod kit. Final torque the two 11/16" nuts to 48 ±5 ft-lb; Final torque the 3/4" nut to 74 ± 8 ft-lb.

Hydraulic Valves & Accessories

Directional Valves, Sectional • Open & Closed Center
Salami VD12A • Flows to 48 GPM (Nominal) • Pressures to 4000 PSI



Sectional Control Valves for Open & Closed Center Systems Salami VD12A



Features: Cast-iron bodies • Up to 10 work modules • Parallel, Series, and Tandem circuits with Load Check valve protection on each section • Open and Closed center with Power Beyond options • Spools are hardened steel and chromium-plated • Interchangeable spools • Minimum tolerance between the spools and the body to obtain a minimum internal leakage • Spool selections: double acting, single acting, motor, cylinder, float, etc. • Auxiliary valves available for ports A and B • Several types of Mid-Inlet modules • Venting valve available • Available Controls: manual, cable, electric, electro-hydraulic, proportional hydraulic, pneumatic, proportional pneumatic, electro-pneumatic.

Nominal Flow Rating: 48 GPM

Maximum Operating Pressure: 4000 PSI on ports "P"; 4500 PSI on ports "A", and "B"

Maximum Back Pressure: 363 PSI on outlet port "T"

Internal Leakage A(B) to T: 2.43 - 3.34 in³/min. at 2285 PSI

Fluid Temperature Range: -4°F to 185°F with standard NBR seals

Ambient Temperature Range: 86°F to 140°F

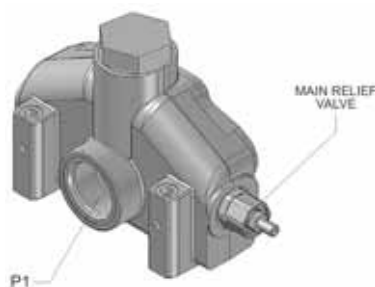
Viscosity: 12 cSt to 75 cSt Optimal; 10 cSt minimum, 460 cSt maximum

Maximum Level of Contamination: ISO 4406: 19/16

Note: All technical data carried out using mineral oil with viscosity of 16 cSt and contamination level 19/16 as ISO 4406

Dimensions & Technical Information: page 698

VD12A Inlet Modules & Options



VD12A Inlet Modules & Options

Catalog Part No.	Salami Model	Description & (Salami Commercial Codes)	Wt.	Price Each
•C1MT72	R22472830	Inlet module with main relief set at 2537 PSI, SAE -16 top and side port, top port plugged (02P175/SAE)		
C1MT73	R22472840	Inlet module with main relief set at 2537 PSI, SAE -20 top and side port, top port plugged (02P175/SAE)		
C1MV17	S22480420	Inlet module (side inlet, direct relief set at 2537 PSI) + work section (parallel section, 4-way, 3-position, spring centered, A & B blocked in neutral, port valves plugged, not protected clamp lever on A side, SAE -16 ports (02D175/P01A-PRA.PRB-MLA-C2/S)		
C1MT46	R22070030	Main relief valve (VS) adjustable 1500 PSI to 3000 PSI		
C1MT47	R22070040	Main relief valve (VS) adjustable 3000 PSI to 4600 PSI		
•C1MT48	R22070140	Main relief valve plug		

Note: Handle not included with work section lever controls.

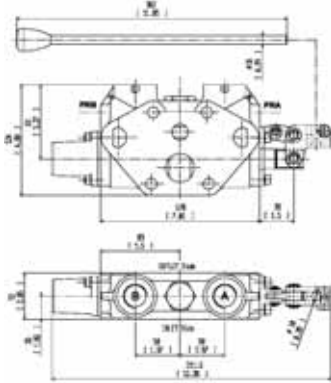


Hydraulic Valves & Accessories

Directional Valves, Sectional • Open & Closed Center
Salami VD12A • Flows to 48 GPM (Nominal) • Pressures to 4000 PSI



VD12A Working Sections and Options



VD12A Working Sections and Options

Catalog Part No.	Salami Model	Description & (Salami Commercial Codes)	Wt.	Price Each
•C1MV16	S22480410	Working section, parallel circuit, 4-way, 3-position, A & B blocked in neutral, spring centered, work port valves plugged, not protected clamp lever, SAE -16 ports (/P01A-PRA.PRB-MLA-C2/S)		
C1NC53	S22480660	Working section, parallel circuit, 4-way, 3-position, A & B to T in neutral spring centered, work port valves plugged, not protected clamp lever, SAE -16 ports (/P02A-PRA.PRB-MLA-C2/S)		
C1MV18	S22480470	Working section, parallel circuit, 4-way, 4-position, A & B blocked in neutral spring centered, A & B to tank in 4th position, work port valves plugged, not protected clamp lever, SAE -16 ports (/P12A-PRA.PRB-MLA-F5/S)		
C1NC54	S22480670	Working section, parallel circuit, 3-way, 3-position, on B work port, B blocked in neutral, spring centered, work port valves plugged, not protected clamp lever, SAE -16 ports (/P06A-PRA.PRB-MLA-C2/S)		
C1MV19	S22480500	Working section, tandem circuit, 4-way, 3-position, A & B blocked in neutral, spring centered, work port valves plugged, not protected clamp lever, SAE -16 ports (/T01A-PRA.PRB-MLA-C2/S)		
C1MT68	R22470081	Pilot operated port relief valve, 725 PSI to 4060 PSI		
C1MT69	R22470082	Pilot operated port relief valve, 1450 PSI to 5800 PSI		
C1MT50	R22078410	Port relief valve (VA) adjustable 725 PSI to 1525 PSI		
C1MT51	R22078420	Port relief valve (VA) adjustable 1525 PSI to 3000 PSI		
C1MT49	R22078390	Port relief valve (VA) adjustable 3000 PSI to 5075 PSI		
C1MT52	R22078440	Port anticavitation valve (VR)		
C1MZ20	322411332	Spool (02A-M), double acting motor spool		
C1MQ64	322011322	Spool (02A-M), double acting motor spool for "IP" control		
C1MU92	R360T0500	Cable remote control actuator (TC)		
C1MT62	R22176331	Pneumatic proportional control kit (PP)		
C1MT64	R22400309	Detent kit (R2) three position		
C1MT64	R22400409	Detent kit (R4) three position		
C1MT74	R22475079	Hydraulic proportional control kit (IP)		
C1MT70	R22472519	Spool seal kit		

Note: Handle not included with work section lever controls.

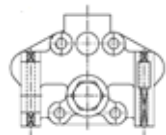


Hydraulic Valves & Accessories

Directional Valves, Sectional • Open & Closed Center
Salami VD12A • Flows to 48 GPM (Nominal) • Pressures to 4000 PSI



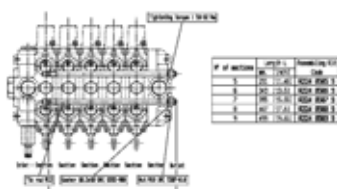
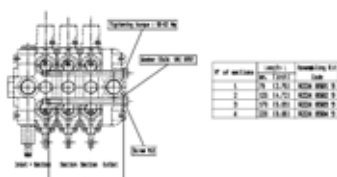
VD12A Outlet Section & Options



VD12A Outlet Section & Options

Catalog Part No.	Salami Model	Description & (Salami Commercial Codes)	Wt.	Price Each
•C1MT84	R22490029	Outlet section, top and end ports, end port plugged, SAE -16 ports (VD12A/U4S)		
C1MS16	795429500	Power Beyond Sleeve		
C1MZ91	795428800	Carry Over Plug, M30 x 1.5		

VD12A Assembly Kits



VD12A Assembly Kits

Catalog Part No.	Salami Model	Description & (Salami Commercial Codes)	Wt.	Price Each
•C1MT75	R22485019	Assembly kit for 1 section valve assembly		
•C1MT76	R22485029	Assembly kit for 2 section valve assembly		
C1MT77	R22485039	Assembly kit for 3 section valve assembly		
C1MT78	R22485049	Assembly kit for 4 section valve assembly		
C1MT79	R22485059	Assembly kit for 5 section valve assembly		
C1MT80	R22485069	Assembly kit for 6 section valve assembly		
C1MT81	R22485079	Assembly kit for 7 section valve assembly		
C1MT82	R22485089	Assembly kit for 8 section valve assembly		
C1MT83	R22485099	Assembly kit for 9 section valve assembly		
C1MT71	R22472529	Section seal kit		



Hydraulic Valves & Accessories

Directional Valves, Sectional • Open & Closed Center

Walvoil SD25 Series • Flows to 63 GPM (Nominal) • Pressures to 4600 PSI



Sectional Control Valves for Open & Closed Center Systems Walvoil SD25 Series



Features: Simple, compact and heavy duty designed sectional valve from 1 to 12 sections, for open and closed center hydraulic systems • Main pressure relief valve • Load check valve on every work section • Available with parallel or series circuit • Optional power beyond port • Available with manual, pneumatic, hydraulic, electro-hydraulic or cable controls • Interchangeable spools.

Nominal Flow Rating: 63 GPM.

Maximum Operating Pressure: 4600 PSI (Parallel circuit). 3050 PSI (Series circuit).

Maximum Back Pressure: 360 PSI on outlet port T.

Internal Leakage A(B) to T: 0.24 in³/min at 1450 PSI differential pressure.

Fluid Temperature Range: -4°F to 176°F with standard Buna-N seals.

Ambient Temperature Range: -40°F to 140°F.

Viscosity: 80 to 400 SSU Operating, 70 SSU Minimum, 1950 SSU Maximum.

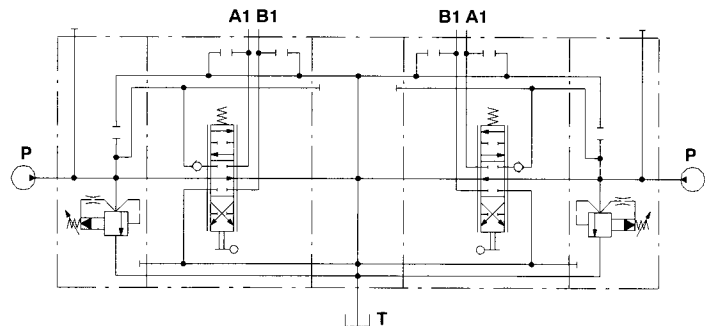
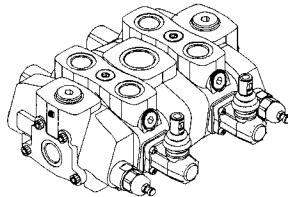
Maximum Level of Contamination: ISO 4406 19/16.

Note: Performance data measured with mineral oil of 215 SSU viscosity at 104°F.

Dimensions & Technical Information: page 689

Valve Assembly Example

Inlet cover with relief
Parallel work section
Mid return manifold section
Parallel work section
Inlet cover with relief



Inlet Covers on next page

Hydraulic Power & Control

Pneumatic Power & Control

Fluid Conveying

Miscellaneous Products

Indexes & Technical Information

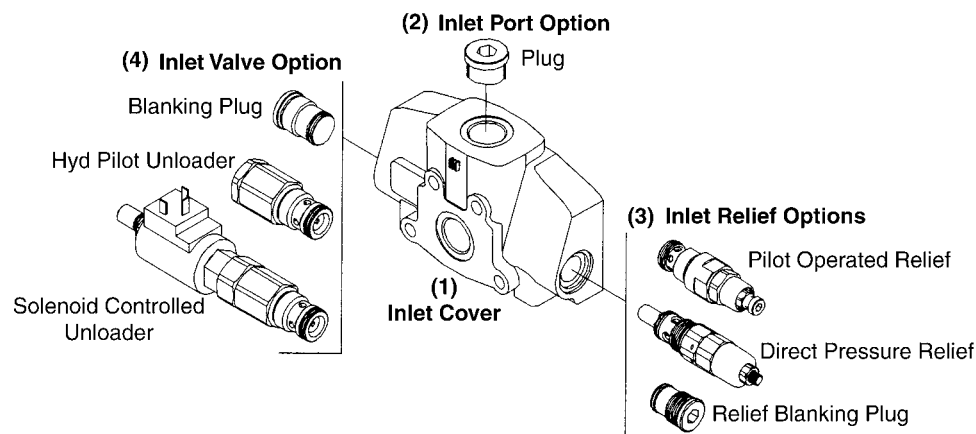
Hydraulic Valves & Accessories

Directional Valves, Sectional • Open & Closed Center

Walvoil SD25 Series • Flows to 63 GPM (Nominal) • Pressures to 4600 PSI



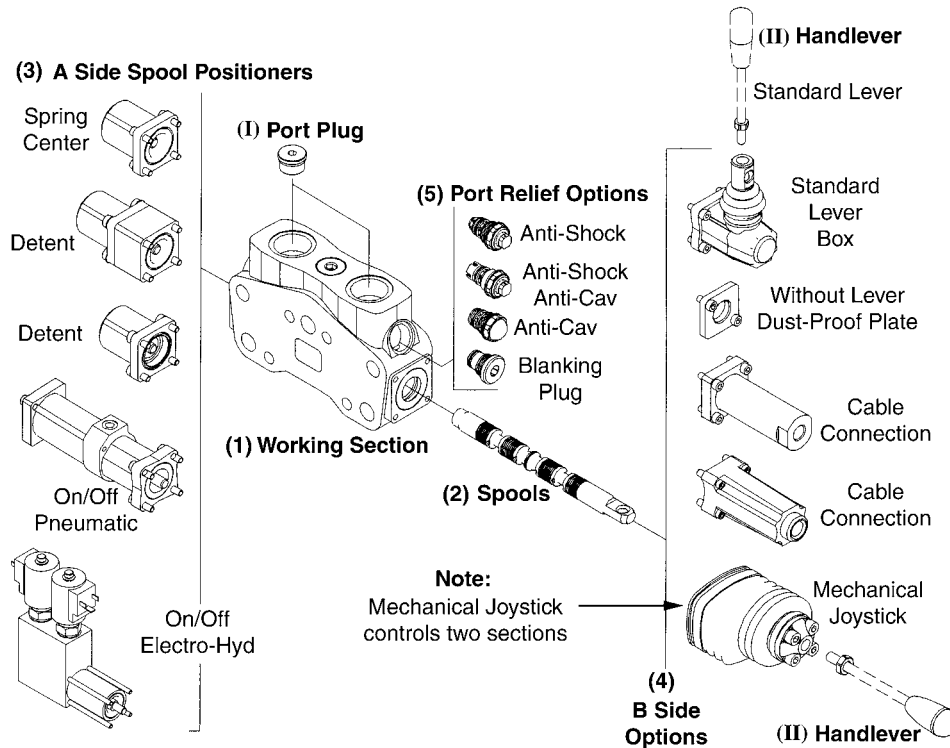
SD25 Inlet Covers & Options



SD25 Inlet Covers & Options

Catalog Part No.	Walvoil Model	Key	Description & (Walvoil Type Code)	Wt.	Price Each
C1HV36	617205009	(1)	Inlet cover (FE-SD25/AC(XG3)-SAE) with pilot-operated pressure relief (3) 360-4600 PSI range and standard setting 1750 PSI, with blanking plug (4). SAE-20 end inlet port P and plugged SAE-20 top inlet.	18.93	

SD25 Working Sections & Options



SD25 Working Sections & Options

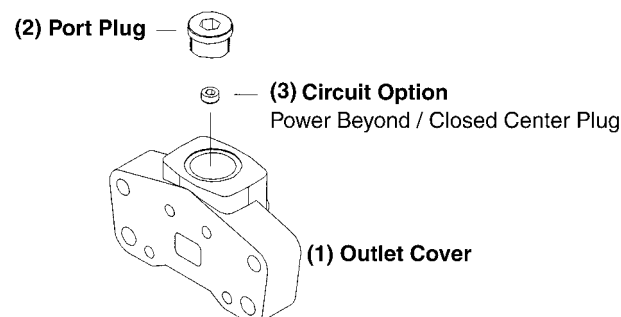
Catalog Part No.	Walvoil Model	Key	Description & (Walvoil Type Code)	Wt.	Price Each
C1NE26	61H105001	(1)	Working section (EL-SD25/P-18L-SAE), parallel circuit, 4way 3-pos A&B closed in neutral, complete with spring centering positioner (3), standard lever box (4) and blanking plugs (5). SAE-16 work ports. Does NOT include M12 thread handlever.	22.76	
C1HS91	3CU2725100	(2)	Spool (Type 2), 4-way 3-position, A & B open to tank in neutral	1.89	
C1HS90	3CU2710420	(2)	Spool (Type 1IM) for remote hydraulic kit, parallel circuit, 4way 3-pos A&B closed in neutral	1.73	
C1HU86	5V11120000	(3)	"A" side spool positioner (Type 11), 3 position detent kit	0.85	
C1HT46	5IDR225700	(3)	"A" side spool positioner (Type IM), remote hydraulic kit	2.61	
C1HS92	3CU2725420	(3)	"A" & "B" side spool positioner (Type 8IM), remote hydraulic actuator kit with spring centering	1.62	
C1HQ59	170013025	(II)	Handlever (Type AL01/M12x250), for mechanical joystick, M12 thread x 250mm long, with black knob	0.50	

Hydraulic Valves & Accessories

Directional Valves, Sectional • Open & Closed Center
Walvoil SD25 Series • Flows to 63 GPM (Nominal) • Pressures to 4600 PSI



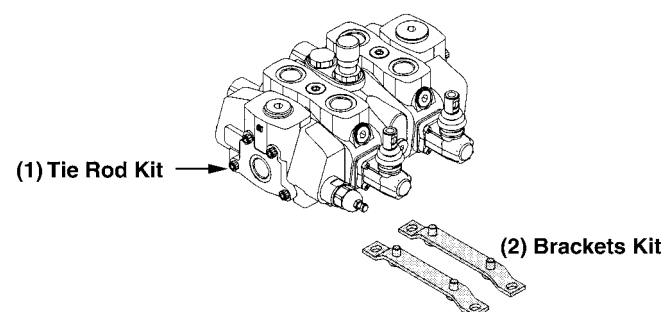
SD25 Outlet Cover & Options



SD25 Outlet Cover & Options

Catalog Part No.	Walvoil Model	Key	Description & (Walvoil Type Code)	Wt.	Price Each
C1HV37	617305002	(1)	Outlet cover (FS-SD25/RC-SAE), SAE-20 end outlet port T, plugged SAE-20 top outlet, machined for optional power beyond/closed center conversion	15.50	
C1HT31	4TAP426612	(3)	G 3/4 plug for power beyond / closed center option	0.08	

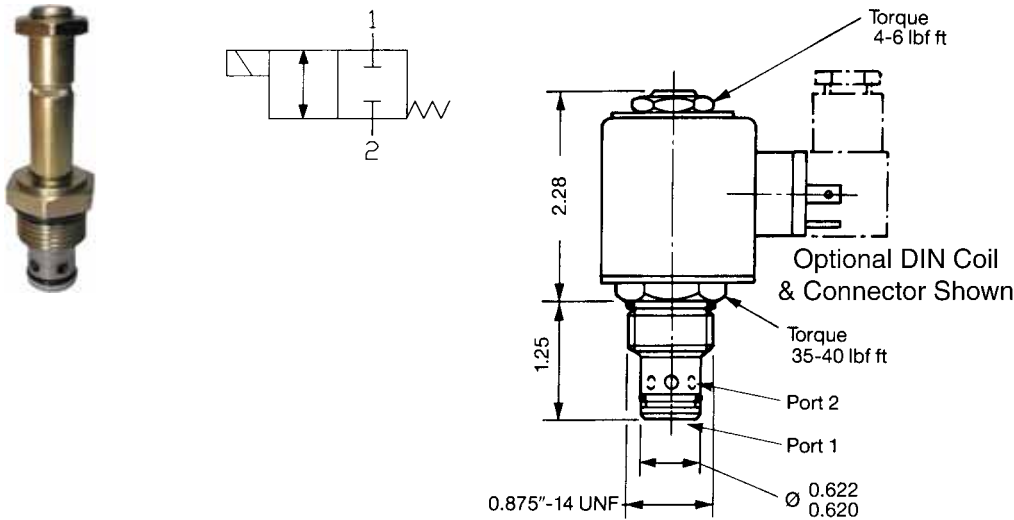
SD25 Tie Rod & Mounting Bracket Kits



SD25 Tie Rod & Mounting Bracket Kits

Catalog Part No.	Walvoil Model	Key	Description & (Walvoil Type Code)	Wt.	Price Each
C1HU61	5TIR112234	(1)	Tie rod kit for a 1-section valve assembly	2.16	
C1HU62	5TIR112296	(1)	Tie rod kit for a 2-section valve assembly	2.63	

2-way, 2-position, Normally Closed Solenoid Valves Vickers® SV4-10-C Series • To 6 GPM & 3000 PSI



Description: The SV4-10-C is a 2-way, 2-position, direct acting, spool-type, normally closed screw-in cartridge solenoid valve, and requires a machined cavity or housing for installation.

Operation: In the de-energized position, flow is blocked in both directions. In the energized position, the spool lifts to allow flow in either direction.

Pressure Rating (All Ports): 3000 PSI.

Rated Flow: 6 GPM.

Internal Leakage: 5 in³ per minute maximum @ 3000 PSI.

Note: Performance data is typical with fluid at 105 SSU and 120°F.

Temperature Range: -40°F to 248°F (Extreme Limits).

Recommended Filtration: ISO 4406 Cleanliness Level 18/16/13 or cleaner.

Cartridge: Model SV4-10-C*, sold separately.

Housing: Cavity size C-10-2, sold separately, see page 441

Solenoid Connectors: page 446 (Required on models that use DIN 43650 connectors).

Coil: "J" Series 20 Watt, sold separately, see page 445

2-way, 2-position, Normally Closed Solenoid Valves • Vickers® SV4-10-C Series • To 6 GPM & 3000 PSI

Catalog Part No.	Vickers Part No.	Vickers Model	Manual Override Option	Housing	Coil (1 Required)	Seal Material	Wt.	Price Each
C1BT22	565537	SV4-10-C-0-00	No	None	None	Buna-N	0.29	
C1MG11	02-167864	SV4-10-C-2G-230AP	No	Aluminum FR 1/4" BSPP	230VAC 1/2" NPT conduit	Buna-N		

Housing Types: Aluminum STD (Standard light-duty aluminum 3000 psi maximum). Aluminum FR (Fatigue-rated aluminum 3000 psi maximum). Steel (Fatigue-rated Steel 5000 psi maximum).

Parts for Vickers® SV4-10-C Solenoid Valve Cartridges

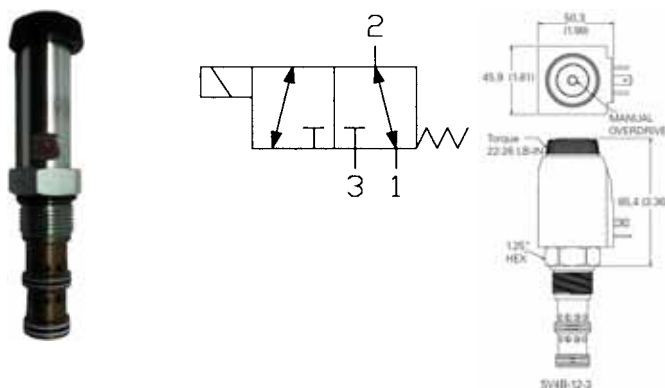
Catalog Part No.	Part Number	Description	Wt.	Price Each
C1FK22	565806	SK2-10-2 Buna-N Seal Kit	0.01	

Hydraulic Valves & Accessories

Directional Valves, Solenoid Operated • Screw-In Cartridge Type

3-way, 2-position Solenoid Valves

Vickers® SV4B-12-3 Series • To 11 GPM & 3000 PSI



Description: The SV4B-12-3 is a 3-way, 2-position, spool-type, direct acting screw-in cartridge solenoid valve, and requires a machined cavity or housing for installation.

Operation: In the de-energized position, this valve allows flow from port 1 to port 2 while port 3 is blocked. In the energized position, flow is allowed from port 2 to port 3 while port 1 is blocked.

Pressure Rating (All Ports): 3000 PSI.

Rated Flow: 11 GPM.

Internal Leakage: 21.5 in³/min max @ 3000 psi

Temperature Range: -40°F to 248°F

Recommended Filtration: ISO 4406 Cleanliness Level 18/16/13 or cleaner.

Cartridge: Model SV4B-12-3*, sold separately.

Housing: Cavity size C-12-3, sold separately, see page 442

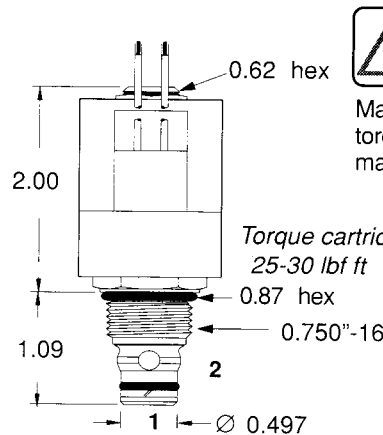
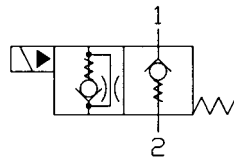
Coil: R Series, sold separately, see page 445

Solenoid Connectors: page 446 (Required on models that use DIN 43650 connectors).

3-way, 2-position Solenoid Valves • Vickers® SV4B-12-3 Series • To 11 GPM & 3000 PSI

Catalog Part No.	Vickers Part No.	Vickers Model	Housing	Coil (1 Required)	Seal Material	Wt.	Price Each
C1MG20	02-200192	SV4B-12-3P-0-00	None	None	Buna-N	1.90	

2-way, 2-position, Normally Closed Solenoid Valves Vickers® SV5-8-C Series • To 6 GPM & 3000 PSI



WARNING

Maintain 4-6 lbf ft maximum torque on valve tube nut. Overtightening may cause valve failure.

*Torque cartridge in housing
25-30 lbf ft*

Optional Lead Wire
Coil Shown

Description: The SV5-8-C is a 2-way, 2-position, poppet type, pilot operated, normally closed screw-in cartridge solenoid valve, and requires a machined cavity or housing for installation. This valve is used in applications requiring low leakage.

Operation: In the de-energized position, the SV5-8-C blocks flow from port 2 to port 1, and free flow is allowed from port 1 to port 2. In the energized position, flow from port 1 to port 2 is restricted and free flow is allowed from port 2 to port 1.

Pressure Rating (All Ports): 3000 PSI.

Rated Flow: 6 GPM.

Internal Leakage: Less than 5 drops per minute maximum @ 3000 PSI.

Note: Performance data is typical with fluid at 105 SSU and 120°F.

Temperature Range: -40°F to 248°F (Extreme Limits).

Recommended Filtration: ISO 4406 Cleanliness Level 18/16/13 or cleaner.

Cartridge: Model SV5-8-C*, sold separately.

Housing: Cavity size C-8-2, sold separately, see page 441

Solenoid Connectors: page 446 (Required on models that use DIN 43650 connectors).

Coil: "S" Series 16 Watt, sold separately, see page 445

2-way, 2-position, Normally Closed Solenoid Valves • Vickers® SV5-8-C Series • To 6 GPM & 3000 PSI

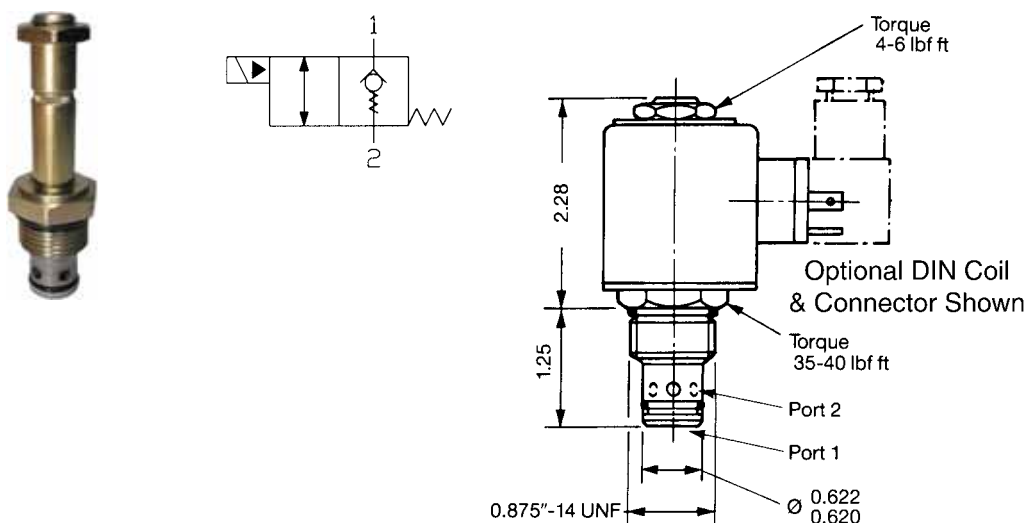
Catalog Part No.	Vickers Part No.	Vickers Model	Manual Override Option	Housing	Coil (1 Required)	Seal Material	Wt.	Price Each
•C1ZZ82	02-160759	SV5-8-C-0-00	No	None	None	Buna-N	0.22	

Housing Types: Aluminum STD (Standard light-duty aluminum 3000 psi maximum). Aluminum FR (Fatigue-rated aluminum 3000 psi maximum). Steel (Fatigue-rated Steel 5000 psi maximum).

Hydraulic Valves & Accessories

Directional Valves, Solenoid Operated • Screw-In Cartridge Type

2-way, 2-position, Normally Closed Solenoid Valves Vickers® SV3-10-C Series • To 12 GPM & 3000 PSI



Description: The SV3-10-C is a 2-way, 2-position, pilot operated, poppet-type, normally closed screw-in cartridge solenoid valve, and requires a machined cavity or housing for installation.

Operation: In the de-energized position, flow is blocked from port 2 to port 1 and free flow is allowed from port 1 to port 2. In the energized position, the poppet lifts to allow flow in either direction.

Pressure Rating (All Ports): 3000 PSI.

Rated Flow: 12 GPM.

Internal Leakage: Less than 5 drops per minute maximum @ 3000 PSI.

Note: Performance data is typical with fluid at 105 SSU and 120°F.

Temperature Range: -40°F to 248°F (Extreme Limits).

Recommended Filtration: ISO 4406 Cleanliness Level 18/16/13 or cleaner.

Cartridge: Model SV3-10-C*, sold separately.

Housing: Cavity size C-10-2, sold separately, see page 441

Solenoid Connectors: page 446 (Required on models that use DIN 43650 connectors).

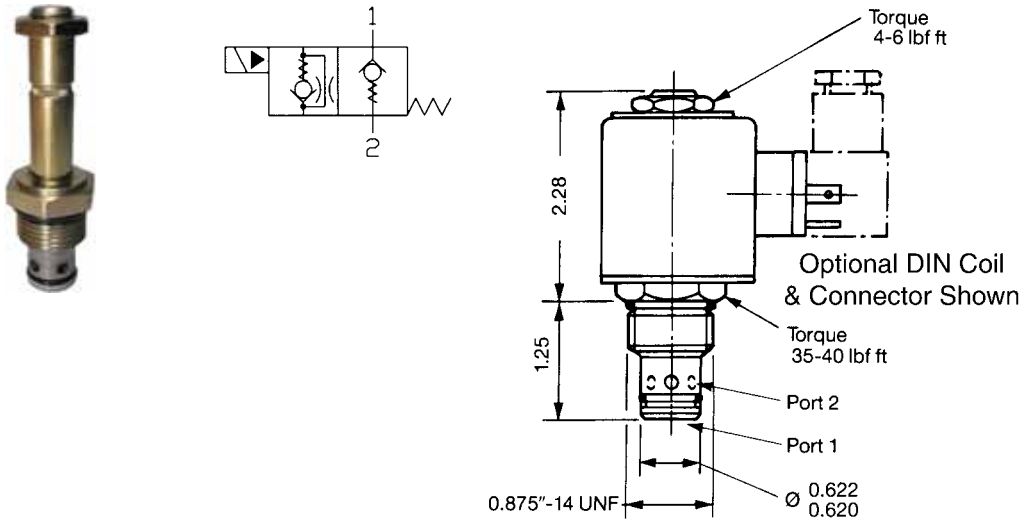
Coil: "J" Series 20 Watt, sold separately, see page 445

2-way, 2-position, Normally Closed Solenoid Valves • Vickers® SV3-10-C Series • To 12 GPM & 3000 PSI

Catalog Part No.	Vickers Part No.	Vickers Model	Manual Override Option	Housing	Coil (1 Required)	Seal Material	Wt.	Price Each
C1BT21	565536	SV3-10-C-0-00	No	None	None	Buna-N	0.31	
C1MZ62	565657	SV3-10-C-0-12DG	No	None	12VDC	Buna-N		

Housing Types: Aluminum STD (Standard light-duty aluminum 3000 psi maximum). Aluminum FR (Fatigue-rated aluminum 3000 psi maximum). Steel (Fatigue-rated Steel 5000 psi maximum).

2-way, 2-position, Normally Closed Solenoid Valves Vickers® SV1-10-C Series • To 12 GPM & 3000 PSI



Description: The SV1-10-C is a 2-way, 2-position, pilot operated, poppet-type, normally closed screw-in cartridge solenoid valve, and requires a machined cavity or housing for installation.

Operation: In the de-energized position, flow is blocked from port 2 to port 1 and free flow is allowed from port 1 to port 2. In the energized position, flow from port 1 to port 2 is restricted while free flow is allowed from port 2 to port 1.

Pressure Rating (All Ports): 3000 PSI.

Rated Flow: 12 GPM.

Internal Leakage: Port 2 to Port 1: 5 drops per minute maximum @ 3000 PSI.

Note: Performance data is typical with fluid at 105 SSU and 120°F.

Temperature Range: -40°F to 248°F (Extreme Limits).

Recommended Filtration: ISO 4406 Cleanliness Level 18/16/13 or cleaner.

Cartridge: Model SV1-10-C*, sold separately.

Housing: Cavity size C-10-2, sold separately, see page 441

Solenoid Connectors: page 446 (Required on models that use DIN 43650 connectors).

Coil: "J" Series 20 Watt, sold separately, see page 445

2-way, 2-position, Normally Closed Solenoid Valves • Vickers® SV1-10-C Series • To 12 GPM & 3000 PSI

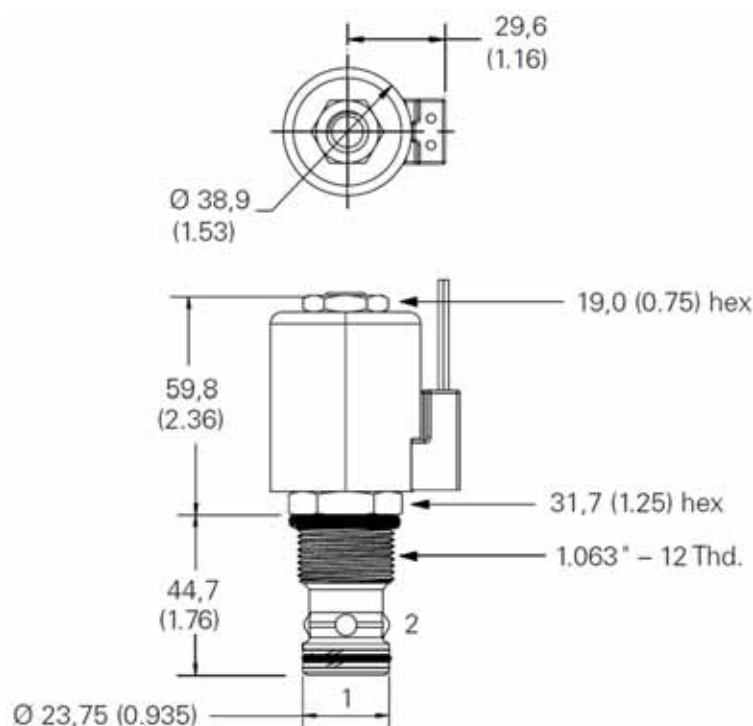
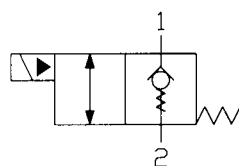
Catalog Part No.	Vickers Part No.	Vickers Model	Manual Override Option	Housing	Coil (1 Required)	Seal Material	Wt.	Price Each
•C1BT20	565534	SV1-10-C-0-00	No	None	None	Buna-N	0.30	

Housing Types: Aluminum STD (Standard light-duty aluminum 3000 psi maximum). Aluminum FR (Fatigue-rated aluminum 3000 psi maximum). Steel (Fatigue-rated Steel 5000 psi maximum).

Hydraulic Valves & Accessories

Directional Valves, Solenoid Operated • Screw-In Cartridge Type

2-way, 2-position, Normally Closed Solenoid Valves Vickers® SV3-12-C Series • To 30 GPM & 3000 PSI



Description: This is a 2-way, 2-position, poppet type, pilot operated, normally closed solenoid valve. This valve is used in applications requiring low leakage, such as load holding applications or as a general purpose diverter or dump valve.

Operation: In the de-energized position the valve blocks flow from port 2 to 1 and free flow is allowed from port 1 to 2. When the solenoid is energized the pilot poppet is pulled off the seat allowing the valve to open in both directions.

Pressure Rating (All Ports): 3000 PSI.

Rated Flow: 30 GPM.

Internal Leakage: Port 2 to Port 1: Less than 5 drops/min, max @ 3000 PSI.

Note: Performance data is typical with fluid at 105 SSU and 120°F.

Temperature Range: -40° to 248°F (Extreme Limits).

Recommended Filtration: ISO 4406 Cleanliness Level 18/16/13 or cleaner.

Cartridge: Model SV3-12-C*, sold separately

Housing: Cavity size C-12-2 or C-12-2U sold separately. Add "U" after number if undercut is required. If undercut is not specified, expect 10 PSI @ 15 GPM and 20 PSI @ 30 GPM higher pressure drop, see page 441

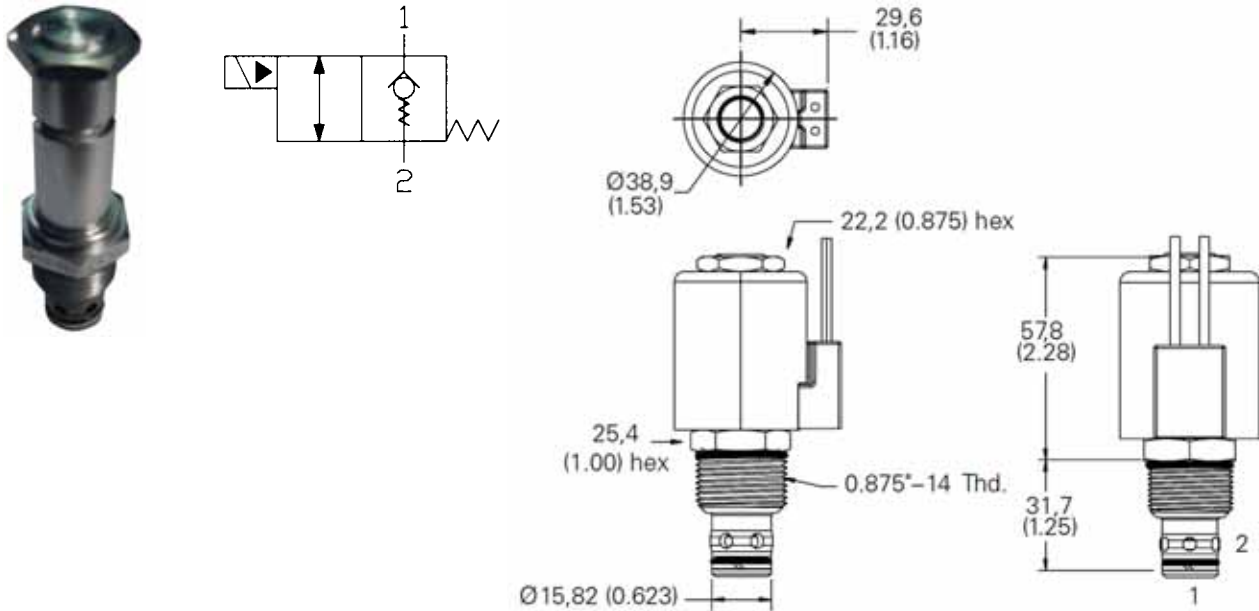
Solenoid Connectors: page 446 (Required on models that use DIN 43650 connectors).

Coil: J series, 23 Watt, sold separately, see page 445

2-way, 2-position, Normally Closed Solenoid Valves • Vickers® SV3-12-C Series • To 30 GPM & 3000 PSI

Catalog Part No.	Vickers Part No.	Vickers Model	Housing	Coil (1 Required)	Seal Material	Wt.	Price Each
C1FQ33	02-161062	SV3-12-C-0-00	None	None	Buna-N	0.51	

2-way, 2-position, Normally Closed Solenoid Valves Vickers® SV13-10-C Series • To 12 GPM & 5000 PSI



Description: This is a 2-way, 2-position, poppet type, high pressure, pilot operated, normally closed solenoid valve. This valve is used in applications requiring low leakage, such as load holding applications or as a general purpose diverter or dump valve.

Operation: In the de-energized position the valve blocks flow from port 2 to 1 and free flow is allowed from port 1 to 2. When the solenoid is energized the pilot poppet is pulled off the seat allowing the valve to open in both directions.

Pressure Rating (All Ports): 5000 PSI. (CAUTION: Pressures over 3000 PSI require steel housing or manifold).

Rated Flow: 12 GPM.

Internal Leakage: 5 drops per minute maximum @ 5000 PSI.

Note: Performance data is typical with fluid at 105 SSU and 120°F.

Temperature Range: -40° to 212°F (Extreme Limits).

Recommended Filtration: ISO 4406 Cleanliness Level 18/16/13 or cleaner.

Cartridge: Model SV13-10-C*, sold separately.

Housing: Cavity size C-10-2, sold separately, see page 441

Solenoid Connectors: page 446 (Required on models that use DIN 43650 connectors).

Coil: "H" - 10 Series, 29 Watt, sold separately, see page 445

2-way, 2-position, Normally Closed Solenoid Valves • Vickers® SV13-10-C Series • To 12 GPM & 5000 PSI

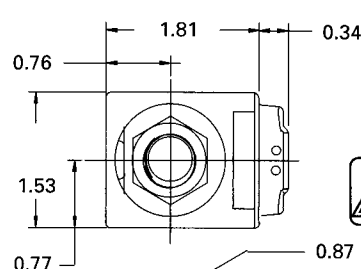
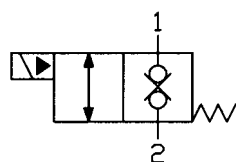
Catalog Part No.	Vickers Part No.	Vickers Model	Housing	Coil (1 Required)	Seal Material	Wt.	Price Each
C1MG12	02-175805	SV13-10-C-0-00	None	None	Buna-N		

Housing Types: Aluminum STD (Standard light-duty aluminum 3000 psi maximum). Aluminum FR (Fatigue-rated aluminum 3000 psi maximum). Steel (Fatigue-rated Steel 5000 psi maximum).

Hydraulic Valves & Accessories

Directional Valves, Solenoid Operated • Screw-In Cartridge Type

2-way, 2-position, Normally Closed Solenoid Valves Vickers® SBV11-10-C Series • To 20 GPM & 5000 PSI



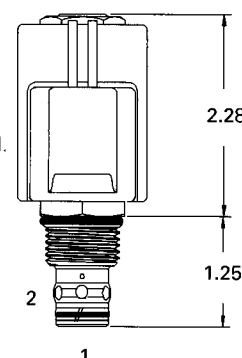
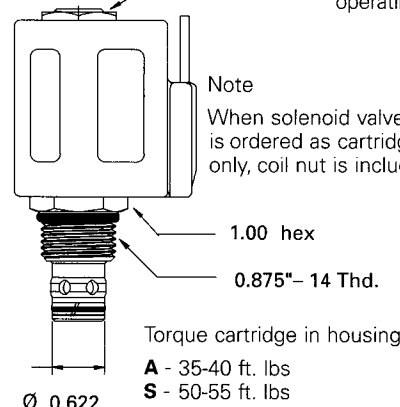
WARNING

Maintain 4-6 ft. lbs maximum torque on valve tube nut. Over tightening may cause valve failure.



WARNING

Aluminum housings can be used for pressures up to 3000 psi. Steel housings must be used for operating pressures above 3000 psi.



Description: The SBV11-10-C is a 2-way, 2-position, bi-directional, pilot operated, poppet-type, normally closed screw-in cartridge solenoid valve, and requires a machined cavity or housing for installation.

Operation: In the de-energized position, flow is blocked in both directions. In the energized position, flow is allowed in both directions.

Pressure Rating (All Ports): 5000 PSI. (CAUTION: Pressures over 3000 PSI require steel housing or manifold).

Rated Flow: 20 GPM.

Internal Leakage: 5 drops per minute maximum @ 5000 PSI.

Note: Performance data is typical with fluid at 105 SSU and 120°F.

Temperature Range: -40°F to 212°F (Extreme Limits).

Recommended Filtration: ISO 4406 Cleanliness Level 18/16/13 or cleaner.

Cartridge: Model SBV11-10-C*, sold separately.

Housing: Cavity size C-10-2, sold separately, see page 441

Solenoid Connectors: page 446 (Required on models that use DIN 43650 connectors).

Coil: "H" Series 26 Watt, sold separately, see page 445

2-way, 2-position, Normally Closed Solenoid Valves • Vickers® SBV11-10-C Series • To 20 GPM & 5000 PSI

Catalog Part No.	Vickers Part No.	Vickers Model	Housing	Coil (1 Required)	Seal Material	Wt.	Price Each
C1HY32	02-177580	SBV11-10-C-0-00	None	None	Buna-N	0.39	

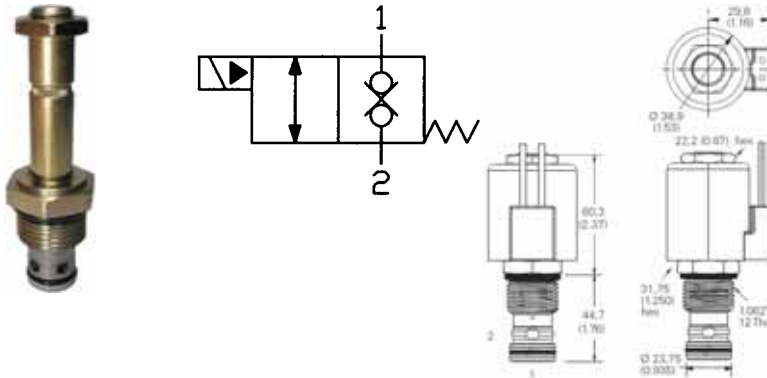
Housing Types: Aluminum STD (Standard light-duty aluminum 3000 psi maximum). Aluminum FR (Fatigue-rated aluminum 3000 psi maximum). Steel (Fatigue-rated Steel 5000 psi maximum).



Hydraulic Valves & Accessories

Directional Valves, Solenoid Operated • Screw-In Cartridge Type

2-way, 2-position, Normally Closed Solenoid Valves Vickers® SBV11-12-C Series • To 30 GPM & 5000 PSI



Description: The SBV11-12-C is a 2-way, 2-position, bi-directional, pilot operated, poppet-type, normally closed screw-in cartridge solenoid valve, and requires a machined cavity or housing for installation.

Operation: In the de-energized position, flow is blocked in both directions. In the energized position, flow is allowed in both directions.

Pressure Rating (All Ports): 5000 PSI. (CAUTION: Pressures over 3000 PSI require steel housing or manifold).

Rated Flow: 30 GPM

Internal Leakage: 5 drops per minute maximum @ 5000 PSI.

Temperature Range: -40°F to 212°F

Recommended Filtration: ISO 4406 Cleanliness Level 18/16/13 or cleaner.

Cartridge: Model SBV11-12-C*, sold separately.

Housing: Cavity size C-12-2, sold separately, see page 441

Coil: H Series, sold separately, see page 445

Solenoid Connectors: page 446 (Required on models that use DIN 43650 connectors).

2-way, 2-position, Normally Closed Solenoid Valves • Vickers® SBV11-12-C Series • To 30 GPM & 5000 PSI

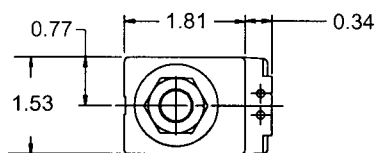
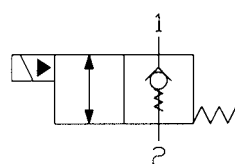
Catalog Part No.	Vickers Part No.	Vickers Model	Housing	Coil (1 Required)	Seal Material	Wt.	Price Each
C1LW47	02-177576	SBV11-12-C-0-00	None	None	Buna-N	0.59	



Hydraulic Valves & Accessories

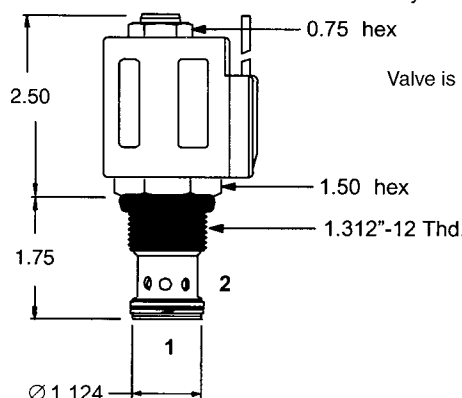
Directional Valves, Solenoid Operated • Screw-In Cartridge Type

2-way, 2-position, Normally Closed Solenoid Valves Vickers® SV1-16-C Series • To 35 GPM & 3000 PSI



WARNING

Maintain 4-6 lbf ft maximum torque on valve tube nut. Overtightening may cause valve failure.



Valve is shown with leadwire coil

Torque cartridge in housing
80-90 lbf ft

Description: The SV1-16-C is a 2-way, 2-position, pilot operated, poppet-type, normally closed screw-in cartridge solenoid valve, and requires a machined cavity or housing for installation.

Operation: In the de-energized position, flow is blocked from port 2 to port 1 and free flow is allowed from port 1 to port 2. In the energized position, bi-directional flow is allowed between port 1 and port 2.

Pressure Rating (All Ports): 3000 PSI.

Rated Flow: 35 GPM.

Internal Leakage: Port 2 to Port 1: 5 drops per minute maximum @ 3000 PSI.

Note: Performance data is typical with fluid at 105 SSU and 120°F.

Temperature Range: -40°F to 248°F (Extreme Limits).

Recommended Filtration: ISO 4406 Cleanliness Level 18/16/13 or cleaner.

Cartridge: Model SV1-16-C*, sold separately.

Housing: Cavity size C-16-2, sold separately, see page 441

Solenoid Connectors: page 446 (Required on models that use DIN 43650 connectors).

Coil: "J" Series 20 Watt, sold separately, see page 445

2-way, 2-position, Normally Closed Solenoid Valves • Vickers® SV1-16-C Series • To 35 GPM & 3000 PSI

Catalog Part No.	Vickers Part No.	Vickers Model	Manual Override Option	Housing	Coil (1 Required)	Seal Material	Wt.	Price Each
•C1BT23	565538	SV1-16-C-0-00	No	None	None	Buna-N	0.72	

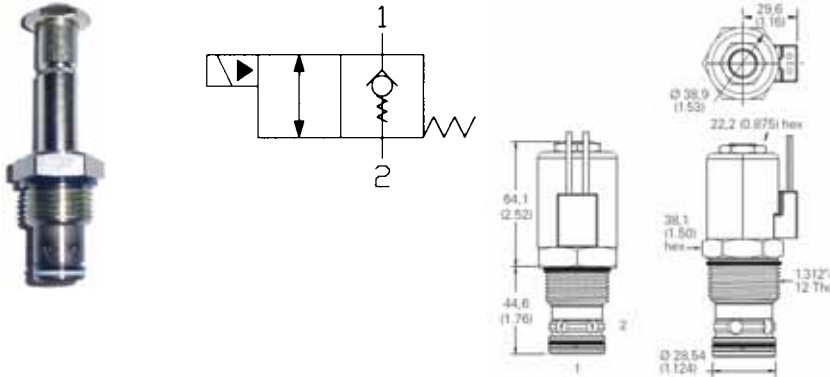
Housing Types: Aluminum STD (Standard light-duty aluminum 3000 psi maximum). Aluminum FR (Fatigue-rated aluminum 3000 psi maximum). Steel (Fatigue-rated Steel 5000 psi maximum).



Hydraulic Valves & Accessories

Directional Valves, Solenoid Operated • Screw-In Cartridge Type

2-way, 2-position, Normally Closed Solenoid Valves Vickers® SV13-16-C Series • To 35 GPM & 5000 PSI



Description: The SV13-16-C is a 2-way, 2-position, pilot operated, poppet-type, normally closed screw-in cartridge solenoid valve, and requires a machined cavity or housing for installation.

Operation: In the de-energized position, flow is blocked from port 2 to port 1 and free flow is allowed from port 1 to port 2. In the energized position, the poppet lifts to allow flow in either direction.

Pressure Rating (All Ports): 5000 PSI

Rated Flow: 35 GPM

Internal Leakage: Less than 5 drops per minute maximum @ 5000 PSI.

Temperature Range: -40° to 212°F

Recommended Filtration: ISO 4406 Cleanliness Level 18/16/13 or cleaner.

Cartridge: Model SV13-16-C*, sold separately.

Housing: Cavity size C-16-2, sold separately, see page 441

Coil: H series, sold separately, see page 445

Solenoid Connectors: page 446 (Required on models that use DIN 43650 connectors).

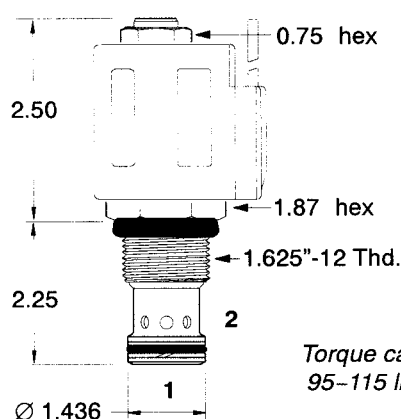
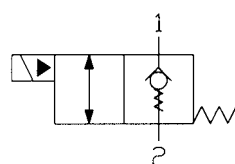
2-way, 2-position, Normally Closed Solenoid Valves • Vickers® SV13-16-C Series • To 35 GPM & 5000 PSI

Catalog Part No.	Vickers Part No.	Vickers Model	Housing	Coil (1 Required)	Seal Material	Wt.	Price Each
C1MG17	02-175823	SV13-16-C-0-00	None	None	Buna-N	0.85	

Hydraulic Valves & Accessories

Directional Valves, Solenoid Operated • Screw-In Cartridge Type

2-way, 2-position, Normally Closed Solenoid Valves Vickers® SV2-20-C Series • To 60 GPM & 3000 PSI



WARNING

Maintain 4-6 lbf ft maximum torque on valve tube nut. Overtightening may cause valve failure.

Valve is shown with "W" coil.

Torque cartridge in housing
95-115 lbf ft

Description: The SV2-20-C is a 2-way, 2-position, pilot operated, poppet-type, normally closed screw-in cartridge solenoid valve, and requires a machined cavity or housing for installation.

Operation: In the de-energized position, flow is blocked from port 2 to port 1 and free flow is allowed from port 1 to port 2. In the energized position, free flow is allowed between both ports.

Pressure Rating (All Ports): 3000 PSI.

Rated Flow: 60 GPM.

Internal Leakage: Port 2 to Port 1: Less than 5 drops per minute maximum @ 3000 PSI.

Note: Performance data is typical with fluid at 105 SSU and 120°F.

Temperature Range: -40°F to 248°F (Extreme Limits).

Recommended Filtration: ISO 4406 Cleanliness Level 18/16/13 or cleaner.

Cartridge: Model SV2-20-C*, sold separately.

Housing: Cavity size C-20-2, sold separately, see page 441

Solenoid Connectors: page 446 (Required on models that use DIN 43650 connectors).

Coil: "J" Series 20 Watt, sold separately, see page 445

2-way, 2-position, Normally Closed Solenoid Valves • Vickers® SV2-20-C Series • To 60 GPM & 3000 PSI

Catalog Part No.	Vickers Part No.	Vickers Model	Manual Override Option	Housing	Coil (1 Required)	Seal Material	Wt.	Price Each
C1FA73	565539	SV2-20-C-0-00	No	None	None	Buna-N	1.16	

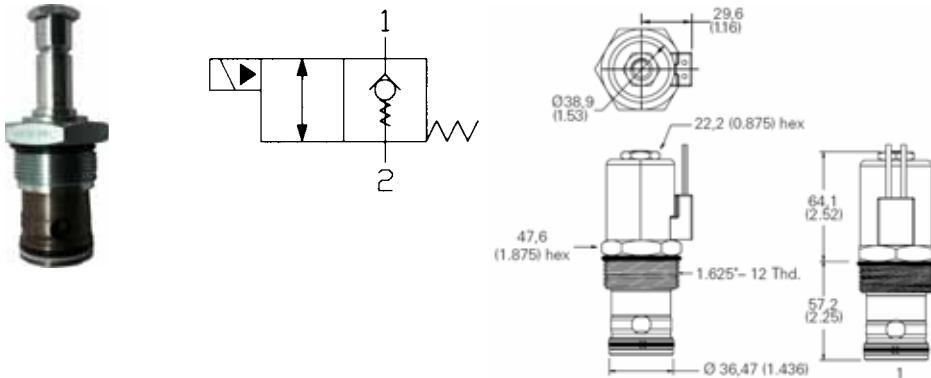
Housing Types: Aluminum STD (Standard light-duty aluminum 3000 psi maximum). Aluminum FR (Fatigue-rated aluminum 3000 psi maximum). Steel (Fatigue-rated Steel 5000 psi maximum).



Hydraulic Valves & Accessories

Directional Valves, Solenoid Operated • Screw-In Cartridge Type

2-way, 2-position, Normally Closed Solenoid Valves Vickers® SV13-20-C Series • To 60 GPM & 5000 PSI



Description: The SV13-20-C is a 2-way, 2-position, pilot operated, poppet-type, normally closed screw-in cartridge solenoid valve, and requires a machined cavity or housing for installation.

Operation: In the de-energized position, flow is blocked from port 2 to port 1 and free flow is allowed from port 1 to port 2. In the energized position, the poppet lifts to allow flow in either direction.

Pressure Rating (All Ports): 5000 PSI

Rated Flow: 60 GPM.

Internal Leakage: Less than 5 drops per minute maximum @ 5000 PSI.

Temperature Range: -40° to 212°F

Recommended Filtration: ISO 4406 Cleanliness Level 18/16/13 or cleaner.

Cartridge: Model SV13-20-C*, sold separately.

Housing: Cavity size C-20-2, sold separately, see page 441

Coil: H series, sold separately, see page 445

Solenoid Connectors: page 446 (Required on models that use DIN 43650 connectors).

2-way, 2-position, Normally Closed Solenoid Valves • Vickers® SV13-20-C Series • To 60 GPM & 5000 PSI

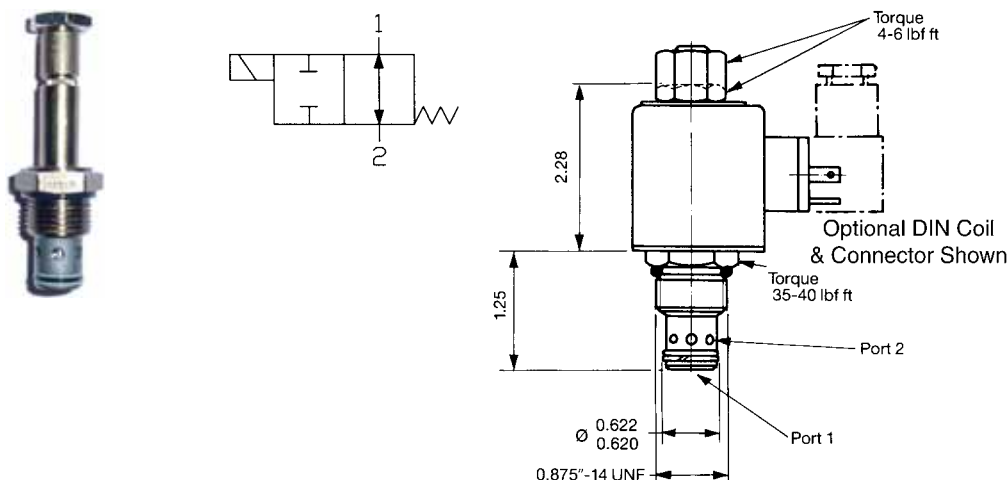
Catalog Part No.	Vickers Part No.	Vickers Model	Housing	Coil (1 Required)	Seal Material	Wt.	Price Each
C1MG15	02-175819	SV13-20-C-0-00	None	None	Buna-N	1.37	



Hydraulic Valves & Accessories

Directional Valves, Solenoid Operated • Screw-In Cartridge Type

2-way, 2-position, Normally Open Solenoid Valves Vickers® SV4-10-O Series • To 6 GPM & 3000 PSI



Description: The SV4-10-O is a 2-way, 2-position, spool-type, direct acting, normally open screw-in cartridge solenoid valve, and requires a machined cavity or housing for installation.

Operation: In the de-energized position, this valve allows bi-directional flow between port 1 and port 2. In the energized position both ports are closed.

Pressure Rating (All Ports): 3000 PSI.

Rated Flow: 6 GPM.

Internal Leakage: Port 2 to Port 1: 5 in³ per minute maximum @ 3000 PSI with valve energized.

Note: Performance data is typical with fluid at 105 SSU and 120°F.

Temperature Range: -40°F to 248°F (Extreme Limits).

Recommended Filtration: ISO 4406 Cleanliness Level 18/16/13 or cleaner.

Cartridge: Model SV4-10-O*, sold separately.

Housing: Cavity size C-10-2, sold separately, see page 441

Solenoid Connectors: page 446 (Required on models that use DIN 43650 connectors).

Coil: "J" Series 20 Watt, sold separately, see page 445

2-way, 2-position, Normally Open Solenoid Valves • Vickers® SV4-10-O Series • To 6 GPM & 3000 PSI

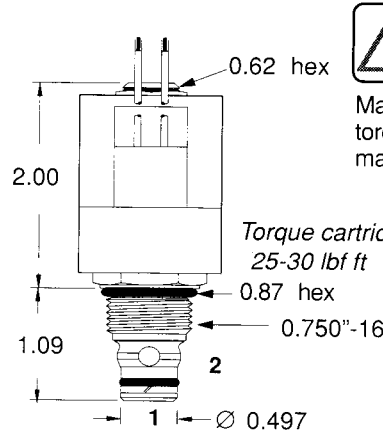
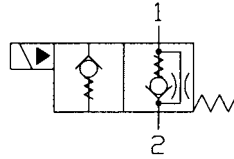
Catalog Part No.	Vickers Part No.	Vickers Model	Manual Override Option	Housing	Coil (1 Required)	Seal Material	Wt.	Price Each
•C1BT25	565542	SV4-10-O-0-00	No	None	None	Buna-N	0.30	

Housing Types: Aluminum STD (Standard light-duty aluminum 3000 psi maximum). Aluminum FR (Fatigue-rated aluminum 3000 psi maximum). Steel (Fatigue-rated Steel 5000 psi maximum).

Parts for Vickers® SV4-10-O Solenoid Valve Cartridges

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1FK22	565806	SK2-10-2 Buna-N Seal Kit	0.01	

2-way, 2-position, Normally Open Solenoid Valves Vickers® SV5-8-O Series • To 6 GPM & 3000 PSI



WARNING

Maintain 4-6 lbf ft maximum torque on valve tube nut. Overtightening may cause valve failure.

*Torque cartridge in housing
25-30 lbf ft*

Optional Lead Wire
Coil Shown

Description: The SV5-8-O is a 2-way, 2-position, poppet-type, pilot operated, normally open screw-in cartridge solenoid valve, and requires a machined cavity or housing for installation. This valve is used in applications requiring low leakage.

Operation: In the de-energized position, this valve allows free flow from port 2 to port 1, and restricted flow from port 1 to port 2. In the energized position, flow is blocked from port 2 to port 1, and free flow is allowed from port 1 to port 2.

Pressure Rating (All Ports): 3000 PSI.

Rated Flow: 6 GPM.

Internal Leakage: Less than 5 drops per minute maximum @ 3000 PSI with valve energized.

Note: Performance data is typical with fluid at 105 SSU and 120°F.

Temperature Range: -40°F to 248°F (Extreme Limits).

Recommended Filtration: ISO 4406 Cleanliness Level 18/16/13 or cleaner.

Cartridge: Model SV5-8-O*, sold separately.

Housing: Cavity size C-8-2, sold separately, see page 441

Solenoid Connectors: page 446 (Required on models that use DIN 43650 connectors).

Coil: "S" Series 16 Watt, sold separately, see page 445

2-way, 2-position, Normally Open Solenoid Valves • Vickers® SV5-8-O Series • To 6 GPM & 3000 PSI

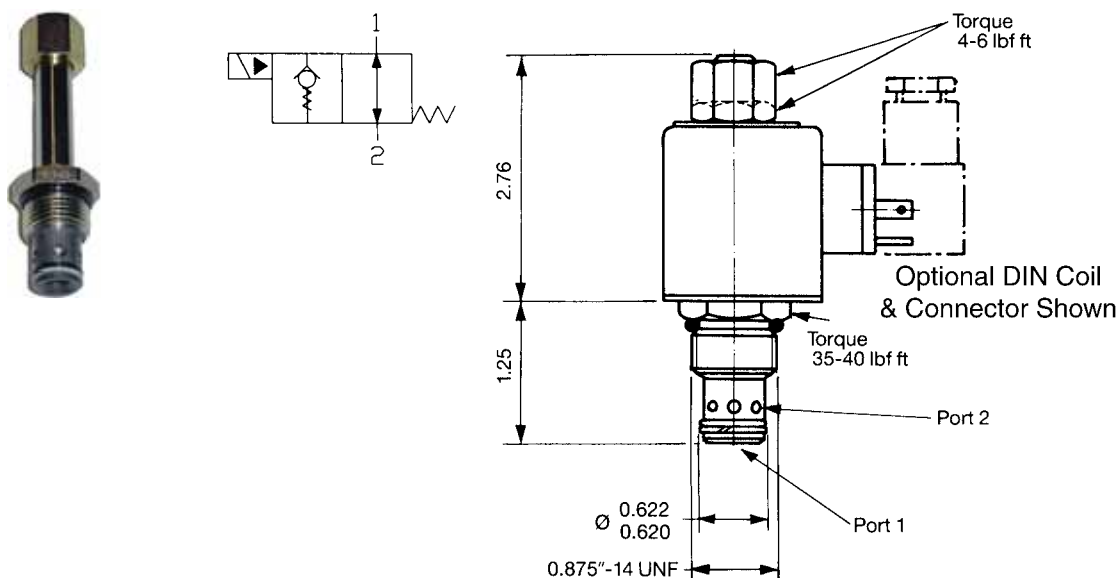
Catalog Part No.	Vickers Part No.	Vickers Model	Manual Override Option	Housing	Coil (1 Required)	Seal Material	Wt.	Price Each
•C1AD17	02-160761	SV5-8-0-0-00	No	None	None	Buna-N	0.29	

Housing Types: Aluminum STD (Standard light-duty aluminum 3000 psi maximum). Aluminum FR (Fatigue-rated aluminum 3000 psi maximum). Steel (Fatigue-rated Steel 5000 psi maximum).

Hydraulic Valves & Accessories

Directional Valves, Solenoid Operated • Screw-In Cartridge Type

2-way, 2-position, Normally Open Solenoid Valves Vickers® SV3-10-O Series • To 12 GPM & 3000 PSI



Description: The SV3-10-O is a 2-way, 2-position, poppet-type, pilot operated, normally open screw-in cartridge solenoid valve, and requires a machined cavity or housing for installation. This valve is used in applications requiring low leakage.

Operation: In the de-energized position, this valve allows bi-directional flow between port 1 and port 2. In the energized position, flow is blocked from port 2 to port 1, and is allowed from port 1 to port 2 when spring force is overcome.

Pressure Rating (All Ports): 3000 PSI.

Rated Flow: 12 GPM.

Internal Leakage: Port 2 to Port 1: Less than 5 drops per minute maximum @ 3000 PSI with valve energized.

Note: Performance data is typical with fluid at 105 SSU and 120°F.

Temperature Range: -40°F to 248°F (Extreme Limits).

Recommended Filtration: ISO 4406 Cleanliness Level 18/16/13 or cleaner.

Cartridge: Model SV3-10-O*, sold separately.

Housing: Cavity size C-10-2, sold separately, see page 441

Solenoid Connectors: page 446 (Required on models that use DIN 43650 connectors).

Coil: "J" Series 20 Watt, sold separately, see page 445

2-way, 2-position, Normally Open Solenoid Valves • Vickers® SV3-10-O Series • To 12 GPM & 3000 PSI

Catalog Part No.	Vickers Part No.	Vickers Model	Manual Override Option	Housing	Coil (1 Required)	Seal Material	Wt.	Price Each
•C1BT24	565541	SV3-10-O-0-00	No	None	None	Buna-N	0.37	

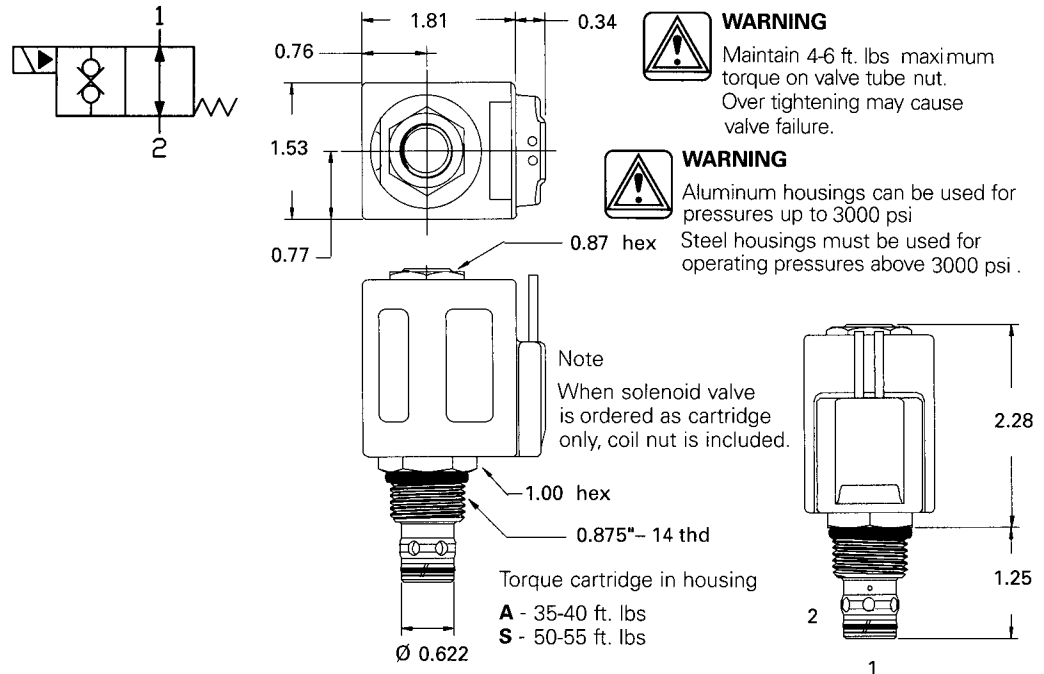
Housing Types: Aluminum STD (Standard light-duty aluminum 3000 psi maximum). Aluminum FR (Fatigue-rated aluminum 3000 psi maximum). Steel (Fatigue-rated Steel 5000 psi maximum).



Hydraulic Valves & Accessories

Directional Valves, Solenoid Operated • Screw-In Cartridge Type

2-way, 2-position, Normally Open Solenoid Valves Vickers® SBV11-10-O Series • To 20 GPM & 5000 PSI



Description: The SBV11-10-O is a 2-way, 2-position, bi-directional, pilot operated, poppet-type, normally open screw-in cartridge solenoid valve, and requires a machined cavity or housing for installation.

Operation: In the de-energized position, flow is allowed in both directions. In the energized position, flow is blocked in both directions.

Pressure Rating (All Ports): 5000 PSI. (CAUTION: Pressures over 3000 PSI require steel housing or manifold).

Rated Flow: 20 GPM.

Internal Leakage: Port 1 to Port 2, or Port 2 to Port 1: 5 drops per minute maximum @ 5000 PSI.

Note: Performance data is typical with fluid at 105 SSU and 120°F.

Temperature Range: -40°F to 212°F (Extreme Limits).

Recommended Filtration: ISO 4406 Cleanliness Level 18/16/13 or cleaner.

Cartridge: Model SBV11-10-O*, sold separately.

Housing: Cavity size C-10-2, sold separately, see page 441

Solenoid Connectors: page 446 (Required on models that use DIN 43650 connectors).

Coil: "H" Series 26 Watt, sold separately, see page 445

2-way, 2-position, Normally Open Solenoid Valves • Vickers® SBV11-10-O Series • To 20 GPM & 5000 PSI

Catalog Part No.	Vickers Part No.	Vickers Model	Housing	Coil (1 Required)	Seal Material	Wt.	Price Each
C1HY31	02-177579	SBV11-10-0-00	None	None	Buna-N	0.39	

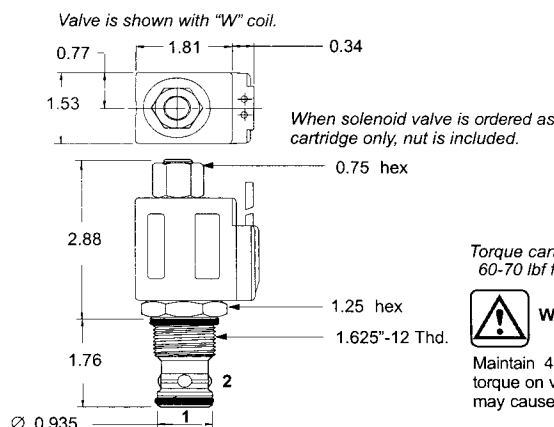
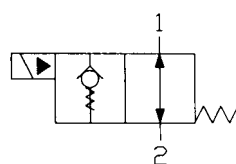
Housing Types: Aluminum STD (Standard light-duty aluminum 3000 psi maximum). Aluminum FR (Fatigue-rated aluminum 3000 psi maximum). Steel (Fatigue-rated Steel 5000 psi maximum).



Hydraulic Valves & Accessories

Directional Valves, Solenoid Operated • Screw-In Cartridge Type

2-way, 2-position, Normally Open Solenoid Valves Vickers® SV3-12-O Series • To 30 GPM & 3000 PSI



Torque cartridge in housing
60-70 lbf ft



WARNING

Maintain 4-6 lbf ft maximum torque on valve tube nut. Overtightening may cause valve failure.

Description: The SV3-12-O is a 2-way, 2-position, poppet-type, pilot operated, normally open screw-in cartridge solenoid valve, and requires a machined cavity or housing for installation.

Operation: In the de-energized position, this valve allows bi-directional flow between port 1 and port 2. In the energized position, flow is blocked from port 2 to port 1, and is allowed from port 1 to port 2 when spring force is overcome.

Pressure Rating (All Ports): 3000 PSI.

Rated Flow: 30 GPM.

Internal Leakage: Port 2 to Port 1: Less than 5 drops per minute maximum @ 3000 PSI with valve energized.

Note: Performance data is typical with fluid at 105 SSU and 120°F.

Temperature Range: -40°F to 248°F (Extreme Limits).

Recommended Filtration: ISO 4406 Cleanliness Level 17/15/12 or cleaner.

Cartridge: Model SV3-12-O*, sold separately.

Housing: Cavity size C-12-2 or C-12-2U, sold separately, see page 441

Solenoid Connectors: page 446 (Required on models that use DIN 43650 connectors).

Coil: "J" Series 20 Watt, sold separately, see page 445

2-way, 2-position, Normally Open Solenoid Valves • Vickers® SV3-12-O Series • To 30 GPM & 3000 PSI

Catalog Part No.	Vickers Part No.	Vickers Model	Manual Override Option	Housing	Coil (1 Required)	Seal Material	Wt.	Price Each
C1FQ44	02-161311	SV3-12-O-0-00	No	None	None	Buna-N	0.58	

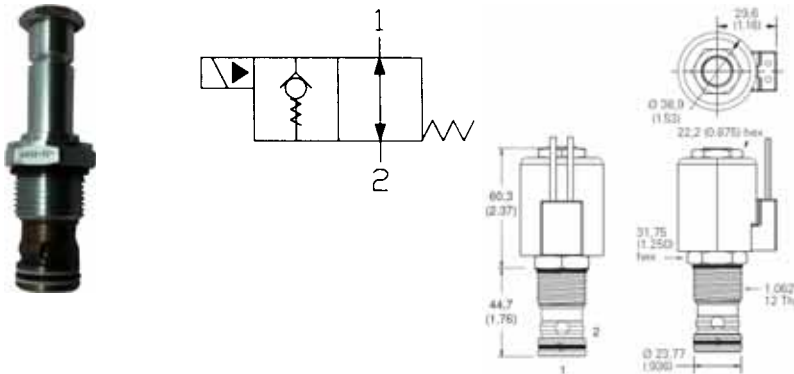
Housing Types: Aluminum STD (Standard light-duty aluminum 3000 psi maximum). Aluminum FR (Fatigue-rated aluminum 3000 psi maximum). Steel (Fatigue-rated Steel 5000 psi maximum).



Hydraulic Valves & Accessories

Directional Valves, Solenoid Operated • Screw-In Cartridge Type

2-way, 2-position, Normally Open Solenoid Valves Vickers® SV13-12-O Series • To 30 GPM & 5000 PSI



Description: The SV13-12-O is a 2-way, 2-position, poppet-type, pilot operated, normally open screw-in cartridge solenoid valve, and requires a machined cavity or housing for installation.

Operation: In the de-energized position, this valve allows bi-directional flow between port 1 and port 2. In the energized position, flow is blocked from port 2 to port 1, and is allowed from port 1 to port 2 when spring force is overcome.

Pressure Rating (All Ports): 5000 PSI

Rated Flow: 30 GPM

Internal Leakage: Less than 5 drops per minute maximum @ 5000 PSI

Temperature Range: -40° to 212°F

Recommended Filtration: ISO 4406 Cleanliness Level 18/16/13 or cleaner.

Cartridge: Model SV13-12-O*, sold separately.

Housing: Cavity size C-12-2, sold separately, see page 441

Coils: H Series, sold separately, see page 445

Solenoid Connectors: page 446 (Required on models that use DIN 43650 connectors).

2-way, 2-position, Normally Open Solenoid Valves • Vickers® SV13-12-O Series • To 30 GPM & 5000 PSI

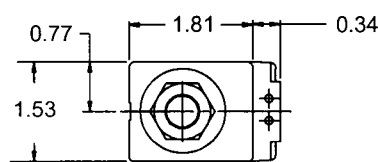
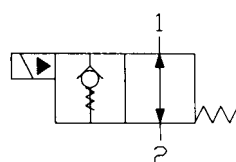
Catalog Part No.	Vickers Part No.	Vickers Model	Housing	Coil (1 Required)	Seal Material	Wt.	Price Each
C1MG18	02-175825	SV13-12-0-0-00	None	None	Buna-N	0.59	



Hydraulic Valves & Accessories

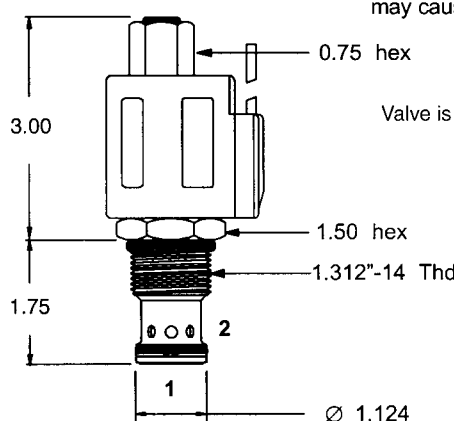
Directional Valves, Solenoid Operated • Screw-In Cartridge Type

2-way, 2-position, Normally Open Solenoid Valves Vickers® SV3-16-O Series • To 35 GPM & 3000 PSI



WARNING

Maintain 4-6 lbf ft maximum torque on valve tube nut. Overtightening may cause valve failure.



Valve is shown with leadwire coil

Torque cartridge in housing
80-90 lbf ft

Description: The SV3-16-O is a 2-way, 2-position, poppet-type, pilot operated, normally open screw-in cartridge solenoid valve, and requires a machined cavity or housing for installation.

Operation: In the de-energized position, this valve allows bi-directional flow between port 1 and port 2. In the energized position, flow is blocked from port 2 to port 1, and is allowed from port 1 to port 2 when spring force is overcome.

Pressure Rating (All Ports): 3000 PSI.

Rated Flow: 35 GPM.

Internal Leakage: Port 2 to Port 1: Less than 5 drops per minute maximum @ 3000 PSI with valve energized.

Note: Performance data is typical with fluid at 105 SSU and 120°F.

Temperature Range: -40°F to 248°F (Extreme Limits).

Recommended Filtration: ISO 4406 Cleanliness Level 18/16/13 or cleaner.

Cartridge: Model SV3-16-O*, sold separately.

Housing: Cavity size C-16-2, sold separately, see page 441

Solenoid Connectors: page 446 (Required on models that use DIN 43650 connectors).

Coil: "J" Series 20 Watt, sold separately, see page 445

2-way, 2-position, Normally Open Solenoid Valves • Vickers® SV3-16-O Series • To 35 GPM & 3000 PSI

Catalog Part No.	Vickers Part No.	Vickers Model	Manual Override Option	Housing	Coil (1 Required)	Seal Material	Wt.	Price Each
•C1BT26	565544	SV3-16-O-0-00	No	None	None	Buna-N	0.74	

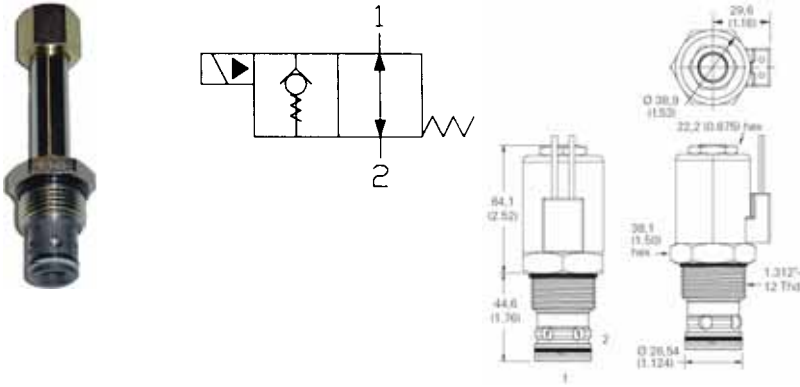
Housing Types: Aluminum STD (Standard light-duty aluminum 3000 psi maximum). Aluminum FR (Fatigue-rated aluminum 3000 psi maximum). Steel (Fatigue-rated Steel 5000 psi maximum).



Hydraulic Valves & Accessories

Directional Valves, Solenoid Operated • Screw-In Cartridge Type

2-way, 2-position, Normally Open Solenoid Valves Vickers® SV13-16-O Series • To 35 GPM & 5000 PSI



Description: The SV13-16-O is a 2-way, 2-position, poppet-type, pilot operated, normally open screw-in cartridge solenoid valve, and requires a machined cavity or housing for installation.

Operation: In the de-energized position, this valve allows bi-directional flow between port 1 and port 2. In the energized position, flow is blocked from port 2 to port 1, and is allowed from port 1 to port 2 when spring force is overcome.

Pressure Rating (All Ports): 5000 PSI

Rated Flow: 35 GPM

Internal Leakage: Less than 5 drops per minute maximum @ 5000 PSI.

Temperature Range: -40° to 212°F

Recommended Filtration: ISO 4406 Cleanliness Level 18/16/13 or cleaner.

Cartridge: Model SV13-16-O*, sold separately.

Housing: Cavity size C-16-2, sold separately, see page 441

Coils: page 445H Series, sold separately, see

Solenoid Connectors: page 446 (Required on models that use DIN 43650 connectors).

2-way, 2-position, Normally Open Solenoid Valves • Vickers® SV13-16-O Series • To 35 GPM & 5000 PSI

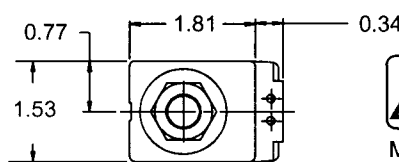
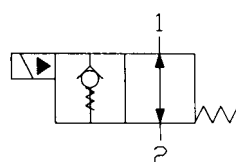
Catalog Part No.	Vickers Part No.	Vickers Model	Housing	Coil (1 Required)	Seal Material	Wt.	Price Each
C1MG16	02-175821	SV13-16-0-0-00	None	None	Buna-N	0.95	



Hydraulic Valves & Accessories

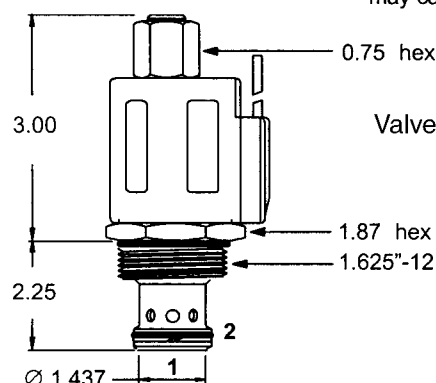
Directional Valves, Solenoid Operated • Screw-In Cartridge Type

2-way, 2-position, Normally Open Solenoid Valves Vickers® SV3-20-O Series • To 60 GPM & 3000 PSI



WARNING

Maintain 4-6 lbf ft maximum torque on valve tube nut. Overtightening may cause valve failure.



Valve shown with leadwire coil

Torque cartridge in housing
95-115 lbf ft

Description: The SV3-20-O is a 2-way, 2-position, poppet-type, pilot operated, normally open screw-in cartridge solenoid valve, and requires a machined cavity or housing for installation.

Operation: In the de-energized position, this valve allows bi-directional flow between port 1 and port 2. In the energized position, flow is blocked from port 2 to port 1, and is allowed from port 1 to port 2 when spring force is overcome.

Pressure Rating (All Ports): 3000 PSI.

Rated Flow: 60 GPM.

Internal Leakage: Port 2 to Port 1: Less than 5 drops per minute maximum @ 3000 PSI with valve energized.

Note: Performance data is typical with fluid at 105 SSU and 120°F.

Temperature Range: -40°F to 248°F (Extreme Limits).

Recommended Filtration: ISO 4406 Cleanliness Level 18/16/13 or cleaner.

Cartridge: Model SV3-20-O*, sold separately.

Housing: Cavity size C-20-2, sold separately, see page 441

Solenoid Connectors: page 446 (Required on models that use DIN 43650 connectors).

Coil: "J" Series 20 Watt, sold separately, see page 445

2-way, 2-position, Normally Open Solenoid Valves • Vickers® SV3-20-O Series • To 60 GPM & 3000 PSI

Catalog Part No.	Vickers Part No.	Vickers Model	Manual Override Option	Housing	Coil (1 Required)	Seal Material	Wt.	Price Each
C1BT27	565545	SV3-20-O-0-00	No	None	None	Buna-N	1.25	

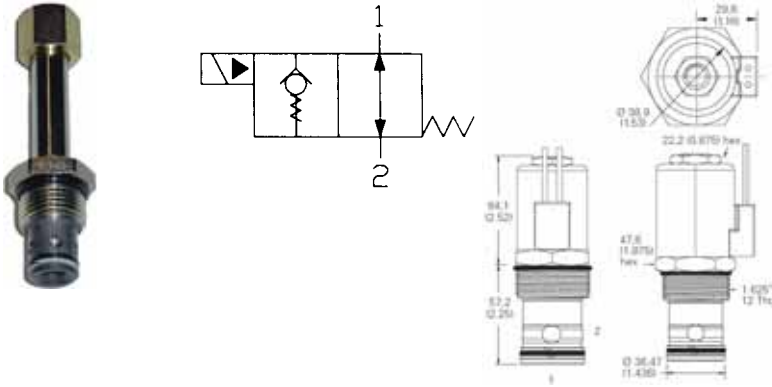
Housing Types: Aluminum STD (Standard light-duty aluminum 3000 psi maximum). Aluminum FR (Fatigue-rated aluminum 3000 psi maximum). Steel (Fatigue-rated Steel 5000 psi maximum).



Hydraulic Valves & Accessories

Directional Valves, Solenoid Operated • Screw-In Cartridge Type

2-way, 2-position, Normally Open Solenoid Valves Vickers® SV13-20-O Series • To 60 GPM & 5000 PSI



Description: The SV13-20-O is a 2-way, 2-position, poppet-type, pilot operated, normally open screw-in cartridge solenoid valve, and requires a machined cavity or housing for installation.

Operation: In the de-energized position, this valve allows bi-directional flow between port 1 and port 2. In the energized position, flow is blocked from port 2 to port 1, and is allowed from port 1 to port 2 when spring force is overcome.

Pressure Rating (All Ports): 5000 PSI

Rated Flow: 60 GPM

Internal Leakage: Less than 5 drops per minute maximum @ 5000 PSI

Temperature Range: -40° to 212°F

Recommended Filtration: ISO 4406 Cleanliness Level 18/16/13 or cleaner.

Cartridge: Model SV13-20-O*, sold separately.

Housing: Cavity size C-20-2, sold separately, see page 441

Coils: H Series, sold separately, see page 445

Solenoid Connectors: page 446 (Required on models that use DIN 43650 connectors).

2-way, 2-position, Normally Open Solenoid Valves • Vickers® SV13-20-O Series • To 60 GPM & 5000 PSI

Catalog Part No.	Vickers Part No.	Vickers Model	Housing	Coil (1 Required)	Seal Material	Wt.	Price Each
C1MG14	02-175817	SV13-20-0-0-00	None	None	Buna-N	1.37	

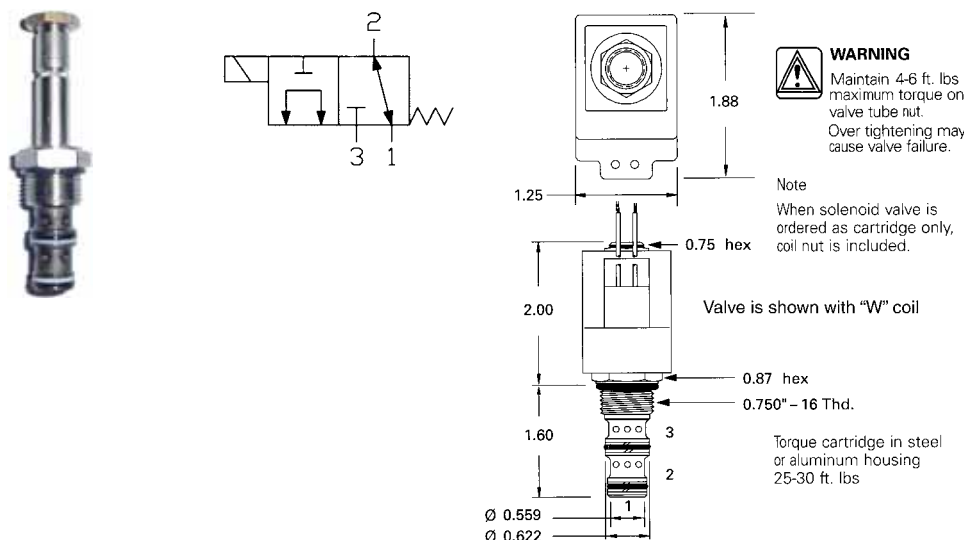


Hydraulic Valves & Accessories

Directional Valves, Solenoid Operated • Screw-In Cartridge Type

3-way, 2-position Solenoid Valves

Vickers® SV1-8-3 Series • To 3 GPM & 3000 PSI



Description: The SV1-8-3 is a 3-way, 2-position, spool-type, direct acting screw-in cartridge solenoid valve, and requires a machined cavity or housing for installation. This valve can be used in applications requiring separate pressure and tank lines, such as a single acting cylinder.

Operation: In the de-energized position, this valve allows flow from port 2 to port 1 while port 3 is blocked. In the energized position, flow is allowed from port 1 to port 3 while port 2 is blocked.

Pressure Rating: 3000 PSI all ports.

Rated Flow: 3 GPM.

Internal Leakage: 5 in³ per minute maximum @ 3000 PSI.

Note: Performance data is typical with fluid at 105 SSU and 120°F.

Temperature Range: -40°F to 248°F (Extreme Limits).

Recommended Filtration: ISO 4406 Cleanliness Level 18/16/13 or cleaner.

Cartridge: Model SV1-8-3*, sold separately.

Housing: Cavity size C-8-3, sold separately, see page 442

Solenoid Connectors: page 446 (Required on models that use DIN 43650 connectors).

Seal Kit: 02-160755 (Buna-N), 02-160756 (Viton®).

Coil: "S" Series 16 Watt, sold separately, see page 445

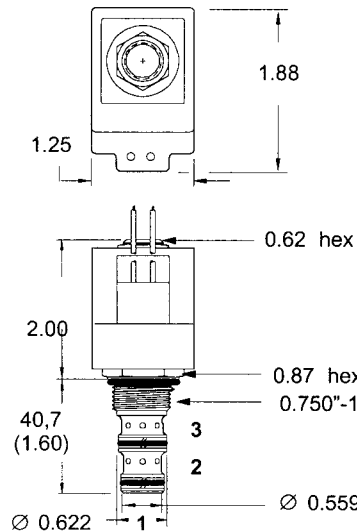
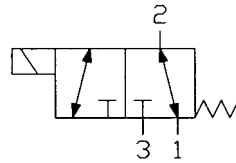
3-way, 2-position Solenoid Valves • Vickers® SV1-8-3 Series • To 3 GPM & 3000 PSI

Catalog Part No.	Vickers Part No.	Vickers Model	Manual Override Option	Housing	Coil (1 Required)	Seal Material	Wt.	Price Each
C1HL36	02-160771	SV1-8-3-0-00	No	None	None	Buna-N	0.24	

Housing Types: Aluminum STD (Standard light-duty aluminum 3000 psi maximum). Aluminum FR (Fatigue-rated aluminum 3000 psi maximum). Steel (Fatigue-rated Steel 5000 psi maximum).

3-way, 2-position Solenoid Valves

Vickers® SV4-8-3 Series • To 4 GPM & 3000 PSI



Valve is shown with "W" coil.

Torque cartridge in housing 25-30 lbf ft



WARNING

Maintain 4-6 lbf ft maximum torque on valve tube nut. Overtightening may cause valve failure.

Description: The SV4-8-3 is a 3-way, 2-position, spool-type, direct acting screw-in cartridge solenoid valve, and requires a machined cavity or housing for installation.

Operation: In the de-energized position, this valve allows flow from port 2 to port 1 while port 3 is blocked. In the energized position, flow is allowed from port 2 to port 3 while port 1 is blocked. Pressure on port 1 should not exceed 300 PSI.

Pressure Rating: 3000 PSI port 2 and port 3. 300 PSI port 1.

Rated Flow: 4 GPM.

Internal Leakage: 5 in³ per minute maximum @ 3000 PSI.

Note: Performance data is typical with fluid at 105 SSU and 120°F.

Temperature Range: -40°F to 248°F (Extreme Limits).

Recommended Filtration: ISO 4406 Cleanliness Level 18/16/13 or cleaner.

Cartridge: Model SV4-8-3*, sold separately.

Housing: Cavity size C-8-3, sold separately, see page 442

Solenoid Connectors: page 446 (Required on models that use DIN 43650 connectors).

Coil: "S" Series 16 Watt, sold separately, see page 445

3-way, 2-position Solenoid Valves • Vickers® SV4-8-3 Series • To 4 GPM & 3000 PSI

Catalog Part No.	Vickers Part No.	Vickers Model	Manual Override Option	Housing	Coil (1 Required)	Seal Material	Wt.	Price Each
C1FV36	02-198050	SV4-8-3-0-24BNS	No	None	24VDC with Deutsch connector and with arc suppression diode	Buna-N	0.74	

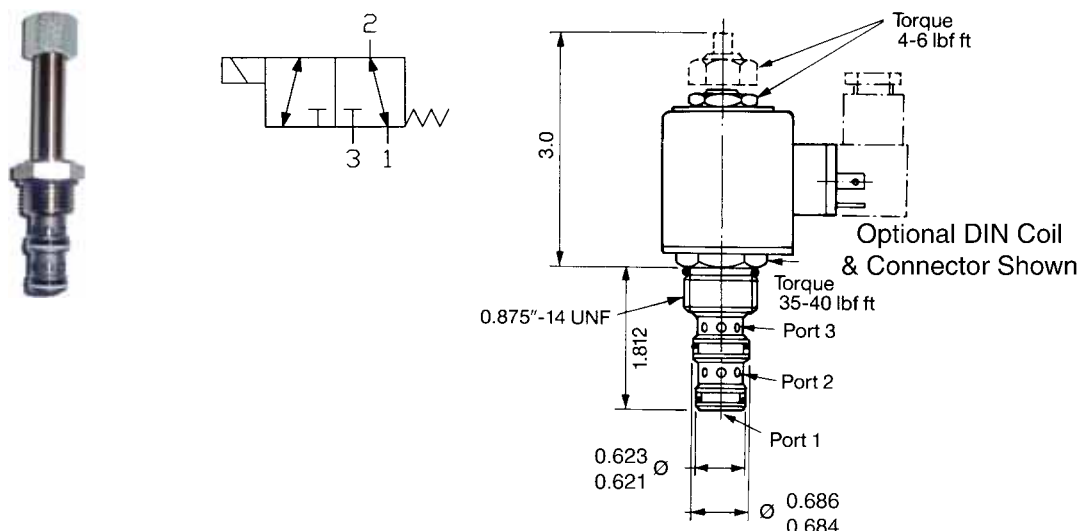
Housing Types: Aluminum STD (Standard light-duty aluminum 3000 psi maximum). Aluminum FR (Fatigue-rated aluminum 3000 psi maximum). Steel (Fatigue-rated Steel 5000 psi maximum).

Hydraulic Valves & Accessories

Directional Valves, Solenoid Operated • Screw-In Cartridge Type

3-way, 2-position Solenoid Valves

Vickers® SV4-10-3 Series • To 6 GPM & 3000 PSI



Description: The SV4-10-3 is a 3-way, 2-position, spool-type, direct acting screw-in cartridge solenoid valve, and requires a machined cavity or housing for installation.

Operation: In the de-energized position, this valve allows flow from port 1 to port 2 while port 3 is blocked. In the energized position, flow is allowed from port 2 to port 3 while port 1 is blocked.

Pressure Rating (All Ports): 3000 PSI.

Rated Flow: 6 GPM.

Internal Leakage: 10 in³ per minute maximum @ 3000 PSI.

Note: Performance data is typical with fluid at 105 SSU and 120°F.

Temperature Range: -40°F to 248°F (Extreme Limits).

Recommended Filtration: ISO 4406 Cleanliness Level 18/16/13 or cleaner.

Cartridge: Model SV4-10-3*, sold separately.

Housing: Cavity size C-10-3, sold separately, see page 442

Solenoid Connectors: page 446 (Required on models that use DIN 43650 connectors).

Coil: "J" Series 20 Watt, sold separately, see page 445

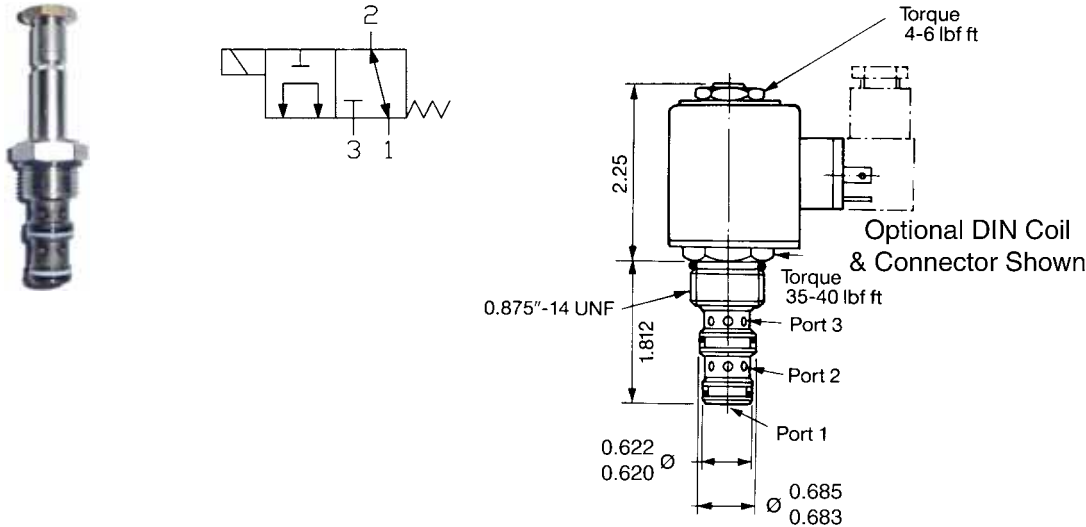
3-way, 2-position Solenoid Valves • Vickers® SV4-10-3 Series • To 6 GPM & 3000 PSI

Catalog Part No.	Vickers Part No.	Vickers Model	Manual Override Option	Housing	Coil (1 Required)	Seal Material	Wt.	Price Each
C1BT60	566307	SV4-10-3-0-00	No	None	None	Buna-N	0.40	
C1KH68	02-167839	SV4-10-3-0-115AP	No	None	115VAC 1/2" NPT conduit	Buna-N	1.22	

Housing Types: Aluminum STD (Standard light-duty aluminum 3000 psi maximum). Aluminum FR (Fatigue-rated aluminum 3000 psi maximum). Steel (Fatigue-rated Steel 5000 psi maximum).

3-way, 2-position Solenoid Valves

Vickers® SV1-10-3 Series • To 6 GPM & 3000 PSI



Description: The SV1-10-3 is a 3-way, 2-position, spool-type, direct acting screw-in cartridge solenoid valve, and requires a machined cavity or housing for installation.

Operation: In the de-energized position, this valve allows flow from port 2 to port 1 while port 3 is blocked. In the energized position, flow is allowed from port 1 to port 3 while port 2 is blocked.

Pressure Rating (All Ports): 3000 PSI.

Rated Flow: 6 GPM.

Internal Leakage: 10 in³ per minute maximum @ 3000 PSI.

Note: Performance data is typical with fluid at 105 SSU and 120°F.

Temperature Range: -40°F to 248°F (Extreme Limits).

Recommended Filtration: ISO 4406 Cleanliness Level 18/16/13 or cleaner.

Cartridge: Model SV1-10-3*, sold separately.

Housing: Cavity size C-10-3, sold separately, see page 442

Solenoid Connectors: page 446 (Required on models that use DIN 43650 connectors).

Coil: "J" Series 20 Watt, sold separately, see page 445

3-way, 2-position Solenoid Valves • Vickers® SV1-10-3 Series • To 6 GPM & 3000 PSI

Catalog Part No.	Vickers Part No.	Vickers Model	Manual Override Option	Housing	Coil (1 Required)	Seal Material	Wt.	Price Each
•C1BT28	565546	SV1-10-3-0-00	No	None	None	Buna-N	0.32	

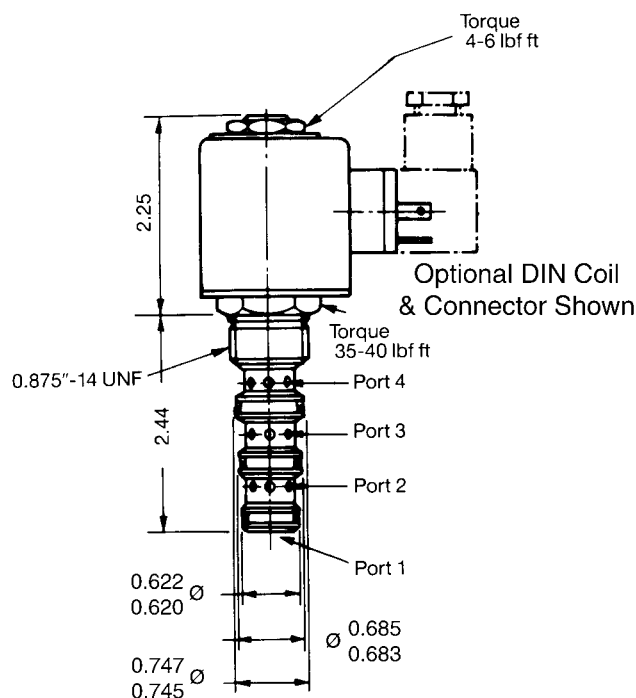
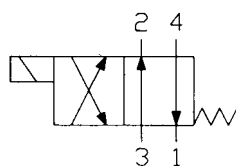
Housing Types: Aluminum STD (Standard light-duty aluminum 3000 psi maximum). Aluminum FR (Fatigue-rated aluminum 3000 psi maximum). Steel (Fatigue-rated Steel 5000 psi maximum).

Hydraulic Valves & Accessories

Directional Valves, Solenoid Operated • Screw-In Cartridge Type

4-way, 2-position Solenoid Valves

Vickers® SV1-10-4 Series • To 6 GPM & 3000 PSI



Description: The SV1-10-4 is a 4-way, 2-position, spool-type, direct acting screw-in cartridge solenoid valve, and requires a machined cavity or housing for installation.

Operation: In the de-energized position, this valve allows flow from port 2 to port 3 and from port 4 to port 1. In the energized position, flow is allowed from port 3 to port 4 and from port 2 to port 1.

Pressure Rating (All Ports): 3000 PSI.

Rated Flow: 6 GPM.

Internal Leakage: 10 in³ per minute maximum @ 3000 PSI.

Note: Performance data is typical with fluid at 105 SSU and 120°F.

Temperature Range: -40°F to 248°F (Extreme Limits).

Recommended Filtration: ISO 4406 Cleanliness Level 18/16/13 or cleaner.

Cartridge: Model SV1-10-4*, sold separately.

Housing: Cavity size C-10-4, sold separately, see page 443

Solenoid Connectors: page 446 (Required on models that use DIN 43650 connectors).

Coil: "J" Series 20 Watt, sold separately, see page 445

4-way, 2-position Solenoid Valves • Vickers® SV1-10-4 Series • To 6 GPM & 3000 PSI

Catalog Part No.	Vickers Part No.	Vickers Model	Manual Override Option	Housing	Coil (1 Required)	Seal Material	Wt.	Price Each
•C1BT29	565547	SV1-10-4-0-00	No	None	None	Buna-N	0.36	

Housing Types: Aluminum STD (Standard light-duty aluminum 3000 psi maximum). Aluminum FR (Fatigue-rated aluminum 3000 psi maximum). Steel (Fatigue-rated Steel 5000 psi maximum).

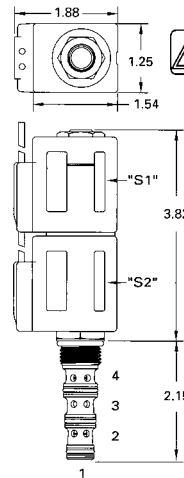
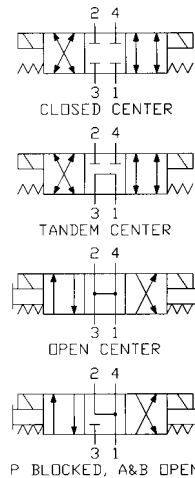


Hydraulic Valves & Accessories

Directional Valves, Solenoid Operated • Screw-In Cartridge Type

4-way, 3-position Solenoid Valves

Vickers® SV9-8 Series • To 3.5 GPM & 3000 PSI



WARNING
Maintain 4-6 ft. lbs. maximum torque on valve tube nut. Over tightening may cause valve failure.

Valve is shown with "W" coil.

IMPORTANT
COIL SPACER 02-186730 IS NEEDED TO ASSEMBLE A VALVE

Torque cartridge in aluminum or steel housing 25-30 ft. lbs

Description: The SV9-10 is a 4-way, 3-position, spool-type, direct acting screw-in cartridge solenoid valve, and requires a machined cavity or housing for installation.

Operation: Closed Center Valves: In the de-energized position, all ports are blocked. When solenoid 1 is energized, flow is directed from port 3 to port 2 and from port 4 to port 1. When solenoid 2 is energized, flow is directed from port 3 to port 4 and from port 2 to port 1. Tandem Center Valves: In the de-energized position, this valve allows flow from 3 to port 1 and blocks ports 2 and 4. When solenoid 1 is energized, flow is directed from port 3 to port 2 and from port 4 to port 1. When solenoid 2 is energized, flow is directed from port 3 to port 4 and from port 2 to port 1.

Pressure Rating (All Ports): 3000 PSI.

Rated Flow: Tandem Center models 3 GPM, Others 3.5 GPM.

Internal Leakage: 10 in³ per minute maximum @ 3000 PSI.

Note: Performance data is typical with fluid at 105 SSU and 120°F.

Temperature Range: -40°F to 248°F (Extreme Limits).

Recommended Filtration: ISO 4406 Cleanliness Level 18/16/13 or cleaner.

Cartridge: Model SV9-8*, sold separately.

Housing: Cavity size C-8-4, sold separately. Aluminum NFPA fatigue rated models: 02-160749 SAE-6 Ports, 02-160750 SAE-8 Ports. See page 443

Solenoid Connectors: page 446 (Required on models that use DIN 43650 connectors).

Coils: "P" Series 20 Watt, sold separately, see page 445

4-way, 3-position Solenoid Valves • Vickers® SV9-8 Series • To 3.5 GPM & 3000 PSI

Catalog Part No.	Vickers Part No.	Vickers Model	Circuit Type	Housing	Coils (2 Required)	Seal Material	Wt.	Price Each
C1HW91	02-198685	VICK SV98NF00000000000000	P Blocked, A&B Open	None	None	Buna-N	0.50	

Note: (1ea) 02-186730 Spacer is REQUIRED to assemble a valve. (Select from table below).

Parts for Vickers® SV9-8 Solenoid Valve Cartridges

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1HW46	02-186730	Spacer (To be inserted between the coils - REQUIRED)	0.06	

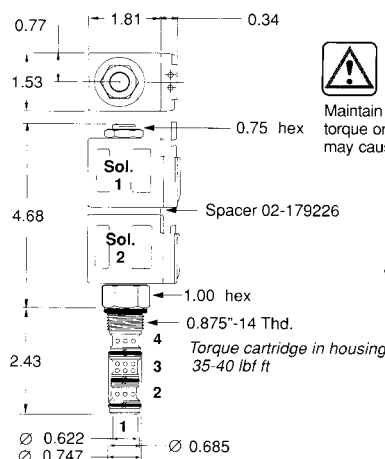
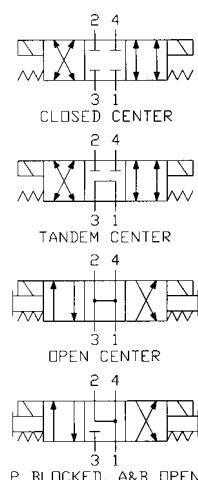


Hydraulic Valves & Accessories

Directional Valves, Solenoid Operated • Screw-In Cartridge Type

4-way, 3-position Solenoid Valves

Vickers® SV9-10 Series • To 6 GPM & 3000 PSI



WARNING

Maintain 4-6 lbf ft maximum torque on valve tube nut. Overtightening may cause valve failure.

Optional Lead Wire Coil Shown

Description: The SV9-10 is a 4-way, 3-position, spool-type, direct acting screw-in cartridge solenoid valve, and requires a machined cavity or housing for installation.

Operation: Closed Center Valves: In the de-energized position, all ports are blocked. When solenoid 1 is energized, flow is directed from port 3 to port 2 and from port 4 to port 1. When solenoid 2 is energized, flow is directed from port 3 to port 4 and from port 2 to port 1. Tandem Center Valves: In the de-energized position, this valve allows flow from 3 to port 1 and blocks ports 2 and 4. When solenoid 1 is energized, flow is directed from port 3 to port 2 and from port 4 to port 1. When solenoid 2 is energized, flow is directed from port 3 to port 4 and from port 2 to port 1.

Pressure Rating (All Ports): 3000 PSI.

Rated Flow: Tandem Center models 5 GPM, Others 6 GPM.

Internal Leakage: 15 in³ per minute maximum @ 3000 PSI.

Note: Performance data is typical with fluid at 105 SSU and 120°F.

Temperature Range: -40°F to 248°F (Extreme Limits).

Recommended Filtration: ISO 4406 Cleanliness Level 18/16/13 or cleaner.

Cartridge: Model SV9-10*, sold separately.

Housing: Cavity size C-10-4, sold separately, see page 443

Solenoid Connectors: page 446 (Required on models that use DIN 43650 connectors).

Coils: "J" Series 20 Watt, sold separately, see page 445

4-way, 3-position Solenoid Valves • Vickers® SV9-10 Series • To 6 GPM & 3000 PSI

Catalog Part No.	Vickers Part No.	Vickers Model	Circuit Type	Housing	Coils (2 Required)	Seal Material	Wt.	Price Each
•C1KY86	02-199325	SV910NA00000000000000A	Tandem Center	None	None	Buna-N	0.53	
C1KX60	02-199329	SV910NF00000000000000A	P Blocked, A&B Open to Tank	None	None	Buna-N	0.53	

Note: (1ea) 02-179226 Spacer is REQUIRED to assemble a valve (Select from table below).

Parts for Vickers® SV9-10 Solenoid Valve Cartridges

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1AD39	02-179226	Spacer (To be inserted between the coils - REQUIRED)	0.06	

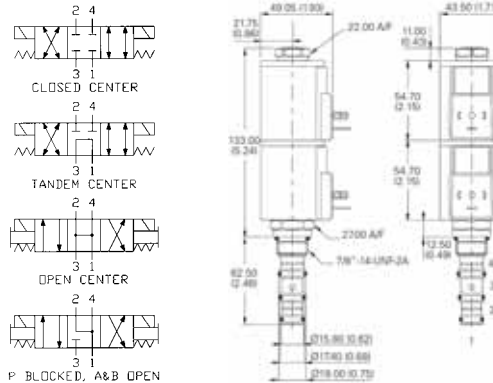


Hydraulic Valves & Accessories

Directional Valves, Solenoid Operated • Screw-In Cartridge Type

4-way, 3-position Solenoid Valves

Eaton SV9A-10 Series • To 8.9 GPM & 3000 PSI



Description: This is a 4 way 3 position, direct acting, spool type solenoid valve and requires a machined cavity or housing for installation. This valve is ideal for small flow applications where an actuator needs to be moved in both directions. Hardened, ground and honed working parts to limit leakage. IP69K Tough coil compatibility. Continuously rated. Compact design with low pressure drop. Rated pressure on all ports.

Operation: Closed Center: In the de-energized position, all ports are blocked. When solenoid 1 is energized, flow is directed from port 3 to port 2 and from port 4 to port 1. When solenoid 2 is energized, flow is directed from port 3 to port 4 and from port 2 to port 1. Tandem Center: In the de-energized position, this valve allows flow from 3 to port 1 and blocks ports 2 and 4. When solenoid 1 is energized, flow is directed from port 3 to port 2 and from port 4 to port 1. When solenoid 2 is energized, flow is directed from port 3 to port 4 and from port 2 to port 1. Open Center: In the de-energized position all ports are open. When solenoid 'A' is energized flow is allowed from port 3 to port 4 and port 2 to port 1. When solenoid 'B' is energized flow is allowed from port 3 to port 2 and from port 4 to port 1. P Blocked, A&B Open to Tank: In the de-energized (center) position, port 1, port 2, and port 4 are open to each other while port 3 is blocked. When solenoid A is energized, flow is directed from port 3 to port 4 and from port 2 to port 1. When solenoid B is energized, flow is directed from port 3 to port 2 and from port 4 to port 1.

Pressure Rating (All Ports): 3000 PSI

Rated Flow: See chart below

Internal Leakage: Less than 7.3 in³/min past each land 3000 PSI differential

Note: Performance data is typical with fluid at 150 SSU and 120°F.

Temperature Range: -22° to +248°F

Recommended Filtration: BS5540/4 Class 18/13 (25 micron or better)

Cartridge: Model SV9A-10* sold separately.

Housing: Cavity size C-10-4, sold separately, see page 443

Solenoid Connectors: Required on models with DIN 43650 connectors. See page 446

Coils: "L" Series, 30W. Sold separately, see page 445

4-way, 3-position Solenoid Valves • Eaton SV9A-10 Series • To 8.9 GPM & 3000 PSI

Catalog Part No.	Eaton Part No.	Eaton Model	Circuit Type	Housing	Coils (2 Required)	Seal Material	Rated Flow (GPM)	Wt.	Price Each
C11X26	403AA01054 A	SV9A-10-N-B-0-0-0	Open Center	None	None	Buna-N	8.9	0.55	
		SV9A-10-N-F-0-0-0	P Blocked, A&B Open to Tank	Not Included	Not Included	Buna-N	6.5	0.55	



Hydraulic Valves & Accessories

Directional Valves, Solenoid Operated • NFPA Size D03 • ISO 4401 Size 03
Vickers DG4V-3 & DG4V-3S Series



Vickers® DG4V-3S (Standard Performance) • Flows to 10.5 GPM DG4V-3 (High Performance) • Flows to 21 GPM



Features: High reliability. High pressure & flow capability. Low pressure drops. Viton® seals. Scratch-proof manual override. Coil change with valve in place. ISO 4401 Size 03, NFPA D03 port interface.

Maximum Operating Pressure: 5075 psi. (CAUTION: Pressures over 3000 PSI require steel subplate or manifold). (See tables for port T pressure rating).

Maximum Flow Rates: Dependent on spool/spring combination and coil.

Operating Fluid Temperature Range: -4°F to 158°F (Mineral oil), +50°F to 129°F (water based fluids).

Ambient Temperature Range:

DG4V-3S: 4°F to 149°F (Dual freq. Coil @110% voltage).

DG4V-3: -4°F to 122°F (Dual freq. coil @107% voltage), -4°F to 104°F (Dual freq. coil @ 110% voltage).

Mounting Considerations: Detented models should mount with longitudinal axis horizontal. Other models may be mounted in any position.

Service Parts: page 375

Technical Information: page 673

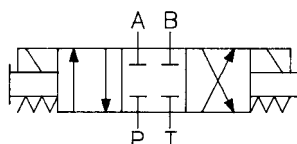
Note: These valves are available in a wide variety of configurations not shown in this catalog. Contact us for detailed information.

Size D03 Subplates & Manifolds: page 450

Solenoid Connectors: page 446(Required on models that use DIN 43650 connectors).

Mounting Bolts: Standard mounting bolts are 4ea 10-24 x 1-1/4 Grade 8 socket head capscrews (Vickers Bolt Kit 590716), torqued to 44-62 lb.in. with threads lubricated. See Bolt Kits on page 440

4-way, 3-position, Spring Centered Spool / Spring Code 2C



Transient conditions during shift: P to A: All blocked. P to B: All blocked.

Maximum Flow Rates @ 3000 PSI:

Standard Performance: AC Coils 10 GPM, DC Coils 8 GPM.

High Performance: AC Coils 16 GPM, DC Coils 21 GPM.

4-way, 3-position, Spring Centered • Spool / Spring Code 2C

Catalog Part No.	Vickers Part No.	Vickers Model	Type	Coil Rating	Coil Type	Port T Rating (psi)	Optional Features	Wt.	Price Each
C1AC46	02-109686	DG4V-3S-2C-M-U-B5-60	STD	110VAC50Hz 120VAC60Hz	DIN 43650	1500		4.25	
•C1AC42	02-109575	DG4V-3S-2C-M-FW-B5-60	STD	110VAC50Hz 120VAC60Hz	Lead wires Conduit box	1500		4.25	
C1JS96	02-109026	DG4V-3S-2C-M-U-D5-60	STD	220VAC50Hz 240VAC60Hz	DIN 43650	1500		4.05	
•C1AC37	02-109055	DG4V-3S-2C-M-U-G5-60	STD	12VDC	DIN 43650	1500		4.70	
C1LA85	02-109943	DG4V-3S-2C-H-M-U-G5-60	STD	12VDC	DIN 43650	1500	Water-resistant override		
•C1AC49	02-109826	DG4V-3S-2C-M-FW-G5-60	STD	12VDC	Lead wires Conduit box	1500		4.83	
•C1AC31	02-109025	DG4V-3S-2C-M-U-H5-60	STD	24VDC	DIN 43650	1500		4.68	
C1KD96	859161	DG4V-3-2C-M-U-B6-60	HP	110VAC50Hz 120VAC60Hz	DIN 43650	3000		4.13	
C1KD98	859172	DG4V-3-2C-M-U-D6-60	HP	220VAC50Hz 240VAC60Hz	DIN 43650	3000		4.00	
C1BS80	529760	DG4V-3-2C-M-U-H7-60	HP	24VDC	DIN 43650	3000		4.79	

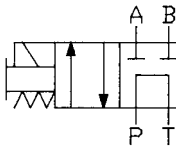


Hydraulic Valves & Accessories

Directional Valves, Solenoid Operated • NFPA Size D03 • ISO 4401 Size 03
Vickers DG4V-3 & DG4V-3S Series



4-way, 3-position, Spring Centered Spool / Spring Code 8C



Transient conditions during shift: P to A: P & A restricted opening to T, B blocked.
P to B: P & B restricted opening to T, A blocked.

Maximum Flow Rates @ 3000 PSI:

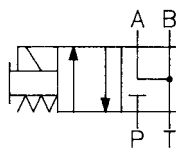
Standard Performance: AC Coils 3 GPM, DC Coils 2.5 GPM.

High Performance: AC Coils 9 GPM, DC Coils 12 GPM.

4-way, 3-position, Spring Centered • Spool / Spring Code 8C

Catalog Part No.	Vickers Part No.	Vickers Model	Type	Coil Rating	Coil Type	Port T Rating (psi)	Optional Features	Wt.	Price Each
C1AC96	02-145188	DG4V-3S-8C-VM-U-B5-61	STD	110VAC50Hz 120VAC60Hz	DIN 43650	1500		3.00	
•C1AC93	02-145150	DG4V-3S-8C-VM-FW-B5-61	STD	110VAC50Hz 120VAC60Hz	Lead wires Conduit box	1500		4.25	
C1JP87	02-144939	DG4V-3S-8C-VM-U-D5-61	STD	220VAC50Hz 240VAC60Hz	DIN 43650	1500		4.05	
•C1AC97	02-145190	DG4V-3S-8C-VM-U-G5-61	STD	12VDC	DIN 43650	1500		4.68	
•C1AC95	02-145182	DG4V-3S-8C-VM-FW-G5-61	STD	12VDC	Lead wires Conduit box	1500		5.00	
•C1AC98	02-145192	DG4V-3S-8C-VM-U-H5-61	STD	24VDC	DIN 43650	1500		5.00	
•C1AC94	02-145158	DG4V-3-8C-VM-FW-B6-61	HP	110VAC50Hz 120VAC60Hz	Lead wires Conduit box	3000		4.20	

4-way, 3-position, Spring Centered Spool / Spring Code 6C



Transient conditions during shift: P to A: P & A blocked, B open to T. P to B: P & B blocked, A open to T.

Maximum Flow Rates @ 3000 PSI:

Standard Performance: AC Coils 5 GPM, DC Coils 3.5 GPM.

High Performance: AC Coils 5 GPM, DC Coils 9 GPM.

4-way, 3-position, Spring Centered • Spool / Spring Code 6C

Catalog Part No.	Vickers Part No.	Vickers Model	Type	Coil Rating	Coil Type	Port T Rating (psi)	Optional Features	Wt.	Price Each
C1AC48	02-109824	DG4V-3S-6C-M-U-B5-60	STD	110VAC50Hz 120VAC60Hz	DIN 43650	1500		4.02	
•C1AC41	02-109573	DG4V-3S-6C-M-FW-B5-60	STD	110VAC50Hz 120VAC60Hz	Lead wires Conduit box	1500		4.25	
•C1AC43	02-109628	DG4V-3S-6C-M-FW-G5-60	STD	12VDC	Lead wires Conduit box	1500		4.80	
•C1AC35	02-109047	DG4V-3S-6C-M-U-H5-60	STD	24VDC	DIN 43650	1500		4.75	
C1KD99	859176	DG4V-3-6C-M-U-B6-60	HP	110VAC50Hz 120VAC60Hz	DIN 43650	3000		4.12	
C1KB62	565465	DG4V-3-6C-M-U-H7-60	HP	24VDC	DIN 43650	3000		4.87	

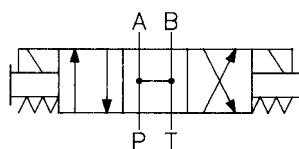


Hydraulic Valves & Accessories

Directional Valves, Solenoid Operated • NFPA Size D03 • ISO 4401 Size 03
Vickers DG4V-3 & DG4V-3S Series



4-way, 3-position, Spring Centered Spool / Spring Code 0C



Transient conditions during shift: All open.

Maximum Flow Rates @ 3000 PSI:

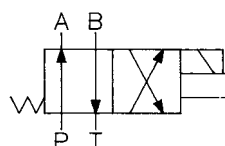
Standard Performance: AC Coils 10.5 GPM, DC Coils 10.5 GPM.

High Performance: AC Coils 16 GPM, DC Coils 16 GPM.

4-way, 3-position, Spring Centered • Spool / Spring Code 0C

Catalog Part No.	Vickers Part No.	Vickers Model	Type	Coil Rating	Coil Type	Port T Rating (psi)	Optional Features	Wt.	Price Each
C1AC51	02-109940	DG4V-3S-0C-M-U-B5-60	STD	110VAC50Hz 120VAC60Hz	DIN 43650	1500		3.00	
• C1AC45	02-109660	DG4V-3S-0C-M-FW-B5-60	STD	110VAC50Hz 120VAC60Hz	Lead wires Conduit box	1500		4.13	
C1AC34	02-109044	DG4V-3S-0C-M-U-G5-60	STD	12VDC	DIN 43650	1500		3.00	
• C1AC47	02-109696	DG4V-3S-0C-M-FW-G5-60	STD	12VDC	Lead wires Conduit box	1500		5.00	
C1GF75	02-354934	DG4V-3S-0C-Y-M-SP2-G5-60	STD	12VDC	Dual 6.3mm spade	1500	Latching water-resistant manual overrides	4.90	
• C1FE42	02-109693	DG4V-3S-0C-M-FW-H5-60	STD	24VDC	Lead wires Conduit box	1500		4.79	
C1GF89	02-354935	DG4V-3S-0C-Y-M-SP2-H5-60	STD	24VDC	Dual 6.3mm spade	1500	Latching water-resistant manual overrides	4.89	

4-way, 2-position, Spring Offset End-to-End Spool / Spring Code 2A



Transient conditions during shift: All blocked.

Maximum Flow Rates @ 3000 PSI:

Standard Performance: AC Coils 7.5 GPM, DC Coils 7.5 GPM.

High Performance: AC Coils 16 GPM, DC Coils 16 GPM.

4-way, 2-position, Spring Offset End-to-End • Spool / Spring Code 2A

Catalog Part No.	Vickers Part No.	Vickers Model	Type	Coil Rating	Coil Type	Port T Rating (psi)	Optional Features	Wt.	Price Each
C1AC44	02-109632	DG4V-3S-2A-M-U-B5-60	STD	110VAC50Hz 120VAC60Hz	DIN 43650	1500		3.19	
• C1AC38	02-109563	DG4V-3S-2A-M-FW-B5-60	STD	110VAC50Hz 120VAC60Hz	Lead wires Conduit box	1500		3.50	
C1JP80	02-109642	DG4V-3S-2A-M-U-D5-60	STD	220VAC50Hz 240VAC60Hz	DIN 43650	1500		3.20	
• C1AC32	02-109030	DG4V-3S-2A-M-U-H5-60	STD	24VDC	DIN 43650	1500		3.75	
C1MX21	02-397418	DG4V-3S-2A-M-KU-P1-G7-60-EN 490	STD	12VDC	Lead wires	3000	Packard Weatherpak Connectors	4.80	
C1BS81	529762	DG4V-3-2A-M-U-H7-60	HP	24VDC	DIN 43650	3000		3.57	

Left Hand Build Models: Solenoid is on opposite side of valve body. De-Energized state is P to B, A to T.

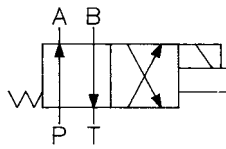


Hydraulic Valves & Accessories

Directional Valves, Solenoid Operated • NFPA Size D03 • ISO 4401 Size 03
Vickers DG4V-3 & DG4V-3S Series



4-way, 2-position, Spring Offset End-to-End Spool / Spring Code 0A



Transient conditions during shift: All open.

Maximum Flow Rates @ 3000 PSI:

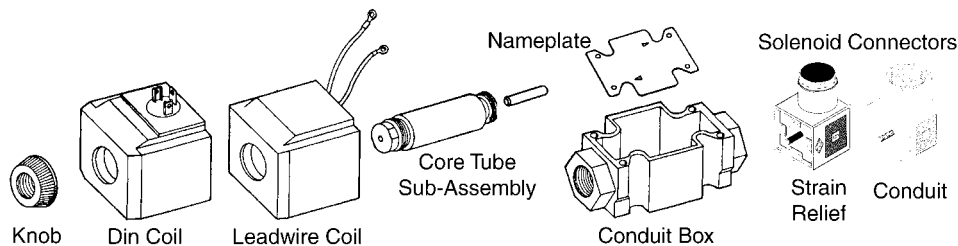
Standard Performance: AC Coils 10.5 GPM, DC Coils 10 GPM.

High Performance: AC Coils 16 GPM, DC Coils 16 GPM.

4-way, 2-position, Spring Offset End-to-End • Spool / Spring Code 0A

Catalog Part No.	Vickers Part No.	Vickers Model	Type	Coil Rating	Coil Type	Port T Rating (psi)	Optional Features	Wt.	Price Each
C1AC82	02-137934	DG4V-3S-0A-M-U-B5-60	STD	110VAC50HZ 120VAC60HZ	DIN 43650	1500		3.25	

Vickers DG4V-3 & DG4V-3S Series Parts



Vickers DG4V-3 & DG4V-3S Series Parts

Catalog Part No.	Vickers Model	Description	Wt.	Price Each
C1BS37	507833	Coil. 110VAC 50HZ, 120VAC 60HZ. HP models with Din 43650 Connector. (Connector is required)	0.63	
•C1AB99	02-101726	Coil. 110VAC 50HZ, 120VAC 60HZ. STD models with Din 43650 Connector. (Connector is required)	0.60	
•C1AC12	02-101731	Coil. 110VAC 50HZ, 120VAC 60HZ. STD models with Lead Wire.	0.57	
•C1AC11	02-101728	Coil. 220VAC 50HZ, 240VAC 60HZ. STD models with Din 43650 Connector. (Connector is required)	0.60	
•C1AC13	02-101733	Coil. 220VAC 50HZ, 240VAC 60HZ. STD models with Lead Wire.	0.60	
C1BS38	507834	Coil. 220VAC 50HZ, 240VAC 60HZ. High Performance models with Din 43650 Connector. (Connector is required)	0.50	
•C1BS39	507847	Coil. 12VDC. STD & HP models with Din 43650 Connector. (Connector is required)	0.88	
•C1BS40	507848	Coil. 24VDC. STD & HP models with Din 43650 Connector. (Connector is required)	0.89	
C1BY38	694323	Core Tube Sub-Assembly. DC Voltages. Standard Performance Models.	0.30	
C1ZX24	508113	Knob. Holds coil in place. AC & DC Voltages. High Performance Models. NOTE: This knob will NOT fit current production valves which use 998330 Knob	0.02	
•C1BY36	694302	Nameplate, blank. Standard Performance Models with Din 43650 Coil.	0.10	
C1HH88	262332	O-Ring, Valve to Mounting Surface, 4 per valve	0.01	
•C1CA41	858995	Seal Kit for models with Din 43650 coils.	0.10	
•C1BS52	5100-10900	DIN 43650 Solenoid Connector, Strain Relief Style for cable diameter 0.24 to 0.31, not wired, no light	0.25	
•C1FK20	5103-1090000	DIN 43650 Solenoid Connector, Strain Relief Style for cable diameter 0.31 to 0.41, not wired, light for 6-48 VAC/VDC 50/60 Hz	0.05	
C1CA68	893240	Spool Accessory Kit. Contains centering washers, centering spring & seal kit to service or convert all valve types.	0.01	



Hydraulic Valves & Accessories

Directional Valves, Solenoid Operated • NFPA Size D03 • ISO 4401 Size 03
Vickers DG4V-3 Series (Soft Shift, Non-Tuneable Fixed Orifice)



DG4V-3 Soft Shift (High Performance) • Flows to 22 GPM Non-Tuneable Fixed Orifice



Features: Low cost alternative to proportional valves. "Non-Tuneable" fixed shift orifices for lower cost. Conventional direct-acting solenoid design with controlled solenoid shift speed. Wet Armature design for quieter operation and long life with no dynamic seal leakage. Molded coil is impervious to moisture & dirt. Viton® seals standard.

Operating Principles: Spools with contoured or notched lands are used to provide maximum control of flow rate change as the spool is shifted. DC solenoids prevent coil burnout during controlled rate of solenoid shift. Spool shift speed is controlled by a fixed, non-serviceable metering orifice in the solenoid. P12L Models: Conventional alternating current (120VAC 60HZ or 110VAC 50HZ) input is converted to DC through a rectifier located in the valve's terminal box. Models other than P12L: Rectified DIN connectors can be used to convert AC input voltage to the DC voltage necessary to power the valve.

Maximum Operating Pressure: Ports P, A & B 5075 PSI, Port T 3045 PSI, with petroleum oil (1000 PSI with High Water Base fluids). (CAUTION: Pressures over 3000 PSI require steel subplate or manifold).

Maximum Flow Rates: Dependant on spool/spring combination and coil.

Recommended Operating Temperature Range: 20°F to 180°F.

Plumbing Note: To fully utilize the features of the soft shift solenoid, the core tubes must remain full of oil. The tank line must be plumbed so that the tank port is always flooded with oil. Addition of a back pressure check may be required to prevent bleed down.

Bleeding Procedure: Apply a minimum of 50 PSI tank pressure. Shift either solenoid. Loosen manual actuators in solenoid ends until air is evacuated. Tighten manual actuators. No further bleeding should be required.

Technical Information: page 675

Note: These valves are available in a wide variety of configurations not shown in this catalog. Contact us for detailed information.

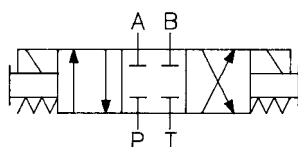
Size D03 Subplates & Manifolds: page 450

Solenoid Connectors: page 446(Required on models that use DIN 43650 connectors).

Mounting Bolts: Standard mounting bolts are 4ea 10-24 x 1-1/4 Grade 8 socket head capscrews (Vickers Bolt Kit 590716), torqued to 44-62 lb.in. maximum with threads lubricated. See Bolt Kits on page 440

Valve Port Restrictor Plugs: Restrictor plugs are available for use in ports P, T, A or B. These can be used for restricting flow or for circuit dampening. Restrictor plugs are not recommended for use above 3000 PSI.

4-way, 3-position, Spring Centered Spool / Spring Code 2C



Transient conditions during shift: P to A all blocked. P to B all blocked.

Maximum Flow Rates @ 3000 PSI: 22 GPM.

4-way, 3-position, Spring Centered • Spool / Spring Code 2C

Catalog Part No.	Vickers Part No.	Vickers Model	Valve's Electrical Features	Input Electrical Requirements	Optional Features	Wt.	Price Each
C1JL59	02-363653	DG4V-3-2C3-M-U-HH7-60	DIN 43650 Coils	24VDC		4.98	

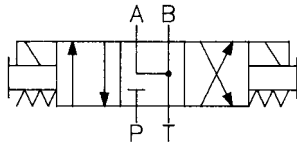


Hydraulic Valves & Accessories

Directional Valves, Solenoid Operated • NFPA Size D03 • ISO 4401 Size 03
Vickers DG4V-3 Series (Soft Shift, Non-Tuneable Fixed Orifice)



4-way, 3-position, Spring Centered Spool / Spring Code 6C



Transient conditions during shift: P to A P & A blocked, B open to T. P to B P & B blocked, A open to T.

Maximum Flow Rates @ 3000 PSI: 8 GPM.

4-way, 3-position, Spring Centered • Spool / Spring Code 6C

Catalog Part No.	Vickers Part No.	Vickers Model	Valve's Electrical Features	Input Electrical Requirements	Optional Features	Wt.	Price Each
C1GE52	02-391668	DG4V-3-6C3-M-U-HH7-60	DIN 43650 Coils	24VDC		4.60	

Hydraulic Power & Control

Pneumatic Power & Control

Fluid Conveying

Miscellaneous Products

Indexes & Technical Information



Hydraulic Valves & Accessories

Directional Valves, Solenoid Operated • NFPA Size D05 • ISO 4401 Size 05
Vickers DG4S4-01 60 Series (Wet Armature)



Vickers® DG4S4-01 60 Series (Wet Armature) • Flows to 25 GPM



Features: Wet Armature design for quieter operation and long life with no dynamic seal leakage. Molded coil is impervious to moisture & dirt. Buna-N seals standard (Viton® available). Direct Acting type.

Maximum Operating Pressure: Ports P, A & B 3600 PSI with petroleum oil, 1000 PSI with High Water Base fluids. (CAUTION: Pressures over 3000 PSI require steel

subplate or manifold). Port T 1000 PSI.

Maximum Flow Rates: Dependant on spool/spring combination and coil. See Technical Information section.

Recommended Operating Temperature Range: 70°F to 120°F.

Mounting Considerations: Detented models should mount with longitudinal axis horizontal. Other models may be mounted in any position.

Service Parts: page 380

Technical Information: page 676

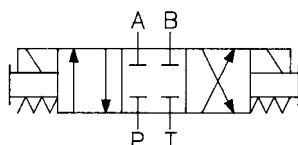
Note: These valves are available in a wide variety of configurations not shown in this catalog. Contact us for detailed information.

Size D05 Subplates & Manifolds: page 452

Solenoid Connectors: page 446(Required on models that use DIN 43650 connectors).

Mounting Bolts: Standard mounting bolts are 4ea 1/4-20 x 1-1/2 Grade 8 socket head capscrews (Vickers Bolt Kit 255633), torqued to 112 lb.in. maximum with threads lubricated. See Bolt Kits on page 440

4-way, 3-position, Spring Centered Spool / Spring Code 2C



Transient conditions during shift: P to A: All blocked. P to B: All blocked.

Maximum Flow Rates @ 3000 PSI: AC Coils 25 GPM, DC Coils 25 GPM.

4-way, 3-position, Spring Centered • Spool / Spring Code 2C

Catalog Part No.	Vickers Part No.	Vickers Model	Coil Rating	Coil Type	Wiring Housing	Optional Features	Wt.	Price Each
C1JR98	879237	DG4S4-012C-U-B-60	110VAC50Hz 120VAC60Hz	DIN 43650	--		10.19	
C1CA57	879135	DG4S4-012C-B-60	110VAC50Hz 120VAC60Hz	Lead wires	None		10.12	
C1AC56	02-119593	DG4S4-012C-G-60	12VDC	Lead wires	None		13.62	
C1HJ85	879239	DG4S4-012C-U-H-60	24VDC	DIN 43650	--		13.58	

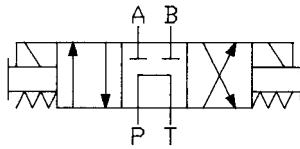


Hydraulic Valves & Accessories

Directional Valves, Solenoid Operated • NFPA Size D05 • ISO 4401 Size 05
Vickers DG4S4-01 60 Series (Wet Armature)



4-way, 3-position, Spring Centered Spool / Spring Code 8C



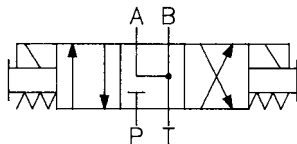
Transient conditions during shift: P to A: P & A restricted opening to T, B blocked.
P to B: P & B restricted opening to T, A blocked.

Maximum Flow Rates @ 3000 PSI: AC Coils 12 GPM, DC Coils 5 GPM.

4-way, 3-position, Spring Centered • Spool / Spring Code 8C

Catalog Part No.	Vickers Part No.	Vickers Model	Coil Rating	Coil Type	Wiring Housing	Optional Features	Wt.	Price Each
C1JP86	02-119859	DG4S4-018C-U-B-60	110VAC50Hz 120VAC60Hz	DIN 43650	--		10.50	
•C1CA61	880002	DG4S4-018C-B-60	110VAC50Hz 120VAC60Hz	Lead wires	None		10.11	
C1JT48	02-127608	DG4S4-018C-U-D-60	220VAC50Hz 240VAC60Hz	DIN 43650	--		10.20	
•C1EL31	02-119489	DG4S4-018C-G-60	12VDC	Lead wires	None		13.75	
C1JT44	02-126361	DG4S4-018C-U-H-60	24VDC	DIN 43650	--		13.50	

4-way, 3-position, Spring Centered Spool / Spring Code 6C



Transient conditions during shift: P to A: P & A blocked, B open to T. P to B: P & B blocked, A open to T.

Maximum Flow Rates @ 3000 PSI: AC Coils 20 GPM, DC Coils 20 GPM.

4-way, 3-position, Spring Centered • Spool / Spring Code 6C

Catalog Part No.	Vickers Part No.	Vickers Model	Coil Rating	Coil Type	Wiring Housing	Optional Features	Wt.	Price Each
C1JT32	02-119475	DG4S4-016C-U-B-60	110VAC50Hz 120VAC60Hz	DIN 43650	--		10.21	
C1CA58	879159	DG4S4-016C-B-60	110VAC50Hz 120VAC60Hz	Lead wires	None		10.16	
C1EL30	02-119461	DG4S4-016C-U-H-60	24VDC	DIN 43650	--		13.58	

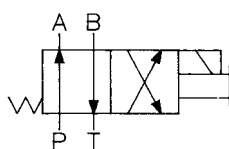


Hydraulic Valves & Accessories

Directional Valves, Solenoid Operated • NFPA Size D05 • ISO 4401 Size 05
Vickers DG4S4-01 60 Series (Wet Armature)



4-way, 2-position, Spring Offset End-to-End Spool / Spring Code 2A



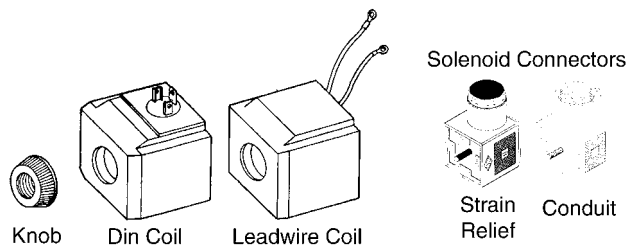
Transient conditions during shift: All blocked.

Maximum Flow Rates @ 3000 PSI: AC Coils 20 GPM, DC Coils 20 GPM.

4-way, 2-position, Spring Offset End-to-End • Spool / Spring Code 2A

Catalog Part No.	Vickers Part No.	Vickers Model	Coil Rating	Coil Type	Wiring Housing	Optional Features	Wt.	Price Each
C1KE86	879279	DG4S4-012A-U-B-60	110VAC50Hz 120VAC60Hz	DIN 43650	--		8.42	
C1CA60	879249	DG4S4-012A-B-60	110VAC50Hz 120VAC60Hz	Lead wires	None		8.42	
C1HJ86	879260	DG4S4WT-012A-B-60	110VAC50Hz 120VAC60Hz	Lead wires	Yes	Terminal Strip	9.87	
C1KE87	879280	DG4S4-012A-U-D-60	220VAC50Hz 240VAC60Hz	DIN 43650	--		83.00	

Vickers DG4S4-01 60 Series (Wet Armature) Parts



Vickers DG4S4-01 60 Series (Wet Armature) Parts

Catalog Part No.	Vickers Part No.	Description	Wt.	Price Each
C1DZ91	879141	Coil, DIN 43650 Type. 110VAC 50HZ, 120VAC 60HZ. Connector is required.	1.24	
C1KE81	879143	Coil, DIN 43650 Type. 220VAC 50HZ, 240VAC 60HZ. Connector is required.	1.30	
C1CA47	868982	Coil, Lead Wire Type. 110VAC 50HZ, 120VAC 60HZ.	1.30	
C1FL31	868983	Coil, Lead Wire Type. 220VAC 50HZ, 240VAC 60HZ.	1.30	
C1EP31	879147	Coil, DIN 43650 Type. 24VDC. Connector is required.	2.61	
C1BS52	5100-10900	DIN 43650 Solenoid Connector, Strain Relief Style for cable diameter 0.24 to 0.31, not wired, no light	0.25	
C1FK20	5103-1090000	DIN 43650 Solenoid Connector, Strain Relief Style for cable diameter 0.31 to 0.41, not wired, light for 6-48 VAC/VDC 50/60 Hz	0.05	



Hydraulic Valves & Accessories

Directional Valves, Solenoid Operated • NFPA Size D05 • ISO 4401 Size 05
Vickers DG4V4-01 10 Series (Wet Armature, High Pressure)



Vickers® DG4V4-01 10 Series (Wet Armature, High Pressure) • To 30 GPM



Features: High pressure & flow capability. Plug-in solenoid coils for ease of servicing. Spool cushioning passage equalizes hydraulic force on ends of spool and cushions spool shift. Wet Armature design for quieter operation and long life with no dynamic seal leakage. Molded coil is impervious to moisture & dirt. Buna-N seals standard (Viton® available). Direct Acting type.

Maximum Operating Pressure: Ports P, A & B 4570 PSI with petroleum oil, 1000 PSI with High Water Base fluids. (CAUTION: Pressures over 3000 PSI require steel subplate or manifold). Port T 1750 PSI with Standard Power coils, 1000 PSI with Low Power Coils.

Maximum Flow Rates: Dependant on spool/spring combination and coil.

Recommended Operating Temperature Range: 70°F to 120°F.

Mounting Considerations: Detented models should mount with longitudinal axis horizontal. Other models may be mounted in any position.

Note: These valves are available in a wide variety of configurations not shown in this catalog. Contact us for detailed information.

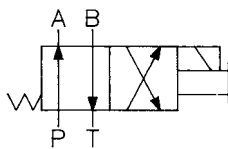
Size D05 Subplates & Manifolds: page 452

Solenoid Connectors: page 446(Required on models that use DIN 43650 connectors).

Mounting Bolts: Standard mounting bolts are 4ea 1/4-20 x 1-1/2 Grade 8 socket head capscrews (Vickers Bolt Kit 255633), torqued to 112 lb.in. maximum with threads lubricated. See Bolt Kits on page 440

Dimensions & Technical Information: page 679

4-way, 2-position, Spring Offset End-to-End Spool / Spring Code 0A



Transient conditions during shift: All Open.

Maximum Flow Rates @ 3000 PSI: Standard AC Coils 30 GPM, Low Powered AC Coils 20 GPM. Standard DC Coils 30 GPM, Low Powered DC Coils 15 GPM (1500 PSI limit).

4-way, 2-position, Spring Offset End-to-End • Spool / Spring Code 0A

Catalog Part No.	Vickers Part No.	Vickers Model	Coil Rating	Coil Type	Wiring Housing	Optional Features	Wt.	Price Each
C1HH49	02-363741	DG4V4-010A-M-W-L-B-5-10	110VAC50Hz 120VAC60Hz	Plug-In	Yes	Std. Power Coil, Lights	9.61	



Hydraulic Valves & Accessories

Directional Valves, Solenoid Operated • NFPA Size D05 • ISO 4401 Size 05
Vickers DG4V5-01 20 Series (Wet Armature, High Pressure)



Vickers® DG4V5 20 Series (Wet Armature, High Pressure) • To 32 GPM



Features: Four-land spool design to facilitate smooth, variable valve response speeds • AC and DC wet-armature solenoid options with ISO 4400 (DIN 43650) electrical connections and manual overrides • Variable speed changeover potential in all DC models • Many spool types; in spring-offset, spring-centered and detented arrangements.

Maximum Operating Pressure: Ports P, A & B 4500 PSI (CAUTION: Pressures over 3000 PSI require steel subplate or manifold). Ports T 1750 PSI for AC solenoids, 2325

PSI for DC solenoids.

Maximum Flow Rates: Dependant on spool/spring combination and coil.

Fluid Temperature: -4°F to 150°F Recommended Operating Range, -4°F to 158°F Extreme Range.

Fluid Viscosity: 70 to 245 SSU Recommended Operating Range, 70 to 2300 SSU Extreme Range.

Ambient Temperature: AC 60Hz Valves: -4°F to 104°F. AC 50Hz Valves: -4°F to 122°F. DC Valves: -4°F to 158°F.

Recommended Filtration Level: ISO Cleanliness Level 20/18/15 (Up to 3050 PSI), 19/17/14 (Above 3050 PSI).

Note: Ratings based on using anti wear hydraulic fluid. For ratings on use with other fluids, contact us for assistance.

Note: These valves are available in a wide variety of configurations not shown in this catalog. Contact us for detailed information.

Mounting Considerations: Detented models should mount with longitudinal axis horizontal. Other models may be mounted in any position.

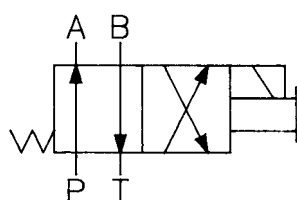
Size D05 Subplates & Manifolds: page 452

Solenoid Connectors: page 446(Required on models that use DIN 43650 connectors).

Mounting Bolts: Standard mounting bolts are 4ea 1/4-20 x 1-1/2 Grade 8 socket head capscrews (Vickers Bolt Kit 255633), torqued to 112 lb.in. maximum with threads lubricated. See Bolt Kits on page 440

Dimensions & Technical Information: page 680

4-way, 2-position, Spring Offset Spool / Spring Code 2A



Transient conditions during shift: All blocked.

Maximum Flow Rates @ 3000 PSI: AC Coils 25 GPM, DC Coils 25 GPM.

4-way, 2-position, Spring Offset • Spool / Spring Code 2A

Catalog Part No.	Vickers Part No.	Vickers Model	Coil Rating	Optional Features	Wt.	Price Each
C1KK66	639393	DG4V-5-2A-M-EK6-20	115VAC60Hz		7.74	

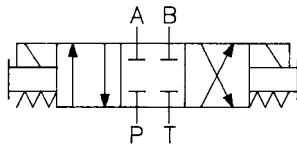


Hydraulic Valves & Accessories

Directional Valves, Solenoid Operated • NFPA Size D05 • ISO 4401 Size 05
Vickers DG4V5-01 20 Series (Wet Armature, High Pressure)



4-way, 3-position, Spring Centered Spool / Spring Code 2C



Transient conditions during shift: P to A: All blocked. P to B: All blocked.
Maximum Flow Rates @ 3000 PSI: AC Coils 30 GPM, DC Coils 30 GPM.

4-way, 3-position, Spring Centered • Spool / Spring Code 2C

Catalog Part No.	Vickers Part No.	Vickers Model	Coil Rating	Optional Features	Wt.	Price Each
C1KC44	616776	DG4V5-2CJ-M-U-H6-20	24VDC		12.40	

Vickers DG4V-5 20 Series Parts



Vickers DG4V-5 20 Series Parts

Catalog Part No.	Vickers Part No.	Description	Wt.	Price Each
C1JR85	617499	Coil 115 VAC / 60 Hz	1.21	



Hydraulic Valves & Accessories

Directional Valves, Solenoid Operated • NFPA Size D05 • ISO 4401 Size 05
Vickers DG4S4-01 60 Series (Soft Shift, Wet Armature)



Vickers® DG4S4-01 60 Series (Soft Shift, Wet Armature) • Flows to 20 GPM



Features: Low cost alternative to proportional valves. Conventional direct-acting solenoid design with controlled solenoid shift speed. Wet Armature design for quieter operation and long life with no dynamic seal leakage. Molded coil is impervious to moisture & dirt. Viton® seals standard.

Operating Principles: Spools with contoured or notched lands are used to provide maximum control of flow rate change as the spool is shifted. DC solenoids prevent coil

burnout during controlled rate of solenoid shift. Spool shift speed is controlled by a metering orifice in the solenoid. Three orifice sizes are available. Conventional alternating current (120VAC 60HZ or 110VAC 50HZ) input is converted to DC through a rectifier located in the valve's terminal box.

Maximum Operating Pressure: Ports P, A & B 3600 PSI with petroleum oil, 1000 PSI with High Water Base fluids. (CAUTION: Pressures over 3000 PSI require steel subplate or manifold). Port T 1000 PSI.

Maximum Flow Rates: Dependant on spool/spring combination and coil. See Technical Information section.

Recommended Operating Temperature Range: 20°F to 180°F.

Plumbing Note: To fully utilize the features of the soft shift solenoid, the core tubes must remain full of oil. The tank line must be plumbed so that the tank port is always flooded with oil. Addition of a back pressure check may be required to prevent bleed down.

Bleeding Procedure: Apply a minimum of 50 PSI tank pressure. Shift either solenoid. Loosen manual actuators in solenoid ends until air is evacuated. Tighten manual actuators. No further bleeding should be required.

Technical Information: page 677

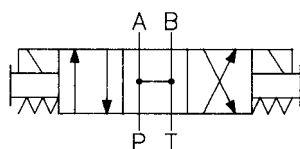
Note: These valves are available in a wide variety of configurations not shown in this catalog. Contact us for detailed information.

Size D05 Subplates & Manifolds: page 452

Solenoid Connectors: page 446(Required on models that use DIN 43650 connectors).

Mounting Bolts: Standard mounting bolts are 4ea 1/4-20 x 1-1/2 Grade 8 socket head capscrews (Vickers Bolt Kit 255633), torqued to 112 lb.in. maximum with threads lubricated. See Bolt Kits on page 440

4-way, 3-position, spring centered Spool / Spring Code 0C



Transient conditions during shift: P to A: All open. P to B: All open.

Maximum Flow Rate @ 3000 PSI: 16 GPM.

4-way, 3-position, spring centered • Spool / Spring Code 0C

Catalog Part No.	Vickers Part No.	Vickers Model	Valve's Electrical Features	Input Electrical Requirements	Soft Shift Orifice Dia (in)	Wt.	Price Each
C1AD42	02-300110	DG4S4W-010C-BB-60-S491	1/2 NPT Terminal Box with Rectifier Board	110VAC 50HZ 120VAC 60HZ	0.047	11.07	



Hydraulic Valves & Accessories

Directional Valves, Solenoid Operated • NFPA Size D05 • ISO 4401 Size 05
Vickers DG4S4-01 50 Series (Air-Gap)



Vickers® DG4S4-01 50 Series (Air-Gap) • Flows to 20 GPM



Features: Older style Direct Acting Air Gap Solenoids. (Used as a replacement part for older equipment. New applications should use the Wet Armature 60 Series). Viton® seals standard.

Maximum Operating Pressure: Ports P, A & B 3000 PSI. Port T 1000 PSI.

Maximum Flow Rates: Dependant on spool/spring combination and coil. See

Technical Information section.

Recommended Operating Temperature Range:

Mounting Considerations: Detented models should mount with longitudinal axis horizontal. Other models may be mounted in any position.

Service Parts: page 385

Technical Information: page 678

Note: These valves are available in a wide variety of configurations not shown in this catalog. Contact us for detailed information.

Size D05 Subplates & Manifolds: page 452

Mounting Bolts: Standard mounting bolts are 4ea 1/4-20 x 1-1/2 Grade 8 socket head capscrews (Vickers Bolt Kit 255633), torqued to 112 lb.in. maximum with threads lubricated. See Bolt Kits on page 440

Vickers DG4S4-01 50 Series (Air Gap) Parts

Vickers DG4S4-01 50 Series (Air Gap) Parts

Catalog Part No.	Vickers Part No.	Description	Wt.	Price Each
C1EM28	195053	Solenoid, 115VAC/60Hz for -50 Design valve	3.00	
C1BL73	316011	Coil. 115VAC 60HZ.	0.31	
C1BK16	298721	Coil. 230VAC 60HZ.	0.34	



Hydraulic Valves & Accessories

Directional Valves, Solenoid Operated • NFPA Size D08 • ISO 4401 Size 08
Vickers DG5V-8 Series • To 5000 PSI



Vickers® DG5V-8 Series • Flows to 185 GPM • Pressures to 5000 PSI



Features: Two-stage directional valve with integrally mounted pilot valve. Available with a wide variety of spool and spring arrangements, electrical options, stroke and pilot choke adjustments, integral check valves and port orifices. Solid cast iron body and core passages for maximum strength and minimal pressure drop. High-force solenoids and centering springs assure consistent shifting.

Maximum Operating Pressures: Ports P, A & B: 5000 PSI. (CAUTION: Pressures over 3000 PSI require steel subplate or manifold). Port T: See tables below.

Maximum Flow Rates: Dependant on spool/spring combination and coil. See Technical Information section.

Recommended Operating Temperature Range: 0°F to 150°F.

Mounting Considerations: Detented models should mount with longitudinal axis horizontal. Other models may be mounted in any position.

Note: These valves are available in a wide variety of configurations not shown in this catalog. Contact us for detailed information.

Service Parts: Pilot valve parts page 375

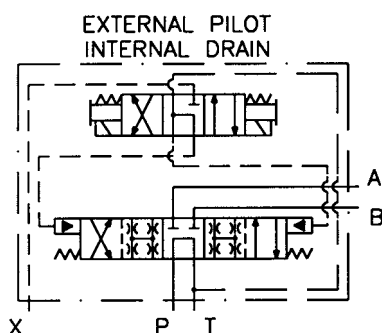
Technical Information: page 681

Size D08 Subplates & Manifolds:

Solenoid Connectors: page 446 (Required on models that use DIN 43650 connectors).

Mounting Bolts: Standard mounting bolts are 4ea 1/2-13 x 2-1/2 Grade 8 socket head capscrews (Vickers Bolt Kit 255635), torqued to 700 lb.in. maximum with threads lubricated. See Bolt Kits on page 440

4-way, 3-position, Spring Centered Spool / Spring Code 8C



Transient conditions during shift: All open.

Maximum Flow Rate: 185 GPM (At pressures to 5000 PSI).

4-way, 3-position, Spring Centered • Spool / Spring Code 8C

Catalog Part No.	Vickers Part No.	Vickers Model	Coil Rating	Coil Type	Port T Rating (psi)	Minimum Pilot Pressure (psi)	Other Features	Wt.	Price Each
C1HH47	02-343827	DG5V-8-H-8C-E-V M-FTWL-B-10	110VAC50Hz 120VAC60Hz	Lead wires Conduit box	5000	75	External Pilot, Internal Drain, Wired Terminal Block, Indicator Lights, High Performance pilot valve	31.57	



Hydraulic Valves & Accessories

Directional Valves, Solenoid Operated • NFPA Size D10 • ISO 4401 Size 10
Vickers DG5V-10 Series • To 5000 PSI



Vickers® DG5V-10 Series • Flows to 290 GPM • Pressures to 5000 PSI



Features: This control valve package offers a wide variety of spool and spring arrangements, pilot choke adjustments, integral check valves, pilot valve choices and port orifices. High force solenoids and centering springs assure consistent shifting through a wide range of pressure and silting extremes.

Maximum Operating Pressure: Ports P, A & B 5000 PSI with petroleum oil. Port T pressure rating is 3000 PSI for external drain models, 3000 psi for internal drain models with D03 pilot valve, and is 1450 PSI for internal drain models with D05 pilot valve (see table below for Port T rating).

Maximum Flow Rates: Dependant on spool/spring combination and coil.

Recommended Operating Temperature Range: 0°F to 150°F.

Mounting Considerations: Detented models should mount with longitudinal axis horizontal. Other models may be mounted in any position, provided that the pilot pressure supply is maintained as required (Spring offset valves do not have a spring in the main spool section).

Note: These valves are available in a wide variety of configurations not shown in this catalog. Contact us for detailed information.

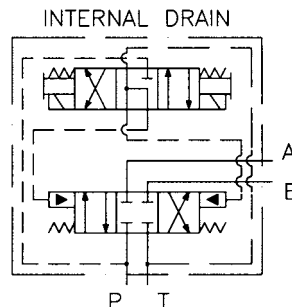
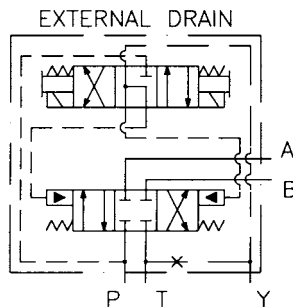
Size D10 Subplates & Manifolds:

Solenoid Connectors: page 446(Required on models that use DIN 43650 connectors).

Mounting Bolts: Standard mounting bolts are 6ea 3/4-10 x 2-3/4 Grade 8 socket head capscrews (Vickers Bolt Kit BKDG10-636-255636), torqued to 210 lb.ft. maximum with threads lubricated. See Bolt Kits on page 440

Dimensions & Technical Information: page 682

4-way, 3-position, Spring Centered Spool / Spring Code 2C



Maximum Flow Rates @ 3000 PSI: 270 GPM.

4-way, 3-position, Spring Centered • Spool / Spring Code 2C

Catalog Part No.	Vickers Part No.	Vickers Model	Coil Rating	Coil Type	Port T Rating (psi)	Minimum Pilot Pressure (psi)	Other Features	Wt.	Price Each
C1HH41	02-321785	DG5V-10-S-2C-T-M -FW-B-10	110VAC50Hz 120VAC60Hz	Lead wires Conduit box	1450	150	Internal Pilot, Internal Drain, Std. Performance D03 pilot valve		



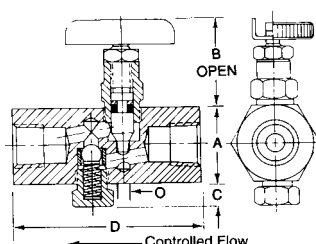
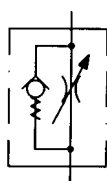
Hydraulic Valves & Accessories

Flow Control Valves

Inline Flow Control Valves

For Hydraulic (To 12 GPM) & Pneumatic Service

DELTROL
fluid products



Features: Tamperproof adjustment key is standard. Knurled knob is optional. Locknut is standard.

Application: Controlled flow in one direction, free flow in opposite direction. Flow adjustment can be made under pressure. Setting can be locked with locknut. Brass valves for use in pneumatic systems and lower pressure hydraulic systems. Steel valves for use in hydraulic systems. Pressure ratings in tables are for non-shock service.

Materials: Body: Available in Brass, carbon steel or stainless steel. Needle: Brass on brass valves, 416 stainless steel on steel and stainless steel valves. Backup Washer: Teflon®. Optional Knob: Aluminum. Tamper proof Key: Cadmium plated steel. Retainer and ball: Stainless steel.

Operating Temperature Range: -15°F to 200°F.

Inline Flow Control Valves • For Hydraulic (To 12 GPM) & Pneumatic Service

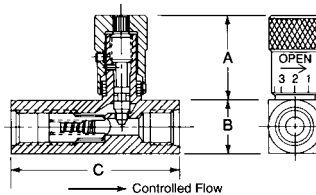
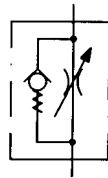
Catalog Part No.	Deltrol Model	Size	Threads	Body Material	Maximum Operating Pressure Non-Shock (psi)	Flow Rating (GPM)	CV Factor	A (in)	B (in)	C (in)	Wt.	Price Each
•C1CP34	F10B	1/8	1/8-27 NPT	Brass	2000	1.5	0.20	0.69	0.88	0.20	0.22	
•C1CP38	F20B	1/4	1/4-18 NPT	Brass	2000	3.0	0.43	0.88	1.00	0.36	0.43	
•C1CP39	F20S	1/4	1/4-18 NPT	Steel	5000	3.0	0.43	0.88	1.00	0.36	0.43	
•C1CP46	F25B	3/8	3/8-18 NPT	Brass	2000	5.0	0.78	1.06	1.81	0.34	0.73	
•C1CP47	F25S	3/8	3/8-18 NPT	Steel	5000	5.0	0.78	1.06	1.81	0.34	0.67	
•C1CP50	F30S	1/2	1/2-14 NPT	Steel	5000	8.0	1.24	1.31	1.44	0.47	1.18	

Note: Models with K at end of model number have knurled adjustment knob instead of tamperproof adjustment key.

Flow Control Valves

Inline Easy Read® Flow Control Valves For Hydraulic (To 55 GPM) & Pneumatic Service

DELTROL
fluid products



Features: Color coding and numerical readout allow positive, precise and repeatable settings. Can be accurately adjusted within a small fraction of a turn (one full turn per color). Metal knob and stem for durability.

Application: Controlled flow in one direction, free flow in opposite direction. Flow adjustment can be made under pressure. Setting can be locked with set screw. Brass valves for use in pneumatic systems and lower pressure hydraulic systems. Steel valves for use in hydraulic systems. Pressure ratings in tables are for non-shock service.

Materials: Body: Available in Brass, carbon steel or stainless steel (1" size available in naval bronze or ductile iron). Needle: Brass on brass valves, stainless steel on steel and stainless steel valves. O-Ring: Viton® is standard (other materials available). Washer Seal: Teflon®. Retainer, Ball and Spring: Stainless steel. Ball Follower: Delrin.

Operating Temperature Range: -15°F to 200°F.

Inline Easy Read® Flow Control Valves • For Hydraulic (To 55 GPM) & Pneumatic Service

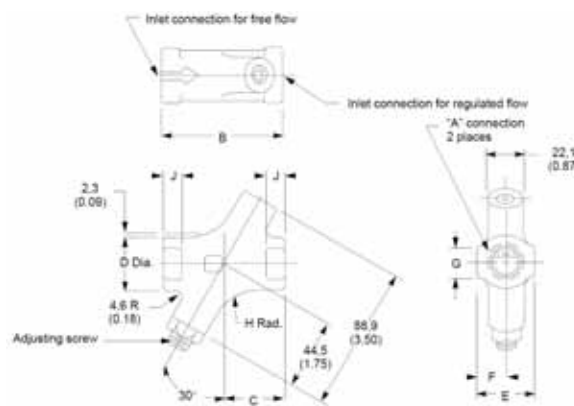
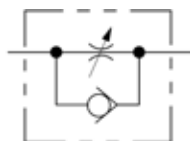
Catalog Part No.	Deltrol Model	Size	Threads	Body Material	Maximum Operating Pressure Non-Shock (psi)	Flow Rating (GPM)	CV Factor	A (in)	B (in)	C (in)	Wt.	Price Each
•C1CN99	EF10B	1/8	1/8-27 NPT	Brass	2000	3.0	0.28	1.28	0.63	1.94	0.25	
•C1GG80	EF10S	1/8	1/8-27 NPT	Steel	5000	3.0	0.28	1.28	0.63	1.94	0.24	
•C1CP11	EF20B	1/4	1/4-18 NPT	Brass	2000	6.0	0.53	1.41	0.75	2.41	0.42	
•C1CP12	EF20S	1/4	1/4-18 NPT	Steel	5000	6.0	0.53	1.41	0.75	2.41	0.39	
•C1CP13	EF25B	3/8	3/8-18 NPT	Brass	2000	10.0	0.76	1.63	1.0	2.88	0.82	
•C1CP14	EF25S	3/8	3/8-18 NPT	Steel	5000	10.0	0.76	1.63	1.0	2.88	0.76	
•C1CP15	EF30B	1/2	1/2-14 NPT	Brass	2000	12.0	0.93	1.97	1.63	3.44	1.22	
•C1CP16	EF30S	1/2	1/2-14 NPT	Steel	5000	12.0	0.93	1.97	1.63	3.44	1.22	
•C1CP17	EF35B	3/4	3/4-14 NPT	Brass	2000	20.0	1.43	2.19	1.38	3.75	1.86	
•C1CP18	EF35S	3/4	3/4-14 NPT	Steel	5000	20.0	1.43	2.19	1.38	3.75	1.72	

Hydraulic Valves & Accessories

Flow Control Valves

Inline Flow Control Valves

Vickers® FN Series • To 50 GPM



Description: FN valves are ideally suited for a great number of applications requiring flow regulation without pressure compensation — applications where the relatively constant nature of the load minimizes the need for pressure compensation. They are not intended to be used as a shut-off valve.

Maximum Pressure: 3000 PSI

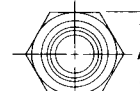
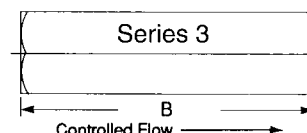
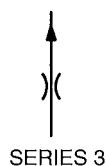
Inline Flow Control Valves • Vickers® FN Series • To 50 GPM

Catalog Part No.	Vickers Part No.	Vickers Model	Flow Rating (gpm)	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)	J (in)	Wt.	Price Each
C1JX95	253361	FN-03-20	10	3/8 NPT	2.88	1.44	1.25	1.31	0.65	0.75	1.25	0.44	1.30	

Note: Please contact us for technical & application information on these valves.

Inline Pressure Compensated Flow Control Valves

Deltrol PC Series • To 30 GPM



Features: Maintains accurate constant flow at pressures up to 3,000 PSI (Non-shock service). Fixed (Factory set PC3 and PC4 models) and Adjustable (PC5 models). Free reverse flow (PC5 models).

Application: Flows are controlled within $\pm 15\%$ up to 1.5 GPM and at $\pm 10\%$ at higher flows up to 30 GPM.

Regulation is virtually unaffected by temperature changes from 60°F to 180°F ($\pm 2\%$ at 70°F DT, $\pm 4\%$ at 120°F DT). Series 3 and Series 4 models have a restricted reverse flow as limited by the internal orifice. Series 5 models have a free reverse flow.

Materials: Steel body (PC3 and PC5 models), Aluminum body (1/4 and 3/8 PC4 models), Steel body (1/2 and 3/4 PC4 models). Viton® O-Rings. Aluminum knob (PC5 models).

Operating Temperature Range: -15°F to 400°F.

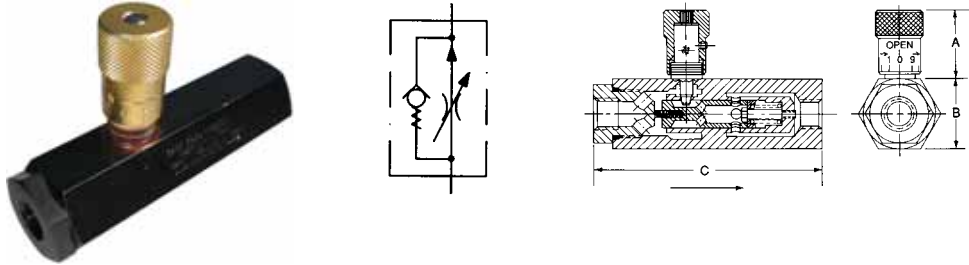
Inline Pressure Compensated Flow Control Valves • Deltrol PC Series • To 30 GPM

Catalog Part No.	Deltrol Model	Series	Size	Threads	Body Material	Maximum Operating Pressure Non-Shock (psi)	Controlled Flow	Minimum Differential Pressure (PSI)	Dimensions	Wt.	Price Each
C1GK41	PC3-2-0.20	Series 3	1/4	1/4-18 NPT	Steel	3000	0.20 GPM Fixed	100	A=0.69 B=2.38	0.20	

Flow Control Valves

Inline Easy Read® Pressure Compensated Flow Control Valves Deltrol EPC Series • To 34 GPM

DELTROL
fluid products



Features: Pressure Compensated. Color coding and numerical readout allow positive, precise and repeatable settings. Can be accurately adjusted within a small fraction of a turn (one full turn per color). Metal knob and stem for durability.

Application: Controlled flow in one direction, free flow in opposite direction. Valves will start to control flow at 60 to 70 PSI pressure drop. Flow regulated between $\pm 10\%$ above 1.5 GPM, $\pm 15\%$ 0.5 to 1.5 GPM. Flow adjustment can be made under pressure. Setting can be locked with set screw. Steel valves for use in hydraulic systems.

Materials: Body: Steel. Needle: Stainless steel. O-Ring: Viton®. Washer: Teflon®. Knob: Aluminum. Piston: Steel. Spring: Music wire.

Operating Temperature Range: -15°F to 200°F.

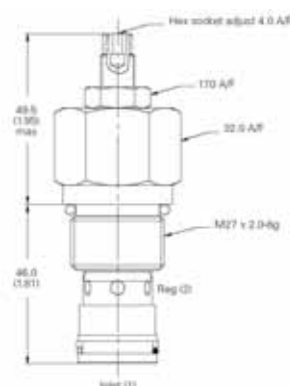
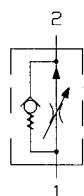
Inline Easy Read® Pressure Compensated Flow Control Valves • Deltrol EPC Series • To 34 GPM

Catalog Part No.	Deltrol Model	Size	Threads	Maximum Operating Pressure (PSI)	Controlled Flow Range (GPM)	Minimum Differential Pressure (PSI)	A (in)	B (in)	C (in)	Wt.	Price Each
•C1CP31	EPC531	3/8	3/8-18 NPT	3000	1.0 to 10	70	1.97	1.50	5.42	2.47	
•C1CP32	EPC541	1/2	1/2-14 NPT	3000	1.5 to 15	70	1.97	1.63	5.88	3.00	

Hydraulic Valves & Accessories

Flow Control Valves

2-Port Pressure-Compensated Flow Control Valves Eaton 2CFRC60 Series • To 16 GPM



Features: This is a two-port, restrictive flow regulator with a built in free flow check valve. Typical uses include the control of actuator speed by regulating the flow into or out of the actuator (meter-in or meter-out).

Operation: Flow into the inlet of the valve passes through the adjustable orifice and out of the regulated port. The inbuilt check allows free return of flow (2 to 1).

Maximum Flow Rate: 16 GPM.

Maximum Operating Pressure: 5000 PSI.

Temperature Range: -22° to +194°F

Recommended Filtration Level: Cleanliness Level 18/13 or better.

Cartridge: Model 2CFRC60-*, sold separately.

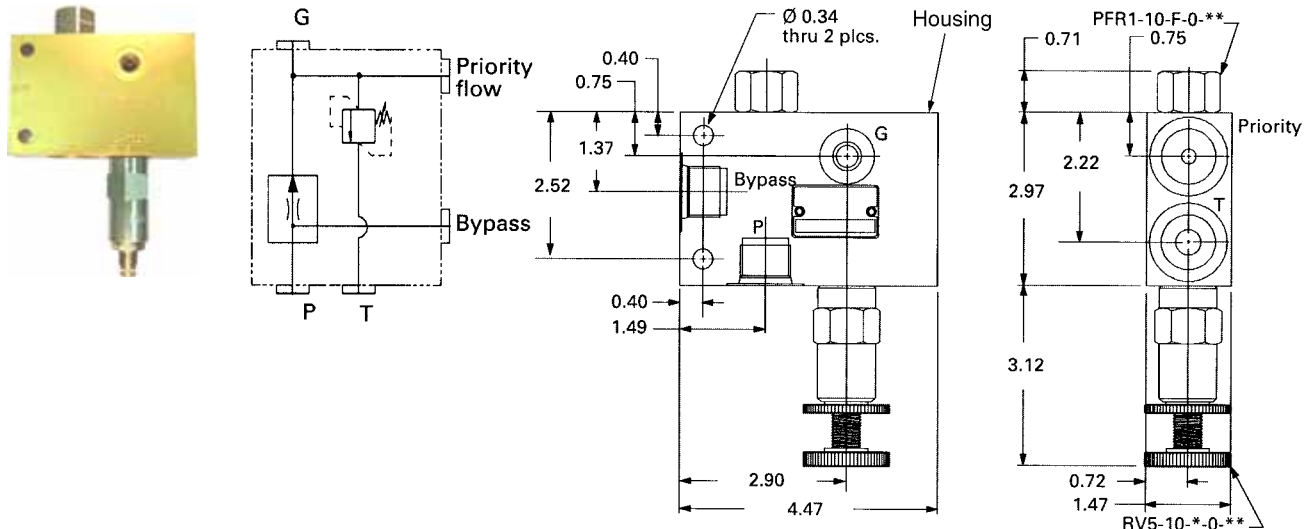
Housing: Cavity size A7447, sold separately, see page 441

2-Port Pressure-Compensated Flow Control Valves • Eaton 2CFRC60 Series • To 16 GPM

Catalog Part No.	Eaton Part No.	Eaton Model	Maximum Flow Range (GPM)	Adjustment Type	Housing	Seal Material	Wt.	Price Each
C1MG49	405AA00054A	2CFRC60P6S	1.6 - 16	Screw	None	Nitrile	0.64	

Flow Control Valves

Fixed Priority Flow Control with Relief on Priority Port Vickers® Circuit Maker PFRR-10 • To 6 GPM Regulated



Features: Priority flow pressure compensation • All ports except "T" can be pressurized to 3000 psi • Aluminum in-line type housing • Tamper proof and adjustable relief options • Gauge port • All components in the package are true cartridges and can be removed from the housing without disturbing the plumbing • Note: Some assembly required.

Application: This standard valve package is used to maintain constant flow to priority circuits when input flow is greater than required, regardless of changes in upstream or downstream pressure. It will bypass the rest of the flow to an auxiliary circuit or to tank. Relief valve on a priority port limits pressure on a priority port, as well as ensures bypass flow when there is no demand on priority circuit.

Maximum Inlet Flow: 15 GPM.

Regulated Flow Setting: 0.1 - 6.0 GPM (Fixed, non-adjustable)

Maximum Operating Pressure: 3000 PSI (All ports except port T).

Temperature Range: -40°F to 248°F (Extreme Limits).

Recommended Filtration: ISO 4406 Cleanliness Level 18/16/13 or cleaner.

Cartridges: Fixed Priority Flow Control Cartridge, PFR1-10-F-0-*, sold separately. Relief Cartridge, RV5-10-*0-0-*, sold separately.

Housing: 02-178276, sold separately.

Fixed Priority Flow Control with Relief on Priority Port • Vickers® Circuit Maker PFRR-10 • To 6 GPM Regulated

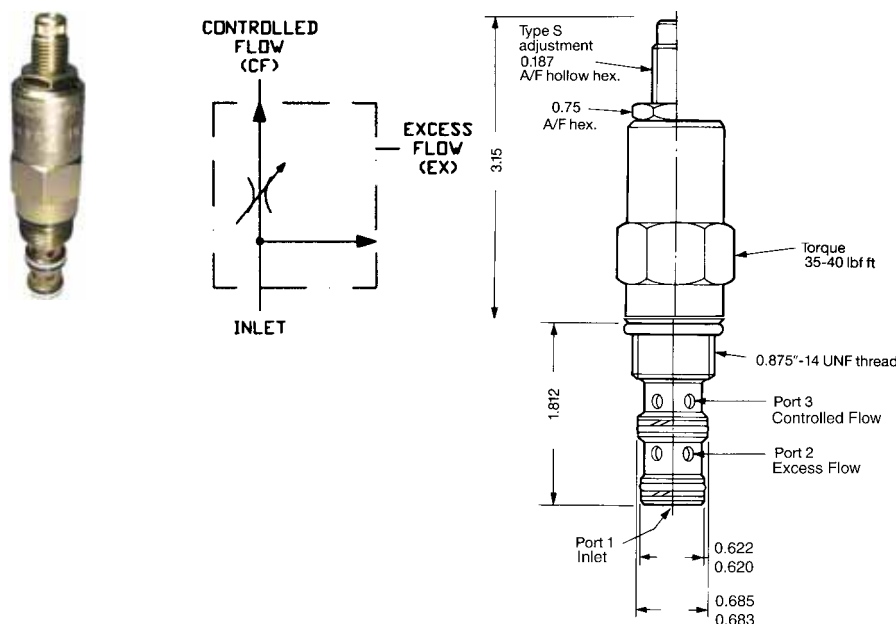
Catalog Part No.	Vickers Part No.	Vickers Model	Select (1) housing, (1) flow control cartridge and (1) relief cartridge to make each valve assembly	Wt.	Price Each
C1FQ46	02-164209	RV5-10-S-0-35/15	Relief Cartridge, 250-3500 PSI Range (Set at 1500), Screw Adjustment, Buna-N Seals	0.53	
•C1FM79	02-164222	RV5-10-S-0-20/12	Relief Cartridge, 100-2000 PSI Range (Set at 1200), Screw Adjustment, Buna-N Seals	0.51	
C1AD24	02-164723	RV5-10-S-0-35/14.5	Relief Cartridge, 250-3500 PSI Range (Set at 1450), Screw Adjustment, Buna-N Seals	0.52	

Note: Some assembly required. Select (1) housing, (1) flow control cartridge and (1) relief cartridge to make each valve assembly

Hydraulic Valves & Accessories

Flow Control Valves

3-Port Pressure Compensated Priority Flow Control Vickers® PFR2-10 Series • To 10 GPM Regulated



Features: Cartridge style (Requires a machined cavity or housing for installation). The flow adjustment range is from the factory set maximum flow rate down to 50% of that rate. Pressure compensated for accurate flow control regardless of changes in input or load pressure.

Application: This valve maintains a constant priority flow from port 1 to port 3 based on the setting adjustment, regardless of pressure changes downstream on port 3. Flow in excess of the priority setting is directed to port 2. If the priority flow at port 3 is blocked, the spool will shift to satisfy the priority flow requirement, thereby closing off flow to port 2.

Maximum Flow Rate: 15 GPM (Inlet), 10 GPM (Priority).

Maximum Operating Pressure: 3000 PSI.

Temperature Range: -40°F to 248°F (Extreme Limits).

Recommended Filtration Level: ISO 4406 Cleanliness Level 18/16/13 or cleaner.

Cartridge: Model PFR2-10*, sold separately.

Housing: Cavity size C-10-3, sold separately, see page 442

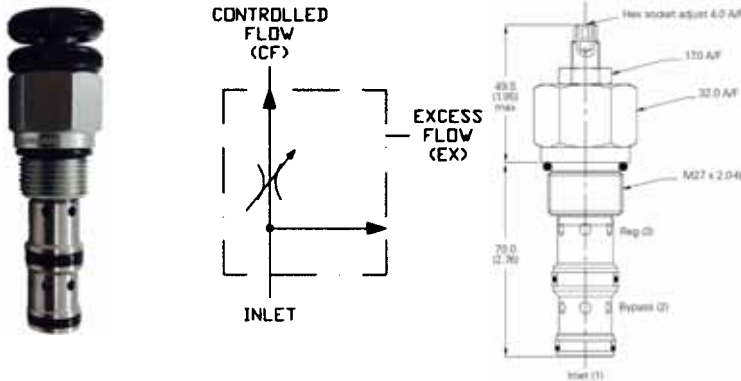
3-Port Pressure Compensated Priority Flow Control • Vickers® PFR2-10 Series • To 10 GPM Regulated

Catalog Part No.	Vickers Part No.	Vickers Model	Adjustable Flow Range (GPM)	Adjustment Type	Housing	Seal Material	Wt.	Price Each
C1FQ61	02-165669	PFR2-10-S-0/12.00	6.0 - 12.0	Screw with Locknut	None	Buna-N	0.50	

Housing Types: Aluminum STD (Standard light-duty aluminum 3000 psi maximum). Aluminum FR (Fatigue-rated aluminum 3000 psi maximum). Steel (Fatigue-rated Steel 5000 psi maximum).

Flow Control Valves

3-Port Pressure Compensated Priority Flow Control Eaton 2CFP60 Series • To 16 GPM



Features: Cartridge construction gives versatility of application. A valve may be fitted into a line body, a custom designed Hydraulic Integrated Circuit or directly into a cylinder or other actuator. Leakproof adjust screw gives easy, accurate adjustment to required flow setting. Hardened and ground working parts give accurate flow control and long working life.

Application: These valves are priority flow regulators. The flow (and actuator speed) will be largely independent of the load and the pressure conditions. If used to regulate flow from a fixed supply, for example a standard gear or piston pump, the valve will pass the required flow and any surplus flow will be diverted to the bypass port. The bypass flow may be used for a secondary circuit whether the secondary pressure requirement is higher or lower than the regulated pressure. The valve inlet pressure will be approximately 7 bar (100 psi) more than the regulated or bypass pressure, whichever is higher.

Maximum Flow Rate: Inlet: 24 GPM; Regulated Flow: 1 - 16 GPM

Maximum Operating Pressure: 5000 PSI

Temperature Range: -22°F to +194°F

Recommended Filtration Level: BS5540/4 Class 18/13 (25 micron nominal)

Cartridge: Model 2CFP60, sold separately.

Housing: Cavity size CVA-27-04-0. Housing sold separately.

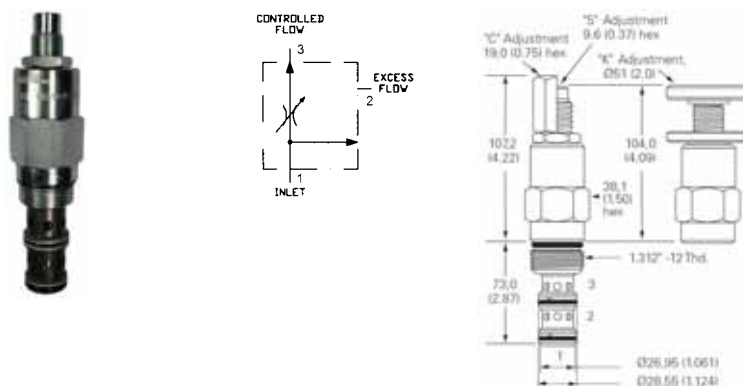
3-Port Pressure Compensated Priority Flow Control • Eaton 2CFP60 Series • To 16 GPM

Catalog Part No.	Eaton Part No.	Eaton Model	Adjustable Flow Range (GPM)	Adjustment Type	Housing	Seal Material	Wt.	Price Each
C1MJ84	405AA00009A	2CFP60R6S	1 - 16	Handknob adjustment	None	Nitrile	0.35	

Hydraulic Valves & Accessories

Flow Control Valves

3-Port Pressure Compensated Priority Flow Control Vickers PFR2-16 Series • To 30 GPM



Feature: Cartridge style (Requires a machined cavity or housing for installation). The flow adjustment range is from the factory set maximum flow rate down to 50% of that rate. Pressure compensated for accurate flow control regardless of changes in input or load pressure.

Application: This valve maintains a constant priority flow from port 1 to port 3 based on the setting adjustment, regardless of pressure changes downstream on port 3. Flow in excess of the priority setting is directed to port 2. If the priority flow at port 3 is blocked, the spool will shift to satisfy the priority flow requirement, thereby closing off flow to port 2.

Maximum Flow Rate: 40 GPM (Inlet), 30 GPM (Priority)

Maximum Operating Pressure: 3000 PSI.

Temperature Range: -40°F to 248°F (Extreme Limits).

Recommended Filtration Level: ISO 4406 Cleanliness Level 18/16/13 or cleaner.

Cartridge: Model PFR2-16*, sold separately.

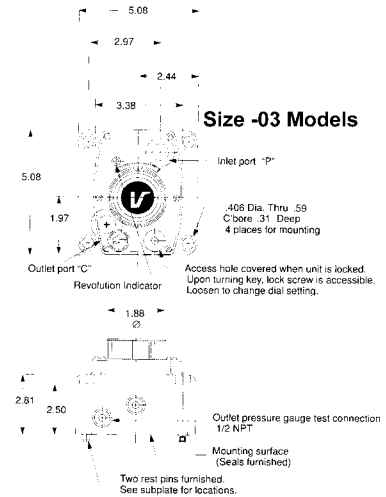
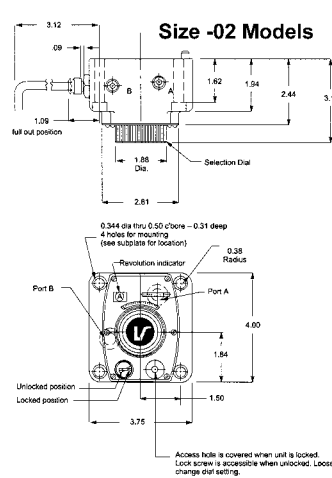
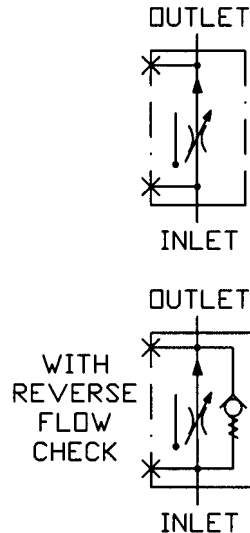
Housing: Cavity size C-16-3, sold separately, see page 442

3-Port Pressure Compensated Priority Flow Control • Vickers PFR2-16 Series • To 30 GPM

Catalog Part No.	Vickers Part No.	Vickers Model	Adjustable Flow Range (GPM)	Adjustment Type	Seal Material	Wt.	Price Each
C1MF99	02-165648	PFR2-16-S-0-/15.00	7.5 - 15.0	Screw with Locknut	Buna-N		

Flow Control Valves

Pressure & Temperature Compensated Flow Control Valves Vickers® F(C)G-02/03 Series • To 28 GPM Regulated



Features: Both pressure and temperature compensated to minimize flow variation resulting from changes in fluid pressure and temperature. 4-1/2 turns of dial from full closed to full open. Subplate mounted. Key lock is standard (2 keys are furnished with valve).

Application: Precise control of flow rate is obtained by rotating the dial. Maximum throttle openings may be limited by addition of spacers to the throttle shaft under the selector dial.

Maximum Operating Pressure: Size -02 Models: 3600 PSI. Size -03 Models: 3000 PSI.

Maximum Flow Capacity: Size -02 Models: 10 GPM. Size -03 Models: 28 GPM.

Maximum Knob Torque Required: Size -03 Models: 20 lb. in. @ 3000 PSI (Proportional to outlet pressure).

Recommended Filtration Level: ISO 4406 Cleanliness Level 19/17/14 or cleaner.

Mounting Bolts: Size -02 Models: Standard mounting bolts are (4) 5/16-18 x 2 Grade 8 socket head capscrews (Vickers Bolt Kit BKFG-02-640), torqued to 305 lb. in. Size -03 Models: Standard mounting bolts are (4) 3/8-16 x 3 Grade 8 socket head capscrews (Vickers Bolt Kit 255645, BKFG-03-645), torqued to 350 lb. in. See Bolt Kits on page 440

Subplates: Size -02 Models: Vickers Model FGM-02-20 (3/8 NPT) or FGM-02X-20 (1/2 NPT) sold separately. Size -03 Models: Vickers Part No. 681670 (Model FGM-03SZ-10) sold separately

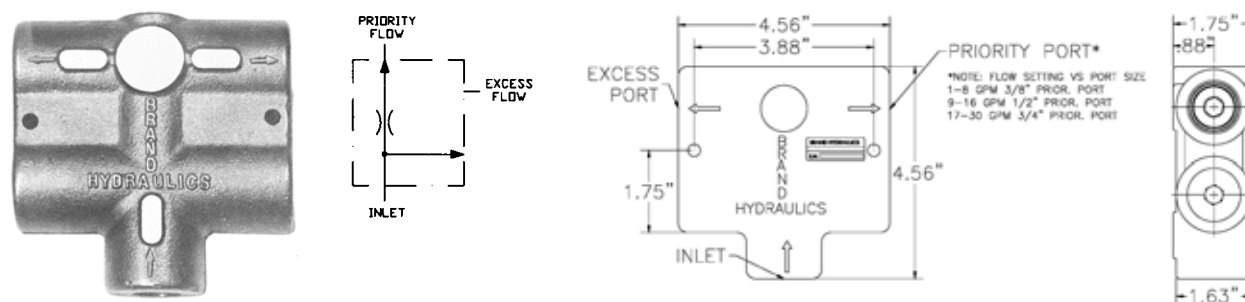
Pressure & Temperature Compensated Flow Control Valves • Vickers® F(C)G-02/03 Series • To 28 GPM Regulated

Catalog Part No.	Vickers Part No.	Vickers Model	Flow Range	Reverse Flow Check	Seal Material	Other Features	Wt.	Price Each
C1KA32	420607	FCG-02-1500-50	10 to 1500 in ³ /min	Yes	Buna-N		8.39	

Hydraulic Valves & Accessories

Flow Control Valves

3-Port Pressure Compensated Non-Adjustable Constant Volume Priority Divider Brand BG5* Series • To 30 GPM



BG5 is a non-adjustable priority divider that receives a single stream and divides it into a priority stream and an excess stream. The two outlet flows are pressure compensating and the sum of said flows equals the inlet flow.

Features: • PRECISION GROUND HEAT TREATED SPOOL that assures long life. • PRESSURE COMPENSATION for both outlet ports. • PRIORITY FLOW IS PRESET at factory to customer requirements. • EVERY BG IS TESTED for priority flow and pressure compensation. • LARGE METERING SPOOL provides a greater area for the pressure differential to act upon.

Pressure Rating: 3000 PSI

Filtration: 30-micron filtration recommended.

Materials: • Cast Iron Body • Buna N O-Rings • Heat Treated Steel Spools

3-Port Pressure Compensated Non-Adjustable Constant Volume Priority Divider • Brand BG5* Series • To 30 GPM

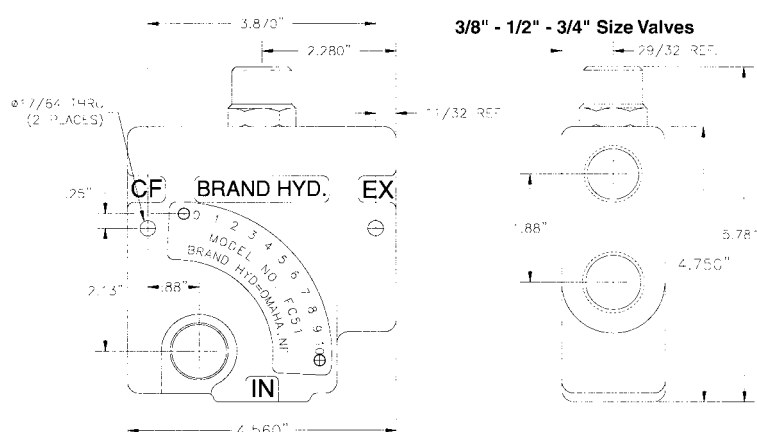
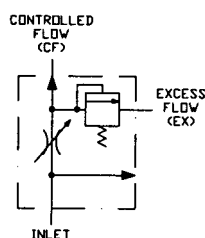
Catalog Part No.	Brand Model	Port Size	Flow Range (GPM)	Priority Setting	Spool Material	Wt.	Price Each
C1MK41	BG502-12SAE	SAE -12	0 - 30	2 GPM	Steel	5.00	
C1LB62	BG-508-12SAE	SAE -12	0 - 30	8 GPM	Steel	5.00	



Hydraulic Valves & Accessories

Flow Control Valves

3-Port Pressure Compensated Priority Flow Control Valves (With Relief) Brand FCR51 Series • To 90 GPM Regulated



Features: Precision ground chrome plated spool for long life. Diamond honed spool bore provides consistent spool fit with low leakage. Every valve is factory tested for shutoff, linearity, max. flow & pressure compensation. High lift ball spring relief valve.

Application: The FCR-51 full range pressure compensating variable flow control is designed so that the orifice area varies as the lever is rotated. Fluid travels past the variable orifice, through the compensator spool and then out the controlled flow port. The flow out of the CF port is proportional to the orifice area which can vary from closed to open. Once the pressure on the CF port increases above the relief setting, the relief valve opens and diverts flow to the EX port while maintaining pressure on the CF port. The EX port must be plumbed back to tank for the relief to function. The sum of the controlled flow and the excess flow equal the inlet flow, and as the controlled flow increases the excess flow decreases. Both outlets are pressure compensated by a spool that maintains a constant flow while adjusting for pressure. Hunting between a compensated pump and the valve is dampened with a dashpot on the compensator spool.

Materials: Cast iron body. Heat treated spools (Stainless steel available). Buna-N O-Rings (Standard).

Maximum Operating Pressure: 3000 PSI.

Recommended Filtration: 30 micron.

3-Port Pressure Compensated Priority Flow Control Valves • (With Relief) Brand FCR51 Series • To 90 GPM Regulated

Catalog Part No.	Brand Model	Port Size	Flow Range (GPM)	Spool Material	Wt.	Price Each
•C1CT52	FCR-51-3/8	3/8 NPT	0-8 GPM	Steel	7.89	
•C1CT50	FCR-51-1/2	1/2 NPT	0-16 GPM	Steel	7.89	
•C1CT51	FCR-51-3/4	3/4 NPT	0-30 GPM	Steel	7.58	

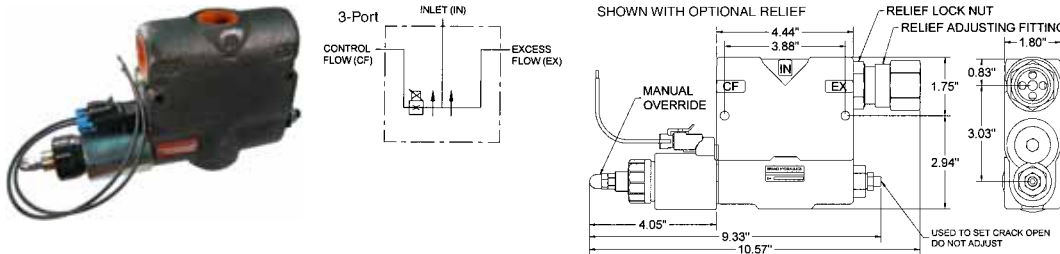


Hydraulic Valves & Accessories

Flow Control Valves

Electronically Adj. Proportional Pressure Compensated Flow Control

Brand EFC Series • To 30 GPM



The Brand EFC flow control is an electronically controlled version of the original FC51 style flow control valve. The control flow port (CF) and the excess flow port (EX) remain usable and pressure compensated. As the current to the solenoid increases the variable orifice moves proportionally similar to positioning the rotary side lever on the manual FC's. The solenoid is connected to the EC Series controls which can be purchased with the EFC valve. The choice of a dashpot size allows you to select a valve that responds to the control box at different rates. Other options are 2-port, free reverse flow and high lift ball spring relief. **2-PORT:** The 2-port (2P) option is a modified version of the standard 3-port EFC. This option lets you use the control flow port while the excess port is plugged. A special compensator spool eliminates hunting that can occur between pressure compensated valves and pumps. The 2-port can be converted to a 3-port (by removing the EX plug), but it will not have the same characteristics as the standard 3-port. **FREE REVERSE FLOW:** The free reverse flow option was designed to be used primarily where cylinders and motors are needed to go in reverse. The flow can only go in reverse from controlled flow (CF) to the inlet (IN). Flow is not metered when it goes in reverse.

Features: Diamond honed spool bore provides consistent spool fit with low leakage • O-ring ports • Every EFC is tested for shutoff, linearity, max. flow, crack open and pressure compensation • Standard 3-port allows for pressure compensated flow out of the CF and EX ports • Manual override • Optional 2-port allows for pressure compensated flow out of CF port • Optional free reverse flow allows fluid to move from the CF port to the inlet • Optional high lift relief.

Pressure Rating: 3000 PSI

Materials: Ductile cast iron body. Heat treated steel spools. Buna N O-rings. Heat treated free reverse check seat.

Pulse Frequency: 90 to 115 hz

Coil: Standard 12VDC: 9.6 ohms, 15 watts, 1.0 amps max. Optional 24VDC: 48 ohms, 15 watts, 0.5 amps max.

Response Time: Standard 0.035" dash pot: 375 ms. 0.020" dash pot: 900 ms. 0.093" dash pot: 175 to 350 ms, flow dependant.

Recommended Filtration: 10 micron

Spool Leakage: 50 ml/minute @ 1000 PSI on EX port.

Electronically Adj. Proportional Pressure Compensated Flow Control • Brand EFC Series • To 30 GPM

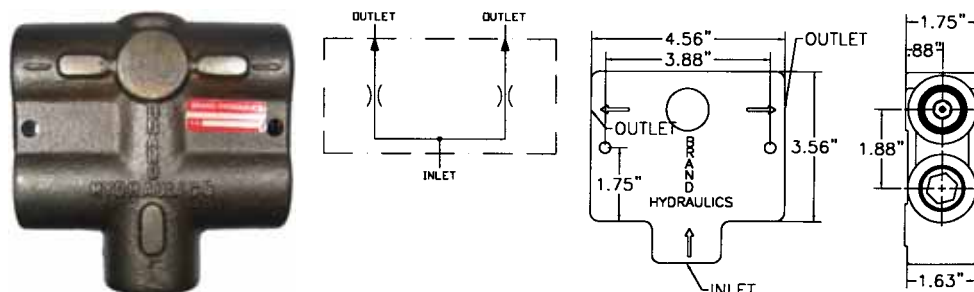
Catalog Part No.	Brand Part No.	Ports	Maximum Flow Range (GPM)	Free Reverse Flow	Wt.	Price Each
C1MH20	EFC12-30-12R20	SAE -12	0 - 30	No	9.26	



Hydraulic Valves & Accessories

Flow Divider Valves

Proportional Flow Dividers Brand B50 Series • To 30 GPM



Features: Precision ground heat treated spools for long life. Pressure compensation for both outlet ports. Every valve is factory tested for flow ratio and pressure compensation.

Application: The B-50 is a non-adjustable divider that receives a single stream and divides into two streams. The two outlet flows are pressure compensating and the sum of outlet flows equal the inlet flow. Flow is from inlet to outlet only. The standard outlet flow ratio is 50:50. **WARNING:** Spool may bind if valve is mounted with bolts through valve against a flat surface (housing can distort). Mount valve with rigid spacers between valve body and mounting surface to prevent housing distortion.

Materials: Cast iron body. Buna-N O-Rings. Heat treated steel spool.

Maximum Operating Pressure: 3000 PSI.

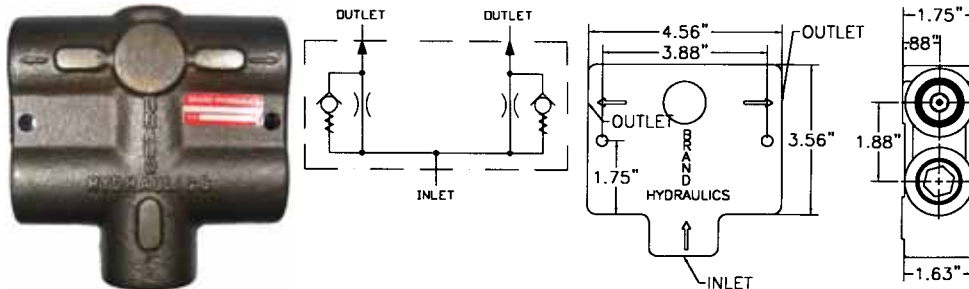
Recommended Filtration: 30 micron.

Proportional Flow Dividers • Brand B50 Series • To 30 GPM

Catalog Part No.	Brand Model	Port Size	Inlet Flow Range (GPM)	Outlet Flow Ratio	Wt.	Price Each
•C1CK97	B-50-1/2	1/2 NPT	8-16 GPM	50:50	4.89	
C1MG94	B50-10SAE	-10 SAE	8-16 GPM	50:50	5.00	
•C1CK98	B-50-3/4	3/4 NPT	16-30 GPM	50:50	5.00	

Flow Divider Valves

Proportional Flow Dividers (With Free Reverse Flow) Brand B100 Series • To 30 GPM



Features: Precision ground heat treated spools for long life. Pressure compensation for both outlet ports. Free reverse flow. Every valve is factory tested for flow ratio and pressure compensation.

Application: The B-100 is a non-adjustable divider that receives a single stream and divides into two streams. The two outlet flows are pressure compensating and the sum of outlet flows equal the inlet flow. Flow can travel in reverse through both outlet ports and is not metered when going in reverse. The standard outlet flow ratio is 50:50. **WARNING:** Spool may bind if valve is mounted with bolts through valve against a flat surface (housing can distort). Mount valve with rigid spacers between valve body and mounting surface to prevent housing distortion.

Materials: Cast iron body. Buna-N O-Rings. Heat treated steel spool.

Maximum Operating Pressure: 3000 PSI.

Recommended Filtration: 30 micron.

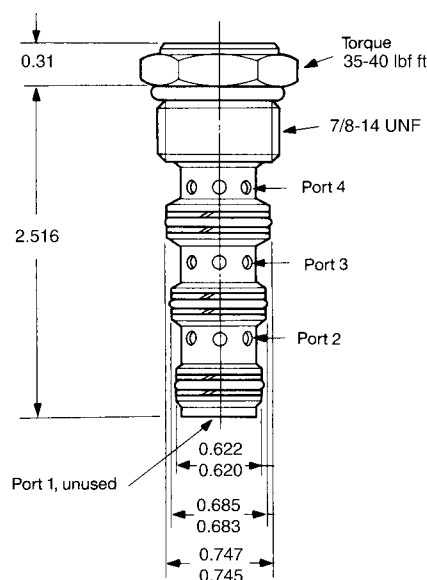
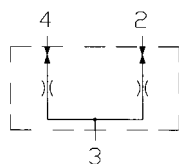
Proportional Flow Dividers (With Free Reverse Flow) • Brand B100 Series • To 30 GPM

Catalog Part No.	Brand Model	Port Size	Inlet Flow Range (GPM)	Outlet Flow Ratio	Wt.	Price Each
•C1CK93	B100-3/8	3/8 NPT	2-8 GPM	50:50	4.91	
•C1CK92	B-100-3/4	3/4 NPT	16-30 GPM	50:50	4.64	

Hydraulic Valves & Accessories

Flow Divider Valves

Proportional Flow Dividers (With Combining Feature) Vickers® FDC1-10 Series • To 12 GPM



Application: The Vickers FDC1-10 Divider/Combiner proportionally divides a single flow of hydraulic oil into two equal or unequal flows, and combines in the reverse direction. The flow ratios remain constant despite load differences between the ports. Accuracy is $\pm 10\%$ when used within the recommended flow range. A special feature of the FDC1 valve is that it provides rephase flow to either port when one is blocked. Example: If one cylinder bottoms out first, the opposite cylinder is provided with rephase flow to allow it to bottom out also.

Flow Ratings: Nominal Inlet Flow 12 GPM (18 GPM Maximum).

Maximum Operating Pressure: 3000 PSI.

Accuracy: $\pm 10\%$.

Temperature Range: -40°F to 248°F (Extreme Limits).

Recommended Filtration Level: ISO 4406 Cleanliness Level 18/16/13 or cleaner.

Cartridge: Model FDC1-10*, sold separately.

Housing: Cavity size C-10-4, sold separately, see page 443

Proportional Flow Dividers (With Combining Feature) • Vickers® FDC1-10 Series • To 12 GPM

Catalog Part No.	Vickers Part No.	Vickers Model	Inlet Flow Range (GPM)	Outlet Flow Ratio (Port 4:Port2)	Housing	Seals	Wt.	Price Each
•C1EL11	566003	FDC1-10-0-11	0.74 - 2.9	50:50	None	Buna-N	0.22	

Housing Types: Aluminum STD (Standard light-duty aluminum 3000 psi maximum). Aluminum FR (Fatigue-rated aluminum 3000 psi maximum). Steel (Fatigue-rated Steel 5000 psi maximum).



Hydraulic Valves & Accessories

Gate Valves

Brass Gate Valves Brass M Gate Valve



ACR INDUSTRIES

Features: Screw-in bonnet.

Application: For water and steam service.

Maximum Operating Pressure: 125 WSP (steam), 200 PSI (WOG).

Brass Gate Valves • Brass M Gate Valve

Catalog Part No.	ACR Model	Ports	Wt.	Price Each
•C1KU82	3801	3/8	0.57	
•C1KU83	3802	1/2	0.51	
•C1KU84	3803	3/4	0.85	
•C1KU85	3804-ACR	1	1.20	
•C1KU86	3805	1-1/4	1.70	
•C1KU87	3806-ACR	1-1/2	2.20	
•C1KU88	3807-ACR	2	3.30	

Hydraulic Power & Control

Pneumatic Power & Control

Fluid Conveying

Miscellaneous Products

Indexes & Technical Information



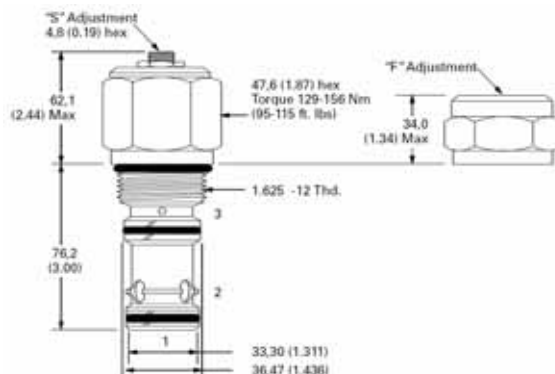
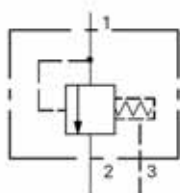
Hydraulic Valves & Accessories

Logic Element Valves

Differential Pressure Sense Valve Vickers® DPS2-20 Series • To 80 GPM



DPS2-**-P-F



Features: The DPS2-20 is a differential pressure sensing valve, available as either a spool or poppet type and with either, internal or external pilot.

Application: This valve is used as a main section of a pilot controlled valve assembly. This valve has multiple uses when used with either directional control, flow control or pressure control cartridges.

Maximum Flow Rate: 80 GPM

Maximum Operation Pressure: 4200 PSI (spool type), 5000 PSI poppet type)

Temperature Range: -40° F to 248° F

Recommended Filtration Level: Cleanliness code 18/16/13

Cartridge: Model DPS2-20-*, sold separately

Housing: Cavity size C-20-3S, sold separately, see page 442

Differential Pressure Sense Valve • Vickers® DPS2-20 Series • To 80 GPM

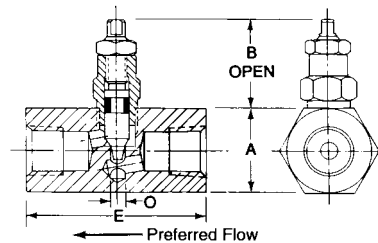
Catalog Part No.	Vickers Part No.	Vickers Model	Function	Stroke Adjustment	Differential Pressure Setting	Wt.	Price Each
C1DU34	02-153254	DPS2-20-T-F-0-40	Poppet, bi-directional, pilot to close, 2:1 ratio, N/C	None (Fixed stroke)	40 PSI		
C1NA11	889303	DPS2-20-T-F-0-80	Poppet, bi-directional, pilot to close, 2:1 ratio, N/C	None (Fixed stroke)	80 PSI		

Needle Valves

Inline Needle Valves

For Hydraulic (To 34 GPM) & Pneumatic Service

DELTROL
fluid products



Features: Wide adjustment range due to fine thread. Tamperproof adjustment key is standard. Knurled knob is optional. Locknut is standard.

Application: Controlled flow in both directions. Flow adjustment can be made under pressure. Setting can be locked with locknut. Brass valves for use in pneumatic systems and lower pressure hydraulic systems. Steel valves for use in hydraulic systems. Pressure ratings in tables are for non-shock service.

Materials: Body: Available in Brass, carbon steel or stainless steel. Needle: Brass on brass valves, 416 stainless steel on steel and stainless steel valves. O-Ring Packing: Viton®. Backup Washer: Teflon®. Optional Knob: Aluminum. Tamper proof Key: Cadmium plated steel.

Operating Temperature Range: -15°F to 400°F.

Inline Needle Valves • For Hydraulic (To 34 GPM) & Pneumatic Service

Catalog Part No.	Deltrol Model	Size	Threads	Body Material	Maximum Operating Pressure Non-Shock (psi)	Flow Rating (GPM)	CV Factor	A (in)	B (in)	E (in)	Wt.	Price Each
C1DF59	N20B	1/4	1/4-18 NPT	Brass	2000	7.0	0.43	0.88	1.00	2.00	0.39	
•C1DF61	N25B	3/8	3/8-18 NPT	Brass	2000	13.5	0.78	1.06	1.81	2.25	0.59	

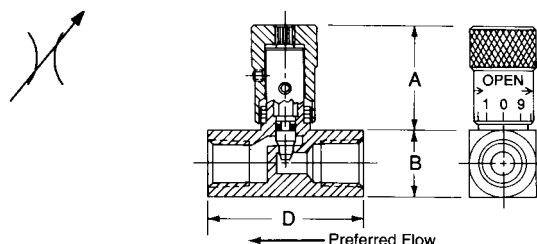
Note: Models with K at end of model number have knurled adjustment knob instead of tamperproof adjustment key.

Hydraulic Valves & Accessories

Needle Valves

Inline Easy Read® Needle Valves For Hydraulic (To 100 GPM) & Pneumatic Service

DELTROL
fluid products



Features: Color coding and numerical readout allow positive, precise and repeatable settings. Can be accurately adjusted within a small fraction of a turn (one full turn per color). Metal knob and stem for durability.

Application: Controlled flow in both directions. Flow adjustment can be made under pressure. Setting can be locked with set screw. Brass valves for use in pneumatic systems and lower pressure hydraulic systems. Steel valves for use in hydraulic systems. Pressure ratings in tables are for non-shock service.

Materials: Body: Available in Brass, carbon steel or stainless steel (1" size available in naval bronze or ductile iron). Needle: Brass on brass valves, stainless steel on steel and stainless steel valves. O-Ring: Viton® is standard (other materials available). Washer Seal: Teflon®. Knob: Aluminum.

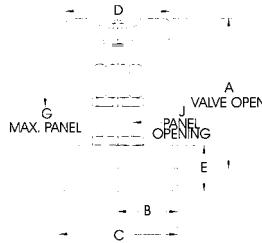
Operating Temperature Range: -15°F to 400°F.

Inline Easy Read® Needle Valves • For Hydraulic (To 100 GPM) & Pneumatic Service

Catalog Part No.	Deltrol Model	Size	Threads	Body Material	Maximum Operating Pressure Non-Shock (psi)	Flow Rating (GPM)	CV Factor	A (in)	B (in)	D (in)	Wt.	Price Each
•C1CP21	EN10B	1/8	1/8-27 NPT	Brass	2000	4.5	0.25	1.28	0.63	1.44	0.19	
•C1CP22	EN10S	1/8	1/8-27 NPT	Steel	5000	4.5	0.25	1.28	0.63	1.44	0.19	
•C1CP23	EN20B	1/4	1/4-18 NPT	Brass	2000	10.0	0.51	1.41	0.75	2.56	0.32	
•C1CP24	EN20S	1/4	1/4-18 NPT	Steel	5000	10.0	0.51	1.41	0.75	2.56	0.29	
•C1CP25	EN25B	3/8	3/8-18 NPT	Brass	2000	18.0	0.92	1.63	1.00	3.25	0.63	
•C1CP26	EN25S	3/8	3/8-18 NPT	Steel	5000	18.0	0.92	1.63	1.00	3.25	0.59	
•C1CP27	EN30B	1/2	1/2-14 NPT	Brass	2000	28.0	1.20	1.97	1.13	3.56	0.91	
•C1CP28	EN30S	1/2	1/2-14 NPT	Steel	5000	28.0	1.20	1.97	1.13	3.56	0.83	
•C1CP29	EN35B	3/4	3/4-14 NPT	Brass	2000	40.0	1.84	2.19	1.38	4.13	1.46	
•C1CP30	EN35S	3/4	3/4-14 NPT	Steel	5000	40.0	1.84	2.19	1.38	4.13	0.05	

Needle Valves

Inline Needle Valves For Hydraulic & Pneumatic Service



Features: Bar stock construction for reliable performance. Hard seats. Bonnet is threaded for optional panel mounting.

Application: Controlled flow in both directions.

Materials: Zinc plated AISI 1213 alloy steel body & bonnet. 316 stainless steel hardened stem. Black polyethylene bonnet cap. Yellow cast aluminum handle (1/8 - 1/2 sizes). Yellow malleable iron handle (3/4-1 sizes). Grafiflex packing.

Maximum Operating Pressure: 10,000 PSI. (Minimum burst pressure is 20,000 PSI).

Operating Temperature Range: -100°F to 500°F.

Inline Needle Valves • For Hydraulic & Pneumatic Service

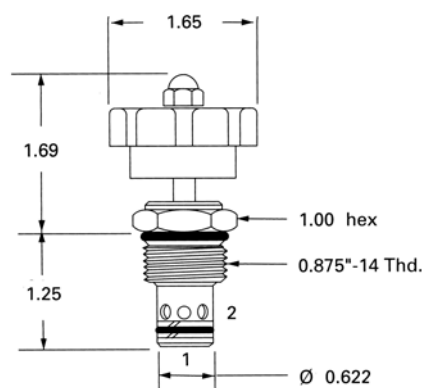
Catalog Part No.	Marsh Model	Size	Threads	CV Factor	A (in)	B (in)	C (in)	D (in)	E (in)	G (in)	J (in)	Wt.	Price Each
•C1DF55	N1512	1/4	1/4 NPT	0.4	3.06	1.03	2.06	2.50	1.00	0.38	0.78	0.77	
•C1DF56	N1513	3/8	3/8 NPT	0.9	3.75	1.44	2.88	2.50	1.38	0.75	0.91	1.59	
•C1DF57	N1514	1/2	1/2 NPT	1.1	3.75	1.44	2.88	2.50	1.38	0.75	0.91	1.50	

Hydraulic Valves & Accessories

Needle Valves

Cartridge Type Needle Valves

Vickers® NV1-10 Series • To 12 GPM



Features: Cartridge style (Requires a machined cavity or housing for installation). Rotary knob.

Application: Controlled flow in both directions.

Rated Flow: 12 GPM.

Maximum Operating Pressure: 3000 PSI.

Temperature Range: -40°F to 248°F (Extreme Limits).

Recommended Filtration Level: ISO 4406 Cleanliness Level 18/16/13 or cleaner.

Cartridge: Model NV1-10*, sold separately.

Housing: Cavity size C-10-2, sold separately, see page 441

Cartridge Type Needle Valves • Vickers® NV1-10 Series • To 12 GPM

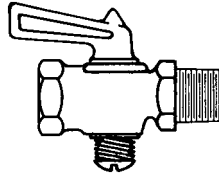
Catalog Part No.	Vickers Part No.	Vickers Model	Knob Color	Housing	Seal Material	Wt.	Price Each
C1GH56	565590	NV1-10-K-0	Black	None	Buna-N	0.23	

Parts for Vickers® NV1-10 Needle Valve Cartridges

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1FK22	565806	SK2-10-2 Buna-N Seal Kit	0.01	

Plug Valves

Brass 2-Way Shut-Off Plug Valves Male Pipe to Female Pipe (Straight)



Features: Instantaneous on-off operation with 360° handle rotation. Lapped brass body and plug are individually mated, providing an excellent quality, low friction valve.

Application: Used extensively for water process piping and air supply systems.

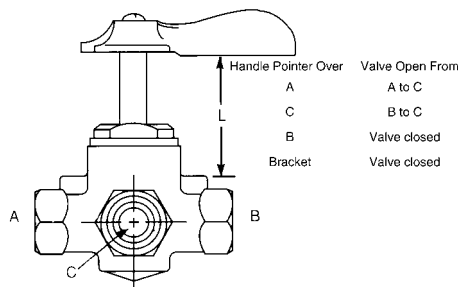
Maximum Operating Pressure: 30 PSI.

Operating Temperature Range: -40°F to 250°F.

Brass 2-Way Shut-Off Plug Valves • Male Pipe to Female Pipe (Straight)

Catalog Part No.	Anderson Brass Model	Size	Threads	Wt.	Price Each
•C1AK34	130C-L	1/4	1/4 NPT	0.20	

Brass 3-Way Side Outlet Plug Valves Female Pipe



Features: Pointer lever to indicate port selection. Audible Click mechanism is standard. Valves are not lubricated and require no lubrication. O-Ring sealed cap and stem. Brass body and CELCON® plug produce a fine seal that will not seize or gall.

Application: Generally recommended for operation in gasoline, oil, air, water and detergent systems.

Maximum Operating Pressure: 30 PSI.

Operating Temperature Range: -40°F to 180°F.

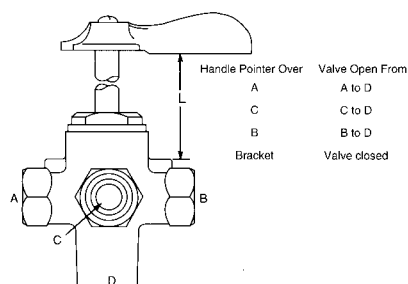
Brass 3-Way Side Outlet Plug Valves • Female Pipe

Catalog Part No.	Anderson Brass Model	Size	Threads	Fluid Port Dia. (in)	Handle Movement Features	L (in)	Wt.	Price Each
•C1BB99	210C-N	3/8	3/8 NPT	0.312	Click is felt at each position. Handle rotates 360°.	1.375	0.50	

Hydraulic Valves & Accessories

Plug Valves

Brass 4-Way Bottom Outlet Plug Valves Female Pipe



Features: Pointer lever to indicate port selection. Audible Click mechanism is standard. Valves are not lubricated and require no lubrication. O-Ring sealed cap and stem. Brass body and CELCON® plug produce a fine seal that will not seize or gall.

Application: Generally recommended for operation in gasoline, oil, air, water and detergent systems.

Maximum Operating Pressure: 30 PSI.

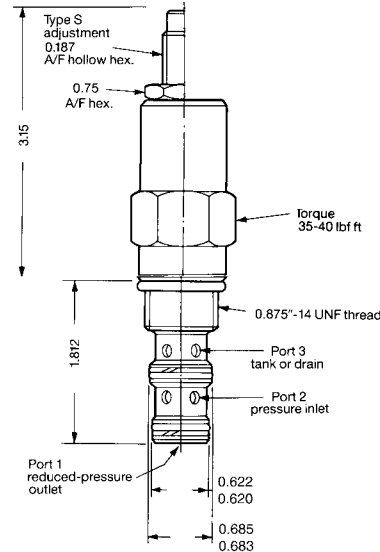
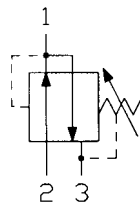
Operating Temperature Range: -40°F to 180°F.

Brass 4-Way Bottom Outlet Plug Valves • Female Pipe

Catalog Part No.	Anderson Brass Model	Size	Threads	Fluid Port Dia. (in)	Handle Movement Features	L (in)	Wt.	Price Each
•C1EF53	200C-N	3/8	3/8 NPT	0.312	Click is felt at each position. Handle rotates 360°.	1.375	0.54	

Pressure Reducing Valves

Direct-Acting Pressure Reducing (Relieving) Valves Vickers® PRV1-10 Series • To 4 GPM & 2400 PSI



Features: The PRV1-10 is a direct acting, spool type screw-in cartridge pressure reducing/relieving valve, and requires a machined cavity or housing for installation.

Application: Valve is normally open, allowing flow from port 2 to port 1. Port 3 is a drain and must be vented back to reservoir. Once the pressure setting is reached at port 1, the spool shifts to restrict the inlet flow at port 2. This regulates the pressure at port 1. If pressure at port 1 exceeds the predetermined setting of the valve, the spool will shift further and relieve excess pressure through port 3.

Pressure Rating: 2400 PSI (All ports).

Rated Flow: 4 GPM.

Temperature Range: -40°F to 248°F (Extreme Limits).

Recommended Filtration Level: ISO 4406 Cleanliness Level 18/16/13 or cleaner.

Cartridge: Model PRV1-10*, sold separately.

Housing: Cavity size C-10-3, sold separately, see page 442

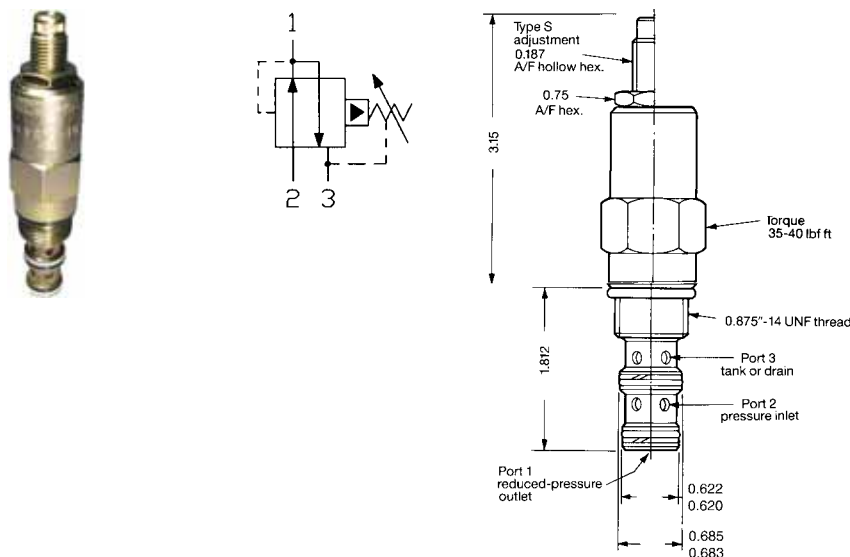
Direct-Acting Pressure Reducing (Relieving) Valves • Vickers® PRV1-10 Series • To 4 GPM & 2400 PSI

Catalog Part No.	Vickers Part No.	Vickers Model	Adjustment Type	Cracking Pressure Range (psi)	Factory Setting (psi)	Housing	Seal Material	Wt.	Price Each
•C1BT43	565886	PRV1-10-S-0-24/	Screw and locknut	400-2400	Mid-Range (apprx)	None	Buna-N	0.56	

Hydraulic Valves & Accessories

Pressure Reducing Valves

Pilot-Operated Pressure Reducing (Relieving) Valves Vickers® PRV2-10 Series • To 10 GPM & 3500 PSI



Features: The PRV2-10 is a pilot operated, spool type screw-in cartridge pressure reducing/relieving valve, and requires a machined cavity or housing for installation.

Application: This valve is normally open, allowing flow from port 2 to port 1. Port 3 is a drain and must be vented back to reservoir. Once the pressure setting is reached at port 1, the spool shifts to restrict the inlet flow at port 2. This regulates the pressure at port 1. If pressure at port 1 exceeds the predetermined setting of the valve, the spool will shift further and relieve excess pressure through port 3.

Pressure Rating: 3500 PSI All ports (CAUTION: Pressures over 3000 PSI require steel housing).

Rated Flow: 10 GPM.

Temperature Range: -40°F to 248°F (Extreme Limits).

Recommended Filtration Level: ISO 4406 Cleanliness Level 18/16/13 or cleaner.

Cartridge: Model PRV2-10*, sold separately.

Housing: Cavity size C-10-3, sold separately, see page 442

Pilot-Operated Pressure Reducing (Relieving) Valves • Vickers® PRV2-10 Series • To 10 GPM & 3500 PSI

Catalog Part No.	Vickers Part No.	Vickers Model	Adjustment Type	Cracking Pressure Range (psi)	Factory Setting (psi)	Housing	Seal Material	Wt.	Price Each
•C1ZZ80	02-170743	PRV2-10-S-0-35/25	Screw and locknut	250-3500	2500	None	Buna-N	0.20	

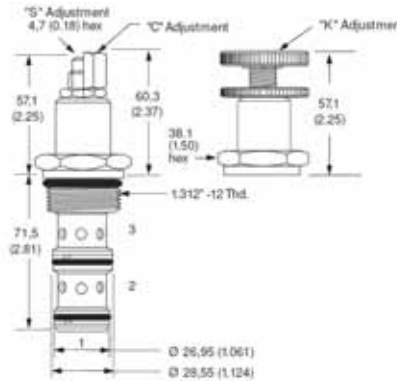
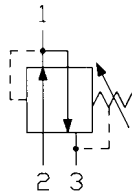
Housing Types: Aluminum STD (Standard light-duty aluminum 3000 psi maximum). Aluminum FR (Fatigue-rated aluminum 3000 psi maximum). Steel (Fatigue-rated Steel 5000 psi maximum).



Hydraulic Valves & Accessories

Pressure Reducing Valves

Pilot-Operated Pressure Reducing (Relieving) Valves Vickers® PRV2-16 Series • To 40 GPM & 5000 PSI



Features: The PRV2-16 is a pilot operated, spool type screw-in cartridge pressure reducing/relieving valve, and requires a machined cavity or housing for installation.

Application: This valve is normally open, allowing flow from port 2 to port 1. Port 3 is a drain and must be vented back to reservoir. Once the pressure setting is reached at port 1, the spool shifts to restrict the inlet flow at port 2. This regulates the pressure at port 1. If pressure at port 1 exceeds the predetermined setting of the valve, the spool will shift further and relieve excess pressure through port 3.

Pressure Rating: 5000 PSI All ports (CAUTION: Pressures over 3000 PSI require steel housing).

Rated Flow: 40 GPM

Temperature Range: -40°F to 248°F

Recommended Filtration Level: ISO 4406 Cleanliness Level 18/16/13 or cleaner.

Cartridge: Model PRV2-16*, sold separately.

Housing: Cavity size C-16-3, sold separately, see page 442

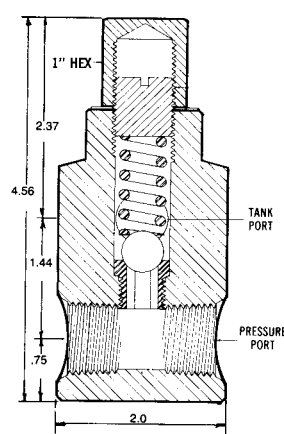
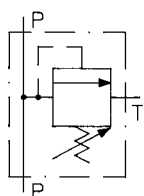
Pilot-Operated Pressure Reducing (Relieving) Valves • Vickers® PRV2-16 Series • To 40 GPM & 5000 PSI

Catalog Part No.	Vickers Part No.	Vickers Model	Adjustment Type	Cracking Pressure Range (psi)	Factory Setting (psi)	Housing	Seal Material	Wt.	Price Each
C1MG59	566376	PRV2 16 S 0 60	Screw	1000-6000	3500	None	Buna-N	0.89	

Hydraulic Valves & Accessories

Relief Valves • Direct-Acting Ball Type

3-Port Direct-Acting Relief Valves Brand RL Series • To 20 GPM



Features: In-line mounting. Precision built. Hardened, replaceable seat.

Adjustment Style: Adjustment screw underneath removable cap.

Maximum Operating Pressure: 3000 PSI.

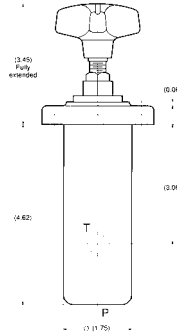
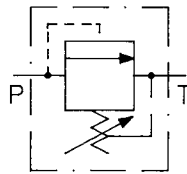
Maximum Flow Rate: 20 GPM.

3-Port Direct-Acting Relief Valves • Brand RL Series • To 20 GPM

Catalog Part No.	Brand Model	Adjustment Range (psi)	Pressure Port	Tank Port	Wt.	Price Each
•C1DB34	RL-50	150-3000	1/2 NPT	1/2 NPT	2.67	
•C1DK23	RL-75	150-3000	3/4 NPT	1/2 NPT	2.30	

Relief Valves • Direct-Acting Poppet Type

Panel Mount Direct-Acting Relief Valves Vickers® C-175 • To 3 GPM



Features: Panel mounting. Typically used to remotely control a “ventable” relief valve.

Adjustment Style: Knob with jam nut.

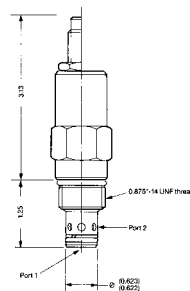
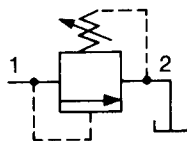
Maximum Operating Pressure: 3000 PSI.

Maximum Flow Rate: 3 GPM.

Panel Mount Direct-Acting Relief Valves • Vickers® C-175 • To 3 GPM

Catalog Part No.	Vickers Part No.	Vickers Model	Adjustment Range (psi)	Inlet Port	Outlet Port	Seal Material	Wt.	Price Each
C1BW85	631056	C-175-F-20	1500-3000	1/4 NPT	1/4 NPT	Viton®	3.30	

Cartridge Type Direct-Acting Relief Valves Vickers® RV1-10 Series • To 10 GPM



Features: Cartridge style (Requires a machined cavity or housing for installation). Continuous duty. Fast response. Low cost.

Adjustment Style: See table.

Maximum Operating Pressure: 3000 PSI.

Maximum Flow Rate: 10 GPM.

Cartridge: Model RV1-10-*, sold separately.

Housing: Cavity size C-10-2, sold separately, see page 441

Cartridge Type Direct-Acting Relief Valves • Vickers® RV1-10 Series • To 10 GPM

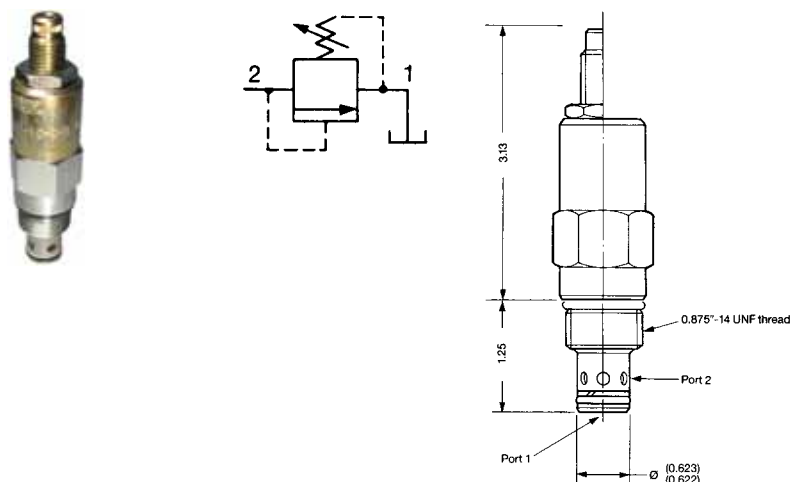
Catalog Part No.	Vickers Part No.	Vickers Model (Cartridge Only)	Adjustment Range (psi)	Adjustment Type	Seal Material	Wt.	Price Each
C1BT33	565563	RV1-10-S-0-30/	500-3000	Screw	Buna-N	0.53	

Note: Housing not included.

Hydraulic Valves & Accessories

Relief Valves • Direct-Acting Differential Poppet Type

Cartridge Type Direct-Acting Relief Valves Vickers® RV3-10 Series • To 20 GPM



Features: Cartridge style (Requires a machined cavity or housing for installation). Contamination tolerant. Fast response.

Adjustment Style: See table.

Maximum Operating Pressure: 3600 PSI (CAUTION: Pressures over 3000 PSI require steel housing).

Maximum Flow Rate: 20 GPM.

Cartridge: Model RV3-10-*, sold separately.

Housing: Cavity size C-10-2, sold separately, see page 441

Cartridge Type Direct-Acting Relief Valves • Vickers® RV3-10 Series • To 20 GPM

Catalog Part No.	Vickers Part No.	Vickers Model	Adjustment Range (psi)	Adjustment Type	Housing	Seal Material	Wt.	Price Each
•C1ET93	566688	RV3-10-S-0-3/	50-300	Screw	None	Buna-N	0.51	
C1MX18	02-199334	RV3A-10-S-0-18/11	300-1800 (Set at 1100)	Screw	None	Buna-N	0.53	
•C1BT34	565568	RV3-10-S-0-36/	600-3600	Screw	None	Buna-N	0.53	

Housing Types: Aluminum STD (Standard light-duty aluminum 3000 psi maximum). Aluminum FR (Fatigue-rated aluminum 3000 psi maximum). Steel (Fatigue-rated Steel 5000 psi maximum).

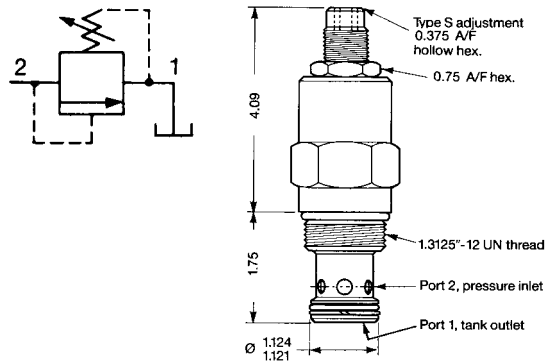
RV3A: 1/2 thickness back-up ring on each side of o-ring (for cross port relief applications).



Hydraulic Valves & Accessories

Relief Valves • Direct-Acting Differential Poppet Type

Cartridge Type Direct-Acting Relief Valves Vickers® RV3-16 Series • To 80 GPM



Features: Cartridge style (Requires a machined cavity or housing for installation). Contamination tolerant. Fast response.

Adjustment Style: See table.

Maximum Operating Pressure: 5000 PSI (CAUTION: Pressures over 3000 PSI require steel housing).

Maximum Flow Rate: 80 GPM.

Cartridge: Model RV3-16-*, sold separately.

Housing: Cavity size C-16-2, sold separately, see page 441

Cartridge Type Direct-Acting Relief Valves • Vickers® RV3-16 Series • To 80 GPM

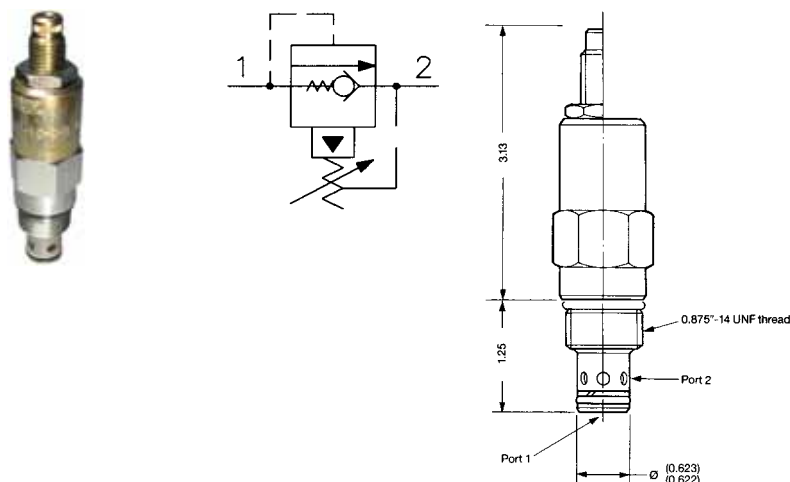
Catalog Part No.	Vickers Part No.	Vickers Model (Cartridge Only)	Adjustment Range (psi)	Adjustment Type	Seal Material	Wt.	Price Each
•C1EN53	565569	RV3-16-S-0-35/	1200-3500	Screw	Buna-N	1.63	

Note: Housing not included.

Hydraulic Valves & Accessories

Relief Valves • Pilot-Operated Poppet Type

Cartridge Type Pilot-Operated Poppet Type Relief Valves Vickers® RV2-10 Series • To 30 GPM



Features: Cartridge style (Requires a machined cavity or housing for installation). Ideal for use as a service line relief where anti-cavitation make-up is required.

Adjustment Style: See table.

Maximum Operating Pressure: 5000 PSI (CAUTION: Pressures over 3000 PSI require steel housing).

Rated Flow Range: 3 to 30 GPM.

Cartridge: Model RV2-10-*, sold separately.

Housing: Cavity size C-10-2, sold separately, see page 441

Cartridge Type Pilot-Operated Poppet Type Relief Valves • Vickers® RV2-10 Series • To 30 GPM

Catalog Part No.	Vickers Part No.	Vickers Model	Adjustment Range (psi)	Adjustment Type	Housing	Seal Material	Wt.	Price Each
•C1FA75	566212	RV2-10-S-0-35/	250-3500	Screw	None	Buna-N	0.53	

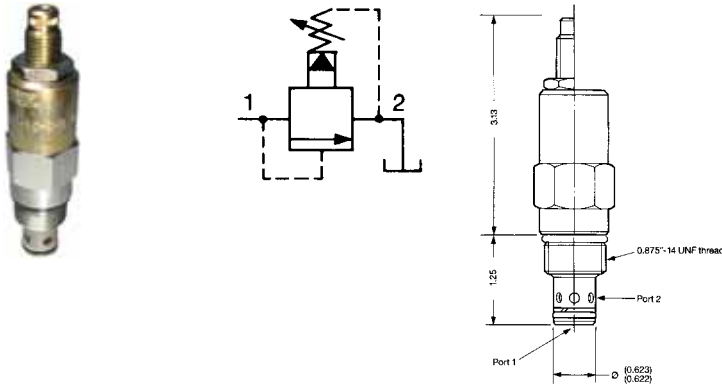
Housing Types: Aluminum STD (Standard light-duty aluminum 3000 psi maximum). Aluminum FR (Fatigue-rated aluminum 3000 psi maximum). Steel (Fatigue-rated Steel 5000 psi maximum).



Hydraulic Valves & Accessories

Relief Valves • Pilot-Operated Spool Type

Cartridge Type Pilot-Operated Spool Type Relief Valves Vickers® RV5-10 Series • To 30 GPM



Features: Cartridge style (Requires a machined cavity or housing for installation). Smooth and quiet. Continuous duty.

Adjustment Style: See table.

Maximum Operating Pressure: 5000 PSI (CAUTION: Pressures over 3000 PSI require steel housing).

Maximum Flow Rate: 30 GPM.

Cartridge: Model RV5-10-*, sold separately.

Housing: Cavity size C-10-2, sold separately, see page 441

Cartridge Type Pilot-Operated Spool Type Relief Valves • Vickers® RV5-10 Series • To 30 GPM

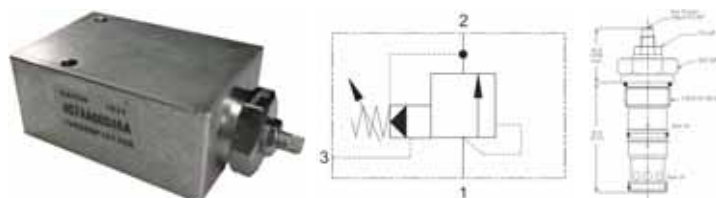
Catalog Part No.	Vickers Part No.	Vickers Model	Adjustment Range (psi)	Adjustment Type	Housing	Seal Material	Wt.	Price Each
•C1FM79	02-164222	RV5-10-S-0-20/12	100-2000 (Set at 1200)	Screw	None	Buna-N	0.51	
C1KK46	566246	RV5-10-S-0-35/	250-3500	Screw	None	Buna-N	0.51	
C1MX11	02-180537	RV5-10-S-0-35/14	250-3500 (Set at 1400)	Screw	None	Buna-N	0.51	
C1AD24	02-164723	RV5-10-S-0-35/14.5	250-3500 (Set at 1450)	Screw	None	Buna-N	0.51	
C1FQ46	02-164209	RV5-10-S-0-35/15	250-3500 (Set at 1500)	Screw	None	Buna-N	0.53	
C1MW96	02-164733	RV5-10-I-0-35/30	250-3500 (Set at 3000)	Internal	None	Buna-N	0.51	
C1MW94	02-163944	RV5-10-F-0-35/30	250-3500 (Set at 3000)	Factory set	None	Buna-N	0.51	
•C1BT35	565572	RV5-10-S-0-50/	500-5000	Screw	None	Buna-N	0.53	

Housing Types: Aluminum STD (Standard light-duty aluminum 3000 psi maximum). Aluminum FR (Fatigue-rated aluminum 3000 psi maximum). Steel (Fatigue-rated Steel 5000 psi maximum).

Hydraulic Valves & Accessories

Relief Valves • Pilot-Operated Spool Type

Cartridge Type Pilot-Operated Spool Type Relief Valves Eaton 1VR200 Series • To 52 GPM



Features: This is a ventable, internally pilot operated relief valve designed to limit pressure in a system. Good for continuous duty and accurate pressure control with constant or varying flows. The vent feature can be used with remote pilot section for a two-pressure system or to allow manual or remote 'unloading' of the pump.

Maximum Operating Pressure: 5000 PSI (CAUTION: Pressures over 3000 PSI require steel housing).

Maximum Flow Rate: 52 GPM

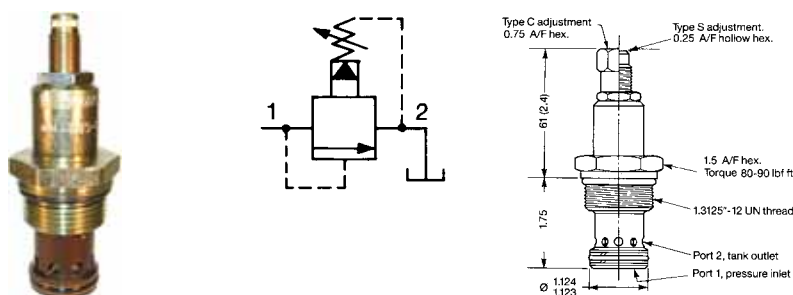
Cartridge: Model 1VR200, sold separately

Housing: Cavity size A16102, sold separately, see page 442

Cartridge Type Pilot-Operated Spool Type Relief Valves • Eaton 1VR200 Series • To 52 GPM

Catalog Part No.	Eaton Part No.	Eaton Model	Adjustment Range (psi)	Adjustment Type	Housing	Seal Material	Wt.	Price Each
C1LX29	407AA00011A	1VR200P20S	145-3045	Screw	None	Nitrile	1.60	
C1KK30	407AA00046A	1VR250P16T20S	145-3045	Screw	SAE-16 ports	Nitrile	3.20	

Cartridge Type Pilot-Operated Relief Valves Vickers® RV5-16 Series • To 80 GPM



Features: Cartridge style (Requires a machined cavity or housing for installation). Smooth and quiet. Continuous duty.

Adjustment Style: See table.

Maximum Operating Pressure: 6000 PSI (CAUTION: Pressures over 3000 PSI require steel housing).

Maximum Flow Rate: 80 GPM.

Cartridge: RV5-16-* sold separately.

Housing: Cavity C-16-2, sold separately, see page 441

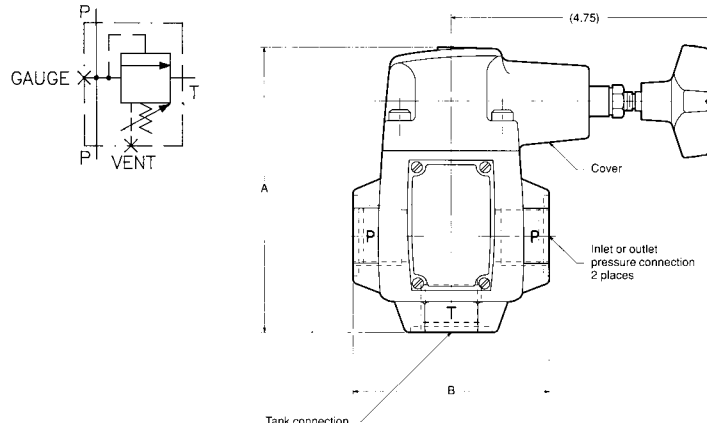
Cartridge Type Pilot-Operated Relief Valves • Vickers® RV5-16 Series • To 80 GPM

Catalog Part No.	Vickers Part No.	Vickers Model	Adjustment Range (psi)	Adjustment Type	Housing	Seal Material	Wt.	Price Each
C1EN56	565854	RV5-16-S-0-30/	500-3000	Screw	None	Buna-N	0.79	
C1MW95	02-164165	RV5-16-S-0-30/22	500-3000 (Set at 2200)	Screw	None	Buna-N	0.79	

Housing Types: Aluminum STD (Standard light-duty aluminum 3000 psi maximum). Aluminum FR (Fatigue-rated aluminum 3000 psi maximum). Steel (Fatigue-rated Steel 5000 psi maximum).

3-Port Pilot-Operated Relief Valves

Vickers® CT & CS Series • To 60 GPM & 120 GPM



Features: In-line mounting. Gauge port. Ventable. Smooth and quiet. Continuous duty.

Adjustment Style: Adjustment knob with locking nut.

Maximum Operating Pressure: 3000 PSI.

Maximum Flow Rate: Standard Models: 60 gpm (3/4 & -12 size), 120 gpm (1-1/4 & -20 size). High Flow Models: 90 gpm (3/4 & -12 size), 180 gpm (1-1/4 & -20 size).

3-Port Pilot-Operated Relief Valves • Vickers® CT & CS Series • To 60 GPM & 120 GPM

Catalog Part No.	Vickers Part No.	Vickers Model	Adj. Range (psi)	Inlet Port	Outlet Port	Gauge Port	Vent Port	Seal Matl.	A (in)	B (in)	Wt.	Price Each
C1BW11	590536	CT-06-B-50	125-1000	3/4 NPT	3/4 NPT	7/16-20 St.Thd. O-Ring	9/16-18 St.Thd. O-Ring	Viton®	5.64	3.76	8.59	
•C1BW12	590538	CT-06-C-50	500-2000	3/4 NPT	3/4 NPT	7/16-20 St.Thd. O-Ring	9/16-18 St.Thd. O-Ring	Viton®	5.64	3.76	8.57	
•C1BW13	590540	CT-06-F-50	1500-3000	3/4 NPT	3/4 NPT	7/16-20 St.Thd. O-Ring	9/16-18 St.Thd. O-Ring	Viton®	5.64	3.76	8.66	
•C1BV99	590283	CT-10-F-30	1500-3000	1-1/4 NPT	1-1/4 NPT	7/16-20 St.Thd. O-Ring	9/16-18 St.Thd. O-Ring	Viton®	6.18	4.88	14.58	

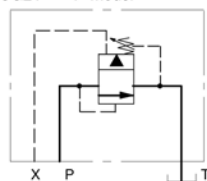
Hydraulic Valves & Accessories

Relief Valves • Pilot-Operated Spool Type

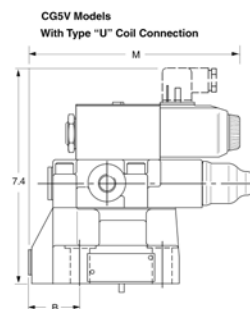
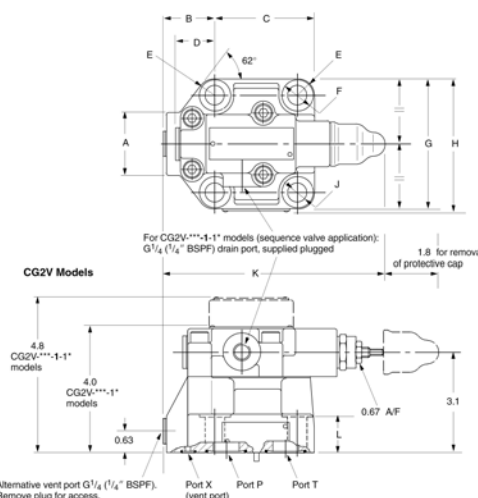
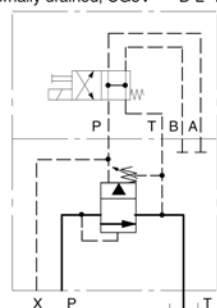
Subplate/Manifold Mount Pilot-Operated Relief Valves Vickers® CG2V-6/8 & CG5V-6/8 Series • To 106 GPM



Relief valve, manually adjusted,
CG2V-***-1" model



Solenoid controlled relief valve, pilots
internally drained, CG5V-***-D-2" model



Features: Close matching to application requirements from choice of four adjustment control ranges covering 44 to 5000 psi • Electrical on/off load from solenoid controlled models • Remote parallel control by other pilot valves connected to "vent" port • High machine productivity resulting from full system flow being available for work output until system pressure is very close to valve setting • Pressure override optimized without detriment to other performance parameters • Excellent repeatability and stable performance from cartridge-type design of mainstage parts • Low off-load power wastage • International mounting interfaces • Low installed cost and space requirement from high power/size ratios (more than double that of many conventional designs).

Maximum Operating Pressure: 5000 PSI ports P & X. Port T 1500 PSI for CG5V models, 5000 PSI for CG2V models.

Maximum Flow Rate: 53 GPM (Size 6 models), 106 GPM (Size 8 models).

Temperature Range: -4°F to 158°F (petroleum oil).

Recommended Filtration Level: ISO 4406 Cleanliness Level 19/17/14 or cleaner.

Solenoid Connectors: page 446 (Required on models that use DIN 43650 connectors).

Subplate/Manifold Mount Pilot-Operated Relief Valves • Vickers® CG2V-6/8 & CG5V-6/8 Series • To 106 GPM

Catalog Part No.	Vickers Part No.	Vickers Model	Mounting (ISO 6264)	Function	Features	Wt.	Price Each
C1JM56	615027	CG2V-8BW-10	Size 8 (AS-08-2-A)	Relief	44-1000 PSI Adjustment Range, Screw Adjustment with Locknut	9.70	
C1KY85	02-156983	CG5V-8GW-D-M-U-B6-11	Size 8 (AS-08-2-A)	Relief	44-5000 PSI Adjustment Range, Screw Adjustment with Locknut, 110V AC 50 Hz/120V AC 60 Hz Electrical loading/unloading, ISO 4400 (DIN 43650) electrical connection		

Note: ISO 4400 (DIN 43650) female connector to be supplied by user. See page 446

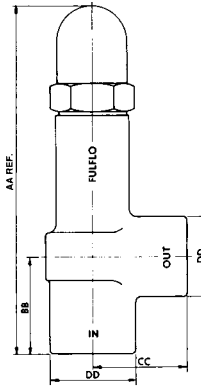


Hydraulic Valves & Accessories

Relief Valves • Guided Piston Type

Fulflo

Guided Piston Relief Valves Fulflo V Series with Threaded Ports



Application: The sliding piston concept and internal design contours of FULFLO valves provide unique flow and stability characteristics for reliable performance without chatter. Unlike ordinary direct acting relief valves, FULFLO guided piston valves are less responsive to transient pressure surges thereby eliminating the tendency to pound, squeal or chatter. Quiet, stable, efficient performance is assured in both load regulation and system protection applications. FULFLO valves operate effectively with all types of liquids in the full range of viscosities including hydraulic oils, water, solvents and chemicals. Since the FULFLO relief valve is a flow-modulating device, pressure flow characteristics are completely different from spring loaded poppet or ball check valves. Both types remain substantially tight up to cracking pressure. When this pressure is exceeded, the “conventional” valve pops open with a pressure drop at very low flow and an exponential pressure rise as the flow increases. In contrast the FULFLO valve causes a pressure rise, over-pressure, as soon as flow starts; pressure increases almost proportionally with flow. Springs and areas on FULFLO valves are carefully designed to minimize this over-pressure.

Note: FULFLO valves are not designed to be positive shut off, and will pass a minimal amount of leakage before the set pressure. FULFLO valves are NOT designed for use with air, gas or steam.

Performance Charts: page 700

Guided Piston Relief Valves • Fulflo V Series with Threaded Ports

Catalog Part No.	Fulflo Model	Ports	Rated Capacity (GPM)	Body	Spring	Piston	O-Ring	Other Features	AA (in)	BB (in)	CC (in)	DD (in)	Wt.	Price Each
C1FG22	VJ-5-YS-190PSI	1 NPT	25	Cast Iron	507-YS (150-350 PSI)	Hardened Steel	Buna-N	8.22	2.28	2.28	2.06		5.37	
C1EZ82	VJ-7-XS	1-1/2 NPT	80	Cast Iron	707-XS (60-175 PSI)	Hardened Steel	Buna-N	11.06	2.69	2.69	2.88		13.49	

Hydraulic Valves & Accessories

Sandwich Valves • NFPA Size D03 • ISO 4401 Size 03
Vickers Sandwich Valves

EATON
Powering Business Worldwide

Vickers® Sandwich Valves • NFPA-D03 Size Aluminum Valve Bodies • Pressures to 3000 PSI



Features: • Reduces System Space Requirements • Reduce Cost • Versatile and Easy to Install • Linking and blanking plates are available to facilitate a variety of circuit designs and flexibility in applying these valves • Rugged and Reliable • Cartridges are accessible without removing valves from an assembled stack. • Housings are assembled in a kit containing a locating pin, all necessary plugs and standard Viton seals.

Construction: Aluminum (Housings, Blanking Plates, Linking Plates and Spacer Plates).

Valve Cartridges: Screw-in valve cartridges.

Maximum Operating Pressure: 3000 PSI.

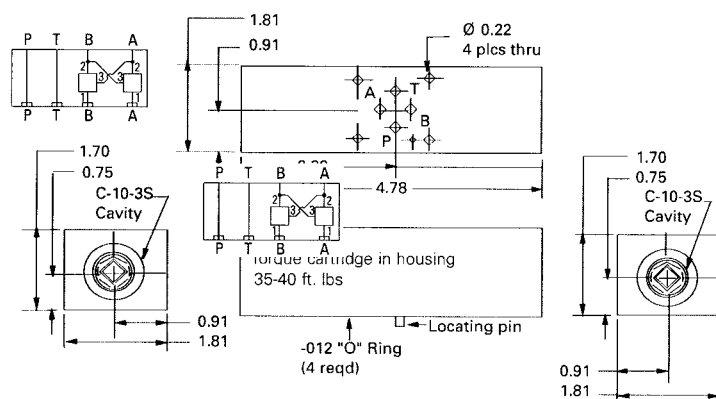
Temperature Range & Recommended Filtration: Refer to information on cartridge valve(s) selected.

Seal Material: Viton® o-rings are standard and are included along with locating pin to mount housings and plates to the NFPA-D03 surface (4ea -012 size o-rings).

Bolt Kits: 10-24 grade 8 socket head cap screws lubricated and torqued to 63-80 lb.in. Bolt kits on page 440

Stud Rod & Nut Kits: Kit number 02-184932: 4ea 10-24 x 7 inch stud rods and stud nuts. Kit number 02-184933: 4ea 10-24 x 12 inch stud rods and stud nuts. Stud rods/nuts should be torqued to 40-53 lb.in. with threads lubricated.

A323W Housing Kit



Typical Cartridges: Counterbalance valves on A & B cross-piloted, 1CE30 Series page 267. Pilot operated check valves on A & B cross piloted, 4CK30 page 258

A323W Housing Kit

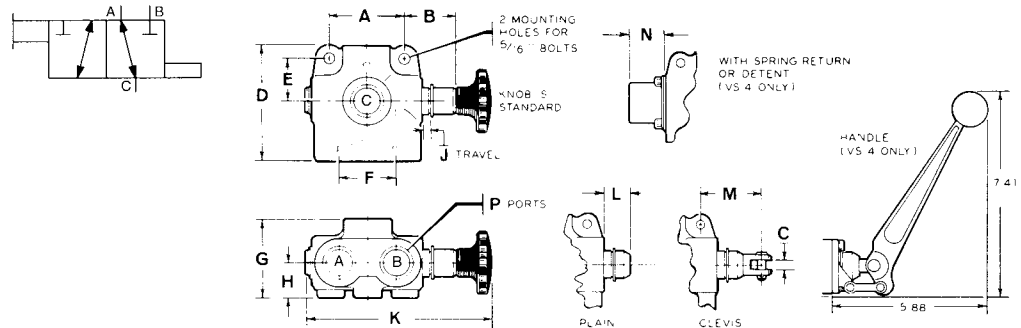
Catalog Part No.	Vickers Part No.	Vickers Model	Cavity Qty & Size	Typical Cartridges	Housing Height (in)	Wt.	Price Each
C1HY33	02-185347	A323W	2ea C-10-3S	1CE30 (Counterbalance Valve), 4CK30 (Pilot-operated check valves)	1.70	1.21	



Hydraulic Valves & Accessories

Selector Valves • Single, Double, 2-Wheel / 4-Wheel, Solenoid Operated

Single Selector Valves Cross VS Series



Cross VS Series hydraulic selector valves are manually operated, spool type, 3-way 2-position valves featuring cast-in metering notches for smooth operation. They provide an economical method of diverting flow to either of two hydraulic circuits and are available with a variety of actuators.

Construction: High tensile strength cast iron body. Ground, plated and polished steel spool. Buna-N seals.

Available Options: Actuator location port A or port B side. Knob, clevis or plain actuator (VS2 models). Knob, clevis, plain, handle or hydraulic pilot actuator (VS4 models). Manual spool action (VS2 models). Manual, spring return, 2-position detent or hydraulic pilot spool action (VS4 models). Front, bottom or both front and bottom inlet port location. 1/2 NPT or SAE-8 ports (VS2 models). 3/4 NPT, SAE-12 or SAE-16 ports (VS4 models).

Single Selector Valves • Cross VS Series

Catalog Part No.	Cross Model	Port Size	Nominal Flow Rating (GPM)	Maximum Operating Pressure (psi)	Features	Dimensions (in)	Wt.	Price Each
•C1GK85	VS2BKLF2	1/2 NPT	20	2500	Standard Knob actuator port B side. Standard Manual spool positioning. Standard front inlet port location.	A=2.12 B=1.53 C=0.34 D=3.25 E=1.19 F=1.62 G=2.25 H=1.00 J=0.31 K=5.33	3.24	
•C1GK86	VS4BKLF6	3/4 NPT	40	2500	Standard Knob actuator port B side. Standard Manual spool positioning. Standard front inlet port location.	A=3.00 B=1.56 C=0.34 D=4.12 E=1.50 F=2.12 G=2.62 H=1.12 J=6.12 K=6.12	7.19	
•C1GK87	VS4BKLF9	SAE-16	40	2500	Standard Knob actuator port B side. Standard Manual spool positioning. Standard front inlet port location.	A=3.00 B=1.56 C=0.34 D=4.12 E=1.50 F=2.12 G=2.62 H=1.12 J=6.12 K=6.12	6.67	

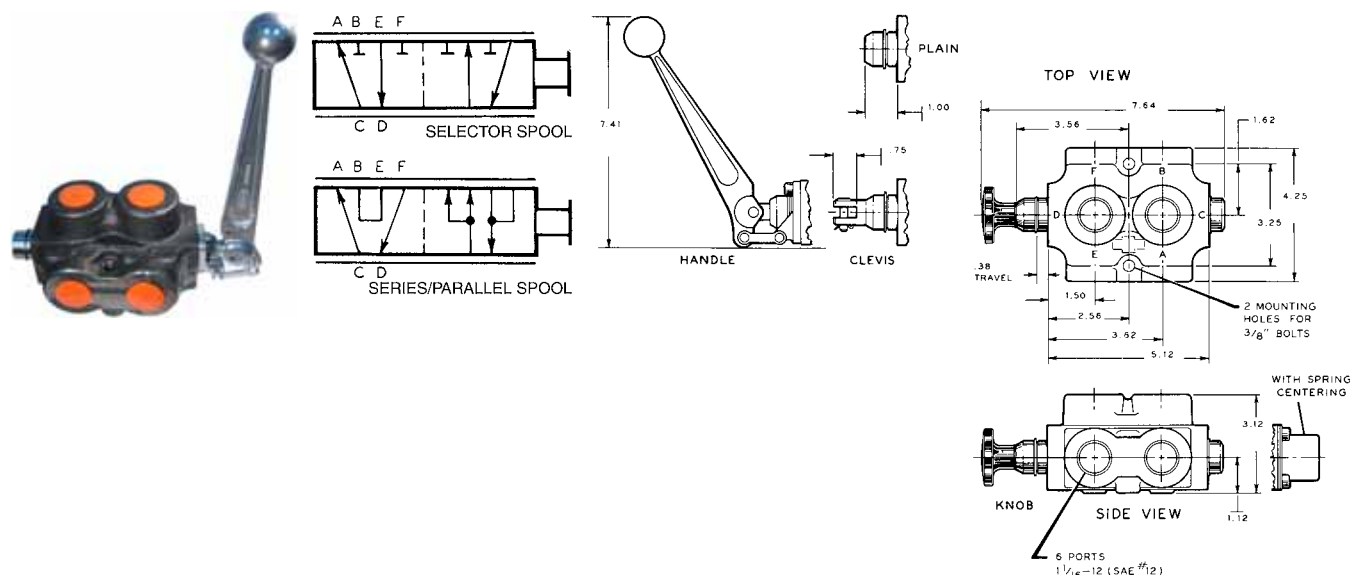
Catalog Part No.	Part Number	Description	Wt.	Price Each
•C1FA47	1V1703	Valve Handle	0.28	
•C1BR52	4Z4306	Handle Bracket	0.16	



Hydraulic Valves & Accessories

Selector Valves • Single, Double, 2-Wheel / 4-Wheel, Solenoid Operated

Double Selector Valves Cross SD Series



Cross SD Series hydraulic selector valves are manually operated, spool type, 6-way 2-position valves featuring cast-in metering notches for smooth operation. They provide an economical method of diverting flow to two separate hydraulic circuits or providing various types of multiple system operations in combination with other valves.

Construction: High tensile strength cast iron body. Ground, plated and polished steel spool. Buna-N seals.

Available Options: Actuator location port C or port D side. Knob, clevis, handle, plain or hydraulic pilot actuator.

Manual, spring return, 2-position detent or hydraulic pilot spool action. Selector or Series/Parallel spool type.

SAE-8, SAE-12, SAE-16, 3/4 NPT or 1 NPT ports.

Double Selector Valves • Cross SD Series

Catalog Part No.	Cross Model	Port Size	Nominal Flow Rating (GPM)	Maximum Operating Pressure (psi)	Features	Wt.	Price Each
•C1GK53	SD4BALA4	3/4 NPT	40	2500	Selector Spool. Optional Handle actuator port D side. Standard Manual spool positioning.	9.70	

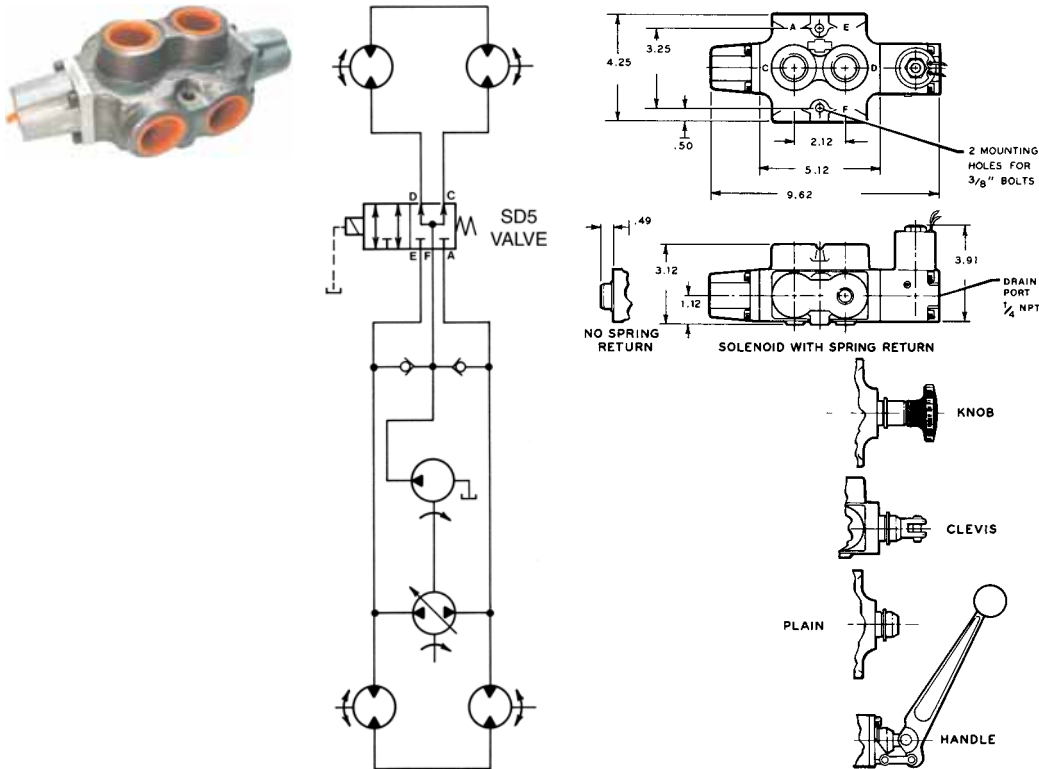
Catalog Part No.	Part Number	Description	Wt.	Price Each
•C1FA47	1V1703	Valve Handle	0.28	
•C1BR52	4Z4306	Handle Bracket	0.16	



Hydraulic Valves & Accessories

Selector Valves • Single, Double, 2-Wheel / 4-Wheel, Solenoid Operated

2-Wheel / 4-Wheel Selector Valve Cross SD5 Series



The Cross SD5 2-wheel / 4-wheel selector valve has been specifically designed for use with hydrostatic transmissions and permits selection of either 2-wheel (transport mode) or 4-wheel (work mode) drive positions.

Specifications: Maximum working pressure: 5000 PSI. Maximum shock & surge pressure: 6000 PSI. Maximum flow capacity: 50 GPM.

Construction: High tensile strength cast iron body. Ground, plated & polished steel spool. Buna-N seals.

Available Options: Ports - 1/2 NPT, SAE-8, SAE-12, SAE-16. Actuator - Handle, Knob, Clevis, Pilot, 12VDC Solenoid.

Application Note: When in 2-wheel drive, supercharge oil is supplied to the non-driving motors, preventing cavitation. When operating in 2-wheel drive for long periods of time, it may be necessary to occasionally shift into 4-wheel drive in order to cool the non-driving wheel motors.

2-Wheel / 4-Wheel Selector Valve • Cross SD5 Series

Catalog Part No.	Cross Model	Actuator Location	Actuator Option	End Cap Option	Spool Type	Port Size	Wt.	Price Each
C1EP17	SD5BUBA7	Port D Side	Hydraulic Pilot	Spring Return	2-Wheel / 4-Wheel Selector	SAE-16	10.00	

Cross SD5 Series Parts

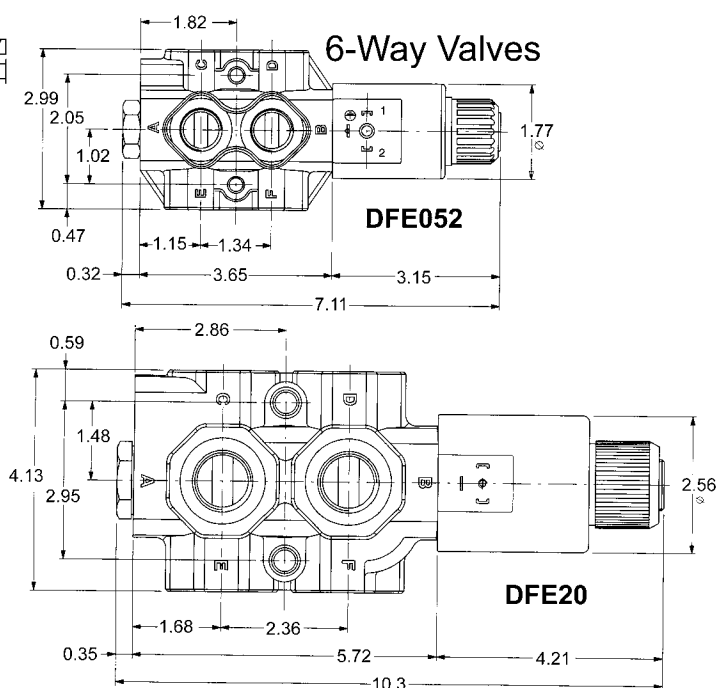
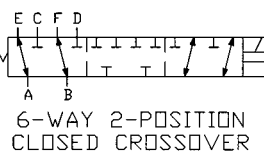
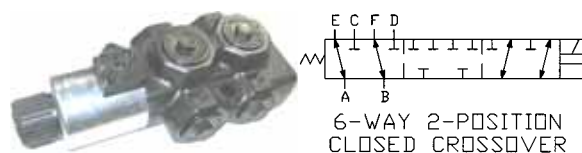
Catalog Part No.	Part Number	Description	Wt.	Price Each
C1FA47	1V1703	Valve Handle	0.28	
C1BR52	4Z4306	Handle Bracket	0.16	



Hydraulic Valves & Accessories

Selector Valves • Single, Double, 2-Wheel / 4-Wheel, Solenoid Operated

Solenoid-Operated Selector Valves Walvoil DFE Series



Available Ways: DFE052: 2-3-6-8-way. DFE20: 3-6-way.

Nominal Flow Rating: DFE052: 16 GPM. DFE20: 37 GPM.

Maximum Operating Pressure: 2900 PSI (without drain), 4600 PSI (with optional drain).

Internal Leakage: DFE052: 0.43 in³/min maximum at 1450 PSI differential pressure. DFE020: 0.92 in³/min maximum at 1450 PSI differential pressure.

Fluid Temperature Range: -4°F to 176°F (standard Buna-N seals), -4°F to 212°F (optional Viton® seals).

Ambient Temperature Range: -40°F to 140°F.

Viscosity: 80 to 400 SSU Operating, 70 SSU Minimum, 1950 SSU Maximum.

Maximum Level of Contamination: ISO 4406 19/16.

Note: Performance data measured with mineral oil of 215 SSU viscosity at 104°F.

Solenoid-Operated Selector Valves • Walvoil DFE Series

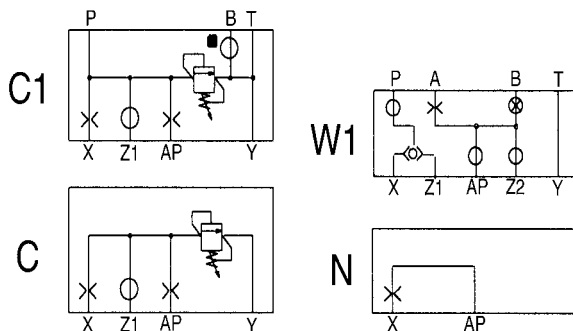
Catalog Part No.	Walvoil Model	Ports	Nominal Flow Rating	Spool Type	Spool Positioner	Coil	Other Features	Wt.	Price Each
C1KL99	FVL12A270034	6	16 GPM	6-way, 2-pos, closed crossover	Spring return to position 1	12VDC		4.40	

Slip-In Cartridge Valves To ISO 7368 (DIN 24342)

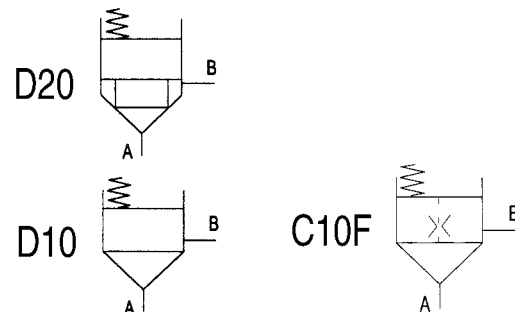


Detailed information on the entire line of Vickers® Slip-In Cartridge Valves can be found in Literature ID # 5043.00/EN/0499/A. Please contact us for application assistance or to request a copy of this publication.

Covers



Inserts



Slip-In Cartridge Valves • To ISO 7368 (DIN 24342)

Catalog Part No.	Vickers Part No.	Vickers Model	Key	Description	Wt.	Price Each
C1LX54	847AN00007A	CVI-25-D10-H-50	D10	Relief Insert, 1:1 Area Ratio, Size 25, 485 PSI Cracking Pressure	0.96	

Hydraulic Valves & Accessories

Stack Valves • NFPA Size D03 • ISO 4401 Size 03
Vickers SystemStak™ Valves

EATON
Powering Business Worldwide

Vickers® SystemStak™ Valves • NFPA-D03 Size Flows to 16 GPM • Pressures to 4500 PSI



Features: Save space & installation time. Reduce potential leaks. Standard interface. Rugged design with large flow passages, high pressure and high flow ratings.

Construction: Ductile iron (spheroidal graphite) body (NFPA fatigue proof rated at 4500 PSI). Hardened steel internal parts. Aluminum nameplates. Standard Viton® seals.

Available Functions: Relief, Counterbalance, Sequence, Pressure Reducing, Direct Check, Pilot-Operated Check, Flow Control.

Maximum Operating Pressure: 4500 PSI.

Ambient Temperature Limits: -4°F to 176°F.

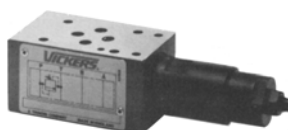
Fluid Temperature Limits: Petroleum Oil: -4°F to 176°F. Water Base Fluids: 50°F to 129°F.

Filtration Requirements: Up to 3000 PSI: ISO level 20/16. Over 3000 PSI: ISO level 18/14.

Bolt Kits: 10-24 grade 8 socket head cap screws lubricated and torqued to 63-80 lb.in. Bolt kits on page 440

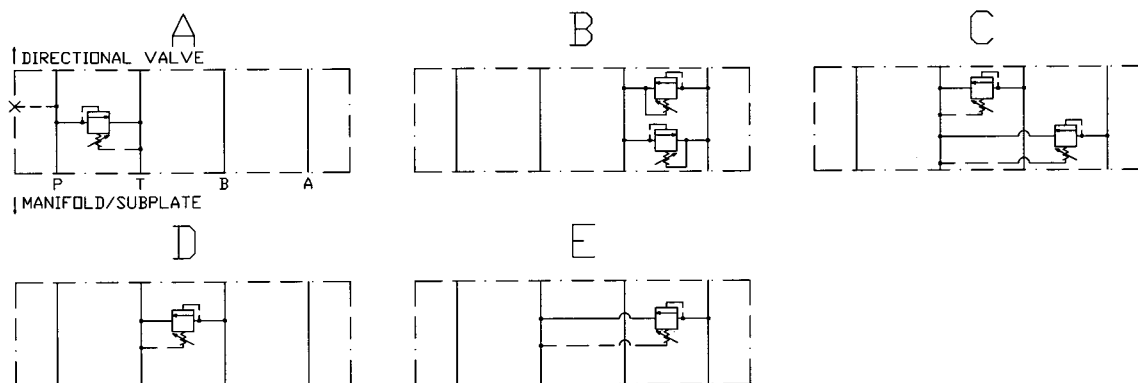
Dimensions & Technical Information: page 701
Size D03 Subplates & Manifolds: page 450

Vickers® SystemStak™ Relief Valves NFPA-D03 • ISO 4401-03



General Description: These pilot-operated adjustable pressure relief valves limit the maximum pressure in the line(s) controlled by the integral relief valve elements. Pressure adjustment of screw & locknut or control knob (with or without keylock) are available.

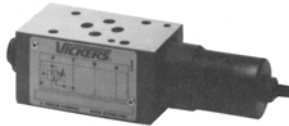
Stacking Height to add for Bolt Length: 1.57 inches.



Vickers® SystemStak™ Relief Valves • NFPA-D03 • ISO 4401-03

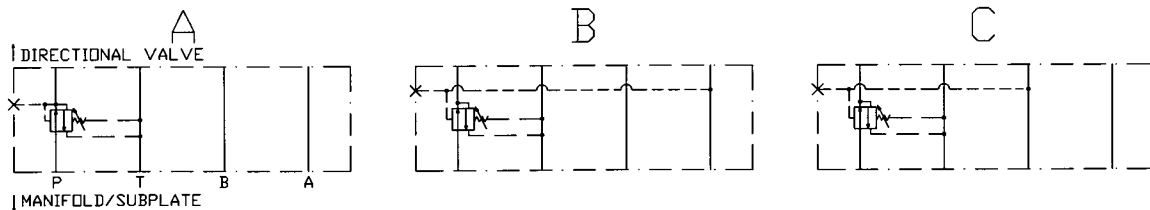
Catalog Part No.	Vickers Part No.	Vickers Model	Key	Type	Function	Pressure Adjustment Range (psi)	Adjustment Type	Gauge Port	Wt.	Price Each
C1JA16	694419	DGMC-3-PT-CW-41	A	Single Relief	P to T	145-2900	Screw & Locknut	No	2.90	
C1DZ90	871702	DGMC2-3-AT-GW-BT-GW-41	C	Dual Relief	A to T, B to T	75-4500	Screw & Locknut	No	3.00	
C1JS91	02-108133	DGMC-3-BT-GW-41	D	Single Relief	B to T	725-4500	Screw & Locknut	No	2.53	

Vickers SystemStak™ Pressure Reducing Valves NFPA-D03 • ISO 4401-03



General Description: The flow path is normally open and is closed as the pilot pressure exceeds the setting of the valve. Excessive pressure in the reduced pressure line is prevented by a pressure relieving function. Pressure adjustment options of screw & locknut or control knob (with or without keylock) are available.

Stacking Height to add for Bolt Length: 1.57 inches.



Vickers SystemStak™ Pressure Reducing Valves • NFPA-D03 • ISO 4401-03

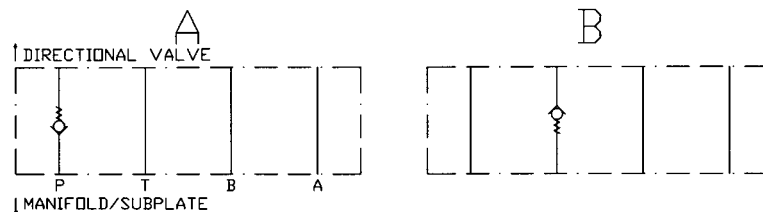
Catalog Part No.	Vickers Part No.	Vickers Model	Key	Function	Pressure Adjustment Range (psi)	Adjustment Type	Adjuster Location	Gauge Port	Wt.	Price Each
C1DZ89	870039	DGMX2-3-PP-BW-S-40	A	Pressure Reduced in P Piloted from P	51-1000	Screw & Locknut	B Port End	SAE-4	2.90	

Vickers SystemStak™ Check Valves NFPA-D03 • ISO 4401-03



General Description: These valves allow free flow in one direction in the line in which the check valve element(s) is (are) located. Flow in the opposite direction is not possible.

Stacking Height to add for Bolt Length: 1.57 inches.



Vickers SystemStak™ Check Valves • NFPA-D03 • ISO 4401-03

Catalog Part No.	Vickers Part No.	Vickers Model	Key	Function	Cracking Pressure (psi)	Wt.	Price Each
C1JL49	02-138605	DGMDC-3-Y-PM-41	A	Check in P, Free Flow towards Work Port	36.0	2.08	

Hydraulic Valves & Accessories

Stack Valves • NFPA Size D03 • ISO 4401 Size 03
Vickers SystemStak™ Valves

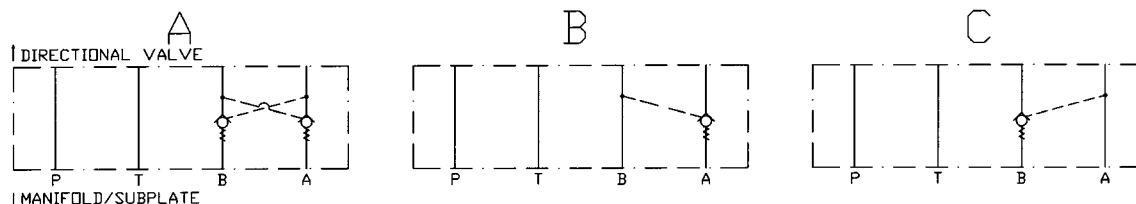


Vickers SystemStak™ Pilot-Operated Check Valves NFPA-D03 • ISO 4401-03



General Description: These valves provide pilot-operated check functions in one or both work ports, with pilot pressure coming from the opposite side. An optional 10:1 decompression feature is available.

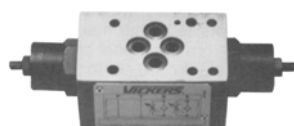
Stacking Height to add for Bolt Length: 1.57 inches.



Vickers SystemStak™ Pilot-Operated Check Valves • NFPA-D03 • ISO 4401-03

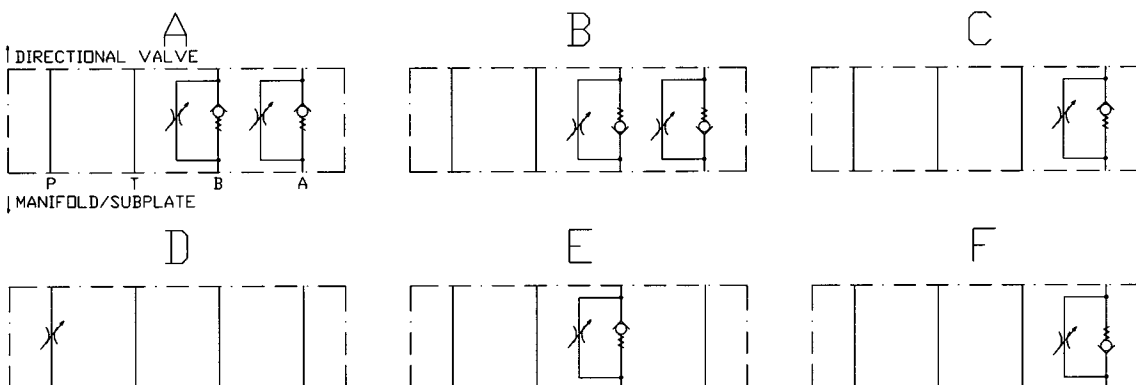
Catalog Part No.	Vickers Part No.	Vickers Model	Key	Function	Pilot Ratio	Cracking Pressure (psi)	Wt.	Price Each
C1BY42	694400	DGMPC-3-ABK-BAK-41	A	Dual Pilot Check	3:1	14.5	2.28	
C1FF82	870024	DGMPC-3-ABK-41	B	Single Pilot Check in A Piloted from B	3:1	14.5	2.13	

Vickers SystemStak™ Flow Control Valves NFPA-D03 • ISO 4401-03



General Description: These valves regulate flow by means of an adjustable orifice which is not pressure compensated, and flow through the valve is entirely dependent upon pressure drop at any particular setting of the orifice. Single and Dual work port models with integral reverse flow checks are available in both meter-out and meter-in styles. Single P port models are available without the reverse flow check.

Stacking Height to add for Bolt Length: 1.57 inches.



Vickers SystemStak™ Flow Control Valves • NFPA-D03 • ISO 4401-03

Catalog Part No.	Vickers Part No.	Vickers Model	Key	Function	Control Needle Type	Adjustment Type	Wt.	Price Each
C1BY43	694412	DGMFN-3-Y-A2W-B2W-41	A	Dual Meter Out of Work Ports	Standard	Screw & Locknut	2.41	

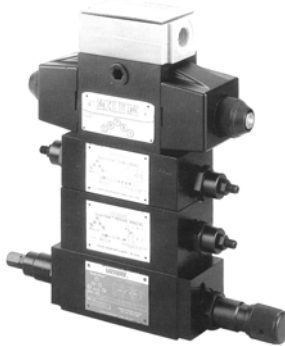


Hydraulic Valves & Accessories

Stack Valves • NFPA Size D05 • ISO 4401 Size 05
Vickers SystemStak™ Valves



Vickers® SystemStak™ Valves • NFPA-D05 Size Flows to 32 GPM • Pressures to 4500 PSI



Features: Save space & installation time. Reduce potential leaks. Standard interface. Rugged design with large flow passages, high pressure and high flow ratings.

Construction: Ductile iron (spheroidal graphite) body (NFPA fatigue proof rated at 4500 PSI). Hardened steel internal parts. Aluminum nameplates. Standard Viton® seals.

Available Functions: Relief, Counterbalance, Sequence, Pressure Reducing, Direct Check, Pilot-Operated Check, Flow Control.

Maximum Operating Pressure: 4500 PSI.

Fluid Temperature Limits: Dependent on type of valve (See limits in individual group information).

Filtration Requirements: ISO level 19/17/14.

Mounting Bolt Options: Size 05 SystemStak™ valves may be mounted with either bolt extender kits or standard 1/4-20 grade 8 socket head cap screws. (Threads lubricated Bolt Extender torque is 100-130 lb. in. Threads lubricated standard socket head cap screw torque is 112 lb.in. maximum).

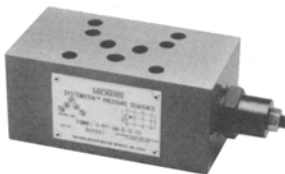
Bolt Extenders: page 440

Bolt Kits: page 440

Dimensions & Technical Information: page 706

Size D05 Subplates & Manifolds: page 452

Vickers® SystemStak™ Relief Valves NFPA-D05 • ISO 4401-05

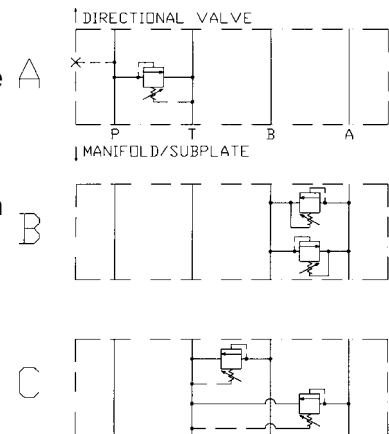


General Description: These two-stage valves limit system pressure by directing flow to tank or the opposite work port when system pressure reaches the valve setting. Pressure control may be obtained in A, B, A & B, or P port, and pilot flow may be internally or externally drained, depending on model type. Any

back pressure is additive to valve setting. Standard adjustment is a screw with locknut (other options available). External remote control/vent options are available.

Fluid Temperature Limits: 32°F to 180°F.

Stacking Height: 1.97 inches (Single & Dual Reliefs), 2.36 inches (Crossover Reliefs).



Vickers® SystemStak™ Relief Valves • NFPA-D05 • ISO 4401-05

Catalog Part No.	Vickers Part No.	Vickers Model	Key	Type	Function	Pressure Adjustment Range (psi)	Adjustment Type	Gauge Port	Wt.	Price Each
C1HJ81	867315	DGMC-5-PT-GW-S-30	A	Single Relief	Pressure Limited in P Port	60-4500	Screw & Locknut	SAE-4	7.17	



Hydraulic Valves & Accessories

Stack Valves • NFPA Size D05 • ISO 4401 Size 05
Vickers SystemStak™ Valves



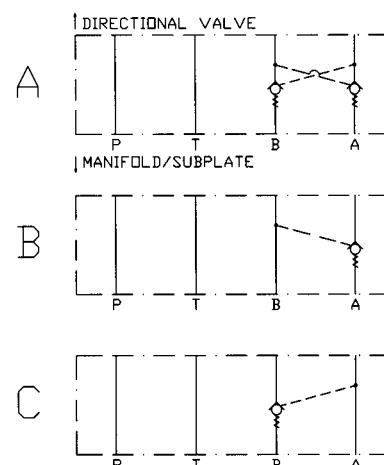
Vickers SystemStak™ Pilot-Operated Check Valves NFPA-D05 • ISO 4401-05



General Description: These valves provide pilot-operated check functions in one or both work ports, with pilot pressure coming from the opposite side. An optional 20:1 decompression feature is available.

Fluid Temperature Limits: 32°F to 180°F.

Stacking Height: 1.97 inches.



Vickers SystemStak™ Pilot-Operated Check Valves • NFPA-D05 • ISO 4401-05

Catalog Part No.	Vickers Part No.	Vickers Model	Key	Function	Pilot Ratio	Cracking Pressure (psi)	Wt.	Price Each
C1JE98	867364	DGMPC-5-ABK-BAK-30	A	Dual Pilot-Operated Check	Standard	15	6.47	

Vickers SystemStak™ Flow Control Valves NFPA-D05 • ISO 4401-05

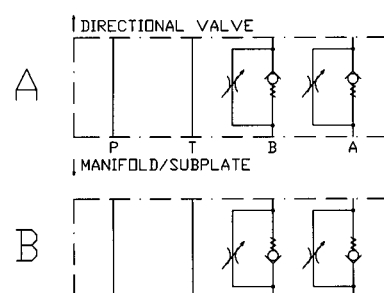


General Description: These valves regulate flow by means of an adjustable orifice which is not pressure compensated, and flow through the valve is entirely dependent upon pressure drop at any particular setting of the orifice. Single and Dual work port

models with integral reverse flow checks are available in both meter-out and meter-in styles. Single P and T port models are available without the reverse flow check.

Fluid Temperature Limits: 32°F to 180°F.

Stacking Height: 1.97 inches.



Vickers SystemStak™ Flow Control Valves • NFPA-D05 • ISO 4401-05

Catalog Part No.	Vickers Part No.	Vickers Model	Key	Function	Control Needle Type	Adjustment Type	Wt.	Price Each
C1CA45	867332	DGMFN-5-Y-A2W-B2W-30	A	Dual Meter Out of Work Ports	Standard	Screw & Locknut	6.86	



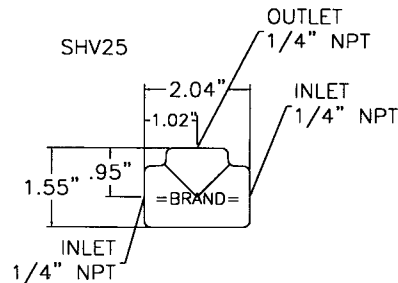
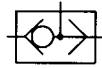
Hydraulic Valves & Accessories

System Accessory Valves

Air Bleed Valves, Shuttle Valves, Velocity Fuses

Shuttle Valves

Brand SHV Series



Features: Cast iron body. Buna-N O-rings. Hardened steel ball for wear resistance, greater durability and minimal leakage.

Application: Has two inlets and one outlet. Accepts flow from the inlet with higher pressure and routes it to the outlet, while keeping the inlet flows isolated from one another. 30 micron filtration recommended.

Shuttle Valves • Brand SHV Series

Catalog Part No.	Brand Model	Port Size	Body Material	Maximum Operating Pressure (PSI)	Flow Rating (GPM)	Peak Pressure Drop (PSI)	Wt.	Price Each
•C1GK55	SHV25	1/4 NPT	Cast Iron	3,000	5.0	50	0.50	

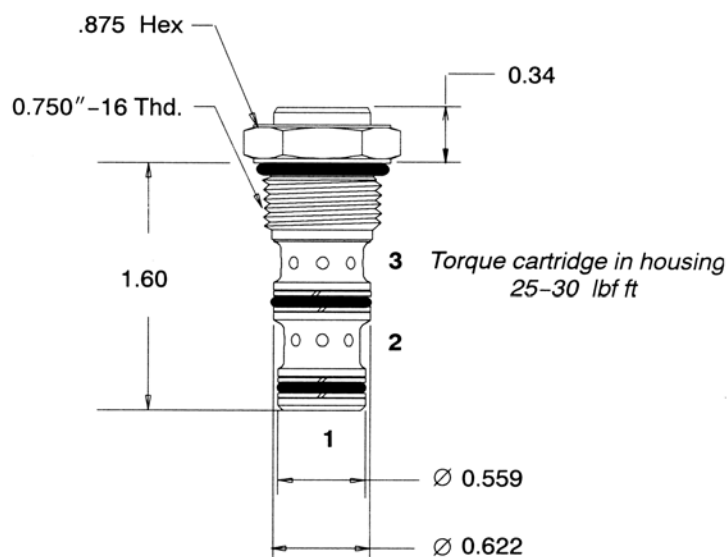
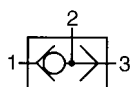
Hydraulic Valves & Accessories

System Accessory Valves

Air Bleed Valves, Shuttle Valves, Velocity Fuses

Shuttle Valves

Vickers® DSV2-8 Series



Description: The DSV2-8-B is a direct acting, ball type, shuttle valve.

Operation: The shuttle valve senses the higher of two pressures at port 3 or port 1 and directs it to port 2.

Rated Flow: 6 GPM.

Maximum Operating Pressure: 3500 PSI typical application pressure, 3500 PSI cartridge fatigue pressure (infinite life). CAUTION: Pressures over 3000 PSI require steel housing.

Temperature Range: -40°F to 248°F (Extreme Limits).

Recommended Filtration Level: ISO 4406 Cleanliness Level 18/16/13 or cleaner.

Internal Leakage: 5 drops/min. maximum @ 3500 PSI (Between ports 2 and 1, and 2 and 3. Typical with fluid at 105 SSU and 120°F).

Cartridge: Model DSV2-8-*, sold separately.

Housing: Cavity size C-8-3, sold separately, see page 442

Shuttle Valves • Vickers® DSV2-8 Series

Catalog Part No.	Vickers Model	Housing	Seals		Wt.	Price Each
C1FQ51	02-171239	DSV2-8-B-0	None	Buna-N	0.15	

Parts for Vickers® DSV2-8 Shuttle Valve Cartridges

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1FV34	02-160755	Buna-N Seal Kit for C-8-3 Cartridge	0.01	



Hydraulic Valves & Accessories

Truck Valves

Truck Valves



Typical Application: Used extensively in the trucking industry for cooling and fuel line applications.

Material: Forged brass bodies, steel handles, Buna-N o-ring.

Pressure Rating: 200 PSI Maximum.

Temperature Range: -40°F to 250°F.

Conformance: Designed for trucking use. Not intended for natural gas, LPG, nuclear or aircraft applications.

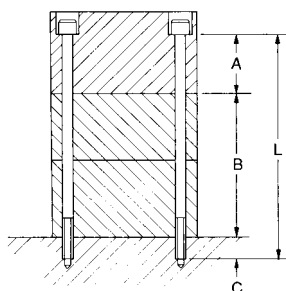
Truck Valves

Catalog Part No.	Eaton Model	Description	Wt.	Price Each
•C1JE95	7508	1/2 Female NPT x 1/2 Male NPT	0.45	

Hydraulic Valves & Accessories

Bolt Kits & Bolt Extenders

Valve Mounting Bolt Kits



Valve Mounting Bolt Kits

Catalog Part No.	Vickers Part No.	Vickers Model	Bolt Qty	Bolt Size	Wt.	Price Each
•C1BW14	590716	BK590716	4	10-24 x 1-1/4	0.05	
•C1CA49	870017	BK870017	4	10-24 x 2-3/4	0.10	
•C1BQ65	466851	BK466851	4	10-24 x 3-1/2	0.12	
C1BQ66	466853	BK466853	4	10-24 x 4-5/16	0.13	
•C1BH34	255633	BKDG01-633	4	1/4-20 x 1-1/2	0.10	
C1KK36	464125	BK464125M	4	M5 x 70	0.10	

A: Bolt length in directional valve, blanking plate, crossover plate, etc.

• **DG4V-3 & DG4V-3S Valves:** A = 0.86 inches

• **DG4S4-01 Valves:** A = 1.13 inches

• **DG5S-8 & DG5V-8 Valves:** A = 1.69 inches

B: Height of intermediate valve stack, if any.

C: Depth of thread engagement in subplate or manifold.

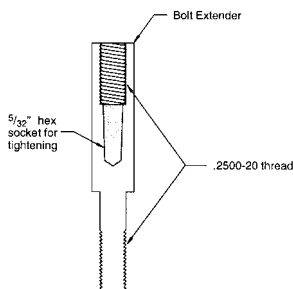
• **10-24 Bolt Threads:** 0.39 inch required engagement

• **1/4-20 Bolt Threads:** 0.37 inch required engagement

• **1/2-13 Bolt Threads:** 0.81 inch required engagement

L: Required bolt length.

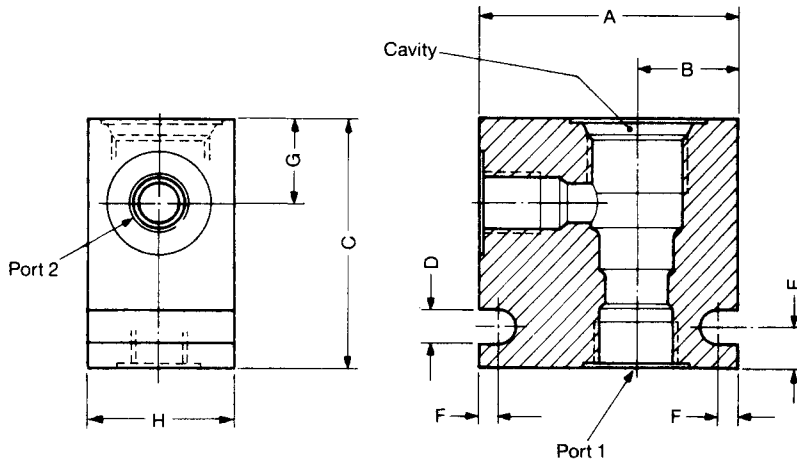
SystemStak™ Bolt Extender Kits (NFPA D05 Size Valves)



SystemStak™ Bolt Extender Kits (NFPA D05 Size Valves)

Catalog Part No.	Vickers Part No.	Vickers Model	Extender Qty	SystemStak™ Valve Height (in)	Wt.	Price Each
C1DX61	525744	BKE-4-50M	4	1.97	0.18	

Vickers® 2-Way Cartridge Valve Housings



Vickers® 2-Way Cartridge Valve Housings

Catalog Part No.	Vickers Model	Cavity	Type	Port 1	Port 2	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)	Wt.	Price Each
C1ZZ83	02-160731	C-8-2	FR	SAE-6	SAE-6	2.00	0.75	2.00	0.28	0.50	0.13	0.61	1.50	0.50	
C1MG91	B11565	A7447	S	SAE-8	SAE-8	2.50	1.00	2.95	0.43	0.35	0.41	1.12	1.50	2.05	
C1BT57	566201 (20055)	C-10-2	STD	1/4 NPT	1/4 NPT	2.00	0.75	2.00	0.28	0.50	0.125	0.75	1.25	0.38	
C1AD20	02-161382 (20056A)	C-10-2	STD	3/8 NPT	3/8 NPT	2.00	0.75	2.00	0.28	0.50	0.125	0.75	1.25	0.37	
•C1BT51	566151 (20057A)	C-10-2	STD	SAE-6	SAE-6	2.00	0.75	2.00	0.28	0.50	0.125	0.75	1.25	0.38	
•C1BT56	566189 (20054)	C-10-2	STD	1/2 NPT	1/2 NPT	2.00	0.75	2.00	0.28	0.50	0.125	0.75	1.25	0.35	
•C1BT50	566150 (20058AA8)	C-10-2	STD	SAE-8	SAE-8	2.00	0.75	2.00	0.28	0.50	0.125	0.75	1.25	0.36	
C1HL18	02-160645 has undercut	C-12-2U	FR	SAE-12	SAE-12	3.50	1.75	3.50		1.00	0.50	2.00	2.00	1.99	
•C1AD22	02-161405 (20458)	C-16-2	STD	3/4 NPT	3/4 NPT	3.00	1.125	3.00	0.34	0.75	0.16	1.00	1.875	1.25	
•C1BT49	566149 (20460AA8)	C-16-2	STD	SAE-12	SAE-12	3.00	1.125	3.00	0.34	0.75	0.16	1.00	1.875	1.23	

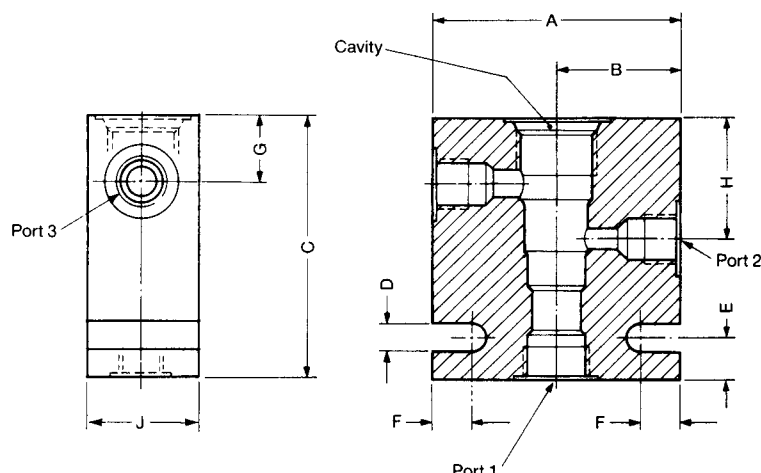
Types: STD (Standard light-duty aluminum 3000 psi maximum) FR (Fatigue-rated aluminum 3000 psi maximum) S (Ductile Iron 5000 psi maximum)

Hydraulic Valves & Accessories

Cartridge Valve Housings



Vickers® 3-Way Cartridge Single Valve Housings 3-Port Cavity Size Models



Vickers® 3-Way Cartridge Single Valve Housings • 3-Port Cavity Size Models

Catalog Part No.	Vickers Model	Cavity	Type	Port 1	Port 2	Port 3	A (in)	C (in)	E (in)	F (in)	G (in)	H (in)	Wt.	Price Each
C1MG53	410AA00016A	A12336	STD	SAE-8	SAE-8	SAE-4	3.00	2.76	0.48	0.39	0.71	1.42		
C1MG92	B11947	A20081	S	SAE-16	SAE-16	SAE-4	3.54	4.00	0.74	0.49	0.87	1.81		
•C1JZ92	410AA00012A (B24257)	A22903	STD	SAE-6	SAE-6	SAE-4	2.50	2.50	0.85	0.47	0.43	0.93	0.80	
C1LB64	BXP10536	A6610	STD	SAE-6	SAE-6	SAE-4	2.50	2.36	0.36	0.35	0.45	1.04		
C1MG95	B7884	A6610	STD	SAE-8	SAE-8	SAE-4	2.50	2.36	0.36	0.35	0.45	1.04		
C1MG90	B11474	A6935	S	SAE-20	SAE-20	SAE-4	3.82	4.00	0.85	0.33	0.93	1.93		
C1NA64	B6807	A16102	STD	SAE-16	SAE-16	SAE-4	3.00	4.53	1.38	0.33	0.79	2.28		
•C1AD16	02-160742	C-8-3	FR	SAE-6	SAE-6	SAE-6	2.50	2.62	0.51	0.13	0.61	1.17	0.86	
•C1BT54	566162 (20197AA8)	C-10-3	STD	SAE-6	SAE-6	SAE-6	2.50	2.625	0.50	0.125	0.75	1.375	0.65	
C1BT58	566275 (20196)	C-10-3	STD	3/8 NPT	3/8 NPT	3/8 NPT	2.50	2.625	0.50	0.125	0.75	1.375	0.56	
•C1AD19	02-160853	C-10-3S	STD	SAE-8	SAE-6	SAE-6	2.97	3.22			0.56	2.58	1.28	
C1FP96	876712 (23112A8)	C-10-3S	FR	SAE-8	SAE-8	SAE-6	3.00	3.00	0.75	0.37	0.66	1.32	1.50	
•C1FQ53	02-178269 (31106A8)	C-12-3S	FR	SAE-12	SAE-12	SAE-6	3.50	4.00	0.50	0.50	0.91	1.66	1.80	

Types: STD (Standard light-duty aluminum 3000 psi maximum) FR (Fatigue-rated aluminum 3000 psi maximum) S (Ductile Iron 5000 psi maximum)

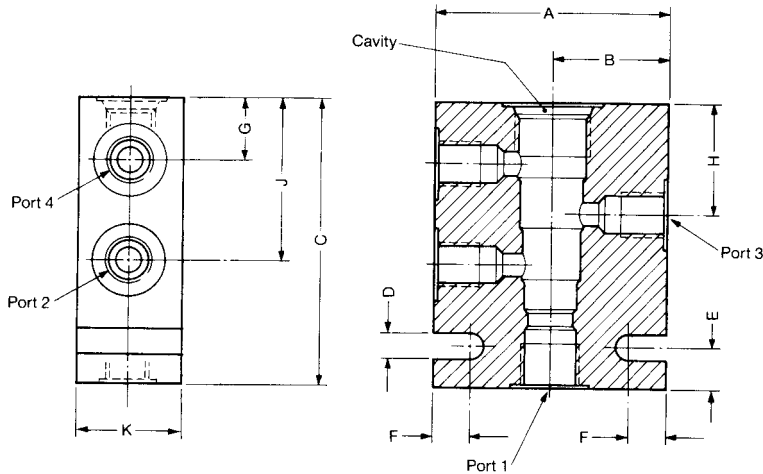
Note: Mounting hole style and location may vary from diagram.

Note: Part Number 02-160853 and 410AA00008A is a four port valve (C1, C2, V1, V2) for use with a counterbalance valve. The pilot cavity is connected to ports V2 and C2.

Vickers® C-*-3 Cavity Plugs

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1LX41	565815	C-10-3 Cavity Plug	0.10	

Vickers® 4-Way Cartridge Valve Housings C-*-4 Cavity Size Models



Vickers® 4-Way Cartridge Valve Housings • C-*-4 Cavity Size Models

Catalog Part No.	Vickers Model	Cavity	Type	Port 1	Port 2	Port 3	Port 4	A (in)	C (in)	E (in)	F (in)	G (in)	H (in)	Wt.	Price Each
•C1MW98	566161	C-10-4	STD	SAE-6	SAE-6	SAE-6	SAE-6	2.50	3.25	0.375	0.125	0.75	1.375	0.79	

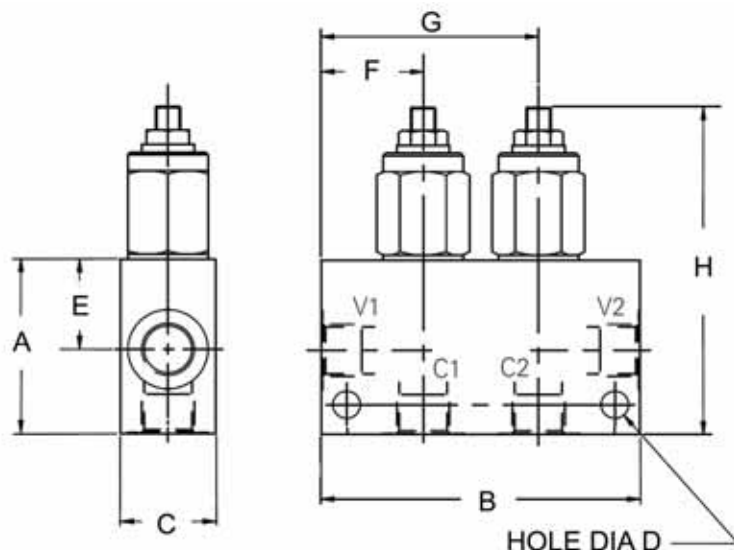
Types: STD (Standard light-duty aluminum 3000 psi maximum) FR (Fatigue-rated aluminum 3000 psi maximum) S (Ductile Iron 5000 psi maximum)

Hydraulic Valves & Accessories

Cartridge Valve Housings



Vickers® 3-Way Dual Cartridge Valve Housings 3 Port Cavity Models



Vickers® 3-Way Dual Cartridge Valve Housings • 3 Port Cavity Models

Catalog Part No.	Vickers Model	Cavity	Type	Ports	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)	Wt.	Price Each
C1MG54	410AA00017A (C10807)	A12336	STD	SAE-8	3.00	5.00	1.50	0.43	1.42	1.59	3.41	5.47		
C1MH17	C11561	A12336	FR	SAE-8	3.00	5.00	1.50	0.43	1.42	1.59	3.41	5.47		
		A20081	STD	SAE-16	3.00	5.00	1.50	0.43	1.42	1.59	3.41	5.47		
C1MG93	B30237	A6610	STD	SAE-8	2.50	4.00	1.25	0.35	1.04	1.25	2.75	4.37		
•C1JZ95	410AA00015A (B10805)	A6610	STD	SAE-6	2.50	4.00	1.25	0.35	1.04	1.25	2.75	4.37	0.90	
C1MH18	C11564	A6935	FR	SAE-20	4.00	5.00	3.82	0.43	1.93	1.26	3.74	6.08		
•C1AD18	02-160830	C-10-3S	STD	SAE-8	3.47	3.97	1.97	0.34	2.00	1.25	2.68	5.90	0.50	

Types: STD (Standard light-duty aluminum 3000 psi maximum) FR (Fatigue-rated aluminum 3000 psi maximum) S (Ductile Iron 5000 psi maximum)

Note: Mounting hole style and location may vary from diagram.

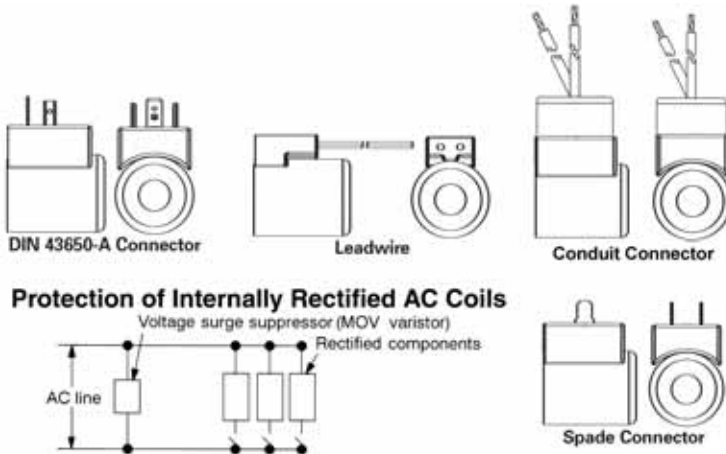


Hydraulic Valves & Accessories

Cartridge Valve Coils



Vickers® Cartridge Valve Coils



Vickers® Cartridge Valve Coils

Catalog Part No.	Vickers Part No.	Vickers Model	Series	Voltage	Connector	Other Features	Wt.	Price Each
C1JY62	300AA00121A	MCSCH012DG000010	H Series 26 Watt	12VDC	DIN 43650		0.60	
C1JY63	300AA00122A	MCSCH024DG000010	H Series 26 Watt	24VDC	DIN 43650		0.50	
•C1AD35	02-178104	SC024SPJ00	J Series 20 Watt	24VAC	1/2 NPT Conduit		1.00	
•C1AD36	02-178106	SC120APJ00	J Series 20 Watt	120VAC	1/2 NPT Conduit	Full Bridge Rectifier	1.00	
•C1JY60	300AA00085A	MCSCJ115AG000010	J Series 20 Watt	120VAC	DIN 43650	Full Bridge Rectifier	0.50	
C1JY61	300AA00086A	MCSCJ230AG000010	J Series 20 Watt	230VAC	DIN 43650	Full Bridge Rectifier	0.51	
C1AD37	02-178109	SC240APJ00	J Series 20 Watt	240VAC	1/2 NPT Conduit	Full Bridge Rectifier	0.75	
•C1AD31	02-178078	SC012DPJ00	J Series 20 Watt	12VDC	1/2 NPT Conduit		1.00	
•C1JY58	300AA00081A	MCSCJ012DG000010	J Series 20 Watt	12VDC	DIN 43650		0.61	
•C1KJ80	300AA00095A	MCSCJ012DW0B0010	J Series 20 Watt	12VDC	Flying Lead		0.60	
•C1AD32	02-178079	SC024DPJ00	J Series 20 Watt	24VDC	1/2 NPT Conduit		2.00	
•C1JY59	300AA00082A	MCSCJ024DG000010	J Series 20 Watt	24VDC	DIN 43650		0.50	
•C1KJ81	300AA00096A	MCSCJ024DW0B0010	J Series 20 Watt	24VDC	Flying Lead			
C1LX16	300AA00045A	MCSCP115AG000010	P Series 23 Watt	115VAC	DIN 43650			
C1LX17	300AA00046A	MCSCP230AG000010	P Series 23 Watt	230VAC	DIN 43650			
C1KJ79	300AA00042A	MCSCP024DG000010	P Series 23 Watt	24VDC	DIN 43650		0.34	
C1KU72	300AA00005A	MCSCS115AG000010	S Series 20 Watt	115VAC	DIN 43650		0.30	
C1MY96	300AA00001A	MCSCS012DG000010	S Series 20 Watt	12VDC	DIN 43650			
•C1KJ78	300AA00009A	MCSCS012DQ000010	S Series 20 Watt	12VDC	1/4" Spade		0.30	
C1JL52	02-160691	SC024DGS00	S Series 16 Watt	24VDC	DIN 43650		0.34	

Protection of Internally Rectified AC Coils: The rectifiers used in AC coils may require protection from high voltage surges in some electrical circuits containing highly inductive or capacitive components. These include certain types of motors, solenoids, relays and transformers. Protection is simple and inexpensive. It consists of installing a commercially available voltage surge suppressor like the GE MOV Varistor V130LA20A for 115VAC or the V250LA20A for 230VAC across the AC line supplying the rectified components. A single suppressor will normally protect all of the rectified components in the circuit. (See circuit diagram above. No inductive or capacitive loads can be installed between the surge suppressor and rectified valves).

Accessories for Coils

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1BT31	565560	Blank Nameplate, Circular, Fits between Coil and Nut	0.01	



Hydraulic Valves & Accessories

Solenoid Valve Connectors

DIN 43650 / ISO 4400 Solenoid Connectors Canfield Series 5000 • Strain Relief Style



Connector for solenoid valves using the DIN 43650 / ISO 4400 specification. This standard permits industry interchangeability and has been embraced by the solenoid valve industry worldwide.

Features: Cable outlet can be assembled in 90° increments. Indicator lights and pre-wired options are available. Available in Black, Gray or Translucent (for models with lights).

Maximum Rated Voltage: 300 VDC / 250 VAC @ 50/60 Hz.

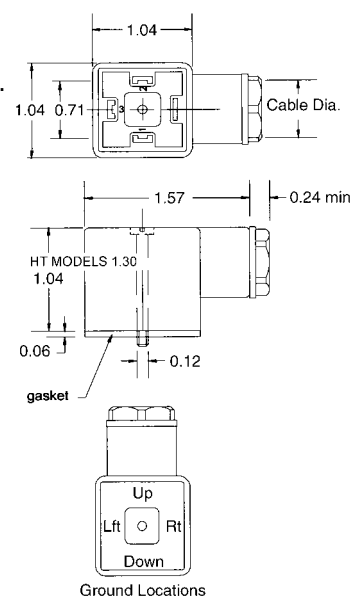
Maximum Cable Diameter: 0.41 inches (See table for cable diameter range).

Maximum Current Rating: 10 amps.

Maximum Rated Temperature for Gasket: Nitrile gasket -13°F to 194°F. Silicone gasket -40°F to 257°F.

Environmental Rating: Nema Type 4 and IP65 dust tight and water resistant.

Normal Polarity: 1 = Positive. 2 = Negative.



DIN 43650 / ISO 4400 Solenoid Connectors • Canfield Series 5000 • Strain Relief Style

Catalog Part No.	Canfield Model	Ground	Wire Length (ft)	Lights	Gasket Material	Contacts	Housing Color	Wire Type	Cable Dia. (in)	Wt.	Price Each
•C1BS52	5100-10900	Down	--	--	Nitrile	2+Ground	Black	--	0.236 to 0.315	0.25	
•C1FK20	5103-1090000	Down	--	6-48 VAC/VDC 50/60 Hz	Nitrile	2+Ground	Translucent	--	0.315 to 0.394	0.05	



Hydraulic Valves & Accessories

Solenoid Valve Connectors

All-Molded DIN Solenoid Connectors Canfield Series 5J



The Canfield Series 5J all-molded DIN solenoid valve connector/gasket/cord assembly offers a completely molded design that is far better for environmental integrity than field wire versions. Made from rugged yet flexible polyurethane, the connector housing boasts high durability factors and application versatility. The low profile "90°" interface/cord configuration allows for installation in many limited space applications. The integrated gasket design boasts an IP67/NEMA 6 rating and makes it impossible to lose the gasket.

Maximum Rated Voltage: 250VAC 50/60 Hz, 300VDC.

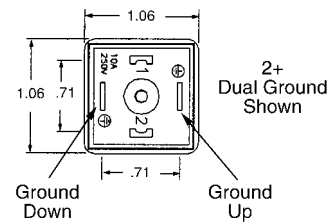
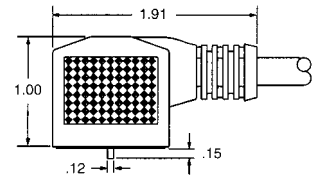
Maximum Rated Current: 10 amps (ISO and Mini), 6 amps (Sub Micro).

Ambient Temperature Rating: -13°F to 176°F.

Environmental Rating: IP67 and NEMA 6, dust tight and water resistant.

Cable Conductor Colors: White black & green (US), brown blue & yellow/green (European).

Conductor Wire Size: 18 gauge (ISO & Mini), 20 gauge (Sub Micro).



All-Molded DIN Solenoid Connectors • Canfield Series 5J

Catalog Part No.	Canfield Model	Connector Type	Cord Length (ft)	Contacts	Operating Voltage	Suppression Type	Lights	Wire Option	Housing Color	Wt.	Price Each
•C1HW97	5J664-000-US0A	ISO DIN 43650	6 ft	2 + Dual Ground	--	None	No	US	Black	0.32	

Hydraulic Valves & Accessories

Solenoid Valve Connectors

MINI Solenoid Connectors Canfield Series 5000



The Canfield Connector field wireable MINI solenoid valve connector is a high quality interconnection device for use with solenoid valves and pressure switches. The connector features a PG9 strain relief, 3/8" or 1/2" conduit wire pass through, all with screw terminals for wire connections. The MINI accommodates wire from .240" to .410" diameter as a standard with an AWG of 14 maximum. Environment resistance of NEMA 4 / IP 65 along with versions which are CSA approved ensure long trouble free service. Current maximum of 10 Amps and the temperature rating of -40° to +125°C encompasses most applications. The interface is an industry standard.

Features: Cable outlet can be assembled in 180° increments. Indicator lights and pre-wired options are available. Available in Black, Gray or Translucent (for models with lights).

Maximum Rated Voltage: 300 VDC / 250 VAC @ 50/60 Hz.

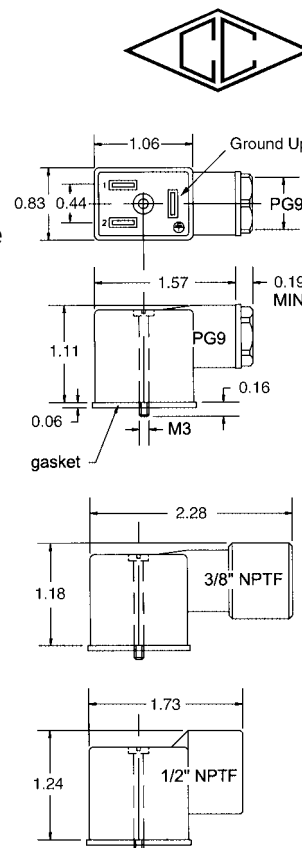
Maximum Cable Diameter: Strain Relief - 0.240 to 0.310 inches max. Conduit - 0.410 inches max. 14 AWG max conductor wire.

Maximum Current Rating: 10 amps.

Maximum Rated Temperature for Gasket: Nitrile gasket -13°F to 194°F. Silicone gasket -40°F to 257°F.

Environmental Rating: Nema Type 4 and IP65 dust tight and water resistant.

Normal Polarity: 1 = Positive, High. 2 = Negative, Neutral



MINI Solenoid Connectors • Canfield Series 5000

Catalog Part No.	Canfield Model	Ground	Wire Length (ft)	Lights	Gasket Material	Connector Type	Housing Color	Wire Type	Cable Dia. (in)	Wt.	Price Each
C1LX39	5100-1010000	Down	--	--	Nitrile	PG9	Black	--			
C1HZ99	5100-1030000	Down	--	--	Nitrile	1/2 NPT	Black	--		0.03	

Power Plugs For Proportional Valves Vickers® EHH-AMP-702-D/E/J/K 10 Series



Description: Note: The newer 20 Series Power Plug is the current design and has additional features. Designed for use with non-feedback valves, these power plugs conform to the DIN 43650/ISO 4400 interface and include an integral amplifier and necessary adjustment potentiometers. This combination offers low cost solutions to many hydraulic control applications requiring proportional control.

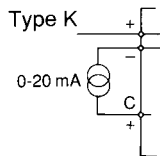
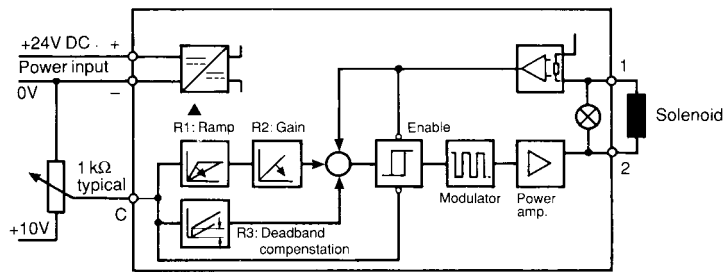
Features: Integral amplifier provides essential functions for control of proportional valves. Fully short-circuit and reverse-polarity protected.

Application: Primary applications are in the control of directly operated, non-feedback proportional valves where the cost of more sophisticated electronic controls can be avoided.

For Use With Valves: KDG4V-3(S)-H*-6*, KTG4V-3(S)-H*-6*, KDG4V-5-H*-3*, KTG4V-5-H*-3*.

Note: Vickers publication GB-2115C provides the additional technical information necessary for proper application of these power plugs. Contact us for technical assistance or to request a copy.

Typical connections
Types D, E and J



▲ Types D, E and K only

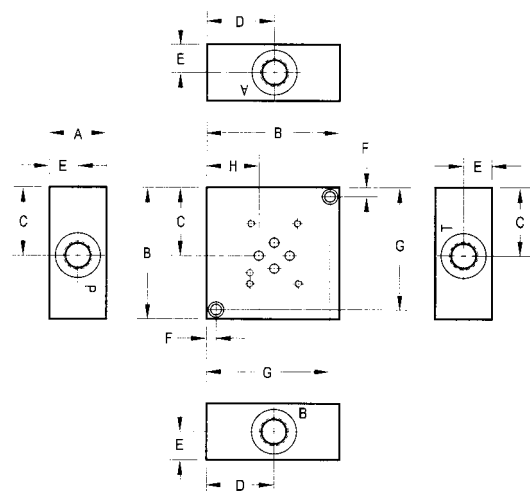
Power Plugs For Proportional Valves • Vickers® EHH-AMP-702-D/E/J/K 10 Series

Catalog Part No.	Vickers Part No.	Vickers Model	Type	Description	Wt.	Price Each
C1EV31	02-326010	EHH AMP 702 D 10	D	Controlled with 0-10 Volt command signal, 50ms to 600ms adjustable ramp time.	0.22	

Hydraulic Valves & Accessories

Subplates, Manifolds & Accessories

Side Ported Subplates • NFPA D03 - ISO 4401 Size 03

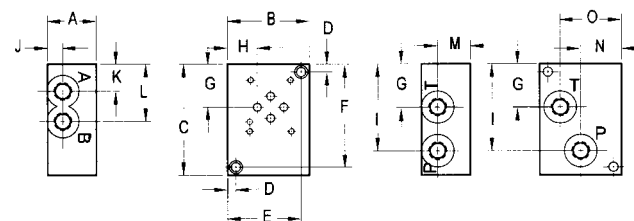


Side Ported Subplates • NFPA D03 - ISO 4401 Size 03

Catalog Part No.	Daman Model	Material	Pressure Rating (psi)	Port Location	Port Threads	A	B	Wt.	Price Each
C1CG87	A-D03-SP-S-6P	Aluminum	3000	Side	3/8 NPT	1.00	2.50	0.23	
C1CG88	A-D03-SP-S-6S	Aluminum	3000	Side	SAE-6	1.00	2.50	0.23	

Subplate Mounting Hardware Included: (2) 1/4-20 x 7/8 Socket Head Cap Screws

Dual Ported Subplates • NFPA D03 - ISO 4401 Size 03



Dual Ported Subplates • NFPA D03 - ISO 4401 Size 03

Catalog Part No.	Daman Model	Material	Pressure Rating (psi)	Port Location	Port Threads	A	B	C	Wt.	Price Each
C1JF14	AD03SPSB6S	Aluminum	3000	Side P-T-A-B, Bottom P-T	SAE-6	1.50	2.50	3.44	1.12	
C1EK42	AD03SPSB8S	Aluminum	3000	Side P-T-A-B, Bottom P-T	SAE-8	2.00	2.75	3.75	1.80	

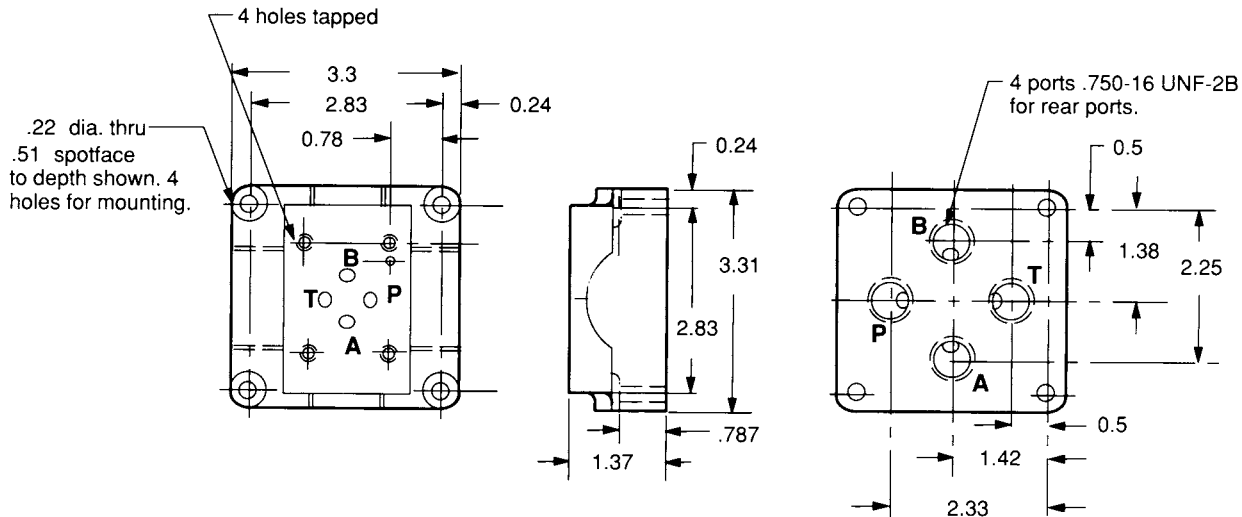
Subplate Mounting Hardware Included: (2) 1/4-20 x 1-1/2 Socket Head Cap Screws. (2) SAE-6 Hex Socket Plugs.



Hydraulic Valves & Accessories

Subplates, Manifolds & Accessories

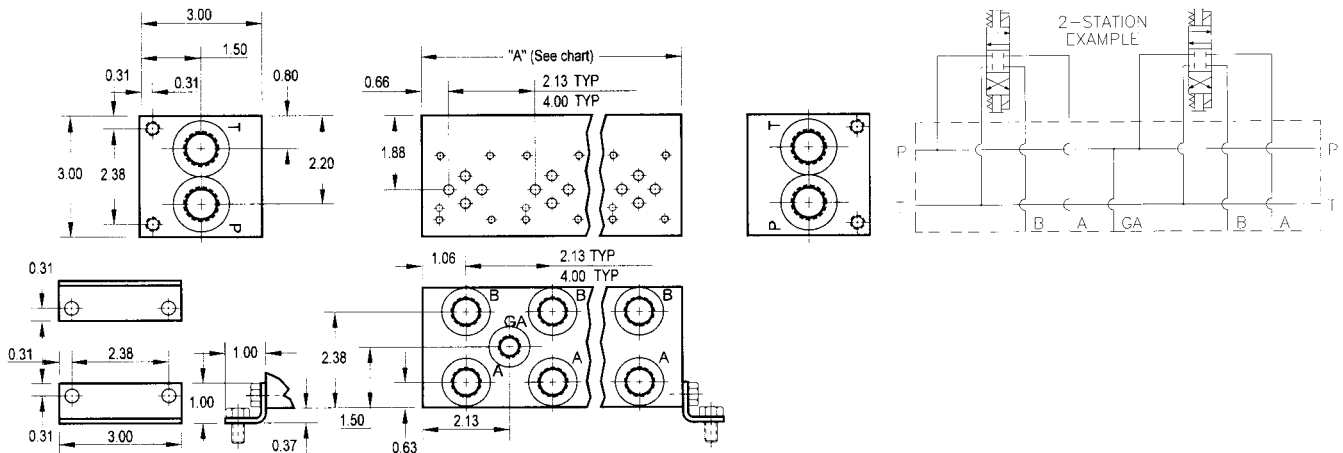
Bottom Ported Subplates • NFPA D03 - ISO 4401 Size 03



Bottom Ported Subplates • NFPA D03 - ISO 4401 Size 03

Catalog Part No.	Vickers Part No.	Vickers Model	Material	Pressure Rating (psi)	Port Location	Port Threads	Wt.	Price Each
C1BQ64	466731	DGVM-3-10S	Cast Iron	3600	Bottom	SAE-8	3.03	

Parallel Circuit Manifolds • NFPA D03 - ISO 4401 Size 03



Parallel Circuit Manifolds • NFPA D03 - ISO 4401 Size 03

Catalog Part No.	Daman Model	Material	Pressure Rating (psi)	Number of Stations	Valve Spacing	Gauge Port	Port Threads and Options	A	Wt.	Price Each
C1NA53	A-D03-P-01-2-S/C	Aluminum	3000	1	2.13	Yes	-10 SAE P & T, -8 SAE A & B, -6 SAE Gauge Port, Includes Cavity for C-10-2 Relief Cartridge			
C1CG84	A-D03-P-02-2-P	Aluminum	3000	2	2.13	Yes	1/2 NPT P & T, 3/8 NPT A & B, 1/4 NPT Gauge Port	4.25	3.95	

Manifold Mounting Hardware Included: (8) 5/16-18 x 5/8 Hex Head Cap Screws and (2) Steel Brackets.

Relief Cavity: P in nose

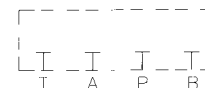
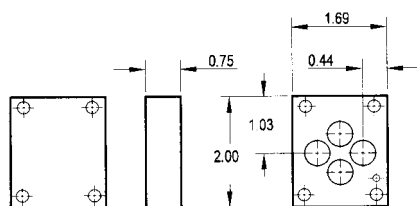


Hydraulic Valves & Accessories

Subplates, Manifolds & Accessories

Parallel Circuit Cover Plates • NFPA D03 - ISO 4401 Size 03

Daman



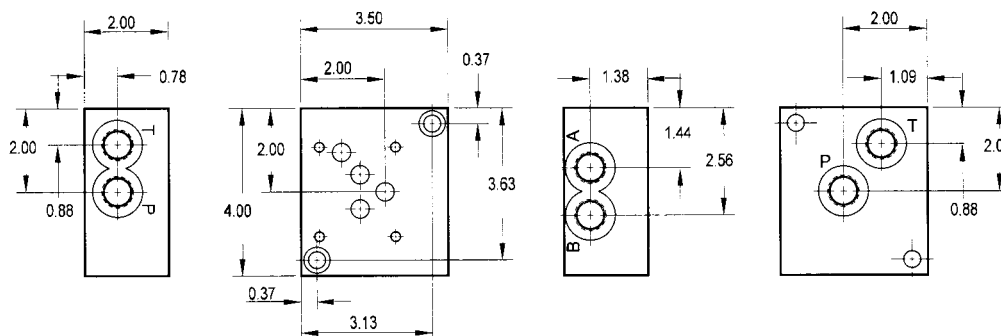
Parallel Circuit Cover Plates • NFPA D03 - ISO 4401 Size 03

Catalog Part No.	Daman Model	Material	Pressure Rating (psi)	Gauge Port (P)	Wt.	Price Each
C1CG83	A-D03-CP-P	Aluminum	3000	No	0.23	

Cover Plate Mounting Hardware Included: (4) 10-24 x 1 Socket Head Cap Screws, (4) -012 Viton® 75 durometer O-Rings and (1) 0.12 dia x 0.25 long Locating Pin.

Dual Ported Subplates • NFPA D05 - ISO 4401 Size 05

Daman



Dual Ported Subplates • NFPA D05 - ISO 4401 Size 05

Catalog Part No.	Daman Model	Material	Pressure Rating (psi)	Port Location	Port Threads	Wt.	Price Each
C1CG90	A-D05-SP-SB-8S	Aluminum	3000	Side P-T-A-B, Bottom P-T	SAE-8	2.49	

Subplate Mounting Hardware Included: (2) 3/8-16 x 1-1/2 Socket Head Cap Screws. (2) SAE-8 Hex Socket Plugs.



Hydraulic Filters & Accessories

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Hydraulic Filters & Accessories

Hydraulic Filters

Suction Strainers • To 3 Inch NPT & 100 GPM Stauff Series SUS



Features: Nylon head (Most models). Aluminum head (Certain Stauff models, see table). Cleanable. Standard 100 mesh (150 micron) pleated stainless steel wire screen epoxy-bonded to head.



Application: Used submerged in reservoir to protect hydraulic pumps from larger solid contaminants. An access opening should be provided so strainer can be removed for cleaning. Strainers are usually mounted horizontally with the top of the strainer at least 3 inches below the lowest oil level (to prevent cavitation). (For larger sizes use 1-1/2 pipe diameters instead of 3 inches).

Suction Strainers • To 3 Inch NPT & 100 GPM • Stauff Series SUS

Catalog Part No.	Model	Size	Flow Capacity (GPM)	Mesh Size	Screen Area (in ²)	Diameter (in)	Length (in)	Other Features	Wt.	Price Each
•C1MJ11	1910001908 (SUS-P-068-N16F-140-125-0)	1 NPT	13	120	144	2.68	5.51	Glass Fiber Reinforced Polyamide Head	0.46	
•C1MX73	1910001909 (SUS-P-088-N20F-140-125-0)	1-1/4 NPT	20	100	162	3.40	5.50	Nylon Head	0.59	
C1ZS73	TFS-120-O-P (SUS-P-088-N20F-140-125-0)	1-1/4 NPT	16.9	120	162	3.40	5.50	Glass Fiber Reinforced Polyamide Head	0.59	
•C1MM25	SUSP088N24F14012	1-1/2 NPT	36.4	120	182	3.46	5.51	Glass Fiber Reinforced Polyamide Head	1.20	
•C1ZS71	SUSP102N24F20012	1-1/2 NPT	36.4	120	376	4.02	7.87	Glass Fiber Reinforced Polyamide Head	2.00	
•C1MC73	1910001915 (SUSP102N32F2601250)	2 NPT	59.8	120	504	4.02	10.24	Glass Fiber Reinforced Polyamide Head	1.30	
C1BC53	221084 (OF3 20 10)	2-1/2 NPT	75	100	400	5.17	10.10	Nylon Head	1.50	
•C1ZS69	SUSP131N48F27212 (SUSP131N48F2721250)	3 NPT	104	100	500	5.90	10.70	Glass Fiber Reinforced Polyamide Head	1.75	

Note: 221084 is manufactured by Eaton

Hydraulic Filters

Tank Mounted Suction Strainers • To 4 Inch NPT & 100 GPM Stauff Series TMF



Features: Can be serviced from outside the reservoir. Iron head. Cleanable. Standard 100 mesh (150 micron) pleated screen epoxy-bonded to head.

Application: Used submerged in reservoir to protect hydraulic pumps from larger solid contaminants. Strainers are usually mounted horizontally with the top of the strainer at least 3 inches below the lowest oil level (to prevent cavitation). (For larger sizes use 1-1/2 pipe diameters instead of 3 inches).



Tank Mounted Suction Strainers • To 4 Inch NPT & 100 GPM • Stauff Series TMF

Catalog Part No.	Stauff Model	Size	Flow Capacity (GPM)	Mesh Size	Screen Area (in ²)	Screen Diameter (in)	Screen Length (in)	Optional Features	Wt.	Price Each
•C1ZS68	TMF-25-5	2 MP x 1-1/4 FP	25	100	159	2.12	7.69	5 PSI By-pass	1.27	
•C1GF62	TMF-50-0	3 MP x 2 FP	50	100	252	3.00	8.00	No By-Pass	2.44	

Spin-On Suction / Return Filters

Stauff SAF07/11 Series • To 6 GPM Suction • To 25 GPM Return



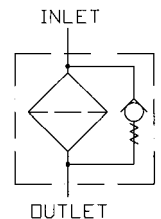
Features: Spin-on element for quick replacement. Optional visual and electrical condition indicators. Light weight die-cast aluminum head. Elements available in both nominal rated paper and absolute rated synthetic media.

Application: Designed for low pressure return line applications on mobile and industrial equipment. May be used as a suction filter if the 3 or 5 PSI by-pass spring is installed.

Housing: High strength die-cast cast aluminum head. Buna-N seals compatible with all petroleum base fluids.

Element: Throw-away metal spin-on canister.

Assembly: Complete assembly consists of one Filter Head, one Element, optional Gauge, and optional bypass spring (25 psi bypass spring is standard).



Nominal Flow Rating: 25 GPM. See Filter Sizing Basics on page 709. See Pressure Drop Curves on page 711

Maximum Operating Pressure: 200 PSI.

Operating Temperature Range: -25°F to 212°F.

Dimensions & Pressure Drop Curves: page 710

Spin-On Suction / Return Filters • Stauff SAF07/11 Series • To 6 GPM Suction • To 25 GPM Return

Catalog Part No.	Stauff Model	Nom Flow Rating	Port Size	Element	Element Length	By-Pass Spring	Indicator	Other Features	Wt.	Price Each
•C1GA29	SAF07154/SF6520	25 GPM	3/4 NPT	10 Micron Nominal Paper	5.68 inch	15 PSI	None	All 4 indicator ports machined & plugged	1.87	
C1LA74	SAF07154/SF6520-K	25 GPM	3/4 NPT	10 Micron Nominal Paper	5.68 inch	15 PSI	None	All 4 indicator ports machined & plugged	1.87	

Hydraulic Filters & Accessories

Hydraulic Filters

Spin-On Suction / Return Filters • Stauff SAF07/11 Series • To 6 GPM Suction • To 25 GPM Return

Catalog Part No.	Stauff Model	Nom Flow Rating	Port Size	Element	Element Length	By-Pass Spring	Indicator	Other Features	Wt.	Price Each
C1LA39	SAF07254/SF6520-K	25 GPM	3/4 NPT	10 Micron Nominal Paper	5.68 inch	25 PSI	None	All 4 indicator ports machined & plugged	1.87	
C1LA40	SAF10254/SF6520-K	25 GPM	1 NPT	10 Micron Nominal Paper	5.68 inch	25 PSI	None	All 4 indicator ports machined & plugged	1.87	
C1LA41	SAF11254/SF6520-K	25 GPM	-12 SAE	10 Micron Nominal Paper	5.68 inch	25 PSI	None	All 4 indicator ports machined & plugged	1.87	
C1LA73	SAF13254/SF6549-K	25 GPM	-16 SAE	3 Micron Nominal Micro Glass	5.68 inch	25 PSI	None	All 4 indicator ports machined & plugged	1.87	
C1LA42	SAF13254/SF6520-K	25 GPM	-16 SAE	10 Micron Nominal Paper	5.68 inch	25 PSI	None	All 4 indicator ports machined & plugged	1.87	

Note: Part numbers the end in a "-K" are assembled by us. Part numbers that do not end in a "-K" are assembled by Stauff.

Parts for Stauff SAF07/11 Series Filters

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1MX33	1010003031	Filter Head, SAF-07-25-4, 3/4 NPT ports, 25 PSI bypass, 4 plugged gauge ports	0.53	
C1KZ92	STNA42356	Filter Head, SAF-10-25-4, 1 NPT ports, 25 psi bypass, 4 plugged gauge ports	0.53	
C1KZ93	STNA42362	Filter Head, SAF-11-25-4, -12 SAE ports, 25 psi bypass, 4 plugged gauge ports	0.53	
C1KZ98	STNA44361	Filter Head, SAF-13-25-4, -16 SAE ports, 25 psi bypass, 4 plugged gauge ports	0.69	
C1MC65	SF6549	Element, 3 micron nominal Micro Glass, 5.76 inch	1.60	
C1GA44	SF-6520	Element, 10 micron nominal Paper, 5.68 inch	1.10	
C1MW61	STNA42505 (SF-6521)	Element, 10 micron nominal Paper, 8.00 inch		
C1MH77	1020013533 (SF-6505)	Element, 12 micron nominal Micro Glass, 5.76 inch	1.21	
C1GA43	SF-6510	Element, 25 micron nominal Paper, 5.68 inch	1.12	
C1FZ75	GV-5	Vacuum Gauge for suction line applications, for filters with 3 PSI by-pass	0.19	
C1GG85	GV-10	Vacuum Gauge for suction line applications, for filters with 5 PSI by-pass	0.18	
C1FZ32	CI-12	Pressure Gauge for return line applications, for filters with 15 PSI by-pass	0.15	
C1GF95	CI-20	Pressure Gauge for return line applications, for filters with 25 PSI by-pass	0.15	
C1KZ64	SAF-07-15-SPRIN G	Bypass Spring, 15 psi	0.01	
C1KZ63	SAF-07-03-SPRIN G	Bypass Spring, 3 psi	0.01	

Note: Element seal is included with element

Note: Complete assembly consists of one Filter Head, one Element, optional gauge, and optional bypass spring.



Hydraulic Filters & Accessories

Hydraulic Filters

Spin-On Suction / Return Filters



Stauff SSF-120/160 Series • To 12 GPM Suction • To 60 GPM Return



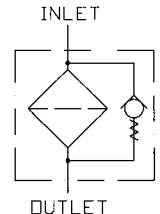
Features: Spin-on element for quick replacement. Optional visual and electrical condition indicators. Light weight die-cast aluminum head. Elements available in both nominal rated paper and absolute rated synthetic media.

Application: Designed for low pressure return line applications on mobile and industrial equipment. May be used as a suction filter if the 3 or 5 PSI by-pass spring is installed.

Housing: High strength die-cast cast aluminum head. Buna-N seals compatible with all petroleum base fluids.

Element: Throw-away metal spin-on canister.

Assembly: Complete assembly consists of one Filter Head, one Element, optional Gauge, and optional bypass spring (25 psi bypass spring is standard).



Nominal Flow Rating: 60 GPM. See Filter Sizing Basics on page 709. See Pressure Drop Curves on page 714

Maximum Operating Pressure: 200 PSI.

Operating Temperature Range: -25°F to 212°F.

Dimensions & Pressure Drop Curves: page 713

Spin-On Suction / Return Filters • Stauff SSF-120/160 Series • To 12 GPM Suction • To 60 GPM Return

Catalog Part No.	Stauff Model	Nom Flow Rating	Port Size	Element	Element Length	By-Pass Spring	Indicator	Other Features	Wt.	Price Each
C1LA43	SSF120254/SF6720-K	60 GPM	1-1/4 NPT	10 Micron Nominal Paper	6.63 inch	25 PSI	None	All 4 indicator ports machined & plugged		
•C1GA59	SSF120154/SF6720	60 GPM	1-1/4 NPT	10 Micron Nominal Paper	6.63 inch	15 PSI	None	All 4 indicator ports machined & plugged	3.65	
C1LA75	SSF120154/SF6720-K	60 GPM	1-1/4 NPT	10 Micron Nominal Paper	6.63 inch	15 PSI	None	All 4 indicator ports machined & plugged	3.65	
C1GA58	SSF120154/SF6710	60 GPM	1-1/4 NPT	25 Micron Nominal Paper	6.63 inch	15 PSI	None	All 4 indicator ports machined & plugged	3.58	
C1LA76	SSF120154/SF6710-K	60 GPM	1-1/4 NPT	25 Micron Nominal Paper	6.63 inch	15 PSI	None	All 4 indicator ports machined & plugged	3.58	
C1LA44	SSF160254/SF6703-K	60 GPM	SAE-20	3 Micron Nominal Micro Glass	6.63 inch	25 PSI	None	All 4 indicator ports machined & plugged		
•C1GA60	SSF160154/SF6720	60 GPM	SAE-20	10 Micron Nominal Paper	6.63 inch	15 PSI	None	All 4 indicator ports machined & plugged	3.64	
C1LA77	SSF160154/SF6720-K	60 GPM	SAE-20	10 Micron Nominal Paper	6.63 inch	15 PSI	None	All 4 indicator ports machined & plugged	3.64	
C1KG40	SSF160250/SF6720	60 GPM	SAE-20	10 Micron Nominal Paper	6.63 inch	25 psi	None	No indicator port	4.42	
C1LA45	SSF160254/SF6720-K	60 GPM	SAE-20	10 Micron Nominal Paper	6.63 inch	25 PSI	None	All 4 indicator ports machined & plugged		

Note: Part numbers the end in a "-K" are assembled by us. Part numbers that do not end in a "-K" are assembled by Stauff.

Parts for Stauff SSF120/160 Series Filters

Catalog Part No.	Part Number	Description	Wt.	Price Each
•C1GA57	SSF-120-05-2	Filter Head, Suction, SSF-120-05-2, 1-1/4 NPT ports, 5 psi bypass, 2 plugged gauge ports	1.50	
C1MM11	STNA43414 (SSF-120-25-4)	Filter Head, SSF-120-25-4, 1-1/4 NPT, 25 psi bypass, 4 plugged gauge ports	1.46	
C1KZ96	STNA43447	Filter Head, SSF-160-25-4, SAE -20 ports, 25 psi bypass, 4 plugged gauge ports	1.46	
C1KZ97	STNA44232	Filter Head, SSF-160-25-4, SAE -24 ports, 25 psi bypass, 4 plugged gauge ports	1.78	





Hydraulic Filters & Accessories

Hydraulic Filters

Parts for Stauff SSF120/160 Series Filters

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1MH75	1020013321 (SF-6704-MG)	Element, 3 micron nominal Micro Glass, 10.6 inch	4.35	
C1KZ73	SF-6703-MG	Element, 3 micron nominal Micro Glass, 6.6 inch	2.25	
C1KZ76	SF-6707-MG/2	Element, 6 micron nominal Micro Glass, 10.6 inch	2.96	
C1KZ79	SF-6721	Element, 10 micron nominal Paper, 10.6 inch	5.00	
•C1GA46	SF-6720	Element, 10 micron nominal Paper, 6.63 inch	2.16	
C1ML54	SF-6731-MG/2	Element, 12 micron nominal Micro Glass, 10.6 inch	3.57	
C1KZ81	SF-6730-MG	Element, 12 micron nominal Micro Glass, 6.6 inch	2.76	
•C1KY74	SF-6710/2	Element, 25 micron nominal paper spin-on, 6.63 inch	2.81	
•C1GA47	SF6790	Element, 125 micron stainless steel wire mesh, 6.63 inch	2.30	
•C1FZ75	GV-5	Vacuum Gauge for suction line applications, for filters with 3 PSI by-pass	0.19	
•C1GG85	GV-10	Vacuum Gauge for suction line applications, for filters with 5 PSI by-pass	0.18	
•C1FZ32	CI-12	Pressure Gauge for return line applications, for filters with 15 PSI by-pass	0.15	
•C1GF95	CI-20	Pressure Gauge for return line applications, for filters with 25 PSI by-pass	0.15	
C1KZ40	EPS1	Electrical Indicator Switch for return line applications, adjustable 7-30 PSI	0.25	
•C1KZ86	SSF03SPRING	Bypass Spring, 3 psi	0.02	
C1LD13	SSF-15-SPRING	Bypass Spring, 15 psi	0.03	

Note: Complete assembly consists of one Filter Head, one Element, optional gauge, and optional bypass spring.



Hydraulic Filters & Accessories

Hydraulic Filters

Spin-On Suction / Return Filters

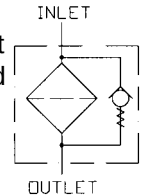


Stauff SSF150/180 Series • To 30 GPM Suction • To 80 GPM Return



Features: Spin-on heads accept SF67 series element for quick replacement. Optional visual and electrical condition indicators. Light weight die-cast aluminum head. Elements available in both nominal rated paper and absolute rated synthetic media.

Application: Designed for low pressure return line applications on mobile and industrial equipment. May be used as a suction filter if the 3 or 5 PSI by-pass spring is installed.



Housing: High strength die-cast cast aluminum head. Buna-N seals compatible with all petroleum base fluids.

Element: Throw-away metal spin-on canister SF67 series elements. See below.

Assembly: Complete assembly consists of one Filter Head, one Element, optional Gauge, and optional bypass spring (25 psi bypass spring is standard).

Nominal Flow Rating: 80 GPM. See Filter Sizing Basics page 709 See Pressure Drop Curves on page 714

Maximum Operating Pressure: Maximum 200 PSI, maximum differential of 80 PSI for any application with no by-pass valve.

Operating Temperature Range: -25°F to 212°F

Dimensions: page 713

Spin-On Suction / Return Filters • Stauff SSF150/180 Series • To 30 GPM Suction • To 80 GPM Return

Catalog Part No.	Stauff Model	Port Size	Flow Capacity (GPM)	Bypass	Other Features	Wt.	Price Each
C1KZ88	SSF-150-25-4	1-1/2 NPT	80 GPM	25 PSI	Filter elements not included	10.00	

Filter heads shown above: Filter elements, indicators, and bypass springs shown below.

Stauff SSF150/180 Series • Elements and Indicators

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1MH75	1020013321 (SF-6704-MG)	Element, 3 micron nominal Micro Glass, 10.6 inch	4.35	
C1KZ73	SF-6703-MG	Element, 3 micron nominal Micro Glass, 6.6 inch	2.25	
C1KZ79	SF-6721	Element, 10 micron nominal Paper, 10.6 inch	5.00	
C1GA46	SF-6720	Element, 10 micron nominal Paper, 6.63 inch	2.16	
C1KZ81	SF-6730-MG	Element, 12 micron nominal Micro Glass, 6.6 inch	2.76	
C1ML54	SF-6731-MG/2	Element, 12 micron nominal Micro Glass, 10.6 inch	3.57	
C1KY74	SF-6710/2	Element, 25 micron nominal paper spin-on, 6.63 inch	2.81	
C1GA47	SF-6790	Element, 125 micron stainless steel wire mesh, 6.63 inch	2.30	
C1FZ75	GV-5	Vacuum Gauge for suction line applications, for filters with 3 PSI by-pass	0.19	
C1GG85	GV-10	Vacuum Gauge for suction line applications, for filters with 5 PSI by-pass	0.18	
C1FZ32	CI-12	Pressure Gauge for return line applications, for filters with 15 PSI by-pass	0.15	
C1GF95	CI-20	Pressure Gauge for return line applications, for filters with 25 PSI by-pass	0.15	
C1KZ40	EPS1	Electrical Indicator Switch for return line applications, adjustable 7-30 PSI	0.25	
C1KZ86	SSF03SPRING	Bypass Spring, 3 psi	0.02	
C1LD13	SSF-15-SPRING	Bypass Spring, 15 psi	0.03	



Hydraulic Filters & Accessories

Hydraulic Filters

Spin-On Suction / Return Filters



Stauff SSF-24/25 Series • To 35 GPM Suction • To 120 GPM Return

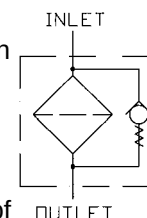


Features: Spin-on element for quick replacement. Optional visual and electrical condition indicators. Cast aluminum head. Elements available in both nominal rated paper and absolute rated synthetic media.

Application: Designed for low pressure return line applications on mobile and industrial equipment. May be used as a suction filter if the 3 or 5 PSI by-pass spring is installed.

Housing: SSF24 Models: Housing in middle, elements on opposite sides of housing. SSF25 Models: Elements are side by side. High strength cast aluminum head. Buna-N seals compatible with all petroleum base fluids.

Element: Throw-away metal spin-on canister.



Assembly: Complete assembly consists of one Filter Head, two Elements, optional Gauge, and optional bypass spring (25 psi bypass spring is standard).

Nominal Flow Rating: Max 120 GPM. See Filter Sizing Basics on page 709. See Pressure Drop Curves on page 714

Maximum Operating Pressure: 150 PSI.

Operating Temperature Range: -22°F to 212°F.

Dimensions & Pressure Drop Curves: page 712

Spin-On Suction / Return Filters • Stauff SSF-24/25 Series • To 35 GPM Suction • To 120 GPM Return

Catalog Part No.	Stauff Model	Max Flow Rating	Port Size	Element	Element Length	By-Pass Spring	Indicator	Other Features	Wt.	Price Each
C1LA47	SSF25251/SF6703MG-K	120 GPM	1-1/2 NPT 2 in. Flange	3 Micron Nominal Micro Glass	6.63 inch	25 PSI	None	All indicator ports machined & plugged		
C1LA48	SSF25251/SF6706MG-K	120 GPM	1-1/2 NPT 2 in. Flange	6 Micron Nominal Micro Glass	6.63 inch	25 PSI	None	All indicator ports machined & plugged		
C1LA81	SSF25251/SF6707MG-K	120 GPM	1-1/2 NPT 2 in. Flange	6 Micron Nominal Micro Glass	10.6 inch	25 PSI	None	All indicator ports machined & plugged		
•C1GA61	SSF25251/SF6720	120 GPM	1-1/2 NPT 2 in. Flange	10 Micron Nominal Paper	6.63 inch	25 PSI	None	All indicator ports machined & plugged	10.53	
C1LA79	SSF25251/6720-K	120 GPM	1-1/2 NPT 2 in. Flange	10 Micron Nominal Paper	6.63 inch	25 PSI	None	All indicator ports machined & plugged	10.53	
C1LA80	SSF25251/SF6721-K	120 GPM	1-1/2 NPT 2 in. Flange	10 Micron Nominal Paper	10.6 inch	25 PSI	None	All indicator ports machined & plugged		
C1LA49	SSF25251/SF6710-K	87.5 GPM	1-1/2 NPT 2 in. Flange	25 Micron Nominal Paper	6.63 inch	25 PSI	None	All indicator ports machined & plugged		

Note: Part numbers the end in a "-K" are assembled by us. Part numbers that do not end in a "-K" are assembled by Stauff.



Hydraulic Filters & Accessories

Hydraulic Filters

Parts for Stauff SSF24/25 Series Filters

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1MH75	1020013321 (SF-6704-MG)	Element, 3 micron nominal Micro Glass, 10.6 inch	4.35	
C1KZ76	SF-6707-MG/2	Element, 6 micron nominal Micro Glass, 10.6 inch	2.96	
•C1GA46	SF-6720	Element, 10 micron nominal Paper, 6.63 inch	2.16	
C1KZ79	SF-6721	Element, 10 micron nominal Paper, 10.6 inch	5.00	
C1ML54	SF-6731-MG/2	Element, 12 micron nominal Micro Glass, 10.6 inch	3.57	
C1KZ81	SF-6730-MG	Element, 12 micron nominal Micro Glass, 6.6 inch	2.76	
•C1KY74	SF-6710/2	Element, 25 micron nominal Paper, 6.63 inch	2.81	
•C1GA47	SF6790	Element, 125 micron stainless steel wire mesh, 6.63 inch	2.30	
•C1FZ75	GV-5	Vacuum Gauge for suction line applications, for filters with 3 PSI by-pass	0.19	
•C1GG85	GV-10	Vacuum Gauge for suction line applications, for filters with 5 PSI by-pass	0.18	
•C1FZ32	CI-12	Pressure Gauge for return line applications, for filters with 15 PSI by-pass	0.15	
•C1GF95	CI-20	Pressure Gauge for return line applications, for filters with 25 PSI by-pass	0.15	
C1KZ40	EPS1	Electrical Indicator Switch for return line applications, adjustable 7-30 PSI	0.25	
C1LD15	SSF25-25-0	Filter Head, 1-1/2 NPT and 2 inch Code 61 Flange, 25 PSI Bypass, No Indicator Ports	6.25	
C1MC67	SSF-25-25-1	Filter Head, 1-1/2 NPT and 2 inch Code 61 Flange, 25 PSI Bypass, Indicator Ports for Return Line Applications	6.26	
•C1KZ86	SSF03SPRING	Bypass Spring, 3 psi	0.02	

Note: Element seal is included with element

Note: Complete assembly consists of one Filter Head, two Elements, optional gauge, and optional bypass spring.

Hydraulic Filters & Accessories

Hydraulic Filters

Spin-On Return Filters

Vickers® OFRS-25 Series • To 25 GPM

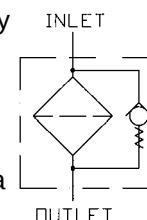


Features: Spin-on element for quick replacement. Filter head accommodates a variety of element media types and grades.

Application: For use in return lines of mobile and industrial hydraulic systems. Any mounting position is permitted, but vertical is preferred for easier servicing.

Material: Die-cast aluminum head. Carbon steel spin-on canister.

Elements: (R-pak Spin-On Elements): High performance absolute rated 5-layer media featuring proprietary Vickers glass micro fiber media with special resin binder placed



between non woven synthetic diffuser layers, with upstream and downstream epoxy-coated carbon steel mesh support.

Fluids & Seals: Suitable for use with petroleum based, oil-water emulsions, high water based and most water-glycol fluids. Buna-N seals are standard.

Indicators: Optional ports in the filter head allow installation of a pressure gauge to indicate the element's condition. The optional gauge is shipped uninstalled from the filter.

Nominal Flow Rating: 15 GPM (5.8 inch element). 25 GPM (8 inch element). See Filter Sizing Basics on page 709. See Pressure Drop Curves on page 721

Maximum Operating Pressure: 100 PSI.

Element Collapse Rating: 150 PSID for R-Pak.

Operating Temperature Range: -40° F to 225°F.

Dimensions & Pressure Drop Curves: page 721

Spin-On Return Filters • Vickers® OFRS-25 Series • To 25 GPM

Catalog Part No.	Vickers Part No.	Vickers Model	Nom Flow Rating	Port Size	Element	Element Length	By-Pass Spring	Gauge	Gauge Tap Loc	Other Features	Wt.	Price Each
C1ZZ74	02-361787	OFRS-25-P-1R05-PA-10	15 GPM	1 NPT	5 Micron Absolute R-pak	5.8 inch	25 PSID	Yes	Inlet A		2.52	

Parts for Vickers® OFRS-25 Series Filters

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1HH26	V0191B1R03	5.8 Inch 3 micron absolute R-pak element (includes element and Buna-N seal)	1.34	
C1ER53	V0191B1R05	5.8 Inch 5 micron absolute R-pak element (includes element and Buna-N seal)	1.28	



Hydraulic Filters & Accessories

Hydraulic Filters

Spin-On Return Filters

Vickers® OFRS-60 Series • To 60 GPM



Features: Spin-on element for quick replacement.

Application: For use in return lines of mobile and industrial hydraulic systems. Any mounting position is permitted, but vertical is preferred for easier servicing.

Material: Die-cast aluminum head. Carbon steel spin-on canister.

Elements: (R-pak Spin-On Elements): High performance absolute rated 5-layer media featuring proprietary Vickers glass micro fiber media with special resin binder placed between non woven synthetic diffuser layers, with upstream and downstream epoxy coated carbon steel mesh upstream & downstream support. (W-pak Spin-On Water Removal Elements): Designed to remove free & emulsified water from petroleum-based hydraulic fluids and lubricants on a temporary (5 days maximum) basis.

Fluids & Seals: Suitable for use with petroleum based, oil-water emulsions, high water based and most water-glycol fluids. Buna-N seals are standard.

Indicators: Optional ports in the filter head allow installation of a pressure gauge to indicate the element's condition. The optional gauge is uninstalled from the filter.

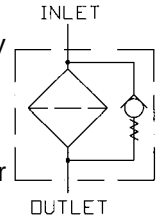
Nominal Flow Rating: 30 GPM (7 inch element). 60 GPM (11 inch element). See Filter Sizing Basics on page 709. See Pressure Drop Curves on page 722

Maximum Operating Pressure: 100 PSI.

Element Collapse Rating: 150 PSID (R-Pak).

Operating Temperature Range: -40° F to 225°F.

Dimensions & Pressure Drop Curves: page 722



Spin-On Return Filters • Vickers® OFRS-60 Series • To 60 GPM

Catalog Part No.	Vickers Part No.	Vickers Model	Nom Flow Rating	Port Size	Element	Element Length	By-Pass Spring	Gauge	Gauge Tap Loc	Other Features	Wt.	Price Each
C1BZ45	736277	OFRS-60-P-PA-10	30 GPM	1-1/2 NPT	10 Micron Nominal	7 inch	25 PSID	Yes	Inlet A		4.45	
•C1JR79	575947	OFRS-60-P10	30 GPM	1-1/2 NPT	10 Micron Nominal	7 inch	25 PSID	No	None		4.43	
•C1FM80	02-309085	OFRS-60-P-PA-10-S50		1-1/2 NPT	None (Select Below)	--	25 PSID	Yes	Inlet A		2.71	

Parts for Vickers® OFRS-60 Series Filters

Catalog Part No.	Part Number	Description	Wt.	Price Each
•C1KV13	5002409	7 Inch 5 micron absolute R-pak element. Vickers model V0211B1R05	2.30	
•C1KV14	5002510	7 Inch 10 micron absolute R-pak element. Vickers model V0211B1R10	2.36	
C1CC64	941107	7 Inch 10 micron nominal single layer element.	2.39	
•C1KZ25	5002511	7 Inch 20 micron absolute R-pak element. Vickers model V0211B1R20		
•C1HQ46	5002512	11 Inch 3 micron absolute R-pak element. Vickers model V0211B2R03	3.19	
•C1KV15	5002513	11 Inch 5 micron absolute R-pak element. Vickers model V0211B2R05	3.20	
•C1KV16	5002514	11 Inch 10 micron absolute R-pak element. Vickers model V0211B2R10	3.20	
C1KV17	5002515	11 Inch 20 micron absolute R-pak element. Vickers model V0211B2R20.	3.20	
•C1CC44	927081	11 Inch W-Pak H2O-Pro™ Water Removal Element (Vickers Model W0211B2W10) with 32 ounce water holding capacity	3.12	
C1FN12	3039704	0-60 PSI Gauge for use in models with 25 PSI by-pass valve. 1/8 NPT center back mount.	0.26	

Note: Element seal is included with element



Hydraulic Filters & Accessories

Hydraulic Filters

In-Line Return Filters

Stauff RIF48 Series • To 150 GPM



Features: Conforms to HF4 specifications. By-pass valve & visual indicator is standard. Housing accommodates a variety of element media types and grades.

Application: For use in return lines of mobile and industrial hydraulic systems. Any mounting position is permitted, but vertical is preferred for easier servicing.

Material: Die Cast Aluminum Head. Steel Element case.

Elements: Inorganic glass elements available in 03, 10, 25 micron ratings. Paper elements available in 03, 10, 25 micron ratings.

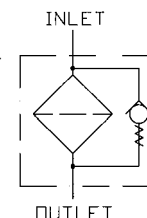
Assembly: Complete assembly consists of one Filter Head, one or two Elements (depending on head selected), and optional Gauge.

Fluids & Seals: Suitable for use with mineral oils, other fluids on request. Seals available: Buna-N, Viton.

Indicators: Visual indicator (pressure gauge) or electrical pressure switch.

Nominal Flow Rating: 100 GPM

Maximum Operating Pressure: 300 PSI



Operating Temperature Range: -20°F to +225°F

Dimensions & Pressure Drop Curves: page 715

In-Line Return Filters • Stauff RIF48 Series • To 150 GPM

Catalog Part No.	Stauff Model	Max Flow Rating	Port Size	Element	Element Length	By-Pass Spring	Indicator	Wt.	Price Each
C1LA20	RIF48SG05BS1V-K	100 GPM	SAE -24	5 Micron Nominal Micro Glass	S1	40 PSI	Visual		
C1LA21	RIF48SD10BS1V-K	100 GPM	SAE -24	10 Micron Nominal Paper	S1	40 PSI	Visual		
C1LA67	RIF48SD10BS2V-K	150 GPM	SAE -24	10 Micron Nominal Paper	S2	40 PSI	Visual		
C1LA22	RIF48SG10BS1V-K	100 GPM	SAE -24	10 Micron Nominal Micro Glass	S1	40 PSI	Visual		
C1LA23	RIF48SG10BS2V-K	150 GPM	SAE -24	10 Micron Nominal Micro Glass	S2	40 PSI	Visual		

Note: Part numbers the end in a "-K" are assembled by us. Part numbers that do not end in a "-K" are assembled by Stauff.

Parts for Stauff RIF48 Series Filters

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1ML99	STNA42737 (RIF48SXXXBS1N)	Head, SAE -24 ports, Single element length, 40 psi bypass spring		
C1KZ57	RIF48SXXXBS2N	Head, SAE -24 ports, Double element length, 40 psi bypass spring, includes element connector		
C1KZ61	RTE48G10B	Element, 10 micron nominal Micro Glass		
C1KZ95	STNA43199	Element Connector for two element Bowl		
C1KZ42	HI48-V/1	Visual Indicator		

Note: Complete assembly consists of one Filter Head, one or two Elements (depending on head selected), and optional gauge.



Hydraulic Filters & Accessories

Hydraulic Filters

In-Tank Return Filters

Stauff RTF40 Series • To 100 GPM



Features: Conforms to HF-4 specifications. In-tank configuration minimizes space requirements and potential system leakage points. Dual inlet ports.

Application: For use in return lines of mobile and industrial hydraulic systems where space saving in-tank style design is desired.

Material: Die cast aluminum head and cover. Glass fiber reinforced polyamide bowl (bowl length 1), steel bowl (bowl length 2).

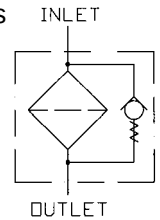
Elements: Inorganic glass fiber elements available in 03-05-10-25 micron. Paper elements available in 03-05-10-20-25 micron. Note: By-pass valve in RTF47 models is integrated in the element. RTF48 and RTF49 by-pass is in filter head.

Assembly: Complete assembly consists of one Filter Head, one Bowl, one or two Elements (depending on bowl selected), and optional Gauge. Element Connector is required when using double length bowl.

Fluids & Seals: Suitable for use with mineral oils, other fluids on request. Seals available: Buna-N.

Indicators: Visual indicator (pressure gauge) or electrical pressure switch.

Nominal Flow Rating: RTF47 Models (75 GPM), RTF48 & RTF49 Models (100 GPM).



See Filter Sizing Basics on page 709. See Pressure Drop Curves on page 716

Maximum Operating Pressure: 100 PSI.

Operating Temperature Range: -13° F to 212°F.

Dimensions & Pressure Drop Curves: page 715

In-Tank Return Filters • Stauff RTF40 Series • To 100 GPM

Catalog Part No.	Stauff Model	Nominal Flow Rating	Port Size	Element	Bowl Length Code	Clogging Indicator	Outlet	Other Features	Wt.	Price Each
C1JB41	RTF48S25D10BS1N	100 GPM	SAE-20 St.Thread O-Ring	10 Micron Paper	S1	None (Select Below)	1-1/2 NPT	25 PSI By-Pass (in filter head), Buna-N seals, 1/8 NPT indicator port	9.51	
C1HS71	RTF48D10BTT25S1V	100 GPM	SAE -24	10 Micron Paper	S1	Yes (Gauge)	1-1/2 NPT	25 PSI By-Pass (in filter head), Buna-N seals	7.37	
C1LA83	RTF48D10BTT25S1V-K	100 GPM	SAE -24	10 Micron Paper	S1	Yes (Gauge)	1-1/2 NPT	25 PSI By-Pass (in filter head), Buna-N seals	7.37	
C1LA38	RTF48G10B/TT/25/-K	100 GPM	SAE -24	10 Micron Micro Glass	S1	None (Select Below)	1-1/2 NPT	25 PSI By-Pass (in filter head), Buna-N seals		
C1LA68	RTF48G10BTT25S2N-K	100GPM	SAE -24	10 Micron Micro Glass	S2	None (Select Below)	1-1/2 NPT	25 PSI By-Pass (in filter head), Buna-N seals		

Note: Part numbers the end in a "-K" are assembled by us. Part numbers that do not end in a "-K" are assembled by Stauff.

Parts for Stauff RTF40 Series Filters

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1KZ62	RTF48-HTT/B25PS	Head, SAE -24 ports with 25 psi bypass, dual inlet ports		
C1KZ12	1030012439	Bowl, Single Length, Polyamide		
C1KZ94	STNA42734	Bowl, Double Length, Steel		
C1KZ59	RTE48G03B	Element, 3 micron nominal Micro Glass		
C1NC47	RTE48-G05B	Element, 5 micron nominal Micro Glass		
C1NC46	RTE48-D10B	Element, 10 micron nominal Paper		
C1KZ61	RTE48G10B	Element, 10 micron nominal Micro Glass		
C1JS68	RTE47G10B	Element, RTF47 Models only, S1 Length 10 micron Micro Glass, 25 psi Bypass	1.89	
C1LA19	WR-40	Weld Riser for tank mount		



Hydraulic Filters & Accessories

Hydraulic Filters

Parts for Stauff RTF40 Series Filters

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1KZ95	STNA43199	Element Connector for two element Bowl		
C1FZ32	CI-12	Pressure Gauge for return line applications, for filters with 15 PSI by-pass	0.15	
C1GF95	CI-20	Pressure Gauge for return line applications, for filters with 25 PSI by-pass	0.15	

Note: Complete assembly consists of one Filter Head, one Bowl, one or two Elements (depending on bowl selected), and optional gauge. Element Connector is required when using double length bowl.

In-Tank Return Filters

Vickers® HF4RT Series • To 120 GPM



Features: Designed to comply with ANSI specifications and ISO cleanliness standards

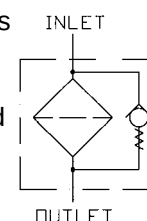
- Conforms to HF4 specifications
- Gauge and electrical switch options available to monitor element loading
- In-tank configuration minimizes space requirements and potential system leakage points
- Optional secondary port allows filtration of a second return line without additional fittings, or allows for a filtered fill port.

Application: For use in return lines of mobile and industrial hydraulic systems where space saving in-tank style design is desired.

Material: Aluminum head and cover. Carbon steel bowl.

Elements: (C-pak Elements): High performance absolute rated 5-layer media featuring proprietary Vickers glass micro fiber media with special resin binder placed between non woven synthetic diffuser layers, with epoxy coated carbon steel mesh upstream & downstream support.

Fluids & Seals: Suitable for use with petroleum based and most water glycol, oil-in-water and water-in-oil fluids. Buna-N seals are standard. Synthetic fluids require optional Viton® seals.



Indicators: Filter head is drilled & tapped 1/8 NPT (and plugged) for optional pressure gauge or switch.

Nominal Flow Rating: 50 GPM (9 inch element). 100 GPM (18 inch element). 120 GPM (27 inch element). See Filter Sizing Basics on page 709. See Pressure Drop Curves on page 719

Maximum Operating Pressure: 100 PSI.

Element Collapse Rating: 150 PSID.

Operating Temperature Range: -25° F to 250°F.

Dimensions & Pressure Drop Curves: page 719

In-Tank Return Filters • Vickers® HF4RT Series • To 120 GPM

Catalog Part No.	Vickers Part No.	Vickers Model	Nominal Flow Rating	Port Size	Element	Element Length	By-Pass Spring	Indicator	Other Features	Wt.	Price Each
C1HZ30	253AS12886A	HF4RT1SD313SD BC05	50 GPM	SAE-24 St.Thread O-Ring	5 Micron Absolute C-pak	9 inch	25 PSID	None (Select below)	SAE-24 St.Thread Secondary Port	12.80	
C1MH24	1VFTM00043 HF4RT1SD4GB 6XXBC05	HF4RT1SD4GB6X XBC05	100 GPM	SAE-24 St.Thread O-Ring	5 Micron Absolute C-pak	23 inch	43 PSID	0-160 PSI Gauge	No Secondary Port		

Parts for Vickers® HF4RT Series Filters

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1FM22	229AS10037A	18 Inch 3 micron absolute C-pak element (Vickers model V4051B6C03)	3.95	
C1FM21	229AS10036A	18 Inch 5 micron absolute C-pak element (Vickers model V4051B6C05)	3.22	
C1FN12	3039704	0-60 PSI Gauge for use in models with 25 PSI by-pass valve. 1/8 NPT center back mount.	0.26	



Hydraulic Filters & Accessories

Hydraulic Filters

4000 PSI Pressure Filters

Vickers® HF2P Series • To 24 GPM



Features: Designed to comply with ANSI specifications and ISO cleanliness standard. Visual, electrical and electrical indicators with lamp options. Conforms to HF2 specifications. Compact design for use with servo and proportional valves. Manifold mounting option. Fatigue rated to 3000 PSI for maximum reliability. High efficiency replacement elements in standard configurations to meet Target Cleanliness Levels. High collapse elements available for non-bypass applications.

Application: For use in pressure lines of mobile and industrial hydraulic systems. Any mounting position is permitted, but vertical is preferred for easier servicing.

Material: Ductile iron head. Carbon steel bowl.

Elements: (C-Pak Elements): High performance absolute rated 5-layer media featuring proprietary Vickers glass micro fiber media with special resin binder placed between non woven synthetic diffuser layers, with upstream and downstream epoxy coated carbon steel mesh upstream & downstream support. (H-Pak Elements): Similar to C-Pak except 304 stainless steel mesh upstream & downstream support, and heavier core tubes and media support for non-bypass applications.

Fluids & Seals: Compatible with most petroleum oil, water glycol, oil-in-water and water-in-oil fluids. Buna-N seals are standard. Viton® seals are available for phosphate ester fluids.

Indicators: Filter head is machined (and plugged) for optional differential pressure indicator. Indicator styles available: Visual and Electrical.

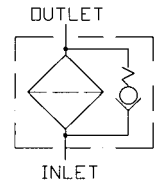
Nominal Flow Rating: 12 GPM (4 inch element). 24 GPM (8 inch element). See Filter Sizing Basics on page 709. See Pressure Drop Curves on page 723

Maximum Operating Pressure: 4000 PSI.

Element Collapse Rating: 250 PSID (C-Pak). 3000 PSID (H-Pak).

Operating Temperature Range: -15° F to 250°F.

Dimensions & Pressure Drop Curves: page 723



4000 PSI Pressure Filters • Vickers® HF2P Series • To 24 GPM

Catalog Part No.	Vickers Part No.	Vickers Model	Nominal Flow Rating	Port Size	Element	Element Length	By-Pass Spring	Indicator	Other Features	Wt.	Price Each
•C1FM96	255AS10026A	HF2P1SA4JNB2	24 GPM	SAE-12 St.Thd O-Ring	None (Select below)	8 inch	43 PSID	None (Select below)		12.25	

Parts for Vickers® HF2P Series Filters

Catalog Part No.	Part Number	Description	Wt.	Price Each
•C1FM19	226AS10023A	8 Inch 3 micron absolute C-pak element with Buna-N seal. Vickers model V3041B2C03.	0.45	
•C1FM18	226AS10022A	8 Inch 5 micron absolute C-pak element with Buna-N seal. Vickers model V3041B2C05.	0.37	
C1FN14	3039727	30 PSI Popup Visual Differential Pressure Indicator with Viton® seals. Model PHV-2B-V.	0.27	



Hydraulic Filters & Accessories

6000 PSI Pressure Filters

Stauff SF045/090/160 Series • To 160 GPM



Features: STAUFF SF series High Pressure Filters are designed for in-line hydraulic applications, with a maximum operating pressure of 6000 PSI. Used together with STAUFF SE series Filter Elements, a high efficiency of contaminant removal is assured. The high dirt-hold capacity of the elements ensures long service life and, as a result, reduced maintenance costs.

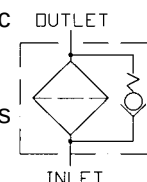
Application: For use in pressure lines for mobile and industrial hydraulic systems.

Material: Spheroidal Graphite Cast Iron Filter Head, Cold Drawn Steel Filter Bowl, PTFE Support Ring.

Elements: Inorganic glass elements available in 03, 05, 10, 20 micron ratings.

Assembly: Complete assembly consists of one Filter Head, one Filter Bowl, one Element, and optional Indicator. Head and Element flow ratings must match.

Fluids & Seals: Mineral Oils, other fluids on request. Seals are available in Buna-N, Viton, and EPDM.



Indicators: Visual and Electrical

Nominal Flow Rating: SH045 - 45 GPM, SH090 - 90 GPM, SH160 - 160 GPM

Maximum Operating Pressure: 6000 PSI

Operating Temperature Range: +14°F to +212°F

Dimensions & Pressure Drop Curves: page 718

6000 PSI Pressure Filters • Stauff SF045/090/160 Series • To 160 GPM

Catalog Part No.	Stauff Model	Nominal Flow Rating	Port Size	Element	By-Pass Spring	Indicator	Wt.	Price Each
C1LA24	SF045G05B/TU/B/V-K	45 GPM	SAE -20	5 Micron Glass	87 PSI	Visual		
C1LA25	SF045G10B/TU/B/V-K	45 GPM	SAE -20	10 Micron Glass	87 PSI	Visual		
C1LA26	SF045G10B/TGU/B/V-K	45 GPM	1-1/4 Code 62	10 Micron Glass	87 PSI	Visual		
C1LA27	SF090G05B/TU/B/V-K	90 GPM	SAE -24	5 Micron Glass	87 PSI	Visual		
C1LA28	SF090G10B/TU/B/V-K	90 GPM	SAE -24	10 Micron Glass	87 PSI	Visual		
C1LA29	SF090G10B/TGU/B/V-K	90 GPM	1-1/2 Code 62	10 Micron Glass	87 PSI	Visual		
C1LA30	SF160G05B/TU/B/V-K	160 GPM	SAE -24	5 Micron Glass	87 PSI	Visual		
C1LA31	SF160G10B/TU/B/V-K	160 GPM	SAE -24	10 Micron Glass	87 PSI	Visual		
C1LA32	SF160G10B/TGU/B/V-K	160 GPM	1-1/2 Code 62	10 Micron Glass	87 PSI	Visual		

Note: Part numbers that end in a "-K" are assembled by us. Part numbers that do not end in a "-K" are assembled by Stauff.

Parts for Stauff SF Series Filters

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1KZ84	SH045/070-TU/B	Filter Head, 45 GPM, 87 psi bypass spring, SAE -20 ports	15.85	
C1KZ83	SH045/070-TGU/B	Filter Head, 45 GPM, 87 psi bypass spring, 1-1/4 Code 62 ports	15.86	
C1LA33	SH090160TUB	Filter Head, 90 or 160 GPM, 87 psi bypass spring, SAE -24 ports	36.73	
C1KZ85	SH090160TGUB	Filter Head, 90 or 160 GPM, 87 psi bypass spring, 1-1/2 Code 62 ports	36.66	
C1KZ65	SB045/2	Filter Bowl, 45 GPM	7.13	
C1KZ11	1020005811	Filter Bowl, 160 GPM SB160/2	36.44	
C1KY97	1020023541	Element, 45 GPM, 5 micron nominal Micro Glass, Model code SE045G05B	0.73	
C1JB44	SE-045-G10B	Element, 45 GPM, 10 micron nominal Micro Glass	0.76	
C1KY96	1020001195	SE160G05B/2, Element, 160 GPM, 5 micron nominal Micro Glass		
C1KZ68	SE-160G10B/4-1	Element, 160 GPM, 10 micron nominal Micro Glass	2.42	
C1MW62	1020000153	Visual Indicator with Manual Reset (HIVB50B)		

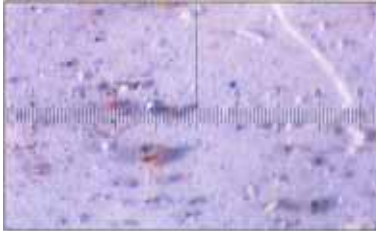
Note: Complete assembly consists of one Filter Head, one Filter Bowl, one Element, and optional Indicator. Head and Element flow rates must match.



Hydraulic Filters & Accessories

Fluid Analysis

Stauff Fluid Analysis Service Kits



Highly Contaminated Sample

Reduce The Risk of Failure: Fluid is the lifeblood of every hydraulic power system. In the same way a blood sample helps a doctor diagnose problems with a patient's health, a sample of hydraulic fluid can help pinpoint sources of contamination and determine whether or not adequate filtration is being used. As a key part of that analysis, Stauff Fluid Analysis Service can help you reduce catastrophic equipment failures, maintain optimum component performance, and identify any substandard maintenance practices. Your bottom line benefit is increased productivity.

Stauff Fluid Analysis Service Features: Testing is specifically designed for hydraulic fluids • Test results are presented in an easy to understand format • Spectrographic Analysis – 19 elements for wear metals, contaminants and additives • Viscosity – the kinematic viscosity reported in centistokes (cSt) • Visible Debris Analysis – microscopic examination of any visible debris in the sample • Total Acid Number (TAN) • Particle Count – to determine the cleanliness of the system • Karl Fisher (KF) – to determine the exact concentration of water present in the oil



Stauff Fluid Analysis Service Kits

Catalog Part No.	Stauff Part No.	Description	Wt.	Price Each
C1MM13	STNA46385	SFSK-1-GLASS Fluid Sampling Kit, Includes: sampling pump FSP-38, hose adapter, 1m hose, 2 test point adapters, sample bottle	2.32	
C1KT94	STFC-01-GLASS	Check Oil Analysis Kit, single glass test bottle	0.28	

Fluid Analysis Kits contain: Super clean sample bottle, Numbered test sample data form (must be filled out completely to receive the most accurate test results, including trend information), Packaging for mailing sample, Prepaid fluid analysis service.

Hydraulic Filters & Accessories

Hydraulic Filters

Return Filters

Schroeder KF3 Series • To 100 GPM



Features: Meets HF4 automotive standard. Offered in pipe, SAE straight thread, flange and ISO 228 porting. Various Dirt Alarm® options.

Housing: Die Cast Aluminum Head, Steel Element Case.

Bypass Setting: Cracking: 30 psi, Full Flow: 51 psi.

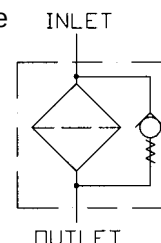
Max Operating Pressure: 300 psi.

Flow Rating: Up to 100 gpm for 150 SUS fluids.

Temperature Range: -20°F to 225°F

Element Change Clearance: 1.50"

Dimensions & Pressure Drop Curve: page 724



Return Filters • Schroeder KF3 Series • To 100 GPM

Catalog Part No.	Schroeder Model	Element Length (in)	Media Type	Micron Rating	Seal Material	Ports	Indicator	Other Features	Wt.	Price Each
C1MC12	KF31KZ25SD5	9.0	Synthetic	25	Buna-N	SAE-24	Pop-Up		10.50	

Parts for KF3 Series Filters

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1MB99	K3	Element, 3 micron, paper media, 9"		
C1MB97	K10	Element, 10 micron, paper media, 9"		
C1MC23	KZ5	Element, 5 micron, Z-media synthetic, 9"		
C1MC21	KZ25	Element, 25 micron, Z-media synthetic, 9"		
C1MC17	KM150	Element, 150 Micron, Wire mesh, 9"		



Hydraulic Filters & Accessories

Hydraulic Filters

In-Tank Return Filter

Schroeder RT Series • To 100 GPM



Features: Low pressure tank-mounted filter with up to 3 inlet ports. Meets HF4 automotive standard. Top, side or bottom mounting. Optional check valve prevents reservoir siphoning.

Housing: Die Cast Aluminum Porting Head and Cap, Steel Element Case.

Bypass Setting: Cracking: 25 psi, Full Flow: 48 psi.

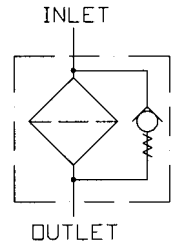
Max Operating Pressure: 100 psi.

Flow Rating: Up to 100 gpm for 150 SUS fluids

Temperature Range: -20°F to 225°F

Element Change Clearance: 8.0" for 1K; 17.50" for KK; 26.5" for 27K

Dimensions & Pressure Drop Curve: page 725



In-Tank Return Filter • Schroeder RT Series • To 100 GPM

Catalog Part No.	Schroeder Model	Element Length (in)	Media Type	Micron Rating	Port A	Port B	Port C	Indicator	Wt.	Price Each
C1MC60	RT1KZ10S20NNY2	9.0	Synthetic	10	SAE-20	None	None	Gauge	11.40	
C1MC59	RT-1754	9.0	Synthetic	10	SAE-24	SAE-24	None	Gauge	11.40	

Parts for RT Series Filters

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1MB99	K3	Element, 3 micron, paper media, 9"		
C1MB97	K10	Element, 10 micron, paper media, 9"		
C1MC23	KZ5	Element, 5 micron, Z-media synthetic, 9"		
C1MC21	KZ25	Element, 25 micron, Z-media synthetic, 9"		
C1MC17	KM150	Element, 150 Micron, Wire mesh, 9"		

Hydraulic Filters & Accessories

Hydraulic Filters

In-Tank Return Filter

Schroeder LRT Series • To 150 GPM



Features: Low pressure tank-mounted filter. Multiple inlet/outlet porting options. Top, side or bottom mounting. Optional check valve prevents reservoir siphoning. Can also be used in return line application. Visual gauge or electrical switch dirt alarms.

Housing: Die Cast Aluminum Porting Head and Cap, Steel Element Case

Bypass Setting: Cracking: 25 psi, Full Flow: 34 psi.

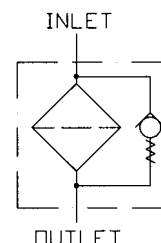
Max Operating Pressure: 100 psi

Flow Rating: Up to 150 gpm for 150 SUS fluids

Temperature Range: -20°F to 225°F

Element Change Clearance: 17.0"

Dimensions & Pressure Drop Curve: page 726



In-Tank Return Filter • Schroeder LRT Series • To 150 GPM

Catalog Part No.	Schroeder Model	Element Length (in)	Media Type	Micron Rating	Port A	Port B	Port C	Indicator	Wt.	Price Each
C1MC28	LRT-1820	18.0	Synthetic	10	SAE-24	SAE-24	None	Gauge	14.60	

800 PSI Pressure Filter

Schroeder RLT Series • To 70 GPM



Features: Durable, compact design. Quick and easy cartridge element changeouts. Available in 9" and 14" element lengths. Offered in pipe, SAE straight thread, flange and ISO 228 porting.

Housing: Aluminum Porting Head and Aluminum Element Case.

Bypass Setting: Cracking: 40 psi, Full Flow: 57 psi for P20 & S20 porting, Full Flow 75 psi for P16, S16, F16 & F20 porting.

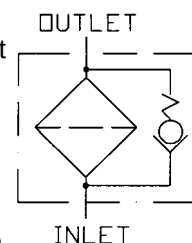
Max Operating Pressure: 800 psi.

Flow Rating: Up to 70 gpm for 150 SUS fluids for P20, S20, & B20 porting. Up to 50 gpm for 150 SUS fluids for P16, S16, F16, F20 & B16 porting

Temperature Range: -20°F to 225°F

Element Change Clearance: 2.75"

Dimensions & Pressure Drop Curve: page 727



800 PSI Pressure Filter • Schroeder RLT Series • To 70 GPM

Catalog Part No.	Schroeder Model	Element Length (in)	Media Type	Micron Rating	Seal Material	Ports	Indicator	Other Features	Wt.	Price Each
C1MC58	RLT9VZ10S20D5	9	Synthetic	10	Buna-N	SAE-20	Visual		6.70	

Hydraulic Filters

1400 PSI Pressure Filter

Schroeder SRLT Series • To 25 GPM



Features: Smaller, compact version of the RLT. Quick and easy cartridge element changeouts. Offered in pipe, SAE straight thread and ISO 228 porting. Various Dirt Alarm® options.

Housing: Aluminum Porting Head, Aluminum Element Case

Bypass Setting: Cracking: 40 psi, Full Flow: 55 psi.

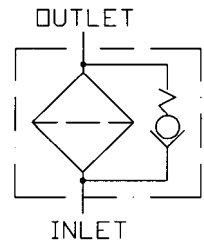
Max Operating Pressure: 1400 psi.

Flow Rating: Up to 25 gpm for 150 SUS fluids

Temperature Range: -20°F to 225°F

Element Change Clearance: 2.75"

Dimensions & Pressure Drop Curve: page 728



1400 PSI Pressure Filter • Schroeder SRLT Series • To 25 GPM

Catalog Part No.	Schroeder Model	Element Length (in)	Media Type	Micron Rating	Seal Material	Ports	Indicator	Other Features	Wt.	Price Each
C1MC66	SRLT6RZ10S12D5	6	Synthetic	10	Buna-N	SAE -12	Visual		3.00	

3000 PSI Pressure Filters

Schroeder NF30 Series • To 20 GPM



Features: Top-ported pressure filter. All aluminum assembly. Available with non-bypass option with high collapse element. Offered in pipe, SAE straight thread and ISO 228 porting.

Housing: Aluminum Porting Head and Aluminum Element Case.

Bypass Setting: Cracking: 40 psi, Full Flow: 85 psi. Non-Bypass model has a blocked bypass.

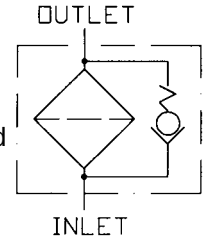
Max Operating Pressure: 3000 psi

Flow Rating: Up to 20 gpm for 150 SUS fluids.

Temperature Range: -20 °F to 225 °F

Element Change Clearance: 4.50 inches.

Dimensions & Pressure Drop Curve: page 729



3000 PSI Pressure Filters • Schroeder NF30 Series • To 20 GPM

Catalog Part No.	Schroeder Model	Element Length (in)	Media Type	Micron Rating	Seal Material	Ports	Indicator	Other Features	Wt.	Price Each
C1MC41	NF301N10SD5	5.25	Paper	10	Buna-N	SAE -12	Visual		3.40	

Parts for NF30 Series Filters

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1MC36	N10	Element, 10 micron, paper media		

Hydraulic Filters & Accessories

Hydraulic Filters

3000 PSI Pressure Filters

Schroeder KF30 Series • To 150 GPM



Features: Base-ported pressure filter. Can be installed in vertical or horizontal position. Meets HF4 automotive standard. Element changeout from top minimizes oil spillage. Offered in pipe, SAE straight thread, flanged and ISO 228 porting.

Housing: Ductile Iron Porting Base and Cap, Steel Element Case

Bypass Setting: Cracking: 40 psi, Full Flow: 61 psi, Non-bypassing model has a blocked bypass.

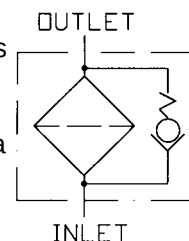
Max Operating Pressure: 3000 psi

Flow Rating: Up to 100 gpm for 150 SUS fluids. With 2" porting only, up to 150 gpm for 150 SUS fluids

Temperature Range: -20°F to 225°F

Element Change Clearance: 8.50 inches

Dimensions & Pressure Drop Curve: page 730



3000 PSI Pressure Filters • Schroeder KF30 Series • To 150 GPM

Catalog Part No.	Schroeder Model	Element Length (in)	Media Type	Micron Rating	Seal Material	Ports	Indicator	Other Features	Wt.	Price Each
C1MC11	KF301KZ10SD5	9	Synthetic	10	Buna-N	SAE-24	Visual		48.00	

Parts for KF30 Series Filters

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1MB99	K3	Element, 3 micron, paper media, 9"		
C1MB97	K10	Element, 10 micron, paper media, 9"		
C1MC23	KZ5	Element, 5 micron, Z-media synthetic, 9"		
C1MC21	KZ25	Element, 25 micron, Z-media synthetic, 9"		
C1MC17	KM150	Element, 150 Micron, Wire mesh, 9"		



Hydraulic Filters & Accessories

Hydraulic Filters

4000 PSI Pressure Filters

Schroeder DF40 Series • To 30 GPM



Features: Top-ported pressure filter. Available with non-bypass option with high collapse element. Offered in conventional subplate porting. Offered in pipe, SAE straight thread and ISO 228 porting. No-Element indicator option available.

Housing: Aluminum Porting Head, Steel Element Case

Bypass Setting: Cracking: 40 psi, Full Flow: 57 psi

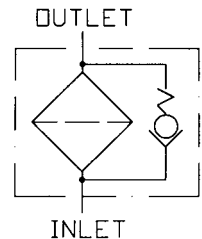
Max Operating Pressure: 4000 psi

Flow Rating: Up to 30 gpm for 150 SUS fluids

Temperature Range: -20°F to 225°F

Element Change Clearance: 4.0 inches

Dimensions & Pressure Drop Curve: page 731



4000 PSI Pressure Filters • Schroeder DF40 Series • To 30 GPM

Catalog Part No.	Schroeder Model	Element Length (in)	Media Type	Micron Rating	Seal Material	Ports	Indicator	Other Features	Wt.	Price Each
C1LZ79	DF401CC3SD5	9.5	Paper	3	Buna-N	SAE -20	Visual		19.50	

Parts for DF40 Series Filters

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1LZ70	CCZ10	Element, 10 micron, Z-media synthetic		

Hydraulic Filters & Accessories

Hydraulic Filters

Filter Elements

Schroeder Replacement Elements



Features: Schroeder Industries' products are continually tested using the latest ISO and NFPA test procedures in our engineering lab.

Z-Media Elements (Synthetic): The special class of micro-glass and other fibers used in Z-Media® are manufactured with utmost precision, to specific thicknesses and densities, and bonded with select resins to create material with extra fine passages. No other filter media can provide the benefits of Schroeder's Excellement® Z-Media®: maximum dirt-holding capacity, superior particle capture, excellent beta stability, minimum pressure drop, high flow rate and low operating cost.

Filter Elements • Schroeder Replacement Elements

Catalog Part No.	Schroeder Model	Length (in)	Media Type	Micron Rating	Seals	Fits Schroeder Housing	Wt.	Price Each
		4.5	Paper	10	Buna-N	TF50, TF1		
		4.5	Synthetic	10	Buna-N	TF50, TF1		
		8	Synthetic	10	Buna-N	ZT8		
		8	Paper	10	Buna-N	ZT8		
C1LX77	9VZ10	9	Synthetic	10	Buna-N	VF60		
C1MC14	KKZ3	18	Synthetic	3	Buna-N	KF30, KF50, KC50, MKF50, KC65, KFH50, 2K9, 3K9, KF3, KL3, RT, KTK		
C1MC15	KKZ5	18	Synthetic	5	Buna-N	KF30, KF50, KC50, MKF50, KC65, KFH50, 2K9, 3K9, KF3, KL3, RT, KTK		
C1MC13	KKZ10	18	Synthetic	10	Buna-N	KF30, KF50, KC50, MKF50, KC65, KFH50, 2K9, 3K9, KF3, KL3, RT, KTK		
		39	Synthetic	5	Viton	QF5, 3QF5, QFD5, QF15, QLF15SSQLF15, QT		
C1LX21	39QZ10V	39	Synthetic	10	Viton	QF5, 3QF5, QFD5, QF15, QLF15SSQLF15, QT		
C1LX20	39Q150PSV	39	Synthetic	150	Viton	QF5, 3QF5, QFD5, QF15, QLF15SSQLF15, QT		

Off-Line Filtration

Schroeder Kidney Loop Systems • To 4.9 GPM



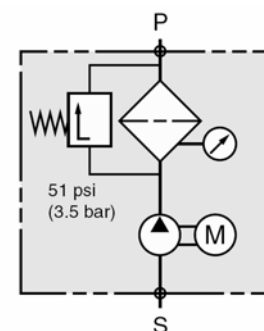
Description: Schroeder's new series of Kidney Loop - Compact (KLC) filters are designed to filter highly contaminated hydraulic oils efficiently and cost effectively off-line. The KLC is designed for use containing up to 100 gallons and is perfect for retrofit situations when additional filtration is required. This compact filter is easy to install and ideal for gear boxes. They are supplied as ready-to-install off-line units complete with pump/motor assembly.

Features: Lower operating costs. Extended element service life. Extended fluid life. Cleaner and more efficient systems. Easy installation. High dirt-holding capacity. Requires low volume of oil.

Fluids: Standard mineral oils, water/oil based fluids (min 40% oil in fluid), Consult factory for other fluids.

Fluid Temperature: 32°F to 175°F

Max Operating Pressure: 45 psi.



Off-Line Filtration • Schroeder Kidney Loop Systems • To 4.9 GPM

Catalog Part No.	Schroeder Model	Voltage	Micron Rating	Flow Rate	Seal Material	Ports	Indicator	Other Features	Wt.	Price Each
C1MC16	KLC15V22VDT	24VDC	2	4.9 GPM	Buna-N	SAE -8	Visual		24.30	



Hydraulic Filters & Accessories

Hydraulic Filters

Contamination Monitors Schroeder TestMate Series



Description: The TestMate is among the newest generation of particle monitors that continuously measure solid contamination in fluid. Enclosed in a 4 inch diameter case, the TCM utilizes an optical sensor and measures particles in four sizes: >4, >6, >14 and >21 microns. Measurement results can be output as a contamination code according to ISO 4406 : 1999 or SAE AS 4059 (D).

Features: Measures Particles In Four Sizes: >4, >6, >14, >21 microns. Pipe or Wall Mounting. ISO or SAE codes can be output in 4-20 mA analog signal. Compatible with Standard Mineral Fluids & Phosphate Esters. Display & Keypad can be rotated. Inlet & Outlet Ports are Interchangeable (bi-directional).

Max Pressure: 4350 psi.

Sensor Flow Rate: 30 to 300 ml/min

Electrical Specifications: 4 to 20 mA Analog output (max. burden 300 Ω); 0 to 10 V output (min. load resistor 820 Ω) Limit switching output (Power MOSFET): max. current 1.5A

Electrical Outputs: 4 to 20mA Analog; 0 to 10V Analog (option) RS485 for communication with FluMos software

Power Consumption: 3 Watt maximum

Power Supply Voltage: 9 to 36 VDC residual ripple <10%

Contamination Monitors • Schroeder TestMate Series

Catalog Part No.	Schroeder Model	Description	Wt.	Price Each
C1MC81	TCM-FC	TestMate monitor, hydraulic fluids, 4-20 mA, Flow Conditioning Manifold	2.90	

Contamination Monitors Schroeder TestMate Water Sensor



Description: The TWS-C is a water and temperature sensor for the continuous monitoring of hydraulic and lubrication fluids - accurately, continuously and on line. It measures the water content relative to the saturation concentration (saturation point) and outputs the degree of saturation (saturation level) in the range of 0 to 100% as a 4-20 mA signal. A reading of 0% would indicate the absence of water, while a reading

of 100% would indicate that a fluid is saturated with water.

Technology: The special capacitance sensor used in the TWS absorbs water molecules from the fluid and changes its capacity value that is directly related to the saturation level in the fluid. An integrated thermoelement on the sensor measures the temperature of the fluid in the range of -13°F to 212°F and outputs it as a 4 to 20 mA signal.

Features: Compatible with hydraulic, lube oils and esters. Measures and displays saturation and temperature continuously. Displays saturation level in percentage (0% indicates oil is dry; 100% indicates oil is saturated). Data can be monitored to PC, PLC, etc.

Measuring Range: 0 to 100% Saturation; -13°F to 212°F

Max Operating Pressure: 725 psi.

Temperature Range: 32°F to 194°F

Flow Velocity: < 16 ft/s

Supply Voltage: 12 to 32 VDC

Contamination Monitors • Schroeder TestMate Water Sensor

Catalog Part No.	Schroeder Model	Description	Wt.	Price Each
C1MC83	TWS-C-M-0-0	TestMate Water Sensor, Mineral Oil		



Hydraulic Filters & Accessories

Hydraulic Filters

Contamination Monitors Schroeder Fluid Analysis Kit



Features: Schroeder's Trouble Check Plus™ is an easy to use fluid analysis service that can be utilized as part of any predictive maintenance program.

Usage: A sample kit contains a clean sample bottle, blank form, and mailing container. After the sample has been taken, the customer simply completes the form and encloses it along with the sample in the mailing container provided.

Contamination Monitors • Schroeder Fluid Analysis Kit

Catalog Part No.	Schroeder Model	Description	Wt.	Price Each
C1MC82	THF	Fluid Analysis Kit containing sample bottle, blank form, and mailing container.		

Filter Accessories Schroeder Multi-Gauge



Features: The Schroeder Multi-Gauge provides multiple pressure readings for hydraulic, transmission, and converter systems all in one handy, compact enclosure. While one hook-up connects all three gauges, the built-in gauge protector automatically protects the low and medium pressure gauges from high pressures.

Pressure: Protects against overpressurization; The 150 psi gauge can not be damaged when a 2500 psi system is being checked. This design feature eliminates the need to know the pressure before testing.

Construction: Simple yet rugged construction; The dust and moisture proof steel case is provided with a rubber bumper for shock protection. A hanger is also provided on the case back for the user's convenience.

Range: Saves time; The three pressure ranges and one vacuum range provided in one case meet most routine hydraulic maintenance requirements.

Filter Accessories • Schroeder Multi-Gauge

Catalog Part No.	Schroeder Model	Case Diameter	Gauge Diameter	Vacuum Gauge	Pressure Gauge 1	Pressure Gauge 2	Wt.	Price Each
C1LZ84	GS-5	6.3 in	1.5 in	30 in Hg - 150 psi	0 to 600 psi	0 to 5000 psi	3.30	



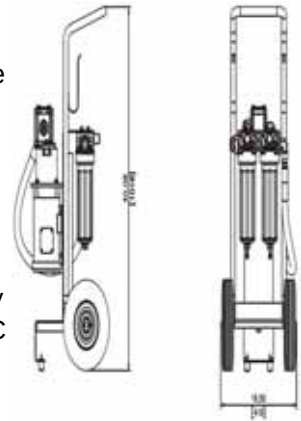
Hydraulic Filters & Accessories

Hydraulic Filters

Mobile Filtration System Schroeder MFD



The Schroeder Mobile Filter System - Basic Cart is a compact, self-contained, "light-duty" filtration system equipped with high efficiency, high capacity elements capable of removing particulate contamination and/ or water quickly, conveniently and economically. It is perfect for cleaning up existing systems as well as for prefiltering new fluids, since new fluids often have contamination levels significantly higher than that recommended for most hydraulic systems. The filtration system's compact, lightweight design with replaceable element cartridge and reusable bowl, minimizing landfill waste. Element service is easily accomplished through the top-ported filter housings. The MFD-BC includes a drip pan to help catch any oil before it falls to the ground. The dual filter assembly allows for water and particulate removal or staged, particulate contamination removal.



Features: • Compact size, easily transported • Top-ported filter provides easy element service • D10 Auto-Reset Indicator indicates when filter elements require a change • Hoses and connection tubes included • Drip pan catches oil before it falls to the ground.

Rated Flows: 10 GPM

Maximum Operating Pressure: 30 PSI

Operating Temperature Range: 25°F to 150°F

Fluids & Seals: All petroleum based hydraulic fluid. Contact factory for use with other fluids.

Electricals: Motor: 115 VAC Single phase 1 hp

Mobile Filtration System • Schroeder MFD

Catalog Part No.	Schroeder Part No.	Elements	Element Length	Indicator	Wt.	Price Each
•C1MH36	MFDBC-109-H10H05	H10 & H05 Excellenment® Z-Media®	9	D10 Auto-Reset Indicator	102.00	

Elements for Schroeder Mobile Filter System • (2) Required

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1NA38	9GZ3	3 µm Excellenment® Z-Media filter element		
•C1MG86	9GZ5	5 µm Excellenment® Z-Media filter element		
•C1MG85	9GZ10	10 µm Excellenment® Z-Media filter element		
•C1NA37	9GW	Water removal element		



Power Units & Accessories

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Compact Power Units, 12VDC & 24VDC Concentric AB GC8000/GC8001 Series

Haldex Barnes GC8000 & GC8001 Series DC Hydraulic Power Units offer you virtually limitless choices - from a selection of pre-assembled units, to a wide range of complete units assembled to your specifications, to the individual component kits which enable you to create or modify a unit to meet your exact requirements.

GC8000 Series: GC8000 Units can be configured in 4 different ways. 1: Basic Power Unit with no directional valving. Add a remote mounted directional valve to run either single acting or double acting cylinder. 2: Manual Control Power Unit. Has manual valve to start unit and operate a single acting cylinder. 3: Remote Control Power Unit. Has solenoid valving to remotely operate a single acting cylinder. 4: Power Unit with 1 or 2 station NFPA D03 Parallel Manifold. The Power Unit has an o-ring seal machined surface that can accept manifold kits for subplate mounted valves. These valves can perform a wide variety of functions.

GC8001 Series: GC8001 Units can be configured in 3 different ways: 1: Remote Control Power Unit. 4-Way solenoid operated cartridge valves to operate double acting cylinder or reversing motor. 2: Direct Mount NFPA D03 Pad Power Unit. Has a single D03 mounting pad that eliminates the need for manifold adapters. Valves perform a wide variety of functions. 3: Manual 4-Way Valve Power Unit. Has 3-position 4-way Tandem center manual valve with integral motor relay switch. Handle movement in either direction from center will start unit and direct flow to either double acting cylinder or reversing motor.

Design Features: Close-coupled DC motors with Oldham coupling for accurate alignment. Hardened and ground alloy-steel gears and shafts. Precision needle bearings. High strength, fine grain cast iron pump housings. Spring-loaded lip-type pump shaft seals. Corrosion resistant externally mounted valves. Cartridge-type check valves and externally adjustable relief valves. 100 mesh reinforced brass inlet strainers. 40 micron dry element type breathers. Powder coated drawn steel reservoirs with magnetic particle collector. Units mount horizontally (Optional breather elbow kit for vertical mount - see kits).

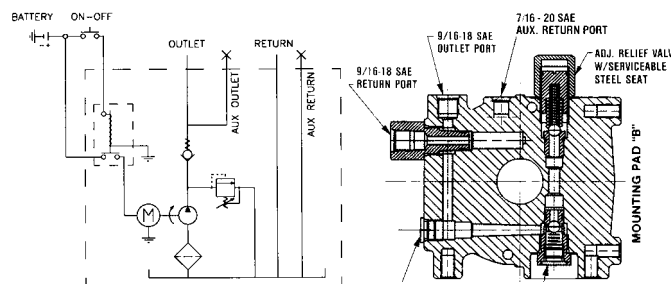
**** WARNING **:** 12VDC units with .250" gear, over a 5 minute period, can run for 1 minute at 500 psi, or 1/2 minute at 2000 psi, then must be turned off and allowed to cool. See the Technical Information section for allowable motor duty cycle times for all gear widths at various pressure levels.

Repair & Customizing Kits: GC8000 Kits page 484 GC8001 Kits page 485

Model Codes: GC8000 Model Codes page 732 GC8001 Model Codes page 733

Technical Information: page 734

Basic Power Units (DC) Concentric AB GC8000 Series (Without Control Valves)



These Basic Power Units are for use in applications using a remote mounted directional control valve. They include a direct-acting adjustable relief valve (1500-2500 PSI), load check valve, and alternate outlet and return ports. All valves are of cartridge construction. All ports are SAE straight thread o-ring type (9/16-18 Outlet Port, Return Port and Auxiliary Outlet Port. 7/16-20 Auxiliary Return Port). This group of power units may be repaired or customized using GC8000 Kits.

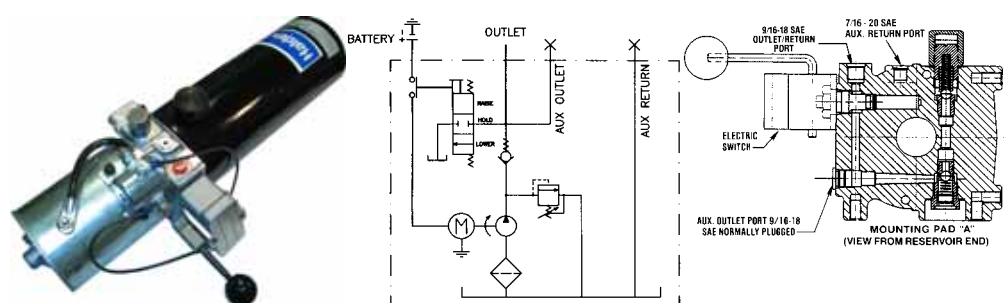
Power Units & Accessories

Hydraulic Power Units



Catalog Part No.	Concentric AB Part No.	Motor	Motor Start Switch	GPM @ 500 PSI	GPM @ 2000 PSI	Amps @ 500 PSI	Amps @ 2000 PSI	Relief Valve Setting	Reservoir Capacity	Other Features	Wt.	Price Each
C1EL95	1300757	12VDC Single Terminal Std Duty	Case (Internal) Grounded	2.25	1.35	115	205	2500	3 Quarts	.250" Gear	25.95	

Manual Control Power Units (DC) Concentric AB GC8000 Series (Single Acting Cylinder Applications)

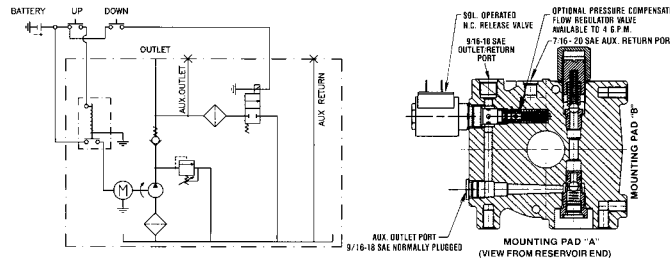


A rugged manually operated lift-hold-lower valve is offered for single acting cylinder applications where the operator can be in close proximity to the unit. An electric power-on switch is integral to the lever assembly. The lever may be rotated to the "up" or "side" position relative to the mounting surface used. An optional pressure compensated lowering flow regulator may be installed under the manual release valve (See GC8000 Kits). This group of power units may be repaired or customized using GC8000 Kits.

Catalog Part No.	Concentric AB Part No.	Motor	Motor Start Switch	GPM @ 500 PSI	GPM @ 2000 PSI	Amps @ 500 PSI	Amps @ 2000 PSI	Relief Valve Setting	Reservoir Capacity	Other Features	Wt.	Price Each
C1EL94	1300754	12VDC Single Terminal Std Duty	Case (Internal) Grounded	2.25	1.35	115	205	2500	3 Quarts	.250" Gear	27.00	

Remote Control Power Units (DC)

Concentric AB GC8000 Series (Single Acting Cylinder Applications)



The cartridge type solenoid release valve provides a remote control means for lift-hold-lower in single acting cylinder applications. The solenoid cartridge is suitable for most outdoor applications. Standard features include a direct-acting adjustable relief valve, load check valve and straight thread o-ring ports (9/16-18 Outlet/Return Port and Auxiliary Outlet Port. 7/16-20 Auxiliary Return Port). An optional pressure compensated lowering flow regulator may be installed under the manual release valve. An optional Remote Control Pendant (p/n to be determined) is available. Pendant features (add when known) and proper terminals on end of 10 foot cord to connect to power unit. This group of power units may be repaired or customized using GC8000 Kits.

Catalog Part No.	Concentric AB Part No.	Motor	Motor Start Switch	GPM @ 500 PSI	GPM @ 2000 PSI	Amps @ 500 PSI	Amps @ 2000 PSI	Relief Valve Setting	Reservoir Capacity	Other Features	Wt.	Price Each
•C1EL93	1300751	12VDC Single Terminal Std Duty	Case (Internal) Grounded	2.25	1.35	115	205	2500	3 Quarts	.250" Gear	26.27	

Power Units & Accessories

Hydraulic Power Units



Concentric AB GC8000 Series Kits (DC)



These kits may be used to repair or modify existing GC8000 Series power units, or to build custom GC8000 Series power units. The Model Code page is a useful tool for kit selection for custom units.

Model Codes: GC8000 Model Codes page 732

Concentric AB GC8000 Series Kits (DC)

Catalog Part No.	Concentric AB Model	Description	Wt.	Price Each
•C1AK22	1300191	Return Port Plug Kit	0.25	
C1AK17	1300174	Pump Kit, .125" Gear, 0.065 cubic inch Displacement	0.80	
C1EL76	1300176	Pump Kit, .187" Gear, 0.097 cubic inch Displacement	3.78	
C1AK15	1300171	Pump Kit, .250" Gear, 0.129 cubic inch Displacement	3.78	
C1EL83	1300625	Pump Kit, .312" Gear, 0.161 cubic inch Displacement	3.71	
C1AK16	1300172	Pump Kit, .500" Gear, 0.258 cubic inch Displacement	3.78	
C1AJ93	1300027	Motor Kit, Standard Duty, 12VDC, Single Terminal	16.09	
C1EL81	1300618	Motor Kit, Medium Duty, 12VDC, Double Terminal	15.56	
C1AK28	1300623	Motor Kit, Medium Duty, 12VDC, Double Terminal, with Foot Mounting Bracket	10.00	
•C1AK27	1300619	Motor Kit, Medium Duty, 24VDC, Double Terminal	16.98	
C1EL75	1300135	Reservoir Kit, 1.5 Quart Capacity, 4.8" Diameter Cylindrical	1.67	
C1EG63	1300028	Reservoir Kit, 2 Quart Capacity, 4.8" Diameter Cylindrical	2.00	
C1AJ95	1300039	Reservoir Kit, 3 Quart Capacity, 4.8" Diameter Cylindrical	2.35	
C1EM17	1303176	Reservoir Kit, 1 Gallon Capacity, 6.6" Diameter	3.00	
•C1EM19	1303178	Reservoir Kit, 2 Gallon Capacity, 6.6" Diameter	4.70	
•C1AJ97	1300125	Reservoir Kit, 2.5 Gallon Capacity, Rectangular	5.00	
•C1EL78	1300284	Reservoir Kit, 4 Gallon Capacity, Rectangular	11.13	
•C1BG75	2500006	Breather Cap, 3/8" NPT	0.05	
•C1HY58	1300939	Motor Start Switch Kit, 12VDC, 3-Pole, Case (Internal) Negative Grounded	0.85	
C1HW30	1300937	Motor Start Switch Kit, 12VDC, 4-Pole, Non-Grounded (UL Required)	0.98	
C1HY57	1300938	Motor Start Switch Kit, 24VDC, 4-Pole, Non-Grounded (UL Required)	0.96	

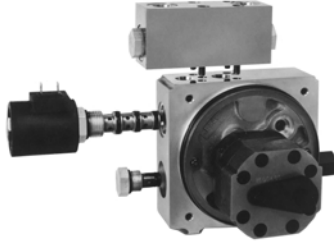


Power Units & Accessories

Hydraulic Power Units



Concentric AB GC8001 Series Kits (DC)



These kits may be used to repair or modify existing GC8001 Series power units, or to build custom GC8001 Series power units. The Model Code page is a useful tool for kit selection for custom units.

Model Codes: GC8001 Model Codes page 733

Concentric AB GC8001 Series Kits (DC)

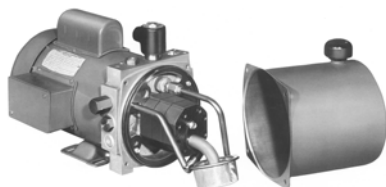
Catalog Part No.	Concentric AB Model	Description	Wt.	Price Each
C1EL91	1300743	Adapter Kit (For Cartridge Directional Control Valve)	4.40	
C1EL92	1300744	Adapter Kit (For D03 Direct Mount Valve)	4.70	
C1AK17	1300174	Pump Kit, .125" Gear, 0.065 cubic inch Displacement	0.80	
C1EL76	1300176	Pump Kit, .187" Gear, 0.097 cubic inch Displacement	3.78	
C1AK15	1300171	Pump Kit, .250" Gear, 0.129 cubic inch Displacement	3.78	
C1AK16	1300172	Pump Kit, .500" Gear, 0.258 cubic inch Displacement	3.78	
C1FR53	1300985	Relief Valve Kit, Adjustable, 1500-2500 PSI	0.22	
C1AJ93	1300027	Motor Kit, Standard Duty, 12VDC, Single Terminal	16.09	
C1EL81	1300618	Motor Kit, Medium Duty, 12VDC, Double Terminal	15.56	
C1AK27	1300619	Motor Kit, Medium Duty, 24VDC, Double Terminal	14.64	
C1EL75	1300135	Reservoir Kit, 1.5 Quart Capacity, 4.8" Diameter Cylindrical	1.67	
C1EG63	1300028	Reservoir Kit, 2 Quart Capacity, 4.8" Diameter Cylindrical	2.00	
C1AJ95	1300039	Reservoir Kit, 3 Quart Capacity, 4.8" Diameter Cylindrical	2.35	
C1EM17	1303176	Reservoir Kit, 1 Gallon Capacity, 6.6" Diameter	3.00	
C1EM19	1303178	Reservoir Kit, 2 Gallon Capacity, 6.6" Diameter	4.70	
C1AJ97	1300125	Reservoir Kit, 2.5 Gallon Capacity, Rectangular	5.00	
C1EL78	1300284	Reservoir Kit, 4 Gallon Capacity, Rectangular	11.13	
C1BG75	2500006	Breather Cap, 3/8 NPT	0.05	
C1HY58	1300939	Motor Start Switch Kit, 12VDC, 3-Pole, Case (Internal) Negative Grounded	0.85	
C1HW30	1300937	Motor Start Switch Kit, 12VDC, 4-Pole, Non-Grounded (UL Required)	0.98	
C1HY57	1300938	Motor Start Switch Kit, 24VDC, 4-Pole, Non-Grounded (UL Required)	0.96	
C1EL99	1300785	Cartridge Valve, 3-Position, 4-Way, Tandem Center (Without required coils(2))	0.65	
C1EL86	1300727	Pilot-Operated Check Valve, C1	1.36	
C1EL89	1300740	Valve Coil, 12 VDC	0.65	
C1JD78	2380322	Pendant, Double-Acting for 4-Way 3-Position Valve	1.05	

Power Units & Accessories

Hydraulic Power Units



Concentric AB GC9000 Series Kits (AC)



These kits may be used to repair or modify existing GC9000 Series power units, or to build custom GC9000 Series power units. The Model Code page is a useful tool for kit selection for custom units.

