



Tubing Products

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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

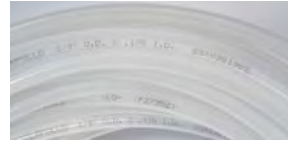
Tubing Support Clamps: page 1269

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	

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

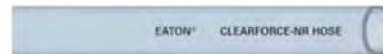
Fitting Attachment: Pinch Clamps page 1023. Worm Gear Clamps page 1022

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.

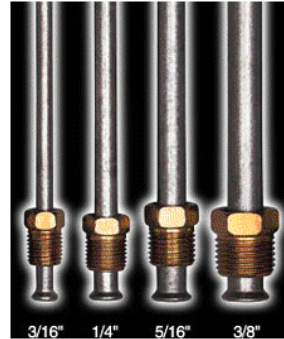
Operating Temperature Range: +15°F to +150°F

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.

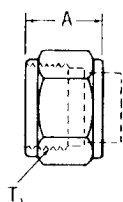
Steel Brake Line Assemblies

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

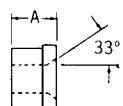
Steel

Flare & Inverted Flare Nuts, Flare Sleeves



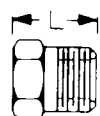
1290

JIC 37° Flare Nut
(Use with 900605 Tube Sleeve)



900605

JIC 37° Flare Sleeve
(Use with 1290 Flare Nut)



2105

Inverted Flare Tube Nut

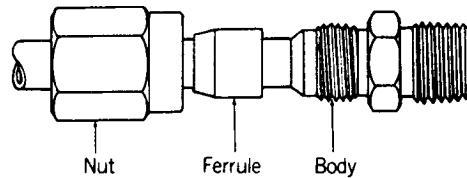
Catalog Part No.	Aeroquip Model	Tube O.D. (in)	A (in)	B (in)	Wt.	Price Each
•C1AJ77	1290-3S	0.19	0.6	0.44	0.01	
•C1AJ78	1290-4S	0.25	0.62	0.56	0.04	
•C1AJ79	1290-5S	0.31	0.67	0.62	0.05	
•C1AJ80	1290-6S	0.38	0.72	0.69	0.05	
•C1AJ81	1290-8S	0.50	0.84	0.88	0.06	
•C1AJ72	1290-10S	0.63	0.97	1.0	0.09	
•C1AJ73	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.

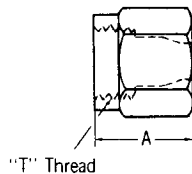
De burring: All cut tubes should be deburred, both internally and externally.

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.

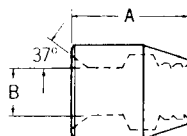
Re-Use: The Versil Flare™ flareless tube fitting is designed for a minimum of 10 reassemblies.



FC2875

Versil Flare™ F 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	



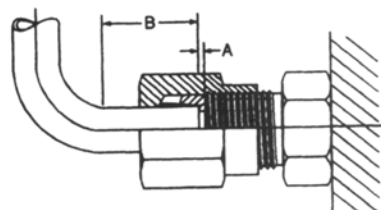
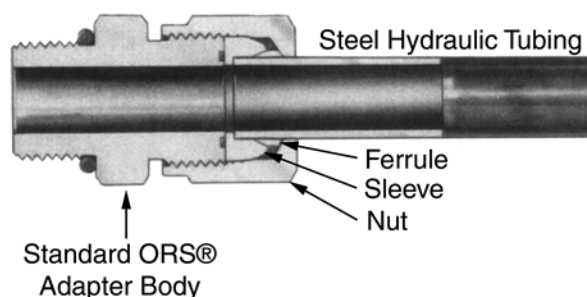
FF9605

Versil Flare™ F 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).

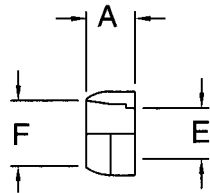
Assembly Instructions for ORS-TF® Tube Fittings:

- 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

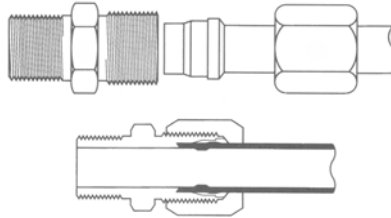
Fluid Conveying

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.