Model Codes: GC9000 Model Codes page 738

Concentric AB GC9000 Series Kits (AC)

Catalog Part No.	Concentric AB Model	Description	Wt.	Price Each
C1JL81	1303725	Motor/Adapter Kit, 1HP 1800 RPM, Single Phase, 60 Hz, 115/208/230 Volts, TEFC	36.00	
C1JF37	1303720	Motor/Adapter Kit, 2HP 3450 RPM, Single Phase, 60 Hz, 115/230 Volts, TEFC	45.90	
C1AK18	1300177	Pump Kit, .125" Gear, 0.064 cu.in. (0.50 GPM @ 1800 RPM)	4.35	
C1AK19	1300178	Pump Kit, .1875" Gear, 0.094 cu.in. (0.75 GPM @ 1800 RPM)	4.35	
C1AK20	1300179	Pump Kit, .250" Gear, 0.129 cu.in. (1.00 GPM @ 1800 RPM)	4.32	
C1ZZ38	1300181	Pump Kit, .500" Gear, 0.258 cu.in. (Requires Reservoir Tube Kit) (2.00 GPM @ 1800 RPM)	5.33	
C1ZZ36	1300183	Pump Kit, .750" Gear, 0.388 cu.in. (Requires Reservoir Tube Kit) (3.00 GPM @ 1800 RPM)	5.35	
C1DV99	2470044	Relief valve seat for 4000 PSI relief	0.03	
C1DV76	2110081	Relief valve spring, 3000 - 4000 PSI	0.02	
C1DW86	2870005	Relief valve ball, 3000 - 4000 PSI	0.01	
C1AK25	1300329	Base (Primary) Manifold for NFPA D03 Valve	2.31	
C1DU68	1300127	Reservoir Kit, 1 Gallon Capacity, Horizontal Mount	2.15	
C1AK11	1300129	Reservoir Kit, 1.5 Gallon Capacity, Horizontal Mount	3.25	
C1DU69	1300131	Reservoir Kit, 2 Gallon Capacity, Horizontal Mount	3.80	
C1AK13	1300133	Reservoir Kit, 3 Gallon Capacity, Horizontal Mount	5.40	
C1DU70	1300187	Reservoir Tube Kit (Required for larger Pump Options E-J)	0.27	
C1DU72	1300268	Adapter Kit (No Motor)	6.85	
C1DU75	1300843	Adapter & Coupling Kit (Use to mount any 56C Frame Motor)	2.00	

NFPA D03 Subplate Mounted Solenoid Valves: Vickers DG4V-3/DG4V-3S page 372



Compact Power Units, AC & DC Concentric AB HE2000 Series



The HE2000 Power Packs are based on a versatile platform that allows you to combine motors with a variety of pumps (pressure balanced and fixed clearance) and reservoirs (plastic and steel; cylindrical and rectangular). A unit can individually control up to four (4) hydraulic cylinders. The core of the system consists of an adapter with alternative shapes and variable assembly directions.

Motors: DC Operation: Series and Compound Wound motors (12 V and 24 V). Efficient with long service life, and low power consumption. AC Operation: Flanges for AC motors permit the use of standard high efficiency single or 3 phase motors (115V, 230V, and 460V).

Adapters: All HE2000 units are equipped with the same adapter size.

Pumps: Pressure-balanced W Series (.010 to .348 in³ per rev.) and fixed clearance GC

Series (.065 to .388 in³ per rev.) gear pumps are extremely efficient, with low noise.

Start Switches: 12 VDC and 24 VDC, 3-pole and 4-pole, standard duty and heavy duty; 1 & 3 PH, 115/230/460 VAC start switches with high IP protection class and silver-plated contacts meet tough demands for a long service life.

Relief Valves: Cartridge-style relief valves meet tough demands for dependability and life expectancy.

Flow Controls: A built-in pressure-compensated flow regulator can be added, providing pressure compensated lowering speed between 1 and 4 gpm regardless of load.

Reservoirs: The standard unit is equipped with a translucent plastic reservoir with 0.13 to 1.05 gallon usable volume or a steel reservoir with 0.18 to 4 gallon usable volume.

Valves: Screw-in cartridge valves with a standard cavity are available in 2-way/2-position, 3-way/2-position, 3-way/3-position or 4-way/2-position versions. Cetop 2, Cetop 3, and additional cartridge valve blocks are available for up to 4 individual functions. A high performance cartridge check valve is standard.

Fluids: Most premium grade petroleum based fluids can be used. Optimum operating viscosity range is 80-288 SSU. Minimum recommended viscosity is 66 SSU. Maximum recommended viscosity is 3600 SSU. Permissible cold start viscosity is 9000 SSU.

Temperatures: Minimum recommended temperature is -13°F. Maximum recommended temperature is 175°F.

Fluid Cleanliness: ISO 4406 Cleanliness level 18/14 or better is recommended.

Assembly Kits: page 488

Model Codes: page 742

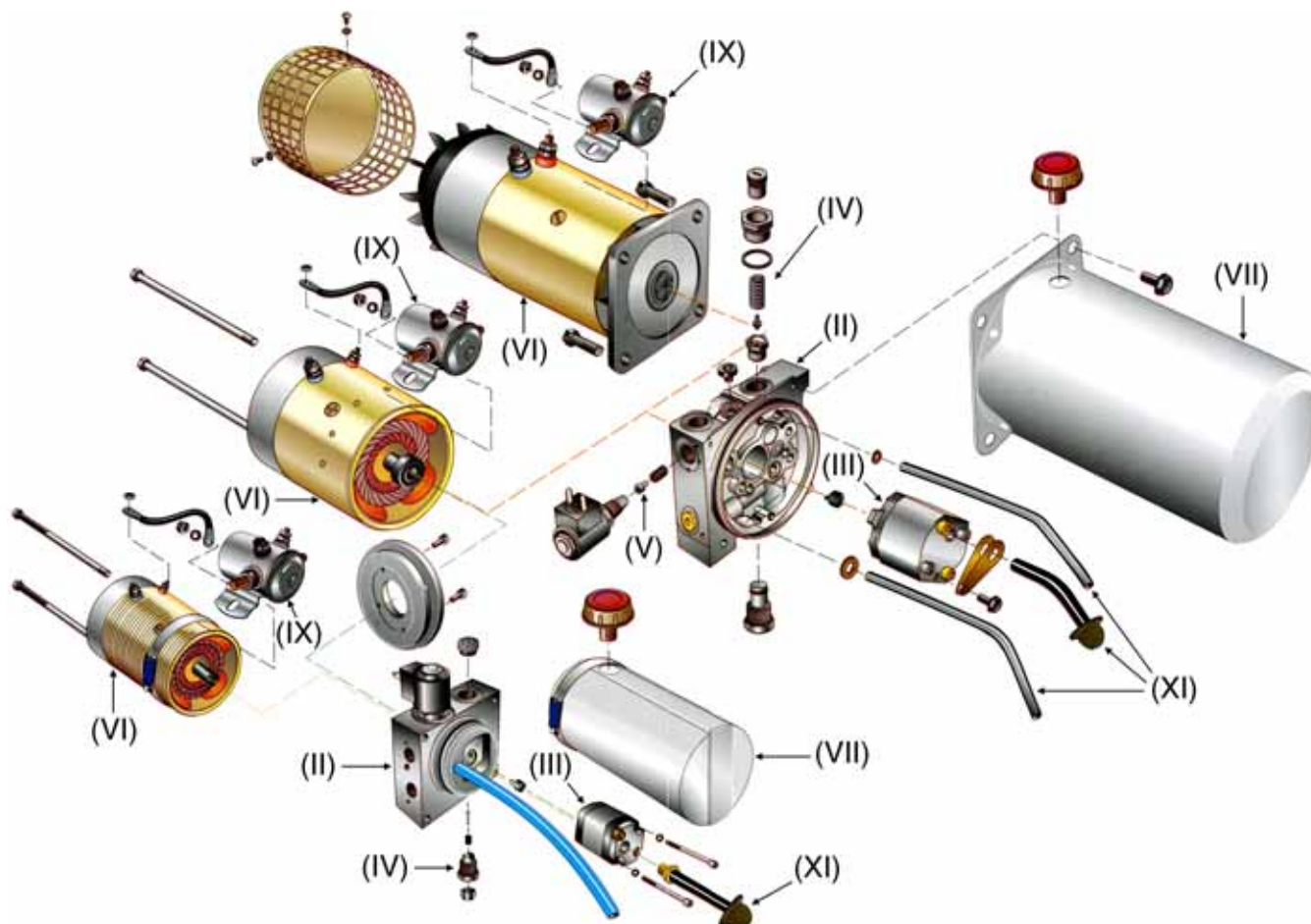
Technical Information: page 747

Power Units & Accessories

Hydraulic Power Units



Concentric AB HE2000 Series Kits (AC & DC)



Note: These kits may be used to repair or modify existing HE2000 Series power units, or may be used to build custom HE2000 Series power units. The Model Code is a useful tool for kit selection for custom units.

Model Codes: page 742

Technical Information: page 747

Concentric AB HE2000 Series Kits (AC & DC)

Catalog Part No.	Concentric AB Part No.	Key	Description	Wt.	Price Each
C1JD34	1303649	(II)	Adapter (Schematics BA, CA, BB, CB, BE, CE)	2.72	
C1JC13	1303650	(II)	Adapter (Schematics BF, BH, CF, BJ, CJ, BR, CR, BS, DA, DB, DC, DM, AM)	2.69	
C1HC95	1303549	(II)	AC Motor Adapter	0.81	
• C1AK22	1300191	(II)	Port Plug	0.25	
• C1HY62	1303534	(II)	Solenoid Release Valve	0.22	
C1AK17	1300174	(III)	Pump Kit, GC Series, 0.065 in ³ displacement (1.06 cc)	0.80	
C1EL76	1300176	(III)	Pump Kit, GC Series, 0.097 in ³ displacement (1.59 cc)	3.78	
C1AK15	1300171	(III)	Pump Kit, GC Series, 0.129 in ³ displacement (2.12 cc)	3.78	
C1AK16	1300172	(III)	Pump Kit, GC Series, 0.259 in ³ displacement (4.24 cc)	3.78	
C1HW31	1303661	(IV)	Relief Valve, 1500-2500 PSI Range	0.22	
C1AJ93	1300027	(VI)	Motor, 12VDC, Single Terminal, Standard Duty	16.09	
C1EL81	1300618	(VI)	Motor, 12VDC, Double Terminal, Medium Duty	15.56	
• C1AK27	1300619	(VI)	Motor, 24VDC, Double Terminal, Medium Duty	16.98	



Power Units & Accessories

Hydraulic Power Units



Concentric AB HE2000 Series Kits (AC & DC)

Catalog Part No.	Concentric AB Part No.	Key	Description	Wt.	Price Each
C1MN23	1300899	(VII)	Reservoir, Steel, 2 Quart	0.67	
C1HW29	1300908	(VII)	Reservoir, Steel, 2.5 Gallon Rectangular	7.35	
•C1HY58	1300939	(IX)	Start Switch, 12VDC, 3-Pole	0.85	
C1HW30	1300937	(IX)	Start Switch, 12VDC, 4-Pole, UL Recognized	0.98	
C1HY57	1300938	(IX)	Start Switch, 24VDC, 4-Pole, UL Recognized	0.96	
C1MN24	1300943	(XI)	Tube Kit for Steel, Horizontal, 1QT Reservoir, W Pumps, Pad "A" Down		
C1HW28	1300878	(XI)	Tube Kit for Steel, Vertical, 3QT Reservoir, GC/W Pumps	6.06	
•C1GG44	1303570	(XIV)	Pendant, DC, Double-Acting	0.90	
•C1JD78	2380322	(XIV)	Pendant, Double-Acting for 4-Way 3-Position Valve	1.05	
C1KZ20	2330004	(XV)	Terminal Strap, #5 AWG Stranded Battery Cable, Neoprene insulation, 7.5" lug to lug	0.10	

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Concentric AB 12VDC Motor & Pump Assemblies



Applications: Tailgate Lifts • Lift Trucks • Farm Implements • Portable Towers • Truck Power Gates • Telescopic Ladders • Personnel Lifts • Small Dump Trucks

Motor: 12 Volt Series Wound DC motor close coupled to the pump with Oldham coupling to eliminate mis-alignment.

Start Switch: Weather resistant solenoid switch.

Pump: Haldex Barnes GC Series gear pump. Cast iron construction. Contains check valve, relief valve and cavity (SAE plug) for optional solenoid release valve.

Ports: Straight Thread O-Ring. 3/4-16 Inlet. 9/16-18 Outlet.

Concentric AB 12VDC Motor & Pump • Assemblies

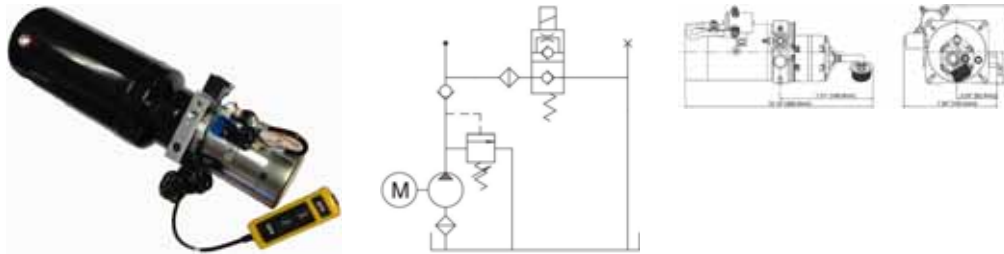
Catalog Part No.	Concentric AB Part No.	Motor	Motor Start Switch	GPM @ 500 PSI	GPM @ 2000 PSI	Amps @ 500 PSI	Amps @ 2000 PSI	Relief Valve Setting	Other Features	Wt.	Price Each
•C1AK26	1300382	12VDC Single Terminal Std Duty	Case (Internal) Grounded	2.10	1.00	100	160	2000 PSI		26.26	

Factory Assembled DC Power Units

STONE

SPX Stone DC Hydraulic Power Units are ideal for applications such as fork lifts, aerial ladders, cement truck chute control, tailgate lifts, snowplows, agricultural and material handling equipment and wheelchair lifts. They can be used anywhere DC electrical power is available. These DC Power Packs incorporate the same technological innovations that make our AC units the most reliable in the industry.

12VDC Solenoid Operated Power Up/Gravity Down DC-20SF Series (Single Acting Cylinder Applications)



This unit is for power up-hold-gravity down applications. The remote controller allows an operator to power up & gravity down the unit. In the off position, the unit holds steady. The unit features an adjustable relief valve, cartridge hold & lower valves, allowing for easy field service & interchangeability. A pressure compensated flow control for lower function is optional.

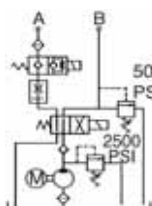
Catalog Part No.	Stone Model Number	Motor	Motor Start Switch	GPM @ 500 PSI	GPM @ 2000 PSI	Amps @ 500 PSI	Amps @ 2000 PSI	Relief Valve Setting PSI	Reservoir Capacity	Wt.	Price Each
C1LZ78	DC20SF	12V DC 1 Terminal Std. Duty Corrosion Resistant Plate Finish	Case (Internal) Grounded	2.2	1.3	120	235	2500	sold separate	26.85	
C1KV83	DC20SF-BOM	12V DC 1 Terminal Std. Duty Corrosion Resistant Plate Finish	Case (Internal) Grounded	2.2	1.3	120	235	2500	2 Gallons	34.00	

Reservoirs: page 494

Power Units & Accessories

Hydraulic Power Units

12V DC Solenoid Operated Power Up/Power Down Stone® DT41DT Series (Double Acting Cylinder Applications)



Catalog Part No.	Stone Model Number	Motor	Motor Start Switch	GPM @ 500 PSI	GPM @ 2000 PSI	Amps @ 500 PSI	Amps @ 2000 PSI	Relief Valve Setting PSI	Reservoir Capacity	Wt.	Price Each
•C1MM66	DC41DTC2015S25	12V DC 1 Terminal Std Duty Motor	12VDC Int Duty Start Solenoid	2	1.1	125	270	2500	1.5 Gallon Steel	40.00	



Power Units & Accessories

Hydraulic Power Units



AC & DC Power Units to 5 HP Stone® Pick-A-Pack Power Units



Pick-A-Pack: The Stone Pick-A-Pack product range is based on a system of modular construction which was pioneered by Stone Hydraulics when the company was founded in 1968. This concept and the components utilized have been continuously refined and improved through the years. Today, Stone applies the most advanced manufacturing technologies and the highest quality materials and components available to provide this unique and extremely flexible product range.

Pump, Motor, Reservoir, and Valve Selection: All of the components in the Pick-A-Pack product range are designed to be interchangeable with mating components. All components are modular in design and the "international" endhead is the key component of this interchangeable system. Any desired combination of drive motor, pump, reservoir, and control valving can be either assembled into or manifolded onto this endhead. This is available in three configurations, with either NPTF, SAE or G3/8 porting.

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SPX
HYDRAULIC TECHNOLOGIES

SPX Stone AC & DC Power Units

STONE

PICK-A-PACK

Motor/Motor Adaptor	Pump	Endhead	Integral Valving	Reservoir/Plumbing	Manifold Valves	Electrical Accessories
KM KMC KMD KMP	KP KU	KN	KC KFC	KR KH KV	KB KDVC	KG KS
 3" DC Motors 4.5" DC Motors High Power DC Motors Nema C AC Motors Customer Supplied AC Motors Adaptors	 Pumps Hi-LO Pumps Unload Valve Assembly	 Metric Footmounts with SAE or BSPP Ports UNC Footmounts with SAE or NPT Ports	 Relief Valve-Only Kit Relief and Check Valve Kit Relief, Check, Manual NC Valve Kit Relief, Check, 12VDC, 24VDC, 115VAC, 230VAC Solenoid NC Valve Kit Flow Control	 Steel Reservoir 4.75" (120mm) Diameter Steel Reservoir 6.7" (170mm) Offset Plastic Reservoir 5.0" (127 mm) Square Plastic Reservoir 6.7" (170 mm) Offset Industrial Reservoir Vertical Inlet Plumbing Horizontal Inlet Plumbing	 D03 Cstop Valve Adapter Manifold Cartridge Valves Manifold Valve Blocks	 Cord Set Options - Power Up, Gravity Down - Power Up, Power Down (1) Solenoid - Power Up, Power Down (2) Solenoids 12 & 24VDC Start Solenoids

Motors: AC Motors are continuous duty but cannot be used above their rated kilowatts, regardless of duty cycle and must have full voltage to achieve rated kilowatts.

Pumps: Current Endhead Design uses 5/16-24 mounting thread. Older Endhead Design used M8 mounting thread. Pump Kits include both imperial and metric mounting bolts and washers. Mounting bolts are grade 5. Do Not Substitute.

Integral Valves: Valve kits include 4 color-coded relief springs as follows: Blue (300-599 PSI), Green (600-1299 PSI), Red (1300-1999 PSI), and Black (2000-4199 PSI).

Reservoirs: Mounting Foot included on 1.5 gallon and larger reservoirs.

Plumbing Kits: Used larger suction strainer, part number 1413-AA for pump flows over 3 GPM.

SPX Stone AC & DC Power Units

Catalog Part No.	Stone Model Number		Wt.	Price Each
•C1MM68	KMD1	MOTOR, 4.5" Field Wound, 12 VDC, Standard Duty, not UL Recognized	17.00	
C1MW64	KMD3	MOTOR, 4.5" Field Wound, 12 VDC, Standard Duty, UL Recognized		
C1MW65	KMD5	MOTOR, 4.5" Field Wound, 24 VDC, Standard Duty, UL Recognized		
C1MW66	KM09	MOTOR, 3.0", 24VDC, 800W, UL Recognized		
C1MW67	KMC17	MOTOR, 2 HP, 3450 RPM, 1 Ph, 115/230V 60Hz	41.00	
C1KW27	KMC23	MOTOR, 1 HP, 1725 RPM, 1 Ph, 115/230V 60Hz	35.30	
C1MW68	KM97	MOTOR Adapter, 56/143/145 NEMA C Face	5.00	
C1MW69	KP08	PUMP Kit, 0.049 in ³ /rev, 2.25" long, 5000 RPM max., 5000 PSI max., includes mounting bolts.		
C1KW29	KP12	PUMP Kit, 0.073 in ³ /rev, 2.32" long, 5000 RPM max., 5000 PSI max., includes mounting bolts.	2.40	



Power Units & Accessories

Hydraulic Power Units



SPX Stone AC & DC Power Units

Catalog Part No.	Stone Model Number		Wt.	Price Each
C1MW70	KP20	PUMP Kit, 0.122 in ³ /rev, 2.44" long, 4000 RPM max., 5000 PSI max., includes mounting bolts.		
C1MW71	KP25	PUMP Kit, 0.153 in ³ /rev, 2.52" long, 4000 RPM max., 4600 PSI max., includes mounting bolts.		
C1MW72	KN11	ENDHEAD, UNC Footmounts, NPT Ports		
C1KW28	KN12	ENDHEAD, UNC Footmounts, SAE Ports. This Endhead cannot be used with manifold valves.	4.00	
C1MW73	KC01J	INTEGRAL VALVING: Relief, Check, Solenoid Release Valve kit, DIN/Hirschmann Connector Style.		
C1MW74	KC03	INTEGRAL VALVING: Relief, Check, Manual Release Valve kit Direct Acting.		
C1KW25	KC08	INTEGRAL VALVING: Relief Valve kit.	0.50	
C1MW76	KR14	RESERVOIR: 3 Quart Nom. Cap., 4.75" Dia. Round Steel, 12" long, 138 in ³ /rev useable oil capacity vertical, 135 in ³ /rev useable oil capacity horizontal.		
C1MW77	KR24	RESERVOIR: 3 Quart Nom. Cap., 5" Dia. Square Plastic, 11" long, 138 in ³ /rev useable oil capacity vertical, 130 in ³ /rev useable oil capacity horizontal.		
C1KW30	KR40	RESERVOIR: 1 Gal. Nom. Cap., 6.7" Dia. Transition Style Steel, 7.88" long, 100 in ³ /rev useable oil capacity vertical, 170 in ³ /rev useable oil capacity horizontal.	2.69	
•C1ML38	KR41	RESERVOIR: 1.5 Gal. Nom. Cap., 6.7" Dia. Transition Style Steel, 11.81" long, 220 in ³ /rev useable oil capacity vertical, 270 in ³ /rev useable oil capacity horizontal.		
C1KY62	KR42	RESERVOIR: 2 Gal. Nom. Cap., 6.7" Dia. Transition Style Steel, 15.75" long, 340 in ³ /rev useable oil capacity vertical, 360 in ³ /rev useable oil capacity horizontal.	1.20	
C1ML39	KR46	RESERVOIR: 2.5 Gal. Nom. Cap., 6.7" Dia. Transition Style Steel, 17.00" long, 380 in ³ /rev useable oil capacity vertical, 390 in ³ /rev useable oil capacity horizontal.	2.30	
C1KW26	KH	PLUMBING KIT: for Horizontal Mounting.	0.40	
C1MW78	KV	PLUMBING KIT: for Vertical Mounting.		
C1LX18	3383-AA	PLUMBING KIT: Return Tube for Vertical Mounted Reservoirs. Use with Brass Nut and Sleeve, 816-217 and 816-218.		
C1LX52	816-217	PLUMBING KIT: Return Tube Brass Nut for Vertical Mounted Reservoir. Use with 816-218 and 3383-AA.	0.02	
C1LX53	816-218	PLUMBING KIT: Return Tube Brass Sleeve for Vertical Mounted Reservoir. Use with 816-217 and 3383-AA.		
•C1LW80	1683-AB	RESERVOIRS: replacement Breather Cap for 1.5 gallon reservoir and larger.	0.04	
C1MW79	KB11	MANIFOLD VALVES: Single manifold block for D03 CETOP Valve/SAE Ports. Kit includes all seals and mounting hardware. CETOP valve NOT included. Use M5 thread mounting bolts for valve.		
C1MW80	KS1	ELECTRICAL ACCESSORIES: Intermittent Duty Start Solenoid, 12 VDC, not UL Recognized.		
C1MW75	KS4	ELECTRICAL ACCESSORIES: Intermittent Duty Start Solenoid, 24 VDC, UL Recognized.		
C1MW82	K-104	ELECTRICAL ACCESSORIES: Mounting Kit for KS* Start Solenoids on 3" motors.		
•C1MW81	KG11	ELECTRICAL ACCESSORIES: Control Handset for Single-Acting Unit		
•C1LC56	KG12	ELECTRICAL ACCESSORIES: Control Handset for Double-Acting Unit		

Note: Stone uses a network of qualified suppliers to ensure availability. There are minor dimensional and cosmetic differences between vendor's products.

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Power Units & Accessories

Hydraulic Power Units



Eaton Vickers® AC Single & 3-Phase Standard Power Units



5 to 6 weeks factory delivery on most units. Eaton pays freight, using carrier of Eaton's choice, to destinations in the lower 48 states for standard units off the configurator, not for modified units. Subject to change.

Standard Features: Continuous-duty rated electric motors • Aeroquip® hose & fittings • Lift-off tops • Close-coupled pump & motor • Standard relief valve, pressure gauge, temperature gauge.

Optional Features: Cutler-Hammer motor starters, disconnects and panels • Flanges and unions • Needle valves • Angle and globe valves • Heat exchangers (air & water) • Pressure gauges • Vacuum and pressure switches • Accumulators • High-efficiency filtration.

Eaton Vickers® Standard Power Units (Non-Stock)

Eaton Vickers® Standard Power Units (Non-Stock)

Catalog Part No.	Vickers Model	Description	Wt.	Price Each
N/A	Value-Pak®	5 to 30 gal reservoir • To 10 GPM • 1.5 to 10 HP • To 3,000 PSI • Series 26 gear pump • Spin-on return filter • Manifold option for (1) D03 valve station • Optional motor starter		
N/A	System-Pak® II	3 to 30 gal reservoir • To 10 gpm • .75 to 10 HP • To 3,000 PSI • Multiple pump options • Spin-on return filter • Leak-free design • Remote pressure control adjustment • Manifold options for up to (8) D03 valve stations • Optional motor starter		
N/A	System-Pak® Plus	20 to 60 gal reservoir • To 21 GPM • 7.5 to 30 HP • To 3,000 PSI • Multiple pump options • Spin-on return filter • Leak-free design • Remote pressure control adjustment • Manifold options for up to (6) D03 or D05 valve stations • Optional motor starter		
N/A	Profile-Pak	5 to 60 gal reservoir • To 21 GPM • .75 to 30 HP • To 3,000 PSI • Multiple pump options • Modular manifold block • Leak-free design • Remote pressure control adjustment • Optional motor starter		
N/A	System-Center®	10 to 150 gal reservoir • To 57 GPM • .75 to 50 HP • To 3,625 PSI • Multiple pump options • Manifold options for (8) D03, (8) D05 or (4) D08 valve stations • Optional motor starter		
N/A	System-L Series	10 to 100 gal reservoir • To 57 GPM • .75 to 50 HP • To 3,625 PSI • Flooded pump inlet • Multiple pump options • Manifold options for (8) D03, (8) D05 or (4) D08 valve stations • Optional motor starter		
N/A	System-Overhead	30 to 100 gal reservoir • To 57 GPM • .75 to 50 HP • To 3,625 PSI • Flooded pump inlet • Multiple pump options • Manifold options for (8) D03, (8) D05 or (4) D08 valve stations • Suction strainer • Optional motor starter		
N/A	Silent Tank System	60 to 100 gal reservoir • To 25 GPM • 10 to 60 HP • To 4,250 PSI • The world's quietest hydraulic power system • Vane or piston pump • Noise levels as low as 65 dBa • (8) D03 or D05 valve stations • Optional motor starter		
N/A	Integrated Motor Pump	To 125 GPM • 10 to 60 HP • To 4,250 PSI • Noise levels as low as 65 dBa • Economical substitute for traditional motor/pump. especially in higher horsepowers • Multiple pump options • Optional motor starter		

Note: These power units are NOT kept in stock. 5-6 weeks factory delivery on most units. Eaton pays freight, using carrier of Eaton's choice, to destinations in the lower 48 states for standard units off the configurator, not for modified units. Subject to change.



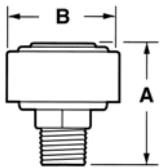
Power Units & Accessories

Power Unit Accessories Breathers, Filler-Breathers

Breathers



These units provide a filtered breathing port for hydraulic reservoirs. Can be removed for filling.



Breathers

Catalog Part No.	Mfg. Model	Mfg. Name	Pipe Thread	Construction	Rating	A (in)	B (in)	Wt.	Price Each
•C1CL65	BF-2043	Flow Ezy	3/4 NPT	Nylon base, 40 micron	25 SCFM	3.00	2.56	0.18	
•C1KH51	SMBT-80-S-40-0-N	Stauff	3/4 NPT	Chrome-plated Steel, 40 micron	26 SCFM	2.64	3.15	0.58	

Hydraulic Power & Control

Pneumatic Power & Control

Fluid Conveying

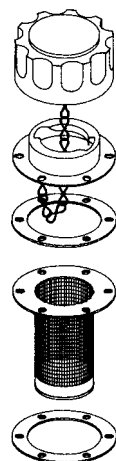
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Power Units & Accessories

Power Unit Accessories Breathers, Filler-Breathers

Filler-Breathers



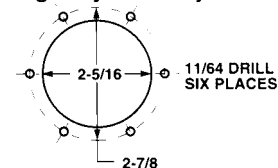
Filler
Cap

Flange

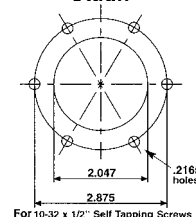
Screen

These units provide a filler and breathing port for hydraulic reservoirs. The screen keeps larger debris from entering reservoir and the breather cap filters the air. Mounting hardware, gaskets and template are included.

Magnaloy & Flo Ezy



Stauff



For 10-32 x 1/2" Self Tapping Screws

Filler-Breathers

Catalog Part No.	Mfg. Model	Mfg. Name	Filler Cap	Screen	Options	Wt.	Price Each
•C1KN33	SMBB80CS0100CS08	Stauff	16 SCFM, Chrome Plated Steel, 10 Micron	3.15 in. Metal basket	without pressurisation	0.81	
C1ML65	SMBB80CN040CS095	Stauff	16 SCFM, Chrome Plated Steel, 40 Micron	3.74 in. Plastic basket	without pressurisation	0.80	
•C1ML66	SMBB80CS0100CP10	Stauff	16 SCFM, Chrome Plated Steel, 10 Micron	3.94 in. Plastic basket	without pressurisation	0.99	
C1KN34	SMBB80S0100CS150	Stauff	16 SCFM, Zinc/Nickel Plated Steel, 10 Micron	5.91 in. Metal basket	without pressurisation	1.07	
•C1NC68	SMBB80CS0100CS15	Stauff	16 SCFM, Chrome Plated Steel, 10 Micron	5.91 in. Metal basket	without pressurisation	1.07	

Parts and Accessories for Filler-Breathers

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1JE42	FBR-035	Saint Machinery Weld Riser, 3-1/2" OD x 1" High. Raises filler/breather above the reservoir surface.	0.42	

Power Unit Accessories Breathers, Filler-Breathers

Vickers® Mobile Gate Breathers & Filler Breathers



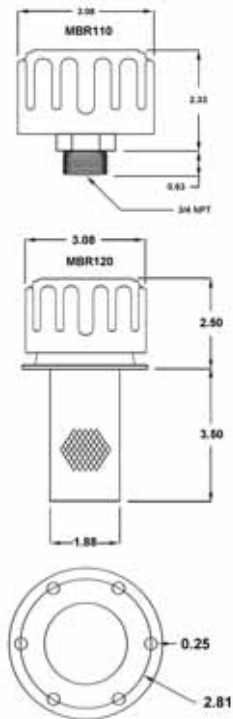
Eaton Mobile-gate™ Breather Assemblies provide low cost, high efficiency protection against airborne moisture and particulate contamination. Patented technology eliminates moisture condensation in hydraulic system reservoirs. Moisture is prevented from entering and is actually “pumped” out with each flow cycle. The media regenerates its water holding capacity with every oil return phase, ensuring long service life.

Features/Benefits: Proprietary Media: Reduces dew point temperature to prevent condensation and is 99.7% efficient in blocking particles 10 μ and larger • Water Regeneration: Regenerates its water holding capacity with each cycle • Reversible Flow Through Media: Allows for moisture to exit the reservoir • Easy Installation: Lightweight design; only needs to be hand tightened • Rugged Housing: Protects the media from external splashing.

Performs as a gate: During the “inhalation” cycle, the Mobile-gate proprietary media blocks the water vapor from entering the reservoir. During the “exhalation” cycle, the media allows the moisture in the reservoir air to exit. The moisture is carried off the media by the exiting air, restoring the media’s water barrier capacity, and the moisture barrier mechanism is not affected by the amount of exposure to moisture. The reservoir air is maintained at a low relative humidity, and more importantly, at a lower dew point temperature than the ambient temperature.

Works even when the system is shut down: The Mobile-gate Vent Breather retards the vapor equilibrium process and works to prevent condensation even after the system is shut and cooled down, such as overnight. The dewpoint is slow to climb, even after the system temperature has dropped to the ambient temperature. Once the system has reached ambient temperature, condensation does not occur.

Reduces humidity inside reservoir: The Mobile-gate Vent Breather lowers and stabilizes the relative humidity of air inside the reservoir, leading to a lower dewpoint ($T_{\text{dewpoint}} < T_{\text{ambient}} = \text{NO CONDENSATION}$) at a rate and amount that will be dependent upon several conditions: the ambient conditions, the internal reservoir heat, amount and frequency of reservoir air flow through the vent, and the temperature of the reservoir surfaces.



Vickers® Mobile Gate Breathers & Filler Breathers

Catalog Part No.	Vickers Part No.	Vickers Model	Description	Wt.	Price Each
•C1HX70	5002487	MBR120	Vickers® Mobile Gate Filler Breather, Tank Mount	0.87	

Power Units & Accessories

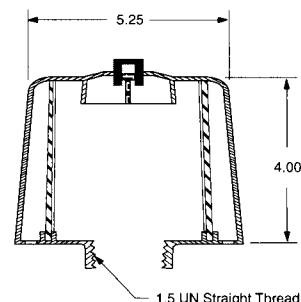
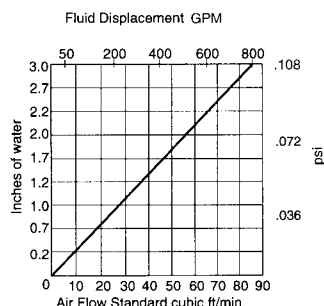
Power Unit Accessories Spin-On Reservoir Vent Filters & Adapters



Vickers® DIRT-Gate Breather Elements



Pressure Drop



DIRT-Gate media is made of a strong graded matrix especially designed for removing airborne contamination. This media is pleated to maximize surface area (high dirt holding capacity) and provides high efficiency at low pressure drop.

Features: Rugged corrosion resistant ABS plastic housing. Visual mechanical indicator that triggers at 1 PSID during exhalation. Easy installation. Lightweight design only requires hand tightening.

Efficiency: 99% at 2 micron.

Temperatures: Up to 250°F.

Note: Mobile systems may actuate the indicator due to vibrations, in which case the element should be changed after 500 hours of operation.

Mounting Adaptors: page 502

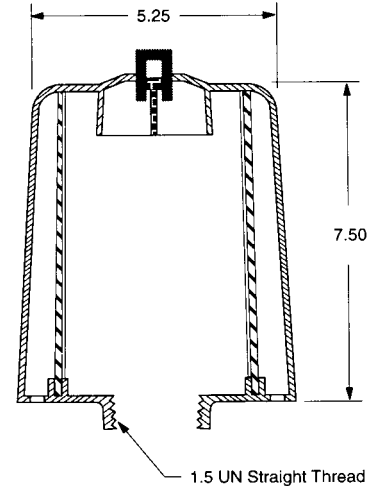
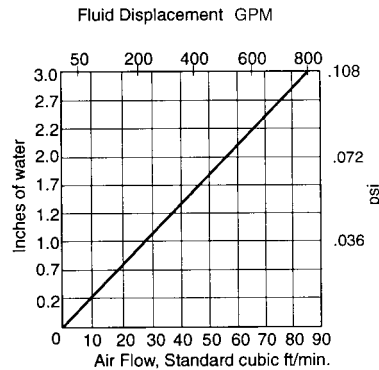
Vickers® DIRT-Gate Breather Elements

Catalog Part No.	Vickers Model	Description	Thread Size	Wt.	Price Each
•C1CL73	BR210	DIRT-Gate Reservoir Vent Filter Element (Requires a mounting adaptor)	1-1/2-16 UN	0.79	

Vickers® H2O-Gate Breather Elements



Pressure Drop



Performs as a Gate. During the inhalation cycle, the H2O-Gate proprietary media blocks the water vapor from entering the reservoir. During the exhalation cycle, the media allows the moisture in the reservoir air to exit. The moisture is blown off the media by the exiting air, restoring the media's water barrier capacity, and the moisture barrier mechanism is not affected by the amount of exposure to moisture. The reservoir air is maintained at a low relative humidity, and more importantly, at a lower dew point temperature than the ambient temperature.

Features: Rugged corrosion resistant ABS plastic housing. Visual mechanical indicator that triggers at 1 PSID during exhalation. Reversible flow-through media allows moisture to exit while filter regenerates its capacity to prevent moisture ingress. Easy installation. Lightweight design only requires hand tightening.

Efficiency: 99% at 2 micron.

Application Note: In an operating system, the H2O-Gate vent breather creates a moisture barrier when there is at least a 5°F difference between reservoir and ambient temperature, and when there is at least a 10% exchange of air volume above the fluid.

Temperatures: Up to 250°F.

Note: Mobile systems may actuate the indicator due to vibrations, in which case the element should be changed after 500 hours of operation.

Mounting Adaptors: page 502

Vickers® H2O-Gate Breather Elements

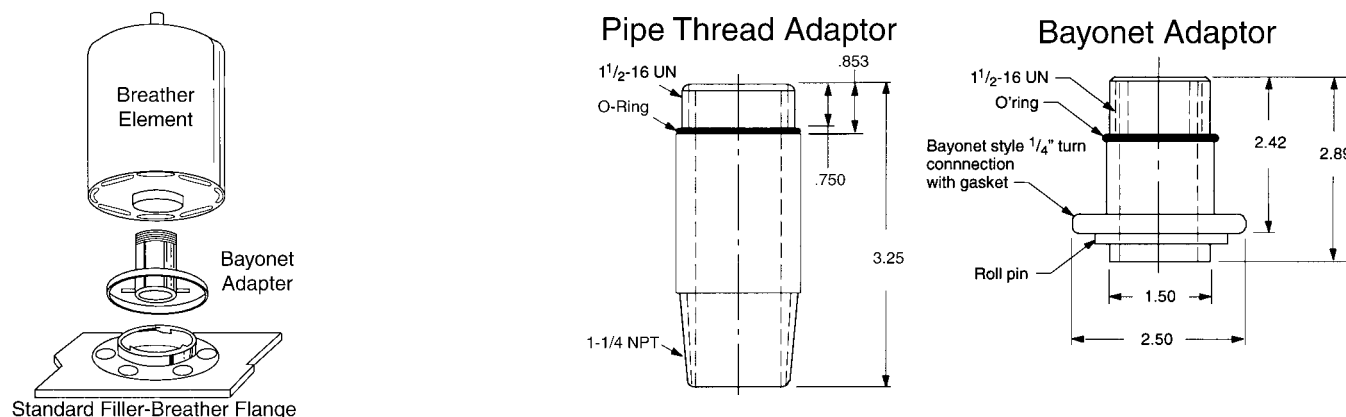
Catalog Part No.	Vickers Model	Description	Thread Size	Wt.	Price Each
•C1CL72	BR110	H2O-Gate Reservoir Vent Filter Element (Requires a mounting adaptor)	1-1/2-16 UN	1.34	

Power Units & Accessories

Power Unit Accessories Spin-On Reservoir Vent Filters & Adapters



Reservoir Adaptors for Spin-On, DIRT-Gate & H20-Gate Elements



Pipe Thread Adaptors: One end screws into breather element and is sealed with an o-ring. Other end screws into pipe thread coupling.

Bayonet Adaptors: One end screws into breather element and is sealed with an o-ring. Other end connects to the mounting flange of a standard filler-breather.

Standard Filler-Breather Mounts: page 498

Reservoir Adaptors for Spin-On, DIRT-Gate & H20-Gate Elements

Catalog Part No.	Vickers Model	Description	Wt.	Price Each
•C1DG11	P-077002	Pipe Thread Adaptor (Mounts to a 1-1/4 NPT coupling)	0.59	
•C1CC41	924710	Bayonet Style Adaptor (Mounts to the mounting flange of a standard filler-breather)	0.66	

Power Unit Accessories Flexible Couplings



Maurey Hi-Q Flexible Couplings



Features: Couplings prevent metal-to-metal contact and compensate for minor angular and center line misalignments. Fast installation. Parts are precision ground and machined and are rust resistant.

Application: Typically used to couple hydraulic pumps to electric motors, but can be used in a wide variety of applications. (Maximum Angular Offset capability is 1°. Maximum Parallel Offset capability is 0.015 inches).

Material: FC050-FC095: Sintered Metal. FC099-FC225: Machined Cast Iron.

Operating Temperature Range: Buna-N Spider: -20°F to 180°F. Urethane Spider: -80°F to 180°F.

Note: Horsepower (HP) Ratings in tables below are based on driving hydraulic pumps (Service Factor of 1.5) at 1800 RPM. For other speeds or applications see tables in Technical Information section.

Dimensions, Max. Speeds, Common Motor Shafts & Technical Information: page 759

Maurey Hi-Q Coupling Spiders (1 required)

Catalog Part No.	Maurey Part No.	Material	Fits Coupling Size(s)	Wt.	Price Each
•C1CL38	B075	Buna-N	FC075	1.00	
•C1CL39	B099	Buna-N	FC099-FC100	0.07	
•C1DM68	U090	Urethane	FC090-FC095	0.03	
•C1DM69	U100	Urethane	FC099-FC100	0.06	
•C1EF92	U110	Urethane	FC110	0.11	

Maurey Hi-Q Coupling Halves (2 required)

Catalog Part No.	Maurey Part No.	Bore (in)	Key (in)	B HP	U HP	Wt.	Price Each
•C1FC39	FC095-1/2-W-1/8K	1/2	1/8	3.2	5.0	0.93	
•C1EP72	FC095-5/8	5/8	3/16	3.2	5.0	0.94	
•C1CQ91	FC095-3/4	3/4	3/16	3.2	5.0	0.90	
•C1CQ90	FC095-1	1	1/4	3.2	5.0	0.82	
•C1EP71	FC095-1-1/8	1-1/8	1/4	3.2	5.0	0.78	
•C1FC41	FC100-1/2	1/2	--	7.2	11.9	1.79	
•C1CQ96	FC100-5/8	5/8	3/16	7.2	11.9	1.70	
•C1CQ95	FC100-3/4	3/4	3/16	7.2	11.9	1.50	
•C1CQ97	FC100-7/8	7/8	3/16	7.2	11.9	2.00	
•C1FF19	L100-1	1		7.2	11.9	1.37	
•C1EP74	FC100-1-1/8	1-1/8	1/4	7.2	11.9	1.49	
•C1CQ94	FC100-1-3/8	1-3/8	5/16	7.2	11.9	1.30	
•C1CR12	FC110-3/4	3/4	3/16	13.1	28.8	3.45	
•C1EP79	FC110-7/8	7/8	3/16	13.1	28.8	3.32	
•C1EP77	FC110-1-1/8	1-1/8	1/4	13.1	28.8	3.17	
•C1CR11	FC110-1-5/8	1-5/8	3/8	13.1	28.8	2.73	

B HP: Horsepower Rating of Buna-N Spider Coupling driving hydraulic pump (SF 1.5) at 1800 RPM.

U HP: Horsepower Rating of Urethane Spider Coupling driving hydraulic pump (SF 1.5) at 1800 RPM.

Power Units & Accessories

Power Unit Accessories Pump/Motor & Pump/Engine Mounts



Horizontal Pump/Motor Mounts (For AC Motors)



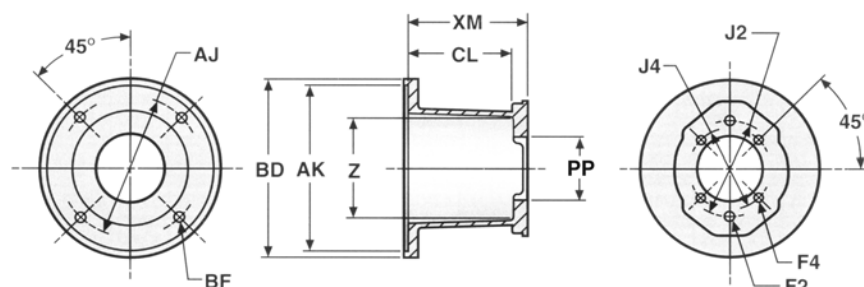
Power Unit design is greatly simplified by using Pump/Motor Mounts to mount flange-mount pumps to C-Face electric motors. Accurate shaft alignment is guaranteed, while foot brackets, coupling guards, shims, risers and mounting plates are eliminated.

Features: Permanent mold casting of lightweight, high strength aluminum alloy. Molded OSHA orange coupling access covers (on models larger than 56C size). Pre-cast drain hole for easy detection of shaft seal leak. Bolt Kits are included with adaptors and contain all necessary hardware to mount adaptor to motor, and pump to adaptor.

Guaranteed Tolerances: Within 0.003 inches concentric from the motor pilot to the pump pilot. Mounting faces are parallel to each other and perpendicular to the pilot centerline within 0.002 inches.

Nema C-Face Motor Dimensions: page 761

Flexible Couplings: page 503



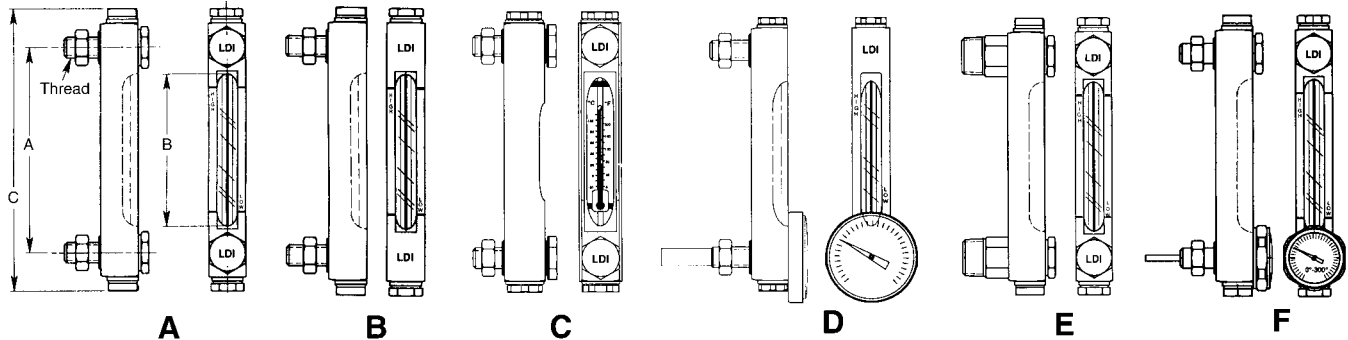
Horizontal Pump/Motor Mounts (For AC Motors)

Catalog Part No.	Magnaloy Model	Pump Flange Size	Motor NEMA Frame Sizes	Face To Face XM (in)	Material	Motor Mounting Dimensions (in)	Mount Dimensions (in)	Pump Mounting Dimensions (in)	Wt.	Price Each
C1EQ81	M056522A	SAE A 2(4) Bolt	56C 143TC/145TC	5.25	Cast Aluminum	AJ=5.88 BF=0.44 BD=6.81 AK=4.501	Z=4.15 XM=5.25 CL=4.56 PP=3.251	J2=4.19 F2=3/8-16 J4=4.12 F4=3/8-16	5.00	
C1EQ84	M182582A	SAE A 2(4) Bolt	182TC - 256TC Range	5.81	Cast Aluminum	AJ=7.25 BF=0.53 BD=9.00 AK=8.501	Z=5.00 XM=5.81 CL=5.06 PP=3.251	J2=4.19 F2=3/8-16 J4=4.12 F4=3/8-16	5.92	
C1EQ85	M182682A	SAE A 2(4) Bolt	182TC - 256TC Range	6.81	Cast Aluminum	AJ=7.25 BF=0.53 BD=9.00 AK=8.501	Z=5.00 XM=6.81 CL=6.06 PP=3.251	J2=4.19 F2=3/8-16 J4=4.12 F4=3/8-16	3.00	

Power Unit Accessories Sight Glasses, Sight Plugs, Magnetic Drain Plugs



Sight Glasses (Reservoir Mounting)



Front Mount Styles (A, C, F): Can be installed from the outside when reservoirs do not have access to the interior and tank wall thickness permits tapping. Can also be installed when there is access to inside the reservoir with furnished nuts. Construction allows 1/16 inch alignment adjustment to facilitate mounting.

Back Mount Styles (B, D): Must have access to the inside of the reservoir to install.

Pipe Thread Mount Style (E): Installed from the outside of reservoir. Threads into pipe couplings welded in reservoir, or into thick wall reservoir tapped for pipe thread. Construction allows 1/16 inch alignment adjustment to facilitate mounting.

Note: If the fluid in the reservoir is red in color, and a sight glass with a Card Type thermometer with red fluid in the thermometer is used, the temperature will not be readable. A Dial Type thermometer would be a better choice. Or a Card Type model with blue fluid may be ordered.

Sight Glasses (Reservoir Mounting)

Catalog Part No.	Stauff Model	Key	Length	Thermometer	Body Material	Seals	Other Features	Thread Size	A (in)	B (in)	C (in)	Wt.	Price Each
•C1ML68	SNA127BSOU1	A	5 inch	None	Black Epoxy-coat ed	Buna-N	Front Mount	1/2-13	5.00	2.99	6.26	0.59	
•C1KH56	SNA254BSOU	A	10 inch	None	Black Epoxy-coat ed metal	Buna-N	Front Mount	1/2-13	10.00	8.00	11.25	0.78	
•C1CX25	G1615-05-A-1	C	5 inch	Card Type, Red Fluid	Aluminum	Buna-N	Front Mount	1/2-20	5.00	3.50	6.63	0.50	
•C1ZS99	SNA127BST12	C	5 inch	Card Type, Red Fluid	Black Epoxy-coat ed metal	Buna-N	Front Mount	12 mm	5.00	2.99	6.25	0.53	

Note: G models are Lube Devices.

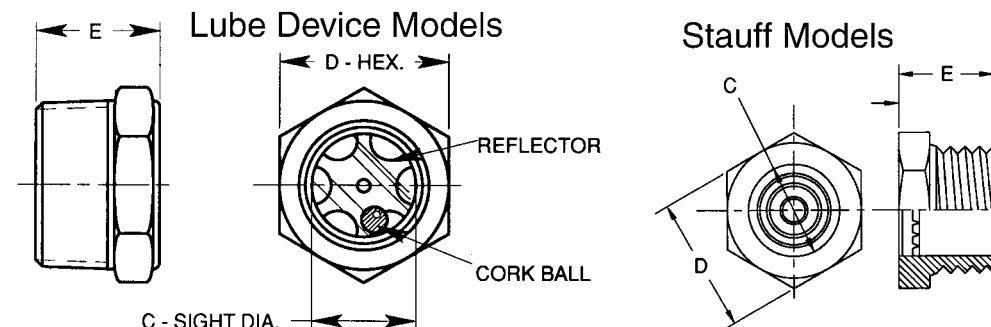
Power Units & Accessories

Power Unit Accessories

Sight Glasses, Sight Plugs, Magnetic Drain Plugs



Sight Plugs



Sight Plugs

Catalog Part No.	Model No.	Mfg. Name	Thread	Material	Reflector	Cork Ball	Temp. Rating	Max. Working Pressure (psi)	C (in)	D (in)	E (in)	Wt.	Price Each
•C1KH47	SLW-08	Stauff	1/2 NPT	Nickel Plated Steel Body, Clear Glass Lens	No	No	500°F	3500 PSI		0.56	0.78	0.07	
•C1ZX60	LSP151-05-02	Lube Devices	3/4 NPT	Brass Body, Buna-N Seals, Stainless & Aluminum Reflector	Yes	Yes		10 PSI	0.75	1.12 5	1.00	0.11	
•C1DD30	LSP51-5	Lube Devices	3/4 NPT	Electroless Nickel Plated Steel Body	No	No	500°F	1500 PSI @ 69°F	0.75	1.06	0.94	0.20	



Hydraulic System Accessories

Accumulators & Accessories

3000 PSI Bottom-Repairable Accumulators Accumulators Inc Type S3



Features: Bottom repairable style. Design factors exceed the requirements of all standard codes. Each vessel individually tested and registered. Integrated pressure relief design. Cannot be disassembled under pressure.

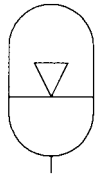
Application: Uses include supplementing pump flow, reduction of installed power, providing a standby source of fluid energy, shock absorption and surge dampening.

CAUTION: Precharge with dry nitrogen gas only. Never operate accumulator without proper precharge. Release all system pressure and stored pressure before attempting any maintenance or service.

Maximum Operating Pressure: 3000 PSI.

Operating Temperature Range: Buna-N Bladder: 35°F to 160°F (Optimal Range). -10°F to 210°F (Peak Range).

Accumulator Sizing Information: page 1488



3000 PSI Bottom-Repairable Accumulators • Accumulators Inc Type S3

Catalog Part No.	Accumulators Inc. Model	Size	Fluid Port	Shell Material	Bladder Material	Length (in)	O.D. (in)	Wt.	Price Each
C1CG97	A1QT3100-3	1 Quart	SAE-12	Standard	Buna-N	11.40	4.50	9.50	
C1CG96	A13100-3	1 Gallon	SAE-20	Standard	Buna-N	17.00	6.70	33.81	

Standard Shell Material: Chrome-moly steel, SA-372 Type V Grade 1 Class B.

Parts for Accumulators Inc. Type S3 3000 PSI Bottom-Repairable Accumulators

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1CH65	AI-1-3KT	Bladder Kit, 1 Gallon, Buna-N. Includes Bladder & Gas Valve Assy, O-Ring and Metal O-Ring Backup.	0.25	
C1CH68	AI-2.5-3KT	Bladder Kit, 2-1/2 Gallon, Buna-N. Includes Bladder & Gas Valve Assy, O-Ring and Metal O-Ring Backup.	2.00	
C1CH69	AI-5-3KT	Bladder Kit, 5 Gallon, Buna-N. Includes Bladder & Gas Valve Assy, O-Ring and Metal O-Ring Backup.	3.33	
C1CH66	AI-10-3KT	Bladder Kit, 10 Gallon, Buna-N. Includes Bladder & Gas Valve Assy, O-Ring and Metal O-Ring Backup.	3.00	
C1NA54	AI-CG-002	Air Chuck (Gas Charging Valve)		
C1CH73	AI-S-305	Gas Valve Hex Jam Nut for sizes 1-15 Gallon	0.10	

Hydraulic System Accessories

Accumulators & Accessories

Accumulator Charging and Gauging Assemblies



Warning: Use dry nitrogen gas ONLY.

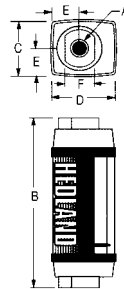
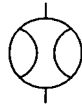
Pre-Charging Instructions: (A) Remove gas valve guard (protective cap) and valve cap. (B) Fill accumulator approximately 10% full with system fluid through fluid port for a cushion. (C) Install recommended Gas Charging Assembly on the gas valve stem at top of unit. (D) Pre-Charge very slowly up to 25 PSIG using dry nitrogen gas only. A gas regulator is recommended. **WARNING:** Initial pre-charging at a rate above 25 PSIG can cause bladder to burst. (E) Continue pre-charging to desired pressure by increasing nitrogen flow. (F) Remove charging assembly, replace valve cap and guard.

Accumulator Charging and Gauging Assemblies

Catalog Part No.	Accumulators Inc. Model	Description	Wt.	Price Each
•C1JA44	AI-CG3-3KT-SS	Charging & Gauging Assembly for 3000 PSI Accumulators. Contains all items pictured.	2.31	

Flow Meters

Flow Meters For Petroleum Fluids



Features: Accuracy $\pm 2\%$ full scale. Repeatability $\pm 1\%$. Can be installed in any position and outer housing can be rotated 360° for easy reading.

Application: Used as a visual indicator of flow rate in hydraulic systems. Can be installed temporarily or permanently. Standard models do not tolerate reverse flow. A Reverse Flow Option is available for aluminum and stainless steel models. (Flow measured in one direction only).

Materials: Body available in anodized aluminum, brass or stainless steel. Piston & cone is anodized aluminum in aluminum and stainless models, brass in brass models. Stainless steel spider plate, spring and fasteners. Carbon steel retaining ring and retaining spring. Polycarbonate guard. Aluminum scale support. Nylon end caps. Viton® pressure seals. Buna-N guard seal and bumper.

Operating Temperature Range: -20°F to 240°F.

Flow Meters For Petroleum Fluids

Catalog Part No.	Hedland Model	Size	Ports	Flow Range (GPM)	Body Material	Maximum Operating Pressure (psi)	100% Flow Pressure Drop (psi)	B (in)	C (in)	D (in)	Wt.	Price Each
•C1BW31	601-015	1/2	1/2-14 NPT	1 to 15	Aluminum	3500	18.5	6.60	2.07	2.40	0.50	
•C1BY55	701-030	3/4	3/4-14 NPT	3 to 30	Aluminum	3500	16.5	7.20	2.48	2.85	1.62	
C1CA30	801-150	1-1/4	1-1/4-11-1/2 NPT	10 to 150	Aluminum	3500	27.5	12.20	4.12	4.72	5.00	

Hydraulic System Accessories

Gauges - Brass/PowerFlex™ Movements, Brass Connection



Window: Ashcroft Models: Polycarbonate.

Male Connection: Ashcroft 1005/1005S Models: Brass, 0.013" throttle plug (1000 PSI and above). Ashcroft 1008 A/AL Models: Brass, 0.013" throttle plug (except vacuum & 15 PSI models).

Bourdon Tube: Ashcroft 1005/1005S Models: C-shaped bronze (vacuum to 600 PSI & compound models), helical bronze (1000-6000 PSI). Ashcroft 1008 A/AL Models: C-shaped bronze (vacuum to 600 PSI & compound models), helical bronze (1000-6000 PSI), helical stainless steel (10,000-15,000 PSI).

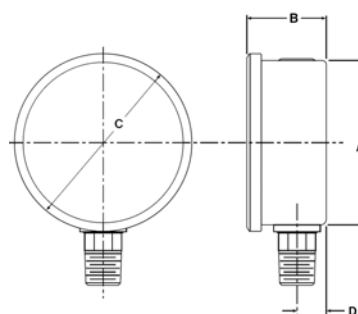
Movement: Patented PowerFlex™ movement with polyester segment.

Operating Pressures: Ashcroft recommendation: Normal operating pressure be confined to 25%-75% of the scale. If pulsation is present in the process, maximum operating gauge pressure should not exceed 50% of the full-scale range.

Accuracies: Ashcroft Models: ± 3 -2-3% of span (± 3 % over first & last quarters of the scale, ± 2 % over the middle half of the scale).

Accessories: Gauge Accessories page 513

Plain Case - Bottom Connection



Plain Case - Bottom Connection

Catalog Part No.	Part Number	Ashcroft Model	Size & Range	Design Type	Male Conn.	Case	Dimensions (in)	Wt.	Price Each
C1ND83	574018	63 1008AL 02L VAC-9814	2.5" 0-30Hg	Liquid Filled	1/4 NPT	304SS	A=2.48 B=1.21 C=2.71 D=0.46	0.49	
C1ND84	574032	63 1008AL 02L 15#/V-9816	2.5" 30Hg-15 PSI	Liquid Filled	1/4 NPT	304SS	A=2.48 B=1.21 C=2.71 D=0.46	0.49	
C1ND85	574056	63 1008AL 02L 30#/V-9818	2.5" 30Hg-30 PSI	Liquid Filled	1/4 NPT	304SS	A=2.48 B=1.21 C=2.71 D=0.46	0.49	
C1ND86	574025	63 1008AL 02L 15#-9815	2.5" 0-15 PSI	Liquid Filled	1/4 NPT	304SS	A=2.48 B=1.21 C=2.71 D=0.46	0.49	
C1ND87	574049	63 1008AL 02L 30#-9817	2.5" 0-30 PSI	Liquid Filled	1/4 NPT	304SS	A=2.48 B=1.21 C=2.71 D=0.46	0.49	
C1KK83	759426272811	63 1008S 02L 2 BAR/0/30 PSI	2.5" 0-30 PSI	Dry	1/4 NPT	304 SS	A=2.48 B=1.21 C=2.71 D=0.46	0.32	
C1ND88	574063	63 1008AL 02L 60#-9819	2.5" 0-60 PSI	Liquid Filled	1/4 NPT	304SS	A=2.48 B=1.21 C=2.71 D=0.46	0.49	
C1ND89	574087	63 1008AL 02L 100#-9820	2.5" 0-100 PSI	Liquid Filled	1/4 NPT	304SS	A=2.48 B=1.21 C=2.71 D=0.46	0.49	
C1ND90	574094	63 1008AL 02L 160#-9821	2.5" 0-160 PSI	Liquid Filled	1/4 NPT	304SS	A=2.48 B=1.21 C=2.71 D=0.46	0.49	
C1JS89	001279	20 1005SH 02L 160#	2" 0-160 PSI	Dry	1/4 NPT	304 SS	A=2.05 B=1.04 C=2.09 D=0.34	0.20	
C1ND91	574100	63 1008AL 02L 200#-9822	2.5" 0-200 PSI	Liquid Filled	1/4 NPT	304SS	A=2.48 B=1.21 C=2.71 D=0.46	0.49	
C1ND92	574124	63 1008AL 02L 300#-9823	2.5" 0-300 PSI	Liquid Filled	1/4 NPT	304SS	A=2.48 B=1.21 C=2.71 D=0.46	0.49	
C1ND93	574131	63 1008AL 02L 600#-9824	2.5" 0-600 PSI	Liquid Filled	1/4 NPT	304SS	A=2.48 B=1.21 C=2.71 D=0.46	0.49	
C1ND94	574292	63 1008AL 02L 1000#-9825	2.5" 0-1,000 PSI	Liquid Filled	1/4 NPT	304SS	A=2.48 B=1.21 C=2.71 D=0.46	0.49	



Hydraulic System Accessories

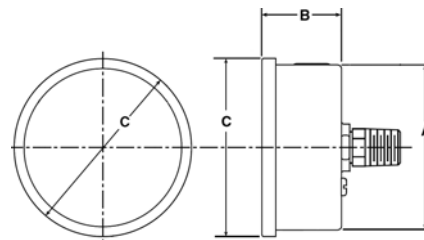
Gauges - Brass/PowerFlex™ Movements, Brass Connection



Plain Case - Bottom Connection

Catalog Part No.	Part Number	Ashcroft Model	Size & Range	Design Type	Male Conn.	Case	Dimensions (in)	Wt.	Price Each
C1ND95	574308	63 1008AL 02L 1500#-9826	2.5" 0-1,500 PSI	Liquid Filled	1/4 NPT	304SS	A=2.48 B=1.21 C=2.71 D=0.46	0.49	
C1ND96	574315	63 1008AL 02L 2000#-9827	2.5" 0-2,000 PSI	Liquid Filled	1/4 NPT	304SS	A=2.48 B=1.21 C=2.71 D=0.46	0.49	
C1ND97	574322	63 1008AL 02L 3000#-9828	2.5" 0-3,000 PSI	Liquid Filled	1/4 NPT	304SS	A=2.48 B=1.21 C=2.71 D=0.46	0.49	
C1ND98	574339	63 1008AL 02L 4000#-9829	2.5" 0-4,000 PSI	Liquid Filled	1/4 NPT	304SS	A=2.48 B=1.21 C=2.71 D=0.46	0.49	
C1ND99	574346	63 1008AL 02L 5000#-9830	2.5" 0-5,000 PSI	Liquid Filled	1/4 NPT	304SS	A=2.48 B=1.21 C=2.71 D=0.46	0.49	
C1NE11	574353	63 1008AL 02L 6000#-9831	2.5" 0-6,000 PSI	Liquid Filled	1/4 NPT	304SS	A=2.48 B=1.21 C=2.71 D=0.46	0.49	
C1NE12	574360	63 1008AL 02L 10000#-9832	2.5" 0-10,000 PSI	Liquid Filled	1/4 NPT	304SS	A=2.48 B=1.21 C=2.71 D=0.46	0.49	
C1NE13	574377	63 1008AL 02L 15000#-9833	2.5" 0-15,000 PSI	Liquid Filled	1/4 NPT	304SS	A=2.48 B=1.21 C=2.71 D=0.46	0.49	

Plain Case - Center Back Connection



Plain Case - Center Back Connection

Catalog Part No.	Part Number	Mfg. Model	Size & Range	Design Type	Male Conn.	Case	Dimensions (in)	Wt.	Price Each
C1NE14	574384	63 1008AL 02B VAC-9834	2.5" 0-30Hg	Liquid Filled	1/4 NPT	304SS	A=2.48 B=1.21 C=2.71	0.57	
C1NE15	574391	63 1008AL 02B 60#-9835	2.5" 0-60 PSI	Liquid Filled	1/4 NPT	304SS	A=2.48 B=1.21 C=2.71	0.57	
C1NE16	574407	63 1008AL 02B 100#-9836	2.5" 0-100 PSI	Liquid Filled	1/4 NPT	304SS	A=2.48 B=1.21 C=2.71	0.57	
C1NE17	574414	63 1008AL 02B 160#-9837	2.5" 0-160 PSI	Liquid Filled	1/4 NPT	304SS	A=2.48 B=1.21 C=2.71	0.57	
C1NE18	574421	63 1008AL 02B 200#-9838	2.5" 0-200 PSI	Liquid Filled	1/4 NPT	304SS	A=2.48 B=1.21 C=2.71	0.57	
C1NE19	574438	63 1008AL 02B 300#-9839	2.5" 0-300 PSI	Liquid Filled	1/4 NPT	304SS	A=2.48 B=1.21 C=2.71	0.57	
C1NE20	574445	63 1008AL 02B 600#-9840	2.5" 0-600 PSI	Liquid Filled	1/4 NPT	304SS	A=2.48 B=1.21 C=2.71	0.57	
C1NE21	574452	63 1008AL 02B 1000#-9841	2.5" 0-1,000 PSI	Liquid Filled	1/4 NPT	304SS	A=2.48 B=1.21 C=2.71	0.57	
C1NE22	574476	63 1008AL 02B 2000#-9842	2.5" 0-2,000 PSI	Liquid Filled	1/4 NPT	304SS	A=2.48 B=1.21 C=2.71	0.57	
C1NE23	574483	63 1008AL 02B 3000#-9843	2.5" 0-3,000 PSI	Liquid Filled	1/4 NPT	304SS	A=2.48 B=1.21 C=2.71	0.57	
C1NE24	574490	63 1008AL 02B 5000#-9844	2.5" 0-5,000 PSI	Liquid Filled	1/4 NPT	304SS	A=2.48 B=1.21 C=2.71	0.57	
C1NE25	574506	63 1008AL 02B 6000#-9845	2.5" 0-6,000 PSI	Liquid Filled	1/4 NPT	304SS	A=2.48 B=1.21 C=2.71	0.57	



Hydraulic System Accessories

Gauges - Brass/PowerFlex™ Movements, Brass Connection

ASHCROFT

Accessories for Ashcroft Plain Case - Center Back

Catalog Part No.	Part Number	Description	Wt.	Price Each
•C1KA28	101A164-01	U-Clamp Kit, for 2-1/2" Ashcroft Gauges	0.10	

U-Clamp Kit 101A164-01: Fits 2-1/2" Ashcroft Gauges. Panel Hole 2-17/32 Minimum / 2-9/16 Maximum. 16-20 in-lbs torque on lockwasher nuts.

Front Flange Kit 101A140-03: Fits 2-1/2" Ashcroft Gauges. Panel Hole 2-17/32 Minimum / 2-9/16 Maximum. 2.95" Bolt Circle, 0.150" Screw Hole Size. Note: 3ea 6-32 Screws & Nuts Included.

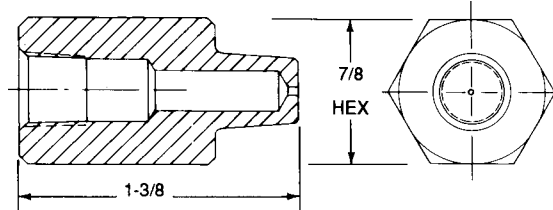
Gauge Accessories

Deltrol GS20S Gauge Snubber

DELTRON
fluid products



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The GS20S gauge snubber is a fixed orifice valve which protects gauges and other delicate instruments from hydraulic shock pressure surges and pulsations, yet provides rapid and smooth response to pressures up to 5,000 PSI.

Deltrol GS20S Gauge Snubber

Catalog Part No.	Deltrol Model	Ports	Maximum Operating Pressure (Non-Shock)	Material	Orifice Dia (in)	Wt.	Price Each
•C1FJ30	GS20S	1/4 NPT	5000 PSI	Steel	0.015	0.07	

Gauge Boots

STAUFF



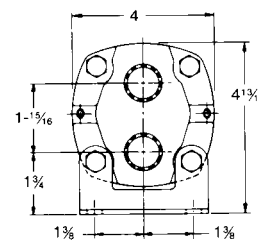
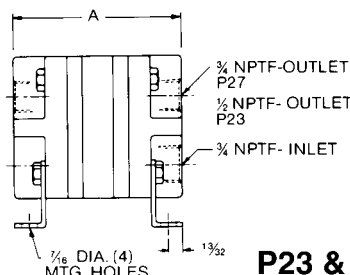
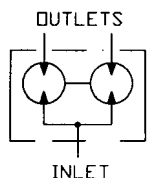
Gauge Boots

Catalog Part No.	Stauff Model	Fits Gauge Size & Style	Color	Wt.	Price Each
•C1GK59	SPG63RB-BLACK	2-1/2 Diameter with Bottom Connection	Black	0.12	

Hydraulic System Accessories

Geared Flow Dividers

2-Section Geared Flow Dividers



P23 & P27

Features: High strength permanent mold cast iron housing. Precision needle bearings. Hardened shafts joined by internally hardened round keys and keyways to eliminate stress concentrations and wear. Precise machined trapping relief grooves provide constant filling and discharging to assure quiet operation and maximum bearing life. O-Ring seals between sections. Precision dowel pin alignment between sections.

Application: Equal flow two-section units divide flow from a common pump source into two separate flows of equal proportion. Can be used to synchronize the operation of two cylinders. For greatest efficiency and accuracy, flow dividers should be used at near maximum rated inlet flow. Provide over-pressure protection (relief valves) in each circuit. Do not use Teflon® tape.

RPM Range: 500 RPM Minimum. 3500 RPM Maximum.

Recommended Filtration: 25 Microns.

2-Section Geared Flow Dividers

Catalog Part No.	Delta Power Model	Displ. (in ³ /rev)	Inlet Port	Outlet Port	Recommended Minimum Inlet Flow (GPM)	Recommended Maximum Inlet Flow (GPM)	Max. Diff. Pressure Between Sections (PSI)	Maximum Continuous Pressure (PSI)	Wt.	Price Each
•C1DG32	P23	0.702	3/4 NPTF	1/2 NPTF	3.0	21.0	1000	1500	15.80	
•C1DG34	P27	1.462	3/4 NPTF	3/4 NPTF	6.4	44.0	1000	1500	9.25	

Maximum Intermittent Pressure: 2500 PSI (PM2), 2000 PSI (PM6, P23, P27, P43, P47).

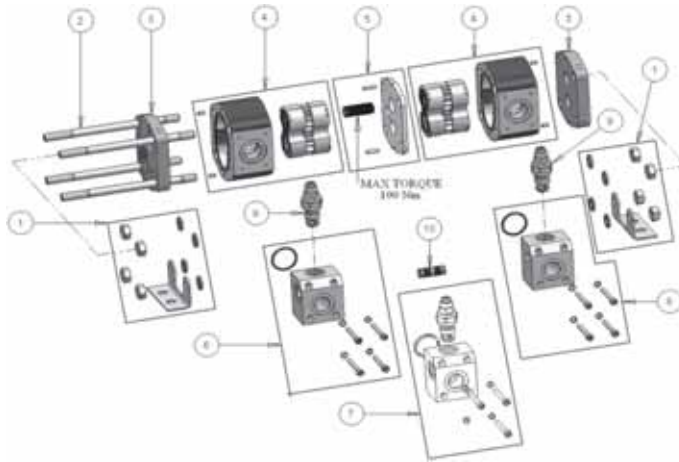
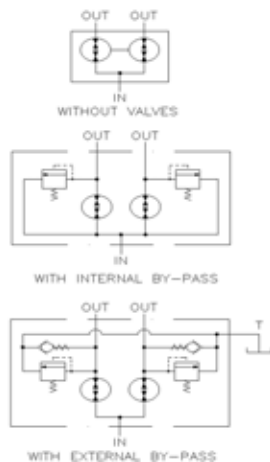


Hydraulic System Accessories

Geared Flow Dividers

Salami 2DRE Gear Flow Dividers

To 21.5 GPM per Section • Up to 3600 PSI



Features: Flow dividers are assembled to order from 2 to 16 sections. Relief valves are optional.

Application: Used to supply two or more independent hydraulic circuits by means of a single pump with an overall flow rate equal to the sum of the flow rates the sections. Also used to amplify the pressure when in a hydraulic system one user requires a much higher operating or peak pressure than all the others. With a two-element flow divider flow may be discharged from the outlet of one element so that the pressure in the other will become much higher than that of the pump supplying the system.

Speed Ratings: 1100 to 4000 RPM. See the chart below.

Temperature Ratings: With Buna-N seals (standard): -4°F to 185°F. With FPM seals (Viton): -4°F to 230°F.

Fluids: Minimum Operating fluid viscosity: 66 SUS (with 80% reduction of working pressure and at minimum speed) to 3635 SUS (maximum starting viscosity). Normal operating range: 85 SUS to 297 SUS.

Recommended Filtration: ISO 4406: < 2900 PSI: 20/19/16; > 2900 PSI: 19/18/15.

Dimensions: page 769

Salami 2DRE Gear Flow Dividers • To 21.5 GPM per Section • Up to 3600 PSI

Catalog Part No.	Salami Model	Displ. (in ³ /rev)	Inlet Port	Outlet Port	Recommended Minimum Inlet Flow (GPM) per Section	Recommended Maximum Inlet Flow (GPM) per Section	Max. Diff. Pressure Between Sections (PSI)	Maximum Continuous Pressure (PSI)	Wt.	Price Each
C1MU94	S12010300 2DRE/G-*/4.5IO/1-*	0.27	SAE -12	SAE -10	1.59	4.97	725	3600		
C1MU95	S12010400 2DRE/G-*/6.2IO/1-*	0.40	SAE -12	SAE -10	2.25	6.75	725	3600		
C1MU96	S12010500 2DRE/G-*/8.3IO/1-*	0.50	SAE -12	SAE -10	2.73	8.18	725	3600		
C1MU97	S12010700 2DRE/G-*/11.5IO/1-*	0.68	SAE -12	SAE -10	3.82	11.15	725	3600		
C1MU98	S12010900 2DRE/G-*/13.8IO/1-*	0.84	SAE -12	SAE -10	4.59	13.00	725	3600		
C1MU99	S12011000 2DRE/G-*/16IO/1-*	1.01	SAE -12	SAE -10	5.06	14.71	725	3600		
C1MV11	S12011100 2DRE/G-*/19IO/1-*	1.15	SAE -12	SAE -10	5.91	17.20	725	3150		
C1MV12	S12011200 2DRE/G-*/22.5IO/1-*	1.37	SAE -12	SAE -10	6.98	19.03	725	3150		
C1MV13	S12011300 2DRE/G-*/26IO/1-*	1.58	SAE -12	SAE -10	7.86	20.37	725	2900	8.00	





Hydraulic System Accessories

Geared Flow Dividers

Salami 2DRE Series Flow Dividers • Parts

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1MS97	R12064337	1: Mounting Kit: Angular Mounts, Nuts, Washers (2 ea.)		
C1MW33	796390510	2: M10 Threaded Bar (1 ea. Cut to length X4)		
C1MQ37	312203529	3: Cover (2 ea.) for No Relief Valve Option; (1 ea.) for Internal By-Pass Relief Option		
C1MS87	R12003101	3: Cover: With Relief valve (1 ea.) for Internal By-Pass Relief Option		
C1MQ37	312203529	3: Cover (2 ea.) for External By-Pass Relief Valve Option		
C1MS96	R12030022	5: Connection Plate Kit: Plate, Coupling Sleeve, Pins (1 ea.) for No Relief Valve Option		
C1MS88	R12003102	5: Connection Plate Kit: Plate, Coupling Sleeve, Pins for Internal By-Pass Relief Option		
C1MS89	R12003604	6: Valve Manifold: First Stage for External By-Pass Relief Option		
C1MS90	R12003605	7: Valve Manifold: Middle Stage for External By-Pass Relief Option		
C1MS91	R12003606	8: Valve Manifold: Final Stage for External By-Pass Relief Option		
C1MU87	R25001811	9: Relief Valve Cartridge (725-1305 PSI) for External By-Pass Relief Valve Option		
C1MW34	R25001821	9: Relief Valve Cartridge (1319-1885 PSI) for External By-Pass Relief Valve Option		
C1MU88	R25001831	9: Relief Valve Cartridge (1899-2972 PSI) for External By-Pass Relief Valve Option		
C1MW35	R25001841	9: Relief Valve Cartridge (2987-3987 PSI) for External By-Pass Relief Valve Option		
C1MU83	R25000611	9: Relief Valve Cartridge (725 PSI) for Internal By-Pass Relief Valve Option (2 ea.)		
C1MS92	R12005001	10: Manifold Connection Kit Sizes 4.5 & 6.5		
C1MS94	R12005003	10: Manifold Connection Kit Sizes 8.3 thru 16		
C1MS93	R12005002	10: Manifold Connection Kit Sizes 19 thru 26		
C1MU89	R35670540	11: Plug: SAE -12 Plug for Unused Inlet Port (1 ea.) (Not Shown)		

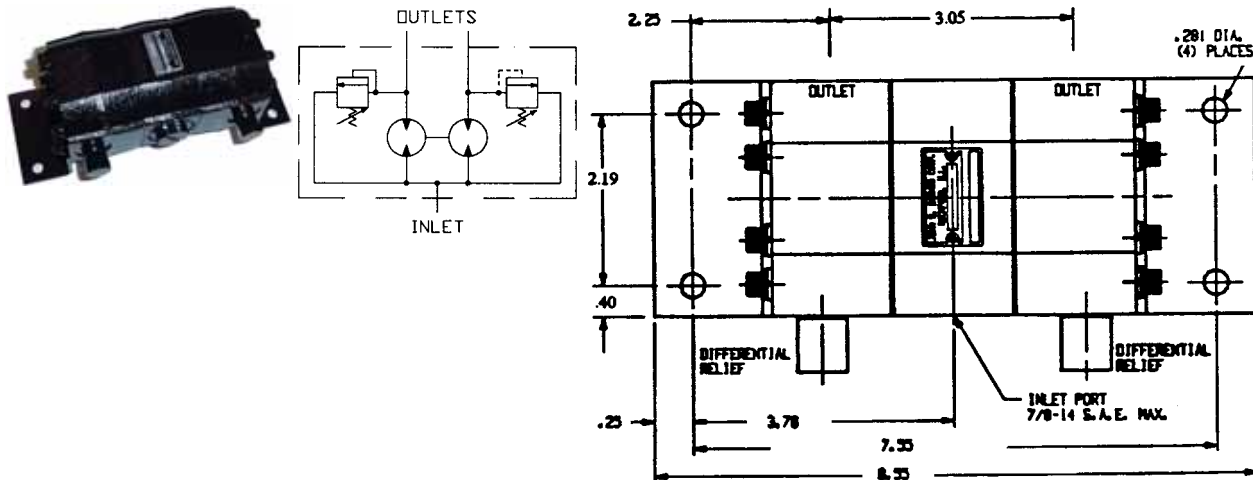




Hydraulic System Accessories

Geared Flow Dividers

2-Section Geared Flow Dividers With Differential Pressure Relief Valves



Features: Differential pressure relief valves. Up to 3,000 PSI inlet pressure. Up to 4500 PSI outlet pressure. High pressure seal. Hardened steel gears. Cast iron bodies.

Application: Equal flow two-section units divide flow from a common pump source into two separate flows of equal proportion. Can be used to synchronize the operation of two cylinders. For greatest efficiency and accuracy, flow dividers should be used at near maximum rated inlet flow. Over-pressure protection is provided by built-in relief valves in each circuit.

RPM Range: 1500 RPM Minimum. 4500 RPM Maximum.

Differential Pressure Relief Valves: Adjustable from 500-1000 PSI (Set at 750 PSI).

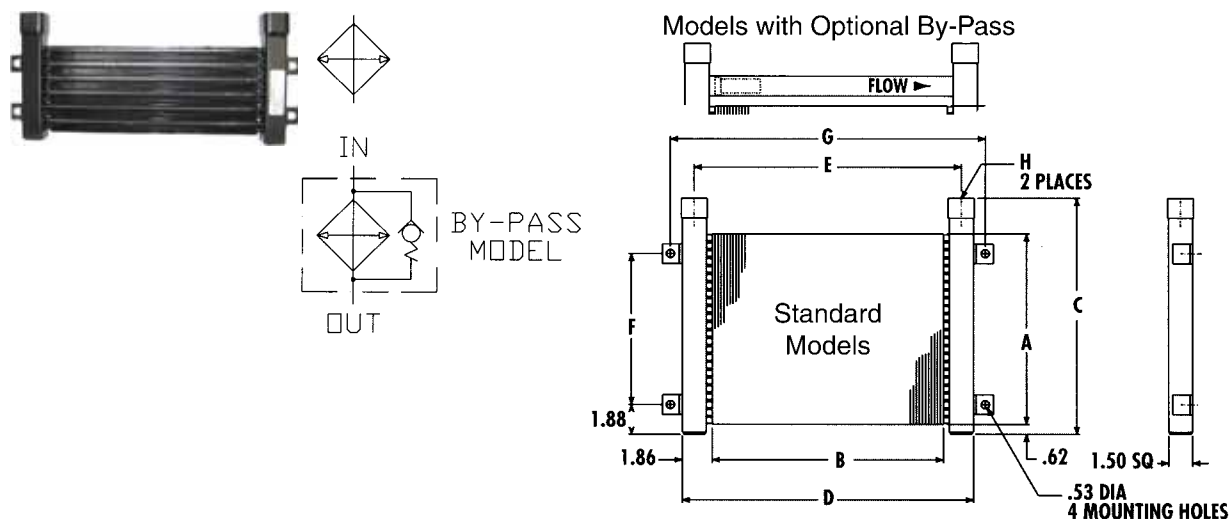
2-Section Geared Flow Dividers • With Differential Pressure Relief Valves

Catalog Part No.	Barnes Model	Displ. (in ³ /rev)	Inlet Port	Outlet Port	Recommended Minimum Inlet Flow (GPM)	Recommended Maximum Inlet Flow (GPM)	Max. Continuous Diff. Pressure Between Sections (PSI)	Max. Intermittent Diff. Pressure Between Sections (PSI)	Wt.	Price Each
C1AK29	1300637	0.517	7/8-14 SAE	7/8-14 SAE	9.0	18.0	1200	2000	10.25	

Hydraulic System Accessories

Heat Exchangers

Air Cooled Units for Mobile Service Thermal Transfer M & MR Series



Features: High strength construction, rugged steel manifolds. Optional internal by-pass valves eliminate piping and reduce costs. Heat removal to 90,000 BTU/Hr. Oil flows up to 100 GPM. NPT ports are standard (SAE Straight Thread and Male JIC 37° flare ports are optional).

Materials: Copper tubes. Aluminum fins. Steel manifolds, connections, turbulators, relief valve.

Pressure Ratings: 300 PSI Operating. 300 PSI Test.

Maximum Operating Temperature: 400°F.

Performance Curves & Selection Procedure: page 767

Air Cooled Units for Mobile Service • Thermal Transfer M & MR Series

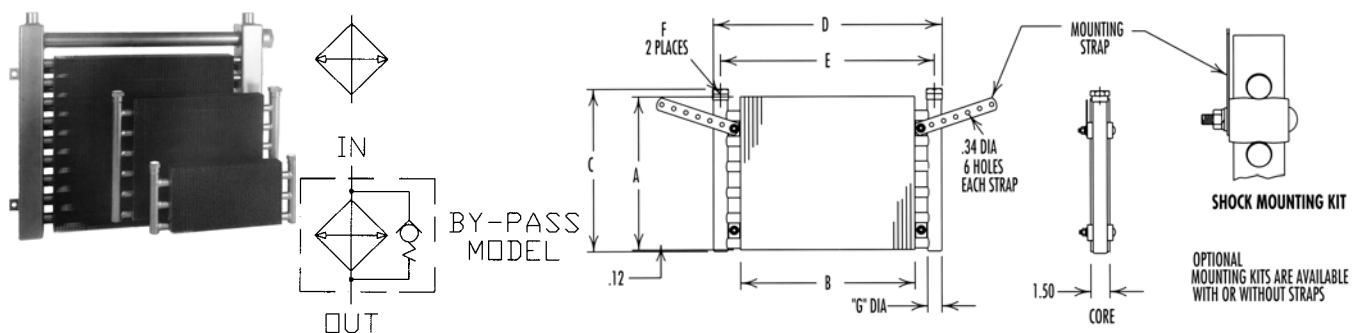
Catalog Part No.	Thermal Transfer Model	By-Pass Relief	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	Ports (H)	Face Area (sq. ft.)	Wt.	Price Each
C1JJ45	M-15-S	No	8.00	14.50	10.88	18.22	16.72	5.50	19.72	SAE-16	0.81	12.00	
C1EQ78	M-20	No	12.00	14.50	14.88	18.22	16.72	9.50	19.72	1 NPT	1.21	12.00	
C1DD55	M-30	No	24.00	19.50	26.88	23.22	21.72	21.50	24.72	1-1/4 NPT	3.25	34.00	



Hydraulic System Accessories

Heat Exchangers

Air Cooled Units for Mobile Service Thermal Transfer DH & DHR Series



Features: High performance oil turbulators. Lightweight. Low cost. Optional internal by-pass valves eliminate piping and reduce costs. Heat removal to 175,000 BTU/Hr. Oil flows up to 150 GPM. NPT ports are standard (SAE Straight Thread ports are optional).

Materials: Copper tubes. Aluminum or steel fins. Aluminum turbulators. Copper manifolds and brass connections (models DH-051 - DH-447), Steel manifolds and steel connections (models DH-513 - DH670).

Pressure Ratings: 300 PSI Operating. 300 PSI Test.

Maximum Operating Temperature: 350°F.

Performance Curves & Selection Procedure: page 762

Air Cooled Units for Mobile Service • Thermal Transfer DH & DHR Series

Catalog Part No.	Thermal Transfer Model	By-Pass Relief	A (in)	B (in)	C (in)	D (in)	E (in)	Ports (F)	G (in)	Qty Mtg Kits	Face Area (sq. ft.)	Wt.	Price Each
C1JB72	DHR-249-1-1-30	Yes (30 PSI)	18.00	19.75	18.73	24.00	22.88	3/4 NPT	1.12	6	2.47	12.00	

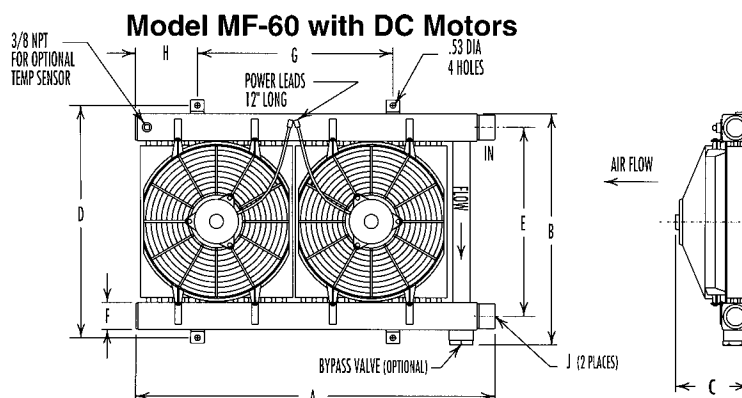
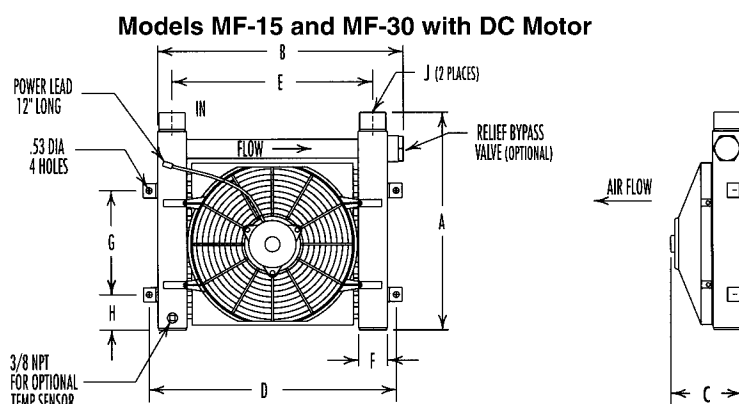
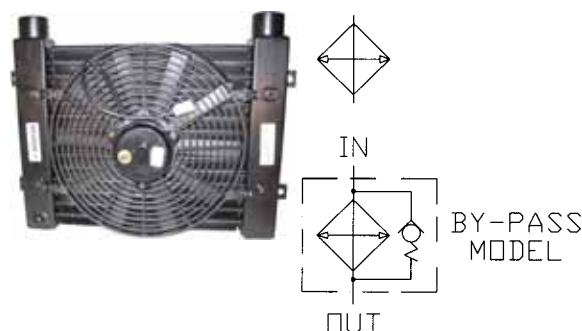
Parts & Accessories for Thermal Transfer DH & DHR Series

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1JM78	84740	Optional Rubber Shock Mount, Without Strap. Qty Required is 4ea (DH-062 thru DH-227), 6ea (DH-249), 8ea (DH-326 thru DH-447)	0.17	

Hydraulic System Accessories

Heat Exchangers

Air Cooled Powered Fan Units for Mobile Service Thermal Transfer MF Series



Features: Available with 12 or 24VDC electric motor(s), hydraulic motor(s) or without motor(s). Heavy duty construction, rugged steel manifolds. Optional serviceable relief by-pass valve (30 or 60 PSI). Optional electronic fan control kit (Part No. 96171). Heat removal to 50,000 BTU/Hr. Oil flow to 150 GPM. NPT, SAE straight thread O-Ring and Male 37° JIC flare ports available.

Materials: Copper tubes. Aluminum fins. Steel manifolds, turbulators. High impact plastic fan assembly.

Pressure Ratings: 300 PSI Operating.

Maximum Operating Temperature: 350°F.

DC Motor Models: 12VDC: 12.5 Amps with one fan, 25 Amps with two fans. 24VDC: 6.3 Amps with one fan, 12.6 Amps with two fans.

Hydraulic Motor Models: 0.22 in³ motor displacement. 2000 PSI maximum. 1000 PSI allowable back pressure. 2200 RPM maximum fan speed. 2.1 GPM at 300 PSI with one fan. 4.2 GPM at 300 PSI with two fans.

Performance Curves & Selection Procedure: page 768

Air Cooled Powered Fan Units for Mobile Service • Thermal Transfer MF Series

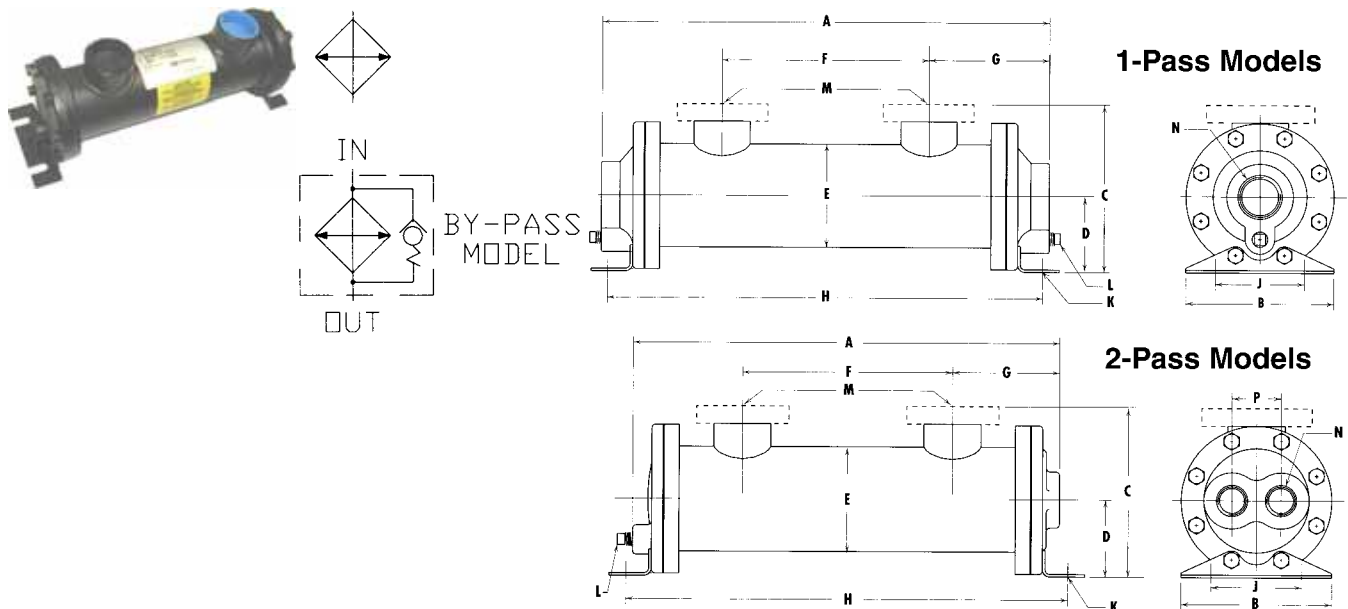
Catalog Part No.	Thermal Transfer Model	Motor Type	By-Pass Relief	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)	Ports (J)	Wt.	Price Each
•C1DE87	MF-30-1-4A	12VDC	No	16.58	19.75	6.10	21.25	17.25	2.50	9.00	3.06	1-1/2 NPT	41.00	
•C1DE88	MF-60-1-4A	12VDC	No	30.83	19.75	6.10	21.25	17.25	2.50	18.00	5.68	1-1/2 NPT	78.00	



Hydraulic System Accessories

Heat Exchangers

Water Cooled Industrial Units (Internal By-Pass Valve Optional) Thermal Transfer EK Series



Features: High efficiency finned bundle design. Compact size. Low cost. Optional built-in SURGE-CUSHION® relief by-pass valve. Heat removal to 400 HP. Oil flow rates up to 80 GPM. Large oil connections for minimum entering and exiting flow restriction. Removable end caps for easy tube cleaning. Mounting brackets can be positioned in 90° increments.

Materials: Copper or Copper-Nickel tubes. Aluminum fins. Grey iron end caps. Steel shell, tubesheets, baffles, mounting brackets. Nitrile Rubber/Cellulose Fiber gaskets. Aluminum foil nameplate.

Pressure Ratings: 500 PSI Maximum Shell Side Pressure (Hydraulic). 150 PSI Maximum Tube Side Pressure (Water).

Maximum Operating Temperature: 250°F.

Performance Curves & Selection Procedure: page 764

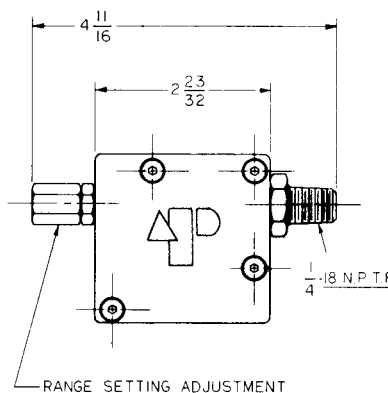
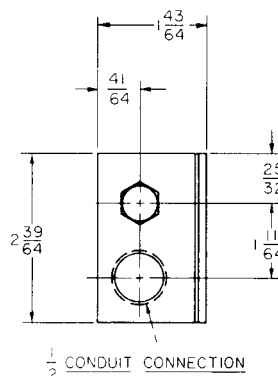
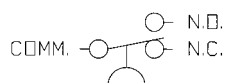
Water Cooled Industrial Units (Internal By-Pass Valve Optional) • Thermal Transfer EK Series

Catalog Part No.	Thermal Transfer Model	Tube Side Passes	Surge Cushions	Cooling Tube Material	A (in)	B (in)	C (in)	E (in)	F (in)	G (in)	K (in)	Oil Ports (M)	Water Ports (N)	Wt.	Price Each
C1CP20	EK-712-T (with Foot Brackets)	2-Pass	No	Copper	14.19	5.00	5.47	3.52	7.00	3.57	0.44 x 0.75	1-1/2 NPT	3/4 NPT	20.00	

Hydraulic System Accessories

Pressure Switches

Pressure Switches (Single) Delta Power PS Series



Features: Oil-tight cast iron body. Gasketed removable cover. Micro switch rated for 2 million cycles. Specially designed actuator consisting of a dampened piston and positive stop striker plate.

Electrical Ratings: 15 Amps and 1/2 HP at 125VAC or 250VAC. 1/2 Amp at 125VDC. 1/4 Amp at 250VDC. 5 Amps at 120VAC L.

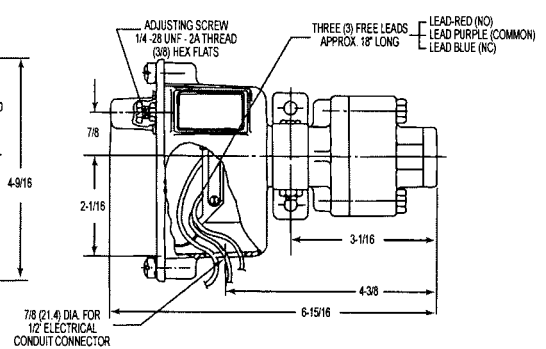
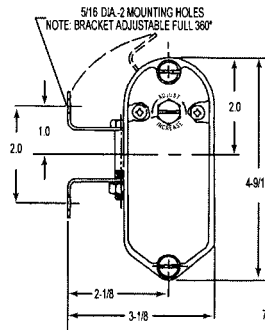
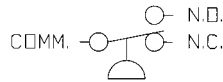
Pressure Switches (Single) • Delta Power PS Series

Catalog Part No.	Delta Power Model	Pressure Adjustment Range (psi)	Fixed Reset Pressure Differential (psi)	Wt.	Price Each
•C1DH33	PS-3000	500-3000	50-150	1.09	

Pressure Switches

Pressure Switches (Single) Barksdale C9612 Series

Barksdale
CONTROL PRODUCTS



Features: Sealed Piston • Extremely Long Life • Oil & Dust Tight • Easy Setpoint Adjustment • High Reliability • High Proof Pressure • Anodized aluminum enclosure • Tamper-proof adjustment screw cover • Nema 3 rated.

Operating Temperature Range: -20°F to 165°F.

Accuracy: $\pm 2\%$ of the adjustable range.

Switch Type: SPDT snap action, single circuit.

Switch Rating: 10 Amps @ 125, 250, or 480 VAC. 0.3 Amps @ 250 VDC. Class B limit switch.

Wiring Identification: Purple = Common, Red = NO, Blue = NC.

Wetted Parts: Nickel plated aluminum process fitting. Buna-N o-ring (standard). 416 stainless steel piston. Anodized aluminum enclosure.

Pressure Connection: 1/4-18 NPT Female.

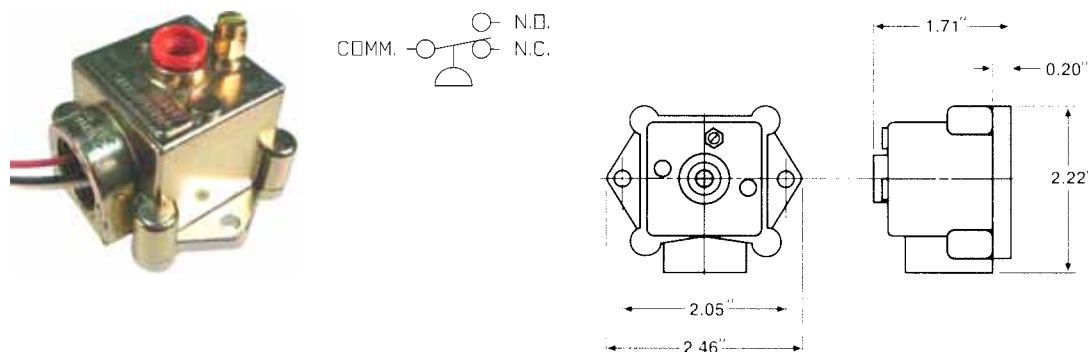
Pressure Switches (Single) • Barksdale C9612 Series

Catalog Part No.	Barksdale Model	Adjustable Range Decreasing (PSI)	Adjustable Range Increasing (PSI)	Apprx. Deadband (PSI)	Proof Pressure (PSI)	Wt.	Price Each
C1CN24	C9612-3	250 Min, 2650 Max	280 Min, 3000 Max	30-350	7000	1.79	

Hydraulic System Accessories

Pressure Switches

Pressure Switches (Single - Double - Triple) Magnaloy PS Series



Features: As many as three switching elements can be independently adjusted over the full pressure range. A single pressure tap (1/8 Female NPT) serves all piston mounted microswitches. Viton seal with Teflon® back-up ring. Oil Tight NEMA 12 case. Standard 1/2 inch conduit connection.

Pressure Ratings: Rated Pressure 4000 PSI. Burst Pressure 12,000 PSI.

Operating Temperature Range: -20°F to 160°F.

Repeatability: 2% of set pressure.

Electrical Ratings: 4 Amps at 250VAC. 3 Amps at 12VDC.

Wiring Identification: Switch 1: White = Common, Red = NO, Black = NC. Switch 2: White w/ One Yellow Stripe = Common, Red w/ One Yellow Stripe = NO, Black w/ One Yellow Stripe = NC. Switch 3: White w/ Two Yellow Stripes = Common, Red w/ Two Yellow Stripes = NO, Black w/ Two Yellow Stripes = NC.

Pressure Switches (Single - Double - Triple) • Magnaloy PS Series

Catalog Part No.	Magnaloy Model	Configuration	Pressure Adjustment Range (psi)	Fixed Reset Pressure Differential (psi)	Wt.	Price Each
•C1DH34	PS-400-115	Single Switch	300-2600	Apprx. 300 PSI @ 1125 Setting	0.75	



Hydraulic System Accessories

Pressure Test Systems - Voss



Voss Pressure Test Systems

Application: Voss monitoring couplings allow equipment to be monitored, tested and bled rapidly, accurately and cleanly. These tasks can be performed while the system is operating, because the monitoring coupling can be connected under pressure to the appropriate instruments or testing devices. When the connecting hose is coupled, or plugged in, a check valve in the monitoring coupling is opened and pressure measurements can be made. A built-in o-ring seal prevents fluid from escaping. When the connecting hose is uncoupled, or removed, the check valve closes.

Hose Assembly Construction: Nylon inner core, Kevlar reinforcement and black Nylon outer cover.

Operating Temperature Range: -40°F to +212°F.



Gauge Couplings

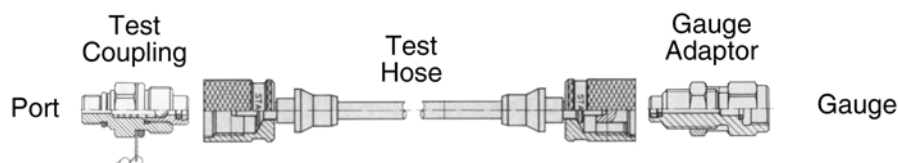
Catalog Part No.	Voss Model	Thread A (Port)	Thread B	Length (in)	Wt.	Price Each
•C1BY25	686-950	1/4 NPT	1/4 BSPP	1.57	0.15	

Hydraulic System Accessories

Pressure Test Systems - Stauff



Stauff Test



Fast Coupling For: Monitoring and control of pressure • Venting • Sampling.

Advantages: Test system at working pressure • Connection is leakproof before connection is opened • Simple connection to measurement, control and switching devices • Self-locking metal protective cap • Minimizes introduction of contamination into hydraulic systems.

Working Pressure: Maximum working pressure 5800 PSI (Test 10, Test 12 and Test 20 Hoses), 9000 PSI (Test 15 Hoses) • Connection under pressure up to 5800 PSI (Test 12 and Test 20), 9000 PSI (Test 15).

Materials: Metal parts: Steel • Ball: Stainless Steel • Seals: Buna-N (-4°F to 195°F), Viton® (-4°F to 392°F), EPDM (-40°F to 302°F) • Hose: Polyamide (-31°F to 212°F).

Media: Suitable for hydraulic oils and other mineral based fluids (check compatibility of seal material) • For use with other liquid or gaseous media please contact us for availability of alternate seals.



Catalog Part No.	Stauff Model	Description	Wt.	Price Each
C1FF28	SKK12-1/8-NPT-VD	Test Point Coupling, S12,65x1.5 to 1/8 NPT. Viton Seal.	0.11	
C1FF27	SKK12-1/4-NPT-VD	Test Point Coupling, S12,65x1.5 to 1/4 NPT. Viton Seal.	0.12	
C1FK95	SMA12-1/4NPT-V-K	Gauge Adapter, S12,65x1.5 to 1/4 NPT. Viton Seal.	0.15	
C1FF30	SMA12-1/2-NPT-V	Gauge Adapter, S12,65x1.5 to 1/2 NPT. Viton Seal.	0.28	
•C1KW54	SMD20-1/4-NPTC6F	Direct Gauge Adapter, M16x2 to 1/4 NPT. Viton Seal.	0.10	
•C1KN38	SMK20-G1/4-VB	Test Point Coupling, M16x2 to 1/4 BSPP. Viton Seal.	0.16	
•C1KU16	1210026075	SMK20-JIC3/8-VK-C6F Test Point Coupling, M16x2 to Female JIC -4. Viton Seal.	0.20	
•C1MH86	1210026030	SMK20-1/4NPT-VD-C6F Test Point Coupling, M16x2 to 1/4 NPT. Viton Seal.	0.16	
•C1KN36	SMK20-7/16UNF-VE	Test Point Coupling, M16x2 to 7/16-18 UNF Straight Thread. Viton Seal.	0.15	
•C1KZ18	1210026063	SMK20-9/16UNF-VE-C6F Test Point Coupling, M16x2 to 9/16-18 UNF Straight Thread. Viton Seal.	0.17	
C1MP21	SMS12-305MM-B	Test Hose 305 mm long, S12,65x1,5 fittings, Max. Operating 9137 PSI.	0.15	
C1FF33	SMS12-24-B	Test Hose 610 mm long, S12,65x1,5 fittings, Max. Operating 9137 PSI.	0.15	
C1FF34	SMS12-36-B	Test Hose 915 mm long, S12,65x1,5 fittings, Max. Operating 9137 PSI.	0.18	
•C1KN39	SMS20/U1/4-1000M	Test Hose 1000 mm long, M16x2 x 7/16-20 UNF, Max. Operating 5801 psi.	0.15	
•C1KN40	SMS20/U1/4-3000M	Test Hose 3000 mm long, M16x2 x 7/16-20 UNF, Max. Operating 5801 psi.	0.22	



Hydraulic System Accessories

Pressure Test Systems - Stauff



Triple Gauge Kit

Catalog Part No.	Stauff Model	Description	Wt.	Price Each
•C1KN32	SMB20-C1	Triple Gauge Test Kit. See footnote for components.	5.70	

Triple Gauge Kits Contain: 2 ea. 60 inch hoses (SMS20-060-B), 3 ea. direct gauge adaptors SMD20-1/4NPT-V), 2 ea. Unions (SSV20/20), 1 ea. -30in-Hg to 30 PSI gauge (WPG63-3030S), 1ea. 1000 PSI gauge (WPG63-1000S), 1ea. 7500 PSI gauge (WPG63-7500S), 2 ea. 1/8 NPT pressure test couplings (SMK20-1/8NPT-VD), 2 ea. 1/4 NPT pressure test couplings (SMK20-1/4NPT-VD), 1ea. 7/16-20 (SAE-04) pressure test coupling (SMK20-7/16UNF-VE), 1ea. 9/16-18 (SAE-06) pressure test coupling (SMK20-9/16UNF-VE), 1ea. 1-1/4NPT Female QD Fitting (SQD-04NF-C).

Hydraulic Power & Control

Pneumatic Power & Control

Fluid Conveying

Miscellaneous Products

Indexes & Technical Information

High Force Hydraulics - Enerpac

ENERPAC
Hydraulic Technology Worldwide

High Pressure Rubber Hydraulic Hoses



Inside Diameter: 1/4 and 3/8 inch.

Length: 2-50 feet.

Maximum Operating Pressure: 10,000 PSI.

Hose Oil Capacity: When using longer hose lengths, it is sometimes necessary to fill the pump reservoir after filling the hoses. Use the following formulas to determine the hose oil capacity. For 1/4 ID hoses: Capacity (in³) = 0.5892 x Length (ft). For 3/8 ID hoses: Capacity (in³) = 1.3608 x Length (ft).

Warning: Do not exceed 10,000 PSI maximum pressure. Do not handle hoses which are under pressure.

Features: Rubber cover with 2 layers of braided steel. Designed to comply with Material Handling Institute IJ-100 hose specification. Flexible, with little "memory", is the best choice for long hose runs. Crimped-on rubber strain relief for improved life and durability.

High Pressure Rubber Hydraulic Hoses

Catalog Part No.	Enerpac Model	Hose I.D. (in)	Hose Length (ft)	End 1	End 2	Wt.	Price Each
•C1CY34	HC-9210	1/4	10	3/8 NPT	CH-604 Male Coupler Half	4.30	

High-Flow Coupler



Features: Standard equipment on most Enerpac cylinders. Recommended for use on all Enerpac pumps and cylinders where space and porting permits. Includes "2-in-1" dust cap for use on male and female coupler halves.

Maximum Operating Pressure: 10,000 PSI

Warning: Couplers should be pressurized only when completely connected and should not be coupled or uncoupled when pressurized.

High-Flow Coupler

Catalog Part No.	Enerpac Model	Maximum Flow Capacity (in ³)	Configuration	Thread	Dust Cap(s)	Connected Length (in)	Wt.	Price Each
•C1CM15	C-604	2,500	Complete Set	3/8 Male x Female NPT	CD-411	2.72	0.65	
•C1CN37	CH-604	2,500	Male Half	3/8 Female NPT	CD-411	--	0.31	

Parts for Enerpac High-Flow Couplers

Catalog Part No.	Part Number	Description	Wt.	Price Each
•C1FZ31	C604K1	Newer Style Seal Kit for C-604 Coupler. Has Blue/Green Polyurethane Lip Seal.	0.01	
•C1CN23	C604K	Older Style Seal Kit for C-604 Coupler. Has Black O-Ring Seal.	0.01	

Regular Spee-D-Coupler®



Features: For medium duty applications (hand pumps as an example). Includes female aluminum dust cap.

Maximum Operating Pressure: 10,000 PSI.

Warning: Couplers should be pressurized only when completely connected and should not be coupled or uncoupled when pressurized.

Regular Spee-D-Coupler®

Catalog Part No.	Enerpac Model	Maximum Flow Capacity (in³)	Configuration	Thread	Dust Cap(s)	Connected Length (in)	Wt.	Price Each
•C1CK80	AR-400	462	Female Half	3/8 Male NPT	Z-410	--	0.32	

Regular Coupler



Features: For use with small cylinders and hand pumps. Includes female aluminum dust cap.

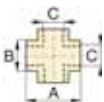
Maximum Operating Pressure: 10,000 PSI.

Warning: Couplers should be pressurized only when completely connected and should not be coupled or uncoupled when pressurized.

Regular Coupler

Catalog Part No.	Enerpac Model	Maximum Flow Capacity (in³)	Configuration	Thread	Dust Cap(s)	Connected Length (in)	Wt.	Price Each
•C1CK81	AR-630	462	Female Half	1/4 Male NPT	Z-640	--	0.15	
•C1CH60	AH-630	462	Male Half	1/4 Female NPT	--	--	0.13	

Steel Pipe Adapters for 10,000 PSI Systems



Steel Pipe Adapters • for 10,000 PSI Systems

Catalog Part No.	Enerpac Model	Description	A (in)	B (in)	C	Wt.	Price Each
C1KZ41	FZ-1613	Cross	1.77	1.00	3/8-18 NPTF	0.40	

Power Team Products



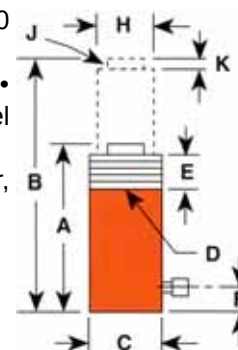
Cylinders: page 530
Pump Mounted Valves: page 536
Pumps: page 537
Hoses - Couplers - Gauges - Fluids: page 547
Manifolds - Fittings - InLine Valves: page 550
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Presses: page 552

General Purpose Single-Acting Cylinders C Series 5-100 Ton



Rugged, high quality cylinder used for lifting and pressing. ASME B30.1 10,000 PSI.

Features: Aluminum bronze bearing reduces wear caused by off-center loads • Maximum sized springs speed piston return and increase spring life • Solid steel cylinder body for durability • Chrome plated piston rod resists wear and corrosion • Wide range of accessories available to thread onto piston rod, collar, or onto cylinder base • Base mounting holes standard on 5 through 55 ton cylinders; optional on 75 and 100 ton cylinders • A 3/8" NPTF female half coupler is standard.



General Purpose Single-Acting Cylinders • C Series 5-100 Ton

Catalog Part No.	Power Team Model	Cylinder Capacity (tons)	Stroke (in)	Oil Capacity (in ³)	Retracted Height A (in)	Extended Height B (in)	Collar Thread D	Piston Rod Diameter H (in)	Piston Rod Internal Thread J	Cylinder Effective Area (sq in)	Wt.	Price Each
C1JN63	C51C	5	1	1.1	4-11/32	5-7/16	1-1/2-16	1	3/4-16x5/8	0.994	2.25	
•C1JN64	C53C	5	3-1/4	3.2	6-1/2	9-3/4	1-1/2-16	1	3/4-16x5/8	0.994	3.26	
•C1JN69	C55C	5	5-1/4	5.2	8-1/2	13-3/4	1-1/2-16	1	3/4-16x5/8	0.994	4.00	
C1JN70	C59C	5	9-1/4	9.2	12-3/4	22	1-1/2-16	1	3/4-16x5/8	0.994	5.80	
C1KL36	C57C	5	7-1/4	7.2	10-3/4	18	1-1/2-16	1	3/4-16x5/8	0.994	4.97	
C1JN45	C101C	10	1	2.2	3-5/8	4-5/8	2-1/4-14	1-1/2	1-8x3/4	2.236	4.00	
•C1CM22	C102C	10	2-1/8	4.8	4-3/4	6-7/8	2-1/4-14	1-1/2	1-8x3/4	2.236	5.00	
•C1JN47	C104C	10	4-1/8	9.2	6-3/4	10-7/8	2-1/4-14	1-1/2	1-8x3/4	2.236	6.70	
•C1JN48	C106C	10	6-1/8	13.7	9-3/4	15-7/8	2-1/4-14	1-1/2	1-8x3/4	2.236	9.40	
C1JN49	C108C	10	8-1/8	19.9	11-3/4	19-7/8	2-1/4-14	1-1/2	1-8x3/4	2.236	11.00	

General Purpose Single-Acting Cylinders • C Series 5-100 Ton

Catalog Part No.	Power Team Model	Cylinder Capacity (tons)	Stroke (in)	Oil Capacity (in ³)	Retracted Height A (in)	Extended Height B (in)	Collar Thread D	Piston Rod Diameter H (in)	Piston Rod Internal Thread J	Cylinder Effective Area (sq in)	Wt.	Price Each
•C1JN42	C1010C	10	10-1/8	22.6	13-3/4	23-7/8	2-1/4-14	1-1/2	1-8x3/4	2.236	13.00	
C1JN52	C152C	15	2-1/8	6.7	5-7/8	8	2-3/4-16	1-3/4	1-8x3/4	3.142	8.90	
•C1JN53	C154C	15	4-1/8	12.9	7-7/8	12	2-3/4-16	1-3/4	1-8x3/4	3.142	11.50	
C1JN54	C156C	15	6-1/8	19.2	10-11/16	16-13/16	2-3/4-16	1-3/4	1-8x3/4	3.142	15.30	
C1JN59	C252C	25	2	10.3	6-1/2	8-1/2	3-5/16-12	2-1/4	1-1/2-16x7/8	5.15	13.90	
C1JN60	C254C	25	4	20.6	8-1/2	12-1/2	3-5/16-12	2-1/4	1-1/2-16x7/8	5.15	17.60	
•C1JN61	C256C	25	6-1/4	32.2	10-3/4	17	3-5/16-12	2-1/4	1-1/2-16x7/8	5.15	21.70	
C1JN57	C2514C	25	14-1/4	73.5	18-3/4	33	3-5/16-12	2-1/4	1-1/2-16x7/8	5.15	36.80	
C1KV82	c258c	25	8-1/4	42.5	12-3/4	21	3-5/16-12	2-1/4	1-1/2-16x7/8	5.15	25.60	
C1JN67	C554C	55	4-1/4	46.9	9-1/8	13-3/8	5-12	3-1/8	None	11.04	41.30	
C1JN68	C556C	55	6-1/4	69.0	11-1/8	17-3/8	5-12	3-1/8	None	11.04	51.00	
C1JN65	C5513C	55	13-1/4	146.3	18-1/8	31-3/8	5-12	3-1/8	None	11.04	78.00	
C1JN41	C1006C	100	6-5/8	137.0	13-1/4	19-7/8	6-1/4-12	4-1/8	None	20.62	91.00	

C Series Cylinder Accessories

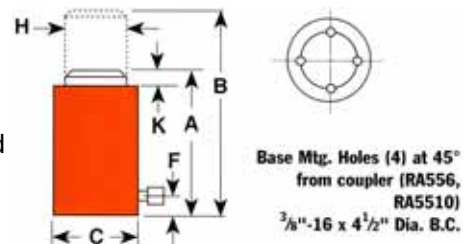
Catalog Part No.	Part Number	Description	Wt.	Price Each
•C1KN84	202179	Threaded Adapter, 10 or 15 Ton Cylinders, 1-13/16" overall length, 1-1/16" large thread length, 1-5/8" Dia., 1-1/4-11-1/2NPT x 1-8UNC2A Thread	0.60	
C1KH96	16067	For 10 Ton Cylinders, U-Cup Piston Seal, 1.69" x 1.19" x 0.25"H	0.01	
•C1GF77	300147	Seal Kit for 25 Ton Cylinders	0.15	
C1KJ73	300114	Seal Kit for 55 Ton Cylinders	0.18	

Aluminum Single-Acting Cylinders RA Series 20-200 Ton



Half the weight of equal capacity steel cylinders.
ASME B30.1 10,000 PSI.

Features: Half the weight of steel cylinders • Aluminum body resists sparking in explosive environments • Hard coated aluminum piston rod and cylinder bore resist wear and corrosion • Grooved piston top helps keep the load from sliding on top of piston • Designed for jacking and other non-production operations.



Aluminum Single-Acting Cylinders • RA Series 20-200 Ton

Catalog Part No.	Power Team Model	Cylinder Capacity (tons)	Stroke (in)	Oil Capacity (in ³)	Retracted Height A (in)	Extended Height B (in)	Piston Rod Diameter H (in)	Cylinder Effective Area (sq in)	Carrying Handle	Wt.	Price Each
C1JS64	RA1006	100	6-1/4	129.00	11-3/4	18	4-1/8	20.62	Yes	49.90	

Locking Collar Single Acting Cylinders RL Series 55 & 100 Ton Spring Return



POSITIVE MECHANICAL LOCK TO SUPPORT LOAD: • Supports lifted load for extended periods of time with hydraulic pressure released. • At half the weight of steel cylinders of comparable capacity, aluminum cylinders are ideal when portability is a key factor. • Features carrying handle.

Rated Pressure: 10,000 PSI

Specifications: ASME B30.1 10,000 PSI



Locking Collar Single Acting Cylinders • RL Series 55 & 100 Ton Spring Return

Catalog Part No.	Power Team Model	Capacity (Tons)	Stroke (in.)	Oil Capacity (in ³)	Retracted Height (in.)	Extended Height (in.)	Outside Diameter (in.)	Collar Nut Thickness (in.)	Wt.	Price Each
C1KW50	RA1006L	100	6-1/4	129	13-3/8	19-5/8	7-3/8	1-1/2	64.00	

Note: Supported loads not to exceed the rated capacity of the cylinders.
Not intended to support additional dynamic loads, such as those applied by moving vehicles.

Low Profile Single-Acting Cylinders RLS Series 5-150 Ton

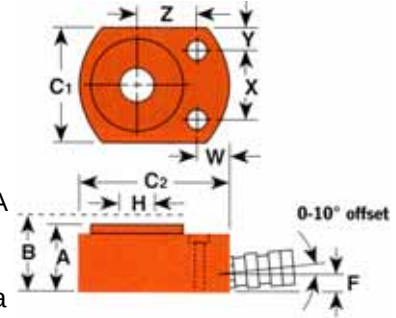


Ideal for confined areas from 15/8" to 4" clearance.
ASME B30.1 10,000 PSI.

Features: Cylinder body, piston and gland nut "Power Tech" treated for corrosion and abrasion resistance • Standard domed piston rod (5-30 ton) or swivel cap (50-150 ton) minimize effects of off-center loading •

Unique heavy duty spring provides fast piston return • A

9796 3/8" NPTF female half coupler is standard with each cylinder (the RLS50 has a 3/8" coupler which is not angled). Oil ports are 3/8" NPTF (except the RLS50). • Couplers on all cylinders, except RLS50, are angled upward for extra clearance.



Low Profile Single-Acting Cylinders • RLS Series 5-150 Ton

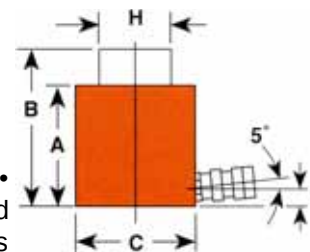
Catalog Part No.	Power Team Model	Cylinder Capacity (tons)	Stroke (in)	Oil Capacity (in ³)	Retracted Height A (in)	Extended Height B (in)	Piston Rod Diameter H (in)	Cylinder Effective Area (sq in)	Wt.	Price Each
•C1JQ64	RLS50	5	9/16	0.62	1-5/8	2-3/16	5/8	0.994	2.20	
•C1JQ60	RLS100	10	7/16	1.0	1-3/4	2-3/16	3/4	2.236	3.30	
•C1JQ62	RLS200	20	7/16	2.0	2	2-7/16	1-1/8	4.430	5.60	
•C1JQ63	RLS300	30	1/2	3.2	2-5/16	2-13/16	1-3/8	6.492	8.60	
C1JQ65	RLS500S	50	5/8	6.0	2-5/8	3-1/4	1-3/4	9.621	14.00	
C1JQ61	RLS1000S	100	5/8	12.3	3-3/8	4	2-1/2	19.635	30.00	
C1JS67	RLS1500S	150	9/16	17.2	4	4-9/16	3	30.680	52.00	

Shorty Single/Double-Acting Cylinders RSS Series 10-250 Ton



Ideal for confined areas from 31/2" to 117/16" clearance. ASME B30.1 10,000 PSI.

Features: Bronze plated piston rods and gland nuts resist scoring and corrosion • Heavy duty return spring (except for double-acting models) provides fast piston return & low collapsed height • Coupler on 10 thru 50 ton models is angled upward 5° for added clearance • Grooved piston top keeps load from sliding • Cylinders can be "dead-ended" at full capacity • Removable carrying handles on 100 ton and 250 ton models.



Shorty Single/Double-Acting Cylinders • RSS Series 10-250 Ton

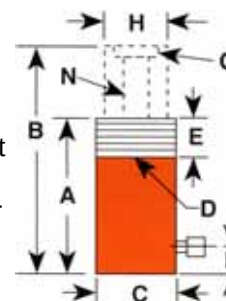
Catalog Part No.	Power Team Model	Type	Cylinder Capacity (tons)	Stroke (in)	Oil Capacity (in³) Push/Return	Retracted Height A (in)	Extended Height B (in)	Piston Rod Diameter H (in)	Cylinder Effective Area (sq in)	Wt.	Price Each
C1JQ68	RSS101	Single Acting	10	1-1/2	3.4 / --	3-1/2	5	1-1/2	2.24	6.00	
C1JQ69	RSS202	Single Acting	20	1-3/4	7.7 / --	3-3/4	5-1/2	2-5/32	4.43	9.90	
•C1JQ70	RSS302	Single Acting	30	2-7/16	15.8 / --	4-5/8	7-1/16	2-1/2	6.49	14.70	
•C1JQ71	RSS502	Single Acting	50	2-3/8	22.8 / --	5	7-3/8	3-1/8	9.62	23.20	
C1JQ67	RSS1002	Single Acting	100	2-1/4	44.2 / --	5-1/2	7-3/4	4-3/8	19.63	47.30	

Center Hole Single-Acting Cylinders RH Series 10-100 Ton



Ideal for pulling and tensioning of cables, anchor bolts, forcing screws, etc. ASME B30.1 10,000 PSI.

Features: Interchangeable piston head inserts provide versatility of application • 12, 20*, 30*, 50, 60 Ton Single-Acting Models Feature Threaded Collar • Withstands full "dead-end" loads • Corrosion resistant standpipe has "Power Tech" treatment • All cylinders except RH120 are furnished with a 9796 3/8" NPT female half coupler • Aluminum cylinder body and piston are featured on the RHA306 cylinder. * Model RH203 and RHA306 do not feature the collar thread. See the chart below.



Center Hole Single-Acting Cylinders • RH Series 10-100 Ton

Catalog Part No.	Power Team Model	Cylinder Capacity (tons)	Stroke (in)	Oil Capacity (in³)	Retracted Height A (in)	Extended Height B (in)	Collar Thread D	Piston Rod Diameter H (in)	Center Hole Diameter (N)	Insert Thread O	Cylinder Effective Area (sq in)	Wt.	Price Each
•C1JQ55	RH102	10	2-1/2	5.52	5-5/16	7-13/16	None	2-1/16	49/64	1-3/4-12	2.21	9.00	
C1KN92	RH121	12	1-5/8	4.49	4-13/16	6-7/16	2-3/4-16	1-3/8	51/64	None	2.76	6.60	
C1KN93	RH123	12	3	8.29	7-1/4	10-1/4	2-3/4-16	1-3/8	13/16	None	2.76	8.90	
C1KN94	RH202	20	2	9.45	6-1/8	8-1/8	3-7/8-12	2-1/8	1-5/64	1-9/16-16	4.72	16.10	
C1JQ57	RH203	20	3	11.76	6-1/16	9-1/16	None	2-3/4	1-3/64	2-1/4-12	3.92	20.00	

Center Hole Single-Acting Cylinders • RH Series 10-100 Ton

Catalog Part No.	Power Team Model	Cylinder Capacity (tons)	Stroke (in)	Oil Capacity (in ³)	Retracted Height A (in)	Extended Height B (in)	Collar Thread D	Piston Rod Diameter H (in)	Center Hole Diameter (N)	Insert Thread O	Cylinder Effective Area (sq in)	Wt.	Price Each
•C1JQ58	RH302	30	2-1/2	15.85	6-1/4	8-3/4	4-3/4-12	3-1/4	1-19/64	2-3/4-12	6.34	25.60	
C1JQ59	RH306	30	6	38.1	9-3/4	15-3/4	4-3/4-12	3-1/4	1-9/32	2-3/4-12	6.34	39.00	
C1JS66	RH603	60	3	37	9-1/4	12-1/4	6-1/4-12	3-19/32	2-1/8	3-12	12.31	60.00	

Note: 60 through 100 ton models are supplied with carrying handles.

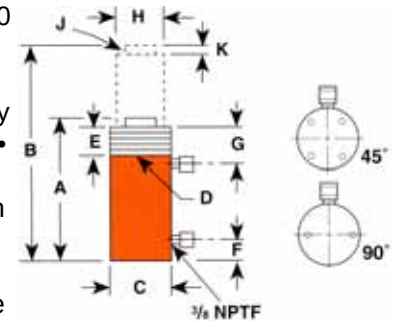
Note: RH120 & RH121T models do not have an internal threaded insert, but do have a 3/4-16 internal thread. Model RH120 inlet port is 1/4 NPTF.

Double-Acting Cylinders RD Series 10-500 Ton



High tonnage premium design for high cycle life. ASME B30.1 10,000 PSI.

Features: Perfect for bridge lifting, building reconstruction, shipyard, utility and mining equipment maintenance • Aluminum bronze overlay bearings provide long life, chrome plated piston rod resist corrosion • Load cap snaps out to expose internal piston rod threads for pulling applications; threads withstand full tonnage • Grooved ring pattern in load cap helps guard against load slippage • Each cylinder has two 9796 3/8" NPTF female half couplers • Built-in safety relief valve prevents over-pressurization of the retract circuit • All models include mounting holes and collar threads.



Double-Acting Cylinders • RD Series 10-500 Ton

Catalog Part No.	Power Team Model	Cylinder Capacity (tons) Push/Pull	Stroke (in)	Oil Capacity (in ³) Push/Pull	Retracted Height A (in)	Extended Height B (in)	Collar Thread D	Piston Rod Diameter H (in)	Piston Rod Internal Thread & Depth J (in)	Cylinder Effective Area (sq in) Push/Pull	Wt.	Price Each
C1JQ54	RD556	55 / 28	6-1/4	69.0 / 35.2	12-31/32	19-7/32	5-12	2-5/8	1-11/16-8x1-3/16	11.04 / 5.63	61.40	
C1JQ50	RD10013	100 / 44	13-1/8	270.7 / 116.0	20-9/32	33-13/32	6-7/8-12	3-7/8	2-3/4-12x1-5/32	20.63 / 8.84	181.00	

Parts for RD Series Cylinders

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1JR61	300005	Nitrile Seal Kit, for Model RD556	0.13	

Hydraulic Spreaders



Features: Use to lift machines or as a clamp; spread concrete forms or rebar or perform straightening jobs. • Conforms to ASME B30.1 standard. • High strength alloy steel forged upper and lower jaws on HS2000. • Jaws are spring-return; retract automatically when pressure is released.

HS2000: 1-ton capacity spreader. Full 2,000 lbs. capacity at 10,000 psi. with 4" spread. Can be "dead-ended" at 4" spread under full load. Needs only 9/16" clearance to

engage jaws.

HS3000: 1-1/2-ton capacity spreader. Full 3,000 lb. capacity

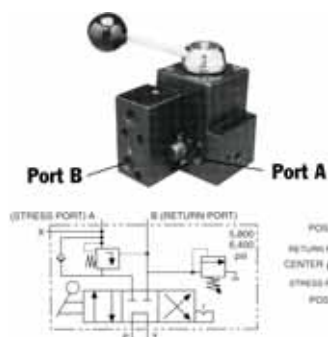
at 10,000 psi. with 11-1/2" spread. Greater than competitive units. Needs only 1-1/4" clearance to engage jaws.

Can be "dead-ended" at 11-1/2" spread at full load.

Hydraulic Spreaders

Catalog Part No.	Power Team Model	Capacity (tons)	Collapsed Tip Clearance (in)	Extended Tip Spread (in)	Oil Cap. (in ³)	Wt.	Price Each
C1KM23	HS2000	1	9/16	4	0.63	4.80	
C1KM24	HS3000	1-1/2	1-1/4	11-1/2	3.5	25.27	

Pump-Mounted Manual Valves 4-Way 3-Position Tandem Center



Designed for use with Power Team air, gasoline and electric powered hydraulic pumps.

Application: Single strand, double-acting stressing jacks with Power Wedge seater.

Actuation: Lever operated, detent positioned.

Operation: 1. With valve in center position, pump is started. 2. Cable is inserted into stressing tool, valve is placed in "A" position. "Pull" portion of stressing tool is pressurized to specified level for proper cable tensioning ("A" port is checked internally, can only be released by building pressure in "B" position). 3. Valve is placed in "B" position, which is pressure controlled and will not exceed 6,400 psi. "Return" portion of stressing tool is pressurized and

will release "A" port when pressure reaches approximately one-half the "A" port pressure. "A" port remains open as long as this pressure differential is maintained. 4. Pump is stopped, valve is placed in "A" position, releasing "B" port pressure.

Used on these pumps: PA17*, PA46*, PA55, PE17*, PE21*, PE30, PE46*, PE55, PE60, PE84, PE120, PE200, PE400, PG30*, PG55, PG120, PG400, PQ60 and PQ120 series. * These pumps may have reduced first flow stage characteristics due to internal valve restrictions.

Pump-Mounted Manual Valves • 4-Way 3-Position Tandem Center

Catalog Part No.	Power Team Model	Description	Wt.	Price Each
C1KV67	9500	4-way/3-position, tandem center, manual valve	4.45	
C1KV68	9506	4-way/3-position, tandem center, manual valve, Posi-Check feature	5.36	

CAUTION: To prevent sudden, uncontrolled descent of a load as it is being lowered, use a No. 9596 Load Lowering Valve or No. 9720 Counter Balance Valve in conjunction with the directional valve used in your application.

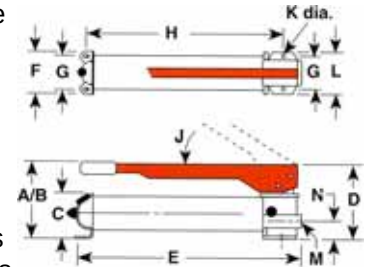
Important: Conversion kit 251528 must be used when mounting any of these valves on PA17 or PE17 pumps.

Single-Speed Single-Acting Hand Pumps P Series 12 to 55 in³ Reservoir



Best suited for applications where there is little or no free travel.

Features: All metal construction, won't burn through in welding environments • Formed metal handle provides less flex, and reduces operator fatigue • Convenient fill port on P23 and P55 allows pumps to be filled in a horizontal or vertical position • Fill cap seal acts as safety valve preventing over-pressurizing of reservoir • Relief valve inboard of check valve prevents loads from drifting down • Large valve knob gives added control for slowly metering loads down • Standard type hydraulic fluid is included.



Single-Speed Single-Acting Hand Pumps • P Series 12 to 55 in³ Reservoir

Catalog Part No.	Power Team Model	For Use With	Volume per Stroke (in ³)	Maximum Pressure (psi)	Handle Effort (lbs)	Reservoir Oil Capacity (in ³) Total/Usable	Outlet Port	Dimensions (in)	Wt.	Price Each
•C1JP92	P12	Single Acting Cylinders	0.069	10,000	75	12 / 9	3/8 NPTF	A=4.00 E=13.50 L=3.38	5.70	
•C1DG61	P55	Single Acting Cylinders	0.160	10,000	145	55 / 45	3/8 NPTF	A=6.50 B=21.00 E=23.00 L=4.75	15.80	

Note: Pumps include a 2-way valve.

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1KU71	300943	P23 & P55: Seal Kit	0.18	
C1KU68	300450	P55: Repair Kit	0.12	

Two-Speed Single Acting Hand Pumps P Series 24.4 to 55 in³ Reservoir

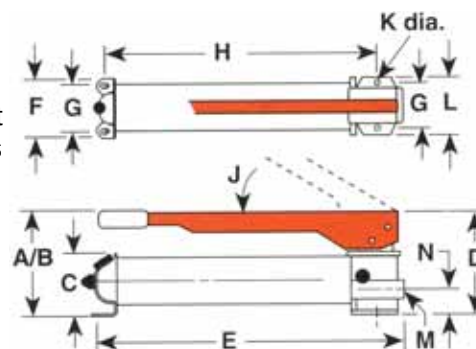


Pump automatically shifts into the high pressure lift stage upon contact with the load.

Features: All metal construction won't burn through in welding environments
• Two-speed reduces handle strokes so you work faster and easier • Formed metal handle provides less flex, and reduces operator fatigue •

Convenient fill port allow pumps to be filled in a horizontal or vertical position • Relief valve inboard of check valve prevents loads from drifting down • Large valve knob gives added control for slowly metering loads down • Standard type hydraulic fluid is included.

P19L & P59L Models: More usable oil volume — use with larger or longer stroke cylinders • True unloading valve set for 850 PSI provides more efficiency and lower handle force • Link design reduces handle effort by 40% • Durable aluminum reservoir, manifold, and end cap • Ergonomic non-slip handle grip provides more comfort • Spring loaded handle lock incorporated into handle.



Two-Speed Single Acting Hand Pumps • P Series 24.4 to 55 in³ Reservoir

Catalog Part No.	Power Team Model	For Use With	Volume per Stroke (in ³) LP/HP	Maximum Pressure (psi) LP/HP	Handle Effort (lbs)	Reservoir Oil Capacity (in ³) Total/Usable	Outlet Port	Dimensions (in)	Wt.	Price Each
C1JP95	P19	Single Acting Cylinders	0.305 / 0.076	325 / 10,000	99	24.4 / 20	3/8 NPTF	A=5.50 B=14.63 E=13.69 L=4.00	6.60	
C1JP96	P19L	Single Acting Cylinders	0.250 / 0.050	850 / 10,000	78	29 / 27	3/8 NPTF	A=5.50 E=13.69	5.10	
C1JQ14	P59	Single Acting Cylinders	0.662 / 0.160	325 / 10,000	145	55 / 45	3/8 NPTF	A=7.00 B=21.00 E=23.00 L=4.75	17.20	
C1JQ15	P59L	Single Acting Cylinders	0.720 / 0.150	850 / 10,000	104	69 / 66	3/8 NPTF	A=7.00 E=21.00	8.90	

Note: Pumps include a 2-way valve.

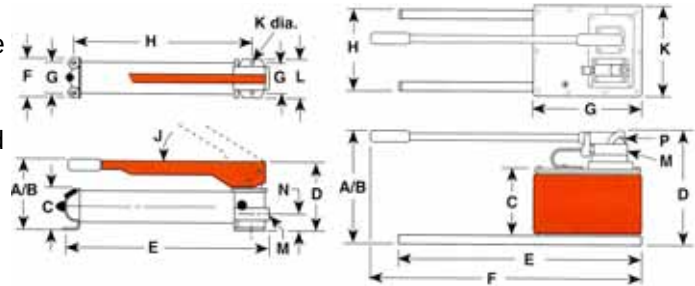
Two-Speed Single/Double Acting Hand Pumps P Series 0.65 to 2.5 Gal Reservoir



Best suited for applications where there is little or no free travel.

Features: Rugged all metal construction for strength and durability that won't burn through in welding

environments • Heavy-duty, formed metal handle provides less flex, and less operator fatigue than round or composite handles • Convenient fill port on P23 and P55 allows pumps to be filled in a horizontal or vertical position • Fill cap seal acts as safety valve to prevent over-pressurizing of reservoir • Relief valve inboard of check valve prevents loads from drifting down • Large valve knob gives added control for slowly metering loads down • Standard type hydraulic fluid is included.



Two-Speed Single/Double Acting Hand Pumps • P Series 0.65 to 2.5 Gal Reservoir

Catalog Part No.	Power Team Model	For Use With	Volume per Stroke (in ³) LP/HP	Maximum Pressure (psi) LP/HP	Handle Effort (lbs)	Reservoir Oil Capacity (in ³) Total/Usable	Outlet Port	Dimensions (in)	Wt.	Price Each
•C1JP93	P159	Single Acting Cylinders	2.60 / 0.160	325 / 10,000	140	152 / 137	3/8 NPTF	A=7.75 B=20.50 E=22.75 L=3.75	26.20	
C1JP98	P300	Single Acting Cylinders	2.60 / 0.160	325 / 10,000	140	346 / 310	3/8 NPTF	A=8.25 B=21.00 E=22.63 F=8.50	55.30	
C1JQ11	P460	Single Acting Cylinders	7.35 / 0.294	325 / 10,000	90	577 / 460	3/8 NPTF	A=11.13 B=31.00 E=24.00 F=29.25	54.90	
C1JP94	P159D	Double Acting Cylinders	2.60 / 0.160	325 / 10,000	140	152 / 137	3/8 NPTF	A=7.75 B=20.50 E=22.75 L=3.75	27.90	
C1JQ12	P460D	Double Acting Cylinders	7.35 / 0.294	325 / 10,000	90	577 / 460	3/8 NPTF	A=11.13 B=31.00 E=24.00 F=29.25	57.90	

Note: Pumps for use with single-acting cylinders include a 2-way valve. Pumps for use with double-acting cylinders include a 4-way valve.

Parts for P Series Hand Pumps

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1KU70	300811	Seal kit for P460 & P460D	0.67	

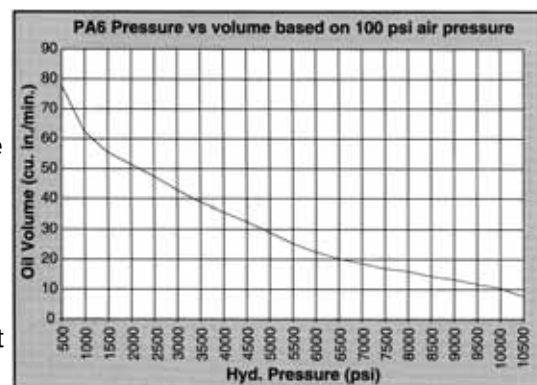
Air-Driven Single Speed Pumps PA6 Series 0.45 to 2.5 Gal Reservoir



Compact, lightweight and portable. Single-Speed pumps designed to drive single-acting cylinders.

Features: The power unit of choice for major manufacturers of auto body, frame straighteners and other equipment • Operate at 40-100 psi shop air pressure at the pump • Internal relief valve

protects circuit components, air inlet filter protects motor • Serviceable pump motor is not a "throw away", providing economical repair • Permanently vented reservoir cap • dBA 85 at 10,000 psi • Standard type hydraulic fluid is included.



Air-Driven Single Speed Pumps • PA6 Series 0.45 to 2.5 Gal Reservoir

Catalog Part No.	Power Team Model	For Use With	Description	Reservoir Oil Capacity (in ³) Total/Usable	Outlet Port	Dimensions (in)	Wt.	Price Each
•C1JQ18	PA6	Single Acting Cylinders	Base model pump with high density polyethylene reservoir.	105 / 98	3/8 NPTF	9.50L x 5.00W x 7.75H	14.00	

Parts for PA6 Air-Driven Single Speed Pump

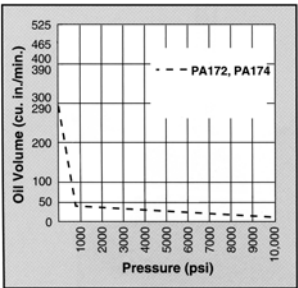
Catalog Part No.	Part Number	Description	Wt.	Price Each
C1KJ74	300433	PA6 Standard Repair Kit	0.63	
•C1KJ97	33853	PA6 Reservoir Gasket	0.01	
•C1KK56	61243	PA6 Plastic Reservoir	1.01	

Air-Driven 2-Speed Pumps PA17 Series 2 Gal Res



Rotary-style air motor. use where air is preferred source of energy, where electricity is unavailable or sparks are a concern.

Features: Two-speed operation for high speed cylinder advance. • Durable two gallon thermoplastic reservoir. (Metal reservoir conversion kits are available.) • Features air motor capable of starting under full load.



Air-Driven 2-Speed Pumps • PA17 Series 2 Gal Res

Catalog Part No.	Power Team Model	For Use With Cyl. Type	Description	Oil Capacity (gal)/Usable (cu.in.)	Dimensions (in) H x W x D	Wt. (lb)	Price Each
C1KW40	PA172	Single Acting	Base model pump with Advance/Return function	2/295	14-1/8x11-3/8x9-1/4	40.00	

Single-Phase 2-Speed Pumps PE17 Series 2 to 2.5 Gal Reservoir



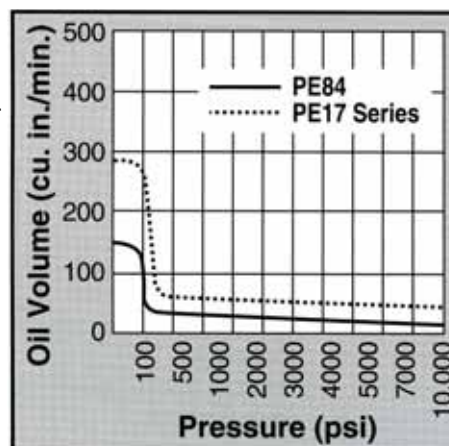
For maintenance and construction applications.

Features: For use with single-acting or double-acting cylinders at operating pressures to 10,000 psi • For intermittent duty; starts under full load • Equipped with 1/2 hp, 3,450 rpm, singlephase, thermal protected induction motor; 10 ft. remote control cord (PE172S has 25 ft. cord) • Low amperage draw; small generators and low amperage circuits can be used as power source • Extremely quiet noise level (67-81 dBA) • Standard type hydraulic fluid is included.

Maximum Pressure Output: 10,000 PSI.

Oil Delivery: 290in³/min @ 0 PSI, 190in³/min @ 100 PSI, 20in³/min @ 5,000 PSI, 16in³/min @ 10,000 PSI.

Current Draw @ 10,000 PSI: 10 amps @ 115VAC.



Single-Phase 2-Speed Pumps • PE17 Series 2 to 2.5 Gal Reservoir

Catalog Part No.	Power Team Model	For Use With	Description	Valve Type	Function	Control Switch	Motor	Reservoir Oil Capacity Usable (in ³)	Dimensions (in)	Wt.	Price Each
C1JQ21	PE172	Single Acting Cylinders	115VAC, thermoplastic reservoir	2-Way 2-Position	Pump on to extend, off to hold, off & manually shift valve to return	Remote On-Off Motor Control (115VAC), 10 ft	1/2 HP 110/115 VAC 50/60HZ Single Phase	295	11.38L x 9.25W x 18.50H	45.00	
C1JQ22	PE172-50-220	Single Acting Cylinders	220VAC 50HZ, thermoplastic reservoir	2-Way 2-Position	Pump on to extend, off to hold, off & manually shift valve to return	Remote On-Off Motor Control (24VDC), 10 ft	1/2 HP 220VAC 50HZ Single Phase	295	11.38L x 9.25W x 18.50H	45.00	
C1JQ24	PE174-50-220	Single & Double Acting Cylinders	220VAC 50HZ, thermoplastic reservoir	4-Way 3-Position	Pump on, manually shift valve to extend or retract, manually shift valve to hold	Remote On-Off Motor Control (24VDC), 10 ft	1/2 HP 220VAC 50HZ Single Phase	295	11.38L x 9.25W x 18.50H	45.00	

Note: Models PE174 and PE174M advance position holds pressure with motor shut off.

Note: Models PE172 and PE172M advance position holds pressure with motor shut off. Return position advances cylinder with motor running and returns cylinder with motor shut off.

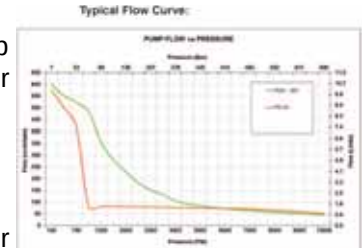
Single-Phase Infinite Stage Pump PE45 Series 1.5 Gal Reservoir



The SPX PE45: an Infinite Stage Pump which increases productivity on the job by providing continuous pressure for up to 2x the speed of typical 2-stage pumps. Jobs get done faster and easier.

Quality means Lower Life-Cycle Costs: • Over 100,000 cycles • Continuous duty up to 50°C / 122°F ambient (optional) • Proven design: proven reliability

Enhanced Usability: Portable: 71 lbs. (without oil) • Up to four tools on one pump • Removable control pendant (15 ft / 5 m cord length) • Improved oil filtration • Universal Motor for reduced voltage applications (up to -20% nominal voltage) • 4-way valve (not for lifting applications)



Designed with Safety in Mind: • Easily adjusted pressure regulator (relief) valve • Fixed 1500 psi / 103 Bar pressure retract relief valve

Oil Delivery: 575 cu-in/min - 48 cu-in/min

Pressure: 0 – 10,000 psi

Operating Environment: Temperature: -13°F to 122°F (If temperatures are at extremes of the operating range, it is recommended to use hydraulic oils that are rated for those temperatures. Refer to service manuals and cooling options)

Sound Level: 87 – 92 dB

Single-Phase Infinite Stage Pump • PE45 Series 1.5 Gal Reservoir

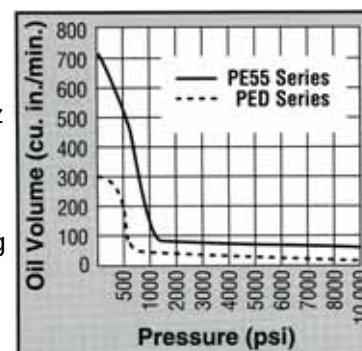
Catalog Part No.	Power Team Model	For Use With	Description	Valve Type	Motor	Reservoir Oil Capacity Usable (in³)	Dimensions (in)	Wt.	Price Each
C1LC88	PE45PEE4MPRS	Single & Double Acting Cylinders	220/230VAC, 4 port	4-Way	1.8 HP Universal Motor (115 volt – 50/60 Hz) 17 amps (230 volt – 50/60 Hz) 8.5 amps	259	17.7"L x 14.0"W x 26.6"H	71.00	

Single-Phase 2-Speed Pumps PE55 Series 2.5 Gal Reservoir



Heavy duty multiple-applications pump. Heavy construction and concrete stressing. Low voltage starting possible.

Features: 1-1/8 hp, 12,000 rpm, 110/115 volt, 50/60 Hz universal motor; draws 25 amps at full load, starts at reduced voltage • CSA rated for intermittent duty • 10 foot remote motor control (except PE552S which has a 25 foot remote motor and valve control) • True unloading valve achieves greater pump efficiency, allowing higher flows at maximum pressure • Reservoirs available in sizes up to 10 gallons • Light weight and portable. Best weight to performance ratio of all Power Team pumps • Standard type hydraulic fluid is included.



Maximum Pressure Output: 10,000 PSI.

Oil Delivery: 704in³/min @ 0 PSI, 440in³/min @ 700 PSI, 74in³/min @ 5,000 PSI, 56in³/min @ 10,000 PSI.

Current Draw @ 10,000 PSI: 25 amps @ 115VAC, 15 amps @ 230VAC 50/60 Hz.

dBa @ Idle/10,000 PSI: 90/89.

Reservoir Usable Capacity: 525 in³.

Single-Phase 2-Speed Pumps • PE55 Series 2.5 Gal Reservoir

Catalog Part No.	Power Team Model	For Use With	Description	Valve Type	Function	Control Switch	Motor	Dimensions (in)	Wt.	Price Each
C1JQ29	PE552-50-220	Single Acting Cylinders	220VAC 50HZ	3-Way	Pump on to extend, off to hold, off & manually shift valve to return	Remote On-Off Motor Control (220VAC), 10 ft	1-1/8HP 220VAC 50Hz Single Phase	14.00L x 9.50W x 18.25H	65.00	
C1JQ30	PE554	Double Acting Cylinders	115VAC	4-Way	Pump on, manually shift valve to extend or retract, manually shift valve to hold	Remote On-Off Motor Control (115VAC), 10 ft	1-1/8HP 110/115 VAC 50/60Hz Single Phase	14.00L x 9.50W x 18.25H	65.00	
C1JQ31	PE554-50-220	Double Acting Cylinders	220VAC 50HZ	4-Way	Pump on, manually shift valve to extend or retract, manually shift valve to hold	Remote On-Off Motor Control (220VAC), 10 ft	1-1/8HP 220VAC 50Hz Single Phase	14.00L x 9.50W x 18.25H	65.00	
C1JQ32	PE554PT	Restricted, see next column	115VAC, for use with single or double acting Power Seat, Stressing Jacks ONLY	4-Way	Pump on, manually shift valve to pull, to hold (pump off), to release (pump on)	Remote On-Off Motor Control (115VAC), 10 ft	1-1/8HP 110/115 VAC 50/60Hz Single Phase	14.00L x 9.50W x 18.25H	65.00	
C1JQ34	PE554S-50-220	Double Acting Cylinders	220VAC 50HZ, remote controls motor & valve	4-Way	Pump on, energize valve to extend or retract, pump off to hold	Remote Motor & Valve Control (220VAC), 10 ft	1-1/8HP 220VAC 50Hz Single Phase	14.00L x 9.50W x 18.25H	65.00	



High Force Hydraulics - Power Team

POWER TEAM

Note: Model PE552 holds with motor shut off.

Note: Models PE553, PE554 and PE554W have Posi-Check valve design, which guards against pressure loss when valve is shifted from advance to hold position.

Note: Model PE554C valving allows alternate and independent operation of two different spring return tools. Valve holds pressure only while valve is in A or B position with motor shut off.

Note: Model PE552A is not to be used for lifting.

Parts for PE55 Pumps

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1KH86	10804	Motor Brushes	0.01	
C1KH87	10805	Brush Holder	0.09	
C1KH88	10806	Brush Holder Cap	0.01	
C1KJ62	25017	Cord, 10 foot, for Hand Control Remote	1.25	
C1KK33	420050-1	Cover for Hand Control Remote	0.10	
C1KU38	22360svc	Pressure Regulator Assembly	1.00	
C1KJ57	22361	Pressure Regulator Body	0.16	
C1LW90	21046	Pressure Regulator Valve Stem	0.17	

Hydraulic Power & Control

Pneumatic Power & Control

Fluid Conveying

Miscellaneous Products

Indexes & Technical Information

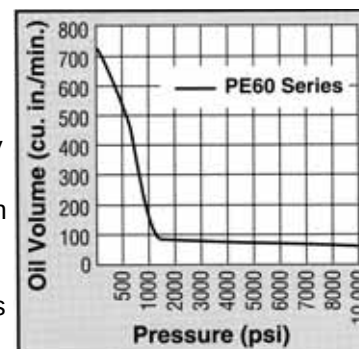


Single-Phase 2-Speed Pumps PE60 Series 0.75 Gal Reservoir



Compact, light weight pump. Excellent choice for rugged applications and low voltage starting.

Features: Long, trouble free life in the most demanding work environments. For operating single- or double-acting cylinders, or stressing jacks • Powered by 11 $\frac{7}{8}$ hp, 115 volt, 60/50 Hz single phase motor. Starts under load, even at the reduced voltages at construction sites • Optional fan-driven external oil cooler includes rollover guard • Insulated carrying handle • Integral 4" dia. fluid-filled pressure gauge with steel bezel complies with ASME B40.1 Grade A. With 0 to 10,000 psi pressure range in 100 psi increments • Sealed 3 $\frac{3}{4}$ gallon (usable) reservoir. Reservoir drain port is standard. • Standard oil level sight gauge for accurate oil level monitoring • External spin-on filter removes contaminants from circulating oil to maximize pump, valve and cylinder/tool life • Standard type hydraulic fluid is included.



Maximum Pressure Output: 10,000 PSI.

Oil Delivery: 704in³/min @ 0 PSI, 440in³/min @ 700 PSI, 74in³/min @ 5,000 PSI, 56in³/min @ 10,000 PSI.

Current Draw @ 10,000 PSI: 25 amps @ 115VAC.

dBa @ Idle/10,000 PSI: 80/85.

Reservoir Usable Capacity: 157 in³.

Single-Phase 2-Speed Pumps • PE60 Series 0.75 Gal Reservoir

Catalog Part No.	Power Team Model	For Use With	Description	Valve Type	Function	Control Switch	Motor	Dimensions (in)	Wt.	Price Each
C1JQ37	PE604PT	Restricted, see next column	115VAC, for use with single or double acting Power Seat, Stressing Jacks ONLY	4-Way 3-Position	Pump on, manually shift valve to pull, to hold (pump off), to release (pump on)	On / Off / Pulse	1-1/8HP 115VAC 50/60Hz Single Phase	11.50L x 9.31W x 18.25H	51.00	
C1JQ38	PE604PT-220	Restricted, see next column	220VAC, for use with single or double acting Power Seat, Stressing Jacks ONLY	4-Way 3-Position	Pump on, manually shift valve to pull, to hold (pump off), to release (pump on)	On / Off / Pulse	1-1/8HP 220/230V AC 50/60Hz Single Phase	11.50L x 9.31W x 18.25H	51.00	

Note: Unloading pressure is 1,000 PSI.



High Force Hydraulics - Power Team

POWER TEAM

Hydraulic Hoses

Polyurethane/Rubber/Non-Conductive



Features: All have plastic hose guards except for the 1/4" I.D. polyurethane hoses which have spring guards • 3/8" NPTF fittings on both ends • Operating pressure is 10,000 psi • All comply with MHI standard IJ100.

Polyurethane Hose: Made up of nylon core tube with polyester fiber reinforcement which will withstand the minimum SAE bend radius without shortening service life. These hoses last up to seven times longer than rubber hose, and are suitable for continuous service at temperatures from -40° to 150° F.

Rubber Hose: 2-ply rated hose reinforced with two braids of high tensile steel wire. The rubber covering is oil and weather resistant. These hoses are MSHA approved.

Non-Conductive Hose: For applications requiring electrical isolation by the hose, non-conductive hose has a leakage factor of less than 50 microamperes, considered a safe level of conductivity by SAE standards. The covering is polyurethane and colored orange for easy identification as non-conductive hose. The covering is not perforated, preventing moisture from entering the hose and affecting its overall conductivity. All nonconductive hoses have a minimum burst pressure of 40,000 psi.

Hydraulic Hoses • Polyurethane/Rubber/Non-Conductive

Catalog Part No.	Power Team Model	Hose Type	I.D. (in)	Fittings Both Ends	Hose Length (ft)	Guard Type	Coupler & Dust Cap	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Wt.	Price Each
C1KL17	9765	Polyurethane	1/4	3/8 NPTF	2 ft	Spring	No	10,000	20,000	1.08	
C1KL18	9766	Polyurethane	1/4	3/8 NPTF	3 ft	Spring	No	10,000	20,000	1.18	
C1JN26	9767	Polyurethane	1/4	3/8 NPTF	6 ft	Spring	No	10,000	20,000	1.76	
C1JN25	9764	Polyurethane	1/4	3/8 NPTF	6 ft	Spring	Yes	10,000	20,000	2.04	
C1KL19	9769	Polyurethane	1/4	3/8 NPTF	10 ft	Spring	No	10,000	20,000	2.17	
C1KL20	9771	Polyurethane	1/4	3/8 NPTF	20 ft	Spring	No	10,000	20,000	3.35	
•C1JN23	9756	Rubber, Wire-braid	1/4	3/8 NPTF	6 ft	Plastic	No	10,000	20,000	2.35	
•C1JN22	9754	Rubber, Wire-braid	1/4	3/8 NPTF	6 ft	Plastic	Yes	10,000	20,000	2.55	
C1KL16	9757	Rubber, Wire-braid	1/4	3/8 NPTF	8 ft	Plastic	No	10,000	20,000	3.00	
•C1JN24	9758	Rubber, Wire-braid	1/4	3/8 NPTF	10 ft	Plastic	No	10,000	20,000	3.34	
C1KV74	9759	Rubber, Wire-braid	1/4	3/8 NPTF	12 ft	Plastic	No	10,000	20,000	6.50	
C1KV75	9760	Rubber, Wire-braid	1/4	3/8 NPTF	20 ft	Plastic	No	10,000	20,000		
C1KV73	9733	Rubber, Wire-braid	3/8 High Flow	3/8 NPTF	3 ft	Plastic	No	10,000	20,000	6.50	
•C1JN27	9777	Rubber, Wire-braid	3/8 High Flow	3/8 NPTF	10 ft	Plastic	No	10,000	20,000	4.35	
C1KL22	9778	Rubber, Wire-braid	3/8 High Flow	3/8 NPTF	20 ft	Plastic	No	10,000	20,000	20.00	
C1KL21	9775	Non-Conductive	1/4	3/8 NPTF	20 ft	Plastic	No	10,000	40,000	5.00	
C1KG41	TWH15	Dual-Line Non-Conductive	1/4	3/8 NPTF	15 ft	Plastic	Yes	10,000	40,000	8.00	
C1KG42	TWH20	Dual-Line Non-Conductive	1/4	3/8 NPTF	20 ft	Plastic	Yes	10,000	40,000	9.50	
C1KG43	TWH50	Dual-Line Non-Conductive	1/4	3/8 NPTF	50 ft	Plastic	Yes	10,000	40,000	17.00	

Note: Polyurethane hoses are not recommended for use where heat or weld spatter conditions exist.

Models with Couplers: Models 9764 and 9754 include 9798 half coupler & 9800 dust cap. TWH Models (Dual-Line Non-Conductive) include coupler halves for torque wrench applications.



Couplers Standard & Flush-Face



Standard Type Couplers: Designed for use up to 10,000 psi with hydraulic jacks, cylinders, etc. They are the threaded union type for interchanging cylinders in seconds. Each half is valved with a precision ball for a tight shutoff when disconnected. These couplers also permit the separation of cylinders or hose from pump when at 0 psi with minimal oil loss.

Flush-Face Type Couplers: High flow, no-spill, push-to-connect couplers with locking collar and flush face designed for high pressure applications. The flush-face concept makes it easy to clean both coupler ends before connecting.

The unique push-to-connect, "dry-break" design eliminates oil spillage. The locking collar makes accidental disconnects a thing of the past. For 10,000 psi operation. Designed to permit high oil flow.

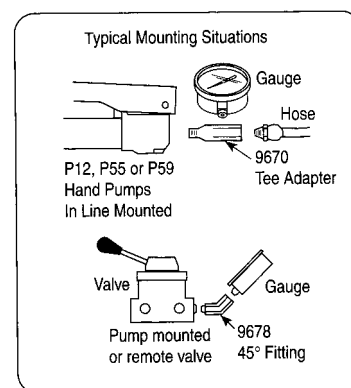
Couplers • Standard & Flush-Face

Catalog Part No.	Power Team Model	Type	Description	Wt.	Price Each
•C1JN28	9795	Standard	Complete quick coupler set, male half has 3/8 NPT female pipe thread, female half has 3/8 NPT male pipe thread, includes 2ea 9800 dust caps	0.86	
•C1JN30	9798	Standard	Male coupler half, 3/8 NPT female pipe thread, with 9800 dust cap	0.20	
•C1JN29	9796	Standard	Female coupler half, 3/8 NPT male pipe thread, with 9800 dust cap	0.56	
•C1KV76	9797	Standard	Optional metal dust cap (cylinder half).	0.17	

Pressure Gauges Analog



Features: Gauges feature an easily readable and highly visible, red day-glo needle • High strength steel bourdon tube ensures high cycle life • Stainless steel cases and lens locking rings • Most dry gauges can be filled with silicone (Kit #9046) • Have 1/4" NPT connections.



Pressure Gauges • Analog

Catalog Part No.	Power Team Model	Face Diameter (in)	Pressure Range (PSI)	Tons	Major Graduations	Minor Graduations	Silicone Filled	Use With Cylinder Series	Wt.	Price Each
C1KK94	9041	2-1/2	0 - 10,000	--	2500 PSI	500 PSI	No	All	0.37	
•C1JM93	9040	2-1/2	0 - 10,000	--	2500 PSI	500 PSI	Yes	All	0.40	
C1JM96	9052	4	0 - 10,000	--	1000 PSI	200 PSI	Yes	All	0.86	
C1KK96	9055	4	0 - 10,000	0 - 10	2000 PSI, 1 Ton	200 PSI, 0.1 Ton	No*	C, RD, RH, RLS & RSS	0.55	
C1KK97	9063	4	0 - 10,000	0 - 25	2000 PSI, 5 Ton	200 PSI, 0.5 Ton	No*	C & RD	0.55	
C1KK98	9065	4	0 - 10,000	0 - 30	2000 PSI, 5 Ton	200 PSI, 0.5 Ton	No*	RH, RLS & RSS	0.55	



High Force Hydraulics - Power Team

POWER TEAM

Pressure Gauges • Analog

Catalog Part No.	Power Team Model	Face Diameter (in)	Pressure Range (PSI)	Tons	Major Graduations	Minor Graduations	Silicone Filled	Use With Cylinder Series	Wt.	Price Each
C1KK99	9069	4	0 - 10,000	0 - 55	2000 PSI, 5 Ton	200 PSI, 0.5 Ton	No*	C, R, RA & RD	0.55	
C1KN85	9071	4	0 - 10,000	0 - 60	2000 PSI, 5 Ton	200 PSI, 1 Ton	No*	RH	0.55	
C1KL11	9075	4	0 - 10,000	0 - 100	2000 PSI, 10 Ton	200 PSI, 1 Ton	No*	C, R, RA, RD, RH, RLS, RSS & RT1004	0.55	
C1KV62	9079	4	0-10,000	0 - 200	2000 PSI, 20 Ton	200 PSI, 2 Ton	No*	R, RD & RH		

Note: * indicates shipped "dry." User can convert to "wet" using liquid silicone No. 9046.

Hydraulic Fluid

Standard/Fire-Resistant/Biodegradable/Low Temp



Standard Type: For dependable performance of all your hydraulic pumps and cylinders

- Contains foam suppressant additives and has a high viscosity index.

Flame-Out® 220 Type: Contains anti-rust, anti-foam and anti-sludge additives •

- Provides fire resistant protection • Provides maximum lubrication and heat transfer •

- Offers a wider operating temperature range • No need to change seals in your Power Team equipment. Just drain the standard oil and replace it with Flame-Out 220.

Biodegradable Type: Biodegradable, non-toxic fluid withstands moderate to severe operating conditions; provides excellent protection against rust • Offers superior anti-wear properties, has excellent multimetal compatibility. Developed to meet

stringent performance requirements and satisfy growing environmental needs for hydraulic fluids which are readily biodegradable and non-toxic. Can be used with all Power Team pumps, cylinders, valves and other accessories using standard seals. Depending on the contamination or degradation levels which might be present in used fluid, small amounts of this substance, if spilled, will not affect ground water or the environment. Acceptable methods of disposal include use as a fuel supplement. Since this fluid will not typically be hazardous waste, additional disposal options may be available, including land farming or processing through sewage treatment facilities, if necessary approvals are obtained from appropriate regulatory authorities. This fluid has been tested against EPA 560/6-82-003 and OECD 301 for biodegradability, and toxicity has been tested against EPA 560/6-82-002 and OECD 203: 1-12. Not recommended for operation in temperatures below 20°F (-7°C) or above 160°F (71°C). Recommended storage temperatures not below -10°F (-23°C) or above 170°F (77°C).

Low Temperature Type: Provides smooth, reliable operation in the coldest climate conditions.

Hydraulic Fluid • Standard/Fire-Resistant/Biodegradable/Low Temp

Catalog Part No.	Power Team Model	Type	Container Size	Grade (ASTM)	Specific Gravity @ 60° F	Color (ASTM)	Flash Point	Fire Point	Pour Point	Viscosity SSU 100°F/210°F	Viscosity Index	Wt.	Price Each
C1KN87	9636	Standard	1 Quart	215	0.88	2.0	400°F	430°F	-30°F	215/48	100	1.95	
C1JN19	9637	Standard	1 Gallon	215	0.88	2.0	400°F	430°F	-30°F	215/48	100	7.80	
C1JN20	9638	Standard	2-1/2 Gallons	215	0.88	2.0	400°F	430°F	-30°F	215/48	100	19.09	
C1KV69	9646	Biodegradable	2-1/2 Gallons	--	0.92	2.0	432°F	NA	-22°F	183/53	213	12.00	

Note: Biodegradable oil will burn if heat source is extreme enough. It will not, however, propagate the flame and is self-extinguishing when there is no ignition source.



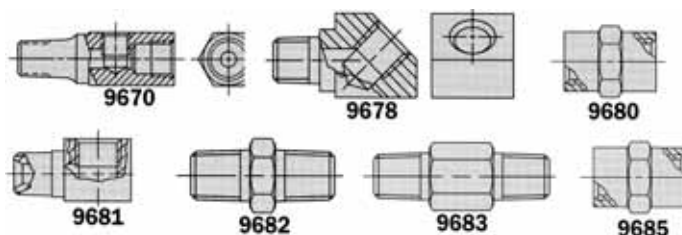
Manifolds - Remote & Pump Mounted



Manifolds - Remote & Pump Mounted

Catalog Part No.	Power Team Model	Description	Wt.	Price Each
•C1LX75	9635	Hex-shaped manifold with six 3/8" NPTF ports and two 1/4" mounting holes.	1.77	
C1JS15	9642	Manifold with two needle valves for control of two cylinders. Has four 3/8" NPTF ports.	8.20	
C1LX76	9644	Manifold with four needle valves for control of four cylinders. Has six 3/8" NPTF ports.	8.62	
C1KL14	9691	"Y" manifold for connecting two hydraulic cylinders to a single line. Has three 3/8" NPTF ports.	0.88	

Fittings - 10,000 PSI



Power Team hydraulic fittings are intended for use with Power Team high pressure hydraulic products and are suitable for use at max. working pressures of 10,000 psi unless otherwise noted.

CAUTION: On part numbers 9673, 9675, 9676 and 9677 the female swivel end of these adapters is a straight pipe thread (NPSM) with a 30° seat. All male pipe fittings that are used with these female swivel

adapters must have an internal 30° seat in order to effect a proper seal. All Power Team male fittings are manufactured with a 30° seat except 9687 and 9688.

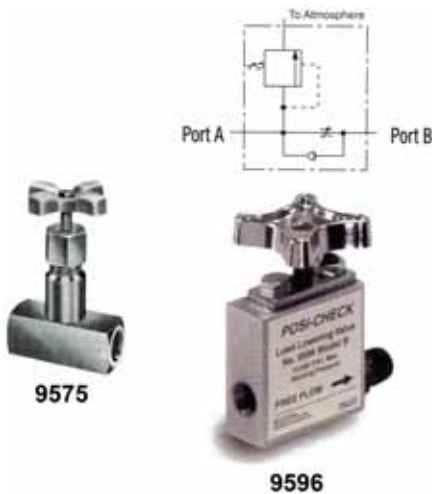
Fittings - 10,000 PSI

Catalog Part No.	Power Team Model	Description	Wt.	Price Each
•C1JN21	9670	Tee adapter. For installing gauge between pump and hose coupling. Has 1/4" and 3/8" NPTF female and 3/8" NPTF male ports.	0.50	
•C1KN88	9671	Double tee adapter. Permits use of more than one cylinder in series with one pump. Three 3/8" NPTF female ports.	1.00	
C1KV70	9675	Swivel connector. 3/8" NPTF male, 3/8" NPSM female.	0.15	
C1JS16	9678	45° fitting. Used when mounting gauge at an angle on connection such as 9670. Male x female 1/4" NPTF ends.	0.30	
•C1KN89	9679	Connector. 1/4" NPTF female and 3/8" NPTF male.	0.10	
•C1JS17	9680	Coupling. Both ends 3/8" NPTF female.	0.20	
•C1JS18	9681	Street elbow. Male x female 3/8" NPTF ends.	0.30	
•C1JS19	9682	Male connector. 11/16" long, 3/8" NPTF male ends.	0.10	
•C1JS20	9683	Male connector. 21/4" long, 3/8" NPTF male ends.	0.20	

Fittings - 10,000 PSI

Catalog Part No.	Power Team Model	Description	Wt.	Price Each
C1JS21	9685	Coupling. 1/4" NPTF female x 3/8" NPTF female.	0.20	
C1KN90	9689	Connector. 1/4" NPTF female	0.20	
C1KV71	9690	Male connector. 1-11/16" long, 1/4" NPTF male ends.	0.10	
C1KV72	9698	Cross. 3/8" tube.	0.35	
C1KL15	9699	45° gauge fitting. 3/8" NPTF male and female, and 1/4" NPTF female at 45°.	0.63	

In-Line Valves - 10,000 PSI



9596 Load Lowering Valve: Application: Precision metering for controlled cylinder piston return. Operation: Permits free flow when extending cylinder, built-in pressure relief and "Posi-Check®" locks and holds load in raised position until operator opens valve. May be pre-set to provide consistent metered return, or operator may select rate of return with each actuation. Has 3/8" NPTF ports. NOTE: Pressure relief valve setting is 12,000 psi. Operating pressure is 10,000 psi and max. flow rate is 5 gpm.

9575 Shut-Off Valve: Application: This needle valve permits fine metering of hydraulic oil. Operation: Can be used for controlling multiple single-acting cylinders.

RV21278 Relief Valves: Application: Provide an economical means of protecting a hydraulic circuit against over pressurization. Factory pre-set. Maximum flow rate of 5 gpm. 1/8" NPTF male inlet.

9633 Pressure Regulator Valve: Application: Single- or double-acting cylinders. Permits adjusting operating pressures at various values below relief valve setting of pump. Operation: Regulator valve is easily adjusted to maintain pressures between 300 and 10,000 psi. Maintains a given pressure setting within 3% over repeated cycles. Flow range is 17 cu. in./minute to 6 gpm.

In-Line Valves - 10,000 PSI

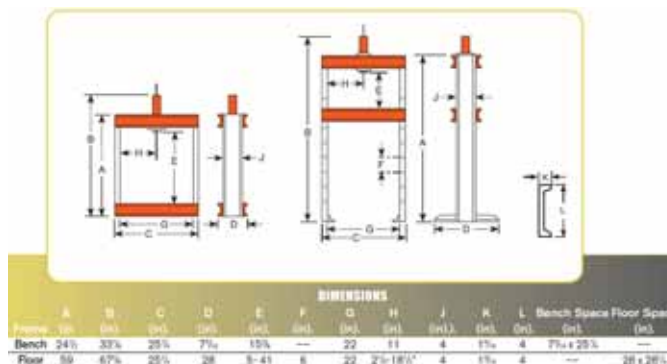
Catalog Part No.	Power Team Model	Description	Wt.	Price Each
C1JN16	9596	Load Lowering Valve, 3/8" male x female NPTF ports.	2.10	
C1JN15	9575	Shut-Off Valve, 3/8" female NPTF ports.	1.40	
C1KL13	9633	In-line pressure regulator valve with two 3/8" NPTF inlet ports, one 1/8" NPTF tank port and 3 foot drain line kit.	2.11	
C1KN18	RV21278-15	Relief Valve. Pre-set at 1,500 to 1,700 psi. Non-adjustable. 1/8" male NPTF inlet.	0.20	
C1KN19	RV21278-25	Relief Valve. Pre-set at 2,300 to 2,700 psi. Non-adjustable. 1/8" male NPTF inlet.	0.20	
C1JQ77	RV21278	Relief Valve. Pre-set at 10,100 to 10,700 psi. Non-adjustable. 1/8" male NPTF inlet.	0.20	

CAUTION: RV21278 relief valves are mounted inside reservoir and exhaust oil directly back to reservoir below oil level.

Shop Press • H Frame 10 Ton Bench/Floor Press



- Ideal for small pressing jobs: repairing small motors, armatures, removing and installing gears, bearings, other press-fit parts.
- Bench press has 15-3/8" x 18" work area: floor press bed height is adjustable from 5" to 41" with horizontal "daylight" of 21."
- Choices of power sources: single-speed hand pump, electric/hydraulic or air/hydraulic.
- Hydraulic gauges, hoses and fittings included.

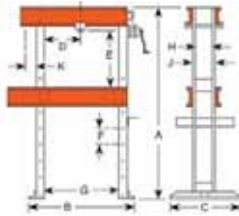


*Latent head movement

Shop Press • H Frame • 10 Ton Bench/Floor Press

Catalog Part No.	Power Team Model	Frame	Capacity (tons)	Type of Cylinder Used	Stroke (in.)	Cylinder Model	Speed	Type Pump	Pump Model	Wt.	Price Each
C1KW57	SPH1010	222480 Floor	10	Single-Acting	10-1/8	C1010C	0.06 in./stroke	Hand	P55	171.00	

H-Frame Presses • 25 Ton Open-End-Access™ & Economy Press



A (in.)	B (in.)	C (in.)	D* (in.)	E (in.)	F (in.)	G (in.)	H (in.)	J (in.)	K (in.)	L (in.)	M (in.)	Floor Space (in.)
60	43	28	3-29	6 7/8-43 3/8	4 1/2	32	5 1/2	6 1/2	7	2 1/2	8	43 x 28

*Lateral head movement

OPEN-END-ACCESS™ PRESSES: Design permits use as both “H” frame and “C” frame press; cylinder can be mounted on frame extension to handle jobs which won’t fit between uprights. • Open-end-Access™ press models are also available with remote control to enable the operator to view work from all sides with fingertip control of cylinder piston travel. • Off-center pressing loads of full capacity can be applied across entire width of frame.

ECONOMY PRESSES: Rugged, yet

reasonably priced. Handles many “big press” tasks, and perfect for many of the “in-between” jobs you see almost daily. (Note: Stroke length limited to 6-1/4” on economy models).

FEATURES OF BOTH OPEN-END-ACCESS™ AND ECONOMY PRESSES: • Press bed height easily adjustable with winch. Bed will not drop when handle is released. • Choice of power sources for rapid cylinder advance: two-speed hydraulic hand pump, electric/hydraulic or air/hydraulic.

Pump electrical specifications: PE17 Series – 1/2 hp, 115 volt, 60 cycle, single phase. • PE21 Series – 1 hp, 115 volt, 60 cycle, single phase. • Both pumps available in 230 volt, 50 cycle, add suffix “-220” to order no.

H-Frame Presses • 25 Ton • Open-End-Access™ & Economy Press

Catalog Part No.	Power Team Model	Capacity (Tons)	Stroke (in.)	Cylinder Model	Advance Speed	Pressing Speed	Type Pump	Valve Type	Pump Model	Wt.	Price Each
C1KW58	SPM256	25	6-1/4	C256C	0.129 in./stroke	0.129 in./stroke	Hand	Load-Release	P59	595.00	

Note: Pump standard with press. Other Power Team pumps can be substituted. dBA at idle and 10,000 psi: PE172–67/81 dBA; PE21–70 dBA measured at 3 foot distance, all sides.

Bottle Jacks

2 - 110 Ton Portable Hydraulic Power



Industrial Lifting and Pushing Applications: • Choose from this complete line of premium quality, standard bottle jacks. Ideal for use in any number of industrial lifting and pushing applications. • The 9110B, 9015B, 9022B and 9033B feature a beveled base which allows the jack to “follow” the load, reducing the chance of dangerous side-loading. • Many jacks feature screw extensions. • All jacks can be used in the vertical, angled or horizontal positions. • Serrated or contoured saddles help stabilize the load for a safer lift. • All jacks meet ASME B30.1 standards and carry the Power Team Powerthon™ Lifetime Warranty. • 110-ton jack features dual pumps for time-saving two-speed operation.

Bottle Jacks • 2 - 110 Ton Portable Hydraulic Power

Catalog Part No.	Power Team Model	Capacity (Tons)	Stroke (in.)	Retracted Height Min. (in.)	Length of Screw Ext. (in.)	Height w/Screw Ext. (in.)	No. Pump Strokes to Ext. Piston	Saddle Dia. (in.)	Base Size (in.)	Pump Handle Length (in.)	Handle Effort at Rated Cap. (lbs)	Wt.	Price Each
C1JS11	9112A	12	5-7/8	9-1/2	3-1/8	18-1/2	26	1-7/8	6-1/2 x 4-3/16	23-13/16	60	17.50	
C1KV65	9120A	20	6-1/4	10-5/8	3-5/8	20-1/2	22	2	7-3/16 x 5-1/16	31-1/2	70	28.50	
C1JM91	9030A	30	6-1/4	11	-	17-1/4	35	2-3/8	7-9/16 x 5-9/16	39-3/8	50	41.20	

Note: The following Bottle Jacks do NOT have a Carry Handle: 9002A, 9003A, 9005A, 9008A, 9015B.

Post Tension & Stressing Jacks 20-30 Ton



Features: Power Team Monostrand Stressing Jacks are the most durable in the industry • Ideally suited for work on slab-on-grade where dirt, heat and high volume use take their toll • Available in single- or double-acting models • Standard single-acting units have a 10" stroke. Other stroke lengths are available. • Dead-end seaters for production work and field work available. • Service repair is simple; components are long lasting and easily replaced • 3" detachable seater nose assembly easily replaced with optional 6" nose

assembly • The jack of choice for highrise and elevated work, thanks to fast return time and light weight • All hydraulic fluid controls are interior designed; more efficient and safer operation during tensioning and retraction • Standard double-acting units have an 8-1/2" stroke; others are available • Specially designed Power Team Control Valves are available for post tensioning jacks.

Post Tension & Stressing Jacks • 20-30 Ton

Catalog Part No.	Power Team Model	Description	Cylinder Capacity (tons)	Stroke (in)	Recommended Pumps	Oil Capacity (in ³)	Strand Diameter (in)	Seater Type	Tons @ 10,000 PSI	Wt.	Price Each
C1JS73	SJ2010DA	Double-acting post tension jack with power seater, 0.50" strand	20	8-1/2	PE554PT, PE604PT	53.0	0.375-0.50	Power	26.4	42.00	
C1KW53	SJ3010DA	Double-acting post tension jack with power seater, 0.60" strand	30	8-1/2	PE554PT, PE604PT	67.6	0.375-0.60	Power	39.7	52.00	

Parts for Post Tension & Stressing Jacks

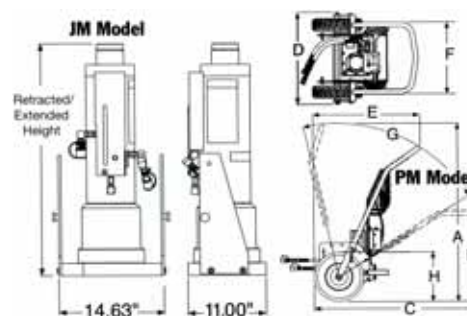
Catalog Part No.	Part Number	Description	Wt.	Price Each
C1KJ65	252555	Gripper Set, 1/2 Inch Diameter, SJ2010DA	0.57	
C1KU40	253365	Gripper Set, 19/32 Inch Diameter, SJ3010DA	0.63	
C1KJ66	252556	Replacement Handle, SJ2010DA	0.90	
C1KJ76	300944	Repair Kit, SJ2010DA	0.09	
C1KJ77	300997	Repair Kit, SJ3010DA	0.12	

Portable High Tonnage Jacks Modular Design



Portable and compact, ideal for locomotive/railcar, mining and heavy equipment maintenance.

Features: Modular design - pump and cart separate from cylinder and base • Three tonnage capacity options - 55-ton, 100-ton and 150-ton • Three



collapsed height options - 26", 33" and 45" • Two standard power options - air (PA55) and electric (PE55) • Two control options - remote motor control and remote valve/motor control • Accessory options - 6-5/8" extension, load-holding rings • Select the collapsed height to fit your most frequent application - add jacking modules to suit your needs • Remote operation for maximum operator safety and control - choose "motor only" or "motor and valve" control in the hand • Easy to maneuver - large tires and small "footprint" make it easy to scoot into the tightest quarters, then locate the exact lifting position • Adjustable, heavy-duty handle - makes this jack easy to move, position under vehicles. Can also be used to transport jack on site with a forklift. • Load-holding rings (optional) - provide full rated mechanical load-holding capability • Cylinder extension (optional) - adds more versatility by extending your jack's reach • Low-temperature oil (optional) - provides smooth, reliable operation in the coldest climate conditions • Modular design - allows you to change lifting modules to suit your tonnage or height requirements. Use the pump module as a portable power station for your other double-acting cylinders (10,000 psi). • Exclusive load-control system - provides positive, chatter-free control when lowering the load • Shielded and sheltered hydraulic lines - for safer, longer, trouble-free service.

Pump & Cart Modules: Pump and cart modules contain hydraulic pump, cart, remote control and all hoses and fittings required to connect to a jack module. Jack modules easily separate from the pump and cart module.

Extra jack modules may be purchased for a wide variety of lifting applications.

Jack Modules: Additional Jack Modules may be purchased for varying applications.

Portable High Tonnage Jacks • Modular Design

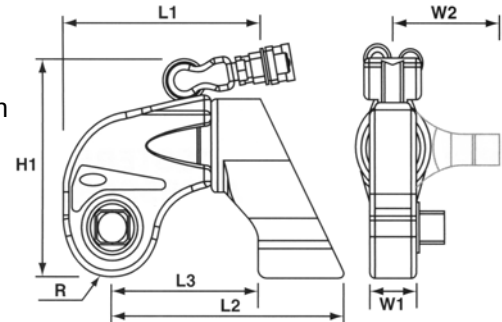
Catalog Part No.	Power Team Model	Description	Dimensions (in)	Wt.	Price Each
C1JQ44	PME55S-50-220	Electric Pump & Cart Module. 220VAC 50Hz. Remote controlled motor & valve.	53.25L x 23.38W x 57.63H	150.00	
C1KW24	JM25	Jack Module. 55 tons, 13-1/8" stroke. 26" collapsed height.	14.63L x 11.00W x 26.00H	242.00	
C1JS57	JM315	Jack Module. 150 tons, 18-1/8" stroke. 33" collapsed height.	14.63L x 11.00W x 33.00H	180.00	
C1JS58	JM420	Jack Module. 200 tons, 13-1/8" stroke. 45" collapsed height.	14.63L x 11.00W x 45.00H	813.00	

Square Drive Torque Wrenches Predator TWSD Series



Features: Low Weight, High Strength Design • Superior Torsional Strength • Fast Operation Cycle • Fine Tooth Pawl • Floating Piston Design • Internal Swivel Manifold Relief • Rigid Steel Body Construction • Compact Frame Size • Push Button Reversal of Square Drive • Corrosion Resistant Finish • 360° Reaction Arm • Push to Click Reaction Arms • Multi-Axis High Flow Swivel Manifold • Simple Design • Consistent Torque Output • Fully Enclosed Drive Mechanism • Accurate Torque Output • Marathon Lifetime Warranty.

Maximum Operating Pressure: 10,000 PSI.



Square Drive Torque Wrenches • Predator TWSD Series

Catalog Part No.	Power Team Model	Square Drive (in)	Maximum Torque (ft. lbs.)	L1 (in)	L2 (in)	L3 (in)	H1 (in)	R (in)	W1 (in)	W2 (in)	Wt.	Price Each
C1KG51	TWSD3	1	3,070	6.70	7.70	4.90	6.90	1.50	1.80	4.10	12.62	

Accessories for TWSD Series Torque Wrenches

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1KG41	TWH15	Dual-Line Hose Assembly, 15 feet, Non-Conductive, 1/4" ID, with Coupling Halves & Dust Caps/Plugs	8.00	
C1KG42	TWH20	Dual-Line Hose Assembly, 20 feet, Non-Conductive, 1/4" ID, with Coupling Halves & Dust Caps/Plugs	9.50	
C1KG43	TWH50	Dual-Line Hose Assembly, 50 feet, Non-Conductive, 1/4" ID, with Coupling Halves & Dust Caps/Plugs	17.00	

Low Clearance Torque Wrenches Predator TWLC Series

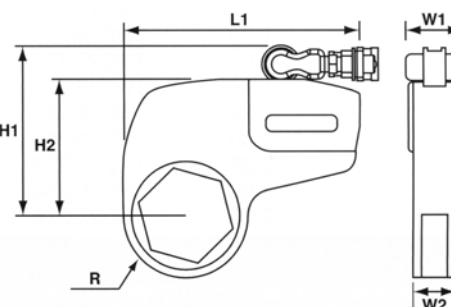


Features: Low Weight, High Strength Design • Superior Torsional Strength • Fast Operation Cycle • Fine Tooth Pawl • Floating Piston Design • Auto-Connect Drive Piston • Compact Frame Size • Rigid Steel Body Construction • Internal swivel manifold Relief • Built-in

Reaction Pad • Small Nose Radius • Tool Free Link Change • Corrosion Resistant Finish • Multi-Axis High Flow Swivel Manifold • Simple Design • Consistent Torque Output • Marathon Lifetime Warranty.

Note: Links are sold separately, tool is not shipped with a required Link.

Maximum Operating Pressure: 10,000 PSI.



Low Clearance Torque Wrenches • Predator TWLC Series

Catalog Part No.	Power Team Model	Hex Range (in)	Maximum Torque (ft. lbs.)	L1 (in)	H1 (in)	H2 (in)	R (in)	W1 (in)	W2 (in)	Wt.	Price Each
C1KG46	TWLC4	1-1/2 - 3-1/8	3,975	8.80	6.40	5.10	1-1/2 - 1-7/8	2.00	1.70	5.55	
C1KG47	TWLC8	2-3/8 - 3-7/8	7,950	10.40	7.70	6.20	2 - 2-7/8	2.70	2.10	8.74	

Note: Links are sold separately, select required Link from table below.

Accessories for TWLC Series Torque Wrenches

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1KW62	TWL2-050	Link for TWLC2, Nut A/F 2.00"	5.50	
C1KG41	TWH15	Dual-Line Hose Assembly, 15 feet, Non-Conductive, 1/4" ID, with Coupling Halves & Dust Caps/Plugs	8.00	
C1KG42	TWH20	Dual-Line Hose Assembly, 20 feet, Non-Conductive, 1/4" ID, with Coupling Halves & Dust Caps/Plugs	9.50	
C1KG43	TWH50	Dual-Line Hose Assembly, 50 feet, Non-Conductive, 1/4" ID, with Coupling Halves & Dust Caps/Plugs	17.00	

2-Speed Torque Wrench Pumps

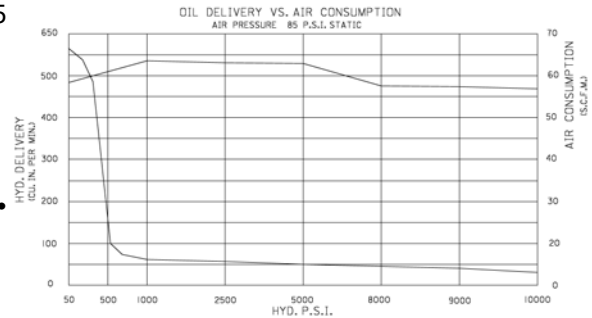
X1A1 (Air) X1E1 (Electric) (55in³ @ 10,000PSI)



Features: Base pump unit is the PE55 Series - the standard in the industry • Two-speed high performance pump • Retract side internal relief valve protects tool • 4-way 2-position solenoid valve is standard • Utilizes rugged electrical controls • External adjustable pressure relief • Hand remote is standard • For single or double acting tools.

CAUTION: This system should not be used for lifting applications.

Maximum Pressure Output: 10,000 PSI.



2-Speed Torque Wrench Pumps • X1A1 (Air) X1E1 (Electric) (55in³ @ 10,000PSI)

Catalog Part No.	Power Team Model	Oil Delivery (in ³ per min) 100psi/10,000psi	Reservoir Oil Capacity (in ³) Usable	Motor	Electrical Control	Dimensions (in)	Wt.	Price Each
C1KX59	X1E1-PT	575 / 55	525	115V 60 Hz	25 foot cord	18.00L x 13.00W x 13.88H	72.80	
C1JR17	X1A1-PT	465 / 55	590	Air Motor, 80 to 120 PSI required	25 foot cord	18.00L x 10.75W x 18.75H	75.40	

Single-Phase 2-Speed Torque Wrench Pumps PE55TWP Series (56in³ @ 10,000PSI)



Features: Two-speed high performance pump • External adjustable pressure regulator • Retract side internal relief valve protects tool • Hand remote • Use for double or single acting tools • Four-tool manifold (-4 suffix models only) allows use of up to four tools simultaneously.
CAUTION: This system should not be used for lifting applications.
Maximum Pressure Output: 10,000 PSI.

Single-Phase 2-Speed Torque Wrench Pumps • PE55TWP Series (56in³ @ 10,000PSI)

Catalog Part No.	Power Team Model	Oil Delivery (in ³ per min) 100psi/10,000psi	Reservoir Oil Capacity (in ³) Total/Usable	Motor	Electrical Control	Dimensions (in)	Wt.	Price Each
C1JQ35	PE55TWP	704 / 56	577 / 525	1-1/8HP 115VAC 60Hz, 25 amps	Remote control with 20 foot cord	9.50L x 17.14W x 18.12H	75.00	
C1KW43	PE55TWP-4	704 / 56	577 / 525	1-1/8HP 115VAC 60Hz, 25 amps	Remote control with 20 foot cord	9.50L x 18.49W x 19.15H	75.00	

Note: Models with -110 or -220 suffix have CE approval for 50 Hz applications.

Parts for PE55TWP and PE55TWP-220

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1KU30	2001708	Electric Motor Brush Assembly for 230V	0.02	

Service Tools



Magnetic Pick-Up Tool: Has permanent magnetic head for retrieving parts from otherwise inaccessible places.

Service Tools

Catalog Part No.	Power Team Model	Description	Wt.	Price Each
C1KK82	7395	Pick-up tool with pocket clip. 6" long.	0.10	

Retaining Ring Pliers Internal and External



7053K: Replaceable tip pliers kit. This versatile kit contains (1) internal and (1) external pliers with (8) tip sets. Two sets each: .038 dia. 90° bend, .047" dia. straight, .047" dia. 90° bend, .070" dia. straight. Recommended for 1/4"-2" rings. Packaged in plastic storage case shown at left.

7406K: Professional pliers kit. Contains (6) retaining convertible pliers to handle both internal and external rings from 1/4"-2". Includes straight and 90° off-set pliers with .038", .047", and .070" tip diameters. Packaged in an impact resistant storage case shown at right.



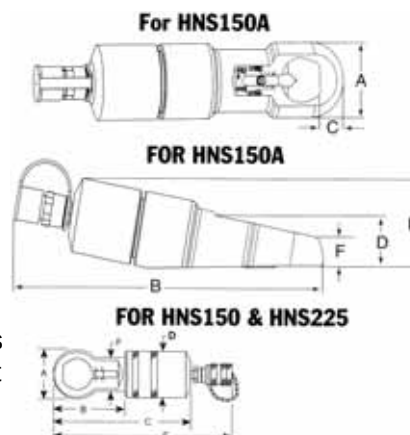
Retaining Ring Pliers • Internal and External

Catalog Part No.	Power Team Model	Description	Wt.	Price Each
C1KV27	7053K	Kit Includes (1) internal and (1) external pliers.	0.74	
C1KV41	7406K	Kit Includes Plier Nos. 1120, 1131, 1320, 1329, 1340 and 1349.	2.63	

Hydraulic Nut Splitters HNS Series



Features: "Dial-in" feature on HNS150 makes adjustment of splitter simple, without the worry of damaging the bolt • Specially designed "tool steel" cutter blade penetrates the nut to the precise point where it cracks, stopping short of the bolt threads • Nut splitter features a dramatically improved cutter blade with an 800% greater resistance to chipping and breaking over previous models • All models feature a rugged one-piece cutting frame coupled to a heavy-duty hydraulic cylinder • Compact size allows you to use it in confined areas where it will deliver enough force to split the toughest "fused" or rusted-on grade 2H nuts • Simply split nut on one side, spin nut splitter 1/2 turn and make second cut on opposite side; nut separates into halves for easy removal.



Hydraulic Nut Splitters • HNS Series

Catalog Part No.	Power Team Model	Capacity (Nut Grade 2 or A)	Capacity (Nut Grade 5 or B)	Capacity (Nut Grade 8 or C)	Capacity (Nut Grade 2H)	Head Thickness (in)	Replacement Blade	Dimensions (in)	Wt.	Price Each
C1JN93	HNS150A	1/2 - 1-1/2 inch hex	1/2 - 1-1/2 inch hex	1/2 - 1-5/16 inch hex	1/2 - 1-1/8 inch hex	1	351985	14.20L x 3.02W x 3.70H	15.80	

Parts for HNS Series Hydraulic Nut Splitters

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1KU79	351985	Replacement Blade for HNS150A	0.21	

Hydraulic Punches & Punch Sets 20 & 30 Ton



Features: Punch smooth, precise holes in seconds; much faster than drilling • Fully portable for construction, maintenance and service applications, or can be mounted on a workbench for production jobs. Has carrying handle for precise locating. • Rugged, forged steel "C" frame for great strength and durability • Dual action, spring loaded stripper holds material during punching operation, strips material from punch on return. Scribe lines on stripper aid in locating the punch (HP 35 only). •

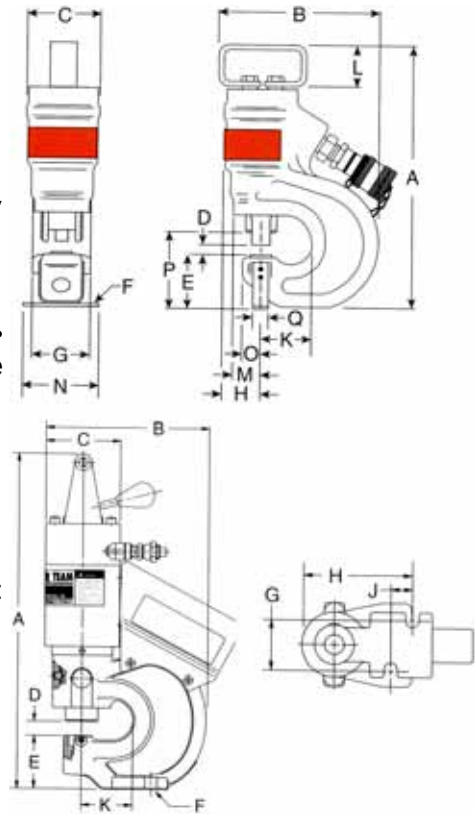
Double Acting prevents binding and speeds retraction (HP20 only) • The PE172 electric/hydraulic pump is an ideal power source.

HP-35 Model: Punch only, includes metal case and die change tools.

HP35SP Model: Punch set with pump. Includes HP35 punch, PE172 electric/hydraulic pump, 9756 hose, 9798 hose half coupler, 250459 punch/die set, metal case. NOTE: For 220 volt, 50 Hz. order with suffix "-220".

250459 Punch/Die Set: Punch/die set for round holes. Includes one each: PD437 7/16" punch/die, PD562 9/16" punch/die, PD688 11/16" punch/die, PD812 13/16" punch/die.

Maximum Operating Pressure: 10,000 PSI.



Hydraulic Punches & Punch Sets • 20 & 30 Ton

Catalog Part No.	Power Team Model	Capacity (tons)	Maximum Material Thickness (in)	Description	Oil Capacity (in ³)	Tool Dimensions (in)	Wt.	Price Each
C1KM22	HP35S	35	1/2	Punch with punches and dies. Includes HP35 punch, metal case and 250459 punch/die set.	4.6	A=13.75 B=9 C=3.75 D=0.56 E=2.88	44.00	

Punches

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1KM89	PD688	Punch w/ Flat Die Set, Round, 11/16", for HP35	0.46	

Wrenches & Pry Bars Spanners & Jimmy Bars



Heavy Duty Adjustable Spanner: Extra heavy construction. Has one 3/4" thick, eleven-position hook-jaw for a capacity of 4-3/4" to 12-3/4" O.D. Drop-forged. Handle length: 25-3/4"; handle dia.: 15/16".

Ratcheting Chain Wrenches: Special head design allows you to turn



wrench in either direction. Ratcheting action makes it possible to re-grip without removal. For parts of most any size and shape.

Pry Bars: Rolling head pry bars are an extremely popular and useful tool. Head may be used for almost any prying job since a great deal of leverage can be obtained. Long tapered body may be used as a lining-up drift.

Jimmy Bars: Ideal for general lifting or prying. Heat treated chrome alloy steel to resist bending or breaking.

Adjustable Gland Nut Wrench: Designed to handle 2" to 6" dia. hydraulic cylinder gland nuts on many construction vehicles. Fits 1/4" and 5/16" dia. pin holes; features a 3/4" sq. drive.

Wrenches & Pry Bars • Spanners & Jimmy Bars

Catalog Part No.	Power Team Model	Description	Wt.	Price Each
•C1LW70	1266	Adjustable gland nut wrench	3.00	
C1KK75	7163	Pry Bar, 7/16" round, 12" long.	0.60	
•C1KK76	7165	Pry Bar, 3/4" round, 18" long.	2.20	
C1KK77	7166	Jimmy Bar, 3/4" round, 18" long.	1.40	
•C1KK78	7167	Jimmy Bar, 3/4" round, 24" long.	2.50	
C1KK79	7168	Jimmy Bar, 7/8" round, 30" long.	4.30	
C1KV42	7420	Jimmy Bar, 7/8" round, 46" long	7.50	
C1KV43	7421	Jimmy Bar, 1" round, 54" long	11.30	
•C1JR91	7400	Chain wrench, cap. 1/2" to 4-3/4" O.D. (Capacity= 333 ft. lbs.)	2.15	
C1JR92	7401	Chain wrench, cap. 3" to 6-3/4" O.D. (Capacity= 666 ft. lbs.)	5.00	

Mechanical Jaw Pullers 1-25 Ton

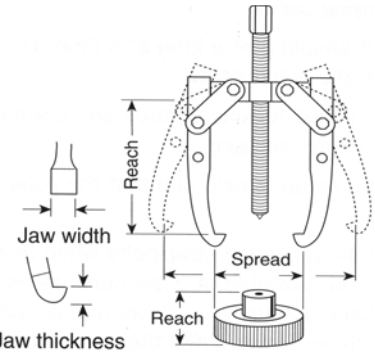


Pullers designed to pull gears, bearings and countless other press fitted parts.

Features: Grip-O-Matic® feature on all pullers. The harder the pull, the tighter the grip for removing gears, bearings and countless other press fitted parts. • 2-way, 3-way and 2/3 way combination pullers make it easy to select a specific puller for a specific application • Forged from high quality steel, heat treated and subjected to rigorous tests which exceed rated puller capacity.

Choosing the right size puller: Compare the “reach” and “spread” of the pulling job with that of the pullers listed. The

puller selected must have dimensions greater than those of the job.



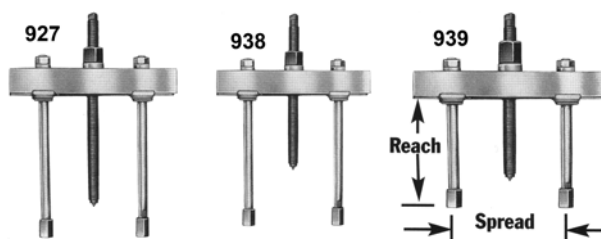
Mechanical Jaw Pullers • 1-25 Ton

Catalog Part No.	Power Team Model	Capacity & Style	Maximum Reach (in)	Maximum Spread (in)	Screw Size (in)	Jaw Thickness (in)	Jaw Width (in)	Wt.	Price Each
C1KT98	1022	2 Ton, 2-Jaw, reversible jaws	3-3/8	4	3/8-24 x 4-7/8	Upper 3/16 Lower 1/8	Upper 1/4 Lower 1/2	1.00	
C1JR37	1023	2 Ton 2/3-Jaw, reversible jaws	3-3/8	4-3/4	3/8-24 x 4-7/8	Upper 3/16 Lower 1/8	Upper 1/4 Lower 1/2	1.31	
C1JR40	1027	5 Ton Long 2/3-Jaw, reversible jaws	5-1/2	7	9/16-20 x 6-15/16	Upper 5/16 Lower 1/4	Upper 3/8 Lower 3/4	3.62	
C1KU11	1037	7 Ton, 2/3-Jaw, reversible jaws	5	10-1/2	11/16-18 x 9	Upper 5/16 Lower 11/32	1	6.60	
C1JR43	1038	7 Ton Long 2/3-Jaw	8-3/4	11	11/16-18 x 9	11/32	1	8.12	
C1JR45	1041	13 Ton 2/3-Jaw	11	12	13-16 x 12	9/16	1	16.25	
C1KU13	1046	17-1/2 Ton Long 3-Jaw	18-3/4	16	1-14 x 13-1/2	13/16	1-9/32	36.50	
C1KU14	1050	25-Ton Long 3-Jaw	22-1/4	20	1-1/4-12 x 16-5/8	1-1/16	1-1/2	60.00	

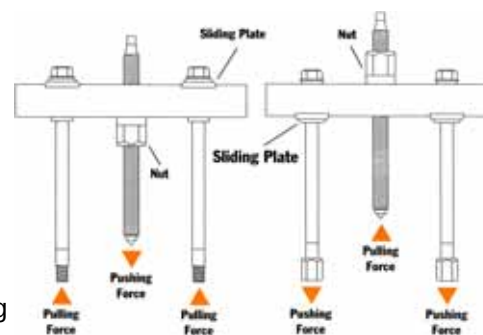
Mechanical Puller Accessories

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1KH90	1123	Bearing puller attachment, Max. Spread 4-5/8", Min. Spread 1/2", Use with Pullers 1035, 1036, 1037, 1038, and 927.	5.42	
C1KU15	1126	Bearing puller attachment, Max. Spread 8", Min. Spread 5/8", Use with Pullers 1043 and 939.		
C1KH91	1127	Bearing puller attachment, Max. Spread 13-3/8", Min. Spread 3/4", Use with Pullers 1047, 1073, and 939.		

Mechanical Push Pullers 10, 17-1/2 & 30 Ton



For removing and installing gears, bearings, pulleys and other press-fitted parts. Federal Specification: GGG-P-00781-D.



Features: Can apply a pushing or pulling force, depending on how the puller is set up • Optional leg kits adapt your Push-Puller® to extra long or extra short reach • A wide variety of threaded adapters, bearing pulling attachments and internal pulling attachments can be used in combination with these Push-Pullers.®

Selection & Capacity Rating: Each Push-Puller's specified tonnage "capacity" is determined using its standard legs in tension. Using longer legs, or a setup in which the legs are in compression, will reduce the "capacity". Always select the largest "capacity" puller and the shortest legs that will fit the job.

Assembling the tool to apply pushing or pulling force: 1. Determine if you want the tool's forcing screw to push or pull. 2. To exert pushing force, the forcing nut is installed beneath the cross block, as shown on left. 3. To cause the forcing screw to pull, the forcing nut is placed on top of the cross block. 4. The sliding plates must always be placed on the opposite side of the cross block from the forcing nut.

Mechanical Push Pullers • 10, 17-1/2 & 30 Ton

Catalog Part No.	Power Team Model	Description	Maximum Reach (in)	Maximum Spread (in)	Screw Size (in)	Notes	Wt.	Price Each
C1JM98	927	10 ton capacity, can be used with 1123 bearing pulling attachment, 679 pulley pulling attachment. May also be used with 1150, 1151, 1152, 1153 internal pulling attachments.	8-1/4	2-1/8 - 7-1/4	3/4"-16 x 12	1/2" of forcing screw tip end is threaded 5/8"-18. Model 1100 legs and 24827 leg ends included.	7.00	
C1KV66	939	30-Ton Capacity can be used with Nos. 1126 and 1127 bearing pulling attachments or No. 680 pulley pulling attachment (two 8012 adapters are required to connect 680 to puller). Can be used with No. 1165 internal pulling attachment.	10-1/2	7 - 16-1/4	1"-14 x 13-1/4	Leg ends threaded 5/8"-18. No. 1106 legs and No. 24827 leg ends included.	20.75	

10 Ton Manual Puller Set Strong Box Model IPS10B



Here's a set of pullers that gives you almost unheard of versatility. This rugged, lock-able metal storage cabinet contains pullers, attachments and extra puller jaws good for a variety of applications. Cabinet may be mounted on a wall, stand, or workbench.

Model IPS10B Set Contents: Model 927 10 ton capacity Push-Puller® with 6-3/4" legs. Model 1027 5 ton combination 2/3 jaw puller. Model 1037 7 ton combination 2/3 jaw puller. Model 1101 15-3/4" puller legs (pair). Models 1122 & 1123 bearing pulling attachments. Model 1152 internal pulling attachment.

Model 7393 gear & pulley puller. Male/Female Threaded Adapters, 2 of each:

Models 8005, 8006, 8007, 8010, 8013, 8015, 8019. Female Threaded Adapters: Models 8035, 8037, 8038, 8039, 8040. Shaft Protectors: Models 8050 thru 8053. Step Plate Adapters: Models 8057 thru 8062. 3ea Model 43892 Long Jaws for 1037. 212867 Cabinet, tool board and adapter board.

10 Ton Manual Puller Set • Strong Box Model IPS10B

Catalog Part No.	Power Team Model	Description	Wt.	Price Each
C1JS52	IPS10B	10 ton capacity Strong Box manual puller set. Includes cabinet with tool board, adapter board and tool set.	98.00	

10 Ton Hydraulic/Manual Puller Set Strong Box ISP10HB



This lockable metal Strong Box contains both hydraulic and manual pullers, plus attachments. The rugged storage cabinet keeps the tools organized and secure from unauthorized borrowers!

Model IPS10HB Set Contents: PH103C 10 ton combination 2/3-jaw hydraulic puller, 1027 5 ton combination 2/3-jaw puller, 1042 13 ton combination 2/3-jaw puller, 1177 Slide hammer puller, 44148 3 jaws for slide hammer puller (4 1/2"), 44195 3 jaws for slide hammer puller (3"), 36578 Slotted cross head for slide hammer puller, 27315 Seal hook for slide hammer puller, 1152 Internal pulling attachment (1 1/2" to 6" spread),

24832 Forcing screw for 1152, 215315 Cabinet and tool board.

10 Ton Hydraulic/Manual Puller Set • Strong Box ISP10HB

Catalog Part No.	Power Team Model	Description	Dimensions (in)	Wt.	Price Each
C1KW22	IPS10HB	10 ton capacity hydraulic/manual puller set in Strong Box	25 3/4" x 29 1/2" x 10"	119.00	

10 Ton Manual Puller Set Model IPS10M



This lockable metal strong box contains both hydraulic and manual pullers, plus attachments. The rugged storage cabinet keeps the tools organized and secure from unauthorized borrowers.

Model IPS10M Set Contents: Model PH103C 10 ton combination 2/3 jaw hydraulic puller. Model 1027 5 ton combination 2/3 jaw puller. Model 1042 13 ton combination 2/3 jaw puller. Model 1177 slide hammer puller. Model 44148 3 jaws for slide hammer puller (4-1/2"). Model 44195 3 jaws for slide hammer puller (3"). Model 36578 slotted cross head for slide hammer puller. Model 27315 seal hook for slide hammer puller. Model 1152 internal pulling attachment (1-1/2" to 6" spread). Model 24832 forcing screw for 1152. Model 215315 cabinet & tool board.

Storing Boards (Sold Separately): DB10M (Board for storing IPS10M set). DB17M (Board for storing IPS17M set). 3/8" x 36"W x 48"H.

10 Ton Manual Puller Set • Model IPS10M

Catalog Part No.	Power Team Model	Description	Wt.	Price Each
C1JS53	IPS10M	10 ton capacity manual puller set	53.00	

Hydra Lock-Jaw™ Pulling System 6, 8, 11 & 30 Ton

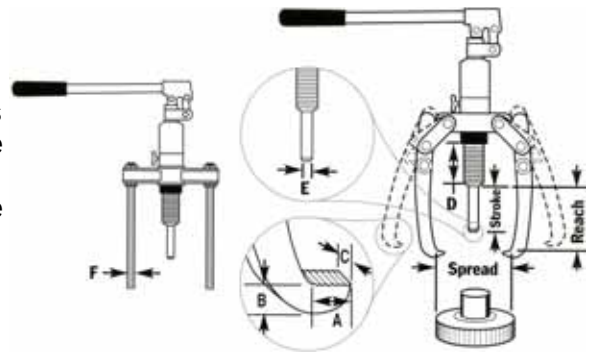


A self contained pulling system in a compact package.

Features: You get the world's most copied puller design; the harder the pulling force, the tighter the jaws grip for secure holding force • Power Team pullers are tested for top performance and reliability at maximum capacity and jaw spread • Removing a wide variety of gears, bearings, bushings, pulleys and other press-fitted parts becomes a routine task • Easily metered release valve

control knob • Spring loaded live centering cone • Bladder type oil reservoir • Rapid adjustment • Use with 2 or 3 jaws • Supplied with a sturdy storage/carrying case • Features Power Team's exclusive Marathon Limited Lifetime Warranty.

Lock-Jaw™ pulling system: These pullers are ideal for pulling a wide variety of press-fitted parts including bushings, bearings, wheels, gears and pulleys. Applications can be found in a wide variety of industries as well. Grip-O-Matic® pullers have been rigorously tested for top performance and reliability. PH82K is a complete pulling system which includes a hydraulic power module, 2-way puller head, jaws, legs and bearing splitter attachment; all contained in a convenient carrying case.



Hydra Lock-Jaw™ Pulling System • 6, 8, 11 & 30 Ton

Catalog Part No.	Power Team Model	Cylinder Capacity (tons)	Reach (in) Studs	Reach (in) Jaws	Minimum Reach (in)	Maximum Studs (in)	Spread Jaws (in)	Stroke (in)	Dimensions (in)	Wt.	Price Each
C1JQ43	PH83C	8	--	7-1/2	--	--	9-13/16	3-1/8	A=0.44 B=0.38 C=1.00 D=3.25 E=1.13	14.50	
C1JQ42	PH113C	15	--	9	--	--	11	3-1/8	A=0.56 B=0.38 C=1.13 D=3.25 E=1.13	17.60	
C1KW46	PH303C	30	10-1/2	14-3/4	--	--	21-1/4	4-1/4	A=1.06 B=1.44 C=1.5 D=6.69 E=2.13 F=5/8-18 UNF	112.00	

Pullers - Hydraulic 5, 10, 17-1/2, 30 & 50 Ton



Features: • Remove gears, bearings, and other press-fitted parts with speed and ease. • Broad capacity range of 5, 10, 17-1/2, 30 and 50 tons. • Hydraulic cylinder of all models is readily removable from puller for use with pump in other hydraulic applications. You get maximum maintenance versatility for your investment.

5 and 10 ton sets include: single-acting, spring return hydraulic cylinder with hose, coupler and dust cap; single-speed hydraulic hand pump; puller.

17-1/2, 30 and 50 tons sets include: Power-Twin® single acting, spring return hydraulic cylinder with 6-ft. hose, coupler and dust cap; single-speed hydraulic hand pump; puller, adjusting screw and crank.

Pullers - Hydraulic • 5, 10, 17-1/2, 30 & 50 Ton

Catalog Part No.	Power Team Model	Capacity (Tons)	Type	Cylinder Model	Pump Model	Adjusting Screw	Puller Model	Wt.	Price Each
C1KW45	PH303	30	3-Jaw	RT302 center-hole Power-Twin® cylinder	P55	1-1/4" – 7 x 24" large adjusting screw	1074	150.00	
C1MW63	PH503	50	3-Jaw	RT503 center-hole Power-Twin® cylinder	P55	1-5/8" – 5-1/2 x 30-3/8" long adjusting screw	1080	286.00	

CAUTION: Always use a 3-jaw puller where clearance permits in order to provide a more stable setup and a more even pulling force.

17-1/2 Ton Hydraulic Puller Set Model IPS17H



This set includes a 3-jaw puller and a Push-Puller®. Ideal for heavy duty applications; put this set to work wherever large gears, bearings, wheels, pulleys, etc. are found.

Model IPS17H Set Contents: Model 3084350R9 wooden storage box. Model P55 single-stage hydraulic hand pump assembly. Model RT172 17-1/2 ton cylinder with threaded insert. Model 9898 hose half coupler. Model 9767 6 foot hydraulic hose. Model 9670 tee adapter. Model 9059 pressure gauge. Model 1062 17-1/2 ton capacity Push-Puller® with 16-1/2" legs. Model 1066 17-1/2 ton 3-jaw hydraulic puller. Model 1154 bearing cup pulling attachment. Model 1130 bearing pulling attachment. Model 1105 22-1/2" legs (pair). Model 24818



Wooden storage box included

speed crank. Model 28228 screw cap. Model 32118 adjusting screw. Model 201454 pushing adapter. Model 41224 2-jaw head for 1066. Model 8020 1"-8 female x 5/8"-18 male threaded adapter. Model 8038 5/8"-8 female x 3/4"-16 female threaded adapter.

17-1/2 Ton Hydraulic Puller Set • Model IPS17H

Catalog Part No.	Power Team Model	Description	Wt.	Price Each
C1JN98	IPS17H	17 1/2 ton capacity hydraulic puller set. Includes hydraulics, pullers, wooden storage box and accessories.	137.00	

CAUTION: All the items listed may not withstand the full tonnage specified. For Example: When an accessory with a 1 ton capacity is used with a 10 ton puller, the setup can be used only at a force of 1 ton.



30 Ton Hydraulic Puller Set
Model IPS30H



Wooden storage box included

Just what you need for those big jobs. Not only do you get a 30 ton hydraulic Push-Puller® , you also get a 2-jaw and a 3-jaw hydraulic puller. Plus, many popular accessories and the hardware needed to tackle the big jobs right away. **Model IPS30H Set Contents:** Model 3084350R9 wooden storage box. Model P55 single-stage hydraulic hand pump assembly. Model RT302 30 ton cylinder with threaded insert. Model 9798 hose half coupler. Model 9767 6 foot hydraulic hose. Model 9670 tee adapter. Model 9059 pressure gauge. 2ea Model 8036 1"-14 female x 1"-14 female threaded adapters. Model 1166 bearing cup pulling attachment. Model 1127 bearing pulling attachment. Model 1074 30 ton 3-jaw hydraulic puller. Model 41226 2-way head for 1074. Model 1070 30 ton capacity hydraulic Push-Puller® with 18" legs. Model 1111 28" legs for 1070. Model 27198 speed crank. Model 28229 screw cap. Model 34510 pushing adapter. Model 34758 adjusting screw.

30 Ton Hydraulic Puller Set • Model IPS30H

Catalog Part No.	Power Team Model	Description	Wt.	Price Each
C1JS56	IPS30H	30 ton capacity hydraulic maintenance puller set. Includes hydraulics, pullers, wooden storage box and accessories.	330.00	

CAUTION: All the items shown may not withstand the full tonnage specified. Example: When an accessory with a 1 ton capacity is used with a 7 ton puller, the setup can be used only at a force of 1 ton maximum.

50 Ton Hydraulic Puller Set Model IPS50H



For those really big jobs, this 50 ton puller set is what you need. Just think of the jobs you can do with a 50 ton hydraulic Bi-Directional™ Puller, a 2-jaw and a 3-jaw puller, both with a 50 ton capacity. Of course, you also get many versatile accessories and attachments.

Model IPS50H Set Contents - Hydraulics:

Model 3084350R9 wooden storage box. Model P55 single-stage hydraulic hand pump assembly. Model RT503 50 ton cylinder with threaded insert. Model 9798 Hose half coupler. Model 9767 6 foot hydraulic hose. Model 9670 tee adapter. Model 9059 pressure gauge.

Pullers: Model 1080 50 ton, 3-jaw hyd. Puller. Model 50449 2-way head for 1080. Model 1076 50 ton cap. Hydraulic Bi-Directional™ Puller with 24" legs. Model 1113 34" legs for 1076. Model 29595 Speed crank. Model 28230 Screw cap. Model 34755 Pushing adapter. Model 32698 Adjusting screw. Model 1128 Bearing pulling attachment.

Threaded Adapters: Model 8024 11/4" – 12F. x 13/4" – 12M(2). Model 8028 15/8" – 51/2 F. x 1" – 8M. Model 8029 15/8" – 51/2 F. x 1" – 14M.



Wooden storage box included

50 Ton Hydraulic Puller Set • Model IPS50H

Catalog Part No.	Power Team Model	Description	Wt.	Price Each
C1KW23	IPS50H	50 ton capacity hydraulic maintenance puller set. Includes hydraulics, pullers, wooden storage box and accessories.	576.00	

CAUTION: All the items shown may not withstand the full tonnage specified. Example: When an accessory with a 1 ton capacity is used with a 7 ton puller, the setup can be used only at a force of 1 ton.



17-1/2 & 30 Ton Manual & Hydraulic Puller Set Model IPS3017



These heavy-duty maintenance sets will more than pay for themselves, especially in saving you costly damage to parts. Lets you tackle hundreds of applications where pulling and pushing are required.



Wooden storage box included

Model IPS3017 Set Contents: Model 3084350R9 wooden storage box. Model P55 single-stage hydraulic hand pump. Model RT172 17-1/2 ton center-hole twin cylinder with threaded insert. Model RT302 30 ton center-hole twin cylinder with threaded insert. Model 9798 hose half coupler. Model 9767 6 foot hydraulic hose. Model 9670 tee adapter. Model 9059 pressure gauge. Model 1062 17-1/2 ton capacity hydraulic Push-Puller® with 16-1/2" legs. Model 1070 30 ton capacity hydraulic Push-Puller® with 18" legs. Model 1066 17-1/2 ton 3-jaw hydraulic puller. Model 1074 30 ton 3-jaw hydraulic puller. Model 41224 17-1/2 ton 2-jaw puller head. Model 41226 30 ton 2-jaw puller head. Combination 2/3 jaw pullers: Models 1027, 1037, 1041. Model 43892 long jaws (3 ea) for 1037. Model 30902 long jaws (3 ea) for 1041. Model 1105 22-1/2" legs for 1062. Model 1111 28" legs for 1070. Speed Cranks: Models 24814, 27198. Model 28229 screw cap. Model 28228 cylinder cap. Adjusting Screws: Models 32118, 34758. Pushing Adapters: Models 34510, 201923. Model 24832 special puller forcing screw. Step Plate Adapter Sets: Models 8075, 8076. Model 8056 shaft protector set. Pulley Pulling Attachments: Models 679, 680. Bearing Cup Pulling Attachments: Models 1154, 1166. Bearing Pulling Attachments: Models 1122, 1123, 1126, 1130. Threaded Adapters: Model 8005 5/8"-18 female x 3/8"-16 male (2ea), Model 8006 5/8"-18 female x 1/2"-20 male (2ea), Model 8007 5/8"-18 female x 1/2"-13 male (2ea), Model 8010 5/8"-18 female x 5/8"-11 male (2ea), Model 8012 1"-14 female x 5/8"-18 male (2ea), Model 8013 5/8"-18 female x 3/4"-16 male (2ea), Model 8015 5/8"-18 female x 3/4"-10 male (2ea), Model 8017 5/8"-18 female x 7/8"-14 male (2ea), Model 8018 5/8"-18 female x 7/8"-9 male (2ea), Model 8019 5/8"-18 female x 1"-14 male (2ea), Model 8020 1"-8 female x 5/8"-18 male (1ea), Model 8021 1"-8 female x 1"-14 male (1ea), Model 8025 1-1/4"-7 female x 5/8"-18 male (2ea), Model 8027 1-1/4"-7 female x 1"-14 male (2ea), Model 8036 1"-14 female x 1"-14 female (2ea), Model 8038 5/8"-18 female x 3/4"-16 female (2ea), Model 8044 female threaded adapter set.

17-1/2 & 30 Ton Manual & Hydraulic Puller Set • Model IPS3017

Catalog Part No.	Power Team Model	Description	Wt.	Price Each
C1JS55	IPS3017	17-1/2 and 30 ton capacity manual and hydraulic puller set. Includes hydraulics, pullers, and accessories.	537.00	

CAUTION: All the items shown may not withstand the full tonnage specified. Example: When an accessory with a 1 ton capacity is used with a 7 ton puller, the setup can be used only at a force of 1 ton maximum.

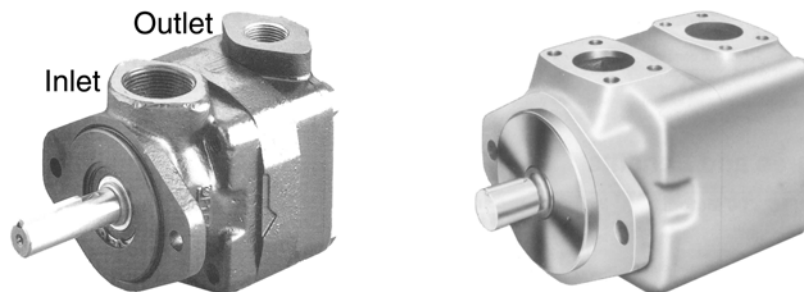
Threaded Adapters

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1KV45	8007	Threaded Adapter, 5/8"-18 F. x 1/2"-13 M x 2-1/4" long	0.31	
C1KK86	8010	Threaded Adapter, 5/8"-18 F. x 5/8"-11 M x 2-1/4" long	0.29	

Technical Information Pumps



Vickers Vane Pumps



Features and Benefits

Easy to Apply & Install - A large swept volume provides for greater pump displacement in a smaller envelope.

Ports can be oriented relative to each other in 90° increments. Direction of rotation can be easily reversed. A broad selection of displacements is available for each series. A wide range of shafts are available.

Long Life Expectancy - Diametrically opposed pumping chambers eliminate internal loading on bearings. Pumps are qualified at 110% of ratings, assuring long life when operated within rated conditions.

Continuous High Performance - Vanes automatically compensate for any vane tip wear, providing like-new pump performance for the duration of its life. Pressure-loaded side plates maintain minimum side clearances for continuous volumetric efficiency, providing high pump performance indefinitely.

Quiet Performance - Pumps have ten or twelve vanes, each providing two pumping events per revolution, resulting in exceptionally low pressure "ripple" in the hydraulic system. Low ripple means low vibration, and therefore low noise generation.

Conforms to a Wide Variety of Applications - The pumps will accommodate almost any type of special hydraulic fluid that the application requires. A very low starting torque is required as the vanes are not extended until operating speed exceeds 500-600 rpm., which results in easier starting.

Easy to Service - The pumps can be easily serviced with a cartridge kit, upgrading the pump to like-new condition, for a much lower cost than replacing the pump. Service can usually be performed without removing the pump from the application.

High Performance - Low vane tip/ring loading allows high pressure operation. High speeds are possible because the inlet flow paths are designed to give uniform oil acceleration and thus better filling characteristics, particularly at low inlet pressures.

Application Information

Fluids: Anti-wear hydraulic oil, automotive type crankcase oil (SE, SF, SG, SH), fire-resistant fluids (requires optional viton seals).

Seals: Buna-N standard (petroleum oil, water-glycol, water-in-oil emulsion, polyolester, high water base fluids). Optional viton seals available for fire-resistant phosphate ester fluids.

Shaft Rotation: Clockwise or counterclockwise (Viewed from shaft end). Can be changed by changing the assembly of internal parts.

Minimum Speed: 600 RPM.

Inlet Pressure: 0 to 5 psi (Recommended), 10 psi (Maximum), 5 in./Hg. (Minimum, with petroleum oil).

Operating Temperature: 120 to 130°F (Recommended), 150°F (Max. recommended oil), 180°F (Max. extreme condition oil), 120°F (Max. water-containing fluids).

Recommended Fluid Viscosity: 70-250 SUS (Running), 4000 SUS Max (Startup).

Recommended Filtration: Per ISO Cleanliness Code, 20/18/15 (<2000 psi), 19/17/14 (2000-3000 psi).



Single Hydraulic Pumps • Fixed Displacement
Vickers V10 & V20 Series • To 19.5 GPM @ 1800 RPM



Vickers V10 & V20 Vane Pump Specifications

Series	Ring Size GPM 1200 RPM 100 PSI	Displ. cu.in. per Rev.	Max. RPM	Max. PSI	Flow GPM 1800 RPM 100 PSI	Typical Delivery GPM @ MAX. RPM & PSI	Typical Input HP @ Max. RPM & PSI
V10	1	0.20	4800	2500	1.5	3.6	7.0
	2	0.40	4500	2500	3.0	7.3	13.6
	3	0.60	4000	2500	4.5	9.4	17.8
	4	0.80	3400	2500	6.0	10.9	20.4
	5	1.00	3200	2500	7.5	12.8	22.8
	6	1.19	3000	2200	9.0	14.6	24.5
	7	1.39	2800	2000	10.5	16.0	24.0
V20	6	1.19	3400	2500	9.0	16.1	29.0
	7	1.39	3000	2500	10.5	16.7	29.5
	8	1.62	2800	2500	12.0	17.7	32.5
	9	1.81	2800	2500	13.5	19.8	35.5
	11	2.22	2500	2500	16.5	22.9	37.5
	12	2.38	2400	2200	18.0	23.0	36.0
	13	2.59	2400	2200	19.5	25.9	39.0

Performance Constants: Based on using petroleum oil at 120° F, viscosity of 150SUS at 100° F, and pump inlet at 0 PSIG (14.7 PSIA).

Note: Outlet pressure must always be higher than inlet pressure.

Technical Information Pumps



Single Hydraulic Pumps • Fixed Displacement
Vickers V10 & V20 Series • To 19.5 GPM @ 1800 RPM

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Powering Business Worldwide

Vickers V10 & V20 Vane Pump Model Codes

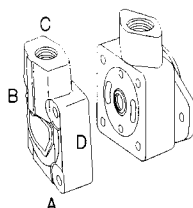
 - V 10 - 1 P 4 P - 1 C 20

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1	F3	Special Seals Viton Omit if not required.
2	V	Vane Pump
3	1020	Series
4	F P	Integral Valve Options Flow control & relief Priority valve & relief Omit if not required.
5	1 4 6	Mounting 2-bolt SAE A flange Face-Type 2-bolt SAE B flange
6	D P S T	Inlet port connections 1-5/16-12 str. thd. (V20) 1 NPT (V10) 1-1/4 NPT (V20) 1-5/16-12 str. thd. (V10) 1-5/8-12 str. thd. (V20) 1-3/16-12 str. thd. (V10)
7		SAE Rated Capacity - US GPM (1200 RPM & 100 PSI) 11 GPM (V10) 22 GPM (V10) 33 GPM (V10) 44 GPM (V10) 55 GPM (V10) 66 GPM (V10 & V20) 77 GPM (V10 & V20) 88 GPM (V20) 99 GPM (V20) 1010 GPM (V20) 1111 GPM (V20) 1212 GPM (V20) 1313 GPM (V20)

8	K P S T	Outlet Port Connections V10P priority valve cover: 9/16-18 str. thd. primary outlet 3/4-16 str. thd. secondary outlet 9/16-18 str. thd. tank V10: 1/2 NPT V10 flow control cover: 3/4-16 str. thd. pressure 1/2 NPT tank V20: 3/4 NPT V20F flow control cover: 3/4-16 str. thd. pressure 1/2 NPT tank V10: 3/4-16 str. thd. V20: 1-1/16-12 str. thd. V20F flow control cover: 3/4-16 str. thd. pressure 1-1/16-12 str. thd. tank V10F flow control cover: 3/4-16 str. thd. pressure 3/4-16 str. thd. tank V20P priority valve cover: 3/4-16 str. thd. primary outlet 7/8-14 str. thd. secondary outlet 3/4-16 str. thd. tank
9	1 3 11 12 15 38 62 70	Shafts 3/4" straight keyed Thd. with #6 woodruff key (V10) Thd. with #13 woodruff key (V20) 9T SAE A splined (V10) 11T splined (V20) 13T SAE B splined (V10) 13T splined (V20) 11T splined (Shorter Length) 9T SAE A splined (V20) —
10	A B C D	Position of outlet or primary outlet (Viewed from cover end of pump) Opposite inlet 90° CCW from inlet In line with inlet 90° CW from inlet

11	Integral Valving Omit if not required <table><tr><td> Orifice </td><td> Relief Valve </td></tr><tr><td>22 GPM</td><td>A250 PSI</td></tr><tr><td>33 GPM</td><td>B500 PSI</td></tr><tr><td>44 GPM</td><td>C750 PSI</td></tr><tr><td>55 GPM</td><td>D1000 PSI</td></tr><tr><td>66 GPM</td><td>E1250 PSI</td></tr><tr><td>77 GPM</td><td>F1500 PSI</td></tr><tr><td>88 GPM</td><td>G1750 PSI</td></tr><tr><td></td><td>H2000 PSI</td></tr><tr><td></td><td>J2250 PSI</td></tr><tr><td></td><td>K2500 PSI</td></tr></table>	Orifice	Relief Valve	22 GPM	A250 PSI	33 GPM	B500 PSI	44 GPM	C750 PSI	55 GPM	D1000 PSI	66 GPM	E1250 PSI	77 GPM	F1500 PSI	88 GPM	G1750 PSI		H2000 PSI		J2250 PSI		K2500 PSI
Orifice	Relief Valve																						
22 GPM	A250 PSI																						
33 GPM	B500 PSI																						
44 GPM	C750 PSI																						
55 GPM	D1000 PSI																						
66 GPM	E1250 PSI																						
77 GPM	F1500 PSI																						
88 GPM	G1750 PSI																						
	H2000 PSI																						
	J2250 PSI																						
	K2500 PSI																						
12	Design Subject to change. Installation dimensions remain the same for designs -20 through -29.																						
13	Shaft Rotation Viewed from shaft end of pump LLeft hand (CCW) Omit for right hand																						



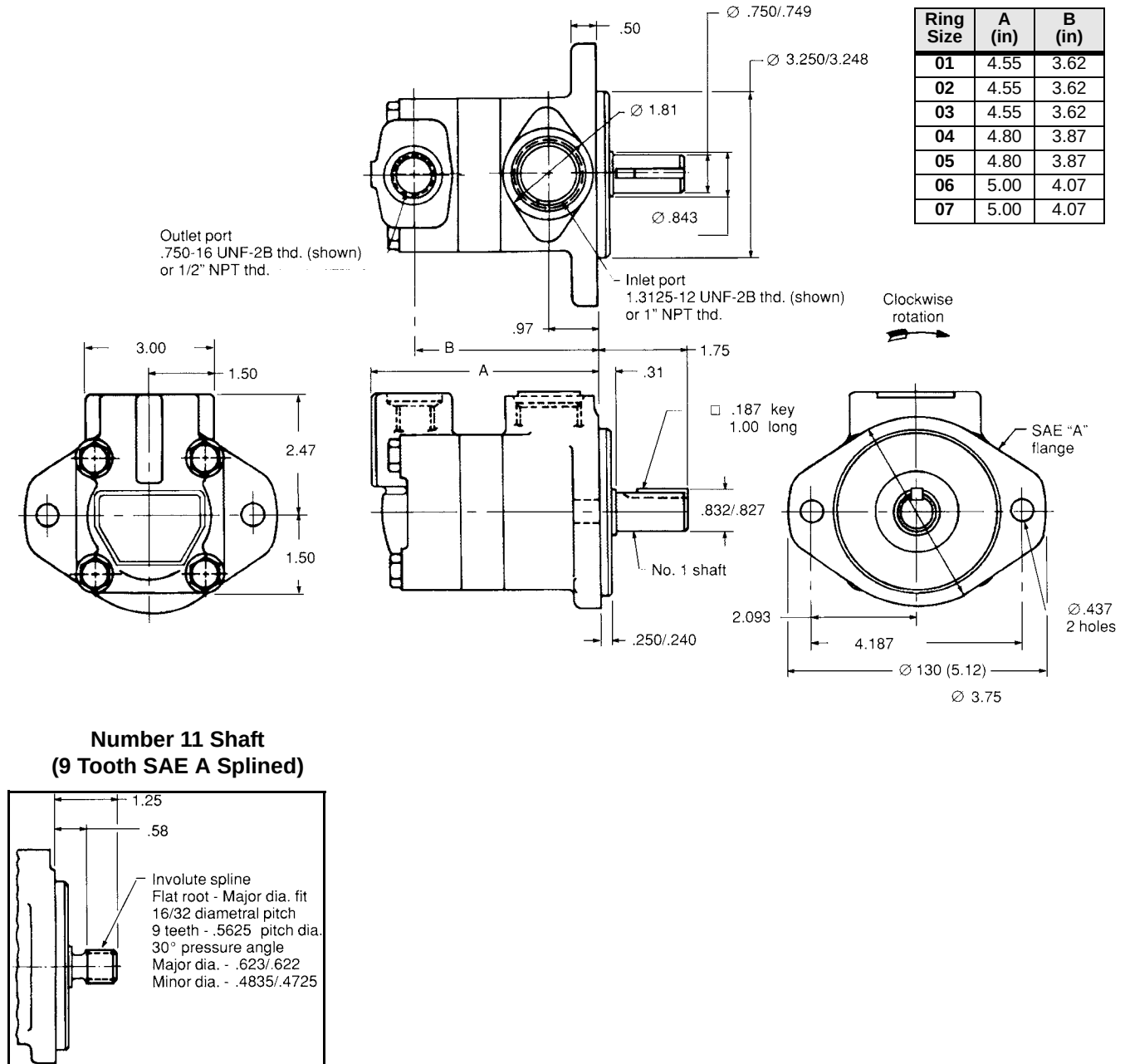


Technical Information Pumps

Single Hydraulic Pumps • Fixed Displacement
Vickers V10 Series • To 10.5 GPM @ 1800 RPM



Vickers V10 Vane Pump Dimensions



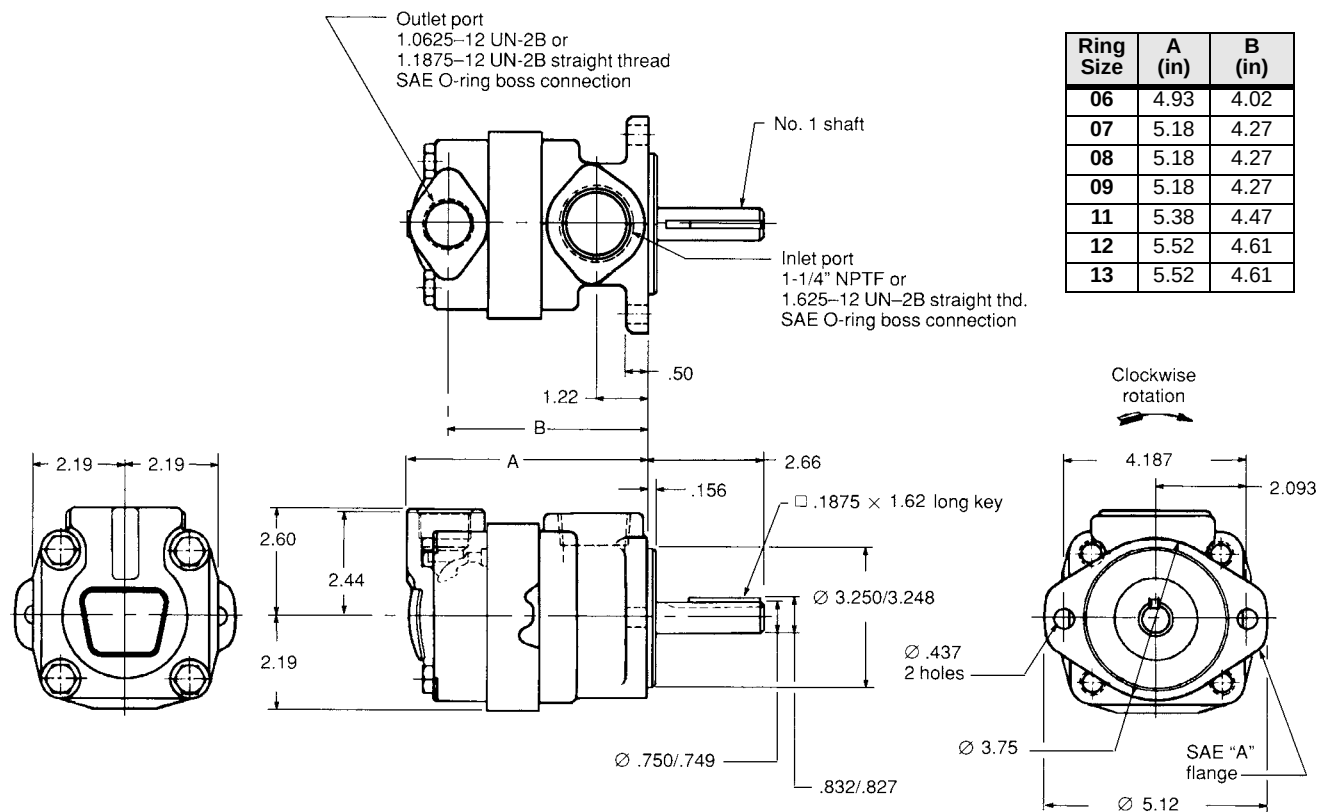
Technical Information Pumps



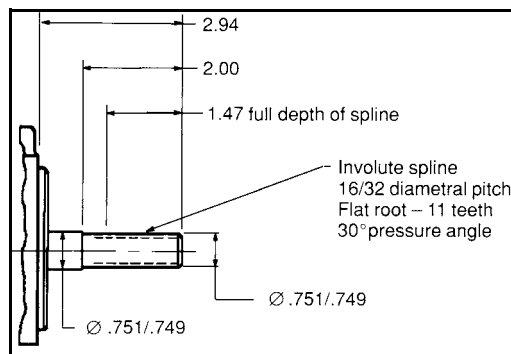
Single Hydraulic Pumps • Fixed Displacement
Vickers V20 Series • To 19.5 GPM @ 1800 RPM

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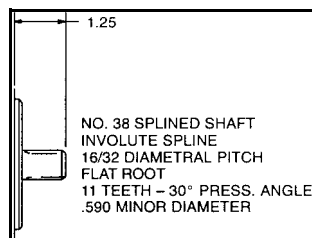
Vickers V20 Vane Pump Dimensions



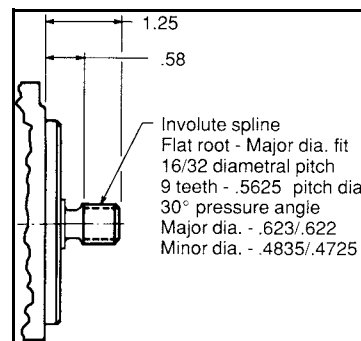
**Number 11 Shaft
(11 Tooth Extended Length Splined)**



**Number 38 Shaft
(11 Tooth Shorter Length Splined)**



**Number 62 Shaft
(9 Tooth SAE A Splined)**





Double Hydraulic Pumps • Fixed Displacement
Vickers V2010 Series • To 19.5 GPM/10.5 GPM @ 1800 RPM



Vickers V2010 Vane Pump Dimensions

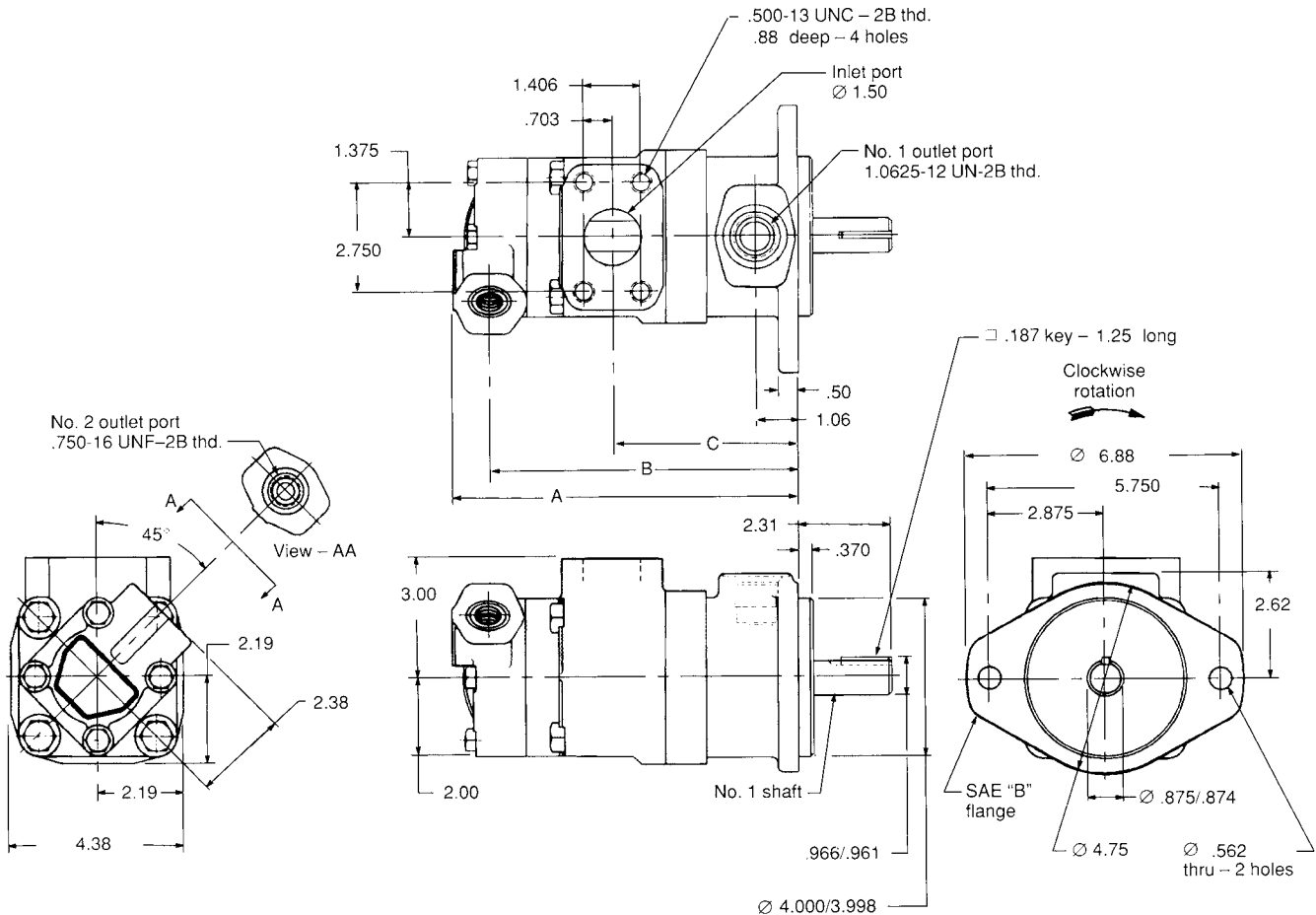
Hydraulic Power & Control

Pneumatic Power & Control

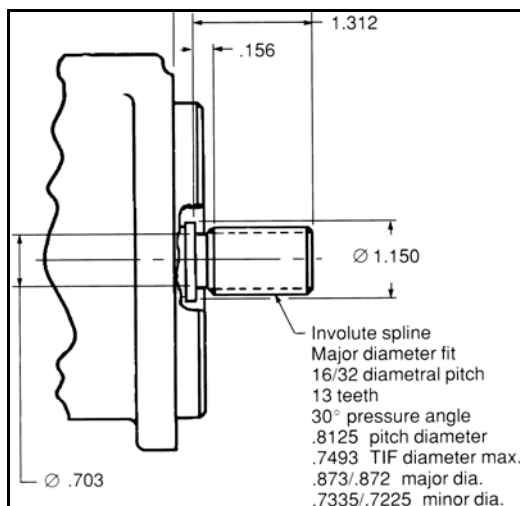
Fluid Conveying

Miscellaneous Products

Indexes & Technical Information



**Number 11 Shaft
(13 Tooth SAE B Splined)**



Ring Size Shaft End	Ring Size Cover End	A (in)	B (in)	C (in)
7. 8 or 9	1. 2 or 3	8.39	7.45	4.46
7. 8 or 9	4 or 5	8.64	7.70	4.46
7. 8 or 9	6 or 7	8.84	7.90	4.46
11	1, 2 or 3	8.59	7.65	4.65
11	4 or 5	8.84	7.90	4.65
11	6 or 7	9.04	8.10	4.65
12 or 13	1, 2 or 3	8.73	7.79	4.79
12 or 13	4 or 5	8.97	8.03	4.79
12 or 13	6 or 7	9.17	8.23	4.79

Technical Information Pumps



Double Hydraulic Pumps • Fixed Displacement
Vickers V2020 Series • To 19.5 GPM/19.5 GPM @ 1800 RPM

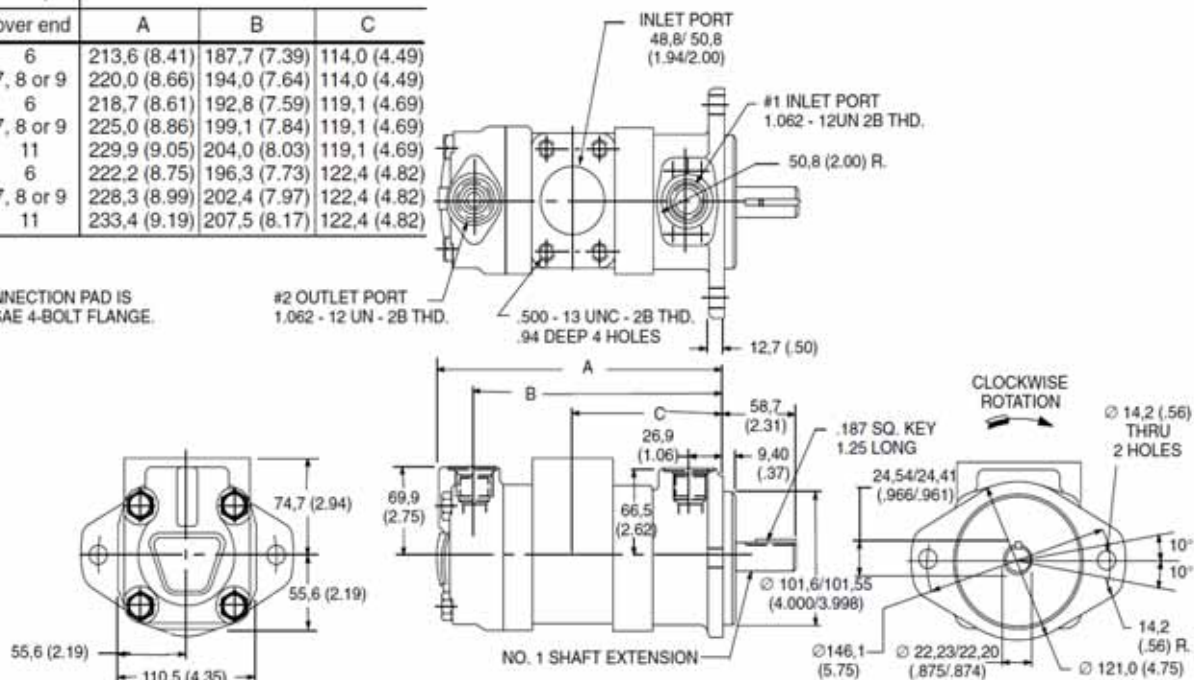


Vickers V2020 Vane Pump Dimensions

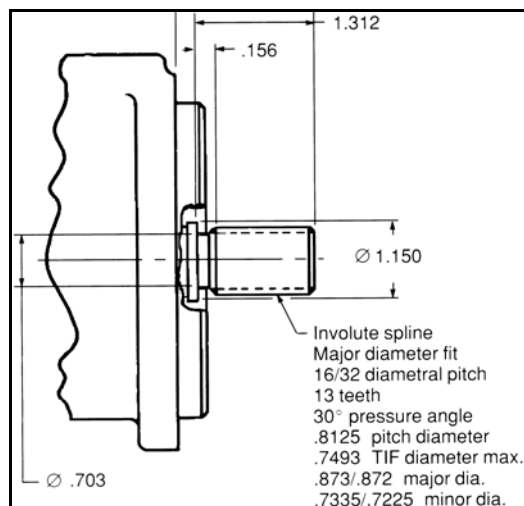
Dimensions in millimeters (inches).

Rated Delivery, gpm @ 1200 rpm & 100 psi		Dimensions		
Shaft end	Cover end	A	B	C
7,8 or 9	6	213,6 (8.41)	187,7 (7.39)	114,0 (4.49)
7,8 or 9	7, 8 or 9	220,0 (8.66)	194,0 (7.64)	114,0 (4.49)
11	6	218,7 (8.61)	192,8 (7.59)	119,1 (4.69)
11	7, 8 or 9	225,0 (8.86)	199,1 (7.84)	119,1 (4.69)
11	11	229,9 (9.05)	204,0 (8.03)	119,1 (4.69)
12 or 13	6	222,2 (8.75)	196,3 (7.73)	122,4 (4.82)
12 or 13	7, 8 or 9	228,3 (8.99)	202,4 (7.97)	122,4 (4.82)
12 or 13	11	233,4 (9.19)	207,5 (8.17)	122,4 (4.82)

INLET PORT CONNECTION PAD IS
FOR USE WITH SAE 4-BOLT FLANGE.



Number 11 Shaft (13 Tooth SAE B Splined)





Single Hydraulic Pumps • Fixed Displacement
Vickers VQ Series • To 90 GPM @ 1800 RPM
(10 Vanes, High Speed / High Pressure Capability)



Vickers VQ Series Vane Pump Specifications

Series	Ring Size GPM 1200 RPM 100 PSI	Displ. cu.in. per Rev.	Max. RPM	Max. PSI	Flow GPM 1800 RPM 100 PSI	Typical Delivery GPM @ MAX. RPM & PSI	Typical Input HP @ Max. RPM & PSI
20VQ**	2**	0.43	2700 Min 1200	2000	3.0	4.3	
	5**	1.10	2700 Min 1200	3000	7.5	11.0	24.0
	8**	1.67	2700	3000	12.0	17.0	35.0
	9**	1.85	2700	3000	13.5	19.2	39.6
	11**	2.22	2700	3000	16.5	23.0	47.5
	12**	2.41	2700	2300	18.0	22.5	38.0
	14**	2.80	2700	2000	21.0	30.0	39.0
25VQ	12	2.47	2700	3000	18.0	23.0	55.0
	14	2.78	2700	3000	21.0	27.0	62.5
	17	3.39	2500	3000	25.5	31.0	69.5
	19**	3.75	2500	3000	28.5	34.5	75.3
	21	4.13	2500	3000	31.5	38.0	83.0
35VQ	21**	4.12	2500	3000	31.5	38.0	84.2
	25	4.94	2500	3000	37.5	45.0	101.0
	30	5.91	2500	3000	45.0	55.0	117.5
	35	6.83	2400	3000	52.5	60.0	132.0
	38	7.37	2400	3000	57.0	65.0	140.0
45VQ	42	8.41	2200	2500	63.0	66.5	122.5
	45**	8.95			67.5		
	47**	9.39	2200	2500	70.5	75.3	134.4
	57**	9.85	2200	2500	75.0	79.0	141.0
	60**	11.25	2200	2500	85.5	91.9	162.7

Performance Constants: SAE 10W fluid @ 120° F and pump inlet @ 0 PSIG (14.7 PSIA).

Note: Outlet pressure must always be higher than inlet pressure.

**Non-stock, special order.

Technical Information Pumps



Single Hydraulic Pumps • Fixed Displacement
Vickers VQ Series • To 90 GPM @ 1800 RPM
(10 Vanes, High Speed / High Pressure Capability)



Vickers VQ Series Vane Pump Model Codes

 - 25VQ 17 A - 1 C 20
 1 2 3 4 5 6 7 8 9 10

1 Special Seals
F3 Viton
 Omit if not required.

2 IntraVane Pump Series
25VQ
35VQ Standard bearing
45VQ

26VQ Heavy duty bearing
36VQ

3 Optional Pilot
C 5 inch dia. pilot (25VQ only)
 Omit for standard pilot

4 SAE Rated Capacity - US GPM
 (1200 RPM & 100 PSI)
12 25VQ 2.45 cu.in. per rev.
14 25VQ 2.77 cu.in. per rev.
17 25VQ 3.37 cu.in. per rev.
21 25VQ 4.12 cu.in. per rev.

25 35VQ 4.98 cu.in. per rev.
30 35VQ 5.96 cu.in. per rev.
35 35VQ 6.88 cu.in. per rev.
38 35VQ 7.42 cu.in. per rev.

42 45VQ 8.46 cu.in. per rev.
50 45VQ 9.90 cu.in. per rev.
60 45VQ 11.80 cu.in. per rev.

5 SAE Port Connections
A SAE 4-bolt flange inlet & outlet
AM Metric 4-bolt flange inlet & outlet
 (Same as code A except metric
 threads for fastening flanges)
B Str. thd. inlet & outlet (25VQ)
C SAE 4-bolt inlet (25VQ)
 Str. thd. outlet (25VQ)
D Str. thd. inlet (25VQ)
 SAE 4-bolt outlet (25VQ)

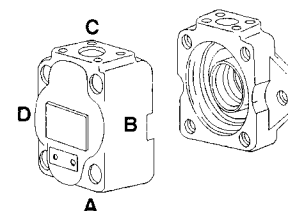
6 Mounting & Shaft Seal Assy
Single Shaft Seal Pumps
F Foot mounting with single shaft
 seal
S Flange mount and double shaft
 seal
 Omit for flange mount with single
 shaft seal

7 Shaft Types

Single shaft Seal Pumps
1 Straight keyed
11 Splined
86 Straight keyed heavy duty
151 13T SAE B Spline (20V)

Double Shaft Seal Pumps
123 Splined (25VQ, 35VQ)
130 Splined (45VQ)

8 Inlet Positions
 (Viewed from cover end of pump)
A Opposite outlet
B 90° CCW from outlet
C In line with outlet
D 90° CW from outlet

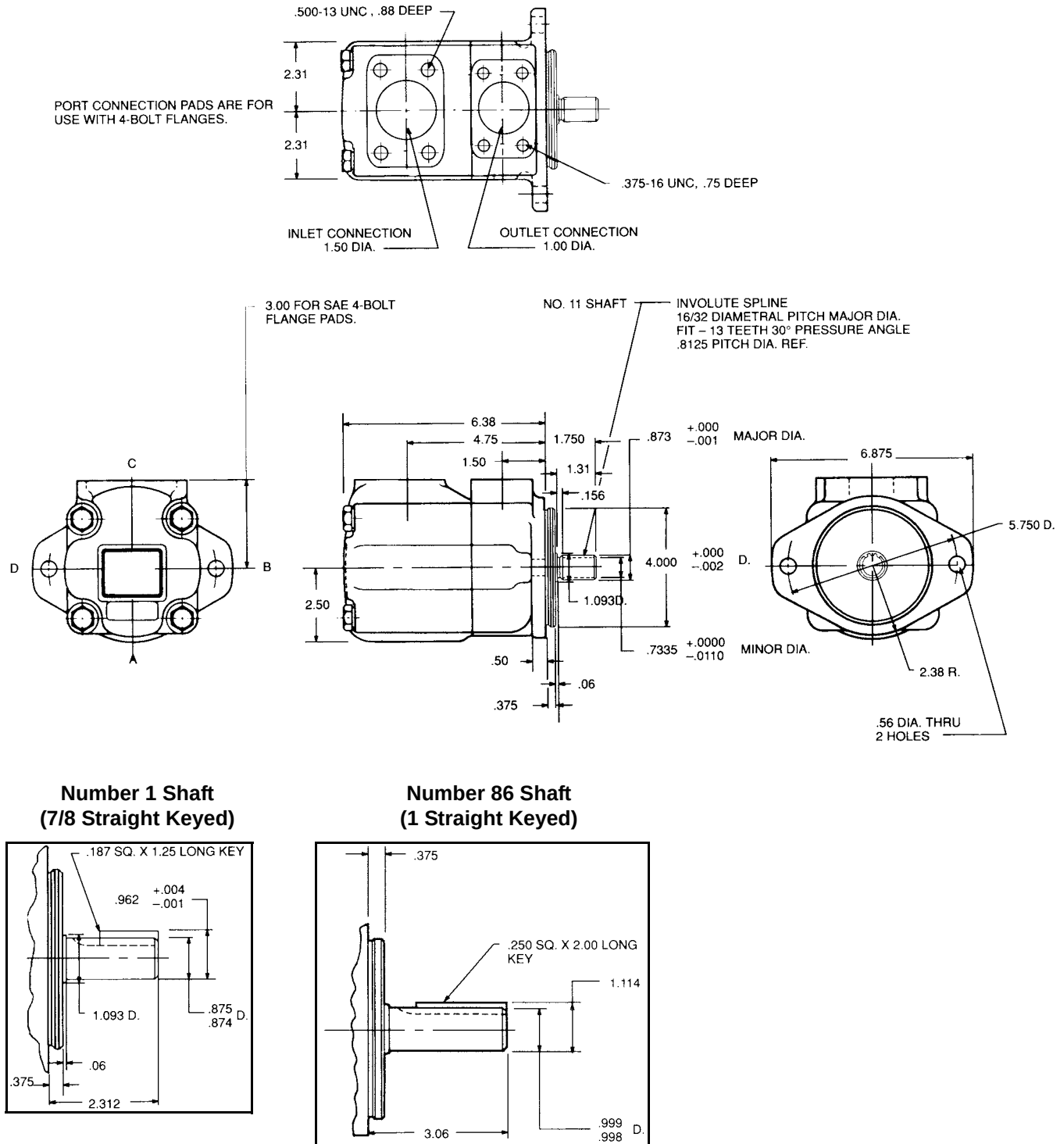


9 Design
 Subject to change.
 Installation dimensions
 remain the same for
 designs -20 through -29.

10 Shaft Rotation
 Viewed from shaft end of pump
L Left hand (CCW)
 Omit for right hand

Single Hydraulic Pumps • Fixed Displacement
Vickers 25VQ Series • To 31.5 GPM @ 1800 RPM
(10 Vanes, High Speed / High Pressure Capability)

Vickers 25VQ Series Vane Pump Dimensions



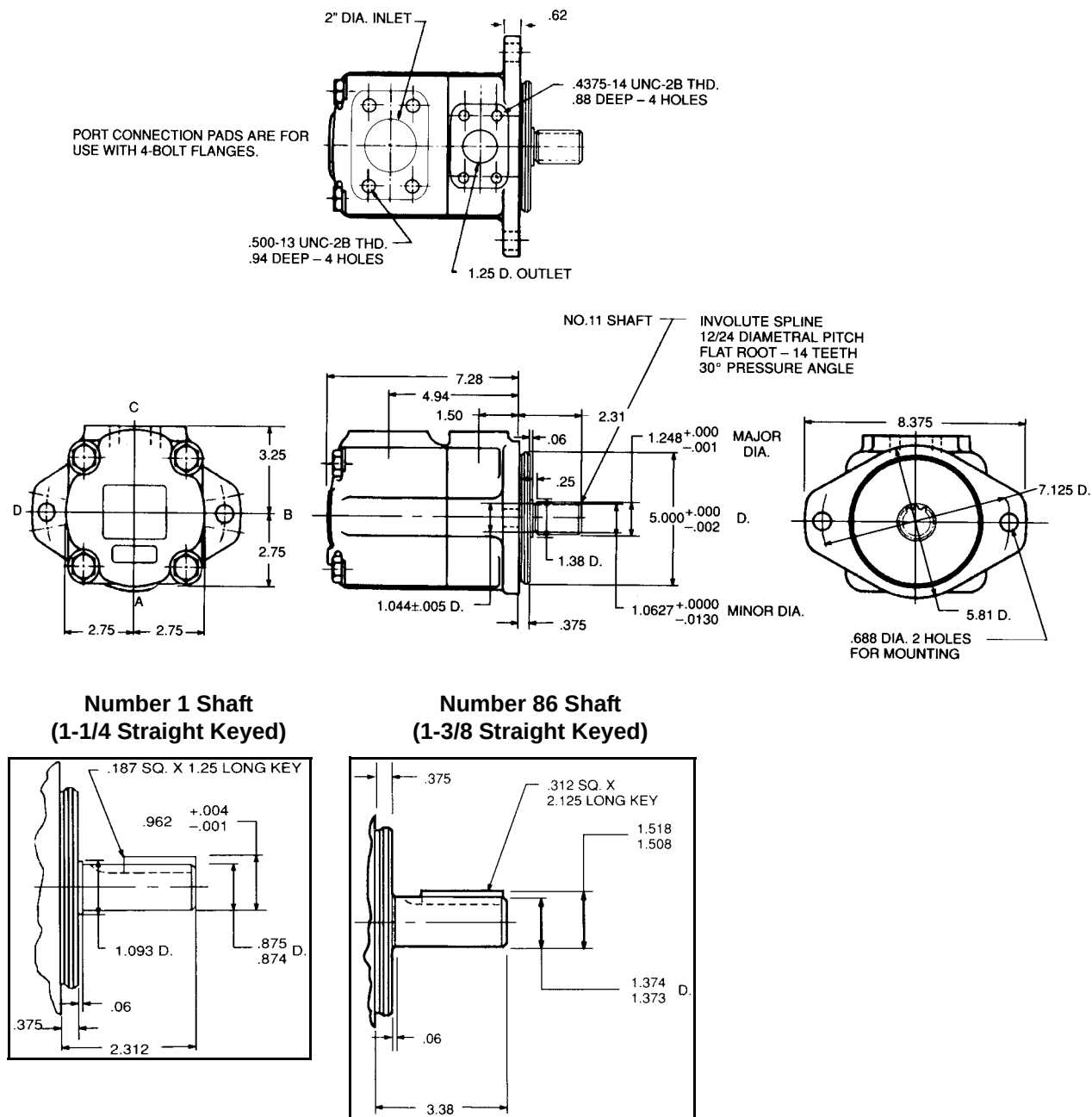
Technical Information Pumps



Single Hydraulic Pumps • Fixed Displacement
Vickers 35VQ Series • To 57 GPM @ 1800 RPM
(10 Vanes, High Speed / High Pressure Capability)

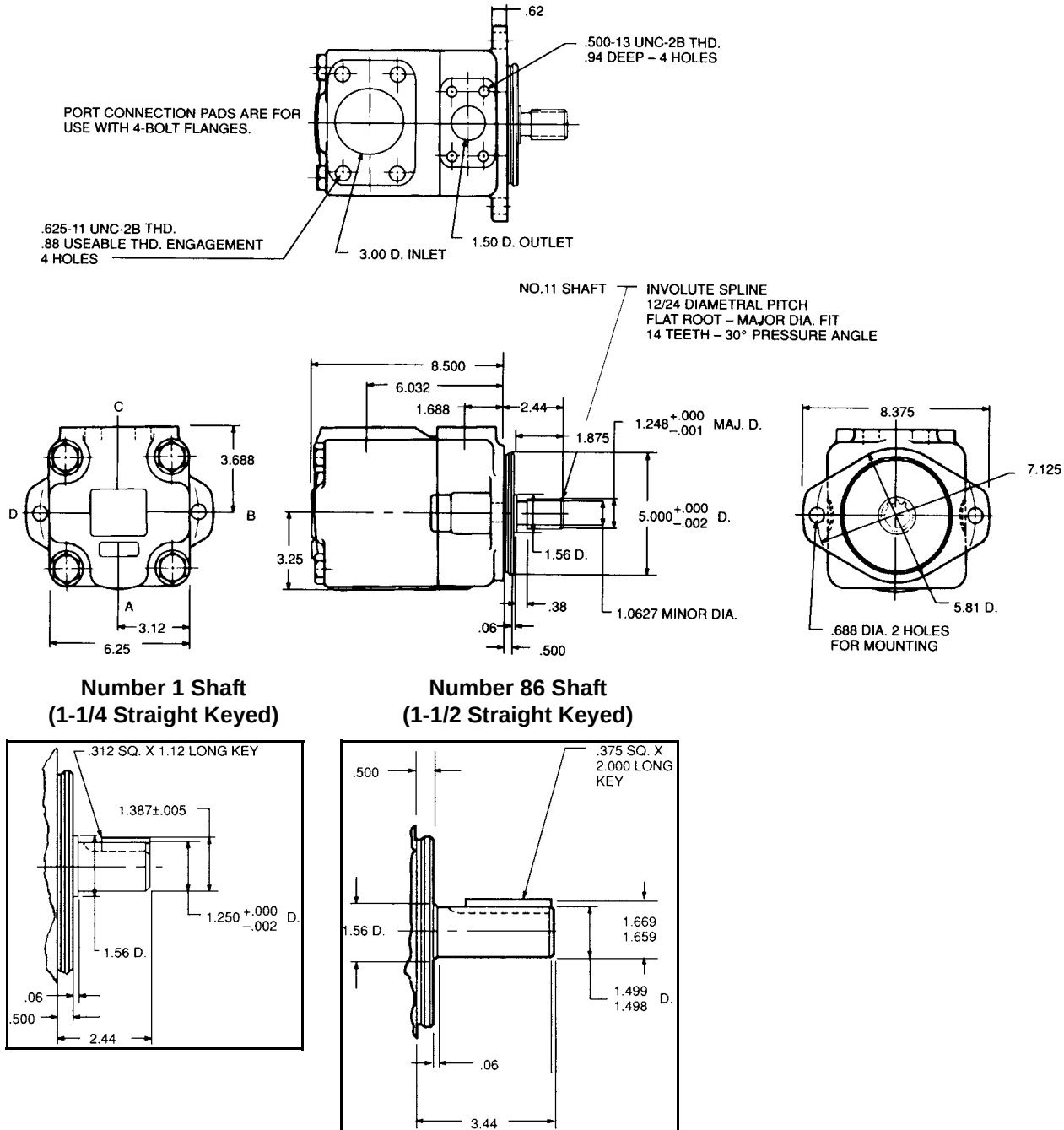


Vickers 35VQ Series Vane Pump Dimensions



Single Hydraulic Pumps • Fixed Displacement
Vickers 45VQ Series • To 90 GPM @ 1800 RPM
(10 Vanes, High Speed / High Pressure Capability)

Vickers 45VQ Series Vane Pump Dimensions

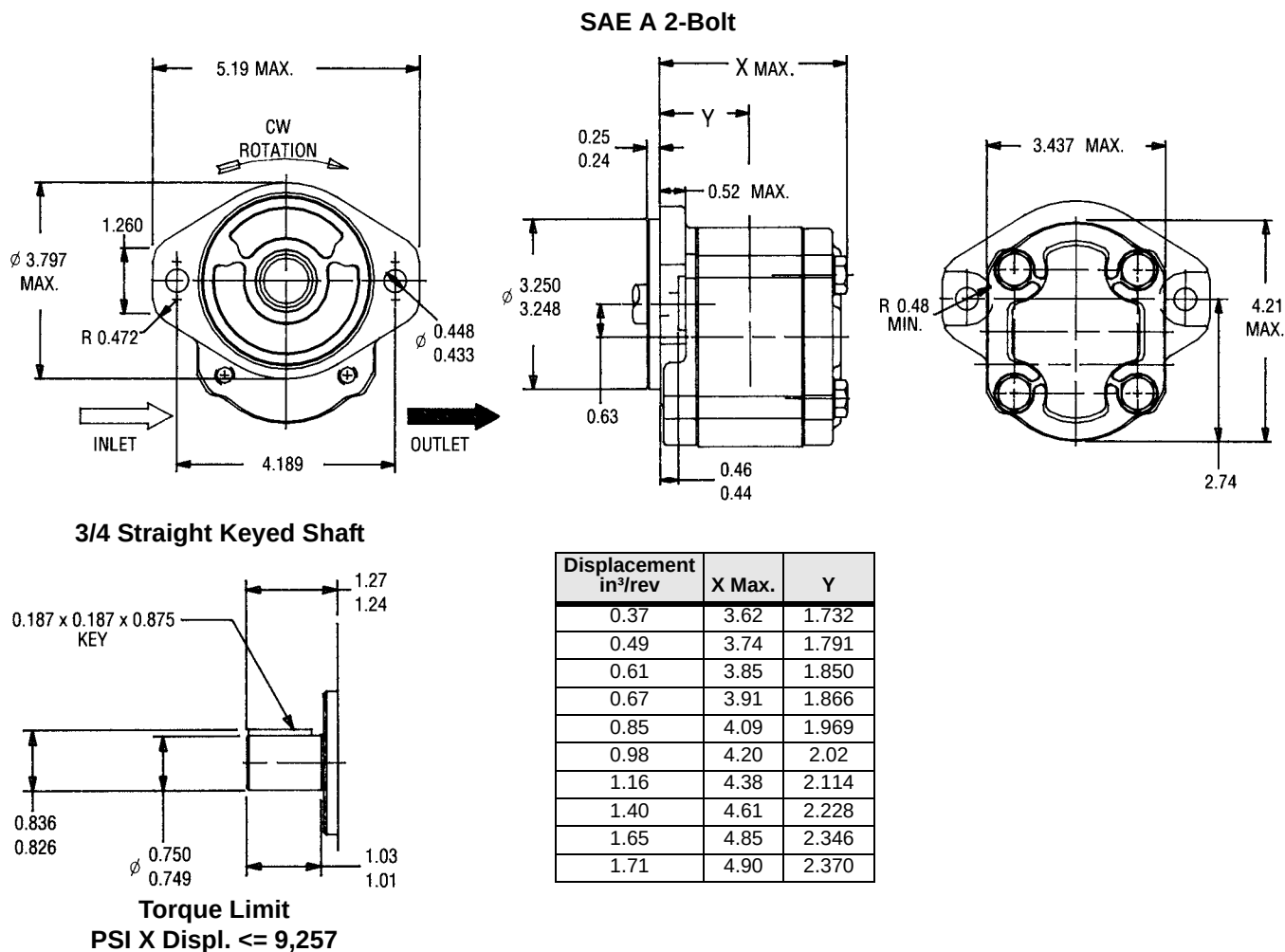


Technical Information Pumps



Single Hydraulic Pumps • Fixed Displacement Gear Pumps
Haldex Barnes W900 Series • To 13 GPM @ 1800 RPM

W900 Series Gear Pump Dimensions

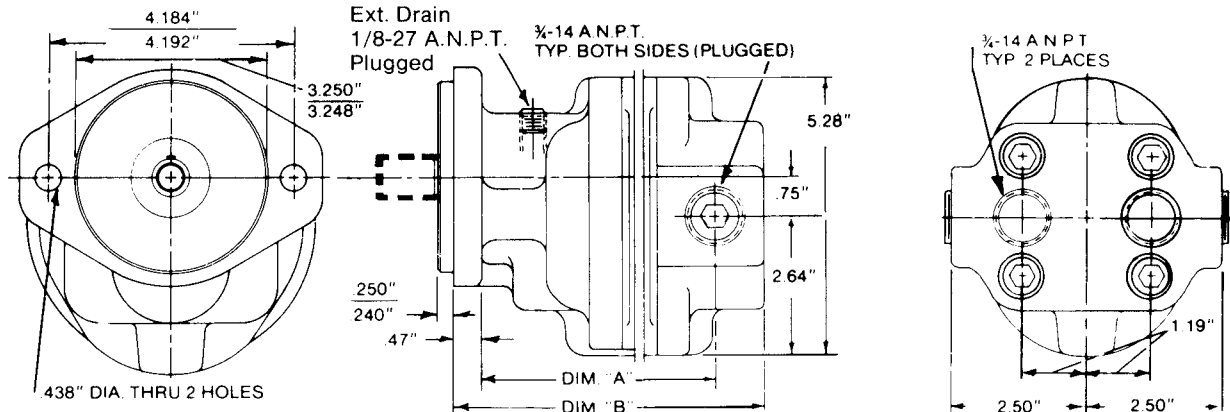


Single Hydraulic Pumps • Fixed Displacement Gear Pumps
Hydrec 1500K Series • To 22 GPM @ 1800 RPM



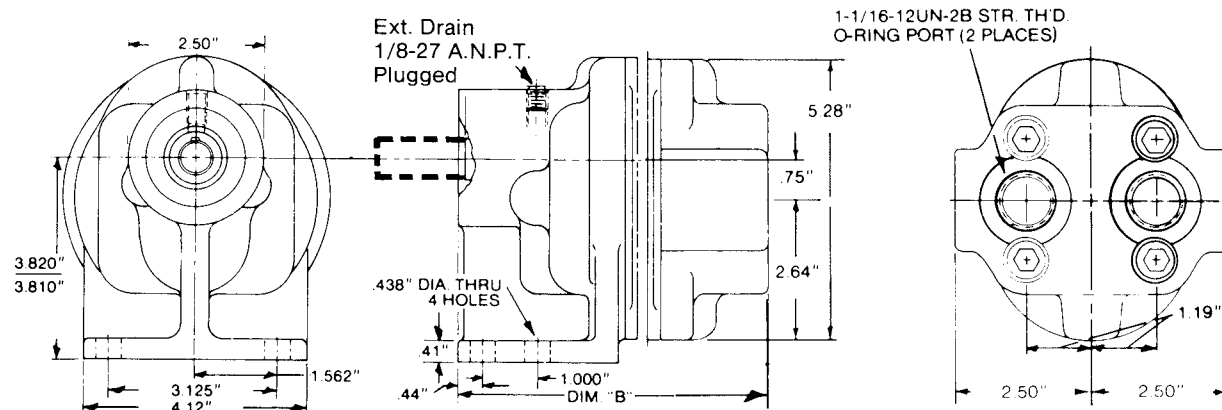
Hydrec 1500K Series Gear Pump Dimensions

Example: 2-Bolt SAE A Front Flange with Both Side and Rear Ports



Size	Dim "A"	Dim "B"
1506	4.38	5.44
1510	4.75	5.81
1512	5.00	6.06
1515	5.25	6.31
1518	5.50	6.56

Example: 4-Bolt Foot Mount with Rear Ports



Size	Dim "B"
1506	5.69
1510	6.06
1512	6.31
1515	6.56
1518	6.81

Technical Information Pumps

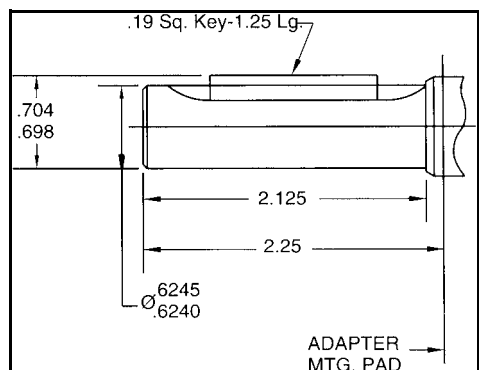


Single Hydraulic Pumps • Fixed Displacement Gear Pumps
Hydrec 1500K Series • To 22 GPM @ 1800 RPM



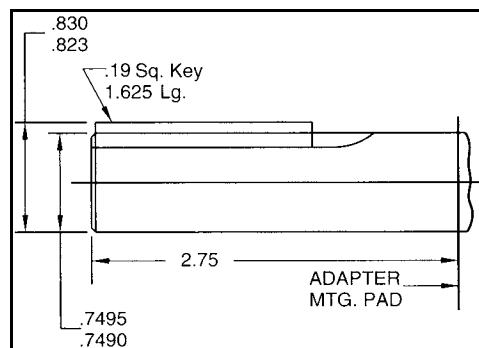
Hydrec 1500K Series Shaft Dimensions & Side Load Chart

**5/8 Straight Keyed Shaft
(2.25 Long)**



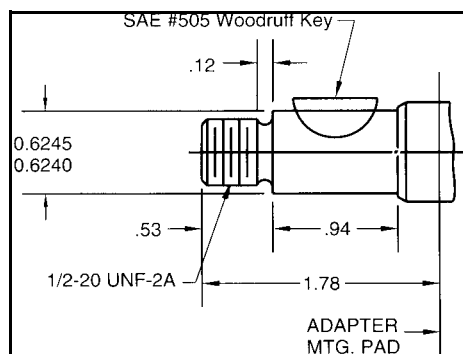
Torque Limit
PSI X Displ. $\leq 5,250$

**3/4 Straight Keyed Shaft
(2.75 Long)**



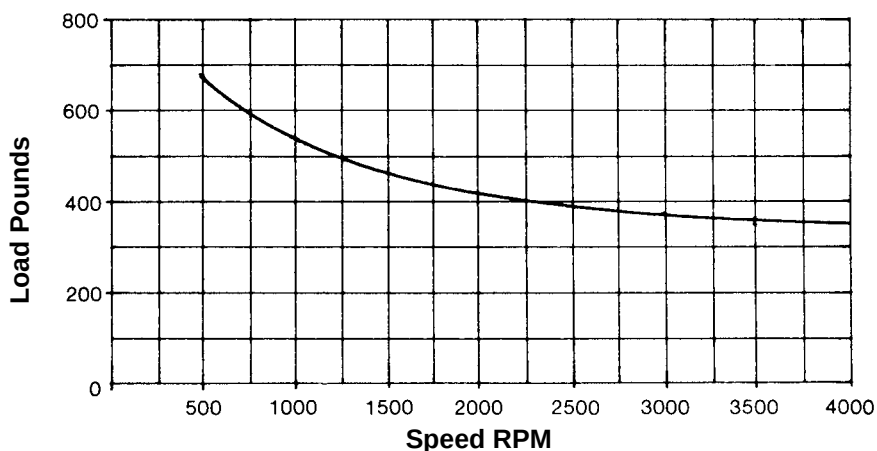
Torque Limit
PSI X Displ. $\leq 9,075$

**5/8 Straight Keyed Shaft
Threaded, with Woodruff Key**



Torque Limit
PSI X Displ. $\leq 6,000$

**Maximum Allowable Side Loads, Outboard Bearing Models
with Load Applied 1" From Mounting Face**



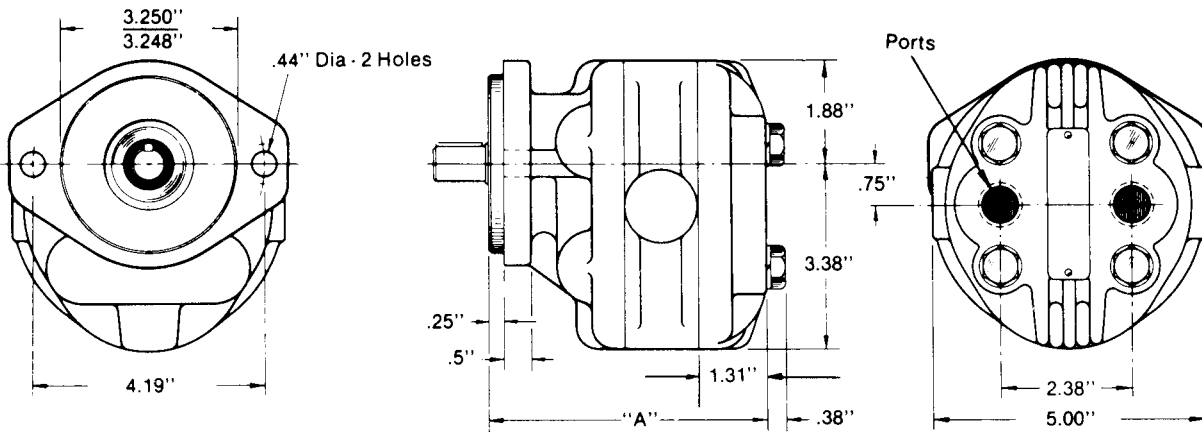


Single Hydraulic Pumps • Fixed Displacement Gear Pumps
Hydreco 1500M Series • To 19 GPM @ 1800 RPM



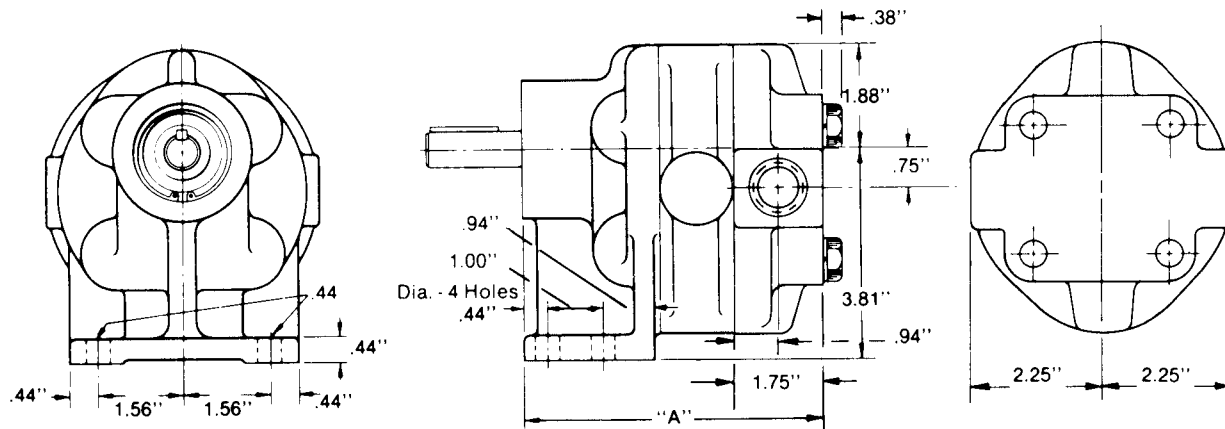
Hydreco 1500M Series Gear Pump Dimensions

Example: 2-Bolt SAE A Front Flange with Rear Ports



Size	Dim "A" (Approximate)
1506	4.75
1510	5.25
1512	5.50
1515	5.75

Example: 4-Bolt Foot Mount with Side Ports



Size	Dim "A"
1506	5.03
1510	5.41
1512	5.66
1515	5.91

Technical Information Pumps

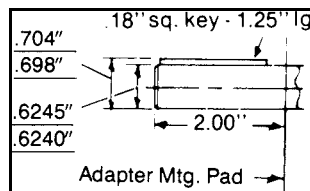


Single Hydraulic Pumps • Fixed Displacement Gear Pumps
Hydrec 1500M Series • To 19 GPM @ 1800 RPM



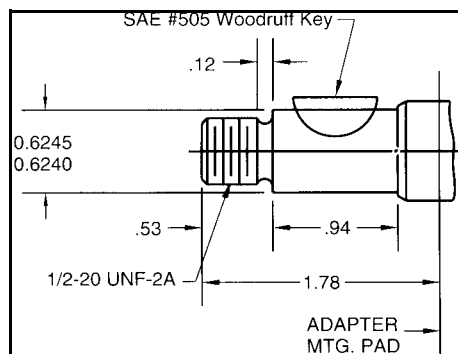
Hydrec 1500M Series Shaft Dimensions & Side Load Chart

5/8 Straight Keyed
Shaft



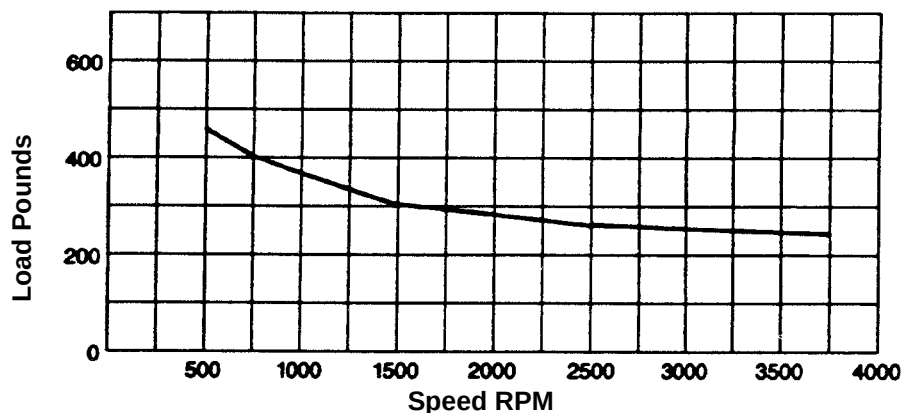
Torque Limit
PSI X Displ. <= 5,250

5/8 Straight Keyed Shaft, Threaded,
with Woodruff Key



Torque Limit
PSI X Displ. <= 3,420

Maximum Allowable Side Loads, Outboard Bearing Models
with Load Applied 1" From Mounting Face



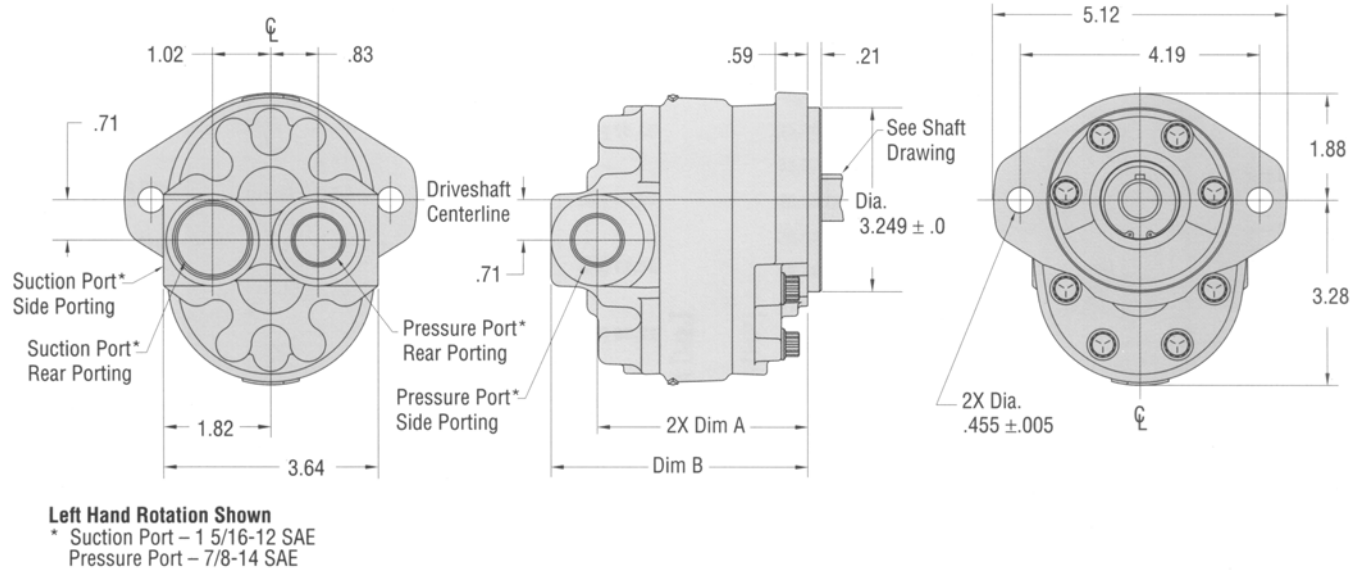


Technical Information Pumps

Single Hydraulic Pumps • Fixed Displacement Gear Pumps
Eaton Series 26 • To 24 GPM @ 1800 RPM



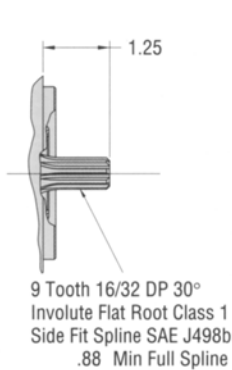
Eaton Series 26 Gear Pump Dimensions



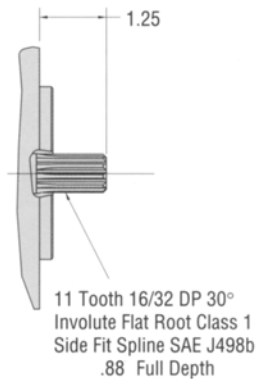
Model	26001	26002	26003	26004	26005	26006	26007	26008	26009	26010	26011	26012	26013
Displacement	0.40	0.50	0.58	0.66	0.84	1.02	1.20	1.37	1.48	1.54	1.69	1.77	1.87
Dimension A	2.86	2.93	2.99	3.05	3.18	3.30	3.43	3.56	3.65	3.68	3.81	3.88	3.93
Dimension B	3.67	3.74	3.80	3.86	3.99	4.11	4.24	4.37	4.46	4.49	4.62	4.69	4.74

Eaton Series 26 Gear Pump Shaft Dimensions

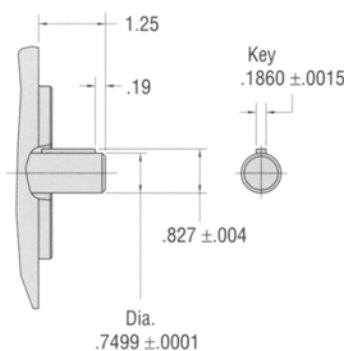
5/8 Inch 9 Tooth Spline
Maximum Input Torque
550 lb-in



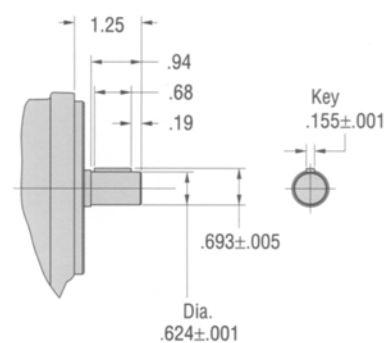
3/4 Inch 11 Tooth Spline
Maximum Input Torque
1050 lb-in



3/4 Inch Straight Key
Maximum Input Torque
1000 lb-in



5/8 Inch Straight Key
Maximum Input Torque
500 lb-in



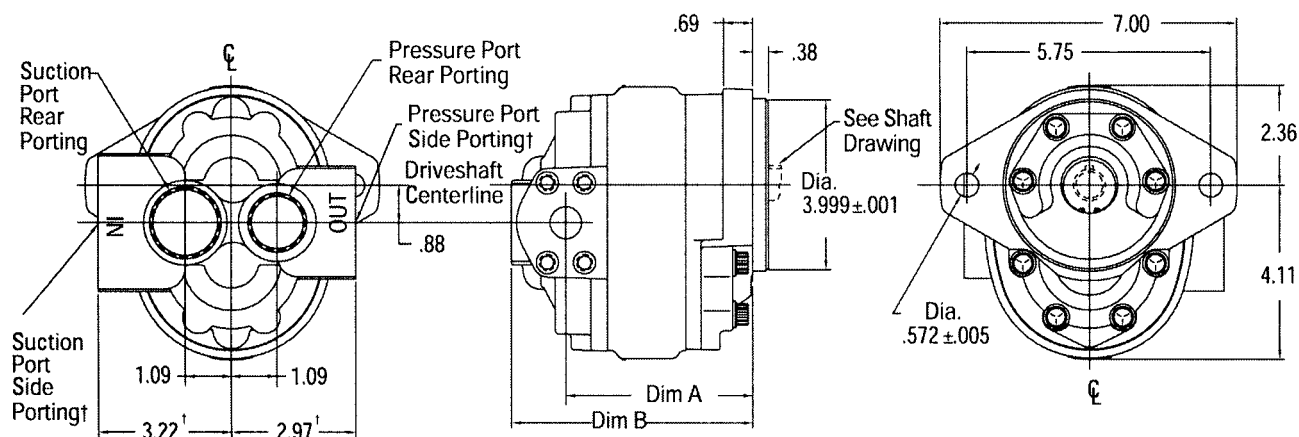
Technical Information Pumps



Single Hydraulic Pumps • Fixed Displacement Gear Pumps
Eaton Series L2 • To 26 GPM @ 1800 RPM



Eaton Series L2 Gear Pump Dimensions



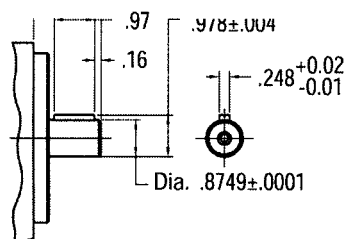
Left Hand Rotation Shown

† For split flange porting subtract .03, available in side porting only

Model	25500	25501	25502	25503	25504	25505	25506	25507	25508
Displacement	1.30	1.55	1.78	2.05	2.33	2.61	2.85	3.12	3.37
Dimension A	3.34	3.47	3.61	3.75	3.88	4.02	4.14	4.29	4.43
Dimension B	4.62	4.75	4.89	5.03	5.16	5.30	5.42	5.57	5.71

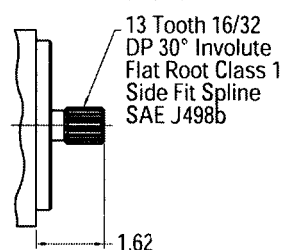
7/8 Inch Straight Key

Maximum Input Torque††
1500 lb-in



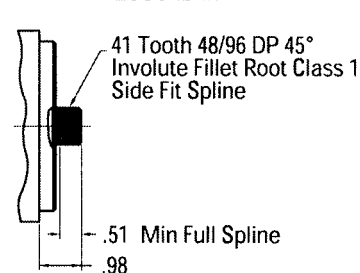
7/8 Inch 13 Tooth Spline

Maximum Input Torque††
1850 lb-in



7/8 Inch 41 Tooth Spline

Maximum Input Torque††
2800 lb-in



* Multiple pump input torque limitations:

The total torque for multiple pump displacements and pressure combinations cannot exceed the maximum input torque rating of the shaft. The proper formula is Pressure times Displacement divided by 6.28.



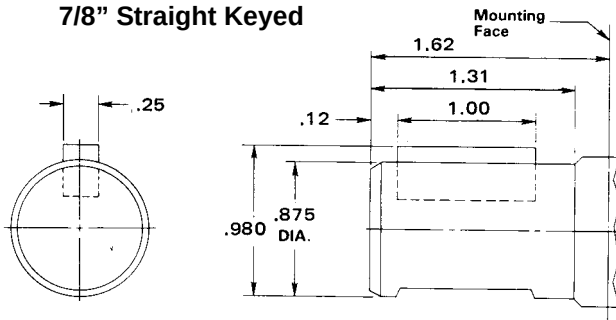
Single Hydraulic Pumps • Fixed Displacement Gear Pumps
Permco Box Pumps • To 46 GPM @ 1800 RPM



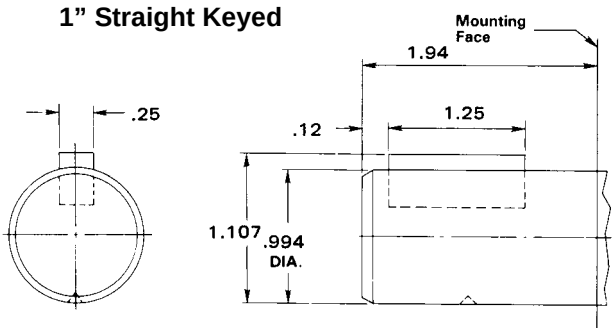
Permco Box Pump Dimensions

PEK Model Shafts

7/8" Straight Keyed

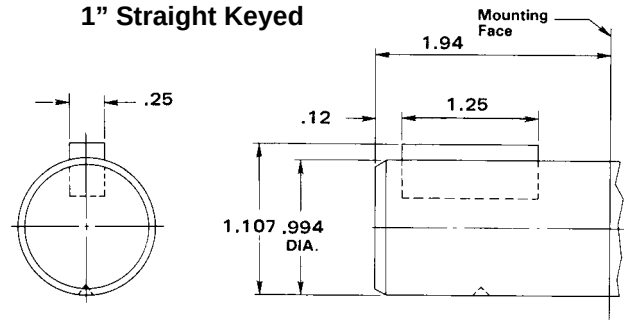


1" Straight Keyed

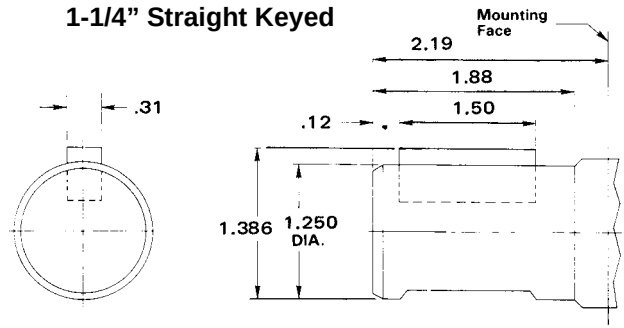


PEL Model Shafts

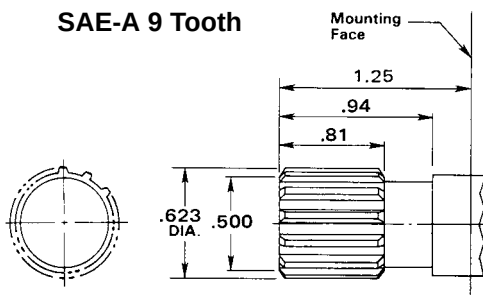
1" Straight Keyed



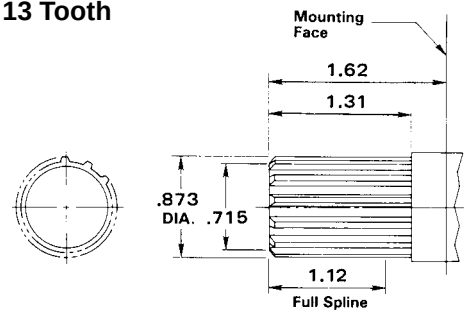
1-1/4" Straight Keyed



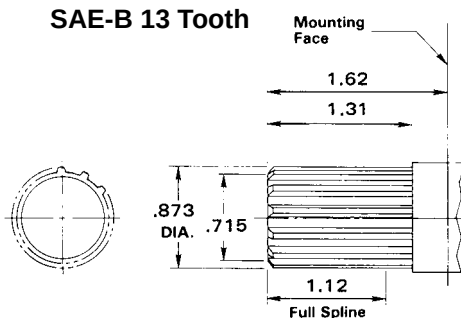
SAE-A 9 Tooth



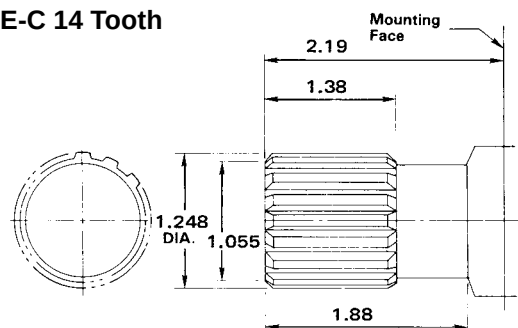
SAE-B 13 Tooth



SAE-B 13 Tooth



SAE-C 14 Tooth



Technical Information Pumps

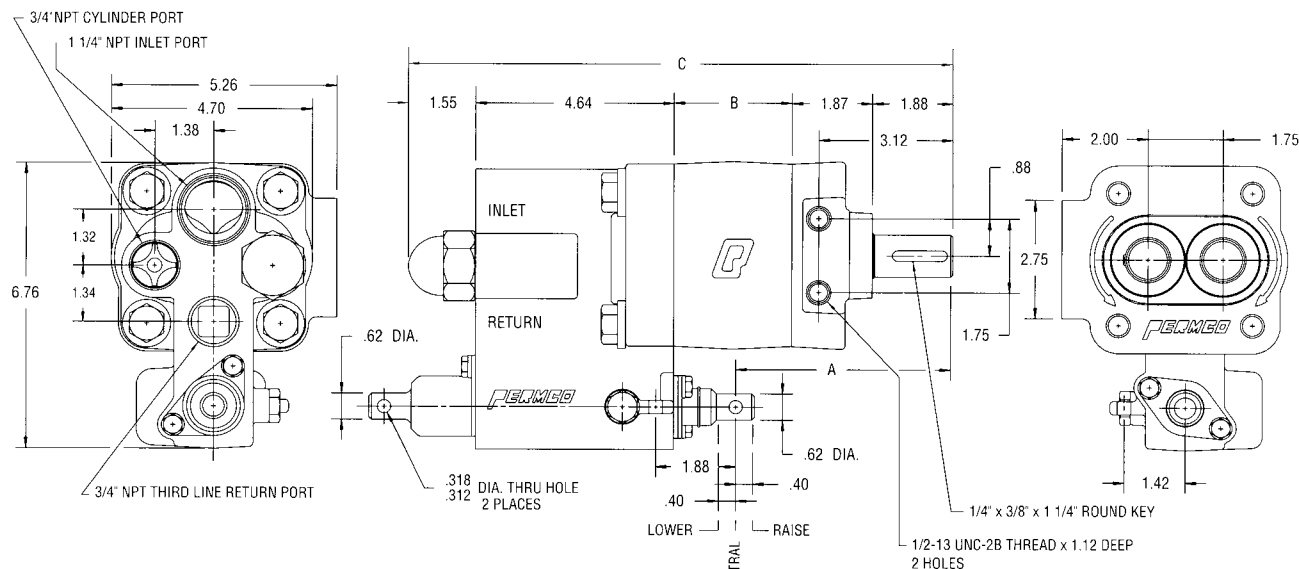


Dump Pumps • Permco DM400 Series • To 21.5 GPM @ 1800 RPM
Pump/Valve Assemblies For Light & Medium Duty Dump Trucks



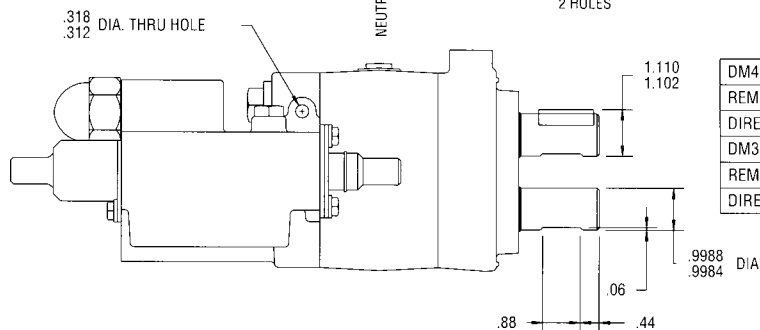
Permco DM400 Series Dump Pump Dimensions

Remote Mount Models



Direct Mount

SAE "B" 4 Bolt Mounting Flange
SAE "B" 7/8" 13 Tooth Spline Flange
2.95" From gear housing to mounting face
Centerline of shaft as shown in remote mount drawing



DM400-20	A	B	C
REMOTE	5.05	2.75	12.69
DIRECT	5.85	2.75	13.53
DM300-15	A	B	C
REMOTE	4.55	2.25	12.19
DIRECT	5.35	2.25	13.03





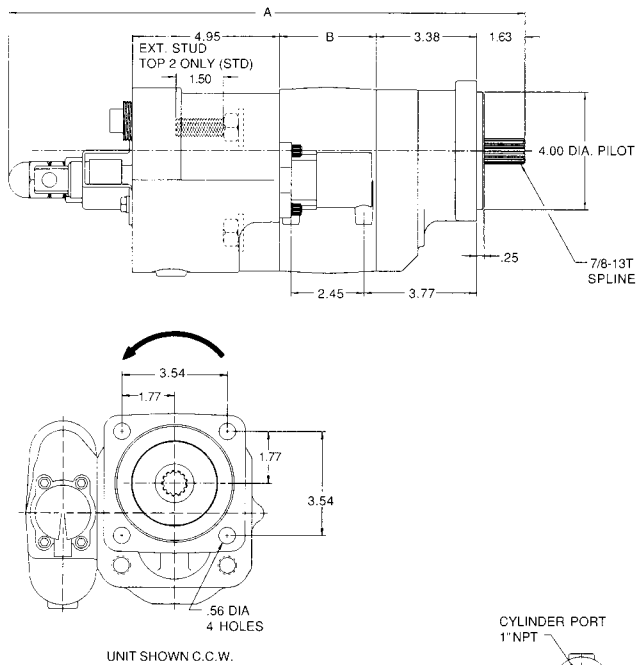
Technical Information Pumps

Dump Pumps • Permco DMD/DM640 Series • To 46 GPM @ 1800 RPM
Pump/Valve Assemblies For Medium & Heavy Duty Dump Trucks



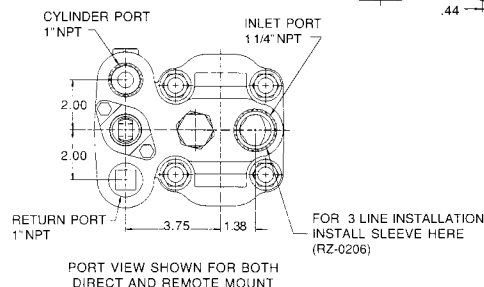
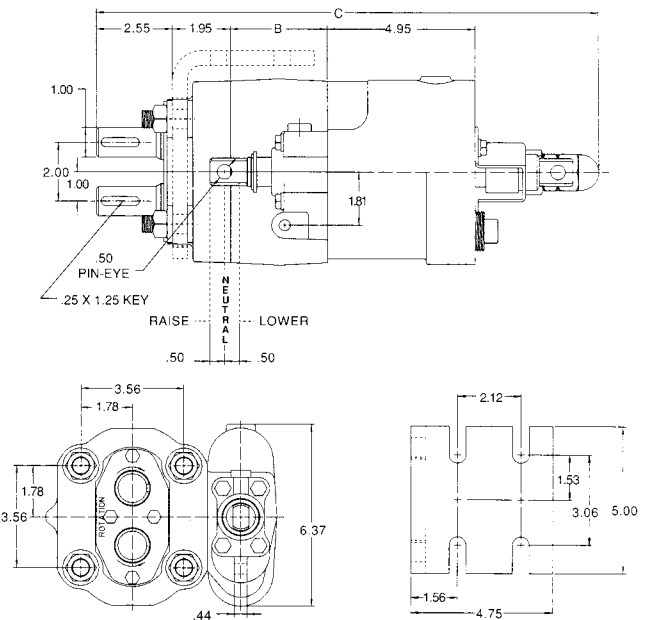
Permco DMD/DM640 Series Dump Pump Dimensions

Direct Mount Models



	A	B
DMD-20	16.85"	2.75"
DMD-25	17.35"	3.25"

Remote Mount Models



	C	B
DM-512-20	16.35"	2.75"
DM-640-25	16.85"	3.25"



Technical Information Pumps



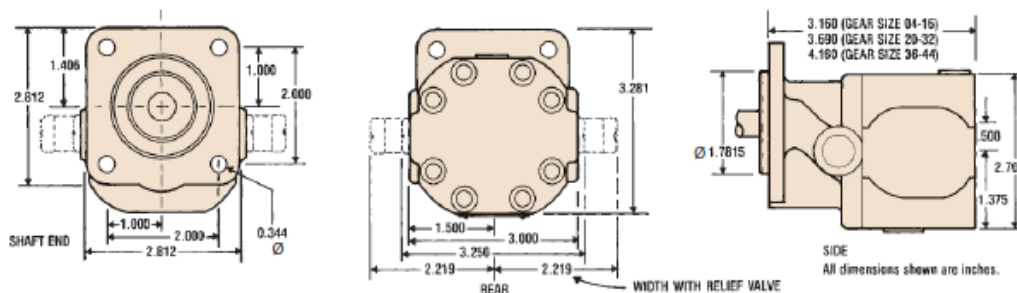
Single Hydraulic Pumps • Fixed Displacement Gear Pumps
Concentric GC Series • To 5.5 GPM @ 1800 RPM



Concentric GC Series Gear Pump Dimensions

DIMENSIONAL INFORMATION

Pumps use one of two basic castings: One size for gear faces 04 through 16 and a slightly larger size for gear faces 20 to 32. See the drawings for details.

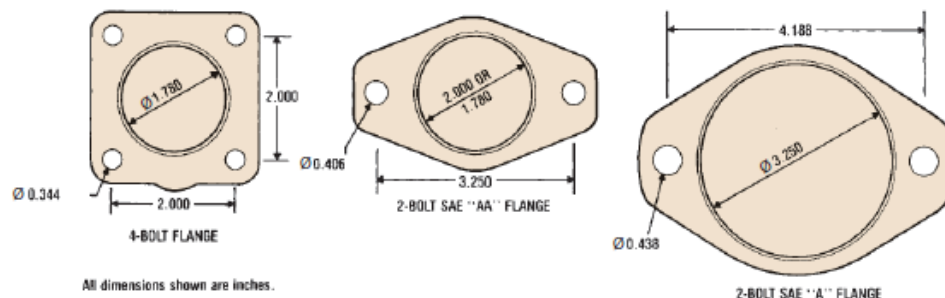


FLANGE OPTIONS

Standard options include three basic flanges: 4-Bolt with 1.78-inch Pilot, 2-Bolt SAE "AA" with 2-inch or 1.78-inch Pilot, and 2-Bolt SAE "A" with 3.25-inch Pilot. Consult factory for other flange requirements.

Order Code	Mounting Flange Options
1	4-Bolt w/1.78" Pilot
2	2-Bolt SAE "AA" w/2.0" Pilot
▲ 3	2-Bolt SAE "AA" w/1.78" Pilot
4	2-Bolt SAE "A" w/3.25" Pilot

▲ 100-piece minimum order

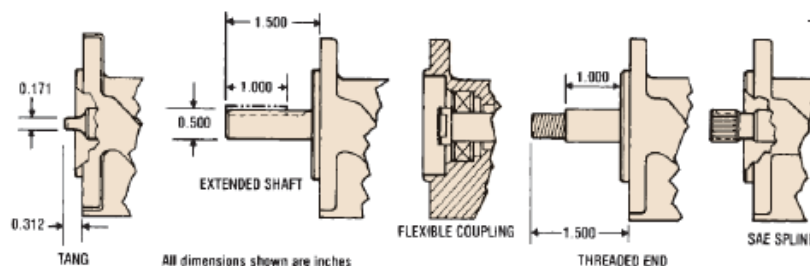


SHAFT OPTIONS

Five shaft options are standard: 0.171-inch Tang, 1/2-inch diameter x 1 1/2-inch Extension, Flexible Coupling, Threaded End, and SAE Spline. Consult factory for other shaft options.

Order Code	Mounting Flange Options
1	0.171" Tang
2	0.50" Diameter x 1.50" Extension, 1/8" Square Key
▲ 3	Flexible Coupling
▲ 4	Threaded End (Specify Thread)
* 5	SAE Spline (Specify)

▲ 100-piece minimum order
* 9T, 20/40 DP standard with flange option 1, 2 & 3;
9T, 16/32 DP standard with flange option 4.
Selected sizes available from stock. Consult factory.





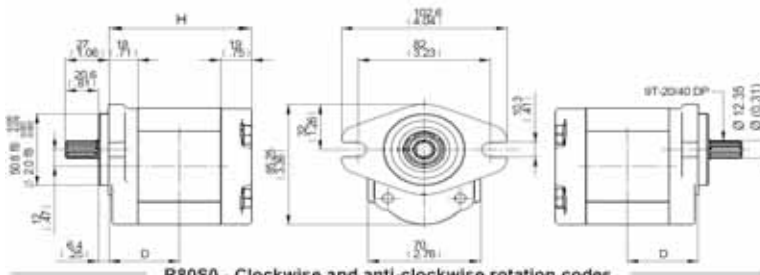
Technical Information Pumps

Single Hydraulic Pumps • Fixed Displacement
Salami 1.5PE Series • To 5 GPM @ 1800 RPM

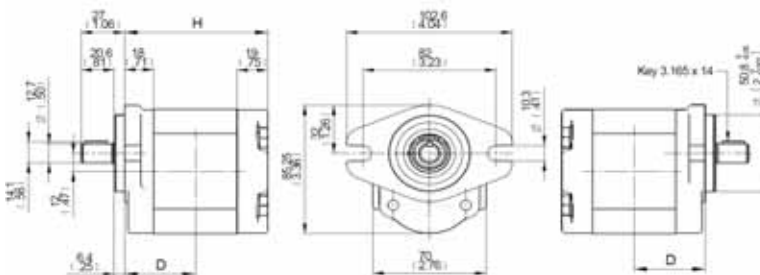


Salami 1.5PE Series Aluminum Gear Pump Dimensions

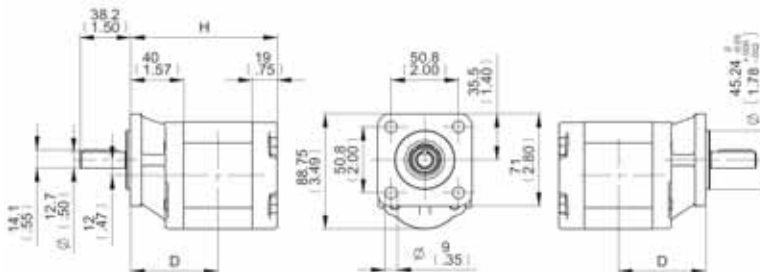
R51S0 - Clockwise and anti-clockwise rotation codes



R80S0 - Clockwise and anti-clockwise rotation codes



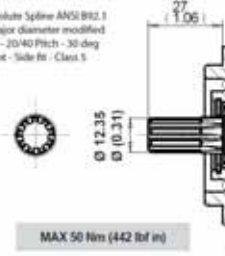
R83S1 - Clockwise and anti-clockwise rotation codes



DISPLACEMENT		DIMENSIONS			
		D		H	
cm ³ /rev	cu.in./rev	mm	in	mm	in
1.4	0.09	40	1.57	81.0	3.19
2.1	0.13	40.95	1.61	82.9	3.26
2.8	0.17	41.95	1.65	84.9	3.34
3.5	0.21	42.95	1.69	86.9	3.42
4.1	0.25	43.8	1.72	88.6	3.49
5.2	0.32	45.35	1.79	91.7	3.61
6.2	0.38	46.75	1.84	94.5	3.72
7.6	0.46	48.75	1.92	98.5	3.88
9.3	0.57	51.15	2.01	103.3	4.07
11	0.67	53.55	2.11	108.1	4.26

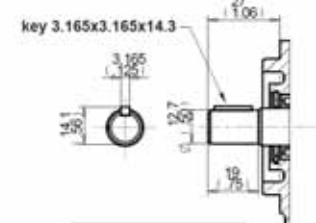
SAE "AA" SPLINE Code 51

Ext. Involute Spline ANSI B92.1
with major diameter modified
9 teeth - 20/40 Pitch - 30 deg
Flat Root - Side Fit - Class 5



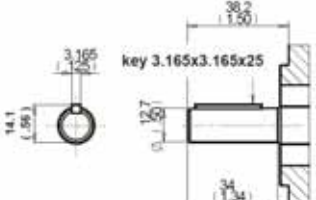
MAX 50 Nm (442 lbf in)

SAE "AA" STRAIGHT Code 80



MAX 40 Nm (354 lbf in)

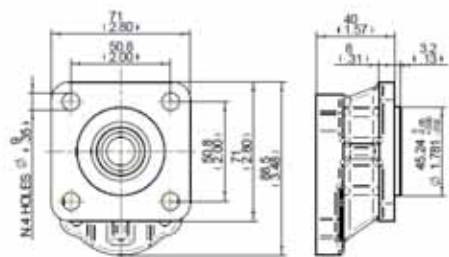
SAE STRAIGHT Code 83



SAE AA mounting flange (2 bolts)

Material: cast iron

50	Available assembling shafts		
Splined	51		
Straight	80		



SAE mounting flange (4 bolts)

Material: cast iron

51	Available assembling shafts		
Straight	83		



Technical Information Pumps



Single Hydraulic Pumps • Fixed Displacement Gear Pumps

Salami 2PE Series • To 12 GPM @ 1800 RPM

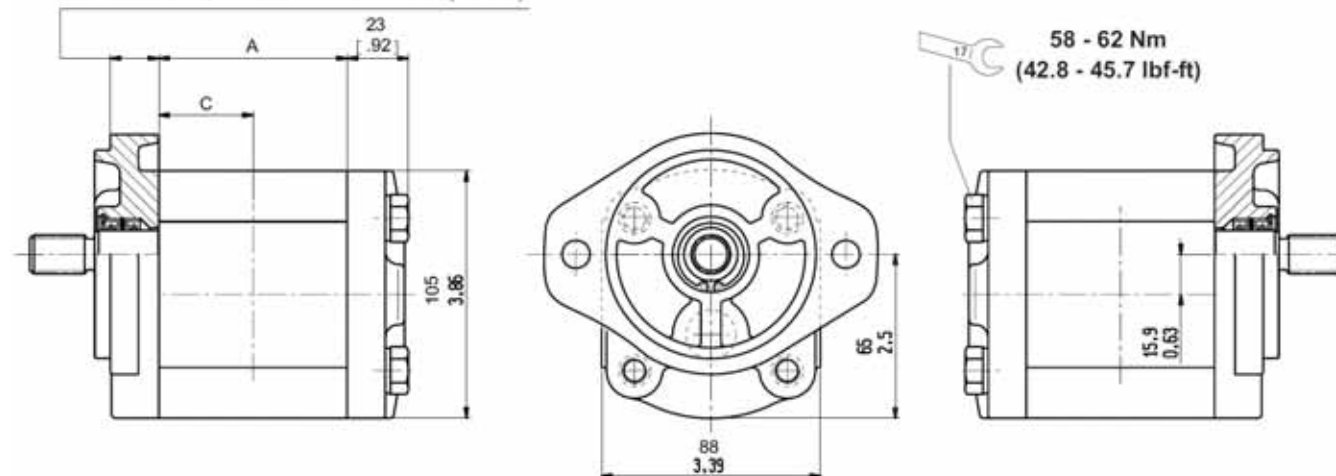


Salami 2PE Series Aluminium Gear Pump

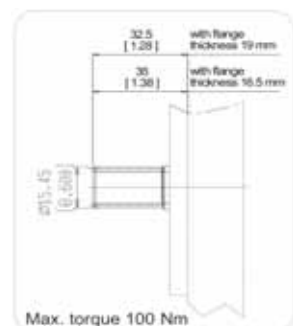
For flanges code:

P1 - B1 - S2 - S6, this dimension is 19 mm (0.75 in.)

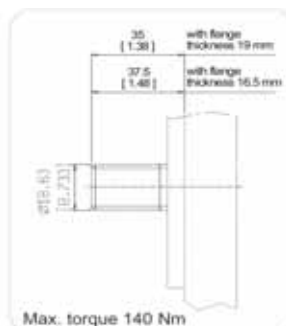
B2 - B3 - B4 - B5, this dimension is 16.5 mm (0.65 in.)



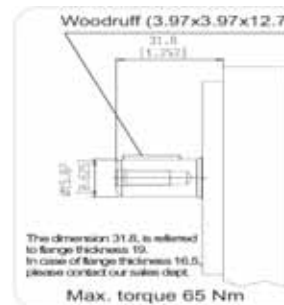
Type		3.2*	3.9*	4.5	6.5	8.3	10.5	11.3	12.5	13.8	16	19	22.5	26
Displacement	cm ³ /rev cu.in./rev	3.2 0.19	3.9 0.24	4.6 0.27	6.5 0.40	8.2 0.50	10.6 0.65	11.5 0.68	12.7 0.77	13.8 0.84	16.6 1.01	19.4 1.15	22.9 1.37	25.8 1.58
Dimension A	mm in		47.1 1.83		49.95 1.97	52.8 2.07	56.3 2.22		59.6 2.35	63.5 2.5	67.5 2.65	75.6 2.97	81 3.19	86.8 3.42
Dimension C	mm in		23.55 0.93		25 0.98	26.4 1.04	28.15 1.11		29.8 1.17	31.75 1.25	33.75 1.33	37.80 1.49	40.5 1.59	43.4 1.71



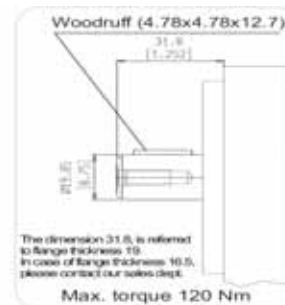
code 52 SAE A 9T-16/32DP
Ansi B92 1a 1976



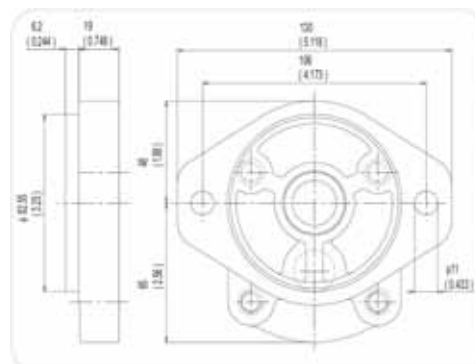
code 54 SAE 11T-16/32DP
Ansi B92 1a 1976



code 82
5/8" SAE A parallel



code 85
3/4" SAE A parallel



code S2 With shaft code 52-54-82-85.

Single Hydraulic Pumps • Fixed Displacement Gear Pumps

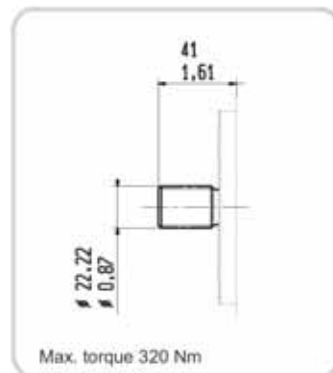
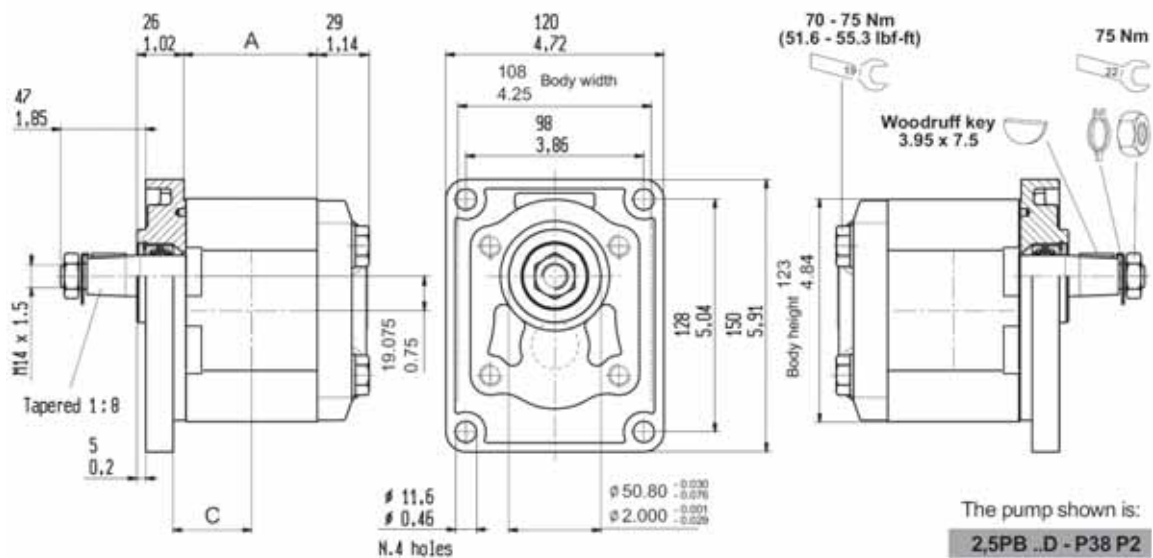
Salami 2.5PB Series • To 20 GPM @ 1800 RPM



Salami 2.5PB Series Aluminum Gear Pump Dimensions

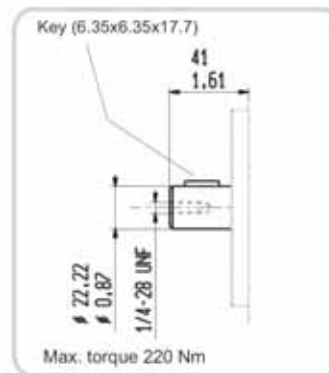
Type		5.5	8.3	11.5	13.8	16	19	22	25	28	32	38	44
Displacement	cm ³ /rev.	5.97	8.29	11.76	14.07	16	19.3	22.2	25.2	27.6	32.4	38.1	44.2
	cu.in./rev.	0.36	0.50	0.72	0.86	0.97	1.17	1.35	1.53	1.68	1.97	2.32	2.69
Dimension A	mm.	52.2	54.6	58.2	60.6	63	66.5	70	72.5	85	90.5	96.5	103
	in.	2.05	2.15	2.29	2.38	2.45	2.59	2.73	2.82	3.31	3.52	3.76	4.06
Dimension C	mm.	26.1	27.3	29.1	30.3	31.5	33.25	35	36.25	42.5	45.25	48.25	51.5
	in.	1.02	1.07	1.14	1.19	1.22	1.29	1.36	1.41	1.65	1.76	1.88	2.03

IMPORTANT: The displacements 5.5 - 8.3 - 11.5 - 13.8, are always available as rear pump.
Displacements 11.5 - 13.8 are available as single pump only with drive shaft "55"



code 55

SAE B 13T-16/32DP
Ansi B92 1a 1976



code 87

SAE B parallel

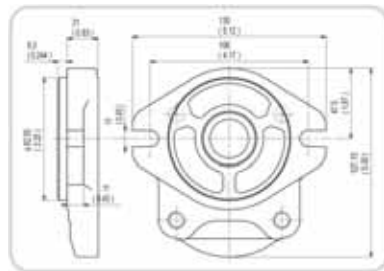
Technical Information Pumps



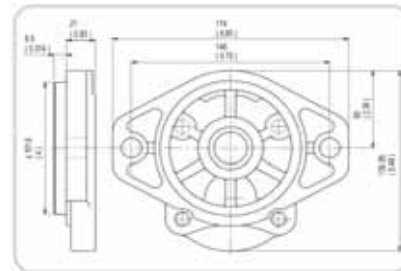
Dual Hydraulic Pumps • Fixed Displacement Gear Pumps
Salami 2.5PB Series • To 20 GPM @ 1800 RPM



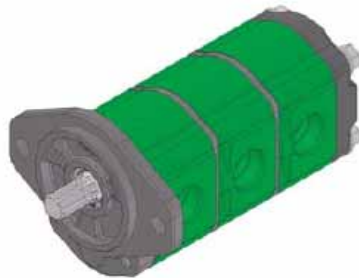
Salami



code S2 With drive shafts code 53 - 54 - 55 - 57



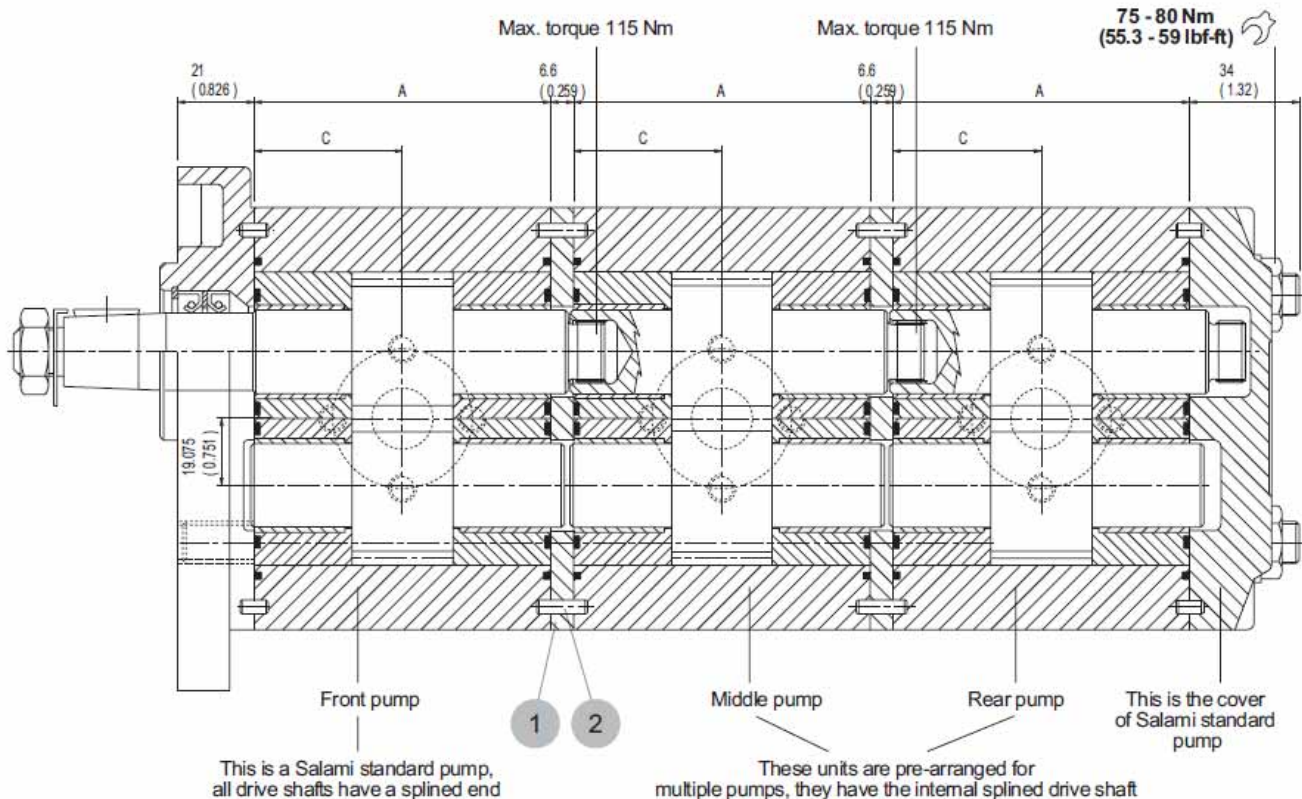
code S3 With drive shafts code 55-57



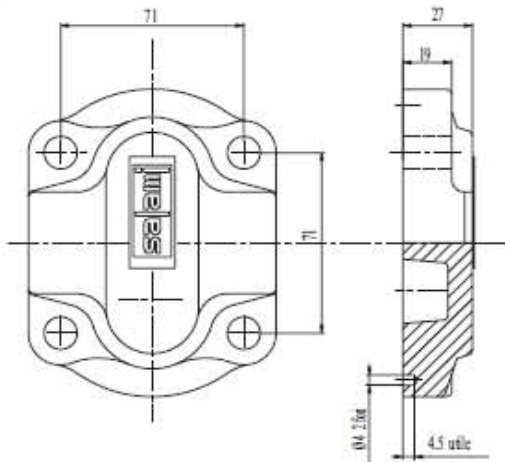
In case of common inlet port, to avoid too high value of oil speed, 40l/min is the max. sucked flow for the downstream pump.

Commercial code "UA", in case of common inlet port .See page 34.

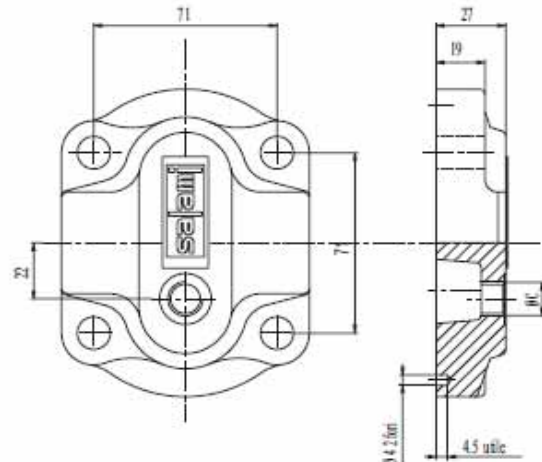
Type		5.5	8.3	11.5	13.8	16	19	22	25	28	32	38	44
Dimension A	mm	52.2	54.6	58.2	60.6	63	66.5	70	72.5	85	90.5	96.5	103
	in.	2.05	2.15	2.29	2.38	2.48	2.62	2.76	2.85	3.35	3.56	3.80	4.06
Dimension C	mm	26.1	27.3	29.1	30.3	31.5	33.25	35	36.25	42.5	45.25	48.25	51.5
	in.	1.03	1.07	1.14	1.19	1.22	1.29	1.36	1.41	1.65	1.76	1.88	2.03



Hydraulic Pumps • Fixed Displacement Gear Pumps
Salami 2.5PB Series • To 20 GPM @ 1800 RPM

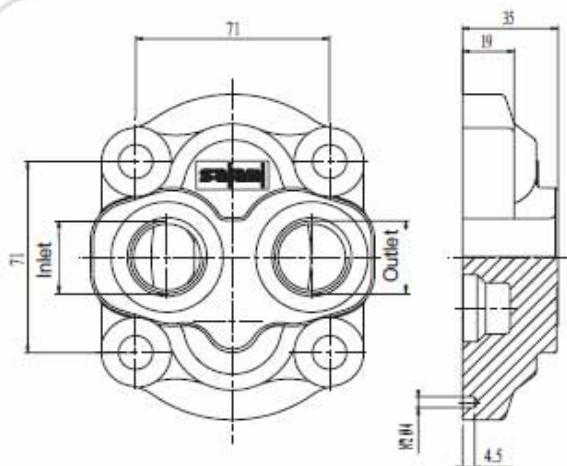


Standard rear cover for unidirectional pumps.



Standard cover for reversible pumps and motors, with external drain port ØC.
For dimension ØC please see the table here below.

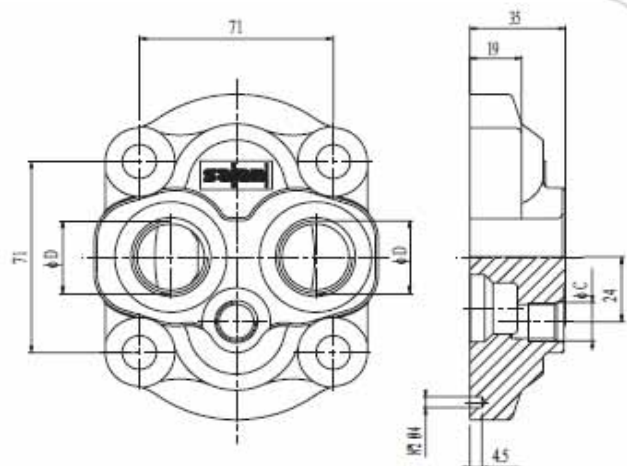
REAR COVERS WITH INLET/OUTLET PORTS



Rear cover with INLET/OUTLET ports, for unidirectional pumps and motors.

INLET	OUTLET
1-5/16-12 UN-2B (SAE 16)	1-1/16-12 UN-2B (SAE 12)
G 1	G 3/4

code 1



Rear cover with INLET/OUTLET ports and external drain Ø C, for bidirectional pumps and motors.

D	C
1-1/16-12 UN-2B (SAE 12)	9/16-18 UNF-2B (SAE 6)
G 3/4	G 3/8

In phase of order please specify D and C dimensions

Technical Information Pumps

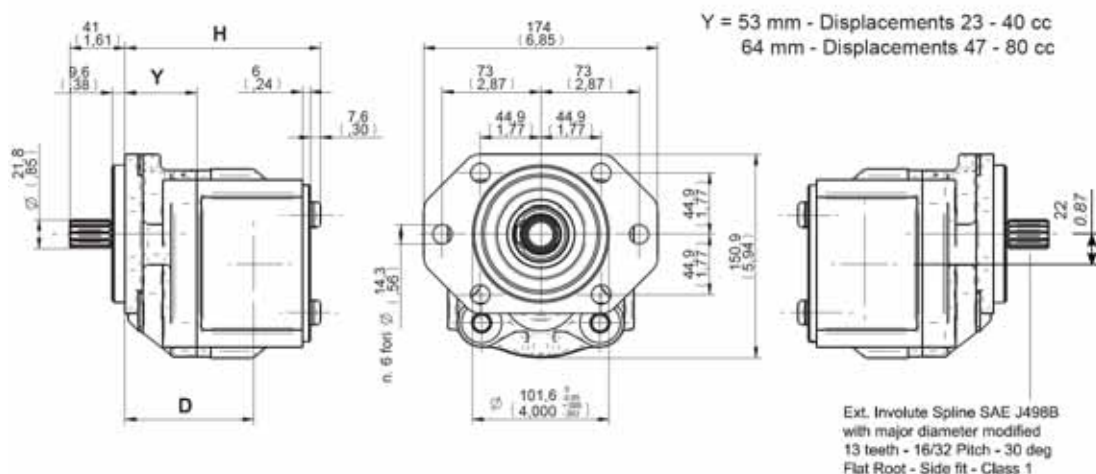


Single Hydraulic Pumps • Fixed Displacement Gear Pumps
Salami PG331 Series • To 38 GPM @ 1800 RPM



Salami PG331 Series Cast Iron Gear Pump

R55S3 - Clockwise and anti-clockwise rotation codes



DISPLACEMENT		DIMENSIONS			
		D		H	
cm ³ /rev	cu.in./rev	mm	in	mm	in
23,4	1,43	88	3,46	136,7	5,38
28,6	1,74	91	3,58	140,7	5,54
34,4	2,10	95,5	3,76	145,2	5,71
40,3	2,46	100	3,94	149,7	5,89
47,4	2,89	114	4,49	172,2	6,78
55,2	3,37	120	4,72	179,2	7,05
64,3	3,92	122	4,80	185,2	7,29
73,4	4,48	125	4,92	192,2	7,56

Double Hydraulic Pumps • Fixed Displacement Gear Pumps

Salami 3PE Series • To 34 GPM @ 1800 RPM



Salami 3PE Series Aluminium Gear Pump



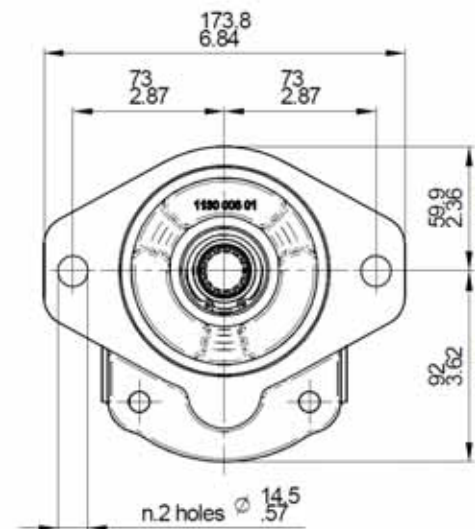
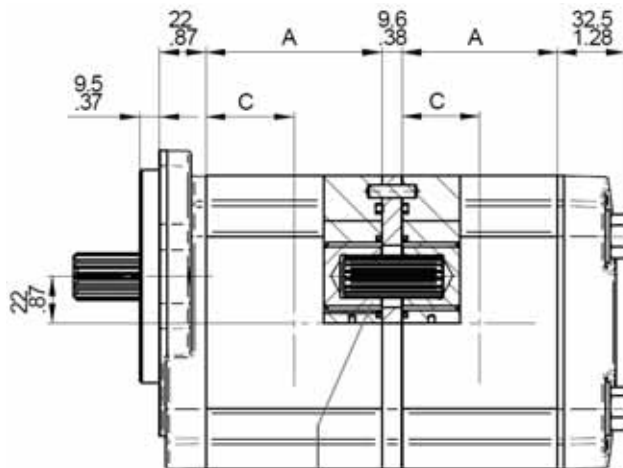
In case of common inlet port, to avoid too high value of oil speed, 40l/min is the max. sucked flow for the downstream pump.



Showed release with
flange S3 and shaft 55

Performance carried out with oil viscosity at 16 cSt and oil temperature at 60°C.

TYPE		21*	27	33	38	46	55	65	75*
Displacements	cm ³ /rev	20,6	27	33,5	38,7	46,9	54,1	63,1	73,4
	cu.in./rev	1,26	1,65	2,04	2,36	2,86	3,3	3,85	4,48
Dimension A	mm	74	79	84	88	104	110	117	124
	in	2,91	3,11	3,31	3,46	4,09	4,33	4,61	4,88
Dimension C	mm	37	39,5	42	44	52	55	58,5	62
	in	1,46	1,56	1,65	1,73	2,05	2,17	2,30	2,44



Technical Information Pumps

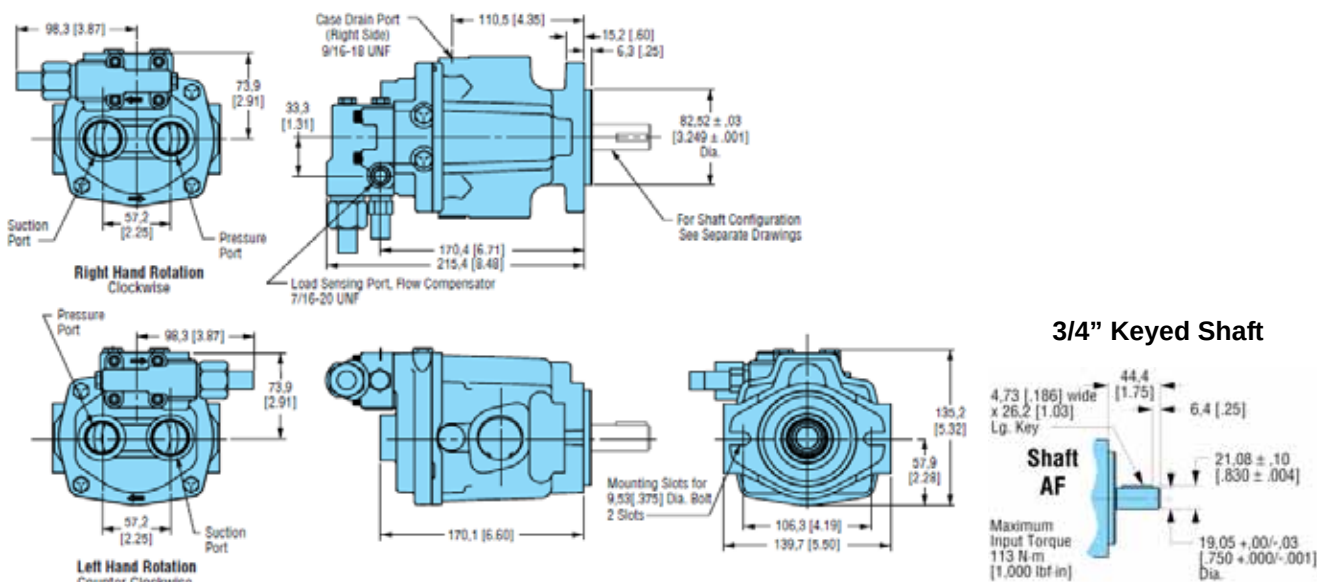


Single Hydraulic Pumps • Variable Displacement
Eaton Medium Duty Series • To 42 GPM @ 2500 RPM

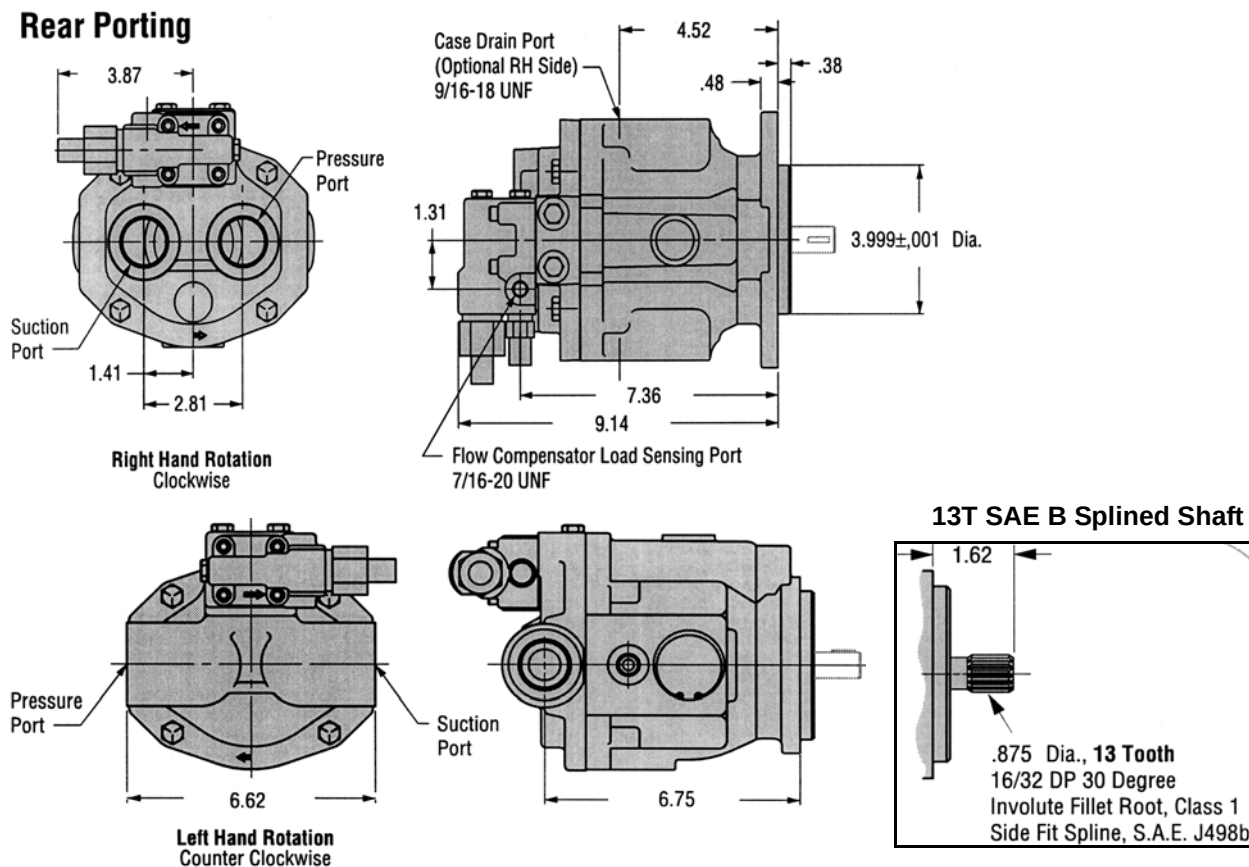


Eaton Medium Duty Series Piston Pump Dimensions

1.16 Cubic Inch Models



2.77 Cubic Inch Models



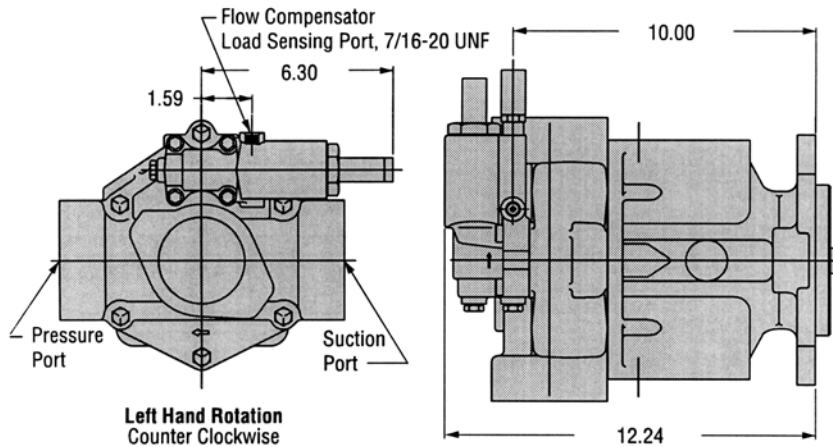


Single Hydraulic Pumps • Variable Displacement
Eaton Medium Duty Series • To 42 GPM @ 2500 RPM

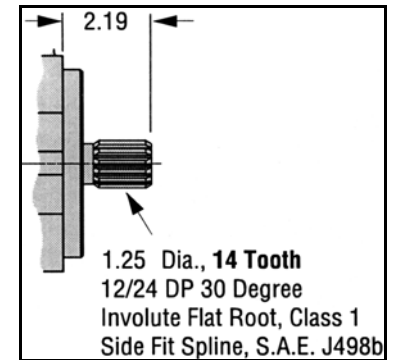


Eaton Medium Duty Series Piston Pump Dimensions

4.21 Cubic Inch Models



14T SAE C Splined Shaft



Technical Information Pumps

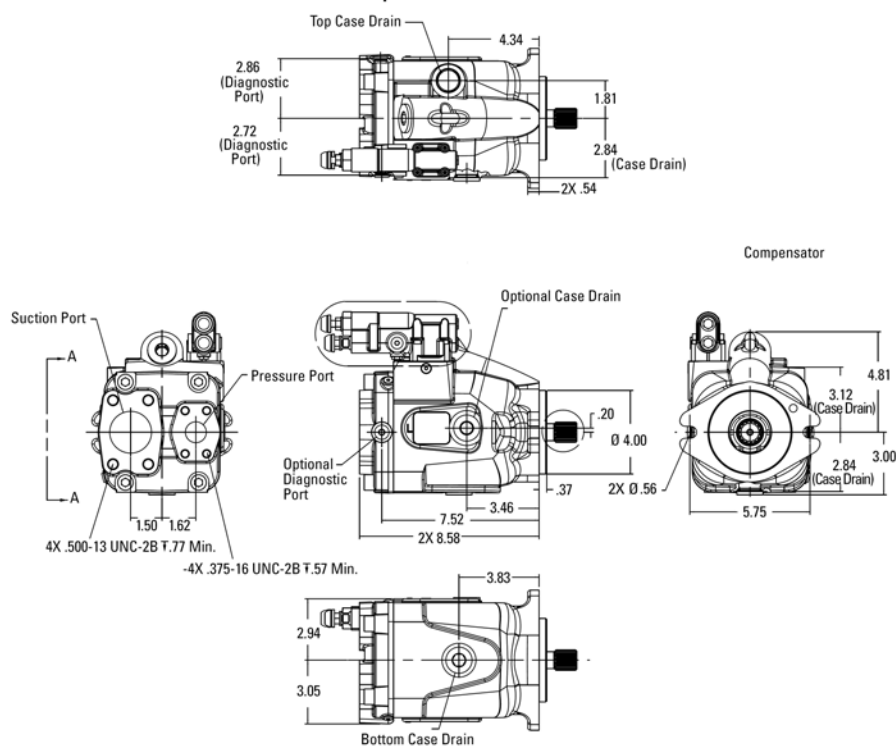


Single Hydraulic Pumps • Variable Displacement
Eaton 420 Series Mobile Piston Pump

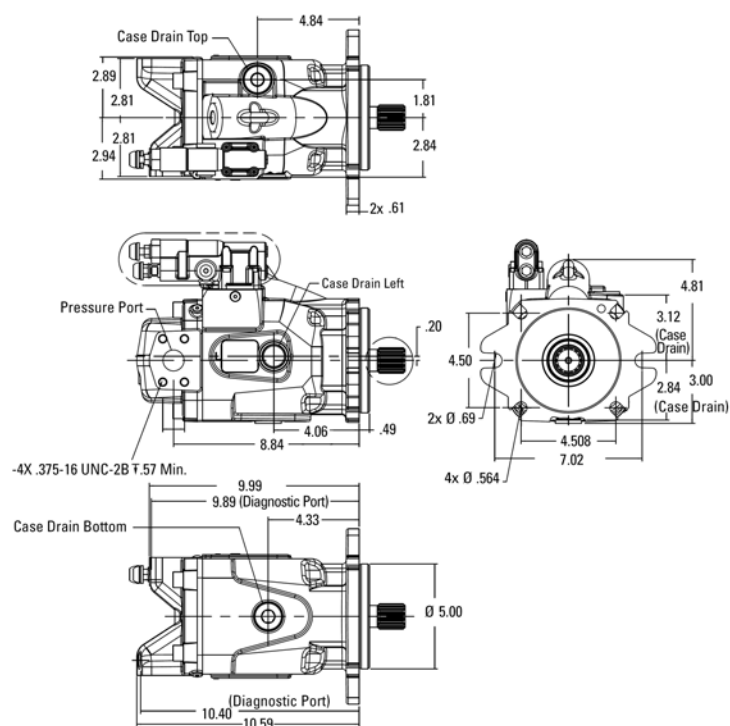


Eaton 420 Series Mobile Piston Pump

B-mount / Rear-ported RH Rotation



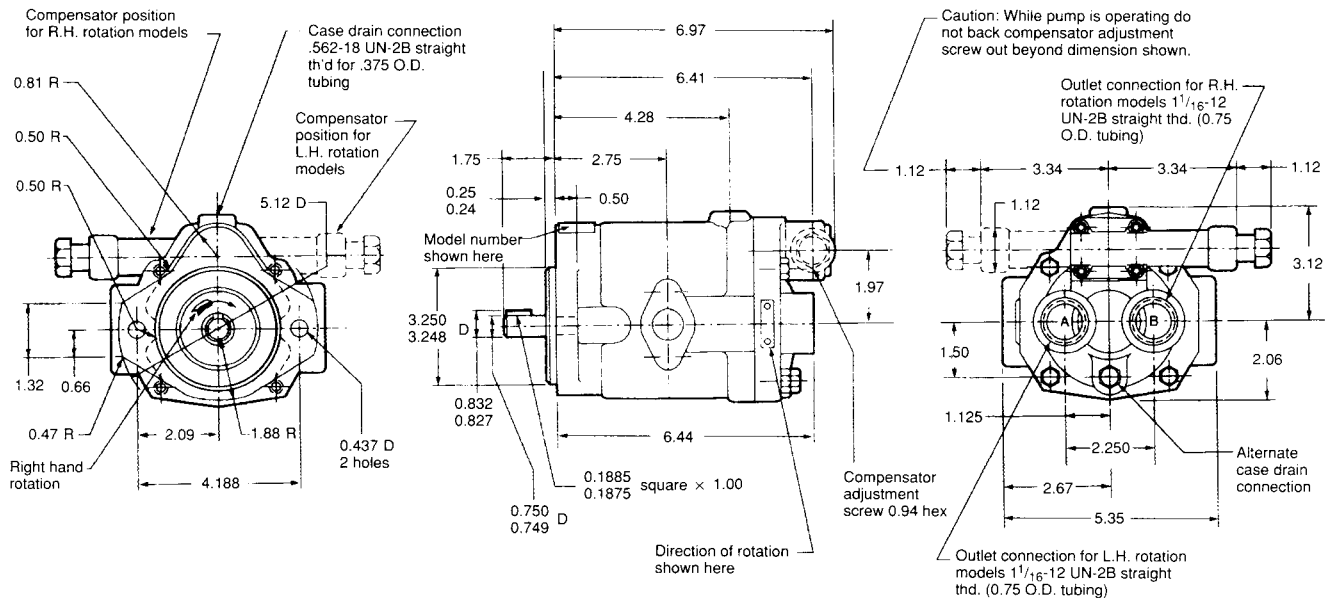
C-mount / Side-ported RH Rotation



Single Hydraulic Pumps • Variable Displacement
Vickers PVQ Series • To 30 GPM @ 1800 RPM

Vickers PVQ Series Piston Pump Dimensions

PVQ-10 with Rear Ports and 3/4 Inch Straight Keyed Shaft



Technical Information Pumps

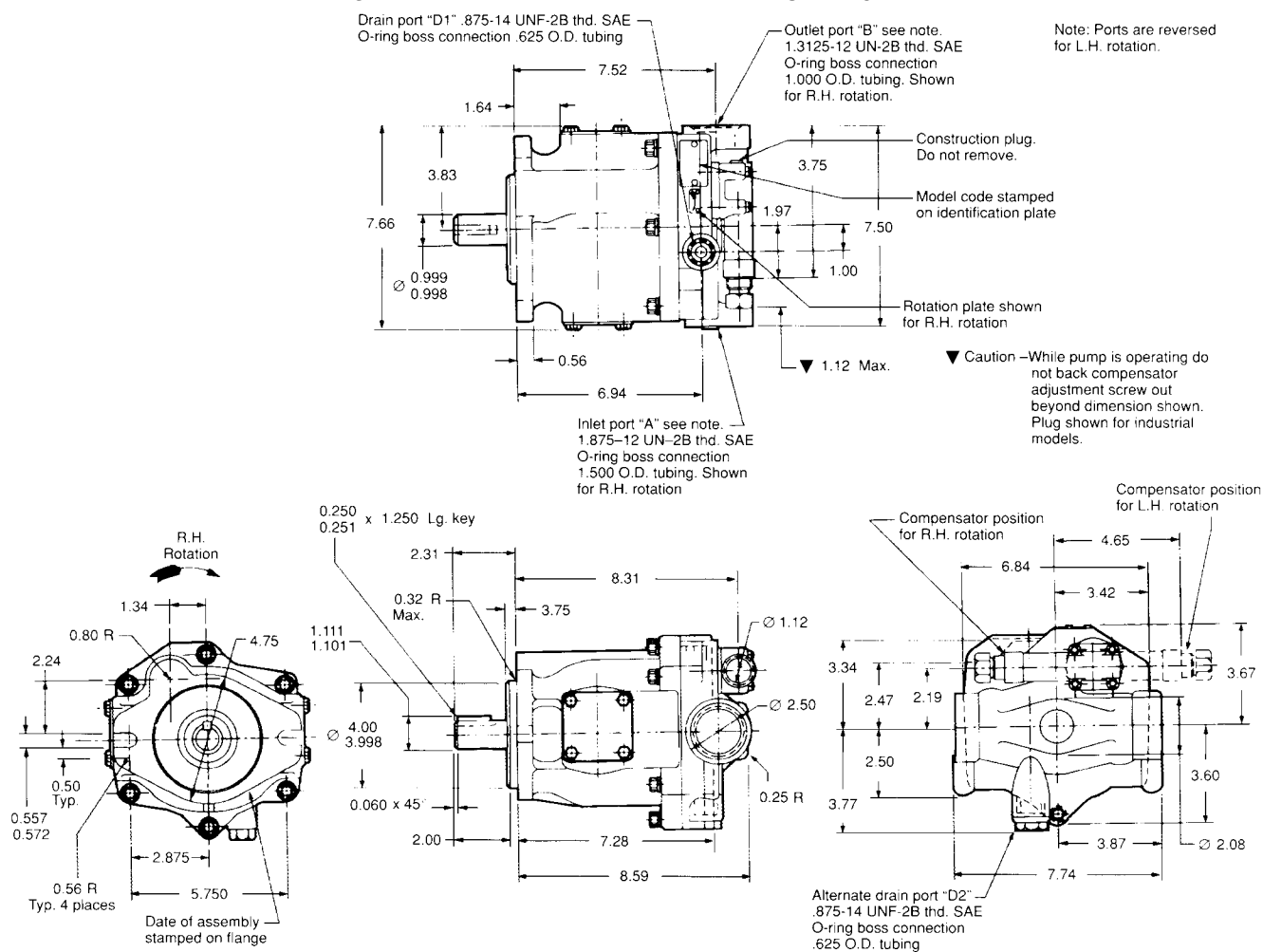


Single Hydraulic Pumps • Variable Displacement
Vickers PVQ Series • To 30 GPM @ 1800 RPM

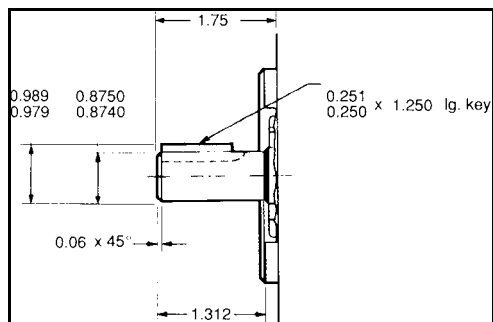


Vickers PVQ Series Piston Pump Dimensions

PVQ-40 with Side Ports and 1 Inch Straight Keyed Shaft

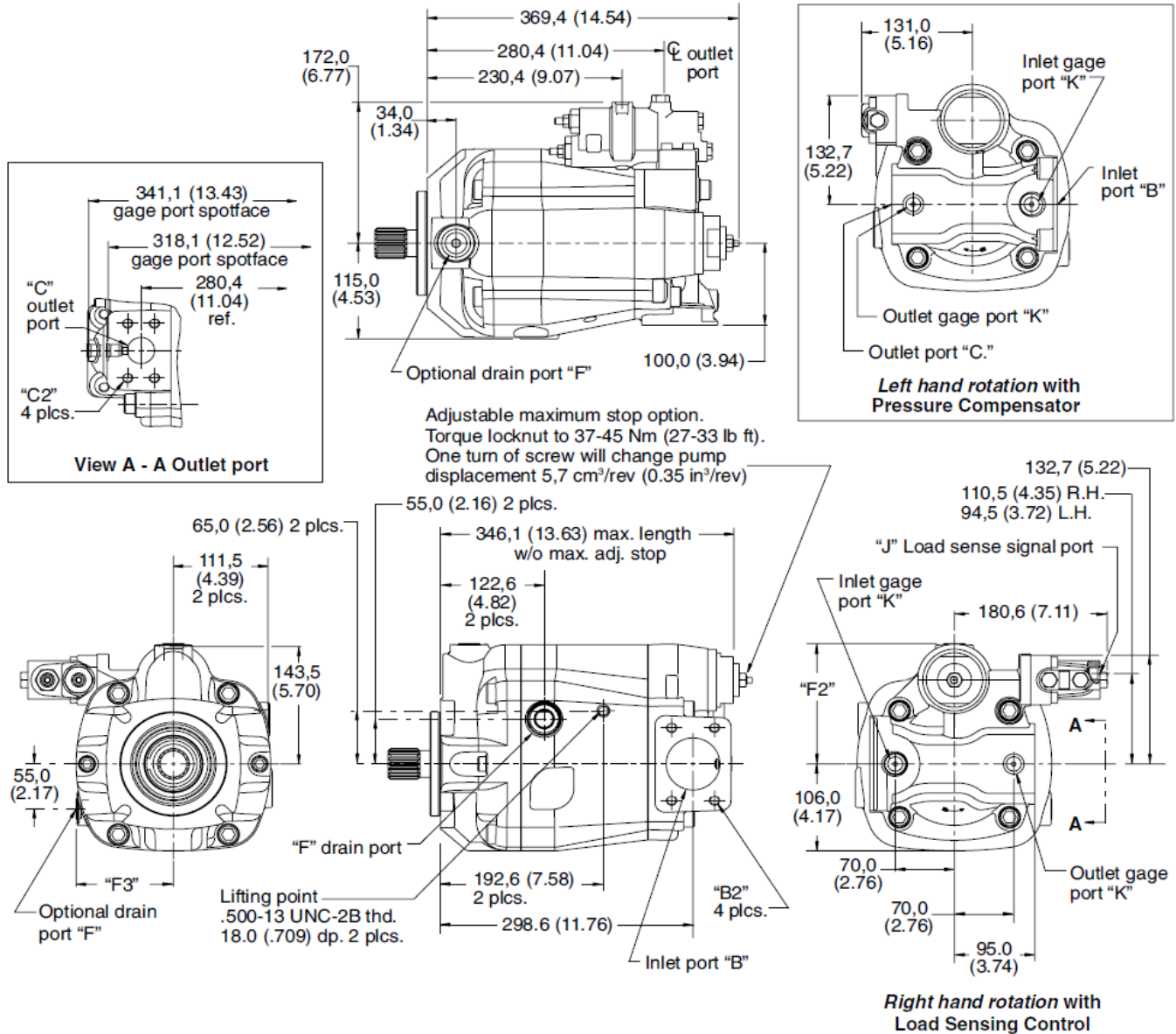


7/8 Inch Straight Keyed Shaft



Single Hydraulic Pumps • Variable Displacement
Eaton PVM Series • To 67 GPM @ 1800 RPM

Eaton PVM131 Series Piston Pump Dimensions



Technical Information Pumps

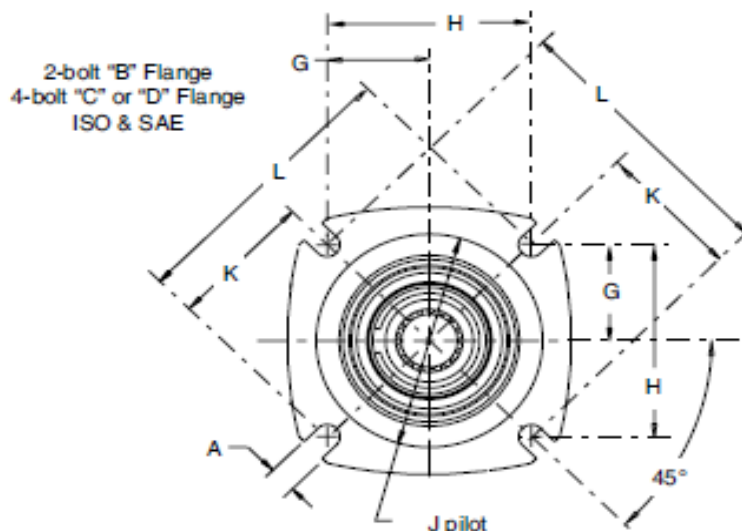
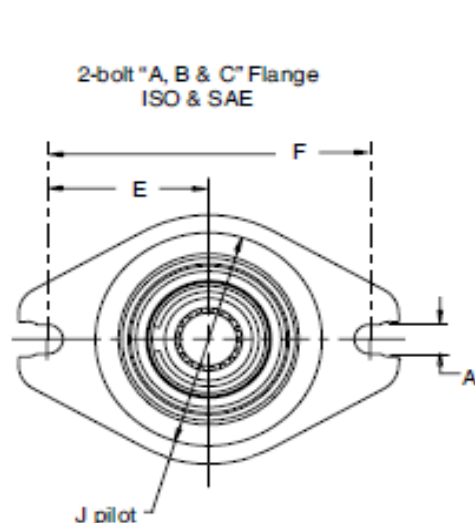


Single Hydraulic Pumps • Variable Displacement
Eaton PVM Series • To 67 GPM @ 1800 RPM



Eaton PVM Series Piston Pump Dimensions - Mounting Flange Options

Dimensions in millimeters (inches)



Series	2-bolt or 4-bolt Flange	Code	Flange Description	A	E	F	G	H	J	K	L
PVM018	2-bolt	A	SAE J744-82-2	Ø11,14 (.438)	53,2 (2.09)	106,4 (4.19)	-	-	Ø82,53 +.02 -.03 (Ø3.249) +.000 -.001	-	-
PVM020	"A"										
PVM018	2-bolt	B	ISO 3019/2-80A2HW	Ø11,14 (.438)	54,5 (2.15)	109,0 (4.29)	-	-	Ø79,98 +.02 -.03 (Ø3.15) +.000 -.001	-	-
PVM020	"A"										
PVM018 PVM020 PVM045 PVM050 PVM057 PVM063	2-bolt "B"	C	SAE J744-101-2	14,36 (.565)	73,0 (2.87)	146,0 (5.75)	-	-	Ø101,58+.02 -.03 (Ø3.999) ±.001	-	-
PVM018 PVM020 PVM045 PVM050 PVM057 PVM063	2-bolt "B" (special)	D	ISO 3019/2-100A2HW	14,14 (.557)	70,0 (2.76)	140,0 (5.51)	-	-	Ø100,00/99,95 (Ø3.937/3.935)	-	-
PVM057 PVM063 PVM074 PVM081	2-bolt "C"	E	SAE J744-127-2 ("C")	17,4 (.685)	90,5 (3.562)	181,0 (7.125)	-	-	Ø127,00/126,95 (Ø5.000/4.998)	-	-
PVM098 PVM106 PVM131 PVM141	4-bolt "C"	F	ISO 3019/2-125A2HW	18,0 (.709)	90,0 (3.543)	180,0 (7.09)	-	-	Ø125,00/124,95 (Ø4.921/4.919)	-	-
		G	SAE J744-127-4 ("C")	14,2 (.559)	-	-	57,25 (2.254)	114,50 (4.508)	Ø127,00/126,95 (Ø5.000/4.998)	-	-
		H	ISO 3019/2-125B4HW	14,0 (.551)	-	-	-	-	Ø125,00/124,95 (Ø4.921/4.919)	80,0 (3.150)	160,0 (6.299)
PVM131 PVM141	4-bolt "D"	J	SAE J744-152-4 ("D")	20,6 (.812)	-	-	80,82 (3.182)	161,64 (6.364)	Ø152,40/152,35 (Ø6.000/5.998)	-	-
		K	ISO 3019/2-160B4HW	18,0 (.709)	-	-	-	-	Ø160,00/159,95 (Ø6.299/6.297)	100,0 (3.937)	200,0 (7.874)

*Flanges for PVM020 and PVM050 are shown on pages 73 and 80, respectively.

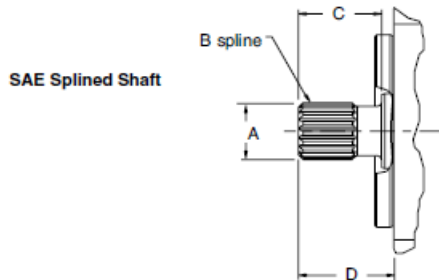


Single Hydraulic Pumps • Variable Displacement
Eaton PVM Series • To 67 GPM @ 1800 RPM



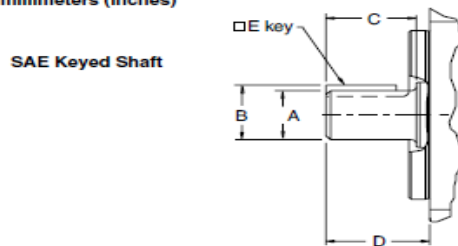
Eaton PVM131 Series Piston Pump Dimensions - Shaft Options

Dimensions in millimeters (inches)



PVM131/141	SAE J744-32-4 SAE "C" (14T)	11	31,22 (1.23)	14T 12/24 DP	48,0 (1.89)	56,0 (2.20)	640 (5660)
	SAE J744-38-4 SAE "C-C" (17T)	12	37,57 (1.479)	17T 12/24 DP	54,0 (2.13)	62,0 (2.44)	1215 (10,750)
	SAE J744-44-4 SAE "D" (13T)	14	43,71 (1.721)	13T 8/16 DP	67,0 (2.63)	75,0 (2.95)	1215 (10,750)

Dimensions in millimeters (inches)



PVM131/141	SAE J744-32-1 SAE "C"	09	31,75 (1.25)	35,32 (1.390)	48,0 (1.89)	56,0 (2.20)	7,93 (.312)	450 (3980)
	SAE J744-38-1 SAE "C-C"	10	38,10 (1.50)	42,39 (1.67)	54,0 (2.13)	62,0 (2.44)	9,52 (.375)	765 (6770)
	SAE J744-44-1 SAE "D"	13	44,45 (1.75)	49,46 (1.95)	67,0 (2.63)	75,0 (2.95)	11,11 (.438)	1200 (10,620)

Technical Information Pumps



Single Hydraulic Pumps • Variable Displacement
Eaton HPR Series • To 158 GPM @ 1800 RPM



Eaton Duraforce™ HPR Series Piston Pump Dimensions

Port sizes and dimensions HPR Single Pumps

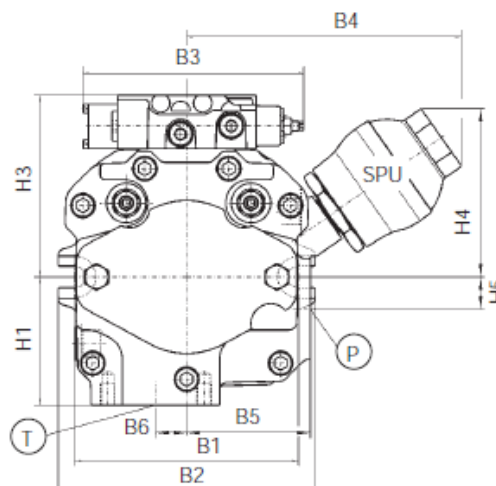
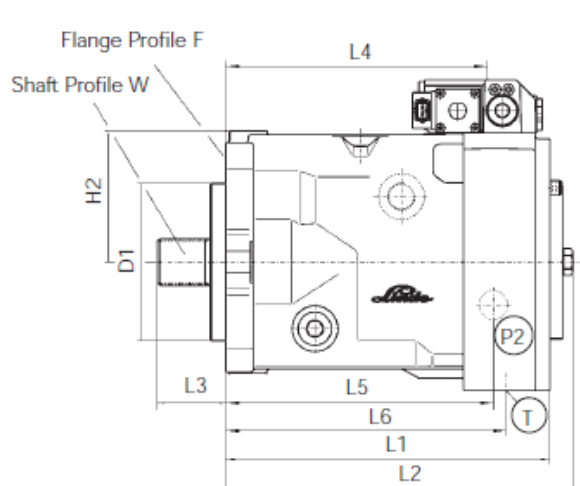
Size	55	75	105	135	165	210
F Flange Profile	SAE C	SAE C	SAE C	SAE D	SAE D	SAE E
Accordance w/ANSI B92.1	2-hole mtng flange	2-hole mtng flange	2-hole mtng flange	2-hole mtng flange	2-hole mtng flange	4-hole
W Shaft Profile in	12/24 Spline Pitch	12/24 Spline Pitch	16/32 Spline Pitch	16/32 Spline Pitch	16/32 Spline Pitch	16/32 Spline Pitch
Accordance w/ANSI B92.1	14 Teeth	14 Teeth	23 Teeth	27 Teeth	27 Teeth	27 Teeth
D1 (mm)	127	127	127	152.4	152.4	165.1
B1 (mm)	181	181	181	229	229	269
B2 (mm)	208	208	208	229	229	225
B3 (mm) LP-Regulator	140	140	140	140	140	140
B3 (mm) E1L-Regulator	178	178	178	178	178	178
B4 (mm)	-	215	222	236	253	262
B5 (mm) Port P	91	91	100	107	124	145
B6 (mm) Port T	21	21	25	40	0	57
H1 (mm)	94	94	104	120	120	145
H2 (mm)	100	93	106	100	116	135
H3 (mm) LP-Regulator	139	139	142	149	166	
H3 (mm) E1L-Regulator	145	145	148	155	172	178
H4 (mm)	-	147	137	146	153	145
H5 (mm) Port P	24	24	26	30	43	27
L1 (mm)	220	232	262	285	359	346
L2 (mm)	240	250	280	303	377	370
L3 (mm)	55	55	55	75	75	75
L4 (mm) SPU	-	192	215	236	256	278
L5 (mm) Port P	183	194	218	244	283	293
L6 (mm) Port T	190	201	227	250	286	296
P High Pressure (SAE)	3/4"	3/4"	1"	1 1/4"	2 1/2"	3"
T Standard (SAE)	1 1/2"	1 1/2"	2"	2"	2 1/2"	3"
L	M22x1.5	M22x1.5	M22x1.5	M27x2	M27x2	M27x2
U	M22x1.5	M22x1.5	M22x1.5	M27x2	M27x2	M27x2

Threads metric as per ISO 6149

Threads for SAE high pressure port metric as per ISO 261

Socket cap screw as per ISO 4762

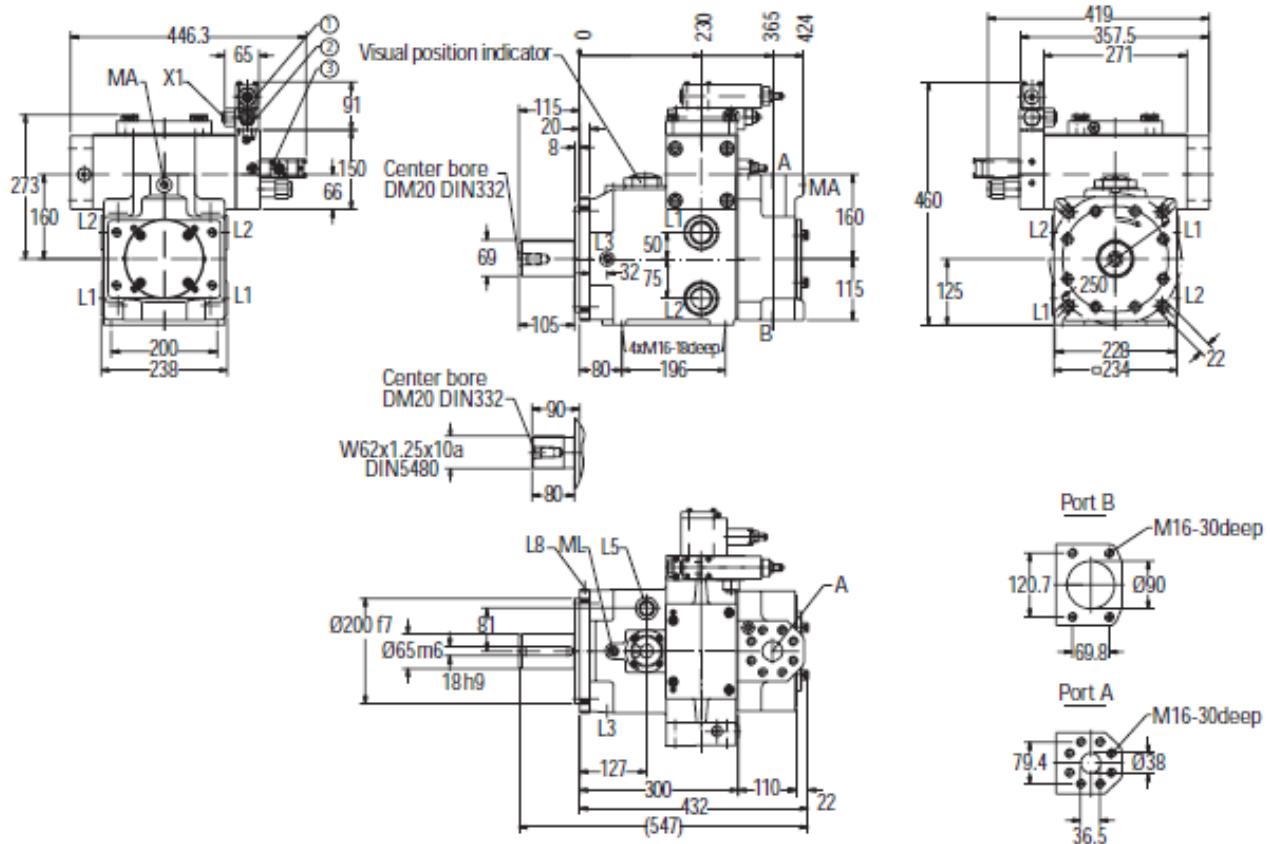
Further threads on request



Single & Multiple Hydraulic Pumps • Variable Displacement Eaton Hydrokraft™ PVW Series Piston Pumps • To 238 GPM @ 1800

Eaton PVWS-250 LR control with pressure limiter Dimensions

- 1 Pilot valve (2nd stage)
- 2 Pilot compensator (1st stage)
- 3 Power limiter valve
- 4 Max flow adjustment
- X1 Remote port pressure limiter
- LR000A2 ...



CONTROL	DIRECTION OF ROTATION	INPUT	OUTPUT
to + Vmax	Right hand	B	A

A	System pressure port SAE 1 1/2", 415 bar (6000psi)	L2	Drain port G 1 1/4" per mounting position use upper port	(L8)	Air bleed port G 1/4" (...)	Normally plugged
B	Inlet connection SAE 3 1/2", 35 bar (500psi)	(L3)	Ventilation port for vertical mounting G 3/8" (shaft upwards)	(MA)	Gauge port system pressure G 1/4"	
(L1)	Drain port 1 5/8" - 12 UNF - 2B per mounting position use upper port	(L5)	Oil fill plug 1 1/16" - 12 UNF - 2B	(ML)	Gauge port of case pressure G 1/4"	
				(X1)	Gauge port G 1/4" x 12.5 deep	

Technical Information Pumps

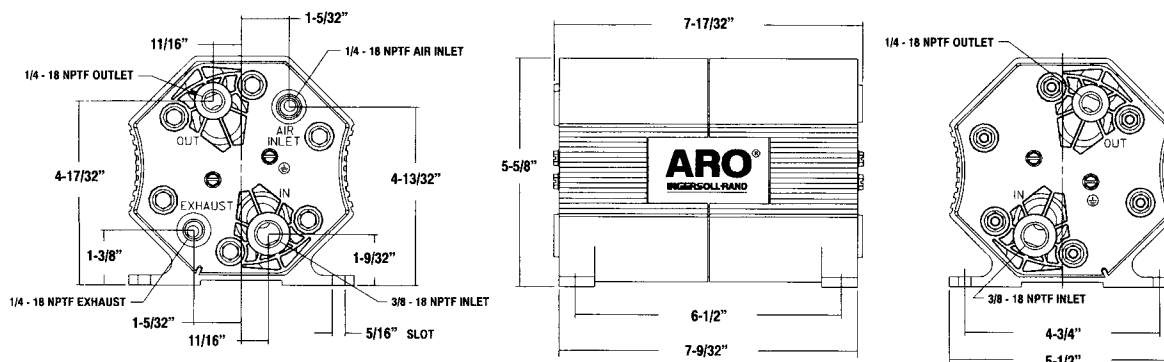


Air-Operated Diaphragm Pumps

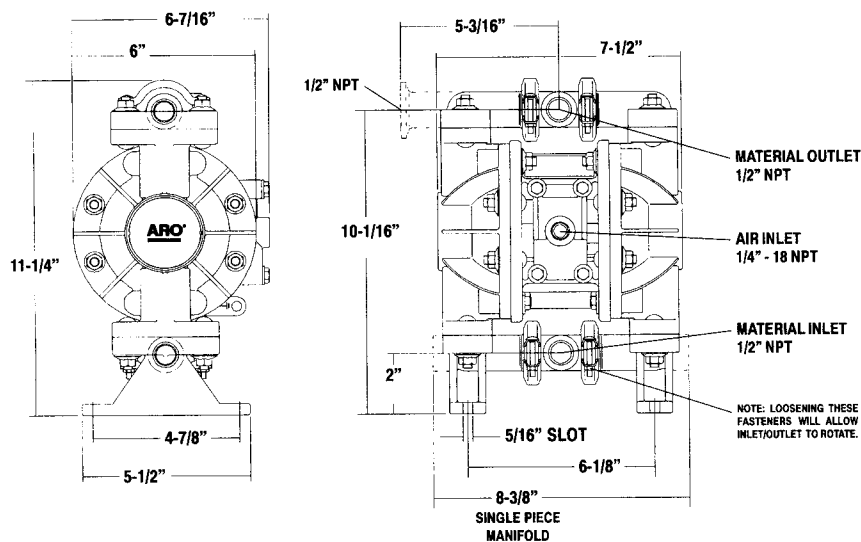
Aro Non-Metallic Air-Operated Diaphragm Pumps



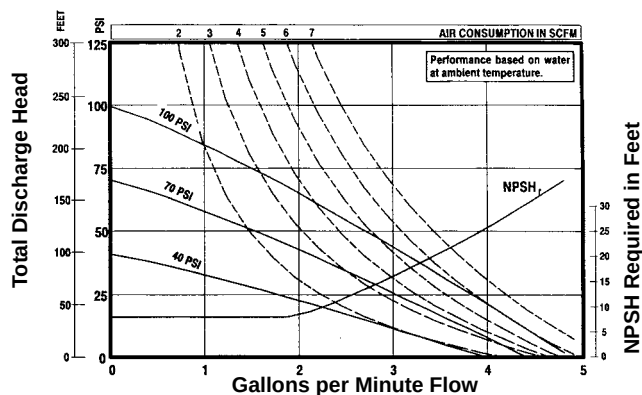
1/4 Inch Pump Dimensions



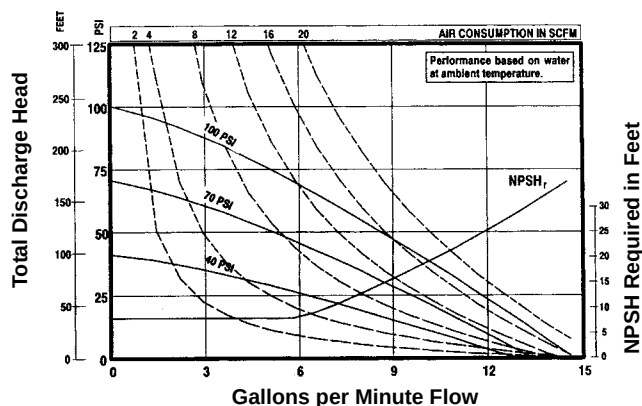
1/2 Inch Pumps Dimensions



1/4 Inch Pump Performance Curves



1/2 Inch Pump Performance Curves



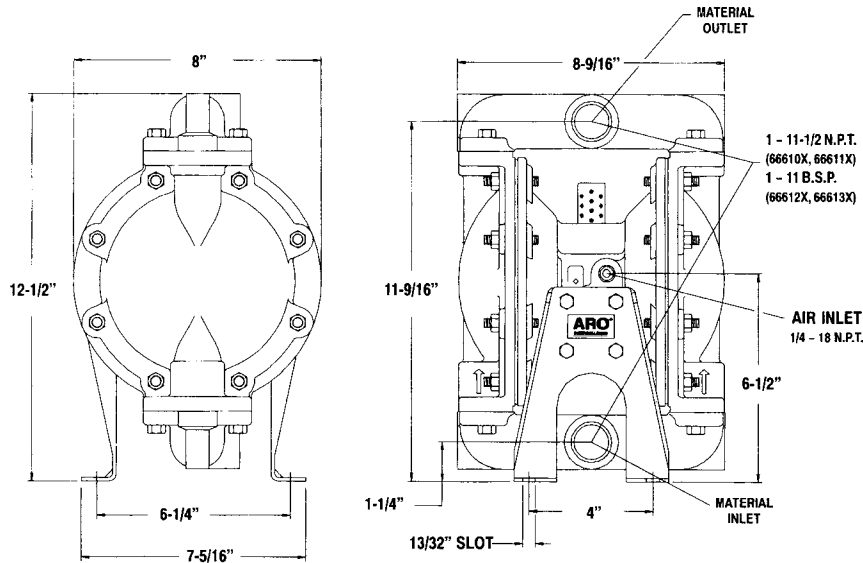


Air-Operated Diaphragm Pumps

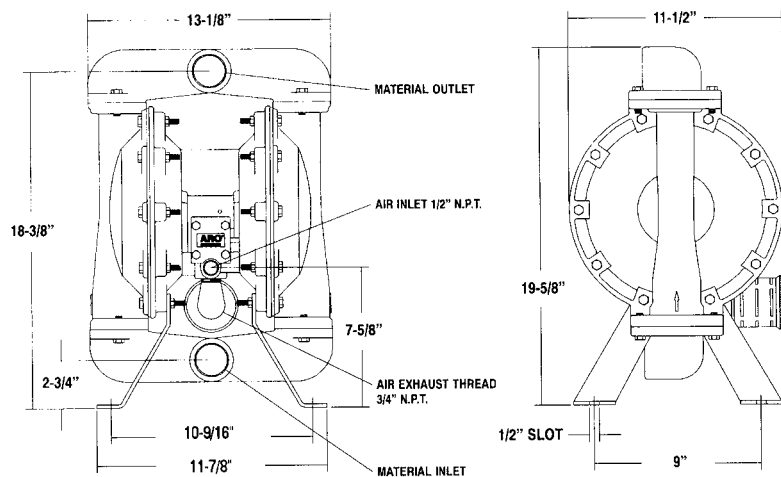


Aro Metallic Air-Operated Diaphragm Pumps

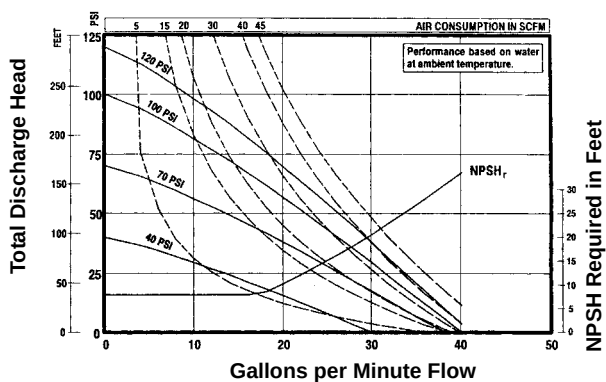
1 Inch Pump Dimensions



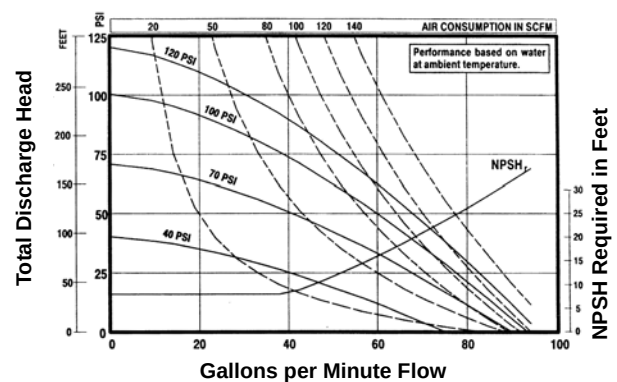
1-1/2 Inch Pumps Dimensions



1 Inch Pump Performance Curves



1-1/2 Inch Pump Performance Curves



Technical Information Pumps

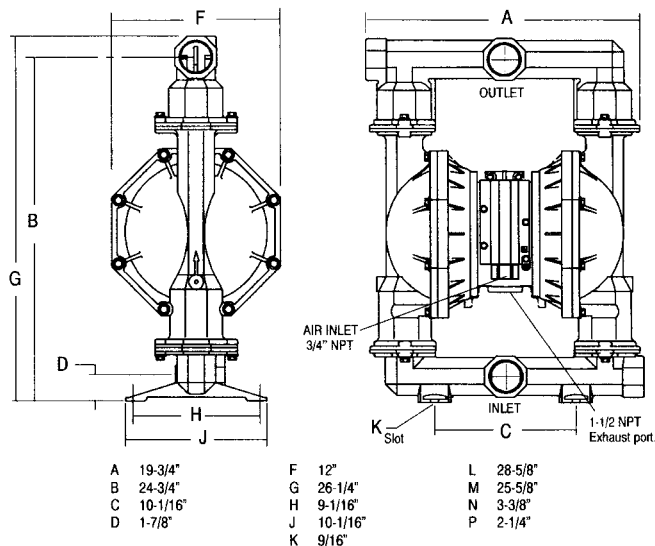


Air-Operated Diaphragm Pumps

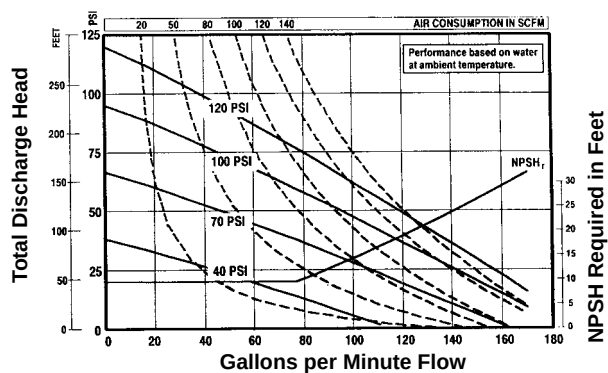


Aro Metallic Air-Operated Diaphragm Pumps

2 Inch Pumps Dimensions



2 Inch Pump Performance Curves



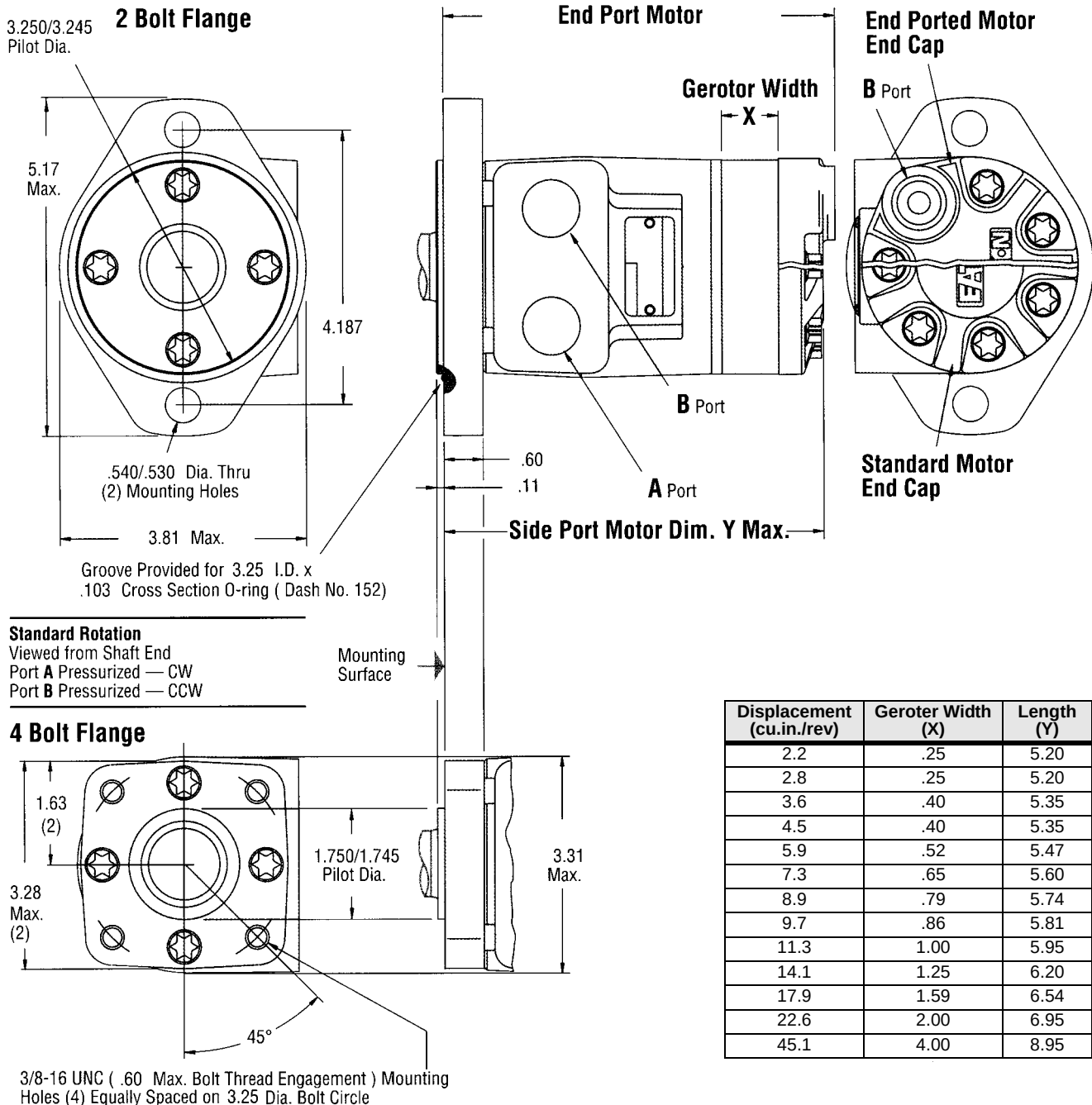


Technical Information Hydraulic Motors

Char-Lynn® Low-Speed High-Torque Motors



Char-Lynn® H Series Dimensions



Technical Information Hydraulic Motors



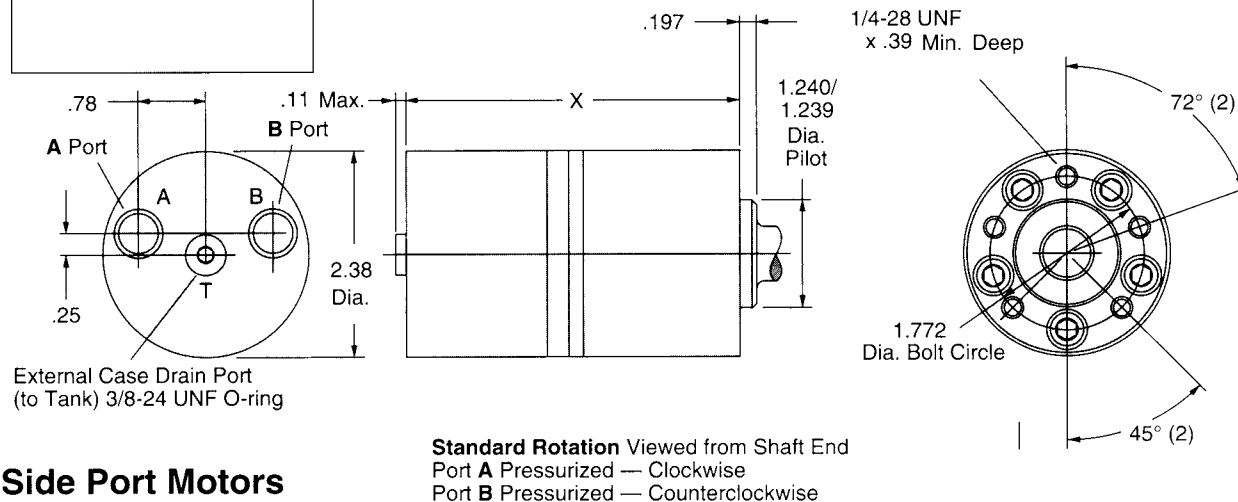
Char-Lynn® Low-Speed High-Torque Motors



Char-Lynn® J Series Dimensions

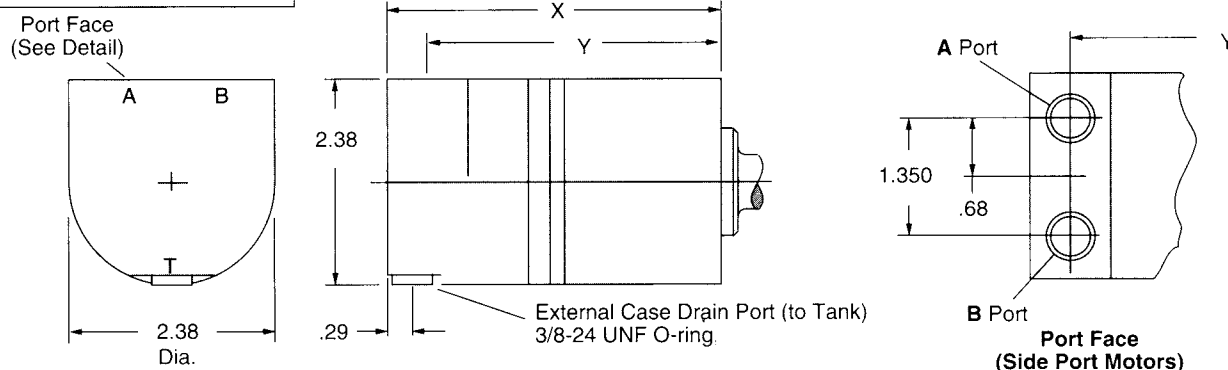
End Port Motors

9/16-18 UNF O-ring Ports

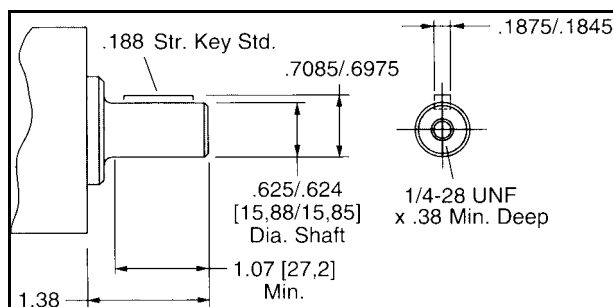


Side Port Motors

9/16-18 UNF O-ring Ports



5/8 Straight Keyed Shaft



Displacement (cu.in./rev)	X (in)	Y (in)
0.50	3.87	3.38
0.79	3.99	3.50
1.21	4.16	3.68
1.93	4.46	3.98



Char-Lynn® Low-Speed High-Torque Motors

Char-Lynn® S Series Dimensions

2 Bolt Flange

3.250/3.245
Pilot Dia.

5.17
Max.

4.187

.540/.530 Dia. Thru
(2) Mounting Holes

3.81 Max.

Groove Provided for 3.25 I.D. x .103
Cross Section O-ring (Dash No. 152)

Standard Rotation
Viewed from Shaft End
Port **A** Pressurized — CW
Port **B** Pressurized — CCW

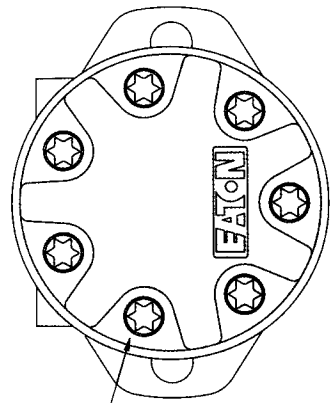
Geroler Width

X

B Port

Y Max.

A Port



**Standard Motor
End Cap**

4 Bolt Flange

1.63
(2)

3.28 Max. (2)

Mounting
Surface

1.750/1.745
Pilot Dia.

4.24
Dia.
Max.

45°

3/8-16 UNC (.60 Max. Bolt Thread Engagement) Mounting
Holes (4) Equally Spaced on 3.25 Dia. Bolt Circle

Displacement (cu.in./rev)	Geroler Width (X)	Length (Y)
3.6	0.40	5.48
4.5	0.40	5.48
5.9	0.52	5.60
7.3	0.65	5.73
8.9	0.79	5.87
9.7	0.86	5.94
11.3	1.00	6.08
14.1	1.25	6.33
17.9	1.59	6.67
22.6	2.00	7.08

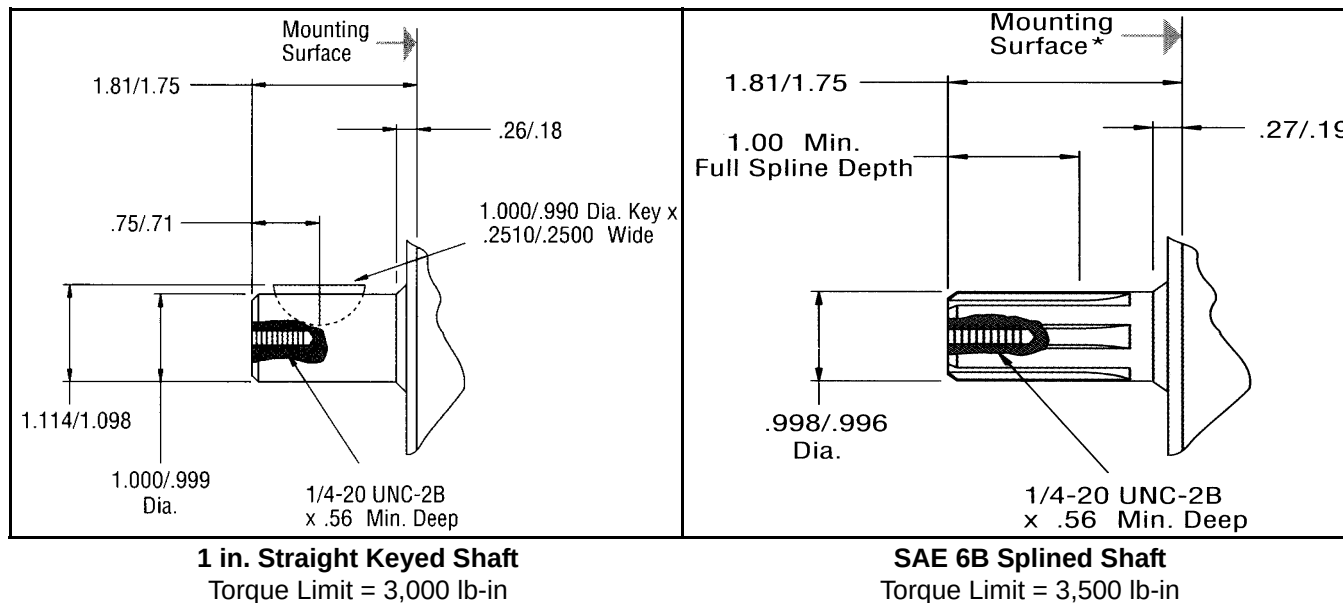
Technical Information Hydraulic Motors



Char-Lynn® Low-Speed High-Torque Motors



Char-Lynn® H & S Series Shaft Dimensions & Torque Limits



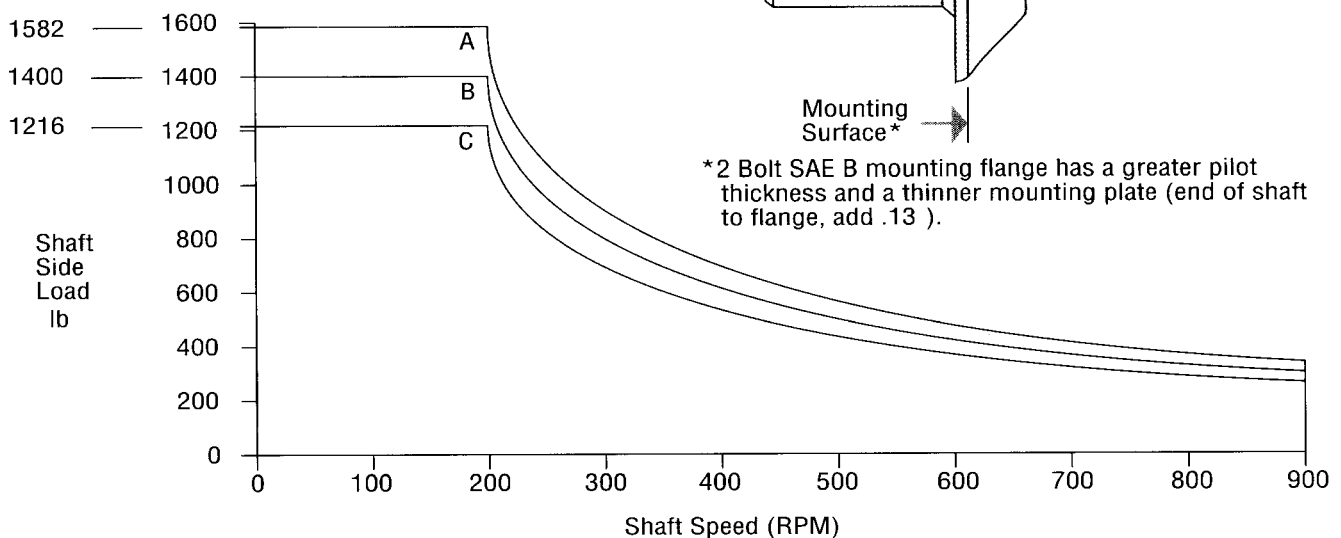
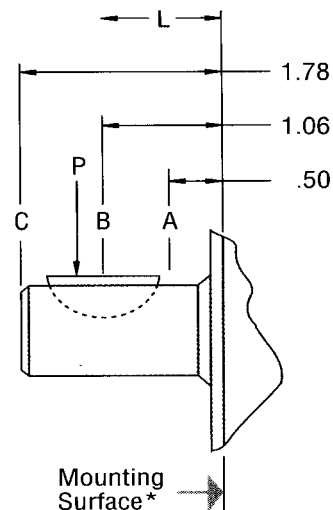
Char-Lynn® H & S Series Shaft Side Load Capacity

The hydrodynamic bearing has infinite life when shaft load ratings are not exceeded. Hence, the shaft side load capacity is more than adequate to handle most externally applied loads (such as belts, chains, etc.) providing the motor/shaft combination is applied within its torque rating. Allowable side load chart, shaft load location drawing and load curves (below) are based on the side/radial loads being applied to shaft at locations A, B and C. To determine the shaft side load capacity at locations other than those shown, use the formula:

$$\text{Sideload Capacity } P \text{ (lb)} = \frac{900}{N} \times \left(\frac{1460}{L + 3.79} \right) \text{ for 200-900 RPM where } N = \text{RPM and } L = \text{Distance from mounting surface}$$

Allowable Shaft Side Load (lb)

RPM	A	B	C
900	339	300	261
625	452	400	348
500	565	500	435
400	678	600	522
300	904	800	696
200	1582	1400	1216



Technical Information Hydraulic Motors



Char-Lynn® Low-Speed High-Torque Motors

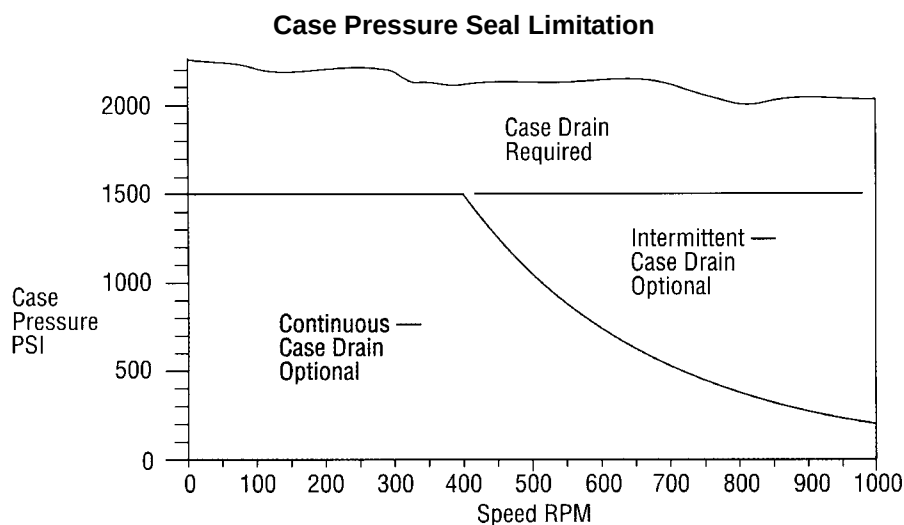


Char-Lynn® H & S Series Case Pressure & Case Drain

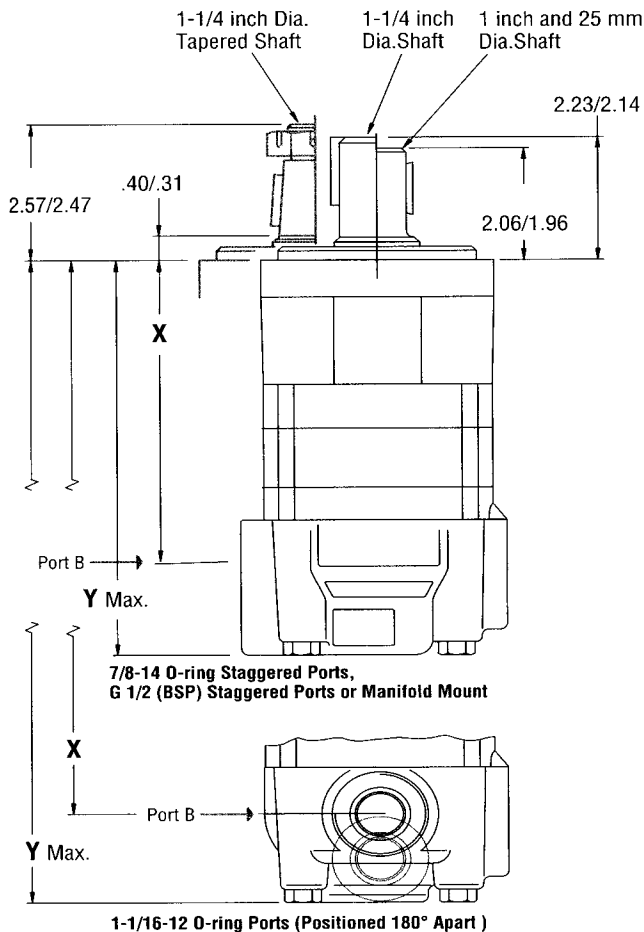
Char-Lynn H & S Series motors are durable and have long life as long as the recommended case pressure is not exceeded. Allowable case pressure is highest at low shaft speeds. Consequently, motor life will be shortened if case pressure exceeds these ratings (acceptability may vary with application).

Determine if an external case drain is required from the case pressure seal limitation chart below. If a case drain line is needed, connect drain line to assure that the motor will always remain full of fluid. A pressure restriction should be added to the case drain line to maintain 50 PSI case pressure. (A 50 PSI cracking pressure check valve may be used).

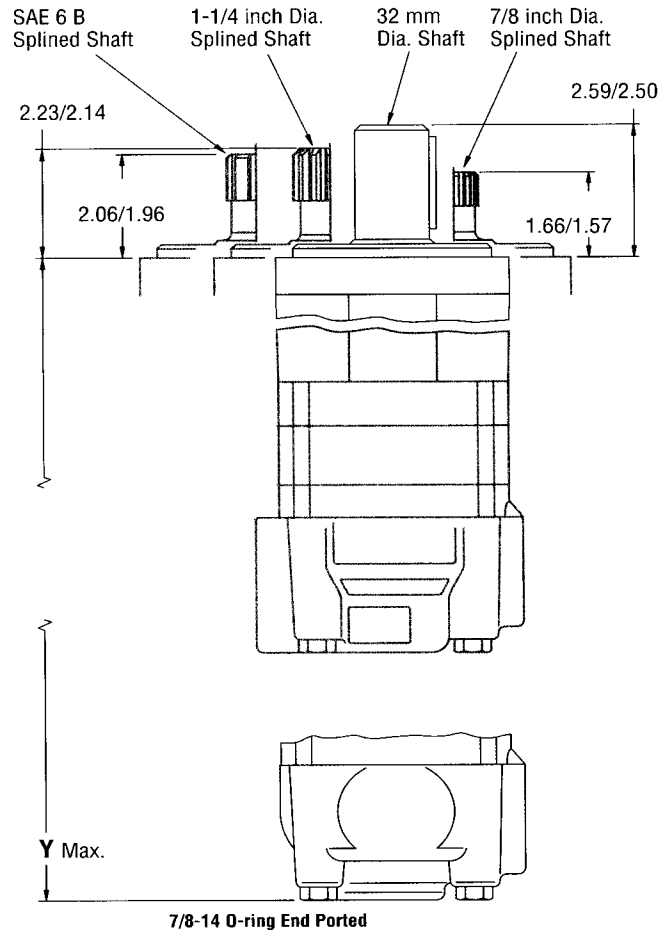
$$PC = .6\Delta P + P2 \text{ where } PC = \text{Case Pressure}$$
$$P1 = \text{Inlet Line Pressure}$$
$$P2 = \text{Back Pressure}$$
$$\Delta P = P1 - P2$$



Char-Lynn® 2000 Series Standard Motor Dimensions



7/16-20 SAE O-Ring Boss case drain port on side of rear housing



7/16-20 SAE O-Ring Boss case drain port on end of rear housing

Standard Rotation
Viewed from Shaft End
Port A Pressurized — CW
Port B Pressurized — CCW

**2000 Series Standard Motor with
7/8-14 O-Ring Staggered Ports**

Displacement (cu.in./rev)	(X)	(Y)
4.9	5.40	7.26
6.2	5.58	7.44
8.0	5.83	7.69
9.6	5.83	7.69
11.9	6.10	7.96
14.9	6.45	8.31
18.7	6.90	8.76
24.0	7.53	9.39
29.8	8.21	10.07

**2000 Series Standard Motor with 1-1/16-12
O-Ring Staggered Ports 180° Apart**

Displacement (cu.in./rev)	(X)	(Y)
4.9	5.40	7.26
6.2	5.67	7.49
8.0	5.92	7.74
9.6	5.92	7.74
11.9	6.19	8.01
14.9	6.54	8.36
18.7	6.99	8.81
24.0	7.62	9.44
29.8	8.30	10.12

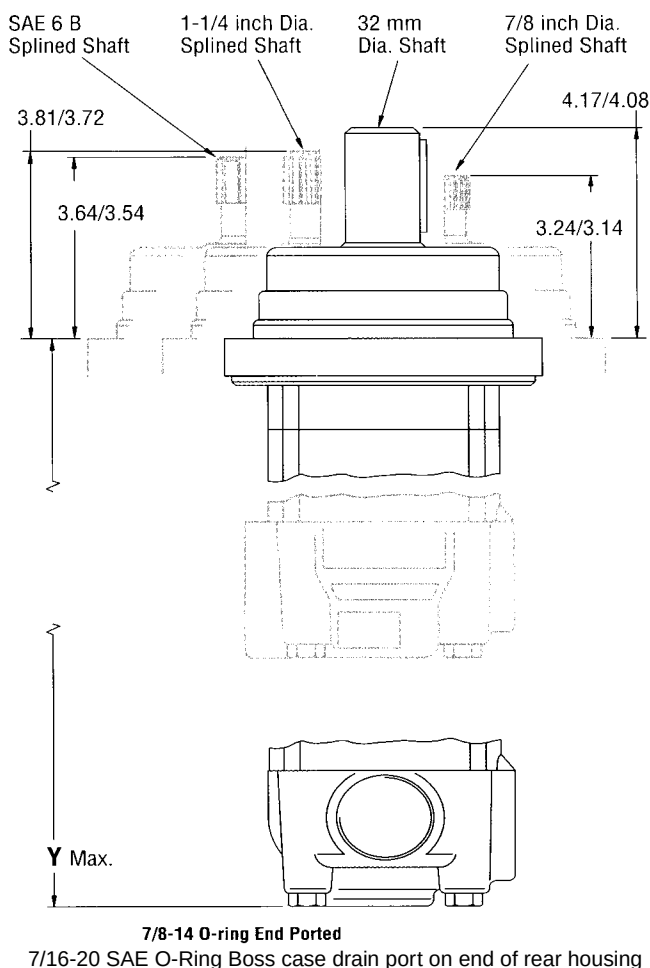
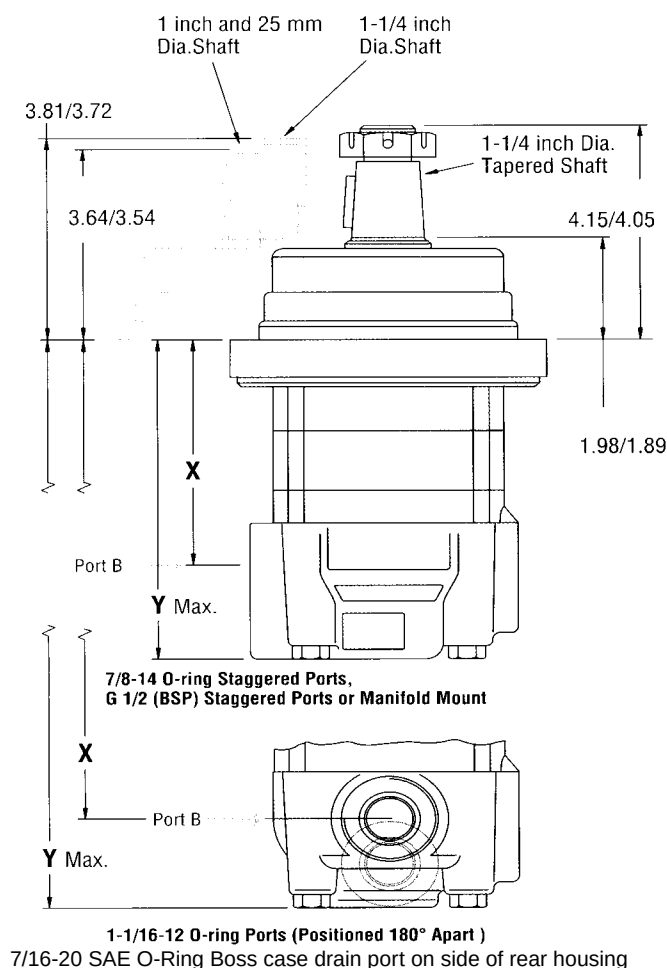
Technical Information Hydraulic Motors



Char-Lynn® Low-Speed High-Torque Motors



Char-Lynn® 2000 Series Wheel Motor Dimensions



Standard Rotation
Viewed from Shaft End
Port A Pressurized — CW
Port B Pressurized — CCW

2000 Series Wheel Motor with 7/8-14 O-Ring Staggered Ports

Displacement (cu.in./rev)	(X)	(Y)
4.9	3.82	5.68
6.2	4.00	5.86
8.0	4.25	6.11
9.6	4.25	6.11
11.9	4.52	6.38
14.9	4.87	6.73
18.7	5.32	7.18
24.0	5.95	7.81
29.8	6.63	8.49

2000 Series Wheel Motor with 1-1/16-12 O-Ring Staggered Ports 180° Apart

Displacement (cu.in./rev)	(X)	(Y)
4.9	3.91	5.73
6.2	4.09	5.91
8.0	4.34	6.16
9.6	4.34	6.16
11.9	4.61	6.43
14.9	4.96	6.78
18.7	5.41	7.23
24.0	6.98	7.86
29.8	7.66	8.54





Technical Information Hydraulic Motors

Char-Lynn® Low-Speed High-Torque Motors



Char-Lynn® 2000 Series Bearingless Motor Dimensions

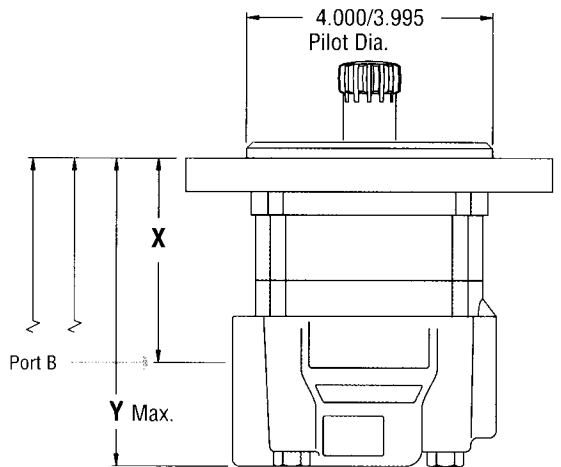
Hydraulic Power & Control

Pneumatic Power & Control

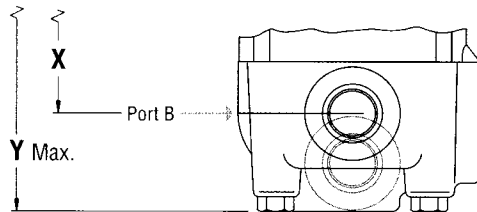
Fluid Conveying

Miscellaneous Products

Indexes & Technical Information



**7/8-14 O-ring Staggered Ports,
G 1/2 (BSP) Staggered Ports or Manifold Mount**



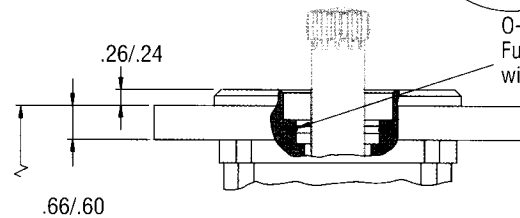
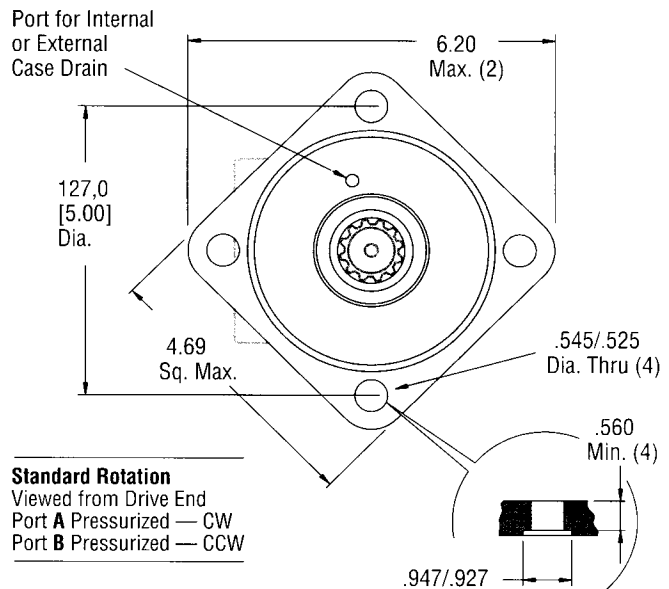
1-1/16-12 O-ring Ports (Positioned 180° Apart)

7/16-20 SAE O-Ring Boss case drain port on side of rear housing

Note: Mating coupling banks are available. After machining, part must be hardened per Eaton specification. Contact us for details.



Mating Coupling Blank
Eaton Part No. 13307-003



7/8-14 O-ring End Ported

7/16-20 SAE O-Ring Boss case drain port on end of rear housing

**2000 Series Bearingless Motor
with 7/8-14 O-Ring Staggered
Ports**

Displacement (cu.in./rev)	(X)	(Y)
4.9	3.11	4.99
6.2	3.29	5.17
8.0	3.54	5.42
9.6	3.54	5.42
11.9	3.81	5.69
14.9	4.16	6.04
18.7	4.61	6.04
24.0	4.24	7.12
29.8	5.92	7.80

**2000 Series Bearingless
Motor with 1-1/16-12 O-Ring
Staggered Ports 180° Apart**

Displacement (cu.in./rev)	(X)	(Y)
4.9	3.20	5.04
6.2	3.38	5.22
8.0	3.63	5.47
9.6	3.63	5.47
11.9	3.90	5.74
14.9	4.25	6.09
18.7	4.70	6.54
24.0	5.33	7.17
29.8	6.00	7.85



This page is part of a complete catalog which contains technical and safety data that must be reviewed when selecting a product

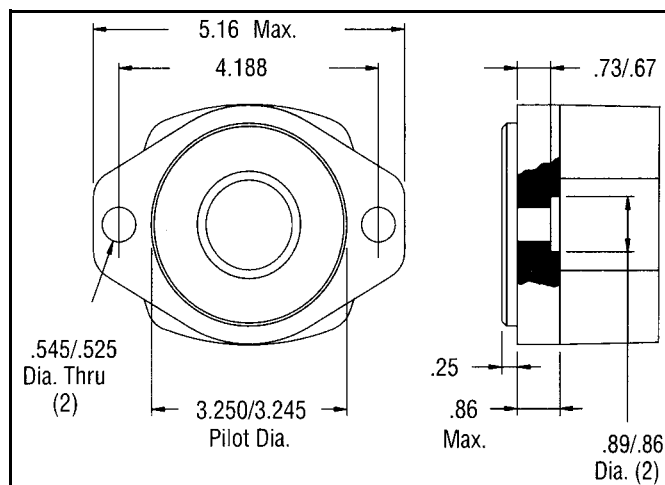
Technical Information Hydraulic Motors



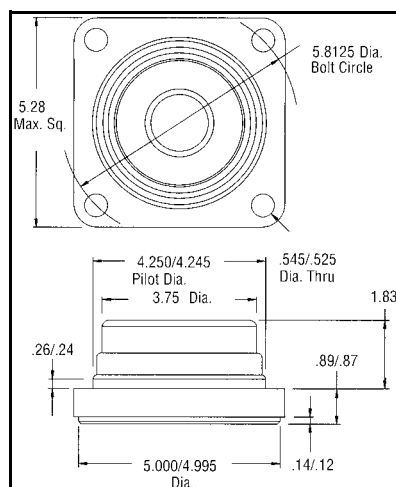
Char-Lynn® Low-Speed High-Torque Motors

FATON
Powering Business Worldwide

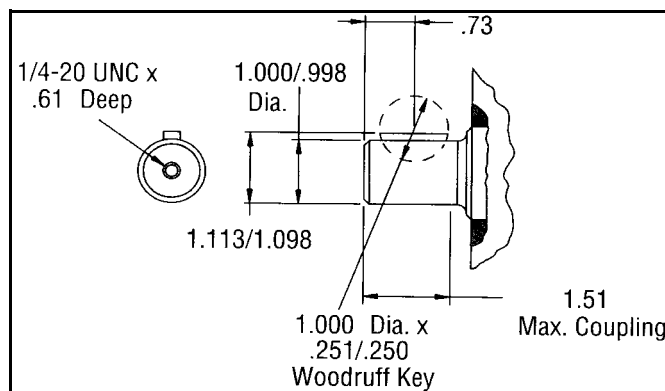
Char-Lynn® 2000 Series Mounting & Shaft Dimensions



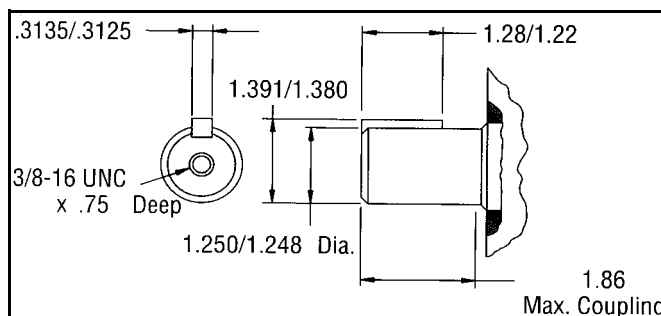
2 Bolt SAE A (Standard Motor)



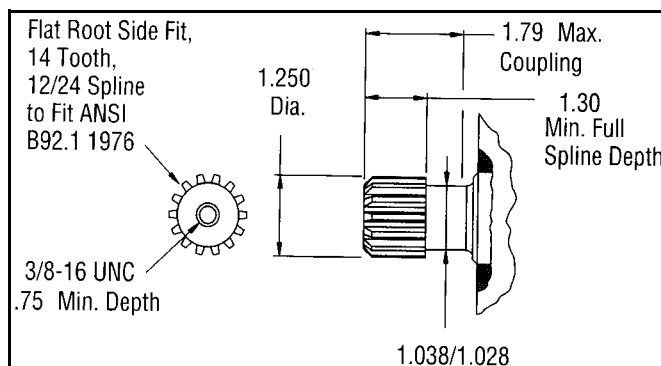
4 Bolt (Wheel Motor)



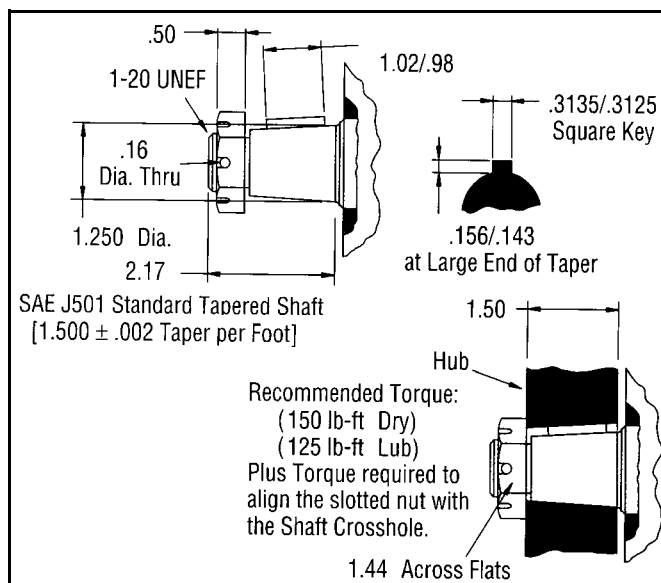
1 in. Straight Keyed Shaft
Torque Limit = 3,500 lb-in



1-1/4 in. Straight Keyed Shaft
Torque Limit = 6,800 lb-in



SAE C Splined 14T Shaft
Torque Limit = 6,800 lb-in



1-1/4 in. Tapered Shaft
Torque Limit = 6,800 lb-in



Char-Lynn® Low-Speed High-Torque Motors



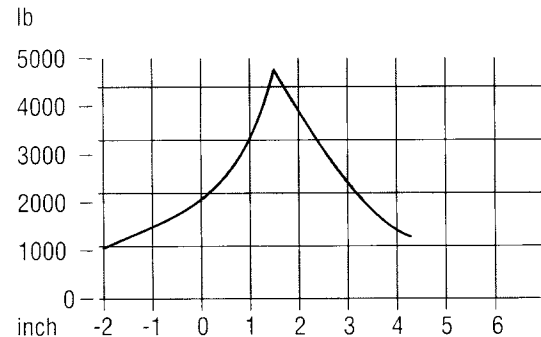
Char-Lynn® 2000 Series Shaft Side Load Capacity

These curves indicate the radial load capacity on the motor shaft at various locations.

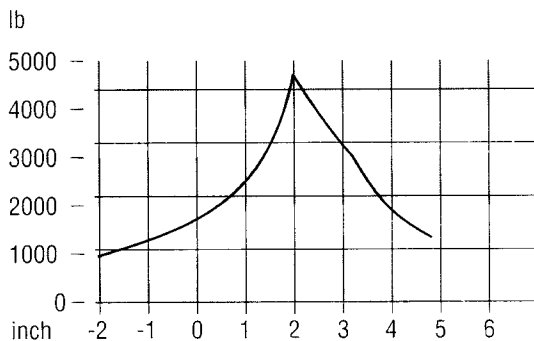
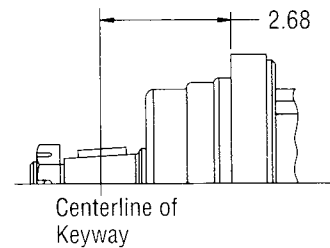
The curve is based on B10 Bearing Life (2000 hours or 12,000,000 shaft revolutions at 100 RPM) at rated output torque. To determine radial load at speeds other than 100 RPM, multiply the load values given on the bearing curve by the factors in the table below.

RPM	Multiplication Factor
50	1.23
100	1.00
200	0.81
300	0.72
400	0.66
500	0.62
600	0.58
700	0.56
800	0.54

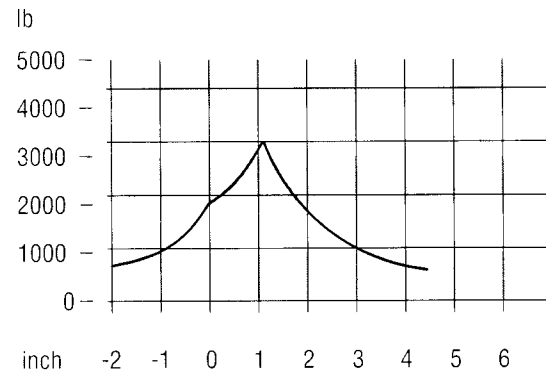
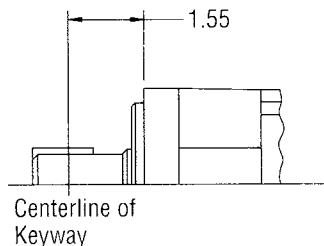
For 3,000,000 shaft revolutions or 500 hours, increase these shaft loads 52%.



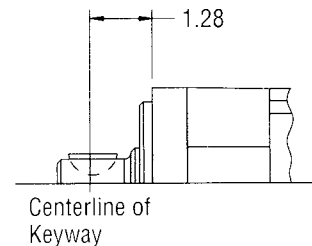
**Wheel Motor
Tapered
Shaft**



**Standard Motor
1-1/4 Inch and
32 mm Straight
Shaft**



**Standard Motor
1 Inch Straight
Shaft**



Technical Information

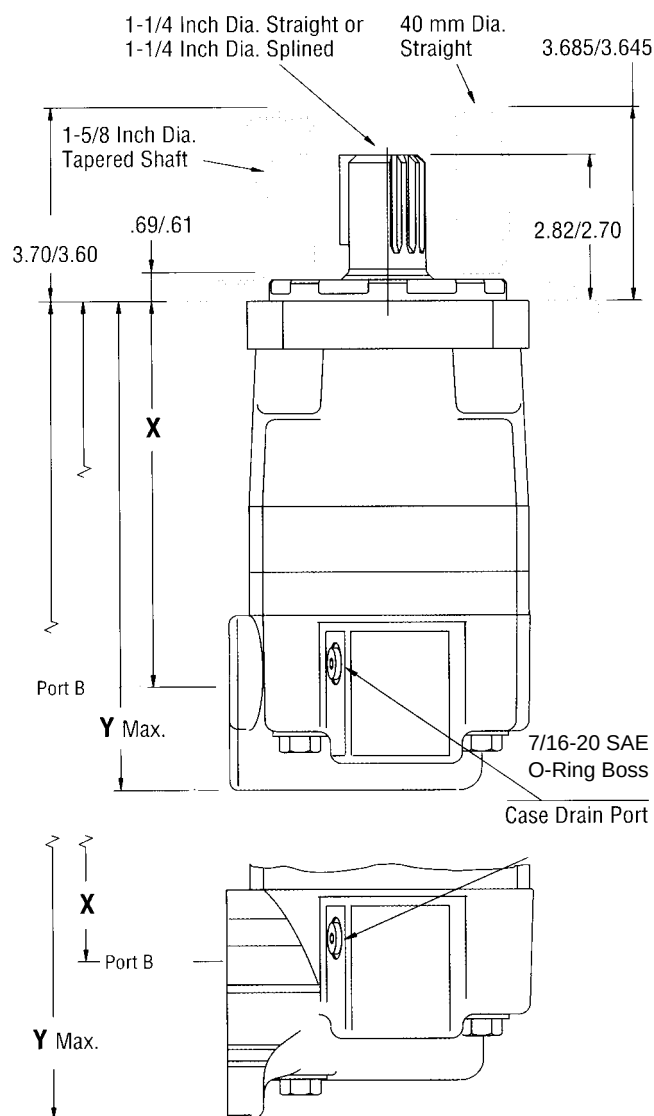
Hydraulic Motors



Char-Lynn® Low-Speed High-Torque Motors



Char-Lynn® 4000 Series Standard Motor Dimensions



**4000 Series Standard Motor
with 1-1/16-12 O-Ring Ports**

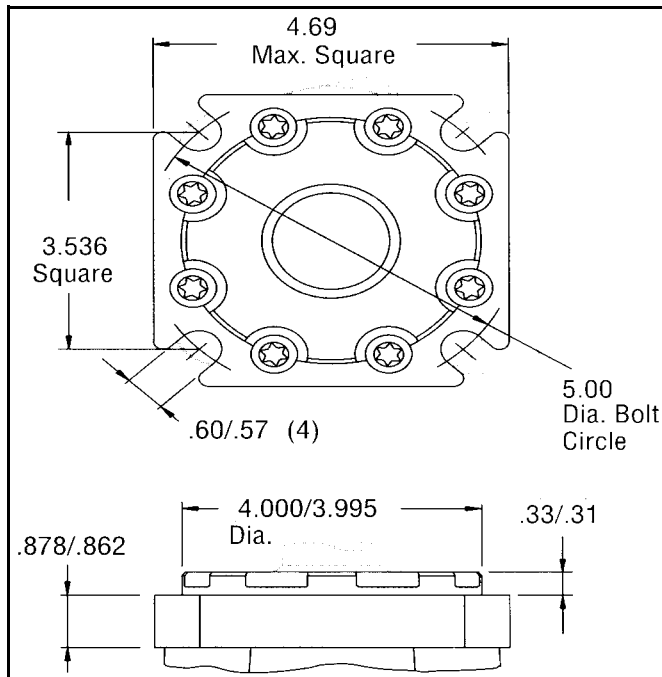
Displacement (cu.in./rev)	(X)	(Y)
6.7	6.23	8.44
7.9	6.39	8.60
9.9	6.64	8.85
12.5	6.98	9.18
15.0	6.64	8.85
19.0	6.98	9.18
24.0	7.40	9.60
30.0	7.91	10.11
38.0	8.58	10.78

**4000 Series Standard Motor with
3/4 inch Split Flange Ports**

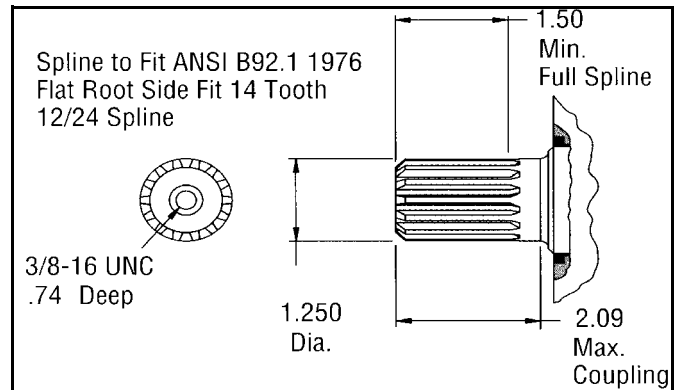
Displacement (cu.in./rev)	(X)	(Y)
6.7	6.57	9.70
7.9	6.73	9.86
9.9	6.79	10.11
12.5	7.31	10.44
15.0	6.97	10.11
19.0	7.31	10.44
24.0	7.73	10.86
30.0	8.24	11.37
38.0	8.91	12.04



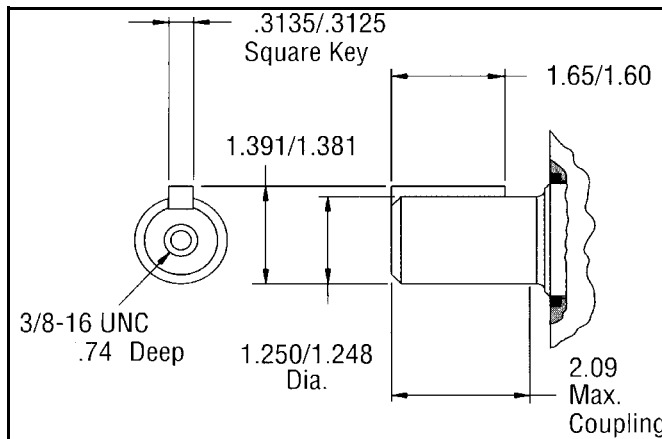
Char-Lynn® 4000 Series Mounting & Shaft Dimensions



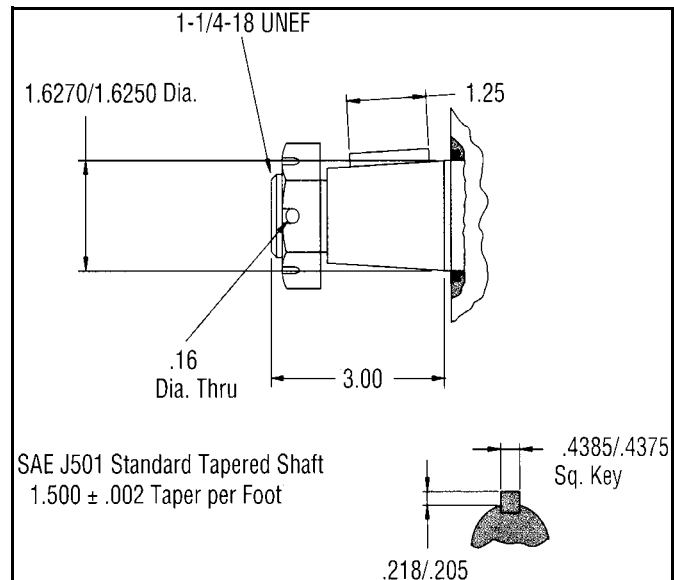
4 Bolt SAE B (Standard Motor)



SAE C Splined 14T Shaft
 Torque Limit = 6,800 lb-in



1 -1/4 in. Straight Keyed Shaft
 Torque Limit = 6,800 lb-in



SAE J501 Standard Tapered Shaft
 1.500 ± .002 Taper per Foot

1-5/8 in. Tapered Shaft
 Torque Limit = 8,600 lb-in

Technical Information Hydraulic Motors



Char-Lynn® Low-Speed High-Torque Motors



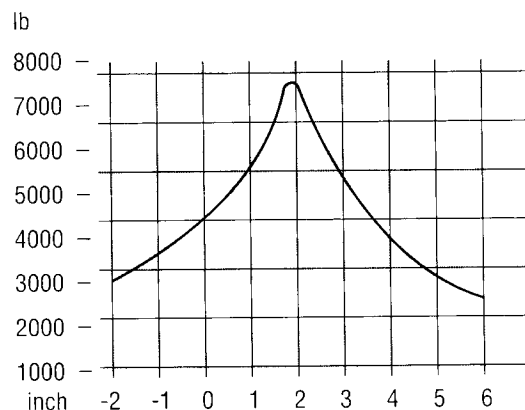
Char-Lynn® 4000 Series Shaft Side Load Capacity

These curves indicate the radial load capacity on the motor shaft at various locations.

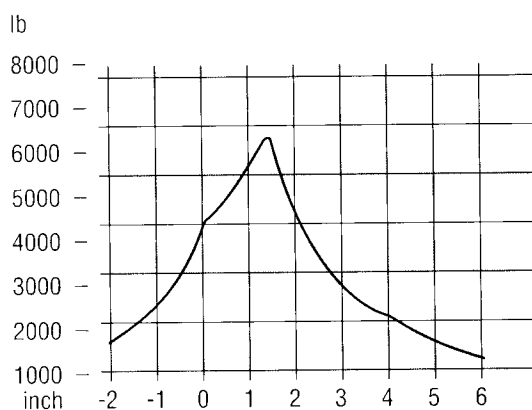
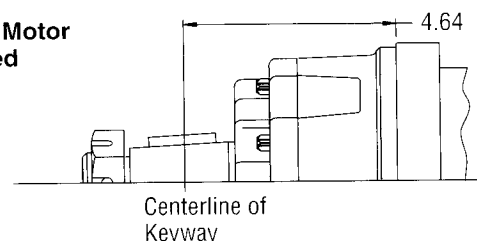
The curve is based on B10 Bearing Life (2000 hours or 12,000,000 shaft revolutions at 100 RPM) at rated output torque. To determine radial load at speeds other than 100 RPM, multiply the load values given on the bearing curve by the factors in the table below.

RPM	Multiplication Factor
50	1.23
100	1.00
200	0.81
300	0.72
400	0.66
500	0.62
600	0.58
700	0.56
800	0.54

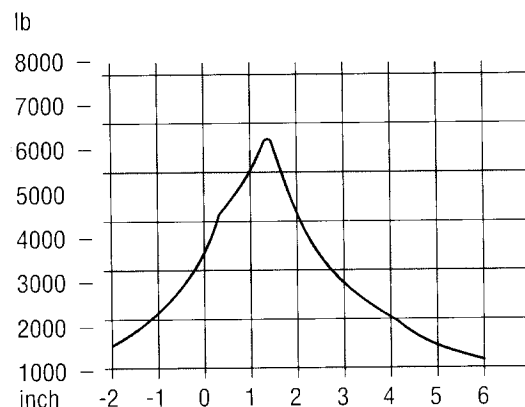
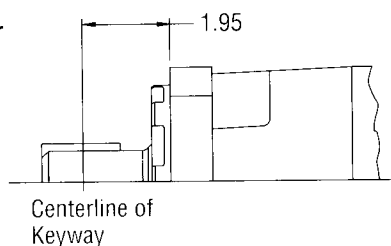
For 3,000,000 shaft revolutions or 500 hours, increase these shaft loads 52%.



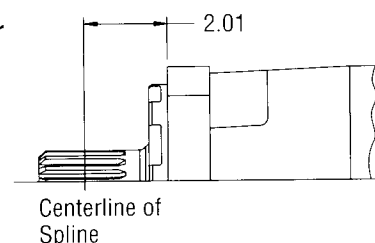
Wheel Motor
Tapered
Shaft



Standard Motor
Straight
Shaft



Standard Motor
Splined
Shaft



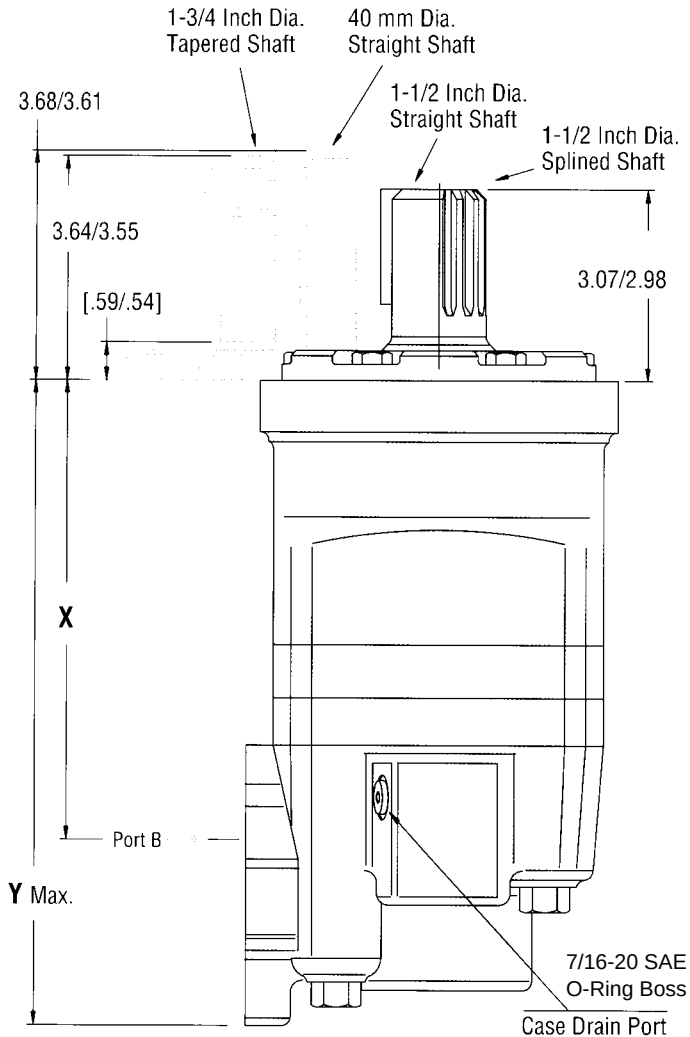


Technical Information Hydraulic Motors

Char-Lynn® Low-Speed High-Torque Motors

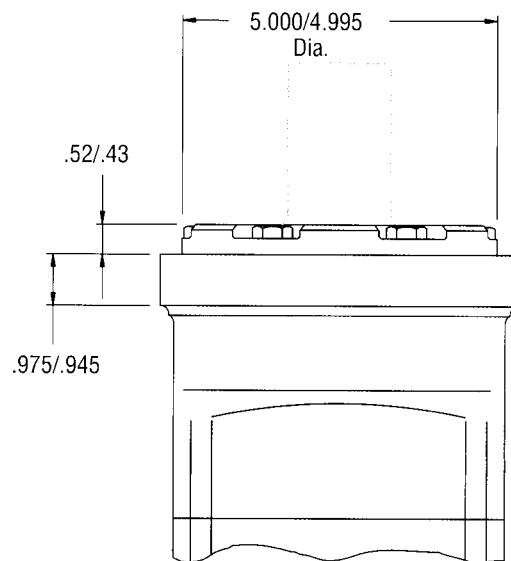
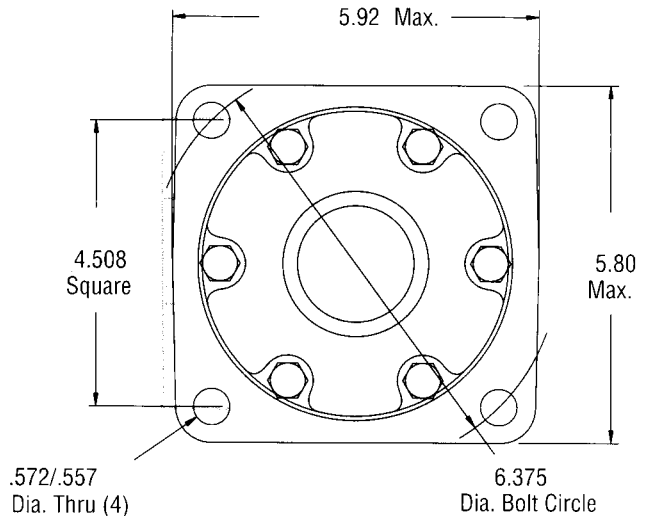


Char-Lynn® 6000 Series Standard Motor Dimensions



Standard Rotation
Viewed from Shaft End
Port **A** Pressurized — CW
Port **B** Pressurized — CCW

Standard SAE CC Flange



6000 Series Standard Motor

Displacement (cu.in./rev)	(X)	(Y)
11.9	7.38	10.63
15.0	7.60	10.85
19.0	7.89	11.14
23.9	8.23	11.48
30.0	8.67	11.92
38.0	9.25	12.50
60.0	10.81	14.07



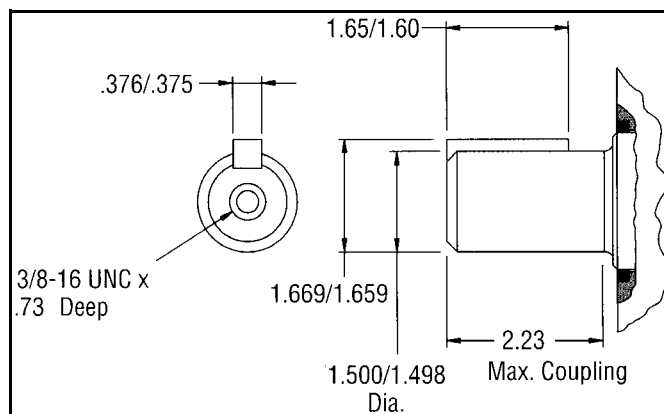
Technical Information Hydraulic Motors



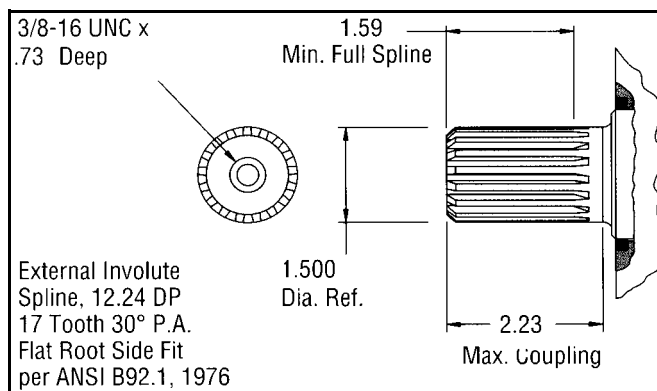
Char-Lynn® Low-Speed High-Torque Motors



Char-Lynn® 6000 Series Shaft Dimensions



1-1/2 in. Straight Keyed Shaft
Torque Limit = 11,750 lb-in



SAE CC Splined Shaft
Torque Limit = 11,750 lb-in

Hydraulic Power & Control

Pneumatic Power & Control

Fluid Conveying

Miscellaneous Products

Indexes & Technical Information



Char-Lynn® Low-Speed High-Torque Motors



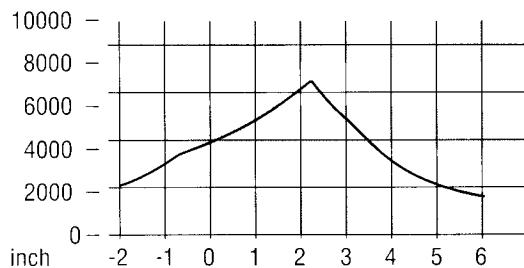
Char-Lynn® 6000 Series Shaft Side Load Capacity

These curves indicate the radial load capacity on the motor shaft at various locations.

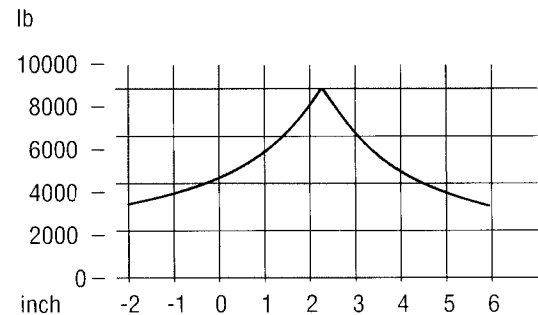
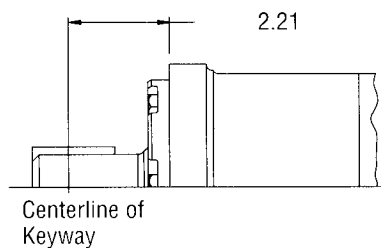
The curve is based on B10 Bearing Life (2000 hours or 12,000,000 shaft revolutions at 100 RPM) at rated output torque. To determine radial load at speeds other than 100 RPM, multiply the load values given on the bearing curve by the factors in the table below.

RPM	Multiplication Factor
50	1.23
100	1.00
200	0.81
300	0.72
400	0.66
500	0.62
600	0.58
700	0.56
800	0.54

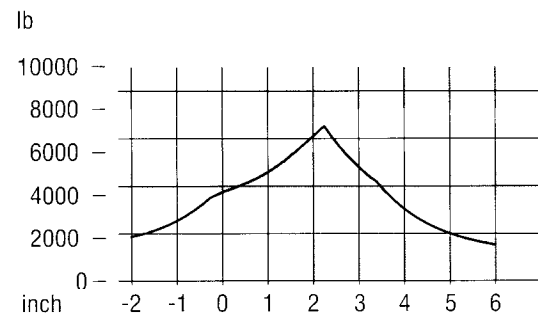
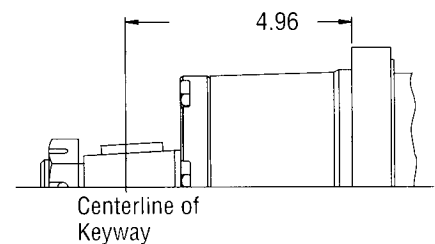
For 3,000,000 shaft revolutions or 500 hours, increase these shaft loads 52%.



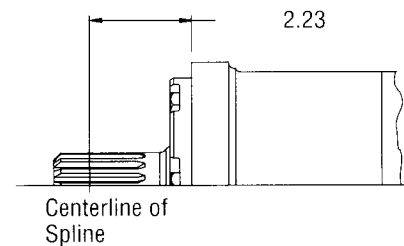
**Standard Motor
Straight
Shaft**



**Wheel Motor
Tapered
Shaft**



**Standard Motor
Splined
Shaft**



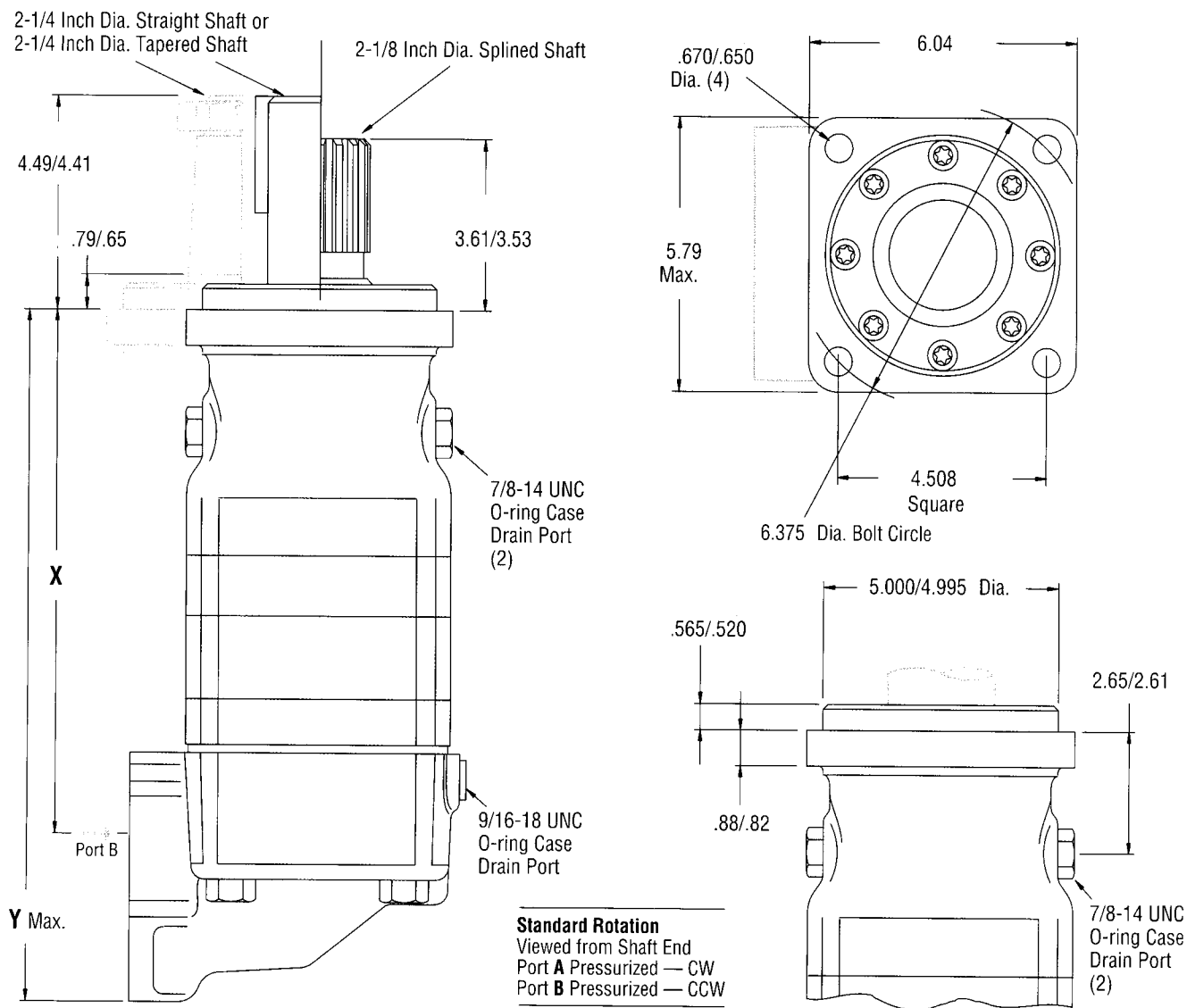
Technical Information Hydraulic Motors



Char-Lynn® Low-Speed High-Torque Motors



Char-Lynn® 10,000 Series Standard Motor Dimensions



10,000 Series Standard Motor

Displacement (cu.in./rev)	(X)	(Y)
21.0	11.12	14.99
29.2	11.62	15.50
40.6	11.62	15.50
57.4	12.35	16.23

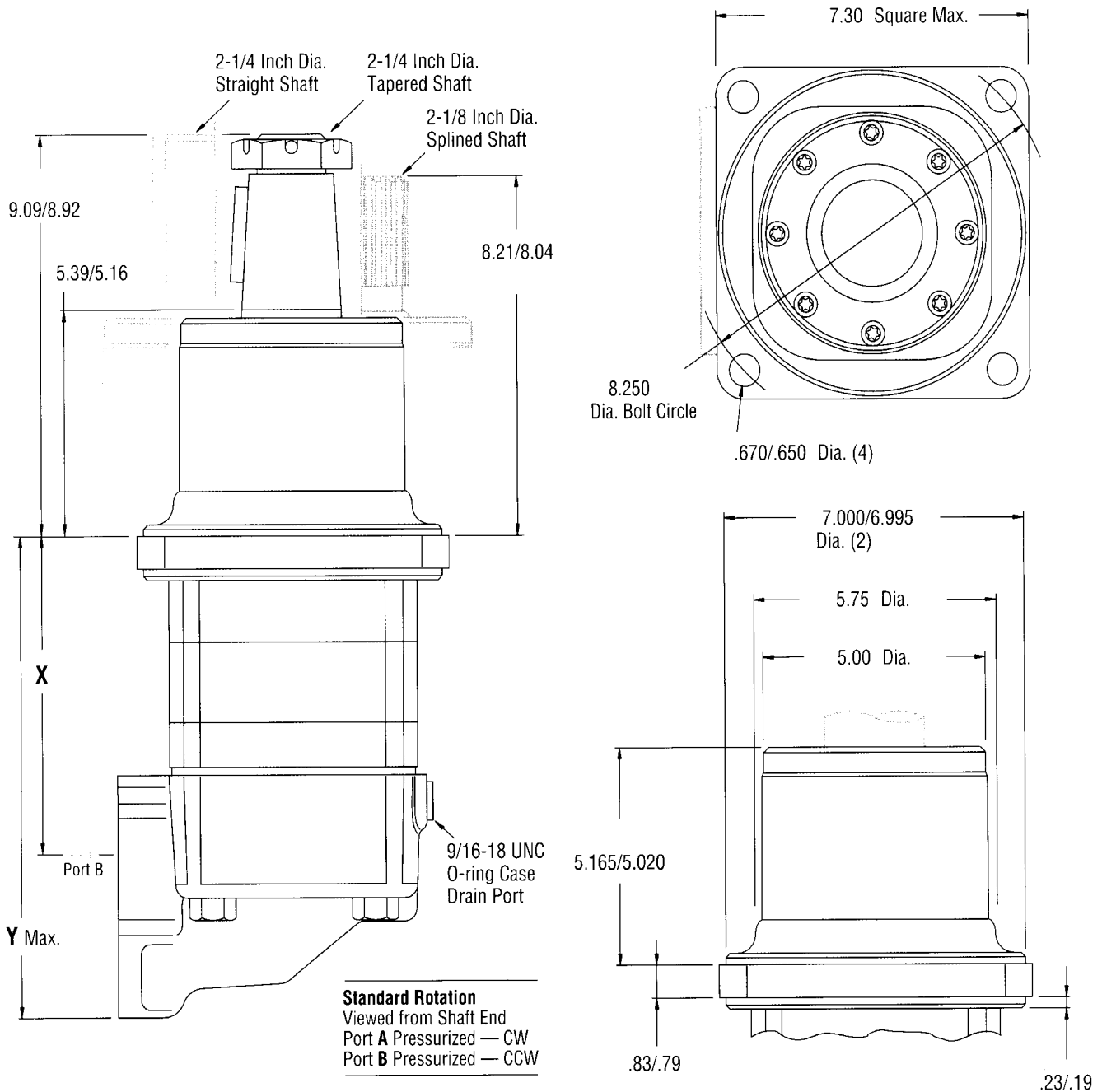


Technical Information Hydraulic Motors

Char-Lynn® Low-Speed High-Torque Motors



Char-Lynn® 10,000 Series Wheel Motor Dimensions



10,000 Series Wheel Motor

Displacement (cu.in./rev)	(X)	(Y)
21.0	6.57	10.48
29.2	7.07	10.98
40.6	7.07	10.98
57.4	7.79	11.71



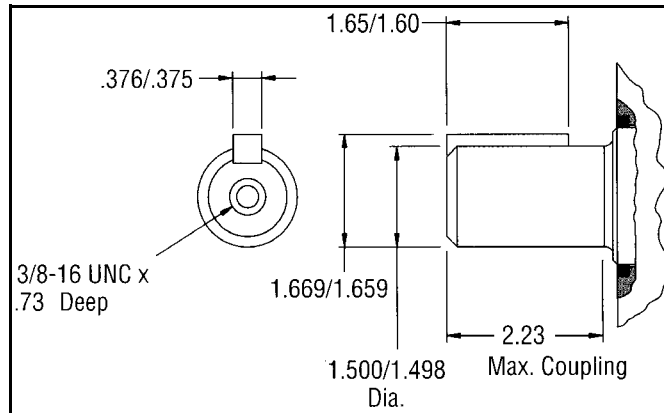
Technical Information Hydraulic Motors



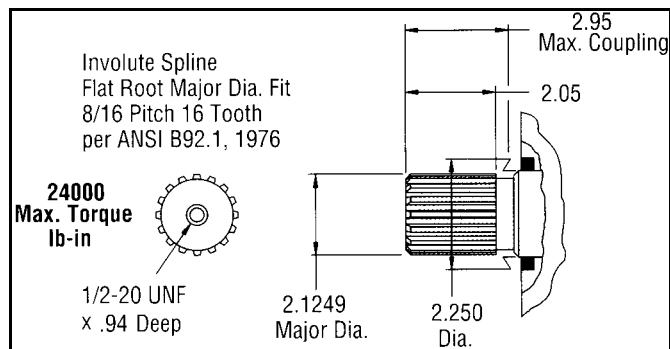
Char-Lynn® Low-Speed High-Torque Motors



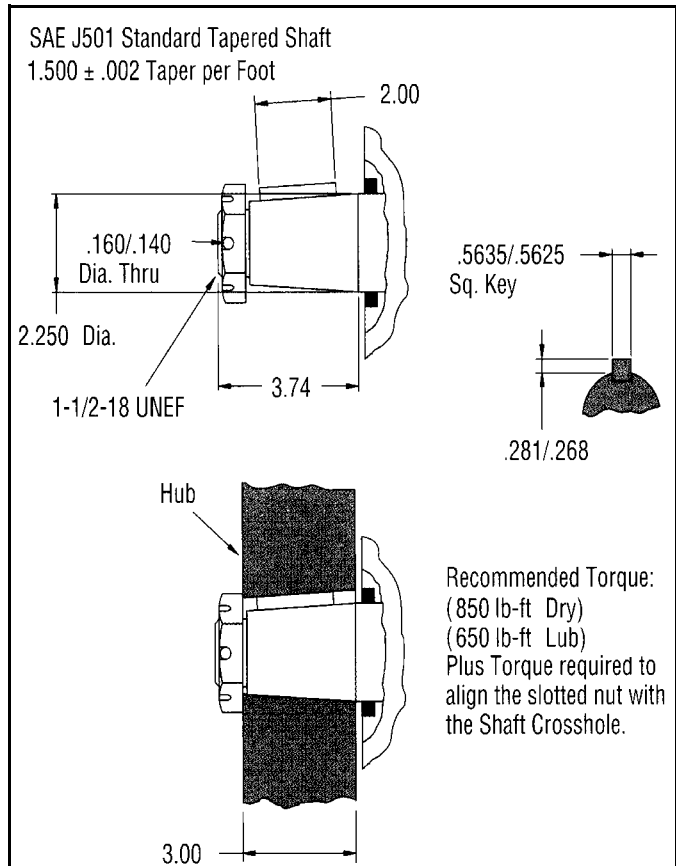
Char-Lynn® 10,000 Series Shaft Dimensions



2-1/4 in. Straight Keyed Shaft
Torque Limit = 24,000 lb-in



2-1/8 in. 16 Tooth Splined Shaft
Torque Limit = 24,000 lb-in



2-1/4 in. Tapered Shaft
Torque Limit = 24,000 lb-in

Char-Lynn® Low-Speed High-Torque Motors



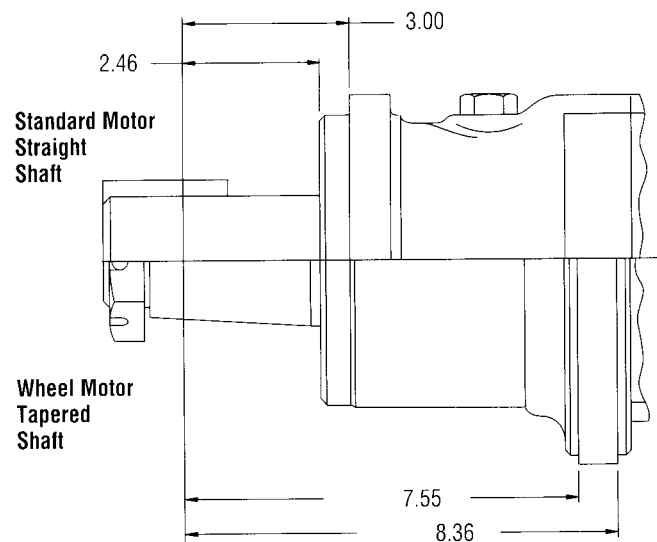
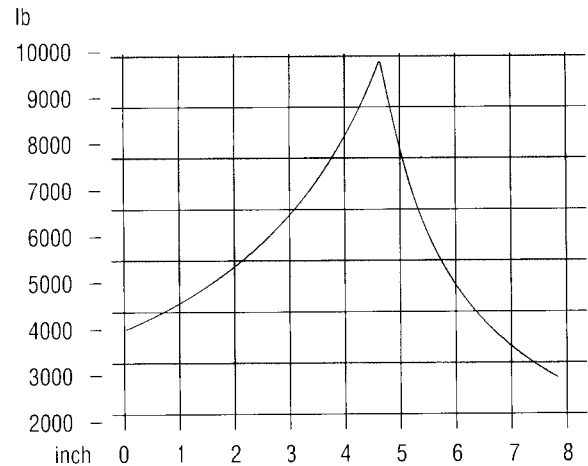
Char-Lynn® 10,000 Series Shaft Side Load Capacity

These curves indicate the radial load capacity on the motor shaft at various locations.

The curve is based on B10 Bearing Life (2000 hours or 12,000,000 shaft revolutions at 100 RPM) at rated output torque. To determine radial load at speeds other than 100 RPM, multiply the load values given on the bearing curve by the factors in the table below.

RPM	Multiplication Factor
50	1.23
100	1.00
200	0.81
300	0.72
400	0.66
500	0.62
600	0.58
700	0.56
800	0.54

For 3,000,000 shaft revolutions or 500 hours, increase these shaft loads 52%.



Technical Information

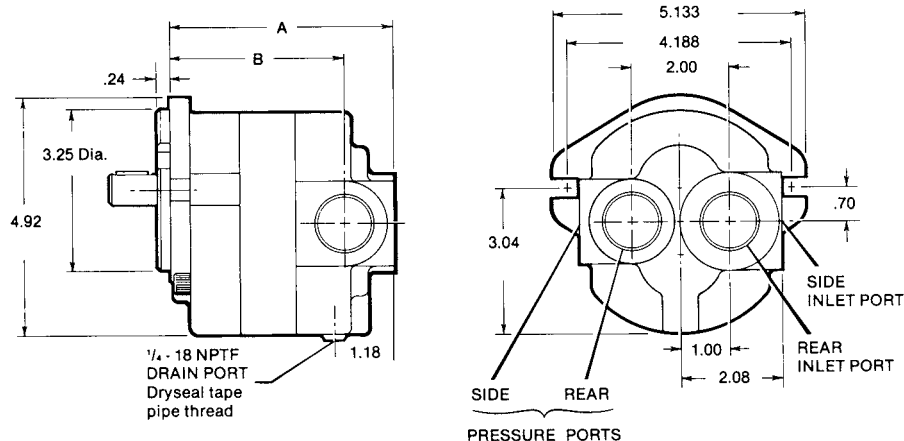
Hydraulic Motors



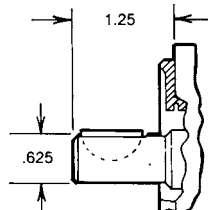
Cross 40 Series Gear Motors



Cross 40 Series Gear Motor Dimensions



5/8 Straight Keyed Shaft 1.25 Long



Hydraulic Power & Control

Pneumatic Power & Control

Fluid Conveying

Miscellaneous Products

Indexes & Technical Information

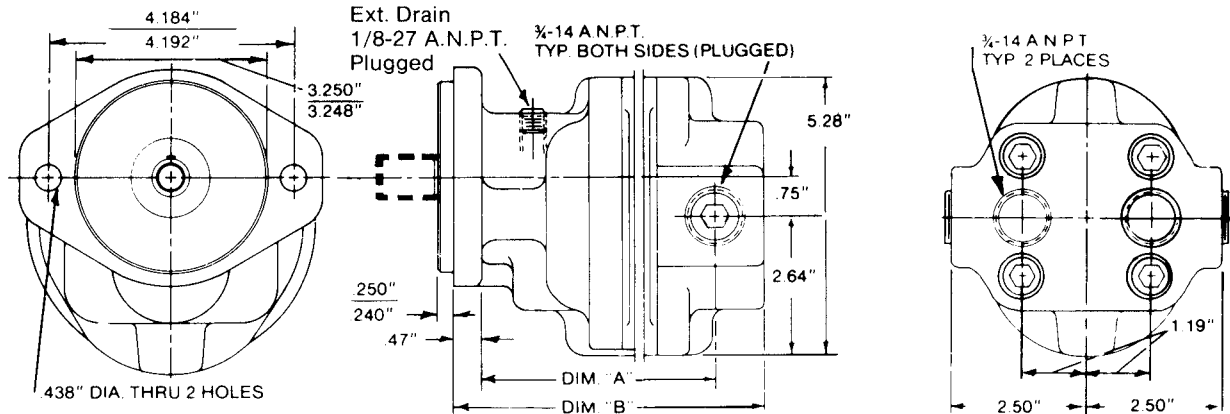


Hydrec 1500K Series Gear Motors



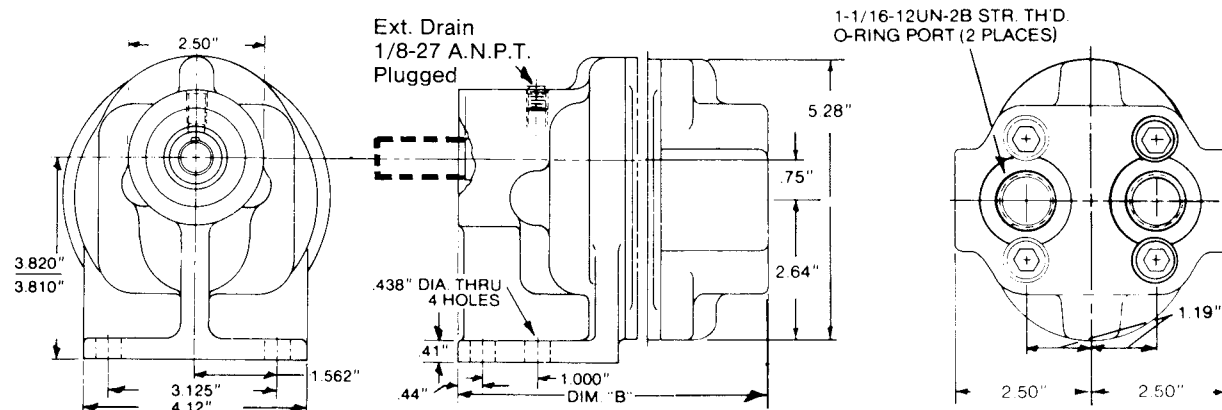
Hydrec 1500K Series Gear Motor Dimensions

Example: 2-Bolt SAE A Front Flange with Both Side and Rear Ports



Size	Dim "A"	Dim "B"
1506	4.38	5.44
1510	4.75	5.81
1512	5.00	6.06
1515	5.25	6.31
1518	5.50	6.56

Example: 4-Bolt Foot Mount with Rear Ports



Size	Dim "B"
1506	5.69
1510	6.06
1512	6.31
1515	6.56
1518	6.81

Technical Information Hydraulic Motors

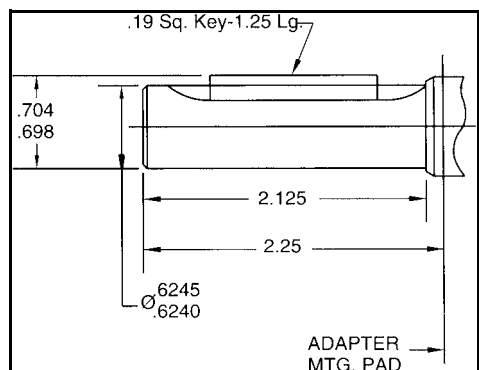


Hydreco 1500K Series Gear Motors



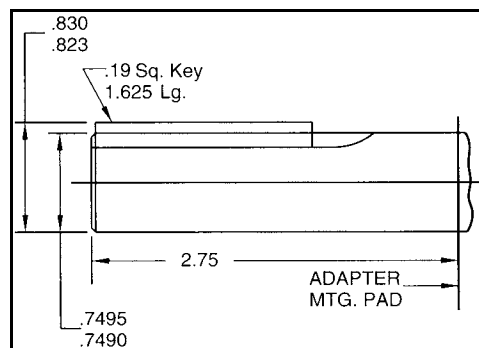
Hydreco 1500K Series Shaft Dimensions & Side Load Chart

**5/8 Straight Keyed Shaft
(2.25 Long)**



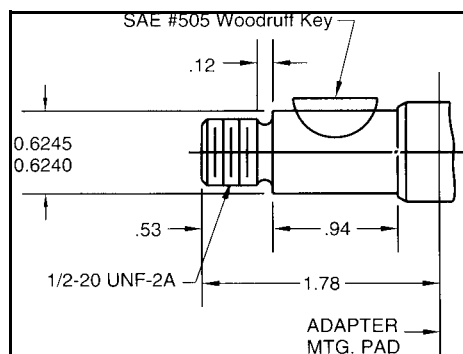
Torque Limit
PSI X Displ. $\leq 5,250$

**3/4 Straight Keyed Shaft
(2.75 Long)**



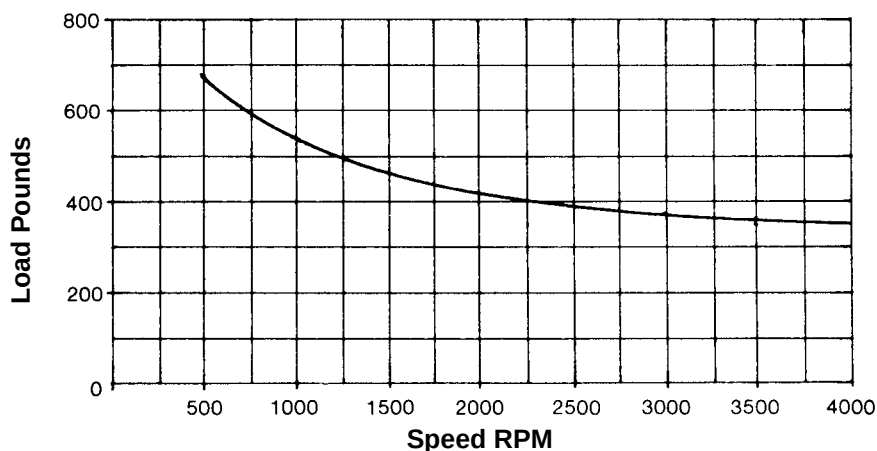
Torque Limit
PSI X Displ. $\leq 9,075$

**5/8 Straight Keyed Shaft
Threaded, with Woodruff Key**



Torque Limit
PSI X Displ. $\leq 6,000$

**Maximum Allowable Side Loads, Outboard Bearing Models
with Load Applied 1" From Mounting Face**

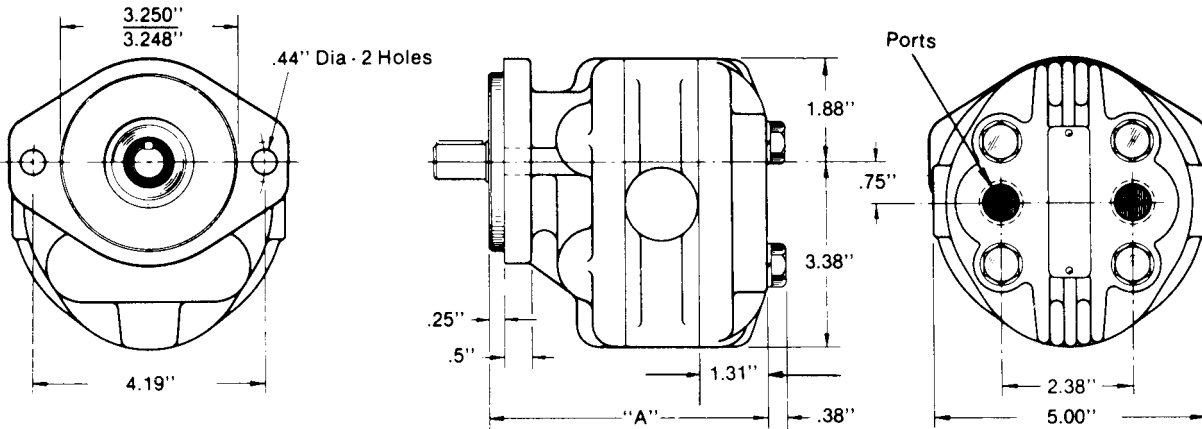


Hydreco 1500M Series Gear Motors



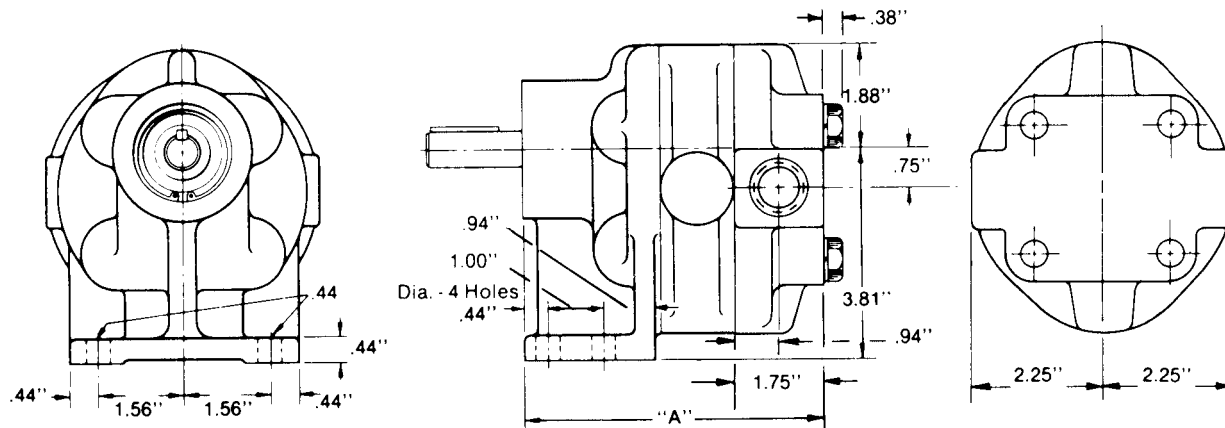
Hydreco 1500M Series Gear Motor Dimensions

Example: 2-Bolt SAE A Front Flange with Rear Ports



Size	Dim "A" (Approximate)
1506	4.75
1510	5.25
1512	5.50
1515	5.75

Example: 4-Bolt Foot Mount with Side Ports



Size	Dim "A"
1506	5.03
1510	5.41
1512	5.66
1515	5.91

Technical Information Hydraulic Motors

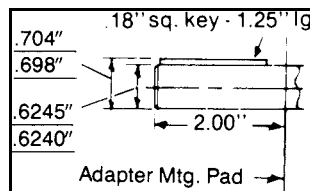


Hydrec 1500M Series Gear Motors



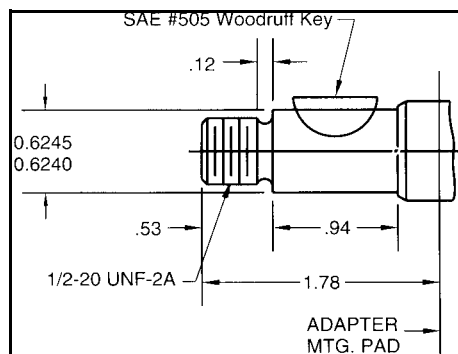
Hydrec 1500M Series Shaft Dimensions & Side Load Chart

5/8 Straight Keyed Shaft



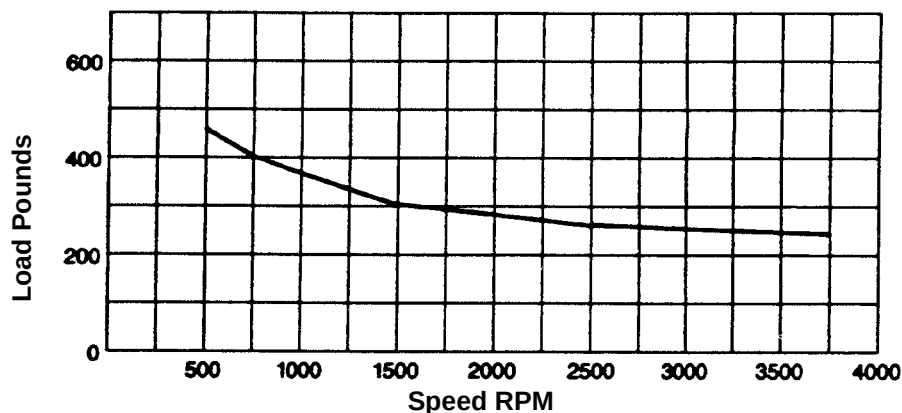
Torque Limit
PSI X Displ. <= 5,250

5/8 Straight Keyed Shaft, Threaded, with Woodruff Key



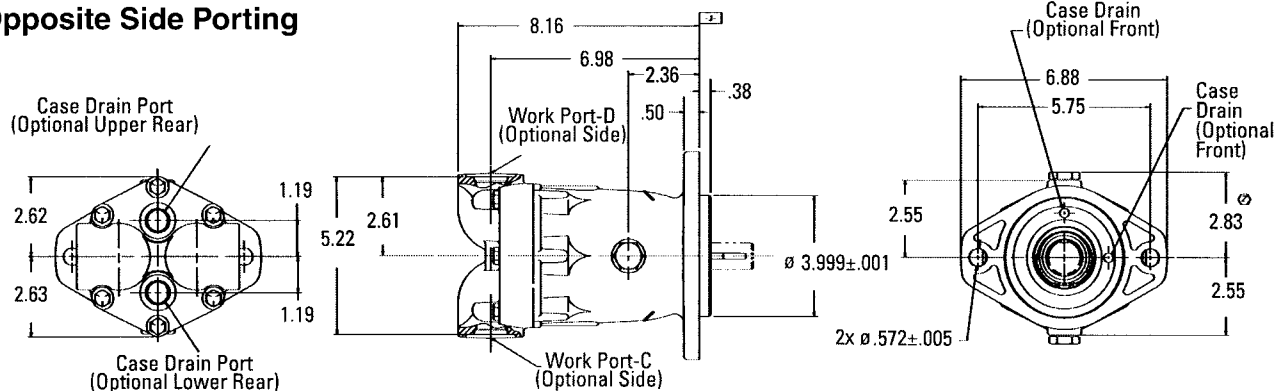
Torque Limit
PSI X Displ. <= 3,420

**Maximum Allowable Side Loads, Outboard Bearing Models
with Load Applied 1" From Mounting Face**



Eaton Medium Duty Piston Motor Dimensions

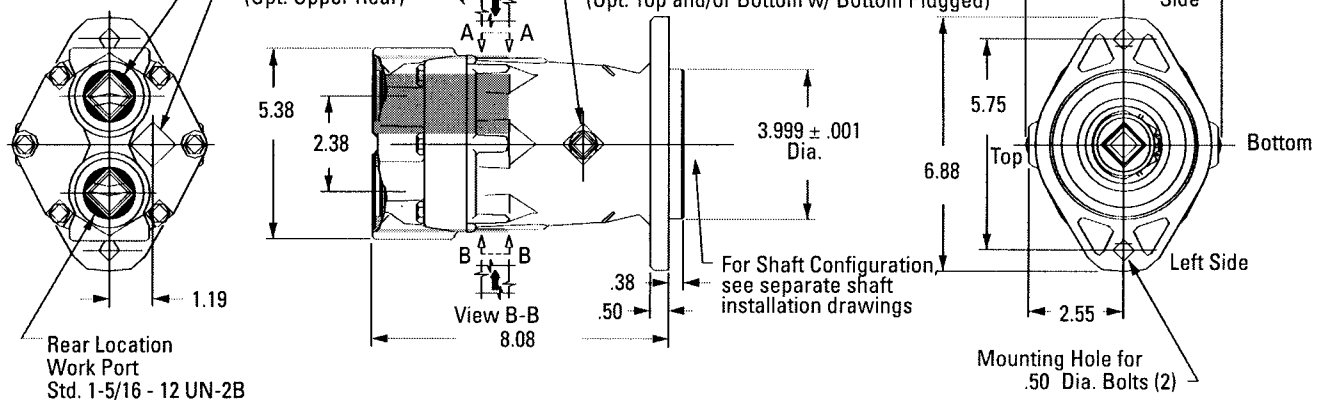
Opposite Side Porting



Rear Ports

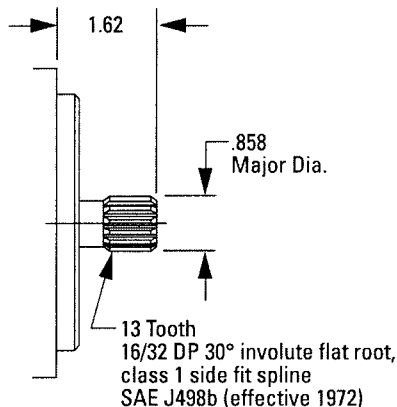
Rear Location
Work Port
Std. 1-5/16 - 12

Std. 1-5/16 - 12 UN-2B ...



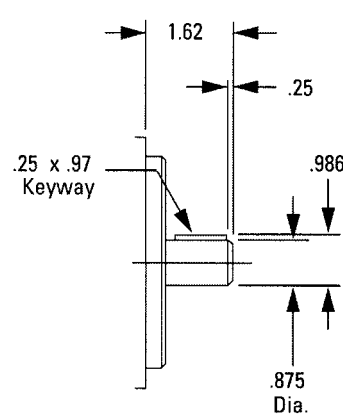
13 Tooth SAE-B Splined Shaft

Max Torque = 1852 inch pounds



7/8 Straight Keyed Shaft

Max Torque = 1852 inch pounds



Technical Information Hydraulic Motors



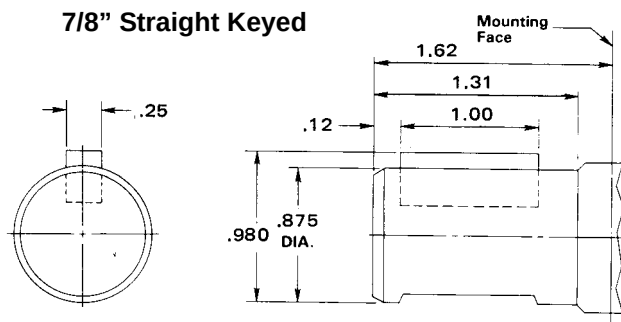
Permco Box Motors



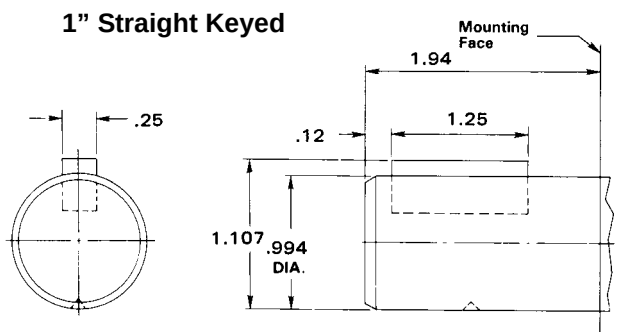
Permco Box Motor Dimensions

PEK Model Shafts

7/8" Straight Keyed

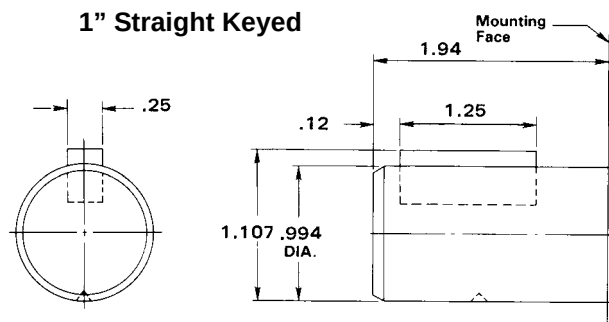


1" Straight Keyed

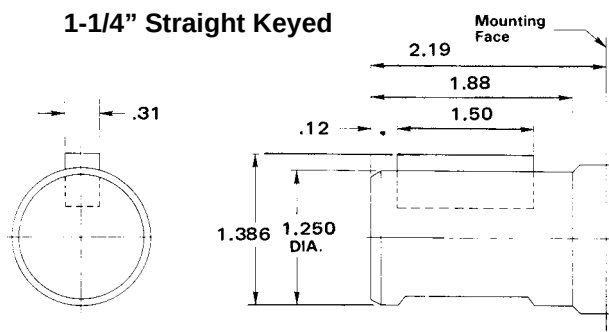


PEL Model Shafts

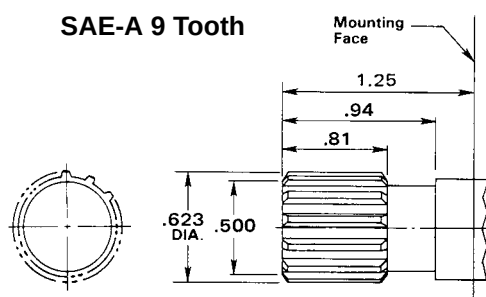
1" Straight Keyed



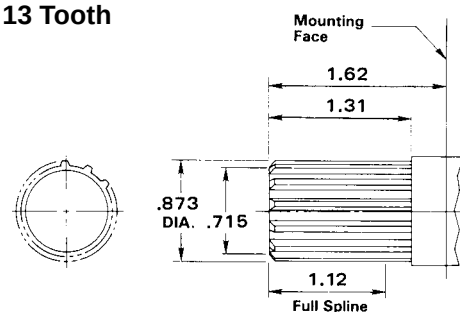
1-1/4" Straight Keyed



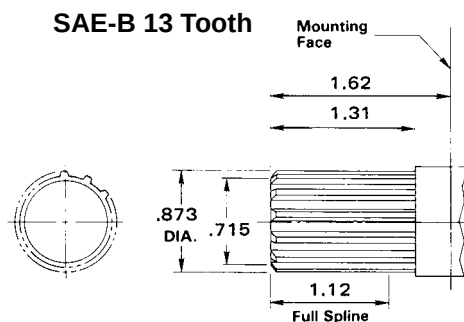
SAE-A 9 Tooth



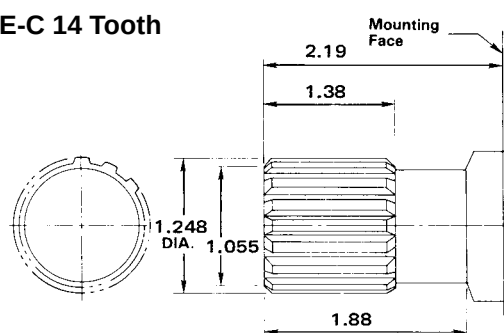
SAE-B 13 Tooth



SAE-B 13 Tooth

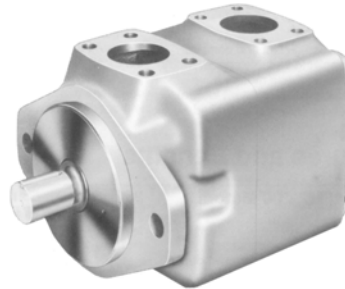


SAE-C 14 Tooth



Vickers 25M - 50M Vane Motors

Up to 4625 lb-in Intermittent Torque • Up to 4000 Intermittent RPM



Features and Benefits

- High Efficiency** - A unique dual pressure plate design results in low internal leakage and overall operating efficiency of about 86%. Efficiency varies with motor size, pressure, speed, and fluid viscosity and temperature.
- Mounting Flexibility** - The motor's cover can be assembled in four positions with respect to the body. Changing port positions is accomplished by simply rotating the cover, and the cartridge which is pinned to the cover, in 90° increments, thus providing the optimum mounting for connecting piping.
- Reversibility** - Through the dual plate design, the motors may be reversed simply by reversing the direction of oil flow.
- Series Operation** - Inlet and outlet ports can be pressurized simultaneously without affecting service life or operating smoothness. These motors are suited to series applications.
- Easy to Service** - The drive cartridge is accessible by removing the motor's cover and can be normally replaced in ten minutes without removing the motor from the machine. The torque capability of motors within the same model series can be changed by changing the cartridge or cam ring.
- Low-Wear Design** - 25M-50M motors are hydraulically balanced to reduce wear and heat-producing friction. All internal inlet chambers are equally and diametrically opposed. As a result, pressure induced radial loads are balanced. Shaft bearings only have to carry external loads so wear is greatly reduced.
- Proven Reliability** - For more than two decades, the reliability of the high performance motors has been field proven on a variety of machinery applications.

Application Information

- Fluids:** Anti-wear hydraulic oil, automotive type crankcase oil (SE, SF, SG, SH).
- Note:** Before starting the motor, fill its case with oil. The case must be kept full at all times to provide internal lubrication.
- Seals:** Buna-N is standard.
- Shaft Rotation:** Bi-Rotational.
- Minimum Speed:** Normally 100 RPM. Lower speeds are permissible, depending upon torque requirements and characteristics of the driven load.
- Stall Torque:** Motor stall torque ranges between 65% and 100% of 1200 RPM running torque for a given pressure differential across the motor. This is dependent on the specific angular position of the shaft at stall and the volume supply of fluid to the motor.
- Case Drain Connection:** The case drain line must be full size, unrestricted, and connected from the drain port directly to the reservoir in such a manner that the housing remains filled with fluid. The line must be piped to prevent siphoning and must terminate below the reservoir fluid level.
- Case Drain Pressure:** 0 PSI (Minimum), 10 PSI (Max. normal), 25 PSI (Max. pressure surge).
- Operating Temperature:** 120 to 130°F (Recommended), 150°F (Max. Recommended), 180°F (Max. extreme condition).
- Recommended Fluid Viscosity:** 70-250 SUS (Running), 4000 SUS Max (Startup).
- Recommended Filtration:** Per ISO Cleanliness Code, 20/18/15 (<2000 psi), 19/17/14 (2000-2500 psi).

Technical Information Hydraulic Motors



Vickers 25M - 50M Vane Motors

Up to 4625 lb-in Intermittent Torque • Up to 4000 Intermittent RPM



Vickers 25M - 50M Series Vane Motor Specifications

Series	Ring Size Torque per 100 PSI (lb-in)	Displ. cu.in. per Rev.	Maximum Continuous RPM & PSI	Typical Required GPM @ Max. RPM & Max. PSI	Typical Output HP @ Max. RPM & Max. PSI	Length (in)	Width (in)	Height (in)	Weight (lb)
25M	25								
	30								
	35								
	42	2.68	3600 RPM @ 500 PSI *2600 RPM @ 2250 PSI	*33	*36				40
	55	3.52	3600 RPM @ 500 PSI *2600 RPM @ 2250 PSI	*43	*48				
	65	4.19	3600 RPM @ 500 PSI *2600 RPM @ 2250 PSI	*50	*56				
35M	80	5.10	3600 RPM @ 500 PSI *2600 RPM @ 2250 PSI	*64	*70				64
	95	6.12	3600 RPM @ 500 PSI *2600 RPM @ 2250 PSI	*73	*86				
	115	7.44	3600 RPM @ 500 PSI *2600 RPM @ 2250 PSI	*90	*102				
45M	130	8.42	3600 RPM @ 500 PSI *2600 RPM @ 2250 PSI	*103	*118				85
	155	9.96	3600 RPM @ 500 PSI *2600 RPM @ 2250 PSI	*120	*136				
	185	11.79	3600 RPM @ 500 PSI *2600 RPM @ 2250 PSI	*145	*160				
50M	220	14.11	2800 RPM @ 500 PSI *2200 RPM @ 2250 PSI	*144	*161				
	255	16.36	2800 RPM @ 500 PSI *2200 RPM @ 2250 PSI	*168	*190				
	300	19.35	2800 RPM @ 500 PSI *2200 RPM @ 2250 PSI	*196	*230				

Performance Constants: SAE 10W fluid @ 120° F.





Technical Information

Hydraulic Motors

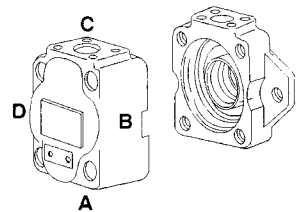
Vickers 25M - 50M Vane Motors

Up to 4625 lb-in Intermittent Torque • Up to 4000 Intermittent RPM



Vickers 25M - 50M Series Vane Motor Model Codes

25	M	42	A	-	1	C	20	
1	2	3	4		5	6	7	8

1	Series	4	Mounting Flange & Port Connections	6	Cover Positions (Viewed from cover end of motor)
25	Standard Bearing				A Cover port opposite body port
35					B Cover port 90° CCW from body port
45		A	SAE type 2-bolt mounting flange and SAE 4-bolt flange connections		C Port connections in line
50					D Cover port 90° CW from body port
26	Heavy duty bearing				
36					
46					
51					
2	M Vane Motor	5	Shaft Types		
3	Ring Size - Nominal Torque Rating (lb.in./100 PSI)	1	Straight keyed 25M 7/8 Straight Keyed 35M 1-1/4 Straight Keyed 45M 1-1/4 Straight Keyed 50M 1-3/4 Straight Keyed	7	Design Subject to change. Installation dimensions remain the same for designs -20 through -29.
25M	42, 55 or 65	11	Splined 25M 13 Tooth SAE-B 35M 14 Tooth SAE-C 45M 14 Tooth SAE-C 50M 13 Tooth SAE-D	8	Special Features Suffix
35M	80, 95 or 115				114 50M only
45M	130, 155 or 185				124 50M only
50M	220, 255 or 300				

Hydraulic Power & Control

Pneumatic Power & Control

Fluid Conveying

Miscellaneous Products

Indexes & Technical Information



Technical Information Hydraulic Motors



Vickers 25M Vane Motors

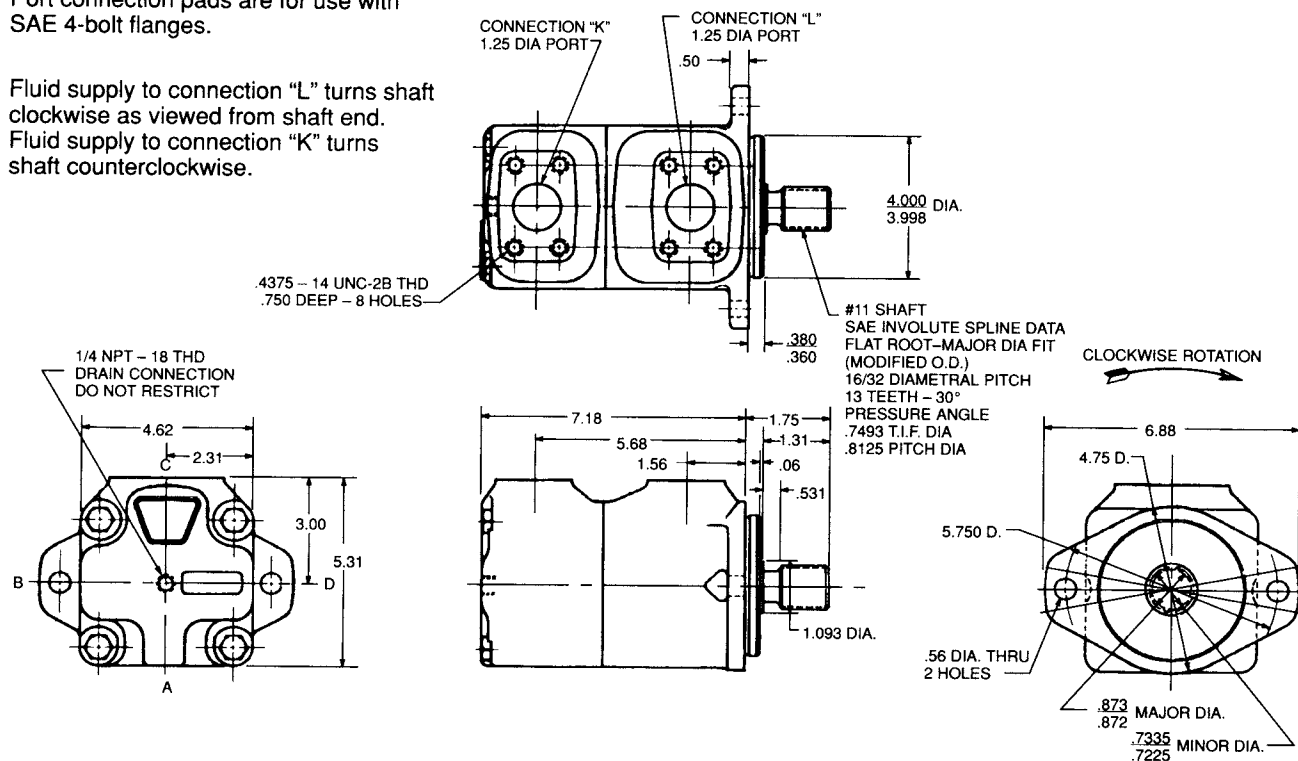
Up to 1625 lb-in Intermittent Torque • Up to 4000 Intermittent RPM



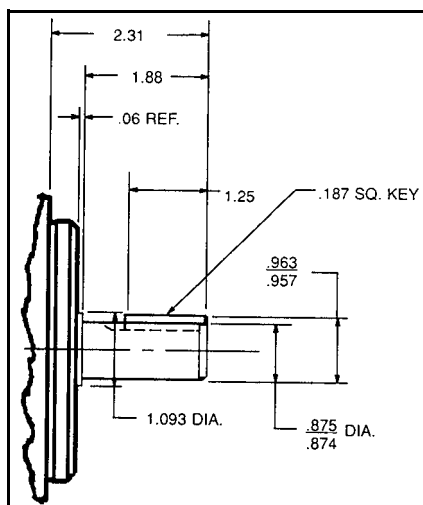
Vickers 25M Series Vane Motor Dimensions

Port connection pads are for use with SAE 4-bolt flanges.

Fluid supply to connection "L" turns shaft clockwise as viewed from shaft end.
Fluid supply to connection "K" turns shaft counterclockwise.



#1 Shaft (7/8 Straight Keyed)



Vickers 35M Vane Motors

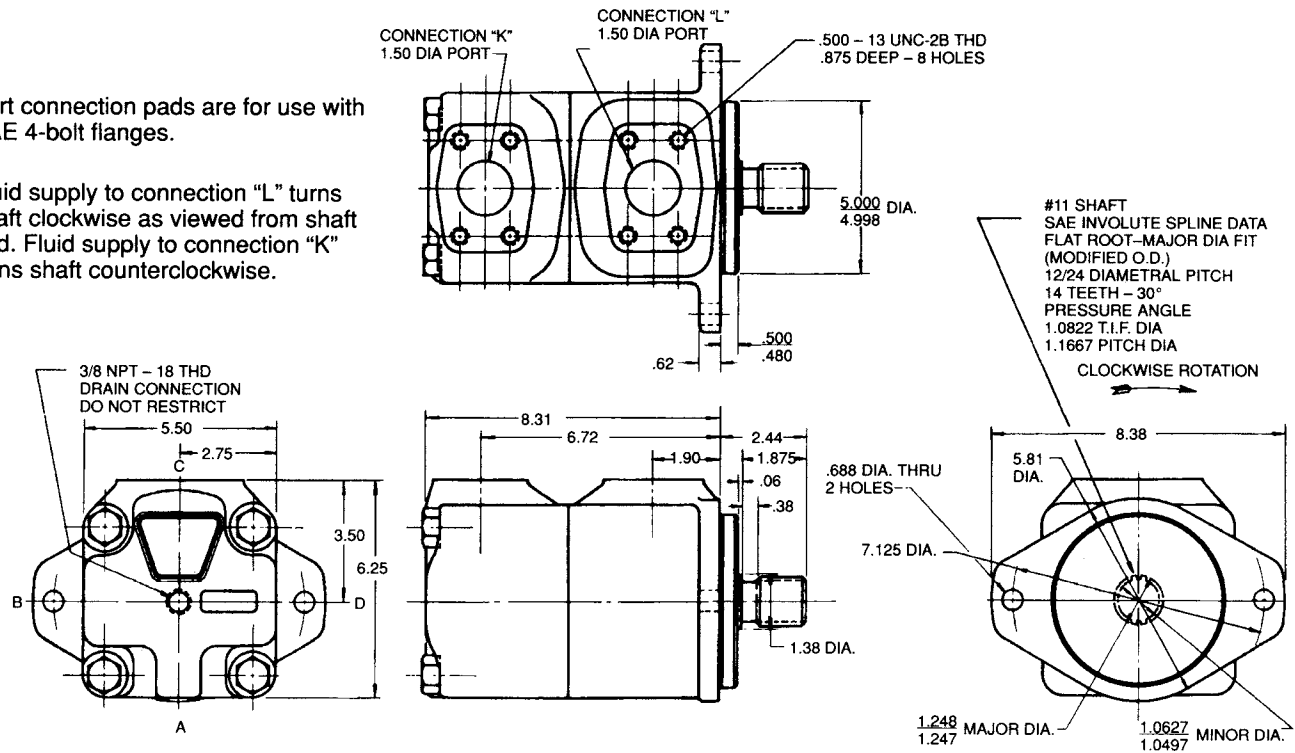
Up to 2875 lb-in Intermittent Torque • Up to 4000 Intermittent RPM



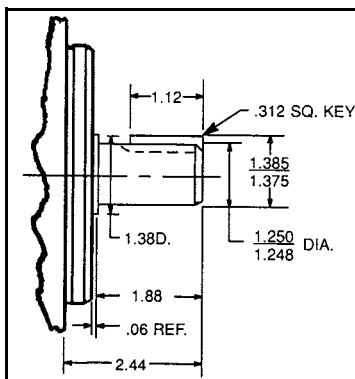
Vickers 35M Series Vane Motor Dimensions

Port connection pads are for use with SAE 4-bolt flanges.

Fluid supply to connection "L" turns shaft clockwise as viewed from shaft end. Fluid supply to connection "K" turns shaft counterclockwise.



#1 Shaft (1-1/4 Straight Keyed)



HYDRAULIC
SUPPLY COMPANY



Powering Business Worldwide

Vickers 50M Vane Motors

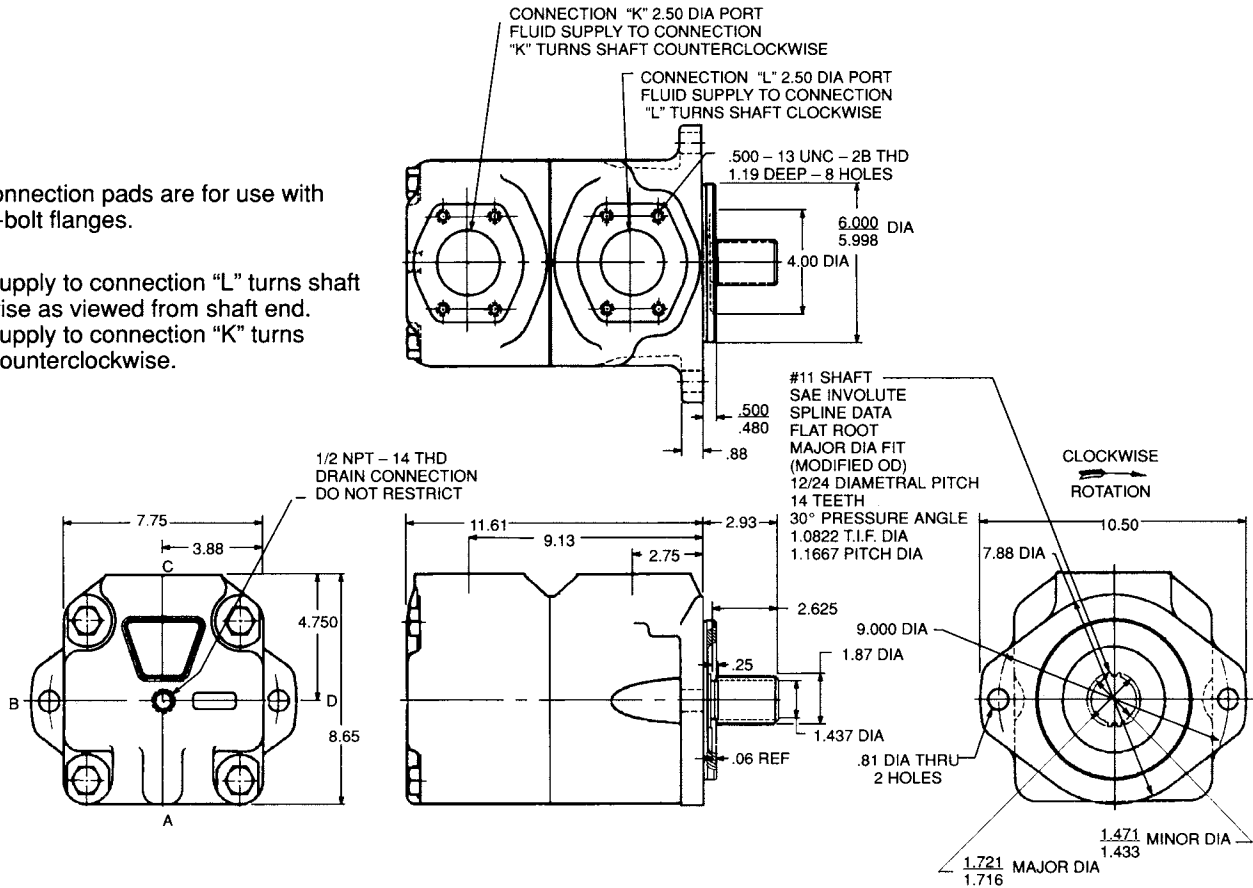
Up to 7500 lb-in Intermittent Torque • Up to 2800 Intermittent RPM



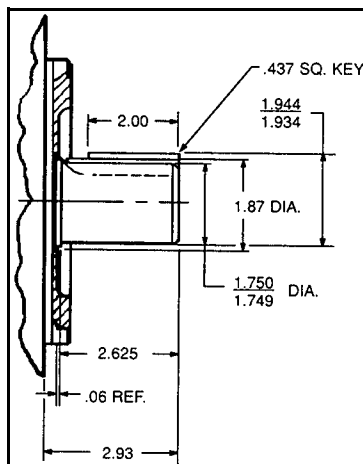
Vickers 50M Series Vane Motor Dimensions

Port connection pads are for use with SAE 4-bolt flanges.

Fluid supply to connection "L" turns shaft clockwise as viewed from shaft end.
Fluid supply to connection "K" turns shaft counterclockwise.



#1 Shaft (1-3/4 Straight Keyed)



Hydraulic Power & Control

Pneumatic Power & Control

Fluid Conveying

Miscellaneous Products

Indexes & Technical Information





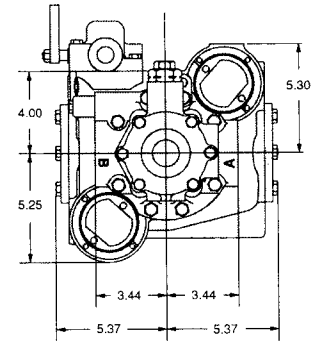
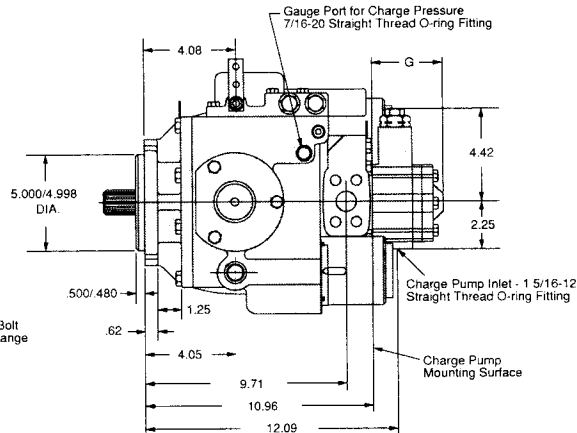
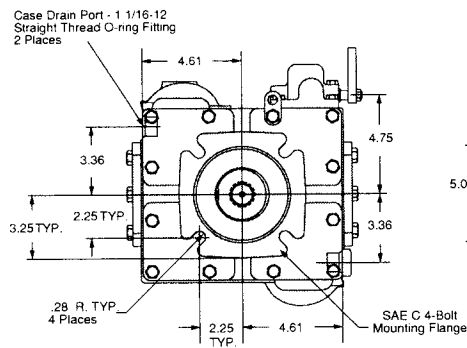
Technical Information Hydrostatic Transmissions

Eaton Heavy Duty Hydrostatic Transmissions



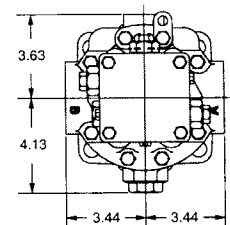
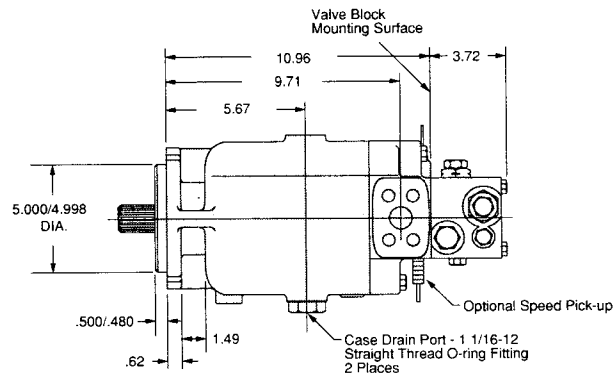
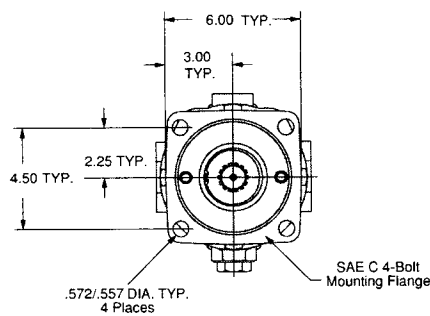
Eaton Series 1 Models 33, 39 and 46 Dimensions

Variable Pump



Charge Pump Displacement (in ³ /rev)	G (in)
0.85	3.63
1.28	3.88
1.70	4.13
2.12	4.38

Fixed Motor



Technical Information Hydrostatic Transmissions

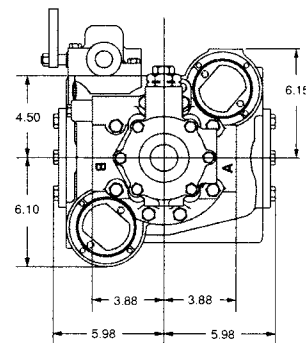
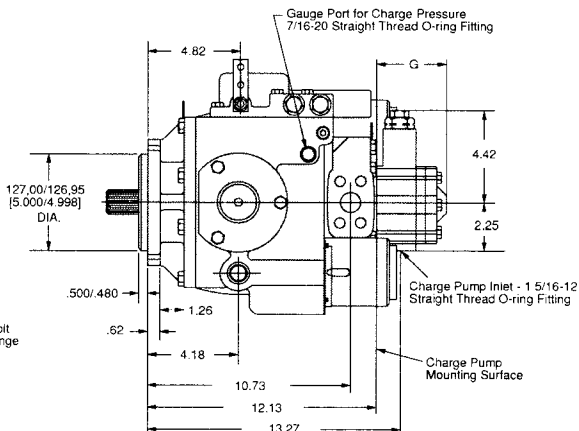
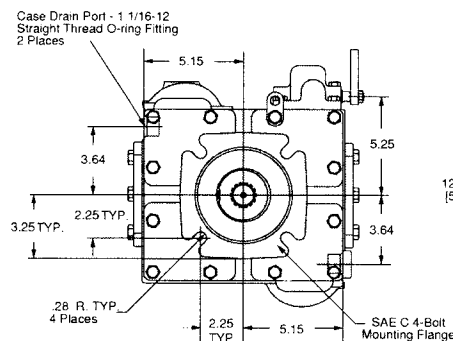


Eaton Heavy Duty Hydrostatic Transmissions



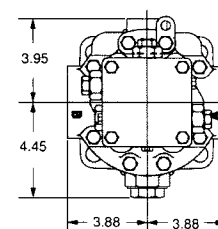
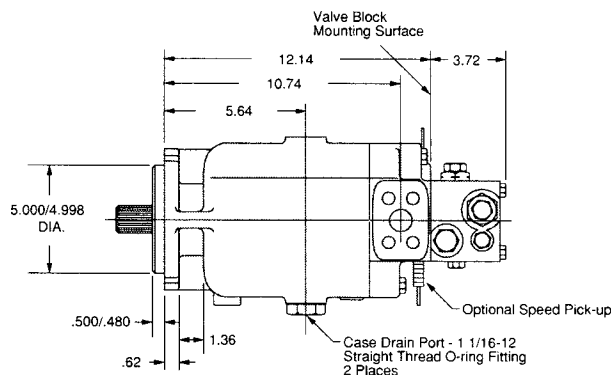
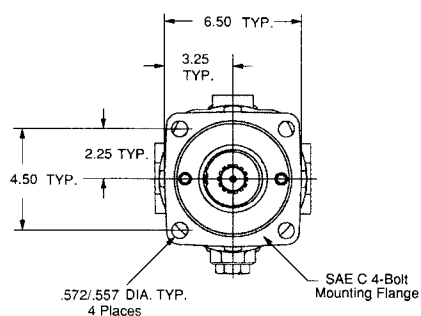
Eaton Series 1 Models 54 and 64 Dimensions

Variable Pump



Charge Pump Displacement (in ³ /rev)	G (in)
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1.28	3.88
1.70	4.13
2.12	4.38

Fixed Motor





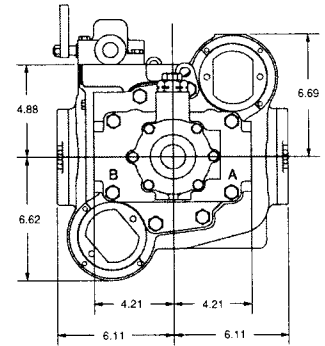
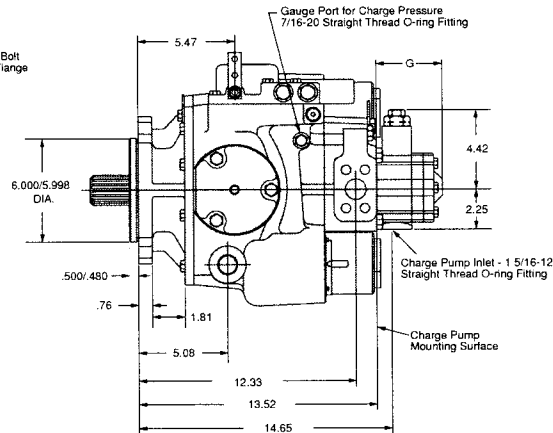
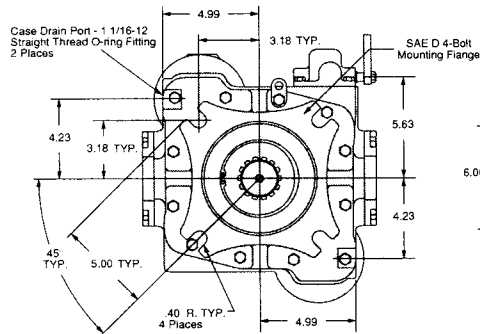
Technical Information Hydrostatic Transmissions

Eaton Heavy Duty Hydrostatic Transmissions



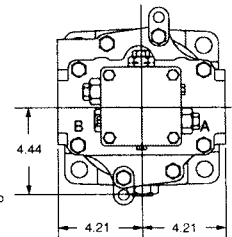
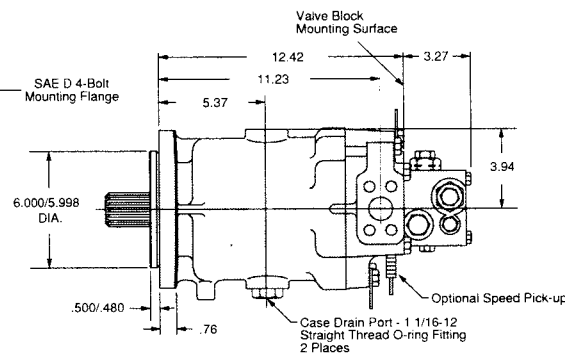
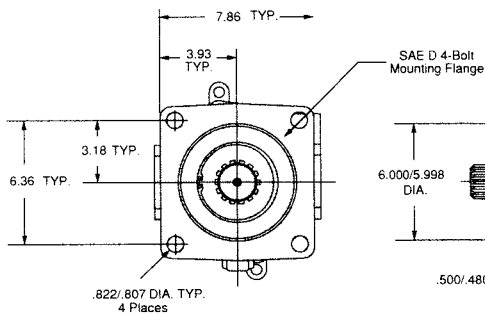
Eaton Series 1 Model 76 Dimensions

Variable Pump



Charge Pump Displacement (in ³ /rev)	G (in)
1.28	3.88
1.70	4.13
2.12	4.38

Fixed Motor



HYDRAULIC
SUPPLY COMPANY



Powering Business Worldwide

Hydraulic Power & Control



Indexes & Technical Information

Port	Description	S.A.E. O-ring Port Size
A	Main Port	1" per Code 61 per .518
B	Main Port	1" per Code 61 per .518
D	Charge Gauge Port	7/8-14 UN-2
E	Case Drain Port	1-1/16-12 UN-2
F	Case Drain Port	1-1/16-12 UN-2
H	Charge Pressure Test Port	1-5/16-12 UN-2
P	Gauge Port-System Port A	9/16-18 UNF-2
N	Gauge Port-System Port B	9/16-18 UNF-2
J	Gauge Port Servo 1	7/16-20 UNF-2
K	Gauge Port Servo 2	7/16-20 UNF-2

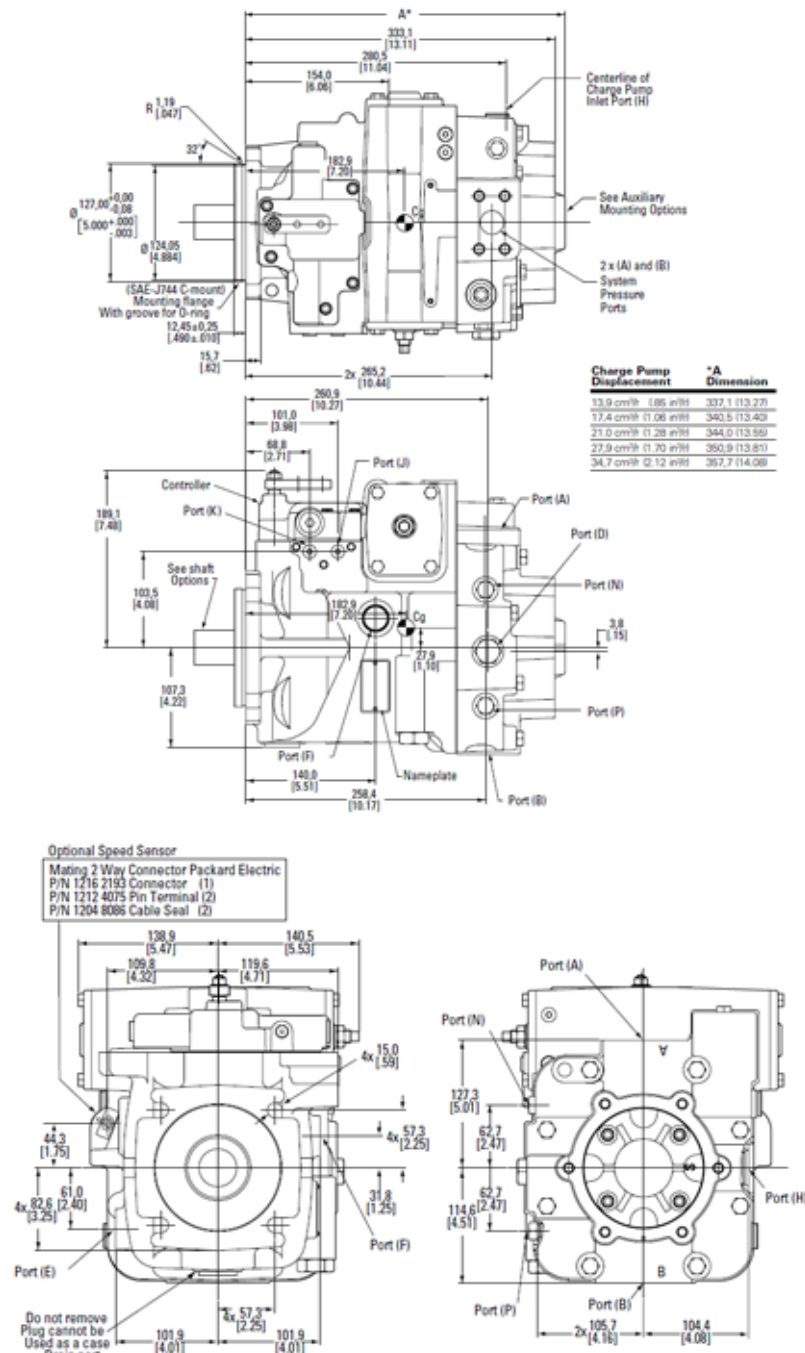


Technical Information Hydrostatic Transmissions

Eaton Heavy Duty Hydrostatic Transmission Pumps



Eaton Series 2 Models 54 and 64 Dimensions



Charge Pump Displacement	*A Dimension
13.9 cm ³ (0.86 in ³)	337.1 (13.27)
17.4 cm ³ (1.06 in ³)	343.5 (13.52)
21.0 cm ³ (1.28 in ³)	344.0 (13.54)
27.9 cm ³ (1.70 in ³)	360.9 (14.21)
34.7 cm ³ (2.12 in ³)	367.7 (14.48)

Weight
81 kg (178 lbs.)

Port	Description	S.A.E. O-ring Port Size
A	Main Port	1" per Code 61 per J518
B	Main Port	1" per Code 61 per J518
D	Charge Gauge Port	7/8-14 UN-2B
E	Case Drain Port	1-1/16-12 UN-2B
F	Case Drain Port	1-1/16-12 UN-2B
H	Charge Pressure Inlet Port	1-5/16-12 UN-2B
P	Gauge Port, System Port B	9/16-18 UNF-2B
N	Gauge Port, System Port A	9/16-18 UNF-2B
J	Gauge Port Servo 1	7/16-20 UNF-2B
K	Gauge Port Servo 2	7/16-20 UNF-2B



Technical Information Hydraulic Cylinders

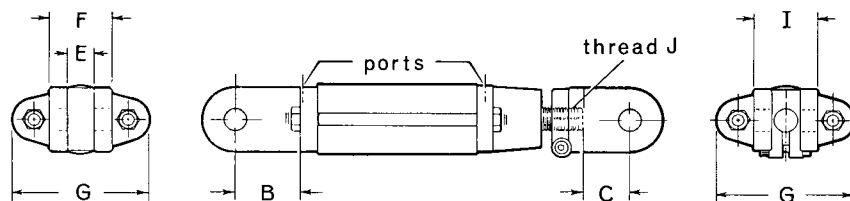


Tie Rod

Midway 1-1/2 Bore DA Series Cylinders



Dimensions

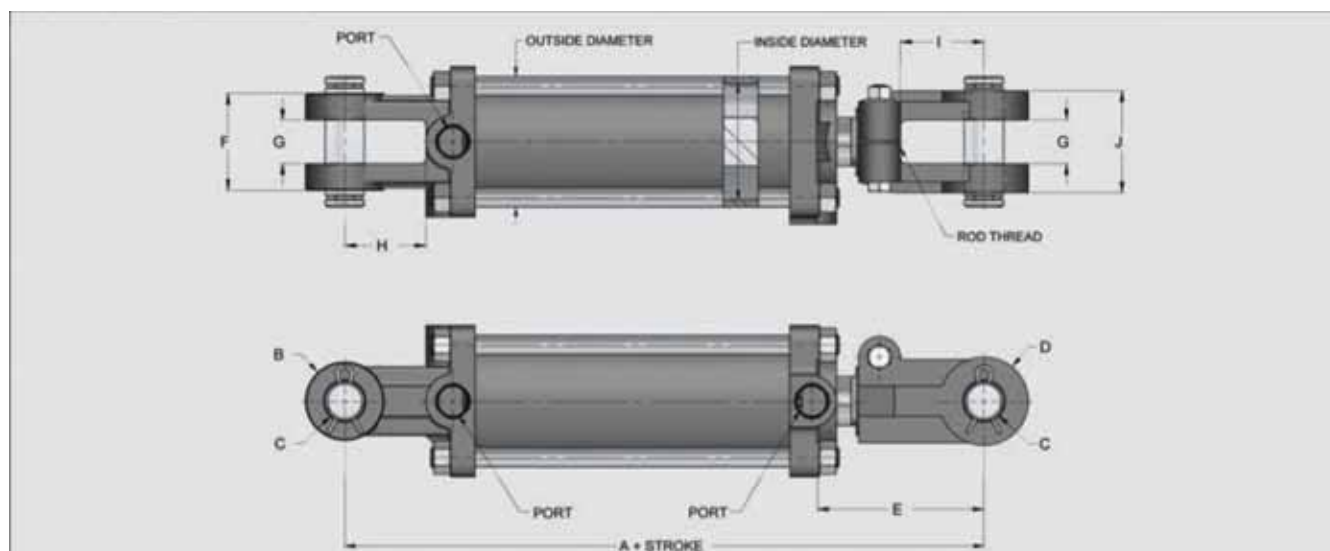


Bore	B	C	E	F	G	I	J
1.50	2.00	1.50	0.875	1.875	4.00	2.00	3/4-16

Custom TR2.5 Series Cylinders



Dimensions



PART NUMBER	INSIDE DIAMETER	OUTSIDE DIAMETER	*A	B	*C	*D	*E	F	G	H	I	*J	*ROD THREAD	PORT
TR2.5-20-	2.00"	2.37"	10.25"	2.00"	1.01"	2.00"	3.75"	2.50"	1.12"	2.06"	2.12"	2.62"	1.125-12 UNF	3/8-NPT
TR2.5-25-	2.50"	2.87"	10.25"	2.00"	1.01"	2.25"	3.75"	2.50"	1.12"	2.06"	2.12"	2.62"	1.125-12 UNF	3/8-NPT
TR2.5-30-	3.00"	3.37"	10.25"	2.00"	1.01"	2.25"	3.75"	2.50"	1.12"	2.06"	2.12"	2.62"	1.250-12 UNF	1/2-NPT
TR2.5-35-	3.50"	3.87"	10.25"	2.25"	1.01"	2.25"	3.62"	2.50"	1.12"	2.06"	2.12"	2.62"	1.250-12 UNF	1/2-NPT
TR2.5-40-	4.00"	4.37"	10.25"	2.25"	1.01"	2.25"	3.56"	2.62"	1.12"	2.06"	2.12"	2.62"	1.250-12 UNF	1/2-NPT

*FOR 8.00" ASAE STROKE: *A= 12.25" AND FOR 16" ASAE STROKE: *A= 15.50"

*FOR 8.00" ASAE STROKE: *E= 5.75" (2.00" TO 3.00" BORE) *E= 5.62" (3.50" BORE) *E= 5.56" (4.00" BORE)

*FOR 16.00" ASAE STROKE: *E= 9.00" (2.00" TO 3.00" BORE) *E= 8.87" (3.50" BORE) *E= 8.81" (4.00" BORE)

*FOR TR2.5-2518 TO TR2.5-2536: ROD THREAD = 1.250-12 UNF

*FOR TR2.5-4016-ASAE TO TR2.5-4036: *D= 2.50" *J= 2.75" *ROD THREAD= 1.500-12 UNF

*FOR 16.00" ASAE STROKE: *C= 1.26"

SEAL TEMPERATURE RANGE: -30°C/ +100°C (-22°F/ +212°F)

SEAL MAXIMUM SPEED: 3 FT/SEC

MAXIMUM RETRACTED WORKING PRESSURE = 2500 PSI

MAXIMUM EXTENDED WORKING PRESSURE = SEE COLUMN LOAD

RETRACTED AND STROKE TOLERANCE $\pm 1/8"$

DIMENSIONS A AND E ARE FOR REFERENCES ONLY AS CLEVIS IS ADJUSTABLE

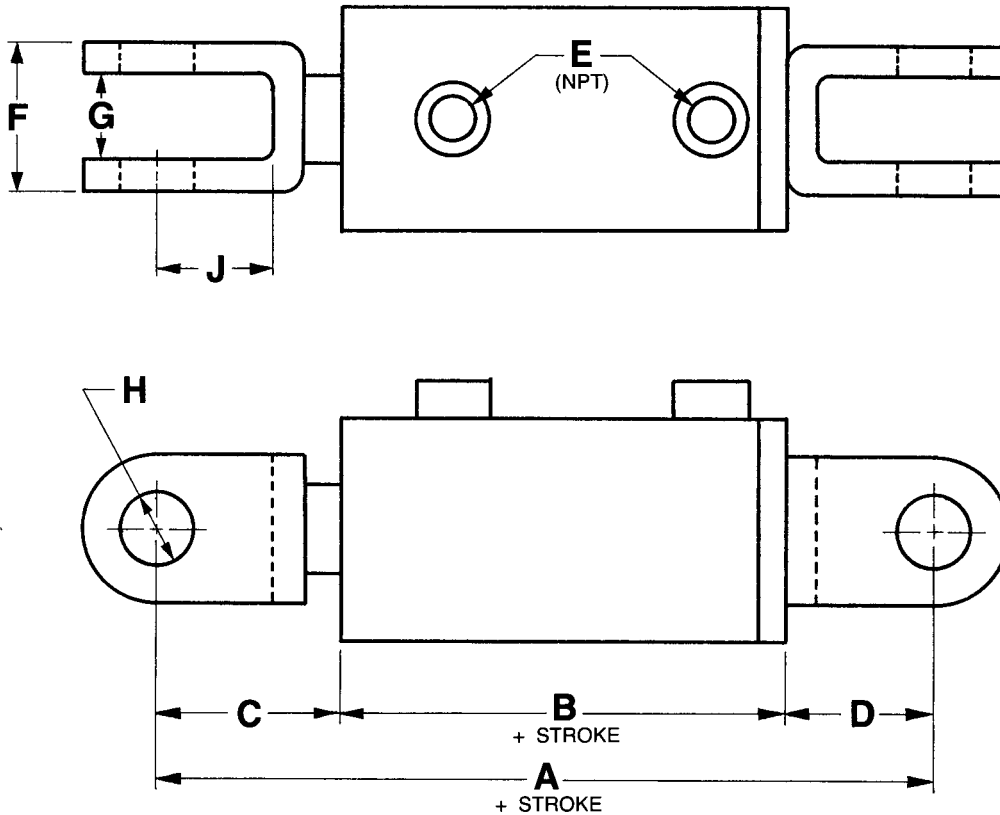


Yates Industries, Inc.



Yates Industries 2500 Series Dimensions

Typical Dimensions of Clevis Mounted 2500 Series Cylinders



Bore	1-1/2	2	2-1/2		3		3-1/2			4				5			6	
Rod	3/4	1	1-1-1/4	1-1/2	1-1-1/4	1-1/2	1-1-1/4	1-1/2	1-3/4-2	1-1-1/4	1-1/2	1-3/4-2	2-1/2	1-1/2	1-3/4-2	2-1/2	Several	
A	6-3/4	9-3/8	9-3/8	9-5/8	9-7/8	10-1/8	10-5/8	10-7/8	11-3/8	10-5/8	10-7/8	11-3/8	11-1/2	11-1/8	11-5/8	11-3/4	CALL FOR DIMENSIONS	
B	3-1/2	4-3/8	4-3/8	4-5/8	4-7/8	5-1/8	5-3/8	5-5/8	6-1/8	5-3/8	5-5/8	6-1/8	6-1/4	5-7/8	6-3/8	6-1/2		
C	1-7/8	2-3/4					2-7/8											
D	1-3/8	2-1/4					2-3/8											
E	1/4	3/8					1/2											
F	1-1/4	2					2-1/4											
G	3/4	1-1/4					1-1/4											
H	1/2	1					1											
J	1-1/8	1-7/8					1-7/8											

Technical Information Hydraulic Cylinders

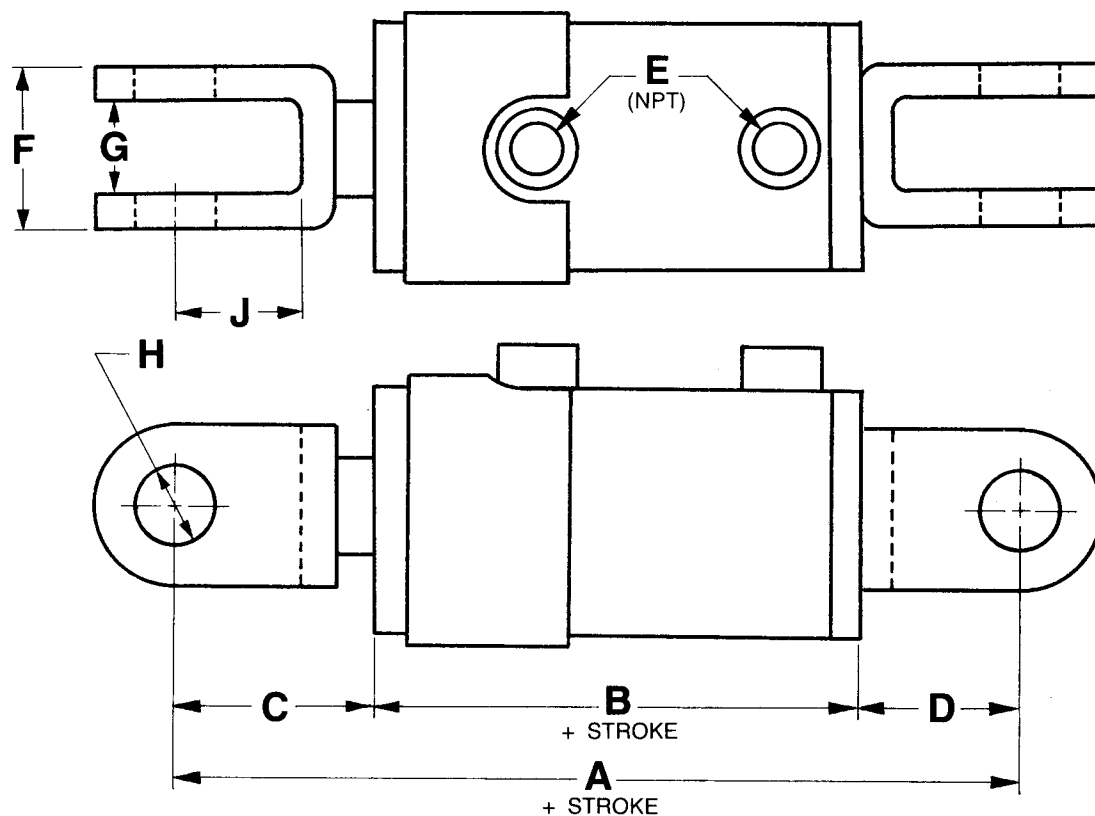


Yates Industries, Inc.



Yates Industries 3000 Series Dimensions

Typical Dimensions of Clevis Mounted 3000 Series Cylinders



Bore	1-1/2	2		2-1/2			3			3-1/2				4		
Rod	3/4	1-1/4	1-1/2	1-1/4	1-1/2	1-3/4	1-1/4	1-1/2	1-3/4-2	1-1/4	1-1/2	1-3/4-2	2-1/2	1-1/2	1-3/4-2	2-1/2-3
A	7-1/4	10-1/8	10-3/8	10-1/8	10-3/8	10-7/8	10-3/8	10-5/8	11-1/8	11-1/8	11-3/8	11-7/8	12	11-5/8	12-1/8	12-1/4
B	4	5-1/8	5-3/8	5-1/8	5-3/8	5-7/8	5-3/8	5-5/8	6-1/8	5-7/8	6-1/8	6-5/8	6-3/4	6-3/8	7-7/8	7
C	1-7/8	2-3/4		2-3/4			2-3/4			2-7/8				2-7/8		
D	1-3/8	2-1/4		2-1/4			2-1/4			2-3/8				2-3/8		
E	1/4	3/8		3/8			1/2			1/2				1/2		
F	1-1/4	2		2			2			2-1/4				2-1/4		
G	3/4	1-1/4		1-1/4			1-1/4			1-1/4				1-1/4		
H	1/2	1		1			1			1				1		
J	1-1/8	1-7/8		1-7/8			1-7/8			1-7/8				1-7/8		

Bore	5			6			7		8	
Rod	2	2-1/2-3	3-1/2-4	2	2-1/2-3	3-1/2-4	2-1/2-3	3-1/2-4	3	3-1/2-4
A	13-7/8	14	14-1/2	16-1/8	16-1/4	16-3/4	18-1/2	19	20-1/4	20-3/4
B	7-1/8	7-1/4	7-3/4	8-7/8	9	9-1/2	9-1/2	10	9-3/4	10-1/4
C	4-1/2			4-3/4			6		7	
D	3-3/4			4			5		6	
E	3/4			3/4			3/4		3/4	
F	3-1/4			4			4-1/2		5-1/2	
G	1-3/4			2			2-1/2		3	
H	1-1/2			1-3/4			2		2-1/2	
J	2-1/4			2-1/2			3		3-1/2	

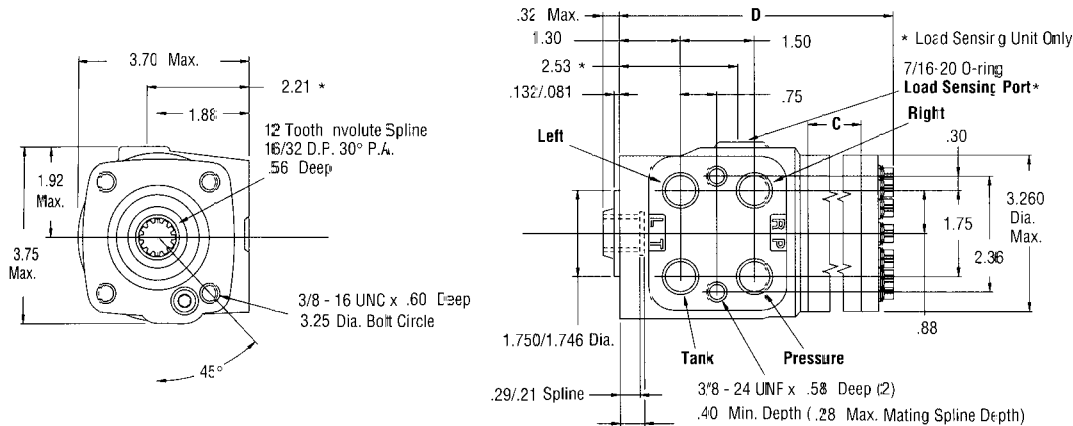


Technical Information Hydraulic Steering

Char-Lynn® Power Steering Series 3-6-12

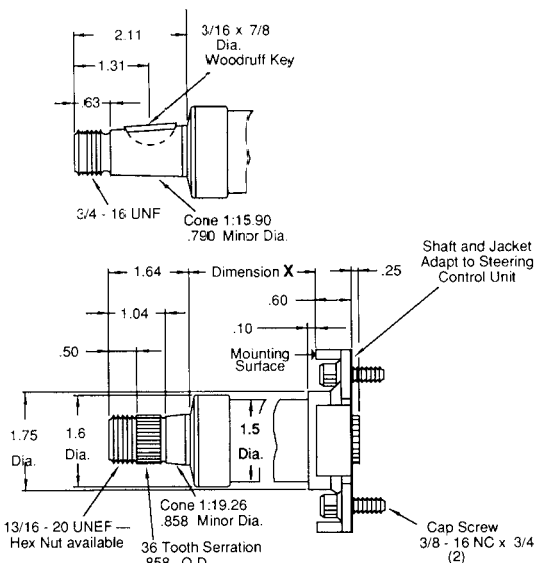


Steering Control Units Dimensions



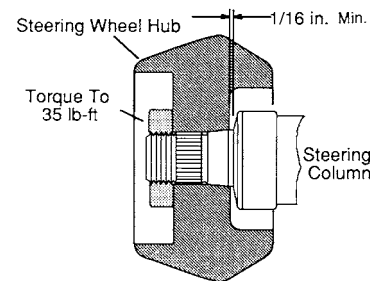
Displacement (cu.in./rev)	C (in)	D (in)
4.5	0.40	5.03
5.9	0.52	5.15
7.3	0.65	5.28
8.9	0.79	5.42
9.7	0.86	5.49
11.3	1.00	5.63
14.1	1.25	5.88
17.9	1.59	6.22
22.6	2.00	6.63
28.2	2.50	7.13
35.9	3.18	7.81
45.1	4.00	6.63

Steering Columns Dimensions



Note: Dimension X is the Length of the steering column found in the stock table.

Steering Wheel Clearance



Technical Information

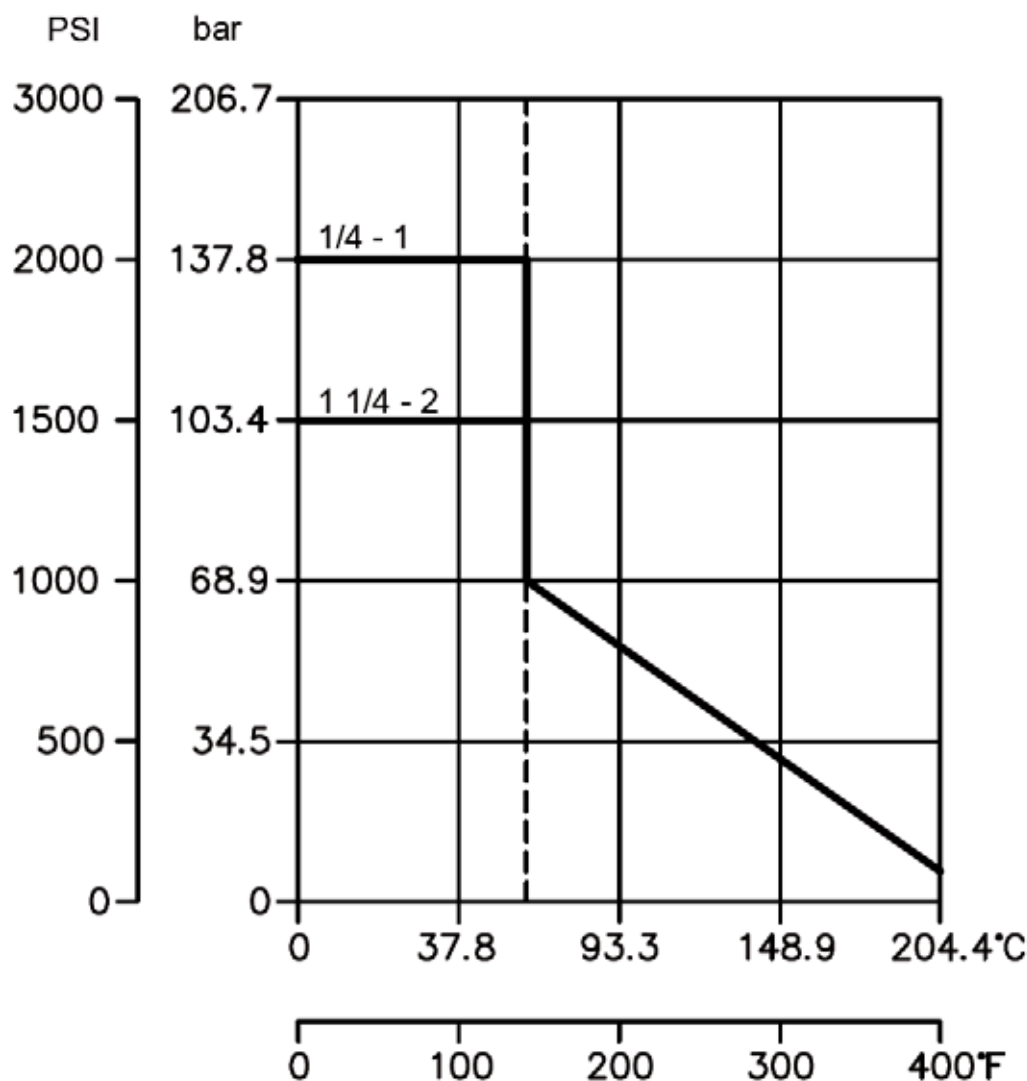
Hydraulic Valves



Ball Valves



Stauff 2BVM Ball Valve Pressure-Temperature Graphs



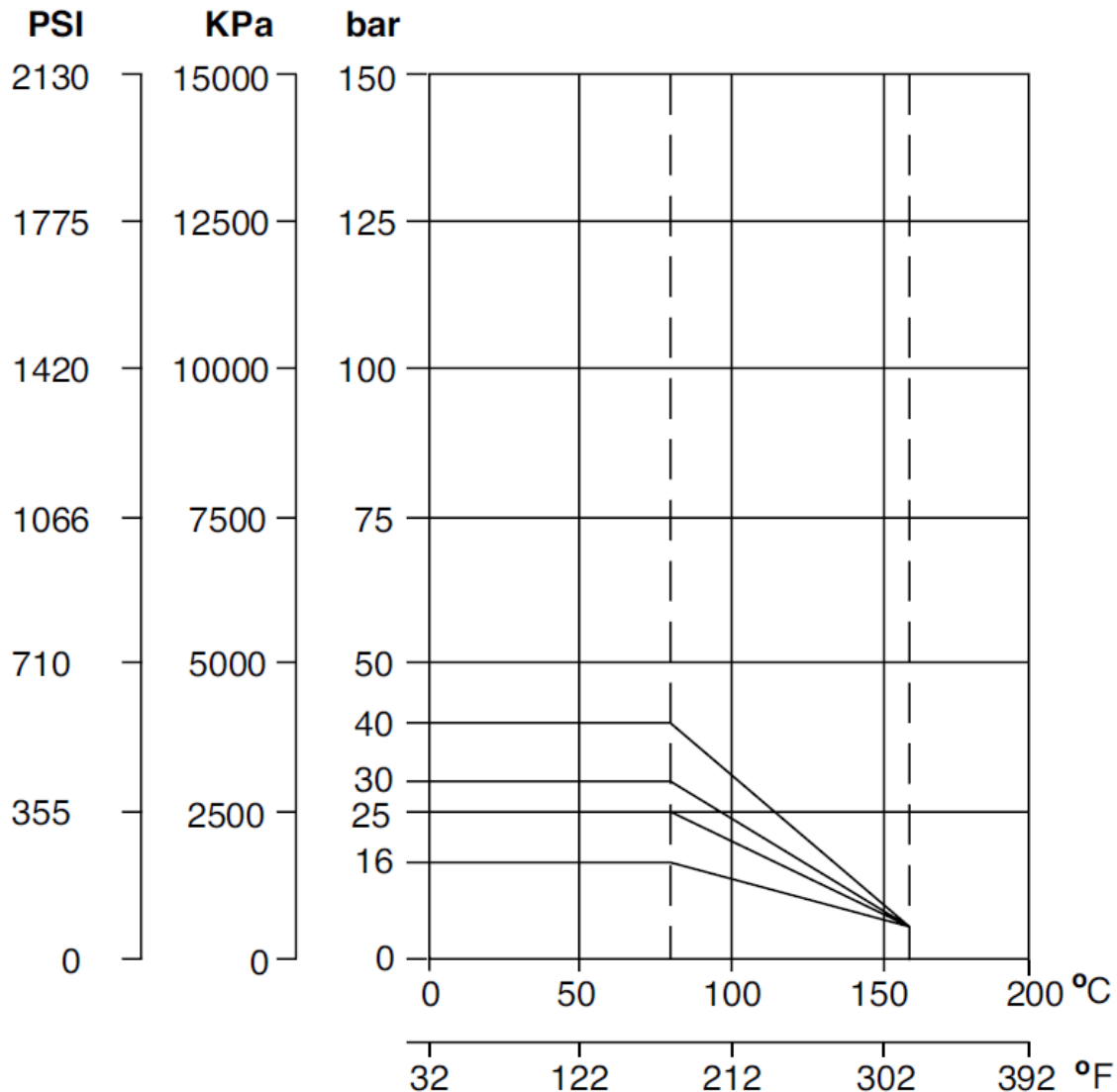


Ball Valves



Stauff 2BVL Ball Valve Pressure-Temperature Graphs

PRESSURE/TEMPERATURE RATINGS



Technical Information

Hydraulic Valves

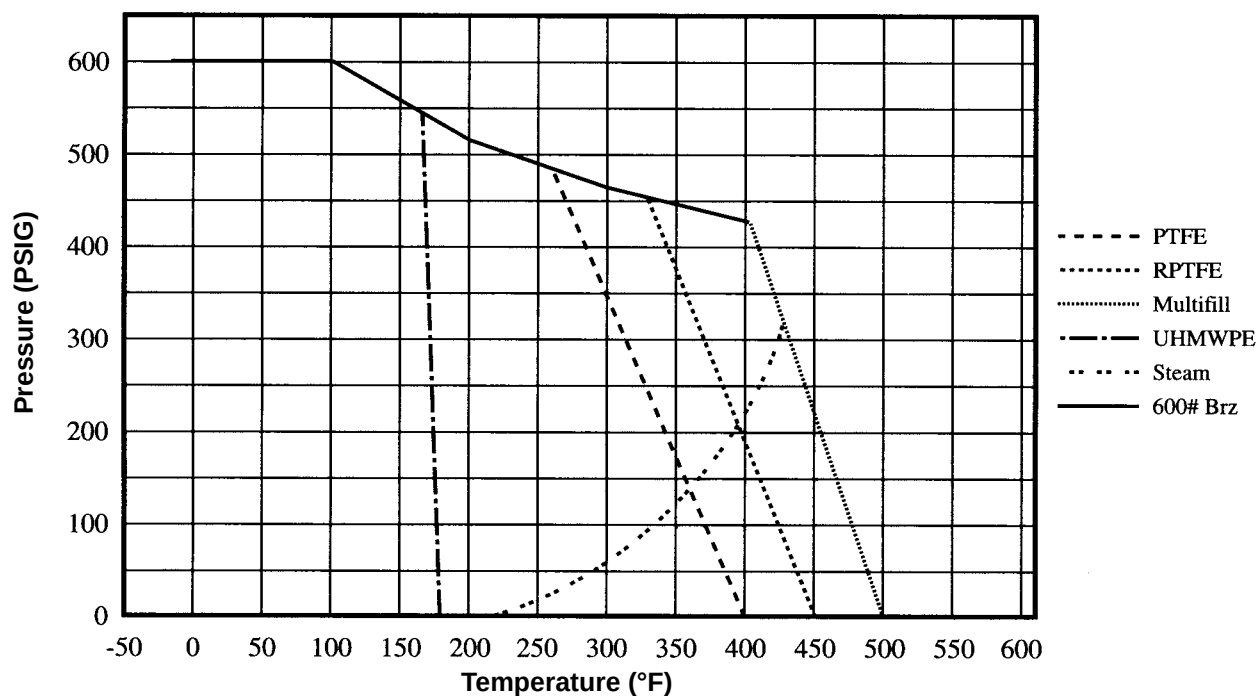


Ball Valves

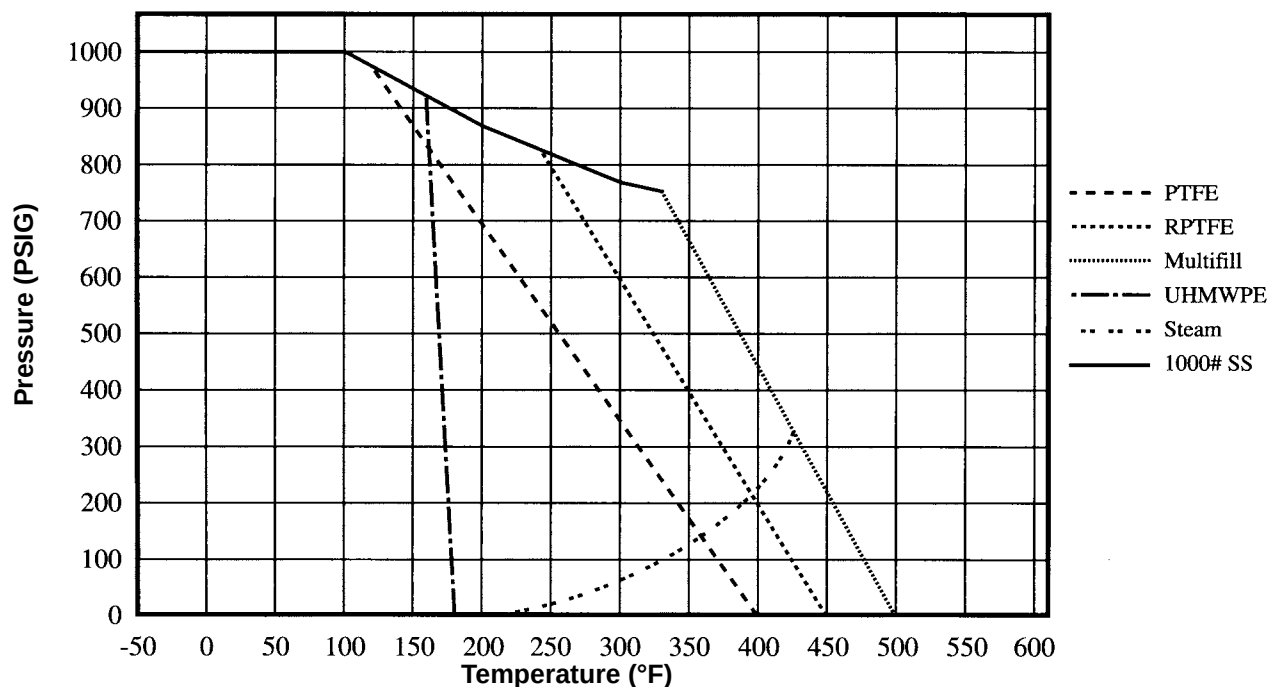


Apollo® Ball Valve Pressure-Temperature Graphs

600# Bronze P-T Rating (Graph 4)



1000# SS P-T Rating (Graph 8)



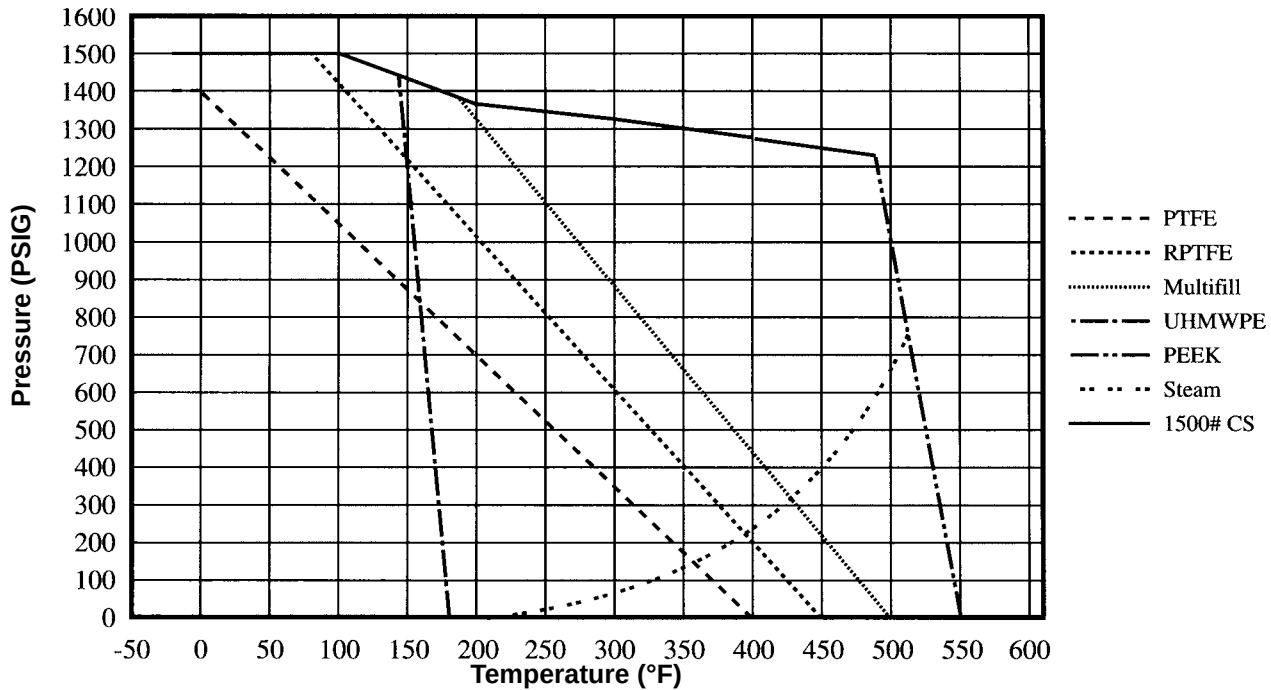


Ball Valves

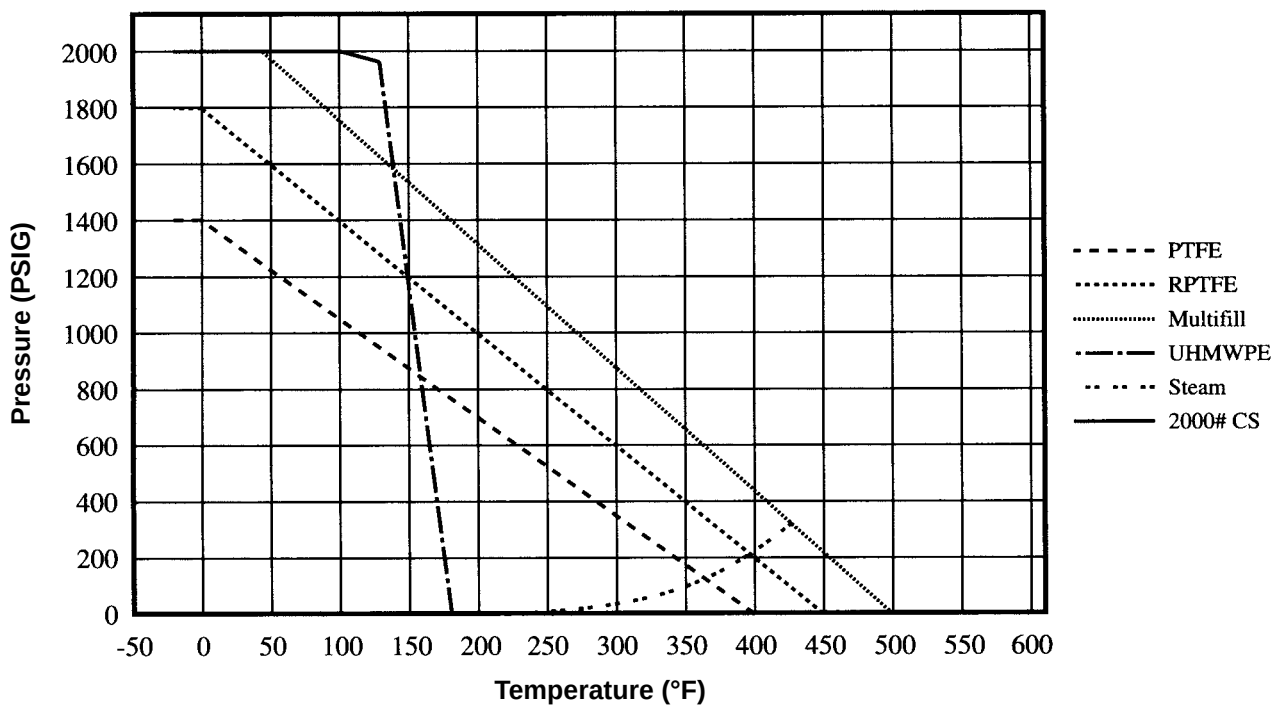


Apollo® Ball Valve Pressure-Temperature Graphs

51500# CS P-T Rating (Graph 11)



2000# CS P-T Rating (Graph 13)



Technical Information

Hydraulic Valves

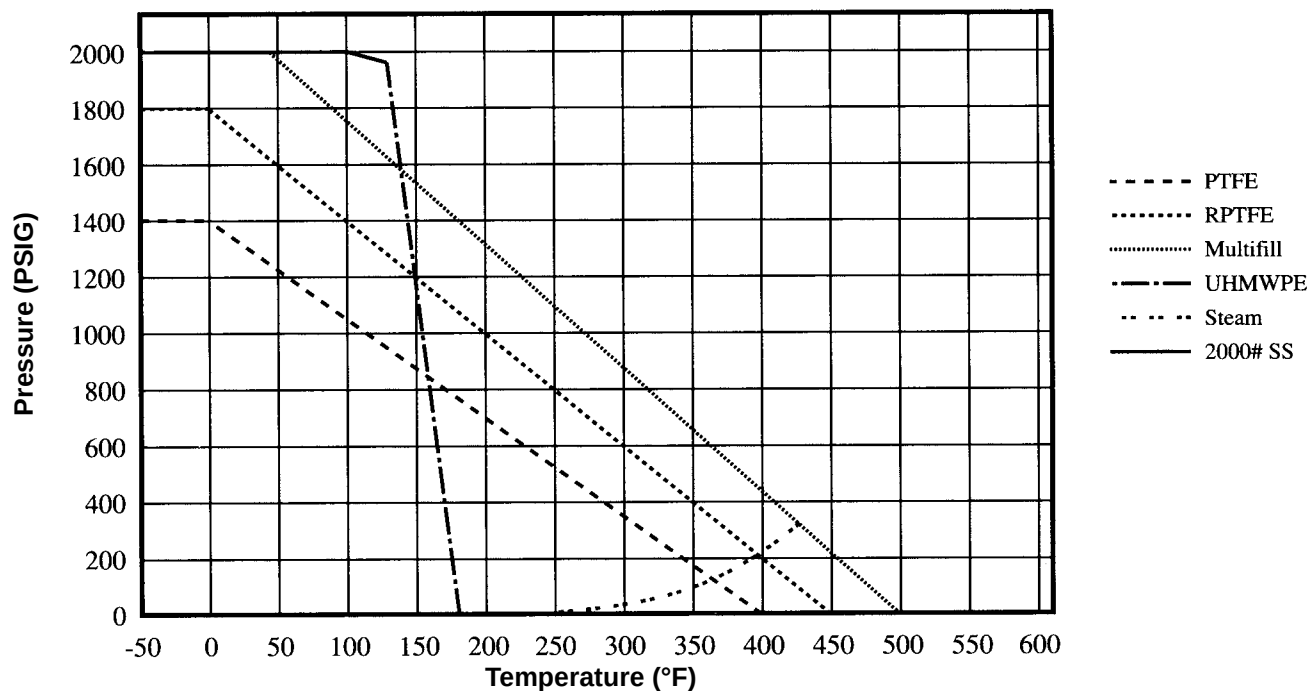


Ball Valves

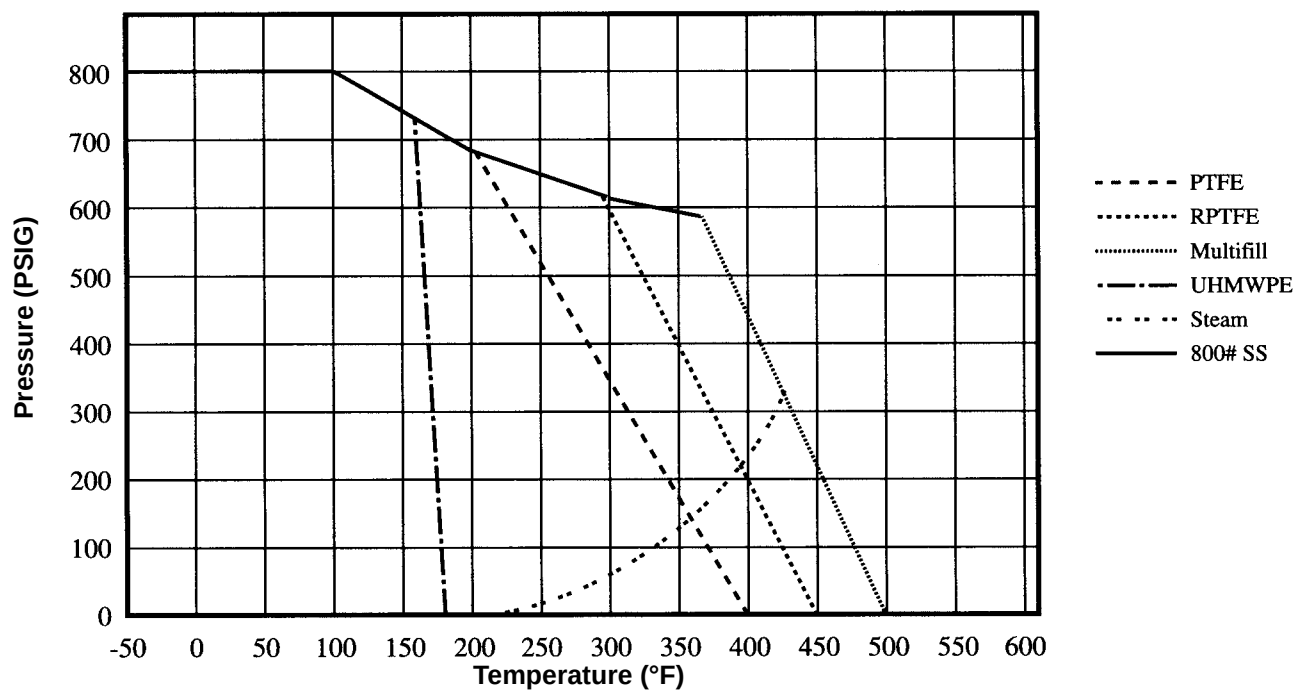


Apollo® Ball Valve Pressure-Temperature Graphs

2000# SS P-T Rating (Graph 14)



800# SS P-T Rating (Graph 21)



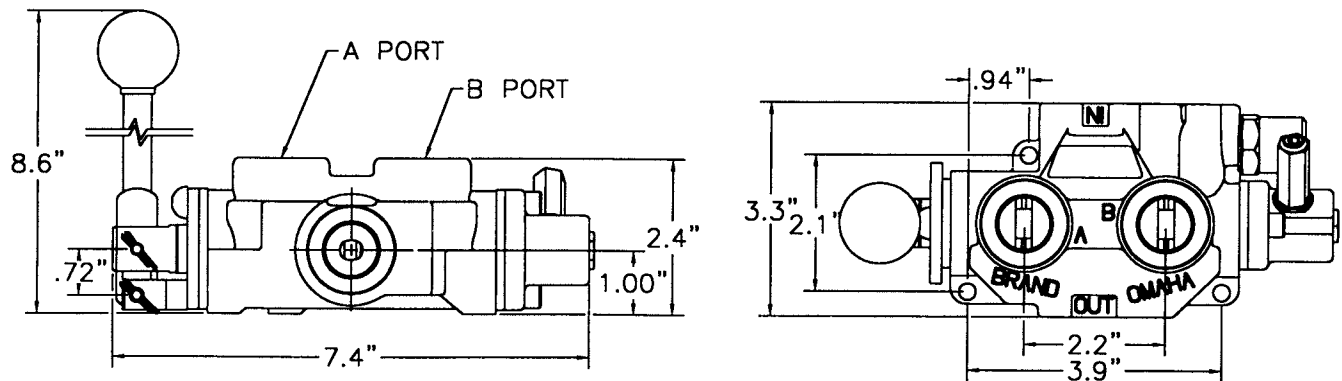


Technical Information Hydraulic Valves

Manually Operated 1-Spool Monoblock Valves Brand AO755 Series

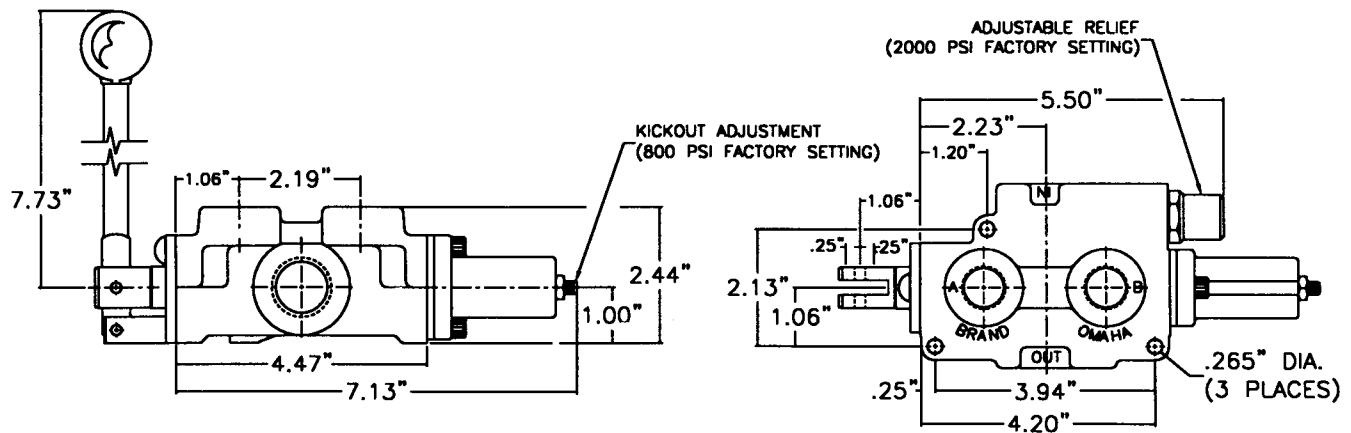


Brand AO755 Series Dimensions



Manually Operated 1-Spool Monoblock Valves Brand LS755 Series

Brand LS755 Series Dimensions





BRAND
HYDRAULICS

Hydraulic Power & Control



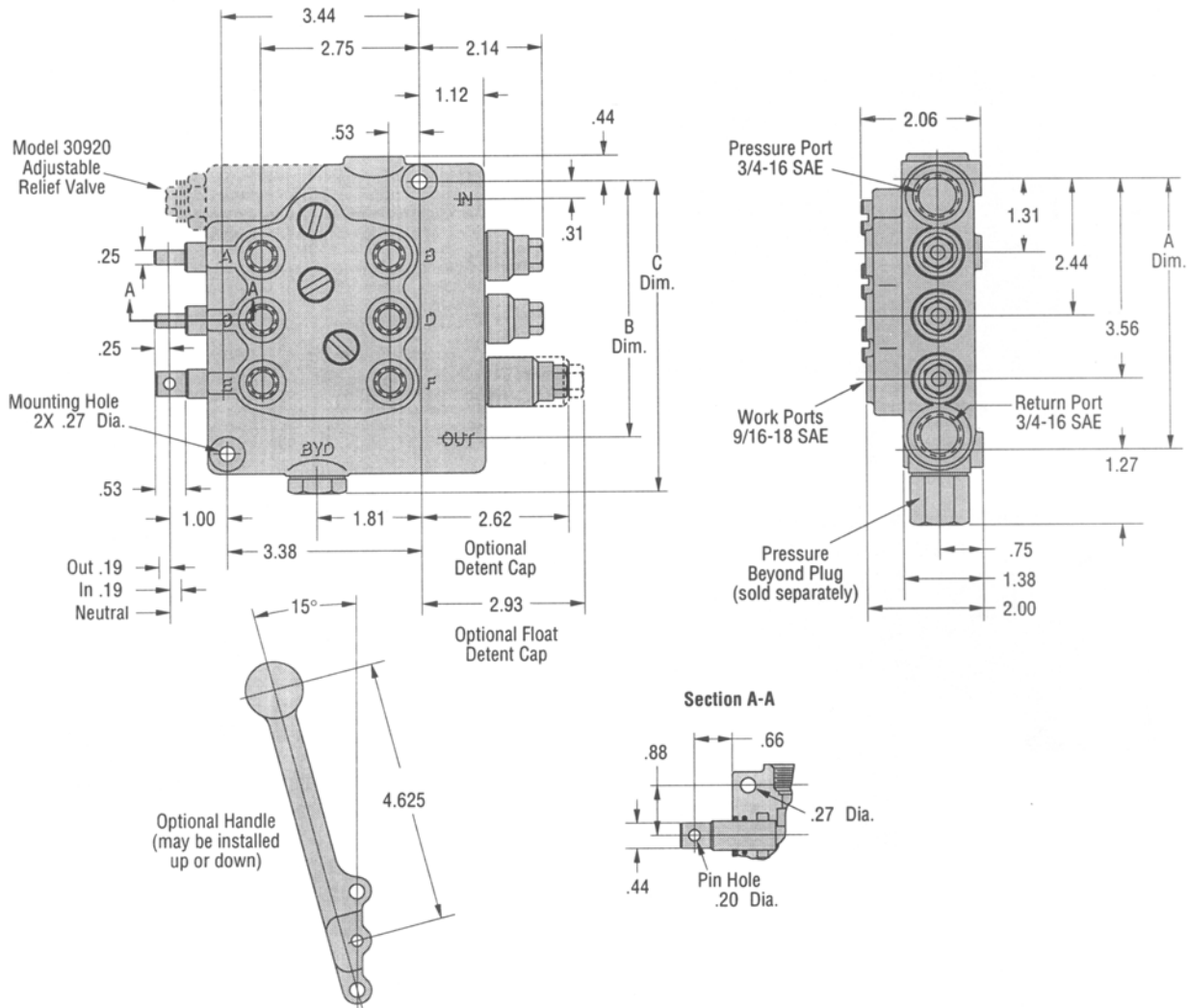


Technical Information Hydraulic Valves

1-2-3 Spool Monoblock Valves Eaton 30900 Series



Eaton 30900 Series Dimensions



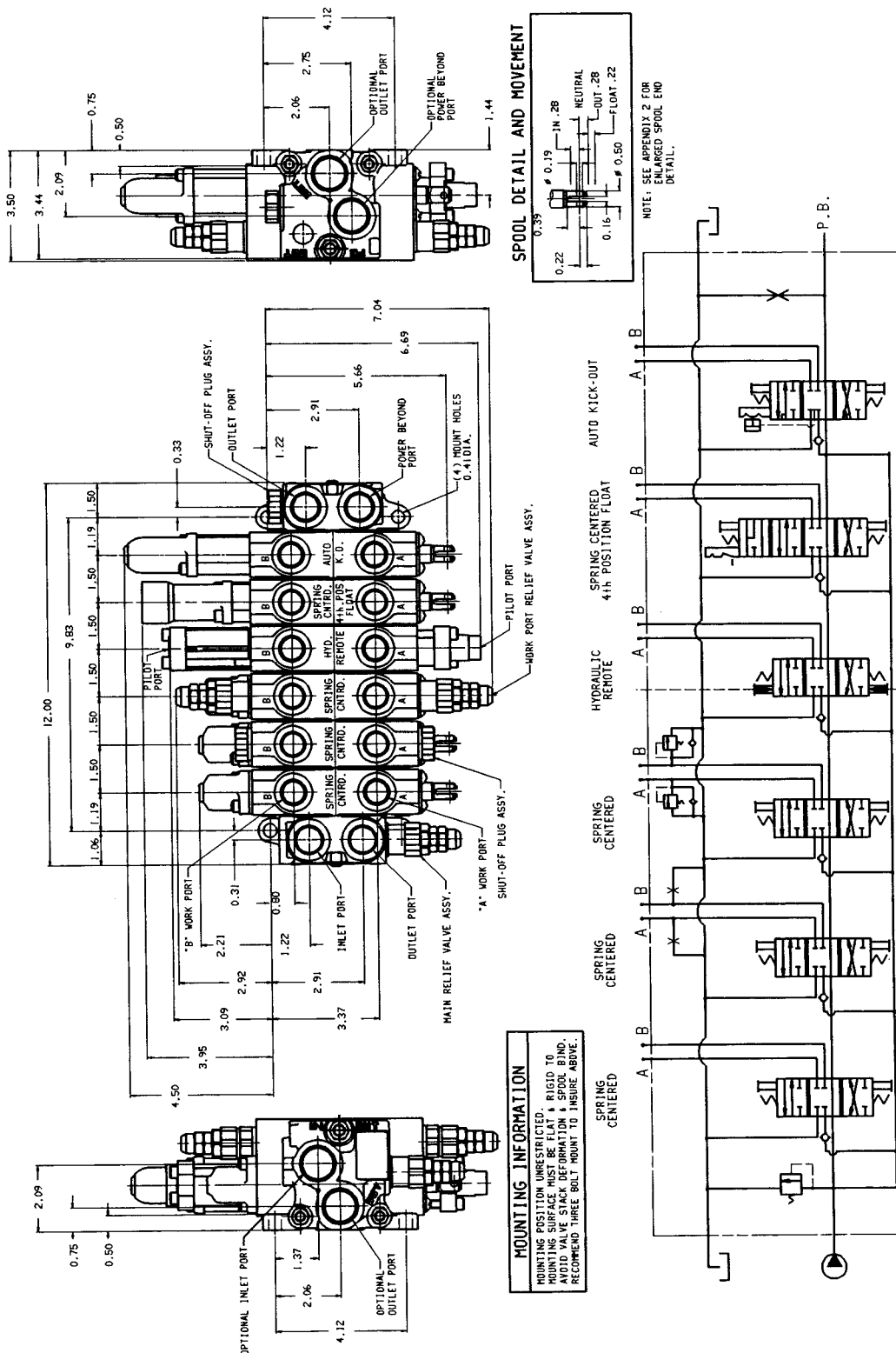
Technical Information Hydraulic Valves



Sectional Directional Control Valves for Open & Closed Center Circuits Husco Model 5000

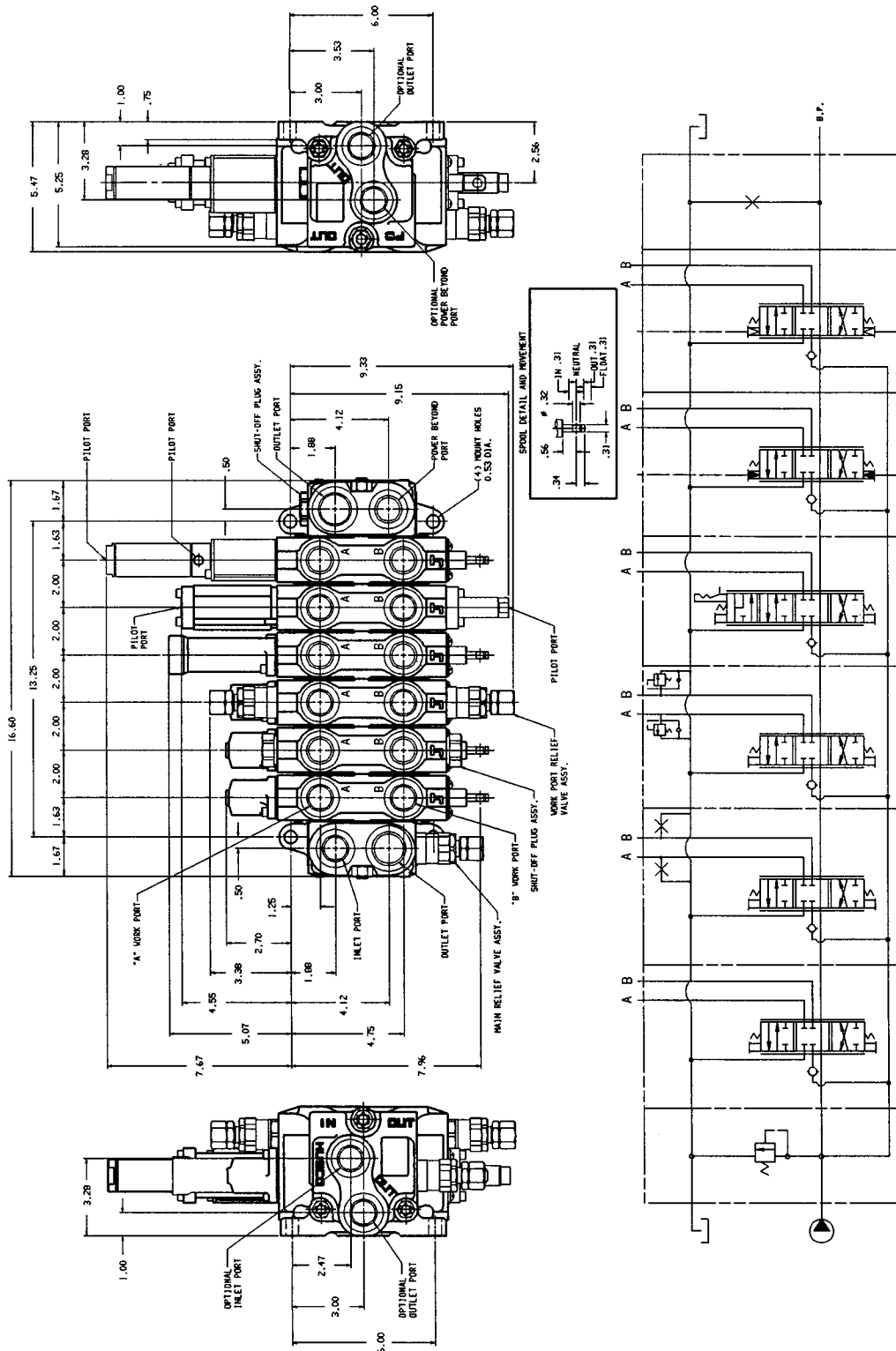
HUSCO
INTERNATIONAL

Husco Model 5000 Dimensions





HUSCO
INTERNATIONAL



Technical Information

Hydraulic Valves

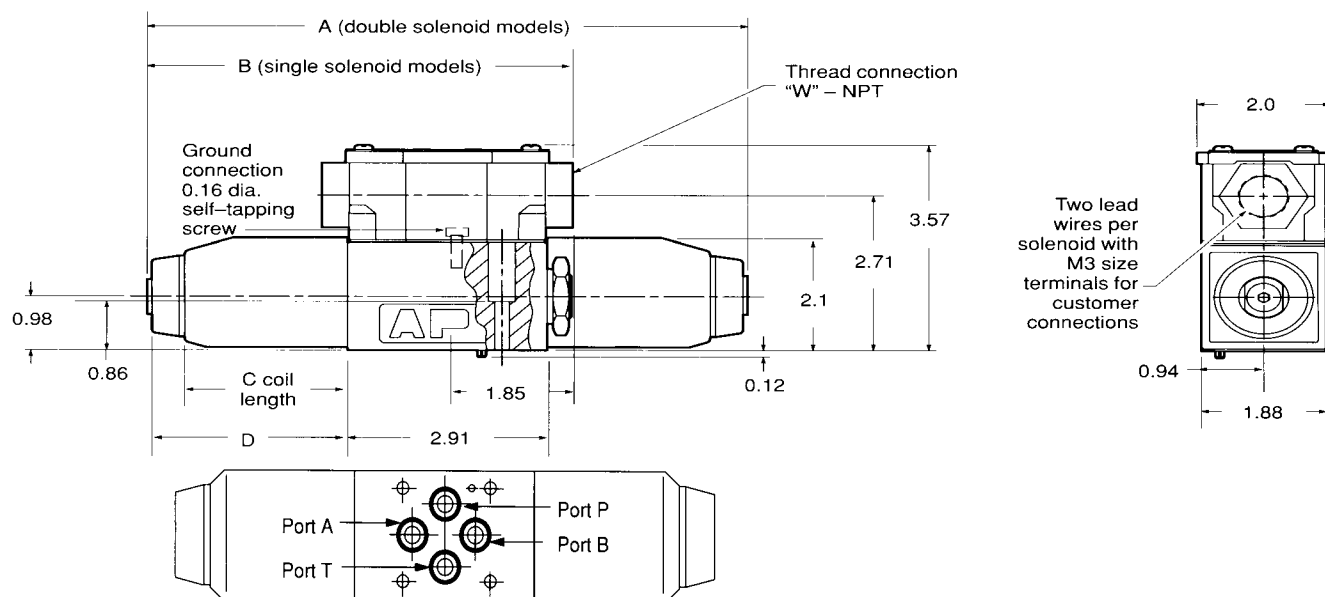


Solenoid Operated Subplate Mounted Valves Vickers DG4V-3 & DG4V-3S Series

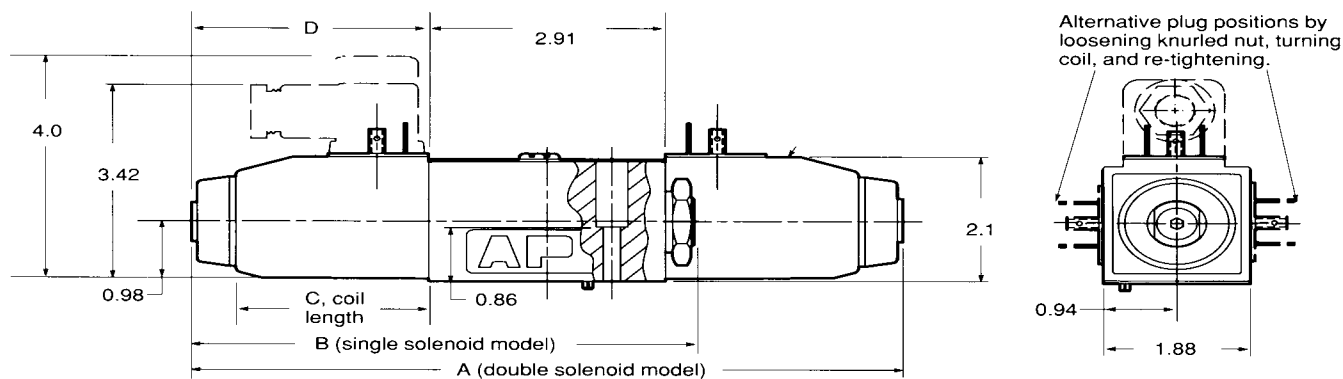


Vickers DG4V-3 & DG4V-3S Installation Dimensions

Models with "F" Type coils (lead wires) and conduit box



Models for use with ISO 4400 (DIN 43650) connectors





Technical Information Hydraulic Valves

Solenoid Operated Subplate Mounted Valves Vickers DG4V-3 & DG4V-3S Series

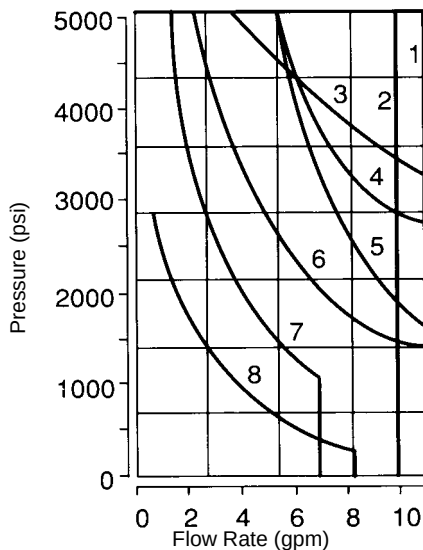


Vickers DG4V-3 & DG4V-3S Maximum Flow Rates

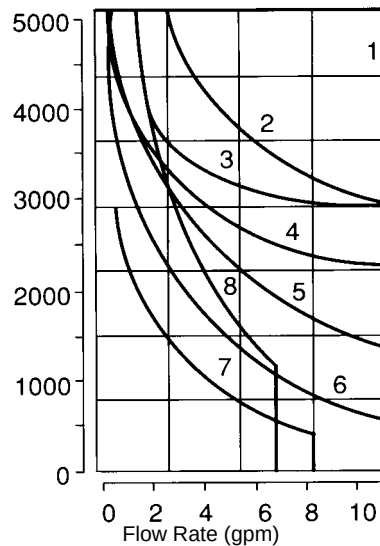
Performance based on standard full power solenoid coils warm and operating at 90% of rated voltage, with mineral oil at 168.6 SUS and a specific gravity of 0.87.

DG4V-3S Models (Standard Performance)

AC solenoid valves with dual frequency coils operating at 60 Hz



DC solenoid valves

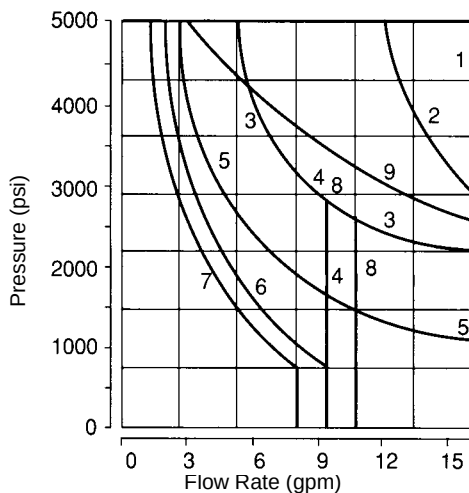


Spool / Spring Code	AC Curve	DC Curve
0A	1	3
0C	1	1
2A	5	3
2B, 2C	2	3
6A		
6B	6	5
8C	7▲	8▲

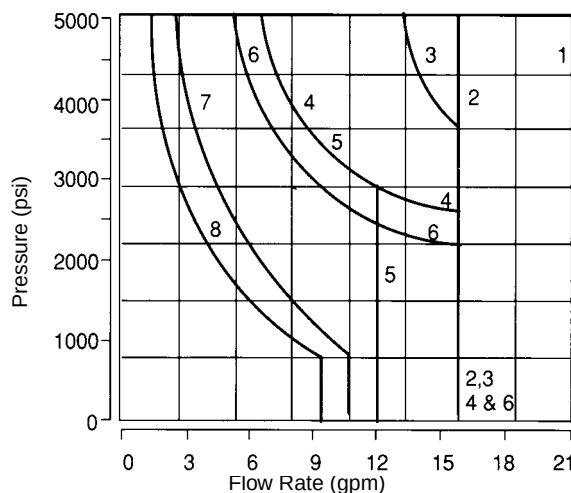
▲ Consult us if application has flow rate approaching this curve **and** a pressurized volume exceeding 122 cu. in.

DG4V-3 Models (High Performance)

AC solenoid valves with dual frequency coils operating at 60 Hz



DC solenoid valves



Spool Spring Code	AC Curve	DC Curve
0A	2	3
0C	1	2
2A	2	3
2B, 2C	1	1
6A		
6B	5	6
8C	4▲	5▲

▲ Consult us if application has flow rate approaching this curve **and** a pressurized volume exceeding 122 cu. in.



Technical Information

Hydraulic Valves



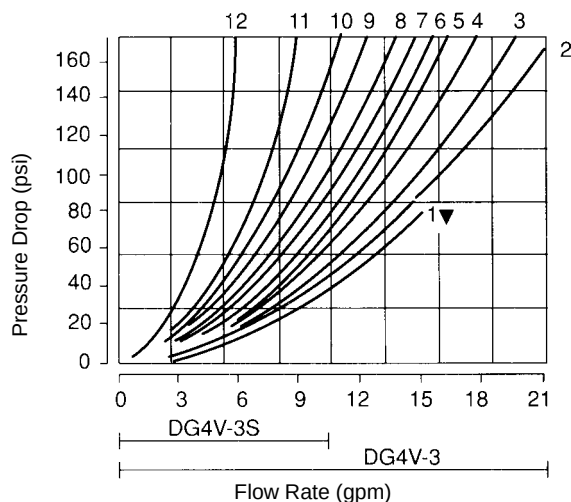
Solenoid Operated Subplate Mounted Valves

Vickers DG4V-3 & DG4V-3S Series



Vickers DG4V-3 & DG4V-3S Pressure Drop Curves

Performance typical with mineral oil at 168.6 SUS and a specific gravity of 0.87.



For other viscosities, pressure drops approximate to:

Viscosity (SUS)	% of Table Valve
75.0	81%
97.8	88%
200	104%
251	111%
302	116%
352	120%
399	124%

A change to another specific gravity will yield an approximately proportional change in pressure drop.

Pressure drops in offset positions except where otherwise indicated.

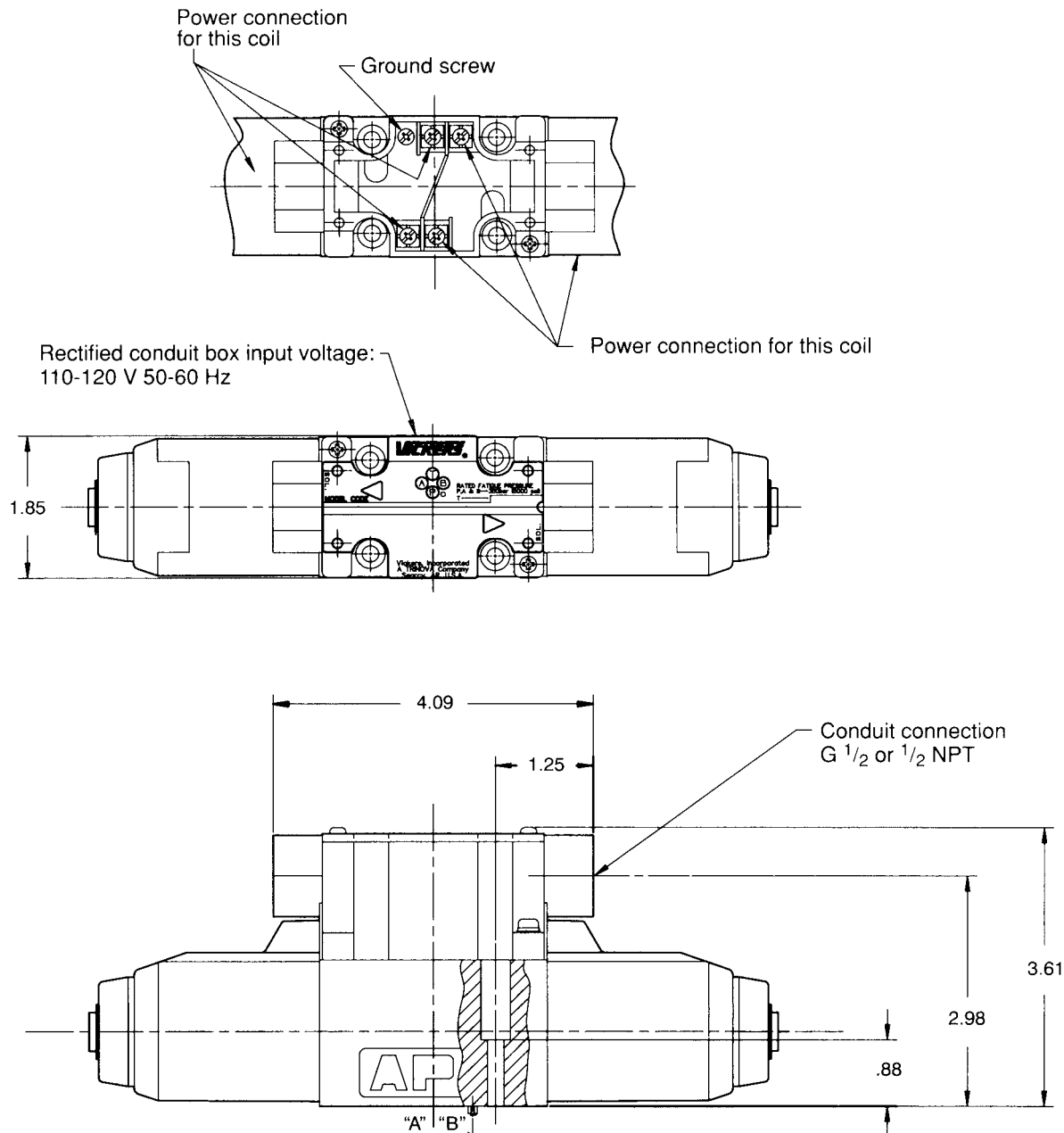
Spool / Spring Code	Spool Positions Covered	P to A	P to B	A to T	B to T	P to T	B to A or A to B
0A	Both	5	5	2	2	--	--
0C	De-Energized	--	--	--	--	4▲ Δ	--
0C	Energized	4	4	2	2	--	--
2A	Both	6	6	5	5	--	--
2B, 2C	Energized	5	5	2	2	--	--
6A							
6B, 6C	De-Energized	--	--	3▲	3 Δ	--	--
6B, 6C	Energized	6	6	1	1	--	--
8C	All	9	9	5	5	3	--

▲ "B" plugged Δ "A" plugged



Solenoid Operated Subplate Mounted Valves Vickers DG4V-3 & DG4V-3S Series Soft Shift

Vickers DG4V-3 & DG4V-3S Soft Shift Dimensions P12L Models with Rectifier in Terminal Box



Technical Information

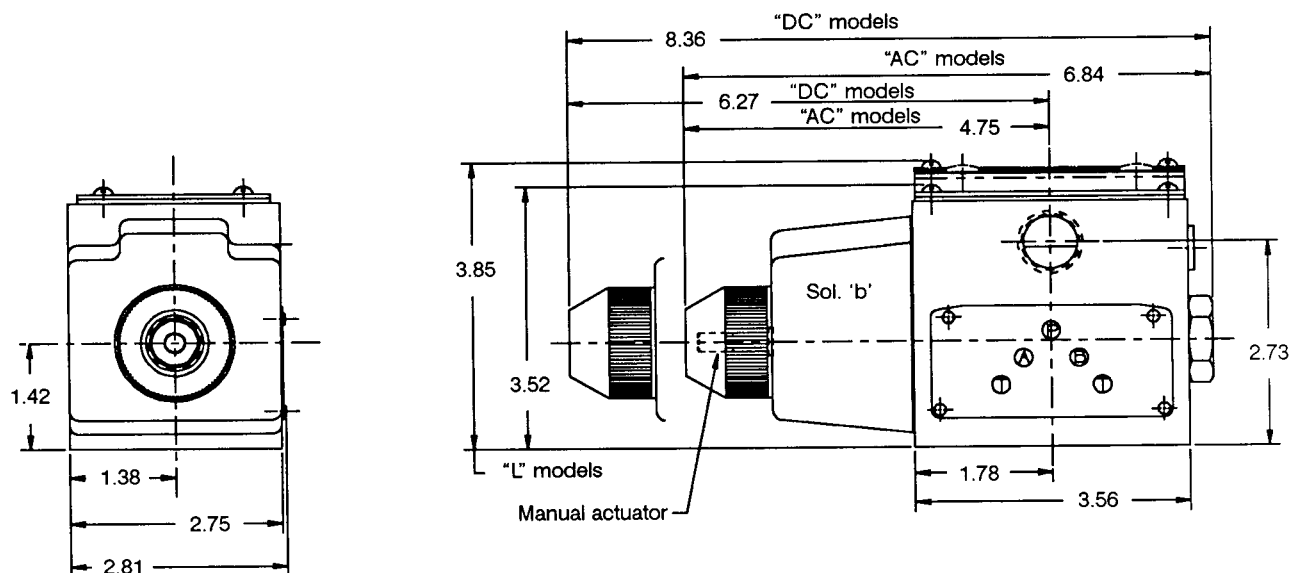
Hydraulic Valves



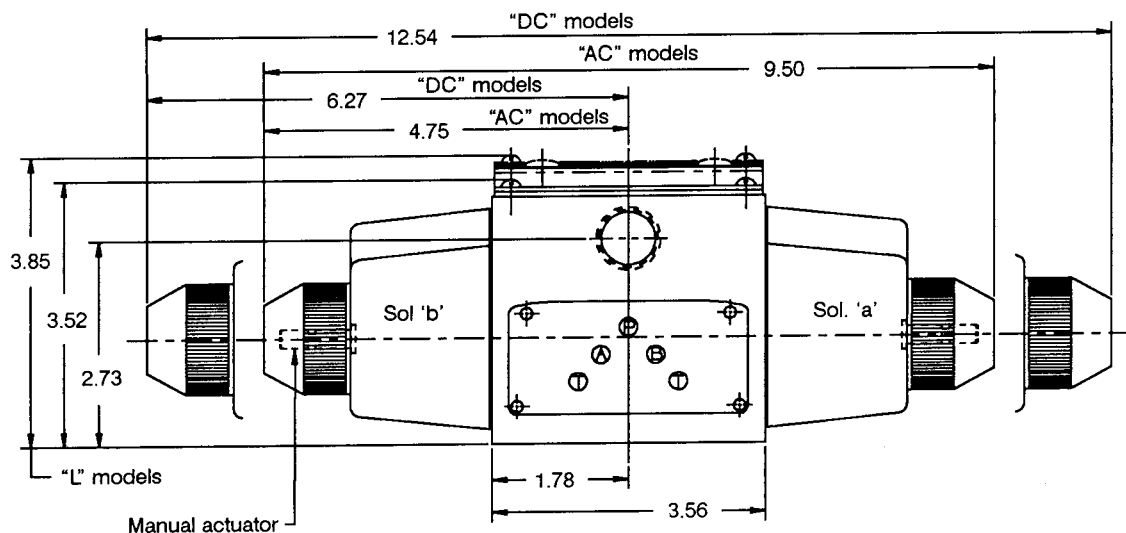
Solenoid Operated Subplate Mounted Valves Vickers DG4S-01 Series, -60 Design (Wet Armature)



Vickers DG4S-01 60 Series Installation Dimensions



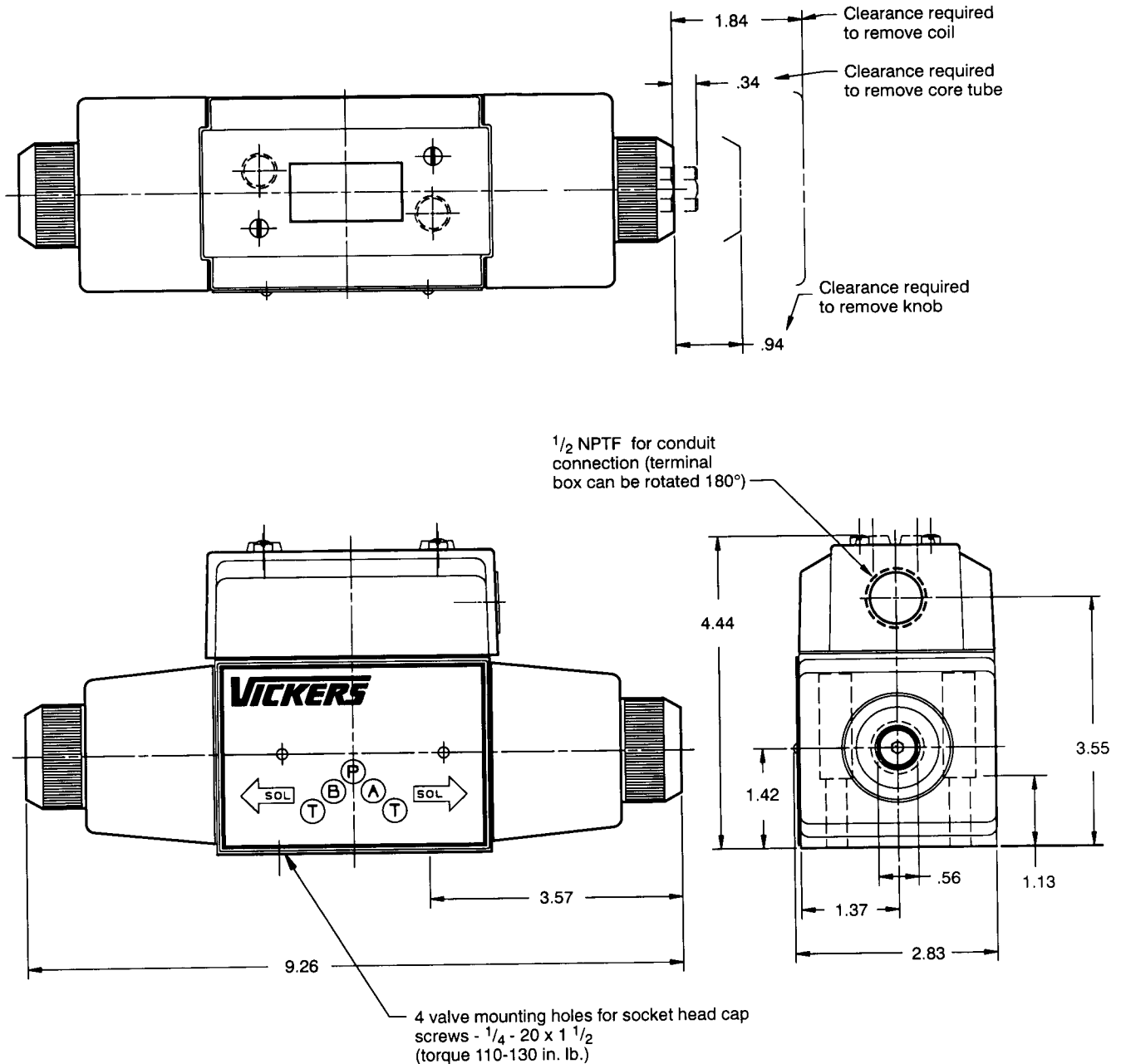
- "8B" right hand build model has solenoid 'b' on opposite end ("B" port end).



- "8C" models have solenoid designations reversed.

Solenoid Operated Subplate Mounted Valves Vickers DG4S-01 Soft-Shift Series, -60 Design

Vickers DG4S-01 60 Series Soft Shift Installation Dimensions



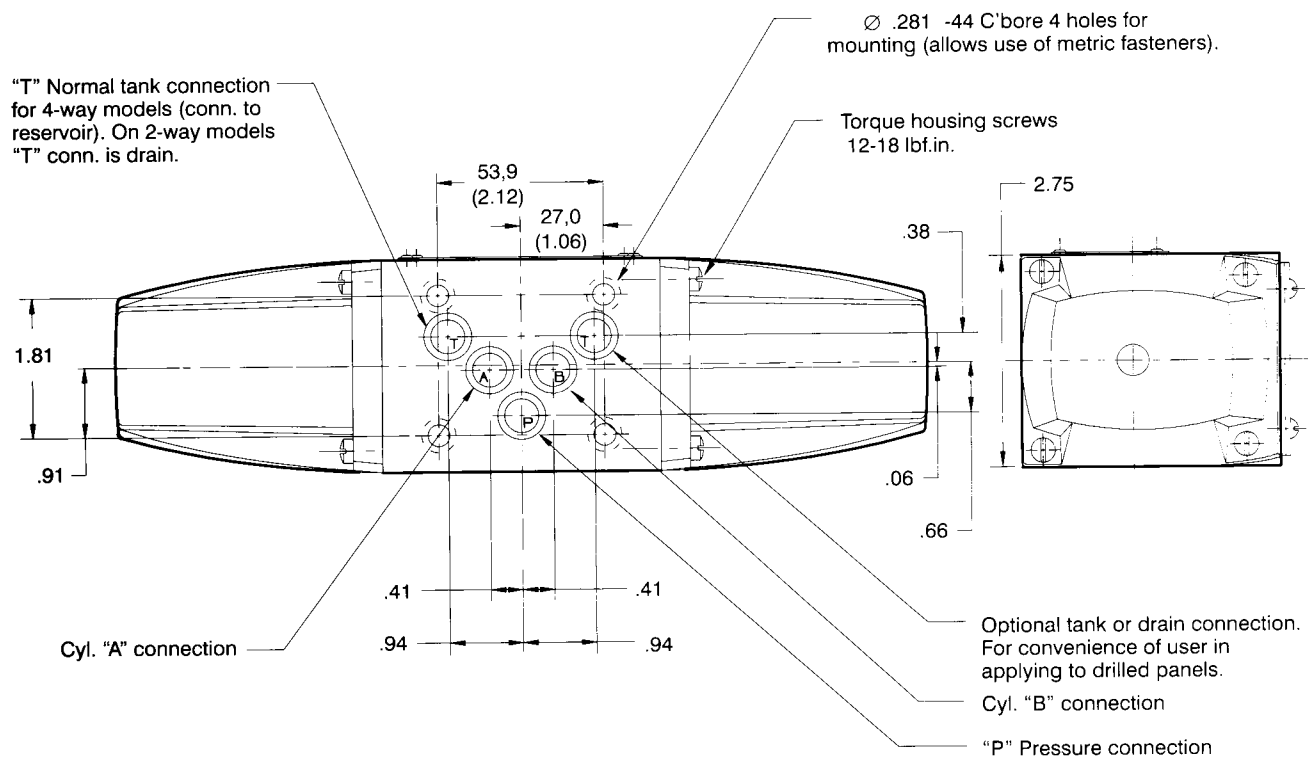
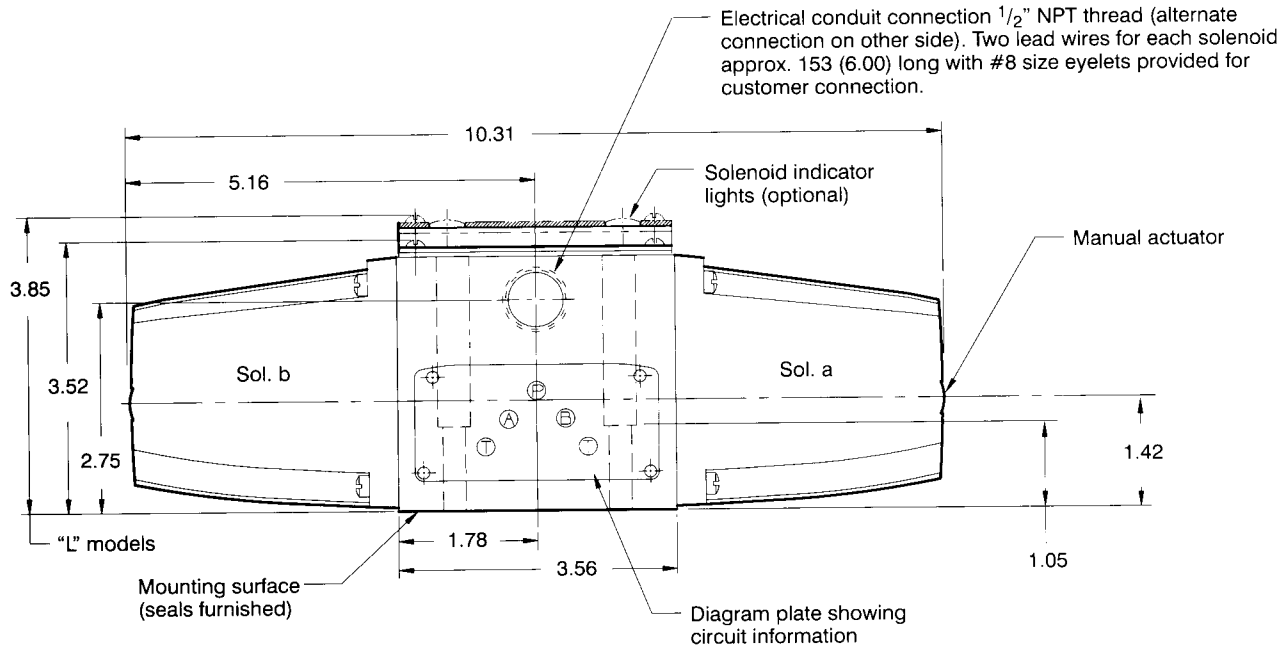
Technical Information Hydraulic Valves



Solenoid Operated Subplate Mounted Valves Vickers DG4S-01 Series, -50 Design (Air-Gap)



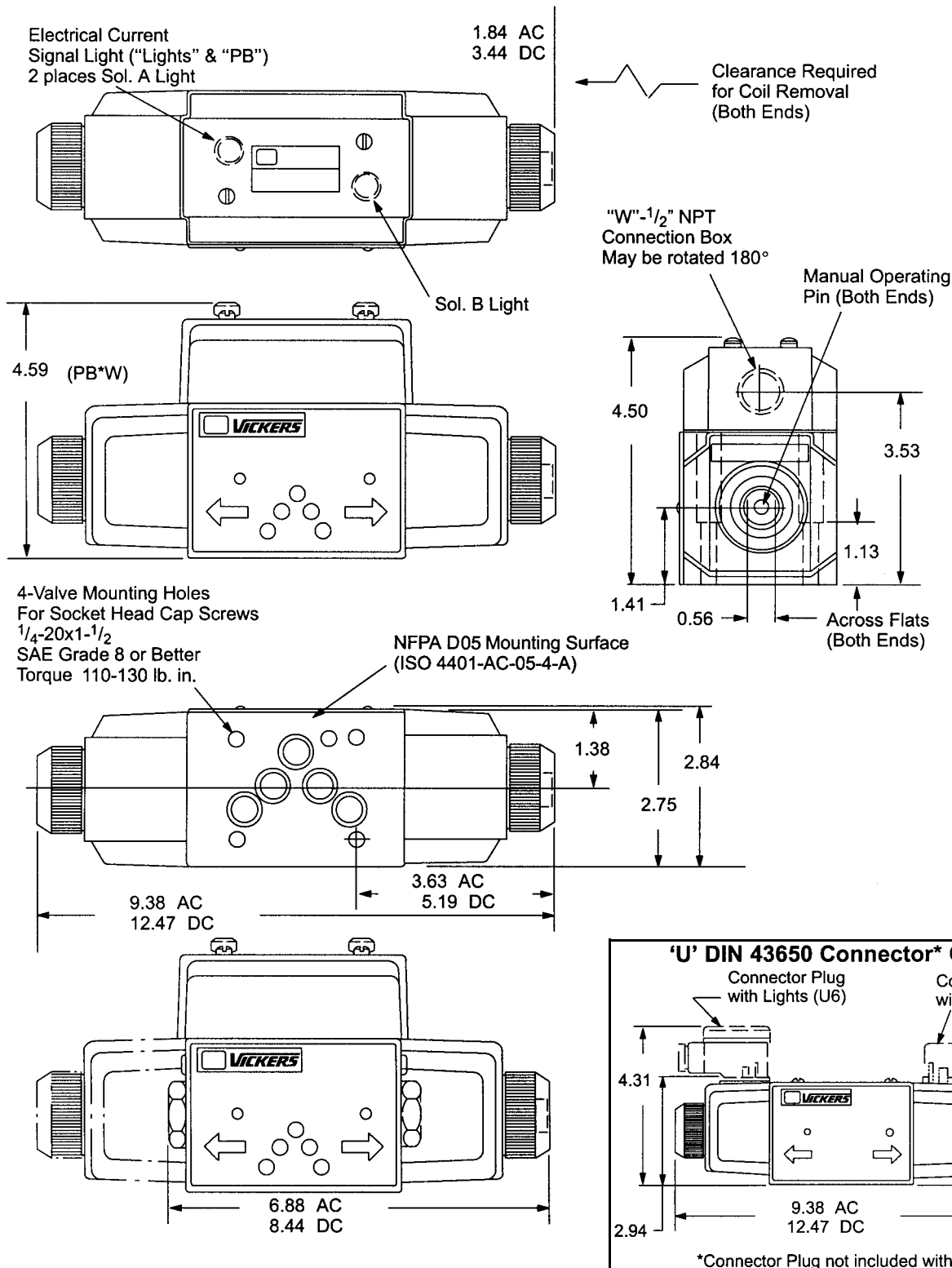
Vickers DG4S-01 50 Series Installation Dimensions



Solenoid Operated Subplate Mounted Valves Vickers DG4V4-01 10 Series

Vickers DG4V4-01 10 Series Installation Dimensions

Standard Conduit Box & 'PB' Insta-plug



Technical Information

Hydraulic Valves

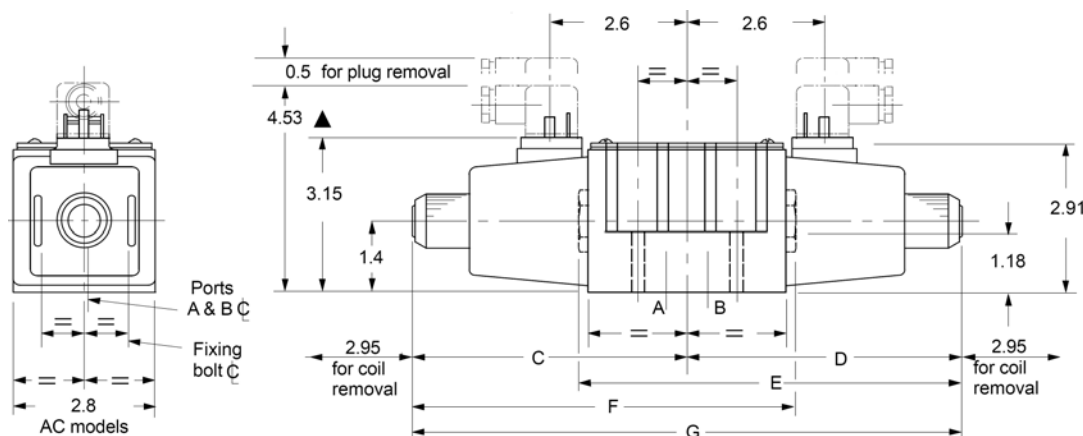


Solenoid Operated Subplate Mounted Valves Vickers DG4V-5 20 Series



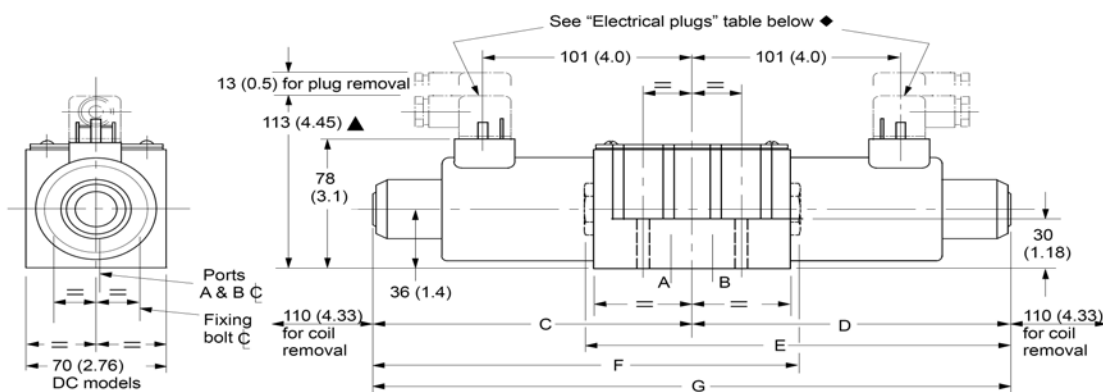
Vickers DG4V-5 20 Series Installation Dimensions

Models with AC Coils



Model	Solenoid at:	C	D	E	F	G
DG4V-5-*A(L)/B(L)-(-Z)-(V)M	Port A end	4.84	--	--	7.17	--
	Port B end	--	4.84	7.17	--	--
DG4V-5-*A(L)/B(L)-H2-(V)M	Port A end	5.43	--	--	8.78	--
	Port B end	--	5.43	8.78	--	--
DG4V-5-*A(L)/B(L)-P-(V)M	Port A end	4.84	--	--	7.68	--
	Port B end	--	4.84	7.68	--	--
DG4V-5-*C/N(-Z)-(V)M	Both ends	4.84	4.84	--	--	9.68
DG4V-5-*C/N-H-(V)M	Both ends	5.43	5.43	--	--	10.87

Models with DC Coils



Model	Solenoid at:	C	D	E	F	G
DG4V-5-*A(L)/B(L)-(-Z)-(V)M	Port A end	6.14	--	--	8.46	--
	Port B end	--	6.14	8.46	--	--
DG4V-5-*A(L)/B(L)-H2-(V)M	Port A end	7.28	--	--	10.63	--
	Port B end	--	7.28	10.63	--	--
DG4V-5-*A(L)/B(L)-P-(V)M	Port A end	6.14	--	--	8.98	--
	Port B end	--	6.14	8.98	--	--
DG4V-5-*C/N(-Z)-(V)M	Both ends	6.14	6.14	--	--	12.28
DG4V-5-*C/N-H-(V)M	Both ends	7.28	7.28	--	--	14.57





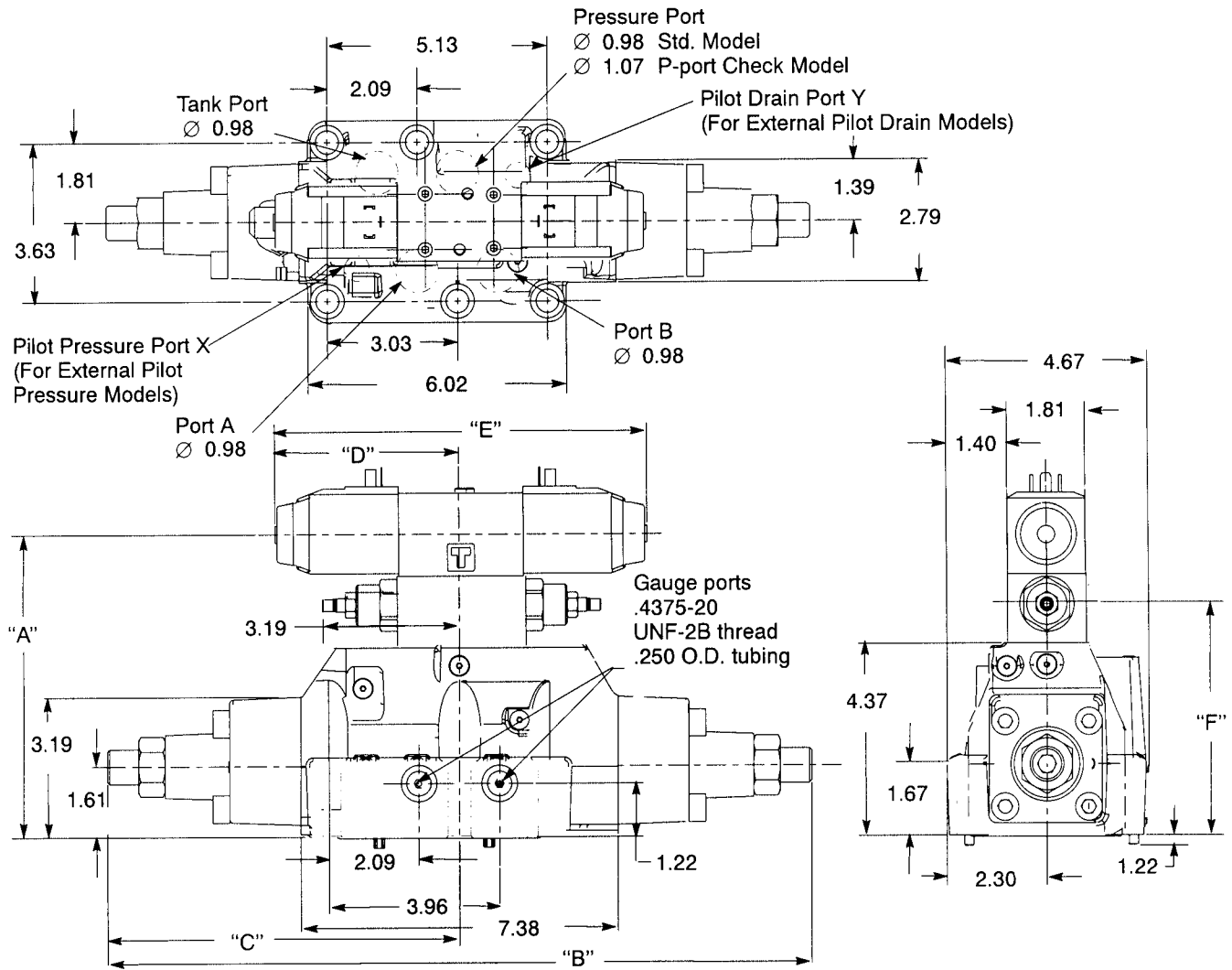
Technical Information

Hydraulic Valves

Solenoid Operated Subplate Mounted Valves Vickers DG5V-8 Series



Vickers DG5V-8 Installation Dimensions



Technical Information

Hydraulic Valves



Solenoid Operated Subplate Mounted Valves

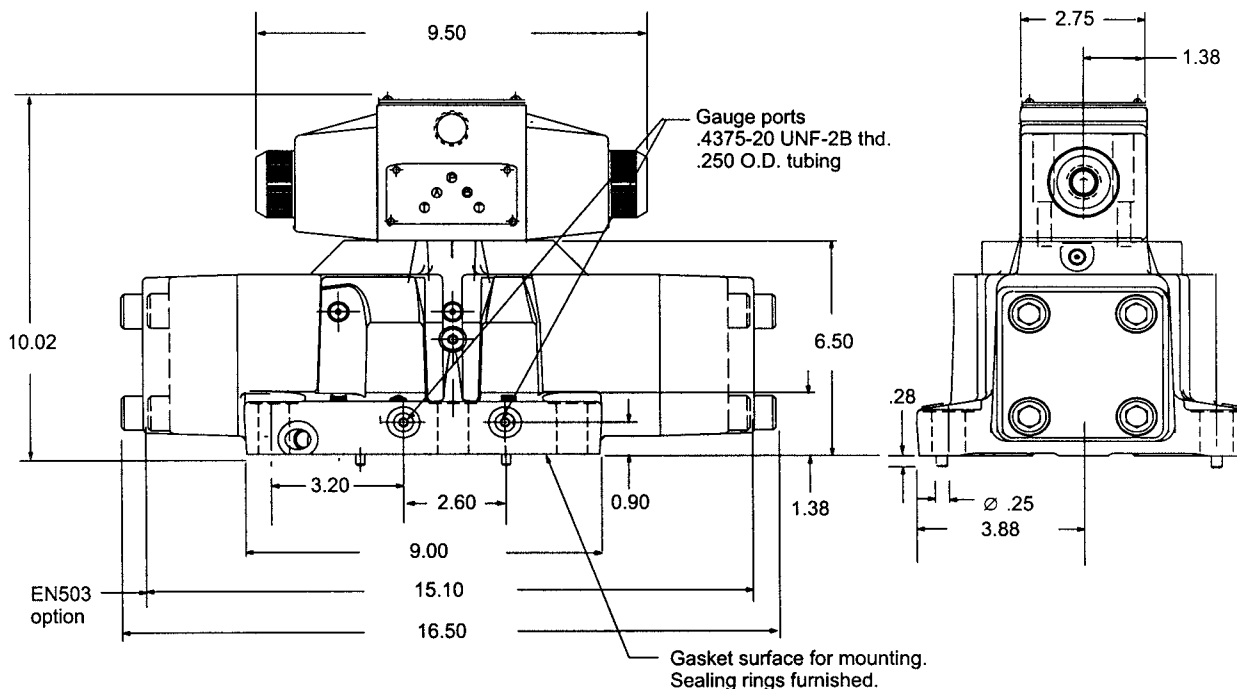
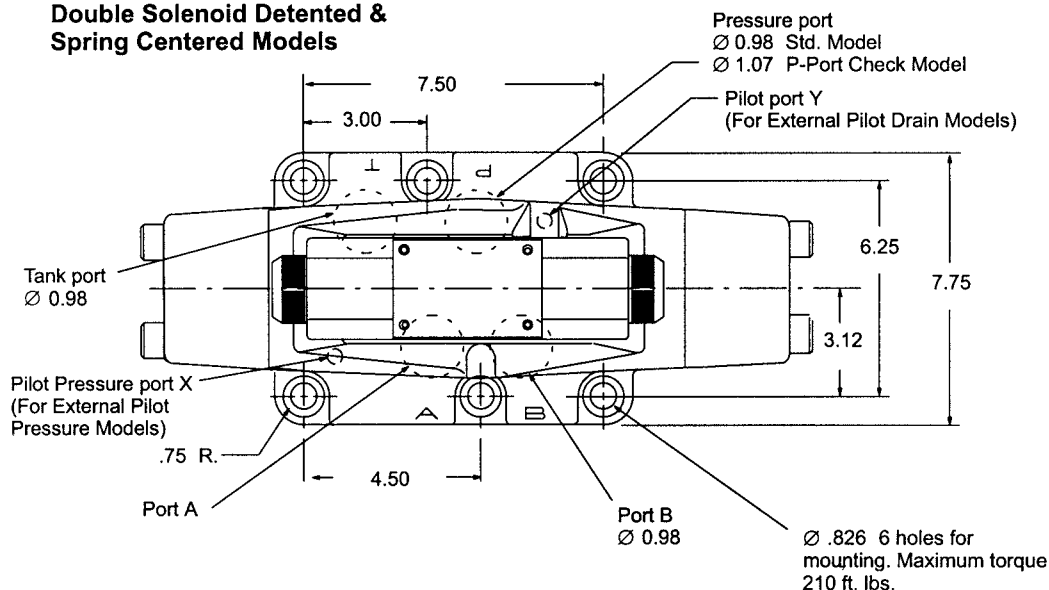
Vickers DG5V-10 Series



Vickers DG5V-10 Series Installation Dimensions

DG5V-102C-WB-10

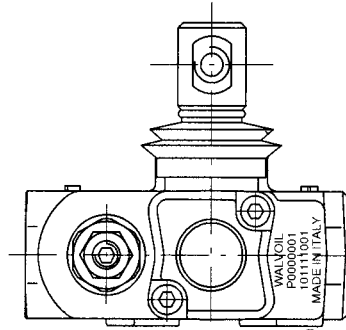
Double Solenoid Detented & Spring Centered Models



Sectional Directional Control Valves for Open & Closed Center Circuits Walvoil SD4 Series

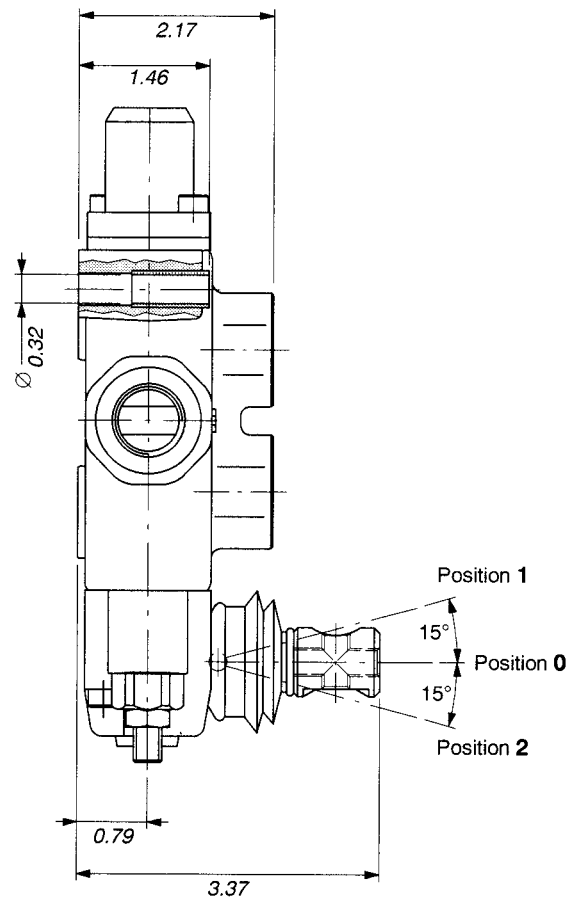
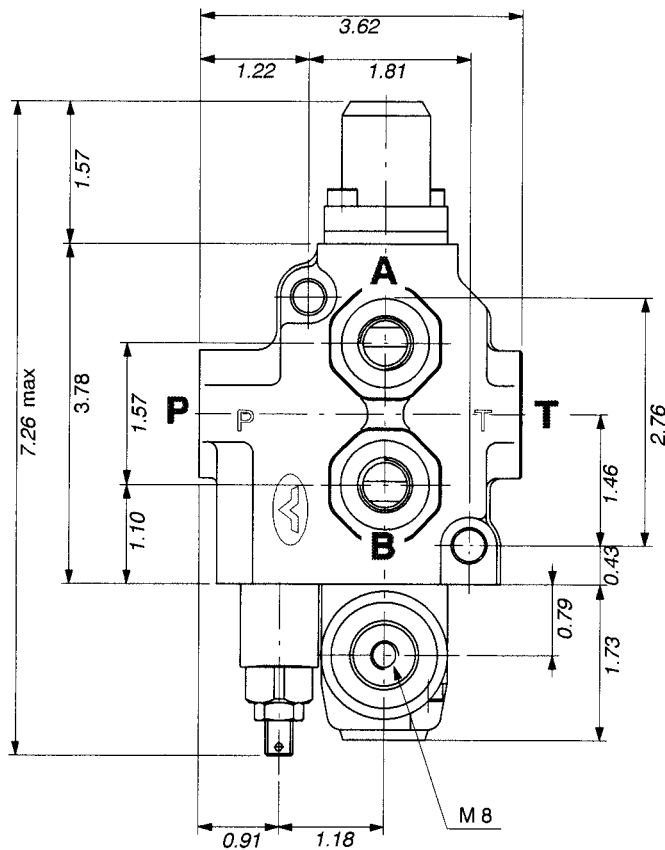


Walvoil SD4 Series Dimensional Data



WALVOIL
P0000001
101111001
MADE IN ITALY

- Production batch :
P00 = production year (2000)
00001 = progressive number
- Valve code



Standard Threads

Port	UN-UNF (ISO 11926-1)
Inlet P	3/4-16 (SAE-8)
A and B Ports	9/16-18 (SAE-6)
Outlet T	3/4-16 (SAE-8)

Technical Information

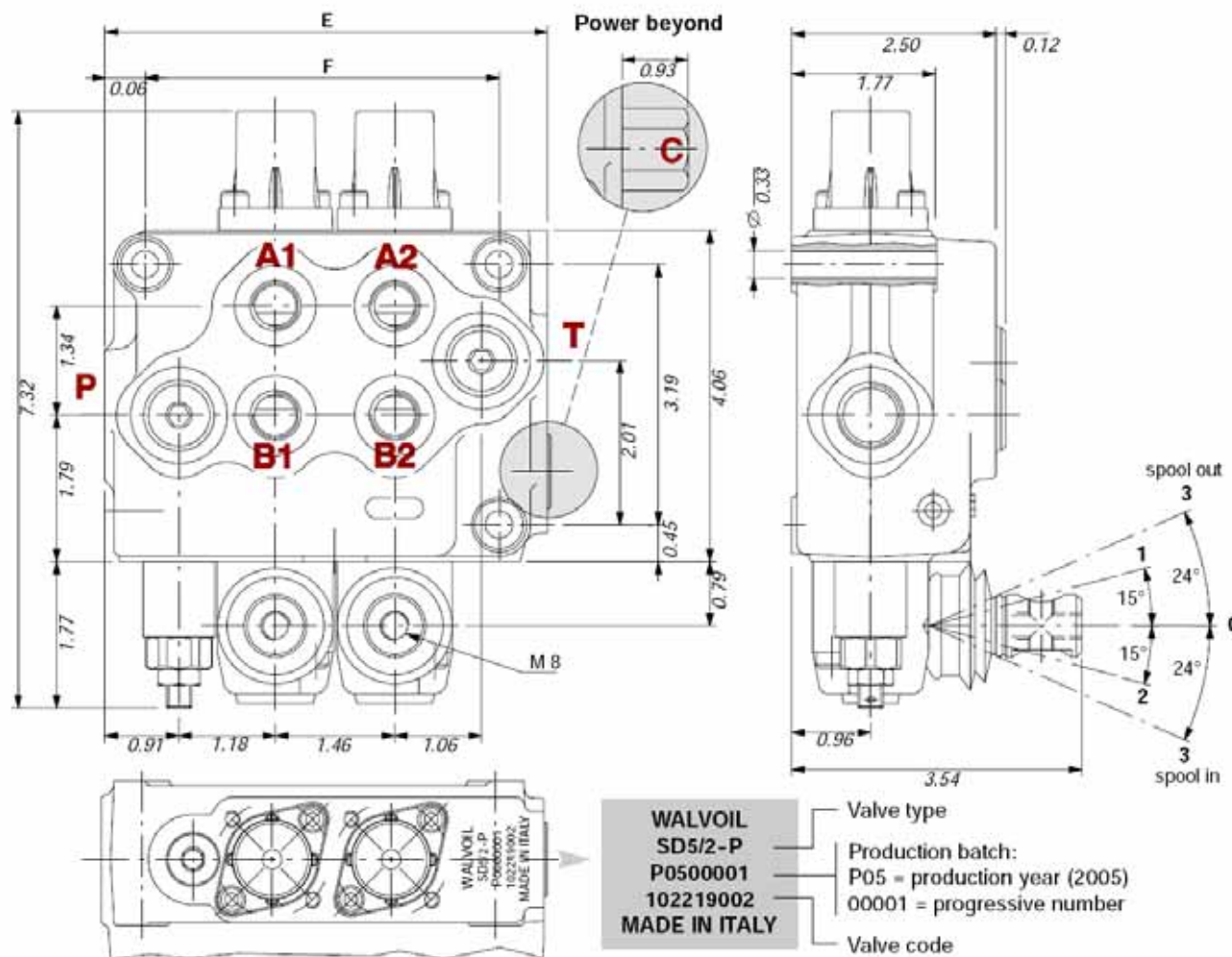
Hydraulic Valves



Sectional Directional Control Valves for Open & Closed Center Circuits Walvoil SD5 Series



Walvoil SD5 Series Dimensional Data



Standard Threads

Working Spools	E (in)	F (in)
1	3.96	2.87
2	5.41	4.33
3	6.87	5.79
4	8.33	7.24
5	9.78	8.70
6	11.24	10.16
7	12.70	11.61

Port	UN-UNF (ISO 11926-1)
Inlet P	3/4-16 (SAE-8)
A and B Ports	9/16-18 (SAE-6)
Outlet T and Power Beyond C	3/4-16 (SAE-8)
Pilot Ports (Hydraulic)	9/16-18 (SAE-6)
Pilot Ports (Pneumatic)	1/8-27 NPTF





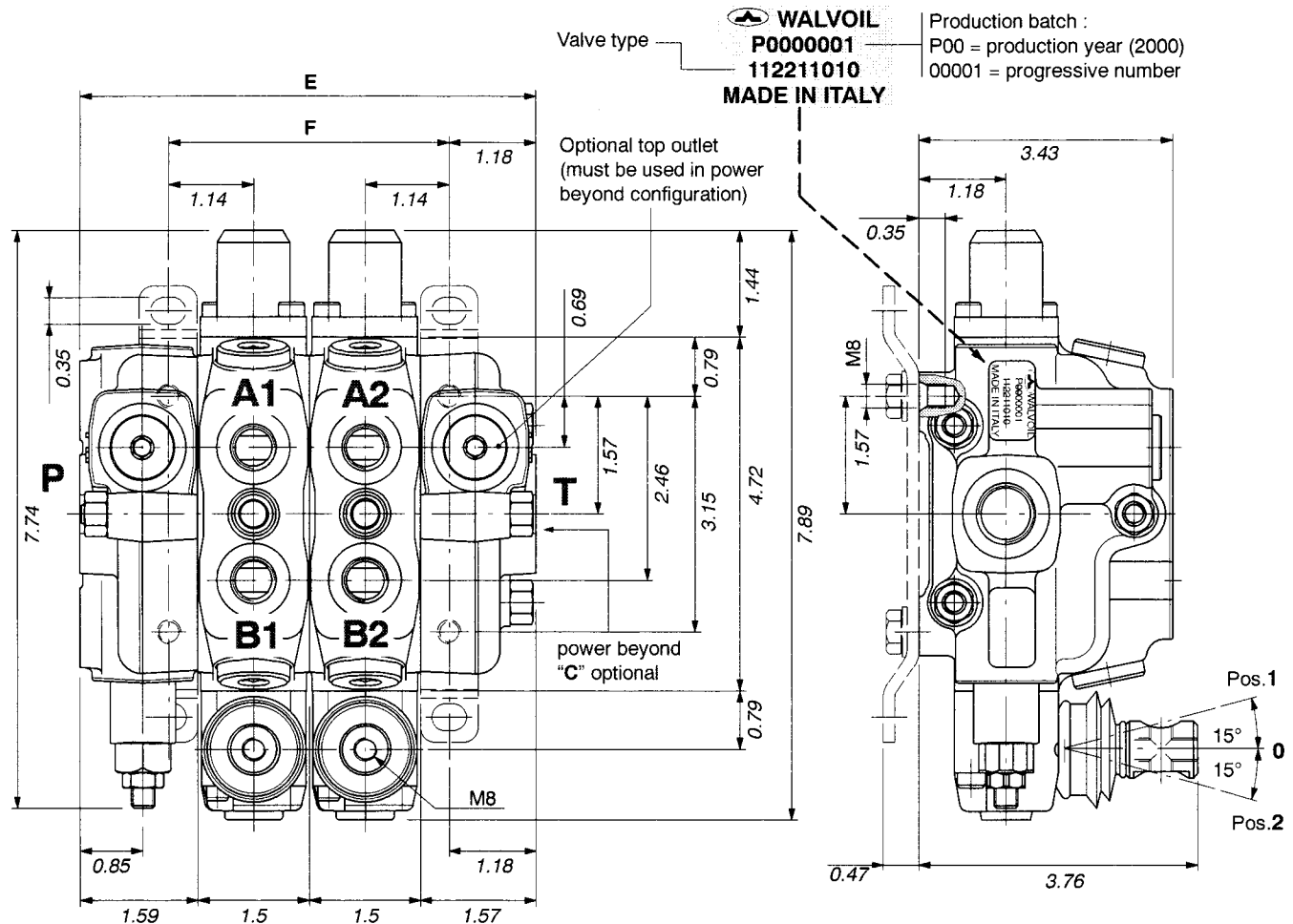
Technical Information

Hydraulic Valves

Sectional Directional Control Valves for Open & Closed Center Circuits Walvoil SD6 Series



Walvoil SD6 Series Dimensional Data (Parallel and Tandem Circuit)



Standard Threads

Working Sections	E (in)	F (in)
1	4.66	2.28
2	6.16	3.78
3	7.66	5.28
4	9.15	6.77
5	10.65	8.27
6	12.15	9.76
7	13.65	11.26
8	15.15	12.76
9	16.65	14.26
10	18.15	15.76
11	19.65	17.26
12	21.15	18.76

Port	UN-UNF (ISO 11926-1)
Inlet P	3/4-16 (SAE-8)
A and B Ports	9/16-18 (SAE-6)
Outlet T and Power Beyond C	3/4-16 (SAE-8)
Pilot Ports (Hydraulic)	9/16-18 (SAE-6)
Pilot Ports (Pneumatic)	1/8-27 NPTF

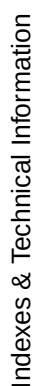


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Working Sections	E (in)	F (in)
1	5.04	3.23
2	6.65	4.84
3	8.27	6.46
4	9.88	8.07
5	11.5	9.69
6	13.11	11.3
7	14.72	12.91
8	16.33	14.52
9	17.94	16.13
10	19.55	17.74
11	21.16	19.35
12	22.77	20.96

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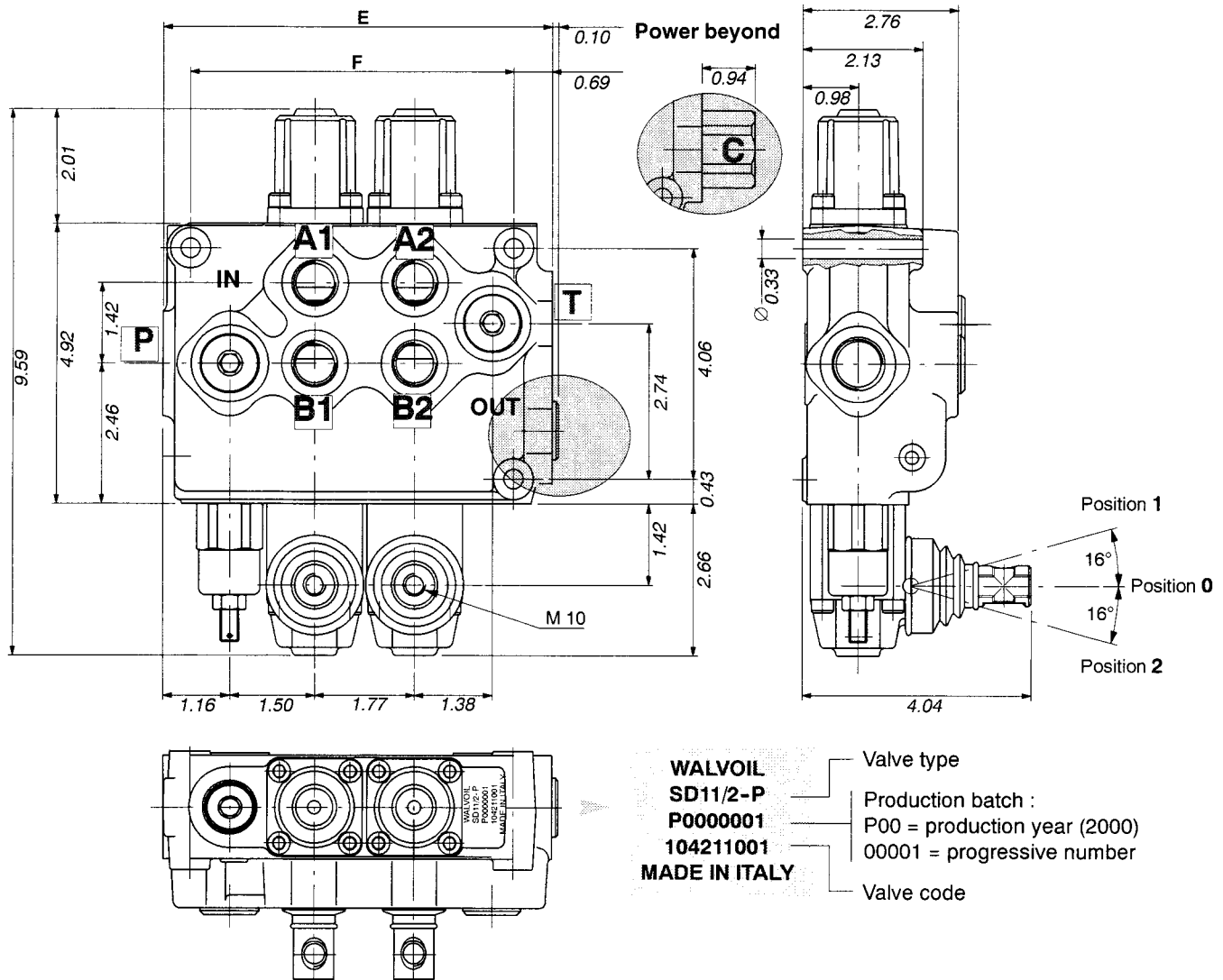
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Sectional Directional Control Valves for Open & Closed Center Circuits Walvoil SD11 Series



Walvoil SD11 Series Dimensional Data (Parallel Circuit)



Standard Threads

Working Sections	E (in)	F (in)
1	5.12	3.94
2	6.87	5.71
3	8.64	7.48
4	10.41	9.25
5	12.19	11.02
6	13.96	12.79

Port	UN-UNF (ISO 11926-1)
Inlet P and Power Beyond C	7/8-14 (SAE-10)
A and B Ports	3/4-16 (SAE-8)
Outlet T	7/8-14 (SAE-10)
Pilot Ports (Hydraulic)	9/16-18 (SAE-6)
Pilot Ports (Pneumatic)	1/8-27 NPTF

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HYDRAULIC CONTROL SYSTEMS

Hydraulic Power & Control



Fluid Conveying

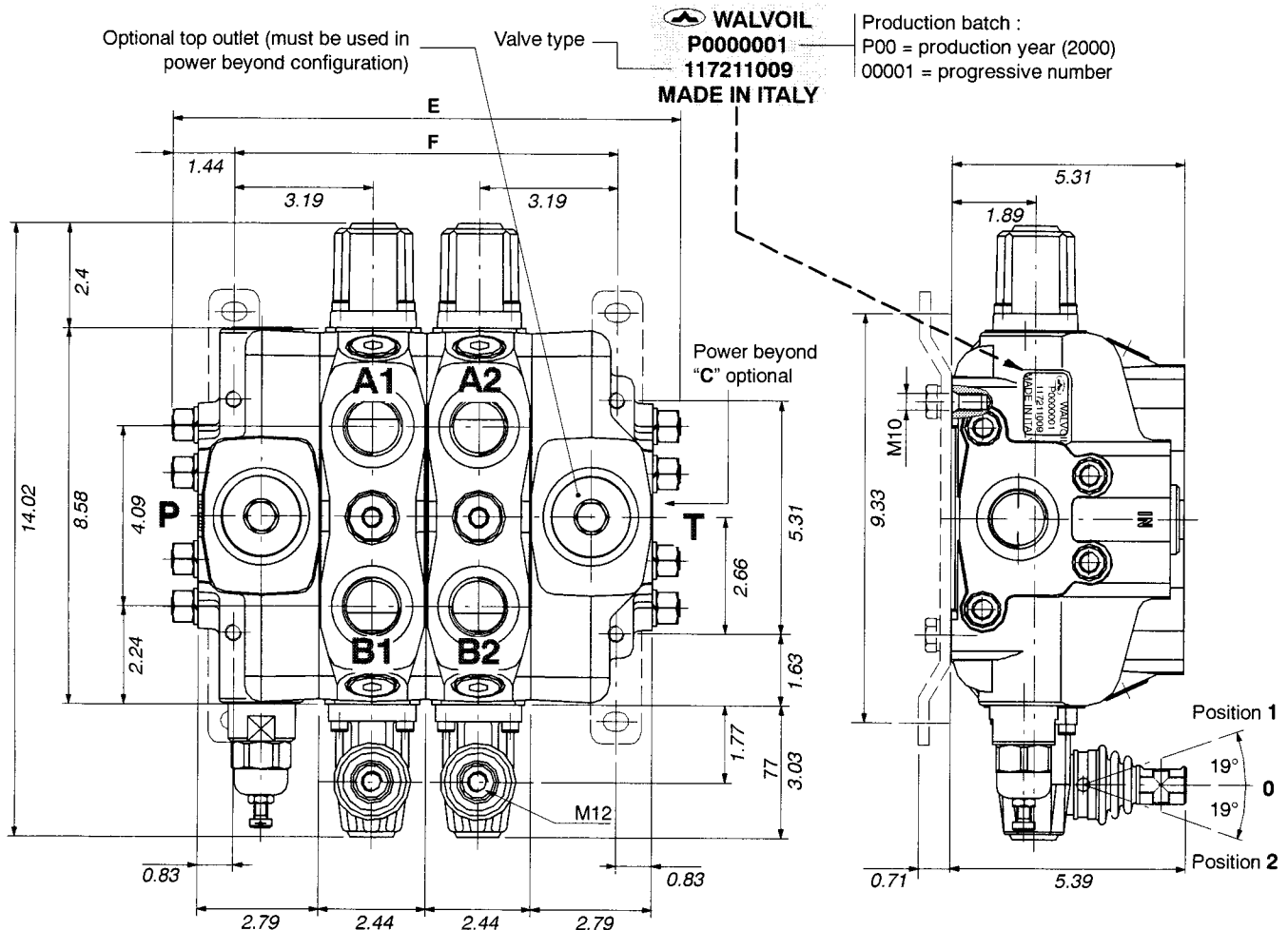
Miscellaneous Products

Indexes & Technical Information

Sectional Directional Control Valves for Open & Closed Center Circuits Walvoil SD25 Series



Walvoil SD25 Series Dimensional Data (Parallel Circuit)



Standard Threads

Working Sections	E (in)	F (in)
1	9.25	6.38
2	11.69	8.82
3	14.13	11.26
4	16.57	13.70
5	19.02	16.14
6	21.46	18.58
7	23.90	21.02
8	26.34	23.46
9	28.78	25.90
10	31.22	28.34
11	33.66	30.78
12	36.10	33.22

Port	UN-UNF (ISO 11926-1)
Inlet P	1-5/8-12 (SAE-20)
A and B Ports	1-5/16-12 (SAE-16)
Outlet T and Power Beyond C	1-5/8-12 (SAE-20)
Pilot Ports (Hydraulic)	9/16-18 (SAE-6)
Pilot Ports (Pneumatic)	1/8-27 NPTF

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waltvoil
HYDRAULIC CONTROL SYSTEMS

Hydraulic Power & Control



Working Sections	E (in)	F (in)
1	6.06	2.80
2	7.83	4.57
3	9.61	6.34
4	11.40	8.11
5	13.20	9.88
6	14.90	11.70
7	16.70	13.40
8	18.50	15.20
9	20.20	17.00
10	22.00	18.70
11	23.80	20.50
12	25.60	22.30

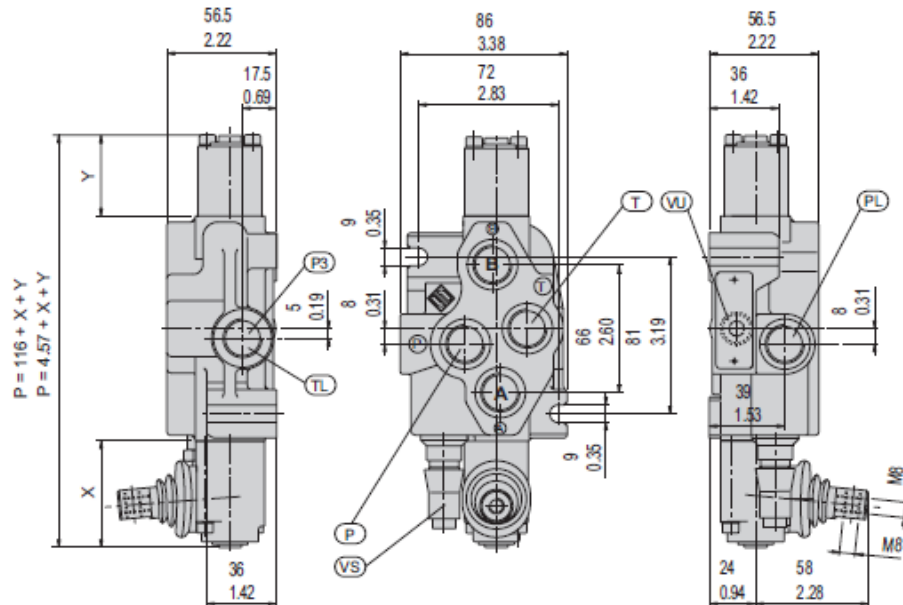
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Salami VDM6 Dimensions

DIMENSIONS FOR 1 SECTION MONOBLOCK

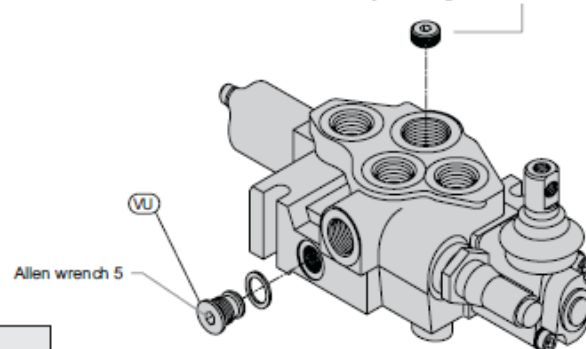


The parametric dimension "P" depends on a fixed dimension of 116 mm (4.57 in.) to which you have to add the "X" and "Y" dimensions that you can find in the spool controls and spool positionings pages. In this monoblock the main relief valve can be assembled only on "A" side.

INDEX:

- P** = top inlet port
- PL** = side inlet port
- P3** = side outlet port for power beyond
- T** = top outlet port
- TL** = side outlet port
- A/B** = work ports
- VS** = main relief valve (adjustable)
- VU** = load check valve

The one working section monoblock is always pre-arranged for power beyond just adding a dowel 3/8" - 18 NPTF



Weight = 2.8 Kg - 6.17 lb.

PORT SIZES	P - PL - TL1 - P3	T - TL	A - B
BSP ISO 228	G 3/8	G 1/2	G 3/8
SAE ISO 176	SAE#8 3/4 - 16 UNF	SAE#10 7/8 - 14 UNF	SAE#8 3/4 - 16 UNF
ISO 262 - ISO 6149	M 18 x 1.5	M 22 x 1.5	M 18 x 1.5
BSPF JIS B 2351	G 3/8	G 1/2	G 3/8

Technical Information

Hydraulic Valves

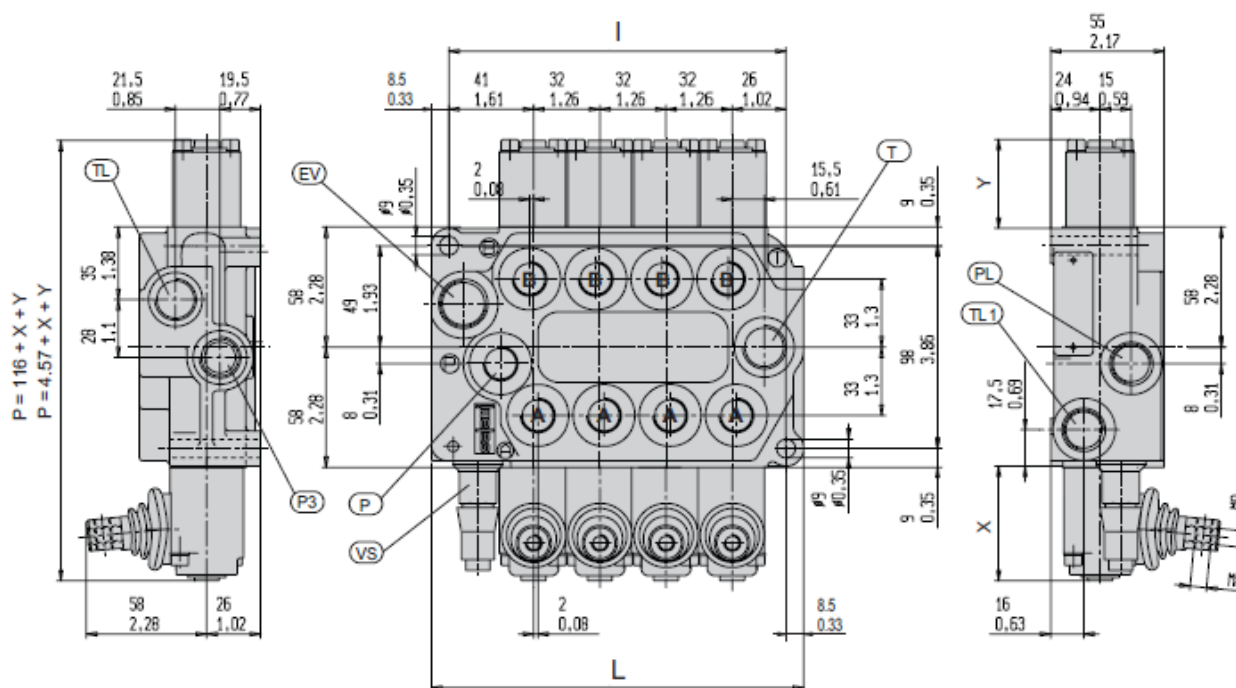


Monoblock Directional Control Valves for Open & Closed Center Circuits
Salami VDM6 Monoblock Type Valves



Salami VDM6 Dimensions

DIMENSIONS FROM 2 TO 7 SECTIONS MONOBLOCK



The drawing shown is just an example. The overall dimensions you read are valid for all the VDM6 except the parametric dimensions "L" and "I" depending of the number of working sections. The parametric dimension "P" depends on a fixed dimension of 116 mm (4.57 in.) to which you have to add the "X" and "Y" dimensions that you can find in the spool controls and spool positionings pages.

INDEX:

- P** = top inlet port
- PL** = side inlet port
- T** = top outlet port
- TL** = side outlet port
- TL1** = side outlet port
- A/B** = work ports
- P3** = power beyond port
- VS** = main relief valve
- EV** = seat for venting valve

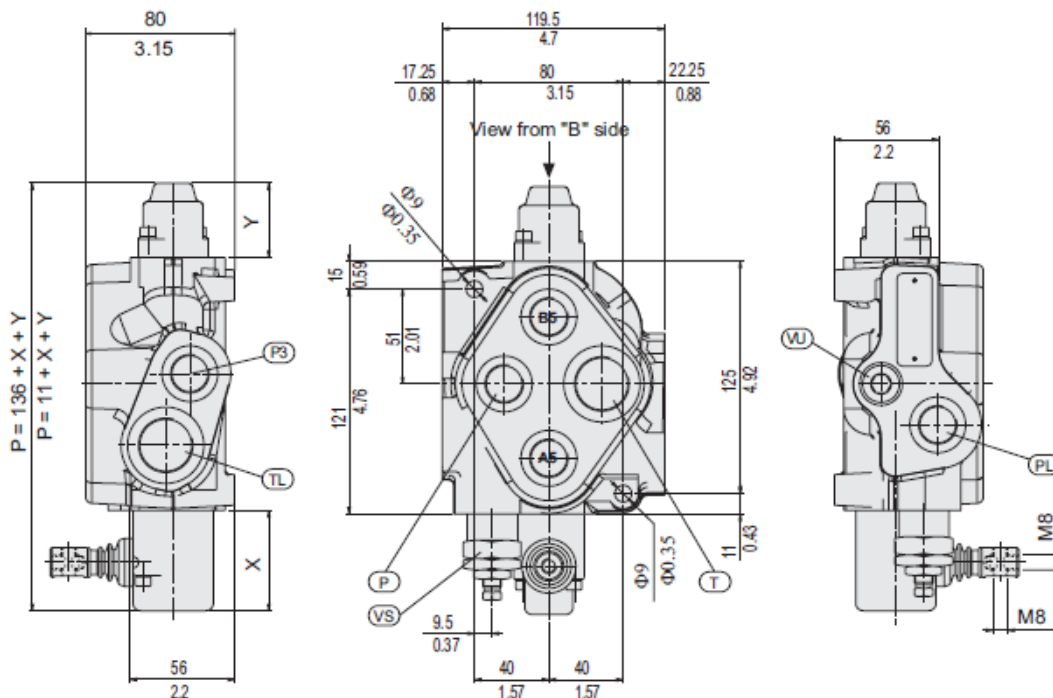
Spools		1	2	3	4	5	6	7	8
I	mm	/	99	131	163	195	227	259	/
	in	/	3.90	5.16	6.42	7.68	8.94	10.2	/
L	mm	/	116	148	180	212	244	276	/
	in	/	4.57	5.83	7.09	8.35	9.61	10.87	/
Weight	Kg.	/	4.5	5.7	7.5	9.3	9.9	10.9	/
	lb.	/	9.9	12.6	16.5	20.5	21.8	24	/

PORT SIZES	P - PL - TL1 - P3	T - TL	A - B
BSP ISO 228	G 3/8	G 1/2	G 3/8
SAE ISO 176	SAE#8 3/4 - 16 UNF	SAE#10 7/8 - 14 UNF	SAE#8 3/4 - 16 UNF
ISO 262 - ISO 6149	M 18 x 1.5	M 22 x 1.5	M 18 x 1.5
BSPF JIS B 2351	G 3/8	G 1/2	G 3/8



Salami SDM8 Series Dimensional Data (Parallel Circuit)

DIMENSIONS FOR 1 SECTION MONOBLOCK

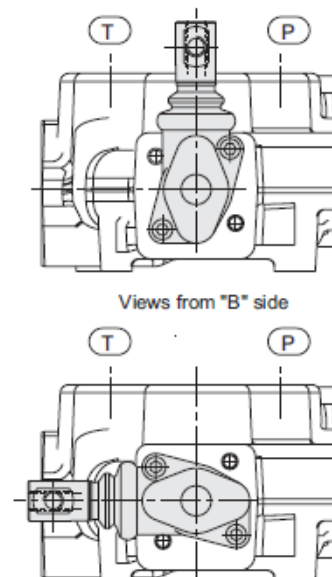


The parametric dimension "P" depends on a fixed dimension of 136 mm (11 in.) to which you have to add the "X" and "Y" dimensions that you can find in the spool controls and spool positionings pages. In this monoblock the main relief valve can be assembled only on "A" side, you can assemble venting valve option only instead of main relief and not in combination with it, moreover only on "B" side you can assemble the levers as show in the drawings here below.

INDEX:

- P** = top inlet port
- PL** = side inlet port
- P3** = side outlet port for power beyond
- T** = top outlet port
- TL** = side outlet port
- A/B** = work ports
- VS** = main relief valve(adjustable)
- VU** = load check valve

PORT SIZES	P - PL - P3	T - TL	A - B
BSP ISO 228	G 1/2	G 3/4	G 1/2
SAE ISO 176	SAE#10 7/8 - 14 UNF	SAE#12 1-1/16 - 12 UNF	SAE#10 7/8 - 14 UNF
ISO 262 - ISO 6149	M 22 x 1.5	M 27 x 2	M 22 x 1.5



Technical Information

Hydraulic Valves

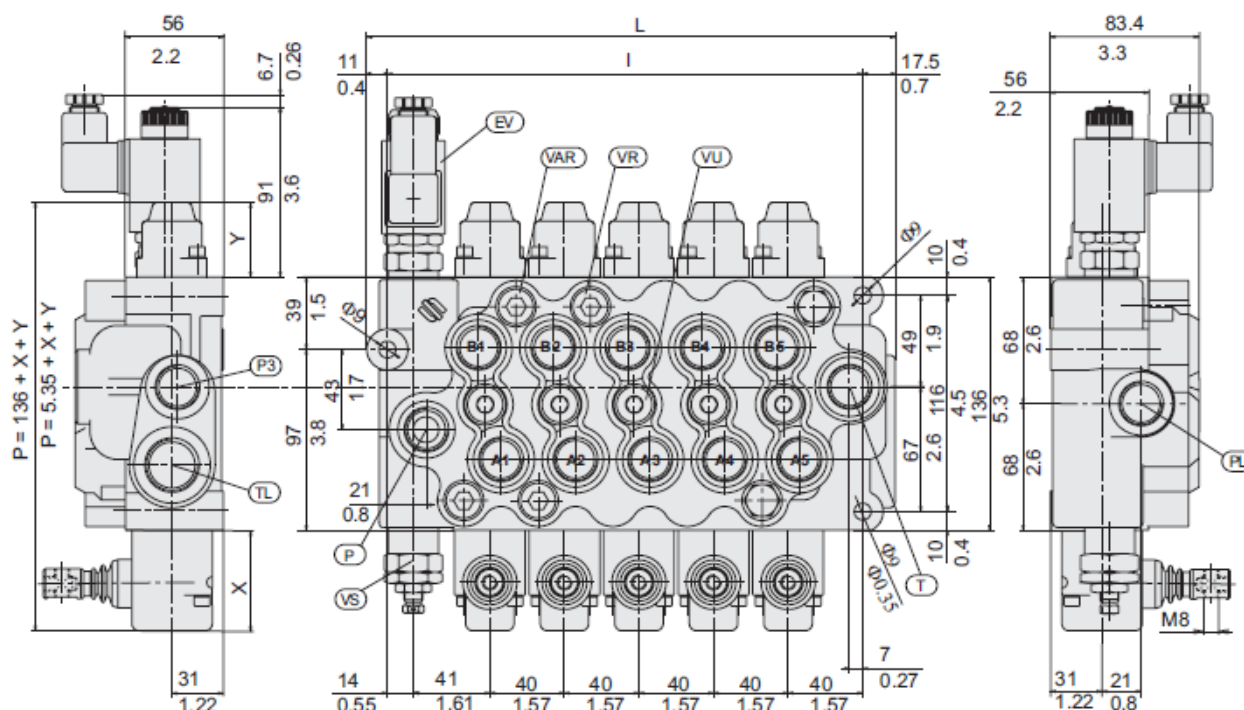


Monoblock Directional Control Valves for Open & Closed Center Circuits Salami SDM8 Series



Salami SDM8 Series Dimensional Data (Parallel Circuit)

DIMENSIONS FROM 2 TO 5 SECTIONS MONOBLOCK



The drawing shown is just an example. The overall dimensions you read are valid for all the VDM8 except the parametric dimensions "L" and "I" depending of the number of working sections. The parametric dimension "P" depends on a fixed dimension of 136 mm (11 in.) to which you have to add the "X" and "Y" dimensions that you can find in the spool controls and spool positionings pages.

INDEX:

- P** = top inlet port
- PL** = side inlet port
- P3** = side outlet port for power beyond
- T** = top outlet port
- TL** = side outlet port
- A/B** = work ports
- VS** = main relief valve (adjustable)
- EV1** = venting valve 12 V normally open
- EV2** = venting valve 24 V normally open
- EV3** = venting valve 12 V normally closed
- EV4** = venting valve 24 V normally closed
- VAR** = overload and anti-cavitation valve
- VR** = anti-cavitation valve
- VU** = load check valve

6 spools valve not yet available

Spools		1	2	3	4	5	6
I	mm	/	135	175	215	255	/
	in	/	5,31	6,89	8,46	10,03	/
L	mm	/	163,5	203,5	243,5	283,5	/
	in	/	6,43	8,01	9,59	11,16	/

For different size and thread ports
contact our sales department

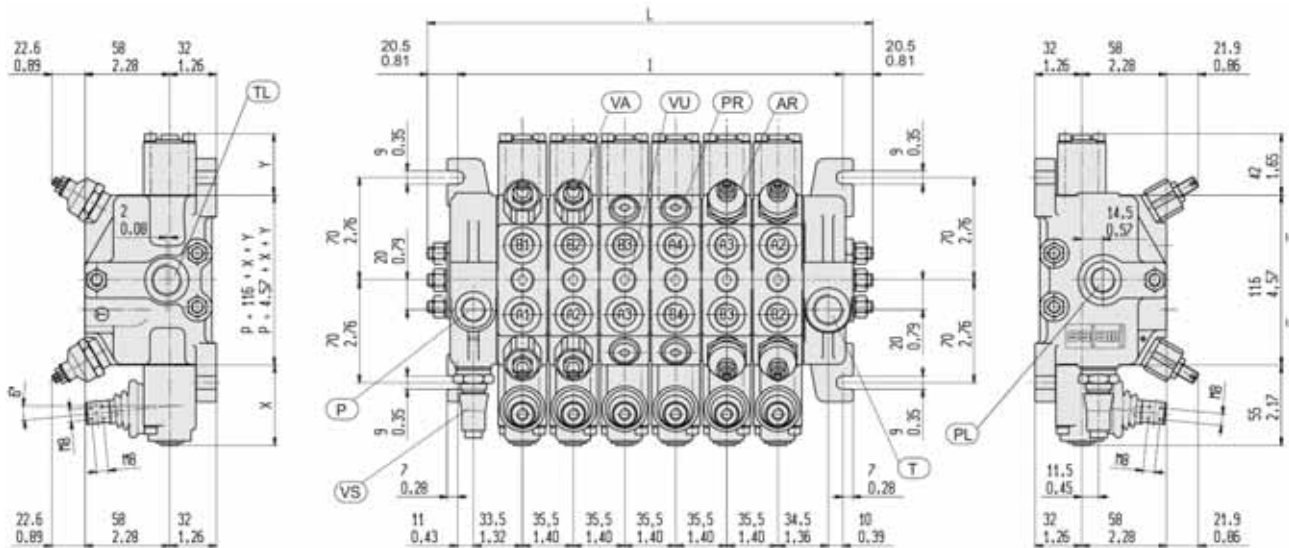
PORT SIZES	P - PL - P3	T - TL	A - B
BSP ISO 228	G 1/2	G 3/4	G 1/2
SAE ISO 176	SAE#10 7/8 - 14 UNF	SAE#12 1-1/16 - 12 UNF	SAE#10 7/8 - 14 UNF
ISO 262 - ISO 6149	M 22 x 1,5	M 27 x 2	M 22 x 1,5



Sectional Directional Control Valves for Open & Closed Center Circuits Salami VD6A Sectional Type



Salami VD6A Dimensions



The drawing shown is just an example. The overall dimensions you read are valid for all the VD6A except the parametric dimensions "L" and "I" depending of the number of working sections. The parametric dimension "P" depends on a fixed dimension of 116 mm (4.57 in.) to which you have to add the "X" and "Y" dimensions that you can find in the spool controls and spool positionings pages.

INDEX:

- P** = top inlet port
- PL** = side inlet port
- T** = top outlet port
- TL** = side outlet port
- A/B** = work ports
- VS** = main relief valve
- VA** = overload valve
- AR** = overload and anti-cavitation valve
- PR** = plug for auxiliary valve cavity
- VU** = load check valve

Spools		1	2	3	4	5	6	7	8
I	mm	89	124.5	160	195.5	231	266.5	302	337.5
	in	3.5	4.90	6.30	7.70	9.10	10.49	11.89	13.29
L	mm	130	165.5	201	236.5	272	307.5	343	378.5
	in	5.12	6.51	7.91	9.31	10.71	12.10	13.50	14.90
Weight	Kg.	5.56	7.7	9.8	11.9	14.1	16.3	18.4	20.5
	lb.	12.2	16.9	21.6	26.2	31	35.9	40.5	45.1

PORT SIZES	P - PL - TL1 - P3	T - TL	A - B
BSP ISO 228	G 3/8	G 1/2	G 3/8
SAE ISO 176	SAE#8 3/4 - 16 UNF	SAE#10 7/8 - 14 UNF	SAE#8 3/4 - 16 UNF
ISO 262 - ISO 6149	M 18 x 1.5	M 22 x 1.5	M 18 x 1.5
BSPF JIS B 2351	G 3/8	G 1/2	G 3/8

Technical Information

Hydraulic Valves



Sectional Directional Control Valves for Open & Closed Center Circuits

Salami VD8A Sectional Type



Salami VD8A Dimensions

DIMENSIONS FROM 1 TO 8 WORKING MODULES

FIXING HOLES THREADS:

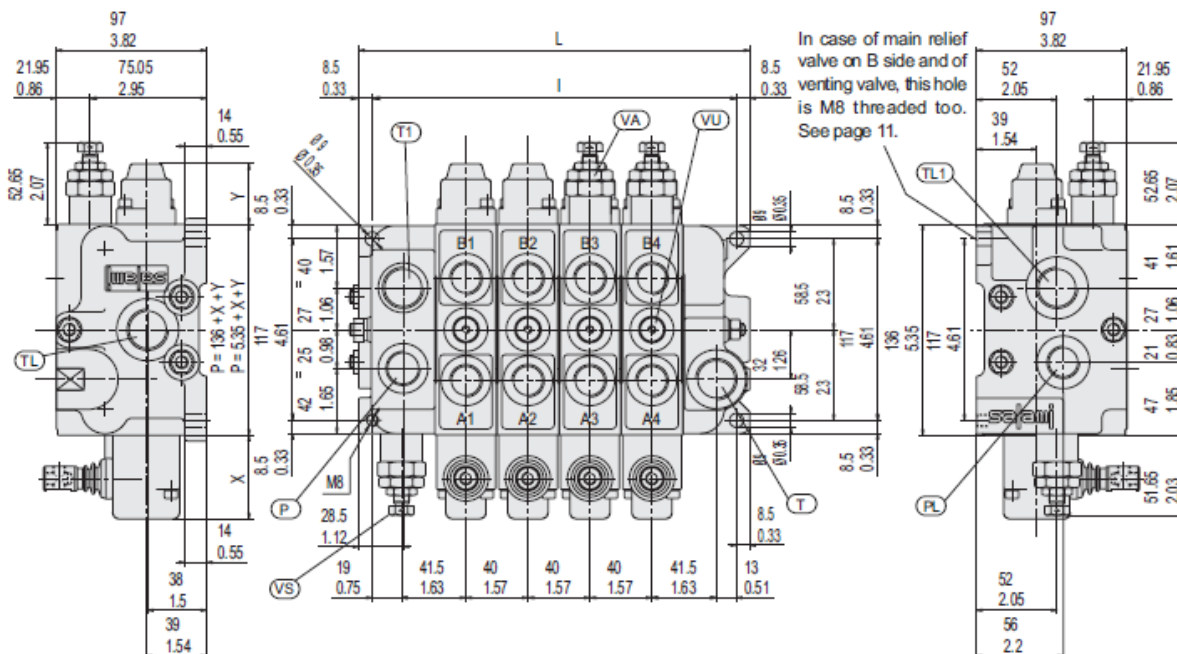
PORTS THREADED BSP (ISO 228) - M8x1.25 ISO 262

PORTS THREADED METRIC (ISO 262) - M8x1.25 ISO 262

PORTS THREADED SAE UN-UNF (ISO 725) - 5/16 18 UNC

PORTS THREADED BSPF O-RING BOSS (JIS B 2351) - M8x1.25 ISO 262

On request are available working modules with distance between axis of 38 mm - 1.49 inch.
Please get in touch with our sales dept.



The drawing shown is just an example. The overall dimensions you read are valid for all the VD8A except the parametric dimensions "L" and "I" depending of the number of working sections. The parametric dimension "P" depends on a fixed dimension of 136 mm (11 in.) to which you have to add the "X" and "Y" dimensions that you can find in the spool controls and spool positionings pages.

INDEX:

P = top inlet port

PL = side inlet port

T = top outlet port

TL = side outlet port

T1 = top outlet port*

TL1 = side outlet port*

A/B = work ports

VS = main relief valve (adjustable)

VA = overload valve

VU = load check valve

*Only in case of inlet and outlet first module the end module is closed

Spools		1	2	3	4	5	6	7	8
I	mm	115	155	195	235	275	315	355	395
	in	4.53	6.10	7.68	9.25	10.83	12.40	13.97	15.55
L	mm	143.5	183.5	223.5	263.5	303.5	343.5	383.5	423.5
	in	5.65	7.22	8.80	10.37	11.95	13.52	15.10	16.67
Mass	kg	11	14.5	18	21.5	25	28.5	32	35.5
	lb	24.2	31.9	39.6	47.3	55	62.7	70.4	78.1

For different size and thread ports, please contact our sales department

PORT SIZES	P - PL - P3	T - TL	A - B
BSP ISO 228	G 1/2	G 3/4	G 1/2
SAE ISO 176	SAE#10 7/8 - 14 UNF	SAE#12 1-1/16 - 12 UNF	SAE#10 7/8 - 14 UNF
ISO 262 - ISO 6149	M 22 x 1.5	M 27 x 2	M 22 x 1.5
BSPF JIS B 2351	G 1/2	G 3/4	G 1/2

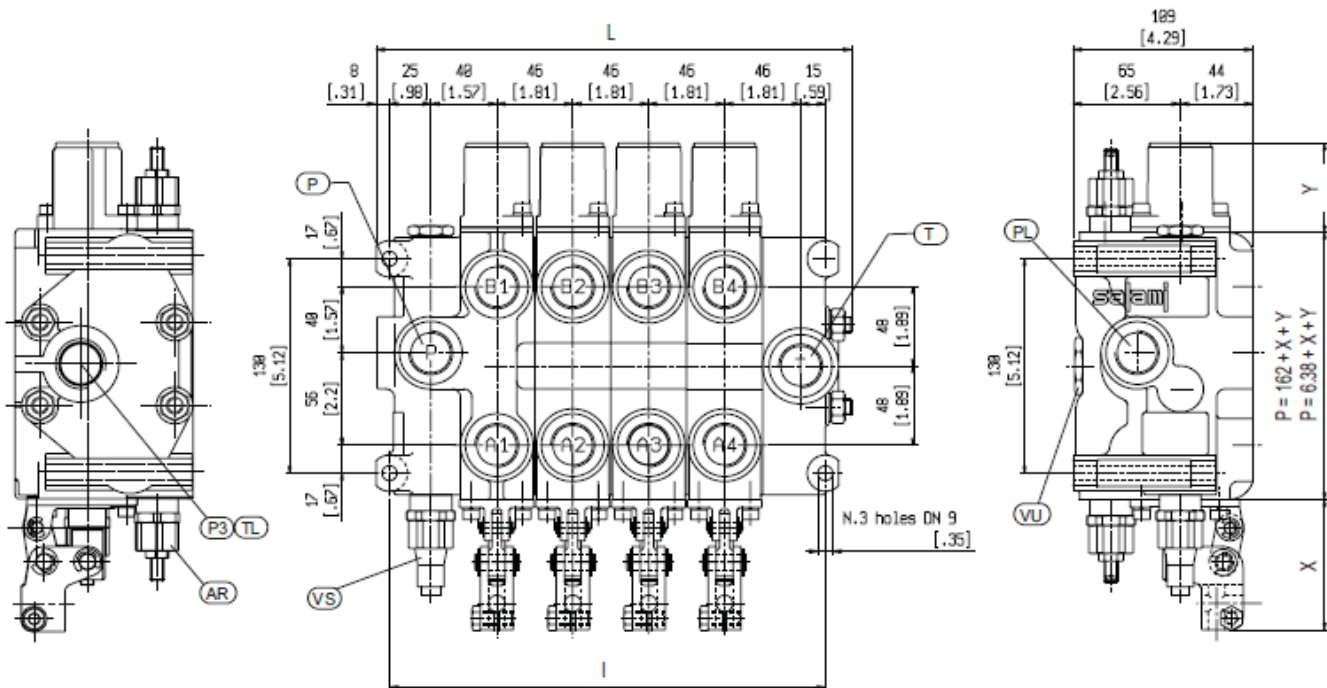
On request you can have all the ports **BSP ISO 228 - G 3/4**
in this case auxiliary valves are not available.

Sectional Directional Control Valves for Open & Closed Center Circuits Salami VD10A Sectional Type



Salami VD10A Dimensions

DIMENSIONS FROM 1 TO 8 WORKING MODULES



The drawing shown is just an example. The overall dimensions you read are valid for all the VD12A except the parametric dimensions "L" and "I" depending of the number of working sections. The parametric dimension "P" depends on a fixed dimension of 162 mm (6.38 in.) to which you have to add the "X" and "Y" dimensions that you can find in the spool controls and spool positionings pages.

INDEX:

- P** = top inlet port
- PL** = side inlet port
- T** = top outlet port
- TL** = side outlet port
- P3** = power beyond port
- A/B** = work ports
- VS** = main relief valve (adjustable)
- AR** = overload and anti-cavitation valve
- VU** = load check valve

Spools		1	2	3	4	5	6	7	8
I	mm	126	172	218	264	310	356	402	448
	in	4.96	6.77	8.58	10.39	12.20	14.01	15.82	17.63
L	mm	150	196	242	288	334	380	426	472
	in	5.90	7.71	9.52	11.33	13.14	14.96	16.77	19.44
Weight	Kg.	10.9	15.9	20.9	25.9	30.9	35.9	40.9	45.9
	lb.	23.98	34.98	45.98	56.98	67.98	78.98	89.98	100.98

For different size and thread ports, please contact our sales department

PORT SIZES	P - PL - P3	T	A - B
BSP ISO 228	G 3/4	G 1	G 3/4
SAE ISO 176	SAE#12 1-1/16 - 12 UN-2B	SAE#16 1-5/16 - 12 UN	SAE#12 1-1/16 - 12 UN-2B

For different port sizes, please contact our sales department.

Technical Information

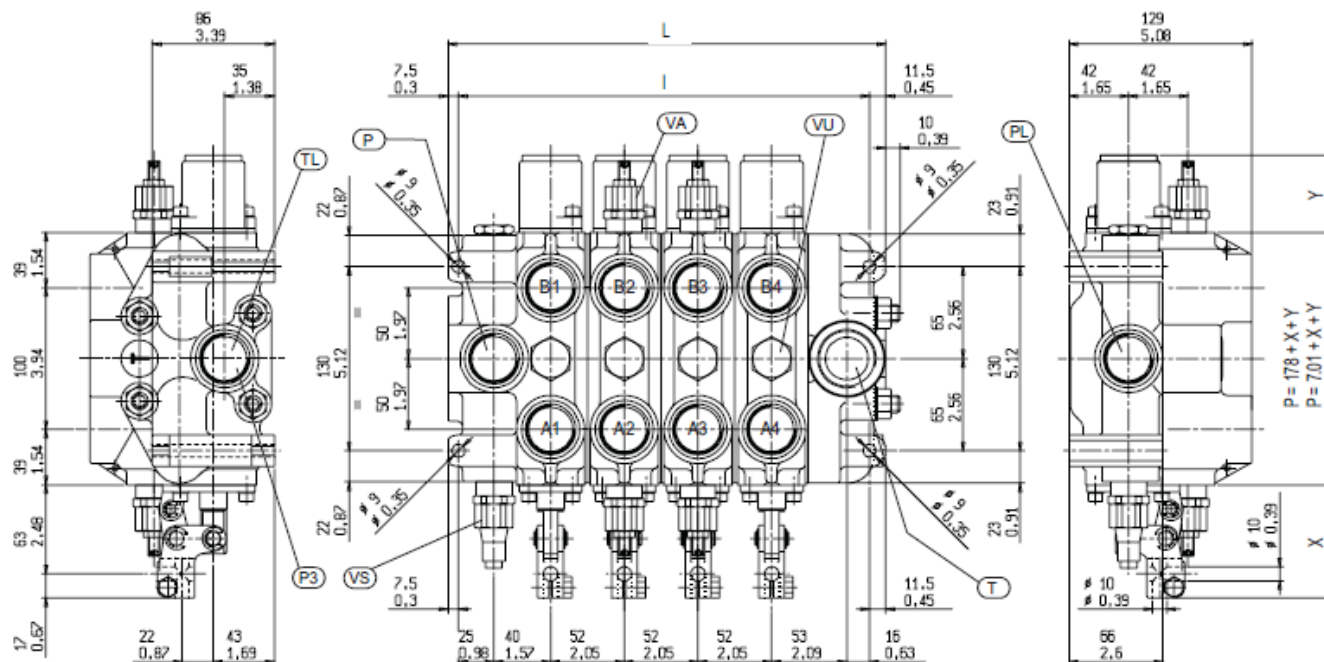
Hydraulic Valves



Sectional Directional Control Valves for Open & Closed Center Circuits Salami VD12A Sectional Type



DIMENSIONS FROM 1 TO 8 WORKING MODULES RELEASE WITH CAST IRON INLET MODULE + WORKING SECTION (STANDARD)



The drawing shown is just an example. The overall dimensions you read are valid for all the VD12A except the parametric dimensions "L" and "I" depending of the number of working sections. The parametric dimension "P" depends on a fixed dimension of 178 mm (7.01 in.) to which you have to add the "X" and "Y" dimensions that you can find in the spool controls and spool positionings pages.

INDEX:

- P** = top inlet port
- PL** = side inlet port
- T** = top outlet port
- TL** = side outlet port
- P3** = power beyond port
- A/B** = work ports
- VS** = main relief valve (adjustable)
- VA** = overload valve
- VU** = load check valve

Spools		1	2	3	4	5	6	7	8
I	mm	134	186	238	290	342	394	446	498
	in	5.27	7.32	9.37	11.42	13.46	15.51	17.56	19.61
L	mm	153	205	257	309	361	413	465	517
	in	6.02	8.07	10.12	12.16	14.21	16.26	18.31	20.35
Weight	Kg.	12.3	18.5	24.7	31	37.2	43.7	49.9	56.4
	lb.	27.12	40.79	54.46	68.36	82.03	96.36	110.03	124.36

For different size and thread ports, please contact our sales department

PORT SIZES	P - PL	T	TL - P3	A - B
BSP ISO 228	G 1	G 1	G 1	G 1
SAE ISO 176	SAE#16 1-5/16 - 12 UN	SAE#16 1-5/16 - 12 UN	SAE#16 1-5/16 - 12 UN	SAE#16 1-5/16 - 12 UN

On request you can have also T port BSP ISO 228 - G 1 1/4
or SAE ISO 176 1-5/8 - 12 UN SAE 20.



Sectional Directional Control Valves for Open & Closed Center Circuits Salami VDP08 Sectional Type



Salami VDP08 Dimensions

A/B: working ports

P: top inlet port

PL: side inlet port

T: top outlet port

TL: side outlet port

LS (see page 8A):

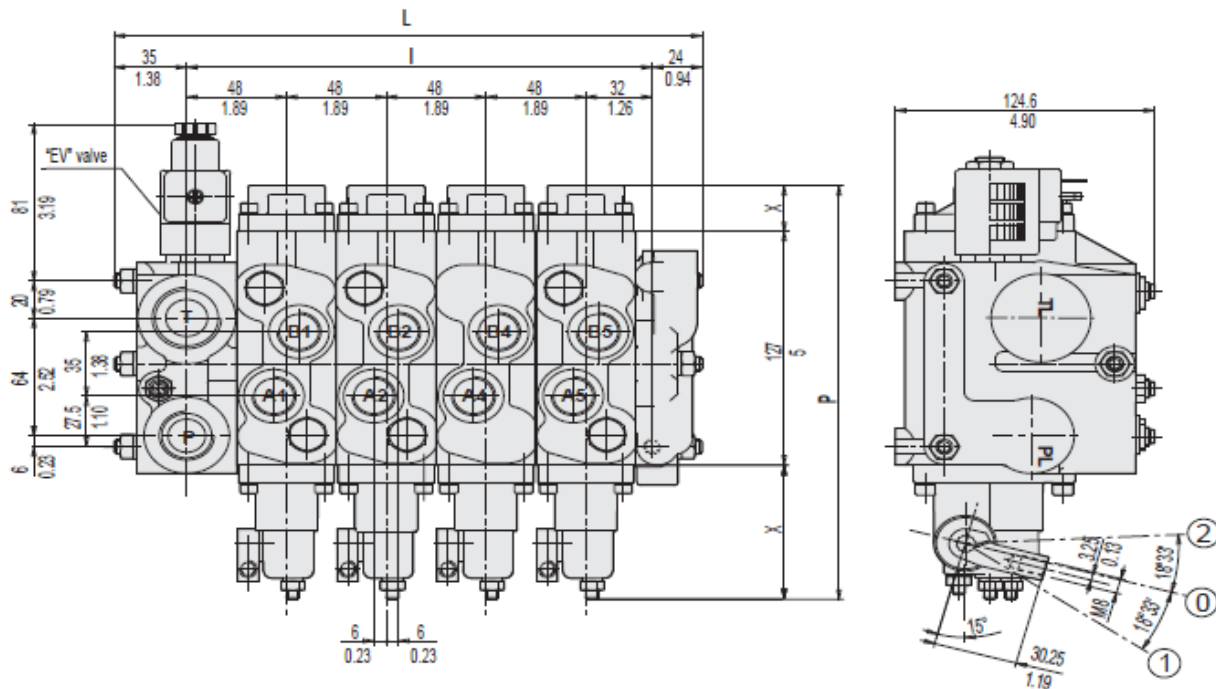
load-sensing signal port

PG (see page 8A):

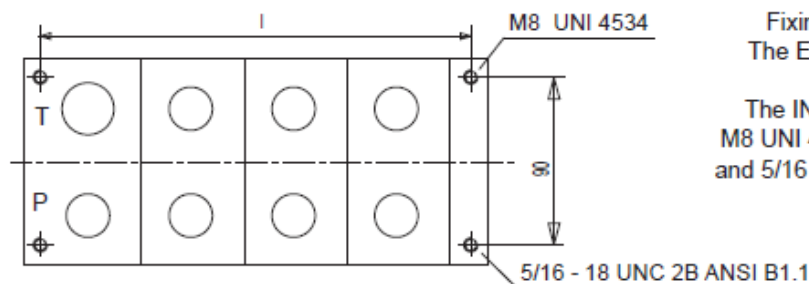
pressure gauge port

Ports Orifices	P/PL	T/TL	A/B	PG/LS
BSP ISO 228	G3/4	G1	G1/2	G1/4
SAE ISO 176	SAE12	SAE16	SAE10	SAE4

The drawing showned is just an example. The overall dimensions you read are valid for all the D.C.V. except the parametric dimensions "L" and "T" depending on the number of working sections. The parametric dimensions "P" depends on a fixed dimension of 127 mm (5 in.) to which you have to add the "X" dimensions that you can find in the following pages.



Nr. sections		1	2	3	4	5	6	7	8
L	mm	80	128	176	224	272	320	368	416
	in	3,14	5,03	6,92	8,81	10,70	12,59	14,48	16,37
L	mm	107	155	203	251	299	347	395	443
	in	4,21	5,47	7,99	9,88	11,77	13,66	15,55	17,44
Mass	kg	8,80	12,8	16,80	20,80	24,8	28,8	32,8	36,8
	lb	19,42	28,25	37,08	45,91	57,74	83,57	72,40	81,23



Fixing holes distance between centers.
The END PLATES are always threaded as showned beside.
The INLET/OUTLET modules are threaded M8 UNI 4534 when the ports are GAS threaded and 5/16 - 18 UNC 2B ANSI B1.1 when the ports are SAE threaded.

Technical Information

Hydraulic Valves

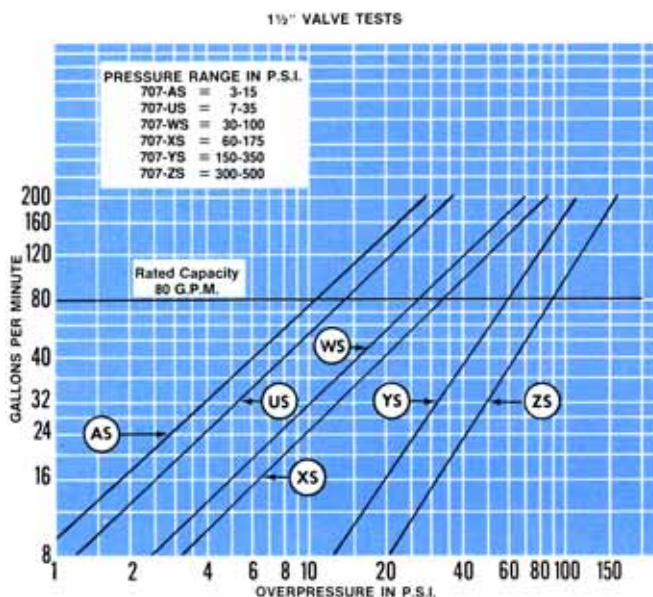
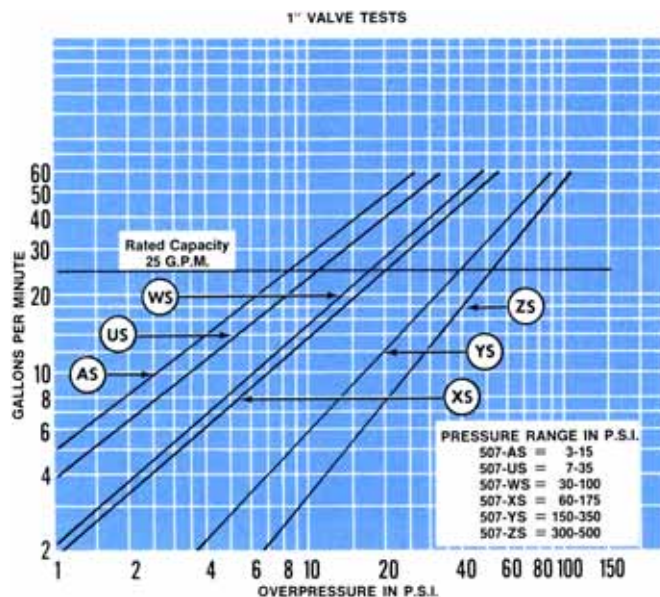


Relief Valves

Guided Piston Type

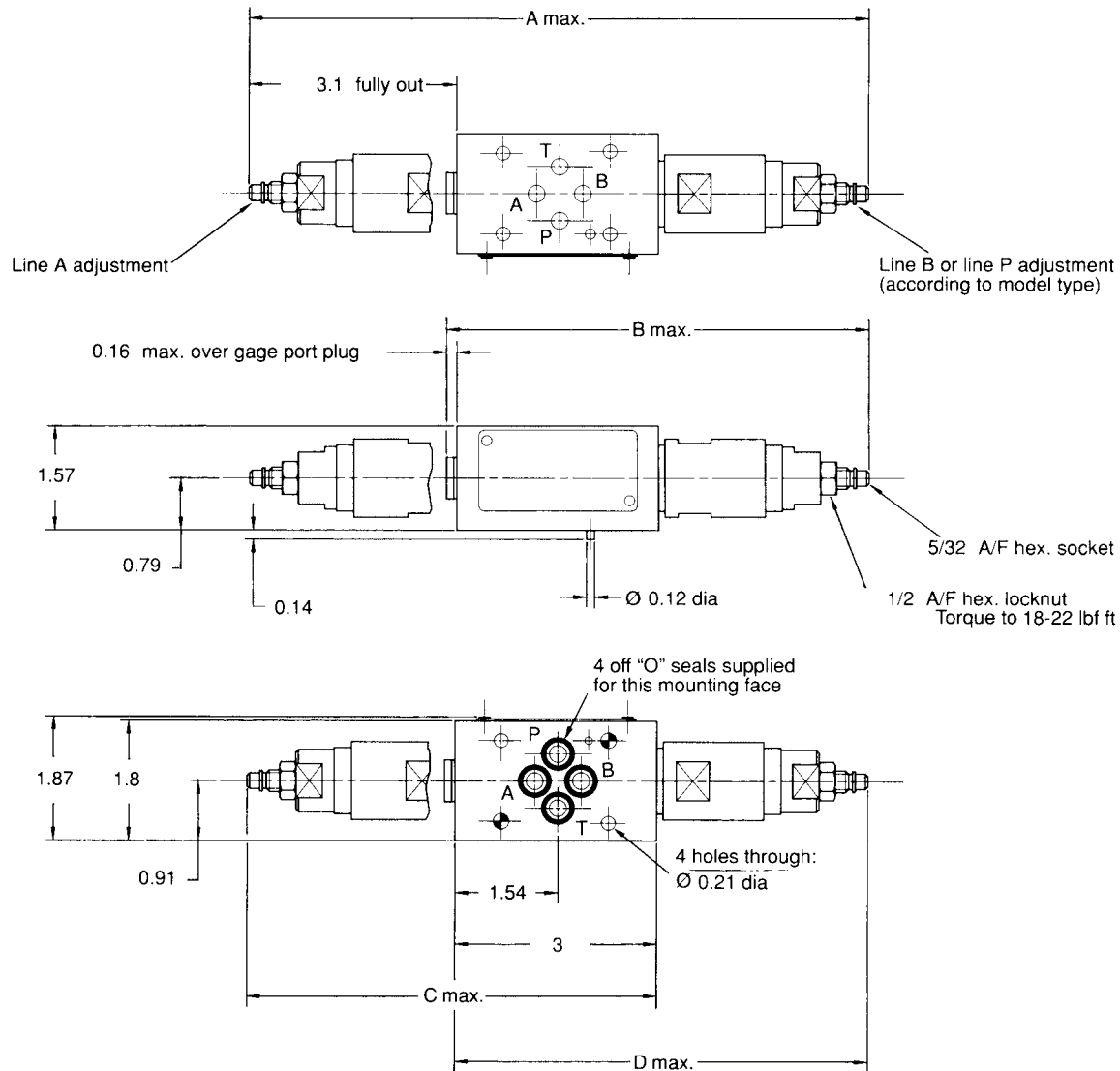
Fulflo V-Series Performance Charts

All valve tests 110°F to 120°F, Oil Viscosity 150 SSU at 100°F



NFPA-D03 Stack Valves Vickers SystemStak™ Valves

Vickers DGMC-3 Series Relief Valve Dimensions



Model	A	B	C	D
DGMC-3-AT-*W-40	--	--	6.1	--
DGMC-3-BT-*W-40	--	--	--	6.2
DGMC-3-BT-*W-40	--	6.3	--	--
DGMC-3-PT-*W-40	--	--	--	6.2
DGMC-3-PT-*W-*40	--	6.3	--	--
DGMC2-3-AT-*W-BT-*W-40	9.2	--	--	--

Technical Information

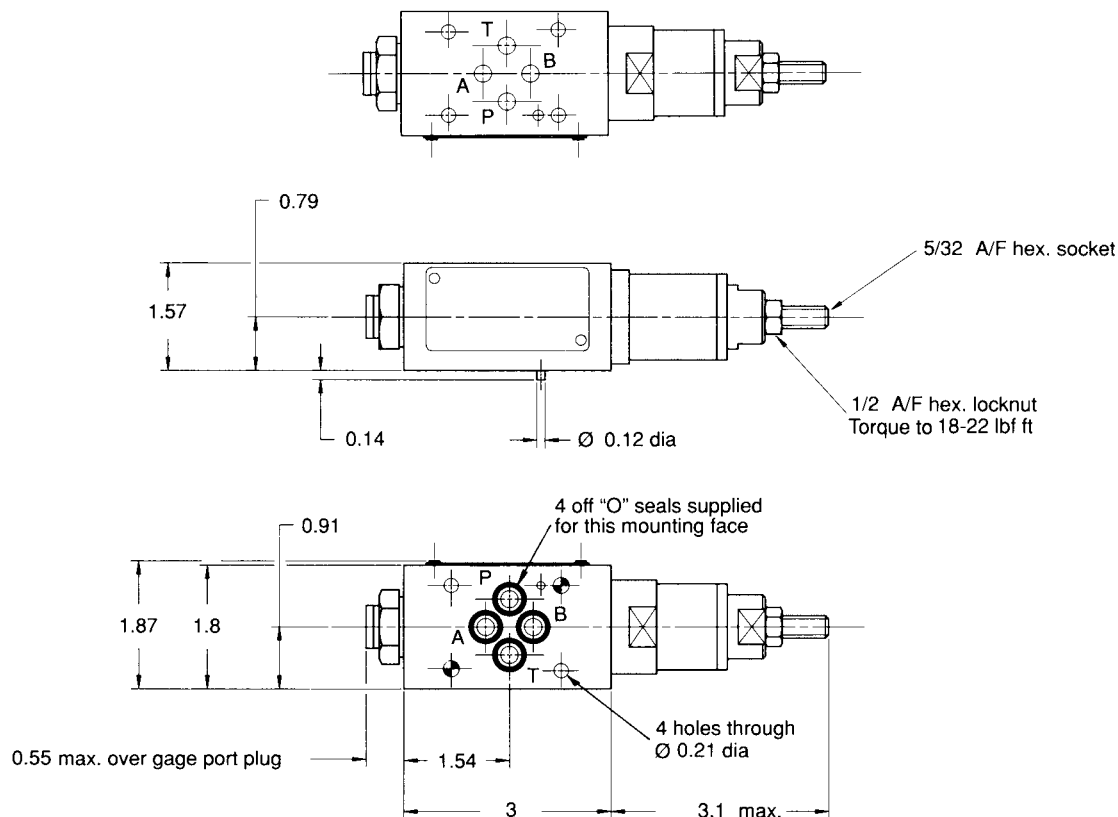
Hydraulic Valves



NFPA-D03 Stack Valves
Vickers SystemStak™ Valves

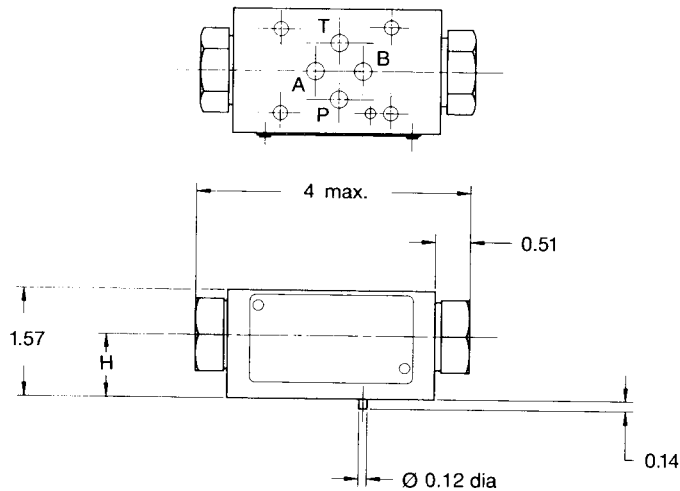


Vickers DGMX2-3 Series Pressure Reducing Valve Dimensions

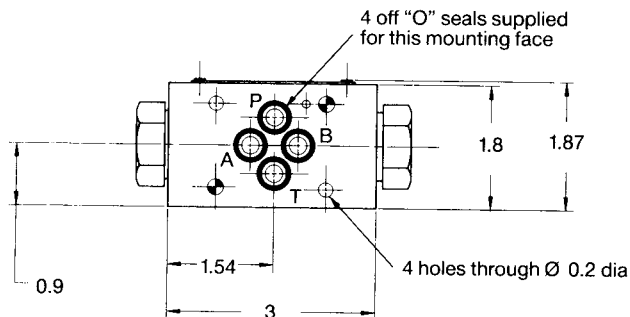
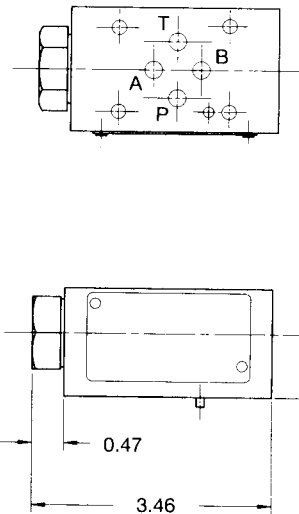


Vickers DGMD-3 Series Check Valve Dimensions

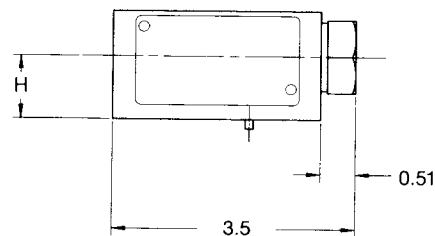
DGMD-3-Y-A*-B*-40



DGMD-3-X-A*-40
DGMD-3-X-T*-40
DGMD-3-Y-A*-40
DGMD-3-Y-P*-40



DGMD-3-X-B*-40
DGMD-3-Y-B*-40



Model	H
DGMD-3-X-A*-40	0.66
DGMD-3-X-B*-40	0.66
DGMD-3-Y-P*-40	0.66
DGMD-3-X-T*-40	0.92
DGMD-3-Y-A*-40	0.92
DGMD-3-Y-B*-40	0.92
DGMD-3-Y-A*-B*-40	0.92

Technical Information

Hydraulic Valves

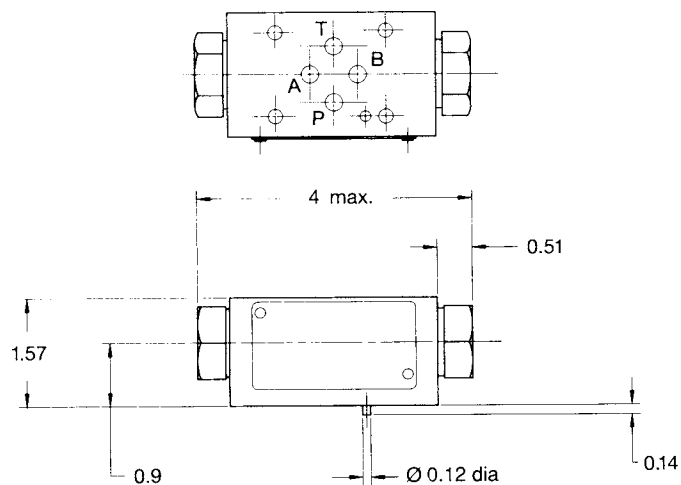


NFPA-D03 Stack Valves
Vickers SystemStak™ Valves

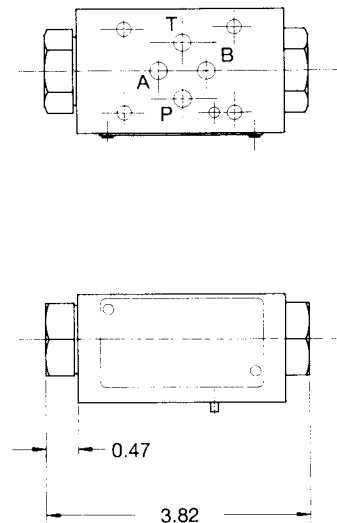


Vickers DGMPC-3 Series Pilot Operated Check Valve Dimensions

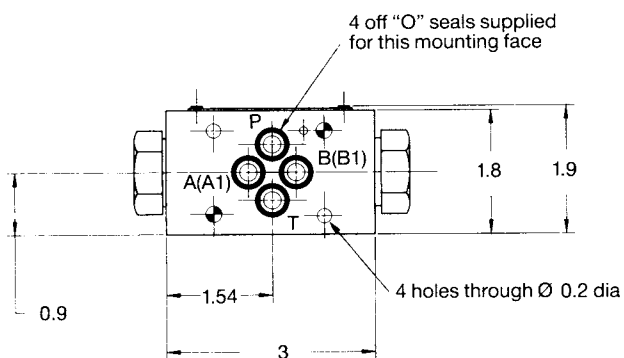
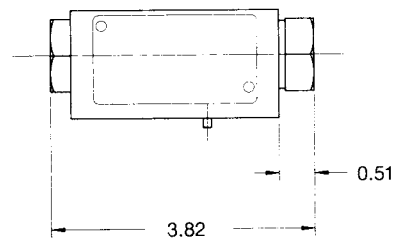
DGMPC-3-(D)AB*-(D)BA*-40



DGMPC-3-(D)AB*-40



DGMPC-3-(D)BA*-40



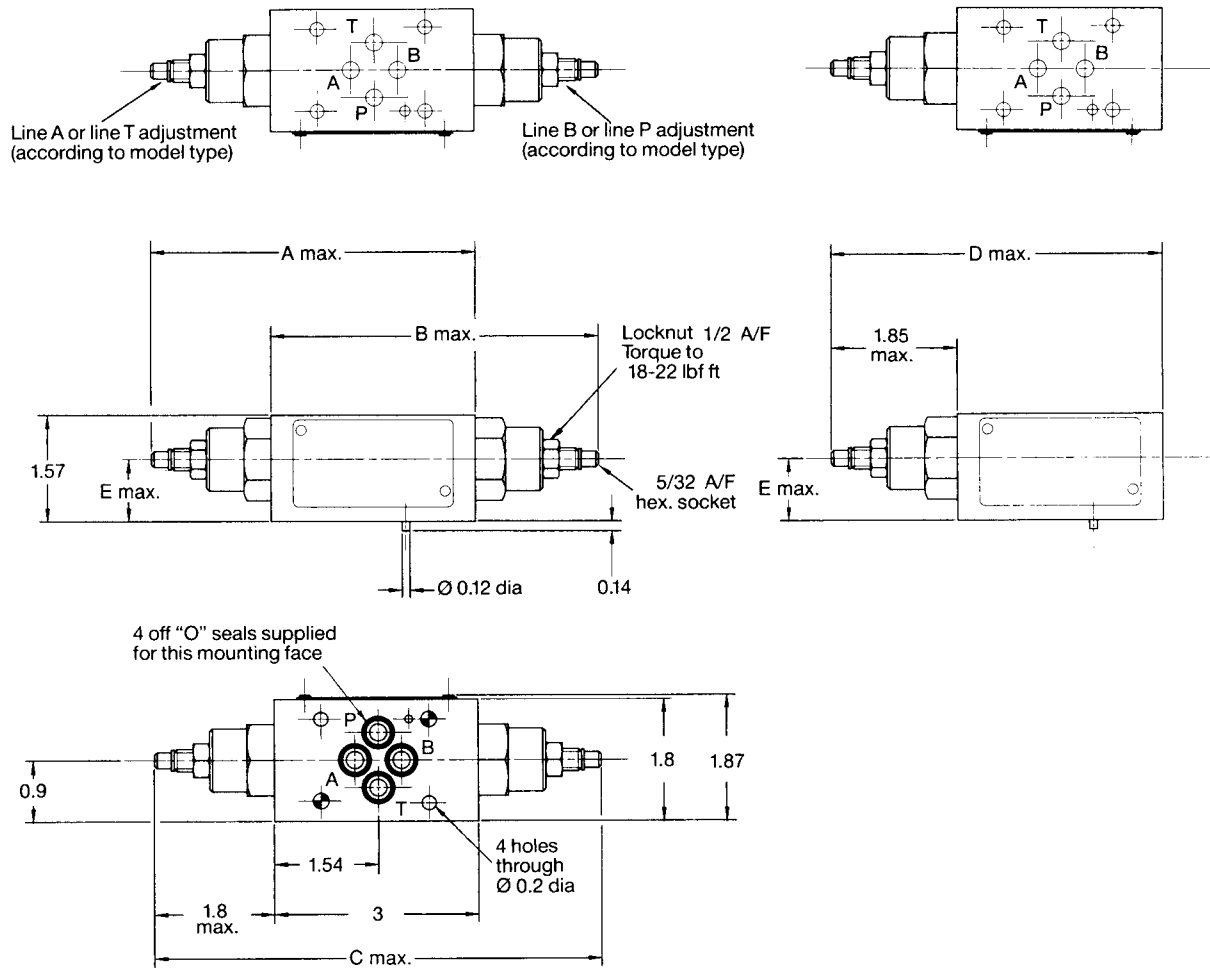
NFPA-D03 Stack Valves Vickers SystemStak™ Valves

Vickers DGMFN-3 Series Flow Control Valve Dimensions

DGMFN-3-X-***(-***)-40
DGMFN-3-Y-***(-***)-40
DGMFN-3-Z-***-40

Models with type W adjuster

To adjust valve setting, slacken off locknut and turn screw ■. Re-tighten locknut after completing adjustment.



Model	A	B	C	D	E
DGMFN-3-X-A*W-40	4.76	--	--	--	0.70
DGMFN-3-X-A*W-B*W-40	--	--	6.60	--	0.70
DGMFN-3-X-B*W-40	--	4.80	--	--	0.70
DGMFN-3-Y-A*W-40	4.76	--	--	--	0.90
DGMFN-3-Y-A*W-B*W-40	--	--	6.60	--	0.90
DGMFN-3-Y-B*W-40	--	4.80	--	--	0.90
DGMFN-3-Z-P*W-40	--	--	--	4.80	0.70
DGMFN-3-Z-T*W-40	--	--	--	4.80	0.90

Technical Information

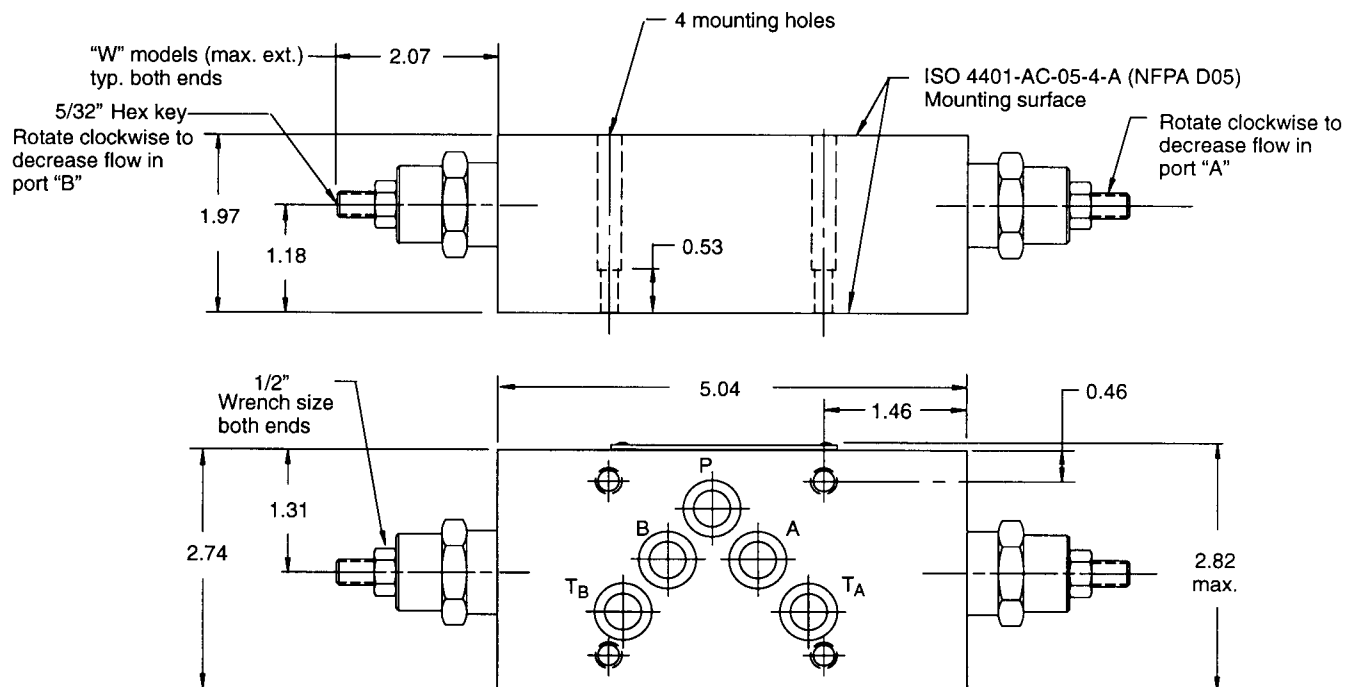
Hydraulic Valves



NFPA-D05 Stack Valves
Vickers SystemStak™ Valves



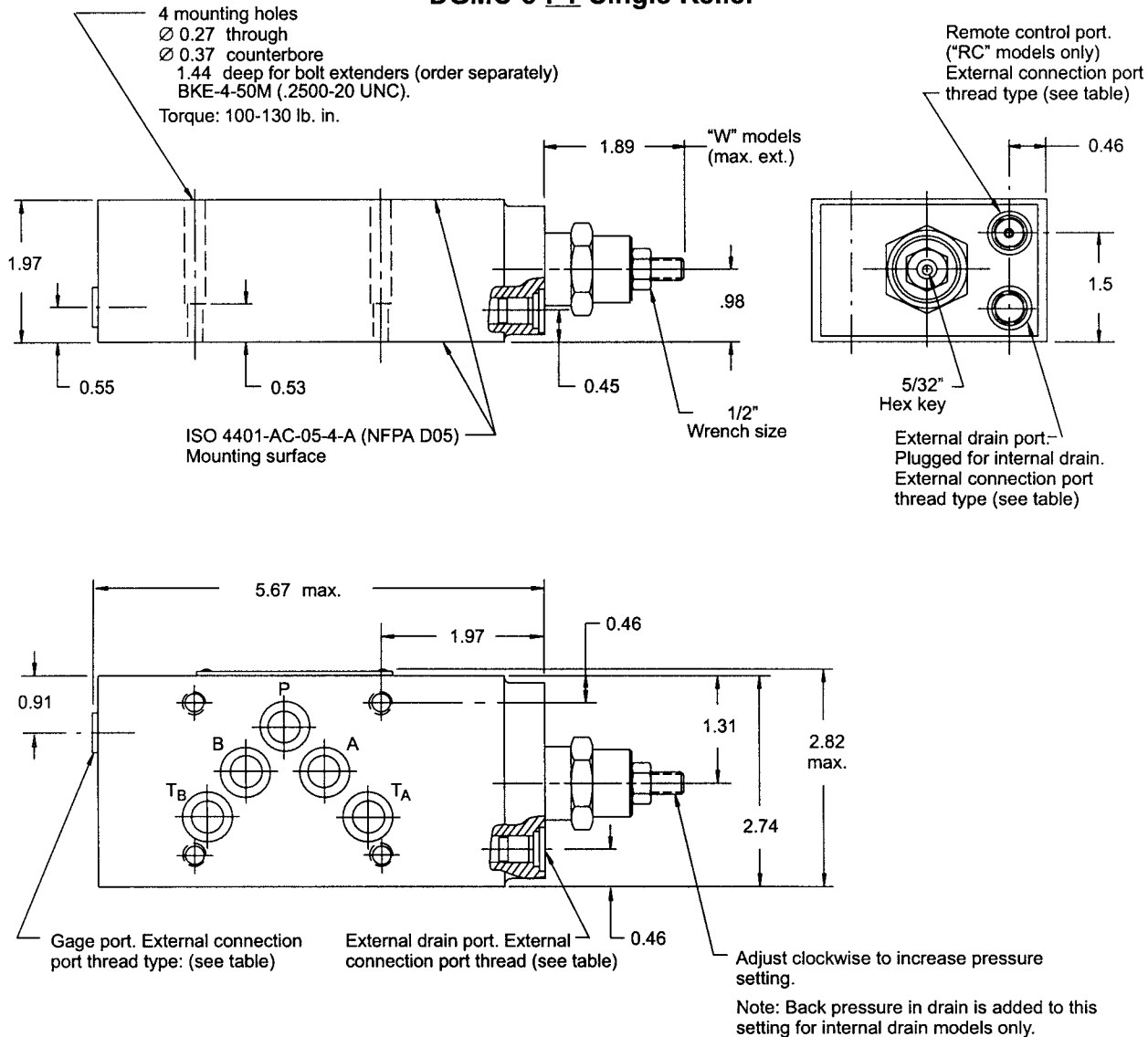
Vickers DGMFN-5-Y Series Flow Control Valve Dimensions



NFPA-D05 Stack Valves Vickers SystemStak™ Valves

Vickers DGMC-5-PT Series Relief Valve Dimensions

DGMC-5-PT Single Relief

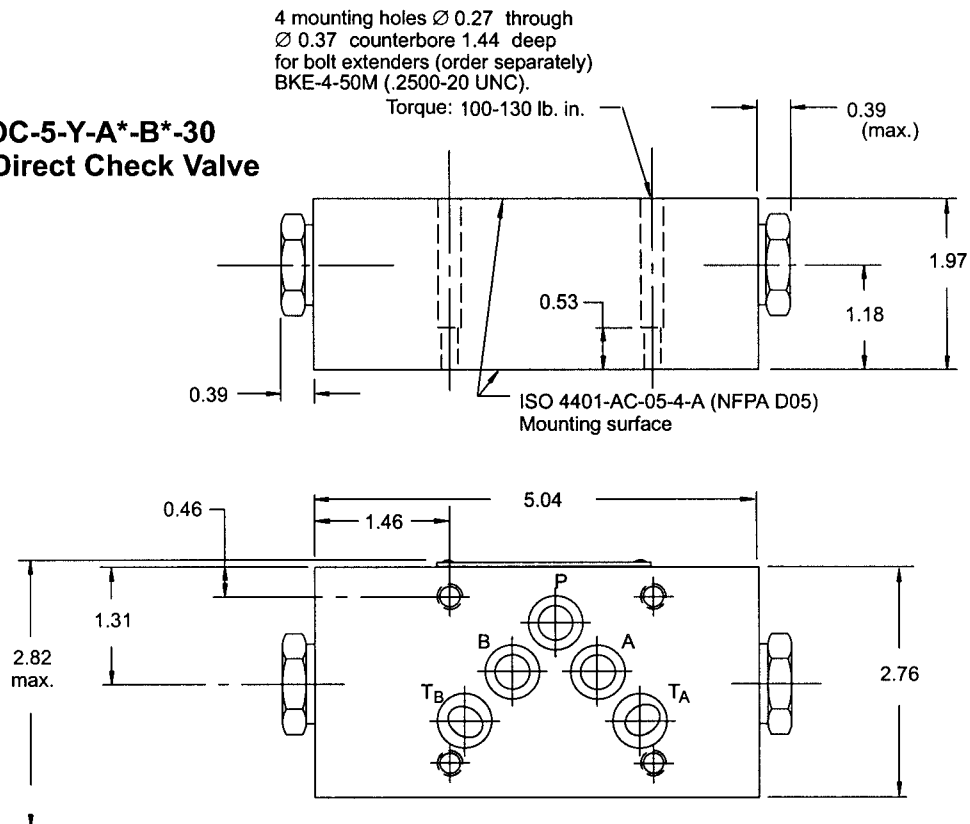


External connection port threads

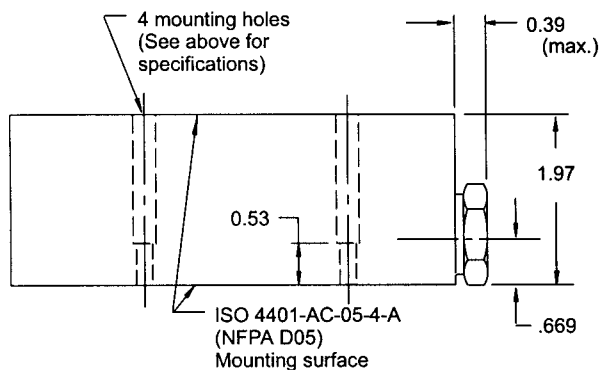
"S" models - SAE-4 O-ring boss port
 (0.4375-20 UNF-2B thread).

Vickers DGMD-5 Series Check Valve Dimensions

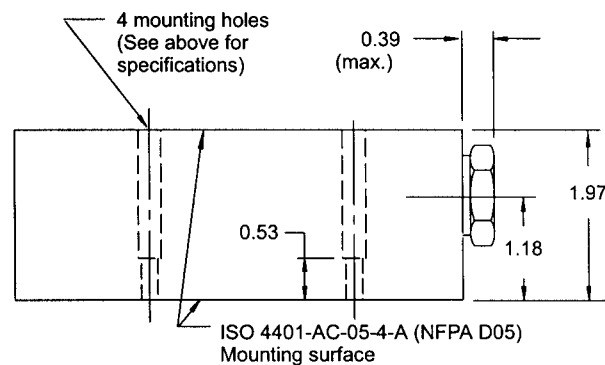
DGMD-5-Y-A*-B*-30 Dual Direct Check Valve



DGMD-5-Y-P*-30 Single Direct Check Valve



DGMD-5-X-T*-30 Single Direct Check Valve





Filter Sizing Basics

A filter sized too small for an application will require more frequent element changes, resulting in a high operating cost. The initial cost savings on the smaller filter assembly will be quickly erased by the cost of frequent element changes. A filter sized too big will give long element life, but will have a high initial cost and might be physically difficult to fit in the space available.

A good "rule of thumb": For satisfactory element life, the clean element pressure drop should generally be less than or equal to 40 percent of the indicator's rated differential pressure. This means the clean element will have 60 percent (or more) of its capacity devoted to removing particulates.

Using the Pressure Drop Curves

The filter manufacturer's pressure drop curves are based on using a fluid with a certain specific gravity and operating at a certain fluid viscosity. The pressure drops taken from these curves will need to be adjusted for the actual application conditions.

Adjusting for actual specific gravity will usually not be necessary, unless a high water based fluid is being used.

Adjusting for actual viscosity will almost always be necessary, since actual viscosity will vary greatly with the viscosity grade of the fluid being used and the operating temperature of the application.

Calculating the Actual Clean Pressure Drop

Total Clean Pressure Drop (ΔP) through a filter assembly should be calculated as follows:

Assembly ΔP = Housing ΔP + Element ΔP .

Housing ΔP from curve is corrected with the equation:

Housing ΔP = Curve ΔP x Actual Specific Gravity of fluid / Referenced Specific Gravity.

Element ΔP from curve is corrected with the equation:

Element ΔP = Curve ΔP x (Actual Fluid Viscosity (SSU) / Referenced SSU) x (Actual Fluid Specific Gravity / Referenced Specific Gravity).

Remember: The above rule of thumb involves the Element ΔP , not the Total ΔP .

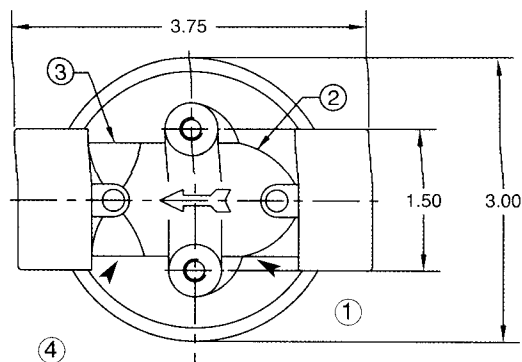
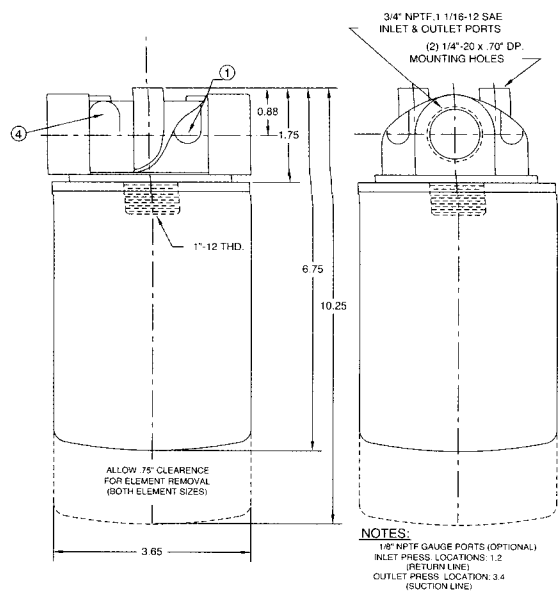
Technical Information Hydraulic Filters



Suction / Return Filters



Stauff SAF07/11 Series Dimensions



Indicator Option 1

– # 1 & 2 Gauge Ports Drilled – Return

Indicator Option 2

– # 3 & 4 Gauge Ports Drilled – Suction

Indicator Option 4

– # 1, 2, 3 & 4 Gauge Ports Drilled

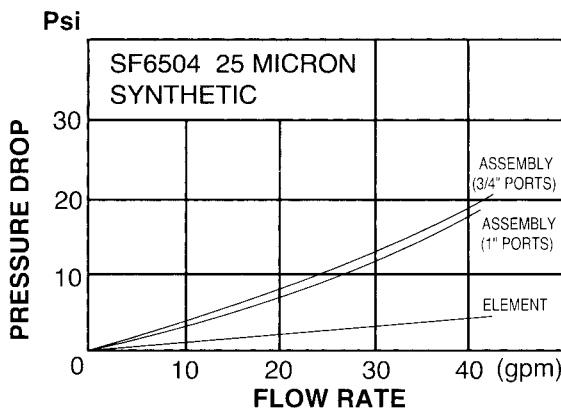
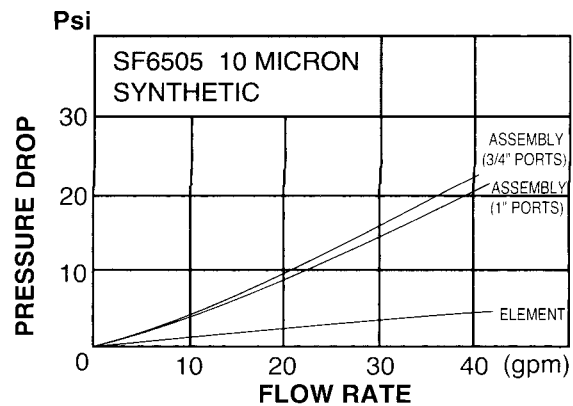
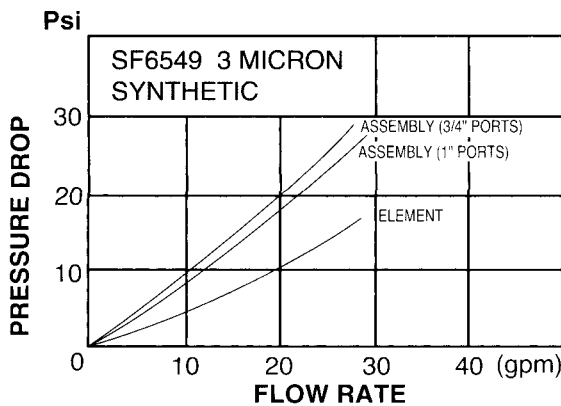
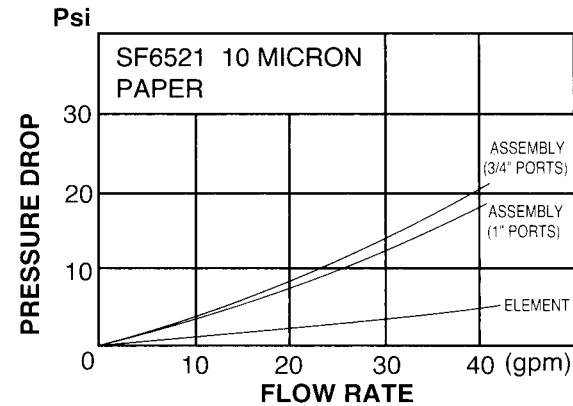
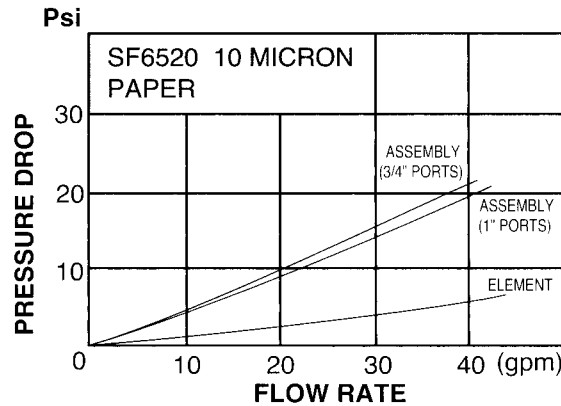
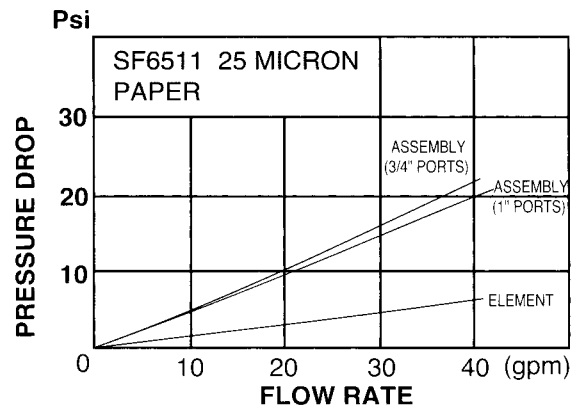
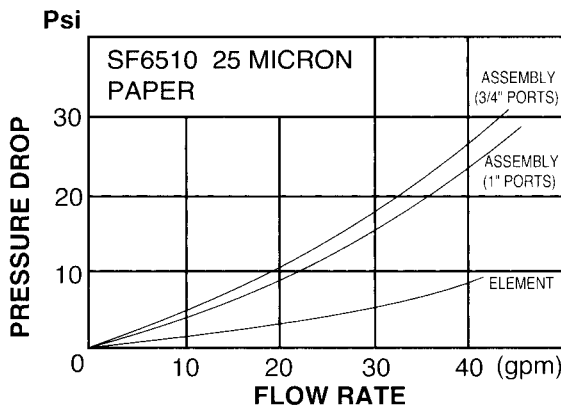


Technical Information Hydraulic Filters

Suction / Return Filters



Stauff SAF07/10/11/13 Series Pressure Drop Curves



Average pressure drop with oil viscosity of 150 SSU @ 100° F.



Technical Information Hydraulic Filters

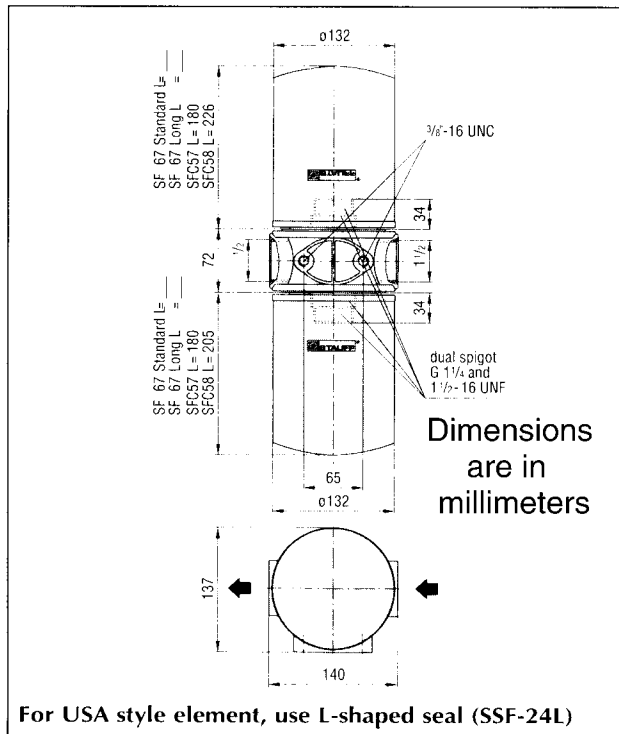


Suction / Return Filters

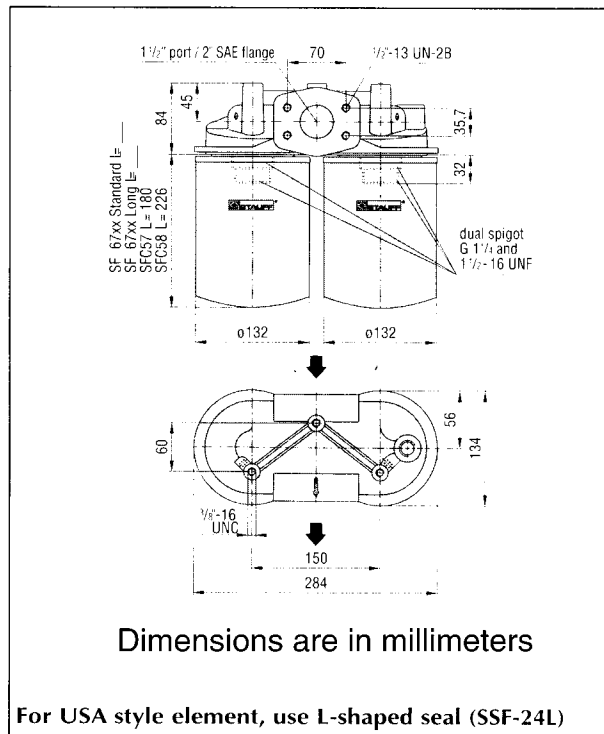


Stauff SSF24/25 Series Dimensions

SERIES SSF 24



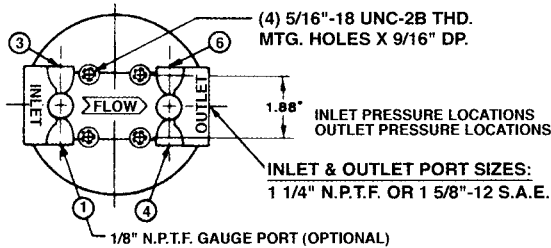
SERIES SSF 25



Suction / Return Filters



Stauff SSF120/160, 150/180 Series Stauff SSF-120/



Indicator Option 1

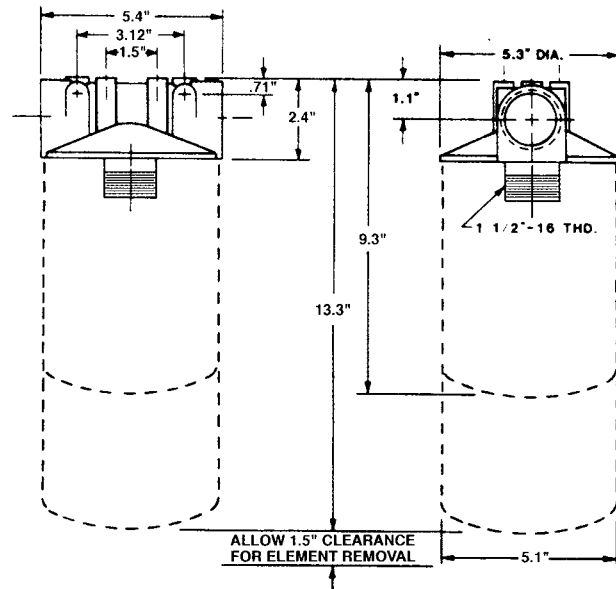
- #'s 1 & 3 Gauge Ports Drilled - Return Line

Indicator Option 2

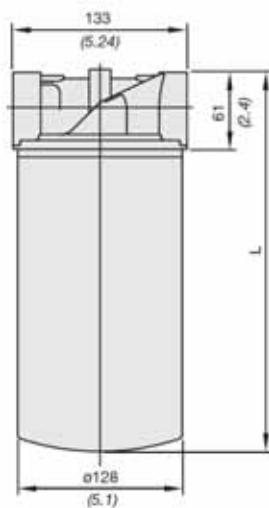
- #'s 4 & 6 Gauge Ports Drilled - Suction Line

Indicator Option 4

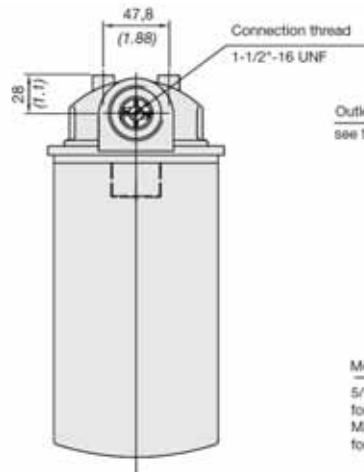
- #'s 1, 3, 4 & 6 Gauge Ports Drilled



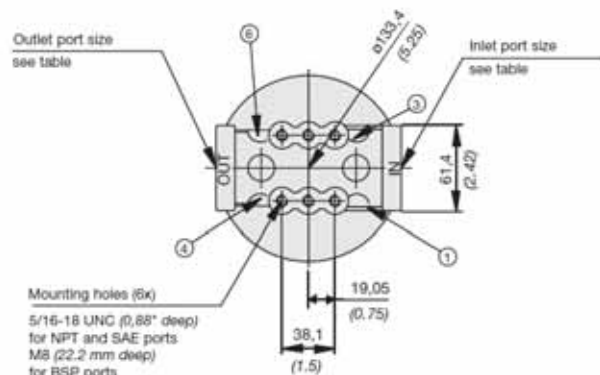
Stauff SSF-150/180 Series Dimensions



Dimension L	
Element length 1	229 (9.02)
Element length 2	331 (13.03)



clearance for element removal
(all element lengths): 30 mm (1.18)



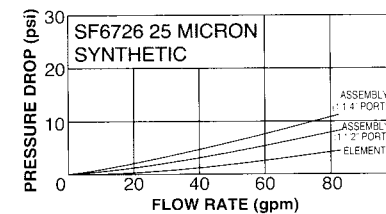
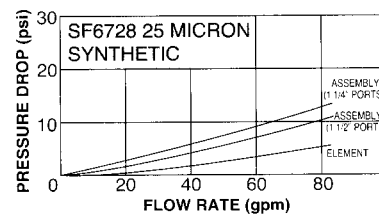
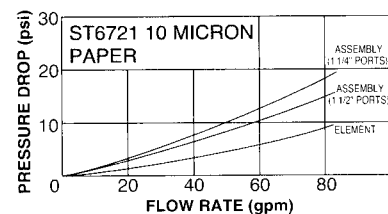
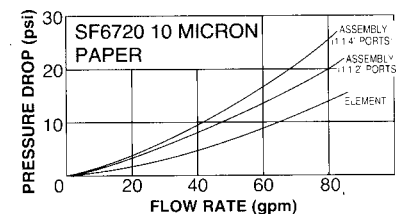
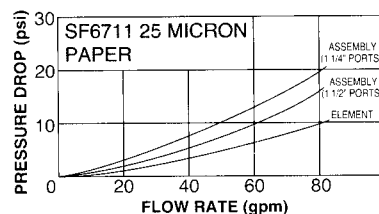
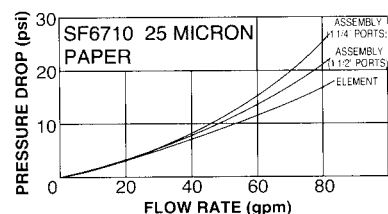
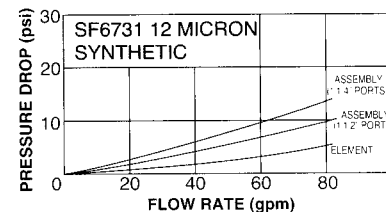
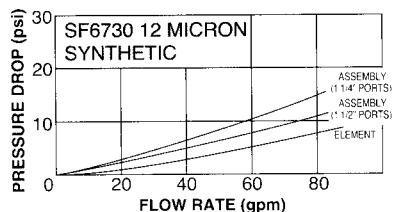
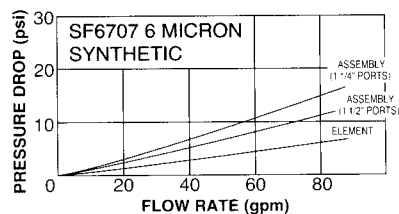
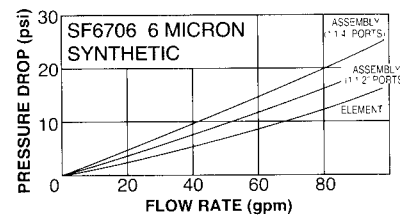
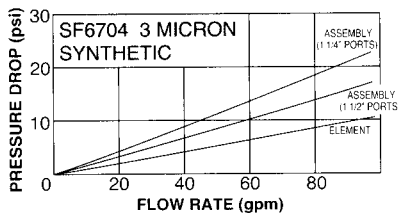
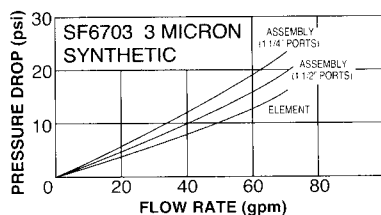
Technical Information Hydraulic Filters



Suction / Return Filters



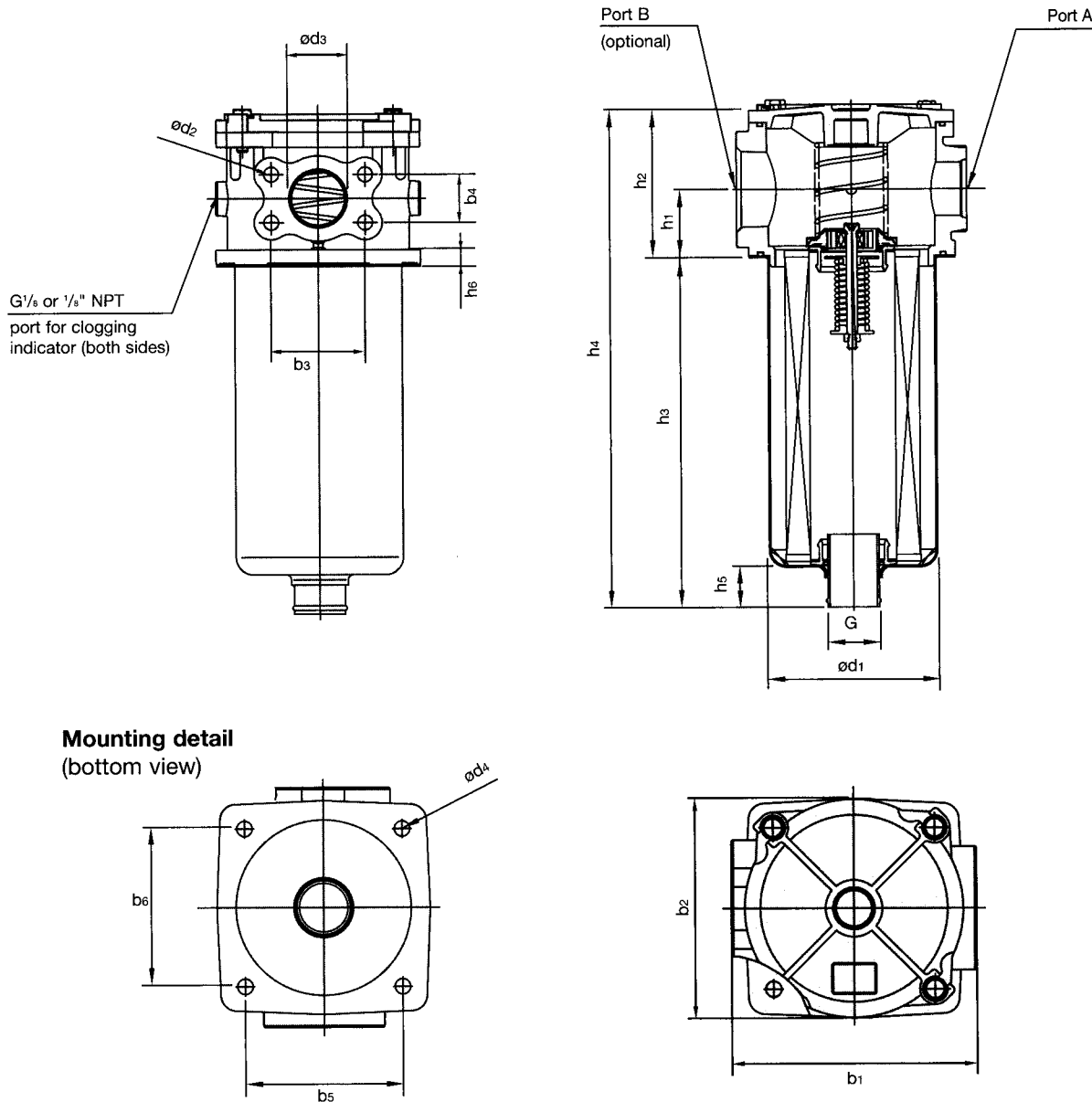
Stauff SSF/SMF/SDF/SF Series Pressure Drop Curves



Return Filters



Stauff RTF40 Series Dimensions



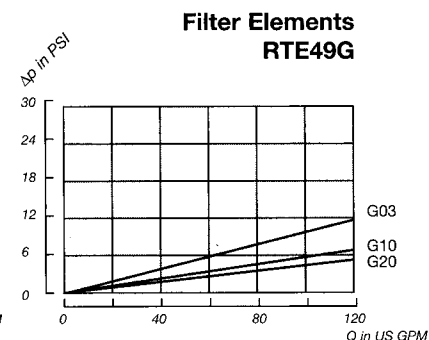
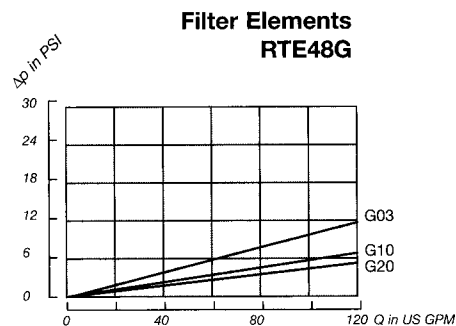
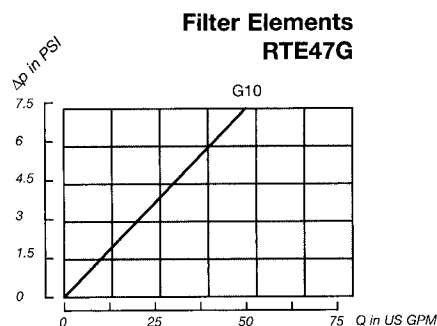
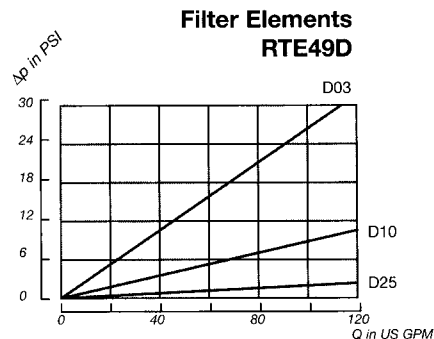
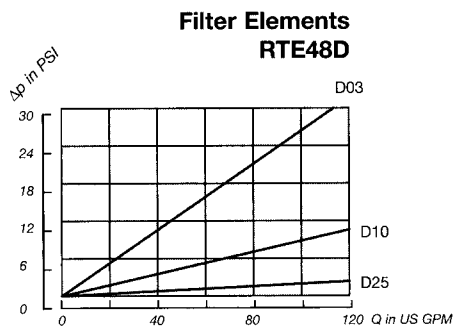
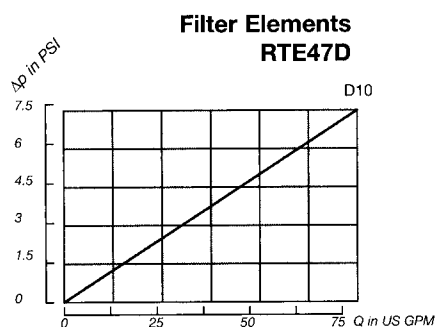
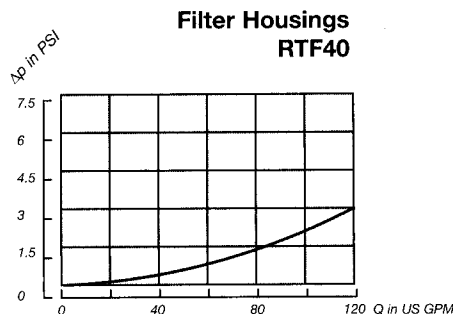
Bowl Length														d2				
	h1	h2	h3	h4	h5	h6	b1	b2	b3	b4	b5	b6	d1	NPT/SAE	d3	d4	G	
S1	2.09	4.80	10.35	15.16	0.83	0.43	5.98	5.98	2.75	1.40	4.41	4.41	4.80	1/2-13 UN 2B	1.50	0.43	1-1/2 NPT	
S2	2.09	4.80	18.70	23.50	1.50	0.43	5.98	5.98	2.75	1.40	4.41	4.41	4.80	1/2-13 UN 2B	1.50	0.43	1-1/2 NPT	

Return Filters



Stauff RTF40 Series Pressure Drop Curves

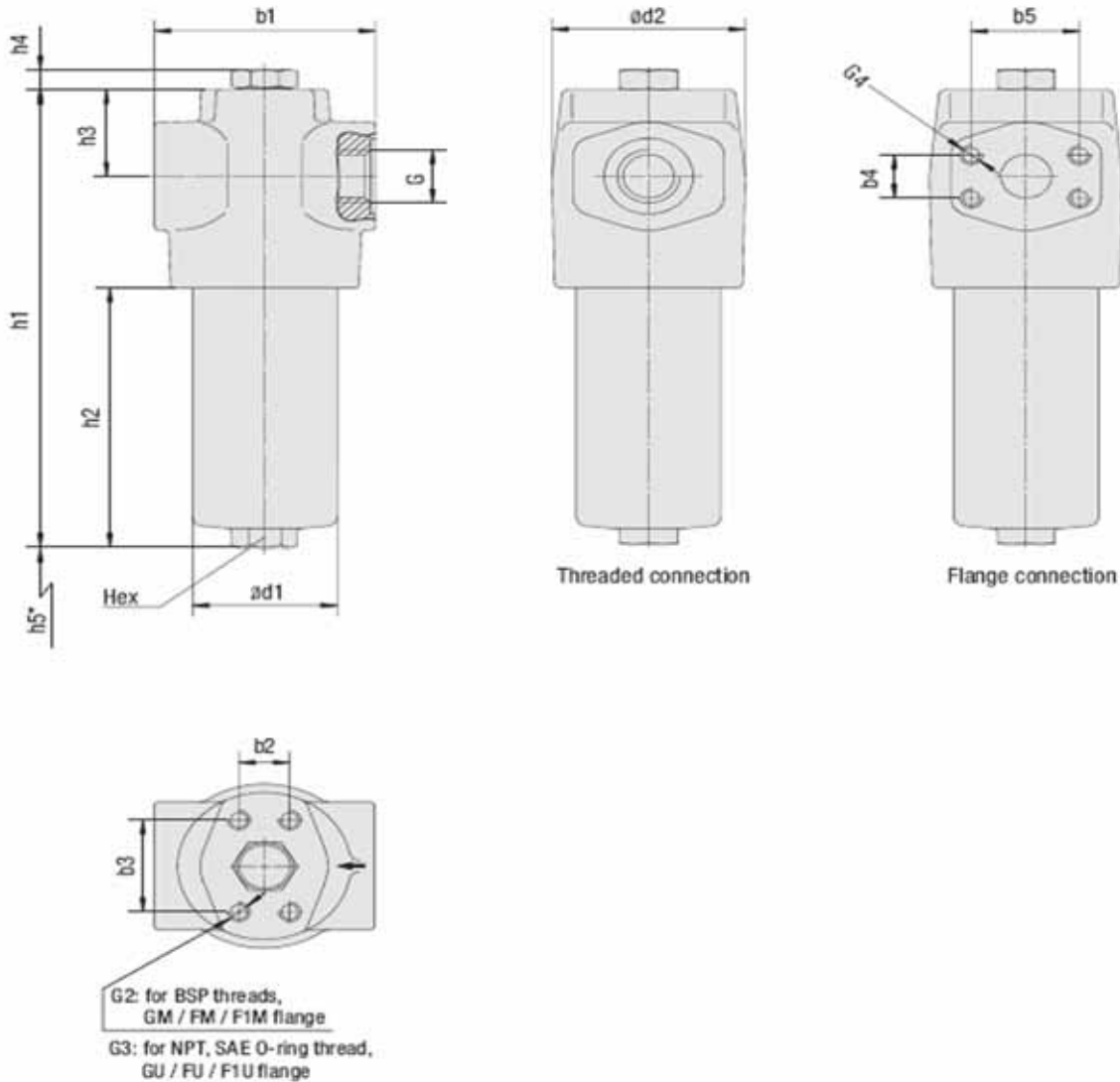
Flow versus Pressure Drop
141 SUS oil with specific gravity of ν 0.85



Pressure Filters



Stauff SF014-SF160 Series Dimensions



* Recommended space for element change

Filter Size	Thread Connection G			b1	b2	b3	b4	b5	d1	d2	h1	h2	h3	h4	h5	G4
	NPT	SAE O-Ring	SAE Flange													
SF014	3/4	1-1/16-12	3/4	4.10	0.94	2.00	0.94	2.00	2.68	3.58	7.40	3.07	1.89	0.49	3.35	3/8-16 UNC
SF030	3/4	1-1/16-12	3/4	4.10	0.94	2.00	0.94	2.00	2.68	3.58	10.00	5.67	1.89	0.49	3.35	3/8-16 UNC
SF045	1-1/4	1-5/8-12	1-1/4	5.04	1.24	2.63	1.24	2.63	3.74	4.57	9.41	4.06	1.95	0.49	4.72	1/2-13 UNC
SF070	1-1/4	1-5/8-12	1-1/4	5.04	1.24	2.63	1.24	2.63	3.74	4.57	11.73	6.34	1.95	0.49	4.72	1/2-13 UNC
SF090	1-1/2	1-7/8-12	1-1/2	7.01	1.45	3.13	1.45	3.13	5.12	6.26	12.72	5.83	2.84	0.49	5.91	5/8-11 UNC
SF160	1-1/2	1-7/8-12	1-1/2	7.01	1.45	3.13	1.45	3.13	5.12	6.26	19.45	12.56	2.84	0.49	5.91	5/8-11 UNC

Technical Information

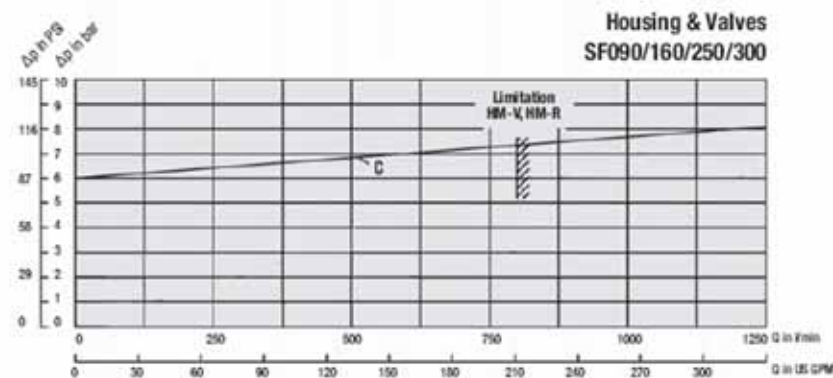
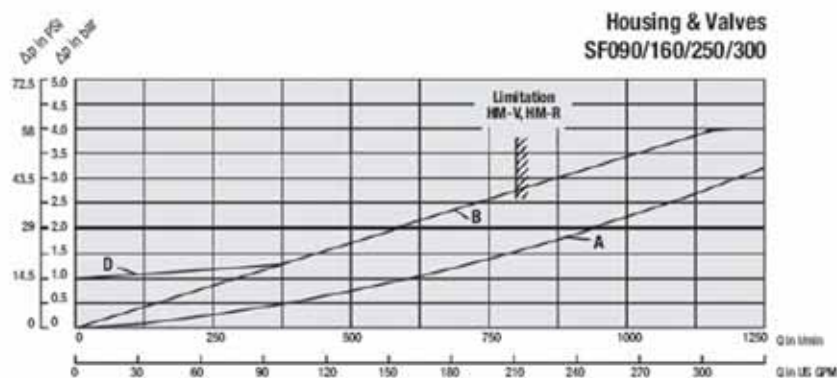
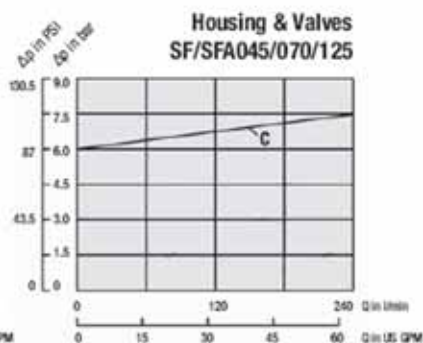
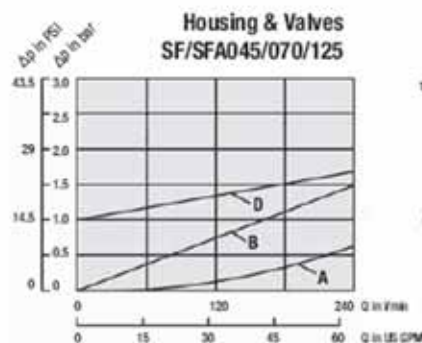
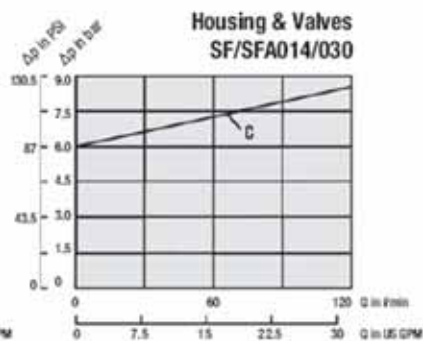
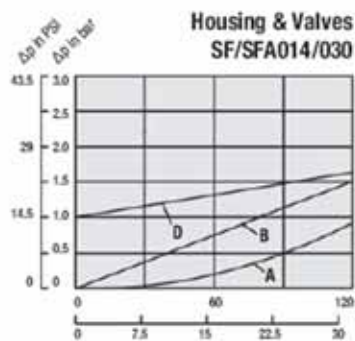
Hydraulic Filters



Pressure Filters



Stauff SF014-SF300 Series Pressure Drop Curves



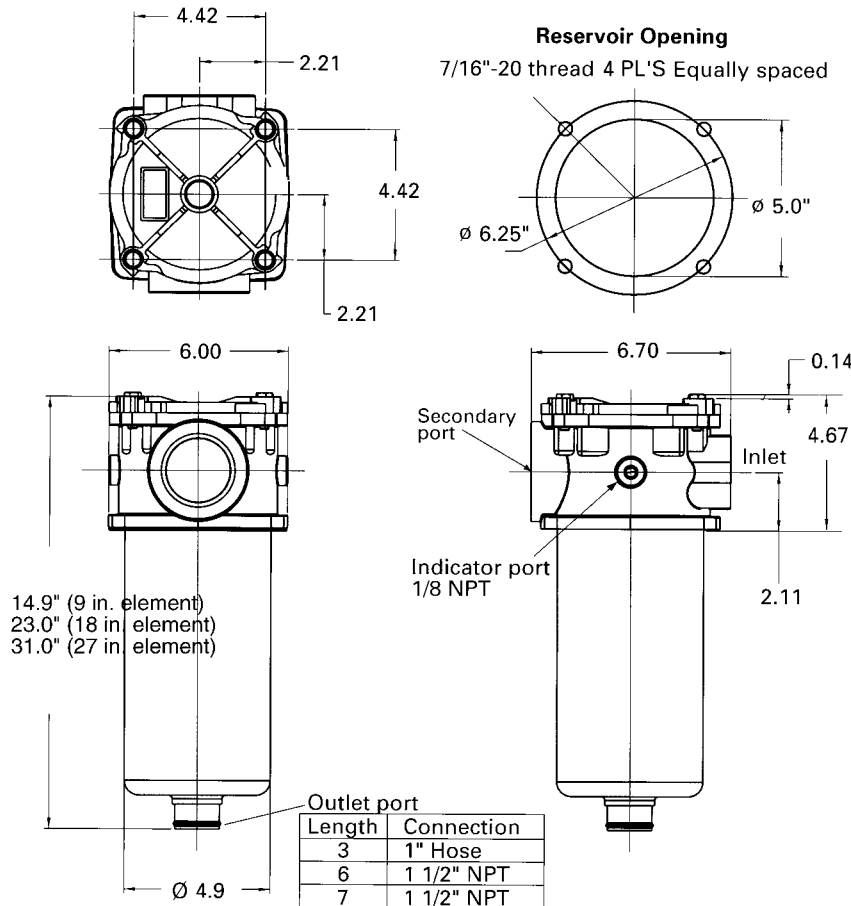
Return Filters

Vickers HF4RT Series

Dimensions & Pressure Drop Curves

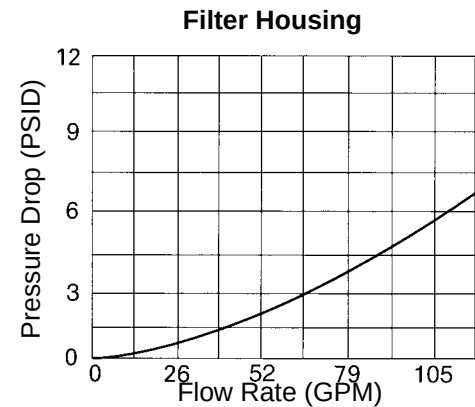


Dimensions



Flow versus Pressure Drop

150 SUS oil with specific gravity of ν 0.9



Element "K" Factor - PSI/GPM

Element	Element	03	05	10	20
Type	Length	Micron	Micron	Micron	Micron
C-Pak	9 inch	0.168	0.140	0.078	0.044
C-Pak	18 inch	0.080	0.066	0.037	0.021
C-Pak	27 inch	0.051	0.043	0.024	0.013

Assembly Pressure Drop = Housing Pressure Drop + Element Pressure Drop

Housing Pressure Drop = PSID from curve above $\times$ (Actual specific gravity / Reference specific gravity)

Element Pressure Drop = PSID from curve above $\times$ (Actual SSU/Reference SSU) $\times$ (Actual specific gravity / Reference specific gravity)

Note: Reference Specific Gravity = 0.9 Reference SSU = 150

Conversion Formulas

Liters per minute $\times$ 0.2642 = Gallons per minute

Bar $\times$ 14.5 = PSI

Technical Information Hydraulic Filters



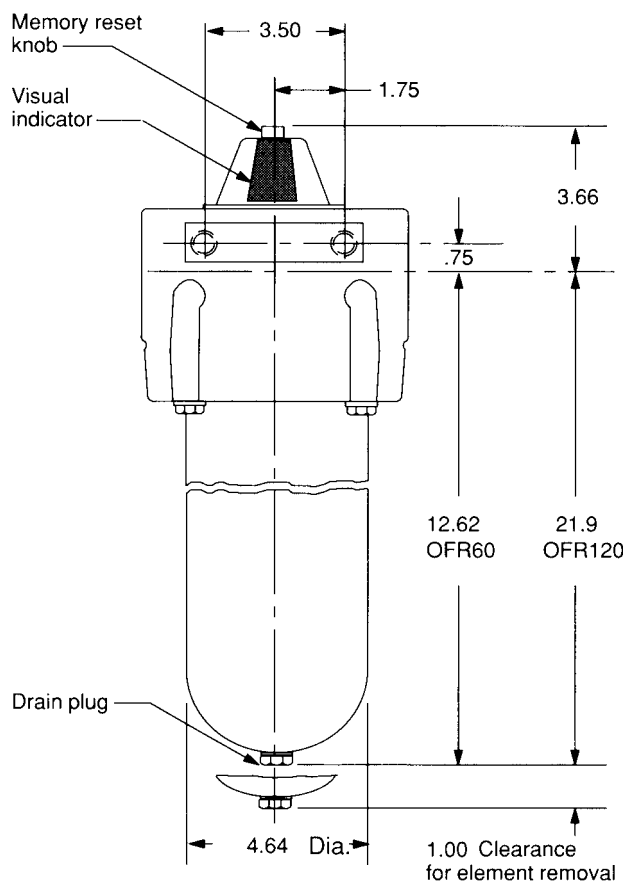
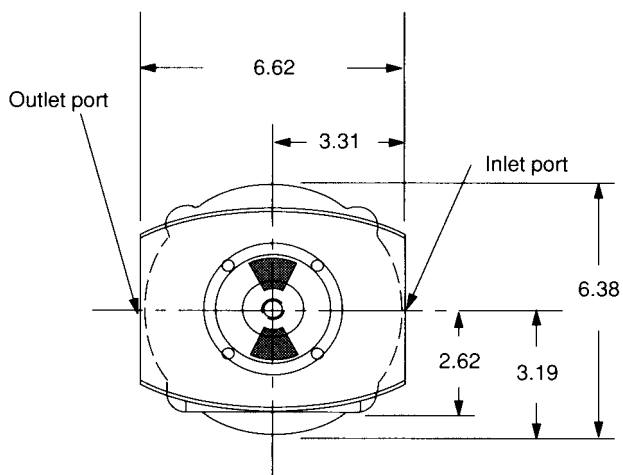
Return Filters



Vickers

Vickers OFR-60 & OFR-120 Series Dimensions & Pressure Drop Curves

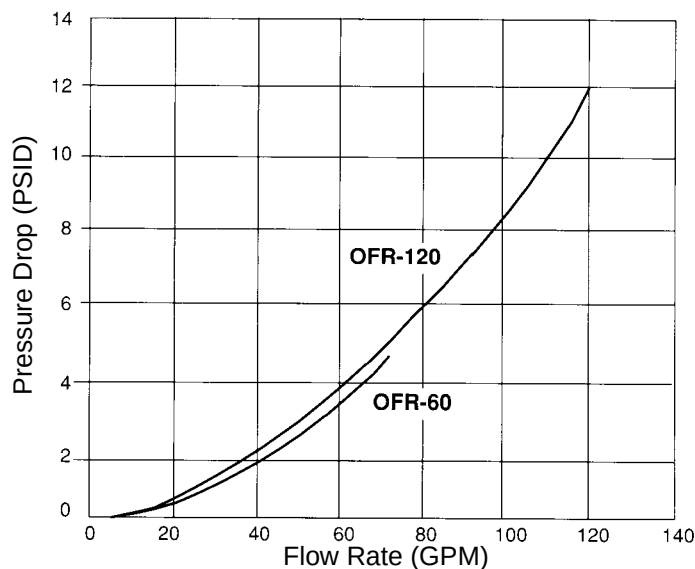
Dimensions



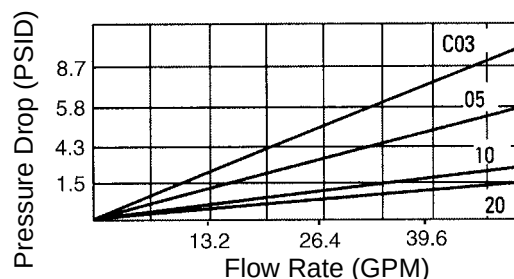
Flow versus Pressure Drop

150 SUS oil with specific gravity of v 0.9

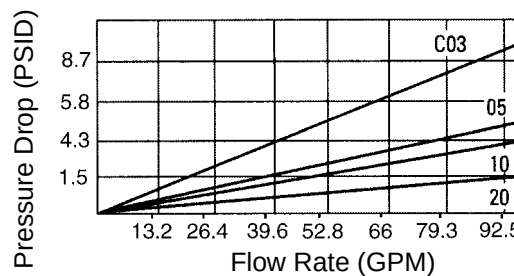
Filter Housing



Filter Element (9 Inch V-pak & C-pak) OFR-60



Filter Element (18 Inch V-pak & C-pak) OFR-120



Note: Reference Specific Gravity = 0.9 Reference SSU = 150

Assembly Pressure Drop = Housing Pressure Drop + Element Pressure Drop

Housing Pressure Drop = PSID from curve above x (Actual specific gravity / Reference specific gravity)

Element Pressure Drop = PSID from curve above x (Actual SSU/Reference SSU) x (Actual specific gravity / Reference specific gravity)

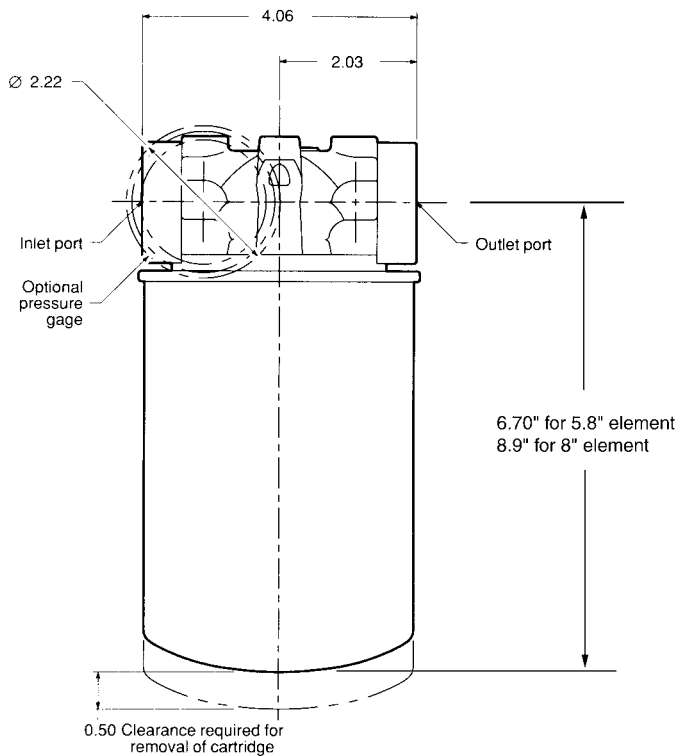
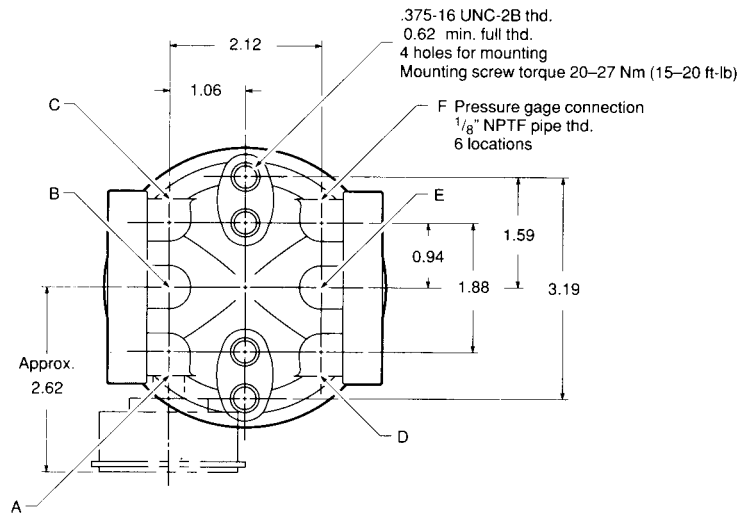


Return Filters



Vickers OFRS-25 Series Dimensions & Pressure Drop Curves

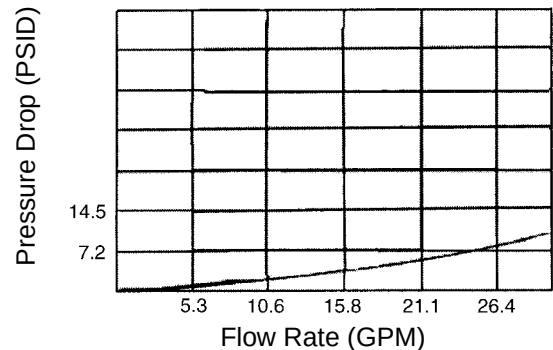
Dimensions



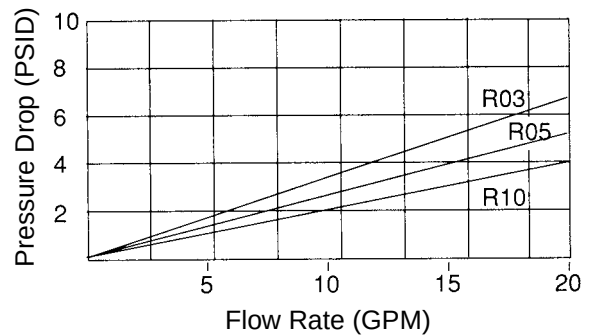
Flow versus Pressure Drop

150 SUS oil with specific gravity of ν 0.9

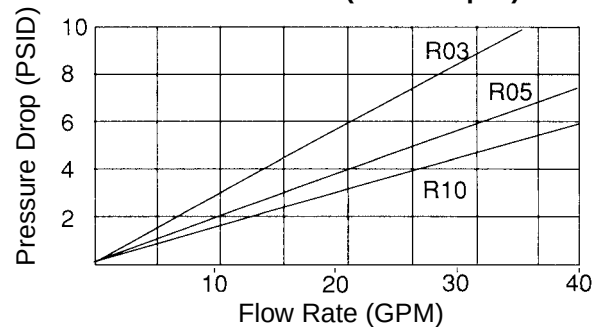
Filter Housing



Filter Element (5.8 Inch R-pak)



Filter Element (8 Inch R-pak)



Assembly Pressure Drop = Housing Pressure Drop + Element Pressure Drop

Housing Pressure Drop = PSID from curve above $\times$ (Actual specific gravity / Reference specific gravity)

Element Pressure Drop = PSID from curve above $\times$ (Actual SSU/Reference SSU) $\times$ (Actual specific gravity / Reference specific gravity)

Note: Reference Specific Gravity = 0.9 Reference SSU = 150

Technical Information Hydraulic Filters



Return Filters

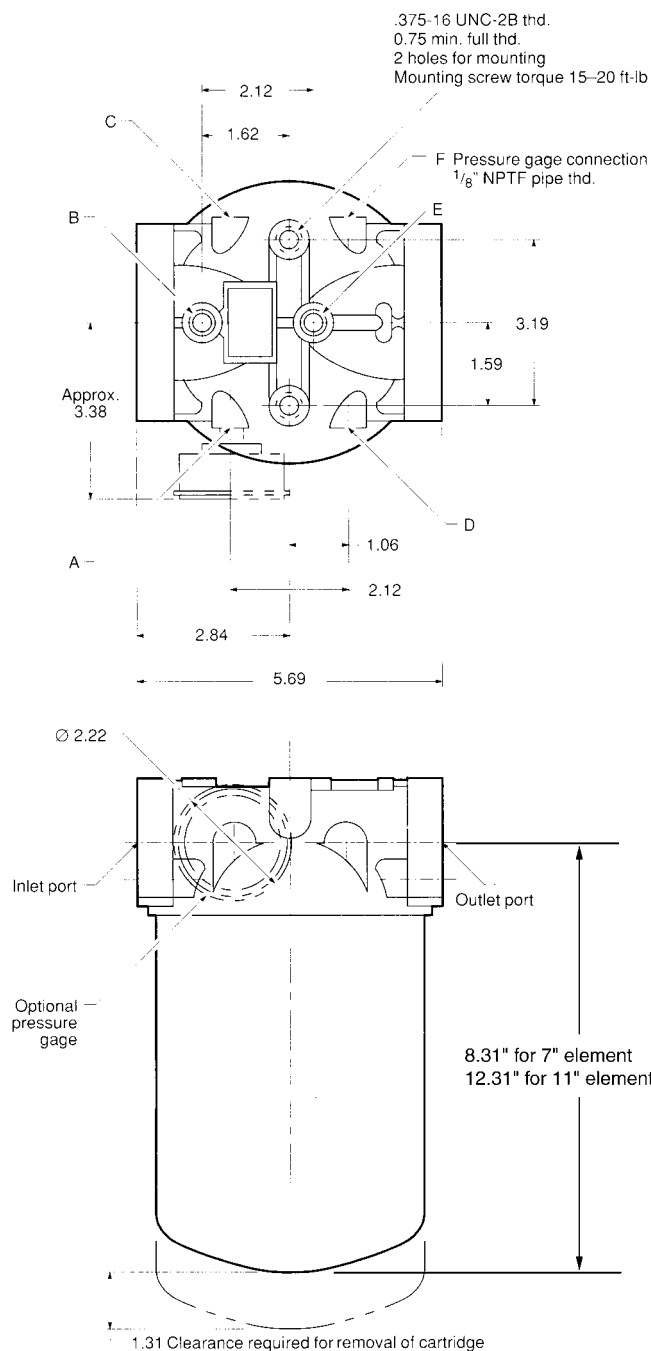


Vickers

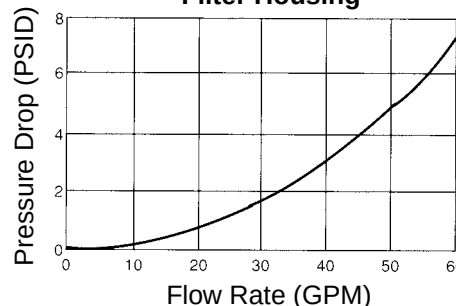
Vickers OFRS-60 Series Dimensions & Pressure Drop Curves

Flow versus Pressure Drop
150 SUS oil with specific gravity of ν 0.9

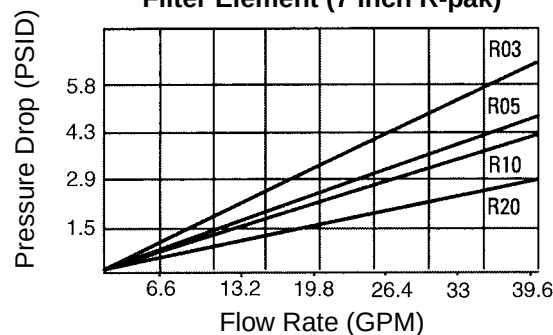
Dimensions



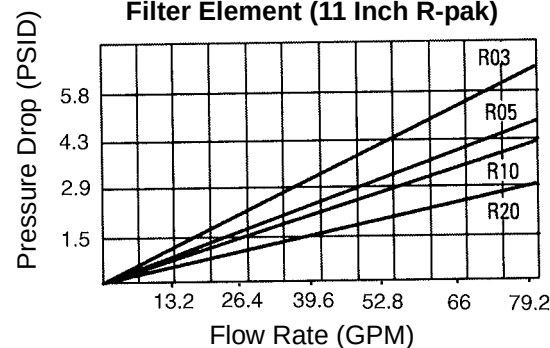
Filter Housing



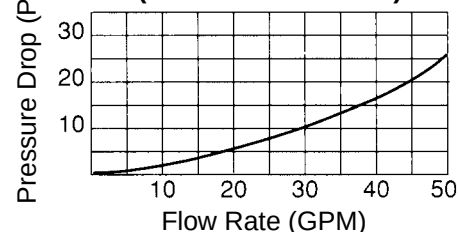
Filter Element (7 Inch R-pak)



Filter Element (11 Inch R-pak)



Filter Element (11 Inch W-pak) (WATER REMOVING)



Assembly Pressure Drop = Housing Pressure Drop + Element Pressure Drop

Housing Pressure Drop = PSID from curve above $\times$ (Actual specific gravity / Reference specific gravity)

Element Pressure Drop = PSID from curve above $\times$ (Actual SSU/Reference SSU) $\times$ (Actual specific gravity / Reference specific gravity)

Note: Reference Specific Gravity = 0.9 Reference SSU = 150

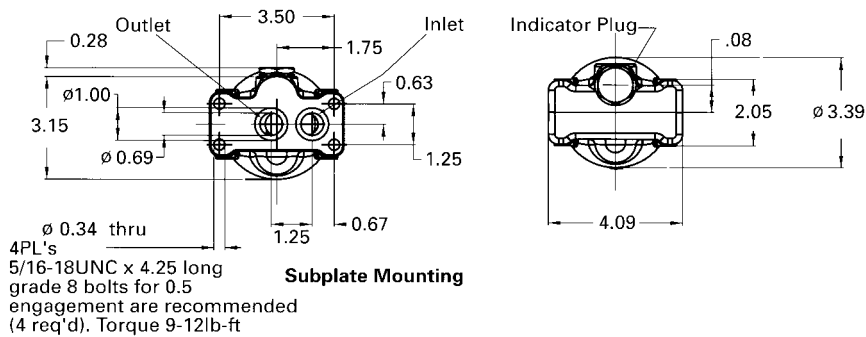


Pressure Filters

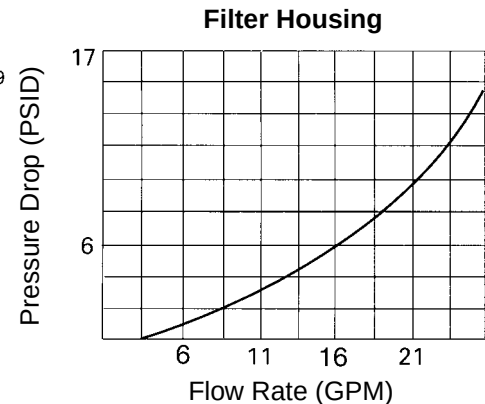


Vickers HF2P Series Dimensions & Pressure Drop Curves

Dimensions



Flow versus Pressure Drop
150 SUS oil with specific gravity of v 0.9



Element "K" Factor - PSI/GPM

Element	Element	03	05	10	25
Type	Length	Micron	Micron	Micron	Micron
C-Pak	4 inch	2.046	1.735	0.924	0.531
C-Pak	8 inch	1.011	0.858	0.457	0.262
H-Pak	4 inch	2.396	1.688	1.026	--
H-Pak	8 inch	0.865	0.820	0.499	--

Assembly Pressure Drop = Housing Pressure Drop + Element Pressure Drop

Housing Pressure Drop = PSID from curve above x (Actual specific gravity / Reference specific gravity)

Element Pressure Drop = PSID from curve above x (Actual SSU/Reference SSU) x (Actual specific gravity / Reference specific gravity)

Note: Reference Specific Gravity = 0.9 Reference SSU = 150

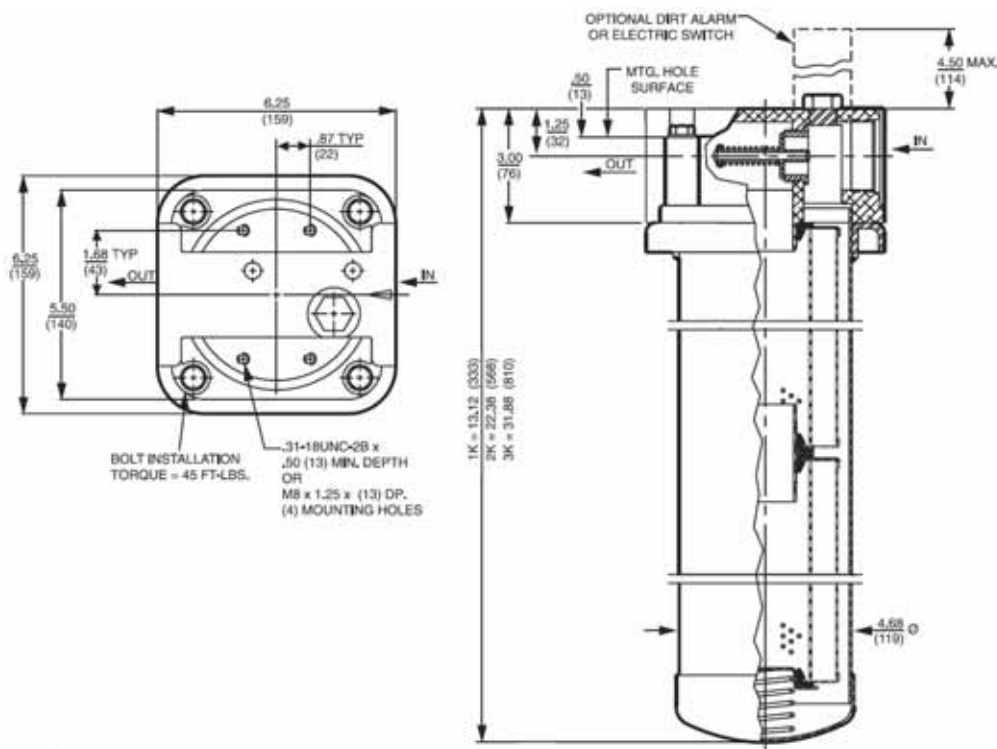
Technical Information Hydraulic Filters



Return Filters



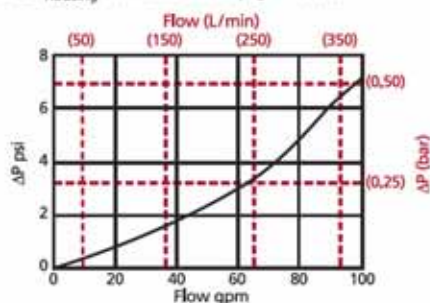
Schroeder KF3 Series Dimensions & Pressure Curves



Metric dimensions in ().

$\Delta P_{\text{housing}}$

KF3 $\Delta P_{\text{housing}}$ for fluids with sp gr = 0.86:



sp gr = specific gravity

Sizing of elements should be based on element flow information provided in the Element Selection chart above.

$$\Delta P_{\text{filter}} = \Delta P_{\text{housing}} + \Delta P_{\text{element}}$$

Exercise:

Determine ΔP at 60 gpm (225 L/min) for KF32KZ5SD5 using 200 SUS (44 cSt) fluid.

Solution:

$$\begin{aligned} \Delta P_{\text{housing}} &= 3.5 \text{ psi } [.24 \text{ bar}] \\ \Delta P_{\text{element}} &= 60 \times .04 \times (200 \div 150) = 3.2 \text{ psi} \\ &\text{or} \\ &= [225 \times (.04 \div 54.9) \times (44 \div 32) = .23 \text{ bar}] \\ \Delta P_{\text{total}} &= 3.5 + 3.2 = 6.7 \text{ psi} \\ &\text{or} \\ &= [.24 + .23 = .47 \text{ bar}] \end{aligned}$$

$\Delta P_{\text{element}}$

$\Delta P_{\text{element}} = \text{flow} \times \text{element } \Delta P \text{ factor} \times \text{viscosity factor}$

El. ΔP factors @ 150 SUS (32 cSt):

	1K	2K	3K		1K	2K
K3	.25	.12	.08			
K10	.09	.05	.03			
K25	.02	.01	.01			
KZ1	.20	.10	.05	KDZ1	.24	.12
KZ3/KAS3	.10	.05	.03	KDZ3	.12	.06
KZ5/KAS5	.08	.04	.02	KDZ5	.10	.05
KZ10/KAS10	.05	.03	.02	KDZ10	.06	.03
KZ25	.04	.02	.01	KDZ25	.04	.02
	1K	2K				
KZW1	.43					
KZW3	.32	.16				
KZW5	.28	.14				
KZW10	.23	.12				
KZW25	.14	.07				

If working in units of bars & L/min, divide above factor by 54.9.

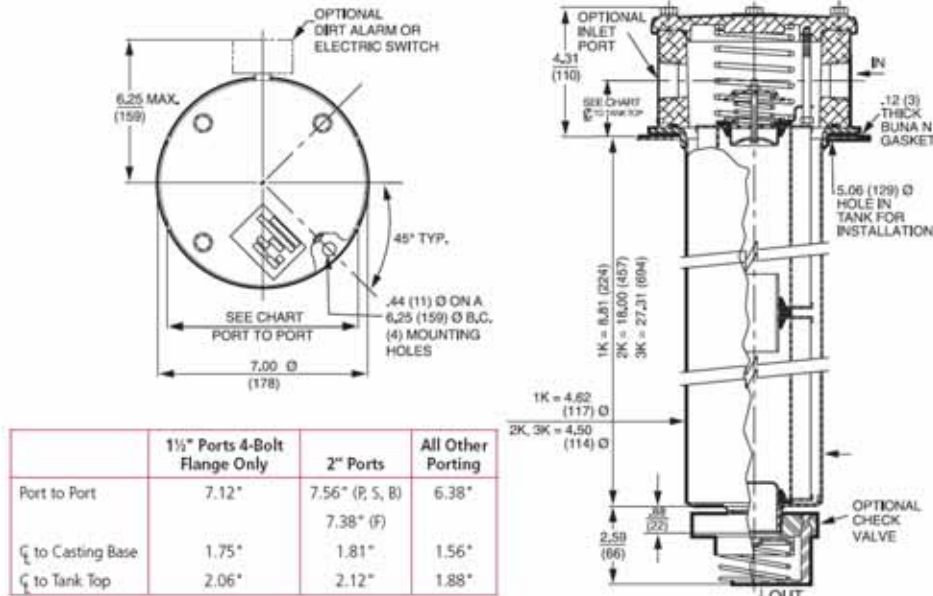
Viscosity factor: Divide viscosity by 150 SUS (32 cSt).



Return Filters



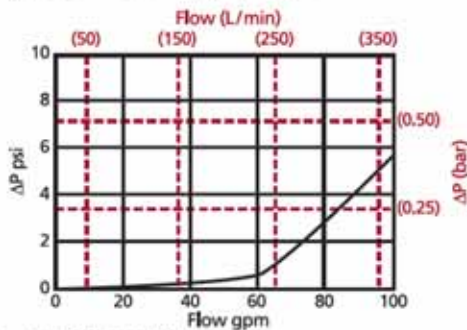
Schroeder RT Series Dimensions & Pressure Curves



Metric dimensions in ().

$\Delta P_{\text{housing}}$

RT $\Delta P_{\text{housing}}$ for fluids with sp gr = 0.86:



sp gr = specific gravity

Sizing of elements should be based on element flow information provided in the Element Selection chart above.

$$\Delta P_{\text{filter}} = \Delta P_{\text{housing}} + \Delta P_{\text{element}}$$

Exercise:

Determine ΔP at 80 gpm (300 L/min) for RT1KZ10P24NN using 200 SUS (44 cSt) fluid.

Solution:

$$\begin{aligned} \Delta P_{\text{housing}} &= 3.0 \text{ psi } [.20 \text{ bar}] \\ \Delta P_{\text{element}} &= 80 \times .05 \times (200 \div 150) = 5.3 \text{ psi} \\ &\text{or} \\ &= [300 \times (.05 \div 54.9) \times (44 \div 32)] = .38 \text{ bar} \\ \Delta P_{\text{total}} &= 3.0 + 5.3 = 8.3 \text{ psi} \\ &\text{or} \\ &= [.20 + .38 = .58 \text{ bar}] \end{aligned}$$

$\Delta P_{\text{element}}$

$$\Delta P_{\text{element}} = \text{flow} \times \text{element } \Delta P \text{ factor} \times \text{viscosity factor}$$

El. ΔP factors @ 150 SUS (32 cSt):

	1K	2K	3K		1K	2K
K3	.25	.12	.08			
K10	.09	.05	.03			
K25	.02	.01	.01			
KZ1	.20	.10	.05	KDZ1	.24	.12
KZ3/KAS3	.10	.05	.03	KDZ3	.12	.06
KZ5/KAS5	.08	.04	.02	KDZ5	.10	.05
KZ10/KAS10	.05	.03	.02	KDZ10	.06	.03
KZ25	.04	.02	.01	KDZ25	.04	.02

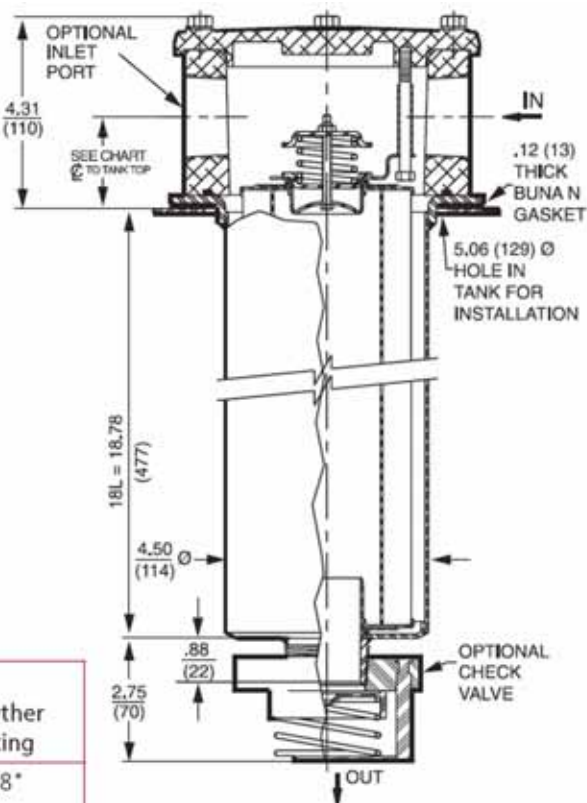
	1K	2K
KZW1	.43	
KZW3	.32	.16
KZW5	.28	.14
KZW10	.23	.12
KZW25	.14	.07

If working in units of bars & L/min, divide above factor by 54.9.

Viscosity factor: Divide viscosity by 150 SUS (32 cSt).

Schraeder
INDUSTRIES

Hydraulic Power & Control

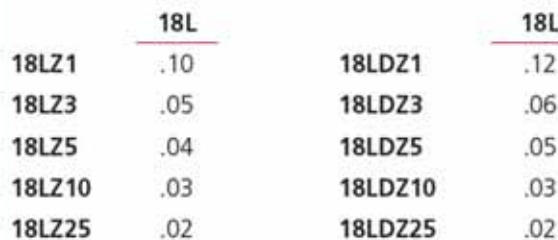


Pneumatic Power & Control

Fluid Conveying

Miscellaneous Products

Indexes & Technical Information

El. ΔP factors @ 150 SUS (32 cSt):

Viscosity factor: Divide viscosity by 150 SUS (32 cSt).

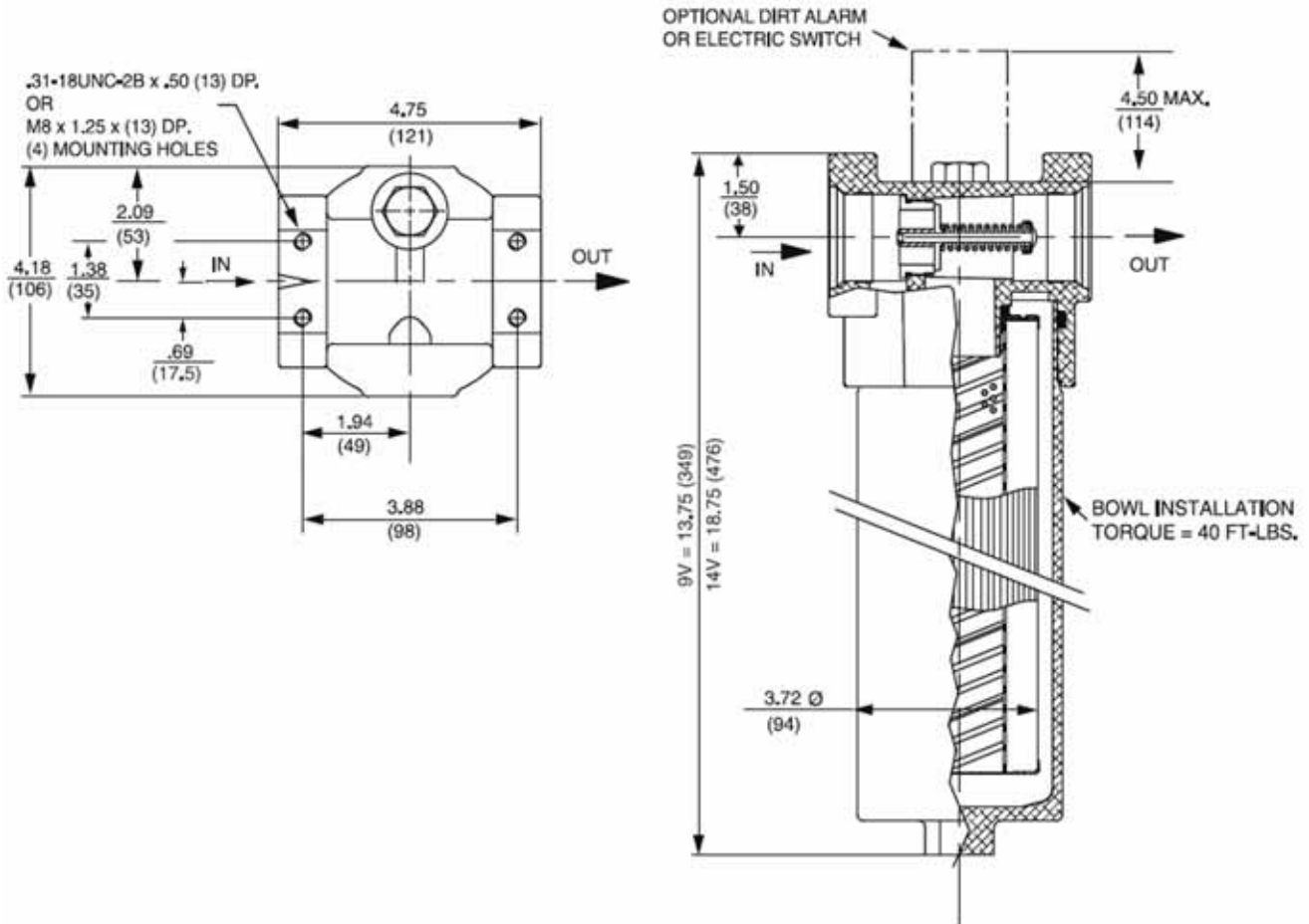
726

This page is part of a complete catalog which contains technical and safety data that must be reviewed when selecting a product.

Pressure Filters



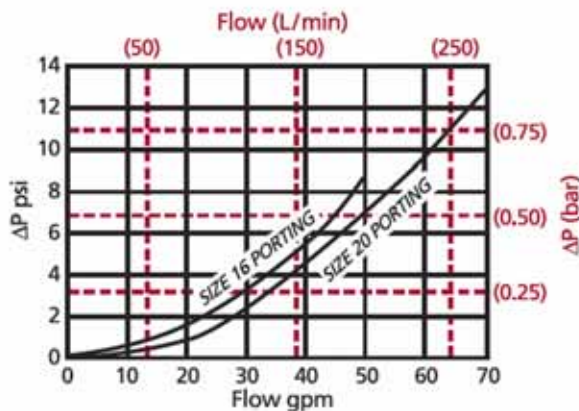
Schroeder RLT Series Dimensions & Pressure Curves



Metric dimensions in ().

$\Delta P_{\text{housing}}$

RLT $\Delta P_{\text{housing}}$ for fluids with sp gr = 0.86:



$\Delta P_{\text{element}}$

$\Delta P_{\text{element}} = \text{flow} \times \text{element } \Delta P \text{ factor} \times \text{viscosity factor}$

El. ΔP factors @ 150 SUS (32 cSt):

	9V		14V
9V3	.32	14V3	.19
9V10	.24	14V10	.15
9V21	.34	14V21	.21
9V23	.21	14V23	.17
9V25	.13	14V25	.09
9V10	.11	14V210	.08
9V225	.06	14V225	.05

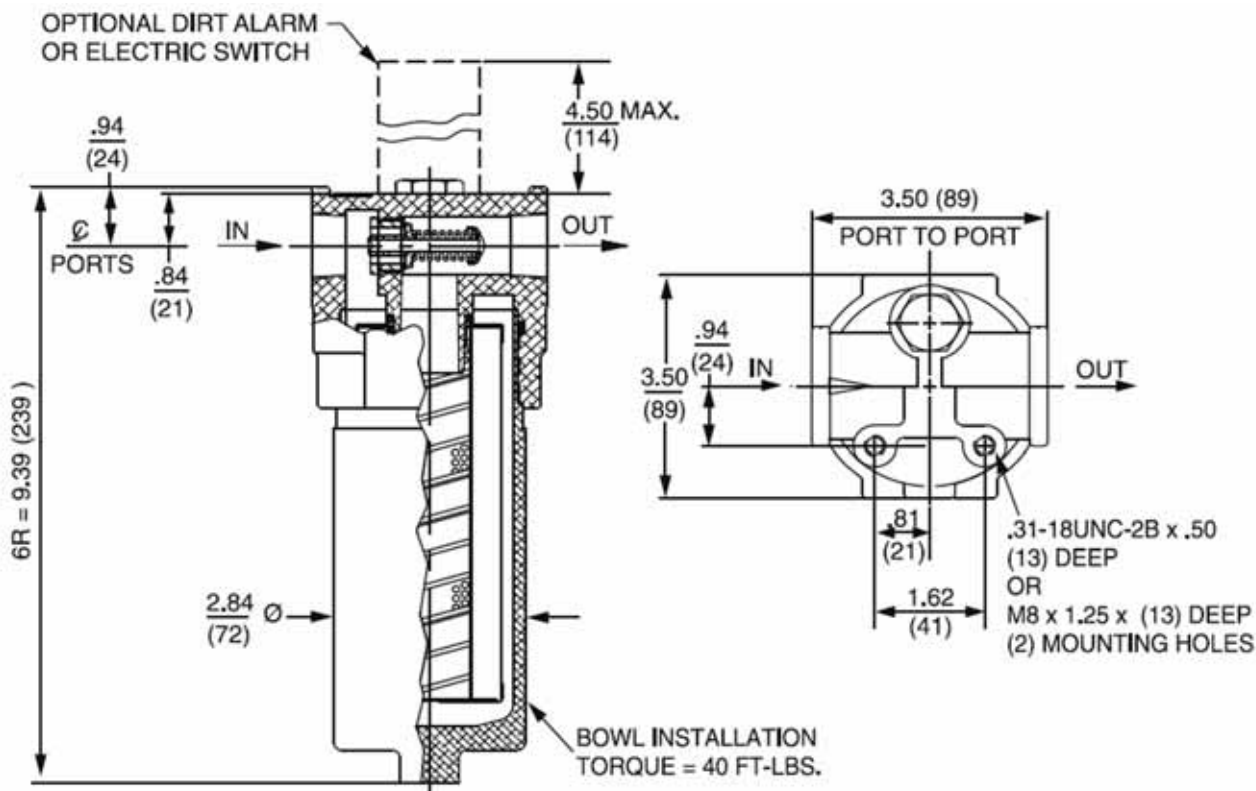
If working in units of bars & L/min, divide above factor by 54.9.

Viscosity factor: Divide viscosity by 150 SUS (32 cSt).

Pressure Filters



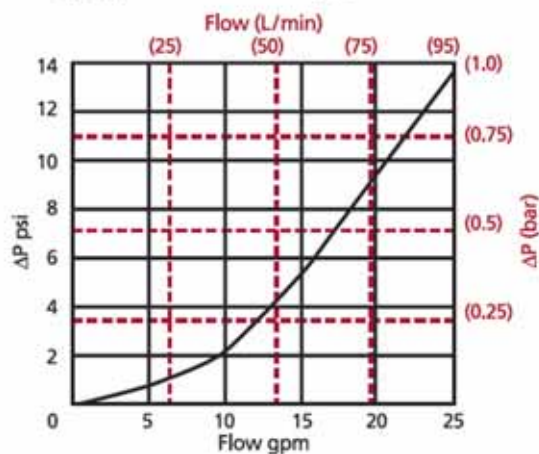
Schroeder SRLT Series Dimensions & Pressure Curves



Metric dimensions in ().

$\Delta P_{\text{housing}}$

SRLT $\Delta P_{\text{housing}}$ for fluids with sp gr = 0.86:



$\Delta P_{\text{element}}$

$\Delta P_{\text{element}} = \text{flow} \times \text{element } \Delta P \text{ factor} \times \text{viscosity factor}$

El. ΔP factors @ 150 SUS (32 cSt):

6R3	.45
6R10	.38
6RZ1	1.11
6RZ3	.55
6RZ5	.50
6RZ10	.46
6RZ25	.14

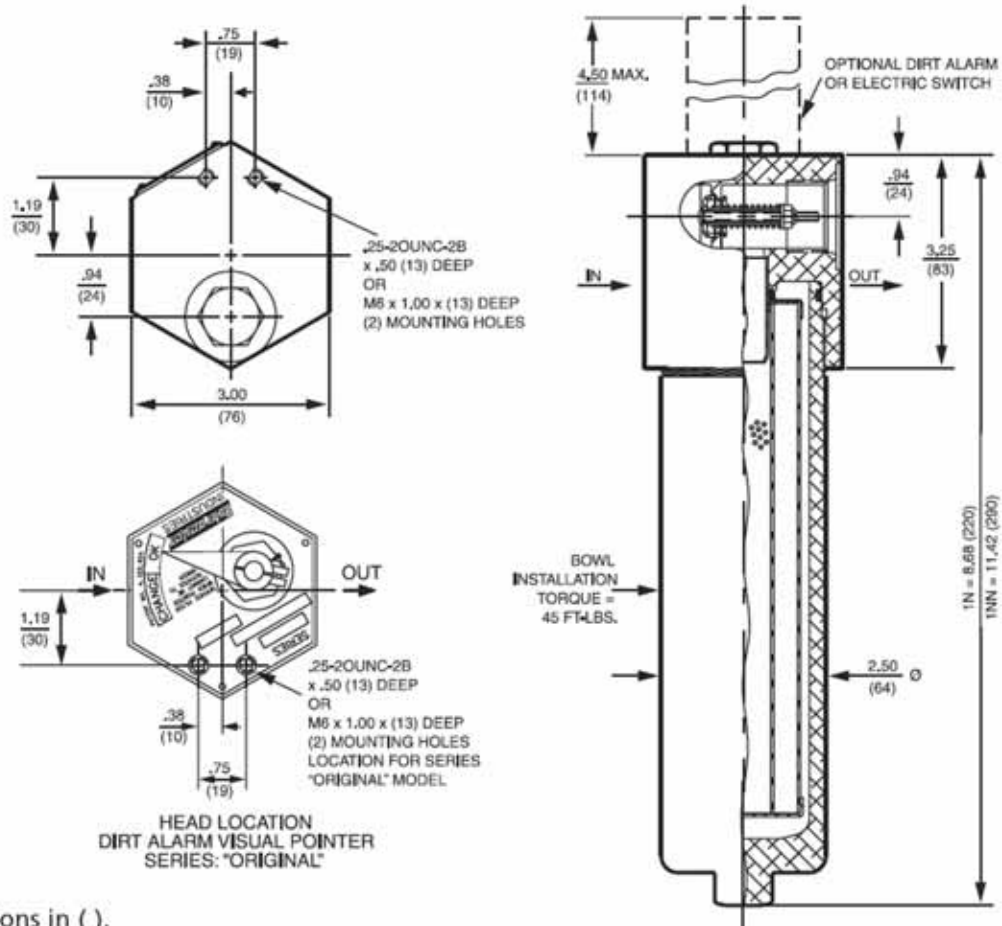
If working in units of bars & L/min, divide above factor by 54.9.

Viscosity factor: Divide viscosity by 150 SUS (32 cSt).

Pressure Filters



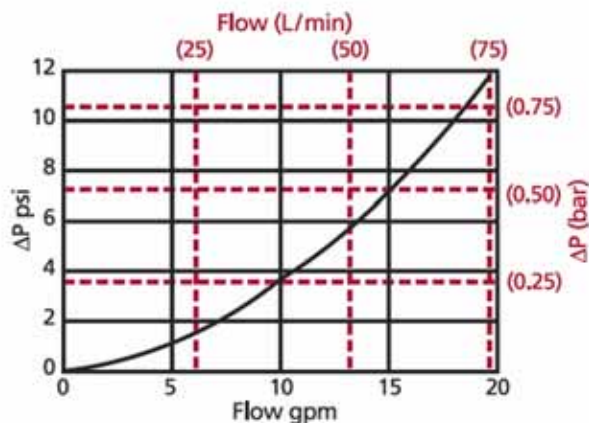
Schroeder NF30 Series Dimensions & Pressure Curves



Metric dimensions in ().

$\Delta P_{\text{housing}}$

NF30 $\Delta P_{\text{housing}}$ for fluids with sp gr = 0.86:



sp gr = specific gravity

$\Delta P_{\text{element}}$

$\Delta P_{\text{element}}$ = flow x element ΔP factor x viscosity factor

El. ΔP factors @ 150 SUS (32 cSt):

	1N	1NN
N3	1.10	.77
N10	.17	.13
N25	.10	.07
NZ1	1.43	1.23
NZ3/NAS3	.92	.56
NZ5/NAS5	.71	.46
NZ10/NAS10	.57	.35
NZ25	.36	.20
	NNZX3	1.00
	NNZX10	.52

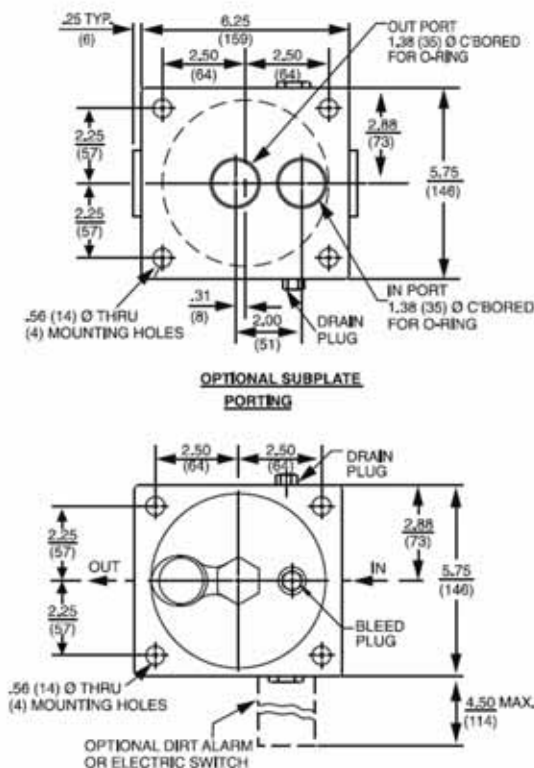
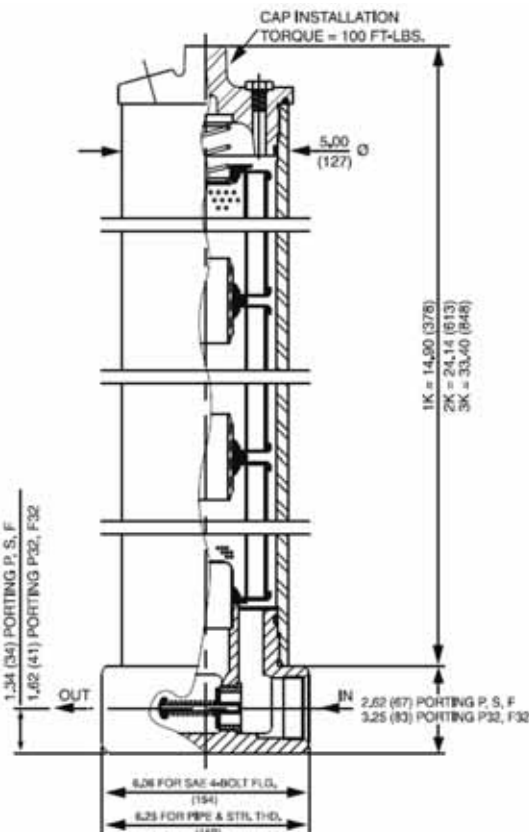
If working in units of bars & L/min, divide above factor by 54.9.

Viscosity factor: Divide viscosity by 150 SUS (32 cSt).

Pressure Filters



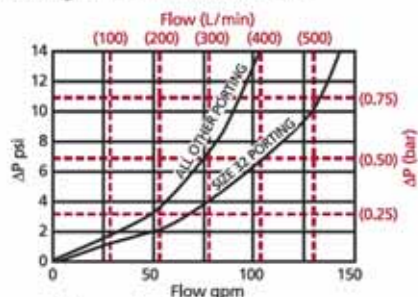
Schroeder KF30 Series Dimensions & Pressure Curves



Metric dimensions in ().

$\Delta P_{\text{housing}}$

KF30 $\Delta P_{\text{housing}}$ for fluids with sp gr = 0.86:



sp gr = specific gravity

Sizing of elements should be based on element flow information provided in the Element Selection chart above.

$\Delta P_{\text{element}}$

$\Delta P_{\text{element}} = \text{flow} \times \text{element } \Delta P \text{ factor} \times \text{viscosity factor}$

El. ΔP factors @ 150 SUS (32 cSt):

	1K	2K/KK	3K/27K
K3	.25	.12	.08
K10	.09	.05	.03
K25	.02	.01	.01
K21	.20	.10	.05
KZ3/KAS3/KKAS3/27KAS3	.10	.05	.03
KZ5/KAS5/KKAS5/27KAS5	.08	.04	.02
KZ10/KAS10/KKAS10/27KAS10	.05	.03	.02
KZ25	.04	.02	.01
KZX10	.22	.11	.07

	1K	2K
KZW1	.43	
KZW3	.32	.16
KZW5	.28	.14
KZW10	.23	.12
KZW25	.14	.07

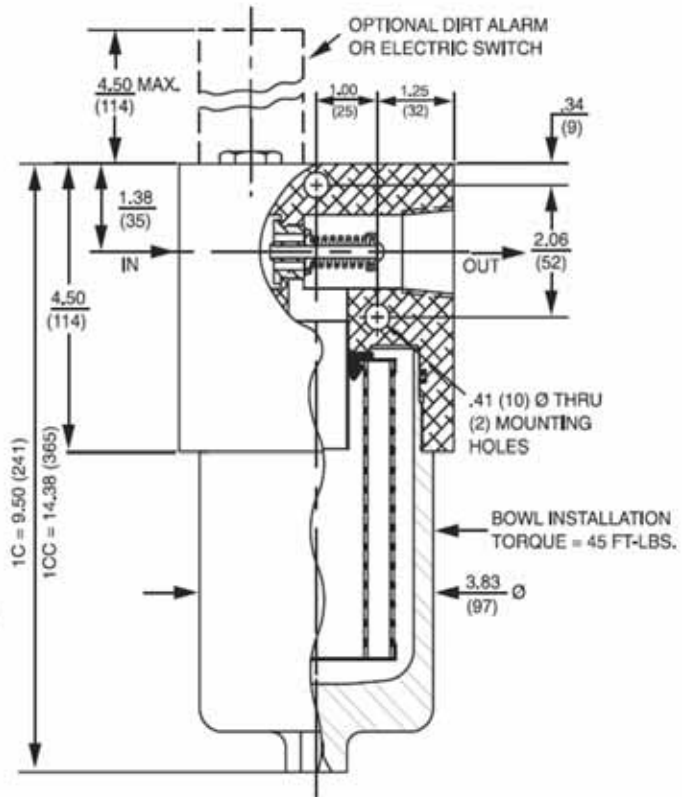
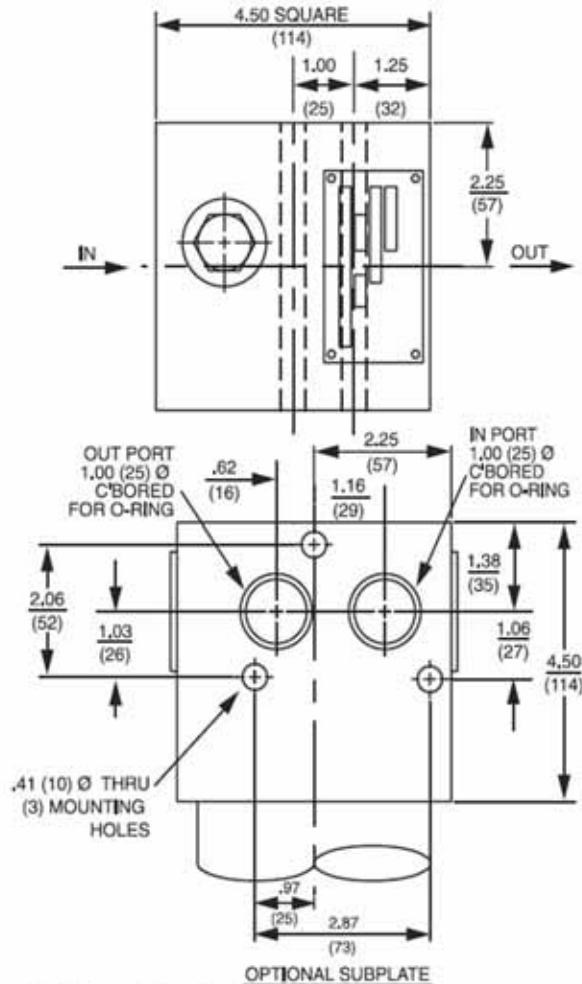
If working in units of bars & L/min, divide above factor by 54.9.

Viscosity factor: Divide viscosity by 150 SUS (32 cSt).

Pressure Filters



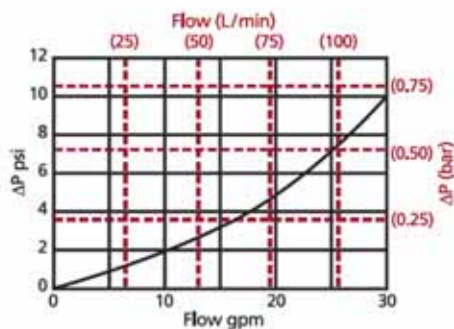
Schroeder DF40 Series Dimensions & Pressure Curves



Metric dimensions in (). PORTING

$\Delta P_{\text{housing}}$

DF40 $\Delta P_{\text{housing}}$ for fluids with sp gr = 0.86:



sp gr = specific gravity

$\Delta P_{\text{element}}$

$\Delta P_{\text{element}}$ = flow x element ΔP factor x viscosity factor

El. ΔP factors @ 150 SUS (32 cSt):

	1C		1CC
C3	.50	CC3	.22
C10	.19	CC10	.13
C25	.09	CC25	.03
CZ1	.70	CCZ1	.35
CZ3/CAS3	.50	CCZ3/CCAS3	.20
CZ5/CAS5	.32	CCZ5/CCAS5	.19
CZ10/CAS10	.25	CCZ10/CCAS10	.10
CZ25	.14	CCZ25	.05
		CCZX3	.29
		CCZX10	.26

If working in units of bars & L/min, divide above factor by 54.9.

Viscosity factor: Divide viscosity by 150 SUS (32 cSt).

Technical Information Power Units & Accessories



Hydraulic Power Units



GC8000 Series Model Codes

GC8000	M	08	C	0	01	D	A	A	12	3	A	12	0	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	

Motor Terminal & Start Switch Location
Views are shown on page 737 .

Code	(1) Valve Options	Kit. No.
N	No Release Valve	1300209 Adapter Kit 1300191 Port Plug Kit
M	Manual Release Valve	1300209 Adapter Kit 1300192 Man. Vlv Kit
E	Solenoid Release Valve	1300209 Adapter Kit 1300023 12V Vlv Kit †1300024 24V Vlv Kit
O	Manual Over-Ride Electrical Release Valve	1300209 Adapter Kit †1300783 12V Vlv Kit †1300784 24V Vlv Kit
A	For Subplate Manifolds ("A" Series)	†1300846 Adapter Kit

Note: Codes N, M, E and O require 2 kits.
† Non-stock item.

Code	(2) Gear Pump Size	Kit. No.
04	.125" Gear .065 cu.in.	1300174
06	.187" Gear .097 cu.in.	1300176
08	.250" Gear .129 cu.in.	1300171
10	.312" Gear .161 cu.in.	1300625
12	.375" Gear .194 cu.in.	1300169
16	.500" Gear .258 cu.in.	1300172

Code	(3) Relief Valve Setting	Kit. No.
A	500 PSI	1300116
B	1000 PSI	1300116
C	1500 PSI	1300021
D	2000 PSI	1300021
E	2500 PSI	1300021

Note: Relief valves are field adjustable from 100 to 3000 PSI. Consult us for settings above 2500 PSI.

Code	(4) Pressure Comp. Flow Regulator	Kit. No.
0	No Valve	--
1	1 GPM Valve	1303448
2	2 GPM Valve	1300022
3	3 GPM Valve	1303451
4	4 GPM Valve	1303452

Note: Not available with option A in Section 1

Code	(5) Motor	Kit. No.
01	12VDC Single Terminal Standard Duty	1300027
20	12VDC Double Terminal Medium Duty	1300618
30	12VDC Double Terminal Medium Duty with brkt.	†1300623
40	24VDC Double Terminal Medium Duty	1300619
50	24VDC Double Terminal Medium Duty with brkt.	†1300624
60	24VDC Single Terminal Standard Duty	†1303173
7*	Ground Strap for motor	†1300620
06	Extended Shaft Adapter Drive	†1300335

* Required to change Medium Duty Double Terminal motor to Single Terminal.
Substitute a "7" for the "0" in options 20, 30, 40 or 50.

† Non-stock item.

Note: Double Terminal motors are used when an external ground is required.

Code	(6) Reservoir	Kit. No.
A	1 Quart (4.8" Dia.)	1300134
B	1.5 Quart (4.8" Dia.)	1300135
C	2 Quart (4.8" Dia.)	1300028
D	3 Quart (4.8" Dia.)	1300039
L	1 Gallon (6.6" Dia.)	1303176
M	1.5 Gallon (6.6" Dia.)	†1303177
N	2 Gallon (6.6" Dia.)	1303178
H	2.5 Gallon (Rectangular)	1300125
J	4 Gallon (Rectangular)	1300284

Note: Suction & Return Line parts included.

Code	(7) Adapter Mounting Position	Kit. No.
A	Std. mount Pad "A" down. Valves & manifolds at 9 O'Clock (Side)	--
B	Opt. mount Pad "B" down. Valves & manifolds at 12 O'Clock (Up)	--
C	Same as "A" except brkt on Pad "A" side	Motor 01 or 60 †1300118 BrktKit
D	Same as "B" except brkt on Pad "B" side	Motor 01 or 60 †1300118 BrktKit
E	Same as "A" except brkt on Pad "A" side	Motor 30 or 50
F	Same as "B" except brkt on Pad "B" side	Motor 30 or 50

Code	(8) Motor Start Switch	Descr.	Kit. No.
A	Case (Internal) Neg. grounded	12VDC 3-Pole*	1300939
B		24VDC 3-Pole*	†1300106
C	Externally "Battery" positive grounded	12VDC 3-Pole	†1300101
D		24VDC 3-Pole	†1300103
E	Non-Grounded (UL Required)	12VDC 4-Pole**	1300937
F		24VDC 4-Pole**	1300938
G	No Start Switch Required		--

* Recommended for most Single Terminal.

** Recommended for most Double Terminal.

† Non-stock item.

Code	(9) Motor Terminal Orientation
03	At 3 O'Clock to Pad "A"
06	At 6 O'Clock to Pad "A"
09	At 9 O'Clock to Pad "A"
12	At 12 O'Clock to Pad "A" (Std)

Code	(10) Start Switch Position
0	No Start Switch
1	Position 1
2	Position 2
3	Position 3 (Std)
4	Position 4
5	Position 5

Code	(11) Mounting Position	Kit. No.
A	Horizontal	--
B	Vertical (Elbow Fitting)	†1300626

Code	(12) Breather Position
03	At 3 O'Clock to Pad "A"
06	At 6 O'Clock to Pad "A"
09	At 9 O'Clock to Pad "A"
12	At 12 O'Clock to Pad "A" (Std)

Code	(13) Manifold	Kit. No.
0	None	--
1	*D03 Primary Manifold	†1300847
2	*D03 Secondary Manifold	†1300848

Note: Must use Code "A" in Section 1.

Code	(14) Pendant Control	Kit. No.
A	Electric Cord Set for remote raise & lower (used with opt. E Section 1)	†1300651





Technical Information Power Units & Accessories

Hydraulic Power Units



GC8001 Series Model Codes

GC8001	C	08	D	01	L	A	A	12	3	A	12	BH	1		Motor Terminal & Start Switch Location Views are shown on page 737 .
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	

Code	(1) Valve Options	Kit. No.
C	Cartridge Directional Valve	1300743 Adapter Kit
D	D03 Valve Direct Mount	1300744 Adapter Kit
F	Manual Valve Direct Mount	†1303118 Adapter Kit

Note: Select valves and coils from Sections 12 and 13.

Code	(2) Gear Pump Size	Kit. No.
04	.125" Gear .065 cu.in.	1300174
06	.187" Gear .097 cu.in.	1300176
08	.250" Gear .129 cu.in.	1300171
10	.312" Gear .161 cu.in.	1300625
12	.375" Gear .194 cu.in.	1300169
16	.500" Gear .258 cu.in.	1300172

Code	(3) Relief Valve Setting	Kit. No.
A	500 PSI	1300116
B	1000 PSI	1300116
C	1500 PSI	1300021
D	2000 PSI	1300021
E	2500 PSI	1300021

Note: Relief valves are field adjustable from 100 to 3000 PSI. Consult us for settings above 2500 PSI.

Code	(4) Motor	Kit. No.
01	12VDC Single Terminal Standard Duty	1300027
20	12VDC Double Terminal Medium Duty	1300618
30	12VDC Double Terminal Medium Duty with brkt.	†1300623
40	24VDC Double Terminal Medium Duty	1300619
50	24VDC Double Terminal Medium Duty with brkt.	†1300624
60	24VDC Single Terminal Standard Duty	†1303173
7*	Ground Strap for motor	†1300620
06	Extended Shaft Adapter Drive	†1300849

* Required to change Medium Duty Double Terminal motor to Single Terminal.
Substitute a "7" for the "0" in options 20, 30, 40 or 50.

† Non-stock item.

Note: Double Terminal motors are used when an external ground is required.

Code	(5) Reservoir	Kit. No.
A	1 Quart (4.8" Dia.)	1300134
B	1.5 Quart (4.8" Dia.)	1300135
C	2 Quart (4.8" Dia.)	1300028
D	3 Quart (4.8" Dia.)	1300039
L	1 Gallon (6.6" Dia.)	1303176
M	1.5 Gallon (6.6" Dia.)	†1303177
N	2 Gallon (6.6" Dia.)	1303178
H	2.5 Gallon (Rectangular)	1300125
J	4 Gallon (Rectangular)	1300284

Note: Suction & Return Line parts included.

Code	(6) Adapter Mounting Position	Kit. No.
A	Std. mount Pad "A" down. Valves & manifolds at 9 O'Clock (Side)	--
B	Opt. mount Pad "B" down. Valves & manifolds at 12 O'Clock (Up)	--
C	Same as "A" except brkt on Pad "A" side	Motor 01 or 60 †1300118 BrktKit
D	Same as "B" except brkt on Pad "B" side	Motor 01 or 60 †1300118 BrktKit
E	Same as "A" except brkt on Pad "A" side	Motor 30 or 50
F	Same as "B" except brkt on Pad "B" side	Motor 30 or 50

Code	(7) Motor Start Switch	Descr.	Kit. No.
A	Case (Internal)	12VDC 3-Pole*	1300939
B	Neg. grounded	24VDC 3-Pole*	†1300106
C	Externally "Battery"	12VDC 3-Pole	†1300101
D	positive grounded	24VDC 3-Pole	†1300103
E	Non-Grounded (UL Required)	12VDC 4-Pole**	1300937
F		24VDC 4-Pole**	1300938
G	No Start Switch Required	--	--

* Recommended for most Single Terminal.

** Recommended for most Double Terminal.

† Non-stock item.

Code	(8) Motor Terminal Orientation
03	At 3 O'Clock to Pad "A"
06	At 6 O'Clock to Pad "A"
09	At 9 O'Clock to Pad "A"
12	At 12 O'Clock to Pad "A" (Std)

Code	(9) Start Switch Position
0	No Start Switch
1	Position 1
2	Position 2
3	Position 3 (Std)
4	Position 4
5	Position 5

Code	(10) Mounting Position	Kit. No.
A	Horizontal	--
B	Vertical (Elbow Fitting)	†1300626

Code	(11) Breather Position
03	At 3 O'Clock to Pad "A"
06	At 6 O'Clock to Pad "A"
09	At 9 O'Clock to Pad "A"
12	At 12 O'Clock to Pad "A" (Std)

Code	(12) Directional Control Valves	Kit. No.
A	2-Position 4-Way	†1300729
B	3-Position 4-Way Tandem Center	1300785
C	3-Position 4-Way Open Center	†1300786
F	Pilot Operated Check C1	1300727
G	Pilot Operated Check C2	†1300728
H	Double Pilot Check	†1300763
M	3-Position 4-Way Tandem Center Manual Valve with Integral Motor Relay Switch	†1303121

Note: Codes A, B, C, F and G require Valve Option C in Section 1.

Code M requires Valve Option F in Section 1. To order a unit with both cartridge and pilot operated check valves, put both Order Codes in field 12. Must use adapter "C" in Section 1.

† Non-stock item.

Code	(13) DC Valve Coil	Kit. No.
1	12VDC	1300740
2	24VDC	1300741

Note: One coil is required for 2-Position valves, Two for 3-Position valves.



Technical Information Power Units & Accessories



Hydraulic Power Units



GC8000/GC8001 Series Output Flow & Current Draw

To find output flow at a certain pressure: Plot a vertical line from pressure up to dashed gear face line.

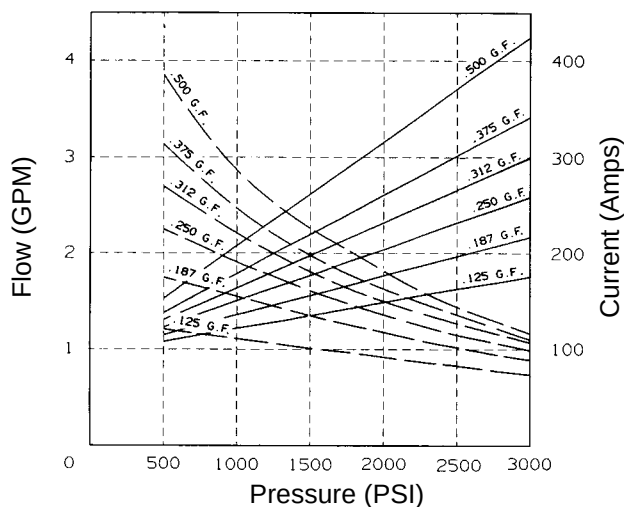
Then plot a horizontal line from that intersection to left to find output flow.

To find current draw at a certain pressure: Plot a vertical line from pressure up to solid gear face line.

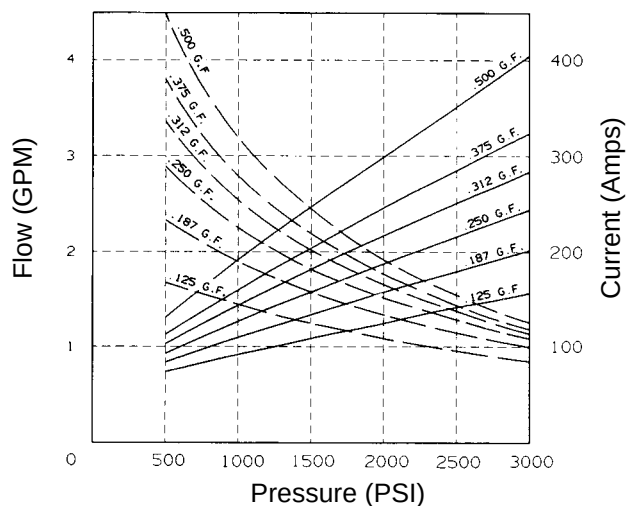
Then plot a horizontal line from that intersection to right to find current draw.

Note: Performance curves are at a constant voltage using 200 SSU oil.

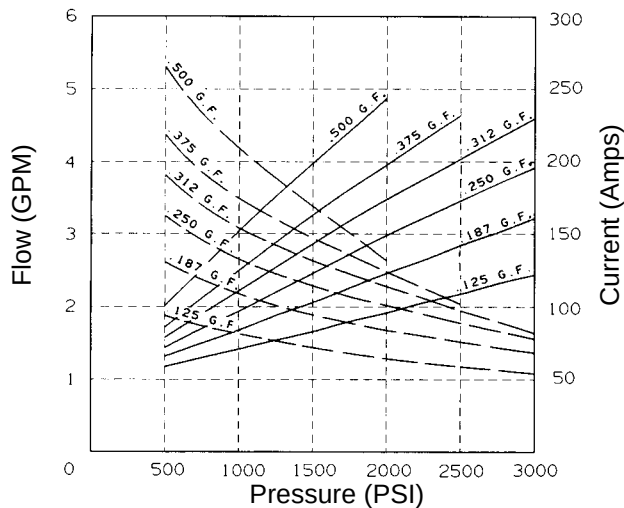
12VDC Standard Duty



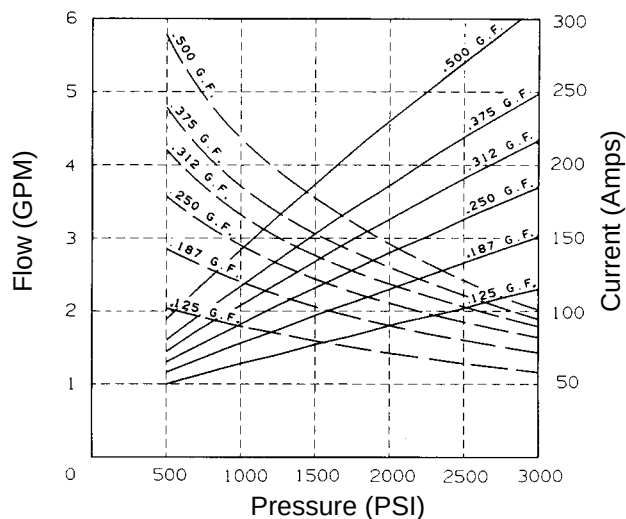
12VDC Medium Duty



24VDC Standard Duty



24VDC Medium Duty





GC8000/GC8001 Series Motor Duty Cycle

The curves below relate maximum on-time and percent on-time to motor current for the available motors. "Duty Cycle" refers to the length of time the motor can be run at a specific current before it must be turned off and allowed to cool.

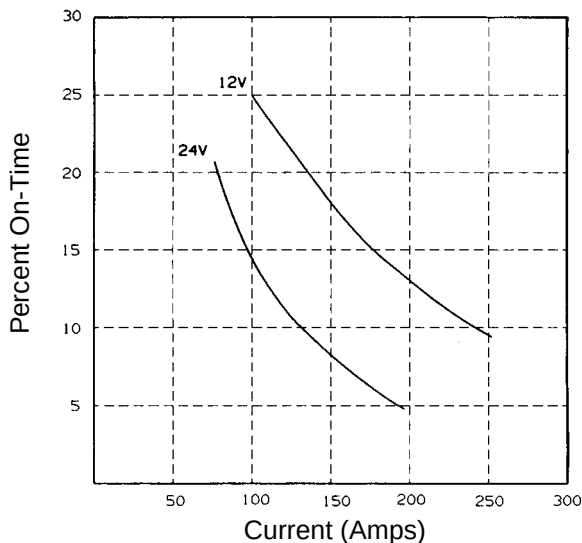
Allowable Percent On-Time is based on a percentage of a 5-minute or shorter duty cycle. For example, on the percent on-time curve, the 24 VDC motors at a current draw of 130 amps are capable of 10% on-time. The motor could be run for 30 seconds, then must be turned off and allowed to cool for 4-1/2 minutes. This duty cycle (30 seconds on, 4-1/2 minutes off) can then be repeated continuously. This ratio of 10% on-time to 90% off-time applies to any duty cycle of 5 minutes or less.

Maximum On-Time is the absolute maximum continuous operating time at a specific current draw. For example, on the maximum on-time curve, the 12 VDC motors at a current draw of approximately 155 amps could be run for 5 minutes continuously. The motor should then be turned off and allowed to cool to ambient temperature. Having reached ambient temperature, the motor can again be run for 5 minutes. This run/cooling cycle can be continuously repeated.

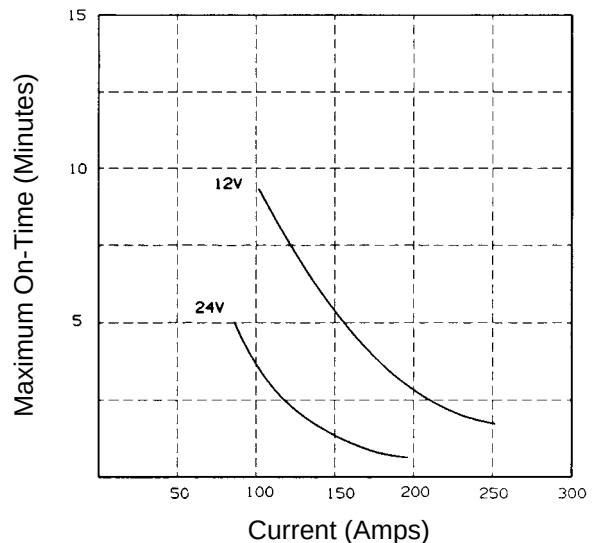
Note: The thermal characteristics of percent on-time and maximum on-time of the standard duty and medium duty motors are identical. The medium duty motors are UL listed and do offer extended brush life over the standard duty motors.

Motor damage may result from operation outside the curve parameters as shown below.

Allowable Percent On-Time



Maximum On-Time (Minutes)



Technical Information Power Units & Accessories

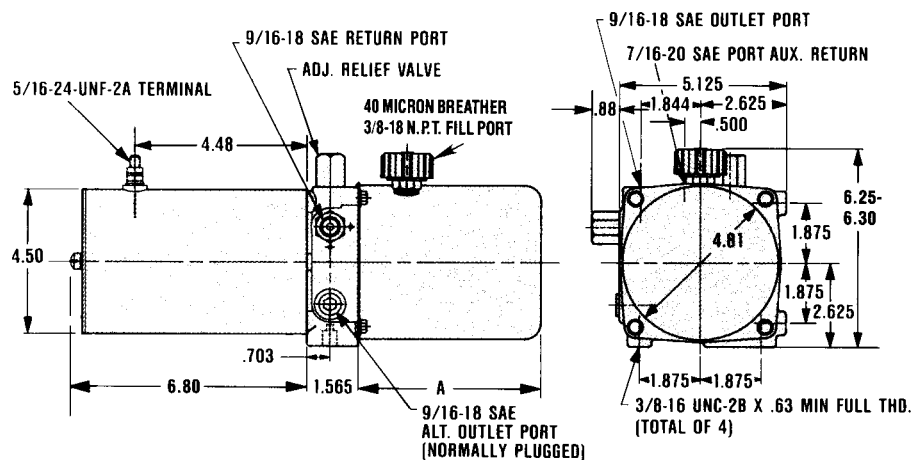


Hydraulic Power Units



GC8000/GC8001 Series Dimensions

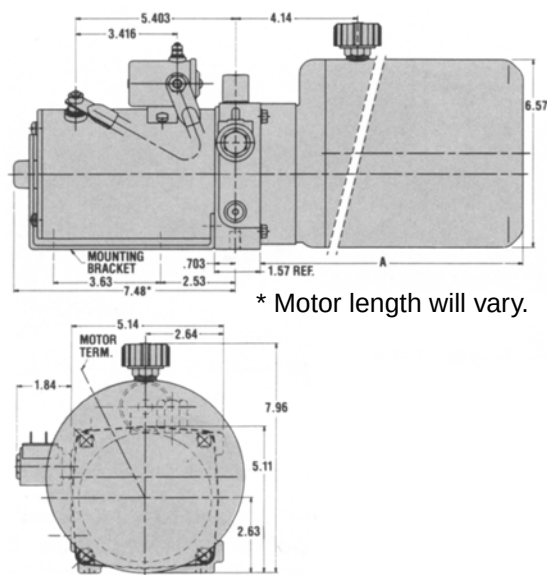
Power Unit with 4.8" Diameter Cylindrical Reservoir



Capacity	Length A (inches)
1 Quart	5.6
1.5 Quart	7.5
2 Quart	9.0
3 Quart	12.0

Installation Notes: Motors, Center Adapters and Reservoirs may be rotated in many combinations of 90° increments for maximum flexibility. An elbow fitting may be installed to point the filler/breather in the "up" position for vertical mount installations. Electric start switches may be mounted on the DC motor, or in a remote location. Motor lengths will vary.

Power Unit with 6.6" Diameter Cylindrical Reservoir



Capacity	Length A (inches)
1 Gallon	8.34
1.5 Gallon	12.59
2 Gallon	15.34



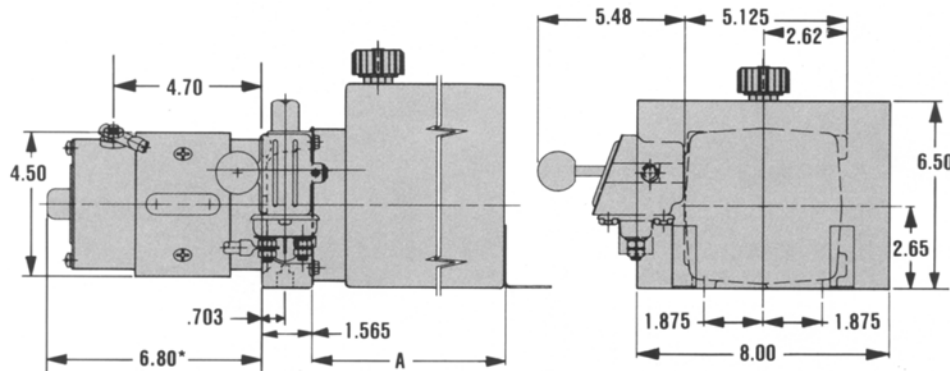
Technical Information Power Units & Accessories

Hydraulic Power Units



GC8000/GC8001 Series Dimensions

Power Unit with Rectangular Reservoir



* Motor length will vary.

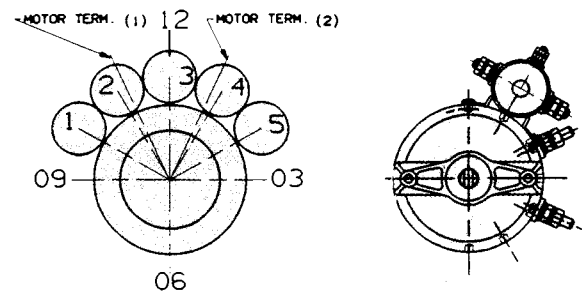
Capacity	Length A (inches)
2.5 Gallon	12.00
4 Gallon	18.50

GC8000/GC8001 Series Motor Terminal & Start Switch Location Options

The motor terminal location must first be selected. Motor terminal locations of 03, 06, 09 and 12 are available. Second, the motor start switch location must be determined. Start switch positions 1 through 5 are available. Start switch positions rotate in conjunction with the motor terminal location.

Note: The standard motor terminal location is 12 and the standard start switch position is 3. For single terminal motors use motor terminal 1 only for location purposes.

Note: These locations are specified in the Model Codes.



View From Reservoir End

The view above shows start switch locations 1-5 as they relate to motor terminal location 12 only.

The example to the right shows a motor terminal location of 03 and a start switch position of 1.



Technical Information Power Units & Accessories



Hydraulic Power Units



GC9000 Series Model Codes

GC9000	5	C	A	0	B	0	T	0
	1	2	3	4	5	6	7	8

(1) Motor/Adapter Assemblies				
Code	HP	Phase	RPM	Kit. No.
0	1/3 HP	1	1725	†1300213
1	1/2 HP	3	1725	†1300221
2	1/2 HP	1	1725	1300217
3	1 HP	3	3450	†1300237
4	1 HP	1	3450	†1300229
5	1 HP	3	1725	†1300233
6	1 HP	1	1725	1303725
7	2 HP	3	3450	1303742
8	2 HP	1	3450	1300245
9	2 HP	3	1725	†1300241

† Non-stock item.

(2) Pumps			
Code	GPM @ 1800 RPM	Displ. (cu.in.)	Kit. No.
A	0.50	.064	1300177
B	0.75	.094	1300178
C	1.00	.129	1300179
D	1.50	.194	1300180
E	2.00	.258	1300181
F	2.50	.323	1300182
G	3.00	.388	1300183
H	3.50	.452	†1300184
J	4.00	.517	†1300185
K	2.00/0.50*	.258/.064*	†1300688

† Non-stock item.

Note: All pumps are clockwise (RH) rotation.

*Two-stage pump.

(3) Release Valves		
Code	Description	Kit. No.
A	Basic Adapter Only (no release valve)	--
C	Manual Lever Release	1300193
D	Electric Release Normally Closed 115VAC, 50.60 Hz.	1300025
E	Electric Release Normally Closed Manual Override 115VAC, 50/60 Hz.	†1300374
F	Electric Release Normally Open 115VAC, 50.60 Hz.	†1300296

† Non-stock item.

(4) Flow Controls		
Code	Capacity	Kit. No.
0	None	--
1	1 GPM	1300036
2	2 GPM	1300022
3	3 GPM	1300035
4	4 GPM	1300034

Note: Can only be used in conjunction with a Release Valve.

(5) Manifolds		
Code	Description	Kit. No.
A	No Manifold	--
B	D03 Base Manifold for Cylindrical Reservoirs	1300329
C	One D03 Base Manifold & One Secondary Manifold for Cylindrical Reservoirs	1300329 and 1300330
D	One D03 Base Manifold & Two Secondary Manifolds for Cylindrical Reservoirs	1300329 and (2) 1300330

To mount 1 valve, order option B.

To mount 2 valves, order option C.

To mount 3 valves, order option D.

(6) Manifold Mounting Kits		
Code	Description	Kit. No.
0	None	--
1	Two Stack Bolt Kit (required with Manifold Option C)	1300331
2	Three Stack Bolt Kit (required with Manifold Option D)	1300332

(7) Reservoirs			
Code	Type	Nominal Capacity (gal.)	Kit. No.
Q	Cylindrical	1.0	1300127
R	Cylindrical	1.5	1300129
S	Cylindrical	2.0	1300131
T	Cylindrical	3.0	1300133
U	Vertical Mount	1.0	†1300793
V	Vertical Mount	1.50	†1300794
W	Vertical Mount	2.0	†1300795
X	Vertical Mount	3.0	†1300796

† Non-stock item.

(8) Reservoir Tube Kits		
Code	Description	Kit. No.
0	None Required for Smaller Pumps Options A-D	--
1	Kit for Cylindrical Reservoir (Required for Larger Pumps Options E-J)	1300187
3	Kit for Cylindrical Reservoir (Required for 2-Stage Pump Option K)	†1300186
4*	Required for 1 Gallon Vertical Reservoir Option U when larger pumps are used (Pump Options E-J)	†1300801
5*	Required for 1.5 Gallon Vertical Reservoir Option V when larger pumps are used (Pump Options E-J)	†1300802
6*	Required for 2 Gallon Vertical Reservoir Option W when larger pumps are used (Pump Options E-J)	†1300803
7*	Required for 3 Gallon Vertical Reservoir Option X when larger pumps are used (Pump Options E-J)	†1300804

† Non-stock item.

Optional Kits	
Description	Kit. No.
Adaptor Only Kit (No Motor)	1300268
Nema 56C Frame Adaptor & Coupling Kit	1300843
Extended Shaft Adaptor Kit	†1300654
5 Gallon Rectangular Reservoir Kit	†1300117
10 Gallon Rectangular Reservoir Kit	†1300108
5 & 10 Gallon Rectangular Reservoir Tube Kit (Required when larger pumps are used (Pump Options E-J))	†1300188
5 & 10 Gallon Rectangular Reservoir Tube Kit (Required when 2-Stage pump is used (Pump Option K))	†1300189

† Non-stock item.



Technical Information Power Units & Accessories

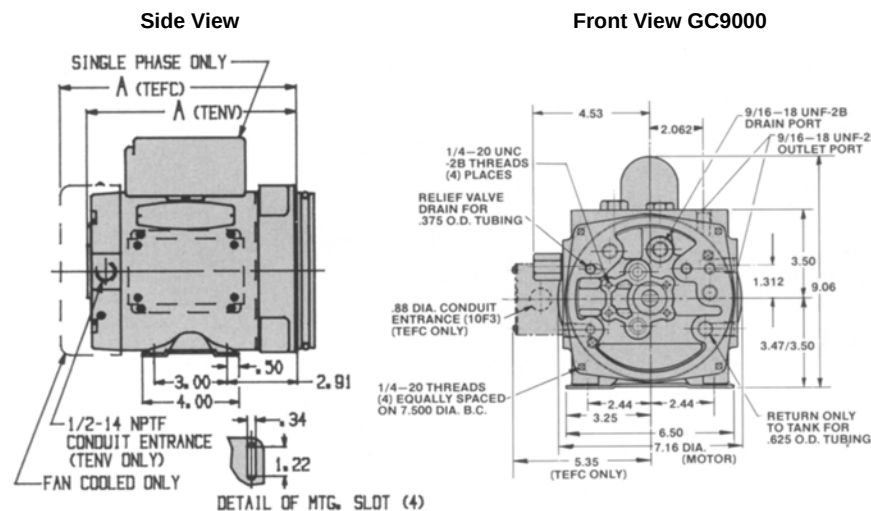
Hydraulic Power Units



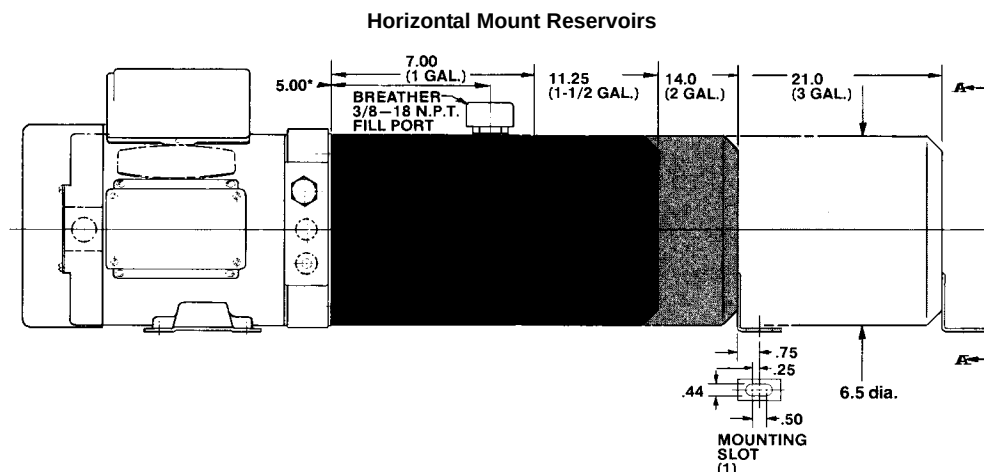
GC9000 Series Motor/Adapters

Motor/Adapter Kits									Intermittent Duty Motor Ratings		
Code	Kit No.	HP	RPM	Phase	Hz	Voltage	Enclosure	A (in.)	5 Minutes	15 Minutes	30 Minutes
0	1300213	1/3	1725	1	60	115/208/230	TENV	9.153	.66 HP	.66 HP	.66 HP
1	1300221	1/2	1725	3	50/60	208/230/460	TENV	9.593	1.0 HP @ 60 Hz 1.0 HP @ 50 Hz	.92 HP @ 60 Hz .75 HP @ 50 Hz	.75 HP @ 60 Hz .55 HP @ 50 Hz
2	1300217	1/2	1725	1	60	115/208/230	TEFC	8.653	1.2 HP	1.0 HP	.80 HP
3	1300237	1	3450	3	60	208/230/460	TEFC	9.093	2.0 HP	1.5 HP	1.25 HP
4	1300229	1	3450	1	60	115/208/230	TEFC	10.593	2.0 HP	1.2 HP	1.1 HP
5	1300233	1	1725	3	50/60	208/230/460	TEFC	11.093	2.0 HP @ 60 Hz 1.5 HP @ 50 Hz	1.75 HP @ 60 Hz 1.25 HP @ 50 Hz	1.5 HP @ 60 Hz 1.1 HP @ 50 Hz
6	1300225	1	1725	1	60	115/208/230	TEFC	11.593	2.0 HP	1.7 HP	1.3 HP
7	1300249	2	3450	3	60	230/460	TEFC	10.593	4.0 HP	3.4 HP	3.0 HP
8	1300245	2	3450	1	60	115/230	TEFC	12.093	3.0 HP	2.4 HP	2.2 HP
9	1300241	2	1725	3	60	230/460	TEFC	11.593	4.0 HP	3.0 HP	2.5 HP

Note: Intermittent Duty is defined as operation at one of the above limits continuously for the full time period, followed by one (1) hour off to allow motor to cool.



GC9000 Series Reservoirs



Technical Information Power Units & Accessories



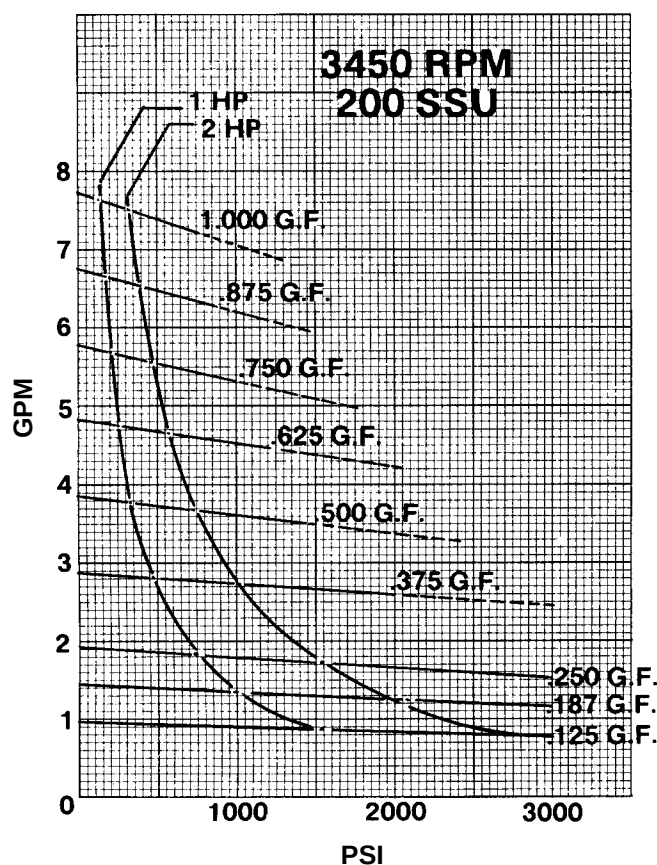
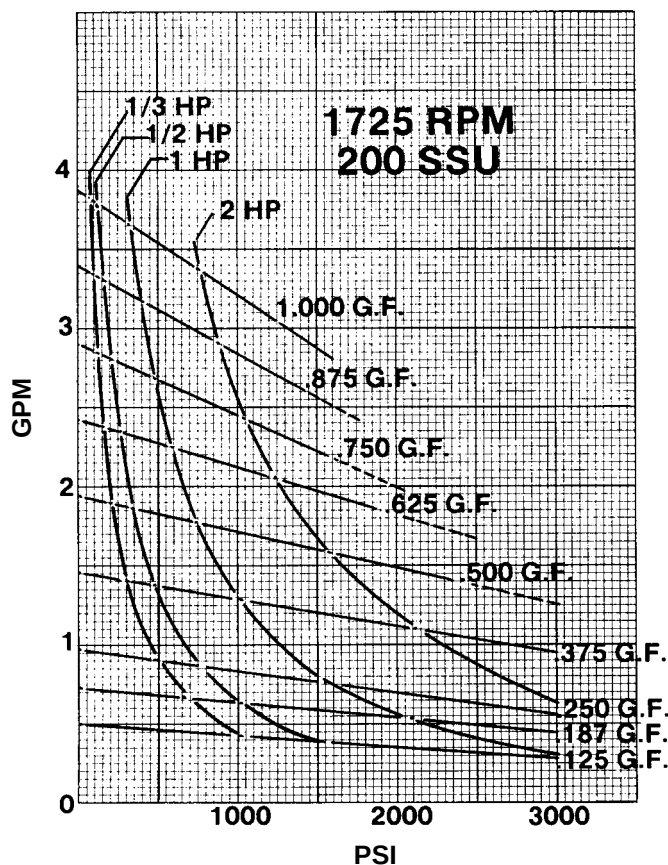
Hydraulic Power Units



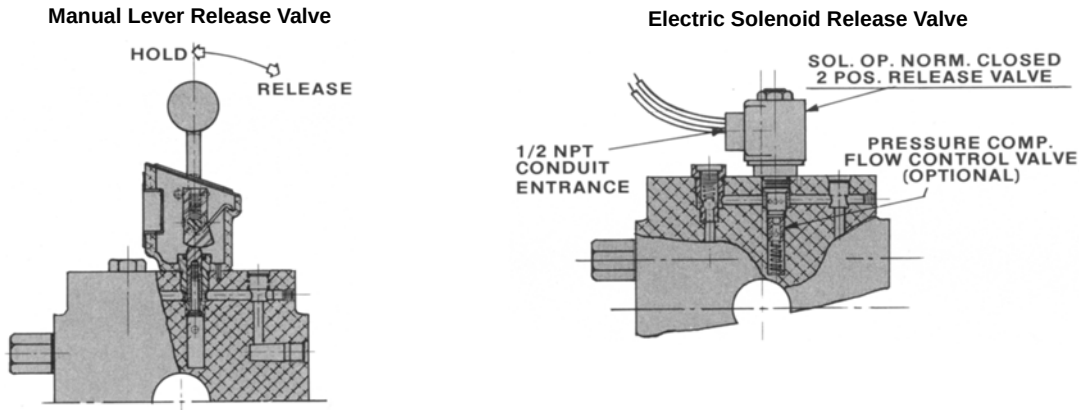
GC9000 Series Pumps & Performance Curves

Pumps						
Code	Kit No.	Gear Size (in)	Displacement (cu.in./rev)	Flow @ 1800 RPM	Flow @ 3600 RPM	Maximum Continuous Pressure (psi)
A	1300177	0.125	.064	0.50 GPM	1.00 GPM	3000
B	1300178	0.1875	.094	0.75 GPM	1.50 GPM	3000
C	1300179	0.250	.129	1.00 GPM	2.00 GPM	3000
D	1300180	0.375	.194	1.50 GPM	3.00 GPM	3000
E	1300181	0.500	.258	2.00 GPM	4.00 GPM	2300
F	1300182	0.625	.323	2.50 GPM	5.00 GPM	1900
G	1300183	0.750	.388	3.00 GPM	6.00 GPM	1600
H	1300184	0.875	.452	3.50 GPM	7.00 GPM	1300
J	1300185	1.000	.517	4.00 GPM	8.00 GPM	1200
K	1300688 (2-Stage)	0.500 0.125	.258 .064	At 1725 RPM: 2.50 GPM to 350 PSI, 0.50 GPM to 2500 PSI At 3450 RPM: 5.00 GPM to 350 PSI, 1.00 GPM to 2500 PSI		

Continuous Duty Performance Curves

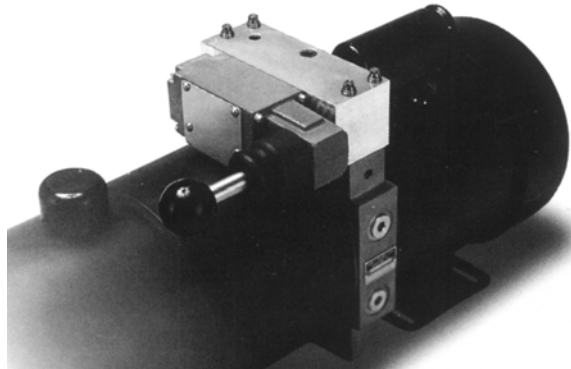


GC9000 Series Valve Options



Release valves can be used in single acting cylinder applications for lowering the load. A fixed pressure compensated return flow control can be installed under the release valve.

NFPA D03 Manifolds



Manifolds for GC9000 AC Power Units provide for single and multiple NFPA D03 directional valve combinations.

All multiple valve combinations are for parallel circuits. A total of three valves can be mounted. An optional manual valve is shown in the picture above.

A base (primary) manifold mounts directly to the adapter. This manifold kit includes all the hardware including check valve transfer bushing and return transfer bushing. If two or three valve are needed, secondary or stacked manifolds are added to the base manifold and secured with the proper mounting bolt kit.

All manifolds are made from machined aluminum blocks. The cylinder ports are on the opposite side of the valve mounting surface and are 9/16-18 SAE straight thread o-ring.

Technical Information Power Units & Accessories



Hydraulic



HE2000 Series Model Codes

HE2	BH012	26	150	E	82	AF	6	H	2	KC	0	N	00	00	A3	Example
I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	

II	Valve Type	Kit Description	Kit No.	Adapter Options		
Order Code				+ Coil Voltage	Kit No.	
BA	Adapter, P & T Ports, Relief Valve & Check Valve	Adapter	1303649	BA000		
		Port Plug	1300191			
CA	Adapter, P & T Ports, Relief Valve & Check Valve	Adapter	1303649	CA000		
		Port Plug	1300191			
		AC Motor Adapter	1303549			
BB	Solenoid Lowering Adapter	Adapter	1303649	BB012	12VDC	1300914 (1ea)
		Solenoid Release Valve	1303534	BB024	24VDC	1300915 (1ea)
CB	Solenoid Lowering Adapter	Adapter	1303649	CB115	115VAC	1303576 (1ea)
		Solenoid Release Valve	1303534	CB230	230VAC	1303577 (1ea)
		AC Motor Adapter	1303549	CB012	12VDC	1300914 (1ea)
				CB024	24VDC	1300915 (1ea)
BE	Manual Lowering Adapter w/ DC Contactor	Adapter	1303649	BE000		
		Manual Release Valve w/ Pilot Contactor	1300192			
CE	AC Manual Lowering Valve Adapter	Adapter	1303649	CE000		
		Manual Release Valve	1303533			
		AC Motor Adapter	1303549			
Motor Spool (DC Version, AC Version & DC Version w/ Double P.O. Check)						
BF	Manifold Adapter w/ 3-Pos 4-Way Valve (Motor Spool) DC Version	Adapter	1303650	BF012	12VDC	1300914 (2ea)
		Manifold	1300866	BF024	24VDC	1300915 (2ea)
		Motor Spool Valve	1303382			
		Cavity Plug	1303540			
BH	Manifold Adapter w/ 3-Pos 4-Way Valve (Motor Spool) DC Version w/ Double P.O. Check	Adapter	1303650	BH012	12VDC	1300914 (2ea)
		Manifold	1300866	BH024	24VDC	1300915 (2ea)
		Motor Spool Valve	1303382			
		Double P.O. Check	1303538			
CF	Manifold Adapter w/ 3-Pos 4-Way Valve (Motor Spool) AC Version	Adapter	1303650	CF115	115VAC	1303576 (2ea)
		Manifold	1300866	CF230	230VAC	1303577 (2ea)
		Motor Spool Valve	1303382	CF012	12VDC	1300914 (2ea)
		Cavity Plug	1303540	CF024	24VDC	1300915 (2ea)
		Riser Block	1300855			
		AC Motor Adapter	1303549			
Tandem Center Spool (DC & AC Versions)						
BJ	Manifold Adapter w/ 3-Pos 4-Way Valve (Tandem Center Spool) DC Version	Adapter	1303650	BJ012	12VDC	1300914 (2ea)
		Manifold	1300856	BJ024	24VDC	1300915 (2ea)
		Tandem Center Valve	1303530			
		Cavity Plug	1303540			
CJ	Manifold Adapter w/ 3-Pos 4-Way Valve (Tandem Center Spool) AC Version	Adapter	1303650	CJ115	115VAC	1303576 (2ea)
		Manifold	1300856	CJ230	230VAC	1303577 (2ea)
		Tandem Center Valve	1303530	CJ012	12VDC	1300914 (2ea)
		Cavity Plug	1303540	CJ024	24VDC	1300915 (2ea)
		Riser Block	1300855			
		AC Motor Adapter	1303549			

Note: AC coils have 36 inch cables. All DC coils have dual spades.

Model Code is continued on next page





Technical Information Power Units & Accessories

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HE2000 Series Model Codes

HE2	BH012	26	150	E	82	AF	6	H	2	KC	0	N	00	00	A3	Example
I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	

II	Valve Type	Kit Description	Kit No.	Adapter Options		
Order Code				+ Coil Voltage		Kit No.
Solenoid Operated, 2-Position, 4-Way Normally Open Valve (DC & AC Versions)						
BR	Manifold Adapter w/ Solenoid Operated, 2-Pos, 4-Way Valve, DC Version	Adapter	1303650	BR012	12VDC	1300914 (1ea)
		Manifold	1300856	BR024	24VDC	1300915 (1ea)
		Normally Open Valve	1303529			
		Cavity Plug	1303540			
CR	Manifold Adapter w/ Solenoid Operated, 2-Pos, 4-Way Valve, AC Version	Adapter	1303650	CR115	115VAC	1303576 (1ea)
		Manifold	1300856	CR230	230VAC	1303577 (1ea)
		Normally Open Valve	1303529	CR012	12VDC	1300914 (1ea)
		Cavity Plug	1303540	CR024	24VDC	1300915 (1ea)
		Riser Block	1300855			
		AC Motor Adapter	1303549			
BS	Manifold Adapter w/ Solenoid Operated, 2-Pos, 4-Way Valve, DC Version w/ P.O. Check	Adapter	1303650	BS012	12VDC	1300914 (1ea)
		Manifold	1300856	BS024	24VDC	1300915 (1ea)
		Normally Open Valve	1303529			
		Single P.O. Check	1303539			
Single D03 Valve Manifold (DC & AC Versions) / Double D03 Valve Manifold (AC Version Only)						
DA	Manifold Adapter w/ Single D03 Valve Manifold, DC Version	Adapter	1303650	DA000		
		D03 Manifold	1300854			
		Bolts	1300865			
DB	Manifold Adapter w/ Single D03 Valve Manifold, AC Version	Adapter	1303650	DB000		
		D03 Manifold	1300854			
		Bolts	1300857			
		Riser Block	1300855			
		AC Motor Adapter	1303549			
DC	Manifold Adapter w/ Double D03 Valve Manifold, AC Version Only	Adapter	1303650	DC000		
		D03 Manifolds (2ea)	1300854 (2ea)			
		Bolts	1300858			
		Riser Block	1300855			
		AC Motor Adapter	1303549			
DM	Manifold Adapter, DC Version	Adapter	1303650	DM000		
AM	Manifold Adapter, AC Version	Adapter	1303650	AM000		
		AC Motor Adapter	1303549			

Note: AC coils have 36 inch cables. All DC coils have dual spades.

III Order Code	W Series Pumps			Maximum Pressure (PSI)	
	In ³ /Rev	Cm ³ /Rev	Kit No.	Continuous	Intermittent
08	0.49	0.8	1303435	3335	3698
12	0.073	1.2	1303436	3335	3698
16	0.098	1.6	1303437	3335	3698
20	0.122	2.0	1303438	3335	3698
26	0.153	2.6	1303439	3335	3698
32	0.195	3.2	1303440	3335	3698
38	0.232	3.8	1303441	3045	3335
43	0.262	4.3	1303442	2755	3045
48	0.293	4.8	1303443	2465	2712
57	0.348	5.7	1303444	2103	2320

III Order Code	GC Series Pumps			Maximum Pressure (PSI)	
	In ³ /Rev	Cm ³ /Rev	Kit No.	Continuous	Intermittent
70	0.065	1.06	1300174	3000	4000
71	0.097	1.59	1300176	3000	4000
72	0.129	2.12	1300171	3000	4000
73	0.162	2.65	1300625	3000	4000
74	0.194	3.18	1300169	3000	4000
76	0.259	4.24	1300172	2300	4000
77	0.323	5.30	1300931	1900	3000
78	0.388	6.36	1300932	1600	2500

Model Code is continued on next page



This page is part of a complete catalog which contains technical and safety data that must be reviewed when selecting a product

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HE2000 Series Model Codes

HE2	BH012	26	150	E	82	AF	6	H	2	KC	0	N	00	00	A3	Example
I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	

IV	Relief Valve Setting		
Order Code (Bar)	Setting Range (Bars)	Setting Range (PSI)	Kit No.
	014 - 333	200 - 500	1303659
	034 - 103	501 - 1500	1303660
	104 - 173	1501 - 2500	1303661
	174 - 276	2501 - 4000	1303662

V	Flow Control Valve	
Order Code	Description	Kit No.
A	None	N/A
E	1 GPM	1303448
K	2 GPM	1303450
M	2.5 GPM	1303453
N	3 GPM	1303451
R	4 GPM	1303452

VI	Motor	
Order Code	Description	Kit No.
54	Extended Shaft Adapter	1300335
55	AC Flange "Nema C" Adapter	1303543
60	1/2 HP (30 min), 3 Phase, 50/60 Hz, 208-230/460 VAC, TENV, 1425/1725 RPM	1300916
62	1 HP (30 min), 3 Phase, 50/60 Hz, 208-230/460 VAC, TENV, 2850/3450 RPM	1300918
63	1 HP (30 min), 3 Phase, 50/60 Hz, 208-230/460 VAC, TEFC, 2850/3450 RPM	1300919
64	1 HP, 1 Phase, 60 Hz, 115/208-230 VAC, TENV, 3450 RPM	1300920
65	1 HP, 1 Phase, 50/60 Hz, 115/208-230 VAC, TEFC, 2850/3450 RPM	1300921
66	1 HP, 3 Phase, 50/60 Hz, 208-230/460 VAC, TENV, 1425/1725 RPM	1300922
67	1 HP (30 min), 1 Phase, 60 Hz, 115/208-230 VAC, TENV, 1725 RPM	1300923
68	2 HP (30 min), 1 Phase, 60 Hz, 115/208-230 VAC, TENV, 3450 RPM	1300924
69	2 HP, 1 Phase, 50/60 Hz, 115/208-230 VAC, TEFC, 2850/3450 RPM	1300925
70	2 HP (30 min), 3 Phase, 50/60 Hz, 208-230/460 VAC, TENV, 1425/1725 RPM	1300926
71	2 HP (30 min), 1 Phase, 60 Hz, 115/208-230 VAC, TENV, 1725 RPM	1300927
72	3 HP (30 min), 3 Phase, 50/60 Hz, 208-230/460 VAC, TENV, 2850/3450 RPM	1300928
73	3 HP, 3 Phase, 50/60 Hz, 208-230/460 VAC, TEFC, 2850/3450 RPM	1300929
74	2.5 HP (30 min), 1 Phase, 50/60 Hz, 208-230 VAC, TENV, 2850/3450 RPM	1300930
80	12VDC Single Terminal - Standard Duty	1300027
82	12VDC Double Terminal - Medium Duty	1300618

VI	Motor (continued)	
Order Code	Description	Kit No.
83	24VDC Single Terminal - Medium Duty w/ Ground Strap	1300912
84	24VDC Double Terminal - Medium Duty	1300619
85	24VDC Double Terminal - Medium Duty - Low Speed Compound	1300913
86	24VDC Double Terminal - Heavy Duty	1303551

VII	Reservoir	
Order Code	Description	Kit No.
AA	1 Quart Steel	1300897
AB	1.5 Quart Steel	1300898
AC	2 Quart Steel	1300899
AD	3 Quart Steel	1300900
AE	0.8 Quart Plastic (175°F Max)	1300901
AF	1.3 Quart Plastic (175°F Max)	1300902
AG	1.7 Quart Plastic (175°F Max)	1300903
AJ	1 Gallon Steel	1300904
AK	1.5 Gallon Steel	1300905
AL	2 Gallon Steel	1300906
AM	3 Gallon Steel	1300907
AN	2.5 Gallon Steel, Rectangular	1300908
AP	4 Gallon Steel, Rectangular	1300909

VIII	Motor Terminal Position	
Order Code	Description	Kit No.
A	No Motor	
0	12 O'Clock	
3	3 O'Clock	
6	6 O'Clock	
9	9 O'Clock	

Note: Location relative to Pad "A" as viewed from reservoir end

Model Code is continued on next page

Note: Motors continued at top of next column.



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HE2000 Series Model Codes

HE2	BH012	26	150	E	82	AF	6	H	2	KC	0	N	00	00	A3	Example
I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	

IX		
Order Code	Start Switch	Kit No.
A	None	N/A
H	12VDC - UL Recognized, 4-Pole	1300937
J	12VDC - UL Recognized, 4-Pole	1300938
K	12VDC, 3-Pole	1300939
L	24VDC, 3-Pole	1300940
M	12VDC, Heavy-Duty, 4-Pole	1300941
N	24VDC, Heavy Duty, 4-Pole	1300942
P	1 Phase, 115VAC (only for motor codes 64, 65, 67, 68, 69 & 71)	1303546
Q	1 Phase, 230VAC (only for motor codes 64, 65, 67, 68, 69 & 71)	1303545
R	1 Phase, 230VAC (only for motor code 74)	1303544
S	3 Phase, 230VAC (only for motor codes 60, 62, 63, 66, 70, 72 & 73)	1303548
T	3 Phase, 460VAC (only for motor codes 60, 62, 63, 66, 70, 72 & 73)	1303547

X		
Order Code	Start Switch Position	
A	No Switch or Push Button	
DC Units (Relative to Motor Terminals)		
1	10 O'Clock	
2	12 O'Clock	
4	11 O'Clock	
5	1 O'Clock	
7	2 O'Clock	
AC Units Push Button (Reservoir End Down - Pad "A")		
0	12 O'Clock	
3	3 O'Clock	
9	9 O'Clock	

XI	Tube Kits					
Order Code	Quarts	Mount	Pump Series	Pad "A"	Kit No.	Material
AB	1	Horizontal	GC	Down	1300867	Steel
BB	1	Horizontal	GC/W	@ 9:00	1300868	Steel
CB	1	Horizontal	W	Down	1300943	Steel
DB	1	Vertical	GC	N/A	1300875	Steel
EB	1	Vertical	W	N/A	1300953	Steel
FB	0.8	Horizontal	GC	Down	1300961	Plastic
GB	0.8	Horizontal	GC/W	@ 9:00	1300963	Plastic
HB	0.8	Horizontal	W	Down	1300962	Plastic
JB	0.8	Vertical	GC	N/A	1300973	Plastic
KB	0.8	Vertical	W	N/A	1300974	Plastic
JC	1.3	Vertical	GC	N/A	1300975	Plastic
KC	1.3	Vertical	W	N/A	1300976	Plastic

XI	Tube Kits					
Order Code	Quarts	Mount	Pump Series	Pad "A"	Kit No.	Material
AD	2	Horizontal	GC	Down	1300867	Steel
BD	2	Horizontal	GC/W	@ 9:00	1300868	Steel
CD	2	Horizontal	W	Down	1300943	Steel
DD	2	Vertical	GC	N/A	1300877	Steel
ED	2	Vertical	W	N/A	1300891	Steel
FD	1.7	Horizontal	GC	Down	1300961	Plastic
GD	1.7	Horizontal	GC/W	@ 9:00	1300963	Plastic
HD	1.7	Horizontal	W	Down	1300962	Plastic
JD	1.7	Vertical	GC	N/A	1300977	Plastic
KD	1.7	Vertical	W	N/A	1300978	Plastic
AE	3	Horizontal	GC	Down	1300873	Steel
BE	3	Horizontal	GC/W	@ 9:00	1300874	Steel
CE	3	Horizontal	W	Down	1300946	Steel
DE	3	Vertical	GC	N/A	1300878	Steel
EE	3	Vertical	W	N/A	1300878	Steel
Gallons						
AF	1	Horizontal	GC	Down	1300867	Steel
BF	1	Horizontal	GC/W	@ 9:00	1300868	Steel
CF	1	Horizontal	W	Down	1300943	Steel
DF	1	Vertical	GC	N/A	1300891	Steel
EF	1	Vertical	W	N/A	1300957	Steel
AG	1.5	Horizontal	GC	Down	1300873	Steel
BG	1.5	Horizontal	GC/W	@ 9:00	1300874	Steel
CG	1.5	Horizontal	W	Down	1300946	Steel
DG	1.5	Vertical	GC	N/A	1300892	Steel
EG	1.5	Vertical	W	N/A	1300958	Steel
AH	2	Horizontal	GC	Down	1300873	Steel
BH	2	Horizontal	GC/W	@ 9:00	1300874	Steel
CH	2	Horizontal	W	Down	1300946	Steel
DH	2	Vertical	GC	N/A	1300893	Steel
EH	2	Vertical	W	N/A	1300959	Steel
AJ	3	Horizontal	GC	Down	1300873	Steel
BJ	3	Horizontal	GC/W	@ 9:00	1300874	Steel
CJ	3	Horizontal	W	Down	1300946	Steel
DJ	3	Vertical	GC	N/A	1300894	Steel
EJ	3	Vertical	W	N/A	1300960	Steel
AK	2.5	Horizontal	GC	Down	1300873	Rectangular
BK	2.5	Horizontal	GC/W	@ 9:00	1300874	Rectangular
CK	2.5	Horizontal	W	Down	1300946	Rectangular
AL	4	Horizontal	GC	Down	1300873	Rectangular
BL	4	Horizontal	GC/W	@ 9:00	1300874	Rectangular
CL	4	Horizontal	W	Down	1300946	Rectangular

Model Code is continued on next page

Note: Tube Kits continued at top of next column.



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Technical Information Power Units & Accessories



Hydraulic



HE2000 Series Model Codes

HE2	BH012	26	150	E	82	AF	6	H	2	KC	0	N	00	00	A3	Example
I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	

XII	
Order Code	Breather Position
0	12 O'Clock
3	3 O'Clock
6	6 O'Clock
9	9 O'Clock

Note: Location relative to Pad "A" as viewed from reservoir face

XVI	
Order Code	Design Series
A	Major Change to Form, Fit or Function
3	Minor Design Change

Note: Design Series is assigned by the factory at the current level

XIII	
Order Code	Coil Terminal / Lever Position
A	12 O'Clock - Toward Motor
B	3 O'Clock - Away From Center
C	6 O'Clock - Toward Reservoir
D	9 O'Clock - Toward Center
N	None

Note: Location relative to Motor as viewed from top of coil or top of manual release

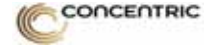
XIV & XV		
Order Code	Accessory (Maximum of 2 can be specified)	Kit No.
00	No Accessories	N/A
10	DC - Rubber Terminal Boots (Qty of 4)	1303553
11	AC - Plain Pigtail (Exits box from orientation "3")	1303554
12	AC - Plain Pigtail (Exits box from orientation "0")	1303554
13	AC - Plain Pigtail (Exits box from orientation "9")	1303554
14	AC - Pigtail w/ 115VAC Male Wall Plug (Exits box from orientation "3")	1303557
15	AC - Pigtail w/ 115VAC Male Wall Plug (Exits box from orientation "0")	1303557
16	AC - Pigtail w/ 115VAC Male Wall Plug (Exits box from orientation "9")	1303557
17	AC - Pigtail w/ 115VAC Male Twist Lock Plug (Exits box from orientation "3")	1303560
18	AC - Pigtail w/ 115VAC Male Twist Lock Plug (Exits box from orientation "0")	1303560
19	AC - Pigtail w/ 115VAC Male Twist Lock Plug (Exits box from orientation "9")	1303560
20	AC - Pigtail w/ 115VAC Male/Female Twist Lock Plug (Exits box from orientation "3")	1303563
21	AC - Pigtail w/ 115VAC Male/Female Twist Lock Plug (Exits box from orientation "0")	1303563
22	AC - Pigtail w/ 115VAC Male/Female Twist Lock Plug (Exits box from orientation "9")	1303563
23	AC - Single Acting Pendant (Exits box from orientation "3")	1303566
24	AC - Single Acting Pendant (Exits box from orientation "0")	1303566
25	AC - Single Acting Pendant (Exits box from orientation "9")	1303566
26	DC - Single Acting Pendant	1303569
27	DC - Double Acting Pendant	1303570

Note: "Box" refers to conduit box.



Technical Information Power Units & Accessories

Hydraulic



HE2000 Series Adapter/Circuit

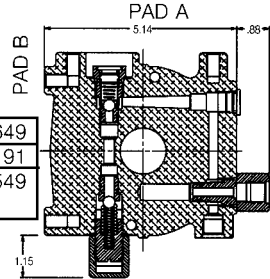
Each of the adapter options shown on the following pages provide the complete circuit indicated by the corresponding schematic. The order codes at the rear of this catalog provide the vehicle for specifying the coil voltage, flow

control settings, relief valve settings and a number of other options. The manifold adapters shown come with the manifold for the circuit indicated. All adapters, manifolds, coils, etc. are also available as stand alone kits which are easily assembled.

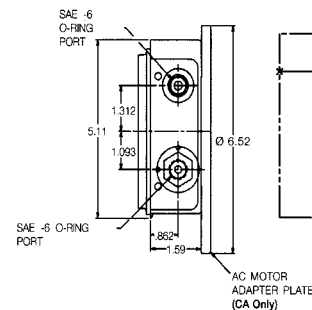
**BA (DC Version) OR
CA (AC Version)**
Adapter, P & T ports,
Relief Valve & Check Valve

Adapter kit	1303649
Port Plug	1300191
AC Motor Adapter Kit (CA only)	1303549

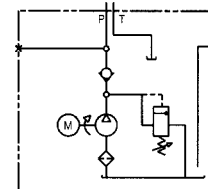
View from Reservoir End



Top View



Hydraulic Schematic

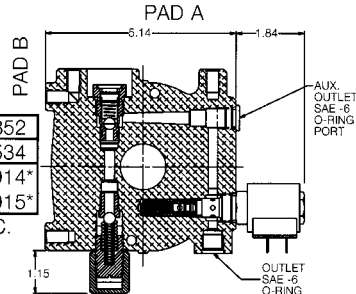


BB (DC Version)
Adapter, Normally Closed
Solenoid Lowering Valve

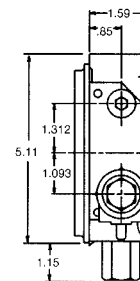
Adapter kit	1300852
Solenoid Release valve kit	1303534
BB012 12 VDC Solenoid kit	1300914*
BB024 24 VDC Solenoid kit	1300915*

* Must order (1) 12 VDC or (1) 24 VDC.

View from Reservoir End

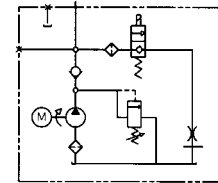


Top View



Hydraulic Schematic

Shown with optional flow control.
See Model Code V for flow
control options

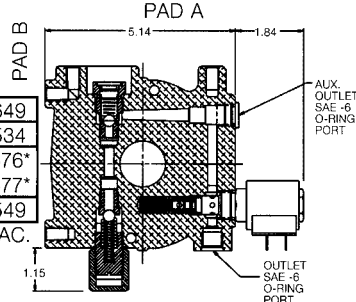


CB (AC Version)
Adapter, Normally Closed
Solenoid Lowering Valve

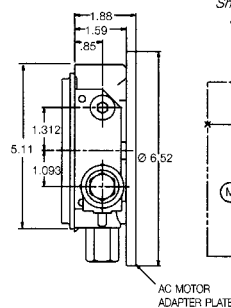
Adapter kit	1303649
Solenoid Release valve kit	1303534
CF115 110 VAC Solenoid kit	1303576*
CF230 230 VAC Solenoid kit	1303577*
AC Motor Adapter kit	1303549

* Must order (1) 115 VAC or (1) 230 VAC.

View from Reservoir End

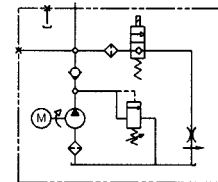


Top View



Hydraulic Schematic

Shown with optional flow control.
See Model Code V for flow
control options

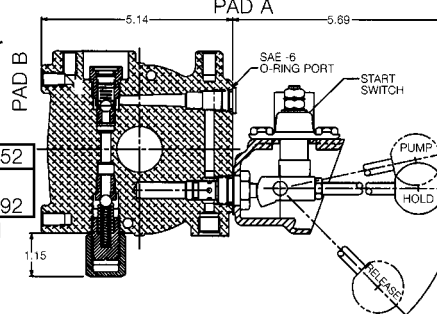


BE
Manual Normally Closed
Lowering Adapter with DC Contactor

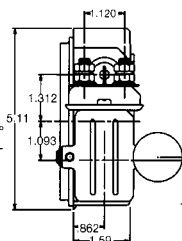
Adapter kit	1300852
Manual Release valve kit w/ pilot solenoid contactor	1300192

NOTE: Motor solenoid start switch still
required.

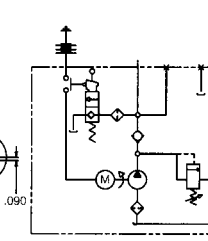
View from Reservoir End



Top View



Hydraulic Schematic



Technical Information Power Units & Accessories



Hydraulic

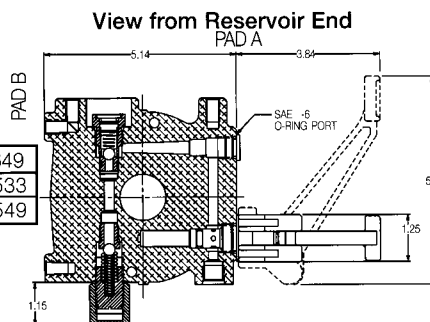


HE2000 Series Adapter/Circuit Options (continued)

CE

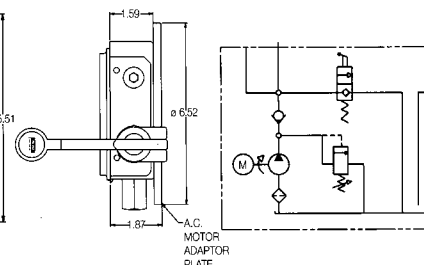
AC Manual Normally Closed
Lowering Valve Adapter

Adapter kit	1303649
Manual Release valve kit	1303533
AC Motor Adapter kit	1303549



Top View

Hydraulic Schematic



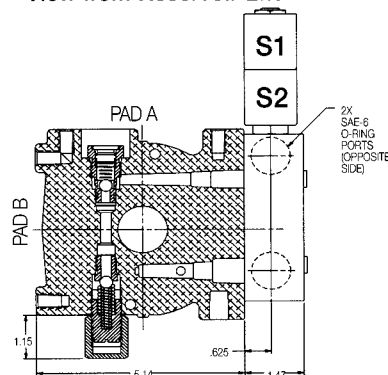
BF

Manifold Adapter w/3-position, 4-way
Valve (motor spool) (DC Version)

Adapter kit	1303650
Manifold kit	1300866
Motor Spool Valve	1303382
Plug (P. O. Check cavity)	1303540
BF012 12 VDC Solenoid kit	1300914*
BF024 24 VDC Solenoid kit	1300915*

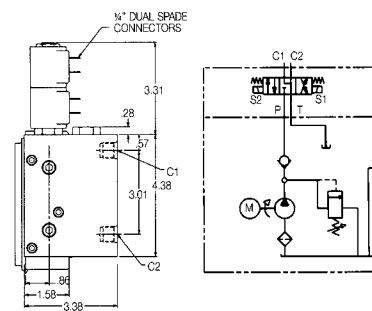
* Must order (2) 12 VDC or (2) 24 VDC.

View from Reservoir End



Top View

Hydraulic Schematic



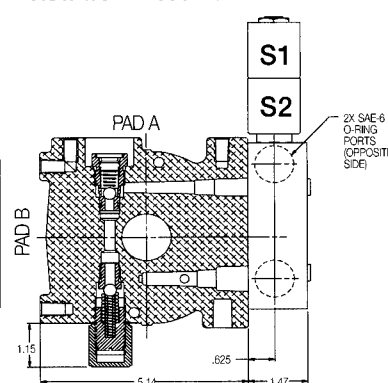
BH

Manifold Adapter w/3-position, 4-way
Valve (motor spool)
(DC Version w/Double P.O. Check)

Adapter kit	1303650
Manifold kit	1300866
Motor Spool Valve	1303382
Double P. O. Check Valve	1303538
BH012 12 VDC Solenoid kit	1300914*
BH024 24 VDC Solenoid kit	1300915*

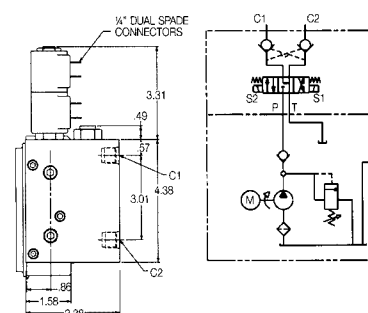
* Must order (2) 12 VDC or (2) 24 VDC.

View from Reservoir End



Top View

Hydraulic Schematic



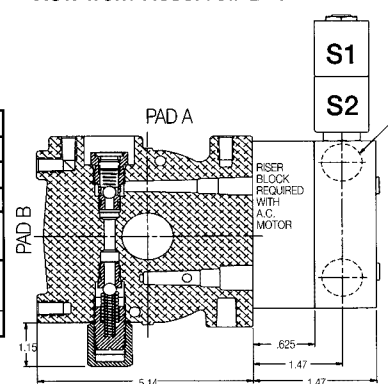
CF

Manifold Adapter w/3-position, 4-way
Valve (motor spool) (AC Version)

Adapter kit	1303650
Manifold kit	1300866
Motor Spool Valve	1303382
Plug (P. O. Check cavity)	1303540
CF115 115 VAC Solenoid kit	1303576*
CF230 230 VAC Solenoid Kit	1303577*
Riser block (required for AC units w/manifolds)	1300855
AC Motor Adapter kit	1303549

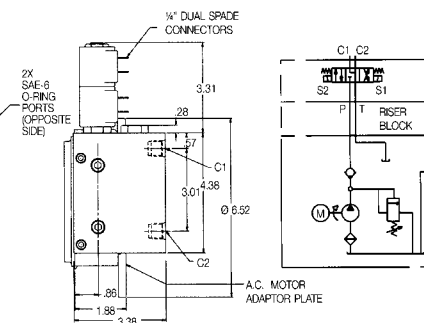
* Must order (2) 115 VAC or (2) 230 VAC.

View from Reservoir End



Top View

Hydraulic Schematic





Technical Information Power Units & Accessories

Hydraulic



HE2000 Series Adapter/Circuit Options (continued)

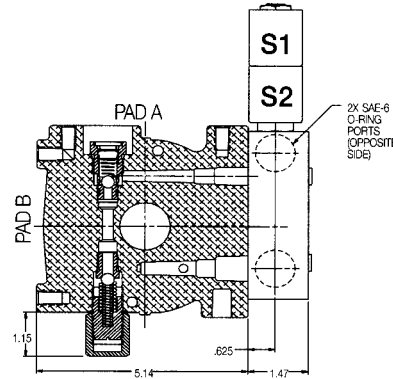
BJ

Manifold Adapter w/3-position, 4-way Valve (tandem center spool) (DC Version)

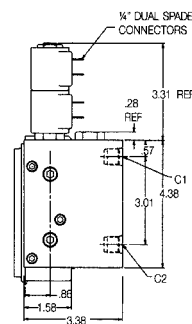
Adapter kit	1303650
Manifold kit	1300866
Tandem Center Valve	1303530
Plug (P. O. Check cavity)	1303540
BJ012 12 VDC Solenoid kit	1300914*
BJ024 24 VDC Solenoid kit	1300915*

* Must order (2) 12 VDC or (2) 24 VDC.

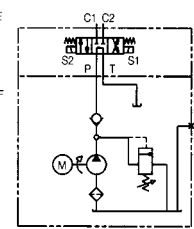
View from Reservoir End



Top View



Hydraulic Schematic



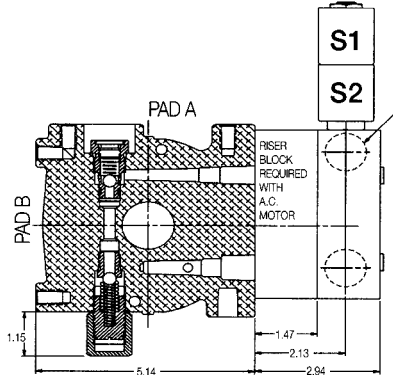
CJ

Manifold Adapter w/3-position, 4-way Valve (tandem center spool) (AC Version)

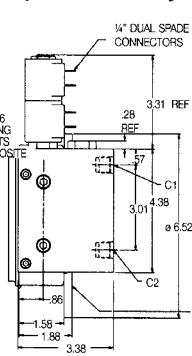
Adapter kit	1303650
Manifold kit	1300866
Tandem Center Valve	1303530
Plug (P. O. Check cavity)	1303540
CJ115 115 VAC Solenoid kit	1303576*
CJ230 230 VAC Solenoid kit	1303577*
Riser block (required for AC units w/manifolds)	1300855
AC Motor Adapter kit	1303549

* Must order (2) 115 VAC or (2) 230 VAC.

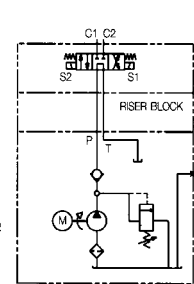
View from Reservoir End



Top View



Hydraulic Schematic



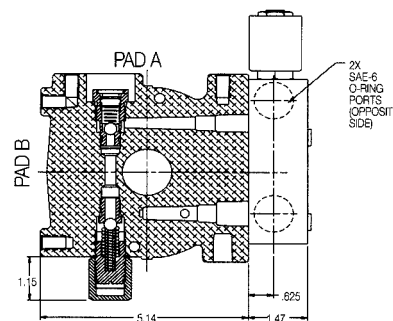
BR

Manifold Adapter w/Solenoid Operated, 2-position, 4-way Valve (DC Version)

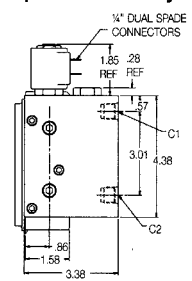
Adapter kit	1303650
Manifold kit	1300866
Normally Open Valve	1303529
Plug (P. O. Check cavity)	1303540
BR012 12 VDC Solenoid kit	1300914*
BR024 24 VDC Solenoid kit	1300915*

* Must order (1) 12 VDC or (1) 24 VDC.

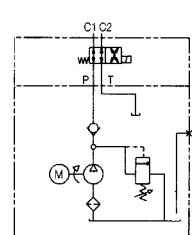
View from Reservoir End



Top View



Hydraulic Schematic



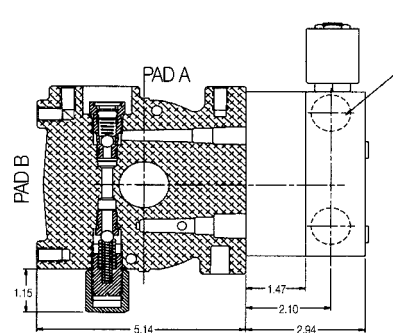
CR

Manifold Adapter w/Solenoid Operated, 2-position, 4-way Valve (AC Version)

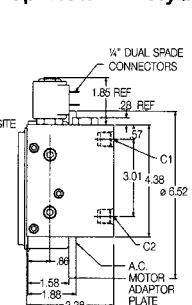
Adapter kit	1303650
Manifold kit	1300866
Normally Open Valve	1303529
Plug (P. O. Check cavity)	1303540
CR115 115 VAC Solenoid kit	1303576*
CR230 230 VAC Solenoid kit	1303577*
Riser block (required for AC units w/manifolds)	1300855
AC Motor Adapter kit	1303549

* Must order (1) 115 VAC or (1) 230 VAC.

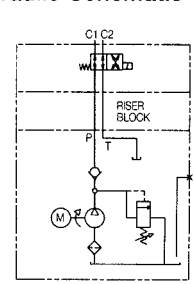
View from Reservoir End



Top View



Hydraulic Schematic



Technical Information Power Units & Accessories



Hydraulic



HE2000 Series Adapter/Circuit Options (continued)

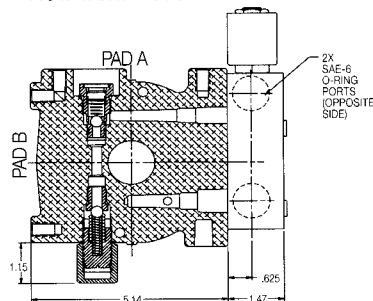
BS

**Manifold Adapter w/Solenoid Operated,
2-position, 4-way Valve
(DC Version w/P.O. Check)**

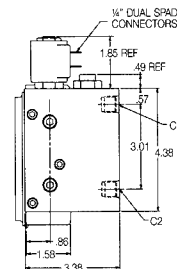
Adapter kit	1303650
Manifold kit	1300866
Normally Open Valve	1303529
BS012 12 VDC Solenoid kit	1300914*
BS024 24 VDC Solenoid kit	1300915*
Single P.O. Check Valve	1303539

* Must order (1) 12 VDC or (1) 24 VDC.

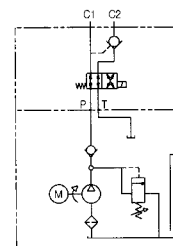
View from Reservoir End



Top View



Hydraulic Schematic

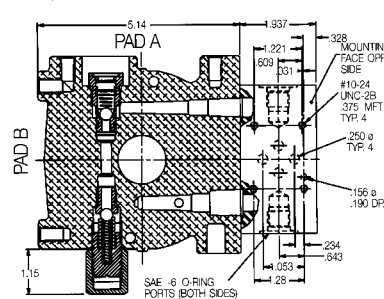


DA

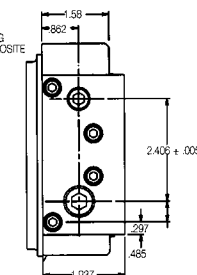
**Manifold Adapter w/Single DO3 Valve
Manifold (DC Version)**

Adapter kit	1303650
DO3 Manifold kit	1300854
Bolt Kit	1300865

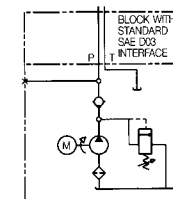
View from Reservoir End



Top View



Hydraulic Schematic

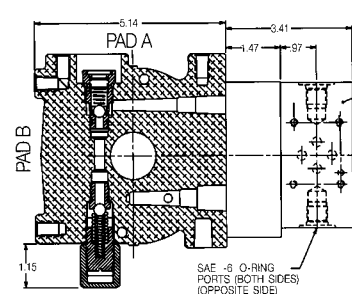


DB

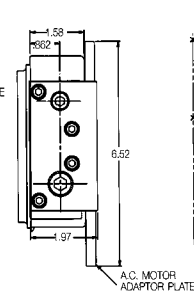
**Manifold Adapter w/Single DO3 Valve
Manifold (AC Version)**

Adapter kit	1303650
Primary DO3 Manifold kit	1300854
Bolt Kit	1300857
Riser block (required for AC units w/manifolds)	1300855
AC Motor Adapter kit	1303549

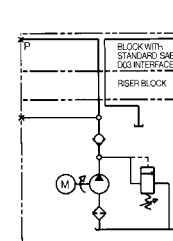
View from Reservoir End



Top View



Hydraulic Schematic

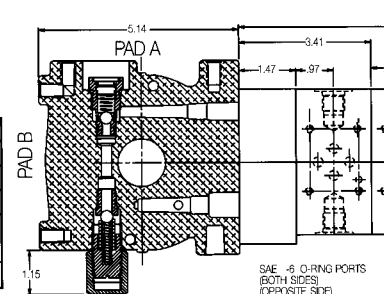


DC

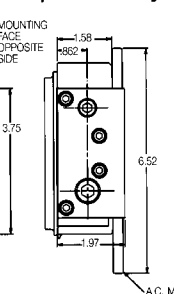
**Manifold Adapter w/Double DO3 Valve
Manifold (AC Version Only)**

Adapter kit	1303650
Primary DO3 Manifold kit	1300854
Primary DO3 Manifold kit	1300854
Bolt Kit	1300858
Riser block (required for AC units w/manifolds)	1300855
AC Motor Adapter kit	1303549

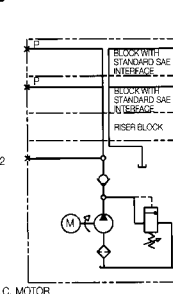
View from Reservoir End



Top View



Hydraulic Schematic



DM

Manifold Adapter (DC Version)

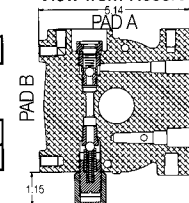
Adapter kit	1303650
-------------	---------

AM

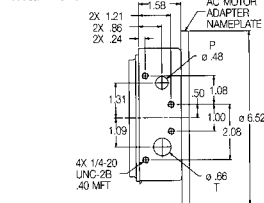
Manifold Adapter (AC Version)

Adapter kit	1303650
AC Motor Adapter Kit	1303549

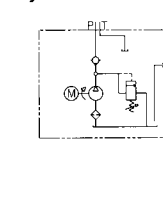
View from Reservoir End



Manifold View



Hydraulic Schematic





Technical Information Power Units & Accessories

Hydraulic



HE2000 Series

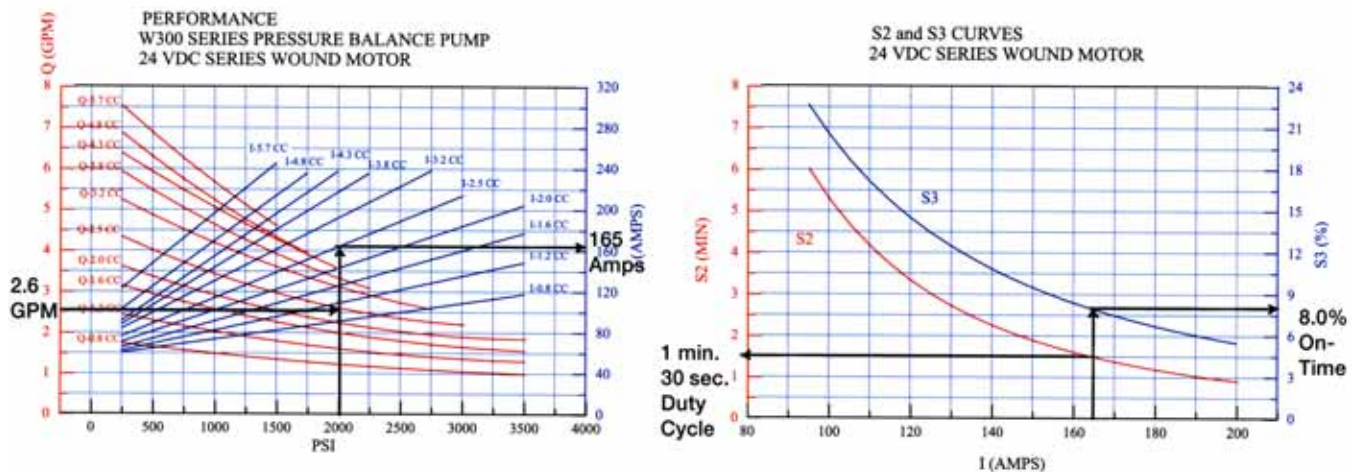
Selecting Pump & DC Motor Combinations (example)

Refer to the appropriate “pump/motor” curve for your application voltage. Find the required flow at working pressure. Refer to the amp draw axis to determine the amp draw for the selected pump/motor combination. Note: Performance will vary depending on whether a pressure balanced or fixed clearance pump is chosen. On the “S2 (absolute continuous on-time)/S3 (percentage on-time)” curve you can determine the maximum duty cycle of your selected pump/motor combination. **Note: All S3 curves are based on a 5 minute duty cycle.**

Following is an example of determining this information:

Assuming a 2.6 GPM at 2000 PSI is required, the performance graph indicates a 2.5 cc/rev. pump is needed. The performance graph also shows a requirement of 165 amps with a W300 Pressure Balanced Pump. The S2/S3 curve at that amp draw has a S2 (absolute continuous on-time) of 1 minute, 30 sec. At that point, the motor would have to be turned off to allow cooling to ambient temperature. The motor could then be run for another 1 minute, 30 sec.

The S3 (percentage on-time) curve shows a maximum percentage on time of 8.0%, which means the motor can be operated for 24 seconds on, 276 seconds off, continuously.



Relief Valve Characteristics

“Cracking pressure” is defined as when the relief valve begins to open and starts bypassing flow to the reservoir (defined as .25 GPM flow loss).

Relief valve cracking pressure is approximately 80% of the full bypass pressure and flow (i.e., if the relief valve pressure is to be set at 2500 PSI full bypass, then $2500 \times 0.8 = 2000$ PSI is the cracking pressure).

“Full bypass pressure and flow” is defined as when the relief valve is completely open and all flow is going back to the reservoir.

“Working pressure” should always be at or below the cracking pressure for maximum efficiency.



Technical Information Power Units & Accessories

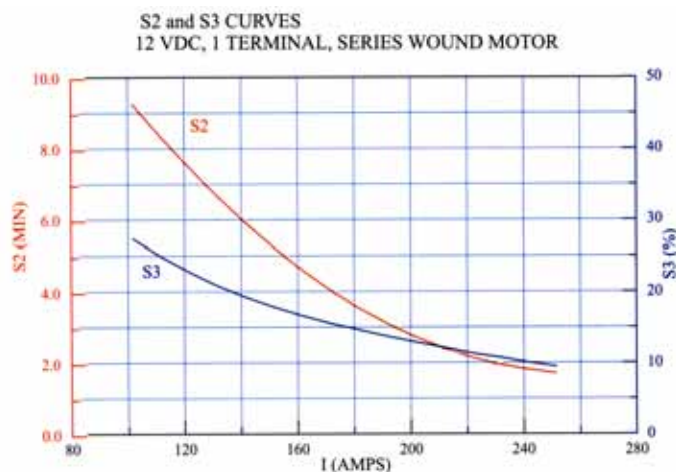
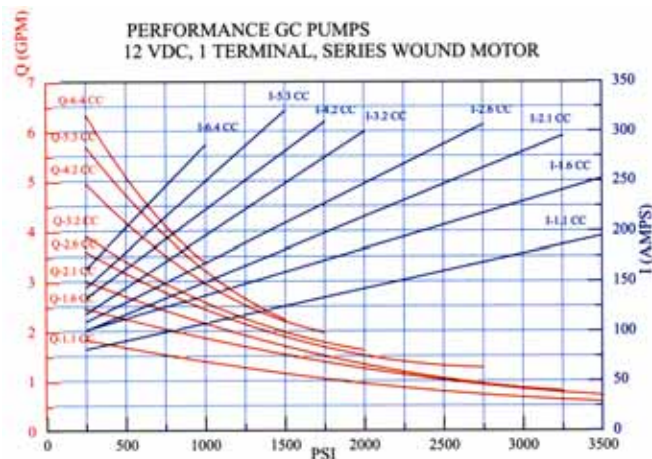


Hydraulic



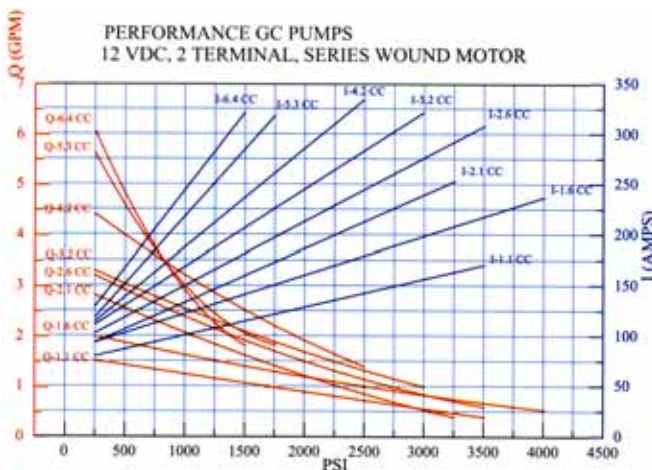
HE2000 Series

Performance for 12VDC Single Terminal Series Wound Motor, P/N 130027



Note: Motor damage may result from operation outside the curve parameters as shown above.

Performance for 12VDC Double Terminal Series Wound Motor, P/N 1300618



Note: Motor damage may result from operation outside the curve parameters as shown above.





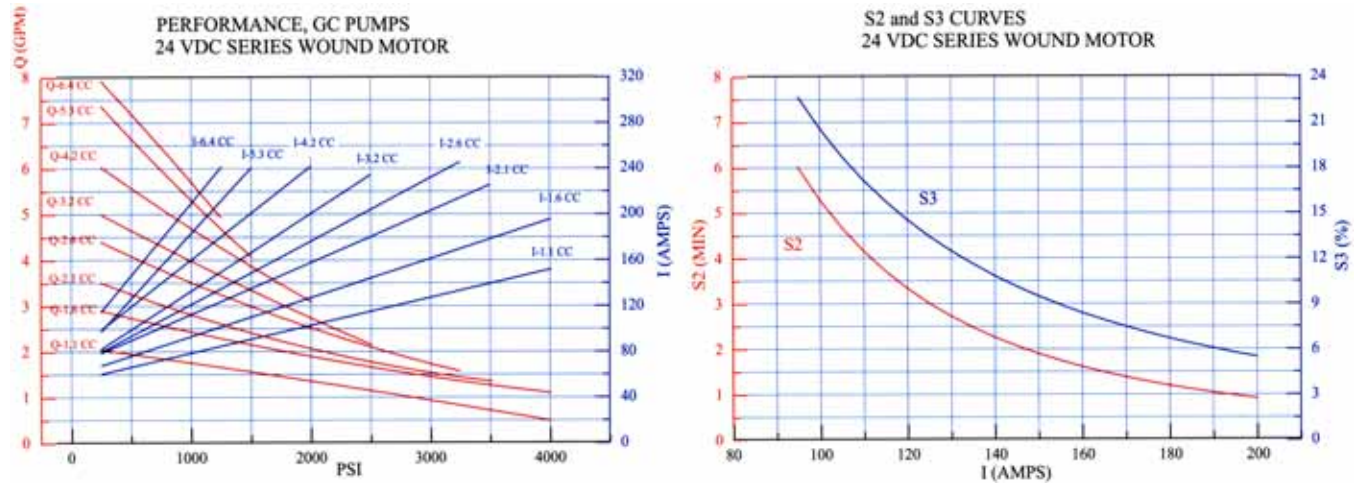
Technical Information Power Units & Accessories

Hydraulic



HE2000 Series

Performance for 24VDC Double Terminal (P/N 1300619) and Single Terminal (1300912) Series Wound Motors





Pneumatic Power & Control

Fluid Conveying

Miscellaneous Products



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This page is part of a complete catalog which contains technical and safety data that must be reviewed when selecting a product.

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Technical Information Power Units & Accessories

Hydraulic



HE2000 Series

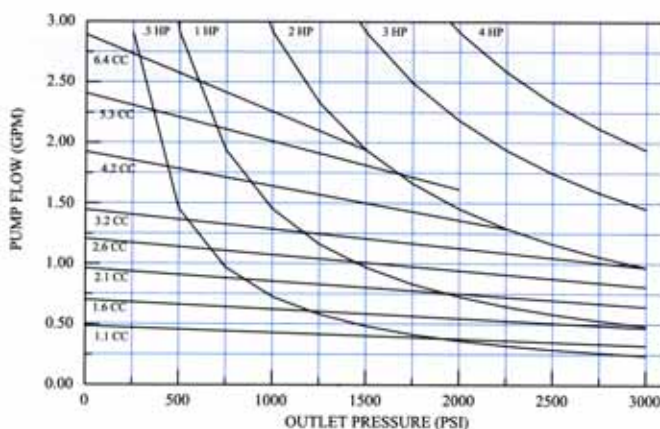
Pump & AC Motor Selection / Combinations

The nominal rated horsepower for TENV motors is based on a 30 minute duty cycle. The nominal rated horsepower for TEFC motors is based on continuous duty. For 50 Hz operation, pump flow and horsepower shown below need to be derated by approximately 20%. For TEFC motors the 30 minute rated horsepower is a continuous rating.

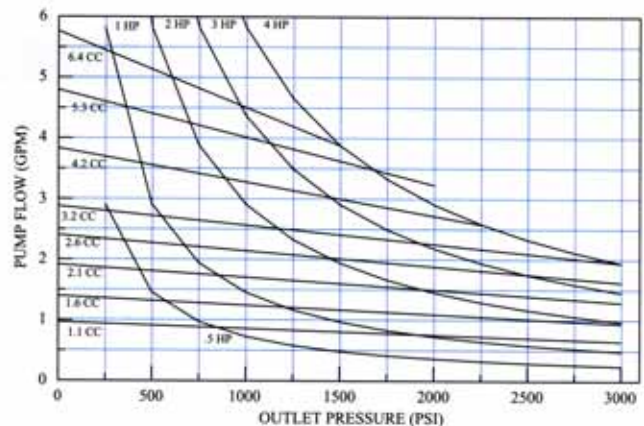
Model Code	Kit No.	HP	Phase & Voltage Hertz	Encl	RPM	60 Hertz Ratings								
						Rated HP			Voltage		Max cc/rev Starting at 2500 PSI Low Voltage	Pullup Torque at Line Voltage Ft-lbs	Breakdown Torque at Line Voltage Ft-lbs	5 Min Duty HP Nominal Amp Draw
						5 min	15 min	30 min	Line	Low				
60	1300916	0.5	3PH 208-230/460 50/60	TENV	1425/1725	1	0.75	0.5	230	188	1.6	6.2	9.0	3.5 A @230V
62	1300918	1	3PH 208-230/460 50/60	TENV	2850/3450	2.5	1.8	1	230	188	1.6	6.4	6.7	8.4 A @230V
63	1300919	1	3PH 208-230/460 50/60	TEFC	2850/3450	2.5	1.8	1	230	188	1.6	6.4	6.7	8.4 A @ 230V
64	1300920	1	1PH 115/208-230 60	TENV	3450	2.5	1.8	1	115	99	1.6	5.7	6.9	28.6 A @115V
65	1300921	1	1PH 115/208-230 50/60	TEFC	2850/3450	2.5	1.8	1	115	99	1.6	5.1	6.0	28.6 A @ 115V
66	1300922	1	3PH 208-230/460 50/60	TENV	1425/1725	3	2	1	230	188	3.2	12.3	17.1	8.4 A @ 230V
67	1300923	1	1PH 115/208-230 60	TENV	1725	2	1.5	1	115	99	3.2	9.1	10.8	8.5 A @ 230V
68	1300924	2	1PH 115/208-230 60	TENV	3450	4	3	2	115	99	2.1	7.4	7.7	27 A @ 115V
69	1300925	2	1PH 115/208-230 50/60	TEFC	2850/3450	3	2.5	2	115	99	2.1	5.4	8.0	30.2 A @ 115V
70	1300926	2	3PH 208-230/460 50/60	TENV	1425/1725	4	3.5	2	230	188	6.4	24.0	26.5	5.7 A @ 230V
71	1300927	2	1PH 115/208-230 60	TENV	1725	3	2.5	2	115	99	4.8	17	19	35 A @ 115V
72	1300928	3	3PH 208-230/460 50/60	TENV	2850/3450	4.9	3.8	3	230	188	3.2	12.6	14.6	13.7 A @ 230V
73	1300929	3	3PH 208-230/460 50/60	TEFC	2850/3450	4.9	3.8	3	230	188	3.2	12.6	14.6	13.7 A @ 230V
74	1300930	2.5	1PH 208-230 50/60	TENV	2850/3450	3.5	3	2.5	230	188	3.7	9.3	10.7	20.1 A @ 230V

The curves below demonstrate the relationship between flow and pressure to determine horsepower need. Once horsepower is determined, refer to the above chart to determine the appropriate motor for the required duty cycle.

PERFORMANCE - GC SERIES PUMPS
1725 RPM - 60 Hz - 200 SUS FLUID



PERFORMANCE - GC SERIES PUMPS
3450 RPM - 60 Hz - 200 SUS FLUID



This page is part of a complete catalog which contains technical and safety data that must be reviewed when selecting a product

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Hydraulic Power & Control

Pneumatic Power & Control

Fluid Conveying

Miscellaneous Products

Indexes & Technical Information

Technical Information Power Units & Accessories

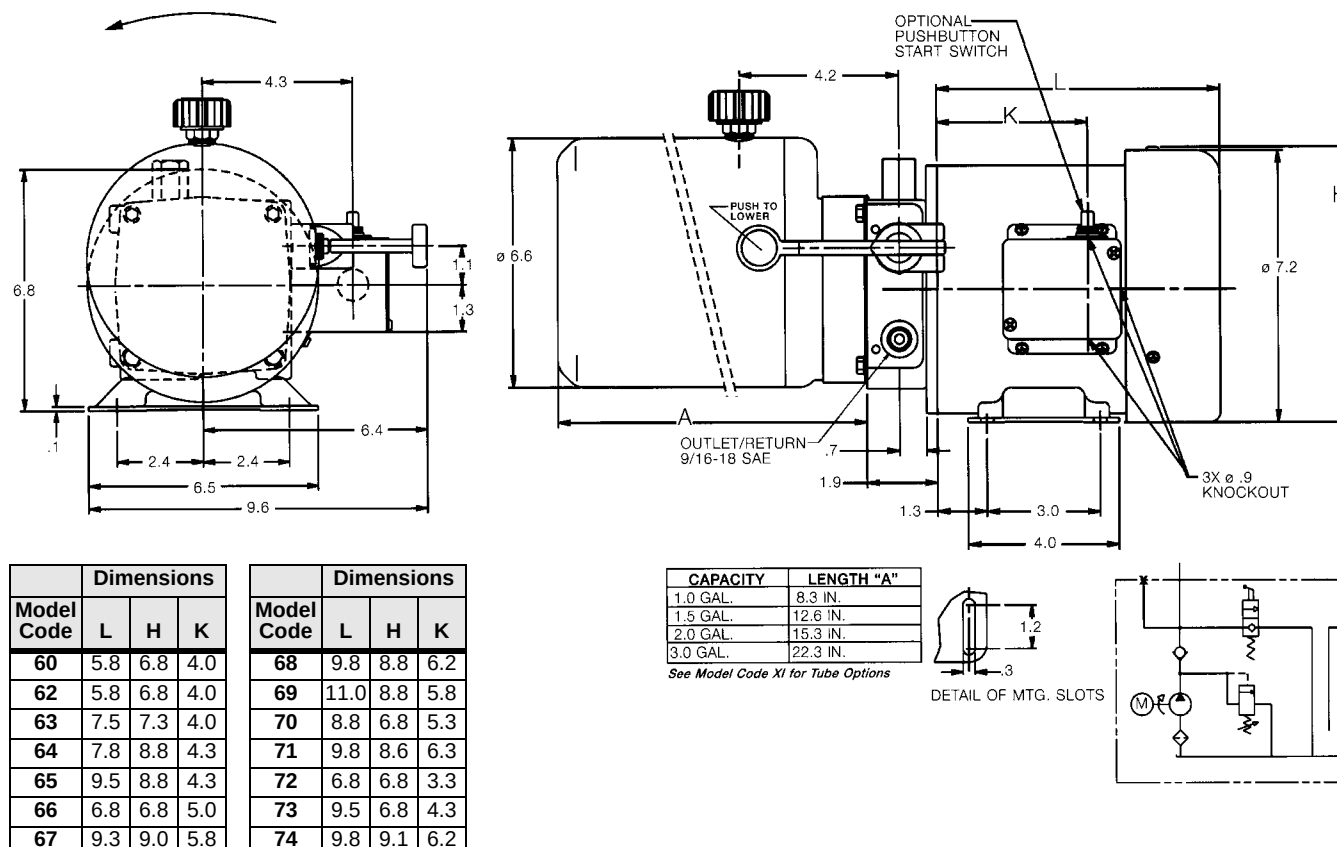


Hydraulic

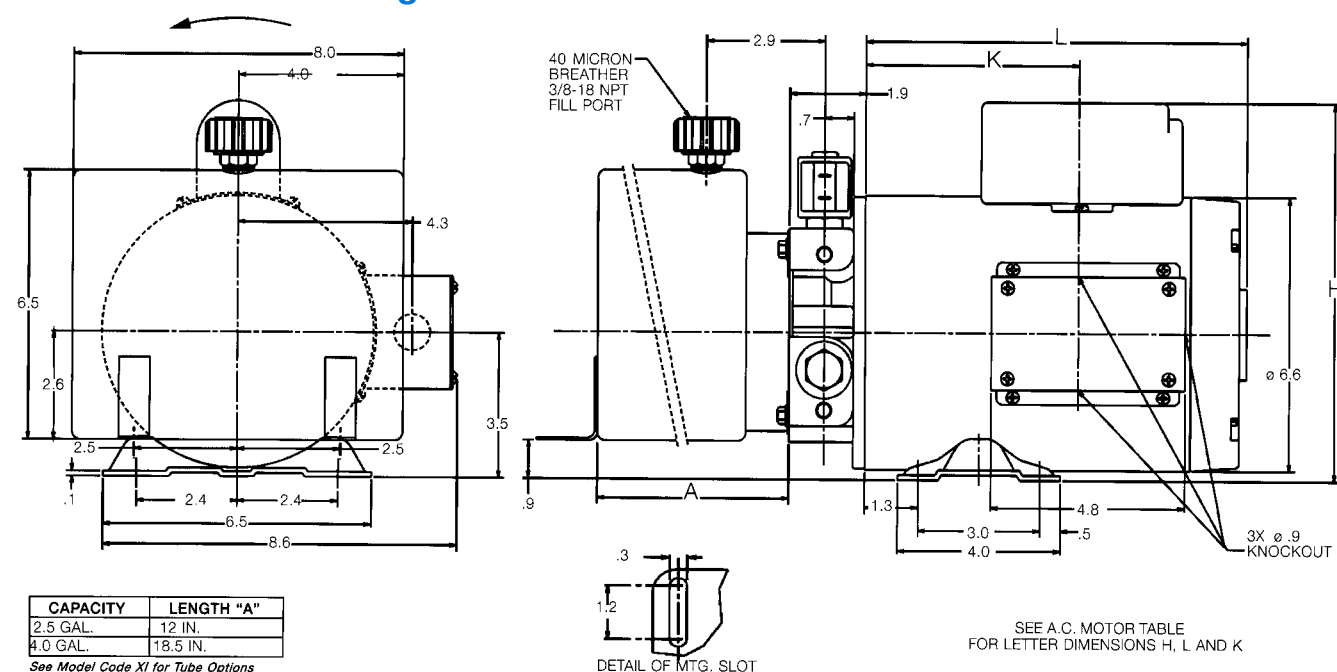


HE2000 Series Dimensions

AC Motor with 6.6 Inch Cylindrical Reservoir



AC Motor with Rectangular Reservoir





Technical Information Power Units & Accessories

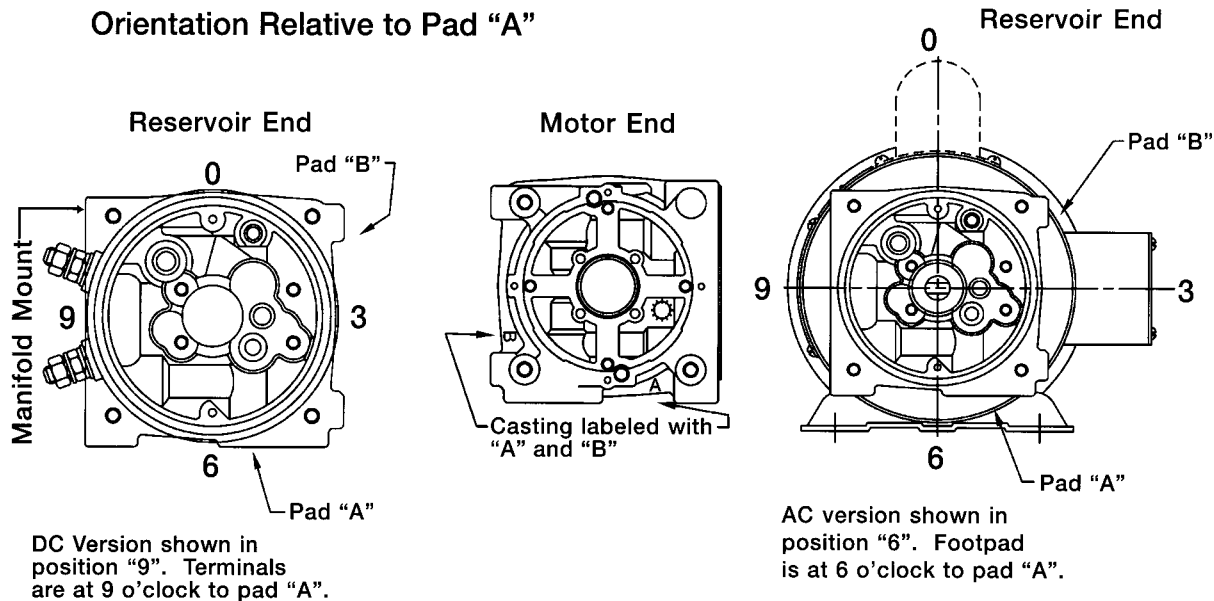
Hydraulic



HE2000 Series Orientation

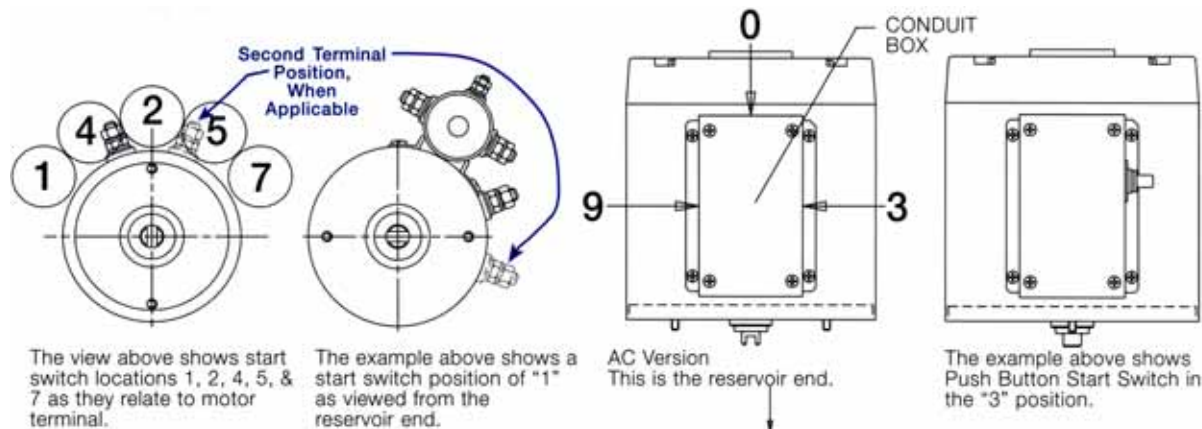
DC Motor Terminal / AC Motor Foot Bracket Orientation Relative to Pad "A"

Orientation Relative to Pad "A"



DC - Start Switch Orientation Relative to Terminals

AC - Push Button Start Switch or Accessory Location on Conduit Box



NOTE: When a manifold is added to the adapter, start switch location is critical in reference to the motor terminals. **The chart shown below shows the "approved" locations. Interference will occur in any other position.**

Motor Terminal Location	Start Switch Approved Location
3	1, 4, 2, 5, 7
6	1, 4, 2
9	None
12	2, 4, 7

DC - Location relative to pad "A" viewing from reservoir end AC - Location relative to reservoir end	
Model Code	DC Version
1	= 10 O'Clock (motor terminals)
4	= 11 O'Clock (motor terminals)
2	= 12 O'Clock (motor terminals)
5	= 1 O'Clock (motor terminals)
7	= 2 O'Clock (motor terminals)
Model Code	AC Version
0	= 12 o'clock w/reservoir end down
3	= 3 o'clock w/reservoir end down
9	= 9 o'clock w/reservoir end down
A = no switch or push button	



Technical Information Power Units & Accessories



Hydraulic



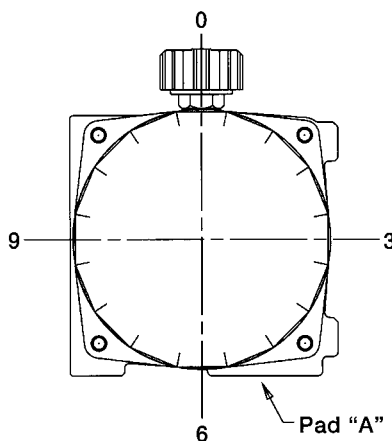
HE2000 Series Orientation (continued)

Breather Orientation Relative to Pad "A" (Reservoir End View)

Model Code	
0	= 12 o'clock
3	= 3 o'clock
6	= 6 o'clock
9	= 9 o'clock

Shown:

0 = 12 o'clock
to pad "A"

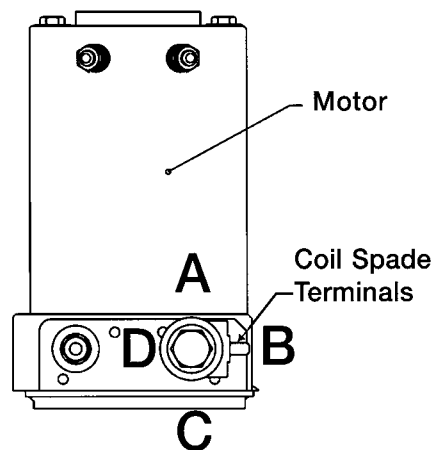


Coil Termination (Spade Terminal or Wire Leads) Relative to Motor for Solenoid Acting Release Valves

Note: The "Model Code" chart shown below applies to both "Coil Termination" and "Lever Orientation". Either "Coil Termination" or "Lever Orientation" must be selected for Option XIII, not both.

Model Code

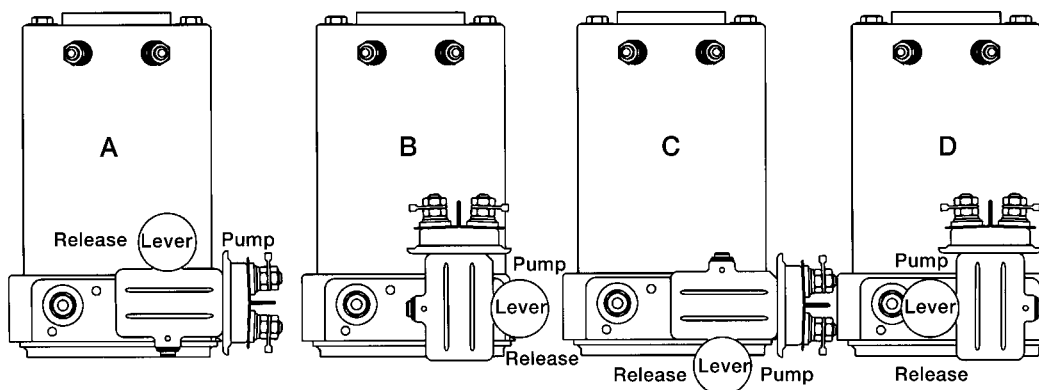
A	= 12 o'clock = Toward Motor
B	= 3 o'clock = Away from Center
C	= 6 o'clock = Toward Reservoir
D	= 9 o'clock = Toward Center
N	= None



The example above shows the coil spade terminal at the "B" position.

Lever Orientation Relative to Motor for Manual Release Valves

Location relative to motor viewing from top of coil or top of manual release switch box





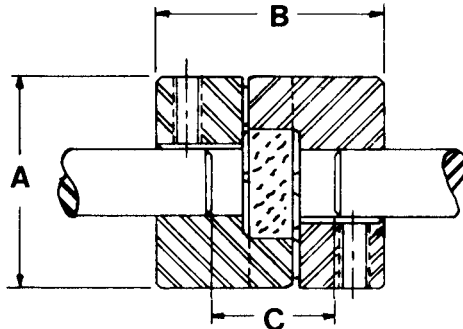
Technical Information Power Units & Accessories

Flexible Couplings

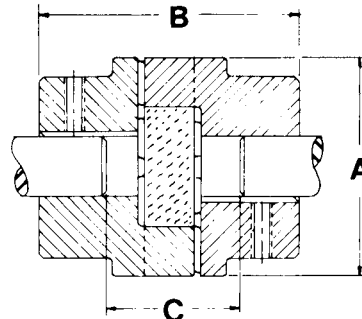
Maurey Hi-Q Flexible Couplings



Dimensions



FC050 - FC095
(Sintered Steel)



FC099 - FC225
(Machined Cast Iron)

Dimensions

Horsepower Ratings

Coupling Size	A (in)	B (in)	C Min. (in)	C Max. (in)	Max. RPM	HP Per 100 RPM				
						Service Factor (See Next Page)				
						1.0	1.5	2.0	2.5	3.0
FC050B	1-3/32	1-5/8	7/16	5/8	4500	0.04	0.03	0.02	0.02	0.01
FC070B	1-3/8	2	7/16	3/4	4500	0.06	0.04	0.03	0.02	0.02
FC075B	1-3/4	2-1/8	7/16	7/8	4500	0.12	0.08	0.06	0.05	0.04
FC090B	2-1/8	2-5/16	7/16	1-1/16	4500	0.20	0.13	0.10	0.08	0.06
FC090U	2-1/8	2-5/16	7/16	1-1/16	4500					
FC095B	2-1/8	2-3/4	7/16	1-1/16	4500	0.28	0.18	0.14	0.11	0.09
FC095U	2-1/8	2-3/4	7/16	1-1/16	4500					
FC099B	2-9/16	2-13/16	5/8	1-5/16	4000					
FC099U	2-9/16	2-13/16	5/8	1-5/16	4000					
FC100B	2-9/16	3-1/2	5/8	1-5/8	4000	0.60	0.40	0.30	0.24	0.20
FC100U	2-9/16	3-1/2	5/8	1-5/8	4000	1.00	0.66	0.50	0.40	0.33
FC110B	3-5/16	4-1/4	3/4	1-3/4	3600	1.10	0.73	0.55	0.44	0.36
FC110U	3-5/16	4-1/4	3/4	1-3/4	3600	2.40	1.60	1.20	0.96	0.80
FC150B	3-3/4	4-1/2	7/8	2	3100	1.80	1.20	0.90	0.72	0.60
FC150U	3-3/4	4-1/2	7/8	2	3100	3.50	2.33	1.75	1.40	1.16
FC190B	4-1/2	5-1/4	15/16	2-9/16	2800	2.40	1.60	1.20	0.96	0.80
FC190U	4-1/2	5-1/4	15/16	2-9/16	2800	4.70	3.13	2.35	1.88	1.56
FC225B	5	6	15/16	2-3/4	2600	3.50	2.30	1.70	1.40	1.16
FC225U	5	6	15/16	2-3/4	2600	6.00	4.00	3.00	2.40	2.00

Common Electric Motor Shafts (Additional Dimensions on page 761)

C-Face Motors

HP	RPM	Frame	Shaft Dia. (in)	Key (in)
1/6 - 3	1800	56C	5/8	3/16
1	1800	143TC	7/8	3/16
1-1/2	1800	145TC	7/8	3/16
2	1800	145TC	7/8	3/16
3	1800	182TC	1-1/8	1/4
5	1800	184TC	1-1/8	1/4
7-1/2	1800	213TC	1-3/8	5/16
10	1800	215TC	1-3/8	5/16
15	1800	254TC	1-5/8	3/8
20	1800	256TC	1-5/8	3/8
25	1800	284TC	1-7/8	1/2

C-Face Motors

HP	RPM	Frame	Shaft Dia. (in)	Key (in)
30	1800	286TC	1-7/8	1/2
40	1800	324TC	2-1/8	1/2
50	1800	326TC	2-1/8	1/2
60	1800	364TC	2-3/8	5/8

Non C-Face Motors

HP	RPM	Frame	Shaft Dia. (in)	Key (in)
1/2 - 2	1800	56	5/8	3/16
1	1800	143T	7/8	3/16
2	1800	145T	7/8	3/16

Non C-Face Motors

HP	RPM	Frame	Shaft Dia. (in)	Key (in)
3	1800	182T	1-1/8	1/4
5	1800	184T	1-1/8	1/4
7-1/2	1800	213T	1-3/8	5/16
10	1800	215T	1-3/8	5/16
15	1800	254T	1-5/8	3/8
20	1800	256T	1-5/8	3/8
25	1800	284T	1-7/8	1/2
30	1800	286T	1-7/8	1/2
40	1800	324T	2-1/8	1/2
50	1800	326T	2-1/8	1/2
60	1800	364T	2-3/8	5/8



Technical Information Power Units & Accessories



Flexible Couplings



Maurey Hi-Q Flexible Couplings

Service Factors

APPLICATION (SEE FOOTNOTE)	SERVICE FACTOR	APPLICATION (SEE FOOTNOTE)	SERVICE FACTOR	APPLICATION (SEE FOOTNOTE)	SERVICE FACTOR
AGITATORS PADDLE, PROPELLER, SCREW	1.0	KLIN	2.0	PUMPS CENTRIFUGAL DESCALING GEAR TYPE OIL WELL	1.0 1.5 2.0
BLOWERS CENTRIFUGAL, VANE LOBE	1.0 1.5	LAUNDRY MACHINES TUMBLER, WASHER	2.0	PUMPS RECIPROCATING 1 CYLINDER — SINGLE ACTING	2.5
BREWING & DISTILLING BOTTLING MACHINERY BREW KETTLE, MASH TUB SCALE HOPPER	1.0 1.5	LINE SHAFTS	1.5	1 CYLINDER — DOUBLE ACTING	2.0
CAR DUMPERS	2.5	LUMBER INDUSTRY BAND CIRCULAR RESAW PLANER	1.5	2 CYLINDER — SINGLE ACTING	1.5
CAR PULLERS	1.5	ROLLS (NON REVERSING) SLAB CONVEYOR	1.5	3 CYLINDERS OR MORE	1.5
CLAY WORKING MACHINES	1.5	SORTING TABLE	1.5	RUBBER INDUSTRY TUBER AND STRAINER CALENDER, WARMING MILL BANBURY, MIXING MILL SHEETER, TIRE BUILDING MACHINE, WASHER	1.5 2.0 2.5
COMPRESSORS CENTRIFUGAL LOBE ROTARY RECIPROCATING**	1.0 2.0 3.0	MACHINE TOOLS AUXILIARY AND TRAVERSE MAIN DRIVE PUNCH PRESS, PLANER	1.0 2.0	SCREENS AIR WASHING AND WATER COAL AND SAND (ROTARY) VIBRATING	1.0 1.5 2.5
CONVEYORS ASSEMBLY, BELT, SCREW RECIPROCATING	1.0 2.5	METAL FORMING MACHINES ALL	2.0	SHOVEL	2.0
CRANES & HOIST MAIN, REVERSING, SKIP TROLLEY, BRIDGE, SLOPE	2.0	MILLS (ROTARY TYPE) DRYER, COOLER TUMBLING BARREL BALL PEBBLE ROD, TUBE	1.5 2.5	SHREDDER	1.5
CRUSHERS ORE AND STONE	3.0	MIXERS CONCRETE (CONTINUOUS) MULLER	1.5	STEEL INDUSTRY* COLD MILLS COILER (UP OR DOWN) STRIP, TEMPER HOT MILLS COILER EDGER DRIVE FEED ROLL, ROUGHING MILL DELIVERY, SHEET, STRIP ROD MILL SOARING PIT COVER DRIVE	1.5 2.0 1.5 3.0 2.5 3.0
DREDGES CONVEYORS, PUMPS, STACKERS CUTTER HEAD, JIG PUMP SCREEN DRIVES	1.5 2.0	OIL INDUSTRY CHILLER PARAFFIN FILTER PRESS OIL WELL PUMPING	1.0 1.5 2.0	STEERING GEAR	1.0
ELEVATORS BUCKET, FREIGHT, PASSENGER	2.0	PAPER MILLS AGITATOR, BLEACHER FELT STRETCHER BEATER, PULPER COUCH CYLINDER, DRYER, ROTARY PUMP, WINDER CALENDER, JORDON PRESS, PULP GRINDER RECIPROCATING PUMP BARKING DRUM CHIPPER	1.0 1.5 2.0 3.0	STOKER	1.0
FANS CENTRIFUGAL LIGHT PROPELLER (INDOOR) LARGE (MINE ETC.) COOLING TOWER	1.0 1.5 2.0	PARAFFIN FILTER PRESS	1.5	TEXTILE MILLS BATCHER, DRYING, MANGEL, NAPPER, SOAPER CALENDER, CARD, DRY CAN, SPINNER, TENTER FRAME	1.0 1.5
FOOD INDUSTRY CEREAL COOKER BEET SLICER, DOUGH MIXER, MEAT GRINDER	1.0 1.5	PRINTING PRESS	1.5	WINDLASS	2.0
GENERATORS EVEN LOAD HOIST OR RAILWAY SERVICE WELDER LOAD	1.0 1.5 2.0	PROPELLER (MARINE)	1.5	WOODWORKING MACHINERY	1.0
HAMMERMILLS	2.0	PULLERS	2.5		
		PULVERIZERS HAMMERMILL — LIGHT DUTY ROLLER HAMMERMILL — HEAVY DUTY HOG	1.5 2.0		

• The service factors listed are intended only as a general guide and for smooth power sources such as electric motors and steam turbines. Add 0.5 to factor for somewhat rougher power sources such as internal combustion engines of four or more cylinders, steam engines and water turbines. Where substantial shock occurs or starting and stopping is frequent as on some

"inching" drives and on some reversing drives or where the power source is an internal combustion engine with less than four cylinders — consult factory. Where torsional vibrations occur as in, for example, internal combustion engine or reciprocating compressor or pump applications, check the coupling size for the possible development of damaging large-amplitude vibrations.

** Add 0.5 to factor is without flywheel

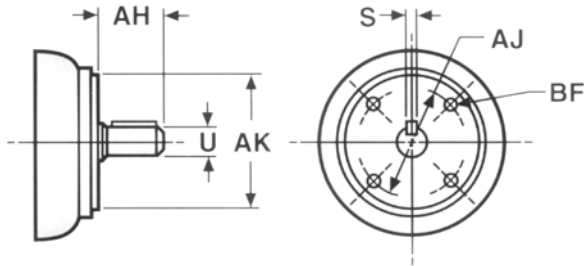
* These factors are based on motor HP at base speed. Where these factors do not produce a 10 factor on the peak torque of the motor, they should be increased accordingly.



Technical Information Power Units & Accessories

Electric Motors

Nema C-Face Electric Motor
Flange & Shaft Dimensions



Frame Size(s)	AH	U	S	AK	AJ	BF	HorsePower at 1800 RPM
56C	2.062	5/8	3/16	4.50	5.875	3/8-16	1/4, 1/2
143TC 145TC	2.125	7/8	3/16	4.50	5.875	3/8-16	1, 2
182TC 184TC	2.625	1-1/8	1/4	8.50	7.25	1/2-13	3, 5
213TC 215TC	3.125	1-3/8	5/16	8.50	7.25	1/2-13	7-1/2, 10
254TC 256TC	3.75	1-5/8	3/8	8.50	7.25	1/2-13	15, 20
284TSC 286TSC	3.00	1-5/8	3/8	10.50	9.00	1/2-13	25, 30
284TC 286TC	4.375	1-7/8	1/2	10.50	9.00	1/2-13	25, 30
324TSC 326TSC	3.50	1-7/8	1/2	12.50	11.00	5/8-11	40, 50
324TC 326TC	5.00	2-1/8	1/2	12.50	11.00	5/8-11	40, 50
364TSC 365TSC	3.50	1-7/8	1/2	12.50	11.00	5/8-11	60, 75
364TC 365TC	5.62	2-3/8	5/8	12.50	11.00	5/8-11	60, 75
404TSC 405TSC	4.00	2-1/8	1/2	12.50	11.00	5/8-11	100, 125
404TC 405TC	7.00	2-7/8	3/4	12.50	11.00	5/8-11	100, 125
444TSC 449TSC	4.50	2-3/8	5/8	16.00	14.00	5/8-11	150, 200
444TC 449TC	8.25	3-3/8	7/8	16.00	14.00	5/8-11	150, 200

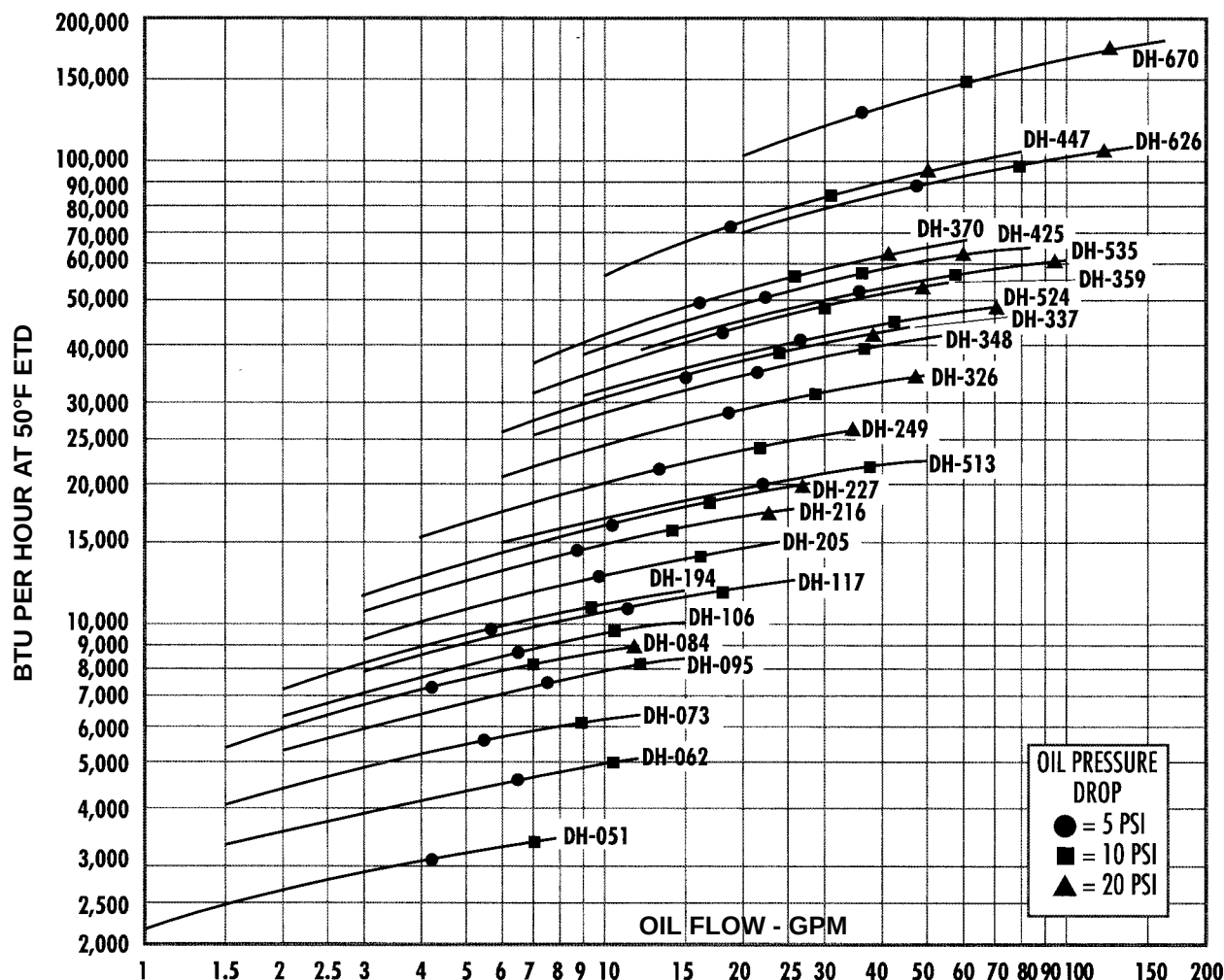
Technical Information Hydraulic System Accessories



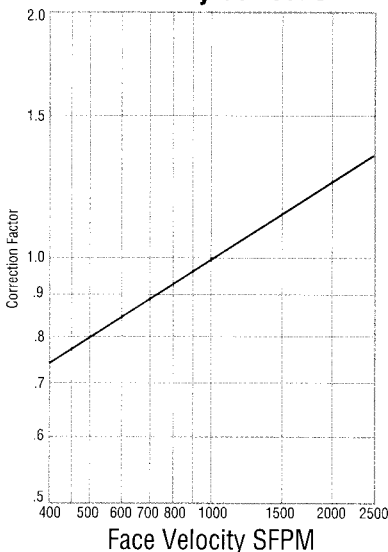
Heat Exchangers



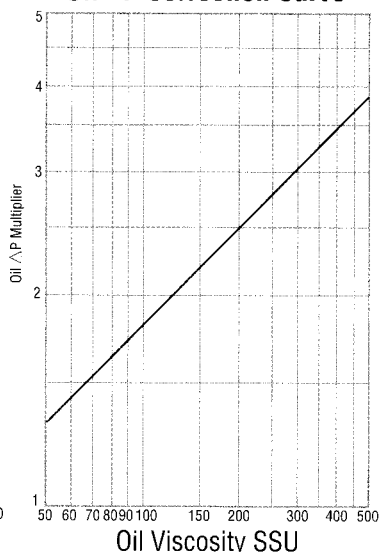
Thermal Transfer DH & DHR Series Performance Curves



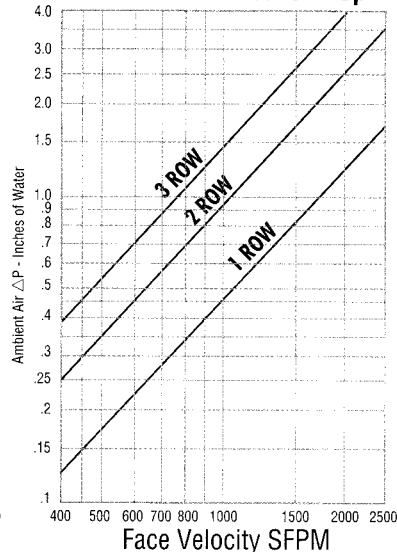
Air Velocity Correction



Oil ΔP Correction Curve



Air Static Pressure Drop





Technical Information

Hydraulic System Accessories

Heat Exchangers



Thermal Transfer DH & DHR Series Performance Curves

SELECTION PROCEDURE

Performance Curves are based on 50 SSU oil, 1000 Standard Feet per Minute (SFPM) Air Velocity, and oil entering the cooler 50°F higher than the ambient air temperature used for cooling (This is referred to as a 50°F ETD).

Step 1. Determine the Heat Load.

This will vary with different systems, but typically coolers are sized to remove 25-50% of the input nameplate horsepower. If BTU to be removed is known, $HP = BTU \text{ per hr. } / 2545$.

Step 2. Determine the Entering Temperature Difference.

The entering oil temperature is generally the maximum desired oil temperature.

Entering oil temperature - Ambient air temperature = ETD.

Step 3. Determine Air Velocity Correction Factor.

A. If SFPM air velocity is known, read value from curve on previous page.

(A reasonable assumption is 750 SFPM).

B. If SCFM (Standard Cubic Feet per Minute) air flow is known, calculate velocity as follows:

$SFPM \text{ Air Velocity} = (SCFM \text{ Air Flow} / Sq. Ft. \text{ Face Area of Cooler})$.

Step 4. Calculate corrected heat load to enter curves.

$Cooler \text{ Heat Dissipation} = BTU/Hr. \text{ Heat load} \times [50^\circ F / (\text{Desired ETD} \times \text{Air Velocity Correction Factor})]$

Step 5. Enter the Performance Curves at the bottom with the GPM oil flow and proceed upward to the adjusted heat load from step 4. Any curve on or above this point will meet these conditions.

Step 6. Multiply oil Pressure Drop from curve by correction factor found in Oil ΔP Correction Curve.

Technical Information Hydraulic System Accessories

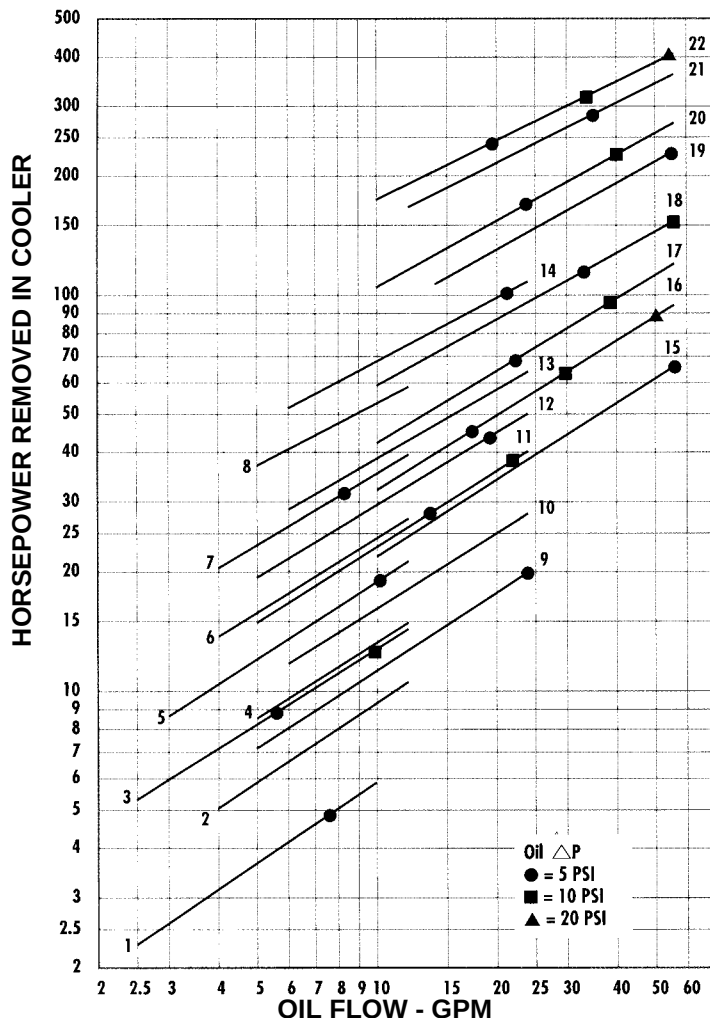


Heat Exchangers



Thermal Transfer EK Series Performance Curves

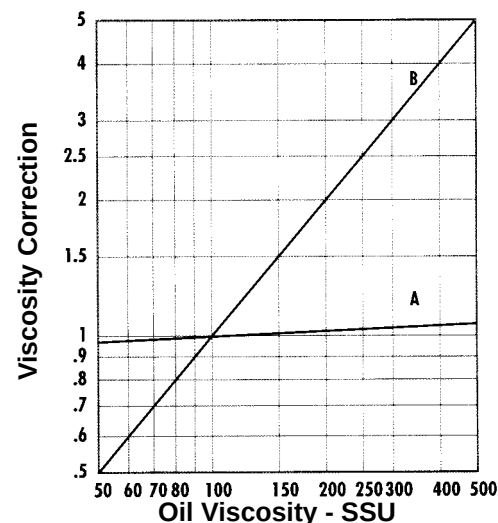
HIGH WATER USAGE • 1:1 OIL TO WATER RATIO



Models

- | | |
|--------------|-----------------|
| 1. EK-505-O | 12. EK-718-O |
| 2. EK-508-O | 13. EK-724-O |
| 3. EK-510-O | 14. EK-736-O |
| 4. EK-512-O | 15. EK-1012-O |
| 5. EK-514-O | 16. EK-1014-O |
| 6. EK-518-O | 17. EK-1018-O |
| 7. EK-524-O | 18. EK-1024-O |
| 8. EK-536-O | 19. EK-1036-9-O |
| 9. EK-708-O | 20. EK-1036-6-O |
| 10. EK-712-O | 21. EK-1048-8-O |
| 11. EK-714-O | 22. EK-1048-6-O |

Oil Viscosity Correction Multipliers



SELECTION PROCEDURE

Performance Curves are based on 100 SSU oil leaving the cooler 40°F higher than the incoming water temperature used for cooling. This is referred to as a 40°F approach temperature.

Step 1. Determine the Heat Load.

This will vary with different systems, but typically coolers are sized to remove 25-50% of the input nameplate horsepower. If BTU to be removed is known, $HP = \text{BTU per hr.} / 2545$.

Step 2. Determine Approach Temperature.

Desired temp °F oil leaving cooler - Water Inlet Temp °F = Actual Approach °F (Max. Reservoir Temp).

Step 3. Determine Curve Horsepower Heat Load.

$HP \text{ Heat Load} \times (40 / \text{Actual Approach}) \times \text{Viscosity Correction A} = \text{Curve HP}$

Step 4. Enter curves at oil flow through cooler and curve horsepower.

Any curve above the intersecting point will work.

Step 5. Determine Oil Pressure Drop from Curves.

● = 5 PSI ■ = 10 PSI ▲ = 20 PSI

Multiply pressure drop from curve by correction factor B found in oil viscosity correction curve.



Technical Information

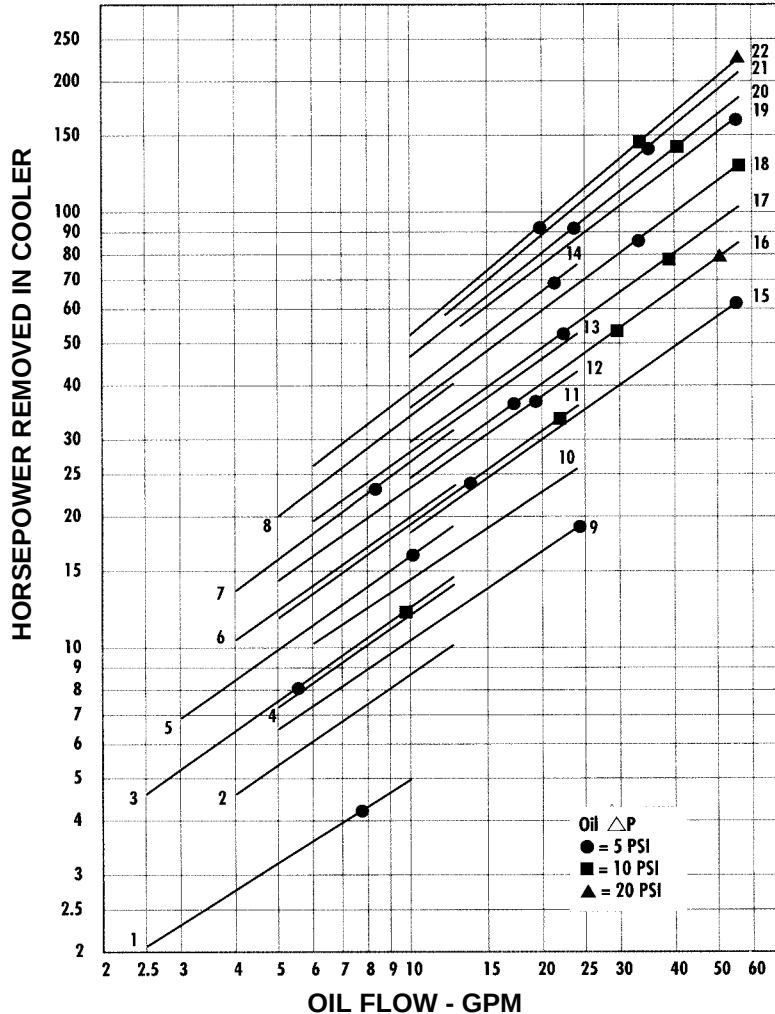
Hydraulic System Accessories

Heat Exchangers



Thermal Transfer EK Series Performance Curves

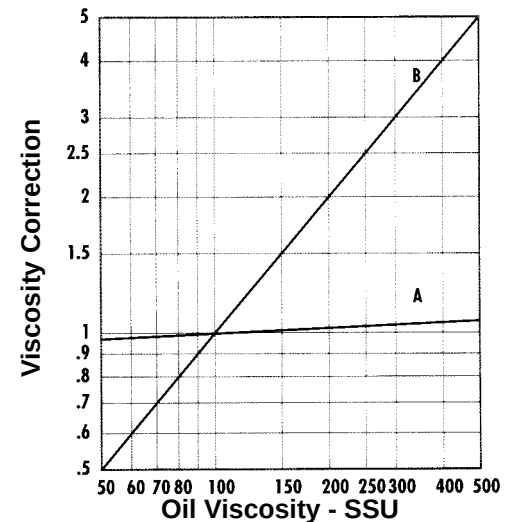
MEDIUM WATER USAGE • 2:1 OIL TO WATER RATIO



Models

- | | |
|--------------|-----------------|
| 1. EK-505-T | 12. EK-718-T |
| 2. EK-508-T | 13. EK-724-T |
| 3. EK-510-T | 14. EK-736-T |
| 4. EK-512-T | 15. EK-1012-T |
| 5. EK-514-T | 16. EK-1014-T |
| 6. EK-518-T | 17. EK-1018-T |
| 7. EK-524-T | 18. EK-1024-T |
| 8. EK-536-T | 19. EK-1036-9-T |
| 9. EK-708-T | 20. EK-1036-6-T |
| 10. EK-712-T | 21. EK-1048-8-T |
| 11. EK-714-T | 22. EK-1048-6-T |

Oil Viscosity Correction Multipliers



SELECTION PROCEDURE

Performance Curves are based on 100 SSU oil leaving the cooler 40°F higher than the incoming water temperature used for cooling. This is referred to as a 40°F approach temperature.

Step 1. Determine the Heat Load.

This will vary with different systems, but typically coolers are sized to remove 25-50% of the input nameplate horsepower. If BTU to be removed is known, $HP = \text{BTU per hr.} / 2545$.

Step 2. Determine Approach Temperature.

Desired temp °F oil leaving cooler - Water Inlet Temp °F = Actual Approach °F (Max. Reservoir Temp).

Step 3. Determine Curve Horsepower Heat Load.

$HP \text{ Heat Load} \times (40 / \text{Actual Approach}) \times \text{Viscosity Correction A} = \text{Curve HP}$

Step 4. Enter curves at oil flow through cooler and curve horsepower.

Any curve above the intersecting point will work.

Step 5. Determine Oil Pressure Drop from Curves.

● = 5 PSI ■ = 10 PSI ▲ = 20 PSI

Multiply pressure drop from curve by correction factor B found in oil viscosity correction curve.



Technical Information Hydraulic System Accessories

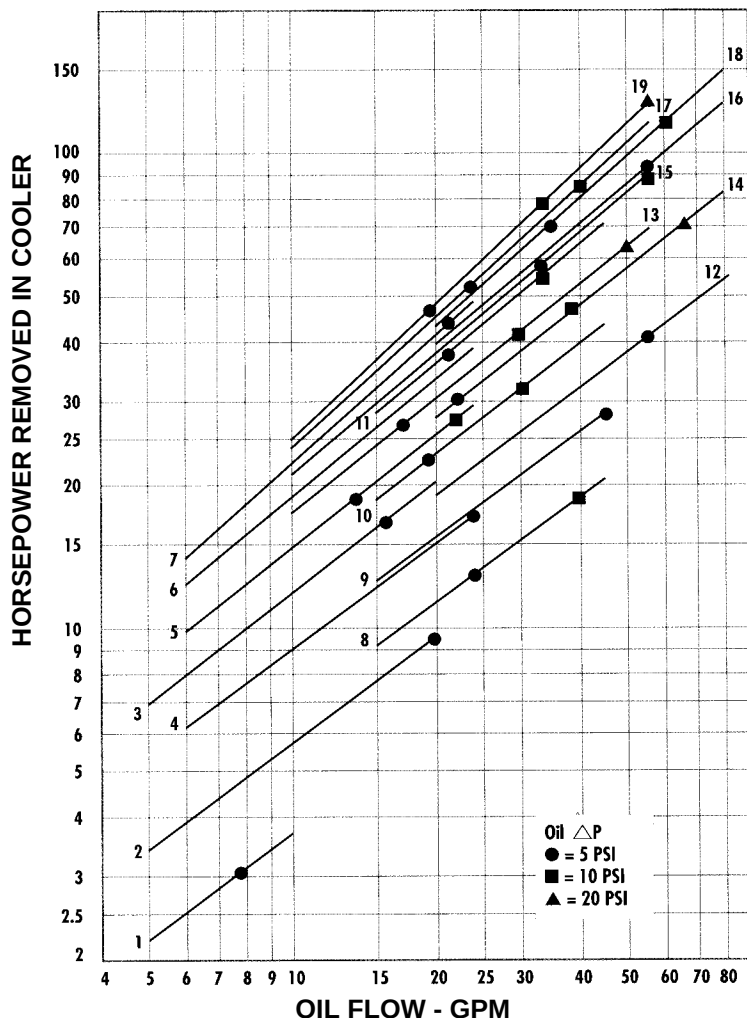


Heat Exchangers



Thermal Transfer EK Series Performance Curves

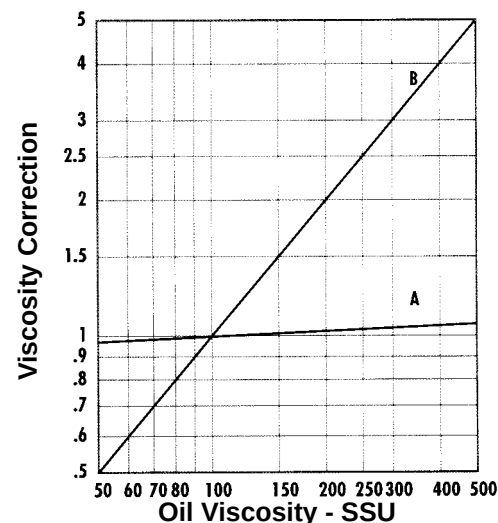
LOW WATER USAGE • 4:1 OIL TO WATER RATIO



Models

- | | |
|--------------|-----------------|
| 1. EK-505-T | 12. EK-1012-T |
| 2. EK-508-T | 13. EK-1014-F |
| 3. EK-518-T | 14. EK-1018-T |
| 4. EK-708-F | 15. EK-1024-F |
| 5. EK-714-F | 16. EK-1036-9-T |
| 6. EK-724-F | 17. EK-1036-6-F |
| 7. EK-736-F | 18. EK-1048-8-T |
| 8. EK-708-T | 19. EK-1048-6-F |
| 9. EK-712-T | |
| 10. EK-718-T | |
| 11. EK-736-T | |

Oil Viscosity Correction Multipliers



SELECTION PROCEDURE

Performance Curves are based on 100 SSU oil leaving the cooler 40°F higher than the incoming water temperature used for cooling. This is referred to as a 40°F approach temperature.

Step 1. Determine the Heat Load.

This will vary with different systems, but typically coolers are sized to remove 25-50% of the input nameplate horsepower. If BTU to be removed is known, $HP = \text{BTU per hr.} / 2545$.

Step 2. Determine Approach Temperature.

Desired temp °F oil leaving cooler - Water Inlet Temp °F = Actual Approach °F (Max. Reservoir Temp).

Step 3. Determine Curve Horsepower Heat Load.

$HP \text{ Heat Load} \times (40 / \text{Actual Approach}) \times \text{Viscosity Correction A} = \text{Curve HP}$

Step 4. Enter curves at oil flow through cooler and curve horsepower.

Any curve above the intersecting point will work.

Step 5. Determine Oil Pressure Drop from Curves.

● = 5 PSI ■ = 10 PSI ▲ = 20 PSI

Multiply pressure drop from curve by correction factor B found in oil viscosity correction curve.



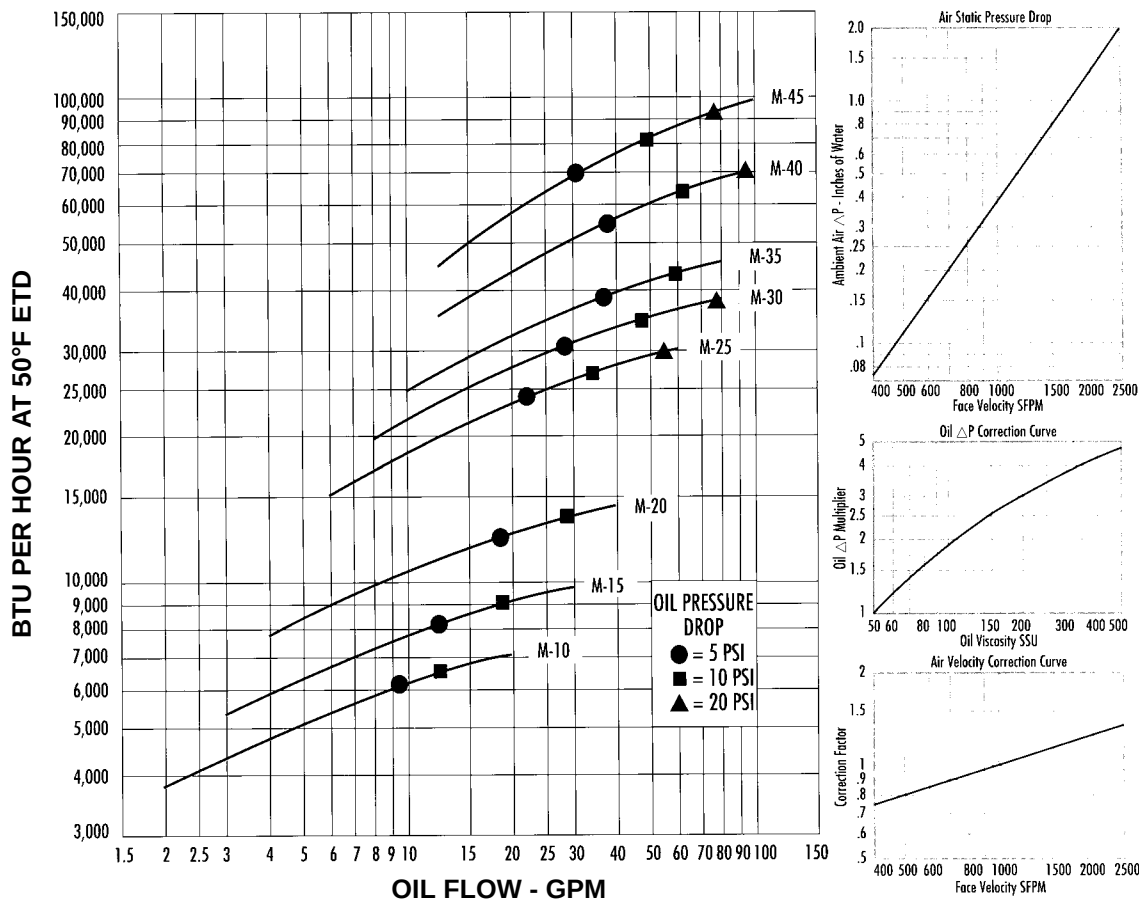
Technical Information

Hydraulic System Accessories

Heat Exchangers



Thermal Transfer M & MR Series Performance Curves



SELECTION PROCEDURE

Performance Curves are based on 50 SSU oil, 1000 Standard Feet per Minute (SFPM) Air Velocity, and oil entering the cooler 50°F higher than the ambient air temperature used for cooling (This is referred to as a 50°F ETD).

Step 1. Determine the Heat Load.

This will vary with different systems, but typically coolers are sized to remove 25-50% of the input nameplate horsepower. If BTU to be removed is known, $HP = BTU \text{ per hr. } / 2545$.

Step 2. Determine the Entering Temperature Difference.

The entering oil temperature is generally the maximum desired oil temperature.

Entering oil temperature - Ambient air temperature = ETD.

Step 3. Determine Air Velocity Correction Factor.

A. If SFPM air velocity is known, read value from curve above. (A reasonable assumption is 750 SFPM).

B. If SCFM (Standard Cubic Feet per Minute) air flow is known, calculate velocity as follows:

$SFPM \text{ Air Velocity} = (SCFM \text{ Air Flow} / \text{Sq. Ft. Face Area of Cooler})$.

Step 4. Calculate corrected heat load to enter curves.

Cooler Heat Dissipation = $BTU/Hr. \text{ Heat load} \times [50^\circ F / (\text{Desired ETD} \times \text{Air Velocity Correction Factor})]$

Step 5. Enter the Performance Curves at the bottom with the GPM oil flow and proceed upward to the adjusted heat load from step 4. Any curve on or above this point will meet these conditions.

Step 6. Multiply oil Pressure Drop from curve by correction factor found in Oil ΔP Correction Curve.



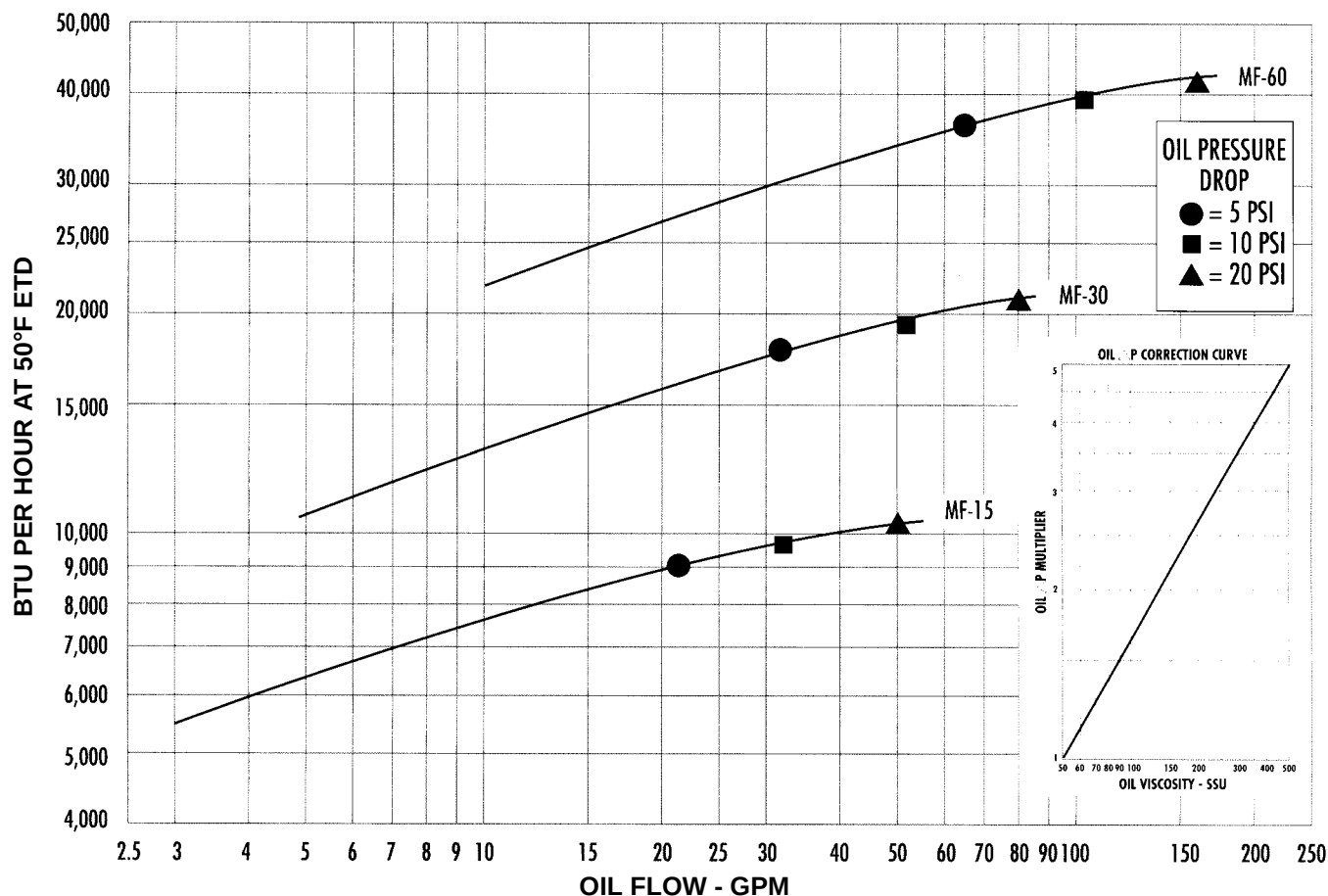
Technical Information Hydraulic System Accessories



Heat Exchangers



Thermal Transfer MF Series Performance Curves



SELECTION PROCEDURE

Performance Curves are based on 50 SSU oil entering the cooler 50°F higher than the ambient air temperature used for cooling. This is referred to as a 50°F ETD.

Step 1. Determine the Heat Load.

This will vary with different systems, but typically coolers are sized to remove 25-50% of the input nameplate horsepower. If BTU to be removed is known, $HP = \text{BTU per hr.} / 2545$.

Step 2. Determine the Entering Temperature Difference.

The entering oil temperature is generally the maximum desired oil temperature.
Entering oil temperature - Ambient air temperature = ETD.

Step 3. Determine Curve Heat Dissipation BTU/Hr.

$\text{BTU heat load} \times (50^\circ\text{F}/\text{ETD}) = \text{Curve Heat Dissipation}$.

Step 4. Enter curves at oil flow through cooler and curve heat dissipation.

Any curve above the intersecting point will work.

Step 5. Determine Oil Pressure Drop from Curves.

● = 5 PSI ■ = 10 PSI ▲ = 20 PSI

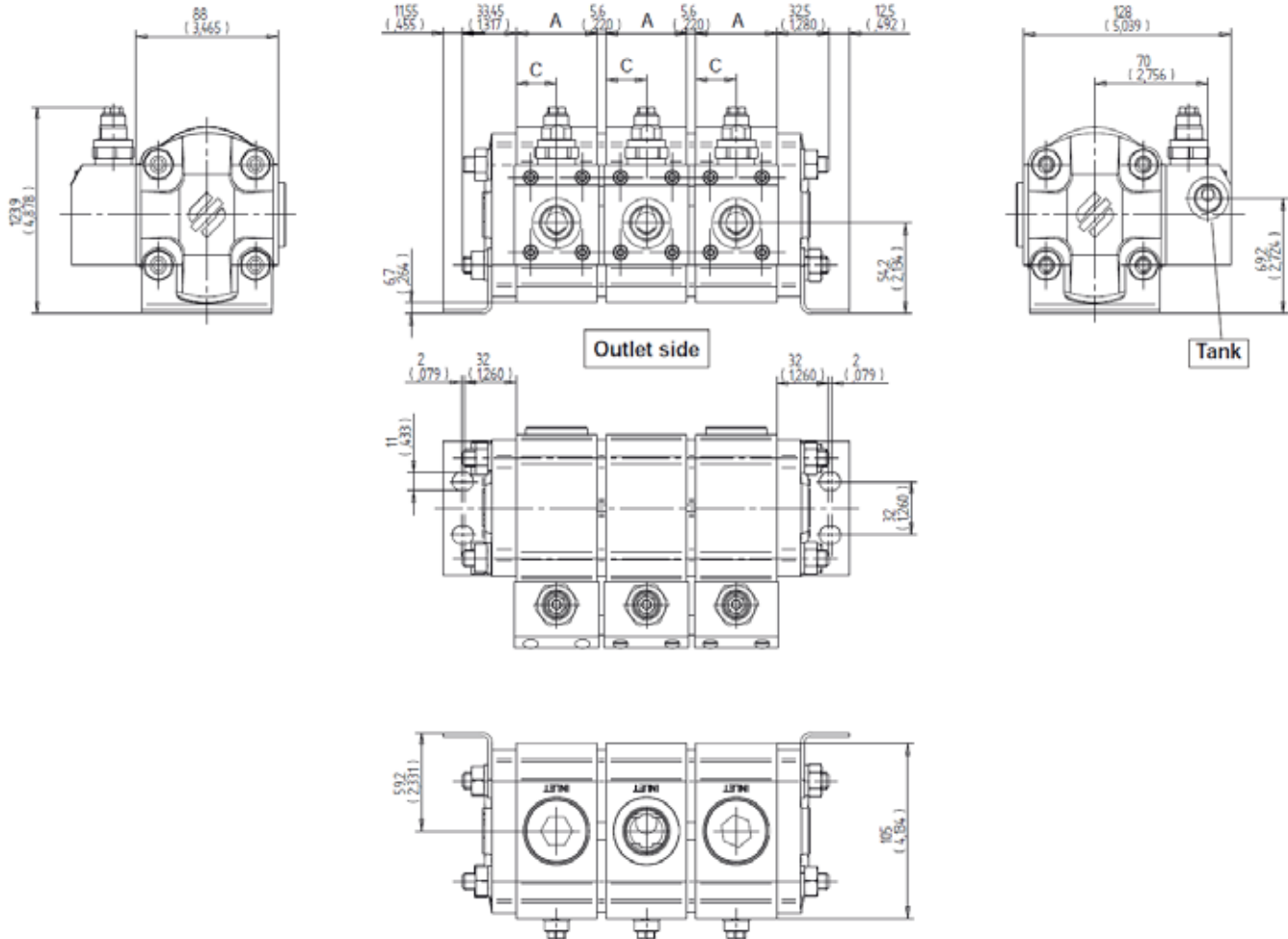
Multiply pressure drop from curve by correction factor found in oil ΔP correction curve.

Gear Flow Dividers

Salami 2DRE Series • To 22.5 GPM • Up to 3600 PSI



Salami 2DRE Series Flow Divider Dimensions



Type	Dimension A		Dimension C	
	mm	in	mm	in
2DRE - 4,5	47.1	1.83	23.55	0.93
2DRE - 6,5	49.95	1.97	25	0.98
2DRE - 8,3	52.8	2.07	26.4	1.04
2DRE - 10,5	56.35	2.22	28.17	1.11
2DRE - 11,3	59.6	2.35	29.8	1.17
2DRE - 12,5	59.6	2.35	29.8	1.17
2DRE - 13,8	63.5	2.5	31.75	1.25
2DRE - 16	67.5	2.65	33.75	1.33
2DRE - 19	75.6	2.97	37.8	1.49
2DRE - 22,5	81	3.19	40.5	1.59
2DRE - 26	86.8	3.41	43.4	1.71
2DRE - 30	97.6	3.84	48.8	1.92

EATON

Powering Business Worldwide





Pneumatic Power & Control

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Pneumatic Power & Control

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Pneumatic Cylinders

American Cylinder 76 Series • Aluminum Barrel

American

3/4 to 2-1/2 Inch Bore • Aluminum Barrel American Cylinder 76 Series



American Cylinder 76 Series round cylinders are designed for applications where a disposable, light duty cylinder is preferred. Prelubed, they're suitable for operations without externally applied lubrication (Factory does recommend periodic direct lubrication or continuous air line mist lubrication for maximum service life). Constructed of aluminum and stainless steel, they resist the destructive forces of corrosion.

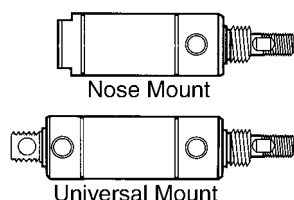
Features: Thick walled hard coated aluminum body with double rolled-in construction. Ground and polished 303 stainless steel piston rod with wrench flats standard. Piston rod is threaded, sealed and machine staked to piston. Aluminum alloy end caps. Buna-N U-cup piston and rod seals. Oil impregnated sintered bronze rod guide bushing standard on all models. Rear Pivot bushing.

Maximum Operating Pressure: 250 PSI.

Operating Temperature Range: -20°F to 200°F.

Bumpers: Optional bumpers do not affect external dimensions.

Double-Acting American Cylinder DV Series



Bore Sizes: 3/4, 1-1/8, 1-1/2, 2, 2-1/2.

Options: Bumpers, Viton® Seals, Ports Rotated 90°.

Dimensions: page 807

Accessories: page 773



Double-Acting • American Cylinder DV Series

Catalog Part No.	American Cylinder Model	Mounting Style	Bore Dia (in)	Stroke (in)	Rod Dia (in)	Ports	Options	Accessories (Order Separately)	Wt.	Price Each
C1ZZ47	1125DV-2.00	Universal Mount	1-1/8	2.00	0.375	1/8 NPT	None	M41 Foot Bracket (2) M45 Mounting Nut (2) M44 Rod Clevis & Pin M43 Pivot Bracket & Pin	0.58	
C1HC92	1125DV-5.00	Universal Mount	1-1/8	5.00	0.375	1/8 NPT	None	M41 Foot Bracket (2) M45 Mounting Nut (2) M44 Rod Clevis & Pin M43 Pivot Bracket & Pin	0.73	



Pneumatic Cylinders

American Cylinder 76 Series • Aluminum Barrel



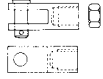
American Cylinder 76 Series Cylinder Accessories



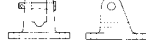
Foot Mount



Mounting Nut



Rod Clevis & Pin



Pivot Mount & Pin

American Cylinder 76 Series Cylinder Accessories

Catalog Part No.	American Cylinder Model	Description	Wt.	Price Each
C1ZX58	M44	Rod Clevis & Pin for 1-1/8 Bore Cylinders	0.10	
C1EU88	M43	Pivot Mount & Pin for 1-1/8 Bore Cylinders	0.22	

Dimensions: page 808

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Pneumatic Cylinders

American Cylinder Stainless Steel Series • Stainless Steel Barrel

 American

7/16 to 1-1/2 Inch Bore • Stainless Steel Barrel American Cylinder Stainless Steel Series



American Cylinder Stainless Steel Series cylinders are designed for applications where a disposable, light duty cylinder is preferred. Prelubed, they're suitable for operations without externally applied lubrication (Factory does recommend periodic direct lubrication or continuous air line mist lubrication for maximum service life). Constructed of aluminum and stainless steel, they resist the destructive forces of corrosion.

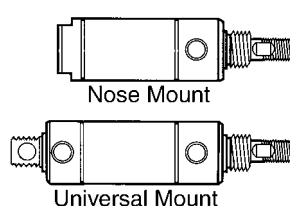
Features: Type 304 stainless steel body with double rolled-in construction. Ground and polished 303 stainless steel piston rod with wrench flats standard (7/16 and 9/16 bore rods do not have flats). Piston rod is threaded, sealed and machine staked to piston. Aluminum alloy end caps. Buna-N U-cup piston and rod seals. Oil impregnated sintered bronze rod guide bushing standard on all models. Optional rear pivot bushing.

Maximum Operating Pressure: 250 PSI.

Operating Temperature Range: -20°F to 200°F with standard Buna-N seals. Optional Viton (fluorocarbon) seals are available for operating temperatures to 400°F.

Bumpers: Optional bumpers affect overall length: 9/16 bore add 0.125 inches. 1-1/16 bore add 0.125 inches. 1-1/2 bore add 0.125 inches.

Double-Acting American Cylinder DVS & DNS Series



Bore Sizes: 7/16, 9/16, 3/4, 1-1/16, 1-1/4, 1-1/2.

Options: Viton® Seals, Bumpers, Ports Rotated 90°, 1/8 inch Additional Rod Extension (standard option for 1-1/16 bore only), Rear Pivot Bushing, Unmilled Threaded Rear Mounting Stud.

Dimensions: page 809



Double-Acting • American Cylinder DVS & DNS Series

Catalog Part No.	American Cylinder Model	Mounting Style	Bore Dia (in)	Stroke (in)	Rod Dia (in)	Ports	Options	Accessories (Order Separately)	Wt.	Price Each
C1FR11	1062DVS-3.00	Universal Mount	1-1/16	3.00	0.25	1/8 NPT		M25 Mounting Nut M24 Rod Clevis M23S Pivot Bracket M21 Foot Bracket	0.49	
C1GC69	1062DVS-4.00	Universal Mount	1-1/16	4.00	0.25	1/8 NPT		M25 Mounting Nut M24 Rod Clevis M23S Pivot Bracket M21 Foot Bracket	0.54	

Aro® Silverair™ Series • Stainless Steel Barrel



1/2 to 2-1/2 Inch Bore • Stainless Steel Barrel Aro® Silverair™ Series



Aro Silverair™ round cylinders are designed for applications where a disposable, light duty cylinder is preferred. Prelubed, they're suitable for operations without externally applied lubrication. Constructed of stainless steel and aluminum, they stand up to the attack of corrosive environments.

Features: Drawn & polished 304 stainless steel barrel. Centerless ground & polished 303 stainless steel piston rod. Full-ported lightweight aluminum heads. Roll formed piston rod threads. U-cup piston seals. Oil-permeated bronze rod bushing (except 1/2 inch size, where front head is hard anodized). High tensile alloy return springs (single acting models). Buna-N seals are standard (Viton® is available). Prelubricated. Magnetic pistons are available (Not for 1/2 inch size, not for single acting models).

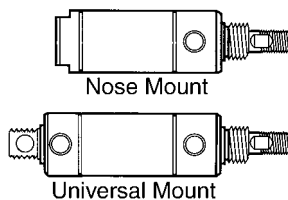
Maximum Operating Pressure: 200 PSI.

Operating Temperature Range: -40°F to 160°F.

Bumpers: Optional bumpers do not affect external dimensions. Not available with magnetic piston option.

Piston Wear Strip: Piston Wear Strip is optional for most models. Is standard on models with 5 inches or more stroke if double acting nose mount, universal mount or block front mount. Is standard on models with 3 inches or more stroke if single acting spring extended.

Double-Acting Aro® Silverair™ Series



Bore Sizes: 1/2, 3/4, 1-1/16, 1-1/4, 1-1/2, 2, 2-1/2.

Options: Bumpers, Viton® Seals, Internal Magnet.

Piston Wear Strip: Not available on 1/2 inch bore. Standard on models with 5 inches or more stroke.

Note: No rod bushing on 1/2 inch models (front head is hard anodized).

Dimensions: page 811

Accessories: page 776

Double-Acting • Aro® Silverair™ Series

Catalog Part No.	Aro® Model	Mounting Style	Bore Dia (in)	Stroke (in)	Rod Dia (in)	Ports	Options	Accessories (Order Separately) *Items Included with Cyl	Wt.	Price Each
C1FR20	BQ-1280 SD15-NA01-014	Nose Mount	1-1/2	1.50	0.4375	1/8 NPT	0.75 Rod Extension, 0.15 Hole in Rod	118108-14 L-Mount Bracket (1) *118109-14 Mounting Nut (Included)	0.79	
C1EN71	sd20-p4b4-060	Universal Mount	2	6.00	0.625	1/4 NPT	None	118108-20 L-Mount Bracket (2) 118109-20 Mounting Nut (Not Included) 117555-17 Rod Clevis & Pin 117523-20 Pivot Bracket & Pin	2.55	

Pneumatic Cylinders

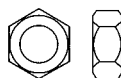
Aro® Silverair™ Series • Stainless Steel Barrel



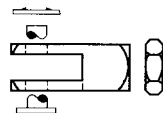
Aro® Silverair™ Series Cylinder Accessories



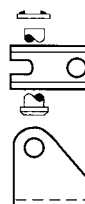
L-Mount Bracket



Mounting Nut



Rod Clevis & Pin



Pivot Bracket & Pin

Aro® Silverair™ Series Cylinder Accessories

Catalog Part No.	Aro® Model	Description	Wt.	Price Each
C1ES36	117555-17	Rod Clevis & Pin Kit for 1-3/4, 2, and 2-1/2 Bore Cylinders	0.21	

Materials: Bright zinc plated steel.

Dimensions: page 812



Pneumatic Valves & Accessories

Category	Page
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Note: Valves that can be used for both Pneumatic & Hydraulic service (certain Ball Valves, Check Valves, Flow Control Valves, Needle Valves & Plug Valves) are located in the Hydraulic Power & Control section.
See the alphabetical list on page 238

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Aro® 50 Series • 3-Way & 4-Way • To 16 SCFM	779
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Aro® CAT Series 3-Way NC & NO • To 6.9 SCFM	782
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Numatics L01 Inline 4-Way • To 9.3 SCFM	784
Aro® Alpha™ Series (Body Ported) • 4-Way • To 61 SCFM	785
Numatics L2 Inline 4-Way • To 79 SCFM	786
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Hydraulic Power & Control

Pneumatic Power & Control

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Indexes & Technical Information



Pneumatic Valves & Accessories

Ball Valves

Brass

BONOMI
NORTH AMERICA, INC.



Features: Blow out proof stem. Brass body, ball and stem. PTFE seats. Buna-N seal. Nylon handle with steel screw.

Maximum Operating Pressure: 450 PSI WOG.

Maximum Operating Temperature: 200°F.

Brass • Bonomi 383N - 383M Series

Catalog Part No.	Bonomi Model	Ports	Ball Orifice Dia.	Handle Color	Wt.	Price Each
•C1HZ53	383N-2	1/8 NPT Female x Female	0.31	Black	0.25	
•C1HZ54	383N-4	1/4 NPT Female x Female	0.31	Black	0.20	
•C1HZ55	383N-6	3/8 NPT Female x Female	0.31	Black	0.17	
•C1HZ56	383N-8	1/2 NPT Female x Female	0.39	Black	0.28	
•C1HZ52	383N-12	3/4 NPT Female x Female	0.47	Black	0.49	

Manually-Operated Directional Valves

3-Way Palm Button Pneumatic Valves Aro® 460 Series • To 7.5 SCFM



Features: 2-1/2 inch buttons are available in four colors. Button Guard is available (20975). Available with 1/8 NPT threaded ports or 5/32 tube fittings.

Application: Valves are multipurpose and can be plumbed to perform as normally closed, normally open, selector or any 2-way function.

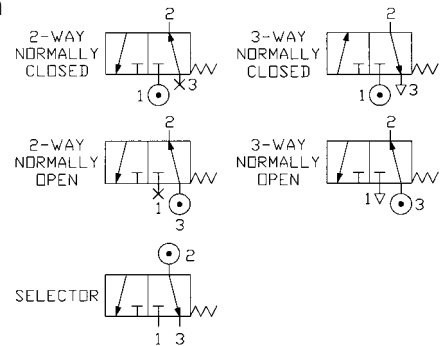
Flow Rating: Based on 100 PSIG input and 85 PSIG output.

Operating Pressure Range: 30 to 150 PSIG.

Operating Temperature Range: 32°F to 160°F.

Lubrication: Not required.

Dimensions: page 813



3-Way Palm Button Pneumatic Valves • Aro® 460 Series • To 7.5 SCFM

Catalog Part No.	Aro® Model	Ports	Valve Type	Flow Rating	CV Rating	Actuating Force	Actuating Travel (in)	Wt.	Price Each
C1BQ63	460-1	1/8 NPT	Multipurpose	7.5 SCFM	0.195	3 lbs.	0.078	0.36	

3-Way & 4-Way Manually Operated Pneumatic Valves Aro® 50 Series • 16 SCFM



Hand Lever

Features: Compact size.

Application: Low to moderate flow applications requiring manual valve operation.

Actuators: Hand Lever, Palm Button, Manual Bleed.

Materials: Extruded aluminum body. Steel spool (Hand Lever and Palm Button). Aluminum spool (Manual Bleed). Buna-N spool seals.

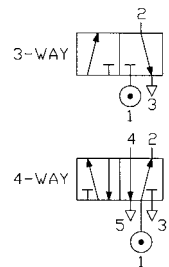
Flow Rating: Based on 100 PSIG input and 85 PSIG output.

Operating Pressure Range: 20-150 PSI.

Operating Temperature Range: -10°F to 180°F.

Lubrication: Valves use O-ring seals. For maximum performance and life expectancy, standard air line lubrication should be used.

Dimensions: page 814



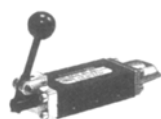
3-Way & 4-Way Manually Operated Pneumatic Valves • Aro® 50 Series • 16 SCFM

Catalog Part No.	Aro® Model	Actuator Type	Valve Type	Spool Action	Ports	Flow Rating	CV Rating	Wt.	Price Each
C1BS29	5030-10	Hand Lever	3-way 2-position	Manual Return	1/8 NPT (Side)	16 SCFM	0.43	0.49	

Pneumatic Valves & Accessories

Manually-Operated Directional Valves

3-Way & 4-Way Manually Operated Pneumatic Valves Aro® E Series • 26 SCFM



Hand Lever



Palm Button



Pedal

Features: Low profile.

Application: Moderate flow applications requiring manual valve operation.

Actuators: Hand Lever, Palm Button, Pedal, Treadle, Manual Bleed.

Materials: Extruded aluminum body. Buna-N spool seals.

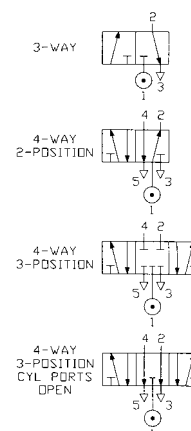
Flow Rating: Based on 100 PSIG input and 85 PSIG output.

Operating Pressure Range: 20-150 PSI.

Operating Temperature Range: -10°F to 180°F.

Lubrication: Valves use O-ring seals. For maximum performance and life expectancy, standard air line lubrication should be used.

Dimensions: page 815



3-Way & 4-Way Manually Operated Pneumatic Valves • Aro® E Series • 26 SCFM

Catalog Part No.	Aro® Model	Actuator Type	Valve Type	Spool Action	Ports	Flow Rating	CV Rating	Wt.	Price Each
C1CN80	E212LM	Hand Lever	4-way 2-position	Manual Return	1/4 NPT (Side)	26 SCFM	0.70	0.92	
•C1CN79	E212FS	Pedal	4-way 2-position	Spring Return	1/4 NPT (Side)	26 SCFM	0.70	1.72	
•C1CN84	E312LS	Hand Lever	4-way 3-position	Spring Centered	1/4 NPT (Side)	26 SCFM	0.70	1.17	

4-Way Manually Operated Pneumatic Valves Numatics L2 Series • To 79 SCFM



Features: Solenoid air pilot or air pilot actuated. Hand-lever valves available. DIN plug-in solenoid and plug connector with indicator light. In-line or manifold mounted. Integral speed control available.

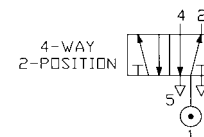
Operating Pressure Range: 28" Hg Vacuum to 150 PSIG

Shift Pressure: 14.5 to 150 PSIG

Operating Temperature Range: -10°F to +115°F

Lubrication: Unlubricated or lubricated service.

Dimensions: page 819



4-Way Manually Operated Pneumatic Valves • Numatics L2 Series • To 79 SCFM

Catalog Part No.	Numatics Model	Valve Type	Spool Action	Ports	Flow Rating	CV Rating	Wt.	Price Each
•C1LC66	L22LA452O000000	Hand Lever	Spring Return	1/4	79 SCFM	1.7		
•C1LC67	L22LD452O000000	Hand Lever	Detent	1/4	79 SCFM	1.7		

Pilot-Operated Directional Valves

4-Way Pilot Operated Pneumatic Valves

Aro® Alpha™ Series (Body Ported) • To 61 SCFM



Pilot

Features: Compact space saving design. Ports have ISO identification. Large air passages result in high flow capability. Fast signal response times (14ms Double Pilot, 19ms Single Pilot On, 26ms Single Pilot Off).

Application: For stand alone or remote valve applications.

Materials: Zinc body. Urethane and Viton® bonded precision ground spools.

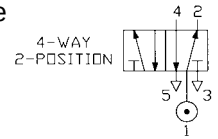
Flow Rating: Based on 100 PSIG input and 85 PSIG output.

Operating Pressure Range: Vacuum to 150 PSI.

Operating Temperature Range: 0°F to 180°F.

Lubrication: Not required.

Dimensions: page 816



4-Way Pilot Operated Pneumatic Valves • Aro® Alpha™ Series (Body Ported) • To 61 SCFM

Catalog Part No.	Aro® Model	Valve Type	Spool Action	Ports	Flow Rating	CV Rating	Minimum Pilot Pressure	Spool Material	Wt.	Price Each
•C1CH13	A212PS	4-way 2-position	Spring Return	1/4 NPT (Side)	50 SCFM	1.5	50 PSI	Urethane	0.80	

Pneumatic Valves & Accessories

Solenoid-Operated Directional Valves

3-Way Solenoid Operated Pneumatic Valves

Aro® CAT Series • To 6.9 SCFM



Features: Compact design. Quick change coil can be oriented in 4 directions.
Application: Low flow applications for air or inert gas. Higher flow models use 30mm coil and 30mm coil connectors. Plugging the exhaust port with optional 59632-1 (10-32 thread) plug allows 3-way normally closed valve to be used as 2-way normally closed.

Materials: Aluminum body.

Flow Rating: Based on 100 PSIG input and 85 PSIG output.

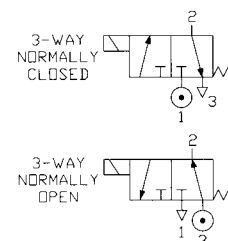
Operating Pressure Range: 0 to 150 PSI.

Operating Temperature Range: 0°F to 122°F.

Coils: Coils are UL-listed and comply with CSA standards. AC and DC coils are interchangeable on the same solenoid stem. Note: High Flow models use 30mm coil and 30mm coil connectors. UL File #MH13513, CSA File #LR51090. Class F coils are rated for 100% duty cycle. Coil connectors meet Nema 4 classification.

Lubrication: Not required.

Dimensions: page 817



3-Way Solenoid Operated Pneumatic Valves • Aro® CAT Series • To 6.9 SCFM

Catalog Part No.	Aro® Model	Valve Type	Ports	Flow Rating	CV Rating	Coil	Body Style	Wt.	Price Each
•C1CN26	CAT33P-000-N	3-way 2-position Normally Closed	1/8 NPT (Side)	2.2 SCFM	0.062	None. Select (1) from table below.	Ported	0.13	
C1CN27	CAT44P-000-N	3-way 2-position Normally Open	1/8 NPT (Side)	2 SCFM	0.056	None. Select (1) from table below.	Ported	0.20	

Coils & Solenoid Connectors for Aro® CAT Series Solenoid Valves

Catalog Part No.	Part Number	Description	Wt.	Price Each
•C1AJ12	116218-33	Coil, 120VAC, 22mm. Requires a 22mm solenoid connector.	0.15	
C1AJ13	116218-35	Coil, 240VAC, 22mm. Requires a 22mm solenoid connector.	0.11	
•C1AJ14	116218-38	Coil, 24VAC/12VDC, 22mm. Requires a 22mm solenoid connector.	0.15	
•C1AJ15	116218-39	Coil, 24VDC, 22mm. Requires a 22mm solenoid connector.	0.15	
•C1AJ17	116647-33	Coil, 120VAC, 22mm. 18 inch molded lead wires. No solenoid connector required.	0.13	
•C1AJ18	116647-38	Coil, 24VAC/12VDC, 22mm. 18 inch molded lead wires. No solenoid connector required.	0.20	
•C1AJ19	116647-39	Coil, 24VDC, 22mm. 18 inch molded lead wires. No solenoid connector required.	0.14	
•C1CN28	CDN	Solenoid Connector, 22mm, 1/2 inch conduit, without light or lead wires.	0.05	
C1CN29	CDW	Solenoid Connector, 22mm, 1/2 inch conduit, without light, with 18 inch lead wires.	0.10	
C1CN43	CSN	Solenoid Connector, 22mm, Strain Relief, without light or cable, cable opening 0.3937 inches.	0.05	
C1FJ22	CHW-30	Straight 30mm Solenoid Connector with 36 inch molded cable	0.22	



Solenoid-Operated Directional Valves

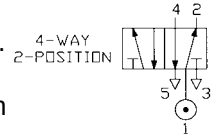
4-Way Solenoid Operated Pneumatic Valves Numatics 92280 Series • To 17.7 SCFM

numatics



Features: Reliability: steel spool & sleeve technology with long service life. Suitable for repeatable applications, e.g. demanding gluing applications or in sorting systems. Robust valve design, particularly recommended for use in high-temperature or dirty environments.

Materials: Body: Aluminium, anodized, painted grey. Internal parts: Stainless steel, polyacetal, aluminium. Seals: NBR (nitrile).



Response Time: < 6 ms (ON), < 6 ms (OFF)

Operating Pressure Range: 39 to 101 PSI

Fluids: Air or neutral gas, filtered, lubricated or not.

Operating Temperature Range: -13 °F to 194 °F

Dimensions: page 820

4-Way Solenoid Operated Pneumatic Valves • Numatics 92280 Series • To 17.7 SCFM

Catalog Part No.	Numatics Model	Valve Type	Ports 1,2,4	Exhaust Ports	Flow Rating	CV Rating	Coil	Wt.	Price Each
•C1LB59	92280-2	Spring return, flush non-locking override	1/4	1/8	17.7 SCFM	0.47	24 VDC		

Parts for 92280 Series Valves

Catalog Part No.	Part Number	Description	Wt.	Price Each
•C1LC72	ND0315FBN0000000	DIN connector, attached cable, 15 foot, 22 AWG wire		

Pneumatic Valves & Accessories

Solenoid-Operated Directional Valves

4-Way Solenoid Operated Pneumatic Valves Numatics L01 Series • To 9.3 SCFM

numatics

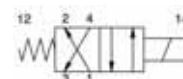


Features: Direct solenoid actuated. DIN plug-in solenoid with indicator light available. Integral speed control available. In-line or manifold mounted. Designed to meet the requirements of NEMA 4 / IP65.

Operating Pressure Range: 28" Hg to 150 PSIG

Lubrication: Unlubricated or lubricated service

Dimensions: page 821



4-Way Solenoid Operated Pneumatic Valves • Numatics L01 Series • To 9.3 SCFM

Catalog Part No.	Numatics Model	Valve Type	Ports	Flow Rating	CV Rating	Coil	Wt.	Price Each
•C1LC59	L01SA4594000061	Single Direct Solenoid, Spring Return W/Flush Non-locking Override	1/8	9.3 SCFM	0.20	24 VDC		
•C1LC58	L01SA4592000030	Single Direct Solenoid, Spring Return W/Flush Non-locking Override	1/8	9.3 SCFM	0.20	110-120/50-60 VAC		

Parts for L01 Series Valves

Catalog Part No.	Part Number	Description	Wt.	Price Each
•C1LB20	230-365	DIN 43650 connector with 24 V Light		
•C1LB21	230-366	DIN 43650 connector with 110 V Light		



Pneumatic Valves & Accessories

Solenoid-Operated Directional Valves

4-Way Solenoid Operated Pneumatic Valves

Aro® Alpha™ Series (Body Ported) • To 61 SCFM



Features: Compact space saving design. Ports have ISO identification. Large air passages result in high flow capability. Fast signal response times (20ms Double Solenoid, 22ms Single Solenoid Energize, 27ms Single Solenoid De-energize). High Cycle Rate of 600 cycles per minute.

Application: For stand alone or remote valve applications. Optional external solenoid supply plug kit (119306) allows valve to be used in vacuum and low pressure applications (Contact us for details).

Materials: Zinc body. Urethane and Viton® bonded precision ground spools.

Flow Rating: Based on 100 PSIG input and 85 PSIG output.

Operating Pressure Range: Vacuum to 150 PSI.

Minimum Shift Pressure: 50 PSI (Single Solenoid), 20 PSI (Double Solenoid).

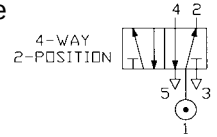
Operating Temperature Range: 0°F to 180°F.

Coils: Coils are UL-listed and comply with CSA standards. AC and DC coils are interchangeable on the same solenoid stem. UL File #MH13513, CSA File #LR51090. Class F coils are rated for 100% duty cycle. Coil connectors meet Nema 4 classification.

Filtration: 40 micron recommended.

Lubrication: Not required.

Dimensions: page 817



4-Way Solenoid Operated Pneumatic Valves • Aro® Alpha™ Series (Body Ported) • To 61 SCFM

Catalog Part No.	Aro® Model	Valve Type	Spool Action	Ports	Flow Rating	CV Rating	Spool Material	Coil(s)	Wt.	Price Each
•C1CH14	A212SD-000-N	4-way 2-position	Solenoid Return	1/4 NPT (Side)	50 SCFM	1.5	Urethane	None. Select (2) from table below.	0.80	
•C1CH15	A212SS-000-N	4-way 2-position	Spring Return	1/4 NPT (Side)	50 SCFM	1.5	Urethane	None. Select (1) from table below.	0.80	

Coils & Solenoid Connectors for Aro® Alpha™ Series Solenoid Valves

Catalog Part No.	Part Number	Description	Wt.	Price Each
•C1AJ12	116218-33	Coil, 120VAC, 22mm. Requires a 22mm solenoid connector.	0.15	
C1AJ13	116218-35	Coil, 240VAC, 22mm. Requires a 22mm solenoid connector.	0.11	
•C1AJ14	116218-38	Coil, 24VAC/12VDC, 22mm. Requires a 22mm solenoid connector.	0.15	
•C1AJ15	116218-39	Coil, 24VDC, 22mm. Requires a 22mm solenoid connector.	0.15	
•C1AJ17	116647-33	Coil, 120VAC, 22mm. 18 inch molded lead wires. No solenoid connector required.	0.13	
•C1AJ18	116647-38	Coil, 24VAC/12VDC, 22mm. 18 inch molded lead wires. No solenoid connector required.	0.20	
•C1AJ19	116647-39	Coil, 24VDC, 22mm. 18 inch molded lead wires. No solenoid connector required.	0.14	
•C1CN28	CDN	Solenoid Connector, 22mm, 1/2 inch conduit, without light or lead wires.	0.05	
C1CN29	CDW	Solenoid Connector, 22mm, 1/2 inch conduit, without light, with 18 inch lead wires.	0.10	
C1CN43	CSN	Solenoid Connector, 22mm, Strain Relief, without light or cable, cable opening 0.3937 inches.	0.05	



116218

116647

CDN

CSN

CHL



Pneumatic Valves & Accessories

Solenoid-Operated Directional Valves

4-Way Solenoid Operated Pneumatic Valves Numatics L2 Series • To 79 SCFM

numatics



Features: Solenoid air pilot or air pilot actuated. Hand-lever valves available. DIN plug-in solenoid and plug connector with indicator light. In-line or manifold mounted. Integral speed control available.

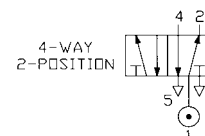
Operating Pressure Range: 28" Hg Vacuum to 150 PSIG

Shift Pressure: 14.5 to 150 PSIG

Operating Temperature Range: -10°F to +115°F

Lubrication: Unlubricated or lubricated service.

Dimensions: page 822



4-Way Solenoid Operated Pneumatic Valves • Numatics L2 Series • To 79 SCFM

Catalog Part No.	Numatics Model	Valve Type	Spool Action	Voltage	Ports	Flow Rating	CV Rating	Wt.	Price Each
•C1LC61	L22BA452B000061	Single Solenoid Air Pilot	Spring Return w/Flush Locking Override	24 VDC	1/4	79 SCFM	1.7		
•C1LC62	L22BA452O000030	Single Solenoid Air Pilot	Spring Return w/Flush Locking Override	110 VAC	1/4	79 SCFM	1.7		
•C1LC63	L22BB452B000061	Double Solenoid Air Pilot	Detent w/Flush Locking Override	24 VDC	1/4	79 SCFM	1.7		
•C1LC64	L22BB452O000030	Double Solenoid Air Pilot	Detent w/Flush Locking Override	110 VAC	1/4	79 SCFM	1.7		

Parts for L2 Series Valves

Catalog Part No.	Part Number	Description	Wt.	Price Each
•C1LB20	230-365	DIN 43650 connector with 24 V Light		
•C1LB21	230-366	DIN 43650 connector with 110 V Light		

Solenoid-Operated Directional Valves

4-Way Solenoid Operated Pneumatic Valves Aro® MaxAir Series • To 167 SCFM



Features: Compact size with excellent flow capability. Standard Manual Override. Body can be directly plumbed or manifold mounted. Meets NEMA-4 classification.

Application: Ideal for packaging, material handling and air motor applications.

Materials: Aluminum body. Buna-N seals.

Flow Rating: Based on 100 PSIG input and 85 PSIG output.

Operating Pressure Range: 45 to 115 PSI.

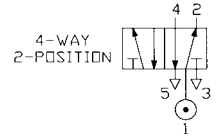
Minimum Shift Pressure: Single Solenoid Spring Return: 45 PSI. Double Solenoid 2 Position: 20 PSI. Double Solenoid 3 Position Spring Centered: 45 PSI.

Operating Temperature Range: 15°F to 122°F.

Coils: Coils are Class F rated for 100% duty cycle applications at 122°F. AC or DC coils can be interchanged on the same solenoid stem. Each solenoid connector acts as it's own junction box, with molded connectors and gaskets. Coil connectors meet Nema 4 classification.

Lubrication: Not required.

Dimensions: page 818



4-Way Solenoid Operated Pneumatic Valves • Aro® MaxAir Series • To 167 SCFM

Catalog Part No.	Aro® Model	Valve Type	Spool Action	Ports	Flow Rating	CV Rating	Coil(s)	Wt.	Price Each
C1EK66	M212SS-000-N	4-way 2-position	Spring Return	1/4 NPT (Side)	26 SCFM	0.70	None. Select (1) from table below.	0.43	
C1ZU69	M214SS-000-N	4-way 2-position	Spring Return	1/2 NPT (Side)	167 SCFM	4.32	None. Select (1) from table below.	1.31	

Coils, Solenoid Connectors and Manifolds for Aro® MaxAir Series Solenoid Valves

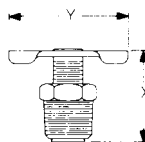
Catalog Part No.	Part Number	Description	Wt.	Price Each
C1AJ12	116218-33	Coil, 120VAC, 22mm. Requires a 22mm solenoid connector.	0.15	
C1AJ13	116218-35	Coil, 240VAC, 22mm. Requires a 22mm solenoid connector.	0.11	
C1AJ14	116218-38	Coil, 24VAC/12VDC, 22mm. Requires a 22mm solenoid connector.	0.15	
C1AJ15	116218-39	Coil, 24VDC, 22mm. Requires a 22mm solenoid connector.	0.15	
C1AJ17	116647-33	Coil, 120VAC, 22mm. 18 inch molded lead wires. No solenoid connector required.	0.13	
C1AJ18	116647-38	Coil, 24VAC/12VDC, 22mm. 18 inch molded lead wires. No solenoid connector required.	0.20	
C1AJ19	116647-39	Coil, 24VDC, 22mm. 18 inch molded lead wires. No solenoid connector required.	0.14	
C1CN28	CDN	Solenoid Connector, 22mm, 1/2 inch conduit, without light or lead wires.	0.05	
C1CN29	CDW	Solenoid Connector, 22mm, 1/2 inch conduit, without light, with 18 inch lead wires.	0.10	
C1CN43	CSN	Solenoid Connector, 22mm, Strain Relief, without light or cable, cable opening 0.3937 inches.	0.05	



Pneumatic Valves & Accessories

Drain Cocks

External Seat Drain Cocks



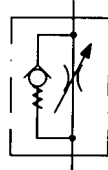
Materials: Brass.

External Seat Drain Cocks

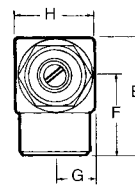
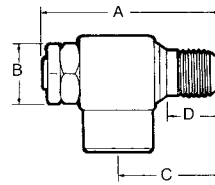
Catalog Part No.	Model Number	Size	Threads	X Closed (in)	Y (in)	Wt.	Price Each
•C1AU58	2014X2	1/8	1/8 NPT	0.88	1.12	0.01	
•C1AU59	2014X4	1/4	1/4 NPT	1.00	1.38	0.11	
•C1AU60	2014X6	3/8	3/8 NPT	1.25	1.50	0.08	

Flow Control Valves

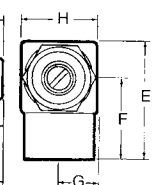
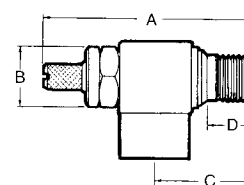
Right Angle Flow Control Valves For Pneumatic Service



SLOTTED ADJUST



KNOB ADJUST



Features: 360° swivel eases tube alignment. Pre applied thread sealant eliminates Teflon® taping. Threaded or instant tube fitting inlets.

Application: Controlled flow in one direction, free flow in opposite direction.

Materials: Nickel plated brass body, black anodized aluminum swivel, stainless steel spring and Buna-N seals.

Maximum Operating Pressure: 200 PSI.

Operating Temperature Range: 0°F to 200°F.

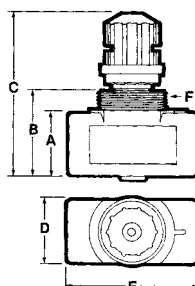
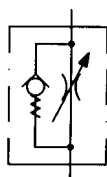
Right Angle Flow Control Valves • For Pneumatic Service

Catalog Part No.	Aro® Model	Adjustment Type	Ports	Flow Rating	A (in)	H (in)	E (in)	Wt.	Price Each
C1AJ29	119307-125	Slotted	1/8 NPT Male x 1/8 NPT Female	17 SCFM	1.27	0.59	1.05	0.13	
C1AJ33	119309-250	Slotted	1/4 NPT Male x 1/4 Tubing	34 SCFM	1.61	0.75	1.30	0.15	

Pneumatic Valves & Accessories

Flow Control Valves

Inline Flow Control Valves For Pneumatic Service



Features: Four stage tapered needle design provides infinite control settings. Composite body is tough and corrosion resistant. Color-coded micrometer & calibrated adjustment knob provide instant reference points for repeat settings. Press red locking ring down to prevent adjustment. Tamper resistant wire supplied in package. Units are threaded for easy panel mounting.

Application: Controlled flow in one direction, free flow in opposite direction.

Maximum Operating Pressure: 200 PSI.

Operating Temperature Range: 0° to 200°F.

Inline Flow Control Valves • For Pneumatic Service

Catalog Part No.	Aro® Model	Size	Threads	Flow Rating	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	Wt.	Price Each
•C1AH38	104104-F01	1/8	1/8-27 NPT	15 SCFM	0.94	1.34	2.83	0.94	1.91	1-20 UNEF-2A	0.25	
•C1AH39	104104-F02	1/4	1/4-18 NPT	25 SCFM	0.94	1.34	2.83	0.94	1.91	1-20 UNEF-2A	0.15	
C1AH40	104104-F03	3/8	3/8-18 NPT	55 SCFM	1.31	1.69	3.86	1.31	2.84	1-3/16-18 UNEF-2A	0.41	

Panel Mounting Nuts for Aro® 104104 Series Flow Control Valves

Catalog Part No.	Part Number	Description	Wt.	Price Each
•C1AH37	104094	Panel Mounting Nut for 3/8, 1/2 and 3/4 size valves.	0.03	

Air Valve Mufflers & Speed Controls

Porous Metal Mufflers



Features: Effective for muffling of air valve noise and for exhaust and intake filtering. Tough, cellular sintered metal structure, securely brazed to metal ferrule, zinc plated steel body (Allied Witan Models). Sintered bronze structure construction with brass body (Aro® Models).



Porous Metal Mufflers

Catalog Part No.	Allied Witan Model	Body Material	Thread Size	O.A. Length (in)	Hex (in)	Wt.	Price Each
•C1AX88	20312-1	Brass	1/8 NPT	1.125	0.44	0.02	
•C1DG35	P28	Zinc Plated Steel	1/4 NPT	1.20	0.56	0.04	

Note: 20312 is Aro model.

Heavy Duty Metal Mufflers



Features: Constructed of corrosion resistant metal to withstand shock and continuous heavy duty use. Softly disperses exhaust air uniformly over a 360° pattern.



Heavy Duty Metal Mufflers

Catalog Part No.	Allied Witan Model	Thread Size	O.A. Length (in)	Hex (in)	Wt.	Price Each
C1CL40	B28	1/4 NPT	1.75	0.56	0.05	

Adjustable Speed Controls



Features: Controls air flow on exhaust ports of air valves. Sintered bronze construction with brass body. Adjustment screw with lock nut.



Adjustable Speed Controls

Catalog Part No.	Aro® Model	Thread Size	O.A. Length (in)	Hex (in)	Wt.	Price Each
•C1AX89	20313-2	1/4 NPT	2.19	0.55	0.08	

Pneumatic Valves & Accessories

Air Valve Mufflers & Speed Controls

Porous Metal Mufflers with Adjustable Speed Control



Features: External adjustment screw accurately varies orifice opening from closed to full flow. Locknut to secure desired setting. Tough, cellular sintered metal structure, securely brazed to metal ferrule, zinc plated steel body.



Porous Metal Mufflers with Adjustable Speed Control

Catalog Part No.	Allied Witan Model	Thread Size	O.A. Length (in)	Hex (in)	Wt.	Price Each
•C1CM32	C28	1/4 NPT	1.45	0.56	0.05	

Air Line FRL's - Flows to 1,770 SCFM at 250/300 PSI
Aro® Aro-Flo Series • Sizes 1/8 to 3



Aro® Aro-Flo Series



Series Description: 1000 Series: 1/8" and 1/4" Ports, Max flow: 59 scfm, Series size: Miniature.

1500 Series: 1/4" and 3/8" Ports, Max flow: 113 scfm, Series size: Compact

2000 Series: 3/8", 1/2", and 3/4" Ports, Max flow: 222 scfm, Series size: Standard

3000 Series: 3/4" and 1" Ports, Max flow: 368 scfm, Series size: Heavy-Duty

Super-Duty Series: 1", 1-1/4", 1-1/2", 2" and 3" Ports, Max flow: 1,770 scfm, Series size: Super-Duty

Filters: ARO-Flo compressed air filters are designed to remove airborne solid and liquid contaminants. Filters can be ordered with different elements, including coalescing models which are capable of removing oil aerosols and particles down to 0.3 micron. Standard filters are sold with 5-micron elements; 40-micron elements can be purchased and installed separately.

Regulators: Air line regulators provide controlled, consistent air pressure as required for specific pneumatic equipment connected to the air system. All ARO-Flo regulators are offered with a standard adjustment range of 0 – 140 psig. Alternative spring ranges are offered for easy conversion to suit different requirements. Non-relieving regulators are offered for applications where the venting of downstream overpressure is undesirable.

Lubricators: ARO-Flo mist-type lubricators help ensure that pneumatic devices receive the required lubrication to maintain peak performance, reduce wear, and prolong service life. They are designed to provide the correct amount of oil required for most general applications in a pneumatic system, delivering a constant ratio of oil to air flow. Precise oil feed adjustment sets the proper oil drip rate. Lubricators should be installed close to the downstream application to ensure effective distribution of oil.

Piggyback Filters/Regulators: Filter-regulators, or "piggybacks," combine the functions of both a filter and regulator. Piggybacks are compact and most effective when space is a constraint. Piggybacks can be ordered with different filter elements and can be modified with different springs, depending on the filtration and air regulating requirements.

Combinations: Filters, regulators, lubricators, and piggybacks can be combined together to form combinations. They are typically strung together in the F+R+L arrangement (three-piece combo) and F/R+L (two-piece combo) arrangement, although other configurations are also used depending on application needs. ARO-Flo combination FRLs are easily assembled using modular spacer kits.

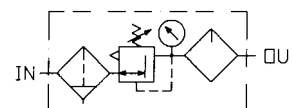
Installation: The filter, regulator and lubricator should be installed in that order. If a coalescing filter is required, it should be installed downstream from a standard filter. Individual take-off lines to the FRL and air tool or equipment should be from the top of the compressed air line. Make sure that air flow markings are followed for proper flow direction through the FRL units. To trap and expel water, sludge and other contaminants which may collect on the bottom of the air line, a drip leg drain should be used. Drip leg drains should be installed at low points in the piping system and at the far end of the distribution system.

Air Line FRL's

Air Line FRL's - Flows to 1,770 SCFM at 250/300 PSI
Aro® Aro-Flo Series • Sizes 1/8 to 3



Air Line Filter/Regulator/Lubricator Combination Units Aro® Aro-Flo Series



Air Line Filter/Regulator/Lubricator Combination Units • Aro® Aro-Flo Series

Catalog Part No.	Aro® Model	Series	Port Size	Flow Rating	Connection Type	Filter Drain Type	Bowl Type	Components	Dimensions	Wt.	Price Each
C1KL34	C38121-800	1000	1/4 NPT	46 scfm	Modular with T-bracket wall mount	Manual	Polycarbonate	F35121-400 R37121-600 L36121-100	4.72W x 5.17H	1.35	
C1KL35	C38221-800	1500	1/4 NPT	61 scfm	Modular with T-bracket wall mount	Manual	Polycarbonate with Bowl Guard	F35221-400 R37221-600 L36221-100	6.61W x 6.61H	2.61	
•C1KG87	C38341-800	2000	1/2 NPT	150 scfm	Modular with T-bracket wall mount	Auto	Polycarbonate with Bowl Guard	F35341-401 R37341-600 R37341-600	8.69W x 7.67H	4.83	

Parts & Accessories for Aro® Aro-flo Series FRL's

Catalog Part No.	Part Number	Description	Wt.	Price Each
•C1BJ99	29665	Non-Detergent Lubricating Oil, 1 quart. 100-200 SSU @ 100°F (Light SAE 10). Minimum aniline point of 200°F.	2.00	



Air Line FRL's

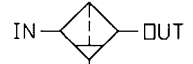
Air Line FRL's - Flows to 1,770 SCFM at 250/300 PSI
Aro® Aro-Flo Series • Sizes 1/8 to 3



Air Line Filters Aro® Aro-Flo Series



Features: ARO-Flo compressed air filters are designed to remove airborne solid and liquid contaminants. Filters can be ordered with different elements, including coalescing models which are capable of removing oil aerosols and particles down to 0.3 micron. Standard filters are sold with 5-micron elements; 40-micron elements can be purchased and installed separately.



Materials: 1000 through 3000 Series: Aluminum body, nylon bowl guard for polycarbonate bowls, brass + nitrile manual drain, acetal auto drain, polyethylene standard filter, hepa paper + felt coalescing filter, nitrile seals, acetal filter baffle.

Maximum Inlet Pressure: 1000 through 3000 Series: Polycarbonate Bowl 150 psi, Metal Bowl 250 psi. Super-duty Series: With pressure differential indicator 150 psig, Without pressure differential indicator 300 psig.

Operating Temperature Range: 1000 through 3000 Series: Polycarbonate Bowl 23-125°F, Metal Bowl 23-175°F. Super-duty Series: 32-150°F.

Air Line Filters • Aro® Aro-Flo Series

Catalog Part No.	Aro® Model	Series	Port Size	Flow Rating	Element	Drain Type	Bowl Type	Bowl Capacity	Dimensions	Wt.	Price Each
C1KG89	F35121-400	1000	1/4 NPT	49 scfm	5 micron	Manual	Polycarbonate with Bowl Guard	0.5 oz	1.58W x 4.30H	0.38	
C1KL47	F35221-400	1500	1/4 NPT	73 scfm	5 micron	Manual	Polycarbonate with Bowl Guard	1.2 oz	2.21W x 6.16H	0.69	
C1KL48	F35331-400	2000	3/8 NPT	156 scfm	5 micron	Manual	Polycarbonate with Bowl Guard	1.9 oz	2.76W x 7.05H	1.00	
C1KL49	F35331-410	2000	3/8 NPT	156 scfm	5 micron	Manual	Metal with Sight Glass	2.4 oz	2.76W x 7.05H	1.77	
C1KL50	F35341-400	2000	1/2 NPT	197 scfm	5 micron	Manual	Polycarbonate with Bowl Guard	1.9 oz	2.76W x 7.05H	1.40	
C1KL51	F35341-410	2000	1/2 NPT	197 scfm	5 micron	Manual	Metal with Sight Glass	2.4 oz	2.76W x 7.05H	1.70	
C1KL52	F35451-420	3000	3/4 NPT	288 scfm	5 micron	Manual	Metal	5.3 oz	3.54W x 9.93H	3.17	

Air Line FRL's

Air Line FRL's - Flows to 1,770 SCFM at 250/300 PSI
Aro® Aro-Flo Series • Sizes 1/8 to 3



Air Line Regulators Aro® Aro-Flo Series



Features: Air line regulators provide controlled, consistent air pressure as required for specific pneumatic equipment connected to the air system. All ARO-Flo regulators are offered with a standard adjustment range of 0 – 140 psig. Alternative spring ranges are offered for easy conversion to suit different requirements. Non-relieving regulators are offered for applications where the venting of downstream overpressure is undesirable.

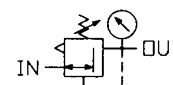
Materials: 1000 Series: Nitrile + acetal diaphragm, Aluminum body, Brass + nitrile valve, Steel springs, Nylon + polycarbonate gauge cover, Acetal knob, Nitrile o-rings. 1500 through 3000

Series: Nitrile + nylon diaphragm, Aluminum body, Nylon + nitrile valve, Steel springs, Nylon + polycarbonate gauge cover, Acetal knob, Nitrile o-rings.

Maximum Inlet Pressure: 1000 through 3000 Series: 250 psi. Super-duty Series: 300 psig.

Operating Temperature Range: 1000 through 3000 Series: 23-140 °F. Super-duty Series: 32-150°F.

Gauge Port: 1000 through 3000 Series: 1/8 NPT. Super-duty Series: 1/4 NPT.



Air Line Regulators • Aro® Aro-Flo Series

Catalog Part No.	Aro® Model	Series	Port Size	Flow Rating	Type	Spring Range	Gauge	Dimensions	Wt.	Price Each
C1KH42	R37111-100	1000	1/8 NPT	45 scfm	Relieving	0-140 PSI	Yes	1.58W x 3.56H	0.54	
C1KH43	R37121-100	1000	1/4 NPT	59 scfm	Relieving	0-140 PSI	No	1.58W x 3.56H	0.53	
C1KH44	R37221-100	1500	1/4 NPT	86 scfm	Relieving	0-140 PSI	No	2.21W x 4.77H	0.85	
C1KH45	R37331-100	2000	3/8 NPT	179 scfm	Relieving	0-140 PSI	No	2.78W x 5.47H	1.47	
C1KH46	R37331-600	2000	3/8 NPT	179 scfm	Relieving	0-140 PSI	Yes	2.78W x 5.47H	1.42	
C1KN14	R37341-100	2000	1/2 NPT	215 scfm	Relieving	0-140 PSI	No	2.78W x 5.47H	1.40	
C1KN15	R37341-600	2000	1/2 NPT	215 scfm	Relieving	0-140 PSI	Yes	2.78W x 5.47H	1.45	

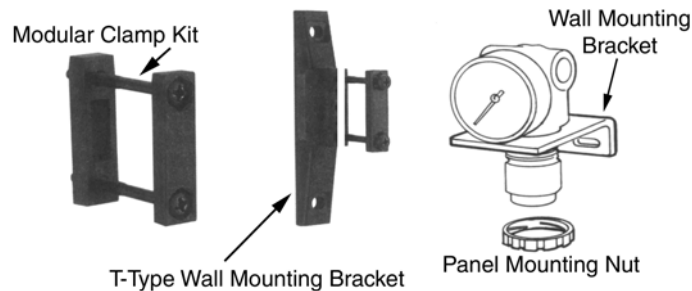
Parts & Accessories for Aro® Aro-flo Series Regulators

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1KH84	104408	C-bracket mount for 1500 series	0.15	
C1KJ70	29850	Gauge, 0-160 psi, 1/8 NPT	0.10	

Air Line FRL's - Flows to 1,770 SCFM at 250/300 PSI
Aro® Aro-Flo Series • Sizes 1/8 to 3



Mounting Components Aro® Module/Air 1000 Series



Mounting Components • Aro® Module/Air 1000 Series

Catalog Part No.	Aro® Model	Description	Wt.	Price Each
•C1BK11	29668	Wall Mounting Bracket. May be used to mount FRL combo units which include a regulator, Piggyback Filter Regulators or individual regulators.	0.08	
•C1AH37	104094	Panel Mounting Nut	0.03	

Air Line Piggyback Filter/Regulators Aro® Aro-Flo Series

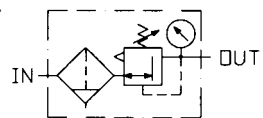


Features: Filter-regulators, or “piggybacks,” combine the functions of both a filter and regulator. Piggybacks are compact and most effective when space is a constraint. Piggybacks can be ordered with different filter elements and can be modified with different springs, depending on the filtration and air regulating requirements.

Maximum Inlet Pressure: 1000 through 3000 Series: Polycarbonate Bowl 150 psi, Metal Bowl 250 psi.

Operating Temperature Range: 1000 through 3000 Series: Polycarbonate Bowl 23-125 °F, Metal Bowl 23-175 °F.

Gauge Port: 1/8 NPT.



Air Line Piggyback Filter/Regulators • Aro® Aro-Flo Series

Catalog Part No.	Aro® Model	Series	Port Size	Flow Rating	Filter Ele.	Filter Drain Type	Filter Bowl Type	Reg. Type	Reg. Spring Range	Reg. Gauge	Dim.	Wt.	Price Each
C1KM86	P39124-100	1000	1/4 NPT	47 scfm	5 micron	Manual	Polycarbonate	Relieving	0-140 PSI	No	1.58W x 6.20H	0.68	
C1KH39	P39124-600	1000	1/4 NPT	47 scfm	5 micron	Manual	Polycarbonate	Relieving	0-140 PSI	Yes	1.58W x 6.20H	0.67	
C1KH40	P39224-600	1500	1/4 NPT	72 scfm	5 micron	Manual	Polycarbonate	Relieving	0-140 PSI	Yes	2.21W x 8.15H	1.14	
C1KM87	P39344-600	2000	1/2 NPT	172 scfm	5 micron	Manual	Polycarbonate	Relieving	0-140 PSI	Yes	2.78W x 9.96H	2.00	

Parts & Accessories for Aro® Aro-flo Series Piggyback Filter/Regulators

Catalog Part No.	Part Number	Description	Wt.	Price Each
•C1KJ70	29850	Gauge, 0-160 psi, 1/8 NPT	0.10	

Air Line FRL's

Air Line FRL's - Flows to 1,770 SCFM at 250/300 PSI
Aro® Aro-Flo Series • Sizes 1/8 to 3



Air Line Lubricators Aro® Aro-Flo Series



Features: ARO-Flo mist-type lubricators help ensure that pneumatic devices receive the required lubrication to maintain peak performance, reduce wear, and prolong service life. They are designed to provide the correct amount of oil required for most general applications in a pneumatic system, delivering a constant ratio of oil to air flow. Precise oil feed adjustment sets the proper oil drip rate. Lubricators should be installed close to the downstream application to ensure effective distribution of oil.

Maximum Inlet Pressure: 1000 to 3000 Series: Aluminum body, nylon sight dome, urethane inlet tube, nitrile seals.

Operating Temperature Range: 1000 through 3000 Series: Polycarbonate Bowl 150 psi, Metal Bowl 250 psi. Super-duty Series: Plastic Bowl 150 psig, Metal Bowl 200 psig.

Gauge Port: 1000 through 3000 Series: Polycarbonate Bowl 23-125 °F, Metal Bowl 23-175 °F.

Super-duty Series: Plastic Bowl 32-125 °F, Metal Bowl 32-150 °F.

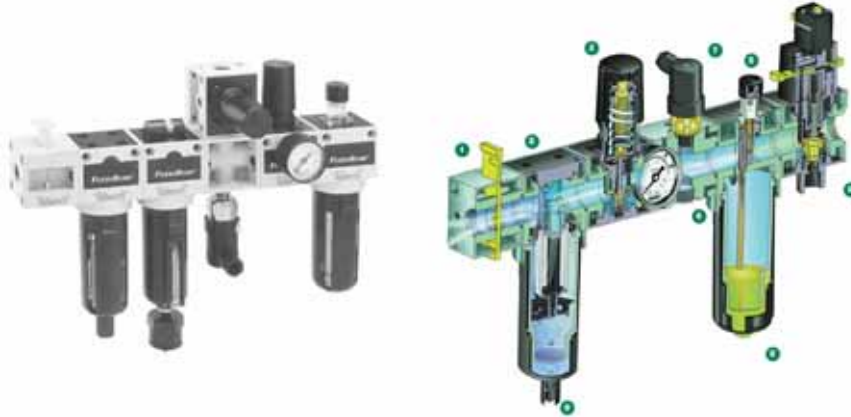
Air Line Lubricators • Aro® Aro-Flo Series

Catalog Part No.	Aro® Model	Series	Port Size	Flow Rating	Bowl Type	Fill Type	Dimensions	Wt.	Price Each
C1KM70	L36121-100	1000	1/4 NPT	57 scfm	Polycarbonate with Bowl Guard	Standard	1.58W x 5.04H	0.46	
C1KM71	L36331-100	2000	3/8 NPT	85 scfm	Polycarbonate with Bowl Guard	Standard	2.76W x 7.09H	1.49	

Parts & Accessories for Aro® Aro-flo Series Lubricators

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1KH84	104408	C-bracket mount for 1500 series	0.15	
C1BJ99	29665	Non-Detergent Lubricating Oil, 1 quart. 100-200 SSU @ 100°F (Light SAE 10). Minimum aniline point of 200°F.	2.00	

Numatics FlexiBlok® Series



Series Description: While most competitors require numerous additional parts to assemble FRL components, the Numatics FlexiBlok® FRL products are easily assembled with 2 button head screws and an o-ring seal. This modular type design reduces the potential for leakage during assembly and lowers the overall cost since brackets or extra tools are not required. The FlexiBlok® line is designed to be simple and economical...• Service can be performed while the component is installed in the air line. • 22, 32 and 42 Series bowls feature a unique locking tab bowl. Just pull the locking tab down, turn the bowl 45°, and pull down to remove. • The unique design of the 22, 32 and 42 series bowls allows the o-ring to be held captive on the bowl, making it easy to check and replace if necessary. • Differential pressure indicators are standard on all 22, 32 and 42 Series coalescers. • Particulate filters feature a standard 5 micron element (optional 40 micron element). • Coalescing filters feature dual support cores which prevent rupture and collapse. • CircleVision™ bowls allow the machine operator or manager a clear visual indication of the liquid level in a filter or lubricator bowl from up to 40 feet away. • Every product is tested and approved for quality assurance.

1. **Shutoff Valve:** Manual shutoff used to relieve downstream pressure for servicing or maintenance. Security hole provided for lockout capabilities. May also be used as a stand-alone unit.
2. **Filter:** Particulate Filter: 5 micron filtration (shown) used as a primary filter to remove water, dust, and debris from air line (40 micron optional). Water removal efficiency is greater than 90% at rated flow. Coalescing Filter: used as a secondary filter to remove up to 99.99% of oil and particles. Available with four different type elements - 0.01, .3, and .7 micron filtration and a vapor adsorbing element that utilizes activated carbon to deodorize compressed air.
3. **Regulator:** Reduces supply pressure to a required working pressure. Available in relieving or non-relieving styles and in four different pressure ratings.
4. **Diverter Block:** Provides total versatility; mounts directly inline to allow additional components to be manifolded without excessive pressure drop.
5. **Lubricator:** Designed to meter oil aerosols into the air stream where lubrication is required. Tamper-resistant adjustment knob eliminates unauthorized adjustments.
6. **Solenoid Soft Start Quick Exhaust Valve:** When solenoid air pilot is energized, adjustable flow control allows system to be pressurized slowly. When downstream pressure reaches approximately 60% of upstream pressure, slow start shifts to full flow condition. When solenoid air pilot is de-energized, downstream pressure exhausts to atmosphere. Equipped with manual override and lockout.
7. **Pressure Switch:** Allows for remote monitoring of system pressure. An adjustable, tamper-resistant knob resists unauthorized changes.
8. **Bowls:** Three types available: polycarbonate bowl with guard (standard), metal bowl with sight glass, and CircleVision™ - a metal bowl wrapped in polycarbonate, allowing a 360° view of liquid level in bowl.
9. **Drains:** Six types available: Manual drain with internal barb fitting (1/4" I.D.) for drain tube (standard), automatic float drain, flexible drain, external pulse drain, metal manual drain, and manual lever drain. All feature unique characteristics suitable for many different applications.

Air Line FRL's

Air Line FRL's - Flows to 325 SCFM at 250 PSI
Numatics FlexiBlok® Series • Sizes 1/8 to 1

numatics

Air Line Filters Numatics FlexiBlok Series

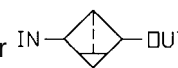


Features: Four convenient sizes. 5 micron sintered elements standard (40 micron optional). Can be installed as modular or individual unit. Includes screws and o-rings for modular connection. Manual or automatic drain.

Materials: Polycarbonate bowl standard. Optional metal bowl with sight glass. Optional CircleVision™ sight bowl.

Maximum Inlet Pressure: Polycarbonate Bowl: 150 psi, Metal Bowl: 200 psi.

Operating Temperature Range: 40-120 °F



Air Line Filters • Numatics FlexiBlok Series

Catalog Part No.	Numatics Model	Series	Port Size	Flow Rating (SCFM)	Element	Drain Type	Bowl Type	Bowl Capacity	Dimensions	Wt.	Price Each
•C1LB66	F14B-02	14	1/4	32	5 micron	Poly Manual	Polycarbonate	1.5 oz	5.94H x 1.68W	0.60	
•C1LB67	F14B-02M	14	1/4	32	5 micron	Poly Manual	Metal	1.5 oz	5.94H x 1.68W	0.65	
•C1LB68	F14B-02MQ	14	1/4	32	5 micron	Metal Manual	Metal	1.5 oz	5.94H x 1.68W	0.65	
•C1LB69	F14B-02Q	14	1/4	32	5 micron	Metal Manual	Polycarbonate	1.5 oz	5.94H x 1.68W	0.65	
•C1LB70	F22B-03	22	3/8	65	5 micron	Poly Manual	Polycarbonate	3.8 oz	7.41H x 2.38W	0.65	
•C1LB71	F22B-03A	22	3/8	65	5 micron	Auto	Polycarbonate	3.8 oz	7.41H x 2.38W	0.65	
•C1LB72	F22B-03AM	22	3/8	65	5 micron	Auto	Metal	3.8 oz	7.41H x 2.38W	1.25	
•C1LB73	F22B-03Q	22	3/8	65	5 micron	Metal Manual	Polycarbonate	3.8 oz	7.41H x 2.38W	1.25	
•C1LB74	F22B-04	22	1/2	65	5 micron	Poly Manual	Polycarbonate	3.8 oz	7.41H x 2.38W	0.65	
•C1LB75	F22B-04A	22	1/2	65	5 micron	Auto	Polycarbonate	3.8 oz	7.41H x 2.38W	0.65	
•C1LB76	F22B-04AM	22	1/2	65	5 micron	Auto	Metal	3.8 oz	7.41H x 2.38W	1.25	
•C1LB77	F22B-04Q	22	1/2	65	5 micron	Metal Manual	Polycarbonate	3.8 oz	7.41H x 2.38W	1.25	
•C1LB78	F32B-06A	32	3/4	105	5 micron	Auto	Polycarbonate	8.5 oz	8.88H x3W	1.30	
•C1LB79	F32B-06AM	32	3/4	105	5 micron	Auto	Polycarbonate	8.5 oz	8.88H x3W	2.50	
•C1LB80	F32B-06Q	32	3/4	105	5 micron	Metal Manual	Metal	8.5 oz	8.88H x3W	2.50	
•C1LB81	F42B-06	42	3/4	270	5 micron	Poly Manual	Polycarbonate	8.5 oz	12.6H x4W	3.70	
•C1LB82	F42B-08	42	1	270	5 micron	Poly Manual	Polycarbonate	8.5 oz	12.6H x4W	3.70	
•C1LB83	F42B-08A	42	1	270	5 micron	Auto	Polycarbonate	8.5 oz	12.6H x4W	3.70	
•C1LB84	F42B-08AM	42	1	270	5 micron	Auto	Metal	8.5 oz	12.6H x4W	4.80	
•C1LB85	F42B-08Q	42	1	270	5 micron	Metal Manual	Polycarbonate	8.5 oz	12.6H x4W	4.80	



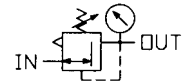
Air Line FRL's - Flows to 325 SCFM at 250 PSI
Numatics FlexiBlok® Series • Sizes 1/8 to 1

numatics

Air Line Regulators Numatics FlexiBlok Series



Features: Four convenient sizes. High flow in compact size. Locking non-rising adjustment knob. Four different pressure ratings available. Relieving or non-relieving models. Can be installed as modular or individual unit
Materials: 14 Series: Zinc Body. 22, 32, 42 Series: Aluminium Body
Maximum Inlet Pressure: 250 psi, except for 22 Series which is 200 psi.
Operating Temperature Range: 40-120 °F



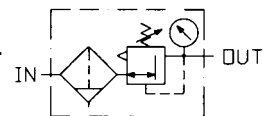
Air Line Regulators • Numatics FlexiBlok Series

Catalog Part No.	Numatics Model	Series	Port Size	Flow Rating (SCFM)	Style	Spring Range	Gauge	Wt.	Price Each
•C1LC94	R14R-02G	14	1/4	40	Relieving	0-125 psi	Yes	0.65	
•C1LC95	R22R-03G	22	3/8	70	Relieving	0-125 psi	Yes	0.69	
•C1LC96	R22R-04G	22	1/2	70	Relieving	0-125 psi	Yes	0.69	
•C1LC97	R32R-06G	32	3/4	100	Relieving	0-125 psi	Yes	1.37	
•C1LC98	R42R-08G	42	1	300	Relieving	0-125 psi	Yes	4.30	

Air Line Piggyback Filter/Regulators Numatics FlexiBlok Series



Features: Four convenient sizes. 5 micron element standard (40 micron optional). Can be installed as individual or modular unit. Locking non-rising adjustment knob. Bowl seal held captive (22, 32, and 42 Series).
Materials: Polycarbonate bowl standard. Optional metal bowl (sight glass on 22, 32 and 42 Series). Optional CircleVision™ sight bowl.
Maximum Inlet Pressure: Polycarbonate Bowl: 150 psi, Metal Bowl: 200 psi.
Operating Temperature Range: 40-120 °F



Air Line Piggyback Filter/Regulators • Numatics FlexiBlok Series

Catalog Part No.	Numatics Model	Series	Port Size	Flow Rating (SCFM)	Element	Drain Type	Bowl Type	Gauge	Dimensions	Wt.	Price Each
•C1LC73	P14B-02	14	1/4	40	5 micron	Manual	Polycarbonate	No	7.90H x 1.68W	0.75	
•C1LC74	P14B-02BG	14	1/4	40	5 micron	Flex	Polycarbonate	Yes	7.90H x 1.68W	0.75	
•C1LC75	P14B-02BGM	14	1/4	40	5 micron	Flex	Metal	Yes	7.90H x 1.68W	0.80	
•C1LC76	P22B-03	22	3/8	60	5 micron	Manual	Polycarbonate	No	9.86H x 2.38W	0.91	
•C1LC77	P22B-03AG	22	3/8	60	5 micron	Auto	Polycarbonate	Yes	9.86H x 2.38W	0.91	
•C1LC78	P22B-03AGM	22	3/8	60	5 micron	Auto	Metal	Yes	9.86H x 2.38W	1.50	
•C1LC79	P22B-04	22	1/2	60	5 micron	Manual	Polycarbonate	No	9.86H x 2.38W	0.91	
•C1LC80	P22B-04AG	22	1/2	60	5 micron	Auto	Polycarbonate	Yes	9.86H x 2.38W	0.91	
•C1LC81	P22B-04AGM	22	1/2	60	5 micron	Auto	Metal	Yes	9.86H x 2.38W	1.50	
•C1LC82	P32B-06	32	3/4	90	5 micron	Manual	Polycarbonate	No	12.2H x 3.00W	1.81	
•C1LC83	P32B-06AG	32	3/4	90	5 micron	Auto	Polycarbonate	Yes	12.2H x 3.00W	1.81	
•C1LC84	P32B-06AGM	32	3/4	90	5 micron	Auto	Metal	Yes	12.2H x 3.00W	2.99	
•C1LC85	P42B-08	42	1	300	5 micron	Manual	Polycarbonate	No	17.4H x 4.00W	5.05	
•C1LC86	P42B-08AG	42	1	300	5 micron	Auto	Polycarbonate	Yes	17.4H x 4.00W	5.05	
•C1LC87	P42B-08AGM	42	1	300	5 micron	Auto	Metal	Yes	17.4H x 4.00W	6.15	

Air Line FRL's

Air Line FRL's - Flows to 325 SCFM at 250 PSI
Numatics FlexiBlok® Series • Sizes 1/8 to 1

numatics

Air Line Lubricators Numatics FlexiBlok Series



Features: Four convenient sizes. Lubrication to begin at 2 SCFM. Can be filled under pressure (32 and 42 series). Tamper-resistant knob standard. Optional CircleVision™ sight bowl. Optional metal bowl (sight glass available on 22, 32, and 42 series). Can be mounted as individual or modular unit. Button head fill optional on all sizes. Atomizing chamber develops longer life aerosols.

Materials: Zinc Body (14 Series) and Aluminium Body (22, 32, 42 Series).

Maximum Inlet Pressure: 200 psi

Operating Temperature Range: 40-120 °F



Air Line Lubricators • Numatics FlexiBlok Series

Catalog Part No.	Numatics Model	Series	Port Size	Flow Rating (SCFM)	Bowl Type	Other Options	Dimensions	Wt.	Price Each
•C1LC60	L14L-02M	14	1/4	30	Metal	None	6.65H x 1.68W	0.60	
•C1LC65	L22L-03M	22	3/8	95	Metal	None	8.12H x 2.38W	0.69	
•C1LC68	L32L-04M	32	1/2	230	Metal	None	9.65H x 3.00W	1.37	

Air Line Filters

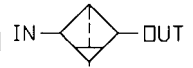
Air Line Filters

Numatics Delta 901X Series

numatics



Features: The water separator is an ideal solution where water contamination is present. Water can damage pneumatic components, degrade your final product, and cause valves and cylinders to stick. The water separator utilizes an internal spinner to remove large quantities of contamination by centrifugal action. Water, debris, and rust are spun outward to the inside diameter of the bowl. Gravity then sends the contaminant to the bottom of the bowl for discharge.



Recommended Uses: Bulk liquid and solid contamination removal. Downstream from compressor/aftercoolers. Protection for coalescing elements from large liquid loading. Refrigerated compressed air dryers.

Materials: Head 1/4 - 3: A380.0 Cast Aluminum – Anodized. Bowl 1/4 - 3: A380.0 Cast Aluminum – Anodized. Internal Separator Components: A380.0 Cast Aluminum – Anodized. Seals: Fluorocarbon (FKM). Standard Manual Drain: Brass

Maximum Inlet Pressure: 250 psi. External Auto Drain maximum pressure 230 psi.

Maximum Temperature: 200 °F. Internal Auto Float Drain: 150 °F, Electronic Drain: 130 °F, External Auto Drain: 120 °F.

Air Line Filters • Numatics Delta 901X Series

Catalog Part No.	Numatics Model	Port Size	Flow Rating (SCFM)	Options	Wt.	Price Each
•C1LB87	F901X-04AB	1/2	90	Internal Auto Float Drain, Mounting Brackets	2.90	
•C1LB88	F901X-08AB	1	215	Internal Auto Float Drain, Mounting Brackets	5.40	

Pneumatic System Accessories

Air Tool Hose Assemblies - Heavy Duty

Hose Features: Premium, light weight and non-marring. Oil & chemical resistant blend of PVC and special elastomers.

Fitting Features: Brass 1/4" NPT male couplings both ends with stainless steel strain relief springs.

Pressure Ratings: 300 psi working pressure. 1500 psi burst pressure.

Note: Power Port has tested and has certified these assemblies for the stated pressures. Stated pressure ratings are at 70°F. Pressure ratings decrease as temperature rises.



Air Tool Hose Assemblies - Heavy Duty

Catalog Part No.	Power Port Model	I.D. (in)	Length (ft)	Color	Wt.	Price Each
•C1CN46	CXAH-3850-ORS	0.38	50	Yellow	6.07	

Air Tool Hose Assemblies - Light Duty



Hose: Black PVC tube. High tensile strength textile reinforcement. PVC cover, available in blue, red and yellow. Economical, lightweight. U.V. and weather resistant.

Fittings: 1/4 inch hoses have 1/4 male NPT both ends. 3/8 inch hoses have 3/8 male NPT both ends.

Pressure Rating: 300 PSI Maximum Working Pressure @ 70°F.

Temperature Range: 14°F to 150°F.

Note: Stated Pressure Rating is at 70°F. Pressure Rating decreases as temperature increases.



Air Tool Hose Assemblies - Light Duty

Catalog Part No.	Kuriyama Model	I.D. (in)	Length (ft)	Color	Wt.	Price Each
•C1FU78	HS1186-04X25	0.25	25	Blue	1.90	
•C1FU74	HS1184-04X25	0.25	25	Red	1.90	
•C1FU75	HS1184-04X50	0.25	50	Red	3.70	
•C1FU70	HS1181-04X25	0.25	25	Yellow	1.90	
•C1FU71	HS1181-04X50	0.25	50	Yellow	3.70	
•C1FU80	HS1186-06X25	0.38	25	Blue	2.60	
•C1FU81	HS1186-06X50	0.38	50	Blue	5.10	
•C1FU76	HS1184-06X25	0.38	25	Red	2.60	
•C1FU77	HS1184-06X50	0.38	50	Red	5.10	
•C1FU72	HS1181-06X25	0.38	25	Yellow	2.60	
•C1FU73	HS1181-06X50	0.38	50	Yellow	5.10	

Coiled Air Tool Hose Assemblies



Features: Self-retracting for easy storage in minimum space to reduce clutter. A low-cost alternative to bulky, expensive hose reels. Resistant to most chemicals, gasoline, oil and grease. Lightweight and highly flexible with 360° swivel fittings at both ends of assembly. Abrasion and corrosion resistant. Ideal for use with portable air tools, spray guns, and hoists.

Hose Material: Nylon II.

Maximum Operating Pressure: 180 PSI.

Operating Temperature Range: -40°F to 200°F.



Coiled Air Tool Hose Assemblies

Catalog Part No.	Aro® Model	I.D. (in)	O.D. (in)	Working Length	Retracted Length	Thread Size	Wt.	Price Each
•C1KM81	N14-12B	1/4	5/16	11 ft	6 in	1/4 NPT	0.35	

Air Line Lubricating Oil



Features: Recommended for use with pneumatic power tools, motors, valves, cylinders and hoists. It is specially formulated for use in air line lubricators. Proper, regular lubrication helps ensure longer, trouble-free operation by reducing wear.

Viscosity: 100-200 SSU @ 100°F. Minimum aniline point of 200°F.

Lubricant Class: Class II Lubricant.

Approximate SAE Number: Light SAE 10, non-detergent.



Air Line Lubricating Oil

Catalog Part No.	Aro® Model	Container Size	Wt.	Price Each
•C1BJ99	29665	1 Quart	2.00	

Pneumatic System Accessories

Standard Duty Safety Pop-Off Valves



ASME code, National Board Certified Safety Valves are designed to protect un-fired pressure vessels from over-pressure.

Maximum Operating Temperature: 400°F.

Materials: All brass construction with chrome steel ball on a precision machined brass seat.

Standard Duty Safety Pop-Off Valves

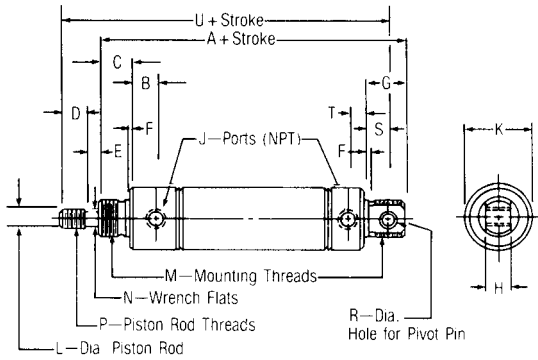


Catalog Part No.	Dixon Model	Size	Pre-Set Pressure	Capacity	Wt.	Price Each
•C1FP81	SV125	1/4 NPT	125 PSI	78 SCFM	0.25	
•C1FP82	SV150	1/4 NPT	150 PSI	92 SCFM	0.25	
•C1FP83	SV175	1/4 NPT	175 PSI	106 SCFM	0.25	

American Cylinder 76 Series Cylinders

Double-Acting

Universal Mount



Bore	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T	U
3/4	3.93	0.50	0.50	0.50	0.25	0.06	0.75	0.37	1/8	1.00	0.31	5/8-18	0.25	5/16-24	0.25	0.46	0.31	4.40
1-1/8	4.50	0.56	0.62	0.50	0.25	0.09	0.81	0.50	1/8	1.28	0.37	3/4-16	0.31	3/8-24	0.25	0.50	0.31	4.93
1-1/2	5.52	0.62	0.75	0.75	0.25	0.09	1.12	0.75	1/4	1.71	0.50	1-14	0.43	1/2-20	0.31	0.71	0.37	6.21
2	6.12	0.75	0.87	0.87	0.37	0.10	1.12	0.75	1/4	2.23	0.62	1-1/4-12	0.56	5/8-18	0.31	0.71	0.37	6.96
2-1/2	5.68	0.68	0.81	0.87	0.37	0.10	1.00	0.75	1/4	2.73	0.62	1-3/8-12	0.56	1/2-20	0.37	0.56	0.37	6.50

Technical Information Pneumatic Cylinders

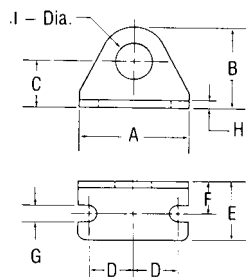


Pneumatic Cylinders



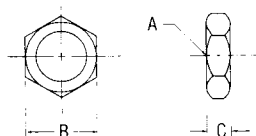
American Cylinder 76 Series Cylinder Accessories

L-Mount Bracket



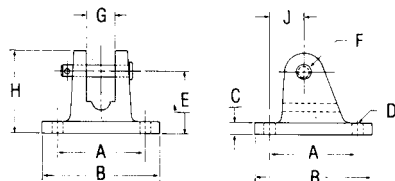
Bore	Part No.	A	B	C	D	E	F	G	H	J
3/4	M21	1.87	1.37	0.81	0.75	1.00	0.56	0.28	0.12	0.62
1-1/8	M41	1.87	1.50	0.87	0.75	1.06	0.59	0.28	0.12	0.75
1-1/2	M61	2.37	2.06	1.18	0.93	1.37	0.78	0.28	0.19	1.00
2	M81	3.00	2.56	1.50	1.18	1.68	0.96	0.34	0.25	1.25
2-1/2	M91	3.75	3.06	1.75	1.43	1.62	1.00	0.34	0.25	1.50

Mounting Nut



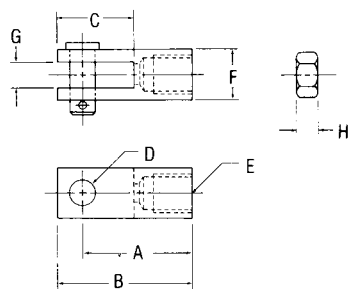
Bore	Part No.	A	B	C
3/4	M25	5/8-18	0.93	0.37
1-1/8	M45	3/4-16	1.12	0.42
1-1/2	M65	1-14	1.50	0.54
2	M85	1-1/4-12	1.87	0.54
2-1/2	M95	1-3/8-12	1.87	0.50

Pivot Bracket & Pin



Bore	Part No.	A	B	C	D	E	F	G	H	J
3/4	M23	1.75	2.25	0.25	0.28	1.09	0.25	0.37	1.43	0.68
1-1/8	M43	1.75	2.25	0.25	0.28	1.09	0.25	0.50	1.43	0.68
1-1/2	M63	2.25	3.00	0.31	0.28	1.62	0.31	0.75	2.12	0.87
2	M83	2.25	3.00	0.31	0.28	1.62	0.31	0.75	2.12	0.87
2-1/2	M93	Consult Factory								

Rod Clevis & Pin



Bore	Part No.	A	B	C	D	E	F	G	H
3/4	M24	0.93	1.18	0.68	0.25	5/16-24	0.50	0.25	0.18
1-1/8	M44	1.12	1.37	0.68	0.25	3/8-24	0.56	0.25	0.21
1-1/2	M64	1.43	1.81	0.93	0.37	1/2-20	0.75	0.37	0.31
2	M84	1.87	2.31	1.31	0.43	5/8-18	0.87	0.43	0.37
2-1/2	M94	1.31	1.68	0.93	0.37	1/2-20	0.75	0.37	0.37



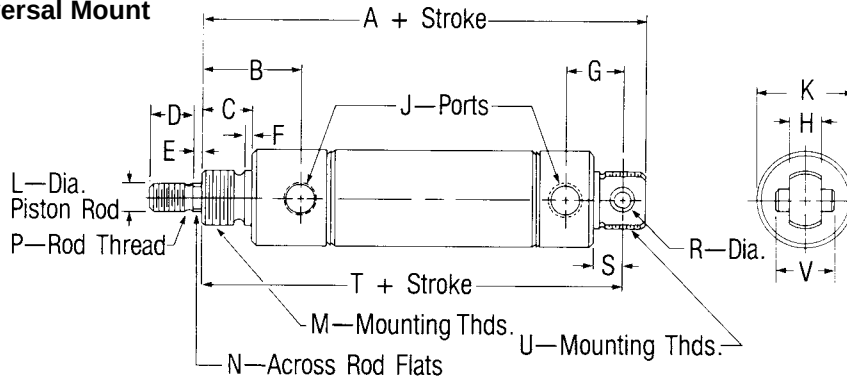
Technical Information Pneumatic Cylinders

Pneumatic Cylinders



American Cylinder Stainless Steel Series Cylinders Double-Acting

Universal Mount

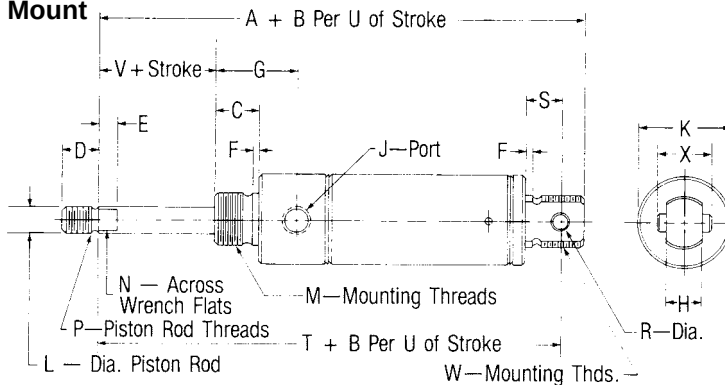


Bore	Foot Bracket	Pivot Bracket	Rod Clevis
7/16	M11SD	M13S	M14S
9/16	M11SD	M13S	M14S
3/4	M21	M23S	M24S
1-1/16	M21	M23S	M24
1-1/4	M61S	M23S	M63S
1-1/2	M61S	M63S	M64S

Bore	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T	U	V
7/16	2.81	0.71	0.37	0.50	0.00	0.05	0.43	0.31	10-32	0.74	0.18	7/16-20	--	10-32	0.15	0.25	2.56	7/16-20	0.50
9/16	2.75	0.75	0.37	0.50	0.00	0.05	0.43	0.31	10-32	0.62	0.18	7/16-20	--	10-32	0.15	0.25	2.56	7/16-20	0.50
3/4	4.03	0.96	0.50	0.50	0.00	0.06	0.62	0.37	1/8 NPT	0.86	0.25	5/8-18	0.21	1/4-28	0.25	0.34	3.75	5/8-18	0.75
1-1/16	4.00	1.06	0.50	0.50	0.00	0.06	0.62	0.37	1/8 NPT	1.12	0.31	5/8-18	0.25	5/16-24	0.25	0.34	3.71	5/8-18	0.75
1-1/4	4.87	1.18	0.62	0.75	0.25	0.09	0.71	0.50	1/8 NPT	1.34	0.43	3/4-16	0.37	7/16-20	0.25	0.40	4.46	3/4-16	0.87
1-1/2	4.50	1.25	0.62	0.75	0.25	0.09	0.81	0.62	1/8 NPT	1.56	0.43	3/4-16	0.37	7/16-20	0.37	0.50	4.12	--	1.00

American Cylinder Stainless Steel Series Cylinders Single-Acting Spring-Extended

Universal Mount



Bore	Pivot Bracket	Rod Clevis	Foot Bracket
7/16	M13S	M14S	M11SD
3/4	M23S	M24S	M21
1-1/16	M23S	M24	M21
1-1/4	M23S	M64S	M61S
1-1/2	M63S	M64S	M61S

Bore	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T	U	V	W	X
7/16	2.62	1.43	0.37	0.50	0.00	0.05	0.71	0.31	10-32	0.74	0.18	7/16-20	--	10-32	0.15	0.25	2.37	0.50	0.00	7/16-20	0.50
3/4	2.71	2.68	0.50	0.50	0.12	0.05	0.96	0.37	1/8 NPT	0.86	0.25	5/8-18	0.21	1/4-28	0.25	0.34	2.43	1.00	0.00	5/8-18	0.75
1-1/16	2.93	2.81	0.50	0.50	0.25	0.06	1.06	0.37	1/8 NPT	1.12	0.31	5/8-18	0.25	5/16-24	0.25	0.34	2.65	1.00	0.00	5/8-18	0.75
1-1/4	4.15	2.81	0.62	0.75	0.25	0.09	1.18	0.50	1/8 NPT	1.34	0.43	3/4-16	0.37	7/16-20	0.25	0.43	3.78	1.00	0.25	3/4-16	0.87
1-1/2	4.25	3.00	0.62	1.25	0.25	0.09	1.25	0.62	1/8 NPT	1.56	0.43	3/4-16	0.37	7/16-20	0.37	0.50	3.87	1.00	0.25	--	1.00



Technical Information Pneumatic Cylinders

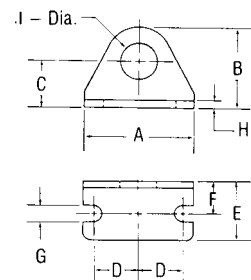


Pneumatic Cylinders



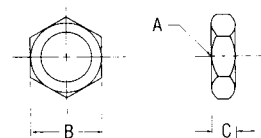
American Cylinder Stainless Steel Series Accessories

Foot Bracket



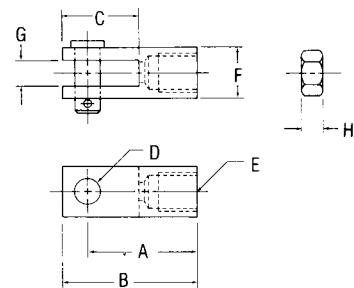
Bore	Part No.	A	B	C	D	E	F	G	H	J
7/16 (S/A)	M11SS	1.37	0.87	0.56	0.50	0.62	0.31	0.18	0.07	0.37
7/16 (D/A)	M11SD	1.37	0.93	0.56	0.50	0.62	0.31	0.18	0.09	0.43
9/16	M11SD	1.37	0.93	0.56	0.50	0.62	0.31	0.18	0.09	0.43
3/4 (S/A)	M21SS	1.62	1.09	0.68	0.62	0.75	0.43	0.18	0.10	0.50
3/4 (D/A)	M21	1.87	1.37	0.81	0.75	1.00	0.56	0.28	0.12	0.62
1-1/16	M21	1.87	1.37	0.81	0.75	1.00	0.56	0.28	0.12	0.62
1-1/4	M61S	2.50	1.75	1.00	0.93	1.50	0.75	0.28	0.12	0.75
1-1/2	M61S	2.50	1.75	1.00	0.93	1.50	0.75	0.28	0.12	0.75

Mounting Nut



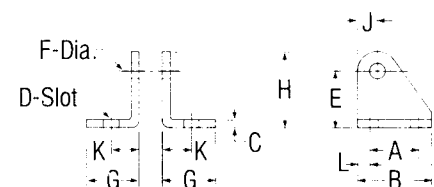
Bore	Single-Acting Part No.	Thread	Double-Acting Spring-Extended Part No.	Thread
7/16	M15SS	3/8-24	M15SD	7/16-20
9/16	M15SD	7/16-20	M15SD	7/16-20
3/4	M25SS	1/2-20	M25	5/8-18
1-1/16	M25	5/8-18	M25	5/8-18
1-1/4	M45	3/4-16	M45	3/4-16
1-1/2	M45	3/4-16	M45	3/4-16

Rod Clevis & Pin

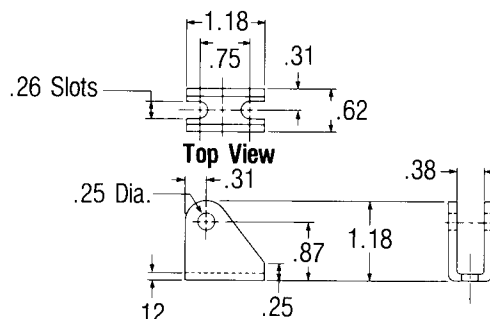


Bore	Part No.	A	B	C	D	E	F	G	H
7/16	M14S	0.75	0.93	0.56	0.18	10-32	0.37	0.18	0.12
9/16	M14S	0.75	0.93	0.56	0.18	10-32	0.37	0.18	0.12
3/4	M24S	0.93	1.18	0.68	0.25	1/4-28	0.50	0.25	0.15
1-1/16	M24	0.93	1.18	0.68	0.25	5/16-24	0.50	0.25	0.18
1-1/4	M64S	1.31	1.68	0.93	0.37	7/16-20	0.75	0.37	0.25
1-1/2	M64S	1.31	1.68	0.93	0.37	7/16-20	0.75	0.37	0.25

Pivot Brackets



Bracket M33S only



Part No.	A	B	C	D	E	F	G	H	J	K	L
M13S	0.50	0.75	0.06	0.18	0.56	0.15	0.50	0.77	0.20	0.28	0.12
M13SP	0.50	0.75	0.06	0.18	0.56	0.15	0.59	0.77	0.20	0.28	0.12
M23S	0.75	1.12	0.12	0.26	0.87	0.25	0.81	1.18	0.31	0.43	0.18
M63S	1.00	1.50	0.12	0.26	1.37	0.37	1.00	1.75	0.37	0.62	0.25
M63SP	1.00	1.50	0.12	0.26	1.37	0.37	1.00	1.75	0.37	0.62	0.25
M93	1.00	1.50	0.24	0.34	1.37	0.37	1.12	1.75	0.37	0.68	0.25

Bore	Standard Models	Pivot Bushing Models
7/16	M13S	M13SP
9/16	M13S	M13SP
3/4	M23S	M33S
1-1/16	M23S	M33S
1-1/4	M23S	M23SP
1-1/2	M63S	M63SP



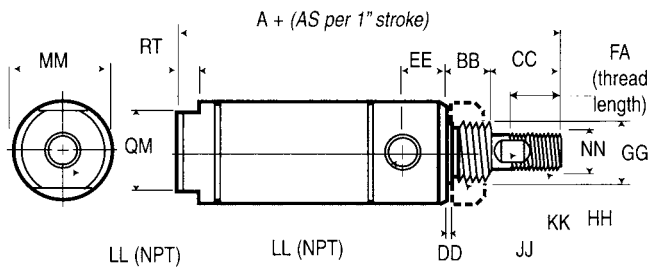
Pneumatic Cylinders



Aro® Silverair™ Series Cylinders

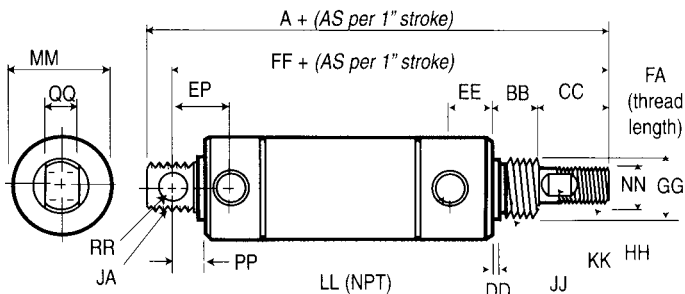
Double-Acting

Nose Mount



Bore	A	AS	BB	CC	DD	EE	FA	GG	HH	JJ	KK	LL	MM	MN	QM	RT
1/2	2.62	1.00	0.41	0.50	0.04	0.37	0.50	0.437	10-32	7/16-20	--	10-32	0.62	0.187	0.37	0.12
3/4	3.47	1.00	0.50	0.50	0.07	0.48	0.50	0.625	1/4-28	5/8-18	--	1/8	0.88	0.25	0.62	0.16
1-1/16	3.75	1.00	0.50	0.62	0.07	0.52	0.50	0.625	5/16-24	5/8-18	0.25	1/8	1.12	0.312	0.87	0.25
1-1/4	4.75	1.00	0.62	1.00	0.07	0.69	0.75	0.750	7/16-20	3/4-16	0.38	1/8	1.31	0.437	0.87	0.18
1-1/2	4.44	1.00	0.62	1.00	0.07	0.62	0.75	0.750	7/16-20	3/4-16	0.38	1/8	1.55	0.437	0.87	0.25
1-3/4	5.57	1.00	0.75	1.19	0.09	0.72	0.88	1.030	1/2-20	1-14	0.44	1/4	1.81	0.50	1.25	0.25
2	5.56	1.00	0.81	1.25	0.12	0.69	0.88	1.50	1/2-20	1-1/4-12	0.50	1/4	2.07	0.625	1.25	0.31
2-1/2	5.56	1.00	0.81	1.25	0.12	0.69	0.88	1.50	1/2-20	1-3/8-12	0.50	1/4	2.62	0.625	1.75	0.31

Universal Mount



Bore	A	AS	BB	CC	DD	EE	EP	FA	GG	FF	HH	JJ	KK	LL	MM	MN	PP	QQ	RR
1/2	3.31	1.00	0.41	0.50	0.04	0.37	0.42	0.50	0.437	6.12	10-32	7/16-20	--	10-32	0.62	0.187	0.25	0.31	0.16
3/4	4.54	1.00	0.50	0.50	0.07	0.48	0.66	0.50	0.625	4.25	1/4-28	5/8-18	--	1/8	0.88	0.25	0.34	0.38	0.25
1-1/16	4.62	1.00	0.50	0.62	0.07	0.52	0.62	0.50	0.625	4.34	5/16-24	5/8-18	0.25	1/8	1.12	0.312	0.34	0.38	0.25
1-1/4	5.83	1.00	0.62	1.00	0.07	0.69	0.91	0.75	0.750	5.47	7/16-20	3/4-16	0.38	1/8	1.31	0.437	0.41	0.50	0.25
1-1/2	5.50	1.00	0.62	1.00	0.07	0.62	0.81	0.75	0.750	5.12	7/16-20	3/4-16	0.38	1/8	1.55	0.437	0.50	0.62	0.38
1-3/4	7.13	1.00	0.75	1.19	0.09	0.72	0.98	0.88	1.030	6.63	1/2-20	1-14	0.44	1/4	1.81	0.50	0.50	0.62	0.38
2	6.93	1.00	0.81	1.25	0.12	0.69	1.00	0.88	1.50	6.50	1/2-20	1-1/4-12	0.50	1/4	2.07	0.625	0.57	0.75	0.38
2-1/2	6.93	1.00	0.81	1.25	0.12	0.69	1.00	0.88	1.50	6.50	1/2-20	1-3/8-12	0.50	1/4	2.62	0.625	0.57	0.75	0.38

Technical Information

Pneumatic Cylinders

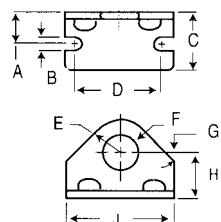


Pneumatic Cylinders



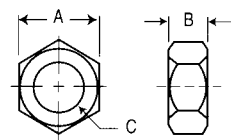
Aro® Silverair™ Series Cylinder Accessories

L-Mount Bracket



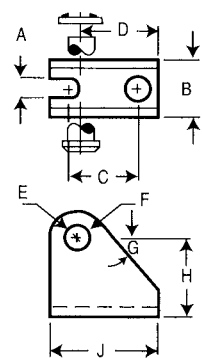
Bore	A	B	C	D	E	F	G	H	J
1/2 Single Acting	0.31	0.19	0.62	1.00	0.37	0.38	56°	0.57	1.38
1/2 Double Acting	0.31	0.19	0.62	1.00	0.37	0.44	56°	0.57	1.38
3/4 Single Acting	0.44	0.19	0.75	1.25	0.40	0.50	45°	0.69	1.63
3/4 Double Acting	0.56	0.27	1.00	1.50	0.56	0.63	45°	0.81	1.88
1-1/16	0.56	0.27	1.00	1.50	0.56	0.63	45°	0.81	1.88
1-1/4	0.75	0.28	1.50	1.89	0.75	0.76	49°	1.00	2.50
1-1/2	0.75	0.28	1.50	1.89	0.75	0.76	49°	1.00	2.50
1-3/4	0.94	0.34	1.50	2.25	0.88	1.04	52°	1.25	3.00
2	1.00	0.34	1.62	2.25	1.00	1.38	60°	1.50	3.00
2-1/2	1.00	0.34	1.62	2.88	1.25	1.50	63°	1.75	3.75

Mounting Nut



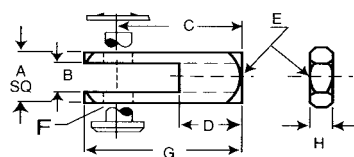
Bore	A	B	C
1/2 Single Acting	0.56	0.22	3/8-24
1/2 Double Acting	0.68	0.25	7/16-20
3/4 Single Acting	0.75	0.31	1/2-20
3/4 Double Acting	0.93	0.37	5/8-18
1-1/16	0.93	0.37	5/8-18
1-1/4	1.12	0.42	3/4-16
1-1/2	1.12	0.42	3/4-16
1-3/4	1.50	0.56	1-14
2	1.85	0.50	1-1/4-12
2-1/2	2.06	0.50	1-3/8-12

Pivot Bracket & Pin



Bore	A	B	C	D	E	F	G	H	J
1/2	0.20	0.52	0.43	0.54	0.22	0.16	50°	0.64	0.75
3/4	0.26	0.65	0.75	0.87	0.31	0.26	53°	0.87	1.19
1-1/16	0.26	0.65	0.75	0.87	0.31	0.26	53°	0.87	1.19
1-1/4	0.32	0.77	0.75	0.94	0.31	0.26	53°	1.06	1.25
1-1/2	0.39	0.96	1.00	1.25	0.38	0.38	52°	1.37	1.63
1-3/4	0.39	0.96	1.00	1.25	0.38	0.38	52°	1.37	1.63
2	0.45	1.20	1.00	1.43	0.38	0.38	48°	1.68	1.81
2-1/2	0.45	1.20	1.00	1.43	0.38	0.38	48°	1.68	1.81

Rod Clevis & Pin

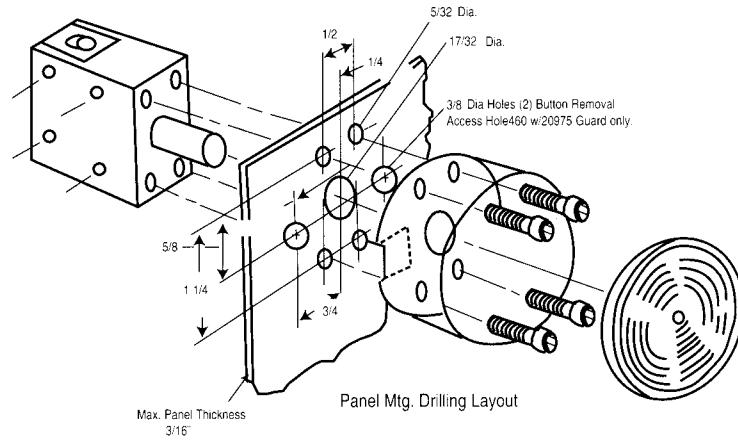
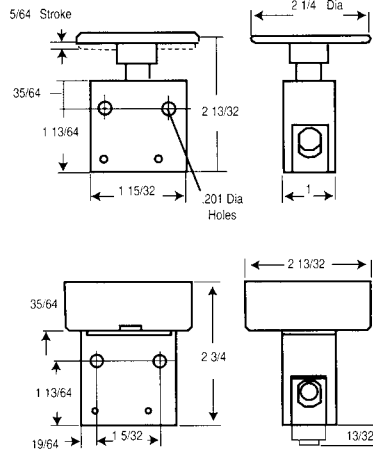


Bore	A	B	C	D	E	F	G	H
1/2	0.38	0.19	0.75	0.38	10-32	0.19	0.94	0.12
3/4	0.50	0.25	0.94	0.50	1/4-28	0.25	1.20	0.16
1-1/16	0.50	0.25	0.94	0.50	5/16-24	0.25	1.20	0.16
1-1/4	0.75	0.38	1.30	0.75	7/16-20	0.38	1.70	0.25
1-1/2	0.75	0.38	1.30	0.75	7/16-20	0.38	1.70	0.25
1-3/4	0.75	0.38	1.30	0.75	1/2-20	0.38	1.70	0.31
2	0.75	0.38	1.30	0.75	1/2-20	0.38	1.70	0.31
2-1/2	0.75	0.38	1.30	0.75	1/2-20	0.38	1.70	0.31

Manually Operated Pneumatic Valves



Aro® 460 Series Dimensions



Technical Information Pneumatic Valves

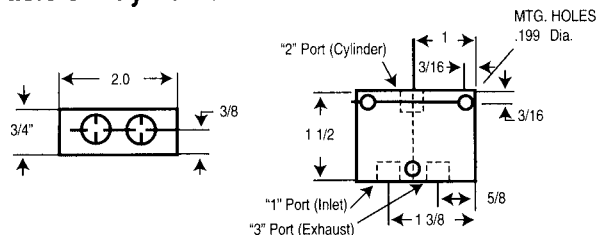


Manually Operated Pneumatic Valves

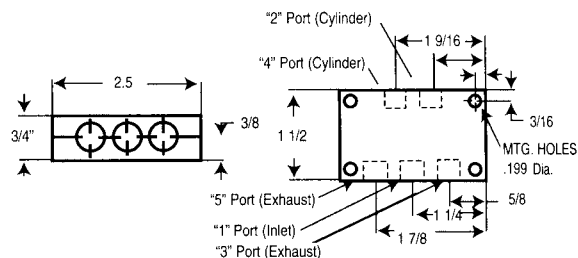
Aro® 50 Series Dimensions



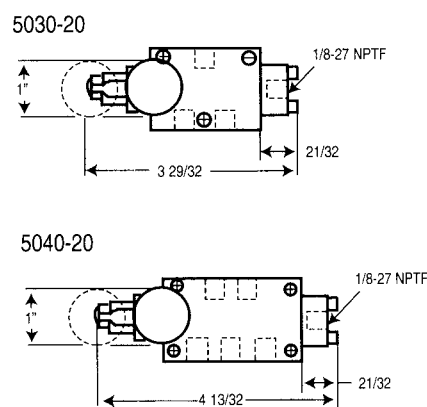
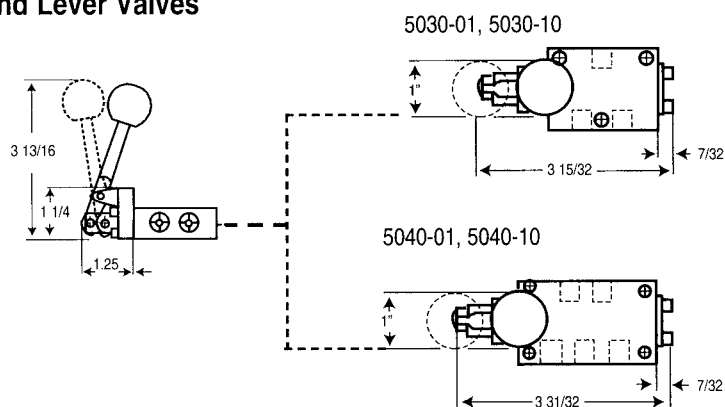
Basic 3-Way Valve



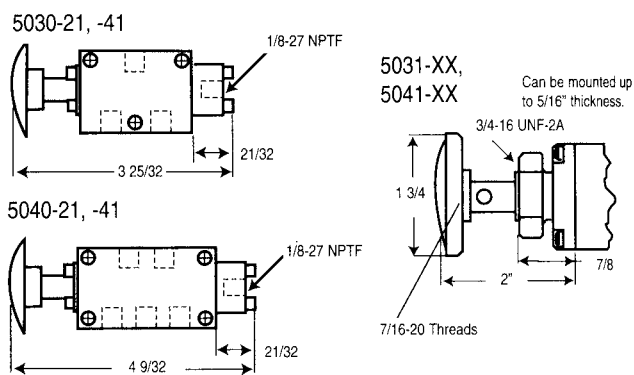
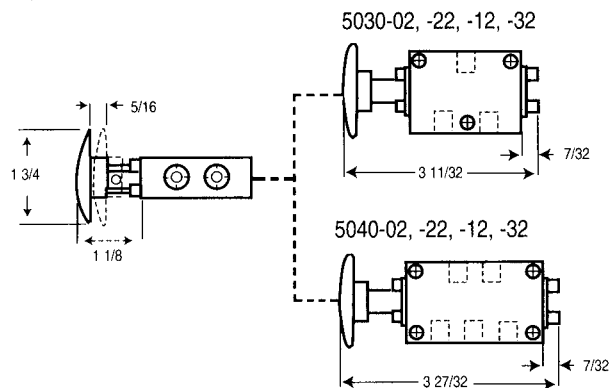
Basic 4-Way Valve



Hand Lever Valves



Palm Button Valves



[illegible]

Hand Lever Valves

3 7/8"

1 11/32"

E212LS

1"

6 7/32"

1 3/8"

E212LM

E112LM

E512LM

E612LM

1"

5 3/16"

11/32"

E312LM

E712LM

1"

6 5/16"

1 15/32"

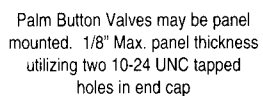
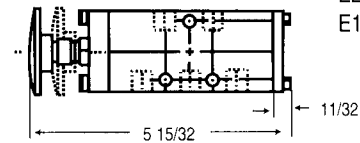
Technical drawing of a bolt with the following dimensions:

- Diameter: 4"
- Total Length: 10 9/32"
- Thread Length: 1 3/8"

Technical drawing of a mechanical component, likely a valve or actuator. The drawing shows a side view with dimensions: a diameter of 1/2", a length of 1 5/8", and a height of 1 3/4". The component has a flange on the left and a threaded section on the right.

E252HM or -WM
E152HM or -WM

E212HM or -WM
E112HM or -WM



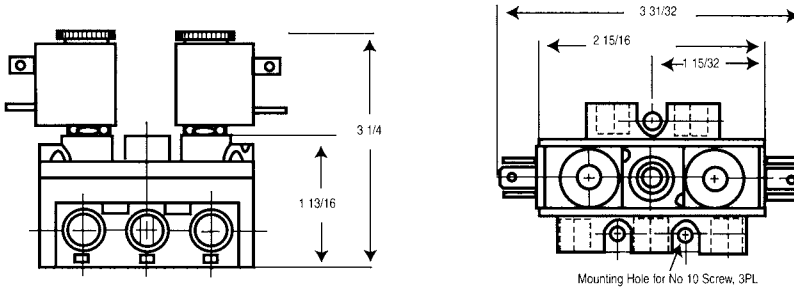
Not Available on detent models:
E152HM or -WM
E112HM or -WM

Solenoid Operated Pneumatic Valves

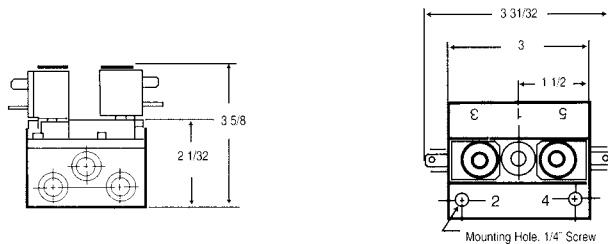


Aro® Alpha™ Series Dimensions

1/8" & 1/4" Body Ported Valves

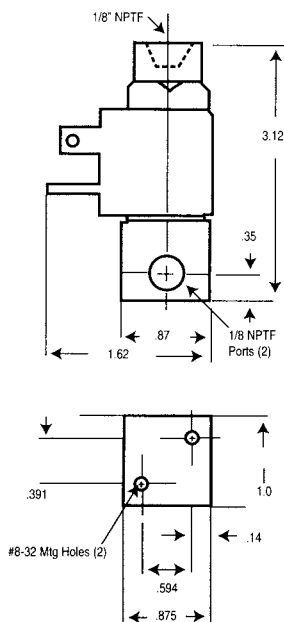


3/8" Body Ported Valves

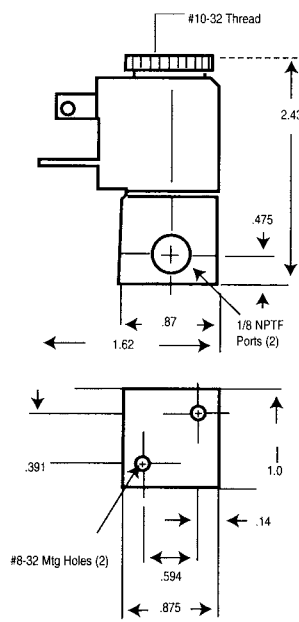


Aro® CAT Series Dimensions

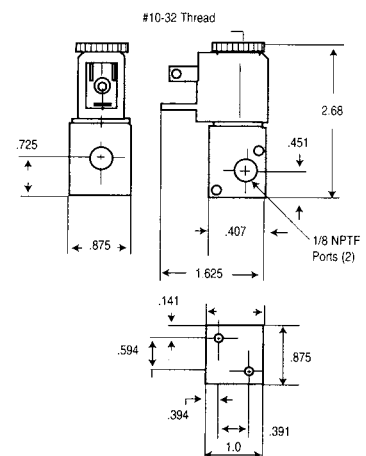
CAT44P Body Ported, Normally Passing



CAT33P Body Ported Normally Non-Passing



CAT33S Stacking Normally Non Passing



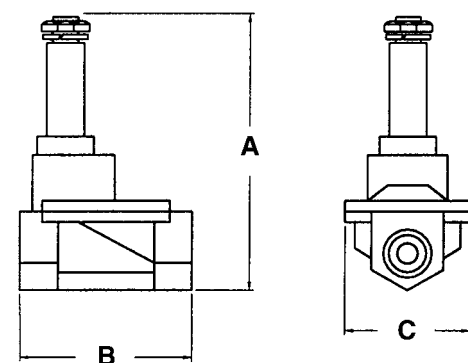
Technical Information Pneumatic Valves



Solenoid Operated Pneumatic Valves

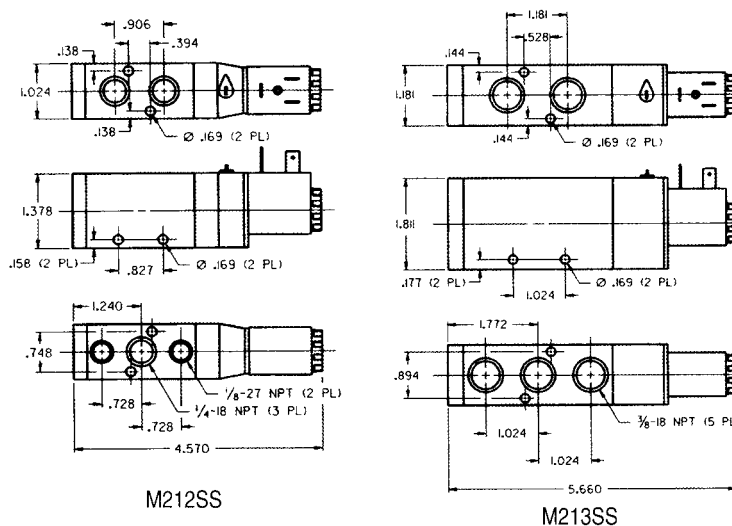


Aro® MaxAir 2-Way Dimensions

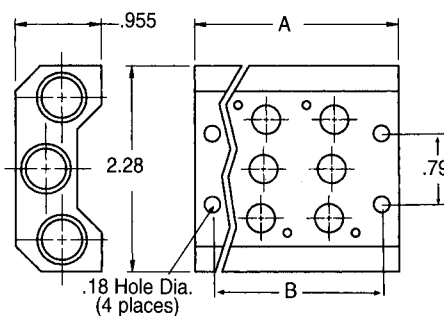
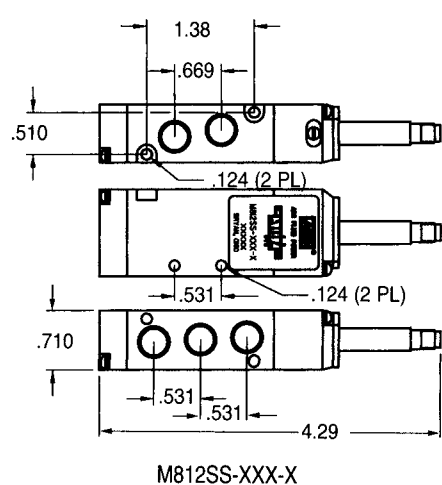


Port Size	A	B	C
3/8	4.193	2.618	1.890
1/2	4.193	2.618	1.890
3/4	4.961	3.780	2.756
1	4.961	3.780	2.756
1-1/4	5.728	5.157	3.780
1-1/2	5.728	5.157	3.780

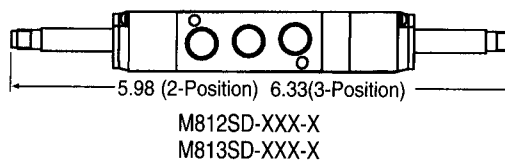
Aro® MaxAir 4-Way Dimensions



Aro® Sierra® 18 Series Dimensions



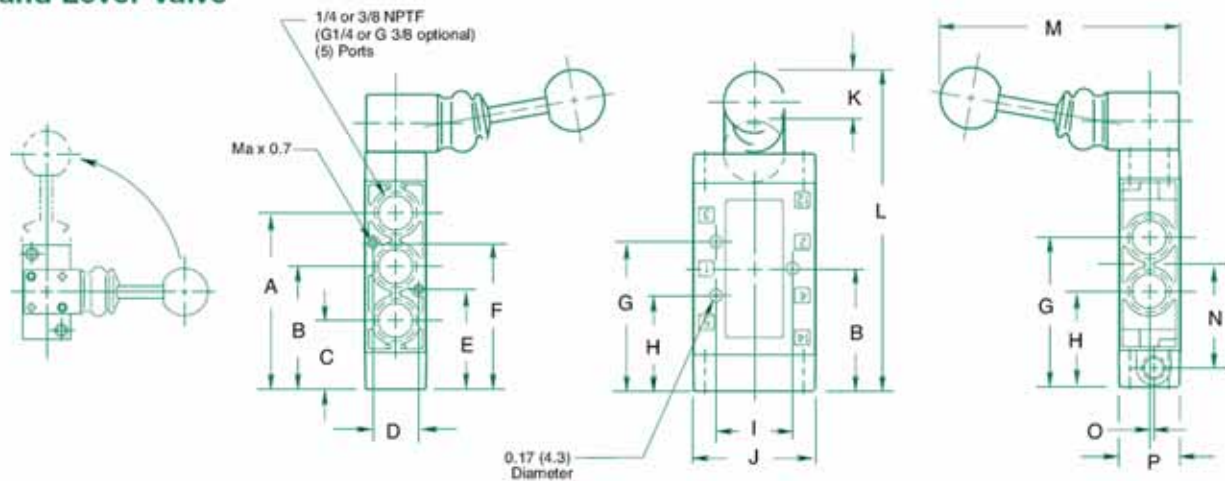
	A	B
2-Station	2.24	1.85
4-Station	3.74	3.35
6-Station	5.24	4.84
8-Station	6.73	6.34
10-Station	8.23	7.84
12-Station	9.72	9.33
16-Station	11.22	10.83



L2 Series Manual Valve Dimensions

Dimensions: Inches (mm)

Hand Lever Valve

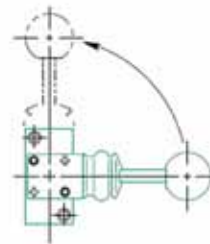


A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
2.88 (73.2)	2.00 (50.8)	1.13 (28.7)	0.75 (19.1)	1.63 (41.4)	2.38 (60.5)	2.44 (62.0)	1.57 (39.9)	1.27 (32.3)	2.00 (50.8)	0.72 (18.3)	5.18 (131.6)	3.93 (99.8)	1.68 (42.7)	0.08 (2.0)	1.00 (25.4)

Lever Rotation Procedure

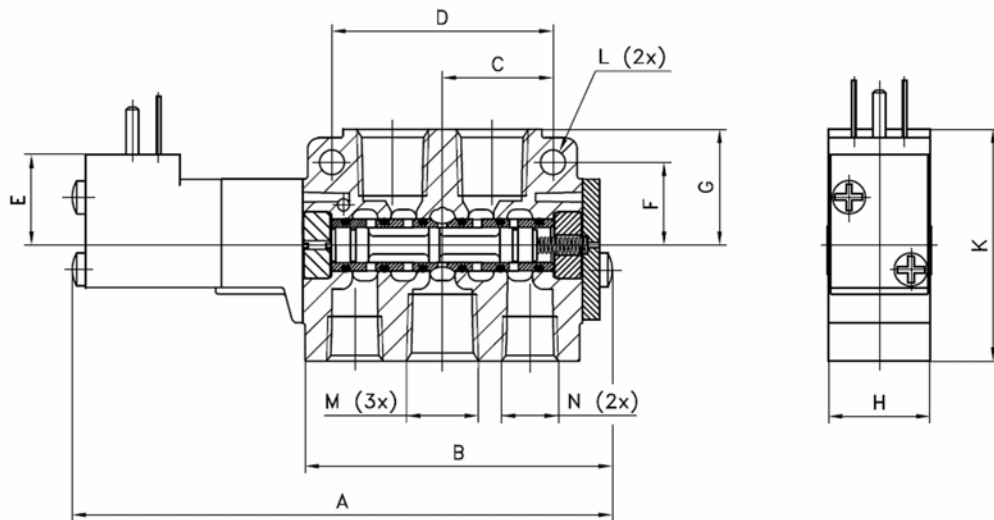
The Numatics L22 & L23 Hand Lever Series allows for the rotation of the lever 90° to become parallel with the valve cylinder ports.

Remove (2) M3 socket head screws from lever bracket and rotate 90° in either direction. Re-assemble screws and tighten securely.



92280 Series Solenoid Valve Dimensions

DIMENSIONS (mm), WEIGHT (kg)

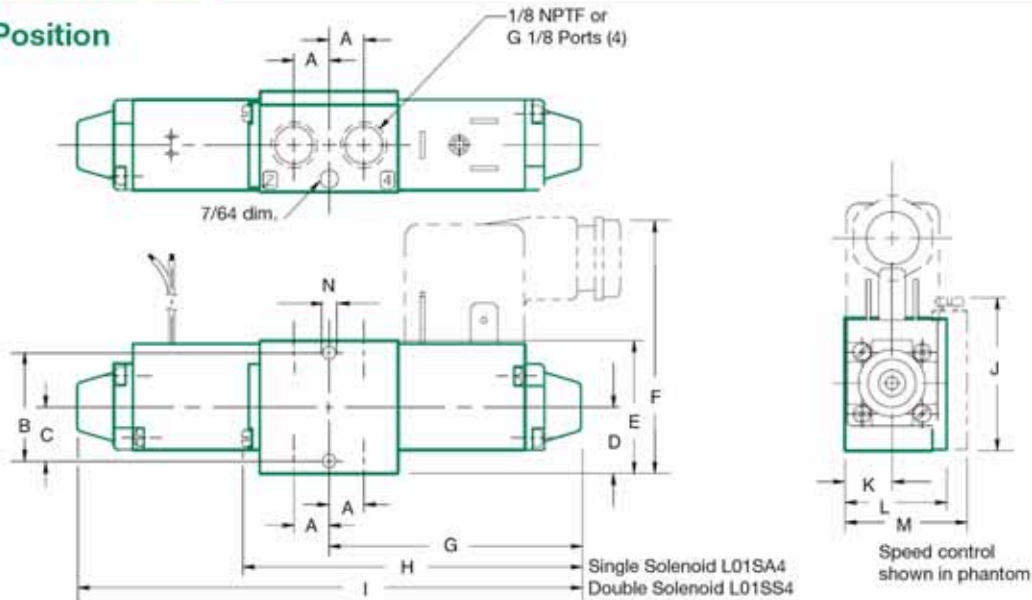


A	B	C	D	E	F	G	H	K	L Ø	M NPTF	N NPTF	weight approx.
97	55,5	20	40	16	15	21	18	42	4,5	1/4	1/8	0,122

L01 Series Solenoid Valve Dimensions

Dimensions: Inches (mm)

Valve 2 Position

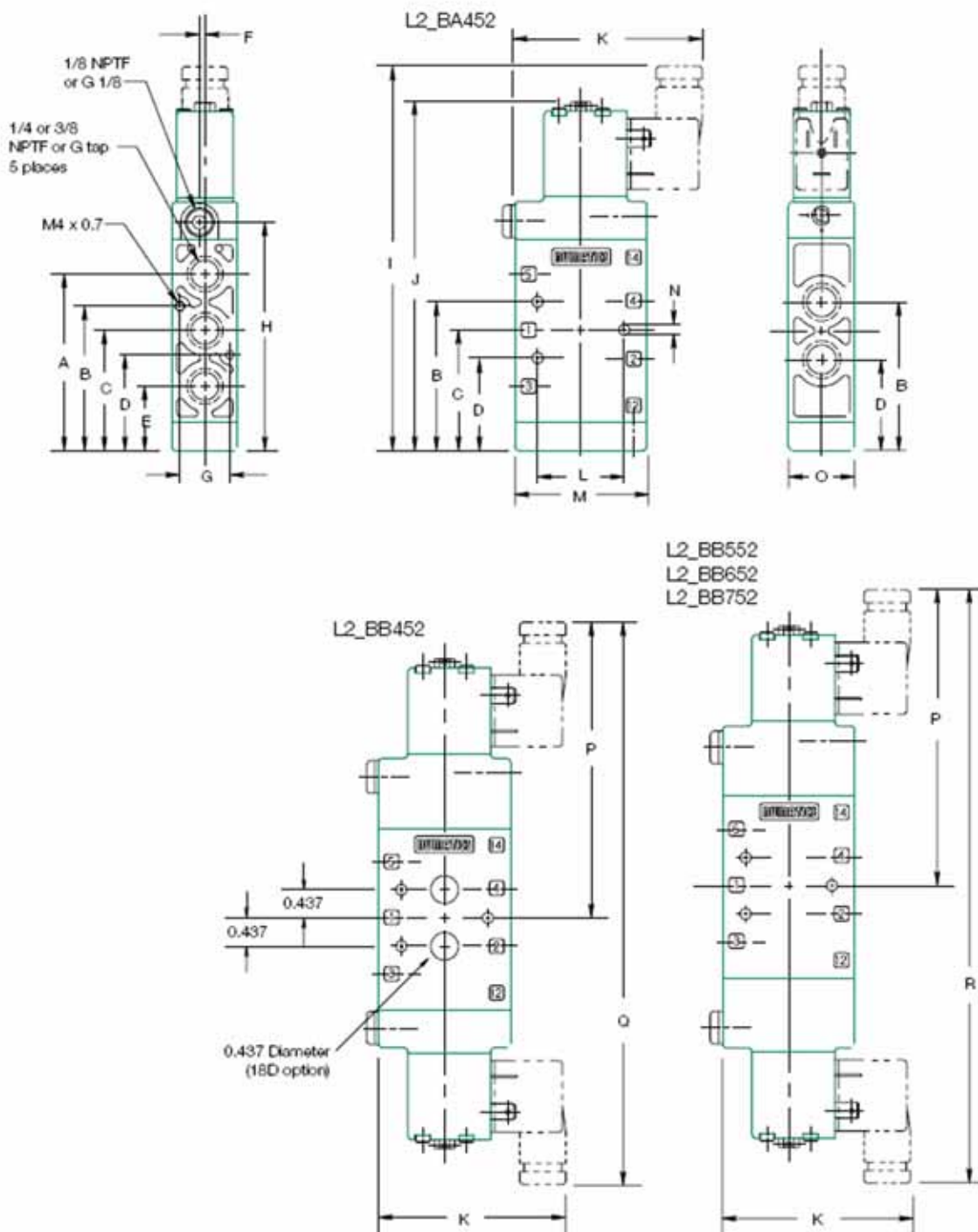


	A	B	C	D	E	F	G	H	I	J	K	L	M	N
2 position valves	0.31 (7.9)	0.97 (24.6)	0.49 (12.4)	0.59 (15.0)	1.19 (30.2)	2.33 (59.2)	2.30 (58.4)	3.14 (79.8)	4.60 (116.8)	1.35 (34.3)	0.42 (10.7)	0.90 (22.9)	1.08 (27.4)	0.11 (2.8)

L2 Series Solenoid Valve Dimensions

Dimensions: Inches (mm)

Solenoid-Pilot Valve



A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
2.72 (69.1)	2.28 (57.9)	1.85 (47.0)	1.41 (35.8)	0.97 (24.6)	0.08 (2.0)	0.75 (19.1)	3.53 (89.7)	5.99 (152.1)	5.38 (136.7)	2.89 (72.9)	1.27 (32.3)	2.00 (50.8)	0.17 (4.3)	1.00 (25.4)	4.66 (118.4)	8.78 (223.0)	9.32 (236.7)



HSC Retail Stores

Hydraulic Supply Company retail stores are certified Eaton® Aeroquip Hose Centers. Our dedicated hose specialists can build your hoses right when you need them at one of our locations.

[illegible]



Indexes & Technical Information



Notes

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Pneumatic Power & Control

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Indexes & Technical Information

**Ask us about our
Custom Build Programs**



Hose Assemblies | Custom Hydraulic Components | Hose Kitting | Vane Pump Program | Others

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.



Fluid Conveying

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Hose Protection	910
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Hose Clamps & Crimp Ferrules	1021
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Piping Products	1099
Pipe Fittings	1099
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Hose

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Eaton's Aeroquip Hose and Fitting Assembly Product Warning

Flexible hose lines offer many advantages over rigid tubing including routing ease, vibration absorption, sound deafening and the ability to accommodate movement of connected components. However, hose lines require caution in use not only to provide long service, but also to guard against potentially dangerous failure.

Important

The user should carefully observe the precautions listed in this catalog, including the recommendations on the selection of hose and fittings on the relevant pages, and the pages on fluid compatibility. In addition, care should be taken not to exceed the minimum bend radius listed for each hose size and type in the hose section. Maximum operating pressure should not exceed pressures listed in the hose data. Instructions for assembling fittings to different hose should be followed carefully to ensure the performance of the completed assembly.



WARNING

Eaton fitting tolerances are engineered to match Eaton's Aeroquip hose tolerances. The use of Eaton fittings on hose supplied by other manufacturers and/or the use of Eaton's Aeroquip hose with fittings supplied by other manufacturers may result in the production of unreliable and unsafe hose assemblies and is neither recommended nor authorized by Eaton Corporation or any of its affiliates or subsidiaries.



WARNING

Application considerations must be observed in selecting appropriate components for the application of these products contained herein. The failure to follow the recommendations set forth in this catalog may result in an unstable application which may result in serious personal injury or property damage.

EATON CORPORATION OR ANY OF ITS AFFILIATES OR SUBSIDIARIES SHALL NOT BE SUBJECT TO AND DISCLAIMS ANY OBLIGATIONS OR LIABILITIES (INCLUDING BUT NOT LIMITED TO ALL CONSEQUENTIAL, INCIDENTAL AND CONTINGENT DAMAGES) ARISING FROM TORT CLAIMS (INCLUDING WITHOUT LIMITATION NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORIES OF LAW WITH RESPECT TO ANY HOSE ASSEMBLIES NOT PRODUCED FROM GENUINE AEROQUIP HOSE FITTINGS, HOSE AND AEROQUIP APPROVED EQUIPMENT, AND IN CONFORMANCE WITH EATON'S AEROQUIP PROCESS AND PRODUCT INSTRUCTIONS FOR EACH SPECIFIC HOSE ASSEMBLY.

Failure to follow these processes and product instructions and limitations could lead to premature hose assembly failures resulting in property damage, serious injury or death.



Hose Application Warnings

The determination and methods of the use, suitability, installation and design application for the parts and assemblies we sell is the responsibility of the purchaser.

Hose conforms to the specification and requirements specified by the hose manufacturer.

Agency and industry standards may apply to your application. It is your responsibility to decide what regulations and/or standards apply, and inform us. We will then advise you if the products selected meet those standards. Improper selection, installation and/or routing may significantly shorten the life of a hydraulic hose, which could result in hose rupture and failure, which may then result in serious personal injury or property damage.

If you don't already have the proper training or information, ask for:

Eaton/Aeroquip Fluid Conveyance Products Catalog A-HOOV-MC001-E1 Warnings - pages 11-12

Fluid Compatibility - pages 349-355 (this catalog page 1511)

SAE Recommended Practices (SAE J1273) - page 356 (this catalog page 1509)

Routing & Installation - page 358 (this catalog page 1518

Thread Style Pressure Performance - page 376 (this catalog page 1503)

Most hydraulic fluids are flammable and proper safeguards have to be taken to contain any fluid if a hose failure occurs in an environment with a source of ignition.

Hoses have a service life, and high repetitive shock reduces hose service life.

You need to inspect and change out hoses within their service life for your application or hose rupture and failure may occur.

S.T.A.M.P. - You must consider the **Size**, **Temperature**, **Application**, **Medium** and **Pressure** when selecting hose and hose fittings.



FC619

Wire Inserted Suction Exceeds SAE 100R4 Flexible



Construction: Synthetic rubber inner tube, reinforcement consisting of a helical wire between two textile braids and black synthetic rubber cover with orange layline.

Application: Suction and transfer applications for petroleum hydraulic fluids, fuel, lubricating oils, gasoline, water and many other industrial fluids. Please review the general guidelines for selection, installation and maintenance of hose assemblies starting on page 1509

Operating Temperature Range: -40°F to +275°F.

Hydraulic Crimp Fittings: Global TTC (Steel) page 919, -12 requires buffing, -20 requires 1AT or 1AV part number. Global TTC (Stainless Steel) page 982, -12 requires buffing, -20 requires 1AT or 1AV part number. Global TTC12 page 934, -12 only, no buffing required. Field Crimp page 947, -12 and -16 only.

Industrial Reusable Fittings & Attachment Suggestions: Shank Type Combination Nipples attached with T-Bolt Band Clamps or Preformed Clamps.

Industrial Reusable Fittings: Shank Type Combination Nipples (Steel) page 1003. (Stainless Steel) page 1005

Industrial Reusable Fitting Attachment: T-Bolt Clamps (stainless band) page 1026 Trident #720 S.S. T-Bolt Clamps page 1027 Band-It® Jr. Preformed Clamps page 1031

Note: Maximum working pressure for clamped hose assembly is 50 psi.

FC619

Catalog Part No.	Aeroquip Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
•C1EK58	FC619-12	0.75	1.21	300	1200	2.5	28	Rolls Only	0.46	
•C1EK59	FC619-16	1.00	1.48	250	1000	3.0	28	Rolls Only	0.56	
•C1EK60	FC619-20	1.25	1.75	200	800	4.0	28	Rolls Only	0.78	
•C1EK61	FC619-24	1.50	2.04	150	600	5.0	28	Rolls Only	1.00	
•C1EK62	FC619-32	2.00	2.55	100	400	6.0	28	Rolls Only	1.23	
C1NB31	FC619-40	2.50	3.12	62	250	14.0	28	Rolls Only	1.58	

Note: Maximum working pressure for clamped hose assembly is 50 PSI.

Hydraulic Hose



2661

Wire Inserted Suction
Exceeds SAE 100R4
AQP® Blue



Construction: AQP® elastomer tube, reinforcement consisting of a helical wire between two textile braids and blue AQP® elastomer cover.

Application: Suction and transfer applications for petroleum and phosphate ester hydraulic fluids, fuel, lubricating oils, gasoline, water and many other industrial fluids. Please review the general guidelines for selection, installation and maintenance of hose assemblies starting on page 1509

Operating Temperature Range: -40°F to +300°F.

Hydraulic Crimp Fittings: Global TTC (Steel) page 919, -12 requires buffing, -20 requires 1AT or 1AV part number. Global TTC (Stainless Steel) page 982, -12 requires buffing, -20 requires 1AT or 1AV part number. Global TTC12 page 934, -12 only, no buffing required. Field Crimp page 947, 12 and -16 only.

Industrial Reusable Fittings & Attachment Suggestions: Shank Type Combination Nipples attached with T-Bolt Band Clamps or Preformed Clamps.

Industrial Reusable Fittings: Shank Type Combination Nipples (Steel) page 1003. (Stainless Steel) page 1005

Industrial Reusable Fitting Attachment: T-Bolt Clamps (stainless band) page 1026 Trident #720 S.S. T-Bolt Clamps page 1027 Band-It® Jr. Preformed Clamps page 1031

Note: Maximum working pressure for clamped hose assembly is 50 psi.

2661

Catalog Part No.	Aeroquip Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
•C1BJ20	2661-12	0.75	1.25	300	1200	5.0	28	Rolls Only	0.50	
•C1BJ21	2661-16	1.00	1.50	250	1000	6.0	28	Rolls Only	0.90	
•C1BJ22	2661-20	1.25	1.80	200	800	8.0	28	Rolls Only	0.94	
C1BJ23	2661-24	1.50	2.06	150	600	10.0	28	Rolls Only	1.15	
C1BJ24	2661-32	2.00	2.55	100	400	12	28	Rolls Only	1.25	

Note: Maximum working pressure for clamped hose assembly is 50 PSI.



GH194

HI-IMPULSE® Matchmate Blue Single Wire Braid Meets or exceeds: SAE 100R1AT Type S, EN853 1SN, ISO 1436-1 Type 1SN



Construction: AQP elastomer tube, single wire braid reinforcement and blue AQP elastomer cover.

Application: Petroleum and fire-resistant hydraulic fluids, fuel and lubricating oils, gasoline, water and other industrial fluids. Please review the general guidelines for selection, installation and maintenance of hose assemblies starting on page 1509

Operating Temperature Range: -40°F to +300°F.

Hydraulic Crimp Fittings: Global TTC (Steel) page 919 Global TTC (Stainless Steel) page 982 Global Skive page 948

GH194

Catalog Part No.	Aeroquip Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
•C1KM12	GH194-6	0.38	0.69	3000	12000	5.00		450-550	0.25	
•C1KM13	GH194-8	0.50	0.81	2500	10000	7.00		350-450	0.30	



GH663

Single Wire Braid Triple Crown Advantage SAE 100R1AT Type S, EN853 1SN, ISO 1436-1 Type 1SN



Construction: Synthetic rubber tube, single wire braid reinforcement and black synthetic rubber cover.

Application: Hydraulic system service with petroleum and water-base fluids, for general industrial service. Please review the general guidelines for selection, installation and maintenance of hose assemblies starting on page 1509

Operating Temperature Range: -40°F to +212°F.

Crimp Fittings: Global TTC (Steel) page 919 Global TTC (Stainless Steel) page 982 Field Crimp page 947
Global Skive page 948

Reusable Fittings: Thru-The-Cover (Steel) page 963

Note: Pressure ratings for assemblies with Field Crimp or Reusable Fittings are up to 31% lower than assemblies using Global TTC Crimp fittings. See table below.

GH663

Catalog Part No.	Aeroquip Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
•C1CX53	GH663-4R500	0.25	0.53	3700(Global) 2750(other)	14800(Global) 11000(other)	4		450-550	0.16	
•C1CX52	GH663-4R250	0.25	0.53	3700(Global) 2750(other)	14800(Global) 11000(other)	4		225-300	0.16	

GH663

Catalog Part No.	Aeroquip Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
•C1CX55	GH663-6R500	0.38	0.69	3400(Global) 2250(other)	13600(Global) 9000(other)	5		450-550	0.25	
•C1CX54	GH663-6R250	0.38	0.69	3400(Global) 2250(other)	13600(Global) 9000(other)	5		225-300	0.25	
•C1CX57	GH663-8R500	0.50	0.81	2900(Global) 2000(other)	11600(Global) 8000(other)	7		450-550	0.30	
•C1CX56	GH663-8R250	0.50	0.81	2900(Global) 2000(other)	11600(Global) 8000(other)	7		225-300	0.53	
•C1CX49	GH663-12R250	0.75	1.09	2000(Global) 1250(other)	8000(Global) 5000(other)	9.5		225-300	0.45	
•C1CX50	GH663-16R150	1.00	1.41	1500(Global) 1000(other)	6000(Global) 4000(other)	12		125-200	0.68	
•C1CX51	GH663-20	1.25	1.71	950	3770	16.5		Rolls Only	0.88	

Note: Reeled hose may be purchased by the foot or by the reel.

GH663 Hose Assemblies: page 902

Note: For older hose without a crown on the layline, working pressures are lower. Contact us for details.

Aeroquip® GH663 Cut Lengths

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1JL22	663-4-25FT	GH663-4 x 25 Ft Cut Length		
C1JL23	663-4-50FT	GH663-4 x 50 Ft Cut Length		
C1JL24	663-6-25FT	GH663-6 x 25 Ft Cut Length		
C1JL25	663-6-50FT	GH663-6 x 50 Ft Cut Length		
C1JL26	663-8-25FT	GH663-8 x 25 Ft Cut Length		
C1JL27	663-8-50FT	GH663-8 x 50 Ft Cut Length		
C1JL18	663-12-25FT	GH663-12 x 25 Ft Cut Length		
C1JL19	663-12-50FT	GH663-12 x 50 Ft Cut Length		
C1JL20	663-16-25FT	GH663-16 x 25 Ft Cut Length		
C1JL21	663-16-50FT	GH663-16 x 50 Ft Cut Length		



Hydraulic Hose



FC300

Single Wire Braid Exceeds SAE 100R5 AQP® Blue



Construction: AQP® elastomer tube, polyester inner braid, single wire braid reinforcement and blue polyester braid cover.

Application: Hydraulics handling petroleum base fluids, air, gasoline, fuel and lubricating oils, fire resistant hydraulic fluids and other industrial fluids. Please review the general guidelines for selection, installation and maintenance of hose assemblies starting on page 1509

Operating Temperature Range: -55°F to +300°F except air +250°F

Reusable Fittings: Reduced Bore (Steel) page 957 Reduced Bore (Stainless Steel) page 986 Reduced Bore (Brass) page 991

FC300

Catalog Part No.	Aeroquip Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
•C1CR45	FC300-04	0.19	0.52	3000	12000	3	28	490-640	0.15	
•C1CR46	FC300-05	0.25	0.58	3000	12000	3.38	28	390-510	0.19	
•C1CR47	FC300-06	0.31	0.67	2250	9000	4	28	300-390	0.23	
•C1CR48	FC300-08	0.41	0.76	2000	8000	4.62	28	450-600	0.26	
•C1CR49	FC300-10	0.50	0.93	1750	7000	5.5	28	300-390	0.37	
•C1CR50	FC300-12	0.62	1.08	1500	6000	6.5	28	230-300	0.44	
•C1CR51	FC300-16	0.88	1.27	800	3200	7.38	20	170-210	0.41	
•C1CR52	FC300-20	1.12	1.50	625	2500	9	20	Rolls Only	0.52	
•C1CR53	FC300-24	1.38	1.75	500	2000	10.5	15	Rolls Only	0.64	
•C1CR54	FC300-32	1.81	2.22	300	1200	13.25	11	Rolls Only	0.84	
C1ZY17	FC300-40	2.38	2.88	300	1200	24.00	8	Rolls Only	1.80	

Note: Reeled hose may be purchased by the foot or by the reel.

Aeroquip® FC300 Cut Lengths

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1JK89	300-4-25FT	FC300-04 x 25 Ft Cut Length		
C1JK90	300-4-50FT	FC300-04 x 50 Ft Cut Length		
C1JK91	300-5-25FT	FC300-05 x 25 Ft Cut Length		
C1JK92	300-5-50FT	FC300-05 x 50 Ft Cut Length		
C1JK93	300-6-25FT	FC300-06 x 25 Ft Cut Length		
C1JK94	300-6-50FT	FC300-06 x 50 Ft Cut Length		
C1JK95	300-8-25FT	FC300-08 x 25 Ft Cut Length		
C1JK96	300-8-50FT	FC300-08 x 50 Ft Cut Length		
C1JK83	300-10-25FT	FC300-10 x 25 Ft Cut Length		
C1JK84	300-10-50FT	FC300-10 x 50 Ft Cut Length		
C1JK85	300-12-25FT	FC300-12 x 25 Ft Cut Length		
C1JK86	300-12-50FT	FC300-12 x 50 Ft Cut Length		
C1JK87	300-16-25FT	FC300-16 x 25 Ft Cut Length		
C1JK88	300-16-50FT	FC300-16 x 50 Ft Cut Length		



Hydraulic Hose



2651 Single Wire Braid SAE 100R5 Performance



Construction: Synthetic rubber tube, textile inner braid, single wire braid reinforcement, outer textile braid and black synthetic rubber cover.

Application: Hydraulics, gasoline, fuel and lubricating oils, air and water. Except air, not to exceed 250 psi or +160°F. Please review the general guidelines for selection, installation and maintenance of hose assemblies starting on page 1509

Operating Temperature Range: -40°F to +212°F, except air +160°F.

Reusable Fittings: Reduced Bore (Steel) page 957 Reduced Bore (Stainless Steel) page 986 Reduced Bore (Brass) page 991

2651

Catalog Part No.	Aeroquip Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
•C1BJ12	2651-4	0.19	0.52	3000	12000	3	28	540-720	0.16	
•C1BJ15	2651-6	0.31	0.68	2250	9000	4	28	320-420	0.24	
•C1BJ16	2651-8	0.41	0.75	2000	8000	4.62	28	470-620	0.28	
•C1BH98	2651-12	0.62	1.08	1500	6000	6.5	28	230-300	0.52	
•C1BH99	2651-16	0.88	1.23	800	3200	7.38	20	180-240	0.46	
•C1BJ11	2651-20	1.12	1.50	625	2500	9	20	Rolls Only	0.54	

Note: Reeled hose may be purchased by the foot or by the reel.



EC115 EN857 1SC



Construction: Synthetic rubber tube, single wire braid reinforcement, black synthetic rubber cover MSHA approved, embossed layline.

Application: Hydraulic system service with petroleum and water-based fluids & General industrial service. Please review the general guidelines for selection, installation and maintenance of hose assemblies starting on page 1509

Operating Temperature Range: -40°F to +212°F

Crimp Fittings: 2-piece

EC115

Catalog Part No.	Eaton Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
C1MP66	EC115-04RL	0.25	0.48	3250	13000	2.95	500	0.12	
C1MP67	EC115-06RL	0.38	0.61	2600	10400	3.54	500	0.17	
C1MP68	EC115-08RL	0.50	0.75	2300	9200	5.12	500	0.23	
C1NB14	EC115-10RL	0.62	0.88	1900	7600	5.91	500	0.28	
C1MP69	EC115-12RL	0.75	1.02	1525	6100	7.09	250	0.34	
C1MP70	EC115-16RL	1.00	1.31	1275	5100	9.06	250	0.50	
C1MV37	EC115-20	1.25	1.63	925	3700	8.27		0.67	

Note: May be purchased by the reel or by the foot.

FC639

Single & Double Wire Braid 3000 PSI All Sizes Flexible Meets SAE 100R17



Construction: Synthetic rubber tube, single wire braid reinforcement (sizes -4 -6 -8), double wire braid reinforcement (sizes -10 -12 -16), ozone resistant black synthetic rubber cover.

Application: General industrial & hydraulic system service with petroleum & water-base fluids. Recommended for high pressure oil lines used on construction equipment and other off-highway applications. Please review the general guidelines for selection, installation and maintenance of hose assemblies starting on page 1509

Operating Temperature Range: -40°F to 212°F.

Crimp Fittings: Global TTC (Steel) page 919 Global Skive page 948

FC639

Catalog Part No.	Aeroquip Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
•C1ZX99	FC639-04	0.25	0.59	3000	12000	2.00		450-550	0.15	
•C1ZX98	FC639-06	0.38	0.67	3000	12000	2.50		450-550	0.23	
•C1ZX97	FC639-08	0.50	0.81	3000	12000	3.50		450-550	0.32	
•C1ZX95	FC639-12	0.75	1.14	3000	12000	4.75		225-300	0.63	
•C1ZX94	FC639-16	1.00	1.43	3000	12000	6.00		125-200	1.02	

Note: Reeled hose may be purchased by the foot or by the reel.

GH781

Double Wire Braid Triple Crown Advantage SAE 100R16 Type S, EN857 2SC, ISO 11237-1 Type 2SC 1/2 SAE Bend Radius



Construction: Synthetic rubber tube, double wire braid reinforcement and black synthetic rubber cover.

Application: Hydraulic system service with petroleum and water-base fluids, for general industrial service. Meets or exceeds DIN requirements at 1/2 SAE bend radius. Please review the general guidelines for selection, installation and maintenance of hose assemblies starting on page 1509

Operating Temperature Range: -40°F. to +212°F.

Crimp Fittings: Global TTC (Steel) page 919 Global TTC (Stainless Steel) page 982 Global Skive page 948

GH781

Catalog Part No.	Aeroquip Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
•C1CX63	GH781-4R500	0.25	0.53	6500	26000	2.0		450-550	0.22	
C1CX62	GH781-4R250	0.25	0.53	6500	26000	2.0		225-300	0.22	
•C1CX65	GH781-6R500	0.38	0.69	5300	21200	2.50		450-550	0.29	
•C1CX64	GH781-6R250	0.38	0.69	5300	21200	2.50		225-300	0.29	
•C1CX67	GH781-8R500	0.50	0.81	4500	18000	3.5		450-550	0.39	
C1CX66	GH781-8R250	0.50	0.81	4500	18000	3.5		225-300	0.39	

GH781

Catalog Part No.	Aeroquip Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
•C1CX58	GH781-10R250	0.63	0.93	4000	16000	4		225-300	0.44	
•C1CX59	GH781-12R250	0.75	1.10	3500	14000	4.75		225-300	0.53	
•C1CX60	GH781-16R150	1.00	1.42	3000	12000	6		125-200	0.72	
•C1CX61	GH781-20	1.25	1.65	2500	10000	8.25		Rolls Only	1.09	
•C1FH59	GH781-24	1.50	2.03	2000	8000	10.0		Rolls Only	1.40	
•C1FH60	GH781-32	2.00	2.53	1600	6400	12.5		Rolls Only	1.90	

Note: Reeled hose may be purchased by the foot or by the reel.

GH781 Hose Assemblies: page 903

Note: For older hose without a crown on the layline, working pressures are lower. Contact us for details.

Aeroquip® GH781 Cut Lengths

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1JL34	781-4-25FT	GH781-4 x 25 Ft Cut Length		
C1JL35	781-4-50FT	GH781-4 x 50 Ft Cut Length		
C1JL36	781-6-25FT	GH781-6 x 25 Ft Cut Length		
C1JL37	781-6-50FT	GH781-6 x 50 Ft Cut Length		
C1JL38	781-8-25FT	GH781-8 x 25 Ft Cut Length		
C1JL39	781-8-50FT	GH781-8 x 50 Ft Cut Length		
C1JL28	781-10-25FT	GH781-10 x 25 Ft Cut Length		
C1JL29	781-10-50FT	GH781-10 x 50 Ft Cut Length		
C1JL30	781-12-25FT	GH781-12 x 25 Ft Cut Length		
C1JL31	781-12-50FT	GH781-12 x 50 Ft Cut Length		
C1JL32	781-16-25FT	GH781-16 x 25 Ft Cut Length		
C1JL33	781-16-50FT	GH781-16 x 50 Ft Cut Length		

EC215

EN857 2SC SAE 100R16 Performance (-04 thru -16)

EATON
Powering Business Worldwide



Construction: Synthetic rubber tube, Double wire braid reinforcement, Black synthetic rubber cover MSHA approved, Embossed layline.

Application: Hydraulic system service with petroleum and water-based fluids; General industrial service. EN857 2SC and SAE 100R16 Performance (-04 thru -16). Please review the general guidelines for selection, installation and maintenance of hose assemblies starting on page 1509

Operating Temperature Range: -40°F to +212°F

Crimp Fittings: Global TTC (Steel) page 919 Global TTC (Stainless Steel) page 982

EC215

Catalog Part No.	Eaton Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
•C1MP71	EC215-04RL	0.25	0.52	5800	23200	1.97	500	0.19	
•C1MP72	EC215-06RL	0.38	0.67	4800	19200	2.56	500	0.28	
•C1MP73	EC215-08RL	0.50	0.81	4000	16000	3.54	500	0.38	
C1NB15	EC215-10RL	0.62	0.94	3650	14600	3.94	500	0.46	

EC215

Catalog Part No.	Eaton Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
•C1MP74	EC215-12RL	0.75	1.09	3125	12500	4.72	250	0.54	
•C1MP75	EC215-16RL	1.00	1.40	2400	9600	5.91	250	0.79	
C1MV38	EC215-20	1.25	1.72	1800	7200	9.84		1.05	

Note: Reeled hose may be purchased by the foot or by the reel.

GH793

Double Wire Braid
Meets or Exceeds Din 20 022
Type 2SN
Exceeds SAE 100R2AT
Hi-Impulse®



Construction: Synthetic rubber tube, double wire braid reinforcement and black synthetic rubber cover.

Application: Hydraulic system service with petroleum and water-base fluids, for general industrial service. Please review the general guidelines for selection, installation and maintenance of hose assemblies starting on page 1509

Operating Temperature Range: -40°F. to +212°F.

Crimp Fittings: Global TTC (Steel) page 919 Global TTC (Stainless Steel) page 982 Field Crimp page 947
 Global Skive page 948

Reusable Fittings: Thru-The-Cover (Steel) page 965

Note: Pressure ratings for assemblies with Field Crimp or Reusable Fittings are up to 31% lower than assemblies using Global TTC or Global Skive Crimp fittings. See table below.

GH793

Catalog Part No.	Aeroquip Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
•C1CX74	GH793-4R500	0.25	0.60	5750(Global) 5000(other)	23000(Global) 20000(other)	4		450-550	0.26	
•C1CX73	GH793-4R250	0.25	0.60	5750(Global) 5000(other)	23000(Global) 20000(other)	4		225-300	0.26	
•C1CX76	GH793-6R500	0.38	0.75	5000(Global) 4000(other)	20000(Global) 16000(other)	5		450-550	0.38	
•C1CX75	GH793-6R250	0.38	0.75	5000(Global) 4000(other)	20000(Global) 16000(other)	5		225-300	0.38	
•C1CX78	GH793-8R500	0.50	0.87	4250(Global) 3500(other)	17000(Global) 14000(other)	7		450-550	0.46	
•C1CX77	GH793-8R250	0.50	0.87	4250(Global) 3500(other)	17000(Global) 14000(other)	7		225-300	0.46	
C1CX68	GH793-10R250	0.62	0.98	3625(Global) 2750(other)	14500(Global) 11000(other)	8		225-300	0.54	
•C1CX69	GH793-12R250	0.75	1.16	3125(Global) 2250(other)	12500(Global) 9000(other)	9.5		225-300	0.66	
•C1CX70	GH793-16R150	1.00	1.50	2500(Global) 2000(other)	10000(Global) 8000(other)	12		125-200	1.01	

Note: Reeled hose may be purchased by the foot or by the reel.

Hydraulic Hose



FC195

Double Wire Braid
Meets or Exceeds SAE 100R2A,
EN 853 2ST, and ISO 1436-1
Type 2ST
AQP® Hi-Impulse® Blue



Construction: AQP® elastomer tube, double wire braid reinforcement and blue AQP® elastomer cover.

Application: Hydraulic system service with petroleum, fire resistant, water-base fluids, fuel and lubricating systems. Please review the general guidelines for selection, installation and maintenance of hose assemblies starting on page 1509

Operating Temperature Range: -40°F. to +300°F.

Crimp Fittings: Global Skive page 948

Note: Pressure ratings for assemblies with Reusable Fittings are lower than assemblies using Crimp fittings. See table below.

FC195

Catalog Part No.	Aeroquip Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
•C1CR14	FC195-06	0.38	0.84	5000(crimp) 4000(reusable)	20000(crimp) 16000(reusable)	5	400-520	0.45	

Note: Reeled hose may be purchased by the foot or by the reel.



GH195

Double Wire Braid
Meets or Exceeds EN853 2SN
Exceeds SAE 100R2AT
AQP® Hi-Impulse® Blue



Construction: AQP® elastomer tube, double wire braid reinforcement and blue AQP® elastomer cover.

Application: Hydraulic system service with petroleum, fire resistant and water-base fluids, fuel and lubricating systems. Please review the general guidelines for selection, installation and maintenance of hose assemblies starting on page 1509

Operating Temperature Range: -40°F. to +300°F.

Crimp Fittings: Global TTC (Steel) page 919 Global TTC (Stainless Steel) page 982 Global Skive page 948

GH195

Catalog Part No.	Aeroquip Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
•C1CX38	GH195-4	0.25	0.60	5750	23000	4		320-420	0.27	
•C1CX39	GH195-6	0.38	0.75	5000	20000	5		Rolls Only	0.39	
•C1CX40	GH195-8	0.50	0.87	4250	17000	7		300-390	0.46	
•C1ZU72	GH195-10	0.63	0.99	3250	13000	8.00		240-310	0.54	
•C1CX35	GH195-12	0.75	1.16	3000	12000	9.5		180-240	0.67	
•C1CX36	GH195-16	1.00	1.49	2500	10000	12		120-160	1.04	
•C1CX37	GH195-20	1.25	1.92	2250	9000	16.5		Rolls Only	1.60	

Note: Reeled hose may be purchased by the foot or by the reel.

FC693

Double Wire Braid Aviation Ground Support Equipment EPDM Tube and Cover Green



Construction: EPDM tube, double wire braid reinforcement and green EPDM cover.

Application: Aviation ground support equipment service with straight phosphate ester fluids (Skydrol LD4, Skydrol 500B, Hyjet IVA Plus). Please review the general guidelines for selection, installation and maintenance of hose assemblies starting on page 1509

Note: Not designed for use with petroleum based fluids.

Operating Temperature Range: -40°F. to +175°F.

Crimp Fittings: Global TTC (Steel) page 919 Global TTC (Stainless Steel) page 982

FC693

Catalog Part No.	Aeroquip Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
•C1CS97	FC693-04	0.25	0.595	5000	20000	4.00		Rolls Only	0.25	
•C1CS98	FC693-06	0.38	0.75	4000	16000	5.00		Rolls Only	0.36	
•C1CS99	FC693-08	0.50	0.871	3500	14000	7.00		Rolls Only	0.40	

GH493

Four Heavy Spiral Wire Triple Crown Advantage SAE 100R12, EN856 Type R12, EN856 4SP Performance (-8 thru -16)



Construction: Synthetic rubber tube, 4 spiral reinforcement and black synthetic rubber cover.

Application: Hydraulic system service with petroleum and water-base fluids, for general industrial service. Please review the general guidelines for selection, installation and maintenance of hose assemblies starting on page 1509

Operating Temperature Range: -40°F. to +260°F.

Crimp Fittings: Global TTC12 page 934

Note: -6 size approved for 10,000 psi max. operating pressure for static jack hose applications.

GH493

Catalog Part No.	Aeroquip Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
•C1CX47	GH493-6	0.38	0.79	6500	26000	5		Rolls Only	0.47	
•C1CX48	GH493-8	0.50	0.92	6000	24000	7		Rolls Only	0.59	
•C1CX41	GH493-10	0.63	1.11	6000	24000	8		Rolls Only	0.69	
•C1CX42	GH493-12	0.75	1.20	5500	22000	9.5		Rolls Only	0.92	
•C1CX43	GH493-16	1.00	1.48	5100	20400	12		Rolls Only	1.22	
•C1CX44	GH493-20	1.25	1.83	4500	18000	16.5		Rolls Only	1.64	

Hydraulic Hose

GH493

Catalog Part No.	Aeroquip Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
•C1CX45	GH493-24	1.50	2.12	4000	16000	20		Rolls Only	2.10	
•C1CX46	GH493-32	2.00	2.64	4000	16000	25		Rolls Only	2.81	

Note: For older hose without a crown on the layline, working pressures are approximately 60% lower. Contact us for details.

GH493 Hose Assemblies: page 904

Aeroquip® GH493 Cut Lengths

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1JL15	493-6-50FT	GH493-6 x 50 Ft Cut Length		
C1JL16	493-8-25FT	GH493-8 x 25 Ft Cut Length		
C1JL17	493-8-50FT	GH493-8 x 50 Ft Cut Length		
C1JK97	493-10-25FT	GH493-10 x 25 Ft Cut Length		
C1JK98	493-10-50FT	GH493-10 x 50 Ft Cut Length		
C1JK99	493-12-25FT	GH493-12 x 25 Ft Cut Length		
C1JL11	493-12-50FT	GH493-12 x 50 Ft Cut Length		
C1JL12	493-16-25FT	GH493-16 x 25 Ft Cut Length		
C1JL13	493-16-50FT	GH493-16 x 50 Ft Cut Length		



FC500

X-FLEX SAE 100R13 Performance Flexible, High Pressure Hose



Construction: Synthetic rubber inner tube, 4-heavy spiral wire reinforcement (sizes -12 to -24), 6-heavy wire spiral reinforcement (size -32) and our DURA-TUFF™ rubber cover.

Application: High pressure hydraulic system service with petroleum and water-base fluids for low temperature applications.

Operating Temperature Range: -40°F to 260°F

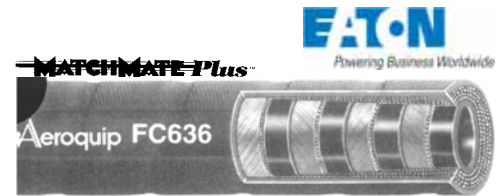
Crimp Fittings: page 1509

FC500

Catalog Part No.	Aeroquip Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Wt. (per ft)	Price (per ft)
•C1KL81	FC500-12	0.75	1.26	5076	20304	4.75	0.84	
•C1KL82	FC500-16	1.00	1.54	5076	20304	6.00	1.24	
•C1KL83	FC500-20	1.25	1.85	5076	20304	8.25	1.69	
•C1KL84	FC500-24	1.50	2.17	5076	20304	10.00	2.25	
•C1KL85	FC500-32	2.00	2.86	5076	20304	18.75	4.06	

FC636

Four Heavy Spiral Wire Aviation Ground Support Equipment EPDM Tube and Cover Green



Construction: EPDM tube, 4 spiral wire reinforcement and green EPDM cover.

Application: Aviation ground support equipment service with straight phosphate ester fluids (Skydrol LD4, Skydrol 500B, Hyjet IVA Plus). Please review the general guidelines for selection, installation and maintenance of hose assemblies starting on page 1509

Note: Not designed for use with petroleum based fluids.

Operating Temperature Range: -40°F. to +175°F.

Crimp Fittings: Global TTC12 page 934

FC636

Catalog Part No.	Aeroquip Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
•C1CS94	FC636-12	0.75	1.202	4000	16000	9.5		Rolls Only	0.88	
•C1CS95	FC636-16	1.00	1.476	4000	16000	12.0		Rolls Only	1.17	

FC254

Four Heavy Spiral Wire Triple Crown Advantage SAE 100R11, EN856 4SH Performance



Construction: Synthetic rubber tube, 4 heavy spiral wire reinforcement and a black synthetic rubber cover.

Application: Hydraulic system service with petroleum and water-base fluids, for general industrial service. Please review the general guidelines for selection, installation and maintenance of hose assemblies starting on page 1509

Operating Temperature Range: -40°F. to +250°F.

Crimp Fittings: Spiral TTC page 942

FC254

Catalog Part No.	Aeroquip Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
•C1HE57	FC254-12	0.75	1.26	7200	28800	11.00		Rolls Only	1.12	

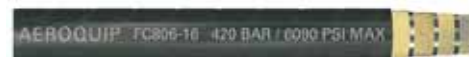
Note: For older hose without a crown on the layline, working pressures are lower. Contact us for details.

Hydraulic Hose



FC806

FOUR SPIRAL WIRE SAE 100R15



Construction: Synthetic rubber inner tube, four heavy spiral wire reinforcement, and synthetic rubber cover.

Application: High pressure hydraulics and hydrostatic transmissions with petroleum and water-based fluids.

Please review the general guidelines for selection, installation and maintenance of hose assemblies starting on page 1509

Operating Temperature Range: -40°F to +250°F.

Crimp Fittings: Spiral TTC page 942

FC806

Catalog Part No.	Aeroquip Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
•C1KL86	FC806-16	1.00	1.55	6090	24350	12.0		Rolls Only	1.36	



FC606

Six Spiral Wire SAE 100R15



Construction: Synthetic rubber tube, 6-spiral wire reinforcement, synthetic rubber cover.

Application: High pressure hydraulics, hydrostatic transmissions. Please review the general guidelines for selection, installation and maintenance of hose assemblies starting on page 1509

Operating Temperature Range: -40°F. to +250°F (Sizes -16 and -20). -40°F. to +212°F (Size -24).

Crimp Fittings: Spiral TTC page 942

FC606

Catalog Part No.	Aeroquip Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
•C1FN45	FC606-16	1.00	1.65	6000	24000	12.00		Rolls Only	1.79	
•C1FQ25	FC606-20	1.25	1.95	6000	24000	16.50		Rolls Only	2.43	
•C1JD75	FC606-24	1.50	2.30	6000	24000	20.00		Rolls Only	3.17	

3130

Thermoplastic Nylon Core SAE 100R7 Black Cover



Construction: Nylon-lined core tube. Spiraled or braided synthetic fiber reinforcement. Black perforated polyurethane cover.

Application: General hydraulics. Material handling. Forklift. High pressure gas transfer. Chemical transfer. Please review the general guidelines for selection, installation and maintenance of hose assemblies starting on page 1509

Features: Long continuous lengths. Low elongation. Best value SAE 100R7 hose.

Operating Temperature Range: -40°F to 212°F (except to 150°F with water-based or fire-resistant fluids).

Fittings: Synflex® Swage 3903 Series (Steel) page 951 Synflex® Swage 390A Series (Stainless Steel) page 983

3130

Catalog Part No.	Synflex Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Package Qty	Die Part Number 4540	Wt. (per ft)	Price (per ft)
•C1HW52	3130-03003	0.19	0.43	3000	12000	0.75		250 ft random	-303	0.05	
•C1HW53	3130-04003	0.25	0.51	3000	12000	1.25		250 ft random	-304	0.06	
•C1HW54	3130-06003	0.38	0.67	2250	9000	2.00		250 ft random	-306	0.10	
•C1HW55	3130-08003	0.50	0.82	2000	8000	3.00		250 ft random	-308	0.14	

Note: Hose may be purchased by the foot or by the roll, contact us for availability of less than full lengths of continuous length models. Also Note: SAE 100R7 specification does not apply to size -02 hose: The nylon core tube in that size is a single-wall design and is not bonded to the reinforcement.

3580

Thermoplastic SAE 100R1 and SAE 100R7 performance Polyester Tube Black Cover



Construction: Polyester tube. Braided, bronze-coated steel wire reinforcement. Black non-perforated, polyurethane cover.

Application: Lubrication systems. General mobile hydraulics. Agriculture equipment. Please review the general guidelines for selection, installation and maintenance of hose assemblies starting on page 1509

Features: Meets or exceeds SAE 100R1 and 100R7 performance specifications. Steel wire reinforcement. Cut resistant, heavy-duty design. Crush resistant.

Operating Temperature Range: -40°F to +225°F (-40°F to +140°F with water-based, or fire-resistant, fluids)

Fittings: Synflex® Swage 3903 Series (Steel) page 951. Synflex® Swage 390A Series (Stainless Steel) page 983

3580

Catalog Part No.	Synflex Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
•C1MG39	3580-06004	0.38	0.65	3250	13000	2.25		500	0.18	

Note: Hose may be purchased by the foot or by the roll, contact us for availability of less than full lengths of continuous length models.

Note: Change in working length at working PSI ±2%

Hydraulic Hose



37AL

Thermoplastic SAE J517 Constant Pressure Non-Conductive Orange Cover



Construction: Polyester core tube. Braided synthetic fiber reinforcement. Orange non-perforated non-stick polyurethane cover.

Application: Electric utility truck hydraulic systems. Mobile equipment (Picker, Utility Vehicles). Please review the general guidelines for selection, installation and maintenance of hose assemblies starting on page 1509

Features: Complies with ANSI A92.2 for vehicle mounted aerial devices. Less than 50 micro-amperes leakage when subjected to 75,000 volts/ft for 5 minutes. Flexible in low temperatures. Abrasion and UV resistant cover. Long continuous lengths. Can use both permanently attached and reusable fittings.

Operating Temperature Range: -65°F to 212°F (except to 140°F with water-based or fire-resistant fluids).

Fittings: Synflex® Swage 3903 Series (Steel) page 951 Synflex® Swage 390A Series (Stainless Steel) page 983

37AL

Catalog Part No.	Synflex Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Package Qty	Die Part Number 4540	Wt. (per ft)	Price (per ft)
•C1HZ41	37AL-03003	0.19	0.43	3000	12000	0.75	250 ft random	-303	0.05	
•C1HW61	37AL-04003	0.25	0.49	3000	11000	1.25	250 ft random	-3W4	0.06	
•C1HZ44	37AL-05003	0.31	0.58	3000	10000	1.75	250 ft random	-305	0.08	
•C1HW62	37AL-06003	0.38	0.63	3000	9000	2.00	250 ft random	-306	0.10	
•C1MZ25	37AL-08-2-250BX	0.50	0.82	3000	9000	3.00	250 ft random	-308	0.14	

Note: Hose may be purchased by the foot or by the roll, contact us for availability of less than full lengths of continuous length models.



25CT

Thermoplastic SAE 100R7 Forklift Sheave Hose



Construction: Polymeric core tube. Braided synthetic fiber reinforcement. Black non-stick perforated polymeric cover.

Application: Forklift • Freezer Applications • Construction • General hydraulics • Chemical and gas transfer • Agricultural equipment • Material handling • Machine tools and robotics • Lubrication equipment • Portable hydraulic tools. Please review the general guidelines for selection, installation and maintenance of hose assemblies starting on page 1509

Features: Highly flexible, even in cold temperatures • Small O.D. • Lightweight, yet rugged construction.

Operating Temperature Range: -65°F to 200°F.

Fittings: Synflex® Swage 3903 Series (Steel) page 951 Synflex® Swage 390A Series (Stainless Steel) page 983

25CT

Catalog Part No.	Synflex Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Package Qty	Die Part Number 4540	Wt. (per ft)	Price (per ft)
•C1JM12	25CT-08003	0.50	0.83	2500	10000	3.00		250 ft random	-308	0.14	

Note: Hose may be purchased by the foot or by the roll.



30CT

Thermoplastic SAE 100R18 Forklift Sheave Hose Constant Pressure Black Cover



Construction: Polymeric core tube. Braided synthetic fiber reinforcement. Black non-stick perforated polymeric cover.

Application: Forklift. Construction. General Hydraulics. Chemical & Gas Transfer. Agricultural Equipment. Material Handling. Freezer Applications. Machine Tools & Robotics. Lubrication Equipment. Portable Hydraulic Tools. Please review the general guidelines for selection, installation and maintenance of hose assemblies starting on page 1509

Features: Meets or exceeds SAE 100R18. Highly flexible, even in cold temperatures. Small O.D. Lightweight yet rugged construction.

Operating Temperature Range: -65°F to 200°F (except to 150°F with water-based or fire-resistant fluids).

Fittings: Synflex® Swage 3903 Series (Steel) page 951, Sizes -04 to -06. Synflex® Swage 390H Series (Steel) page 954, Size -08. Synflex® Swage 390A Series (Stainless Steel) page 983, Sizes -03 to -06.

30CT

Catalog Part No.	Synflex Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Package Qty	Die Part Number 4540	Wt. (per ft)	Price (per ft)
•C1MZ11	30CT-03-250BX	0.19	0.42	3050	12,200	1.00	250 ft random	-303	0.05	
•C1HW49	30CT-04003	0.25	0.48	3050	12,200	1.25	250 ft random	-3W4	0.06	
•C1HZ34	30CT-05003	0.50	0.61	3050	12,200	1.50	250 ft random	-305	0.10	
•C1HW50	30CT-06003	0.38	0.66	3050	12,200	2.00	250 ft random	-306	0.12	
•C1HW51	30CT-08003	0.50	0.85	3050	12,200	3.50	250 ft random	-A08	0.17	

Note: Hose may be purchased by the foot or by the roll.



3R80

Thermoplastic High Pressure SAE 100R8 Nylon Core Black Cover



Construction: Nylon core tube. Braided synthetic fiber reinforcement. Black perforated polyurethane cover.

Application: General Hydraulic Systems. Hydraulic Tools. Mobile Equipment. High Pressure Pneumatic Systems. High Pressure Chemical Transfer. Please review the general guidelines for selection, installation and maintenance of hose assemblies starting on page 1509

Features: Long life in impulse cycling and flexing. Designed for permanently attached or reusable fittings.

Operating Temperature Range: -40°F to 212°F (except to 150°F with water-based or fire-resistant fluids).

Fittings: Synflex® Swage 390H Series (Steel) page 954

3R80

Catalog Part No.	Synflex Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Package Qty	Die Part Number 4540	Wt. (per ft)	Price (per ft)
•C1HW86	3R80-03003	0.19	0.52	5000	20000	1.50		250 ft random	-H03	0.12	
•C1HW87	3R80-04003	0.25	0.63	5000	20000	2.00		250 ft random	-H04	0.75	
•C1HW88	3R80-06003	0.38	0.77	4000	16000	2.50		250 ft random	-H06	0.24	
•C1HW89	3R80-08003	0.50	0.89	3500	14000	4.00		250 ft random	-H08	0.12	

Note: Hose may be purchased by the foot or by the roll.

Hydraulic Hose



3800

**Thermoplastic
SAE 100R8 Performance
SAE 100R7 Dimensions
Nylon Core Black Cover**



Construction: Nylon core tube. Braided high tensile Aramid fiber reinforcement. Black perforated polyurethane cover.

Application: General Hydraulics. High Pressure Gas & Chemical Transfer. Machine Tools. Mobile Equipment. Agricultural Equipment. Marine Steering. Please review the general guidelines for selection, installation and maintenance of hose assemblies starting on page 1509

Features: 100R8 hose performance with 100R7 hose dimensions - for fitting versatility. Low volumetric expansion.

Operating Temperature Range: -40°F to 212°F (except to 150°F with water-based or fire-resistant fluids).

Fittings: Synflex® Swage 3903 Series (Steel) page 951 Synflex® Swage 390A Series (Stainless Steel) page 983

3800

Catalog Part No.	Synflex Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Package Qty	Die Part Number 4540	Wt. (per ft)	Price (per ft)
•C1HZ47	3800-03003	0.1875	0.432	5000	20000	1.50		250 ft random	-303	0.06	
•C1HZ48	3800-04003	0.25	0.532	5000	20000	2.00		250 ft random	-304	0.08	
•C1HZ49	3800-06003	0.375	0.667	4000	16000	2.50		250 ft random	-306	0.11	
•C1HZ50	3800-08003	0.50	0.837	3500	14000	4.00		250 ft random	-308	0.15	

Note: Hose may be purchased by the foot or by the roll.



3770

**Thermoplastic
Twin & Multi-Line**



Construction: Most Synflex® hoses can be permanently joined to form twin-line or multi-line designs. Joined hoses form a flat assembly.

Features: Eliminates abrasion caused by relative movement of adjacent hoses. Flat profile is flexible and compact. Special separation tool to prevent hose damage: 4574-01000.

3770

Catalog Part No.	Synflex Model	Number of Hoses	Synflex Hose Model	Length (ft)	Wt. (per ft)	Price (per ft)
•C1HX52	3770-20C53	2	30CT-06 (Conductive)	250 ft random	0.24	
•C1LX19	3770-20C63	2	30CT-08 (Conductive)	250 ft random	0.34	
•C1HW58	3770-27A33	2	37AL-04 (Non-Conductive)	250 ft random	0.12	
•C1MJ82	37AL-06-2-250BX	2	37AL-06 (Non-Conductive)	250 ft random	0.19	

Note: Hose may be purchased by the foot or by the roll.

H6009

Bulldog Gold™ High Pressure Air & Multipurpose



Construction: Nitrile (RMA Class A) tube; 2-wire braid reinforcement; Pin-pricked carboxylated nitrile cover

Application: Provide power to air-operated construction equipment. Power air-operated drills, boring, and mining equipment. Please review application requirements and limitations found in NAHAD Pressure Guideline Chart page 1534

Operating Temperature Range: -40°F to +250°F

Fittings & Fitting Attachment Suggestions: Eaton "U" Series, TTC, Boss male, Ground joint female, Air hammer, Air king

Fittings: TTC page 919, Boss male page 1004

Fitting Attachment: Crimp, Swage, or Interlocking clamp.

H6009

Catalog Part No.	Eaton Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
C1KM21	H600932	2.00	2.66	600	2400	50	1.97	

Note: Maximum Operating Pressure for the hose assembly (fittings attached to the hose) may be lower than the stated Maximum Operating Pressure in this table. NAHAD Pressure Guideline Chart page 1534

Note: Hose may be purchased by the foot or by the reel/roll.

Warning: Use of damaged hose or improper use may result in bodily injury or property damage. Please consult Eaton catalog or Technical Support for proper application.

EHA500

High Pressure Air



Construction: Oil-resistant nitrile blend tube; High-tensile steel wire reinforcement; Pin-pricked, abrasion, ozone, and weather resistant synthetic rubber cover.

Application: High-pressure air service. Markets: oil field equipment, drilling equipment, mining, construction, steel, paper, rental industry. Please review application requirements and limitations found in NAHAD Pressure Guideline Chart page 1534

Operating Temperature Range: -40°F to 200°F

Fittings & Fitting Attachment Suggestions: Boss, Ground joint, Air hammer, and Air king.

Fittings: Boss page 1004

Fitting Attachment: Crimp, Swage, or Interlocking clamp.

EHA500

Catalog Part No.	Eaton Model	Color	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
C1MK55	EHA500-08YW-100	Yellow	0.50	0.91	600	2400	100	0.34	
C1MK56	EHA500-12YW-100	Yellow	0.75	1.16	600	2400	100	0.42	
C1MK57	EHA500-16YW-100	Yellow	1.00	1.42	600	2400	100	0.59	

Industrial Hose

EHA500

Catalog Part No.	Eaton Model	Color	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
•C1MK58	EHA500-20YW-100	Yellow	1.25	1.69	600	2400	100	0.75	
•C1MK59	EHA500-24YW-100	Yellow	1.50	1.97	600	2400	100	1.04	
•C1MK60	EHA500-32YW-100	Yellow	2.00	2.60	600	2400	100	1.69	
C1MK61	EHA500-40YW-100	Yellow	2.50	3.15	600	2400	100	2.26	
C1MK62	EHA500-48YW-100	Yellow	3.00	3.70	600	2400	100	3.02	
C1MS30	EHA500-64YW-100	Yellow	4.00	4.80	600	2400	100	4.55	

Note: Maximum Operating Pressure for the hose assembly (fittings attached to the hose) may be lower than the stated Maximum Operating Pressure in this table. NAHAD Pressure Guideline Chart NAHAD Pressure Guideline Chart page 1534

Note: Hose may be purchased by the foot or by the reel/roll.

Warning: Use of damaged hose or improper use may result in bodily injury or property damage. Please consult Eaton catalog or Technical Support for proper application.



EHA501 Medium Duty Air TS 745 - EN ISO 2398 Type 4 Class A



Construction: Oil-mist resistant synthetic rubber tube; high-tensile synthetic textile reinforcement; abrasion, ozone, and weather resistant synthetic rubber cover.

Application: Medium duty air service. Construction, Mining, Oil and gas exploration, Drilling equipment, Rental industry, Steel, Quarries. Please review application requirements and limitations found in NAHAD Pressure Guideline Chart page 1534

Operating Temperature Range: -13°F to 158°F

Fittings & Fitting Attachment Suggestions: Boss, Ground joint, Air hammer, and Air king.

Fittings: Boss page 1004

Fitting Attachment: Crimp, Swage, or Interlocking clamp. See NAHAD Pressure Guideline Chart

EHA501

Catalog Part No.	Eaton Model	Color	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
C1MK63	EHA501-08YW-100	Yellow	0.50	0.87	300	900	100	0.22	
C1MK64	EHA501-10YW-100	Yellow	0.62	0.98	300	900	100	0.25	
C1MK65	EHA501-12YW-100	Yellow	0.75	1.14	300	900	100	0.33	
•C1MK66	EHA501-16YW-100	Yellow	1.00	1.42	300	900	100	0.45	
•C1MK67	EHA501-20YW-100	Yellow	1.25	1.73	300	900	100	0.64	
•C1MK68	EHA501-24YW-100	Yellow	1.50	2.01	300	900	100	0.79	
•C1MK69	EHA501-32YW-100	Yellow	2.00	2.56	300	900	100	1.11	
•C1MK70	EHA501-40YW-100	Yellow	2.50	3.15	300	900	100	1.65	
•C1MK71	EHA501-48YW-100	Yellow	3.00	3.62	300	900	100	1.78	
•C1MK72	EHA501-64YW-100	Yellow	4.00	4.65	300	900	100	2.56	

Note: Maximum Operating Pressure for the hose assembly (fittings attached to the hose) may be lower than the stated Maximum Operating Pressure in this table. NAHAD Pressure Guideline Chart NAHAD Pressure Guideline Chart page 1534

Note: Reeled hose may be purchased by the foot or by the reel.

Warning: Use of damaged hose or improper use may result in bodily injury or property damage. Please consult Eaton catalog or Technical Support for proper application.

H116

PERFORMER II™ Air & Multipurpose - Red Medium Oil Resistant



Construction: Nitrile (RMA Class B) tube; 1-fiber braid reinforcement; Vinyl nitrile cover

Application: High oil-resistant; Air and water transfer; Provide power to air-operated equipment; Pneumatic tools on production line

Operating Temperature: -40°F to +180°F

Fittings & Fitting Attachment Suggestions: TTC; Boss; Ground joint

Fittings: Ground joint TTC crimp fittings page 919. Boss page 1004

Fitting Attachment: Crimp, Pinch Clamps page 1023 Band-It® Jr. Preformed Clamps page 1031

H116

Catalog Part No.	Eaton Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
C1MS79	H11604-550R	0.25	0.50	225	900	550	0.08	

Note: Maximum Operating Pressure for the hose assembly (fittings attached to the hose) may be lower than the stated Maximum Operating Pressure in this table. NAHAD Pressure Guideline Chart page 1534

Note: Reeled hose may be purchased by the foot or by the reel.

Warning: Use of damaged hose or improper use may result in bodily injury or property damage. Please consult Eaton catalog or Technical Support for proper application.

Industrial Hose



Easy Couple™ Air & Multipurpose Uses SOCKETLESS™ Fittings Excellent Oil Resistant Tube Black, Red, Green, Blue



Construction: RMA Class A vinyl nitrile tube (Excellent oil resistance). 1-braid textile reinforcement. Black cover is neoprene (MSHA 2G-13). Blue, Gray, Red, Yellow and Green covers are vinyl nitrile.

Application: Pneumatic tools on production line. Convey air, water, oils, etc. Transfer lubricated air to valves and cylinders. Low pressure hydraulics (NOT for impulse applications). Please review application requirements and limitations found in NAHAD Pressure Guideline Chart page 1534

Operating Temperature Range: Air applications: -40°F to 160°F. Water applications: -40°F to 185°F. Fuel and lubrication oil: -40°F to 260°F.

Fittings & Fitting Attachment Suggestions: SOCKETLESS™ fittings (no clamp required). Shank or Universal type fittings attached with pinch clamps, preformed clamps or bolt clamps.

SOCKETLESS™ Fittings: SOCKETLESS™ (Steel) page 967 (Stainless Steel) page 986 SOCKETLESS™ (Brass) page 992

Industrial Hose Fittings: Shank Type (Brass) page 999. Shank Type (Steel) page 1003. Shank Type (Stainless Steel) page 1005. Universal Type page 1019

Industrial Hose Fitting Attachment: Pinch Clamps page 1023 Band-It® Jr. Preformed Clamps page 1031. Bolt Clamps page 1033

Branding Type: Ink Print.

Easy Couple™

Catalog Part No.	Eaton Model	Color	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in.Hg)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
•C1FU44	H20104BK-250R	Black	0.25	1/2	250	3.00	28	250	0.08	
•C1FU45	H20104BU-250R	Blue	0.25	1/2	250	3.00	28	250	0.08	
•C1FU47	H20104RD-250R	Red	0.25	1/2	250	3.00	250		0.08	
•C1FU48	H20106BK-250R	Black	0.375	21/32	250	3.00	28	250	0.13	
•C1FU49	H20106BU-250R	Blue	0.375	21/32	250	3.00	28	250	0.13	
•C1FU50	H20106GN-250R	Green	0.375	21/32	250	3.00	250		0.13	
•C1FU52	H20108BK-250R	Black	0.50	3/4	250	5.00	28	250	0.15	
•C1FU53	H20108BU-250R	Blue	0.50	3/4	250	5.00	28	250	0.15	
•C1FU56	H20110BK-250R	Black	0.625	15/16	250	6.00	28	250	0.20	
•C1FZ78	H20110BU-250R	Blue	0.625	15/16	250	6.00	28	250	0.26	
•C1FU59	H20112BK-250R	Black	0.75	1-1/16	250	7.00	28	250	0.26	

Warning: Maximum Operating Pressure for the hose assembly (fittings attached to the hose) may be lower than the stated Maximum Operating Pressure in this table. NAHAD Pressure Guideline Chart page 1534

Note: Use of damaged hose or improper use may result in bodily injury or property damage. Please consult Eaton catalog or Technical Support for proper application. Reeled hose may be purchased by the foot or by the reel.



2556

Air & Multi-Purpose Textile Braid Low Pressure SOCKETLESS™



Construction: Synthetic rubber tube, textile braid reinforcement, black synthetic rubber cover.

Application: For gasoline, fuel and lubricating oils, air and water. Not recommended for marine fuel lines, Not recommended for hydraulic impulse applications, and is Not approved for air brake applications. Please review the general guidelines for selection, installation and maintenance of hose assemblies starting on page 1509

Operating Temperature Range: -40°F to +212°F. Water not to exceed +150°F. Air not to exceed +160°F.

Reusable Fittings: SOCKETLESS™ (Steel) page 967 (Stainless Steel) page 986 SOCKETLESS™ (Brass) page 992

2556

Catalog Part No.	Aeroquip Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
•C1BH31	2556-4RL	0.25	0.49	360	1440	3	28	850	0.08	
•C1BH32	2556-6RL	0.38	0.62	300	1200	3	28	560	0.09	
•C1BH33	2556-8	0.50	0.75	300	1200	5	28	600	0.17	
•C1BH29	2556-10	0.63	0.97	250	1000	4.75	10	450-475	0.25	
•C1BH30	2556-12	0.75	1.09	250	1000	5.5	10	367	0.22	

Note: Reeled hose may be purchased by the foot or by the reel.



FC332

Air & Multi-Purpose Textile Braid Low Pressure SOCKETLESS™ AQP® Blue



Construction: AQP® elastomer tube, textile braid reinforcement, blue AQP® elastomer cover.

Application: For gasoline, fuel and lubricating oils, air and water. NOT recommended for marine fuel lines. NOT recommended for hydraulic impulse applications, and is NOT approved for air brake applications. Please review the general guidelines for selection, installation and maintenance of hose assemblies starting on page 1509

Operating Temperature Range: -40°F to +300°F. Water not to exceed +180°F. Air not to exceed +250°F.

Reusable Fittings: SOCKETLESS™ (Steel) page 967 (Stainless Steel) page 986 SOCKETLESS™ (Brass) page 992

FC332

Catalog Part No.	Aeroquip Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
•C1CR66	FC332-04	0.25	0.49	250	1000	3	28	680	0.08	
•C1CR67	FC332-06	0.38	0.63	250	1000	3	28	560	0.12	
•C1CR68	FC332-08	0.50	0.75	250	1000	5	28	600	0.14	
•C1CR69	FC332-10	0.63	0.91	250	1000	6	18	450-475	0.19	
•C1CR70	FC332-12	0.75	1.04	250	1000	7	18	367	0.25	

Note: Reeled hose may be purchased by the foot or by the reel.

Industrial Hose



FC647

**Air & Multipurpose
Textile Braid
Low Pressure SOCKETLESS™**



Construction: Synthetic rubber tube, textile braid reinforcement, polyester braided cover.

Application: For gasoline, fuel and lubricating oils, air and water. NOT recommended for marine fuel lines. NOT recommended for hydraulic impulse applications, and is NOT approved for air brake applications. Please review the general guidelines for selection, installation and maintenance of hose assemblies starting on page 1509

Operating Temperature Range: -40°F to +212°F. Water not to exceed +150°F. Air not to exceed +165°F.

Reusable Fittings: SOCKETLESS™ (Steel) page 967 (Stainless Steel) page 986 SOCKETLESS™ (Brass) page 992

FC647

Catalog Part No.	Aeroquip Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
C1NB32	FC647-08BLK	0.50	0.79	300	1200	5.00	28	Rolls Only	0.12	
C1HE70	FC647-10BLK	0.63	0.92	250	1000	6.00	18	Rolls Only	0.16	

Note: Color Code Suffix: BLK (Black), BLU (Blue), BRN (Brown), GRN (Green), WHT (White).

Marathoner® Air & Multipurpose Rugged, Abrasion Resistant RMA Class B Tube RMA Class C Cover



Construction: RMA Class B blended nitrile tube. 2 or 4 spiral textile reinforcement. RMA Class C pin-pricked neoprene cover, available in red, green, yellow and black.

Application: Pneumatic tools on production line. Transfer of air and water. Abrasion resistant. Please review application requirements and limitations found in NAHAD Pressure Guideline Chart page 1534

Operating Temperature Range: -40°F to 180°F.

Fittings & Fitting Attachment Suggestions: Shank or Universal type fittings attached with pinch clamps, preformed clamps or bolt clamps.

Fittings: Shank Type (Brass) page 999. Shank Type (Steel) page 1003. Shank Type (Stainless Steel) page 1005. Universal Type page 1019

Fitting Attachment: Pinch Clamps page 1023 Band-It® Jr. Preformed Clamps page 1031. Bolt Clamps page 1033

Branding Type: Ink Print.

Marathoner®

Catalog Part No.	Eaton Model	Color	Hose I.D. (in)	Hose O.D. (in)	Number of Reinforcement Spirals	Maximum Operating Pressure (psi)	Minimum Bend Radius (in)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
•C1FU39	H198204RD-600R	Red	0.25	5/8	4	300		600-700	0.13	
•C1FU40	H198206RD-600R	Red	0.375	3/4	4	300		600-700	0.18	
•C1FU41	H198208RD-600R	Red	0.50	7/8	4	300		600-700	0.23	
•C1FU42	H198212RD-600R	Red	0.75	1-3/16	4	300		600-700	0.37	
C1FV98	H198212RD-250 Box of 5 ea 50 ft.	Red	0.75	1-3/16	4	300		--	0.37	
•C1HV56	H198216RD-400R	Red	1.00	1-7/16	4	200		200-400	0.64	

Warning: Maximum Operating Pressure for the hose assembly (fittings attached to the hose) may be lower than the stated Maximum Operating Pressure in this table. NAHAD Pressure Guideline Chart page 1534

Note: Reeled hose may be purchased by the foot or by the reel.

Warning: Use of damaged hose or improper use may result in bodily injury or property damage. Please consult Eaton catalog or Technical Support for proper application.

Sunrise Hose Multiflex Rubber Air Hose AIR



Construction: Blended SBR tube, smooth type blended SBR cover. Available in red and black.

Application: Pneumatic tools on production line. Transfer of air and water. Applications in automobile, construction sites, mining industries among others.

Operating Temperature Range: -13°F to 170°F.

Fittings & Fitting Attachment Suggestions: Shank or Universal type fittings attached with pinch clamps, Preformed clamps or bolt clamps.

Fittings: Shank Type (Brass) page 999. Shank Type (Steel) page 1003. Shank Type (Stainless Steel) page 1005. Universal Type page 1019

Fitting Attachment: Pinch Clamps page 1023 Band-It® Jr. Preformed Clamps page 1031 Bolt Clamps page 1033

Branding Type: Ink Print

WARNING! SAFETY HAZARD: Natural rubber/SBR is not recommended for use where the cover or inner tube will come into contact with petroleum products (gasoline, oils, greases). Over time, tube or cover will deteriorate and the hose will fail. Hose fittings may blow off.

Sunrise Hose

Catalog Part No.	Sunrise Hose Model	Color	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure @ 68°F (psi)	Burst Pressure (psi)	Coil Length (ft)	Wt. (per ft)	Price (per ft)
•C1KT79	SUNRISE-AIR-B-04	Black	0.250	0.511	300	900	500		
•C1KT86	SUNRISE-AIR-R-04	Red	0.250	0.511	300	900	500		
C1KT80	SUNRISE-AIR-B-05	Black	0.312	0.590	300	900	500		
•C1KT87	SUNRISE-AIR-R-05	Red	0.312	0.590	300	900	500		
•C1KT81	SUNRISE-AIR-B-06	Black	0.375	0.669	300	900	500		
•C1KT88	SUNRISE-AIR-R-06	Red	0.375	0.669	300	900	500		
•C1KT82	SUNRISE-AIR-B-08	Black	0.500	0.826	300	900	500		
•C1KT89	SUNRISE-AIR-R-08	Red	0.500	0.826	300	900	500		
•C1KT83	SUNRISE-AIR-B-10	Black	0.625	1.000	300	900	500		
•C1KT90	SUNRISE-AIR-R-10	Red	0.625	1.000	300	900	500		
•C1KT84	SUNRISE-AIR-B-12	Black	0.750	1.140	300	900	500		
•C1KT91	SUNRISE-AIR-R-12	Red	0.750	1.140	300	900	500		
•C1KT85	SUNRISE-AIR-B-16	Black	1.000	1.417	290	870	500		
•C1KT92	SUNRISE-AIR-R-16	Red	1.000	1.417	290	870	500		
C1NC96	SUNRISE-AIR-B-20	Black	1.250	1.732	290	870	200		
C1NC97	SUNRISE-AIR-B-24	Black	1.500	2.126	290	870	200		
•C1NC99	SUNRISE-AIR-R-24	Red	1.500	2.126	290	870	200		
C1NC98	SUNRISE-AIR-B-32	Black	2.000	2.598	290	870	200		
C1ND11	SUNRISE-AIR-R-32	Red	2.000	2.598	290	870	200		

Note: Maximum Operating Pressure for the hose assembly (fittings attached to the hose) may be lower than the stated Maximum Operating Pressure in this table. NAHAD Pressure Guideline Chart page 1534

Note: Reeled hose may be purchased by the foot or by the reel.



H0105

BOSFLEX™ A/W



Construction: EPDM tube; 4-fiber, -20 & -24 2-fiber braid reinforcement; EPDM cover

Application: Air and water transfer; Spraying and conveying water based liquid fertilizers and pesticides. Please review application requirements and limitations found in NAHAD Pressure Guideline Chart page 1534

Operating Temperature Range: -40°F to +180°F

Fittings & Fitting Attachment Suggestions: Boss, Ground joint, Air hammer, and Air king.

Fittings: Boss page 1004

Fitting Attachment: Crimp, Swage, or Interlocking clamp. See NAHAD Pressure Guideline Chart page 1534

H0105

Catalog Part No.	Eaton Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
C1MS69	H010512BK	0.75	1.15	225	900	600	0.37	
C1MS70	H010516BK	1.00	1.37	200	800	600	0.60	

Note: Part number suffix "RD" indicates Red hose, "BK" Black.

Note: Reeled hose may be purchased by the foot or by the reel.

Note: Maximum Operating Pressure for the hose assembly (fittings attached to the hose) may be lower than the stated Maximum Operating Pressure in this table. NAHAD Pressure Guideline Chart page 1534

Warning: Use of damaged hose or improper use may result in bodily injury or property damage.



EHK007

MARAUDER™ Heavy Duty Concrete Pumping Cement, Plaster and Grout



Construction: Enter Feature Label Abrasion resistant synthetic rubber tube; High-tensile steel cords reinforcement; Pin-pricked synthetic rubber cover.

Application: High-pressure concrete pumping. Please review application requirements and limitations found in NAHAD Pressure Guideline Chart page 1534

Operating Temperature: -40°F to +158°F

Fittings: Victaulic male NPT

EHK007

Catalog Part No.	Eaton Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
C1MK81	EHK007-40-100	2.50	3.46	1230	2900	11.81	100	3.01	
C1MS43	EHK007-48-100	3.00	4.02	1230	2900	13.78	100	3.67	
C1MK82	EHK007-64-100	4.00	5.12	1230	2900	15.75	100	5.69	

Warning: Use of damaged hose or improper use may result in bodily injury or property damage. Please consult Eaton catalog or Technical Support for proper application.

Note: May be purchased by the package or by the foot.

Industrial Hose



EHK006 MARAUDER™ Heavy Duty Plaster & Grout Spraying



Construction: Abrasion resistant synthetic rubber tube; High-tensile synthetic textile and anti-static copper wire reinforcement; Pin-pricked, abrasion, ozone, and weather resistant synthetic rubber cover.

Application: For high-pressure spraying plaster, grout, sand, gypsum, and ready mixed concrete. Please review application requirements and limitations found in NAHAD Pressure Guideline Chart page 1534

Operating Temperature Range: -40°F to +158°F

Fittings: Victaulic male NPT

EHK006

Catalog Part No.	Eaton Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
C1MS41	EHK006-16-100	1.00	1.69	1230	2580	100	0.72	
C1MS42	EHK006-32-100	2.00	2.76	1230	2580	100	1.43	

Note: May be purchased by the package or by the foot.

Note: Maximum Operating Pressure for the hose assembly (fittings attached to the hose) may be lower than the stated Maximum Operating Pressure in this table. NAHAD Pressure Guideline Chart page 1534

Warning: Use of damaged hose or improper use may result in bodily injury or property damage. Please consult Eaton catalog or Technical Support for proper application.



EHC005 Corrugated UHMW-PE Suction & Discharge



Construction: UHMW-PE FDA Approved tube; High-tensile synthetic textile, steel helical wire and anti-static copper wire reinforcement; Corrugated EPDM cover.

Application: For transfer of acids, chemicals, solvents, and petroleum products. Please review application requirements and limitations found in NAHAD Pressure Guideline Chart page 1534

Operating Temperature Range: -40°F to +176°F

Fittings & Fitting Attachment Suggestions: Cam and groove, Combination nipple

Fittings: Cam and groove page 1007. Combination nipples page 1003

Fitting Attachment: Band-It® Jr. Preformed Clamps page 1031. BAND-IT® Band & Buckles page 1032

EHC005

Catalog Part No.	Eaton Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
C1MS38	EHC005-16GN-100	1.00	1.42	150	600	4.33	28	100	0.51	
C1MS39	EHC005-32GN-100	2.00	2.56	150	600	9.84	28	100	1.32	

Note: Maximum Operating Pressure for the hose assembly (fittings attached to the hose) may be lower than the stated Maximum Operating Pressure in this table. NAHAD Pressure Guideline Chart page 1534

Note: May be purchased by the package or by the foot.

Warning: Use of damaged hose or improper use may result in bodily injury or property damage.

Warning: Elevated temperatures can change chemical resistance ratings. Please refer to the Chemical Compatibility information prior to use. Factors such as concentration, fluid contamination, and extreme temperatures may affect these performance specification. Chemical Compatibility page 1543



EHC002

Flat Corrugated Chemical Suction & Discharge



Construction: PE blend Tube; High-tensile synthetic textile, dual steel helical wire and anti-static copper wire reinforcement; Flat corrugated EPDM rubber cover.

Application: For transfer of acids, chemicals, solvents, and petroleum products. Please review application requirements and limitations found in NAHAD Pressure Guideline Chart page 1534

Operating Temperature Range: -40°F to +176°F

Fittings & Fitting Attachment Suggestions: Cam and groove, Combination nipple

Fittings: Cam and groove page 1007. Combination nipples page 1003

Fitting Attachment: Band-It® Jr. Preformed Clamps page 1031. Band and buckle page 1032

EHC002

Catalog Part No.	Eaton Model	Color	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Vacuum Service (in/Hg)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
C1MS36	EHC002-12GN-100	Green	0.75	1.14	150	450	28	100	0.33	
C1MK73	EHC002-16GN-100	Green	1.00	1.42	150	450	28	100	0.43	
C1MK74	EHC002-24GN-100	Green	1.50	1.97	150	450	28	100	0.75	
C1MK75	EHC002-32GN-100	Green	2.00	2.52	150	450	28	100	1.08	
C1MK76	EHC002-48GN-100	Green	3.00	3.58	150	450	28	100	1.75	
C1MS37	EHC002-64GN-100	Green	4.00	4.69	150	450	28	100	2.91	

Note: Maximum Operating Pressure for the hose assembly (fittings attached to the hose) may be lower than the stated Maximum Operating Pressure in this table. NAHAD Pressure Guideline Chart page 1534

Note: May be purchased by the package or by the foot.

Warning: Use of damaged hose or improper use may result in bodily injury or property damage.

Warning: Elevated temperatures can change chemical resistance ratings. Please refer to the Chemical Compatibility information prior to use. Factors such as concentration, fluid contamination, and extreme temperatures may affect these performance specification. Chemical Compatibility page 1543



H0349

WILDCAT™ Hot Air Transfer



Construction: EPDM tube; Textile with dual helical wires reinforcement; Pin-pricked EPDM cover

Application: Hot air blower hose; Hot, dry, non-oily applications. Please review application requirements and limitations found in NAHAD Pressure Guideline Chart page 1534

Operating Temperature Range: -30°F to +300°F; Intermittent +350°F

Fitting & Fitting Attachment Suggestions: Cam and groove; Combination nipple

Fittings: Cam & Groove page 1008. Combination Nipples page 1003

H0349

Catalog Part No.	Eaton Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
C1MS72	H034948-100	3.00	3.56	150	600	13.78	24	100	1.92	
C1MS73	H034964-100	4.00	4.59	100	400	18.11	24	100	2.41	

Note: Maximum Operating Pressure for the hose assembly (fittings attached to the hose) may be lower than the stated Maximum Operating Pressure in this table. NAHAD Pressure Guideline Chart page 1534

Note: Reeled hose may be purchased by the foot or by the reel.

Warning: Use of damaged hose or improper use may result in bodily injury or property damage. Please consult Eaton catalog or Technical Support for proper application.

Industrial Hose



EHC001

Chemical Suction & Discharge



Construction: PE blend tube, High-tensile synthetic textile, dual steel helical wire and anti-static copper wire reinforcement, EPDM rubber cover.

Application: For transfer of acids, chemicals, solvents, and petroleum products. Please review application requirements and limitations found in NAHAD Pressure Guideline Chart page 1534

Operating Temperature Range: -40°F to +176°F

Fittings & Fitting Attachment Suggestions: Cam and groove, Combination nipple

Fittings: Cam and groove page 1007. Combination nipples page 1003

Fitting Attachment: Band-It® Jr. Preformed Clamps page 1031. Band and Buckle page 1032

EHC001

Catalog Part No.	Eaton Model	Color	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
C1MS31	EHC001-12GN-100	Green	0.75	1.22	150	600	3.15	28	100	0.45	
•C1MS32	EHC001-16GN-100	Green	1.00	1.46	150	600	4.33	28	100	0.55	
•C1MS33	EHC001-20GN-100	Green	1.25	1.77	150	600	6.50	28	100	0.76	
C1MS34	EHC001-24GN-100	Green	1.50	2.05	150	600	8.86	28	100	0.98	
•C1MS35	EHC001-32GN-100	Green	2.00	2.64	150	600	13.78	28	100	1.52	

Note: Maximum Operating Pressure for the hose assembly (fittings attached to the hose) may be lower than the stated Maximum Operating Pressure in this table. NAHAD Pressure Guideline Chart page 1534

Note: May be purchased by the package or by the foot.

Warning: Use of damaged hose or improper use may result in bodily injury or property damage.

Warning: Elevated temperatures can change chemical resistance ratings. Please refer to the Chemical Compatibility information prior to use. Factors such as concentration, fluid contamination, and extreme temperatures may affect these performance specification. Chemical Compatibility page 1543



H1561

CHEMFORCE™



Construction: PVC / Polyurethane blend tube, 4-spiral fiber reinforcement, PVC cover

Application: Spraying pesticides and fertilizers, Paint spray. Please review application requirements and limitations found in NAHAD Pressure Guideline Chart page 1534

Operating Temperature Range: +15°F to +160°F

Fittings & Fitting Attachment Suggestions: Barbed inserts, crimp or swage

H1561

Catalog Part No.	Eaton Model	Color	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
•C1MN70	H156106-300R	Yellow	0.38	0.65	600	2400	300	0.13	
C1NB53	H156108-300R	Yellow	0.05	0.84	600	2400	300	0.17	

Note: Maximum Operating Pressure for the hose assembly (fittings attached to the hose) may be lower than the stated Maximum Operating Pressure in this table. NAHAD Pressure Guideline Chart page 1534

Note: May be purchased by the package or by the foot.

Warning: Use of damaged hose or improper use may result in bodily injury or property damage.

EHF002

Liquid Food Suction & Discharge



Construction: Vegetable oil-resistant NBR tube, FDA approved material; High-tensile synthetic textile with a single steel helical wire reinforcement; Oil, abrasion, ozone, and weather resistant synthetic rubber cover.

Application: For suction and discharge of milk, vegetable oil and beverages. Please review application requirements and limitations found in NAHAD Pressure Guideline Chart page 1534

Operating Temperature Range: -40°F to +176°F

Fittings & Fitting Attachment Suggestions: • Cam and groove • Combination nipple

Fittings: Cam and groove page 1007. Combination nipples page 1007

Fitting Attachment: Band-It® Jr. Preformed Clamps page 1031. Band and buckle page 1032

EHF002

Catalog Part No.	Eaton Model	Color	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Vacuum Service (in/Hg)	Reel Qty (ft)	Wt. (lbs. per ft)	Price (per ft)
C1MK77	EHF002-24GY-100	Gray	1.50	2.06	150	450	28	100	1.11	
C1MK78	EHF002-32GY-100	Gray	2.00	2.60	150	450	28	100	1.54	
C1MK79	EHF002-48GY-100	Gray	3.00	3.66	150	450	28	100	2.51	
C1MK80	EHF002-64GY-100	Gray	4.00	4.67	150	450	28	100	3.18	

Note: Maximum Operating Pressure for the hose assembly (fittings attached to the hose) may be lower than the stated Maximum Operating Pressure in this table. NAHAD Pressure Guideline Chart page 1534

Note: May be purchased by the package or by the foot.

Warning: Use of damaged hose or improper use may result in bodily injury or property damage. Please consult Eaton catalog or Technical Support for proper application.



H9610

WASHDOWN™ 1000



Construction: Tube: Nitrile; Reinforcement: 1-braid fiber; Cover: Vinyl nitrile.

Application: For washdown of food processing facilities and equipment. Please review application requirements and limitations found in NAHAD Pressure Guideline Chart page 1534

Operating Temperature Range: -40°F to +180°F

Fittings & Fitting Attachment Suggestions: Eaton "U" Series crimp fittings

H9610

Catalog Part No.	Eaton Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
C1MS83	H961008yw-350r	0.50	0.81	1000	4000	350	0.30	
C1MS84	H961012YW-350R	0.75	1.16	1000	4000	350	0.52	

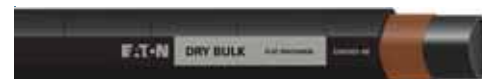
Note: May be purchased by the package or by the foot.

Warning: Use of damaged hose or improper use may result in bodily injury or property damage.

Industrial Hose



EHK001 Dry Bulk Flat Discharge



Construction: Static dissipating synthetic rubber tube; High-tensile synthetic textile reinforcement; Abrasion, ozone, and weather resistant synthetic rubber cover.

Application: For discharge of dry cement and abrasive materials. Please review application requirements and limitations found in NAHAD Pressure Guideline Chart page 1534

Operating Temperature Range: -40°F to +158°F

Fittings & Fitting Attachment Suggestions: • Cam and groove • Combination nipple

Fittings: Cam & Groove page 1008. Combination nipple page 1003

Fitting Attachment: Band-It® Jr.Preformed Clamps page 1031. Band and buckle page 1032

EHK001

Catalog Part No.	Eaton Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
•C1MS40	EHK001-64-100	4.00	4.41	75	225	100	1.36	

Note: Maximum Operating Pressure for the hose assembly (fittings attached to the hose) may be lower than the stated Maximum Operating Pressure in this table. NAHAD Pressure Guideline Chart page 1534

Note: May be purchased by the package or by the foot.



H0319 WILDCAT™ Soft Wall Dry Material



Construction: 3/16" tube thickness natural rubber blend tube; 2-ply textile and conductive copper anti-static wire reinforcement; NR blend cover

Application: Transfer of dry bulk; Discharge of abrasive material; Transfer of bottle caps; Transfer of cleaning agents. Please review application requirements and limitations found in NAHAD Pressure Guideline Chart page 1534

Operating Temperature: -40°F to +158°F

Fittings & Fitting Attachment Suggestions: • Cam and groove • Combination nipple

Fittings: Cam & Groove page 1008. Combination Nipples page 1003

Fitting Attachment: Crimp, Swage, Band & Buckle page 1032 Band-It® Jr.Preformed Clamps page 1031

H0319

Catalog Part No.	Eaton Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
•C1MS71	H031964-100	4.00	4.61	75	300	100	2.25	

Note: Maximum Operating Pressure for the hose assembly (fittings attached to the hose) may be lower than the stated Maximum Operating Pressure in this table. NAHAD Pressure Guideline Chart page 1534

Note: May be purchased by the package or by the foot.

Warning: Use of damaged hose or improper use may result in bodily injury or property damage. Please consult Eaton catalog or Technical Support for proper application.



H0034

WILDCAT™ Sandblast



Construction: Natural rubber tube, 4-ply textile reinforcement, SBR cover.

Application: Conveys sand or shot for cleaning purposes; Conveys sand from sandblast equipment to clean steel or concrete before painting or sealing. Please review application requirements and limitations found in NAHAD Pressure Guideline Chart page 1534

Operating Temperature Range: -40°F to +158°F

Fittings & Fitting Attachment Suggestions: Sandblast couplings that attach to the O.D. of hose

H0034

Catalog Part No.	Eaton Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
C1MS63	H003408-100	0.50	1.06	150	600	2.36	100	0.40	
C1MS64	H003412-100	0.75	1.50	150	600	3.15	100	0.69	
C1MS65	H003416-100	1.00	1.87	150	600	4.53	100	1.03	
C1MS66	H003420-100	1.25	2.16	125	500	5.31	100	1.23	
C1MS67	H003424-100	1.50	2.36	100	400	6.89	100	1.33	
C1MS68	H003432-100	2.00	2.87	100	400	12.2	100	1.66	

Note: Maximum Operating Pressure for the hose assembly (fittings attached to the hose) may be lower than the stated Maximum Operating Pressure in this table. NAHAD Pressure Guideline Chart page 1534

Note: May be purchased by the reel or by the foot

Warning: Use of damaged hose or improper use may result in bodily injury or property damage.

Industrial Hose



EHP009 Oilfield Vacuum



Construction: Tube: Nitrile blend; Reinforcement: High-tensile synthetic textile with dual steel helical wires; Cover: Corrugated SBR blend

Application: For transfer applications such as drilling mud or crude oil. Not recommended for refined petroleum products. Please review application requirements and limitations found in NAHAD Pressure Guideline Chart page 1534

Operating Temperature Range: -22°F to +176°F

Fittings & Fitting Attachment Suggestions: • Cam and groove • Male NPT • Unions

Fittings: Cam and groove page 1007, Combination nipple page 1003

Fitting Attachment: Crimp, Swage, Band & Buckle page 1032; Band-It® Jr. Preformed Clamps page 1031

EHP009

Catalog Part No.	Aeroquip Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
•C1NB16	EHP009-24-100	1.50	1.78	150	450	4.53	28	100	0.72	
•C1NB17	EHP009-32-100	2.00	2.41	150	450	5.71	28	100	1.06	
•C1NB18	EHP009-40-100	2.50	3.17	150	450	7.68	28	100	1.42	
•C1NB19	EHP009-48-100	3.00	3.58	150	450	9.45	28	100	1.81	
•C1NB20	EHP009-64-100	4.00	4.58	150	450	13.39	28	100	2.60	

Note: Maximum Operating Pressure for the hose assembly (fittings attached to the hose) may be lower than the stated Maximum Operating Pressure in this table. NAHAD Pressure Guideline Chart page 1534

Note: May be purchased by the package or by the foot.



Blacksnake® Petroleum Dispensing



Construction: Black Buna-N tube. Braided, high tensile steel wire reinforcement. Black modified nitrile cover.

Application: Dispensing all types of commercial gasolines, or other petroleum based products, from service station pumps. A heavy duty hard wall hose which does not collapse in reel use or behind the nozzle in heavy duty service. Please review application requirements and limitations found in NAHAD Pressure Guideline Chart page 1534

Operating Temperature Range: -40°F to 120°F continuous service. (Fuels listed normally conveyed below 120°F).

Fitting & Fitting Attachment Suggestions: Permanent Internal Expansion fittings for gas pump hose.

Blacksnake®

Catalog Part No.	Gates Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
•C1HP49	3624-0003	1.00	1.38	150	8	30	500		

Note: Reeled hose may be purchased by the foot or by the reel.



H0363

PUMA™

Petroleum Suction & Discharge



Construction: NBR blend tube, high-tensile synthetic textile dual steel helical wires and dual anti-static copper wire reinforcement, flat corrugated NBR blend cover.

Application: Suction and discharge of petroleum. Please review application requirements and limitations found in NAHAD Pressure Guideline Chart page 1534

Operating Temperature: -40°F to +180°F

Fittings & Fitting Attachment Suggestions: • Cam and groove • Combination nipple

Fittings: Cam & Groove page 1008. Combination nipple page 1003

Fitting Attachment: Band-It® Jr. Preformed Clamps page 1031. Band & buckle page 1032

H0363

Catalog Part No.	Aeroquip Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
C1MS74	H036324BK-100	1.50	2.07	150	600	7.87	28	100	0.97	
C1MS75	H036332BK-100	2.00	2.56	150	600	10.04	28	100	1.35	
C1MS76	H036340BK-100	2.50	3.03	150	600	12.40	28	100	1.55	
C1MS77	H036348BK-100	3.00	3.56	150	600	14.96	28	100	1.97	
C1MS78	H036364BK-100	4.00	4.58	150	600	20.08	28	100	2.54	

Note: Maximum Operating Pressure for the hose assembly (fittings attached to the hose) may be lower than the stated Maximum Operating Pressure in this table. NAHAD Pressure Guideline Chart page 1534

Note: May be purchased by the package or by the foot.

Warning: Use of damaged hose or improper use may result in bodily injury or property damage.

Industrial Hose



EHP500

Petroleum/Oil Suction & Discharge



Construction: NBR blend tube; High-tensile synthetic textile with a single steel helical wire and anti-static copper wire reinforcement; NBR blend cover.

Application: For suction and discharge of petroleum products. Please review application requirements and limitations found in NAHAD Pressure Guideline Chart page 1534

Caution: For use with petroleum products with aromatic content up to 50%

Operating Temperature Range: -13°F to +158°F

Fittings & Fitting Attachment Suggestions: • Cam and groove • Combination nipple

Fittings: Cam and groove page 1007. Combination Nipples page 1003

EHP500

Catalog Part No.	Eaton Model	Color	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
•C1MK83	EHP500-12BK-200	Black	0.75	1.18	150	450	3.75	28	200	0.40	
•C1MK84	EHP500-16BK-200	Black	1.00	1.44	150	450	4.33	28	200	0.48	
•C1MS44	EHP500-20BK-200	Black	1.25	1.69	150	450	5.51	28	200	0.61	
•C1MK85	EHP500-24BK-200	Black	1.50	1.93	150	450	6.69	28	200	0.79	
•C1MK86	EHP500-32BK-200	Black	2.00	2.48	150	450	9.84	28	200	1.11	
•C1MS45	EHP500-40BK-200	Black	2.50	3.03	150	450	12.20	28	200	1.43	
•C1MK87	EHP500-48BK-200	Black	3.00	3.50	150	450	14.96	28	200	1.89	
•C1MK88	EHP500-64BK-200	Black	4.00	4.61	150	450	20.08	28	200	2.73	
C1MK89	EHP500-96BK-200	Black	6.00	6.69	150	450	29.53	28	200	5.29	

Note: Maximum Operating Pressure for the hose assembly (fittings attached to the hose) may be lower than the stated Maximum Operating Pressure in this table. NAHAD Pressure Guideline Chart page 1534

Note: May be purchased by the package or by the foot.

Warning: Use of damaged hose or improper use may result in bodily injury or property damage.

Super-Vac® Petroleum Transfer Tank Truck Service Oil, Water, Mud, Diesel Fuel Black / Blue Stripe



Construction: Specially compounded black elastomer tube. Synthetic, high tensile reinforcement with wire helix. Black SBR (styrene butadiene) cover with blue spiral stripe.

Application: Tank truck service where full suction or rated working pressures are required. Please review application requirements and limitations found in NAHAD Pressure Guideline Chart page 1534

Caution: NOT RECOMMENDED FOR REFINED PRODUCTS SUCH AS GASOLINE.

Operating Temperature Range: -40°F to 150°F. (Diesel fuel normally conveyed below 120°F).

Fitting & Fitting Attachment Suggestions: Malleable iron Pin Lug Shank Type fittings or steel Combination Nipple Shank Type fittings.

Fittings: Combination Nipples (Steel) page 1003

Super-Vac®

Catalog Part No.	Gates Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Pkg Qty (ft)	Wt. (per ft)	Price (per ft)
•C1BQ67	4688-0651	1.0	1.38	150	3	30	100	0.52	
•C1BQ68	4688-0653	1.25	1.65	150	3	30	100	0.67	
C1KK37	4688-0690	4	4.52	100	8	30	100	2.29	

Note: Maximum Operating Pressure for the hose assembly (fittings attached to the hose) may be lower than the stated Maximum Operating Pressure in this table. NAHAD Pressure Guideline Chart page 1534

Note: May be purchased by the package or by the foot.

EHW030

OTTER™ PLUS Water Suction & Discharge



Construction: EPDM tube, High-tensile synthetic textile with dual helical wires reinforcement, EPDM cover.

Application: Pumping, suction, and discharge of water, mud and slurries; Diluted agricultural fertilizers; Convey water; Transfer and haul salt water (brine). Please review application requirements and limitations found in NAHAD Pressure Guideline Chart page 1534

Operating Temperature Range: -40°F to +248°F

Fittings & Fitting Attachment Suggestions: • Cam and groove • Combination nipple.

Fittings: Cam & Groove page 1007. Combination Nipples page 1003

Fitting Attachment: Crimp, Swage, Preformed clamps: Band-It® Jr. Preformed Clamps page 1031, Band and Buckle page 1032

EHW030

Catalog Part No.	Eaton Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
C1NB21	EHW030-24-150	1.50	2.06	300	1200	5.91	30	150	1.04	
C1NB22	EHW030-32-150	2.00	2.56	300	1200	7.87	30	150	1.33	
C1NB23	EHW030-40-150	2.50	3.19	300	1200	9.84	30	150	2.00	
C1NB24	EHW030-48-150	3.00	3.69	300	1200	11.81	30	150	2.44	
C1NB25	EHW030-64-150	4.00	4.84	300	1200	15.75	30	150	3.69	
C1NB26	EHW030-80-100	5.00	5.76	250	1000	22.83	30	100	4.25	

Note: Hose may be purchased by the foot or by the package.

Note: Maximum Operating Pressure for the hose assembly (fittings attached to the hose) may be lower than the stated Maximum Operating Pressure in this table. NAHAD Pressure Guideline Chart page 1534

Warning: Use of damaged hose or improper use may result in bodily injury or property damage.

EH360

Water Suction & Discharge



Construction: Synthetic rubber tube. Textile and a single steel helical wire reinforcement. Abrasion and weather resistant synthetic rubber cover.

Application: Pumping, suction and discharge of water, mud and slurries. Convey water. Transfer and haul salt water (brine). Please review application requirements and limitations found in NAHAD Pressure Guideline Chart page 1534

Operating Temperature Range: -13°F to +158°F

Fitting & Fitting Attachment Suggestions: • Cam and groove • Combination nipple

Fittings: Cam & Groove (Aluminum) page 1007. Cam & Groove (Polypropylene) page 1015. Combination Nipples (Shank type - Medium) (Steel) page 1003. Combination Nipples (Shank type - Medium) (Brass) page 1002. Combination Nipples (Shank type - Medium) (Stainless Steel) page 1005

Fitting Attachment: Crimp, Swage, Preformed clamps: Band-It® Jr. Preformed Clamps page 1031, Band and Buckle page 1032

EH360

Catalog Part No.	Eaton Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Pkg Qty (ft)	Wt. (per ft)	Price (per ft)
C1MS28	EH36020-100	1.25	1.65	150	450	4.92	28	100	0.65	
C1MK50	EH36024-100	1.50	1.89	150	450	5.91	28	100	0.81	
•C1MK51	EH36032-100	2.00	2.44	150	450	8.46	28	100	1.18	
C1MK52	EH36040-100	2.50	2.95	150	450	11.02	28	100	1.49	
•C1MK53	EH36048-100	3.00	3.50	150	450	13.78	28	100	1.96	
•C1MK54	EH36064-100	4.00	4.00	150	450	19.29	28	100	2.70	
C1MS29	EH36096-100	6.00	6.65	150	450	29.92	24	100	5.51	

Note: Hose may be purchased by the foot or by the package.

Note: Maximum Operating Pressure for the hose assembly (fittings attached to the hose) may be lower than the stated Maximum Operating Pressure in this table. NAHAD Pressure Guideline Chart page 1534

Warning: Use of damaged hose or improper use may result in bodily injury or property damage.

Industrial Hose



H1196

ROYALFLEX™ Water Suction & Discharge



Construction: Thermoplastic vinyl nitrile tube; 100% polyester and helical wire reinforcement; Thermoplastic vinyl nitrile cover

Application: Transfer of water, liquid diluted fertilizers and pesticides; Pumping, suction, and discharge of water and slurries. Please review application requirements and limitations found in NAHAD Pressure Guideline Chart page 1534

Operating Temperature: -20°F to +180°F

Fitting & Fitting Attachment Suggestions: • Cam and groove • Combination nipple

Fittings: Cam & Groove page 1008. Combination Nipples page 1003

Fitting Attachment: Band-It® Jr.Preformed Clamps page 1031. Band & Buckle page 1032

H1196

Catalog Part No.	Aeroquip Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
C1MS80	H119624-100	1.50	2.00	300	1200	6.00	0.81	100	0.81	

Note: Maximum Operating Pressure for the hose assembly (fittings attached to the hose) may be lower than the stated Maximum Operating Pressure in this table. NAHAD Pressure Guideline Chart page 1534

Note: Reeled hose may be purchased by the foot or by the reel.

Warning: Use of damaged hose or improper use may result in bodily injury or property damage.



EHW001

Layflat Water Discharge



Construction: Synthetic rubber tube, High-tensile synthetic textile reinforcement, Weather resistant synthetic rubber cover.

Application: For discharge of water in agricultural and industrial applications. Please review application requirements and limitations found in NAHAD Pressure Guideline Chart page 1534

Operating Temperature Range: -13°F to +158°F

Fittings & Fitting Attachment Suggestions: • Shank type male x female • Cam and groove

Fittings: Shank type page 1002. Cam and groove page 1007

Fitting Attachment: Band-It® Jr.Preformed Clamps page 1031. Band and Buckle page 1032

EHW001

Catalog Part No.	Eaton Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
C1MS53	EHW001-32-100	2.00	2.24	150	450	100	0.53	
C1MS54	EHW001-40-100	2.50	2.76	150	450	100	0.66	
C1MS55	EHW001-48-100	3.00	3.27	150	450	100	0.83	
C1MS56	EHW001-64-100	4.00	4.29	150	450	100	1.20	

Note: Maximum Operating Pressure for the hose assembly (fittings attached to the hose) may be lower than the stated Maximum Operating Pressure in this table. NAHAD Pressure Guideline Chart page 1534

Note: May be purchased by the reel or by the foot.

Warning: Use of damaged hose or improper use may result in bodily injury or property damage. Please consult Eaton catalog or Technical Support for proper application.



Tigerflex® JG Water Suction & Discharge PVC, Green



Construction: Solid olive green PVC body. Rigid thermoplastic helix reinforcement.

Application: General purpose suction and transfer applications in construction and mining. Irrigation lines, rock dusting, wellpoint systems, agri-foam systems, liquid fertilizer transfer. Please review application requirements and limitations found in NAHAD Pressure Guideline Chart page 1534

Operating Temperature Range: -4°F to 150°F. (Actual service temperature range is application-dependent).

Fitting & Fitting Attachment Suggestions: • Cam & Groove or Shank Type fittings attached with preformed clamps (except for 6 inch and 8 inch sizes). NOTE: 6 inch and 8 inch I.D. sizes have a convoluted cover for greater flexibility. • Preformed clamps will not work with these two sizes. For these two sizes, use TigerClamp™ Spiral Double Bolt Clamps page 1033

Fittings: Shank Type (Aluminum) page 1006. Shank Type (Steel) page 1003. Shank Type (Brass) page 1002. Shank Type (Stainless Steel) page 1005. Cam & Groove (Aluminum) page 1007. Cam & Groove (Polypropylene) page 1015

Fitting Attachment: Band-It® Jr. Preformed Clamps page 1031

Tigerflex® JG

Catalog Part No.	Kuriyama Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure @ 68°F (psi)	Maximum Operating Pressure @ 104°F (psi)	Vacuum Rating @ 68°F (in/Hg)	Vacuum Rating @ 104°F (in/Hg)	Minimum Bend Radius @ 68°F (in)	Pkg Qty (ft)	Wt. (per ft)	Price (per ft)
•C1GD16	JG200X100	2.00	2.32	65	45	28	24	7	100	0.66	
•C1GD17	JG300X100	3.00	3.43	60	40	28	22	10	100	1.24	
C1GE15	JG600X100	6.00	6.75	40	25	28	20	30	100	0.96	

Note: Working pressure decreases as temperature increases. Hose may be purchased by the foot or by the package.

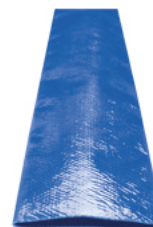
Note: Maximum Operating Pressure for the hose assembly (fittings attached to the hose) may be lower than the stated Maximum Operating Pressure in this table. NAHAD Pressure Guideline Chart page 1534

Industrial Hose



**Vinylflow
EZ-Lite**

**PVC Water Discharge
Layflat
Blue**



Construction: Features a balanced polyester yarn spiral wrap, longitudinal strength member and homogeneous PVC tube and cover to prevent separation.

Application: A general purpose PVC water discharge hose.

Operating Temperature Range: -5°F to 170°F.

Fitting & Fitting Attachment Suggestions: • Aluminum, malleable iron or brass shank type fittings attached with preformed clamps. • Cam & Groove type fittings attached with preformed clamps.

Fittings: Shank Type (Aluminium) page 1006. Shank Type (Steel) page 1110. Shank Type (Brass) page 1002. Shank Type (Stainless Steel) page 1005. Cam & Groove (Aluminum) page 1007. Cam & Groove (Polypropylene) page 1015

Fitting Attachment: Band-It® Jr. Preformed Clamps page 1031

Vinylflow EZ-Lite

Catalog Part No.	Kuriyama Model	Size (in)	Hose I.D.	Apprx. Wall (in)	Working Pressure (psi)	Coil Length (ft)	Wt. (per ft)	Price (per ft)
•C1KN70	VFL200X300	2	2.087	0.048	65	300	0.23	
•C1KN71	VFL300X300	3	3.071	0.055	60	300	0.39	
•C1MC84	VFL400X300	4	4.134	0.083	70	300	0.52	
•C1KN72	VFL600X300	6	6.102	0.061	40	300	0.86	

Marine Wet Exhaust Hose, Bellows & Elbows



Trident Marine Wet Exhaust Hose, Bellows & Elbows SAE J2006 Standard Compliance & Labeling



Lloyd's
Register

Black HT (Hi Temp)

Blue VHT (Very Hi Temp)

Red XHT (Xtra Hi Temp)

Only TRIDENT meets marine wet exhaust standard SAE J2006 with the full range of flexible exhaust hose, bellows and elbows. SAE J2006 compliance & labeling is now required for USA boat certification & surveys.

Features & Benefits: Marine design of heavy-wall construction and best rubber & silicone formulations solves the tough marine exhaust problems, including compliance with ABYC, NMMA & ISO (draft) exhaust standards • Greatest heat & aging resistance - Silicone up to 500°F with 6 times longer life than most rubber products • Excellent flexibility & tight bend radius designs for easier and better installations - Solves misalignment, obstruction & space problems with less labor, parts and cost • Smooth interior surface & bend arcs - Reduces engine back pressure, improves performance • Maximum absorption of engine movement, vibration & noise - Smoother, quieter operation • Glossy blue silicone is the yacht exhaust standard - Enhances engine room appearance.

BLACK HT (Hi Temp): EPDM rubber. 250°F maximum continuous. 5 year warranty.

Blue VHT (Very Hi Temp): Silicone rubber. 350°F maximum continuous. 10 year warranty.

Red XHT (Xtra Hi Temp): Silicone rubber. 500°F maximum continuous. 10 year warranty.

Applications: Molded products (certain Hump Hoses and Elbows) are for use in Wet Exhaust systems only.

Reinforced products (certain Hump Hoses and Elbows, plus Wet Exhaust hoses), may be used in both Wet Exhaust and Engine Coolant systems, up to rated working pressure of the component.

Installation: Do not damage or kink. Install far enough downstream from the point of wet exhaust system water injection so that the maximum continuous operating temperature at it's location does not exceed that of the component. Install over rigid tubing or pipe with reasonable overlap (May lubricate with water and/or detergent - not oil or grease). Each rubber component requires a minimum of 2 stainless steel clamps (1/2 inch wide minimum) at each end. Recommended clamps are 3/4 inch wide T-Bolt Clamps and 5/8 inch wide Constant Torque Clamps. All components should be supported and strapped the entire length of the system.

Operation: In case of backfire, visually inspect the entire wet exhaust system for damage, leaks or separated connections.

Recommended Clamps: Trident #720 S.S. T-Bolt Clamps page 1027 Trident #730 S.S. Constant-Torque® Clamps page 1030 Double Clamping is recommended.

Marine Hose

Marine Wet Exhaust Hose, Bellows & Elbows



Trident #250 Hardwall Wet Exhaust Hose Black HT (Hi Temp) EPDM Rubber



Application & Construction: Premium wet exhaust hose for longer bent connections. Black HT (High Temp) EPDM Rubber. Extra heavy tube and cover with wire helix between 2 ply reinforcement provides excellent flexibility and bend radius. Resists heat, ozone, exhaust, sanitation chemicals, panting and collapse. Exceeds new SAE J2006, ABYC and NMMA standards. ISO 13363 standard pending. Black with blue stripe.

Maximum Continuous Temperature: 250° F.

Trident #250 Hardwall Wet Exhaust Hose • Black HT (Hi Temp) EPDM Rubber

Catalog Part No.	Trident Marine Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Standard Package	Wt. (per ft)	Price (per ft)
•C1FT29	250-1124	1.50	2.00	57	4.25		12-1/2 FT	0.61	
•C1FT31	250-1584	1.625	2.125	54			12-1/2 FT	0.75	
•C1FT30	250-1344	1.75	2.25	54			12-1/2 FT	0.81	
•C1FT33	250-2004	2.00	2.50	47	5.50		12-1/2 FT	0.95	
•C1GB19	250-2144	2.25					12-1/2 FT	1.28	
•C1FT35	250-2384	2.375	2.875	68			12-1/2 FT	1.09	
•C1FT34	250-2124	2.50	3.10	65			12-1/2 FT	1.15	
C1GB22	250-2784	2.875					12-1/2 FT	24.96	
•C1FT36	250-3004	3.00	3.50	57	8.00		12-1/2 FT	1.79	

Double Clamping Recommended: Trident #720 S.S. T-Bolt Clamps page 1027 Trident #730 S.S. Constant-Torque® Clamps page 1030

Note: Other sizes and lengths are readily available from Trident. Please contact us for pricing and delivery.

Trident #252 Corrugated Hardwall Wet Exhaust Hose Black HT (Hi Temp) EPDM Rubber



Application & Construction: Premium corrugated marine wet exhaust hose for longer connections with substantial bends. Black HT (High Temp) EPDM rubber. Thick tube and cover with wire helix between 2 ply reinforcement. Exceptional flexibility and bend radius. Resists heat, ozone, exhaust fumes, panting and collapse. Exceeds new SAE J2006, ABYC and NMMA standards. ISO 13363 standard pending. Black with blue stripe.

Maximum Continuous Temperature: 250° F.

Trident #252 Corrugated Hardwall Wet Exhaust Hose • Black HT (Hi Temp) EPDM Rubber

Catalog Part No.	Trident Marine Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Standard Package	Wt. (per ft)	Price (per ft)
•C1FT42	252-1124	1.50	2.00	48	4.00		12-1/2 FT	0.75	
•C1FT43	252-2004	2.00	2.50	48	5.25		12-1/2 FT	0.94	
•C1FT44	252-3004	3.00	3.60	60	7.50		12-1/2 FT	1.54	

Double Clamping Recommended: Trident #720 S.S. T-Bolt Clamps page 1027 Trident #730 S.S. Constant-Torque® Clamps page 1030

Note: Other sizes and lengths are readily available from Trident. Please contact us for pricing and delivery.

Marine Wet Exhaust Hose, Bellows & Elbows



Trident #200 Softwall Wet Exhaust Hose Black HT (Hi Temp) EPDM Rubber



Application & Construction: Premium marine wet exhaust hose for short, straight connections. Black HT (High Temp) EPDM rubber. Extra heavy tube and cover with 2 to 6 ply reinforcement resists heat, aging, ozone, exhaust and sanitation chemicals. Exceeds new SAE J2006, ABYC and NMMA standards.

ISO 13363 standard pending. Black with blue stripe.

Maximum Continuous Temperature: 250° F.

Trident #200 Softwall Wet Exhaust Hose • Black HT (Hi Temp) EPDM Rubber

Catalog Part No.	Trident Marine Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Standard Package	Wt. (per ft)	Price (per ft)
•C1GA97	200-1124	1.50					12-1/2 FT	0.89	
•C1FS98	200-2004	2.00	2.60	50			12-1/2 FT	0.66	
•C1FS99	200-2124	2.50	3.10	51			12-1/2 FT	1.37	
•C1GB14	200-2344	2.75					12-1/2 FT		
•C1FT11	200-3004	3.00	3.68	51			12-1/2 FT	1.61	
•C1FT13	200-4004	4.00	4.50	54			12-1/2 FT	2.13	

Double Clamping Recommended: Trident #720 S.S. T-Bolt Clamps page 1027 Trident #730 S.S. Constant-Torque® Clamps page 1030

Note: Other sizes and lengths are readily available from Trident. Please contact us for pricing and delivery.

Trident #202V Silicone Wet Exhaust Hose Blue VHT (Very Hi Temp) Silicone Rubber



Application & Construction: Ultimate quality silicone marine wet exhaust and water hose. Blue VHT (Very High Temp) silicone rubber with 4 to 6 ply polyester reinforcement. Dramatically exceeds SAE J2006, ABYC and NMMA standards. Blue with white stripe.

Maximum Continuous Temperature: 350° F.

Trident #202V Silicone Wet Exhaust Hose • Blue VHT (Very Hi Temp) Silicone Rubber

Catalog Part No.	Trident Marine Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Standard Package	Wt. (per ft)	Price (per ft)
•C1FT17	202V1124	1.50	1.90	80			12 FT	0.60	
•C1FT20	202V4000-36	4.00	4.40	35			3 FT	1.80	
•C1HN56	202V5000-36	5.00	5.40				3 FT	1.90	
•C1FT21	202V6000-36	6.00	6.50	20			3 FT	2.80	
•C1FT22	202V8000-36	8.00	8.50	20			3 FT	3.80	

Double Clamping Recommended: Trident #720 S.S. T-Bolt Clamps page 1027 Trident #730 S.S. Constant-Torque® Clamps page 1030

Note: Hose stocked in 12 ft lengths may be purchased cut in 2 ft multiples. Hose stocked in 3 ft lengths is available as a full 3 ft length.

Note: Other sizes and lengths are readily available from Trident. Please contact us for pricing and delivery.

Marine Hose

Marine Wet Exhaust Hose, Bellows & Elbows



Trident #252V Corrugated Silicone Wet Exhaust Hose Blue VHT (Very Hi Temp) Silicone Rubber



Application & Construction: Ultimate quality corrugated silicone marine wet exhaust and water hose for longer connections with substantial bends. Blue VHT (Very High Temp) silicone rubber. Thick tube and cover with wire helix between 2 ply reinforcement. Dramatically exceeds SAE J2006, ABYC and NMMA standards. Blue with white stripe.

Maximum Continuous Temperature: 350° F.

Trident #252V Corrugated Silicone Wet Exhaust Hose • Blue VHT (Very Hi Temp) Silicone Rubber

Catalog Part No.	Trident Marine Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Standard Package	Wt. (per ft)	Price (per ft)
•C1FT45	252V0344	0.75	1.25				12 FT	0.29	
•C1FT46	252V1004	1.00	1.50				12 FT	0.33	
•C1GL19	252V1144	1.25	1.75				12 FT	6.70	
•C1FT47	252V1124	1.50	2.00				12 FT	0.60	
•C1FT48	252V2004	2.00	2.60				12 FT	0.80	
•C1FT49	252V2124	2.50	3.10				12 FT	0.90	
•C1FT50	252V3004	3.00	3.60				12 FT	1.20	

Double Clamping Recommended: Trident #720 S.S. T-Bolt Clamps page 1027 Trident #730 S.S. Constant-Torque® Clamps page 1030

Note: Hose stocked in 12 ft lengths may be purchased cut in 2 ft multiples. Hose stocked in 3 ft lengths is available as a full 3 ft length.

Note: Other sizes and lengths are readily available from Trident. Please contact us for pricing and delivery.

Trident Wet Exhaust Hump Hose Bellows Black HT - Blue VHT - Red XHT



Application & Construction: EPDM Rubber & silicone rubber Hump Hose Bellows provide the ultimate flexible straight connectors for marine wet exhaust systems. They offer increased tolerance to heat, misalignment, movement and vibration, while reducing installed cost, back pressure and noise.

Maximum Continuous Temperature: See table below.

Note: Molded models (see table below) are for wet exhaust systems only. Reinforced models may be used in both wet exhaust and engine coolant systems up to the rated working pressure of the component.

Trident Wet Exhaust Hump Hose Bellows • Black HT - Blue VHT - Red XHT

Catalog Part No.	Trident Marine Model	Hose I.D. (in)	Construction & Max Continuous Temp	Humps	Length (in)	Hump O.D. (in)	Clampable O.D. (in)	Minimum Clampable Length (in)	Clamps Included	Wt.	Price Each
•C1FV11	THH3SS	3.00	Molded HT EPDM 250°F	Single	5.25	4.50	3.50	2.00	Yes	2.00	
•C1GM66	272V3000SS	3.00	Reinforced VHT Blue Silicone 350°F	Single	6.00		3.40		Yes	1.25	
•C1FT52	272V4000SS	4.00	Reinforced VHT Blue Silicone 350°F	Single	6.00		4.40		Yes	2.00	

Note: Models with "SS" at end of model number come packaged with 4 Trident Marine #720 Series all-stainless steel T-Bolt clamps.

Double Clamping Recommended: Trident #720 S.S. T-Bolt Clamps page 1027 Trident #730 S.S. Constant-Torque® Clamps page 1030

Note: Other sizes and models are readily available from Trident. Please contact us for pricing and delivery.

Marine Wet Exhaust Hose, Bellows & Elbows



Trident Wet Exhaust Elbows Black HT - Blue VHT - Red XHT



Application & Construction: EPDM Rubber & silicone rubber Elbows provide the ultimate flexible angled connectors for marine wet exhaust systems. They offer increased tolerance to heat, misalignment, movement and vibration, while reducing installed cost, back pressure and noise.

Maximum Continuous Temperature: See table below.

Note: Molded models (see table below) are for wet exhaust systems only. Reinforced models may be used in both wet exhaust and engine coolant systems up to the rated working pressure of the component.

Trident Wet Exhaust Elbows • Black HT - Blue VHT - Red XHT

Catalog Part No.	Trident Marine Model	Hose I.D. (in)	Angle	Construction & Max Continuous Temp	Clampable O.D. (in)	Minimum Clampable Length (in)	Clamps Included	Wt.	Price Each
•C1FV18	TRL290SS	2.00	90°	Molded HT EPDM 250°F	2.40	1.75	Yes	1.50	
•C1FV19	TRL345SS	3.00	45°	Molded HT EPDM 250°F	3.50	1.50	Yes	3.00	
•C1FV22	TRL390SS	3.00	90°	Molded HT EPDM 250°F	3.50	1.50	Yes	3.00	
•C1FT57	290V3000SS	3.00	90°	Molded VHT Blue Silicone 350°F	3.50	1.50	Yes	2.00	
•C1FV21	TRL3590SS	3.50	90°	Molded HT EPDM 250°F	4.00	1.50	Yes	3.50	
•C1FV24	TRL490SS	4.00	90°	Molded HT EPDM 250°F	4.50	1.50	Yes	4.00	
C1FV25	TRL545SS	5.00	45°	Molded HT EPDM 250°F	5.50	1.62	Yes	4.00	

Note: Models with "SS" at end of model number come packaged with 4 Trident Marine #720 Series all-stainless steel T-Bolt clamps.

Double Clamping Recommended: Trident #720 S.S. T-Bolt Clamps page 1027 Trident #730 S.S. Constant-Torque® Clamps page 1030

Note: Other sizes and models are readily available from Trident. Please contact us for pricing and delivery.

Marine Hose

Trident #365 Barrier Lined Type A1-15 Fuel Hose USCG Type A1 - SAE J1527



Features: Premium Type A1 fuel line hose. Barrier liner is on inside of tube so fuel is not in direct contact with nitrile rubber tube. This provides extraordinary resistance to aging and permeation by all marine fuels including alcohol blends. 2 spiral polyester reinforcement provides maximum working pressure, excellent flexibility and bend radius. Nitrile blend cover provides excellent resistance to fire and heat, cold, ozone and fuel aging. Perfect for all fuel line applications (feed/supply, return, transfer, vent) on all marine engine systems (Inboard, I/O Stern Drives, Gen Sets and Outboards), under all newest marine standards (USCG Type A1, SAE J1527, ISO 7840 A1, ABYC H-24 & H-33, NMMA Type Accepted, CE Certified). Hose I.D. sizes conform to ISO nominal bores and tolerances. Black with red stripe and white letters.

Construction: Nylon Internal Barrier, NBR Tube; NBR/PVC Blend Cover; Polyester 2 spiral Reinforcement

Temperature Range: -20 °F to 212 °F

Fittings & Fitting Attachment Suggestions: Shank type fittings attached with stainless steel pinch clamps, stainless steel worm gear clamps or brass crimp ferrules.

Fittings: Shank Type (Brass) page 999

Fitting Attachment: Pinch Clamps page 1023 Worm Gear Clamps page 1022 Crimp Ferrules page 1034

Trident #365 Barrier Lined Type A1-15 Fuel Hose • USCG Type A1 - SAE J1527

Catalog Part No.	Trident Marine Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Bend Radius (in)	Winzeler Crimp Ferrule	Standard Package	Wt. (per ft)	Price (per ft)
•C1FT67	365-0146	0.250	0.536	100	2.50	C1BZ37	50 ft reel box	0.16	
•C1FT71	365-0566	0.312	0.611	100	2.50	C1BZ38	50 ft reel box	0.18	
•C1FT72	365-0567	0.312	0.611	100	2.50	C1BZ38	100 ft reel box	0.18	
•C1FT69	365-0386	0.375	0.681	100	2.50	C1BZ40	50 ft reel box	0.21	
•C1FT70	365-0387	0.375	0.681	100	2.50	C1BZ40	100 ft reel box	0.21	
C1GL26	365-0380	0.375	0.681	100	2.50	C1BZ40	600 ft reel	0.21	
•C1FT65	365-0126	0.500	0.821	100	4.50	C1BZ44	50 ft reel box	0.25	
•C1FT66	365-0127	0.500	0.821	100	4.50	C1BZ44	100 ft reel box	0.25	
•C1FT73	365-0586	0.625	1.000	75	4.50	C1BY67	50 ft reel box	0.36	
•C1FT74	365-0587	0.625	1.000	75	4.50	C1BY67	100 ft reel box	0.36	

Note: Hose in 100 ft Reel Box is sold by the foot or by the box. Hose in 50 ft Reel Box is sold by the box.

Winzeler Crimp Ferrules: Crimp Ferrules page 1034

Aeroquip® FC234 Type A1 Fuel Hose • Blue Cover USCG Type A1 - SAE J1527



Construction: AQP® elastomer tube, brass plated steel wire reinforcement, braided refractory insulation and blue AQP® elastomer cover.

Application: Diesel fuel, gasoline, hot lube oil and water. A superior hose for marine fuel systems. Meets SAE J1527 Type A1 (Flame resistant, increased permeation resistance). FC234 is an SAE J1942-1 (May 2002) qualified hose for marine fuel lines, no firesleeve required. Please review the general guidelines for selection, installation and maintenance of hose assemblies starting on page 1509

Operating Temperature Range: -40°F to +300°F.

Reusable Fittings: Reduced Bore (Steel) page 957 Reduced Bore (Stainless Steel) page 986 Reduced Bore (Brass) page 991

Aeroquip® FC234 Type A1 Fuel Hose • Blue Cover • USCG Type A1 - SAE J1527

Catalog Part No.	Aeroquip Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
•C1CR20	FC234-05	0.25	0.58	1500	6000	1.0	28	410-540	0.22	
•C1CR21	FC234-06	0.31	0.68	1500	6000	1.25	28	310-400	0.25	
•C1CR22	FC234-08	0.41	0.76	1250	5000	1.75	28	449-590	0.30	
•C1CR23	FC234-10	0.50	0.94	1250	5000	2.25	28	310-400	0.45	
•C1CR24	FC234-12	0.62	1.08	750	3000	2.75	20	230-300	0.48	
•C1CR25	FC234-16	0.88	1.24	400	1600	3.5	16	180-230	0.51	

Note: Reeled hose may be purchased by the foot or by the reel.

Trident #327 Type A2 Fuel Fill Hose USCG Type A2 - SAE J1527



Application & Construction: Trident Barrier Lined A1-15 Fuel Hose for both gasoline (including ethanol blends) and diesel (including bio diesel blends). The #365 series exceeds ABYC H-24 & H-33, SAE J1527, ISO 7840, USCG Type A1-15; CARB Executive Order and EPA Certified low permeation Type A1-15; and is NMMA Type Accepted & CE certified. This hose is built with the best fuel, fire and age resistant formulation and a unique "Barrier Liner" on inside surface of the tube, so fuel is not in direct contact with rubber. Provides extraordinary resistance to fuel permeation, aging, and also to fire, heat, cold, and the ozone. Also provides excellent bend-ability.

Fittings & Fitting Attachment Suggestions: Shank type fittings attached with stainless steel T-Bolt clamps.

Fittings: Shank Type (Brass) page 999. Shank Type (Brass) page 1002. Shank Type (Stainless Steel) page 1005

Fitting Attachment: Trident #720 S.S. T-Bolt Clamps page 1027

Trident #327 Type A2 Fuel Fill Hose • USCG Type A2 - SAE J1527

Catalog Part No.	Trident Marine Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Bend Radius (in)	Vacuum (in/Hg)	Standard Package	Wt. (per ft)	Price (per ft)
•C1FT62	327-0346	0.75	1.20	100	2.50		50 ft roll	0.50	
•C1GH48	327-1006	1.00	1.42	80	3.00		50 ft roll	0.48	
•C1GG59	327-1146	1.25	1.70	70	4.50		50 ft roll	0.94	
•C1FT63	327-1126	1.50	2.00	60	5.50		50 ft roll	0.70	
•C1FT64	327-2006	2.00	2.50	50	7.00		50 ft roll	0.90	

Note: Other sizes and lengths are readily available from Trident. Please contact us for pricing and delivery.

Note: Hose may be purchased by the foot or by the roll.

Marine Hose

Eaton 35FH fuel hose, meets EPA EETHPLINE035, USCG Type B1-15, SAE J1527



Construction: Polyvinylidene Fluoride (PVDF) barrier layer with polyester reinforcement and a black

PVC Alloy cover.

Application: Marine outboard fuel systems and small gasoline powered lawn, garden, rental and turf equipment. Designed for sustainability of our environment, with exceptionally low fuel permeation. The State of California Air Resources Board (CARB) and the U.S. EPA Clean Air Act, Section 213, mandate that fuel hoses for outboard marine, not to exceed a permeation rate of fuel vapors of 15gm/m²/day. Eaton's 35FH significantly exceeds this regulation with tested average loss rate of <6gm/m²/day. Meets tank to engine requirements on a wide variety of marine out board fuel systems and small gasoline powered turf and lawn care equipment. Meets the requirements of the International Marine Certification institutes Recreational Craft Directive 94/25/EC. Qualified to applicable portions of SAE J1527B1, SAE J30R6, R9 and R11 specifications. Please review the general guidelines for selection, installation and maintenance of hose assemblies starting on page 1509

Operating Temperature Range: -40°F to +160°F

Reusable Fittings: SOCKETLESS™ page 992

Test Requirements SAE	J30R6	J30R9	J30R11	J1527B1
Burst	Pass	Pass	Pass	Pass
Vacuum Collapse	Pass	Pass	Pass	Pass
Tensile	Pass	Pass	Pass	Pass
Flareless	Pass	Pass	Pass	Pass
Dry Heat Aging 573	Pass	Pass	Pass	Pass
Fuel Resistance Actin 5471	Pass	Pass	Pass	Pass
Crane	Pass	Pass	Pass	Pass
Adhesion	Pass	Pass	Pass	Pass

Eaton 35FH fuel hose, meets EPA EETHPLINE035, USCG Type B1-15, • SAE J1527

Catalog Part No.	Eaton Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
C1MQ91	35FH-40203-001	0.25	0.49	175	700	300	0.08	
C1MQ92	35FH-50203-001	0.31	0.56	175	700	300	0.96	
C1MQ93	35FH-60203-001	0.37	0.63	175	700	300	0.10	

Note: May be purchased by the reel or by the foot.

Trident #144 Heavy Duty Bilge-Drain-Live Well Hose



Application & Construction: Heavy duty bilge, drain and live well hose. Corrugated clear vinyl (see thru) with black hard PVC helix and smooth tube. Exceptional flexibility and bend radius. NOT RECOMMENDED FOR BELOW WATERLINE THRU-HULL CONNECTIONS. No cuffs required (Even though the O.D. of this hose is not smooth, clamping without cuffs has proven to be successful with this hose style). Clear with black helix.

Fittings & Fitting Attachment Suggestions: Shank type fittings attached with stainless steel T-Bolt clamps.

Fittings: Shank Type (Brass) page 999. Shank Type (Brass) page 1002. Shank Type (Stainless Steel) page 1005

Fitting Attachment: Trident #720 S.S. T-Bolt Clamps page 1027

Trident #144 Heavy Duty Bilge-Drain-Live Well Hose

Catalog Part No.	Trident Marine Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Standard Package	Wt. (per ft)	Price (per ft)
C1FS82	144-1126	1.50	1.79	50			50 ft reel box	0.40	

Note: Other sizes and lengths are readily available from Trident. Please contact us for pricing and delivery.

Note: Hose may be purchased by the foot, by the roll or by the reel box.

Trident #147 Extra Heavy Duty Bilge-Live Well Hose



Application & Construction: Smooth extra heavy wall vinyl hose. All clear (see thru) with black helix. Excellent durability, flexibility and bend radius for extra heavy duty bilge, live well, drain, scupper lines, etc. No cuffs required. Operating temperatures 10°F to 140°F.

Fittings & Fitting Attachment Suggestions: Shank type fittings attached with stainless steel T-Bolt clamps.

Fittings: Shank Type (Brass) page 999. Shank Type (Brass) page 1002. Shank Type (Stainless Steel) page 1005

Fitting Attachment: Trident #720 S.S. T-Bolt Clamps page 1027

Trident #147 Extra Heavy Duty Bilge-Live Well Hose

Catalog Part No.	Trident Marine Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Color	Standard Package	Wt. (per ft)	Price (per ft)
•C1FS88	147-1186	1.125	1.375	95			Clear, black helix	50 ft reel box	0.28	

Note: Double Clamping is recommended for below water line connections.

Note: Other sizes and lengths are readily available from Trident. Please contact us for pricing and delivery.

Note: Hose may be purchased by the foot or by the reel box.

Trident #101 Premium Sanitation Hose Head & Holding Tank



Application & Construction: Premium sanitation hose for all head and holding tank applications. Extra thick tube and cover specially compounded for maximum resistance to odor permeation and winterizing with anti freeze. Helical wire between 2 ply reinforcement provides excellent flexibility and bend radius. Longest odor-free performance on the market, but self draining installations are still recommended. NOT for potable water.

Fittings & Fitting Attachment Suggestions: Shank type fittings attached with stainless steel T-Bolt clamps.

Fittings: Short Shank Type (Brass) page 999. Medium Shank Type (Brass) page 1002. Shank Type (Stainless Steel) page 1005

Fitting Attachment: Trident #720 S.S. T-Bolt Clamps page 1027

Trident #101 Premium Sanitation Hose • Head & Holding Tank

Catalog Part No.	Trident Marine Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Standard Package	Wt. (per ft)	Price (per ft)
•C1FS61	101-1126	1.50	2.08				50 ft roll	0.60	
•C1GM69	101-1786-TRIDENT	1.875					50 ft roll	0.80	

Note: Other sizes and lengths are readily available from Trident. Please contact us for pricing and delivery.

Note: Hose may be purchased by the foot or by the roll.

Marine Hose

Trident #148 Extra Heavy Duty Sanitation Hose - FDA Sanitation - Potable Water - Critical Bilge - Scupper - Live Well



Application & Construction: Extra heavy duty sanitation hose of smooth white vinyl. Specially compounded to provide excellent resistance to odor permeation and FDA potable water fill. Also for critical bilge, drain scupper, live well, etc. Hard PVC helix gives good flexibility and bend radius. No cuffs required. NOT for use with alcohols, anti freeze, petro-chemicals or solvents.

Operating temperatures 10°F to 140°F. White.

Fittings & Fitting Attachment Suggestions: Shank type fittings attached with stainless steel T-Bolt clamps (Stainless steel worm gear clamps may be used for smaller sizes where T-Bolt style is not available).

Fittings: Short Shank Type (Brass) page 999. Medium Shank Type (Brass) page 1002. Shank Type (Stainless Steel) page 1005

Fitting Attachment: Trident #720 S.S. T-Bolt Clamps page 1027. Worm Gear Clamps page 1022

Trident #148 Extra Heavy Duty Sanitation Hose - FDA • Sanitation - Potable Water - Critical Bilge - Scupper - Live Well

Catalog Part No.	Trident Marine Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Standard Package	Wt. (per ft)	Price (per ft)
•C1FS89	148-0346	0.75	1.00	105			50 ft reel box	0.19	
•C1FS91	148-1006	1.00	1.25	100			50 ft reel box	0.24	

Note: Double Clamping is recommended for below water line connections.

Note: Hose may be purchased by the foot or by the reel box.

Trident #100 Hardwall Water Hose Engine Intake - Critical Water - Drain - Scupper



Application & Construction: Premium water hose for engine intake, critical water, drain, scupper, bilge and sanitation uses. Black Hi Temp EPDM rubber rated to 250°F. Extra heavy tube and cover with wire helix between 2 ply reinforcement provides excellent flexibility and bend radius. Resists heat, ozone, exhaust, sanitation chemicals, panting and collapse. Exceeds new SAE

J2006, ABYC and NMMA standards. ISO 13363 Standard pending. Black with blue stripe.

Fittings & Fitting Attachment Suggestions: Shank type fittings attached with stainless steel T-Bolt clamps (Stainless steel worm gear clamps may be used for smaller sizes where T-Bolt style is not available).

Fittings: Short Shank Type (Brass) page 999. Medium Shank Type (Brass) page 1002. Shank Type (Stainless Steel) page 1005

Fitting Attachment: Trident #720 S.S. T-Bolt Clamps page 1027. Worm Gear Clamps page 1022

Trident #100 Hardwall Water Hose • Engine Intake - Critical Water - Drain - Scupper

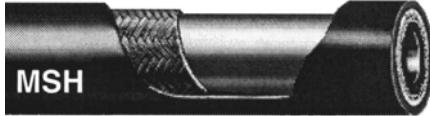
Catalog Part No.	Trident Marine Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Bend Radius (in)	Vacuum (in/Hg)	Standard Package	Wt. (per ft)	Price (per ft)
•C1FS56	100-0346	0.75	1.18	98	2.25		50 ft roll	0.29	
•C1FS59	100-1006	1.00		78	3.00		50 ft roll	0.38	

Note: Double Clamping is recommended for below water line connections.

Note: Other sizes and lengths are readily available from Trident. Please contact us for pricing and delivery.

Note: Hose with 50 ft roll standard package may be purchased by the foot or by the package. Hose with 12-1/2 ft standard package may be purchased by the package.

Trident MSH Marine Steering Hose



Construction: Polymeric core tube, fiber braid reinforcement, abrasion-resistant urethane cover. Black, non-perforated cover. All layers bonded for optimum kink resistance and flexibility.

Application: Marine steering hose provides flexibility and low volumetric expansion for rapid, accurate hydraulic response. Please review the general guidelines for selection, installation and maintenance of hose assemblies starting on page 1509

Operating Temperature Range: -40°F to 212°F except limited to 135°F for synthetic hydraulic fluids and water-based fluids.

Fittings: Crimp (Brass) page 990 Reusable (Brass) page 997

Trident MSH Marine Steering Hose

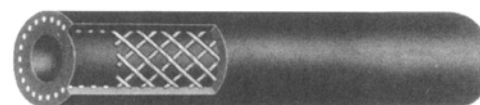
Catalog Part No.	Trident Marine Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
•C1HX31	MSH-5-RL	0.3125	0.48	1000	4000	2.25		600 ft reel	0.05	
•C1HX32	MSH-6-RL	0.375	0.59	1000	4000	3.0		600 ft reel	0.07	

Note: Reeled hose may be purchased by the foot or by the reel.

Special Application Hose



4219G Fuel Line & Tank Vent



Construction: Black Buna-N tube. Synthetic high tensile cord reinforcement. Black Buna-N* cover. * Modified Buna-N compound for increased ozone resistance.

Application: Fuel line applications to provide flexible connections between rigid fuel distribution lines and the engine. Exceeds requirements of SAE 30R6 and SAE 30R7. Hose is NMMA type accepted. Also for use in evaporative emission control systems and as a vent line. Please review application requirements and limitations found in NAHAD Pressure Guideline Chart page 1534

Operating Temperature Range: -40°F to +275°F.

Fittings & Fitting Attachment Suggestions: Shank type fittings attached with pinch clamps, preformed clamps or crimp ferrules.

Fittings: Short Shank Type (Brass) page 999. Shank Type (Stainless Steel) page 1005

Fitting Attachment: Pinch Clamps page 1023 Band-It® Jr. Preformed Clamps page 1031 Crimp Ferrules page 1034

Caution: NOT recommended for fuel injection systems.

4219G

Catalog Part No.	Gates Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
•C1BP85	4219-0107	0.3125	0.56	50	3	24	450-650	0.10	

Note: Reeled hose may be purchased by the foot or by the reel.



FC350 Engine & Air Brake FMVSS106 AQP® Tube Polyester Braid Cover Black



Construction: AQP® elastomer tube, polyester inner braid and a single wire braid reinforcement, black polyester textile braided cover.

Application: Air, gasoline, fuel, lubricating oils and coolants. Please review the general guidelines for selection, installation and maintenance of hose assemblies starting on page 1509

Operating Temperature Range: -55°F to +300°F, except air +250°F.

Reusable Fittings: Reduced Bore (Steel) page 957 Reduced Bore (Stainless Steel) page 986 Reduced Bore (Brass) page 991

FC350

Catalog Part No.	Aeroquip Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
•C1CR76	FC350-04	0.19	0.52	2000	8000	0.75	28	500-650	0.13	
•C1CR77	FC350-06	0.31	0.68	1500	6000	1.25	28	320-420	0.21	

FC350

Catalog Part No.	Aeroquip Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
•C1CR78	FC350-08	0.41	0.77	1250	5000	1.75	28	450-600	0.24	
•C1EU57	FC350-10	0.50	0.94	1250	5000	2.25	28	310-400	0.35	
•C1CR79	FC350-12	0.62	1.08	750	3000	2.75	20	230-300	0.38	
•C1CR80	FC350-16	0.88	1.23	400	1600	3.5	15	180-240	0.45	
C1CR81	FC350-20	1.12	1.50	300	1200	4.5	15	120-160	0.48	
C1GL69	FC350-24	1.38	1.75	250	1000	5.5	11	100-150	0.53	

Note: Reeled hose may be purchased by the foot or by the reel.



FC355

Engine & Air Brake
FMVSS106
AQP® Tube
AQP® Cover Blue



Construction: AQP® elastomer tube, polyester inner braid and a single wire braid reinforcement, blue AQP® elastomer cover.

Application: Air, gasoline, fuel, lubricating oils and coolants. Please review the general guidelines for selection, installation and maintenance of hose assemblies starting on page 1509

Operating Temperature Range: -40°F to +300°F, except air, not to exceed 250 PSI or +250°F.

Reusable Fittings: Reduced Bore (Steel) page 957 Reduced Bore (Stainless Steel) page 986 Reduced Bore (Brass) page 991

FC355

Catalog Part No.	Aeroquip Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
•C1EQ11	FC355-04	0.19	0.52	1500	6000	0.75	28	510-670	0.17	
C1HE59	FC355-16	0.88	1.24	400	1600	3.50	15	Rolls Only	0.57	
•C1EQ12	FC355-20	1.13	1.52	300	1250	4.50	15	Rolls Only	0.59	
C1HE60	FC355-24	1.38	1.75	250	1000	5.50	11	Rolls Only	0.70	

Note: Reeled hose may be purchased by the foot or by the reel.

Special Application Hose



2570

**Air Brake SAE J1402
FMVSS106**



Construction: Synthetic rubber tube, double textile braid and black synthetic rubber cover.

Application: Tractor to trailer lines, axle chamber lines and tractor service lines. Please review the general guidelines for selection, installation and maintenance of hose assemblies starting on page 1509

Operating Temperature Range: -40°F to +212°F.

Reusable Fittings: Aeroquip® Reusable Air Brake Fittings page 969, (-6 and -8 only).

2570

Catalog Part No.	Aeroquip Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
•C1BH40	2570-6	0.38	0.75	225	900	1.75		450-475	0.18	

Note: Reeled hose may be purchased by the foot or by the reel.



EC038

**Air Brake SAE J1402 A
DOT AII, FMVSS106**



Construction: Enter Feature Label EC038 is manufactured with a highly engineered EPDM tube and cover and reinforced with a traditional polyester braid, delivering performance and value to the customer.

Application: Tractor to trailer lines, axle chamber lines and tractor service lines. Please review the general guidelines for selection, installation and maintenance of hose assemblies starting on page 1509

Operating Temperature Range: -40°F to +212°F.

Fitting Reference: Crimp Reusable page 995

EC038

Catalog Part No.	Aeroquip Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
•C1MK48	EC03806-250R	0.38	0.75	225	900	1.75		250	0.21	
•C1MK49	EC03808-250R	0.50	0.88	225	900	2.00		250	0.27	

Note: Reeled hose may be purchased by the foot or by the reel.

BQ101

Rubber Brake Hose Meets FMVSS-106 and J1401



Construction: Two braid PVA reinforced hose. EPDM tube and cover.

Application: Compatible with DOT 3, DOT 4 and most non-petroleum based brake fluids including silicone. page 1509

Operating Temperature Range: -58°F to 250°F

Fittings: BrakeQuip Crimp Fittings page 981

BQ101

Catalog Part No.	BrakeQuip Model	Hose I.D. (in)	Hose O.D. (in)	Test Pressure (psi)	Reel Qty (ft)	Wt. (per 100 ft)	Price (per ft)
C1LY64	BQ101	0.130-0.138	0.406-0.421	3000	50	0.50	

Territory restrictions apply: These products are available only to select international accounts.

BQ300

High Performance Stainless Steel Braided Brake Hose



Construction: PVC jacket. 304 Stainless 4-wire braid, thickness 0.008" reinforcement. PTFE-Smooth bore tube.

Application: Hydraulic Brake Hose. Please review the general guidelines for selection, installation and maintenance of hose assemblies starting on page 1509

Operating Temperature Range: -100°F to 500°F

Fittings: BrakeQuip Crimp Fittings

BQ300

Catalog Part No.	BrakeQuip Model	Hose I.D. (in)	Hose O.D. (in)	O.D. Including Jacket (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Jacket Color	Wt. (per ft)	Price (per ft)
C1LY98	BQ301	0.125	0.25	0.25	3000	12000	2.00	No Jacket	0.04	
C1LY99	BQ303	0.125	0.25	0.295	3000	12000	2.00	Clear		
C1LZ11	BQ303BK	0.125	0.25	0.295	3000	12000	2.00	Black		
C1LZ12	BQ303BL	0.125	0.25	0.295	3000	12000	2.00	Blue		
C1LZ13	BQ303RD	0.125	0.25	0.295	3000	12000	2.00	Red		

Territory restrictions apply: These products are available only to select international accounts.

Special Application Hose

BQ330•BQ331 Power Steering Hose BQ330 High Pressure BQ331 Low Pressure



Application: Power steering. Please review the general guidelines for selection, installation and maintenance of hose assemblies starting on page 1509

Features: These hoses have a high temperature rating and are compatible with most power steering oils. BQ330: High expansion for noise resistance. BQ331: Fabric cover to distinguish it and for flexibility.

Crimp Fittings: BrakeQuip Crimp Fittings

BQ330•BQ331

Catalog Part No.	BrakeQuip Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Temperature Range (°F)	Meets SAE Specification	Wt. (per ft)	Price (per ft)
C1LZ18	BQ330	0.375	0.709	1639	8700	3.25	-40 to 275	J2050	0.01	
C1LZ19	BQ331	0.375	0.640	300	1200	3.00	-40 to 300	J1019	0.01	

Territory restrictions apply: These products are available only to select international accounts.

FLX5526 Heater Hose Silicone Rubber Blue Hose / Red Core Meets TMC-RP303B Class 1 Grade 2 Specification



Application: For heavy-duty pressure connections in hostile engine environments.

Characteristics: Continuous operating temperature -65°F to 350°F. Nylon fiber reinforced. Resistant to coolant additives.

Suggested Clamps: Oetiker Stepless® Ear Pinch Clamps page 1024 Oetiker Stepless® Spring Clamps page 1028 Trident #730 S.S. Constant-Torque® Clamps page 1030. Do not use serrated, slotted or wire type clamps.

FLX5526

Catalog Part No.	Flexfab Model	Hose I.D. Min/Max (in)	Hose O.D. Min/Max (in)	Minimum Burst Pressure (psi)	Wt. (per ft)	Price (per ft)
C1KG96	FLX5526-050	0.480 / 0.520	0.830 / 0.840	250	0.18	
C1KG20	FLX5526-062	0.605 / 0.645	0.955 / 0.970	250	0.22	
C1KG21	FLX5526-075	0.730 / 0.770	1.08 / 1.09	200	0.25	
C1KG22	FLX5526-087	0.855 / 0.905	1.18 / 1.22	175	0.30	
C1KG27	FLX5526-100	0.970 / 1.020	1.33 / 1.40	175	0.15	

FLX5581

Silicone Rubber Coolant Hose Blue



Construction: 4-Ply silicone coolant hose reinforced with polyester fabric and coated with specially compounded silicone elastomer.

Characteristics: Continuous operating temperature is -65°F to 350°F. Meets or exceeds the requirements of SAE J20 R1 Class A, TMC RP303B Class 1 Grade 1 and most OEM truck manufacturers' specifications.

Suggested Clamps: Oetiker Stepless® Ear Pinch Clamps page 1024 Oetiker Stepless® Spring Clamps page 1028 Trident #730 S.S. Constant-Torque® Clamps page 1030

FLX5581

Catalog Part No.	Flexfab Model	Hose I.D. (in)	Hose O.D. (in)	Minimum Burst Pressure (psi)	Length (in)	Wt. (per ft)	Price (per ft)
•C1KL93	FLX5581-087	0.88	1.27	560	36	0.30	
•C1KG97	FLX5581-100	1.00	1.39	550	36	0.39	
•C1KG98	FLX5581-125	1.25	1.64	500	36	0.49	
•C1KL94	FLX5581-138	1.38	1.77	475	36	0.53	
•C1KG99	FLX5581-150	1.50	1.89	450	36	0.59	
•C1KG28	FLX5581-175	1.75	2.14	400	36	0.68	
•C1KL95	FLX5581-187	1.88	2.27	400	36	0.71	
•C1KG56	FLX5581-200	2.00	2.39	400	36	0.78	
•C1KH11	FLX5581-225	2.25	2.64	350	36	0.88	
•C1KG57	FLX5581-238	2.38	2.77	325	36	0.93	
•C1KG59	FLX5581-250	2.50	2.89	300	36	0.98	
•C1KH12	FLX5581-275	2.75	3.14	275	36	1.07	
•C1KL96	FLX5581-287	2.88	3.27	250	36	1.13	
•C1KH13	FLX5581-300	3.00	3.39	250	36	1.17	
•C1KG60	FLX5581-350	3.50	3.89	200	36	1.37	
•C1KH14	FLX5581-400	4.00	4.39	150	36	1.56	
•C1KL97	FLX5581-425	4.25	4.64	150	36	1.67	
•C1KH15	FLX5581-450	4.50	4.89	150	36	1.76	
•C1KH16	FLX5581-500	5.00	5.39	125	36	1.95	

Special Application Hose

Hydraulic Power & Control

Pneumatic Power & Control

Fluid Conveying

Miscellaneous Products

Indexes & Technical Information

FC321

L.P. Gas
UL Listing MH6044



Construction: Synthetic rubber tube, a textile inner braid, a stainless steel wire braid reinforcement and a synthetic rubber impregnated textile braid cover.

Application: Designed for butane-propane applications on either mobile or stationary equipment. Please review the general guidelines for selection, installation and maintenance of hose assemblies starting on page 1509

Operating Temperature Range: -40°F to +250°F.

Reusable Fittings: Reduced Bore (Steel) page 957 Reduced Bore (Stainless Steel) page 986 Reduced Bore (Brass) page 991

Warning: LPG is a very hazardous liquid or gas and should be handled with maximum care to prevent leakage. Since the gas is heavier than air, it may flow along the ground if it escapes and cause an explosion or a fire. No leakage should ever be tolerated.

FC321

Catalog Part No.	Aeroquip Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
•C1CR65	FC321-06	0.31	0.67	350	1750	2.00	560	0.17	
•C1ZU74	FC321-08	0.41	0.77	350	1750	2.31	460	0.19	

Note: Reeled hose may be purchased by the foot or by the reel.



H900

UL LPG
UL 21 Approved



Construction: Tube: Nitrile; Reinforcement: Textile braid; Cover: Pin-pricked vinyl nitrile

Application: • For transfer and delivery of propane and butane • Transfer of natural gas in open, well ventilated areas (1 psig max. working pressure). Please review the general guidelines for selection, installation and maintenance of hose assemblies starting on page 1509

Operating Temperature: -40°F to +140°F. Hose is capable of this rating. LP-Gas should never be elevated above 100°F.

Fitting & Fitting Attachment Suggestions: • "U" Series • Swaged or crimp male couplings

Warning: LPG is a very hazardous liquid or gas and should be handled with maximum care to prevent leakage. Since the gas is heavier than air, it may flow along the ground if it escapes and cause an explosion or a fire. No leakage should ever be tolerated.

H900

Catalog Part No.	Eaton Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
C1NB56	H90004-500R	0.25	0.59	350	1750	500	0.12	
•C1NB57	H90006-500R	0.38	0.73	350	1750	500	0.17	
C1NB58	H90008-500R	0.50	0.92	350	1750	500	0.24	

Not to be used for NH3: Use of damaged hose or improper use may result in bodily injury or property damage. Please consult Eaton catalog or Technical Support for proper application.

FC579

10,000 PSI Jack Hose Double Wire Braid Meets IJ100 Requirements



Construction: Synthetic rubber tube, double wire braid reinforcement and synthetic rubber cover.

Application: Hydraulic jacking system service with petroleum and water-base fluids. Meets the performance requirements of the Material Handling Institute Specification IJ100. Please review the general guidelines for selection, installation and maintenance of hose assemblies starting on page 1509

Operating Temperature Range: -40°F to 212°F.

Crimp Fittings: Global TTC (Steel) page 919 Global Skive page 948

FC579

Catalog Part No.	Aeroquip Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
C1JF23	FC579-04	0.25	0.53	10000	20000	2.00		450-600	0.22	
C1JP85	FC579-06	0.38	0.69	10000	20000	2.50		450-600	0.29	

Note: Reeled hose may be purchased by the foot or by the reel.

H345

Pressure Washer



Construction: Tube: Oil-resistant Nitrile (RMA Class A); Reinforcement: 1-braid wire; Cover: Vinyl nitrile MSHA approved

Application: • High pressure cleaning and degreasing • Washdown of food processing equipment • Pressure wash engines, equipment, tanks, building, etc. Please review application requirements and limitations found in NAHAD Pressure Guideline Chart page 1534

Operating Temperature: 0°F to +200°F

Fittings & Fitting Attachment Suggestions: Crimp Through the Cover Fittings

Fittings: TTC fittings (steel) page 919. TTC fittings (stainless steel) Global TTC (Stainless Steel) page 982

H345

Catalog Part No.	Eaton Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
C1MS82	H34504-500R	0.25	0.48	3000	12000	2.00	500	0.13	

Note: Maximum Operating Pressure for the hose assembly (fittings attached to the hose) may be lower than the stated Maximum Operating Pressure in this table. NAHAD Pressure Guideline Chart page 1534

Note: May be purchased by the package or by the foot.

Warning: Use of damaged hose or improper use may result in bodily injury or property damage. Please consult Eaton catalog or Technical Support for proper application.

Special Application Hose



GH134 Multi-Refrigerant SAE J2064 Type E Class 1 E-Z Clip™ Fitting System



Construction: Nylon veneer tube, stabilized synthetic braided reinforcement and chlorobutyl rubber cover.

Application: Transportation refrigeration and air conditioning systems. Please review the general guidelines for selection, installation and maintenance of hose assemblies starting on page 1509

Operating Temperature Range: -22°F to 257°F.

Effusion Rates: R404a: .2 lbs./ft²/yr. at 140°F. HFC 134a: .50 lbs./ft²/yr. at 176°F. R22: 27.7 lbs./ft²/yr. at 158°F.

Moisture Ingression: .08 gm./in²/yr.

Fittings: E-Z Clip™ System page 973

GH134

Catalog Part No.	Aeroquip Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
•C1EZ27	GH134-6	0.31	0.58	500	2000	2.00	29.5	560	0.09	
•C1EZ28	GH134-8	0.41	0.70	500	2000	2.50	29.5	575	0.12	
•C1EZ25	GH134-10	0.50	0.78	500	2000	3.00	29.5	360	0.15	
•C1EZ26	GH134-12	0.63	0.98	500	2000	4.00	29.5	367	0.18	

Note: Reeled hose may be purchased by the foot or by the reel.

Note: All sizes will withstand full negative pressure for charging purposes.



FC558 Refrigeration Air Conditioning SAE J2064 Type B Class 1



Construction: Butyl rubber tube, single wire braid reinforcement and textile braid cover.

Application: Designed for applications using only refrigerant 134a. Not recommended for applications using refrigerant 12 or R22. Please review the general guidelines for selection, installation and maintenance of hose assemblies starting on page 1509

Operating Temperature Range: -40°F to +250°F.

Reusable Fittings: Reduced Bore (Steel) page 957 Reduced Bore (Stainless Steel) page 986 Reduced Bore (Brass) page 991

FC558

Catalog Part No.	Aeroquip Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
•C1EQ22	FC558-16	0.88	1.24	500	2500	7.38	28	Rolls Only	0.47	



2807

Teflon® Tube Stainless Steel Braid



Construction: Extruded Teflon® tube with stainless steel single wire braid.

Application: Hot air, steam, compressor discharge and most chemical applications. Not recommended for steam-cold water cycling. Please review the general guidelines for selection, installation and maintenance of hose assemblies starting on page 1509

Operating Temperature Range: -100°F to +500°F.

Reusable Fittings: Teflon® 1-Braid (Steel) page 970 Teflon® 1-Braid (Stainless Steel) page 987

Crimp Fittings: Flat Crimp (Steel) page 955 Flat Crimp (Stainless Steel) page 983

Internal Support Coil: Internal Support Coil (Stainless Steel) page 913

Note: Steam 200 psi at +388°F max. Engineering information is available for specific critical temperature requirements. Contact us for assistance.

Note: Maximum negative pressure shown for -16 and larger are suitable for hose which has suffered no external damage or kinking. If greater negative pressures are required for -16 and larger hoses, the use of an internal support coil is recommended. Use of an internal support coil in -06 and larger Teflon® hose is recommended for tube support where extended or continuous service at high temperature together with low or negative pressure is expected.

2807

Catalog Part No.	Aeroquip Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
•C1BJ83	2807-3	0.14	0.25	3000	12000	1.50	28	Rolls Only	0.04	
C1BJ84	2807-4	0.19	0.30	3000	12000	2.0	28	Rolls Only	0.06	
C1BJ79	2807-10	0.51	0.63	1500	6000	6.5	28	Rolls Only	0.16	
•C1BJ82	2807-20	1.12	1.29	625	2500	16	12	Rolls Only	0.34	

Special Application Hose



STW

**Teflon® Tube
Stainless Steel Braid**



Construction: Extruded Teflon® tube with stainless steel single wire braid.

Application: Hot air, steam, compressor discharge and most chemical applications. Not recommended for steam-cold water cycling. Please review the general guidelines for selection, installation and maintenance of hose assemblies starting on page 1509

Operating Temperature Range: -65°F to 450°F.

Reusable Fittings: Teflon® 1-Braid (Steel) page 970 Teflon® 1-Braid (Stainless Steel) page 987

Crimp Fittings: Everswage™ (Stainless Steel) page 985 Flat Crimp (Stainless Steel) page 983 Flat Crimp (Steel) page 955

Internal Support Coil: Internal Support Coil (Stainless Steel) page 913

Note: Maximum negative pressure shown for -16 and larger are suitable for hose which has suffered no external damage or kinking. If greater negative pressures are required for -16 and larger hoses, the use of an internal support coil is recommended. Use of an internal support coil in -06 and larger Teflon® hose is recommended for tube support where extended or continuous service at high temperature together with low or negative pressure is expected.

STW

Catalog Part No.	Everflex Model	Braid Material	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
•C1EH81	S-4TW	304SS	0.19	0.31	3000	12000	2.0	28	Rolls Only	0.06	
•C1JJ59	S-4TW316SS	316SS	0.19	0.32	3000	12000	2.0	28	Rolls Only	0.06	
•C1JQ85	S-5TW	304SS	0.25	0.38	3000	12000	3.0	28	Rolls Only	0.08	
•C1JQ87	S-6TW	304SS	0.31	0.43	2500	10000	4.0	28	Rolls Only	0.10	
•C1JQ88	S-8TW	304SS	0.41	0.54	2000	8000	5.0	28	Rolls Only	0.12	
•C1JQ78	S-10TW	304SS	0.50	0.64	1750	7000	6.5	28	Rolls Only	0.16	
•C1JQ80	S-12TW	304SS	0.63	0.77	1500	6000	7.5	28	Rolls Only	0.19	
•C1JQ82	S-16TW	304SS	0.88	1.03	1000	4000	9.0	12	Rolls Only	0.28	

SC

Thick Teflon® Tube Improved Kink Resistant Stainless Steel Braid Conductive Liner



Construction: Extruded Teflon® tube (33% more Teflon® than most other manufacturers) with 304 stainless steel wire braid. Also has an internal conductive static dissipating liner that provides a path to the hose end fittings for applications where flow induced electrostatic charges can occur. The additional Teflon® results in improved bend radius, kink resistance and slows permeation of gases.

Application: Marine power trim, hot air, steam, compressor discharge and most chemical applications. Not recommended for steam-cold water cycling. Please review the general guidelines for selection, installation and maintenance of hose assemblies starting on page 1509

Operating Temperature Range: -65°F to +450°F.

Crimp Fittings: Everswage™ (Stainless Steel) page 985

SC

Catalog Part No.	Everflex Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
•C1DK72	SC-4	0.1875	0.32	3000	12000	1.875		Rolls Only	0.07	

Hose Assemblies

Hydraulic Hose Assemblies

Single Wire Braid Aeroquip® GH663 Hose



GH663 Technical Information: page 839

Note: Fitting Codes & Thread Sizes are listed below.

Single Wire Braid • Aeroquip® GH663 Hose

Catalog Part No.	HSC Model	Hose I.D. (in)	Hose Lgth (in)	Fittings	Wt.	Price Each
C1JG96	663-4-15-FJ	0.25	15	-04 FJ x -04 FJ		
C1JG98	663-4-24-FJ	0.25	24	-04 FJ x -04 FJ		
C1JH13	663-4-36-FJ	0.25	36	-04 FJ x -04 FJ		
C1JH15	663-4-48-FJ	0.25	48	-04 FJ x -04 FJ		
C1JH18	663-4-60-FJ	0.25	60	-04 FJ x -04 FJ		
C1JH20	663-4-72-FJ	0.25	72	-04 FJ x -04 FJ		
C1JH22	663-4-96-FJ	0.25	96	-04 FJ x -04 FJ		
C1JH26	663-6-15-FJ	0.38	15	-06 FJ x -06 FJ		
C1JH28	663-6-24-FJ	0.38	24	-06 FJ x -06 FJ		
C1JH31	663-6-36-FJ	0.38	36	-06 FJ x -06 FJ		
C1JH34	663-6-48-FJ	0.38	48	-06 FJ x -06 FJ		
C1JH37	663-6-60-FJ	0.38	60	-06 FJ x -06 FJ		
C1JH42	663-6-72-FJ	0.38	72	-06 FJ x -06 FJ		
C1JH44	663-6-96-FJ	0.38	96	-06 FJ x -06 FJ		
C1JH49	663-8-15-FJ	0.50	15	-08 FJ x -08 FJ		
C1JH51	663-8-24-FJ	0.50	24	-08 FJ x -08 FJ		
C1JH57	663-8-36-FJ	0.50	36	-08 FJ x -08 FJ		
C1JH67	663-8-48-FJ	0.50	48	-08 FJ x -08 FJ		
C1JH77	663-8-60-FJ	0.50	60	-08 FJ x -08 FJ		
C1JH80	663-8-72-FJ	0.50	72	-08 FJ x -08 FJ		
C1JH85	663-8-96-FJ	0.50	96	-08 FJ x -08 FJ		
C1JH59	663-8-36-FJ10	0.50	36	-10 FJ x -10 FJ		
C1JH69	663-8-48-FJ10	0.50	48	-10 FJ x -10 FJ		
C1JH78	663-8-60-FJ10	0.50	60	-10 FJ x -10 FJ		
C1JH81	663-8-72-FJ10	0.50	72	-10 FJ x -10 FJ		
C1JH86	663-8-96-FJ10	0.50	96	-10 FJ x -10 FJ		
C1JG66	663-12-24-FJ	0.75	24	-12 FJ x -12 FJ		
C1JG70	663-12-36-FJ	0.75	36	-12 FJ x -12 FJ		
C1JG74	663-12-48-FJ	0.75	48	-12 FJ x -12 FJ		
C1JG76	663-12-60-FJ	0.75	60	-12 FJ x -12 FJ		
C1JG78	663-12-72-FJ	0.75	72	-12 FJ x -12 FJ		
C1JG80	663-16-24-FJ	1.00	24	-16 FJ x -16 FJ		
C1JG83	663-16-36-FJ	1.00	36	-16 FJ x -16 FJ		
C1JG90	663-16-48-FJ	1.00	48	-16 FJ x -16 FJ		
C1JG92	663-16-60-FJ	1.00	60	-16 FJ x -16 FJ		
C1JG94	663-16-72-FJ	1.00	72	-16 FJ x -16 FJ		
C1JG97	663-4-15-MP	0.25	15	1/4 MP x 1/4 MP		

Single Wire Braid • Aeroquip® GH663 Hose

Catalog Part No.	HSC Model	Hose I.D. (in)	Hose Lgth (in)	Fittings	Wt.	Price Each
C1JH12	663-4-24-MP	0.25	24	1/4 MP x 1/4 MP		
C1JH14	663-4-36-MP	0.25	36	1/4 MP x 1/4 MP		
C1JH16	663-4-48-MP	0.25	48	1/4 MP x 1/4 MP		
C1JH19	663-4-60-MP	0.25	60	1/4 MP x 1/4 MP		
C1JH21	663-4-72-MP	0.25	72	1/4 MP x 1/4 MP		
C1JH25	663-4-96-MP	0.25	96	1/4 MP x 1/4 MP		
C1JH30	663-6-24-MP4	0.38	24	1/4 MP x 1/4 MP		
C1JH33	663-6-36-MP4	0.38	36	1/4 MP x 1/4 MP		
C1JH36	663-6-48-MP4	0.38	48	1/4 MP x 1/4 MP		
C1JH41	663-6-60-MP4	0.38	60	1/4 MP x 1/4 MP		
C1JH43	663-6-72-MP4	0.38	72	1/4 MP x 1/4 MP		
C1JH27	663-6-15-MP	0.38	15	3/8 MP x 3/8 MP		
C1JH29	663-6-24-MP	0.38	24	3/8 MP x 3/8 MP		
C1JH32	663-6-36-MP	0.38	36	3/8 MP x 3/8 MP		
C1JH35	663-6-48-MP	0.38	48	3/8 MP x 3/8 MP		
C1JH38	663-6-60-MP	0.38	60	3/8 MP x 3/8 MP		
C1JH45	663-6-96-MP	0.38	96	3/8 MP x 3/8 MP		
C1JH66	663-8-36-MP6	0.50	36	3/8 MP x 3/8 MP		
C1JH76	663-8-48-MP6	0.50	48	3/8 MP x 3/8 MP		
C1JH84	663-8-72-MP6	0.50	72	3/8 MP x 3/8 MP		
C1JH50	663-8-15-MP	0.50	15	1/2 MP x 1/2 MP		
C1JH56	663-8-24-MP	0.50	24	1/2 MP x 1/2 MP		
C1JH62	663-8-36-MP	0.50	36	1/2 MP x 1/2 MP		
C1JH75	663-8-48-MP	0.50	48	1/2 MP x 1/2 MP		
C1JH79	663-8-60-MP	0.50	60	1/2 MP x 1/2 MP		
C1JH82	663-8-72-MP	0.50	72	1/2 MP x 1/2 MP		
C1JH87	663-8-96-MP	0.50	96	1/2 MP x 1/2 MP		
C1JH47	663-8-108-MP	0.50	108	1/2 MP x 1/2 MP		
C1JH48	663-8-120-MP	0.50	120	1/2 MP x 1/2 MP		
C1JG68	663-12-24-MP	0.75	24	3/4 MP x 3/4 MP		
C1JG73	663-12-36-MP	0.75	36	3/4 MP x 3/4 MP		
C1JG75	663-12-48-MP	0.75	48	3/4 MP x 3/4 MP		
C1JG77	663-12-60-MP	0.75	60	3/4 MP x 3/4 MP		
C1JG79	663-12-72-MP	0.75	72	3/4 MP x 3/4 MP		
C1JG82	663-16-24-MP	1.00	24	1 MP x 1 MP		
C1JG89	663-16-36-MP	1.00	36	1 MP x 1 MP		
C1JG91	663-16-48-MP	1.00	48	1 MP x 1 MP		
C1JG93	663-16-60-MP	1.00	60	1 MP x 1 MP		
C1JG95	663-16-72-MP	1.00	72	1 MP x 1 MP		

		Fitting Thread Sizes									
Fitting Code	Fitting Type	-02	-04	-05	-06	-08	-10	-12	-16	-20	-24
FJ	Female JIC 37° Swivel	5/16-24	7/16-20	1/2-20	9/16-18	3/4-16	7/8-14	1-1/16-12	1-5/16-12	1-5/8-12	1-7/8-12
MP	Male Pipe	1/8-27	1/4-18		3/8-18	1/2-14		3/4-14	1-11/16-12	1-1/4-11-1/2	1-1/2-11-1/2



Hose Assemblies

Hydraulic Hose Assemblies

Double Wire Braid Aeroquip® GH781 Hose



GH781 Technical Information: page 843

Note: Fitting Codes & Thread Sizes are listed below.

Double Wire Braid • Aeroquip® GH781 Hose

Catalog Part No.	HSC Model	Hose I.D. (in)	Hose Lgth (in)	Fittings	Wt.	Price Each
C1JJ68	781-4-15-FJ	0.25	15	-04 FJ x -04 FJ		
C1JJ70	781-4-24-FJ	0.25	24	-04 FJ x -04 FJ		
C1JJ72	781-4-36-FJ	0.25	36	-04 FJ x -04 FJ		
C1JJ74	781-4-48-FJ	0.25	48	-04 FJ x -04 FJ		
C1JJ76	781-4-60-FJ	0.25	60	-04 FJ x -04 FJ		
C1JJ78	781-4-72-FJ	0.25	72	-04 FJ x -04 FJ		
C1JJ80	781-4-96-FJ	0.25	96	-04 FJ x -04 FJ		
C1JJ82	781-6-15-FJ	0.38	15	-06 FJ x -06 FJ		
C1JJ84	781-6-24-FJ	0.38	24	-06 FJ x -06 FJ		
C1JJ87	781-6-36-FJ	0.38	36	-06 FJ x -06 FJ		
C1JJ90	781-6-48-FJ	0.38	48	-06 FJ x -06 FJ		
C1JJ93	781-6-60-FJ	0.38	60	-06 FJ x -06 FJ		
C1JJ96	781-6-72-FJ	0.38	72	-06 FJ x -06 FJ		
C1JJ98	781-6-96-FJ	0.38	96	-06 FJ x -06 FJ		
C1JK13	781-8-15-FJ	0.50	15	-08 FJ x -08 FJ		
C1JK15	781-8-24-FJ	0.50	24	-08 FJ x -08 FJ		
C1JK17	781-8-36-FJ	0.50	36	-08 FJ x -08 FJ		
C1JK21	781-8-48-FJ	0.50	48	-08 FJ x -08 FJ		
C1JK25	781-8-60-FJ	0.50	60	-08 FJ x -08 FJ		
C1JK28	781-8-72-FJ	0.50	72	-08 FJ x -08 FJ		
C1JK32	781-8-96-FJ	0.50	96	-08 FJ x -08 FJ		
C1JK18	781-8-36-FJ10	0.50	36	-10 FJ x -10 FJ		
C1JK22	781-8-48-FJ10	0.50	48	-10 FJ x -10 FJ		
C1JK26	781-8-60-FJ10	0.50	60	-10 FJ x -10 FJ		
C1JK29	781-8-72-FJ10	0.50	72	-10 FJ x -10 FJ		
C1JK33	781-8-96-FJ10	0.50	96	-10 FJ x -10 FJ		
C1JH88	781-12-24-FJ	0.75	24	-12 FJ x -12 FJ		
C1JH99	781-12-36-FJ	0.75	36	-12 FJ x -12 FJ		
C1JJ17	781-12-48-FJ	0.75	48	-12 FJ x -12 FJ		
C1JJ21	781-12-60-FJ	0.75	60	-12 FJ x -12 FJ		
C1JJ34	781-12-72-FJ	0.75	72	-12 FJ x -12 FJ		
C1JJ39	781-16-24-FJ	1.00	24	-16 FJ x -16 FJ		
C1JJ41	781-16-36-FJ	1.00	36	-16 FJ x -16 FJ		
C1JJ44	781-16-48-FJ	1.00	48	-16 FJ x -16 FJ		
C1JJ57	781-16-60-FJ	1.00	60	-16 FJ x -16 FJ		
C1JJ66	781-16-72-FJ	1.00	72	-16 FJ x -16 FJ		

Double Wire Braid • Aeroquip® GH781 Hose

Catalog Part No.	HSC Model	Hose I.D. (in)	Hose Lgth (in)	Fittings	Wt.	Price Each
C1JJ69	781-4-15-MP	0.25	15	1/4 MP x 1/4 MP		
C1JJ71	781-4-24-MP	0.25	24	1/4 MP x 1/4 MP		
C1JJ73	781-4-36-MP	0.25	36	1/4 MP x 1/4 MP		
C1JJ75	781-4-48-MP	0.25	48	1/4 MP x 1/4 MP		
C1JJ77	781-4-60-MP	0.25	60	1/4 MP x 1/4 MP		
C1JJ79	781-4-72-MP	0.25	72	1/4 MP x 1/4 MP		
C1JJ81	781-4-96-MP	0.25	96	1/4 MP x 1/4 MP		
C1JJ86	781-6-24-MP4	0.38	24	1/4 MP x 1/4 MP		
C1JJ89	781-6-36-MP4	0.38	36	1/4 MP x 1/4 MP		
C1JJ92	781-6-48-MP4	0.38	48	1/4 MP x 1/4 MP		
C1JJ95	781-6-60-MP4	0.38	60	1/4 MP x 1/4 MP		
C1JJ97	781-6-72-MP4	0.38	72	1/4 MP x 1/4 MP		
C1JJ83	781-6-15-MP	0.38	15	3/8 MP x 3/8 MP		
C1JJ85	781-6-24-MP	0.38	24	3/8 MP x 3/8 MP		
C1JJ88	781-6-36-MP	0.38	36	3/8 MP x 3/8 MP		
C1JJ91	781-6-48-MP	0.38	48	3/8 MP x 3/8 MP		
C1JJ94	781-6-60-MP	0.38	60	3/8 MP x 3/8 MP		
C1JJ99	781-6-96-MP	0.38	96	3/8 MP x 3/8 MP		
C1JK20	781-8-36-MP6	0.50	36	3/8 MP x 3/8 MP		
C1JK24	781-8-48-MP6	0.50	48	3/8 MP x 3/8 MP		
C1JK31	781-8-72-MP6	0.50	72	3/8 MP x 3/8 MP		
C1JK14	781-8-15-MP	0.50	15	1/2 MP x 1/2 MP		
C1JK16	781-8-24-MP	0.50	24	1/2 MP x 1/2 MP		
C1JK19	781-8-36-MP	0.50	36	1/2 MP x 1/2 MP		
C1JK23	781-8-48-MP	0.50	48	1/2 MP x 1/2 MP		
C1JK27	781-8-60-MP	0.50	60	1/2 MP x 1/2 MP		
C1JK30	781-8-72-MP	0.50	72	1/2 MP x 1/2 MP		
C1JK34	781-8-96-MP	0.50	96	1/2 MP x 1/2 MP		
C1JK11	781-8-108-MP	0.50	108	1/2 MP x 1/2 MP		
C1JK12	781-8-120-MP	0.50	120	1/2 MP x 1/2 MP		
C1JH97	781-12-24-MP	0.75	24	3/4 MP x 3/4 MP		
C1JJ11	781-12-36-MP	0.75	36	3/4 MP x 3/4 MP		
C1JJ20	781-12-48-MP	0.75	48	3/4 MP x 3/4 MP		
C1JJ31	781-12-60-MP	0.75	60	3/4 MP x 3/4 MP		
C1JJ35	781-12-72-MP	0.75	72	3/4 MP x 3/4 MP		
C1JJ40	781-16-24-MP	1.00	24	1 MP x 1 MP		
C1JJ42	781-16-36-MP	1.00	36	1 MP x 1 MP		
C1JJ46	781-16-48-MP	1.00	48	1 MP x 1 MP		
C1JJ58	781-16-60-MP	1.00	60	1 MP x 1 MP		
C1JJ67	781-16-72-MP	1.00	72	1 MP x 1 MP		

		Fitting Thread Sizes									
Fitting Code	Fitting Type	-02	-04	-05	-06	-08	-10	-12	-16	-20	-24
FJ	Female JIC 37° Swivel	5/16-24	7/16-20	1/2-20	9/16-18	3/4-16	7/8-14	1-1/16-12	1-5/16-12	1-5/8-12	1-7/8-12
MP	Male Pipe	1/8-27	1/4-18		3/8-18	1/2-14		3/4-14	1-11-1/2	1-1/4-11-1/2	1-1/2-11-1/2



This page is part of a complete catalog which contains technical and safety data that must be reviewed when selecting a product

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Hose Assemblies

Hydraulic Hose Assemblies

Four Heavy Spiral Aeroquip® GH493 Hose



GH493 Technical Information: page 847

Note: Fitting Codes & Thread Sizes are listed below.

Four Heavy Spiral • Aeroquip® GH493 Hose

Catalog Part No.	HSC Model	Hose I.D. (in)	Hose Lgth (in)	Fittings	Wt.	Price Each
C1JF71	493-6-15-FJ	0.38	15	-06 FJ x -06 FJ		
C1JF87	493-6-24-FJ	0.38	24	-06 FJ x -06 FJ		
C1JG22	493-6-36-FJ	0.38	36	-06 FJ x -06 FJ		
C1JG34	493-6-48-FJ	0.38	48	-06 FJ x -06 FJ		
C1JG40	493-6-60-FJ	0.38	60	-06 FJ x -06 FJ		
C1JG41	493-6-72-FJ	0.38	72	-06 FJ x -06 FJ		
C1JG43	493-6-96-FJ	0.38	96	-06 FJ x -06 FJ		
C1JG44	493-8-15-FJ	0.50	15	-08 FJ x -08 FJ		
C1JG45	493-8-24-FJ	0.50	24	-08 FJ x -08 FJ		
C1JG51	493-8-36-FJ	0.50	36	-08 FJ x -08 FJ		
C1JG53	493-8-48-FJ	0.50	48	-08 FJ x -08 FJ		
C1JG55	493-8-60-FJ	0.50	60	-08 FJ x -08 FJ		
C1JG59	493-8-72-FJ	0.50	72	-08 FJ x -08 FJ		
C1JG61	493-8-96-FJ	0.50	96	-08 FJ x -08 FJ		
C1JG52	493-8-36-FJ10	0.50	36	-10 FJ x -10 FJ		
C1JG54	493-8-48-FJ10	0.50	48	-10 FJ x -10 FJ		
C1JG56	493-8-60-FJ10	0.50	60	-10 FJ x -10 FJ		
C1JG60	493-8-72-FJ10	0.50	72	-10 FJ x -10 FJ		
C1JG65	493-8-96-FJ10	0.50	96	-10 FJ x -10 FJ		
C1JF38	493-12-24-FJ	0.75	24	-12 FJ x -12 FJ		
C1JF44	493-12-36-FJ	0.75	36	-12 FJ x -12 FJ		
C1JF51	493-12-48-FJ	0.75	48	-12 FJ x -12 FJ		
C1JF53	493-12-60-FJ	0.75	60	-12 FJ x -12 FJ		
C1JF54	493-12-72-FJ	0.75	72	-12 FJ x -12 FJ		
C1JF55	493-16-24-FJ	1.00	24	-16 FJ x -16 FJ		
C1JF56	493-16-36-FJ	1.00	36	-16 FJ x -16 FJ		
C1JF59	493-16-48-FJ	1.00	48	-16 FJ x -16 FJ		
C1JF69	493-16-60-FJ	1.00	60	-16 FJ x -16 FJ		
C1JF70	493-16-72-FJ	1.00	72	-16 FJ x -16 FJ		

Fitting Code	Fitting Type	Fitting Thread Sizes									
		-02	-04	-05	-06	-08	-10	-12	-16	-20	-24
FJ	Female JIC 37° Swivel	5/16-24	7/16-20	1/2-20	9/16-18	3/4-16	7/8-14	1-1/16-12	1-5/16-12	1-5/8-12	1-7/8-12
MP	Male Pipe	1/8-27	1/4-18		3/8-18	1/2-14		3/4-14	1-11-1/2	1-1/4-11-1/2	1-1/2-11-1/2



Hose Assemblies

Industrial Hose Assemblies

Contractor's Air Hose Assemblies



Application: Provide power to air operated construction equipment. For heavy-duty construction applications. Please review application requirements and limitations found in NAHAD Pressure Guideline Chart page 1534

Features: Universal Quick-Acting fittings both ends, with safety clips.

Note: The use of a safety clip or wire type retainer is necessary to assure

Universal Couplings will not become accidentally disconnected. This guarantees the fittings are properly connected as pin will not go through holes in mating flanges until couplings are locked in place.

Note: Constant vibration created by air drills, pavement breakers etc. is destructive to air hose couplings, especially this quick-acting Universal type. A 3 to 10 foot "whip hose" is recommended, with the hose end that attaches to the tool being a heat-treated steel fitting. The other end of the "whip hose" may use the Universal coupling. The whip hose should remain permanently attached to the tool, and should be the same diameter as the supply line.

Reference: NAHAD Pressure Guideline Chart page 1534

Contractor's Air Hose Assemblies

Catalog Part No.	HSC Model	Hose	Fittings	Fitting Attachment	NAHAD Recommended Pressure	Wt.	Price Each
•C1KY57	CAHA3/4X50R300PS	3/4 I.D. x 50 FT HSC Sunrise hose, Nitrile Tube, Neoprene Cover, 4-Spiral, 300 PSI, Red	Malleable Iron, Plated	Crimped	110 PSI	21.00	
•C1FV84	CAHA3/4X50R300P	3/4 I.D. x 50 FT Boston Marathoner®, Nitrile Tube, Neoprene Cover, 4-Spiral, 300 PSI, Red	Malleable Iron, Plated	Crimped	110 PSI	21.00	

Note: Boston Marathoner hose (bulk) page 861

Note: HSC Sunrise hose (bulk) page 862

PVC Water Suction & Discharge Hose Assemblies



Application: General purpose suction and transfer applications in construction and mining. Irrigation lines, rock dusting, wellpoint systems, agri-foam systems, liquid fertilizer transfer. Please review application requirements and limitations found in NAHAD Pressure Guideline Chart page 1534

Reference: NAHAD Pressure Guideline Chart page 1534

PVC Water Suction & Discharge Hose Assemblies

Catalog Part No.	HSC Model	Hose	Fittings	Fitting Attachment	NAHAD Recommended Pressure	Wt.	Price Each
•C1GF13	GREEN-C-ST-2X20	2 I.D. x 20 FT Kuriyama JG, 65 PSI @ 68°F, Green	Aluminum female cam & groove coupler (Part C) one end, steel male pipe combination nipple (un-plated) other end	Preformed clamps, galvanized steel, 2 per end	65 PSI (Hose Rating)	14.60	
•C1GF14	GREEN-C-ST-3X20	3 I.D. x 20 FT Kuriyama JG, 60 PSI @ 68°F, Green	Aluminum female cam & groove coupler (Part C) one end, steel male pipe combination nipple (un-plated) other end	Preformed clamps, galvanized steel, 2 per end	60 PSI (Hose Rating)	30.00	



Hose Assemblies

Industrial Hose Assemblies

PVC Water Suction & Discharge Hose Assemblies

Catalog Part No.	HSC Model	Hose	Fittings	Fitting Attachment	NAHAD Recommended Pressure	Wt.	Price Each
•C1GF15	GREEN-C-ST-4X20	4 I.D. x 20 FT Kuriyama JG, 50 PSI @ 68°F, Green	Aluminum female cam & groove coupler (Part C) one end, steel male pipe combination nipple (un-plated) other end	Preformed clamps, galvanized steel, 2 per end	50 PSI (Hose Rating)	45.00	
•C1GF16	GREEN-C-ST-6X20	6 I.D. x 20 FT Kuriyama JG, 40 PSI @ 68°F, Green	Aluminum female cam & groove coupler (Part C) one end, steel male pipe combination nipple (un-plated) other end	Preformed clamps, galvanized steel, 2 per end	40 PSI (Hose Rating)	62.00	

Note: Kuriyama Series JG Hose (bulk) page 877

Note: Working pressure decreases as temperature increases.

PVC Lay Flat Water Discharge Hose Assemblies



Application: Blue standard duty lay flat hose handles a wide range of applications in construction, industry, mining, agriculture and marine service. Please review application requirements and limitations found in NAHAD Pressure Guideline Chart page 1534

Reference: NAHAD Pressure Guideline Chart page 1534

PVC Lay Flat Water Discharge Hose Assemblies

Catalog Part No.	HSC Model	Hose	Fittings	Fitting Attachment	NAHAD Recommended Pressure	Wt.	Price Each
•C1GJ22	BLUE-C-E-2X50	2 I.D. x 50 FT Vinylflow VFL200X300, 65 PSI @ 70°F, Blue	Aluminum female cam & groove coupler (Part C) one end, aluminum male cam & groove adapter (Part E) other end	Preformed clamps, galvanized steel, 2 per end	65 PSI (Hose Rating)	13.40	
•C1GJ23	BLUE-C-E-3X50	3 I.D. x 50 FT Vinylflow VFL300X300, 60 PSI @ 60°F, Blue	Aluminum female cam & groove coupler (Part C) one end, aluminum male cam & groove adapter (Part E) other end	Preformed clamps, galvanized steel, 2 per end	60 PSI (Hose Rating)	21.10	
•C1GJ24	BLUE-C-E-4X50	4 I.D. x 50 FT Vinylflow VFL400X300, 70 PSI @ 75°F, Blue	Aluminum female cam & groove coupler (Part C) one end, aluminum male cam & groove adapter (Part E) other end	Preformed clamps, galvanized steel, 2 per end	70 PSI (Hose Rating)	31.84	
•C1GJ25	BLUE-C-E-6X50	6 I.D. x 50 FT Vinylflow VFL600X300, 40 PSI @ 70°F, Blue	Aluminum female cam & groove coupler (Part C) one end, aluminum male cam & groove adapter (Part E) other end	Preformed clamps, galvanized steel, 2 per end	40 PSI (Hose Rating)	55.80	

Note: Kuriyama Vinylflow Hose (bulk) page 878

Note: Working pressure decreases as temperature increases.



Hose Assembly Equipment

Accessories

Hose Assembly Lube



Application: A specially compounded lubricant superior to any other lubricant used in hose assembly work.

Available in pints or gallons.

Note: Not to be used with green cover fire resistant hydraulic fluid hoses.



222070

Hose Assembly Lube

Catalog Part No.	Aeroquip Model	Container Size	Wt.	Price Each
•C1BC87	222070	1 Pint	0.97	

Reusable Fitting Assembly Mandrels



1582 / 583

Reusable Fitting Assembly Mandrels

Catalog Part No.	Aeroquip Model	Use with Fitting Styles	Wt.	Price Each
•C1ZU76	FBM3407	411-6 (JIC)	0.18	
•C1ZU80	FBM3402	401-6 (SAE)	0.24	
•C1ZU79	FBM3403	401-8, 411-8	0.36	

STC® Connector Release Tools



Reopening Differential: 50 PSI.



FF90213

STC® Connector Release Tools

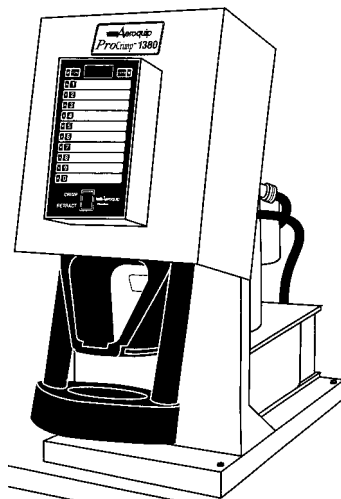
Catalog Part No.	Aeroquip Model	Description	Wt.	Price Each
•C1KL92	FF90213-08	Release Tool for -08 Connector	0.20	
•C1JD80	FF90213-10	Release Tool for -10 Connector	0.21	
•C1JD81	FF90213-12	Release Tool for -12 Connector	0.21	

Hose Assembly Equipment

Equipment



ProCrimp® 1380 Crimp Machine



Production Capacity: All Aeroquip® MatchMate Plus™ braided and spiral hose through -20 size. Flat field crimp thru -16. Barrel field crimp thru -20. Flat single skive 1 & 2-wire braid crimp thru -20. Flat single skive 4-wire spiral crimp thru -16.

Unit will not crimp: Internal skive fittings. Hose that requires a positive stop, including the following Aeroquip® hoses: 2807, 2808, FC186, FC465, FC469, FC505.

Electrical Requirements: 115-Volt AC single phase (50/60)Hz circuit with a minimum of 15 amps.

Crimp Machine Dimensions: Width 12.75 in., Depth 25.75 in., Height 28.50 in.

The Aeroquip ProCrimp™ 1380 crimp machine crimps all your hose needs up to and including -20 SAE100R12 hose styles and the popular MatchMate Plus™ hoses and fittings. The ProCrimp 1380 is electronically controlled to give fast, accurate crimps the first time and every time you need a hose assembly. The electronic keypad is easy to adjust, with up to 10 programmable crimp settings. For hose styles and sizes used less frequently simply enter the 3 digit code of that hose. The ProCrimp 1380 comes complete with a standard power unit from ENERPAC®, a name, like Aeroquip, which is synonymous with quality, worldwide.

ProCrimp® 1380 Crimp Machine

Catalog Part No.	Aeroquip Model	Description	Wt.	Price Each
C1CW93	FT1380-115-5	115 Volt 60 Hz Crimp Machine with 5 Die Cages: M150, M210, M240, M320, M370. For crimping 2-wire hose sizes -4, -6, -8, -12, -16 GH781 & GH793	100.00	
C1CW96	FT1380-200-M180	Die Cage Crimps Size -6 GH663	10.00	
C1CX14	FT1380-275-M465	Tool Steel Die Cage Crimps Size -20 GH781, GH195, GH493, 2661, FC318	5.00	

FT1268 SOCKETLESS® Fitting Hand-Held Assembly Tool



Hose Specifications: SOCKETLESS® hose, -04, -06 and -08 sizes.

Features: Handheld. Custom design. Corrosion resistant. One mandrel fits all.

FT1268 SOCKETLESS® Fitting Hand-Held Assembly Tool

Catalog Part No.	Aeroquip Model	Description	Wt.	Price Each
•C1CW78	FT1268	Assembly Tool for sizes -4, -6, -8	0.40	

FT1356 Hose Cutter



Application: Specially designed for cutting all non-wire reinforced hose, such as GH134 Multi-Refrigerant hose.

FT1356 Hose Cutter

Catalog Part No.	Aeroquip Model	Description	Wt.	Price Each
•C1EZ22	FT1356	Hose Cutter	0.28	

FT1357 E-Z Clip™ Clip Closing Tool



Application: Used to close the clips used with the E-Z Clip™ System for GH134 Multi-Refrigerant hose assemblies.

FT1357 E-Z Clip™ Clip Closing Tool

Catalog Part No.	Aeroquip Model	Description	Wt.	Price Each
•C1EZ24	FT1357	Clip Closing Tool	0.41	

Hose Protection

Steel Protective Coil Spring



Construction: Rust resistant steel wire.

Application: Protects hose cover and reinforcement from abrasion and accidental damage. The coil should fit snugly to the hose O.D. Expanding the coil I.D. (unwinding the coil) may be necessary for proper installation.

Steel Protective Coil Spring



Catalog Part No.	Aeroquip Model	Spring I.D. (in)	Wt. (per ft)	Price (per ft)
•C1CA75	900564-1S	0.61	0.20	
•C1CA76	900564-2S	0.73	0.22	
•C1CA74	900564-14S	0.85	0.25	
•C1CA77	900564-3S	0.91	0.25	
•C1CA78	900564-4S	1.04	0.28	
•C1CA79	900564-5S	1.18	0.43	
•C1CA80	900564-6S	1.34	0.37	
•C1CA81	900564-7S	1.66	0.41	
•C1CA82	900564-8S	2.12	0.51	
•C1CA73	900564-10S	2.37	0.81	

Plastic Protective Coil Sleeve



Application: Recommended to protect hose from abrasion, this light weight plastic sleeve is unaffected by air, water, oil, gasoline, hydraulic and most other fluids. This coil can also be used for group bundling of hose lines.

Operating Temperature Range: 0°F. To +180°F.

Plastic Protective Coil Sleeve



Catalog Part No.	Aeroquip Model	Sleeve I.D. (in)	Wt. (per ft)	Price (per ft)
•C1CB67	900952-6	0.38	0.03	
•C1CB68	900952-8	0.50	0.04	
•C1CB64	900952-10	0.63	0.05	
•C1CB65	900952-12	0.75	0.06	
•C1CB66	900952-16	1.0	0.13	
•C1EP33	900952-22	1.38	0.18	

Firesleeve



Construction: Uniform single layer of braided fiberglass tubing impregnated with flame resistant silicone rubber.

Application: Firesleeve will protect hose from direct flame.

Clamps: FF9217 Firesleeve Clamps page 911



Firesleeve

Catalog Part No.	Aeroquip Model	Clamp Number (2 Required per Hose Assy)	Sleeve I.D. (in)	Wt. (per ft)	Price (per ft)
•C1BW66	624-10	FF9217-0622S	0.62	0.20	
•C1BW67	624-12	FF9217-0622S	0.75	0.20	
•C1BW68	624-13	FF9217-0622S	0.81	0.21	
•C1EN61	624-14	FF9217-0622S	0.88	0.23	
•C1BW69	624-16	FF9217-0622S	1.00	0.25	
C1HJ65	624-24	FF9217-0648S	1.50	0.38	
•C1EN63	624-28	FF9217-0648S	1.75	0.37	
•C1FD39	624-32	FF9217-0648S	2.00	0.40	
C1HJ66	624-38	FF9217-0648S	2.38	0.48	
C1MZ69	624-46	FF9217-0664C	2.88		

Firesleeve Clamp



Firesleeve Clamp

Catalog Part No.	Aeroquip Model	Clamp Size (in)	Wt.	Price Each
•C1EQ47	FF9217-0622S	1-3/8 dia x 3/8 wide	0.04	
•C1EQ48	FF9217-0648S	3 dia x 3/8 wide	0.25	

Hose Protection

Nylon Abrasion Sleeve

Tompkins

Construction: Black Cordura® or Anso-tex® bulk nylon fiber yarn. Doubled flat thickness is 0.090 inches ± 0.020 inches.

Application: Passes FMVSS 302 horizontal flame test, MSHA accepted. • Protec is woven from thousands of nylon filaments into a self-renewing, abrasion-resistant fabric sleeve. As it is scuffed and worn, its filaments friz forming an even thicker more protective shield. This smooth-bore sleeve is easily installed over hose, chains, cables, or springs and may be secured with nylon cable ties or band-clamps • As a hose cover, it provides outstanding personal injury protection to equipment operators by deflecting the spray of hot hydraulic fluids in the event of a hose failure • It also extends individual hose life in severe abrasive environments. • It is an excellent product for holding two or more hoses in a single bundle • For hose groups that must follow the same flex pattern, bundling will provide identical flex memory to all hoses in group bundle. • In some cases, it eliminates the need for bulkhead couplings by shielding hoses that must pass through metal openings.

Temperature Rating: 250°F Maximum Ambient.



Nylon Abrasion Sleeve

Catalog Part No.	Tompkins Model	Nominal I.D. (in)	Outside Flat Height (in)	Wt. (per ft)	Price (per ft)
•C1JG23	NHS-071-300	0.71	1.19	0.04	
•C1JG24	NHS-100-300	1.00	1.66	0.04	
•C1JG25	NHS-125-300	1.25	2.03	0.04	
•C1JG26	NHS-159-300	1.59	2.56	0.06	
•C1JG27	NHS-175-300	1.75	2.81	0.05	
•C1JG28	NHS-207-300	2.07	3.31	0.09	
•C1JG29	NHS-238-300	2.38	3.81	0.06	
•C1JG30	NHS-254-300	2.54	4.06	0.09	
•C1JG31	NHS-296-300	2.96	4.75	0.09	
•C1JG33	NHS-366-300	3.66	5.81	0.10	

Flexible Hose Bend Restrictors



Application: Tapered PVC sleeve reduces bending stress in the hose near the coupling to prevent damage.

Features: Smooth finish protects equipment from being scratched. Attractive appearance enhances look of quality. Friction fit requires no adhesives or clamps.

Operating Temperature Range: -40°F to +200°F.



Flexible Hose Bend Restrictors

Catalog Part No.	Gates Part No.	Gates Model	I.D. (in)	Length (in)	Color	Wt.	Price Each
•C1EN99	7277-1052-5	HBR-1052	0.84	7.00	Black	0.20	

Stainless Steel Internal Support Coil



Application: Recommended for vacuum service with most hoses.



Stainless Steel Internal Support Coil

Catalog Part No.	Aeroquip Model	Coil O.D. (in)	Wt. (per ft)	Price (per ft)
•C1BC86	222005-15C	1.19	0.75	

EPHA® Hose Protectors



Features: Extremely high wear factor. Resists solvents, oils, grease, gasoline. 3 grooves protect cable ties and prevent slipping. Cable ties included.

Application: Abrasion protection for hoses.

Operating Temperature Range: -40°F to 430°F.



EPHA® Hose Protectors

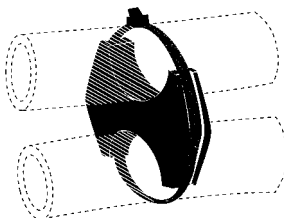
Catalog Part No.	Aeroquip Model	Size	Color	Wt.	Price Each
•C1CY59	HP4-B	4 in.	Black	0.08	
•C1CY60	HP6-B	6 in.	Black	0.10	
•C1CY61	HP8-B	8 in.	Black	0.15	

EPHA® Hose Spacers



Features: Cable ties included.

Application: Prevents hose abrasion. Keeps hoses organized.



EPHA® Hose Spacers

Catalog Part No.	Aeroquip Model	Size	Color	Wt.	Price Each
•C1EQ66	HSR-1	3/4 in.	Black	0.10	
•C1CY69	HSR-2	1 in.	Black	0.05	
•C1EQ67	HSR-3	1-1/8 in.	Black	0.06	

Hose Protection

Bundling Sleeves



Features: Protects hydraulic lines from damage by holding them in place, yet provides enough flexibility for normal operation • Strong, abrasion and UV resistant 1050 ballistic nylon material, 0.71mm thick, rated to 175° maximum ambient temperature • Industrial strength hook and loop closure on entire length • Tight weave pattern (less likely to snag) • Easy installation with no clamping required • Easy field removal and replacement without disconnecting hoses from system • Black color with a urethane treatment.



Bundling Sleeves

Catalog Part No.	Aeroquip Model	Fits Bundle Dia (in)	Fits Bundle Circumference (in)	Sleeve Width Laid Flat (in)	Bulk Roll Length (ft)	Wt. (per ft)	Price (per ft)
C1HK23	FC676-2000	2.00	6.00	7.75	150	0.01	
C1GJ39	FC676-3000	3.00	9.40	11.00	150	0.13	
C1GJ40	FC676-4000	4.00	12.50	14.00	150	0.16	
C1HK24	FC676-5000	5.00	15.70	17.25	150	0.06	

Bundling Straps - Hanging Style



Features: Allows hoses to expand and contract while holding them firmly in place • Standard duty models use black 1050 ballistic nylon, 2.38mm thick, with urethane coating and a Delrin® fastening loop • Heavy duty models use black 1050 ballistic nylon with dense nylon backing, 3.18mm thick, with urethane coating and a nickel plated steel fastening loop • Rated to 175°F maximum ambient temperature • Can be bolted to the application through the 7/16 grommet • Ideal for vertical or horizontal mounting • Adjustable to any size hose bundle • Black color with a urethane treatment.



Bundling Straps - Hanging Style

Catalog Part No.	Aeroquip Model	Type	Fits Bundle Circumference (in)	Strap Length Laid Flat (in)	Wt.	Price Each
C1GJ73	FF90526-8	Heavy Duty, Individually Packaged	8.00	12.00	0.07	
C1GJ70	FF90526-12	Heavy Duty, Individually Packaged	12.00	16.00	0.08	
C1GJ72	FF90526-20	Heavy Duty, Individually Packaged	20.00	24.00	0.10	

Bundling Straps - Cinching Style



Features: Allows hoses to expand and contract while holding them firmly in place • Standard duty models use black 1050 ballistic nylon, 2.38mm thick, with urethane coating and a Delrin® fastening loop • Heavy duty models use black 1050 ballistic nylon with dense nylon backing, 3.18mm thick, with urethane coating and a nickel plated steel fastening loop • Rated to 175°F maximum ambient temperature • Adjustable to any size hose bundle • Black color with a urethane treatment.



Bundling Straps - Cinching Style

Catalog Part No.	Aeroquip Model	Type	Fits Bundle Circumference (in)	Strap Length Laid Flat (in)	Wt.	Price Each
•C1GJ69	FF90522-8	Heavy Duty, Individually Packaged	8.00	12.00	0.05	
•C1GJ66	FF90522-12	Heavy Duty, Individually Packaged	12.00	16.00	0.08	
•C1GJ67	FF90522-16	Heavy Duty, Individually Packaged	16.00	20.00	0.07	
•C1GJ68	FF90522-20	Heavy Duty, Individually Packaged	20.00	24.00	0.09	



Hose Fittings

Category (Fits These Hose Styles)

Page

Steel

Crimp

1 wire Braid Reduced Bore (2651, FC234, FC300, FC321, FC350, FC355, FC558)	918
Global TTC (2661, FC579, FC619, FC693, FC735, GH195, GH663, GH781, GH793)	919
Global TTC (3130, 3R80)	933
Global TTC-12 (2661(-12), FC619 (-12), FC636, GH493)	934
Spiral TTC (FC254, FC273, FC606)	942
Field Crimp (2661(-12, -16), FC619 (-12, -16), GH663, GH793 (-4 thru -8, -12 thru -20))	947
Global Skive Nipples (Clamp: 2661/FC619 (-12 thru -20). Crimped 1SA Socket: FC639 (-04 to -08), GH663. Crimped 1SB Socket: FC195, FC579, FC639 (-10 to -16), FC735 (-04 to -20), GH195, GH781 (-4 thru -20), GH793)	948
Global OTC (2661, FC619)	949
Polyon™ Swage (FC372, FC373, FC374, FC375, FC902, FC914)	950
Synflex® 3903/7903 Swage (25CT (-08), 30CT (Sizes -04 to -08), 3130, 3440 (-04 to -08), 3580, 37AL, 3800) 951	
Synflex® 390H/790H Swage (3440 (-12 to -16), 3R80)	954
PTFE Crimp (2807, FC807, STW).	955
PTFE Crimp (FC363, FC364)	956

Reusable

1 wire Braid Reduced Bore (2651, FC234, FC300, FC321, FC350, FC355, FC558)	957
1 wire Braid Thru-The-Cover (GH663)	963
2 wire Braid Skive (FC195)	964
2 wire Braid Thru-The-Cover (GH793)	965
Polyon™ (FC372, FC373, FC901, FC902)	966
SOCKETLESS™ (2556, FC332, FC647, Easy Couple®)	967
Air Brake (2570)	969
Teflon® 1 Braid (2807, FC807, STW)	970

Special Products

E-Z Clip™ System For GH134 Multi-Refrigerant Hose, Size -04 FC505 Refrigerant Hose	973
BrakeQuip Crimp fittings	981

Stainless Steel

Crimp

Global TTC (2661, FC579, FC619, FC693, FC735, GH195, GH663, GH781, GH793)	982
Synflex® 390A Swage (25CT (-08), 30CT (Sizes -03 to -08), 3130, 3440 (-04 to -08), 3580, 37AL, 3800)	983
PTFE Crimp (2807, FC807, STW).	983
PTFE Crimp (FC363, FC364)	984
Everswage™ (SC).	985

Reusable

1 wire Braid Reduced Bore (2651, FC234, FC300, FC321, FC350, FC355, FC558)	986
SOCKETLESS™ (2556, FC332, FC647, Easy Couple®)	986
Teflon® 1 Braid (2807, FC807, STW)	987

Brass

Crimp

Polyon™ Crimp (FC372, FC373, FC901, FC902).	988
Air Brake (EC038)	989
Marine Steering (MSH)	990

Reusable

1 wire Braid Reduced Bore (2651, FC234, FC300, FC321, FC350, FC355, FC558)	991
SOCKETLESS™ (2556, FC332, FC647, Easy Couple®)	992
Air Brake (EC038)	995
Marine Steering (MSH)	997





Eaton's Aeroquip Hose and Fitting Assembly Product Warning

Flexible hose lines offer many advantages over rigid tubing including routing ease, vibration absorption, sound deafening and the ability to accommodate movement of connected components. However, hose lines require caution in use not only to provide long service, but also to guard against potentially dangerous failure.

Important

The user should carefully observe the precautions listed in this catalog, including the recommendations on the selection of hose and fittings on the relevant pages, and the pages on fluid compatibility. In addition, care should be taken not to exceed the minimum bend radius listed for each hose size and type in the hose section. Maximum operating pressure should not exceed pressures listed in the hose data. Instructions for assembling fittings to different hose should be followed carefully to ensure the performance of the completed assembly.



WARNING

Eaton fitting tolerances are engineered to match Eaton's Aeroquip hose tolerances. The use of Eaton fittings on hose supplied by other manufacturers and/or the use of Eaton's Aeroquip hose with fittings supplied by other manufacturers may result in the production of unreliable and unsafe hose assemblies and is neither recommended nor authorized by Eaton Corporation or any of its affiliates or subsidiaries.



WARNING

Application considerations must be observed in selecting appropriate components for the application of these products contained herein. The failure to follow the recommendations set forth in this catalog may result in an unstable application which may result in serious personal injury or property damage.

EATON CORPORATION OR ANY OF ITS AFFILIATES OR SUBSIDIARIES SHALL NOT BE SUBJECT TO AND DISCLAIMS ANY OBLIGATIONS OR LIABILITIES (INCLUDING BUT NOT LIMITED TO ALL CONSEQUENTIAL, INCIDENTAL AND CONTINGENT DAMAGES) ARISING FROM TORT CLAIMS (INCLUDING WITHOUT LIMITATION NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORIES OF LAW WITH RESPECT TO ANY HOSE ASSEMBLIES NOT PRODUCED FROM GENUINE AEROQUIP HOSE FITTINGS, HOSE AND AEROQUIP APPROVED EQUIPMENT, AND IN CONFORMANCE WITH EATON'S AEROQUIP PROCESS AND PRODUCT INSTRUCTIONS FOR EACH SPECIFIC HOSE ASSEMBLY.

Failure to follow these processes and product instructions and limitations could lead to premature hose assembly failures resulting in property damage, serious injury or death.



Hose Application Warnings

The determination and methods of the use, suitability, installation and design application for the parts and assemblies we sell is the responsibility of the purchaser. Hose conforms to the specification and requirements specified by the hose manufacturer.

Agency and industry standards may apply to your application. It is your responsibility to decide what regulations and/or standards apply, and inform us. We will then advise you if the products selected meet those standards.

Improper selection, installation and/or routing may significantly shorten the life of a hydraulic hose, which could result in hose rupture and failure, which may then result in serious personal injury or property damage.

If you don't already have the proper training or information, ask for:

Eaton/Aeroquip Fluid Conveyance Products Catalog A-HOOV-MC001-E1

Warnings - pages 11-12

Fluid Compatibility - pages 349-355 (this catalog page 1511)

SAE Recommended Practices (SAE J1273) - page 356 (this catalog page 1509)

Hose Routing & Installation - page 359 (this catalog page 1518)

Thread Style Pressure Performance - page 376 (this catalog page 1503)

Most hydraulic fluids are flammable and proper safeguards have to be taken to contain any fluid if a hose failure occurs in an environment with a source of ignition. Hoses have a service life, and high repetitive shock reduces hose service life. You need to inspect and change out hoses within their service life for your application or hose rupture and failure may occur.

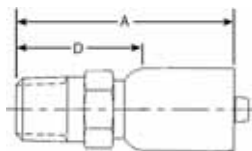
S.T.A.M.P. - You must consider the **Size, Temperature, Application, Medium and Pressure** when selecting hose and hose fittings.

Hose Fittings

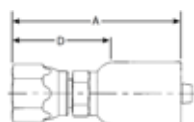
Steel Crimp 1 Wire Braid

1 Wire Braid Reduced Bore Fittings (SAE100R5 Style) for use with hose:
2651, FC234, FC300, FC321, FC350, FC355, FC558

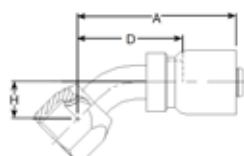
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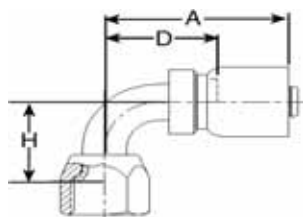
FJ3152
Male Pipe



FJ3114
SAE 37° (JIC) Swivel



FJ3143 / FJ3149
Female JIC 37° Swivel
45° Elbow



FJ3244 / FJ3250
Female JIC 37° Swivel
90° Elbow

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	A (in)	Wt.	Price Each
C1ML13	FJ3152-1616S	1 - 11-1/2	-16	1.63	2.61		
C1KV94	FJ3152-2424S	1-1/2 - 11-1/2	-24	1.90	3.38	1.30	

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	A (in)	Wt.	Price Each
C1MK94	FJ3114-0404S	7/16-20	-04	1.10	1.88	0.08	
C1MK95	FJ3114-0606S	9/16-18	-06	1.25	2.04		
C1MK96	FJ3114-0808S	3/4-16	-08	1.35	2.15		
C1MK97	FJ3114-1010S	7/8-14	-10	1.53	2.41		
C1MK98	FJ3114-1212S	1-1/16 - 12	-12	1.55	2.43	0.36	
C1MK99	FJ3114-1616S	1-5/16 - 12	-16	1.73	2.77		
C1ML11	FJ3114-2020S	1-5/8 - 12	-20	1.79	2.97	1.02	
C1ML12	FJ3114-2424S	1-7/8 - 12	-24	1.94	3.43	1.91	

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	A (in)	H (in)	Wt.	Price Each
C1ML14	FJ3243-0404S	7/16-20	-04	0.94	1.72	0.33		
C1ML20	FJ3249-0606S	9/16-18	-06	1.15	1.94	0.39		
C1ML15	FJ3243-0808S	3/4-16	-08	1.58	2.30	0.55		
C1ML16	FJ3243-1010S	7/8-14	-10	1.62	2.50	0.63		
C1ML21	FJ3249-1212S	1-1/16 - 12	-12	1.94	2.82	0.77		
C1ML22	FJ3249-1616S	1-5/16 - 12	-16	2.39	3.38	1.07		

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	A (in)	H (in)	Wt.	Price Each
C1ML17	FJ3244-0404S	7/16-20	-04	0.83	1.61	0.68	0.15	
C1ML23	FJ3250-0606S	9/16-18	-06	1.05	1.84	0.85	0.35	
C1ML18	FJ3244-0808S	3/4-16	-08	1.27	2.07	1.09	0.33	
C1ML19	FJ3244-1010S	7/8-14	-10	1.63	2.51	1.23	0.47	
C1ML24	FJ3250-1212S	1-1/16 - 12	-12	1.90	2.78	1.82		
C1ML25	FJ3250-1616S	1-5/16 - 12	-16	2.20	3.19	2.39	0.63	
C1ML26	FJ3250-2020S	1-5/8 - 12	-20	2.90	4.27	3.25	1.47	

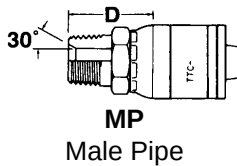


Hose Fittings

Steel Crimp 1 & 2 Wire Braid

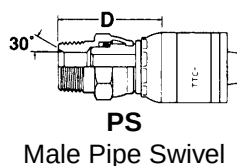
Global TTC Fittings for use with hose:

2661, FC579, FC619, FC639, FC693, FC735, GH195, GH663, GH781, GH793



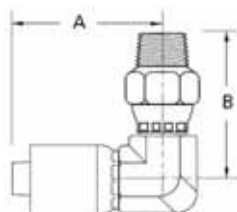
MP
Male Pipe

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1AP88	1AA2MP4	1/8-27	-04	0.92	0.09	
•C1AQ18	1AA4MP4	1/4-18	-04	1.14	0.10	
•C1AQ55	1AA6MP4	3/8-18	-04	0.98	0.12	
•C1AQ19	1AA4MP6	1/4-18	-06	1.18	0.14	
•C1AQ56	1AA6MP6	3/8-18	-06	1.28	0.17	
•C1AQ87	1AA8MP6	1/2-14	-06	1.28	0.21	
•C1AQ20	1AA4MP8	1/4-18	-08	1.23	0.19	
•C1AQ57	1AA6MP8	3/8-18	-08	1.32	0.22	
•C1AQ88	1AA8MP8	1/2-14	-08	1.57	0.28	
•C1AP58	1AA12MP8	3/4-14	-08	1.39	0.26	
•C1AQ85	1AA8MP10	1/2-14	-10	1.58	0.30	
•C1AP55	1AA12MP10	3/4-14	-10	1.40	0.31	
•C1AQ86	1AA8MP12	1/2-14	-12	1.60	0.40	
•C1AP56	1AA12MP12	3/4-14	-12	1.65	0.45	
•C1AP80	1AA16MP12	1-11-1/2	-12	1.61	0.57	
•C1AP57	1AA12MP16	3/4-14	-16	1.67	0.76	
•C1AP81	1AA16MP16	1-11-1/2	-16	1.86	0.76	
•C1AP84	1AA20MP16	1-1/4-11-1/2	-16	1.72	0.75	
•C1AR24	1AV20MP20	1-1/4-11-1/2	-20	1.79	1.02	
•C1JD27	1AR20MP20	1-1/4-11-1/2	-20	1.79	0.95	
•C1AP87	1AA24MP24	1-1/2-11-1/2	-24	2.36	1.61	
•C1AP90	1AA32MP32	2-11-1/2	-32	2.61	2.68	



PS
Male Pipe Swivel

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1AQ22	1AA4PS4	1/4-18	-04	1.62	0.15	
•C1AQ59	1AA6PS6	3/8-18	-06	1.67	0.22	
•C1AQ90	1AA8PS6	1/2-14	-06	1.85	0.28	
•C1AQ60	1AA6PS8	3/8-18	-08	1.71	0.25	
•C1AQ91	1AA8PS8	1/2-14	-08	1.96	0.31	
•C1AP60	1AA12PS12	3/4-14	-12	2.05	0.56	
•C1AP82	1AA16PS16	1-11-1/2	-16	2.53	0.94	



PSB
Male Pipe Swivel 90° Elbow

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	A (in)	B (in)	Wt.	Price Each
•C1KJ22	1AA6PSB6	3/8-18	-06	1.33	2.33	1.80	0.30	
•C1KJ26	1AA8PSB8	1/2-14	-08	1.51	2.68	2.05	0.48	

1AA part numbers fit both 1wire & 2wire braid (GH663, GH781, GH793, GH195).
1AP & 1AR part numbers fit 1wire braid (GH663). 1AT & 1AV part numbers fit 2wire braid (GH781, GH793, GH195).



Hose Fittings

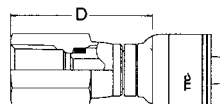
Steel Crimp 1 & 2 Wire Braid

Global TTC Fittings for use with hose:

2661, FC579, FC619, FC639, FC693, FC735, GH195, GH663, GH781, GH793

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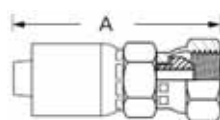
~~MATCH-MATE~~ **Plus**



PF

Female Pipe Swivel

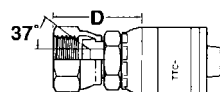
Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1FW43	1AA4PF4	1/4-18	-04	1.95	0.21	
•C1FW44	1AA6PF6	3/8-18	-06	1.97	0.29	
•C1FW45	1AA8PF8	1/2-14	-08	2.41	0.46	



SP

Female Straight Pile Swivel (NPSM)

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	A (in)	Wt.	Price Each
•C1KJ21	1AA4SP4	1/4-18	-04	1.09	1.88	0.11	
•C1KJ25	1AA6SP6	3/8-18	-06	1.20	2.04	0.18	
•C1KJ29	1AA8SP8	1/2-14	-08	1.41	2.40	0.26	
•C1KJ18	1AA12SP12	3/4-14	-12	1.56	2.62	0.45	
•C1LW84	1AA16SP16	1-11-1/2	-16	1.18	3.11	0.77	



FJ

Female JIC 37° Swivel

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1KA18	1AA6FJ8				0.21	
•C1FJ69	1AA3FJ4	3/8-24	-04	1.02	0.09	
•C1AP91	1AA4FJ4	7/16-20	-04	1.07	0.09	
•C1AQ23	1AA5FJ4	1/2-20	-04	1.06	0.11	
•C1AQ28	1AA6FJ4	9/16-18	-04	1.11	0.09	
•C1AP93	1AA4FJ6	7/16-20	-06	1.19	0.30	
•C1FF48	1AA5FJ6	1/2-20	-06	1.24	0.15	
•C1AQ29	1AA6FJ6	9/16-18	-06	1.28	0.15	
•C1AQ61	1AA8FJ6	3/4-16	-06	1.31	0.18	
•C1AQ62	1AA8FJ8	3/4-16	-08	1.46	0.23	
•C1AP16	1AA10FJ8	7/8-14	-08	1.47	0.26	
•C1AP37	1AA12FJ8	1-1/16-12	-08	1.56	0.34	
•C1FA32	1AA8FJ10	3/4-16	-10	1.50	0.29	
•C1AP14	1AA10FJ10	7/8-14	-10	1.61	0.32	
•C1AP33	1AA12FJ10	1-1/16-12	-10	1.57	0.37	
•C1AP15	1AA10FJ12	7/8-14	-12	1.63	0.37	

1AA part numbers fit both 1wire & 2wire braid (GH663, GH781, GH793, GH195).

1AP & 1AR part numbers fit 1wire braid (GH663). 1AT & 1AV part numbers fit 2wire braid (GH781, GH793, GH195).

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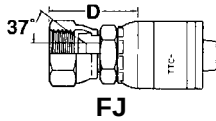


Hose Fittings

Steel Crimp 1 & 2 Wire Braid

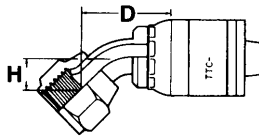
Global TTC Fittings for use with hose:

2661, FC579, FC619, FC639, FC693, FC735, GH195, GH663, GH781, GH793



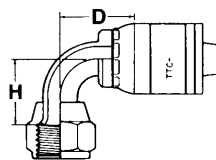
FJ
Female JIC 37° Swivel

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1AP34	1AA12FJ12	1-1/16-12	-12	1.65	0.45	
•C1AP61	1AA14FJ12	1-3/16-12	-12	1.65	0.48	
•C1AP63	1AA16FJ12	1-5/16-12	-12	1.72	0.51	
•C1AP36	1AA12FJ16	1-1/16-12	-16	1.80	0.69	
•C1AP64	1AA16FJ16	1-5/16-12	-16	1.93	0.76	
•C1AP83	1AA20FJ16	1-5/8-12	-16	1.81	0.98	
•C1AR14	1AV20FJ20	1-5/8-12	-20	1.88	1.24	
•C1AQ92	1AR20FJ20	1-5/8-12	-20	1.88	0.10	
•C1AP85	1AA24FJ24	1-7/8-12	-24	2.07	1.91	
•C1AP89	1AA32FJ32	2-1/2-12	-32	2.37	2.50	



FJA
Female JIC 37° Swivel
45° Elbow

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	H (in)	Wt.	Price Each
•C1AP94	1AA4FJA4	7/16-20	-04	1.04	0.33	0.10	
•C1AQ31	1AA6FJA4	9/16-18	-04	1.17	0.39	0.32	
•C1AQ32	1AA6FJA6	9/16-18	-06	1.31	0.39	0.32	
•C1AQ64	1AA8FJA6	3/4-16	-06	1.66	0.55	0.20	
•C1AQ65	1AA8FJA8	3/4-16	-08	1.65	0.55	0.25	
•C1AP18	1AA10FJA8	7/8-14	-08	1.86	0.59	0.31	
•C1AP17	1AA10FJA10	7/8-14	-10	1.79	0.59	0.35	
•C1ES66	1AA12FJA10	1-1/16-12	-10	2.22	0.78	0.48	
•C1AP38	1AA12FJA12	1-1/16-12	-12	2.24	0.78	0.55	
•C1AP66	1AA16FJA16	1-5/16-12	-16	2.39	1.07	0.93	
•C1AR15	1AV20FJA20	1-5/8-12	-20	2.71	1.22	1.61	



FJB
Female JIC 37° Swivel
90° Elbow

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	H (in)	Wt.	Price Each
•C1AP95	1AA4FJB4	7/16-20	-04	0.92	0.68	0.10	
•C1AQ25	1AA5FJB4	1/2-20	-04	1.0	0.76	0.11	
•C1AQ33	1AA6FJB4	9/16-18	-04	1.08	0.84	0.12	
•C1MX81	1AA4FJB6	7/16-20	-06	0.98	0.68	0.14	
•C1AQ34	1AA6FJB6	9/16-18	-06	1.22	0.84	0.17	
•C1AQ66	1AA8FJB6	3/4-16	-06	1.42	1.09	0.21	
•C1AQ67	1AA8FJB8	3/4-16	-08	1.42	0.84	0.25	
•C1AP20	1AA10FJB8	7/8-14	-08	1.61	1.19	0.75	
•C1AP19	1AA10FJB10	7/8-14	-10	1.55	1.19	0.37	
•C1AP39	1AA12FJB10	1-1/16-12	-10	2.16	1.80	0.55	
•C1AP40	1AA12FJB12	1-1/16-12	-12	2.17	1.80	0.60	
•C1AP67	1AA16FJB12	1-5/16-12	-12	2.18	2.39	0.82	
•C1AP68	1AA16FJB16	1-5/16-12	-16	2.2	2.39	0.79	
•C1AR16	1AV20FJB20	1-5/8-12	-20	2.52	2.75	1.77	
•C1EW18	1AA24FJB24	1-7/8-12	-24	2.81	3.17	4.00	

1AA part numbers fit both 1wire & 2wire braid (GH663, GH781, GH793, GH195).

1AP & 1AR part numbers fit 1wire braid (GH663). 1AT & 1AV part numbers fit 2wire braid (GH781, GH793, GH195).



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Hose Fittings

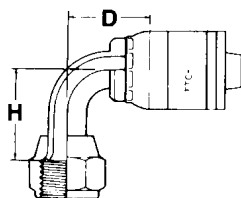
Steel Crimp 1 & 2 Wire Braid

Global TTC Fittings for use with hose:

2661, FC579, FC619, FC639, FC693, FC735, GH195, GH663, GH781, GH793

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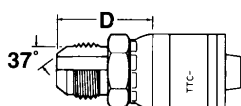
MATCH-MATE Plus



FJC

Female J.I.C. 37° Swivel
90° Long Drop Elbow

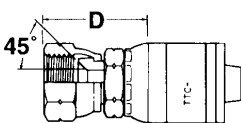
Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	H (in)	Wt.	Price Each
•C1AP96	1AA4FJC4	7/16-20	-04	0.92	1.80	0.10	
•C1AQ36	1AA6FJC4	9/16-18	-04			0.14	
•C1AQ37	1AA6FJC6	9/16-18	-06	1.23	2.18	0.19	
•C1AQ68	1AA8FJC8	3/4-16	-08	1.54	2.45	0.26	
•C1AP21	1AA10FJC8	7/8-14	-08	1.61	2.57	0.38	
•C1ZZ17	1AA10FJC10	7/8-14	-10	1.54	2.57	0.21	
•C1AP41	1AA12FJC12	1-1/16-12	-12	2.17	3.7	0.69	
•C1AP69	1AA16FJC16	1-5/16-12	-16	2.2	4.58	1.25	



MJ

Male JIC 37°

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1AQ17	1AA4MJ4	7/16-20	-04	1.07	0.10	
•C1AQ27	1AA5MJ4	1/2-20	-04	0.92	0.08	
•C1AQ53	1AA6MJ4	9/16-18	-04	0.93	0.09	
•C1AQ54	1AA6MJ6	9/16-18	-06	1.17	0.13	
•C1AQ83	1AA8MJ6	3/4-16	-06	1.11	0.16	
•C1AQ84	1AA8MJ8	3/4-16	-08	1.41	0.22	
•C1AP32	1AA10MJ8	7/8-14	-08	1.26	0.23	
•C1AP54	1AA12MJ8	1-1/16-12	-08	1.42	0.33	
•C1AP31	1AA10MJ10	7/8-14	-10	1.57	0.31	
•C1AP52	1AA12MJ10	1-1/16-12	-10	1.43	0.35	
•C1AP53	1AA12MJ12	1-1/16-12	-12	1.75	0.41	
•C1AP78	1AA16MJ12	1-5/16-12	-12	1.56	0.52	
•C1AP79	1AA16MJ16	1-5/16-12	-16	1.90	0.75	
•C1AR23	1AV20MJ20	1-5/8-12	-20	2.16	1.28	
•C1AP86	1AA24MJ24	1-7/8-12	-24	2.49	1.85	



FS

Female SAE 45° Swivel

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1AQ47	1AA6FS6	5/8-18	-06	1.31	0.16	
•C1AP50	1AA12FS12	1-1/16-14	-12	1.65	0.44	

1AA part numbers fit both 1wire & 2wire braid (GH663, GH781, GH793, GH195).

1AP & 1AR part numbers fit 1wire braid (GH663). 1AT & 1AV part numbers fit 2wire braid (GH781, GH793, GH195).

This page is part of a complete catalog which contains technical and safety data that must be reviewed when selecting a product

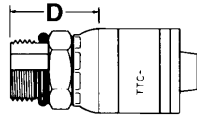


Hose Fittings

Steel Crimp 1 & 2 Wire Braid

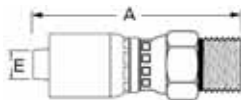
Global TTC Fittings for use with hose:

2661, FC579, FC619, FC639, FC693, FC735, GH195, GH663, GH781, GH793



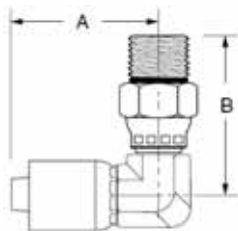
MB
Male O-Ring Boss

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1AQ13	1AA4MB4	7/16-20	-04	0.92	0.09	
•C1AQ26	1AA5MB4	1/2-20	-04	0.92	0.10	
•C1AQ48	1AA6MB4	9/16-18	-04	0.86	0.10	
•C1AQ49	1AA6MB6	9/16-18	-06	1.0	0.16	
•C1AQ78	1AA8MB6	3/4-16	-06	0.98	0.18	
•C1AQ79	1AA8MB8	3/4-16	-08	1.19	0.22	
•C1AP30	1AA10MB8	7/8-14	-08	1.09	0.24	
•C1FQ65	1AA12MB8	1-1/16-12	-08	1.22	0.32	
•C1AP51	1AA12MB12	1-1/16-12	-12	1.25	0.36	
•C1AP76	1AA16MB12	1-5/16-12	-12	1.37	0.53	
•C1AP77	1AA16MB16	1-5/16-12	-16	1.39	0.69	



SB
Male Straight Thread O-Ring Swivel

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	A (in)	Wt.	Price Each
•C1KJ23	1AA6SB6	9/16-18	-06	1.73	2.72	0.20	
•C1KJ27	1AA8SB8	3/4-16	-08	1.84	3.01	0.33	
•C1KJ14	1AA10SB8	7/8-14	-08	1.86	3.03	0.34	



SBB
Male Straight Thread O-Ring Swivel 90° Elbow

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	A (in)	B (in)	Wt.	Price Each
•C1KJ24	1AA6SBB6	9/16-18	-06	1.33	2.33	1.87	0.40	
•C1KJ28	1AA8SBB8	3/4-16	-08	1.51	2.68	1.93	0.50	
•C1KJ15	1AA10SBB8	7/8-14	-08	1.51	2.68	1.97	0.50	
C1KJ17	1AA12SBB12	1-1/16-12	-12	2.53	3.72	2.65	1.20	

1AA part numbers fit both 1wire & 2wire braid (GH663, GH781, GH793, GH195).
1AP & 1AR part numbers fit 1wire braid (GH663). 1AT & 1AV part numbers fit 2wire braid (GH781, GH793, GH195).



Hose Fittings

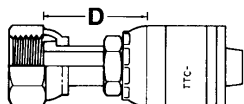
Steel Crimp 1 & 2 Wire Braid

Global TTC Fittings for use with hose:

2661, FC579, FC619, FC639, FC693, FC735, GH195, GH663, GH781, GH793

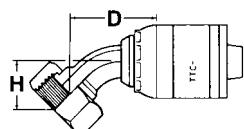
EATON
Powering Business Worldwide

~~MATCH-MATE~~ Plus



FR
Female ORS® Swivel

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1AP97	1AA4FR4	9/16-18	-04	1.03	0.12	
•C1AQ38	1AA6FR4	11/16-16	-04	1.12	0.14	
•C1AP98	1AA4FR6	9/16-18	-06	1.15	0.18	
•C1AQ39	1AA6FR6	11/16-16	-06	1.24	0.17	
•C1AQ69	1AA8FR6	13/16-16	-06	1.32	0.23	
•C1AQ40	1AA6FR8	11/16-16	-08	1.34	0.25	
•C1AQ70	1AA8FR8	13/16-16	-08	1.50	0.57	
•C1AP24	1AA10FR8	1-14	-08	1.47	0.36	
•C1AP44	1AA12FR8	1-3/16-12	-08	1.63	0.54	
•C1AP22	1AA10FR10	1-14	-10	1.61	0.39	
•C1AP42	1AA12FR10	1-3/16-12	-10	1.63	0.55	
•C1AP23	1AA10FR12	1-14	-12	1.62	0.48	
•C1AP43	1AA12FR12	1-3/16-12	-12	1.62	0.58	
•C1AP70	1AA16FR12	1-7/16-12	-12	1.79	0.82	
•C1AP71	1AA16FR16	1-7/16-12	-16	1.94	1.25	
•C1ZU23	1AA20FR16	1-11/16-12	-16	1.90	1.04	
•C1AR18	1AV20FR20	1-11/16-12	-20	2.33	1.51	
•C1FW42	1AA24FR24	2-12	-24	2.19	1.92	



FRA
Female ORS® Swivel
45° Elbow

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	H (in)	Wt.	Price Each
•C1AP99	1AA4FRA4	9/16-18	-04	1.20	0.41	0.11	
•C1AQ41	1AA6FRA4	11/16-16	-04	1.38	0.43	0.15	
•C1AQ42	1AA6FRA6	11/16-16	-06	1.43	0.41	0.17	
•C1AQ71	1AA8FRA6	13/16-16	-06	1.74	0.59	0.23	
•C1AQ72	1AA8FRA8	13/16-16	-08	1.79	0.59	0.28	
•C1AP26	1AA10FRA8	1-14	-08	2.01	0.65	0.35	
•C1AP25	1AA10FRA10	1-14	-10	2.02	0.65	0.40	
•C1AP45	1AA12FRA10	1-3/16-12	-10	2.36	0.83	0.10	
•C1AP46	1AA12FRA12	1-3/16-12	-12	2.38	0.83	0.53	
•C1AP72	1AA16FRA16	1-7/16-12	-16	2.88	0.94	1.03	
•C1AR19	1AV20FRA20	1-11/16-12	-20	3.37	1.0	1.48	

1AA part numbers fit both 1wire & 2wire braid (GH663, GH781, GH793, GH195).

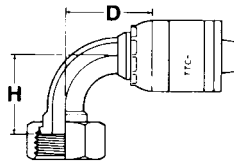
1AP & 1AR part numbers fit 1wire braid (GH663). 1AT & 1AV part numbers fit 2wire braid (GH781, GH793, GH195).

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Steel Crimp 1 & 2 Wire Braid

Global TTC Fittings for use with hose:

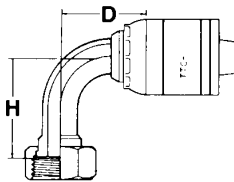
2661, FC579, FC619, FC639, FC693, FC735, GH195, GH663, GH781, GH793



FRB

Female ORS® Swivel
90° Short Drop Elbow

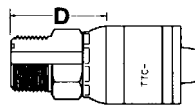
Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	H (in)	Wt.	Price Each
•C1AQ11	1AA4FRB4	9/16-18	-04	1.17	0.82	0.12	
•C1AQ43	1AA6FRB4	11/16-16	-04	1.30	0.90	0.15	
•C1AQ44	1AA6FRB6	11/16-16	-06	1.34	0.90	0.18	
•C1AQ73	1AA8FRB6	13/16-16	-06	1.62	1.15	0.30	
•C1ZU22	1AA6FRB8	11/16-16	-08	1.39	0.90	0.25	
•C1AQ74	1AA8FRB8	13/16-16	-08	1.67	1.15	0.29	
•C1AP28	1AA10FRB8	1-14	-08	1.91	1.27	0.37	
•C1AP27	1AA10FRB10	1-14	-10	1.91	1.27	0.42	
•C1AP47	1AA12FRB10	1-3/16-12	-10	2.29	1.88	0.59	
•C1AP48	1AA12FRB12	1-3/16-12	-12	2.3	1.88	0.60	
•C1AP73	1AA16FRB12	1-7/16-12	-12	2.85	2.21	0.94	
•C1AP74	1AA16FRB16	1-7/16-12	-16	2.87	2.21	1.03	
•C1AR20	1AV20FRB20	1-11/16-12	-20	3.57	2.51	1.72	



FRC

Female ORS® Swivel
90° Long Drop Elbow

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	H (in)	Wt.	Price Each
•C1AQ12	1AA4FRC4	9/16-18	-04	1.17	1.80	0.50	
•C1AQ45	1AA6FRC4	11/16-16	-04	1.30	2.13	0.18	
•C1AQ46	1AA6FRC6	11/16-16	-06	1.34	2.13	0.21	
•C1AQ75	1AA8FRC6	13/16-16	-06	1.71	2.55	0.30	
•C1AQ76	1AA8FRC8	13/16-16	-08	1.70	2.55	0.32	
•C1AP29	1AA10FRC10	1-14	-10	1.91	2.76	0.10	
•C1AP49	1AA12FRC12	1-3/16-12	-12	2.29	3.78	0.72	
•C1AP75	1AA16FRC16	1-7/16-12	-16	2.86	4.5	1.38	



MR

Male ORS®

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1AQ21	1AA4MR4	9/16-18	-04	0.86	0.10	
•C1AQ58	1AA6MR6	11/16-16	-06	0.99	0.15	
•C1FD32	1AA8MR6	13/16-16	-06	1.95	0.17	
•C1AQ89	1AA8MR8	13/16-16	-08	1.13	0.25	
•C1GN16	1AA10MR8	1-14	-08	1.17	0.28	
•C1KJ16	1AA12MR10	1-3/16-12	-10	1.24	0.40	
•C1AP59	1AA12MR12	1-3/16-12	-12	1.44	0.49	
•C1HJ24	1AA16MR12	1-7/16-12	-12	1.34	0.55	

1AA part numbers fit both 1wire & 2wire braid (GH663, GH781, GH793, GH195).

1AP & 1AR part numbers fit 1wire braid (GH663). 1AT & 1AV part numbers fit 2wire braid (GH781, GH793, GH195).

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Hose Fittings

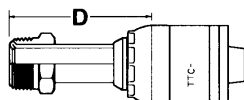
Steel Crimp 1 & 2 Wire Braid

Global TTC Fittings for use with hose:

2661, FC579, FC619, FC639, FC693, FC735, GH195, GH663, GH781, GH793

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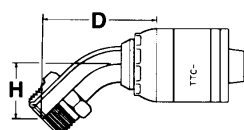
MATCH-MATE Plus



MF

Male SAE Inverted Flare Swivel

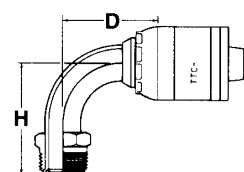
Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1AQ14	1AA4MF4	7/16-24	-04	1.46	0.09	
•C1AQ50	1AA6MF6	5/8-18	-06	1.61	0.15	
•C1AQ80	1AA8MF8	3/4-18	-08	1.62	0.22	



MFA

Male SAE Inverted Flare Swivel
45° Elbow

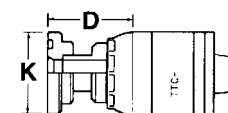
Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	H (in)	Wt.	Price Each
•C1AQ15	1AA4MFA4	7/16-24	-04	1.75	0.96	0.09	
•C1AQ51	1AA6MFA6	5/8-18	-06	1.88	0.96	0.16	



MFB

Male SAE Inverted Flare Swivel
90° Elbow

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	H (in)	Wt.	Price Each
•C1AQ16	1AA4MFB4	7/16-24	-04	1.37	1.69	0.09	
•C1AQ52	1AA6MFB6	5/8-18	-06	1.51	1.73	0.16	
•C1AQ82	1AA8MFB8	3/4-18	-08	1.56	1.75	0.23	

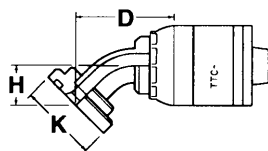


FL

SAE Code 61 Split Flange

Catalog Part No.	Aeroquip Model	Flange Head Dia.	Hose Size	D (in)	Wt.	Price Each
•C1AN99	1A8FL8	1.19	-08	2.06	0.36	
•C1AM99	1A12FL8	1.50	-08	2.1	0.52	
•C1AM98	1A12FL12	1.50	-12	2.12	0.61	
•C1AN27	1A16FL12	1.75	-12	2.12	0.58	
•C1AN28	1A16FL16	1.75	-16	2.14	0.81	
•C1AN42	1A20FL16	2.00	-16	2.44	1.06	
•C1AQ93	1AT20FL20	2.00	-20	2.51	2.44	
•C1AQ97	1AT24FL20	2.38	-20	2.54	1.65	
•C1AN45	1A24FL24	2.38	-24	2.58	1.85	
•C1AN53	1A32FL32	2.81	-32	2.63	2.21	

Note: Flange O-Rings page 1266



FLA

SAE Code 61 Split Flange
45° Elbow

Catalog Part No.	Aeroquip Model	Flange Head Dia.	Hose Size	D (in)	H (in)	Wt.	Price Each
•C1AN11	1A12FLA12	1.50	-12	2.48	1.01	0.53	
•C1AN29	1A16FLA12	1.75	-12	2.97	1.06	0.63	
•C1AN30	1A16FLA16	1.75	-16	3	1.06	0.92	
•C1AN43	1A20FLA16	2.00	-16	3.45	1.15	1.07	
•C1AQ94	1AT20FLA20	2.00	-20	3.55	1.18	1.39	
•C1AN46	1A24FLA24	2.38	-24	4.25	1.41	1.91	
•C1AN55	1A32FLA32	2.81	-32	5.52	2.0	3.00	
C1MX79	1A40FLA32	3.31	-32	3.29	1.30		

1AA part numbers fit both 1wire & 2wire braid (GH663, GH781, GH793, GH195).

1AP & 1AR part numbers fit 1wire braid (GH663). 1AT & 1AV part numbers fit 2wire braid (GH781, GH793, GH195).

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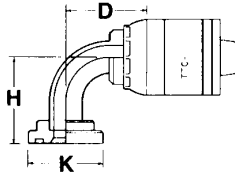
Steel Crimp 1 & 2 Wire Braid

Global TTC Fittings for use with hose:

2661, FC579, FC619, FC639, FC693, FC735, GH195, GH663, GH781, GH793



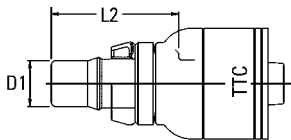
Note: Flange O-Rings page 1266



FLB
SAE Code 61 Split Flange
90° Elbow

Catalog Part No.	Aeroquip Model	Flange Head Dia.	Hose Size	D (in)	H (in)	Wt.	Price Each
•C1ZZ18	1A8FLB8	1.19	-08	1.69	1.63	0.31	
•C1AN14	1A12FLB8	1.50	-08	2.28	2.13	0.39	
•C1AN12	1A12FLB10	1.50	-10	2.29	2.13	0.50	
•C1AN13	1A12FLB12	1.50	-12	2.3	2.13	0.58	
•C1AN31	1A16FLB12	1.75	-12	2.84	2.38	0.59	
•C1AN32	1A16FLB16	1.75	-16	2.86	2.38	1.04	
•C1AN44	1A20FLB16	2.00	-16	3.5	2.62	1.21	
•C1AQ95	1AT20FLB20	2.00	-20	3.57	2.62	1.50	
•C1AQ99	1AT24FLB20	2.38	-20	4.31	3.12	1.85	
•C1AN48	1A24FLB24	2.38	-24	4.35	3.12	2.15	
•C1AN56	1A32FLB24	2.81	-24	5.45	4.50	2.84	
•C1AN57	1A32FLB32	2.81	-32	5.49	4.50	3.42	
C1MX80	1A40FLB32	3.31	-32	5.49	4.56		

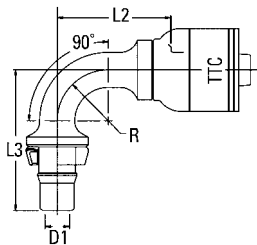
Note: Flange O-Rings page 1266



MC
Male STC

Catalog Part No.	Aeroquip Model	D1 (in)	Hose Size	L2 (in)	Wt.	Price Each
•C1JD20	1A6MC4	0.26	-04	1.19	0.11	
•C1JD23	1A8MC8	0.38	-08	1.44	0.28	
•C1JD11	1A10MC10	0.50	-10	1.56	0.16	
•C1JD14	1A12MC12	0.61	-12	1.75	0.40	

Release Tools: page 907



MCB
Male STC 90° Elbow

Catalog Part No.	Aeroquip Model	D1 (in)	Hose Size	L2 (in)	L3 (in)	Wt.	Price Each
•C1JD41	1A6MCB6	0.26	-06	1.34	1.56	0.10	
•C1JD25	1A8MCB8	0.35	-08	1.67	2.09	0.08	
•C1JD19	1A12MCB12	0.55	-12	2.30	2.98	0.67	

Release Tools: page 907

1AA part numbers fit both 1wire & 2wire braid (GH663, GH781, GH793, GH195).
1AP & 1AR part numbers fit 1wire braid (GH663). 1AT & 1AV part numbers fit 2wire braid (GH781, GH793, GH195).

Hose Fittings

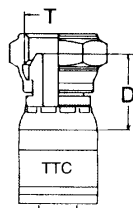
Steel Crimp 1 & 2 Wire Braid

Global TTC Fittings for use with hose:

2661, FC579, FC619, FC639, FC693, FC735, GH195, GH663, GH781, GH793

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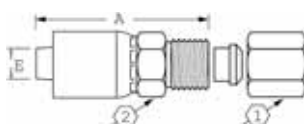
MATCHMATE Plus



BF

BSP (British) Female Swivel (1 Hex)

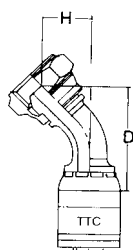
Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (mm)	Wt.	Price Each
•C1AN58	1A4BF4	G 1/4	-04	18.9	0.11	
•C1AN72	1A6BF6	G 3/8	-06	21.1	0.17	
•C1AN86	1A8BF6	G 1/2	-06	21.1	0.22	
•C1AN87	1A8BF8	G 1/2	-08	23.8	0.25	
•C1AM73	1A10BF8	G 5/8	-08		0.31	
•C1EM29	1A10BF10	G 5/8	-10	24.7	0.33	
•C1AM88	1A12BF12	G 3/4	-12	25.3	0.66	
•C1AN18	1A16BF16	G 1	-16	27.6	0.70	
•C1HY93	1AT20BF20	G 1-1/4	-20	29.6	1.10	



MT

Flareless Tube Rigid Ermeto 7000 Series

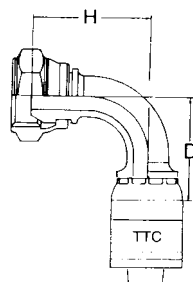
Catalog Part No.	Aeroquip Model	Thread	Hose Size	A (in)	Hose Cut-off Factor D (in)	Wt.	Price Each
•C1KU22	1AA5MT4	1/2-20	-04	1.58	0.08	0.12	
•C1KU21	1AA4MT6	7/16-20	-06	1.81	0.97	0.16	
•C1KU23	1AA5MT6	1/2-20	-06	1.81	0.97	0.17	
•C1KU24	1AA6MT6	9/16-18	-06	1.82	0.99	0.17	
•C1KU25	1AA8MT8	3/4-16	-08	2.15	1.16	0.28	



BFA

BSP (British) Female Swivel
45° Elbow

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (mm)	H (mm)	Wt.	Price Each
•C1AN59	1A4BFA4	G 1/4	-04	41.9	16.5	0.15	
•C1AN73	1A6BFA6	G 3/8	-06	48.5	19	0.20	
•C1AN88	1A8BFA8	G 1/2	-08	61.8	24.8	0.32	
•C1AM89	1A12BFA12	G 3/4	-12	78.6	29.4	0.66	
•C1GK99	1A16BFA16	G 1	-16	92.4	33.2	0.98	



BFB

BSP (British) Female Swivel 90° Elbow

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (mm)	H (mm)	Wt.	Price Each
•C1AN60	1A4BFB4	G 1/4	-04	33	31	0.12	
•C1AN74	1A6BFB6	G 3/8	-06	38.8	36.6	0.21	
•C1EV58	1A8BFB6	G 1/2	-06	49.3	48.5	0.29	
•C1AN89	1A8BFB8	G 1/2	-08	50.5	48.5	0.35	
•C1AM74	1A10BFB10	G 5/8	-10	61.2	56.3	0.50	
•C1AM90	1A12BFB12	G 3/4	-12	69.1	61.5	0.66	
•C1AN19	1A16BFB16	G 1	-16	83.8	71.5	1.07	

1AA part numbers fit both 1wire & 2wire braid (GH663, GH781, GH793, GH195).

1AP & 1AR part numbers fit 1wire braid (GH663). 1AT & 1AV part numbers fit 2wire braid (GH781, GH793, GH195).

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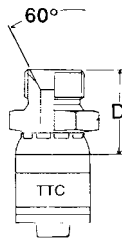


Hose Fittings

Steel Crimp 1 & 2 Wire Braid

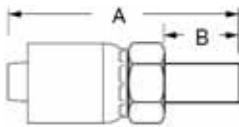
Global TTC Fittings for use with hose:

2661, FC579, FC619, FC639, FC693, FC735, GH195, GH663, GH781, GH793



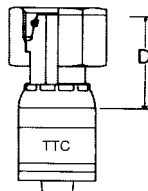
BP

BSP (British) Male Parallel



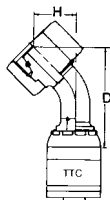
TE

Standpipe Straight Tube



DL

DKO (German DIN 3902)
Female Swivel, Light Duty



DLA

DKO (German DIN 3902) Female Swivel,
Light Duty 45° Elbow

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (mm)	Wt.	Price Each
•C1AN61	1A4BP4	G 1/4	-04	20.9	0.09	
•C1AN75	1A6BP6	G 3/8	-06	23.1	0.14	
•C1AN91	1A8BP6	G 1/2	-06	27.1	0.20	
•C1AN92	1A8BP8	G 1/2	-08	28.3	0.25	
•C1EM30	1A12BP12	G 3/4	-12	32.9	0.40	

Catalog Part No.	Aeroquip Model	Tube O.D.(in)	Hose Size	D (in)	A (in)	B (in)	Wt.	Price Each
•C1KH98	1A4TE4	1/4	-04	1.40	2.19	1.00	0.07	
C1KH99	1A6TE6	3/8	-06	1.52	2.35	1.00	0.09	
C1KJ13	1A8TE8	1/2	-08	1.70	2.69	1.10	0.19	

Catalog Part No.	Aeroquip Model	Thread (mm)	Tube O.D. (mm)	Hose Size	D (mm)	Wt.	Price Each
•C1KJ12	1A8DL4	M16 x 1.5	10	-04	24.9	0.09	
•C1AN66	1A5DL4	M12 x 1.5	6	-04	24.6	0.12	
•C1AN77	1A6DL4	M14 x 1.5	8	-04	22.6	0.10	
•C1AN94	1A8DL6	M16 x 1.5	10	-06	31.6	0.20	
•C1AM77	1A10DL6	M18 x 1.5	12	-06	25.9	0.17	
•C1AM93	1A12DL8	M22 x 1.5	15	-08	28.6	0.26	
•C1AN21	1A16DL10	M26 x 1.5	18	-10	29.8	0.36	
•C1AN37	1A20DL12	M30 x 2	22	-12	32.3	0.50	
•C1AN49	1A25DL16	M36 x 2	28	-16	33.8	0.72	
•C1AR11	1AT32DL20	M45 x 2	35	-20	39.7	1.21	
•C1FV48	1A40DL24	M52 x 2	42	-24	40.9	1.71	

Catalog Part No.	Aeroquip Model	Thread (mm)	Tube O.D. (mm)	Hose Size	D (mm)	H (mm)	Wt.	Price Each
•C1HK66	1A8DLA6	M16 x 1.5	10	-06	41.5	19.0	0.18	
•C1AM78	1A10DLA6	M18 x 1.5	12	-06	44.5	20.5	0.25	
•C1ES65	1A12DLA8	M22 x 1.5	15	-08	52.0	21.5	0.32	
•C1AN22	1A16DLA10	M26 x 1.5	18	-10	59	27.5	0.40	

1AA part numbers fit both 1wire & 2wire braid (GH663, GH781, GH793, GH195).

1AP & 1AR part numbers fit 1wire braid (GH663). 1AT & 1AV part numbers fit 2wire braid (GH781, GH793, GH195).



Hose Fittings

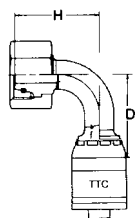
Steel Crimp 1 & 2 Wire Braid

Global TTC Fittings for use with hose:

2661, FC579, FC619, FC639, FC693, FC735, GH195, GH663, GH781, GH793

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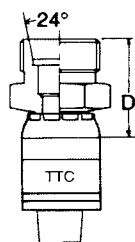
MATCH-MATE Plus



DLB

DKO (German DIN 3902) Female Swivel,
Light Duty 90° Elbow

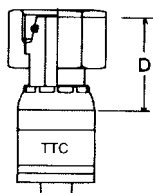
Catalog Part No.	Aeroquip Model	Thread (mm)	Tube O.D. (mm)	Hose Size	D (mm)	H (mm)	Wt.	Price Each
•C1AN67	1A5DLB4	M12 x 1.5	6	-04	26.5	26.5	0.13	
•C1AN79	1A6DLB4	M14 x 1.5	8	-04	28.5	3.5	0.12	
•C1AN95	1A8DLB6	M16 x 1.5	10	-06	32	35.5	0.20	
•C1AM79	1A10DLB6	M18 x 1.5	12	-06	35	39	0.23	
•C1AM94	1A12DLB8	M22 x 1.5	15	-08	42.3	43	0.33	
•C1AN23	1A16DLB10	M26 x 1.5	18	-10	53.5	59	0.55	
•C1AN39	1A20DLB12	M30 x 2	22	-12	64.8	54	0.75	
•C1AN50	1A25DLB16	M36 x 2	28	-16	120	71	0.95	



DK

German DIN 3902
24° Male, Light Duty

Catalog Part No.	Aeroquip Model	Thread (mm)	Tube O.D. (mm)	Hose Size	D (mm)	Wt.	Price Each
•C1AN76	1A6DK4	M14 x 1.5	8	-04	21.1	0.08	
•C1KJ11	1A8DK4	M16 x 1.5	10	-04	22.6	0.09	
•C1AN93	1A8DK6	M16 x 1.5	10	-06	26.7	0.14	
•C1AM75	1A10DK6	M18 x 1.5	12	-06	23.7	0.15	
•C1AM92	1A12DK8	M22 x 1.5	15	-08	26.3	0.21	
•C1AN20	1A16DK10	M26 x 1.5	18	-10	26.6	0.27	
•C1AN36	1A20DK12	M30 x 2	22	-12	31.8	0.39	



DS

DKO (German DIN 3902)
Female Swivel, Heavy Duty

Catalog Part No.	Aeroquip Model	Thread (mm)	Tube O.D. (mm)	Hose Size	D (mm)	Wt.	Price Each
•C1AN68	1A5DS4	M16 x .5	8	-04	26.2	0.12	
•C1AN80	1A6DS4	M18 x 1.5	10	-04	27.4	0.16	
•C1HH70	1A6DS6	M18 x 1.5	10	-06		0.18	
•C1AN96	1A8DS6	M20 x 1.5	12	-06	28.5	0.20	
•C1AM80	1A10DS6	M22 x 1.5	14	-06	31.6	0.27	
•C1AM81	1A10DS8	M22 x 1.5	14	-08		0.28	
•C1AM95	1A12DS8	M24 x 1.5	16	-08	32.7	0.34	
•C1AN24	1A16DS10	M30 x 2	20	-10	37.5	0.55	
•C1AN40	1A20DS12	M36 x 2	25	-12	41.8	0.84	

1AA part numbers fit both 1wire & 2wire braid (GH663, GH781, GH793, GH195).

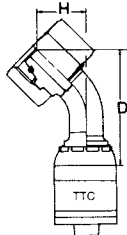
1AP & 1AR part numbers fit 1wire braid (GH663). 1AT & 1AV part numbers fit 2wire braid (GH781, GH793, GH195).

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Steel Crimp 1 & 2 Wire Braid

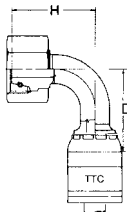
Global TTC Fittings for use with hose:

2661, FC579, FC619, FC639, FC693, FC735, GH195, GH663, GH781, GH793



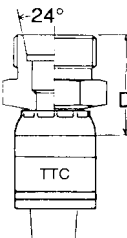
DSA

DKO (German DIN 3902)
Female Swivel, Heavy Duty
45° Elbow



DSB

DKO (German DIN 3902)
Female Swivel, Heavy Duty
90° Elbow



EK

German DIN 3902
24° Male, Heavy Duty

Catalog Part No.	Aeroquip Model	Thread (mm)	Tube O.D. (mm)	Hose Size	D (mm)	H (mm)	Wt.	Price Each
•C1FR64	1A6DSA4	M18 x 1.5	10	-04	38	17	0.17	
•C1GA91	1A8DSA6	M20 x 1.5	12	-06	43.0	19.0	0.22	
•C1EV57	1A12DSA8	M24 x 1.5	16	-08	50	23	0.40	

Catalog Part No.	Aeroquip Model	Thread (mm)	Tube O.D. (mm)	Hose Size	D (mm)	H (mm)	Wt.	Price Each
•C1AN69	1A5DSB4	M16 x .5	8	-04			0.13	
•C1AN81	1A6DSB4	M18 x 1.5	10	-04	31	33.5	0.12	
•C1HH71	1A6DSB6	M18 x 1.5	6	-06			0.22	
•C1AN97	1A8DSB6	M20 x 1.5	12	-06	35	35	0.23	
•C1AM82	1A10DSB6	M22 x 1.5	14	-06	38.5	42	0.31	
•C1AM96	1A12DSB8	M24 x 1.5	16	-08	44	49	0.42	
•C1AN25	1A16DSB10	M30 x 2	20	-10	52.6	53.5	0.62	
•C1AN41	1A20DSB12	M36 x 2	25	-12	62.8	64.5	1.25	

Catalog Part No.	Aeroquip Model	Thread (mm)	Tube O.D. (mm)	Hose Size	D (mm)	Wt.	Price Each
•C1AN70	1A5EK4	M16 x 1.5	8	-04	24.1	0.05	
•C1AN82	1A6EK4	M18 x 1.5	10	-04	23.6	0.12	
•C1AN98	1A8EK6	M20 x 1.5	12	-06	25	0.16	
•C1AM83	1A10EK6	M22 x 1.5	14	-06	27.3	0.20	
•C1AM97	1A12EK8	M24 x 1.5	16	-08	28.3	0.25	
•C1AN26	1A16EK10	M30 x 2	20	-10	32.6	0.38	
•C1FF46	1A20EK12	M36 x 2	25	-12	35.3	0.57	
•C1FL13	1A25EK16	M42 x 2	30	-16	37.9	0.84	

1AA part numbers fit both 1wire & 2wire braid (GH663, GH781, GH793, GH195).

1AP & 1AR part numbers fit 1wire braid (GH663). 1AT & 1AV part numbers fit 2wire braid (GH781, GH793, GH195).

Hose Fittings

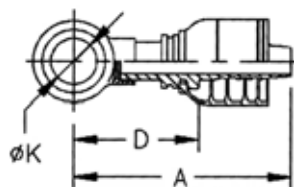
Steel Crimp 1 & 2 Wire Braid

Global TTC Fittings for use with hose:

2661, FC579, FC619, FC639, FC693, FC735, GH195, GH663, GH781, GH793

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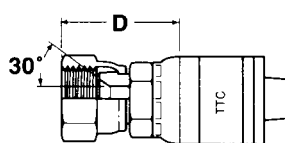
MATCHMATE Plus



BJ

Metric Banjo

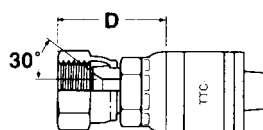
Catalog Part No.	Aeroquip Model	Bolt Size (mm)	Hose Size	D (mm)	Wt.	Price Each
•C1AN90	1A8BJ6	8 MM	-06	50,9	0.18	
•C1AM91	1A12BJ8	12 MM	-08	84,9	0.31	



JF

JIS (Japanese JIS 30° Female Seat)
Female Swivel

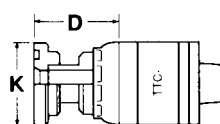
Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (mm)	Wt.	Price Each
•C1AN62	1A4JF4	G 1/4	-04	29.8	0.14	
•C1AN83	1A6JF6	G 3/8	-06	33.9	0.21	
•C1AP11	1A8JF8	G 1/2	-08	36.6	0.31	
•C1AN15	1A12JF12	G 3/4	-12	43.1	0.60	
•C1AN33	1A16JF16	G 1	-16	49.2	0.95	



KF

Komatsu Female Swivel

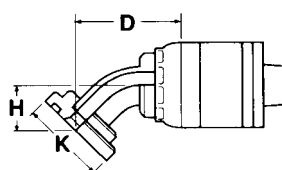
Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (mm)	Wt.	Price Each
•C1AN64	1A4KF4	M14 x 1.5	-04	32.7	0.15	
•C1AN85	1A6KF6	M18 x 1.5	-06	35.1	0.22	
•C1AP13	1A8KF8	M22 x 1.5	-08	39.8	0.32	
•C1AM84	1A10KF10	M24 x 1.5	-10	46	0.50	
•C1AN17	1A12KF12	M30 x 1.5	-12	51.3	0.68	
•C1AN35	1A16KF16	M33 x 1.5	-16	57	0.99	



KS

Komatsu Split Flange

Catalog Part No.	Aeroquip Model	Flange Head Dia. (mm)	Hose Size	D (mm)	Wt.	Price Each
•C1AM85	1A10KS10	34.2	-10	65.4	0.38	



KSA

Komatsu Split Flange
45° Elbow

Catalog Part No.	Aeroquip Model	Flange Head Dia. (mm)	Hose Size	D (mm)	H (mm)	Wt.	Price Each
•C1AM86	1A10KSA10	34.2	-10	47.3	21.8	0.37	

1AA part numbers fit both 1wire & 2wire braid (GH663, GH781, GH793, GH195).

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Hose Fittings

Steel Crimp 100R7 & 100R8 Thermoplastic hose
Global TTC Fittings for use with hose:
3130, 3R80



FF91064

Synflex® Crimp Sleeve for Thermoplastic
Hose

Catalog Part No.	Eaton Model	Hose Size	Wt.	Price Each
•C1KV89	FF91064-04S	-4	0.01	
•C1KV90	FF91064-06S	-6	0.01	
•C1KV91	FF91064-08S	-8	0.01	
•C1KV92	FF91064-12S	-12	0.01	
•C1KV93	FF91064-16S	-16	0.01	

Hydraulic Power & Control

Pneumatic Power & Control

Fluid Conveying

Miscellaneous Products

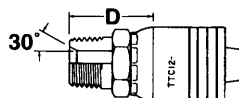
Indexes & Technical Information

Hose Fittings

Steel Crimp Spiral
Global TTC-12 Fittings for use with hose:
2661(-12), FC619 (-12), FC636, GH493

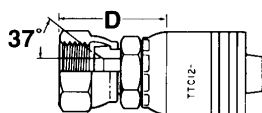
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MATCH-MATE Plus



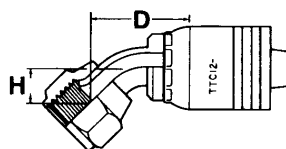
MP
 Male Pipe

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1AT13	1BA8MP8	1/2-14	-08	1.56	0.34	
•C1AS42	1BA12MP12	3/4-14	-12	1.65	0.50	
•C1AS61	1BA16MP12	1-11-1/2	-12	1.61	0.85	
•C1AS62	1BA16MP16	1-11-1/2	-16	1.67	0.90	
•C1AS76	1BA20MP16	1-1/4-11-1/2	-16	1.72	0.85	
•C1AS77	1BA20MP20	1-1/4-11-1/2	-20	1.79	1.20	
•C1AS83	1BA24MP24	1-1/2-11-1/2	-24	2.36	1.62	
•C1AS85	1BA32MP32	2-11-1/2	-32	2.58	3.00	



FJ
 Female JIC 37° Swivel

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1AS86	1BA6FJ6	9/16-18	-06	1.28	0.03	
•C1AS93	1BA8FJ8	3/4-16	-08	1.46	0.45	
•C1AS25	1BA10FJ8	7/8-14	-08	1.47	0.31	
•C1AS32	1BA12FJ8	1-1/16-12	-08	1.56	0.40	
•C1AS23	1BA10FJ10	7/8-14	-10	1.61	0.05	
•C1AS29	1BA12FJ10	1-1/16-12	-10	1.57	0.39	
•C1AS24	1BA10FJ12	7/8-14	-12	1.63	0.43	
•C1AS30	1BA12FJ12	1-1/16-12	-12	1.65	0.49	
•C1AS46	1BA16FJ12	1-5/16-12	-12	1.72	0.54	
•C1AS31	1BA12FJ16	1-1/16-12	-16	1.80	0.80	
•C1AS47	1BA16FJ16	1-5/16-12	-16	1.93	0.87	
•C1AS65	1BA20FJ16	1-5/8-12	-16	1.81	1.11	
C1DV48	1BA16FJ20	1-5/16-12	-20	1.73	1.20	
•C1AS66	1BA20FJ20	1-5/8-12	-20	1.88	1.44	
•C1AS78	1BA24FJ20	1-7/8-12	-20	2.03	1.50	
•C1AS79	1BA24FJ24	1-7/8-12	-24	2.07	1.65	
•C1AS84	1BA32FJ32	2-1/2-12	-32	2.33	2.90	

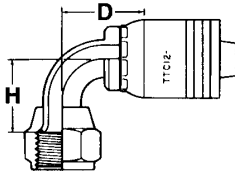


FJA
 Female JIC 37° Swivel
 45° Elbow

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	H (in)	Wt.	Price Each
•C1AS94	1BA8FJA8	3/4-16	-08	2.13	0.95	0.37	
•C1JN77	1BA10FJA8	7/8-14	-08	2.18	1.00	0.41	
•C1AS33	1BA12FJA12	1-1/16-12	-12	2.62	1.16	0.55	
•C1AS48	1BA16FJA16	1-5/16-12	-16	3.36	1.53	0.69	
•C1AS67	1BA20FJA20	1-5/8-12	-20	3.72	1.70	2.20	

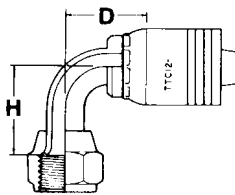
Steel Crimp Spiral

Global TTC-12 Fittings for use with hose:
2661(-12), FC619 (-12), FC636, GH493



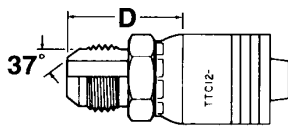
FJB
Female JIC 37° Swivel
90° Elbow

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	H (in)	Wt.	Price Each
•C1AS87	1BA6FJB6	9/16-18	-06	1.42	1.50	0.21	
•C1AS95	1BA8FJB6	3/4-16	-06	1.71	1.87	0.50	
•C1AS96	1BA8FJB8	3/4-16	-08	1.70	1.87	0.39	
•C1GL11	1BA10FJB10	7/8-14	-10	1.55	1.19	0.39	
•C1AS34	1BA12FJB10	1-1/16-12	-10	2.18	2.35	0.55	
•C1AS35	1BA12FJB12	1-1/16-12	-12	2.18	2.35	0.68	
•C1AS49	1BA16FJB12	1-5/16-12	-12	2.18	2.46	1.34	
•C1AS50	1BA16FJB16	1-5/16-12	-16	2.7	3.04	1.40	
•C1AS68	1BA20FJB20	1-5/8-12	-20	3.02	3.4	2.20	
•C1AS80	1BA24FJB24	1-7/8-12	-24	3.58	3.95	3.10	



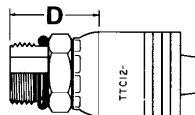
FJC
Female JIC 37° Swivel
90° Long Drop Elbow

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	H (in)	Wt.	Price Each
C1JL96	1BA8FJC8	3/4-16	-08	1.70	3.33	1.90	
•C1AS36	1BA12FJC12	1-1/16-12	-12	2.18	4.41	0.68	
•C1AS51	1BA16FJC16	1-5/16-12	-16	2.7	5.24	1.49	



MJ
Male JIC 37°

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1JL97	1BA8MJ8	3/4-16	-08	1.41	0.27	
•C1JN78	1BA10MJ8	7/8-14	-08	1.26	0.29	
C1JN81	1BA12MJ8	1-1/16-12	-08	1.42	0.34	
•C1AS41	1BA12MJ12	1-1/16-12	-12	1.75	0.48	
•C1AS59	1BA16MJ12	1-5/16-12	-12	1.56	0.58	
•C1AS60	1BA16MJ16	1-5/16-12	-16	1.90	0.86	
•C1AS75	1BA20MJ20	1-5/8-12	-20	2.16	1.49	



MB
Male O-Ring Boss

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1JR48	1BA12MB12	1-1/16-12	-12	1.25	0.44	
•C1AS58	1BA16MB16	1-5/16-12	-16	1.39	0.80	

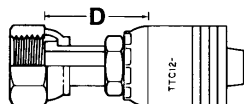
Note: SAE O-Ring Boss O-Rings page 1267

Hose Fittings

Steel Crimp Spiral
Global TTC-12 Fittings for use with hose:
2661(-12), FC619 (-12), FC636, GH493

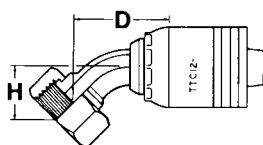
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 Powering Business Worldwide

MATCH-MATE Plus



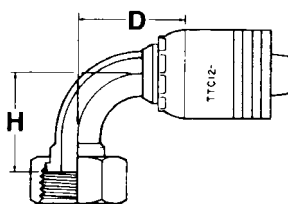
FR
 Female ORS® Swivel

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1AS88	1BA6FR6	11/16-16	-06	1.24	0.19	
•C1AS97	1BA8FR8	13/16-16	-08	1.32	0.33	
•C1AS27	1BA10FR10	1-14	-10	1.61	0.10	
•C1GG47	1BA12FR10	1-3/16-12	-10	1.63	0.55	
•C1AS37	1BA12FR12	1-3/16-12	-12	1.62	0.61	
•C1AS52	1BA16FR12	1-7/16-12	-12	1.79	0.86	
•C1AS53	1BA16FR16	1-7/16-12	-16	1.94	1.06	
•C1AS69	1BA20FR16	1-11/16-12	-16	1.90	0.10	
•C1AS70	1BA20FR20	1-11/16-12	-20	2.33	1.71	
•C1AS81	1BA24FR24	2-12	-24	2.21	2.09	



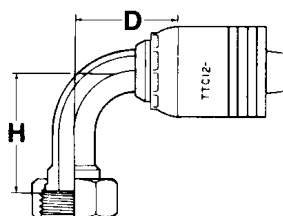
FRA
 Female ORS® Swivel
 45° Elbow

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	H (in)	Wt.	Price Each
•C1AS89	1BA6FRA6	11/16-16	-06	1.43	0.43	0.19	
•C1AS98	1BA8FRA8	13/16-16	-08	1.79	0.59	0.33	
•C1AS38	1BA12FRA12	1-3/16-12	-12	2.38	0.83	0.72	
C1LW85	1BA16FRA12	1-7/16-12	-12	2.85	0.94	1.10	
•C1AS54	1BA16FRA16	1-7/16-12	-16	2.88	0.94	1.14	
•C1AS71	1BA20FRA20	1-11/16-12	-20	3.37	1.0	1.77	



FRB
 Female ORS® Swivel
 90° Short Drop Elbow

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	H (in)	Wt.	Price Each
•C1AS90	1BA6FRB6	11/16-16	-06	1.34	0.90	0.60	
•C1AS99	1BA8FRB8	11/16-16	-08	1.39	0.90	0.35	
•C1AS28	1BA10FRB10	1-14	-10	1.91	1.27	0.43	
•C1AS39	1BA12FRB12	1-3/16-12	-12	2.3	1.88	0.72	
•C1AS55	1BA16FRB12	1-7/16-12	-12	2.85	2.21	0.94	
•C1AS56	1BA16FRB16	1-7/16-12	-16	2.87	2.21	1.30	
•C1AS72	1BA20FRB20	1-11/16-12	-20	3.57	2.51	1.97	

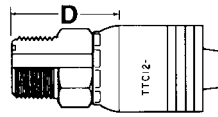


FRC
 Female ORS® Swivel
 90° Long Drop Elbow

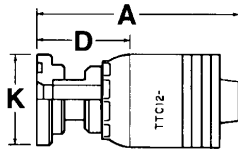
Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	H (in)	Wt.	Price Each
•C1AS40	1BA12FRC12	1-3/16-12	-12	2.29	3.78	0.80	
•C1AS57	1BA16FRC16	1-7/16-12	-16	2.86	4.5	1.50	
•C1AS73	1BA20FRC20	1-11/16-12	-20	3.57	5.09	2.30	

Steel Crimp Spiral

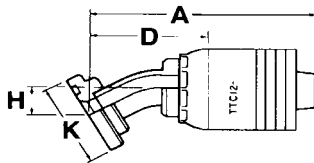
Global TTC-12 Fittings for use with hose:
2661(-12), FC619 (-12), FC636, GH493



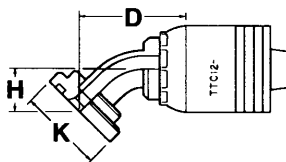
MR
Male ORS®



FL
SAE Code 61 Split Flange



FLF
SAE Code 61 Split Flange
30° Elbow



FLA
SAE Code 61 Split Flange
45° Elbow

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1AS44	1BA12MR12	1-3/16-12	-12	1.44	0.52	

Note: ORS® O-Rings page 1266

Catalog Part No.	Aeroquip Model	Flange Head Dia.	Hose Size	D (in)	Wt.	Price Each
•C1AS20	1B8FL8	1.19	-08	2.06	0.21	
•C1AR36	1B12FL12	1.50	-12	2.12	0.50	
•C1AR56	1B16FL12	1.75	-12	2.12	0.78	
•C1AR57	1B16FL16	1.75	-16	2.14	0.97	
•C1AR76	1B20FL16	2.00	-16	2.44	1.09	
•C1AR77	1B20FL20	2.00	-20	2.51	1.52	
•C1AR89	1B24FL20	2.38	-20	2.54	1.77	
•C1AR90	1B24FL24	2.38	-24	2.58	1.83	
•C1AS13	1B32FL32	2.81	-32	2.63	3.15	

Note: Flange O-Rings page 1266

Catalog Part No.	Aeroquip Model	Flange Head Dia.	Hose Size	D (in)	H (in)	Wt.	Price Each
•C1AR65	1B16FLF16	1.75	-16	3.22	0.64	1.09	
•C1EW26	1B20FLF20	2.00	-20	3.76	0.67	1.70	

Note: Flange O-Rings page 1266

Catalog Part No.	Aeroquip Model	Flange Head Dia.	Hose Size	D (in)	H (in)	Wt.	Price Each
•C1AS21	1B8FLA8	1.19	-08	1.96	0.78	0.36	
•C1AR40	1B12FLA8	1.50	-08	2.5	1.0	0.46	
•C1AR39	1B12FLA12	1.50	-12	2.46	1.0	0.54	
•C1AR58	1B16FLA12	1.75	-12	2.97	1.06	0.73	
•C1AR59	1B16FLA16	1.75	-16	3	1.06	1.15	
•C1AR78	1B20FLA16	2.00	-16	3.46	1.15	1.24	
•C1AR79	1B20FLA20	2.00	-20	3.52	1.15	0.15	
•C1AR91	1B24FLA20	2.38	-20	4.2	1.41	1.86	
•C1AR92	1B24FLA24	2.37	-24	4.25	1.41	2.24	
•C1AS14	1B32FLA32	2.81	-32	5.05	2.0	3.98	

Note: Flange O-Rings page 1266

Hose Fittings

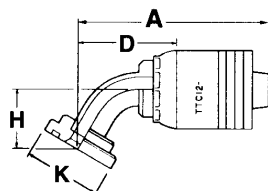
Steel Crimp Spiral

Global TTC-12 Fittings for use with hose:

2661(-12), FC619 (-12), FC636, GH493

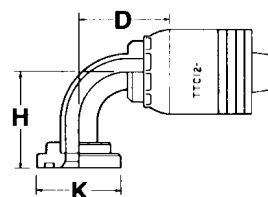
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MATCHMATE Plus



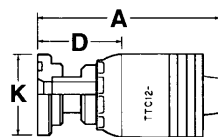
FLG

SAE Code 61 Split Flange
60° Elbow



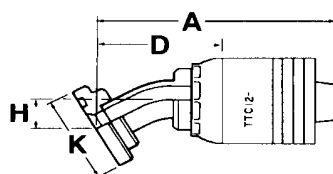
FLB

SAE Code 61 Split Flange
90° Elbow



FH

SAE Code 62 Split Flange



FHA

SAE Code 62 Split Flange
45° Elbow

Catalog Part No.	Aeroquip Model	Flange Head Dia.	Hose Size	D (in)	H (in)	Wt.	Price Each
•C1AR45	1B12FLG12	1.50	-12	3.23	1.39	0.65	

Note: Flange O-Rings page 1266

Catalog Part No.	Aeroquip Model	Flange Head Dia.	Hose Size	D (in)	H (in)	Wt.	Price Each
•C1AS22	1B8FLB8	1.19	-08	1.70	1.63	0.38	
•C1AR43	1B12FLB8	1.50	-08	2.21	2.13	0.48	
•C1AR42	1B12FLB12	1.50	-12	2.3	2.13	0.64	
•C1AR60	1B16FLB12	1.75	-12	2.84	2.38	0.80	
•C1AR61	1B16FLB16	1.75	-16	2.86	2.38	1.09	
•C1AR80	1B20FLB16	2.00	-16	3.5	2.62	1.60	
•C1AR81	1B20FLB20	2.00	-20	3.57	2.62	1.85	
•C1AR93	1B24FLB20	2.37	-20	4.31	3.12	2.18	
•C1AR94	1B24FLB24	2.37	-24	4.35	3.12	2.57	
•C1AS15	1B32FLB32	2.81	-32	4.72	4.5	4.60	

Note: Flange O-Rings page 1266

Catalog Part No.	Aeroquip Model	Flange Head Dia.	Hose Size	D (in)	Wt.	Price Each
•C1AR32	1B12FH12	1.63	-12	2.12	0.60	
•C1AR53	1B16FH16	1.87	-16	2.14	1.10	
•C1ES69	1B20FH16	2.13	-16	2.44	1.25	
•C1AR73	1B20FH20	2.13	-20	2.51	1.75	

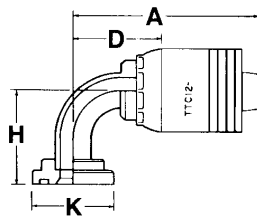
Note: Flange O-Rings page 1266

Catalog Part No.	Aeroquip Model	Flange Head Dia.	Hose Size	D (in)	H (in)	Wt.	Price Each
•C1AR33	1B12FHA12	1.63	-12	2.46	1.0	0.65	
•C1AR54	1B16FHA16	1.87	-16	3	1.06	1.15	
•C1FW46	1B20FHA16	2.13	-16	3.46	1.15	1.34	
•C1AR74	1B20FHA20	2.13	-20	3.52	1.15	1.80	

Note: Flange O-Rings page 1266

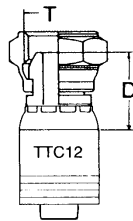
Steel Crimp Spiral

Global TTC-12 Fittings for use with hose:
2661(-12), FC619 (-12), FC636, GH493



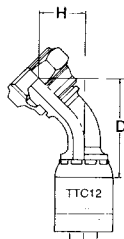
FHB

SAE Code 62 Split Flange
90° Elbow



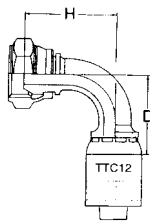
BF

BSP (British) Female Swivel (1 hex)



BFA

BSP (British) Female Swivel
45° Elbow



BFB

BSP (British) Female Swivel
90° Elbow

Catalog Part No.	Aeroquip Model	Flange Head Dia.	Hose Size	D (in)	H (in)	Wt.	Price Each
•C1AR34	1B12FHB12	1.63	-12	2.30	2.13	0.69	
•C1AR55	1B16FHB16	1.87	-16	2.86	2.38	1.15	
•C1EV59	1B20FHB16	2.13	-16	3.50	2.62	1.48	
•C1AR75	1B20FHB20	2.13	-20	3.57	2.62	1.94	
•C1AR88	1B24FHB24	2.50	-24	4.35	3.12	2.25	

Note: Flange O-Rings page 1266

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (mm)	Wt.	Price Each
•C1AS16	1B6BF6	G 3/8	-06	21.1	0.30	
•C1AS17	1B8BF8	G 1/2	-08	23.8	0.30	
•C1AR27	1B12BF12	G 3/4	-12	25.3	0.45	
•C1AR47	1B16BF16	G 1	-16	27.6	1.67	
•C1AR68	1B20BF20	G 1-1/4	-20	29.6	1.35	
•C1AR85	1B24BF24	G 1-1/2	-24	33.7	1.50	

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (mm)	H (mm)	Wt.	Price Each
•C1ZZ16	1B12BFA12	G 3/4	-12	78.6	29.4	0.56	
•C1CX79	1B16BFA16	G 1	-16	92.4	33.2	1.09	

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (mm)	H (mm)	Wt.	Price Each
•C1ZZ15	1B12BFB12	G 3/4	-12	69.1	61.5	0.68	
•C1ZZ14	1B16BFB16	G 1	-16	83.8	71.5	1.20	
•C1ZV40	1B20BFB20	G 1-1/4	-20	102.2	82.5	1.92	
•C1MX84	1B24BFB24	G 1-1/2	-24				

Hose Fittings

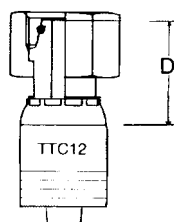
Steel Crimp Spiral

Global TTC-12 Fittings for use with hose:

2661(-12), FC619 (-12), FC636, GH493

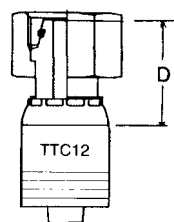
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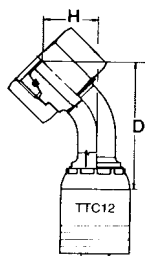
DL

DKO (German DIN 3902)
Female Swivel, Light Duty



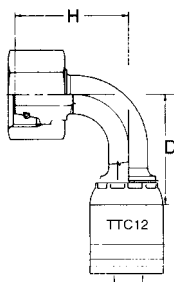
DS

DKO (German DIN 3902)
Female Swivel, Heavy Duty



DSA

DKO (German DIN 3902) Female Swivel,
Heavy Duty, 45° Elbow



DSB

DKO (German DIN 3902) Female Swivel,
Heavy Duty, 90° Elbow

Catalog Part No.	Aeroquip Model	Thread (mm)	Tube O.D. (mm)	Hose Size	D (mm)	Wt.	Price Each
•C1AR28	1B12DL8	M22 x 1.5	15	-08	28.6	0.10	
•C1AR48	1B16DL10	M26 x 1.5	18	-10	29.8	0.60	
•C1AR69	1B20DL12	M30 x 2	22	-12	32.3	1.52	

Catalog Part No.	Aeroquip Model	Thread (mm)	Tube O.D. (mm)	Hose Size	D (mm)	Wt.	Price Each
•C1AR29	1B12DS8	M24 x 1.5	16	-08	32.7	0.05	
•C1AR49	1B16DS10	M30 x 2	20	-10	37.5	0.53	
C1MX83	1B16DS12	M30 x 2	20	-12		0.55	
•C1AR70	1B20DS12	M36 x 2	25	-12	41.8	0.93	
•C1AR98	1B25DS16	M42 x 2	30	-16	44.1	1.27	
C1JD28	1B32DS20	M52 x 2	38	-20	49.7	2.08	

Catalog Part No.	Aeroquip Model	Thread (mm)	Tube O.D. (mm)	Hose Size	D (mm)	H (mm)	Wt.	Price Each
C1MX82	1B12DSA8	M24 x 1.5	16	-08	50.0	23.0	0.42	
•C1AR50	1B16DSA10	M30 x 2	20	-10	59.9	26	2.00	
•C1AR71	1B20DSA12	M36 x 2	25	-12	77.2	32.5	1.09	
•C1AR99	1B25DSA16	M42 x 2	30	-16	87	37.5	1.54	

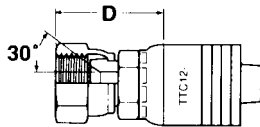
Catalog Part No.	Aeroquip Model	Thread (mm)	Tube O.D. (mm)	Hose Size	D (mm)	H (mm)	Wt.	Price Each
•C1AR30	1B12DSB8	M24 x 1.5	16	-08	44	49	0.47	
•C1AR51	1B16DSB10	M30 x 2	20	-10	52.6	53.5	2.63	
•C1AR72	1B20DSB12	M36 x 2	25	-12	62.8	64.5	1.14	
•C1AS11	1B25DSB16	M42 x 2	30	-16	69.6	74	1.56	



Hose Fittings

Steel Crimp Spiral

Global TTC-12 Fittings for use with hose:
2661(-12), FC619 (-12), FC636, GH493



KF

Komatsu Female Swivel

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (mm)	Wt.	Price Each
•C1AR46	1B12KF12	M30 x 1.5	-12	51.3	0.59	
•C1AR67	1B16KF16	M33 x 1.5	-16	57	1.10	

Hydraulic Power & Control

Pneumatic Power & Control

Fluid Conveying

Miscellaneous Products

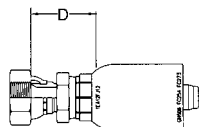
Indexes & Technical Information

Hose Fittings

Steel Crimp Spiral

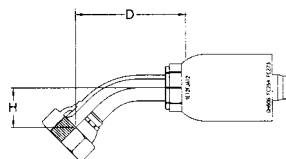
Spiral TTC Fittings for use with hose: FC254, FC273, FC606

1E fittings for use on 4 wire. 1Z fittings for use on 6 wire.



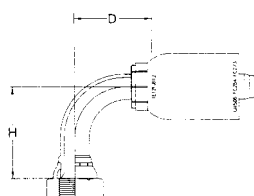
FJ

Female JIC 37° Swivel



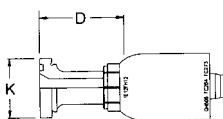
FJA

Female JIC 37° Swivel
45° Elbow



FJB

Female JIC 37° Swivel
90° Elbow



FH

SAE Code 62 Split Flange

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1EM52	1EA12FJ12	1-1/16-12	-12	1.76	0.85	
•C1GN21	1EA16FJ12	1-5/16-12	-12	2.43	0.01	
•C1EM54	1EA16FJ16	1-5/16-12	-16	2.03	0.30	
•C1EM83	1ZA20FJ20	1-5/8-12	-20	2.94	2.85	
•C1FE64	1EA20FJ20	1-5/8-12	-20	2.94	2.68	
•C1KJ46	1EA24FJ24	1-7/8-12	-24	3.68	3.70	
•C1FJ90	1ZA24FJ24	1-7/8-12	-24	3.68	3.83	

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	H (in)	Wt.	Price Each
•C1JD29	1EA16FJA16	1-5/16-12	-16	3.69	1.30	1.69	

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	H (in)	Wt.	Price Each
•C1EM53	1EA12FJB12	1-1/16-12	-12	2.74	2.28	2.50	
•C1EM55	1EA16FJB16	1-5/16-12	-16	3.38	2.80	1.85	
•C1KJ42	1EA20FJB20	1-5/8-12	-20	4.13	3.23	3.03	

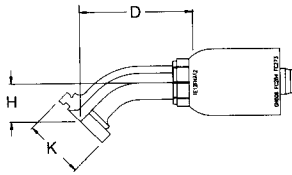
Catalog Part No.	Aeroquip Model	Flange Head Dia.	Hose Size	D (in)	Wt.	Price Each
•C1EM35	1E12FH12	1.62	-12	2.39	0.88	
•C1FL14	1E16FH12	1.88	-12	2.56	1.06	
•C1FM84	1Z16FH16	1.88	-16	2.76	1.82	
•C1EM44	1E16FH16	1.88	-16	2.76	2.50	
•C1FS97	1E20FH16	2.12	-16	2.66	1.87	
•C1KJ32	1E20FH20	2.12	-20	2.90	2.50	
•C1ZV38	1Z20FH20	2.12	-20	2.90	2.56	
•C1LW86	1E24FH20	2.50	-20	4.35	3.18	
•C1FF54	1Z24FH20	2.50	-20	4.35	3.28	
•C1KJ37	1E24FH24	2.50	-24	4.36	3.00	
•C1FF55	1Z24FH24	2.50	-24	4.39	3.92	
•C1FJ85	1Z32FH32	3.13	-32	4.91	6.47	

Note: Flange O-Rings page 1266

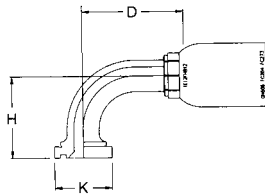
1E fittings for use on 4 wire construction. 1Z fittings for use on 6 wire construction.

Steel Crimp Spiral

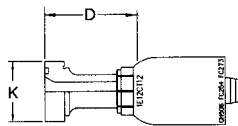
Spiral TTC Fittings for use with hose: FC254, FC273, FC606
1E fittings for use on 4 wire. 1Z fittings for use on 6 wire.



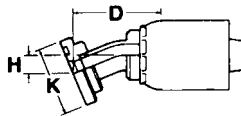
FHA
SAE Code 62 Split Flange
45° Elbow



FHB
SAE Code 62 Split Flange
90° Elbow



CT
Caterpillar Split Flange



CTD
Caterpillar Flange
22-1/2° Elbow

Catalog Part No.	Aeroquip Model	Flange Head Dia.	Hose Size	D (in)	H (in)	Wt.	Price Each
•C1EM36	1E12FHA12	1.62	-12	3.16	1.06	0.99	
•C1FM85	1Z16FHA16	1.88	-16	3.81	1.26	2.05	
•C1EM45	1E16FHA16	1.88	-16	3.81	1.26	1.90	
•C1EM50	1E20FHA16	2.12	-16	4.43	1.54	2.36	
•C1KJ33	1E20FHA20	2.12	-20	4.66	1.54	2.90	
•C1EM80	1Z20FHA20	2.12	-20	4.66	1.54	3.03	

Note: Flange O-Rings page 1266

Catalog Part No.	Aeroquip Model	Flange Head Dia.	Hose Size	D (in)	H (in)	Wt.	Price Each
•C1EM37	1E12FHB12	1.62	-12	2.95	2.32	1.12	
•C1EM46	1E16FHB12	1.88	-12	3.40	2.80	2.00	
•C1FM86	1Z16FHB16	1.88	-16	3.61	2.80	2.25	
•C1EM47	1E16FHB16	1.88	-16	3.61	2.80	2.00	
•C1EM51	1E20FHB16	2.12	-16	4.23	3.50	2.76	
•C1EM81	1Z20FHB16	2.12	-16	4.23	3.50	2.88	
•C1FL16	1E20FHB20	2.12	-20	4.46	3.50	3.32	
•C1EM82	1Z20FHB20	2.12	-20	4.46	3.50	2.00	
•C1KJ39	1E24FHB24	2.50	-24	5.00	4.09	30.09	

Note: Flange O-Rings page 1266

Catalog Part No.	Aeroquip Model	Flange Head Dia.	Hose Size	D (in)	Wt.	Price Each
•C1EM32	1E12CT12	1.62	-12	2.61	0.96	
•C1EM38	1E16CT12	1.88	-12	2.74	1.02	
•C1EM39	1E16CT16	1.88	-16	2.95	1.80	
•C1FV52	1Z16CT16	1.88	-16	2.95	1.93	
•C1EM48	1E20CT16	2.12	-16	2.81	2.00	
•C1KJ30	1E20CT20	2.12	-20	2.95	2.10	
•C1EM76	1Z20CT20	2.12	-20	3.05	0.75	
•C1FJ79	1Z24CT20	2.50	-20	4.42	3.30	
•C1FJ80	1Z24CT24	2.50	-24	4.46	3.95	

Note: Caterpillar Flange O-Rings page 1266

Catalog Part No.	Aeroquip Model	Flange Head Dia.	Hose Size	D (in)	H (in)	Wt.	Price Each
•C1FA48	1Z20CTD20	2.12	-20	5.23	0.70	3.11	

Note: Caterpillar Flange O-Rings page 1266

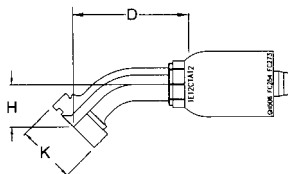
1E fittings for use on 4 wire construction. 1Z fittings for use on 6 wire construction.

Hose Fittings

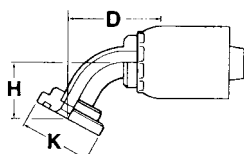
Steel Crimp Spiral

Spiral TTC Fittings for use with hose: FC254, FC273, FC606

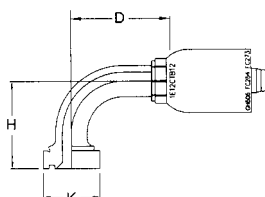
1E fittings for use on 4 wire. 1Z fittings for use on 6 wire.



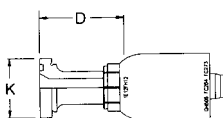
CTA
Caterpillar Split Flange
45° Elbow



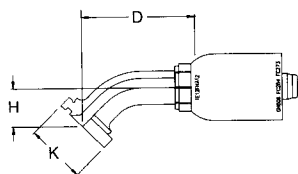
CTE
Caterpillar Flange
67-1/2° Elbow



CTB
Caterpillar Split Flange
90° Elbow



FL
SAE Code 61 Split Flange



FLA
SAE Code 61 Split Flange
45° Elbow

Catalog Part No.	Aeroquip Model	Flange Head Dia.	Hose Size	D (in)	H (in)	Wt.	Price Each
•C1EM33	1E12CTA12	1.62	-12	3.31	1.22	1.08	
•C1EM41	1E16CTA16	1.88	-16	3.94	1.39	1.99	
•C1EM49	1E20CTB16	2.12	-16	4.23	3.66	2.85	

Note: Caterpillar Flange O-Rings page 1266

Catalog Part No.	Aeroquip Model	Flange Head Dia.	Hose Size	D (in)	H (in)	Wt.	Price Each
•C1FA49	1Z20CTE20	2.12	-20	5.71	2.68	3.52	

Note: Caterpillar Flange O-Rings page 1266

Catalog Part No.	Aeroquip Model	Flange Head Dia.	Hose Size	D (in)	H (in)	Wt.	Price Each
•C1FV58	1Z20CTB16	2.12	-16	4.23	3.66	3.00	
•C1EM79	1Z20CTB20	2.12	-20	4.46	3.66	3.47	
•C1EM34	1E12CTB12	1.62	-12	2.95	2.54	1.18	
•C1EM43	1E16CTB16	1.88	-16	3.61	2.98	2.20	
•C1KJ31	1E20CTB20	2.12	-20	4.46	3.66	3.47	
•C1FJ84	1Z24CTB24	2.50	-24	5.00	4.16	4.96	

Note: Caterpillar Flange O-Rings page 1266

Catalog Part No.	Aeroquip Model	Flange Head Dia.	Hose Size	D (in)	Wt.	Price Each
•C1FH80	1E16FL16	1.75	-16	2.22	1.54	
•C1FJ75	1E20FL16	2.00	-16	2.38	1.70	
•C1KJ34	1E20FL20	2.00	-20	2.62	2.27	

Note: Flange O-Rings page 1266

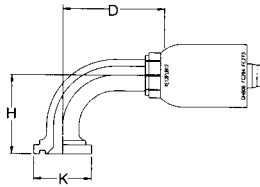
Catalog Part No.	Aeroquip Model	Flange Head Dia.	Hose Size	D (in)	H (in)	Wt.	Price Each
•C1GG49	1E12FLA12	1.50	-12	3.16	1.06	0.95	
•C1FJ72	1E16FLA16	1.75	-16	3.81	1.26	1.86	

Note: Flange O-Rings page 1266

1E fittings for use on 4 wire construction. 1Z fittings for use on 6 wire construction.

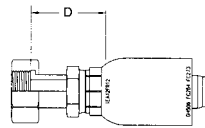
Steel Crimp Spiral

Spiral TTC Fittings for use with hose: FC254, FC273, FC606
1E fittings for use on 4 wire. 1Z fittings for use on 6 wire.



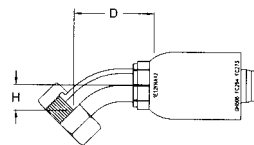
FLB

SAE Code 61 Split Flange
90° Elbow



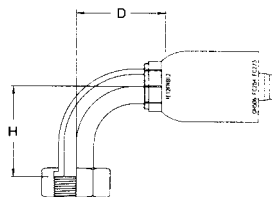
FR

Female ORS® Swivel



FRA

Female ORS® Swivel 45° Elbow



FRB

Female ORS® Swivel 90° Elbow

Catalog Part No.	Aeroquip Model	Flange Head Dia.	Hose Size	D (in)	H (in)	Wt.	Price Each
•C1EV60	1E12FLB12	1.50	-12	2.95	2.32	1.06	
•C1FJ73	1E16FLB16	1.75	-16	3.61	2.80	2.06	
•C1FJ76	1E20FLB16	2.00	-16	4.23	3.50	2.66	
•C1KJ36	1E20FLB20	2.00	-20	4.46	3.50	3.24	

Note: Flange O-Rings page 1266

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1EX44	1EA12FR12	1-3/16-12	-12	2.00	0.97	
•C1HW36	1EA16FR12	1-7/16-12	-12	1.56	0.98	
•C1FM89	1ZA16FR16	1-7/16-12	-16	2.15	1.91	
•C1ZU20	1EA16FR16	1-7/16-12	-16	2.15	1.79	
•C1KU27	1EA20FR16	1-11/16-12	-16	1.63	1.68	
•C1KJ43	1EA20FR20	1-11/16-12	-20	2.43	2.70	
•C1FH81	1EA24FR24	2-12	-24	1.93	3.14	

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	H (in)	Wt.	Price Each
•C1GA94	1EA12FRA12	1-3/16-12	-12	2.91	0.94	0.97	
•C1FQ67	1EA16FRA16	1-7/16-12	-16	3.48	1.10	1.79	
•C1KJ44	1EA20FRA20	1-11/16-12	-20	4.13	1.22	2.60	
C1LB13	1EA24FRA24	2-12	-24	5.13	1.69	4.98	

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	H (in)	Wt.	Price Each
•C1ZZ13	1EA12FRB12	1-3/16-12	-12	2.74	2.28	0.40	
•C1FJ77	1EA16FRB16	1-7/16-12	-16	3.37	2.80	1.94	
•C1KJ45	1EA20FRB20	1-11/16-12	-20	4.12	3.07	2.80	
C1MJ14	1EA24FRB24	2-12	-24	5.00	4.09	4.98	

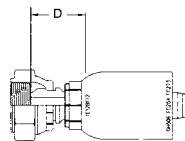
1E fittings for use on 4 wire construction. 1Z fittings for use on 6 wire construction.

Hose Fittings

Steel Crimp Spiral

Spiral TTC Fittings for use with hose: FC254, FC273, FC606

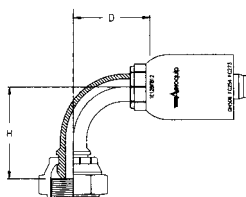
1E fittings for use on 4 wire. 1Z fittings for use on 6 wire.



BF

Female BSPP (British Parallel)

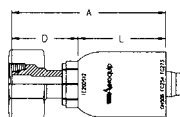
Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1ZU21	1E12BF12	G 3/4	-12	1.50	0.76	
•C1GG50	1E16BF16	G 1	-16	1.65	1.49	
•C1MQ14	1E20BF20	G 1-1/4	-20	1.81		



BFB

Female BSPP (British Parallel) 90° Elbow

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	H (in)	Wt.	Price Each
•C1HD26	1E12BFB12	G 3/4	-12	2.74	2.24	0.98	



DS

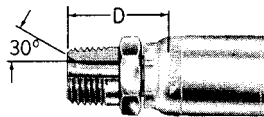
DKO (German) Female Swivel, Heavy Duty

Catalog Part No.	Aeroquip Model	Thread (mm)	Tube O.D. (mm)	Hose Size	D (mm)	Wt.	Price Each
•C1GL14	1E25DS16	M42 x 2	30	-16	56.8	1.92	
•C1GD31	1Z25DS16	M42 x 2	30	-16	56.8	2.05	
•C1KJ40	1E32DS20	M52 x 2	38	-20	63.3	2.90	

1E fittings for use on 4 wire construction. 1Z fittings for use on 6 wire construction.

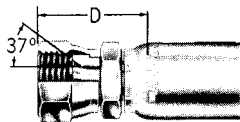
Steel Crimp 1 & 2 Wire Braid

Field Crimp Fittings for use with hose: 2661(-12, -16),
FC619 (-12, -16), GH663, GH793 (-4 thru -8, -12 thru -20)



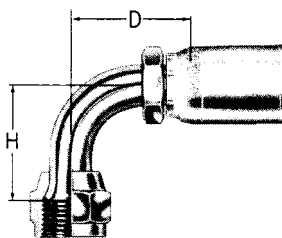
FJ9121
Male Pipe

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
C1CW14	FJ9121-0604S	3/8-18	-04	1.01	0.13	



FJ9122
Female JIC 37° Swivel

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
C1CW23	FJ9122-0404S	7/16-12	-04	1.06	0.12	



FJ9130 / FJ9132
Female Swivel 90° Elbow

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	H (in)	Wt.	Price Each
C1CW50	FJ9132-0806S	3/4-16	-06	1.33	1.09	0.26	

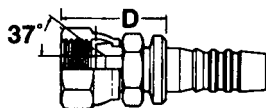
Hose Fittings

Steel Crimp Global Skive Nipples for use with hose:

Clamp: 2661/FC619 (-12 to -20) Crimped 1SA Socket: FC639 (-04 to -08), GH663.

Crimped 1SB Socket: FC195, FC579, FC639 (-10 to -16), FC735 (-04 to -20), , GH195, GH781 (-4 to -20), GH793

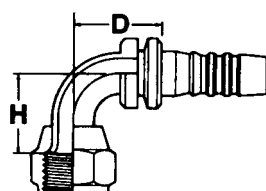
EATON
Powering Business Worldwide



FJ

Female JIC 37° Swivel

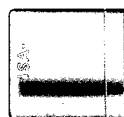
Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
C1EM74	1SA6FJ5	1/2-20	-05	1.14	0.15	
C1AT21	1SA16FJ16	1-5/16-12	-16	1.93	0.53	



FJB

Female JIC 37° Swivel
90° Elbow

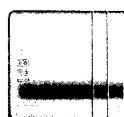
Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	H (in)	Wt.	Price Each
C1AT22	1SA16FJB16	1-5/16-12	-16	2.2	2.39	0.80	



1SA

Global Skive Sockets for use with hose:
FC310, GH663

Catalog Part No.	Aeroquip Model	Hose Size	Wt.	Price Each
C1AT31	1SA8	-08	0.10	



1SB

Global Skive Sockets for use with hose:
2781, FC195, GH195, GH781, GH793

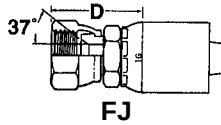
Catalog Part No.	Aeroquip Model	Hose Size	Wt.	Price Each
C1AT37	1SB4	-04	0.04	
C1AT38	1SB6	-06	0.07	
C1AT39	1SB8	-08	0.09	
C1AT33	1SB10	-10	0.12	
C1AT34	1SB12	-12	0.14	



Hose Fittings

Steel Crimp

Global OTC Fittings for use with hose: 2661, FC619



Female JIC 37° Swivel

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
C1HN50	1GA16FJ16	1-5/16-12	-16	1.93	0.65	

Hydraulic Power & Control

Pneumatic Power & Control

Fluid Conveying

Miscellaneous Products

Indexes & Technical Information

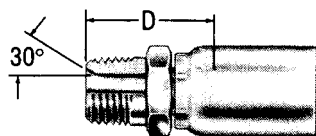


Hose Fittings

Steel Crimp Polyon™ Swage

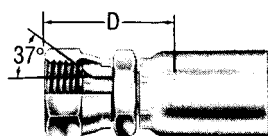
Polygon™ Swage Fittings for use with hose:
FC372, FC373, FC374, FC375, FC902, FC914

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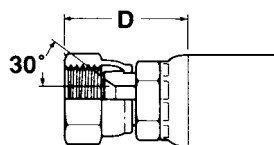
FC5805
Male Pipe

Catalog Part No.	Aeroquip Model	Die Used FT 1243	Pusher Used FT1243	Thread	Hose Size	D (in)	Wt.	Price Each
•C1CS52	FC5805-0203S	-100-3	-150-1	1/8-27	-03	1.08	0.08	



FC5810
Female JIC 37° Swivel

Catalog Part No.	Aeroquip Model	Die Used FT 1243	Pusher Used FT1243	Thread	Hose Size	D (in)	Wt.	Price Each
•C1CS67	FC5810-0605S	-100-5	-250-12	9/16-18	-05	1.26	0.19	



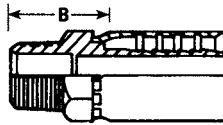
FJ3383
JIS (Japanese JIS 30° Female Seat) Female Swivel

Catalog Part No.	Aeroquip Model	Die Used FT1243	Pusher Used FT1243	Thread	Hose Size	D (in)	Wt.	Price Each
•C1FQ31	FJ3383-0606S	-100-6		G 3/8	-06	1.29	0.22	

Steel Crimp Synflex® 3903 Swage

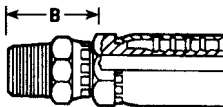
Synflex® 3903/7903 Swage Fittings for use with hose:

25CT (-08), 30CT (-04 to -08), 3130, 3440 (-04 to -08), 3580, 37AL, 3800



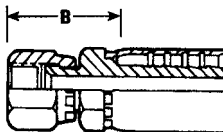
3903 Code 100
Male Pipe

Catalog Part No.	Synflex Model	Thread	Hose Size	B (in)	Pusher Used 4599	Wt.	Price Each
•C1HX53	3903-03102	1/8-27	-03	1.06	-MP001	0.08	
•C1KV53	90304-041000-0	1/4-18	-04	1.19	-MP004	0.10	
•C1MG68	90304-061000-0	3/8-18	-04	1.31	-MP005	0.14	
•C1MG72	90306-041000-0	1/4-18	-06	1.31	-MP005	0.16	
•C1MG73	90306-061000-0	3/8-18	-06	1.31	-MP005	0.16	
•C1MG76	90306-081000-0	1/2-14	-06	1.44	-MP009	0.22	
•C1HZ73	3903-08106	3/8-18	-08	1.28	-MP008	0.23	
•C1KK92	90308-081000-0	1/2-14	-08	1.50	-MP009	0.28	



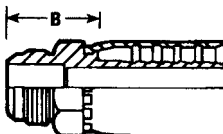
3903 Code 140
Male Pipe Swivel

Catalog Part No.	Synflex Model	Thread	Hose Size	B (in)	Pusher Used 4599	Wt.	Price Each
•C1JD43	3903-02142	1/8-27	-02	1.31	-MP027	0.06	
•C1MG74	90306-061400-0	3/8-18	-06	1.94	-MP006	0.22	
•C1MG79	90308-081400-0	1/2-14	-08	2.13	-MP010	0.34	



3903 Code 540
Female JIC 37° Swivel

Catalog Part No.	Synflex Model	Thread	Hose Size	B (in)	Pusher Used 4599	Wt.	Price Each
•C1KY38	90302-045400-0	7/16-20	-02	1.06	-FP010	0.10	
•C1KV52	90303-045400-0	7/16-20	-03	1.38	-FP011	0.10	
•C1MG64	90303-055400-0	1/2-20	-03	1.38	-FP001	0.12	
•C1NA22	90304-045400-0	7/16-20	-04	1.44	-FP012	0.14	
•C1HX57	3903-04545	1/2-20	-04	1.44	-FP013	0.15	
•C1KV55	90304-065500-0	9/16-18	-04	1.44	-FP013	0.14	
•C1KV56	90305-055400-0	1/2-20	-05	1.38	-FP013	0.16	
•C1HX60	3903-05546	9/16-18	-05	1.38	-FP013	0.15	
•C1KK91	90306-065500-0	9/16-18	-06	1.56	-FP015	0.20	
•C1MG77	90306-085400-0	3/4-16	-06	1.56	-FP005		
•C1KV61	90308-085400-0	3/4-16	-08	1.63	-FP016	0.20	
•C1MG82	90308-105400-0	7/8-14	-08	1.63	-FP006		



3903 Code 500
Male JIC 37°

Catalog Part No.	Synflex Model	Thread	Hose Size	B (in)	Pusher Used 4599	Wt.	Price Each
•C1HZ57	3903-03504	7/16-20	-03	1.25	-MP001	0.08	
•C1KV54	90304-045000-0	7/16-20	-04	1.25	-MP002	0.10	
•C1KV57	90306-065000-0	9/16-18	-06	1.31	-MP005	0.16	
•C1KV60	90306-085000-0	3/4-16	-06	1.44	-MP007	0.10	
•C1MG81	90308-085000-0	3/4-16	-08	1.38	-MP008	0.23	

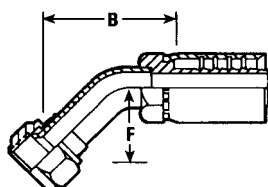
Hose Fittings

Steel Crimp Synflex® 3903 Swage

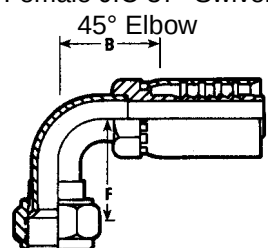
Synflex® 3903/7903 Swage Fittings for use with hose:

25CT (-08), 30CT (-04 to -08), 3130, 3440 (-04 to -08), 3580, 37AL, 3800

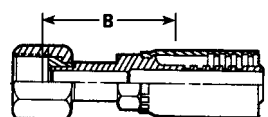
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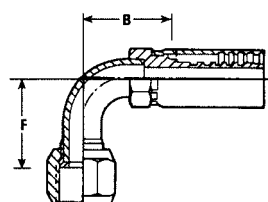
3903 Code 600
Female JIC 37° Swivel



3903 Code 640
Female JIC 37° Swivel
90° Elbow



3903 Code 400
Female O-Ring Face Seal Swivel



3903 Code 470
Female O-Ring Face Seal Swivel 90° Elbow

Catalog Part No.	Synflex Model	Thread	Hose Size	B (in)	F (in)	Pusher Used 4599	Wt.	Price Each
•C1MG75	90306-065540-0	9/16-18	-06	1.94	0.39	-TP206	0.19	

Catalog Part No.	Synflex Model	Thread	Hose Size	B (in)	F (in)	Pusher Used 4599	Wt.	Price Each
•C1HX55	3903-03644	7/16-20	-03	1.25	0.68	-TP204	0.11	
•C1MG67	90304-0455S0-0	7/16-20	-04	1.25	0.88	-TP204	0.14	
•C1HZ64	3903-04646	9/16-18	-04	1.38	1.13	-TP206	0.17	
•C1KV58	90306-0655S0-0	9/16-18	-06	1.38	1.13	-TP206	0.22	
•C1MG78	90306-0855S0-0	3/4-16	-06	1.50	1.38	-TP208	0.26	

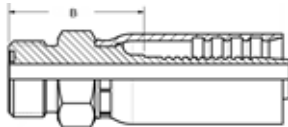
Catalog Part No.	Synflex Model	Thread	Hose Size	B (in)	Pusher Used 4599	Wt.	Price Each
•C1MG65	90304-044000-0	9/16-18	-04	1.52	-MP045	0.15	
•C1MG69	90305-064000-0	11/16-16	-05	1.48	-MP037	0.19	
•C1KZ37	90306-064000-0	11/16-16	-06	1.44	-SP031	0.23	
•C1HZ70	3903-06408	13/16-16	-06	1.88	-MP046	0.26	
•C1MG80	90308-084000-0	13/16-16	-08	1.56	-FP040	0.37	

Catalog Part No.	Synflex Model	Thread	Hose Size	B (in)	F (in)	Pusher Used TP	Wt.	Price Each
•C1MG66	90304-0440S0-0	9/16-18	-04	1.25	0.78	-TP204	0.16	
•C1KZ38	90306-0640S0-0	11/16-16	-06	1.44	0.90	-TP206	0.23	

Steel Crimp Synflex® 3903 Swage

Synflex® 3903/7903 Swage Fittings for use with hose:

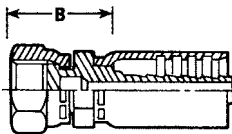
25CT (-08), 30CT (-04 to -08), 3130, 3440 (-04 to -08), 3580, 37AL, 3800



3903 Code MB

Male O-Ring Face Seal Style B

Catalog Part No.	Synflex Model	Thread	Hose Size	B (in)	Pusher Used 4599	Wt.	Price Each
•C1KV59	90306-06MB00-0	11/16-16	-06	1.22	-HP002	0.17	



7903 Code V00

Female JIS (Japanese) Female Swivel 60°
Female Cone

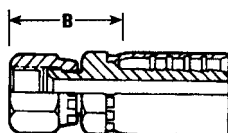
Catalog Part No.	Synflex Model	Thread	Hose Size	B (in)	Pusher Used 4599	Wt.	Price Each
•C1JA25	7903-04V04	1/4-19	-04	1.38	-FP414	0.17	
•C1JA28	7903-06V06	3/8-19	-06	1.56	-FP416	0.23	

Hose Fittings

Steel Crimp Synflex® 390H Swage

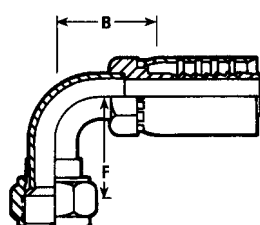
Synflex® 390H/790H Swage Fittings for use with hose:
3440 (-12 to -16), 3R80

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390H Code 540
Female JIC 37° Swivel

Catalog Part No.	Synflex Model	Thread	Hose Size	B (in)	Pusher Used 4599	Wt.	Price Each
•C1KZ39	90H03-045400-0	7/16-20	-03	1.38	-FP011	0.11	
•C1MG83	90H04-045400-0	7/16-20	-04	1.44	-FP012	0.16	
•C1KV64	90H06-065500-0	9/16-18	-06	1.56	-FP013	0.20	
•C1MG84	90H08-085400-0	3/4-16	-08	1.63	-FP016	0.30	

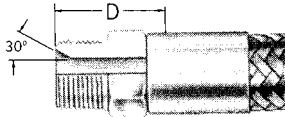


390H Code 640
Female JIC 37° Swivel 90° Elbow

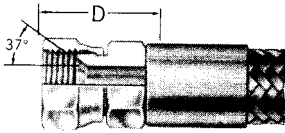
Catalog Part No.	Synflex Model	Thread	Hose Size	B (in)	F (in)	Pusher Used 4599	Wt.	Price Each
C1MK26	90H04-0455S0-0	7/16-20	-04	1.25	0.88	-TP204	0.16	

Steel Crimp Flat Crimp

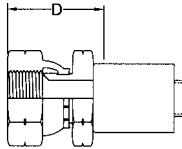
Flat Crimp Fittings for use with hose: 2807, FC807, STW



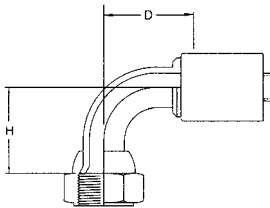
FC3680
Male Pipe



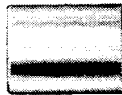
FC9779
Female JIC 37° Swivel



FC6216
Female SAE 45° Swivel



FC5098 / FC7217
Female Swivel 90° Elbow



FC3443 / FC3596
Flat Crimp Sockets for use with hose:

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1CR89	FC3680-0204S	1/8-27	-04	0.66	0.02	

Note: FC3680 is nipple only. Required socket is listed at end of this section.

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1CT37	FC8779-0404S	7/16-20	-04	0.96	0.03	
•C1CT39	FC8779-0606S	9/16-18	-06	1.11	0.05	
•C1CT41	FC8779-0808S	3/4-16	-08	1.21	0.10	
•C1CT42	FC8779-1010S	7/8-14	-10	1.32	0.15	
C1MK93	FC9779-1212S	1-1/16-12	-12	1.41		
•C1ZT30	FC8779-1212S	1-1/16-12	-12	1.41	0.23	
•C1ZT29	FC8779-1616S	1-5/16-12	-16	1.64	0.35	

Note: FC8779 is nipple only. Required socket is listed at end of this section.

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
C1HE69	FC6216-1010S	7/8-14	-10	1.32	0.15	
C1MK91	FC6216-1212S	1-1/16 - 14	-12	1.41	0.23	

Note: FC6216 is nipple only. Required socket is listed at end of this section.

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	H (in)	Wt.	Price Each
•C1GD94	FC4098-0404S	7/16-20	-04	0.69	0.68	0.04	

Note: FC4098 and FC6217 are nipples only. Required socket is listed at end of this section.

Catalog Part No.	Aeroquip Model	Hose Size	Fits Aeroquip Hose Model	Wt.	Price Each
•C1CR84	FC3596-04S	-04	2807-4, FC807-04	0.01	
•C1CR72	FC3443-04S	-05	2807-5, FC807-05	0.03	
•C1CR74	FC3443-05S	-06	2807-6, FC807-06	0.01	
•C1CR86	FC3596-08S	-08	2807-8, FC807-08	0.10	
•C1CR75	FC3443-08S	-10	2807-10, FC807-10	0.05	
•C1CR87	FC3596-12S	-12	2807-12, FC807-12	0.05	
•C1CR88	FC3596-16S	-16	2807-16, FC807-16	0.05	

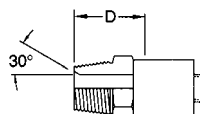
Note: Images show crimp sockets, which are ordered separately (See last group in this section for the required Flat Crimp Sockets).

Hose Fittings

Steel Crimp Flat Crimp

Flat Crimp Fittings for use with hose: FC363

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FC1349

Male Pipe



FC1347

Flat Crimp Sockets for use with hose: FC363,
FC364, FC563

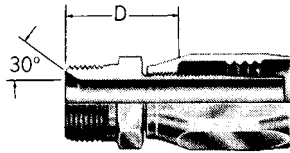
Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
C1HE54	FC1349-1212S	3/4-14	-12	1.37	0.28	
C1HE55	FC1349-2020S	1-1/4-11-1/2	-20	1.70	0.73	

Note: FC1349 is nipple only. Required socket is listed at end of this section.

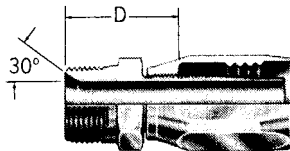
Catalog Part No.	Aeroquip Model	Hose Size	Wt.	Price Each
C1HE52	FC1347-12S	-12	0.05	
C1HE53	FC1347-20S	-20	0.08	

Steel Reusable 1 Wire Braid

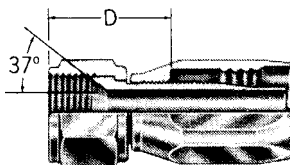
1 Wire Braid Reduced Bore Fittings (SAE100R5 Style) for use with hose:
2651, FC234, FC300, FC321, FC350, FC355, FC558



412 / 44-412
Male Pipe
(Mandrel required on most sizes)



4412
Male Pipe
(No mandrel required)



411 / 44-411
Female JIC 37° Swivel
(Three piece fitting, larger bore)
(Mandrel required all sizes)

Catalog Part No.	Aeroquip Model	Mandrel Required	Thread	Hose Size	D (in)	Wt.	Price Each
•C1BP35	412-2-5S	Yes	1/8-27	-05	1.0	0.07	
•C1BP32	412-12-16S	No	3/4-14	-16	1.53	0.60	
•C1BP33	412-16-16S	No	1-11-1/2	-16	1.72	0.58	
C1BP34	412-16-20S	No	1-11-1/2	-20	1.84	0.88	
•C1BP36	412-20-20S	No	1-1/4-11-1/2	-20	1.87	0.97	
C1BP37	412-20-24S	No	1-1/4-11-1/2	-24	2.12	1.10	
•C1BP38	412-24-24S	No	1-1/2-11-1/2	-24	2.03	1.31	
•C1BP39	412-32-32S	No	2-11-1/2	-32	2.20	1.75	

Mandrels: Assembly Mandrels page 907

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1BQ44	4412-2-4S	1/8-27	-04	0.93	0.06	
•C1BQ45	4412-4-4S	1/4-18	-04	1.12	0.08	
•C1BQ46	4412-4-5S	1/4-18	-05	1.18	0.09	
•C1BQ47	4412-4-6S	1/4-18	-06	1.23	2.12	
•C1BQ48	4412-6-6S	3/8-18	-06	1.23	0.14	
•C1BQ49	4412-6-8S	3/8-18	-08	1.33	0.21	
•C1BQ52	4412-8-8S	1/2-14	-08	1.58	0.26	
•C1BQ50	4412-8-10S	1/2-14	-10	1.59	0.33	
•C1BQ43	4412-12-12S	3/4-14	-12	1.67	0.45	

Catalog Part No.	Aeroquip Model	Mandrel Required	Thread	Hose Size	D (in)	Wt.	Price Each
C1BP23	411-4S	Yes	7/16-20	-04	1.0	0.07	
•C1BP27	411-6S	Yes	9/16-18	-06	1.15	0.12	
•C1BP29	411-8S	Yes	3/4-16	-08	1.38	0.23	
•C1BP12	411-10S	Yes	7/8-14	-10	1.51	0.33	
•C1BP15	411-16S	Yes	1-5/16-12	-16	1.55	0.62	
•C1BP17	411-20S	Yes	1-5/8-12	-20	1.64	1.18	
•C1BP19	411-24S	Yes	1-7/8-12	-24	1.83	10.00	
•C1BP21	411-32S	Yes	2-1/2-12	-32	2.03	2.34	

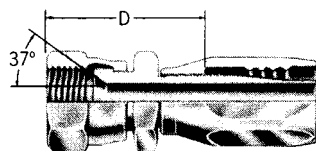
Mandrels: Assembly Mandrels page 907

Hose Fittings

Steel Reusable 1 Wire Braid

1 Wire Braid Reduced Bore Fittings (SAE100R5 Style) for use with hose:
2651, FC234, FC300, FC321, FC350, FC355, FC558

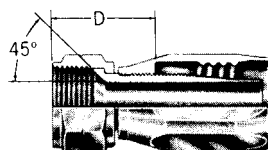
EATON
Powering Business Worldwide



4411

Female JIC 37° Swivel
(Two piece fitting, no mandrel required)

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1BQ36	4411-4S	7/16-20	-04	1.23	0.09	
•C1BQ35	4411-4-5S	7/16-20	-05	1.30	0.09	
•C1BQ37	4411-5S	1/2-20	-05	1.35	0.11	
•C1BQ39	4411-6S	9/16-18	-06	1.43	0.16	
•C1BQ41	4411-8-6S	3/4-16	-06	1.52	0.20	
•C1BQ38	4411-6-8S	9/16-18	-08	1.53	0.22	
•C1BQ42	4411-8S	3/4-16	-08	1.62	0.26	
•C1BQ27	4411-10-8S	7/8-14	-08	1.80	0.31	
•C1BQ40	4411-8-10S	3/4-16	-10	1.64	0.34	
•C1BQ28	4411-10S	7/8-14	-10	1.81	0.39	
•C1BQ29	4411-12-10S	1-1/16-12	-10	1.91	0.49	
•C1BQ26	4411-10-12S	7/8-14	-12	1.83	0.45	
•C1BQ30	4411-12S	1-1/16-12	-12	1.92	0.57	
•C1BQ31	4411-16S	1-5/16-12	-16	1.93	0.72	
•C1BQ32	4411-20S	1-5/8-12	-20	2.07	1.34	
•C1BQ33	4411-24S	1-7/8-12	-24	2.22	1.60	
•C1BQ34	4411-32S	2-1/2-12	-32	2.55	2.67	

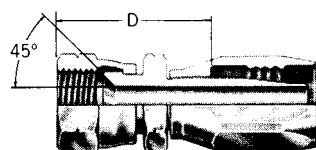


401

Female SAE 45° Swivel
(Three piece fitting, larger bore)
(Mandrel required all sizes)

Catalog Part No.	Aeroquip Model	Mandrel Required	Thread	Hose Size	D (in)	Wt.	Price Each
•C1BN73	401-6S	Yes	5/8-18	-06	1.15	0.12	
•C1BN75	401-8S	Yes	3/4-16	-08	1.38	0.22	
•C1BN69	401-12S	Yes	1-1/16-14	-12	1.45	0.42	
•C1BN91	406-16S	Yes	1-5/16-14	-16	1.33	0.59	

Mandrels: Assembly Mandrels page 907



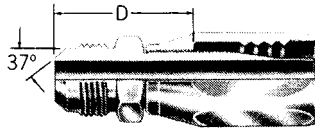
4401

Female SAE 45° Swivel
(Two piece fitting, no mandrel required)

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1BQ20	4401-4S	7/16-20	-04	1.22	0.08	
•C1BQ21	4401-5S	1/2-20	-05	1.34	0.10	
•C1BQ22	4401-6S	5/8-18	-06	1.46	0.17	
•C1BQ23	4401-8S	3/4-16	-08	1.62	0.27	
•C1BQ18	4401-10S	7/8-14	-10	1.81	0.38	
•C1BQ19	4401-12S	1-1/16-14	-12	1.92	0.56	

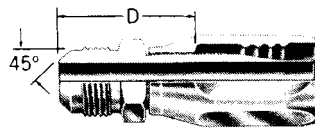
Steel Reusable 1 Wire Braid

1 Wire Braid Reduced Bore Fittings (SAE100R5 Style) for use with hose:
2651, FC234, FC300, FC321, FC350, FC355, FC558



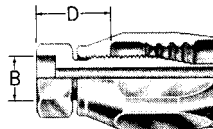
4414
Male JIC 37° Flare

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1BQ53	4414-4S	7/16-20	-04	1.10	0.07	
•C1BQ55	4414-6S	9/16-18	-06	1.22	0.13	
•C1BQ56	4414-8S	3/4-16	-08	1.42	0.24	
•C1EN39	4414-10S	7/8-14	-10	1.72	0.36	
•C1EN40	4414-12S	1-1/16-14	-12	1.92	0.52	



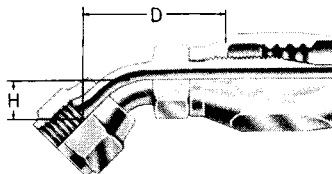
4402
Male SAE 45° Flare

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1BQ24	4402-6S	5/8-18	-06	1.28	0.14	
•C1BQ25	4402-8S	3/4-16	-08	1.52	0.25	



190000
Lifesaver

Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Hose Size	B (in)	D (in)	Wt.	Price Each
•C1AL75	190000-4S	0.25	-04	0.25	0.62	0.05	
•C1AL78	190000-6S	0.38	-06	0.38	0.73	0.02	
•C1AL79	190000-8S	0.50	-08	0.50	0.89	0.20	



190297 / 190265 / 190299
Female 45° Swivel Elbow

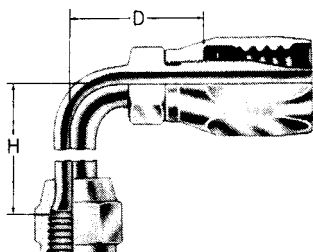
Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	H (in)	Wt.	Price Each
•C1AM22	190297-4S	7/16-20	-04	1.10	0.33	0.09	
•C1AM26	190299-6S	5/8-18	-06	1.22	0.39	0.17	
•C1AM11	190265-6S	9/16-18	-06	1.33	0.39	0.15	
•C1AM24	190297-8S	3/4-16	-08	1.84	0.55	0.29	
•C1AM21	190297-10S	7/8-14	-10	1.95	0.64	0.40	
•C1AM25	190299-12S	1-1/16-14	-12	2.21	0.78	0.62	
•C1AL97	190265-12S	1-1/16-12	-12	2.21	0.78	0.63	
•C1AL98	190265-16S	1-5/16-12	-16	2.47	1.07	0.85	
•C1AL99	190265-20S	1-5/8-12	-20	2.85	1.22	1.46	

Hose Fittings

Steel Reusable 1 Wire Braid

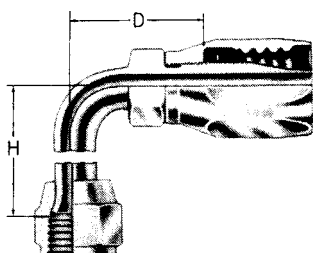
1 Wire Braid Reduced Bore Fittings (SAE100R5 Style) for use with hose:
2651, FC234, FC300, FC321, FC350, FC355, FC558

EATON
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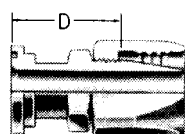
190296 / 190261 / 190302
Female 90° Swivel Elbow

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	H (in)	Wt.	Price Each
•C1AM18	190296-4S	7/16-20	-04	0.99	0.68	0.20	
•C1AM19	190296-5S	1/2-20	-05	1.18	0.77	0.12	
•C1AM29	190302-6S	5/8-18	-06	1.23	0.85	0.18	
•C1AL95	190261-6S	9/16-18	-06	1.23	0.85	0.20	
•C1AM20	190296-8S	3/4-16	-08	1.61	1.09	0.30	
•C1AM17	190296-10S	7/8-14	-10	1.65	1.23	0.41	
•C1AM28	190302-12S	1-1/16-14	-12	2.17	1.82	0.70	
•C1AL92	190261-12S	1-1/16-12	-12	2.17	1.82	0.75	
•C1AL93	190261-16S	1-5/16-12	-16	2.28	2.39	0.92	
•C1AL94	190261-20S	1-5/8-12	-20	2.65	2.75	1.65	



190295 / 190260 / 190301
Female 90° Swivel Elbow, Long

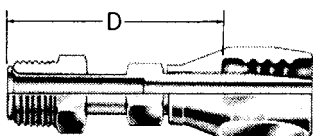
Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	H (in)	Wt.	Price Each
•C1AM14	190295-4S	7/16-20	-04	0.99	1.80	0.09	
•C1AM15	190295-5S	1/2-20	-05	1.18	1.77	0.14	
•C1AM27	190301-6S	5/8-18	-06	1.23	2.18	0.20	
•C1AL91	190260-6S	9/16-18	-06	1.23	2.18	0.20	
•C1AM16	190295-8S	3/4-16	-08	1.73	2.43	0.33	
•C1AM13	190295-10S	7/8-14	-10	1.90	2.57	0.46	
•C1GD23	190260-12S	1-1/16-12	-12	2.17	3.73	0.74	
•C1BS83	190260-16S	1-5/16-12	-16	2.28	4.58	1.12	



4775
Code 61 Split Flange

Catalog Part No.	Aeroquip Model	Flange Head Dia.	Hose Size	D (in)	Wt.	Price Each
C1HL12	4775-24S	2.38	-24	2.56	1.34	

Note: Flange O-Rings page 1266

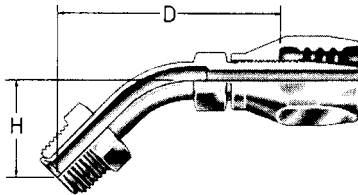


190111
SAE Male Inverted Flare

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1AL80	190111-4S	7/16-24	-04	1.71	0.20	
•C1AL82	190111-5S	1/2-20	-05	1.84	0.20	
•C1AL81	190111-5-6S	1/2-20	-06	1.82	0.30	
•C1AL83	190111-6S	5/8-18	-06	1.82	0.14	
•C1AL84	190111-8S	3/4-18	-08	2.05	0.25	

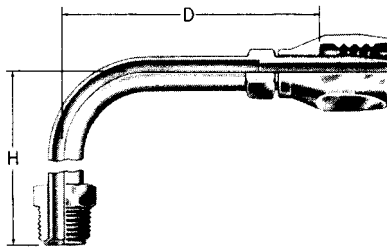
Steel Reusable 1 Wire Braid

1 Wire Braid Reduced Bore Fittings (SAE100R5 Style) for use with hose:
2651, FC234, FC300, FC321, FC350, FC355, FC558



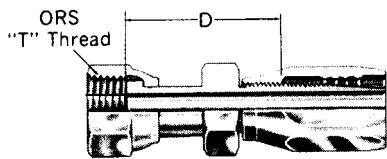
190371
SAE Male Inverted Flare
45° Elbow

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	H (in)	Wt.	Price Each
•C1EM25	190371-4S	7/16-20	-04	1.99	0.96	0.07	
•C1AM36	190371-5S	1/2-20	-05	2.12	0.96	0.10	
•C1AM35	190371-5-6S	1/2-20	-06	2.10	0.96	0.20	
•C1AM37	190371-6S	5/8-18	-06	2.10	0.96	0.15	
•C1AM38	190371-8S	3/4-18	-08	2.24	0.93	0.25	



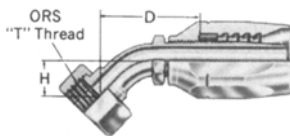
190235
SAE Male Inverted Flare
Short 90° Elbow

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	H (in)	Wt.	Price Each
•C1AL85	190235-4S	7/16-24	-04	1.62	1.69	0.08	
•C1AL86	190235-5S	1/2-20	-05	1.75	1.69	0.10	
•C1EM24	190235-5-6S	1/2-20	-06	1.73	1.69	0.14	
•C1AL87	190235-6S	5/8-18	-06	1.73	1.73	0.25	
•C1AL88	190235-7-6S	11/16-18	-06	1.73	1.73	0.17	
•C1AL90	190235-8S	3/4-18	-08	1.89	1.75	0.25	



FJ9706
Female ORS® Swivel

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1CW56	FJ9706-0606S	11/16-16	-06	1.53	0.22	
•C1ZV63	FJ9706-0808S	13/16-16	-08	1.98	0.37	
•C1ZV62	FJ9706-1212S	1-3/16-12	-12	2.11	0.77	
•C1EU62	FJ9706-1616S	1-7/16-12	-16	2.23	1.08	



FJ9707
Female ORS® Swivel 45° Elbow

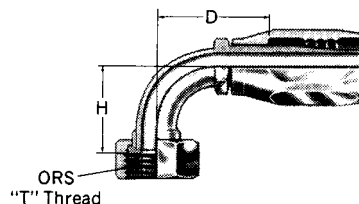
Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	H (in)	Wt.	Price Each
•C1FZ61	FJ9707-0606S	11/16-16	-06	1.37	0.43	0.17	
•C1FZ62	FJ9707-0808S	13/16-16	-08	1.88	0.59	0.28	

Hose Fittings

Steel Reusable 1 Wire Braid

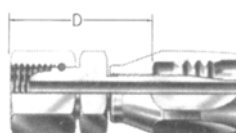
1 Wire Braid Reduced Bore Fittings (SAE100R5 Style) for use with hose:
2651, FC234, FC300, FC321, FC350, FC355, FC558

EATON
Powering Business Worldwide



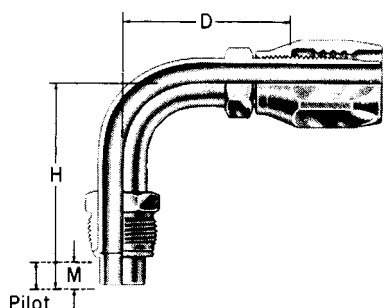
FJ9708
Female ORS® Swivel
90° Elbow

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	H (in)	Wt.	Price Each
•C1EU65	FJ9708-0606S	11/16-16	-06	1.23	0.90	0.17	
•C1EU66	FJ9708-0808S	13/16-16	-08	1.61	1.15	0.29	
•C1EU67	FJ9708-1616S	1-7/16-12	-16	2.28	2.21	0.96	



07.421
BSP Female Swivel

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1FF42	07.421-6-6	3/8-19	-06	1.44	0.23	
•C1EZ93	07.421-8-8	1/2-14	-08	1.59	0.39	



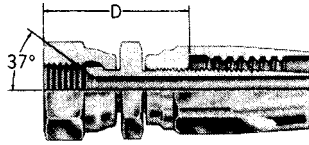
FC7662 / FC7474
Male Bump Tube O-Ring Seal

Catalog Part No.	Aeroquip Model	Pilot O.D.	Pilot Length	Thread	Hose Size	D (in)	H (in)	Wt.	Price Each
•C1CT25	FC7662-0606S	0.34	0.18	5/8-18	-06	1.57	1.76	0.16	

Note: Bump Tube O-Ring Seal O-Rings page 1266

Steel Reusable 1 Wire Braid

1 Wire Braid Thru-The-Cover Full Bore Fittings for use with hose:
GH663



FC7988
Female JIC 37° Swivel

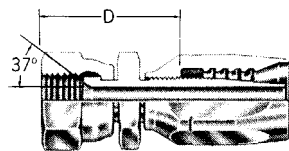
Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1CT27	FC7988-0404S	7/16-20	-04	1.46	0.16	
•C1CT28	FC7988-0606S	9/16-18	-06	1.78	0.27	
•C1CT29	FC7988-0808S	3/4-16	-08	1.70	0.35	
•C1CT30	FC7988-1212S	1-1/16-12	-12	2.2	0.74	
•C1EC62	FC7988-1616S	1-5/16-12	-16	2.21	1.25	

Hose Fittings

Steel Reusable 2 Wire Braid

2 Wire Braid Skive Fittings for use with hose: FC195

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4721

Female JIC 37° Swivel

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1BQ77	4721-4-4S	7/16-20	-04	1.41	0.20	
•C1BQ81	4721-8-8S	3/4-16	-08	1.68	0.44	
•C1BQ75	4721-16S	1-5/16-12	-16	2.43	1.46	

Hydraulic Power & Control

Pneumatic Power & Control

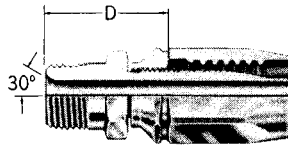
Fluid Conveying

Miscellaneous Products

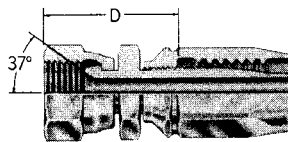
Indexes & Technical Information

Steel Reusable 2 Wire Braid

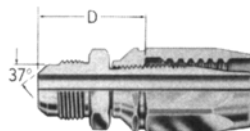
2 Wire Braid Thru-The-Cover Fittings for use with hose: GH793



FC5985
Male Pipe



FC5988
Female JIC 37° Swivel



FC5986
Male JIC 37° Flare

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1CS85	FC5985-0808S	1/2-14	-08	1.58	7.00	
•C1CS86	FC5985-1212S	3/4-14	-12	1.74	0.81	

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1CS88	FC5988-0404S	7/16-20	-04	1.47	0.19	
•C1CS89	FC5988-0606S	9/16-18	-06	1.64	0.31	
•C1CS91	FC5988-0808S	3/4-16	-08	1.68	0.44	
•C1CS92	FC5988-1212S	1-1/16-12	-12	1.99	0.94	

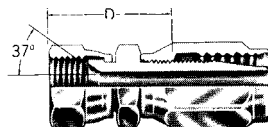
Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1FV89	FC5986-0606S	9/16-18	-06	1.41	0.28	
•C1HK22	FC5986-0808S	3/4-16	-08	1.48	0.40	

Hose Fittings

Steel Reusable Polyon™

Polyon™ Fittings for use with hose: FC372, FC373, FC901, FC902

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Powering Business Worldwide

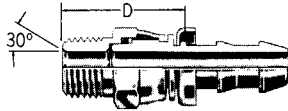


FJ5100

Female JIC 37° Swivel

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1CV89	FJ5100-0404S	7/16-20	-04	1.35	0.15	
•C1CV91	FJ5100-0808S	3/4-16	-08	1.59	0.05	

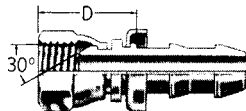
Steel Reusable SOCKETLESS™
SOCKETLESS™ Fittings for use with hose:
2556, FC332, FC647, Easy Couple®



FJ9068 / FJ9486
Male Pipe Swivel

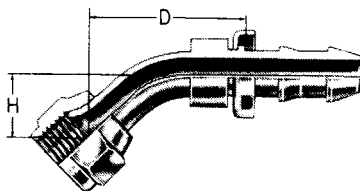
Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1CV99	FJ9068-0808S	1/2-14	-08	1.69	0.19	

Note: Uses neoprene o-ring. Use only with petroleum and water glycol fluids.



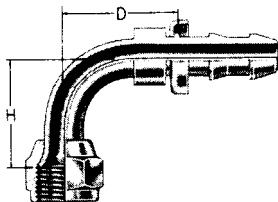
FC5853
Female NPSM Swivel

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1CS79	FC5853-0606S	3/8-18	-06	0.89	0.25	



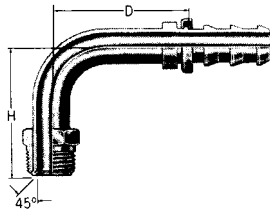
FC5849 / FC5847 / FC5848
Female Swivel 45° Elbow

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	H (in)	Wt.	Price Each
•C1CS76	FC5849-0404S	7/16-20	-04	0.81	0.33	0.05	
•C1CS75	FC5847-0606S	9/16-18	-06	0.93	0.39	0.10	
•C1CS77	FC5849-0808S	3/4-16	-08	1.28	0.55	0.15	



191321 / 190516 / 190328
Female 90° Swivel Elbow, Short

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	H (in)	Wt.	Price Each
•C1AM64	191321-4S	7/16-20	-04	0.70	0.68	0.05	
•C1AM39	190516-6S	9/16-18	-06	0.83	0.85	0.09	
•C1AM33	190328-6S	5/8-18	-06	0.83	0.85	0.09	
•C1AM65	191321-8S	3/4-16	-08	1.05	1.09	0.15	



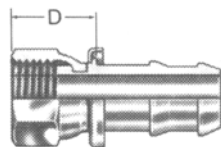
190327
SAE Male Inverted Flare
90° Short Elbow

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	H (in)	Wt.	Price Each
•C1AM32	190327-6S	5/8-18	-06	1.33	1.73	0.08	

Hose Fittings

Steel Reusable SOCKETLESS™
 SOCKETLESS™ Fittings for use with hose:
 2556, FC332, FC647, Easy Couple®

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FJ7044
 ORS® Female Swivel

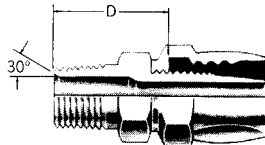
Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1EW79	FJ7044-0606S	11/16-16	-06	0.39	0.09	



Hose Fittings

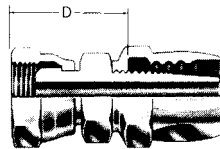
Steel Reusable Air Brake

Air Brake Fittings for use with hose: 2570



479301

Male Pipe



479501

Female USF Swivel



2038

USF Swivel / Male Pipe Adapter

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1BR37	479301-4-6S	1/4-18	-06	1.14	0.25	
•C1BR38	479301-6-6S	3/8-18	-06	1.14	0.20	

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1BR39	479501-8-6S	3/4-20	-06	1.30	0.40	

Catalog Part No.	Aeroquip Model	Thread P	Thread T	Wt.	Price Each
•C1AY13	2038-4-8S	1/4-18	3/4-20 USF	0.25	
•C1AY14	2038-6-8S	3/8-18	3/4-20 USF	0.06	

Hydraulic Power & Control

Pneumatic Power & Control

Fluid Conveying

Miscellaneous Products

Indexes & Technical Information

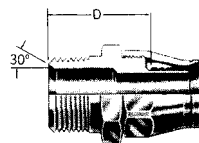


Hose Fittings



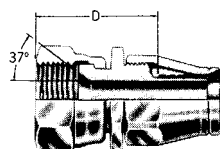
Steel Reusable Teflon

Teflon® 1 Braid Fittings for use with hose: 2807, FC807, STW



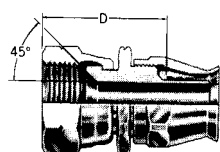
38-190627
Male Pipe

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1BM62	38-190627-2-4	1/8-27	-04	0.89	0.25	
•C1BM63	38-190627-4-4	1/4-18	-04	1.08	0.25	
•C1BM64	38-190627-4-5	1/4-18	-05	1.07	0.10	
•C1BM65	38-190627-4-6	1/4-18	-06	1.13	0.20	
•C1BM67	38-190627-8-10	1/2-14	-10	1.46	0.46	
•C1BM60	38-190627-12-12	3/4-14	-12	1.61	0.35	
•C1BM61	38-190627-16-16	1-11-1/2	-16	1.86	0.50	



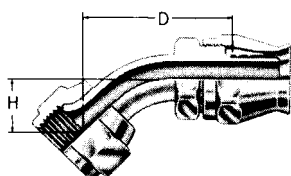
63-190600
Female JIC 37° Swivel

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1AM41	190600-3S	3/8-24	-03	1.04	0.05	
•C1BW76	63-190600-4	7/16-20	-04	1.13	0.07	
•C1BW77	63-190600-5	1/2-20	-05	1.17	0.08	
•C1BW79	63-190600-8	3/4-16	-08	1.35	0.19	
•C1BW72	63-190600-10	7/8-14	-10	1.54	0.26	
•C1BW73	63-190600-12	1-1/16-12	-12	1.67	0.38	
•C1BW74	63-190600-16	1-5/16-12	-16	1.91	0.56	
•C1BW75	63-190600-20	1-5/8-12	-20	2.27	1.17	



190990
Female SAE 45° Swivel

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1BW83	63-190990-6	5/8-18	-06	1.25	0.11	
•C1BW81	63-190990-12	1-1/16-14	-12	1.67	0.20	



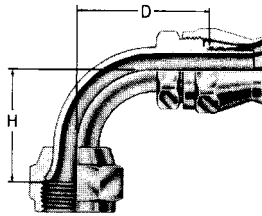
190773 / FC9341
Female 45° Swivel Elbow

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	H (in)	Wt.	Price Each
•C1AM54	190773-4S	7/16-20	-04	1.05	0.33	0.09	
•C1EQ29	FC9341-0606S	5/8-18	-06	1.20	.39	0.13	
•C1AM55	190773-6S	9/16-18	-06	1.20	0.39	0.15	

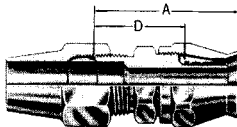


Steel Reusable Teflon

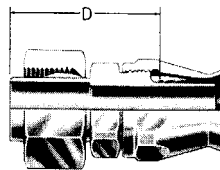
Teflon® 1 Braid Fittings for use with hose: 2807, FC807, STW



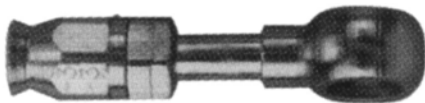
190772 / FC9171
Female Swivel
90° Elbow



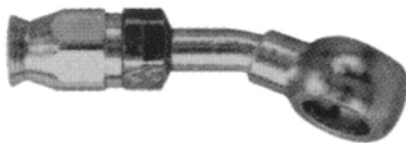
191074
Compression Ball Sleeve



190718
SAE Ball Sleeve



10 mm Banjo



10 mm Banjo
17° Elbow

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	H (in)	Wt.	Price Each
•C1AM50	190772-4S	7/16-20	-04	0.95	0.68	0.07	
•C1EQ28	FC9171-0606S	5/8-18	-06	1.10	.85	0.14	
•C1AM51	190772-6S	9/16-18	-06	1.10	0.85	0.14	
•C1AM52	190772-8S	3/4-16	-08	1.41	1.09	0.25	
•C1AM48	190772-10S	7/8-14	-10	1.49	1.23	0.35	
•C1ZU24	190772-12S	1-1/16-12	-12	2.17	1.82	0.56	
•C1DV40	190772-16S	1-5/16-12	-16	2.49	2.39	0.90	

Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Hose Size	D (in)	Wt.	Price Each
•C1BM68	38-191074-10	0.63	-10	1.18	0.33	

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1AM46	190718-10S	1-3/16-18	-10	1.49	0.20	

Catalog Part No.	Aeroquip Model	Bolt Size (mm)	Hose Size	D (mm)	Wt.	Price Each
•C1EB89	FBM3091	10 MM	-03		0.05	

Note: 2 bonded seals are required to seal a single banjo fitting. 3 are required for double banjo fittings. Metric Bonded Seals page 1261

Catalog Part No.	Aeroquip Model	Bolt Size (mm)	Hose Size	D (mm)	Wt.	Price Each
•C1EB90	FBM3092	10 MM	-03		0.05	

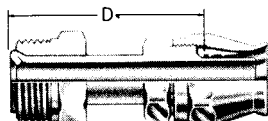
Note: 2 bonded seals are required to seal a single banjo fitting. 3 are required for double banjo fittings. Metric Bonded Seals page 1261

Hose Fittings

Steel Reusable Teflon

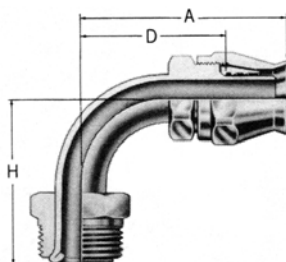
Teflon® 1 Braid Fittings for use with hose: 2807, FC807, STW

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FC9062

SAE Male Inverted Flare



190950

SAE Male Inverted Flare
90° Elbow



900568

Brass Sleeve

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1CT47	FC9062-0404S	7/16-24	-04	1.66	0.07	
•C1CT48	FC9062-0606S	5/8-18	-06	1.69	0.11	
•C1CT49	FC9062-0808S	3/4-18	-08	1.84	0.20	

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	H (in)	Wt.	Price Each
•C1AM57	190950-6S	5/8-18	-06	1.60	1.73	0.13	

Catalog Part No.	Aeroquip Model	Hose Size	Fits Aeroquip Hose Model	Wt.	Price Each
•C1CA87	900568-3B	-03	2807-3, FC807-3	0.01	
•C1CA88	900568-4B	-04	2807-4, FC807-4	0.01	
•C1CA90	900568-6B	-06	2807-6, FC807-6	0.01	
•C1CA83	900568-10B	-10	2807-10, FC807-10	0.02	
•C1CA84	900568-12B	-12	2807-12, FC807-12	0.02	

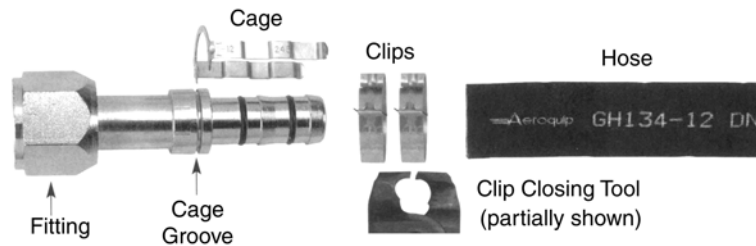


Steel E-Z Clip™ System

For use with GH134 Multi-Refrigerant & FC505 (-04 size) Refrigerant Hoses



E-Z Clip™ Hose Fitting System



The Aeroquip® E-Z Clip™ System is designed for assembly with Aeroquip® GH134 Multi-Refrigerant hose. It's engineered connection exceeds SAE J2064 and has been vibration and impulse tested.

Features: No guess work • No leaking crimps • No power supply needed • As easy to use as a pair of pliers • Easy to use in confined areas.

Assembly Material Checklist: Clip Closing Pliers (FT1357). Guillotine blade (FT1356) or equivalent cutting tool. Refrigerant oil compatible with refrigeration or A/C system. GH134 Multi-Refrigerant hose. Appropriately sized clips (2 per fitting) and cage. Nipple assembly (The two black o-rings on the nipple assembly are of a specific rubber compound and size. They should NOT be removed or replaced).

E-Z Clip™ Assembly Instructions:

- 1. Cut the Hose:** Cut the hose to proper length. Be sure the cut is made square to the hose length.
- 2. Slip on Two Clips:** Install two proper-sized clips onto the cut end of the hose.
- 3. Oil the Nipple:** Lubricate the nipple with a generous amount of the refrigeration or A/C system's compressor oil. This MUST be done to lower the force of nipple insertion.
- 4. Insert the Nipple into the Hose:** Insert the nipple into the hose. There should be no gap between the end of the hose and the shoulder on the nipple. Avoid kinking or damaging the hose while inserting nipple.
- 5. Snap on the Cage:** Snap the cage into the groove on the nipple. When the cage has been correctly installed in the cage groove, the cage will be able to rotate in the groove.
- 6. Slide the Clips:** Slide the clips over the cage arms and into the channels on each arm.
- 7. Close the Clips:** Use the FT1357 Clip Closing Pliers to close the clips. The pliers should be positioned squarely on the clip connection points and should remain square during the closing of the clip.

Note: E-Z Clip™ components should not be reused.

CAUTION: Failure to follow these assembly instructions and/or the use of Aeroquip® hose with fittings supplied by other manufacturers may result in unreliable and unsafe hose assemblies, which may result in sudden or unintended escape of refrigerant gases. Personal injury and/or violations of EPA regulations may occur as a consequence. Aeroquip recommends adherence to all guidelines, including EPA guidelines, concerning the service of refrigerant systems.

How to Identify O-Ring Pilot Thread Sizes: page 1494



1F40105
Cages

Catalog Part No.	Aeroquip Model	Hose Size	Description	Wt.	Price Each
•C1EX49	1F40105-06C	-06	Cage for size -06 hose	0.01	
•C1EX50	1F40105-08C	-08	Cage for size -08 hose	0.01	
•C1EX51	1F40105-10C	-10	Cage for size -10 hose	0.01	
•C1EX52	1F40105-12C	-12	Cage for size -12 hose	0.01	

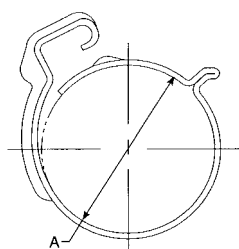
Note: (1) Cage required per fitting.

Note: Cage for size 04 hose has just one channel for one clip.

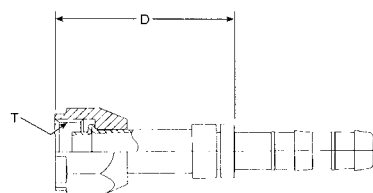
Hose Fittings

Steel E-Z Clip™ System

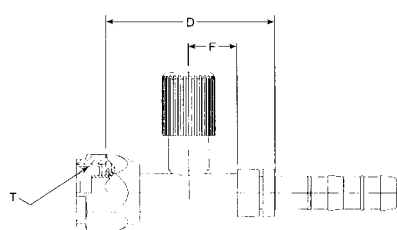
For use with GH134 Multi-Refrigerant & FC505 (-04 size) Refrigerant Hoses



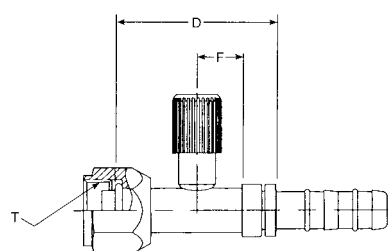
1F40104
Clips



FJ5984
Female O-Ring (short pilot)



FJ3053
Female O-Ring (short pilot)
With High Side Charge Port (R134a)



FJ3054
Female O-Ring (short pilot)
With Low Side Charge Port (R134a)

Catalog Part No.	Aeroquip Model	A (in)	Description	Wt.	Price Each
•C1EX45	1F40104-06C	0.71	Clip for size -06 hose	0.01	
•C1EX46	1F40104-08C	0.81	Clip for size -08 hose	0.01	
•C1EX47	1F40104-10C	0.91	Clip for size -10 hose	0.01	
•C1EX48	1F40104-12C	1.08	Clip for size -12 hose	0.01	

Note: (2) Clips required per fitting for sizes 06 and larger. (1) Clip required per fitting for size 04.

Catalog Part No.	Aeroquip Model	Thread T	Hose Size	D (in)	Wt.	Price Each
•C1EY77	FJ5984-0606S	5/8-18	-06	1.62	0.09	
•C1EY78	FJ5984-0608S	5/8-18	-08	1.62	0.11	
•C1EY79	FJ5984-0808S	3/4-16	-08	2.02	0.14	
•C1EY80	FJ5984-0810S	3/4-16	-10	2.02	0.17	
•C1EY81	FJ5984-1010S	7/8-14	-10	2.08	0.24	
•C1EY82	FJ5984-1012S	7/8-14	-12	2.08	0.29	
•C1FL83	FJ5984-1210S	1-1/16-14	-10	2.62	0.35	

Note: Bump Tube O-Ring Seal O-Rings page 1266

Catalog Part No.	Aeroquip Model	Thread T	Hose Size	D (in)	F (in)	Wt.	Price Each
•C1EY45	FJ3053-0808S	3/4-16	-08	2.16	0.63	0.23	

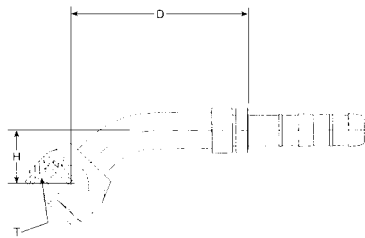
Note: Bump Tube O-Ring Seal O-Rings page 1266

Catalog Part No.	Aeroquip Model	Thread T	Hose Size	D (in)	F (in)	Wt.	Price Each
•C1EY46	FJ3054-1010S	7/8-14	-10	2.25	0.63	0.31	
•C1EY48	FJ3054-1212S	1-1/16-14	-12	2.25	0.63	0.44	

Note: Bump Tube O-Ring Seal O-Rings page 1266

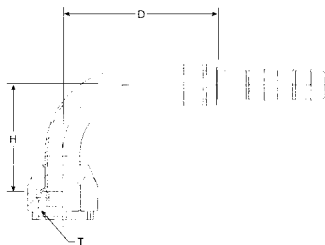
Steel E-Z Clip™ System

For use with GH134 Multi-Refrigerant & FC505 (-04 size) Refrigerant Hoses



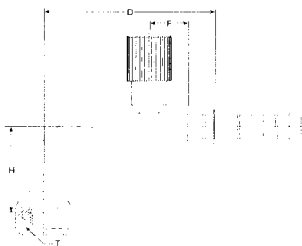
FJ3055

Female O-Ring (short pilot) 45° Elbow



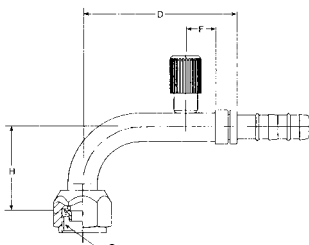
FJ5985

Female O-Ring (short pilot)
90° Elbow



FJ3013

Female O-Ring (short pilot) 90° Elbow
With High Side Charge Port (R134a)



FJ3012

Female O-Ring (short pilot) 90° Elbow
With Low Side Charge Port (R134a)

Catalog Part No.	Aeroquip Model	Thread T	Hose Size	D (in)	H (in)	Wt.	Price Each
•C1FL46	FJ3055-01-0606S	5/8-18	-06	2.08	0.67	0.11	
•C1EY50	FJ3055-03-0808S	3/4-16	-08	2.40	0.73	0.16	
•C1FL47	FJ3055-04-0810S	3/4-16	-10	2.40	0.73	0.18	
•C1ZT26	FJ3055-05-1010S	7/8-14	-10	2.81	1.19	0.28	
•C1EY51	FJ3055-06-1012S	7/8-14	-12	2.88	1.25	0.33	
•C1EY52	FJ3055-07-1212S	1-1/16-14	-12	3.75	1.47	0.44	

Note: Bump Tube O-Ring Seal O-Rings page 1266

Catalog Part No.	Aeroquip Model	Thread T	Hose Size	D (in)	H (in)	Wt.	Price Each
•C1EY84	FJ5985-0606S	5/8-18	-06	1.79	1.38	0.11	
•C1EY85	FJ5985-0608S	5/8-18	-08	1.79	1.38	0.13	
•C1EY86	FJ5985-0808S	3/4-16	-08	2.23	1.62	0.17	
•C1EY87	FJ5985-0810S	3/4-16	-10	2.23	1.62	0.20	
•C1EY88	FJ5985-1010S	7/8-14	-10	2.67	1.89	0.30	
•C1EY89	FJ5985-1012S	7/8-14	-12	2.67	1.89	0.35	
•C1EY90	FJ5985-1212S	1-1/16-14	-12	3.16	2.56	0.47	

Note: Bump Tube O-Ring Seal O-Rings page 1266

Catalog Part No.	Aeroquip Model	Thread T	Hose Size	D (in)	F (in)	H (in)	Wt.	Price Each
•C1EY25	FJ3013-02-0606S	5/8-18	-06	2.82	0.63	1.38	0.21	
•C1EY26	FJ3013-03-0808S	3/4-16	-08	3.07	0.69	1.62	0.26	
•C1EY24	FJ3013-01-0810S	3/4-16	-10	2.98	0.69	1.62	0.29	

Note: Bump Tube O-Ring Seal O-Rings page 1266

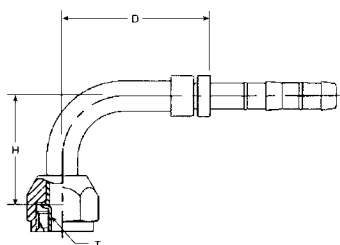
Catalog Part No.	Aeroquip Model	Thread T	Hose Size	D (in)	F (in)	H (in)	Wt.	Price Each
•C1EY22	FJ3012-02-1010S	7/8-14	-10	3.33	0.63	1.89	0.38	
•C1EY21	FJ3012-01-1012S	7/8-14	-12	3.25	0.63	1.89	0.42	

Note: Bump Tube O-Ring Seal O-Rings page 1266

Hose Fittings

Steel E-Z Clip™ System

For use with GH134 Multi-Refrigerant & FC505 (-04 size) Refrigerant Hoses

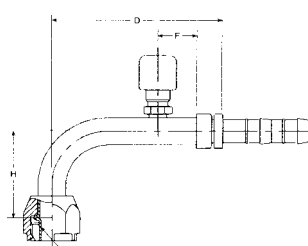


FJ3288

Female O-Ring (long pilot) 90° Elbow

Catalog Part No.	Aeroquip Model	Thread T	Hose Size	D (in)	H (in)	Wt.	Price Each
•C1FL79	FJ3288-01-0606S	5/8-18	-06	1.79	1.38	0.11	
•C1FL80	FJ3288-02-0808S	3/4-16	-08	2.23	1.62	0.17	

Note: Bump Tube O-Ring Seal O-Rings page 1266

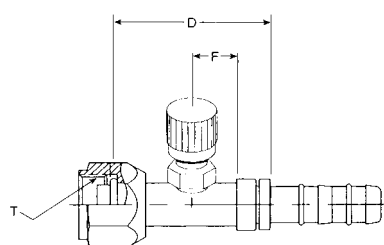


FJ3289

Female O-Ring (long pilot) 90° Elbow
With Switch Port (7/16-20)

Catalog Part No.	Aeroquip Model	Thread T	Hose Size	D (in)	F (in)	H (in)	Wt.	Price Each
•C1FL81	FJ3289-01-0808S	3/4-16	-08	2.59	0.69	1.62	0.20	
•C1FL82	FJ3289-02-1010S	7/8-14	-10	2.77	0.63	1.93	0.35	

Note: Bump Tube O-Ring Seal O-Rings page 1266

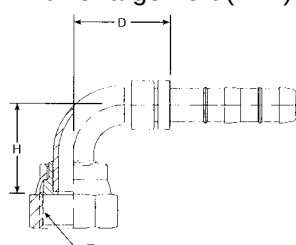


FJ3162

Female O-Ring (short pilot)
With Charge Port (R12)

Catalog Part No.	Aeroquip Model	Thread T	Hose Size	D (in)	F (in)	Wt.	Price Each
•C1FL73	FJ3162-1212S	1-1/16-14	-12	2.71	0.79	0.43	

Note: Bump Tube O-Ring Seal O-Rings page 1266



FJ5994 / GA23913

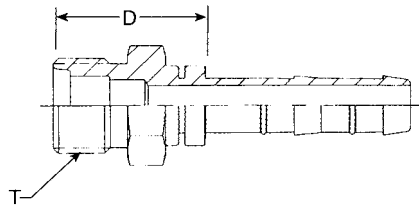
ORS Female Swivel 90° Elbow

Catalog Part No.	Aeroquip Model	Thread T	Hose Size	D (in)	H (in)	Wt.	Price Each
•C1EY95	FJ5994-04-1010S	1-14	-10	1.53	1.27	0.27	

Note: Size 04 fittings have only one o-ring on nipple that inserts into hose.

Steel E-Z Clip™ System

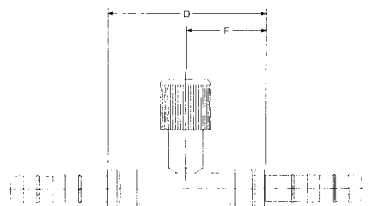
For use with GH134 Multi-Refrigerant & FC505 (-04 size) Refrigerant Hoses



FJ3026

Male MIO (Male Insert O-Ring)

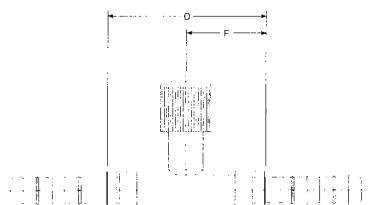
Catalog Part No.	Aeroquip Model	Thread T	Hose Size	D (in)	Wt.	Price Each
•C1FL40	FJ3026-0606S	5/8-18	-06	1.83	0.09	
•C1FL41	FJ3026-0808S	3/4-16	-08	1.15	0.11	
•C1FL42	FJ3026-1010S	7/8-14	-10	1.35	0.18	
•C1FL44	FJ3026-1212S	1-1/16-14	-12	2.71	0.37	



FJ5995

Splicer With High Side Charge Port (R134a)

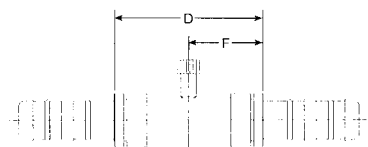
Catalog Part No.	Aeroquip Model	Hose Size	D (in)	F (in)	Wt.	Price Each
•C1EY97	FJ5995-0808S	-08	2.52	1.26	0.22	
•C1EY98	FJ5995-1010S	-10	2.52	1.26	0.29	



FJ5986

Splicer With Low Side Charge Port (R134a)

Catalog Part No.	Aeroquip Model	Hose Size	D (in)	F (in)	Wt.	Price Each
•C1EY91	FJ5986-1010S	-10	2.44	1.22	0.26	
•C1EY92	FJ5986-1212S	-12	2.44	1.22	0.35	



FJ3171

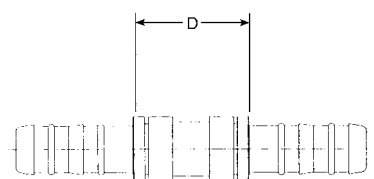
Splicer With Charge Port (R12)

Catalog Part No.	Aeroquip Model	Hose Size	D (in)	F (in)	Wt.	Price Each
•C1EY74	FJ3171-0808S	-08	2.44	1.26	0.16	
•C1EY75	FJ3171-1010S	-10	2.44	1.26	0.23	
•C1EY76	FJ3171-1212S	-12	2.44	1.26	0.32	

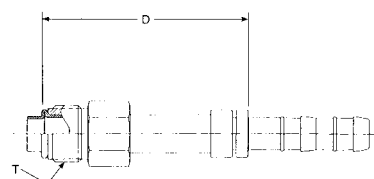
Hose Fittings

Steel E-Z Clip™ System

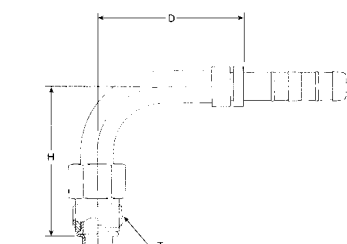
For use with GH134 Multi-Refrigerant & FC505 (-04 size) Refrigerant Hoses



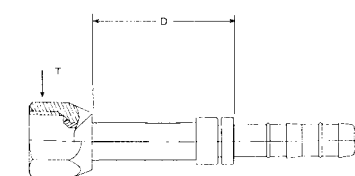
FJ3045
Splicer



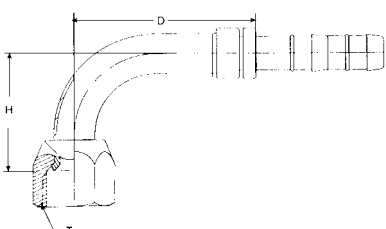
FJ3052
Male O-Ring (short pilot)



FJ3019
Male O-Ring (short pilot)



FJ3057
Female SAE 45° Swivel



FJ3149
Female SAE 45° Swivel
90° Elbow

Catalog Part No.	Aeroquip Model	Hose Size	D (in)	Wt.	Price Each
•C1EY34	FJ3045-0606S	-06	1.58	0.09	
•C1EY35	FJ3045-0808S	-08	1.68	0.13	
•C1EY36	FJ3045-1010S	-10	2.58	0.23	
•C1EY37	FJ3045-1212S	-12	1.57	0.28	

Catalog Part No.	Aeroquip Model	Thread T	Hose Size	D (in)	Wt.	Price Each
•C1EY38	FJ3052-0606S	5/8-18	-06	1.70	0.09	
•C1EY39	FJ3052-0608S	5/8-18	-08	1.70	0.10	
•C1EY41	FJ3052-1010S	7/8-18	-10	1.92	0.19	
•C1EY42	FJ3052-1012S	7/8-18	-12	1.92	0.24	

Note: Bump Tube O-Ring Seal O-Rings page 1266

Catalog Part No.	Aeroquip Model	Thread T	Hose Size	D (in)	H (in)	Wt.	Price Each
•C1EY29	FJ3019-03-0606S	5/8-18	-06	1.80	1.77	0.10	
•C1EY33	FJ3019-07-1010S	7/8-18	-10	2.67	2.45	0.27	

Note: Bump Tube O-Ring Seal O-Rings page 1266

Catalog Part No.	Aeroquip Model	Thread T	Hose Size	D (in)	Wt.	Price Each
•C1HL30	GA24048-4-4	7/16-20	-04	1.34	0.04	
•C1EY53	FJ3057-01-0606S	5/8-18	-06	1.62	0.09	
•C1EY54	FJ3057-02-0608S	5/8-18	-08	1.62	0.12	
•C1EY55	FJ3057-03-0808S	3/4-16	-08	2.02	0.13	
•C1EY56	FJ3057-04-0810S	3/4-16	-10	2.02	0.19	
•C1EY57	FJ3057-05-1010S	7/8-14	-10	2.08	0.21	
•C1EY58	FJ3057-06-1012S	7/8-14	-12	2.08	0.26	

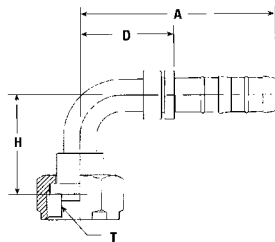
Note: Size 04 fittings have only one o-ring on nipple that inserts into hose.

Catalog Part No.	Aeroquip Model	Thread T	Hose Size	D (in)	H (in)	Wt.	Price Each
•C1EY67	FJ3149-01-0606S	5/8-18	-06	1.80	1.77	0.10	
•C1EY69	FJ3149-03-0808S	3/4-16	-08	2.23	2.31	0.16	
•C1EY70	FJ3149-04-1010S	7/8-14	-10	2.23	2.31	0.25	

Note: Size 04 fittings have only one o-ring on nipple that inserts into hose.

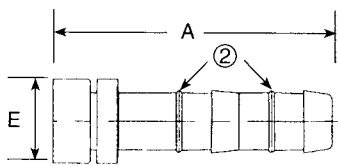
Steel E-Z Clip™ System

For use with GH134 Multi-Refrigerant & FC505 (-04 size) Refrigerant Hoses



FJ3225
Female RotaLok

Catalog Part No.	Aeroquip Model	Thread T	Hose Size	D (in)	H (in)	Wt.	Price Each
•C1GD98	FJ3225-1010S	1-14	-10	1.43	1.52	0.27	



② O-Rings packaged separately

FF12262
Lifesaver

Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Hose Size	A (in)	E (in)	Wt.	Price Each
•C1EX94	FF12262-0606	3/8	-06	2.01	0.38	0.04	
•C1EX95	FF12262-0608	3/8	-08	2.02	0.38	0.05	
•C1EX96	FF12262-0808	1/2	-08	2.02	0.50	0.05	
•C1EX97	FF12262-0810	1/2	-10	2.03	0.50	0.08	
•C1EX98	FF12262-1010	5/8	-10	2.03	0.63	0.08	
•C1EX99	FF12262-1012	5/8	-12	2.06	0.63	0.12	
•C1EY11	FF12262-1212	3/4	-12	2.11	0.75	0.12	



FF13727
Aluminum Lifesaver Kit

Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Hose Size	Wt.	Price Each
•C1HE78	FF13727-1006	0.39	-06	0.07	
•C1HE79	FF13727-1208	0.47	-08	0.09	
•C1HE80	FF13727-1610	0.63	-10	0.10	
•C1HE81	FF13727-1812	0.71	-12	0.14	

Note: Each kit consists of (2) aluminum nipples, (3) aluminum braze rings and (5) HNBR nipple o-rings.



FT1357
Clip Closing Tool

Catalog Part No.	Aeroquip Model	Description	Wt.	Price Each
•C1EZ24	FT1357	Clip Closing Tool	0.41	

Hose Fittings

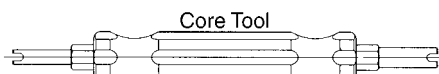
Steel E-Z Clip™ System

For use with GH134 Multi-Refrigerant & FC505 (-04 size) Refrigerant Hoses



FT1356
Hose Cutter

Catalog Part No.	Aeroquip Model	Description	Wt.	Price Each
•C1EZ22	FT1356	Hose Cutter	0.28	



Core Tool / Schraeder Valves

Catalog Part No.	Aeroquip Model	Description	Wt.	Price Each
•C1EY16	FF90192-01	Low Side Schraeder (For Aeroquip® high flow charge ports only)	0.01	



FF40106
Nipple O-Rings

Catalog Part No.	Aeroquip Model	Description	Wt.	Price Each
•C1EX55	1F40106-6	Nipple O-Ring for size -06 fittings	0.01	
•C1EX56	1F40106-8	Nipple O-Ring for size -08 fittings	0.01	
•C1EX53	1F40106-10	Nipple O-Ring for size -10 fittings	0.01	



FF12139
E-Z Clip™ System Tool Case

Catalog Part No.	Aeroquip Model	Description	Wt.	Price Each
•C1EX93	FF12139	E-Z Clip System™ Tool Case. Contains 1ea FT1357 Assembly Tool, 1ea FT1356 Hose Cutter and FT1356-2-1 Replacement Blade, 20 of each size 1F40104 Clip, 10 of each size 1F40105 Cage.	4.98	



Hose Fittings

Steel BrakeQuip Crimp
For use with BQ101 Rubber Brake Hose



HF16
Swivel Inverted Flare Male

Catalog Part No.	BrakeQuip Model	Thread	Flare	Tube Size (in)	OAL (mm)	Wt. (lbs.)	Price Each
C1MA13	HF16	3/8" x 24NF	Double	3/16	57	0.05	

Note: These products are available only to select international accounts. Territory restrictions apply.

Hydraulic Power & Control

Pneumatic Power & Control

Fluid Conveying

Miscellaneous Products

Indexes & Technical Information

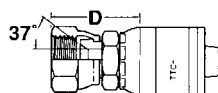
Hose Fittings

Stainless Steel Crimp

EATON
Powering Business Worldwide

Global TTC Fittings

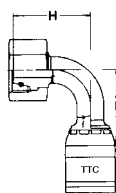
For use with hose: 2661, FC579, FC619, FC693, FC735, GH195, GH663, GH781, GH793



FJ
Female JIC 37° Swivel

Global TTC Fittings

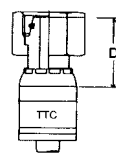
Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1AP92	1AA4FJ4C	7/16-20	-04	1.07	0.10	
•C1AQ30	1AA6FJ6C	9/16-18	-06	1.28	0.16	
•C1AQ63	1AA8FJ8C	3/4-16	-08	1.46	0.24	
•C1GG46	1AA10FJ10C	7/8-14	-10	1.61	0.33	
•C1AP35	1AA12FJ12C	1-1/16-12	-12	1.65	0.45	
•C1AP65	1AA16FJ16C	1-5/16-12	-16	1.93	0.78	



DLB
Female Swivel DIN Universal

Global TTC Fittings

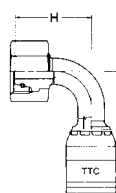
Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (mm)	H (mm)	Wt.	Price Each
•C1MP89	1AA5DLB4C	M12 x 1.5	-04	26.5	26.5	0.13	
•C1MP93	1AA6DLB4C	M14 x 1.5	-04	27.7	31.5	0.18	
•C1MQ11	1AA8DLB6C	M16 x 1.5	-06	33.5	33.5	0.20	
•C1MP79	1AA10DLB6C	M18 x 1.5	-06	34.5	34.2		
•C1MP83	1AA12DLB8C	M22 x 1.5	-08	45.7	40.0	0.33	



DS
s. Rh DKO (Heavy)

Global TTC Fittings

Catalog Part No.	Aeroquip Model	Thread	Tube O.D. (mm)	Hose Size	D (mm)	Wt.	Price Each
•C1MP94	1AA6DS4C	M18 x 1.5	10	-04	27.4	0.16	
•C1MQ12	1AA8DS6C	M20 x 1.5	12	-06	28.5	0.20	
•C1MP80	1AA10DS6C	M22 x 1.5	14	-06	28.5	0.27	
•C1MP84	1AA12DS8C	M24 x 1.5	16	-08	32.7	0.34	



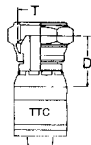
DSB
Female Swivel DIN 24° Seat
90° Tube Elbow s. Rh DKO
(Heavy)

Global TTC Fittings

Catalog Part No.	Aeroquip Model	Thread (mm)	Tube O.D. (mm)	Hose Size	D (mm)	Wt.	Price Each
•C1MP95	1AA6DSB4C	M18 x 1.5	10	-04	31.0		
•C1MP96	1AA6DSB6C	M18 x 1.5	10	-06		0.22	
•C1MQ13	1AA8DSB6C	M20 x 1.5	12	-06	35.0	0.18	
•C1MP81	1AA10DSB6C	M22 x 1.5	14	-06	38.5		
•C1MP85	1AA12DSB8C	M24 x 1.5	16	-08	44.0	0.42	

Stainless Steel Crimp

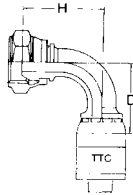
Global TTC Fittings



BF

BSPP 60° Cone Female Swivel

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (mm)	Wt.	Price Each
•C1MP86	1AA4BF4C	G 1/4	-04	18.9		
•C1MP90	1AA6BF6C	G 3/8	-06	21.1		
•C1MP97	1AA8BF8C	G 1/2	-08	23.8		



BFB

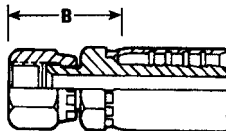
BSPP 90° Elbow Female Swivel

Global TTC Fittings

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (mm)	H (mm)	Wt.	Price Each
•C1MP87	1AA4BFB4C	G 1/4	-04	22.4	24.8	0.12	
•C1MP91	1AA6BFB6C	G 3/8	-06	33.6	35.0	0.29	
•C1MP98	1AA8BFB8C	G 1/2	-08	34.3	37.6	0.35	

Synflex® Swage Fittings

For use with hose: 25CT (-08), 30CT (-03 to -08), 3130, 3440 (-04 to -08), 3580, 37AL, 3800



390A Code 540

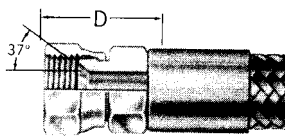
Female JIC 37° Swivel

Synflex® Swage Fittings

Catalog Part No.	Synflex Model	Thread	Hose Size	B (in)	Pusher Used 4599	Wt.	Price Each
•C1KV63	90A04-045400-0	7/16-20	-04	1.44	-FP012	0.14	
•C1LX59	90A06-065500-0	9/16-18	-06	1.56	-FP015	0.20	

Flat Crimp Fittings

For use with hose: 2807, FC807, STW



FC8779

Female JIC 37° Swivel

Flat Crimp Fittings

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1CT36	FC8779-0404-333	7/16-20	-04	0.96	0.03	
•C1EK57	FC8779-0606-333	9/16-18	-06	1.11	0.05	
•C1CT40	FC8779-0808-333	3/4-16	-08	1.21	0.10	

Note: Image of fitting shows crimp socket (separately purchased item). Select Flat Crimp Socket from FC3443/FC3596 table below.

Hose Fittings

Stainless Steel Crimp



FC3443 / FC3596

Flat Crimp Sockets for use with hose: 2807, FC807

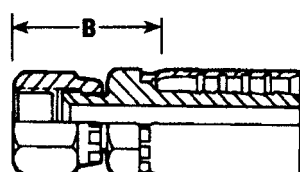
Flat Crimp Fittings

Catalog Part No.	Aeroquip Model	Hose Size	Fits Aeroquip Hose Model	Wt.	Price Each
•C1CR83	FC3596-04C	-04	2807-4, FC807-04	0.01	
•C1CR71	FC3443-04C	-05	2807-5, FC807-05	0.01	
•C1CR73	FC3443-05C	-06	2807-6, FC807-06	0.01	
•C1CR85	FC3596-08C	-08	2807-8, FC807-08	0.03	
•C1FM70	FC3596-12C	-12	2807-12, FC807-12	0.02	

Synflex® Swage Fittings - High Pressure

For use with hose:

3R80 (-03 to -12), 3E80 (-03 to -12), 3630 (-16), 3440 (-12 to -16):



90L 540 Female JIC 37° Swivel

Synflex® Swage Fittings - High Pressure

Catalog Part No.	Synflex Model	Thread	Hose Size	B (in)	Wt.	Price Each
C1MK27	90L04-045400-0	7/16-20	-04	1.44	0.12	

Flat Crimp Fittings - Convuluted

For use with hose: FC363, FC364



FC1349
Male Pipe



FC1347

Flat Crimp Sockets for use with hose: FC363, FC364

Flat Crimp Fittings - Convuluted

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
C1KG91	FC1349-2020-259	1-1/4-11-1/2	-20	1.70	0.74	

Flat Crimp Fittings - Convuluted

Catalog Part No.	Aeroquip Model	Hose Size	Wt.	Price Each
C1KG90	FC1347-20-329	-20	0.08	

Stainless Steel Crimp EverSwage EverSwage™ Crimp Fittings for use with hose: SC



NM
Male Pipe



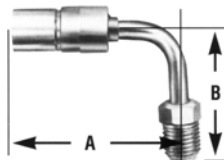
NJIC
Female JIC 37° Swivel
Consists of NNJ nut, NJ insert and NJC short collar



NJ
JIC Female Insert



PT
SAE Male Inverted Flare



PT90
SAE Male Inverted Flare
90° Elbow



NC
Crimp Sockets for use with hose: SC

Catalog Part No.	Everflex Model	Thread	Hose Size	Cut Off (in)	Wt.	Price Each
•C1DF78	NM2-4-S	1/8-27	-4		0.03	

Catalog Part No.	Everflex Model	Material	Thread	Hose Size	Cut Off (in)	Wt.	Price Each
•C1ML47	NJIC-4-316	316 SS	7/16-20	-4	0.90	0.10	
•C1JS62	NJIC-4-S	300 Series SS	7/16-20	-4	0.90	0.05	

**** WARNING **:** Do NOT use Everflex hose end NJIC-4S with Adaptall SS9200-04-06 or SS9200-04-08 adapters. The Adaptall flare is shorter than normal and does not make contact properly with the flare seat on the Everflex hose end.

Catalog Part No.	Everflex Model	JIC Size	Fits Everflex Hose Model	Wt.	Price Each
C1JB27	NJ-4-316	-4	SC-4	0.01	

Catalog Part No.	Everflex Model	Thread	Hose Size	Cut Off (in)	Wt.	Price Each
•C1JJ56	PT-S-4	3/8-24	-4		0.04	

Catalog Part No.	Everflex Model	Thread	Hose Size	Cut Off (in)	A (in)	B (in)	Wt.	Price Each
•C1JB38	PT-90-4	3/8-24	-4		2.00	1.00	0.04	

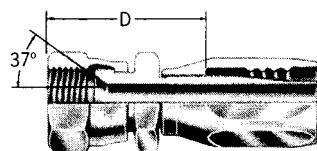
Catalog Part No.	Everflex Model	Hose Size	Fits Everflex Hose Model	Wt.	Price Each
•C1DF68	NC-4-316	-4	SC-4	0.01	

Hose Fittings

Stainless Steel Reusable

1 wire braid Reduced Bore Fittings

For use with hose: 2651, FC234, FC300, FC321, FC350, FC355, FC558, FC802



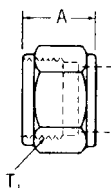
4411

Female JIC 37° Swivel
(Two piece fitting, no mandrel required)

1 wire braid Reduced Bore Fittings

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1BH47	259-4411-4	7/16-20	-04	1.23	0.09	
•C1BH48	259-4411-6	9/16-18	-06	1.43	0.15	
•C1BH49	259-4411-8	3/4-16	-08	1.62	0.30	
•C1BH45	259-4411-10	7/8-14	-10	1.81	0.39	
•C1BH46	259-4411-12	1-1/16-12	-12	1.92	0.58	
•C1ZU13	259-4411-16	1-5/16-12	-16	1.93	0.74	

1 wire braid Reduced Bore Fittings - Monel



1 wire braid Reduced Bore Fittings - Monel

Catalog Part No.	Aeroquip Model	Thread	Hose Size	A (in)	Wt.	Price Each
C1MM57	4-1290-8	3/4-16	-8	0.84		

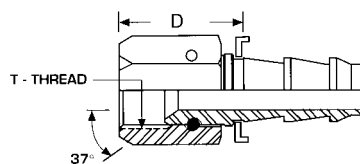


1 wire braid Reduced Bore Fittings - Monel

Catalog Part No.	Aeroquip Model	Description	Hose Size	Wt.	Price Each
C1MM56	4-1251-8	37° Flare Nipple (socket not included)	-8		

Fittings for use with SOCKETLESS™ Hose

For use with hose: 2556, FC332, FC647, Easy Couple®



H80250

Female JIC 37° Swivel

Fittings for use with SOCKETLESS™ Hose

Catalog Part No.	SSP Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1CY22	H80250-4-4	7/16-20	-04	0.75	0.06	
•C1CY24	H80250-8-8	3/4-16	-08	0.93	0.12	
•C1CY21	H80250-12-12	1-1/16-12	-12	1.15	0.32	

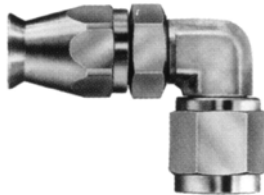
Stainless Steel Reusable

Teflon® 1 Braid Fittings for use with hose: 2807, FC807, STW



190600
Female JIC 37° Swivel

Catalog Part No.	Aeroquip Model	Thread	Hose Size	Cut Off (in)	Wt.	Price Each
•C1ZY27	FBM1130	3/8-24	-03		0.04	
•C1AM42	190600-4C	7/16-20	-04	1.13	0.09	
•C1AM44	190600-6C	9/16-18	-06	1.22	0.05	
•C1AM45	190600-8C	3/4-16	-08	1.35	0.20	
•C1EM26	190600-10C	7/8-14	-10	1.54	0.25	
•C1AM40	190600-12C	1-1/16-12	-12	1.67	0.36	
•C1FA28	190600-16C	1-5/16-12	-16	1.91	0.55	



Female JIC 37° Swivel
90° Elbow

Catalog Part No.	Aeroquip Model	Thread	Hose Size	Cut Off (in)	Wt.	Price Each
•C1EA64	FBM1150	3/8-24	-03		0.40	
•C1EA65	FBM1151	7/16-20	-04		0.10	



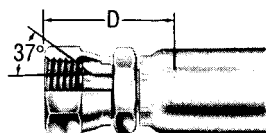
900568
Stainless Steel Sleeve

Catalog Part No.	Aeroquip Model	Hose Size	Fits Aeroquip Hose	Wt.	Price Each
•C1EH43	900568-4C	-04	2807-4	0.01	
•C1EH42	900568-12C	-12	2807-12	0.02	

Hose Fittings

Brass Crimp Polyon™ Crimp
Polygon™ Crimp Fittings for use with hose:
FC372, FC373, FC901, FC902

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FJ3337

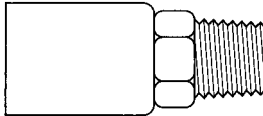
Female JIC 37° Swivel

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
C1FE98	FJ3337-0404B	7/16-20	-04		0.14	
C1FE99	FJ3337-0606B	9/16-18	-06		0.21	



Hose Fittings

Brass Crimp 338 P Series Air Brake Hose Ends
For use with hose: EC038



338 P-10*
Male Pipe Rigid

Catalog Part No.	Eaton Model	Thread	Hose Size	Hose Cut-Off (in)	Wt. (lbs.)	Price Each
•C1MM47	33806P-104	1/4-18	-06	0.75	0.10	
•C1MM48	33806P-106	3/8-18	-06	0.75	0.12	
•C1MM53	33808P-108	1/2-14	-08	1.00	0.10	



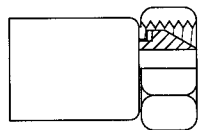
338*P-J*
Male Pipe Swivel

Catalog Part No.	Eaton Model	Thread	Hose Size	Hose Cut-Off (in)	Wt. (lbs.)	Price Each
•C1MM50	33806P-J06	3/8-18	-06	0.66	0.10	



338*P-4*
SAE 45° Female Swivel

Catalog Part No.	Eaton Model	Thread	Hose Size	Hose Cut-Off (in)	Wt. (lbs.)	Price Each
•C1MM49	33806P-406	5/8-18	-06	0.77	0.20	



338*P-Y7*
Air Brake Swivel

Catalog Part No.	Eaton Model	Thread	Hose Size	Hose Cut-Off (in)	Wt. (lbs.)	Price Each
•C1MM51	33806P-Y76	3/4-20	-06	0.60	0.09	

Hydraulic Power & Control

Pneumatic Power & Control

Fluid Conveying

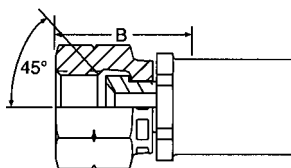
Miscellaneous Products

Indexes & Technical Information



Hose Fittings

Brass Crimp Marine Steering Crimp Fittings for use with MSH Marine Steering Hose



108MS
Female SAE 45° Swivel

Catalog Part No.	Trident Marine Model	Thread	Hose Size	B (in)	Wt.	Price Each
•C1HW23	108MS-6-5B	5/8-18	-05	1.00	0.12	
•C1HW24	108MS-6-6B	5/8-18	-06	1.00	0.13	



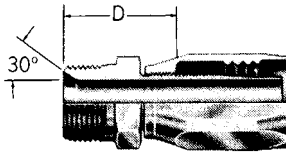
1TFMS
SeaStar® Female Swivel

Catalog Part No.	Trident Marine Model	Tube O.D. (in)	Hose Size	Hose Cut Off (in)	Wt.	Price Each
•C1HW37	1TFMS-6-5B	3/8	-05		0.12	

Note: The SeaStar® female swivel mates with a 3/8 O.D. brass compression tube fitting connection. Eaton Tube Fittings, Brass Compression page 1073

Brass Reusable 1 Wire Braid

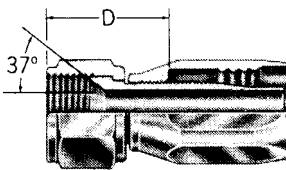
1 Wire Braid Reduced Bore Fittings (SAE100R5 Style) for use with hose:
2651, FC234, FC300, FC321, FC350, FC355, FC558



412 / 44-412

Male Pipe

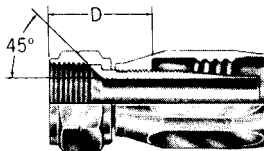
(Mandrel required on most sizes)



411 / 44-411

Female JIC 37° Swivel

(Three piece fitting, larger bore)
(Mandrel required all sizes)



401

Female SAE 45° Swivel

(Three piece fitting, larger bore)
(Mandrel required all sizes)

Catalog Part No.	Aeroquip Model	Mandrel Required	Thread	Hose Size	D (in)	Wt.	Price Each
•C1DX22	412-4-6B	Yes	1/4-18	-06	1.23	0.12	
•C1BP42	412-6-8B	Yes	3/8-18	-08	1.33	0.23	
•C1BP30	412-12-12B	Yes	3/4-14	-12	1.67	0.44	

Mandrels: Assembly Mandrels page 907

Catalog Part No.	Aeroquip Model	Mandrel Required	Thread	Hose Size	D (in)	Wt.	Price Each
•C1BP22	411-4B	Yes	7/16-20	-04	1.0	0.08	
•C1BP24	411-5B	Yes	1/2-20	-05	1.12	0.10	
•C1BP26	411-6B	Yes	9/16-18	-06	1.15	0.14	
•C1FS49	NP411-6B	Yes	9/16-18	-06	1.15	0.14	
•C1BP28	411-8B	Yes	3/4-16	-08	1.38	0.25	
•C1BP11	411-10B	Yes	7/8-14	-10	1.51	0.36	
•C1BP13	411-12B	Yes	1-1/16-12	-12	1.58	0.52	
•C1BP14	411-16B	Yes	1-5/16-12	-16	1.55	0.50	
•C1BP16	411-20B	Yes	1-5/8-12	-20	1.64	1.26	
•C1FG99	NP411-20B	Yes	1-5/8-12	-20	1.64	1.28	
•C1BP18	411-24B	Yes	1-7/8-12	-24	1.83	1.65	

Mandrels: Assembly Mandrels page 907

NP Models: Nickel Plated.

Catalog Part No.	Aeroquip Model	Mandrel Required	Thread	Hose Size	D (in)	Wt.	Price Each
•C1BN70	401-4B	Yes	7/16-20	-04	1.00	0.08	
•C1FK82	NP401-4B	Yes	7/16-20	-04	1.00	0.08	
•C1BN71	401-5B	Yes	1/2-20	-05	1.12	0.09	
•C1BN72	401-6B	Yes	5/8-18	-06	1.15	0.14	
•C1FG97	NP401-6B	Yes	5/8-18	-06	1.15	0.15	
•C1BN74	401-8B	Yes	3/4-16	-08	1.38	0.24	
•C1FG98	NP401-8B	Yes	3/4-16	-08	1.38	0.07	
•C1BN66	401-10B	Yes	7/8-14	-10	1.51	0.30	
•C1FK81	NP401-10B	Yes	7/8-14	-10	1.51	0.37	
•C1BN68	401-12B	Yes	1-1/16-14	-12	1.45	0.49	

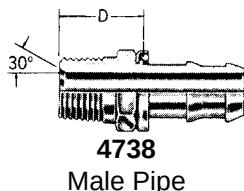
Mandrels: Assembly Mandrels page 907

NP Models: Nickel Plated.

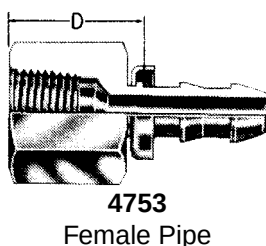
Hose Fittings

Brass Reusable SOCKETLESS™
SOCKETLESS™ Fittings for use with hose:
 2556, FC332, FC647, Easy Couple®

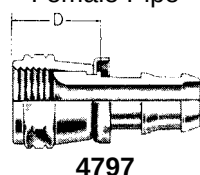
EATON
 Powering Business Worldwide



Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1BQ88	4738-2-4B	1/8-27	-04	0.65	0.03	
•C1BQ89	4738-4-4B	1/4-18	-04	0.83	0.06	
•C1BQ90	4738-4-6B	1/4-18	-06	0.89	0.10	
•C1BQ91	4738-6-6B	3/8-18	-06	0.89	0.07	
•C1BQ92	4738-6-8B	3/8-18	-08	0.89	0.10	
•C1BQ94	4738-8-8B	1/2-14	-08	1.14	0.15	
•C1BQ93	4738-8-10B	1/2-14	-10	1.14	0.18	
•C1BQ87	4738-12-12B	3/4-14	-12	1.21	0.24	



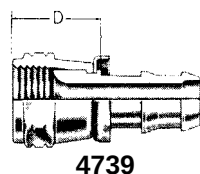
Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1BR28	4753-4-4B	1/4-18	-04	0.77	0.09	
•C1BR30	4753-8-8B	1/2-14	-08	1.02	0.25	



Female JIC 37° and SAE 45° Swivel
 (Universal) Nut has double notch.

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1BR42	4797-4B	7/16-20	-04	0.71	0.04	
•C1FH14	NP4797-4B	7/16-20	-04	0.71	0.04	
•C1BR43	4797-5-4B	1/2-20	-04	0.77	0.05	
•C1BR44	4797-8-6B	3/4-16	-06	0.93	0.10	
•C1BR45	4797-8B	3/4-16	-08	0.93	0.11	
•C1BR40	4797-10-8B	7/8-14	-08	1.06	0.16	
•C1BR41	4797-10B	7/8-14	-10	1.06	0.17	
•C1FH13	NP4797-10B	7/8-14	-10	1.06	0.17	

NP Models: Nickel Plated.



Female SAE 45° Swivel
 (Nut has single notch)

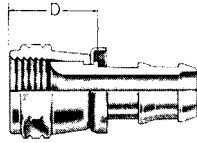
Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1BQ96	4739-6B	5/8-18	-06	0.81	0.06	
•C1BQ95	4739-12B	1-1/16-14	-12	1.19	0.27	
•C1FH11	NP4739-12B	1-1/16-14	-12	1.19	0.27	

NP Models: Nickel Plated.

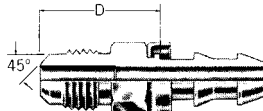


Hose Fittings

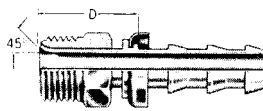
Brass Reusable SOCKETLESS™
SOCKETLESS™ Fittings for use with hose:
 2556, FC332, FC647, Easy Couple®



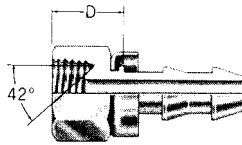
4741
 Female JIC 37° Swivel



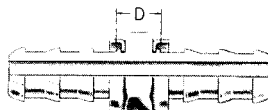
4742
 Male SAE 45° Flare



4740
 SAE 45° Male Inverted Flare



4743
 SAE 42° Inverted Female Flare



4772
 Hose Mender

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1BR15	4741-6B	9/16-18	-06	0.80	0.06	
•C1BR14	4741-12B	1-1/16-12	-12	1.19	0.28	

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1BR16	4742-4B	7/16-20	-04	0.83	0.04	
•C1BR17	4742-5-4B	1/2-20	-04	0.89	0.04	
•C1BR18	4742-6B	5/8-18	-06	0.95	0.07	

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1BQ98	4740-3-4B	3/8-24	-04	0.75	0.03	
•C1BQ99	4740-4B	7/16-24	-04	0.75	0.03	
•C1BR11	4740-5-4B	1/2-20	-04	0.82	0.04	
•C1BR12	4740-6B	5/8-18	-06	0.86	0.06	
•C1BR13	4740-8B	3/4-18	-08	0.94	0.10	
•C1BQ97	4740-10B	7/8-18	-10	1.01	0.16	

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1BR21	4743-4B	7/16-24	-04	0.46	0.05	

Catalog Part No.	Aeroquip Model	Hose Size	D (in)	Wt.	Price Each
•C1BR33	4772-4B	-04	0.32	0.04	
•C1BR34	4772-6B	-06	0.32	0.06	
•C1BR35	4772-8B	-08	0.38	0.12	
•C1BR31	4772-10B	-10	0.47	0.23	
•C1BR32	4772-12B	-12	0.54	0.29	

Hydraulic Power & Control

Pneumatic Power & Control

Fluid Conveying

Miscellaneous Products

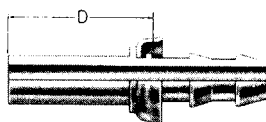
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Hose Fittings

Brass Reusable SOCKETLESS™
SOCKETLESS™ Fittings for use with hose:
2556, FC332, FC647, Easy Couple®

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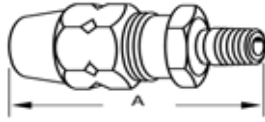


4750

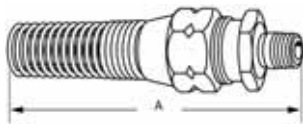
Compression Type

Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Hose Size	Hose Cut Off (in)	Wt.	Price Each
•C1BR26	4750-6B	0.38	-06	1.21	0.03	

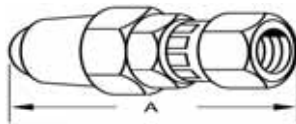
Brass Field Attachable 338 B Series Air Brake Hose Ends For use with hose: EC038



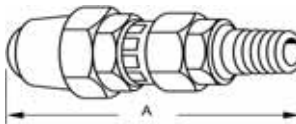
338 B-Y2*
Male Connector



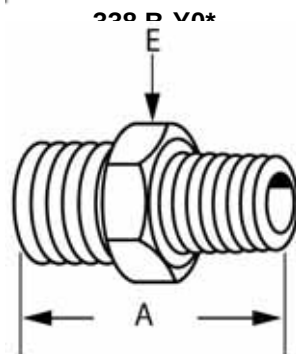
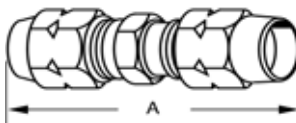
338 B-Y3*
Male Connector with Spring Guard



338 B-Y7*
Female Connector



338 B-Y8*
Female Connector with Adapter



1390

Catalog Part No.	Eaton Model	Hose Size	Pipe Size (in)	A (in)	Hose Cut-Off (in)	Wt.	Price Each
•C1MJ63	33806B-Y26	-06	3/8	2.35	0.81		
•C1MJ64	33806B-Y28	-06	1/2	2.45	0.90		
•C1MJ72	33808B-Y26	-08	3/8	2.24	0.75		
•C1MJ73	33808B-Y28	-08	1/2	2.40	0.90		

Catalog Part No.	Eaton Model	Hose Size	Pipe Size (in)	A (in)	Hose Cut-Off (in)	Wt.	Price Each
•C1MJ65	33806B-Y34	-06	1/4	4.72	0.75		
•C1MJ66	33806B-Y36	-06	3/8	4.78	0.81		
•C1MJ74	33808B-Y36	-08	3/8	4.97	0.75		
•C1MJ75	33808B-Y38	-08	1/2	5.12	0.90		

Catalog Part No.	Eaton Model	Hose Size	ABS Thread Size	A (in)	Hose Cut-Off (in)	Wt.	Price Each
•C1MJ67	33806B-Y76	-06	3/4-20	2.40	0.84		
•C1MJ76	33808B-Y78	-08	7/8-20	2.45	0.90		

Catalog Part No.	Eaton Model	Hose Size	Thread	A (in)	Hose Cut-Off (in)	Wt.	Price Each
•C1MJ68	33806B-Y84	-06	3/4-20	3.33	1.75		
•C1MJ69	33806B-Y86	-06	3/4-20	3.33	1.75		
•C1MJ77	33808B-Y86	-08	7/8-20	3.35	1.80		

Catalog Part No.	Eaton Model	Hose Size	A (in)	Wt.	Price Each
•C1MJ61	33806B-Y06	-06	3.35		
•C1MJ71	33808B-Y08	-08	3.32		

Catalog Part No.	Eaton Model	Thread	ABS Thread Size	Pipe Size	"A"	Wt.	Price Each
•C1MH88	1390X6	3/4-20	3/8	1/4	1.18		
•C1MH89	1390X6X6	3/4-20	3/8	3/8	1.18		
•C1MH90	1390X6X8	3/4-20	3/8	1/2	1.37		
•C1MH91	1390X8	7/8-20	1/2	3/8	1.18		
•C1MH92	1390X8X8	7/8-20	1/2	1/2	1.37		

To determine the correct length of hose, subtract the Hose Cut-Off Factor for each end fitting from the overall length of the hose assembly.

Hose Ends

Brass Field Attachable 338 B Series Air Brake Hose Ends For use with hose: EC038



3380*C
Spring Guard

Catalog Part No.	Eaton Model	Hose Size	Wt.	Price Each
•C1MJ70	33806-C	-06		
•C1MJ78	33808-C	-08		

Hydraulic Power & Control

Pneumatic Power & Control

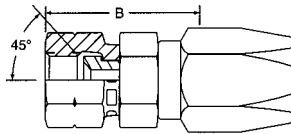
Fluid Conveying

Miscellaneous Products

Indexes & Technical Information

To determine the correct length of hose, subtract the Hose Cut-Off Factor for each end fitting from the overall length of the hose assembly.

Brass Reusable Marine Steering Reusable Fittings for use with MSH Marine Steering Hose



208MS
Female SAE 45° Swivel



2TFMS
SeaStar® Female Swivel

Catalog Part No.	Trident Marine Model	Thread	Hose Size	B (in)	Wt.	Price Each
•C1HW38	208MS-6-5B	5/8-18	-05	1.00	0.16	
•C1HW39	208MS-6-6B	5/8-18	-06	1.00	2.25	

Catalog Part No.	Trident Marine Model	Tube O.D. (in)	Hose Size	Hose Cut Off (in)	Wt.	Price Each
•C1HW48	2TFMS-6-5B	3/8	-05		0.16	

Note: The SeaStar® female swivel mates with a 3/8 O.D. brass compression tube fitting connection. Eaton Tube Fittings, Brass Compression page 1073



Hose Fittings (Industrial)

Category	Page
Shank Type Fittings	999
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Stainless Steel	1005
Aluminum	1006
Cam & Groove Couplers & Adapters	1008
Aluminum	1008
Brass	1011
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Universal Fittings	1019



Industrial Hose Application Warnings

The determination and methods of the use, suitability, installation and design application for the parts and assemblies we sell is the responsibility of the purchaser.

Hose conforms to the specification and requirements specified by the hose manufacturer.

The determination and methods of use, suitability, installation, design and application for the parts and assemblies we sell is the responsibility of the purchaser.

Agency and industry standards may apply to your application. It is your responsibility to decide what regulations and/or standards apply, and inform us. We will then advise you if the products selected meet those standards.

If you need specific product information on our products or assemblies, we are glad to provide it upon request.

(We keep a selection of literature at all of our locations).

We also have available, upon request, brochures and information regarding general use and safety issues for industrial hose products and assemblies.

Improper selection, installation and/or routing may significantly shorten the life of a hose, which could result in hose rupture and failure, which may then result in serious personal injury or property damage.

Many fluids are flammable and proper safeguards have to be taken to contain any fluid if a hose failure occurs in an environment with a source of ignition.

Hoses have a service life, and high repetitive shock reduces hose service life. You need to inspect and change out hoses within their service life for your application or hose rupture and failure may occur.

S.T.A.M.P. - You must consider the **Size**, **Temperature**, **Application**, **Medium** and **Pressure** when selecting hose and hose fittings.



Hose Fittings (Industrial)

Shank Type Fittings (Short Shank Hose Barbs) Brass



Short Shank Brass Fittings

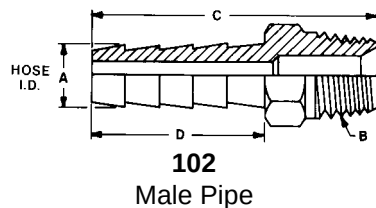
Construction: Machined from free cutting brass rod CDA 360 alloy.

Application: Low pressure fluid transfer, suction and discharge.

Note: Fitting attachment suggestions are listed for each hose in the Hose section of this catalog.

Note: The working pressure of shank type fittings will vary with the size and construction of the hose, the type and number of clamps used, clamp placement, proper installation of clamps, temperature and product being conveyed.

Reference: NAHAD Pressure Guideline Chart page 1534



Catalog Part No.	Dixon Model	Nickel Plated	Hose I.D. (in)	Pipe Thread	C (in)	D (in)	Wt.	Price Each
•C1AG43	102-0202	No	1/8	1/8-27	1.06	0.46	0.02	
•C1EZ96	102-0204	No	1/8	1/4-18	1.16	0.46	0.03	
•C1GH46	32-002	No	3/16	1/8-27			0.02	
•C1GA70	102-0302	No	3/16	1/8-27	1.35	0.75	0.02	
•C1AG44	102-0402	No	1/4	1/8-27	1.57	0.97	0.05	
•C1AG45	102-0404	No	1/4	1/4-18	1.76	0.97	0.05	
•C1AG46	102-0406	No	1/4	3/8-18	1.76	0.97	0.07	
•C1AG47	102-0502	No	5/16	1/8-27	1.57	0.97	0.03	
•C1AG48	102-0504	No	5/16	1/4-18	1.76	0.97	0.07	
•C1FL18	102-0506	No	5/16	3/8-18	1.76	0.97	0.60	
•C1AG49	102-0602	No	3/8	1/8-27	1.57	0.97	0.07	
•C1AG50	102-0604	No	3/8	1/4-18	1.76	0.97	0.07	
•C1AG51	102-0606	No	3/8	3/8-18	1.76	0.97	0.06	
•C1AG52	102-0608	No	3/8	1/2-14	1.97	0.97	0.25	
•C1AG53	102-0804	No	1/2	1/4-18	1.76	0.97	0.07	
•C1AG54	102-0806	No	1/2	3/8-18	1.76	0.97	0.07	
•C1MH80	102-0808C	No	1/2	1/2-14	1.97	0.97	0.12	
•C1AG56	102-0812	No	1/2	3/4-14	1.97	0.97	0.16	
•C1AG57	102-1006	No	5/8	3/8-18	1.76	0.97	0.10	
•C1AG58	102-1008	No	5/8	1/2-14	1.97	0.97	0.15	
•C1AG59	102-1012	No	5/8	3/4-14	1.97	0.97	0.25	
•C1AG60	102-1208	No	3/4	1/2-14	2.19	1.19	0.25	
•C1AG61	102-1212	No	3/4	3/4-14	2.19	1.19	0.25	
•C1AG62	102-1612	No	1	3/4-14	2.19	1.19	0.25	
•C1AG63	102-1616	No	1	1-11-1/2	2.54	1.19	0.27	
C1GL23	32-028	No	1-1/4	1-11-1/2			0.46	
•C1FN17	4244-20-16	No	1-1/4	1-11-1/2	2.51	1.06	0.47	

Note: 4244 is Tompkins model. 32 is ACR model.

Hose Fittings (Industrial)

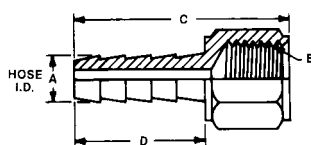
Shank Type Fittings (Short Shank Hose Barbs) Brass



A29E
Male Pipe 90° Elbow

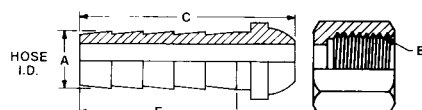
Catalog Part No.	Model Number	Hose I.D. (in)	Pipe Thread	O.A. Length (in)	Cut Off (in)	Wt.	Price Each
•C1CH19	A29E-1/4X1/8	1/4	1/8-27			0.05	
•C1CH18	A29E-1/4X1/4	1/4	1/4-18			0.06	
•C1GH97	A29E-1/4X3/8	1/4	3/8-18			0.11	
•C1CH21	A29E-3/8X1/4	3/8	1/4-18			0.06	
•C1CH22	A29E-3/8X3/8	3/8	3/8-18			0.08	
•C1CH20	A29E-3/8X1/2	3/8	1/2-14			0.10	
C1HD75	32-048	1/2	1/4-18			0.08	
•C1EP40	A29E-1/2X3/8	1/2	3/8-18			0.10	
•C1GM68	32-311	1/2	1/2-14			0.11	
•C1GF80	32-044	5/8	3/8-18			0.09	
•C1GF81	32-045	5/8	1/2-14			0.13	

Note: 32 is ACR model.



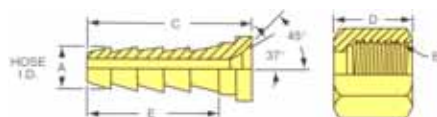
104
Female Pipe (Rigid)

Catalog Part No.	American Coupling Model	Hose I.D. (in)	Pipe Thread	C (in)	D (in)	Wt.	Price Each
•C1AG90	104-0404	1/4	1/4-18	1.66	0.97	0.07	
•C1EL55	104-0504	5/16	1/4-18	1.66	0.97	0.05	
•C1AG92	104-0604	3/8	1/4-18	1.66	0.97	0.05	
•C1AG93	104-0606	3/8	3/8-18	1.66	0.97	0.06	
•C1AG94	104-0806	1/2	3/8-18	1.66	0.97	0.07	



124
Female Pipe (Swivel)

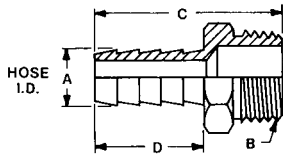
Catalog Part No.	American Coupling Model	Hose I.D. (in)	NPSM Thread	C (in)	E (in)	Wt.	Price Each
•C1AJ49	124-0402	1/4	1/8-27 NPSM	1.30	0.97	0.03	
•C1AJ50	124-0404	1/4	1/4-18 NPSM	1.39	0.97	0.05	
•C1AJ51	124-0504	5/16	1/4-18 NPSM	1.39	0.97	0.50	
•C1AJ52	124-0604	3/8	1/4-18 NPSM	1.37	0.97	0.05	
•C1AJ53	124-0606	3/8	3/8-18 NPSM	1.45	0.97	0.10	
•C1AJ54	124-0806	1/2	3/8-18 NPSM	1.42	0.97	0.08	
•C1AJ55	124-0808	1/2	1/2-14 NPSM	1.54	0.97	0.10	



143 / 144
Female Flare Swivel
143 has Dual 37°/45° Flare Seats
144 has 45° Flare Seat

Catalog Part No.	American Coupling Model	Nickel Plated	Hose I.D. (in)	Thread	C (in)	E (in)	Wt.	Price Each
•C1FS72	143-0407	No	1/4	7/16-20	1.25	0.97	0.04	
•C1FS73	143-0408	No	1/4	1/2-20	1.31	0.97	0.05	
•C1FS79	144-0410	No	1/4	5/8-18	1.27	0.97	0.06	
•C1FS74	143-0508	No	5/16	1/2-20	1.31	0.97	0.05	
•C1FS80	144-0510	No	5/16	5/8-18	1.27	0.97	0.07	
•C1FS81	144-0610	No	3/8	5/8-18	1.27	0.97	0.07	
•C1FS75	143-0612	No	3/8	3/4-16	1.34	0.97	0.10	
•C1FS76	143-0812	No	1/2	3/4-16	1.34	0.97	0.11	
•C1FS77	143-0814	No	1/2	7/8-14	1.34	0.97	0.18	

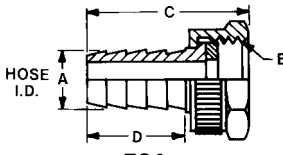
Shank Type Fittings (Short Shank Hose Barbs) Brass



590

Male Garden Hose (NPSH Thread)

Catalog Part No.	American Coupling Model	Hose I.D. (in)	NPSH Thread	C (in)	D (in)	Wt.	Price Each
•C1BV95	590-0612	3/8	3/4-11-1/2	1.88	1.19	0.12	
•C1BV96	590-0812	1/2	3/4-11-1/2	1.88	1.19	0.12	
•C1BV97	590-1012	5/8	3/4-11-1/2	1.88	1.19	0.13	
•C1BV98	590-1212	3/4	3/4-11-1/2	1.88	1.19	0.15	



591

Female Garden Hose (NPSH Thread)

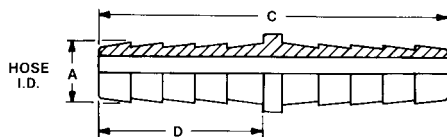
Catalog Part No.	American Coupling Model	Hose I.D. (in)	NPSH Thread	C (in)	D (in)	Wt.	Price Each
•C1ET96	591-0612	3/8	3/4-11-1/2	1.82	1.19	0.11	
•C1BW15	591-0812	1/2	3/4-11-1/2	1.82	1.19	0.12	
•C1BW16	591-1012	5/8	3/4-11-1/2	1.82	1.19	0.12	
•C1BW17	591-1212	3/4	3/4-11-1/2	1.82	1.19	0.30	



BRGHT

Heavy Duty Forged Brass Garden Hose Sets (Male & Female)

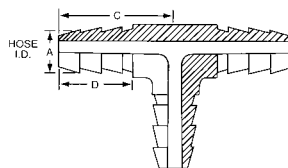
Catalog Part No.	Kuriyama Model	Hose I.D. (in)	NPSH Thread	Shank Length (in)	Wt.	Price Each
•C1GJ26	BRGHT050	1/2	3/4-11-1/2	1.18	0.25	



178

Hose Splicer

Catalog Part No.	American Coupling Model	Hose I.D. (in)	C (in)	D (in)	Wt.	Price Each
•C1GH47	32-092 (ACR Model)	3/16			0.01	
•C1AL46	178-0404	1/4	2.03	0.97	0.02	
•C1FW40	178-0505	5/16	2.06	0.97	0.03	
•C1AL47	178-0606	3/8	2.06	0.97	0.05	
•C1AL48	178-0808	1/2	2.06	0.97	0.06	
•C1FJ62	178-1010	5/8	2.06	0.97	0.07	
•C1FJ63	178-1212	3/4	2.50	1.19	0.13	



179

Hose Tee

Catalog Part No.	ACR Model	Hose I.D. (in)	C (in)	D (in)	Wt.	Price Each
•C1FW55	32-159	1/4			0.06	
•C1FW56	32-160	3/8			0.05	
•C1FW57	32-162	1/2			0.10	

Hose Fittings (Industrial)

Shank Type Fittings Brass

Combination Nipples (Brass, Medium Shank)

Construction: Made from tubular brass stock. Male NPT threaded ends.

Application: Combination nipples are recommended for low pressure discharge and suction service for compatible liquids. NOT for compressible products such as air or nitrogen on sizes 1-1/4 and above. NOT for steam.

Note: Fitting attachment suggestions are listed for each hose in the Hose section of this catalog.

Note: The working pressure of combination nipples will vary with the size and construction of the hose, the type and number of clamps used, clamp placement, proper installation of clamps, temperature and product being conveyed.

Reference: NAHAD Pressure Guideline Chart page 1534



BST

Male Pipe Combination Nipple

Combination Nipples (Brass, Medium Shank)

Catalog Part No.	Dixon Model	Hose I.D. (in)	Pipe Thread	O.A. Length (in)	Cut Off (in)	Wt.	Price Each
•C1EP49	BST15	1-1/4	1-1/4			0.65	
•C1EP50	BST20	1-1/2	1-1/2			0.01	
•C1EW56	BST25	2	2			1.13	

Note: Not intended for compressed air applications.



Hose Fittings (Industrial)

Shank Type Fittings Steel

Combination Nipples (Steel, Medium Shank)

Construction: Made from tubular steel stock. Male NPT threaded ends. Dixon ST and Kuriyama STN models are un-plated. Dixon STC and Kuriyama SPN models are plated. See table.

Application: Combination nipples are recommended for low pressure discharge and suction service for compatible liquids. NOT for compressible products such as air or nitrogen on sizes 1-1/4 and above. NOT for steam.

Note: Fitting attachment suggestions are listed for each hose in the Hose section of this catalog.

Note: The working pressure of combination nipples will vary with the size and construction of the hose, the type and number of clamps used, clamp placement, proper installation of clamps, temperature and product being conveyed.

Reference: NAHAD Pressure Guideline Chart page 1534



ST / STC / STN / SPN
Male Pipe Combination Nipple

Combination Nipples (Steel, Medium Shank)

Catalog Part No.	Model	Mfg. Name	Hose I.D. (in)	Pipe Thread	Plated	O.A. Length (in)	Cut Off (in)	Wt.	Price Each
•C1GE21	STC5	Dixon	3/4	3/4-14	Yes			0.26	
•C1EX17	STC-1005	Dixon	1	3/4-14	Yes			0.23	
•C1DL23	ST-10	Dixon	1	1-11-1/2	No			0.31	
•C1ER46	STC-1510	Dixon	1-1/4	1-11-1/2	Yes			0.34	
•C1ER47	STC-2015	Dixon	1-1/2	1-1/4-11-1/2	Yes			0.52	
•C1KH58	STN125	Kuriyama	1-1/4	1-1/4-11-1/2	No			0.44	
•C1GA62	STN150	Kuriyama	1-1/2	1-1/2-11-1/2	No			0.77	
•C1KY75	SPN150	Kuriyama	1-1/2	1-1/2-11-1/2	Yes			0.72	
•C1GA63	STN200	Kuriyama	2	2-11-1/2	No			0.87	
•C1GA64	STN250	Kuriyama	2-1/2	2-1/2-8	No			1.63	
•C1GA65	STN300	Kuriyama	3	3-8	No			2.08	
•C1GA66	STN400	Kuriyama	4	4-8	No			3.66	
•C1GA67	STN600	Kuriyama	6	6-8	No			9.87	

Note: Not intended for compressed air applications.

Hose Fittings (Industrial)

Shank Type Fittings Steel

Steel Nipples (Medium Shank)

Application: Tool end hose fitting for whip hoses used on vibrating air tools. Heat treated steel nipple withstands vibration from pavement breakers and air drills.

Note: Fitting attachment suggestions are listed for each hose in the Hose section of this catalog.

Note: The working pressure of combination nipples will vary with the size and construction of the hose, the type and number of clamps used, clamp placement, proper installation of clamps, temperature and product being conveyed.

Reference: NAHAD Pressure Guideline Chart page 1534



3500 Male Nipple
Male Pipe Steel Nipple

Steel Nipples (Medium Shank)

Catalog Part No.	Model	Mfg. Name	Hose I.D. (in)	Pipe Thread	Plated	O.A. Length (in)	Cut Off (in)	Wt.	Price Each
•C1JC42	3514	Dixon	3/4	3/4-14	Yes			0.49	
•C1JC43	3518	Dixon	1	1	Yes			0.75	

Hose Menders (Steel, Medium Shank)

Construction: Zinc plated steel.

Application: Not for compressible products such as air, nitrogen or steam.

Note: Fitting attachment suggestions are listed for each hose in the Hose section of this catalog.

Note: The working pressure of menders will vary with the size and construction of the hose, the type and number of clamps used, clamp placement, proper installation of clamps, temperature and product being conveyed.

Reference: NAHAD Pressure Guideline Chart page 1534



DM
Hose Mender

Hose Menders (Steel, Medium Shank)

Catalog Part No.	Model	Manufacturer	Hose I.D. (in)	Wt.	Price Each
•C1KN54	SPHM075	Kuriyama	3/4	0.20	
•C1KN55	SPHM100	Kuriyama	1	0.30	
•C1GF59	SPHM150	Kuriyama	1-1/2	0.50	
•C1GF60	SPHM200	Kuriyama	2	0.80	



Hose Fittings (Industrial)

Shank Type Fittings Stainless Steel

Combination Nipples (Stainless Steel, Medium Shank)



Construction: Made from tubular stainless steel stock. Male NPT threaded ends.

Application: Combination nipples are recommended for low pressure discharge and suction service for compatible liquids. NOT for compressible products such as air or nitrogen on sizes 1-1/4 and above. NOT for steam.

Note: Fitting attachment suggestions are listed for each hose in the Hose section of this catalog.

Note: The working pressure of combination nipples will vary with the size and construction of the hose, the type and number of clamps used, clamp placement, proper installation of clamps, temperature and product being conveyed.

Reference: NAHAD Pressure Guideline Chart page 1534



RST

Male Pipe Combination Nipple

Combination Nipples (Stainless Steel, Medium Shank)

Catalog Part No.	Dixon Model	Hose I.D. (in)	Pipe Thread	O.A. Length (in)	Cut Off (in)	Wt.	Price Each
•C1ER32	RST-5	3/4	3/4-14			0.23	
•C1ER26	RST-1005	1	3/4-14			0.20	
•C1ER25	RST-10	1	1-11-1/2			0.01	
•C1ER27	RST-15	1-1/4	1-1/4-11-1/2			0.22	
•C1DK32	RST-25	1-1/2	1-1/2-11-1/2			1.02	
•C1ER29	RST-20	1-1/2	1-1/2-11-1/2			0.32	
•C1ER31	RST-2520	2	1-1/2-11-1/2			1.07	

Hydraulic Power & Control

Pneumatic Power & Control

Fluid Conveying

Miscellaneous Products

Indexes & Technical Information

Hose Fittings (Industrial)

Shank Type Fittings Aluminum

Pin Lug Short Shank Couplings - Female Ends



Construction: Aluminum shank with brass swivel nut and rubber washer. Female NPSM threaded ends.

Application: Low pressure liquid transfer, suction, and discharge.

Note: Fitting attachment suggestions are listed for each hose in the Hose section of this catalog.

Note: The working pressure of pin lug shank couplings will vary with the size and construction of the hose, the type and number of clamps used, clamp placement, proper installation of clamps, temperature and product being conveyed.

Reference: NAHAD Pressure Guideline Chart page 1534



Female NPSM

Pin Lug Short Shank Couplings - Female Ends

Catalog Part No.	Model Number	Manufacturer	Size	O.A. Length (in)	Cut Off (in)	Wt.	Price Each
•C1FX72	ABF200	Kuriyama	2			0.62	

Pin Lug Short Shank Couplings - Male Ends



Construction: Aluminum shank. Male NPSM threaded ends.

Application: Low pressure liquid transfer, suction, and discharge.

Note: Fitting attachment suggestions are listed for each hose in the Hose section of this catalog.

Note: The working pressure of pin lug shank couplings will vary with the size and construction of the hose, the type and number of clamps used, clamp placement, proper installation of clamps, temperature and product being conveyed.

Reference: NAHAD Pressure Guideline Chart page 1534



Male NPSM

Pin Lug Short Shank Couplings - Male Ends

Catalog Part No.	Model Number	Manufacturer	Size	O.A. Length (in)	Cut Off (in)	Wt.	Price Each
•C1FX77	ABM150	Kuriyama	1-1/2			0.18	



Hose Fittings (Industrial)

Cam & Groove Couplers & Adapters Aluminum

Aluminum Cam & Groove Couplers & Adapters

Applications: Designed for use with liquids. Consult with us for specific recommendations. **WARNING: UNDER NO CIRCUMSTANCES** should Cam & Groove Couplings be used with compressed air or steam service.

Operation: To Couple: Slide the adapter into the coupler and with normal hand pressure, press the cam levers down. To Uncouple: Lift the cam arms and remove the adapter from the coupler.

Sunrise Hose Specification: INTERCHANGEABILITY: Interchanges with all products produced to standard A-A-59326 (superseding MIL-C-27487F) or DIN 2828. (No standard exists for 1/2" and 8" sizes. Generally these sizes do not interchange with other manufacturers). **PRESSURE RATINGS:** Sizes 1/2" - 4": 150 PSI, 5" to 8": 75 PSI.

Material: Body Material: Aluminum A356 or A104; Cam levers: brass; Pins, Rings and Safety clips: plated steel. Seals: Buna-N

IMPORTANT: The working pressure of cam & groove couplers will vary with the size and construction of the hose, the type and number of clamps used, clamp placement, proper installation of clamps, temperature and product being conveyed.

WARNING: Dust caps and dust plugs are NOT to be used in pressure applications for safety and environmental reasons.

Note: Fitting attachment suggestions are listed for each hose in the Hose section of this catalog.

Safety Pin Feature: Female couplers with this feature (see tables) have cast-in lugs that allow safety pins to be attached once the lugs are passed through slots in the special cam lever arms. These pins prevent the coupler from being uncoupled until they are removed.

Reference: NAHAD Pressure Guideline Chart page 1534

Gaskets: Cam & Groove Gaskets page 1010



Part A

Male Adapter / Female NPT

Catalog Part No.	Model Number	Mfg. Name	Size	Wt.	Price Each
•C1LX81	ALA-075	Sunrise Hose	3/4	0.08	
•C1LX82	ALA-100	Sunrise Hose	1	0.12	
•C1LX83	ALA-125	Sunrise Hose	1-1/4	0.17	
•C1LX84	ALA-150	Sunrise Hose	1-1/2	0.22	
•C1LX85	ALA-200	Sunrise Hose	2	0.30	
•C1LX86	ALA-250	Sunrise Hose	2-1/2	0.46	
•C1LX87	ALA-300	Sunrise Hose	3	0.49	
•C1LX88	ALA-400	Sunrise Hose	4	0.95	
C1LX89	ALA-600	Sunrise Hose	6	1.95	



Part B

Female Coupler / Male NPT

Catalog Part No.	Model Number	Mfg. Name	Size	Safety Clip Feature	Gasket Material	Wt.	Price Each
•C1LX90	ALB-075	Sunrise Hose	3/4	Yes	Buna-N	0.23	
•C1LX91	ALB-100	Sunrise Hose	1	Yes	Buna-N	0.31	
•C1MN32	ALB-125	Sunrise Hose	1-1/4	Yes	Buna-N		
•C1LX92	ALB-150	Sunrise Hose	1-1/2	Yes	Buna-N	0.56	
•C1LX93	ALB-200	Sunrise Hose	2	Yes	Buna-N	0.73	
•C1LX94	ALB-250	Sunrise Hose	2-1/2	Yes	Buna-N	0.80	
•C1LX95	ALB-300	Sunrise Hose	3	Yes	Buna-N	1.10	
•C1LX96	ALB-400	Sunrise Hose	4	Yes	Buna-N	1.64	
C1MN33	ALB-600	Sunrise Hose	6	Yes	Buna-N		

Hose Fittings (Industrial)

Cam & Groove Couplers & Adapters Aluminum



Part C
Female Coupler / Hose Shank

Catalog Part No.	Model Number	Mfg. Name	Size	Safety Clip Feature	Gasket Material	Wt.	Price Each
•C1MN34	ALC-075	Sunrise Hose	3/4	Yes	Buna-N	0.27	
•C1LX97	ALC-100	Sunrise Hose	1	Yes	Buna-N	0.38	
•C1LX98	ALC-125	Sunrise Hose	1-1/4	Yes	Buna-N	0.56	
•C1LX99	ALC-150	Sunrise Hose	1-1/2	Yes	Buna-N	0.67	
•C1LY11	ALC-200	Sunrise Hose	2	Yes	Buna-N	0.88	
•C1LY12	ALC-250	Sunrise Hose	2-1/2	Yes	Buna-N	1.08	
•C1LY13	ALC-300	Sunrise Hose	3	Yes	Buna-N	1.62	
•C1LY14	ALC-400	Sunrise Hose	4	Yes	Buna-N	2.19	
•C1LY15	ALC-600	Sunrise Hose	6	Yes	Buna-N	5.29	



Part D
Female Coupler / Female NPT

Catalog Part No.	Model Number	Mfg. Name	Size	Safety Clip Feature	Gasket Material	Wt.	Price Each
•C1LY16	ALD-075	Sunrise Hose	3/4	Yes	Buna-N	0.21	
•C1LY17	ALD-100	Sunrise Hose	1	Yes	Buna-N	0.33	
•C1LY18	ALD-125	Sunrise Hose	1-1/4	Yes	Buna-N	0.52	
•C1LY19	ALD-150	Sunrise Hose	1-1/2	Yes	Buna-N	0.93	
•C1LY20	ALD-200	Sunrise Hose	2	Yes	Buna-N	0.72	
•C1LY21	ALD-250	Sunrise Hose	2-1/2	Yes	Buna-N	0.88	
•C1LY22	ALD-300	Sunrise Hose	3	Yes	Buna-N	1.37	
•C1LY23	ALD-400	Sunrise Hose	4	Yes	Buna-N	1.38	
•C1LY24	ALD-600	Sunrise Hose	6	Yes	Buna-N	3.50	



Part DC
Dust Cap

Catalog Part No.	Model Number	Mfg. Name	Size	Safety Clip Feature	Gasket Material	Wt.	Price Each
•C1LY25	ALDC-075	Sunrise Hose	3/4	Yes	Buna-N	0.19	
•C1LY26	ALDC-100	Sunrise Hose	1	Yes	Buna-N	0.29	
•C1LY27	ALDC-150	Sunrise Hose	1-1/2	Yes	Buna-N	0.50	
•C1LY28	ALDC-200	Sunrise Hose	2	Yes	Buna-N	0.60	
•C1MN35	ALDC-250	Sunrise Hose	2-1/2	Yes	Buna-N	0.88	
•C1LY29	ALDC-300	Sunrise Hose	3	Yes	Buna-N	0.87	
C1CH57	AH-300	Dixon	3	Yes	Buna-N	1.52	
•C1LY30	ALDC-400	Sunrise Hose	4	Yes	Buna-N	1.63	
C1CH58	AH-400	Dixon	4	Yes	Buna-N	2.20	



Hose Fittings (Industrial)

Cam & Groove Couplers & Adapters Aluminum



Part DP
Dust Plug

Catalog Part No.	Model Number	Mfg. Name	Size	Wt.	Price Each
•C1LY31	ALDP-075	Sunrise Hose	3/4	0.07	
•C1LY32	ALDP-100	Sunrise Hose	1	0.31	
C1LY33	ALDP-150	Sunrise Hose	1-1/2	0.25	
•C1LY34	ALDP-200	Sunrise Hose	2	0.35	
C1MN36	ALDP-250	Sunrise Hose	2-1/2		
•C1LY35	ALDP-300	Sunrise Hose	3	0.60	
C1MK34	ALDP-400	Sunrise Hose	4	1.08	



Part E
Male Adapter / Hose Shank

Catalog Part No.	Model Number	Mfg. Name	Size	Wt.	Price Each
•C1LY36	ALE-075	Sunrise Hose	3/4	0.14	
•C1LY37	ALE-100	Sunrise Hose	1	0.20	
•C1MK35	ALE-125	Sunrise Hose	1-1/4	0.33	
•C1LY38	ALE-150	Sunrise Hose	1-1/2	0.46	
•C1LY39	ALE-200	Sunrise Hose	2	0.62	
C1LY40	ALE-250	Sunrise Hose	2-1/2	0.90	
•C1LY41	ALE-300	Sunrise Hose	3	1.19	
•C1LY42	ALE-400	Sunrise Hose	4	1.02	
•C1LY43	ALE-600	Sunrise Hose	6	4.70	



Part F
Male Adapter / Male NPT

Catalog Part No.	Model Number	Mfg. Name	Size	Wt.	Price Each
•C1LY44	ALF-075	Sunrise Hose	3/4	0.13	
•C1LY45	ALF-100	Sunrise Hose	1	0.22	
•C1LY46	ALF-125	Sunrise Hose	1-1/4	0.30	
•C1LY47	ALF-150	Sunrise Hose	1-1/2	0.46	
•C1LY48	ALF-200	Sunrise Hose	2	0.53	
•C1LY49	ALF-250	Sunrise Hose	2-1/2	0.78	
•C1LY50	ALF-300	Sunrise Hose	3	1.01	
•C1LY51	ALF-400	Sunrise Hose	4	1.42	
•C1MK36	ALF-600	Sunrise Hose	6	3.28	



Part RDA
Reducing Adapter

Catalog Part No.	Model Number	Mfg. Name	Size	Safety Clip Feature	Gasket Material	Wt.	Price Each
•C1KN16	RDA-A4030	Kuriyama	4x3	Yes	Buna-N	3.36	

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Hose Fittings (Industrial)

Cam & Groove Couplers & Adapters Aluminum



Cam & Groove Gaskets

Catalog Part No.	Model Number	Mfg. Name	Size	Material	Wt.	Price Each
•C1FZ19	BUNA075	Kuriyama	3/4	Buna-N	0.01	
•C1FZ20	BUNA100	Kuriyama	1	Buna-N	0.01	
•C1FZ22	BUNA150	Kuriyama	1-1/2	Buna-N	0.02	
•C1FZ23	BUNA200	Kuriyama	2	Buna-N	0.02	
•C1FZ24	BUNA250	Kuriyama	2-1/2	Buna-N	0.03	
•C1FZ25	BUNA300	Kuriyama	3	Buna-N	0.04	
•C1FZ26	BUNA400	Kuriyama	4	Buna-N	0.07	
•C1FZ28	BUNA600	Kuriyama	6	Buna-N	0.12	

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Hose Fittings (Industrial)

Cam & Groove Couplers & Adapters Brass

Brass Cam & Groove Couplers & Adapters

Applications: Designed for use with liquids. Consult with us for specific recommendations. **WARNING: UNDER NO CIRCUMSTANCES** should Cam & Groove Couplings be used with compressed air or steam service.

Operation: To Couple: Slide the adapter into the coupler and with normal hand pressure, press the cam levers down. To Uncouple: Lift the cam arms and remove the adapter from the coupler.

Sunrise Hose Specifications: INTERCHANGEABILITY: Interchanges with all products produced to standard A-A-59326 (superseding MIL-C-27487F) or DIN 2828. (No standard exists for 1/2" and 8" sizes. Generally these sizes do not interchange with other manufacturers). **PRESSURE RATINGS:** 1/2" to 4": 150 PSI, 5" to 8" 75 PSI.

Material: Body Material: brass; Cam levers: stainless steel; Pins, Rings and Safety clips: plated steel. Seals: Buna-N

IMPORTANT: The working pressure of cam & groove couplers will vary with the size and construction of the hose, the type and number of clamps used, clamp placement, proper installation of clamps, temperature and product being conveyed.

WARNING: Dust caps and dust plugs are NOT to be used in pressure applications for safety and environmental reasons.

Note: Fitting attachment suggestions are listed for each hose in the Hose section of this catalog.

Safety Pin Feature: Female couplers with this feature (see tables) have cast-in lugs that allow safety pins to be attached once the lugs are passed through slots in the special cam lever arms. These pins prevent the coupler from being uncoupled until they are removed.

Reference: NAHAD Pressure Guideline Chart page 1534

Gaskets: Cam & Groove Gaskets page 1010



Part C
Female Coupler / Hose Shank

Catalog Part No.	Model Number	Mfg. Name	Size	Wt.	Price Each
•C1MN37	BLC-100	Sunrise Hose	1		
•C1MN38	BLC-125	Sunrise Hose	1-1/4		
•C1MN39	BLC-150	Sunrise Hose	1-1/2		
•C1MN40	BLC-200	Sunrise Hose	2		
C1MN41	BLC-250	Sunrise Hose	2-1/2		
C1MN42	BLC-300	Sunrise Hose	3		
C1MN43	BLC-400	Sunrise Hose	4		
C1MN44	BLC-600	Sunrise Hose	6		



Part DC
Dust Cap

Catalog Part No.	Model Number	Mfg. Name	Size	Wt.	Price Each
C1MN45	BLDC-100	Sunrise Hose	1		
C1MN46	BLDC-125	Sunrise Hose	1-1/4		
C1MN47	BLDC-150	Sunrise Hose	1-1/2		
C1MN48	BLDC-200	Sunrise Hose	2	1.14	
C1MN49	BLDC-250	Sunrise Hose	2-1/2		
C1MN50	BLDC-300	Sunrise Hose	3	2.04	
C1MN51	BLDC-400	Sunrise Hose	4	2.84	
C1MN52	BLDC-600	Sunrise Hose	6		

Hose Fittings (Industrial)

Cam & Groove Couplers & Adapters Brass



Part DP
Dust Plug

Catalog Part No.	Model Number	Mfg. Name	Size	Wt.	Price Each
C1MN53	BLDP-100	Sunrise Hose	1		
C1MN54	BLDP-125	Sunrise Hose	1-1/4		
C1MN55	BLDP-150	Sunrise Hose	1-1/2		
C1MN56	BLDP-200	Sunrise Hose	2	0.76	
C1MN57	BLDP-250	Sunrise Hose	2-1/2		
C1MN58	BLDP-300	Sunrise Hose	3	1.62	
C1MN59	BLDP-400	Sunrise Hose	4	2.55	



Part E
Male Adapter / Hose Shank

Catalog Part No.	Model Number	Mfg. Name	Size	Wt.	Price Each
•C1MN60	BLE-100	Sunrise Hose	1		
•C1MN61	BLE-125	Sunrise Hose	1-1/4		
•C1MN62	BLE-150	Sunrise Hose	1-1/2		
•C1MN63	BLE-200	Sunrise Hose	2		
C1MN64	BLE-250	Sunrise Hose	2-1/2		
C1MN65	BLE-300	Sunrise Hose	3		
C1MN66	BLE-400	Sunrise Hose	4		
C1MN67	BLE-600	Sunrise Hose	6		



Hose Fittings (Industrial)

Cam & Groove Couplers & Adapters Nylon

Nylon Cam & Groove Couplers & Adapters

Applications: Designed for use with liquids. Consult with us for specific recommendations. **WARNING: UNDER NO CIRCUMSTANCES** should Cam & Groove Couplings be used with compressed air or steam service.

Operation: To Couple: Slide the adapter into the coupler and with normal hand pressure, press the cam levers down. To Uncouple: Lift the cam arms and remove the adapter from the coupler.

Sunrise Hose Specification: INTERCHANGEABILITY: Interchanges with all products produced to standard A-A-59326 (superseding MIL-C-27487F) or DIN 2828. (No standard exists for 1/2" and 8" sizes. Generally these sizes do not interchange with other manufacturers). **PRESSURE RATINGS:** Sizes 1/2" - 4": 150 PSI, 5" to 8": 75 PSI.

Material: Body Material: Nylon; Cam levers: brass; Pins, Rings and Safety clips: plated steel. Seals: Buna-N

IMPORTANT: The working pressure of cam & groove couplers will vary with the size and construction of the hose, the type and number of clamps used, clamp placement, proper installation of clamps, temperature and product being conveyed.

WARNING: Dust caps and dust plugs are NOT to be used in pressure applications for safety and environmental reasons.

Note: Fitting attachment suggestions are listed for each hose in the Hose section of this catalog.

Safety Pin Feature: Female couplers with this feature (see tables) have cast-in lugs that allow safety pins to be attached once the lugs are passed through slots in the special cam lever arms. These pins prevent the coupler from being uncoupled until they are removed.

Reference: NAHAD Pressure Guideline Chart page 1534

Gaskets: Cam & Groove Gaskets page 1010



Part C
Female Coupler / Hose Shank

Catalog Part No.	Model Number	Mfg. Name	Size	Safety Clip Feature	Gasket Material	Wt.	Price Each
C1MN71	NYC-100	Sunrise Hose	1	Yes	Buna-N		
C1MN72	NYC-125	Sunrise Hose	1-1/4	Yes	Buna-N		
C1MN73	NYC-150	Sunrise Hose	1-1/2	Yes	Buna-N		
C1MN74	NYC-200	Sunrise Hose	2	Yes	Buna-N		
C1MN75	NYC-300	Sunrise Hose	3	Yes	Buna-N		
C1MN76	NYC-400	Sunrise Hose	4	Yes	Buna-N		



Part DC
Dust Cap

Catalog Part No.	Model Number	Mfg. Name	Size	Safety Clip Feature	Gasket Material	Wt.	Price Each
C1MN77	NYDC-100	Sunrise Hose	1	Yes	Buna-N		
C1MN78	NYDC-125	Sunrise Hose	1-1/4	Yes	Buna-N		
C1MN79	NYDC-150	Sunrise Hose	1-1/2	Yes	Buna-N		
C1MN80	NYDC-200	Sunrise Hose	2	Yes	Buna-N		
C1MN81	NYDC-300	Sunrise Hose	3	Yes	Buna-N		
C1MN82	NYDC-400	Sunrise Hose	4	Yes	Buna-N		

Hose Fittings (Industrial)

Cam & Groove Couplers & Adapters Nylon



Part DP
Dust Plug

Catalog Part No.	Model Number	Mfg. Name	Size	Wt.	Price Each
C1MN83	NYDP-100	Sunrise Hose	1		
C1MN84	NYDP-150	Sunrise Hose	1-1/2	0.25	
C1MN85	NYDP-200	Sunrise Hose	2	0.35	
C1MN86	NYDP-300	Sunrise Hose	3	0.36	
C1MN87	NYDP-400	Sunrise Hose	4	0.50	



Part E
Male Adapter / Hose Shank

Catalog Part No.	Model Number	Mfg. Name	Size	Wt.	Price Each
C1MN88	NYE-100	Sunrise Hose	1		
C1MN89	NYE-125	Sunrise Hose	1-1/4		
C1MN90	NYE-150	Sunrise Hose	1-1/2		
C1MN91	NYE-200	Sunrise Hose	2		
C1MN92	NYE-300	Sunrise Hose	3		
C1MN93	NYE-400	Sunrise Hose	4		

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Hose Fittings (Industrial)

Cam & Groove Couplers & Adapters Polypropylene

Polypropylene Cam & Groove Couplers & Adapters

Application: Designed for use with liquids. Contact us for specific recommendations. WARNING: UNDER NO CIRCUMSTANCES should Cam & Groove Couplings be used with compressed air or steam service.

Operation: To Couple: Slide the adapter into the coupler and with normal hand pressure, press the cam levers down. To Uncouple: Lift the cam arms and remove the adapter from the coupler.

Sunrise Hose Specification: INTERCHANGEABILITY: Interchanges with all products produced to MIL-C-27487F and DIN282. (No standard exists for 1/2" and 8" sizes. Generally these sizes do not interchange with other manufacturers). PRESSURE RATINGS: 1/2" to 4" 150 PSI.

Material: 70% polypropylene, 30% fiber glass body. Stainless steel cam lever handles.

IMPORTANT: The working pressure of cam & groove couplers will vary with the size and construction of the hose, the type and number of clamps used, clamp placement, proper installation of clamps, temperature and product being conveyed.

WARNING: Dust caps and dust plugs are NOT to be used in pressure applications for safety and environmental reasons.

Note: Fitting attachment suggestions are listed for each hose in the Hose section of this catalog.

Safety Pin Feature: Female couplers with this feature (see tables) have lugs that allow safety pins to be attached once the lugs are passed through slots in the special cam lever arms. These pins prevent the coupler from being uncoupled until they are removed.

Reference: NAHAD Pressure Guideline Chart page 1534

Gaskets: Polypropylene not recommended for use with Teflon® gaskets. Polypropylene cam & groove should not be mixed with aluminum cam & groove. Cam & Groove Gaskets page 1010



Part A

Male Adapter / Female NPT

Catalog Part No.	Model Number	Mfg. Name	Size	Wt.	Price Each
•C1HC71	PPA200	Kuriyama	2	0.19	



Part B

Female Coupler / Male NPT

Catalog Part No.	Model Number	Mfg. Name	Size	Safety Clip Feature	Gasket Material	Wt.	Price Each
•C1HC73	PPB200	Kuriyama	2	Yes	EPDM	0.47	

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Hose Fittings (Industrial)

Cam & Groove Couplers & Adapters Polypropylene



Part C
Female Coupler / Hose Shank

Catalog Part No.	Model Number	Mfg. Name	Size	Safety Clip Feature	Gasket Material	Wt.	Price Each
•C1KM91	PPC100	Kuriyama	1	Yes	Buna-N	0.28	
C1FQ36	PPC-100	Sunrise Hose	1	No	Buna-N	0.27	
C1FQ37	PPC-125	Sunrise Hose	1-1/4	No	Buna-N	0.53	
•C1KM92	PPC150	Kuriyama	1-1/2	Yes	Buna-N	0.40	
C1FQ38	PPC-150	Sunrise Hose	1-1/2	No	Buna-N	0.54	
C1MN94	PPC-200	Sunrise Hose	2	Yes	Buna-N	0.62	
C1MN95	PPC-300	Sunrise Hose	3	Yes	Buna-N	1.56	
C1MN96	PPC-400	Sunrise Hose	4	Yes	Buna-N	1.70	



Part D
Female Coupler / Female NPT

Catalog Part No.	Model Number	Mfg. Name	Size	Safety Clip Feature	Gasket Material	Wt.	Price Each
•C1DH32	PPD200	Kuriyama	2	Yes	EPDM	0.22	



Part DC
Dust Cap

Catalog Part No.	Model Number	Mfg. Name	Size	Safety Clip Feature	Gasket Material	Wt.	Price Each
C1MN97	PPDC-100	Sunrise Hose	1	Yes	Buna-N		
C1MN98	PPDC-150	Sunrise Hose	1-1/2	Yes	Buna-N		
C1MN99	PPDC-200	Sunrise Hose	2	Yes	Buna-N	0.47	
C1MP11	PPDC-300	Sunrise Hose	3	Yes	Buna-N	1.11	
C1MP12	PPDC-400	Sunrise Hose	4	Yes	Buna-N	1.50	



Part DP
Dust Plug

Catalog Part No.	Model Number	Mfg. Name	Size	Wt.	Price Each
C1MP13	PPDP-100	Sunrise Hose	1		
C1MP14	PPDP-150	Sunrise Hose	1-1/2		
C1MP15	PPDP-200	Sunrise Hose	2		
C1MP16	PPDP-300	Sunrise Hose	3	1.11	
C1MP17	PPDP-400	Sunrise Hose	4		



Part E
Male Adapter / Hose Shank

Catalog Part No.	Model Number	Mfg. Name	Size	Wt.	Price Each
C1FQ39	PPE-100	Sunrise Hose	1		
C1FQ40	PPE-125	Sunrise Hose	1-1/4	0.21	
C1FQ41	PPE-150	Sunrise Hose	1-1/2		
C1MP18	PPE-200	Sunrise Hose	2	0.30	
C1MP19	PPE-300	Sunrise Hose	3		
C1MP20	PPE-400	Sunrise Hose	4	1.00	



Hose Fittings (Industrial)

Cam & Groove Couplers & Adapters Stainless Steel

Stainless Steel Cam & Groove Couplers & Adapters

Applications: Designed for use with liquids. Consult with us for specific recommendations. **WARNING: UNDER NO CIRCUMSTANCES** should Cam & Groove Couplings be used with compressed air or steam service.

Operation: To Couple: Slide the adapter into the coupler and with normal hand pressure, press the cam levers down. To Uncouple: Lift the cam arms and remove the adapter from the coupler.

Sunrise Hose Specification: INTERCHANGEABILITY: Interchanges with all products produced to standard A-A-59326 (superseding MIL-C-27487F) or DIN 2828. (No standard exists for 1/2" and 8" sizes. Generally these sizes do not interchange with other manufacturers). **PRESSURE RATINGS:** Sizes 1/2" - 4": 150 PSI, 5" to 8": 75 PSI.

Material: Body Material: 316 Stainless Steel; Cam levers: Stainless Steel ; Pins, Rings and Safety clips: Stainless Steel. Seals: Buna-N

IMPORTANT: The working pressure of cam & groove couplers will vary with the size and construction of the hose, the type and number of clamps used, clamp placement, proper installation of clamps, temperature and product being conveyed.

WARNING: Dust caps and dust plugs are NOT to be used in pressure applications for safety and environmental reasons.

Note: Fitting attachment suggestions are listed for each hose in the Hose section of this catalog.

Safety Pin Feature: Female couplers with this feature (see tables) have cast-in lugs that allow safety pins to be attached once the lugs are passed through slots in the special cam lever arms. These pins prevent the coupler from being uncoupled until they are removed.

Reference: NAHAD Pressure Guideline Chart page 1534

Gaskets: Cam & Groove Gaskets page 1010



Part A

Male Adapter / Female NPT

Catalog Part No.	Model Number	Mfg. Name	Size	Wt.	Price Each
C1NC83	SSA-100	Sunrise Hose	1		
C1NC84	SSA-300	Sunrise Hose	3		
C1NC85	SSA-400	Sunrise Hose	4		



Part C

Female Coupler / Hose Shank

Catalog Part No.	Model Number	Mfg. Name	Size	Safety Clip Feature	Gasket Material	Wt.	Price Each
•C1MP22	SSC-100	Sunrise Hose	1	Yes	Yes	0.74	
•C1MP23	SSC-125	Sunrise Hose	1-1/4	Yes	Yes		
•C1MP24	SSC-150	Sunrise Hose	1-1/2	Yes	Yes		
•C1MP25	SSC-200	Sunrise Hose	2	Yes	Yes	1.41	
C1MP26	SSC-250	Sunrise Hose	2-1/2	Yes	Yes	3.10	
C1MP27	SSC-300	Sunrise Hose	3	Yes	Yes	5.00	
C1MP28	SSC-400	Sunrise Hose	4	Yes	Yes	7.00	
C1MP29	SSC-600	Sunrise Hose	6	Yes	Yes	16.00	



Part D

DFemale Coupler / Female NPT

Catalog Part No.	Model Number	Mfg. Name	Size	Safety Clip Feature	Gasket Material	Wt.	Price Each
C1NC86	SSD-300	Sunrise Hose	3	Yes	Buna-N		

Hose Fittings (Industrial)

Cam & Groove Couplers & Adapters Stainless Steel



Part E
Male Adapter / Hose Shank

Catalog Part No.	Model Number	Mfg. Name	Size	Wt.	Price Each
•C1MP46	SSE-100	Sunrise Hose	1	0.60	
•C1MP47	SSE-125	Sunrise Hose	1-1/4	0.92	
•C1MP48	SSE-150	Sunrise Hose	1-1/2		
•C1MP49	SSE-200	Sunrise Hose	2	1.98	
C1MP50	SSE-250	Sunrise Hose	2-1/2	2.86	
C1MP51	SSE-300	Sunrise Hose	3	3.90	
C1MP52	SSE-400	Sunrise Hose	4		
C1MP53	SSE-600	Sunrise Hose	6		



Part F
Male Adapter / Male NPT

Catalog Part No.	Model Number	Mfg. Name	Size	Wt.	Price Each
C1NC87	SSF-100	Sunrise Hose	1		
C1NC88	SSF-200	Sunrise Hose	2		



Part DP
Dust Plug

Catalog Part No.	Model Number	Mfg. Name	Size	Wt.	Price Each
C1MP38	SSDP-100	Sunrise Hose	1	0.40	
C1MP39	SSDP-125	Sunrise Hose	1-1/4		
C1MP40	SSDP-150	Sunrise Hose	1-1/2	0.75	
C1MP41	SSDP-200	Sunrise Hose	2		
C1MP42	SSDP-250	Sunrise Hose	2-1/2	1.47	
C1MP43	SSDP-300	Sunrise Hose	3		
C1MP44	SSDP-400	Sunrise Hose	4		
C1MP45	SSDP-600	Sunrise Hose	6		



Part DC
Dust Cap

Catalog Part No.	Model Number	Mfg. Name	Size	Safety Clip Feature	Gasket Material	Wt.	Price Each
C1MP30	SSDC-100	Sunrise Hose	1	Yes	Buna-N		
C1MP31	SSDC-125	Sunrise Hose	1-1/4	Yes	Buna-N		
C1MP32	SSDC-150	Sunrise Hose	1-1/2	Yes	Buna-N		
C1MP33	SSDC-200	Sunrise Hose	2	Yes	Buna-N		
C1MP34	SSDC-250	Sunrise Hose	2-1/2	Yes	Buna-N		
C1MP35	SSDC-300	Sunrise Hose	3	Yes	Buna-N		
C1MP36	SSDC-400	Sunrise Hose	4	Yes	Buna-N		
C1MP37	SSDC-600	Sunrise Hose	6	Yes	Buna-N		



Hose Fittings (Industrial)

Universal Fittings

Universal Air Hose Couplings

Application: For air and water service only.

Working Pressure: Rated to 150 PSI at 70°F ambient temperature.

Operating Temperature Range: -20°F to 160°F with standard rubber washer.

Note: The use of a safety clip or wire type retainer is necessary to assure Universal Couplings will not become accidentally disconnected. This guarantees the fittings are properly connected as pin will not go through holes in mating flanges until couplings are locked in place.

Note: Constant vibration created by air drills, pavement breakers etc. is destructive to air hose couplings, especially this quick-acting type. A 3 to 10 foot "whip hose" is recommended, with the hose end that attaches to the tool being a heat-treated steel hose barb. The other end of the "whip hose" may use the Universal coupling.

Warning: Never use any Universal coupling for steam service.

Note: Fitting attachment suggestions are listed for each hose in the Hose section of this catalog.

Note: The working pressure of Universal fittings will vary with the size and construction of the hose, the type and number of clamps used, clamp placement, proper installation of clamps, temperature and product being conveyed.

Reference: NAHAD Pressure Guideline Chart page 1534



Hose End

Catalog Part No.	Model Number	Mfg. Name	Size	Material	Gasket Material	Wt.	Price Each
•C1JN92	HE-50	Kuriyama	1/2	Cast Steel	Rubber	0.49	
•C1FZ83	HE-75	Kuriyama	3/4	Cast Steel	Rubber	0.55	
•C1JN91	HE-100	Kuriyama	1	Cast Steel	Rubber	0.67	

Note: Safety clip & safety cable is included.



Crimp/Swage Hose End

Catalog Part No.	Model Number	Mfg. Name	Size	Hose O.D. Range (in)	Material	Wt.	Price Each
•C1JS30	FHE-75	Kuriyama	3/4	1-4/64 to 1-22/64	Investment cast steel with carbon steel ferrule	0.58	

Note: Safety clip is included.



Female NPT End

Catalog Part No.	Model Number	Mfg. Name	Size	Material	Gasket Material	Wt.	Price Each
•C1JN85	FE-50	Kuriyama	1/2	Cast Steel	Rubber	0.50	
•C1JN86	FE-75	Kuriyama	3/4	Cast Steel	Rubber	0.58	
•C1JN84	FE-100	Kuriyama	1	Cast Steel	Rubber	0.52	

Hydraulic Power & Control

Pneumatic Power & Control

Fluid Conveying

Miscellaneous Products

Indexes & Technical Information

Hose Fittings (Industrial)

Universal Fittings



Male NPT End

Catalog Part No.	Model Number	Mfg. Name	Size	Material	Gasket Material	Wt.	Price Each
•C1JP40	ME-75	Kuriyama	3/4	Cast Steel	Rubber	0.56	
•C1JP39	ME-100	Kuriyama	1	Cast Steel	Rubber	0.65	



Replacement Washer (Fits All Sizes)

Catalog Part No.	Model Number	Mfg. Name	Material	Wt.	Price Each
•C1JN36	AHG-75	Kuriyama	Rubber	0.01	



Hose Clamps & Crimp Ferrules

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Hose Clamps

HSS Worm Gear Clamps



Material: SAE 300 series stainless steel band and housing with SAE 410 series stainless steel screw.

Tightening Method: Combination 5/16" hexagon and screwdriver slot.

Max. Recommended Torque: 30 in. lbs.

HSS Worm Gear Clamps



HSS

Catalog Part No.	Dixon Model	Band Width (in)	Minimum Dia. (in)	Maximum Dia (in)	Wt.	Price Each
•C1CY82	HSS6	0.50	0.4375	0.78125	0.04	
•C1CY84	HSS8	0.50	0.50	0.90625	0.05	
•C1CY70	HSS10	0.50	0.5625	1.0625	0.04	
•C1CY71	HSS12	0.50	0.6875	1.25	0.04	
•C1CY72	HSS16	0.50	0.8125	1.50	0.04	
•C1CY73	HSS20	0.50	0.8125	1.75	0.05	
•C1CY74	HSS24	0.50	1.0625	2.0	0.02	
•C1CY75	HSS28	0.50	1.3125	2.25	0.05	
•C1CY76	HSS32	0.50	1.5625	2.5	0.60	
•C1CY77	HSS36	0.50	1.8125	2.75	0.06	
•C1CY78	HSS40	0.50	2.0625	3	0.06	
•C1CY79	HSS44	0.50	2.3125	3.25	0.07	
•C1CY81	HSS56	0.50	3.0625	4	0.08	
•C1CY83	HSS72	0.50	1.875	5	0.09	

MAH Worm Gear Clamps



Material: SAE 300 series stainless steel band and housing with SAE 410 series stainless steel screw.

Tightening Method: Combination 1/4" hexagon and screwdriver slot.

Max. Recommended Torque: 10 in. lbs.

MAH Worm Gear Clamps



MAH

Catalog Part No.	Dixon Model	Band Width (in)	Minimum Dia. (in)	Maximum Dia (in)	Wt.	Price Each
•C1DD76	MAH-4	0.3125	0.21875	0.63	0.15	
•C1DD77	MAH-6	0.3125	0.4375	0.78125	0.17	
•C1DD75	MAH-10	0.3125	0.5625	1.0625	0.01	

Oetiker 2-Ear Pinch Clamps



Application: Especially suited for industrial use and with heavy vibrating equipment. These clamps are installed on air, fluid, gas and steam lines. The one piece design offers a positive, tamper-proof seal without damaging the hose.

Installation: While both ears must be closed, 2-Ear clamps are best installed when one ear is closed all the way first. The second ear is then closed so that the first ear opens slightly (gap to be approximately 1/16 inch). This builds a resilient strength into the clamp in a spring-like action to hold against pressure, vibration and hose shrinkage due to temperature changes or aging. (If both ears can be closed all the way, the clamp size selected is probably too big and the next smaller clamp should be used).

Note: To insure a proper grip, Oetiker clamps should be installed with either Oetiker Pincers or a similar style of pincer approved by Oetiker, Inc.

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2-Ear Clamps

Oetiker 2-Ear Pinch Clamps

Catalog Part No.	Oetiker Model	Material	Nom. Size (in)	Nominal Clamping Range Closed-Open (in)	Band Width (in)	Wt.	Price Each
•C1ZZ59	10100008	Zinc Plated Steel	5/16	0.276 - 0.354	0.276	0.02	
•C1ZZ58	10100011	Zinc Plated Steel	3/8	0.315 - 0.433	0.276	0.03	
•C1ZZ57	10100016	Zinc Plated Steel	1/2	0.433 - 0.512	0.276	0.01	
•C1ZZ56	10100019	Zinc Plated Steel	9/16	0.512 - 0.592	0.295	0.02	
•C1ZZ55	10100024	Zinc Plated Steel	5/8	0.591 - 0.708	0.315	0.06	
•C1ZZ54	10100027	Zinc Plated Steel	3/4	0.669 - 0.787	0.335	0.01	
•C1ZZ53	10100030	Zinc Plated Steel	7/8	0.787 - 0.905	0.354	0.05	
•C1ZZ52	10100032	Zinc Plated Steel	15/16	0.866 - 0.984	0.394	0.04	
•C1ES45	15100004	Stainless	5/16	0.276 - 0.354	0.276	0.03	
•C1ES53	15100023	Stainless	3/8	0.315 - 0.433	0.276	0.04	
•C1ES47	15100007	Stainless	9/16	0.512 - 0.592	0.295	0.06	
•C1ES48	15100009	Stainless	5/8	0.591 - 0.708	0.315	0.07	
•C1ES49	15100010	Stainless	3/4	0.669 - 0.787	0.335	0.11	
•C1ES50	15100012	Stainless	7/8	0.787 - 0.905	0.354	0.14	
•C1ES51	15100013	Stainless	15/16	0.866 - 0.984	0.394	0.17	
•C1ES52	15100014	Stainless	1	0.905 - 1.063	0.394	0.17	

Hose Clamps

Oetiker 2-Ear Pinch Clamp Service Kits



Oetiker 2-Ear Pinch Clamp Service Kits

Catalog Part No.	Oetiker Model	Description	Wt.	Price Each
•C1ZZ21	18500064	Stainless Steel Clamp Service Kit with Straight Jaw Pincers Clamps: 15 each of 5/16, 3/8, 1/2, 9/16, and 5/8. 12 each of 3/4, 7/8, 15/16, 1.	2.73	

Oetiker Stepless® Ear Pinch Clamps



Application: For low durometer and/or thin-walled hose and tubing. Well suited for silicon, vinyl and polyurethane lines. The smooth inner band prevents damage to the hose while the unique tongue-in-groove design provides a complete 360° seal.

Installation: 1-Ear clamps are best installed when the clamp shows a gap of approximately 1/16 inch. This builds a resilient strength into the clamp in a spring-like action to hold against pressure, vibration and hose shrinkage due to temperature changes or aging. (If a clamp ear can be closed all the way, the clamp size selected is probably too big and the next smaller clamp should be used).

Note: To insure a proper grip, Oetiker clamps should be installed with either Oetiker Pincers or a similar style of pincer approved by Oetiker, Inc.

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Oetiker Stepless® Ear Pinch Clamps



Stepless® Ear Clamps

Catalog Part No.	Oetiker Model	Material	Size (mm)	Nom. Size (in)	Nominal Clamping Range Closed-Open (in)	Band Width (in)	Wt.	Price Each
•C1ES57	16700010	Stainless	13.3	1/2	0.425 - 0.524	0.276	0.05	
•C1ES58	16700013	Stainless	14.5	9/16	0.472 - 0.571	0.276	0.05	
•C1ES59	16700016	Stainless	15.7	5/8	0.520 - 0.618	0.276	0.05	
•C1FG42	16701009	Stainless (Degreased)	17.0	11/16	0.571 - 0.669	0.276	0.01	
•C1ES60	16700020	Stainless	18.5	23/32	0.602 - 0.728	0.276	0.07	
•C1ES61	16700026	Stainless	22.6	7/8	0.764 - 0.890	0.276	0.08	
•C1ES62	16700031	Stainless	25.6	1	0.882 - 1.008	0.276	0.08	
•C1ES63	16700035	Stainless	28.6	1-1/8	1.004 - 1.126	0.276	0.09	

Oetiker Stepless® Ear Pinch Clamp Service Kits



Oetiker Stepless® Ear Pinch Clamp Service Kits

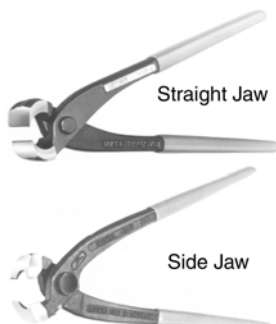
Catalog Part No.	Oetiker Model	Description	Wt.	Price Each
•C1ZZ22	18500060	Stainless Steel Assortment Kit with Straight Jaw Pincers Clamps: 10 each of 1/2, 9/16, 5/8, 23/32, 7/8, 1-1/8, 1-1/4. Pincers: 1 pair.	2.23	

Oetiker Ear Pinch Clamp Installation Tools



- 1-Ear Clamp Installation:** 1-Ear clamps are best installed when the clamp shows a gap of approximately 1/16 inch. This builds a resilient strength into the clamp in a spring-like action to hold against pressure, vibration and hose shrinkage due to temperature changes or aging. (If a clamp ear can be closed all the way, the clamp size selected is probably too big and the next smaller clamp should be used).
- 2-Ear Clamp Installation:** While both ears must be closed, 2-Ear clamps are best installed when one ear is closed all the way first. The second ear is then closed so that the first ear opens slightly (gap to be approximately 1/16 inch). This builds a resilient strength into the clamp in a spring-like action to hold against pressure, vibration and hose shrinkage due to temperature changes or aging. (If both ears can be closed all the way, the clamp size selected is probably too big and the next smaller clamp should be used).

Oetiker Ear Pinch Clamp Installation Tools



Catalog Part No.	Oetiker Model	Description	Wt.	Price Each
•C1ZZ27	14100118	Straight Jaw Pincers	0.72	
•C1ZZ28	14100083	Side Jaw Pincers (For use in confined areas with pincers held parallel to the hose)	0.76	

Dixon TBC T-Bolt Band Clamps (Stainless Band, Carbon Steel Bolt & Nut)



Material: 301 stainless steel band (.025" thick) and carbon steel bolt with self-locking nut.

Tightening Method: Hexagon T-bolt.

Max. Recommended Torque: 70 in. lbs.

Dixon TBC T-Bolt Band Clamps (Stainless Band, Carbon Steel Bolt & Nut)



TBC

Catalog Part No.	Dixon Model	Band Width (in)	Minimum Dia. (in)	Maximum Dia (in)	Wt.	Price Each
•C1GM46	TBC131	0.75	1.1875	1.4375	0.12	
•C1DL89	TBC150	0.75	1.28125	1.59375	0.12	
•C1DL90	TBC175	0.75	1.53125	1.84375	0.12	
•C1DL91	TBC188	0.75	1.65625	1.96875	0.12	
•C1DL92	TBC200	0.75	1.78125	2.09375	0.12	
•C1DL93	TBC225	0.75	2.03125	2.34375	0.13	
•C1DL94	TBC238	0.75	2.15625	2.46875	0.13	
•C1DL95	TBC250	0.75	2.28125	2.59375	0.14	
•C1DL96	TBC256	0.75	2.34375	2.65625	0.14	
•C1DL97	TBC263	0.75	2.40625	2.71875	0.14	
•C1DL98	TBC275	0.75	2.53125	2.84375	0.15	
•C1DL99	TBC288	0.75	2.65625	2.96875	0.14	
•C1DM11	TBC300	0.75	2.78125	3.09375	0.15	
•C1DM12	TBC312	0.75	2.90625	3.21875	0.07	
•C1DM13	TBC325	0.75	3.03125	3.34375	0.15	
•C1DM14	TBC350	0.75	3.28125	3.59375	0.16	
•C1DM15	TBC375	0.75	3.53125	3.84375	0.16	
•C1DM16	TBC400	0.75	3.78125	4.09375	0.18	
•C1DM17	TBC425	0.75	4.03125	4.34375	0.07	
•C1DM18	TBC450	0.75	4.28125	4.59375	0.17	
•C1DM19	TBC475	0.75	4.53125	4.84375	0.75	
•C1GG99	TBC500	0.75	4.78125	5.0625	0.18	
•C1DM20	TBC550	0.75	5.28125	5.59375	0.20	

Note: 700-* models are made by R.G. Ray.

Trident Marine All Stainless Steel T-Bolt Clamps



Features: 3/4 inch wide 316 stainless steel band. 18-8 stainless steel T-bolt and lock nut (with nylon insert). Very strong and secure for critical applications. Rounded band edges protect soft rubber or silicone hose materials. T-Bolt clamps provide greater clamping tension than worm gear clamps with less installation torque. Wide band prevents hose extrusions.

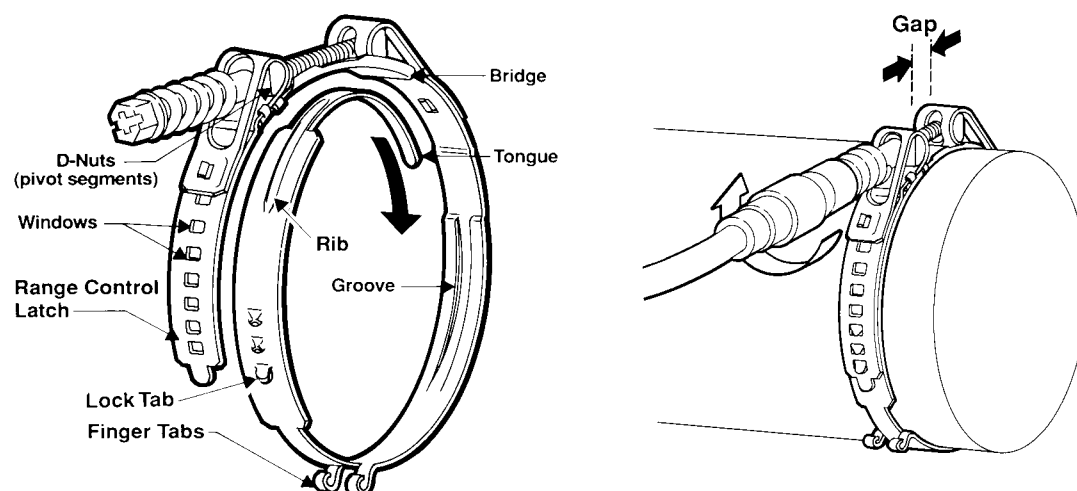


Trident Marine All Stainless Steel T-Bolt Clamps

Catalog Part No.	Trident Marine Model	Use With Hose I.D.'s (in)	Effective Hose O.D. Range (in)	Wt.	Price Each
•C1FT80	720-1000	1	1.28 - 1.59	0.12	
•C1FT83	720-1140	1-1/8 to 1-1/4	1.53 - 1.84	0.13	
•C1FT82	720-1120	1-3/8 to 1-1/2	1.78 - 2.09	0.14	
•C1FT84	720-1340	1-5/8 to 1-3/4	2.03 - 2.34	0.14	
•C1FT85	720-2000	1-7/8 to 2	2.28 - 2.59	0.14	
•C1FT87	720-2140	2-1/8 to 2-1/4	2.53 - 2.84	0.15	
•C1FT86	720-2120	2-3/8 to 2-1/2	2.75 - 3.625	0.19	
•C1FT88	720-2340	2-5/8 to 2-3/4	3.03 - 3.34	0.16	
•C1FT89	720-3000	2-7/8 to 3-1/4	3.28 - 3.59	0.16	
•C1FT90	720-3000L	2-7/8 to 3-1/4	3.37 - 3.94	0.17	
•C1FT91	720-3120L	3-1/2	3.87 - 4.44	0.18	
•C1FT92	720-4000	4	4.28 - 4.59	0.18	
•C1FT93	720-4000L	4	4.37 - 4.94	0.19	
•C1FT95	720-5000L	5	5.37 - 5.94	0.20	
•C1FT96	720-6000	6	6.30 - 6.74	0.21	
•C1FT97	720-6000L	6	6.53 - 7.10	0.22	
•C1FT98	720-8000	8	8.30 - 8.87	0.25	
•C1FT81	720-10000	10	10.25 - 10.69	0.27	

Note: Verify hose O.D. before selecting clamp.

Oetiker Stepless® Spring Clamps for Thermal Cycle Applications



Features: Used on radiators, thermostat to water pump or engine blocks, water pump to oil coolers, heater hose, etc. Self-tightening, light weight, adjustable and reusable. Tongue-in-groove design provides complete 360° seal around the hose. Spring automatically reacts to thermal expansion, contraction and vibration. Low installation torque requirement minimizes stress and damage to delicate silicone hoses. All 300 AISI series stainless steel construction.

Advantages: Prevents Cold Water Leak by continually adjusting to compensate for hose expansion and contraction.

Installation: (1) Open screw until it stops at the D-Nut. (2) Unhook Range Control Latch from the Tabs and place clamp over the hose. (3) Make sure Tongue is in Groove. Engage ALL Tabs in Windows to the tightest position, At this time the should be very little or no play between the clamp and hose. (4) Tighten screw until the spring is fully compressed, the tighten 3 more full revolutions. At this time there should be a small 1/8 inch or larger gap between the two D-Nuts for proper installation and torque.

Removal: Open screw, do not disengage from D-Nut. Lift Range Control Latch.

Oetiker Stepless® Spring Clamps for Thermal Cycle Applications

Catalog Part No.	Oetiker Model	Nominal Clamping Range Closed-Open (in)	Spring Color / Torque (in.lbs)	Band Width (in)	Wt.	Price Each
•C1ZU35	17800175	1.1875 - 1.4375	Green 12-18 in.lbs	0.35	0.04	
•C1ZU33	17800178	1.6875 - 1.9375	Green 12-18 in.lbs	0.35	0.05	
•C1ZU32	17800180	2.00 - 2.375	Green 12-18 in.lbs	0.35	0.06	
•C1ZU30	17800182	2.375 - 2.75	Green 12-18 in.lbs	0.35	0.06	
•C1ZU28	17800184	2.75 - 3.125	Green 12-18 in.lbs	0.35	0.06	
•C1EW20	17800185	2.9375 - 3.3125	Green 12-18 in.lbs	0.35	0.06	
•C1ZU27	17800186	3.125 - 3.50	Green 12-18 in.lbs	0.35	0.06	
•C1ZU26	17800188	3.5625 - 3.9375	Green 12-18 in.lbs	0.35	0.07	



Stepless® Spring Clamps

Light Duty T-Bolt Spring Clamps



Clampco spring-loaded clamps are designed to compensate for fluctuations in all types of hose line assemblies. When temperature and/or pressure changes cause hose lines to expand or contract, Clampco spring-loaded clamps adjust accordingly to provide constant band tension. Band tension (not installation torque) is what ultimately produces desired clamping force.

Features: 300 series stainless steel bands and trunnions for high strength and corrosion resistance • Solid bands prevent hose extrusion • Rounded band edges protect soft hose materials • Low installation torque results in high band tension.

Construction: 300 series stainless steel bands, floating bridges and trunnions. Zinc-plated t-bolts, nuts and springs.

Spring Rate: 1900 pounds per inch, capable of generating a load of 300 pounds.

Recommended Installation Torque: 60 inch pounds.

How to Order: Measure the outside diameter (O.D.) of your hose. Select the clamp with the closest nominal diameter.



Light Duty T-Bolt Spring Clamps

Catalog Part No.	Clampco Model	Band Width (in)	Nominal Dia. (in)	Minimum Dia. (in)	Maximum Dia (in)	Wt.	Price Each
C1FK33	94143-0450	0.75	4.50	4.28	4.58	0.22	
C1JC62	94143-0550	0.75	5.50	5.28	5.58	0.22	

Trident Marine All Stainless Steel Constant-Torque® Clamps



Virtually all rubber hose compresses (cold flow) after installation of clamping device, resulting in an almost immediate torque loss that can exceed 80% of installation torque. Similarly, all metal connections expand as a system heats up, and then contracts as the system cools. Conventional worm gear, T-bolt and other clamps are passive, in that expansion or contraction of components cannot be compensated for without retightening or loosening the clamps. This clamping system is an "active" clamping mechanism, which compensates for the changes by actually changing diameter through a unique wormgear Belleville assembly.

Features: Compensates for "cold flow" and expansion/contraction due to extremes of heat and cold. 5/8 inch wide 304 stainless steel band. 304 stainless steel housing. 410 stainless steel Belleville spring washers and screw. Internal liner helps protect soft or silicone hose from damage, extrusion and shear. Extended adjustment range (7/8 inch O.D.). Use for sealed systems and hard-to-reach installations. Visual "Torque Check" feature.

Installation: A Constant-Torque® clamp is properly tightened when the screw tip is fully extended beyond the housing (approximately 1/4 inch), and the Belleville washer stacks are nearly collapsed flat. The use of a torque wrench is recommended to reach the 90-125 inch pound installation torque.



Trident Marine All Stainless Steel Constant-Torque® Clamps

Catalog Part No.	Trident Marine Model	Use With Hose I.D.'s (in)	Effective Hose O.D. Range (in)	Wt.	Price Each
•C1FU12	730-0340	3/8 to 7/8	0.6875 - 1.25	0.11	
•C1FU13	730-1000	1 to 1-1/8	1.00 - 1.75	0.18	
•C1FU16	730-1140	1 to 1-1/2	1.25 - 2.125	0.19	
•C1FU15	730-1120	1-1/4 to 2	1.75 - 2.625	0.21	
•C1FU17	730-2000	1-7/8 to 2-1/2	2.25 - 3.125	0.22	
•C1FU18	730-2120	2-3/8 to 3	2.75 - 3.625	0.22	
•C1FU19	730-3120	3-1/4 to 3-1/2	3.75 - 4.625	0.24	
•C1FU20	730-4000	4	4.25 - 5.125	0.25	
•C1FU22	730-6000	6	6.25 - 7.125	0.28	
•C1FU23	730-8000	8	8.25 - 9.125	0.30	

BAND-IT® Jr. Preformed Band Clamps



Standard Clamps (J Types): Strong holding power. Vibration resistant. Require no hammering or crimping. Automatically locked in one simple lever movement.

Smooth I.D. Clamps (JS Types): Uniform, gap-free inside diameter. The smooth inside diameter produces a uniform clamping surface to prevent leak paths, while the lower profile reduces the risk of snags when dragging industrial hose assemblies. Same strong holding power and features of Standard clamps.



BAND-IT® Jr. Preformed Band Clamps

Catalog Part No.	Band-It® Model	Type	Clamp I.D. (in)	Band Width (in)	Band Thickness (in)	Material	Wt.	Price Each
C1HG41	JS309	JS	2.50	0.625	0.030	Galv Steel	0.14	
•C1FZ92	JS310	JS	2.75	0.75	0.030	Galv Steel	0.18	
•C1FZ94	JS312	JS	3.50	0.75	0.030	Galv Steel	0.21	
C1FZ95	JS314	JS	4.50	0.75	0.030	Galv Steel	0.25	
•C1FZ96	JS315	JS	5.00	0.75	0.030	Galv Steel	0.27	
C1HG42	JS317	JS	6.50	0.75	0.030	Galv Steel	0.33	
•C1DB62	JS240	JS	0.75	0.25	0.020	201 SS	0.02	
•C1GC15	JS201	JS	0.8125	0.375	0.025	201 SS	0.03	
•C1DB63	JS242	JS	1.00	0.25	0.020	201 SS	0.01	
•C1GC17	JS203	JS	1.00	0.50	0.030	201 SS	0.06	
•C1GC16	JS202	JS	1.375	0.375	0.025	201 SS	0.04	
•C1DB64	JS252	JS	1.50	0.25	0.020	201 SS	0.10	
•C1GC18	JS205	JS	1.50	0.625	0.030	201 SS	0.10	
•C1GC19	JS206	JS	1.75	0.625	0.030	201 SS	0.11	
•C1GC20	JS207	JS	2.00	0.625	0.030	201 SS	0.11	
•C1GC21	JS208	JS	2.25	0.625	0.030	201 SS	0.13	
•C1GC22	JS209	JS	2.50	0.625	0.030	201 SS	0.14	
•C1GC23	JS212	JS	3.50	0.75	0.030	201 SS	0.20	
•C1GC24	JS213	JS	4.00	0.75	0.030	201 SS	0.23	
•C1FH61	JS215	JS	5.00	0.75	0.030	201 SS	0.26	

Note: J Types (Band-It Standard), JS Types (Band-It Smooth ID).

Hose Clamps

BAND-IT® Band



Features: Superior yield and tensile strength to provide maximum clamping strength. Fully rounded smooth edges for safety and easy installation.

Material: Type 201 stainless steel.

For Use With: Band-It® Buckles.



BAND-IT® Band

Catalog Part No.	Band-It® Model	Band Width (in)	Band Thickness (in)	Package Quantity (ft)	Wt. (per pkg)	Price (per pkg)
•C1EH76	C205	0.625	0.030	100	7.00	

BAND-IT® Buckles



Features: Designed to accommodate both single and double wrap clamps. Unique teeth and ears provide for maximum clamping strength.

For Use With: Band-It® Band.

Tightening Method: Band-It® Tool.



BAND-IT® Buckles

Catalog Part No.	Band-It® Model	Band Width (in)	Material	Wt.	Price Each
•C1CM28	C255	0.625	201 SS	0.02	

Dixon F Series Center Punch Clamps



For use with Dixon center punch tools F1, F38, F40 and F100. Other manufacturer's punch style tools may be used. On stainless models, band is 300 series stainless steel, buckle is 302 series stainless steel.



Dixon F Series Center Punch Clamps

Catalog Part No.	Dixon Model	Clamp I.D. (in)	Material	Band Width (in)	Band Thickness (in)	Wt.	Price Each
•C1JE39	F14	3-1/2	Galvanized	5/8	0.031	0.15	

Double Bolt Clamps

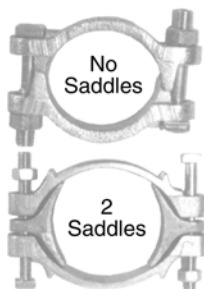


Material: Malleable iron. Machine bolts and hex nuts.

Features: Inner surface has dual gripping ridges. Bolt lugs are reinforced to prevent bending out of alignment. Torque values for clamps are based on dry bolts. The use of lubricant on bolts will adversely affect clamp performance. NOT recommended for use with helical wire hose.

Tightening Method: Bolts and nuts.

Double Bolt Clamps



Catalog Part No.	Dixon Model	Saddles	Min. Dia. (in)	Max. Dia. (in)	Bolt Torque Rating Foot Pounds	Wt.	Price Each
•C1BN59	400-DIXON	2	3.5	3.8125	40	1.62	

TigerClamp™ Spiral Double Bolt Clamps



Application: For use on Tigerflex® hoses with convoluted cover (counter-clockwise spiral only). For adequate holding power, a single clamp may be used on each end for 1-1/2 to 4 inch ID hose. Two clamps are recommended for each end on 5 inch ID and larger. Threaded protective caps help prevent injury.

Hose Styles: TigerClamp™ Spiral Double Bolt Clamps are recommended for use on the following Tigerflex® convoluted hoses: Series 2001, 2020, BW, CG, F, G, GC, GC-C, H, J, JG, K, PF, S, UBK, W, WBS, WE, WG, WH, WST, WSTF, WT, WU. Also recommended for use on Ureflex-1, Ureflex-2, Urevac-3.

Note: Use of pneumatic air tools for tightening purposes is NOT recommended due to potential clamp damage caused by excess torque. Both hex nuts should be tightened equally to prevent possible leakage. If sockets are used, they should be deep well sockets.

CAUTION: Proper evaluation of holding power for clamp must be determined for each individual installation.

TigerClamp™ Spiral Double Bolt Clamps



Catalog Part No.	Kuriyama Model	Description	Wt.	Price Each
•C1GC67	SDBC-6	TigerClamp™ for 6 Inch I.D. Tigerflex® Convoluted Hose	2.00	

Crimp Ferrules



Material: Brass.

Application: Used to permanently attach a shank type hose barb fitting to a hose. For use in low pressure applications.

Fitting Suggestions: Short shank type brass hose barbs.

Fittings: page 999



Catalog Part No.	Winzeler Model	I.D. (in)	Length	Center Hole Dia.	Gauge	Maximum Hose Barb Size	Wt.	Price Each
•C1BS22	501	0.500	0.687	0.328	0.016	1/4	0.10	
•C1BZ36	7323	0.525	1.0	0.375	0.025	5/16	0.01	
•C1BZ37	7325	0.562	1.0	0.437	0.025	3/8	0.01	
•C1BZ38	7327	0.63	1.0	0.437	0.025	3/8	0.01	
•C1BZ39	7328	0.656	1.0	0.437	0.025	3/8	0.02	
•C1BZ40	7329	0.687	1.0	0.50	0.025	3/8	0.02	
•C1BZ42	7330	0.718	1.0	0.50	0.025	3/8	0.02	
•C1BZ43	7331	0.75	1.0	0.50	0.025	3/8	0.02	
•C1BZ44	7333	0.812	1.0	0.625	0.025	1/2	0.02	
•C1BZ23	7244	0.88	0.875	0.625	0.025	1/2	0.02	
•C1BS27	5029	0.9	0.875	0.625	0.025	1/2	0.02	
•C1BY66	7113	0.925	0.875	0.69	0.023	5/8	0.02	
•C1BY67	7114	1.025	0.875	0.75	0.025	5/8	0.02	
•C1BY65	7104	1.15	0.875	0.875	0.025	3/4	0.02	
•C1CA52	875/K	1.225	0.875	0.875	0.025	3/4	0.03	



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Carbon Steel Tubing



Tubing Material Specification: SAE J524 (seamless low carbon steel tubing annealed for bending & flaring).
Tensile strength 55,000 psi.

Pressure Ratings: Based on SAE Specification J1065 and using the more conservative Barlow formula where $P=(2T \times S)/O$ (P=burst pressure T=wall thickness S=tensile strength O=outside diameter).

Note: A 6:1 safety factor is used in table below for applications where "considerable" hydraulic shock and mechanical strain are present. For applications where hydraulic shock and mechanical strain is not considerable, a 4:1 safety factor (higher working pressures) may be carefully considered. For applications where hydraulic shock and mechanical strain is severe, an 8:1 safety factor (lower working pressures) should be applied.

Note: Tubing design pressures have not been de-rated for elevated operating temperatures. Contact us for application information regarding elevated temperatures.

Note: Tubing is stocked in 20 foot nominal lengths.

Flare Nuts & Sleeves: Flare Nuts & Sleeves (Steel) page 1048 Flare Nuts & Sleeves (Stainless Steel) page 1064

Flare Adapters: page 1110

Versil Flare™ Flareless Nuts & Ferrules: Versil Flare™ page 1049

Flareless Tube Fittings: Steel 7000 Series Ermeto® page 1053 Flareless (Steel) page 1055

Tubing Support Clamps: page 1269

Application: Please review important safety & application information starting on page 1519

Carbon Steel Tubing

Catalog Part No.	Model Number	O.D. (in)	Wall Thickness (in)	I.D. (in)	Inside Area (sq.in.)	Flow Rate @ 15FPS (gpm)	Maximum Working Pressure 6:1 Safety Factor (psi)	Burst Pressure (psi)	Wt. (per ft)	Price (per ft)
•C1BK42	3/16.035	0.1875	0.035	0.1175	0.01084	0.40	3422	20533	0.06	
C1AF27	1/4.035	0.25	0.035	0.18	0.02543	0.90	2567	15400	0.08	
•C1AF29	1/4.049	0.25	0.049	0.152	0.01814	0.80	3593	21560	0.11	
•C1BR53	5/16.049	0.3125	0.049	0.215	0.03612	1.70	2875	17248	0.14	
•C1BK88	3/8.049	0.375	0.049	0.277	0.06023	2.80	2396	14373	0.17	
•C1BK90	3/8.065	0.375	0.065	0.245	0.04712	2.60	3178	19067	0.22	
•C1AE75	1/2.049	0.50	0.049	0.402	0.12686	6	1797	10780	0.24	
•C1AE77	1/2.065	0.50	0.065	0.37	0.10747	4.9	2383	14300	0.30	
•C1AE79	1/2.083	0.50	0.083	0.334	0.08757	4	3043	18260	0.37	
•C1BR56	5/8.065	0.63	0.065	0.495	0.19234	9	1907	11440	0.39	
•C1BR57	5/8.095	0.63	0.095	0.435	0.14854	6.9	2787	16720	0.54	
•C1BK53	3/4.049	0.75	0.049	0.652	0.33371	15.4	1198	7187	0.37	
•C1BK54	3/4.065	0.75	0.065	0.62	0.30175	12	1589	9533	0.48	
•C1BK56	3/4.095	0.75	0.095	0.56	0.24618	11	2322	13933	0.67	
•C1BK58	3/4.109	0.75	0.109	0.532	0.22217	10.6	2664	15987	0.75	
•C1AE64	1.065	1.0	0.065	0.87	0.59417	28.1	1192	7150	0.65	
•C1AE66	1.120	1.0	0.12	0.76	0.45342	20.7	2200	13200	1.13	
•C1EL47	1-1/4.095	1.25	0.095	1.06	0.88203	41.0	1393	8360	1.17	
•C1AE34	1-1/4.120	1.25	0.12	1.01	0.80078	36.7	1760	10560	1.45	

Carbon Steel Tubing (Metric)



Tubing Material Specifications: Seamless low carbon steel tubing annealed for bending & flaring. Tensile strength 32-45 Kp/mm².

Note: A 6:1 safety factor is used in table below for applications where “considerable” hydraulic shock and mechanical strain are present. For applications where hydraulic shock and mechanical strain is not considerable, a 4:1 safety factor (higher working pressures) may be carefully considered. For applications where hydraulic shock and mechanical strain is severe, an 8:1 safety factor (lower working pressures) should be applied.

Note: Tubing design pressures have not been de-rated for elevated operating temperatures. Contact us for application information regarding elevated temperatures.

Note: Tubing is stocked in 6 meter (20 foot) nominal lengths.

Flareless Metric Tube Fittings: Flareless Metric (Steel) page 1056

Tubing Support Clamps: page 1269

Application: Please review important safety & application information starting on page 1519

Carbon Steel Tubing (Metric)

Catalog Part No.	Voss Model	O.D. (mm)	Wall Thickness (mm)	I.D. (mm)	Inside Area (sq.in.)	Flow Rate @ 15FPS (gpm)	Maximum Working Pressure 6:1 Safety Factor (psi)	Burst Pressure (psi)	Wt. (per ft)	Price (per ft)
•C1BN44	400-101	6	1.0	4	0.02015	1.10	3051	18306	0.08	
•C1BN45	400-161	8	1.50	5	0.031	1.60	3440	20640	0.16	
•C1BN48	400-271	12	2	8	0.0775	3.4	3051	18306	0.33	
•C1ZT91	400-361	15	1.50	12	0.17515	8.19	1829	10977	0.33	
•C1BN53	400-531	20	3	14	0.2387	10.7	2749	16494	0.85	

Note: Kilograms per Square Centimeter x 14.22 = Pounds per Square Inch

Stainless Steel Tubing



Tubing Material Specifications: ASTM A269 B90 Seamless. Bright Annealed 316 Stainless Steel. Tensile strength 75,000 psi.

Pressure Ratings: Based on using the more conservative Barlow formula where $P=(2T \times S)/O$ (P=burst pressure T=wall thickness S=tensile strength O=outside diameter).

Note: A 6:1 safety factor is used in table below for applications where “considerable” hydraulic shock and mechanical strain are present. For applications where hydraulic shock and mechanical strain is not excessive, a 4:1 safety factor (higher working pressures) may be carefully considered. For applications where hydraulic shock and mechanical strain is severe a 8:1 safety factor (lower working pressures) should be applied.

Note: Tubing design pressures have not been de-rated for elevated operating temperatures. Contact us for application information regarding elevated temperatures.

Note: Tubing is stocked in 20 foot nominal lengths.

Flare Nuts & Sleeves: Flare Nuts & Sleeves (Stainless Steel) page 1064 Flare Nuts & Sleeves (Steel) page 1048

Flare Adapters: page 1110

Flareless Tube Fittings: Flareless (Steel) page 1055 SSP Duolok® (Stainless Steel) page 1065

Tubing Support Clamps: page 1269

Application: Please review important safety & application information starting on page 1519

Stainless Steel Tubing

Catalog Part No.	Model Number	O.D. (in)	Wall Thickness (in)	I.D. (in)	Inside Area (sq.in.)	Flow Rate @ 15FPS (gpm)	Maximum Working Pressure 6:1 Safety Factor (psi)	Burst Pressure (psi)	Wt. (per ft)	Price (per ft)
•C1BK43	3/16.035-SS	0.1875	0.035	0.1175	0.01084	0.40	4667	28000	0.06	
C1AF28	1/4.035-SS	0.25	0.035	0.18	0.02543	0.90	3500	21000	0.08	
•C1EG59	1/4.049-SS	0.25	0.049	0.152	0.01814	0.70	4900	29400	0.11	
•C1BR54	5/16.049-SS	0.3125	0.049	0.2145	0.03612	1.70	3920	23520	0.14	
•C1BK87	3/8.035-SS	0.375	0.035	0.305	0.07306	3.4	2333	14000	0.13	
•C1BK89	3/8.049-SS	0.375	0.049	0.277	0.06023	2.80	3267	19600	0.17	
•C1AE76	1/2.049-SS	0.50	0.049	0.402	0.12686	6	2450	14700	0.24	
•C1AE78	1/2.065-SS	0.50	0.065	0.37	0.10747	4.9	3250	19500	0.30	
•C1EX71	5/8.065-SS	0.5625	0.065	0.4325	0.19234	9	2600	15600	0.39	
•C1BK55	3/4.065-SS	0.75	0.065	0.62	0.30175	12	2167	13000	0.48	
•C1BK57	3/4.095-SS	0.75	0.095	0.56	0.24618	11.1	3167	19000	0.67	
•C1AE65	1.109-SS	1.0	0.109	0.788	0.48005	22	2725	16350	1.04	
•C1AE35	1-1/4.120-SS	1.25	0.12	1.01	0.80078	36.7	2400	14400	1.45	

Polyethylene Tubing Linear Low Density Polyethylene – LLDPE



Features: LLDPE's greatest advantage over low density polyethylene is its superior environmental stress crack resistance (ESCR). Environmental stresses that can shorten the service life of tubing include: chemical exposure, aging, connection to barb-type fittings, or high vibration connections with compression fittings. All colors comply with FDA regulation 21 CFR 177.1520© for food contact applications. Freelin-Wade has chosen to standardize on linear low density polyethylene and no longer offers low density polyethylene.

Application: General low pressure & low temperature applications, instrumentation, food processing. Please review important safety & application information starting on page 1519

Operating Temperature Range: -40°F to 150°F.

Vacuum Rating: To 28"Hg

Diameter Tolerance: +/- 0.004"

Hardness: 50 Shore D

Working Pressure: 3:1 Safety Factor

Resin Compliance: FDA, NSF51

Fittings: Brass Push > Connect® page 1084 Brass Push > Connect® page 1084 Push-In (Brass) page 1088 Brass Compression page 1073

Polyethylene Tubing • Linear Low Density Polyethylene – LLDPE

Catalog Part No.	Freelin-Wade Model	O.D. (in)	Wall Thickness (in)	I.D. (in)	Minimum Bend Radius (in)	Color	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Pkg. Qty. (ft)	Wt. (pkg)	Price (per pkg)
•C1MJ15	1J-109-10	1/8	0.031	0.062	1/2	Natural	305	1220	100	0.40	
•C1MP65	A43184	3/16	0.031	0.125	1	Natural	200	800	100	0.94	
•C1MN26	1J-048-01	1/4	0.040	0.170	1-1/4	Black	200	800	100	1.20	
•C1MM34	1J-048-10	1/4	0.040	0.170	1-1/4	Natural	200	800	100	1.20	
•C1MM35	1J-077-10	5/16	0.062	0.187	1-1/2	Natural	230	920	100	2.50	
•C1MN27	1J-074-10	3/8	0.062	0.250	2	Natural	190	760	100	2.76	

Note: Polyethylene Tubing may be purchased by the foot or by the package.

PT240 Polyethylene Tubing



Typical Application: Economical, flexible, low density Polyethylene has a wide range of uses in industrial and agricultural applications.

Material: Natural off-white compound covered under 21CFR177.1520 regulations for food contact.

Temperature Range: -40°F to 135°F.

Available Colors: Natural off-white (NA), black (BK), yellow (YW), orange (OR), blue (BU), red (RD), green (GN).
FDA colors available on request.

Contains: Ultra-Violet Stabilizer in black tubing.

Fittings: , POLYLINE®, page 1077, Brass Push > Connect® page 1084, Push>Connect® Flow Controls, Push>Connect® Plus, Molded Compression.

Chemical Compatibility Chart: Chemical Compatibility page 1543

PT240 Polyethylene Tubing

Catalog Part No.	Weatherhead Model	Tube O.D. (in)	Tube Wall (in)	Color	Maximum Working Pressure (psi) @ 70°F	Minimum Burst Pressure (psi) @ 70°F	Minimum Bend Radius (in) @ 70°F	Pkg Qty (ft)	Wt. (per 100 ft)	Price (per pkg)
•C1KN12	PT24004NA-500R	1/4	0.062	Natural Off-White	200	600	0.75	500	1.50	
•C1KN13	PT24006NA-200R	3/8	0.062	Natural Off-White	135	400	1.50	200	2.40	

Note: Tubing must be purchased by the package.

Note: These products are available only to select international accounts.

Nylon Tubing



Features: Nylon tubing (also referred to as polyamide) can withstand higher temperatures, making it an ideal choice for a wide variety of applications. When compared to other Nylon resins, Freelin-Wade's tubing allows for a lighter weight wall, greater flexibility and smaller bend radius. It is also more corrosion resistant than other types of Nylon tubing because of its resistance moisture absorbtion. It's heat and UV stabilization makes it resistant to stress-cracking, so it works well in sunny areas. It is chemical resistant which makes it a good choice in areas where exposure to certain chemicals is a possibility.

Application: Pneumatics, hydraulic, vacuum, gasses, lubricants, oils, general chemicals, machine tool, coolant, fuel, fresh & salt water. Please review important safety & application information starting on page 1519

Operating Temperature Range: -60°F to 200°F.

Vacuum Rating: To 28"Hg

Diameter Tolerance: < 1/2" +/- .004"; > 1/2" +/- .005"

Hardness: 78 Rockwell R

Resin Compliance: Meets UL94HB Testing Requirements

Fittings: Brass Push > Connect® page 1084 Push-In (Brass) page 1088 Brass Compression page 1073

Nylon Tubing

Catalog Part No.	Freelin Wade Model	O.D.	Wall Thickness	I.D.	Minimum Bend Radius	Color	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Pkg. Qty. (ft)	Wt. (pkg)	Price (per pkg)
•C1MM42	1J-242-10	6 mm	0.65 mm	2.7 mm	17 mm	Natural	340	1360	100	1.17	
•C1MM43	1J-243-10	8 mm	1 mm	6 mm	38 mm	Natural	250	1000	100	1.64	
•C1MQ17	1J-244-10	10 mm	1 mm	8 mm	51 mm	Natural	190	760	100	2.11	
•C1MM44	1J-245-10	12 mm	1 mm	10 mm	76 mm	Natural	150	600	100	2.55	
•C1MM45	1J-247-10	0.125 in	0.023 in	0.080 in	0.375 in	Natural	420	1680	100	0.35	
•C1MM36	1J-202-10	0.188 in	0.025 in	0.138 in	0.625 in	Natural	260	1040	100	0.55	
•C1MM37	1J-204-01	0.250 in	0.035 in	0.180 in	1.000 in	Black	290	1160	100	1.13	
•C1MM38	1J-204-10	0.250 in	0.035 in	0.180 in	1.000 in	Natural	290	1160	100	1.13	
•C1MM39	1J-205-10	0.312 in	0.040 in	0.232 in	1.500 in	Natural	240	960	100	1.64	
•C1MM40	1J-206-10	0.375 in	0.050 in	0.275 in	1.500 in	Natural	250	1000	100	2.45	
•C1MM41	1J-207-10	0.500 in	0.062 in	0.375 in	2.250 in	Natural	240	960	100	4.12	

Note: Nylon Tubing may be purchased by the foot or by the package.

TP160 Polyimide "Nylon 11" Tubing



Application: Flexible nylon tubing. Used for instrumentation; lubrication and air lines; gas, chemical and oil processing; low pressure hydraulics.

Operating Temperature Range: -40°F to +200°F

Fittings: Brass Push > Connect® page 1084

TP160 Polyimide "Nylon 11" Tubing

Catalog Part No.	Eaton Model	Tube O.D. (in)	Tube Wall (in)	Maximum Working Pressure (psi) @ 70° F	Minimum Burst Pressure (psi) @ 70° F	Minimum Bend Radius (in) @ 70° F	Pkg Qty (ft)	Wt. (per ft)	Price (per pkg)
C1KN61	TP16002NA-100	1/8	0.023	250	1000	0.62	100	0.30	
C1KN62	TP16004NA-100	1/4	0.040	250	1000	1.25	100	1.20	
C1KN63	TP16005NA-100	5/16	0.040	250	1000	2.00	100	2.00	
C1KN64	TP16008NA-100	1/2	0.062	250	1000	4.50	100	3.80	

Tubing

Hydraulic Power & Control

Pneumatic Power & Control

Fluid Conveying

Miscellaneous Products

Indexes & Technical Information

High Pressure Nylon Tubing



High Pressure Nylon 11: Freelin-Wade's High Pressure Nylon tubing is made from a semi-rigid compound that has outstanding tensile strength and chemical resistance, making it the ideal choice for chemical and oil processing lines, tool lubricating systems and other applications that require a high quality Nylon material with much higher burst ratings.

Temperature Range: -60°F to +200°F

Vacuum Rating: To 28" Hg

Diameter Tolerances: O.D. less than 0.5": ± 0.004 "; O.D. greater than 0.5": ± 0.005 "

Hardness: 108 Rockwell R

Working Pressure: 4:1 Safety Factor

UV Stabilized: Yes

Resin Compliance: Meets UL94HB Testing Requirements

Fittings: Brass Compression page 1073 Brass Push > Connect® page 1084

High Pressure Nylon Tubing

Catalog Part No.	Freelin-Wade Model	O.D. (in)	Wall Thickness (in)	I.D. (in)	Minimum Bend Radius (in)	Color	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Pkg. Qty. (ft)	Wt. (pkg)	Price (per pkg)
•C1MQ18	1J-282-01	1/4	0.050	0.150	9/16	Black	800	3200	100	1.51	

Urethane Tubing



Features: Ether grade urethane. Fuel resistant. Excellent abrasion & tear resistance. 87 shore a durometer. RoHS compliant.

Application: General low pressure & low temperature applications, fuel lines, chemical transfer, powder transfer, petroleum transfer, air transfer, abrasive fluid transfer. Please review important safety & application information starting on page 1519

Operating Temperature Range: -40°F to 165°F

Fittings: Machined short shank Hose Barbs page 999

Urethane Tubing

Catalog Part No.	Eaton Model	O.D. (in)	Wall Thickness (in)	I.D. (in)	Color	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Pkg. Qty. (ft)	Wt. per ft.	Price (per pkg)
•C1KL40	EH01804-200R	0.38	0.062	0.25	Clear	50	150	200	0.03	
•C1KL41	EH01806-100R	0.50	0.062	0.38	Clear	40	120	100	0.05	

Note: Urethane tubing may be purchased by the foot or by the package.

Note: Stated working pressures are tested at 68°F. Working pressure decreases as temperature increases.

Air Brake Tubing 4245 & 3270 Eclipse 4247 Solstice



Features: Superior abrasion resistance over rubber and Nylon 11 • Easy burr-free cutting to assemble • Enhanced flexibility over other nylon tubing • Improved flow performance over rubber & nylon.

Construction: 100% polyamide construction with polyester yarn reinforcement. UV stabilized, thermoformable.

Application: Truck & Trailer air brake systems, auxiliary air systems, formed tubes, formed and straight air brake harness assemblies.

Operating Temperature Range: -65°F to 200°F.

Fittings: Brass Air Brake (Nylon Tubing) page 1080 Brass Quick > Connect® page 1095

Agency Listings: Meets the performance of SAE J844, J1131, J2494-3 DOT-FMVSS 106

Air Brake Tubing • 4245 & 3270 Eclipse 4247 Solstice

Catalog Part No.	Eaton Model	Type	O.D. (in)	Wall Thickness (in)	I.D. (in)	Minimum Bend Radius (in)	Color	Minimum Burst Pressure (psi)	Pkg Qty (ft)	Wt. (lbs./100 ft)	Price (per pkg)
C1KU99	4245-0220-1000	A	1/8	0.02	0.08	0.25	Black	1000	1000	0.33	
C1KX92	4247-0410-0100	A	1/4	0.04	0.17	1.00	Black	1200	100	1.50	
C1LX38	4247-0410-1000	A	1/4	0.04	0.17	1.00	Black	1200	1000	1.50	
C1MJ92	4247-0412-1000	A	1/4	0.04	0.17	1.00	Red	1200	1000	1.50	
C1MJ93	4247-0413-1000	A	1/4	0.04	0.17	1.00	Orange	1200	1000	1.50	
C1MJ94	4247-0414-1000	A	1/4	0.04	0.17	1.00	Yellow	1200	1000	1.50	
C1MJ95	4247-0415-1000	A	1/4	0.04	0.17	1.00	Green	1200	1000	1.50	
C1MJ96	4247-0416-1000	A	1/4	0.04	0.17	1.00	Blue	1200	1000	1.50	
C1MJ91	4245-0520-0500	A	5/16	0.04	0.23	1.13	Black	1000	500	1.54	
C1KZ21	3270-0610-0100	B	3/8	0.06	0.25	1.50	Black	1400	100	2.80	
C1MJ44	3270-0610-0500	B	3/8	0.06	0.25	1.50	Black	1400	500	2.80	
C1MJ45	3270-0612-0500	B	3/8	0.06	0.25	1.50	Red	1400	500	2.80	
C1MJ46	3270-0613-0500	B	3/8	0.06	0.25	1.50	Orange	1400	500	2.80	
C1MJ47	3270-0614-0500	B	3/8	0.06	0.25	1.50	Yellow	1400	500	2.80	
C1MJ48	3270-0615-0500	B	3/8	0.06	0.25	1.50	Green	1400	500	2.80	
C1MJ49	3270-0616-0500	B	3/8	0.06	0.25	1.50	Blue	1400	500	2.80	
C1KU76	3270-0810-0100	B	1/2	0.06	0.38	2.00	Black	950	100	3.80	
C1JR67	3270-08104	B	1/2	0.06	0.38	2.00	Black	950	1500	3.80	
C1MJ50	3270-0810-0500	B	1/2	0.06	0.38	2.00	Black	950	500	3.80	
C1MJ52	3270-08124	B	1/2	0.06	0.38	2.00	Red	950	1500	3.80	
C1MJ51	3270-0812-0500	B	1/2	0.06	0.38	2.00	Red	950	500	3.80	
C1MJ53	3270-0815-0500	B	1/2	0.06	0.38	2.00	Green	950	500	3.80	
C1JR68	3270-10103	B	5/8	0.09	0.44	2.50	Black	900	750	7.00	
C1MJ54	3270-1010-0250	B	5/8	0.09	0.44	2.50	Black	900	250	7.00	
C1MJ55	3270-1012-0250	B	5/8	0.09	0.44	2.50	Red	900	250	7.00	
C1MJ56	3270-1013-0250	B	5/8	0.09	0.44	2.50	Orange	900	250	7.00	
C1MJ57	3270-1015-0250	B	5/8	0.09	0.44	2.50	Green	900	250	7.00	
C1MJ58	3270-1016-0250	B	5/8	0.09	0.44	2.50	Blue	900	250	7.00	
C1MJ59	3270-1210-0250	B	3/4	0.09	0.57	3.00	Black	800	250	8.60	
C1MJ60	3270-1215-0250	B	3/4	0.09	0.57	3.00	Green	800	250	8.60	

Note: Air brake tubing sold only by the package.

CLEARFORCE - NR PVC Hose - Non-Toxic FDA Un-pressurized Potable Water - Drain - Vent



Application & Construction: Food Transfer, Drain Lines, Light Vacuum Lines, Sight Gauges. Temperature Range 25°F to 150°F. Materials comply with FDA Specifications. NSF Certified under Standard NSF-51. Clear PVC Tube. Light Weight, Non-Marking & Flexible. Self Extinguishing. RoHS compliant. Special packaging, cut lengths available. Please review application requirements and limitations found in NAHAD Pressure Guideline Chart page 1534

Fittings & Fitting Attachment Suggestions: Shank type fittings attached with stainless steel pinch clamps or stainless steel worm gear clamps.

Fittings: Shank Type (Brass) page 999. Shank Type (Stainless Steel) page 1005

Fitting Attachment: Pinch Clamps page 1023. Worm Gear Clamps page 1022

CLEARFORCE - NR PVC Hose - Non-Toxic FDA • Un-pressurized Potable Water - Drain - Vent

Catalog Part No.	Eaton Model	I.D. (in)	O.D. (in)	Maximum Working Pressure (psi)	Minimum Burst Pressure (psi)	Pkg. Qty. (ft)	Wt. (per 100 ft)	Price (per ft)
•C1KM14	H160305-500R	0.19	0.310	55	165	500	2.60	
•C1KM15	H160406-200R	0.25	0.380	55	165	200	3.20	
•C1KV99	H160608-100	0.38	0.500	45	135	100	4.50	
•C1KM16	H160608-125R	0.38	0.500	45	135	125	4.50	
•C1KW12	H161216-100	0.75	1.000	35	105	100	18.04	
•C1ML31	H161620-100	1.00	1.25	25	75	100	22.60	

Note: Use of damaged hose or improper use may result in bodily injury or property damage. Please consult Eaton catalog or Technical Support for proper application. Non-Reinforced PVC Tubing may be purchased by the package.

CLEARFORCE™-R Reinforced Standard Duty PVC Hose



Application & Construction: Materials comply with FDA Specifications. NSF Certified under Standard NSF-51 plastic materials and components for use in food equipment. Non-toxic. White spiraled polyester yarn reinforcement. Longitudinally reinforced with Blue Tracer Yarn to reduce elongation under pressure. Clear PVC tube with clear PVC cover. Light weight, Non-marking, flexible. Self Extinguishing. Silicone-free. Non-conductive. Compound hardness 75 Durometer, Shore A. RoHS compliant. Air lines, air breathing lines, water lines, deionized, pure or distilled water, food & beverage dispensing, potable water transfer, light vacuum lines, pneumatics, mild chemical resistance (call for details). Please review important safety & application information starting on NAHAD Pressure Guideline Chart page 1534

Fittings & Fitting Attachment Suggestions: Shank type fittings attached with stainless steel pinch clamps or stainless steel worm gear clamps.

Fittings: Shank Type (Brass) page 999. Shank Type (Stainless Steel) page 1005

Fitting Attachment: Pinch Clamps page 1023. Worm Gear Clamps page 1022

CLEARFORCE™-R Reinforced • Standard Duty PVC Hose

Catalog Part No.	Eaton Model	I.D. (in)	O.D. (in)	Maximum Working Pressure (psi)	Minimum Bend Radius (in)	Pkg. Qty. (ft)	Wt. (per 100 ft)	Price (per ft)
•C1KM19	H28504-125R	0.250	0.450	250	1.50	125	6.50	
•C1KW13	H28506-300R	0.380	0.590	225	2.00	300	9.00	
•C1KM20	H28506-75R	0.380	0.590	225	2.00	75	9.00	
•C1KW14	H28508-300R	0.500	0.750	200	2.00	300	15.00	
•C1KW15	H28510-300R	0.625	0.875	200	2.50	300	17.00	
•C1KW16	H28512-300R	0.750	1.031	150	2.50	300	23.00	
•C1KW17	H28516-200R	1.000	1.313	125	3.50	200	32.00	
•C1KW18	H28520-100	1.250	1.688	100		100	58.00	
•C1KW19	H28524-100	1.500	1.938	100		100	69.00	
•C1KW20	H28532-100	2.000	2.500	75		100	100.00	

Note: Hose may be purchased by the foot or by the package. Use of damaged hose or improper use may result in bodily injury or property damage. Please consult Eaton catalog or Technical Support for proper application.

PVC Tubing (Clear) Non-Reinforced - FDA Approved



Features: Eaton's line of clear PVC tubing products are manufactured with materials which comply with FDA Regulation 21 CFR 177.1520 and are NSF-51 listed. These products are lightweight, non-marking and flexible.

Application: These are excellent products for food and beverage transfer lines, air lines, drain lines, sight gauges, potable water transfer, and pneumatic applications.

Operating Temperature Range: +15°F to +150°F

Fittings: Hose Barbs page 999. Hose Clamps page 1022 Crimp Ferrules page 1034

PVC Tubing (Clear) • Non-Reinforced - FDA Approved

Catalog Part No.	Eaton Model	I.D. (in)	O.D. (in)	Maximum Working Pressure (psi)	Minimum Burst Pressure (psi)	Pkg. Qty. (ft)	Wt. (per 100 ft)	Price (per ft)
•C1KM14	H160305-500R	0.19	0.310	55	165	500	2.60	
•C1KM15	H160406-200R	0.25	0.380	55	165	200	3.20	
•C1KV99	H160608-100	0.38	0.500	45	135	100	4.50	

PVC Tubing (Clear) • Non-Reinforced - FDA Approved

Catalog Part No.	Eaton Model	I.D. (in)	O.D. (in)	Maximum Working Pressure (psi)	Minimum Burst Pressure (psi)	Pkg. Qty. (ft)	Wt. (per 100 ft)	Price (per ft)
•C1KM16	H160608-125R	0.38	0.500	45	135	125	4.50	
C1MS81	H161014-100	0.62	0.870	40	120	100		
•C1KW12	H161216-100	0.75	1.000	35	105	100	18.04	
•C1ML31	H161620-100	1.00	1.250	25	75	100	22.60	

PVC Tubing (Clear) Reinforced - FDA Approved



Features: Eaton's line of clear PVC hose products are manufactured with materials which comply with FDA

Regulation 21 CFR 177.1520 and are NSF-51 listed. These products are lightweight, nonmarking and flexible.

Application: These are excellent products for food and beverage transfer lines, air lines, drain lines, sight gauges, potable water transfer, and pneumatic applications which require higher pressure than our standard Clearforce products can handle.

Operating Temperature Range: +15°F to +150°F

Fittings: Hose Barbs page 999. Hose Clamps page 1022 Crimp Ferrules page 1034

PVC Tubing (Clear) • Reinforced - FDA Approved

Catalog Part No.	Eaton Model	I.D. (in)	O.D. (in)	Maximum Working Pressure (psi)	Minimum Bend Radius (in)	Pkg. Qty. (ft)	Wt. (per 100 ft)	Price (per ft)
•C1KM19	H28504-125R	0.250	0.450	250	1.50	125	6.50	
•C1KW13	H28506-300R	0.380	0.590	225	2.00	300	9.00	
•C1KM20	H28506-75R	0.380	0.590	225	2.00	75	9.00	
•C1KW14	H28508-300R	0.500	0.750	200	2.00	300	15.00	
•C1KW15	H28510-300R	0.625	0.875	200	2.50	300	17.00	
•C1KW16	H28512-300R	0.750	1.031	150	2.50	300	23.00	
•C1KW17	H28516-200R	1.000	1.313	125	3.50	200	32.00	
•C1KW18	H28520-100	1.250	1.688	100		100	58.00	
•C1KW19	H28524-100	1.500	1.938	100		100	69.00	
C1KW20	H28532-100	2.000	2.500	75		100	100.00	

Steel Brake Line Assemblies



Features: Superior rust protection with galvanized zinc coating.

Domestic Brake Lines: Standard Inverted Flare.

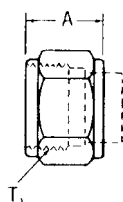
Steel Brake Line Assemblies

Catalog Part No.	AGS Model	Style	Size x Length (inches)	Wt.	Price Each
•C1FY76	BL-308	Domestic	3/16 x 8	0.06	
•C1FY77	BL-312	Domestic	3/16 x 12	0.07	
•C1FY78	BL-320	Domestic	3/16 x 20	0.11	
•C1FY79	BL-330	Domestic	3/16 x 30	0.14	
•C1FY80	BL-340	Domestic	3/16 x 40	0.18	
•C1FY81	BL-351	Domestic	3/16 x 51	0.22	
•C1FY82	BL-360	Domestic	3/16 x 60	0.26	
•C1FY83	BL-372	Domestic	3/16 x 72	0.31	
•C1FY84	BL-408	Domestic	1/4 x 8	0.08	
•C1FY85	BL-412	Domestic	1/4 x 12	0.10	
•C1FY86	BL-420	Domestic	1/4 x 20	0.14	
•C1FY87	BL-430	Domestic	1/4 x 30	0.19	
•C1FY88	BL-440	Domestic	1/4 x 40	0.24	
•C1FY89	BL-451	Domestic	1/4 x 51	0.29	
•C1FY90	BL-460	Domestic	1/4 x 60	0.35	
•C1FY91	BL-472	Domestic	1/4 x 72	0.41	
•C1FY92	BL-508	Domestic	5/16 x 8	0.09	
•C1FY93	BL-512	Domestic	5/16 x 12	0.11	
•C1FY94	BL-520	Domestic	5/16 x 20	0.17	
•C1FY97	BL-551	Domestic	5/16 x 51	0.37	
•C1FY98	BL-560	Domestic	5/16 x 60	0.43	
•C1FY99	BL-572	Domestic	5/16 x 72	0.51	
•C1FZ11	BL-608	Domestic	3/8 x 8	0.13	
•C1FZ12	BL-612	Domestic	3/8 x 12	0.17	
•C1FZ13	BL-620	Domestic	3/8 x 20	0.24	
•C1FZ14	BL-630	Domestic	3/8 x 30	0.32	
•C1FZ15	BL-640	Domestic	3/8 x 40	0.41	
•C1FZ16	BL-651	Domestic	3/8 x 51	0.51	
•C1FZ17	BL-660	Domestic	3/8 x 60	0.58	

Tube Fittings

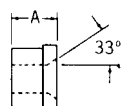
Steel

Flare & Inverted Flare Nuts, Flare Sleeves



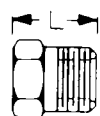
1290

JIC 37° Flare Nut
(Use with 900605 Tube Sleeve)



900605

JIC 37° Flare Sleeve
(Use with 1290 Flare Nut)



2105

Inverted Flare Tube Nut

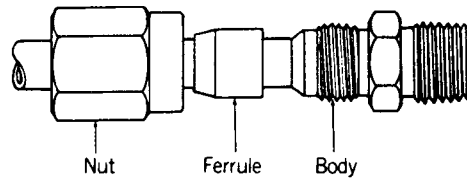
Catalog Part No.	Aeroquip Model	Tube O.D. (in)	A (in)	B (in)	Wt.	Price Each
•C1AJ77	1290-3S	0.19	0.6	0.44	0.01	
•C1AJ78	1290-4S	0.25	0.62	0.56	0.04	
•C1AJ79	1290-5S	0.31	0.67	0.62	0.05	
•C1AJ80	1290-6S	0.38	0.72	0.69	0.05	
•C1AJ81	1290-8S	0.50	0.84	0.88	0.06	
•C1AJ72	1290-10S	0.63	0.97	1.0	0.09	
•C1AJ73	1290-12S	0.75	1.02	1.25	0.18	
•C1AJ75	1290-16S	1.0	1.12	1.50	0.25	
•C1AJ76	1290-20S	1.25	1.22	2.0	0.55	

Catalog Part No.	Aeroquip Model	Tube O.D. (in)	A (in)	Wt.	Price Each
•C1EP32	900605-3S	0.19	0.34	0.01	
•C1CB30	900605-4S	0.25	0.41	0.01	
•C1KT74	NB300-04Z	0.25	0.62	0.01	
•C1CB31	900605-5S	0.31	0.44	0.01	
C1CB32	900605-6S	0.38	0.50	0.01	
•C1KT75	NB300-06Z	0.38	0.50	0.01	
C1CB33	900605-8S	0.50	0.56	0.01	
•C1KT76	NB300-08Z	0.50	0.56	0.01	
•C1CB25	900605-10S	0.63	0.66	0.02	
C1CB26	900605-12S	0.75	0.69	0.03	
•C1KT77	NB300-12Z	0.75	0.68	0.03	
•C1CB28	900605-16S	1.00	0.78	0.04	
•C1KT78	NB300-16Z	1.00	0.78	0.04	
•C1CB29	900605-20S	1.25	0.91	0.08	

Note: NB is Eaton-Winner model.

Catalog Part No.	Model Number	Tube O.D. (in)	L (in)	Wt.	Price Each
•C1FF65	2105X4	0.25	0.56	0.02	
•C1BB97	2105X5	0.31	0.62	0.03	

Steel Versil Flare™ Nuts & Ferrules



Features: Versil Flare™ Tube Fittings consist of a nut & ferrule (listed below) and a steel JIC 37° flare adapter. List of steel JIC 37° flare adapters is on page 1110

Note: The maximum hardness of tubing used with this style fitting should not exceed Rockwell B65. (Stainless steel tubing is not approved).

Assembly Instructions for Versil Flare™ Tube Fittings:

Tubing Cut Off: Cut tubing square (+/- 1°). Tube should be cut to fit tight against the face of the standard JIC 37° flare body.

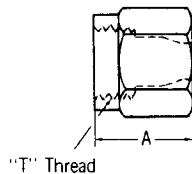
De burring: All cut tubes should be deburred, both internally and externally.

Cleaning: Clean all dirt and grit from the I.D. and O.D. of the tube.

Initial Assembly: Slide the nut and then the ferrule onto the tube, with the tapered end of the ferrule pointing toward the nut. Lubricate all mating surfaces of the nut, ferrule and body with a heavy lubricant such as Aeroquip 222070 lube. Place end of tube against standard JIC 37° flare body. Slide the ferrule and nut against body and tighten the nut onto the body "hand tight". Mark the nut in relation to the body for location. Hold tube against body and tighten nut a total of 1-1/4 turns (-3 through -10), and 1-1/2 turns (-12 through -32).

Reassembly: Slide nut against the body and tighten "hand tight". Mark the nut for location. Tighten nut a minimum of one "hex" flat.

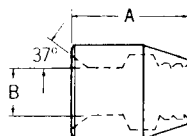
Re-Use: The Versil Flare™ flareless tube fitting is designed for a minimum of 10 reassemblies.



FC2875

Versil Flare™ Flareless Tube Nut
(Use with FF9605 Tube Ferrule and JIC 37° Flare Adapter)

Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread T	A (in)	Wt.	Price Each
•C1CR38	FC2875-04S	0.25	7/16-20	0.82	0.03	
•C1CR40	FC2875-06S	0.38	9/16-18	0.86	0.05	
•C1CR41	FC2875-08S	0.50	3/4-16	0.08	0.08	
•C1CR42	FC2875-10S	0.63	7/8-14	1.12	0.11	



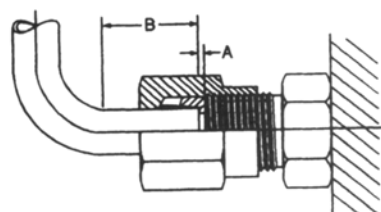
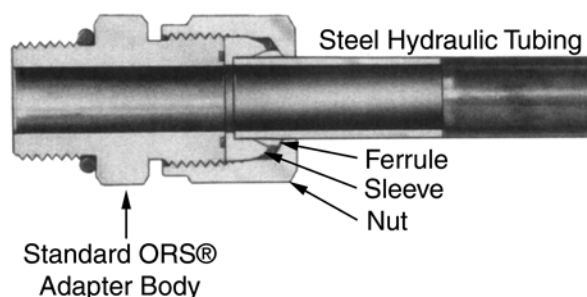
FF9605

Versil Flare™ Flareless Tube Ferrule
(Use with FC2875 Tube Nut and JIC 37° Flare Adapter)

Catalog Part No.	Aeroquip Model	Tube O.D. (in)	A (in)	B (in)	Wt.	Price Each
•C1CV63	FF9605-04S	0.25	0.42	0.25	0.01	
•C1CV65	FF9605-06S	0.38	0.46	0.38	0.01	
•C1CV66	FF9605-08S	0.50	0.57	0.50	0.02	
•C1CV67	FF9605-10S	0.63	0.58	0.62	0.02	
•C1CV68	FF9605-12S	0.75	0.7	0.75	0.04	

Tube Fittings

Steel ORS-TF® Tube Fittings



Size	Tube O.D. (inches)	Sleeve Shoulder Thickness "A" (inches)	Straight Tubing Required "B" (inches)
-04	.25 (1/4)	.07	.78
-06	.38 (3/8)	.08	.88
-08	.50 (1/2)	.09	1.00
-10	.63 (5/8)	.09	1.06
-12	.75 (3/4)	.09	1.19
-16	1.00 (1)	.09	1.25
-20	1.25 (1 1/4)	.09	1.31
-24	1.50 (1 1/2)	.09	1.38

The patented ORS-TF® tube fitting is a compression type fitting that works on a variety of tubing. Recommended wall thickness: 1/4" & 3/8" (.028 - .065). 1/2" (.035 - .120). 5/8" (.035 - .095). 3/4" (.049 - .120). 1" (.049 - .134). 1-1/4" (.049 - .156). 1-1/2" (.065 - .188).

Note: The maximum hardness of tubing used with this style fitting should not exceed Rockwell B65. (Stainless steel tubing is not approved).

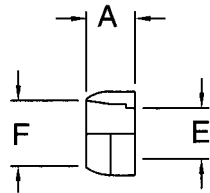
Assembly Instructions for ORS-TF® Tube Fittings:

- 1: Measure the length of tubing required, adjusted to account for the shoulder thickness of the sleeve. It is imperative that the routing leave a length of unbent tubing to fully enter the ORS fitting. This straight length must be free from surface defects, thin-out distortion and ovality.
- 2: Cut the measured tubing squarely ($\pm 1^\circ$).
- 3: Deburr the tube ends internally and externally. After deburring, remove all contaminants from the interior and exterior of the tube ends.
- 4: Inspect the ORS adapter and all ORS-TF components for damage. Sealing surfaces must be free from all surface gouges, scratches, dirt and contaminants. Apply a thin film of a compatible lubricant to the O-ring prior to installation.
- 5: Place the nut, ferrule and sleeve onto tubing, making sure the identification groove on the ferrule is toward the nut. Assemble the nut to the adapter until "hand-tight" with the tubing fully inserted into the fitting until bottomed out. Mark the nut in relation with the adapter, and tighten 1-1/2 turns with wrench. The ORS-TF sleeve cannot be used to pre-set multiple tube assemblies. It may be used once for pre-setting.
- 6: The ORS-TF tube assemblies are designed for re-use and can be reinstalled by tightening the nut until a sharp increase in resistance is felt (approximately 1/4 turn beyond "hand-tight").
- 7: **WARNING:** Tubing must be fully inserted into the fitting and the nut tightened as specified above to ensure performance and to prevent leakage and potential fitting blow-off. Excessive tightening of the nut beyond the recommended level may affect performance.
- 8: If connections must be temporarily disassembled, use a threaded plug to contain the ORS-TF components and keep contaminants and dirt from entering the system.



Tube Fittings

Steel ORS-TF® Tube Fittings



FF90103
ORS-TF® Sleeve

Catalog Part No.	Aeroquip Model	Dash Size	Tube O.D. (in)	A (in)	E (in)	F (in)	Wt.	Price Each
•C1GL86	FF90103-20S	20S	1.25	0.56	1.05	1.26	0.12	

Hydraulic Power & Control

Pneumatic Power & Control

Fluid Conveying

Miscellaneous Products

Indexes & Technical Information

Tube Fittings

Steel Braze Type Tube Fittings - ORS



FF9075
ORS® Silver Braze Ring

Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Wt.	Price Each
•C1CV45	FF9075-06	0.38	0.06	
•C1CV49	FF9075-74	0.50	0.08	

Hydraulic Power & Control

Pneumatic Power & Control

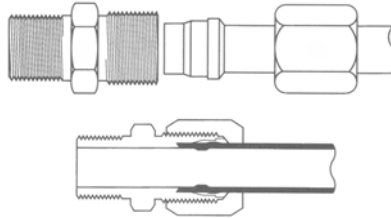
Fluid Conveying

Miscellaneous Products

Indexes & Technical Information

Steel Flareless Fittings - 7000 Series Ermeto®

Eaton 7000 Series Ermeto® Steel Tube Fittings



Typical Application: Hydraulic, instrumentation and chemical processing systems. Highly recommended for high pressure applications. For your particular application, please review the Important Safety Information starting on page 1519

Pressure: Operating pressure depends on tube and fitting size. See Technical Information note below.

Vibration: Excellent resistance.

Temperature Range: -65°F to +400°F at maximum operating pressures. Has been used at 800°F and 1000 psi to 4000 psi depending on tube size. See Technical Information note below.

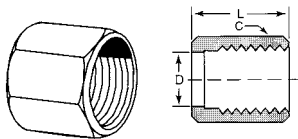
Material: AISI/SAE 12L14 carbon steel with exclusive Weathercote® finish, which fully resists the effects of nonflammable hydraulic fluids.

Used With: Aluminum, hard or half copper, steel, stainless steel and extra heavy wall tubing that cannot be flared. See Technical Information note below.

Features: An excellent high pressure fitting - NO TUBE FLARING. Used with extra heavy wall tubing. Broad selection of sizes and styles.

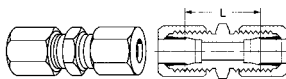
Conformance: Meets specifications and standards of ASA, ASME and SAE.

Technical Information: page 1327



7105
Nut

Catalog Part No.	Eaton Model	Tube O.D. (in)	L (in)	Wt.	Price Each
•C1LX49	7105X4	0.25	0.70		
•C1KY22	7105X6	0.375	0.75		
•C1KV28	7105X8	0.50	0.84	0.08	

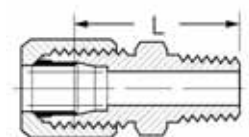
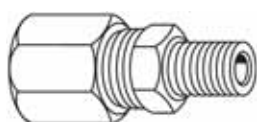


7305
Small Hex Union

Catalog Part No.	Eaton Model	Tube O.D. (in)	Tube O.D. (in)	L (in)	Wt.	Price Each
•C1KZ30	7305X3	3/16	3/16	1.11		
•C1MK20	7305X4	1/4	1/4	1.18		
•C1KY27	7305X5	5/16	5/16	1.18		
•C1KZ31	7305X6	3/8	3/8	1.24		
•C1JD63	7305X10	5/8	5/8	1.61	0.34	
•C1JB60	7305X12	3/4	3/4	1.81	0.36	
•C1KZ29	7305X16	1	1	1.81		

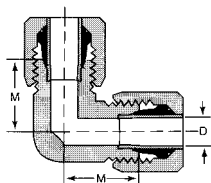
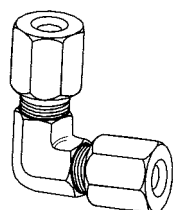
Tube Fittings

Steel Flareless Fittings - 7000 Series Ermeto®



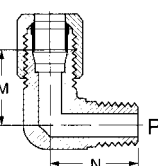
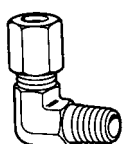
7205
Male Pipe Connector

Catalog Part No.	Eaton Model	Tube O.D. (in)	Thread P	L (in)	Wt.	Price Each
•C1LB56	7205X4	0.25	1/8-27	1.12	0.06	
•C1JB57	7205X4X4	0.25	1/4-18	1.32	0.09	
•C1KY26	7205X5X4	0.31	1/4-18	1.32	0.09	
•C1JC57	7205X6	0.38	1/4-18	1.34	0.11	
•C1LX50	7205X6X6	0.38	3/8-18	1.35	0.13	
•C1HJ88	7205X8	0.50	3/8-18	1.44	0.17	
•C1KZ28	7205X8X8	0.50	1/2-14	1.69	0.23	
•C1JB52	7205X10	0.63	1/2-14	1.75	0.26	
•C1JB53	7205X12	0.75	3/4-14	1.88	0.43	



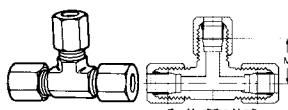
7505
90° Union Elbow

Catalog Part No.	Eaton Model	Tube O.D. (in)	M (in)	Wt.	Price Each
•C1KY29	7505X4	1/4	0.89		
•C1KZ34	7505X6	3/8	1.05	0.19	
•C1FX38	7505X10	5/8	1.42	0.50	
•C1FX39	7505X12	3/4	1.58	0.76	



7405
90° Male Elbow

Catalog Part No.	Eaton Model	Tube O.D. (in)	Male Pipe Thread P	M (in)	N (in)	Wt.	Price Each
•C1KZ32	7405X4	1/4	1/8-27	0.89	0.78	0.30	
•C1KZ33	7405X5X4	5/16	1/4-18	1.03	1.09		
•C1KY28	7405X5	5/16	1/8-27	0.95	0.81		
•C1JB63	7405X6	3/8	1/4-18	1.05	1.09	0.14	
•C1JB62	7405X10	5/8	1/2-14	1.42	1.47	0.38	
•C1HL15	7405X12	3/4	3/4-14	1.58	1.59	0.61	



7705
Union Tee

Catalog Part No.	Eaton Model	Tube O.D. (in)	M (in)	Wt.	Price Each
•C1KV44	7705X4	0.25	0.89	0.17	
•C1KY31	7705X5	0.31	0.95	0.22	
•C1JB67	7705X6	0.37	1.05	0.26	
C1JB68	7705X8	0.50	1.25	0.48	

Steel 7000 Series Ermeto



Steel Flareless Tube Fittings



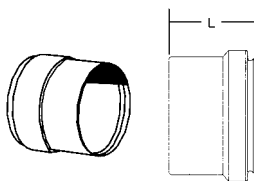
Material: Forged Bodies: 12L14, Straight Bodies: 12L14, Cold Formed Nuts: C1110, Bar Stock Nut: 12L14, Flareless Sleeves: 12L14.

Applications: For use with applications such as: Construction machinery, Textile machinery, Machine tools, Chemical, Marine, Military, and most other high pressure hydraulic applications. Applications using thick wall tubing where flaring is not practical. CAUTION: 7000 Flareless Fittings are NOT RECOMMENDED for use in instrumentation applications where toxic and noxious gases are present. For your particular application, please review the Important Safety Information starting on page 1519

Temperature Range: -30°F to 450°F. Straight thread fittings which use O-Rings to seal are restricted to the temperature range of the material used to construct the O-Ring.

Pressure Ratings: Working Pressure up to 10,000 PSI. CAUTION: Working pressures will vary depending on tube and fitting size. (For applications using extreme pressures at 5000 PSI or above (or) for application with extreme pressure fluctuations, contact us for assistance).

Tubing: Steel Tubing page 1036



7165A
Ferrule

Catalog Part No.	World Wide Model	Tube O.D. (in)	L (in)	Wt.	Price Each
•C1KV29	7165AX04-WWF	0.25	0.36	0.01	
•C1KV31	7165AX06-WWF	0.38	0.39	0.01	
•C1KV32	7165AX08-WWF	0.50	0.43	0.07	
•C1KV33	7165AX10-WWF	0.63	0.44	0.01	
•C1KV34	7165AX12-WWF	0.75	0.48	0.03	
•C1KV35	7165AX16-WWF	1.00	0.48	0.10	

Tube Fittings

Steel Metric Flareless Fittings

Design Features: Conforms in design & dimensions to latest DIN standards.

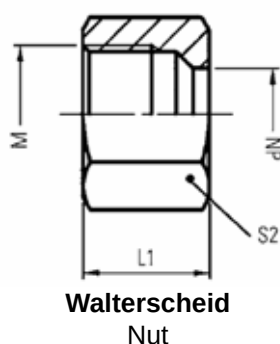
Construction: Forged or drawn high quality steel.

Working Pressure: Series LL: 100 bar with 4:1 safety factor. Series L: Varies from 100 to 250 bar (see tables) with 4:1 safety factor. Series S: Varies from 160 to 630 bar (see tables) with 4:1 safety factor.

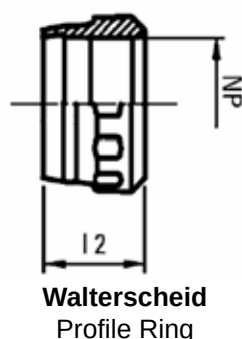
Operating Temperature Range: Up to 120°C.

Tubing: Metric Steel Tubing page 1037

Application: For your particular application, please review the Important Safety Information starting on page 1519



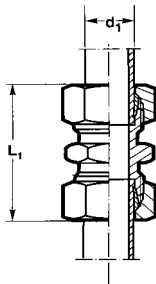
Catalog Part No.	Eaton Walterscheid Model	Tube O.D. (mm)	Series	Maximum Operating Pressure (bar)	Thread Size M (mm)	Wt.	Price Each
C1MM30	WAL039838	4	LL	100	M 8x1.0	0.01	
C1MC87	WAL039840	6	LL	100	M 10x1.0	0.01	
C1KW99	WAL039842	6	L	500	M 12x1.5	0.02	
C1KX18	WAL039852	6	S	800	M 14x1.5	0.04	
C1KX11	WAL039843	8	L	500	M 14x1.5	0.03	
C1KX19	WAL039853	8	S	800	M 16x1.5	0.05	
C1KX12	WAL039844	10	L	500	M 16x1.5	0.04	
C1KX20	WAL039854	10	S	800	M 18x1.5	0.07	
C1KX13	WAL039845	12	L	400	M 18x1.5	0.04	
C1KX21	WAL039855	12	S	630	M 20x1.5	0.07	
C1KX14	WAL039846	15	L	400	M 22x1.5	0.09	
C1KX22	WAL039857	16	S	630	M 24x1.5	0.14	
C1KX15	WAL039847	18	L	400	M 26x1.5	0.14	
C1KX23	WAL039858	20	S	420	M 30x2.0	0.22	
C1KX16	WAL039848	22	L	250	M 30x2.0	0.18	
C1KX24	WAL039859	25	S	420	M 36x2.0	0.45	
C1KX25	WAL039860	30	S	420	M 42x2.0	0.48	



Catalog Part No.	Eaton Walterscheid Model	Tube O.D. (mm)	Series	Maximum Operating Pressure (bar)	Wt.	Price Each
C1KX26	WAL039862	4	LL	100		
C1KX38	WAL372404	6	L	500		
C1KX39	WAL372405	8	L	500		
C1KX40	WAL372406	10	L	500	0.10	
C1KX41	WAL372407	12	L	400	0.01	
C1KX42	WAL372408	15	L	400	0.01	
C1KX46	WAL372415	16	S	630	15.00	
C1KX43	WAL372409	18	L	400		
C1KX47	WAL372416	20	S	420	0.14	
C1KX44	WAL372410	22	L	250	0.02	
C1KX48	WAL372417	25	S	420	0.03	
C1KX45	WAL372411	28	L	250	0.03	
C1KX49	WAL372418	30	S	420	0.04	

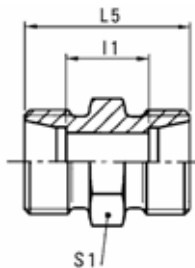
1 millimeter = 0.03937 inches 1 bar = 14.5 psi °F = (°C x 1.8) + 32

Steel Metric Flareless Fittings



111 / 112
Straight Coupling

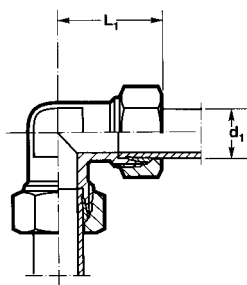
Catalog Part No.	Voss Model	Tube O.D. D1 (mm)	Series	Maximum Operating Pressure (bar)	L1 (mm)	Wt.	Price Each
•C1AH76	112-001	6	L	250	39	0.08	
•C1ER54	112-501	6	S	630	45	0.14	
•C1AH77	112-051	8	L	250	40	0.11	
•C1ER55	112-551	8	S	630	47	0.19	
•C1AH78	112-101	10	L	250	42	0.14	
•C1ER73	112-601	10	S	630	49	0.25	
•C1AH88	112-151	12	L	250	43	0.19	
•C1ER91	112-651	12	S	630	51	0.30	
•C1AH92	112-751	16	S	400	57	0.51	
•C1AH93	112-801	20	S	400	66	0.82	
•C1GA81	112-901	30	S	250	80	1.80	



Walterscheid
Straight Union Connector
(Body Only)

Catalog Part No.	Eaton Walterscheid Model	Tube O.D. (mm)	Series	Maximum Operating Pressure (bar)	L5 (mm)	Wt.	Price Each
C1KW82	WAL037848	6	L	500	24	0.03	
C1KW86	WAL037853	6	S	800	30		
•C1KW83	WAL037849	8	L	500	25	0.04	
C1KW87	WAL037854	8	S	800	32		
•C1KW84	WAL037850	10	L	500	27		
C1KW88	WAL037855	10	S	800	32	0.09	
•C1KW89	WAL037856	12	S	630	38	0.13	
•C1MC91	WAL373366	15	L	400	30		
C1KW90	WAL037858	16	S	630	38	0.19	
•C1MC92	WAL373367	18	L	400	31		
C1KW91	WAL037859	20	S	420	44	0.31	
•C1KW92	WAL037860	25	S	420	50	0.55	
C1KW93	WAL037861	30	S	420	54	0.73	

Note: Order Nuts and Profile Ring separately. See page 1056



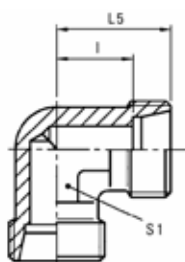
119 / 120
Equal Elbow

Catalog Part No.	Voss Model	Tube O.D. D1 (mm)	Series	Maximum Operating Pressure (bar)	L1 (mm)	Wt.	Price Each
•C1AJ36	120-101	10	L	250	30	0.21	
•C1AJ40	120-251	18	L	160	23.5	0.53	

1 millimeter = 0.03937 inches 1 bar = 14.5 psi °F = (°C x 1.8) + 32

Tube Fittings

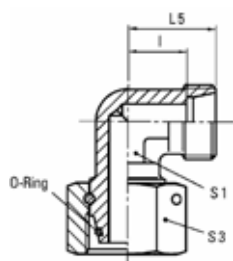
Steel Metric Flareless Fittings



Walterscheid
Elbow Union Connector
(Body Only)

Catalog Part No.	Eaton Walterscheid Model	Tube O.D. (mm)	Series	Maximum Operating Pressure (bar)	L5 (mm)	Includes Ring/Nut?	Wt.	Price Each
C1KW94	WAL037869	10	L	500	22	No	0.07	
C1KW96	WAL037879	10	S	800	25	No		
•C1KX51	WAL373400	16	S	630	33	Yes	0.63	
C1KW95	WAL037872	18	L	400	31	No	0.25	
•C1KX52	WAL373402	25	S	420	42	Yes	1.77	

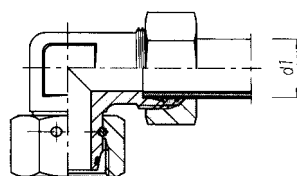
Note: Order Nuts and Profile Ring separately. See page 1056



Walterscheid
Elbow Swivel Connector
(Body Only)

Catalog Part No.	Eaton Walterscheid Model	Tube O.D. (mm)	Series	Maximum Operating Pressure (bar)	L5 (mm)	Wt.	Price Each
•C1KX27	WAL063877	6	L	500	21	0.10	
C1KX33	WAL063887	6	S	800	23	0.10	
C1KX28	WAL063878	8	L	500	21	0.09	
C1KX29	WAL063879	10	L	500	22	0.12	
•C1KX30	WAL063880	12	L	400	24	0.17	
C1KX34	WAL063890	12	S	630	29	0.24	
C1KX31	WAL063881	15	L	400	28	0.26	
C1KX35	WAL063892	16	S	630	33	0.43	
C1KX32	WAL063882	18	L	400	31	0.39	
C1KX36	WAL063894	25	S	420	42	1.18	

Note: Order Nuts and Profile Ring separately. See page 1056



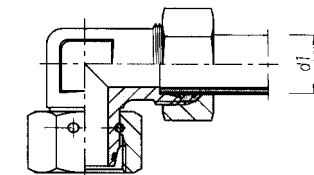
Companion Fitting
(not included)
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158
Swivel Elbow
(Swivel Elbow part only)

Catalog Part No.	Voss Model	Tube O.D. (mm)	Series	Maximum Operating Pressure (bar)	Companion Fitting For Metric Parallel Thread	Companion Fitting For BSP Parallel Thread	Wt.	Price Each
•C1AL12	158-021	6	L	250	184-391 (C1AL63) M 10x1	184-191 (C1AL50) R 1/8	0.09	

1 millimeter = 0.03937 inches 1 bar = 14.5 psi °F = (°C x 1.8) + 32

Steel Metric Flareless Fittings

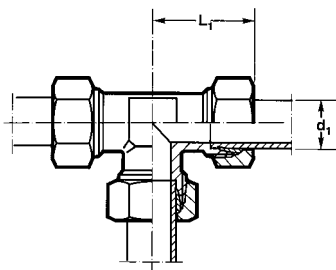


Companion Fitting
(not included)
goes here

158
Swivel Elbow
(Swivel Elbow part only)

Catalog Part No.	Voss Model	Tube O.D. D1 (mm)	Series	Maximum Operating Pressure (bar)	Companion Fitting For Metric Parallel Thread	Companion Fitting For BSP Parallel Thread	Wt.	Price Each
•C1AL20	158-521	6	S	630		184-291 (C1AL58) R 1/4	0.14	
•C1AL13	158-071	8	L	250	184-401 (C1AL64) M 12x1.5	184-201 (C1AL51) R 1/4	0.12	
•C1AL14	158-121	10	L	250	184-411 (C1AL65) M 14x1.5	184-211 (C1AL52) R 1/4	0.16	
•C1AL15	158-171	12	L	250	184-421 (C1AL66) M 16x1.5	184-151 R 3/8	0.21	
•C1AL23	158-671	12	S	630			0.32	
•C1AL16	158-221	15	L	250	184-431 (C1AL67) M 18x1.5	184-231 (C1AL54) R 1/2	0.36	
•C1AL24	158-771	16	S	400	184-541 (C1AL70) M 22x1.5	184-341 (C1AL60) R 1/2	0.59	
•C1AL17	158-271	18	L	160	184-441 (C1AL68) M 22x1.5	184-241 (C1AL55) R 1/2	0.51	
•C1KY83	WAL374560	22	L	250				
•C1AL26	158-871	25	S	400		184-361 (C1AL62) R 1	1.66	

Note: Part Numbers beginning with WAL are manufactured by Eaton Walterscheid. Use this swivel plus one of the companion fittings listed previously for a complete 90° swivel elbow fitting.



133 / 134
Equal Tee

Catalog Part No.	Voss Model	Tube O.D. D1 (mm)	Series	Maximum Operating Pressure (bar)	L1 (mm)	Wt.	Price Each
•C1KY82	WAL373408	6	L	500	27		
•C1LD23	WAL373419	8	S	800	32		
•C1AK43	134-151	12	L	250	32	0.30	

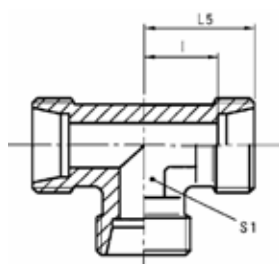
Note: Part Numbers beginning with WAL are manufactured by Eaton Walterscheid.

1 millimeter = 0.03937 inches 1 bar = 14.5 psi °F = (°C x 1.8) + 32

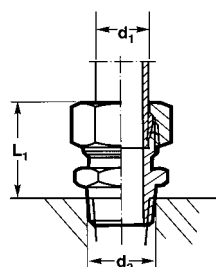
Tube Fittings

Steel Metric Flareless Fittings

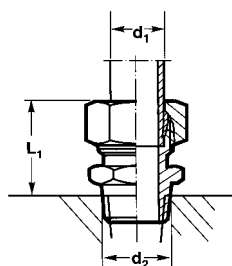
EATON
Powering Business Worldwide



Walterscheid
Equal Tee
(Body Only)



103 / 104
Male Stud Coupling
BSP Taper



105 / 106
Male Stud Coupling
NPT

Catalog Part No.	Eaton Walterscheid Model	Tube O.D. (mm)	Series	Maximum Operating Pressure (bar)	L5 (mm)	Wt.	Price Each
C1KW97	WAL037893	10	L	500	22	0.09	
C1KW98	WAL037894	12	L	400	24	0.13	

Note: Order Nuts and Profile Ring separately. See page 1056

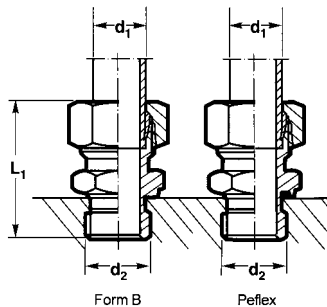
Catalog Part No.	Voss Model	Tube O.D. D1 (mm)	Series	Maximum Operating Pressure (bar)	Thread Size D2 (mm)	L1 (mm)	Wt.	Price Each
C1AG89	104-001	6	L	250	R 1/8 K	24.5	0.05	
C1AG91	104-051	8	L	250	R 1/4 K	27	0.09	
C1AH27	104-151	12	L	250	R 3/8 K	28.5	0.14	
C1AH28	104-201	15	L	250	R 1/2 K	30.5	0.22	
C1AH32	104-751	16	S	400	R 1/2 K	38.5	0.35	
C1AH31	104-351	28	L	100	R 1 K	37	0.55	

Catalog Part No.	Voss Model	Tube O.D. D1 (mm)	Series	Maximum Operating Pressure (bar)	Thread Size D2 (NPT)	L1 (mm)	Wt.	Price Each
C1AH50	106-001	6	L	250	1/8-27	25	0.05	
C1AH51	106-051	8	L	250	1/4-18	28	0.09	
C1FJ54	106-551	8	S	630	1/4-18	33	0.13	
C1AH52	106-101	10	L	250	1/4-18	29	0.10	
C1LD22	WAL373032	12	L	315	3/8-18	17		
C1AH55	106-151	12	L	250	3/8-18	29.5	0.14	
C1ZV46	106-651	12	S	630	3/8-18	35.5	0.23	
C1MC89	WAL373034	15	L	315	1/2-14	18		
C1AH61	106-751	16	S	400	1/2-14	40.5	0.36	
C1AH57	106-251	18	L	160	1/2-14	34.5	0.31	
C1AH62	106-801	20	S	400	3/4-14	45.5	0.57	
C1AH58	106-301	22	L	160	3/4-14	36.5	0.41	
C1AH63	106-851	25	S	400	1-11-1/2	52.5	1.07	

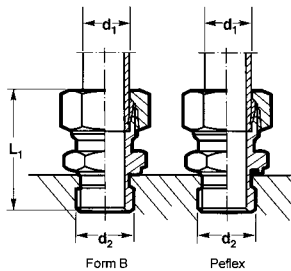
Note: Part Numbers beginning with WAL are manufactured by Eaton Walterscheid.

1 millimeter = 0.03937 inches 1 bar = 14.5 psi °F = (°C x 1.8) + 32

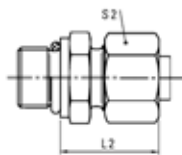
Steel Metric Flareless Fittings



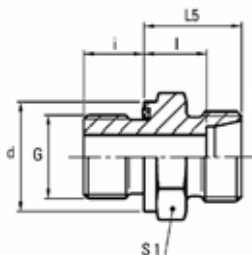
109 / 184
Male Stud Coupling



110 / 184
Male Stud Coupling
BSP Parallel



Walterscheid
Male Stud Connect SAE O-Ring Boss



Walterscheid
BSPP with Seal
(Body Only)

Catalog Part No.	Voss Model	Tube O.D. D1 (mm)	Series	Maximum Operating Pressure (bar)	Thread Size D2 (mm)	Type	L1 (mm)	Wt.	Price Each
•C1AL64	184-401	8	L	250	M 12x1.5	Peflex	25	0.09	
•C1AL65	184-411	10	L	250	M 14x1.5	Peflex	26	0.11	
•C1AL67	184-431	15	L	250	M 18x1.5	Peflex	29	0.22	

Catalog Part No.	Voss Model	Tube O.D. D1 (mm)	Series	Maximum Operating Pressure (bar)	Thread Size D2 (mm)	Type	L1 (mm)	Wt.	Price Each
•C1AL51	184-201	8	L	250	R 1/4	Peflex	25	0.10	
•C1AL53	184-221	12	L	250	R 3/8	Peflex	27	0.15	
•C1AL54	184-231	15	L	250	R 1/2	Peflex	29	0.26	
•C1AL60	184-341	16	S	400	R 1/2	Peflex	37	0.36	
•C1AL55	184-241	18	L	160	R 1/2	Peflex	31	0.31	
•C1AL61	184-351	20	S	400	R 3/4	Peflex	42	0.59	
•C1AL56	184-251	22	L	160	R 3/4	Peflex	33	0.42	
•C1AL57	184-261	28	L	100	R 1	Peflex	34	0.57	

Catalog Part No.	Eaton Walterscheid Model	Tube O.D. (mm)	Series	Maximum Operating Pressure (bar)	Thread Size	L2 (mm)	Wt.	Price Each
•C1MC90	WAL373165	12	L	400	3/4-16 UNF	28		

Catalog Part No.	Eaton Walterscheid Model	Tube O.D. (mm)	Series	Maximum Operating Pressure (bar)	Thread Size G	Wt.	Price Each
C1KW78	WAL037616	8	L	500	G 1/4	0.06	
•C1KW79	WAL037619	12	L	400	G 3/8	0.09	
C1KW80	WAL037623	28	L	250	G 1	0.37	

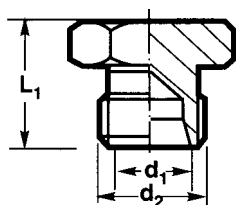
Note: Order Nuts and Profile Ring separately. See page 1056

1 millimeter = 0.03937 inches 1 bar = 14.5 psi °F = (°C x 1.8) + 32

Tube Fittings



Steel Metric Flareless Fittings

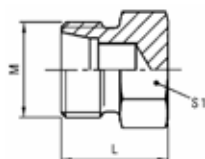


793
Tube Plug

Catalog Part No.	Voss Model	Tube O.D. D1 (mm)	Series	Maximum Operating Pressure (bar)	Thread Size D2 (mm)	L1 (mm)	Wt.	Price Each
•C1EW38	793-351	8	L	250	M 14x1.5	15	0.03	
•C1FN22	793-451	8	S	630	M 16x1.5	20	0.06	
•C1EW39	793-361	10	L	250	M 16x1.5	16	0.04	
•C1FP94	793-461	10	S	630	M 18x1.5	20	0.07	
•C1EW40	793-371	12	L	250	M 18x1.5	17	0.05	
•C1FP95	793-481	14	S	630	M 22x1.5	24	0.14	
•C1EW41	793-381	15	L	250	M 22x1.5	18	0.09	
•C1FN24	793-491	16	S	400	M 24x1.5	24	0.16	
•C1FN29	9203S-16-A DAPTAL	16	Heavy		M 24x1.5	24	0.17	
•C1MV44	WAL063400	20	S	420	M 30x2	28	0.29	
•C1EW43	793-401	22	L	160	M 30x2	21	0.19	
•C1GH69	793-511	25	S	400	M 36x2	32	0.49	
•C1EW44	793-411	28	L	100	M 36x2	22	0.32	

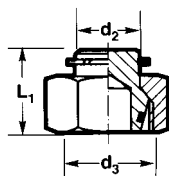
Note: 9203S is Adaptall model.

Note: WAL is Eaton-Walterscheid



Walterscheid
Tube Plug

Catalog Part No.	Eaton Walterscheid Model	Tube O.D. (mm)	Series	Maximum Operating Pressure (bar)	Thread Size M (mm)	L (mm)	Wt.	Price Each
•C1KX54	WAL609765	6	L	500	M 12x1.5	17		
•C1KX55	WAL609766	8	L	500	M 14x1.5	17	0.05	
•C1KX37	WAL372285	10	L	500	M 16x1.5	20		
•C1KW65	WAL024051	12	S	630	M 20x1.5	21		
•C1MC88	WAL063859	16	S	630	M 24x1.5	24		
•C1LD21	WAL061866	18	L	400	M 26x1.5	21		
•C1KX56	WAL609768	22	L	250	M 30x2.0	23	0.25	



1193
Blanking Plug
(For blanking off couplings)

Catalog Part No.	Voss Model	Tube O.D. D2 (mm)	Series	Maximum Operating Pressure (bar)	Thread Size D3 (mm)	Wt.	Price Each
•C1DU54	1193-041000	6	L	315	M 12x1.5	0.10	
•C1DU55	1193-051000	8	L	315	M 14x1.5	0.05	
•C1FR46	1193-151000	8	S	630	M 16x1.5	0.06	
•C1DU56	1193-061000	10	L	315	M 16x1.5	0.20	
•C1DU57	1193-071000	12	L	315	M 18x1.5	0.11	
•C1FR48	1193-171000	12	S	630	M 20x1.5	0.13	
•C1FR49	1193-181000	14	S	630	M 22x1.5	0.18	
•C1DU58	1193-081000	15	L	315	M 22x1.5	0.62	
•C1EG60	1193-191000	16	S	400	M 24x1.5	0.23	
•C1EG62	1193-211000	25	S	400	M 36x2	0.65	
•C1DU61	1193-111000	28	L	160	M 36x2	0.50	

1 millimeter = 0.03937 inches 1 bar = 14.5 psi °F = (°C x 1.8) + 32





Tube Fittings

Steel Metric Flareless Fittings



**Walterscheid
Cap**

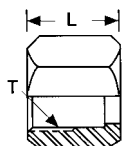
Catalog Part No.	Eaton Walterscheid Model	Tube O.D. (mm)	Series	Maximum Operating Pressure (bar)	L (mm)	Wt.	Price Each
•C1KX57	WAL612330	6	L	800	17		
•C1LA18	WAL612341	16	S	630	24		
•C1KX58	WAL612335	18	L	400	21	0.08	
•C1KY84	WAL612336	22	L	250	23		
•C1MM31	WAL612343	25	S	420	31		

1 millimeter = 0.03937 inches 1 bar = 14.5 psi °F = (°C x 1.8) + 32



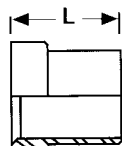
Tube Fittings

Stainless Steel Flare Nuts & Sleeves



J-N
JIC 37° Flare Nut

Catalog Part No.	SSP Model	Tube O.D. (in)	Thread T	L (in)	Wt.	Price Each
•C1CZ67	J3N	0.19	3/8-24	0.6	0.01	
•C1CZ92	J4N	0.25	7/16-20	0.61	0.03	
•C1DA17	J5N	0.31	1/2-20	0.67	0.03	
•C1DA43	J6N	0.38	9/16-18	0.72	0.04	
•C1DA78	J8N	0.50	3/4-16	0.84	0.07	
•C1CZ16	J10N	0.63	7/8-14	0.97	0.15	
•C1CZ35	J12N	0.75	1-1/16-12	1.02	0.17	
•C1CZ50	J16N	1.0	1-5/16-12	1.12	1.15	
•C1GM93	J20N	1.25	1-5/8-12	1.22	0.54	

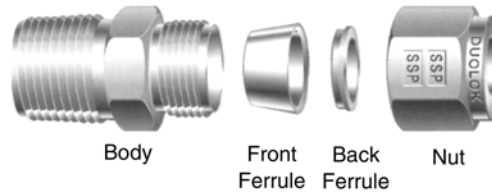


J-S
JIC 37° Flare Sleeve

Catalog Part No.	SSP Model	Tube O.D. (in)	L (in)	Wt.	Price Each
•C1CZ68	J3S	0.19	0.34	0.01	
•C1CZ94	J4S	0.25	0.41	0.01	
•C1DA19	J5S	0.31	0.44	0.01	
•C1DA45	J6S	0.38	0.50	0.01	
•C1DA80	J8S	0.50	0.56	0.15	
•C1CZ18	J10S	0.63	0.66	0.02	
•C1CZ37	J12S	0.75	0.68	0.03	
•C1CZ52	J16S	1.0	0.78	0.14	
•C1JE70	J20S	1.25	0.91	0.07	

316 Stainless Steel SSP Duolok® Tube Fittings (Swagelok® Interchange)

SSP Duolok® 316 Stainless Steel Tube Fittings (Swagelok® Interchange)



Features: Duolok® tube fittings provide a reliable, leak-proof connection in instrumentation and process tubing systems. The double ferrule design compensates for the variations in tubing materials, hardness and thickness of the tube wall to provide leak-tight connections in an extensive range of applications.

Materials: Straight fittings are machined from type 316 stainless steel cold-finished bar stock in accordance with ASTM A-276 and ASTM A-479. Shaped bodies are machined from close-grained 316 stainless steel forgings in accordance with ASTM A-182. All components are heat code traceable with certified material test reports (CMTRs) available.

Pressure Ratings: Generally, Duolok® tube fittings are rated for pressures equal to the maximum allowable working pressures of the tubing recommended for use with the fittings (stainless steel tubing). Some specially designed fittings, bored-through fittings, AN fittings, O-Ring Seal fittings and SAE integral end fittings may have a lower pressure rating than that of the tubing. Contact us for application assistance.

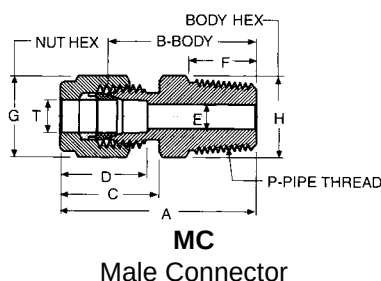
Temperature Factors: Duolok® tube fittings function reliably in an extremely wide range of operating temperatures. Elevated temperatures will reduce the maximum working pressure capability of the tubing system. For applications at elevated temperatures, contact us for application assistance.

Gageability: Duolok® tube fittings are designed, manufactured and quality controlled to be gageable for sufficient pull-up during initial installation. Contact us for detailed assembly instructions.

Interchangeability: Duolok® tube fittings are designed, manufactured and quality controlled to be totally interchangeable with the Swagelok® brand of tube fittings.

Tubing Selection: Stainless Steel Tubing page 1038

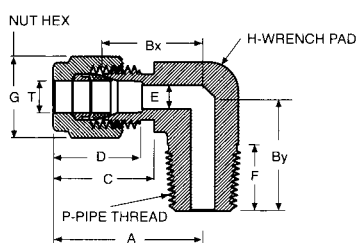
Assembly Instructions & Technical Information: page 1321 Also, please review the Important Safety Information starting on page 1519



Catalog Part No.	SSP Model	Tube O.D. T (in)	Thread P	A (in)	B (in)	D (in)	E (in)	Wt.	Price Each
•C1FN97	ISSD4MC2	0.25	1/8-27	1.29	1.00	0.60	0.17	0.05	
•C1FN98	ISSD4MC4	0.25	1/4-18	1.49	1.20	0.60	0.19	0.08	
•C1FN99	ISSD4MC6	0.25	3/8-18	1.51	1.22	0.60	0.19	0.10	
•C1FP28	ISSD6MC4	0.38	1/4-18	1.57	1.28	0.66	0.28	0.09	
•C1FP29	ISSD6MC6	0.38	3/8-18	1.57	1.28	0.66	0.28	0.11	
•C1FP30	ISSD6MC8	0.38	1/2-14	1.82	1.53	0.66	0.28	0.19	
•C1FP48	ISSD8MC4	0.50	1/4-18	1.71	1.31	0.90	0.28	0.14	
•C1FP49	ISSD8MC6	0.50	3/8-18	1.71	1.31	0.90	0.38	0.15	
•C1FP50	ISSD8MC8	0.50	1/2-14	1.93	1.53	0.90	0.41	0.21	
•C1GE14	ISSD10MC8	0.63	1/2-14	1.93	1.53	0.96	0.47	0.22	
•C1FN86	ISSD12MC8	0.75	1/2-14	1.99	1.59	0.96	0.47	0.26	
•C1FN85	ISSD12MC12	0.75	3/4-14	1.99	1.59	0.96	0.62	0.29	
•C1FN89	ISSD16MC16	1.00	1-11-1/2	2.45	1.97	1.23	0.88	0.55	

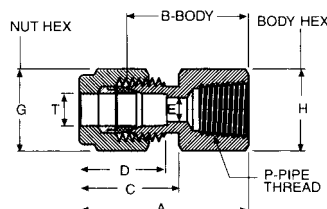
Tube Fittings

316 Stainless Steel SSP Duolok® Tube Fittings (Swagelok® Interchange)



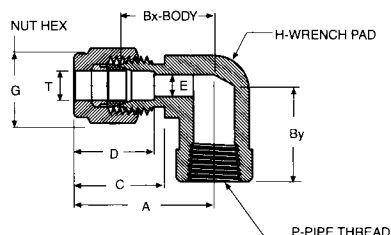
ME
Male Elbow

Catalog Part No.	SSP Model	Tube O.D. T (in)	Thread P	A (in)	Bx (in)	By (in)	D (in)	E (in)	Wt.	Price Each
•C1FP13	ISSD4ME2	0.25	1/8-27	1.06	0.77	0.74	0.60	0.17	0.08	
•C1FP14	ISSD4ME4	0.25	1/4-18	1.06	0.77	0.92	0.60	0.19	0.09	
•C1FP32	ISSD6ME4	0.38	1/4-18	1.20	0.91	1.00	0.66	0.28	0.13	
•C1FP33	ISSD6ME6	0.38	3/8-18	1.23	0.94	1.03	0.66	0.28	0.17	
•C1FP34	ISSD6ME8	0.38	1/2-14	1.31	1.02	1.30	0.66	0.28	0.29	
•C1FP53	ISSD8ME6	0.50	3/8-18	1.42	1.02	1.11	0.90	0.38	0.24	
•C1FP54	ISSD8ME8	0.50	1/2-14	1.42	1.02	1.30	0.90	0.41	0.31	
•C1GF17	ISSD10ME8	0.63	1/2-14	1.50	1.10	1.38	0.96	0.47	0.34	
•C1FQ88	ISSD12ME12	0.75	3/4-14	1.57	1.17	1.45	0.96	0.62	0.45	
•C1KG16	ISSD16ME16	1.00	1-11-1/2	1.93	1.45	1.83	1.23	0.88	0.90	



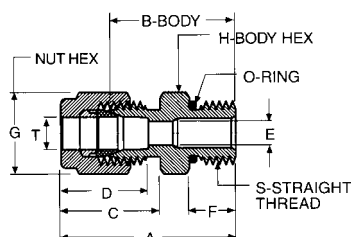
FC
Female Connector

Catalog Part No.	SSP Model	Tube O.D. T (in)	Thread P	A (in)	B (in)	D (in)	E (in)	Wt.	Price Each
•C1FN94	ISSD4FC4	0.25	1/4-18	1.41	1.12	0.60	0.19	0.10	
•C1FP23	ISSD6FC4	0.38	1/4-18	1.48	1.19	0.66	0.28	0.12	
•C1FP44	ISSD8FC4	0.50	1/4-18	1.59	1.19	0.90	0.41	0.17	
•C1FP45	ISSD8FC8	0.50	1/2-14	1.84	1.44	0.90	0.41	0.25	
•C1GG88	ISSD12FC12	0.75	3/4-14	1.90	1.50	0.96	0.62	0.37	



FE
Female Elbow

Catalog Part No.	SSP Model	Tube O.D. T (in)	Thread P	A (in)	Bx (in)	By (in)	D (in)	E (in)	Wt.	Price Each
•C1JB22	ISSD4FE4	0.25	1/4-18	1.17	0.88	0.88	0.60	0.19	0.15	

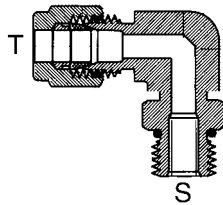


MCST
Male Connector Straight Thread O-Ring

Catalog Part No.	SSP Model	Tube O.D. T (in)	Thread S	A (in)	B (in)	D (in)	E (in)	Wt.	Price Each
•C1FP12	ISSD4MCST4	0.25	7/16-20	1.34	1.05	0.60	0.19	0.06	
•C1FP31	ISSD6MCST6	0.38	9/16-18	1.46	1.17	0.66	0.28	0.10	
•C1GC98	ISSD6MCST10	0.38	7/8-14	1.66	1.37	0.66	0.50	0.18	
•C1FP51	ISSD8MCST8	0.50	3/4-16	1.65	1.25	0.90	0.41	0.17	

Note: SAE O-Ring Boss O-Rings page 1267

316 Stainless Steel SSP Duolok® Tube Fittings (Swagelok® Interchange)

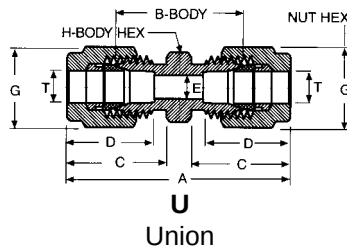


MEST

Male Connector Straight Thread O-Ring
90° Elbow

Catalog Part No.	SSP Model	Tube O.D. T (in)	Thread	Wt.	Price Each
•C1GB86	ISSD4MEST4	0.25	7/16-20	0.09	
•C1GB87	ISSD4MEST6	0.25	9/16-18	0.15	
•C1GD11	ISSD6MEST6	0.38	9/16-18	0.16	
•C1GB94	ISSD6MEST8	0.38	3/4-16	0.27	

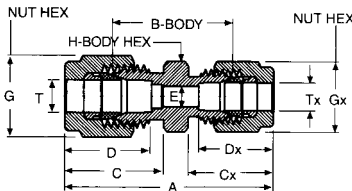
Note: SAE O-Ring Boss O-Rings page 1267



U

Union

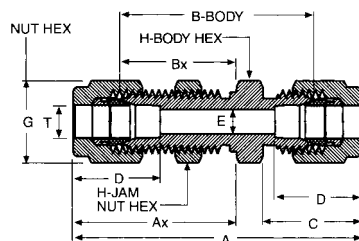
Catalog Part No.	SSP Model	Tube O.D. T (in)	A (in)	B (in)	E (in)	Wt.	Price Each
•C1FP17	ISSD4U	0.25	1.61	1.03	0.19	0.07	
•C1FP38	ISSD6U	0.38	1.77	1.19	0.28	0.11	
•C1FP59	ISSD8U	0.50	2.02	1.22	0.41	0.21	
•C1GF19	ISSD10U	0.63	2.05	1.25	0.50	0.25	
•C1FN88	ISSD12U	0.75	2.11	1.31	0.62	0.31	
•C1FQ90	ISSD16U	1.00	2.55	1.59	0.88	0.64	



RU

Reducing Union

Catalog Part No.	SSP Model	Tube O.D. T (in)	Tube O.D. Tx (in)	A (in)	B (in)	D (in)	Dx (in)	E (in)	Wt.	Price Each
•C1FP37	ISSD6RU4	0.38	0.25	1.70	1.12	0.66	0.60	0.19	0.10	
•C1FP58	ISSD8RU6	0.50	0.38	1.91	1.22	0.90	0.66	0.28	0.17	



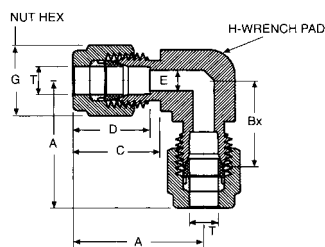
BU

Bulkhead Union

Catalog Part No.	SSP Model	Tube O.D. T (in)	A (in)	B (in)	E (in)	Max Panel Thickness (in)	Panel Hole Drill Dia (in)	Wt.	Price Each
•C1FN91	ISSD4BU	0.25	2.27	1.69	0.19	0.40	29/64	0.12	
•C1FP21	ISSD6BU	0.38	2.45	1.87	0.28	0.44	37/64	0.17	

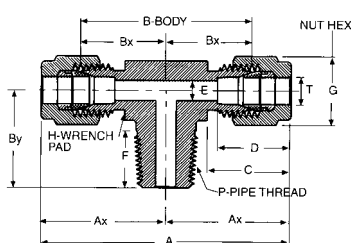
Tube Fittings

316 Stainless Steel SSP Duolok® Tube Fittings (Swagelok® Interchange)



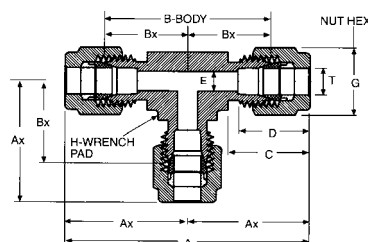
UE
Union Elbow

Catalog Part No.	SSP Model	Tube O.D. T (in)	A (in)	Bx (in)	D (in)	E (in)	Wt.	Price Each
•C1FP18	ISSD4UE	0.25	1.06	0.77	0.60	0.19	0.10	
•C1FP39	ISSD6UE	0.38	1.20	0.91	0.66	0.28	0.16	
•C1FP60	ISSD8UE	0.50	1.42	1.02	0.90	0.41	0.29	
•C1FQ89	ISSD12UE	0.75	1.57	1.17	0.96	0.62	0.47	
•C1HG39	ISSD16UE	1.00	1.93	1.45	1.23	0.88	0.95	



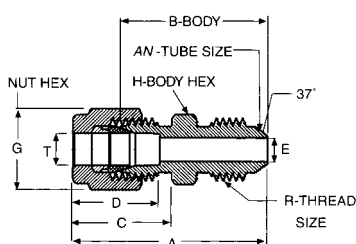
MBT
Male Branch Tee

Catalog Part No.	Catalog Part No.	Tube O.D. T (in)	Thread P	A (in)	B (in)	E (in)	Wt.	Price Each
•C1GF30	ISSD8MBT8	0.50	1/2-14	2.84	2.04	0.41	0.43	
•C1KG11	ISSD12MBT12	0.75	3/4-14	3.14	2.34	0.62	1.38	



UT
Union Tee

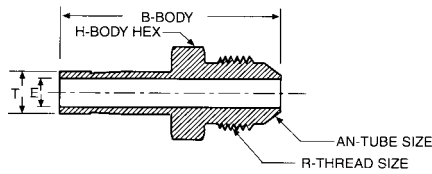
Catalog Part No.	SSP Model	Tube O.D. T (in)	A (in)	Ax (in)	B (in)	Bx (in)	E (in)	Wt.	Price Each
•C1FP19	ISSD4UT	0.25	2.12	1.06	1.54	0.77	0.19	0.14	
•C1FP40	ISSD6UT	0.38	2.40	1.20	1.82	0.91	0.28	0.22	
•C1FP61	ISSD8UT	0.50	2.84	1.42	2.04	1.02	0.41	0.40	
•C1KG14	ISSD12UT	0.75	3.14	1.57	2.34	1.17	0.62	1.36	
•C1KG19	ISSD16UT	1.00	3.86	1.93	2.90	1.45	0.88	0.75	



ANU
AN Union

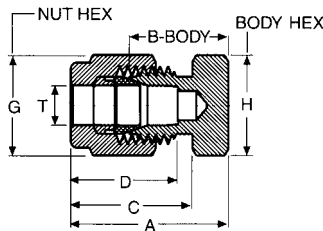
Catalog Part No.	SSP Model	Tube O.D. T (in)	Thread R	A (in)	B (in)	D (in)	E (in)	Wt.	Price Each
•C1FR25	ISSD4ANU4	0.25	7/16-20	1.48	1.19	0.60	0.17	0.06	
•C1FR32	ISSD6ANU6	0.38	9/16-18	1.56	1.27	0.66	0.28	0.09	
•C1GJ95	ISSD8ANU8	0.50	3/4-16	1.81	1.41	0.90	0.39	0.17	
•C1GJ89	ISSD12ANU12	0.75	1-1/16-12	2.10	1.70	0.96	0.61	0.30	
•C1KM60	ISSD16ANU16	1.00	1-5/16-12	2.42	1.94	1.23	0.84	0.75	

316 Stainless Steel SSP Duolok® Tube Fittings (Swagelok® Interchange)



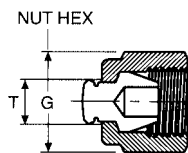
ANA
AN Adapter

Catalog Part No.	SSP Model	Tube O.D. T (in)	Thread R	B (in)	Wt.	Price Each
•C1FR24	ISSD4ANA4	0.25	7/16-20	1.46	0.03	
•C1FR31	ISSD6ANA6	0.38	9/16-18	1.56	0.05	
•C1GJ94	ISSD8ANA8	0.50	3/4-16	1.91	0.10	
•C1GM27	ISSD12ANA12	0.75	1-1/16-12	2.21	0.23	



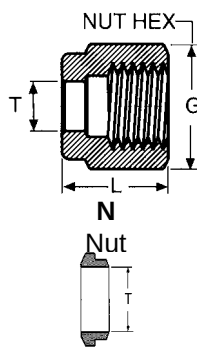
CP
Cap

Catalog Part No.	SSP Model	Tube O.D. T (in)	A (in)	B (in)	D (in)	Wt.	Price Each
•C1FN92	ISSD4CP	0.25	0.92	0.63	0.60	0.04	
•C1FP22	ISSD6CP	0.38	1.01	0.72	0.66	0.07	
•C1FP43	ISSD8CP	0.50	1.15	0.75	0.90	0.13	
•C1JE68	ISSD12CP	0.75	1.24	0.84	0.96	0.21	
•C1KG15	ISSD16CP	1.00	1.51	1.02	1.23	0.44	



P
Plug

Catalog Part No.	SSP Model	Tube O.D. T (in)	G (in)	Wt.	Price Each
•C1KG18	ISSD16P			0.31	
•C1FP16	ISSD4P	0.25	9/16	0.03	
•C1FP36	ISSD6P	0.38	11/16	0.04	
•C1FP56	ISSD8P	0.50	7/8	0.09	
•C1FN87	ISSD12P	0.75	1-1/8	0.14	



N
Nut
BF
Back Ferrule

Catalog Part No.	SSP Model	Tube O.D. T (in)	G (in)	L (in)	Wt.	Price Each
•C1FP15	ISSD4N	0.25	9/16	0.50	0.02	
•C1FP35	ISSD6N	0.38	11/16	0.56	0.03	
•C1FP55	ISSD8N	0.50	7/8	0.69	0.05	
•C1GM87	ISSD12N	0.75	1-1/8	0.69	0.07	

Catalog Part No.	SSP Model	Tube O.D. T (in)	Wt.	Price Each
C1GC83	ISSD10BF	0.63	0.01	
•C1GC92	ISSD16BF	1.00	0.01	

Tube Fittings

316 Stainless Steel SSP Duolok® Tube Fittings (Swagelok® Interchange)



FS
Ferrule Set

Catalog Part No.	SSP Model	Tube O.D. T (in)	Wt.	Price Each
• C1FN96	ISSD4FS	0.25	0.01	
• C1FP27	ISSD6FS	0.38	0.01	
• C1FP47	ISSD8FS	0.50	0.01	
• C1KF99	ISSD12FS	0.75	0.01	

Note: Each Ferrule Set consists of 1 Front Ferrule (FF) and 1 Back Ferrule (BF).

Hydraulic Power & Control

Pneumatic Power & Control

Fluid Conveying

Miscellaneous Products

Indexes & Technical Information



Tube Fittings

Stainless Steel
Metric Flareless Fittings

adapt^{III}all



SS9201
Tube Nut

Catalog Part No.	Adaptall Model	Tube O.D. (mm)	Series	Thread Size (mm)	Wt.	Price Each
•C1FP72	SS9201L-08	8	Light	M 14x1.5	0.03	
•C1FP74	SS9201L-12	12	Light	M 18x1.5	0.06	

Hydraulic Power & Control

Pneumatic Power & Control

Fluid Conveying

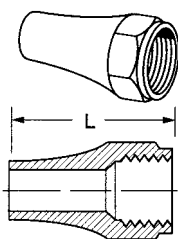
Miscellaneous Products

Indexes & Technical Information



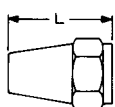
Tube Fittings

Brass Flare & Inverted Flare Nuts



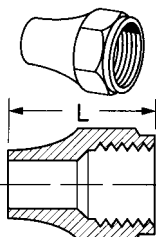
41

Flare Nut (Long)



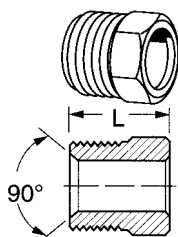
241

Flare Nut (Long)



1110

Flare Nut (Short)



100

Inverted Flare Tube Nut

Catalog Part No.	Eaton Model	Tube O.D. (in)	Thread	L (in)	Wt.	Price Each
•C1HP82	41X4	0.25	7/16-20	0.94	0.03	
•C1HP83	41X5	0.31	1/2-20	1.12	0.04	
•C1HP84	41X6	0.38	5/8-18	1.31	0.06	
•C1HP85	41X8	0.50	3/4-16	1.62	0.09	

Catalog Part No.	Model Number	Tube O.D. (in)	Thread	L (in)	Wt.	Price Each
•C1BF78	241X10	0.63	7/8-14	1.88	0.21	

Catalog Part No.	Eaton Model	Tube O.D. (in)	Thread	L (in)	Wt.	Price Each
•C1HL59	1110X6	0.38	5/8-18	1.00	0.05	

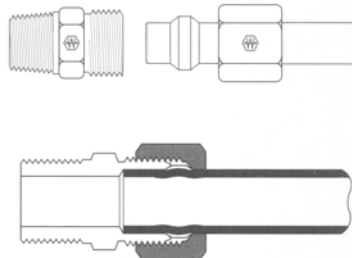
Catalog Part No.	Eaton Model	Tube O.D. (in)	L (in)	Wt.	Price Each
•C1HL48	100X3	0.19	0.56	0.01	
•C1HL49	100X4	0.25	0.56	0.01	
•C1HL50	100X5	0.31	0.62	0.02	
•C1HL51	100X6	0.38	0.66	0.03	

Brass

Compression Fittings - Plastic, Copper & Aluminum Tubing

Brass Compression Tube Fittings

Used with Plastic, Copper & Aluminum Tubing



Typical Application: Instrumentation, hydraulic and pneumatic systems. For your particular application, please review the Important Safety Information starting on page 1519

Pressure: Working pressure up to 2000 psi with a 4:1 safety factor depending on tube size. When using plastic tubing, use the working pressure for type used.

Vibration: Fair resistance - use long nut when greater vibration resistance is needed.

Temperature Range: -65°F to +250°F with metal tubing. When using a compatible plastic tubing do not exceed the tubing temperature range. (Refer to tubing temperature range.)

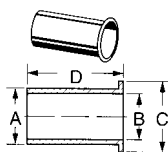
Material: CA360 Brass.

Used With: Aluminum, copper and plastic tubing. Plastic tubing, except for Eaton PT230, requires the 2030 insert. Not recommended for steel tubing.

Features: Low cost. Easy to assemble, no flaring. Available with long or short nut. Broad selection of styles and sizes.

Conformance: Meets specifications and standards of ASA, ASME and SAE. Listed by Underwriter's Laboratories (available on special order) for flammable liquids.

Assembly Instructions: 1. Cut tubing to desired length. 2. Slide nut and then sleeve on tube. Threaded end "A" of nut must face toward fitting. 3. Insert tubing into fitting body. Be sure tubing is bottomed on fitting shoulder. 4. Lubricate threads and assemble nut to fitting body. 5. Tighten nut hand tight. From that point, tighten with a wrench the following number of turns past hand tight, by Tube Size: 1/8 thru 1/4 (1-1/4 turns), 5/16 (1-3/4 turns), 3/8 thru 1 (2-1/4 turns).



2030

Tube Support for Plastic Tubing

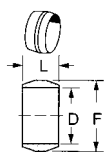
Catalog Part No.	Eaton Model	Tube O.D. (in)	A (in)	B (in)	C (in)	D (in)	Wt.	Price Each
•C1HN64	2030X4	1/4	1/8	3/32	11/64	19/32	0.00	
•C1KJ55	2030X44	1/4	11/64	9/64	7/32	17/32	0.30	
•C1HN65	2030X5	5/16	3/16	5/32	15/64	5/8	0.01	
•C1HN66	2030X6	3/8	1/4	7/32	11/32	41/64	0.01	
•C1HN67	2030X8	1/2	3/8	11/32	7/16	13/16	0.01	
•C1HN63	2030X10	5/8	1/2	29/64	35/64	13/16	0.01	

Tube Fittings



Brass

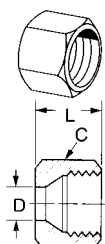
Compression Fittings - Plastic, Copper & Aluminum Tubing



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Compression Sleeve

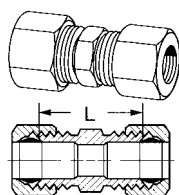
Catalog Part No.	Eaton Model	Tube O.D. (in)	D (in)	F (in)	L (in)	Wt.	Price Each
•C1HQ65	60X2	1/8	0.13	0.19	0.19	0.01	
•C1HQ66	60X3	3/16	0.19	0.27	0.22	0.01	
•C1HQ67	60X4	1/4	0.26	0.34	0.25	0.01	
•C1HQ68	60X5	5/16	0.32	0.41	0.25	0.01	
•C1HQ69	60X6	3/8	0.38	0.47	0.25	0.01	
•C1HQ70	60X8	1/2	0.51	0.59	0.38	0.01	
•C1HQ64	60X10	5/8	0.63	0.72	0.38	0.01	



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Nut

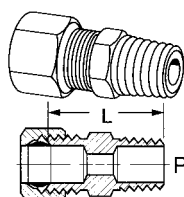
Catalog Part No.	Eaton Model	Tube O.D. (in)	C (in)	D (in)	L (in)	Wt.	Price Each
•C1HQ74	61X2	1/8	3/8	0.13	0.38	0.01	
•C1HQ75	61X3	3/16	7/16	0.19	0.41	0.01	
•C1HQ76	61X4	1/4	1/2	0.26	0.44	0.01	
•C1HQ77	61X5	5/16	9/16	0.32	0.44	0.02	
•C1HQ78	61X6	3/8	5/8	0.38	0.47	0.02	
•C1HQ79	61X8	1/2	13/16	0.51	0.62	0.05	
•C1HQ73	61X10	5/8	15/16	0.63	0.62	0.05	



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(Ref. SAE No. 060101BA)

Catalog Part No.	Eaton Model	Tube O.D. (in)	L (in)	Wt.	Price Each
•C1HQ82	62X2	1/8	0.66	0.03	
•C1HQ83	62X3	3/16	0.76	0.04	
•C1HQ84	62X4	1/4	0.79	0.05	
•C1HQ85	62X5	5/16	0.88	0.06	
•C1HQ86	62X6	3/8	0.97	0.08	
•C1HQ87	62X8	1/2	1.10	0.16	
•C1HQ81	62X10	5/8	1.25	0.20	



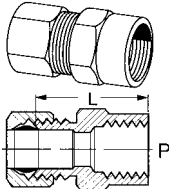
68

(Ref. SAE No. 060102BA)

Catalog Part No.	Eaton Model	Tube O.D. (in)	Thread P	L (in)	Wt.	Price Each
•C1HR15	68X2	1/8	1/8-27	0.78	0.02	
•C1HR16	68X3	3/16	1/8-27	0.84	0.04	
•C1HR17	68X4	1/4	1/8-27	0.88	0.04	
•C1HR18	68X4X4	1/4	1/4-18	1.06	0.06	
•C1HR19	68X5	5/16	1/8-27	0.91	0.04	
•C1HR20	68X5X4	5/16	1/4-18	1.09	0.06	
•C1HR22	68X6X2	3/8	1/8-27	0.97	0.05	
•C1HR21	68X6	3/8	1/4-18	1.17	0.06	
•C1HR23	68X6X6	3/8	3/8-18	1.16	0.09	
•C1HR24	68X6X8	3/8	1/2-14	1.34	0.12	
•C1HR26	68X8X4	1/2	1/4-18	1.22	0.11	
•C1HR25	68X8	1/2	3/8-18	1.22	0.11	
•C1HR27	68X8X8	1/2	1/2-14	1.41	0.18	
•C1HR14	68X10	5/8	1/2-14	1.50	0.18	



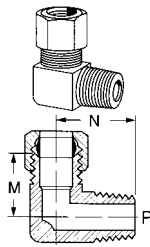
Brass Compression Fittings - Plastic, Copper & Aluminum Tubing



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Female Connector

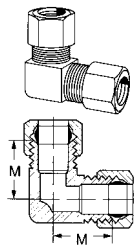
Catalog Part No.	Eaton Model	Tube O.D. (in)	Thread P	L (in)	Wt.	Price Each
•C1HQ95	66X2	1/8	1/8-27	0.75	0.04	
•C1HQ96	66X3	3/16	1/8-27	0.78	0.04	
•C1HQ97	66X4	1/4	1/8-27	0.78	0.05	
•C1HQ98	66X4X4	1/4	1/4-18	1.03	0.07	
•C1HQ99	66X6	3/8	1/4-18	1.06	0.08	
•C1HR11	66X8	1/2	3/8-18	1.12	0.12	



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(Ref. SAE No. 060202BA)

Catalog Part No.	Eaton Model	Tube O.D. (in)	Thread P	M (in)	N (in)	Wt.	Price Each
•C1HR30	69X2	1/8	1/8-27	0.60	0.67	0.04	
•C1HR31	69X3	3/16	1/8-27	0.62	0.69	0.05	
•C1HR32	69X4	1/4	1/8-27	0.62	0.75	0.06	
•C1HR33	69X4X4	1/4	1/4-18	0.62	0.75	0.09	
•C1HR35	69X5X4	5/16	1/4-18	0.69	0.84	0.08	
•C1HR37	69X6X2	3/8	1/8-27	0.69	0.69	0.07	
•C1HR36	69X6	3/8	1/4-18	0.75	0.94	0.09	
•C1HR38	69X6X6	3/8	3/8-18	0.84	0.94	0.12	
•C1HV40	69X6X8	3/8	1/2-14	1.06	1.12	0.20	
•C1HR40	69X8X4	1/2	1/4-18	0.84	0.94	0.16	
•C1HR39	69X8	1/2	3/8-18	0.94	1.12	0.18	
•C1HR41	69X8X8	1/2	1/2-14	0.94	1.31	0.32	
•C1HR29	69X10	5/8	1/2-14	1.06	1.31	0.31	



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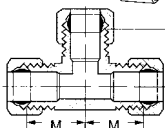
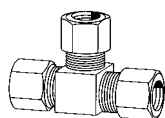
90° Union Elbow

Catalog Part No.	Eaton Model	Tube O.D. (in)	M (in)	Wt.	Price Each
•C1HQ92	65X6	3/8	0.73	0.11	

Tube Fittings

Brass

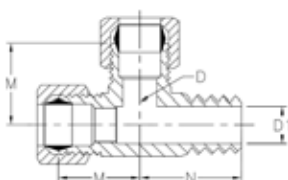
Compression Fittings - Plastic, Copper & Aluminum Tubing



64

Union Tee

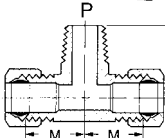
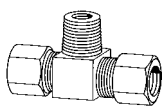
Catalog Part No.	Eaton Model	Tube O.D. (in)	M (in)	Wt.	Price Each
•C1HQ88	64X4	1/4	0.60	0.10	
•C1HQ89	64X6	3/8	0.73	0.15	



71

Male Run Tee

Catalog Part No.	Eaton Model	Tube O.D. (in)	D (in)	D1 (in)	M (in)	N (in)	Wt.	Price Each
•C1MK19	71X6	3/8	0.312	0.344	0.75	0.94		



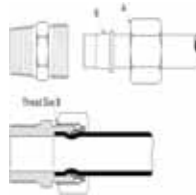
72

(Ref. SAE No. 060425BA)

Catalog Part No.	Eaton Model	Tube O.D. (in)	Thread P	M (in)	N (in)	Wt.	Price Each
•C1HR45	72X4X4X4	1/4	1/4-18	0.78	0.85	0.13	

Brass SelfAlign - Plastic, Copper & Aluminum Tubing

Brass SelfAlign Tube Fittings Used with Plastic, Copper & Aluminum Tubing



Typical Application: Instrumentation, hydraulic and pneumatic systems. For your particular application, please review the Important Safety Information starting on page 1519

Pressure: Working pressure up to 2000 psi with a 4:1 safety factor depending on tube size. When using plastic tubing, use the working pressure for type used.

Vibration: Fair resistance - use long nut when greater vibration resistance is needed.

Temperature Range: -65°F to +250°F with metal tubing. When using a compatible plastic tubing do not exceed the tubing temperature range. (Refer to tubing temperature range.)

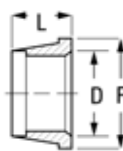
Material: CA360 Brass.

Used With: Aluminum, copper and plastic tubing. Plastic tubing, except for Eaton PT230 and TP160, requires the 2030x insert. Not recommended for steel tubing.

Features: Very low cost and reusable. Self aligning - no need to disassemble fitting to line up sleeve on tube. Easy to assemble, no flaring. Available with long or short nut. Broad selection of styles and sizes.

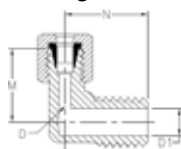
Conformance: Meets specifications and standards of ASA, ASME and SAE. Listed by Underwriter's Laboratories (available on special order) for flammable liquids.

Assembly Instructions: 1. Cut tubing to desired length. 2. Slide nut and then sleeve on tube. Threaded end of nut "A" and small end of sleeve "B" must face toward fitting. 3. Insert tubing into connector body. Be sure tubing is bottomed on connector shoulder. 4. Lubricate threads and assemble nut to connector body. 5. Tighten with wrench to the "ring grip" point. A. Ring Grip is the point when the cutting edge of the sleeve grips the tube. This is determined by turning tube slowly but firmly by hand while tightening the nut with a wrench until tube can no longer be turned by hand and a sharp increase in torque is noticed. 6. Tighten additional turns past "ring grip" as indicated on chart.



601

SelfAlign Sleeve



691

SelfAlign 90° Male Elbow

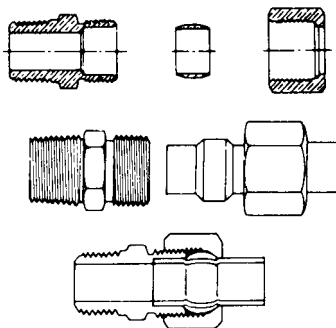
Catalog Part No.	Eaton Model	Tube Size	D (in)	F (in)	L (in)	Wt.	Price Each
C1KV20	601X5	5/16	0.318	0.44	0.26		

Catalog Part No.	Eaton Model	Tube Size	Male Pipe Thread	D (in)	D1 (in)	M (in)	N (in)	Wt.	Price Each
C1KV25	691X5	5/16	1/8-27	0.25	0.25	0.62	0.75	0.06	

Tube Fittings

Brass

Compression Fittings - Copper & Aluminum Tubing



Design Features: Low cost. No flaring required. Easy to assemble.

Applications: Air, oil and water. Suitable for vacuum service. For your particular application, please review the Important Safety Information starting on page 1519

Construction: Brass.

Working Pressure: 1/8" to 1/4" tubing sizes: 500 PSI with 4:1 safety factor (2000 PSI burst). 5/16" to 1/2" tubing sizes: 250 PSI with 4:1 safety factor (1000 PSI burst). 3/4" to 1" tubing sizes: 188 PSI with 4:1 safety factor (750 PSI burst).

Operating Temperature Range: -65°F to 250°F.

Tubing: For use with copper & aluminum tubing. Not recommended for steel tubing.



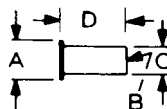
260
Sleeve

Catalog Part No.	Model Number	Tube O.D. (in)	L (in)	Wt.	Price Each
•C1BH71	260X12	0.75	0.44	0.01	



261
Nut

Catalog Part No.	Model Number	Tube O.D. (in)	L (in)	Wt.	Price Each
•C1BH79	261X12	0.75	0.69	0.08	



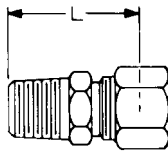
295
Insert

Catalog Part No.	Model Number	Tube O.D. (in)	A (in)	B (in)	C (in)	D (in)	Wt.	Price Each
•C1BJ94	295X3	0.19	0.19	0.09	0.11	0.51	0.05	



Tube Fittings

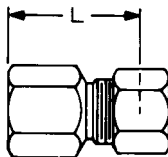
Brass Compression Fittings - Copper & Aluminum Tubing



268

Male Connector
(261 Nut and 260 Sleeve included)

Catalog Part No.	Model Number	Tube O.D. (in)	Pipe Thread	L (in)	Wt.	Price Each
•C1BJ33	268X12X12	0.75	3/4-14	1.50	0.30	



266

Female Connector
(261 Nut and 260 Sleeve included)

Catalog Part No.	Model Number	Tube O.D. (in)	Pipe Thread	L (in)	Wt.	Price Each
•C1EN25	266X5X4	0.31	1/4-18		2.00	

Hydraulic Power & Control

Pneumatic Power & Control

Fluid Conveying

Miscellaneous Products

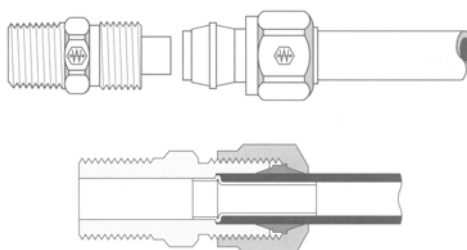
Indexes & Technical Information

Tube Fittings

Brass
DOT Approved Air Brake - Nylon Air Brake Tubing

EATON
 Powering Business Worldwide

Brass Air Brake Tube Fittings Used with Nylon Air Brake Tubing



Typical Application: Air brake systems except where temperatures exceed +200°F or where battery acid can drip on tubing. For your particular application, please review the Important Safety Information starting on page 1519

Pressure: Maximum operating pressure of 150 psi.

Vibration: Fair resistance.

Temperature Range: -40°F to +200°F.

Material: CA360 Brass.

Used With: NT100 Nylon Tubing - SAE J844 Type A and B.

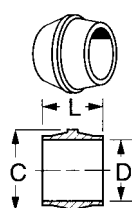
Features: Easy to assemble (no tube preparation or flaring required.) Built in tube support.

Conformance: Meets specifications and standards of SAE and DOT FMVSS 571.106.

Assembly Instructions: 1. Cut tubing to desired length. 2. Slide nut and then sleeve on tubing. Threaded end of nut "A" must face toward fitting body. 3. Insert tubing into the preassembled fitting. Be sure tubing is bottomed in fitting. 4. Tighten nut to following torque based on Tube Size: 1/4 (85 to 115 in.lbs), 3/8 (12 to 17 ft.lbs), 1/2 (25 to 33 ft.lbs), 5/8 (26 to 35 ft.lbs), 3/4 (38 to 50 ft.lbs). A gauge ring also assures installation to specification.

Disassembly: Remove nut and pull tubing out of fitting body. Insert will remain in tubing.

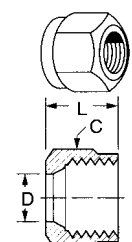
Reassembly: Push tubing and insert into fitting body until it bottoms. Thread nut onto fitting body and torque as in Step 4.



1460

Sleeve (Ref SAE 100115)

Catalog Part No.	Eaton Model	Tube O.D. (in)	C (in)	D (in)	L (in)	Wt.	Price Each
•C1HM72	1460X4	1/4	0.359	0.256	0.30	0.01	
•C1HM73	1460X6	3/8	0.479	0.384	0.39	0.01	
•C1HM74	1460X8	1/2	0.625	0.509	0.43	0.01	
•C1HM71	1460X10	5/8	0.745	0.635	0.48	0.01	

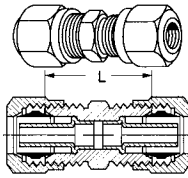


1461

Nut (Ref SAE 100110)

Catalog Part No.	Eaton Model	Tube O.D. (in)	C (in)	D (in)	L (in)	Wt.	Price Each
•C1HM76	1461X4	1/4	9/16	0.256	0.45	0.02	
•C1HM77	1461X6	3/8	5/8	0.384	0.63	0.03	
•C1HM78	1461X8	1/2	13/16	0.509	0.72	0.05	
•C1HM75	1461X10	5/8	15/16	0.634	0.77	0.06	

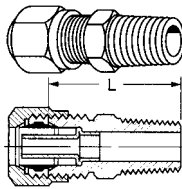
Brass DOT Approved Air Brake - Nylon Air Brake Tubing



1462

Union (Ref SAE 100101BA)

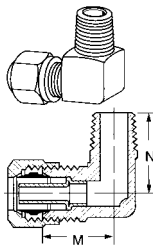
Catalog Part No.	Eaton Model	Tube O.D. (in)	L (in)	Wt.	Price Each
•C1HM80	1462X4	1/4	0.85	0.07	
•C1HM81	1462X6	3/8	1.10	0.10	
•C1HM82	1462X8	1/2	1.31	0.19	
•C1HM79	1462X10	5/8	1.43	0.25	



1468

Male Connector (Ref SAE 100102BA)

Catalog Part No.	Eaton Model	Tube O.D. (in)	Male Pipe Thread	L (in)	Wt.	Price Each
•C1HM85	1468X4	1/4	1/8-27	0.88	0.03	
•C1JA99	1468X4X4	1/4	1/4-18	1.09	0.07	
•C1JB11	1468X6	3/8	1/4-18	1.20	0.08	
•C1JB12	1468X6X6	3/8	3/8-18	1.23	0.11	
C1JB13	1468X6X8	3/8	1/2-14	1.42	0.13	
•C1JB14	1468X8	1/2	3/8-18	1.32	0.13	
•C1JB19	1468X8X8	1/2	1/2-14	1.51	0.20	
•C1JA57	1468X10X6	5/8	3/8-18	1.38	0.17	
•C1JA56	1468X10	5/8	1/2-14	1.57	0.20	



1469

90° Male Elbow (Ref SAE 100202BA)

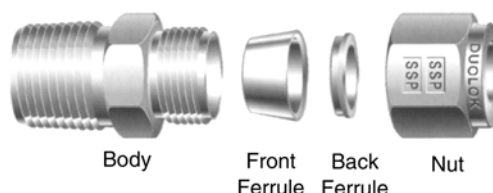
Catalog Part No.	Eaton Model	Tube O.D. (in)	Male Pipe Thread	M (in)	N (in)	Wt.	Price Each
•C1HH67	1469X4	1/4	1/8-27	0.63	0.67	0.06	
•C1HH68	1469x4x4	1/4	1/4-18	0.69	0.88	0.08	
•C1HH83	1469X6	3/8	1/4-18	0.80	0.93	0.10	
•C1HJ23	1469X6X6	3/8	3/8-18	0.85	0.92	0.14	
•C1JB26	1469X6X8	3/8	1/2-14	0.95	1.11	0.19	
•C1JB31	1469X8	1/2	3/8-18	0.94	1.00	0.20	
•C1JB32	1469X8X8	1/2	1/2-14	1.04	1.19	0.26	
•C1JB20	1469X10X6	5/8	3/8-18	1.01	1.06	0.26	
•C1HM87	1469X10	5/8	1/2-14	1.10	1.25	0.30	

Tube Fittings

Brass
SSP Duolok® Tube Fittings (Swagelok® Interchange)

SSP

SSP Duolok® Brass Tube Fittings (Swagelok® Interchange)



Features: Duolok® tube fittings provide a reliable, leak-proof connection in instrumentation and process tubing systems. The double ferrule design compensates for the variations in tubing materials, hardness and thickness of the tube wall to provide leak-tight connections in an extensive range of applications.

Materials: Straight fittings are machined from CA360 and CA345 premium brass bar stock in accordance with ASTM B-16 and ASTM B-453. Shaped bodies are machined from precision forgings of CA-377 brass in accordance with ASTM B-124.

Pressure Ratings: Generally, Duolok® tube fittings are rated for pressures equal to the maximum allowable working pressures of the tubing recommended for use with the fittings (copper tubing). Some specially designed fittings, bored-through fittings, AN fittings, O-Ring Seal fittings and SAE integral end fittings may have a lower pressure rating than that of the tubing. Contact us for application assistance.

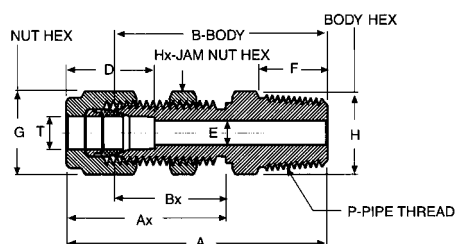
Temperature Factors: Duolok® tube fittings function reliably in an extremely wide range of operating temperatures. Elevated temperatures will reduce the maximum working pressure capability of the tubing system. For applications at elevated temperatures, contact us for application assistance.

Gageability: Duolok® tube fittings are designed, manufactured and quality controlled to be gageable for sufficient pull-up during initial installation. Contact us for detailed assembly instructions.

Interchangeability: Duolok® tube fittings are designed, manufactured and quality controlled to be totally interchangeable with the Swagelok® brand of tube fittings.

Tubing Selection: Copper Tubing.

Assembly Instructions & Technical Information: page 1321 Also, please review the Important Safety Information starting on page 1519



BMC

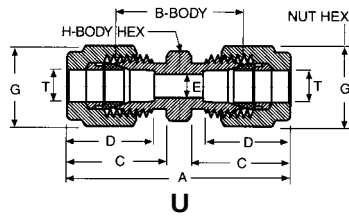
Bulkhead Male Connector

Catalog Part No.	SSP Model	Tube O.D. T (in)	Thread P	A (in)	Max Panel Thickness (in)	Panel Hole Drill Dia (in)	Wt.	Price Each
C1JB21	ISSD4BMC4	0.25	1/4-18	2.10	0.40	0.45	0.13	



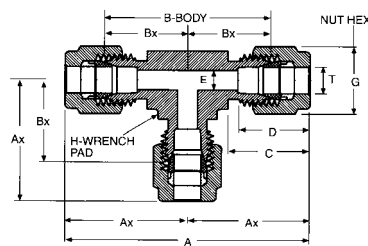
Tube Fittings

Brass SSP Duolok® Tube Fittings (Swagelok® Interchange)



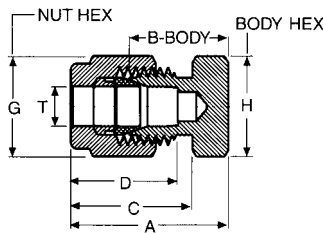
U
Union

Catalog Part No.	SSP Model	Tube O.D. T (in)	A (in)	B (in)	E (in)	Wt.	Price Each
•C1FN73	IBD6U	0.38	1.77	1.19	0.28	0.12	



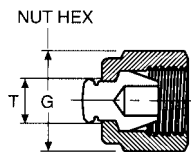
UT
Union Tee

Catalog Part No.	SSP Model	Tube O.D. T (in)	A (in)	Ax (in)	B (in)	Bx (in)	E (in)	Wt.	Price Each
•C1FN75	IBD6UT	0.38	2.40	1.20	1.82	0.91	0.28	0.23	



CP
Cap

Catalog Part No.	SSP Model	Tube O.D. T (in)	A (in)	B (in)	D (in)	Wt.	Price Each
•C1FN50	IBD4CP	0.25	0.92	0.63	0.60	0.05	



P
Plug

Catalog Part No.	SSP Model	Tube O.D. T (in)	G (in)	Wt.	Price Each
•C1FN59	IBD4P	0.25	9/16	0.03	

Hydraulic Power & Control

Pneumatic Power & Control

Fluid Conveying

Miscellaneous Products

Indexes & Technical Information



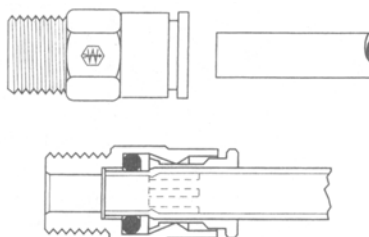
Tube Fittings

Brass

Push > Connect® Tube Fittings - Nylon & Polyethylene Tubing



Push > Connect® Brass Tube Fittings Used with Nylon & Polyethylene Tubing



Typical Application: Compressed pneumatic instrumentation, circuit, lubricant and cooling lines. For your particular application, please review the Important Safety Information starting on page 1519

Pressure: Up to 250 psi depending on tube size. Fittings rated at 29.5 inches of mercury vacuum.

Sealing Method: O-Ring of Buna-N Construction. (Viton® available on request by special order.)

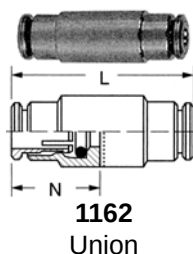
Temperature Range: -40°F to 200°F for these fittings. Also need to take into account when using a compatible plastic tubing, do not exceed the tubing temperature range. (Refer to tubing temperature range).

Material: Brass, Nickel Plated.

Used With: PT230 and TP160 nylon, and PT240 Polyethylene tubing.

Features: Ease of assembly. No tools required, reusability of fittings and the time savings of assembly and disassembly.

Assembly Instructions: 1. To connect, simply push the tubing into the fitting. 2. To disconnect, depress the collet ring with two fingers and withdraw.



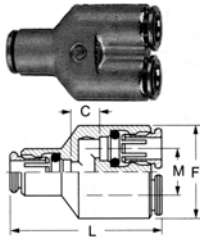
Catalog Part No.	Eaton Model	Tube O.D. (in)	L (in)	N (in)	Wt.	Price Each
•C1HL63	1162X2	1/8	1.26	0.59	0.03	
•C1HL64	1162X2.5	5/32	1.18	0.55	0.02	
•C1HL65	1162X4	1/4	1.40	0.64	0.04	
•C1HY44	1162X5	5/16	1.23	0.69	0.05	
•C1HL67	1162X6	3/8	1.67	0.79	0.09	
•C1HL69	1162X8	1/2	1.75	0.83	0.09	



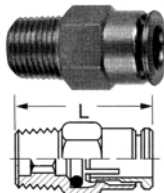
Catalog Part No.	Eaton Model	Tube O.D. (in)	B (in)	L (in)	Max (in)	Wt.	Price Each
•C1HM64	1174X4	1/4	M14 x 1	1.40	0.37	0.06	
•C1HM65	1174X6	3/8	M18 x 1	1.67	0.47	0.12	
•C1HM66	1174X8	1/2	M20 x 1	1.75	0.53	0.12	

Brass

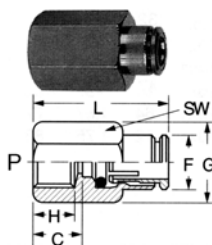
Push > Connect® Tube Fittings - Nylon & Polyethylene Tubing



1107
Union "Y"



1168
Male Connector



1166
Female Connector

Catalog Part No.	Eaton Model	Tube O.D. (in)	F (in)	L (in)	Wt.	Price Each
•C1HL57	1107X4	1/4	0.96	1.52	0.06	

Catalog Part No.	Eaton Model	Tube O.D. (in)	Male Pipe Thread	L (in)	Wt.	Price Each
•C1HL99	1168X2A	1/8	10-32 UNF thread	0.85	0.01	
•C1HL95	1168X2	1/8	1/8-27	0.85	0.02	
•C1HL97	1168X2.5A	5/32	10-32 UNF thread	0.81	0.01	
•C1HL96	1168X2.5	5/32	1/8-27	0.81	0.02	
•C1HL98	1168X2.5X4	5/32	1/4-18	0.94	0.04	
•C1HM12	1168X4A	1/4	10-32 UNF thread	0.91	0.02	
•C1HM11	1168X4	1/4	1/8-27	0.98	0.02	
•C1HM15	1168X4X4	1/4	1/4-18	1.08	0.04	
•C1HM16	1168X4X6	1/4	3/8-18	1.10	0.08	
•C1HY48	1168X5	5/16	1/8-27	1.14	0.04	
•C1HY49	1168X5X4	5/16	1/4-18	1.14	0.04	
•C1HM20	1168X6X2	3/8	1/8-27	1.38	0.06	
•C1HM17	1168X6	3/8	1/4-18	1.38	0.07	
•C1HM21	1168X6X6	3/8	3/8-18	1.18	0.08	
•C1HM22	1168X8	1/2	3/8-18	1.36	0.08	
•C1HM25	1168X8X8	1/2	1/2-14	1.36	0.10	

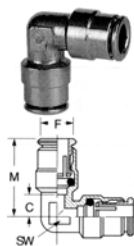
Note: Models with Z suffix have sealant on threads.

Catalog Part No.	Eaton Model	Tube O.D. (in)	Thread P	F (in)	L (in)	Wt.	Price Each
•C1HL87	1166X4	1/4	1/8-27	0.46	1.06	0.05	

Tube Fittings

Brass

Push > Connect® Tube Fittings - Nylon & Polyethylene Tubing



1165

Union Elbow

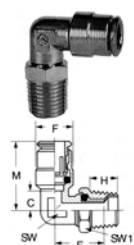
Catalog Part No.	Eaton Model	Tube O.D. (in)	F (in)	M (in)	Wt.	Price Each
•C1HL83	1165X4	1/4	0.50	0.91	0.04	
•C1HY46	1165X5	5/16	0.59	0.98	0.06	
•C1HL84	1165X6	3/8	0.69	1.12	0.10	
•C1HL85	1165X8	1/2	0.77	1.22	0.11	



1169

Male Elbow

Catalog Part No.	Eaton Model	Tube O.D. (in)	Thread P	E (in)	F (in)	M (in)	Wt.	Price Each
•C1HM34	1169X4	1/4	1/8-27	0.53	0.50	0.91	0.04	
•C1HM40	1169X6	3/8	1/4-18	0.69	0.69	1.12	0.08	

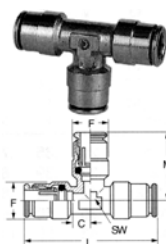


1169S

Swivel Male Elbow

Catalog Part No.	Eaton Model	Tube O.D. (in)	Thread P	E (in)	F (in)	M (in)	Wt.	Price Each
•C1HM33	1169X2S	1/8	1/8-27	0.71	0.39	0.83	0.04	
•C1HM30	1169X2.5AS	5/32	10-32 UNF thread	0.53	0.39	0.79	0.03	
•C1HM31	1169X2.5S	5/32	1/8-27	0.71	0.39	0.79	0.04	
•C1GH24	1169X4S	1/4	1/8-27	0.73	0.50	0.91	0.40	
•C1HM38	1169X4X4S	1/4	1/4-18	0.81	0.50	0.91	0.06	
•C1HM39	1169X4X6S	1/4	3/8-18	0.87	0.50	0.93	0.09	
•C1HY51	1169X5S	5/16	1/8-27	0.77	0.59	0.98	0.05	
•C1HM44	1169X6X2S	3/8	1/8-27	0.75	0.64	1.10	0.09	
•C1HM43	1169X6S	3/8	1/4-18	0.89	0.69	1.12	0.09	
•C1JB97	1169X6X6S	3/8	3/8-18	0.91	0.69	1.12	0.12	
•C1HM49	1169X8X4S	1/2	1/4-18	0.95	0.77	1.22	0.10	
•C1HM48	1169X8S	1/2	3/8-18	0.95	0.77	1.22	0.12	
•C1HM50	1169X8X8S	1/2	1/2-14	1.12	0.77	1.22	0.16	

Note: Models with Z suffix have sealant on threads.



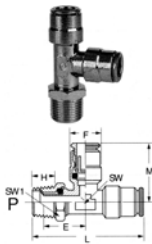
1164

Union Tee

Catalog Part No.	Eaton Model	Tube O.D. (in)	F (in)	L (in)	M (in)	Wt.	Price Each
•C1HL73	1164X2	1/8	0.39	1.65	0.83	0.04	
•C1HL74	1164X2.5	5/32	0.39	1.57	0.79	0.04	
•C1HL75	1164X4	1/4	0.50	1.81	0.91	0.06	
•C1HL77	1164X6	3/8	0.69	2.24	1.12	0.15	
•C1HL79	1164X8	1/2	0.77	2.44	1.22	0.15	

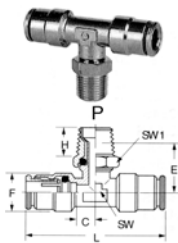
Brass

Push > Connect® Tube Fittings - Nylon & Polyethylene Tubing



1171S

Swivel Male Run Tee



1172S

Swivel Male Branch Tee

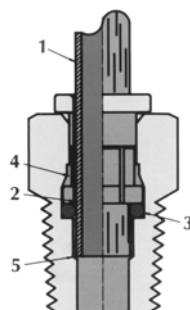
Catalog Part No.	Eaton Model	Tube O.D. (in)	Thread P	F (in)	L (in)	M (in)	Wt.	Price Each
•C1HM55	1171X4X4S	1/4	1/4-18	0.46	1.79	0.89	0.08	
•C1HM56	1171X6X6S	3/8	3/8-18	0.64	2.26	1.10	0.16	

Catalog Part No.	Eaton Model	Tube O.D. (in)	Thread P	F (in)	L (in)	Wt.	Price Each
•C1HM58	1172X2S	1/8	1/8-27	0.35	1.57	0.06	
•C1GH25	1172X4S	1/4	1/8-27	0.46	1.77	0.07	
•C1HN52	1172X6S	3/8	1/4-18	0.64	2.20	0.14	

Tube Fittings

Brass

Push-In Tube Fittings - Polyethylene & Nylon Tubing



Application: For your particular application, please review the Important Safety Information starting on page 1519

Design Features: Quick connect & disconnect. Positive seal, no leaks. Pre-applied Teflon® based pipe sealant on all male threads. Choice of stationary or swivel elbows and tees. Interior hex in straight connectors for Allen key tightening. Full flow design.

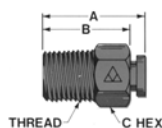
Construction: Brass construction (Elbows and tees are forged brass). Buna-N O-rings are standard.

Working Pressure: Suitable for use up to the maximum working pressure of the thermoplastic tubing used. Suitable for vacuum service.

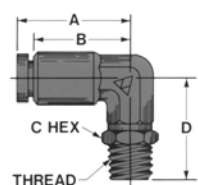
Operating Temperature Range: -10°F to 200°F.

Tubing: Polyethylene Tubing page 1039 Polyurethane Tubing (90 durometer and over), Polybutylene Tubing and soft metal tubing.

How It Works: When tubing (1) is inserted into the fitting, it first passes through the gripping teeth (2). Just beyond the gripping teeth is the o-ring (3) which provides the leak proof seal against the O.D. of the tube. The gripping teeth grab the tube, which expands the insert. Pulling back on the tube only tightens the grip as the insert moves into the camming surface (4). Pressure through the tube also serves to tighten the grip. The tube bottoms against a positive stop (5) in a cavity providing tube support to prevent leakage.



AQ68-P
Male Connector



AQ69-PS
Swivel Male Elbow

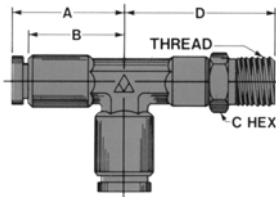
Catalog Part No.	Alkon Model	Tube O.D. (in)	Pipe Thread	A (in)	B (in)	D (in)	Wt.	Price Each
•C1FJ14	AQ68-P-2X1	0.13	1/16	0.81	0.73	0.09	0.02	
•C1CJ87	AQ68-P-3X2	0.19	1/8-18	1.04	0.90	0.16	0.03	

Note: Internal hex "D" can be used for tightening with an Allen key.

Catalog Part No.	Alkon Model	Tube O.D. (in)	Pipe Thread	A (in)	B (in)	D (in)	Wt.	Price Each
•C1CK23	AQ69-PS-3X2	0.19	1/8-27	0.89	0.75	1.17	0.05	
•C1CK31	AQ69-PS-6X4	0.38	1/4-18	1.08	0.94	1.45	0.11	

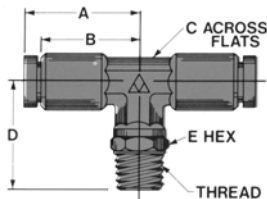
Brass

Push-In Tube Fittings - Polyethylene & Nylon Tubing



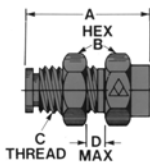
AQ71-PS
Swivel Male Run Tee

Catalog Part No.	Alkon Model	Tube O.D. (in)	Pipe Thread	A (in)	B (in)	D (in)	Wt.	Price Each
•C1CK39	AQ71-PS-6X4	0.38	1/4-18	1.08	0.94	1.45	0.08	



AQ72-PS
Swivel Male Branch Tee

Catalog Part No.	Alkon Model	Tube O.D. (in)	Pipe Thread	A (in)	B (in)	D (in)	Wt.	Price Each
•C1CK50	AQ72-PS-4X4	0.25	1/4-18	1.04	0.91	1.33	0.10	
•C1CK51	AQ72-PS-6X4	0.38	1/4-18	1.10	0.97	1.45	0.12	



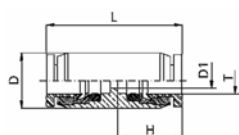
AQ86-P
Female Bulkhead Union

Catalog Part No.	Alkon Model	Tube O.D. (in)	Pipe Thread	A (in)	Thread C	D (in)	Wt.	Price Each
•C1CK58	AQ86-P-4X4	0.25	1/4-18	1.46	1/2-20	0.63	0.10	
•C1CK59	AQ86-P-6X4	0.38	1/4-18	1.89	5/8-18	0.99	0.13	

Tube Fittings

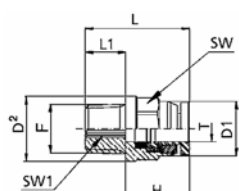
Brass Push Tube Fittings

numatics



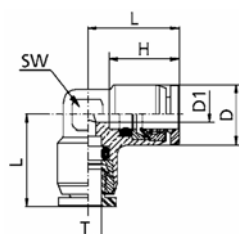
INB100
Union

Catalog Part No.	Numatics Model	Tube O.D. (T)	D	D1	L	H	Wt.	Price Each
•C1LC17	INB100-532-000	5/32	0.394	0.094	0.984	0.472		
•C1LC14	INB100-104-000	1/4	0.394	0.118	1.024	0.492		
•C1LC16	INB100-516-000	5/16	0.591	0.236	1.299	0.630		
•C1LC15	INB100-308-000	3/8	0.709	0.276	1.398	0.669		
•C1LC13	INB100-102-000	1/2	0.787	0.413	1.575	0.748		



INB103
Male Connector

Catalog Part No.	Numatics Model	Tube O.D. (T)	Thread (F)	D1	D2	L	L1	H	Wt.	Price Each
•C1LC21	INB103-104-020	1/4	1/8 NPTF	0.472	0.551	0.886	0.374	0.531		
•C1LC22	INB103-104-021	1/4	1/4 NPTF	0.472	0.551	1.024	0.512	0.531		
•C1LC23	INB103-104-022	1/4	3/8 NPTF	0.472	0.709	1.024	0.512	0.531		
•C1LC18	INB103-102-021	1/2	1/4 NPTF	0.827	0.906	1.339	0.512	0.748		
•C1LC19	INB103-102-022	1/2	3/8 NPTF	0.827	0.906	1.339	0.512	0.748		
•C1LC20	INB103-102-023	1/2	1/2 NPTF	0.827	0.906	1.496	0.709	0.748		

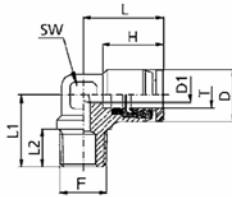


INB106
Union Elbow

Catalog Part No.	Numatics Model	Tube O.D. (T)	D	D1	L	H	Wt.	Price Each
•C1LC28	INB106-532-000	5/32	0.394	0.118	0.657	0.492		
•C1LC25	INB106-104-000	1/4	0.472	0.157	0.740	0.531		
•C1LC27	INB106-516-000	5/16	0.591	0.236	0.858	0.630		
•C1LC26	INB106-308-000	3/8	0.709	0.295	1.004	0.669		
•C1LC24	INB106-102-000	1/2	0.827	0.413	1.161	0.748		

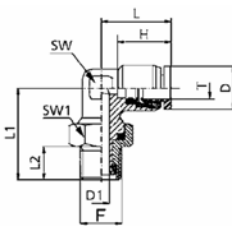
Brass Push Tube Fittings

NUMATICS



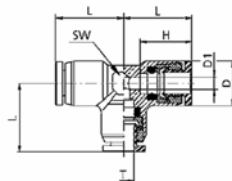
INB107
Fixed Elbow

Catalog Part No.	Numatics Model	Tube O.D. (T)	Thread (F)	D	D1	L	L1	L2	Wt.	Price Each
•C1LC33	INB107-532-020	5/32	1/8 NPT	0.394	0.118	0.657	0.650	0.374		
•C1LC34	INB107-532-021	5/32	1/4 NPT	0.394	0.118	0.657	0.787	0.512		
•C1LC29	INB107-104-020	1/4	1/8 NPT	0.472	0.157	0.740	0.693	0.531		
•C1LC30	INB107-104-021	1/4	1/4 NPT	0.472	0.157	0.740	0.831	0.531		
•C1LC32	INB107-308-022	3/8	1/4 NPT	0.709	0.295	1.004	0.945	0.685		
•C1LC31	INB107-308-021	3/8	3/8 NPT	0.709	0.295	1.004	1.945	0.685		



INB109
Swivel Elbow

Catalog Part No.	Numatics Model	Tube O.D. (T)	Thread (F)	D	D1	L	L1	L2	Wt.	Price Each
•C1LC37	INB109-104-020	1/4	1/8 NPT	0.472	0.157	0.740	0.906	0.374		
•C1LC38	INB109-104-021	1/4	1/4 NPT	0.472	0.236	0.740	1.031	0.512		
•C1LC39	INB109-104-022	1/4	3/8 NPT	0.472	0.236	0.740	1.071	0.512		
•C1LC35	INB109-102-022	1/2	3/8 NPT	0.827	0.315	1.181	1.299	0.512		
•C1LC36	INB109-102-023	1/2	1/2 NPT	0.827	0.315	1.181	1.476	0.709		



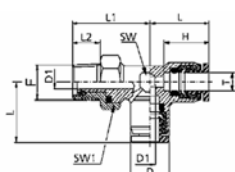
INB110
Union Tee

Catalog Part No.	Numatics Model	Tube O.D. (T)	D	D1	L	H	Wt.	Price Each
•C1LC44	INB110-532-000	5/32	0.394	0.118	0.657	0.492		
•C1LC41	INB110-104-000	1/4	0.472	0.157	0.740	0.531		
•C1LC43	INB110-516-000	5/16	0.591	0.236	0.858	0.630		
•C1LC42	INB110-308-000	3/8	0.709	0.295	1.004	0.669		
•C1LC40	INB110-102-000	1/2	0.827	0.413	1.161	0.748		

Tube Fittings

Brass Push Tube Fittings

NUMATICS



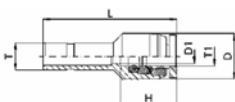
INB116
Swivel Run Tee

Catalog Part No.	Numatics Model	Tube O.D. (T)	Thread (F)	D	D1	L	L1	L2	Wt.	Price Each
•C1LC47	INB116-104-020	1/4	1/8 NPT	0.472	0.157	0.740	0.996	0.374		
•C1LC48	INB116-104-021	1/4	1/4 NPT	0.472	0.236	0.740	1.142	0.512		
•C1LC49	INB116-104-022	1/4	3/8 NPT	0.472	0.236	0.740	1.181	0.512		
•C1LC45	INB116-102-022	1/2	3/8 NPT	0.827	0.315	1.181	1.299	0.512		
•C1LC46	INB116-102-023	1/2	1/2 NPT	0.827	0.315	1.181	1.476	0.709		



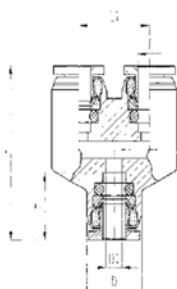
IN118
Plug

Catalog Part No.	Numatics Model	T	D	L	Wt.	Price Each
•C1LC12	IN118-532-000	5/32	0.236	0.906		
•C1LB98	IN118-104-000	1/4	0.315	0.984		
•C1LC11	IN118-516-000	5/16	0.394	1.063		
•C1LB99	IN118-308-000	3/8	0.472	1.102		
•C1LB97	IN118-102-000	1/2	0.591	1.260		



INB121
Reducer

Catalog Part No.	Numatics Model	T	T1	D	D1	L	H	Wt.	Price Each
•C1LC52	INB121-104-532	1/4	5/32	0.394	0.118	1.142	0.492		
•C1LC53	INB121-308-104	3/8	1/4	0.472	0.157	1.339	0.531		
•C1LC50	INB121-102-104	1/2	1/4	0.472	0.157	1.417	0.531		
•C1LC51	INB121-102-308	1/2	3/8	0.669	0.295	1.673	0.669		



INB131
Union Y

Catalog Part No.	Numatics Model	Tube O.D. (T)	L	H	L1	D	D1	Wt.	Price Each
•C1LC55	INB131-532-000	5/32	1.280	0.492	0.512	0.394	0.118		
•C1LC54	INB131-104-000	1/4	1.398	0.531	0.598	0.472	0.157		

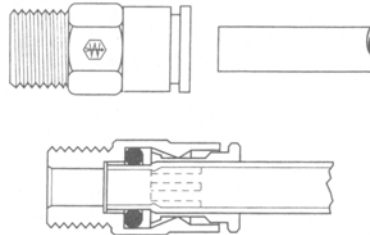


Brass

Push > Connect® Metric Tube Fittings - Metric Nylon & Polyethylene Tubing



Push > Connect® Brass Tube Fittings Used with Metric Nylon & Polyethylene Tubing



Typical Application: Compressed pneumatic instrumentation, circuit, lubricant and cooling lines. For your particular application, please review the Important Safety Information starting on page 1519

Pressure: Up to 250 psi depending on tube size. Fittings rated at 29.5 inches of mercury vacuum.

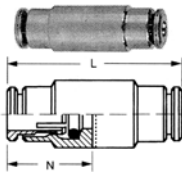
Sealing Method: O-Ring of Buna-N Construction. (Viton® available on request by special order.)

Temperature Range: -40°F to 200°F for these fittings. Also need to take into account when using a compatible plastic tubing, do not exceed the tubing temperature range. (Refer to tubing temperature range).

Material: Brass, Nickel Plated.

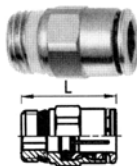
Features: Ease of assembly. No tools required, reusability of fittings and the time savings of assembly and disassembly.

Assembly Instructions: 1. To connect, simply push the tubing into the fitting. 2. To disconnect, depress the collet ring with two fingers and withdraw.



1162M
Union

Catalog Part No.	Eaton Model	Tube O.D. (mm)	L (mm)	N (mm)	Wt.	Price Each
•C1HL66	1162X4M	4	30.0	14.0	0.02	
•C1HL68	1162X6M	6	34.0	15.5	0.04	
•C1HL70	1162X8M	8	38.0	17.5	0.05	
•C1HL61	1162X10M	10	41.5	19.5	0.08	
•C1HL62	1162X12M	12	44.5	21.0	0.10	



1168MPT
Male Connector (Universal
BSPT/BSPP)

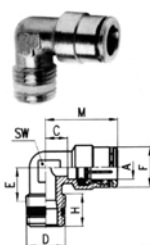
Catalog Part No.	Eaton Model	Tube O.D. (mm)	BSP Thread Size D	F (mm)	L (mm)	Wt.	Price Each
•C1HM13	1168X4MX2PT	4	1/8-28	8.8	18.0	0.02	
•C1HM14	1168X4MX4PT	4	1/4-19	8.8	19.5	0.03	
•C1HM18	1168X6MX2PT	6	1/8-28	11.7	20.5	0.02	
•C1HM19	1168X6MX4PT	6	1/4-19	9.8	20.0	0.03	
•C1HM23	1168X8MX4PT	8	1/4-19	13.7	24.0	0.03	
•C1HM24	1168X8MX6PT	8	3/8-19	13.7	23.5	0.06	
•C1HL91	1168X10MX4PT	10	1/4-19	16.3	28.5		
•C1HL92	1168X10MX6PT	10	3/8-19	16.3	25.5	0.06	
•C1HL93	1168X12MX6PT	12	3/8-19	18.3	30.5	0.06	
•C1HL94	1168X12MX8PT	12	1/2-14	18.3	27.0	0.08	

Tube Fittings

Brass

Push > Connect® Metric Tube Fittings - Metric Nylon & Polyethylene Tubing

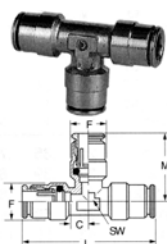
EATON
Powering Business Worldwide



1169MPTS

Swivel Male Elbow (Universal BSPT/BSPP)

Catalog Part No.	Eaton Model	Tube O.D. (mm)	BSPT Thread Size D	E (mm)	F (mm)	M (mm)	Wt.	Price Each
•C1HM35	1169X4MX2PTS	4	1/8-28	14.5	10.0	20.0	0.04	
•C1HM41	1169X6MX2PTS	6	1/8-28	15.0	12.7	22.0	0.04	
•C1HM42	1169X6MX4PTS	6	1/4-19	15.0	12.7	22.5	0.05	
•C1HM46	1169X8MX4PTS	8	1/4-19	16.0	15.0	25.0	0.06	
•C1HM47	1169X8MX6PTS	8	3/8-19	16.5	15.0	25.0	0.09	
•C1HM26	1169X10MX4PTS	10	1/4-19	18.5	17.5	28.5	0.08	
•C1HM28	1169X12MX6PTS	12	3/8-19	20.0	19.5	31.0	0.12	



1164M

Union Tee

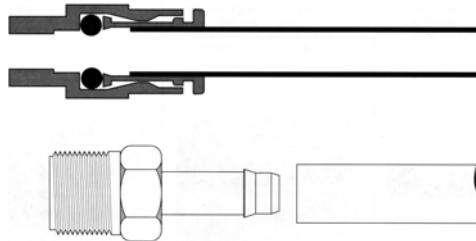
Catalog Part No.	Eaton Model	Tube O.D. (mm)	F (mm)	L (mm)	M (mm)	Wt.	Price Each
•C1HL76	1164X4M	4	10.0	40.0	20.0	0.04	
•C1HL78	1164X6M	6	12.7	45.0	22.5	0.06	
•C1HL80	1164X8M	8	15.0	50.0	25.0	0.09	

Brass

Quick > Connect® Air Brake - Nylon Air Brake Tubing



Quick > Connect® Brass Air Brake Tube Fittings Used with Nylon Air Brake Tubing



Typical Application: Air brake systems except where temperatures exceed +200°F or where battery acid can drip on tubing. Not for fuel, water or oil. For your particular application, please review the Important Safety Information starting on page 1519

Pressure: Vacuum to 150 psi.

Vibration: Moderate vibration resistance.

Temperature Range: -40°F to +200°F.

Material: CA360 Brass (Body & Collet). EP (Ethylene Propylene) - O-ring.

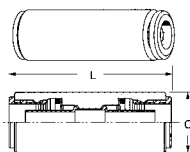
Nylon Air Brake Tubing:

Features: Easy, fast assembly, one-piece fitting, reusable field serviceable.

Conformance: Meets D.O.T. FMVSS 571.106 and SAE J1131 air brake system performance requirements.

Assembly Instructions: 1. Using a tube cutter, make a square cut edge (maximum 15° cutting angle allowed). 2. Insert tubing straight into fitting until a solid stop is felt. The tubing grip and seal (on O-ring) is now accomplished. 3. Gently tug on tubing to ensure tubing is secure.

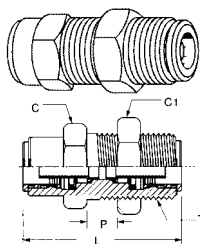
Disassembly: 1. Check to be sure there isn't any air pressure. 2. Depress collet head using fingers or Eaton tube release tool to release grip on tubing. 3. With the collet depressed, pull the tubing from the fitting.



1862

Union (Ref SAE AA0101)

Catalog Part No.	Eaton Model	Tube O.D. (in)	C (in)	L (in)	Wt.	Price Each
•C1HM96	1862X4	1/4	0.53	1.62	0.07	
•C1HM97	1862X6	3/8	0.69	1.94	0.13	
•C1HM98	1862X8	1/2	0.83	1.96	0.18	
•C1HM94	1862X10	5/8	0.96	2.51	0.29	



1874

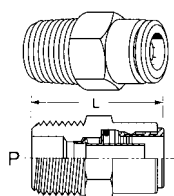
Quick Connect Bulkhead Union (Ref SAE AA0601)
(Ref SAE AA0601)

Catalog Part No.	Eaton Model	Tube O.D. (in)	Thread T	L (in)	Max P (in)	Wt.	Price Each
•C1HN42	1874X4X4	1/4	9/16-24	1.62	0.47	0.11	

Tube Fittings

Brass

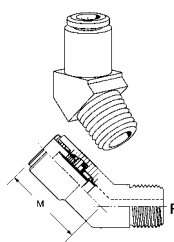
Quick > Connect® Air Brake - Nylon Air Brake Tubing



1868

Male Connector (Ref SAE AA0102)

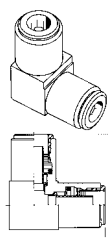
Catalog Part No.	Eaton Model	Tube O.D. (in)	Thread P	L (in)	Wt.	Price Each
•C1HN16	1868X2.5X1	5/32	1/16	0.92	0.01	
•C1HN17	1868X4	1/4	1/8-27	0.95	0.03	
•C1HN18	1868X4X4	1/4	1/4-28	1.18	0.05	
•C1HN19	1868X4X6	1/4	3/8-18	1.27	0.07	
•C1HN21	1868X6X2	3/8	1/8-27	1.33	0.08	
•C1HN20	1868X6	3/8	1/4-18	1.29	0.07	
•C1HN22	1868X6X6	3/8	3/8-18	1.27	0.08	
•C1HN23	1868X6X8	3/8	1/2-14	1.47	0.14	
•C1HN25	1868X8X4	1/2	1/4-18	1.46	0.11	
•C1HN24	1868X8	1/2	3/8-18	1.35	0.10	
•C1HN26	1868X8X8	1/2	1/2-14	1.50	0.14	
•C1HN15	1868X10X6	5/8	3/8-18	1.72	0.18	
•C1HN14	1868X10	5/8	1/2-14	1.71	0.18	



1880

45° Male Elbow (Ref SAE AA0302)

Catalog Part No.	Eaton Model	Tube O.D. (in)	Thread P	M (in)	N (in)	Wt.	Price Each
•C1HN46	1880X4	1/4	1/8-27	0.95	0.59	0.06	
•C1HN48	1880X6X2	3/8	1/8-27	1.05	0.48	0.10	
•C1HN47	1880X6	3/8	1/4-18	1.05	0.69	0.10	
•C1HN49	1880X6X6	3/8	3/8-18	1.10	0.63	0.10	
•C1HN45	1880X10	5/8	1/2-14	1.39	0.90	0.25	



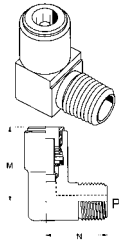
1865

90° Union Elbow (Ref SAE AA0201)

Catalog Part No.	Eaton Model	Tube O.D. (in)	M (in)	Wt.	Price Each
•C1HN13	1865X8	1/2	1.24	0.16	

Brass

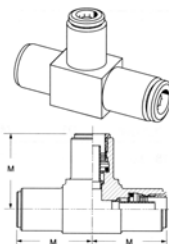
Quick > Connect® Air Brake - Nylon Air Brake Tubing



1869S

Swivel 90° Male Elbow
(Ref SAE AA02DD)

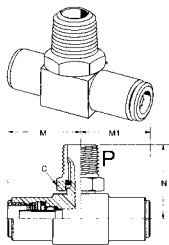
Catalog Part No.	Eaton Model	Tube O.D. (in)	Thread P	M (in)	N (in)	Wt.	Price Each
•C1HN29	1869X4S	1/4	1/8-27	0.89	0.88	0.06	
•C1HN30	1869X4X4S	1/4	1/4-18	0.99	1.06	0.09	
•C1HN31	1869X4X6S	1/4	3/8-18	0.98	1.06	0.11	
•C1HN33	1869X6X2S	3/8	1/8-27	1.03	0.97	0.10	
•C1HN32	1869X6S	3/8	1/4-18	1.10	1.14	0.14	
•C1HN34	1869X6X6S	3/8	3/8-18	1.12	1.15	0.15	
•C1HN35	1869X6X8S	3/8	1/2-14	1.18	1.40	0.20	
•C1HN36	1869X8S	1/2	3/8-18	1.13	1.27	0.22	
•C1HN37	1869X8X8S	1/2	1/2-14	1.20	1.47	0.25	
•C1HN28	1869X10X6S	5/8	3/8-18	1.35	1.34	0.27	
•C1HN27	1869X10S	5/8	1/2-14	1.38	1.54	0.35	



1864

Union Tee (Ref SAE AA0401)

Catalog Part No.	Eaton Model	Tube O.D. (in)	M (in)	Wt.	Price Each
•C1HM99	1864X4	1/4	0.93	0.11	
•C1HN11	1864X6	3/8	1.15	0.21	
•C1HN12	1864X8	1/2	1.22	0.32	



1872S

Swivel Male Branch Tee
(Ref SAE AA04FF)

Catalog Part No.	Eaton Model	Tube O.D. (in)	Thread P	M (in)	N (in)	Wt.	Price Each
•C1HN38	1872X4S	1/4	1/8-27	0.93	0.80	0.10	
•C1HN40	1872X6S	3/8	1/4-18	1.15	1.14	0.20	

Tubing Accessories

Flaretite® Seals



Features: Economical method to reduce minor leaks and weeping connections • Concentric ribbed insert design provides for multiple contact points • Loctite® sealant locks the joint and fills surface imperfections • Built-in clip attaches the seal to the nose of the JIC 37° connection • Eliminates electrolysis that causes corrosion • Allows for a higher assembly torque without damage to mating surfaces • Allows for $\pm 1/2$ degree mis-alignment.



Flaretite® Seals

Flaretite® Seals

Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Dash Size	Material	Recommended Assembly Torque (lb-ft)	Wt.	Price Each
•C1GJ46	FF13267	0.25	-04	Stainless Steel with Loctite® Coating	14	0.01	
•C1GJ47	FF13268	0.38	-06	Stainless Steel with Loctite® Coating	26	0.01	
•C1GJ48	FF13269	0.50	-08	Stainless Steel with Loctite® Coating	55	0.01	
•C1GJ49	FF13270	0.63	-10	Stainless Steel with Loctite® Coating	80	0.01	
•C1GJ50	FF13271	0.75	-12	Stainless Steel with Loctite® Coating	110	0.01	
•C1GJ51	FF13272	1.00	-16	Stainless Steel with Loctite® Coating	140	0.01	
•C1GJ52	FF13273	1.25	-20	Stainless Steel with Loctite® Coating	190	0.01	
•C1GJ53	FF13570	1.50	-24	Stainless Steel with Loctite® Coating	220	0.01	
•C1GJ54	FF13571	2.00	-32	Stainless Steel with Loctite® Coating	325	0.01	



Pipe Fittings, Brass

Brass



Hex Bushing

Catalog Part No.	Model Number	Size	Wt.	Price Each
•C1ET67	44-511	1 x 3/8	0.26	
•C1ET68	44-512	1 x 1/2	0.21	
•C1ET69	44-513	1 x 3/4	0.18	
•C1ET70	44-516	1-1/4 x 1/2	0.37	
•C1ET71	44-517	1-1/4 x 3/4	0.35	
•C1ET72	44-518	1-1/4 x 1	0.36	
•C1ET73	44-522	1-1/2 x 3/4	0.51	
•C1ET74	44-523	1-1/2 x 1	0.61	
•C1ET75	44-524	1-1/2 x 1-1/4	0.40	
•C1ET76	44-528	2 x 3/4	0.91	
•C1ET77	44-529	2 x 1	0.85	
•C1ET78	44-530	2 x 1-1/4	0.74	
•C1ET79	44-531	2 x 1-1/2	0.61	



90° Street Elbow

Catalog Part No.	Model Number	Size	Nickel Plated	Wt.	Price Each
•C1HD90	44-164	3/4	No	0.36	
•C1ET47	44-165	1	No	0.59	
•C1ET48	44-166	1-1/4	No	1.12	
•C1ET49	44-167	1-1/2	No	1.39	
•C1ET50	44-168	2	No	1.76	



Tee

Catalog Part No.	Model Number	Size	Wt.	Price Each
•C1ET51	44-255	1	0.84	
•C1ET53	44-257	1-1/2	1.66	
•C1ET54	44-258	2	2.72	



Coupling

Catalog Part No.	Model Number	Size	Wt.	Price Each
•C1ET55	44-415	1	0.44	
•C1ET56	44-416	1-1/4	0.56	
•C1ET57	44-418	2	1.06	



Square Head Plug

Catalog Part No.	Model Number	Size	Wt.	Price Each
•C1ET80	44-655	1	0.21	
•C1ET81	44-656	1-1/4	0.32	
•C1ET83	44-658	2	0.59	



90° Elbow

Catalog Part No.	Model Number	Size	Wt.	Price Each
•C1ET43	44-105	1	0.63	
•C1ET44	44-106	1-1/4	1.13	



Cap

Catalog Part No.	Model Number	Size	Wt.	Price Each
•C1ET58	44-470	1/8	0.03	
•C1ET61	44-473	1/2	0.13	
•C1ET62	44-474	3/4	0.16	
•C1ET63	44-475	1	0.31	
•C1ET64	44-476	1-1/4	0.53	

Pipe Fittings, Malleable Iron

Malleable Iron • Class 150 • ANSI/ASME B 16.3

Rated Pressure: 300 PSI (-20°F to 150°F), 265 PSI @ 200°F, 225 PSI @ 250°F



WARD MANUFACTURING



Hex Bushing



Bell Reducer

Catalog Part No.	Ward Model	Size	Wt.	Price Each
C1AF36	1/4X1/8-HEX/BUSHING	1/4 x 1/8	0.02	
C1BK96	3/8X1/4-HEX/BUSHING	3/8 x 1/4	0.03	
C1AE84	1/2X1/8-HEX/BUSHING	1/2 x 1/8	0.10	
C1AE83	1/2X1/4-HEX-BUSHING	1/2 x 1/4	0.08	
C1AE95	1/2X3/8-HEX/BUSHING	1/2 x 3/8	0.06	
C1BK61	3/4X1/4-HEX/BUSHING	3/4 x 1/4	0.17	
C1BK70	3/4X3/8-HEX/BUSHING	3/4 x 3/8	0.14	
C1BK60	3/4X1/2-HEX/BUSHING	3/4 x 1/2	0.10	
C1AT43	1X1/4-HEX/BUSHING	1 x 1/4	0.20	
C1AT56	1X3/8-HEX/BUSHING	1 x 3/8	0.18	
C1AT41	1X1/2-HEX/BUSHING	1 x 1/2	0.21	
C1AE40	1-1/4X1/4-HEX/BUSHING	1-1/4 x 1/4	0.31	
C1AE39	1-1/4X1/2-HEX/BUSHING	1-1/4 x 1/2	0.33	
C1AE47	1-1/4X3/4-HEX/BUSHING	1-1/4 x 3/4	0.39	
C1AE37	1-1/4X1-HEX/BUSHING	1-1/4 x 1	0.30	
C1AE12	1-1/2X1/2-HEX/BUSHING	1-1/2 x 1/2	0.47	
C1AE19	1-1/2X3/4-HEX/BUSHING	1-1/2 x 3/4	0.38	
C1AE11	1-1/2X1-HEX/BUSHING	1-1/2 x 1	0.49	
C1AD98	1-1/2X1-1/4/HEX-BUSH	1-1/2 x 1-1/4	0.34	
C1BK29	2X1/2-HEX/BUSHING	2 x 1/2	0.72	
C1BK33	2X3/4-HEX/BUSHING	2 x 3/4	0.60	
C1BK28	2X1-HEX/BUSHING	2 x 1	0.15	
C1BK26	2X1-1/4-HEX/BUSHING	2 x 1-1/4	1.02	
C1BK24	2X1-1/2-HEX/BUSHING	2 x 1-1/2	0.61	
C1AT65	2-1/2X1-HEX/BUSHING	2-1/2 x 1	1.10	
C1AT68	2-1/2X2-HEX/BUSHING	2-1/2 x 2	1.16	
C1BN25	3X1-1/4-HEX/BUSHING	3 x 1-1/4	0.88	
C1BN24	3X1-1/2-HEX/BUSHING	3 x 1-1/2	0.48	
C1BN27	3X2-HEX/BUSHING	3 x 2	1.50	
C1BN26	3X2-1/2-HEX/BUSHING	3 x 2-1/2	1.63	
C1BR49	4X2-HEX/BUSHING	4 x 2	2.71	
C1BR50	4X3-HEX/BUSHING	4 x 3	3.00	

Catalog Part No.	Ward Model	Size	Wt.	Price Each
C1AF35	1/4X1/8-BELL/REDUCER	1/4 x 1/8	0.08	
C1BK94	3/8X1/4-BELL/REDUCER	3/8 x 1/4	0.12	
C1AE82	1/2X1/4-BELL/REDUCER	1/2 x 1/4	0.16	
C1AE94	1/2X3/8-BELL/REDUCER	1/2 x 3/8	0.17	
C1BK69	3/4X3/8-BELL/REDUCER	3/4 x 3/8	0.24	
C1FF70	3/4X1/2-BELL/REDUCER	3/4 x 1/2	0.28	
C1AT42	1X1/4-BELL/REDUCER	1 x 1/4	0.36	
C1AT40	1X1/2-BELL/REDUCER	1 x 1/2	0.51	
C1AT53	1X3/4-BELL/REDUCER	1 x 3/4	0.42	
C1AE38	1-1/4X1/2-BELL/REDUCE	1-1/4 x 1/2	0.53	
C1AE36	1-1/4X1-BELL/REDUCER	1-1/4 x 1	0.65	
C1AE18	1-1/2X3/4-BELL/REDUCE	1-1/2 x 3/4	0.86	
C1BK27	2X1-BELL/REDUCER	2 x 1	1.50	
C1BK25	2X1-1/4-BELL/REDUCER	2 x 1-1/4	0.10	
C1BK23	2X1-1/2-BELL/REDUCER	2 x 1-1/2	1.40	
C1AT67	2-1/2X2-BELL/REDUCER	2-1/2 x 2	0.18	
C1FA67	3X2-BELL/REDUCER	3 x 2	3.35	



Coupling

Catalog Part No.	Ward Model	Size	Wt.	Price Each
C1BK82	3/8-COUPLING	3/8	0.20	
C1AE70	1/2-COUPLING	1/2	0.20	
C1BK47	3/4-COUPLING	3/4	0.34	
C1AE58	1-COUPLING	1	0.42	
C1AD92	1-1/2-COUPLING	1-1/2	0.91	
C1AT76	2-COUPLING	2	1.65	
C1AT63	2-1/2-COUPLING	2-1/2	2.65	



Union

Catalog Part No.	Ward Model	Size	Wt.	Price Each
C1AE74	1/2-UNION	1/2	0.39	
C1BK52	3/4-UNION	3/4	0.15	
C1AE63	1-UNION	1	0.85	
C1AE33	1-1/4-UNION	1-1/4	1.52	
C1AD96	1-1/2-UNION	1-1/2	1.82	
C1AT81	2-UNION	2	2.60	



Pipe Fittings, Malleable Iron

Malleable Iron • Class 150 • ANSI/ASME B 16.3

Rated Pressure: 300 PSI (-20°F to 150°F), 265 PSI @ 200°F, 225 PSI @ 250°F



WARD MANUFACTURING



45° Street Elbow

Catalog Part No.	Ward Model	Size	Wt.	Price Each
C1HY11	3/4-45STREET/ELBOW	3/4	0.33	
C1ZZ64	1-45STREET/ELBOW	1	0.58	



90° Elbow

Catalog Part No.	Ward Model	Size	Wt.	Price Each
C1AF55	1/8-90ELBOW	1/8	0.06	
C1AF19	1/4-90ELBOW	1/4	0.12	
C1AE67	1/2-90ELBOW	1/2	0.50	
C1BK44	3/4-90ELBOW	3/4	0.15	
C1AE55	1-90ELBOW	1	0.69	
C1AE25	1-1/4-90ELBOW	1-1/4	1.05	
C1AD89	1-1/2-90ELBOW	1-1/2	1.50	
C1AT73	2-90ELBOW	2	2.14	
C1AT62	2-1/2-90ELBOW	2-1/2	1.50	
C1BK40	3-90ELBOW	3	5.00	



90° Street Elbow

Catalog Part No.	Ward Model	Size	Wt.	Price Each
C1AF56	1/8-90STREET/ELBOW	1/8	0.07	
C1AF20	1/4-90STREET/ELBOW	1/4	0.10	
C1BK80	3/8-90STREET/ELBOW	3/8	0.18	
C1AE68	1/2-90STREET/ELBOW	1/2	0.27	
C1BK45	3/4-90STREET/ELBOW	3/4	0.43	
C1AE56	1-90STREET/ELBOW	1	0.71	
C1AE26	1-1/4-90STREET/ELBOW	1-1/4	1.06	
C1AD90	1-1/2-90STREET/ELBOW	1-1/2	1.47	
C1AT74	2-90STREET/ELBOW	2	2.69	
C1BK41	3-90STREET/ELBOW	3	5.00	



Tee

Catalog Part No.	Ward Model	Size	Wt.	Price Each
C1AF25	1/4-TEE	1/4	0.16	
C1AE73	1/2-TEE	1/2	0.44	
C1BK51	3/4-TEE	3/4	0.64	
C1AE62	1-TEE	1	0.95	
C1AE32	1-1/4-TEE	1-1/4	1.34	
C1AD95	1-1/2-TEE	1-1/2	1.89	
C1AT80	2-TEE	2	2.71	



Cross

Catalog Part No.	Ward Model	Size	Wt.	Price Each
C1AE59	1-CROSS	1	1.24	
C1AT77	2-CROSS	2	2.00	



Plug

Catalog Part No.	Ward Model	Size	Wt.	Price Each
C1AF59	1/8-PLUG	1/8	0.01	
C1AF23	1/4-PLUG	1/4	0.04	
C1BK83	3/8-PLUG	3/8	0.06	
C1AE72	1/2-PLUG	1/2	0.09	
C1BK49	3/4-PLUG	3/4	0.14	
C1AE60	1-PLUG	1	0.19	
C1AE30	1-1/4-PLUG	1-1/4	0.40	
C1AD94	1-1/2-PLUG	1-1/2	0.46	
C1AT78	2-PLUG	2	0.90	

Hydraulic Power & Control

Pneumatic Power & Control

Fluid Conveying

Miscellaneous Products

Indexes & Technical Information



Pipe Fittings, Malleable Iron

Malleable Iron • Class 150 • ANSI/ASME B 16.3

Rated Pressure: 300 PSI (-20°F to 150°F), 265 PSI @ 200°F, 225 PSI @ 250°F



Cap

Catalog Part No.	Ward Model	Size	Wt.	Price Each
•C1AF21	1/4-CAP	1/4	0.02	
•C1BK81	3/8-CAP	3/8	0.09	
•C1AE69	1/2-CAP	1/2	0.17	
•C1BK46	3/4-CAP	3/4	0.24	
•C1AE57	1-CAP	1	0.50	
•C1AE27	1-1/4-CAP	1-1/4	0.50	
•C1AD91	1-1/2-CAP	1-1/2	0.72	
•C1AT75	2-CAP	2	1.11	



Pipe Fittings, Steel

Steel



Schedule 40 Coupling

Catalog Part No.	Model Number	Size	O.D. (in)	Length	Wt.	Price Each
C1AF60	1/8-STEEL-COUPLING	1/8		0.90	0.03	
C1DU50	1/2-STEEL-COUPLING	1/2		1.55	0.16	
• C1AE61	1-STEEL-COUPLING	1		1.97	0.41	
C1ZZ66	1-1/2-STEEL-COUPLING	1-1/2		2.00	0.67	
• C1HD84	3-STEEL-COUPLING	3			3.43	

Hydraulic Power & Control

Pneumatic Power & Control

Fluid Conveying

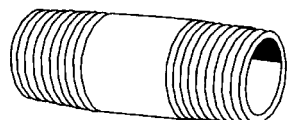
Miscellaneous Products

Indexes & Technical Information

Pipe Nipples, Steel

Steel

Schedule 40 Pipe Nipples



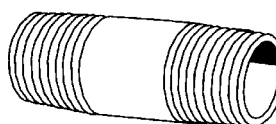
Schedule 40 Pipe Nipples

Catalog Part No.	Model Number	Thread	Length	Wt.	Price Each
•C1AF81	1/8XCLOSE	1/8-27	0.625	0.02	
•C1AF63	1/8X1-1/2	1/8-27	1.50	0.03	
•C1AF77	1/8X5	1/8-27	5.00	0.10	
•C1AF78	1/8X6	1/8-27	6.00	0.12	
•C1AF80	1/8X8	1/8-27	8.00	0.20	
•C1AF32	1/4X1-1/4	1/4-18	1.25	0.04	
•C1AF30	1/4X1-1/2	1/4-18	1.50	0.05	
•C1AF37	1/4X2	1/4-18	2.00	0.10	
•C1AF38	1/4X2-1/2	1/4-18	2.50	0.08	
•C1AF43	1/4X3	1/4-18	3.00	0.10	
•C1AF46	1/4X4	1/4-18	4.00	0.13	
•C1AF47	1/4X4-1/2	1/4-18	4.50	0.14	
•C1AF52	1/4X6	1/4-18	6.00	0.20	
•C1BL23	3/8XCLOSE	3/8-18	1.00	0.04	
•C1BK91	3/8X1-1/2	3/8-18	1.50	0.06	
•C1BK98	3/8X2	3/8-18	2.00	0.08	
•C1BK99	3/8X2-1/2	3/8-18	2.50	0.05	
•C1BL14	3/8X3-1/2	3/8-18	3.50	0.08	
•C1BL21	3/8X6	3/8-18	6.00	0.40	
•C1AE80	1/2X1-1/2	1/2-14	1.50	0.08	
•C1AE85	1/2X2	1/2-14	2.00	0.25	
•C1AE86	1/2X2-1/2	1/2-14	2.50	0.14	
•C1AE89	1/2X3	1/2-14	3.00	0.19	
•C1AE96	1/2X4	1/2-14	4.00	0.20	
•C1AF11	1/2X5	1/2-14	5.00	0.34	
•C1AF13	1/2X6	1/2-14	6.00	0.38	
•C1BK76	3/4XCLOSE	3/4-14	1.38	0.09	
•C1BK59	3/4X1-1/2	3/4-14	1.50	0.10	
•C1BK63	3/4X2	3/4-14	2.00	0.05	
•C1BK64	3/4X2-1/2	3/4-14	2.50	0.10	
•C1BK66	3/4X3	3/4-14	3.00	0.22	
•C1BK67	3/4X3-1/2	3/4-14	3.50	0.20	
•C1BK71	3/4X4	3/4-14	4.00	0.35	
•C1BK72	3/4X4-1/2	3/4-14	4.50	0.25	
•C1BK74	3/4X6	3/4-14	6.00	0.60	
•C1AT51	1X3-1/2	1-11-1/2	3.50	0.41	
•C1AT60	1XCLOSE	1-11-1/2	1.50	0.13	
•C1AT47	1x2	1-11-1/2	2.00	0.28	
•C1AT48	1X2-1/2	1-11-1/2	2.50	0.25	
•C1AT50	1X3	1-11-1/2	3.00	0.33	
•C1AT57	1X4	1-11-1/2	4.00	0.47	
•C1AT58	1X4-1/2	1-11-1/2	4.50	0.59	
•C1AT59	1X6	1-11-1/2	6.00	0.15	
•C1AE53	1-1/4XCLOSE	1-1/4-11-1/2	1.63	0.25	
•C1AE42	1-1/4X2	1-1/4-11-1/2	2.00	0.05	

Schedule 40 Pipe Nipples

Catalog Part No.	Model Number	Thread	Length	Wt.	Price Each
•C1AE43	1-1/4X2-1/2	1-1/4-11-1/2	2.50	0.10	
•C1AE44	1-1/4X3	1-1/4-11-1/2	3.00	0.43	
•C1AE45	1-1/4X3-1/2	1-1/4-11-1/2	3.50	0.10	
•C1AE48	1-1/4X4	1-1/4-11-1/2	4.00	0.63	
•C1AE49	1-1/4X4-1/2	1-1/4-11-1/2	4.50	0.70	
•C1AE52	1-1/4X6	1-1/4-11-1/2	6.00	0.99	
•C1AE24	1-1/2XCLOSE	1-1/2-11-1/2	2.00	0.25	
•C1AE13	1-1/2X2	1-1/2-11-1/2	2.00	0.33	
•C1AE14	1-1/2X2-1/2	1-1/2-11-1/2	2.50	0.42	
•C1AE15	1-1/2X3	1-1/2-11-1/2	3.00	3.00	
•C1AE16	1-1/2X3-1/2	1-1/2-11-1/2	3.50	0.63	
•C1AE20	1-1/2X4	1-1/2-11-1/2	4.00	0.69	
•C1AE21	1-1/2X4-1/2	1-1/2-11-1/2	4.50	0.87	
•C1AE22	1-1/2X5	1-1/2-11-1/2	5.00	0.93	
•C1AE23	1-1/2X6	1-1/2-11-1/2	6.00	1.08	
•C1BK38	2XCLOSE	2-11-1/2	2.00	0.39	
•C1BK31	2X2-1/2	2-11-1/2	2.50	0.57	
•C1BK32	2X3	2-11-1/2	3.00	0.10	
•C1BK34	2X4	2-11-1/2	4.00	0.33	
•C1BK35	2X5	2-11-1/2	5.00	0.50	
•C1BK36	2X6	2-11-1/2	6.00	1.47	
•C1AT71	2-1/2XCLOSE	2-11-1/2	2.50	0.83	
•C1AT69	2-1/2X3-1/2	2-11-1/2	3.50	0.25	
•C1AT70	2-1/2X4-1/2	2-11-1/2	4.50	1.43	
•C1ZY63	3XCLOSE	3-8	2.75	0.40	
•C1BR51	4XCLOSE	4-8		3.00	
•C1BY51	6XCLOSE	6-8		2.88	

Schedule 80 Pipe Nipples



Schedule 80 Pipe Nipples

Catalog Part No.	Model Number	Thread	Length	Wt.	Price Each
•C1ZZ63	1/8X1-1/2-80	1/8-27	1.50	0.09	
•C1AF69	1/8X2-80	1/8-27	2.00	0.06	
•C1AF67	1/8X2-1/2-80	1/8-27	2.50	0.07	
•C1EL48	1/4XCLOSE-80	1/4-18	1.00	0.03	
•C1AF39	1/4X2-1/2-80	1/4-18	2.50	0.10	
•C1AF44	1/4X3-80	1/4-18	3.00	0.12	
•C1AF49	1/4X4-80	1/4-18	4.00	0.16	
•C1AF51	1/4X5-80	1/4-18	5.00	0.21	
•C1AF53	1/4X6-80	1/4-18	6.00	0.25	
•C1BL24	3/8XCLOSE-80	3/8-18	1.06	0.04	
•C1BL12	3/8X2-80	3/8-18	2.00	0.11	
•C1BL16	3/8X3-80	3/8-18	3.00	0.16	
•C1BL15	3/8X3-1/2-80	3/8-18	3.50	0.25	



Pipe Nipples, Steel

Steel

Schedule 80 Pipe Nipples

Catalog Part No.	Model Number	Thread	Length	Wt.	Price Each
•C1BL20	3/8X5-80	3/8-18	5.00	0.50	
•C1BL22	3/8X6-80	3/8-18	6.00	0.34	
•C1AF17	1/2XCLOSE-80	1/2-14	1.13	0.08	
•C1EV47	1/2X2-1/2-80	1/2-14	2.50	0.19	
•C1AE92	1/2X3-80	1/2-14	3.00	0.30	
•C1AE99	1/2X4-80	1/2-14	4.00	0.31	
•C1AF14	1/2X6-80	1/2-14	6.00	0.47	
•C1BK77	3/4XCLOSE-80	3/4-14	1.63	0.12	
•C1BK65	3/4X2-80	3/4-14	2.00	0.20	
•C1BK68	3/4X3-80	3/4-14	3.00	0.03	
•C1BK73	3/4X4-80	3/4-14	4.00	0.44	
•C1BK75	3/4X6-80	3/4-14	6.00	0.63	
•C1AT61	1XCLOSE-80	1-11-1/2	1.50	0.19	
•C1AT49	1X2-80	1-11-1/2	2.00	0.29	
•C1AT52	1X3-80	1-11-1/2	3.00	0.47	
•C1AE46	1-1/4X3-80	1-1/4-11-1/2	3.00	0.59	
•C1AE50	1-1/4X4-80	1-1/4-11-1/2	4.00	0.86	
•C1AE17	1-1/2X3-80	1-1/2-11-1/2	3.00	0.05	
•C1BK39	2XCLOSE-80	2-11-1/2	2.00	2.00	
•C1BK37	2X6-80	2-11-1/2	6.00	2.13	

Hydraulic Power & Control

Pneumatic Power & Control

Fluid Conveying

Miscellaneous Products

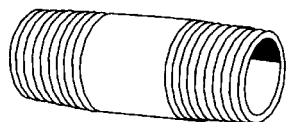
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Pipe Nipples, Brass

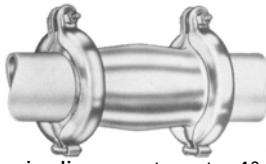
Brass

Brass Pipe Nipples



Brass Pipe Nipples

Catalog Part No.	Model Number	Thread	Length	Wt.	Price Each
•C1AF82	1/8XCLOSE-B	1/8-27	0.75	0.03	
•C1AF64	1/8X1-1/2-B	1/8-27	1.50	0.03	
•C1AF68	1/8X2-1/2-B	1/8-27	2.50	0.05	
•C1AF79	1/8X6-B	1/8-27	6.00	0.12	
•C1AF54	1/4XCLOSE-B	1/4-18	1.00	0.05	
•C1AF31	1/4X1-1/2-B	1/4-18	1.50	0.05	
•C1AF42	1/4X2-B	1/4-18	2.00	0.06	
•C1AF40	1/4X2-1/2-B	1/4-18	2.50	0.08	
•C1AF45	1/4X3-B	1/4-18	3.00	0.10	
•C1AF50	1/4X4-B	1/4-18	4.00	0.14	
•C1BL25	3/8XCLOSE-B	3/8-18	1.00	0.04	
•C1BL11	3/8X2-1/2-B	3/8-18	2.50	0.50	
•C1FA64	3/8X5-B	3/8-18	5.00	0.24	
•C1AF18	1/2XCLOSE-B	1/2-14	1.13	0.06	
•C1AE81	1/2X1-1/2-B	1/2-14	1.50	0.09	
•C1AE88	1/2X2-B	1/2-14	2.00	0.13	
•C1AE91	1/2X3-1/2-B	1/2-14	3.50	0.24	
•C1AE98	1/2X4-1/2-B	1/2-14	4.50	0.29	
•C1AF15	1/2X6-B	1/2-14	6.00	0.42	
•C1ES99	40-080	3/4-14	1.38	0.11	
•C1ET11	40-081	3/4-14	1.50	0.11	
•C1ET12	40-082	3/4-14	2.00	0.18	
•C1ET14	40-084	3/4-14	3.00	0.27	
•C1ET15	40-086	3/4-14	4.00	0.38	
•C1ET18	40-100	1-11-1/2	1.50	0.16	
•C1ET19	40-101	1-11-1/2	2.00	0.19	
•C1ET20	40-103	1-11-1/2	3.00	0.38	
•C1ET21	40-105	1-11-1/2	4.00	0.50	
•C1ET22	40-107	1-11-1/2	5.00	0.60	
•C1ET31	40-140	1-1/2-11-1/2	2.00	0.33	
•C1ET32	40-141	1-1/2-11-1/2	2.00	0.40	
•C1ET35	40-145	1-1/2-11-1/2	4.00	0.91	

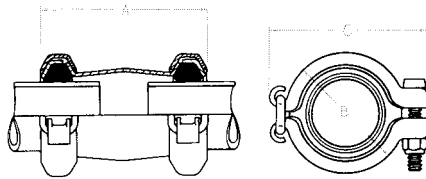


Styles Available: Flexmaster® joints are available in both standard and self-restrained styles. The self-restrained style has a stainless steel gripping ring inside each gasket. This feature allows the joint to maintain a firm grip on the pipe or tube, preventing movement along the pipe or tube.

Misalignment: The bulged, straight-through Flexmaster® joints accommodate angular misalignment up to 4° per end. (Tees, elbows and crosses up to 2° per end.)

Pressure Rating: Flexmaster® joints are designed for up to 300 psi service, depending on application and size.

Note: The Flexmaster® joint is designed to seal pipe and tube connections. The Flexmaster® joint is not intended to hold piping systems together. Normal hangers, guides, anchors and other external piping restraints must be used to restrain the piping or tubing system from movement.

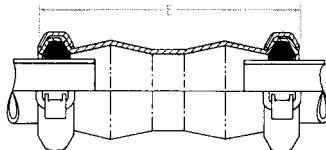


NH1600 / NH1650
Straight

NH1600 / NH1650

Catalog Part No.	Aeroquip Model	Pipe Size	Pipe O.D.	Type	Gasket Material	Sleeve Material	A (in)	B (in)	C (in)	Wt.	Price Each
C1JP76	NH1600C125B0325	1.25	1.660	STD	Buna-N	Plated Steel	3.25	2.71	3.85	1.30	
C1DF70	NH1600C200B0400	2	2.375	STD	Buna-N	Plated Steel	4	3.43	4.6	1.86	
C1FG15	NH1600C250B0650	2.50	2.875	STD	Buna-N	Plated Steel	6.50	4.73	6.23	5.67	
C1DF72	NH1600C300B0650	3	3.5	STD	Buna-N	Plated Steel	6.5	5.36	6.87	6.00	
C1JP77	NH1600C350B0650	3.50	4.000	STD	Buna-N	Plated Steel	6.50	5.86	7.38	7.61	
C1DF73	NH1600C400B0650	4	4.5	STD	Buna-N	Plated Steel	6.5	6.36	7.89	8.39	
C1KW39	NH1600C600B0650	6	6.625	STD	Buna-N	Plated Steel	6.50	8.86	11.24		

Types: STD (Standard) SR (Self-Restrained)



NH1600 / NH1650
Straight (Long)

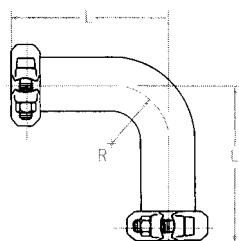
NH1600 / NH1650

Catalog Part No.	Aeroquip Model	Pipe Size	Pipe O.D.	Type	Gasket Material	Sleeve Material	E (in)	Wt.	Price Each
C1DF71	NH1600C200B0750	2	2.375	STD	Buna-N	Plated Steel		2.40	

Types: STD (Standard) SR (Self-Restrained)

Flexmaster® Pipe & Tube Joints

Joints for Rigid Pipe

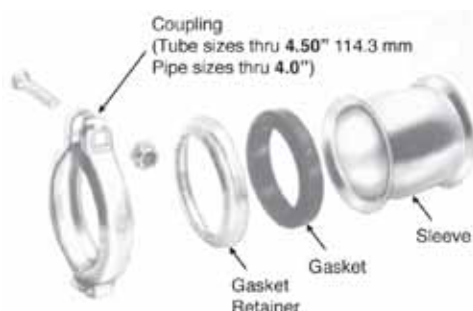


NH1602 / NH1652
90° Long Elbow

NH1602 / NH1652

Catalog Part No.	Aeroquip Model	Pipe Size	Pipe O.D.	Type	Gasket Material	Sleeve Material	L (in)	R (in)	Wt.	Price Each
C1HK81	NH1602C200B	2	2.375	STD	Buna-N	Plated Steel	5.38	2.62	2.54	

Types: STD (Standard) SR (Self-Restrained)

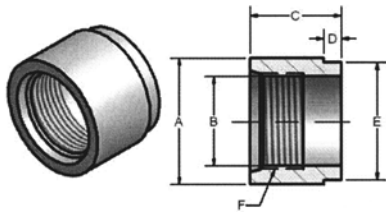


Standard (Un-Restrained) Style

Flexmaster® Parts

Catalog Part No.	Aeroquip Model	Description	Wt.	Price Each
C1ML46	NH100085-200YF	Coupling (includes Nut and Bolt) 2 Inch Pipe	0.40	
C1MH39	NH100085-400YF	Coupling (includes Nut and Bolt) 4 Inch Pipe		
C1MH38	NH100085-250YF	Coupling (includes Nut and Bolt) 2-1/2 Inch Pipe		
• C1DF77	NK1000063C200	Standard buna-n gasket 2 Inch Pipe	0.07	
C1HH91	NK1000063C250	Standard buna-n gasket 2-1/2 Inch Pipe	0.27	
C1HJ20	NK1000063C300	Standard buna-n gasket 3 Inch Pipe	0.40	
C1DF76	NK1000061C350	Self-restrained buna-n gasket 3-1/2 Inch Pipe	0.37	
C1HJ21	NK1000063C400	Standard buna-n gasket 4 Inch Pipe	0.82	
C1DF75	NK1000023-200	Gasket retainer 2 Inch Pipe	0.14	
C1FD76	NK1000023-400	Gasket retainer 4 Inch Pipe	2.00	

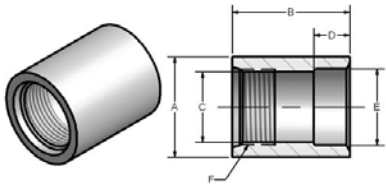
Steel Weld Couplings



835

SAE Half Coupling
AISI1020 Carbon Steel

Catalog Part No.	Anchor Model	A (in)	B (in)	C (in)	D (in)	E (in)	F (in) SAE UN-2B	Wt.	Price Each
C1HX14	835-6	1.00	0.508	1.00	0.25	0.875	9/16-18	0.15	



820

SAE to Socket Weld Full Coupling
AISI1020 Carbon Steel

	Anchor Model	A (in)	B (in)	C (in)	D (in)	E (in)	F (in) SAE UN-2B	Wt.	Price Each
C1JL72	1080 (Vescor Model)		1.875		0.625	0.855	9/16-18	0.35	



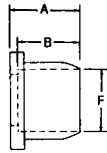
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O-Ring Face Seal to 37° Flare	1115	42° Inverted Flare to 45° Flare	1218
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Steel O-Ring Face Seal Braze Adapters

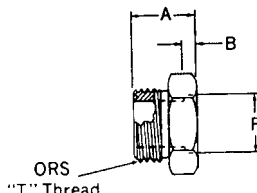


FC1229

ORS®-BR Shoulder Internal Braze

Catalog Part No.	Aeroquip Model	Tube O.D. (in)	A (in)	B (in)	F (in)	Wt.	Price Each
•C1EP81	FC1229-0606S	0.38	0.29	0.25	0.38	0.11	
•C1EP83	FC1229-0808S	0.50	0.42	0.38	0.50	0.02	
•C1EP84	FC1229-1010S	0.63	0.42	0.38	0.63	0.03	
•C1EP86	FC1229-1212S	0.75	0.44	0.38	0.75	0.05	
•C1EP87	FC1229-1616S	1.00	0.56	0.50	1.00	0.07	

Caution: In applications exceeding +480° F (such as during brazing), order the oil-coated NON-plated nut by using part number FC1857-Size-186. When a PLATED nut is heated above +480° F toxic gasses are given off.

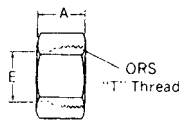


FF1851T

ORS® / Braze Adapter

Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread T	A (in)	B (in)	F (in)	Wt.	Price Each
•C1EW75	FF1851T0606S	0.38	11/16-16	0.83	0.25	0.38	0.07	
•C1EQ32	FF1851T0808S	0.50	13/16-16	1.01	0.38	0.50	0.12	
•C1EQ34	FF1851T1010S	0.63	1-14	1.12	0.38	0.63	0.18	
•C1EQ35	FF1851T1212S	0.75	1-3/16-12	1.21	0.38	0.75	0.26	
•C1EQ36	FF1851T1616S	1.00	1-7/16-12	1.47	0.50	1.00	0.46	

Note: ORS® O-Rings page 1266



FC2326

ORS®-BR Nut (Plated)

Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread T1	A (in)	E (in)	Wt.	Price Each
•C1EP95	FC2326-06S	0.38	11/16-16	0.67	0.53	0.04	
•C1EP96	FC2326-08S	0.50	13/16-16	0.83	0.65	0.07	
•C1EP97	FC2326-10S	0.63	1-14	0.92	0.83	0.10	
•C1EP99	FC2326-16S	1.00	1-7/16-12	1.10	1.14	0.26	

Caution: In applications exceeding +480° F (such as during brazing), order the oil-coated NON-plated nut by using part number FC1857-Size-186. When a PLATED nut is heated above +480° F toxic gasses are given off.

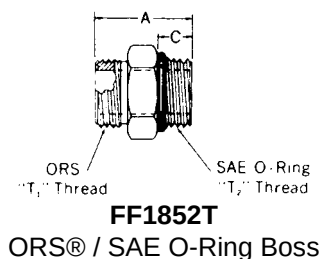
Adapters



Steel

O-Ring Face Seal to Straight Thread O-Ring

EATON
Powering Business Worldwide

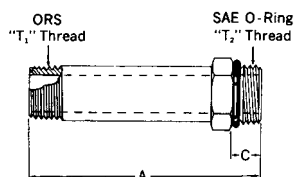


Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread T1	Thread T2	A (in)	C (in)	Wt.	Price Each
•C1CU64	FF1852T0404S	0.25	9/16-18	7/16-20	1.13	0.43	0.05	
•C1EQ37	FF1852T0406S	0.25	9/16-18	9/16-18	1.20	0.47	0.08	
•C1CU65	FF1852T0604S	0.38	11/16-16	7/16-20	1.34	0.43	0.09	
•C1CU66	FF1852T0605S	0.38	11/16-16	1/2-20	1.22	0.43	0.09	
•C1KN96	1FO-06Z		11/16-16	9/16-18	1.26	0.47		
C1CU67	FF1852T0606S	0.38	11/16-16	9/16-18	1.26	0.47	0.10	
•C1CU68	FF1852T0608S	0.38	11/16-16	3/4-16	1.38	0.55	0.14	
•C1EU61	FF1852T0610S	0.38	11/16-16	7/8-14	1.53	0.63	0.22	
•C1CU69	FF1852T0806S	0.50	13/16-16	9/16-18	1.48	0.47	0.12	
•C1KN97	1FO-08Z		13/16-16	3/4-16	1.44	0.55		
C1CU70	FF1852T0808S	0.50	13/16-16	3/4-16	1.44	0.55	0.15	
•C1CU71	FF1852T0810S	0.50	13/16-16	7/8-14	1.59	0.63	0.23	
•C1FM72	FF1852T1010S	0.63	1-14	7/8-14	1.70	0.63	0.25	
•C1EQ38	FF1852T1012S	0.63	1-14	1-1/16-12	1.86	0.73	0.25	
C1CU74	FF1852T1212S	0.75	1-3/16-12	1-1/16-12	1.92	0.73	0.39	
•C1KN98	1FO-12Z		1-3/16-12	1-1/16-12	1.91	0.73		
•C1GD97	FF1852T1612S	1.00	1-7/16-12	1-1/16-12	2.14	0.73	0.61	
•C1KN99	1FO-16Z		1-7/16-12	1-5/16-12	1.98	0.73		
C1CU76	FF1852T1616S	1.0	1-7/16-12	1-5/16-12	1.98	0.73	0.56	
C1JS44	FS6400-20-20-O	1.25	1-11/16-12	1-5/8-12	2.06		0.89	

Note: SAE O-Ring Boss O-Rings page 1267 ORS® O-Rings page 1266

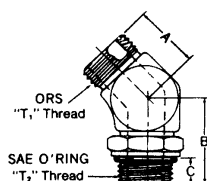
Note: FS6400 is Brennan model.

Note: 1FO is Eaton-Winner model.



Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread T1	Thread T2	A (in)	C (in)	Wt.	Price Each
•C1JA65	FF1854T0808S	0.50	13/16-16	3/4-16	2.67	0.55	0.25	

Note: SAE O-Ring Boss O-Rings page 1267 ORS® O-Rings page 1266

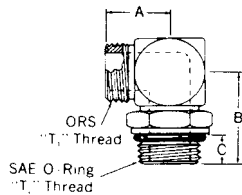


Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread T1	Thread T2	A (in)	B (in)	C (in)	Wt.	Price Each
•C1HX80	FF2068T0404S	0.25	9/16-18	7/16-20	0.63	1.18	0.37	0.10	
•C1ZT27	FF2068T0606S	0.38	11/16-16	9/16-18	0.74	1.30		0.16	
•C1JA76	FF2068T0808S	0.50	13/16-16	3/4-16	0.80	1.43	0.55	0.25	
•C1JC84	FF2068T1212S	0.75	1-3/16-12	1-1/16-12	1.02	1.97	0.73	0.63	
•C1JA78	FF2068T1616S	1.00	1-7/16-12	1-5/16-12	1.18	2.06	0.73	1.00	

Note: FS6802 is Brennan model. SAE O-Ring Boss O-Rings page 1267 ORS® O-Rings page 1266



Steel O-Ring Face Seal to Straight Thread O-Ring



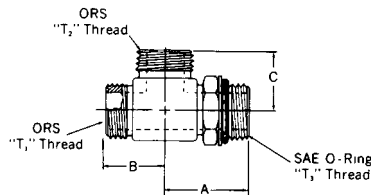
FF1868T

ORS® / SAE O-Ring Boss 90° Elbow
(Adjustable)

Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread T1	Thread T2	A (in)	B (in)	C (in)	Wt.	Price Each
•C1CU83	FF1868T0404S	0.25	9/16-18	7/16-20	0.85	1.29	0.43	0.12	
•C1EQ39	FF1868T0406S	0.25	9/16-18	9/16-18	0.92	1.45	0.47	0.18	
•C1CU84	FF1868T0604S	0.38	11/16-16	7/16-20	0.98	1.37	0.43	0.17	
•C1KP11	1FO9-06OGZ		11/16-16	9/16-18	1.06	1.36			
C1CU85	FF1868T0606S	0.38	11/16-16	9/16-18	0.98	1.45	0.47	0.24	
•C1CU86	FF1868T0608S	0.38	11/16-16	3/4-16	1.04	1.60	0.55	0.27	
•C1GM86	FF1868T0806S	0.50	13/16-16	9/16-18	1.10	1.44	0.47	0.23	
•C1KP12	1FO9-08OGZ		13/16-16	3/4-16	1.22	1.59			
C1CU87	FF1868T0808S	0.50	13/16-16	3/4-16	1.10	1.60	0.55	0.27	
•C1CU88	FF1868T0810S	0.50	13/16-16	7/8-14	1.21	1.97	0.63	0.23	
•C1CU89	FF1868T0812S	0.50	13/16-16	1-1/16-12	1.32	2.17	0.73	0.03	
•C1CU90	FF1868T1010S	0.63	1-14	7/8-14	1.31	1.97	0.63	0.44	
•C1KP13	1FO9-10OGZ		1-14	7/8-14	1.44	2.00			
•C1ZX90	FF1868T1012S	0.63	1-14	1-1/16-12	1.41	2.17	0.73	0.70	
•C1CU91	FF1868T1212S	0.75	1-3/16-12	1-1/16-12	1.47	2.17	0.73	0.75	
•C1KP14	1FO9-12OGZ		1-3/16-12	1-1/16-12	1.61	2.13			
•C1CU92	FF1868T1616S	1.0	1-7/16-12	1-5/16-12	1.64	2.35	0.73	1.24	
•C1KP15	1FO9-16-20OGZ		1-7/16-12	1-5/8-12	1.87	2.38			

Note: SAE O-Ring Boss O-Rings page 1267 ORS® O-Rings page 1266

Note: 1FO9 is Eaton-Winner model.



FF1865T

ORS® / ORS® / SAE O-Ring Boss Tee

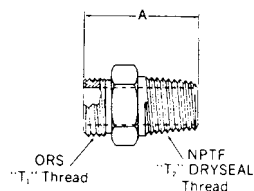
Catalog Part No.	Aeroquip Model	Thread T1	Thread T2	Thread T3	A (in)	B (in)	C (in)	Wt.	Price Each
•C1CU80	FF1865T0604S	11/16-16	11/16-16	7/16-20	1.37	1.17	0.98	0.23	
•C1EC72	FF1865T2020S	1-11/16-12	1-11/16-12	1-5/8-12	2.45	1.76	1.76	1.97	

Note: FS6804 is Brennan model. FS6804-*FG is a forged Brennan model. SAE O-Ring Boss O-Rings page 1267 ORS® O-Rings page 1266

Adapters



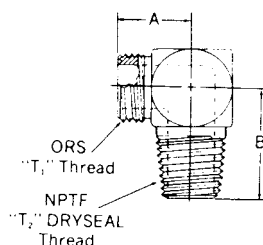
Steel O-Ring Face Seal to Pipe



FF2031T
ORS® / Male Pipe

Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread T1	Thread T2	A (in)	Wt.	Price Each
•C1CU98	FF2031T0404S	0.25	9/16-18	1/4-18	1.24	0.07	
•C1JA70	FF2031T0406S	0.25	9/16-18	3/8-18	1.24	0.10	
•C1CU99	FF2031T0604S	0.38	11/16-16	1/4-18	1.30	0.09	
•C1CV11	FF2031T0606S	0.38	11/16-16	3/8-18	1.30	0.13	
•C1HX79	FF2031T0608S	0.38	11/16-14	1/2-14	1.55	0.19	
•C1EC83	FF2031T0804S	0.50	13/16-16	1/4-18	1.36	0.12	
•C1GE94	FF2031T0806S	0.50	13/16-16	3/8-18	1.36	0.12	
•C1CV12	FF2031T0808S	0.50	13/16-16	1/2-14	1.61	0.18	
•C1ED32	FS2404-08-12	0.50	13/16-16	3/4-14	1.69	0.40	
•C1EC84	FF2031T1008S	0.63	1-14	1/2-14	1.72	0.22	
•C1EC85	FF2031T1012S	0.63	1-14	3/4-14	1.78	0.25	
•C1ED33	FS2404-10-16	0.63	1-14	1-11-1/2		0.43	
•C1CV14	FF2031T1212S	0.75	1-3/16-12	3/4-14	1.84	0.36	
•C1EC86	FF2031T1216S	0.75	1-3/16-12	1-11-1/2	2.03	0.41	
•C1EC87	FF2031T1612S	1.0	1-7/16-12	3/4-14	1.86	0.47	
•C1EC88	FF2031T1616S	1.0	1-7/16-12	1-11-1/2	2.05	0.48	
•C1EC89	FF2031T2020S	1.25	1-11/16-12	1-1/4-11-1/2	2.16	0.68	

Note: FS2404 is Brennan model. ORS® O-Rings page 1266

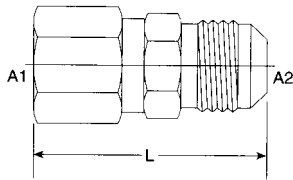


FF2032
ORS® / Male Pipe 90° Elbow

Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread T1	Thread T2	A (in)	B (in)	Wt.	Price Each
•C1EC90	FF2032T0404S	0.25	9/16-18	1/4-18	0.92	1.08	0.11	
•C1CV15	FF2032T0604S	0.38	11/16-16	1/4-18	0.98	1.08	0.15	
•C1HX24	FF2032T0606S	0.38	11/16-16	3/8-18	1.04	1.21	0.20	
•C1JA71	FF2032T0608S	0.38	11/16-16	1/2-14	1.15	1.53	0.03	
•C1EQ45	FF2032T0808S	0.50	13/16-16	1/2-14	1.21	1.53	0.30	



Steel O-Ring Face Seal to 37° Flare

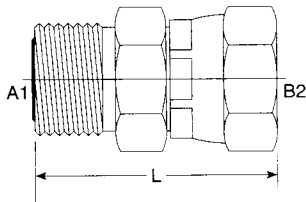


FS6504

Female O-Ring Face Seal / Male 37° Flare

Catalog Part No.	Brennan Model	Tube O.D. (in)	Thread A1	Thread A2	L (in)	Wt.	Price Each
•C1EW83	FS6504-04-04	0.25	9/16-18	7/16-20	1.50	0.08	
•C1EW84	FS6504-06-06	0.38	11/16-16	9/16-18	1.76	0.15	
•C1EW85	FS6504-08-08	0.50	13/16-16	3/4-16	1.90	0.24	
•C1EW86	FS6504-10-10	0.63	1-14	7/8-14	2.30	0.29	
•C1FQ86	FS6504-12-12	0.75	1-3/16-12	1-1/16-12		0.54	
•C1FM73	FS6504-16-16	1.00	1-7/16-12	1-5/16-12	2.70	0.81	

Note: ORS® O-Rings page 1266

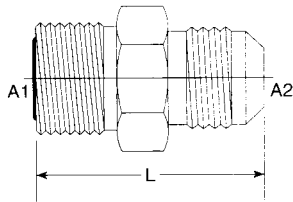


FS6402

Male O-Ring Face Seal / Female 37° Flare Swivel

Catalog Part No.	Brennan Model	Tube O.D. (in)	Thread A1	Thread B2	L (in)	Wt.	Price Each
•C1EZ13	FS6402-04-04	0.25	9/16-18	7/16-20	1.35	0.07	
•C1EM20	FS6402-06-06	0.38	11/16-16	9/16-18	1.54	0.11	
•C1EZ14	FS6402-08-08	0.50	13/16-16	3/4-16	1.72	0.17	
•C1EZ15	FS6402-10-10	0.63	1-14	7/8-14	2.00	0.25	
•C1EZ16	FS6402-12-12	0.75	1-3/16-12	1-1/16-12	2.25	0.45	

Note: ORS® O-Rings page 1266



FS6403

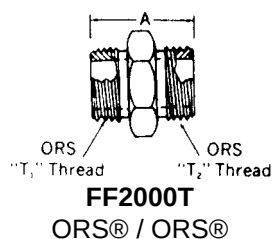
Male O-Ring Face Seal / Male 37° Flare

Catalog Part No.	Brennan Model	Tube O.D. (in)	Thread A1	Thread B2	L (in)	Wt.	Price Each
•C1EZ18	FS6403-06-06	0.38	11/16-16	9/16-18	1.30	0.09	
•C1EZ19	FS6403-08-08	0.50	13/16-16	3/4-16	1.55	0.15	
•C1EZ20	FS6403-10-10	0.63	1-14	7/8-14	1.75	0.25	
•C1EZ21	FS6403-12-12	0.75	1-3/16-12	1-1/16-12	1.95	0.39	

Note: ORS® O-Rings page 1266

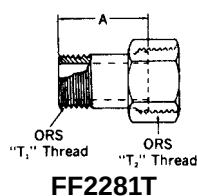
Adapters

Steel O-Ring Face Seal to O-Ring Face Seal



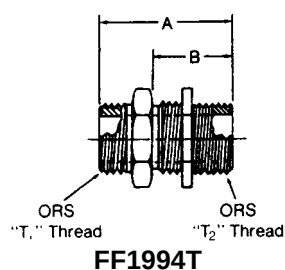
Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread T1	Thread T2	A (in)	Wt.	Price Each
•C1CU95	FF2000T0404S	0.25	9/16-18	9/16-18	1.08	0.08	
•C1GL80	FF2000T0606S	0.38	11/16-16	11/16-16	1.22	0.10	
•C1EQ41	FF2000T0806S	0.50	13/16-16	11/16-16	1.33	0.14	
•C1EQ42	FF2000T0808S	0.50	13/16-16	13/16-16	1.39	0.14	
•C1EF81	FF2000T1010S	0.63	1-14	1-14	1.68	0.28	
•C1ED24	FS2403-12-10		1-3/16-12	1-14	1.80	0.38	
•C1CU96	FF2000T1212S	0.75	1-3/16-12	1-3/16-12	1.86	0.40	
•C1GJ56	FF2000T1616S	1.00	1-7/16-12	1-7/16-12	1.94	0.58	

Note: FS2403 is Brennan model. ORS® O-Rings page 1266



Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread T1	Thread T2	A (in)	Wt.	Price Each
•C1GJ63	FF2281T0608S	0.50	11/16-16	13/16-16	0.94	0.13	
•C1GJ64	FF2281T0810S	0.63	13/16-16	1-14	1.12	0.22	
•C1GL81	FF2281T0812S	0.75	13/16-16	1-3/16-12	1.10	0.35	
•C1FZ56	FF2281T1620S	1.25	1-7/16-12	1-11/16-12	2.69	1.19	

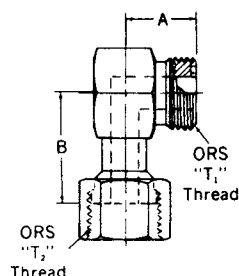
Note: ORS® O-Rings page 1266



Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread T1	Thread T2	A (in)	B (in)	Wt.	Price Each
•C1GE90	FF1994T0404S	0.25	9/16-18	1-3/16-12	1.47	1.82	0.15	
•C1FU35	FF1994T0606S	0.38	11/16-16	11/16-16	2.09	1.34	0.24	
•C1GE91	FF1994T0808S	0.50	13/16-16	13/16-16	1.10	1.49	0.35	
•C1GE92	FF1994T1010S	0.63	1-14	1-14	1.31	1.62	0.58	
•C1FV93	FF1994T1212S	0.75	1-3/16-12	1-3/16-12	2.72	1.64	0.75	
•C1KS72	6F-16LNZ		1-7/16-12	1-7/16-12	2.76	1.66		

Note: ORS® O-Rings page 1266

Note: 6F is Eaton-Winner model.

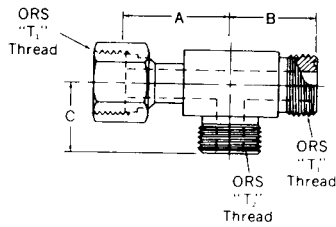


Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread T1	Thread T2	A (in)	B (in)	Wt.	Price Each
•C1JA81	FF2098T0404S	0.25	9/16-18	9/16-18	0.85	1.04	0.06	
•C1CV16	FF2098T0606S	0.38	11/16-16	11/16-16	0.98	1.15	0.20	
•C1KR11	2F9-08Z		13/16-16	13/16-16	1.22			
•C1GG81	FF2098T0808S	0.50	13/16-16	13/16-16	1.10	1.49	1.41	
•C1HX81	FF2098T1010S	0.63	1-14	1-14	1.31	1.62	0.54	
•C1CV17	FF2098T1212S	0.75	1-3/16-12	1-3/16-12	1.47	1.82	0.87	
•C1FR90	FF2098T1616S	1.00	1-7/16-12	1-7/16-12	1.64	2.10	1.22	

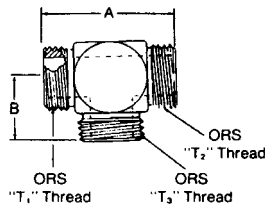
Note: ORS® O-Rings page 1266

Note: 2F9 is Eaton-Winner model.

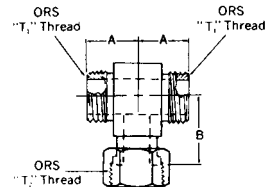
Steel O-Ring Face Seal to O-Ring Face Seal



FF2114T
Female ORS® / ORS® / ORS® Tee



FF1898T
ORS® / ORS® / ORS® Tee



FF1857T
ORS® / Female ORS® / ORS® Tee

Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread T1	Thread T2	A (in)	B (in)	C (in)	Wt.	Price Each
•C1HX25	FF2114T0404S	0.25	9/16-18	9/16-18	1.04	0.85	0.85	0.16	
•C1ED69	FS6602-6-FG	0.38	11/16-16	11/16-16		0.98	0.98	0.27	
•C1CV18	FF2114T0606S	0.38	11/16-16	11/16-16	1.15	0.98	0.98	0.26	
•C1KT51	CF-08Z		13/16-16	13/16-16		1.22	1.22		
•C1CV19	FF2114T0808S	0.50	13/16-16	13/16-16	1.49	1.10	1.10	0.33	
•C1ED66	FS6602-10-FG	0.63	1-14	1-14		1.31	1.31	0.69	
•C1ED67	FS6602-12-FG	0.75	1-3/16-12	1-3/16-12		1.47	1.47	1.04	
•C1ED68	FS6602-16-FG	1.0	1-7/16-12	1-7/16-12		1.64	1.64	1.51	

Note: FS6602 is Brennan model. FS6602-*FG is a forged Brennan model. ORS® O-Rings page 1266

Note: CF is Eaton-Winner model.

Catalog Part No.	Aeroquip Model	Thread T1	Thread T2	Thread T3	A (in)	B (in)	Wt.	Price Each
•C1JA67	FF1898T0606S	11/16-16	11/16-16	11/16-16	1.96	0.98	0.24	

Note: ORS® O-Rings page 1266

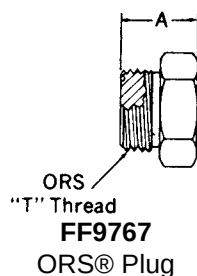
Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread T1	Thread T2	A (in)	B (in)	Wt.	Price Each
•C1ED59	FS6600-04-04-FG	0.25	9/16-18	9/16-18	0.85		0.16	
•C1ED63	FS6600-8-FG	0.50	13/16-16	13/16-16	0.85		0.38	

Note: FS6600 is Brennan model. FS6600-*FG is a forged Brennan model. ORS® O-Rings page 1266

Adapters



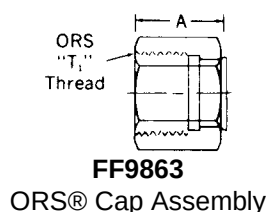
Steel O-Ring Face Seal Accessories



Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread T	A (in)	Wt.	Price Each
•C1KR62	4F-04Z		9/16-18	0.66		
C1CV70	FF9767-04S	0.25	9/16-18	0.66	0.03	
•C1KR63	4F-06Z		11/16-16	0.76		
C1CV71	FF9767-06S	0.38	11/16-16	0.75	0.08	
•C1KR64	4F-08Z		13/16-16	0.86		
C1CV72	FF9767-08S	0.50	13/16-16	0.87	0.13	
•C1KR65	4F-10Z		1-14	1.02		
C1CV73	FF9767-10S	0.63	1-14	1.02	0.23	
•C1KR66	4F-12Z		1-3/16-12	1.08		
C1CV74	FF9767-12S	0.75	1-3/16-12	1.08	0.34	
•C1KR67	4F-16Z		1-7/16-12	1.10		
C1CV75	FF9767-16S	1.0	1-7/16-12	1.10	0.50	
•C1KR68	4F-20Z		1-11/16-12	1.10		
•C1ZX85	FF9767-20S	1.25	1-11/16-12	1.10	0.40	
•C1FK57	FF9767-24S	1.50	2-12	1.10	1.02	

Note: ORS® O-Rings page 1266

Note: 4F is Eaton-Winner model.

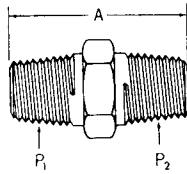


Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread T	A (in)	Wt.	Price Each
•C1KT20	9F-04GMZ		9/16-18	0.75		
C1CV76	FF9863-04S	0.25	9/16-18	0.66	0.05	
•C1KT21	9F-06GMZ		11/16-16	0.91		
C1CV77	FF9863-06S	0.38	11/16-16	0.75	0.07	
•C1KT22	9F-08GMZ		13/16-16	0.98		
C1CV78	FF9863-08S	0.50	13/16-16	0.90	0.12	
•C1KT23	9F-10GMZ		1-14	1.16		
C1CV79	FF9863-10S	0.63	1-14	1.00	0.18	
•C1KT24	9F-12GMZ		1-3/16-12	1.18		
C1CV80	FF9863-12S	0.75	1-3/16-12	1.10	0.31	
•C1KT25	9F-16GMZ		1-7/16-12	1.30		
C1CV81	FF9863-16S	1.0	1-7/16-12	1.17	0.46	
•C1KT26	9F-20GMZ		1-11/16-12	1.34		
•C1ZX84	FF9863-20S	1.25	1-11/16-12	1.17	0.30	

Note: 9F is Eaton-Winner model.



Steel Pipe to Pipe



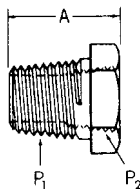
2083

Male Pipe / Male Pipe Hex Nipple

Catalog Part No.	Aeroquip Model	Thread P1	Thread P2	A (in)	Wt.	Price Each
C1BA66	2083-2-2S	1/8-27	1/8-27	1.06	0.03	
•C1KQ80	1N-02Z	1/8-27	1/8-27	1.06		
•C1BA71	2083-4-2S	1/4-18	1/8-27	1.26	0.55	
C1BA72	2083-4-4S	1/4-18	1/4-18	1.45	0.05	
•C1KQ83	1N-04Z	1/4-18	1/4-18	1.38		
•C1BA73	2083-6-4S	3/8-18	1/4-18	1.45	0.08	
•C1KQ81	1N-04-06Z	3/8-18	1/4-18	1.46		
C1BA74	2083-6-6S	3/8-18	3/8-18	1.45	0.09	
•C1KQ85	1N-06Z	3/8-18	3/8-18	1.50		
C1BA75	2083-8-4S	1/2-14	1/4-18	1.70	0.16	
•C1KQ82	1N-04-08Z	1/2-14	1/4-18	1.63		
C1BA76	2083-8-6S	1/2-14	3/8-18	1.70	0.13	
•C1KQ84	1N-06-08Z	1/2-14	3/8-18	1.71		
C1BA77	2083-8-8S	1/2-14	1/2-14	1.89	0.16	
•C1KQ87	1N-08Z	1/2-14	1/2-14	1.85		
•C1KQ86	1N-08-12Z	3/4-14	1/2-14	1.93		
•C1BA63	2083-12-8S	3/4-14	1/2-14	1.96	0.23	
C1BA62	2083-12-12S	3/4-14	3/4-14	1.96	0.24	
•C1KQ89	1N-12Z	3/4-14	3/4-14	1.93		
•C1KQ88	1N-12-16Z	1-11-1/2	3/4-14	2.17		
C1BA64	2083-16-12S	1-11-1/2	3/4-14	2.15	0.35	
•C1KQ91	1N-16Z	1-11-1/2	1-11-1/2	2.40		
C1BA65	2083-16-16S	1-11-1/2	1-11-1/2	2.34	0.39	
•C1KQ90	1N-16-20Z	1-1/4-11-1/2	1-11-1/2	2.52		
C1BA67	2083-20-16S	1-1/4-11-1/2	1-11-1/2	2.45	0.58	
•C1KQ92	1N-20Z	1-1/4-11-1/2	1-1/4-11-1/2	2.56		
C1BA68	2083-20-20S	1-1/4-11-1/2	1-1/4-11-1/2	2.48	0.61	
•C1KQ93	1N-24Z	1-1/2-11-1/2	1-1/2-11-1/2	2.72		
C1BA69	2083-24-24S	1-1/2-11-1/2	1-1/2-11-1/2	2.61	0.76	
•C1KQ94	1N-32Z	2-11-1/2	2-11-1/2	2.80		
C1BA70	2083-32-32S	2-11-1/2	2-11-1/2	2.82	1.21	

Note: 5404 is Brennan model.

Note: 1N is Eaton-Winner model.



2081

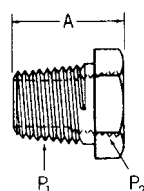
Male Pipe / Female Pipe Bushing

Catalog Part No.	Aeroquip Model	Thread P1	Thread P2	A (in)	Wt.	Price Each
•C1KS29	5N-04-02Z	1/4-18	1/8-27	0.87		
C1BA48	2081-4-2S	1/4-18	1/8-27	0.85	0.04	
•C1BA49	2081-6-2S	3/8-18	1/8-27	0.85	0.07	
C1BA50	2081-6-4S	3/8-18	1/4-18	0.85	0.06	
•C1KS31	5N-06-04Z	3/8-18	1/4-18	0.87		
•C1BA51	2081-8-2S	1/2-14	1/8-27	1.10	0.15	
C1BA52	2081-8-4S	1/2-14	1/4-18	1.10	0.12	
•C1KS33	5N-08-04Z	1/2-14	1/4-18	1.10		
C1BA53	2081-8-6S	1/2-14	3/8-18	1.10	0.09	
•C1KS34	5N-08-06Z	1/2-14	3/8-18	1.12		
C1BA34	2081-12-4S	3/4-14	1/4-18	1.17	0.24	
•C1KS36	5N-12-04Z	3/4-14	1/4-18	1.18		
•C1KS37	5N-12-06Z	3/4-14	3/8-18	1.20		
C1BA35	2081-12-6S	3/4-14	3/8-18	1.17	0.22	

Adapters



Steel Pipe to Pipe



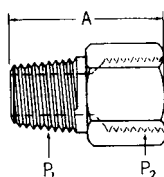
2081

Male Pipe / Female Pipe Bushing

Catalog Part No.	Aeroquip Model	Thread P1	Thread P2	A (in)	Wt.	Price Each
C1BA36	2081-12-8S	3/4-14	1/2-14	1.17	0.20	
• C1KS38	5N-12-08Z	3/4-14	1/2-14	1.20		
• C1BA38	2081-16-6S	1-11-1/2	3/8-18	1.36	0.41	
C1BA39	2081-16-8S	1-11-1/2	1/2-14	1.36	0.35	
• C1KS40	5N-16-08Z	1-11-1/2	1/2-14	1.40		
• C1KS41	5N-16-12Z	1-11-1/2	3/4-14	1.44		
C1BA37	2081-16-12S	1-11-1/2	3/4-14	1.36	0.29	
• C1DX74	5406-20-08	1-1/4-11-1/2	1/2-14	1.47	0.74	
C1BA40	2081-20-12S	1-1/4-11-1/2	3/4-14	1.47	0.65	
• C1KS42	5N-20-12Z	1-1/4-11-1/2	3/4-14	1.52		
C1BA41	2081-20-16S	1-1/4-11-1/2	1-11-1/2	1.47	0.52	
• C1KS43	5N-20-16Z	1-1/4-11-1/2	1-11-1/2	1.61		
• C1DX76	5406-24-06	1-1/2-11-1/2	3/8-18	1.57	1.18	
C1BA42	2081-24-12S	1-1/2-11-1/2	3/4-14	1.57	0.98	
• C1KS44	5N-24-12Z	1-1/2-11-1/2	3/4-14	1.61		
C1BA43	2081-24-16S	1-1/2-11-1/2	1-11-1/2	1.57	0.80	
• C1KS45	5N-24-16Z	1-1/2-11-1/2	1-11-1/2	1.63		
• C1BA44	2081-24-20S	1-1/2-11-1/2	1-1/4-11-1/2	1.57	0.55	
• C1KS46	5N-24-20Z	1-1/2-11-1/2	1-1/4-11-1/2	1.61		
• C1BA45	2081-32-16S	2-11-1/2	1-11-1/2	1.75	1.78	
• C1KS47	5N-32-16Z	2-11-1/2	1-11-1/2	1.77		
C1BA46	2081-32-20S	2-11-1/2	1-1/4-11-1/2	1.75	1.43	
• C1KS48	5N-32-20Z	2-11-1/2	1-1/4-11-1/2	1.75		
• C1KS49	5N-32-24Z	2-11-1/2	1-1/2-11-1/2	1.77		
C1BA47	2081-32-24S	2-11-1/2	1-1/2-11-1/2	1.75	1.12	

Note: 5406 is Brennan model.

Note: 5N is Eaton-Winner model.



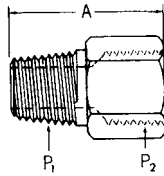
2040

Male Pipe / Female Pipe

Catalog Part No.	Aeroquip Model	Thread P1	Thread P2	A (in)	Wt.	Price Each
• C1AY30	2040-2-2S	1/8-27	1/8-27	1.04	0.06	
• C1KS28	5N-02-04Z	1/8-27	1/4-18	1.00		
C1AY31	2040-2-4S	1/8-27	1/4-18	1.21	0.09	
• C1AY32	2040-4-4S	1/4-18	1/4-18	1.39	0.10	
• C1KS30	5N-04-06Z	1/4-18	3/8-18	1.44		
C1AY33	2040-4-6S	1/4-18	3/8-18	1.44	0.12	
• C1AY34	2040-4-8S	1/4-18	1/2-14	1.68	0.24	
• C1DX65	5405-06-04	3/8-18	1/4-18	1.44	0.10	
• C1AY35	2040-6-6S	3/8-18	3/8-18	1.44	0.24	
C1AY36	2040-6-8S	3/8-18	1/2-14	1.68	0.25	
• C1KS32	5N-06-08Z	3/8-18	1/2-14	1.72		
• C1DX66	5405-08-06	1/2-14	3/8-18	1.85	0.17	
• C1AY38	2040-8-8S	1/2-14	1/2-14	1.87	0.28	
• C1KS35	5N-08-12Z	1/2-14	3/4-14	1.93		



Steel Pipe to Pipe



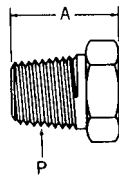
2040

Male Pipe / Female Pipe

Catalog Part No.	Aeroquip Model	Thread P1	Thread P2	A (in)	Wt.	Price Each
C1AY37	2040-8-12S	1/2-14	3/4-14	1.93	0.38	
• C1DX67	5405-08-16	1/2-14	1-11-1/2	2.18	0.60	
• C1DX68	5405-12-06	3/4-14	3/8-18	1.63	0.28	
• C1DX69	5405-12-08	3/4-14	1/2-14	1.94	0.30	
• C1AY26	2040-12-12S	3/4-14	3/4-14	1.93	0.40	
• C1KS39	5N-12-16Z	3/4-14	1-11-1/2	2.18		
C1AY27	2040-12-16S	3/4-14	1-11-1/2	2.18	0.57	
• C1DX71	5405-16-12	1-11-1/2	3/4-14	2.12	0.46	
• C1AY28	2040-16-16S	1-11-1/2	1-11-1/2	2.37	0.66	
• C1AY29	2040-16-20S	1-11-1/2	1-1/4-11-1/2	2.46	0.98	

Note: 5405 is Brennan model.

Note: 5N is Eaton-Winner model.

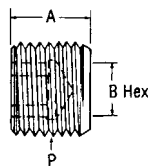


2082

Male Pipe Plug

Catalog Part No.	Aeroquip Model	Thread P	A (in)	Wt.	Price Each
C1BA58	2082-2S	1/8-27	0.56	0.02	
• C1KR78	4N-02Z	1/8-27	0.63		
C1BA59	2082-4S	1/4-18	0.75	0.04	
• C1KR79	4N-04Z	1/4-18	0.79		
• C1BA60	2082-6S	3/8-18	0.78	0.07	
• C1KR80	4N-06Z	3/8-18	0.83		
• C1BA61	2082-8S	1/2-14	0.97	0.44	
• C1KR81	4N-08Z	1/2-14	1.06		
• C1KR82	4N-12Z	3/4-14	1.16		
C1BA54	2082-12S	3/4-14	1.06	0.25	
C1BA55	2082-16S	1-11-1/2	1.25	0.45	
• C1KR83	4N-16Z	1-11-1/2	1.44		
• C1KR84	4N-20Z	1-1/4-11-1/2	1.52		
C1BA56	2082-20S	1-1/4-11-1/2	1.28	0.79	
• C1KR85	4N-24Z	1-1/2-11-1/2	1.69		
C1BA57	2082-24S	1-1/2-11-1/2	1.31	0.99	

Note: 4N is Eaton-Winner model.



2222

Male Pipe Plug Countersunk Hex

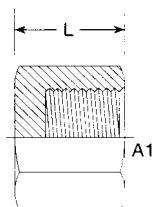
Catalog Part No.	Aeroquip Model	Thread P	A (in)	B (in)	Wt.	Price Each
• C1BC88	2222-2S	1/8-27	0.30	0.19	0.01	
• C1BC89	2222-4S	1/4-18	0.46	0.25	0.07	
• C1BC90	2222-6S	3/8-18	0.46	0.31	0.05	
• C1BC91	2222-8S	1/2-14	0.61	0.38	1.50	
• C1FA72	5406-HP-12	3/4-14	0.62	0.56	0.10	
• C1EH38	5406-HP-16	1-11-1/2	0.77	0.63	0.21	
• C1EX75	5406-HP-20	1-1/4-11-1/2	0.83	0.75	0.39	
• C1FN19	5406-HP-24	1-1/2-11-1/2	0.83	1.00	0.46	

Note: 5406-HP is Brennan model.

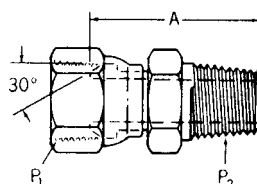
Adapters



Steel Pipe to Pipe



5406-C
Female Pipe Cap



2045
Female Pipe Swivel / Male Pipe

Catalog Part No.	Brennan Model	Thread A1	L (in)	Wt.	Price Each
•C1FD36	5406-C-12	3/4-14	1.13	0.19	

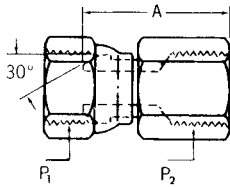
Catalog Part No.	Aeroquip Model	Thread P1	Thread P2	A (in)	Wt.	Price Each
•C1AY61	2045-2-2S	1/8-27	1/8-27	0.94	0.04	
•C1AY62	2045-2-4S	1/8-27	1/4-18	1.12	0.05	
C1AY66	2045-4-4S	1/4-18	1/4-18	1.25	0.09	
•C1KR38	2NU-04Z	1/4-18	1/4-18	1.26		
•C1AY67	2045-4-6S	1/4-18	3/8-18	1.25	0.10	
•C1AY68	2045-6-4S	3/8-18	1/4-18	1.25	0.10	
C1AY69	2045-6-6S	3/8-18	3/8-18	1.31	0.15	
•C1KR39	2NU-06Z	3/8-18	3/8-18	1.36		
C1AY70	2045-6-8S	3/8-18	1/2-14	1.56	0.19	
•C1KR40	2NU-08-06Z	3/8-18	1/2-14	1.56		
•C1AK56	1404-12-06	3/8-18	3/4-14	1.55	0.20	
•C1AY72	2045-8-6S	1/2-14	3/8-18	1.36	0.16	
•C1KR41	2NU-08Z	1/2-14	1/2-14	1.63		
C1AY73	2045-8-8S	1/2-14	1/2-14	1.61	0.22	
•C1BK20	2H0108-08R.031 0.031 Orifice	1/2-14	1/2-14		0.22	
•C1AY71	2045-8-12S	1/2-14	3/4-14	1.61	0.29	
•C1AK55	1404-08-12	3/4-14	1/2-14	1.75	0.50	
•C1KR42	2NU-12Z	3/4-14	3/4-14	1.75		
C1AY57	2045-12-12S	3/4-14	3/4-14	1.73	0.35	
•C1AY58	2045-12-16S	3/4-14	1-11-1/2	1.98	0.43	
•C1AY59	2045-16-12S	1-11-1/2	3/4-14	1.75	0.42	
•C1KR43	2NU-16Z	1-11-1/2	1-11-1/2	2.07		
C1AY60	2045-16-16S	1-11-1/2	1-11-1/2	2.00	0.51	
•C1HH65	1404-20-16	1-11-1/2	1-1/4-11-1/2	2.02	0.70	
•C1KR44	2NU-20Z	1-1/4-11-1/2	1-1/4-11-1/2	2.34		
C1AY63	2045-20-20S	1-1/4-11-1/2	1-1/4-11-1/2	2.06	0.86	
•C1KR45	2NU-24Z	1-1/2-11-1/2	1-1/2-11-1/2	2.46		
•C1KR46	2NU-32Z	2-11-1/2	2-11-1/2	2.54		
C1AY65	2045-32-32S	2-11-1/2	2-11-1/2	2.38	1.73	

Note: 1404 is Brennan model. 2H010 is Cross Manufacturing model with restrictor orifice.

Note: 2NU is Eaton-Winner model.



Steel Pipe to Pipe



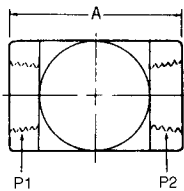
2046

Female Pipe Swivel / Female Pipe

Catalog Part No.	Aeroquip Model	Thread P1	Thread P2	A (in)	Wt.	Price Each
•C1AY76	2046-2-2S	1/8-27	1/8-27	0.88	0.05	
•C1AY80	2046-4-4S	1/4-18	1/4-18	1.12	0.13	
•C1AY82	2046-6-6S	3/8-18	3/8-18	1.12	0.17	
•C1DU78	1405-06-08	1/2-14	3/8-18	1.36	0.23	
•C1AY83	2046-8-8S	1/2-14	1/2-14	1.50	0.26	
•C1AY74	2046-12-12S	3/4-14	3/4-14	1.62	0.39	
•C1EF52	1405-12-16	1-11-1/2	3/4-14	1.92	0.67	
•C1KT17	7NU-16SZ	1-11-1/2	1-11-1/2	2.03		
C1AY75	2046-16-16S	1-11-1/2	1-11-1/2	2.00	0.57	
•C1KT18	7NU-20SZ	1-1/4-11-1/2	1-1/4-11-1/2	2.17		
C1AY78	2046-20-20S	1-1/4-11-1/2	1-1/4-11-1/2	2.00	0.88	
•C1KT19	7NU-24SZ	1-1/2-11-1/2	1-1/2-11-1/2	2.19		
C1AY79	2046-24-24S	1-1/2-11-1/2	1-1/2-11-1/2	2.00	1.18	
•C1DV69	2046-32-32S	2-11-1/2	2-11-1/2	2.30	1.76	

Note: 1405 is Brennan model.

Note: 7NU is Eaton-Winner model.



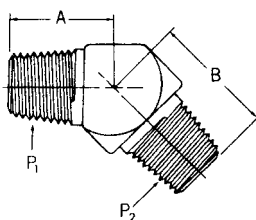
2096

Female Pipe Coupling

Catalog Part No.	Aeroquip Model	Thread P1	Thread P2	A (in)	Wt.	Price Each
C1BB62	2096-2S	1/8-27	1/8-27	0.75	0.05	
•C1KS88	7N-02Z	1/8-27	1/8-27	0.94		
C1BB63	2096-4S	1/4-18	1/4-18	1.13	0.10	
•C1KS89	7N-04Z	1/4-18	1/4-18	1.14		
•C1BR64	5000-06-02	3/8-18	1/8-27	1.13	0.20	
•C1BR65	5000-06-04	3/8-18	1/4-18	1.13	0.20	
•C1BB64	2096-6S	3/8-18	3/8-18	1.13	0.12	
•C1KS90	7N-06Z	3/8-18	3/8-18	1.14		
•C1BR66	5000-08-04	1/2-14	1/4-18	1.50	0.50	
•C1BR67	5000-08-06	1/2-14	3/8-18	1.50	0.45	
•C1KS91	7N-08Z	1/2-14	1/2-14	1.50		
C1BB65	2096-8S	1/2-14	1/2-14	1.50	0.23	
•C1BR68	5000-12-08	3/4-14	1/2-14	1.53	0.40	
C1BB58	2096-12S	3/4-14	3/4-14	1.53	0.38	
•C1KS92	7N-12Z	3/4-14	3/4-14	1.54		
•C1KS93	7N-16Z	1-11-1/2	1-11-1/2	1.89		
•C1BB59	2096-16S	1-11-1/2	1-11-1/2	1.89	0.59	
•C1KS94	7N-20Z	1-1/4-11-1/2	1-1/4-11-1/2	1.93		
•C1BB60	2096-20S	1-1/4-11-1/2	1-1/4-11-1/2	1.93	0.85	
•C1KS95	7N-24Z	1-1/2-11-1/2	1-1/2-11-1/2	1.93		
C1BB61	2096-24S	1-1/2-11-1/2	1-1/2-11-1/2	1.93	1.28	

Note: 5000 is Brennan model.

Note: 7N is Eaton-Winner model.



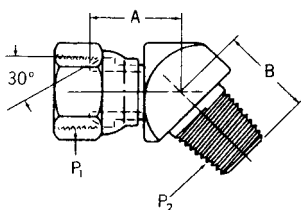
2247

Male Pipe / Male Pipe 45° Elbow

Catalog Part No.	Aeroquip Model	Thread P1	Thread P2	A (in)	B (in)	Wt.	Price Each
•C1BD43	2247-4-4S	1/4-18	1/4-18	0.85	0.86	0.10	
•C1BD44	2247-8-8S	1/2-14	1/2-14	1.13	1.17	0.25	

Adapters

Steel Pipe to Pipe



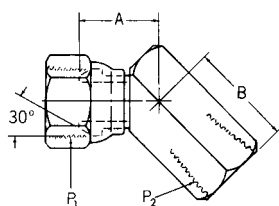
2049

Female Pipe Swivel / Male Pipe 45°
Elbow

Catalog Part No.	Aeroquip Model	Thread P1	Thread P2	A (in)	B (in)	Wt.	Price Each
•C1AZ18	2049-4-4S	1/4-18	1/4-18	0.69	0.81	0.12	
•C1AZ19	2049-6-6S	3/8-18	3/8-18	0.75	1.06	0.20	
•C1JC25	2049-6-8S	3/8-18	1/2-14	0.92	1.41	0.27	
•C1AZ20	2049-8-8S	1/2-14	1/2-14	0.88	1.31	1.25	
•C1KR47	2NU4-12Z	3/4-14	3/4-14		1.38		
C1AZ14	2049-12-12S	3/4-14	3/4-14	1.0	1.09	0.42	
•C1KR48	2NU4-16Z	1-11-1/2	1-11-1/2		1.54		
C1AZ15	2049-16-16S	1-11-1/2	1-11-1/2	1.06	1.50	0.60	
•C1DV23	1503-16-20	1-1/4-11-1/2	1-11-1/2	1.07	1.75	1.27	
•C1KR49	2NU4-20Z	1-1/4-11-1/2	1-1/4-11-1/2		1.67		
C1AZ17	2049-20-20S	1-1/4-11-1/2	1-1/4-11-1/2	1.25	1.75	1.38	

Note: 1503 is Brennan model.

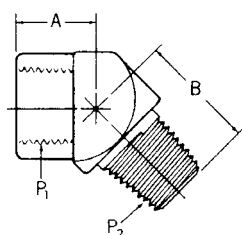
Note: 2NU4 is Eaton-Winner model.



2050

Female Pipe Swivel / Female Pipe 45°
Elbow

Catalog Part No.	Aeroquip Model	Thread P1	Thread P2	A (in)	B (in)	Wt.	Price Each
•C1FA55	2050-12-12S	3/4-14	3/4-14	1.10	1.53	0.74	
•C1HK67	2050-16-16S	1-11-1/2	1-11-1/2	1.26	1.53	1.04	



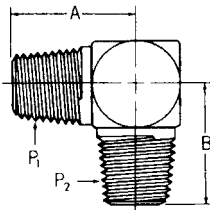
2088

Female Pipe / Male Pipe 45° Elbow

Catalog Part No.	Aeroquip Model	Thread P1	Thread P2	A (in)	B (in)	Wt.	Price Each
•C1BB12	2088-2-2S	1/8-27	1/8-27	0.56	0.73	0.07	
•C1KS50	5N4-04Z	1/4-18	1/4-18	0.79	0.87		
C1BB13	2088-4-4S	1/4-18	1/4-18	1.01	0.92	0.16	
•C1BB14	2088-6-6S	3/8-18	3/8-18	1.15	0.99	0.24	
•C1KS51	5N4-08Z	1/2-14	1/2-14	1.10	1.25		
C1BB15	2088-8-8S	1/2-14	1/2-14	1.28	1.33	0.44	
•C1KS52	5N4-12Z	3/4-14	3/4-14	1.18	1.44		
•C1BB11	2088-12-12S	3/4-14	3/4-14	1.34	1.37	0.61	
•C1FH86	2088-16-16S	1-11-1/2	1-11-1/2	1.12	1.72	1.12	

Note: 5N4 is Eaton-Winner model.

Steel Pipe to Pipe



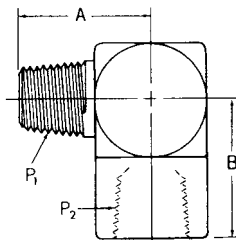
2085

Male Pipe / Male Pipe 90° Elbow

Catalog Part No.	Aeroquip Model	Thread P1	Thread P2	A (in)	B (in)	Wt.	Price Each
•C1BA87	2085-2-2S	1/8-27	1/8-27	0.76	0.78	0.04	
•C1DX77	5500-04-02	1/4-18	1/8-27	1.09	0.84	0.10	
C1BA88	2085-4-4S	1/4-18	1/4-18	1.09	1.09	0.10	
•C1KQ95	1N9-04Z	1/4-18	1/4-18	1.00	1.00		
•C1BA89	2085-6-4S	3/8-18	1/4-18	1.22	1.22	0.17	
•C1KQ96	1N9-06Z	3/8-18	3/8-18	1.22	1.22		
C1BA90	2085-6-6S	3/8-18	3/8-18	1.22	1.22	0.17	
•C1DX78	5500-08-04	1/2-14	1/4-18	1.47	1.28	0.03	
•C1BA91	2085-8-6S	1/2-14	3/8-18	1.47	1.25	0.25	
•C1KQ97	1N9-08Z	1/2-14	1/2-14	1.47	1.47		
C1BA92	2085-8-8S	1/2-14	1/2-14	1.47	1.47	0.25	
•C1BA85	2085-12-8S	3/4-14	1/2-14	1.50	1.54	0.40	
•C1BA84	2085-12-12S	3/4-14	3/4-14	1.59	1.59	0.40	
•C1KQ98	1N9-12Z	3/4-14	3/4-14	1.73	1.73		
•C1KQ99	1N9-16Z	1-11-1/2	1-11-1/2	1.97	1.97		
•C1BA86	2085-16-16S	1-11-1/2	1-11-1/2	1.97	1.97	0.65	
•C1DX79	5500-20-20	1-1/4-11-1/2	1-1/4-11-1/2	2.38	2.38	1.27	

Note: 5500 is Brennan model.

Note: 1N9 is Eaton-Winner model.



2089

Male Pipe / Female Pipe 90° Elbow

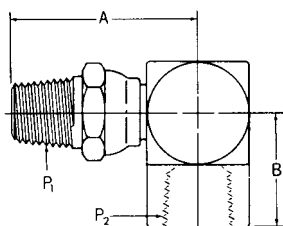
Catalog Part No.	Aeroquip Model	Thread P1	Thread P2	A (in)	B (in)	Wt.	Price Each
C1BB19	2089-2-2S	1/8-27	1/8-27	0.78	0.66	0.05	
•C1KS53	5N9-02Z	1/8-27	1/8-27	0.96	0.70		
•C1BB20	2089-2-4S	1/8-27	1/4-18	0.87	0.88	0.13	
•C1BB23	2089-4-2S	1/4-18	1/8-27	1.05	0.63	0.12	
•C1KS54	5N9-04Z	1/4-18	1/4-18	1.10	0.88		
C1BB24	2089-4-4S	1/4-18	1/4-18	1.11	0.88	0.14	
•C1BB25	2089-4-6S	1/4-18	3/8-18	1.13	1.02	0.21	
•C1BB26	2089-6-4S	3/8-18	1/4-18	1.22	1.01	0.17	
C1BB27	2089-6-6S	3/8-18	3/8-18	1.23	1.02	0.25	
•C1KS55	5N9-06Z	3/8-18	3/8-18	1.32	0.98		
•C1BB28	2089-6-8S	3/8-18	1/2-14	1.27	1.23	0.24	
•C1KS56	5N9-08-06Z	1/2-14	3/8-18	1.48	0.98		
•C1BB29	2089-8-6S	1/2-14	3/8-18	1.47	1.02	0.23	
C1BB30	2089-8-8S	1/2-14	1/2-14	1.47	1.23	0.35	
•C1KS57	5N9-08Z	1/2-14	1/2-14	1.62	1.23		
•C1BB17	2089-12-8S	3/4-14	1/2-14	1.59	1.35	0.38	
•C1BB16	2089-12-12S	3/4-14	3/4-14	1.69	1.36	0.77	
•C1KS58	5N9-12Z	3/4-14	3/4-14	1.78	1.36		
•C1KS59	5N9-16Z	1-11-1/2	1-11-1/2	2.15	1.62		
C1BB18	2089-16-16S	1-11-1/2	1-11-1/2	1.97	1.62	1.11	
•C1DX81	5502-20-16	1-1/4-11-1/2	1-11-1/2	2.38	1.68	1.07	
•C1KS60	5N9-20Z	1-1/4-11-1/2	1-1/4-11-1/2	2.48	1.70		
C1BB21	2089-20-20S	1-1/4-11-1/2	1-1/4-11-1/2	2.38	1.70	2.00	

Note: 5502 is Brennan model.

Note: 5N9 is Eaton-Winner model.

Adapters

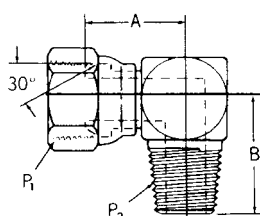
Steel Pipe to Pipe



2252

Male Pipe Swivel / Female Pipe 90°
Elbow

Catalog Part No.	Aeroquip Model	Thread P1	Thread P2	A (in)	B (in)	Wt.	Price Each
•C1BD55	2252-4-4S	1/4-18	1/4-18	1.61	0.88	0.20	
•C1BD56	2252-6-6S	3/8-18	3/8-18	1.69	1.02	0.32	
•C1BD57	2252-8-8S	1/2-14	1/2-14	2.01	1.23	0.47	



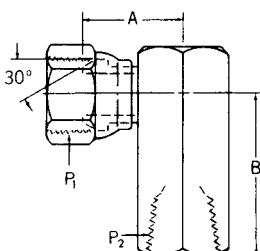
2047

Female Pipe Swivel / Male Pipe 90°
Elbow

Catalog Part No.	Aeroquip Model	Thread P1	Thread P2	A (in)	B (in)	Wt.	Price Each
•C1AY88	2047-2-2S	1/8-27	1/8-27	0.69	0.94	0.07	
•C1DU82	1501-02-04	1/4-18	1/8-27	0.75	1.19	0.17	
C1AY91	2047-4-4S	1/4-18	1/4-18	0.78	1.19	0.13	
•C1KR50	2NU9-04Z	1/4-18	1/4-18		0.83		
•C1AY92	2047-4-6S	1/4-18	3/8-18	0.84	1.50	0.23	
•C1AK73	1501-0406	3/8-18	1/4-18	1.50	0.94	0.15	
C1AY93	2047-6-6S	3/8-18	3/8-18	0.94	1.50	0.25	
•C1KR51	2NU9-06Z	3/8-18	3/8-18		1.22		
•C1AY94	2047-6-8S	3/8-18	1/2-14	1.0	1.81	0.29	
•C1DU86	1501-12-06	3/8-18	3/4-14	1.02	2.00	0.75	
•C1AY96	2047-8-6S	1/2-14	3/8-18	1.0	1.67	0.32	
C1AY97	2047-8-8S	1/2-14	1/2-14	1.0	1.81	0.33	
•C1KR52	2NU9-08Z	1/2-14	1/2-14		1.47		
•C1AY95	2047-8-12S	1/2-14	3/4-14	1.12	2.00	0.52	
•C1AY86	2047-12-8S	3/4-14	1/2-14	1.10	1.81	0.57	
•C1KR53	2NU9-12Z	3/4-14	3/4-14		1.73		
C1AY84	2047-12-12S	3/4-14	3/4-14	1.19	2.00	0.92	
•C1AY85	2047-12-16S	3/4-14	1-11-1/2	1.28	2.38	1.32	
•C1KR54	2NU9-16Z	1-11-1/2	1-11-1/2		1.97		
C1AY87	2047-16-16S	1-11-1/2	1-11-1/2	1.44	2.38	0.83	
•C1AY89	2047-20-20S	1-1/4-11-1/2	1-1/4-11-1/2	1.62	2.62	2.16	
•C1KR55	2NU9-24Z	1-1/2-11-1/2	1-1/2-11-1/2		2.34		

Note: 1501 is Brennan model.

Note: 2NU9 is Eaton-Winner model.



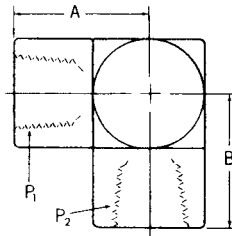
2048

Female Pipe Swivel / Female Pipe 90°
Elbow

Catalog Part No.	Aeroquip Model	Thread P1	Thread P2	A (in)	B (in)	Wt.	Price Each
•C1AZ11	2048-4-4S	1/4-18	1/4-18	0.78	0.88	0.17	
•C1AZ12	2048-6-6S	3/8-18	3/8-18	0.94	1.02	0.27	
•C1AZ13	2048-8-8S	1/2-14	1/2-14	1.03	1.23	0.44	
•C1AY98	2048-12-12S	3/4-14	3/4-14	1.27	1.36	0.85	
•C1DV70	2048-20-20S	1-1/4-11-1/2	1-1/4-11-1/2	1.75	2.0	1.79	

Note: 1502 is Brennan model.

Steel Pipe to Pipe



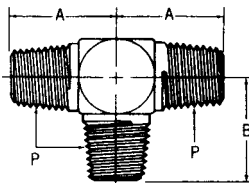
2087

Female Pipe / Female Pipe 90° Elbow

Catalog Part No.	Aeroquip Model	Thread P1	Thread P2	A (in)	B (in)	Wt.	Price Each
•C1BA95	2087-2-2S	1/8-27	1/8-27	0.66	0.68	0.06	
•C1DX82	5504-04-02	1/4-18	1/8-27	0.88	0.72	0.15	
•C1KS96	7N9-04PKZ	1/4-18	1/4-18	0.89	0.89		
C1BA97	2087-4-4S	1/4-18	1/4-18	0.88	0.88	0.14	
•C1KS97	7N9-06PKZ	3/8-18	3/8-18	1.02	1.02		
•C1HZ26	2087-8-6S	1/2-14	3/8-18	1.23	1.01	0.35	
•C1KS98	7N9-08PKZ	1/2-14	1/2-14	1.22	1.22		
C1BA99	2087-8-8S	1/2-14	1/2-14	1.23	1.23	0.36	
•C1KS99	7N9-12PKZ	3/4-14	3/4-14	1.34	1.34		
•C1BA93	2087-12-12S	3/4-14	3/4-14	1.36	1.36	0.91	
•C1KT11	7N9-16PKZ	1-11-1/2	1-11-1/2	1.65	1.65		
C1BA94	2087-16-16S	1-11-1/2	1-11-1/2	1.62	1.62	1.04	
•C1DX88	5504-20-12	1-1/4-11-1/2	3/4-14			1.47	
•C1BA96	2087-20-20S	1-1/4-11-1/2	1-1/4-11-1/2	1.70	1.70	1.25	

Note: 5504 is Brennan model.

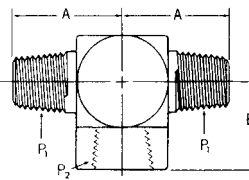
Note: 7N9 is Eaton-Winner model.



2257

Male Pipe Tee

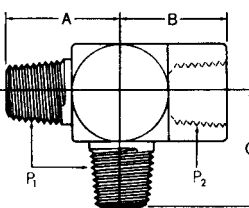
Catalog Part No.	Aeroquip Model	Thread P	A (in)	Wt.	Price Each
•C1BD70	2257-4-4S	1/4-18	1.09	0.13	
•C1BD69	2257-12-12S	3/4-14	1.64	0.53	



2256

Male Pipe / Female Pipe / Male Pipe Tee

Catalog Part No.	Aeroquip Model	Thread P1	Thread P2	A (in)	B (in)	Wt.	Price Each
•C1BD66	2256-4-4S	1/4-18	1/4-18	1.11	0.88	0.19	
•C1BD67	2256-6-6S	3/8-18	3/8-18	1.23	1.02	0.28	
•C1BD68	2256-8-8S	1/2-14	1/2-14	1.49	1.23	0.47	



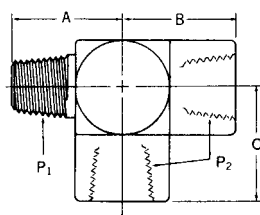
2093

Male Pipe / Male Pipe / Female Pipe Tee

Catalog Part No.	Aeroquip Model	Thread P1	Thread P2	A (in)	B (in)	C (in)	Wt.	Price Each
•C1BB55	2093-4-4S	1/4-18	1/4-18	1.09	0.88	1.09	0.23	
•C1BB57	2093-8-8S	1/2-14	1/2-14	1.47	1.23	1.47	0.75	

Adapters

Steel Pipe to Pipe

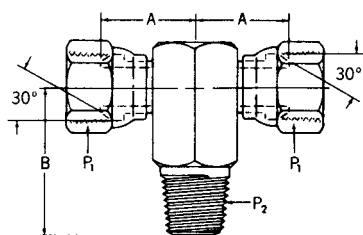


2092

Male Pipe / Female Pipe / Female Pipe
Tee

Catalog Part No.	Aeroquip Model	Thread P1	Thread P2	A (in)	B (in)	C (in)	Wt.	Price Each
•C1BB49	2092-2-2S	1/8-27	1/8-27	0.78	0.66	0.66	0.07	
•C1KT64	HN-04Z	1/4-18	1/4-18	1.12	0.98	0.98		
C1BB51	2092-4-4S	1/4-18	1/4-18	1.09	0.88	0.88	0.18	
•C1KT65	HN-06Z	3/8-18	3/8-18	1.32	1.06	1.06		
•C1BB52	2092-6-6S	3/8-18	3/8-18	1.22	1.02	1.03	0.24	
•C1KT66	HN-08Z	1/2-14	1/2-14	1.67	1.38	1.38		
C1BB53	2092-8-8S	1/2-14	1/2-14	1.47	1.23	1.23	0.41	
•C1KT67	HN-12Z	3/4-14	3/4-14	1.78	1.46	1.46		
C1BB47	2092-12-12S	3/4-14	3/4-14	1.59	1.36	1.36	0.71	
•C1KT68	HN-16Z	1-11-1/2	1-11-1/2	2.15	1.73	1.73		
C1BB48	2092-16-16S	1-11-1/2	1-11-1/2	1.97	1.62	1.62	1.19	

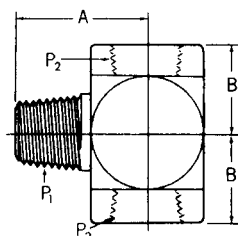
Note: HN is Eaton-Winner model.



2254

Female Pipe Swivel / Male Pipe/
Female Pipe Swivel Tee

Catalog Part No.	Aeroquip Model	Thread P1	Thread P2	A (in)	B (in)	Wt.	Price Each
•C1BD59	2254-8-8S	1/2-14	1/2-14	1.0	1.81	0.57	



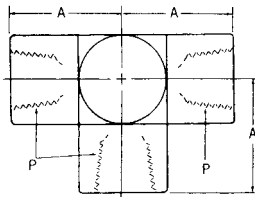
2091

Male Pipe / Female Pipe / Female Pipe
Tee

Catalog Part No.	Aeroquip Model	Thread P1	Thread P2	A (in)	B (in)	Wt.	Price Each
•C1BB43	2091-2-2S	1/8-27	1/8-27	0.78	0.66	0.07	
•C1KT69	JN-04Z	1/4-18	1/4-18	1.10	0.88		
C1BB44	2091-4-4S	1/4-18	1/4-18	1.09	0.88	0.19	
•C1KT70	JN-06Z	3/8-18	3/8-18	1.32	0.98		
C1BB45	2091-6-6S	3/8-18	3/8-18	1.22	1.02	0.25	
•C1KT71	JN-08Z	1/2-14	1/2-14	1.62	1.23		
C1BB46	2091-8-8S	1/2-14	1/2-14	1.47	1.23	0.53	
•C1KT72	JN-12Z	3/4-14	3/4-14	1.78	1.36		
C1BB41	2091-12-12S	3/4-14	3/4-14	1.59	1.36	0.70	
•C1KT73	JN-16Z	1-11-1/2	1-11-1/2	2.15	1.62		
C1BB42	2091-16-16S	1-11-1/2	1-11-1/2	1.97	1.62	1.23	

Note: JN is Eaton-Winner model.

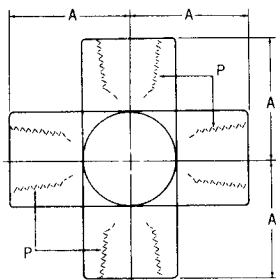
Steel Pipe to Pipe



2090
Female Pipe Tee

Catalog Part No.	Aeroquip Model	Thread P	A (in)	Wt.	Price Each
•C1BB35	2090-2-2S	1/8-27	0.66	0.07	
•C1MN69	GN-02PKZ	1/8-27	0.79	0.07	
C1BB38	2090-4-4S	1/4-18	0.88	0.19	
•C1KT59	GN-04PKZ	1/4-18	0.79	0.20	
C1BB39	2090-6-6S	3/8-18	1.02	0.24	
•C1KT60	GN-06PKZ	3/8-18	1.02	0.35	
C1BB40	2090-8-8S	1/2-14	1.23	0.79	
•C1KT61	GN-08PKZ	1/2-14	1.22	0.46	
C1BB33	2090-12-12S	3/4-14	1.36	0.69	
•C1KT62	GN-12PKZ	3/4-14	1.34	0.66	
C1BB34	2090-16-16S	1-11-1/2	1.62	1.40	
•C1KT63	GN-16PKZ	1-11-1/2	1.65	1.40	
•C1BB36	2090-20-20S	1-1/4-11-1/2	1.7	1.45	
•C1BB37	2090-24-24S	1-1/2-11-1/2	2.08	5.00	

Note: GN is Eaton-Winner model.



2080
Female Pipe Cross

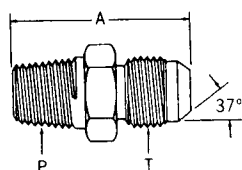
Catalog Part No.	Aeroquip Model	Thread P	A (in)	Wt.	Price Each
•C1BA30	2080-4-4S	1/4-18	0.88	0.24	
•C1BA31	2080-6-6S	3/8-18	1.02	0.33	
•C1BA32	2080-8-8S	1/2-14	1.23	0.50	
•C1BA27	2080-12-12S	3/4-14	1.36	0.95	

Note: 5652 is Brennan model. 5652-*-FG is forged Brennan model.

Adapters



Steel Pipe to 37° Flare



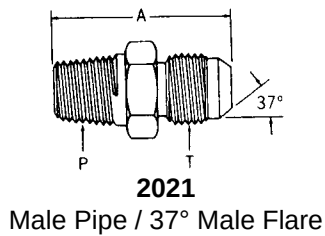
2021

Male Pipe / 37° Male Flare

Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread P	Thread T	A (in)	Wt.	Price Each
•C1BF59	2404-02-02	0.13	1/8-27	5/16-24	1.11	0.02	
•C1AU86	2021-2-3S	0.19	1/8-27	3/8-24	1.14	0.03	
C1AU88	2021-2-4S	0.25	1/8-27	7/16-20	1.22	0.04	
•C1KP39	1JN-04-02Z	0.25	1/8-27	7/16-20	1.20		
•C1AU89	2021-2-5S	0.31	1/8-27	1/2-20	1.22	0.04	
•C1AU90	2021-2-6S	0.38	1/8-27	9/16-18	1.24	0.05	
C1AV12	2021-4-4S	0.25	1/4-18	7/16-20	1.42	0.06	
•C1KP42	1JN-04Z	0.25	1/4-18	7/16-20	1.43		
•C1AV14	2021-4-5S	0.31	1/4-18	1/2-20	1.42	0.06	
•C1KP43	1JN-06-04Z	0.38	1/4-18	9/16-18	1.43		
C1AV16	2021-4-6S	0.38	1/4-18	9/16-18	1.43	0.07	
•C1KP47	1JN-08-04Z	0.50	1/4-18	3/4-16	1.54		
C1AV18	2021-4-8S	0.50	1/4-18	3/4-16	1.53	0.11	
•C1KP40	1JN-04-06Z	0.25	3/8-18	7/16-20	1.42		
•C1AV21	2021-6-4S	0.25	3/8-18	7/16-20	1.42	0.09	
•C1AV22	2021-6-5S	0.31	3/8-18	1/2-20	1.42	0.10	
•C1KP46	1JN-06Z	0.38	3/8-18	9/16-18	1.42		
C1AV24	2021-6-6S	0.38	3/8-18	9/16-18	1.43	0.09	
•C1KP48	1JN-08-06Z	0.50	3/8-18	3/4-16	1.57		
C1AV26	2021-6-8S	0.50	3/8-18	3/4-16	1.53	0.12	
•C1AV20	2021-6-10S	0.63	3/8-18	7/8-14	1.70	0.17	
•C1KP41	1JN-04-08Z	0.25	1/2-14	7/16-20	1.63		
C1AV31	2021-8-4S	0.25	1/2-14	7/16-20	1.68	0.17	
C1AV33	2021-8-6S	0.38	1/2-14	9/16-18	1.69	0.14	
•C1KP44	1JN-06-08Z	0.38	1/2-14	9/16-18	1.63		
C1AV35	2021-8-8S	0.50	1/2-14	3/4-16	1.79	0.19	
•C1KP50	1JN-08Z	0.50	1/2-14	3/4-16	1.73		
•C1KP51	1JN-10-08Z	0.63	1/2-14	7/8-14	1.89		
C1AV28	2021-8-10S	0.63	1/2-14	7/8-14	1.89	0.20	
•C1KP53	1JN-12-08Z	0.75	1/2-14	1-1/16-12	2.06		
C1AV30	2021-8-12S	0.75	1/2-14	1-1/16-12	2.06	0.30	
•C1BF60	2404-04-12	0.25	3/4-14	7/16-20	1.75	0.18	
C1AU79	2021-12-6S	0.38	3/4-14	9/16-18	1.75	0.28	
•C1KP45	1JN-06-12Z	0.38	3/4-14	9/16-18	1.72		
C1AU81	2021-12-8S	0.50	3/4-14	3/4-16	1.85	0.05	
•C1KP49	1JN-08-12Z	0.50	3/4-14	3/4-16	1.83		
•C1KP52	1JN-10-12Z	0.63	3/4-14	7/8-14	1.93		
•C1AU74	2021-12-10S	0.63	3/4-14	7/8-14	1.95	0.23	
•C1KP56	1JN-12Z	0.75	3/4-14	1-1/16-12	2.06		
C1AU76	2021-12-12S	0.75	3/4-14	1-1/16-12	2.06	0.29	
C1AU78	2021-12-16S	1.00	3/4-14	1-5/16-12	2.11	0.41	
•C1KP57	1JN-16-12Z	1.00	3/4-14	1-5/16-12	2.11		
•C1BF65	2404-20-12	1.25	3/4-14	1-5/8-12	2.20	0.75	
•C1BF61	2404-10-16	0.63	1-11-1/2	7/8-14	2.15	0.75	
•C1KP54	1JN-12-16Z	1.00	1-11-1/2	1-1/16-12	2.25		
C1AU82	2021-16-12S	0.75	1-11-1/2	1-1/16-12	2.25	0.37	
C1AU84	2021-16-16S	1.00	1-11-1/2	1-5/16-12	2.30	0.45	
•C1KP60	1JN-16Z	1.00	1-11-1/2	1-5/16-12	2.30		
•C1KP61	1JN-20-16Z	1.25	1-11-1/2	1-5/8-12	2.48		



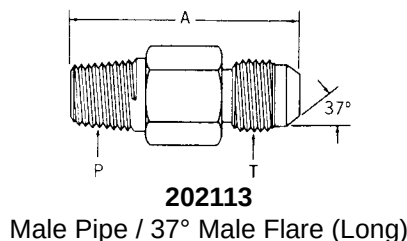
Steel Pipe to 37° Flare



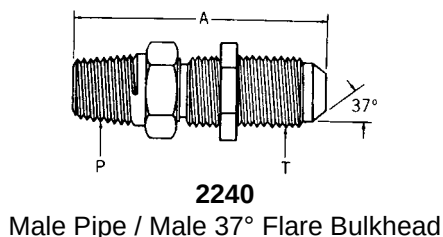
Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread P	Thread T	A (in)	Wt.	Price Each
C1AU85	2021-16-20S	1.25	1-11-1/2	1-5/8-12	2.42	0.67	
•C1KU34	2021-16-24S	1.50	1-11-1/2	1-7/8-12	2.62	0.84	
•C1KP55	1JN-12-20Z	0.75	1-1/4-11-1/2	1-1/16-12	2.40		
•C1AU91	2021-20-12S	0.75	1-1/4-11-1/2	1-1/16-12	2.36	0.83	
•C1KP58	1JN-16-20Z	1.00	1-1/4-11-1/2	1-5/16-12	2.40		
C1AU92	2021-20-16S	1.00	1-1/4-11-1/2	1-5/16-12	2.40	0.56	
•C1KP63	1JN-20Z	1.25	1-1/4-11-1/2	1-5/8-12	2.45		
C1AU93	2021-20-20S	1.25	1-1/4-11-1/2	1-5/8-12	2.45	5.00	
•C1AU94	2021-20-24S	1.50	1-1/4-11-1/2	1-7/8-12	2.65	0.93	
•C1KP64	1JN-24-20Z	1.50	1-1/4-11-1/2	1-7/8-12	2.65		
C1AU95	2021-24-16S	1.00	1-1/2-11-1/2	1-5/16-12	2.51	0.63	
•C1KP59	1JN-16-24Z	1.00	1-1/2-11-1/2	1-5/16-12	2.58		
C1AU96	2021-24-20S	1.25	1-1/2-11-1/2	1-5/8-12	2.55	0.81	
•C1KP62	1JN-20-24Z	1.25	1-1/2-11-1/2	1-5/8-12	2.56		
•C1KP65	1JN-24Z	1.50	1-1/2-11-1/2	1-7/8-12	2.68		
C1AU97	2021-24-24S	1.50	1-1/2-11-1/2	1-7/8-12	2.68	1.01	
•C1KP66	1JN-32-24Z	2.00	1-1/2-11-1/2	2-1/2-12	3.09		
•C1BF67	2404-24-32	1.50	2-11-1/2	1-7/8-12	2.86	1.35	
•C1KP67	1JN-32Z	2.00	2-11-1/2	2-1/2-12	3.08		
C1AU99	2021-32-32S	2.00	2-11-1/2	2-1/2-12	3.11	1.90	

Note: 2404 is Brennan model.

Note: 1JN is Eaton-Winner model.



Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread P	Thread T	A (in)	Wt.	Price Each
•C1AV36	202113-12-12S	0.75	3/4-14	1-1/16-12	3.5	0.65	



Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread P	Thread T	A (in)	Wt.	Price Each
•C1BD19	2240-4-4S	0.25	1/4-18	7/16-20	2.03	0.10	
•C1BD20	2240-4-6S	0.38	1/4-18	9/16-18	2.12	0.13	
•C1DW83	2706-06-06	0.38	3/8-18	9/16-18	2.19	0.12	
•C1BD21	2240-6-8S	0.50	3/8-18	3/4-16	2.36	0.24	
•C1DW84	2706-08-08	0.50	1/2-14	3/4-16	2.57	0.23	
•C1BD22	2240-8-10S	0.63	1/2-14	7/8-14	2.71	0.35	
•C1KS86	6NJ-12LNZ		3/4-14	1-1/16-12	3.91		
•C1BD18	2240-12-12S	0.75	3/4-14	1-1/16-12	2.92	0.53	
•C1KS87	6NJ-16LNZ		1-11-1/2	1-5/16-12	3.27		
C1DV77	2240-16-16S	1.0	1-11-1/2	1-5/16-12	3.11	0.79	

Note: 2706 is Brennan model which does NOT come with locknut. 2706-LN is Brennan model with locknut. Bulkhead Locknuts (Steel) page 1140

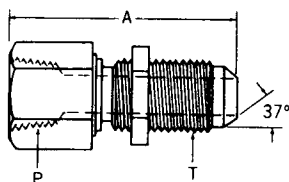
Note: 6NJ is Eaton-Winner model.

Adapters



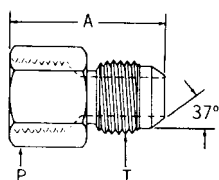
EATON
Powering Business Worldwide

Steel Pipe to 37° Flare



2239

Female Pipe / Male 37° Flare Bulkhead



2022

Female Pipe / Male 37° Flare

Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread P	Thread T	A (in)	Wt.	Price Each
•C1BD15	2239-2-4S	0.25	1/8-27	7/16-20	2.08	0.13	
•C1EF58	2705-04-04	0.25	1/4-18	7/16-20	2.04	0.12	
•C1DW80	2705-06-06	0.38	3/8-18	9/16-18	2.19	0.17	
•C1BD16	2239-6-8S	0.50	3/8-18	3/4-16	2.48	0.31	
•C1BD17	2239-8-10S	0.63	1/2-14	7/8-14	2.84	0.44	
•C1BD14	2239-12-12S	0.75	3/4-14	1-1/16-12	3.05	0.70	

Note: 2705 is Brennan model which does NOT come with locknut. Bulkhead Locknuts (Steel) page 1140

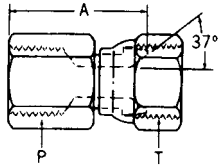
Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread P	Thread T	A (in)	Wt.	Price Each
•C1AV45	2022-2-3S	0.19	1/8-27	3/8-24	0.72	0.04	
•C1AV46	2022-2-4S	0.25	1/8-27	7/16-20	1.19	0.05	
C1AV53	2022-4-4S	0.25	1/4-18	7/16-20	1.39	0.09	
•C1KS18	5JN-04Z		1/4-18	7/16-20	1.40		
•C1AV54	2022-4-5S	0.31	1/4-18	1/2-20	1.39	0.10	
C1AV56	2022-4-6S	0.38	1/4-18	9/16-18	1.40	0.10	
•C1KS19	5JN-06-04Z		1/4-18	9/16-18	1.40		
•C1AV57	2022-4-8S	0.50	1/4-18	3/4-16	1.55	0.14	
•C1BF70	2405-06-02	0.13	3/8-18	5/16-24	1.18	0.15	
•C1BF69	2405-04-06	0.25	3/8-18	7/16-20	1.43	0.15	
C1AV58	2022-6-6S	0.38	3/8-18	9/16-18	1.46	0.14	
•C1KS20	5JN-06Z		3/8-18	9/16-18	1.46		
•C1AV59	2022-6-8S	0.50	3/8-18	3/4-16	1.56	0.14	
•C1AV62	2022-8-4S	0.25	1/2-14	7/16-20	1.47	0.35	
•C1AV63	2022-8-6S	0.38	1/2-14	9/16-18	1.69	0.24	
C1AV64	2022-8-8S	0.50	1/2-14	3/4-16	1.79	0.26	
•C1KS21	5JN-08Z		1/2-14	3/4-16	1.80		
•C1AV60	2022-8-10S	0.63	1/2-14	7/8-14	1.89	0.28	
•C1AV61	2022-8-12S	0.75	1/2-14	1-1/16-12	2.05	0.33	
•C1AV43	2022-12-8S	0.50	3/4-14	3/4-16	1.85	0.39	
•C1AV40	2022-12-10S	0.63	3/4-14	7/8-14	1.59	0.39	
•C1AV41	2022-12-12S	0.75	3/4-14	1-1/16-12	2.06	0.44	
•C1AV42	2022-12-16S	1.0	3/4-14	1-5/16-12	1.78	0.46	
•C1KS23	5JN-16Z		1-11-1/2	1-5/16-12	2.32		
•C1AV44	2022-16-16S	1.0	1-11-1/2	1-5/16-12	2.35	0.66	
•C1BF72	2405-20-16	1.25	1-11-1/2	1-5/8-12	2.40	0.79	
•C1AV48	2022-20-16S	1.0	1-1/4-11-1/2	1-5/16-12	2.38	1.01	
C1AV49	2022-20-20S	1.25	1-1/4-11-1/2	1-5/8-12	2.49	1.07	
•C1KS24	5JN-20Z		1-1/4-11-1/2	1-5/8-12	2.42		
•C1KS25	5JN-24Z		1-1/2-11-1/2	1-7/8-12	2.46		
C1AV50	2022-24-24S	1.50	1-1/2-11-1/2	1-7/8-12	2.62	1.52	
•C1AV51	2022-32-32S	2	2-11-1/2	2-1/2-12	3.00	2.45	

Note: 2405 is Brennan model.

Note: 5JN is Eaton-Winner model.



Steel Pipe to 37° Flare



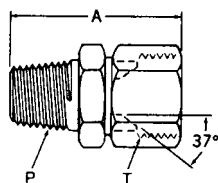
2242

Female Pipe / Female 37° Flare Swivel

Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread P	Thread T	A (in)	Wt.	Price Each
•C1BD25	2242-2-4S	0.25	1/8-27	7/16-20	0.85	0.10	
C1BD27	2242-4-4S	0.25	1/4-18	7/16-20	1.11	0.10	
•C1KT12	7NJ-04SZ		1/4-18	7/16-20	1.14		
•C1BD28	2242-4-5S	0.31	1/4-18	1/2-20	1.10	0.10	
•C1DY72	6506-04-06	0.38	1/4-18	9/16-18		0.09	
•C1KT13	7NJ-06SZ		3/8-18	9/16-18	1.18		
C1BD29	2242-6-6S	0.38	3/8-18	9/16-18	1.16	0.13	
•C1BD30	2242-6-8S	0.50	3/8-18	3/4-16	1.20	0.15	
•C1BD32	2242-8-6S	0.38	1/2-14	9/16-18	1.42	0.20	
C1BD33	2242-8-8S	0.50	1/2-14	3/4-16	1.48	0.23	
•C1KT14	7NJ-08SZ		1/2-14	3/4-16	1.48		
•C1BD31	2242-8-10S	0.63	1/2-14	7/8-14	1.47	0.25	
C1BD23	2242-12-12S	0.75	3/4-14	1-1/16-12	1.49	0.40	
•C1KT15	7NJ-12SZ		3/4-14	1-1/16-12	1.59		
•C1KT16	7NJ-16SZ		1-11-1/2	1-5/16-12	1.87		
C1BD24	2242-16-16S	1.0	1-11-1/2	1-5/16-12	1.85	0.67	
•C1BD26	2242-20-20S	1.25	1-1/4-11-1/2	1-5/8-12	2.02	1.22	

Note: 6506 is Brennan model.

Note: 7NJ is Eaton-Winner model.



2018

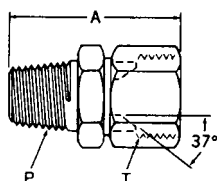
Male Pipe / Female 37° Flare Swivel

Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread P	Thread T	A (in)	Wt.	Price Each
•C1AU64	2018-2-4S	0.25	1/8-27	7/16-20	1.32	0.05	
•C1BX73	6505-0404	0.25	1/4-18	7/16-20	1.45	0.50	
•C1DY68	6505-04-05	0.31	1/4-18	1/2-20	1.41	0.08	
C1AU66	2018-4-6S	0.38	1/4-18	9/16-18	1.59	0.08	
•C1KR32	2NJ-04-06Z		1/4-18	9/16-18	1.32		
•C1KJ48	2018-6-6S	0.38	3/8-18	9/16-18	1.72	0.10	
•C1BX74	6505-0606	0.38	3/8-18	9/16-18	1.72	0.13	
C1AU67	2018-6-8S	0.50	3/8-18	3/4-16	1.74	0.15	
•C1DY69	6505-06-10	0.63	3/8-18	7/8-14	1.86	0.19	
•C1KR33	2NJ-06-08Z		3/8-18	3/4-16	1.69		
•C1KR34	2NJ-08Z		1/2-14	3/4-16	1.89		
C1HN53	2018-8-8S	0.50	1/2-14	3/4-16		0.17	
•C1BX76	6505-0810	0.50	1/2-14	7/8-14	2.28	0.26	

Adapters



Steel Pipe to 37° Flare



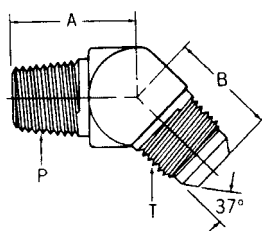
2018

Male Pipe / Female 37° Flare Swivel

Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread P	Thread T	A (in)	Wt.	Price Each
•C1DY70	6505-08-12	0.75	1/2-14	1-1/16-12	2.17	0.33	
•C1DY71	6505-12-10	0.63	3/4-14	7/8-14	1.93	0.26	
C1AU62	2018-12-12S	0.75	3/4-14	1-1/16-12	2.15	0.34	
•C1KR35	2NJ-12Z		3/4-14	1-1/16-12	2.24		
•C1BX77	6505-1216	1.0	3/4-14	1-5/16-12	2.40	0.40	
•C1KR36	2NJ-16Z		1-11-1/2	1-5/16-12	2.52		
C1AU63	2018-16-16S	1.0	1-11-1/2	1-5/16-12	2.54	0.57	
•C1KR37	2NJ-20Z		1-1/4-11-1/2	1-5/8-12	2.87		
C1AU65	2018-20-20S	1.25	1-1/4-11-1/2	1-5/8-12	2.78	1.04	
•C1GH64	6505-24-24	1.50	1-1/2-11-1/2	1-7/8-12	2.93	1.29	

Note: 6505 is Brennan model.

Note: 2NJ is Eaton-Winner model.



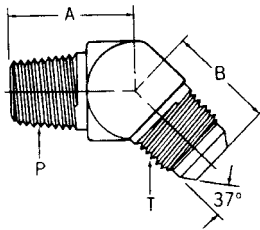
2023

Male Pipe / Male 37° Flare 45° Elbow

Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread P	Thread T	A (in)	B (in)	Wt.	Price Each
•C1EM91	2023-2-3S	0.19	1/8-27	5/16-18	0.58	0.76	0.05	
•C1AV73	2023-2-4S	0.25	1/8-27	7/16-20	0.58	0.76	0.04	
•C1DV51	2023-2-6S	0.38	1/8-27	9/16-18	0.72	0.83	0.07	
•C1KP68	1JN4-04Z		1/4-18	7/16-20	0.83	0.88		
C1AV75	2023-4-4S	0.25	1/4-18	7/16-20	0.86	0.82	0.08	
•C1AV77	2023-4-6S	0.38	1/4-18	9/16-18	0.86	0.83	0.08	
•C1AV78	2023-4-8S	0.50	1/4-18	3/4-16	0.95	1.04	0.14	
•C1AV79	2023-6-4S	0.25	3/8-18	7/16-20	0.95	0.79	0.11	
•C1AV80	2023-6-6S	0.38	3/8-18	9/16-18	0.95	0.88	0.11	
•C1KP69	1JN4-06Z		3/8-18	9/16-18	0.94	0.94		
•C1KP70	1JN4-08-06Z		3/8-18	3/4-16	1.06	0.94		
C1AV81	2023-6-8S	0.50	3/8-18	3/4-16	0.95	0.98	0.14	
•C1HX44	2023-6-10S	0.63	3/8-18	7/8-14	0.96	1.14	0.19	
•C1AV84	2023-8-6S	0.38	1/2-14	9/16-18	1.17	0.91	0.20	
•C1KP71	1JN4-08Z		1/2-14	3/4-16	1.16	1.10		
C1AV85	2023-8-8S	0.50	1/2-14	3/4-16	1.17	1.00	0.18	
•C1KP72	1JN4-10-08Z		1/2-14	7/8-14	1.16	1.22		
C1AV82	2023-8-10S	0.63	1/2-14	7/8-14	1.17	1.11	0.26	
•C1KP73	1JN4-12-08Z		1/2-14	1-1/16-12	1.22	1.40		
C1AV83	2023-8-12S	0.75	1/2-14	1-1/16-12	1.20	1.39	0.41	
•C1AV69	2023-12-8S	0.50	3/4-14	3/4-16	1.20	1.10	0.32	
C1AV67	2023-12-12S	0.75	3/4-14	1-1/16-12	1.20	1.28	0.32	



Steel Pipe to 37° Flare



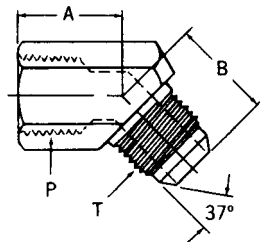
2023

Male Pipe / Male 37° Flare 45° Elbow

Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread P	Thread T	A (in)	B (in)	Wt.	Price Each
•C1KP74	1JN4-12Z		3/4-14	1-1/16-12	1.38	1.40		
•C1KP75	1JN4-16-12Z		3/4-14	1-5/16-12	1.44	1.52		
C1AV68	2023-12-16S	1.0	3/4-14	1-5/16-12	1.29	1.47	0.62	
•C1AV70	2023-16-12S	0.75	1-11-1/2	1-1/16-12	1.48	1.52	0.71	
C1AV71	2023-16-16S	1.0	1-11-1/2	1-5/16-12	1.48	1.47	0.51	
•C1KP76	1JN4-16Z		1-11-1/2	1-5/16-12	1.54	1.52		
•C1KP77	1JN4-20Z		1-1/4-11-1/2	1-5/8-12	1.65	1.69		
C1AV74	2023-20-20S	1.25	1-1/4-11-1/2	1-5/8-12	1.54	1.69	1.15	
•C1FD24	2023-24-24S	1.50	1-1/2-11-1/2	1-7/8-12	1.77	1.78	1.77	
•C1FD25	2023-32-32S	2.00	2-11-1/2	2-1/2-12	2.11	2.22	3.10	

Note: 2503 is Brennan model.

Note: 1JN4 is Eaton-Winner model.

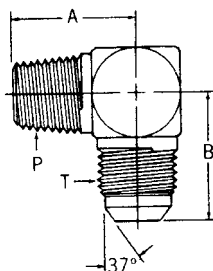


2044

Female Pipe / Male 37° Flare 45° Elbow

Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread P	Thread T	A (in)	B (in)	Wt.	Price Each
•C1DV67	2044-4-6S	0.38	1/4-18	9/16-18	0.62	0.83	0.09	
•C1EF57	2505-16-16	1.0	1-11-1/2	1-5/16-12	1.70	1.11	0.87	

Note: 2505 is Brennan model.



2024

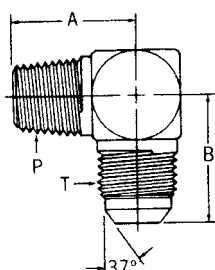
Male Pipe / Male 37° Flare 90° Elbow

Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread P	Thread T	A (in)	B (in)	Wt.	Price Each
•C1AV97	2024-2-3S	0.19	1/8-27	3/8-24	0.78	0.83	0.07	
•C1KP80	1JN9-04-02Z		1/8-27	7/16-20	0.83	0.96		
C1AV99	2024-2-4S	0.25	1/8-27	7/16-20	0.78	0.89	0.06	
•C1AW11	2024-2-5S	0.31	1/8-27	1/2-20	0.80	0.95	0.07	
•C1AW12	2024-2-6S	0.38	1/8-27	9/16-18	0.90	1.06	0.10	
C1AW21	2024-4-4S	0.25	1/4-18	7/16-20	1.09	1.05	0.11	
•C1KP83	1JN9-04Z		1/4-18	7/16-20	1.00	1.05		
•C1AW22	2024-4-5S	0.31	1/4-18	1/2-20	1.09	1.05	0.07	
•C1KP84	1JN9-06-04Z		1/4-18	9/16-18	1.00	1.06		
C1AW24	2024-4-6S	0.38	1/4-18	9/16-18	1.09	1.06	0.15	
C1AW25	2024-4-8S	0.50	1/4-18	3/4-16	1.22	1.25	0.20	
•C1KP88	1JN9-08-04Z		1/4-18	3/4-16	1.12	1.26		
•C1KP81	1JN9-04-06Z		3/8-18	7/16-20	1.22	1.16		
C1AW28	2024-6-4S	0.25	3/8-18	7/16-20	1.22	0.98	0.14	
C1AW31	2024-6-6S	0.38	3/8-18	9/16-18	1.22	1.14	0.16	
•C1KP87	1JN9-06Z		3/8-18	9/16-18	1.22	1.14		

Adapters



Steel Pipe to 37° Flare



2024

Male Pipe / Male 37° Flare 90° Elbow

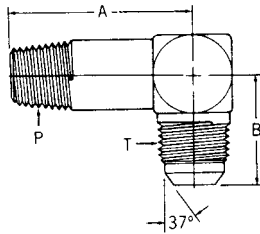
Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread P	Thread T	A (in)	B (in)	Wt.	Price Each
C1AW33	2024-6-8S	0.50	3/8-18	3/4-16	1.22	1.25	0.05	
•C1KP89	1JN9-08-06Z		3/8-18	3/4-16	1.22	1.26		
•C1AW26	2024-6-10S	0.63	3/8-18	7/8-14	1.28	1.45	0.26	
•C1AW27	2024-6-12S	0.75	3/8-18	1-1/16-12	1.33	1.66	0.44	
•C1KP82	1JN9-04-08Z		1/2-14	7/16-20	1.47	1.32		
C1AW36	2024-8-4S	0.25	1/2-14	7/16-20	1.47	1.02	0.23	
C1AW38	2024-8-6S	0.38	1/2-14	9/16-18	1.47	1.13	0.24	
•C1KP85	1JN9-06-08Z		1/2-14	9/16-18	1.44	1.26		
C1AW40	2024-8-8S	0.50	1/2-14	3/4-16	1.47	1.33	0.25	
•C1KP92	1JN9-08Z		1/2-14	3/4-16	1.47	1.37		
•C1KP93	1JN9-10-08Z		1/2-14	7/8-14	1.47	1.49		
C1AW34	2024-8-10S	0.63	1/2-14	7/8-14	1.47	1.45	0.27	
•C1KP95	1JN9-12-08Z		1/2-14	1-1/16-12	1.57	1.74		
•C1AW35	2024-8-12S	0.75	1/2-14	1-1/16-12	1.59	1.66	0.46	
•C1BG79	2501-04-12	0.25	3/4-14	7/16-20	1.59	1.35	0.35	
C1AV90	2024-12-6S	0.38	3/4-14	9/16-18	1.59	1.31	0.39	
•C1KP86	1JN9-06-12Z		3/4-14	9/16-18	1.73	1.40		
C1AV91	2024-12-8S	0.50	3/4-14	3/4-16	1.59	1.42	0.39	
•C1KP90	1JN9-08-12Z		3/4-14	3/4-16	1.73	1.49		
•C1KP94	1JN9-10-12Z		3/4-14	7/8-14	1.73	1.61		
•C1AV86	2024-12-10S	0.63	3/4-14	7/8-14	1.59	1.54	0.41	
C1AV88	2024-12-12S	0.75	3/4-14	1-1/16-12	1.59	1.66	0.44	
•C1KP97	1JN9-12Z		3/4-14	1-1/16-12	1.73	1.74		
C1AV89	2024-12-16S	1.0	3/4-14	1-5/16-12	1.78	1.81	0.66	
•C1KP98	1JN9-16-12Z		3/4-14	1-5/16-12	1.78	1.93		
•C1KP91	1JN9-08-16Z		1-11-1/2	3/4-16	1.97	1.63		
C1AV96	2024-16-8S	0.50	1-11-1/2	3/4-16	1.95	1.47	0.90	
•C1BG83	2501-10-16	0.63	1-11-1/2	7/8-14	1.97	1.66	0.50	
•C1KP96	1JN9-12-16Z		1-11-1/2	1-1/16-12	1.97	1.93		
C1AV92	2024-16-12S	0.75	1-11-1/2	1-1/16-12	1.97	1.76	0.67	
•C1KQ11	1JN9-16Z		1-11-1/2	1-5/16-12	1.97	1.93		
C1AV94	2024-16-16S	1.0	1-11-1/2	1-5/16-12	1.97	1.81	0.68	
•C1AV95	2024-16-20S	1.25	1-11-1/2	1-5/8-12	2.13	2.06	1.55	
•C1BG84	2501-12-20	0.75	1-1/4-11-1/2	1-1/16-12	2.38	1.95	1.20	
•C1KP99	1JN9-16-20Z		1-1/4-11-1/2	1-5/16-12	2.38	2.13		
C1AW13	2024-20-16S	1.0	1-1/4-11-1/2	1-5/16-12	2.38	2.09	1.19	
C1AW14	2024-20-20S	1.25	1-1/4-11-1/2	1-5/8-12	2.38	2.06	0.75	
•C1KQ13	1JN9-20Z		1-1/4-11-1/2	1-5/8-12	2.15	2.19		
•C1KQ14	1JN9-24-20Z		1-1/4-11-1/2	1-7/8-12	2.48	2.46		
C1AW15	2024-20-24S	1.50	1-1/4-11-1/2	1-7/8-12	2.50	2.33	2.06	
•C1BG88	2501-16-24	1.50	1-1/2-11-1/2	1-5/16-12	2.64	2.14	0.50	
C1AW16	2024-24-20S	1.25	1-1/2-11-1/2	1-5/8-12	2.64	2.30	1.87	
•C1KQ12	1JN9-20-24Z		1-1/2-11-1/2	1-5/8-12	2.48	2.34		
•C1KQ15	1JN9-24Z		1-1/2-11-1/2	1-7/8-12	2.48	2.46		
C1AW17	2024-24-24S	1.50	1-1/2-11-1/2	1-7/8-12	2.64	2.33	1.87	
•C1KQ16	1JN9-32Z		2-11-1/2	2-1/2-12	2.66	2.97		
C1AW19	2024-32-32S	2	2-11-1/2	2-1/2-12	3.00	3.08	3.84	

Note: 2501 is Brennan model.

Note: 1JN9 is Eaton-Winner model.

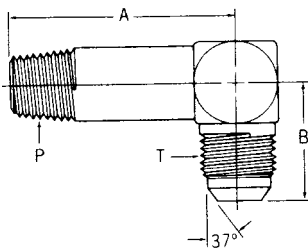


Steel Pipe to 37° Flare



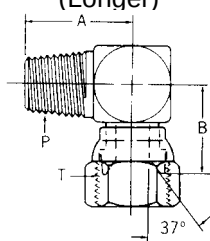
202411

Male Pipe / Male 37° Flare 90° Elbow
(Long)



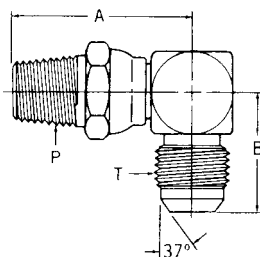
202413

Male Pipe / Male 37° Flare 90° Elbow
(Longer)



2250

Male Pipe / Female 37° Flare Swivel
90° Elbow



2249

Male Pipe Swivel / Male 37° Flare 90°
Elbow

Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread P	Thread T	A (in)	B (in)	Wt.	Price Each
C1KP79	1JN9-04-02LZ		1/8-27	7/16-20	1.18	0.96		

Note: 1JN9 is Eaton-Winner model.

Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread P	Thread T	A (in)	B (in)	Wt.	Price Each
C1AW43	202413-4-6S	0.38	1/4-18	9/16-18	2.07	1.06	0.10	
C1AW44	202413-6-6S	0.38	3/8-18	9/16-18	2.46	1.06	0.40	
C1AW45	202413-8-8S	0.50	1/2-14	3/4-16	3.01	1.25	0.50	

Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread P	Thread T	A (in)	B (in)	Wt.	Price Each
C1BD49	2250-2-4S	0.25	1/8-27	7/16-20	0.76	0.66	0.06	
C1DY64	6501-04-04	0.25	1/4-18	7/16-20	1.11	1.11	0.12	
C1DY65	6501-04-05	0.31	1/4-18	1/2-20	1.09	1.11	0.12	
C1BD50	2250-4-6S	0.38	1/4-18	9/16-18	1.06	0.70	0.14	
C1BD51	2250-6-6S	0.38	3/8-18	9/16-18	1.22	0.77	0.17	
C1BD52	2250-6-8S	0.50	3/8-18	3/4-16	1.22	0.98	0.27	
C1DY66	6501-08-06	0.38	1/2-14	9/16-18	1.37		0.31	
C1BD54	2250-8-8S	0.50	1/2-14	3/4-16	1.47	1.01	0.28	
C1BD53	2250-8-10S	0.63	1/2-14	7/8-14	1.47	0.98	0.31	
C1BD47	2250-12-12S	0.75	3/4-14	1-1/16-12	1.50	1.01	0.58	
C1BD48	2250-16-16S	1.0	1-11-1/2	1-5/16-12	1.95	1.27	0.74	

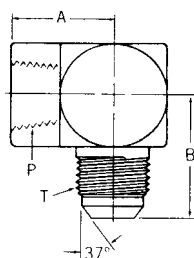
Note: 6501 is Brennan model.

Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread P	Thread T	A (in)	B (in)	Wt.	Price Each
C1BD45	2249-4-6S	0.38	1/4-18	9/16-18	1.58	1.06	0.19	

Adapters



Steel Pipe to 37° Flare



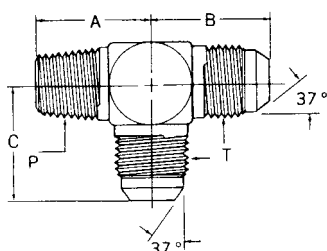
2025

Female Pipe / Male 37° Flare 90° Elbow

Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread P	Thread T	A (in)	B (in)	Wt.	Price Each
•C1AW49	2025-2-4S	0.25	1/8-27	7/16-20	0.66	0.90	0.07	
•C1AW50	2025-4-4S	0.25	1/4-18	7/16-20	0.88	0.98	0.15	
•C1AW51	2025-4-5S	0.31	1/4-18	1/2-20	0.88	1.01	0.16	
•C1AW52	2025-4-6S	0.38	1/4-18	9/16-18	0.88	1.09	0.15	
•C1AW54	2025-6-6S	0.38	3/8-18	9/16-18	1.02	1.11	0.22	
•C1AW55	2025-6-8S	0.50	3/8-18	3/4-16	1.02	1.42	0.10	
•C1KS27	5JN9-08Z		1/2-14	3/4-16	1.23	1.56		
C1AW58	2025-8-8S	0.50	1/2-14	3/4-16	1.23	1.52	0.38	
•C1AW56	2025-8-10S	0.63	1/2-14	7/8-14	1.23	1.64	0.41	
•C1DV56	2025-8-12S	0.75	1/2-14	1-1/16-12	1.35	1.89	0.01	
•C1AW47	2025-12-12S	0.75	3/4-14	1-1/16-12	1.36	1.83	0.61	
•C1AW48	2025-16-16S	1.0	1-11-1/2	1-5/16-12	1.62	2.17	1.15	
•C1DV53	2025-20-20S	1.25	1-1/4-11-1/2	1-5/16-12	1.70	2.33	1.65	
•C1DV54	2025-24-24S	1.50	1-1/2-11-1/2	1-7/8-12	2.08	2.89	3.46	

Note: 2502 is Brennan model.

Note: 5JN9 is Eaton-Winner model.



2028

Male Pipe / Male 37° Flare / Male 37°
Flare Tee

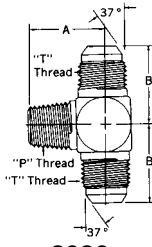
Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread P	Thread T	A (in)	B (in)	C (in)	Wt.	Price Each
•C1DW63	2605-06-02-06	0.38	1/8-27	9/16-28	0.90	1.06	1.06	0.13	
•C1AX39	2028-4-4S	0.25	1/4-18	7/16-20	1.09	1.05	1.05	0.11	
•C1AX40	2028-4-6S	0.38	1/4-18	9/16-18	1.09	1.06	1.06	0.12	
•C1AX41	2028-6-6S	0.38	3/8-18	9/16-18	1.22	1.14	1.14	0.19	
•C1KT34	AJJN-08Z		1/2-14	3/4-16	1.44	1.37	1.37		
C1AX44	2028-8-8S	0.50	1/2-14	3/4-16	1.47	1.33	1.33	0.32	
•C1AX43	2028-8-10S	0.63	1/2-14	7/8-14	1.47	1.45	1.45	0.36	
•C1DW67	2605-12-08-12	0.75	1/2-14	1-1/16-12	1.59	1.66	1.66	0.59	
•C1KT35	AJJN-12Z		3/4-14	1-1/16-12	1.73	1.74	1.74		
C1AX36	2028-12-12S	0.75	3/4-14	1-1/16-12	1.59	1.66	1.66	0.57	
•C1DW69	2605-16-12-16	1.00	3/4-14	1-5/16-12	1.78	1.81	1.81	1.01	
•C1KT36	AJJN-16Z		1-11-1/2	1-5/16-12	1.97	1.93	1.93		
C1AX37	2028-16-16S	1.00	1-11-1/2	1-5/16-12	1.97	1.81	1.81	0.88	
•C1DV57	2028-20-20S	1.25	1-1/4-11-1/2	1-5/8-12	2.38	2.19	2.06	2.19	

Note: 2605 is Brennan model.

Note: AJJN is Eaton-Winner model.



Steel Pipe to 37° Flare



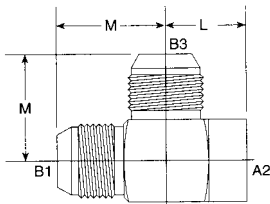
2030

Male Pipe / Male 37° Flare / Male 37°
Flare Tee

Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread P	Thread T	A (in)	B (in)	Wt.	Price Each
•C1AX49	2030-2-4S	0.25	1/8-27	7/16-20	0.78	0.89	0.08	
•C1DW47	2601-05-05-02	0.31	1/8-27	1/2-20	0.78	0.95	0.10	
•C1KT41	AJNJ-04Z		1/4-18	7/16-20	1.00	1.05		
C1AX50	2030-4-4S	0.25	1/4-18	7/16-20	1.09	1.05	0.11	
•C1DW48	2601-05-05-04	0.31	1/4-18	1/2-20	1.09	1.05	0.12	
•C1AX51	2030-4-6S	0.38	1/4-18	9/16-18	1.09	1.06	0.12	
•C1AX52	2030-6-6S	0.38	3/8-18	9/16-18	1.22	1.06	0.19	
•C1DW54	2601-10-10-06	0.63	3/8-18	7/8-14	1.29	1.45	0.39	
•C1KT42	AJNJ-08Z		1/2-14	3/4-16	1.47	1.37		
•C1AX54	2030-8-8S	0.50	1/2-14	3/4-16	1.47	1.33	0.32	
•C1EM92	2030-8-10S	0.63	1/2-14	7/8-14	1.47	1.45	0.36	
•C1DW56	2601-10-10-12	0.63	3/4-14	7/8-14	1.59	1.55	0.54	
•C1AX47	2030-12-12S	0.75	3/4-14	1-1/16-12	1.59	1.66	0.58	
•C1AX48	2030-16-16S	1.0	1-11-1/2	1-5/16-12	1.97	1.81	1.10	

Note: 2601 is Brennan model.

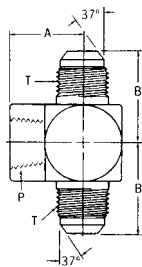
Note: AJNJ is Eaton-Winner model.



2606

Male JIC 37° Flare / Male JIC 37° Flare
/ Female Pipe Tee

Catalog Part No.	Brennan Model	Tube O.D. (in)	Thread B1	Thread B3	Thread A2	L (in)	M (in)	Wt.	Price Each
C1FV66	2606-10-08-10	0.63	7/8-14	7/8-14	1/2-14	1.23	1.64	0.58	



2031

Female Pipe / Male 37° Flare / Male 37°
Flare Tee

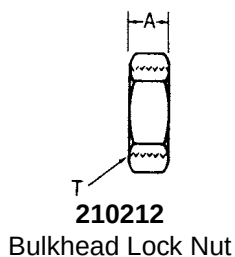
Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread P	Thread T	A (in)	B (in)	Wt.	Price Each
•C1AX69	2031-4-4S	0.25	1/4-18	7/16-20	0.88	0.98	0.16	
•C1AX70	2031-4-6S	0.38	1/4-18	9/16-18	0.88	1.09	0.18	
•C1AX71	2031-6-8S	0.50	3/8-18	3/4-16	1.02	1.26	0.29	
•C1AX68	2031-12-12S	0.75	3/4-14	1-1/16-12	1.36	1.83	0.90	
C1HN68	2602-20-20-20FG	1.25	1-1/4-11-1/2	1-5/8-12		2.33	2.01	

Note: 2602-*-FG is forged Brennan model.

Adapters



Steel Pipe to 37° Flare



Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread T	A (in)	B (in)	Wt.	Price Each
•C1BB83	210212-4S	0.25	7/16-20	0.25	0.69	0.02	
•C1JC36	210212-5S	0.31	1/2-20	0.25	0.75	0.02	
•C1BB84	210212-6S	0.38	9/16-18	0.27	0.81	0.03	
•C1BB85	210212-8S	0.50	3/4-16	0.31	1.0	0.04	
•C1BB80	210212-10S	0.63	7/8-14	0.36	1.12	0.42	
•C1BB81	210212-12S	0.75	1-1/16-12	0.41	1.38	0.09	

Note: 0306 is Brennan model.

Hydraulic Power & Control

Pneumatic Power & Control

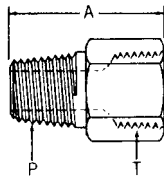
Fluid Conveying

Miscellaneous Products

Indexes & Technical Information



Steel Pipe to Straight Thread O-Ring

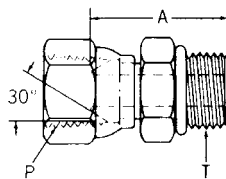


2246

Male Pipe / Female SAE O-Ring Boss

Catalog Part No.	Aeroquip Model	Thread P	Thread T	A (in)	Wt.	Price Each
•C1BD36	2246-2-4S	1/8-27	7/16-20	1.09	0.07	
•C1BX30	6404-04-04	1/4-18	7/16-20	1.32	0.20	
•C1BD38	2246-4-6S	1/4-18	9/16-18	1.36	0.19	
•C1BX32	6404-05-04	1/2-20	7/16-20	1.39	0.10	
•C1BX31	6404-04-06	3/8-18	7/16-20	1.13	0.40	
•C1BX34	6404-06-06	3/8-18	9/16-18	1.39	0.25	
•C1BD39	2246-6-8S	3/8-18	3/4-16	1.45	0.15	
•C1BX36	6404-08-08	1/2-14	3/4-16	1.70	0.35	
•C1BD40	2246-8-10S	1/2-14	7/8-14	1.78	0.22	
•C1BD34	2246-12-12S	3/4-14	1-1/16-12	1.92	0.31	
•C1BD35	2246-16-16S	1-11-1/2	1-5/16-12	1.91	0.45	

Note: 6404 is Brennan model.

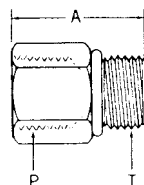


2066

Female Pipe Swivel / Male SAE O-Ring Boss

Catalog Part No.	Aeroquip Model	Thread P	Thread T	A (in)	Wt.	Price Each
•C1AZ74	2066-4-4S	1/4-18	7/16-20	1.05	0.07	
•C1AZ75	2066-4-6S	1/4-18	9/16-18	1.14	0.09	
•C1DZ56	6900-08-04-O	1/4-18	3/4-16	1.22	0.13	
•C1AZ76	2066-6-6S	3/8-18	9/16-18	1.14	0.10	
•C1AZ77	2066-6-8S	3/8-18	3/4-16	1.19	0.14	
•C1DZ55	6900-06-08-O	1/2-14	9/16-18	1.23	0.17	
•C1AZ79	2066-8-8S	1/2-14	3/4-16	1.23	0.16	
•C1AZ78	2066-8-10S	1/2-14	7/8-14	1.30	0.20	
•C1AZ72	2066-12-12S	3/4-14	1-1/16-12	1.58	0.34	
•C1AZ73	2066-16-16S	1-11-1/2	1-5/16-12	1.59	0.50	

Note: 6900 is Brennan model. SAE O-Ring Boss O-Rings page 1267



2216

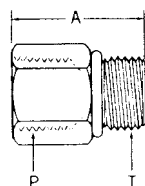
Female Pipe / Male SAE O-Ring Boss

Catalog Part No.	Aeroquip Model	Thread P	Thread T	A (in)	Wt.	Price Each
•C1BC76	2216-2-4S	1/8-27	7/16-20	0.92	0.04	
•C1BX43	6405-05-02-O	1/8-27	1/2-20	0.94	0.15	
•C1BX41	6405-04-04-O	1/4-18	7/16-20	1.16	0.09	
•C1BC79	2216-4-5S	1/4-18	1/2-20	1.20	0.09	
C1BC80	2216-4-6S	1/4-18	9/16-18	1.24	0.09	
•C1KS63	50N-06-04Z	1/4-18	9/16-18	1.24		
•C1BX48	6405-08-04-O	1/4-18	3/4-16	1.16	0.13	
•C1DY29	6405-10-04-O	1/4-18	7/8-14	0.81	0.11	
•C1BX42	6405-04-06-O	3/8-18	7/16-20	1.21	0.20	
•C1BX45	6405-06-06-O	3/8-18	9/16-18	1.16	0.09	
•C1BC81	2216-6-8S	3/8-18	3/4-16	1.25	0.12	
•C1BX50	6405-10-06-O	3/8-18	7/8-14	1.55	0.28	
•C1HQ94	2216-6-12S	3/8-18	1-1/16-12	1.34	1.25	
•C1BX46	6405-06-08-O	1/2-14	9/16-18	1.40	0.25	
C1BC84	2216-8-8S	1/2-14	3/4-16	1.65	0.22	
•C1KS64	50N-08Z	1/2-14	3/4-16	1.57		
C1BC82	2216-8-10S	1/2-14	7/8-14	1.54	0.25	
•C1KS65	50N-10-08Z	1/2-14	7/8-14	1.63		
•C1KS66	50N-12-08Z	1/2-14	1-1/16-12	1.65		
C1BC83	2216-8-12S	1/2-14	1-1/16-12	1.72	0.37	
•C1BX57	6405-16-08-O	1/2-14	1-5/16-12	1.61	0.52	

Adapters



Steel Pipe to Straight Thread O-Ring



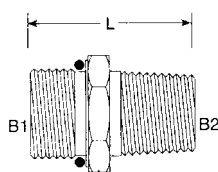
2216

Female Pipe / Male SAE O-Ring Boss

Catalog Part No.	Aeroquip Model	Thread P	Thread T	A (in)	Wt.	Price Each
•C1KS67	50N-12Z	3/4-14	1-1/16-12	1.79		
•C1BC72	2216-12-12S	3/4-14	1-1/16-12	1.67	0.33	
C1BC73	2216-12-16S	3/4-14	1-5/16-12	1.00	0.23	
•C1KS68	50N-16-12Z	3/4-14	1-5/16-12	1.69		
•C1BX59	6405-20-12-O	3/4-14	1-5/8-12	1.19	0.61	
•C1BX53	6405-12-16-O	1-11-1/2	1-1/16-12	1.91	0.55	
•C1KS69	50N-16Z	1-11-1/2	1-5/16-12	2.02		
•C1BC74	2216-16-16S	1-11-1/2	1-5/16-12	1.91	0.56	
•C1BC75	2216-16-20S	1-11-1/2	1-5/8-12	1.00	0.34	
•C1BX62	6405-24-16-O	1-11-1/2	1-7/8-12	1.00	0.75	
•C1KS70	50N-20Z	1-1/4-11-1/2	1-5/8-12	2.10		
C1BC77	2216-20-20S	1-1/4-11-1/2	1-5/8-12	2.00	0.87	
•C1BX63	6405-24-20-O	1-1/4-11-1/2	1-7/8-12	2.12	1.11	
•C1BC78	2216-24-24S	1-1/2-11-1/2	1-7/8-12	2.00	0.12	

Note: 6405 is Brennan model. SAE O-Ring Boss O-Rings page 1267

Note: 50N is Eaton-Winner model.

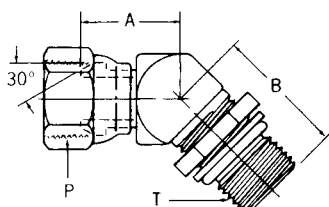


6401

Male SAE O-Ring Boss / Male Pipe

Catalog Part No.	Brennan Model	Thread B1	Thread B2	L (in)	Wt.	Price Each
•C1EK71	6401-04-02-O	7/16-20	1/8-27	1.07	0.04	
•C1EK73	6401-06-02-O	9/16-18	1/8-27	1.11	0.07	
•C1DY14	6401-06-04-O	9/16-18	1/4-18	1.29	0.07	
•C1EK74	6401-06-06-O	9/16-18	3/8-18	1.30	0.09	
•C1EK75	6401-06-08-O	9/16-18	1/2-14	1.39	0.14	
•C1EK76	6401-08-04-O	3/4-16	1/4-18	1.24	0.10	
•C1EK28	6401-08-06-O	3/4-16	3/8-18	1.36	0.12	
•C1EK77	6401-08-08-O	3/4-16	1/2-14	1.55	0.13	
•C1EK78	6401-08-12-O	3/4-16	3/4-14	1.59	0.20	
•C1EN69	6401-10-06-O	7/8-14	3/8-18	1.56	0.17	
•C1BX28	6401-10-08-O	7/8-14	1/2-14	1.69	0.05	
•C1EK79	6401-10-12-O	7/8-14	3/4-14	1.77	0.24	
•C1EK81	6401-12-08-O	1-1/16-12	1/2-14	1.84	0.28	
•C1EK82	6401-12-12-O	1-1/16-12	3/4-14	1.73	0.30	
•C1EK84	6401-16-16-O	1-5/16-12	1-11-1/2	1.90	0.01	
•C1BX29	6401-20-20-O	1-5/8-12	1-1/4-11-1/2	2.17	0.05	

Note: SAE O-Ring Boss O-Rings page 1267



2067

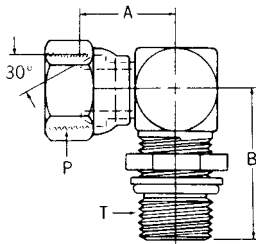
Female Pipe Swivel / Male SAE O-Ring Boss 45° Elbow

Catalog Part No.	Aeroquip Model	Thread P	Thread T	A (in)	B (in)	Wt.	Price Each
•C1AZ81	2067-16-16S	1-11-1/2	1-5/16-12	1.26	1.89	0.92	

Note: 6902 is Brennan model. SAE O-Ring Boss O-Rings page 1267



Steel Pipe to Straight Thread O-Ring



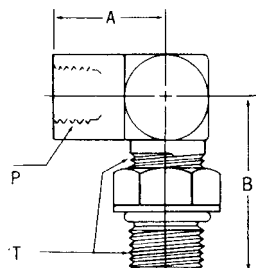
2068

Female Pipe Swivel / Male SAE O-Ring
Boss 90° Elbow

Catalog Part No.	Aeroquip Model	Thread P	Thread T	A (in)	B (in)	Wt.	Price Each
•C1AZ88	2068-4-4S	1/4-18	7/16-20	0.68	1.05	0.10	
•C1AZ89	2068-4-6S	1/4-18	9/16-18	0.73	1.25	0.15	
•C1AZ90	2068-6-6S	3/8-18	9/16-18	0.83	1.25	0.22	
•C1AZ91	2068-6-8S	3/8-18	3/4-16	0.91	1.45	0.27	
•C1AZ93	2068-8-8S	1/2-14	3/4-16	0.91	1.45	0.33	
•C1KR61	2OU9-08OGZ	1/2-14	3/4-16		1.46	0.32	
•C1AZ92	2068-8-10S	1/2-14	7/8-14	0.97	1.70	0.36	
•C1DZ70	6901-12-08-NWO	1/2-14	1-1/16-12		1.92	0.78	
•C1DV72	2068-12-10S	3/4-14	7/8-14	1.09	1.70	0.46	
•C1AZ85	2068-12-12S	3/4-14	1-1/16-12	1.15	1.94	0.70	
•C1MJ34	2OU9-12OGZ	3/4-14	1-1/16-12		2.01	0.68	
•C1AZ87	2068-16-16S	1-11-1/2	1-5/16-12	1.44	2.05	0.91	

Note: 6901 is Brennan model. SAE O-Ring Boss O-Rings page 1267

Note: 2OU9 is Eaton-Winner model.



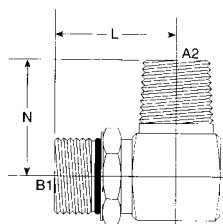
206801

Female Pipe / Male SAE O-Ring Boss
90° Elbow

Catalog Part No.	Aeroquip Model	Thread P	Thread T	A (in)	B (in)	Wt.	Price Each
•C1DY99	6805-04-04-NWO	1/4-18	7/16-20	0.87	1.16	0.17	
•C1DZ12	6805-06-04-NWO	1/4-18	9/16-18	0.88	1.31	0.18	
•C1AZ95	206801-6-8S	3/8-18	3/4-16	1.02	1.46	0.29	
•C1DV73	206801-8-8S	1/2-14	3/4-16	1.23	1.73	0.44	
•C1DZ15	6805-10-08-NWO	1/2-14	7/8-14	1.23	1.80	0.54	
•C1DZ16	6805-12-08-NWO	1/2-14	1-1/16-12	1.24	1.94	0.64	
•C1KS71	5ON9-12OGZ	3/4-14	1-1/16-12	1.36	2.17		
•C1AZ94	206801-12-12S	3/4-14	1-1/16-12	1.36	2.04	0.75	
•C1DZ20	6805-20-20-NWO	1-1/4-11-1/2	1-5/8-12	1.70	2.38	2.22	

Note: 6805 is Brennan model. SAE O-Ring Boss O-Rings page 1267

Note: 5ON9 is Eaton-Winner model.



6806-NWO

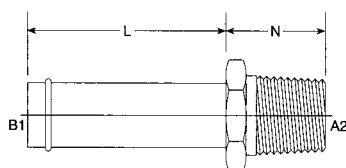
Male SAE O-Ring Boss / Male Pipe 90°
Elbow

Catalog Part No.	Brennan Model	Tube O.D. (in)	Thread B1	Thread A2	L (in)	N (in)	Wt.	Price Each
•C1DZ22	6806-04-04-NWO	0.25	7/16-20	1/4-18	1.09	1.09	0.13	
•C1DZ24	6806-06-04-NWO	0.38	9/16-18	1/4-18	1.25	1.09	0.14	
•C1DZ25	6806-06-06-NWO	0.38	9/16-18	3/8-18	1.35	1.22	0.01	
•C1DZ26	6806-08-06-NWO	0.50	3/4-16	3/8-18	1.45	1.22	0.26	
•C1DZ27	6806-08-08-NWO	0.50	3/4-16	1/2-14	1.52	1.47	0.36	
•C1DZ28	6806-10-08-NWO	0.63	7/8-14	1/2-14	1.70	1.47	0.36	
•C1DZ29	6806-12-12-NWO	0.75	1-1/16-12	3/4-14	1.94	1.59	0.60	

Note: SAE O-Ring Boss O-Rings page 1267

Adapters

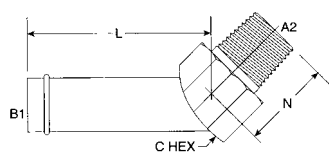
Steel Pipe to Hose



4404

Hose Barb / Male Pipe

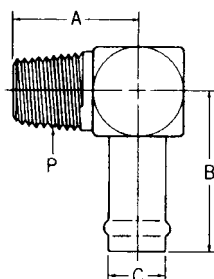
Catalog Part No.	Brennan Model	Hose I.D. (in)	Thread A2	L (in)	N (in)	Wt.	Price Each
•C1HW95	4404-10-08	5/8	1/2-14	1.50	1.08	0.16	



4503

Hose Barb / Male Pipe 45° Elbow

Catalog Part No.	Brennan Model	Hose I.D. (in)	Thread A2	L (in)	N (in)	Wt.	Price Each
•C1EK18	4503-16-12	1	3/4-14	1.20	1.75	0.31	



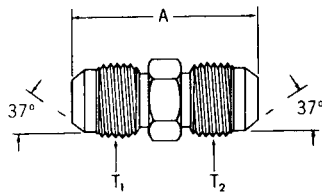
4501

Male Pipe / Hose Barb 90° Elbow

Catalog Part No.	Brennan Model	Hose I.D. (in)	Thread P	A (in)	B (in)	C (in)	Wt.	Price Each
•C1DX30	4501-08-06	0.50	3/8-18	1.22	1.91	0.50	0.19	
•C1DX32	4501-10-06	0.63	3/8-18	1.28	1.97	0.63	0.18	
•C1EF61	4501-08-08	0.50	1/2-14	1.47	1.98	0.50	0.28	
•C1DX33	4501-10-08	0.63	1/2-14	1.47	1.97	0.63	0.30	
•C1DX36	4501-12-08	0.75	1/2-14	1.97	1.47	0.75	0.26	
•C1CU61	FF1162-1212S	0.75	3/4-14	1.50	2.06	0.75	0.47	
•C1DX39	4501-16-12	1.0	3/4-14	1.60	2.08	1.0	0.42	
•C1CU62	FF1162-1616S	1.0	1-11-1/2	1.95	2.19	1.0	0.83	
•C1DX41	4501-20-20	1.25	1-1/4-11-1/2	2.38	2.38	1.25	1.38	
•C1KB13	4501-24-24-FG	1.50	1-1/2-11-1/2	2.64	2.50	1.50	1.47	

Note: FF1162 is Aeroquip model.

Steel 37° Flare Union



2027

Male 37° Flare / Male 37° Flare

Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread T1	Thread T2	A (in)	Wt.	Price Each
•C1AW70	2027-3-3S	0.19	3/8-24	3/8-24	1.23	0.02	
C1AW72	2027-4-4S	0.25	7/16-20	7/16-20	1.37	0.04	
•C1KP17	1J-04Z		7/16-20	7/16-20	1.38		
•C1AW73	2027-5-4S		1/2-20	7/16-20	1.37	0.04	
•C1AW74	2027-5-5S	0.31	1/2-20	1/2-20	1.37	0.05	
•C1AW75	2027-6-4S		7/16-20	9/16-18	1.40	0.05	
•C1KP16	1J-04-06Z		7/16-20	9/16-18	1.41		
•C1AW76	2027-6-5S		9/16-18	1/2-20	1.40	0.05	
C1AW77	2027-6-6S	0.38	9/16-18	9/16-18	1.41	0.06	
•C1KP19	1J-06Z		9/16-18	9/16-18	1.42		
•C1KP18	1J-06-08Z		9/16-18	3/4-16	1.52		
•C1AW78	2027-8-4S		3/4-16	7/16-20	1.51	0.09	
C1AW79	2027-8-6S	0.38	3/4-16	9/16-18	1.52	0.09	
C1AW80	2027-8-8S	0.50	3/4-16	3/4-16	1.62	0.12	
•C1KP21	1J-08Z		3/4-16	3/4-16	1.61		
•C1BF52	2403-10-04		7/8-14	7/16-20	1.67	0.25	
•C1AW60	2027-10-6S	0.38	7/8-14	9/16-18	1.68	0.14	
•C1AW61	2027-10-8S	0.50	7/8-14	3/4-16	1.78	0.16	
C1AW59	2027-10-10S	0.63	7/8-14	7/8-14	1.88	0.18	
•C1KP22	1J-10Z		7/8-14	7/8-14	1.89		
•C1BF54	2403-12-06		1-1/16-12	9/16-18	1.87	0.24	
•C1KP20	1J-08-12Z		1-1/16-12	3/4-16	1.96		
•C1AW64	2027-12-8S	0.38	1-1/16-12	3/4-16	1.95	0.24	
•C1AW62	2027-12-10S	0.61	1-1/16-12	7/8-14	2.05	0.26	
•C1KP23	1J-12Z		1-1/16-12	1-1/16-12	2.17		
C1AW63	2027-12-12S	0.75	1-1/16-12	1-1/16-12	2.16	0.29	
•C1BF55	2403-14-12		1-3/16-12	1-1/16-12	2.18	0.15	
•C1AW66	2027-16-12S	0.75	1-5/16-12	1-1/16-12	2.20	0.38	
C1AW67	2027-16-16S	1.0	1-5/16-12	1-5/16-12	2.25	0.41	
•C1KP24	1J-16Z		1-5/16-12	1-5/16-12	2.24		
•C1HZ19	2027-20-16S		1-5/8-12	1-5/16-12		0.61	
C1AW68	2027-20-20S	1.25	1-5/8-12	1-5/8-12	2.43	0.66	
•C1KP25	1J-20Z		1-5/8-12	1-5/8-12	2.44		
C1AW69	2027-24-24S	1.50	1-7/8-12	1-7/8-12	2.75	0.97	
•C1KP26	1J-24Z		1-7/8-12	1-7/8-12	2.76		
•C1KP27	1J-32Z		2-1/2-12	2-1/2-12	3.41		
C1AW71	2027-32-32S	2	2-1/2-12	2-1/2-12	3.40	2.10	

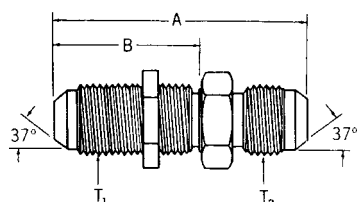
Note: 2403 is Brennan model.

Note: 1J is Eaton-Winner model

Adapters



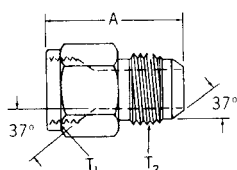
Steel 37° Flare Union



2041
Male 37° Flare / Male 37° Flare
Bulkhead

Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread T1	Thread T2	A (in)	B (in)	Wt.	Price Each
•C1KS73	6J-04LNZ		7/16-20	7/16-20	2.07	1.28		
C1AY43	2041-4-4S	0.25	7/16-20	7/16-20	2.07	1.20	0.09	
•C1AY44	2041-5-5S	0.31	1/2-20	1/2-20	2.07	1.20	0.10	
C1HW45	2700-LN-06-06-F G	0.38	9/16-18	9/16-18	2.18	1.28	0.14	
C1AY45	2041-6-6S	0.38	9/16-18	9/16-18	2.18	1.28	0.14	
•C1KS74	6J-06LNZ		9/16-18	9/16-18	2.15	1.28		
•C1KS75	6J-08LNZ		3/4-16	3/4-16	2.42	1.44		
C1AY46	2041-8-8S	0.50	3/4-16	3/4-16	2.44	1.44	0.25	
•C1KS76	6J-10LNZ		7/8-14	7/8-14	2.74	1.57		
C1AY39	2041-10-10S	0.63	7/8-14	7/8-14	2.74	1.58	0.33	
•C1KS77	6J-12LNZ		1-1/16-12	1-1/16-12	3.09	1.75		
C1AY40	2041-12-12S	0.75	1-1/16-12	1-1/16-12	3.09	1.75	0.58	
•C1KS78	6J-16LNZ		1-5/16-12	1-5/16-12	3.14	1.75		
C1AY41	2041-16-16S	1.0	1-5/16-12	1-5/16-12	3.14	1.75	0.74	
•C1KS79	6J-20LNZ		1-5/8-12	1-5/8-12	3.34	1.80		
C1AY42	2041-20-20S	1.25	1-5/8-12	1-5/8-12	3.31	1.80	1.12	
C1FF60	2041-24-24S	1.50	1-7/8-12	1-7/8-12	3.52	1.84	1.47	

Note: 2700 is Brennan model which does NOT come with locknut. 2700-LN-*-FG is a forged Brennan model with a locknut included. Bulkhead Locknuts (Steel) page 1140
Note: 6J is Eaton-Winner model.

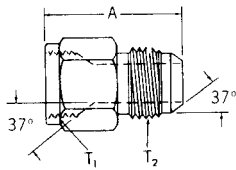


2215
Female 37° Flare / Male 37° Flare

Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread T1	Thread T2	A (in)	Wt.	Price Each
•C1HK94	2406-04-03	0.25	7/16-20	3/8-24	1.05	0.04	
•C1EX63	2406-04-06	0.38	7/16-20	9/16-18	1.01	0.05	
•C1DV86	2406-05-04	0.25	1/2-20	7/16-20	1.16	0.05	
•C1FA61	2406-05-06	0.38	1/2-20	9/16-18	1.17	0.07	
•C1ZX93	2406-06-08	0.50	9/16-18	3/4-16	1.28	0.10	
•C1KJ61	2406-08-06	0.5	3/4-16	9/16-18	1.31	0.10	
•C1FE70	2406-08-10	0.63	3/4-16	7/8-14	1.29	0.13	
•C1ZU16	2406-0812	0.50	3/4-16	1-1/16-12	1.62	0.26	
•C1DV87	2406-10-04	0.25	7/8-14	7/16-20	1.47	0.13	
•C1BC55	2215-10-8S	0.50	7/8-14	3/4-16	1.53	0.13	
•C1KR12	2J-08-10Z		7/8-14	3/4-16	1.44		
•C1BC54	2215-10-12S	0.75	7/8-14	1-1/16-12	1.74	0.26	
•C1KR14	2J-12-10Z		7/8-14	1-1/16-12	1.71		
•C1EF56	2406-12-04	0.25	1-1/16-12	7/16-20	1.50	0.20	

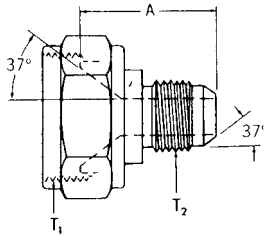


Steel 37° Flare Union



2215

Female 37° Flare / Male 37° Flare



221501

Female 37° Flare Swivel / Male 37° Flare

Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread T1	Thread T2	A (in)	Wt.	Price Each
•C1BC56	2215-12-10S	0.63	1-1/16-12	7/8-14	1.73	0.26	
•C1KR13	2J-10-12Z		1-1/16-12	7/8-14	1.65		
•C1KR15	2J-16-12Z		1-1/16-12	1-5/16-12	1.83		
•C1BC57	2215-12-16S	1.0	1-1/16-12	1-5/16-12	2.00	0.44	
•C1DV92	2406-14-12	0.75	1-3/16-12	1-1/16-12	1.80	0.32	
•C1BC58	2215-16-20S	1.25	1-5/16-12	1-5/8-12	2.30	0.76	
•C1KR16	2J-20-16Z		1-5/16-12	1-5/8-12	1.97		
•C1DV94	2406-20-12	0.75	1-5/8-12	1-1/16-12	2.00	0.71	
•C1FD28	2406-20-24	1.25	1-5/8-12	1-7/8-12	2.16	0.99	
•C1KR17	2J-20-24Z		1-7/8-12	1-5/8-12	2.19		

Note: 2406 are Brennan models, except 2406-5-4 is a Tompkins model.

Note: 2J is Eaton-Winner model.

Catalog Part No.	Aeroquip Model	Male Tube O.D. (in)	Thread T1	Thread T2	A (in)	Wt.	Price Each
•C1FT76	6504-0404	0.25	7/16-20	7/16-20	1.44	0.05	
C1BC69	221501-6-4S	0.25	9/16-18	7/16-20	0.97	0.06	
•C1KR97	5J-04-06SZ		9/16-18	7/16-20	0.97		
•C1FT77	6504-0606	0.38	9/16-18	9/16-18	1.59	0.08	
C1BC70	221501-8-4S	0.25	3/4-16	7/16-20	1.00	0.10	
•C1KR98	5J-04-08SZ		3/4-16	7/16-20	1.00		
C1BC71	221501-8-6S	0.38	3/4-16	9/16-18	1.00	0.11	
•C1KR99	5J-06-08SZ		3/4-16	9/16-18	1.00		
•C1FT78	6504-0808	0.50	3/4-16	3/4-16	1.75	0.15	
•C1BC61	221501-10-6S	0.38	7/8-14	9/16-18	1.03	0.15	
•C1FT79	6504-1010	0.63	7/8-14	7/8-14	2.17	0.22	
•C1KS11	5J-06-12SZ		1-1/16-12	9/16-18	1.09		
C1BC62	221501-12-6S	0.38	1-1/16-12	9/16-18	1.09	0.23	
•C1KS13	5J-08-12SZ		1-1/16-12	3/4-16	1.19		
C1BC63	221501-12-8S	0.50	1-1/16-12	3/4-16	1.19	0.28	
•C1KS12	5J-06-16SZ		1-5/16-12	9/16-18	1.22		
C1BC66	221501-16-6S	0.38	1-5/16-12	9/16-18	1.16	0.36	
•C1KS14	5J-08-16SZ		1-5/16-12	3/4-16	1.26		
C1BC67	221501-16-8S	0.50	1-5/16-12	3/4-16	1.26	0.35	
•C1KS15	5J-10-16SZ		1-5/16-12	7/8-14	1.38		
•C1BC64	221501-16-10S	0.63	1-5/16-12	7/8-14	1.36	0.37	
C1BC65	221501-16-12S	0.75	1-5/16-12	1-1/16-12	1.47	0.41	
•C1KS16	5J-12-16SZ		1-5/16-12	1-1/16-12	1.47		
•C1KS17	5J-16-20SZ		1-5/8-12	1-5/16-12	1.59		
C1BC68	221501-20-16S	1.0	1-5/8-12	1-5/16-12	1.52	0.79	

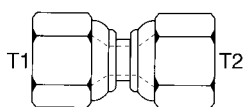
Note: 6504 is Brennan model.

Note: 5J is Eaton-Winner model.

Adapters

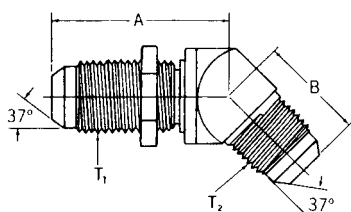


Steel 37° Flare Union



9026
Female 37° Flare Swivel Union

Catalog Part No.	Adaptall Model	Tube O.D. (in)	Thread T1	Thread T2	Length (in)	Wt.	Price Each
•C1ZW99	9026-04-04	0.25	7/16-20	7/16-20		0.05	
•C1ZW98	9026-06-06	0.38	9/16-18	9/16-18		0.09	
•C1ZW97	9026-08-08	0.50	3/4-16	3/4-16		0.15	
•C1FE87	9026-10-10	0.63	7/8-14	7/8-14		0.21	
•C1FE88	9026-12-12	0.75	1-1/16-12	1-1/16-12		0.37	
•C1FX62	9026-16-16	1.00	1-5/16-12	1-5/16-12		0.52	

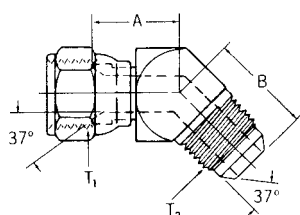


2042
Male 37° Flare / Male 37° Flare 45° Bulkhead Elbow

Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread T1	Thread T2	A (in)	B (in)	Wt.	Price Each
•C1AY48	2042-4-4S	0.25	7/16-20	7/16-20	1.55	0.73	0.10	
C1HD57	2702-LN-04-04-F G	0.25	7/16-20	7/16-20	1.53	0.72	0.09	
•C1DW76	2702-05-05	0.31	1/2-20	1/2-20	1.66	0.77	0.10	
•C1KS80	6J4-06LNZ	0.38	9/16-18	9/16-18	1.67	0.91		
C1AY49	2042-6-6S	0.38	9/16-18	9/16-18	1.64	0.83	0.13	
•C1KS81	6J4-08LNZ	0.50	3/4-16	3/4-16	1.94	1.06		
C1AY50	2042-8-8S	0.50	3/4-16	3/4-16	2.08	0.98	0.26	
•C1AY47	2042-12-12S	0.75	1-1/16-12	1-1/16-12	2.36	1.41	0.71	
•C1KS82	6J4-16LNZ	1.00	1-5/16-12	1-5/16-12	2.56	1.49		
C1HH77	2042-16-16S	1.00	1-5/16-12	1-5/16-12	2.58	1.47	1.20	

Note: 2702 is Brennan model which does NOT come with locknut. 2702-LN is Brennan model with locknut. 2702-*-FG is forged Brennan model. Bulkhead Locknuts (Steel) page 1140

Note: 6J4 is Eaton-Winner model.



2070
Female 37° Flare Swivel / Male 37° Flare 45° Elbow

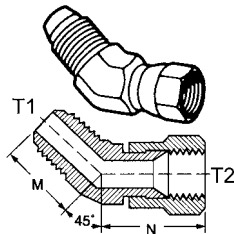
Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread T1	Thread T2	A (in)	B (in)	Wt.	Price Each
•C1KR18	2J4-04Z		7/16-20	7/16-20		0.85		
C1BA11	2070-4-4S	0.25	7/16-20	7/16-20	0.50	0.80	0.06	
•C1KR19	2J4-06Z		9/16-18	9/16-18		0.90		
C1BA13	2070-6-6S	0.38	9/16-18	9/16-18	0.61	0.83	0.10	
•C1KR20	2J4-08Z		3/4-16	3/4-16		1.06		
•C1BA14	2070-8-8S	0.50	3/4-16	3/4-16	0.82	0.98	0.20	
•C1KR21	2J4-10Z		7/8-14	7/8-14		1.22		
C1AZ96	2070-10-10S	0.63	7/8-14	7/8-14	0.75	1.11	0.25	
•C1KR22	2J4-12Z		1-1/16-12	1-1/16-12		1.40		
C1AZ97	2070-12-12S	0.75	1-1/16-12	1-1/16-12	0.71	1.50	0.42	
•C1KR23	2J4-16Z		1-5/16-12	1-5/16-12		1.52		
C1AZ98	2070-16-16S	1.0	1-5/16-12	1-5/16-12	0.94	1.47	0.62	
•C1KR24	2J4-20Z		1-5/8-12	1-5/8-12		1.69		
C1AZ99	2070-20-20S	1.25	1-5/8-12	1-5/8-12			1.31	

Note: 6502 is Brennan model. 6502-*-FG is forged Brennan model.

Note: 2J4 is Eaton-Winner model.

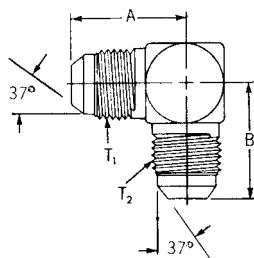


Steel 37° Flare Union



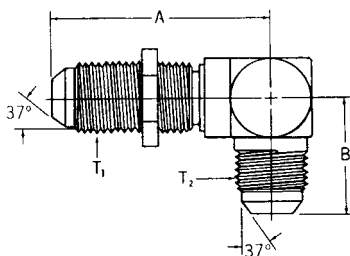
C5356

Male 37° Flare / Female 37° Flare
Swivel 45° Elbow (Forged)



2039

Male 37° Flare / Male 37° Flare 90°
Elbow



2043

Male 37° Flare / Male 37° Flare
Bulkhead

Catalog Part No.	Weatherhead Model	Tube O.D. (in)	Thread T1	Thread T2	M (in)	N (in)	Wt.	Price Each
C1KM51	IGC5356X8	1/2	9/16-18	3/4-16	0.98	1.28	0.19	

Note: Forged construction

Territory restrictions apply: These products are available only to select international accounts.

Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread T1	Thread T2	A (in)	B (in)	Wt.	Price Each
C1DW11	2500-03-03	0.19	3/8-24	3/8-24	0.83	0.83	0.04	
C1KP28	1J9-04Z		7/16-20	7/16-20	0.96	0.96		
C1AY18	2039-4-4S	0.25	7/16-20	7/16-20	0.89	0.89	0.05	
C1KP29	1J9-06Z		9/16-18	9/16-18	1.06	1.06		
C1AY19	2039-6-6S	0.38	9/16-18	9/16-18	1.06	1.06	0.16	
C1KP30	1J9-08Z		3/4-16	3/4-16	1.26	1.26		
C1AY20	2039-8-8S	0.50	3/4-16	3/4-16	1.25	1.25	0.20	
C1AY15	2039-10-10S	0.63	7/8-14	7/8-14	1.45	1.45	0.28	
C1AY16	2039-12-12S	0.75	1-1/16-12	1-1/16-12	1.66	1.66	0.48	
C1KP31	1J9-16Z		1-5/16-12	1-5/16-12	1.93	1.93		
C1AY17	2039-16-16S	1.0	1-5/16-12	1-5/16-12	1.81	1.81	0.66	
C1DV61	2039-20-20S	1.25	1-5/8-12	1-5/8-12	2.06	2.06	1.22	

Note: 2500 is Brennan model.

Note: 1J9 is Eaton-Winner model.

Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread T1	Thread T2	A (in)	B (in)	Wt.	Price Each
C1DW74	2701-03-03	0.19	3/8-24	3/8-24	1.50	0.94	0.07	
C1AY54	2043-4-4S	0.25	7/16-20	7/16-20	1.59	0.92	0.11	
C1HD55	2701-LN-04-04-FG	0.25	7/16-20	7/16-20	1.59	0.97	0.10	
C1MK18	6J9-04LNZ	0.25	7/16-20	7/16-20	1.59	0.96	0.09	
C1AY55	2043-6-6S	0.38	9/16-18	9/16-18	1.81	1.06	0.19	
C1KS83	6J9-06LNZ	0.38	9/16-18	9/16-18	1.81	1.09	0.16	
C1AY56	2043-8-8S	0.50	3/4-16	3/4-16	2.11	1.24	0.32	
C1KS84	6J9-08LNZ	0.50	3/4-16	3/4-16	2.11	1.36	0.32	
C1AY51	2043-10-10S	0.63	7/8-14	7/8-14	2.39	1.46	0.47	
C1AY52	2043-12-12S	0.75	1-1/16-12	1-1/16-12	2.67	1.72	0.87	
C1KS85	6J9-12LNZ	0.75	1-1/16-12	1-1/16-12	2.67	1.78	0.80	
C1AY53	2043-16-16S	1.0	1-5/16-12	1-5/16-12	2.80	1.94	1.02	

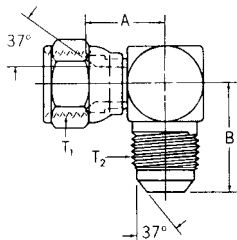
Note: 2701 is Brennan model which does NOT come with locknut. 2701-LN is Brennan model with locknut. 2701-*-FG is forged Brennan model. Bulkhead Locknuts (Steel) page 1140

Note: 6J9 is Eaton-Winner model.

Adapters



Steel 37° Flare Union



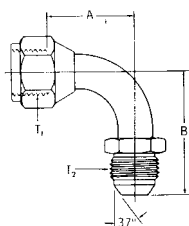
2071

Female 37° Flare Swivel / Male 37°
Flare 90° Elbow

Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread T1	Thread T2	A (in)	B (in)	Wt.	Price Each
•C1FL30	6500-03-03	0.18	3/8-24	3/8-24	1.00	0.83	0.07	
•C1BA21	2071-4-4S	0.25	7/16-20	7/16-20	0.66	0.89	0.07	
•C1KR25	2J9-04Z		7/16-20	7/16-20		0.96	0.07	
•C1BA22	2071-4-6S		7/16-20	9/16-18	0.69	1.06	0.11	
•C1BA23	2071-5-5S	0.31	1/2-20	1/2-20	0.64	0.95	0.09	
•C1BX66	6500-05-06		9/16-18	1/2-20	1.22	1.02	0.20	
C1BA24	2071-6-6S	0.38	9/16-18	9/16-18	0.88	1.06	0.11	
•C1KR26	2J9-06Z		9/16-18	9/16-18		1.06	0.11	
•C1BX68	6500-08-06		9/16-18	3/4-16	1.32	1.25	0.20	
•C1HZ24	2071-8-6S		3/4-16	9/16-18			0.19	
•C1BA25	2071-8-8S	0.50	3/4-16	3/4-16	0.96	1.25	0.21	
•C1KR27	2J9-08Z		3/4-16	3/4-16		1.26	0.23	
•C1BX70	6500-10-08		3/4-16	7/8-14	1.47	1.45	0.20	
•C1BA16	2071-10-8S		7/8-14	3/4-16	1.12	1.33	0.30	
C1BA15	2071-10-10S	0.63	7/8-14	7/8-14	1.12	1.45	0.32	
•C1KR28	2J9-10Z	0.63	7/8-14	7/8-14		1.49	0.34	
•C1BX72	6500-12-10		7/8-14	1-1/16-12	1.73	1.65	0.50	
•C1BX69	6500-08-12		1-1/16-12	3/4-16	1.74	1.41	0.45	
C1BA17	2071-12-12S	0.75	1-1/16-12	1-1/16-12	1.19	1.66	0.52	
•C1KR29	2J9-12Z	0.75	1-1/16-12	1-1/16-12		1.74	0.58	
•C1BA18	2071-14-14S	0.88	1-3/16-12	1-3/16-12	1.19	1.73	0.72	
C1BA19	2071-16-16S	1.00	1-5/16-12	1-5/16-12	1.41	1.81	0.74	
•C1KR30	2J9-16Z	1.00	1-5/16-12	1-5/16-12		1.92	0.91	
C1BA20	2071-20-20S	1.25	1-5/8-12	1-5/8-12	1.55	2.06	1.83	
•C1KR31	2J9-20Z	1.25	1-5/8-12	1-5/8-12		2.19	1.65	
•C1EM93	2071-24-24S	1.50	1-7/8-12	1-7/8-12	1.86	2.33	2.20	
•C1MJ33	2J9-24Z	1.50	1-7/8-12	1-7/8-12		2.46	2.50	

Note: 6500 is Brennan model.

Note: 2J9 is Eaton-Winner model.



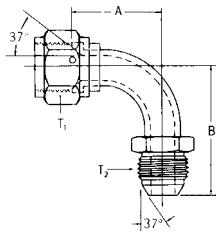
500454

Female 37° Flare Swivel / Male 37°
Flare Bent Tube 90°
(Pressures thru 4 Light Spiral)

Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread T1	Thread T2	A (in)	B (in)	Wt.	Price Each
•C1BS11	500454-4S	0.25	7/16-20	7/16-20	0.68	1.12	0.05	
•C1BS12	500454-6S	0.38	9/16-18	9/16-18	0.85	1.31	0.09	
•C1BS13	500454-8S	0.50	3/4-16	3/4-16	1.09	1.66	0.17	
•C1BR96	500454-10S	0.63	7/8-14	7/8-14	1.23	1.82	0.27	
•C1BR97	500454-12S	0.75	1-1/16-12	1-1/16-12	1.82	2.49	0.50	
•C1BR98	500454-16S	1.0	1-5/16-12	1-5/16-12	2.39	2.79	0.78	
•C1BR99	500454-20S	1.25	1-5/8-12	1-5/8-12	2.75	3.14	1.38	

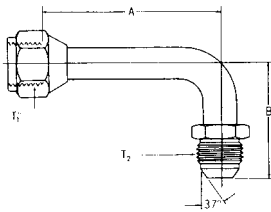


Steel 37° Flare Union



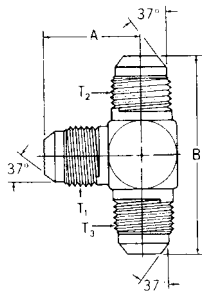
FF5163

Female 37° Flare Swivel / Male 37°
Flare Bent Tube 90°
(For pressures thru 4 Heavy Spiral)



504095

Female 37° Flare Swivel / Male 37°
Flare Bent Tube 90°
(For pressures thru 4 Light Spiral Hose)



2033

Male 37° Flare Tee

Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread T1	Thread T2	A (in)	B (in)	Wt.	Price Each
C1CV28	FF5163-0808S	0.50	3/4-16	3/4-16	1.87	2.16	0.10	
C1CV29	FF5163-1212S	0.75	1-1/16-12	1-1/16-12	2.35	2.81	0.56	
C1CV30	FF5163-1616S	1.0	1-5/16-12	1-5/16-12	3.04	3.41	1.09	
C1CV31	FF5163-2020S	1.25	1-5/8-12	1-5/8-12	3.4	3.71	1.92	
C1CV32	FF5163-2424S	1.50	1-7/8-12	1-7/8-12	3.95	4.33	2.88	

Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread T1	Thread T2	A (in)	B (in)	Wt.	Price Each
C1BS35	504095-6S	0.38	9/16-18	9/16-18	2.18	1.31	0.11	
C1BS36	504095-8S	0.50	3/4-16	3/4-16	2.43	1.78	0.21	
C1BS32	504095-10S	0.63	7/8-14	7/8-14	2.57	2.07	0.31	
C1BS33	504095-12S	0.75	1-1/16-12	1-1/16-12	3.73	2.49	0.58	
C1BS34	504095-16S	1.0	1-5/16-12	1-5/16-12	4.58	2.79	0.99	

Catalog Part No.	Aeroquip Model	Thread T1	Thread T2	Thread T3	A (in)	B (in)	Wt.	Price Each
C1BH56	2603-03-03-03	3/8-24	3/8-24	3/8-24	0.84	1.68	0.15	
C1KT27	AJ-04Z	7/16-20	7/16-20	7/16-20	0.96	1.93		
C1AX95	2033-4-4S	7/16-20	7/16-20	7/16-20	0.89	1.78	0.07	
C1KT28	AJ-06Z	9/16-18	9/16-18	9/16-18	1.06	2.12		
C1AX97	2033-6-6S	9/16-18	9/16-18	9/16-18	1.06	2.12	0.14	
C1AX98	2033-8-6-6S	3/4-16	9/16-18	9/16-18	1.25	2.14	0.22	
C1KT29	AJ-08Z	3/4-16	3/4-16	3/4-16	1.26	2.52		
C1AX99	2033-8-8S	3/4-16	3/4-16	3/4-16	1.25	2.50	0.26	
C1AX90	2033-10-10S	7/8-14	7/8-14	7/8-14	1.45	2.90	0.38	
C1KT30	AJ-12Z	1-1/16-12	1-1/16-12	1-1/16-12	1.74	3.48		
C1AX91	2033-12-12S	1-1/16-12	1-1/16-12	1-1/16-12	1.66	3.32	0.65	
C1BH64	2603-14-14-14	1-3/16-12	1-3/16-12	1-3/16-12	1.73	3.46	0.50	
C1KT31	AJ-16Z	1-5/16-12	1-5/16-12	1-5/16-12	1.93	3.86		
C1AX92	2033-16-16S	1-5/16-12	1-5/16-12	1-5/16-12	1.81	3.62	0.87	
C1AX94	2033-20-20S	1-5/8-12	1-5/8-12	1-5/8-12	2.06	4.38	1.82	

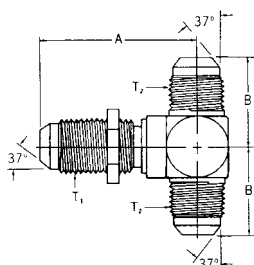
Note: 2603 is Brennan model.

Note: AJ is Eaton-Winner model.

Adapters

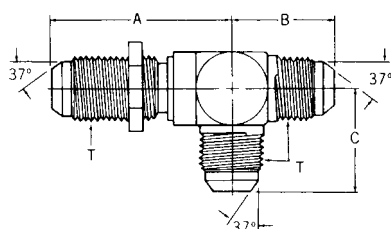


Steel 37° Flare Union



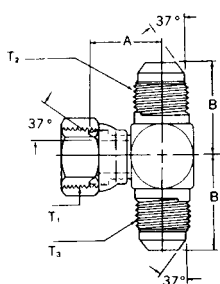
203002

Male 37° Flare Bulkhead Tee



203008

Male 37° Flare Bulkhead Tee



203101

Female 37° Flare Swivel / Male 37°
Flare / Male 37° Flare Tee

Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread T1	Thread T2	A (in)	B (in)	Wt.	Price Each
•C1HX45	203002-6-6S	0.38	9/16-18	9/16-18	1.81	1.06	0.19	
•C1KT32	AJ6JJ-08LNZ		3/4-16	3/4-16	1.81	1.12		
C1AX56	203002-8-8S	0.50	3/4-16	3/4-16	2.11	1.24	0.41	
•C1AX55	203002-12-12S	0.75	1-1/16-12	1-1/16-12	2.67	1.72	0.96	

Note: 2703-LN-*FG is forged Brennan model with locknut.

Note: AJ6JJ is Eaton-Winner model.

Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread T	A (in)	B (in)	C (in)	Wt.	Price Each
C1AX66	203008-6-6S	0.38	9/16-18	1.81	1.09	1.09	0.20	
•C1KT33	AJJ6J-06LNZ	0.38	9/16-18	1.81	1.06	1.06	0.19	
C1HD60	2704-LN-080808FG	0.50	3/4-16	2.11	1.36	1.36	0.41	
•C1MK33	AJJ6J-08LNZ	0.50	3/4-16	2.11	1.26	1.26	0.38	
C1HN70	2704-LN-161616FG	1.00	1-5/16-12	2.81	1.94	1.94	1.36	

Note: 2704 is Brennan model. 2704-*FG is forged Brennan model. 2704-LN models include a lock nut. 2704 models without LN do not include a locknut. Bulkhead Locknuts (Steel) page 1140

Note: AJJ6J is Eaton-Winner model.

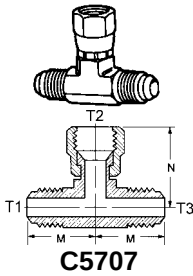
Catalog Part No.	Aeroquip Model	Thread T1	Thread T2	Thread T3	A (in)	B (in)	Wt.	Price Each
C1AX77	203101-4-4S	7/16-20	7/16-20	7/16-20	0.66	0.89	0.09	
C1EW19	6600-04-04-04-FG	7/16-20	7/16-20	7/16-20		0.89	0.08	
•C1KT45	BJ-04Z	7/16-20	7/16-20	7/16-20		0.96	0.09	
C1AX78	203101-6-6S	9/16-18	9/16-18	9/16-18	0.76	1.06	0.16	
•C1KT46	BJ-06Z	9/16-18	9/16-18	9/16-18		1.06	0.15	
C1AX79	203101-8-8S	3/4-16	3/4-16	3/4-16	0.98	1.25	0.32	
•C1KT47	BJ-08Z	3/4-16	3/4-16	3/4-16		1.26	0.32	
C1AX73	203101-10-10S	7/8-14	7/8-14	7/8-14	1.12	1.45	0.47	
•C1KT48	BJ-10Z	7/8-14	7/8-14	7/8-14		1.49	0.44	
C1AX74	203101-12-12S	1-1/16-12	1-1/16-12	1-1/16-12	1.04	1.66	0.70	
•C1KT49	BJ-12Z	1-1/16-12	1-1/16-12	1-1/16-12		1.74	0.75	
C1AX75	203101-16-16S	1-5/16-12	1-5/16-12	1-5/16-12	1.31	1.81	1.18	
•C1KT50	BJ-16Z	1-5/16-12	1-5/16-12	1-5/16-12		1.93	1.15	
•C1AX76	203101-20-20S	1-5/8-12	1-5/8-12	1-5/8-12	1.55	2.06	2.01	
•C1MK42	BJ-20Z	1-5/8-12	1-5/8-12	1-5/8-12		2.20	2.01	

Note: 6600 is Brennan model. 6600-*FG is forged Brennan model.

Note: BJ is Eaton-Winner model.

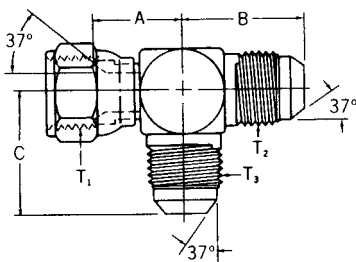


Steel 37° Flare Union



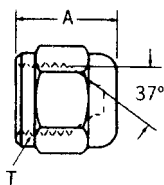
C5707

Male 37° Flare / Female 37° Flare
Swivel / Male 37° Flare Tee (Forged)



203102

Female 37° Flare Swivel / Male 37°
Flare / Male 37° Flare Tee



210292

37° Flare Cap

Catalog Part No.	Weatherhead Model	Thread T1	Thread T2	Thread T3	M (in)	N (in)	Wt.	Price Each
C1KM53	IGC5707X12	1-1/16-12	1-1/16-12	1-1/16-12	1.66	1.75	0.70	

Note: Forged construction

Territory restrictions apply: These products are available only to select international accounts.

Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread T1	Thread T2	A (in)	B (in)	C (in)	Wt.	Price Each
C1KT52	CJ-04Z		7/16-20	7/16-20		0.96	0.96		
C1AX84	203102-4-4S	0.25	7/16-20	7/16-20	0.66	0.89	0.89	0.09	
C1JC24	203102-5-5S	0.31	1/2-20	1/2-20	0.68	0.95	0.95	0.12	
C1KT53	CJ-06Z		9/16-18	9/16-18		1.06	1.06		
C1AX85	203102-6-6S	0.38	9/16-18	9/16-18	0.88	1.06	1.06	0.14	
C1KT54	CJ-08Z		3/4-16	3/4-16		1.26	1.26		
C1AX86	203102-8-8S	0.50	3/4-16	3/4-16	0.96	1.25	1.25	0.32	
C1KT55	CJ-10Z		7/8-14	7/8-14		1.49	1.49		
C1AX80	203102-10-10S	0.63	7/8-14	7/8-14	0.99	1.46	1.45	0.46	
C1KT56	CJ-12Z		1-1/16-12	1-1/16-12		1.74	1.74		
C1AX81	203102-12-12S	0.75	1-1/16-12	1-1/16-12	1.19	1.66	1.66	0.67	
C1KT57	CJ-16Z		1-5/16-12	1-5/16-12		1.93	1.93		
C1AX82	203102-16-16S	1.0	1-5/16-12	1-5/16-12	1.41	1.81	1.81	0.94	
C1KT58	CJ-20Z		1-5/8-12	1-5/8-12		2.19	2.19		
C1AX83	203102-20-20S	1.25	1-5/8-12	1-5/8-12	1.68	2.06	2.06	2.00	

Note: 6602 is Brennan model. 6602-*-FG is forged Brennan model.

Note: CJ is Eaton-Winner model.

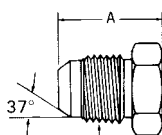
Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread T	A (in)	B (in)	Wt.	Price Each
C1DU44	0304-C-02	0.13	5/16-24	0.50	0.38	0.01	
C1DV75	210292-3S	0.19	3/8-24	0.56	0.44	0.01	
C1BB92	210292-4S	0.25	7/16-20	0.59	0.56	0.02	
C1BB93	210292-5S	0.31	1/2-20	0.61	0.62	0.03	
C1BB94	210292-6S	0.38	9/16-18	0.62	0.69	0.04	
C1BB95	210292-8S	0.50	3/4-16	0.75	0.88	0.07	
C1BB86	210292-10S	0.63	7/8-14	0.84	1.0	0.09	
C1BB87	210292-12S	0.75	1-1/16-12	0.91	1.25	0.16	
C1DU45	0304-C-14	0.88	1-3/16-12	0.97	1.38	0.24	
C1BB88	210292-16S	1.0	1-5/16-12	1.02	1.50	0.24	
C1BB89	210292-20S	1.25	1-5/8-12	1.06	2.0	0.50	
C1BB90	210292-24S	1.50	1-7/8-12	1.19	2.25	0.63	
C1BB91	210292-32S	2	2-1/2-12	1.44	2.88	1.02	

Note: 0304-C is Brennan model.

Adapters



Steel 37° Flare Union



900599
Male 37° Flare Plug

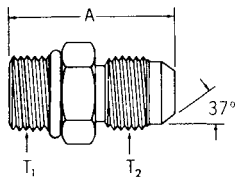
Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread T	A (in)	Wt.	Price Each
•C1DV98	2408-02	0.13	5/16-24	0.70	0.02	
•C1CB20	900599-3S	0.19	3/8-24	0.73	0.02	
C1CB21	900599-4S	0.25	7/16-20	0.80	0.03	
•C1KR69	4J-04Z		7/16-20	0.55		
•C1CB22	900599-5S	0.31	1/2-20	0.80	0.04	
•C1KR70	4J-06Z		9/16-18	0.79		
C1CB23	900599-6S	0.38	9/16-18	0.84	0.06	
•C1KR71	4J-08Z		3/4-16	0.94		
C1CB24	900599-8S	0.50	3/4-16	0.94	0.18	
•C1KR72	4J-10Z		7/8-14	1.08		
C1CB14	900599-10S	0.63	7/8-14	1.10	0.17	
•C1KR73	4J-12Z		1-1/16-12	1.26		
C1CB15	900599-12S	0.75	1-1/16-12	1.28	0.29	
•C1BF74	2408-14	0.88	1-3/16-12	1.31	3.00	
•C1KR74	4J-16Z		1-5/16-12	1.34		
C1CB16	900599-16S	1.0	1-5/16-12	1.33	0.45	
•C1KR75	4J-20Z		1-5/8-12	1.46		
C1CB17	900599-20S	1.25	1-5/8-12	1.45	0.81	
•C1KR76	4J-24Z		1-7/8-12	1.65		
C1CB18	900599-24S	1.50	1-7/8-12	1.65	1.21	
•C1KR77	4J-32Z		2-1/2-12	2.05		
C1CB19	900599-32S	2	2-1/2-12	2.05	2.83	

Note: 2408 is Brennan model.

Note: 4J is Eaton-Winner model.



Steel Straight Thread O-Ring to 37° Flare



202702

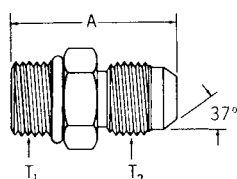
Male SAE O-Ring Boss / Male 37° Flare

Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread T1	Thread T2	A (in)	Wt.	Price Each
•C1EN67	6400-04-02-O	0.25	5/16-24	7/16-20	1.13	0.04	
•C1BX13	6400-04-03-O	0.25	3/8-24	7/16-20	1.17	0.15	
C1AX20	202702-4-4S	0.25	7/16-20	7/16-20	1.23	0.03	
•C1KQ20	1JO-04Z	0.25	7/16-20	7/16-20	1.22		
•C1BX16	6400-05-04-O	0.31	7/16-20	1/2-20	1.24	0.14	
•C1KQ21	1JO-06-04Z	0.38	7/16-20	9/16-18	1.27		
C1AX21	202702-4-6S	0.38	7/16-20	9/16-18	1.27	0.05	
•C1AX22	202702-4-8S	0.50	7/16-20	3/4-16	1.49	0.15	
•C1BX14	6400-04-05-O	0.25	1/2-20	7/16-20	1.23	0.14	
•C1AX23	202702-5-5S	0.31	1/2-20	1/2-20	1.23	0.05	
•C1AX24	202702-5-6S	0.38	1/2-20	9/16-18	1.27	0.04	
•C1BX19	6400-08-05-O	0.50	1/2-20	3/4-16	1.52	0.25	
C1AX26	202702-6-4S	0.25	9/16-18	7/16-20	1.29	0.06	
•C1KQ17	1JO-04-06Z	0.25	9/16-18	7/16-20	1.29		
•C1KQ25	1JO-06Z	0.38	9/16-18	9/16-18	1.30		
C1AX27	202702-6-6S	0.38	9/16-18	9/16-18	1.30	0.06	
C1AX28	202702-6-8S	0.50	9/16-18	3/4-16	1.44	0.11	
•C1KQ26	1JO-08-06Z	0.50	9/16-18	3/4-16	1.46		
•C1AX25	202702-6-10S	0.63	9/16-18	7/8-14	1.71	0.16	
C1AX31	202702-8-4S	0.25	3/4-16	7/16-20	1.37	0.12	
•C1KQ18	1JO-04-08Z	0.25	3/4-16	7/16-20	1.30		
C1AX33	202702-8-6S	0.38	3/4-16	9/16-18	1.38	0.12	
•C1KQ22	1JO-06-08Z	0.38	3/4-16	9/16-18	1.38		
•C1KQ30	1JO-08Z	0.50	3/4-16	3/4-16	1.48		
C1AX34	202702-8-8S	0.50	3/4-16	3/4-16	1.48	0.12	
•C1AX29	202702-8-10S	0.63	3/4-16	7/8-14	1.64	0.16	
•C1KQ31	1JO-10-08Z	0.63	3/4-16	7/8-14	1.63		
•C1KQ34	1JO-12-08Z	0.75	3/4-16	1-1/16-12	1.94		
C1AX30	202702-8-12S	0.75	3/4-16	1-1/16-12	1.94	0.27	
•C1BX26	6400-16-08-O	1.00	3/4-16	1-5/16-12	1.89	0.35	
•C1KQ19	1JO-04-10Z	0.25	7/8-14	7/16-20	1.48		
C1AW84	202702-10-4S	0.25	7/8-14	7/16-20	1.49	0.20	
•C1KQ23	1JO-06-10Z	0.38	7/8-14	9/16-18	1.49		
C1AW85	202702-10-6S	0.38	7/8-14	9/16-18	1.50	0.15	
C1AW86	202702-10-8S	0.50	7/8-14	3/4-16	1.60	0.18	
•C1KQ27	1JO-08-10Z	0.50	7/8-14	3/4-16	1.57		
C1AW81	202702-10-10S	0.63	7/8-14	7/8-14	1.70	0.19	
•C1KQ33	1JO-10Z	0.63	7/8-14	7/8-14	1.67		
•C1KQ35	1JO-12-10Z	0.75	7/8-14	1-1/16-12	2.00		
C1AW82	202702-10-12S	0.75	7/8-14	1-1/16-12	1.88	0.26	
•C1AW83	202702-10-16S	1.00	7/8-14	1-5/16-12	2.07	0.38	
•C1BX15	6400-04-12-O	0.25	1-1/16-12	7/16-20	1.65	0.26	
C1AW91	202702-12-6S	0.38	1-1/16-12	9/16-18	1.66	0.30	
•C1KQ24	1JO-06-12Z	0.38	1-1/16-12	9/16-18	1.57		
•C1KQ28	1JO-08-12Z	0.50	1-1/16-12	3/4-16	1.76		
C1AW92	202702-12-8S	0.50	1-1/16-12	3/4-16	1.76	0.32	
•C1KQ32	1JO-10-12Z	0.63	1-1/16-12	7/8-14	1.86		
C1AW87	202702-12-10S	0.63	1-1/16-12	7/8-14	1.86	0.32	
C1AW88	202702-12-12S	0.75	1-1/16-12	1-1/16-12	1.97	0.32	

Adapters



Steel Straight Thread O-Ring to 37° Flare



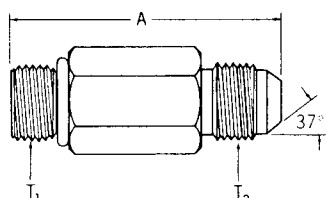
202702

Male SAE O-Ring Boss / Male 37° Flare

Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread T1	Thread T2	A (in)	Wt.	Price Each
•C1KQ38	1JO-12Z	0.75	1-1/16-12	1-1/16-12	1.97		
•C1KQ39	1JO-16-12Z	1.00	1-1/16-12	1-5/16-12	2.07		
C1AW89	202702-12-16S	1.00	1-1/16-12	1-5/16-12	2.04	0.39	
•C1AW90	202702-12-20S	1.25	1-1/16-12	1-5/8-12	2.30	0.60	
•C1AX11	202702-16-8S	0.50	1-5/16-12	3/4-16	1.79	0.48	
•C1KQ29	1JO-08-16Z	0.50	1-5/16-12	3/4-16	1.80		
•C1AW96	202702-16-10S	0.63	1-5/16-12	7/8-14	1.89	0.50	
•C1KQ36	1JO-12-16Z	0.75	1-5/16-12	1-1/16-12	1.89		
C1AW97	202702-16-12S	0.75	1-5/16-12	1-1/16-12	1.99	0.48	
C1AW98	202702-16-16S	1.00	1-5/16-12	1-5/16-12	2.04	0.45	
•C1KQ42	1JO-16Z	1.00	1-5/16-12	1-5/16-12	1.93		
C1AW99	202702-16-20S	1.25	1-5/16-12	1-5/8-12	2.33	0.67	
•C1KQ43	1JO-20-16Z	1.25	1-5/16-12	1-5/8-12	2.22		
C1AX12	202702-20-12S	0.75	1-5/8-12	1-1/16-12	2.08	0.68	
•C1KQ37	1JO-12-20Z	0.75	1-5/8-12	1-1/16-12	2.07		
•C1KQ40	1JO-16-20Z	1.00	1-5/8-12	1-5/16-12	2.09		
C1AX13	202702-20-16S	1.00	1-5/8-12	1-5/16-12	2.12	0.79	
C1AX14	202702-20-20S	1.25	1-5/8-12	1-5/8-12	2.17	0.74	
•C1KQ45	1JO-20Z	1.25	1-5/8-12	1-5/8-12	2.15		
C1AX15	202702-20-24S	1.50	1-5/8-12	1-7/8-12	2.53	1.02	
•C1KQ46	1JO-24-20Z	1.50	1-5/8-12	1-7/8-12	2.42		
C1AX16	202702-24-16S	1.00	1-7/8-12	1-5/16-12	2.20	0.91	
•C1KQ41	1JO-16-24Z	1.00	1-7/8-12	1-5/16-12	2.09		
C1AX17	202702-24-20S	1.25	1-7/8-12	1-5/8-12	2.24	0.97	
•C1KQ44	1JO-20-24Z	1.25	1-7/8-12	1-5/8-12	2.24		
•C1KQ47	1JO-24Z	1.50	1-7/8-12	1-7/8-12	2.36		
C1AX18	202702-24-24S	1.50	1-7/8-12	1-7/8-12	2.37	1.01	

Note: 6400 is Brennan model. SAE O-Ring Boss O-Rings page 1267

Note: 1JO is Eaton-Winner model.



202713

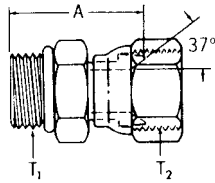
Male SAE O-Ring Boss / Male 37° Flare
(Long)

Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread T1	Thread T2	A (in)	Wt.	Price Each
•C1HD33	202713-4-4S	0.25	7/16-20	7/16-20	2.08	0.10	
•C1HD34	202713-6-6S	0.38	9/16-18	9/16-18	2.31	0.16	
•C1AX35	202713-8-8S	0.50	3/4-16	3/4-16	2.56	0.29	
•C1LB14	1JO-08LZ	0.23	3/4-16	3/4-16	2.66	0.23	
•C1JF40	202713-12-12S	0.75	1-1/16-12	1-1/16-12	3.61	0.82	

Note: SAE O-Ring Boss O-Rings page 1267



Steel Straight Thread O-Ring to 37° Flare



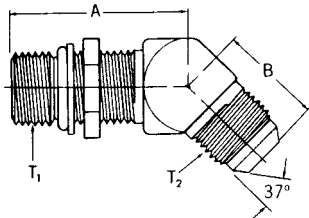
2266

Male SAE O-Ring Boss / Female 37°
Flare Swivel

Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread T1	Thread T2	A (in)	Wt.	Price Each
•C1DY28	6402-04-06-O	0.38	7/16-20	9/16-18	1.41	0.07	
•C1KR57	20J-06Z		9/16-18	9/16-18	0.96		
C1BD84	2266-6-6S	0.38	9/16-18	9/16-18		0.12	
C1BD85	2266-6-8S	0.50	9/16-18	3/4-16	1.18	0.11	
•C1KR56	20J-06-08Z		9/16-18	3/4-16	1.02		
•C1KR58	20J-08Z		3/4-16	3/4-16	1.16		
C1BD86	2266-8-8S	0.50	3/4-16	3/4-16	1.11	0.13	
•C1DV82	2266-10-10S	0.63	7/8-14	7/8-14	1.20	0.19	
•C1KR59	20J-12Z		1-1/16-12	1-1/16-12	1.52		
C1BD82	2266-12-12S	0.75	1-1/16-12	1-1/16-12	1.33	0.32	
•C1KR60	20J-16Z		1-5/16-12	1-5/16-12	1.52		
•C1BD83	2266-16-16S	1.0	1-5/16-12	1-5/16-12	1.51	0.48	
•C1FD41	6402-20-20-O	1.25	1-5/8-12	1-5/8-12	2.42	1.72	

Note: 6402 is Brennan model. SAE O-Ring Boss O-Rings page 1267

Note: 20J is Eaton-Winner model.



2061

Male SAE O-Ring Boss / Male 37° Flare
45° Elbow

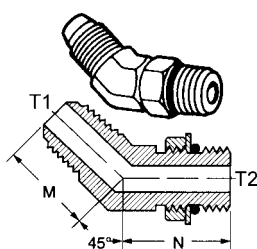
Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread T1	Thread T2	A (in)	B (in)	Wt.	Price Each
•C1AZ28	2061-4-4S	0.25	7/16-20	7/16-20	1.05	0.72	0.10	
•C1MJ16	1JO4-04OGZ	0.25	7/16-20	7/16-20	0.95	0.83	0.08	
•C1AZ29	2061-5-5S	0.31	1/2-20	1/2-20	1.05	0.77	0.12	
•C1DY83	6802-04-06-NWO	0.25	9/16-18	7/16-20	1.14	0.82	0.11	
C1AZ30	2061-6-6S	0.38	9/16-18	9/16-18	1.14	0.83	0.12	
•C1KQ48	1JO4-06OGZ	0.38	9/16-18	9/16-18	1.10	0.93	0.11	
•C1JC54	6802-08-06-NWO-F	0.50	9/16-18	3/4-16	1.17	0.98	0.16	
•C1DY87	6802-06-08-NWO	0.38	3/4-16	9/16-18	1.30	0.87	0.18	
•C1KQ50	1JO4-08OGZ	0.50	3/4-16	3/4-16	1.28	1.02	0.22	
C1AZ31	2061-8-8S	0.50	3/4-16	3/4-16	1.30	0.98	0.21	
•C1KQ49	1JO4-08-10OGZ	0.50	7/8-14	3/4-16	1.52	1.10	0.31	
C1AZ23	2061-10-8S	0.50	7/8-14	3/4-16	1.52	1.00	0.32	
•C1AZ22	2061-10-10S	0.63	7/8-14	7/8-14	1.52	1.11	0.34	
•C1KQ51	1JO4-12OGZ	0.75	1-1/16-12	1-1/16-12	1.71	1.34	0.53	
C1AZ24	2061-12-12S	0.75	1-1/16-12	1-1/16-12	1.73	1.40	0.59	
•C1FD26	2061-12-16S	1.00	1-1/16-12	1-5/16-12	1.86	1.47	0.66	
•C1AZ25	2061-16-12S	0.75	1-5/16-12	1-1/16-12	1.84	1.52	0.83	
C1AZ26	2061-16-16S	1.00	1-5/16-12	1-5/16-12	1.84	1.47	0.84	
•C1KQ52	1JO4-16OGZ	1.00	1-5/16-12	1-5/16-12	1.79	1.50	0.79	
C1JR54	2061-20-16S	1.00	1-5/8-12	1-5/16-12	1.94	1.52	1.14	
•C1AZ27	2061-20-20S	1.25	1-5/8-12	1-5/8-12	1.94	1.63	1.37	

Note: 6802 is Brennan model, 6802-*F is forged Brennan model. SAE O-Ring Boss O-Rings page 1267

Note: 1JO4 is Eaton-Winner model.

Adapters

Steel Straight Thread O-Ring to 37° Flare



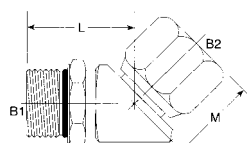
C5365

Male 37° Flare / Male Straight Thread
O-Ring 45° Elbow (Forged)

Catalog Part No.	Weatherhead Model	Tube O.D. (in)	Thread T1	Thread T2	M (in)	N (in)	Wt.	Price Each
C1JH73	IGC5365X6	3/8	9/16-18	9/16-18	0.83	1.14	0.10	
C1JH74	IGC5365X8	1/2	3/4-16	3/4-16	0.98	1.30	0.20	

Note: Forged construction

Territory restrictions apply: These products are available only to select international accounts.

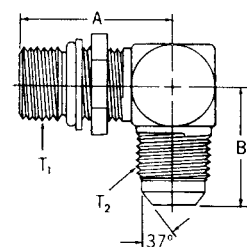


6810-NWO

Male SAE O-Ring Boss / Female 37°
Flare Swivel

Catalog Part No.	Brennan Model	Tube O.D. (in)	Thread B1	Thread B2	L (in)	M (in)	Wt.	Price Each
C1DZ49	6810-08-08-NWO	0.50	3/4-16	3/4-16	1.23	1.26	0.26	

Note: SAE O-Ring Boss O-Rings page 1267

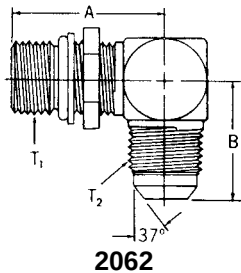


2062

Male SAE O-Ring Boss / Male 37° Flare
90° Elbow

Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread T1	Thread T2	A (in)	B (in)	Wt.	Price Each
C1BX90	6801-03-03-NWO	0.19	3/8-24	3/8-24	0.92	0.86	0.10	
C1AZ49	2062-4-4S	0.25	7/16-20	7/16-20	1.03	0.89	0.09	
C1KQ54	1J09-04OGZ		7/16-20	7/16-20	1.07	0.96		
C1BX92	6801-05-04-NWO	0.31	7/16-20	1/2-20	1.06	0.98	0.15	
C1AZ50	2062-4-6S	0.38	7/16-20	9/16-18	1.19	1.06	0.10	
C1KQ55	1J09-06-04OGZ		7/16-20	9/16-18	1.18	1.06		
C1BX97	6801-08-04-NWO	0.50	7/16-20	3/4-16	1.18	1.25	0.15	
C1BX91	6801-04-05-NWO	0.25	1/2-20	7/16-20	1.13	0.95	0.15	
C1AZ51	2062-5-5S	0.31	1/2-20	1/2-20	1.09	0.95	0.10	
C1AZ52	2062-5-6S	0.38	1/2-20	9/16-18	1.19	1.06	0.10	
C1AZ53	2062-6-4S	0.25	9/16-18	7/16-20	1.25	1.05	0.12	
C1KQ53	1J09-04-06OGZ		9/16-18	7/16-20	1.25	1.05		
C1AZ54	2062-6-6S	0.38	9/16-18	9/16-18	1.25	1.06	0.15	
C1KQ59	1J09-06OGZ		9/16-18	9/16-18	1.25	1.06		
C1AZ55	2062-6-8S	0.50	9/16-18	3/4-16	1.32	1.25	0.19	
C1KQ60	1J09-08-06OGZ		9/16-18	3/4-16	1.32	1.30		
C1BX99	6801-10-06-NWO	0.63	9/16-18	7/8-14	1.40	1.45	0.38	
C1BX94	6801-05-08-NWO	0.31	3/4-16	1/2-20	1.45	1.09	0.30	
C1KQ56	1J09-06-08OGZ		3/4-16	9/16-18	1.45	1.18		
C1AZ58	2062-8-6S	0.38	3/4-16	9/16-18	1.45	1.14	0.21	
C1KQ65	1J09-08OGZ		3/4-16	3/4-16	1.45	1.18		
C1AZ59	2062-8-8S	0.50	3/4-16	3/4-16	1.45	1.25	0.25	
C1KQ66	1J09-10-08OGZ		3/4-16	7/8-14	1.57	1.50		
C1AZ56	2062-8-10S	0.63	3/4-16	7/8-14	1.54	1.45	0.32	
C1KQ69	1J09-12-08OGZ		3/4-16	1-1/16-12	1.73	1.77		

Steel Straight Thread O-Ring to 37° Flare



Male SAE O-Ring Boss / Male 37° Flare
90° Elbow

Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread T1	Thread T2	A (in)	B (in)	Wt.	Price Each
•C1AZ57	2062-8-12S	0.75	3/4-16	1-1/16-12			0.49	
•C1BY17	6801-16-08-NWO	1.0	3/4-16	1-5/16-12	1.74	1.81	0.82	
•C1KQ57	1J09-06-10OGZ		7/8-14	9/16-18	1.73	1.26		
C1AZ34	2062-10-6S	0.38	7/8-14	9/16-18	1.70	1.14	0.37	
•C1KQ61	1J09-08-10OGZ		7/8-14	3/4-16	1.73	1.37		
C1AZ35	2062-10-8S	0.50	7/8-14	3/4-16	1.71	1.25	0.34	
•C1KQ68	1J09-10OGZ		7/8-14	7/8-14	1.73	1.49		
C1AZ32	2062-10-10S	0.63	7/8-14	7/8-14	1.71	1.45	0.36	
•C1KQ70	1J09-12-10OGZ		7/8-14	1-1/16-12	1.85	1.74		
•C1AZ33	2062-10-12S	0.75	7/8-14	1-1/16-12	1.78	1.66	0.52	
•C1BY18	6801-16-10-NWO	1.0	7/8-14	1-5/16-12	1.93	1.81	0.65	
•C1BX96	6801-06-12-NWO	0.38	1-1/16-12	9/16-18	1.94	1.29	0.45	
C1AZ39	2062-12-8S	0.50	1-1/16-12	3/4-16	1.94	1.36	0.55	
•C1KQ62	1J09-08-12OGZ		1-1/16-12	3/4-16	2.01	1.49		
•C1AZ36	2062-12-10S	0.63	1-1/16-12	7/8-14	1.93	1.54	0.57	
•C1KQ67	1J09-10-12OGZ		1-1/16-12	7/8-14	2.01	1.61		
•C1KQ72	1J09-12OGZ		1-1/16-12	1-1/16-12	2.01	1.74		
C1AZ37	2062-12-12S	0.75	1-1/16-12	1-1/16-12	1.94	1.66	0.59	
C1AZ38	2062-12-16S	1.0	1-1/16-12	1-5/16-12	2.05	1.81	0.79	
•C1KQ73	1J09-16-12OGZ		1-1/16-12	1-5/16-12	2.15	1.92		
•C1BY15	6801-14-14-NWO	0.88	1-3/16-12	1-3/16-12	2.00	1.72	0.75	
C1AZ44	2062-16-8S	0.50	1-5/16-12	3/4-16	2.05	1.47	0.96	
•C1KQ63	1J09-08-16OGZ		1-5/16-12	3/4-16	2.15	1.63		
•C1AZ41	2062-16-12S	0.75	1-5/16-12	1-1/16-12	2.05	1.76	0.99	
•C1KQ71	1J09-12-16OGZ		1-5/16-12	1-1/16-12	2.15	1.88		
•C1KQ75	1J09-16OGZ		1-5/16-12	1-5/16-12	2.15	1.92		
C1AZ42	2062-16-16S	1.0	1-5/16-12	1-5/16-12	2.05	1.81	0.30	
C1AZ43	2062-16-20S	1.25	1-5/16-12	1-5/8-12	2.21	2.06	1.70	
•C1KQ76	1J09-20-16OGZ		1-5/16-12	1-5/8-12	2.34	2.19		
C1AZ45	2062-20-16S	1.0	1-5/8-12	1-5/16-12	2.20	2.09	1.78	
•C1KQ74	1J09-16-20OGZ		1-5/8-12	1-5/16-12	2.32	2.12		
C1AZ46	2062-20-20S	1.25	1-5/8-12	1-5/8-12	2.25	2.06	1.44	
•C1KQ78	1J09-20OGZ		1-5/8-12	1-5/8-12	2.32	2.18		
•C1KQ77	1J09-20-24OGZ		1-7/8-12	1-5/8-12	2.48	2.34		
C1EX61	2062-24-20S	1.25	1-7/8-12	1-5/8-12	2.39	2.20	2.16	
C1AZ48	2062-24-24S	1.50	1-7/8-12	1-7/8-12	2.39	2.33	2.14	
•C1KQ79	1J09-24OGZ		1-7/8-12	1-7/8-12	2.48	2.46		

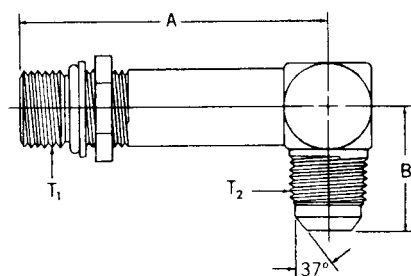
Note: 6801 is Brennan model. SAE O-Ring Boss O-Rings page 1267

Note: 1J09 is Eaton-Winner model.

Adapters

Steel Straight Thread O-Ring to 37° Flare

EATON
Powering Business Worldwide



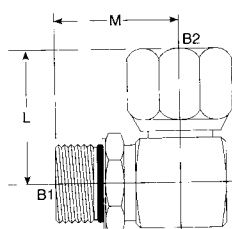
206209

Male SAE O-Ring Boss / Male 37° Flare
Long 90° Elbow

Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread T1	Thread T2	A (in)	B (in)	Wt.	Price Each
•C1KQ58	1JO9-06OGLZ		9/16-18	9/16-18	2.08	1.06		
•C1AZ62	206209-6-6S	0.38	9/16-18	9/16-18	2.08	1.06	0.20	
•C1KQ64	1JO9-08OGLZ		3/4-16	3/4-16	2.50	1.28		
C1AZ63	206209-8-8S	0.50	3/4-16	3/4-16	2.48	1.25	0.35	
•C1FF63	206209-10-10S	0.63	7/8-14	7/8-14	2.89	1.45	0.57	
•C1AZ60	206209-12-12S	0.75	1-1/16-12	1-1/16-12	3.34	1.66	0.94	
C1KA48	206209-20-20S	1.25	1-5/8-12	1-5/8-12	4.41	2.06	3.36	

Note: SAE O-Ring Boss O-Rings page 1267

Note: 1JO9 is Eaton-Winner model.

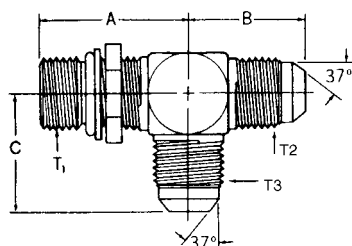


6809-NWO

Male SAE O-Ring Boss / Female 37°
Flare Swivel 90° Elbow

Catalog Part No.	Brennan Model	Tube O.D. (in)	Thread B1	Thread B2	L (in)	M (in)	Wt.	Price Each
•C1DZ40	6809-06-06-NWO	0.38	9/16-18	9/16-18	1.25	1.25	0.16	
•C1DZ42	6809-08-08-NWO	0.50	3/4-16	3/4-16	1.39	1.45	0.31	
•C1DZ43	6809-10-10-NWO	0.63	7/8-14	7/8-14	1.60	1.70	0.40	

Note: SAE O-Ring Boss O-Rings page 1267



203005

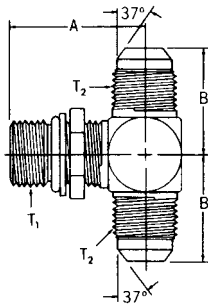
Male SAE O-Ring Boss / Male 37° Flare
/ Male 37° Flare Tee

Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread T1	Thread T2	A (in)	B (in)	C (in)	Wt.	Price Each
•C1KT37	AJJO-04OGZ	0.25	7/16-20	7/16-20	1.07	0.96	0.96		
C1AX62	203005-4-4S	0.25	7/16-20	7/16-20	1.03	0.89	0.89	0.10	
C1HR13	6804-06-04-06-NW O		7/16-20	9/16-18	1.19	1.06	1.06	0.15	
•C1KT38	AJJO-06OGZ	0.38	9/16-18	9/16-18	1.25	1.06	1.06		
C1AX64	203005-6-6S	0.38	9/16-18	9/16-18	1.25	1.06	1.06	0.15	
•C1KT39	AJJO-08OGZ	0.50	3/4-16	3/4-16	1.45	1.30	1.30		
C1AX65	203005-8-8S	0.50	3/4-16	3/4-16	1.45	1.25	1.25	0.31	
•C1KT40	AJJO-12OGZ	0.75	1-1/16-12	1-1/16-12	2.01	1.74	1.74		
C1AX61	203005-12-12S	0.75	1-1/16-12	1-1/16-12	1.94	1.66	1.66	0.81	
C1ES74	203005-16-16S	1.00	1-5/8-12	1-5/8-12	2.05	1.81	1.81	1.02	

Note: 6804 is Brennan model. SAE O-Ring Boss O-Rings page 1267

Note: AJJO is Eaton-Winner model.

Steel Straight Thread O-Ring to 37° Flare



203003

Male SAE O-Ring Boss / Male 37° Flare

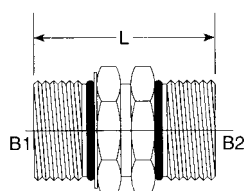
Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread T1	Thread T2	A (in)	B (in)	Wt.	Price Each
•C1AX58	203003-4-4S	0.25	7/16-20	7/16-20	1.03	0.89	0.10	
•C1AX59	203003-6-6S	0.38	9/16-18	9/16-18	1.25	1.06	0.17	
•C1KT43	AJOJ-08OGZ		3/4-16	3/4-16	1.45	1.06		
C1AX60	203003-8-8S	0.50	3/4-16	3/4-16	1.45	1.25	0.34	
•C1KT44	AJOJ-12OGZ		1-1/16-12	1-1/16-12	2.01	1.74		

Note: 6803-*F is forged Brennan model. SAE O-Ring Boss O-Rings page 1267

Note: AJOJ is Eaton-Winner model.

Adapters

Steel Straight Thread O-Ring to Straight Thread O-Ring

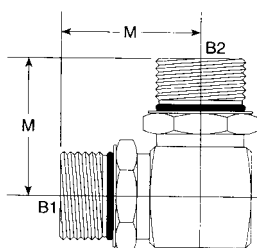


3474-NWO

Male SAE O-Ring Boss Adjustable /
Male SAE O-Ring Boss

Catalog Part No.	Brennan Model	Tube O.D. (in)	Thread B1	Thread B2	L (in)	Wt.	Price Each
•C1ES94	3474-06-06-NWO	0.38	9/16-18	9/16-18	1.50	0.10	
•C1ES95	3474-08-08-NWO	0.50	3/4-16	3/4-16	1.56	0.19	
•C1ES97	3474-12-12-NWO	0.75	1-1/16-12	1-1/16-12	2.32	0.47	
•C1HD79	3474-16-16-NWO	1.00	1-5/16-12	1-5/16-12	2.13	0.63	

Note: 6403 is Tompkins model which is rigid both ends (not adjustable). SAE O-Ring Boss O-Rings page 1267

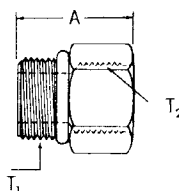


6807-NWO

Male SAE O-Ring Boss Adjustable /
Male SAE O-Ring Boss 90° Elbow

Catalog Part No.	Brennan Model	Tube O.D. (in)	Thread B1	Thread B2	M (in)	Wt.	Price Each
•C1EU11	6807-04-04-NWO	0.25	7/16-20	7/16-20	1.0	0.09	
•C1EU13	6807-08-08-NWO	0.50	3/4-16	3/4-16	1.47	0.33	
•C1EU14	6807-10-10-NWO	0.63	7/8-14	7/8-14	1.47	0.49	

Note: SAE O-Ring Boss O-Rings page 1267

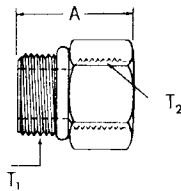


FF1010

Male SAE O-Ring Boss / Female SAE
O-Ring Boss

Catalog Part No.	Aeroquip Model	Thread T1	Thread T2	A (in)	Wt.	Price Each
•C1DY34	6410-04-06-O	7/16-20	9/16-18	1.16	0.08	
•C1DY35	6410-05-04-O	1/2-20	7/16-20	1.22	0.07	
•C1DY36	6410-06-04-O	9/16-18	7/16-20	1.03	0.07	
•C1DY37	6410-06-08-O	9/16-18	3/4-16	1.39	0.13	
•C1DY38	6410-08-04-O	3/4-16	7/16-20	0.81	0.08	
•C1CU56	FF1010-0806S	3/4-16	9/16-18	1.06	0.11	
•C1DY40	6410-08-08-O	3/4-16	3/4-16	1.39	0.15	
•C1DY41	6410-08-10-O	3/4-16	7/8-14	1.48	0.19	
•C1CU57	FF1010-1006S	7/8-14	9/16-18	0.81	0.09	
•C1CU58	FF1010-1008S	7/8-14	3/4-16	1.25	0.13	
•C1DY44	6410-10-12-O	7/8-14	1-1/16-12	1.66	0.33	
•C1DY45	6410-12-04-O	1-1/16-12	7/16-20	1.09	0.23	
•C1EC64	FF1010-1206S	1-1/16-12	9/16-18	1.00	0.22	
•C1CU59	FF1010-1208S	1-1/16-12	3/4-16	1.00	0.17	
•C1HX78	FF1010-1210S	1-1/16-12	7/8-14	1.44	0.27	

Steel Straight Thread O-Ring to Straight Thread O-Ring



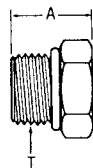
FF1010

Male SAE O-Ring Boss / Female SAE O-Ring Boss

Catalog Part No.	Aeroquip Model	Thread T1	Thread T2	A (in)	Wt.	Price Each
•C1EC65	FF1010-1216S	1-1/16-12	1-5/16-12	1.79	0.34	
•C1DY51	6410-16-06-O	1-5/16-12	9/16-18	1.13	0.35	
•C1HK63	FF1010-1608S	1-5/16-12	3/4-16	1.00	0.31	
•C1EQ30	FF1010-1612S	1-5/16-12	1-1/16-12	1.59	0.34	
•C1KS61	50-16-12Z	1-5/16-12	1-1/16-12	1.71	0.47	
•C1MK17	50-20-12Z	1-5/8-12	1-1/16-12	1.38	0.70	
C1CU60	FF1010-2016S	1-5/8-12	1-5/16-12	1.00	0.79	
•C1KS62	50-20-16Z	1-5/8-12	1-5/16-12	1.65	0.79	
•C1DY60	6410-24-12-O	1-7/8-12	1-1/16-12	1.00	0.64	
•C1DY62	6410-24-20-O	1-7/8-12	1-5/8-12	1.58	0.76	

Note: 6410 is Brennan model. SAE O-Ring Boss O-Rings page 1267

Note: 50 is Eaton-Winner model.



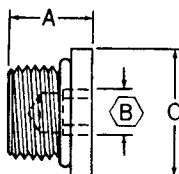
900598

Male SAE O-Ring Boss Plug

Catalog Part No.	Aeroquip Model	Thread T	A (in)	Wt.	Price Each
•C1KR86	40-04Z	7/16-20	0.67		
C1CA99	900598-4S	7/16-20	0.67	0.04	
•C1CB11	900598-5S	1/2-20	0.67	0.04	
C1CB12	900598-6S	9/16-18	0.73	0.08	
•C1KR87	40-06Z	9/16-18	0.73		
•C1KR88	40-08Z	3/4-16	0.80		
C1CB13	900598-8S	3/4-16	0.80	0.11	
•C1KR89	40-10Z	7/8-14	0.93		
C1CA93	900598-10S	7/8-14	0.93	0.18	
•C1KR90	40-12Z	1-1/16-12	1.09		
C1CA94	900598-12S	1-1/16-12	1.09	0.32	
•C1KR91	40-16Z	1-5/16-12	1.12		
C1CA95	900598-16S	1-5/16-12	1.12	0.49	
•C1KR92	40-20Z	1-5/8-12	1.20		
C1CA96	900598-20S	1-5/8-12	1.20	0.81	
•C1KR93	40-24Z	1-7/8-12	1.27		
•C1CA98	900598-32S	2-1/2-12	1.43	2.31	

Note: SAE O-Ring Boss O-Rings page 1267

Note: 40 is Eaton-Winner model.



FF2138

Male SAE O-Ring Boss Plug Hex Socket

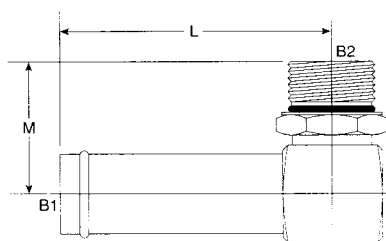
Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread T	A (in)	B (in)	C (in)	Wt.	Price Each
•C1EL58	FF2138-03S	0.19	3/8-24	0.38	0.13	0.50	0.01	
•C1KR94	40N-04Z		7/16-20	0.45	0.20			
C1CV21	FF2138-04S	0.25	7/16-20	0.45	0.19	0.56	0.01	
•C1KR95	40N-06Z		9/16-18	0.48	0.24			
C1CV23	FF2138-06S	0.38	9/16-18	0.48	0.25	0.69	0.03	
•C1KR96	40N-08Z		3/4-16	0.56	0.31			
C1CV24	FF2138-08S	0.50	3/4-16	0.56	0.31	0.88	0.05	
•C1CV25	FF2138-10S	0.63	7/8-14	0.63	0.38	1.0	0.50	
•C1CV26	FF2138-12S	0.75	1-1/16-12	0.75	0.56	1.25	0.14	
•C1FQ26	FF2138-16S	1.00	1-5/16-12	0.77	1.50	0.63	0.24	

Note: SAE O-Ring Boss O-Rings page 1267

Note: 40N is Eaton-Winner model.

Adapters

Steel Straight Thread O-Ring to Hose



4601

Hose Barb / Male SAE O-Ring Boss 90°
Elbow

Catalog Part No.	Brennan Model	Hose ID (in)	Thread B2	L (in)	M (in)	Wt.	Price Each
•C1GE66	4601-08-08-NWO	1/2	3/4-16	1.91	1.45	0.22	
•C1FQ72	4601-12-12-NWO	3/4	1-1/16-12	2.06	1.94	0.56	

Note: SAE O-Ring Boss O-Rings page 1267

Hydraulic Power & Control

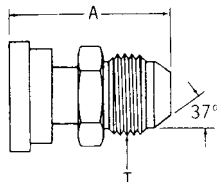
Pneumatic Power & Control

Fluid Conveying

Miscellaneous Products

Indexes & Technical Information

Steel SAE Split Flange to 37° Flare



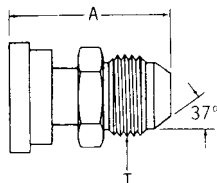
500025

Code 61 Split Flange / Male 37° Flare
(For pressures thru 4 Light Spiral Hose)

Catalog Part No.	Aeroquip Model	Split Flange Size	Tube O.D.	Thread T	A (in)	Wt.	Price Each
•C1BR95	500025-8S	0.50	0.50	3/4-16	1.66	0.18	
•C1KP32	1JFL-12Z	0.75		1-1/16-12	1.99		
C1BR88	500025-12S	0.75	0.75	1-1/16-12	1.91	0.35	
•C1BR89	500025-16-12S	1.00	0.75	1-1/16-12	2.30	0.48	
•C1KP33	1JFL-16Z	1.00		1-5/16-12	2.10		
C1BR90	500025-16S	1.00	1.00	1-5/16-12	2.01	0.50	
•C1BR91	500025-20-16S	1.25	1.00	1-5/16-12	2.35	0.61	
•C1BR92	500025-20S	1.25	1.25	1-5/8-12	2.46	0.75	
•C1BR93	500025-24-20S	1.50	1.25	1-5/8-12	2.46	0.90	
•C1KP34	1JFL-24Z	1.50		1-7/8-12	2.33		

Note: Flange O-Rings page 1266

Note: 1JFL is Eaton-Winner model.



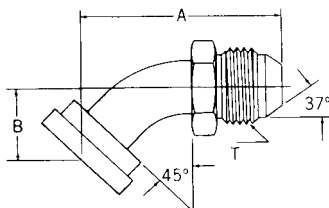
FF5239

Code 61 Split Flange / Male 37° Flare
(For pressures thru 4 Heavy Spiral Hose)

Catalog Part No.	Aeroquip Model	Split Flange Size	Tube O.D.	Thread T	A (in)	Wt.	Price Each
•C1JF26	FF5239-1616S	1.00	1.00	1-5/16-12	3.76	0.78	

Note: Flange O-Rings page 1266

Note: FF5239 is longer than 500025.



500023 / FF5238

Code 61 Split Flange / Male 37° Flare
45° Elbow
(For pressures thru 4 Light Spiral Hose)

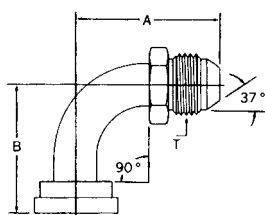
Catalog Part No.	Aeroquip Model	Split Flange Size	Tube O.D.	Thread T	A (in)	B (in)	Wt.	Price Each
•C1BR72	500023-12S	0.75	0.75	1-1/16-12	2.77	1.01	0.42	
•C1BR73	500023-16S	1.0	1.0	1-5/16-12	3.04	1.13	0.64	
•C1BR74	500023-20S	1.25	1.25	1-5/8-12	3.24	1.12	0.89	

Note: Flange O-Rings page 1266

Note: FF5238 models have different dimensions

Adapters

Steel SAE Split Flange to 37° Flare



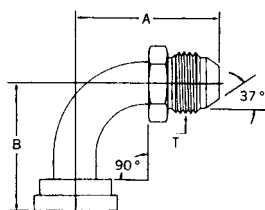
500024

Code 61 Split Flange / Male 37° Flare
90° Elbow
(For pressures thru 4 Light Spiral Hose)

Catalog Part No.	Aeroquip Model	Split Flange Size	Tube O.D.	Thread T	A (in)	B (in)	Wt.	Price Each
•C1BR76	500024-12S	0.75	0.75	1-1/16-12	2.49	2.15	0.46	
•C1BR77	500024-16-12S	1.00	0.75	1-1/16-12	2.49	2.15	0.55	
•C1BR78	500024-16S	1.00	1.0	1-5/16-12	2.79	2.37	0.73	
•C1BR79	500024-20-12S	1.25	0.75	1-1/16-12	2.49	2.15	0.64	
•C1BR80	500024-20-16S	1.25	1.0	1-5/16-12	2.79	2.37	0.81	
•C1BR81	500024-20S	1.25	1.25	1-5/8-12	3.14	2.50	1.04	
•C1BR82	500024-24-16S	1.50	1.0	1-5/16-12	2.79	2.44	1.04	
•C1BR84	500024-24S	1.50	1.50	1-7/8-12	3.58	2.75	1.46	
•C1KP35	1JFL9-24-32Z	2.00		1-7/8-12	2.93	4.25		
•C1BR85	500024-32-24S	2.00	1.50	1-7/8-12	3.58	2.75	1.74	

Note: Flange O-Rings page 1266

Note: 1JFL9 is Eaton-Winner model.

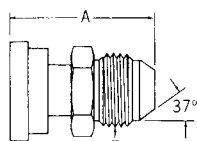


FF5162

Code 61 Split Flange / Male 37° Flare
90° Elbow
(For pressures thru 4 Heavy Spiral)

Catalog Part No.	Aeroquip Model	Split Flange Size	Tube O.D.	Thread T	A (in)	B (in)	Wt.	Price Each
•C1CV27	FF5162-1616S	1.0	1.0	1-5/16-12	3.41	2.38	0.88	
•C1ED14	FF5162-2016S	1.25	1.0	1-5/16-12	3.41	2.38	0.99	
•C1ED15	FF5162-2020S	1.25	1.25	1-5/8-12	3.71	2.62	1.23	
•C1ED16	FF5162-2420S	1.50	1.25	1-5/8-12	4.33	3.12	1.40	

Note: Flange O-Rings page 1266



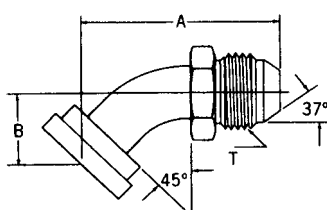
FF5541

Code 62 Split Flange / Male 37° Flare
(For pressures thru 6 Spiral)

Catalog Part No.	Aeroquip Model	Split Flange Size	Tube O.D.	Thread T	A (in)	Wt.	Price Each
•C1CV37	FF5541-1212S	0.75	0.75	1-1/16-12	3.17	0.50	
•C1KP36	1JFS-16Z	1.00		1-5/16-12	2.47		
•C1CV38	FF5541-1616S	1.00	1.0	1-5/16-12	3.76	0.81	
•C1ZX87	FF5541-2016S	1.25	1.00	1-5/16-12	3.76	1.11	
•C1KP37	1JFS-20Z	1.25		1-5/8-12	2.71		
•C1CV39	FF5541-2020S	1.25	1.25	1-5/8-12	3.84	1.20	

Note: Flange O-Rings page 1266

Note: 1JFS is Eaton-Winner model.



FF5539

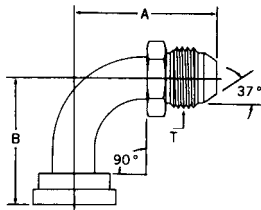
Code 62 Split Flange / Male 37° Flare
45° Elbow (For pressures thru 6 spiral)

Catalog Part No.	Aeroquip Model	Split Flange Size	Tube O.D.	Thread T	A (in)	B (in)	Wt.	Price Each
•C1FM83	1803-2424	1.50	1.50	1-7/8-12			2.08	

Note: Flange O-Rings page 1266

Note: 1803 is Brennan model.

Steel SAE Split Flange to 37° Flare



FF5540

Code 62 Split Flange / Male 37° Flare
90° Elbow
(For pressures thru 6 Spiral)

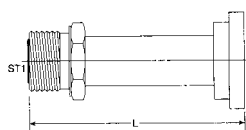
Catalog Part No.	Aeroquip Model	Split Flange Size	Tube O.D.	Thread T	A (in)	B (in)	Wt.	Price Each
C1HY73	1804-16-12-FG	0.75	1.00	1-5/16-12	2.56	1.80	1.08	
C1ZX89	FF5540-1612S	1.0	0.75	1-1/16-12	2.81	2.13	0.67	
C1CV35	FF5540-1616S	1.0	1.00	1-5/16-12	3.41	2.38	0.93	
C1ZX88	FF5540-2016S	1.25	1.00	1-5/8-12	3.41	2.38	1.07	
C1CV36	FF5540-2020S	1.25	1.25	1-5/16-12	3.71	2.62	1.43	

Note: Flange O-Rings page 1266

Note: 1804 is Brennan model. 1804-*FG is forged Brennan model.

Adapters

Steel SAE Split Flange to O-Ring Face Seal

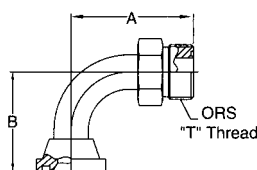


FS1700

Code 61 Split Flange / Male O-Ring
Face Seal

Catalog Part No.	Brennan Model	Tube O.D. (in)	Thread ST1	Flange Size	L (in)	Wt.	Price Each
•C1JS43	FS1700-16-16	1.00	1-7/16-12	1	2.80	0.97	

Note: Flange O-Rings page 1266 ORS® O-Rings page 1266



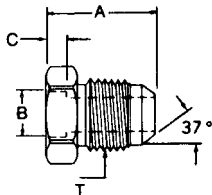
FF5945

Code 62 Split Flange / O-Ring Face
Seal 90° Elbow

Catalog Part No.	Aeroquip Model	Split Flange Size	Thread T	A (in)	B (in)	Wt.	Price Each
•C1JS29	FF5945T1616S	1.00	1-7/16-12	3.22	2.37	1.07	

Note: Flange O-Rings page 1266 ORS® O-Rings page 1266

Steel Braze & Weld to 37° Flare



73014

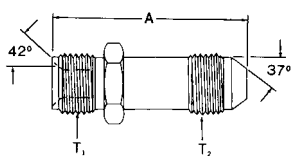
Braze Port / Male 37° Flare

Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread T	A (in)	B (in)	C (in)	Wt.	Price Each
•C1BZ32	73014-4S	0.25	7/16-20	0.74	0.25	0.16	0.02	
•C1BZ33	73014-5S	0.31	1/2-20	0.80	0.31	0.16	0.03	
•C1BZ34	73014-6S	0.38	9/16-18	0.81	0.38	0.16	0.03	
•C1BZ35	73014-8S	0.50	3/4-16	0.94	0.50	0.16	0.07	
•C1BZ27	73014-10S	0.63	7/8-14	1.07	0.63	0.16	0.10	
•C1BZ28	73014-12S	0.75	1-1/16-12	1.24	0.75	0.25	0.15	
•C1BZ29	73014-16S	1.0	1-5/16-12	1.29	1.0	0.25	0.23	
•C1BZ30	73014-20S	1.25	1-5/8-12	1.40	1.25	0.25	0.39	
•C1HJ75	73014-24S	1.50	1-7/8-12	1.58	1.50	0.25	0.58	
•C1BZ31	73014-32S	2	2-1/2-12	1.96	2.0	0.25	1.16	

Adapters

Steel

42° Inverted Flare to 37° Male Flare



202124

Male 42° Inverted Flare / Male 37° Flare

Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread T1	Thread T2	A (in)	Wt.	Price Each
•C1EV62	202124-3-4S	0.25	3/8-24	7/16-20	0.62	0.04	

Hydraulic Power & Control

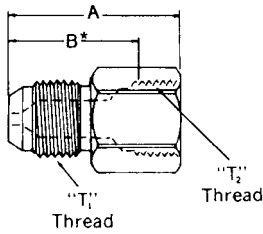
Pneumatic Power & Control

Fluid Conveying

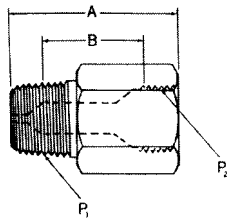
Miscellaneous Products

Indexes & Technical Information

Steel Restrictor



FF1981
Restrictor
Male 37° Flare / Female 37° Flare



FF1980
Restrictor
Male Pipe / Female Pipe

Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread T1	Thread T2	A (in)	Wt.	Price Each
•C1CU93	FF1981-000-0606	0.38	9/16-18	9/16-18	1.19	0.08	
•C1FC48	FF1981-000-0808	0.50	3/4-16	3/4-16	1.36	0.12	

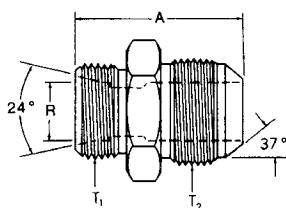
Note: Aeroquip® restrictor adapters are available in orifice sizes from .06 to .25 inches.
Part Number example: Model FF1981-0606 with .125" orifice would be specified as FF1981-125-0606. Model FF1981-000-0606 is a "blank" to be drilled to suit.

Catalog Part No.	Aeroquip Model	Thread P1	Thread P2	A (in)	B (in)	Wt.	Price Each
•C1JC81	FF1980-000-0404	1/4-18	1/4-18	1.39	0.64	0.10	

Note: Aeroquip® restrictor adapters are available in orifice sizes from .06 to .25 inches.
Part Number example: Model FF1980-0404 with .090" orifice would be specified as FF1980-090-0404. Model FF1980-000-0606 is a "blank" to be drilled to suit.

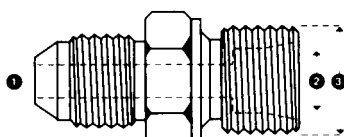
Adapters

Steel Metric to 37° Flare



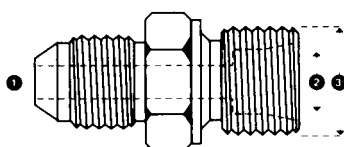
15.063

Male Metric 24° (DIN 3901/3902 1.Rh) /
Male 37° Flare



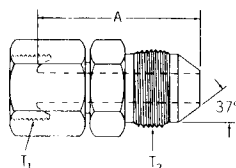
9605

Male 37° Flare / Male Metric Dual
Purpose (Port or Tube)
Low Pressure "L" Series



9606

Male 37° Flare / Male Metric Dual
Purpose (Port or Tube)
High Pressure "S" Series



15.163

Female Metric 24° (DIN 3901/3902 1.Rh)
/ Male 37° Flare

Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread T1 (mm)	Thread T2 (in)	A (in)	R Dia. (mm)	Wt.	Price Each
•C1ZZ26	15.063-8-6	0.38	M14 x 1.5	9/16-18	1.22	8	0.05	
•C1AK67	15.063-15-10	0.63	M22 x 1.5	7/8-14	1.54	15	0.15	
•C1AK68	15.063-18-12	0.75	M26 x 1.5	1-1/16-12	1.69	18	0.25	

Note: A seal washer may be required. Metric Bonded Seals page 1261

Catalog Part No.	Adaptall Model	Thread 1 (JIC)	Tube O.D. 2 (mm)	Thread 3 (mm)	Wt.	Price Each
•C1FQ11	9605-04-10X1.25	7/16-20	--	M10 x 1.25	0.05	
•C1FK34	9605-06-12X1.25	9/16-18	--	M12 x 1.25	0.07	
•C1KN86	9605S-06-L10-16	9/16-18	M10	M16 x 1.5	0.09	
•C1GB57	9605-08-L12-18	3/4-16	M12	M18 x 1.5	0.15	
•C1GB58	9605-10-L15-22	7/8-14	M15	M22 x 1.5	0.21	
•C1FR85	9605-16-L22-30X1	1-5/16-12	M22	M30 x 1.5	0.45	

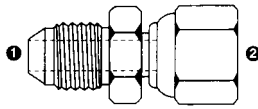
Note: A seal washer may be required. Metric Bonded Seals page 1261

Catalog Part No.	Adaptall Model	Thread 1 (JIC)	Tube O.D. 2 (mm)	Thread 3 (mm)	Wt.	Price Each
•C1ZT54	9606-10-S16-24	7/8-14	M16	M24 x 1.5	0.34	

Note: A seal washer may be required. Metric Bonded Seals page 1261

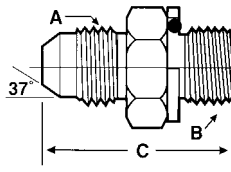
Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread T1	Thread T2	A (in)	Wt.	Price Each
•C1AK70	15.163-4-4	0.25	M12 x 1.5	7/16-20	1.36	0.09	
•C1AK71	15.163-8-6	0.38	M16 x 1.5	9/16-18	1.40	0.13	

Steel Metric to 37° Flare



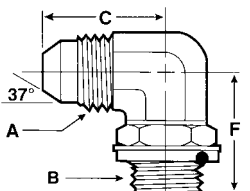
9022

Male 37° Flare / Female Metric Swivel



JM

Male 37° Flare / Metric Male



JM-90

Male 37° Flare / Metric Male 90° Elbow

Catalog Part No.	Adaptall Model	Thread 1 (Male JIC)	Thread 2 (Female Metric Swivel)	Series	Wt.	Price Each
•C1FQ79	9022-06-L08-14	9/16-18	M14 x 1.5	L	0.09	
•C1FQ81	9022-06-L12-18	9/16-18	M18 x 1.5	L	0.14	
•C1FQ83	9022-08-L15-22	3/4-16	M22 x 1.5	L	0.20	
•C1GM76	9022-10-L15-22	3/4-16	M22 x 1.5	L	0.25	

Note: L Series are low pressure, S Series are high pressure.

Catalog Part No.	Voss Model	Tube O.D. (in)	Thread A (in)	Thread B (mm)	C (in)	Wt.	Price Each
C1KP38	1JH-04-10Z		7/16-20	M10 x 1	1.18		
•C1DB37	JM0410	0.25	7/16-20	M10 x 1	1.18	0.07	
•C1DB39	JM0412	0.25	7/16-20	M12 x 1.5	1.22	0.06	
•C1DB41	JM0414	0.25	7/16-20	M14 x 1.5	1.22	0.07	
•C1DB43	JM0614	0.38	9/16-18	M14 x 1.5	1.22	0.20	
•C1DB45	JM0616	0.38	9/16-18	M16 x 1.5	1.32	0.10	
•C1DB47	JM0816	0.50	3/4-16	M16 x 1.5	1.42	0.12	
•C1DB48	JM0818	0.50	3/4-16	M18 x 1.5	1.48	0.16	
•C1FQ34	JM0820	0.50	3/4-16	M20 x 1.5	1.65	0.17	
•C1DB50	JM0822	0.50	3/4-16	M22 x 1.5	1.61	0.21	
•C1DB52	JM1018	0.63	7/8-14	M18 x 1.5	1.58	0.14	
•C1DB54	JM1020	0.63	7/8-14	M20 x 1.5	1.71	0.20	
•C1DB56	JM1022	0.63	7/8-14	M22 x 1.5	1.71	0.21	
•C1DB58	JM1222	0.75	1-1/16-12	M22 x 1.5	1.81	0.23	
•C1DB60	JM1226	0.75	1-1/16-12	M26 x 1.5	1.91	0.25	
•C1DB61	JM1227	0.75	1-1/16-12	M27 x 2	1.95	0.20	
•C1ZX71	JM1633	1.00	1-5/16-12	M33 x 2	2.03	0.49	

Note: Metric Bonded Seals page 1261

Note: GG108-NP is Aeroquip® model which does not come with a seal washer.

Note: 1JH is Eaton-Winner model.

Catalog Part No.	Voss Model	Tube O.D. (in)	Thread A (in)	Thread B (mm)	C (in)	F (in)	Wt.	Price Each
•C1DB38	JM0410-90	0.25	7/16-20	M10 x 1	0.89	1.03	0.10	
•C1DB40	JM0412-90	0.25	7/16-20	M12 x 1.5	0.95	1.09	0.09	
•C1DB42	JM0414-90	0.25	7/16-20	M14 x 1.5	0.95	1.25	0.12	
•C1DB44	JM0614-90	0.38	9/16-18	M14 x 1.5	1.06	1.25	0.13	
•C1DB46	JM0616-90	0.38	9/16-18	M16 x 1.5	1.14	1.45	0.20	
•C1FC55	JM0816-90	0.50	3/4-16	M16 x 1.5	1.25	1.45	0.22	
•C1DB49	JM0818-90	0.50	3/4-16	M18 x 1.5	1.26	1.47	0.24	
•C1DB51	JM0822-90	0.50	3/4-16	M22 x 1.5	1.33	1.70	0.38	
•C1DB53	JM1018-90	0.63	7/8-14	M18 x 1.5	1.41	1.60	0.33	
•C1DB57	JM1022-90	0.63	7/8-14	M22 x 1.5	1.45	1.70	0.40	
•C1DB59	JM1222-90	0.75	1-1/16-12	M22 x 1.5	1.66	1.78	0.53	
•C1EW95	JM1633-90	1.00	1-5/16-12	M33 x 2	1.81	2.05	0.89	

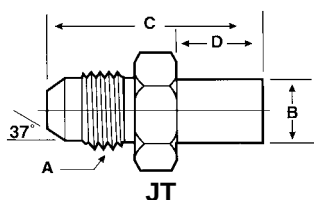
Note: Metric Bonded Seals page 1261

Note: GG308-NP is Aeroquip® model which does not come with a seal washer.

Note: 9069 is Voss model which does not come with a seal washer.

Adapters

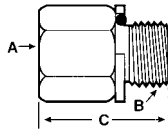
Steel Metric to 37° Flare



Male 37° Flare / Metric Stand Pipe

Catalog Part No.	Voss Model	Tube O.D. (in)	Thread A (in)	B (mm)	C (in)	D (in)	Wt.	Price Each
•C1EE16	JT0406	0.38	7/16-20	6MM	1.58	0.75	0.04	
•C1DB67	JT0408	0.25	7/16-20	8MM	1.68	0.88	0.04	
•C1DB68	JT0610	0.38	7/16-20	10MM	1.55	0.75	0.05	
•C1DB69	JT0812	0.50	3/4-16	12MM	1.97	1.0	0.12	
•C1EE17	JT0814	0.50	3/4-16	14MM	1.89	0.93	0.12	
•C1EE18	JT1015	0.63	7/8-14	15MM	2.03	0.91	0.16	
•C1EE19	JT1016	0.63	7/8-14	16MM	2.07	0.95	0.18	
•C1EE20	JT1216	0.75	1-1/16-12	16MM	2.22	0.95	0.30	
•C1EE21	JT1218	0.75	1-1/16-12	18MM	2.12	0.85	0.28	
•C1EE24	JT1625	1.0	1-5/16-12	25MM	2.54	1.22	0.40	

Steel Metric to Pipe



PM

Female Pipe / Metric Male

Catalog Part No.	Voss Model	Thread A (in)	Thread B (mm)	C (in)	Wt.	Price Each
•C1EE84	PM0210	1/8-27	M10 x 1.0	1.18	0.06	
•C1DH30	PM0412	1/4-18	M12 x 1.5	1.38	0.11	
•C1EE85	PM0414	1/4-18	M14 x 1.5	1.38	0.11	
•C1GA14	PM0614	3/8-18	M14 x 1.5		0.15	
•C1EE86	PM0616	3/8-18	M16 x 1.5	1.47	0.13	
•C1DH31	PM0816	1/2-14	M16 x 1.5	1.67	0.22	
•C1EE87	PM0618	3/8-18	M18 x 1.5	1.51	0.19	
•C1EE88	PM0818	1/2-14	M18 x 1.5	1.69	0.28	
•C1EE89	PM0822	1/2-14	M22 x 1.5	1.77	0.30	
•C1EX11	PM1226	3/4-14	M26 x 1.5	1.80	0.32	
•C1EE90	PM1227	3/4-14	M27 x 2.0	1.80	0.31	
•C1EE91	PM1633	1-11-1/2	M33 x 2.0	2.0	0.58	

Note: 9235 is Adaptall model which does not come with a seal washer. Metric Bonded Seals page 1261

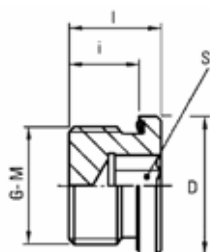
Adapters



Steel
Metric

VOSS®

Hydraulic Components

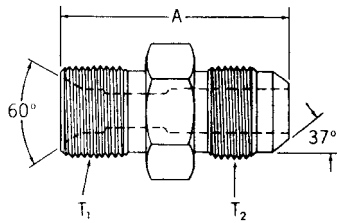


WAL028

Metric Parallel Hex Socket Plug

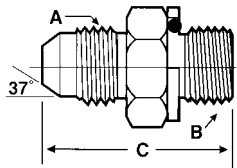
Catalog Part No.	Walterscheid Model	Thread Size G-M (mm)	Diameter D (mm)	Maximum Operating Pressure (bar)	Hex S (mm)	Length l (mm)	Wt.	Price Each
•C1KW66	WAL028302	M 10x1.0	14	400	5	12.0	0.01	
•C1KW67	WAL028303	M 12x1.5	17	400	6	17.0	0.03	
•C1KW68	WAL028304	M 14x1.5	19	400	6	17.0	0.04	
•C1KW69	WAL028305	M 16x1.5	22	400	8	17.0	0.05	
•C1KW73	WAL029844	M 18x1.5	24	400	8	17.0	0.06	
•C1KW71	WAL028307	M 22x1.5	27	400	10	19.0	0.11	
•C1KW72	WAL028308	M 26x1.5	32	400	12	21.0	0.16	

Steel BSPP to 37° Flare



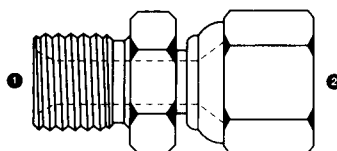
2063

Male BSPP (British Parallel) / Male 37° Flare



JB

Male 37° Flare / Male BSPP (British Parallel)



9021

Male BSPP (British Parallel) / Female JIC Swivel

Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread T1	Thread T2	A (in)	Wt.	Price Each
•C1AZ66	2063-4-4S	0.25	1/4-19	7/16-20	1.38	0.07	
•C1FA57	2063-4-6S	0.38	1/4-19	9/16-18	1.38	0.08	
•C1AZ67	2063-6-6S	0.38	3/8-19	9/16-18	1.43	0.10	
•C1AZ68	2063-6-8S	0.25	3/8-19	3/4-16	1.53	0.15	
•C1AZ70	2063-8-8S	0.50	1/2-14	3/4-16	1.63	0.17	
•C1AZ69	2063-8-10S	0.63	1/2-14	7/8-14	1.73	0.20	
•C1AZ64	2063-12-12S	0.75	3/4-14	1-1/16-12	1.99	0.29	
•C1AZ65	2063-16-16S	1.0	1-11	1-5/16-12	2.09	0.45	

Note: A seal washer may be required. BSP Bonded Seals page 1261

Catalog Part No.	Voss Model	Tube O.D. (in)	Thread A (in)	Thread B (BSPP)	C (in)	Seal Washer	Wt.	Price Each
•C1DA92	JB0402	0.25	7/16-20	1/8-28	1.10	Yes	0.05	
•C1DA94	JB0404	0.25	7/16-20	1/4-19	1.24	Yes	0.07	
•C1DA96	JB0406	0.25	7/16-20	3/8-19	1.30	Yes	0.20	
•C1DA98	JB0604	0.38	9/16-18	1/4-19	1.25	Yes	0.07	
•C1DB11	JB0606	0.38	9/16-18	3/8-19	1.31	Yes	0.10	
•C1DB13	JB0608	0.38	9/16-18	1/2-14	1.51	Yes	0.19	
•C1DB14	JB0806	0.25	3/4-16	3/8-19	1.48	Yes	0.15	
•C1DB16	JB0808	0.25	3/4-16	1/2-14	1.67	Yes	0.12	
•C1FD51	9005-08-12	0.50	3/4-16	3/4-14		No	0.21	
•C1DB19	JB1008	0.63	7/8-14	1/2-14	1.71	Yes	0.22	
•C1FP99	9005-10-10	0.63	7/8-14	5/8-14		No	0.23	
•C1DB21	JB1012	0.63	7/8-14	3/4-14	1.83	Yes	0.31	
•C1DB23	JB1212	0.75	1-1/16-12	3/4-14	1.93	Yes	0.39	
•C1DB25	JB1216	0.75	1-1/16-12	1-11		Yes	0.66	
•C1DB26	JB1612	1.0	1-5/16-12	3/4-14	2.05	Yes	0.25	
•C1DB27	JB1616	1.0	1-5/16-12	1-11	2.20	Yes	0.66	
•C1FD52	9005-16-20	1.0	1-5/16-12	1-1/4-11		No	0.64	
•C1EW93	JB2020	1.25	1-5/8-12	1-1/4-11	2.24	Yes	0.91	
•C1JB23	JB2424	1.50	1-7/8-12	1-1/2-11	2.44	Yes	1.22	

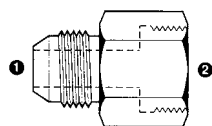
Note: 9005 is Adaptall model, which does not include a seal washer. BSP Bonded Seals page 1261

Catalog Part No.	Adaptall Model	Thread 1 (BSPP)	Thread 2 (Female JIC)	Wt.	Price Each
•C1FK29	9021-04-04	1/4-19	7/16-20	0.07	
•C1FK30	9021-06-06	3/8-19	9/16-18	0.11	
•C1FK31	9021-08-06	1/2-14	3/4-16	0.15	
•C1GH73	9021-08-08	1/2-14	3/4-16	0.18	

Note: A seal washer may be required. BSP Bonded Seals page 1261

Adapters

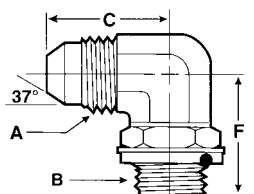
Steel BSPP to 37° Flare



9210

Male 37° Flare / Female Flat-Face
BSPP

Catalog Part No.	Adaptall Model	Thread 1 (Male JIC)	Thread 2 (Female BSPP)	Wt.	Price Each
•C1EW48	9210-0808	3/4-16	1/2-14	0.24	

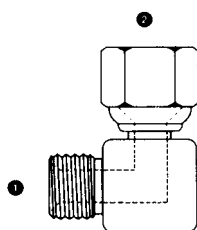


JB-90

Male 37° Flare / Male BSPP
(British Parallel) 90° Elbow

Catalog Part No.	Voss Model	Tube O.D. (in)	Thread A (in)	Thread B (BSPP)	C (in)	F (in)	Wt.	Price Each
•C1DA93	JB0402-90	0.19	7/16-20	1/8-28	0.89	1.03	0.07	
•C1DA95	JB0404-90	0.25	7/16-20	1/4-19	1.05	1.25	0.13	
•C1DA99	JB0604-90	0.38	9/16-18	1/4-19	1.06	1.25	0.10	
•C1DB12	JB0606-90	0.38	9/16-18	3/8-19	1.14	1.45	0.21	
•C1GC14	JB0608-90	0.38	9/16-18	1/2-14	1.22	1.70	0.36	
•C1DB15	JB0806-90	0.50	3/4-16	3/8-19	1.25	1.45	0.24	
•C1DB17	JB0808-90	0.50	3/4-16	1/2-14	1.33	1.70	0.34	
•C1DB20	JB1008-90	0.63	7/8-14	1/2-14	1.45	1.70	0.25	
•C1DB24	JB1212-90	0.75	1-1/16-12	3/4-14	1.66	1.94	0.67	
•C1KM66	JB1616-90	1.00	1-5/16-12	1-11	1.81	2.05	0.92	

Note: BSP Bonded Seals page 1261

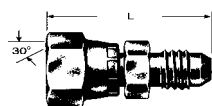


9061

Male BSPP (British Parallel) / Female
37° Flare Swivel 90° Elbow

Catalog Part No.	Adaptall Model	Thread 1 (BSPP)	Thread 2 (JIC)	Seal Washer	Wt.	Price Each
•C1ZT67	9061-08-08	1/2-14	3/4-16	No	0.32	

Note: 9061 is Adaptall model, which does not include a seal washer. BSP Bonded Seals page 1261

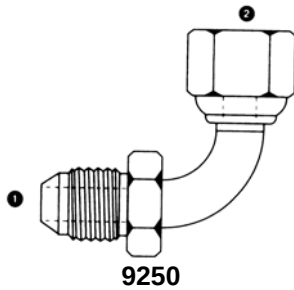


9240

Female BSPP (British Parallel) / Male
37° Flare

Catalog Part No.	Adaptall Model	Tube O.D. (in)	Female BSPP Thread	Male 37° Thread	L (in)	Wt.	Price Each
•C1FG54	9240-04-04	0.25	1/4-19	7/16-20		0.10	
•C1FG55	9240-06-06	0.38	3/8-19	9/16-18		0.14	
•C1FG56	9240-08-08	0.50	1/2-14	3/4-16		0.19	
•C1FG57	9240-10-10	0.63	5/8-14	7/8-14		0.10	
•C1FG58	9240-12-12	0.75	3/4-14	1-1/16-12		0.30	
•C1HJ92	9240-16-16	1.00	1-11	1-5/16-12		0.60	

Steel BSPP to 37° Flare



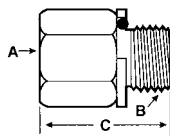
9250

Male 37° Flare / Female BSPP (British Parallel) 90° Elbow

Catalog Part No.	Adaptall Model	Thread 1 (Male JIC)	Thread 2 (Female BSPP)	Wt.	Price Each
•C1FD56	9250-04-04	7/16-20	1/4-19	0.10	
•C1FD57	9250-06-06	9/16-18	3/8-19	0.17	

Adapters

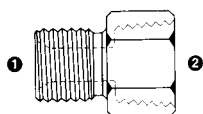
Steel BSPP to Pipe



PB
Female Pipe / Male BSPP
(British Parallel)

Catalog Part No.	Voss Model	Thread A (in)	Thread B (BSPP)	C (in)	Wt.	Price Each
•C1DG67	PB0202	1/8-27	1/8-28	1.06	0.07	
•C1GC34	PB0204	1/8-27	1/4-19	1.20	0.11	
•C1DG69	PB0402	1/4-18	1/8-28	1.22	11.00	
•C1DG70	PB0404	1/4-18	1/4-19	1.42	0.12	
•C1DG72	PB0606	3/8-18	3/8-19	1.46	0.13	
•C1DG74	PB0808	1/2-14	1/2-14	1.77	0.25	
•C1DG76	PB1212	3/4-14	3/4-14	1.85	0.03	
•C1DG78	PB1616	1-11-1/2	1-11	2.0	0.66	
•C1DG79	PB2020	1-1/4-11-1/2	1-1/4-11	2.21	0.35	

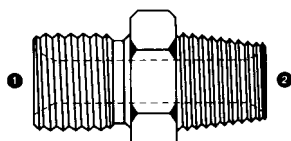
Note: BSP Bonded Seals page 1261



9035
Male BSPP (British) / Female Pipe

Catalog Part No.	Adaptall Model	Thread 1 (BSPP)	Thread 2 (NPT)	Seal Washer	Wt.	Price Each
•C1GG69	9035-06-06	3/8-19	3/8-18	No	0.15	
•C1KK93	9035S-08-08	1/2-14	1/2-14	Yes	0.23	
•C1GG71	9035-12-12	3/4-14	3/4-14	No	0.30	

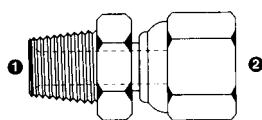
Note: 9035 is Adaptall model, which does not include a seal washer. BSP Bonded Seals page 1261



9007
Male BSPP (British Parallel) / Male Pipe

Catalog Part No.	Adaptall Model	Thread 1 (BSPP)	Thread 2 (NPT)	Seal Washer	Wt.	Price Each
•C1FF84	9007-04-04	1/4-19	1/4-18	No	0.07	
•C1FQ78	9007-06-06	3/8-19	3/8-18	No	0.12	
•C1ZT70	9007-08-08	1/2-14	1/2-14	No	0.08	
•C1FF78	7032-12-12	3/4-14	3/4-14	No	0.27	
•C1JC63	9007-12-12	3/4-14	3/4-14	No	0.27	

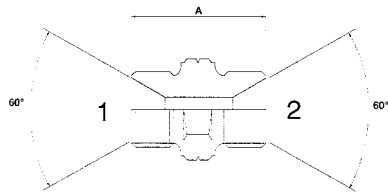
Note: 7032 is Brennan model. 9007 is Adaptall model, which does not include a seal washer. BSP Bonded Seals page 1261



9023
Male Pipe / Female BSPP (British)
Swivel

Catalog Part No.	Adaptall Model	Thread 1 (NPT)	Thread 2 (BSPP)	Wt.	Price Each
•C1GG64	9023-04-04	1/4-18	1/4-19	0.08	
•C1KK90	9023-06-06-ADPT L	3/8-18	3/8-19	0.13	
•C1GG66	9023-08-08	1/2-14	1/2-14	0.22	

Steel BSPP to Metric



1MB

Male BSPP (British Parallel) / Metric
Male

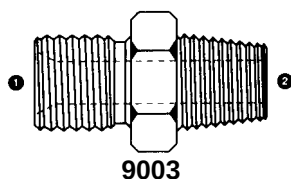
Catalog Part No.	Voss Model	Thread 1 (mm)	Thread 2 (BSPP)	A (in)	Wt.	Price Each
•C1FA46	1MB/22-8	22	1/2-14	1.84	0.65	

Note: BSP Bonded Seals page 1261 Metric Bonded Seals page 1261

Adapters

Steel
BSPP to BSPT

adaptall



Male BSPP (British Parallel) / Male
BSPT (British Tapered)

Catalog Part No.	Adaptall Model	Thread 1 (BSPP)	Thread 1 (BSPT)	Wt.	Price Each
•C1FK28	9003-04-04	1/4-19	1/4-19	0.07	
•C1FP97	9003-08-08	1/2-14	1/2-14	0.18	

Note: 9003 is Adaptall model which does not include a seal washer. BSP Bonded Seals page 1261

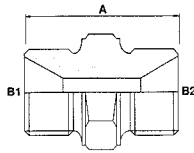
Hydraulic Power & Control

Pneumatic Power & Control

Fluid Conveying

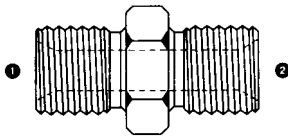
Miscellaneous Products

Indexes & Technical Information



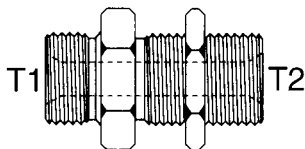
1B

Male BSPP (British Parallel) Union



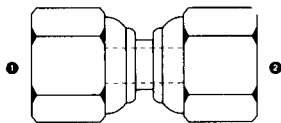
9000

Male BSPP (British Parallel) Nipple



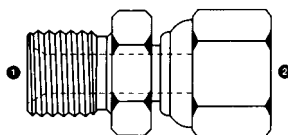
9040

Male BSPP (British Parallel) / Male BSPP Bulkhead



9025

Female BSPP (British Parallel) Swivel Union



9015

Male BSPP (British Parallel) / Female BSPP Swivel

Catalog Part No.	Voss Model	Tube O.D. (in)	Thread B1	Thread B2	A (in)	Wt.	Price Each
•C1DV45	1B/4	0.25	1/4-19	1/4-19	1.16	0.07	
•C1DV46	1B/6	0.38	3/8-19	3/8-19	1.39	0.11	
•C1DV42	1B/10	0.63	5/8-14	5/8-14	1.92	0.22	
•C1DV43	1B/12	0.75	3/4-14	3/4-14	1.97	0.30	

Note: BSPP male has 60° internal cone for hose fitting connection and can also be used as port connection with bonded seal. BSP Bonded Seals page 1261

Catalog Part No.	Adaptall Model	Thread 1 (BSPP)	Thread 2 (BSPP)	Seal Washer	Wt.	Price Each
•C1FN26	9000-04-04	1/4-19	1/4-19	No	0.06	
•C1FM38	9000-06-04	3/8-19	1/4-19	No	0.08	
•C1FN27	9000-06-06	3/8-19	3/8-19	No	0.09	
•C1FN28	9000-08-08	1/2-14	1/2-14	No	0.14	
•C1FU25	9000-10-8	5/8-14	1/2-14	No	0.16	
•C1FU26	9000-16-12	1-11	3/4-14	No	0.39	
•C1GD87	9000-16-16	1-11	1-11	No	0.44	

Note: Seal washer is not included. BSP Bonded Seals page 1261

Catalog Part No.	Adaptall Model	Thread T1 (BSPP)	Thread T2 (BSPP)	Seal Washer	Wt.	Price Each
•C1ZW95	9040-06-06	3/8-19	3/8-19	No	0.19	
•C1ZW94	9040-08-08	1/2-14	1/2-14	No	0.30	
•C1FK32	9040-10-10	5/8-14	5/8-14	No	0.32	
•C1JM94	9040-12-12	3/4-14	3/4-14	No	0.45	

Note: Seal washer is not included. BSP Bonded Seals page 1261

Catalog Part No.	Adaptall Model	Thread 1 (BSPP)	Thread 2 (BSPP)	Wt.	Price Each
•C1FR82	9025-06-06	3/8-19	3/8-19	0.16	
•C1FR83	9025-08-08	1/2-14	1/2-14	0.23	
•C1FR84	9025-12-12	3/4-14	3/4-14	0.35	
•C1EK30	9025-16-16	1-11	1-11	0.43	

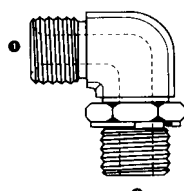
Catalog Part No.	Adaptall Model	Thread 1 (BSPP)	Thread 2 (BSPP)	Seal Washer	Wt.	Price Each
•C1FE84	9015-04-04	1/4-19	1/4-19	No	0.09	
•C1JA36	9015-04-06	1/4-19	3/8-19	No	0.12	
•C1FE85	9015-06-06	3/8-19	3/8-19	No	0.16	
•C1FE86	9015-08-08	1/2-14	1/2-14	No	0.24	

Note: Seal washer is not included. BSP Bonded Seals page 1261

Adapters

Steel
BSPP

adaptall

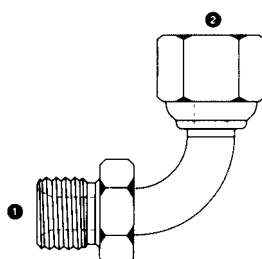


9052

Male BSPP / Adjustable Male BSPP 90° Elbow

Catalog Part No.	Adaptall Model	Thread 1 (BSPP)	Thread 2 (BSPP)	Seal Washer	Wt.	Price Each
•C1FA83	9052-04-04	1/4-19	1/4-19	No	0.13	
•C1FA86	9052-06-06	3/8-19	3/8-19	No	0.23	
•C1FA88	9052-08-08	1/2-14	1/2-14	No	0.37	

Note: Seal washer is not included. BSP Bonded Seals page 1261

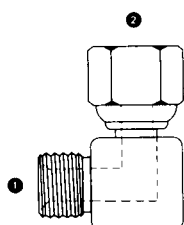


9045

Male BSPP (British Parallel) / Female BSPP 90° Elbow

Catalog Part No.	Adaptall Model	Thread 1 (BSPP)	Thread 2 (BSPP)	Seal Washer	Wt.	Price Each
•C1EK31	9045-04-04	1/4-19	1/4-19	No	0.11	
•C1EK32	9045-06-06	3/8-19	3/8-19	No	0.20	
•C1ZT69	9045-08-08	1/2-14	1/2-14	No	0.32	
•C1EK33	9045-12-12	3/4-14	3/4-14	No	0.56	
•C1FD53	9045-16-16	1-11	1-11	No	0.88	

Note: Seal washer is not included. BSP Bonded Seals page 1261

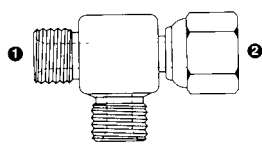


9060

Male BSPP (British Parallel) / Female BSPP Swivel 90° Elbow

Catalog Part No.	Adaptall Model	Thread 1 (BSPP)	Thread 2 (BSPP)	Seal Washer	Wt.	Price Each
•C1ZT68	9060-06-06	3/8-19	3/8-19	No	0.28	

Note: Seal washer is not included. BSP Bonded Seals page 1261

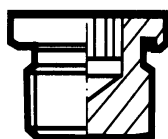


9090

Female BSPP (British) Run Tee

Catalog Part No.	Adaptall Model	Thread 1 (BSPP)	Thread 2 (BSPP)	Thread 3 (BSPP)	Seal Washer	Wt.	Price Each
•C1GG72	9090-04-04-04	1/4-19	1/4-19	1/4-19	No	0.17	
•C1GG73	9090-06-06-06	3/8-19	3/8-19	3/8-19	No	0.31	

Note: Seal washer is not included. BSP Bonded Seals page 1261

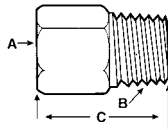


WAL0368

BSPP (British Parallel) Closure Plug w/captive NBR seal

Catalog Part No.	Voss Model	Thread Size D2 (BSPP)	L1 (mm)	Wt.	Price Each
•C1KW74	WAL036856	G 1/8	0.47	0.01	
•C1KW75	WAL036858	G 1/4	0.67	0.04	
•C1KW76	WAL036862	G 1/2	0.75	0.05	
•C1KW77	WAL036864	G 3/4	0.83	0.16	

Steel BSPT to Pipe



PB-K

Female Pipe / Male BSPT
(British Tapered)

Catalog Part No.	Voss Model	Thread A (in)	Thread B (BSPT)	C (in)	Wt.	Price Each
•C1DG68	PB0202-K	1/8-27	1/8-28	0.99	0.04	
•C1DG71	PB0404-K	1/4-18	1/4-19	1.34	0.11	
•C1DG73	PB0606-K	3/8-18	3/8-19	1.38	0.15	
•C1DG75	PB0808-K	1/2-14	1/2-14	1.85	0.33	
•C1EU94	PB1616-K	1-11-1/2	1-11	1.94	0.12	

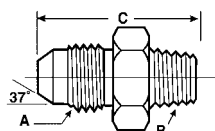
Note: 9042 is Adaptall model.

Adapters

Steel BSPT to 37° Flare

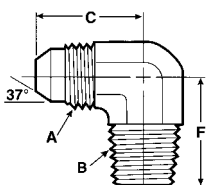
VOSS®

Hydraulic Components


JB-K

Male 37° Flare / Male BSPT
(British Tapered)

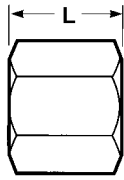
Catalog Part No.	Voss Model	Thread A (in)	Thread B (BSPT)	C (in)	Wt.	Price Each
•C1ED96	JB0402-K	7/16-20	1/8-28	1.10	0.03	
•C1ED98	JB0404-K	7/16-20	1/4-19	1.22	0.05	
•C1EE13	JB0606-K	9/16-18	3/8-19	1.29	0.08	
•C1EE14	JB0806-K	3/4-16	3/8-19	1.41	0.12	
•C1DB18	JB0808-K	3/4-16	1/2-14	1.59	0.20	
•C1EU82	JB1616-K	1-5/16-12	1-11	2.13	0.43	


JB-90K

Male 37° Flare / Male BSPT
(British Tapered) 90° Elbow

Catalog Part No.	Voss Model	Tube O.D. (in)	Thread A (in)	Thread B (BSPT)	C (in)	F (in)	Wt.	Price Each
•C1ZT21	JB0402-90K	0.25	7/16-20	1/8-28	0.89	0.78	0.05	
•C1ED97	JB0404-90K	0.25	7/16-20	1/4-19	1.05	1.09	0.08	
•C1DA97	JB0406-90K	0.25	7/16-20	3/8-19	1.05	1.22	0.17	
•C1EE12	JB0606-90K	0.38	9/16-18	3/8-19	1.14	1.22	0.11	

Steel JIS

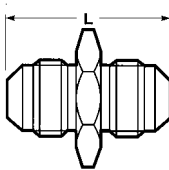


C-JS

JIS (Japanese 30° Flare) Cap

Catalog Part No.	Voss Model	Tube O.D. (in)	L (mm)	Wt.	Price Each
•C1GL48	9222-12	3/4		0.31	

Note: 9222 is Adaptall model.

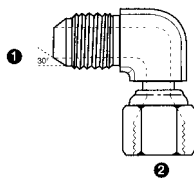


A-JSM

JIS (Japanese 30° Flare) Union

Catalog Part No.	Voss Model	Tube O.D. (in)	L (mm)	Wt.	Price Each
•C1FA90	9336-04-04	0.25		0.09	
•C1ZY43	A-06JSM	0.38	35.8	0.20	
•C1FA91	9336-06-06	0.38		0.13	

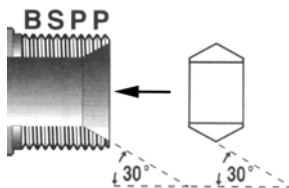
Note: 9336 is Adaptall model.



9292

Male JIS (Japanese 30° Flare) / Female
JIS Swivel 90° Elbow

Catalog Part No.	Adaptall Model	Thread 1	Thread 2	Wt.	Price Each
•C1HE30	9292-04-04	1/4-19	1/4-19	0.15	
•C1HJ94	9292-06-06	3/8-19	3/8-19	0.24	
•C1HE32	9292-12-12	3/4-14	3/4-14	0.69	



9999

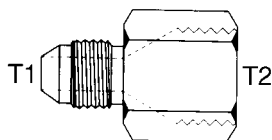
JIS Sealing Seat

Catalog Part No.	Adaptall Model	Size	Wt.	Price Each
•C1FA93	9999-04	1/4	0.01	
•C1FA94	9999-06	3/8	0.01	
•C1FA95	9999-08	1/2	0.02	
•C1FX69	9999-12	3/4	0.03	

Adapters

Steel JIS 30° Seat (BSPP Thread) To 37° Flare

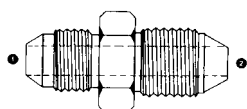
adaptall



9220

Male 37° Flare / Female JIS 30° Seat
(BSPP Thread)

Catalog Part No.	Adaptall Model	Thread T1 (in)	Thread T2 (BSPP)	Length (in)	Wt.	Price Each
•C1FN30	9220-04-04	7/16-20	1/4-19		0.09	
•C1ZW93	9220-06-06	9/16-18	3/8-19		0.15	
•C1ZT66	9220-08-08	3/4-16	1/2-14		0.17	



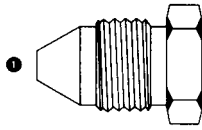
9337

Male 37° Flare / Male JIS 30° Flare
BSPP Thread

Catalog Part No.	Adaptall Model	Thread T1 (in)	Thread T2 (BSPP)	Length (in)	Wt.	Price Each
•C1FM43	9337-04-04	7/16-20	1/4-19		0.08	

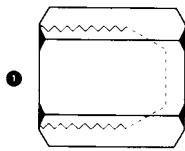
Steel Komatsu, Kobelco

adaptall



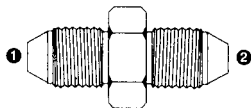
9231
Male Komatsu Plug
(30° Seat & Metric Thread)

Catalog Part No.	Adaptall Model	Thread 1 (mm)	Wt.	Price Each
•C1ZT65	9231-14	M14 x 1.5	0.06	
•C1ZT64	9231-18	M18 x 1.5	0.11	
•C1ZT63	9231-22	M22 x 1.5	0.18	
•C1ZT62	9231-24	M24 x 1.5	0.23	
•C1FD54	9231-30	M30 x 1.5	0.53	



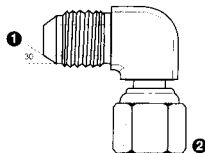
9232
Female Komatsu Cap
(30° Seat & Metric Thread)

Catalog Part No.	Adaptall Model	Thread 1 (mm)	Wt.	Price Each
•C1ZT61	9232-14	M14 x 1.5	0.09	
•C1ZT60	9232-18	M18 x 1.5	0.14	
•C1ZT59	9232-22	M22 x 1.5	0.21	
•C1ZT58	9232-24	M24 x 1.5	0.21	
•C1FD55	9232-30	M30 x 1.5	0.57	



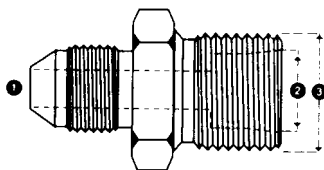
9236
Male Komatsu Union
(30° Seat & Metric Thread)

Catalog Part No.	Adaptall Model	Thread 1 (mm)	Thread 1 (mm)	Wt.	Price Each
•C1GB53	9236-14-14	M14 x 1.5	M14 x 1.5	0.08	



9392
Male Komatsu / Female Komatsu
90° Elbow (30° Seat & Metric Thread)

Catalog Part No.	Adaptall Model	Thread 1 (mm)	Thread 2 (mm)	Wt.	Price Each
•C1GH77	9392-14-14	M14 x 1.5	M14 x 1.5	0.15	
•C1GH79	9392-18-18	M18 x 1.5	M18 x 1.5	0.25	
•C1FN31	9392-22-22	M 22 x 1.5	M 22 x 1.5	0.39	
•C1FN32	9392-30-30	M 30 x 1.5	M 30 x 1.5	0.94	

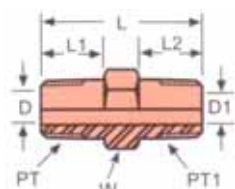


9247
Male 37° Flare / Male Kobelco

Catalog Part No.	Adaptall Model	Thread 1 (JIC)	Tube O.D. 2 (mm)	Thread 3 (mm)	Wt.	Price Each
•C1ZT57	9247-12-28-36	1-1/16-12	M28	M36 x 1.5	0.56	
•C1ZT56	9247-16-35-45	1-5/16-12	M35	M45 x 1.5	0.86	

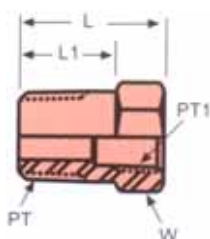
Adapters

Stainless Steel Pipe to Pipe



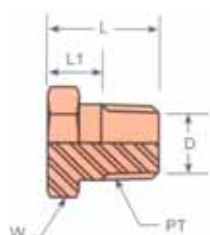
HN
Male Pipe Hex Nipple

Catalog Part No.	SSP Model	Thread PT	Thread PT1	L (in)	Wt.	Price Each
•C1CY47	HN-1/8	1/8-27	1/8-27	1.06	0.03	
•C1CY44	HN-1/4	1/4-18	1/4-18	1.45	0.07	
•C1EQ65	HN-1/4X1/8	1/4-18	1/8-27	1.26	0.06	
•C1CY45	HN-1/4X3	1/4-18	1/4-18	3.00	0.19	
•C1CY50	HN-3/8	3/8-18	3/8-18	1.45	0.10	
•C1FF14	HN-3/8X1/4	3/8-18	1/4-18	1.45	0.10	
•C1CY40	HN-1/2	1/2-14	1/2-14	1.89	0.16	
•C1CY42	HN-1/2X4	1/2-14	1/2-14	4.00	0.42	
•C1CY48	HN-3/4	3/4-14	3/4-14	1.96	0.24	
•C1CY49	HN-3/4X1/2	3/4-14	3/4-14	1.96	0.28	
•C1CY39	HN-1	1-11-1/2	1-11-1/2	2.34	0.40	



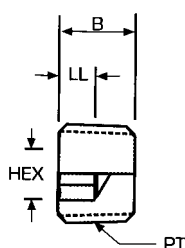
PTR
Male Pipe / Female Pipe Bushing

Catalog Part No.	SSP Model	Thread PT	Thread PT1	L (in)	Wt.	Price Each
•C1DJ20	PTR-1/4X1/8	1/4-18	1/8-27	0.85	0.25	
•C1DJ25	PTR-3/8X1/8	3/8-18	1/8-27	0.85	0.07	
•C1DJ24	PTR-3/8X1/4	3/8-18	1/4-18	0.85	0.06	
•C1DJ18	PTR-1/2X1/4	1/2-14	1/4-18	1.09	0.12	
•C1DJ19	PTR-1/2X3/8	1/2-14	3/8-18	1.10	0.09	
•C1DJ23	PTR-3/4X3/8	3/4-14	3/8-18	1.17	0.20	
•C1DJ22	PTR-3/4X1/2	3/4-14	1/2-14	1.17	0.15	
•C1DJ21	PTR-1X3/4	1-11-1/2	1-11-1/2	1.36	0.40	



HP
Male Pipe Plug

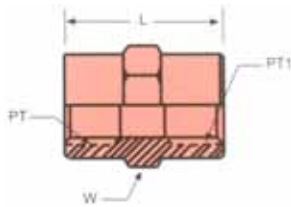
Catalog Part No.	SSP Model	Thread PT	L (in)	Wt.	Price Each
•C1CY56	HP-1/8	1/8-27	0.56	0.02	
•C1CY55	HP-1/4	1/4-18	0.75	0.05	
•C1CY58	HP-3/8	3/8-18	0.78	0.10	
•C1CY53	HP-1	1-11-1/2	1.25	0.46	



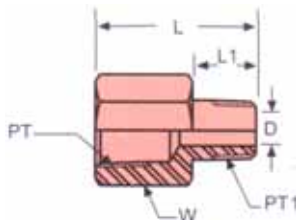
CP
Hex Countersunk Pipe Plug

Catalog Part No.	SSP Model	Thread PT	Hex (in)	B (in)	LL (in)	Wt.	Price Each
•C1FC35	CP-1/8	1/8-27	3/16	0.27		0.01	
•C1FC34	CP-1/4	1/4-18	1/4	0.41		0.02	
•C1FC36	CP-3/8	3/8-18	5/16	0.41		0.03	
•C1FC33	CP-1/2	1/2-14	3/8	0.54		0.06	
•C1ZW89	CP-1	1-11-1/2	5/8	0.69		0.19	

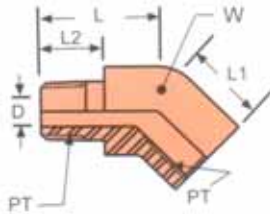
Stainless Steel Pipe to Pipe



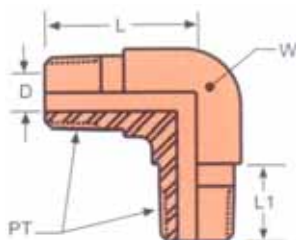
HC
Female Pipe Coupling



RA
Male Pine / Female Pine



MF-45
Female Pipe / Male Pipe 45° Elbow



MM
Male Pipe / Male Pipe 90° Elbow

Catalog Part No.	SSP Model	Thread PT	Thread PT1	L (in)	Wt.	Price Each
•C1CY30	HC-1/8	1/8-27	1/8-27	0.75	0.05	
•C1CY29	HC-1/4	1/4-18	1/4-18	1.13	0.10	
•C1CY32	HC-3/8	3/8-18	3/8-18	1.13	1.50	
•C1CY28	HC-1/2	1/2-14	1/2-14	1.50	0.23	
•C1CY31	HC-3/4	3/4-14	3/4-14	1.53	0.33	
•C1CY27	HC-1	1-11-1/2	1-11-1/2	1.89	0.51	

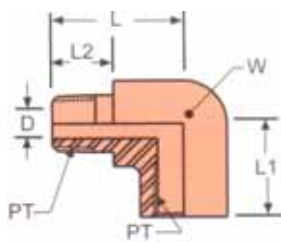
Catalog Part No.	SSP Model	Thread PT1	Thread PT	L (in)	Wt.	Price Each
•C1DJ67	RA-1/4X1/4	1/4-18	1/4-18	1.39	0.10	
•C1DJ69	RA-3/8X1/4	1/4-18	3/8-18	1.44	0.13	
•C1DJ66	RA-1/2X3/8	3/8-18	1/2-14	1.69	0.25	

Catalog Part No.	SSP Model	Thread PT	L (in)	Wt.	Price Each
•C1DE82	MF-1/4-45	1/4-18	1.05	0.14	

Catalog Part No.	SSP Model	Thread PT	L (in)	Wt.	Price Each
•C1DF17	MM-1/4	1/4-18	1.09	0.11	
•C1DF18	MM-3/8	3/8-18	1.22	0.19	
•C1DF16	MM-1/2	1/2-14	1.47	0.30	
C1KG31	MM-1	1-11-1/2	1.97	0.75	

Adapters

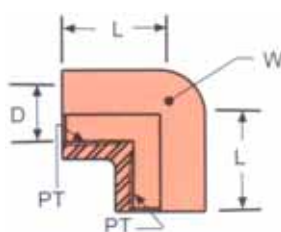
Stainless Steel Pipe to Pipe



MF

Male Pipe / Female Pipe 90° Elbow

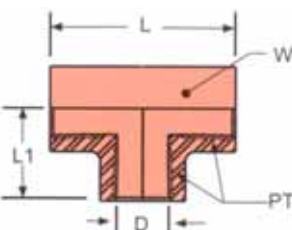
Catalog Part No.	SSP Model	Thread PT	L (in)	Wt.	Price Each
•C1HK72	MF-1/8	1/8-27	0.78	0.07	
•C1DE81	MF-1/4	1/4-18	1.09	0.16	
•C1DE85	MF-3/8	3/8-18	1.22	0.22	
•C1DE80	MF-1/2	1/2-14	1.47	0.40	
•C1DE84	MF-3/4	3/4-14	1.59	0.60	
•C1GF33	MF-1	1-11-1/2	1.97	1.07	



FF

Female Pipe / Female Pipe 90° Elbow

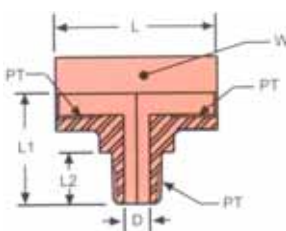
Catalog Part No.	SSP Model	Thread PT	L (in)	Wt.	Price Each
•C1CU45	FF-1/8	1/8-27	0.66	0.07	
•C1CU44	FF-1/4	1/4-18	0.88	0.15	
•C1CU43	FF-1/2	1/2-14	0.69	0.34	
•C1CU46	FF-3/4	3/4-14	1.36	0.54	



FFF

Female Pipe Tee

Catalog Part No.	SSP Model	Thread PT	L (in)	Wt.	Price Each
•C1CV84	FFF-1/8	1/8-27	1.32	0.09	
•C1CV83	FFF-1/4	1/4-18	1.76	0.20	
•C1CV86	FFF-3/8	3/8-18	2.04	1.50	
•C1CV85	FFF-3/4	3/4-14	2.72	0.67	
C1KF80	FFF-1	1-11-1/2	3.26	1.32	

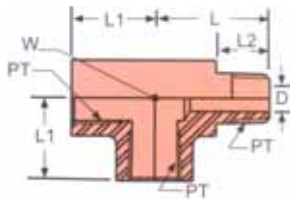


FFM

Male Pipe Branch Tee

Catalog Part No.	SSP Model	Thread PT	L (in)	Wt.	Price Each
•C1CV87	FFM-1/4	1/4-18	1.76	0.20	
•C1CV88	FFM-3/8	3/8-18	2.04	0.28	
C1KF85	FFM-1/2	1/2-14	2.46	0.53	
C1KF86	FFM-3/4	3/4-14	2.72	0.74	

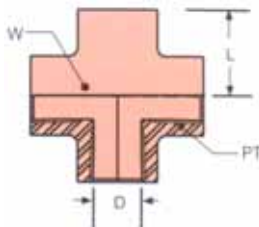
Stainless Steel Pipe to Pipe



FMF

Male Pipe Run Tee

Catalog Part No.	SSP Model	Thread PT	L (in)	Wt.	Price Each
•C1CW68	FMF-1/4	1/4-18	1.09	0.20	
•C1CW69	FMF-3/8	3/8-18	1.22	0.27	
•C1CW67	FMF-1/2	1/2-14	1.47	0.46	



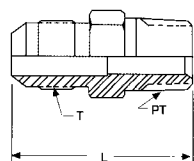
FFFF

Female Pipe Cross

Catalog Part No.	SSP Model	Thread PT	L (in)	Wt.	Price Each
•C1KF81	FFFF-1/2	1/2-14	1.23	0.33	

Adapters

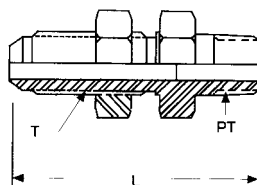
Stainless Steel Pipe to 37° Flare



J-C

Male 37° Flare / Male Pipe

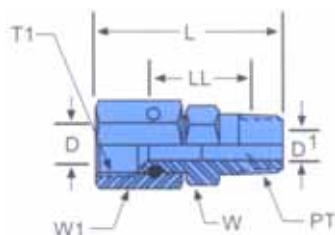
Catalog Part No.	SSP Model	Tube O.D. (in)	Thread PT	Thread T	L (in)	Wt.	Price Each
•C1CZ65	J3C	0.19	1/8-27	3/8-24	1.14	0.03	
•C1CZ82	J4C	0.25	1/8-27	7/16-20	1.58	0.04	
•C1DA22	J6-2C	0.38	1/8-27	9/16-18	1.24	0.05	
•C1CZ72	J4-4C	0.25	1/4-18	7/16-20	1.78	0.07	
•C1DA33	J6C	0.38	1/4-18	9/16-18	1.90	0.07	
•C1DA56	J8-4C	0.50	1/4-18	3/4-16	1.53	0.11	
•C1CZ77	J4-6C	0.25	3/8-18	7/16-20	1.44	0.10	
•C1DA25	J6-6C	0.38	3/8-18	9/16-18	1.91	0.10	
•C1DA68	J8C	0.50	3/8-18	3/4-16	2.03	0.12	
•C1CZ79	J4-8C	0.25	1/2-14	7/16-20	1.69	0.18	
•C1DA29	J6-8C	0.38	1/2-14	9/16-18	1.69	0.20	
•C1DA64	J8-8C	0.50	1/2-14	3/4-16	2.28	0.18	
•C1CZ11	J10C	0.63	1/2-14	7/8-14	2.54	0.19	
•C1CZ25	J12-8C	0.75	1/2-14	1-1/16-12	2.06	0.12	
•C1DA55	J8-12C	0.50	3/4-14	3/4-16	1.85	0.01	
•C1CZ28	J12C	0.75	3/4-14	1-1/16-12	2.67	0.31	
•C1JE69	J16-12C	1.00	3/4-14	1-5/16-12	2.11	0.39	
•C1CZ45	J16C	1.0	1-11-1/2	1-5/16-12	3.05	0.46	
•C1GM90	J20C	1.25	1-1/4-11-1/2	1-5/8-12	2.45	0.68	



BC

Male 37° Flare / Male Pipe Bulkhead

Catalog Part No.	SSP Model	Tube O.D. (in)	Thread PT	Thread T	L (in)	Wt.	Price Each
•C1CZ71	J4-4BC	0.25	1/4-18	7/16-20		0.12	
•C1DA63	J8-8BC	0.50	1/2-14	3/4-16	2.34	0.29	

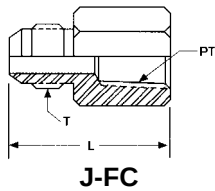


JS-C

Female 37° Flare / Male Pipe

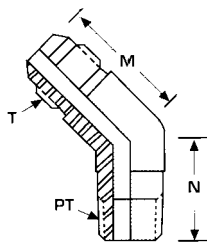
Catalog Part No.	SSP Model	Tube O.D. (in)	Thread T1	Thread PT	L (in)	Wt.	Price Each
•C1FZ98	JS6C	0.38	9/16-18	1/4-18	1.54	0.10	
•C1FZ99	JS8C	0.50	3/4-16	3/8-18	1.78	0.15	

Stainless Steel Pipe to 37° Flare



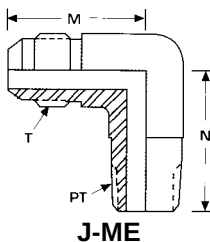
J-FC
Male 37° Flare / Female Pipe

Catalog Part No.	SSP Model	Tube O.D. (in)	Thread PT	Thread T	L (in)	Wt.	Price Each
•C1CZ84	J4FC	0.25	1/8-27	7/16-20	1.55	0.05	
•C1CZ73	J4-4FC	0.25	1/4-18	7/16-20	1.74	0.09	
•C1DA35	J6FC	0.38	1/4-18	9/16-18	1.87	0.10	
•C1DA26	J6-6FC	0.38	3/8-18	9/16-18	1.88	0.13	
•C1DA70	J8FC	0.50	3/8-18	3/4-16	2.06	0.15	
•C1DA65	J8-8FC	0.50	1/2-14	3/4-16	1.75	0.27	
•C1CZ12	J10FC	0.63	1/2-14	7/8-14	2.54	0.30	
•C1CZ30	J12FC	0.75	3/4-14	1-1/16-12	2.52	0.44	
•C1CZ46	J16FC	1.0	1-11-1/2	1-5/16-12	3.1	0.67	



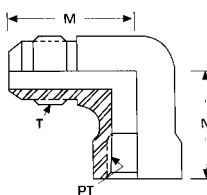
J-ME-45
Male 37° Flare / Male Pipe 45° Elbow

Catalog Part No.	SSP Model	Tube O.D. (in)	Thread PT	Thread T	M (in)	N (in)	Wt.	Price Each
•C1CZ91	J4ME-45	0.25	1/8-27	7/16-20	0.72	0.64	0.04	
•C1CZ76	J4-4ME-45	0.25	1/8-18	7/16-20	0.82	0.86	0.07	
•C1DA42	J6ME-45	0.38	1/4-18	9/16-18	0.83	0.86	0.08	
•C1DA77	J8ME-45	0.50	3/8-18	3/4-16	0.98	0.95	0.15	
•C1CZ34	J12ME-45	0.75	3/4-14	1-1/16-12	1.28	1.20	0.25	



J-ME
Male 37° Flare / Male Pipe 90° Elbow

Catalog Part No.	SSP Model	Tube O.D. (in)	Thread PT	Thread T	M (in)	N (in)	Wt.	Price Each
•C1CZ90	J4ME	0.25	1/8-27	7/16-20	0.89	0.78	0.05	
•C1CZ75	J4-4ME	0.25	1/4-18	7/16-20	1.05	1.09	0.11	
•C1DA41	J6ME	0.38	1/4-18	9/16-18	1.06	1.09	0.11	
•C1DA27	J6-6ME	0.38	3/8-18	9/16-18	1.14	1.22	0.19	
•C1DA66	J8-8ME	0.50	1/2-14	3/4-16	1.33	1.47	0.27	
•C1CZ15	J10ME	0.63	1/2-14	7/8-14	1.45	1.47	0.28	
•C1EZ30	J12-8ME	0.75	1/2-14	1-1/16-12	1.66	1.59	0.50	
•C1CZ33	J12ME	0.75	3/4-14	1-1/16-12	1.66	1.59	0.47	
•C1CZ49	J16ME	1.0	1-11-1/2	1-5/16-12	1.81	1.97	0.70	

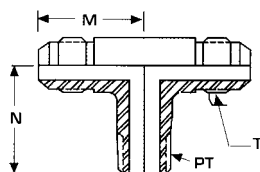


J-FE
Male 37° Flare / Female Pipe 90° Elbow

Catalog Part No.	SSP Model	Tube O.D. (in)	Thread PT	Thread T	M (in)	N (in)	Wt.	Price Each
•C1CZ74	J4-FE	0.25	1/4-18	7/16-20	1.08	0.66	0.17	
•C1DA36	J6FE	0.38	1/4-18	9/16-18	1.23	0.88	0.18	
•C1DA71	J8FE	0.50	3/8-18	3/4-16	1.42	1.02	0.25	
•C1GJ96	J12FE	0.75	3/4-14	1-1/16-12	1.89	1.36	0.72	

Adapters

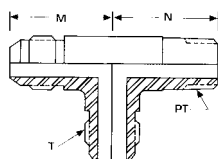
Stainless Steel Pipe to 37° Flare



J-TTM

Male 37° Flare / Male Pipe / Male 37°
Flare Tee

Catalog Part No.	SSP Model	Tube O.D. (in)	Thread PT	Thread T	M (in)	N (in)	Wt.	Price Each
•C1CZ70	J4-4-4TTM	0.25	1/4-18	7/16-20	1.05	1.09	0.50	
•C1DA62	J8-8-8TTM	0.50	1/2-14	3/4-16	1.33	1.47	0.38	
C1KG24	J12TTM	0.75	3/4-14	1-1/16-12	1.66	1.59	1.21	
C1KG26	J16TTM	1.00	1-11-1/2	1-5/16-12	1.81	1.97	1.60	

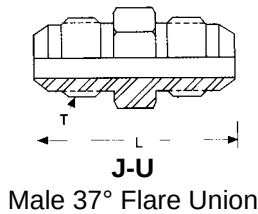


J-TMT

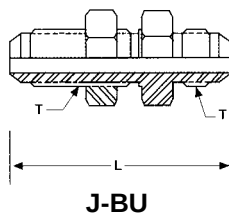
Male 37° Flare / Male 37° Flare / Male
Pipe Tee

Catalog Part No.	SSP Model	Tube O.D. (in)	Thread PT	Thread T	M (in)	N (in)	Wt.	Price Each
C1KG23	J12TMT	0.75	3/4-14	1-1/16-12	1.66	1.59	1.20	
C1KG25	J16TMT	1.00	1-11-1/2	1-5/16-12	1.81	1.97	1.14	

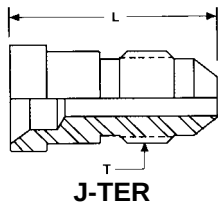
Stainless Steel 37° Flare Union



Catalog Part No.	SSP Model	Tube O.D. (in)	Thread T	L (in)	Wt.	Price Each
•C1DA12	J4U	0.25	7/16-20	1.37	0.05	
•C1DA20	J5U	0.31	1/2-20	1.37	0.04	
•C1FQ93	J6-4U		9/16-18 x 7/16-20	1.40	0.06	
•C1DA53	J6U	0.38	9/16-18	1.41	0.06	
•C1DA87	J8U	0.50	3/4-16	1.62	0.13	
•C1CZ22	J10U	0.63	7/8-14	1.88	0.15	
•C1CZ41	J12U	0.75	1-1/16-12	2.16	0.31	
•C1CZ53	J16U	1.0	1-5/16-12	2.25	0.50	

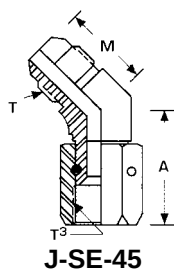


Catalog Part No.	SSP Model	Tube O.D. (in)	Thread T	L (in)	Wt.	Price Each
•C1CZ81	J4BU	0.25	7/16-20	2.07	0.10	
•C1DA32	J6BU	0.38	9/16-18	2.18	0.14	
•C1DA67	J8BU	0.50	3/4-16	2.44	0.25	
•C1CY99	J10BU	0.63	7/8-14	2.74	0.20	
•C1CZ27	J12BU	0.75	1-1/16-12	3.09	3.00	



Catalog Part No.	SSP Model	Tube O.D. (in)	Thread T	L (in)	Wt.	Price Each
•C1DA23	J6-4TER	0.25	7/16-20		0.03	
•C1DA57	J8-4TER	0.25	7/16-20		0.04	
•C1DA61	J8-6TER	0.38	9/16-18		0.05	
C1KM62	J10-4TER	0.63	7/16-20		0.05	
•C1CY97	J10-6TER	0.38	9/16-18		0.05	
•C1CY98	J10-8TER	0.50	3/4-16	1.44	1.50	
•C1CZ26	J12-8TER	0.50	3/4-16		0.10	
•C1CZ43	J16-12TER	0.75	1-1/16-12		0.09	

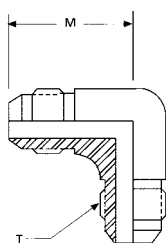
Note: Nuts & Sleeves page 1064



Catalog Part No.	SSP Model	Tube O.D. (in)	Thread T	Thread T3	A (in)	M (in)	Wt.	Price Each
•C1CZ97	J4SE-45	0.25	7/16-20	7/16-20	0.94	0.72	0.07	
•C1DA48	J6SE-45	0.38	9/16-18	9/16-18	1.12	0.83	0.11	
•C1DA83	J8SE-45	0.50	3/4-16	3/4-16	1.28	0.98	0.30	

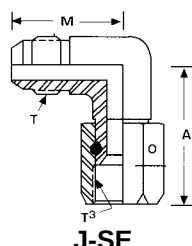
Adapters

Stainless Steel 37° Flare Union



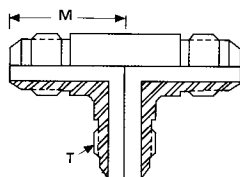
J-E

Male 37° Flare / Male 37° Flare 90°
Elbow



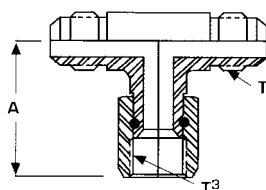
J-SE

Male 37° Flare / Female 37° Flare
Swivel 90° Elbow



J-T

Male 37° Flare Tee



J-SBT

Male 37° Flare / Female 37° Flare
Swivel / Male 37° Flare Tee

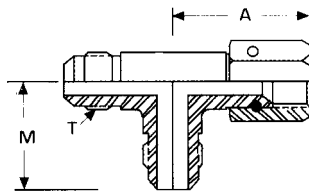
Catalog Part No.	SSP Model	Tube O.D. (in)	Thread T	M (in)	Wt.	Price Each
•C1CZ83	J4E	0.25	7/16-20	0.89	0.50	
•C1DA34	J6E	0.38	9/16-18	1.06	0.10	
•C1DA69	J8E	0.50	3/4-16	1.25	0.19	

Catalog Part No.	SSP Model	Tube O.D. (in)	Thread T	Thread T3	A (in)	M (in)	Wt.	Price Each
•C1CZ96	J4SE	0.25	7/16-20	7/16-20	1.0	0.89	0.08	
•C1DA47	J6SE	0.38	9/16-18	9/16-18	1.25	1.01	0.13	
•C1DA82	J8SE	0.50	3/4-16	3/4-16	1.38	1.25	0.24	
•C1CZ19	J10SE	0.63	7/8-14	7/8-14	1.62	1.45	0.35	
•C1CZ38	J12SE	0.75	1-1/16-12	1-1/16-12	1.75	1.66	0.62	
•C1FU85	J16SE	1.00	1-5/16-12	1-5/16-12	2.00	1.81	0.91	

Catalog Part No.	SSP Model	Tube O.D. (in)	Thread T	M (in)	Wt.	Price Each
•C1CZ99	J4T	0.25	7/16-20	0.89	0.08	
•C1DA50	J6T	0.38	9/16-18	1.06	0.15	
•C1DA85	J8T	0.50	3/4-16	1.25	0.28	

Catalog Part No.	SSP Model	Tube O.D. (in)	Thread T	Thread T3	A (in)	M (in)	Wt.	Price Each
•C1DA81	J8SBT	0.50	3/4-16	3/4-16	1.38	1.25	0.30	

Stainless Steel 37° Flare Union



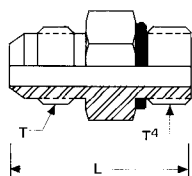
J-SRT

Male 37° Flare / Male 37° Flare /
Female 37° Flare Swivel Tee

Catalog Part No.	SSP Model	Tube O.D. (in)	Thread T	A (in)	M (in)	Wt.	Price Each
•C1CZ98	J4SRT	0.25	7/16-20	1.0	0.89	0.10	
•C1DA49	J6SRT	0.38	9/16-18	1.25	1.06	0.15	
•C1DA84	J8SRT	0.50	3/4-16	1.38	1.25	0.30	
•C1CZ20	J10SRT	0.63	7/8-14	1.62	1.45	0.46	
•C1CZ39	J12SRT	0.75	1-1/16-12	1.75	1.66	0.77	

Adapters

Stainless Steel Straight Thread O-Ring to 37° Flare

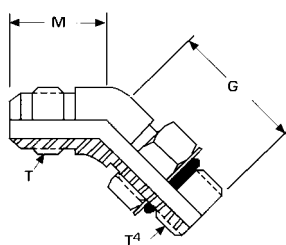


J-GC

Male 37° Flare / Male Straight Thread
O-Ring

Catalog Part No.	SSP Model	Tube O.D. (in)	Thread T	Thread T4	L (in)	Wt.	Price Each
•C1CZ86	J4GC	0.25	7/16-20	7/16-20	1.23	0.05	
•C1ZV59	J4-6GC	0.25	7/16-20	9/16-18	1.29	0.08	
•C1DA37	J6GC	0.38	9/16-18	9/16-18	1.30	0.08	
•C1DA30	J6-8GC	0.38	9/16-18	3/4-16	1.38	0.13	
C1KM63	J6-10GC	0.38	9/16-18	7/8-14	1.50	0.18	
C1KM65	J6-12GC	0.38	9/16-18	1-1/16-12	1.75	0.33	
•C1DA58	J8-6GC	0.50	3/4-16	9/16-18	1.38	0.13	
•C1DA72	J8GC	0.50	3/4-16	3/4-16	1.48	0.14	
•C1FC54	J8-10GC	0.50	3/4-16	7/8-14	1.60	0.20	
•C1CZ13	J10GC	0.63	7/8-14	7/8-14	1.70	0.21	
•C1EW92	J12-10GC	0.75	1-1/16-12	7/8-14	1.86	0.28	
•C1CZ31	J12GC	0.75	1-1/16-12	1-1/16-12	1.97	0.34	
•C1CZ47	J16GC	1.0	1-5/16-12	1-5/16-12	2.04	0.48	

Note: SAE O-Ring Boss O-Rings page 1267

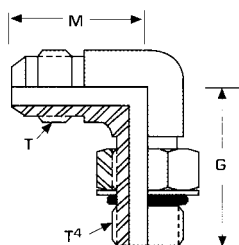


J-GE-45

Male 37° Flare / Male Straight Thread
O-Ring 45° Elbow

Catalog Part No.	SSP Model	Tube O.D. (in)	Thread T	Thread T4	G (in)	M (in)	Wt.	Price Each
•C1CZ88	J4GE-45	0.25	7/16-20	7/16-20	1.05	0.72	0.06	
•C1DA39	J6GE-45	0.38	9/16-18	9/16-18	1.14	0.83	0.10	

Note: SAE O-Ring Boss O-Rings page 1267



J-GE

Male 37° Flare / Male Straight Thread
O-Ring 90° Elbow

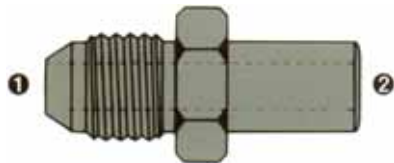
Catalog Part No.	SSP Model	Tube O.D. (in)	Thread T	Thread T4	G (in)	M (in)	Wt.	Price Each
•C1CZ87	J4GE	0.25	7/16-20	7/16-20	1.03	0.89	0.07	
•C1CZ78	J4-6GE	0.25	7/16-20	9/16-18	1.25	0.89	0.13	
•C1DA38	J6GE	0.38	9/16-18	9/16-18	1.25	1.06	0.12	
•C1DA73	J8GE	0.50	3/4-16	3/4-16	1.45	1.25	0.25	
•C1CZ32	J12GE	0.75	1-1/16-12	1-1/16-12	1.94	1.66	0.50	

Note: SAE O-Ring Boss O-Rings page 1267



Stainless Steel Metric to 37° Flare

adapt^{III}all



SS9200

Male JIC 37° Flare / Metric Standpipe

Catalog Part No.	Adaptall Model	Thread 1 (in)	Thread 2 (mm)	Wt.	Price Each
• C1FP65	SS9200-04-06	7/16-20	6	0.04	
• C1FP66	SS9200-04-08	7/16-20	8	0.05	
• C1FP68	SS9200-06-10	9/16-18	10	0.06	

**** WARNING ****: Do NOT use the 7/16-20 thread adapters with Everflex hose end NJIC-4S. The adapter flare is shorter than normal and does not make contact properly with the flare seat on the Everflex hose end.

Hydraulic Power & Control

Pneumatic Power & Control

Fluid Conveying

Miscellaneous Products

Indexes & Technical Information

Adapters

Stainless Steel BSPP to 37° Flare

adaptall

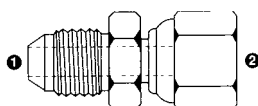


SS9002

Male 37° Flare / Male BSPP (British Parallel)

Catalog Part No.	Adaptall Model	Thread A (in)	Thread B (BSPP)	Wt.	Price Each
•C1JD17	SS9002-06-04	9/16-18	1/4-19	0.08	

Note: Complete with washer & o-ring.



SS9240

Male 37° Flare / Female BSPP (British Parallel) Swivel

Catalog Part No.	Adaptall Model	Thread 1 (in)	Thread 2 (BSPP)	Wt.	Price Each
•C1GA56	SS9240-04-04	7/16-20	1/4-19	0.08	

Hydraulic Power & Control

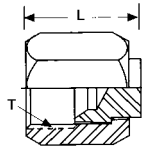
Pneumatic Power & Control

Fluid Conveying

Miscellaneous Products

Indexes & Technical Information

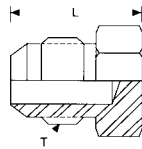
Stainless Steel Auxiliary Components



J-Z

JIC 37° Flare Cap

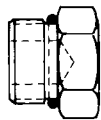
Catalog Part No.	SSP Model	Tube O.D. (in)	Thread T	L (in)	Wt.	Price Each
•C1DA21	J5Z	0.31	1/2-20	0.77	0.04	
•C1DA54	J6Z	0.38	9/16-18	0.81	0.06	
•C1DA88	J8Z	0.50	3/4-16	0.94	0.11	
•C1CZ23	J10Z	0.63	7/8-14	1.07	0.14	



J-P

JIC 37° Flare Plug

Catalog Part No.	SSP Model	Tube O.D. (in)	Thread T	L (in)	Wt.	Price Each
•C1CZ93	J4P	0.25	7/16-20	0.80	0.03	
•C1DA44	J6P	0.38	9/16-18	0.84	0.05	
•C1DA79	J8P	0.50	3/4-16	0.94	0.10	



GP

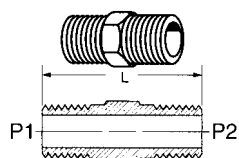
SAE O-Ring Boss Plug

Catalog Part No.	SSP Model	Thread T	L (in)	Wt.	Price Each
•C1CX86	GP-6	9/16-18	0.76	0.06	

Note: SAE O-Ring Boss O-Rings page 1267

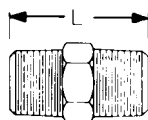
Adapters

Brass Pipe to Pipe



3325
Male Pipe Hex Nipple

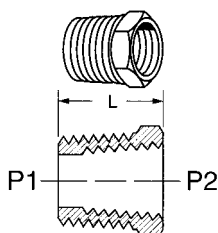
Catalog Part No.	Eaton Model	Thread P1	Thread P2	L (in)	Wt.	Price Each
•C1HP23	3325X2	1/8-27	1/8-27	0.97	0.02	
•C1HP25	3325X4X2	1/4-18	1/8-27	1.19	0.05	
•C1HP24	3325X4	1/4-18	1/4-18	1.38	0.05	
•C1HP27	3325X6X4	3/8-18	1/4-18	1.41	0.07	
•C1HP26	3325X6	3/8-18	3/8-18	1.41	0.08	
•C1HP28	3325X8	1/2-14	1/2-14	1.81	0.14	
•C1HP22	3325X12	3/4-14	3/4-14	1.94	0.22	



Male Pipe Hex Nipple

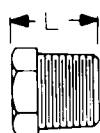
Catalog Part No.	Model Number	Pipe Thread	Pipe Thread	L (in)	Wt.	Price Each
•C1BE84	23325X8X4	1/2-14	1/4-18	1.62	0.09	
•C1BE85	23325X8X6	1/2-14	3/8-18	1.62	0.10	
•C1BE77	23325X12X8	3/4-14	1/2-14		0.16	
•C1FM93	23325X16	1-11-1/2	1-11-1/2		0.42	

NP Models: Nickel Plated.



3220
Male Pipe / Female Pipe Bushing

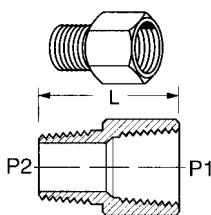
Catalog Part No.	Eaton Model	Thread P1	Thread P2	L (in)	Wt.	Price Each
•C1HN97	3220X4X2	1/4-18	1/8-27	0.59	0.02	
•C1HN98	3220X6X2	3/8-18	1/8-27	0.75	0.05	
•C1HN99	3220X6X4	3/8-18	1/4-18	0.69	0.03	
•C1HP11	3220X8X2	1/2-14	1/8-27	0.75	0.09	
•C1HP12	3220X8X4	1/2-14	1/4-18	0.75	0.08	
•C1HP13	3220X8X6	1/2-14	3/8-18	0.75	0.05	
•C1HN95	3220X12X6	3/4-14	3/8-18	0.88	0.15	
•C1HN96	3220X12X8	3/4-14	1/2-14	0.88	0.10	



Bushing

Catalog Part No.	Model Number	External Pipe Thread	Internal Pipe Thread	L (in)	Wt.	Price Each
•C1BE57	23232X4	3/4-14	1/4-18	0.94	0.18	
•C1BE62	23236X8	1-11-1/2	1/2-14	0.94	0.30	
•C1BE60	23236X12	1-11-1/2	3/4-14	1.12	0.22	

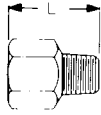
NP Models: Nickel Plated.



3200
Male Pipe / Female Pipe

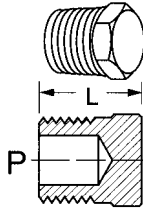
Catalog Part No.	Eaton Model	Thread P1	Thread P2	L (in)	Wt.	Price Each
•C1HN89	3200X2	1/8-27	1/8-27	0.88	0.04	
•C1HN91	3200X4X2	1/4-18	1/8-27	1.06	0.07	
•C1HN90	3200X4	1/4-18	1/4-18	1.25	0.08	
•C1HN93	3200X6X4	3/8-18	1/4-18	1.25	0.10	
•C1HN92	3200X6	3/8-18	3/8-18	1.25	0.11	
•C1HN94	3200X8X6	1/2-14	3/8-18	1.47	0.18	
•C1HD73	3200X12X8	3/4-14	1/2-14	1.69	0.24	

Brass Pipe to Pipe



Female Pipe / Male Pipe

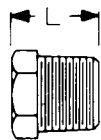
Catalog Part No.	Model Number	External Pipe Thread	Internal Pipe Thread	L (in)	Wt.	Price Each
•C1BE46	23200X8	1/2-14	1/2-14	1.31	0.11	



3152

Male Pipe Hex Head Plug

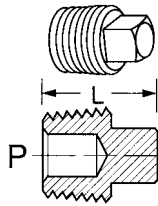
Catalog Part No.	Eaton Model	Thread P	L (in)	Wt.	Price Each
•C1HN84	3152X2	1/8-27	0.57	0.02	
•C1HN85	3152X4	1/4-18	0.62	0.03	
•C1HN86	3152X6	3/8-18	0.72	0.06	
•C1HN87	3152X8	1/2-14	0.78	0.09	
•C1HN83	3152X12	3/4-14	0.88	0.13	



Hex Head Pipe Plug

Catalog Part No.	Model Number	Pipe Thread	L (in)	Wt.	Price Each
•C1FK77	NP28-201	1/8-27	0.56	0.02	
C1FK78	NP28-202	1/4-18	0.62	0.03	
•C1FQ68	23152X16	1-11-1/2		0.28	

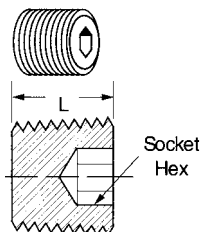
NP Models: Nickel Plated.



3151

Male Pipe Square Head Plug

Catalog Part No.	Eaton Model	Thread P	L (in)	Wt.	Price Each
•C1HN79	3151X2	1/8-27	0.58	0.02	
•C1HN80	3151X4	1/4-18	0.74	0.03	
•C1HN81	3151X6	3/8-18	0.82	0.05	
•C1HN82	3151X8	1/2-14	0.99	0.09	



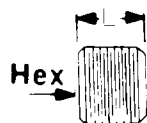
3153

Hex Socket Pipe Plug

Catalog Part No.	Eaton Model	Male Pipe Thread	Socket Hex (in)	L (in)	Wt.	Price Each
•C1HN88	3153X2	1/8-27	3/16	0.27	0.01	

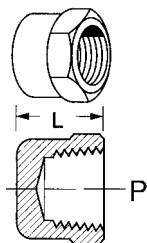
Adapters

Brass Pipe to Pipe



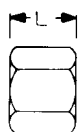
Countersunk Hex Pipe Plug

Catalog Part No.	Model Number	Pipe Thread	L (in)	Wt.	Price Each
•C1BE37	23155X4	1/4-18	0.45	0.04	
•C1BE38	23155X6	3/8-18	0.45	0.05	
•C1BE39	23155X8	1/2-14	0.6	0.07	
•C1BE35	23155X12	3/4-14		0.09	



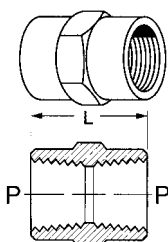
3129
Pipe Cap

Catalog Part No.	Eaton Model	Thread P	L (in)	Wt.	Price Each
•C1HN74	3129X2	1/8-27	0.50	0.03	
•C1HN75	3129X4	1/4-18	0.59	0.04	
•C1HN76	3129X6	3/8-18	0.68	0.06	



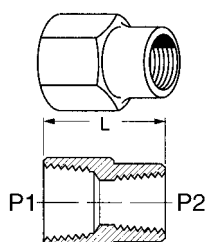
Pipe Cap

Catalog Part No.	Model Number	Pipe Thread	L (in)	Wt.	Price Each
•C1BE22	23129X8	1/2-14	0.84	0.15	



3300
Female Pipe Coupling

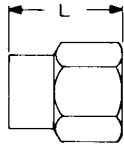
Catalog Part No.	Eaton Model	Thread P	L (in)	Wt.	Price Each
•C1HP15	3300X2	1/8-27	0.75	0.03	
•C1HP16	3300X4	1/4-18	1.12	0.09	
•C1HP18	3300X6	3/8-18	1.12	0.11	
•C1HP20	3300X8	1/2-14	1.50	0.19	
•C1HP14	3300X12	3/4-14	1.53	0.23	



3300
Female Pipe Reducer Coupling

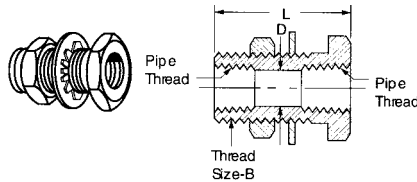
Catalog Part No.	Eaton Model	Thread P1	Thread P2	L (in)	Wt.	Price Each
•C1HP17	3300X4X2	1/4-18	1/8-27	0.96	0.07	
•C1HP19	3300X6X4	3/8-18	1/4-18	1.16	0.12	
•C1HP21	3300X8X6	1/2-14	3/8-18	1.38	0.19	

Brass Pipe to Pipe



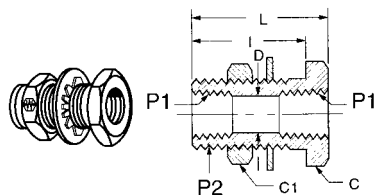
Reducing Pipe Coupling

Catalog Part No.	Model Number	Internal Pipe Thread	Internal Pipe Thread	L (in)	Wt.	Price Each
C1BE74	23308X4	1/2-14	1/4-18	1.28	0.10	



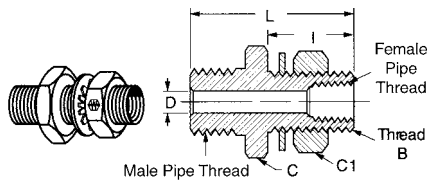
Bulkhead Coupling

Catalog Part No.	Eaton Model	Female Pipe Thread	Thread B	L (in)	Wt.	Price Each
• C1JC96	1345	1/4-18	3/4-16	0.94	0.13	
• C1JC95	1344	1/4-18	3/4-16	1.50	0.17	
• C1JC97	1346	3/8-18	1-14	1.31	0.28	
• C1HC96	1351	1/2-14	1-1/8-14	1.50	0.34	



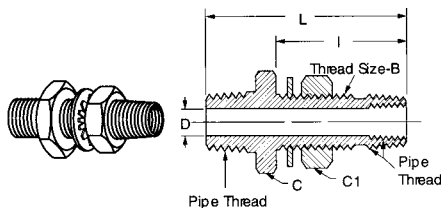
Bulkhead Coupling

Catalog Part No.	Model Number	Thread P1	Thread P2	L (in)	Wt.	Price Each
• C1HH98	28-304	1/2-14	1-1/8-14	1.49	0.34	



Bulkhead Coupling

Catalog Part No.	Eaton Model	Male Pipe Thread	Female Pipe Thread	Thread B	L (in)	Wt.	Price Each
• C1HY63	1340	1/2-14	1/4-18	3/4-16	2.16	0.32	

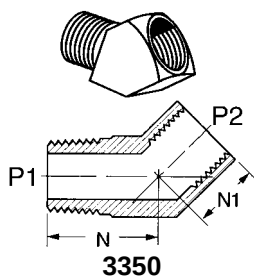


Bulkhead Coupling

Catalog Part No.	Eaton Model	Male Pipe Thread	Female Pipe Thread	Thread B	L (in)	Wt.	Price Each
• C1HX17	1342	1/2-14	1/4-18	1-14	2.94	0.62	

Adapters

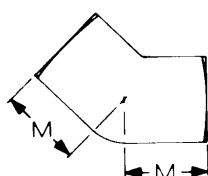
Brass Pipe to Pipe



3350

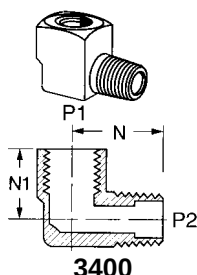
Male Pipe / Female Pipe 45° Street Elbow

Catalog Part No.	Eaton Model	Thread P1	Thread P2	N (in)	N1 (in)	Wt.	Price Each
•C1HP29	3350X2	1/8-27	1/8-27	0.50	0.38	0.04	
•C1HP30	3350X4	1/4-18	1/4-18	0.74	0.56	0.09	
•C1HP31	3350X6	3/8-18	3/8-18	0.78	0.56	0.11	
•C1HP32	3350X8	1/2-14	1/2-14	1.00	0.76	0.22	



Female Pipe / Female Pipe 45° Elbow

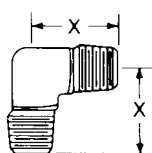
Catalog Part No.	Model Number	Pipe Thread	M (in)	Wt.	Price Each
•C1DV84	23355X2	1/8-27	0.45	0.06	



3400

Male Pipe / Female Pipe 90° Street Elbow

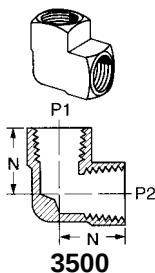
Catalog Part No.	Eaton Model	Thread P1	Thread P2	N (in)	N1 (in)	Wt.	Price Each
•C1HP34	3400X2	1/8-27	1/8-27	0.66	0.47	0.05	
•C1HP35	3400X4	1/4-18	1/4-18	0.91	0.72	0.10	
•C1HP36	3400X6	3/8-18	3/8-18	0.97	0.78	0.15	
•C1HP37	3400X8	1/2-14	1/2-14	1.25	1.03	0.29	
•C1HP33	3400X12	3/4-14	3/4-14	1.38	1.12	0.48	



Male Pipe / Male Pipe 90° Elbow

Catalog Part No.	Model Number	Pipe Thread	Type	X (in)	Wt.	Price Each
•C1BE96	23455X2	1/8-27	Bar Stock	0.75	0.04	
•C1BE97	23455X4	1/4-18	Bar Stock	1.03	0.06	
•C1BE98	23455X6	3/8-18	Bar Stock	1.12	0.11	
C1HR51	ACR-28-268F	3/8-18	Forged		0.10	
•C1GH36	23455X8	1/2-14	Bar Stock	1.33	0.27	
C1HR52	ACR-28-269F	1/2-14	Forged		0.20	

NP Models: Nickel Plated.

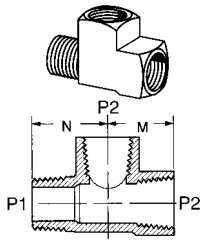


3500

Female Pipe / Female Pipe 90° Elbow

Catalog Part No.	Eaton Model	Thread P1	Thread P2	N (in)	Wt.	Price Each
•C1HP39	3500X2	1/8-27	1/8-27	0.55	0.06	
•C1HP40	3500X4	1/4-18	1/4-18	0.78	0.13	
•C1HP41	3500X6	3/8-18	3/8-18	0.84	0.18	
•C1HP42	3500X8	1/2-14	1/2-14	1.09	0.35	
•C1HP38	3500X12	3/4-14	3/4-14	1.16	0.61	

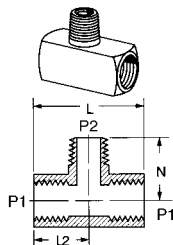
Brass Pipe to Pipe



3750

Male Pipe / Female Pipe / Female Pipe
Tee

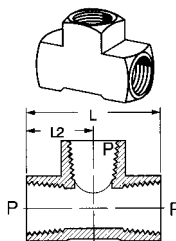
Catalog Part No.	Eaton Model	Thread P1	Thread P2	M (in)	Wt.	Price Each
•C1HP55	3750X2	1/8-27	1/8-27	0.55	0.08	
•C1HP56	3750X4	1/4-18	1/4-18	0.78	0.16	
•C1HP57	3750X6	3/8-18	3/8-18	0.84	0.20	
•C1HP58	3750X8	1/2-14	1/2-14	1.09	0.38	
•C1KK17	3750X12	3/4-14	3/4-14	1.16	0.62	



3600

Female Pipe / Male Pipe / Female Pipe
Tee

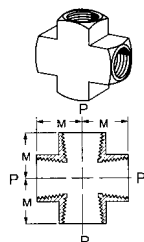
Catalog Part No.	Eaton Model	Thread P1	Thread P2	L (in)	N (in)	Wt.	Price Each
•C1HP46	3600X2	1/8-27	1/8-27	1.10	0.66	0.08	
•C1HP47	3600X4	1/4-18	1/4-18	1.56	0.91	0.16	
•C1HP48	3600X6	3/8-18	3/8-18	1.68	0.97	0.21	



3700

Female Pipe Tee

Catalog Part No.	Eaton Model	Thread P	L (in)	Wt.	Price Each
•C1HP51	3700X2	1/8-27	1.10	0.08	
•C1HP52	3700X4	1/4-18	1.56	0.17	
•C1HP53	3700X6	3/8-18	1.68	0.22	
•C1HP54	3700X8	1/2-14	2.18	0.43	
•C1HP50	3700X12	3/4-14	2.32	0.66	



3950

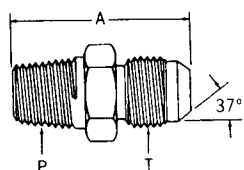
Female Pipe Cross

Catalog Part No.	Eaton Model	Thread P	M (in)	Wt.	Price Each
•C1HP59	3950X2	1/8-27	0.50	0.06	
•C1HP60	3950X4	1/4-18	0.75	0.20	
•C1HP61	3950X6	3/8-18	0.81	0.31	
•C1HP62	3950X8	1/2-14	1.09	0.52	

Adapters



Brass Pipe to 37° Flare

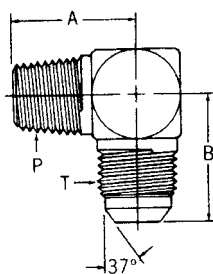


2021

Male Pipe / 37° Male Flare

Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread P	Thread T	A (in)	Wt.	Price Each
•C1AV11	2021-4-4B	0.25	1/4-18	7/16-20	1.42	0.06	
•C1AV15	2021-4-6B	0.38	1/4-18	9/16-18	1.43	0.07	
•C1AV23	2021-6-6B	0.38	3/8-18	9/16-18	1.43	0.09	
•C1AV25	2021-6-8B	0.50	3/8-18	3/4-16	1.53	0.12	
•C1AV32	2021-8-6B	0.38	1/2-14	9/16-18	1.69	0.14	
•C1AV34	2021-8-8B	0.50	1/2-14	3/4-16	1.79	0.19	
•C1AV27	2021-8-10B	0.63	1/2-14	7/8-14	1.89	0.20	
•C1AV29	2021-8-12B	0.75	1/2-14	1-1/16-12	2.06	0.30	
•C1AU75	2021-12-12B	0.75	3/4-14	1-1/16-12	2.06	0.29	
•C1AU77	2021-12-16B	1.0	3/4-14	1-5/16-12	2.11	0.39	
•C1AU83	2021-16-16B	1.0	1-11-1/2	1-5/16-12	2.30	0.48	
•C1FA52	2021-20-20B	1.25	1-1/4-11-1/2	1-5/8-12	2.45	0.68	

NP Models: Nickel Plated



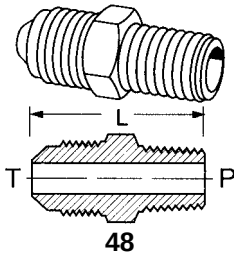
2024

Male Pipe / Male 37° Flare 90° Elbow

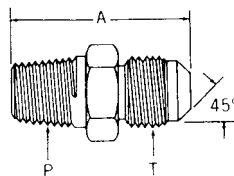
Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread P	Thread T	A (in)	B (in)	Wt.	Price Each
•C1AW20	2024-4-4B	0.25	1/4-18	7/16-20	1.09	1.05	0.11	
•C1AW23	2024-4-6B	0.38	1/4-18	9/16-18	1.09	1.06	0.10	
•C1AW30	2024-6-6B	0.38	3/8-18	9/16-18	1.22	1.14	0.16	
•C1AW37	2024-8-6B	0.38	1/2-14	9/16-18	1.47	1.13	0.30	
•C1AW39	2024-8-8B	0.50	1/2-14	3/4-16	1.47	1.33	0.25	
•C1AV87	2024-12-12B	0.75	3/4-14	1-1/16-12	1.59	1.66	0.50	
•C1AV93	2024-16-16B	1.0	1-11-1/2	1-5/16-12	1.97	1.81	0.68	



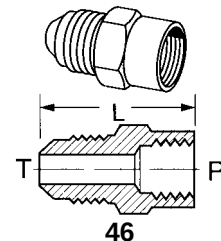
Brass Pipe to 45° Flare



48
Male 45° Flare / Male Pipe



248 / 2000
Male Pipe / Male 45° Flare



46
Male 45° Flare / Female Pipe

Catalog Part No.	Eaton Model	Tube O.D. (in)	Thread P	Thread T	L (in)	Wt.	Price Each
•C1HQ17	48X3	0.19	1/8-27	3/8-24	1.00	0.03	
•C1HQ18	48X4	0.25	1/8-27	7/16-20	1.06	0.03	
•C1HQ20	48X5	0.31	1/8-27	1/2-20	1.16	0.04	
•C1HQ23	48X6X2	0.38	1/8-27	5/8-18	1.25	0.06	
•C1HQ19	48X4X4	0.25	1/4-18	7/16-20	1.26	0.04	
•C1HQ21	48X5X4	0.31	1/4-18	1/2-20	1.34	0.06	
•C1HQ22	48X6	0.38	1/4-18	5/8-18	1.44	0.08	
•C1HQ27	48X8X4	0.50	1/4-18	3/4-16	1.62	0.10	
•C1HQ24	48X6X6	0.38	3/8-18	5/8-18	1.44	0.10	
•C1HQ26	48X8	0.50	3/8-18	3/4-16	1.62	0.11	
•C1HQ13	48X10X6	0.63	3/8-18	7/8-14	1.81	0.17	
•C1HQ25	48X6X8	0.38	1/2-14	5/8-18	1.69	0.18	
•C1HQ28	48X8X8	0.50	1/2-14	3/4-16	1.81	0.18	
•C1HQ12	48X10	0.63	1/2-14	7/8-14	2.00	0.19	
•C1HQ14	48X12	0.75	1/2-14	1-1/16-14	2.18	0.29	
•C1HQ15	48X12X12	0.75	3/4-14	1-1/16-14	2.18	0.33	

Catalog Part No.	Model Number	Tube O.D. (in)	Thread P	Thread T	A (in)	Wt.	Price Each
•C1FH18	NPACR-10-256	0.25	1/4-18	7/16-20	1.12	0.04	
C1AU23	2000-4-6B	0.38	1/4-18	5/8-18	1.44	0.07	
•C1BG39	248X4X6	0.25	3/8-18	7/16-20	1.25	0.06	
•C1BG43	248X5X6	0.31	3/8-18	1/2-20	1.38	0.07	
•C1FH20	NPACR-10-264	0.38	3/8-18	5/8-18	1.38	0.11	
•C1FH21	NPACR-10-268	0.50	3/8-18	3/4-16	1.56	0.06	
C1AU27	2000-8-8B	0.50	1/2-14	3/4-16	1.81	0.15	
•C1BG49	248X8X12	0.50	3/4-14	3/4-16	1.75	0.18	
•C1BG31	248X10X12	0.63	3/4-14	7/8-14	1.88	0.19	

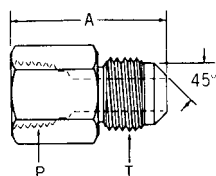
NP Models: Nickel Plated.

Note: 2000 is Aeroquip® model.

Catalog Part No.	Eaton Model	Tube O.D. (in)	Thread P	Thread T	L (in)	Wt.	Price Each
•C1HP95	46X4	0.25	1/8-27	7/16-20	1.03	0.04	
•C1HP96	46X4X4	0.25	1/4-18	7/16-20	1.25	0.06	
•C1HP98	46X6	0.38	1/4-18	5/8-18	1.31	0.08	
•C1HP99	46X6X6	0.38	3/8-18	5/8-18	1.38	0.10	
•C1HQ11	46X8	0.50	3/8-18	3/4-16	1.50	0.11	

Adapters

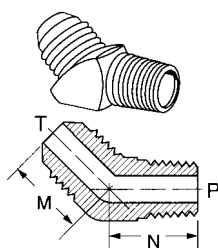
Brass Pipe to 45° Flare



246 / 2001
Female Pipe / Male 45° Flare

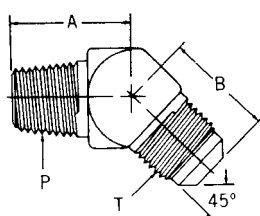
Catalog Part No.	Model Number	Tube O.D. (in)	Thread P	Thread T	A (in)	Wt.	Price Each
•C1BG20	246X3	0.19	1/8-27	3/8-24	0.97	0.01	
•C1BG24	246X5X4	0.31	1/4-18	1/2-20	1.28	0.04	
•C1BG29	246X8X8	0.50	1/2-14	3/4-16	1.44	0.09	
•C1FE71	246X10	0.63	1/2-14	7/8-14	1.62	0.16	

NP Models: Nickel Plated.
Note: 2001 is Aeroquip® model.



54
Male 45° Flare / Male Pipe 45° Elbow

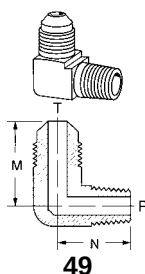
Catalog Part No.	Eaton Model	Tube O.D. (in)	Thread P	Thread T	M (in)	N (in)	Wt.	Price Each
•C1HQ54	54X4	0.25	1/8-27	7/16-20	0.67	0.64	0.04	
•C1HQ56	54X6	0.38	1/4-18	5/8-18	0.89	0.86	0.11	
•C1HQ57	54X8	0.50	3/8-18	3/4-16	1.06	0.95	0.17	
•C1HQ58	54X8X8	0.50	1/2-14	3/4-16	1.12	1.17	0.23	
•C1HQ53	54X10	0.63	1/2-14	7/8-14	1.23	1.17	0.26	



254 / 2007
Male Pipe / Male 45° Flare 45° Elbow

Catalog Part No.	Model Number	Tube O.D. (in)	Thread P	Thread T	A (in)	B (in)	Wt.	Price Each
•C1BH24	254X6X6	0.38	3/8-18	5/8-18	0.78	0.88	0.11	
•C1FJ99	254X12X12	0.75	3/4-14	1-1/16-14			0.30	

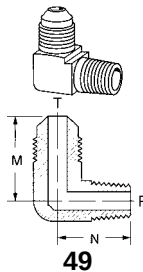
NP Models: Nickel Plated.
F Models: Models with F on end are Forged.



49
Male 45° Flare / Male Pipe 90° Elbow

Catalog Part No.	Eaton Model	Tube O.D. (in)	Thread P	Thread T	M (in)	N (in)	Wt.	Price Each
•C1HQ34	49X4	0.25	1/8-27	7/16-20	0.81	0.76	0.05	
•C1HQ37	49X5	0.31	1/8-27	1/2-20	0.91	0.78	0.06	
•C1HQ40	49X6X2	0.38	1/8-27	5/8-18	1.03	0.91	0.11	
•C1HQ35	49X4X4	0.25	1/4-18	7/16-20	0.88	0.94	0.07	
•C1HQ38	49X5X4	0.31	1/4-18	1/2-20	0.95	0.92	0.08	
•C1HQ39	49X6	0.38	1/4-18	5/8-18	0.97	1.06	0.11	

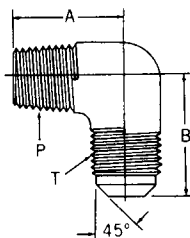
Brass Pipe to 45° Flare



49

Male 45° Flare / Male Pipe 90° Elbow

Catalog Part No.	Eaton Model	Tube O.D. (in)	Thread P	Thread T	M (in)	N (in)	Wt.	Price Each
•C1HQ44	49X8X4	0.50	1/4-18	3/4-16	1.22	1.19	0.16	
•C1HQ36	49X4X6	0.25	3/8-18	7/16-20	0.94	1.03	0.13	
•C1HQ41	49X6X6	0.38	3/8-18	5/8-18	1.06	1.09	0.14	
•C1HQ43	49X8	0.50	3/8-18	3/4-16	1.22	1.12	0.19	
•C1HQ30	49X10X6	0.63	3/8-18	7/8-14	1.41	1.23	0.33	
•C1HQ42	49X6X8	0.38	1/2-14	5/8-18	1.16	1.28	0.24	
•C1HQ45	49X8X8	0.50	1/2-14	3/4-16	1.26	1.36	0.27	
•C1HQ29	49X10	0.63	1/2-14	7/8-14	1.41	1.38	0.28	
•C1HQ31	49X12	0.75	1/2-14	1-1/16-14	1.62	1.50	0.45	
•C1HQ32	49X12X12	0.75	3/4-14	1-1/16-14	1.59	1.62	0.56	



249 / 2003

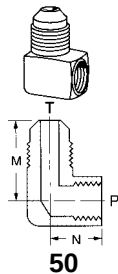
Male Pipe / Male 45° Flare 90° Elbow

Catalog Part No.	Model Number	Tube O.D. (in)	Thread P	Thread T	A (in)	B (in)	Wt.	Price Each
•C1FG88	NP10-294F	0.38	1/4-18	5/8-18	0.88	1.0	0.09	
•C1FQ69	249X5X6	0.38	3/8-18	1/2-20			0.08	
•C1FG90	NP10-299F	0.50	3/8-18	3/4-16	1.12	1.22	0.14	
•C1BG61	249X4X8	0.25	1/2-14	7/16-20			0.10	
•C1BG69	249X8X12	0.50	3/4-14	3/4-16			0.21	
•C1BG53	249X10X12	0.63	3/4-14	7/8-14			0.23	

NP Models: Nickel Plated.

Note: Models with F on end are Forged.

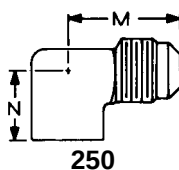
Note: 2003 is Aeroquip® model.



50

Male 45° Flare / Female Pipe 90° Elbow

Catalog Part No.	Eaton Model	Tube O.D. (in)	Thread P	Thread T	M (in)	N (in)	Wt.	Price Each
•C1HQ48	50X4	0.25	1/8-27	7/16-20	0.88	0.47	0.06	
•C1HQ50	50X6	0.38	1/4-18	5/8-18	1.09	0.69	0.15	



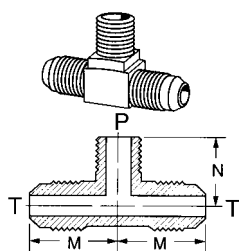
250

Female Pipe / Male 45° Flare 90° Elbow

Catalog Part No.	Model Number	Tube O.D. (in)	Pipe Thread	Tube Thread	M (in)	N (in)	Wt.	Price Each
•C1FE75	250X8X8	0.50	1/2-14	3/4-16			0.15	

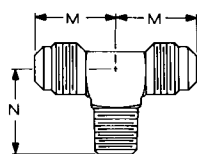
Adapters

Brass Pipe to 45° Flare



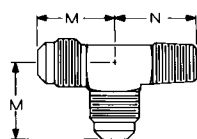
45

Male 45° Flare / Male Pipe / Male 45°
Flare Tee



245

Male 45° Flare / Male Pipe / Male 45°
Flare Tee



251

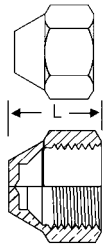
Male 45° Flare / Male 45° Flare / Male
Pipe Tee

Catalog Part No.	Eaton Model	Tube O.D. (in)	Thread P	Thread T	M (in)	N (in)	Wt.	Price Each
•C1HP94	45X4	0.25	1/8-27	7/16-20	0.81	0.78	0.07	

Catalog Part No.	Model Number	Tube O.D. (in)	Pipe Thread	Tube Thread	M (in)	N (in)	Wt.	Price Each
•C1BG15	245X6	0.38	1/4-18	5/8-18	1.0	1.06	0.11	

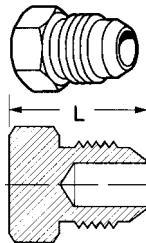
Catalog Part No.	Model Number	Tube O.D. (in)	Pipe Thread	Tube Thread	M (in)	N (in)	Wt.	Price Each
•C1BH13	251X6	0.38	1/4-18	5/8-18			0.10	

Brass 45° Flare Union



40

45° Flare Cap



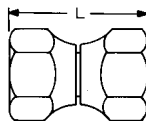
39

45° Flare Plug



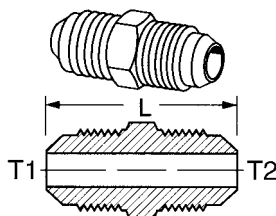
2229

45° Flare Plug



1350

Female 45° Flare Union



42

Male 45° Flare Union

Catalog Part No.	Eaton Model	Tube O.D. (in)	L (in)	Wt.	Price Each
•C1HP77	40X4	0.25	0.53	0.02	
•C1HP79	40X6	0.38	0.69	0.05	
•C1HP80	40X8	0.50	0.84	0.06	
•C1HP75	40X10	0.63	0.97	0.10	
•C1HP76	40X12	0.75	1.09	0.18	

Catalog Part No.	Eaton Model	Tube O.D. (in)	L (in)	Wt.	Price Each
•C1HP65	39X4	0.25	0.69	0.02	
•C1HP66	39X6	0.38	0.88	0.06	
•C1HP67	39X8	0.50	1.06	0.09	
•C1HP63	39X10	0.63	1.19	0.13	
•C1HP64	39X12	0.75	1.31	0.22	

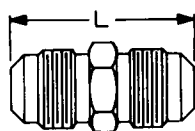
Catalog Part No.	Model Number	Tube O.D. (in)	Thread T	L (in)	Wt.	Price Each
•C1BC95	2229X5	0.31	1/2-20		0.03	

Catalog Part No.	Model Number	Tube O.D. (in)	Thread T	L (in)	Wt.	Price Each
•C1AK46	1350X6	0.38	5/8-18	1.50	0.15	
•C1AK45	1350X10	0.63	7/8-14	2.0	0.20	

Catalog Part No.	Eaton Model	Tube O.D. (in)	Thread T1	Tube O.D. (in)	Thread T2	L (in)	Wt.	Price Each
•C1HP88	42X4	1/4	7/16-20	1/4	7/16-20	1.19	0.03	
•C1HP89	42X5	5/16	1/2-20	5/16	1/2-20	1.34	0.05	
•C1HP90	42X6	3/8	5/8-18	3/8	5/8-18	1.50	0.09	
•C1HP91	42X8	1/2	3/4-16	1/2	3/4-16	1.81	0.14	
•C1HP86	42X10	5/8	7/8-14	5/8	7/8-14	2.12	0.21	

Adapters

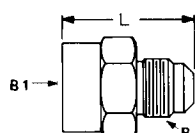
Brass 45° Flare Union



242

Male 45° Flare Union

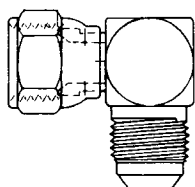
Catalog Part No.	Model Number	Tube O.D. (in)	Tube Thread	Tube O.D.	Tube Thread	L (in)	Wt.	Price Each
•C1ZY79	242X5X4	0.31	1/2-20	0.25	7/16-20	1.28	0.04	
•C1EN22	242X6X4	0.38	5/8-18	0.25	7/16-20	1.38	0.06	
•C1EX64	242X6X5	0.38	5/8-18	0.31	1/2-20		0.07	
•C1BF92	242X8X6	0.50	3/4-16	0.38	5/8-18	1.69	0.12	
•C1ZU15	242X12X10	0.75	1-1/16-14	0.63	7/8-14		0.30	
•C1BF86	242X12	0.75	1-1/16-14	0.75	1-1/16-14	2.44	0.35	



2274

Female 45° Flare / Male 45° Flare

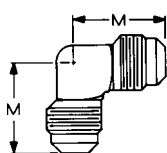
Catalog Part No.	Model Number	Tube O.D. (in)	Thread B1	Tube O.D.	Thread B	L (in)	Wt.	Price Each
•C1BD87	2274X6	0.25	7/16-20	0.38	5/8-18	1.12	0.07	
•C1BD89	2276X8	0.38	5/8-18	0.50	3/4-16	1.41	0.12	
•C1BD90	2278X6	0.50	3/4-16	0.38	5/8-18	1.44	0.20	



A800

Female 45° Flare Swivel / Male 45° Flare 90° Elbow

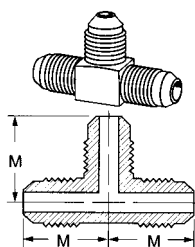
Catalog Part No.	Model Number	Tube O.D. (in)	Tube O.D.	Wt.	Price Each
•C1CH40	A800-3/8X3/8	0.38	0.38	0.17	



255

Male 45° Flare / Male 45° Elbow 90° Elbow

Catalog Part No.	Model Number	Tube O.D. (in)	Thread	M (in)	Wt.	Price Each
•C1BH39	255X6	0.38	5/8-18	1.06	0.08	

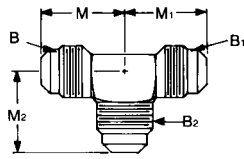


44

Male 45° Flare Tee

Catalog Part No.	Eaton Model	Tube O.D. (in)	Thread	M (in)	Wt.	Price Each
•C1HP92	44X4	0.25	7/16-24	0.86	0.08	

Brass 45° Flare Union



244

Male 45° Flare Tee

Catalog Part No.	Model Number	Tube O.D. B (in)	Tube O.D. B1	Tube O.D. B2	M (in)	M1 (in)	M2 (in)	Wt.	Price Each
•C1BG11	244X5	0.31	0.31	0.31	0.91	0.91	0.91	0.09	
•C1BG12	244X6	0.38	0.38	0.38	1.06	1.06	1.06	0.13	

NP Models: Nickel Plated.

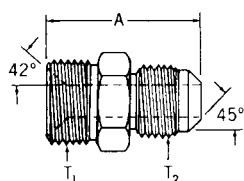
F Models: Models with F on end are Forged.

Adapters



Brass

42° Inverted Flare to 45° Male Flare



200001

Male 42° Inverted Flare / Male 45° Flare

Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread T1	Thread T2	A (in)	Wt.	Price Each
•C1AU29	200001-4-4B	0.25	7/16-24	7/16-20	1.09	0.03	
•C1AU31	200001-5-4B	0.25	1/2-20	7/16-20	1.10	0.03	
•C1AU32	200001-5-6B	0.38	1/2-20	5/8-18	1.25	0.07	
•C1AU33	200001-6-6B	0.38	5/8-18	5/8-18	1.28	0.08	
•C1AU34	200001-7-6B	0.38	11/16-18	5/8-18	1.43	0.10	
•C1AU35	200001-8-8B	0.50	3/4-18	3/4-16	1.56	0.13	
•C1AU28	200001-10-10B	0.63	7/8-18	7/8-14	1.76	0.17	

Hydraulic Power & Control

Pneumatic Power & Control

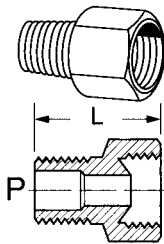
Fluid Conveying

Miscellaneous Products

Indexes & Technical Information



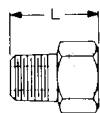
Brass 42° Inverted Flare to Pipe



202

Male Pipe / Female 42° Inverted Flare

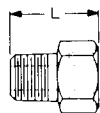
Catalog Part No.	Eaton Model	Tube O.D. (in)	Thread P	L (in)	Wt.	Price Each
•C1HN58	202X3	3/16	1/8-27	0.70	0.02	
•C1HN59	202X4	1/4	1/8-27	0.74	0.02	
•C1HN60	202X5	5/16	1/8-27	0.79	0.03	
•C1HD39	202X4X4	0.25	1/4-18	0.89	0.04	
•C1HH75	202X5X4	0.31	1/4-18	0.98	0.05	
•C1HN61	202X6X6	3/8	3/8-18	1.01	0.08	
•C1HN62	202X8	1/2	3/8-18	1.07	0.09	



2200

Male Pipe / Female 42° Inverted Flare

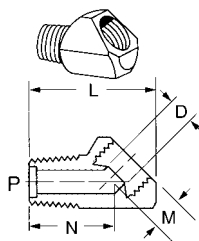
Catalog Part No.	Model Number	Tube O.D. (in)	Pipe Thread	L (in)	Wt.	Price Each
•C1EN16	2200X6	0.38	1/4-18	1.02	0.06	



2202

Male Pipe / Female 42° Inverted Flare
(Heavy Series)

Catalog Part No.	Model Number	Tube O.D. (in)	Pipe Thread	L (in)	Wt.	Price Each
•C1BC99	2232X6	0.38	1/8-27	0.88	0.01	



352

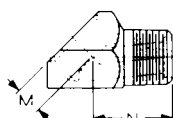
Male Pipe / Female 42° Inverted Flare
45° Elbow

Catalog Part No.	Eaton Model	Tube O.D. (in)	Thread P	L (in)	M (in)	Wt.	Price Each
•C1HP43	352X4	1/4	1/8-27	0.94	0.27	0.03	
•C1HP45	352X6	3/8	1/4-18	1.34	0.41	0.08	

Adapters

Brass

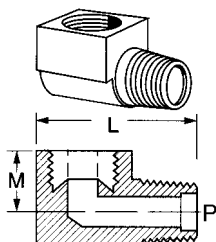
42° Inverted Flare to Pipe



2352

Female 42° Inverted Flare / Male Pipe
45° Elbow

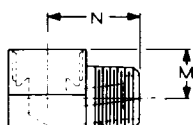
Catalog Part No.	Model Number	Tube O.D. (in)	Pipe Thread	M (in)	N (in)	Wt.	Price Each
•C1BF17	2352X8	0.50	.375	0.38	0.91	0.20	



402

Female 42° Inverted Flare / Male Pipe
90° Elbow

Catalog Part No.	Eaton Model	Tube O.D. (in)	Thread P	L (in)	M (in)	Wt.	Price Each
•C1HP68	402X3	3/16	1/8-27	0.85	0.27	0.03	
•C1HP69	402X4	1/4	1/8-27	0.92	0.33	0.04	
•C1HP70	402X5	5/16	1/8-27	0.98	0.47	0.05	
•C1HJ22	402x4x4	1/4	1/4-18	1.09	0.28	0.06	
•C1HD85	402X5X4	0.31	1/4-18	0.45		0.07	
•C1HP71	402X6	3/8	1/4-18	1.32	0.53	0.10	
•C1HP73	402X8	1/2	3/8-18	1.48	0.59	0.16	
•C1HP74	402X8X8	1/2	1/2-14	1.67	0.66	0.25	

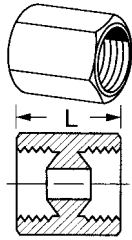


2402

Female 42° Inverted Flare / Male Pipe
90° Elbow
(Heavy Series)

Catalog Part No.	Model Number	Tube O.D. (in)	Pipe Thread	M (in)	N (in)	Wt.	Price Each
•C1ZY80	2402X10	0.63	1/2-14			0.15	

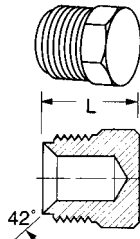
Brass 42° Inverted Flare Unions & Accessories



302

Female 42° Inverted Flare Union

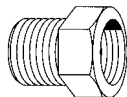
Catalog Part No.	Eaton Model	Tube O.D. (in)	L (in)	Wt.	Price Each
•C1HD71	302X4	1/4	0.62	0.02	
•C1HN73	302X5	5/16	0.70	0.03	
•C1HD72	302X6	3/8	0.80	0.07	



131

Male 42° Inverted Flare Plug (Steel)

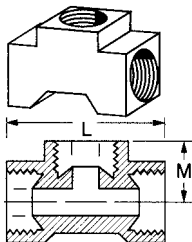
Catalog Part No.	Eaton Model	Tube O.D. (in)	L (in)	Wt.	Price Each
•C1HM67	131X3	3/16	0.53	1.00	
•C1HM68	131X4	1/4	0.54	0.02	
•C1HM69	131X5	5/16	0.59	0.02	
•C1HM70	131X6	3/8	0.66	0.04	



7818

Male x Female 42° Inverted Flare

Catalog Part No.	Model Number	Male Thread	Female Thread	Wt.	Price Each
•C1FK27	7818	7/16-24	3/16	0.03	



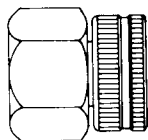
702

Female 42° Inverted Flare Union Tee

Catalog Part No.	Eaton Model	Tube O.D.	L (in)	M (in)	Wt.	Price Each
C1GY27	IG702X3	3/16	1.09	0.39	0.05	
•C1HE19	702X4	1/4	1.13	0.42	0.05	

Adapters

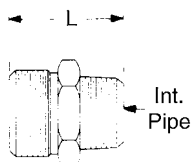
Brass Garden Hose Adapters



21517

Female Pipe / Female Hose Swivel

Catalog Part No.	Model Number	Straight Thread	Pipe Thread	Wt.	Price Each
•C1BC39	21517X12X8	3/4-11-1/2	1/2-14	0.13	
•C1ZY86	21517X12X12	3/4-11-1/2	3/4-16	0.13	



21502

Male Hose / Male & Female Pipe

Catalog Part No.	Model Number	Straight Thread	External Pipe Thread	Internal Pipe Thread	L (in)	Wt.	Price Each
•C1FE68	21502X12X12X8	3/4-11-1/2	3/4-14	1/2-14	1.31	0.16	



21518

Hose Cap

Catalog Part No.	Model Number	Straight Thread	Wt.	Price Each
•C1EN15	21518X12	3/4-11-1/2	0.06	



Quick Disconnects

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Quick Disconnects

Air

3000/4000/5000/6000 Series - MIL-C-4109 Industrial Interchange



The 3000/4000/5000/6000 Series offers a one-hand push-to-connect latch ideal for compressed air service. The female half features a self-sealing valve, preventing air loss while disconnected. The male half uses a straight through design.

Eaton Coupling Features: Automatic sleeve for one-hand push-to connect operation • Protective collar to prevent accidental snagging and disconnection • Meets dimensional requirements of MIL-C-4109 for industrial interchangeability • Swivels 360°, eliminating hose kinking • Pin latching mechanism • Standard seal material - Buna N • Standard body material - Brass.

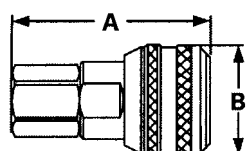
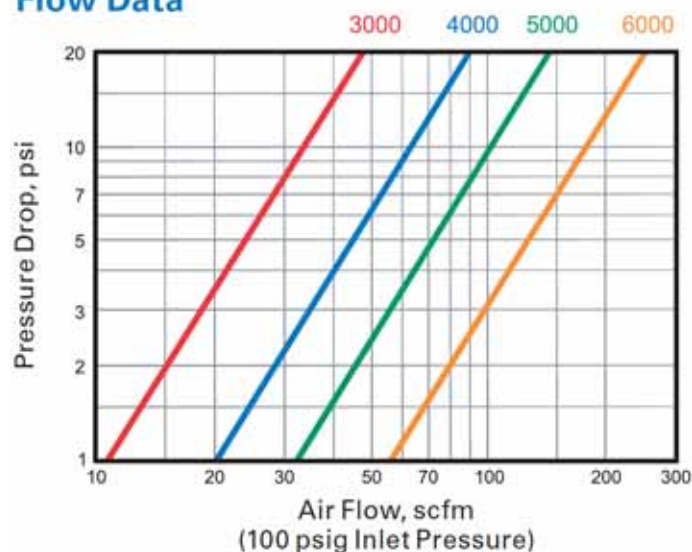
Oetiker Swing Coupling Features: Interchanges with Aeroquip FD40 Series • Safe automatic venting of trapped air when disconnecting • Meets dimensional requirements of MIL-C-4109 for industrial interchangeability • To connect, insert male half into coupling in angled position. Swing the halves to a straight position • To disconnect, retract release sleeve, swing assembly to angled position • Swivels 360°, eliminating hose kinking • Designed to assure high flow with low pressure drop for peak tool performance • Standard seal material - Buna-N • Standard body material - Zinc and nickel plated steel.

Milton Coupling Features: Ideal for use when male half type is not known • Accepts male halves from Aeroquip FD40 Series, Aeroquip FD41 Series (Aro 210), Tru-Flate and Parker (Automotive) • Rust resistant - made of heavy duty brass • Push Type - Body engages automatically • Drag Guard - virtually eliminates accidental disconnection.

Maximum Operating Pressure: Aeroquip Models 500 PSI. Oetiker Models 360 PSI. Milton Models 300 PSI. Dixon Models 300 PSI.

Pressure Drop versus Flow Graph: The graph is for Eaton 3000/4000/5000/6000 Series.

Flow Data

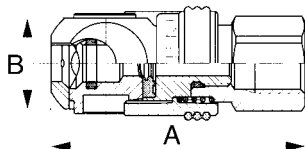


Eaton 3000SL
Female Half
Female Pipe - Valved

Catalog Part No.	Aeroquip Model	Coupling Size	Thread Size	Seal Material	A (in)	B (in)	Wt.	Price Each
•C1LX15	3000SL	-04	1/4-18	Buna-N	2.11	1.19	0.29	
•C1LB49	4200SL							
•C1LB54	5200SL							

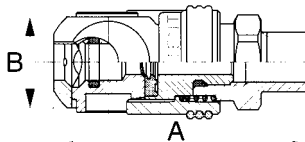
Air

3000/4000/5000/6000 Series - MIL-C-4109 Industrial Interchange



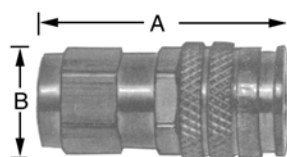
Oetiker Swing Coupling
Female Half - Safety Vent
Female Pipe - Valved

Catalog Part No.	Oetiker Model	Coupling Size	Thread Size	Seal Material	A (in)	B (in)	Wt.	Price Each
•C1ZY90	20500311	-04	1/4-18	Buna-N	2.54	0.79	0.23	
•C1ZY94	20500026	-06	3/8-18	Buna-N	2.79	0.94	0.31	
•C1FF61	20500110	-08	1/2-14	Buna-N	3.31	1.38	0.93	



Oetiker Swing Coupling
Female Half - Safety Vent
Male Pipe - Valved

Catalog Part No.	Oetiker Model	Coupling Size	Thread Size	Seal Material	A (in)	B (in)	Wt.	Price Each
•C1ZY89	20500317	-04	1/4-18	Buna-N	2.66	0.79	0.22	
•C1FL21	20500318	-04	3/8-18	Buna-N	2.66	0.79	0.24	



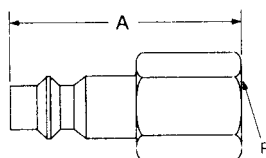
Milton Multi-Series Coupling
Female Half - Valved
Female Pipe - Brass

Catalog Part No.	Milton Model	Coupling Size	Thread Size	Seal Material	A (in)	B (in)	Wt.	Price Each
•C1FF81	745	-04	1/4-18	Buna-N	2.13	1.00	0.25	



Dixon Hose Shank
Female Half - Valved
Hose Clamp Required

Catalog Part No.	Dixon Model	Coupling Size	Hose Size	Seal Material	Wt.	Price Each
•C1FQ13	DC2042	-04	1/4	Buna-N	0.18	
•C1FQ14	DC2044	-04	3/8	Buna-N	0.19	



Eaton 1000/400/500 Series
Male Half
Female Pipe - Non-Valved

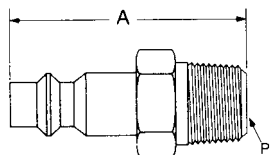
Catalog Part No.	Eaton Model	Coupling Size	Thread Size (P)	A (in)	Wt.	Price Each
•C1EV51	11	-04	1/4-18	1.63	0.07	
•C1LB55	55	-08	1/2-14	2.34	0.19	

Quick Disconnects

Air

3000/4000/5000/6000 Series - MIL-C-4109 Industrial Interchange

EATON
Powering Business Worldwide



Eaton 1000/400/500 Series
Male Half
Male Pipe - Non-Valved

Catalog Part No.	Eaton Model	Coupling Size	Thread Size (P)	A (in)	Wt.	Price Each
• C1LW50	10	-04	1/4-18	1.75	0.06	
• C1FJ24	DCP2502	-04	1/4-18	1.88	0.08	
• C1MM55	40	-06	1/4-18	1.88		
• C1LX31	42	-06	3/8-18	1.88	0.08	
• C1LX40	54E	-08	1/2-14	2.44		
C1FV64	25500278	-08	1/2-14	2.48	0.18	

Note: DCP2502 is Dixon model, 25500278 is Oetiker model.



Dixon Hose Shank
Male Half
Hose Clamp Required

Catalog Part No.	Dixon Model	Coupling Size	Hose Size	Wt.	Price Each
• C1FQ20	DCP2144	-04	3/8	0.05	

Hydraulic Power & Control

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Indexes & Technical Information

Air Auto-Flo 23 Series - Aro 210 Interchange



The Auto-Flo 23/24 Series interchanges with the Aro 210 Series for compressed air service, with a self-sealing female half and straight through male half.

Eaton Coupling Features: Designed to operate with Industrial, ARO 210 and Tru-Flate Interchange plugs/males • Meets dimensional

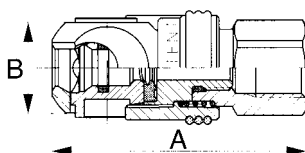
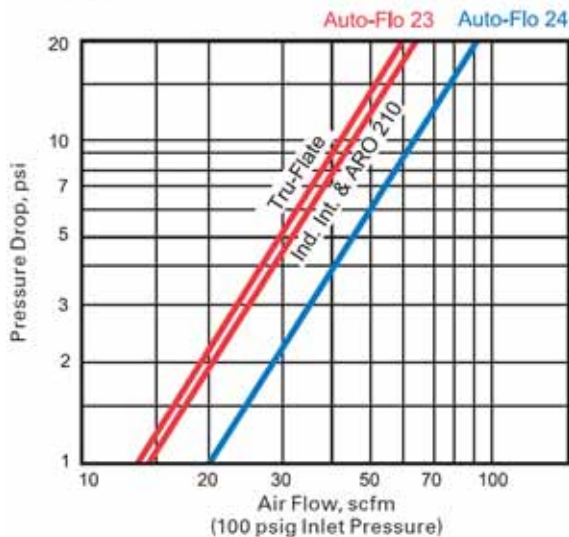
requirements of ISO Standard 6150 Series B • Automatic sleeve for one hand push-to-connect operation • Swivels 360°, eliminating hose kinking • Designed to assure high flow with low pressure drop for peak tool performance • Standard seal material - Buna-N • Standard body materials - Zinc plated steel, brass.

Oetiker Swing Coupling Features: Interchanges with Aeroquip FD41 and Aro 210 Series • Meets dimensional requirements of ISO Standard 4414 • Safe automatic venting of trapped air when disconnecting • To connect, insert male half into coupling in angled position. Swing the halves to a straight position • To disconnect, retract release sleeve, swing assembly to angled position • Swivels 360°, eliminating hose kinking • Designed to assure high flow with low pressure drop for peak tool performance • Standard seal material - Buna-N • Standard body material - Zinc and nickel plated steel.

Milton Coupling Features: Ideal for use when male half type is not known • Accepts male halves from Aeroquip FD40 Series, Aeroquip FD41 Series (Aro 210), Tru-Flate and Parker (Automotive) • Rust resistant - made of heavy duty brass • Push Type - Body engages automatically • Drag Guard - virtually eliminates accidental disconnection.

Maximum Operating Pressure: Eaton Models size -04 150 PSI. Oetiker Models 360 PSI. Aro Models 250 PSI. Milton Models 300 PSI. Dixon Models 300 PSI.

Flow Data



Oetiker Swing Coupling
Female Half - Safety Vent
Female Pipe - Valved

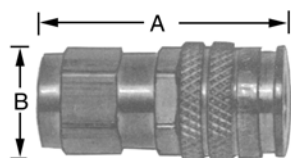
Catalog Part No.	Oetiker Model	Coupling Size	Thread Size	Seal Material	A (in)	B (in)	Wt.	Price Each
•C1ZY92	20500291	-04	1/4-18	Buna-N	2.54	0.78	0.23	

Quick Disconnects

Air

Auto-Flo 23 Series - Aro 210 Interchange

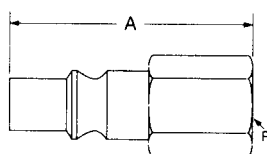
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**Milton Multi-Series
Coupling**

Female Half - Valved
Female Pipe - Brass

Catalog Part No.	Milton Model	Coupling Size	Thread Size	Seal Material	A (in)	B (in)	Wt.	Price Each
•C1FF81	745	-04	1/4-18	Buna-N	2.13	1.00	0.25	

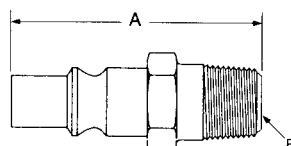


Eaton 2609

Male Half

Female Pipe - Non-Valved

Catalog Part No.	Eaton Model	Coupling Size	Thread Size (P)	A (in)	Wt.	Price Each
•C1LB28	2609	1/4	1/4-18	1.55	0.06	



Eaton 2608

Male Half

Male Pipe - Non-Valved

Catalog Part No.	Eaton Model	Coupling Size	Thread Size (P)	A (in)	Wt.	Price Each
•C1LB27	2608	-04	1/4-18	1.68		

Air

1000/400/500 Series - Industrial Interchange



The 1000/400/500 Series is a manual retract-type ball latch industrial interchange coupling. Ideal for compressed air service.

Features: Meets dimensional requirements of MIL-C-4109 specifications for industrial interchangeability • Protective collar to prevent accidental snagging and disconnection • Manual retract latch design allows quick and easy connection of hose lines • Swivels 360°, eliminating hose kinking • Designed to assure high flow with low pressure drop for peak tool performance • Standard seal material - Neoprene • Standard body material - Zinc plated steel.

Physical Characteristics

Series	Body Size	Max. Operating Pressure		Min. Burst Pressure		Rated Flow	
	(in)	(bar)	(psi)	(bar)	(psi)	(lpm)	(gpm)
1000	1/4	138	2,000	552	8,000	679	179
400	3/8	69	1,000	276	4,000	1,274	336
500	1/2	35	500	140	2,000	2,038	538

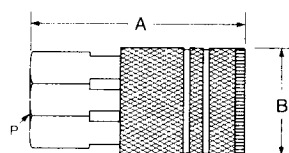
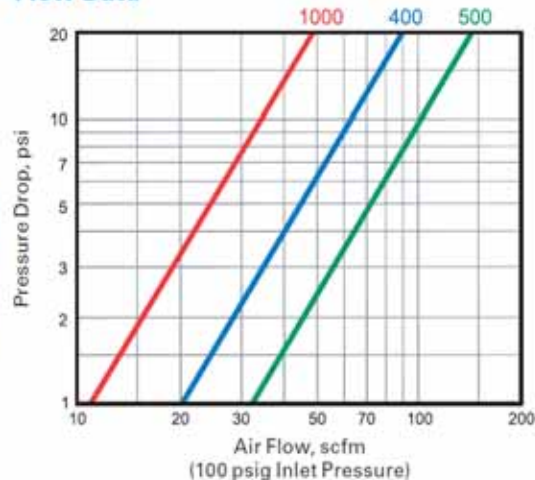
Applications & Markets

- General Pneumatics
- Construction
- Industrial Plants

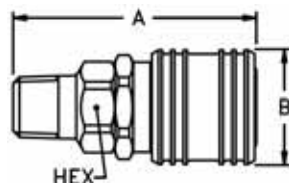
Interchangeability

All Sizes	1/4" & 1/2"	400 Series
US Industrial Interchange	ISO 6150 Series B	Tru-Flate
	A-A-59439 (former MIL-C-4109)	

Flow Data



Industrial Interchange
Female Half
Female Pipe - Valved



Industrial Interchange
Male Half
Male Pipe - Valved

Catalog Part No.	Eaton Model	Coupling Size	Thread Size (P)	Seal Material	A (in)	B (in)	Wt.	Price Each
•C1LX32	420	-06	3/8-18	Buna-N	2.35	1.13	0.31	
•C1LW51	1000E	-04	1/4-18	Buna-N	2.08	1.00	0.22	
•C1LB53	520	-08	1/2-14	Buna-N	3.06	1.19	0.50	

Male Halves: Industrial Interchange pneumatic coupling page 1225

Catalog Part No.	Eaton Model	Coupling Size	Thread Size (P)	Seal Material	A (in)	B (in)	Wt.	Price Each
•C1MN22	1100	-04	1/4-18	Buna-N	2.16	0.69	0.25	

Quick Disconnects

Air - Miscellaneous

Dixon "Air Chief" Automotive Quick-Connect Fittings



Features: Semi-Automatic pull sleeve to connect • Flow Rating 1/4 Inch Size Models: 37 CFM @ 100 PSI • Flow Rating 3/8 Inch Size Models: 70 CFM @ 100 PSI • 300 PSI Maximum Operating Pressure • -40°F to 250°F Operating Temperature Range

Dixon "Air Chief" Automotive Quick-Connect Fittings



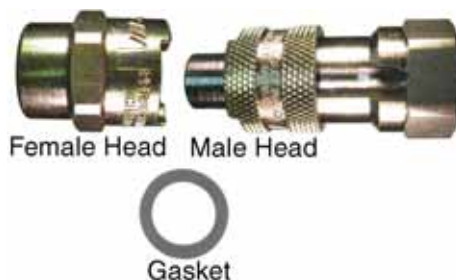
Catalog Part No.	Dixon Model	Coupling Size	Half	Thread	Material	Wt.	Price Each
•C1FJ23	DC6	3/8	Female	3/8 Female NPT	Steel	0.30	
•C1FK36	DCP7	3/8	Male	1/4 Male NPT	Steel	0.09	

Dixon "Dix-Lock" Quick Acting Couplings



Features: QBM2 Buna-N gasket is a separately purchased item • Dix-Lock couplings are rated to 300 PSI, and require a minimum of 5 PSI to get a positive seal

Dixon "Dix-Lock" Quick Acting Couplings



Catalog Part No.	Dixon Model	Material	Description	Wt.	Price Each
•C1FU99	QM83	Plated Steel	Male Head x Female 3/4 NPT	0.70	
•C1FU98	QM103	Plated Steel	Female Head x Female 3/4 NPT	0.30	
•C1GG93	QM102	Plated Steel	Female Head x Female 1/2 NPT	0.31	

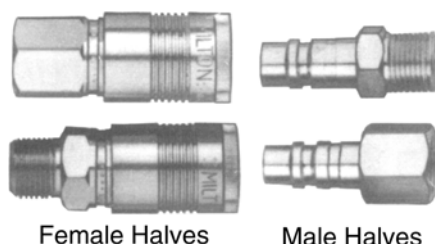
Note: QBM2 Buna-N gasket is a separately purchased item.

Milton G Style 1/2 Inch Air Couplers



Features: 1/2 Inch Basic Size Industrial Interchange Series • Female halves are heavy duty steel • Male halves are case hardened steel • Treated to resist rust • 300 PSI Maximum Operating Pressure • Buna-N seals

Milton G Style 1/2 Inch Air Couplers



Catalog Part No.	Milton Model	Coupling Size	Half	Thread	Wt.	Price Each
•C1FJ65	1816	1/2	Female	1/2 Male NPT	0.46	
•C1FJ64	1815	1/2	Female	1/2 Female NPT	0.46	
•C1FJ68	1858	1/2	Male	1/2 Female NPT	0.19	
•C1FJ67	1857	1/2	Male	1/2 Male NPT	0.17	



Quick Disconnects

Air - Miscellaneous

Milton P Style 3/8 Inch Air Couplers



Features: 3/8 Inch Basic Size Tru-Flate/Parker Style Interchange Series • Female halves are heavy duty steel • Male halves are case hardened steel and treated to resist rust • 300 PSI Maximum Operating Pressure • Buna-N seals.



Milton P Style 3/8 Inch Air Couplers

Catalog Part No.	Milton Model	Coupling Size	Half	Thread	Wt.	Price Each
• C1HY72	1803	3/8	Female	1/4 Female NPT	0.30	
• C1HY74	1809	3/8	Male	1/4 Male NPT	0.08	

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Pneumatic Power & Control

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Quick Disconnects

Fluid Transfer & Hydraulic 5100 Series - Low Spill Connect Under Pressure

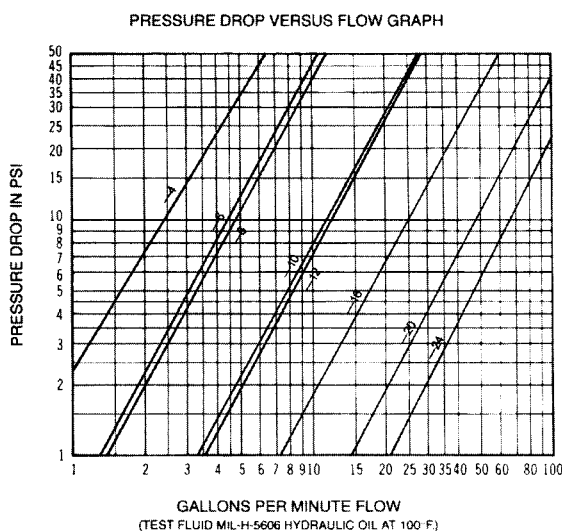


The 5100 Series brass coupling with steel tubular valve offers minimum air inclusion and fluid loss. Thread together latch provides connect under pressure capability and vibration resistance. It is not rated for continuous hydraulic impulse applications.

Features: Tubular valve construction for virtually no fluid loss during disconnection, reduces environmental and worker safety hazards • Low air inclusion during connection maintains system performance • Available with wing or hex nut configurations • Connect against pressure capability allows connecting of halves even when pressurizing up to 500 psi • Steel flange available for accessible bulkhead mounting •

Standard seal material - Buna-N, Viton® and EPR • Standard body material - Brass with steel valving components, hex and wing nuts.

Flow Data

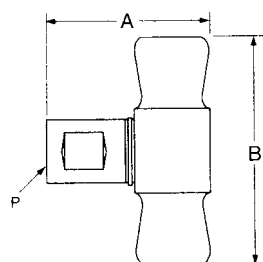


Physical Characteristics

Coupling Dash Size	Coupling Interface Size	Maximum Operating Pressure [†] (psi connected)	Maximum Operating Pressure (psi disconnected)	
			Male Half S2 and S4	Female Half S5
-4	-4	3000	3000	3000
-6	-8	3000	3000	3000
-8	-8	3000	3000	3000
-10	-12	3000	3000	3000
-12	-12	3000	3000	3000
-16	-16	3000	3000	3000
-20	-20	2750	2500	2750
-24	-24	2500	2500	2000

Coupling Dash Size	Coupling Interface Size	Vacuum (in./Hg.)	Rated Flow (gpm)	Air Inclusion (cc max.)	Fluid Loss (cc max.)
-4	-4	28	4	.03	.01
-6	-8	28	7	.05	.06
-8	-8	28	7	.05	.10
-10	-12	28	18	.14	.10
-12	-12	28	18	.34	.26
-16	-16	28	40	.50	.35
-20	-20	28	75	.68	.70
-24	-24	28	100	.60	.94

[†]Minimum burst pressure is equal to three times the maximum operating pressure.
Not recommended for continuous hydraulic impulse applications at maximum operating pressures.



5100-S5

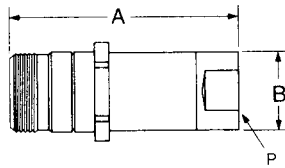
Female Half - Wing Nut
Female Pipe - Valved

Catalog Part No.	Aeroquip Model	Coupling Size	Thread Size (P)	Seal Material	A (in)	B (in)	Wt.	Price Each
•C1BS59	5100-S5-10B	-10	1/2-14	Buna-N	3.09	4.06	1.26	
•C1BS60	5100-S5-12B	-12	3/4-14	Buna-N	3.09	4.06	1.18	
•C1BS61	5100-S5-16B	-16	1-11-1/2	Buna-N	3.67	4.38	1.82	
•C1BS62	5100-S5-20B	-20	1-1/4-11-1/2	Buna-N	3.98	5.19	2.69	
•C1BS63	5100-S5-24B	-24	1-1/2-11-1/2	Buna-N	4.02	5.31	3.30	



Quick Disconnects

Fluid Transfer & Hydraulic
5100 Series - Low Spill Connect Under Pressure



5100-S2
Male Half Less Flange
Female Pipe - Valved

Catalog Part No.	Aeroquip Model	Coupling Size	Thread Size (P)	Seal Material	A (in)	B (in)	Wt.	Price Each
•C1BS53	5100-S2-10B	-10	1/2-14	Buna-N	3.11	1.38	0.89	
•C1BS54	5100-S2-12B	-12	3/4-14	Buna-N	3.11	1.38	0.79	
•C1BS55	5100-S2-16B	-16	1-11-1/2	Buna-N	3.55	1.76	1.33	
•C1BS56	5100-S2-20B	-20	1-1/4-11-1/2	Buna-N	3.71	2.10	1.64	
•C1BS57	5100-S2-24B	-24	1-1/2-11-1/2	Buna-N	4.12	2.48	2.60	



5100-S7
Dust Cap with Chain

Catalog Part No.	Aeroquip Model	Coupling Size	Wt.	Price Each
•C1BS65	5100-S7-12	-10, -12	0.32	
•C1BS66	5100-S7-16	-16	0.39	
•C1BS67	5100-S7-20	-20	0.48	
•C1BS68	5100-S7-24	-24	0.60	



5100-S9
Dust Plug with Chain

Catalog Part No.	Aeroquip Model	Coupling Size	Wt.	Price Each
•C1BS69	5100-S9-12	-10, -12	0.40	
•C1BS70	5100-S9-16	-16	0.53	
•C1BS71	5100-S9-20	-20	0.57	
•C1BS72	5100-S9-24	-24	1.01	

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Quick Disconnects

Fluid Transfer & Hydraulic 5600 Series - Industrial Interchange

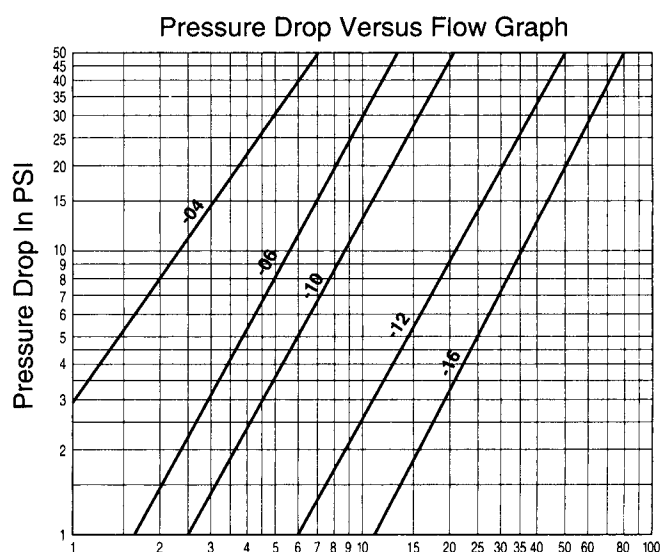


The 5600 Series general purpose coupling features PUSH-PULL™ latch and poppet valving in a low profile design. It is a favorite in North America and abroad.

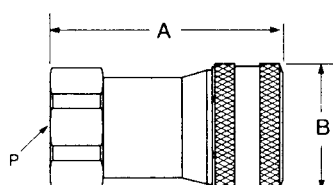
Features: PUSH-PULL™ ball latch design allows quick and easy connection and disconnection of fluid lines • Self-sealing poppet valve

provides excellent high and low pressure sealing • Conforms dimensionally to ISO standard 7241/1 Series A • Streamlined valving provides minimum pressure drop • Standard seal materials - Buna-N, EPR and Viton® • Standard body material - Zinc plated steel with zinc poppet guides. (Brass poppet guide in -04 size).

Flow Data



Gallons Per Minute Flow
(Test Fluid MIL-H-5606 Hydraulic Oil At 100° F.)



5601
Female Half
Female Pipe - Valved

Physical Characteristics

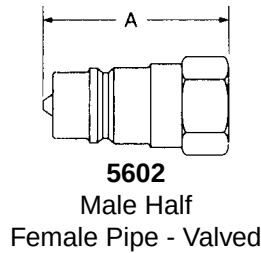
Coupling Size	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Vacuum (in./Hg.)	Rated Flow (gpm)	Air Inclusion (cc. max.)	Fluid Loss (cc. max.)
-04	5,000	15,000	28	1	.50	.50
-06	4,000	12,000	28	6	1.5	1.3
-10	4,000	12,000	28	12	2.8	2.8
-12	4,000	12,000	28	28	10.0	8.2
-16	4,000	12,000	28	50	14.2	14.2

Catalog Part No.	Aeroquip Model	Coupling Size	Thread Size (P)	Seal Material	A (in)	B (in)	Wt.	Price Each
•C1BS96	5601-2-4S	-04	1/8-27	Buna-N	1.81	1.08	0.24	
•C1BS97	5601-4-4S	-04	1/4-18	Buna-N	1.81	1.08	0.60	
•C1BS98	5601-6-6S	-06	3/8-18	Buna-N	2.09	1.27	0.36	
•C1BS99	5601-8-10S	-10	1/2-14	Buna-N	2.76	1.52	0.57	
•C1BS93	5601-12-10S	-10	3/4-14	Buna-N	2.91	1.52	0.62	
•C1BS94	5601-12-12S	-12	3/4-14	Buna-N	3.25	1.84	1.02	
•C1BS95	5601-16-16S	-16	1-11-1/2	Buna-N	4.09	2.15	1.47	

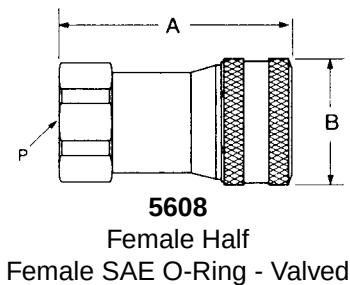


Quick Disconnects

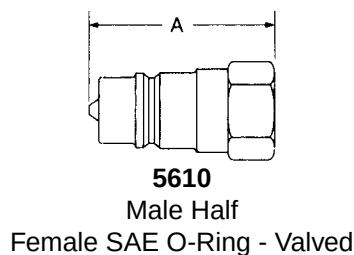
Fluid Transfer & Hydraulic 5600 Series - Industrial Interchange



Catalog Part No.	Aeroquip Model	Coupling Size	Thread Size (P)	Seal Material	A (in)	Wt.	Price Each
•C1BT14	5602-2-4S	-04	1/8-27	Buna-N	1.17	0.05	
•C1BT15	5602-4-4S	-04	1/4-18	Buna-N	1.24	0.08	
•C1BT16	5602-6-6S	-06	3/8-18	Buna-N	1.40	0.12	
•C1BT17	5602-8-10S	-10	1/2-14	Buna-N	1.89	0.23	
•C1BT11	5602-12-10S	-10	3/4-14	Buna-N	2.03	0.38	
•C1BT12	5602-12-12S	-12	3/4-14	Buna-N	2.28	0.50	
•C1BT13	5602-16-16S	-16	1-11-1/2	Buna-N	2.77	0.76	



Catalog Part No.	Aeroquip Model	Coupling Size	Thread Size (P)	Seal Material	A (in)	B (in)	Wt.	Price Each
•C1EN49	5608-10-10S	-10	7/8-14	Buna-N	2.81	1.52	0.57	



Catalog Part No.	Aeroquip Model	Coupling Size	Thread Size (P)	Seal Material	A (in)	Wt.	Price Each
•C1EN50	5610-10-10S	-10	7/8-14	Buna-N	2.08	0.22	



Catalog Part No.	Aeroquip Model	Coupling Size	Wt.	Price Each
•C1BT40	5657-4	-04	0.03	
•C1BT41	5657-6	-06	0.04	
•C1BT37	5657-10	-10	0.04	
•C1BT38	5657-12	-12	0.11	
•C1BT39	5657-16	-16	0.19	



Catalog Part No.	Aeroquip Model	Coupling Size	Wt.	Price Each
•C1BT48	5659-6	-06	0.02	
•C1BT46	5659-10	-10	0.04	
•C1BT47	5659-12	-12	0.07	



Quick Disconnects

Fluid Transfer & Hydraulic 5600 Series - Industrial Interchange



5603
Break-Away Frame

Catalog Part No.	Aeroquip Model	Coupling Size	Wt.	Price Each
•C1BT18	5603	-10	2.01	



5600 Series Repair Kit
(Each kit will repair one male or female half)

Catalog Part No.	Aeroquip Model	Coupling Size	Seal Material	Wt.	Price Each
C1CU49	FF082-12	-12	Buna-N	0.18	



Quick Disconnects

Fluid Transfer & Hydraulic FD42 Series - Pioneer 4000 Interchange



The FD42 Series coupling is designed as a Pioneer 4000 interchange to accommodate high surge flow applications. The maximum operating pressure is 3,000 PSI.

Features: PTFE back-up ring in female half improves impulse life •

Self-sealing poppet valve design provides excellent high and low

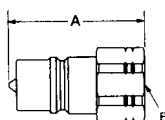
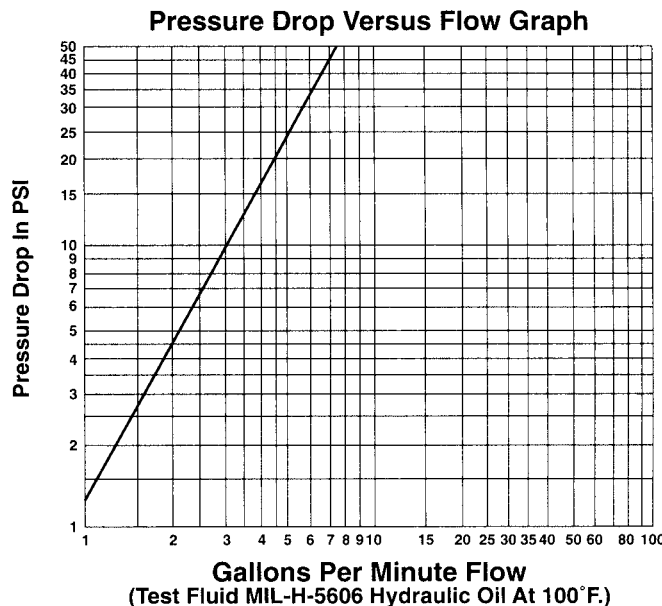
pressure sealing • PUSH-PULL™ ball latch design allows quick and easy connection and disconnection of hose

lines • Interchanges with Pioneer 4000-2 and Safeway S20-A • Retaining groove on female half for bulkhead

mounting • Male half can be bulkhead mounted with optional adapter (FF1607-0404S) • Buna-N standard seal

material • Standard body material is zinc plated steel with zinc poppet guides.

Flow Data



FD42-1002

Male Half

Female Pipe - Valved

Physical Characteristics

Coupling Size	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Vacuum (in./Hg.)	Rated Flow (gpm)	Air Inclusion (cc. max.)	Fluid Loss (cc. max.)
-04	3000	12,000	28	3	.62	.80

Catalog Part No.	Aeroquip Model	Coupling Size	Thread Size (P)	Seal Material	A (in)	Wt.	Price Each
•C1FK53	FD42-1002-04-04	-04	1/4-18	Buna-N	1.34	0.09	

Quick Disconnects

Fluid Transfer & Hydraulic HK Series (Steel) - Industrial Interchange Series B



Eaton's HK Series coupling sets the industry standard for ISO B Couplings. The HK Series features a rugged ball latch mechanism with automatic self-sealing poppet valves in a wide array of port configurations and multiple valved and non-valved configurations.

Features: Meets dimensional requirements to ISO standard 7241-1

Series B • Self-sealing poppet valve design provides excellent high and low pressure sealing • Standard seal material: Buna-N • Seal options available in PTFE, Neoprene, FKM, EPDM, and Kalrez® • Seal options available in PTFE, Neoprene, FKM, EPDM, and Kalrez® • PTFE back up rings in sockets (females)

Seal Elastomer Date: Maximum Operation Temperature Range: Buna-N -40°F to +250°F; Neoprene -65°F to +212°F; EPDM (Ethylene Propylene Rubber) -65°F to +300°F; FKM C/-15°F to +400°F

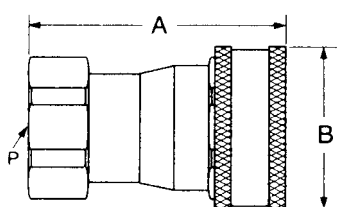
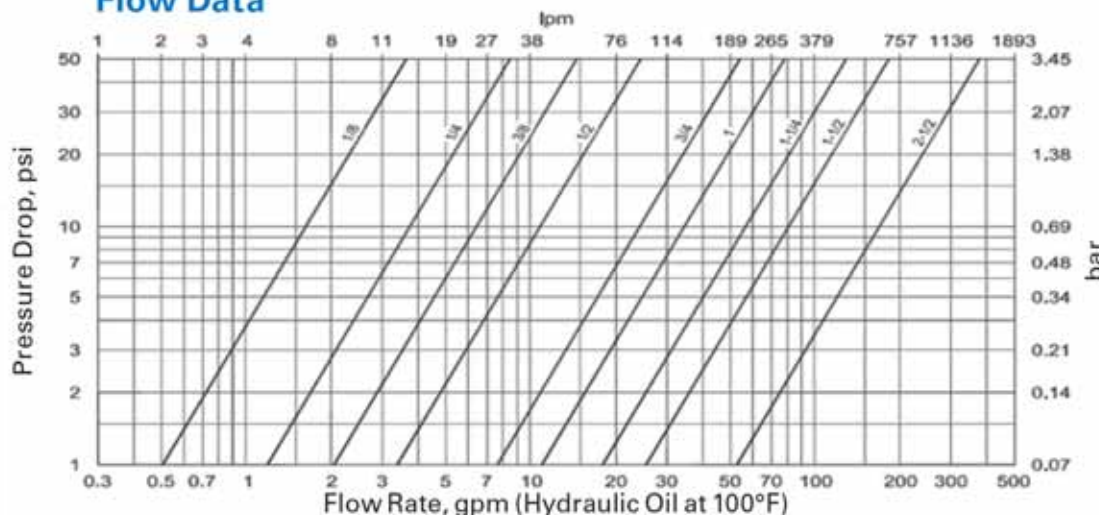
Physical Characteristics

Series	Body Size (in)	ISO Size (mm)	Nominal Flow Diameter (mm)	Max. Operating Pressure (bar)	Rated Flow* (lpm)	Air Inclusion cc. max.	Fluid Loss cc. max.
1HK	1/4	5	4.4	275	4,000	3	0.8
2HK	3/8	6.3	5.9	345	5,000	12	3
3HK	1/2	10	7.8	275	4,000	23	6
4HK	3/4	12.5	10	345	5,000	45	12
6HK	1	20	17	275	4,000	100	26
8HK	1 1/4	25	19.6	275	4,000	189	50
10HK	1 1/2	32	26.7	116	1,700	288	76
12HK	1 3/4	40	35.1	152	2,200	375	99
20HK	2 1/2	50	46	104	1,500	757	200

* For questions related to vacuum please contact Eaton.

** No ISO Standard available for the 10HK

Flow Data



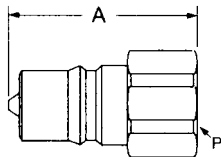
HK Series
Female Half
Female Pipe - Valved

Catalog Part No.	Eaton Model	Coupling Size	Thread Size (P)	Seal Material	A (in)	B (in)	Wt.	Price Each
•C1LW87	1H11	-02	1/8-27	Buna-N	1.91	0.98	0.17	
•C1KU65	2H16	-04	1/4-18	Buna-N	2.26	1.14	0.28	
•C1KZ23	3H21	-06	3/8-18	Buna-N	2.56	1.42	0.43	
•C1KV12	4HP26	-10	1/2-14	Buna-N	2.96	1.86	0.84	
•C1LX46	6HP31	-12	3/4-14	Buna-N	3.48	2.22	1.33	
•C1KV48	8HP36	-16	1-11-1/2	Buna-N	4.13	2.61	2.29	



Quick Disconnects

Fluid Transfer & Hydraulic HK Series (Steel) - Industrial Interchange Series B



HK Series
Male Half
Female Pipe - Valved

Catalog Part No.	Eaton Model	Coupling Size	Thread Size (P)	Seal Material	A (in)	Wt.	Price Each
•C1KX64	1K11	-02	1/8-27	Buna-N	1.26	0.04	
•C1KU66	2K16	-04	1/4-18	Buna-N	1.52	0.08	
•C1KZ24	3K21	-06	3/8-18	Buna-N	1.76	0.14	
•C1KX93	4KP26	-10	1/2-14	Buna-N	2.03	0.27	
•C1KV49	8KP36	-16	1-11-1/2	Buna-N	2.85	0.74	



PPDC*HK
Dust Cap

Catalog Part No.	Aeroquip Model	Coupling Size	Wt.	Price Each
•C1KZ51	PPDC2HK	-04	0.03	
•C1LC89	PPDC3HK	-06	0.04	
•C1ML50	PPDC4HK	-08		
•C1LC90	PPDC6HK	-12	0.08	
•C1KW47	PPDC8HK	-16	0.10	



PSDC9HK
Dust Plug

Catalog Part No.	Eaton Model	Coupling Size	Wt.	Price Each
•C1MC47	PSDC2HK	-04	0.02	
•C1MC48	PSDC3HK	-06	0.03	
•C1LC91	PSDC4HK	-08	0.05	
•C1LC92	PSDC6HK	-12	0.06	
•C1KZ53	PSDC8HK	-16	0.08	

Hydraulic Power & Control

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Quick Disconnects

Fluid Transfer & Hydraulic HK Series (Brass) - Industrial Interchange Series B



Eaton's HK brass is a general purpose industrial interchange coupling available in valved or non-valved designs, offered in brass for excellent corrosion resistance in rugged applications where stainless steel is unacceptable. The HK Series features a ball latch mechanism with

automatic self-sealing poppet valves.

Features: Meets dimensional requirements to ISO standard 7241-1 Series B • Brass construction with stainless steel springs for greater corrosion resistance and fluid compatibility • Self-sealing poppet valves provide excellent high and low pressure sealing • Standard seal material: Buna-N • Seal options available in PTFE, Neoprene, FKM, EPDM, and Kalrez®

Seal Elastomer Data: Maximum Operation Temperature Range: Buna-N -40°F to +250°F; Neoprene -65°F to +212°F; EPDM (Ethylene Propylene Rubber) -65°F to +300°F; FKM C/-15°F to +400°F

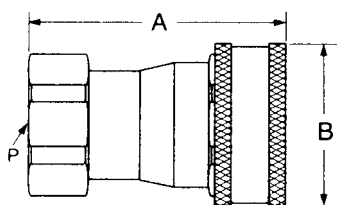
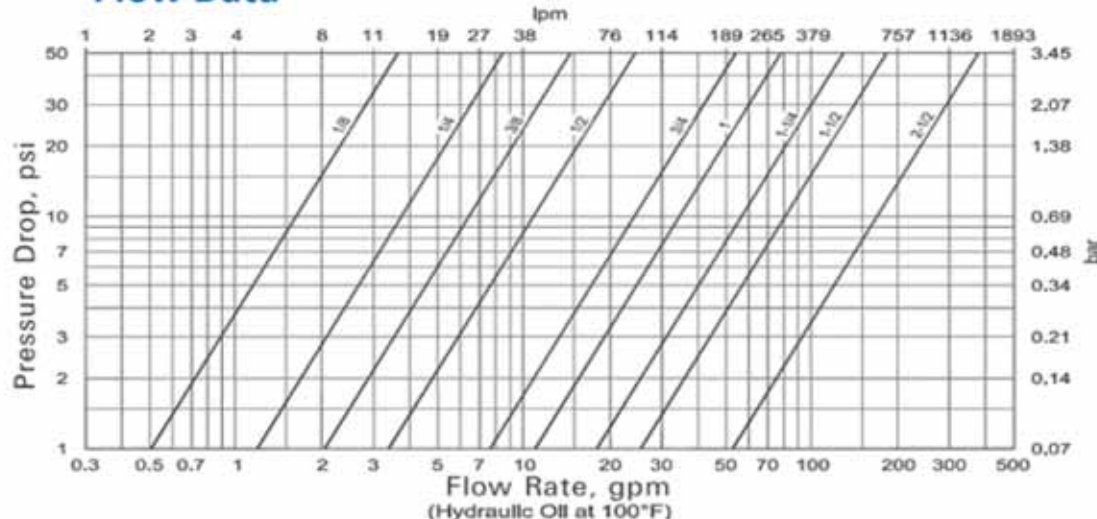
Physical Characteristics

Series	Body Size (in)	ISO Size (mm)	Nominal Flow Diameter (mm)	Max. Operating Pressure (bar)	Max. Operating Pressure (psi)	Rated Flow (lpm)	Rated Flow (gpm)	Air Inclusion cc. max.	Fluid Loss cc. max.
1HK	1/4	6	4.4	207	3,000	3	0.8	0.6	0.5
2HK	1/4	6.3	5.9	186	2,700	12	3	1.2	0.9
3HK	1/4	10	7.8	152	2,200	23	6	2.9	2.1
4HK	1/4	12.5	10	155	2,250	45	12	3.6	3.5
6HK	1/4	20	17	138	2,000	100	26	11.5	9.3
8HK	1	25	19.6	103	1,500	189	50	18.0	16.9
10HK	1 1/4**	-	25.7	83	1,200	298	76	48.0	48.0
12HK	1 1/4	40	35.1	104	1,500	375	99	91.3	91.3
20HK	2 1/4	50	46	49	700	757	200	209.9	209.9

*For questions related to vacuum please contact Eaton.

** No ISO Standard available for the 10HK

Flow Data



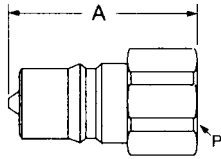
HK Series (Brass)
Female Half, Female
Pipe-Valved

Catalog Part No.	Eaton Model	Coupling Size	Thread Size (P)	Seal Material	A (in)	B (in)	Wt.	Price Each
•C1MM65	B1H11	-02	1/8-27	Buna-N	1.91	0.98		
•C1KV77	B2H16	-04	1/4-18	Buna-N	2.26	1.14	0.29	
•C1KY51	B3H21	-06	3/8-18	Buna-N	2.56	1.42	1.30	
•C1KV79	B4HP26	-08	1/2-14	Buna-N	2.96	1.86	0.90	
•C1KY53	B6HP31	-12	3/4-14	Buna-N	3.48	2.22	1.46	
•C1KY55	B8HP36	-16	1 - 11-1/2	Buna-N	4.13	2.61	2.42	



Quick Disconnects

Fluid Transfer & Hydraulic HK Series (Brass) - Industrial Interchange Series B



HK Series (Brass)
Male Half
Female Pipe - Valved

Catalog Part No.	Eaton Model	Coupling Size	Thread Size (P)	Seal Material	A (in)	Wt.	Price Each
•C1MK39	B1K11	-02	1/8-27	Buna-N	1.26	0.04	
•C1KV78	B2K16	-04	1/4-18	Buna-N	1.52	0.07	
•C1KY52	B3K21	-06	3/8-18	Buna-N	1.76	0.60	
•C1KV80	B4KP26	-08	1/2-14	Buna-N	2.03	0.29	
•C1KY54	B6KP31	-12	3/4-14	Buna-N	2.36	0.44	

Hydraulic Power & Control

Pneumatic Power & Control

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Quick Disconnects

Fluid Transfer & Hydraulic HK Series (Stainless Steel) - Industrial Interchange Series B



The HK Series stainless steel general purpose industrial interchange coupling is available valved or non-valved. They are offered in 303/304 grades of stainless steel for excellent corrosion resistance in rugged applications.

Features: Stainless steel construction for greater corrosion resistance and fluid compatibility • Industrial interchange coupling conforming dimensionally to ISO standard 7241/1 Series B • PUSH-PULL™ ball latch design allows quick and easy connection of hose lines • Self-sealing poppet valve design provides excellent high and low pressure sealing • Standard seal material - Buna N, EPR and Viton® • Standard body material - Stainless steel.

Seal Elastomer Date: Maximum Operation Temperature Range: Buna-N -40°F to +250°F; Neoprene -65°F to +212°F; EPDM (Ethylene Propylene Rubber) -65°F to +300°F; FKM C/-15°F to +400°F

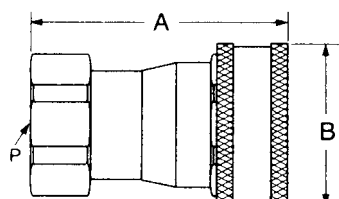
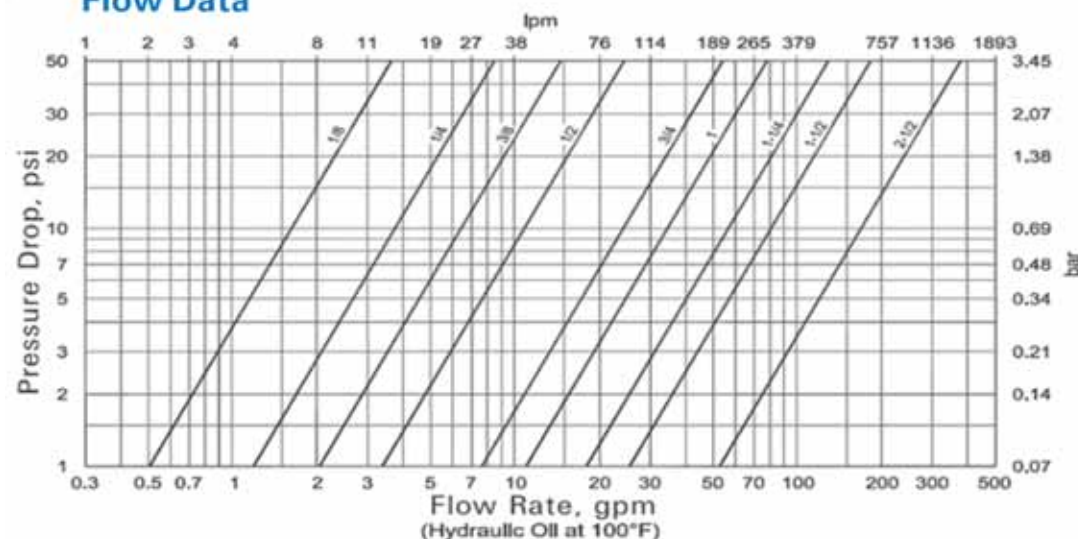
Physical Characteristics

Series	Body Size (in)	ISO Size (mm)	Nominal Flow Diameter (mm)	Max. Operating Pressure (bar)	Rated Flow (gpm)	Air Inclusion cc. max.	Fluid Loss cc. max.
1HK	1/8	5	4.4	344	5,000	3	0.8
2HK	1/4	6.3	5.9	255	3,700	12	3
3HK	3/8	10	7.9	255	3,700	23	6
4HK	1/2	12.5	10	293	4,250	45	12
6HK	3/4	20	17	242	3,500	100	26
8HK	1	25	19.6	207	3,000	189	50
10HK	1 1/4	-	26.7	118	1,700	288	75
12HK	1 1/2	40	35.1	152	2,200	375	99
20HK	2 1/2	50	46	104	1,500	757	200

* For questions related to vacuum please contact Eaton.

** No ISO Standard available for the 10HK.

Flow Data



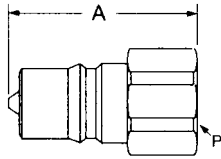
HK Series (Stainless Steel)
Female Half,
Female Pipe-Valved

Catalog Part No.	Hansen Model	Coupling Size	Thread Size (P)	Seal Material	A (in)	B (in)	Wt.	Price Each
•C1KY64	LL2H16	-04	1/4-18	Buna-N	2.26	1.14	0.28	
•C1KW34	LL3H21	-06	3/8-18	Buna-N	2.56	1.42	0.43	
•C1KW35	LL4HP26	-10	1/2-14	Buna-N	2.96	1.86	0.85	
•C1KY66	LL8HP36	-16	1-11-1/2	Buna-N	4.13	2.61	2.30	



Quick Disconnects

Fluid Transfer & Hydraulic HK Series (Stainless Steel) - Industrial Interchange Series B



HK Series (Stainless Steel)
Male Half
Female Pipe - Valved

Catalog Part No.	Aeroquip Model	Coupling Size	Thread Size (P)	Seal Material	A (in)	Wt.	Price Each
• C1LC69	LL2K16	-04	1/4-18	Buna-N	1.52	0.08	
• C1KY65	LL3K21	-06	3/8-18	Buna-N	1.76	0.35	
• C1LC70	LL4KP26	-08	1/2-14	Buna-N	2.03	0.26	
• C1KZ47	LL6KP31	-12	3/4-14	Buna-N	2.36	0.41	

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Quick Disconnects

Fluid Transfer & Hydraulic

FF Series - Flush Face Hydraulic Tool - ISO 16028 Interchange



Eaton's FF Series is specifically designed for those applications where quick and easy connections and no-spill performance are essential. Ideal for use where global interchangeability with other manufactures is important. The FF Series is available in sizes from 1/4 inch through 1 inch.

Features: Globally accepted interface which meets dimensional requirements of ISO 16028 (Sizes 1/4 to 1 inch) • Quick and easy Push-to-Connect latching • Safety sleeve lock guards against accidental disconnections • The globally accepted interface meets HTMA requirements • Dual flush face valves result in minimal fluid loss, air inclusion and easy cleaning.

Seal Elastomer Data ISO Size (6FF, 10FF, 12FF, 16FF, 19FF and 25FF): Maximum Operation

Temperature Range: NBR (Nitrile) + AU (Polyurethane) -13°F +212°F; FKM -4°F +392°F; EPDM (Ethylene-Propylene) -40°F +302°F; HNBR -25°F +302°F; Kalrez® 6375 -4°F +527°F; Generic FFKM (Perfluorocarbon) +5°F +527°F

Seal Elastomer Data Non-ISO Size (32FF, 50FF and 50FF): Maximum Operation

Temperature Range: NBR (Nitrile) + AU (Polyurethane) -4°F +212°F; FKM +5°F +356°F

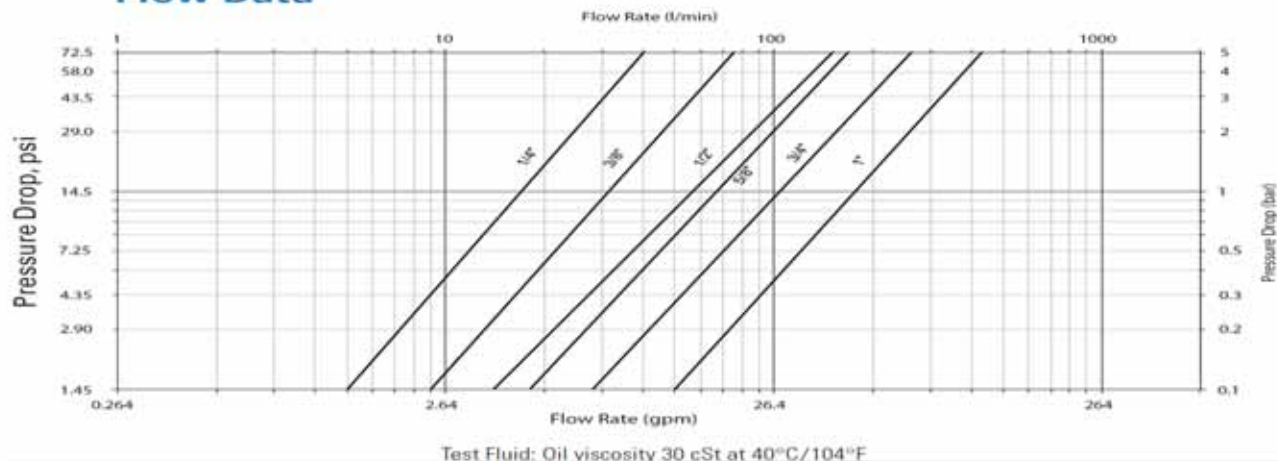
Physical Characteristics

ISO Size*	Coupling Size	Maximum Operating Pressure						Minimum Burst Pressure						Rated Flow**		Fluid Loss	Air Inclusion	Force to Connect	
		Connected		Plug/ Male Half		Socket/ Female Half		Connected		Plug/ Male Half		Socket/ Female Half							
(mm)	(in)	(bar)	(psi)	(bar)	(psi)	(bar)	(psi)	(bar)	(psi)	(bar)	(psi)	(bar)	(psi)	(lpm)	(gpm)	ml-cc.	ml-cc.	N	Lbs
8.3	1/4	350	5,075	350	5,075	350	5,075	1,400	20,300	1,400	20,300	1,400	20,300	17	4.5	0.004	0.007	80	18.0
10.0	3/8	350	5,075	350	5,075	350	5,075	1,400	20,300	1,400	20,300	1,400	20,300	29	7.7	0.006	0.010	140	31.5
12.5	1/2	350	5,075	350	5,075	350	5,075	1,400	20,300	1,400	20,300	1,400	20,300	55	14.5	0.012	0.013	195	43.8
16.0	3/4	350	5,075	350	5,075	350	5,075	1,400	20,300	1,400	20,300	1,400	20,300	67	17.7	0.016	0.030	205	46.1
19.0	3/4	350	5,075	350	5,075	350	5,075	1,300	18,850	1,300	18,850	1,400	20,300	105	27.7	0.034	0.015	215	48.3
25.0	1	350	5,075	350	5,075	350	5,075	1,260	18,270	1,260	18,270	1,260	18,270	177	46.8	0.032	0.033	260	58.5

* The ISO size corresponds to the internal diameter of the hose or the external diameter of the rigid tube (as defined in ISO 4397 Standard)

** Indicated values refer to a 1 bar/14.5 psi pressure drop

Flow Data

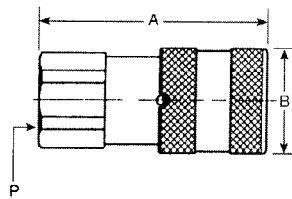




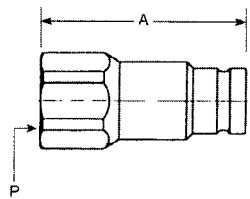
Quick Disconnects

Fluid Transfer & Hydraulic

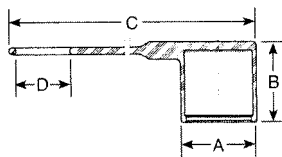
FF Series - Flush Face Hydraulic Tool - ISO 16028 Interchange



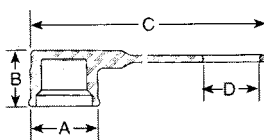
FF Series
Female Half
Valved



FF Series (Steel)
Male Half
Female Pipe - Valved



FF Series
Female Half Dust Cap
PVC



FF Series
Male Half Dust Cap
PVC

Catalog Part No.	Eaton Model	Coupling Size	Thread Size	Seal Material	A (in)	B (in)	Wt.	Price Each
•C1MX78	19FFS106UN	-12	-12 SAE	NBR+AU	3.80	1.82		
•C1MX55	12FFS106UN	-08	-12 SAE	NBR+AU	3.50	1.50		
•C1KZ16	10FFS37	-06	3/8-18 NPT	NBR+AU	2.67	1.26	0.54	
•C1LA96	10FFS50	-06	1/2-14 NPT	NBR+AU	2.79	1.26		
•C1MP77	10FFS75UN	-06	-8 SAE	NBR+AU	2.79	1.26	0.54	
•C1LA99	12FFS50	-08	1/4-14 NPT	NBR+AU	3.27	1.50		

Catalog Part No.	Aeroquip Model	Coupling Size	Thread Size	Seal Material	A (in)	Wt.	Price Each
•C1LA94	10FFP37	-06	3/8-18 NPT	NBR+AU	2.56	0.33	
•C1LA95	10FFP50	-06	1/2-14 NPT	NBR+AU	2.68	0.33	
•C1MP76	10FFP75UN	-06	3/4-16 NPT	NBR+AU	2.68		
•C1LW71	12FFP50	-08	1/2-14 NPT	NBR+AU	2.71	0.64	
•C1MX54	12FFP106UN	-08	-12 SAE	NBR+AU	2.95		
•C1MX77	19FFP106UN	-12	-12 SAE	NBR+AU	3.69		

Catalog Part No.	Aeroquip Model	Coupling Size	A (in)	B (in)	C (in)	D (in)	Wt.	Price Each
•C1MM74	SDC10FF	-06					0.04	

Catalog Part No.	Eaton Model	Coupling Size	A (in)	B (in)	C (in)	D (in)	Wt.	Price Each
•C1ML49	PDC10FF	-06					0.03	

Quick Disconnects

Hydraulic Farm

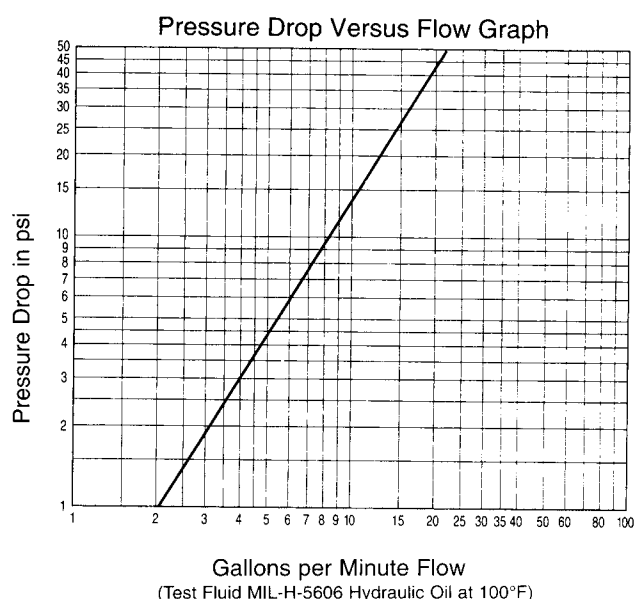
FD72 Series - Push to Connect - Connect Under Pressure



The FD72 Series coupling incorporates special valving allowing connection to a male half under pressure (FD76 Series Male). The maximum operating pressure is 3,000 PSI.

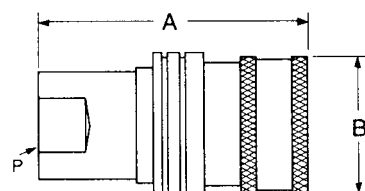
Features: Over-travel, self-sealing poppet valve construction for connecting to a pressurized male tip • Requires that the tractor control valve be actuated to open the flow path and to equalize the pressure • Push-to-connect for one hand operation when sleeve is mounted • Interchanges with ISO 5675 male tips (FD76) • Retaining ring groove on female half for bulkhead and breakaway frame mounting • Standard seal material - Buna-N • Standard body material - Zinc plated steel with zinc poppet guide.

Flow Data



Physical Characteristics

Coupling Size	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Vacuum (in. Hg.)	Rated Flow (gpm)	Air Inclusion (cc. max.)	Fluid Loss (cc. max.)
-10	3,000	12,000	28	16	2.8	2.8



FD72-1001
Female Half
Female Pipe - Valved

Catalog Part No.	Aeroquip Model	Coupling Size	Thread Size (P)	Seal Material	A (in)	B (in)	Wt.	Price Each
•C1CU34	FD72-1001-08-10	-10	1/2-14	Buna-N	3.17	1.52	0.74	

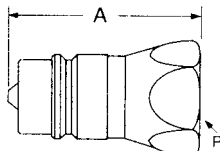


Quick Disconnects

Hydraulic Farm FD76 Series - Male Tip - Farm



Interchanges with ISO 5675 used on most farm tractors found throughout North America and abroad.



FD76-1002

ISO 5657 Male Half
Female Pipe - Poppet Valve

Catalog Part No.	Aeroquip Model	Coupling Size	Thread Size (P)	Seal Material	A (in)	Wt.	Price Each
•C1CU35	FD76-1002-08-10	-10	1/2-14	Buna-N	2.05	0.21	

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Quick Disconnects

Special Application FD14 Series - Oil Drain Coupling



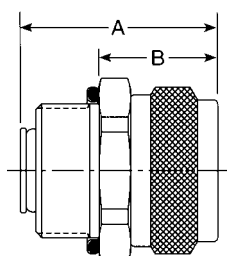
die-cast valve

Eaton's FD14 Drain Coupling is designed to serve as a drain port for use with Eaton's FLOCS (Fast Lube Oil Change System) as well as providing a purging port for use during pre-fill operations. The FD14 provides a leak free push to connect operation for improving speed and efficiency for oil evacuation systems.

Features: • Low-Profile design with multiple sealing mechanisms • Push-To-Connect socket/ female half for easy onehand operation • Broad range of standard thread styles for plug/ male half • Utilizes a Copper-Crush gasket to seat against the port face • Standard plug/male half seal material: FKM • Standard socket/female half seal material: Buna-N • Standard body material: High resistance carbon steel with zinc trivalent plating with zinc

Physical Characteristics

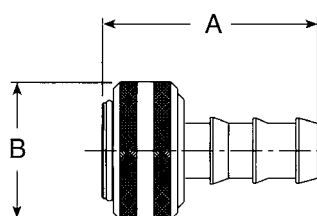
Coupling Size	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Vacuum (in./Hg.)	Rated Flow (gpm)
-06	50	200	28	3



FD14-4002

Male Half - Valved

Includes Gasket & Brass Cap



FD14-4003

Female Half

5/8 Hose Barb

Catalog Part No.	Aeroquip Model	Thread Size	Min. Assy. Torque (ft-lbs)	Flow Rate (175°F 10W30 Oil)	A (in)	B (in)	Wt.	Price Each
•C1EK53	FD14-4002-02-06	M18 x 1.5 6g	20-40	0.24 GPM	1.52	0.96	0.28	
•C1EK87	FD14-4002-14-06	1-1/8-12 UNF-2A	30-60	0.68 GPM	1.54	0.96	0.37	
•C1EK98	FD14-4002-17-06	M25 x 1.5 6g	30-60	0.68 GPM	1.54	0.96	0.31	
•C1FV92	FD14-4002-18-06	M22 x 1.5 6g	30-60	0.68 GPM	1.54	0.96	0.29	
•C1JF24	FD14-4002-27-06	1/2-14 NPT			1.60	0.96	0.21	

CAUTION: Failure to meet minimum assembly torque could result in fluid leakage.

Catalog Part No.	Aeroquip Model	Hose Barb Size (in)	A (in)	B (in)	Wt.	Price Each
•C1EL27	FD14-4003-10-06	5/8	2.34	1.50	0.26	



Quick Disconnects

Special Application

FD69 Series (Arc Latch™) - High Pressure Water Blast (10,000 PSI)

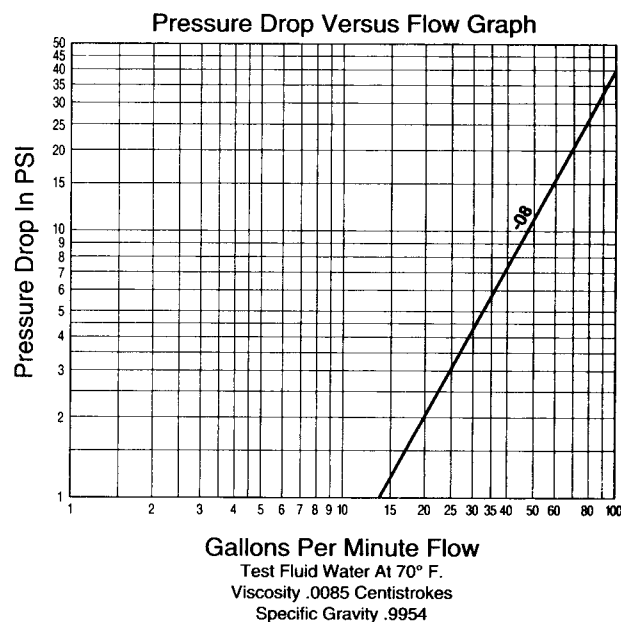


The FD69 Series "Arc Latch™" design has a greater surface area for long service life in rugged high pressure and water blast applications. The maximum operating pressure is 10,000 psi with 40,000 psi minimum burst pressure.

Features: Safety sleeve lock guards against accidental disconnection • Smooth bore "straight through" design for high flow • Heavy duty

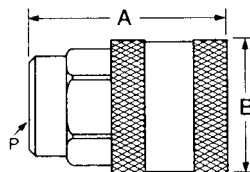
back-up ring to prevent o-ring extrusion • Available in plated steel and stainless steel for added corrosion resistance • Standard seal material - Buna-N • Standard body material - Zinc plated steel, stainless steel.

Flow Data



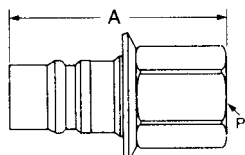
Physical Characteristics

Coupling Dash Size	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Vacuum (in./Hg.)	Rated Flow (gpm)	Air Inclusion (cc. max.)	Fluid Loss (cc. max.)
-08	10,000	40,000	28	45	—	—



FD69-1001

FemHalf, FemalePipe-Steel



FD69-1002

Male Half - Female Pipe
Steel

Catalog Part No.	Aeroquip Model	Coupling Size	Thread Size (P)	Seal Material	A (in)	B (in)	Wt.	Price Each
•C1CU32	FD69-1001-08-08	-08	1/2-14	Buna-N	2.13	1.62	0.68	

Catalog Part No.	Aeroquip Model	Coupling Size	Thread Size (P)	A (in)	Wt.	Price Each
•C1CU33	FD69-1002-08-08	-08	1/2-14	2.34	0.33	



Quick Disconnects

Special Application

FD90 Series - Diagnostic - SAE J1502 Interchange



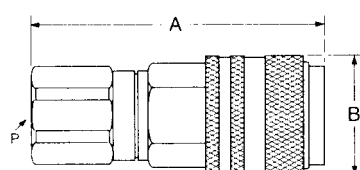
The FD90 Series diagnostic coupling is designed to connect and disconnect pressure gauges to hydraulic systems, eliminating the need for permanent gauges. The maximum operating pressure is 7,000 PSI.

Features: Automatic sleeve for one hand push-to-connect operation •

Flush face valving provides minimal fluid loss and low air inclusion • Self-sealing valve design allows connection and disconnection at 500 psi • Broad range of end configurations for system accessibility • Standard seal material - Buna-N • Standard body material - Zinc plated steel.

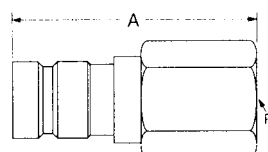
Physical Characteristics

Coupling Size	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Vacuum (in./Hg.)	Rated Flow (gpm)	Air Inclusion (cc. max.)	Fluid Loss (cc. max.)
-04	7,000	28,000	28	.50	0.02	0.10



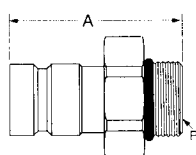
FD90-1021
Female Half
Female Pipe - Valved

Catalog Part No.	Aeroquip Model	Coupling Size	Thread Size (P)	Seal Material	A (in)	B (in)	Wt.	Price Each
•C1CU38	FD90-1021-04-04	-04	1/4-18	Buna-N	2.25	1.0	0.26	
•C1CU37	FD90-1021-02-04	-04	1/8-27	Buna-N	1.95	1.0	0.25	



FD90-1034
Male Half
Female Pipe - Valved

Catalog Part No.	Aeroquip Model	Coupling Size	Thread Size (P)	Seal Material	A (in)	Wt.	Price Each
•C1CU39	FD90-1034-04-04	-04	1/4-18	Buna-N	1.90	0.12	



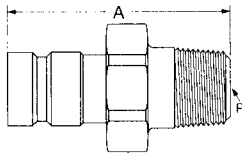
FD90-1044
Male Half
Male SAE O-Ring Boss - Valved

Catalog Part No.	Aeroquip Model	Coupling Size	Thread Size (P)	Seal Material	A (in)	Wt.	Price Each
•C1CU41	FD90-1044-06-04	-04	9/16-18	Buna-N	1.32	0.07	



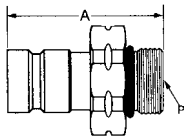
Quick Disconnects

Special Application FD90 Series - Diagnostic - SAE J1502 Interchange



FD90-1012
Male Half
Male Pipe - Valved

Catalog Part No.	Aeroquip Model	Coupling Size	Thread Size (P)	Seal Material	A (in)	Wt.	Price Each
•C1FK54	FD90-1012-02-04	-04	1/8-27	Buna-N	1.60	0.08	
•C1CU36	FD90-1012-04-04	-04	1/4-18	Buna-N	1.49	0.07	



FD90-1046
Male Half
Metric Male O-Ring - Valved

Catalog Part No.	Aeroquip Model	Coupling Size	Thread Size (P)	Seal Material	A (in)	Wt.	Price Each
•C1FZ49	FD90-1046-06-04	-04	M 14 x 1.5	Buna-N	1.38	0.08	



FD90-1040
Dust Cap for Male Halves

Catalog Part No.	Aeroquip Model	Coupling Size	Wt.	Price Each
•C1CU40	FD90-1040-04	-04	0.01	

Hydraulic Power & Control

Pneumatic Power & Control

Fluid Conveying

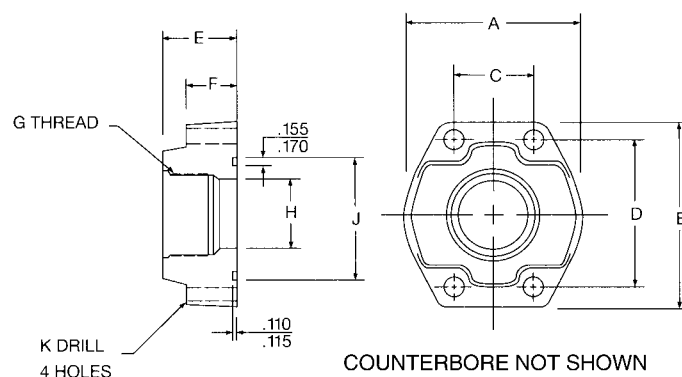
Miscellaneous Products

Indexes & Technical Information

Flanges



Steel SAE 4-Bolt Flanges (For Pipe)

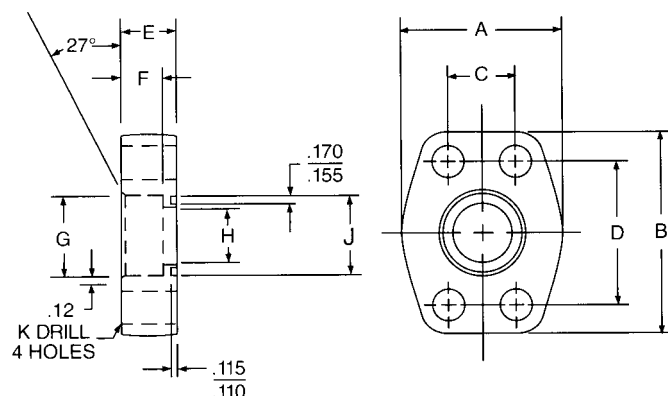


W43-CB
Pipe Thread
Code 61 (3000 PSI)
O-Ring Half
Counterbored for Bolt Head

W43-CB

Catalog Part No.	Anchor Model	Kit	Pipe Size	Pad Size	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	Pipe Thread G	H (in)	Drill Dia. K (in)	Wt.	Price Each
•C1JD95	W43-12-12U	Yes	0.75	0.75	2.06	2.56	0.875	1.875	1.25	0.84	3/4-14	0.75	0.406	1.20	
•C1JD96	W43-16-16U	Yes	1.0	1.0	2.31	2.75	1.031	2.062	1.38	0.97	1-11-1/2	1.00	0.406	1.37	
•C1JD97	W43-20-20U	Yes	1.25	1.25	2.88	3.12	1.188	2.312	1.5	1.03	1-1/4-11-1/2	1.25	0.469	2.00	
•C1JD98	W43-24-24U	Yes	1.50	1.50	3.25	3.69	1.406	2.75	1.62	1.09	1-1/2-11-1/2	1.50	0.531	3.00	
•C1JD99	W43-32-32U	Yes	2	2	3.81	4	1.688	3.062	1.62	1.09	2-11-1/2	2.00	0.531		

Note: Model numbers with "Yes" in Kit column include mounting bolts, lock washers and Buna-N o-ring.



W4
Flat Socket Weld
Code 61 (3000 PSI)
O-Ring Half

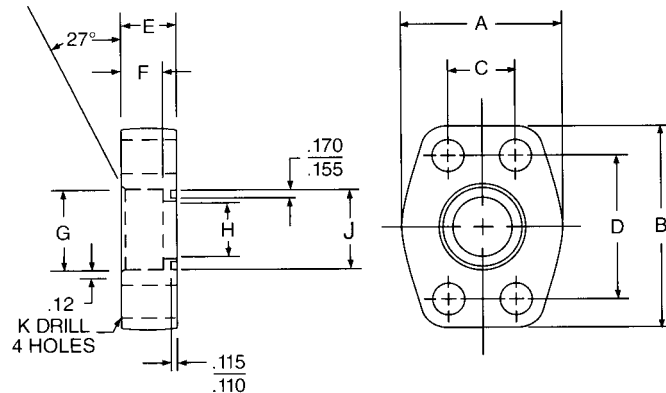
W4

Catalog Part No.	Anchor Model	Kit	Pipe Size	Pad Size	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)	Drill Dia. K (in)	Wt.	Price Each
C1DS76	W4-20-20	No	1.25	1.25	2.875	3.125	1.188	2.313	0.94	0.69	1.672	1.25	0.469	1.39	
C1DS78	W4-24-24U	Yes	1.50	1.50	3.25	3.688	1.406	2.75	1.19	0.75	1.922	1.50	0.531	3.07	
C1DS79	W4-32-32U	Yes	2.00	2.00	3.813	4.00	1.688	3.063	1.38	0.875	2.406	2.00	0.531	4.09	
C1JQ98	W4-48-48USH3.0 Bolts are 3" instead of standard 3-1/2" length	Yes	3.00	3.00	5.156	5.313	2.438	4.188	2.120	1.250	3.615	3.002	0.656	9.29	

Note: Model numbers with "Yes" in Kit column include mounting bolts, lock washers and Buna-N o-ring.



Steel SAE 4-Bolt Flanges (For Pipe)

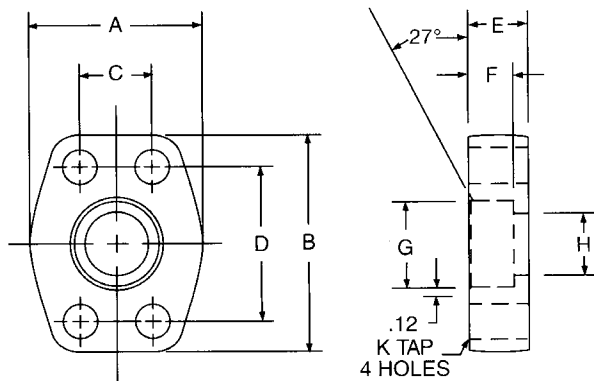


W72
Flat Socket Weld
Low Pressure (500 PSI)
O-Ring Half

W72

Catalog Part No.	Anchor Model	Kit	Pipe Size	Pad Size	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)	Drill Dia. K (in)	Wt.	Price Each
C1JR15	W72-56-56U	Yes	3.50	3.50	5.50	6.00	2.75	4.75	1.44	1.19	4.095	3.502	0.656	7.48	

Note: Model numbers with "U" suffix include mounting bolts, lock washers and Buna-N o-ring.



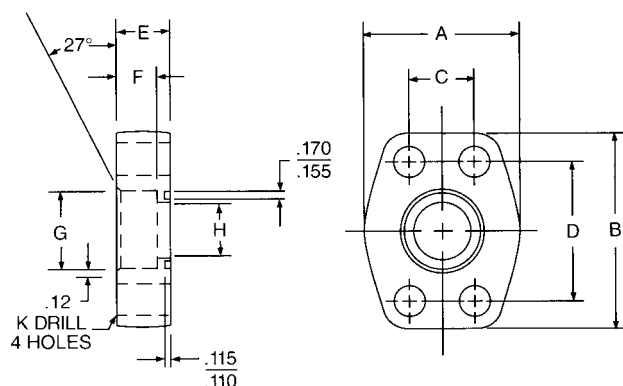
W61
Flat Socket Weld
Code 61 (3000 PSI)
Flat Face Half

W61

Catalog Part No.	Anchor Model	Kit	Pipe Size	Pad Size	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)	Drill Dia. K (in)	Wt.	Price Each
C1JR13	W61-16-16	No	1.00	1.00	2.313	2.75	1.031	2.063	0.88	0.63	1.56	1.002	0.406	1.07	

Flanges

Steel SAE 4-Bolt Flanges (For Pipe)

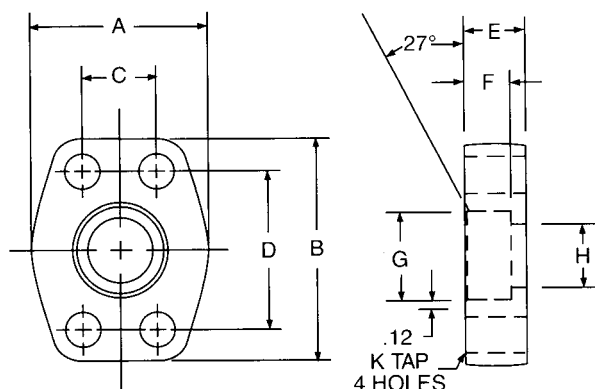


W59
Flat Socket Weld
O-Ring Half
Code 62 (6000 PSI)

W59

Catalog Part No.	Anchor Model	Kit	Pipe Size	Pad Size	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)	Drill Dia. K (in)	Wt.	Price Each
C1KN75	W59-20-20U	Yes	1.25	1.25	3.06	3.75	1.250	2.625	1.500	0.690	1.750	1.252	0.531	3.88	
C1JQ99	W59-24-24U	Yes	1.50	1.50	3.75	4.44	1.437	3.125	1.750	0.750	2.115	1.502	0.656	6.54	
C1JR11	W59-32-32U	Yes	2.00	2.00	4.50	5.25	1.750	3.812	1.750	0.875	2.490	2.002	0.781	9.10	
C1JR12	W59-40-40U	Yes	2.50	2.50	5.87	6.87	2.312	4.875	2.060	1.000	2.995	2.502	0.906	18.05	

Note: Model numbers with "Yes" in Kit column include mounting bolts, lock washers and Buna-N o-ring.

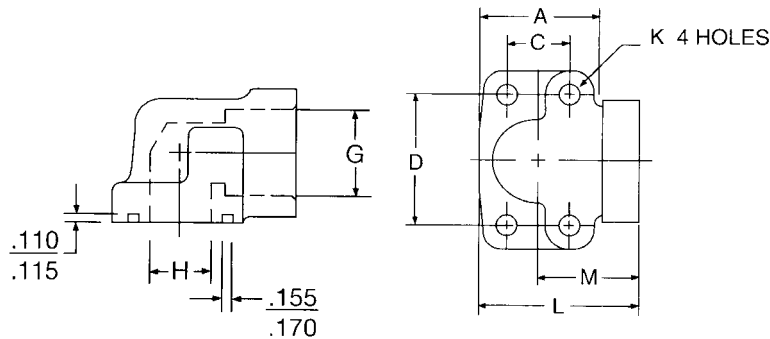


W60
Flat Socket Weld
Code 62 (6000 PSI)
Flat Face Half

W60

Catalog Part No.	Anchor Model	Pipe Size	Pad Size	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)	K Tap (in)	Wt.	Price Each
C1DT15	W60-16-16	1.0	1.0	2.75	3.19	1.093	2.25	1.5	0.63	1.328	1.00	7/16-14	2.61	
C1DT16	W60-20-20	1.25	1.25	3.06	3.75	1.25	2.625	1.5	0.69	1.672	1.25	1/2-13	3.30	
C1DT17	W60-24-24	1.50	1.50	3.75	4.44	1.437	3.125	1.75	0.75	1.922	1.50	5/8-11	2.43	

Steel SAE 4-Bolt Flanges (For Pipe)

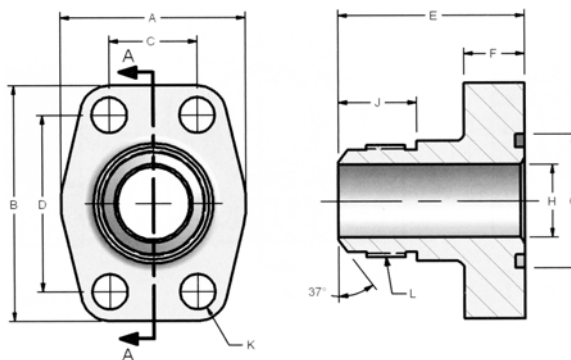


W168
Pipe Thread Elbow
Code 61 (3000 PSI)
O-Ring Half

W168

Catalog Part No.	Anchor Model	Kit	Pipe Size	Pad Size	A (in)	C (in)	D (in)	Pipe Thread G	H (in)	M (in)	Drill Dia. K	Wt.	Price Each
C1ER62	W168-24-24U	Yes	1.50	1.50	2.56	1.406	1.75	1-1/2-11-1/2	1.50	2.12	.531	1.50	

Note: Model numbers with "Yes" in Kit column include mounting bolts, lock washers and Buna-N o-ring.



W300
Male JIC
Code 61 (3000 PSI)
O-Ring Half

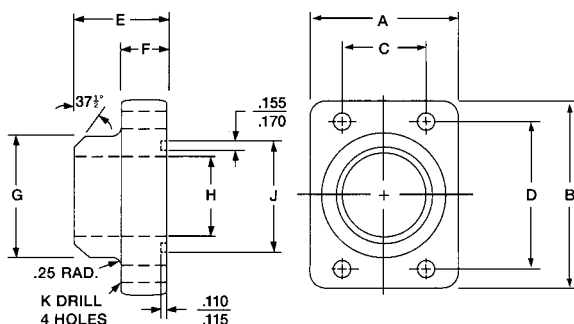
W300

Catalog Part No.	Anchor Model	Kit	Pad Size	Thread L	Dimensions (in)	Wt.	Price Each
C1KG75	W300-8-8U	Yes	0.50	3/4-16	A=1.81 B=2.12 C=0.688 D=1.50 E=1.75 F=0.63 G=1.00 H=0.394 J=0.657 K=0.344	1.00	

Note: Part numbers with "Yes" in Kit column include mounting bolts, lock washers and Buna-N o-ring.

Flanges

Steel SAE 4-Bolt Flanges (For Pipe)

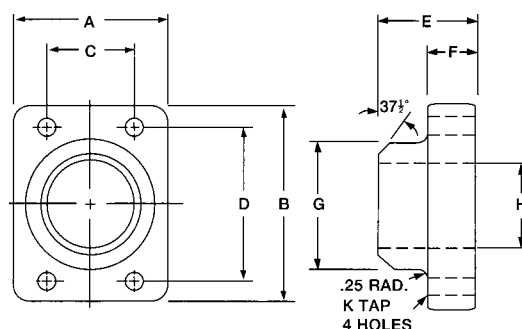


W30
Butt Weld
Code 62 (6000 PSI)
O-Ring Half

W30

Catalog Part No.	Anchor Model	Kit	Pipe Size	Pad Size	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)	Drill Dia. K	Wt.	Price Each
C1JQ97	W30-32U	Yes	2.00	2.00	3.44	5.25	1.75	3.812	2.48	1.46	2.375	1.689	0.781	9.21	

Note: Model numbers with "Yes" in Kit column include mounting bolts, lock washers and Buna-N o-ring.

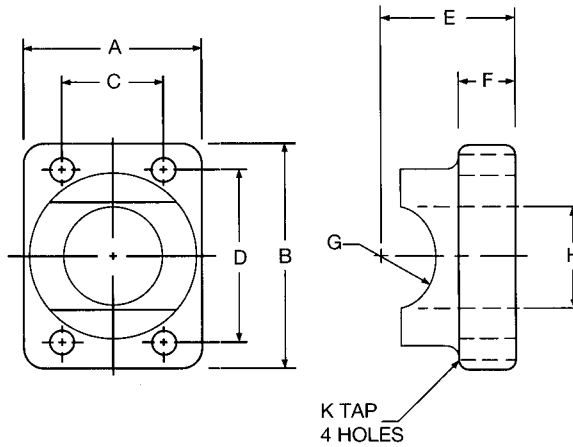


W29
Butt Weld
Code 62 (6000 PSI)
Flat Face Half

W29

Catalog Part No.	Anchor Model	Pipe Size	Pad Size	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)	K Tap (in)	Wt.	Price Each
C1JQ95	W29-24	1.50	1.50	2.81	4.44	1.437	3.125	2.17	1.10	1.90	1.337	5/8-11	4.00	
C1JQ96	W29-32	2.00	2.00	3.44	5.25	1.75	3.812	2.48	1.46	2.375	1.689	3/4-10	28.82	

Steel SAE 4-Bolt Flanges (For Pipe)



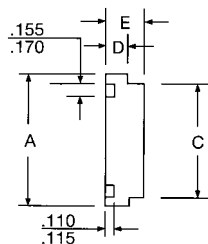
W7
Saddle Weld
Code 61 (3000 PSI)
Flat Face Half

W7

Catalog Part No.	Anchor Model	Pipe Size	Pad Size	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)	Drill Dia. K (in)	Wt.	Price Each
C1ZX34	W7-24-24	1.50	1.50	2.56	3.69	1.406	2.75	2.12	0.81	0.957	1.50	1/2-13	2.24	

Flanges

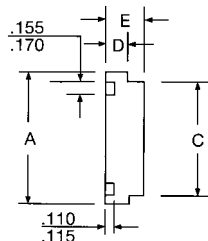
Steel SAE 4-Bolt Flange Accessories



FOP

Flange Plug, Code 61 (3000 PSI),
O-Ring Half

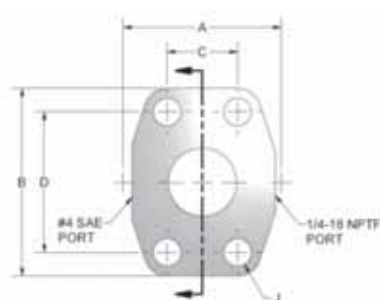
Catalog Part No.	Anchor Model	Pad Size	A (in)	C (in)	D (in)	E (in)	Wt.	Price Each
•C1ES43	12FOP	0.75	1.50	1.25	0.265	0.56	0.21	
•C1ZZ23	16FOP	1.00	1.75	1.50	0.315	0.56	0.31	
•C1ZY88	20FOP	1.25	2.00	1.70	0.315	0.56	0.41	



FOPX

Flange Plug, Code 62 (6000 PSI),
O-Ring Half

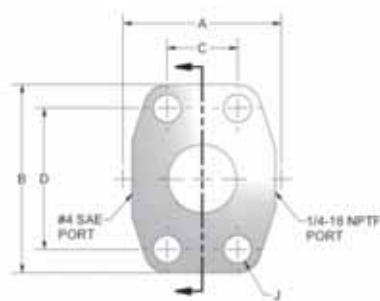
Catalog Part No.	Anchor Model	Pad Size	A (in)	C (in)	D (in)	E (in)	Wt.	Price Each
•C1ES44	12FOPX	0.75	1.63	1.25	0.345	0.687	0.30	
•C1ES64	16FOPX	1.00	1.88	1.50	0.38	0.81	0.48	
•C1ES81	20FOPX	1.25	2.125	1.00	0.405	1.750	0.76	
•C1ES83	24FOPX	1.50	2.50	2.00	0.495	1.187	1.37	



AS

Code 61 Gage Port Spacer

Catalog Part No.	Anchor Model	Pad Size	A (in)	B (in)	C (in)	D (in)	Thick (in)	J	Wt.	Price Each
C1KL25	AS-12-GP-M10	0.75	2.06	2.69	0.875	1.875	1.25	10.31 mm	1.30	
C1KL26	AS-16-GP-M10	1.00	2.31	2.75	1.031	2.062	0.88	10.31 mm	0.90	

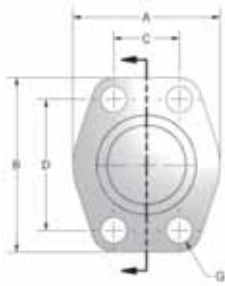


ASX

Code 62 Gage Port Spacer

Catalog Part No.	Anchor Model	Pad Size	A (in)	B (in)	C (in)	D (in)	Thick (in)	J	Wt.	Price Each
C1KL27	ASX-12-GP-M10	0.75	2.50	2.95	0.937	2.000	1.25	10.31mm	1.69	
C1KL28	ASX-16-GP-M12	1.00	2.75	3.19	1.093	2.250	1.50	12.50mm	2.30	
C1KL29	ASX-20-GP-M14	1.25	3.06	3.75	1.250	2.625	1.50	14.48mm	3.09	

Steel SAE 4-Bolt Flange Accessories



SPX

Zero PSI Code 62 Shipping Plate

Catalog Part No.	Anchor Model	Pad Size	A (in)	B (in)	C (in)	D (in)	Wt.	Price Each
C1KN56	SPX-20U	1.25	3.06	3.75	1.250	2.625	1.13	
C1KN57	SPX-24U	1.50	3.75	4.44	1.437	3.125	1.78	
C1KN58	SPX-32U	2.00	4.50	5.25	1.750	3.812	2.63	

Note: Part number includes (1) shipping plate, (4) hex head bolts, and (1) Buna-N O-Ring.

Hose, Tube & Pipe Cleaning System



Hose/Tube Cleaning Guns & Projectiles



System consists of an air-operated gun-like launcher that cleans hoses, tubes and pipes in seconds. The launcher fires a soft projectile that is sized approximately 20% larger than the inside diameter of the product being cleaned. The projectile strips out the internal contamination or residue as it travels through the product, around bends and through couplings. Interchangeable nozzles handle the wide

variety of projectile sizes.

Applications: Hydraulic and pneumatic lines, fuel lines, food and beverage lines, steam pipes, heat exchangers and condensers, air conditioning and refrigeration, and many others.

Launcher Unit: Locking faceplate pivots away from body for easy nozzle size change. O-Ring seals are used for positive sealing. Air inlet port with quick disconnect coupling. Trigger mechanism for firing projectile.

Nozzles: A wide range of nozzle sizes are available in four basic styles. **HOSE & PIPE:** The nozzle is inserted into the hose or pipe. **JIC:** The male flared end of the JIC nozzle butts against the female flare of the hose or tube fitting. **TUBE:** The nozzle is inserted over the tube and the end of the tube butts up against the inside of the nozzle. **BSP:** The female flared end of the BSP nozzle butts against the male flared end of the hose or tube fitting.

Recommended Operating Pressure: 85 PSI minimum. 150 PSI maximum.

Projectile Sizing: To clean an I.D. of 2 inches or less, the O.D. of the projectile should be approximately 20% larger than the I.D. If I.D. is larger than 2 inches, projectile should be approximately 10% larger than the I.D. (Individual circumstances may require a smaller or a larger projectile than what is listed in the tables. If the projectile is too large it will not leave the nozzle, and if it is too small it will not clean effectively. If a projectile gets stuck inside the I.D., shoot an empty discharge in the opposite end).

Note: Contact us for launcher and nozzle information, and for application assistance.

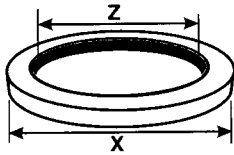
Standard Projectiles



Standard Projectiles

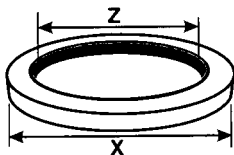
Catalog Part No.	UltraClean Model	Use for I.D. (in)	Nozzle for Hose I.D. (in)	Nozzle for Tube/Pipe O.D. (in)	Pkq. Qty.	Wt. (ea)	Price Each
C1EP28	UC06	0.23622	3/16	H06	100	0.01	
C1ZV55	UC07	0.2756	1/4	H06	100	0.01	
C1ZS65	UC22	0.8661	5/8	H16	100	0.01	
C1ZV53	UC26	1.0236	3/4	H19	50	0.01	
C1ZV52	UC33	1.2992	1	H25	40	0.02	
C1KN68	UC36	1.4173	1-1/8	H25	40	0.01	
C1ZV51	UC40	1.5748	1-1/4	H32	30	0.02	
C1EP75	UC50	1.9685	1-1/2	H38	20	0.01	
C1EQ43	UC60	2.3622	2	H50	15	0.01	
C1KN69	UC70	2.7559	2-1/2	H50	15	0.06	

Note: Projectiles may be ordered as "each" - example 100 each.



Self-Centering BSP Bonded Seals

Catalog Part No.	Voss Model	BSP Size	Z (in)	Z (mm)	X (in)	X (mm)	Wt.	Price Each
•C1DX13	400-820-4490-A	1/8	0.407	10.34	0.627	15.94	0.01	
•C1DX14	400-821-4490-A	1/4	0.539	13.71	0.812	20.64	0.01	
•C1DX15	400-823-4490-A	3/8	0.679	17.25	0.939	23.87	0.01	
•C1DX16	400-825-4490-A	1/2	0.847	21.52	1.127	28.64	0.01	
•C1DX17	400-826-4490-A	5/8	0.923	23.46	1.244	31.82	0.01	
•C1DX18	400-827-4490-A	3/4	1.064	27.02	1.377	34.99	0.01	
•C1DX19	400-830-4490-A	1.0	1.333	33.86	1.687	42.87	0.02	
•C1DX20	400-832-4490-A	1-1/4	1.688	42.9	2.064	52.44	0.02	



Self-Centering Metric Bonded Seals

Catalog Part No.	Voss Model	Metric Size	Z (in)	Z (mm)	X (in)	X (mm)	Wt.	Price Each
•C1DW94	400-613-4490-A	M 08	0.342	8.7	0.551	14	0.01	
•C1DW95	400-617-4490-A	M 10	0.421	10.7	0.629	16	0.01	
•C1DW96	400-622-4490-A	M 12	0.50	12.7	0.708	18	0.01	
•C1EK39	9500-14MM	M 14	0.578	14.7	0.866	22	0.02	
•C1DW97	400-627-4490-A	M 14	0.578	14.7	0.866	22	0.01	
•C1FG24	400-010-4490	M 14	0.578	14.7	0.866	22	0.01	
•C1FG25	400-011-4490	M 16	0.657	16.7	0.945	24	0.01	
•C1DW98	400-629-4490-A	M 16	0.657	16.7	0.945	24	0.01	
•C1FG26	400-024-4490	M 18	0.736	18.7	1.024	26	0.02	
•C1DW99	400-632-4490-A	M 18	0.736	18.7	1.024	26	0.01	
•C1DX11	400-633-4490-A	M 20	0.815	20.7	1.102	28	0.01	
•C1DX12	400-636-4490-A	M 22	0.894	22.7	1.181	30	0.02	
•C1FG29	400-240-4490	M 27	1.09	27.7	1.42	36	0.01	
•C1FG30	400-242-4490	M 30	1.248	31.7	1.535	39	0.01	
•C1FG31	400-243-4490	M 33	1.326	33.7	1.653	42	0.01	
•C1FG32	400-245-4490	M 36	1.444	36.7	1.811	46	0.01	

Note: 9500 is Adaptall model.



Copper Washers

Catalog Part No.	Voss Model	I.D. (mm)	O.D. (mm)	Height (mm)	Wt.	Price Each
•C1AD71	082-109	10	13.5	1.0	0.01	
•C1AD72	082-149	12	15	1.0	0.01	
•C1DU48	082-189	14	18	1.0	0.01	
•C1AD73	082-229	16	20	1.0	0.01	
•C1DU49	082-309	18	22	1.50	0.01	
•C1AD74	082-429	22	27	1.50	0.01	

Protective Closures



Threaded Plugs For Flared Fittings

Red
Grade 1 Virgin Polyethylene

Catalog Part No.	Alliance Plastics Model	Size	Threads	Wt.	Price Each
•C1EJ75	T-3	-04 JIC / -04 SAE	7/16-20	0.01	
•C1EJ76	T-4	-05 JIC / -05 SAE	1/2-20	0.01	
•C1EJ77	T-5	-06 JIC	9/16-18	0.01	
•C1EJ78	T-6	-06 SAE	5/8-18	0.01	
•C1EJ79	T-7	-08 JIC / -08 SAE	3/4-16	0.01	
•C1EJ80	T-8	-10 JIC / -10 SAE	7/8-14	0.01	
•C1EJ81	T-9	-12 JIC	1-1/16-12	0.01	
•C1EJ73	T-10	-12 SAE	1-1/16-14	0.02	
•C1EJ74	T-12	-16 JIC	1-5/16-12	0.01	
•C1EJ64	PD-200	-20 JIC	1-5/8-12	0.30	
•C1EJ65	PD-240	-24 JIC	1-7/8-12	0.01	
•C1EJ66	PD-320	-32 JIC	2-1/2-12	0.01	



Threaded Caps For Flared Fittings

Blue
Grade 1 Virgin Polyethylene

Catalog Part No.	Alliance Plastics Model	Size	Threads	Wt.	Price Each
•C1EJ46	G-2	-04 JIC / -04 SAE	7/16-20	0.01	
•C1EJ51	G-5	-05 JIC / -05 SAE	1/2-20	0.01	
•C1EJ52	G-8	-06 JIC	9/16-18	0.01	
•C1EJ53	G-9	-06 SAE	5/8-18	0.01	
•C1EJ44	G-14	-08 JIC / -08 SAE	3/4-16	0.01	
•C1EJ45	G-17	-10 JIC / -10 SAE	7/8-14	0.01	
•C1EJ47	G-22	-12 JIC	1-1/16-12	0.50	
•C1EJ48	G-23	-12 SAE	1-1/16-14	0.01	
•C1EJ49	G-27	-16 JIC	1-5/16-12	0.01	
•C1EJ50	G-30	-20 JIC	1-5/8-12	0.01	



Tear Caps For Pipe Threads

Blue
Grade 1 Virgin Polyethylene

Catalog Part No.	Alliance Plastics Model	Size	Wt.	Price Each
•C1EJ92	Y-1/8	1/8 NPT	0.01	
•C1EJ91	Y-1/4	1/4 NPT	0.01	
•C1EJ95	Y-3/8	3/8 NPT	0.01	
•C1EJ90	Y-1/2	1/2 NPT	0.01	
•C1EJ94	Y-3/4	3/4 NPT	0.01	
•C1EJ87	Y-1	1 NPT	0.01	
•C1EJ89	Y-1-1/4	1-1/4 NPT	0.01	
•C1EJ88	Y-1-1/2	1-1/2 NPT	0.01	
•C1EJ93	Y-2	2 NPT	0.01	



Tapered Plugs for Pipe Threads
Blue
Grade 1 Virgin Polyethylene

Catalog Part No.	Alliance Plastics Model	Size	Wt.	Price Each
•C1EJ62	P-8	1/8 NPT	0.01	
•C1EJ55	P-17	3/8 NPT	0.01	
•C1EJ56	P-23	1/2 NPT	0.01	
•C1EJ57	P-31	3/4 NPT	0.50	
•C1EJ58	P-42	1 NPT	0.01	
•C1EJ59	P-53	1-1/4 NPT	0.01	
•C1EJ61	P-68	2 NPT	0.01	



Caps For O-Ring Face Fittings
Blue
Grade 1 Virgin Polyethylene

Catalog Part No.	Alliance Plastics Model	Fits Thread Size	Wt.	Price Each
•C1FQ99	OR-16	1-7/16-12 (-16 O-Ring Face Seal)	0.01	
•C1FK85	OR-20	1-11/16-12 (-20 O-Ring Face Seal)	0.01	



Split Flange Caps
Natural
Grade 1 Virgin Polyethylene

Catalog Part No.	Alliance Plastics Model	Size	Wt.	Price Each
•C1EJ67	Q-1	-08 Code 61	0.01	
•C1EJ69	Q-4	-16 Code 61	0.01	
•C1EJ71	Q-6	-24 Code 61	0.01	



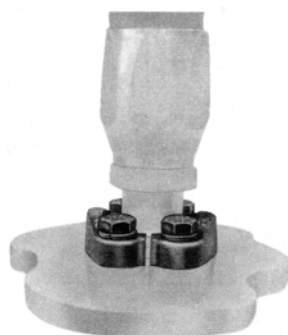
Bolted Flange Protectors
Code 61 Blue / Code 62 Red
Low Density Polyethylene

Catalog Part No.	Alliance Plastics Model	Size	Wt.	Price Each
•C1EJ37	BFP-1	-16 Code 61	0.01	
•C1EJ38	BFP-1-1/2	-24 Code 61	0.01	
C1LY62	BFP-3A	-48 Code 61	0.10	

Split Flange Kits & O-Rings



Split Flange Kits



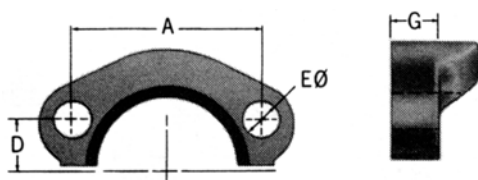
Each Kit Includes: (2) flange halves, (4) grade 8 hex bolts, (4) lock washers and (1) 90 durometer Buna-N O-Ring.

Flange Halves: Zinc plated yellow chromate finish.

Fluid Compatibility: Buna-N is compatible with petroleum and water base hydraulic fluids.

Operating Temperature Range: -40°F. to +250°F.

Note: For applications where fluid compatibility or high temperatures require other than Buna-N, contact us for assistance.



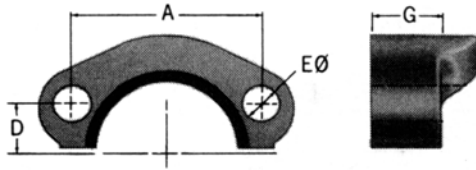
SFO
Code 61 Split Flange Kits

SFO • Code 61 Split Flange Kits

Catalog Part No.	Anchor Model	Flange Head Dia.	Flange Dash Size	Maximum Operating Pressure (psi)	Recommended Bolt Torque (lb-in)	A (in)	D (in)	E (in)	G (in)	Wt.	Price Each
•C1ZY50	8SFO	0.50	-08	5000	175-225	0.86	1.50	0.75	1.22	0.53	
•C1AJ84	12SFO	1.50	-12	5000	225-350	1.88	0.44	0.41	0.56	0.68	
C1MK47	DB-303-M-HALF	1.75	-16	3625	325-425	2.06	0.52	0.41	0.63		
C1CV41	FF593-16	1.75	-16	5000	325-425	2.06	0.52	0.41	0.62	0.65	
•C1AL35	16SFO	1.75	-16	5000	325-425	2.06	0.52	0.41	0.62	0.75	
C1MM17	STNA61803 DB304-M-HALF	2.03	-20	3625	425-550	2.31	0.59	0.41	0.55		
•C1BB68	20SFO	2	-20	4000	425-550	2.31	0.59	0.47	0.56	1.03	
C1MM20	STNA80393 DB-305-HALF	1.50	-24	2900	550-700	2.75	0.70	0.53	0.63		
•C1BG72	24SFO	2.38	-24	3000	550-700	2.75	0.70	0.53	0.62	1.41	
C1CV44	FF593-32	2.81	-32	3000	650-800	3.06	0.84	0.53	0.62	1.54	
•C1BM16	32SFO	2.81	-32	3000	650-800	3.06	0.84	0.53	0.62	1.62	
•C1BN96	40SFO	3.31	-40	2500	950-1100	3.5	1.0	0.53	0.75	2.32	

Note: FF593 is an Aeroquip® model. DB- and STNA are Stauff models for a single flange half only. Bolts and O-ring are NOT included.

Split Flange Kits



SFXO
Code 62 Split Flange Kits

SFXO • Code 62 Split Flange Kits

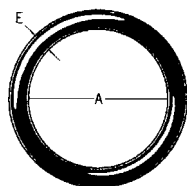
Catalog Part No.	Anchor Model	Flange Head Dia.	Flange Dash Size	Maximum Operating Pressure (psi)	Recommended Bolt Torque (lb-in)	A (in)	D (in)	E (in)	G (in)	Wt.	Price Each
•C1AJ85	12SFXO	1.63	-12	6000	300-400	2.00	0.47	0.42	0.75	1.04	
C1HE88	FF595-16	1.88	-16	6000	500-600	2.25	0.55	0.5	0.94	1.41	
•C1AL36	16SFXO	1.88	-16	6000	500-600	2.25	0.55	0.5	0.94	1.54	
•C1BB69	20SFXO	2.12	-20	6000	750-900	2.62	0.62	0.6	1.06	2.35	
C1MM23	STNA80401	2.53	-24	5800	1400-1600	3.12	0.72	0.67	1.18	3.00	
•C1BG73	24SFXO	2.5	-24	6000	1400-1600	3.12	0.72	0.66	1.19	3.87	

Note: SFXO-M models have metric mounting holes and come with metric bolts.

Note: DB- and STNA are Stauff models for a single flange half only. Bolts and Oring are NOT included. FF595 is an Aeroquip® model.

Split Flange Kits & O-Rings

O-Rings



O-Rings for SAE J518 Split Flange Fittings & Adapters

Catalog Part No.	Aeroquip Model	Nominal Flange Size	Flange Dash Size	Material	Operating Temperature Range (°F)	I.D. (A)	Width (E)	O.D. (in)	Wt.	Price Each
•C1CV56	FF9446-210	1/2	-08	Buna-N (90 durometer)	-40 to +250	0.734	0.139	1.012	0.15	
•C1CV57	FF9446-214	3/4	-12	Buna-N (90 durometer)	-40 to +250	0.984	0.139	1.262	0.15	
•C1CV58	FF9446-219	1	-16	Buna-N (90 durometer)	-40 to +250	1.296	0.139	1.574	0.15	
•C1CV59	FF9446-222	1-1/4	-20	Buna-N (90 durometer)	-40 to +250	1.484	0.139	1.762	0.10	
•C1CV60	FF9446-225	1-1/2	-24	Buna-N (90 durometer)	-40 to +250	1.859	0.139	2.137	0.10	
•C1CV61	FF9446-228	2	-32	Buna-N (90 durometer)	-40 to +250	2.234	0.139	2.512	0.10	

D-Rings for Caterpillar Flanges

Catalog Part No.	Aeroquip Model	Nominal Flange Size	Flange Dash Size	Material	Operating Temperature Range (°F)	I.D. (A)	Width (E)	O.D. (in)	Wt.	Price Each
•C1EW76	FF90319-12	3/4	-12	Buna-N	-40 to +212	1.00	0.14	1.27	0.01	
•C1EW77	FF90319-16	1	-16	Buna-N	-40 to +212	1.25	0.14	1.52	0.01	
•C1EW78	FF90319-20	1-1/4	-20	Buna-N	-40 to +212	1.50	0.14	1.77	0.01	

O-Rings for ORS® Fittings & Adapters

Catalog Part No.	Aeroquip Model	Tube Size	Material	Operating Temperature Range (°F)	I.D. (A)	Width (E)	O.D. (in)	Wt.	Price Each
•C1CV50	FF9446-11	0.25	Buna-N (90 durometer)	-40 to +250	0.301	0.07	0.441	0.01	
•C1BD60	22546-11	0.25	Neoprene (72 durometer)	-65 to +300	0.301	0.07	0.441	0.01	
•C1CV51	FF9446-12	0.375	Buna-N (90 durometer)	-40 to +250	0.364	0.07	0.504	0.01	
•C1CV52	FF9446-14	0.50	Buna-N (90 durometer)	-40 to +250	0.489	0.07	0.629	0.01	
•C1CV53	FF9446-16	0.63	Buna-N (90 durometer)	-40 to +250	0.614	0.07	0.754	0.01	
•C1CV54	FF9446-18	0.75	Buna-N (90 durometer)	-40 to +250	0.739	0.07	0.879	0.01	
•C1CV55	FF9446-21	1.0	Buna-N (90 durometer)	-40 to +250	0.926	0.07	1.066	0.01	
•C1CV62	FF9446-25	1.25	Buna-N (90 durometer)	-40 to +250	1.176	0.07	1.316	0.05	



Split Flange Kits & O-Rings

O-Rings



O-Rings for Bump Tube O-Ring Seal Fittings

Catalog Part No.	Aeroquip Model	Pilot Dash Size	Material	Operating Temperature Range (°F)	I.D. (A)	Width (E)	O.D. (in)	Wt.	Price Each
•C1EY12	FF90178-11	-06	HNBR (70 durometer)	-25 to +300	0.301	0.0625	0.426	0.01	
•C1EY13	FF90178-13	-08	HNBR (70 durometer)	-25 to +300	0.426	0.0625	0.551	0.01	
•C1EY14	FF90178-15	-10	HNBR (70 durometer)	-25 to +300	0.551	0.0625	0.676	0.01	
•C1EY15	FF90178-17	-12	HNBR (70 durometer)	-25 to +300	0.676	0.0625	0.801	0.01	

22546 Neoprene O-Rings: For use with R12 and R22 refrigerants.

FF90178 HNBR O-Rings: For use with R134 refrigerant.

O-Rings for SAE O-Ring Boss Fittings & Adapters

Catalog Part No.	Aeroquip Model	Tube Size	Material	Operating Temperature Range (°F)	I.D. (A)	Width (E)	O.D. (in)	Wt.	Price Each
•C1FE91	B-903	0.188	Buna-N (90 durometer)	-30 to +250	0.301	0.064	0.429	0.01	
•C1BD77	22617-4	0.25	Buna-N (90 durometer)	-30 to +250	0.351	0.072	0.495	0.05	
•C1CL29	B-904	0.25	Buna-N (90 durometer)	-30 to +250	0.351	0.072	0.495	0.01	
•C1BD78	22617-5	0.3125	Buna-N (90 durometer)	-30 to +250	0.414	0.072	0.558	0.01	
•C1BD79	22617-6	0.375	Buna-N (90 durometer)	-30 to +250	0.468	0.078	0.624	0.01	
•C1CL30	B-906	0.375	Buna-N (90 durometer)	-30 to +250	0.468	0.078	0.624	0.01	
•C1BD80	22617-8	0.50	Buna-N (90 durometer)	-30 to +250	0.644	0.087	0.818	0.15	
•C1CL31	B-908	0.50	Buna-N (90 durometer)	-30 to +250	0.644	0.087	0.818	0.01	
•C1BD73	22617-10	0.625	Buna-N (90 durometer)	-30 to +250	0.755	0.097	0.949	0.15	
•C1CL32	B-910	0.625	Buna-N (90 durometer)	-30 to +250	0.755	0.097	0.949	0.01	
•C1BD74	22617-12	0.75	Buna-N (90 durometer)	-30 to +250	0.924	0.116	1.156	0.02	
•C1CL33	B-912	0.75	Buna-N (90 durometer)	-30 to +250	0.924	0.116	1.156	0.01	
•C1CL34	B-914	0.875	Buna-N (90 durometer)	-30 to +250	1.047	0.116	1.279	0.10	
•C1BD75	22617-16	1.0	Buna-N (90 durometer)	-30 to +250	1.171	0.116	1.403	0.01	
•C1CL35	B-916	1.0	Buna-N (90 durometer)	-30 to +250	1.171	0.116	1.403	0.01	
•C1CL36	B-920	1.25	Buna-N (90 durometer)	-30 to +250	1.475	0.118	1.711	0.01	
•C1CL37	B-924	1.50	Buna-N (90 durometer)	-30 to +250	1.720	0.118	1.956	0.01	
•C1EH75	B-932	2.00	Buna-N (90 durometer)	-30 to +250	2.337	0.118	2.573	0.01	

Note: B-900 series models are not Aeroquip.

Hydraulic Power & Control

Pneumatic Power & Control

Fluid Conveying

Miscellaneous Products

Indexes & Technical Information



Hose Support Clamps

Features: These light weight vinyl-coated steel support clamps are designed to support hose where long runs are necessary. This clamp not only furnishes a cleaner installation, but prevents damage, exposure and chafing. The lining will withstand high ambient temperatures.



900729

Hose Support Clamps

Catalog Part No.	Aeroquip Model	Clamp I.D. (Closed)	Bolt Hole Dia.	Wt.	Price Each
•C1CB45	900729-18	0.25	0.406	0.18	
•C1CB36	900729-01	0.44	0.406	0.05	
•C1CB37	900729-1	0.50	0.406	0.04	
•C1CB47	900729-2	0.56	0.406	0.04	
•C1CB48	900729-21	0.63	0.406	0.04	
•C1CB55	900729-3	0.69	0.406	0.33	
•C1CB59	900729-4	0.75	0.406	0.04	
•C1CB60	900729-5	0.81	0.406	0.05	
•C1CB61	900729-6	0.94	0.406	0.06	
•C1CB49	900729-23	1.00	0.406	0.05	
•C1CB62	900729-8	1.06	0.406	0.09	
•C1CB63	900729-9	1.13	0.531	0.09	
•C1CB52	900729-27	1.19	0.531	0.01	
•C1CB50	900729-24	1.25	0.531	0.10	
•C1CB38	900729-10	1.50	0.531	0.11	
•C1CB39	900729-11	1.56	0.531	0.11	
•C1CB40	900729-12	1.75	0.531	1.30	
•C1CB41	900729-13	2.00	0.531	0.14	
•C1CB42	900729-14	2.25	0.531	0.16	
•C1CB56	900729-30	2.50	0.531	0.16	
•C1CB43	900729-15	2.75	0.531	0.19	
•C1EK29	900729-16	2.88	0.531	0.19	
•C1CB44	900729-17	3.56	0.531	0.24	



Support Clamps



Pipe & Tubing Support Clamps Hydrazorb 100-200 Series

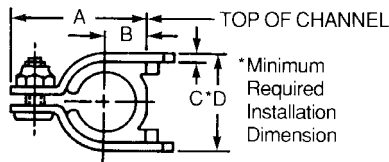


Features: Allows fluid conductors to be removed or added easily without disturbing adjacent conductors. Fast and simple installation.

Clamps: Available in zinc plated steel, galvanized steel, 304/304 stainless, 316 stainless, and aluminum.

Base Channel: Available in single & back-to-back, 12 ga. steel, 14 ga. Steel, 14 ga. 304 stainless, 14 ga. 316 stainless, and 6061T6 aluminum. Channel lengths from 36 to 240 inches are available in most styles.

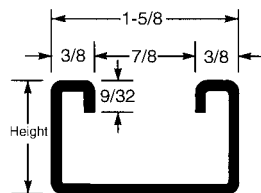
Operating Temperature Range: Cushion has -65°F to 275°F rating.



Clamps

Hydra-Zorb 100-200 Series Clamps

Catalog Part No.	Hydrazorb Model	Size & Type	Clamp Material	Stud/Bolt Material	Nut	A (in)	B (in)	C (in)	D (in)	Wt.	Price Each
•C1EX25	100025	1/4 inch Tubing	Zinc plated steel	Steel weld stud	Steel Nylock	1.11	0.22	0.075	0.62	0.11	
C1EX26	100025-4-656	1/4 inch Tubing	316 SS	SS weld stud	SS Nylock	1.11	0.22	0.075	0.62	0.09	
•C1EX27	100031	5/16 inch Tubing	Zinc plated steel	Steel weld stud	Steel Nylock	1.24	0.28	0.075	0.75	0.12	
•C1AG11	100037	3/8 inch Tubing	Zinc plated steel	Steel weld stud	Steel Nylock	1.24	0.28	0.075	0.75	0.12	
•C1EX29	100037-4-656	3/8 inch Tubing	316 SS	SS weld stud	SS Nylock	1.24	0.28	0.075	0.75	0.12	
•C1AG12	100050	1/2 inch Tubing	Zinc plated steel	Steel weld stud	Steel Nylock	1.36	0.34	0.075	0.87	0.25	
•C1AG13	100062	5/8 inch Tubing	Zinc plated steel	Steel weld stud	Steel Nylock	1.50	0.41	0.075	1.00	0.14	
•C1AG16	100075	3/4 inch Tubing	Zinc plated steel	Steel weld stud	Steel Nylock	1.78	0.53	0.075	1.33	0.25	
•C1EX32	100075-4-656	3/4 inch Tubing	316 SS	SS weld stud	SS Nylock	1.78	0.53	0.075	1.33	0.17	
•C1AG17	100087	7/8 inch Tubing	Zinc plated steel	Steel weld stud	Steel Nylock	1.91	0.58	0.075	1.45	0.18	
•C1AG18	100100	1 inch Tubing	Zinc plated steel	Steel weld stud	Steel Nylock	2.03	0.66	0.105	1.66	0.25	
•C1HC83	100112	1-1/8 inch Tubing	Zinc plated steel	Steel weld stud	Steel Nylock	2.16	0.72	0.105	1.79	0.54	
•C1AG19	100125	1-1/4 inch Tubing	Zinc plated steel	Steel weld stud	Steel Nylock	2.30	0.78	0.105	1.92	0.50	
•C1EX35	100125-4-656	1-1/4 inch Tubing	316 SS	SS weld stud	SS Nylock	2.30	0.78	0.105	1.92	0.25	
•C1AG20	100150	1-1/2 inch Tubing	Zinc plated steel	Steel weld stud	Steel Nylock	2.75	0.91	0.119	2.22	0.50	



Base Channel

Hydrazorb Base Channel

Catalog Part No.	Hydrazorb Model	Type	Material	Length (in)	Height (in)	Wt.	Price Each
•C1EX40	121048-6-101	Single	316 SS	48	0.8125	3.75	
•C1AJ47	121048-1-203	Single	12 gauge mild steel	48	1.0	5.62	



Support Clamps

Pipe & Tubing Support Clamps Stauff Standard Series



Features: For outside diameters from 1/4" to 4". Weld plate style available for single clamps. Rail mounting style available for all sizes. Clamp material available in polypropylene, polyamide and aluminum.

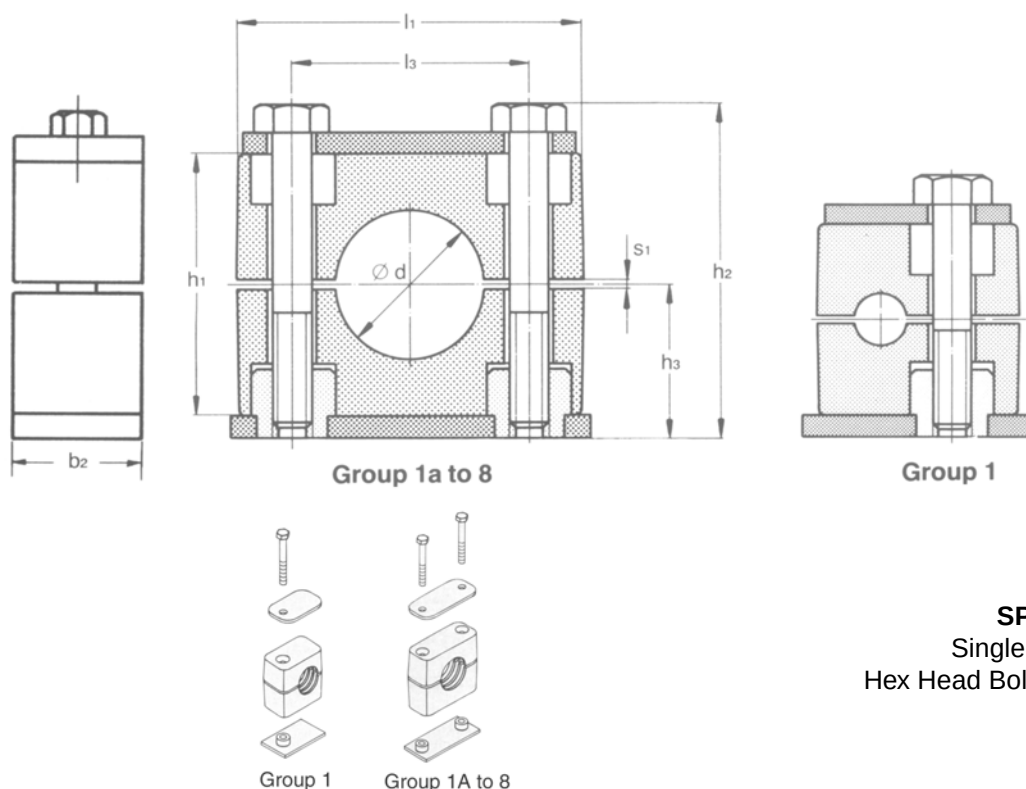
Recommended Spacing for Pipe: 1/4in=3FT, 3/8in=4FT, 1/2in=4FT, 3/4in=5FT, 1in=7FT, 1-1/4in=8FT, 1-1/2in=9FT, 2in=10FT, 2-1/2in=11FT, 3in=12FT.

Recommended Spacing for Tubing: 1/4in-1/2in = 3FT, 5/8in-7/8in=4FT, 1in=5FT, 1-1/4in-1-1/2in=7FT.

Temperature Ratings: Polypropylene -22°F to 194°F. Polyamide -40°F to 284°F. Aluminum -40°F to 500°F.

Note: Hose may be clamped using smooth body I.D. style clamps. MM size x .03937 =

Inch size.



SP*DPAS
Single Weld Plate
Hex Head Bolts with Cover Plate

SP*DPAS Stauff Clamps

Catalog Part No.	Stauff Model	Size (mm)	MM Tube Size	Inch Pipe Size	Inch Tube Size	Inch Hose O.D. Size	Group	Body Material	Body I.D.	Indiv. Pkg.	B2 (in)	H1 (in)	H3 (in)	Wt.	Price Each
•C1ML73	STNA11073 SP1064PPDPASUW10#K	6.4		1/4			1	Polypropylene	Profiled	Yes	1.18	1.06	0.65	0.16	
•C1ML74	STNA11076 SP1095PPDPASUW10K	9.5			1/4		1	Polypropylene	Profiled	Yes	1.18	1.06	0.65	0.15	
•C1ML75	STNA11079 SP110PPDPASUW10	10		1/8			1	Polypropylene	Profiled	Yes	1.18	1.06	0.65	0.15	
•C1ML69	SP112PPDP-ASUW10	12	12				1	Polypropylene	Profiled	Yes	1.18	1.06	0.65	0.15	
•C1ML76	STNA11108 SP2127PPDPASUW10#K	12.7	12.7		1/2		2	Polypropylene	Profiled	Yes	1.18	1.30	0.77	0.22	
C1KN42	SP215PPHDPASMW10	15				0.59	2	Polypropylene	Smooth	Yes	1.18	1.30	0.77	0.20	
•C1ML77	STNA11119 SP216PPDPASUW10#K	16	16		5/8		2	Polypropylene	Profiled	Yes	1.18	1.30	0.77	0.21	



Support Clamps

Pipe & Tubing Support Clamps Stauff Standard Series



SP*DPAS Stauff Clamps

Catalog Part No.	Stauff Model	Size (mm)	MM Tube Size	Inch Pipe Size	Inch Tube Size	Inch Hose O.D. Size	Group	Body Material	Body I.D.	Indiv. Pkg.	B2 (in)	H1 (in)	H3 (in)	Wt.	Price Each
•C1MM86	STNA11122 SP2171PPDPAS-BAG/TAG	17.1					2	Polypropylene	Profiled	Yes	1.18	1.30	0.77	0.16	
•C1ML78	STNA11125 SP2180PPDPAS-BAG	18	18				2	Polypropylene	Profiled	Yes	1.18	1.30	0.77	0.22	
•C1ZS95	SP3174PPHPAS-BA	17.4				0.69	3	Polypropylene	Smooth	Yes	1.18	1.42	0.83	0.26	
•C1ML79	STNA11148 SP319PPDPASUW10K	19	19		3/4		3	Polypropylene	Profiled	Yes	1.18	1.42	0.83	0.25	
•C1ML80	STNA11152 SP3200PPDPAS-BAG/TAG	20	20				3	Polypropylene	Profiled	Yes	1.18	1.42	0.83	0.25	
•C1MP54	STNA11154 SP3205PPHPAS-BAG/TAG	20.5				0.807	3	Polypropylene	Smooth	Yes	1.18	1.42	0.83	0.26	
•C1ML81	STNA11157 SP3213PPDPASUW10K	21.3	21.3	1/2			3	Polypropylene	Profiled	Yes	1.18	2.28	0.83	0.35	
•C1GA55	SP3222PPHPAS	22.0				0.87	3	Polypropylene	Smooth	Yes	1.18	1.42	0.83	0.26	
•C1ML82	STNA11166 SP3254PPDPASUW10K	25.4	25.4				3	Polypropylene	Profiled	Yes	1.18	1.42	0.83	0.25	
C1KN45	SP4269PPHPASMW10	26.9	26.9	3/4			4	Polypropylene	Smooth	Yes	1.18	1.65	0.94	0.30	
•C1ML83	STNA11184 SP4269PPDPASUW10K	26.9	26.9	3/4			4	Polypropylene	Profiled	Yes	1.18	1.65	0.94	0.25	
C1KN46	SP428PPHPASMW10	28	28				4	Polypropylene	Smooth	Yes	1.18	1.65	0.94	0.30	
•C1ML84	STNA11207 SP5278PPHPASUW10K	27.8				1.094	5	Polypropylene	Smooth	Yes	1.18	2.28	1.26	0.48	
C1KN47	SP530PPHPASMW10	30	30			1.18	5	Polypropylene	Smooth	Yes	1.18	2.28	0.94	0.41	
•C1ML85	STNA11209 SP532PPDPASUW10	32	32		1-1/4		5	Polypropylene	Profiled	Yes	1.18	2.28	1.26	0.41	
•C1ML86	STNA11212 SP5337PPDP-ASUW10#K	33.7	33.7	1			5	Polypropylene	Profiled	Yes	1.18	2.28	1.26	0.39	
•C1HG84	SP5370PPHPAS-K	37.0				1.46	5	Polypropylene	Smooth	Yes	1.18	2.28	1.25	0.42	
•C1MM87	STNA11217 SP5381PPDPAS-BAG	38	38		1-1/2		5	Polypropylene	Profiled	Yes	1.18	2.28	1.26	0.42	
•C1EF22	SP5422PPDPAS-BAG	42.2		1-1/4			5	Polypropylene	Profiled	Yes	1.18	2.28	1.26	0.42	
•C1JR29	SP6445PPHPAS-K	44.5	44.5	1-3/4		1.75	6	Polypropylene	Smooth	Yes	1.18	2.59	1.42	0.54	
•C1EF90	SP7635PPDPAS-BAG	63.5	63.5		2-1/2		7	Polypropylene	Profiled	Yes	1.18	3.66	2.02	4.64	
C1JA49	DP8 Cover Plate for Group 8 size clamps							Carbon Steel						0.35	

Hydraulic Power & Control

Pneumatic Power & Control

Fluid Conveying

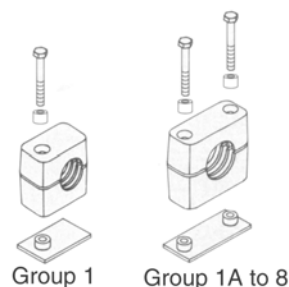
Miscellaneous Products

Indexes & Technical Information



Support Clamps

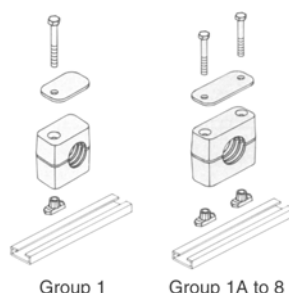
Pipe & Tubing Support Clamps Stauff Standard Series



SP*ASE
Single Weld Plate
Hex Head Bolts with Spacers

SP*ASE Stauff Clamps

Catalog Part No.	Stauff Model	Size (mm)	MM Tube Size	Inch Pipe Size	Inch Tube Size	Inch Hose O.D. Size	Group	Body Material	Body I.D.	Indiv. Pkg.	B2 (in)	H1 (in)	H3 (in)	Wt.	Price Each
C1EF14	SP3213PPASE-BAG/	21.3		1/2		0.84	3	Polypropylene	Profiled	Yes	1.19	1.38	0.80	0.25	
C1FR13	SP4266PPASE-BAG	26.6		3/4		1.05	4	Polypropylene	Profiled	Yes	1.18	1.65	0.92	0.25	
C1EF19	SP5334PPASE-BAG/	33.4		1.0		1.31	5	Polypropylene	Profiled	Yes	1.19	2.33	1.28	0.30	
C1FH29	SP5350PPHASE-BAG	35.0				1.38	5	Polypropylene	Smooth	Yes	1.19	2.33	1.28	0.32	
C1FH30	SP5381PPHASE-BAG	38.1				1.50	5	Polypropylene	Smooth	Yes	1.19	2.33	1.28	0.31	
C1EF21	SP5422PPASE-BAG/	42.2		1-1/4		1.66	5	Polypropylene	Profiled	Yes	1.19	2.33	1.28	0.30	
C1EF24	SP6483PPASE-BAG/	48.3		1-1/2		1.90	6	Polypropylene	Profiled	Yes	1.19	2.59	1.42	0.37	



SM*DPAS
Mounts on TS Mounting Rail
Hex Head Bolts with Cover Plate
(Includes 2ea SM1-8 Rail Nuts)

SM*DPAS Stauff Clamps

Catalog Part No.	Stauff Model	Size (mm)	MM Tube Size	Inch Pipe Size	Inch Tube Size	Inch Hose O.D. Size	Group	Body Material	Body I.D.	Indiv. Pkg.	B2 (in)	H1 (in)	Wt.	Price Each
C1MM77	STNA10494 SM2127PPDPAS-BAG	12.7			1/2		2	Polypropylene	Profiled	Yes	1.18	1.30	0.20	
C1MM78	STNA10496 SM2135PPDPASUW3#K	13.5		1/4			2	Polypropylene	Profiled	Yes	1.18	1.30	0.19	
C1MM79	STNA10503 SM216PPDPASUW3K	16			5/8		2	Polypropylene	Profiled	Yes	1.18	1.30	0.19	
C1ML71	STNA10522 SM3190PPDPAS-BAG	19			3/4		3	Polypropylene	Profiled	Yes	1.18	1.42	0.22	
C1EZ56	SM3200PPDPAS-BAG	20.0	20			0.79	3	Polypropylene	Profiled	Yes	1.18	1.42	0.21	
C1MM80	STNA10528 SM3213PPDPAS-BAG	21.3		1/2			3	Polypropylene	Profiled	Yes	1.18	1.42	0.22	
C1ML72	STNA10532 SM322PPDPASUW3K	22	22			0.866	3	Polypropylene	Profiled	Yes	1.18	1.42	0.21	
C1MM81	STNA10535 SM3254PPDPAS-BAG	25.4					3	Polypropylene	Profiled	Yes	1.18	1.42	0.20	
C1MM82	STNA10543 SM4266PPDPAS-BAG	26.6			1		4	Polypropylene	Profiled	Yes	1.18	1.65	0.21	
C1MM83	STNA10548 SM4280PPDPAS-BAG	28	28				4	Polypropylene	Profiled	Yes	1.18	1.65	0.25	



Support Clamps

Pipe & Tubing Support Clamps Stauff Standard Series



SM*DPAS Stauff Clamps

Catalog Part No.	Stauff Model	Size (mm)	MM Tube Size	Inch Pipe Size	Inch Tube Size	Inch Hose O.D. Size	Group	Body Material	Body I.D.	Indiv. Pkg.	B2 (in)	H1 (in)	Wt.	Price Each
•C1MM85	STNA10566 SM5334PPDPAS-BAG	33.4				1.350	5	Polypropylene	Profiled	Yes	1.18	2.28	0.30	
C1JA49	DP8 Cover Plate for Group 8 size clamps							Carbon Steel					0.35	



SM1-8
Rail Nut

SM1-8 Stauff Rail Nuts

Catalog Part No.	Stauff Model	Description	Wt.	Price Each
•C1EE99	SM1-8	Standard Series rail nut	0.02	

Hydraulic Power & Control

Pneumatic Power & Control

Fluid Conveying

Miscellaneous Products

Indexes & Technical Information



Support Clamps

Pipe & Tubing Support Clamps Stauff Heavy Series



Features: For outside diameters from 1/4" to 18". Weld plate style available for single clamps. Rail mounting style available for groups 3s thru 6s. Clamp material available in polypropylene, polyamide and aluminum.

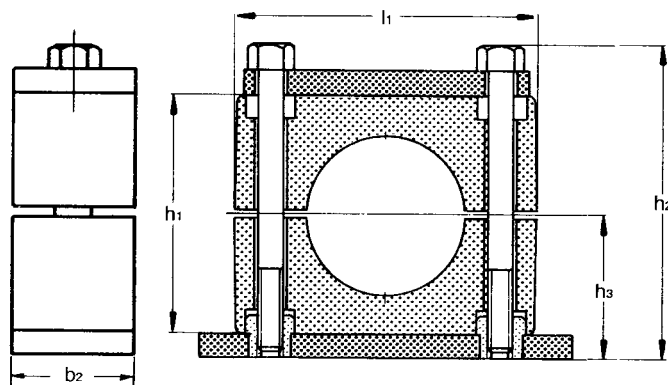
Recommended Spacing for Pipe: 1/4in=3FT, 3/8in=4FT, 1/2in=4FT, 3/4in=5FT, 1in=7FT, 1-1/4in=8FT, 1-1/2in=9FT, 2in=10FT, 2-1/2in=11FT, 3in=12FT, 3-1/2in=13FT, 4in=14FT, 5in=16FT, 6in=17FT.

Recommended Spacing for Tubing: 1/4in-1/2in = 3FT, 5/8in-7/8in=4FT, 1in=5FT,

1-1/4in-1-1/2in=7FT.

Temperature Ratings: Polypropylene -22°F to 194°F. Polyamide -40°F to 284°F. Aluminum -40°F to 500°F.

Note: Hose may be clamped using smooth body I.D. style clamps. MM size x .03937 = Inch size.



SPAL*DPALAS
Single Weld Plate
Hex Head Bolts with Cover Plate

SPAL*DPALAS Stauff Clamps

Catalog Part No.	Stauff Model	Size (mm)	MM Tube Size	Inch Pipe Size	Inch Tube Size	Group	Body Material	Body I.D.	Indiv. Pkg.	B2 (in)	H2 (in)	H3 (in)	I1 (in)	Wt.	Price Each
C1JD89	SPAL3137SPPHPDPA	13.7		1/4	0.54	3s	Polypropylene	Smooth	Yes	1.18	2.17	0.95	2.17	0.69	
•C1EF29	SPAL4213SPPDPALA	21.3		1/2	0.84	4s	Polypropylene	Profiled	Yes	1.18	2.80	1.27	2.77	0.90	
C1JM79	856238	26.9			1.06	4s	Polypropylene	Profiled	Yes	1.18	2.80	1.27	2.77	0.85	
•C1MC69	STNA23992 SPAL 4026,9PP DPAL AS U W15K	26.9		3/4		4s	Polypropylene	Profiled	Yes	1.18	2.80	1.27	2.77	0.90	
C1MC70	STNA29288 SPAL40269PPDPALASU W10#	26.9		3/4		4s	Polypropylene	Profiled	Yes	1.18	2.80	1.27	2.77	0.85	
•C1EF33	SPAL5334SPPDPALA	33.4		1	1.31	5s	Polypropylene	Profiled	Yes	1.25	3.28	1.50	3.34	0.75	
C1JM71 C1JM71	834150834150	33.7			1.33	5s	Polypropylene	Profiled	Yes	1.25	3.28	1.50	3.34	1.05	
•C1EF34	SPAL5422SPPDPALA	42.2	42	1-1/4	1.66	5s	Polypropylene	Profiled	Yes	1.25	3.28	1.50	3.34	1.04	
C1KW59	STNA24987 SPAL60483PPDPALASU W15#K	48.3		1-1/2		6s	Polypropylene	Profiled	Yes	1.75	4.61	2.17	4.53	3.07	
C1KK88	834152	48.3		1-1/2	1.90	6s	Polypropylene	Profiled	Yes	1.75	4.61	2.17	4.53	2.73	
C1HS73	SPAL6603SPPDPALAS-B AG	60.3	60	2	2.37	6s	Polypropylene	Profiled	Yes	1.75	4.61	2.17	4.53	2.61	

Pipe & Tubing Support Clamps Stauff Heavy Series



SPAL*DPALAS Stauff Clamps

Catalog Part No.	Stauff Model	Size (mm)	MM Tube Size	Inch Pipe Size	Inch Tube Size	Group	Body Material	Body I.D.	Indiv. Pkg.	B2 (in)	H2 (in)	H3 (in)	I1 (in)	Wt.	Price Each
C1JM72	834153 (SPAL60603PPDPALASU W15K)	60.3	60	2	2.37	6s	Polypropylene	Profiled	Yes	1.75	4.61	2.17	4.53	2.61	
C1EF38	SPAL7889SPPDPALA	88.9		3	3.50	7s	Polypropylene	Profiled	Yes	2.25	5.91	2.75	5.98	5.20	
C1JM73	834154 (SPAL70889PPDPALASU W15K)	88.9		3	3.50	7s	Polypropylene	Profiled	Yes	2.25	5.91	2.75	5.98	5.08	
C1JM74	834155	114		4	4.49	8s	Polypropylene	Profiled	Yes	3.00	8.28	3.86	8.08	10.00	

Models ending in W12K: Weld plate & cover plate phosphated, bolts untreated.

Models ending in W15K: Weld plate & cover plate phosphated, bolts zinc plated.



AF*SIP
Stacking Bolts and Safety Plates

AF*SIP Stauff Clamps

Catalog Part No.	Stauff Model	Size (mm)	Inch Pipe Size	Inch Tube Size	Group	Body Material	Body I.D.	Indiv. Pkg.	B2 (in)	H1 (in)	I1 (in)	Wt.	Price Each
C1EA14	AF5422SPPSIP-BAG	42.2	1-1/4	1.66	5s	Polypropylene	Profiled	Yes	1.25	2.38	3.34	0.60	



***PP**
Clamp Body (Both Halves)

*PP Stauff Clamp Bodies

Catalog Part No.	Stauff Model	Size (mm)	Inch Pipe Size	Inch Tube Size	Group	Body Material	Body I.D.	Indiv. Pkg.	B2 (in)	H1 (in)	I1 (in)	Wt.	Price Each
C1MM61	60635PP#K	63.5		2.50	6S	Polypropylene	Profiled	Yes	1.77	3.50	4.53	0.20	
C1DZ85	8127SPP-BAG/TAG	127		5.00	8s	Polypropylene	Profiled	Yes	3	6.70	8.08	0.92	
C1JF11	9168S-PP-BAG	168.0	6	6.61	9s	Polypropylene	Profiled	Yes	3.50	7.88	9.84	2.67	

Support Clamps

Pipe & Tubing Support Clamps Stauff Twin Series



Features: For equal or unequal outside diameters from 1/4" to 1-1/2". Weld plate style available for single and group. Rail mounting style available for all sizes. Clamp material available in polypropylene and polyamide.

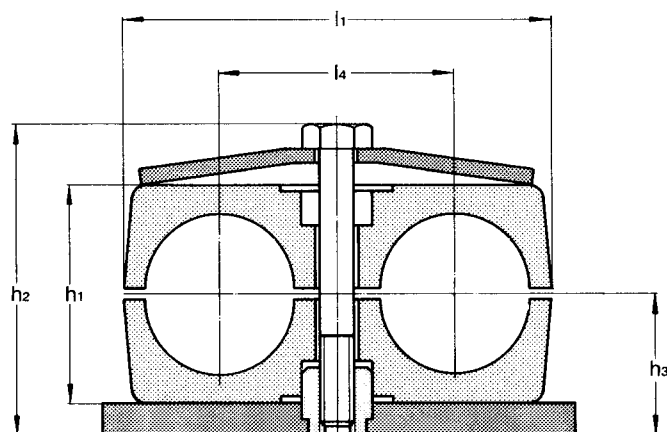
Recommended Spacing for Pipe: 1/4in=3FT, 3/8in=4FT, 1/2in=4FT, 3/4in=5FT, 1in=7FT, 1-1/4in=8FT.

Recommended Spacing for Tubing: 1/4in-1/2in = 3FT, 5/8in-7/8in=4FT, 1in=5FT,

1-1/4in-1-1/2in=7FT.

Temperature Ratings: Polypropylene -22°F to 194°F. Polyamide -40°F to 284°F. Aluminum -40°F to 500°F.

Note: Hose may be clamped using smooth body I.D. style clamps. MM size x .03937 = Inch size.



SPDS*GDAS
Single Weld Plate
Hex Head Bolts with Cover Plate

SPDS*GDAS Stauff Clamps

Catalog Part No.	Stauff Model	Size (mm)	Inch Pipe Size	Inch Tube Size	Inch Hose O.D. Size	Group	Body Material	Body I.D.	Indiv. Pkg.	B2 (in)	H2 (in)	H3 (in)	I1 (in)	Wt.	Price Each
•C1ML87	STNA12789 SP2095/095PPGDASUW10K	9.5		3/8		2	Polypropylene	Profiled	Yes	1.18	1.73	0.73	2.09	0.31	
•C1ML88	STNA12795 SP2127/127PPGDASUW10K	12.7		1/2		2	Polypropylene	Profiled	Yes	1.18	1.73	0.73	2.09	0.50	
•C1ML96	STNA17378 SPDS2127/127PPGDAS-K	12.7		1/2		2	Polypropylene	Profiled	Yes	1.18	1.73	0.73	2.09	0.29	
•C1ML89	STNA12801 SP3134/13PPHGDASUW10K	13.4	1/4		0.528	3	Polypropylene	Smooth	Yes	1.18	1.93	0.92	2.64	0.42	
C1EF91 C1EF91	SPDS2171/171PPGDSPDS 2171/171PPGD	17.1	3/8		0.67	2D	Polypropylene	Profiled	Yes	1.18	1.73	0.72	2.13	0.28	
•C1MM7 5	SP2172/172PPGDAS	17.2	3/8		0.68	2D	Polypropylene	Profiled	Yes	1.18	1.73	0.73	2.09	0.28	
•C1ML90	STNA12839 SP3174/174DPPHGD	17.4			0.685	3	Polypropylene	Smooth	Yes	1.18	1.93	0.92	2.64	0.41	
•C1ML91	STNA12846 SP319/19PPGDASUW10K	19		3/4		3	Polypropylene	Profiled	Yes	1.18	1.93	0.93	2.64	0.39	
•C1ML92	STNA12858 SP3205/205PPHGDASUW10K	20.5			0.807	3	Polypropylene	Smooth	Yes	1.18	1.93	0.92	2.64	0.26	



Support Clamps

Pipe & Tubing Support Clamps Stauff Twin Series



SPDS*GDAS Stauff Clamps

Catalog Part No.	Stauff Model	Size (mm)	Inch Pipe Size	Inch Tube Size	Inch Hose O.D. Size	Group	Body Material	Body I.D.	Indiv. Pkg.	B2 (in)	H2 (in)	H3 (in)	I1 (in)	Wt.	Price Each
•C1EU97	SP3213/213DPPGDA	21.3	1/2		0.84	3D	Polypropylene	Profiled	Yes	1.18	2.17	0.92	2.64	0.39	
•C1MM76	SP3222/222PPGDAS	22.2		7/8	0.874	3	Polypropylene	Smooth	Yes	1.18	1.93	0.92	2.64	0.39	
•C1EF39	SPDS3222/222PPGD	22.2		7/8		3D	Polypropylene	Profiled	No	1.18	2.17	0.92	2.64	0.40	
•C1ML93	STNA12908 SP5278/27PPHGDASUW10K	27.8			1.094	5	Polypropylene	Smooth	Yes	1.18	2.72	1.22	4.17	0.69	
•C1MC68	STNA12897 SP428/28PPHGD-ASUW10#K	28			1.102	4	Polypropylene	Smooth	Yes	1.18	2.17	0.94	3.15	0.46	
•C1ML94	STNA12919 SP5357/35PPHGDASUW10K	35.7			1.406	5	Polypropylene	Smooth	Yes	1.18	2.72	1.22	4.17	0.65	

Miscellaneous Stauff Twin Series Parts

Catalog Part No.	Stauff Model	Description	Wt.	Price Each
C1KE61	3205/205PPH	Clamp Body (2 Halves), Polypropylene, Group 3, Smooth Bore 21.5mm (0.846 inches)	0.10	
C1KG73	SI2-5DW3	Safety Locking Plate, Groups 2D thru 5D, Carbon Steel Zinc Plated	0.01	



Swivel Joints

FS65 Series Standard Duty Balanced Pressure



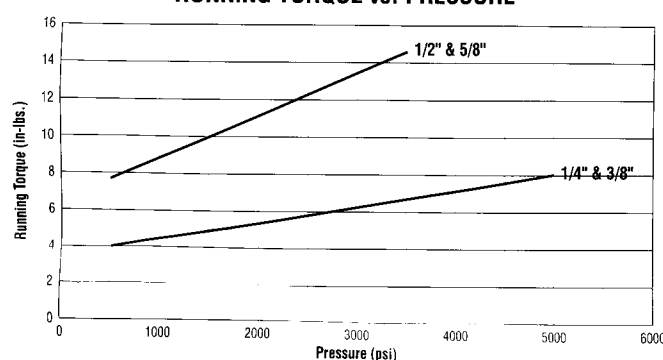
Aeroquip FS65 Balanced-Pressure Series swivel joints answer customer requests for a more cost competitive, compact product. They feature compact forged castings that are less expensive to manufacture than brazing castings. Their balanced-pressure design distributes pressure evenly through the body of the joints, eliminating axial loading of the sleeve. The pressure-balanced design allows the swivel joints to rotate with very low torque - even up to their rated operating pressure.

Features: Balanced-pressure design • Low-drop dimensions • Contamination seals • 360° rotation • Standard o-ring design and repair kits.

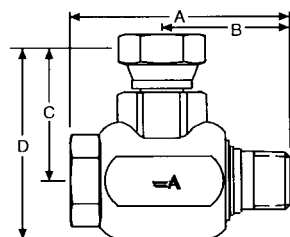
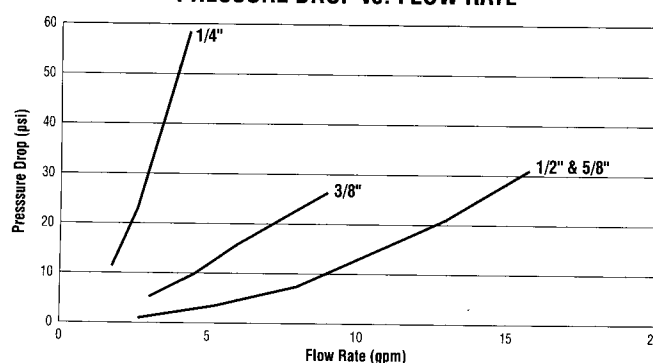
Pressure Ratings: 5000 PSI (Sizes 1/4 and 3/8), 3500 PSI (Sizes 1/2 and 5/8), 3500 PSI (Size 3/4), 3000 PSI (Size 1 inch).

Seal Options: Suffix -01 Buna-N (Standard). Suffix -04 EPR. Suffix -06 Viton®.

RUNNING TORQUE vs. PRESSURE



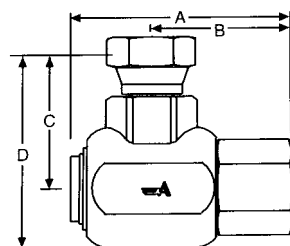
PRESSURE DROP vs. FLOW RATE



FS65000

Female Pipe Swivel / Male
Pipe

Catalog Part No.	Aeroquip Model	Nom. Size	Casing Thread	Sleeve Thread	A (in)	B (in)	C (in)	Wt.	Price Each
•C1FH44	FS65000-0606-01	3/8	3/8-18 NPSM	3/8-18	2.53	1.48	1.45	0.75	
•C1FH45	FS65000-0808-01	1/2	1/2-14 NPSM	1/2-14	2.88	1.54	1.62	1.03	
•C1FH46	FS65000-1212-01	3/4	3/4-14 NPSM	3/4-14	3.21	1.89	2.14	1.86	
•C1FK62	FS65000-1616-01	1	1-11-1/2 NPSM	1-11-1/2	3.91	2.27	2.40	3.06	

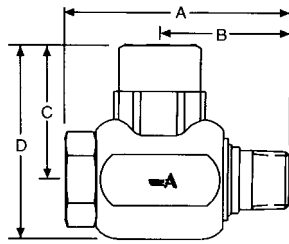


FS65005

Female Pipe Swivel / Female
Pipe

Catalog Part No.	Aeroquip Model	Nom. Size	Casing Thread	Sleeve Thread	A (in)	B (in)	C (in)	Wt.	Price Each
•C1FH49	FS65005-0808-01	1/2	1/2-14 NPSM	1/2-14	3.14	1.97	1.62	1.14	
•C1FH50	FS65005-1212-01	3/4	3/4-14 NPSM	3/4-14	3.21	2.08	2.14	1.87	

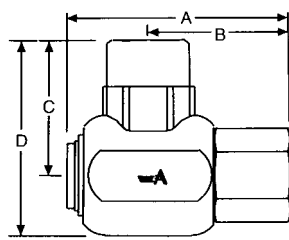
FS65 Series Standard Duty Balanced Pressure



FS65007

Female Pipe / Male Pipe

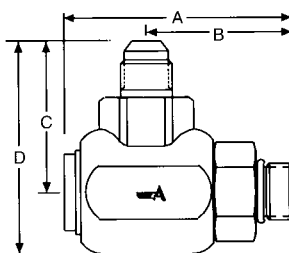
Catalog Part No.	Aeroquip Model	Nom. Size	Casing Thread	Sleeve Thread	A (in)	B (in)	C (in)	Wt.	Price Each
C1KL98	FS65007-0808-01	1/2	1/2-14	1/2-14	2.88	1.54	1.88	1.01	
C1FK64	FS65007-1616-01	1	1-11-1/2	1-11-1/2	3.91	2.27	2.62	3.04	



FS65008

Female Pipe (Fixed) / Female Pipe

Catalog Part No.	Aeroquip Model	Nom. Size	Casing Thread	Sleeve Thread	A (in)	B (in)	C (in)	Wt.	Price Each
C1FH52	FS65008-0606-01	3/8	3/8-18	3/8-18	2.49	1.58	1.59	0.75	
C1FH53	FS65008-0808-01	1/2	1/2-14	1/2-14	3.14	1.97	1.88	1.13	
C1FK65	FS65008-1616-01	1	1-11-1/2	1-11-1/2	3.84	2.53	2.62	3.00	



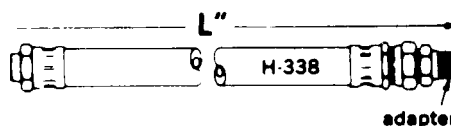
FS65009

Male 37° Flare / Male SAE O-Ring Boss

Catalog Part No.	Aeroquip Model	Nom. Size	Casing Thread	Sleeve Thread	A (in)	B (in)	C (in)	Wt.	Price Each
C1GF12	FS65009-1212-01	3/4	1-1/16-12	1-1/16-12	3.28	2.16	2.36	1.79	

Air Brake Products

Air Brake Air Chamber Hose Lines



Construction: H338 Air Brake Hose with synthetic inner tube, multi-fiber spiral reinforcement, perforated synthetic cover. Rigid male pipe on one end. Swivel male pipe adapter on other end.

Application: Air brake air chamber hose lines.

Operating Temperature Range: -40°F to +200°F.

3/8 Inch Hose Assemblies: H33806 Hose with 3/4 inch O.D., 225 PSI Working Pressure, 900 PSI Burst Pressure, 3-1/2 inch Minimum Bend Radius.

1/2 Inch Hose Assemblies: H33808 Hose with 7/8 inch O.D., 225 PSI Working Pressure, 900 PSI Burst Pressure, 4 inch Minimum Bend Radius.

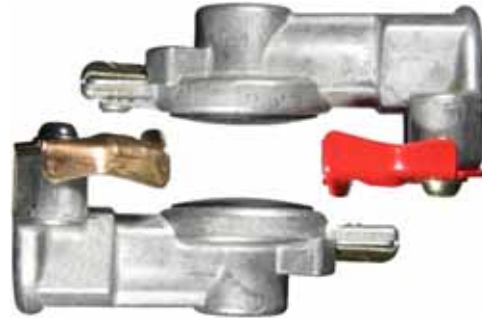
Custom Hose Lengths: Aeroquip® 2570 Air Brake Hose page 892 Aeroquip® FC350 Hose page 890

Air Brake Air Chamber Hose Lines

Catalog Part No.	Eaton Model	Hose I.D. (in)	Configuration	L (in)	Wt.	Price Each
•C1ER66	W28539	3/8	1/4 Male Pipe x 1/4 Male Pipe Swivel Adapter x 3/8 Hose	20-3/8	6.00	
•C1ER64	W28472	3/8	1/4 Male Pipe x 1/4 Male Pipe Swivel Adapter x 3/8 Hose	24-1/8	2.00	
•C1ER65	W28473	3/8	1/4 Male Pipe x 1/4 Male Pipe Swivel Adapter x 3/8 Hose	28-3/8	4.00	
C1NC44	W28554	3/8	1/4 Male Pipe x 1/4 Male Pipe Swivel Adapter x 3/8 Hose	34-3/8	8.00	
•C1ER70	W28555	3/8	1/4 Male Pipe x 1/4 Male Pipe Swivel Adapter x 3/8 Hose	36-1/8	7.00	
•C1ER71	W28559	3/8	1/4 Male Pipe x 1/4 Male Pipe Swivel Adapter x 3/8 Hose	41-1/8	10.00	
•C1ER78	W86471	1/2	3/8 Male Pipe x 3/8 Male Pipe Swivel Adapter x 1/2 Hose	18	0.62	
•C1ER79	W86472	1/2	3/8 Male Pipe x 3/8 Male Pipe Swivel Adapter x 1/2 Hose	24	4.00	
•C1ER80	W86473	1/2	3/8 Male Pipe x 3/8 Male Pipe Swivel Adapter x 1/2 Hose	28-3/8	7.00	
•C1ER82	W86550	1/2	3/8 Male Pipe x 3/8 Male Pipe Swivel Adapter x 1/2 Hose	30	0.84	
•C1ER84	W86554	1/2	3/8 Male Pipe x 3/8 Male Pipe Swivel Adapter x 1/2 Hose	34-3/8	10.00	
•C1ER85	W86555	1/2	3/8 Male Pipe x 3/8 Male Pipe Swivel Adapter x 1/2 Hose	36	20.00	
•C1ER86	W86559	1/2	3/8 Male Pipe x 3/8 Male Pipe Swivel Adapter x 1/2 Hose	41-1/8	6.00	

Note: Swivel adapter is included.

Gladhand Couplings



Features: Die-cast aluminum body. 1/2 inch female pipe thread. Conforms to SAE J318.

Gladhand Couplings

Catalog Part No.	Model	Description	Wt.	Price Each
•C1ER76	W78850	SERVICE (Signal) Connects only to Service.	0.40	
•C1ER75	W75150	UNIVERSAL (Connects to all styles). Meets MS35746-1.	0.39	
•C1ER60	W14630	Gladhand Seal. Used in Models W78850, W78851, W76150.	0.02	

Performance Products

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WARNING

EATON FITTING TOLERANCES ARE ENGINEERED TO MATCH EATON'S AEROQUIP HOSE TOLERANCES. THE USE OF EATON FITTINGS ON HOSE SUPPLIED BY OTHER MANUFACTURERS AND/OR THE USE OF EATON'S AEROQUIP HOSE WITH FITTINGS SUPPLIED BY OTHER MANUFACTURERS MAY RESULT IN THE PRODUCTION OF UNRELIABLE AND UNSAFE HOSE ASSEMBLIES AND IS NEITHER RECOMMENDED NOR AUTHORIZED BY EATON CORPORATION OR ANY OF ITS AFFILIATES OR SUBSIDIARIES.



WARNING

APPLICATION CONSIDERATIONS MUST BE OBSERVED IN SELECTING APPROPRIATE COMPONENTS FOR THE APPLICATION OF THESE PRODUCTS CONTAINED HEREIN. THE FAILURE TO FOLLOW THE RECOMMENDATIONS SET FORTH IN THIS CATALOG MAY RESULT IN AN UNSTABLE APPLICATION WHICH MAY RESULT IN SERIOUS PERSONAL INJURY OR PROPERTY DAMAGE.

EATON CORPORATION OR ANY OF ITS SUBSIDIARIES SHALL NOT BE SUBJECT TO AND DISCLAIMS ANY OBLIGATIONS OR LIABILITIES (INCLUDING BUT NOT LIMITED TO ALL CONSEQUENTIAL, INCIDENTAL AND CONTINGENT DAMAGES) ARISING FROM TORT CLAIMS (INCLUDING WITHOUT LIMITATION NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORIES OF LAW WITH RESPECT TO ANY HOSE ASSEMBLIES NOT PRODUCED FROM GENUINE AEROQUIP HOSE FITTINGS, HOSE AND AEROQUIP APPROVED EQUIPMENT, AND IN CONFORMANCE WITH EATON'S AEROQUIP PROCESS AND PRODUCT INSTRUCTIONS FOR EACH SPECIFIC HOSE ASSEMBLY.

Failure to follow these processes and product instructions and limitations could lead to premature hose assembly failures resulting in property damage,

Routing

If the user will follow the recommendations on hose line routing and installation on page 1518 , improved safety and longer service life of any hose installation will result.



Performance Products

Hose & Fittings



FBA

AQP® Racing Hose Stainless Steel Braid



Construction: AQP® elastomer tube, partial stainless steel wire inner braid and a full stainless steel outer braid reinforcement.

Temperature Range: Continuous operating temperature from -55°F to +300°F.

Application: Fuel, Lube, Coolant, Air. FBA hose (with FBM reusable fittings) is an SAE J1942-1 (June 2005) qualified hose for marine fuel lines on commercial vessels, firesleeve required on sizes -04 -06 -08, firesleeve not required on sizes -10 thru -20.

Reusable Fittings: page 1287

Crimp Fittings: page 1289

Note: For vacuum applications do not exceed Minimum Bend Radius.

FBA

Catalog Part No.	Aeroquip Model	Hose Dash Size	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Wt. (per ft)	Price (per ft)
•C1CP58	FBA0400	-04	0.22	0.44	1000	2.0	28	0.11	
•C1CP59	FBA0600	-06	0.34	0.55	1000	2.50	28	0.16	
•C1CP60	FBA0800	-08	0.44	0.65	1000	3.5	28	0.17	
•C1CP61	FBA1000	-10	0.56	0.80	1000	4	28	0.21	
•C1CP62	FBA1200	-12	0.69	0.94	1000	4.5	28	0.29	
•C1CP63	FBA1600	-16	0.88	1.15	750	5.5	28	0.38	
•C1CP64	FBA2000	-20	1.13	1.41	500	8	28	0.49	

FBU

StartLite® Racing Hose Light Weight



StartLite® Racing Hose utilizes a fire-retardant Nomex™ cover and Aeroquip's patented AQP® elastomer inner tube, resulting in an extremely lightweight product. For ultimate weight savings, use aluminum crimp style swivel fittings, which are available in sizes -04 through -20, and are crimped using the Aeroquip ProCrimp® assembly machine. For ultimate field serviceability, choose Aeroquip's high quality reusable fittings.

Construction: AQP® elastomer inner tube and Nomex™ blue cover.

Temperature Range: -45°F to 300°F.

Application: Fuel, lube, coolant, air. NOT recommended for marine fuel lines.

Reusable Fittings: page 1287

Crimp Fittings: page 1289

ProCrimp® 1380 Crimper: page 908

FBU

Catalog Part No.	Aeroquip Model	Hose Dash Size	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Wt. (per ft)	Price (per ft)
•C1ZV73	FBU0400	-04	0.22	0.43	200	2.00	20	0.05	
•C1ZV72	FBU0600	-06	0.34	0.55	200	2.50	20	0.08	
•C1ZV71	FBU0800	-08	0.44	0.64	200	3.50	20	0.11	
•C1ZV70	FBU1000	-10	0.56	0.80	200	4.00	20	0.14	



Performance Products

Hose & Fittings



FBU

Catalog Part No.	Aeroquip Model	Hose Dash Size	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Wt. (per ft)	Price (per ft)
•C1ZV69	FBU1200	-12	0.69	0.93	100 (Reusable) 200 (Crimp)	4.50	20	0.16	
•C1ZV68	FBU1600	16	0.88	1.15	100 (Reusable) 200 (Crimp)	5.50	20	0.20	

FC332

AQP® SOCKETLESS™ Hose Low Pressure



AQP SOCKETLESS hose and fittings are extremely easy to work with. Simply push the hose onto the fitting. It's that simple.

Construction: AQP® elastomer tube, textile braid reinforcement, blue AQP® elastomer cover.

Application: For gasoline, fuel and lubricating oils, air and water. NOT recommended for marine fuel lines. Not recommended for hydraulic impulse applications, and is not approved for air brake applications.

Operating Temperature Range: -40°F to +300°F. Water not to exceed +180°F. Air not to exceed +250°F.

Reusable Fittings: page 1290

FC332

Catalog Part No.	Aeroquip Model	Hose Dash Size	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Wt. (per ft)	Price (per ft)
•C1CR66	FC332-04	-04	0.25	0.49	250	3	28	0.08	
•C1CR67	FC332-06	-06	0.38	0.63	250	3	28	0.12	
•C1CR68	FC332-08	-08	0.50	0.75	250	5	28	0.14	
•C1CR69	FC332-10	-10	0.63	0.91	250	6	18	0.19	
•C1CR70	FC332-12	-12	0.75	1.04	250	7	18	0.25	

Note: Reeled hose may be purchased by the foot or by the reel.



Performance Products

Hose & Fittings



FBF

A/C Hose Nylon Tube Stainless Steel Braid



This new and innovative product offers discriminating motorsport enthusiasts a superior hose and fitting combination specifically designed for A/C component applications. This attractive hose has a stainless steel braid with a nylon inner tube for superior refrigerant performance. Custom designed nickel plated steel reusable fittings, with available charge ports, are an eye appealing compliment to complete these field serviceable hose assemblies.

Application: A/C.

Reusable Fittings: page 1293

Lubricant Selection: Always be sure to use the correct lubricant to assemble hoses for your A/C system. Most R-12 systems use mineral oil, while most R-134a systems use a synthetic lubricant called Polyalkylene Glycol (PAG).

FBF

Catalog Part No.	Aeroquip Model	Hose Dash Size	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Wt. (per ft)	Price (per ft)
•C1GC58	FBF0600	-06	0.33	0.44	500	4.00		0.08	
•C1GC59	FBF0800	-08	0.43	0.54	500	5.25		0.10	

2807

Teflon® Racing Hose Teflon® Tube Stainless Steel Braid



Teflon® Racing Hose is made with an extruded Teflon® inner tube that's compatible with a wide range of fluids, including hydraulic brake fluids. The hose has a bright stainless steel wire-braid cover that resists abrasion and corrosion, providing optimum dependability.

Application: Offroad brake, transmission, clutch, gauge, N₂O, power steering, hydraulic and air conditioning.

Construction: Extruded Teflon® inner tube with stainless steel wire-braid cover.

Operating Temperature Range: -100°F to 450°F.

Reusable Fittings: page 1294

2807

Catalog Part No.	Aeroquip Model	Hose Dash Size	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Wt. (per ft)	Price (per ft)
•C1BJ83	2807-3	-03	0.14	0.25	3000	1.50	28	0.04	
C1BJ84	2807-4	-04	0.19	0.30	3000	2.0	28	0.06	



Performance Products

Hose & Fittings



FC300

AQP® High Pressure Hose Power Steering



AQP® High Pressure Hose is ideal for power steering, hydraulics, air, fuel and lubricating oil applications. It has a blue abrasion resistant fabric cover and a patented AQP® synthetic inner tube. It uses standard steel and brass reusable fittings.

Application: Power steering lines, hydraulics, air, gasoline, fuel and lubricating oils, over-the-wall air tools and DOT-approved air brake.

Construction: AQP® elastomer tube, polyester inner braid, single wire braid reinforcement and blue polyester braid cover.

Operating Temperature Range: -55°F to +300°F except air +250°F

Reusable Fittings: page 1296

FC300

Catalog Part No.	Aeroquip Model	Hose Dash Size	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Wt. (per ft)	Price (per ft)
•C1CR47	FC300-06	-06	0.31	0.67	2250	4	28	0.23	
•C1CR48	FC300-08	-08	0.41	0.76	2000	4.62	28	0.26	
•C1CR49	FC300-10	-10	0.50	0.93	1750	5.5	28	0.37	
•C1CR50	FC300-12	-12	0.62	1.08	1500	6.5	28	0.44	

Reusable Fittings for AQP® Racing Hose & StartLite® Racing Hose



Red/Blue Anodized Aluminum
37° Flare Swivel

Reusable Fittings for AQP® Racing Hose & StartLite® Racing Hose

Catalog Part No.	Aeroquip Model	Hose & Fitting Dash Size	Cut-Off (in)	Wt.	Price Each
•C1CP76	FBM1012	-06	1.21	0.05	
•C1KL54	FBM4412	-06	1.21	0.05	
•C1CP77	FBM1013	-08	1.34	0.08	
•C1KL55	FBM4413	-08	1.34	0.08	
•C1CP78	FBM1014	-10	1.46	0.12	
•C1CP79	FBM1015	-12	1.54	0.18	
•C1CP80	FBM1016	-16	1.73	0.50	
•C1CP81	FBM1017	-20	1.94	0.44	

Note: Part numbers that start with FBM44 are anodized black, all others are anodized red/blue.



Nickel-Plated Aluminum
37° Flare Swivel

Reusable Fittings for AQP® Racing Hose & StartLite® Racing Hose

Catalog Part No.	Aeroquip Model	Hose & Fitting Dash Size	Cut-Off (in)	Wt.	Price Each
•C1ZW87	FBE1012	-06	1.21	0.06	



Red/Silver Plated Steel
37° Flare Swivel

Reusable Fittings for AQP® Racing Hose & StartLite® Racing Hose

Catalog Part No.	Aeroquip Model	Hose & Fitting Dash Size	Cut-Off (in)	Wt.	Price Each
•C1CP75	FBM1011	-04	1.05	0.25	
C1EA57	FBM1076	-08	1.34	0.17	



Red/Blue Anodized Aluminum
37° Flare Swivel, 45° Elbow

Reusable Fittings for AQP® Racing Hose & StartLite® Racing Hose

Catalog Part No.	Aeroquip Model	Hose & Fitting Dash Size	Adjustable End	Cut-Off (in)	Wt.	Price Each
•C1CQ71	FBM4022	-06	Yes	1.62	0.08	
•C1KL57	FBM4422	-06	Yes	1.62	0.08	
•C1CQ72	FBM4023	-08	Yes	1.67	0.13	
•C1CQ73	FBM4024	-10	Yes	1.73	0.16	
•C1CQ74	FBM4025	-12	Yes	1.92	0.24	
•C1EC49	FBM4026	-16	Yes	2.06	0.34	

Note: Part numbers that start with FBM44 are anodized black, all others are anodized red/blue.



Nickel-Plated Aluminum
37° Flare Swivel, 45° Elbow

Reusable Fittings for AQP® Racing Hose & StartLite® Racing Hose

Catalog Part No.	Aeroquip Model	Hose & Fitting Dash Size	Adjustable End	Cut-Off (in)	Wt.	Price Each
•C1ZW58	FBE4023	-08	Yes	1.67	0.13	
•C1ZW57	FBE4024	-10	Yes	1.73	0.17	

Performance Products



Hose & Fittings



Red/Silver Plated Steel
37° Flare Swivel, 45° Elbow

Reusable Fittings for AQP® Racing Hose & StartLite® Racing Hose

Catalog Part No.	Aeroquip Model	Hose & Fitting Dash Size	Adjustable End	Cut-Off (in)	Wt.	Price Each
•C1EA50	FBM1021	-04	No	1.01	0.07	



Red/Blue Anodized Aluminum
37° Flare Swivel, 60° Elbow

Reusable Fittings for AQP® Racing Hose & StartLite® Racing Hose

Catalog Part No.	Aeroquip Model	Hose & Fitting Dash Size	Adjustable End	Cut-Off (in)	Wt.	Price Each
•C1ZW25	FBM4082	-06	Yes		0.08	
•C1ZW24	FBM4083	-08	Yes		0.14	
•C1ZW23	FBM4084	-10	Yes		0.18	



Red/Blue Anodized Aluminum
37° Flare Swivel, 90° Elbow

Reusable Fittings for AQP® Racing Hose & StartLite® Racing Hose

Catalog Part No.	Aeroquip Model	Hose & Fitting Dash Size	Adjustable End	Cut-Off (in)	Wt.	Price Each
•C1CQ75	FBM4032	-06	Yes	1.47	0.08	
•C1KL61	FBM4432	-06	Yes	1.47	0.08	
•C1CQ76	FBM4033	-08	Yes	1.45	0.13	
•C1KL62	FBM4433	-08	Yes	1.45	0.13	
•C1CQ77	FBM4034	-10	Yes	1.56	0.17	
•C1KL63	FBM4434	-10	Yes	1.56	0.17	
•C1CQ78	FBM4035	-12	Yes	1.79	0.25	
•C1CQ79	FBM4036	-16	Yes	1.96	0.35	

Note: Part numbers that start with FBM44 are anodized black, all others are anodized red/blue.



Nickel-Plated Aluminum
37° Flare Swivel, 90° Elbow

Reusable Fittings for AQP® Racing Hose & StartLite® Racing Hose

Catalog Part No.	Aeroquip Model	Hose & Fitting Dash Size	Adjustable End	Cut-Off (in)	Wt.	Price Each
•C1ZW56	FBE4032	-06	Yes	1.47	0.08	



Red/Silver Plated Steel
37° Flare Swivel, 90° Elbow

Reusable Fittings for AQP® Racing Hose & StartLite® Racing Hose

Catalog Part No.	Aeroquip Model	Hose & Fitting Dash Size	Adjustable End	Cut-Off (in)	Wt.	Price Each
•C1CP82	FBM1031	-04	No	0.90	0.09	
•C1EA60	FBM1083	-06	No	1.05	0.11	

Hose & Fittings



Red/Blue Anodized Aluminum
37° Flare Swivel, 120° Elbow

Reusable Fittings for AQP® Racing Hose & StartLite® Racing Hose

Catalog Part No.	Aeroquip Model	Hose & Fitting Dash Size	Adjustable End	Cut-Off (in)	Wt.	Price Each
•C1EC50	FBM4042	-06	Yes	1.19	0.08	
•C1EC51	FBM4043	-08	Yes	1.16	0.13	
•C1EC52	FBM4044	-10	Yes	1.23	0.01	
•C1EC53	FBM4045	-12	Yes	1.42	0.25	
•C1ZW31	FBM4046	-16	Yes		0.38	



Red/Blue Anodized Aluminum
37° Flare Swivel, 150° Elbow

Reusable Fittings for AQP® Racing Hose & StartLite® Racing Hose

Catalog Part No.	Aeroquip Model	Hose & Fitting Dash Size	Adjustable End	Cut-Off (in)	Wt.	Price Each
•C1EC54	FBM4052	-06	Yes	0.86	0.08	
•C1EC55	FBM4053	-08	Yes	0.82	0.13	
•C1EC57	FBM4055	-12	Yes	0.91	0.26	



Red/Blue Anodized Aluminum
37° Flare Swivel, 180° Elbow

Reusable Fittings for AQP® Racing Hose & StartLite® Racing Hose

Catalog Part No.	Aeroquip Model	Hose & Fitting Dash Size	Adjustable End	Cut-Off (in)	Wt.	Price Each
•C1EC58	FBM4062	-06	Yes	0.55	0.08	
•C1EC59	FBM4063	-08	Yes	0.51	0.14	
•C1EC60	FBM4064	-10	Yes	0.44	0.01	
•C1EC61	FBM4065	-12	Yes	0.42	0.28	



Red/Blue Anodized Aluminum
Banjo

Reusable Fittings for AQP® Racing Hose & StartLite® Racing Hose

Catalog Part No.	Aeroquip Model	Hose & Fitting Dash Size	Application	Replacement Crush Washer	Wt.	Price Each
•C1EA55	FBM1070	-06	Banjo Fitting for Solex Carburetors with 12mm x 1.25 thread.	FBM3627	0.01	

Note: Crushwashers page 1317

Crimp Fittings for AQP® Racing Hose & StartLite® Racing Hose



Red/Silver Anodized Aluminum
37° Flare Swivel

Crimp Fittings for AQP® Racing Hose & StartLite® Racing Hose

Catalog Part No.	Aeroquip Model	Hose & Fitting Dash Size / Notes	Cut-Off (in)	Wt.	Price Each
•C1ZW14	FBM4211	-04		0.02	
•C1ZW13	FBM4212	-06		0.03	
•C1ZW12	FBM4213	-08		0.05	
•C1ZW11	FBM4214	-10		0.07	
•C1ZV99	FBM4215	-12		0.12	

Performance Products

Hose & Fittings



Red/Silver Anodized Aluminum
37° Flare Swivel, 45° Elbow

Crimp Fittings for AQP® Racing Hose & StartLite® Racing Hose

Catalog Part No.	Aeroquip Model	Hose & Fitting Dash Size / Notes	Adjustable End	Cut-Off (in)	Wt.	Price Each
•C1ZV95	FBM4223	-08	Yes		0.10	
•C1ZV94	FBM4224	-10	Yes		0.13	
•C1ZV93	FBM4225	-12	Yes		0.21	



Red/Silver Anodized Aluminum
37° Flare Swivel, 90° Elbow

Crimp Fittings for AQP® Racing Hose & StartLite® Racing Hose

Catalog Part No.	Aeroquip Model	Hose & Fitting Dash Size / Notes	Adjustable End	Cut-Off (in)	Wt.	Price Each
•C1ZV91	FBM4232	-06	Yes		0.06	
•C1ZV90	FBM4233	-08	Yes		0.11	

Fittings for AQP® SOCKETLESS™ Hose

Features: Lightweight (Aluminum models). Reusable. Tested by major racing teams.

Note: AQP SOCKETLESS™ Hose page 859

Warning: The SOCKETLESS™ hose fitting is designed for use with Aeroquip® hoses. Use of the fitting on another manufacturer's hose may result in the fitting coming loose when the connection is pressurized with the possibility of personal injury.



Red/Blue Anodized Aluminum
37° Flare Swivel

Fittings for AQP® SOCKETLESS™ Hose

Catalog Part No.	Aeroquip Model	Hose & Fitting Dash Size	Cut-Off (in)	Wt.	Price Each
•C1CP83	FBM1512	-06		0.79	
•C1CP84	FBM1513	-08		0.05	
•C1CP85	FBM1514	-10		0.07	
•C1CP86	FBM1515	-12		0.10	



Nickel-Plated Aluminum
37° Flare Swivel

Fittings for AQP® SOCKETLESS™ Hose

Catalog Part No.	Aeroquip Model	Hose & Fitting Dash Size	Cut-Off (in)	Wt.	Price Each
•C1ZW84	FBE1512	-06		0.03	
•C1ZW83	FBE1513	-08		0.05	
•C1ZW82	FBE1514	-10		0.07	



Brass
37° Flare Swivel

Fittings for AQP® SOCKETLESS™ Hose

Catalog Part No.	Aeroquip Model	Hose Dash Size	Fitting Dash Size	Cut-Off (in)	Wt.	Price Each
•C1BR42	4797-4B	-04	-04	0.71	0.04	
•C1BR43	4797-5-4B	-04	-05	0.77	0.05	
•C1BR44	4797-8-6B	-06	-08	0.93	0.10	
•C1BR45	4797-8B	-08	-08	0.93	0.11	
•C1BR40	4797-10-8B	-08	-10	1.06	0.16	
•C1BR41	4797-10B	-10	-10	1.06	0.17	

Hose & Fittings



Red/Blue Anodized Aluminum
37° Flare Swivel, 45° Elbow

Fittings for AQP® SOCKETLESS™ Hose

Catalog Part No.	Aeroquip Model	Hose & Fitting Dash Size	Cut-Off (in)	Wt.	Price Each
•C1CP87	FBM1522	-06		0.04	
•C1CP88	FBM1523	-08		0.06	
•C1CP89	FBM1524	-10		0.15	



Nickel-Plated Aluminum
37° Flare Swivel, 45° Elbow

Fittings for AQP® SOCKETLESS™ Hose

Catalog Part No.	Aeroquip Model	Hose & Fitting Dash Size	Cut-Off (in)	Wt.	Price Each
•C1ZW81	FBE1522	-06		0.04	



Plated Steel
37° Flare Swivel, 45° Elbow

Fittings for AQP® SOCKETLESS™ Hose

Catalog Part No.	Aeroquip Model	Hose Dash Size	Fitting Dash Size	Cut-Off (in)	Wt.	Price Each
•C1CS76	FC5849-0404S	-04	-04	0.81	0.05	
•C1CS75	FC5847-0606S	-06	-06	0.93	0.10	
•C1CS77	FC5849-0808S	-08	-08	1.28	0.15	



Red/Blue Anodized Aluminum
37° Flare Swivel, 90° Elbow

Fittings for AQP® SOCKETLESS™ Hose

Catalog Part No.	Aeroquip Model	Hose & Fitting Dash Size	Cut-Off (in)	Wt.	Price Each
•C1CP91	FBM1532	-06		0.05	
•C1CP92	FBM1533	-08		0.02	
•C1CP93	FBM1534	-10		0.09	
•C1CP94	FBM1535	-12		0.04	



Nickel-Plated Aluminum
37° Flare Swivel, 90° Elbow

Fittings for AQP® SOCKETLESS™ Hose

Catalog Part No.	Aeroquip Model	Hose & Fitting Dash Size	Cut-Off (in)	Wt.	Price Each
•C1ZW78	FBE1532	-06		0.04	
•C1ZW77	FBE1533	-08		0.07	
•C1ZW76	FBE1534	-10		0.10	



Plated Steel
37° Flare Swivel, 90° Elbow

Fittings for AQP® SOCKETLESS™ Hose

Catalog Part No.	Aeroquip Model	Hose Dash Size	Fitting Dash Size	Cut-Off (in)	Wt.	Price Each
•C1AM64	191321-4S	-04	-04	0.70	0.05	
•C1AM39	190516-6S	-06	-06	0.83	0.09	
•C1AM65	191321-8S	-08	-08	1.05	0.15	

Performance Products

Hose & Fittings



Red/Blue Anodized Aluminum
37° Flare Swivel, 120° Elbow

Fittings for AQP® SOCKETLESS™ Hose

Catalog Part No.	Aeroquip Model	Hose & Fitting Dash Size	Cut-Off (in)	Wt.	Price Each
•C1CP95	FBM1542	-06		0.04	



Red/Blue Anodized Aluminum
37° Flare Swivel, 180° Elbow

Fittings for AQP® SOCKETLESS™ Hose

Catalog Part No.	Aeroquip Model	Hose & Fitting Dash Size	Cut-Off (in)	Wt.	Price Each
•C1CQ14	FBM1562	-06		0.04	
•C1CQ15	FBM1563	-08		0.05	



Brass
Male Inverted Flare

Fittings for AQP® SOCKETLESS™ Hose

Catalog Part No.	Aeroquip Model	Hose Dash Size	Fitting Dash Size & Thread	Cut-Off (in)	Wt.	Price Each
•C1BQ98	4740-3-4B	3/8-24	-04 (3/8-24)	0.75	0.03	
•C1BQ99	4740-4B	7/16-24	-04 (7/16-24)	0.75	0.03	
•C1BR11	4740-5-4B	1/2-20	-04 (7/16-24)	0.82	0.04	
•C1BR12	4740-6B	5/8-18	-06 (5/8-18)	0.86	0.06	
•C1BR13	4740-8B	3/4-18	-08 (3/4-18)	0.94	0.10	
•C1BQ97	4740-10B	7/8-18	-10 (7/8-18)	1.01	0.16	



Brass
Male Pipe

Fittings for AQP® SOCKETLESS™ Hose

Catalog Part No.	Aeroquip Model	Hose Dash Size	Pipe Size	Cut-Off (in)	Wt.	Price Each
•C1BQ88	4738-2-4B	-04	1/8 NPTF	0.65	0.03	
•C1BQ89	4738-4-4B	-04	1/4 NPTF	0.83	0.06	
•C1BQ90	4738-4-6B	-06	1/4 NPTF	0.89	0.10	
•C1BQ91	4738-6-6B	-06	3/8 NPTF	0.89	0.07	
•C1BQ92	4738-6-8B	-08	3/8 NPTF	0.89	0.10	
•C1BQ94	4738-8-8B	-08	1/2 NPTF	1.14	0.15	
•C1BQ93	4738-8-10B	-10	1/2 NPTF	1.14	0.18	
•C1BQ87	4738-12-12B	-12	3/4 NPTF	1.21	0.24	

Reusable Fittings for Aeroquip FBF A/C Hose

Features: Reusable. Nickel plated steel.

Note: Aeroquip® FBF A/C Hose page 1285

Warning: These hose fittings are designed for use with Aeroquip® FBF A/C hose. Use of the fitting on another manufacturer's hose may result in the fitting coming loose when the connection is pressurized with the possibility of personal injury.



Female O-Ring Pilot

Reusable Fittings for Aeroquip FBF A/C Hose

Catalog Part No.	Aeroquip Model	Hose & Fitting Dash Size	Wt.	Price Each
•C1GB67	FBE1712	-06	0.14	
•C1GB72	FBE1713	-08	0.22	



Female O-Ring Pilot with Charge Port

Reusable Fittings for Aeroquip FBF A/C Hose

Catalog Part No.	Aeroquip Model	Hose & Fitting Dash Size	Wt.	Price Each
•C1GC47	FBE1812	-06	0.23	



Female O-Ring Pilot 45° Elbow

Reusable Fittings for Aeroquip FBF A/C Hose

Catalog Part No.	Aeroquip Model	Hose & Fitting Dash Size	Wt.	Price Each
•C1GC39	FBE1722	-06	0.15	



Female O-Ring Pilot 90° Elbow

Reusable Fittings for Aeroquip FBF A/C Hose

Catalog Part No.	Aeroquip Model	Hose & Fitting Dash Size	Wt.	Price Each
•C1GC42	FBE1732	-06	0.15	



Female O-Ring Pilot 90° Elbow with Charge Port

Reusable Fittings for Aeroquip FBF A/C Hose

Catalog Part No.	Aeroquip Model	Hose & Fitting Dash Size	Wt.	Price Each
•C1GC51	FBE1833	-08	0.35	

Performance Products

Hose & Fittings

Fittings for Teflon® Racing Hose



Plated Steel, Brass Nipple
37° Flare Swivel

Fittings for Teflon® Racing Hose						
Catalog Part No.	Aeroquip Model	Hose Dash Size	Fitting Dash Size	Cut-Off (in)	Wt.	Price Each
•C1AM41	190600-3S	-03	-03	1.04	0.05	
•C1BW76	63-190600-4	-04	-04	1.13	0.07	
•C1KL53	FBM1103	-06	-06	1.22	0.10	
•C1BW79	63-190600-8	-08	-08	1.35	0.19	



Stainless Steel
37° Flare Swivel

Fittings for Teflon® Racing Hose						
Catalog Part No.	Aeroquip Model	Hose Dash Size	Fitting Dash Size	Cut-Off (in)	Wt.	Price Each
•C1ZY27	FBM1130	-03	-03		0.04	
•C1AM42	190600-4C	-04	-04	1.13	0.09	
•C1AM44	190600-6C	-06	-06	1.22	0.05	
•C1AM45	190600-8C	-08	-08	1.35	0.20	



Plated Steel
37° Flare Swivel, 45° Elbow

Fittings for Teflon® Racing Hose						
Catalog Part No.	Aeroquip Model	Hose Dash Size	Fitting Dash Size	Cut-Off (in)	Wt.	Price Each
•C1AM54	190773-4S	-04	-04	1.05	0.09	
•C1AM55	190773-6S	-06	-06	1.20	0.15	

Note: Fitting Sizes -04 and -08 mate with both JIC 37° and SAE 45° male flares.



Plated Steel
37° Flare Swivel, 90° Elbow

Fittings for Teflon® Racing Hose						
Catalog Part No.	Aeroquip Model	Hose Dash Size	Fitting Dash Size	Cut-Off (in)	Wt.	Price Each
•C1KV86	FBM1120	-03	-03	0.93	0.06	
•C1AM50	190772-4S	-04	-04	0.95	0.07	
•C1AM51	190772-6S	-06	-06	1.10	0.14	
•C1AM52	190772-8S	-08	-08	1.41	0.25	

Note: Fitting Sizes -04 and -08 mate with both JIC 37° and SAE 45° male flares.



Forged Stainless Steel
37° Flare Swivel, 90° Elbow

Fittings for Teflon® Racing Hose						
Catalog Part No.	Aeroquip Model	Hose Dash Size	Fitting Dash Size	Cut-Off (in)	Wt.	Price Each
•C1EA64	FBM1150	-03	-03		0.40	
•C1EA65	FBM1151	-04	-04		0.10	



Performance Products

Hose & Fittings



Plated Steel, Brass Nipple
45° Flare Swivel

Fittings for Teflon® Racing Hose						
Catalog Part No.	Aeroquip Model	Hose Dash Size	Fitting Dash Size	Cut-Off (in)	Wt.	Price Each
•C1BW83	63-190990-6	-06	-06 SAE	1.25	0.11	



Plated Steel
45° Flare Swivel, 45° Elbow

Fittings for Teflon® Racing Hose						
Catalog Part No.	Aeroquip Model	Hose Dash Size	Fitting Dash Size	Cut-Off (in)	Wt.	Price Each
•C1EQ29	FC9341-0606S	-06	-06 SAE	1.20	0.13	



Plated Steel
45° Flare Swivel, 90° Elbow

Fittings for Teflon® Racing Hose						
Catalog Part No.	Aeroquip Model	Hose Dash Size	Fitting Dash Size	Cut-Off (in)	Wt.	Price Each
•C1EQ28	FC9171-0606S	-06	-06 SAE	1.10	0.14	



Plated Steel, Brass Nipple
Male Pipe

Fittings for Teflon® Racing Hose						
Catalog Part No.	Aeroquip Model	Hose Dash Size	Pipe Size	Cut-Off (in)	Wt.	Price Each
•C1BM62	38-190627-2-4	-04	1/8 NPTF	0.89	0.25	
•C1BM63	38-190627-4-4	-04	1/4 NPTF	1.08	0.25	
•C1BM65	38-190627-4-6	-06	1/4 NPTF	1.13	0.20	



Plated Steel
Male Inverted Flare

Fittings for Teflon® Racing Hose						
Catalog Part No.	Aeroquip Model	Hose Dash Size	Fitting Dash Size & Thread	Cut-Off (in)	Wt.	Price Each
•C1CT47	FC9062-0404S	-04	-04 (7/16-24)	1.66	0.07	
•C1CT48	FC9062-0606S	-06	-06 (5/8-18)	1.69	0.11	
•C1CT49	FC9062-0808S	-08	-08 (3/4-18)	1.84	0.20	



Plated Steel
Male Inverted Flare, 90° Elbow

Fittings for Teflon® Racing Hose						
Catalog Part No.	Aeroquip Model	Hose Dash Size	Fitting Dash Size & Thread	Cut-Off (in)	Wt.	Price Each
•C1AM57	190950-6S	-06	-06 (5/8-18)	1.60	0.13	

Hydraulic Power & Control

Pneumatic Power & Control

Fluid Conveying

Miscellaneous Products

Indexes & Technical Information



Performance Products

Hose & Fittings



Plated Steel
10mm Banjo, Straight

Fittings for Teflon® Racing Hose

Catalog Part No.	Aeroquip Model	Hose Dash Size	Fitting Size	Cut-Off (in)	Wt.	Price Each
•C1EB89	FBM3091	-03	10 MM		0.05	



Plated Steel
10mm Banjo, 17° Elbow

Fittings for Teflon® Racing Hose

Catalog Part No.	Aeroquip Model	Hose Dash Size	Fitting Size	Cut-Off (in)	Wt.	Price Each
•C1EB90	FBM3092	-03	10 MM		0.05	



900568
Replacement Sleeves for
Reusable Teflon® Racing Hose
Fittings

Fittings for Teflon® Racing Hose

Catalog Part No.	Aeroquip Model	Hose Dash Size	Material	Wt.	Price Each
•C1CA87	900568-3B	-03	Brass	0.01	
•C1CA88	900568-4B	-04	Brass	0.01	
•C1EH43	900568-4C	-04	Stainless Steel	0.01	
•C1CA90	900568-6B	-06	Brass	0.01	

Note: Use brass for re-assembly with steel fittings, stainless for stainless fittings.

Reusable Fittings for AQP® High Pressure Hose



Plated Steel
37° Flare Swivel

Reusable Fittings for AQP® High Pressure Hose

Catalog Part No.	Aeroquip Model	Hose Dash Size	Fitting Dash Size	Cut-Off (in)	Wt.	Price Each
•C1BQ39	4411-6S	-06	-06	1.43	0.16	
•C1BQ41	4411-8-6S	-06	-08	1.52	0.20	
•C1BQ38	4411-6-8S	-08	-06	1.53	0.22	
•C1BQ42	4411-8S	-08	-08	1.62	0.26	
•C1BQ27	4411-10-8S	-08	-10	1.80	0.31	
•C1BQ40	4411-8-10S	-10	-08	1.64	0.34	
•C1BQ28	4411-10S	-10	-10	1.81	0.39	
•C1BQ29	4411-12-10S	-10	-12	1.91	0.49	
•C1BQ26	4411-10-12S	-12	-10	1.83	0.45	
•C1BQ30	4411-12S	-12	-12	1.92	0.57	



Plated Steel
37° Flare Swivel, 45° Elbow

Reusable Fittings for AQP® High Pressure Hose

Catalog Part No.	Aeroquip Model	Hose Dash Size	Fitting Dash Size	Cut-Off (in)	Wt.	Price Each
•C1AM11	190265-6S	-06	-06	1.33	0.15	
•C1AM24	190297-8S	-08	-08	1.84	0.29	
•C1AM21	190297-10S	-10	-10	1.95	0.40	
•C1AL97	190265-12S	-12	-12	2.21	0.63	

Hose & Fittings



Plated Steel
37° Flare Swivel, 90° Elbow

Reusable Fittings for AQP® High Pressure Hose

Catalog Part No.	Aeroquip Model	Hose Dash Size	Fitting Dash Size	Cut-Off (in)	Wt.	Price Each
•C1AL95	190261-6S	-06	-06	1.23	0.20	
•C1AM20	190296-8S	-08	-08	1.61	0.30	
•C1AM17	190296-10S	-10	-10	1.65	0.41	
•C1AL92	190261-12S	-12	-12	2.17	0.75	



Plated Steel
Male Inverted Flare

Reusable Fittings for AQP® High Pressure Hose

Catalog Part No.	Aeroquip Model	Hose Dash Size	Fitting Dash Size & Thread	Cut-Off (in)	Wt.	Price Each
•C1AL81	190111-5-6S	-06	-05 (1/2-20)	1.82	0.30	
•C1AL83	190111-6S	-06	-06 (5/8-18)	1.82	0.14	
•C1AL84	190111-8S	-08	-08 (3/4-18)	2.05	0.25	



Plated Steel
Male Inverted Flare, 45° Elbow

Reusable Fittings for AQP® High Pressure Hose

Catalog Part No.	Aeroquip Model	Hose Dash Size	Fitting Dash Size & Thread	Cut-Off (in)	Wt.	Price Each
•C1AM35	190371-5-6S	-06	-05 (1/2-20)		0.20	
•C1AM37	190371-6S	-06	-06 (5/8-18)	2.10	0.15	
•C1AM38	190371-8S	-08	-08 (3/4-18)	2.24	0.25	



Plated Steel
Male Inverted Flare, 90° Elbow

Reusable Fittings for AQP® High Pressure Hose

Catalog Part No.	Aeroquip Model	Hose Dash Size	Fitting Dash Size & Thread	Cut-Off (in)	Wt.	Price Each
•C1EM24	190235-5-6S	-06	-05 (1/2-20)		0.14	
•C1AL87	190235-6S	-06	-06 (5/8-18)	1.73	0.25	
•C1AL88	190235-7-6S	-06	-07 (11/16-18)	1.73	0.17	
•C1AL90	190235-8S	-08	-08 (3/4-18)	1.89	0.25	

Performance Products

Adapters



AN Flare Adapters



Male 37° Flare / Male 37° Flare
Blue Anodized Aluminum
(AN 815)

AN Flare Adapters

Catalog Part No.	Aeroquip Model	"A" Dash Size	"B" Dash Size	Wt.	Price Each
•C1CQ43	FBM2051	-04	-04	0.02	
•C1CQ44	FBM2052	-06	-06	0.05	
•C1CQ45	FBM2053	-08	-08	0.05	
•C1CQ46	FBM2054	-10	-10	0.08	
•C1CQ47	FBM2055	-12	-12	0.12	
•C1EA75	FBM2056	-16	-16	0.01	

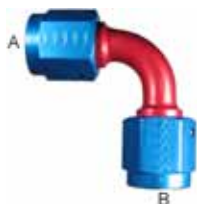
Note: AN number is for configuration reference only.



Female 37° Flare / Female 37°
Flare
Blue Anodized Aluminum

AN Flare Adapters

Catalog Part No.	Aeroquip Model	"A" Dash Size	"B" Dash Size	Wt.	Price Each
•C1CQ67	FBM2914	-04	-04	0.03	
•C1CQ68	FBM2915	-06	-06	0.05	
•C1CQ69	FBM2916	-08	-08	0.07	
•C1CQ70	FBM2917	-10	-10	0.05	



Female 37° Flare Swivel 90°
Elbow

AN Flare Adapters

Catalog Part No.	Aeroquip Model	"A" Dash Size	"B" Dash Size	Wt.	Price Each
•C1GG13	FBM2978	-06	-06	0.05	
•C1GG16	FBM2981	-12	-12	0.19	



Female 37° Flare Swivel / Male
37° Flare 90° Elbow

AN Flare Adapters

Catalog Part No.	Aeroquip Model	"A" and "B" Dash Size	Material	Wt.	Price Each
•C1GN46	FBM3155	-06	Red Anodized Aluminum	0.04	

Adapters



Male 37° Flare Tee
Blue Anodized Aluminum
(AN 824)

AN Flare Adapters						
Catalog Part No.	Aeroquip Model	"A" Dash Size	"B" Dash Size	"C" Dash Size	Wt.	Price Each
•C1ZY25	FBM2060	-03	-03	-03	0.02	
•C1CQ49	FBM2062	-06	-06	-06	0.05	
•C1CQ50	FBM2063	-08	-08	-08	0.09	

Note: AN number is for configuration reference only.



Male O-Ring Boss / Male 37° Flare
Blue Anodized Aluminum

AN Flare Adapters					
Catalog Part No.	Aeroquip Model	"A" Dash Size	"B" Dash Size	Wt.	Price Each
•C1EB84	FBM2953	-10	-10	0.07	
•C1EB86	FBM2955	-12	-12	0.12	



Male 37° Flare / Male 37° Flare
(AN 919)

AN Flare Adapters						
Catalog Part No.	Aeroquip Model	"A" Dash Size	"B" Dash Size	Material	Wt.	Price Each
•C1EA73	FBM2048	-04	-03	Blue Anodized Aluminum	0.02	
•C1EB26	FBM2156	-06	-04	Blue Anodized Aluminum	0.03	
•C1EB27	FBM2160	-08	-06	Blue Anodized Aluminum	0.05	
•C1EB28	FBM2162	-10	-06	Blue Anodized Aluminum	0.07	
•C1EB29	FBM2163	-10	-08	Blue Anodized Aluminum	0.07	
•C1EB30	FBM2166	-12	-08	Blue Anodized Aluminum	0.11	
•C1EB31	FBM2167	-12	-10	Blue Anodized Aluminum	0.11	

Note: AN number is for configuration reference only.



Male 37° Flare / Male 37° Flare
90° Elbow, Blue Anodized Aluminum (AN 821)

AN Flare Adapters					
Catalog Part No.	Aeroquip Model	"A" Dash Size	"B" Dash Size	Wt.	Price Each
•C1EA90	FBM2120	-06	-06	0.04	
•C1EB40	FBM2190	-08	-08	0.40	

Note: AN number is for configuration reference only.



Female 37° Tee
Blue Anodized Aluminum

AN Flare Adapters						
Catalog Part No.	Aeroquip Model	"A" Dash Size	"B" Dash Size	"C" Dash Size	Material	Wt.
•C1FN41	FBM2175	-08	-08	-08	Aluminum	0.13

Performance Products

Adapters



AN Flare Adapters



Female 37° Flare Swivel / Male
37° Flare / Male 37° Flare Tee

Catalog Part No.	Aeroquip Model	Dash Size	Material	Wt.	Price Each
•C1FV87	FBM2257	-10	Blue Anodized Aluminum	0.16	

AN Flare Adapters



37° Flare Plug
Blue Anodized Aluminum
Aluminum (AN 806)

Catalog Part No.	Aeroquip Model	"A" Dash Size	Wt.	Price Each
•C1EC28	FBM3713	-04	0.01	
•C1EC29	FBM3714	-06	0.01	
•C1EC32	FBM3717	-12	0.08	

Note: AN number is for configuration reference only.

AN Flare Adapters



37° Flare Cap
Blue Anodized Aluminum
(AN 929)

Catalog Part No.	Aeroquip Model	"A" Dash Size	Wt.	Price Each
•C1EC47	FBM3751	-03	0.02	
•C1EC48	FBM3752	-04	0.03	
•C1EC40	FBM3740	-06	0.03	
•C1EC41	FBM3741	-08	0.04	
•C1EC42	FBM3742	-10	0.06	
•C1EC43	FBM3743	-12	0.10	
•C1EC44	FBM3744	-16	0.14	

Note: AN number is for configuration reference only.

O-Ring Boss Adapters

O-Ring Boss Adapters



SAE O-Ring Boss Plug
Blue Anodized Aluminum
(AN 814)

Catalog Part No.	Aeroquip Model	"A" Dash Size	Wt.	Price Each
•C1EC36	FBM3724	-06	0.03	
•C1EC37	FBM3725	-08	0.04	
•C1EC38	FBM3726	-10	0.05	

Note: AN number is for configuration reference only.

Adapters

AN Tube Fittings



37° Flare Nut
Blue Anodized Aluminum
(AN 818)

AN Tube Fittings				
Catalog Part No.	Aeroquip Model	"A" Dash Size	Wt.	Price Each
•C1EB97	FBM3555	-04	0.05	
•C1EC19	FBM3675	-06	0.03	
•C1EC20	FBM3676	-08	0.05	

Note: AN number is for configuration reference only.



37° Flare Sleeve
Blue Anodized Aluminum
(AN 819)

AN Tube Fittings				
Catalog Part No.	Aeroquip Model	"A" Dash Size	Wt.	Price Each
•C1EC15	FBM3671	-06	0.01	
•C1EC16	FBM3672	-08	0.01	

Note: AN number is for configuration reference only.

AN Flare Bulkhead Adapters



Male 37° Flare / Male 37° Flare
Bulkhead Union
(AN 832)

AN Flare Bulkhead Adapters						
Catalog Part No.	Aeroquip Model	"A" Dash Size	"B" Dash Size	Material	Wt.	Price Each
•C1EB47	FBM2770	-03	-03	Steel	0.07	
•C1EB46	FBM2769	-03	-03	Blue Anodized Aluminum	0.10	
•C1CQ51	FBM2071	-04	-04	Blue Anodized Aluminum	0.03	
•C1CQ52	FBM2072	-06	-06	Blue Anodized Aluminum	0.04	
•C1CQ53	FBM2073	-08	-08	Blue Anodized Aluminum	0.07	
•C1CQ54	FBM2074	-10	-10	Blue Anodized Aluminum	0.11	
•C1EA79	FBM2076	-16	-16	Blue Anodized Aluminum	0.27	

Note: Aluminum part numbers do NOT include a locknut. Steel part numbers include a locknut.

Aluminum Locknuts page 1302

Note: AN number is for configuration reference only.



Male 37° Flare / Male 37° Flare
90° Bulkhead Union Elbow
Blue Anodized Alum (AN 833)

AN Flare Bulkhead Adapters						
Catalog Part No.	Aeroquip Model	"A" Dash Size	"B" Dash Size	Material	Wt.	Price Each
•C1ZY24	FBM2799	-03	-03	Blue Anodized Aluminum	0.03	
•C1FE92	FBM2085	-12	-12	Blue Anodized Aluminum	0.23	

Note: Aluminum part numbers do NOT include a locknut. Steel part numbers include a locknut.

Aluminum Locknuts page 1302

Note: AN number is for configuration reference only.

Performance Products

Adapters



AN Flare Bulkhead Adapters



Male 37° Flare Bulkhead Tee
(AN 804)

Catalog Part No.	Aeroquip Model	"A" Dash Size	"B" Dash Size	"C" Dash Size	Material	Wt.	Price Each
•C1ZY22	FBM2815	-03	-03	-03	Blue Anodized Aluminum	0.04	

Note: Aluminum part numbers do NOT include a locknut. Steel part numbers include a locknut.
Aluminum Locknuts page 1302

Note: AN number is for configuration reference only.

AN Flare Bulkhead Adapters



Male 37° Flare Bulkhead Tee
(AN 834)

Catalog Part No.	Aeroquip Model	"A" Dash Size	"B" Dash Size	"C" Dash Size	Material	Wt.	Price Each
•C1FM60	FBM2091	-04	-04	-04	Blue Anodized Aluminum	0.04	
•C1FM62	FBM2093	-08	-08	-08	Blue Anodized Aluminum	0.13	

Note: Aluminum part numbers do NOT include a locknut. Steel part numbers include a locknut.
Aluminum Locknuts page 1302

Note: AN number is for configuration reference only.

AN Flare Bulkhead Adapters



Blue Anodized Aluminum
Locknut (AN 924)

Catalog Part No.	Aeroquip Model	"A" Dash Size	Wt.	Price Each
•C1CQ59	FBM2099	-04	0.02	
•C1CQ60	FBM2100	-06	0.02	
•C1CQ61	FBM2103	-08	0.02	
•C1CQ62	FBM2104	-10	0.05	
•C1CQ63	FBM2105	-12	0.07	
•C1EA82	FBM2106	-16	0.04	

Note: AN number is for configuration reference only.

AN Flare To Pipe Adapters

Adapters



Male 37° Flare / Male Pipe
Aluminum (AN 816)

AN Flare To Pipe Adapters

Catalog Part No.	Aeroquip Model	"A" Dash Size	"B" Pipe Size	Finish	Wt.	Price Each
•C1EA67	FBM2000	-03	1/8	Blue Anodized	0.01	
•C1CQ18	FBM2001	-04	1/8	Blue Anodized	0.01	
•C1CQ20	FBM2003	-06	1/8	Blue Anodized	0.02	
•C1CQ19	FBM2002	-04	1/4	Blue Anodized	0.04	
•C1CQ21	FBM2004	-06	1/4	Blue Anodized	0.10	
•C1ZW74	FBE2004	-06	1/4	Nickel Plated	0.02	
•C1EA68	FBM2006	-08	1/4	Blue Anodized	0.03	
C1KL66	FBM5003	-06	1/8	Black Anodized	0.03	
•C1CQ22	FBM2005	-06	3/8	Blue Anodized	0.03	
•C1ZW73	FBE2005	-06	3/8	Nickel Plated	0.04	
•C1ZW46	FBM2013	-06	1/2	Blue Anodized	0.05	
•C1CQ23	FBM2007	-08	3/8	Blue Anodized	0.04	
•C1ZW72	FBE2007	-08	3/8	Nickel Plated	0.04	
•C1CQ24	FBM2008	-08	1/2	Blue Anodized	0.03	
•C1ZW71	FBE2008	-08	1/2	Nickel Plated	0.07	
•C1CQ25	FBM2009	-10	1/2	Blue Anodized	0.06	
•C1CQ26	FBM2010	-12	1/2	Blue Anodized	0.03	
•C1CQ27	FBM2011	-12	3/4	Blue Anodized	0.10	
•C1KL71	FBM5011	-12	3/4	Black Anodized	0.01	
•C1ZW44	FBM2015	-16	3/4	Blue Anodized	0.14	
•C1CQ28	FBM2012	-16	1.0	Blue Anodized	0.16	

Note: Nickel-Plated models have a "stainless steel" appearance.

Note: AN number is for configuration reference only.



Male 37° Flare / Male Pipe
45° Elbow
Aluminum (AN 823)

AN Flare To Pipe Adapters

Catalog Part No.	Aeroquip Model	"A" Dash Size	"B" Pipe Size	Finish	Wt.	Price Each
•C1ZY26	FBM2020	-03	1/8	Blue Anodized	0.02	
•C1CQ29	FBM2021	-04	1/8	Blue Anodized	0.01	
•C1CQ30	FBM2022	-06	1/4	Blue Anodized	0.03	
•C1CQ31	FBM2023	-08	3/8	Blue Anodized	0.05	
•C1CQ32	FBM2024	-10	1/2	Blue Anodized	0.08	
C1ZW67	FBE2024	-10	1/2	Nickel Plated	0.08	

Note: Nickel-Plated models have a "stainless steel" appearance.

Note: AN number is for configuration reference only.

Performance Products

Adapters



Male 37° Flare / Male Pipe
90° Elbow
Aluminum (AN 822)

AN Flare To Pipe Adapters

Catalog Part No.	Aeroquip Model	"A" Dash Size	"B" Pipe Size	Finish	Wt.	Price Each
•C1EA70	FBM2030	-03	1/8	Blue Anodized	0.02	
•C1EA71	FBM2031	-04	1/8	Blue Anodized	0.03	
•C1CQ35	FBM2033	-06	1/8	Blue Anodized	0.03	
C1KL73	FBM5033	-06	1/8	Black Anodized	0.03	
•C1CQ34	FBM2032	-04	1/4	Blue Anodized	0.02	
•C1CQ36	FBM2034	-06	1/4	Blue Anodized	0.04	
•C1CQ37	FBM2035	-06	3/8	Blue Anodized	0.10	
•C1CQ38	FBM2037	-08	3/8	Blue Anodized	0.07	
•C1CQ39	FBM2038	-08	1/2	Blue Anodized	0.05	
C1KL77	FBM5038	-08	1/2	Black Anodized	0.05	
•C1CQ40	FBM2039	-10	1/2	Blue Anodized	0.10	
•C1CQ41	FBM2040	-12	3/4	Blue Anodized	0.16	
•C1CQ42	FBM2041	-16	1.0	Blue Anodized	0.25	

Note: Nickel-Plated models have a "stainless steel" appearance.

Note: AN number is for configuration reference only.



Male 37° Flare / Male 37° Flare
/ Male Pipe Tee
Blue Anodized Aluminum
(AN 825)

AN Flare To Pipe Adapters

Catalog Part No.	Aeroquip Model	"A" Dash Size	"B" Dash Size	"C" Pipe Size	Wt.	Price Each
•C1EP70	FBM2122	-06	-06	1/4	0.05	

Note: AN number is for configuration reference only.



Male 37° Flare / Male 37° Flare
/ Male Pipe Tee
Blue Anodized Aluminum
(AN 826)

AN Flare To Pipe Adapters

Catalog Part No.	Aeroquip Model	"A" Dash Size	"B" Pipe Size	"C" Dash Size	Wt.	Price Each
•C1EA91	FBM2124	-04	1/8	-04	0.03	
•C1EA93	FBM2126	-08	3/8	-08	0.09	

Note: AN number is for configuration reference only.

High Pressure Adapters



Male 37° Flare / 42° Inverted
Male Flare

High Pressure Adapters

Catalog Part No.	Aeroquip Model	"A" Dash Size	Thread "B"	Wt.	Price Each
•C1ZY21	FBM2963	-06	1/2-20	0.05	
•C1ZY19	FBM2965	-06	11/16-18	0.07	
•C1ZY20	FBM2964	-06	5/8-18	0.06	

Adapters

Metric Adapters



Male 37° Flare / Metric Male Steel

Metric Adapters					
Catalog Part No.	Aeroquip Model	"A" Dash Size	Thread "B"	Wt.	Price Each
•C1CQ66	FBM2608	-06	M16 x 1.5	0.50	
•C1EB44	FBM2609	-06	M18 x 1.5	0.16	

Note: Used for Saginaw power steering adapter (metric). Also G.M. fuel injection conversion adapter for metric o-ring style porting.



Male 37° Flare / Metric Male Blue Anodized Aluminum

Metric Adapters					
Catalog Part No.	Aeroquip Model	"A" Dash Size	Thread "B"	Wt.	Price Each
•C1ZW32	FBM2246	-06	12MM x 1.5	0.02	
•C1ZW38	FBM2240	-06	14MM x 1.5	0.02	

Pipe Adapters



Female Pipe Coupling Blue Anodized Aluminum (AN 910)

Pipe Adapters				
Catalog Part No.	Aeroquip Model	Pipe Size	Wt.	Price Each
•C1EA94	FBM2129	1/8	0.20	

Note: AN number is for configuration reference only.



Male Pipe Hex Nipple Blue Anodized Aluminum (AN 911)

Pipe Adapters				
Catalog Part No.	Aeroquip Model	Pipe Size	Wt.	Price Each
•C1EA98	FBM2133	1/4	0.25	

Note: AN number is for configuration reference only.

Performance Products

Adapters



Male Pipe / Female Pipe
Blue Anodized Aluminum 90°
Elbow (AN914)

Pipe Adapters					
Catalog Part No.	Aeroquip Model	"A" Pipe Size	"B" Pipe Size	Wt.	Price Each
•C1ZT33	FBM2147	1/8	1/8	0.02	

Note: AN number is for configuration reference only.



Female Pipe Tee
Blue Anodized Aluminum
(AN 917)

Pipe Adapters				
Catalog Part No.	Aeroquip Model	Pipe Size	Wt.	Price Each
•C1EB23	FBM2150	1/8	0.03	
•C1EB24	FBM2151	1/4	0.08	

Note: AN number is for configuration reference only.



Male Pipe / Female Pipe
Bushing
Blue Anodized Aluminum
(AN 912)

Pipe Adapters					
Catalog Part No.	Aeroquip Model	"A" Pipe Size	"B" Pipe Size	Wt.	Price Each
•C1EB14	FBM2138	3/8	1/8	0.02	
•C1EB13	FBM2137	3/8	1/4	0.02	
•C1EB16	FBM2140	1/2	1/4	0.40	
•C1EB19	FBM2143	3/4	3/8	0.07	
•C1EB18	FBM2142	3/4	1/2	0.05	
•C1EB21	FBM2145	1.0	3/4	0.09	

Note: AN number is for configuration reference only.



Allen Head Pipe Plug
Blue Anodized Aluminum
(AN 932)

Pipe Adapters				
Catalog Part No.	Aeroquip Model	Pipe Size	Wt.	Price Each
•C1EC23	FBM3684	1/16	0.01	
•C1EC24	FBM3685	1/8	0.01	
•C1EC25	FBM3686	1/4	0.01	
•C1EC26	FBM3687	3/8	0.02	
•C1EC45	FBM3749	1/2	0.02	

Note: AN number is for configuration reference only.

Adapters

Aluminum Tank Welding Bungs

Threaded connection is female SAE O-Ring Boss. Note: AN flare adapters have the same threads as SAE O-Ring Boss adapters. If a properly sized O-Ring is positioned on the adapter, and the hex on the AN flare adapter is large enough to completely cover the O-Ring as it is compressed into the welding bung port, that combination may be used.

Buna-N O-Rings (For use with gasoline fuels): SAE O-Ring Boss O-Rings page 1267



Tank Welding Bungs (AN 871)

Aluminum Tank Welding Bungs

Catalog Part No.	Aeroquip Model	"A" Dash Size	"A" Thread Size	B (in)	C (in)	Wt.	Price Each
•C1ZU86	FBM2403	-06	9/16-18	1.56	0.59	0.06	
•C1ZU85	FBM2404	-08	3/4-16	1.75	0.68	0.08	
•C1ZU84	FBM2405	-10	7/8-14	1.87	0.75	0.09	
•C1ZU83	FBM2406	-12	1-1/16-12	2.00	0.90	0.12	
•C1BD79	22617-6	-06 Buna-N O-Ring	--	--	--	0.01	
•C1BD80	22617-8	-08 Buna-N O-Ring	--	--	--	0.15	
•C1BD73	22617-10	-10 Buna-N O-Ring	--	--	--	0.15	
•C1BD74	22617-12	-12 Buna-N O-Ring	--	--	--	0.02	
•C1BD75	22617-16	-16 Buna-N O-Ring	--	--	--	0.01	

Note: AN number is for configuration reference only.

Note: Buna-N O-Rings are for use with gasoline fuels.

Special Flare Adapters



73014

Flare To Braze (Unplated)

Special Flare Adapters

Catalog Part No.	Aeroquip Model	Fitting Dash Size "A"	Tube O.D. "B" (in)	Counterbore Depth "C" (in)	Wt.	Price Each
•C1BZ32	73014-4S	-04	0.25	0.16	0.02	
•C1BZ33	73014-5S	-05	0.31	0.16	0.03	
•C1BZ34	73014-6S	-06	0.38	0.16	0.03	
•C1BZ35	73014-8S	-08	0.50	0.16	0.07	
•C1BZ27	73014-10S	-10	0.63	0.25	0.10	
•C1BZ28	73014-12S	-12	0.75	0.25	0.15	
•C1BZ29	73014-16S	-16	1.00	0.25	0.23	
•C1BZ30	73014-20S	-20	1.25	0.25	0.39	
•C1HJ75	73014-24S	-24	1.50	0.25	0.58	
•C1BZ31	73014-32S	-32	2.00	0.25	1.16	

Performance Products

Brake System Adapters



Inverted Flare Brake Adapters



Male 37° Flare / 42° Inverted Male Flare

Inverted Flare Brake Adapters						
Catalog Part No.	Aeroquip Model	Fitting Dash Size	Brake Thread Size "B"	Length	Wt.	Price Each
•C1EB59	FBM2926 larger hex	-03	3/8-24	1.07	0.07	
•C1EB62	FBM2929	-03	7/16-24	1.14	0.07	
•C1EB60	FBM2927	-04	3/8-24	1.14	0.08	
•C1EB63	FBM2930	-04	7/16-24	1.14	0.08	
•C1EB64	FBM2931	-04	1/2-20	1.16	0.06	



Male 37° Flare / Female Inverted Flare

Inverted Flare Brake Adapters					
Catalog Part No.	Aeroquip Model	Fitting Dash Size	Brake Thread Size "B"	Wt.	Price Each
•C1EB69	FBM2936	-03	3/8-24	0.01	
•C1EB70	FBM2937	-04	3/8-24	0.04	

SAE Banjo Brake Adapters



Male 37° Flare / Banjo

SAE Banjo Brake Adapters					
Catalog Part No.	Aeroquip Model	Fitting Dash Size	Brake Thread Size "B"	Wt.	Price Each
•C1EB72	FBM2939	-03	7/16	0.05	
•C1EB73	FBM2940	-04	7/16	0.12	

Metric Brake Adapters



Male 37° Flare / Metric Male Flare

Metric Brake Adapters					
Catalog Part No.	Aeroquip Model	Fitting Dash Size	Brake Thread Size "B"	Wt.	Price Each
•C1EB74	FBM2941	-03	10mm x 1	0.09	
•C1GM83	FBM2966	-03	10mm x 1.5	0.04	
•C1EB76	FBM2943	-04	10mm x 1	0.10	



Male 37° Flare / Metric Female Flare

Metric Brake Adapters					
Catalog Part No.	Aeroquip Model	Fitting Dash Size	Brake Thread Size "B"	Wt.	Price Each
•C1EB78	FBM2945	-03	10mm x 1	0.15	



Performance Products

Brake System Adapters



Metric Banjo Brake Adapters



Male 37° Flare / Metric Banjo

Metric Banjo Brake Adapters

Catalog Part No.	Aeroquip Model	Fitting Dash Size	Brake Thread Size "B"	Wt.	Price Each
•C1EB80	FBM2947	-03	10mm	0.08	
•C1EB81	FBM2948	-04	10mm	0.05	

Performance Products

Fuel System Components

Aluminum Carburetor Adapters



FBM2114
Blue Anodized

Aluminum Carburetor Adapters					
Catalog Part No.	Aeroquip Model	Fitting Dash Size	Application	Wt.	Price Each
•C1CQ65	FBM2114	-06	Holley Dual Feed 750 through Dominator 1350 Series and Quadrajet up to 1974 with 7/8-20 thread. Includes crushwasher FBM3516.	0.03	



FBM2110
Blue Anodized

Aluminum Carburetor Adapters					
Catalog Part No.	Aeroquip Model	Fitting Dash Size	Application	Wt.	Price Each
•C1EA84	FBM2110	-08	Holley Dual Feed 750 through Dominator 1350 Series and Quadrajet up to 1974 with 7/8-20 thread. Includes crushwasher FBM3516.	0.01	



FBM2192
Blue Anodized

Aluminum Carburetor Adapters					
Catalog Part No.	Aeroquip Model	Fitting Dash Size	Application	Wt.	Price Each
•C1EB42	FBM2192	-08	Holley Dual Feed 750 through Dominator 1350 Series and Quadrajet up to 1974 with 7/8-20 thread. Includes crushwasher FBM3516.	0.11	

Aluminum Fuel Pump Adapters



FBM2108
Blue Anodized

Aluminum Fuel Pump Adapters					
Catalog Part No.	Aeroquip Model	Fitting Dash Size	Application	Wt.	Price Each
•C1CQ64	FBM2108	-06	Inverted flare 5/8-18 thread.	0.02	



Blue Anodized JIC 37° Male Flare to Male Pipe

Aluminum Fuel Pump Adapters					
Catalog Part No.	Aeroquip Model	Fitting Dash Size	Application	Wt.	Price Each
•C1EB39	FBM2185	-10	3/8 Male Pipe to Flare for Holley Electric Fuel Pumps. Blue Anodized.	0.05	

JIC 37° Male Flare To 42° Inverted Flare



Blue Anodized JIC 37° Male
Flare to 42° Inverted Flare

JIC 37° Male Flare To 42° Inverted Flare

Catalog Part No.	Aeroquip Model	Fitting Dash Size	Brake Thread Size "B"	Length	Wt.	Price Each
•C1EB35	FBM2181	-03	1/2-20	1.07	0.02	

Aluminum Fuel Blocks



Blue Anodized Aluminum Fuel
Block

Aluminum Fuel Blocks

Catalog Part No.	Aeroquip Model	Pipe Size "A"	Pipe Size "B"	Pipe Size "C"	Pipe Size "D"	Wt.	Price Each
•C1EB33	FBM2178	1/4	1/4	1/8	3/8	0.15	

Aluminum In-Line Fuel Pressure Adapters



Blue Anodized Aluminum
In-Line Fuel Pressure Adaptor

Aluminum In-Line Fuel Pressure Adapters

Catalog Part No.	Aeroquip Model	"A" Dash Size	"B" Dash Size	"C" Pipe Size	Wt.	Price Each
•C1EB37	FBM2183	-06	-06	1/8	0.05	
•C1EB38	FBM2184	-08	-08	1/8	0.07	

Performance Products

Fuel System Components

Metric Banjo Hose Barbs



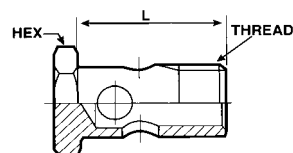
Metric Banjo Hose Barb

Metric Banjo Hose Barbs

Catalog Part No.	Voss Model	Hose I.D.	Bolt Size	Barb Fits	Wt.	Price Each
•C1BZ75	7612-05R-2	5/16	M 12 x 1.5	Rubber Hose	0.15	
•C1DW95	400-617-4490-A	--	M10 Bonded Seal	--	0.01	
•C1DW96	400-622-4490-A	--	M12 Bonded Seal	--	0.01	
•C1DW97	400-627-4490-A	--	M14 Bonded Seal	--	0.01	
•C1DW98	400-629-4490-A	--	M16 Bonded Seal	--	0.01	
•C1DW99	400-632-4490-A	--	M18 Bonded Seal	--	0.01	
•C1DX12	400-636-4490-A	--	M22 Bonded Seal	--	0.02	

Note: 2 bonded seals are required to seal a banjo fitting. 3 are required when they are stacked.
Metric Bonded Seals page 1261

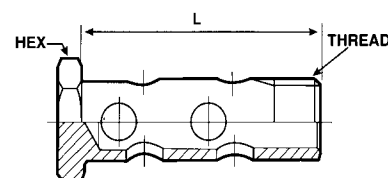
Metric Banjo Bolts



F15M
Single

Metric Banjo Bolts

Catalog Part No.	Adaptall Model	Thread (mm)	L (mm)	Hex (mm)	Wt.	Price Each
•C1FM52	F15M10X1.0	M 10 x 1.0	25	14	0.03	
•C1FM53	F15M12X1.5	M 12 x 1.5	28	17	0.05	
•C1FM54	F15M14X1.5	M 14 x 1.5	32	14	0.06	
•C1FM55	F15M16X1.5	M 16 x 1.5	38	22	0.11	
•C1FM56	F15M18X1.5	M 18 x 1.5	44	24	0.10	

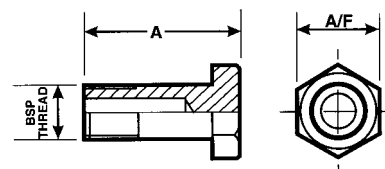


DBF
Double

Metric Banjo Bolts

Catalog Part No.	Adaptall Model	Thread (mm)	L (mm)	Hex (mm)	Wt.	Price Each
•C1FM49	DBF14X1.5	M 14 x 1.5	49	14	0.08	

BSP Banjo Bolts



RX-BMG

BSP Banjo Bolts

Catalog Part No.	Voss Model	BSP Thread	Hex (in)	A (in)	Wt.	Price Each
•C1DK33	RX04BMG	1/4-19	0.69	1.38	0.08	

Couplings

QUICK-DRAIN Oil Pan Couplings

The easy, quick and high-tech way to change your oil. Great for streetcars, hot rods, race cars, anything that you need to drain fluid from in a clean and efficient way. Eliminates the potential for spillage - drains directly into a waste container.



QUICK-DRAIN Oil Pan Couplings

Catalog Part No.	Aeroquip Model	Description	Minimum Assembly Torque (ft. lbs)	Flow Rate (175°F 10W30 Oil)	Wt.	Price Each
•C1EK53	FD14-4002-02-06	Male Half M18 x 1.5 6g	20-40	0.24 GPM	0.28	
•C1EK87	FD14-4002-14-06	Male Half 1-1/8-12 UNF-2A	30-60	0.68 GPM	0.37	
•C1EK98	FD14-4002-17-06	Male Half M25 x 1.5 6g	30-60	0.68 GPM	0.31	
•C1FV92	FD14-4002-18-06	Male Half M22 x 1.5 6g	30-60	0.68 GPM	0.29	
•C1JF24	FD14-4002-27-06	Male Half 1/2-14 NPT			0.21	
•C1EL27	FD14-4003-10-06	Female Half 5/8 Hose Barb			0.26	

Note: Male half comes complete with cap and gasket.

Note: Failure to meet minimum assembly torque could result in fluid leakage. CAUTION: Do not over torque.

Pressure Sensing Couplings

The primary feature of FD90 Series Quick-Disconnect couplings is self-sealing valves in both halves, allowing connection and disconnection with minimal fluid loss and virtually no air inclusion. The FD90 Series coupling is ideal for gauge, diagnostic, wing and chassis adjustment applications.

Coupling Body Size: 1/4 Inch.

Maximum Operating Pressure: 7000 PSI.

Air Inclusion: 0.02 CC maximum.

Fluid Loss: 0.1 CC maximum.



Pressure Sensing Couplings

Catalog Part No.	Aeroquip Model	Description	Thread Size (NPTF)	Length (in)	Wt.	Price Each
•C1CU37	FD90-1021-02-04	Female Half - Female Pipe	1/8-27	1.95	0.25	
•C1CU38	FD90-1021-04-04	Female Half - Female Pipe	1/4-18	2.25	0.26	
•C1FK54	FD90-1012-02-04	Male Half - Male Pipe	1/8-27	1.60	0.08	
•C1CU36	FD90-1012-04-04	Male Half - Male Pipe	1/4-18	1.49	0.07	
•C1CU39	FD90-1034-04-04	Male Half - Female Pipe	1/4-18	1.90	0.12	
•C1CU41	FD90-1044-06-04	Male Half - Male SAE O-Ring	9/16-18	1.32	0.07	
•C1CU40	FD90-1040-04	Dust Cap for Male Half			0.01	

Note: Not for use with brake fluid.

Couplings

Hydraulic Couplings

PUSH-PULL™ Self-Sealing Couplings are ideal for most hydraulic and fluid applications requiring a quick connect/disconnect coupling. The coupling bodies are constructed of high quality plated steel, and have Buna-N seals.

Maximum Operating Pressure: 5000 PSI (1/4 Inch Size), 4000 PSI (3/8 through 1 Inch Sizes).

Air Inclusion: 0.5 CC Max (1/4 Inch Size), 1.5 CC Max (3/8 Inch Size), 2.8 CC Max (1/2 Inch Size), 10.0 CC Max (3/4 Inch Size), 14.2 CC Max (1 Inch Size).

Fluid Loss: 0.5 CC Max (1/4 Inch Size), 1.3 CC Max (3/8 Inch Size), 2.8 CC Max (1/2 Inch Size), 8.2 CC Max (3/4 Inch Size), 14.2 CC Max (1 Inch Size).

Vacuum Service Rating: 28 Inches HG.



Hydraulic Couplings

Catalog Part No.	Aeroquip Model	Description	Rated Flow (GPM)	Length (in)	Wt.	Price Each
•C1BS96	5601-2-4S	Female Half - 1/8-27 Female Pipe	1.0	1.81	0.24	
•C1BS97	5601-4-4S	Female Half - 1/4-18 Female Pipe	1.0	1.81	0.60	
•C1BS98	5601-6-6S	Female Half - 3/8-18 Female Pipe	6.0	2.09	0.36	
•C1BS99	5601-8-10S	Female Half - 1/2-14 Female Pipe	12.0	2.76	0.57	
•C1BS93	5601-12-10S	Female Half - 3/4-14 Female Pipe	12.0	2.91	0.62	
•C1BS94	5601-12-12S	Female Half - 3/4 Female Pipe	28.0	3.25	1.02	
•C1BS95	5601-16-16S	Female Half - 1-11-1/2 Female Pipe	50.0	4.09	1.47	
•C1BT14	5602-2-4S	Male Half - 1/8-27 Female Pipe	1.0	1.17	0.05	
•C1BT15	5602-4-4S	Male Half - 1/4-18 Female Pipe	1.0	1.24	0.08	
•C1BT16	5602-6-6S	Male Half - 3/8-18 Female Pipe	6.0	1.40	0.12	
•C1BT17	5602-8-10S	Male Half - 1/2-14 Female Pipe	12.0	1.89	0.23	
•C1BT11	5602-12-10S	Male Half - 3/4 Female Pipe	12.0	2.03	0.38	
•C1BT12	5602-12-12S	Male Half - 3/4 Female Pipe	28.0	2.28	0.50	
•C1BT13	5602-16-16S	Male Half - 1-11-1/2 Female Pipe	50.0	2.77	0.76	
•C1EN49	5608-10-10S	Female Half - 7/8-14 Female SAE	12.0	2.81	0.57	
•C1EN50	5610-10-10S	Male Half - 7/8-14 Female SAE	12.0	2.08	0.22	
•C1BT40	5657-4	Dust Cap for -04 Male Half			0.03	
•C1BT41	5657-6	Dust Cap for -06 Male Half			0.04	
•C1BT37	5657-10	Dust Cap for -10 Male Half			0.04	
•C1BT38	5657-12	Dust Cap for -12 Male Half			0.11	
•C1BT39	5657-16	Dust Cap for -16 Male Half			0.19	
•C1BT48	5659-6	Dust Plug for -06 Female Half			0.02	
•C1BT46	5659-10	Dust Plug for -10 Female Half			0.04	
•C1BT47	5659-12	Dust Plug for -12 Female Half			0.07	

Note: Not recommended for brake system applications.



Couplings



Fuel Check Couplings

Ideal for use to meet NHRA fuel check requirements. Male half mounts in the fuel line. Self-sealing valves in both halves, allowing connection and disconnection with minimal fluid loss and virtually no air inclusion.

Coupling Body Size: 1/4 Inch.

Maximum Operating Pressure: 7000 PSI.

Air Inclusion: 0.02 CC maximum.

Fluid Loss: 0.1 CC maximum.



Fuel Check Couplings

Catalog Part No.	Aeroquip Model	Description	Thread Size (in)	Length (in)	Wt.	Price Each
•C1CU37	FD90-1021-02-04	Female Half - Female Pipe	1/8-27 NPTF	1.95	0.25	

Performance Products

PRO CLAMP™ and Overbraid



PRO CLAMP™ Aluminum Hose Connectors

PRO CLAMP™ connectors are made of red anodized aluminum to give your band clamp connections a professional look. The PRO CLAMP connector can be used on any rubber or stainless steel braid hose. PRO CLAMP connectors should not be used on brake lines, air conditioning, power steering or other high pressure lines. PRO CLAMP connectors come complete with a quality band clamp.



PRO CLAMP™ Aluminum Hose Connectors

Catalog Part No.	Aeroquip Model	Hose Dash Size	Hose I.D. (in)	Hose O.D. (in)	Wt.	Price Each
•C1CP67	FBM1002	-06	0.34	0.55	0.03	
•C1CP68	FBM1003	-08	0.44	0.65	0.03	
•C1CP69	FBM1004	-10	0.56	0.80	0.05	
•C1CP70	FBM1005	-12	0.69	0.94	0.07	

Stainless Steel Overbraid

Stainless Steel Overbraid is used to dress up existing rubber hoses. Stainless Overbraid simply slips over current radiator hoses and can be clamped with the Aeroquip® PRO CLAMP™ connectors for a finished hose assembly look. Stainless Overbraid provides no additional performance for the hose, but does provide added abrasion resistance and good looks.



Stainless Steel Overbraid

Catalog Part No.	Aeroquip Model	Nominal I.D. (in)	Hose O.D. Range (in)	Wt. (per ft)	Price (per ft)
•C1CQ80	FBR2400	1-1/2	1-1/8 to 2-1/4	0.31	

Support Clamps

Vinyl-coated steel support clamps provide security for supporting hose in long runs and critical bends. Match the clamp I.D. and hose O.D. as close as possible.



Support Clamps					
Catalog Part No.	Aeroquip Model	Clamp I.D. (Closed) (in)	Bolt Hole Dia. (in)	Wt.	Price Each
•C1CB45	900729-18	0.25	0.406	0.18	
•C1CB36	900729-01	0.44	0.406	0.05	
•C1CB37	900729-1	0.50	0.406	0.04	
•C1CB47	900729-2	0.56	0.406	0.04	
•C1CB48	900729-21	0.63	0.406	0.04	
•C1CB55	900729-3	0.69	0.406	0.33	
•C1CB59	900729-4	0.75	0.406	0.04	
•C1CB60	900729-5	0.81	0.406	0.05	
•C1CB61	900729-6	0.94	0.406	0.06	
•C1CB49	900729-23	1.00	0.406	0.05	
•C1CB62	900729-8	1.06	0.406	0.09	
•C1CB63	900729-9	1.13	0.531	0.09	
•C1CB52	900729-27	1.19	0.531	0.01	
•C1CB50	900729-24	1.25	0.531	0.10	
•C1CB38	900729-10	1.50	0.531	0.11	
•C1CB40	900729-12	1.75	0.531	1.30	
•C1CB41	900729-13	2.00	0.531	0.14	
•C1CB42	900729-14	2.25	0.531	0.16	
•C1CB56	900729-30	2.50	0.531	0.16	
•C1CB43	900729-15	2.75	0.531	0.19	
•C1EK29	900729-16	2.88	0.531	0.19	
•C1CB44	900729-17	3.56	0.531	0.24	

Replacement Aluminum Crush Washers



For use with Banjo Fittings and Carburetor Adapters

Replacement Aluminum Crush Washers				
Catalog Part No.	Aeroquip Model	"A" Dash Size	Wt.	Price Each
•C1EC11	FBM3642	-03	0.65	
•C1EB92	FBM3514	-06	0.01	
•C1EB93	FBM3515	-08	0.01	

Performance Products

Accessories



Fire Sleeve

Firesleeve hose flame shield can prevent or delay hose lines from burning. Select firesleeve with an I.D. slightly larger than the hose O.D.



624

Fire Sleeve

Catalog Part No.	Aeroquip Model	Sleeve I.D. (in)	Wt. (per ft)	Price (per ft)
•C1BW66	624-10	0.62	0.50	
•C1BW67	624-12	0.75	0.17	
•C1BW68	624-13	0.81	0.18	
•C1EN61	624-14	0.88	0.23	
•C1BW69	624-16	1.00	8.00	
•C1EN63	624-28	1.75	20.00	
•C1FD39	624-32	2.00	0.46	
C1HJ66	624-38	2.38	0.48	
C1MZ69	624-46	2.88		

Silicone Reducers



TFCS40

Silicone Reducers

Catalog Part No.	Thermal Flex Model	Size	Length (in)	Color	Wt.	Price Each
•C1HG97	TFCS40-200/250	2 x 2-1/2	3.00	Blue	0.17	
•C1JJ62	TFCS40-200/300	2 x 3	3.00	Blue	0.20	
•C1HG98	TFCS40-250/300	2-1/2 x 3	3.00	Blue	0.25	
•C1HH12	TFCS40-300/350	3 x 3-1/2	3.00	Blue	0.25	
•C1HH13	TFCS40-300/400	3 x 4	3.00	Blue	0.29	

Vise Jaw Inserts For Anodized Fitting Protection

FCM3661 vise-jaw inserts are a must for race teams, engine builders and street rodders. Keep your good-looking fittings from Aeroquip looking good even after assembly. FCM3661 vise-jaw inserts firmly hold the hex of the fitting during assembly, without marring the anodized finish. Made of aluminum with angled pockets, FCM3661 vise-jaw inserts can be used with any size fitting from -03 to -32. A horizontal pocket the length of the FCM3661 vise-jaws is ideal for securely holding steel braided hose in place, making straight cuts fast and simple. FCM3661 vise-jaw inserts also feature magnetic backs, allowing quick set-ups and easy transfer between vises.



Vise Jaw Inserts For Anodized Fitting Protection

Catalog Part No.	Aeroquip Model	Description	Wt.	Price Each
•C1EF79	FCM3661	Vise Jaw Inserts (pair)	0.96	

Hose Assembly Lube

Hose Assembly Lube is a specially compounded lubricant superior to any other lubricant used in hose assembly work. Use for either hand or machine assembly.



Hose Assembly Lube

Catalog Part No.	Aeroquip Model	Container Size	Wt.	Price Each
•C1BC87	222070	1 Pint	0.97	

Performance Products

Assembly Equipment



Hand-Held Hose Cutter

The FT1356 hand-held hose cutter has been specially designed for cutting all non-wire reinforced hose, such as StartLite® and SOCKETLESS™ hose styles. The cutter's compact size makes it ideal for working in confined areas. It provides fast, accurate easy cuts - every time.

Features: Replaceable stainless steel blade that closes into its own handle for safe carrying and handling • Tough, durable nylon handles • Optional tool pouch.



FT1356

Hand-Held Hose Cutter

Catalog Part No.	Model Number	Description	Wt.	Price Each
•C1EZ22	FT1356	Hand-Held Hose Cutter	0.28	

SOCKETLESS™ Fitting Assembly Tool

The FT1268 hand-held assembly tool is especially designed for quick and easy assembly of SOCKETLESS™ hose in sizes -04, -06 and -08. The hose is held in position by a manually operated clamp, and the fitting is positioned on the mandrel assembly lever. The SOCKETLESS™ fitting is pushed into the hose by compressing the mandrel assembly lever.



FT1268

SOCKETLESS™ Fitting Assembly Tool

Catalog Part No.	Model Number	Description	Wt.	Price Each
•C1CW78	FT1268	SOCKETLESS™ Fitting Assembly Tool for sizes -4, -6, -8	0.40	

SSP Duolok® Tube Fittings



WARNING Refer to safety information regarding tubing starting on page 1519

Installation Instructions

INITIAL INSTALLATION

1. Duolok tube fittings come individually bagged and completely assembled for immediate use. There is no need for disassembly prior to use. Simply remove the tube fitting from its bag, insert the tube* until it bottoms in the **Duolok** tube fitting body and then hand tighten the **Duolok** nut. (See Figure #1.)

*Tubing ends should be cut as straight as possible with all O.D. and I.D. burrs removed. Use of a tubing cutter or guide blocks with a hacksaw is recommended.

Figure #1



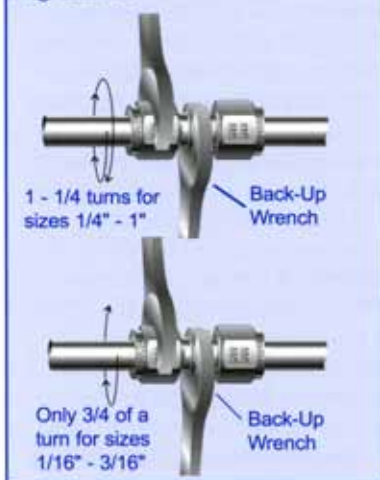
[NOTE: For extreme system applications using high pressures or requiring an extra factor of safety, it may be desirable to use a "common makeup starting point" to alleviate the inherent variations in tubing diameters. Installation should begin from a "snug" position, which is achieved by wrench tightening the Duolok nut until the inserted tubing will not move freely by hand (approximately 1/8 turn). From this new "snug" starting point, continue with the recommended installation instructions.]

2. While holding the fitting body stable with a back-up wrench, scribe the nut for a reference point and wrench tighten the nut 1-1/4 turns for sizes 1/4" - 1" and 3/4 turn for sizes 1/16" - 3/16". (See Figures #2 and #3.)

Figure #2



Figure #3



[NOTE: For all sizes, tighten plugs (P), machined ferrule end of port connector (PC) and the **Duolok** end of the Female AN adapter (ANF) only 1/4 of a turn.]

REASSEMBLY INSTRUCTIONS

1. To reassemble a **Duolok** tube fitting connection, simply insert the tubing with the previously swaged ferrules and **Duolok** nut into the fitting body until the front ferrule seats within the fitting body, and then tighten the nut by hand. (See Figure #4.)

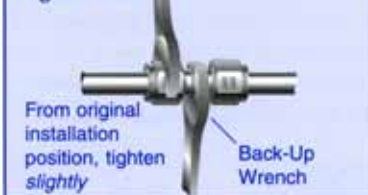
Figure #4



[NOTE: By following proper reassembly procedures, **Duolok** tube fitting connections may be disconnected and reconnected repeatedly.]

2. While holding the fitting body stable with a back-up wrench, use a wrench to rotate the **Duolok** nut to the fitting's original installation position (approximately 1/4 turn from the hand-tight, snug position) then continue to tighten the **Duolok** nut slightly. (See Figure #5.)

Figure #5



COMPONENT ASSEMBLY

Should individual component assembly of a **Duolok** tube fitting ever be required, careful attention must be given to the proper sequence and direction of the **Duolok** components. (See Figure #6.)

Figure #6





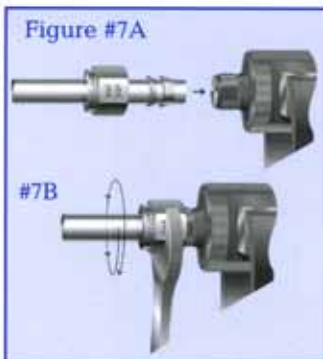
WARNING Refer to safety information regarding tubing starting on page 1519

Pre-setting Tool / Gap Gage

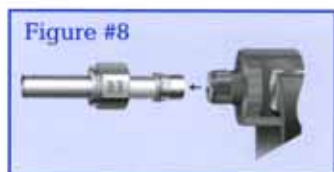
The **Duolok** pre-setting tool is used to pre-set the ferrules on the tubing for subsequent installation in a fitting body. The pre-setting tool can be especially helpful when an installation must be made in a tight space or hard-to-work area. The pre-setting tool allows the major portion of the installation work to occur in a more favorable work setting with only the completion of the installation in the hard-to-work area.

PRE-SETTING INSTRUCTIONS

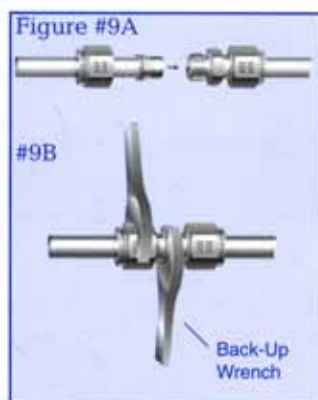
1. Secure the pre-setting tool in a vise.
2. Remove the protective nut, and assemble the **Duolok** nut and ferrules loosely to the pre-setting tool. Insert the tubing through the nut and ferrules until it bottoms in the pre-setting tool, and then follow the standard **Duolok** tube fitting installation instructions from page 8. (See Figure #7A and #7B)



3. Loosen the nut and remove the tubing with the pre-set **Duolok** ferrules and nut from the pre-setting tool. (See Figure #8.) Return the protective nut to the pre-setting tool.



4. Installation of the tubing, with the pre-set **Duolok** ferrules and nut in the appropriate fitting body, can now be made by following the standard reassembly instructions from page 8. (See Figure #9A and #9B.)



NOTE: To extend the life of a pre-setting tool, lubricate the tool with a lubricant compatible with the system's tubing material, environment and media. Also, at times an oversized or very soft tubing may tend to stick in the pre-setting tool after make up. To remove the tubing, gently rock the tube back and forth. Never turn the tube with pliers or another tool as such action may damage the sealing surfaces.

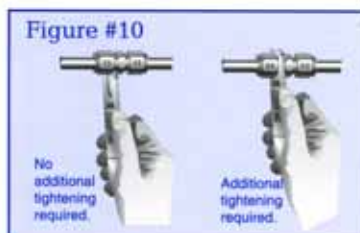
GAGEABILITY

Each **Duolok** tube fitting component is manufactured with utmost precision to provide the optimum performance interaction of the components during assembly. By maintaining such stringent manufacturing tolerances, the **Duolok** tube fittings are considered *gageable* for sufficient pull-up during initial installation. The **Duolok** "Gap Gages" are designed to identify for the installer or inspector, prior to pressurizing a system, that sufficient tightening of the tube fitting has occurred. *Gageability* provides additional reliability for proper installation and ultimate tube fitting safety and performance.

DUOLOK GAP GAGE INSTRUCTIONS

1. Follow proper installation instructions (as supplied with the fittings, or published in the **Duolok** catalog).
2. After completion of the installation instructions and prior to pressuring the system, choose the proper size Gap Gage and try to insert it between the fitting's nut and body hex. (See Figure #10)
3. If the Gap Gage will not enter between the fitting's nut and body hex, no additional tightening is required.
4. If the Gap Gage will enter between the fitting's nut and body hex, additional tightening is required.

Note: Swagelok® Gap Inspection Gages may also be utilized effectively with **Duolok** tube fittings.



ORDERING INFORMATION

ORDERING INFORMATION

To order **Duolok** pre-setting tools and gap gages, specify the part numbers as listed in the following table:

Tube O.D. Size	Pre-Set Tool Part #	Gap Gage Part #
1/16"	ITSD1PST	ITSD1GG
1/8"	ITSD2PST	ITSD2GG
3/16"	ITSD3PST	ITSD3GG
1/4"	ITSD4PST	ITSD4GG
5/16"	ITSD5PST	ITSD5GG
3/8"	ITSD6PST	ITSD6GG
1/2"	ITSD8PST	ITSD8GG
5/8"	n/a	ITSD10GG
3/4"	n/a	ITSD12GG
7/8"	n/a	ITSD14GG
1"	n/a	ITSD16GG
1/4"-3/8"-1/2" Combination Gage		ITSD46GG



WARNING Refer to safety information regarding tubing starting on page 1519

Selection Guide for Instrumentation Fittings & Tubing

SSP flareless instrumentation quality tube fittings have been designed and manufactured to provide reliable leak free connections in a wide variety of applications. The design characteristics of the tube fittings compensate for many of the field variables involved in the installation of the tube fittings and with the tolerances, wall thickness, finish and quality of the tubing. A reliable leak free tubing system will be achieved by combining the proper selection and handling of tubing with the proper tube fitting selection and installation. The following information is provided to assist in the tube selection process.

MATERIAL

The tubing material chosen must be compatible with the system's contained media, pressure and temperature, as well as with the environment in which it will be installed. Also, the tubing and tube fitting materials should be similar for optimum sealing action to occur (stainless fittings for stainless tube, brass fittings for copper tube, carbon steel fittings for carbon steel tube, etc.). The mixing and contact of dissimilar materials may leave the system susceptible to galvanic corrosion and/or not allow proper tube fitting makeup to be achieved. Additionally, the tube fittings have been designed and manufactured to function within the hardness ranges allowed for similar tubing materials by applicable ASTM specifications as referred to in Tables 1-4.

PRESSURE AND FLOW

The size of the tube's outside diameter (O.D.) and the necessary wall thickness are determined by the system's pressure and flow requirements. Tables 1-4 detail the suggested tubing sizes and wall thicknesses for use with instrumentation tube fittings. Additionally, the tables provide the maximum allowable working pressures for each size of tube recommended for use with instrumentation tube fittings. If no pressure is shown on the table for a particular size, the tube is not recommended for use with instrumentation tube fittings. The tubing system should not be utilized above the tube's maximum allowable working pressure; however, instrumentation tube fittings have been tested as leak tight to the burst pressure of the tubing in all recommended sizes and wall thicknesses.

TEMPERATURE

The system's operating temperature may effect the initial choice of tubing material and may also effect the maximum allowable working pressure for the given tube size (see Table 5 for temperature stress factors).

LIGHT GAS SERVICE

Light gases such as hydrogen, helium, nitrogen, etc. have extremely small molecules which can be released through the smallest of leak paths including tubing surface imperfections or defects. To provide a successful connection for light gas service, the tubing must have a thick enough wall to provide resistance for the setup action of the ferrules to further compensate for the tube's potential surface condition. Tables 1-4 show the tubing sizes and wall thicknesses recommended for light gas service.

HANDLING AND INSTALLATION

Surface scratches and gouges on tubing are a source of potential leaks. Some precaution when handling the tubing can help reduce surface scratches and maintain the surface finish as originally intended by the manufacturer. Tubing should never be dragged across rocks, blacktop, pavement, or the tubing storage rack as scratches and gouges can occur. Sharp blades should always be used in the tube cutters or hacksaws used to cut the tubing so as to provide a clean, square cut. Dull cutting blades can cause internal and external hanging burrs, and cause the tubing to become oval and effect proper insertion within the fitting. As a good handling practice, tubing should always be deburred prior to tube fitting installation to help assure easy and complete tube insertion. Additionally, for bent tube assemblies, it is important to bend tubing prior to installing tube fittings, and to provide a sufficient straight length of tubing after the bend to allow the tube to be fully inserted into the fitting. See Figure A and Table 7 on page 42 for additional information. Also, to eliminate weight stress from the tubing upon the fitting and to provide additional system support for vibration and thermal shock resistance, the tubing should always be supported by tube hangers, clamps or trays.

Technical Information Tubing Products



SSP Duolok® Tube Fittings



WARNING Refer to safety information regarding tubing starting on page 1519

Selection Guide for Instrumentation Fittings & Tubing

STAINLESS STEEL TUBING - TABLE 1														
Maximum Allowable Working Pressure (PSIG)														
Tube O.D. Size (inches)	Wall Thickness of Tube (Inches)													
	.010	.012	.014	.016	.020	.028	.035	.049	.065	.083	.095	.109	.120	
1/16	5600	6850	8150	9500	12100									
1/8						8550	11000			NOTE: For light gas service, use tubing with wall thickness outside of screened area.				
3/16						5450	7000	10300						
1/4						4000	5100	7500	10300					
5/16							4050	5850	8050					
3/8							3300	4800	6550					
1/2							2450	3500	4750	6250				
5/8								2950	4000	5200	6050			
3/4								2400	3300	4250	4950	5800		
7/8								2050	2800	3600	4200	4850		
1									2400	3150	3650	4200	4700	

Calculation Basis: Annealed, seamless 304 or 316 stainless steel tubing ASTM A-269 or equivalent. System temperatures between -20°F and 100°F with allowable stress of 20,000 psi. Ultimate tensile strength of 75,000 psi. Safety factor of 4. Reference: ANSI B 31.3 Code. (For more specific working pressure information regarding a particular tubing, consult with the actual manufacturer of the tubing.)

Note: For welded and drawn tubing, a derating factor must be utilized. For double welded tube, multiply the above pressure rating by .85; and for single welded tube by .80 (ANSI B 31, Table A-1B).

Suggested Tube Ordering Information: Specify the outside diameter and wall thickness of annealed, seamless or welded and drawn 316 or 304 stainless steel tubing of ASTM A-269, A-249, A-213 or equivalent. Also specify high quality tubing to be free of scratches, and suited for bending with material hardness not to exceed Rb 90.

COPPER TUBING - TABLE 2								
Maximum Allowable Working Pressure (PSIG)								
Tube O.D. Size (inches)	Wall Thickness of Tube (Inches)							
	.028	.035	.049	.065	.083	.095	.109	.120
1/8	2700	3600						
3/16	1700	2250	3500					
1/4	1250	1600	2500	3500		NOTE: For light gas service, use tubing with wall thickness outside of screened area.		
5/16		1250	1900	2700				
3/8		1050	1550	2150				
1/2		750	1150	1550	2050			
5/8			900	1200	1600	1850		
3/4			700	1000	1300	1500	1800	
7/8			600	850	1100	1250	1500	
1			550	700	950	1100	1300	1400

Calculation Basis: Annealed (Temper 060), seamless copper tubing ASTM B-75 or equivalent. System temperatures between -20°F and 100°F with allowable stress of 6000 psi. Ultimate tensile strength of 30,000 psi. Safety factor of 5. Reference: ANSI B 31.3 Code. (For more specific working pressure information regarding a particular tubing, consult with the actual manufacturer of the tubing.)

Suggested Tube Ordering Information: Specify the outside diameter and wall thickness of annealed (Temper 060), seamless copper tubing of ASTM B-75, B-68, or equivalent specification. Also specify high quality tubing to be free of scratches, and suited for bending. Additionally acceptable: Annealed (Temper O) copper water tubing, Type K or Type L (ASTM B-88). No embossed markings allowed.





SSP Duolok® Tube Fittings



WARNING Refer to safety information regarding tubing starting on page 1519

Selection Guide for Instrumentation Fittings & Tubing

CARBON STEEL TUBING - TABLE 3								
Maximum Allowable Working Pressure (PSIG)								
Tube O.D. Size (inches)	Wall Thickness of Tube (Inches)							
	.028	.035	.049	.065	.083	.095	.109	.120
1/8	8100	10500						
3/16	5150	6700	9900					
1/4	3750	4850	7100	9900		NOTE: For light gas service, use tubing with wall thickness outside of screened area.		
5/16		3800	5500	7600				
3/8		3100	4500	6200				
1/2		2300	3300	4500	5950			
5/8		1800	2600	3500	4600	5350		
3/4			2150	2900	3750	4400	5100	
7/8			1800	2450	3200	3700	4300	
1			1550	2100	2750	3200	3700	4150

Calculation Basis: Annealed, seamless carbon steel tubing ASTM A-179 or equivalent. System temperatures between -20°F and 100°F with allowable stress of 15,700 psi. Ultimate tensile strength of 47,500 psi. Safety factor of 4. Reference: ANSI B 31.3 Code. (For more specific working pressure information regarding a particular tubing, consult with the actual manufacturer of the tubing.)

Suggested Tube Ordering Information: Specify the outside diameter and wall thickness of annealed, seamless copper tubing of ASTM A-179 or equivalent specification. Also specify high quality tubing to be free of scratches, and suited for bending with material hardness not to exceed Rb 72.

MONEL® ALLOY 400 TUBING - TABLE 4								
Maximum Allowable Working Pressure (PSIG)								
Tube O.D. Size (inches)	Wall Thickness of Tube (Inches)							
	.028	.035	.049	.065	.083	.095	.109	.120
1/8	8000	10450				NOTE: For light gas service, use tubing with wall thickness outside of screened area.		
1/4	3750	4800	7000	9800				
3/8		3100	4450	6150				
1/2		2300	3300	4450				
3/4			2250	3050	4000	4600		
1				2250	2900	3400	3900	4350

Monel 400 is a trademark of INCO Alloys International Incorporated.

Calculation Basis: Annealed, seamless Monel Alloy 400 tubing ASTM B-165 or equivalent. System temperatures between -20°F and 100°F with allowable stress of 18,700 psi. Ultimate tensile strength of 70,000 psi. Safety factor of 4. Reference: ANSI B 31.3 Code. (For more specific working pressure information regarding a particular tubing, consult with the actual manufacturer of the tubing.)

Suggested Tube Ordering Information: Specify the outside diameter and wall thickness of annealed, seamless Monel Alloy 400 tubing of ASTM B-165 or equivalent specification. Also specify high quality tubing to be free of scratches, and suited for bending with material hardness not to exceed Rb 75.



Technical Information Tubing Products



SSP Duolok® Tube Fittings



WARNING Refer to safety information regarding tubing starting on page 1519

Selection Guide for Instrumentation Fittings & Tubing

STRESS FACTORS FOR DETERMINING TUBING PRESSURE RATINGS AT ELEVATED TEMPERATURES - TABLE 5						
TEMPERATURE STRESS FACTORS						
Temperature		Stainless Steel		Carbon		Monel®
°F	°C	304SS	316SS	Steel	Copper	400
100	38	1.00	1.00	1.00	1.00	1.00
200	93	1.00	1.00	.96	.80	.88
300	149	1.00	1.00	.90	.78	.82
400	204	.94	.97	.86	.50	.79
500	260	.88	.90	.82	n/a	.79
600	316	.82	.85	.77	n/a	.79
700	371	.80	.82	.73	n/a	.79
800	427	.76*	.80*	.59	n/a	.76
900	482	.73*	.78*	.41	n/a	.43
1000	538	.69*	.73*	.16	n/a	n/a
1200	649	.30*	.37*	n/a	n/a	n/a

Monel 400 is a trademark of INCO Alloys International Incorporated.

* The precipitation of chromium carbides potentially resulting in intergranular corrosion may occur when exposed to operating temperatures above 800°F. Consult the factory for further information.

INSTRUCTIONS: To determine maximum allowable working pressures for tubing at elevated temperatures, multiply the applicable tube's maximum allowable working pressure from Table 1-4 by the corresponding temperature stress factor from Table 5.

SSP NPT PIPE END PRESSURE RATINGS, ANSI/ASME B 31.3 - TABLE 6													
NPT/ISO Pipe Size Size		316 STAINLESS STEEL				BRASS				CARBON STEEL			
		Male		Female		Male		Female		Male		Female	
		psig	bar	psig	bar	psig	bar	psig	bar	psig	bar	psig	bar
1/16"	1	11,050	760	6,750	460	5,550	380	3,350	230	11,050	760	6,750	460
1/8"	2	10,050	690	6,550	450	5,050	350	3,250	220	10,050	690	6,550	450
1/4"	4	8,050	550	6,050	400	4,050	280	3,350	230	8,050	550	6,650	460
3/8"	6	7,850	540	5,350	370	3,950	270	2,650	180	7,850	540	5,350	370
1/2"	8	7,750	530	4,950	340	3,850	260	2,450	170	7,750	530	4,950	340
3/4"	12	7,350	510	4,650	320	3,650	250	2,350	160	7,350	510	4,650	320
1"	16	5,350	370	4,450	310	2,650	180	2,250	150	5,350	370	4,450	310

Reference: bar = .0690 X psig

To obtain ANSI/ASME B 31.1 values, multiply ANSI/ASME B 31.3 values by .94.

INSTALLING TUBE FITTINGS NEAR TUBE BENDS

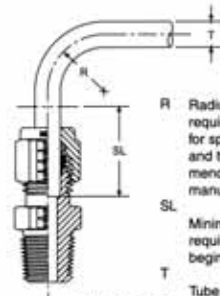


FIGURE A

R Radius of tubing bend as required or minimum allowed for specified wall thickness and tube size as recommended by tubing manufacturer.

SL Minimum straight tube length required from end of tube to beginning of bend.

T Tube outside diameter.

When installing fittings near tube bends, it is important to **bend tubing prior to installing tube fittings** and there must be a sufficient straight length (SL) of tubing to allow the tube to be bottomed in the fitting. Note Table 7 for details.

TABLE 7

T=TUBE O.D.	1/16"	1/8"	3/16"	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"	7/8"	1"
*SL=MINIMUM STRAIGHT LENGTH OF TUBE	1/2"	3/4"	3/4"	13/16"	7/8"	15/16"	1 - 3/16"	1 - 1/4"	1 - 1/4"	1 - 5/16"	1 - 9/16"
R	Radius of tube bend as recommended by bender manufacturer.										

* Consult the factory on an application by application basis for variance.



IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE PERSONAL INJURY AND PROPERTY DAMAGE.

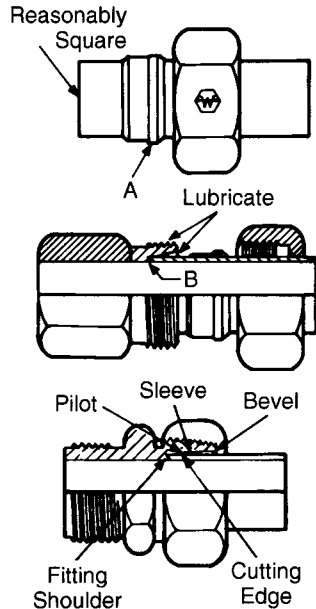
It is the sole responsibility of the system designers and users to properly select and use products for their specific applications. This document has been printed for users with technical expertise as a reference for further investigation to determine specific product needs relative to design requirements.





WARNING

Refer to safety information regarding tubing starting on page 1519



PRESETTING OPERATION

Preset with Preset Tool:

1. **CAUTION:** All stainless steel sleeves should be preset in tool prior to installation.
2. Slide nut and then sleeve on tube. Shoulder of sleeve "A" must be toward nut.
3. Insert tube into presetting tool. Be sure that tube is bottomed on fitting tube stop at point "B". Lubricate threads, seat of fitting and shoulder of sleeve with good grade of lubricant.
4. Turn nut slowly with wrench while turning tube with other hand. When the sleeve grips the tube, that is, when the tube can no longer be turned by hand – **STOP** – and note the position of the wrench. This is the "Ring Grip" point.
5. Tighten nut an additional number of turns past the ring grip point per tube size and wall thickness as shown in Table 1 on next page.
6. Disassemble from preset tool.

Preset in Fitting Body:

1. Follow same procedure as when presetting with preset tool. Once the fitting nut has been turned the proper number of turns past ring grip, the fitting assembly is complete and ready for use.

NOTE: Only Carbon Steel Sleeves can be preset directly into the fitting body. Due to possible thread galling, the use of presetting tools is required when stainless steel fittings are to be assembled.

FITTING INSTALLATION

1. After sleeve and nut have been preset on the tubing and checked as described, the assembly is ready for installation into the Ermeto® fitting seat.
2. Lubricate threads, seat of fitting and shoulder of sleeve with a good grade of lubricant compatible with system fluid.
3. Insert tube assembly into fitting and tighten nut until sharp rise in torque is felt.
4. Starting at the position of sharp torque rise, tighten nut 1/4 turn to complete assembly.

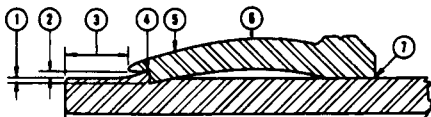
When the assembly procedure for Ermeto fittings is followed correctly, these points will be evident:

1. Cutting edge of sleeve will be imbedded in tubing to its full depth.
2. Pilot edge of sleeve should be close to or touching O.D. of tubing.
3. Distance between end of tube and leading or pilot edge of sleeve will be at least 1/8".
4. Metal will be piled ahead of cutting edge of sleeve under pilot.
5. Contact area of sleeve will show evidence of being in perfect contact with tapered seat of fitting.
6. Sleeve will show evidence of being bowed within its elastic limits.
7. Back of sleeve will be in contact with tube.

NOTE: Performance of fitting will not be affected if sleeve rotates on tube after disassembly.

FOR RE-INSTALLATION OF FITTING AFTER DISASSEMBLING

1. Insert tube assembly into fitting, tighten nut until a sharp rise in torque is felt.
2. Starting at the position of sharp torque rise, tighten nut 1/4 turn to complete the reinstallation.



Technical Information Tubing Products



Eaton 7000 Series Ermeto® Tube Fittings



WARNING Refer to safety information regarding tubing starting on page 1519

TABLE 1: Number of Additional Turns from “Ring Grip” for Hand Presetting Operation-Ermeto® Sleeve

Tube Size	Tube Material	Tube Wall Thickness									
		.018	.022	.028	.035	.049	.065	.083	.095	.109	.120
2	C 1010 MIL T 8504	1-1/6 1-1/6	1-1/6 1-1/6	1-1/6 1-1/6	1-1/6 1-1/6						
3	C 1010 MIL T 8504	1-1/6 1-1/6	1-1/6 1-1/6	1-1/6 1-1/6	1 1						
4	C 1010 MIL T 8504			1-1/6 1-1/6	1-1/6 1	1-1/6 1	1 5/6				
5	C 1010 MIL T 8504			1-1/6 1-1/6	1-1/6 1-1/6	1-1/6 1	1 1				
6	C 1010 MIL T 8504				1-1/6 1-1/6	1-1/6 1	1 5/6	1 5/6			
8	C 1010 MIL T 8504				1-1/6 1-1/6	1-1/6 1	1 5/6	1 5/6	1 5/6		
10	C 1010 MIL T 8504					1-1/6 1-1/6	1 1	5/6 5/6	5/6 5/6	5/6	5/6
12	C 1010 MIL T 8504					1 1-1/6	1 1	5/6 5/6	5/6 5/6	5/6 5/6	
16	C 1010 MIL T 8504					1-1/6 1-1/6	1-1/6 1-1/6	5/6 5/6	5/6 5/6	5/6 5/6	
20	C 1010 MIL T 8504					1-1/6 1	1 1	1 1	1 1	5/6 5/6	5/6 5/6
24	C 1010 MIL T 8504								1	1	1
32	C 1010 MIL T 8504								1	1	1

**C 1010 - Carbon Steel Tubing

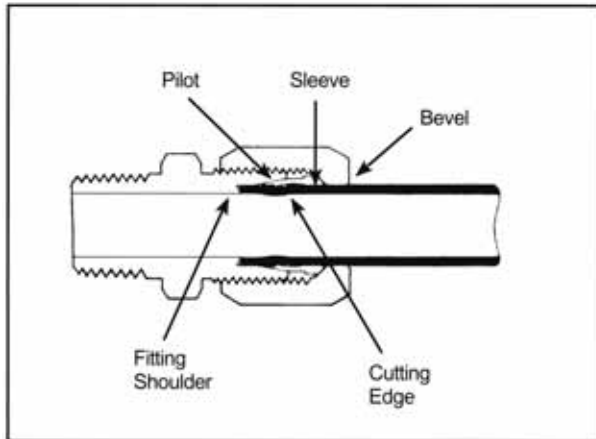
**MIL T 8504 - Annealed Stainless Steel

Eaton 7000 Series Ermeto® Tube Fittings



WARNING Refer to safety information regarding tubing starting on page 1519

Ermeto® Fittings (7000 Series) are especially designed for making leak-proof tube connections. This fitting will effectively withstand high pressure, severe vibration and extreme temperature. No special tools are needed for assembly. Simply cut tube square, preset sleeve on tubing and assemble.



ERMETO® DESIGN PRINCIPLE PROVIDES POSITIVE SEAL

1. In presetting, as the nut is tightened it forces the sleeve forward into the body taper. instructions.
2. Pilot of sleeve contracts, forcing the cutting edge of sleeve to shear a groove into outer surface of the tube, making a tight joint between fitting and tube.
3. In assembling the preset sleeve and tube into the fitting body, the nut presses on the bevel at rear of sleeve causing it to clamp tightly to the tube. Resistance to vibration is concentrated at this point rather than at the sleeve cut.
4. When fully tightened, the case hardened sleeve is bowed slightly at the midsection and acts as a spring. This spring action of the sleeve maintains a constant tension between the body and the nut, and thus prevents the nut from loosening.
5. After the first assembly, the sleeve is permanently attached to the tube. Disassembly and reassembly of the fitting can be made without loss of strength or sealing qualities.

"7000" SERIES FITTINGS

Specifically designed to meet all SAE approved standards for hydraulic flareless tube fittings. Available in a complete range of standard body styles. In addition, the "7000" Series includes all body styles for SAE straight thread O-ring boss mounting. Complete size range to 2".

CARBON STEEL "7000" SERIES

Weatherhead Ermeto® Fittings have the exclusive "Weathercote" finish, which fully resists the effects of non-flammable hydraulic fluids.

STAINLESS STEEL "7000" SERIES

Fittings also available in a complete range of body styles and sizes.

Standard stainless steel assemblies may be ordered by quoting the stainless steel part numbers appearing in this catalog. Standard stainless steel assemblies are composed of the following types of material:

BODY – Type 316 Stainless Steel

NUT – Type 316 Stainless Steel

SLEEVE – Type 17-4PH Stainless Steel

Any deviation from the standard assembly must be ordered as component parts. Example: If Type 316 bodies and 17-4PH sleeves are to be used, they can be ordered as follows:

B7217x8 Body only (Type 316 Stainless Steel)

7176x8 Sleeves (Type 17-4PH Stainless Steel)

7105x8 Nuts (Standard Carbon Steel)

In general, the "bite-action" of the sleeves in any given material varies as shown in the following table:

STAINLESS STEEL SLEEVES

Cat. No. 7176 sleeves are made from Armco 17-4PH precipitation hardened stainless steel. When used on "fully-annealed" to 1/8 hard tubing in the 303 to 316 stainless range, they provide the typical seal.

"7000" Series Sleeve	SLEEVE MATERIAL	TUBING USED 303 to 316 Stainless and Cupro-Nickel	"BITE-ACTION"
7165	Heat Treated Carbon Steel (Standard Carbon)	Fully annealed to 1/8 hard	Excellent
7176	17-4PH Stainless (Standard Stainless)	Fully annealed	Excellent

When stainless steel tubing is used for strength and no corrosive conditions exist, use the 7165 sleeve for better performance.

Technical Information Tubing Products



Eaton 7000 Series Ermeto® Tube Fittings



WARNING Refer to safety information regarding tubing starting on page 1519

HYDRAULIC PRESSURE DATA - ERMETO® FLARELESS FITTINGS

Ermeto® fittings have been used with success on many and varied applications far exceeding the conservative conditions presented below. Specifically:

- Temperatures up to 800°F, in carbon steel and 1000°F, in stainless steel have been handled without failure.*
- Burst pressures up to 32,000 psi with 1/4" tubing.
- Vibration conditions of 1/8" off-center amplitude with 12" overhang in 1/4" tubing have been withstood at rated operating pressure with 4-to-1 safety factors for over ten million cycles.

Obviously under extreme conditions of pressure, temperature and/or vibration, the safety factor is proportionately reduced.

The Ermeto® flareless fitting is the ultimate hydraulic fitting available today. Special performance conditions as outlined can be accommodated; however, it is recommended that your local Weatherhead representative be consulted for engineering assistance prior to finalizing design.

The values shown in the following table are pressure ratings of Ermeto® flareless fittings under various surge conditions. They apply and are recommended for conservative operating conditions.

Consult tubing selection charts starting on page 1526

Size No.	Size in Inches	Maximum Pressure† No Surges PSI	Maximum Pressure† With Surges to 50%	Maximum Pressure† With Surges of 50% to 100%	Maximum Pressure† With Surges up to 150%
2	1/8	10,000	6,500	5,000	4,000
3	3/16	9,000	6,000	4,500	3,600
4	1/4	8,000	5,250	4,000	3,200
5	5/16	8,000	5,250	4,000	3,200
6	3/8	7,500	5,000	3,750	3,000
8	1/2	7,000	4,500	3,500	2,700
10	5/8	5,000	3,250	2,500	2,000
12	3/4	5,000	3,250	2,500	2,000
14	7/8	3,750	2,500	1,800	1,500
16	1	3,600	2,400	1,800	1,400
20	1-1/4	3,200	2,100	1,600	1,275
24	1-1/2	3,000	2,000	1,500	1,200
32	2	2,750	1,800	1,350	1,100

† Pressures shown do not apply to pneumatic applications or stainless steel tubing installations.

* Zinc plating discolors at temperatures over 400°F and melts at 750°F.



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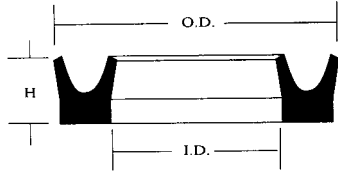
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Inch Sizes

Homogeneous Buna-N U-Seals



Style HRU u-seals are precision molded from 80 Durometer Buna-N rubber. Sizes include those found in Army-Navy spec. AN6226 and narrow cross-section sizes found in JIC cylinders and the popularly termed "Huva Cup". EP suffix signifies Ethylene Propylene. V suffix signifies Fluorocarbon.

Material: 80 Durometer Rubber.

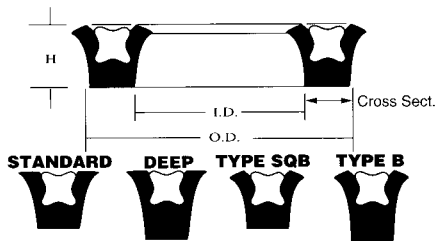
Temperature Range: -40°F to 250°F.

Pressure Range: 0 to 1,000 PSI.

Homogeneous Buna-N U-Seals

Catalog Part No.	Model Number	Cross Sect. (in)	I.D. (in)	O.D. (in)	Ht H (in)	Wt.	Price Each
C1CY65	HRU15-1.18-15	5/32	1-3/16	1-1/2	5/32	0.01	

Polyurethane U-Seals



Molded from tough, abrasion resistant polyurethane.

The four lobed expander ring energizes the sealing tips, even at zero pressure, to help prevent "weeping" when the system is idle. Items with N suffix are made from 90 Durometer Nitrile. Items with V suffix are made from Fluorocarbon.

Material: Urethane.

Temperature Range: -65°F to 220°F.

Pressure Range: 0 to 5,000 PSI.

Standard Type: Height & cross section are equal.

Deep Type: Height is greater than cross section.

Type SQB: Height & cross section are equal. Beveled lip design provides superior film breaking.

Type B: Height is greater than cross section. Beveled lip design provides superior film breaking.

Polyurethane U-Seals

Catalog Part No.	Model Number	Cross Sect. (in)	I.D. (in)	O.D. (in)	Ht H (in)	Wt.	Price Each
C1DM70	U12-0.18-25B	1/8	3/16	7/16	1/4	0.20	
C1DM72	U12-0.25-SQB	1/8	1/4	1/2	1/8	0.05	
C1DM71	U12-0.25-25B	1/8	1/4	1/2	1/4	0.01	
C1DM74	U12-0.31-SQB	1/8	5/16	9/16	1/8	0.10	
C1DM73	U12-0.31-25B	1/8	5/16	9/16	1/4	0.20	
C1DM75	U12-0.37	1/8	3/8	5/8	1/8	0.01	
C1DM77	U12-0.50-SQB	1/8	1/2	3/4	1/8	0.15	
C1DM76	U12-0.50-25B	1/8	1/2	3/4	1/4	0.30	
C1DM78	U12-0.56	1/8	5/8	15/16	1/8	0.01	
C1DM80	U12-0.62-SQB	1/8	5/8	7/8	1/8	0.01	
C1DM79	U12-0.62-25B	1/8	5/8	7/8	1/4	0.01	
C1DM81	U12-0.68	1/8	11/16	15/16	1/8	0.02	
C1DM85	U12-0.75-SQB	1/8	3/4	1	1/8	0.02	
C1DM83	U12-0.75-18B	1/8	3/4	1	3/16	0.15	
C1DM84	U12-0.75-25B	1/8	3/4	1	1/4	0.01	
C1DM86	U12-0.81	1/8	13/16	1-1/16	1/8	0.01	
C1DM88	U12-0.87-SQB	1/8	7/8	1-1/8	1/8	0.15	
C1DM87	U12-0.87-25B	1/8	7/8	1-1/8	1/4	0.01	
C1DM91	U12-1.00-SQB	1/8	1	1-1/4	1/8	0.01	
C1DM89	U12-1.00-18B	1/8	1	1-1/4	3/16	0.20	
C1DM90	U12-1.00-25B	1/8	1	1-1/4	1/4	0.25	
C1DM92	U12-1.06-SQB	1/8	1-1/16	1-5/16	1/8	0.10	
C1DM94	U12-1.12-SQB	1/8	1-1/16	1-3/8	1/8	0.25	
C1DM93	U12-1.12-25B	1/8	1-1/16	1-3/8	1/4	0.05	
C1DM95	U12-1.18	1/8	1-3/16	1-7/16	1/8	0.25	
C1DM96	U12-1.18-18B	1/8	1-3/16	1-7/16	3/16	0.15	
C1DM97	U12-1.18-25B	1/8	1-3/16	1-7/16	1/4	0.20	
C1DN11	U12-1.25-SQB	1/8	1-1/4	1-1/2	1/8	0.20	
C1DM98	U12-1.25-18B	1/8	1-1/4	1-1/2	3/16	0.01	
C1DM99	U12-1.25-25B	1/8	1-1/4	1-1/2	1/4	0.10	
C1DN14	U12-1.37-SQB	1/8	1-3/8	1-5/8	1/8	0.01	
C1DN13	U12-1.37-25B	1/8	1-3/8	1-5/8	1/4	0.01	
C1DN16	U12-1.50-SQB	1/8	1-1/2	1-3/4	1/8	0.10	
C1DN15	U12-1.50-25B	1/8	1-1/2	1-3/4	1/4	0.01	
C1DN17	U12-1.62-SQB	1/8	1-5/8	1-7/8	1/8	0.01	
C1DN19	U12-1.75-SQB	1/8	1-3/4	2	1/8	0.01	
C1DN20	U12-2.00	1/8	2	2-1/4	1/8	0.01	
C1DN21	U12-2.25	1/8	2-1/4	2-1/2	1/8	0.15	
C1DN24	U12-2.75	1/8	2-3/4	3	1/8	0.01	
C1HH21	U15-1.18	5/32	1-3/16	1-1/2	5/32	0.20	
C1HH22	U15-1.25	5/32	1-1/4	1-9/16	5/32	0.01	
C1HH23	U15-1.37	5/32	1-3/8	1-11/16	5/32	0.05	
C1DN26	U18-0.50	3/16	1/2	7/8	3/16	0.01	
C1DN27	U18-0.62-SQB	3/16	5/8	1	3/16	0.10	
C1ZX37	U18-0.62-31B	3/16	5/8	1	5/16	0.10	
C1DN29	U18-0.75-SQB	3/16	3/4	1-1/8	3/16	0.01	
C1DN28	U18-0.75-31B	3/16	3/4	1-1/8	5/16	0.15	
C1DN31	U18-0.87-SQB	3/16	7/8	1-1/4	3/16	0.01	
C1DN30	U18-0.87-31B	3/16	7/8	1-1/4	5/16	0.01	
C1DN35	U18-1.00-SQB	3/16	1	1-3/8	3/16	0.25	
C1DN32	U18-1.00-25B	3/16	1	1-3/8	1/4	0.01	
C1DN33	U18-1.00-31B	3/16	1	1-3/8	5/16	0.05	
C1DN34	U18-1.00-37B	3/16	1	1-3/8	3/8	0.25	

Inch Sizes

Hydraulic Power & Control

Pneumatic Power & Control

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Polyurethane U-Seals

Catalog Part No.	Model Number	Cross Sect. (in)	I.D. (in)	O.D. (in)	Ht H (in)	Wt.	Price Each
C1DN37	U18-1.12-SQB	3/16	1-1/16	1-1/2	3/16	0.01	
C1DN36	U18-1.12-25B	3/16	1-1/16	1-1/2	1/4	0.15	
C1ER50	U18-1.12-31B	3/16	1-1/16	1-1/2	5/16	0.01	
C1DN38	U18-1.18	3/16	1-3/16	1-9/16	3/16	0.20	
C1DN42	U18-1.25-SQB	3/16	1-1/4	1-5/8	3/16	0.20	
C1DN39	U18-1.25-25B	3/16	1-1/4	1-5/8	1/4	0.10	
C1DN40	U18-1.25-31B	3/16	1-1/4	1-5/8	5/16	0.01	
C1DN41	U18-1.25-37B	3/16	1-1/4	1-5/8	3/8	0.35	
C1DN46	U18-1.37-SQB	3/16	1-3/8	1-3/4	3/16	0.05	
C1DN43	U18-1.37-25B	3/16	1-3/8	1-3/4	1/4	0.04	
C1DN44	U18-1.37-31B	3/16	1-3/8	1-3/4	5/16	0.01	
C1DN45	U18-1.37-37B	3/16	1-3/8	1-3/4	3/8	0.05	
C1DN50	U18-1.50-SQB	3/16	1-1/2	1-7/8	3/16	0.10	
C1DN47	U18-1.50-25B	3/16	1-1/2	1-7/8	1/4	0.01	
C1DN48	U18-1.50-31B	3/16	1-1/2	1-7/8	5/16	0.01	
C1DN49	U18-1.50-37B	3/16	1-1/2	1-7/8	3/8	0.01	
C1DN51	U18-1.62	3/16	1-5/8	2	3/16	0.01	
C1ER51	U18-1.62-SQB	3/16	1-5/8	2	3/16	0.02	
C1DN52	U18-1.62-25B	3/16	1-5/8	2	1/4	0.05	
C1DN53	U18-1.62-31B	3/16	1-5/8	2	5/16	0.35	
C1DN54	U18-1.62-37B	3/16	1-5/8	2	3/8	0.30	
C1DN58	U18-1.75-SQB	3/16	1-3/4	2-1/8	3/16	0.15	
C1DN55	U18-1.75-25B	3/16	1-3/4	2-1/8	1/4	0.40	
C1DN56	U18-1.75-31B	3/16	1-3/4	2-1/8	5/16	0.15	
C1DN57	U18-1.75-37B	3/16	1-3/4	2-1/8	3/8	0.03	
C1DN60	U18-1.87-SQB	3/16	1-7/8	2-1/4	3/16	0.35	
C1DN59	U18-1.87-37B	3/16	1-7/8	2-1/4	3/8	0.25	
C1DN63	U18-2.00-SQB	3/16	2	2-3/8	3/16	1.50	
C1DN61	U18-2.00-31B	3/16	2	2-3/8	5/16	0.01	
C1DN62	U18-2.00-37B	3/16	2	2-3/8	3/8	0.20	
C1DN65	U18-2.12-SQB	3/16	2-1/8	2-1/2	3/16	0.01	
C1DN64	U18-2.12-25B	3/16	2-1/8	2-1/2	1/4	0.02	
C1DN68	U18-2.25-SQB	3/16	2-1/4	2-5/8	3/16	0.23	
C1DN67	U18-2.25-37B	3/16	2-1/4	2-5/8	3/8	0.01	
C1DN69	U18-2.37-SQB	3/16	2-3/8	2-3/4	3/16	0.05	
C1DN73	U18-2.50-SQB	3/16	2-1/2	2-7/8	3/16	0.01	
C1DN70	U18-2.50-25B	3/16	2-1/2	2-7/8	1/4	0.02	
C1DN71	U18-2.50-31B	3/16	2-1/2	2-7/8	5/16	0.30	
C1DN72	U18-2.50-37B	3/16	2-1/2	2-7/8	3/8	0.30	
C1DN75	U18-2.62-SQB	3/16	2-5/8	3	3/16	0.01	
C1DN74	U18-2.62-37B	3/16	2-5/8	3	3/8	0.20	
C1DN77	U18-2.75-SQB	3/16	2-3/4	3-1/8	3/16	0.01	
C1DN76	U18-2.75-37B	3/16	2-3/4	3-1/8	3/8	0.25	
C1DN78	U18-2.87	3/16	2-7/8	3-1/4	3/16	0.10	
C1DN79	U18-3.00	3/16	3	3-3/8	3/16	0.02	
C1DN80	U18-3.00-37B	3/16	3	3-3/8	3/8	0.01	
C1DN82	U18-3.12-SQB	3/16	3-1/8	3-1/2	3/16	0.01	
C1DN81	U18-3.12-37B	3/16	3-1/8	3-1/2	3/8	0.03	
C1DN86	U18-3.50-37B	3/16	3-1/2	3-7/8	3/8	0.40	
C1DN89	U18-3.62-SQB	3/16	3-5/8	4	3/16	0.01	
C1DN88	U18-3.62-37B	3/16	3-5/8	4	3/8	0.55	
C1DN92	U18-4.00-37B	3/16	4	4-3/8	3/8	0.04	
C1DN94	U25-0.75	1/4	3/4	1-1/4	1/4	0.01	

Polyurethane U-Seals

Catalog Part No.	Model Number	Cross Sect. (in)	I.D. (in)	O.D. (in)	Ht H (in)	Wt.	Price Each
C1DN96	U25-0.93	1/4	13/16	1-7/16	1/4	0.01	
C1DN98	U25-1.00-SQB	1/4	1	1-1/2	1/4	0.01	
C1DN97	U25-1.00-37B	1/4	1	1-1/2	3/8	0.10	
C1DN99	U25-1.12	1/4	1-1/16	1-5/8	1/4	0.05	
C1DP11	U25-1.12-37B	1/4	1-1/16	1-5/8	3/8	0.01	
C1DP12	U25-1.18	1/4	1-3/16	1-11/16	1/4	0.01	
C1DP14	U25-1.25-SQB	1/4	1-1/4	1-3/4	1/4	0.10	
C1DP13	U25-1.25-37B	1/4	1-1/4	1-3/4	3/8	0.02	
C1DP15	U25-1.37	1/4	1-3/8	1-7/8	1/4	0.25	
C1DP16	U25-1.37-37B	1/4	1-3/8	1-7/8	3/8	0.05	
C1DP19	U25-1.50-SQB	1/4	1-1/2	2	1/4	0.10	
C1DP17	U25-1.50-31B	1/4	1-1/2	2	5/16	0.50	
C1DP18	U25-1.50-37B	1/4	1-1/2	2	3/8	0.05	
C1DP22	U25-1.75	1/4	1-3/4	2-1/4	1/4	0.10	
C1DP23	U25-1.75-37B	1/4	1-3/4	2-1/4	3/8	0.02	
C1DP25	U25-1.87-37B	1/4	1-7/8	2-3/8	3/8	0.25	
C1DP28	U25-2.00-SQB	1/4	2	2-1/2	1/4	0.10	
C1DP26	U25-2.00-31B	1/4	2	2-1/2	5/16	0.03	
C1DP27	U25-2.00-37B	1/4	2	2-1/2	3/8	0.10	
C1DP30	U25-2.12-37B	1/4	2-1/8	2-5/8	3/8	0.01	
C1DP31	U25-2.25	1/4	2-1/4	2-3/4	1/4	0.02	
C1DP32	U25-2.25-37B	1/4	2-1/4	2-3/4	3/8	0.03	
C1DP34	U25-2.37-37B	1/4	2-3/8	2-7/8	3/8	0.45	
C1DP37	U25-2.50-SQB	1/4	2-1/2	3	1/4	0.15	
C1DP35	U25-2.50-37B	1/4	2-1/2	3	3/8	0.01	
C1DP39	U25-2.62-37B	1/4	2-5/8	3-1/8	3/8	0.07	
C1DP41	U25-2.75-SQB	1/4	2-3/4	3-1/4	1/4	0.02	
C1DP40	U25-2.75-37B	1/4	2-3/4	3-1/4	3/8	0.05	
C1DP42	U25-3.00	1/4	3	3-1/2	1/4	0.15	
C1DP43	U25-3.00-37B	1/4	3	3-1/2	3/8	0.04	
C1DP46	U25-3.25-37B	1/4	3-1/4	3-3/4	3/8	0.05	
C1DP50	U25-3.50-SQB	1/4	3-1/2	4	1/4	0.01	
C1DP48	U25-3.50	1/4	3-1/2	4	1/4	0.02	
C1DP49	U25-3.50-37B	1/4	3-1/2	4	3/8	0.05	
C1DP52	U25-3.75-SQB	1/4	3-3/4	4-1/4	1/4	0.25	
C1KN66	U25-3.75-37B	1/4	3-3/4	4-1/4	3/8	0.04	
C1DP56	U25-4.00-SQB	1/4	4	4-1/2	1/4	0.04	
C1DP53	U25-4.00-37B	1/4	4	4-1/2	3/8	0.05	
C1DP54	U25-4.00-50D	1/4	4	4-1/2	1/2	0.65	
C1DP55	U25-4.00-56B	1/4	4	4-1/2	9/16	0.55	
C1DP60	U25-4.50	1/4	4-1/2	5	1/4	0.10	
C1DP61	U25-4.50-37B	1/4	4-1/2	5	3/8	0.15	
C1DP63	U25-4.50-56B	1/4	4-1/2	5	9/16	0.09	
C1DP64	U25-4.50-62B	1/4	4-1/2	5	5/8	1.10	
C1DP68	U25-5.00	1/4	5	5-1/2	1/4	0.05	
C1DP69	U25-5.00-37B	1/4	5	5-1/2	3/8	0.10	
C1DP73	U25-5.50	1/4	5-1/2	6	1/4	0.01	
C1DP74	U25-5.50-37B	1/4	5-1/2	6	3/8	0.01	
C1DP75	U25-5.50-56B	1/4	5-1/2	6	9/16	0.25	
C1DP85	U31-1.00-50B	5/16	1	1-5/8	1/2	0.05	
C1DP87	U31-1.25	5/16	1-1/4	1-7/8	5/16	0.45	
C1DP88	U31-1.25-37B	5/16	1-1/4	1-7/8	3/8	0.50	
C1DP91	U31-1.37-SQB	5/16	1-3/8	2	5/16	0.02	

Inch Sizes

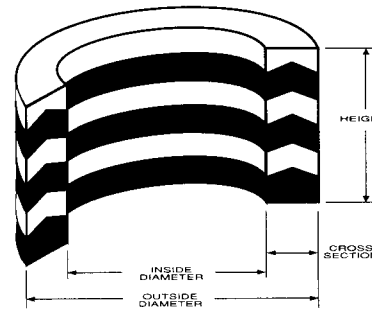
Polyurethane U-Seals

Catalog Part No.	Model Number	Cross Sect. (in)	I.D. (in)	O.D. (in)	Ht H (in)	Wt.	Price Each
•C1DP90	U31-1.37-37B	5/16	1-3/8	2	3/8	0.50	
•C1DP92	U31-1.50	5/16	1-1/2	2-1/8	5/16	0.10	
•C1DP97	U31-1.75-37B	5/16	1-3/4	2-3/8	3/8	0.02	
•C1DP98	U31-1.87	5/16	1-7/8	2-1/2	5/16	0.03	
•C1DP99	U31-2.00	5/16	2	2-5/8	5/16	0.30	
•C1DQ11	U31-2.00-50B	5/16	2	2-5/8	1/2	0.01	
•C1DQ14	U31-2.25-50B	5/16	2-1/4	2-7/8	1/2	0.05	
•C1DQ15	U31-2.37	5/16	2-3/8	3	5/16	0.06	
•C1DQ16	U31-2.50	5/16	2-1/2	3-1/8	5/16	0.10	
•C1DQ17	U31-2.50-50B	5/16	2-1/2	3-1/8	1/2	0.04	
•C1DQ19	U31-2.75	5/16	2-3/4	3-3/8	5/16	0.05	
•C1DQ20	U31-2.75-50B	5/16	2-3/4	3-3/8	1/2	0.01	
•C1DQ21	U31-2.87	5/16	2-7/8	3-1/2	5/16	0.05	
•C1DQ24	U31-3.00-50B	5/16	3	3-5/8	1/2	0.07	
•C1DQ26	U31-3.37-50B	5/16	3-3/8	4	1/2	0.01	
•C1DQ32	U31-4.00	5/16	4	4-5/8	5/16	0.05	
•C1GK82	U31-4.00-56B	5/16	4	4-5/8	9/16	0.09	
•C1ER52	U31-4.37	5/16	4-3/8	5	5/16	0.10	
•C1DQ35	U31-4.50	5/16	4-1/2	5-1/8	5/16	0.05	
•C1DQ40	U37-1.25	3/8	1-1/4	2	3/8	0.10	
•C1DQ45	U37-1.75	3/8	1-3/4	2-1/2	3/8	0.15	
•C1DQ51	U37-2.50-50B	3/8	2-1/2	3-1/4	1/2	0.01	
•C1DQ54	U37-2.75	3/8	2-3/4	3-1/2	3/8	0.10	
•C1DQ56	U37-3.00-SQB	3/8	3	3-3/4	3/8	0.07	
•C1DQ58	U37-3.25-50B	3/8	3-1/4	4	1/2	0.25	
•C1DQ60	U37-3.50	3/8	3-1/2	4-1/4	3/8	0.04	
•C1DQ64	U37-3.75-50D	3/8	3-3/4	4-1/2	1/2	0.15	
•C1DQ66	U37-4.00-62B	3/8	4	4-3/4	5/8	0.13	
•C1DQ69	U37-4.25-SQB	3/8	4-1/4	5	3/8	0.09	
•C1DQ67	U37-4.25-50D	3/8	4-1/4	5	1/2	0.10	
•C1DQ68	U37-4.25-62B	3/8	4-1/4	5	5/8	0.08	
•C1DQ70	U37-4.50-62B	3/8	4-1/2	5-1/4	5/8	1.50	
•C1EV13	U37-5.00-62B	3/8	5	5-3/4	5/8	0.17	
•C1DQ77	U37-5.25	3/8	5-1/4	6	3/8	0.10	
•C1DQ78	U37-5.25-50D	3/8	5-1/4	6	1/2	0.15	
•C1DQ80	U37-6.25-50D	3/8	6-1/4	7	1/2	0.17	
•C1DQ81	U50-2.00-SQB	1/2	2	3	1/2	0.08	
•C1DQ82	U50-2.50	1/2	2-1/2	3-1/2	1/2	0.75	

Cotton Fabric & Rubber Piston Cups

Catalog Part No.	Model Number	Bore Dia. (in)	Lip Ht (in)	Thick (in)	Hole Size (in)	Wt.	Price Each
•C1CB74	9125-000F	1-1/4	7/16	3/32	--	0.01	
•C1CB75	9150-000F	1-1/2	1/2	1/8	--	0.10	
•C1CB82	9200-000F	2	1/2	1/8	--	0.03	
•C1CC42	9250-000F	2-1/2	1/2	1/8	--	0.04	
•C1CC52	9300-000F	3	5/8	5/32	--	0.08	
•C1CC63	9400-000F	4	5/8	5/32	--	0.14	

Vee Packing Sets



All sets include fabric reinforced rubber vee cups.

When feasible, one or two urethane vee rings are included to improve low pressure sealing. Most sets use nylon adaptors.

Material: Fabric reinforced rubber & urethane vee rings, nylon top and bottom adaptors.

Temperature Range: -65°F to 220°F.

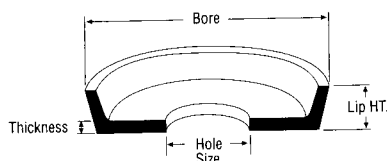
Pressure Range: 0 to 3000 PSI (4 Vees). 0 to 5000 PSI (5 Vees). 0 to 10,000 PSI (6 Vees).

Construction Code: 1st number in Code is quantity of Top nylon adaptors (usually 1). 2nd number is quantity of Urethane vee rings. 3rd number is quantity of Fabric vee rings. 4th number is quantity of Bottom nylon adaptors (usually 1).

Vee Packing Sets

Catalog Part No.	Model Number	Code TUFB	I.D. (in)	O.D. (in)	Ht (in)	Wt.	Price Each
•C1DR63	VS06204X100	1051	5/8	1-1/8	1	0.05	
•C1DR64	VS07504X100	1051	3/4	1-1/4	1	0.35	
•C1DR66	VS08104X087	1041	13/16	1-5/16	7/8	0.50	
•C1DR68	VS08704X100	1041	7/8	1-3/8	1	0.01	
•C1DR69	VS10003X095	1231	1	1-3/8	61/64	0.35	
•C1DR70	VS10004X100	1051	1	1-1/2	1	0.05	
•C1DR71	VS10005X103	1041	1	1-5/8	1-1/32	0.35	
•C1DR72	VS11204X087	1041	1-1/8	1-5/8	7/8	0.04	
•C1DR74	VS12504X082	1221	1-1/4	1-3/4	13/16	0.15	
•C1DR77	VS15004X082	1041	1-1/2	2	13/16	0.05	
•C1DR78	VS15004X100	1231	1-1/2	2	1	0.20	
•C1DR79	VS15004X112	1241	1-1/2	2	1-1/8	0.35	

Cotton Fabric & Rubber Piston Cups



Material: Cotton fabric & rubber.

Temperature Range: -65° to 220°F.

Pressure Range: 0 to 3000 PSI.

Note: Hole is punched if hole size listed in table.

Inch Sizes

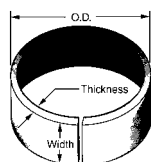
Vee Packing Sets

Catalog Part No.	Model Number	Code TUFB	I.D. (in)	O.D. (in)	Ht (in)	Wt.	Price Each
•C1DR83	VS16205X103	1041	1-5/8	2-1/4	1-1/32	0.10	
•C1DR84	VS17504X100	1051	1-3/4	2-1/4	1	0.07	
•C1DR85	VS17505X103	1221	1-3/4	2-3/8	1-1/32	0.20	
•C1DR87	VS20004X087	1221	2	2-1/2	7/8	0.10	
•C1DR88	VS20004X100	1231	2	2-1/2	1	0.50	
•C1DR89	VS20004X112	1331	2	2-1/2	1-1/8	0.50	
•C1DR90	VS20005X103	1041	2	2-5/8	1-1/32	0.11	
•C1DR91	VS20006X118	1221	2	2-3/4	1-3/16	0.14	
•C1DR94	VS22504X082	1131	2-1/4	2-3/4	13/16	0.25	
•C1DR95	VS22504X100	1231	2-1/4	2-3/4	1	0.08	
•C1DR96	VS22505X103	1041	2-1/4	2-7/8	1-1/32	0.10	
•C1DR97	VS22506X100	1031	2-1/4	3	1	0.14	
•C1DS12	VS25004X082	1041	2-1/2	3	13/16	0.08	
•C1DS16	VS27506X118	1221	2-3/4	3-1/2	1-3/16	0.50	
•C1DS17	VS30004X087	1041	3	3-1/2	7/8	0.10	
•C1DS19	VS32506X118	1041	3-1/4	4	1-3/16	0.24	
•C1DS20	VS32506X137	1051	3-1/4	4	1-3/8	0.15	
•C1DS21	VS35004X075	1121	3-1/2	4	3/4	0.10	
•C1DS22	VS35004X100	1231	3-1/2	4	1	0.13	
•C1DS24	VS37504X100	1231	3-3/4	4-1/4	1	0.10	
•C1DS25	VS37506X118	1221	3-3/4	4-1/2	1-3/16	0.20	
•C1DS27	VS40004X100	1231	4	4-1/2	1	0.15	
•C1DS28	VS40004X112	1241	4	4-1/2	1-1/8	0.20	
•C1DS31	VS45004X100	1051	4-1/2	5	1	0.10	
•C1DS34	VS47506X118	1221	4-3/4	5-1/2	1-3/16	0.35	
•C1DS36	VS50004X112	1241	5	5-1/2	1-1/8	0.21	
•C1DS40	VS60004X100	1231	6	6-1/2	1	0.22	
•C1DS42	VS70004X100	1231	7	7-1/2	1	0.25	

Nylon Wear Rings

Catalog Part No.	Model Number	Thickness (in)	Width (in)	O.D. (in)	Wt.	Price Each
•C1KK53	612-275-050	1/8	1/2	2-3/4	0.04	
•C1BW45	612-300-050	1/8	1/2	3	0.05	
•C1BW50	612-350-050	1/8	1/2	3-1/2	0.25	
•C1FE81	612-375-050	1/8	1/2	3-3/4	0.04	
•C1BW53	612-400-050	1/8	1/2	4	0.05	
•C1BW56	612-450-050	1/8	1/2	4-1/2	0.05	
•C1GH59	612-500-050	1/8	1/2	5	0.05	
•C1KK57	612-550-050	1/8	1/2	5-1/4	0.06	
•C1BW62	612-600-050	1/8	1/2	6	0.07	
•C1KK58	612-700-050	1/8	1/2	7	0.09	
•C1BW38	612-200-062	1/8	5/8	2	0.10	
•C1BW36	612-200-037	1/8	3/8	2	0.01	
•C1BW40	612-250-037	1/8	3/8	2-1/2	0.02	
•C1BW42	612-250-062	1/8	5/8	2-1/2	0.05	
•C1BW44	612-300-037	1/8	3/8	3	0.02	
•C1BW49	612-350-037	1/8	3/8	3-1/2	0.05	
•C1BW52	612-400-037	1/8	3/8	4	0.03	
•C1BW54	612-400-062	1/8	5/8	4	0.05	
•C1BW61	612-600-037	1/8	3/8	6	0.15	
•C1BW63	612-600-062	1/8	5/8	6	0.01	
•C1BW39	612-200-075	1/8	3/4	2	0.05	
•C1BW43	612-250-075	1/8	3/4	2-1/2	0.04	
•C1BW47	612-300-075	1/8	3/4	3	0.25	
•C1BW51	612-350-075	1/8	3/4	3-1/2	0.05	
•C1GM70	612-400-075	1/8	3/4	4	0.06	
•C1BW58	612-450-075	1/8	3/4	4-1/2	0.10	
•C1GM71	612-500-075	1/8	3/4	5	0.08	
•C1KK54	612-275-100	1/8	1	2-3/4	0.05	
•C1KK55	612-300-100	1/8	1	3	0.06	
•C1BW59	612-500-100	1/8	1	5	0.11	

Nylon Wear Rings



Made of glass reinforced nylon with physical properties equivalent to bronze. Highly recommended due to low wear rate, non-scoring properties and ability to ingest metal chips. SC suffix designates a scarf cut design. ST suffix designates a step cut design.

Temperature Range: -40°F to 250°F.

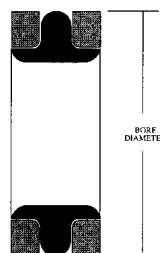
Tensile Strength: 27,000 PSI.

Compressive Strength: 35,000 PSI.

Nylon Wear Rings

Catalog Part No.	Model Number	Thickness (in)	Width (in)	O.D. (in)	Wt.	Price Each
•C1BW37	612-200-050	1/8	1/2	2	0.02	
•C1FW63	612-225-050	1/8	1/2	2-1/4	0.02	
•C1BW41	612-250-050	1/8	1/2	2-1/2	0.01	

Piston T-Seals



T-Seals combine a resilient sealing ring with a hard, split back-up ring on each side of the sealing element. The assembly installs in a groove comparable to size required for an o-ring. T-Seals are non-spiraling and extrusion resistant to 10,000 PSI.

Material: Hard plastic back-up rings. Buna-N rubber seal.

Temperature Range: -65°F to 220° F.

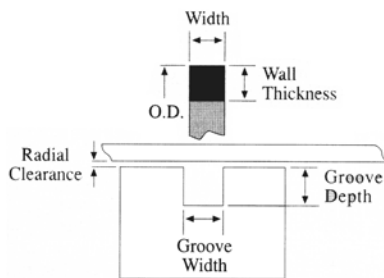
Pressure Range: 0 to 10,000 PSI.

Inch Sizes

Piston T-Seals

Catalog Part No.	Model Number	Bore Dia. (in)	O-Ring Groove Dash No.	Wt.	Price Each
•C1DM26	TP-019	1-1/2	-218	0.10	
•C1DM28	TP-024	2	-326	0.10	
•C1DM29	TP-026	2-1/4	-328	0.35	
•C1DM30	TP-028	2-1/2	-330	0.25	
•C1DM32	TP-031	2-7/8	-333	0.25	
•C1DM33	TP-032	3	-334	0.25	
•C1DM34	TP-035	3-1/2	-338	0.35	
•C1DM36	TP-039	4	-342	0.35	
•C1DM38	TP-047	5	-350	0.35	
•C1DM39	TP-051	5-1/2	-429	0.10	
•C1DM40	TP-055	6	-433	0.20	

Cast Iron Piston Rings



Material: Cast Iron.

When using cast iron piston rings, it is crucial to use the correct groove design for proper performance of the cylinder. Please use the following guidelines when cutting a cast iron piston ring groove.

Groove Width: To permit the ring to slide freely into the groove, the groove must be at least 0.001 inches wider than the maximum piston ring width with a tolerance of +0.003/-0 inches.

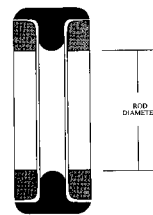
Groove Depth: Grooves must be at least 0.015 inches deeper than the maximum radial wall thickness of the piston ring with a tolerance of +0.003/-0 inches. This is to avoid any possibility of the ring bottoming in the groove when the ring is compressed to its working diameter.

Radial Clearance: The radial clearance between the cylinder bore and piston should be less than 1/3 of the radial wall thickness of the piston ring to ensure sealing effectiveness.

Cast Iron Piston Rings

Catalog Part No.	Model Number	O.D. (in)	Width (in)	Wall Thickness (in)	Wt.	Price Each
•C1DK99	SPR-4002	4.000	0.186 0.187	0.127/0.142	0.01	
•C1DL12	SPR-6004	6.000	0.310 0.311	0.191/0.206	0.15	
C1GG42	SPR-7002	7.000	0.248 0.249	0.228/0.243	0.32	

Rod T-Seals



T-Seals combine a resilient sealing ring with a hard, split back-up ring on each side of the sealing element. The assembly installs in a groove comparable to size required for an o-ring. T-Seals are non-spiraling and extrusion resistant to 10,000 PSI.

Material: Hard plastic back-up rings. Buna-N rubber seal.

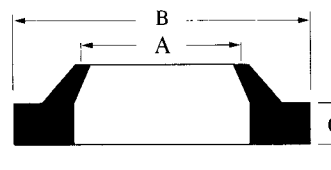
Temperature Range: -65°F to 220° F.

Pressure Range: 0 to 10,000 PSI.

Rod T-Seals

Catalog Part No.	Model Number	Rod Dia. (in)	O-Ring Groove Dash No.	Wt.	Price Each
•C1DM44	TR-008	5/8	-208	0.25	
•C1DM52	TR-027	2	-329	0.05	
C1FD17	TR-029	2-1/4	-331	0.02	
•C1DM55	TR-032	2-5/8	-334	0.15	

Urethane Wiper Rings • Style AN



Material: Urethane.

Temperature Range: -65°F to 220°F.

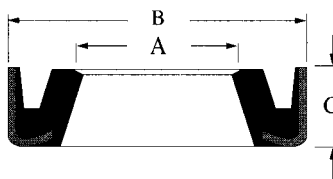
Note: SH suffix designates slotted heel design. V suffix designates fluorocarbon material. B suffix designates carboxylated nitrile material.

Inch Sizes

Urethane Wiper Rings • Style AN

Catalog Part No.	Model Number	Rod Dia. A (in)	Groove O.D. B (in)	Groove Width C (in)	Wt.	Price Each
•C1CH86	AN-02	0.560	0.823	0.104	0.01	
•C1CH87	AN-03	0.623	0.885	0.104	0.01	
•C1CH88	AN-04	0.685	0.948	0.104	0.02	
•C1CH89	AN-05	0.748	1.010	0.104	0.01	
•C1CH91	AN-07	0.873	1.147	0.104	0.02	
•C1CH92	AN-08	0.935	1.209	0.104	0.01	
•C1CH93	AN-09	0.998	1.272	0.104	0.01	
•C1CH95	AN-11	1.123	1.397	0.104	0.01	
•C1CH96	AN-12	1.185	1.459	0.104	0.03	
•C1CH97	AN-13	1.248	1.522	0.104	0.01	
•C1CH98	AN-15	1.373	1.677	0.104	0.01	
•C1CH99	AN-16	1.435	1.739	0.104	0.01	
•C1CJ11	AN-17	1.498	1.802	0.104	0.01	
•C1CJ12	AN-18	1.623	1.927	0.104	0.01	
•C1CJ13	AN-19	1.748	2.052	0.104	0.01	
•C1CJ14	AN-20	1.873	2.177	0.104	0.01	
•C1CJ15	AN-21	1.998	2.302	0.104	0.01	
•C1CJ16	AN-22	2.123	2.427	0.104	0.01	
•C1CJ17	AN-23	2.248	2.552	0.104	0.01	
•C1CJ18	AN-24	2.373	2.677	0.104	0.01	
•C1CJ19	AN-25	2.498	2.802	0.104	0.01	
•C1CJ20	AN-26	2.623	2.989	0.119	0.25	
•C1CJ23	AN-29	2.997	3.364	0.119	0.01	
•C1CJ24	AN-31	3.247	3.614	0.119	0.01	
•C1CJ26	AN-33	3.497	3.864	0.119	0.10	
•C1CJ27	AN-35	3.747	4.114	0.119	0.02	
•C1CJ28	AN-37	3.997	4.427	0.135	0.02	
•C1CJ30	AN-41	4.497	4.927	0.135	0.02	
•C1CJ32	AN-45	4.997	5.427	0.135	0.03	
•C1CJ33	AN-49	5.497	5.927	0.135	0.10	

Metal Clad Rubber Wiper Rings



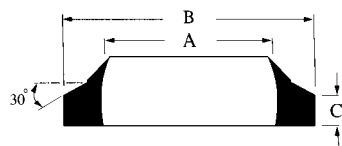
Material: Rubber.

Temperature Range: -40°F to 240°F.

Metal Clad Rubber Wiper Rings

Catalog Part No.	Model Number	Rod Dia. A (in)	Wiper O.D. B (in)	Ht C (in)	Wt.	Price Each
•C1DD80	MCN-1001	1	1-1/4	1/8	0.01	
•C1DD81	MCN-1003	1	1-3/8	3/16	0.10	
•C1DD82	MCN-1005	1	1-1/2	3/16	0.02	
•C1DD84	MCN-1253	1-1/4	1-11/16	3/16	0.01	
•C1DD85	MCN-1254	1-1/4	1-3/4	1/4	0.01	
•C1DD86	MCN-1375	1-3/8	1-3/4	3/16	0.01	
•C1DD87	MCN-1502	1-1/2	1-7/8	1/4	0.10	
•C1DD88	MCN-1503	1-1/2	1-7/8	3/16	0.01	
•C1DD89	MCN-1504	1-1/2	2	1/4	0.05	
•C1DD90	MCN-1753	1-3/4	2-1/8	3/16	0.02	
•C1DD91	MCN-1754	1-3/4	2-1/4	1/4	0.10	
•C1DD92	MCN-1755	1-3/4	2-3/8	1/4	0.04	
•C1DD94	MCN-2001	2	2-3/8	3/16	0.02	
•C1DD95	MCN-2002	2	2-5/8	1/4	0.04	
•C1DD96	MCN-2003	2	2-1/2	1/4	0.04	
•C1DD97	MCN-2253	2-1/4	2-3/4	1/4	0.04	
•C1DD99	MCN-2501	2-1/2	3	1/4	0.05	
•C1DE12	MCN-3001	3	3-1/2	1/4	0.01	

Urethane Wiper Rings • Style BT



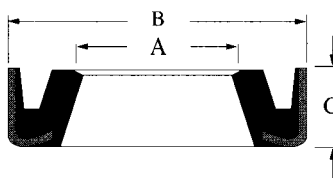
Material: Urethane.

Temperature Range: -65°F to 220°F.

Urethane Wiper Rings • Style BT

Catalog Part No.	Model Number	Rod Dia. A (in)	Wiper O.D. B (in)	Base Thickness C (in)	Wt.	Price Each
•C1CL80	BT10060	1	1-3/8	3/16	0.05	
•C1CL83	BT10860	1-1/2	1-7/8	3/16	0.10	
•C1CL85	BT20060	2	2-3/8	3/16	0.01	

Metal Clad Urethane Wiper Rings



90A Durometer urethane lip securely bonded to sturdy metal case. Non-abrasive and highly effective in removing dirt and contaminants from the rod.

Material: Urethane.

Temperature Range: -65°F to 220°F.

Metal Clad Urethane Wiper Rings

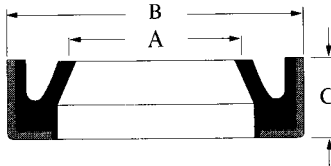
Catalog Part No.	Model Number	Rod Dia. A (in)	Wiper O.D. B (in)	Ht C (in)	Wt.	Price Each
•C1DE14	MCU-0750-G	3/4	1-1/4	5/16	0.35	
•C1DE15	MCU-0875-G	7/8	1-3/8	5/16	0.02	

Inch Sizes

Metal Clad Urethane Wiper Rings

Catalog Part No.	Model Number	Rod Dia. A (in)	Wiper O.D. B (in)	Ht C (in)	Wt.	Price Each
•C1DE16	MCU-1000-G	1	1-1/2	5/16	0.03	
•C1DE17	MCU-1120-G	1-1/8	1-5/8	5/16	0.10	
•C1DE18	MCU-1187-G	1-3/16	1-5/8	1/4	0.02	
•C1DE20	MCU-1375-G	1-3/8	1-7/8	5/16	0.03	
•C1DE34	MCU-2006-G	2	2-11/16	3/8	0.01	
•C1DE37	MCU-2252-G	2-1/4	3	1/4	0.25	
•C1DE39	MCU-2376-G	2-3/8	3-1/8	3/8	0.10	
•C1DE44	MCU-2503-G	2-1/2	3	3/16	0.05	
•C1DE57	MCU-3506-G	3-1/2	4-1/8	5/16	0.11	

Heavy Duty Metal Clad Urethane Wiper Rings



Utilizing a sturdy metal case, these wipers are molded from the same high performance urethane used in Heavy-Duty U-Seals. Built for severe service, these wipers are capable of surviving hostile environments.

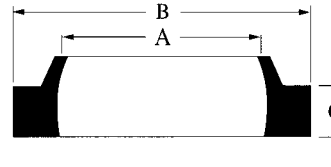
Material: Urethane.

Temperature Range: -65°F to 220°F.

Heavy Duty Metal Clad Urethane Wiper Rings

Catalog Part No.	Model Number	Rod Dia. A (in)	Wiper O.D. B (in)	Ht C (in)	Wt.	Price Each
•C1KM74	MCU-0625-D	5/8	1-1/8	5/16	0.02	
•C1KM75	MCU-1500-D	1-1/2	2	1/4	0.03	
•C1GK26	MCU-1751-D	1-3/4	2-1/4	1/4	0.03	
•C1KG30	MCU-2000-D	2	2-1/2	5/16	0.05	
•C1KH35	MCU-2500-D	2-1/2	3	5/16	0.06	
•C1GK27	MCU-2750-D	2-3/4	3-1/4	5/16	0.07	
•C1KM76	MCU-3000-D	3	3-1/2	5/16	0.08	

Urethane Wiper Rings • Style ST



Precision molded from 90A durometer urethane.

Flexible enough to easily snap into a groove yet tough enough to handle difficult rod wiping applications. V suffix designates fluorocarbon construction.

Material: Urethane or Fluorocarbon (if V suffix).

Temperature Range: Urethane -65°F to 220°F.

Fluorocarbon -20°F to 400°F.

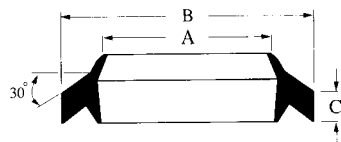
Urethane Wiper Rings • Style ST

Catalog Part No.	Model Number	Rod Dia. A (in)	Wiper O.D. B (in)	Base Thickness C (in)	Wt.	Price Each
•C1DL53	ST-50	1/2	3/4	1/8	0.20	
•C1DL54	ST-62	5/8	7/8	1/8	0.15	
•C1DL55	ST-75	3/4	1-1/8	3/16	0.01	
•C1DL56	ST-87	7/8	1-1/4	3/16	0.03	
•C1DL24	ST-100	1	1-3/8	3/16	0.01	
•C1DL25	ST-112	1-1/8	1-1/2	3/16	0.01	
•C1DL26	ST-118	1-3/16	1-9/16	3/16	0.25	
•C1DL27	ST-125	1-1/4	1-5/8	3/16	0.01	
•C1DL28	ST-137	1-3/8	1-3/4	3/16	0.01	
•C1DL30	ST-150	1-1/2	1-7/8	3/16	0.01	
•C1DL31	ST-162	1-5/8	2	3/16	0.01	
•C1DL32	ST-175	1-3/4	2-1/8	3/16	0.01	
•C1DL33	ST-187	1-7/8	2-1/4	3/16	0.04	
•C1DL35	ST-200	2	2-1/2	1/4	0.02	
•C1DL36	ST-212	2-1/8	2-5/8	1/4	0.01	
•C1DL37	ST-225	2-1/4	2-3/4	1/4	0.03	
•C1DL40	ST-250	2-1/2	3	1/4	0.05	
•C1DL41	ST-275	2-3/4	3-1/4	1/4	0.15	
•C1DL43	ST-300	3	3-1/2	1/4	0.01	
•C1DL44	ST-325	3-1/4	3-3/4	1/4	0.04	
•C1DL46	ST-350	3-1/2	4	1/4	0.45	
•C1DL48	ST-375	3-3/4	4-1/4	1/4	0.01	
•C1DL49	ST-400	4	4-1/2	1/4	0.35	
•C1DL51	ST-450	4-1/2	5-1/4	3/8	0.95	
•C1DL52	ST-475	4-3/4	5-1/2	3/8	0.12	

Seals

Inch Sizes

Urethane Wiper Rings • Style KW



Material: Urethane.

Temperature Range: -65°F to 220° F.

Urethane Wiper Rings • Style KW

Catalog Part No.	Model Number	Rod Dia. A (in)	Wiper O.D. B (in)	Base Thickness C (in)	Wt.	Price Each
•C1DC94	KW-0750	3/4	1-1/8	0.190	0.03	
•C1DC95	KW-0875	7/8	1-1/4	0.190	0.05	
•C1DC96	KW-1000	1	1-3/8	0.190	0.01	
•C1DC98	KW-1250	1-1/4	1-5/8	0.190	0.02	
•C1DC99	KW-1375	1-3/8	1-3/4	0.190	0.05	
•C1DD11	KW-1500	1-1/2	1-7/8	0.190	0.02	
•C1DD13	KW-1750	1-3/4	2-1/8	0.190	0.05	
•C1DD14	KW-2000	2	2-3/8	0.190	0.02	
•C1DD16	KW-2500	2-1/2	3	0.250	0.08	

Buna-N Quattro Rings • Style QR



The four lobed design of these seals provide twice the sealing surface of ordinary o-rings. They can be used in a variety of static and dynamic sealing applications including rotary, reciprocating or oscillating motion.

Material: Buna-N.

Temperature Range: -40°F to 240°F.

Pressure Range: Varies according to diametral clearance.

Buna-N Quattro Rings • Style QR

Catalog Part No.	Model Number	Dash Size	Pkg. Qty	Wt.	Price Each
•C1FC63	QR-4005	-005	6	0.01	
•C1FC68	QR-4010	-010	6	0.01	
•C1FC69	QR-4011	-011	6	0.01	
•C1FC74	QR-4016	-016	5	0.01	
•C1FC77	QR-4110	-110	5	0.01	
•C1FC78	QR-4111	-111	5	0.01	
•C1FC79	QR-4112	-112	5	0.01	
•C1FC80	QR-4113	-113	5	0.01	
•C1FC81	QR-4114	-114	5	0.01	
•C1FC82	QR-4115	-115	5	0.01	
•C1FC83	QR-4116	-116	5	0.01	
•C1FC84	QR-4117	-117	5	0.01	
•C1FC89	QR-4210	-210	5	0.01	

Buna-N Quattro Rings • Style QR

Catalog Part No.	Model Number	Dash Size	Pkg. Qty	Wt.	Price Each
•C1FC90	QR-4211	-211	5	0.01	
•C1FC91	QR-4212	-212	5	0.01	
•C1FC92	QR-4213	-213	5	0.01	
•C1FC93	QR-4214	-214	5	0.01	
•C1FC94	QR-4215	-215	5	0.01	
•C1FC95	QR-4216	-216	4	0.01	
•C1FC96	QR-4217	-217	4	0.01	
•C1FC97	QR-4218	-218	4	0.01	
•C1FC98	QR-4219	-219	4	0.01	

Caterpillar D-Rings



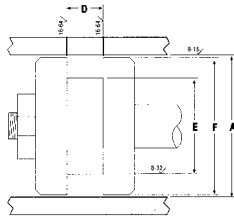
Note: Caterpillar part numbers are used as a reference only. It is not implied that these parts are original replacement parts.

Caterpillar D-Rings

Catalog Part No.	Model Number	I.D. (mm)	Wt.	Price Each
•C1EW59	CTC-1P3702	25.4	0.01	
•C1EW60	CTC-1P3703	31.9	0.01	
•C1EW61	CTC-1P3704	38.2	0.01	
•C1EW62	CTC-1P3705	44.7	0.02	

Inch Sizes

Glass Filled PTFE Piston Seals • Style 1400



Glass filled PTFE for low breakaway and low running friction. Popular choice of many cylinder manufacturers. Rubber energizer under seal assures positive contact with the dynamic surfaces. Piston diameter F dimensions are given for pistons without wear rings.

Material: 15% glass filled PTFE seal with rubber energizer.

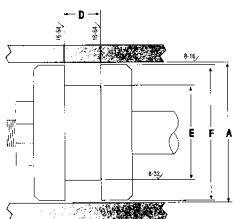
Temperature Range: -40°F to 220°F.

Pressure Range: 0 to 5,000 PSI.

Glass Filled PTFE Piston Seals • Style 1400

Catalog Part No.	Model Number	Bore Dia. A (in) ±0.002	Seal Height B & Cross Section C (in)	Groove Width D (in) ±0.002	Groove Dia. E (in) ±0.002	Piston Dia. F (in) ±0.001	Wt.	Price Each
•C1DH42	PS1400-24	1.500	0.070 ±0.005	0.083	1.240	1.497	0.01	
•C1DH43	PS1400-26	1.625	0.109 ±0.010	0.122	1.233	1.622	0.01	
•C1DH44	PS1400-28	1.750	0.109 ±0.010	0.122	1.358	1.747	0.01	
•C1DH45	PS1400-32	2.000	0.115 ±0.010	0.129	1.608	1.996	0.01	
•C1DH47	PS1400-36	2.250	0.115 ±0.010	0.129	1.858	2.246	0.01	
•C1DH48	PS1400-40	2.500	0.115 ±0.010	0.129	2.108	2.496	0.15	
•C1DH49	PS1400-44	2.750	0.115 ±0.010	0.129	2.358	2.746	0.01	
•C1DH50	PS1400-48	3.000	0.115 ±0.010	0.129	2.608	2.996	0.01	
•C1DH51	PS1400-52	3.250	0.115 ±0.010	0.129	2.858	3.246	0.10	
•C1DH52	PS1400-56	3.500	0.115 ±0.010	0.129	3.108	3.496	0.02	
•C1DH53	PS1400-60	3.750	0.115 ±0.010	0.129	3.358	3.746	0.09	
•C1DH54	PS1400-64	4.000	0.115 ±0.010	0.129	3.608	3.996	0.02	
•C1DH56	PS1400-72	4.500	0.115 ±0.010	0.129	4.108	4.496	0.25	
•C1DH57	PS1400-80	5.000	0.115 ±0.010	0.129	4.608	4.996	0.01	
•C1DH60	PS1400-96	6.000	0.143 ±0.010	0.159	5.482	5.996	0.05	

Glass Filled PTFE Piston Seals • Style 1600



Material: 15% glass filled PTFE seal. Rubber energizer.

Temperature Range: -40°F to 220°F.

Pressure Range: 0 to 5,000 PSI.

Note: Piston diameter F dimensions are given for pistons without wear rings.

Glass Filled PTFE Piston Seals • Style 1600

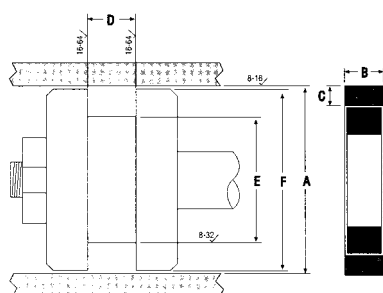
Catalog Part No.	Model Number	Bore Dia. A (in) ±0.001	Seal Height B (in) +0.005 -0.0	Seal Cross Section C (in) +0.005 -0.0	Groove Width D (in) +0.003 -0.0	Groove Dia. E (in) +0.0 -0.003	Piston Dia. F (in)	Wt.	Price Each
•C1DH63	PS1600-32	2.000	0.120	0.055	0.126	1.723	1.999 +0/-0.003	0.10	
•C1DH64	PS1600-36	2.250	0.120	0.055	0.126	1.937	2.249 +0/-0.003	0.01	
•C1DH65	PS1600-40	2.500	0.120	0.055	0.126	2.223	2.499 +0/-0.003	0.01	

Inch Sizes

Glass Filled PTFE Piston Seals • Style 1600

Catalog Part No.	Model Number	Bore Dia. A (in) ± 0.001	Seal Height B (in) $+0.005$ -0.0	Seal Cross Section C (in) $+0.005$ -0.0	Groove Width D (in) $+0.003$ -0.0	Groove Dia. E (in) $+0.0$ -0.003	Piston Dia. F (in)	Wt.	Price Each
•C1DH66	PS1600-44	2.750	0.150	0.085	0.157	2.348	2.749 $+0/-0.004$	0.02	
•C1DH67	PS1600-48	3.000	0.150	0.085	0.157	2.603	2.999 $+0/-0.004$	0.10	
•C1DH68	PS1600-52	3.250	0.150	0.085	0.157	2.853	3.249 $+0/-0.004$	0.02	
•C1DH69	PS1600-56	3.500	0.150	0.085	0.157	3.103	3.499 $+0/-0.004$	0.02	
•C1DH70	PS1600-64	4.000	0.150	0.085	0.157	3.600	3.999 $+0/-0.004$	0.02	
•C1DH71	PS1600-68	4.250	0.150	0.085	0.157	3.853	4.249 $+0/-0.004$	0.03	

Glass Filled PTFE Piston Seals • Style 1800



Material: 15% glass filled PTFE seal. Rubber energizer.

Temperature Range: -40°F to 220°F.

Pressure Range: 0 to 5,000 PSI.

Note: Piston diameter F dimensions are given for pistons without wear rings.

Glass Filled PTFE Piston Seals • Style 1800

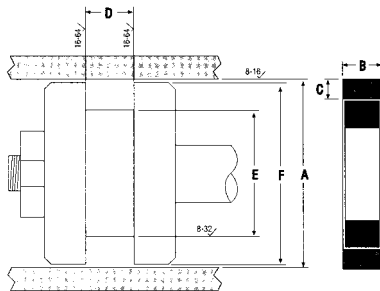
Catalog Part No.	Model Number	Bore Dia. A (in) ± 0.002	Seal Height B (in)	Seal Cross Section C (in)	Groove Width D (in) ± 0.002	Groove Dia. E (in) ± 0.004	Piston Dia. F (in)	Wt.	Price Each
•C1DH73	PS1800-20	1.250	0.116-0.121	0.067-0.073	0.129	0.940	1.249 $+0/-0.005$	0.01	
•C1DH74	PS1800-24	1.500	0.116-0.121	0.067-0.073	0.129	1.190	1.499 $+0/-0.005$	0.01	
•C1DH75	PS1800-32	2.000	0.116-0.121	0.067-0.073	0.129	1.690	1.999 $+0/-0.005$	0.01	
•C1DH76	PS1800-36	2.250	0.116-0.121	0.067-0.073	0.129	1.940	2.249 $+0/-0.005$	0.01	
•C1DH77	PS1800-40	2.500	0.116-0.121	0.067-0.073	0.129	2.190	2.499 $+0/-0.005$	0.01	
•C1DH78	PS1800-48	3.000	0.269-0.274	0.087-0.093	0.284	2.440	2.999 $+0/-0.006$	0.04	
•C1DH80	PS1800-56	3.500	0.269-0.274	0.087-0.093	0.284	2.940	3.499 $+0/-0.006$	0.01	
•C1DH81	PS1800-64	4.000	0.269-0.274	0.087-0.093	0.284	3.440	3.999 $+0/-0.006$	0.05	
•C1DH82	PS1800-68	4.250	0.269-0.274	0.087-0.093	0.284	3.690	4.249 $+0/-0.006$	0.06	
•C1DH83	PS1800-72	4.500	0.269-0.274	0.087-0.093	0.284	3.940	4.499 $+0/-0.006$	0.03	
•C1DH84	PS1800-80	5.000	0.269-0.274	0.087-0.093	0.284	4.440	4.999 $+0/-0.006$	0.07	

Inch Sizes

Glass Filled PTFE Piston Seals • Style 1800

Catalog Part No.	Model Number	Bore Dia. A (in) ± 0.002	Seal Height B (in)	Seal Cross Section C (in)	Groove Width D (in) ± 0.002	Groove Dia. E (in) ± 0.004	Piston Dia. F (in)	Wt.	Price Each
•C1DH86	PS1800-88	5.500	0.362-0.367	0.137-0.147	0.379	4.738	5.499 +0/-0.007	0.13	
•C1DH87	PS1800-96	6.000	0.362-0.367	0.137-0.147	0.379	5.238	5.999 +0/-0.007	0.14	

Bronze Filled PTFE Piston Seals • Style 1850



Material: Bronze filled PTFE Seal. Rubber Energizer.

Temperature Range: -40°F to +220°F

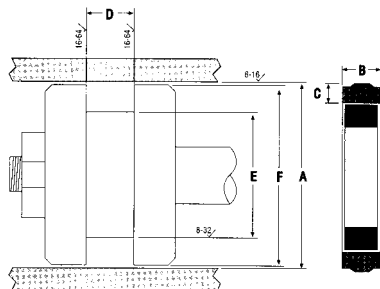
Pressure Range: 0 to 5000 PSI

Note: Piston diameter "F" dimensions are given for pistons without wear. Interchangeable with the PS1800 style piston seal.

Bronze Filled PTFE Piston Seals • Style 1850

Catalog Part No.	Model Number	Bore Dia. A (in) $+0.002$ -0.000	Seal Height B (in)	Seal Cross Section C (in)	Groove Width D (in) ± 0.002	Groove Dia. E (in) ± 0.002	Piston Dia. F (in)	Wt.	Price Each
C1KM93	PS1850-48	3.000	0.269-0.274	0.087-0.093	0.284	2.440	2.999 +0/-0.006	0.14	
C1KM94	PS1850-96	6.000	0.362-0.367	0.137-0.147	0.379	5.238	5.999 +0/-0.007	0.19	

Polyurethane Piston Seals • Style 2700



Molded from high grade poly-esters, 5% glass fiber and 5% PTFE.

Interchangeable with PS1800 seals. Low friction. High resistance to abrasion & extrusion. The polyurethane material has a high degree of memory and will stretch over a piston and snap into the groove and be ready for immediate assembly. Damage during assembly is virtually eliminated. Piston diameter F dimensions are given for pistons without wear rings.

Material: Glass/PTFE filled polyurethane seal. Rubber energizer.

Temperature Range: -40°F to 220°F.

Pressure Range: 0 to 5,000 PSI.

Polyurethane Piston Seals • Style 2700

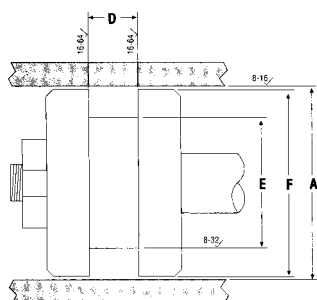
Catalog Part No.	Model Number	Bore Dia. A (in) ± 0.002	Seal Height B (in)	Seal Cross Section C (in)	Groove Width D (in) ± 0.002	Groove Dia. E (in) ± 0.004	Piston Dia. F (in)	Wt.	Price Each
•C1DH92	PS2700-32	2.000	0.116-0.121	0.067-0.073	0.129	1.690	1.999 +0/-0.009	0.20	
•C1DH96	PS2700-56	3.500	0.269-0.274	0.087-0.093	0.284	2.940	3.499 +0/-0.014	0.02	
•C1DH98	PS2700-64	4.000	0.269-0.274	0.087-0.093	0.284	3.440	3.999 +0/-0.014	0.02	

Inch Sizes

Polyurethane Piston Seals • Style 2700

Catalog Part No.	Model Number	Bore Dia. A (in) ± 0.002	Seal Height B (in)	Seal Cross Section C (in)	Groove Width D (in) ± 0.002	Groove Dia. E (in) ± 0.004	Piston Dia. F (in)	Wt.	Price Each
•C1DJ11	PS2700-72	4.500	0.269-0.274	0.087-0.093	0.284	3.940	4.499 +0/-0.014	0.02	
•C1DJ12	PS2700-80	5.000	0.269-0.274	0.087-0.093	0.284	4.440	4.999 +0/-0.014	0.25	
•C1DJ15	PS2700-96	6.000	0.362-0.367	0.137-0.147	0.379	5.238	5.999 +0/-0.014	0.08	
•C1DH89	PS2700-112	7.000	0.362-0.367	0.137-0.147	0.379	6.238	6.999 +0/-0.014	0.20	

Double-Acting Piston Seals • Style PSC



This seal is a double-acting piston seal designed to replace o-rings, quad-rings and T-seals with the same groove dimensions (o-ring dash number). Style 575 urethane back-up rings may be added to either or both sides of the PSC to accommodate wider groove widths. The PSC is made of 95A durometer polyurethane, giving it high extrusion and abrasion resistance. The crowned sealing surface produces a positive seal from vacuum to high pressure.

Material: 95A polyurethane seal, 70A nitrile energizer.

Temperature Range: -65°F to 220°F.

Pressure Range: 0 to 5,000 PSI.

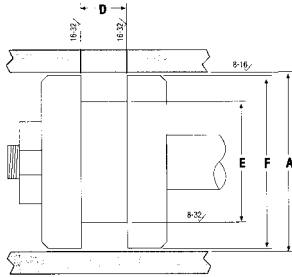
Note: Piston diameter F dimensions are given for pistons without wear rings.

Double-Acting Piston Seals • Style PSC

Catalog Part No.	Model Number	Bore Dia. (in)	Seal Height (in)	Groove Width (in)	Groove Dia. (in)	Piston Dia. (in)	Wt.	Price Each
•C1KM95	PSC-218	1.500 +0.002/-0	0.150	0.185 +0.005/-0	1.254 +0/-0.002	1.498 +0/-0.002	0.01	
C1KM96	PSC-218-WB	1.500 +0.002/-0	0.265	0.304 +0.005/-0	1.254 +0/-0.002	1.498 +0/-0.002	0.01	
•C1GG32	PSC-326	2.000 +0.002/-0	0.255	0.280 +0.005/-0	1.625 +0/-0.002	1.998 +0/-0.002	0.01	
•C1GG33	PSC-326-WB	2.000 +0.002/-0	0.370	0.423 +0.005/-0	1.625 +0/-0.002	1.998 +0/-0.002	0.01	
•C1GG34	PSC-330	2.500 +0.002/-0	0.255	0.280 +0.005/-0	2.125 +0/-0.002	2.498 +0/-0.002	0.02	
•C1KM97	PSC-334	3.000 +0.002/-0	0.255	0.280 +0.005/-0	2.624 +0/-0.004	2.997 +0/-0.004	0.03	
•C1GG35	PSC-334-WB	3.000 +0.004/-0	0.370	0.423 +0.005/-0	2.624 +0/-0.004	2.997 +0/-0.004	0.03	
•C1GG36	PSC-338	3.500 +0.004/-0	0.255	0.280 +0.005/-0	3.125 +0/-0.004	3.498 +0/-0.004	0.02	
•C1GG37	PSC-342	4.000 +0.004/-0	0.255	0.280 +0.005/-0	3.625 +0/-0.004	3.998 +0/-0.004	0.02	
•C1KM98	PSC-342-WB	4.000 +0.004/-0	0.370	0.424 +0.005/-0	3.625 +0/-0.004	3.998 +0/-0.004	0.02	
C1KM99	PSC-350	5.000 +0.004/-0	0.255	0.280 +0.005/-0	4.626 +0/-0.004	4.999 +0/-0.004	0.06	
•C1GG38	PSC-433-WB	6.000 +0.004/-0	0.500	0.574 +0.006/-0	5.521 +0/-0.004	5.999 +0/-0.004	0.08	

Inch Sizes

Bronze Filled Piston Seals • Style PSQ



These piston seals provide bi-directional, low friction sealing with increased stability and superior leakage control. The square cut energizer provides low pressure sealing and eliminates backside leakage. This seal also effectively seals between different fluids on each side of the piston seal, making gas/liquid sealing combinations possible.

Material: 40% bronze filled PTFE seal, rubber energizer and quattro ring.

Temperature Range: -40°F to 220°F.

Pressure Range: 0 to 5,000 PSI.

Note: Piston diameter F dimensions are given for pistons without wear rings.

Bronze Filled Piston Seals • Style PSQ

Catalog Part No.	Model Number	Bore Dia. (in)	Seal Height (in)	Groove Width (in)	Groove Dia. (in)	Piston Dia. (in)	Wt.	Price Each
•C1GM40	PSQ-40	2.500 +0.004/-0	0.271	0.288/0.293	1.884	2.499	0.04	
•C1GN12	PSQ-48	3.000 +0.004/-0	0.271	0.288/0.293	2.384	2.999	0.05	
•C1GN14	PSQ-56	3.500 +0.004/-0	0.271	0.288/0.293	2.884	3.499	0.05	
•C1GN15	PSQ-64	4.000 +0.004/-0	0.271	0.288/0.293	3.384	3.999	0.07	
•C1KN11	PSQ-80	5.000 +0.004/-0	0.271	0.288/0.293	4.384	4.999	0.09	

Inch Sizes O-Rings

70 Durometer Buna-N O-Rings



Material: 70 Durometer Buna-N.

Temperature Range: -40°F . to 240°F.

70 Durometer Buna-N O-Rings

Catalog Part No.	Model Number	Dash Size	Nominal I.D.	Nominal O.D.	Nominal Width	Actual I.D.	Actual O.D.	Actual Width	Pkg. Qty.	Wt.	Price Each
•C1CC95	A-003	-003	1/16	3/16	1/16	0.056	0.176	0.06	50	0.01	
•C1CC97	A-005	-005	3/32	7/32	1/16	0.101	0.241	0.07	50	0.01	
•C1CC98	A-006	-006	1/8	1/4	1/16	0.114	0.254	0.07	50	0.01	
•C1CC99	A-007	-007	5/32	9/32	1/16	0.145	0.285	0.07	50	0.01	
•C1CD11	A-008	-008	3/16	5/16	1/16	0.176	0.316	0.07	50	0.01	
•C1CD12	A-009	-009	7/32	11/32	1/16	0.208	0.348	0.07	50	0.01	
•C1CD13	A-010	-010	1/4	3/8	1/16	0.239	0.379	0.07	50	0.01	
•C1CD14	A-011	-011	5/16	7/16	1/16	0.301	0.441	0.07	50	0.01	
•C1CD15	A-012	-012	3/8	1/2	1/16	0.364	0.504	0.07	50	0.01	
•C1CD16	A-013	-013	7/16	9/16	1/16	0.426	0.566	0.07	50	0.01	
•C1CD17	A-014	-014	1/2	5/8	1/16	0.489	0.629	0.07	50	0.01	
•C1CD19	A-015	-015	9/16	11/16	1/16	0.551	0.691	0.07	50	0.01	
•C1CD20	A-016	-016	5/8	3/4	1/16	0.614	0.754	0.07	50	0.01	
•C1CD21	A-017	-017	11/16	13/16	1/16	0.676	0.816	0.07	50	0.01	
•C1CD22	A-018	-018	3/4	7/8	1/16	0.739	0.879	0.07	50	0.01	
•C1CD23	A-019	-019	13/16	15/16	1/16	0.801	0.941	0.07	50	0.01	
•C1CD24	A-020	-020	7/8	1	1/16	0.864	1.004	0.07	50	0.01	
•C1CD25	A-021	-021	15/16	1-1/16	1/16	0.926	1.066	0.07	50	0.01	
•C1CD26	A-022	-022	1	1-1/8	1/16	0.989	1.129	0.07	50	0.01	
•C1CD27	A-023	-023	1-1/16	1-3/16	1/16	1.051	1.191	0.07	50	0.01	
•C1CD29	A-024	-024	1-1/8	1-1/4	1/16	1.114	1.254	0.07	50	0.01	
•C1CD30	A-025	-025	1-3/16	1-5/16	1/16	1.176	1.316	0.07	50	0.01	
•C1CD31	A-026	-026	1-1/4	1-3/8	1/16	1.239	1.379	0.07	50	0.01	
•C1CD32	A-027	-027	1-5/16	1-7/16	1/16	1.301	1.441	0.07	50	0.01	
•C1CD33	A-028	-028	1-3/8	1-1/2	1/16	1.364	1.504	0.07	20	0.01	
•C1CD35	A-029	-029	1-1/2	1-5/8	1/16	1.489	1.629	0.07	20	0.01	
•C1CD36	A-030	-030	1-5/8	1-3/4	1/16	1.614	1.754	0.07	20	0.01	
•C1CD37	A-031	-031	1-3/4	1-7/8	1/16	1.739	1.879	0.07	20	0.01	
•C1CD38	A-032	-032	1-7/8	2	1/16	1.864	2.004	0.07	20	0.01	
•C1CD39	A-033	-033	2	2-1/8	1/16	1.989	2.129	0.07	20	0.01	
•C1CD40	A-034	-034	2-1/8	2-1/4	1/16	2.114	2.254	0.07	20	0.01	
•C1CD41	A-035	-035	2-1/4	2-3/8	1/16	2.239	2.379	0.07	20	0.01	
•C1CD42	A-036	-036	2-3/8	2-1/2	1/16	2.364	2.504	0.07	20	0.01	
•C1CD43	A-037	-037	2-1/2	2-5/8	1/16	2.489	2.629	0.07	20	0.01	
•C1CD44	A-038	-038	2-5/8	2-3/4	1/16	2.614	2.754	0.07	10	0.01	
•C1CD45	A-039	-039	2-3/4	2-7/8	1/16	2.739	2.879	0.07	10	0.01	
•C1CD46	A-040	-040	2-7/8	3	1/16	2.864	3.004	0.07	10	0.01	
•C1CD47	A-041	-041	3	3-1/8	1/16	2.989	3.129	0.07	10	0.01	
•C1CD48	A-042	-042	3-1/4	3-3/8	1/16	3.239	3.379	0.07	10	0.01	
•C1CD49	A-043	-043	3-1/2	3-5/8	1/16	3.489	3.629	0.07	10	0.01	
•C1CD50	A-044	-044	3-3/4	3-7/8	1/16	3.739	3.879	0.07	10	0.01	
•C1CD51	A-045	-045	4	4-1/8	1/16	3.989	4.129	0.07	10	0.01	
•C1CD54	A-048	-048	4-3/4	4-7/8	1/16	4.739	4.879	0.07	4	0.01	



Inch Sizes O-Rings

70 Durometer Buna-N O-Rings

Catalog Part No.	Model Number	Dash Size	Nominal I.D.	Nominal O.D.	Nominal Width	Actual I.D.	Actual O.D.	Actual Width	Pkg. Qty.	Wt.	Price Each
•C1CD55	A-049	-049	5	5-1/8	1/16	4.989	5.129	0.07	4	0.01	
•C1CD61	A-106	-106	3/16	3/8	3/32	0.174	0.380	0.103	50	0.01	
•C1CD62	A-107	-107	7/32	13/32	3/32	0.206	0.412	0.103	50	0.01	
•C1CD63	A-108	-108	1/4	7/16	3/32	0.237	0.443	0.103	50	0.01	
•C1CD64	A-109	-109	5/16	1/2	3/32	0.299	0.505	0.103	50	0.01	
•C1CD65	A-110-ORING	-110	3/8	9/16	3/32	0.362	0.568	0.103	50	0.01	
•C1CD66	A-111	-111	7/16	5/8	3/32	0.424	0.630	0.103	50	0.01	
•C1CD67	A-112	-112	1/2	11/16	3/32	0.487	0.693	0.103	50	0.01	
•C1CD68	A-113	-113	9/16	3/4	3/32	0.549	0.755	0.103	50	0.01	
•C1CD69	A-114	-114	5/8	13/16	3/32	0.612	0.818	0.103	50	0.01	
•C1CD70	A-115	-115	11/16	7/8	3/32	0.674	0.880	0.103	50	0.01	
•C1CD71	A-116	-116	3/4	15/16	3/32	0.737	0.943	0.103	50	0.01	
•C1CD72	A-117	-117	13/16	1	3/32	0.799	1.005	0.103	50	0.01	
•C1CD73	A-118	-118	7/8	1-1/16	3/32	0.862	1.068	0.103	50	0.01	
•C1CD74	A-119	-119	15/16	1-1/8	3/32	0.924	1.130	0.103	50	0.01	
•C1CD76	A-120	-120	1	1-3/16	3/32	0.987	1.193	0.103	50	0.01	
•C1CD77	A-121	-121	1-1/16	1-1/4	3/32	1.049	1.255	0.103	50	0.01	
•C1CD78	A-122	-122	1-1/8	1-5/16	3/32	1.112	1.318	0.103	20	0.01	
•C1CD79	A-123	-123	1-3/16	1-3/8	3/32	1.174	1.380	0.103	20	0.01	
•C1CD80	A-124	-124	1-1/4	1-7/16	3/32	1.237	1.443	0.103	20	0.01	
•C1CD81	A-125	-125	1-5/16	1-1/2	3/32	1.299	1.505	0.103	20	0.01	
•C1CD82	A-126	-126	1-3/8	1-9/16	3/32	1.362	1.568	0.103	20	0.01	
•C1CD83	A-127	-127	1-7/16	1-5/8	3/32	1.424	1.630	0.103	20	0.01	
•C1CD84	A-128	-128	1-1/2	1-11/16	3/32	1.487	1.693	0.103	20	0.01	
•C1CD85	A-129-ORING	-129	1-9/16	1-3/4	3/32	1.549	1.755	0.103	20	0.01	
•C1CD87	A-130	-130	1-5/8	1-13/16	3/32	1.612	1.818	0.103	20	0.01	
•C1CD88	A-131-ORING	-131	1-11/16	1-7/8	3/32	1.674	1.880	0.103	20	0.01	
•C1CD89	A-132-ORING	-132	1-3/4	1-15/16	3/32	1.737	1.943	0.103	20	0.01	
•C1CD90	A-133	-133	1-13/16	2	3/32	1.799	2.005	0.103	20	0.01	
•C1CD91	A-134	-134	1-7/8	2-1/16	3/32	1.862	2.068	0.103	20	0.01	
•C1CD92	A-135	-135	1-15/16	2-1/8	3/32	1.925	2.131	0.103	20	0.01	
•C1CD93	A-136	-136	2	2-3/16	3/32	1.987	2.193	0.103	20	0.01	
•C1CD94	A-137	-137	2-1/16	2-1/4	3/32	2.050	2.256	0.103	20	0.01	
•C1CD95	A-138	-138	2-1/8	2-5/16	3/32	2.112	2.318	0.103	20	0.01	
•C1CD96	A-139	-139	2-3/16	2-3/8	3/32	2.175	2.381	0.103	20	0.01	
•C1CD97	A-140	-140	2-1/4	2-7/16	3/32	2.237	2.443	0.103	20	0.01	
•C1CD98	A-141-ORING	-141	2-5/16	2-1/2	3/32	2.300	2.506	0.103	20	0.01	
•C1CD99	A-142	-142	2-3/8	2-9/16	3/32	2.362	2.568	0.103	20	0.01	
•C1CE11	A-143	-143	2-7/16	2-5/8	3/32	2.425	2.631	0.103	20	0.01	
•C1CE12	A-144	-144	2-1/2	2-11/16	3/32	2.487	2.693	0.103	20	0.01	
•C1CE13	A-145	-145	2-9/16	2-3/4	3/32	2.550	2.756	0.103	20	0.01	
•C1CE14	A-146	-146	2-5/8	2-13/16	3/32	2.612	2.818	0.103	20	0.01	
•C1CE15	A-147	-147	2-11/16	2-7/8	3/32	2.675	2.881	0.103	20	0.01	
•C1CE16	A-148	-148	2-3/4	2-15/16	3/32	2.737	2.943	0.103	10	0.01	
•C1CE17	A-149	-149	2-13/16	3	3/32	2.800	3.006	0.103	10	0.01	
•C1CE18	A-150	-150	2-7/8	3-1/16	3/32	2.862	3.068	0.103	10	0.01	
•C1CE19	A-151	-151	3	3-3/16	3/32	2.987	3.193	0.103	10	0.01	
•C1CE20	A-152	-152	3-1/4	3-7/16	3/32	3.237	3.443	0.103	10	0.01	
•C1CE21	A-153	-153	3-1/2	3-11/16	3/32	3.487	3.693	0.103	10	0.01	

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Inch Sizes O-Rings

70 Durometer Buna-N O-Rings

Catalog Part No.	Model Number	Dash Size	Nominal I.D.	Nominal O.D.	Nominal Width	Actual I.D.	Actual O.D.	Actual Width	Pkg. Qty.	Wt.	Price Each
•C1CE22	A-154	-154	3-3/4	3-15/16	3/32	3.737	3.943	0.103	10	0.01	
•C1CE23	A-155	-155	4	4-3/16	3/32	3.987	4.193	0.103	10	0.01	
•C1CE24	A-156	-156	4-1/4	4-7/16	3/32	4.237	4.443	0.103	10	0.01	
•C1CE25	A-157	-157	4-1/2	4-11/16	3/32	4.487	4.693	0.103	4	0.01	
•C1CE27	A-158	-158	4-3/4	4-15/16	3/32	4.737	4.943	0.103	4	0.01	
•C1CE28	A-159	-159	5	5-3/16	3/32	4.987	5.193	0.103	4	0.01	
•C1CE29	A-160	-160	5-1/4	5-7/16	3/32	5.237	5.443	0.103	4	0.01	
•C1CE30	A-161	-161	5-1/2	5-11/16	3/32	5.487	5.693	0.103	4	0.01	
•C1CE32	A-163	-163	6	6-3/16	3/32	5.987	6.193	0.103	2	0.01	
•C1CE33	A-164	-164	6-1/4	6-7/16	3/32	6.237	6.443	0.103	2	0.01	
•C1CE38	A-169	-169	7-1/2	7-11/16	3/32	7.487	7.693	0.103	2	0.01	
•C1CE39	A-170	-170	7-3/4	7-15/16	3/32	7.737	7.943	0.103	2	0.01	
•C1CE41	A-172	-172	8-1/4	8-7/16	3/32	8.237	8.443	0.103	2	0.01	
•C1CE49	A-202	-202	1/4	1/2	1/8	0.234	0.512	0.139	50	0.01	
•C1CE50	A-203	-203	5/16	9/16	1/8	0.296	0.574	0.139	50	0.01	
•C1CE51	A-204	-204	3/8	5/8	1/8	0.359	0.637	0.139	50	0.01	
•C1CE52	A-205	-205	7/16	11/16	1/8	0.421	0.699	0.139	50	0.01	
•C1CE53	A-206	-206	1/2	3/4	1/8	0.484	0.762	0.139	50	0.01	
•C1CE54	A-207	-207	9/16	13/16	1/8	0.546	0.824	0.139	50	0.01	
•C1CE55	A-208	-208	5/8	7/8	1/8	0.609	0.887	0.139	20	0.01	
•C1CE56	A-209	-209	11/16	15/16	1/8	0.671	0.949	0.139	20	0.01	
•C1CE58	A-210-ORING	-210	3/4	1	1/8	0.734	1.012	0.139	20	0.01	
•C1CE59	A-211	-211	13/16	1-1/16	1/8	0.796	1.074	0.139	20	0.01	
•C1CE60	A-212	-212	7/8	1-1/8	1/8	0.859	1.137	0.139	20	0.01	
•C1CE61	A-213	-213	15/16	1-3/16	1/8	0.921	1.199	0.139	20	0.01	
•C1CE62	A-214	-214	1	1-1/4	1/8	0.984	1.262	0.139	20	0.01	
•C1CE64	A-215	-215	1-1/16	1-5/16	1/8	1.046	1.324	0.139	20	0.01	
•C1CE65	A-216	-216	1-1/8	1-3/8	1/8	1.109	1.387	0.139	20	0.01	
•C1CE66	A-217	-217	1-3/16	1-7/16	1/8	1.171	1.449	0.139	20	0.01	
•C1CE67	A-218	-218	1-1/4	1-1/2	1/8	1.234	1.512	0.139	20	0.01	
•C1CE68	A-219	-219	1-5/16	1-9/16	1/8	1.296	1.574	0.139	20	0.01	
•C1CE70	A-220	-220	1-3/8	1-5/8	1/8	1.359	1.637	0.139	20	0.01	
•C1CE71	A-221	-221	1-7/16	1-11/16	1/8	1.421	1.699	0.139	20	0.01	
•C1CE72	A-222	-222	1-1/2	1-3/4	1/8	1.484	1.762	0.139	20	0.01	
•C1CE74	A-223	-223	1-5/8	1-7/8	1/8	1.609	1.887	0.139	20	0.01	
•C1CE75	A-224	-224	1-3/4	2	1/8	1.734	2.012	0.139	20	0.01	
•C1CE76	A-225	-225	1-7/8	2-1/8	1/8	1.859	2.137	0.139	20	0.01	
•C1CE78	A-226	-226	2	2-1/4	1/8	1.984	2.262	0.139	20	0.01	
•C1CE79	A-227	-227	2-1/8	2-3/8	1/8	2.109	2.387	0.139	20	0.01	
•C1CE80	A-228	-228	2-1/4	2-1/2	1/8	2.234	2.512	0.139	20	0.01	
•C1CE81	A-229	-229	2-3/8	2-5/8	1/8	2.359	2.637	0.139	20	0.01	
•C1CE82	A-230	-230	2-1/2	2-3/4	1/8	2.484	2.762	0.139	10	0.01	
•C1CE83	A-231	-231	2-5/8	2-7/8	1/8	2.609	2.887	0.139	10	0.01	
•C1CE84	A-232	-232	2-3/4	3	1/8	2.734	3.012	0.139	10	0.01	
•C1CE86	A-233	-233	2-7/8	3-1/8	1/8	2.859	3.137	0.139	10	0.01	
•C1CE87	A-234	-234	3	3-1/4	1/8	2.984	3.262	0.139	10	0.01	
C1KL23	A-234-VITON	-234	3	3-1/4	1/8	2.984	3.262	0.139	10	0.01	
•C1CE88	A-235	-235	3-1/8	3-3/8	1/8	3.109	3.387	0.139	10	0.01	
•C1CE89	A-236	-236	3-1/4	3-1/2	1/8	3.234	3.512	0.139	10	0.01	



Inch Sizes O-Rings

70 Durometer Buna-N O-Rings

Catalog Part No.	Model Number	Dash Size	Nominal I.D.	Nominal O.D.	Nominal Width	Actual I.D.	Actual O.D.	Actual Width	Pkg. Qty.	Wt.	Price Each
•C1CE90	A-237	-237	3-3/8	3-5/8	1/8	3.359	3.637	0.139	10	0.01	
•C1CE91	A-238-ORING	-238	3-1/2	3-3/4	1/8	3.484	3.762	0.139	10	0.01	
•C1CE92	A-239-ORING	-239	3-5/8	3-7/8	1/8	3.609	3.887	0.139	10	0.01	
•C1CE93	A-240-ORING	-240	3-3/4	4	1/8	3.734	4.012	0.139	10	0.01	
•C1CE95	A-241-ORING	-241	3-7/8	4-1/8	1/8	3.859	4.137	0.139	10	0.01	
•C1CE96	A-242-ORING	-242	4	4-1/4	1/8	3.984	4.262	0.139	10	0.01	
•C1CE97	A-243	-243	4-1/8	4-3/8	1/8	4.109	4.387	0.139	10	0.01	
•C1CE98	A-244	-244	4-1/4	4-1/2	1/8	4.234	4.512	0.139	10	0.01	
•C1CE99	A-245	-245	4-3/8	4-5/8	1/8	4.359	4.637	0.139	4	0.01	
•C1CF11	A-246	-246	4-1/2	4-3/4	1/8	4.484	4.762	0.139	4	0.01	
•C1CF12	A-247	-247	4-5/8	4-7/8	1/8	4.609	4.887	0.139	4	0.01	
•C1CF13	A-248	-248	4-3/4	5	1/8	4.734	5.012	0.139	4	0.01	
•C1CF14	A-249	-249	4-7/8	5-1/8	1/8	4.859	5.137	0.139	4	0.01	
•C1CF15	A-250	-250	5	5-1/4	1/8	4.984	5.262	0.139	4	0.01	
•C1CF16	A-251	-251	5-1/8	5-3/8	1/8	5.109	5.387	0.139	4	0.01	
•C1CF17	A-252	-252	5-1/4	5-1/2	1/8	5.234	5.512	0.139	4	0.01	
•C1CF18	A-253	-253	5-3/8	5-5/8	1/8	5.359	5.637	0.139	4	0.01	
•C1CF19	A-254	-254	5-1/2	5-3/4	1/8	5.484	5.762	0.139	4	0.01	
•C1CF20	A-255	-255	5-5/8	5-7/8	1/8	5.609	5.887	0.139	4	0.01	
•C1CF21	A-256	-256	5-3/4	6	1/8	5.734	6.012	0.139	4	0.01	
•C1CF22	A-257	-257	5-7/8	6-1/8	1/8	5.859	6.137	0.139	2	0.01	
•C1CF23	A-258-ORING	-258	6	6-1/4	1/8	5.984	6.262	0.139	2	0.01	
•C1CF24	A-259	-259	6-1/4	6-1/2	1/8	6.234	6.512	0.139	2	0.01	
•C1CF25	A-260	-260	6-1/2	6-3/4	1/8	6.484	6.762	0.139	2	0.01	
•C1CF26	A-261	-261	6-3/4	7	1/8	6.734	7.012	0.139	2	0.01	
•C1CF27	A-262	-262	7	7-1/4	1/8	6.984	7.262	0.139	2	0.01	
•C1CF28	A-263	-263	7-1/4	7-1/2	1/8	7.234	7.512	0.139	2	0.01	
•C1CF29	A-264	-264	7-1/2	7-3/4	1/8	7.484	7.762	0.139	2	0.01	
•C1CF30	A-265	-265	7-3/4	8	1/8	7.734	8.012	0.139	2	0.01	
•C1CF31	A-266	-266	8	8-1/4	1/8	7.984	8.262	0.139	2	0.01	
•C1CF32	A-267	-267	8-1/4	8-1/2	1/8	8.234	8.512	0.139	2	0.01	
•C1CF33	A-268	-268	8-1/2	8-3/4	1/8	8.484	8.762	0.139	2	0.01	
•C1CF34	A-269	-269	8-3/4	9	1/8	8.734	9.012	0.139	2	0.01	
•C1CF39	A-274	-274	10	10-1/4	1/8	9.984	10.262	0.139	2	0.01	
•C1CF40	A-275	-275	10-1/2	10-3/4	1/8	10.484	10.762	0.139	2	0.01	
•C1CF41	A-276	-276	11	11-1/4	1/8	10.984	11.262	0.139	1	0.01	
•C1CF42	A-277	-277	11-1/2	11-3/4	1/8	11.484	11.762	0.139	1	0.01	
•C1CF43	A-278	-278	12	12-1/4	1/8	11.984	12.262	0.139	1	0.01	
•C1CF47	A-282	-282	16	16-1/4	1/8	15.955	16.233	0.139	1	0.01	
•C1CF52	A-311	-311	9/16	15/16	3/16	0.537	0.957	0.21	50	0.01	
•C1CF53	A-312	-312	5/8	1	3/16	0.600	1.020	0.21	50	0.01	
•C1CF54	A-313	-313	11/16	1-1/16	3/16	0.662	1.082	0.21	50	0.01	
•C1CF55	A-314	-314	3/4	1-1/8	3/16	0.725	1.145	0.21	50	0.01	
•C1CF56	A-315	-315	13/16	1-3/16	3/16	0.787	1.207	0.21	20	0.01	
•C1CF57	A-316	-316	7/8	1-1/4	3/16	0.850	1.270	0.21	50	0.01	
•C1CF59	A-318	-318	1	1-3/8	3/16	0.975	1.395	0.21	20	0.01	
•C1CF60	A-319	-319	1-1/16	1-7/16	3/16	1.037	1.457	0.21	50	0.01	
•C1CF61	A-320	-320	1-1/8	1-1/2	3/16	1.100	1.520	0.21	20	0.01	
•C1CF62	A-321	-321	1-3/16	1-9/16	3/16	1.162	1.582	0.21	20	0.01	

Inch Sizes O-Rings

70 Durometer Buna-N O-Rings

Catalog Part No.	Model Number	Dash Size	Nominal I.D.	Nominal O.D.	Nominal Width	Actual I.D.	Actual O.D.	Actual Width	Pkg. Qty.	Wt.	Price Each
•C1CF63	A-322	-322	1-1/4	1-5/8	3/16	1.225	1.645	0.21	20	0.01	
•C1CF64	A-323	-323	1-5/16	1-11/16	3/16	1.287	1.707	0.21	10	0.01	
•C1CF65	A-324	-324	1-3/8	1-3/4	3/16	1.350	1.770	0.21	20	0.01	
•C1CF66	A-325	-325	1-1/2	1-7/8	3/16	1.475	1.895	0.21	20	0.01	
•C1CF67	A-326	-326	1-5/8	2	3/16	1.600	2.020	0.21	20	0.01	
•C1CF68	A-327	-327	1-3/4	2-1/8	3/16	1.725	2.145	0.21	20	0.01	
•C1CF69	A-328	-328	1-7/8	2-1/4	3/16	1.850	2.270	0.21	20	0.01	
•C1CF70	A-329	-329	2	2-3/8	3/16	1.975	2.395	0.21	20	0.01	
•C1CF71	A-330	-330	2-1/8	2-1/2	3/16	2.100	2.520	0.21	20	0.01	
•C1CF73	A-331	-331	2-1/4	2-5/8	3/16	2.225	2.645	0.21	20	0.01	
•C1CF74	A-332	-332	2-3/8	2-3/4	3/16	2.350	2.770	0.21	20	0.01	
•C1CF75	A-333	-333	2-1/2	2-7/8	3/16	2.475	2.895	0.21	20	0.01	
•C1CF76	A-334	-334	2-5/8	3	3/16	2.600	3.020	0.21	20	0.01	
•C1CF77	A-335	-335	2-3/4	3-1/8	3/16	2.725	3.145	0.21	10	0.01	
•C1CF78	A-336	-336	2-7/8	3-1/4	3/16	2.850	3.270	0.21	10	0.01	
•C1CF79	A-337	-337	3	3-3/8	3/16	2.975	3.395	0.21	10	0.01	
•C1CF80	A-338	-338	3-1/8	3-1/2	3/16	3.100	3.520	0.21	10	0.01	
•C1CF81	A-339	-339	3-1/4	3-5/8	3/16	3.225	3.645	0.21	10	0.01	
•C1CF82	A-340	-340	3-3/8	3-3/4	3/16	3.350	3.770	0.21	10	0.01	
•C1CF83	A-341	-341	3-1/2	3-7/8	3/16	3.475	3.895	0.21	4	0.01	
•C1CF84	A-342	-342	3-5/8	4	3/16	3.600	4.020	0.21	4	0.01	
•C1CF85	A-343	-343	3-3/4	4-1/8	3/16	3.725	4.145	0.21	4	0.01	
•C1CF86	A-344	-344	3-7/8	4-1/4	3/16	3.850	4.270	0.21	4	0.01	
•C1CF87	A-345	-345	4	4-3/8	3/16	3.975	4.395	0.21	4	0.01	
•C1CF88	A-346	-346	4-1/8	4-1/2	3/16	4.100	4.520	0.21	4	0.01	
•C1CF89	A-347	-347	4-1/4	4-5/8	3/16	4.225	4.645	0.21	4	0.01	
•C1CF90	A-348	-348	4-3/8	4-3/4	3/16	4.350	4.770	0.21	4	0.01	
•C1CF91	A-349	-349	4-1/2	4-7/8	3/16	4.475	4.895	0.21	4	0.01	
•C1CF92	A-350	-350	4-5/8	5	3/16	4.600	5.020	0.21	4	0.01	
•C1CF93	A-351	-351	4-3/4	5-1/8	3/16	4.725	5.145	0.21	4	0.01	
•C1CF94	A-352	-352	4-7/8	5-1/4	3/16	4.850	5.270	0.21	4	0.01	
•C1CF95	A-353	-353	5	5-3/8	3/16	4.975	5.395	0.21	4	0.01	
•C1CF96	A-354	-354	5-1/8	5-1/2	3/16	5.100	5.520	0.21	4	0.01	
•C1CF97	A-355	-355	5-1/4	5-5/8	3/16	5.225	5.645	0.21	4	0.01	
•C1CF98	A-356	-356	5-3/8	5-3/4	3/16	5.350	5.770	0.21	4	0.01	
•C1CF99	A-357	-357	5-1/2	5-7/8	3/16	5.475	5.895	0.21	4	0.01	
•C1CG11	A-358	-358	5-5/8	6	3/16	5.600	6.020	0.21	4	0.01	
•C1CG12	A-359	-359	5-3/4	6-1/8	3/16	5.725	6.145	0.21	4	0.01	
•C1CG13	A-360	-360	5-7/8	6-1/4	3/16	5.850	6.270	0.21	4	0.01	
•C1CG15	A-362	-362	6-1/4	6-5/8	3/16	6.225	6.645	0.21	4	0.01	
•C1CG16	A-363	-363	6-1/2	6-7/8	3/16	6.475	6.895	0.21	4	0.01	
•C1CG17	A-364	-364	6-3/4	7-1/8	3/16	6.725	7.145	0.21	4	0.01	
•C1CG19	A-366	-366	7-1/4	7-5/8	3/16	7.225	7.645	0.21	2	0.01	
•C1CG20	A-367	-367	7-1/2	7-7/8	3/16	7.475	7.895	0.21	2	0.01	
•C1CG31	A-378	-378	10-1/2	10-7/8	3/16	10.475	10.895	0.21	1	0.01	
•C1CG49	A-425	-425	4-1/2	5	1/4	4.475	5.025	0.275	4	0.01	
•C1CG50	A-426	-426	4-5/8	5-1/8	1/4	4.600	5.150	0.275	4	0.01	
•C1CG51	A-427	-427	4-3/4	5-1/4	1/4	4.725	5.275	0.275	4	0.01	
•C1CG52	A-428	-428	4-7/8	5-3/8	1/4	4.850	5.400	0.275	4	0.01	

Inch Sizes O-Rings

70 Durometer Buna-N O-Rings

Catalog Part No.	Model Number	Dash Size	Nominal I.D.	Nominal O.D.	Nominal Width	Actual I.D.	Actual O.D.	Actual Width	Pkg. Qty.	Wt.	Price Each
•C1CG53	A-429	-429	5	5-1/2	1/4	4.975	5.525	0.275	4	0.01	
•C1CG56	A-432	-432	5-3/8	5-7/8	1/4	5.350	5.900	0.275	4	0.01	
•C1CG57	A-433	-433	5-1/2	6	1/4	5.475	6.025	0.275	4	0.01	
•C1CG58	A-434	-434	5-5/8	6-1/8	1/4	5.600	6.150	0.275	4	0.01	
•C1CG59	A-435	-435	5-3/4	6-1/4	1/4	5.725	6.275	0.275	4	0.01	
•C1CG60	A-436	-436	5-7/8	6-3/8	1/4	5.850	6.400	0.275	4	0.01	
•C1CG61	A-437	-437	6	6-1/2	1/4	5.975	6.525	0.275	2	0.01	
•C1CG62	A-438	-438	6-1/4	6-3/4	1/4	6.225	6.775	0.275	2	0.01	
•C1CG63	A-439	-439	6-1/2	7	1/4	6.475	7.025	0.275	2	0.01	
•C1CG64	A-440	-440	6-3/4	7-1/4	1/4	6.725	7.275	0.275	2	0.01	
•C1CG65	A-441	-441	7	7-1/2	1/4	6.975	7.525	0.275	2	0.01	
•C1CG67	A-443	-443	7-1/2	8	1/4	7.475	8.025	0.275	2	0.01	
•C1CG70	A-446	-446	8-1/2	9	1/4	8.475	9.025	0.275	2	0.01	
•C1CG72	A-448	-448	9-1/2	10	1/4	9.475	10.025	0.275	2	0.01	
•C1ET94	568-450	-450	10-1/2	11	1/4	10.475	11.025	0.275	1	0.01	

90 Durometer Buna-N O-Rings



Material: 90 Durometer Buna-N.

Temperature Range: -40°F . to 240°F.

90 Durometer Buna-N O-Rings

Catalog Part No.	Model Number	Dash Size	Nominal I.D.	Nominal O.D.	Nominal Width	Actual I.D.	Actual O.D.	Actual Width	Pkg. Qty.	Wt.	Price Each
•C1FA96	A-012-90D	-012	3/8	1/2	1/16	0.364	0.504	0.070	34	0.01	
•C1CD18	A-014-90D	-014	1/2	5/8	1/16	0.489	0.629	0.070	34	0.01	
•C1CE57	A-210-90D	-210	3/4	1	1/8	0.734	1.012	0.139	25	0.01	
•C1FF85	A-212-90D	-212	7/8	1-1/8	1/8	0.859	1.137	0.139	25	0.01	
•C1CE63	A-214-90D	-214	1	1-1/4	1/8	0.984	1.262	0.139	23	0.01	
•C1CE69	A-219-90D	-219	1-5/16	1-9/16	1/8	1.296	1.574	0.139	19	0.01	
•C1CE73	A-222-90D	-222	1-1/2	1-3/4	1/8	1.484	1.762	0.139	19	0.01	
•C1CE77	A-225-90D	-225	1-7/8	2-1/8	1/8	1.859	2.137	0.139	2	0.05	

Inch Sizes Back-Up Rings

Back-Up Rings



Features: Urethane Models: Molded of 90A durometer urethane, these back-up rings provide excellent extrusion resistance. Stretched for installation, they return quickly to their original size for easy installation. Teflon® Models: Available in Solid (T suffix), Split (ST suffix) and Spiral Cut (TS suffix).

Temperature Range: Urethane Models: -65°F to 220°F. Teflon® Models: -40°F to 500°F.

Note: Sizes correspond to O-Ring sizes. Price shown is for each individual back-up ring, not for package.

90A Durometer Urethane Back-Up Rings

Catalog Part No.	Model Number	Dash Size	Type	Pkg. Qty	Wt.	Price Each
•C1BT73	575-011	-011	Urethane	10	0.01	
•C1BT74	575-012	-012	Urethane	10	0.01	
•C1BT76	575-014	-014	Urethane	10	0.01	
•C1BT77	575-015	-015	Urethane	10	0.01	
•C1BT78	575-016	-016	Urethane	10	0.01	
•C1BT79	575-017	-017	Urethane	10	0.01	
•C1BT80	575-018	-018	Urethane	10	0.01	
•C1BT82	575-020	-020	Urethane	10	0.01	
•C1BT83	575-021	-021	Urethane	10	0.01	
•C1BT84	575-022	-022	Urethane	10	0.01	
•C1BT91	575-029	-029	Urethane	10	0.01	
•C1BT92	575-030	-030	Urethane	10	0.01	
•C1KK48	575-038	-038	Urethane	10	0.01	
•C1BT98	575-110	-110	Urethane	9	0.01	
•C1BT99	575-111	-111	Urethane	9	0.01	
•C1BU11	575-112	-112	Urethane	9	0.01	
•C1BU12	575-113	-113	Urethane	9	0.01	
•C1BU13	575-114	-114	Urethane	9	0.01	
•C1BU14	575-115	-115	Urethane	9	0.01	
•C1BU15	575-116	-116	Urethane	9	0.01	
•C1BU16	575-117	-117	Urethane	9	0.01	
•C1BU17	575-118	-118	Urethane	9	0.01	
•C1BU18	575-119	-119	Urethane	9	0.01	
•C1BU19	575-120	-120	Urethane	8	0.01	
•C1BU20	575-121	-121	Urethane	8	0.01	
•C1BU21	575-122	-122	Urethane	8	0.01	
•C1BU23	575-124	-124	Urethane	8	0.01	
•C1BU24	575-125	-125	Urethane	8	0.01	
•C1BU25	575-126	-126	Urethane	8	0.01	
•C1BU26	575-127	-127	Urethane	8	0.01	
•C1BU27	575-128	-128	Urethane	8	0.01	

90A Durometer Urethane Back-Up Rings

Catalog Part No.	Model Number	Dash Size	Type	Pkg. Qty	Wt.	Price Each
•C1BU28	575-129	-129	Urethane	8	0.01	
•C1BU31	575-132	-132	Urethane	8	0.01	
•C1BU32	575-133	-133	Urethane	8	0.01	
•C1BU34	575-135	-135	Urethane	8	0.01	
•C1BU35	575-136	-136	Urethane	8	0.01	
•C1BU36	575-137	-137	Urethane	8	0.01	
C1KK49	575-140	-140	Urethane	10	0.01	
•C1BU38	575-141	-141	Urethane	7	0.01	
•C1BU42	575-145	-145	Urethane	6	0.01	
•C1BU43	575-149	-149	Urethane	6	0.01	
•C1BU44	575-151	-151	Urethane	6	0.01	
•C1BU47	575-154	-154	Urethane	3	0.01	
•C1BU48	575-155	-155	Urethane	3	0.01	
•C1BU49	575-157	-157	Urethane	3	0.01	
•C1BU54	575-208	-208	Urethane	10	0.01	
•C1BU55	575-209	-209	Urethane	9	0.01	
•C1BU56	575-210	-210	Urethane	9	0.01	
•C1BU57	575-211	-211	Urethane	9	0.01	
•C1BU58	575-212	-212	Urethane	9	0.01	
•C1BU59	575-213	-213	Urethane	9	0.01	
•C1BU60	575-214	-214	Urethane	9	0.01	
•C1BU61	575-215	-215	Urethane	9	0.01	
•C1BU62	575-216	-216	Urethane	9	0.01	
•C1BU63	575-217	-217	Urethane	9	0.01	
•C1BU64	575-218	-218	Urethane	9	0.01	
•C1BU65	575-219	-219	Urethane	9	0.01	
•C1BU66	575-220	-220	Urethane	10	0.01	
•C1BU67	575-221	-221	Urethane	10	0.01	
•C1BU68	575-222	-222	Urethane	10	0.01	
•C1BU69	575-223	-223	Urethane	8	0.01	
•C1BU70	575-224	-224	Urethane	8	0.01	



Inch Sizes Back-Up Rings

90A Durometer Urethane Back-Up Rings

Catalog Part No.	Model Number	Dash Size	Type	Pkg. Qty	Wt.	Price Each
•C1BU71	575-225	-225	Urethane	10	0.01	
•C1BU72	575-226	-226	Urethane	10	0.01	
•C1BU73	575-227	-227	Urethane	10	0.01	
•C1BU74	575-228	-228	Urethane	10	0.01	
•C1BU75	575-229	-229	Urethane	10	0.01	
•C1BU76	575-230	-230	Urethane	7	0.01	
•C1BU77	575-231	-231	Urethane	7	0.01	
•C1BU78	575-232	-232	Urethane	7	0.01	
•C1BU79	575-233	-233	Urethane	7	0.01	
•C1BU81	575-234	-234	Urethane	6	0.01	
•C1BU82	575-235	-235	Urethane	6	0.01	
•C1BU83	575-236	-236	Urethane	6	0.01	
•C1BU84	575-237	-237	Urethane	5	0.01	
•C1BU85	575-238	-238	Urethane	5	0.01	
•C1BU86	575-239	-239	Urethane	5	0.01	
•C1BU87	575-240	-240	Urethane	5	0.01	
•C1BU88	575-241	-241	Urethane	5	0.01	
•C1BU89	575-242	-242	Urethane	5	0.01	
•C1BU90	575-243	-243	Urethane	5	0.01	
•C1BU91	575-244	-244	Urethane	4	0.01	
•C1BU92	575-245	-245	Urethane	4	0.01	
•C1BU93	575-246	-246	Urethane	3	0.01	
•C1BU94	575-247	-247	Urethane	3	0.01	
•C1BU95	575-248	-248	Urethane	3	0.01	
•C1BU96	575-249	-249	Urethane	3	0.01	
•C1BU99	575-252	-252	Urethane	3	0.01	
•C1BV11	575-253	-253	Urethane	3	0.01	
•C1BV12	575-254	-254	Urethane	3	0.01	
•C1BV13	575-255	-255	Urethane	2	0.01	
•C1BV14	575-256	-256	Urethane	2	0.01	
•C1BV16	575-258	-258	Urethane	2	0.01	
•C1BV17	575-259	-259	Urethane	2	0.01	
•C1BV18	575-260	-260	Urethane	2	0.01	
•C1BV19	575-261	-261	Urethane	2	0.01	
•C1BV20	575-262	-262	Urethane	2	0.01	
•C1BV25	575-314	-314	Urethane	8	0.01	
•C1BV27	575-316	-316	Urethane	8	0.01	
•C1BV32	575-321	-321	Urethane	8	0.01	
•C1BV33	575-324	-324	Urethane	8	0.01	
•C1BV34	575-325	-325	Urethane	8	0.01	
•C1BV35	575-326	-326	Urethane	8	0.01	
•C1BV36	575-327	-327	Urethane	8	0.01	
•C1BV37	575-328	-328	Urethane	8	0.01	
•C1BV38	575-329	-329	Urethane	8	0.01	
•C1BV39	575-330	-330	Urethane	8	0.01	
•C1BV40	575-331	-331	Urethane	8	0.01	
•C1BV41	575-332	-332	Urethane	8	0.01	
•C1BV42	575-333	-333	Urethane	8	0.01	
•C1BV43	575-334	-334	Urethane	7	0.01	

90A Durometer Urethane Back-Up Rings

Catalog Part No.	Model Number	Dash Size	Type	Pkg. Qty	Wt.	Price Each
•C1BV44	575-335	-335	Urethane	7	0.01	
•C1BV45	575-336	-336	Urethane	7	0.01	
•C1BV46	575-337	-337	Urethane	7	0.01	
•C1BV47	575-338	-338	Urethane	7	0.01	
•C1BV48	575-339	-339	Urethane	6	0.01	
•C1BV49	575-340	-340	Urethane	6	0.01	
•C1BV50	575-341	-341	Urethane	6	0.01	
•C1BV51	575-342	-342	Urethane	5	0.01	
•C1BV53	575-344	-344	Urethane	4	0.01	
•C1BV54	575-345	-345	Urethane	4	0.01	
•C1BV55	575-346	-346	Urethane	4	0.01	
•C1BV56	575-347	-347	Urethane	4	0.01	
•C1BV57	575-348	-348	Urethane	4	0.01	
•C1BV58	575-349	-349	Urethane	3	0.01	
•C1BV59	575-350	-350	Urethane	3	0.01	
•C1BV64	575-358	-358	Urethane	2	0.01	
•C1BV67	575-425	-425	Urethane	3	0.01	
•C1BV68	575-427	-427	Urethane	3	0.01	
•C1BV69	575-429	-429	Urethane	3	0.01	
•C1BV71	575-432	-432	Urethane	2	0.01	
•C1BV72	575-433	-433	Urethane	2	0.01	
•C1BV73	575-434	-434	Urethane	2	0.01	
•C1BV74	575-436	-436	Urethane	2	0.01	
•C1BV77	575-439	-439	Urethane	2	0.01	

Hydraulic Power & Control

Pneumatic Power & Control

Fluid Conveying

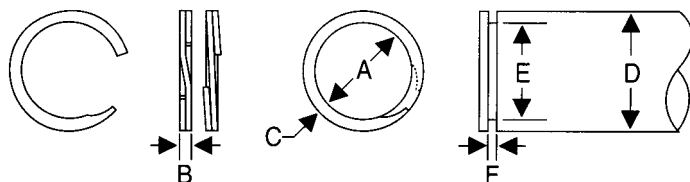
Miscellaneous Products

Indexes & Technical Information

Seals

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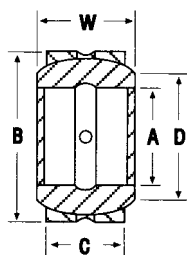
Spiral External Retainer Rings



Spiral External Retainer Rings

Catalog Part No.	Model Number	Free I.D. A (in)	Thickness B (in)	Radial Wall C (in)	Shaft Dia. D (in)	Groove Dia. E (in)	Groove Width F (in)	Wt.	Price Each
•C1DT58	WST-500	4.755	0.111	0.250	5.000	4.790	0.120	0.25	

Seal Aligning Bearings

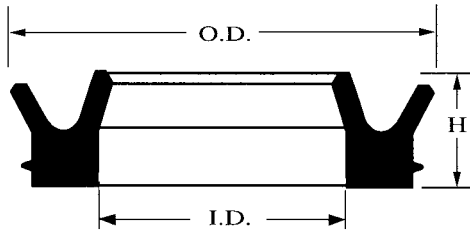


Seal Aligning Bearings

Catalog Part No.	Model Number	A (in)	B (in)	W (in)	C (in)	D (in)	Wt.	Price Each
•C1GG21	HH200ES	2	3.187	1.750	1.500	2.266	2.02	

Metric Sizes

Metric Urethane Rod U-Seals



Material: Urethane.

Temperature Range: -65°F to 220°F.

Pressure Range: 0 to 5000 PSI.

Metric Urethane Rod U-Seals

Catalog Part No.	Model Number	I.D. (mm)	O.D. (mm)	H (mm)	Wt.	Price Each
C12T15	MRTU-32X40X6	32.0	40.0	6.0	0.01	

Assortment Kits & Tools



O-Ring Kit (Buna-N)

Catalog Part No.	Model Number	Description	Wt.	Price Each
•C1BT64	568-KIT	Kit contains 436 Buna-N 70 Durometer O-Rings in 36 different sizes.	0.90	

Kit Contains: 005-011 (25), 012 (15), 013-018 (10), 110 (15), 111-116 (10), 117-121 (7), 210-211 (10), 212-219 (7)



O-Ring Kit (Viton®)

Catalog Part No.	Model Number	Description	Wt.	Price Each
•C1ZT80	568-FC-KIT	Kit contains 436 Viton® (Fluorocarbon) 75 Durometer O-Rings in 36 different sizes.	1.03	

Kit Contains: 005-011 (25), 012 (15), 013-018 (10), 110 (15), 111-116 (10), 117-121 (7), 210-211 (10), 212-219 (7)



Straight Thread O-Ring Kit

Catalog Part No.	Model Number	Description	Wt.	Price Each
•C1CA71	900-BOSS-KIT	Kit contains 250 Buna-N 90 Durometer O-Rings in 12 different sizes.	0.61	

Kit Contains: 904 (35), 905-906 (30), 907-910 (20), 911-914 (15), 916 (15)



Quad Ring Kit

Catalog Part No.	Model Number	Description	Wt.	Price Each
•C1DJ32	QUAD-KIT	Kit contains 226 Buna-N Quad Seals in 36 different sizes.	0.68	

Kit Contains: 4005-4012 (10), 4013-4016 (6), 4017-4018 (5), 4110-4116 (6), 4117-4121 (4), 4210-4219 (5)

Assortment Kits & Tools



O-Ring Face Seal Kit

Catalog Part No.	Model Number	Description	Wt.	Price Each
•C1BT62	568-FACE-KIT	Kit contains 155 Buna-N 90 Durometer O-Rings in 8 different sizes.	0.75	
Kit Contains: 011 (25), 012 (25), 014 (25), 016 (25), 018 (20), 021 (15), 025 (10), 029 (10)				



Flange O-Ring Kit

Catalog Part No.	Model Number	Description	Wt.	Price Each
•C1BT63	568-FLANGE-KIT	Kit contains 70 Buna-N 90 Durometer O-Rings in 7 different sizes.	0.75	
Kit Contains: 210 (10), 214 (10), 219 (10), 222 (10), 225 (10), 228 (10), 232 (10)				



Caterpillar D-Ring Kit

Catalog Part No.	Model Number	Description	Wt.	Price Each
•C1EW63	CTC-4C4784	Kit contains the 9 most popular sized D-Rings used on Caterpillar equipment.	1.87	



Metric O-Ring Kit
Common Japanese Sizes

Catalog Part No.	Model Number	Description	Wt.	Price Each
•C1DE79	METRIC-O-KIT-J	Kit contains 380 Buna-N 70 Durometer Metric O-Rings in 36 of the most popular Japanese metric sizes.	0.90	
Kit Contains Following, I.D. mm x Cross Section mm (Qty): 2.8 x 1.9 (25), 3.8 x 1.9 (20), 4.8 x 1.9 (20), 5.8 x 1.9 (20), 6.8 x 1.9 (15), 7.8 x 1.9 (15), 8.8 x 1.9 (15), 9.8 x 1.9 (15), 9.8 x 2.4 (15), 10.8 x 2.4 (15), 11.0 x 2.4 (15), 11.8 x 2.4 (12), 12.8 x 2.4 (12), 13.8 x 2.4 (12), 14.8 x 2.4 (12), 15.8 x 2.4 (12), 17.8 x 2.4 (8), 19.8 x 2.4 (8), 20.8 x 2.4 (8), 21.8 x 2.4 (8), 24.4 x 3.1 (6), 29.4 x 3.1 (7), 21.7 x 3.5 (5), 22.1 x 3.5 (5), 23.7 x 3.5 (7), 24.7 x 3.5 (7), 25.2 x 3.5 (7), 25.7 x 3.5 (7), 27.7 x 3.5 (7), 28.7 x 3.5 (6), 29.2 x 3.5 (6), 29.7 x 3.5 (6), 30.7 x 3.5 (6), 31.2 x 3.5 (6), 14.5 x 4.0 (4), 23.5 x 4.0 (6)				

Assortment Kits & Tools



Metric O-Ring Kit
Common European Sizes

Catalog Part No.	Model Number	Description	Wt.	Price Each
•C1DE78	METRIC-O-KIT-E	Kit contains 500 Buna-N 70 Durometer Metric O-Rings in 36 of the most popular European metric sizes.	0.67	

Kit Contains Following, I.D. mm x Cross Section mm (Qty): 5.0 x 1.5 (20), 13.0 x 1.5 (15), 16.0 x 1.5 (10), 2.2 x 1.6 (20), 3.1 x 1.6 (20), 4.1 x 1.6 (20), 7.1 x 1.6 (20), 9.1 x 1.6 (15), 10.1 x 1.6 (15), 13.1 x 1.6 (15), 4.0 x 2.0 (20), 8.0 x 2.0 (15), 9.0 x 2.0 (15), 10.0 x 2.0 (15), 12.0 x 2.0 (15), 14.0 x 2.0 (10), 16.0 x 2.0 (10), 19.0 x 2.0 (10), 20.0 x 2.0 (10), 4.3 x 2.4 (15), 5.3 x 2.4 (15), 5.6 x 2.4 (15), 6.0 x 2.4 (20), 7.6 x 2.4 (15), 8.3 x 2.4 (15), 8.6 x 2.4 (15), 10.0 x 2.5 (10), 13.0 x 2.5 (10), 14.0 x 2.5 (10), 15.0 x 2.5 (10), 17.0 x 2.5 (10), 18.0 x 2.5 (10), 19.0 x 2.5 (10), 10.0 x 3.0 (10), 11.0 x 3.0 (10), 9.0 x 3.0 (10)



O-Ring Splice Kit
Inch Sizes

Catalog Part No.	Model Number	Description	Wt.	Price Each
•C1BT65	568-SPLICE-KIT	Kit contains stock of Buna-N 70 Durometer O-Ring Cord, Razor Blade, Splicing Tool and Tube of Adhesive.	1.04	



O-Ring Splice Kit
Metric & Inch Sizes

Catalog Part No.	Model Number	Description	Wt.	Price Each
•C1DE77	MET/INCH-SPLICE-	Kit can produce O-Rings of any standard inch size cross section plus a wide variety of metric sizes. Kit contains 14 lengths of Buna-N 70 Durometer O-Ring Cord, Razor Blade, Cutting & Splicing Tool and Tube of Adhesive.	1.16	

Kit Contains: Inch Cross Sections: 1/16, 3/32, 1/8, 3/16, 1/4. Metric Cross Sections (mm): 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 5.0, 5.7, 8.4



Urethane Back-Up Ring Kit

Catalog Part No.	Model Number	Description	Wt.	Price Each
•C1BV86	575-KIT	Kit contains 475 Urethane Back-Up Rings in 24 of the most popular sizes.	1.83	

Kit Contains: 111-116 (25), 210-216 (25), 217-224 (15), 325-327 (10)

Assortment Kits & Tools



Teflon® Back-Up Ring Kit

Catalog Part No.	Model Number	Description	Wt.	Price Each
•C1ET95	575-PTFE-KIT-S	Kit contains 325 Urethane Back-Up Rings in 36 of the most popular sizes. Rings are scarf cut to facilitate installation.	0.66	

Kit Contains: 005-012 (15), 013-018 (10), 110-116 (10), 117-121 (5), 210-219 (5)

Hydraulic Power & Control

Pneumatic Power & Control

Fluid Conveying

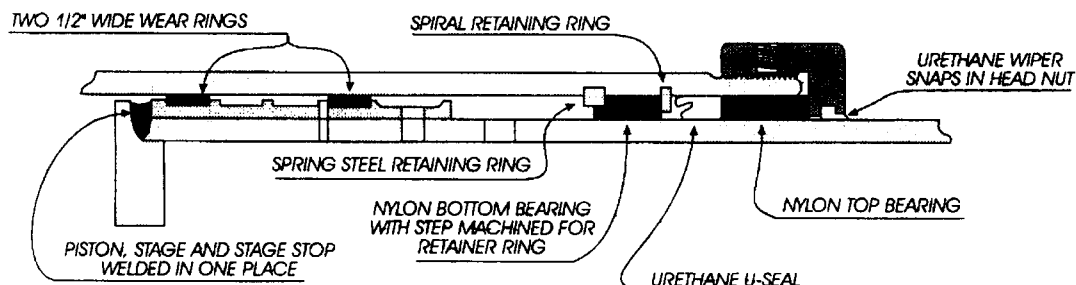
Miscellaneous Products

Indexes & Technical Information

Seals

Cylinder Kits & Parts

Hyco 70,000 Series Single Acting Telescopic Cylinder Parts



Packing: Normally uses urethane u-seals, but may be retrofitted with vee packing. All sizes are 1/4 inch cross section.

Wipers: Urethane snap-in type.

Bearings: Nylon bearings. Outer bearing is flat on the top & bottom. Inner bearing is trapped between two retainers. The bottom side of the inner bearing is step-cut on the OD to pilot over snap ring. Cross section is 0.245 inches.

Piston: Welded to stage. Uses 2 replaceable wear rings per stage.

Stage OD's: 3, 4, 5, 6, 7, 8-1/8, 9-3/8.

Special Info: Spring steel type snap ring serves as internal stop. Uses a spiral retainer to trap lower bearing.

Identification: Cylinder model number & serial number stamped on cylinder body near base.

Note: 70,000 Series single action cylinders are manufactured using urethane u-seals but may be retrofitted with a vee packing set if desired. Three types of packing kits are offered. Type 1 kits are identical to the original Hyco packing sets and utilize Parker u-seals. Type 2 kits are also identical to the original Hyco packing sets but contain a lower cost Hallite manufactured u-seal. Type 3 kits contain a vee packing set retrofit for the original u-seal packing. The vee packing can be more effective in sealing an older cylinder with abrasive scoring or other surface blemishes.

Important: When ordering Hyco telescopic parts, please provide the model number & serial number.

Hyco 70,000 Series Single Acting Telescopic Cylinder Parts

Catalog Part No.	Model Number	Description	Wt.	Price Each
•C1CY90	HY-A2688	Manual Bleeder Valve	0.02	

Control Cables



Felsted High Performance Control Cables



Felsted cables, controls and control systems are used to control such items as PTO's, manual and automatic transmissions, hydraulic valves, clutches, throttles or accelerators, engine shut-offs, and brakes. Our locations equipped to manufacture cables from stock components are Miami Springs, West Palm Beach, Fort Lauderdale, Belle Glade and Atlanta.

Core Construction: Hi-Performance (HP) 1 x 7 coated core is available in 3, 4 and 6 series cables. HP Core utilizes a proprietary coating over 1 x 7 wire rope which offers improved flexibility and higher push loads than armor core construction. Solid stainless steel cores are available in 3 Series Push-Pull, Universal and PTO cables.

Liners: All cables utilize polymer liners which have a temperature rating of -65°F to 225°F. Factory lubrication provides optimum core performance without requiring further service.

Stranded Conduit: Multiple, oil tempered spring wires are placed in a long lay pattern to protect the liner and inner core, maintain flexibility and withstand extreme compressive and tensile loads. This long lay construction results in minimal deflections during cable operation, assuring precise controlling action to the operator.

Conduit Jacket: Heavy duty, thick-walled polymer jackets are extruded onto the stranded liner for maximum cable strength. Standard material is HDPE molded to a dark maroon color.

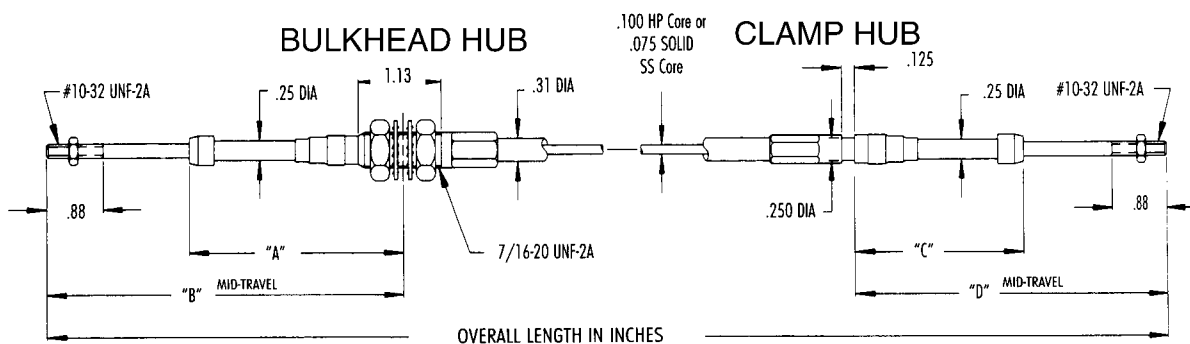
End Fittings: Corrosion resistant materials are used throughout to provide maximum life. Standard 3, 4 and 6 series rods and sleeves are 300 series stainless steel, while hubs are either aluminum or stainless.

Seals & Boots: Durable custom compounded seals are used to prevent moisture and contaminants from entering the cable.

Rod & Sleeve Bearing: An exclusive polymer rod and sleeve bearing is used to improve efficiency, sealing and cable life by preventing metal to metal contact between the rod and sleeve. They also accurately align the rod with the seal to insure superior sealing and a long cable life.

Push-Pull Cables - 3 Series

Push Loads To 80 lbs • Pull Loads To 120 lbs



Cores: Choice of either solid stainless core or HP core. (HP core offers improved flexibility and higher push loads).

Hubs: Each cable assembly has (2) Hubs, which can be the same on each end, or different. Hub styles stocked are Bulkhead (aluminum or stainless), Clamp (stainless) and Bulkhead/Clamp Combo (aluminum). The Bulkhead/Clamp Combo Hub is a flexible solution for applications where exact hub type needed is unknown.

Minimum Bend Radius: 3 Inches (HP Core), 6 Inches (Solid Core).

Hardware: page 1374

Miscellaneous Products

Control Cables



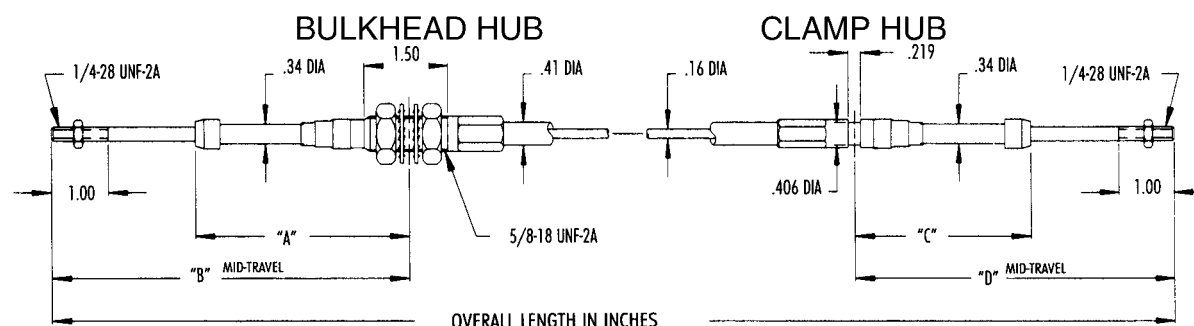
Push-Pull Cables - 3 Series • Push Loads To 80 lbs • Pull Loads To 120 lbs

Catalog Part No.	Felsted Model	Travel (in)	O.A. Length (in)	Core	Hubs	Push Rating (lbs)	Pull Rating (lbs)	A (in)	B (in)	C (in)	D (in)	Wt.	Price Each
N/A	MTO-1INCH	1	MTO	MTO	MTO	80(HP) 60(Solid)	120(HP) 60(Solid)	3.00	4.44	2.31	3.75		
N/A	MTO-2INCH	2	MTO	MTO	MTO	80(HP) 50(Solid)	120(HP) 60(Solid)	4.00	5.94	3.31	5.25		
N/A	MTO-3INCH	3	MTO	MTO	MTO	70(HP) 40(Solid)	120(HP) 60(Solid)	5.00	7.44	4.31	6.75		
N/A	MTO-4INCH	4	MTO	MTO	MTO	60(HP) 30(Solid)	120(HP) 60(Solid)	6.00	8.94	5.31	8.25		

MTO Models: Made-To-Order in specified Travel, O.A. Length, Core material and Hub configuration.

Push-Pull Cables - 4 Series

Push Loads To 150 lbs • Pull Loads To 230 lbs



Core: HP Core.

Hubs: Each cable assembly has (2) Hubs, which can be the same on each end, or different. Hub styles stocked are Bulkhead (aluminum or stainless), Clamp (aluminum or stainless) and Bulkhead/Clamp Combo (aluminum).

The Bulkhead/Clamp Combo Hub is a flexible solution for applications where exact hub type needed is unknown.

Minimum Bend Radius: 5 Inches.

Hardware: page 1374

Push-Pull Cables - 4 Series • Push Loads To 150 lbs • Pull Loads To 230 lbs

Catalog Part No.	Felsted Model	Travel (in)	O.A. Length (in)	Hubs	Push Rating (lbs)	Pull Rating (lbs)	A (in)	B (in)	C (in)	D (in)	Wt.	Price Each
N/A	MTO-1INCH	1	MTO	MTO	150	230	3.13	4.69	2.50	4.06		
N/A	MTO-2INCH	2	MTO	MTO	150	230	4.13	6.19	3.50	5.56		
N/A	MTO-3INCH	3	MTO	MTO	125	230	5.13	7.69	4.50	7.06		
N/A	MTO-4INCH	4	MTO	MTO	100	230	6.13	9.19	5.50	8.56		
N/A	MTO-5INCH	5	MTO	MTO	75	230	7.13	10.69	6.50	10.06		
C1JF25	100-4323-0213-1	3	213	Bulkhead / Clamp	115	230	5.13	7.69	4.50	7.06	2.50	

MTO Models: Made-To-Order in specified Travel, O.A. Length and Hub configuration.



Push Loads To 250 lbs • Pull Loads To 400 lbs

MTO Models: Made-To-Order in specified Travel, O.A. Length and Hub configuration.

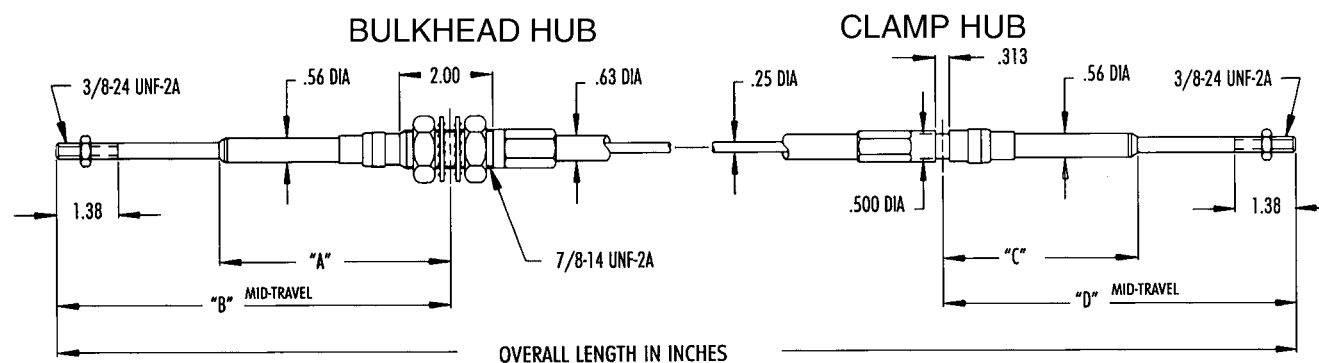
Miscellaneous Products

Control Cables



Push-Pull Cables - 8 Series

Push Loads To 700 lbs • Pull Loads To 1000 lbs



Core: Armor Core.

Hubs: Each cable assembly has (2) Hubs, which can be the same on each end, or different. Hub styles stocked are Bulkhead (aluminum) and Clamp (aluminum).

Minimum Bend Radius: 10 Inches.

Hardware: page 1374

Push-Pull Cables - 8 Series • Push Loads To 700 lbs • Pull Loads To 1000 lbs

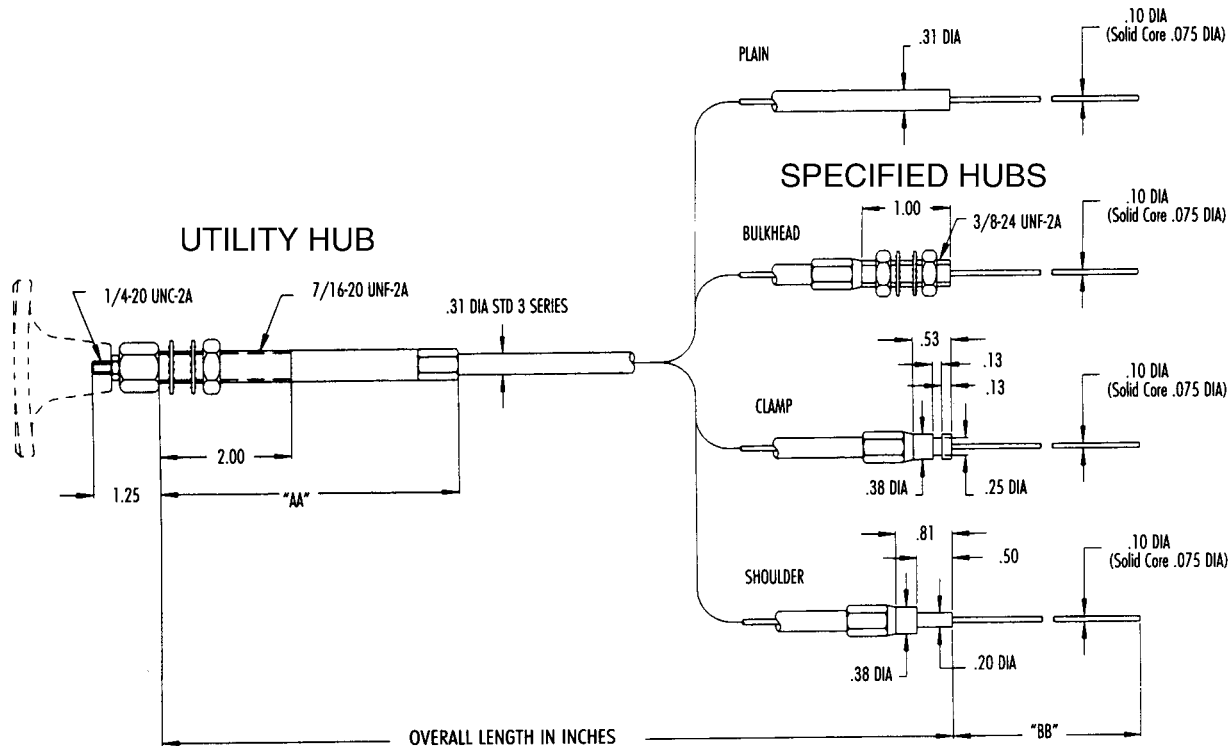
Catalog Part No.	Felsted Model	Travel (in)	O.A. Length (in)	Hubs	Push Rating (lbs)	Pull Rating (lbs)	A (in)	B (in)	C (in)	D (in)	Wt.	Price Each
N/A	MTO-1INCH	1	MTO	MTO	700	1000	3.69	5.56	3.19	5.06		
N/A	MTO-2INCH	2	MTO	MTO	700	1000	4.69	7.06	4.19	6.56		
N/A	MTO-3INCH	3	MTO	MTO	600	1000	5.69	8.56	5.19	8.06		
N/A	MTO-4INCH	4	MTO	MTO	500	1000	6.69	10.06	6.19	9.56		

MTO Models: Made-To-Order in specified Travel, O.A. Length and Hub configuration.

Control Cables



Universal Cables - 3 Series Light Duty



Core: Choice of either solid stainless core or HP core. (Stainless core offers increased durability, since the core is exposed. HP core offers improved flexibility).

Hubs: Each cable assembly has a Utility Hub (aluminum) on one end, and has a Specified Hub or Plain other end. Specified Hub styles stocked are Bulkhead (aluminum or stainless), Clamp (stainless) and Bulkhead/Clamp Combo (aluminum). The Bulkhead/Clamp Combo Hub is a flexible solution for applications where exact hub type needed is unknown.

Minimum Bend Radius: 3 Inches (HP Core), 6 Inches (Solid Core).

Hardware & Knobs: page 1374

Universal Cables - 3 Series Light Duty

Catalog Part No.	Felsted Model	Travel (in)	O.A. Length (in)	Core	Hub	AA (in)	BB (in)	Wt.	Price Each
N/A	MTO-3INCH	3	MTO	MTO	MTO	4.50	5.00		

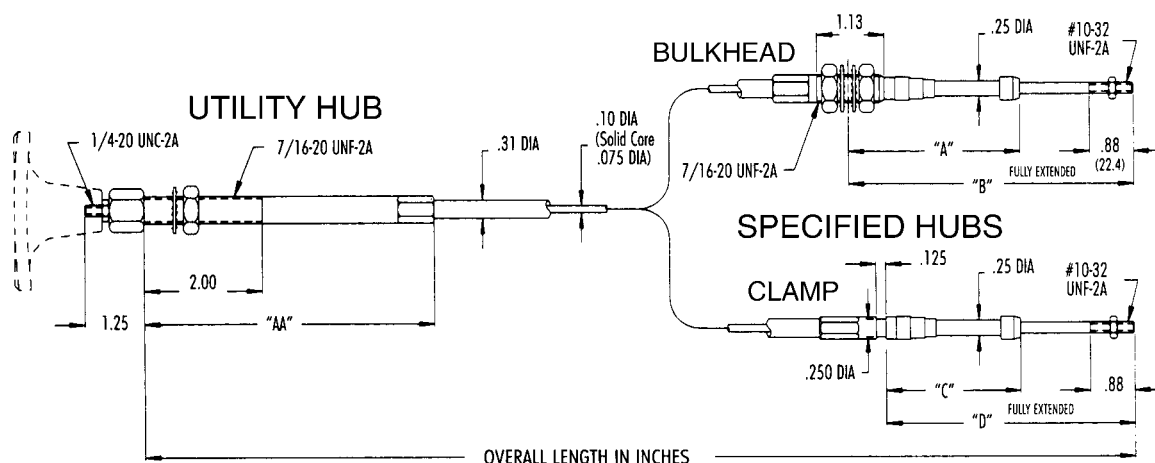
MTO Models: Made-To-Order in specified Travel, O.A. Length, Core material and Plain End or Hub choice.

Miscellaneous Products

Control Cables



Universal Cables - 3 Series Heavy Duty Push Loads To 60 lbs • Pull Loads To 60 lbs



Core: Choice of either solid stainless core or HP core. (HP core offers improved flexibility and higher push loads).

Hubs: Each cable assembly has a Utility Hub (aluminum) on one end, and has a Specified Hub other end.

Specified Hub styles stocked are Bulkhead (aluminum or stainless), Clamp (stainless) and Bulkhead/Clamp Combo (aluminum). The Bulkhead/Clamp Combo Hub is a flexible solution for applications where exact hub type needed is unknown.

Minimum Bend Radius: 3 Inches (HP Core), 6 Inches (Solid Core).

Hardware & Knobs: page 1374

Universal Cables - 3 Series Heavy Duty • Push Loads To 60 lbs • Pull Loads To 60 lbs

Catalog Part No.	Felsted Model	Travel (in)	O.A. Length (in)	Core	Hub	Push Rating (lbs)	Pull Rating (lbs)	AA (in)	A (in)	B (in)	C (in)	D (in)	Wt.	Price Each
N/A	MTO-3INCH	3	MTO	MTO	MTO	50(HP) 40(Solid)	60(HP) 60(Solid)	4.50	5.00	8.94	4.31	8.25		

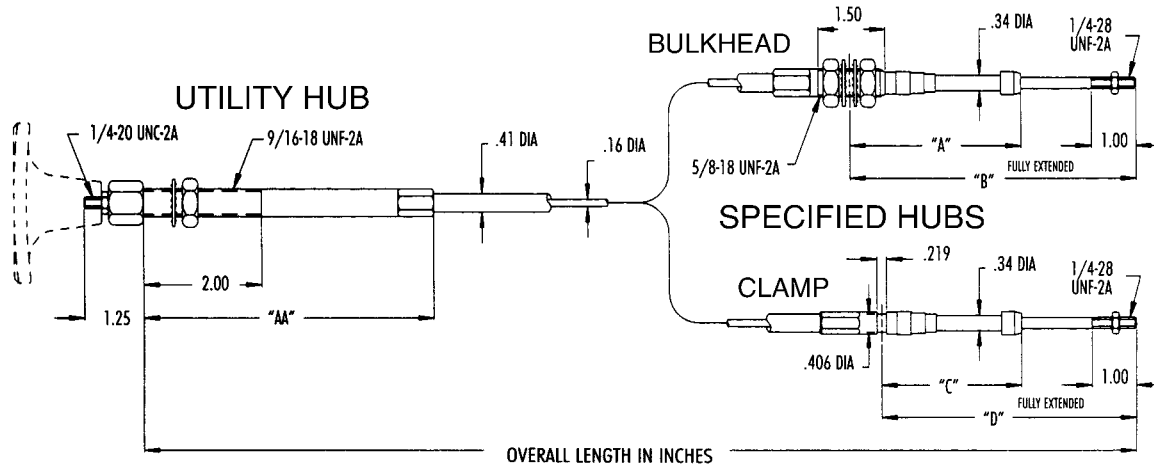
MTO Models: Made-To-Order in specified Travel, O.A. Length, Core material and Hub choice.

Control Cables



Universal Cables - 4 Series

Push Loads To 120 lbs • Pull Loads To 120 lbs



Core: HP Core.

Hubs: Each cable assembly has a Utility Hub (aluminum) on one end, and has a Specified Hub other end.

Specified Hub styles stocked are Bulkhead (aluminum or stainless), Clamp (aluminum or stainless) and Bulkhead/Clamp Combo (aluminum). The Bulkhead/Clamp Combo Hub is a flexible solution for applications where exact hub type needed is unknown.

Minimum Bend Radius: 5 Inches.

Hardware & Knobs: page 1374

Universal Cables - 4 Series • Push Loads To 120 lbs • Pull Loads To 120 lbs

Catalog Part No.	Felsted Model	Travel (in)	O.A. Length (in)	Core	Hub	Push Rating (lbs)	Pull Rating (lbs)	AA (in)	A (in)	B (in)	C (in)	D (in)	Wt.	Price Each
N/A	MTO-3INCH	3	MTO	HP	MTO	100	120	5.19	5.13	9.19	4.50	8.56		

MTO Models: Made-To-Order in specified Travel, O.A. Length and Hub choice.

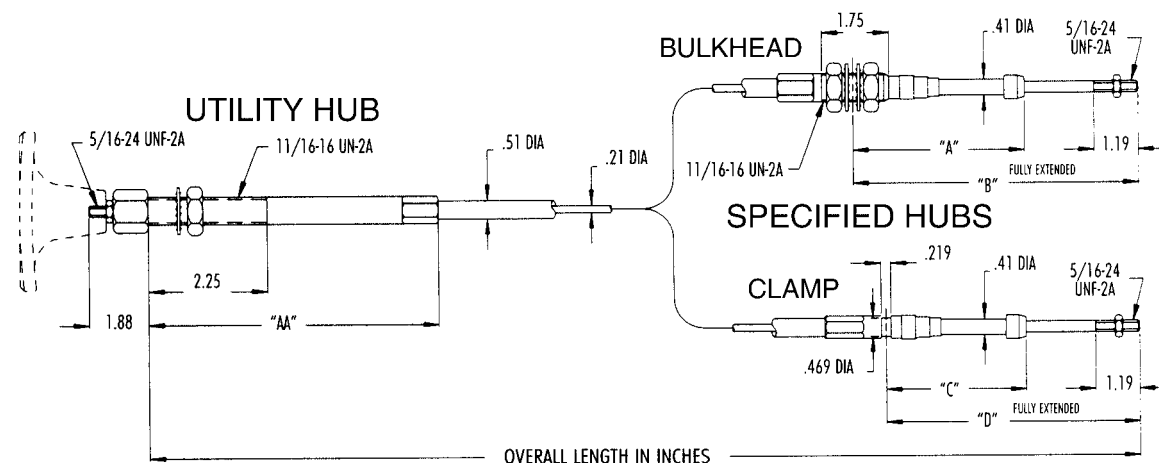
Miscellaneous Products

Control Cables



Universal Cables - 6 Series

Push Loads To 225 lbs • Pull Loads To 225 lbs



Core: HP Core.

Hubs: Each cable assembly has a Utility Hub (aluminum) on one end, and has a Specified Hub other end. Specified Hub styles stocked are Bulkhead (aluminum), Clamp (aluminum) and Bulkhead/Clamp Combo (aluminum). The Bulkhead/Clamp Combo Hub is a flexible solution for applications where exact hub type needed is unknown.

Minimum Bend Radius: 7 Inches.

Hardware & Knobs: page 1374

Universal Cables - 6 Series • Push Loads To 225 lbs • Pull Loads To 225 lbs

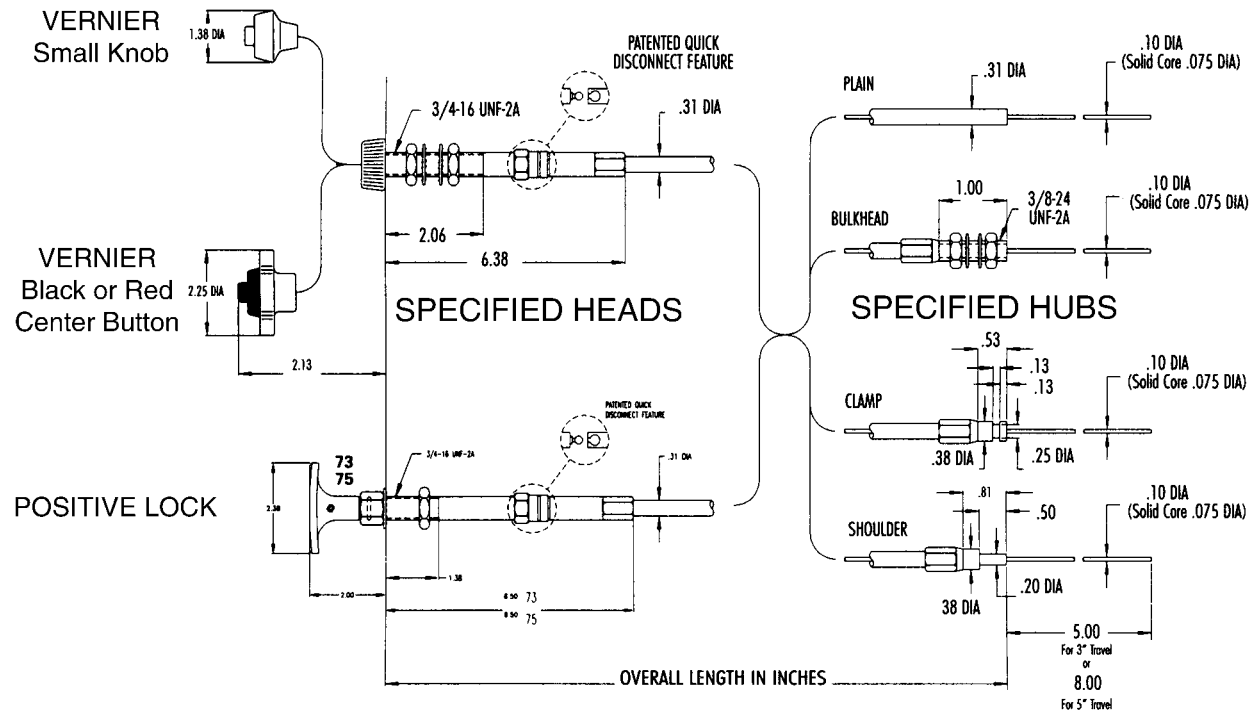
Catalog Part No.	Felsted Model	Travel (in)	O.A. Length (in)	Core	Hub	Push Rating (lbs)	Pull Rating (lbs)	AA (in)	A (in)	B (in)	C (in)	D (in)	Wt.	Price Each
N/A	MTO-3INCH	3	MTO	HP	MTO	200	225	5.19	5.25	9.50	4.56	8.81		

MTO Models: Made-To-Order in specified Travel, O.A. Length and Hub choice.

Control Cables



Quick Disconnect Cables - 3 Series Light Duty Push Loads To 20 lbs • Pull Loads To 20 lbs



Cores: Choice of either solid stainless core or HP core. (Stainless core offers increased durability, since the core is exposed. HP core offers improved flexibility).

Head: Each cable assembly has either a Vernier (aluminum) or Positive Lock Head (aluminum). Vernier Head is ideal for any application requiring coarse or fine adjustment. Positive Lock Head features a T handle that locks the setting when rotated 90°.

Hub: Each cable assembly has either a Specified Hub or a Plain end. Hub styles stocked are Bulkhead (aluminum or stainless), Clamp (stainless) and Bulkhead/Clamp Combo (aluminum). The Bulkhead/Clamp Combo Hub is a flexible solution for applications where exact hub type needed is unknown.

Minimum Bend Radius: 3 Inches (HP Core), 6 Inches (Solid Core).

Hardware: page 1374

Quick Disconnect Cables - 3 Series Light Duty • Push Loads To 20 lbs • Pull Loads To 20 lbs

Catalog Part No.	Felsted Model	Travel (in)	O.A. Length (in)	Head	Core	Hub	Push Rating (lbs)	Pull Rating (lbs)	Wt.	Price Each
N/A	MTO-3INCH	3	MTO	MTO	MTO	MTO	20(HP) 20(Solid)	20(HP) 20(Solid)		

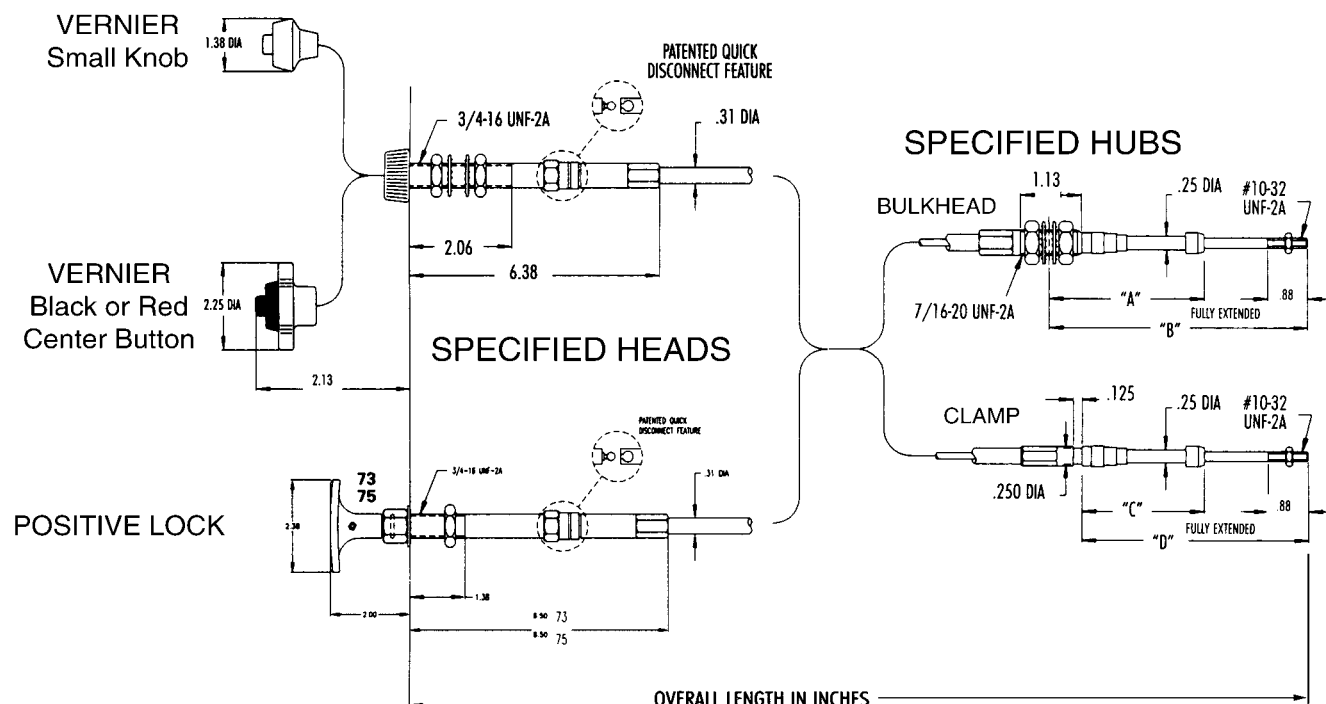
MTO Models: Made-To-Order in specified Travel, O.A. Length, Core material, Head, and Plain End or Hub choice.

Miscellaneous Products

Control Cables



Quick Disconnect Cables - 3 Series Heavy Duty Push Loads To 20 lbs • Pull Loads To 20 lbs



Core: Choice of either solid stainless core or HP core. (HP core offers improved flexibility and higher push loads).

Head: Each cable assembly has either a Vernier (aluminum) or Positive Lock Head (aluminum). Vernier Head is ideal for any application requiring coarse or fine adjustment. Positive Lock Head features a T handle that locks the setting when rotated 90°.

Hub: Each cable assembly has a Specified Hub. Hub styles stocked are Bulkhead (aluminum or stainless), Clamp (stainless) and Bulkhead/Clamp Combo (aluminum). The Bulkhead/Clamp Combo Hub is a flexible solution for applications where exact hub type needed is unknown.

Minimum Bend Radius: 3 Inches (HP Core), 6 Inches (Solid Core).

Hardware: page 1374

Quick Disconnect Cables - 3 Series Heavy Duty • Push Loads To 20 lbs • Pull Loads To 20 lbs

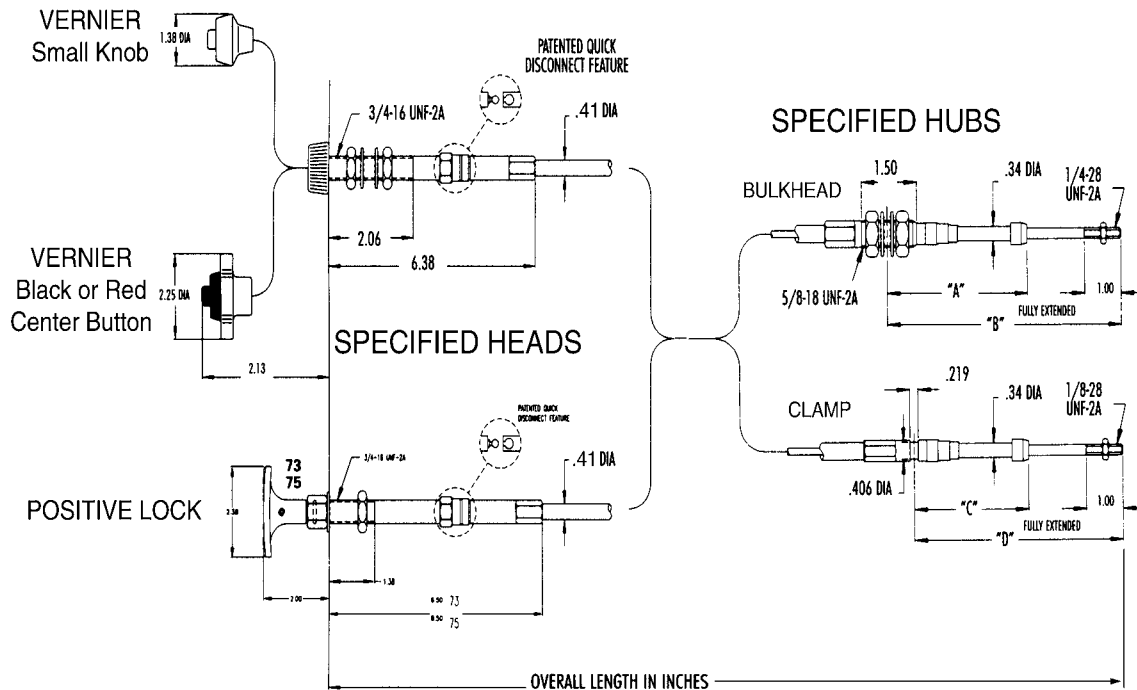
Catalog Part No.	Felsted Model	Travel (in)	O.A. Length (in)	Head	Hub	Push Rating (lbs)	Pull Rating (lbs)	A (in)	B (in)	C (in)	D (in)	Wt.	Price Each
N/A	MTO-3INCH	3	MTO	MTO	MTO	20(HP) 20(Solid)	20(HP) 20(Solid)	5.00	8.94	4.31	8.25		

MTO Models: Made-To-Order in specified Travel, O.A. Length, Core material, Head and Hub choice.

Control Cables



Quick Disconnect Cables - 4 Series Push Loads To 20 lbs • Pull Loads To 20 lbs



Core: HP Core.

Head: Each cable assembly has either a Vernier (aluminum) or Positive Lock Head (aluminum). Vernier Head is ideal for any application requiring coarse or fine adjustment. Positive Lock Head features a T handle that locks the setting when rotated 90°.

Hub: Each cable assembly has a Specified Hub. Specified Hub styles stocked are Bulkhead (aluminum or stainless), Clamp (aluminum or stainless) and Bulkhead/Clamp Combo (aluminum). The Bulkhead/Clamp Combo Hub is a flexible solution for applications where exact hub type needed is unknown.

Minimum Bend Radius: 5 Inches.

Hardware: page 1374

Quick Disconnect Cables - 4 Series • Push Loads To 20 lbs • Pull Loads To 20 lbs

Catalog Part No.	Felsted Model	Travel (in)	O.A. Length (in)	Head	Hub	Push Rating (lbs)	Pull Rating (lbs)	A (in)	B (in)	C (in)	D (in)	Wt.	Price Each
N/A	MTO-3INCH	3	MTO	MTO	MTO	20	20	5.13	9.19	4.50	8.56		

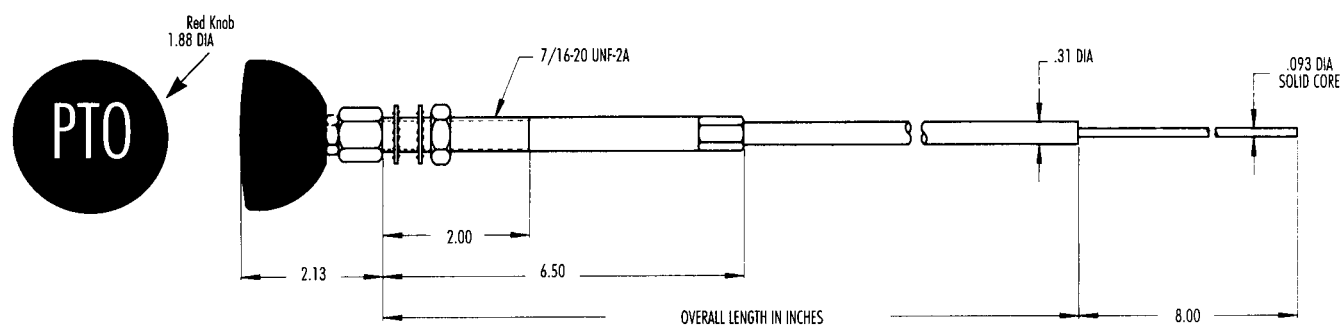
MTO Models: Made-To-Order in specified Travel, O.A. Length, Head and Hub choice.

Miscellaneous Products

Control Cables

Power Take Off (PTO) Cables

Push Loads To 50 lbs • Pull Loads To 50 lbs



Core: Solid stainless steel core.

Minimum Bend Radius: 6 Inches.

Hardware: page 1374

Power Take Off (PTO) Cables • Push Loads To 50 lbs • Pull Loads To 50 lbs

Catalog Part No.	Felsted Model	Travel (in)	O.A. Length (in)	Wt.	Price Each
•C1EL17	000-35000-0120	5	120	1.75	

Note: For O.A. Length shorter than 120 inches: (1) Remove core. (2) Cut conduit to length and deburr. (3) Install core. (4) Cut core to length and deburr.

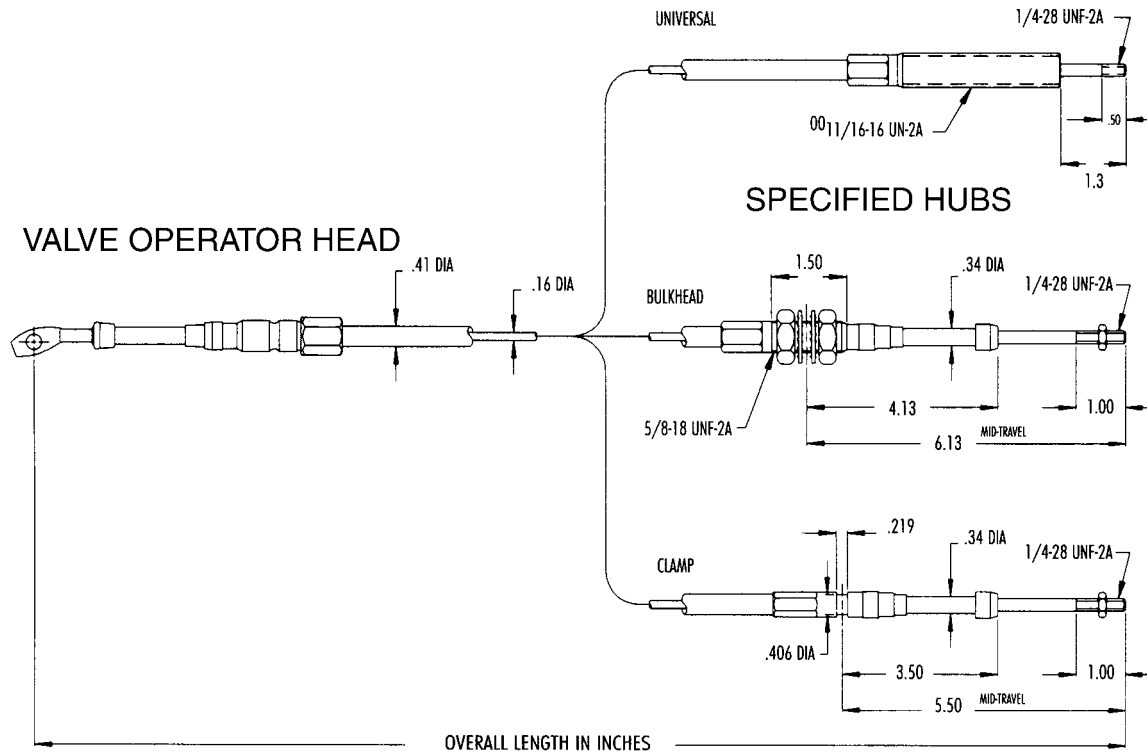
Note: For O.A. Length longer than 120 inches, consider using a Universal Cable - 3 Series Light Duty, with a Plain end, and with a 30162 Red PTO Knob.

Control Cables



Remote Valve Operation (RVO) Cables

Push Loads To 100 lbs • Pull Loads To 230 lbs



Core: HP Core.

Hub: Each cable assembly has a Valve Operator Hub which connects to a Felsted Remote Valve Control (Models 55700, 55709, 55786-1), and a Specified Hub. Specified Hub styles stocked are Bulkhead (aluminum or stainless), Clamp (aluminum or stainless) and Universal (aluminum). The Universal style hub is used with a Felsted Valve Connection Kit.

Minimum Bend Radius: 5 Inches.

Hardware: page 1374

Remote Valve Operation (RVO) Cables • Push Loads To 100 lbs • Pull Loads To 230 lbs

Catalog Part No.	Felsted Model	Travel (in)	O.A. Length (in)	Hub	Push Rating (lbs)	Pull Rating (lbs)	Wt.	Price Each
N/A	MTO-4INCH	4	MTO	MTO	100	230		

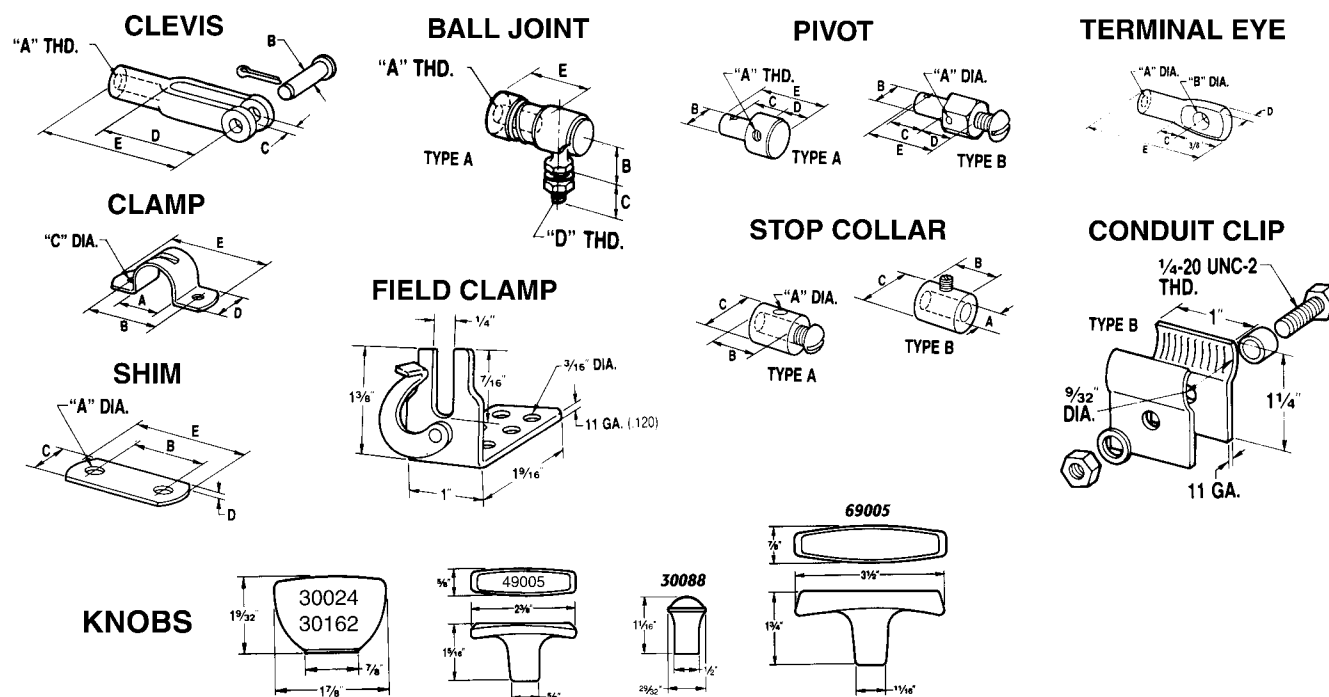
MTO Models: Made-To-Order in specified O.A. Length and Hub choice.

Miscellaneous Products

Control Cables



Cable Hardware & Knobs



Cable Hardware & Knobs

Catalog Part No.	Felsted Model	Description	Type	A	B	C	D	E	Wt.	Price Each
•C1EU91	39006	Ball Joint, 3 Series	A	10-24 UNF-2B	15/32	9/16	1/4-28 UNF-2A	31/32	0.08	
•C1ES22	000-49006-0000	Ball Joint, 4 Series	A	1/4-28 UNF-2B	15/32	9/16	1/4-28 UNF-2A	31/32	0.08	
•C1EZ29	000-49007-0000	Ball Joint, 4 Series	A	1/4-28 UNF-2B	15/32	7/8	5/16-24 UNF-2A	31/32	0.10	
•C1FE36	000-69007-0000	Ball Joint, 6 Series	A	5/16-24 UNF-2B	17/32	11/16	5/16-24 UNF-2A	1-1/8	0.15	
•C1EU33	39001	Clamp, 3 Series		3/8	1	13/64	1/2	1-1/2	0.01	
•C1EZ80	49001	Clamp, 4 Series		1/2	1	7/32	1/2	1-1/2	0.02	
•C1EW99	000-39003-0001	Clevis, 3 Series		10-32 UNF-2B	3/16	7/32	1	1-9/16	0.01	
•C1EX89	000-49003-0002	Clevis, 3 Series		10-32 UNF-2B	1/4	9/32	1-1/4	2	0.08	
•C1ER99	000-49003-0001	Clevis, 4 Series		1/4-28 UNF-2B	1/4	9/32	1-1/4	2	0.09	
•C1EV29	000-69003-0003	Clevis, 4 Series		1/4-28 UNF-2B	5/16	11/32	1-7/16	2-1/4	0.12	
•C1EW46	000-49003-0003	Clevis, 6 Series		5/16-24 UNF-2B	1/4	9/32	1-1/4	2	0.07	
•C1EZ98	000-69003-0001	Clevis, 6 Series		5/16-24 UNF-2B	5/16	11/32	1-7/16	2-1/4	0.12	
•C1EZ95	000-89003-0002	Clevis, 6 Series		5/16-24 UNF-2B	3/8	7/16	1-5/8	2-1/2	0.03	
•C1ET99	39030-1	Field Clamp							0.20	
•C1EU72	30162	Knob, PTO, Red		1/4-20 UNC-2B					0.15	
•C1ZV18	49005-1011	Knob, Plain, Black		1/4-20 UNC-2B					0.10	
•C1KE82	49005-2011	Knob, Plain, Red		1/4-20 UNC-2B					0.02	
•C1EN33	39011-1	Pivot, 3 Series	B	7/64	1/4	5/32	5/16	9/16	0.02	
•C1ZT92	39011-2	Pivot, 3 Series	B	7/64	1/4	19/64	5/16	11/16	0.02	
•C1EV97	000-49008-0001	Pivot, 4 Series	A	1/4-28 UNF-2B	1/4	5/16	1/2	32/32	0.03	
•C1EV95	000-49042-0000	Pivot, 4 Series	A	1/4-28 UNF-2B	3/8	15/32	1/2	1-3/16	0.05	
•C1EU76	39002	Shim, 3 & 4 Series		13/64	1	1/2	3/32	1-1/2	0.05	
•C1EW27	30103	Stop Collar, 3 Series	A	7/64	5/16	5/16			0.01	
•C1EW98	000-49004-0003	Terminal Eye, 4 Series		1/4-28 UNF-2B	1/4	5/8	3/8	1-7/8	0.11	



Miscellaneous Products

Control Cables



Cable Hardware & Knobs

Catalog Part No.	Felsted Model	Description	Type	A	B	C	D	E	Wt.	Price Each
•C1EX90	000-49004-0001	Terminal Eye, 4 Series		1/4-28 UNF-2B	5/16	5/8	3/8	1-7/8	0.10	
•C1EW11	000-69004-0004	Terminal Eye, 6 Series		5/16-24 UNF-2B	1/4	5/8	3/8	1-7/8	0.10	
C1KH73	055887-000000	Control, Single Friction B							4.80	
•C1KK29	40313-1	Hub, RVO							0.17	
•C1KK27	40203-10	Hub, 4 Series, RVO							0.06	
•C1KK26	40202	Sleeve, RVO							0.03	
C1KG94	000-59112-0000	Kit							0.02	
C1KG83	000-50036-0001	Switch/Pin Set							0.15	
C1KK85	80016	Rod Bearing, 8 Series							0.01	
•C1KK19	40004-5	Sleeve, 5" Travel							0.20	

Salami Cable Remote Controls For Use with Salami Directional Control Valves



Cables: For use with Heavy Duty Cables.

Handle Color: Matt black

Operating Temperature: -40°F to 176°F

Salami Cable Remote Controls • For Use with Salami Directional Control Valves

Catalog Part No.	Salami Model	Stroke (in)	Max. Working Load (lb.)	Lever Ratio	Detent in Neutral	Anti-Reverse Device	Stackable	Wt.	Price Each
C1MQ82	3360T3047	0.51 / 0.51	100	10:1	No	No	Yes		
C1MQ83	3360T3076	0.51 / 0.51	100	10:1	No	Yes	Yes		
C1MQ84	3360T3077	0.51 / 0.51	100	10:1	Yes	No	Yes		
C1MQ81	3360T3046	0.63 / 0.63	100	8:1	Optional	No	No		

Salami Cable Remote Controls Fixing Kits

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1MQ85	3360T3095	Single lever fixing kit for Stackable Lever controls 3360T3076 and 3360T3077 - 1 Lever		
C1MQ86	3360T3105	Single lever fixing kit for Stackable Lever controls 3360T3076 and 3360T3077 - 2 Lever	0.50	
C1MQ87	3360T3106	Single lever fixing kit for Stackable Lever controls 3360T3076 and 3360T3077 - 3 Lever		
C1MQ88	3360T3107	Single lever fixing kit for Stackable Lever controls 3360T3076 and 3360T3077 - 4 Lever		
C1MQ89	3360T3108	Single lever fixing kit for Stackable Lever controls 3360T3076 and 3360T3077 - 5 Lever	1.00	
C1MQ90	3360T3109	Single lever fixing kit for Stackable Lever controls 3360T3076 and 3360T3077 - 6 Lever		



Miscellaneous Products

Thread Sealants

SAF-T-LOK® TPS Anaerobic Sealant

Features: White paste in squeeze tube. Seals and locks threaded joints on metal piping systems. Instant seal. Lubricates threads for alignment. Prevents vibration loosening. Resists most industrial chemicals and gasses.

Cure Time: Cures totally in 24 hours. Cure can be accelerated with SAF-T-LOK® primer.

Operating Temperature Range: -100°F to 350°F.

Note: Not for use on plastic pipe.



SAF-T-LOK® TPS Anaerobic Sealant

Catalog Part No.	SAF-T-LOK Model	Size	Wt.	Price Each
•C1DM42	TPS-50	50 cc	0.16	
•C1DM41	TPS-250	250 cc	0.61	

Staybond™ S592 Anaerobic Sealant

Features: White paste in squeeze tube. Instantly seals threaded fittings. Lubricates threads. Prevents galling. Prevents vibration loosening. Resists oils and solvents.

Cure Time: Cures totally in 24 hours. Cure can be accelerated with Staybond primer.

Operating Temperature Range: -65°F to 350°F.

Note: Not for use on plastic pipe.



Staybond™ S592 Anaerobic Sealant

Catalog Part No.	Staybond Model	Size	Wt.	Price Each
•C1DK64	S592-50	50 ml	0.15	
•C1DK63	S592-250	250 ml	0.90	

Staybond™ S569 Anaerobic Hydraulic Sealant

Features: Brown, low strength, medium viscosity liquid in bottle. Seals hydraulic fittings and locks mechanical fasteners. Strong resistance to most industrial chemicals. Prevents corrosion between parts.

Cure Time: Fixture tight in minutes. Full cure in 24 hours at 72°F.



Staybond™ S569 Anaerobic Hydraulic Sealant

Catalog Part No.	Staybond Model	Size	Wt.	Price Each
•C1EX13	S569-50	50 ml	0.17	



Miscellaneous Products

Thread Sealants

SAF-T-LOK® HS Anaerobic Hydraulic Sealant

Features: Brown, low strength, liquid in bottle. Seals hydraulic fittings and locks fine threads. Instant seal.

Lubricates threads. Prevents vibration loosening.

Shear Strength: 1500-2500 PSI.

Cure Time: Cures totally in 24 hours. Cure can be accelerated with SAF-T-LOK® primer or heat (200°F for 10 to 20 minutes).

Operating Temperature Range:

Note: Not for use on plastic pipe.



SAF-T-LOK® HS Anaerobic Hydraulic Sealant

Catalog Part No.	SAF-T-LOK Model	Size	Wt.	Price Each
•C1CY68	HS-50	50 cc	0.15	

Teflon® Tapes

Standard Teflon® Tape: Instantly seals threaded fittings. Lubricates threads. Prevents galling. Resists oils and solvents.

Pink Plumbers Tape: Superior, high density tape that is not stretched during manufacturing like ordinary Teflon® tape.

Unasco Gold Tape: A high density thread sealing tape for critical areas. For use on all metal pipe threaded joints where acids, alkalis, oils or solvents are present. Uses include sealing pipe threads on lines for natural gas, LP Gas, butane and propane. Tape is de-greased and can be used on oxygen lines. -450°F to 500°F temperature range.

Copper Anti-Seize Tape: Made from copper filled Teflon®. For general purpose anti-seize applications on most types of metal fasteners. Protects against corrosion, seizure, galling & carbon fusion, rust, galvanic pitting. -450°F to 2200°F temperature range.

Nickel Anti-Seize Tape: Made from nickel filled Teflon®. For anti-seize applications on stainless steel and aluminum. Protects against corrosion, seizure, galling & carbon fusion, rust, galvanic pitting. -450°F to 2400°F temperature range.

Oxygen Tape: Free of any residual petroleum fraction and is safe to use on oxygen systems. -450°F to 500°F temperature range.



Teflon® Tapes

Catalog Part No.	Model Number	Description	Size (in)	Wt.	Price Each
•C1DM23	TEFLONTAPE	Standard Teflon® Tape (blue roll/white tape)	1/2 x 520	0.03	
•C1EU45	APP104	Pink Plumbers Tape (orange roll/pink tape)	1/2 x 260	0.04	
•C1EU48	ATG005	Unasco Gold Tape (gold roll/yellow tape)	1/2 x 540	0.01	
•C1EU47	ATC001	Copper Anti-Seize Tape (brown roll/brown tape)	1/2 x 600	0.10	
•C1EU49	ATS001	Nickel Anti-Seize Tape (silver roll/silver tape)	1/2 x 260	0.05	

Miscellaneous Products

SAF-T-LOK® T70 Permanent Thread Lock

Features: Red liquid in squeeze bottle. Very high strength thread locking & sealing. Locks nuts and screws. Gap filling 0.002 - 0.008 inches. Shear strength 3000-4000 PSI. MIL-S-46163 Type I Grade K. ASTM D 5363 - AN9221.

Cure Time: Parts will be fixture tight within one hour. Full cure in 24 hours at 75° F.

SAF-T-LOK® T70 Permanent Thread Lock



Catalog Part No.	SAF-T-LOK Model	Size	Wt.	Price Each
•C1ZX39	T70-50	50cc (1.7 fl.oz.)	0.15	

Staybond™ T262 Permanent Bolt Lock

Features: Red liquid in squeeze bottle. High strength thread locking & sealing. MIL-S-46163 Type II Grade O.

Cure Time: Parts will be fixture tight in minutes. Full cure in 24 hours at 72° F.

Staybond™ T262 Permanent Bolt Lock



Catalog Part No.	Staybond Model	Size	Wt.	Price Each
•C1EX19	T262-50	50 ml (1.69 fl.oz.)	0.17	

Allied Witan Filter Vents

With their low profile, these compact units are most often used as breather vent filters, easily inserted in cylinders, gear boxes, crank cases, storage tanks and other vessels wherever pressure equalization is required. Sintered metal filter.



Model F

Allied Witan Filter Vents

Catalog Part No.	Allied Witan Model	Thread	Length (in)	Hex (in)	Wt.	Price Each
•C1CP37	F18	1/8 NPT	0.44	0.44	0.01	
•C1CP48	F28	1/4 NPT	0.64	0.56	0.03	
•C1CP52	F38	3/8 NPT	0.76	0.69	0.04	
•C1CP54	F48	1/2 NPT	0.89	0.88	0.07	

Denso Petrolatum Tape



Description: Densyl Tape is composed of a non-woven synthetic fabric carrier, fully impregnated with a neutral compound based on saturated petrolatum and inert siliceous fillers.

Uses: Densyl Tapes are designed to withstand extreme temperature variations. The tapes provide long term corrosion protection to pipes, flanges, valves and related surfaces.

Features: Applied to marginally prepared surfaces • Conforms to irregular shapes and profiles • Can be applied to cold, wet surfaces • Not effected by water, acid, salts or soil organics • Encapsulation of lead paint • Contains no solvents • Meets AWWA C217 Standard • Can be applied above and below ground.

Properties: Thickness (ASTM D1000) 46 mils. Maximum Service Temperature 158°F.



Denso Petrolatum Tape

Catalog Part No.	Denso Model	Description	Wt.	Price Each
•C1GM81	DENSYL-TAPE-2IN	Roll of All Purpose Petrolatum Tape, 2 inches wide x 33 feet long	2.01	

Boeshield® T-9 Corrosion Shield & Waterproof Lubricant



Features: Penetrates deeply into fasteners and fixtures • Displaces moisture • Dries to a clean waxy film • Lubricates and protects all metals for months • Will not harm paints, plastics, rubber or vinyl • Attacks existing corrosion • T-9® will also loosen rusted parts • Contains No Fluorocarbons • Many Industrial and Household uses



Boeshield® T-9 Corrosion Shield & Waterproof Lubricant

Catalog Part No.	Boeshield Model	Description	Wt.	Price Each
•C1JD92	T9	Boeshield® T-9 Corrosion Shield, 12 oz Spray Can	1.00	

Miscellaneous Products

Anti-Seizing Products

Applications: Nuts, Bolts & Screws • Pipe Fittings • Boom Guides • Valve Assemblies • Pump Mountings • Chain Drives • Shafts • Gaskets • Press Fit Assemblies • Taps & Drills • Metal Fittings • Machinery



Anti-Seizing Products

Catalog Part No.	Mfg Model	Description	Wt.	Price Each
•C1FG17	NSBT-8	Bostik Never-Seez® Regular Grade Anti-Seize, 8 oz, Brush Top	0.64	

SCRUBS in-a-Bucket® Hand Cleaner Towels

SCRUBS in-a-Bucket® are the pre-moistened, heavy duty hand cleaner towels that go where you go! SCRUBS in-a-Bucket® easily removes soil from your hands and leaves them clean and conditioned anywhere you are working. Powerful, yet safe, patented citrus-based formula works together with an absorbent, non-scratching abrasive hand cleaner towel for proven performance.

Benefits: Portable and convenient • One-step cleaning process • Conditions and softens hands • Will not transfer soils back onto hands • Works fast to loosen, dissolve and absorb dirt, grease and grime • Tough, durable bucket that is light and portable.

Quickly Removes: Adhesives • Caulk • Dirt • Epoxy • Grease • Ink & Dye • Lubricants • Oils • Paint • Sealant • Tar • Urethane • Wax • Asphalt • Polyurethane • Grime



SCRUBS in-a-Bucket® Hand Cleaner Towels

Catalog Part No.	ITW Dymon Model	Description	Wt.	Price Each
•C1EK16	422.30	Small Bucket of 30 Hand Towels	1.19	
•C1EV89	422.72	Large Bucket of 72 Hand Towels	2.65	
•C1ZT17	MISC-422-WMN	Bracket to Surface Mount a Bucket of Hand Towels	0.66	

Cast Bronze Y-Strainers



Conbraco's 59 Series "Y" strainers are lightweight and compact. All sizes offer maximum protection against foreign particles in piping systems and process equipment. Cast bronze body and stainless steel screens are completely corrosion resistant. Self-aligning screen is easily accessed for cleaning or service. Operating pressures up to 400 psig make the 59 Series an excellent choice as a versatile, multipurpose strainer. Sizes 1/8" to 1/2" are perfect for OEM applications and are available as UL recognized components for use as a secondary strainer on oil burning equipment. Optional tapped caps are also available for convenient cleaning of the screen and are not plugged.

Working Pressure (Non-Shock): 300 psig @ 350°F Steam. 400 psig @ 150°F Water, Oil, Gas.

Self-Aligning Screens: 304 SS (Standard) available in a large variety of meshes (thru 100).

Cast Bronze Y-Strainers



Catalog Part No.	Conbraco Model	Size	Description	Wt.	Price Each
C1EN59	59-001-01	1/4 NPT	Standard 304SS 50 mesh screen, 1.38 in ² screen area	0.44	

Miscellaneous Products

Precision Splined Hubs



Features: Made from low alloy, high carbon steel. Close tolerance O.D. and I.D. concentricity permits accurate mounting of sheave or sprocket. Precision also permits accurate chucking for additional mounting.

Precision Splined Hubs

Catalog Part No.	Hub City Model	Type	Spline Details	Spline O.D. (in)	Coupling O.D. (in)	Coupling Length (in)	Wt.	Price Each
•C1EX23	03-32-00032	9 Tooth SAE A	16/32 DP 30° PA	0.625	1.251 / 1.250	1.250	0.34	
•C1AD60	03-32-00033	13 Tooth SAE B	16/32 DP 30° PA	0.875	1.501 / 1.500	1.50	0.52	
•C1AD61	03-32-00034	14 Tooth SAE C	12/24 DP 30° PA	1.250	2.251 / 2.250	2.00	1.75	
C1AD63	03-32-00074	13 Tooth SAE D	8/16 DP 30° PA	1.750	3.001 / 3.000	2.25	3.00	

Tire Service Products



Tire Service Products

Catalog Part No.	Dill Model	Description	Wt.	Price Each
•C1EU50	D104	Tire Inflator Chuck. For direct connection to live air only. Features a built-in shutoff valve. Solid brass. 1/4 NPT female thread. 300 PSI maximum.	0.10	
•C1DK87	SK-2043-C	Gooseneck Style high pressure coupling with 70° angle. 5000 PSI working pressure. 10,000 PSI proof pressure. 1/8 NPT female thread.	0.14	
•C1DK86	SK-20420	Tank Valve (Schraeder Valve) for charging pressure tanks or compressed air chambers. Complete with valve core and cap. 1/8 NPT male thread.	0.03	

Service Station & Tank Truck Equipment



UTILITY NOZZLE

Service Station & Tank Truck Equipment

Catalog Part No.	Dixon Model	Description	Wt.	Price Each
•C1GH70	900S34	Utility Nozzle. 3/4" inlet, 3/4" spout size. 1 x 3/4 reducer bushing furnished. Die cast metal body. For use with 12 volt pumps and gravity flow. Applications include construction, farm and small utility tanks.	1.65	
•C1GH71	900SK	Seal Kit for Utility Nozzle.	0.08	

Hose Nozzles

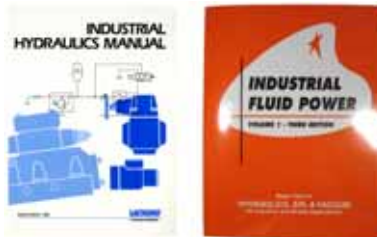


THERMOPLASTIC
FOG NOZZLE

Hose Nozzles

Catalog Part No.	Dixon Model	Description	Wt.	Price Each
•C1FC49	FNB75S	Thermoplastic Fog Nozzle with bumper. Red polycarbonate with brass stem. 3/4 NPS thread. For use with water only up to 100 PSI. Adjusts from straight stream to fog. 120° Spray, 30.9 GPM @ 100 PSI. Factory Mutual approved.	0.32	

Textbooks



Textbooks

Catalog Part No.	Book Part No.	Publisher	Name of Textbook	Description	Wt.	Price Each
•C1JR30	TC-101-05-E	Vickers	Industrial Hydraulics Manual	Color-illustrated hardbound textbook covering a range of topics related to hydraulics and electrohydraulics, including basic hydraulics principles, electricity and electronics, amplifiers, cartridge valves and circuits.	3.14	

Miscellaneous Products

Gloves



Gloves

Catalog Part No.	Model	Description	Wt.	Price Each
•C1HL32	HSCGLV-LG	Anti-vibration Gloves, Large. Heat resistant Amara synthetic leather with impact & vibration absorbing gel pads.	0.29	
•C1HL33	HSCGLV-XL	Anti-vibration Gloves, Extra Large. Heat resistant Amara synthetic leather with impact & vibration absorbing gel pads.	0.29	
•C1HL31	HSCGLV-2X	Anti-vibration Gloves, Double Extra Large. Heat resistant Amara synthetic leather with impact & vibration absorbing gel pads.	0.29	
•C1JE44	4092	Select split leather palm, leather index finger, leather finger tips, leather thumb and knuckle strap. Wing thumb design with shirred elastic back and striped cotton back with safety cuff.	0.30	
•C1JE96	8426	Cotton poly blend string knit, latex palm, knit wrist.	0.20	
•C1JD52	1SR8427L	Economy string knit with latex palm, knit wrist.	0.30	
•C1JE97	85	10 pack of disposable latex gloves. Seamless and reversible with rolled cuff.	0.14	
•C1JM35	4020	8 oz. 100% Cotton Jersey Gloves. Clute-cut design with knit wrist.	0.10	

Hand Tools

CHANNEL LOCK



Hand Tools

Catalog Part No.	Model	Description	Wt.	Price Each
•C1KK63	61CB	Channellock 6 in 1 Screwdriver.	0.50	
•C1JF33	GS-3D	Channellock Tongue & Groove Plier Set. 6-1/2", 9-1/2", 12"	2.00	
•C1JF35	GS-6D	Channellock Plier Set. 7" Cutting Plier, 7-1/2" Long Nose Plier, 10" Tongue & Groove Plier	2.19	
•C1JM99	927-CHANNELLO CK	Channellock 8 inch Retaining Ring Plier. Capacity 1/4" to 2" External, 3/8" to 2" Internal. Includes 0.36 0.47 0.70 Straight Tips, 0.36 0.47 90° Tips. Easy Switch from External to Internal.	0.60	

Pneumatic Piston Vibrators Houston Vibrator BV Series



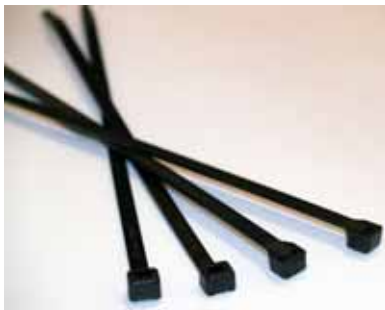
Features: BV Series Pneumatic Piston Vibrators will dislodge problem materials in bins, hoppers, chutes, pipes, railcars, and trucks. All models are available in Impacting or Air Cushioned (silent) configurations. • Low initial cost • Precision CNC machined bodies and pistons • Complete control over force, frequency, and amplitude by regulation of supply air pressure • Virtually maintenance free when installed with an HVI Air Preparation Unit.

Available Options: Internal Tefkote® for lubrication-free operation and high temperature environments • External coatings for corrosive or food-grade areas • Internal start springs for horizontal mounting • Tapped exhaust for routing exhaust air away from vibrator.

Pneumatic Piston Vibrators • Houston Vibrator BV Series

Catalog Part No.	Houston Vibrator Model	Description	Wt.	Price Each
C1JF16	BV225IMPTESS	Pneumatic Piston Vibrator, impacting style, with Tapped Exhaust (TE), Spring Start (SS), capacity 60 cubic foot hopper with 3/16 to 1/4 inch wall	17.44	

Cable (Wire) Ties



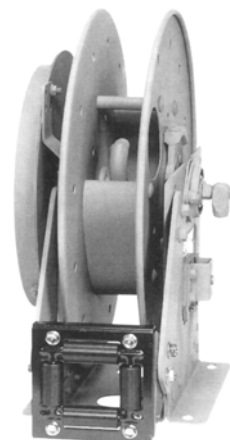
Cable (Wire) Ties

Catalog Part No.	Model	Description	Wt. (pkg)	Price (per pkg)
•C1KH66	WT-4A	3.8 in long, 10 Assorted Colors, 18 lb Tensile Strength, UV Rated, 100 per package	0.05	
•C1KH67	WT-7B	7.5 in long, Black, 50 lb Tensile Strength, UV Rated, Mil STD 3367-1, 100 per package	0.25	
•C1KH60	WT-11B	11.5 in long, Black, 50 lb Tensile Strength, UV Rated, Mil STD 3367-7, 100 per package	0.46	
•C1KH61	WT-14B	14.5 in long, Black, 50 lb Tensile Strength, UV Rated, Mil STD 3367-2, 100 per package	0.55	
•C1KH62	WT-15B	14.75 in long, Black, 120 lb Tensile Strength, UV Rated, Mil STD 3367-3, 100 per package	0.85	
•C1KH63	WT-21B	21.75 in long, Black, 120 lb Tensile Strength, UV Rated, 100 per package	2.00	
•C1KH64	WT-28B	28.8 in long, Black, 120 lb Tensile Strength, UV Rated, Mil STD 3367-6, 100 per package	2.61	
•C1KH65	WT-36B	36.5 in long, Black, 120 lb Tensile Strength, UV Rated, 100 per package	3.84	

Miscellaneous Products

Hose Reels

Hannay Spring Rewind Hose Reels



Hannay Spring Rewind Hose Reels are typically used for lubrication, air, water, air tools, washdown and other general industrial applications. Models with 10,000 psi capability can be used in chassis grease applications.

Rewind: A heavy-duty spring motor provides self-contained rewind power. A non-sparking ratchet assembly locks the reel when the desired length of hose has been payed out. A pull on the hose unlocks the reel and the spring motor retracts the hose. A declutching arbor is provided to prevent damage from reverse winding.

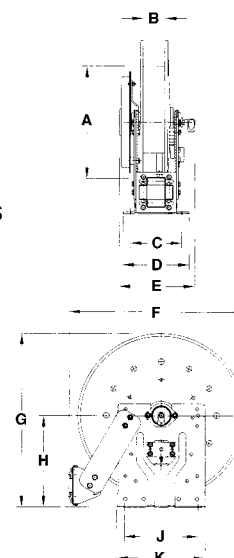
Inlet: N500 Series: 90° swivel joint with 1/4 Inch Female Pipe. N700 Series: 90° swivel joint with 1/2 Inch Female Pipe.

Outlet: N500 Series: 1/4 Inch Female Pipe. N700 Series: 1/2 Inch Female Pipe.

Rollers: All models are supplied with a 4-way roller assembly.

Hose Stop: A hose stop should be used to prevent damage to rollers and nozzles and to permit adjustment of free hose length.

Product Temperature Range: -20°F to 225°F.



Hannay Spring Rewind Hose Reels

Catalog Part No.	Hannay Model	Pressure Rating (psi)	Hose Capacity 1/4 ID (ft)	Hose Capacity 3/8 ID (ft)	Hose Capacity 1/2 ID (ft)	Dimensions (in)	Wt.	Price Each
•C1DF67	N716-19-20J	3,000	--	50	50	A = 10.5 B = 3 C = 8 D = 10 E = 11.25 F = 20.75 G = 20 H = 10.38 J = 10 K = 12	80.00	

Parts & Accessories For Hannay Spring Rewind Hose Reels

Catalog Part No.	Part Number	Description	Wt.	Price Each
•C1CY66	HS-3	Hose Stop, plastic, 3 inch OD, ID not drilled (Maximum hole size 1-7/8 in)	0.54	

High Pressure Hose Assemblies

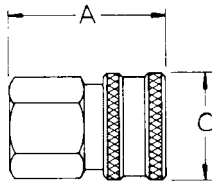


High Pressure Hose Assemblies

Catalog Part No.	Pressure Pro Model	Hose I.D. (in)	Assembly Length (ft)	Pressure Rating (psi)	Description	Wt.	Price Each
•C1MK30	989400019	0.38	100	4000	Black Hose, with Male x Female QD's, with Bend Restrictor	23.00	
•C1MK31	989400075	0.38	50	4000	Black Hose, with Male x Female QD's, with Bend Restrictor	12.00	
•C1MK32	989400150	0.38	50	4000	Grey Hose, with Male x Female QD's, with Bend Restrictor	12.00	

Quick Couplers

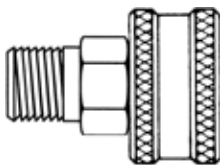
Pressure Pro high flow couplers are non-valved for applications where maximum flow is required. Their smooth, open bore offers low pressure drops and is ideal for applications such as high pressure water and steam washers and carpet cleaners.



Socket Half - Female Pipe

Quick Couplers

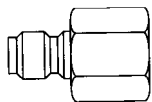
Catalog Part No.	Pressure Pro Model	Coupling Size	Thread Size	Body Material	Pressure Rating (psi)	A (in)	C (in)	Wt.	Price Each
•C1BK22	2STF2-B	1/4	1/4-18	4000	Brass			0.17	
•C1BN23	3STF3-B	3/8	3/8-18	4000	Brass			0.26	
•C1BR48	4STF4-B	1/2	1/2-14	4000	Brass			0.32	
•C1EZ78	STFC6	3/4	3/4-14	2000	Brass			1.50	



Socket Half - Male Pipe

Quick Couplers

Catalog Part No.	Pressure Pro Model	Coupling Size	Thread Size	Pressure Rating (psi)	Body Material	Wt.	Price Each
•C1JR69	3STM3-B	3/8	3/8-18	4000	Brass	0.24	



Plug Half - Female Pipe

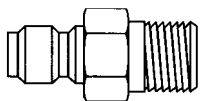
Quick Couplers

Catalog Part No.	Pressure Pro Model	Coupling Size	Thread Size	Pressure Rating (psi)	Body Material	Wt.	Price Each
•C1DL57	ST2F2-S	1/4	1/4-18	4000	Plated Steel	0.25	
•C1DL58	ST3F3-S	3/8	3/8-18	4000	Plated Steel	0.25	
•C1DL59	ST4F4-S	1/2	1/2-14	4000	Plated Steel	0.25	

Miscellaneous Products

Pressure Washer Products

Pressure-Pro



Plug Half - Male Pipe

Quick Couplers

Catalog Part No.	Pressure Pro Model	Coupling Size	Thread Size	Pressure Rating (psi)	Body Material	Wt.	Price Each
•C1ER45	ST3M3-S	3/8	3/8-18	4000	Plated Steel	0.08	

CAUTION: Brass models wear out sooner than steel models in high pressure applications.

Quick Couplers



Plug Half - Spray Tips

Catalog Part No.	Pressure Pro Model	Coupling Size	Color	Nozzle Type	Fan Angle	Nozzle Size	Wt.	Price Each
•C1JA39	925035Q	1/4	Green	Flushing	25°	3.5	0.05	
•C1JA41	940035Q	1/4	White	Wash	40°	3.5	0.04	
•C1JA38	915035Q	1/4	Yellow	Chiseling	15°	3.5	0.04	
•C1JC99	MSP4PAK	1/4		See Note			0.17	

Red Cutting Nozzles: Concentrated stream that can gouge or cut, can cut stubborn stains from concrete surfaces.

Yellow Chiseling Nozzles: Works like a scraper, stripping paint, grease and grime from hard surfaces.

Green Flushing Nozzles: Most commonly used nozzle for cleaning dirt from sizing, sidewalks and metal furniture.

White Wash Nozzles: Wide spray for washing a large area, usually safe with most surfaces.

MSP4PAK: Dixon model. Pack of 4 nozzles. 65° Soap, 15° Yellow, 25° Green, 40° White.

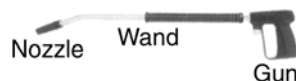
Adapters



Adapters

Catalog Part No.	Pressure Pro Model	Description	Wt.	Price Each
•C1EP43	AL456	22MM Male x 3/8-18 Female Pipe	0.12	
•C1EP44	AL457	22MM Male x 3/8-18 Male Pipe	0.14	

Guns, Wands & Nozzles



Guns, Wands & Nozzles

Catalog Part No.	Pressure Pro Model	Description	Wt.	Price Each
•C1KE30	21290C	Gun. 5000 PSI / 10 GPM / 300°F maximum. 3/8 Female NPT inlet. 1/4 Female NPT outlet.	1.60	
•C1KG88	DL36ICS	Wand. 4060 PSI / 10.5 GPM / 302°F maximum. 36 inches long with straight end. 1/4 Male NPT both ends.	1.19	
•C1BM19	3324-1001.4 (Hypro model)	Variable Fan Nozzle. 3000 PSI / 4.49 GPM / 300°F maximum. 0.055 inch orifice diameter. 0° to 80° adjustable fan pattern (twist to adjust). Push-Pull for pressure adjustment. 1/4 Female NPT inlet.	0.28	

Winches

RKI (Rawson Koenig) Hydraulic Worm Gear Winches



Maximum Line Pull: The maximum line pull of a winch depends upon which cable layer is being used, as shown in the chart, and must not be exceeded.

Worm Brake: Applications that involve holding a suspended load should have a worm brake. Winches with brakes must have the cable wound according to the brake setting. Winches with brakes can be ordered either "overwind" cable spooled over the drum in the direction of the brake housing or "underwind" cable spooled under the drum in the direction of the brake housing.

Drum Clutch: If you wish to pull rope off the drum by hand, a drum clutch is needed. If such freespooling is not needed, a keyed drum will be more reliable.

Duty Cycle: Winches are rated for intermittent duty only. Excessive use will cause high oil temperature resulting in rapid oil deterioration, lower efficiency and increased wear.

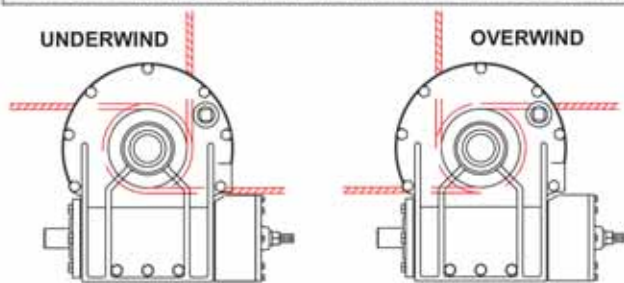
Mounting: Winches should be mounted with the worm shaft horizontal and below the drum. Other arrangements may not provide adequate lubrication. Worm brakes must be mounted below the oil level or they will fail.

Available Options: Extra cable capacity, higher line speed, grooved drum barrel, divided drum, galvanizing and stainless steel shafts for improved corrosion resistance, custom mounting, special shafts and power sources are some of the available options.

Hydraulic																	
		Pressure				1st Layer			2nd Layer			3rd Layer			4th Layer		
GEAR		START	RUN	MAX	ROPE	MAX	LENGTH	LINE	MAX	LENGTH	LINE	MAX	LENGTH	LINE	MAX	LENGTH	LINE
SERIES	RATIO	(PSI)	(PSI)	FLOW	DIA.	LOAD	(FEET)	SPEED	LOAD	(FEET)	SPEED	LOAD	(FEET)	SPEED	LOAD	(FEET)	SPEED
				(GPM)		(LB.)		(FPM)	(LB.)		(FPM)	(LB.)		(FPM)	(LB.)		(FPM)
08H	36:1	1650	1200	15	5/16	8000	23	16	6870	50	18	6020	79	21	5360	113	24
08H	18:1	2020	1510	15	5/16	8000*	23	31	6870	50	36	6020	79	42	5360	113	47
08H	9:1	1900	1470	15	5/16	8000*	23	38	6870	50	44	6020	79	50	5360	113	56
12H	32:1	1490	1020	15	1/2	12000	27	12	9710	60	15	8160	99	17	7030	145	20
15HL	32:1	2480	1690	20	9/16	15000	32	12	12270	70	15	10380	117	18			
15HU	32:1	2480	1690	20	9/16	15000	32	12	12270	70	15	10380	117	18	9000	170	20
20H	32:1	1840	1080	34	5/8	20000	29	18	16360	66	22	13850	108	27	12000	157	31
30H	32:1	2500	2000	45	3/4	30000	46	21	24930	102	25	21320	167	30	18630	242	34

* First layer holding capacity with worm brake is 2500 lb. for 18:1 and 600 lb. for 9:1. Pulling capacity is the value stated.

* First layer holding capacity with worm brake is 2500 lb. for 18:1 and 600 lb. for 9:1. Pulling capacity is the value stated.



RKI (Rawson Koenig) Hydraulic Worm Gear Winches

Catalog Part No.	Koenig Model	Winch Series	Mounting	Worm Brake Rotation	Worm Gear Ratio	Worm Gear Hand	Drum	Shaft	Assy	Other Features	Wt.	Price Each
C1JD33	08HUU-4LASL	08H	Upright	Under Wind	9:1	Left Hand	With Drum Clutch, 3.50 Barrel Dia, 8.25 Flange Dia, 7.87 Barrel Length	Std	Left Hand		35.00	

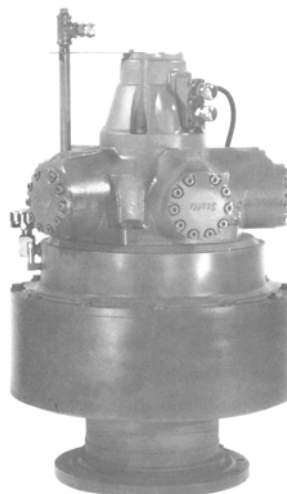
Miscellaneous Products



Peel Press Drive



Kawasaki / Lantec Peel Press Drive



Package Features: 25+ years gear and bearing life expectancy. Extended warranty offered. Supported by factory authorized distributor, Kawasaki authorized QA Center. Double torque arm included.

Gearbox: The Lantec HB341 7.58:1 planetary gearbox design incorporates a floating internal ring gear, which ensures an even distribution of load through the planet gears into the ring gear. A "clash of manufacturing tolerances" is prevented with this floating design. Since the load is evenly distributed, the gears experience even wear, prolonging life. All steel construction. Floating ring gear is heat treated, forged alloy steel. Planet & sun gears are carburized and heat treated steel. All gearing in accordance with A.G.M.A. guidelines. Tapered Timken roller bearings are used in this design. This type of bearing is stronger than "skinny" needle bearings, which are found in competing gearboxes. (Needle bearings are more prone to breakage if mis-aligned). Input shaft and mount will directly accept the Staffa motor. Output shaft is flanged and is ready to bolt down to peel press. Convenient gear lube level indication and fill.

Motor: The Kawasaki HMB-150-S Staffa hydraulic motor features hydrostatically balanced con rods for high starting and running torques, and low wear. The motor is

simply constructed and is rated at 3600 PSI continuous, 4250 PSI intermittent. A double-lip, double spring shaft seal is in place for efficient low speed sealing. A motor case flushing & cooling circuit is included. Motor is manufactured in an ISO 9002 Certified facility.

Life Expectancy Operating Conditions: 28,476 foot pounds torque, 5 RPM, and continuous duty cycle.

Gearbox Life Expectancy: Durability (gear pitting life) is calculated at 213,000 operating hours at full load and speed. 213,000 hours divided by 3,500 hours per season = 60+ years gearbox life.

Motor Life Expectancy: L10 Bearing Life is calculated at 17,750 hours (front bearing) and 17,580 hours (rear bearing). 17,580 divided by 3,500 hours per season = 5 years motor L10 life.

Extended Warranty: We have so much confidence in this package that we offer an extended 3-year warranty from the date of installation. This extended warranty requires a pre-installation inspection of the hydraulic system and system upgrade if required. Please contact us for details on this extended warranty.

Kawasaki / Lantec Peel Press Drive

Catalog Part No.	HSC Model	Description	Wt.	Price Each
C1DG93	PEEL-PRESS-UNIT	Peel Press Drive, complete, including gearbox, motor, motor flange kit and adapters, motor case drain standpipe, motor case flushing & cooling circuit	2600.00	

Note: This peel press assembly is NOT kept in stock.



Miscellaneous Products

Hydraulic Fluid, Tractor Transmission/Hydraulic Fluid
Automatic Transmission Fluid, Gear Lube, Motor Oil

Hydraulic Fluid (Anti-Wear, Wide Temperature Range) Mobil D.T.E.® 10M Series



Description: These antiwear oils meet the demanding requirements of hydraulic systems which operate over a wide temperature range. The highly refined base oils used were selected for optimum flow characteristics at subzero temperatures as well as long term stability in demanding systems. A Viscosity Index (VI) improver system with maximum resistance to shearing and viscosity loss maintains system efficiency and minimizes internal pump leakage losses at high operating temperatures. These oils are approved in the Denison HF-O, Vickers V 104C, Vickers 35VQ25, Sunstrand pumps and Rexroth axial piston pumps

Application: Primarily recommended for hydraulic applications where low ambient temperatures or rapid changes from low to high temperatures are encountered.

Advantages: Suitable for wide temperature range conditions • Superior low-temperature flow properties • Outstanding keep-clean performance • Stay-In-Grade viscosity under high shear conditions • Super stabilized antiwear and water tolerance • Good demulsibility, filterability and foam resistance • Excellent multimetal compatibility and corrosion resistance.

Health & Safety: Based on available toxicological information, these products produce no adverse effects on health when properly handled and used. No special precautions are suggested beyond attention to good personal hygiene including laundering oil-soaked clothing and washing skin-contact areas with soap and water. Material Safety Data Sheets (MSDS) are available upon request. page 1487

Viscosity - Temperature Charts: page 1487

Hydraulic Fluid (Anti-Wear, Wide Temperature Range) • Mobil D.T.E.® 10M Series

Catalog Part No.	Mobil Model	Container Size	ISO Viscosity Grade	Viscosity	Viscosity Index	Pour Point	Flash Point	Gravity, API	Specific Gravity	Wt. (lb)	Price Each
•C1CN74	DTE-10-EXCEL-32	5 gal	32	32.7cSt@104°F 6.63 cSt@212°F	164	-65.2°F	482°F	--	0.8468	35.27	

NOTE: Lubricating Oil products are NOT stocked at our Distribution Center, and are only available for local pickup at our branch locations. For these products, a BOLD Catalog Part No. means EVERY branch location stocks it, and a Bulleted • Catalog Part No. means CERTAIN branch locations stock it.

Hydraulic Power & Control

Pneumatic Power & Control

Fluid Conveying

Miscellaneous Products

Indexes & Technical Information



Miscellaneous Products

Hydraulic Fluid, Tractor Transmission/Hydraulic Fluid
Automatic Transmission Fluid, Gear Lube, Motor Oil

Hydraulic Fluid (Anti-Wear, Super-Stabilized) Mobil D.T.E.® 20 Series



Description: These oils provide superior antiwear and film strength characteristics for use in severe duty hydraulic systems, and are formulated from stable, high quality, high VI base stocks. The super-stabilized additive system was selected to neutralize the formation of corrosive materials, provide excellent antiwear properties, and multimetal compatibility. This additive system also provides better thin oil film protection against rusting, retention of superior oil cleanliness and improved compatibility with water. These oils are approved in the Denison HFO, Vickers V-104C and 35VQ25, and Sunstrand pump tests. DTE 24, 25 and 26 are qualified against Cincinnati Milicron specifications P-68, P-70 and P-69, respectively.

Application: Primarily recommended for most hydraulic applications in industrial, marine and mobile service, including high-pressure systems, systems with servo valves and all robotics.

Advantages: Excellent keep-clean performance for systems critical to deposit buildup, such as sophisticated NC control mechanisms • Controlled demulsibility allows the oils to work well when contaminated with small amounts of water, and to separate large amounts of water readily • Multimetal compatibility under both wet and dry conditions protects pumps using steel and copper alloys • Excellent protection against rust • Good thin oil film protection for surfaces intermittently wetted by oil • Outstanding load-carrying and antiwear properties.

Health & Safety: Based on available toxicological information, these products produce no adverse effects on health when properly handled and used. No special precautions are suggested beyond attention to good personal hygiene including laundering oil-soaked clothing and washing skin-contact areas with soap and water. Material Safety Data Sheets (MSDS) are available upon request.

Viscosity - Temperature Charts: page 1486

Hydraulic Fluid (Anti-Wear, Super-Stabilized) • Mobil D.T.E.® 20 Series

Catalog Part No.	Mobil Model	Container Size	ISO Viscosity Grade	Viscosity	Viscosity Index	Pour Point	Flash Point	Gravity, API	Specific Gravity	Wt.	Price Each
•C1JB78	DTE-24	5 gal	32	165SSU@100°F 44SSU@210°F	95	-10°F	395°F	32	0.867		
•C1CN75	DTE-25	5 gal	46	238SSU@100°F 49SSU@210°F	95	-10°F	395°F	31.5	0.873		

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Miscellaneous Products

Hydraulic Fluid, Tractor Transmission/Hydraulic Fluid
Automatic Transmission Fluid, Gear Lube, Motor Oil

Hydraulic Fluid (Anti-Wear, Biodegradable) Mobil EAL® 224H



Description: Developed to meet stringent performance requirements, as well as to satisfy needs for a hydraulic oil which is readily biodegradable and virtually nontoxic. Formulated from select, high quality, high VI vegetable oils and additives. Approved in Vickers V-104C and 35VQ25, and various pump tests, and meets the requirements of Denison HF-O and the TP30283A vane pump tests.

Application: Primarily recommended for most hydraulic systems operating with oil temperatures in the range of 0°F to 180°F where readily biodegradable and virtually nontoxic fluids are required. It can be used in industrial, marine and mobile service, including high pressure systems, systems with servo valves and all robotics. It may be used in gear applications requiring either an ISO VG 32 or 46 oil with mild extreme-pressure characteristics. Its high viscosity index satisfies other applications requiring an ISO VG 32 or

46 oil.

Advantages: A high-performance, readily biodegradable, virtually nontoxic antiwear hydraulic oil • Multimetal compatibility protects pumps made of steel and copper alloys • Excellent protection against rust • Good thin oil film protection of surfaces intermittently wetted by oil • Outstanding load-carrying and antiwear properties.

Spillage & Disposal: Depending on contamination and/or degradation levels, small amounts of spilled or leaked Mobil EAL 224H will not adversely affect ground water or the environment. For small spills on the ground, the uncontaminated product will readily biodegrade by naturally occurring soil organisms when exposed to air. Nonetheless, spillage of Mobil EAL 224H should be handled similarly to currently accepted methods for conventional mineral oil spills. Mobil EAL 224H does not contain hazardous substances reportable under CERCLA. Since ALL oil spills are reportable, even a spill of the vegetable-based product must be reported to the National Response Center (the U.S. Coast Guard). Local environmental agencies should also be consulted to clarify local requirements.

Health & Safety: Based on available toxicological information, these products produce no adverse effects on health when properly handled and used. Material Safety Data Sheets (MSDS) are available upon request.

Viscosity - Temperature Charts: page 1487

Hydraulic Fluid (Anti-Wear, Biodegradable) • Mobil EAL® 224H

Catalog Part No.	Mobil Model	Container Size	ISO Viscosity Grade	Viscosity	Viscosity Index	Pour Point	Flash Point	Gravity, API	Specific Gravity	Wt.	Price Each
•C1CN87	EAL224H	5 gal	34/46	187SSU@100°F 54SSU@210°F	213	-18°F	428°F	22.1	0.922	30.00	

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Hydraulic Power & Control

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Fluid Conveying

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Indexes & Technical Information



Miscellaneous Products

Hydraulic Fluid, Tractor Transmission/Hydraulic Fluid
Automatic Transmission Fluid, Gear Lube, Motor Oil

Tractor Transmission/Hydraulic Fluid Mobil Mobilfluid® 424



Description: A multipurpose, extreme-pressure, tractor transmission/hydraulic fluid. APPROVED against following specifications: John Deere Quatrol®, J20A, J20C. Ford New Holland M2C134D. Massey Ferguson M1135, M1141. White New Idea Q-1802, Q-1826. Allison C-4 and Volvo BM. Denison HF-O, HF-1, HF-2. Sauer Sunstrand. EXCEEDS performance requirements of: Case International J/C 145/MS 1210, J/C 185/MS 1204, MS 1205, MS 1206, MS 1207, B6. Deutz-Allis 821XL. Komatsu Dresser B-06-0001, B-06-0002. Caterpillar TO-2 Powershift. L-20. Ford Type F (Tractor). Dexron® and Type A, Suffix A (Tractor). Sunstrand Hydrostatic. Vickers 35VQ25A Pump. Sunstrand 22 Axial Piston Pump. Plessey-Sunstrand Gear Pump. Cincinnati Milacron P-68, P-69, P-70. Copper corrosion (ASTM D 130), 1A Rating. EXCEEDS performance recommendations of: Clark, KH Deutz, Ebru, Fendt, Fiat-Hesston, Hurlimann, International Hough, IMT, Lamborghini, Link Belt, Renk, Schluter, Steyr Daimler Puch, Steiger, Universal, Ursus, Valmet, Zetor.

Application: Recommended for top-up and refill of transmissions, differentials, final drives, hydraulics, and power steering systems, as well as wet brakes, PTOs, and hydrostatic drives in farm, contractor, and industrial tractors recommending the above specifications. NOT for use in engine crankcase. NOT for use in passenger car automatic transmissions.

Advantages: Considerable improvement in wet brake and PTO chatter control • Enhanced shear stability in field service • Outstanding low temperature performance • Optimized wear protection of gears, pumps and hydraulic valves • Improved thermal stability for long service life in severe applications • Balanced friction for extended clutch life • Good water tolerance and protection from rust and corrosion • Freedom from sludge and deposits • Good filterability for optimum hydraulic operation.

Health & Safety: Based on available toxicological information, these products produce no adverse effects on health when properly handled and used. No special precautions are suggested beyond attention to good personal hygiene including laundering oil-soaked clothing and washing skin-contact areas with soap and water. Material Safety Data Sheets (MSDS) are available upon request.

Tractor Transmission/Hydraulic Fluid • Mobil Mobilfluid® 424

Catalog Part No.	Mobil Model	Container Size	SAE Grade	Viscosity	Viscosity Index	Pour Point	Flash Point	Gravity, API	Specific Gravity	Wt.	Price Each
•C1BP90	424	5 gal	10W-30	254SSU@104°F 43SSU@212°F	152	-46°F	442°F	29	--		

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Miscellaneous Products

Hydraulic Fluid, Tractor Transmission/Hydraulic Fluid
Automatic Transmission Fluid, Gear Lube, Motor Oil

Automatic Transmission Fluid Mobil Multi-Purpose ATF



Description: A new generation, premium automatic transmission fluid meeting major U.S. and import car manufacturers' performance requirements. Formulated from special, high quality base oils combined with viscosity index (VI) improvers, antioxidants, antiwear agents, detergents, and defoamants. Contains special friction modifiers or lubricity agents to control the transition from full film to thin film lubrication as a vehicle's band and clutches are activated during shifting.

Application: Recommended for make-up and refill in 1974 and later General Motors cars and light trucks, and for make-up and refill in 1988 and later Ford and other vehicles requiring Mercon®, as well as 1981 and later Fords requiring an M2C138CJ or M2C166H fluid. May be used in other domestic and imported cars that require a Dexron III, Mercon® or Ford Type H fluid. Can be used in off-highway transmission, power steering, and other hydraulic systems

requiring a Dexron III or Allison C-4 fluid. Meets industrial hydraulic oil demands of Denison HFO, Vickers vane, and Sunstrand piston pumps.

Advantages: Satisfies new car warranty requirements • Excellent low-temperature requirements, Smooth, positive shift characteristics under both normal and severe operating conditions • Protection against high-temperature deposits during severe service • Minimal wear of transmission components • Reduced foaming and fluid loss in severe service.

Health & Safety: Based on available toxicological information, these products produce no adverse effects on health when properly handled and used. No special precautions are suggested beyond attention to good personal hygiene including laundering oil-soaked clothing and washing skin-contact areas with soap and water. Material Safety Data Sheets (MSDS) are available upon request.

Automatic Transmission Fluid • Mobil Multi-Purpose ATF

Catalog Part No.	Mobil Model	Container Size	Color	Viscosity	Viscosity Index	Pour Point	Flash Point	Gravity, API	Specific Gravity	Wt.	Price Each
•C1CK84	ATF	5 gal	Red	166SSU@104°F 35SSU@212°F	184	-45°F	370°F	31.3	0.869		

NOTE: Lubricating Oil products are NOT stocked at our Distribution Center, and are only available for local pickup at our branch locations. For these products, a BOLD Catalog Part No. means EVERY branch location stocks it, and a Bulleted • Catalog Part No. means CERTAIN branch locations stock it.

Hydraulic Power & Control

Pneumatic Power & Control

Fluid Conveying

Miscellaneous Products

Indexes & Technical Information



Miscellaneous Products

Hydraulic Fluid, Tractor Transmission/Hydraulic Fluid
Automatic Transmission Fluid, Gear Lube, Motor Oil

Gear Lubricants

Mobil Mobilube® HD



Description: Multipurpose, heavy-duty, extreme pressure gear lubricants. Made with select, specially processed base oils that provide good stability at high temperatures and good performance at low temperatures. The naturally high viscosity index of the base oil, in combination with the sulphur phosphorous additives, results in exceptional chemical and thermal stability. Antiwear and antifriction additives control wear, scoring, and frictional power losses. These lubricants resist foaming, are compatible with normally used seal and gasket materials, and provide good protection against copper corrosion. They have demonstrated protection against rust resulting from water contamination and storage in a humid atmosphere by passing the L-33 rust test of MIL-PRF-2105E.

Application: Intended for initial fill, topping-off and refill of enclosed automotive gear cases of manual or semiautomatic transmissions where gear lubricants are recommended, drive axles,

and final drives of passenger cars, trucks, taxicabs, and contractor and farm equipment. These products meet U.S. Military Specification MIL-PRF-2105E, and the requirements of the L-37 and L-42 full-scale axle tests, and are fully approved against Mack Truck specifications GO-H and GO-J. Recommended for API GL-5 Service, covering hypoid and other gears in passenger cars and other automotive equipment operated under high-speed shock load, high-speed low torque, and low-speed high torque conditions. Satisfactory for either topping-off or entirely refilling most differentials, except limited-slip types (severity level of limited-slip types may require factory-provided lubricant). Use at bulk oil temperatures up to 300°F is permitted with realistic drain and refill schedules. Steady operation at temperatures above 260°F is NOT recommended. These products should NOT be used in transmissions for which engine oil or automatic transmission fluid is recommended, and should NOT be used when an API GL-4 gear oil is recommended.

Mobilube® HD 80W-90: Meets the viscosity requirements of SAE 80W, 85W, and 90 grade products, and can be used for temperatures down to -15°F.

Mobilube® HD 85W-140: Meets the viscosity requirements of SAE 85W, 90W, and 140 grade products, and can be used for temperatures down to 10°F.

Advantages: Uninterrupted performance under broad temperature variations • Excellent protection against wearing and scoring by high-speed and heavy gear loads • Moderate performance in limited slip differentials • Superior protection against rusting, staining, corrosion • Good thermal stability and foaming resistance • Compatible with seals and gaskets.

Health & Safety: Based on available toxicological information, these products produce no adverse effects on health when properly handled and used. Material Safety Data Sheets (MSDS) are available upon request.

Gear Lubricants • Mobil Mobilube® HD

Catalog Part No.	Mobil Model	Container Size	SAE Grade	Viscosity	Viscosity Index	Pour Point	Flash Point	Gravity, API	Wt.	Price Each
C1ER42	SAE85W-140	5 gal	85W-140	1530SSU@100°F 125SSU@210°F	103	-18°F	356°F	24.8		

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Miscellaneous Products

Hydraulic Fluid, Tractor Transmission/Hydraulic Fluid
Automatic Transmission Fluid, Gear Lube, Motor Oil

ExxonMobil

Commercial Automotive Engine Oil Exxon XD-3™ Extra 15W-40



Exxon XD-3 EXTRA 15W-40 is a super premium quality heavy-duty engine oil that provides outstanding performance in the most severe diesel and gasoline engine applications. Available in an SAE 15W-40 multi-grade, XD-3 EXTRA provides the reliable flow properties of a 15W-40 grade in a cold engine at start-up and the higher-temperature properties of the SAE 40 grade after the engine warms up to operating temperature.

Versatile Performance: Exxon XD-3 EXTRA 15W-40 meets API Service Categories CI-4, CH-4, CG-4, CF-4 and CF to provide reliable performance in the latest emission designs, including those with EGR systems, as well as satisfying the needs of older engines. In addition, it meets API SL and SJ requirements for four-stroke gasoline engines.

Outstanding Service in Diesel-Powered Equipment: Exxon XD-3 EXTRA 15W-40 can be used where API CI-4, CH-4, CG-4, CF-4, and CF oils are recommended. Additionally, XD-3 EXTRA is approved against Cummins CES 20078, Cummins CES 20076, Cummins 20071, Mack EO-N Premium Plus, Mack EO-N, Mack EO-M Plus, Mack EO-M and Volvo VDS-2 specifications. XD-3 EXTRA has demonstrated excellent performance in the key tests required for the API CI-4 specifications, as well as tests required for OEM specifications. In addition to laboratory engine tests, XD-3 EXTRA additive technology has demonstrated outstanding diesel engine field performance in tests of varying severity. Exxon XD-3 EXTRA is specially formulated to provide excellent performance in all recommended applications. It is extremely resistant to the formation of high-temperature deposits and retains its alkalinity (TBN) over many miles of service. As a result, engines operated with XD-3 EXTRA generally have very low ring-belt deposit levels, and the corrosive wear caused by organic acids is minimized because of the ongoing ability of the oil to neutralize the acids. The excellent dispersancy of XD-3 EXTRA works to keep the cooler areas of the engine virtually free from sludge that can plug oil passages and oil filters and reduce effective lubrication.

Formulated for the Severe Demands of Newer Engines: Diesel engines manufactured after October 2002 will be designed to meet very stringent emission requirements. These new engines place more severe demands on a lubricant's oxidation resistance, TBN retention and soot dispersing capabilities. XD-3 EXTRA 15W-40 engine oil is specially formulated for these newer engines and will provide reliable protection against increased heat, acids and soot. Exxon XD-3 EXTRA was specifically formulated to reduce oil make-up requirements. This effect comes from the high-quality base stocks which exhibit lower volatile loss at high temperatures. In addition, XD-3 EXTRA has demonstrated outstanding piston deposit protection. Exxon XD-3 EXTRA 15W-40 can also be used in gasoline engines where API SL or SJ quality oils are recommended.

Health & Safety: XD-3 EXTRA should be promptly removed from the skin. Soiled clothing should not remain in contact with the skin. Oils and greases are readily removed from the skin by waterless hand cleaners, followed by washing with soap, water, and a soft skin brush. If petroleum products contact the eyes, flush the eyes with fresh water until the irritation subsides. **WARNING:** "Empty" containers retain residue (liquid and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks or other sources of ignition; they may explode and cause injury or death. "Empty" drums should be completely drained, properly bunged, and promptly returned to a drum reconditioner. All other containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations. Additional important health and safety information on this product can be found in the Material Safety Data Sheet, available on request.

Commercial Automotive Engine Oil • Exxon XD-3™ Extra 15W-40

Catalog Part No.	Exxon Model	Container Size	SAE Grade	Viscosity	Viscosity Index	Pour Point	Flash Point	Gravity, API	Wt.	Price Each
C1FW33	XD-3	5 gal.	15W-40	540SSU@104°F 72SSU@212°F	138	-27°F				

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Miscellaneous Products

CRC Chemical Maintenance Products



CRC Chemical Maintenance Products



Industrial Cleaning

Industrial Cleaning

Catalog Part No.	CRC Part No.	Product	Container Size	Description	Wt.	Price Each
•C1MH37	MK2832	Spray Away® All Purpose Cleaner	32 fl oz bottle	Cleans grease, grime, oil, rain stains, fish blood and more. Great on virtually any surface. Heavy duty formula is four times stronger than most spray cleaning products. Non-flammable.	2.00	
•C1FR61	14408	All Purpose Cleaner/Degreaser	1 gallon bottle	Biodegradable and concentrated. Non-corrosive, non-abrasive. Non-flammable. Safe on most plastics. Low foaming.	9.20	
•C1FR60	14170	Citrus Cleaner/Degreaser	20 oz aerosol	Pleasant citrus scent. Leaves no residue. Fast evaporation. Biodegradable. Non-corrosive, non-abrasive, non-staining.	1.25	
•C1FR62	14411	Glass Cleaner Professional Strength	30 oz trigger bottle	Professional strength streak-free glass cleaning. Biodegradable, ready to use. Non-abrasive foaming action. Non-flammable, non-ozone depleting.	2.05	
•C1FR44	03176	Battery Cleaner	12 oz aerosol	Removes corrosion quickly while neutralizing acid spills. Assures maximum battery current flow. Promotes longer battery life.	0.92	
•C1FR42	03130	QD™ Contact Cleaner	16 oz aerosol	Quick drying, leaves no residue, safe on all plastics. Effectively removes soil and other contaminants from electrical and electronic components. Ideal for applications where lower flashpoint solvents can be used.	0.96	
•C1MM69	MK2132	Cleaning Detail® Non-Skid Deck Cleaner	32 fl oz bottle	Cleans and brightens fiberglass, stainless steel, chrome, aluminum, and brass. Removes dirt, grease, grime and chalking. Easy to use on most surfaces above the waterline. Great for non-skid decks, shower stalls & tubs.	2.50	
•C1ML44	MK2032	On & Off Hull & Bottom Cleaner	32 fl oz bottle	Works instantly to remove the toughest waterline stains, algae stains, rust & gas exhaust stains. Use on fiberglass only. Will not harm gel coat.	3.70	
•C1MC31	MK2232	Super Suds® Boat Soap	32 fl oz bottle	Highly concentrated synthetic detergent. Non-streaking. Leaves no residue. Cleans away dirt and grime, leaving surfaces sparkling clean. Makes 64 buckets of wash. Will not remove wax.	2.27	
•C1KZ19	18420	Rust Remover	32 fl oz bottle	A safe, effective, fast acting formula. Removes rust, not metal. No sand blasting or heavy wire brushing required. Leaves metal clean and ready to paint, plate or powder coat.	0.50	
•C1ML45	MK2332	Big Bully® Natural Orange Bilge Cleaner	32 fl oz bottle	Works instantly to emulsify oil, grease, & scum. Tough citrus cleaning power absorbs odors and leaves bilge areas clean and fresh. Self-cleaning formula is activated by the rolling action of the boat.	2.00	



Miscellaneous Products

CRC Chemical Maintenance Products



Lubricants

Lubricants

Catalog Part No.	CRC Part No.	Product	Container Size	Description	Wt.	Price Each
•C1FR38	03005	3-36® Multi-Purpose Lubricant & Corrosion Inhibitor	16 oz aerosol	Cleans, lubricates, penetrates and loosens corrosion. Prevents corrosion by displacing moisture. Penetrates through corrosion to loosen frozen parts. Lubricates without leaving a sticky residue. Cleans light soils and contaminants.	0.93	
•C1FR39	03040	Food Grade Silicone	16 oz aerosol	Meets FDA CFR 21-178.3570 for incidental food contact. Forms a colorless, odorless, non-staining film. Harmless to most rubbers & plastics. -40°F to 400°F. Excellent release agent and lubricant for all surfaces.	0.87	
•C1FR40	03050	Chain & Wire Rope Lubricant	16 oz aerosol	Penetrates deep and leaves a tough film that lubricates & protects. Resists water wash-off and high temperature sling-off. Absorbs pin/bushing shock and cushions rollers, pins and bushings. Can be applied with guards in place.	0.87	
•C1HC80	06077	Marine Silicone Lubricant	12 oz aerosol	A multi-purpose silicone spray. Forms a colorless, odorless, non-staining film that lubricates & protects in most metal to non-metal applications. Dry film eliminates binding & sticking while protecting most surfaces.	0.69	
•C1FR41	03080	White Lithium Grease	16 oz aerosol	Excellent heat & water resistance. Rust & oxidation inhibitors for superior metal protection. Smooth, buttery consistency. Produces a tough, high viscosity film. White color for easy visual inspection of film coverage.	0.90	
•C1FS54	SL35901	Copper Anti-Seize	8 oz brush top bottle	Copper-based, safe for use on both ferrous and non-ferrous metals. Protects parts up to 1800°F. Electrically conductive. Will not harden. Heat aging won't affect lubricity of product.	0.60	
•C1FR59	14095	Copper Anti-Seize	16 oz aerosol	Copper-based, safe for use on both ferrous and non-ferrous metals. Protects parts up to 1800°F. Electrically conductive. Will not harden. Heat aging won't affect lubricity of product.	1.09	
•C1FS55	SL35911	Nickel Anti-Seize	8 oz brush top bottle	Copper-free formula for use where a clean, chemically inert & stable lubricant is required. Protects parts up to 2400°F. Electrically conductive. Will not harden. Heat aging won't affect lubricity of product.	0.58	
•C1JC26	03060	Screwloose® Super Penetrant	16 oz aerosol	A no-compromise penetrant that attacks corrosion to free corroded fasteners & mechanical components. A super-fast, powerful, concentrated penetrating solvent that loosens & cleans. Instantly penetrates minute & tightly fitted crevices.	0.65	

Vehicle Maintenance

Vehicle Maintenance

Catalog Part No.	CRC Part No.	Product	Container Size	Description	Wt.	Price Each
•C1LW49	05316	Motor Treatment	16 fl oz can	Cleans gum, varnish, and carbon from the fuel system, injectors, pistons, and combustion chamber. Removes moisture from fuel and oil systems and lubricates engine components.	1.00	
•C1MH65	05212	Diesel Fuel Therapy® Diesel Injector Cleaner Plus	12 fl oz bottle	This emissions reducing formula is rated "SUPERIOR" in Cummins L-10 Test for injector cleanliness. Cleans injectors, adds lubricity, increases power and MPG.	0.83	
•C1KT97	05412	Diesel Fuel Therapy® Diesel Injector Cleaner with Anti-Gel	12 fl oz bottle	This emissions reducing formula is rated "SUPERIOR" in Cummins L-10 Test for injector cleanliness. Lowers pour point & CFPP, relieves gelled fuel, adds lubricity, increases power and MPG.	0.80	
•C1GH16	05557	Bio-Con™ Diesel Fuel Sludge Sediment Remover	12 oz bottle	Improves storage stability of fuel. Prevents fuel filter plugging. Absorbs moisture. Keeps injectors clean.	0.83	
•C1GH15	05089	Brakleen® Brake Parts Cleaner	20 oz aerosol	Quickly removes brake fluid, grease, oil and other contaminants from brake linings and pads. Cleans fast, dries fast, no residue. Non-flammable. Works without disassembly.	1.46	



Miscellaneous Products

CRC Chemical Maintenance Products



Electrical Maintenance

Electrical Maintenance

Catalog Part No.	CRC Part No.	Product	Container Size	Description	Wt.	Price Each
•C1FR17	02085	Di-Electric Grease	6 oz pressurized tube	Non-curing silicone compound used for electrical sealing, lubricating, protecting & insulating. Meets FDA CFR 21-175.300 (release agent) and CFR 21-178.3570 (lubricant, incidental food contact). Excellent lubricant for rubber & plastic parts.	0.37	
•C1MG23	06106	Marine Premium Electronics Grease	6 oz pressurized tube	Seals, protects & insulates electrical contacts from moisture. Lubricates & seals rubber & plastic parts. Waterproofs components & contacts to protect against arcing. Improves electrical performance during adverse conditions such as rain & fog.	0.50	

Corrosion Inhibitors

Corrosion Inhibitors

Catalog Part No.	CRC Part No.	Product	Container Size	Description	Wt.	Price Each
•C1JE82	03282	SP-400™ Corrosion Inhibitor	16 oz aerosol	Long-term indoor/outdoor corrosion inhibitor that provides protection of all equipment subject to heat, humidity, chemicals or severely corrosive atmospheres. Use on machined surfaces & assemblies subjected to long periods of storage.	0.87	
•C1MH68	06068	Engine Stor® Fogging Oil	16 oz aerosol	As fogging fluid, it protects outboard motors, marine engines & internal combustion engines, insures longer life. As long term metal protectant, it keeps pistons, rings & cylinder walls corrosion free. Also protects electrical connections in use/storage.	1.08	
•C1MH41	SX32M	Salt Terminator® Engine Flush, Cleaner & Corrosion Inhibitor	32 fl oz bottle w/mixer	Cleans & protects anything exposed to salt (saltwater, salt air, road salt). Dissolves salt & leaves a protective coating to inhibit corrosion. Essential as a motor flush for marine engines in both saltwater and freshwater environments.	0.41	
•C1MM26	SX128	Salt Terminator® Engine Flush, Cleaner & Corrosion Inhibitor	1 gal bottle	Cleans & protects anything exposed to salt (saltwater, salt air, road salt). Dissolves salt & leaves a protective coating to inhibit corrosion. Essential as a motor flush for marine engines in both saltwater and freshwater environments.	3.70	
•C1FR43	03175	Battery Terminal Protector	12 oz aerosol	Soft, flexible film completely encapsulates exposed surfaces and will not become brittle, crack or peel. Dries quickly and protects instantly. Red color for easy visual inspection.	0.68	
•C1FR63	18412	Zinc-It® Instant Cold Galvanize	16 oz aerosol	Actively fights rust & corrosion with a film of 95% pure zinc. Protects base metal even when scratched or abraded. Fast-drying. Excellent weldability.	1.10	

Greases & Oils

Greases & Oils

Catalog Part No.	CRC Part No.	Product	Container Size	Description	Wt.	Price Each
•C1FS53	SL3120	Marine Grease	14 oz cartridge	For boat trailer wheel bearings. Aluminum complex, NLGI #2 grease. Excellent water resistance. Superior rust and corrosion protection. Typical drop point 470°F.	0.98	



Miscellaneous Products

CRC Chemical Maintenance Products



Specialty Products

Specialty Products

Catalog Part No.	CRC Part No.	Product	Container Size	Description	Wt.	Price Each
•C1FR57	14055	RTV Silicone Adhesive/Sealants	Clear 8 oz pressurized tube	Clear - Forms a barely visible water-tight seal. RTV (Room Temperature Vulcanizing) Adhesive/Sealants are designed for a wide range of sealing, bonding, protecting and waterproofing applications.	0.68	
•C1FR58	14056	RTV Silicone Adhesive/Sealants	White 8 oz pressurized tube	White - Designed for high moisture, indoor/outdoor applications. RTV (Room Temperature Vulcanizing) Adhesive/Sealants are designed for a wide range of sealing, bonding, protecting and waterproofing applications.	0.68	
•C1FS52	SL1712	Mechanix Orange™ Citrus Lotion Hand Cleaner with Pumice	16 fl oz bottle	Fresh citrus scent. Contains no harsh solvents. pH balanced. Conditions skin. Biodegradable. Fortified with pumice for deep-cleaning power.	1.19	
•C1AK48	14010	Wasp & Hornet Killer PLUS™	20 oz aerosol	Fast acting, high strength insecticide. Ergonomic trigger that provides control, even with gloved hands, and is accurate up to 15' away Plastic safe - will not damage plastic connectors and other insulating materials.	1.16	

Hydraulic Power & Control

Pneumatic Power & Control

Fluid Conveying

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Indexes & Technical Information



Miscellaneous Products

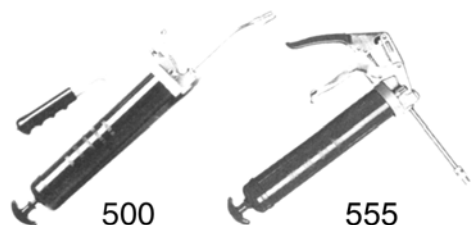
Lubrication Equipment & Accessories

Heavy Duty Grease Guns



Features: Automatic variable stroke/pressure, air vent fitting, vinyl grip, deluxe pull handle, positive lever stop, heavy-duty one piece head, 3-way loading, loader fitting included.

Heavy Duty Grease Guns



Catalog Part No.	Alemite Model	Pressure Rating (psi)	Strokes for 1 oz	Other Features	Wt.	Price Each
•C1KK43	555-GUN	7,500	30	Rigid extension	3.30	
•C1BR62	500	10,000	21	Rigid extension	3.49	

Heavy Duty Deluxe Pistol Grease Gun with 18" Flex Hose



Comes with 18" Flex Hose extension for Hard-to-reach Fittings • Convenience of One-hand operation for easy Greasing • Heavy-duty, LuCast TM, Cast-Alloy Head with Heavier and Reinforced Wall Thickness for Extra Strength • Develops up to 7,000 PSI • WARNING : Do not hold Whip Hose while pumping the Grease Gun. Replace damaged Whip Hose with 4500 PSI Rated Hose only • Handy 3-way loading - fill with Standard Cartridge, Suction or Bulk Fill • Air Bleeder Valve to release Trapped Air • Filler Nipple with Ball Check for use with Grease Filler Pump • Chrome Plated finish Handle for Maximum Protection against Corrosion • Deluxe, Oil-resistant, Contoured Grip for Comfort and Firm Grip • Heavy Gauge Steel Barrel (18 Ga) • Wide Band, Non-slip Knurling for Sure-grip Handling • Tough Follower offers Superior Seal and eliminates Grease Bypass • Heavy-duty Follower Spring for Consistent Priming • Posi-lock Follower Rod with Ergonomically designed T-handle provides Sure-handed Grip and easy filling at any position • Outputs 4 oz. of Grease per 100 Strokes • Complete with 4" Extension Pipe, Four Hardened Jaws Hydraulic Coupler with Ball Check and Non-drip Cap.

Heavy Duty Deluxe Pistol Grease Gun with 18" Flex Hose



Catalog Part No.	Lumax Model	Description	Wt.	Price Each
•C1JP24	LX-1152	Pistol Grease Gun with 18 inch Flex Hose	3.02	

Lubrication Equipment & Accessories

Grease Fitting / Joint Fitting Cleaner



For use on stubborn or clogged grease fittings and joints • Cleans and replenishes old and dry grease fittings • Saves the time and expense of replacing a clogged fitting.

How It Works: Pour fluid into cylinder. Lightly tap the head of the plunger after coupler is attached to the fitting. Fluid is dispensed into the fitting.



Grease Fitting / Joint Fitting Cleaner

Catalog Part No.	Alemite Model	Description	Wt.	Price Each
C1GL24	339841	Grease Fitting/Joint Cleaner	1.48	

Mobilgrease® HP Multipurpose Automotive Grease



Mobilgrease® HP is an NLGI No. 2 unleaded, lithium complex soap grease. It has a smooth structure and is extremely adhesive in service. Mobilgrease® HP contains extreme pressure additives and oxidation inhibitors. Base oil viscosity is an ISO Grade 220, dropping point is 500 deg. F, or greater.

Application: Mobilgrease® HP meets the requirements for extended lubrication intervals of automotive chassis lubrication points and disc brake wheel bearings, particularly in passenger cars, light trucks, taxi fleets and farm equipment. It is also recommended for small marine craft. Mobilgrease® HP resists water washout and sprayoff. It provides excellent rust protection as well as protection against wear, making it an excellent choice for on- and off-highway heavy duty equipment (fifth wheels, kingpins, u-joints, bucket pins, etc). Note: When wheel bearings are packed for the first time with Mobilgrease® HP, remove the old grease completely, wash the bearings with a suitable safety solvent, and dry them thoroughly before repacking.

Health & Safety: Based on available toxicological information, these products produce no adverse effects on health when properly handled and used. No special precautions are suggested beyond attention to good personal hygiene including laundering oil-soaked clothing and washing skin-contact areas with soap and water. Material Safety Data Sheets (MSDS) are available upon request.



Mobilgrease® HP Multipurpose Automotive Grease

Catalog Part No.	Model Number	Description	Wt.	Price Each
C1CX88	GREASE	14 oz. tube. Blue color.	0.97	

Miscellaneous Products

Lubrication Equipment & Accessories

Grease Gun Extension Hoses

Economical, durable thermoplastic or rubber/wire braided hoses. 12,000 PSI Burst Pressure. Male 1/8 NPT ends.
WARNING: The pressure rating on these hose assemblies apply when used with hand-operated grease pumping equipment ONLY, such as grease guns or bucket pumps. DO NOT use with power operated equipment.

Grease Gun Extension Hoses



Catalog Part No.	Model	Mfg. Name	Length (in)	Working Pressure (psi)	Hose Type	Wt.	Price Each
•C1ZU96	B337595-A1	Alemite	12	6,000	Thermoplastic	0.18	
•C1JP25	LX-1203	Lumax	18	4,500	Thermoplastic	0.17	

Couplers



Provides quick, positive, leakproof connection with grease fittings. Grease pressure forces 3 hardened steel jaws against grease fitting. Standard model jaws are reversible for long life.



Couplers

Catalog Part No.	Alemite Model	Thread	Type	Wt.	Price Each
•C1ZV22	6304-B	Female 1/8 NPT	Standard	0.11	
•C1ZV32	308730-ALEMITE	Female 1/8 NPT	Narrow	0.07	

Note: 308730A equipped with built-in check valve.

Swivel Couplers



Couplers swivel full 360°, locks in any of eight positions. Handy means of engaging out-of-the-way grease fittings. Use 1/8 NPT pipe extension to connect coupler to gun outlet.



Swivel Couplers

Catalog Part No.	Alemite Model	Description	Wt.	Price Each
•C1ZU93	B6509-D	Standard diameter, metal seal, 3-1/2 inches long	0.37	
•C1ZU92	B6509-E	Narrow diameter, rubber seal, 4 inches long	0.38	

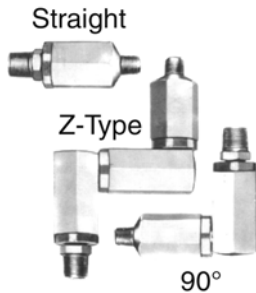
Lubrication Equipment & Accessories

Swivels



Permits easy handling of control valves and prevents damage to hoses from twisting.

Swivels



Catalog Part No.	Alemite Model	Type	Threads	Wt.	Price Each
•C1ZU95	B52750	Straight	1/4 NPT x 1/2-27 NS Taper	0.30	
•C1JP84	B52751	90°	1/4 NPT x 1/2-27 NS Taper	0.62	
•C1ZU94	B52752	Z-Type	1/4 NPT x 1/2-27 NS Taper	0.91	
•C1GB62	B331107	Z-Type	1/4 NPT x 1/4 NPT	0.92	

Grease Fittings

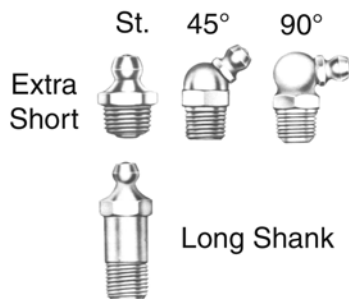


1/8 NPT Fittings: Used on many industrial machines. Features dirt excluding ball check. Maximum pressure 10,000 PSI.

1/4 NPT Fittings: Widely used for larger bearings on farm machinery and industrial equipment. Especially recommended for heavy lubricants in cold weather. Dirt excluding ball check. Maximum pressure 10,000 PSI.

1/4-28 Taper Thread Fittings: Used on most cars and trucks and on many industrial machines. Dirt excluding ball check. Maximum pressure 10,000 PSI.

Grease Fittings



Catalog Part No.	Alemite Model	Thread	Type	O.A. Length (in)	Shank Length (in)	Hex Size (in)	Wt.	Price Each
•C1BW22	6000-ARO (Mfg is Aro)	1/8 NPT	Extra Short Straight	0.66			0.01	
•C1ZV13	B1610-BL (Package of 10)	1/8 NPT	Extra Short Straight	11/16	0.30	7/16	0.15	
•C1ZU99	B1688-B (Package of 10)	1/8 NPT	Extra Short 45°	0.89	0.30	0.44	0.23	
•C1ZV12	B1627-B (Package of 5)	1/4 NPT	Extra Short Straight	7/8	0.42	9/16	0.17	
•C1ZV11	B1641-B (Package of 10)	1/4-28	Straight	35/64	0.19	5/16	0.07	

Miscellaneous Products

Lubrication Equipment & Accessories

Non-Corrosive Grease Fittings



Alemite non-corrosive fittings withstand the most severe corrosive conditions in both marine and industrial applications, and are never plugged by corrosion.

Stainless Steel Models: Identified by a -S in the model number, and 2 notches on hex. Type 303 stainless steel bodies, type 440 stainless steel balls and type 302 stainless steel tempered springs.

Monel Models: Identified by a -B in the model number, and 1 notch on hex. Nickel-copper alloy (monel) type R bodies, drawn full hard type R tips, type K monel balls and inconel springs.



Non-Corrosive Grease Fittings

Catalog Part No.	Alemite Model	Thread	Type	O.A. Length (in)	Shank Length (in)	Hex Size (in)	Wt.	Price Each
•C1GF69	1961-S	1/8 NPT	Stainless Extra Short Straight	3/4		7/16	0.02	
•C1GF70	1966-S	1/4-28	Stainless Straight	17/32		5/16	0.01	

Pocket Pack Grease Fitting Assortment



Box contains six types of popular fittings. An identifying chart is included in the cover.



Pocket Pack Grease Fitting Assortment

Catalog Part No.	Alemite Model	Description	Wt.	Price Each
•C1ZV35	2365-1	(12) 1/8 NPT Straight, (6) 1/8 NPT 45, (6) 1/8 NPT 90, (12) 1/4-28 Straight, (6) 1/4-28 45, (6) 1/4-28 90	0.88	

Metric Grease Fitting Assortment



Box contains six types of popular metric fittings. An identifying chart is included in the cover.



Metric Grease Fitting Assortment

Catalog Part No.	Alemite Model	Description	Wt.	Price Each
•C1ZV34	2371	(10) M6x1 Straight, (6) M6x1 45, (6) M6x1 90, (6) M8x1 Straight, (6) M8x1 90, (10) M10x1 Straight	0.73	

Lubrication Equipment & Accessories

Button Head Couplers



Button Head Couplers

Catalog Part No.	Alemite Model	Thread	Type	Wt.	Price Each
•C1ZV31	42030-A	Female 1/8 NPT	Standard Pull-On	0.29	

Needle Nose Adapter



For use in all lubrication tight spots. Consists of contact nozzle and coupler locking sleeve.



Needle Nose Adapter

Catalog Part No.	Alemite Model	Description	Wt.	Price Each
•C1ZU91	B6783	Needle Nose Adapter, 5 inches long	0.24	

Adapters



Bright zinc plated steel to resist corrosion.



Adapters

Catalog Part No.	Alemite Model	Description	Wt.	Price Each
•C1ZV29	51942	Male 1/4-28 Taper Thread x Female 1/8 NPT	0.02	

Couplings



Couplings

Catalog Part No.	Alemite Model	Description	Wt.	Price Each
•C1ZV27	53495	Female 3/8 NPT x Female 1/2-27 NS Taper	0.14	

Miscellaneous Products

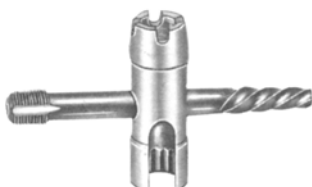
Lubrication Equipment & Accessories

Easy-Out Fitting Tools



All-in-one tool to extract broken fittings, re-thread holes and install new straight and angle-type fittings.

Easy-Out Fitting Tools



Catalog Part No.	Alemite Model	Description	Wt.	Price Each
•C1ZU97	B315791	For fittings with 1/8 NPT thread	0.20	
•C1ZU98	B315790	For fittings with 1/4-28 taper thread	0.12	

Standard Control Valves



Features: Delivers pre-set, measured shots with trigger partially depressed. Provides continuous flow with trigger fully depressed. Includes 6-1/2 inch extension and 6304-B coupler. Female 1/4 NPT inlet.

Standard Control Valves



Catalog Part No.	Alemite Model	Description	Wt.	Price Each
•C1ZV21	6320-3	Standard Control Valve, 1/4 NPT	2.82	

Lever-Action Bucket Pump



Smooth, easy pumping action dispenses all types of Lubricants, even in the coldest weather. Ideal for transferring Motor Oil, Transmission Fluid, Differential Fluid, Heavier Oils and other Automotive Additives • Portable - Clamps to any 25-50 lb. 5 Gallon Pail • All Steel Pump. 1-1/2" Inlet and 1/2" Outlet Port • Heavy-duty, LuCast TM, Cast-Alloy Head with Heavier and Reinforced Wall Thickness for Extra Strength and Durability • Zinc Plated, Corrosion-resistant Suction Tube • Oil-resistant, Contoured Grip for Comfort and Firm Grip • Self Priming. Delivers 30 fl. oz. per 12 Strokes • Unit Includes : 18" long by 1-1/2" diameter Suction Tube with Rust Resistant 12" Ribbed Cover Assembly with adjusting screws to accommodate variations in drum diameter and 5 ft. Oil Resistant Flex Hose with Curved Nozzle.

Lever-Action Bucket Pump



Catalog Part No.	Lumax Model	Description	Wt.	Price Each
•C1JP26	LX-1300	Lever-Action Bucket Pump	6.99	

Lubrication Equipment & Accessories

Plastic Bucket Pump with Flex Hose & Non-Drip Nozzle



Plastic Bucket Pump with Zinc-Plated Steel Tube for transferring Noncorrosive Fluids of Light to Medium Viscosity like, Engine Oil, Gear Oils, Transmission Fluid, Automotive Additives, Machine Oil, etc. • Self Priming, Push-down Action Pump • 5 Gallon Capacity • Drain-back Nozzle prevents Spills and Accidents • Precision Buna-n Seal eliminates by-pass • Nylon Piston for Durability • Zinc Plated, Corrosion-resistant Suction Tube • Includes : 50" Oil-resistant Flex Hose with Non-drip Nozzle • 1" Inlet Port and 1/4" Outlet Port • Discharge Capacity : 3 oz. per Stroke • Pump Height : 20".



Plastic Bucket Pump with Flex Hose & Non-Drip Nozzle

Catalog Part No.	Lumax Model	Description	Wt.	Price Each
•C1JP28	LX-1336	Plastic Bucket Pump	2.23	

Lift-Action Steel Barrel Pump with Fixed Steel Spout



Zinc-Plated Steel Barrel Pump for transferring Non-corrosive Fluids of Light to Medium Viscosity like, Motor Oils, Transmission Fluid, Heating Oils, Machine Oil, Automotive Additives, Cleaning Solutions, Lacquer Thinner, Solvents, Diesel Fuel, Kerosene, etc. • Fits 55 Gallon Drums (210 l) with Standard 2" Bung Opening • Self Priming • Die-cast Head with Curved Metal Spout • Precision Buna-n Seal eliminates by-pass and Floating Steel Check Valve drains Liquid when not in use • Steel Piston for Durability • Comes with Adjustable 2" Bung Bushing • Zinc Plated, Corrosion-resistant Suction Tube • Discharge Spout can be rotated 180° and can be removed to expose Garden Hose threaded outlet • Discharge Capacity : 22 Fl. oz. per Stroke • 1-1/2" Inlet Port and 3/4" Outlet Port • Pump Height : 42".



Lift-Action Steel Barrel Pump with Fixed Steel Spout

Catalog Part No.	Lumax Model	Description	Wt.	Price Each
•C1JP27	LX-1330	Lift-Action Piston-Type Barrel Pump	4.23	

Miscellaneous Products

Lubrication Equipment & Accessories

Deluxe Heavy Duty Rotary Action Hand Pump



Precision Engineered, Heavy Duty Aluminum Die Cast Body Pump for transferring Non-corrosive Petroleum based fluids of Light to Medium Viscosity • Ideal for Heavy-duty use in Industrial, Automotive and Agricultural applications • Fits 15 to 55 Gal. Drums (57 to 210 l) with Standard 2" (50 mm) Bung Opening • 40" (1 m) long Zinc Plated, Corrosion-resistant Suction Tube • Self Priming. Heavy-duty Vanes allow better draw and smooth delivery of Fluids • Non-slip, Oil Resistant Grip with for Comfort and Safer Operation • Comes with Adjustable 2" (50 mm) Bung Bushing and with 39" (1 m) Flexible, Oil-resistant Discharge Hose • 1-1/4" (32 mm) Inlet Port and 1" (25 mm) Outlet Port • Discharge Capacity : One Gallon (3.8 l) per 12 Revolutions • Pump Height : 4.3 ft. (1.3 m). Maximum Discharge Height : 16.5 ft. (5 m)

Deluxe Heavy Duty Rotary Action Hand Pump

Catalog Part No.	Lumax Model	Description	Wt.	Price Each
•C1KM72	LX-1320	Rotary Action Transfer Pump	7.50	



Funnels



Funnels

Catalog Part No.	Lumax Model	Description	Wt.	Price Each
•C1JP30	LX-1604	48 oz. All-Purpose Plastic Funnel with Hanging Tab.	0.18	
•C1JP31	LX-1608	6 Quart All-Purpose Plastic Funnel with Hanging Tab.	0.54	
•C1JP29	LX-1600	8 oz. All-Purpose Plastic Funnel with Hanging Tab.	0.08	
•C1JP32	LX-1614	Long Neck Utility Funnel for Hard-To-Reach Applications. 5" Diameter x 18" long with 1/2" Tip. With Hanging Tab.	0.28	

Drain Pans



Drain Pans

Catalog Part No.	Lumax Model	Description	Wt.	Price Each
•C1JP35	LX-1710	6 Gallon Galvanized Drain Pan. 19" Diameter x 6" Deep. Heavy-Duty with Ribbed Bottom. Anti-Splash Baffle. Handles.	4.00	
•C1JP34	LX-1632	15 Quart Drainmaster Drain-Direct Pan with Handle & Wheels. 8" Opening with Screw Cap. Catch-All Basket to Retrieve Drain Plug and Filter. O-ring Seal.	2.70	
•C1JP33	LX-1628	6 Quart Plastic Drain Pan with Pouring Lip and Raised Rim Handles. 12" Diameter x 4" Deep.	0.66	



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	C1FP53	.1066	C1FR24	.1069	C1FT35	.880	C1FU42	.861	C1FX72	1006	C1GA43	.456	C1GD31	.946	458, 459, 461	
	C1FP54	.1066	C1FR25	.1068	C1FT36	.880	C1FU44	.858	C1FX77	1006	C1GA44	.456	C1GD87	1183	C1GG88	.1066
	C1FP55	.1069	C1FR31	.1069	C1FT42	.880	C1FU45	.858	C1FY76	1047	C1GA46	.458,	C1GD94	.955	C1GG93	.1230
	C1FP56	.1069	C1FR32	.1068	C1FT43	.880	C1FU47	.858	C1FY77	1047	459,461		C1GD97	1112	C1GG99	.1026
Pneumatic Power & Control	C1FP58	.1067	C1FR38	.1399	C1FT44	.880	C1FU48	.858	C1FY78	1047	C1GA47	.458,	C1GD98	.979	C1GH15	.1399
	C1FP59	.1067	C1FR39	.1399	C1FT45	.882	C1FU49	.858	C1FY79	1047	459,461		C1GE14	1065	C1GH16	.1399
	C1FP60	.1068	C1FR40	.1399	C1FT46	.882	C1FU50	.858	C1FY80	1047	C1GA55	.1271	C1GE15	.877	C1GH24	.1086
	C1FP61	.1068	C1FR41	.1399	C1FT47	.882	C1FU52	.858	C1FY81	1047	C1GA56	.1202	C1GE21	1003	C1GH25	.1087
	C1FP65	.1201	C1FR42	.1398	C1FT48	.882	C1FU53	.858	C1FY82	1047	C1GA57	.457	C1GE52	.377	C1GH36	.1208
	C1FP66	.1201	C1FR43	.1400	C1FT49	.882	C1FU56	.858	C1FY83	1047	C1GA58	.457	C1GE66	1164	C1GH46	.999
	C1FP68	.1201	C1FR44	.1398	C1FT50	.882	C1FU59	.858	C1FY84	1047	C1GA59	.457	C1GE90	1116	C1GH47	.1001
	C1FP72	.1071	C1FR46	.1062	C1FT52	.882	C1FU70	.804	C1FY85	1047	C1GA60	.457	C1GE91	1116	C1GH48	.885
	C1FP74	.1071	C1FR48	.1062	C1FT57	.883	C1FU71	.804	C1FY86	1047	C1GA61	.460	C1GE92	1116	C1GH54	.231
	C1FP81	.806	C1FR49	.1062	C1FT62	.885	C1FU72	.804	C1FY87	1047	C1GA62	.1003	C1GE94	1114	C1GH56	.410
Fluid Conveying	C1FP82	.806	C1FR53	.485	C1FT63	.885	C1FU73	.804	C1FY88	1047	C1GA63	.1003	C1GF12	1279	C1GH59	.1336
	C1FP83	.806	C1FR57	.1401	C1FT64	.885	C1FU74	.804	C1FY89	1047	C1GA64	.1003	C1GF13	.905	C1GH64	.1134
	C1FP92	.166	C1FR58	.1401	C1FT65	.884	C1FU75	.804	C1FY90	1047	C1GA65	.1003	C1GF14	.905	C1GH65	.175
	C1FP94	.1062	C1FR59	.1399	C1FT66	.884	C1FU76	.804	C1FY91	1047	C1GA66	.1003	C1GF15	.906	C1GH69	.1062
	C1FP95	.1062	C1FR60	.1398	C1FT67	.884	C1FU77	.804	C1FY92	1047	C1GA67	.1003	C1GF16	.906	C1GH70	.1382
	C1FP96	.442	C1FR61	.1398	C1FT69	.884	C1FU78	.804	C1FY93	1047	C1GA70	.999	C1GF17	1066	C1GH71	.1382
	C1FP97	.1182	C1FR62	.1398	C1FT70	.884	C1FU80	.804	C1FY94	1047	C1GA81	.1057	C1GF19	1067	C1GH73	.1177
	C1FP99	.1177	C1FR63	.1400	C1FT71	.884	C1FU81	.804	C1FY97	1047	C1GA91	.931	C1GF30	1068	C1GH77	.1189
	C1FQ11	.1172	C1FR64	.931	C1FT72	.884	C1FU85	.1198	C1FY98	1047	C1GA94	.945	C1GF33	1192	C1GH79	.1189
	C1FQ13	.1225	C1FR82	.1183	C1FT73	.884	C1FU98	.1230	C1FY99	1047	C1GA97	.881	C1GF59	1004	C1GH97	.1000
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	C1FQ20	.1226	C1FR84	.1183	C1FT76	1147	C1FV11	.882	C1FZ12	1047	C1GB19	.880	C1GF62	.455	C1GJ23	.906
	C1FQ25	.850	C1FR85	.1172	C1FT77	1147	C1FV18	.883	C1FZ13	1047	C1GB22	.880	C1GF69	1406	C1GJ24	.906
	C1FQ26	.1163	C1FR90	.1116	C1FT78	1147	C1FV19	.883	C1FZ14	1047	C1GB53	.1189	C1GF70	1406	C1GJ25	.906
	C1FQ31	.950	C1FS49	.991	C1FT79	1147	C1FV21	.883	C1FZ15	1047	C1GB57	.1172	C1GF75	.374	C1GJ26	.1001
	C1FQ33	.346	C1FS52	.1401	C1FT80	1027	C1FV22	.883	C1FZ16	1047	C1GB58	.1172	C1GF77	.531	C1GJ39	.914
	C1FQ34	.1173	C1FS53	.1400	C1FT81	1027	C1FV24	.883	C1FZ17	1047	C1GB62	.1405	C1GF80	1000	C1GJ40	.914
	C1FQ36	.1016	C1FS54	.1399	C1FT82	1027	C1FV25	.883	C1FZ19	1010	C1GB67	.1293	C1GF81	1000	C1GJ46	.1098
	C1FQ37	.1016	C1FS55	.1399	C1FT83	1027	C1FV34	.438	C1FZ20	1010	C1GB72	.1293	C1GF89	.374	C1GJ47	.1098
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	C1FQ40	.1016	C1FS61	.887	C1FT86	1027	C1FV49	.214	C1FZ24	1010	C1GB94	.1067	466		C1GJ50	.1098
	C1FQ41	.1016	C1FS72	.1000	C1FT87	1027	C1FV52	.943	C1FZ25	1010	C1GC14	.1178	C1GG13	1298	C1GJ51	.1098
	C1FQ44	.358	C1FS73	.1000	C1FT88	1027	C1FV58	.944	C1FZ26	1010	C1GC15	.1031	C1GG16	1298	C1GJ52	.1098
	C1FQ46	.393,	C1FS74	.1000	C1FT89	1027	C1FV64	.1226	C1FZ28	1010	C1GC16	.1031	C1GG21	1354	C1GJ53	.1098
	421		C1FS75	.1000	C1FT90	1027	C1FV66	.1139	C1FZ31	.528	C1GC17	.1031	C1GG32	1344	C1GJ54	.1098
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C1HR25	.1074	C1HV17	.316	C1HX53	.951	C1JA38	.1388	C1JC40	.220	C1JE82	.1400	C1JG76	.902	C1JH78	.902
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C1HR37	.1075	C1HV46	.291	C1HX83	.288	C1JA70	.1114	C1JC62	.1029	1313		C1JG92	.902	C1JH97	.903
C1HR38	.1075	C1HV49	.291	C1HY11	1101	C1JA71	.1114	C1JC63	.1180	C1JF25	.1362	C1JG93	.902	C1JH99	.903
C1HR39	.1075	C1HV50	.291	C1HY21	.215	C1JA76	.1112	C1JC65	.208	C1JF26	.1165	C1JG94	.902	C1JJ11	.903
C1HR40	.1075	C1HV51	.288	C1HY22	.215	C1JA78	.1112	C1JC68	.292	C1JF33	.1384	C1JG95	.902	C1JJ17	.903
C1HR41	.1075	C1HV52	.291	C1HY23	.215	C1JA81	.1116	C1JC81	.1171	C1JF35	.1384	C1JG96	.902	C1JJ20	.903
C1HR45	.1076	C1HV54	.290	C1HY24	.215	C1JA99	.1081	C1JC84	.1112	C1JF37	.486	C1JG97	.902	C1JJ21	.903
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C1HR52	.1208	C1HW70	.330	C1HY32	.348	C1JB12	.1081	C1JC96	.1207	C1JF40	.1156	C1JH12	.902	C1JJ34	.903
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C1HS90	.339	C1HW28	.489	C1HY44	1084	C1JB19	.1081	C1JD11	.927	C1JF53	.904	C1JH15	.902	C1JJ40	.903
C1HS91	.339	C1HW29	.489	C1HY46	1086	C1JB20	.1081	C1JD14	.927	C1JF54	.904	C1JH16	.902	C1JJ41	.903
C1HS92	.339	C1HW30	484,	C1HY48	1085	C1JB21	.1082	C1JD15	.294	C1JF55	.904	C1JH18	.902	C1JJ42	.903
C1HT16	.291,	485, . . .	.489	C1HY49	1085	C1JB22	.1066	C1JD16	.294	C1JF56	.904	C1JH19	.902	C1JJ44	.903
314, . . .	.318	C1HW31	.488	C1HY51	1086	C1JB23	.1177	C1JD17	.1202	C1JF57	.227	C1JH20	.902	C1JJ45	.518
C1HT29	.316,	C1HW36	.945	C1HY57	.484,	C1JB26	.1081	C1JD19	.927	C1JF59	.904	C1JH21	.902	C1JJ46	.903
320, . . .	.331	C1HW37	.990	485, . . .	.489	C1JB27	.985	C1JD20	.927	C1JF69	.904	C1JH22	.902	C1JJ48	.175
C1HT30	.307	C1HW38	.997	C1HY58	.484,	C1JB31	.1081	C1JD23	.927	C1JF70	.904	C1JH25	.902	C1JJ56	.985
C1HT31	.340	C1HW39	.997	485, . . .	.489	C1JB32	.1081	C1JD25	.927	C1JF71	.904	C1JH26	.902	C1JJ57	.903
C1HT46	.339	C1HW45	1146	C1HY62	.488	C1JB38	.985	C1JD27	.919	C1JF87	.904	C1JH27	.902	C1JJ58	.903
C1HT99	.307	C1HW46	.369	C1HY63	1207	C1JB41	.465	C1JD28	.940	C1JG22	.904	C1JH28	.902	C1JJ59	.900
C1HU11	.317,	C1HW48	.997	C1HY72	1231	C1JB44	.468	C1JD29	.942	C1JG23	.912	C1JH29	.902	C1JJ62	.1318
321		C1HW49	.853	C1HY73	1167	C1JB52	.1054	C1JD33	.1389	C1JG24	.912	C1JH30	.902	C1JJ66	.903
C1HU12	.331	C1HW50	.853	C1HY74	1231	C1JB53	.1054	C1JD34	.488	C1JG25	.912	C1JH31	.902	C1JJ67	.903
C1HU15	.307	C1HW51	.853	C1HY93	.928	C1JB57	.1054	C1JD36	.236	C1JG26	.912	C1JH32	.902	C1JJ68	.903
C1HU16	.317	C1HW52	.851	C1HZ19	1145	C1JB60	.1053	C1JD39	.167	C1JG27	.912	C1JH33	.902	C1JJ69	.903
C1HU17	.307	C1HW53	.851	C1HZ24	1150	C1JB62	.1054	C1JD41	.927	C1JG28	.912	C1JH34	.902	C1JJ70	.903
C1HU18	.317	C1HW54	.851	C1HZ26	1127	C1JB63	.1054	C1JD42	.216	C1JG29	.912	C1JH35	.902	C1JJ71	.903
C1HU20	.307	C1HW55	.851	C1HZ30	.466	C1JB67	.1054	C1JD43	.951	C1JG30	.912	C1JH36	.902	C1JJ72	.903
C1HU21	.317	C1HW58	.854	C1HZ34	.853	C1JB68	.1054	C1JD52	.1384	C1JG31	.912	C1JH37	.902	C1JJ73	.903
C1HU22	.307	C1HW61	.852	C1HZ41	.852	C1JB72	.519	C1JD62	.189	C1JG33	.912	C1JH38	.902	C1JJ74	.903
C1HU24	.317	C1HW62	.852	C1HZ44	.852	C1JB77	.294	C1JD63	.1053	C1JG34	.904	C1JH41	.902	C1JJ75	.903
C1HU27	.317	C1HW86	.853	C1HZ47	.854	C1JB78	.1392	C1JD75	.850	C1JG40	.904	C1JH42	.902	C1JJ76	.903
C1HU38	.321	C1HW87	.853	C1HZ48	.854	C1JB79	.166	C1JD78	.485,	C1JG41	.904	C1JH43	.902	C1JJ77	.903
C1HU39	.331	C1HW88	.853	C1HZ49	.854	C1JB81	.166	489		C1JG43	.904	C1JH44	.902	C1JJ78	.903
C1HU41	.321	C1HW89	.853	C1HZ50	.854	C1JB83	.166	C1JD80	.907	C1JG44	.904	C1JH45	.902	C1JJ79	.903
C1HU43	.331	C1HW91	.369	C1HZ52	.778	C1JB84	.166	C1JD81	.907	C1JG45	.904	C1JH47	.902	C1JJ80	.903
C1HU44	.321	C1HW95	1144	C1HZ53	.778	C1JB85	.166	C1JD89	1274	C1JG51	.904	C1JH48	.902	C1JJ81	.903
C1HU46	.331	C1HW96	.227	C1HZ54	.778	C1JB86	.166	C1JD92	1379	C1JG52	.904	C1JH49	.902	C1JJ82	.903
C1HU49	.331	C1HW97	.447	C1HZ55	.778	C1JB88	.166	C1JD95	1252	C1JG53	.904	C1JH50	.902	C1JJ83	.903
C1HU54	.321	C1HX14	1109	C1HZ56	.778	C1JB89	.167	C1JD96	1252	C1JG54	.904	C1JH51	.902	C1JJ84	.903
C1HU61	.340	C1HX17	1207	C1HZ57	.951	C1JB95	.210	C1JD97	1252	C1JG55	.904	C1JH56	.902	C1JJ85	.903
C1HU62	.340	C1HX24	1114	C1HZ64	.952	C1JB97	.1086	C1JD98	1252	C1JG56	.904	C1JH57	.902	C1JJ86	.903
C1HU84	.315	C1HX25	1117	C1HZ70	.952	C1JC13	.488	C1JD99	1252	C1JG59	.904	C1JH59	.902	C1JJ87	.903
C1HU85	.319	C1HX31	.889	C1HZ73	.951	C1JC15	.130	C1JE39	.1032	C1JG60	.904	C1JH62	.902	C1JJ88	.903
C1HU86	.339	C1HX32	.889	C1HZ84	.291	C1JC18	.211	C1JE42	.498	C1JG61	.904	C1JH66	.902	C1JJ89	.903
C1HU94	.306	C1HX34	.252	C1HZ92	.216	C1JC19	.152	C1JE44	.1384	C1JG65	.904	C1JH67	.902	C1JJ90	.903
C1HU95	.306	C1HX35	.252	C1HZ99	.448	C1JC24	.1153	C1JE45	.226	C1JG66	.902	C1JH69	.902	C1JJ91	.903
C1HU98	.305	C1HX36	.252	C1JA16	.432	C1JC25	.1124	C1JE59	.226	C1JG68	.902	C1JH73	.1158	C1JJ92	.903
C1HV11	.307	C1HX44	1134	C1JA21	.224	C1JC26	.1399	C1JE68	.1069	C1JG70	.902	C1JH74	.1158	C1JJ93	.903
C1HV13	.315	C1HX45	1152	C1JA25	.953	C1JC28	.130,	C1JE69	.1194	C1JG73	.902	C1JH75	.902	C1JJ94	.903
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C1KS12	.1147	C1KS77	.1146	C1KT51	1117	C1KU42	.242	C1KV49	1239	C1KW25	.495	C1KX21	1056
C1KS13	.1147	C1KS78	.1146	C1KT52	1153	C1KU43	.242	C1KV52	.951	C1KW26	.495	C1KX22	1056
C1KS14	.1147	C1KS79	.1146	C1KT53	1153	C1KU44	.242	C1KV53	.951	C1KW27	.494	C1KX23	1056
C1KS15	.1147	C1KS80	.1148	C1KT54	1153	C1KU45	.242	C1KV54	.951	C1KW28	.495	C1KX24	1056
C1KS16	.1147	C1KS81	.1148	C1KT55	1153	C1KU46	.242	C1KV55	.951	C1KW29	.494	C1KX25	1056
C1KS17	.1147	C1KS82	.1148	C1KT56	1153	C1KU47	.242	C1KV56	.951	C1KW30	.495	C1KX26	1056
C1KS18	.1132	C1KS83	.1149	C1KT57	1153	C1KU48	.242	C1KV57	.951	C1KW34	1242	C1KX27	1058
C1KS19	.1132	C1KS84	.1149	C1KT58	1153	C1KU49	.242	C1KV58	.952	C1KW35	1242	C1KX28	1058
C1KS20	.1132	C1KS85	.1149	C1KT59	1129	C1KU50	.245	C1KV59	.953	C1KW39	1107	C1KX29	1058
C1KS21	.1132	C1KS86	.1131	C1KT60	1129	C1KU51	.244	C1KV60	.951	C1KW40	.541	C1KX30	1058
C1KS23	.1132	C1KS87	.1131	C1KT61	1129	C1KU52	.245	C1KV61	.951	C1KW43	.560	C1KX31	1058
C1KS24	.1132	C1KS88	.1123	C1KT62	1129	C1KU55	.244	C1KV62	.549	C1KW45	.570	C1KX32	1058
C1KS25	.1132	C1KS89	.1123	C1KT63	1129	C1KU56	.245	C1KV63	.983	C1KW46	.569	C1KX33	1058
C1KS27	.1138	C1KS90	.1123	C1KT64	1128	C1KU57	.244	C1KV64	.954	C1KW47	1239	C1KX34	1058
C1KS28	.1120	C1KS91	.1123	C1KT65	1128	C1KU58	.245	C1KV65	.554	C1KW50	.532	C1KX35	1058
C1KS29	.1119	C1KS92	.1123	C1KT66	1128	C1KU59	.244	C1KV66	.566	C1KW53	.555	C1KX36	1058
C1KS30	.1120	C1KS93	.1123	C1KT67	1128	C1KU60	.245	C1KV67	.536	C1KW54	.526	C1KX37	1062
C1KS31	.1119	C1KS94	.1123	C1KT68	1128	C1KU61	.244	C1KV68	.536	C1KW57	.552	C1KX38	1056
C1KS32	.1120	C1KS95	.1123	C1KT69	1128	C1KU62	.244	C1KV69	.549	C1KW58	.553	C1KX39	1056
C1KS33	.1119	C1KS96	.1127	C1KT70	1128	C1KU63	.245	C1KV70	.550	C1KW59	1274	C1KX40	1056
C1KS34	.1119	C1KS97	.1127	C1KT71	1128	C1KU65	.1238	C1KV71	.551	C1KW60	.245	C1KX41	1056
C1KS35	.1120	C1KS98	.1127	C1KT72	1128	C1KU66	.1239	C1KV72	.551	C1KW62	.558	C1KX42	1056
C1KS36	.1119	C1KS99	.1127	C1KT73	1128	C1KU68	.537	C1KV73	.547	C1KW65	1062	C1KX43	1056
C1KS37	.1119	C1KT11	.1127	C1KT74	1048	C1KU70	.539	C1KV74	.547	C1KW66	1176	C1KX44	1056
C1KS38	.1120	C1KT12	.1133	C1KT75	1048	C1KU71	.537	C1KV75	.547	C1KW67	1176	C1KX45	1056
C1KS39	.1121	C1KT13	.1133	C1KT76	1048	C1KU72	.445	C1KV76	.548	C1KW68	1176	C1KX46	1056
C1KS40	.1120	C1KT14	.1133	C1KT77	1048	C1KU76	.1043	C1KV77	1240	C1KW69	1176	C1KX47	1056
C1KS41	.1120	C1KT15	.1133	C1KT78	1048	C1KU79	.562	C1KV78	1241	C1KW71	1176	C1KX48	1056
C1KS42	.1120	C1KT16	.1133	C1KT79	.862	C1KU82	.405	C1KV79	1240	C1KW72	1176	C1KX49	1056
C1KS43	.1120	C1KT17	.1123	C1KT80	.862	C1KU83	.405	C1KV80	1241	C1KW73	1176	C1KX51	1058
C1KS44	.1120	C1KT18	.1123	C1KT81	.862	C1KU84	.405	C1KV82	.531	C1KW74	1184	C1KX52	1058
C1KS45	.1120	C1KT19	.1123	C1KT82	.862	C1KU85	.405	C1KV83	.491	C1KW75	1184	C1KX54	1062
C1KS46	.1120	C1KT20	.1118	C1KT83	.862	C1KU86	.405	C1KV86	1294	C1KW76	1184	C1KX55	1062
C1KS47	.1120	C1KT21	.1118	C1KT84	.862	C1KU87	.405	C1KV89	.933	C1KW77	1184	C1KX56	1062
C1KS48	.1120	C1KT22	.1118	C1KT85	.862	C1KU88	.405	C1KV90	.933	C1KW78	1061	C1KX57	1063
C1KS49	.1120	C1KT23	.1118	C1KT86	.862	C1KU97	.231	C1KV91	.933	C1KW79	1061	C1KX58	1063
C1KS50	.1124	C1KT24	.1118	C1KT87	.862	C1KU99	.1043	C1KV92	.933	C1KW80	1061	C1KX59	.559
C1KS51	.1124	C1KT25	.1118	C1KT88	.862	C1KV12	.1238	C1KV93	.933	C1KW82	1057	C1KX60	.370
C1KS52	.1124	C1KT26	.1118	C1KT89	.862	C1KV13	.463	C1KV94	.918	C1KW83	1057	C1KX62	.207
C1KS53	.1125	C1KT27	.1151	C1KT90	.862	C1KV14	.463	C1KV96	.288	C1KW84	1057	C1KX64	1239
C1KS54	.1125	C1KT28	.1151	C1KT91	.862	C1KV15	.463	C1KV99	1044,	C1KW86	1057	C1KX92	1043
C1KS55	.1125	C1KT29	.1151	C1KT92	.862	C1KV16	.463		1045	C1KW87	1057	C1KX93	1239
C1KS56	.1125	C1KT30	.1151	C1KT94	.469	C1KV17	.463	C1KW12		C1KW88	1057	C1KX94	.184
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C1KS63	.1141	C1KT37	.1160	C1KU15	.565	C1KV32	.1055	1045, ..	1046	C1KW95	1058	C1KY38	.951
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This page is part of a complete catalog which contains technical and safety data that must be reviewed when selecting a product

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297,324		C1MS79 .857		334		C1MT96 .296		C1MU49 .297,		C1MV13 .515		C1MV76 .170	
C1MS11 .164,		C1MS80 .876		C1MT48 .327,		C1MT97 .297		309		C1MV14 .327		C1MV77 .170	
297,324		C1MS81 1046		334		C1MT98 .303		C1MU50 .297,		C1MV15 .326		C1MV78 .169	
C1MS12 .164,		C1MS82 .897		C1MT49 .327,		C1MT99 .303		308,309		C1MV16 .335		C1MV79 .169	
297,324		C1MS83 .867		335		C1MU11 286,		C1MU51 .310		C1MV17 .334		C1MV80 .169	
C1MS13 .287,		C1MS84 .867		C1MT50 .327,		303		C1MU52 .310		C1MV18 .335		C1MV81 .170	
304		C1MS85 .155		335		C1MU12 286,		C1MU53 .311		C1MV19 .335		C1MV82 .170	
C1MS14 .296		C1MS86 .155		C1MT51 .327,		303		C1MU54 .311		C1MV20 .302		C1MV83 .170	
C1MS15 .296		C1MS87 .516		335		C1MU13 286,		C1MU55 .311		C1MV21 .302		C1MV84 .170	
C1MS16 .336		C1MS88 .516		C1MT52 .327,		303		C1MU56 .311		C1MV22 .302		C1MV85 .170	
C1MS17 .163		C1MS89 .516		335		C1MU14 .303		C1MU57 .311		C1MV23 .302		C1MV86 .169	
C1MS18 .286,		C1MS90 .516		C1MT53 .328		C1MU15 287,		C1MU58 .311		C1MV24 .302		C1MV87 .169	
303		C1MS91 .516		C1MT54 .328		303		C1MU59 .311		C1MV25 .302		C1MV88 .170	
C1MS19 .286,		C1MS92 .516		C1MT55 .328		C1MU16 286,		C1MU60 .311		C1MV26 .309		C1MV89 .170	
303		C1MS93 .516		C1MT56 .328		303		C1MU61 .311		C1MV27 .309		C1MV90 .170	
C1MS20 .286,		C1MS94 .516		C1MT57 .328		C1MU17 286,		C1MU62 .311		C1MV28 .309		C1MV91 .170	
303		C1MS95 .159		C1MT58 .328		302		C1MU63 .296,		C1MV29 .309		C1MV92 .170	
C1MS22 .296,		C1MS96 .516		C1MT59 .328		C1MU18 286,		309		C1MV30 .309		C1MV93 .169	
308,309		C1MS97 .516		C1MT60 .328		302		C1MU64 .296,		C1MV31 .309		C1MV94 .169	
C1MS23 .296,		C1MT11 .159		C1MT61 .328		C1MU19 286,		309		C1MV32 .309		C1MV95 .169	
308,309		C1MT12 .159		C1MT62 .327,		303		C1MU65 .296,		C1MV33 .309		C1MV96 .170	
C1MS24 .296,		C1MT13 .159		335		C1MU20 286,		310		C1MV34 .230		C1MV97 .170	
308,309		C1MT14 .159		C1MT63 .327		303		C1MU66 .324		C1MV35 .230		C1MV98 .170	
C1MS25 .296,		C1MT15 .159		C1MT64 .327,		C1MU21 .303		C1MU67 .324		C1MV36 .231		C1MV99 .170	
309		C1MT16 .159		335		C1MU22 .303		C1MU68 .323		C1MV37 .842		C1MW11 .170	
C1MS28 .875		C1MT17 .160		C1MT65 .327		C1MU23 .304		C1MU69 .323		C1MV38 .845		C1MW12 .170	
C1MS29 .875		C1MT18 .160		C1MT66 .327		C1MU24 .304		C1MU70 .324		C1MV39 .229		C1MW13 .171	
C1MS30 .856		C1MT19 .159		C1MT67 .327		C1MU25 .304		C1MU71 .324		C1MV40 .230		C1MW14 .171	
C1MS31 .866		C1MT20 .159		C1MT68 .327,		C1MU26 .304		C1MU72 .324		C1MV41 .230		C1MW15 .171	

Hydraulic Power & Control

Pneumatic Power & Control

Fluid Conveying

Miscellaneous Products

Indexes & Technical Information





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	C1MW78	.495	C1NB19	.870	C1ND45	.230	C1ZT17	.1380	C1ZV11	1405	C1ZW89	1190	C1ZZ49	.207
	C1MW79	.495	C1NB20	.870	C1ND46	.230	C1ZT21	.1186	C1ZV12	1405	C1ZW93	1188	C1ZZ52	.1023
	C1MW80	.495	C1NB21	.874	C1ND47	.230	C1ZT26	.975	C1ZV13	1405	C1ZW94	1183	C1ZZ53	.1023
	C1MW81	.495	C1NB22	.874	C1ND48	.230	C1ZT27	.1112	C1ZV18	1374	C1ZW95	1183	C1ZZ54	.1023
	C1MW82	.495	C1NB23	.874	C1ND49	.230	C1ZT29	.955	C1ZV21	1408	C1ZW97	1148	C1ZZ55	.1023
	C1MW94	.421	C1NB24	.874	C1ND50	.230	C1ZT30	.955	C1ZV22	1404	C1ZW98	1148	C1ZZ56	.1023
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	C1MX20	.299	C1NB56	.896	C1ND56	.231	C1ZT58	.1189	C1ZV35	1406	C1ZX39	.1378	C1ZZ66	.1103
	C1MX21	.374	C1NB57	.896	C1ND57	.231	C1ZT59	.1189	C1ZV38	.942	C1ZX58	.773	C1ZZ74	.462
	C1MX33	.456	C1NB58	.896	C1ND58	.231	C1ZT60	.1189	C1ZV40	.939	C1ZX60	.506	C1ZZ80	.414
	C1MX36	.208	C1NC38	.304	C1ND59	.231	C1ZT61	.1189	C1ZV46	1060	C1ZX71	.1173	C1ZZ82	.343
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	C1MX79	.926	C1NC68	.498	C1ND81	.230	C1ZT67	.1178	C1ZV59	1200	C1ZX90	.1113	N/A	.496,
	C1MX80	.927	C1NC83	1017	C1ND82	.231	C1ZT68	.1184	C1ZV62	.961	C1ZX93	.1146	1362,	.1363,
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	C1MZ11	.853	C1NC96	.862	C1ND88	.510	C1ZT99	.190	C1ZV72	1283	C1ZY17	.841		
	C1MZ15	.159	C1NC97	.862	C1ND89	.510	C1ZU13	.986	C1ZV73	1283	C1ZY19	.1304		
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	C1MZ25	.852	C1NC99	.862	C1ND91	.510	C1ZU16	.1146	C1ZV91	1290	C1ZY21	.1304		
	C1MZ33	.173	C1ND11	.862	C1ND92	.510	C1ZU20	.945	C1ZV93	1290	C1ZY22	.1302		
	C1MZ34	.173	C1ND14	.229	C1ND93	.510	C1ZU21	.946	C1ZV94	1290	C1ZY24	.1301		
	C1MZ35	.135	C1ND15	.229	C1ND94	.510	C1ZU22	.925	C1ZV95	1290	C1ZY25	.1299		
	C1MZ36	.180	C1ND16	.230	C1ND95	.511	C1ZU23	.924	C1ZV99	1289	C1ZY26	.1303		
	C1MZ37	.181	C1ND17	.230	C1ND96	.511	C1ZU24	.971	C1ZW11	1289	C1ZY27	.987,		
	C1MZ38	.180	C1ND18	.230	C1ND97	.511	C1ZU26	.1028	C1ZW12	1289	1294			
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	C1MZ80	.132	C1ND26	.230	C1NE16	.511	C1ZU70	.293	C1ZW38	1305	C1ZY89	.1225		
	C1MZ91	.336	C1ND27	.230	C1NE17	.511	C1ZU72	.846	C1ZW44	1303	C1ZY90	.1225		
	C1MZ97	.298	C1ND28	.230	C1NE18	.511	C1ZU74	.896	C1ZW46	1303	C1ZY92	.1227		
	C1NA11	.406	C1ND29	.230	C1NE19	.511	C1ZU76	.907	C1ZW56	1288	C1ZY94	.1225		
	C1NA22	.951	C1ND30	.230	C1NE20	.511	C1ZU79	.907	C1ZW57	1287	C1ZZ13	.945		





Technical Information

Fluid Power Formulas

FORMULA FOR	WORD FORMULA	LETTER FORMULA
FLUID PRESSURE In Pounds per Square Inch	$\text{PRESSURE} = \frac{\text{FORCE (pounds)}}{\text{UNIT AREA (Sq.In.)}}$	$P = \frac{F}{A} \text{ or } \text{psi} = \frac{F}{A}$
CYLINDER AREA In Square Inches	$\text{AREA} = \pi \times \text{RADIUS}^2 \text{ (Inches)}$	$A = \pi r^2$
	$\text{AREA} = \frac{\pi \times \text{DIAMETER}^2}{4} \text{ (Inches)}$	$A = \frac{\pi D^2}{4} \text{ or } A = .785D^2$
CYLINDER FORCE In Pounds, Push or Pull	$\text{FORCE} = \text{PRESSURE (psi)} \times \text{NET AREA (Sq. In.)}$	$F = \text{psi} \times A \text{ or } F = PA$
CYLINDER VELOCITY or SPEED In Feet per Second	$\text{VELOCITY} = \frac{231 \times \text{FLOW RATE (gpm)}}{12 \times 60 \times \text{NET AREA (Sq. In.)}}$	$V = \frac{231Q}{720A} \text{ or } V = \frac{.3208Q}{A}$
CYLINDER VOLUME CAPACITY In Gallons of Fluid	$\text{VOLUME} = \frac{\pi \times \text{RADIUS}^2 \times \text{STROKE (Inches)}}{231}$	$V = \frac{\pi r^2 t}{231} \quad t = \text{stroke}$
	$\text{VOLUME} = \frac{\text{NET AREA (Sq. In.)} \times \text{STROKE (Inches)}}{231}$	$V = \frac{At}{231} \quad t = \text{stroke}$
CYLINDER FLOW RATE In Gallons per Minute	$\text{FLOWRATE} = \frac{12 \times 60 \times \text{VELOCITY (Ft/Sec)} \times \text{NET AREA (Sq.In)}}{231}$	$Q = \frac{720vA}{231} \text{ or } Q = 3.117vA$
FLUID MOTOR TORQUE In Inch Pounds	$\text{TORQUE} = \frac{\text{PRESSURE(psi)} \times \text{F.M.DISPLACEMENT (Cu.In./Rev.)}}{2\pi}$	$T = \frac{\text{psid}}{2\pi} \text{ or } T = \frac{Pd}{2\pi}$
	$\text{TORQUE} = \frac{\text{HORSEPOWER} \times 63025}{\text{RPM}}$	$T = \frac{63025HP}{n}$
	$\text{TORQUE} = \frac{\text{FLOW RATE (GPM)} \times \text{PRESSURE (psi)} \times 36.77}{\text{RPM}}$	$T = \frac{36.77QP}{n}$ or $T = \frac{36.77Q\text{psi}}{n}$
FLUID MOTOR TORQUE Per 100 PSI In Inch Pounds	$\text{TORQUE per 100 psi} = \frac{\text{F.M.DISPLACEMENT (Cu.In./Rev.)}}{.0628}$	$T_{100\text{psi}} = \frac{d}{.0628}$
FLUID MOTOR SPEED In Revolutions per Minute	$\text{SPEED} = \frac{231 \times \text{FLOW RATE (GPM)}}{\text{F.M. DISPLACEMENT (Cu.In./Rev.)}}$	$n = \frac{231Q}{d}$
FLUID MOTOR POWER In Horsepower Output	$\text{HP OUTPUT} = \frac{\text{TORQUE OUTPUT (inch Pounds)} \times \text{RPM}}{63025}$	$HP = \frac{Tn}{63025}$
PUMP OUTLET FLOW In Gallons per Minute	$\text{FLOW} = \frac{\text{RPM} \times \text{PUMP DISPLACEMENT (Cu.In./Rev.)}}{231}$	$Q = \frac{nd}{231}$
PUMP INPUT POWER In Horsepower Required	$\text{HP INPUT} = \frac{\text{FLOW RATE OUTPUT (GPM)} \times \text{PRESSURE (psi)}}{1714 \times \text{EFFICIENCY (Overall)}}$	$HP = \frac{QP}{1714 \times \text{Eff}}$ or $\frac{\text{GPM} \times \text{psi}}{1714 \times \text{Eff}}$
FLOW RATE THROUGH PIPING In Feet per Second	$\text{VELOCITY} = \frac{.3208 \times \text{FLOW RATE THROUGH I.D. (GPM)}}{\text{INTERNAL AREA (Square Inches)}}$	$v = \frac{.3208Q}{A}$
COMPRESSIBILITY OF OIL In Additional Required Oil to Reach Pressure	$\text{Additional Oil Volume} = \frac{\text{Pressure (psi)} \times \text{Volume of Oil Under Pressure}}{250,000}$	$V = \frac{PV}{250,000}$ (Approx. 1/2% per 1000 psi)

Hydraulic Power & Control

Pneumatic Power & Control

Fluid Conveying

Miscellaneous Products

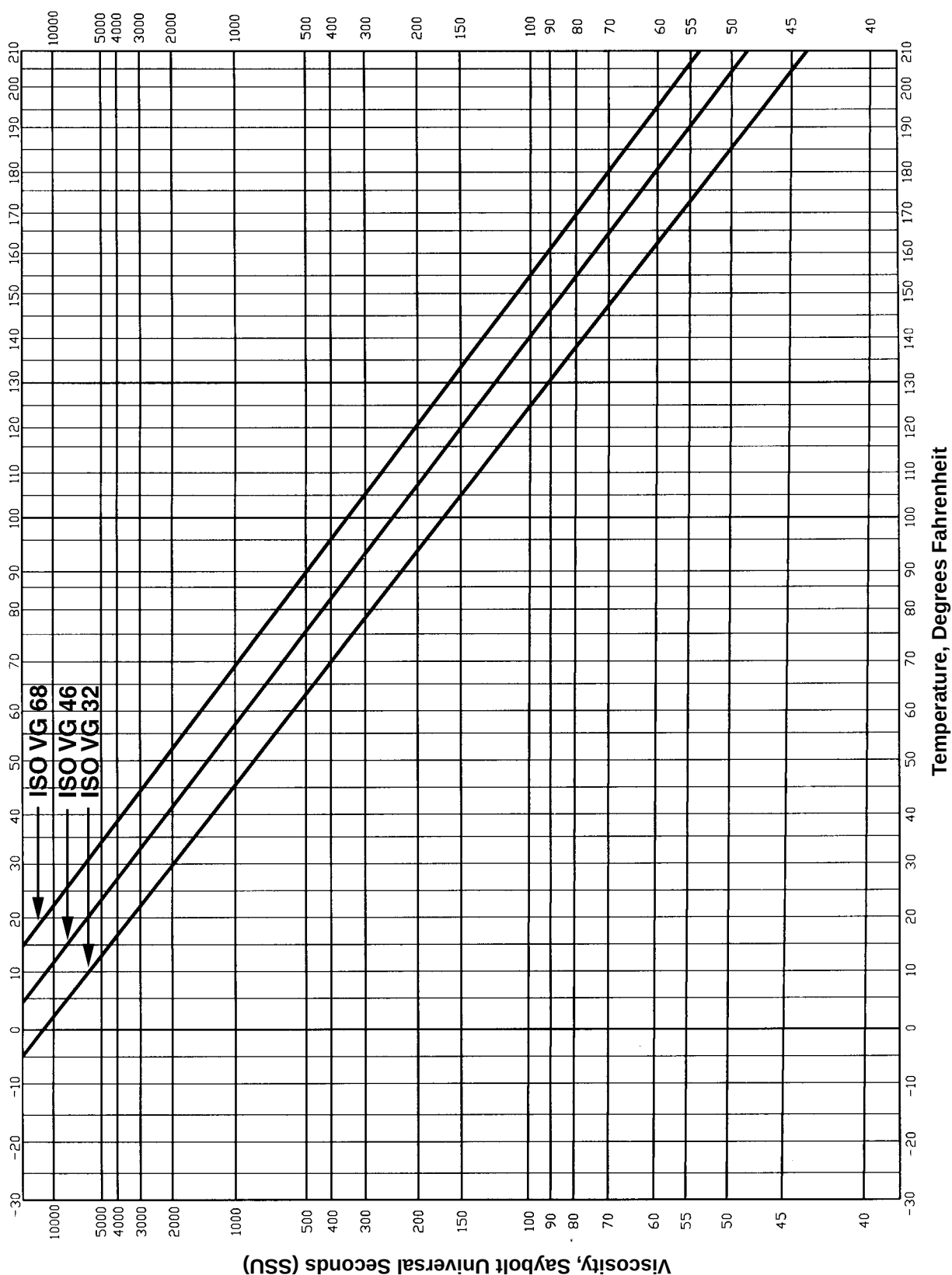
Indexes & Technical Information



Technical Information

Hydraulic Fluids

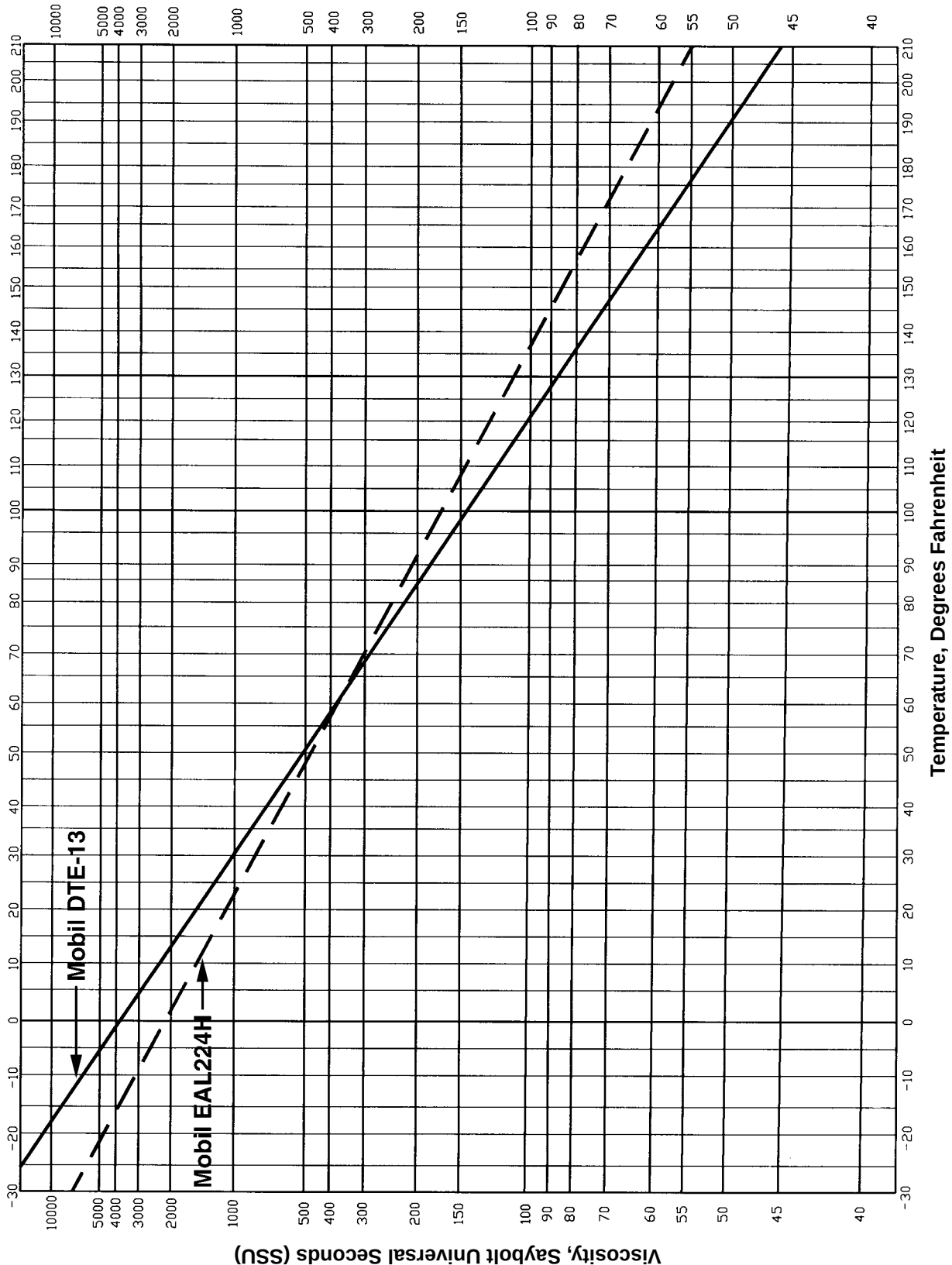
Viscosity - Temperature Charts for ISO VG 32-46-68 Fluids





Hydraulic Fluids

Viscosity - Temperature Charts for Specific Fluids



Technical Information

Hydraulic System Design Calculations Accumulator Sizing

A. System Pressure

In order to achieve maximum accumulator life, the maximum operating system pressure should not be more than three times the minimum operating system pressure. Pressures above this 3:1 ratio can cause an excessive rise in gas chamber temperatures and excessive bladder and diaphragm deformation. Hence, the lower the maximum to minimum pressure ratio, the longer the operating life of the accumulator.

B. Storage Capacity

1. If the 3:1 system pressure is adhered to, the rule of thumb is that the maximum storage capacity that is available in the accumulator is approximately 60% of it's rated size.

Example: 1 gallon = 231 cubic inches. Available volume (apprx) = 139 cubic inches.

2. It is very important to always select the accumulator size whose storage capacity is equal to or greater than that which is required. Utilizing accumulators with smaller capacities will result in the complete evacuation of the oil in the accumulator, causing the eventual failure of either the bladder or the diaphragm. There should always be at least 10% of the hydraulic fluid left in the accumulator during normal operations so that the bladder does not come in contact with the oil valve poppet nor the diaphragm come in contact with the oil port.

C. Pre-Charge Pressure

1. Shock and Pulsation Dampener.

When an accumulator is used as a shock and/or pulsation dampener, the pre-charge pressure should be 80% of the minimum system pressure.

2. Energy Storage.

When an accumulator is used for energy storage, the pre-charge pressure should be 90% of the minimum system pressure.

D. Available Fluid Volume

The amount of hydraulic fluid available from the accumulator is based on either the isothermal or adiabatic charge state of the nitrogen gas.

1. Isothermal

Isothermal curves are used when the movement of the fluid into and out of the accumulator occurs so slowly (3 minutes or more) that there is enough time for the complete exchange of heat between the gas and its surroundings. The result is little or no change in gas temperature.

2. Adiabatic

Adiabatic curves are used when the movement of the fluid into and out of the accumulator occurs so rapidly that the temperature of the gas is rapidly changing because of the rapid compression and expansion of the gas.



Hydraulic System Design Calculations Accumulator Sizing

Sample Sizing Problem

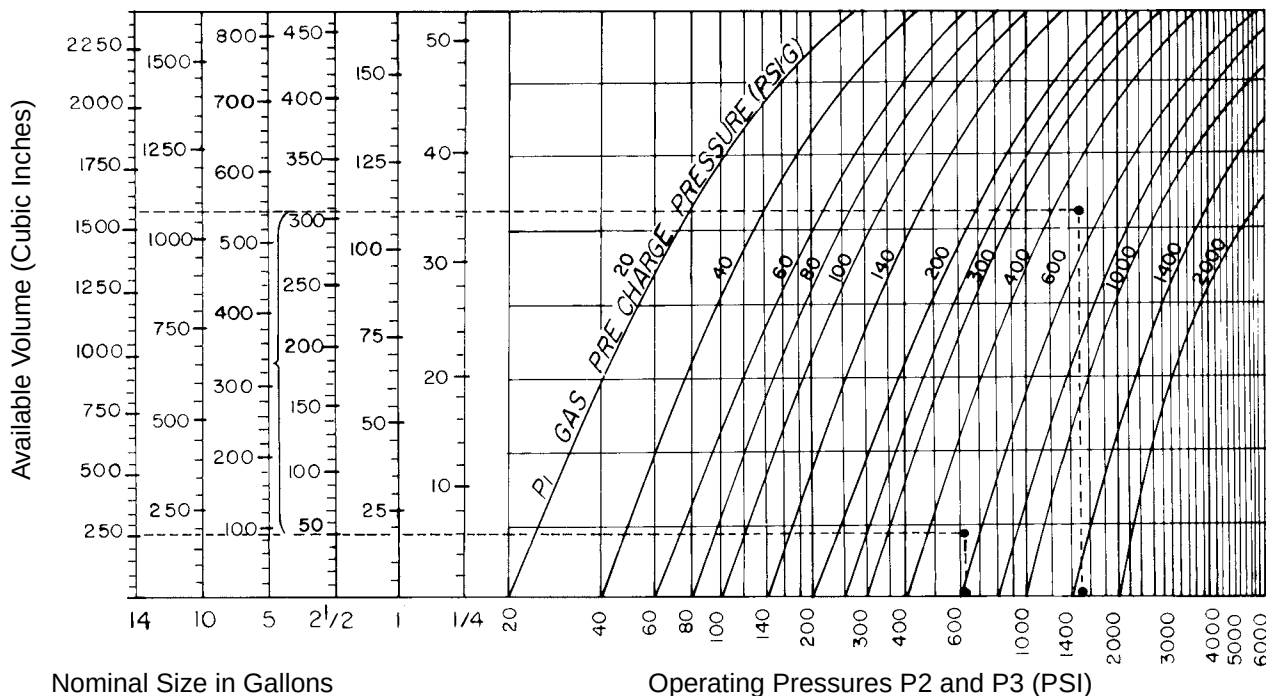
System Requirements: Minimum Operating Pressure (P2) 650 PSI

Maximum Operating Pressure (P3) 1600 PSI

Liquid Volume Required 1 Gallon

Time required for discharge 2 seconds

PRESSURE-VOLUME CURVE, ADIABATIC RELATIONSHIP, Bladder Type Accumulator



Solution:

1. Pre-charge Pressure (P1) = 90% of minimum operating pressure (P2) = $.90 \times 650 = 585$ PSI.
2. Accumulator size (using the adiabatic curve due to the rapid discharge time):

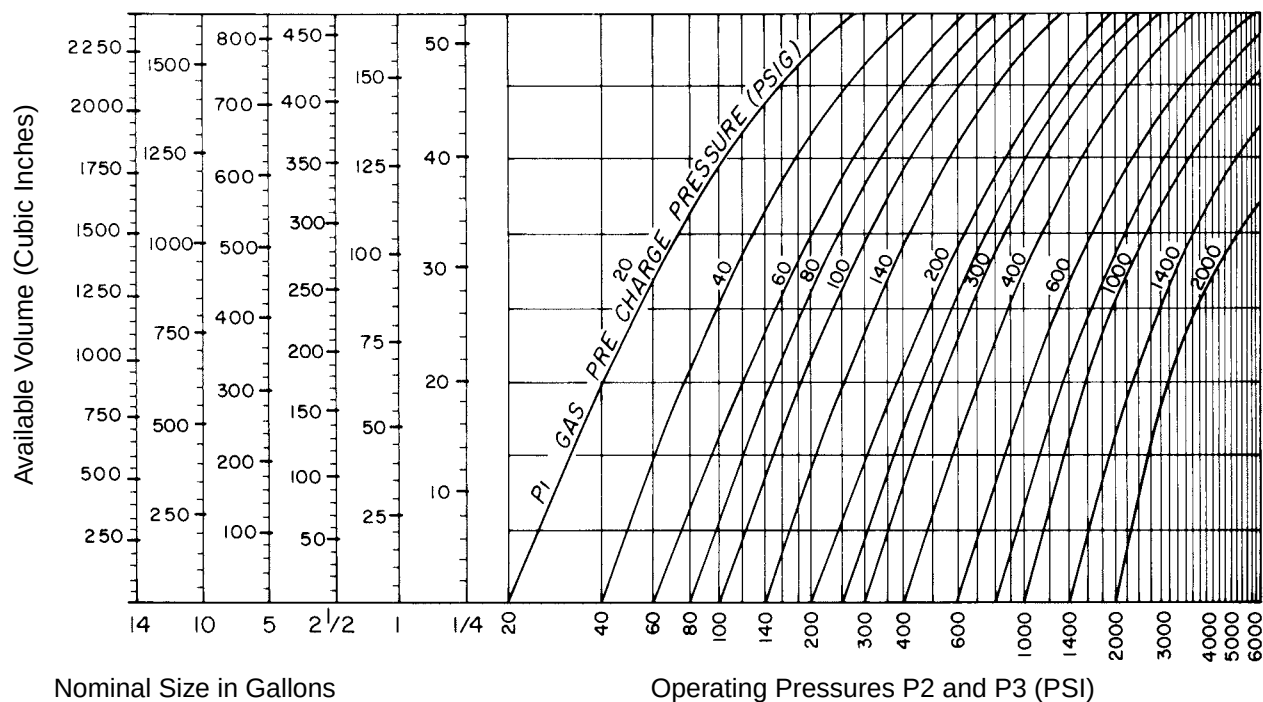
Follow a line vertically upwards from the P2 pressure line (650 PSI) and P3 pressure line (1600 PSI) until they intersect the P1 pre-charge pressure line (585 PSI). Then moving horizontally to the left hand scale, read the available fluid volume figures. The difference between the two figures is the volume which can be stored in the specific size accumulator.

3. For the above example, the 2-1/2 gallon accumulator most closely fits the requirements. (320 cu.in. minus 50 cu.in. = 270 cu.in.)

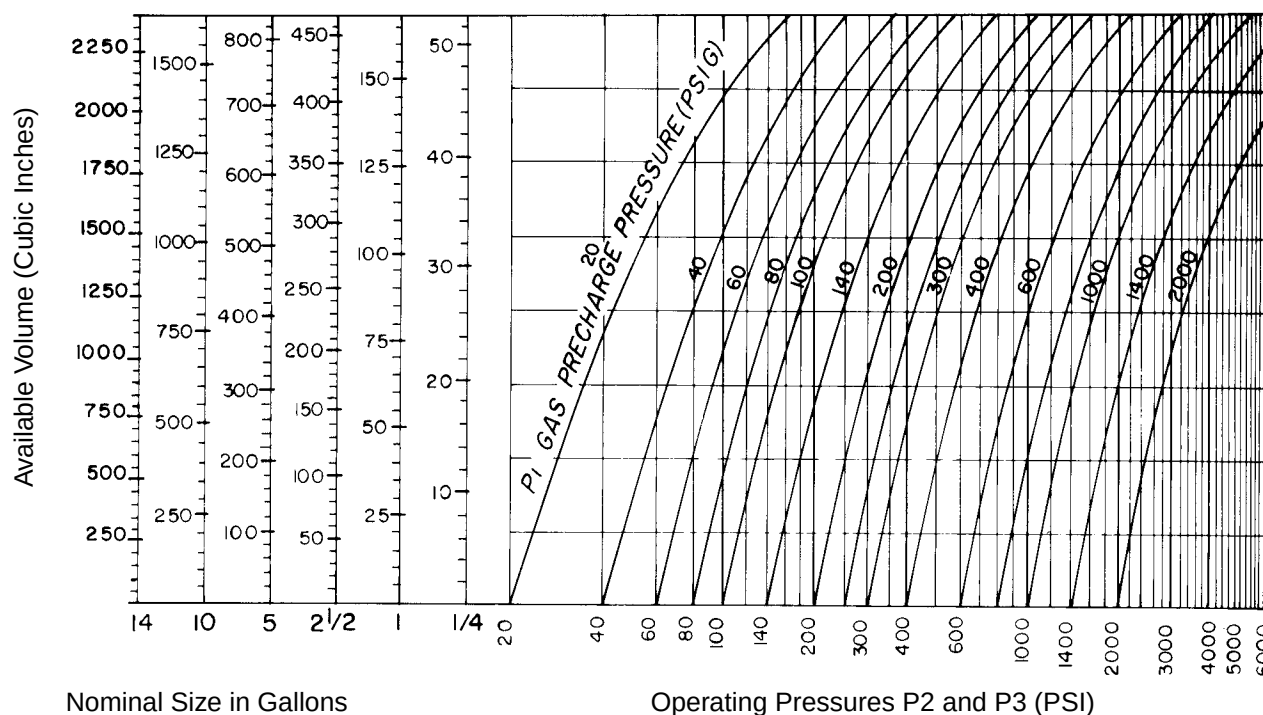
Technical Information

Hydraulic System Design Calculations Accumulator Sizing

PRESSURE-VOLUME CURVE, ADIABATIC RELATIONSHIP, Bladder Type Accumulator

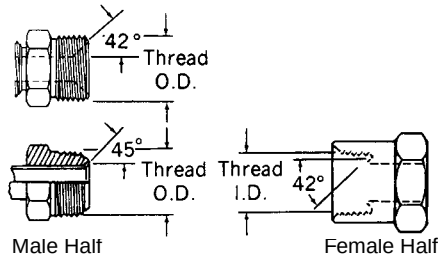


PRESSURE-VOLUME CURVE, ISOTHERMAL RELATIONSHIP, Bladder Type Accumulator



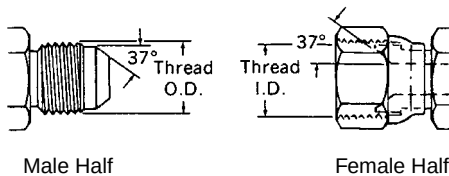
How to Identify Fluid Connectors American Connections

Inverted Flare (SAE J512 Inverted)



This connection is frequently used in automotive systems. The male connector can either be a 45° flare in the tube fitting form or a 42° seat in the machined adaptor form. The female has a straight thread with a 42° inverted flare. The seal takes place on the flared surfaces. The threads hold the connection mechanically.

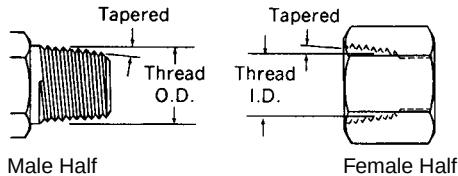
JIC Flared (SAE J514 37 Flare)



This connection is very common in fluid power systems. Both the male and female halves of the connections have 37° seats. The seal takes place by establishing a line contact between the male flare and the female cone seat. The threads hold the connection mechanically.

Caution: In the -02, -03, -04, -05, -08 and -10 sizes, the threads of the SAE 45° flare and the SAE 37° flare are the same. However, the sealing surface angles are not the same.

NPTF (National Pipe Tapered Fuel)



This connection is still widely used in fluid power systems, even though it is not recommended by the National Fluid Power Association (NFPA) for use in hydraulic systems. The thread is tapered and the seal takes place by deformation of the threads.

Note: Measure the thread diameter and subtract 1/4 inch to find the nominal pipe size.

Inch Size	Dash Size	Nominal Thread Size	Male Thread O.D. (inch)		Female Thread I.D. (inch)	
			Fraction	Dec.	Fraction	Dec.
1/8	02	5/16-18	5/16	.32	9/32	.28
3/16	03	3/8-24	3/8	.38	11/32	.34
1/4	04	7/16-24	7/16	.44	13/32	.40
5/16	05	1/2-20	1/2	.50	15/32	.45
3/8	06	5/8-18	5/8	.63	9/16	.57
7/16	07	1 1/16-18	1 1/16	.69	5/8	.63
1/2	08	3/4-18	3/4	.75	23/32	.70
5/8	10	7/8-18	7/8	.88	13/16	.82
3/4	12	1 1/16-16	1 1/16	1.06	1	1.00

Inch Size	Dash Size	Nominal Thread Size	Male Thread O.D. (inch)		Female Thread I.D. (inch)	
			Fraction	Dec.	Fraction	Dec.
1/8	02	5/16-24	5/16	.31	9/32	.27
3/16	03	3/8-24	3/8	.38	11/32	.34
1/4	04	7/16-20	7/16	.44	13/32	.39
5/16	05	1/2-20	1/2	.50	15/32	.45
3/8	06	9/16-18	9/16	.56	17/32	.51
1/2	08	3/4-16	3/4	.75	11/16	.69
5/8	10	7/8-14	7/8	.88	13/16	.81
3/4	12	1 1/16-12	1 1/16	1.06	1	.98
1	16	1 5/16-12	1 5/16	1.31	1 1/4	1.23
1 1/4	20	1 5/8-12	1 5/8	1.63	1 9/16	1.54
1 1/2	24	1 7/8-12	1 7/8	1.88	1 13/16	1.79

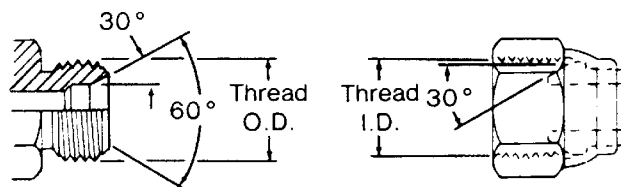
Inch Size	Dash Size	Nominal Thread Size	Male Thread O.D. (inch)		Female Thread I.D. (inch)	
			Fraction	Dec.	Fraction	Dec.
1/8	02	1/8-27	13/32	.41	3/8	.38
1/4	04	1/4-18	17/32	.54	1/2	.49
3/8	06	3/8-18	11/16	.68	5/8	.63
1/2	08	1/2-14	27/32	.84	25/32	.77
3/4	12	3/4-14	1 1/16	1.05	1	.98
1	16	1 1/11-1/2	1 5/16	1.32	1 1/4	1.24
1 1/4	20	1 1/4-11-1/2	1 21/32	1.66	1 19/32	1.58
1 1/2	24	1 1/2-11-1/2	1 29/32	1.90	1 13/16	1.82
2	32	2 1/11-1/2	2 3/8	2.38	2 5/16	2.30

Technical Information

How to Identify Fluid Connectors American Connections

NPSM

(National Pipe Straight Mechanical)



Male Half

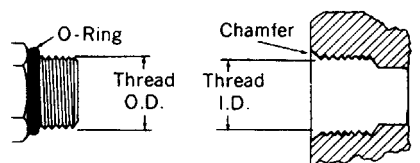
Female Half

This connection is sometimes used in fluid power systems. The female half has a straight thread and an inverted 30° seat. The male half of the connection has a straight thread and a 30° internal chamfer. The seal takes place by compression of the 30° seat on the chamfer. The threads hold the connection mechanically.

Note: A properly chamfered NPTF male will also seal with the NPSM female.

Inch Size	Dash Size	Nominal Thread Size	Male Thread O.D. (inch)		Female Thread I.D. (inch)	
			Fraction	Dec.	Fraction	Dec.
1/8	02	1/8-27	13/32	.41	3/8	.38
1/4	04	1/4-18	17/32	.54	1/2	.49
3/8	06	3/8-18	11/16	.68	5/8	.63
1/2	08	1/2-14	27/32	.84	25/32	.77
3/4	12	3/4-14	1-1/16	1.05	1	.98
1	16	1-11-1/2	1-5/16	1.32	1-1/4	1.24
1-1/4	20	1-1/4-11-1/2	1-21/32	1.66	1-19/32	1.58
1-1/2	24	1-1/2-11-1/2	1-29/32	1.90	1-13/16	1.82
2	32	2-11-1/2	2-3/8	2.38	2-5/16	2.30

ORB (SAE J514 Straight Thread O-Ring Boss)



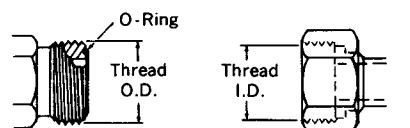
Male Half

Female Half

This port connection is recommended by the NFPA for optimum leakage control in medium and high pressure hydraulic systems. The male connector has a straight thread and an O-Ring. The female port has a straight thread, a machined surface (minimum spotface) and a chamfer to accept the O-Ring. The seal takes place by compressing the O-Ring into the chamfer. The threads hold the connection mechanically.

Inch Size	Dash Size	Nominal Thread Size	Male Thread O.D. (inch)		Female Thread I.D. (inch)	
			Fraction	Dec.	Fraction	Dec.
1/8	02	5/16-24	5/16	.31	9/32	.27
3/16	03	3/8-24	3/8	.38	11/32	.34
1/4	04	7/16-20	7/16	.44	13/32	.39
5/16	05	1/2-20	1/2	.50	15/32	.45
3/8	06	9/16-18	9/16	.56	17/32	.51
1/2	08	3/4-16	3/4	.75	11/16	.69
5/8	10	7/8-14	7/8	.88	13/16	.81
3/4	12	1-1/16-12	1-1/16	1.06	1	.98
1	16	1-5/16-12	1-5/16	1.31	1-1/4	1.23
1-1/4	20	1-5/8-12	1-5/8	1.63	1-9/16	1.54
1-1/2	24	1-7/8-12	1-7/8	1.88	1-13/16	1.79
2	32	2-1/2-12	2-1/2	2.50	2-7/16	2.42

ORS (SAE J1453 O-Ring Face Seal)



Male Half

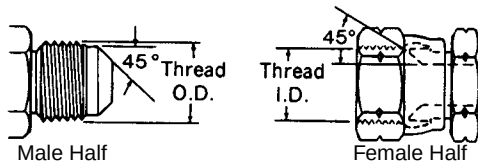
Female Half

This connection offers the very best leakage control available today. The male connector has a straight thread and an O-Ring in the face. The female has a straight thread and a machined flat face. The seal takes place by compressing the O-Ring onto the flat face of the female, similar to the split flange type fitting. The threads hold the connection mechanically.

Inch Size	Dash Size	Nominal Thread Size	Male Thread O.D. (inch)		Female Thread I.D. (inch)	
			Fraction	Dec.	Fraction	Dec.
1/4	04	9/16-18	9/16	.56	17/32	.51
3/8	06	11/16-16	11/16	.69	5/8	.63
1/2	08	13/16-16	.13/16	.82	3/4	.75
5/8	10	1-14	1	1.00	15/16	.93
3/4	12	1-3/16-12	1-3/16	1.19	1-1/8	1.11
1	16	1-7/16-12	1-7/16	1.44	1-3/8	1.36
1-1/4	20	1-11/16-12	1-11/16	1.69	1-5/8	1.61
1-1/2	24	2-12	2	2.00	1-15/16	1.92

How to Identify Fluid Connectors American Connections

SAE Flared (SAE J1512 45 Flare)

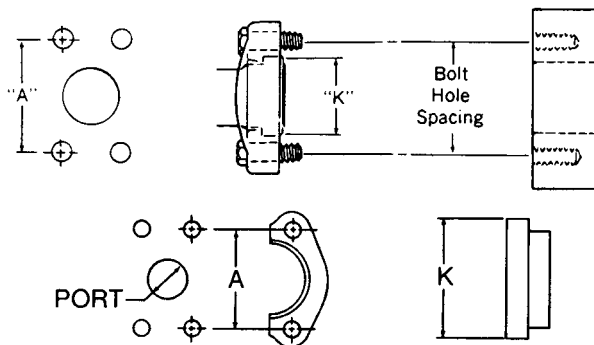


This connection is commonly used in refrigeration, automotive and truck piping systems. The connector is frequently made of brass. Both the male and female connectors have 45° seats. The seal takes place between the male flare and the female cone seat. The threads hold the connection mechanically.

Caution: In the -02, -03, -04, -05, -08 and -10 sizes, the threads of the SAE 45° flare and the SAE 37° flare are the same. However, the sealing surface angles are not the same.

Inch Size	Dash Size	Nominal Thread Size	Male Thread O.D. (inch)		Female Thread I.D. (inch)	
			Fraction	Dec.	Fraction	Dec.
1/8	02	5/16-24	5/16	.31	9/32	.27
3/16	03	3/8-24	3/8	.38	11/32	.34
1/4	04	7/16-20	7/16	.44	13/32	.39
5/16	05	1/2-20	1/2	.50	15/32	.45
3/8	06	5/8-18	5/8	.63	9/16	.57
1/2	08	3/4-16	3/4	.75	11/16	.69
5/8	10	7/8-14	7/8	.88	13/16	.81
3/4	12	1-1/16-14	1-1/16	1.06	1	.99
7/8	14	1-1/4-12	1-1/4	1.25	1-5/32	1.16
1	16	1-3/8-12	1-3/8	1.38	1-9/32	1.29

SAE J518 4-Bolt Flange



This connection is commonly used in fluid power systems. There are two pressure ratings. Code 61 is referred to as the "standard" series and Code 62 is the "6000 psi" series. The design concept is the same, but the bolt hole spacing and the flanged head diameters are larger for the higher pressure, Code 62 connection.

The female (port) is an unthreaded hole with four threaded bolt holes in a rectangular pattern around the port. The male consists of a flanged head, grooved for an O-Ring, and either a captive flange or split flange halves with bolt holes to match the port. The seal takes place on the O-Ring, which is compressed between the flanged head and the flat surface surrounding the port. The threaded bolts hold the connection together.

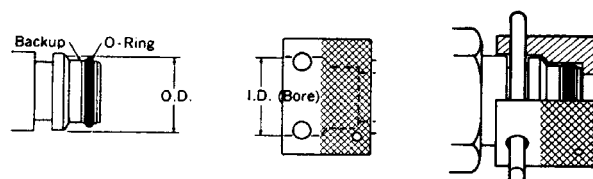
Note: SAE J518, JIS B 8363, ISO/DIS 6162 and DIN 20066 are interchangeable, except for bolt sizes.

Inch Size (Dash Size)	Port Hole I.D.	Bolt Dimensions Size (Length)		Bolt Hole Spacing "A" Inch (Dec.)		Flanged Head Dia. "K" Inch (Dec.)	
		Code 61	Code 62	Code 61	Code 62	Code 61	Code 62
1/2 (08)	.50	5/16-18 (1-1/4)	5/16-18 (1-1/4)	1-1/2 (1.50)	1-19/32 (1.59)	1-3/16 (1.19)	1-1/4 (1.25)
3/4 (12)	.75	3/8-16 (1-1/4)	3/8-16 (1-1/2)	1-7/8 (1.88)	2 (2.00)	1-1/2 (1.50)	1-5/8 (1.63)
1 (16)	1.00	3/8-16 (1-1/4)	7/16-14 (1-3/4)	2-1/16 (2.06)	2-1/4 (2.25)	1-3/4 (1.75)	1-7/8 (1.88)
1-1/4 (20)	1.25	7/16-14 (1-1/2)	1/2-13 (1-3/4)	2-5/16 (2.31)	2-5/8 (2.63)	2 (2.00)	2-1/8 (2.13)
1-1/2 (24)	1.50	1/2-13 (1-1/2)	5/8-11 (2-1/4)	2-3/4 (2.75)	3-1/8 (3.12)	2-3/8 (2.38)	2-1/2 (2.50)
2 (32)	2.00	1/2-13 (1-1/2)	3/4-10 (2-3/4)	3-1/16 (3.06)	3-13/16 (3.81)	2-13/16 (2.81)	3-1/8 (3.12)

Technical Information

How to Identify Fluid Connectors American Connections

Staplok (SAE J1467)



Male Half

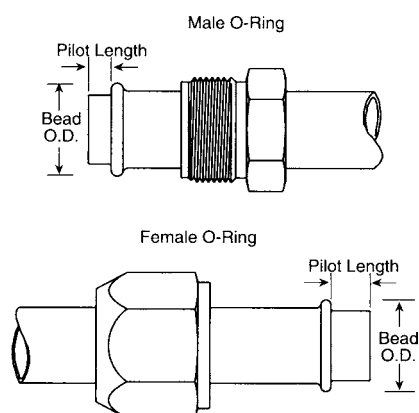
Female Half

Connected

This is a radial O-Ring seal connection developed in Germany and commonly used for hydraulic applications in underground mines. The male contains an exterior O-Ring and backup ring, plus a groove to accept the "staple". The female has a smooth bore with two holes for the staple. A "U" shaped retaining clip or staple is inserted through the two holes, passing through the groove in the male to lock the connection together. The seal takes place by contact between the O-Ring in the male and the smooth bore of the female.

Inch Size	Dash Size	Male Thread O.D. (inch)		Female Thread I.D. (inch)	
		Fraction	Dec.	Fraction	Dec.
1/4	04	19/32	.586	19/32	.597
3/8	06	25/32	.783	51/64	.794
1/2	08	15/16	.940	61/64	.951
3/4	12	1-9/64	1.137	1-9/64	1.148
1	16	1-17/32	1.529	1-35/64	1.540
1-1/4	20	1-13/16	1.806	1-13/16	1.817
1-1/2	24	2-5/32	2.163	2-11/64	2.174
2	32	2-33/64	2.517	2-17/32	2.528

Bump Tube O-Ring Seal and O-Ring Pilot Fittings



This connection is common to air conditioning systems, both in vehicle and commercial applications. Both the male and female halves of the connections have a pilot, either long or short. The seal takes place by compressing an O-ring adjacent to the bead of the tube. The threads hold the connection together mechanically.

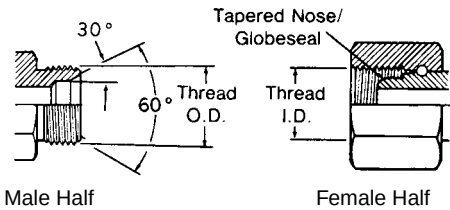
Inch Size	Dash Size	Male Thread O.D. (inch)			Female Thread I.D. (inch)		
		Nominal Thread	Fraction	Dec.	Nominal Thread	Fraction	Dec.
3/8	06	5/8-18	5/8	0.62	5/8-18	9/16	0.57
1/2	08	3/4-18	3/4	0.75	3/4-16	11/16	0.69
5/8	10	7/8-18	7/8	0.87	7/8-14	13/16	0.81
3/4	12	1-1/16-16	1-1/16	1.06	1-1/16-14	1	0.99

Inch Size	Nominal Tube Size	Long Pilot		Short Pilot	
		Bead O.D. (in)	Pilot Length	Bead O.D. (in)	Pilot Length
3/8	06	0.52	0.28	0.52	0.19
1/2	08	0.64	0.39	0.64	0.19
5/8	10	0.77	0.39	0.77	0.19
3/4	12	0.91	0.39	0.91	0.19



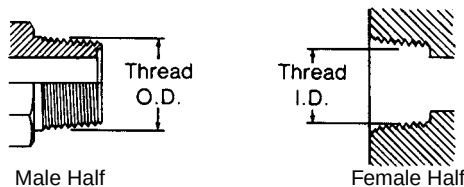
How to Identify Fluid Connectors British Connections

BSP Parallel (British Standard Pipe Parallel)



The BSP Parallel male is similar to the NPSM male except the thread pitches are different in most sizes. The female swivel BSPP has a tapered nose/globeseal flareless swivel which seals on the cone seat of the male.

BSP Tapered (British Standard Pipe Tapered)



The BSP Tapered connection is similar to the American NPT except that the thread pitches are different in most sizes, and the thread form and O.D.'s are close but not the same. Sealing is accomplished by thread distortion. A thread sealant is recommended.

Inch Size	Dash Size	Nominal Thread Size	Male Thread O.D. (inch)		Female Thread I.D. (inch)	
			Fraction	Dec.	Fraction	Dec.
1/8	02	1/8-28	3/8	.38	11/32	.35
1/4	04	1/4-19	33/64	.52	15/32	.47
3/8	06	3/8-19	21/32	.65	19/32	.60
1/2	08	1/2-14	13/16	.82	3/4	.75
5/8	10	5/8-14	7/8	.88	13/16	.80
3/4	12	3/4-14	1-1/32	1.04	31/32	.97
1	16	1-11	1-5/16	1.30	1-7/32	1.22
1-1/4	20	1-1/4-11	1-21/32	1.65	1-9/16	1.56
1-1/2	24	1-1/2-11	1-7/8	1.88	1-25/32	1.79
2	32	2-11	2-11/32	2.35	2-1/4	2.26

Frequently, the thread size is expressed as a fractional dimension preceded by the letter "G" or the letter "R". The "G" represents a parallel thread and the "R" indicates a tapered thread. For example, BSPP 3/8-19 may be expressed as G 3/8, and BSPT 3/8-19 may be expressed as R 3/8.

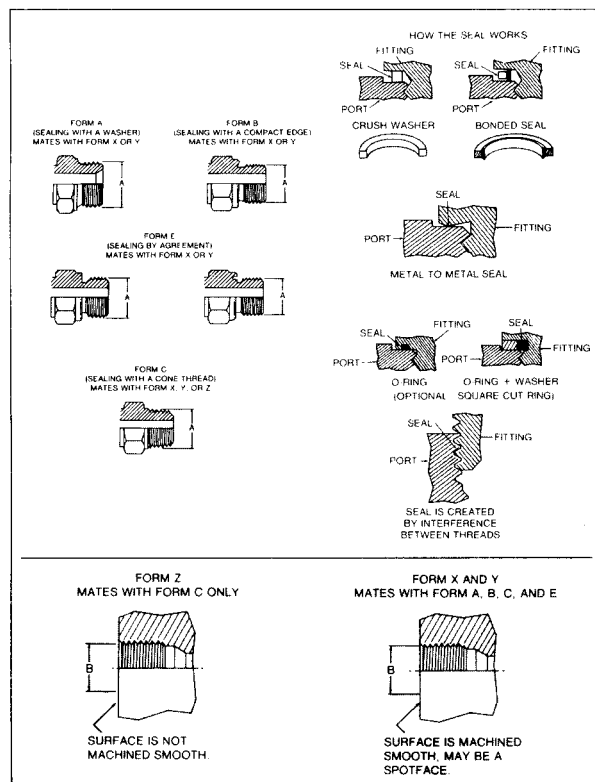
Technical Information

How to Identify Fluid Connectors German Connections

DIN 3852

Male Connectors and Female Ports

The DIN is controlled by Germany, but other countries may use it as a reference for their connector and port designs. The chart below illustrates the various forms and how they seal.

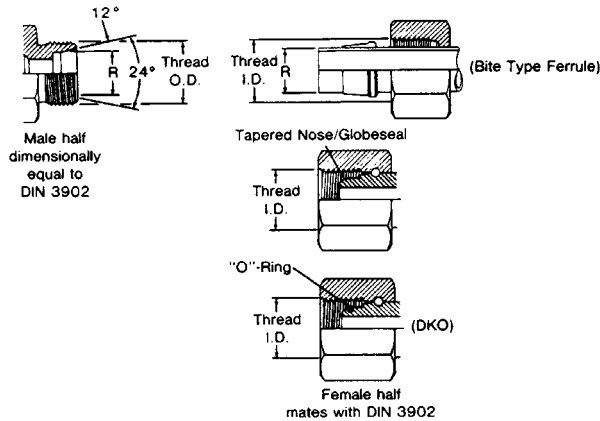


Metric Threads	Male Thread O.D. "A"		Female Thread I.D. "B"	
	mm	Inch	mm	Inch
M12 x 1.5	12	.47	10.5	.41
M14 x 1.5	14	.55	12.5	.49
M16 x 1.5	16	.63	14.5	.57
M18 x 1.5	18	.71	16.5	.65
M20 x 1.5	20	.78	18.5	.73
M22 x 1.5	22	.87	20.5	.81
M24 x 1.5	24	.94	22.5	.89
M26 x 1.5	26	1.02	24.5	.96
M27 x 2	27	1.06	25	.98
M30 x 1.5	30	1.18	28.5	1.12
M30 x 2	30	1.18	28	1.10
M33 x 2	33	1.30	31	1.22
M36 x 1.5	36	1.41	34.5	1.36
M36 x 2	36	1.41	34	1.33
M38 x 1.5	38	1.49	36.5	1.43
M38 x 2	38	1.49	36	1.41
M42 x 1.5	42	1.65	40.5	1.60
M42 x 2	42	1.65	40	1.57
M45 x 1.5	45	1.77	43.5	1.71
M45 x 2	45	1.77	43	1.69
M48 x 1.5	48	1.89	46.5	1.83
M48 x 2	48	1.89	46	1.81
M52 x 1.5	52	2.04	50.5	1.89

For DIN 3852 Whitworth pipe thread dimensions, see BSPT/BSPP dimensions. They are the same.

How to Identify Fluid Connectors German Connections

DIN 3902



This connection style consists of a common male and three different female halves.

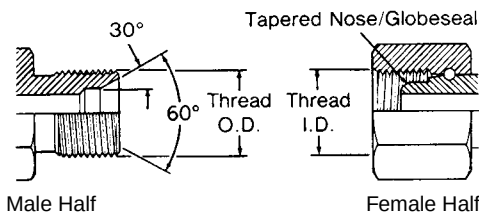
The male has a straight metric thread, a 24° included angle and a recessed counterbore that matches the tube O.D. used with it. The female may be a tube, nut and ferrule, a tapered nose/Globeseal flareless swivel or a tapered nose/Globeseal flareless swivel with an O-Ring in the nose (DKO type).

Tube O.D. "R" Dim. I.Rh. mm(inch)	Tube O.D. "R" Dim. s.Rh. mm(inch)	Metric Thread Size	Male Thread O.D.		Female Thread I.D.	
			mm	Inch	mm	Inch
6 (.24)		M12 x 1.5	12	.47	10.5	.41
8 (.32)	6 (.24)	M14 x 1.5	14	.55	12.5	.49
10 (.39)	8 (.32)	M16 x 1.5	16	.63	14.5	.57
12 (.47)	10 (.39)	M18 x 1.5	18	.71	16.5	.65
	12 (.47)	M20 x 1.5	20	.78	18.5	.73
15 (.59)	14 (.55)	M22 x 1.5	22	.87	20.5	.81
	16 (.63)	M24 x 1.5	24	.94	22.5	.89
18 (.71)		M26 x 1.5	26	1.02	24.5	.96
22 (.87)	20 (.78)	M30 x 2.0	30	1.18	28	1.11
28 (1.10)	25 (.98)	M36 x 2.0	36	1.41	34	1.34
	30 (1.18)	M42 x 2.0	42	1.65	40	1.57
35 (1.38)		M45 x 2.0	45	1.77	43	1.70
42 (1.65)	38 (1.50)	M52 x 2.0	52	2.04	50	1.97

I.Rh. is a light duty system

s.Rh. is a heavy duty system.

DIN 7631



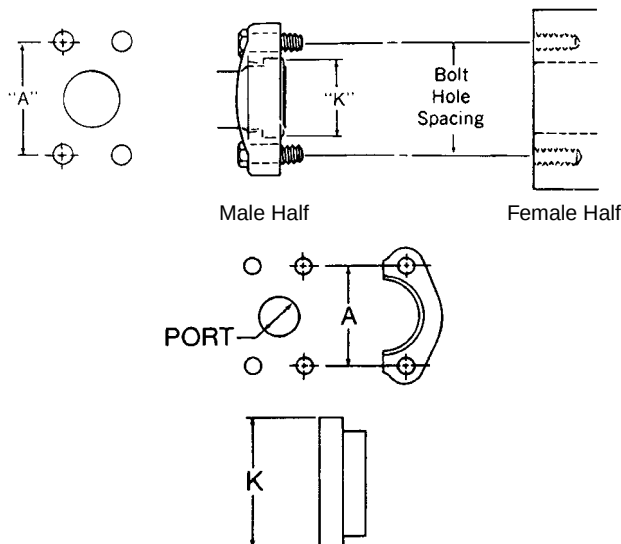
This connection is frequently used in hydraulic systems. The male has a straight metric thread and a 60° (included angle) recessed cone. The female has a straight thread and a tapered nose/Globeseal seat. The seal takes place by contact between the cone of the male and the nose of the tapered nose/Globeseal flareless swivel. The threads hold the connection mechanically.

Use with Pipe/Tube O.D.		Metric Thread Size	Male Thread O.D.		Female Thread I.D.	
mm	Inch		mm	Inch	mm	Inch
6	.24	M12 x 1.5	12	.47	10.5	.41
8	.32	M14 x 1.5	14	.55	12.5	.49
10	.39	M16 x 1.5	16	.63	14.5	.57
12	.47	M18 x 1.5	18	.71	16.5	.65
15	.59	M22 x 1.5	22	.87	20.5	.81
18	.71	M26 x 1.5	26	1.02	24.5	.96
22	.87	M30 x 1.5	30	1.18	28.5	1.12
28	1.10	M38 x 1.5	38	1.50	36.5	1.44
35	1.38	M45 x 1.5	45	1.77	43.5	1.71
42	1.65	M52 x 1.5	52	2.04	50.5	1.99

Technical Information

How to Identify Fluid Connectors German Connections

DIN 20066 4-Bolt Flange



Size mm (inch) Dash	Port Hole mm (inch)	Bolt Dimensions mm and Inch		Bolt Hole Spacing "A" mm (inch)	
		Form R (Cd.61)	Form S (Cd.62)	Form R (Cd.61)	Form S (Cd.62)
12 (1/2) -08	12.7 (.50)	M8 x 1.25 x 30 5/16-18 x 1-1/4	M8 x 1.25 x 30 5/16-18 x 1-1/4	38.10 (1.50)	40.49 (1.57)
20 (3/4) -12	19.1 (.75)	M10 x 1.5 x 30 3/8-16 x 1-1/4	M10 x 1.5 x 40 3/8-16 x 1-1/2	47.63 (1.88)	50.80 (2.00)
25 (1) -16	25.4 (1.00)	M10 x 1.5 x 35 3/8-16 x 1-1/4	M12 x 1.75 x 45 7/16-14 x 1-3/4	52.37 (2.06)	57.15 (2.25)
32 (1-1/4) -20	31.7 (1.25)	M10 x 1.75 x 40 7/16-14 x 1-1/2	M14 x 2 x 45 1/2-13 x 1-3/4	58.72 (2.31)	66.68 (2.63)
40 (1-1/2) -24	38.0 (1.50)	M12 x 1.75 x 40 1/2-13 x 1-1/2	M16 x 2 x 55 5/8-11 x 2-1/4	69.85 (2.75)	79.38 (3.13)
50 (2) -32	50.8 (2.00)	M12 x 1.75 x 40 1/2-13 x 1-1/2	M20 x 2.5 x 70 3/4-10 x 2-3/4	77.77 (3.06)	96.82 (3.81)

This connection is commonly used in fluid power systems. There are two pressure ratings. Form R (Code 61) is the "standard" series and Form S (Code 62) is the "heavy duty" series. The design concept for both series is the same, but the bolt hole spacing and flanged head diameters are larger for the higher pressure, Form S connection. Both metric and inch bolts are used.

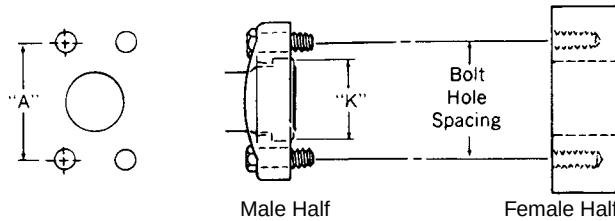
The female (port) is an unthreaded hole with four threaded bolt holes in a rectangular pattern around the port. The male consists of a flanged head, grooved for an O-Ring, and either a captive flange or split flange halves with bolt holes to match the port. The seal takes place on the O-Ring, which is compressed between the flanged head and the flat surface surrounding the port. The threaded bolts hold the connection together.

Note: DIN 20066, ISO/DIS 6166, JIS B 8363 and SAE J518 are interchangeable, except for the bolt sizes.

Size mm (inch) Dash	Flanged Head Diameter "K" mm (inch)	
	Form R (Code 61)	Form S (Code 62)
12 (1/2) -08	30.18 (1.19)	31.75 (1.25)
20 (3/4) -12	38.10 (1.50)	41.28 (1.63)
25 (1) -16	44.45 (1.75)	47.63 (1.88)
32 (1-1/4) -20	50.80 (2.00)	53.98 (2.13)
40 (1-1/2) -24	60.33 (2.38)	63.50 (2.50)
50 (2) -32	71.42 (2.81)	79.38 (3.13)

How to Identify Fluid Connectors ISO Connections

ISO / DIS 6162 4-Bolt Flange



This connection is commonly used in fluid power systems. There are two pressure ratings. PN 35/350 bar (Code 61) is the "standard" series and PN 415 bar (Code 62) is the high pressure series. The design concept for both series is the same, but the bolt hole spacing and flanged head diameters are larger for the higher pressure, PN 415 bar connection. Both metric and inch bolts are used. The port will have an "M" stamped on it if metric bolts are required.

The female (port) is an unthreaded hole with four threaded bolt holes in a rectangular pattern around the port. The male consists of a flanged head, grooved for an O-Ring, and either a captive flange or split flange halves with bolt holes to match the port. The seal takes place on the O-Ring, which is compressed between the flanged head and the flat surface surrounding the port. The threaded bolts hold the connection together.

Note: SAE J518, JIS B 8363, ISO/DIS 6162 and DIN 20066 are interchangeable, except for bolt sizes.

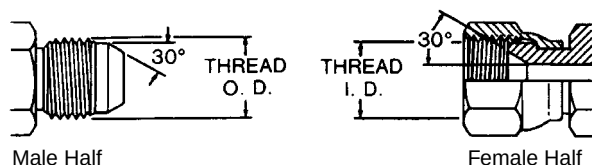
Size mm (inch) Dash	Port Hole mm (inch)	Bolt Dimensions mm and Inch		Bolt Hole Spacing "A" mm (inch)	
		PN 35/350 Bar (Cd.61)	PN 415 Bar (Cd.62)	PN 35/350 Bar (Cd.61)	PN 415 Bar (Cd.62)
13 (1/2) -08	12.7 (.50)	M8 x 1.25 x 30 5/16-18 x 1-1/4	M8 x 1.25 x 30 5/16-18 x 1-1/4	38.10 (1.50)	40.49 (1.57)
19 (3/4) -12	19.1 (.75)	M10 x 1.5 x 35 3/8-16 x 1-1/4	M10 x 1.5 x 40 3/8-16 x 1-1/2	47.63 (1.88)	50.80 (2.00)
25 (1) -16	25.4 (1.00)	M10 x 1.5 x 35 3/8-16 x 1-1/4	M12 x 1.75 x 45 7/16-14 x 1-3/4	52.37 (2.06)	57.15 (2.25)
32 (1-1/4) -20	31.8 (1.25)	M10 x 1.75 x 40 7/16-14 x 1-1/2	M14 x 2 x 50 1/2-13 x 1-3/4	58.72 (2.31)	66.68 (2.63)
38 (1-1/2) -24	38.1 (1.50)	M14 x 2 x 40 1/2-13 x 1-1/2	M16 x 2 x 55 5/8-11 x 2-1/4	69.85 (2.75)	79.38 (3.13)
51 (2) -32	50.8 (2.00)	M14 x 2 x 40 1/2-13 x 1-1/2	M20 x 2.5 x 70 3/4-10 x 2-3/4	77.77 (3.06)	96.82 (3.81)

Inch Size	Flanged Head Diameter "K" mm (inch)	
	PN 35/350 (Code 61)	PN 415 (Code 62)
1/2	30.18 (1.19)	31.75 (1.25)
3/4	38.10 (1.50)	41.28 (1.63)
1	44.45 (1.75)	47.63 (1.88)
1-1/4	50.80 (2.00)	53.98 (2.13)
1-1/2	60.33 (2.38)	63.50 (2.50)
2	71.42 (2.81)	79.38 (3.13)

Technical Information

How to Identify Fluid Connectors Japanese Connections

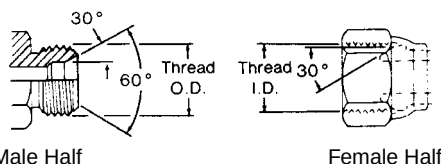
JIS 30 Female (Cone) Seat, Parallel Pipe Threads (Threads per JIS B 0202)



The Japanese JIS 30° flare is similar to the American SAE 37° flare connection in application as well as sealing principles. However, the flare angle and dimensions are different. The threads are similar to BSPP.

Inch Size	Size mm (Dash)	Nominal Thread Size (Similar to BSPP)	Male Thread O.D.		Female Thread I.D.	
			Fraction	mm	Fraction	mm
1/4	6 (-04)	1/4-19	33/64	13.2	15/32	11.9
3/8	9 (-06)	3/8-19	21/32	16.7	19/32	15.3
1/2	12 (-08)	1/2-14	13/16	21.0	3/4	19.2
3/4	19 (-12)	3/4-14	1-1/32	26.4	31/32	24.6
1	24 (-16)	1-11	1-5/16	33.3	1-7/32	30.9
1-1/4	32 (-20)	1-1/4-11	1-21/32	41.9	1-9/16	39.6
1-1/2	38 (-24)	1-1/2-11	1-7/8	47.8	1-25/32	45.5
2	50 (-32)	2-11	2-11/32	59.7	2-1/4	57.4

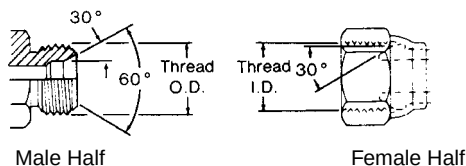
JIS 30 Male Inverted Seat, Metric Threads (Threads per JIS B 0207)



The JIS parallel (metric) is the same as the JIS parallel B 0202 except for the thread difference.

Size mm	Dash Size	Thread Size	Male Thread O.D.		Female Thread I.D.	
			mm	Inch	mm	Inch
6	-04	M14 x 1.5	14	.55	12.5	.49
9	-06	M18 x 1.5	18	.71	16.5	.65
12	-08	M22 x 1.5	22	.87	20.5	.81
19	-12	M30 x 1.5	30	1.18	28.5	1.12
25	-16	M33 x 1.5	33	1.30	31.5	1.24

JIS 30 Male Inverted Seat, Parallel Pipe Threads (Thread per JIS B 0202)

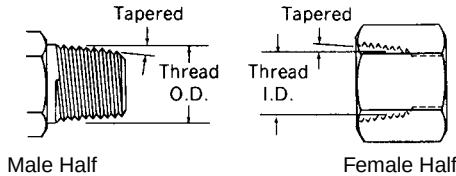


The JIS parallel is similar to the BSPP connection. The JIS parallel thread and the BSPP connection are interchangeable.

Inch Size	Size mm (Dash)	Nominal Thread Size (Similar to BSPP)	Male Thread O.D.		Female Thread I.D.	
			Fraction	mm	Fraction	mm
1/4	6 (-04)	1/4-19	33/64	13.2	15/32	11.9
3/8	9 (-06)	3/8-19	21/32	16.7	19/32	15.3
1/2	12 (-08)	1/2-14	13/16	21.0	3/4	19.2
3/4	19 (-12)	3/4-14	1-1/32	26.4	31/32	24.6
1	25 (-16)	1-11	1-5/16	33.3	1-7/32	30.9
1-1/4	32 (-20)	1-1/4-11	1-21/32	41.9	1-9/16	39.6
1-1/2	38 (-24)	1-1/2-11	1-7/8	47.8	1-25/32	45.5
2	50 (-32)	2-11	2-11/32	59.7	2-1/4	57.4

How to Identify Fluid Connectors Japanese Connections

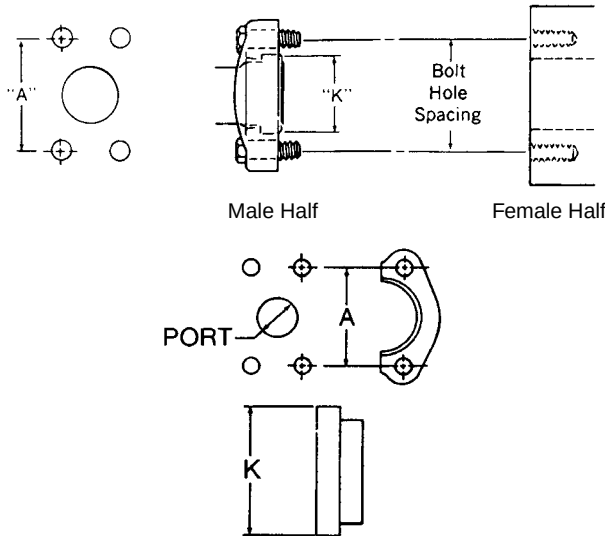
JIS Tapered Pipe (PT) (Threads per JIS B 0203)



The JIS tapered thread is similar to the BSPT connection in design, appearance and dimensions. The JIS tapered thread and the BSPT connection are interchangeable.

Inch Size	Size mm (Dash)	Nominal Thread Size (Similar to BSPT)	Male Thread O.D.		Female Thread I.D.	
			Fraction	mm	Fraction	mm
1/4	6 (-04)	1/4-19	33/64	13.2	15/32	11.9
3/8	9 (-06)	3/8-19	21/32	16.7	19/32	15.3
1/2	12 (-08)	1/2-14	13/16	21.0	3/4	19.2
3/4	19 (-12)	3/4-14	1-1/32	26.4	31/32	24.6
1	25 (-16)	1-11	1-5/16	33.3	1-7/32	30.9
1-1/4	32 (-20)	1-1/4-11	1-21/32	41.9	1-9/16	39.6
1-1/2	38 (-24)	1-1/2-11	1-7/8	47.8	1-25/32	45.5
2	50 (-32)	2-11	2-11/32	59.7	2-1/4	57.4

JIS B 8363 4-Bolt Flange



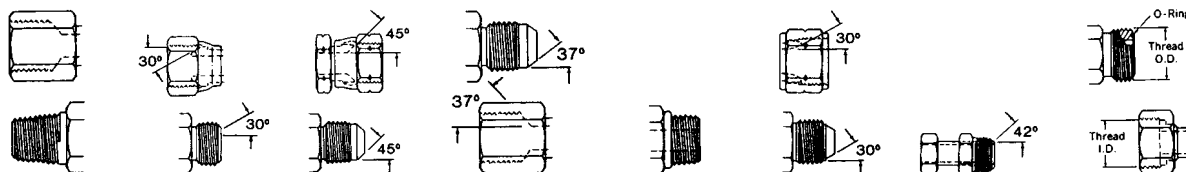
This connection is commonly used in fluid power systems. There are two pressure ratings. Type I (Code 61) is referred to as the "standard" series and Type II (Code 62) is the "6000 PSI" series. The design concept for both series is the same, but the bolt spacing and flanged head diameters are larger for the higher pressure, Type II connection. Both metric and inch bolts are used.

Size mm (inch) Dash	Port Hole mm (inch)	Bolt Dimensions mm and Inch		Bolt Hole Spacing "A" mm (inch)	
		Type I (Code 61)	Type II (Code 62)	Type I (Code 61)	Type II (Code 62)
12 (1/2) -08	12.7 (.50)	M8 x 1.25 x 30 5/16-18 x 1-1/4	M8 x 1.25 x 30 5/16-18 x 1-1/4	38.10 (1.50)	40.49 (1.57)
19 (3/4) -12	19.1 (.75)	M10 x 1.5 x 35 3/8-16 x 1-1/4	M10 x 1.5 x 40 3/8-16 x 1-1/2	47.63 (1.88)	50.80 (2.00)
25 (1) -16	25.4 (1.00)	M10 x 1.5 x 30 3/8-16 x 1-1/4	M12 x 1.75 x 45 7/16-14 x 1-3/4	52.37 (2.06)	57.15 (2.25)
32 (1-1/4) -20	31.7 (1.25)	M10 x 1.5 x 40 7/16-14 x 1-1/2	M14 x 2 x 45 1/2-13 x 1-3/4	58.72 (2.31)	66.68 (2.63)
38 (1-1/2) -24	38.0 (1.50)	M12 x 1.75 x 40 1/2-13 x 1-1/2	M16 x 2 x 55 5/8-11 x 2-1/4	69.85 (2.75)	79.38 (3.13)
50 (2) -32	50.8 (2.00)	M12 x 1.75 x 40 1/2-13 x 1-1/2	M20 x 2.5 x 70 3/4-10 x 2-3/4	77.77 (3.06)	96.82 (3.81)

Inch Size	Flanged Head Diameter "K" mm (inch)	
	Type I (Code 61)	Type II (Code 62)
1/2	30.18 (1.19)	31.75 (1.25)
3/4	38.10 (1.50)	41.28 (1.63)
1	44.45 (1.75)	47.63 (1.88)
1-1/4	50.80 (2.00)	53.98 (2.13)
1-1/2	60.33 (2.38)	63.50 (2.50)
2	71.42 (2.81)	79.38 (3.13)

Technical Information

Thread Size Chart



Dash Size	N.P.T.F.	N.P.S.M. apprx. dia.	SAE 45° auto. refriger.	SAE 37° (JIC) hydraulic	SAE O-Ring Boss	P.T.T. 30° automotive	SAE Inverted Flare	ORS®
-02	1/8-27	1/8-27	5/16-24	5/16-24	5/16-24		5/16-24	
-03			3/8-24	3/8-24	3/8-24		3/8-24	
-04	1/4-18	1/4-18	7/16-20	7/16-20	7/16-20		7/16-24	9/16-18
-05			1/2-20	1/2-20	1/2-20		1/2-20	
-06	3/8-18	3/8-18	5/8-18	9/16-18	9/16-18		5/8-18	11/16-16
-07			11/16-24				11/16-18	
-08	1/2-14	1/2-14	3/4-16	3/4-16	3/4-16		3/4-18	13/16-16
-10			7/8-14	7/8-14	7/8-14		7/8-18	1-14
-12	3/4-14	3/4-14	1-1/16-14	1-1/16-12	1-1/16-12		1-1/16-16	1-3/16-12
-14				1-3/16-12	1-3/16-12			
-16	1-11-1/2	1-11-1/2		1-5/16-12	1-5/16-12	1-5/16-14		1-7/16-12
-20	1-1/4-11-1/2	1-1/4-11-1/2		1-5/8-12	1-5/8-12	1-5/8-14		1-11/16-12
-24	1-1/2-11-1/2	1-1/2-11-1/2		1-7/8-12	1-7/8-12	1-7/8-14		2-12
-32	2-11-1/2	2-11-1/2		2-1/2-12	2-1/2-12	2-1/2-12		
-40	2-1/2-8	2-1/2-8		3-12	3-12			
-48	3-8	3-8		3-1/2-12	3-1/2-12			
-64	4-8							



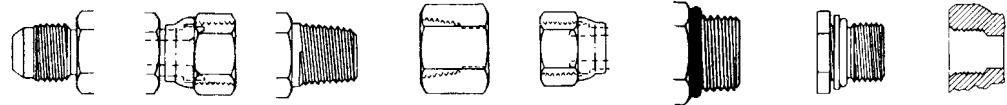
Technical Information

Thread Style Pressure Performance

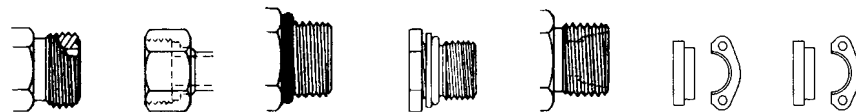
Maximum Operating Pressure Eaton-Aeroquip (Steel Products)



The table below is a breakdown of hydraulic pressure performance by thread style and size for Aeroquip® steel products. The table is based on limited laboratory test data and is intended only as an approximate guide to field performance of Aeroquip products. Figures shown are maximum operating pressure in psi, based upon a 4:1 safety factor relative to the connection minimum burst pressure. Testing was conducted at SAE recommended assembly torque in hardened test blocks. The pressure rating must be adjusted for any change in mating part material. The maximum operating pressure for the adapter or tube fitting body must be the lower of the chosen mating end types.



Dash Size	Inch Size	SAE100R2 Maximum Operating Pressure	SAE 37° Male Flare (JIC)	SAE 37° Female Swivel (JIC)	Male Pipe NPTF	Female Pipe NPTF	Female Pipe Swivel NPSM	Male O-Ring Boss non-ORS®	Straight Thread O-Ring Adjust. non-ORS®	Female O-Ring Boss
-2	1/8				10000	5000	6000			
-4	1/4	5000	8500	5500	9500	4500	5000	7500	4500	4500
-5	5/16	4250	8500	5000				7500	3500	3500
-6	3/8	4000	7000	4000	8000	3500	4000	7500	4000	3500
-8	1/2	3500	6000	4000	6000	3500	3500	7500	4000	3000
-10	5/8	2750	5500	3000				7500	4000	2500
-12	3/4	2250	4000	3000	5000	3000	3500	5000	3500	1800
-14	7/8	2000	4000	3000				5000	3000	1700
-16	1	2000	3500	2500	4000	2500	3000	4500	2500	1600
-20	1-1/4	1625	3500	2000	3000	2000	2000	4500	2000	1500
-24	1-1/2	1250	2000	1500	2000	1500	1500	3500	2000	1500
-32	2	1125	1250	1250	2000	1400	1500	2000		



Dash Size	Inch Size	SAE100R2 Maximum Operating Pressure	Male ORS®	Female ORS® Swivel	Male O-Ring Boss (ORS®)	Straight Thread O-Ring Adjust. (ORS®)	Male SAE Flareless	Split Flange Code 61	Split Flange Code 62
-2	1/8								
-4	1/4	5000	9000	9000	9000	6000	6000		
-5	5/16	4250							
-6	3/8	4000	9000	9000	9000	6000	6000		
-8	1/2	3500	9000	8000	9000	6000	6000	5000	6000
-10	5/8	2750	9000	8000	9000	6000	6000		
-12	3/4	2250	6000	6000	6000	6000	4500	5000	6000
-14	7/8	2000							
-16	1	2000	6000	6000	6000	5000	4000	5000	6000
-20	1-1/4	1625	4500	4500	4500	4500		4000	6000
-24	1-1/2	1250	4000	4000	4000	3000		3000	6000
-32	2	1125						3000	6000



WARNING

Pressure ratings for Brennan and Eaton-Winner adapters may not be the same as listed on this page. Contact us for more information.



Technical Information

Working Pressure Tables Brass & Stainless Steel Adapters

Eaton Brass Adapters



	Eaton Fitting Types		
	Pipe	Inverted Flare	SAE 45° Flare
Fitting Material	Brass	Brass	Brass
Tube Size (O.D. range in inches)	1/8 to 3/4	1/8 to 1	1/8 to 3/4
Maximum Working Pressure (psi) Depends on tubing material, O.D., wall thickness and fitting size	1200	2000	2000

SSP Stainless Steel Adapters



Tapered Thread					Parallel Thread			
Nominal	BSPT	NPT	Working Pressure Stainless (psi)		SAE	BSPP	Working Pressure Stainless (psi)	
			Male	Female			Male	Female
1/8	1/8-28	1/8-27	10050	6550	5/16-24	1/8-28	6000	5500
1/4	1/4-19	1/4-18	8050	6650	7/16-20	1/4-19	6000	5400
3/8	3/8-19	3/8-18	7850	5350	9/16-18	3/8-19	6000	5400
1/2	1/2-14	1/2-14	7750	4950	3/4-16	1/2-14	6000	4800
3/4	3/4-14	3/4-14	7350	4650	1-1/16-12	3/4-14	4800	4200
1	1-11	1-11-1/2	5350	4450	1-5/16-12	1-11	3600	2400
1-1/4	1-1/4-11	1-1/4-11-1/2	3450	1800	1-5/8-12	1-1/4-11	3000	2000
1-1/2	1-1/2-11	1-1/2-11-1/2	4550	2800	1-7/8-12	1-1/2-11	2400	1800
2	2-11	2-11-1/2	3050	2450	2-1/2-12	2-11	1800	1500

Source: ANSI/ASME B31.3



Recommended Assembly Torque



The use of a torque wrench is recommended to assure proper assembly of these connections.

	Dash Size	Thread Size (inches)	Swivel Nut Torque (ft. pounds)
ORS	-04	9/16-18	10-12
	-06	11/16-16	18-20
	-08	13/16-16	32-35
	-10	1-14	46-50
	-12	1-3/16-12	65-70
	-16	1-7/16-12	92-100
	-20	1-11/16-12	125-140
	-24	2-12	150-165

	Dash Size	Thread Size (inches)	Jam Nut or Straight Fitting Torque (ft. pounds)
Straight Thread O-Ring Boss Low Pressure with 37° (SAE J514)	-03	3/8-24	8-9
	-04	7/16-20	13-15
	-05	1/2-20	14-15
	-06	9/16-18	23-24
	-08	3/4-16	40-43
	-10	7/8-14	43-48
	-12	1-1/16-12	68-75
	-14	1-3/16-12	83-90
	-16	1-5/16-12	112-123
	-20	1-5/8-12	146-161
	-24	1-7/8-12	154-170
	-32	2-1/2-12	218-240

	Dash Size	Thread Size (inches)	Jam Nut or Straight Fitting Torque (ft. pounds)
Straight Thread O-Ring Boss High Pressure with ORS® (SAE J1453)	-03	3/8-24	8-10
	-04	7/16-20	14-16
	-05	1/2-20	18-20
	-06	9/16-18	24-26
	-08	3/4-16	50-60
	-10	7/8-14	72-80
	-12	1-1/16-12	125-135
	-14	1-3/16-12	160-180
	-16	1-5/16-12	200-220
	-20	1-5/8-12	210-280
	-24	1-7/8-12	270-360

	Dash Size	Thread Size (inches)	Swivel Nut Torque (ft. pounds)
SAE 37° (JIC)	-02	5/16-24	
	-03	3/8-24	
	-04	7/16-20	11-12
	-05	1/2-20	15-16
	-06	9/16-18	18-20
	-08	3/4-16	38-42
	-10	7/8-14	57-62
	-12	1-1/16-12	79-87
	-14	1-3/16-12	
	-16	1-5/16-12	108-113
	-20	1-5/8-12	127-133
	-24	1-7/8-12	158-167
	-32	2-1/2-12	245-258

	Thread Size (mm)	Straight Adapter or Locknut Torque (ft. pounds)
Metric	M10 x 1	13-15
	M12 x 1.5	15-19
	M14 x 1.5	19-23
	M16 x 1.5	33-40
	M18 x 1.5	37-44
	M20 x 1.5	52-66
	M22 x 1.5	55-70
	M26 x 1.5	81-96
	M27 x 2	96-111
	M33 x 2	162-184
	M42 x 2	170-192
	M48 x 2	258-347

	Thread Size (inches)**	Straight Adapter or Locknut Torque (ft. pounds)
BSPP ***"G" denotes parallel threads, other than ISO 6149. (Port connection only)	G 1/8-28	13-15
	G 1/4-19	19-23
	G 3/8-19	33-40
	G 1/2-14	55-70
	G 3/4-14	102-118
	G 1-11	162-184
	G 1-1/4-11	170-192
	G 1-1/2-11	258-347



Technical Information

Hose & Hose Assembly Ordering and Length Tolerances



Part Numbers and dash sizes

Dash size designates the nominal size in 16ths of an inch. This number immediately follows the part number and is separated from it with a dash.

Hose Assemblies

Aeroquip® manufacturers the terminal ends of their hose fittings to the appropriate requirements established by the SAE. Therefore, the performance ratings of these hose fittings meet the SAE requirements. It is possible to order a hose assembly with a fitting terminal end that has a performance rating lower than the hose rating. When ordering hose assemblies, please keep the connecting end performance rating in mind since this may affect overall hose assembly performance. See "Thread Style Pressure Performance" on page 1503.

Cut Length Hose

Cut lengths should be as ordered as shown below by specifying lengths in inches.

FC300 - 08 - 00484

Hose type _____

Hose size (in 16ths of an inch) _____

Cut length (in inches) _____

Last digit is in 1/8ths of an inch (00484 = 48-1/2 inches)

Length Tolerances

Length tolerances for hose, hose assemblies and protective sleeve is:

Up to and including 12 inches: $\pm 1/8$ inch

Above 12 inches to and including 18 inches: $\pm 3/16$ inch

Above 18 inches to and including 36 inches: $\pm 1/4$ inch

Above 36 inches: $\pm 1\%$ of length



Hose Assembly Flow Capacity at Suggested Flow Velocities



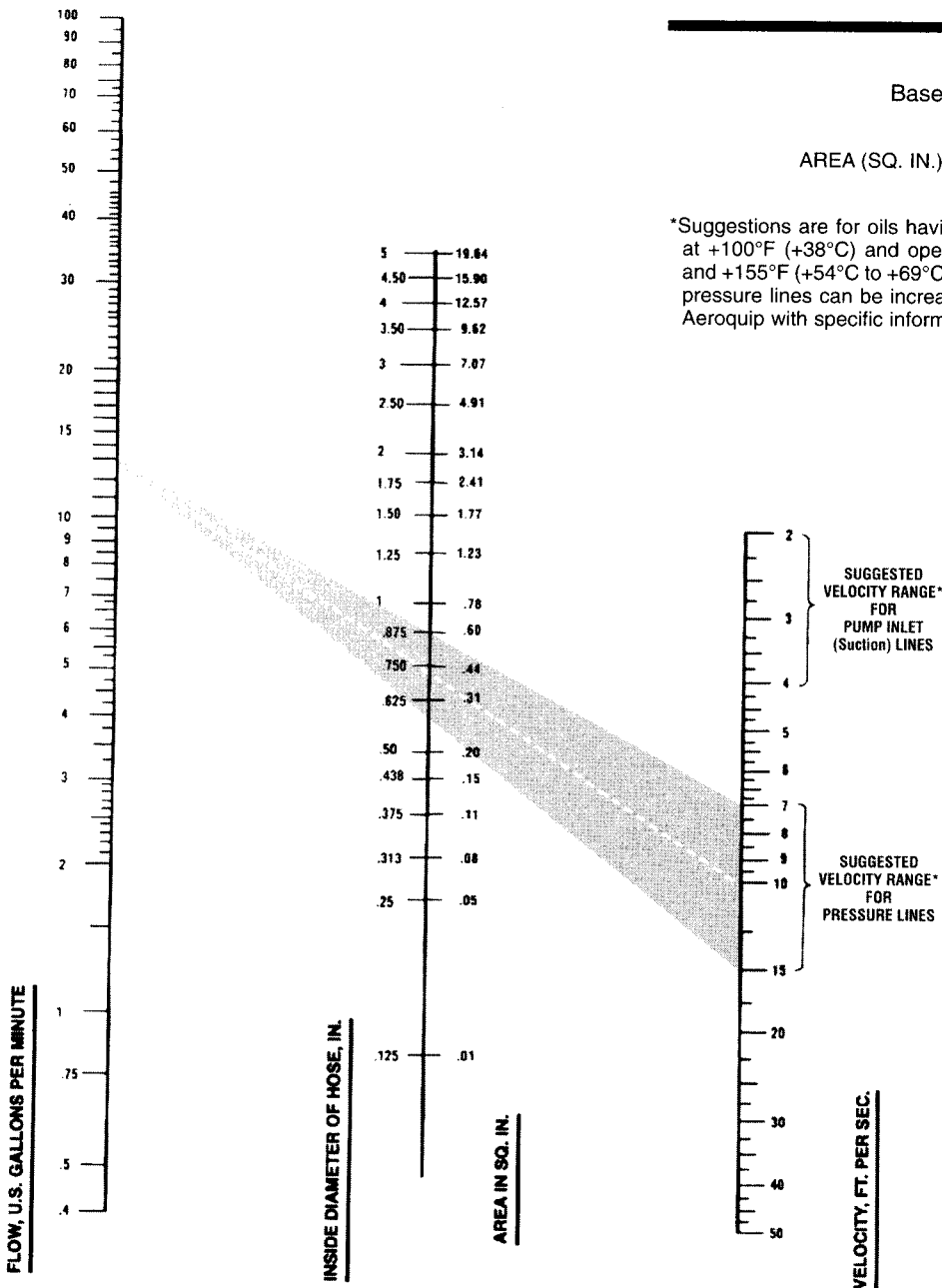
The chart below is designed and provided as an aid in the determination of the correct hose size.

Example:

At 13 U.S. gallons per minute, what is proper hose size with- in the suggested velocity range for pressure lines?

Solution: Locate 13 U.S. gallons per minute in the left hand column and 10 feet per second in the right hand column (the center of the suggested velocity range for pressure lines). Lay a straightedge across the two points. The inside diameter is shown in the center column nearest the straightedge.

For suction hose, follow the same procedure except use suggested velocity range for pump inlet lines in the right hand column.



To convert

U.S. gallons into Imperial gallons multiply U.S. gallons by 0.83267. Imperial gallons into U.S. gallons multiply Imperial gallons by 1.20095. U.S. gallons to litres multiply by 3.785. Litres to U.S. gallons, multiply by 0.2642.

Technical Information



Hose Assembly Pressure Drop



* Pressure drop in psi (pounds per square inch)/gpm (gallons per minute) for **10 feet of hose** (smooth bore) without fittings. Fluid specification: Specific gravity = .85; Viscosity = ν = 20 centistokes (C.S.), (20 C.S. = 97 S.S.U.).

Hose Dash Size →	-04		-05		-06		-08		-10		-12		-16		-20		-24		-32		-40		-48	
Hose I.D. (inches) ←	.19	.25	.25	.31	.31	.38	.41	.50	.50	.63	.63	.75	.88	1.00	1.13	1.25	1.38	1.50	1.81	2.00	2.38	3.00		
↑ U.S. Gallons per minute ↓	.25	10	3.1	3.1																				
	.50	19	6	6	2.7	2.7																		
	1	40	12	12	5.5	5.5	2.4																	
	2	95	24	24	10	10	4.8	3.5																
	3	185	46	46	17	17	7	5	2.2	2.2														
	4		78	78	29	29	12	8	3	3	1.2	1.2												
	5		120	120	44	44	18	12	4.5	4.5	1.6	1.6	.72											
	8				95	95	39	26	10	10	3.6	3.6	1.4	.60										
	10						59	40	15	15	5.7	5.7	2	1	.55									
	12						80	52	20	20	7.2	7.2	2.6	1.5	.75	.43								
	15							75	30	30	10	10	4.2	2.2	1.2	.67	.38							
	18							107	40	40	15	15	6.3	3	1.5	.70	.55	.35						
	20								49	49	19	19	8	3.4	2	1.1	.65	.43	.27					
	25								72	72	26	26	11	5.5	3	1.6	1	.64	.40	.17				
	30										34	34	14	7	3.6	2.2	1.3	.80	.52	.22	.14			
	35										47	47	19	9.5	5	2.8	1.7	1.1	.70	.27	.18			
	40												25	12	6.5	3.4	2.2	1.4	.90	.38	.24			
	50												36	17	9	5.3	3.3	2	1.3	.54	.35	.15		
	60												50	23	12	7.5	4.4	2.8	1.8	.75	.45	.20		
	70													31	17	9.3	6	3.8	2.4	1	.65	.30		
	80													38	21	12	7.1	4.6	3	1.2	.76	.34	.11	
	90													49	27	15	9	5.9	3.8	1.5	1	.45	.13	
	100														33	19	12	7	4.7	1.9	1.3	.55	.18	
	150														60	36	22	13	8.5	3.4	2.2	1	.33	
	200																36	23	15	6	3.9	1.7	.55	
	250																54	33	22	8.5	5.3	2.5	.75	
	300																	45	29	12	7.5	4	1.1	
	400																		51	21	14	6.5	2.2	
	500																			32	20	10	3	
	800																					18	5	
1000																							10	

U.S. Gallons per minute

*Pressure drop values listed are typical of many petroleum based hydraulic oils at approximately +100°F (+38°C). Differences in fluids, fluid temperature and viscosity can increase or decrease actual pressure drop compared to the values listed.

To convert

U.S. gallons into Imperial gallons multiply U.S. gallons by 0.83267. Imperial gallons into U.S. gallons multiply Imperial gallons by 1.20095. U.S. gallons to litres multiply by 3.785. Litres to U.S. gallons, multiply by 0.2642.





Important Safety Information (Hose & Fittings)



WARNING

General guidelines for selection, installation and maintenance of hose assemblies. Please read these general instructions carefully.

HOSE AND HOSE ASSEMBLIES HAVE A FINITE LIFE and there are a number of factors which will reduce its life.

These general instructions are intended as a guide to assist system designers and/or users in the selection, installation, and maintenance of hose assemblies. The designers and users must make a systematic review of each application and then select, install, and maintain the hose assemblies to fulfill the requirements of the application. The following are general guidelines and are not necessarily a complete list.

WARNING: IMPROPER SELECTION, INSTALLATION, OR MAINTENANCE MAY RESULT IN PREMATURE FAILURES, BODILY INJURY, OR PROPERTY DAMAGE.

SELECTION—The following is a list of factors which must be considered before final hose selection can be made:

Pressure—After determining the system pressure, hose selection must be made so that the recommended maximum operating pressure is equal to or greater than the system pressure. Surge pressures higher than the maximum operating pressure will shorten hose life and must be taken into account by the hydraulic designer.

Suction—Hoses used for suction applications must be selected to insure the hose will withstand the negative pressure of the system.

Temperature—Care must be taken to insure that fluid and ambient temperatures, both static and transient, do not exceed the limitations of the hose. Special care must be taken when routing near hot manifolds.

Fluid Compatibility—Hose selection must assure compatibility of the hose tube, cover and fittings with the fluid used. Additional caution must be observed in hose selection for gaseous applications.

Size—Transmission of power by means of pressurized fluid varies with pressure and rate of flow. The size of the components must be adequate to keep pressure losses to a minimum and avoid damage to the hose due to heat generation or excessive turbulence.

Routing—Attention must be given to optimum routing to minimize inherent problems.

Environment—Care must be taken to insure that the hose and fittings are either compatible with or protected from the environment to which they are exposed. Environmental conditions such as ultraviolet light, ozone, salt water, chemicals, and air pollutants can cause degradation and premature failure and, therefore, must be considered.

Mechanical Loads—External forces can significantly reduce hose life. Mechanical loads which must be considered include excessive flexing, twist, kinking, tensile or side loads, bend radius, and vibration. Use of swivel-type fittings or adapters may be required to insure no twist is put into the hose. Unusual applications may require special testing prior to hose selection.

Abrasion—While hose is designed with a reasonable level of abrasion resistance, care must be taken to protect the hose from excessive abrasion which can result in erosion, snagging and cutting of the hose cover. Exposure of the reinforcement will significantly accelerate hose failure.

Proper End Fitting—Care must be taken to insure proper compatibility exists between the hose and coupling selected based on the manufacturer's recommendations substantiated by testing to industry standards such as SAE J517. End fitting components from one manufacturer are usually not compatible with end fitting components supplied by another manufacturer (i.e., using a hose fitting nipple from one manufacturer with a hose socket from another manufacturer). It is the responsibility of the fabricator to consult the manufacturer's written instructions or the manufacturer directly for proper end fitting componentry.

Length—When establishing proper hose length, motion absorption, hose length changes due to pressure, as well as hose and machine tolerances must be considered.

Specifications and Standards—When selecting hose, government, industry and manufacturers' specifications and recommendations must be reviewed as applicable.

Hose Cleanliness—Hose components vary in cleanliness levels. Care must be taken to insure that the assemblies selected have an adequate level of cleanliness for the application.

Electrical Conductivity—Certain applications require that hose be nonconductive to prevent electrical current flow. Other applications require the hose to be sufficiently conductive to drain off static electricity. Hose and fittings must be chosen with these needs in mind.

continued on next page

Important Safety, Fluid Compatibility & Hose Routing & Installation Guidelines are continued on next page



Technical Information

Important Safety Information (Hose & Fittings)



WARNING

Refer to safety information regarding hose & fittings starting on page 1509

General guidelines for selection, installation and maintenance of hose assemblies.

continued from previous page

INSTALLATION—After selection of proper hose, the following factors must be considered by the installer:

Pre-Installation Inspection—Prior to installation, a careful examination of the hose must be performed. All components must be checked for correct style, size and length. In addition, the hose must be examined for cleanliness, I.D. obstructions, blisters, loose cover, or any other visible defects.

Follow Manufacturers' Assembly Instructions—Hose assemblies may be fabricated by the manufacturer, an agent for or customer of the manufacturer, or by the user. Fabrication of permanently attached fittings to hydraulic hose requires specialized assembly equipment. Field-attachable fittings (screw style and segment clamp style) can usually be assembled without specialized equipment although many manufacturers provide equipment to assist in the operation. Hose from one manufacturer is usually not compatible with fittings supplied by another manufacturer. It is the responsibility of the fabricator to consult the manufacturer's written assembly instructions or the manufacturers directly before intermixing hose and fittings from two manufacturers. Similarly, assembly equipment from one manufacturer is usually not interchangeable with that of another manufacturer. It is the responsibility of the fabricator to consult the manufacturer's written instructions or the manufacturer directly for proper assembly equipment. Always follow the manufacturer's instructions for proper preparation and fabrication of hose assemblies.

Minimum Bend Radius—Installation at less than minimum bend radius may significantly reduce hose life. Particular attention must be given to preclude sharp bending at the hose/fitting juncture.

Twist Angle and Orientation—Hose installations must be such that relative motion of machine components produces bending of the hose rather than twisting.

Securement—In many applications, it may be necessary to restrain, protect, or guide the hose to protect it from damage by unnecessary flexing, pressure surges, and contact with other mechanical components. Care must be taken to insure such restraints do not introduce additional stress or wear points.

Proper Connection of Ports—Proper physical installation of the hose requires a correctly installed port connection while insuring that no twist or torque is put into the hose.

Avoid External Damage—Proper installation is not complete without insuring that tensile loads, side loads, kinking, flattening, potential abrasion, thread damage, or damage to sealing surfaces are corrected or eliminated.

System Check Out—After completing the installation, all air entrapment must be eliminated and the system pressurized to the maximum system pressure and checked for proper function and freedom from leaks.

NOTE: Avoid potential hazardous areas while testing.

MAINTENANCE—Even with proper selection and installation, hose life may be significantly reduced without a continuing maintenance program. Frequency should be determined by the severity of the application and risk potential. A maintenance program should include the following as a minimum:

Hose Storage—Hose products in storage can be affected adversely by temperature, humidity, ozone, sunlight, oils, solvents, corrosive liquids and fumes, insects, rodents and radioactive materials. Storage areas should be relatively cool and dark and free of dust, dirt, dampness and mildew.

Visual Inspection—Any of the following conditions requires replacement of the hose:

- (a) Leaks at fitting or in hose (leaking fluid is a fire hazard).
- (b) Damaged, cut, or abraded cover (any reinforcement exposed).
- (c) Kinked, crushed, flattened, or twisted hose.
- (d) Hard, stiff, heat cracked or charred hose.
- (e) Blistered, soft, degraded, or loose cover.
- (f) Cracked, damaged, or badly corroded fittings.
- (g) Fitting slippage on hose.

Visual Inspection—The following items must be tightened, repaired, or replaced as required:

- (a) Leaking port conditions.
- (b) Clamps, guards, shields.
- (c) Remove excessive dirt buildup.
- (d) System fluid level, fluid type, and any air entrapment.

Functional Test—Operate the system at maximum operating pressure and check for possible malfunctions and freedom from leaks.

NOTE: Avoid potential hazardous areas while testing.

Replacement Intervals—Specific replacement intervals must be considered based on previous service life, government or industry recommendations, or when failures could result in unacceptable down time, damage, or injury risk.

Important Safety, Fluid Compatibility & Hose Routing & Installation Guidelines are continued on next page



Fluid Compatibility (Hose & Fittings)



WARNING

Refer to safety information regarding hose & fittings starting on page 1509

Fluid compatibility

This chart indicates the suitability of various elastomers and metals for use with fluids to be conveyed. It is intended as a guide only and is not a guarantee. Final selection of the proper hose style, seal, or material of metal components is further dependent on many factors including pressure, fluid and ambient temperature, concentration, duration of exposure, etc.

How to use the chart

1. The chart has separate sections for rating elastomers for use as hose inner tubes and as seals. Ratings for a given elastomer may not always be the same in both sections.
2. Both the elastomer and the metal must be considered when determining suitability of a combination for a hose assembly, adapter with o-ring, swivel joint or coupling.
3. Locate the fluid to be conveyed and determine the suitability of the elastomeric and metal components according to the resistance ratings shown for each.
4. Specific hose part numbers can be found under the inner tube material groupings in the Hose Tube Identification Chart below.
5. Dimensional and operating specifications for each hose can be found on the catalog pages shown with each hose part number.
6. Information on o-rings and seal options for swivel joints and couplings, and how to specify them, are shown in the respective sections of this catalog.

7. For further details on the products shown in this catalog, and their applications, contact Hydraulic Supply Co.

Resistance key rating

E = Excellent – Fluid has little or no effect.

G = Good – Fluid has minor to moderate effect.

C = Conditional – Service conditions should be described to Eaton Aeroquip for determination of suitability for application.

U = UNSATISFACTORY

The differences between ratings “E” and “G” are relative. Both indicate satisfactory service. Where there is a choice, the materials rated “E” may be expected to give better or longer service than those rated “G”.

NOTE: Special precautions are necessary in gaseous applications due to the potential volume of gaseous fluid in the system. Unless the cover is perforated, hose styles with rubber or thermoplastic covers are not suitable for gases above 250 psi. Hose styles with perforated covers are so noted in their construction descriptions.

WARNING

Compatibility of hose fittings with conveyed fluid is an essential factor in avoiding chemical reactions that may result in release of fluids or failure of the connection with the potential of causing severe personal injury or property damage.

Hose tube identification chart

1. Nitrile

302A	FC136	FC619	GH120
303	FC211	FC639/	GH466
1503	FC212	FC606	GH493
2556	FC254	FC647	GH506
2565	FC273/	FC659	GH663
2580	FC273B	FC735	GH681
2583	FC310	FC736	GH781
2651	FC466	FC849/	GH793
2681	FC579	FC849B	
2781		FC849B	

2. PTFE

2807	FC363	FC465	FC563
2808	FC364	FC469	FC807

3. Thermoplastic Elastomer

4. AQP

2661	FC323	FC350	FC598
FC194	FC324	FC355	FC650
FC195	FC325	FC498	FC699
FC234	FC332	FC510	GH194
FC300		FC598	GH195

5. Special Application Hose (Not Included in Fluid Chart)

FC234	FC650	Fuel		
CR170	FC321	LPG		
1531	1531A	Railroad Air Brake		
FC252	FC352	FC629	FC829	Silicone
2550	2554	2570	FC350	Truck Air Brake

6. EPDM Rubber

FC611	FC636	FC693
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SEAL ELASTOMER DATA

Seal Elastomer	Application Specification	Max. Operating Temperature Range
Buna-N†	none	-40°C to +121°C [-40°F to +250°F]
Neoprene	none	-54°C to +149°C [-65°F to +300°F]
EPR (Ethylene Propylene Rubber)/EPDM	none	-54°C to +149°C [-65°F to +300°F]
Viton*	MIL-R-25897	-29°C to +204°C [-15°F to +400°F]

†Buna-N temperature range -65°F to +225°F. Also per MIL-R-6855.

*Viton is a trademark of E.I. DuPont.

Important Safety, Fluid Compatibility & Hose Routing & Installation Guidelines are continued on next page



This page is part of a complete catalog which contains technical and safety data that must be reviewed when selecting a product

Technical Information

Fluid Compatibility (Hose & Fittings)



WARNING

Refer to safety information regarding hose & fittings starting on page 1509

E = EXCELLENT
G = GOOD
C = CONDITIONAL
U = UNSATISFACTORY

E = EXCELLENT
G = GOOD
C = CONDITIONAL
U = UNSATISFACTORY

FLUID	HOSE			SEALS			METAL			FLUID	HOSE			SEALS			METAL			
Acetaldehyde	U	E	G	U	E	U	C	C	U	U	G	G	E	E	E	E	G	G	U	G
Acetic Acid, 10%	U	E	C	E	E	U	U	E	G	U	U	C	U	U	C	C	U	G	G	U
Acetic Acid, Glacial	U	E	C	G	E	U	U	C	U	U	C	C	U	U	C	C	U	G	G	G
Acetone	U	E	G	G	E	U	U	G	U	U	G	E	E	E	E	E	E	G	E	E
Acetophenone	U	E	—	C	E	U	U	E	U	—	E	E	E	C	E	E	E	E	E	E
Acetyl Acetone	U	E	G	G	E	U	U	G	U	U	C	C	C	C	C	C	U	E	E	—
Acetyl Chloride	U	E	U	G	C	U	U	E	U	U	C	C	C	U	E	E	E	E	E	E
Acetylene	U	E	G	G	E	U	U	G	E	G	E	E	E	E	E	E	E	E	E	E
Air, Hot (Up to +160°F)	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Air, Hot (161°F – 200°F)	C	E	G	E	E	G	E	E	E	G	E	E	E	E	E	E	E	E	E	E
Air, Hot (201°F – 300°F)	U	E	U	C	G	U	U	G	U	U	E	E	E	E	E	E	E	E	E	E
Air Wet	E	E	C	E	E	E	E	E	G	C	U	G	E	E	E	E	E	E	E	E
Aluminum Chloride	E	E	E	E	E	E	E	E	G	E	U	U	U	U	U	U	U	E	E	E
Aluminum Fluoride	E	E	E	U	E	E	E	E	G	E	U	U	E	U	E	C	E	G	E	E
Aluminum Nitrate	E	E	E	C	E	E	E	E	G	E	U	U	C	C	C	C	C	C	C	C
Aluminum Sulfate	E	E	G	E	E	E	E	E	—	G	U	C	E	C	C	C	C	U	U	U
Alums	E	E	E	E	E	E	E	E	E	E	U	C	E	C	C	C	C	U	U	U
Ammonia, Cold	E	G	U	U	E	E	E	E	U	—	E	U	E	E	E	E	E	E	E	E
Ammonia, Hot	U	G	U	U	G	U	G	U	—	E	U	E	E	E	E	E	E	E	E	E
Ammonia, Anhydrous	G	U	U	E	E	E	E	E	U	—	E	U	E	E	E	E	E	G	G	G
Ammonia, Aqueous	G	G	U	C	E	E	E	E	U	—	E	U	E	E	E	E	E	E	E	E
Ammonium Carbonate	U	E	C	G	E	U	U	E	U	—	C	U	C	C	C	C	C	U	U	U
Ammonium Chloride	E	E	C	E	E	E	E	E	U	—	U	U	C	U	C	C	C	U	U	U
Ammonium Hydroxide	C	E	U	E	E	C	C	E	C	U	U	G	U	C	C	C	U	U	U	U
Ammonium Nitrate	E	E	C	E	E	G	E	U	G	U	G	U	G	U	G	U	G	U	U	U
Ammonium Phosphate	E	E	C	E	E	E	E	E	—	G	C	U	G	U	G	U	G	U	U	U
Ammonium Sulfate/Sulfide	E	E	C	E	E	E	E	E	U	G	C	U	U	G	U	G	U	U	U	U
Amyl Acetate	U	E	U	U	G	U	U	G	U	U	E	E	E	E	E	E	E	U	C	G
Amyl Alcohol	U	E	C	E	E	G	E	C	G	E	G	E	E	E	E	E	E	E	E	E
Aniline, Aniline Oil	U	E	U	C	G	U	U	G	U	U	E	U	E	G	G	E	E	E	E	E
Aniline Dyes	C	E	U	U	U	G	G	G	U	U	C	G	C	G	E	E	E	G	U	U
Arsenic Acid	E	E	G	E	E	E	E	E	C	G	U	U	C	E	E	E	E	E	E	E
Asphalt	G	E	G	G	U	G	C	U	E	G	E	E	E	C	E	E	E	E	E	E
ASTM #1	E	E	E	E	E	E	C	E	E	E	E	E	E	E	E	E	E	E	E	E
ASTM #2	E	E	E	E	U	E	G	U	E	E	E	E	E	E	E	E	E	E	E	E
ASTM #3	E	E	E	E	U	E	G	U	E	E	E	E	E	E	E	E	E	E	E	E
Automatic Trans. Fluid	E	E	G	G	E	E	G	U	E	C	E	E	E	E	E	E	E	E	E	E
Barium Chloride	E	E	C	C	E	E	E	E	G	C	U	G	G	G	G	E	E	E	E	E
Barium Hydroxide	E	E	G	C	E	E	E	E	E	G	U	U	G	U	G	E	E	E	E	E
Barium Sulfide	E	E	C	C	E	E	E	E	G	C	U	U	G	U	G	E	E	E	E	E
Benzene, Benzol	U	E	C	C	U	U	U	U	U	C	G	E	E	E	E	E	E	E	E	E
Benzin	G	E	C	C	U	E	U	U	U	C	E	E	E	E	E	E	E	E	E	E
Benzoic Acid	U	E	C	E	C	U	U	U	C	C	U	G	G	G	E	E	E	E	E	E
Benzyl Alcohol	U	E	C	G	C	U	G	E	C	C	E	G	E	G	E	E	E	E	E	E
Black Sulfate Liquor	E	E	C	C	E	C	C	C	U	C	E	C	E	C	E	U	U	E	E	E
Blast Furnace Gas	C	U	C	G	C	U	U	U	U	C	E	C	E	C	E	U	U	E	E	E
Borax	E	E	G	G	E	G	E	E	G	E	E	E	E	E	E	E	E	E	E	E
Boric Acid	E	E	C	E	E	G	E	E	G	G	U	G	C	C	E	E	E	E	E	E
Brine	E	E	C	C	E	G	E	E	G	C	U	G	U	G	E	E	E	E	E	E
Bromine	U	E	U	U	U	U	U	E	U	U	U	U	C	C	C	E	E	E	E	E
Butane	LPG Approved Hose Only	E	E	U	E	—	—	—	—	—	E	E	E	E	E	E	E	E	E	E
Butyl Acetate	U	E	C	G	G	U	U	G	U	C	E	E	E	E	E	E	E	E	E	E
Butyl Alcohol	E	E	G	G	E	E	G	E	G	G	G	G	G	G	E	E	E	E	E	E
Butyl Cellosolve	C	E	C	C	E	U	U	G	U	C	E	E	E	E	E	E	E	E	E	E
Butylene	G	E	—	C	U	C	U	E	U	—	E	E	E	E	E	E	E	E	E	E
Butyl Stearate	G	E	—	G	G	U	U	E	—	—	G	G	G	G	E	E	E	E	E	E
Butyraldehyde	U	E	—	C	G	U	U	G	U	—	E	E	E	E	E	E	E	E	E	E
Calcium Acetate	E	E	C	E	E	G	E	E	U	C	G	G	C	G	E	E	E	E	E	E
Calcium Bisulfate	E	E	G	G	E	E	E	U	E	G	U	C	C	U	U	E	E	E	E	E
Calcium Chloride	E	E	C	E	E	E	E	E	E	E	E	G	G	C	G	E	E	E	E	E
Calcium Hydroxide	E	E	C	C	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Calcium Hypochlorite	E	E	C	C	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Calcium Nitrate	E	E	C	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Cane Sugar Liquors	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Carbitol	E	G	E	C	G	E	G	G	G	U	G	E	E	E	E	E	E	E	E	E
Carbolic Acid	E	E	E	E	C	U	U	G	E	U	U	E	E	E	E	E	E	E	E	E
Carbonic Acid	G	E	C	U	G	E	E	E	E	C	C	U	C	E	E	E	E	E	E	E
Carbon Dioxide	E	E	E	E	E	G	G	E	E	E	E	E	E	E	E	E	E	E	E	E
Carbon Disulfide	U	E	C	U	U	U	U	E	C	C	E	G	G	E	E	E	E	E	E	E
Carbon Monoxide	U	E	E	E	E	G	G	E	E	E	E	E	E	E	E	E	E	E	E	E
Carbon Tetrachloride	C	E	U	U	U	U	U	E	U	U	U	U	U	U	U	U	U	U	U	U
Castor Oil	E	E	G	E	G	E	E	G	E	G	G	E	E	E	E	E	E	E	E	E
Cellosolve Acetate	C	E	U	U	G	U	U	G	U	U	U	U	E	E	E	E	E	E	E	E
China Wood Oil (Tung Oil)	E	E	C	U	U	G	U	E	U	C	E	G	E	E	E	E	E	E	E	E
Chlorine	U	U	U	C	U	U	G	U	U	U	C	C	C	C	C	C	C	C	C	C
Chloroacetic Acid	U	E	U	G	U	U	G	U	U	U	U	U	U	U	U	U	U	U	U	U
Chloroacetone	U	E	U	C	U	E	U	E	U	U	U	U	U	U	U	U	U	U	U	U
Chlorobenzene	U	E	U	U	U	U	U	G	U	U	U	G	G	G	G	G	G	G	G	G
Chloroform	U	E	U	U	U	U	U	E	U	U	U	U	U	U	U	U	U	U	U	U
O-Chlorophenol	U	E	U	C	U	U	U	E	U	U	U	U	U	U	U	U	U	U	U	U
Chlosulfonic Acid	U	E	U	U	E	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Chrome Plating Solution	U	E	—	U	U	U	E	U	U	U	U	U	U	U	U	U	U	U	U	U
Chromic Acid	U	E	—	U	G	U	C	E	U	—	—	—	—	—	—	—	—	—	—	—
Citric Acid	G	E	C	G	E	E	E	E	E	E	C	C	C	C	C	C	C	C	C	C
Coke Oven Gas	C	E	—	C	U	U	U	E	U	—	—	—	—	—	—	—	—	—	—	—
Copper Chloride	E	E	E	G	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Copper Cyanide	E	E	—	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Copper Sulfate	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Cotton Seed Oil	E	E	E	G	E	E	E	G	C	E	E	E	E	E	E	E	E	E	E	E
Creosote (Coal Tar)	G	E	U	G	U	G	C	U	E	U	U	E	C	E	E	E	E	E	E	E
Crude Oil	G	E	C	E	U	E	G	E	E	G	C	G	U	U	U	U	U	U	U	U
Cyclohexanol	G	E	C	E	C	E	G	U	E	C	C	E	E	E	E	E	E	E	E	E
Cyclohexanone	U	E	G	U	G	U	U	G	U	G	G	E	E	E	E	E	E	E	E	E
Detergent/Water Solution																				



Fluid Compatibility (Hose & Fittings)



WARNING

Refer to safety information regarding hose & fittings starting on page 1509

E = EXCELLENT
G = GOOD
C = CONDITIONAL
U = UNSATISFACTORY

	Nitrile PTFE Thermoplastic Elastomer AQP Special Application Hose EPDM												Buna-N Neoprene EPR Viton* Urethane Hydrel						Steel Brass Stainless Steel Aluminum Monel							Nitrile PTFE Thermoplastic Elastomer AQP Special Application Hose EPDM												Buna-N Neoprene EPR Viton* Urethane Hydrel						Steel Brass Stainless Steel Aluminum Monel					
	HOSE						SEALS						METAL							HOSE						SEALS						METAL																	
FLUID	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6													
Helium	E	G	C	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E														
Heptane	E	E	E	C	U	E	G	U	E	G	U	E	G	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E														
Hexaldehyde	U	E	-	C	E	U	G	G	U	U	-	G	G	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E														
Hexane	E	E	E	E	U	E	G	U	E	G	G	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E														
Hydraulic Oils																																																	
Ester Blend	C	E	C	G	E	E	U	U	E	U	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E														
Phos. Ester/Petroleum Blend	U	E	C	G	-	U	U	U	C	U	G	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E														
Silicone Oils	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E														
Straight Petroleum Base	E	E	E	E	U	E	G	U	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E														
Straight Phosphate Ester	U	E	C	C	E	U	U	G	C	U	G	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E														
Water Glycol	E	E	C	G	E	E	E	E	C	C	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E														
Water Petroleum Emulsion	G	E	C	G	U	E	G	U	E	C	C	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E														
Hydrobromic Acid	U	E	U	E	U	E	U	U	E	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U														
Hydrochloric Acid	U	E	U	E	C	U	U	G	E	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U														
Hydrocyanic Acid	C	E	-	U	G	C	C	E	E	-	-	E	E	G	E	G	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E														
Hydrofluoric Acid	U	E	U	C	C	U	U	C	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U														
Hydrofluorosilicic Acid	G	E	-	G	E	G	E	E	-	-	-	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U														
Hydrogen	G	C	C	G	G	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E														
Hydrogen Peroxide	C	E	G	G	E	G	G	E	G	G	U	U	G	E	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U														
Hydrogen Sulfide, Dry	U	C	C	C	E	U	G	E	U	-	G	E	G	G	G	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U														
Isocyanate	U	E	U	U	U	U	U	G	E	U	U	G	-	G	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-														
Iso Octane	G	E	E	G	U	E	G	U	E	G	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E														
Isopropyl Acetate	U	E	C	U	G	U	U	G	U	U	C	E	-	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E														
Isopropyl Alcohol	G	E	C	G	E	G	G	E	E	U	C	E	E	E	G	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E														
Isopropyl Ether	G	E	-	C	U	G	U	U	U	C	-	G	G	E	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-														
JP-4, JP-5	E	E	E	G	E	U	E	U	E	U	G	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E														
Kerosene	E	E	E	G	E	U	E	U	E	U	G	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E														
Lacquer/Lacquer Solvents	U	E	C	U	U	U	U	U	U	U	G	U	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E														
Lime Sulfur	C	E	C	C	C	U	E	E	E	C	C	G	U	G	-	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U														
Linseed Oil	E	E	G	G	U	E	G	U	E	G	G	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E														
LPG	C	-	-	-	U	E	G	U	E	-	-	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E														
Lubricating Oils							See Hydraulic Oils																																										
Magnesium Chloride	E	E	C	E	E	E	E	E	E	C	C	E	E	C	G	G	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E														
Magnesium Hydroxide	G	E	C	G	E	E	G	E	E	C	C	E	E	E	G	G	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E														
Magnesium Sulfate	E	E	C	E	E	E	E	E	E	C	C	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E														
Maleic Acid	G	E	C	C	C	U	U	U	E	C	C	E	E	G	G	G	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E														
Maleic Anhydride	U	E	C	C	U	U	U	U	E	C	C	U	-	U	-	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E														
Malic Acid	G	E	-	G	U	G	G	U	-	-	-	U	-	E	G	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E														
Mercuric Chloride	G	E	E	G	G	E	E	E	E	E	E	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U														
Mercury	E	E	E	E	E	E	E	E	E	E	E	E	U	E	U	G	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E														
Methanol	G	E	C	G	E	G	G	E	U	C	C	G	E	C	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E														
Methyl Bromide	C	E	U	U	C	G	U	U	E	U	U	E	E	G	U	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E														
Methyl Chloride	U	E	U	U	C	U	U	U	E	U	U	E	E	U	G	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E														
Methyl Butyl Ketone	U	E	C	C	C	U	U	E	U	C	C	E	E	-	E	-	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E														
Methyl Ethyl Ketone	U	E	C	U	E	U	U	E	U	U	G	G	G	G	G	G	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E														
Methylene Chloride	U	E	U	U	U	U	U	G	U	U	U	G	G	G	G	G	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E														
Methyl Isobutyl Ketone	U	E	U	U	G	U	U	U	U	U	U	G	G	G	G	G	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E														
Methyl Isopropyl Ketone	U	E	U	C	G	U	U	U	U	U	U	G	G	G	G	G	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E														
Methyl Salicylate	U	E	-	U	C	U	U	C	U	-	-	E	G	E	E	G	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E														
MIL-L-2104	E	E	E	E	U	E	G	U	E	E	E	E	E	-	E	-	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E														
MIL-H-5606	E	E	E	E	U	E	G	U	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E														
MIL-H-6083	E	E	E	E	U	E	G	U	E	E	E	E	E	-	E	-	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E														
MIL-L-7808	G	E	G	G	U	G	U	E	G	G	E	G	G	E	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-														
MIL-L-23699	G	E	-	G	U	G	U	E	-	-	-	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E														
MIL-H-46170	G	E	-	G	C	E	G	U	-	-	-	E	E	-	E	-	E	E	E	E	E	E	E	E	E	E	E	E	E																				

Technical Information

Fluid Compatibility (Hose & Fittings)



WARNING

Refer to safety information regarding hose & fittings starting on page 1509



FATON
Powering Business Worldwide

E = EXCELLENT
G = GOOD
C = CONDITIONAL
U = UNSATISFACTORY

FLUID	HOSE					SEALS					METAL				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Soy Bean Oil	E	E	G	C	U	E	G	U	E	G	G	E	E	E	E
Stannic Chloride	G	E	C	E	E	E	G	E	E	C	C	U	U	U	U
Steam (up to 388°F)	U	E	U	U	G	U	U	C	C	U	U	E	E	E	E
Stearic Acid	G	E	G	G	G	G	G	G	E	G	G	C	C	E	C
Stoddard Solvent	G	E	U	E	U	E	G	U	E	U	U	E	E	E	E
Styrene	U	E	U	U	U	U	U	U	G	U	U	E	E	E	E
Sulfur	C	E	G	G	E	U	E	E	E	G	G	E	U	G	E
Sulfur Chloride	U	E	-	C	U	U	U	U	E	-	-	G	-	G	U
Sulfur Dioxide	U	E	U	C	E	U	U	G	E	U	U	E	G	E	G
Sulfur Trioxide	C	E	U	U	C	U	U	G	E	U	U	G	C	G	G
Sulfuric Acid, to 10%	U	E	U	U	E	U	G	U	E	C	C	U	G	C	-
Sulfuric Acid, over 10%	U	E	U	U	U	U	U	G	U	U	U	C	C	C	U
Sulfurous Acid	U	E	U	G	G	C	C	U	U	U	U	U	C	C	C
Tannic Acid	G	E	G	E	G	E	E	E	E	G	G	E	E	E	C
Tar (Bituminous)	G	E	G	G	U	G	U	U	E	G	G	E	G	E	E
Tartaric Acid	E	E	G	E	G	E	G	G	E	G	G	U	C	C	E
Tertiary Butyl Alcohol	E	E	G	E	E	G	G	G	E	G	G	G	G	G	G
Titanium Tetrachloride	C	E	-	U	U	C	U	U	E	-	-	E	U	G	U
Toluene (Toluol)	U	E	U	U	U	U	U	U	E	U	U	E	E	E	E
Trichlorethylene	U	E	U	U	U	U	U	E	U	U	E	E	E	E	E
Tricresyl Phosphate	U	E	U	U	E	U	E	G	U	U	U	E	-	C	-
Triethanolamine	G	E	U	G	G	E	U	E	U	U	U	E	U	E	E
Tung Oil	E	E	C	U	U	G	G	U	E	U	C	E	G	E	E
Turpentine	G	E	G	G	U	G	U	U	E	G	G	G	G	G	G
Varnish	C	E	G	G	U	G	U	U	E	G	E	E	E	E	E
Vinyl Chloride	U	E	U	U	C	U	U	U	E	U	U	E	U	C	E
Water (to +150°F)	E	E	E	E	E	E	E	E	E	E	E	C	G	E	G
Water (+151°F to +200°F)	G	E	U	G	E	E	E	E	E	U	U	C	G	E	G
Water (+201°F to +350°F)	U	E	U	U	E	U	U	G	U	U	U	C	G	E	G
Water Glycol	E	E	C	E	E	E	E	E	C	C	E	E	E	E	E
Water Petroleum Emulsion	E	E	C	E	U	E	G	U	E	C	C	C	E	E	E
Xylene	U	E	E	U	U	U	U	U	E	U	C	E	E	E	E
Zinc Chloride	E	E	E	E	E	E	E	E	E	E	E	E	U	U	C
Zinc Sulfate	E	E	-	E	E	E	E	E	E	-	-	U	C	G	C

*Viton is a DuPont trademark.

This chart is intended for reference use only. The information in this chart pertains strictly to material compatibility and is not intended to be used as an application guide. For information on specific applications not included in this catalog, please contact Hydraulic Supply Co.

Hydraulic fluids & lubricating oils

The following is a representative list of fluids and manufacturers. The fluids are grouped under generic "family" heads and arranged alphabetically. For each generic "family" listing we have included maximum fluid temperature recommendations for the four hose classifications on page 400 (1 through 4). Two maximum fluid temperature ratings are listed under designations of "H" and "LP".

The "H" designation is for hydraulic service up to the maximum rated operating pressure of any particular hose in the classification. The "LP" designation is for low-pressure service such as lubricating oil systems or low-pressure hydraulic return lines.

The letter "U" in the box indicates unsatisfactory resistance to the fluid type.

Fluid temperature ratings are predicated on maximum allowable ambient temperatures as follows:

Classifications 1 and 3

(Synthetic Rubber and Thermoplastic Elastomer)

"H" fluid temp. ratings:
+140°F ambient

"LP" fluid temp. ratings:
+180°F ambient

Classification 2 (PTFE)

"H" fluid temp. ratings:
+400°F ambient

"LP" fluid temp ratings:
+400°F ambient

Classification 4 (AQP)

"H" fluid temp. ratings:
+160°F ambient

"LP" fluid temp. ratings:
+250°F ambient

(If "H" fluid temperature is +225°F or less, allowable ambient temperature may be increased to +200°F)

Ambient temperatures in excess of those recommended, in conjunction with maximum fluid temperatures, can materially shorten the service life of the hose.

CAUTION: The fluid manufacturer's recommended maximum operating temperature for any specific namebrand fluid should be scrupulously observed by the user. These recommended temperatures can vary widely between name brands of different fluid compositions, even though they fall into the same generic "family" of fluids.

Exceeding the manufacturer's recommended maximum temperature can result in fluid breakdown, producing by-products that are harmful to elastomeric products, as well as other materials in the system. If a manufacturer's recommended maximum temperature for his specific fluid is lower than that for the hose rating, it should take precedence over the hose rating for service usage.

Important Safety, Fluid Compatibility & Hose Routing & Installation Guidelines are continued on next page



Fluid Compatibility (Fluids)



WARNING

Refer to safety information regarding hose & fittings starting on page 1509

STRAIGHT PETROLEUM-BASE

Maximum fluid temperature recommendation **

Fluid Name

Aircraft Hydraulic Oil AA

Ambrex Oils

Arco A.T.F. Dexron

Arco A.T.F. Type F

Arco Fleet Motor

Arco H.T.F. C-2 Fluid

Arco H.T.C. 100 Fluid

Arco 303 Fluid

ATF Special

Automatic Transmission Fluid (Dexron)

Carnea Oils

Citgo Amplex

Citgo ATF, Type F

Citgo ATF, Dexron

Citgo Extra Duty Circulating Oils

Mineral Oil (Heavy Duty) (R & O)

Citgo Motor Oils

Citgo Pacemaker Series

Mineral Oil (R & O)

Citgo Pacemaker T Series

Mineral Oil (R & O)

Citgo Pacemaker XD Series

Mineral Oil (Heavy Duty) (R & O)

Citgo Sentry

Citgo Tractor Hydraulic Fluid

Conoco 303 Fluid

Custom Motor Oil

Dectol R & O Oils

Delo 400 Motor Oils

Delvac Oils

Delvac SHC

Delvac Special 10W-30

Donax T Oils

DTE Oils

Duro

Duro AW

EP Hydraulic Oils

EP Industrial Oils

EP Machine Oils

Energol HL68

Energol HLP C68

Etna Oils

Exxon ATF

Factovis 52 – Conventional R & O Hydraulic Fluid

Gulf Harmony AW

Gulf Security AW

Glide

Hulburt 27 Series

Hydraulic Series

Hydraulic Oils

Hydroil Series

Industron 53 – Anti Wear Hydraulic Fluid

Lubrite Motor 20W-40

Mobil AFT 210

Mobil AFT 220

Mobilfluid 62

Mobilfluid 423

Mobil Hydraulic Oils

Mobiloil Special

Mobiloil Super 10W-40

NUTO Oils

OC Turbine Oils

Peaco Oils

Pennbell Oils

Power-Tran Fluid

Quadroil Series

Rando Oils

Rando Oils HD

Redind Oils

Regal Oils R & O

Rimula Oils

Rotella Oils

Rotella T Oils

RPM Delo 200 Motor Oils

RPM Delo 300 Motor Oils

RPM Delo Special Motor Oils

Rubilene

Shell Brand

Special Motor Oils

Sun R & O Oils

Suntac HP Oils

Suntac WR Oils

Sunvis 700 Oils

Sunvis 800 Oils

Sunvis 900 Oils

Super Hydraulic Oils

Supreme Motor Oils

Tellus Oils

Teresstic Oils

Torque Fluids

Torque Fluid 47

Torque Fluid 56

Tractor Hydraulic Fluid

Union ATF Dexron

Union ATF Type F

Union C-2 Fluid

Union C-P Oil

Union Custom Motor Oil

Union Gas Engine Oil

Union Guardol Motor Oil

Union Heavy Duty Motor Oil

Union Hydraulic Oil AW

Union Hydraulic Tractor Fluid

Union Premium Motor Oil

Union S-1 Motor Oil

Union Special Motor Oil

Union Super Motor Oil

Union Torque Correction Fluid

Union Turbine Oil

Union Turbine Oil XD

Union Unax

Union Unax AW

Union Unax R & O

Union Unax RX

Union Unitec Motor Oil

Univis J13

Univis J26

Univis P32

Vactra Oils

Vitrea Oils

Way Lubricants

XD-3 Motor Oils

** See CAUTION on page 1514 for maximum fluid temperatures and limiting ambient temperatures.

Important Safety, Fluid Compatibility & Hose Routing & Installation Guidelines are continued on next page



Technical Information

Fluid Compatibility (Fluids)



WARNING

Refer to safety information regarding hose & fittings starting on page 1509

WATER AND PETROLEUM OIL EMULSION (FR)

Maximum fluid temperature recommendation**

Fluid Name

Fluid Name
Aqualube
Astrol #587

Chevron FR Fluid D
Chrysler L-705
Citgo Pacemaker Invert FR Fluid
Conoco FR Hydraulic Fluid

Dasco IFR
Duro FR-HD

Fire Resistant Hydrafluid
Fire Resistant Hydraulic Fluid B
FR 3110 Hydraulic Fluid (invert)
Fyre-Safe W/O

Gulf R & D FR Fluid

Houghto-Safe 5046
Houghto-Safe 5046W
Hulsafe 500
Hy-Chock Oil
Hydrasol A

Ironsides #814-A
Irus Fluid 905

Kutwell 40

Masol Fire Resistant Fluid
Meltran FR 900
Mine Guard
Mobilmet S122

Penn Drake Hydraqua Fluid
Permamul FR
Puro FR Fluid
Pyrogard C
Pyrogard D

Quintolubric 957 Series
Quintolubric 958 Series

Regent Hydrolube #670

SAFOIL Hydraulic Fluid Anti-Wear
Sinclair Duro FR-HD
Solvac 1535G
Staysol FR
Sunsafe F

Union FR Fluid
Union Soluble Oil HD

Veedol Auburn FRH
Veedol Auburn FRH Concentrate

WATER AND GLYCOL SOLUTION

Maximum fluid temperature recommendation**

Fluid Name

Chem-Trend HF-18
Chem-Trend HF-20
Chevron Glycol FR Fluids
Citgo Glycol FR Fluids
Citgo Glycol FR-20 XD
Citgo Pacemaker

Dasco FR 150
Dasco FR 200
Dasco FR 200 B
Dasco FR 310

Fyrguard 150
Fyrguard 200
Fyre-Safe 225

Gulf FR Fluid G-200
Gulf FR Fluid – G Series

Houghto-Safe 271
Houghto-Safe 416
Houghto-Safe 520
Houghto-Safe 525
Houghto-Safe 616
Houghto-Safe 620
Houghto-Safe 625
Houghto-Safe 640

Hydra Safe 620
Hydra Safe 625
Hydraulic Safety Fluid 200
Hydraulic Safety Fluid 300
Hyspin AF-1
Hyspin AF-2
Hyspin AF-3

Maxmul
Maxmul FR
Melsyn 200
Melsyn Glycol FR

Nyvac FR Fluid
Nyvac FR 200 Fluid
Nyvac 20 (WG)
Nyvac 30 (WG)

Park Water Glycol Hydraulic Fluid
Pennzoil Fluid FR 2X

Quintolubric 700 Series

Santosafe W/G 15
Santosafe W/G 20
Santosafe W/G 30
Standard Glycol FR #15
Standard Glycol FR #20
Standard Glycol FR #25

Ucon Hydrolube 150 CP
Ucon Hydrolube 200 CP
Ucon Hydrolube 275 CP
Ucon Hydrolube 300 CP
Ucon Hydrolube 550 CP
Ucon Hydrolube 900 CP
Ucon Hydrolube 150 DB
Ucon Hydrolube 275 DB
Ucon Hydrolube 150 LT
Ucon Hydrolube 200 LT

Ucon Hydrolube 275 LT
Ucon Hydrolube 300 LT
Ucon M-1
Ucon Hydrolube 200 NM
Ucon Hydrolube 300 NM

** See CAUTION on page 1514 for maximum fluid temperatures and limiting ambient temperatures.

Important Safety, Fluid Compatibility & Hose Routing & Installation Guidelines are continued on next page



Fluid Compatibility (Fluids)



WARNING

Refer to safety information regarding hose & fittings starting on page 1509

STRAIGHT PHOSPHATE-ESTER (FR)

Maximum fluid temperature recommendation**

Fluid Name

FR Fluids
Fyrquel 90
Fyrquel 150
Fyrquel 220
Fyrquel 300
Fyrquel 550
Fyrquel 1000
Fyrquel 150 R & O
Fyrquel 220 R & O
Fyrquel 550 R & O

Gulf FR Fluid P-37
Gulf FR Fluid P-40
Gulf FR Fluid P-43
Gulf FR Fluid P-45
Gulf FR Fluid P-47

Houghto-Safe 1010
Houghto-Safe 1055
Houghto-Safe 1115
Houghto-Safe 1120
Houghto-Safe 1130

Pydraul 10E
Pydraul 29-E-LT
Pydraul 30-E
Pydraul 50-E
Pydraul 65-E
Pydraul 115-E

Pyrogard 51
Pyrogard 53
Pyrogard 55

Safetytex 215

Univis P12

PHOSPHATE-ESTER AND PETROLEUM-OIL

Maximum fluid temperature recommendation**

Fluid Name

Citgo Synthetic Oil-Fire Resistant
Fyrtek 290
Fyrtek MF
Pydraul 230-C
Pydraul 312-C
Pydraul 540-C

Stauffer SCC 7204

ESTER BLEND TURBINE OILS

Maximum fluid temperature recommendation**

Fluid Name

Stauffer Jet I
Stauffer Jet II

SILICONE OILS

Maximum fluid temperature recommendation**

Fluid Name

Dow Corning 200 Fluid (100CS)
Dow Corning QF1-2023
Dow Corning 4-3600
Dow Corning 3-3672

POLYOL-ESTER

Maximum fluid temperature recommendation**

Fluid Name

Quintolubric 822 Series

LUBRICANT COMPATIBILITY CHART

Lubricant	Hose Style						
	FC802	FC505	FC555	FC558	GH134	FC665	FC765
Mineral Oil	Y	Y	Y	N	N	Y	Y
PAG	Y	Y	Y	Y	Y	Y	Y
Ester Oil	Y	Y	Y	Y	Y	Y	Y
Alkylbenzene	Y	Y	Y	N	N	Y	Y

Y = Compatible
N = Non-compatible

** See CAUTION on page 1514 for maximum fluid temperatures and limiting ambient temperatures.

Important Safety, Fluid Compatibility & Hose Routing & Installation Guidelines are continued on next page



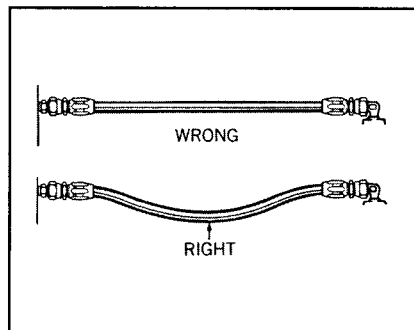
Technical Information

Hose Routing & Installation

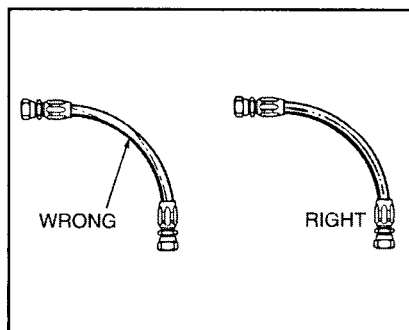


WARNING

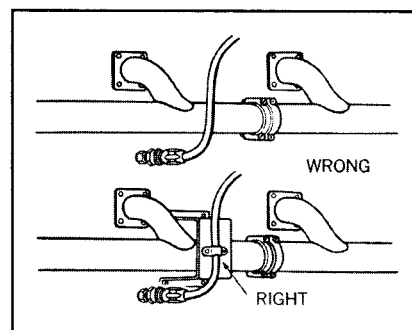
Refer to safety information regarding hose & fittings starting on page 1509



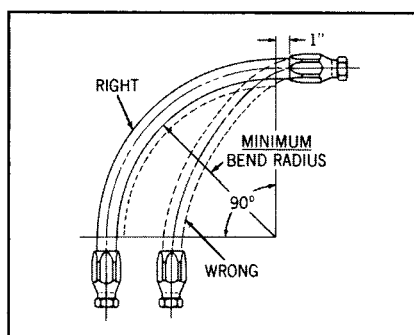
Under pressure, a hose may change in length. Always provide some slack in the hose to allow for this shortening or elongation. (However, excessive slack in hose lines may cause poor appearance.)



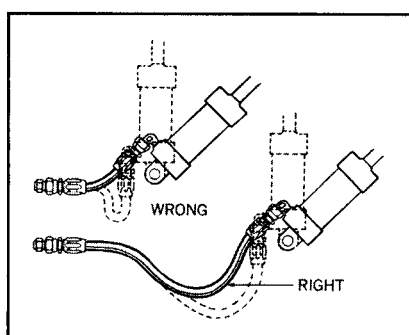
If a hose is installed with a twist in it, operating pressures tend to force it straight. This can loosen the fitting nut. Twisting can cause reinforcement separation and the hose could burst at the point of strain.



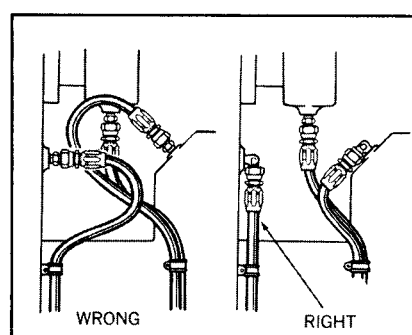
When hose lines pass near an exhaust manifold or other heat source, they should be insulated by a heat resistant boot, firesleeve or a metal baffle. In any application, brackets and clamps keep hoses in place and reduce abrasion. For installations where abrasion to hose cover cannot be prevented with the use of clamps or brackets, a steel protective coil or abrasion resistant sleeve should be placed over the hose.



At bends, provide sufficient hose so that it does not have a bend radius less than its recommended minimum bend radius. Too tight a bend may kink the hose and restrict or stop the fluid flow. In many cases the proper use of adapters and hose fittings can eliminate tight bends or kinks.



In applications where there is considerable vibration or flexing, allow additional hose length. The metal hose fittings, of course, are not flexible, and proper installation protects metal parts from undue stress, and avoids kinks in the hose.



When 90° adapters were used, this assembly became neater-looking and easier to inspect and maintain. It uses less hose, too!



Important Safety Information (Tubing)



WARNING

Selection of Tubing

Selecting the proper tubing for a given application is essential to the proper operation and safe use of the tubing and related equipment. Inadequate attention to the selection of the tubing for your application can result in leakage, bursting, or other failure which can cause serious bodily injury or property damage from spraying fluids or flying projectiles. In order to avoid serious bodily injury or property damage resulting from selection of the wrong tubing, you should carefully review the information in this catalog. Some of the factors that are involved in the selection of the proper tubing are: material of tubing • bends • tubing size • temperature • tubing length • tubing pressure rating • tubing end connections • installation design • fluid conveyed (compatibility).

These factors and the other information in this catalog should be considered by you in selecting the proper tubing for your application. If you have any questions regarding the proper tubing for your application, please contact us.

Proper Selection of Tube Fittings

Selection of the proper tube fittings for the application is essential to the proper operation and safe use of tubing and related equipment. Inadequate attention to the selection of the end fittings for your application can result in tube leakage, bursting, or other failure which can cause serious injury or property damage from spraying fluids or flying projectiles. In order to avoid serious bodily injury or property damage resulting from selection of the wrong tube end fitting, you should carefully review the information in this catalog. Some of the factors which are involved in the selection of the proper tube end fittings are: • tube fitting • installation design • compatibility with tubing • tubing size • temperature • corrosion requirements.

These factors and the other information in this catalog should be considered by you in selecting the proper tube end fitting for your application. If you have any questions regarding the proper tube end fittings for your application, please contact us.

Tubing Installation

Proper installation of the tubing is essential to the proper operation and safe use of the tubing and related equipment. Improper installation of the tubing can result in serious injury or property damage. In order to avoid serious bodily injury or property damage resulting from improper installation of the tubing, you should carefully review the information in this catalog regarding tubing installation. Some of the factors you must consider in installing the tubing properly are: proper installation procedures • changes in length • protection from high temperature sources • twisting • stress • rubbing and abrasion.

These factors and other information in this catalog regarding tubing installation should be considered by you before installing the tubing. If you have any questions regarding proper installation of the tubing, please contact us.

Important Safety, Chemical Compatibility & Installation Guidelines are continued on next page



This page is part of a complete catalog which contains technical and safety data that must be reviewed when selecting a product



Technical Information

Important Safety Information (Tubing)



WARNING Refer to safety information regarding tubing starting on page 1519

Tubing Assembly

Changes in materials, finishes, and assembly techniques may affect the sealing or holding capability of the joint. Due to the great variety of possible assembly scenarios, assembly procedures should be tested to determine if the joint is adequate for its intended use. We stress the importance of referring to assembly instructions on page 9 for determining the appropriate tightening procedure. Improper assembly or overtightening could result in fitting leakage, tubing separation or other failures which could cause serious bodily injury or property damage from spraying fluids or flying projectiles.

These factors and other information in this catalog regarding tubing assembly should be considered by you before installing the tubing. If you have any questions regarding proper assembly and installation of the tubing, please contact us.

Fitting Dimensions

Eaton molded compression fittings as described in this catalog may not reflect running changes made to improve part performance. Check with us in critical applications.

Operating Pressures

Operating pressures of Eaton molded compression fittings are regulated by ambient and fluid temperatures, type of fluid being carried, tubing type and conditions of mechanical abuse. Pressures in excess of above specifications in all fitting sizes should be tested by the customer for their particular application.

Important Safety, Chemical Compatibility & Installation Guidelines are continued on next page



Chemical Compatibility Information (Tubing)



WARNING Refer to safety information regarding tubing starting on page 1519

These tables alphabetically list commonly used materials of various chemical composition. After each agent listing you will find the basic tubing and fitting materials rated according to their chemical resistance to each individual agent. The chart is intended to be used as a guide only. Many factors (concentration, temperature, intermittent or continuous exposure, etc.) have a bearing upon the suitability of any tubing or connector for any specific application, and these factors must be considered by you as you review the chemical compatibility chart. Where unusual conditions exist or where questions arise, consult us for expert assistance on your tubing application requirements.

Fluid	Nylon 11	Nylon 6/6	PVC	Polyethylene	Brass	Steel	316 Stainless
Acetaldehyde	G	F	X	X	X	X	G
Acetic Acid (Concentrated)	X	X	X	X	X	X	G
Acetic Acid (Dilute)	F	X	F	G	X	X	G
Acetic Anhydride	X	X	X	X	X	F	F
Acetone	G	F	X	G	G	G	G
Acrylonitrile	G	—	G	—	—	G	G
Air	G	G	G	G	G	G	G
Alcohols							
Amyl Alcohol	G	G	X	G	G	F	F
Butyl Alcohol, Butanol	G	G	X	G	G	G	G
Ethyl Alcohol, Ethanol	G	G	F	G	G	F	G
Isopropyl Alcohol, Isopropanol	G	G	G	G	G	G	G
Methyl Alcohol, Methanol	G	G	X	G	G	F	G
Aluminum Chloride	X	X	G	G	X	X	F
Aluminum Fluoride	X	X	G	G	X	X	X
Aluminum Hydroxide	G	G	G	G	X	F	G
Aluminum Nitrate	G	F	G	G	X	X	G
Aluminum Sulfate	G	F	G	G	X	X	G
Alums	F	G	G	G	X	X	F
Ammonia, Anhydrous	Use approved anhydrous ammonia hose				X	F	G
Ammonia Solution (10%)	G	X	G	G	X	G	G
Ammonium Chloride	X	X	G	G	X	G	F
Ammonium Hydroxide	G	X	X	G	X	F	G
Ammonium Nitrate	G	G	G	G	—	—	G
Ammonium Phosphate	G	G	F	G	X	X	G
Ammonium Sulfate	G	G	G	G	X	X	F
Amyl Acetate	G	G	X	X	G	F	G
Amyl Alcohol	G	G	X	G	G	F	F
Aniline	X	X	X	X	X	G	G
Aniline Dyes	X	X	X	X	X	X	F
Animal Oils and Fats	G	—	G	X	G	G	G
Anti-Freeze (Glycol Base)	G	—	G	F	G	G	G
Aqua Regia	X	X	X	X	—	X	X
Aromatic Hydrocarbons	G	G	X	G	G	G	G
Asphalt Emulsion	G	—	X	—	G	G	G
Barium Chloride	G	—	G	G	X	F	G
Barium Hydroxide	G	G	G	G	X	G	G
Barium Sulfate	G	G	G	G	G	G	G
Barium Sulfide	X	—	G	G	X	X	G
Beet Sugar Liquors	G	G	G	G	X	G	G
Benzaldehyde	G	G	X	X	F	F	G
Benzene, Benzol	G	G	X	X	G	G	G
Benzoic Acid	X	X	X	G	F	X	F
Black Sulfate Liquor	X	X	X	G	X	G	G
Bleach Solution	X	X	F	G	X	X	G
Borax Solution	G	—	G	G	G	G	G
Boric Acid	G	G	G	G	X	X	G
Brake Fluid (Glycol Ether Base)	G	—	X	X	G	G	G
Brine	G	—	G	G	—	X	F
Bromine	X	X	X	X	X	X	X

NOTE: All data given herein is believed to be accurate and reliable but presented without guarantee, warranty, or responsibility of any kind, express or implied, on our part. Chemical resistance will vary with the wide diversity of possible mixtures and service conditions. It is not therefore possible to give any guarantee whatsoever in individual cases.

CODES: G=Good Resistance F=Fair Resistance X=Incompatible —=No data available + Call Technical Support for specific application

Important Safety, Chemical Compatibility & Installation Guidelines are continued on next page

Technical Information



Chemical Compatibility Information (Tubing)



WARNING

Refer to safety information regarding tubing starting on page 1519

Fluid	Nylon 11	Nylon 6/6	PVC	Polyethylene	Brass	Steel	316 Stainless
Butane	Use H336 or H243 Hose Only						
Butyl Acetate	G	—	X	X	G	G	G
Butyl Alcohol, Butanol	G	G	X	G	G	G	G
Calcium Bisulfite	G	X	G	G	X	X	X
Calcium Chloride	G	X	G	G	X	F	F
Calcium Hydroxide	G	G	G	G	F	G	G
Calcium Hypochlorite	X	X	G	G	F	X	F
Cane Sugar Liquors	G	—	G	G	F	G	G
Carbon Dioxide (Dry)	G	G	G	G	G	G	G
Carbon Dioxide (Wet)	G	G	G	G	F	G	G
Carbon Disulfide (Bisulfide)	X	X	X	X	G	G	G
Carbon Monoxide (Hot)	X	X	X	X	X	F	G
Carbon Tetrachloride	G	G	X	X	G	G	G
Carbonic Acid	G	—	G	G	X	X	F
Castor Oil	G	—	G	X	G	G	G
Cellosolve Acetate	G	—	X	—	X	X	G
Chlorinated Solvents	F	G	X	X	G	G	F
Chloroacetic Acid	X	X	X	X	X	X	F
Chlorobenzene	X	X	X	X	F	F	G
Chlorine Gas (Dry)	X	X	X	X	F	F	G
Chlorine Gas (Wet)	X	X	X	X	X	X	X
Chloroform	F	G	X	X	G	G	G
Chlorosulfonic Acid	X	X	X	X	X	F	X
Chromic Acid (under 25%)	X	X	F	F	X	X	G
Chromic Acid (over 25%)	X	X	X	X	X	X	F
Citric Acid	X	F	G	G	X	X	G
Coke Oven Gas	G	—	X	G	F	G	G
Copper Chloride	X	X	G	G	X	X	G
Copper Cyanide	G	G	G	G	X	X	G
Copper Sulfate	G	G	G	G	X	X	G
Corn Syrup (Non-food)	G	—	G	G	—	G	G
Cottonseed Oil	G	—	F	G	G	G	G
Creosote	X	X	X	X	F	—	G
Cresol	X	X	X	X	—	G	G
Cyclohexanol	G	G	X	F	G	F	G
Dextrose (Food Grade)	X	X	X	G	—	—	G
Dichlorobenzene	G	—	X	X	—	—	G
Diesel Fuel	G	—	X	X	G	G	G
Diethanolamine	G	—	X	—	X	G	G
Diethylenetriamine	X	X	X	G	—	—	—
Dowtherm A	X	X	X	X	X	F	G
Enamel (Solvent Base)	G	—	X	G	G	—	G
Ethanolamine	G	—	X	G	X	G	G
Ethers (Ethyl Ether)	G	—	X	X	G	G	G
Ethyl Alcohol	G	G	F	G	F	G	G
Ethyl Acetate	G	G	X	G	G	G	G
Ethyl Acrylate	X	—	X	—	—	G	G
Ethyl Methacrylate	X	—	X	—	—	G	G
Ethylamine	X	X	X	G	G	—	G
Ethyl Cellulose	F	—	X	G	F	G	F
Ethyl Chloride	G	—	X	X	F	F	G
Ethylenediamine	X	X	X	G	G	G	G
Ethylene Dibromide	F	—	X	—	—	—	—
Ethylene Dichloride	F	—	X	X	G	X	X
Ethylene Glycol	G	G	G	G	F	G	G
Ethylene Oxide	G	—	X	X	X	F	F

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Important Safety, Chemical Compatibility & Installation Guidelines are continued on next page





Technical Information

Chemical Compatibility Information (Tubing)



WARNING

Refer to safety information regarding tubing starting on page 1519

Fluid	Nylon 11	Nylon 6/6	PVC	Polyethylene	Brass	Steel	316 Stainless
Fatty Acids	G	G	G	G	F	F	G
Ferric Chloride 5%	G	G	G	G	X	X	X
Ferric Sulfate	G	G	G	G	X	X	F
Fertilizer Salts Solution	F	—	G	G	—	—	G
Formaldehyde	G	G	X	G	F	X	G
Formic Acid	X	X	X	G	F	X	G
Freon 12	Use approved Freon 12 hose				G	G	G
Freon 134a	Use approved Freon 134a hose				—	G	G
Fuel Oil	G	—	F	X	F	G	G
Furfural	X	X	X	X	F	G	G
Gasoline (Refined)	G	G	X	X	G	G	G
Gasoline (Unleaded)	G	G	X	X	G	G	G
Gasoline (10% Ethanol)	G	G	X	X	G	G	G
Gasoline (10% Methanol)	G	G	X	X	G	G	G
Glucose (non-food)	G	G	G	G	G	G	G
Glycerine, Glycerol (Non-food)	G	G	G	G	G	G	G
Greases	G	G	G	G	G	G	G
Green Sulfate Liquor	X	X	G	G	X	X	G
Heptane	G	G	X	X	G	G	G
Hexane	G	G	X	X	G	G	G
Houghto Safe 273 to 640	G	—	F	G	G	G	G
Houghto Safe 5046, 5047F	G	—	G	G	G	G	G
Houghto Safe 1000 Series	G	—	X	X	G	G	G
Hydraulic Oils							
Straight Petroleum Base	G	G	G	G	G	G	G
Water Petroleum Emulsion	G	—	—	F	G	G	G
Water Glycol	G	G	X	—	G	G	G
Straight Phosphate Ester	G	G	X	X	G	G	G
Phos. Ester/Petroleum Blend	G	G	X	X	G	G	G
Polyol Ester	G	—	—	—	G	G	G
Hydrobromic Acid (under 48%)	X	X	G	G	X	X	X
Hydrochloric Acid	X	X	G	G	X	X	X
Hydrocyanic Acid	X	X	G	G	X	F	G
Hydrofluoric Acid (under 50%)	X	X	F	F	X	X	G
Hydrofluoric Acid (over 50%)	X	X	X	X	X	X	G
Hydrofluosilicic Acid	X	X	G	G	X	X	X
Hydrogen	Use approved hydrogen hose or metal tubing				—	—	G
Hydrogen Peroxide	X	X	—	G	X	X	G
Hydrogen Sulfide	X	X	G	G	F	F	F
Hydrolube	G	—	G	G	G	G	G
Iodine	X	X	X	X	X	X	X
Isocyanates	X	X	X	X	—	—	—
Isopropyl Alcohol, Isopropanol	G	G	G	G	G	G	G
Isopropylamine	X	—	X	—	G	—	G
Iso-Octane	G	G	X	X	G	G	G
Jet Fuel (Transfer Only)	G	G	X	X	G	F	G
Kerosene	G	G	X	X	G	G	G
Lacquer	G	G	X	F	G	X	G
Lacquer Solvents	G	G	X	F	G	X	G
Lactic Acid	G	G	G	G	F	F	G
Lime Sulfur	G	F	G	G	X	—	G
Lindol	G	G	—	—	F	G	G
Linseed Oil	G	G	G	G	F	G	G
Lubricating Oils	G	G	G	G	G	G	G
Lye	G	F	G	G	F	X	G
Magnesium Chloride	G	G	G	G	F	F	G

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Hydraulic Power & Control

Pneumatic Power & Control

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Chemical Compatibility Information (Tubing)



WARNING

Refer to safety information regarding tubing starting on page 1519

Fluid	Nylon 11	Nylon 6/6	PVC	Polyethylene	Brass	Steel	316 Stainless
Magnesium Hydroxide	G	G	G	G	G	G	G
Magnesium Sulfate	G	G	G	G	F	G	G
Mercuric Chloride	X	X	F	G	X	X	X
Mercury	G	G	F	G	X	G	G
Methyl Alcohol, Methanol	G	G	X	G	F	G	G
Methyl Acrylate	X	X	X	—	G	G	G
Methyl Bromide	G	F	X	X	G	G	G
Methyl Chloride	G	G	X	X	G	G	G
Methylene Chloride	F	F	X	X	G	G	G
Methyl t-Butyl Ether (MTBE)	G	G	X	—	—	G	G
Methyl Ethyl Ketone	G	G	X	G	G	G	G
Methyl Isobutyl Ketone	G	G	X	G	G	G	G
Methyl Isopropyl Ketone	G	G	X	G	G	G	G
Methyl Methacrylate	X	—	X	—	—	G	G
Mineral Oil	G	G	F	X	G	G	G
Mineral Spirits	G	G	X	G	G	G	G
Naphtha	G	G	X	G	F	G	G
Napthalene	G	G	X	X	F	G	G
Nickel Acetate	G	G	G	G	G	G	G
Nickel Chloride	G	G	G	G	X	X	F
Nickel Sulfate	G	G	G	G	X	X	G
Nitric Acid (under 35%)	X	X	G	F	X	X	G
Nitric Acid (35% to 60%)	X	X	F	X	X	X	G
Nitric Acid (over 60%)	X	X	X	X	X	X	G
Nitrobenzene	X	—	X	X	F	G	G
Nitrogen Gas	G	G	G	G	G	G	G
Nitrous Oxide	F	F	X	X	G	G	G
Oleic Acid	G	G	F	G	F	F	G
Oleum (Fuming Sulfuric Acid)	X	X	X	X	X	F	G
Oxalic Acid	X	X	G	G	F	X	G
Oxygen	G	G	G	G	G	G	G
(non-breathing, non-welding) +							
Ozone (300 pphm)	X	X	X	X	—	F	G
Paint (Solvent Base)	G	G	X	F	G	G	G
Palmitic Acid	G	G	F	G	X	F	F
Paper Mill Liquors	X	X	X	X	—	—	—
Pentane	G	—	X	X	G	G	G
Perchloroethylene	F	G	X	X	F	G	G
Petroleum Ether	G	G	X	X	G	G	G
Petroleum Oils	G	G	G	G	G	G	G
Phenol	X	X	X	X	F	X	F
Phosphoric Acid (to 85%)	X	X	G	G	X	X	F
Picric Acid (Molten)	X	X	X	X	X	X	F
Picric Acid (Solution)	X	X	X	X	X	X	F
Potassium Chloride	G	G	G	G	F	X	G
Potassium Cyanide	G	G	G	G	X	G	G
Potassium Dichromate	F	—	G	G	X	G	G
Potassium Hydroxide	G	F	G	G	F	X	G
Potassium Permanganate	X	X	G	G	—	—	—
Potassium Sulfate	G	G	G	G	F	F	G
Propane Liquid	Use H366 Hose Only						
Propylene Glycol	G	—	F	G	F	G	G
Pyridine	X	X	X	G	F	G	G
Sea Water	G	G	G	G	G	F	G
Silver Nitrate	G	G	G	G	X	X	F
Skydrol	G	G	X	X	G	G	G

NOTE: All data given herein is believed to be accurate and reliable but presented without guarantee, warranty, or responsibility of any kind, express or implied, on our part. Chemical resistance will vary with the wide diversity of possible mixtures and service conditions. It is not therefore possible to give any guarantee whatsoever in individual cases.

CODES: G=Good Resistance F=Fair Resistance X=Incompatible —=No data available + Call Technical Support for specific application

Important Safety, Chemical Compatibility & Installation Guidelines are continued on next page



Technical Information

Chemical Compatibility Information (Tubing)



WARNING

Refer to safety information regarding tubing starting on page 1519

Fluid	Nylon 11	Nylon 6/6	PVC	Polyethylene	Brass	Steel	316 Stainless
Soap Solution	G	G	G	X	G	G	G
Sodium Bicarbonate	G	G	G	G	F	F	G
Sodium Bisulfate	G	G	G	G	F	F	F
Sodium Bisulfite	G	G	G	G	F	X	G
Sodium Borate	G	G	G	G	G	G	G
Sodium Carbonate	G	G	G	G	X	G	G
Sodium Chloride	G	G	G	G	X	F	G
Sodium Cyanide	G	G	G	G	X	F	G
Sodium Hydroxide	G	F	G	G	F	X	G
Sodium Hypochlorite	X	X	G	G	X	X	F
Sodium Nitrate	G	G	G	G	F	G	G
Sodium Perborate	G	F	G	G	F	F	G
Sodium Peroxide	X	X	X	X	X	F	G
Sodium Phosphates	G	G	G	G	F	F	F
Sodium Silicate	G	G	G	G	F	F	G
Sodium Sulfate	G	G	G	G	F	F	G
Sodium Sulfide	G	G	G	G	X	X	G
Sodium Thiosulfate	G	G	G	G	X	X	G
Soybean Oil	G	—	F	G	G	G	G
Stannic Chloride	F	X	G	G	X	X	X
Steam 450° F	X	X	X	X	F	F	G
Stearic Acid	G	G	F	G	X	X	G
Stoddard Solvent	G	G	X	X	G	G	G
Styrene	G	G	X	X	G	G	G
Sulfur 70o F	G	G	F	G	X	X	G
Sulfur 200o F	X	X	X	X	X	X	G
Sulfur Chloride	X	X	X	G	X	X	X
Sulfur Dioxide	X	X	X	X	X	—	G
Sulfuric Acid (under 50%)	X	X	G	G	X	X	X
Sulfuric Acid (51% to 70%)	X	X	G	X	X	X	X
Sulfuric Acid (71% to 95%)	X	X	X	X	X	X	X
Sulfuric Acid (96% to 98%)	X	X	X	X	X	X	X
Tannic Acid	X	X	G	G	F	X	G
Tar	G	G	X	X	F	F	G
Tartaric Acid	G	G	G	G	F	X	F
Tetrachloroethane	F	—	X	F	—	—	G
Tetrahydrofuran (THF)	G	—	X	X	—	—	G
Toluene	G	G	X	G	G	G	G
Transmission Oil (Petrol. Base)	G	G	G	G	G	G	G
Trichloroethane	F	G	X	G	G	G	G
Trichloroethylene	F	G	X	G	G	G	G
Tung Oil	G	—	—	—	F	G	G
Turpentine	G	G	X	G	F	G	G
Urea (Water Solution)	G	G	G	G	—	G	G
Uric Acid	G	G	G	G	—	—	F
Varnish	G	G	X	G	G	G	G
Vegetable Oil (Non-food)	G	G	F	G	G	G	G
Vinegar	G	X	G	G	X	F	G
Vinyl Acetate	G	—	X	—	F	G	G
Water (non-potable)	G	G	G	G	F	F	G
Water-Glycol Mixture	G	G	X	—	G	G	G
Water-Petroleum Mixture	G	G	—	F	G	G	G
Xylene	G	G	X	G	G	G	G
Zinc Chloride	X	X	G	G	X	X	X
Zinc Sulfate	G	G	G	G	X	X	G

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CODES: G=Good Resistance F=Fair Resistance X=Incompatible — =No data available + Call Technical Support for specific application

Important Safety, Chemical Compatibility & Installation Guidelines are continued on next page



This page is part of a complete catalog which contains technical and safety data that must be reviewed when selecting a product

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Technical Information

Tubing Selection



WARNING Refer to safety information regarding tubing starting on page 1519

To select tubing for a particular installation, two factors must be determined...

- 1.) Tubing Type - material and construction and
 - 2.) Size - inside diameter (I.D.) and wall thickness.
- Information below will aid in your tubing selection.

TUBING TYPES

Commercial tubing is available in a wide variety of materials, types of construction and quality. Each is best suited for certain specific applications.

STEEL TUBING - Seamless SAE 1010 fully annealed and SAE welded types suitable for bending and flaring. This is the only tubing material approved without restrictions by SAE standards.

STAINLESS STEEL TUBING - Both seamless *18-8 fully annealed and welded types suitable for bending and flaring. Stainless steel tubing is recommended for use with very high pressures and where large diameter tubing is required. It is also suited for many applications where corrosion is a problem.

* (302, 303 and/or 304)

ALUMINUM TUBING - Seamless annealed is approved by SAE for low pressure applications.

COPPER TUBING - Seamless fully annealed coils and fully annealed or quarter-hard straight lengths can be used for systems that do not use petroleum based fluids (copper acts as an oil-oxidation catalyst, causing sludge).

Copper also tends to work harden when flared or bent and has poor resistance to vibration. Therefore, the use of copper tubing is limited to low-pressure stationary applications and air circuits.

SPECIAL ALLOY TUBING - May be required for specific corrosion problems. Information on these applications can be obtained from your tubing supplier or from tubing manufacturers.

TUBING SIZE

The two variables in tubing size are the inside diameter (ID) and the wall thickness. Each of these is dependent upon a number of factors.

INSIDE DIAMETER - The tubing I.D. will determine the flow and velocity of the fluid in the system.

Flow is the volume of fluid that is to be moved through the line to perform a given job within a specified time. Flow rate is expressed in gallons per minute (gpm).

Velocity is the rate of speed at which the fluid passes through the line. It is expressed in feet per second (fps). With a given flow rate, the velocity will increase as the inside diameter of the tubing decreases.

To determine the appropriate tubing I.D. for specific flow rate and velocity, refer to the Velocity vs. Flow chart on page 1528 .

WALL THICKNESS - The required wall thickness of the tubing depends upon operating pressure, safety factor, temperatures, and tubing material.

Operating Pressure is the pressure of the fluid in the system. It is expressed in pounds per square inch (psi).

Safety Factor is a multiplier applied to the wall thickness that compensates for additional mechanical strains and hydraulic shocks to which the tubing may be subjected during operation.

To determine the appropriate wall thickness, refer to the data starting on page 1529 .

PRESSURE DROP

Total pressure supplied to a line must equal usable pressure (or output) plus the pressure that is lost through fluid transmission, which is referred to as pressure drop. These pressure drops cause loss of energy and should be kept to a minimum. Elements which cause pressure drop in the transmission of fluids include sudden enlargements or contractions, bends, fittings and valves.

Mathematical analysis of pressure drop, although possible, is not precise because of the interrelationship of factors such as fluid velocity, density, flow area and friction coefficients. Therefore, to obtain optimum efficiency, the system (or the questionable portions of the system) should be mocked-up to obtain empirical pressure drop data.



Tubing Selection



WARNING

Refer to safety information regarding tubing starting on page 1519

Following is a typical problem that illustrates, step by step, the procedure for determining tube size.

Select 1010 steel tubing with the appropriate I.D. and wall thickness for the following conditions:

Flow— 5 gpm

Velocity— not to exceed 10 fps

Pressure— 2000 psi

Safety Factor — 4:1

SOLUTION:

1. Using the Flow/Velocity chart on page 1528, follow the horizontal flow line (5 gpm) until it intersects the vertical velocity line (10fps). From this point, follow the diagonal line upward to get the required tube I.D. (.444). If the horizontal flow line and the vertical velocity line intersect between two diagonal lines, normally the larger inside diameter would be selected since it would mean less velocity.
2. Refer to the chart of Standard Size Hydraulic Tubing, at right. Note that .444 I.D. tubing is not listed. If you want to use standard tubing, select one with a larger I.D. Do not select a smaller size since this would increase the velocity to over the 10 fps limit. Therefore, by going to the next largest size, you would select the 5/8" O.D. tubing having an I.D. of .459 and a wall thickness of .083.
3. To determine whether this tubing will meet the pressure and safety factor requirements, refer to the Recommended Wall Thickness data on pages 24 and 25. For 5/8" O.D. tubing at 2000 psi, the chart for 1010 steel indicates that the minimum wall thickness with a safety factor of 4:1 is .04545. Since you have selected a tubing with a .083 wall, this would easily fulfill the requirements. However, for savings on weight and cost, you can select another tubing with a thinner wall that will still meet the performance requirements. Therefore, refer again to the chart on standard size tubing and select a tubing with a wall thickness closer to the minimum requirements. This would be the 5/8" O.D. tubing with a .527 I.D. and a .049 wall. This tubing will handle the pressure requirements of 2000 psi with a safety factor of 4:1, and also provides the required flow while keeping the velocity within the 10 fps limitation.

STANDARD SIZE
HYDRAULIC TUBING

Tube O.D.	Tube I.D.	Wall	Tube O.D.	Tube I.D.	Wall
1/8"	.055	.035	3/4"	.584	.083
	.061	.032		.606	.072
	.065	.030		.620	.065
	.069	.028		.634	.058
3/16"	.117	.035		.652	.049
	.123	.032		.680	.035
	.127	.030	7/8"	.657	.109
1/4"	.120	.065		.685	.095
	.134	.058		.709	.083
	.152	.049		.731	.072
	.166	.042		.745	.065
	.180	.035		.759	.058
	.190	.030		.777	.049
5/16"	.182	.065	1"	.760	.120
	.196	.058		.782	.109
	.214	.049		.810	.095
	.228	.042		.834	.083
	.242	.035		.856	.072
	.248	.032		.870	.065
3/8"	.245	.065		.884	.058
	.259	.058		.902	.049
	.277	.049	1-1/4"	.982	.134
	.291	.042		1.010	.120
	.305	.035		1.032	.109
	.311	.032		1.060	.095
1/2"	.310	.095		1.084	.083
	.334	.083		1.106	.072
	.358	.072		1.120	.065
	.370	.065		1.134	.058
	.384	.058		1.152	.049
	.402	.049	1-1/2"	1.232	.134
	.416	.042		1.260	.120
	.430	.035		1.282	.109
	.436	.032		1.310	.095
5/8"	.435	.095		1.334	.083
	.459	.083		1.356	.072
	.481	.072		1.370	.065
	.495	.065	2"	1.732	.134
	.509	.058		1.760	.120
	.527	.049		1.782	.109
	.541	.042		1.810	.095
	.555	.035		1.834	.083
3/4"	.532	.109		1.856	.072
	.560	.095		1.870	.065

Technical Information

Tubing Selection



WARNING Refer to safety information regarding tubing starting on page 1519



TO FIND REQUIRED TUBE I.D. (Flow—20 gpm • Velocity—9 fps)

Follow horizontal flow line (20 gpm) until it intersects vertical velocity line (9 fps).

From this point follow diagonal line to get required Tube I.D. (.944).

TO FIND PERMISSIBLE FLOW (Velocity—15 fps • Tube I.D.—.495)

Follow vertical velocity line (15 fps) until it intersects diagonal line representing .495 tube I.D.

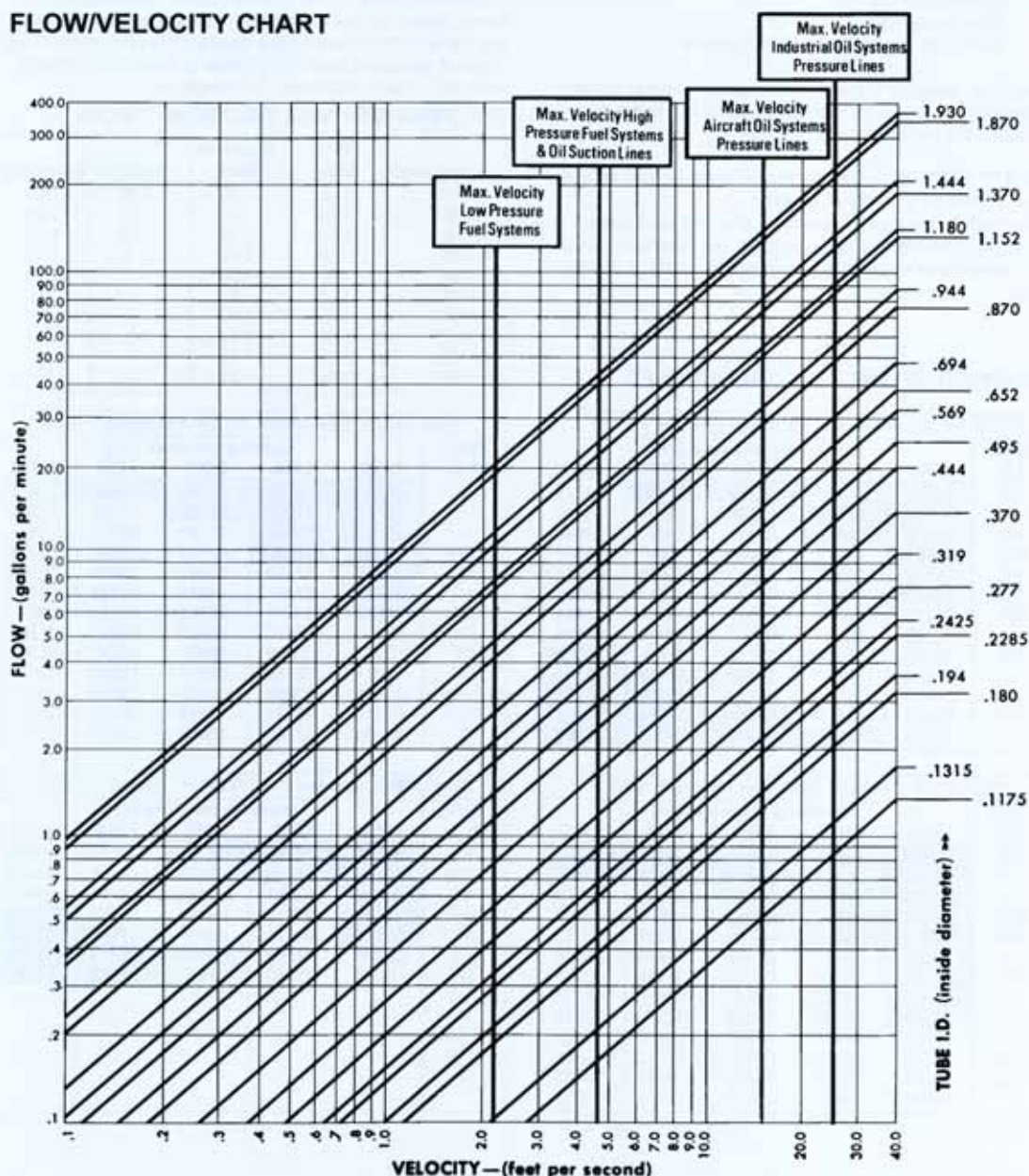
Then project this point horizontally to get the permissible flow—(9 gpm).

TO FIND VELOCITY OF FLUID IN SYSTEM (Flow—6 gpm • Tube I.D.—.694)

Follow horizontal flow line (6 gpm) until it intersects diagonal line representing .694 tube I.D.

Then project this point vertically downward to get the velocity of fluid —(5 fps).

FLOW/VELOCITY CHART



Tubing Selection



WARNING

Refer to safety information regarding tubing starting on page 1519



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With the following Recommended Wall Thickness tables the tubing wall can be selected that is best suited for a particular application. The data given in these tables are raw figures based on the equation –

$$t = \frac{Dp(FS)}{2S}$$

t=wall thickness (inches)
D=O.D. of tube (inches)
p=pressure (psi)
FS=Safety Factor
S=tensile strength of tubing material

Therefore, many of the wall thicknesses given in these tables are not found on standard tubing, but serve to establish the minimum wall required.

SAFETY FACTOR – The standard safety factors indicate three grades of severity of service:

- 4:1** –mechanical and hydraulic shocks not excessive
- 6:1** –considerable mechanical strain and hydraulic shock
- 8:1** –hazardous applications with severe service conditions

RECOMMENDED WALL THICKNESS TABLES

1010 STEEL Based on 55,000#/in. ² Strength (F S=4)					
TUBE O.D.	working pressure (psi)				
	1,000	2,000	3,000	4,000	5,000
1/8	.00455	.00909	.01364	.01818	.02273
3/16	.00682	.01364	.02045	.02727	.03409
1/4	.00909	.01818	.02727	.03636	.04545
5/16	.01136	.02273	.03409	.04545	.05682
3/8	.01364	.02727	.04091	.05455	.06818
1/2	.01818	.03636	.05455	.07273	.09091
5/8	.02273	.04545	.06818	.09091	.11364
3/4	.02727	.05455	.08182	.10909	.13636
7/8	.03182	.06364	.09545	.12727	.15909
1	.03636	.07273	.10909	.14545	.18182
1-1/4	.04545	.09091	.13636	.18182	.22727
1-1/2	.05455	.10909	.16364	.21818	.27273
2	.07273	.14545	.21818	.29091	.36364

4130 STEEL Based on 90,000#/in. ² Strength (F S=4)					
TUBE O.D.	working pressure (psi)				
	1,000	2,000	3,000	4,000	5,000
1/8	.00278	.00556	.00833	.01111	.01389
3/16	.00417	.00833	.01250	.01667	.02083
1/4	.00556	.01111	.01667	.02222	.02778
5/16	.00694	.01389	.02083	.02778	.03472
3/8	.00833	.01667	.02499	.03333	.04167
1/2	.01111	.02222	.03333	.04444	.05556
5/8	.01389	.02778	.04167	.05556	.06944
3/4	.01667	.03333	.04999	.06667	.08333
7/8	.01944	.03889	.05833	.07778	.09722
1	.02222	.04444	.06667	.08889	.11111
1-1/4	.02778	.05556	.08333	.11111	.13889
1-1/2	.03333	.06667	.09999	.13333	.16667
2	.04444	.08889	.13333	.17778	.22222

The wall thickness shown in these tables are based on ultimate strength of material and a safety factor of 4:1.

To obtain the recommended wall for a specific pressure based on a safety factor of 6:1, multiply the wall thickness indicated in the table by 1.5. For a safety factor of 8:1, multiply by 2:

TEMPERATURE – The wall thickness found by using these tables can be corrected for temperature by multiplying the wall thickness by the appropriate correction factor given in the chart below. The table is based on strength reduction due to increased temperature.

RECOMMENDED WALL THICKNESS TABLES

Temperature	1010 Steel	Stainless Steel	Copper	Aluminum
+100F.	1.00	1.00	1.00	1.00
+200F.	1.00	1.00	1.08	1.00
+300F.	1.00	1.00	1.22	1.08
+400F.	1.00	1.00	2.30	1.41
+500F.	1.00	1.00	–	2.10
+600F.	1.00	1.00	–	–
+700F.	1.00	1.00	–	–
+800F.	1.08	1.07	–	–
+900F.	1.32	1.13	–	–
+1000F.	1.66	1.22	–	–

1020 STEEL Based on 65,000#/in. ² Strength (F S=4)					
TUBE O.D.	working pressure (psi)				
	1,000	2,000	3,000	4,000	5,000
1/8	.00385	.00790	.01154	.01538	.01923
3/16	.00577	.01154	.01731	.02308	.02885
1/4	.00769	.01538	.02308	.03077	.03846
5/16	.00962	.01923	.02885	.03846	.04808
3/8	.01154	.02308	.03462	.04615	.05769
1/2	.01538	.03077	.04615	.06154	.07692
5/8	.01923	.03846	.05769	.07692	.09615
3/4	.02308	.04615	.06923	.09231	.11538
7/8	.02692	.05385	.08077	.10769	.13462
1	.03077	.06154	.09231	.12308	.15385
1-1/4	.03846	.07692	.11538	.15385	.19231
1-1/2	.04615	.09231	.13846	.18462	.23077
2	.06154	.12308	.18462	.24615	.30769

BUNDYWELD Based on 42,000#/in. ² Strength (F S=4)					
TUBE O.D.	working pressure (psi)				
	1,000	2,000	3,000	4,000	5,000
1/8	.00595	.01190	.01786	.02381	.02976
3/16	.00893	.01786	.02679	.03571	.04464
1/4	.01190	.02381	.03571	.04762	.05952
5/16	.01488	.02976	.04464	.05952	.07440
3/8	.01786	.03571	.05357	.07143	.08929
1/2	.02381	.04762	.07143	.09524	.11905
5/8	.02976	.05952	.08929	.11905	.14881
3/4					
1					
1-1/4					
1-1/2					
2					

SHADED AREAS Tubing wall thickness listed in the shaded areas are generally either too light or too heavy for practical applications, and are listed only to provide data for accurate computation.

Technical Information

Tubing Selection



WARNING

Refer to safety information regarding tubing starting on page 1519

FATON

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TUBE O.D.	STAINLESS STEEL (304) ANNEALED BASED ON 75,000#/IN. ² STRENGTH (F.S. -4)					STAINLESS STEEL (304) ANNEALED BASED ON 105,000#/IN. ² STRENGTH (F.S. -4)				
	working pressure (psi)					working pressure (psi)				
	1,000	2,000	3,000	4,000	5,000	1,000	2,000	3,000	4,000	5,000
1/8	.00333	.00666	.00999	.01333	.01666	.00238	.00476	.00714	.00952	.01190
3/16	.00499	.00999	.01498	.01999	.02499	.00357	.00714	.01071	.01429	.01786
1/4	.00666	.01332	.01998	.02667	.03333	.00476	.00952	.01429	.01905	.02381
5/16	.00833	.01665	.02497	.03333	.04165	.00595	.01190	.01786	.02381	.02976
3/8	.00999	.01998	.02997	.03999	.04998	.00714	.01429	.02143	.02857	.03571
1/2	.01332	.02664	.03996	.05333	.06664	.00957	.01904	.02857	.03810	.04762
5/8	.01665	.03333	.04995	.06666	.08330	.01190	.02381	.03571	.04762	.05952
3/4	.01998	.03996	.05994	.07999	.09996	.01429	.02857	.04286	.05714	.07143
7/8	.02331	.04662	.06996	.09333	.11662	.01667	.03333	.05000	.06666	.08333
1	.02664	.05328	.07992	.10666	.13328	.01904	.03810	.05714	.07619	.09524
1-1/4	.03333	.06666	.09999	.13333	.16666	.02381	.04762	.07143	.09524	.11905
1-1/2	.03996	.07992	.11988	.15992	.19992	.02857	.05714	.08571	.11429	.14286
2	.05328	.10656	.15984	.21333	.26666	.03810	.07619	.11428	.15238	.19048

TUBE O.D.	ANNEALED COPPER BASED ON 30,000#/IN. ² STRENGTH (F.S. -4)					COPPER (UNS C12200 LIGHT DRAWN) BASED ON 40,000#/IN. ² STRENGTH (F.S. -4)				
	working pressure (psi)					working pressure (psi)				
	1,000	2,000	3,000	4,000	5,000	1,000	2,000	3,000	4,000	5,000
1/8	.00833	.01667	.02500	.03333	.04167	.00625	.01250	.01875	.02500	.03125
3/16	.01250	.02499	.03750	.04999	.06250	.00938	.01875	.02812	.03750	.04688
1/4	.01667	.03333	.05000	.06666	.08333	.01250	.02500	.03750	.05000	.06250
5/16	.02083	.04167	.06250	.08333	.10417	.01562	.03125	.04688	.06250	.07812
3/8	.02499	.04999	.07500	.09999	.12499	.01875	.03750	.05625	.07500	.09375
1/2	.03333	.06667	.10000	.13333	.16667	.02500	.05000	.07500	.10000	.12500
5/8	.04167	.08333	.12500	.16666	.20833	.03125	.06250	.09375	.12500	.15625
3/4	.04999	.09999	.15000	.19999	.24999	.03750	.07500	.11250	.15000	.18750
7/8	.05833	.11667	.17500	.23333	.29166	.04375	.08750	.13125	.17500	.21875
1	.06667	.13333	.20000	.26666	.33333	.05000	.10000	.15000	.20000	.25000
1-1/4	.08333	.16667	.25000	.33333	.41667	.06250	.12500	.18750	.25000	.31250
1-1/2	.09999	.19999	.30000	.39999	.49999	.07500	.15000	.22500	.30000	.37500
2	.13333	.26667	.40000	.53333	.66667	.10000	.20000	.30000	.40000	.50000

TUBE O.D.	ALUMINUM 3003 (H-14) BASED ON 20,000#/IN. ² STRENGTH (F.S. -4)					ALUMINUM 5052 (H-32) BASED ON 31,000#/IN. ² STRENGTH (F.S. -4)				
	working pressure (psi)					working pressure (psi)				
	1,000	2,000	3,000	4,000	5,000	1,000	2,000	3,000	4,000	5,000
1/8	.01250	.02500	.03750	.05000	.06250	.00806	.01613	.02419	.03226	.04032
3/16	.01875	.03750	.05625	.07500	.09375	.01210	.02419	.03629	.04839	.06048
1/4	.02500	.05000	.07500	.10000	.12500	.01613	.03226	.04839	.06452	.08065
5/16	.03125	.06250	.09375	.12500	.15625	.02016	.04032	.06048	.08065	.10081
3/8	.03750	.07500	.11250	.15000	.18750	.02419	.04839	.07258	.09677	.12097
1/2	.05000	.10000	.15000	.20000	.25000	.03227	.06452	.09677	.12903	.16129
5/8	.06250	.12500	.18750	.25000	.31250	.04032	.08065	.12097	.16129	.20161
3/4	.07500	.15000	.22500	.30000	.37500	.04839	.09677	.14516	.19355	.24194
7/8	.08750	.17500	.26250	.35000	.43750	.05645	.11290	.16935	.22581	.28226
1	.10000	.20000	.30000	.40000	.50000	.06452	.12903	.19355	.25806	.32258
1-1/4	.12500	.25000	.37500	.50000	.62500	.08065	.16129	.24194	.32258	.40323
1-1/2	.15000	.30000	.45000	.60000	.75000	.09677	.19355	.29032	.38710	.48387
2	.20000	.40000	.60000	.80000	.100000	.12903	.25806	.38710	.51613	.64516

TUBE O.D.	CUPRO-NICKEL 30% BASED ON 52,000#/IN. ² STRENGTH (F.S. -4)				
	working pressure (psi)				
	1,000	2,000	3,000	4,000	5,000
1/8	.00481	.00962	.01442	.01923	.02404
3/16	.00721	.01442	.02163	.02885	.03606
1/4	.00962	.01923	.02885	.03846	.04808
5/16	.01202	.02404	.03606	.04808	.06010
3/8	.01442	.02885	.04327	.05769	.07212
1/2	.01923	.03846	.05769	.07692	.09615
5/8	.02404	.04808	.07212	.09615	.12019
3/4	.02885	.05769	.08654	.11538	.14423
7/8	.03365	.06731	.10096	.13462	.16827
1	.03846	.07692	.11538	.15385	.19231
1-1/4	.04808	.09615	.14423	.19231	.24038
1-1/2	.05769	.11538	.17308	.23077	.28846
2	.07692	.15385	.23077	.30769	.38462

SHADED AREAS

Tubing wall thickness listed in the shaded areas are generally either too light or too heavy for practical applications, and are listed only to provide data for accurate computation.



Tubing Selection



WARNING Refer to safety information regarding tubing starting on page 1519

These tables provide data on required wall thickness for various sizes and pressures, and when to use flared or flareless fittings. Although heavier wall tubing can be ordered for higher operating pressures, only standard size hydraulic tubing is listed in these tables.

High temperature effects are not considered in these tables.

1010 STEEL TUBING WALL THICKNESS

TUBE O.D.	4:1 SAFETY FACTOR					6:1 SAFETY FACTOR					8:1 SAFETY FACTOR				
	working pressure (psi)					working pressure (psi)					working pressure (psi)				
	1,000	2,000	3,000	4,000	5,000	1,000	2,000	3,000	4,000	5,000	1,000	2,000	3,000	4,000	5,000
1/8	.028	.028	.028	.028	.028	.028	.028	.028	.028	.035	.028	.028	.028	.035	-
3/16	.030	.030	.030	.030	.035	.030	.030	.030	-	-	.030	.030	-	-	-
1/4	.030	.030	.030	.042	.049	.030	.030	.042	.058	-	.030	.035	.058	-	-
5/16	.032	.032	.035	.049	.058	.032	.032	.058	.065	-	.032	.049	.065	-	-
3/8	.032	.032	.042	.058	-	.032	.042	.058	-	-	.032	.058	-	-	-
1/2	.032	.042	.058	.072	-	.032	.058	.083	-	-	.042	.072	-	-	-
5/8	.035	.049	.072	.095	-	.035	.072	-	-	-	.049	.095	-	-	-
3/4	.035	.058	.083	.109	-	.049	.083	-	-	-	.058	.109	-	-	-
7/8	.049	.065	.095	-	-	.049	.095	-	-	-	.065	-	-	-	-
1	.049	.072	.109	-	-	.058	.109	-	-	-	.072	-	-	-	-
1-1/4	.049	.095	-	-	-	.072	-	-	-	-	.095	-	-	-	-
1-1/2	.065	.109	-	-	-	.083	-	-	-	-	.109	-	-	-	-
2	.072	-	-	-	-	.109	-	-	-	-	-	-	-	-	-

1020 STEEL TUBING WALL THICKNESS

TUBE O.D.	4:1 SAFETY FACTOR					6:1 SAFETY FACTOR					8:1 SAFETY FACTOR				
	working pressure (psi)					working pressure (psi)					working pressure (psi)				
	1,000	2,000	3,000	4,000	5,000	1,000	2,000	3,000	4,000	5,000	1,000	2,000	3,000	4,000	5,000
1/8	.028	.028	.028	.028	.028	.028	.028	.028	.028	.030	.028	.028	.028	.030	-
3/16	.030	.030	.030	.030	.030	.030	.030	.030	.035	-	.030	.030	.035	-	-
1/4	.030	.030	.030	.030	.042	.030	.030	.035	.049	.058	.030	.030	.049	-	-
5/16	.032	.032	.032	.042	.049	.032	.032	.042	.058	-	.032	.042	.058	-	-
3/8	.032	.032	.035	.049	.058	.032	.035	.058	.065	-	.032	.049	-	-	-
1/2	.032	.032	.049	.065	.083	.032	.049	.072	-	-	.032	.065	-	-	-
5/8	.035	.042	.058	.083	-	.035	.058	.095	-	-	.042	.083	-	-	-
3/4	.035	.049	.072	.095	-	.035	.072	.109	-	-	.049	.095	-	-	-
7/8	.049	.058	.083	-	-	.049	.083	-	-	-	.058	.109	-	-	-
1	.049	.065	.095	-	-	.049	.095	-	-	-	.065	-	-	-	-
1-1/4	.049	.083	.120	-	-	.058	.120	-	-	-	.083	-	-	-	-
1-1/2	.065	.095	-	-	-	.072	-	-	-	-	.095	-	-	-	-
2	.065	-	-	-	-	.095	-	-	-	-	.134	-	-	-	-

 Both JIC 37° flare or flareless recommended.

 Only flareless recommended.

NOTE: Only flareless fittings can be used with high pressure, heavy wall tubing which is impractical to flare.

Technical Information

Tubing Selection



WARNING Refer to safety information regarding tubing starting on page 1519



These tables provide data on required wall thickness for various sizes and pressures, and when to use flared or flareless fittings. Although heavier wall tubing can be ordered for higher operating pressures, only standard size hydraulic tubing is listed in these tables.

High temperature effects are not considered in these tables.

STAINLESS STEEL (304) ANNEALED TUBING WALL THICKNESS

TUBE O.D.	4:1 SAFETY FACTOR					6:1 SAFETY FACTOR					8:1 SAFETY FACTOR				
	working pressure (psi)					working pressure (psi)					working pressure (psi)				
	1,000	2,000	3,000	4,000	5,000	1,000	2,000	3,000	4,000	5,000	1,000	2,000	3,000	4,000	5,000
1/8	.028	.028	.028	.028	.028	.028	.028	.028	.028	.035	.028	.028	.028	.028	.035
3/16	.030	.030	.030	.030	.030	.030	.030	.030	.030	.035	.030	.030	.030	.035	—
1/4	.030	.030	.030	.030	.035	.030	.030	.030	.042	.058	.030	.030	.035	.058	.065
5/16	.032	.032	.032	.035	.042	.032	.032	.035	.058	.065	.032	.032	.049	.065	—
3/8	.032	.032	.032	.042	.058	.032	.042	.065	.083	—	.032	.042	.058	—	—
1/2	.032	.032	.042	.058	.072	.032	.042	.065	.083	—	.032	.058	.083	—	—
5/8	.035	.035	.058	.072	.083	.035	.058	.083	.095	—	.035	.065	—	—	—
3/4	.035	.049	.065	.083	.109	.035	.065	.095	—	—	.049	.083	—	—	—
7/8	.049	.049	.072	.095	—	.049	.072	.109	—	—	.049	.095	—	—	—
1	.049	.058	.083	.109	—	.049	.083	.120	—	—	.058	.109	—	—	—
1-1/4	.049	.072	.109	—	—	.058	.109	—	—	—	.065	.134	—	—	—
1-1/2	.065	.083	.120	—	—	.065	.120	—	—	—	.083	—	—	—	—
2	.065	.109	—	—	—	.083	—	—	—	—	.109	—	—	—	—

STAINLESS STEEL (304) 1/8 HARD TUBING WALL THICKNESS

TUBE O.D.	4:1 SAFETY FACTOR					6:1 SAFETY FACTOR					8:1 SAFETY FACTOR				
	working pressure (psi)					working pressure (psi)					working pressure (psi)				
	1,000	2,000	3,000	4,000	5,000	1,000	2,000	3,000	4,000	5,000	1,000	2,000	3,000	4,000	5,000
1/8	.028	.028	.028	.028	.028	.028	.028	.028	.028	.028	.028	.028	.028	.028	.028
3/16	.030	.030	.030	.030	.030	.030	.030	.030	.030	.030	.030	.030	.030	.030	.035
1/4	.030	.030	.030	.030	.030	.030	.030	.030	.030	.035	.030	.030	.030	.042	.049
5/16	.032	.032	.032	.032	.032	.032	.032	.032	.035	.049	.032	.032	.035	.049	.058
3/8	.032	.032	.032	.032	.042	.032	.032	.032	.042	.058	.032	.032	.042	.058	—
1/2	.032	.032	.032	.042	.049	.032	.032	.042	.058	.072	.032	.042	.058	.083	—
5/8	.035	.035	.042	.049	.065	.035	.035	.058	.072	.095	.035	.049	.072	.095	—
3/4	.035	.035	.049	.058	.072	.035	.049	.065	.095	.109	.035	.058	.095	—	—
7/8	.049	.049	.058	.072	.083	.049	.058	.083	.109	—	.049	.065	.109	—	—
1	.049	.049	.058	.083	.095	.049	.058	.095	—	—	.049	.072	—	—	—
1-1/4	.049	.049	.072	.095	.120	.049	.072	.109	—	—	.049	.095	—	—	—
1-1/2	.065	.065	.095	—	—	.065	.095	—	—	—	.065	—	—	—	—
2	.065	.083	.120	—	—	.065	—	—	—	—	.083	—	—	—	—

Both JIC 37° flare or flareless recommended.

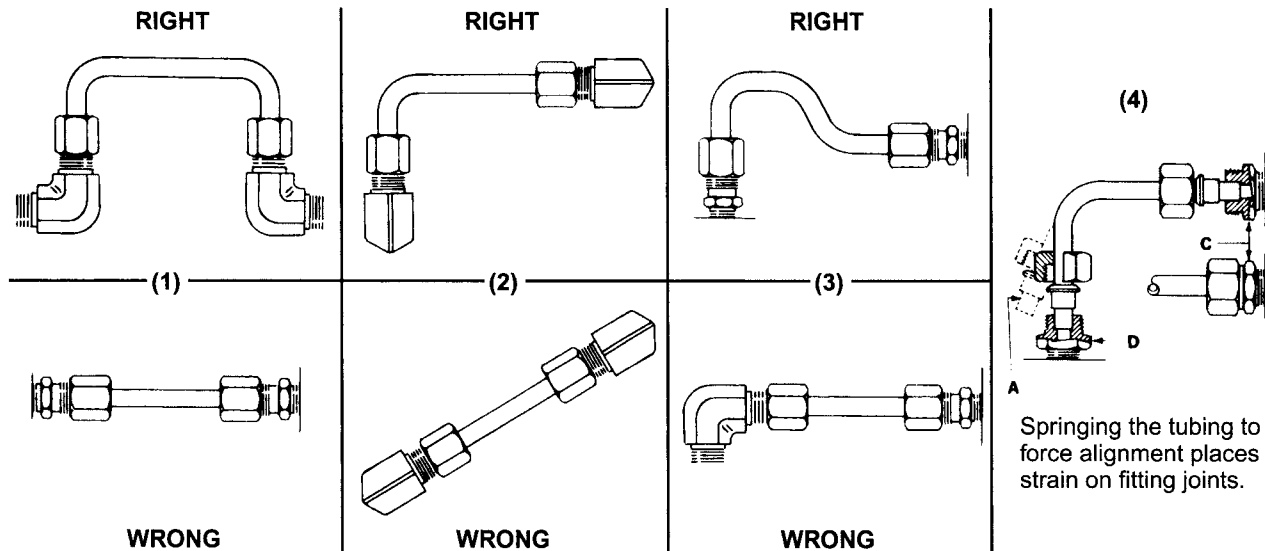
Only flareless recommended.

NOTE: Only flareless fittings can be used with high pressure, heavy wall tubing which is impractical to flare.

Tubing Installation Guidelines



WARNING Refer to safety information regarding tubing starting on page 1519



Nearly all industrial equipment now in service makes some use of fluid lines. From an economic point of view, the best fluid lines system is that which is easiest to maintain at the lowest original cost. The use of tubing and tube fittings on lines up to 2" diameter is usually more economical than the use of pipe and pipe fittings in modern installations. A few of the more important reasons follow:

1. Size for size, tubing is lighter weight, easier to handle and can be bent more easily than iron pipe.
2. Ductile hydraulic tubing reduces the number of connections required, thus reducing material and labor costs. Bent tubing also reduces pressure drop and turbulence in the system.
3. Fewer joints means lower costs and fewer points of potential leakage.
4. The use of tube fittings makes every joint a union, permitting easier, faster maintenance and repair work.
5. Modern flared and flareless tube fittings eliminate the need for threading, soldering, or welding.

TUBE BENDING

Tubing should be bent wherever possible to reduce the number of fittings. Copper tubing can be bent easily with a hand bender. Steel tubing can be bent in sizes 1/8" to 5/8" O.D. by using a hand bender designed for steel tubing. For production quantities, or for sizes larger than 5/8" O.D., a power bender is generally used. Tubing should be bent accurately. Tubing manufacturers will advise the correct radii for various types and wall thicknesses of tubing. Kinks, flattened bends, wrinkles and tube breakage or loss should be avoided by the use of proper tube bending equipment.

PRECAUTIONS

Avoid straight line connections wherever possible, especially in short runs. Design piping systems symmetrically. They are easier to install and present a neat appearance. Care should be taken to eliminate stress from tubing lines. Long tubing runs should be supported by brackets or clips. All parts installed on tubing lines such as heavy fittings, valves, etc., should be bolted down to eliminate tubing fatigue.

Before installing tubing, inspect the tube to see that it conforms to the required specifications, is of the correct diameter and wall thickness and is not out of round. Cut tube ends reasonably square and lightly deburr inside and outside edge. Chamfer on outside edge will destroy bearing of tube end on the fittings seat. To avoid difficulty in assembly and disconnecting, a sufficient straight length of tube must be allowed from the end of the tube to the start of the bend. Allow twice the length of the nut as a minimum. Tubes should be formed to assemble with true alignment to the center line of the fittings, without distortion or tension. Tubing which has to be sprung from position, "A", (see Fig. 4), to be inserted into the fitting has not been properly fabricated, and when so installed and connected, places the tubing under stress. When assembling the tubing, insert the longer leg to the fitting as at "C" (Fig. 4). With the nut free, the short leg of the tubing can be easily moved and brought to proper position with and inserted into the seat in fitting "D". The nuts can then be tightened as required.

Technical Information

Industrial Hose & Fittings

NAHAD Pressure Guideline Chart

Information in this chart can be found on the NAHAD (National Association of Hose & Accessories Distributors) web site, <http://www.nahad.org>. Mark hose assembly with pressure on this chart or hose working pressure, whichever is lower.

All pressure recommendations are in pounds per square inch (PSI).

1. **In lieu of an actual test to certify the pressure rating of a specific hose, fitting and fitting attachment method, use the information in these charts as a general guideline.** This chart applies to metal couplings for ambient temperature (70°F) applications with true I.D. hose. It assumes new fittings, new clamps, new hose and proper installation by a qualified assembler using proper procedures and equipment.

2. This chart does not apply to used hose, in non-approved or unsupported applications or in non-standard assemblies.

3. DO NOT use this chart if it conflicts with the hose manufacturer's recommendations.

4. All hose assemblies should be pressure tested to hose manufacturers specifications prior to being put in service.

Note: We will pressure test, if required, for a fee. Otherwise, pressure testing is the customer's responsibility.

5. Coupling retention can vary with changes in hose design.

6. All hose assembly components must be compatible with the materials and environments with which they are to come in contact.

7. It is recommended that all hose assemblies be marked with the assembly working pressure and media of the intended application. Under no circumstances should the assembly working pressure exceed the working pressure of the lowest rated component.

Note: We will label, if required, for a fee. Otherwise, labeling is the customer's responsibility.

8. For applications requiring higher temperatures than 70°F ambient, or for general application assistance, contact us.

Hose	Fitting	Attachment Method	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"	5"	6"	Special Notes
ALL PRESSURE RECOMMENDATIONS ARE "UP TO OR HOSE RATING", WHICHEVER IS LOWER																	
Air (Soft Wall)	Machined Short Shank	Crimp	200	150	150	100	100	100									
Air (Soft Wall)	Machined Short Shank	Pinch Clamps	100	100	100	100	100	100									
Air (Soft Wall)	Machined Short Shank	Preformed Clamps	200	150	150	100	100	100									
Air (Soft Wall)	Machined Medium Shank	Band & Buckle							225	225	200	200	175	175		75	3 bands on 3, 4 & 6 2 bands on rest
Air (Soft Wall)	Machined Medium Shank	Pinch Clamps	100	100	100	100	100	100									2 clamps on 1/2 to 1 1 clamps on 1/4 & 3/8
Air (Soft Wall)	Machined Medium Shank	Preformed Clamp	300	300	250	200	200	150	150	150	125	125	125	125		50	3 clamps on 3, 4 & 6 1 clamp on 1/4 to 5/8 2 clamps on rest
Air (Soft Wall)	Machined Long Shank	Band & Buckle							300	300	250	250	250	200		100	5 bands on 3, 4 & 6 4 bands on 2 & 2-1/2 3 bands on rest
Air (Soft Wall)	Machined Long Shank	Pinch Clamps	150	150	220	220	300	300									2 clamps on 1/2 to 1 1 clamp on 1/4 & 3/8
Air (Soft Wall)	Machined Long Shank	Preformed Clamps			300	300	300	300	225	225	200	200	175	175		75	5 clamps on 3, 4 & 6 4 clamps on 2 & 2-1/2 3 clamps on rest
Air (Soft Wall)	Universal	Crimp		110	110	110	110	110									
Air (Soft Wall)	Universal	Interlocking		110	110	110	110	110									
Air (Soft Wall)	Universal	Preformed Clamps		110	110	110	110	110									2 clamps on 3/4 to 1 1 clamp on 3/8 to 5/8
Air	Crimp Or Swage	Crimp	600	600	600	600	600	600	600	600	600	600	600	500		400	
Air	Crimp Or Swage	Swage	600	600	600	600	600	600	600	600	600	600	600	500		400	
Air	Ground Joint	Interlocking	600	600	600		600	600	600	600	600	450	450	230		230	

Continued on next page



Industrial Hose & Fittings

NAHAD Pressure Guideline Chart, continued from previous page

Information in this chart can be found on the NAHAD (National Association of Hose & Accessories Distributors) web site, <http://www.nahad.org>. Mark hose assembly with pressure on this chart or hose working pressure, whichever is lower.

All pressure recommendations are in pounds per square inch (PSI).

- In lieu of an actual test to certify the pressure rating of a specific hose, fitting and fitting attachment method, use the information in these charts as a general guideline.** This chart applies to metal couplings for ambient temperature (70°F) applications with true I.D. hose. It assumes new fittings, new clamps, new hose and proper installation by a qualified assembler using proper procedures and equipment.
- This chart does not apply to used hose, in non-approved or unsupported applications or in non-standard assemblies.
- DO NOT use this chart if it conflicts with the hose manufacturer's recommendations.
- All hose assemblies should be pressure tested to hose manufacturers specifications prior to being put in service.
Note: We will pressure test, if required, for a fee. Otherwise, pressure testing is the customer's responsibility.
- Coupling retention can vary with changes in hose design.
- All hose assembly components must be compatible with the materials and environments with which they are to come in contact.
- It is recommended that all hose assemblies be marked with the assembly working pressure and media of the intended application. Under no circumstances should the assembly working pressure exceed the working pressure of the lowest rated component.
Note: We will label, if required, for a fee. Otherwise, labeling is the customer's responsibility.
- For applications requiring higher temperatures than 70°F ambient, or for general application assistance, contact us.

Hose	Fitting	Attachment Method	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"	5"	6"	Special Notes
ALL PRESSURE RECOMMENDATIONS ARE "UP TO OR HOSE RATING", WHICHEVER IS LOWER																	
Asphalt & Hot Tar	Ground Joint	Interlocking						600	600	600	600	450	450	230			
Chemical (Plastic)	Cam & Groove	Crimp			150		250	250	250	250	250	150	125	100			
Chemical (Plastic)	Cam & Groove	Swage			150		250	250	250	250	250	150	125	100			
Chemical (Plastic)	Cam & Groove	Preformed Clamps			125		125	125	125	125	100	75	75	50			
Chemical (Plastic)	Cam & Groove	Band & Buckle						150	150	125	100	75	50				
Chemical (Plastic)	Crimp or Swage	Crimp			600		600	600	600	400	350	600	300	500		400	
Chemical (Plastic)	Crimp or Swage	Swage			600		600	600	600	600	600	600	600	500		400	
Chemical (Plastic)	Machined Medium Shank	Preformed Clamps			125		125	125	125	125	100	75	75	50			3 clamps on 3 & 4 2 clamps on rest
Chemical (Plastic)	Machined Medium Shank	Band & Buckle						150	150	125	100	75	50				3 bands on 3 & 4 2 bands on rest
Chemical (Plastic)	Machined Long Shank	Preformed Clamps			150		150	150	150	150	125	100	75	50			5 clamps on 3 & 4 4 clamps on 2 & 2-1/2 3 clamps on rest
Chemical (Plastic)	Machined Long Shank	Band & Buckle						200	175	150	125	100	75				5 bands on 3 & 4 4 bands on 2 & 2-1/2 3 bands on rest
Chemical (Rubber)	Data for these categories will be added to this table as we start stocking hose for these categories. In the meantime, please see NAHAD web site for this data (http://www.nahad.org).																
Food Grade (Regulated)																	
Food Grade (Unreg.)																	

Continued on next page

Technical Information

Industrial Hose & Fittings

NAHAD Pressure Guideline Chart, continued from previous page

Information in this chart can be found on the NAHAD (National Association of Hose & Accessories Distributors) web site, <http://www.nahad.org>. Mark hose assembly with pressure on this chart or hose working pressure, whichever is lower.

All pressure recommendations are in pounds per square inch (PSI).

1. **In lieu of an actual test to certify the pressure rating of a specific hose, fitting and fitting attachment method, use the information in these charts as a general guideline.** This chart applies to metal couplings for ambient temperature (70°F) applications with true I.D. hose. It assumes new fittings, new clamps, new hose and proper installation by a qualified assembler using proper procedures and equipment.

2. This chart does not apply to used hose, in non-approved or unsupported applications or in non-standard assemblies.

3. DO NOT use this chart if it conflicts with the hose manufacturer's recommendations.

4. All hose assemblies should be pressure tested to hose manufacturers specifications prior to being put in service.

Note: We will pressure test, if required, for a fee. Otherwise, pressure testing is the customer's responsibility.

5. Coupling retention can vary with changes in hose design.

6. All hose assembly components must be compatible with the materials and environments with which they are to come in contact.

7. It is recommended that all hose assemblies be marked with the assembly working pressure and media of the intended application. Under no circumstances should the assembly working pressure exceed the working pressure of the lowest rated component.

Note: We will label, if required, for a fee. Otherwise, labeling is the customer's responsibility.

8. For applications requiring higher temperatures than 70°F ambient, or for general application assistance, contact us.

Hose	Fitting	Attachment Method	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"	5"	6"	Special Notes
ALL PRESSURE RECOMMENDATIONS ARE "UP TO OR HOSE RATING", WHICHEVER IS LOWER																	
Layflat	Cam & Groove	Crimp								250	250	150	125	100	75	50	
Layflat	Cam & Groove	Preformed Clamps								250	250	150	125	100	75	50	
Layflat	Cast	Preformed Clamps								75	75	50	50	50	50	25	3 clamps on 3, 4, 5 & 6 2 clamps on rest
Layflat	Machined Medium Shank	Preformed Clamps								250	200	150	125	100	75	50	3 clamps on 3, 4, 5 & 6 2 clamps on rest
Layflat	Machined Long Shank	Preformed Clamps								300	250	175	150	125	100	75	5 clamps on 3, 4, 5 & 6 3 clamps on 1-1/2 4 clamps on rest
Material Handling	Cam & Groove	Crimp								250	250	150	125	100	75	75	
Material Handling	Cam & Groove	Swage								250	250	150	125	100	75	75	
Material Handling	Cam & Groove	Preformed Clamps								250	250	150	125	100	75	75	
Material Handling	Cam & Groove	Band & Buckle								250	250	150	125	100	75	75	
Material Handling (soft wall)	Machined Medium Shank	Bolt Clamp								250	200	150	125	100	75	75	
Material Handling	Machined Medium Shank	Preformed Clamps								250	200	150	125	100	75	75	3 clamps on 3, 4, 5 & 6 1 clamp on up to 5/8 2 clamps on rest
Material Handling	Machined Medium Shank	Band & Buckle								300	250	175	150	125	100	100	3 bands on 3, 4, 5 & 6 1 bands on up to 5/8 2 bands on rest
Material Handling (soft wall)	Machined Long Shank	Bolt Clamp								300	250	175	150	125	100	75	
Material Handling	Machined Long Shank	Preformed Clamps								300	250	175	150	125	100	100	5 clamps on 3, 4, 5 & 6 4 clamps on 2 & 2-1/2 3 clamps on rest

Continued on next page



Industrial Hose & Fittings

NAHAD Pressure Guideline Chart, continued from previous page

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Note: We will pressure test, if required, for a fee. Otherwise, pressure testing is the customer's responsibility.
- Coupling retention can vary with changes in hose design.
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ALL PRESSURE RECOMMENDATIONS ARE "UP TO OR HOSE RATING", WHICHEVER IS LOWER																	
Material Handling	Machined Long Shank	Band & Buckle								375	325	250	200	150	125	125	5 bands on 3, 4, 5 & 6 4 bands on 2 & 2-1/2 3 bands on rest
Material Handling (soft wall)	Cast	Bolt Clamp								75	75	50	50	50	50	25	
Material Handling	Cast	Preformed Clamps								75	75	50	50	50	50	25	
Material Handling	Cast	Band & Buckle								75	75	50	50	50	50	25	
Material Handling	Crimp or Swage	Crimp								600	600	600	600	500	450	400	
Material Handling	Crimp or Swage	Swage								600	600	600	600	500	450	400	
Material Handling	Internal Expansion	Internal Expansion								800	800	600	600	500		400	
Material Handling (Cement)	Crimp or Swage	Crimp						600	600	600	600	600	600	500	450	400	erosion is very possible
Material Handling (Cement)	Crimp or Swage	Swage						600	600	600	600	600	600	500	450	400	erosion is very possible
Material Handling (Cement)	Ground Joint	Interlocking						600	600	600	600	450	450	230		230	erosion is very possible
Material Handling (Cement)	Internal Expansion	Internal Expansion						800	800	800	800	600	600	500		400	erosion is very possible
Petroleum Transfer	Cam & Groove	Band & Buckle							250	250	250	150	125	100	75	75	
Petroleum Transfer	Cam & Groove	Crimp			150		250	250	250	250	250	150	125	100	75	75	
Petroleum Transfer	Cam & Groove	Preformed Clamps			150		250	250	250	250	250	150	125	100	75	75	

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Technical Information

Industrial Hose & Fittings

NAHAD Pressure Guideline Chart, continued from previous page

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Hose	Fitting	Attachment Method	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"	5"	6"	Special Notes
ALL PRESSURE RECOMMENDATIONS ARE "UP TO OR HOSE RATING", WHICHEVER IS LOWER																	
Petroleum Transfer	Cam & Groove	Swage			150		250	250	250	250	250	150	125	100	75	75	
Petroleum Transfer	Crimp or Swage	Crimp	600	600	600	600	600	600	600	600	600	600	600	500	450	400	
Petroleum Transfer	Crimp or Swage	Swage	600	600	600	600	600	600	600	600	600	600	600	500	450	400	
Petroleum Transfer	Internal Expansion	Internal Expansion							800	800	800	600	600	500		400	
Petroleum Transfer	Machined Medium Shank	Band & Buckle							300	300	250	175	150	125	100	100	1 band on 1/4 to 5/8 2 bands on rest
Petroleum Transfer	Machined Medium Shank	Preformed Clamps			125		250	250	250	250	200	150	125	100	75	75	1 clamp on 1/4 to 5/8 2 clamps on rest
Petroleum Transfer	Machined Long Shank	Band & Buckle							375	375	325	250	200	150	125	125	4 bands on 2 & 2-1/2 3 bands on rest
Petroleum Transfer	Machined Long Shank	Preformed Clamps			300		300	300	300	300	250	175	150	125	100	100	4 clamps on 3 & 2-1/2 3 clamps on rest
Push-On	Push-On	N/A			175	175	175	175	150	150	200	300	300				
Sand Blast	Sand Blast	N/A			175	175	175	175	150	150	200	300	300				
Steam	Ground Joint	Interlocking			600		600	600	600	600	600	450	450	230		230	
Water	Cam & Groove	Band & Buckle							250	250	250	150	125	100	75	75	
Water	Cam & Groove	Crimp			150		250	250	250	250	250	150	125	100	75	75	
Water	Cam & Groove	Preformed Clamps			150		250	250	250	250	250	150	125	100	75	75	
Water	Cam & Groove	Swage			150		250	250	250	250	250	150	125	100	75	75	

Continued on next page



Industrial Hose & Fittings

NAHAD Pressure Guideline Chart, continued from previous page

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ALL PRESSURE RECOMMENDATIONS ARE "UP TO OR HOSE RATING", WHICHEVER IS LOWER																	
Water	Cast	Band & Buckle							75	75	75	50	50	50	25	25	
Water	Cast	Preformed Clamps	200	200	150	100	100	100	75	75	75	50	50	50	25	25	
Water	Crimp or Swage	Crimp	600	600	600	600	600	600	600	600	600	600	600	500		400	
Water	Crimp or Swage	Swage	600	600	600	600	600	600	600	600	600	600	600	500		400	
Water	Ground Joint	Interlocking	600	600	600		600	600	600	600	600	450	450	230		230	
Water	Machined Short Shank	Crimp	200	150	150	100	100	100									
Water	Machined Short Shank	Pinch	100	100	100	100	100	100									
Water	Machined Short Shank	Preformed Clamps	200	150	150	100	100	100									
Water	Machined Medium Shank	Pinch Clamps	100	100	100	100	100	100									
Water	Machined Medium Shank	Preformed Clamps	300	300	300	300	300	250	250	125	75	75	50	50	25	25	3 clamps on 3, 4 & 6 1 clamp on 1/4 to 5/8 2 clamps on rest
Water	Machined Long Shank	Preformed Clamps			400	400	400	300	300	150	125	100	75	50			5 clamps on 3, 4 & 6 4 clamps on 2 & 2-1/2 3 clamps on rest
Water	Universal	Interlocking	110	110	110	110	110	110									
Water	Universal	Preformed Clamps	110	110	110	110	110	110									
Water (Soft Wall)	Cast	Bolt Clamp	200	200	150	100	100	100	75	75	75	50	50	50	25	25	
Water (Soft Wall)	Machined Medium Shank	Bolt Clamp	300	300	300	300	300	250	250	125	75	75	50	50	25	25	
Water (Soft Wall)	Machined Long Shank	Bolt Clamp			400	400	400	300	300	150	125	100	75	50			

Technical Information

Industrial Hose & Fittings

Temperature vs. Pressure Table for Boston Reinforced PVC Hose



This table has been prepared to demonstrate the effects of temperature vs. working pressure on Eaton Boston® reinforced PVC hose products. Working pressures for PVC hoses are tested at 68°F.

Temperature °F	Allowable Percent of Original Working Pressure	
	2-Spiral Reinforcement	4-Spiral Reinforcement
68	100%	100%
77	86%	90%
86	75%	81%
95	65%	73%
104	56%	66%
113	47%	59%
120	40%	53%
131	33%	47%
140	27%	43%
149	23%	40%
158	20%	38%
167	17%	37%
176	15%	35%



Technical Information

Agency Hose Listings

The listings below are intended only as guides in identifying which hoses in this catalog comply with requirements of various agencies. For current and complete information, contact us.

Government Agencies

DOT/FMVSS - US Department of Transportation, Federal Motor Vehicle Safety Standard
 FDA - US Food and Drug Administration
 MIL/DOD - US Military Specification, Department of Defense
 USCG/MMT - US Coast Guard, Merchant Marine Technical (SAE J1942 has replaced USCG approval)

Industry Agencies

ABS - American Bureau of Shipping
 DIN - Deutsche (German) Industrial Norme (Replaced by EN)
 EN - Committee for European Normalization
 SAE - Society of Automotive Engineers
 UL - Underwriters Laboratories

Manufacturer	Hose Style	DOT FMVSS	FDA	MIL DOD	USCG MMT	ABS	DIN	EN	SAE	UL
Aeroquip	2556									
Aeroquip	2570	106 Type All							J1402	
Aeroquip	2651				★	★			100R5	
Aeroquip	2661				★	★			100R4	
Aeroquip	2807				★	★			100R14A	
Aeroquip	FC195				★		20 022 Type 2ST	EN 853 Type 2ST	100R2A	
Aeroquip	FC234				★	★			J1527 A1	
Aeroquip	FC252									
Aeroquip	FC254				★	★			100R11	
Aeroquip	FC273				★	★		EN 856 Type R13	100R13	
Aeroquip	FC300	106 Type All			★	★			100R5, J1019, J1402	
Aeroquip	FC321									UL21
Aeroquip	FC332									
Aeroquip	FC350	106 Type All			★	★			J1402	
Aeroquip	FC355	106 Type All				★			J1402	
Aeroquip	FC363		▲		★					
Aeroquip	FC372							EN 855 Type R7	100R7	
Aeroquip	FC373							EN 855 Type R7	100R7	
Aeroquip	FC374							EN 855 Type R8	100R8	
Aeroquip	FC375							EN 855 Type R8	100R8	
Aeroquip	FC505								J2064 Type E	
Aeroquip	FC558								J2064 Type B Class 1	
Aeroquip	FC579									
Aeroquip	FC606					★			100R15	
Aeroquip	FC619								100R4	
Aeroquip	FC636									
Aeroquip	FC639								100R17	
Aeroquip	FC647									
Aeroquip	FC693									
Aeroquip	FC735							EN 857 Type 2SC	100R16 Type S	
Aeroquip	FC802								J51 Type D	
Aeroquip	FC902							EN 855 Type R7	100R7	
Aeroquip	FC914							EN 855 Type R7	100R7	

Continued on next page

▲ = See catalog page for details

★ = Approved details available.





Technical Information

Agency Hose Listings, continued from previous page

Manufacturer	Hose Style	DOT FMVSS	FDA	MIL DOD	USCG MMT	ABS	DIN	EN	SAE	UL
Aeroquip	GH134								J2064 Type E	
Aeroquip	GH195					★	20 022 Type 2SN	EN 853 Type 2SN	100R2AT	
Aeroquip	GH663				★	★	20 022 Type 1SN	EN 853 Type 1SN	100R1AT	
Aeroquip	GH493				★	★			100R12	
Aeroquip	GH781				★	★		EN 857 Type 2SC	100R16	
Aeroquip	GH793				★	★	20 022 Type 2SN	EN 853 Type 2SN	100R2AT	
Everflex®	SC									
Everflex®	STW								100R14A	
Gates	4219G								30R7	
Kuriyama	K010		▲							
Kuriyama	K3130		▲							
Kuriyama	K3150		▲							
Synflex	25CT								100R7	
Synflex	30CT								100R18	
Synflex	3130								100R7	
Synflex	3770									
Synflex	37AL									
Synflex	3800									
Synflex	3R80								100R8	
Thermal Flex	TFC40			MIL A-A-52426					J20 R1	
Thermal Flex	TFH								J20 R3	
Trident Marine	100								J2006	
Trident Marine	110								J2006	
Trident Marine	130								J20 R3	
Trident Marine	134								J20R3	
Trident Marine	148		▲							
Trident Marine	200								J2006	
Trident Marine	202V								J2006	
Trident Marine	240V								J2006	
Trident Marine	250								J2006	
Trident Marine	252								J2006	
Trident Marine	252V								J2006	
Trident Marine	272V								J2006	
Trident Marine	274V								J2006	
Trident Marine	290V								J2006	
Trident Marine	292V								J2006	
Trident Marine	327				USCG Type A2 Fuel				J1527 A2	
Trident Marine	365				USCG Type A1 Fuel				J1527 A1	
Trident Marine	MSH									
Trident Marine	THH								J2006	
Trident Marine	TRL								J2006	

▲ = See catalog page for details

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Technical Information

Industrial Hose Chemical Compatibility

Chemical Resistances

Fluid	Hose and Tubing Material																			Metals		
	UHMW	XLPE	PVC	Nitrile	Vinyl Nitrile	Neoprene	Teflon (PTFE)	Teflon (FEP)	Nylon 6/66	EPDM	Hypalon	Natural Rubber/SBR	Hytrel	Polyurethane	CPE	EVA	LLDPE	Nylon 11	PVC / PU Blends	Brass	Steel	316 Stainless
Aluminum Chloride	G	G	G	G	G	G	G	G	X	G	G	G	G	G	G	G	G	X	G	X	X	F
Aluminum Fluoride	G	G	G	G	G	F	G	G	X	G	G	G	—	G	X	G	G	X	G	X	X	X
Aluminum Hydroxide	G	G	G	G	G	G	G	G	G	G	G	G	—	G	G	G	G	G	G	X	F	G
Aluminum Nitrate	G	G	G	G	G	G	G	G	F	G	G	G	—	X	—	G	G	G	G	X	X	G
Aluminum Sulfate	G	G	G	G	G	G	G	G	F	G	G	G	G	G	G	G	G	G	G	X	X	G
Alums	G	G	G	G	G	G	G	G	G	G	G	G	X	G	G	G	G	F	G	X	X	F
Ammonia, Anhydrous	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	X	F	G
Ammonia Solution (10%)	G	G	G	G	G	F	G	G	X	G	G	F	X	X	X	—	G	G	—	X	G	G
Ammonium Chloride	G	G	G	G	G	G	G	G	X	G	G	G	G	F	G	G	G	X	G	X	G	F
Ammonium Hydroxide	G	G	X	F	F	F	G	G	X	G	G	F	X	X	G	G	G	G	F	X	F	G
Ammonium Nitrate	G	G	G	G	G	G	G	G	G	G	G	G	G	X	G	G	G	G	G	—	—	G
Ammonium Phosphate	G	G	F	G	G	G	G	G	G	G	G	G	G	F	G	G	G	G	G	X	X	G
Ammonium Sulfate	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	X	X	F
Amyl Acetate	G	G	X	X	X	X	G	G	G	F	X	X	F	X	X	X	X	G	X	G	F	G
Amyl Alcohol	G	G	X	G	G	F	G	G	G	G	G	G	G	X	G	G	G	G	X	G	F	F
Aniline	G	G	X	X	X	X	G	G	X	X	X	X	X	X	X	X	X	X	X	X	G	G
Aniline Dyes	G	G	X	F	F	F	G	G	X	G	F	F	X	X	X	X	X	X	X	X	X	F
Animal Oils and Fats	G	G	G	G	G	X	G	G	—	F	F	X	G	X	F	X	X	G	X	G	G	G
Anti—Freeze (Glycol Base)	G	G	G	G	G	G	G	G	—	G	G	G	G	X	G	G	F	G	G	G	G	G
Aqua Regia	X	X	X	X	X	X	G	F	X	X	X	X	X	X	X	X	X	X	F	—	X	X
Aromatic Hydrocarbons	G*	G*	X	X	X	X	G	G	G	X	X	X	X	X	X	—	G*	G	—	G	G	G
Asphalt Emulsion	X	X	X	G	X	X	G	G	—	X	X	X	G	X	F	X	—	G	F	G	G	G
Barium Chloride	G	G	G	G	G	G	G	G	—	G	G	G	G	G	G	G	G	G	G	X	F	G
Barium Hydroxide	G	G	G	G	G	G	G	G	G	G	G	G	G	X	G	G	G	G	G	X	G	G
Barium Sulfate	G	G	G	G	G	G	G	G	G	G	G	G	X	G	X	G	G	G	G	G	G	G
Barium Sulfide	G	G	G	G	G	G	G	G	—	G	G	G	X	G	G	G	G	X	G	X	X	G

G - Good

F - Fair

X - Not Recommended

— - Insufficient Information

*For Intermittent Transfer Only

**Use Approved Freon Hose

***Use Propane Approved Hose Only

◇ Use Pinpricked Hose for Gas Applications



This page is part of a complete catalog which contains technical and safety data that must be reviewed when selecting a product.

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Hydraulic Power & Control

Pneumatic Power & Control

Fluid Conveying

Miscellaneous Products

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Technical Information

Industrial Hose Chemical Compatibility



Chemical Resistances

Fluid	Hose and Tubing Material																			Metals		
	UHMW	XLPE	PVC	Nitrile	Vinyl Nitrile	Neoprene	Teflon (PTFE)	Teflon (FEP)	Nylon 6/66	EPDM	Hypalon	Natural Rubber/SBR	Hydrel	Polyurethane	CPE	EVA	LLDPE	Nylon 11	PVC / PU Blends	Brass	Steel	316 Stainless
Beet Sugar Liquors	G	G	G	G	G	G	G	G	G	X	G	G	—	X	G	G	G	G	—	X	G	G
Benzaldehyde	G	G	X	X	X	X	G	G	G	F	X	X	X	X	X	X	X	G	X	F	F	G
Benzene, Benzol	G*	G*	X	X	X	X	G	G	G	X	X	X	X	X	F	X	X	G	F	G	G	G
Benzoic Acid	G	G	X	X	X	G	G	G	X	X	X	X	X	X	G	G	G	X	G	F	X	F
Black Sulfate Liquor	G	F	X	F	F	G	G	G	X	G	F	X	G	X	X	G	G	X	G	X	G	G
Bleach Solution	F	F	F	X	X	X	G	G	X	G	F	X	F	F	G	G*	G	X	G	X	X	G
Borax Solution	G	G	G	F	F	G	G	G	—	G	G	G	G	G	G	G	G	G	G	G	G	G
Boric Acid	G	G	G	G	G	G	G	G	G	G	G	G	G	G	X	G	G	G	G	X	X	G
Brake Fluid (Glycol Ether Base)	G	G	X	X	X	F	G	G	—	G	X	X	—	X	G	—	X	G	X	G	G	G
Brine	G	G	G	G	G	G	G	G	—	G	G	G	G	X	G	G	G	G	G	—	X	F
Bromine	X	X	X	X	X	X	G	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Butyl Acetate	G	G	X	X	X	X	G	G	—	F	X	X	F	X	F	—	X	G	X	G	G	G
Butyl Alcohol, Butanol	G	G	X	G	G	G	G	G	G	G	G	G	G	X	G	G	G	G	F	G	G	G
Calcium Bisulfite	G	G	G	G	G	G	G	G	X	G	G	G	X	G	X	G	G	G	G	X	X	X
Calcium Chloride	G	G	G	G	G	G	G	G	X	G	G	G	G	G	G	G	G	G	G	X	F	F
Calcium Hydroxide	G	G	G	F	F	G	G	G	G	G	F	G	G	X	G	G	G	G	G	F	G	G
Calcium Hypochlorite	G	G	G	F	F	F	G	G	X	G	F	X	F	X	G	G	G	X	G	F	X	F
Cane Sugar Liquors	G	G	G	G	G	G	G	G	—	G	G	G	G	X	G	G	G	G	—	F	G	G
Carbon Dioxide (Dry)	G	G	G	G	G	G	G	G	G	G	G	F	G	G	G	G	G	G	G	G	G	G
Carbon Dioxide (Wet)	G	G	G	G	G	G	G	G	G	G	G	F	—	G	—	G	G	G	G	F	G	G
Carbon Disulfide (Bisulfide)	F	X	X	X	X	X	G	G	X	X	X	X	X	G	X	—	X	X	—	G	G	G
Carbon Monoxide (Hot)	—	—	X	F	F	F	G	G	X	F	G	X	G	F	G	G	X	X	G	X	F	G
Carbon Tetrachloride	G*	G*	X	X	X	X	G	G	G	X	X	X	F	X	X	—	X	G	X	G	G	G
Carbonic Acid	G	G	G	G	G	G	G	G	—	G	G	G	X	G	X	G	G	G	G	X	X	F
Castor Oil	G	G	G	G	G	F	G	G	—	F	G	X	F	F	G	X	X	G	G	G	G	G
Cellosolve Acetate	G	G	X	X	X	X	G	G	—	F	F	X	X	X	X	X	—	G	G	X	X	G
Chlorinated Solvents	G*	G*	X	X	X	X	G	G	G	X	X	X	X	X	X	—	X	F	X	G	G	F

G - Good

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**Use Approved Freon Hose

***Use Propane Approved Hose Only

◇ Use Pinpricked Hose for Gas Applications



Technical Information

Industrial Hose Chemical Compatibility

Chemical Resistance

Fluid	Hose and Tubing Material																			Metals		
	UHMW	XLPE	PVC	Nitrile	Vinyl Nitrile	Neoprene	Teflon (PTFE)	Teflon (FEP)	Nylon 6/66	EPDM	Hypalon	Natural Rubber/SBR	Hydrel	Polyurethane	CPE	EVA	LLDPE	Nylon 11	PVC / PU Blends	Brass	Steel	316 Stainless
Chloroacetic Acid	G	G	X	X	X	X	G	G	X	F	X	X	X	X	X	X	X	X	F	X	X	F
Chloro-benzene	G*	G*	X	X	X	X	G	G	X	X	X	X	X	X	—	X	X	X	X	F	F	G
Chlorine Gas (Dry)	X	X	X	X	X	X	G	X	X	X	X	X	X	X	X	X	X	X	G	F	F	G
Chlorine Gas (Wet)	X	X	X	X	X	X	G	X	X	X	X	X	X	X	X	X	X	X	F	X	X	X
Chloroform	G*	G*	X	X	X	X	G	G	G	X	X	X	X	X	X	X	X	F	U	G	G	G
Chlorosulfonic Acid	F*	F*	X	X	X	X	G	G	X	X	X	X	X	X	X	X	X	X	X	X	F	X
Chromic Acid (under 25%)	G	X	F	X	X	X	G	G	X	G	G	X	X	X	X	G	F	X	G	X	X	G
Chromic Acid (25-40%)	G	X	X	X	X	X	G	G	X	G	G	X	X	X	X	F	X	X	F	X	X	F
Citric Acid	G	G	G	F	F	G	G	G	F	G	G	G	G	X	X	G	G	X	G	X	X	G
Coke Oven Gas	X	X	X	X	X	X	G	G	—	X	X	X	—	X	X	—	G	—	G	F	G	G
Copper Chloride	G	G	G	G	G	F	G	G	X	G	G	G	G	G	X	G	G	X	G	X	X	G
Copper Cyanide	G	G	G	G	G	F	G	G	G	G	G	G	—	G	—	G	G	G	G	X	X	G
Copper Sulfate	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	X	X	G
Corn Syrup (Non-food)	G	G	G	G	G	F	G	G	—	G	F	F	G	G	—	G	G	G	G	—	G	G
Cottonseed Oil	G	G	F	G	G	X	G	G	—	F	F	X	G	G	G	G	G	G	G	G	G	G
Creosote	G	G	X	F	F	X	G	G	X	X	F	X	X	F	F	X	X	X	X	F	—	G
Cresol	G	G	X	X	X	X	G	G	X	X	X	X	X	X	G	X	X	X	—	—	G	G
Cyclohexanol	G	G	X	F	F	F	G	G	G	G	G	F	—	—	G	G	F	G	X	G	F	G
Dextrose (Food Grade)	G	X	X	X	X	X	G	G	X	X	X	X	X	X	X	G	G	X	—	—	—	G
Dichloro-benzene	G*	G*	X	X	X	X	G	G	—	X	X	X	X	X	X	X	X	G	X	—	—	G
Diesel Fuel	G	G	X	G	G	X	G	G	—	X	F	X	F	F	G	—	X	G	—	G	G	G
Diethanol-amine	G	G	X	F	X	X	G	G	—	G	X	F	X	X	—	—	—	G	—	X	G	G
Diethylene-triamine	G	G	X	F	X	X	G	G	X	G	X	F	—	X	—	—	G	X	—	—	—	—
Dowtherm A	—	—	X	X	X	X	G	G	X	X	X	X	X	—	X	X	X	X	X	X	F	G
Enamel (Solvent Base)	G	G	X	F	F	X	G	G	—	X	X	X	G	—	G	—	G	G	—	G	—	G
Ethanolamine	G	G	X	F	F	X	G	G	—	G	X	G	—	X	—	—	G	G	—	X	G	G
Ethers (Ethyl Ether)	G	G	X	X	X	X	G	G	—	X	X	X	X	X	G	X	X	G	X	G	G	G
Ethyl Alcohol	G	G	F	G	G	G	G	G	G	G	G	G	G	G	G	F	G	G	G	F	G	G

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Hydraulic Power & Control

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Fluid Conveying

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Technical Information

Industrial Hose Chemical Compatibility



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Fluid	Hose and Tubing Material																		Metals			
	UHMW	XLPE	PVC	Nitrile	Vinyl Nitrile	Neoprene	Teflon (PTFE)	Teflon (FEP)	Nylon 6/66	EPDM	Hypalon	Natural Rubber/SBR	Hydrel	Polyurethane	CPE	EVA	LLDPE	Nylon 11	PVC / PU Blends	Brass	Steel	316 Stainless
Ethyl Acetate	G	G	X	X	X	X	G	G	G	G	X	X	F	X	F	F	G	G	X	G	G	G
Ethyl Acrylate	G	G	X	X	X	X	G	G	—	F	X	X	—	X	F	—	—	X	X	—	G	G
Ethyl Methacrylate	G	G	X	X	X	X	G	G	—	F	X	X	—	X	F	—	—	X	—	—	G	G
Ethylamine	G	G	X	X	X	X	G	G	X	F	X	X	—	X	—	—	G	X	—	G	—	G
Ethyl Cellulose	G	G	X	F	F	F	G	G	—	F	F	G	—	F	G	—	G	F	—	F	G	F
Ethyl Chloride	G*	G*	X	X	X	X	G	G	—	X	X	X	X	F	X	X	X	G	X	F	F	G
Ethylene-diamine	G	G	X	F	X	G	G	G	X	G	F	G	—	X	—	—	G	X	—	G	G	G
Ethylene Dibromide	G	G	X	X	X	X	G	G	—	X	X	X	—	X	—	—	—	F	—	—	—	—
Ethylene Dichloride	G*	G*	X	X	X	X	G	G	—	X	X	X	X	X	X	X	X	F	X	G	X	X
Ethylene Glycol	G	G	G	G	G	G	G	G	G	G	G	G	G	F	G	G	G	G	G	F	G	G
Ethylene Oxide	G	G	X	X	X	X	G	G	—	X	X	X	G	X	X	X	X	G	X	X	F	F
Fatty Acids	G	G	G	F	F	X	G	G	G	F	X	X	G	—	F	F	G	G	G	F	F	G
Ferric Chloride 5%	G	G	G	G	G	G	G	G	G	G	G	G	—	F	G	G	G	G	G	X	X	X
Ferric Sulfate	G	G	G	G	G	G	G	G	G	G	G	G	G	—	G	G	G	G	G	X	X	F
Fertilizer Salts Solution	G	G	G	F	F	F	G	G	—	G	G	G	—	—	—	—	F	G	—	—	—	G
Formaldehyde	G	G	X	F	F	F	G	G	G	G	X	F	F	X	G	G	G	X	G	F	X	G
Formic Acid	G	G	X	F	F	F	G	G	X	G	X	X	X	X	G	G	G	X	—	F	X	G
Freon 12**	—	—	—	—	—	—	G	—	—	—	—	—	—	—	—	—	—	—	—	G	G	G
Freon 134a**	—	—	—	—	—	—	G	—	—	—	—	—	—	—	—	—	—	—	—	—	G	G
Fuel Oil	G	G	F	G	G	F	G	G	—	X	X	X	—	F	G	X	X	G	G	F	G	G
Furfural	G	G	X	X	X	X	G	G	X	F	F	X	—	—	F	X	X	X	X	F	G	G
Gasoline (Refined)	G	G	X	F	F	X	G	G	G	X	X	X	G	F	G	—	X	G	X	G	G	G
Gasoline (Unleaded)	G	G	X	G	G	X	G	G	G	X	F	X	X	X	G	—	X	G	F	G	G	G
Gasoline (10% Ethanol)	G	G	X	G	G	X	G	G	G	X	X	X	X	X	—	—	X	G	F	G	G	G
Gasoline (10% Methanol)	G	G	X	F	F	X	G	G	G	X	X	X	X	X	—	—	X	G	F	G	G	G
Glucose (Non-food)	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
Glycerine, Glycerol (Non-food)	G	G	G	G	G	G	G	G	G	G	G	G	G	X	G	G	G	G	G	G	G	G
Greases	G	G	G	G	G	F	G	G	G	X	F	X	G	G	G	—	G	G	G	G	G	G
Green Sulfate Liquor	G	G	G	F	F	F	G	G	X	G	G	G	X	G	X	G	G	X	F	X	X	G
Heptane	G	G	X	G	G	F	G	G	G	X	F	X	G	F	G	X	X	G	G	G	G	G

G - Good

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**Use Approved Freon Hose

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◇ Use Pinpricked Hose for Gas Applications



Technical Information

Industrial Hose Chemical Compatibility

Chemical Resistance

Fluid	Hose and Tubing Material																		Metals			
	UHMW	XLPE	PVC	Nitrile	Vinyl Nitrile	Neoprene	Teflon (PTFE)	Teflon (FEP)	Nylon 6/66	EPDM	Hypalon	Natural Rubber/SBR	Hydrel	Polyurethane	CPE	EVA	LLDPE	Nylon 11	PVC / PU Blends	Brass	Steel	316 Stainless
Hexane	G	G	X	G	G	F	G	G	G	X	F	X	G	F	G	X	X	G	X	G	G	G
Houghto Safe 273 to 640	G	G	F	G	G	G	G	G	—	G	—	F	—	X	G	—	G	G	—	G	G	G
Houghto Safe 5046, 5047F	G	G	G	G	G	G	G	G	—	X	X	X	G	X	G	—	G	G	—	G	G	G
Houghto Safe 1000 Series	G	G	X	X	X	X	G	G	—	G	X	X	—	X	—	—	X	G	—	G	G	G
Hydraulic Oils:																						
Straight Petroleum Base	G	G	G	G	G	F	G	G	G	X	F	X	G	G	G	F	G	G	G	G	G	G
Water Petroleum Emulsion	G	G	—	G	G	F	G	G	—	X	F	X	G	X	G	—	F	G	—	G	G	G
Water Glycol	G	G	X	G	G	G	G	G	G	G	X	F	X	X	G	—	—	G	—	G	G	G
Hydraulic Oils:																						
Straight Phosphate Ester	G	G	X	X	X	X	G	G	G	G	X	X	—	X	G	—	X	G	—	G	G	G
Phos. Ester/Petroleum Blend	G	G	X	X	X	X	G	G	G	X	X	X	—	X	G	—	X	G	—	G	G	G
Polyol Ester	G	G	—	G	G	X	G	G	—	X	—	X	—	G	G	—	—	G	—	G	G	G
Hydrobromic Acid (under 48%)	G	G	G	X	X	X	G	G	X	G	G	X	X	X	G	G	G	X	G	X	X	X
Hydrochloric Acid	G	G	G	X	X	X	G	G	X	G	G	X	X	X	G	G	G	X	G	X	X	X
Hydrocyanic Acid	G	G	G	F	F	X	G	G	X	F	G	X	X	—	X	G	G	X	F	X	F	G
Hydrofluoric Acid (under 50%)	G	G	F	X	X	X	G	G	X	F	G	X	X	X	X	G	F	X	G	X	X	G
Hydrofluoric Acid (over 50%)	G	G	X	X	X	X	G	G	X	X	G	X	X	X	X	G	X	X	G	X	X	G
Hydrofluosilicic Acid	G	G	G	F	F	X	G	G	X	G	G	X	—	—	G	—	G	X	—	X	X	X
Hydrogen	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	F	—	—	F	—	—	G
Hydrogen Peroxide	F	F	—	X	X	X	G	G	X	F	X	X	—	—	G	X	G	X	F	X	X	G
Hydrogen Sulfide	G	G	G	X	X	X	G	G	X	X	F	X	G	—	X	G	G	X	G	F	F	F
Hydrolube	G	G	G	G	G	F	G	G	—	G	—	—	F	X	—	—	G	G	—	G	G	G
Iodine	F	F	X	F	X	X	G	G	X	G	G	X	—	X	G	X	X	X	X	X	X	X
Isocyanates	G	X	X	X	X	X	G	—	X	X	X	X	X	X	X	—	X	X	—	—	—	—
Isopropyl Alcohol, Isopropanol	G	G	G	G	G	G	G	G	G	G	G	G	G	X	G	—	G	G	G	G	G	G
Isopropyl-amine	G	G	X	X	X	F	G	G	—	F	X	F	—	—	—	—	—	X	—	G	—	G
Iso-Octane	G	G	X	G	G	F	G	G	G	X	F	X	G	X	G	—	X	G	X	G	G	G
Jet Fuel (Transfer Only)	G	G	X	G	G	F	G	G	G	X	X	X	G	F	G	—	X	G	X	G	F	G

G - Good F - Fair X - Not Recommended

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This page is part of a complete catalog which contains technical and safety data that must be reviewed when selecting a product.

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Hydraulic Power & Control

Pneumatic Power & Control

Fluid Conveying

Miscellaneous Products

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Technical Information

Industrial Hose Chemical Compatibility



Chemical Resistance

Fluid	Hose and Tubing Material																			Metals		
	UHMW	XLPE	PVC	Nitrile	Vinyl Nitrile	Neoprene	Teflon (PTFE)	Teflon (FEP)	Nylon 6/6	EPDM	Hypalon	Natural Rubber/SBR	Hytel	Polyurethane	CPE	EVA	LLDPE	Nylon 11	PVC / PU Blends	Brass	Steel	316 Stainless
Kerosene	G	G	X	G	G	F	G	G	G	X	F	X	F	G	G	X	X	G	X	G	G	G
Lacquer	G	G	X	X	X	X	G	G	G	X	X	X	X	X	F	X	F	G	X	G	X	G
Lacquer Solvents	G	G	X	X	X	X	G	G	G	X	X	X	F	X	F	X	F	G	X	G	X	G
Lactic Acid	G	G	G	X	X	G	G	G	G	F	G	X	X	X	X	G	G	G	G	F	F	G
Lime Sulfur	G	G	G	X	X	G	G	G	F	G	F	F	—	—	—	G	G	G	G	X	—	G
Lindol	G	G	—	X	X	X	G	G	G	G	X	X	—	X	—	—	—	G	X	F	G	G
Linseed Oil	G	G	G	G	G	X	G	G	G	X	F	X	F	F	G	X	G	G	G	F	G	G
Lubricating Oils	G	G	G	G	G	F	G	G	G	X	F	X	G	F	G	X	G	G	G	G	G	G
Lye	G	G	G	F	F	G	G	G	F	G	G	G	—	X	F	—	G	G	—	F	X	G
Magnesium Chloride	G	G	G	G	G	G	G	G	G	G	G	G	—	G	G	G	G	G	G	F	F	G
Magnesium Hydroxide	G	G	G	F	F	G	G	G	G	G	F	G	—	X	G	G	G	G	G	G	G	G
Magnesium Sulfate	G	G	G	G	G	G	G	G	G	G	G	G	—	—	G	G	G	G	G	F	G	G
Mercuric Chloride	G	G	F	F	F	G	G	G	X	G	G	F	—	—	X	G	G	X	G	X	X	X
Mercury	G	G	F	G	G	G	G	G	G	G	G	F	G	G	G	G	G	G	G	X	G	G
Methyl Alc., Methanol	G	G	X	G	G	G	G	G	G	G	G	G	G	F	G	G	G	G	X	F	G	G
Methyl Acrylate	G	G	X	X	X	X	G	G	X	F	X	X	—	X	X	—	—	X	—	G	G	G
Methyl Bromide	X	X	X	X	X	X	G	G	F	X	X	X	X	X	X	X	X	G	X	G	G	G
Methyl Chloride	G*	G*	X	X	X	X	G	G	G	X	X	X	X	X	F	X	X	G	X	G	G	G
Methylene Chloride	G*	G*	X	X	X	X	G	G	F	X	X	X	X	X	X	X	X	F	X	G	G	G
Methyl-t-Butyl Ether (MTBE)	G	G	X	F	F	X	G	G	G	X	X	X	—	—	G	—	—	G	—	—	G	G
Methyl Ethyl Ketone	G	G	X	X	X	X	G	G	G	F	X	X	G	X	X	X	G	G	X	G	G	G
Methyl Iso-butyl Ketone	G	G	X	X	X	X	G	G	G	F	X	X	—	X	X	X	G	G	X	G	G	G
Methyl Iso-propyl Ketone	G	G	X	X	X	X	G	G	G	F	X	X	—	X	X	—	G	G	X	G	G	G
Methyl Methacrylate	G	G	X	X	X	X	G	G	—	X	X	X	—	X	X	—	—	G	—	—	G	G
Mineral Oil	G	G	F	G	G	F	G	G	G	X	F	X	G	G	G	X	X	G	G	G	G	G
Mineral Spirits	G	G	X	G	G	F	G	G	G	X	X	X	G	F	G	—	G	G	—	G	G	G
Naphtha	G	G	X	F	F	F	G	G	G	X	X	X	G	F	G	X	G	G	X	F	G	G
Napthalene	G	G	X	X	X	X	G	G	G	X	X	X	F	F	G	X	X	G	X	F	G	G

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Chemical Resistance

Fluid	Hose and Tubing Material																		Metals			
	UHMW	XLPE	PVC	Nitrile	Vinyl Nitrile	Neoprene	Teflon (PTFE)	Teflon (FEP)	Nylon 6,6	EPDM	Hypalon	Natural Rubber/SBR	Hydrel	Polyurethane	CPE	EVA	LLDPE	Nylon 11	PVC / PU Blends	Brass	Steel	316 Stainless
Nickel Acetate	G	G	G	X	X	G	G	G	G	G	G	G	—	X	—	G	G	G	G	G	G	G
Nickel Chloride	G	G	G	G	G	F	G	G	G	G	G	G	X	X	G	G	G	G	G	X	X	F
Nickel Sulfate	G	G	G	G	G	F	G	G	G	G	G	G	—	F	G	G	G	G	G	X	X	G
Nitric Acid (under 35%)	G	F*	G	X	X	X	G	G	X	F	F	X	X	X	X	G	F*	X	G	X	X	G
Nitric Acid (35% to 60%)	F	X	F	X	X	X	G	G	X	X	X	X	X	X	X	X	X	X	G	X	X	G
Nitric Acid (over 60%)	X	X	X	X	X	X	G	G	X	X	X	X	X	X	X	X	X	X	G	X	X	G
Nitrobenzene	G	G	X	X	X	X	G	G	—	X	X	X	X	X	X	X	X	X	X	F	G	G
Nitrogen Gas ⬡	G	G	G	G	G	G	G	G	G	G	G	G	—	G	G	—	G	G	—	G	G	G
Nitrous Oxide	G	G	X	X	X	X	G	G	F	X	X	G	X	X	X	—	X	F	G	G	G	G
Oleic Acid	G	G	F	F	F	X	G	G	G	F	F	X	G	F	G	X	G	G	G	F	F	G
Oleum (Fuming Sulfuric Acid)	X	X	X	X	X	X	G	G	X	X	X	X	X	X	X	X	X	X	X	X	F	G
Oxalic Acid	G	G	G	X	X	X	G	G	X	G	X	X	X	—	G	G	G	X	G	F	X	G
Oxygen (non-breathing, non-welding) ⬡	G	G	G	F	F	G	G	G	G	G	G	F	G	G	G	G	G	G	G	G	G	G
Ozone (300 ppm)	F	F	X	X	X	X	G	G	X	G	G	X	X	G	G	X	X	X	X	—	F	G
Paint (Solvent Base)	G	G	X	F	F	X	G	G	G	X	X	X	—	X	—	—	F	G	—	G	G	G
Palmitic Acid	G	G	F	F	F	F	G	G	G	F	X	X	G	X	G	F	G	G	F	X	F	F
Paper Mill Liquors	G	G	X	F	F	F	G	G	X	G	F	F	X	X	—	—	X	X	—	—	—	—
Pentane	G	G	X	G	G	F	G	G	—	X	F	X	G	X	G	—	X	G	X	G	G	G
Perchloroethylene	G*	G*	X	X	X	X	G	G	G	X	X	X	X	X	X	—	F	X	F	F	G	G
Petroleum Ether	G	G	X	G	F	X	G	G	G	X	X	X	—	G	G	X	X	G	F	G	G	G
Petroleum Oils	G	G	G	G	G	F	G	G	G	X	F	X	G	G	G	—	G	G	—	G	G	G
Phenol	G	G	X	X	X	X	G	G	X	X	X	X	X	—	G	X	X	X	X	F	X	F
Phosphoric Acid (to 85%)	G	G	G	X	X	F	G	G	X	G	G	F	X	X	X	G	G	X	G	X	X	F
Picric Acid (Molten)	X	X	X	X	X	X	G	G	X	X	F	X	X	X	X	G	X	X	X	X	X	F
Picric Acid (Solution)	G	G	X	F	F	X	G	G	X	F	G	X	X	F	X	G	X	X	X	X	X	F
Potassium Chloride	G	G	G	G	G	G	G	G	G	G	G	G	—	G	G	G	G	G	G	F	X	G

G - Good F - Fair X - Not Recommended

— - Insufficient Information

*For Intermittent Transfer Only

**Use Approved Freon Hose

◊ Use Pinpricked hose for gas applications

Hydraulic Power & Control

Pneumatic Power & Control

Fluid Conveying

Miscellaneous Products

Indexes & Technical Information



Technical Information

Industrial Hose Chemical Compatibility



Chemical Resistance

Fluid	Hose and Tubing Material																			Metals		
	UHMW	XLPE	PVC	Nitrile	Vinyl Nitrile	Neoprene	Teflon (PTFE)	Teflon (FEP)	Nylon 6/66	EPDM	Hypalon	Natural Rubber/SBR	Hydrel	Polyurethane	CPE	EVA	LLDPE	Nylon 11	PVC / PU Blends	Brass	Steel	316 Stainless
Potassium Cyanide	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	F	G	G	F	X	G	G
Potassium Dichromate	G	G	G	X	X	X	G	G	—	G	X	X	—	G	G	G	G	F	G	X	G	G
Potassium Hydroxide	G	G	G	F	F	F	G	G	F	G	G	G	F	X	G	G	G	G	G	F	X	G
Potassium Permanganate	G	G	G	X	X	X	G	G	X	G	G	G	X	X	—	X	G	X	G	—	—	—
Potassium Sulfate	G	G	G	G	G	G	G	G	G	G	G	G	—	G	G	G	G	G	G	F	F	G
Propane Liquid***	—	—	—	G	—	—	—	G	—	—	—	—	—	—	—	X	—	—	—	G	G	G
Propylene Glycol	G	G	F	G	F	G	G	G	—	G	G	G	G	—	G	G	G	G	—	F	G	G
Pyridine	G	G	X	X	X	X	G	G	X	F	X	X	X	X	X	—	G	X	—	F	G	G
Sea Water	G	G	G	G	G	G	G	G	G	G	G	G	G	X	G	G	G	G	G	G	F	G
Silver Nitrate	G	G	G	G	G	G	G	G	G	G	G	G	—	G	—	G	G	G	G	X	X	F
Skydrol	G	G	X	X	X	X	G	G	G	G	X	X	—	X	G	—	X	G	—	G	G	G
Soap Solution	G	G	G	G	G	F	G	G	G	G	G	X	G	G	G	G	X	G	G	G	G	G
Sodium Bicarbonate	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	F	F	G
Sodium Bisulfate	G	G	G	G	G	G	G	G	G	G	G	G	X	G	G	G	G	G	G	F	F	F
Sodium Bisulfite	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	F	X	G
Sodium Borate	G	G	G	G	G	G	G	G	G	G	G	G	G	G	—	—	G	G	—	G	G	G
Sodium Carbonate	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	X	G	G
Sodium Chloride	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	X	F	G
Sodium Cyanide	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	X	F	G
Sodium Hydroxide	G	G	G	F	F	G	G	G	F	G	G	G	—	X	F	G	G	G	F	F	X	G
Sodium Hypochlorite	G	G	G	X	X	X	G	G	X	G	G	X	G	X	F	G	G	X	G	X	X	F
Sodium Nitrate	G	G	G	G	G	F	G	G	G	G	G	G	G	F	G	G	G	G	G	F	G	G
Sodium Perborate	G	G	G	G	G	X	G	G	F	G	X	G	G	X	X	—	G	G	—	F	F	G
Sodium Peroxide	G	G	X	F	F	F	G	G	X	G	F	X	G	X	X	—	X	G	—	X	F	G
Sodium Phosphates	G	G	G	G	G	F	G	G	G	G	G	G	G	G	X	G	G	G	G	F	F	F
Sodium Silicate	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	F	F	G

G - Good F - Fair X - Not Recommended — - Insufficient Information

*For Intermittent Transfer Only

**Use Approved Freon Hose

***Use Propane Approved Hose Only

◆ Use Pinpricked Hose for Gas Applications



Technical Information

Industrial Hose Chemical Compatibility

Chemical Resistance

Fluid	Hose and Tubing Material																			Metals		
	UHMW	XLPE	PVC	Nitrile	Vinyl Nitrile	Neoprene	Teflon (PTFE)	Teflon (FEP)	Nylon 6/66	EPDM	Hypalon	Natural Rubber/SBR	Hytrel	Polyurethane	CPE	EVA	LLDPE	Nylon 11	PVC / PU Blends	Brass	Steel	316 Stainless
Sodium Sulfate	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	F	F	G
Sodium Sulfide	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	X	X	G
Sodium Thiosulfate	G	G	G	G	G	G	G	G	G	G	G	G	—	G	G	G	G	G	G	X	X	G
Soybean Oil	G	G	F	G	G	F	G	G	—	F	G	X	G	G	G	—	G	G	—	G	G	G
Stannic Chloride	G	G	G	G	G	X	G	G	X	G	G	G	G	G	G	G	G	F	G	X	X	X
Steam 450°F	X	X	X	X	X	X	G	G	X	G	X	X	X	X	X	—	X	X	—	F	F	G
Stearic Acid	G	G	F	F	F	F	G	G	G	F	F	X	G	G	G	G	G	G	F	X	X	G
Stoddard Solvent	G	G	X	G	G	F	G	G	G	X	X	X	G	G	G	X	X	G	G	G	G	G
Styrene	G*	G*	X	X	X	X	G	G	G	X	X	X	X	X	X	—	X	G	X	G	G	G
Sulfur 70°F	G	G	F	X	X	G	G	G	G	G	G	X	G	F	G	G	G	G	G	X	X	G
Sulfur 200°F	X	X	X	X	X	X	G	G	X	X	G	X	X	X	X	—	X	X	—	X	X	G
Sulfur Chloride	G	G	X	X	X	X	G	G	X	X	F	X	X	X	G	—	G	X	—	X	X	X
Sulfur Dioxide	X	X	X	X	X	X	G	G	X	G	X	X	X	X	X	X	X	X	F	X	—	G
Sulfuric Acid (under 50%)	G	G	G	X	X	X	G	G	X	G	G	X	X	X	X	G	G	X	G	X	X	X
Sulfuric Acid (51% to 70%)	G	G	G	X	X	X	G	G	X	F	G	X	X	X	X	X	X	X	F	X	X	X
Sulfuric Acid (71% to 95%)	G	F	X	X	X	X	G	G	X	F	F	X	X	X	X	X	X	X	G	X	X	X
Sulfuric Acid (96% to 98%)	G	X	X	X	X	X	G	G	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Tannic Acid	G	G	G	F	F	F	G	G	X	G	G	G	G	G	G	G	G	X	G	F	X	G
Tar	X	X	X	F	F	F	G	G	G	X	X	X	G	F	F	—	X	X	—	F	F	G
Tartaric Acid	G	G	G	G	G	F	G	G	G	G	G	G	—	G	G	G	G	G	G	F	X	F
Tetrachloro-ethane	G*	G*	X	X	X	X	G	G	—	X	X	X	X	X	X	—	F	F	X	—	—	G
Tetrahydro-furan (THF)	G	G	X	X	X	X	G	G	—	X	X	X	—	X	—	X	X	G	X	—	—	G
Toluene	G*	G*	X	X	X	X	G	G	G	X	X	X	X	X	X	X	G*	G	X	G	G	G
Transmission Oil (Petrol. Base)	G	G	G	G	G	F	G	G	G	X	F	X	G	G	G	X	G	G	—	G	G	G
Trichloro-ethane	G*	G*	X	X	X	X	G	G	G	X	X	X	X	X	X	—	G*	F	—	G	G	G
Trichloro-ethylene	G*	G*	X	X	X	X	G	G	G	X	X	X	X	X	X	X	G*	F	—	G	G	G
Tung Oil	G	G	—	G	G	F	G	G	—	X	F	X	G	F	X	—	—	G	—	F	G	G
Turpentine	G	G	X	F	F	X	G	G	G	X	X	X	F	X	F	X	G	G	G	F	G	G
Urea (Water Solution)	G	G	G	X	X	G	G	G	G	G	G	G	G	G	G	G	G	G	G	—	G	G

G - Good F - Fair X - Not Recommended — - Insufficient Information *For Intermittent Transfer Only **Use Approved Freon Hose
 ***Use Propane Approved Hose Only ◇ Use Pinpricked Hose for Gas Applications



Technical Information

Industrial Hose Chemical Compatibility



Chemical Resistance

Fluid	Hose and Tubing Material																		Metals			
	UHMW	XLPE	PVC	Nitrile	Vinyl Nitrile	Neoprene	Teflon (PTFE)	Teflon (FEP)	Nylon 6/66	EPDM	Hypalon	Natural Rubber/SBR	Hytel	Polyurethane	CPE	EVA	LLDPE	Nylon 11	PVC / PU Blends	Brass	Steel	316 Stainless
Uric Acid	G	G	G	—	—	—	G	G	G	—	—	—	X	X	—	G	G	G	G	—	—	F
Varnish	G	G	X	X	X	X	G	G	G	X	X	X	—	X	F	X	G	G	X	G	G	G
Vegetable Oil (Non-food)	G	G	F	G	G	X	G	G	G	X	G	X	—	G	—	X	G	G	G	G	G	G
Vinegar	G	G	G	F	F	G	G	G	X	G	G	F	—	X	F	G	G	G	—	X	F	G
Vinyl Acetate	G	G	X	X	X	X	G	G	—	F	X	X	—	X	—	X	—	G	X	F	G	G
Water (non-potable)	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	F	F	G
Water—Glycol Mixture	G	G	X	G	G	G	G	G	G	G	X	F	X	X	G	G	—	G	G	G	G	G
Water—Petroleum Mixture	G	G	—	G	G	F	G	G	G	X	F	X	G	X	G	G	F	G	G	G	G	G
Xylene	G*	G*	X	X	X	X	G	G	G	X	X	X	F	X	X	X	G*	G	X	G	G	G
Zinc Chloride	G	G	G	G	G	G	G	G	X	G	G	G	X	G	X	G	G	X	G	X	X	X
Zinc Sulfate	G	G	G	G	G	G	G	G	G	G	G	G	—	G	X	G	G	G	G	X	X	G
G - Good F - Fair X - Not Recommended — - Insufficient Information *For Intermittent Transfer Only **Use Approved Freon Hose ***Use Propane Approved Hose Only ◇ Use Pinpricked Hose for Gas Applications																						



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FLUID PRESSURE In Pounds per Square Inch	$\text{PRESSURE} = \frac{\text{FORCE (pounds)}}{\text{UNIT AREA (Sq.In.)}}$	$P = \frac{F}{A} \text{ or } \text{psi} = \frac{F}{A}$
CYLINDER AREA In Square Inches	$\text{AREA} = \pi \times \text{RADIUS}^2 \text{ (Inches)}$	$A = \pi r^2$
	$\text{AREA} = \frac{\pi \times \text{DIAMETER}^2}{4} \text{ (Inches)}$	$A = \frac{\pi D^2}{4} \text{ or } A = .785D^2$
CYLINDER FORCE In Pounds, Push or Pull	$\text{FORCE} = \text{PRESSURE (psi)} \times \text{NET AREA (Sq. In.)}$	$F = \text{psi} \times A \text{ or } F = PA$
CYLINDER VELOCITY or SPEED In Feet per Second	$\text{VELOCITY} = \frac{231 \times \text{FLOW RATE (gpm)}}{12 \times 60 \times \text{NET AREA (Sq. In.)}}$	$V = \frac{231Q}{720A} \text{ or } V = \frac{.3208Q}{A}$
CYLINDER VOLUME CAPACITY In Gallons of Fluid	$\text{VOLUME} = \frac{\pi \times \text{RADIUS}^2 \times \text{STROKE (Inches)}}{231}$	$V = \frac{\pi r^2 t}{231} \quad t = \text{stroke}$
	$\text{VOLUME} = \frac{\text{NET AREA (Sq. In.)} \times \text{STROKE (Inches)}}{231}$	$V = \frac{At}{231} \quad t = \text{stroke}$
CYLINDER FLOW RATE In Gallons per Minute	$\text{FLOWRATE} = \frac{12 \times 60 \times \text{VELOCITY (Ft/Sec)} \times \text{NET AREA (Sq.In)}}{231}$	$Q = \frac{720vA}{231} \text{ or } Q = 3.117vA$
FLUID MOTOR TORQUE In Inch Pounds	$\text{TORQUE} = \frac{\text{PRESSURE (psi)} \times \text{F.M.DISPLACEMENT (Cu.In./Rev.)}}{2\pi}$	$T = \frac{\text{psid}}{2\pi} \text{ or } T = \frac{Pd}{2\pi}$
	$\text{TORQUE} = \frac{\text{HORSEPOWER} \times 63025}{\text{RPM}}$	$T = \frac{63025HP}{n}$
	$\text{TORQUE} = \frac{\text{FLOW RATE (GPM)} \times \text{PRESSURE (psi)} \times 36.77}{\text{RPM}}$	$T = \frac{36.77QP}{n}$ or $T = \frac{36.77Qpsi}{n}$
FLUID MOTOR TORQUE Per 100 PSI In Inch Pounds	$\text{TORQUE per 100 psi} = \frac{\text{F.M.DISPLACEMENT (Cu.In./Rev.)}}{.0628}$	$T_{100psi} = \frac{d}{.0628}$
FLUID MOTOR SPEED In Revolutions per Minute	$\text{SPEED} = \frac{231 \times \text{FLOW RATE (GPM)}}{\text{F.M. DISPLACEMENT (Cu.In./Rev.)}}$	$n = \frac{231Q}{d}$
FLUID MOTOR POWER In Horsepower Output	$\text{HP OUTPUT} = \frac{\text{TORQUE OUTPUT (inch Pounds)} \times \text{RPM}}{63025}$	$HP = \frac{Tn}{63025}$
PUMP OUTLET FLOW In Gallons per Minute	$\text{FLOW} = \frac{\text{RPM} \times \text{PUMP DISPLACEMENT (Cu.In./Rev.)}}{231}$	$Q = \frac{nd}{231}$
PUMP INPUT POWER In Horsepower Required	$\text{HP INPUT} = \frac{\text{FLOW RATE OUTPUT (GPM)} \times \text{PRESSURE (psi)}}{1714 \times \text{EFFICIENCY (Overall)}}$	$HP = \frac{QP}{1714 \times \text{Eff}}$ or $\frac{\text{GPM} \times \text{psi}}{1714 \times \text{Eff}}$
FLOW RATE THROUGH PIPING In Feet per Second	$\text{VELOCITY} = \frac{.3208 \times \text{FLOW RATE THROUGH I.D. (GPM)}}{\text{INTERNAL AREA (Square Inches)}}$	$v = \frac{.3208Q}{A}$
COMPRESSIBILITY OF OIL In Additional Required Oil to Reach Pressure	$\text{Additional Oil Volume} = \frac{\text{Pressure (psi)} \times \text{Volume of Oil Under Pressure}}{250,000}$	$V = \frac{PV}{250,000}$ (Approx. 1/2% per 1000 psi)



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