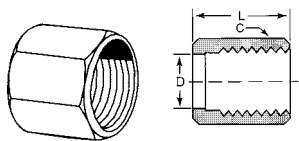
Material: AISI/SAE 12L14 carbon steel with exclusive Weathercote® finish, which fully resists the effects of nonflammable hydraulic fluids.

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.

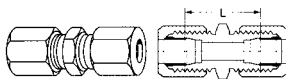
Conformance: Meets specifications and standards of ASA, ASME and SAE.

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	



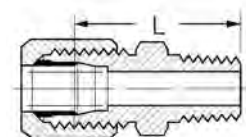
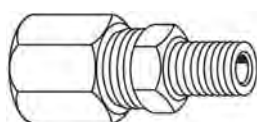
7305
Small Hex Union

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

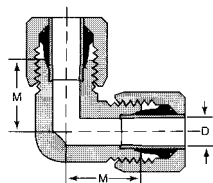
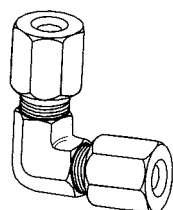
Steel Flareless Fittings - 7000 Series Ermeto®

EATON
Powering Business Worldwide



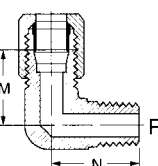
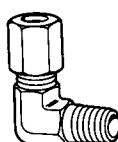
7205
Male Pipe Connector

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	



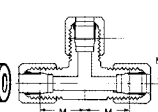
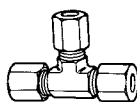
7505
90° Union Elbow

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



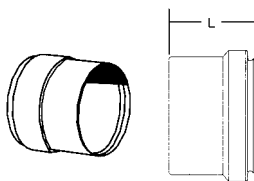
Material: Forged Bodies: 12L14, Straight Bodies: 12L14, Cold Formed Nuts: C1110, Bar Stock Nut: 12L14, Flareless Sleeves: 12L14.

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.

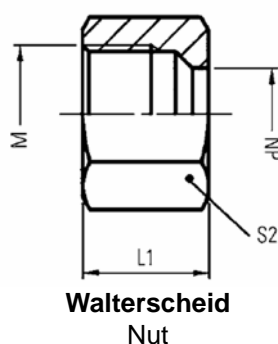
Construction: Forged or drawn high quality steel.

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.

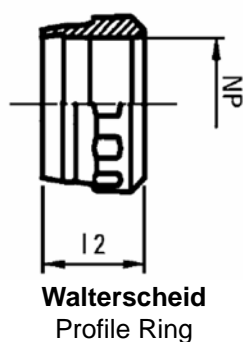
Operating Temperature Range: Up to 120°C.

Tubing: Metric Steel Tubing page 1037

Application: For your particular application, please review the Important Safety Information starting on page 1519



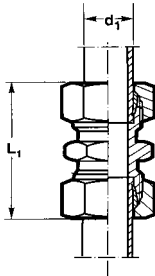
Catalog Part No.	Eaton Walterscheid Model	Tube O.D. (mm)	Series	Maximum Operating Pressure (bar)	Thread Size M (mm)	Wt.	Price Each
C1MM30	WAL039838	4	LL	100	M 8x1.0	0.01	
C1MC87	WAL039840	6	LL	100	M 10x1.0	0.01	
C1KW99	WAL039842	6	L	500	M 12x1.5	0.02	
C1KX18	WAL039852	6	S	800	M 14x1.5	0.04	
C1KX11	WAL039843	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	

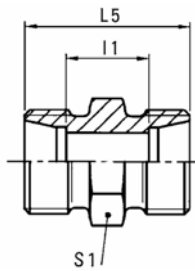
1 millimeter = 0.03937 inches 1 bar = 14.5 psi °F = (°C x 1.8) + 32

Steel Metric Flareless Fittings



111 / 112
Straight Coupling

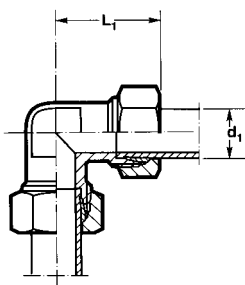
Catalog Part No.	Voss Model	Tube O.D. D1 (mm)	Series	Maximum Operating Pressure (bar)	L1 (mm)	Wt.	Price Each
•C1AH76	112-001	6	L	250	39	0.08	
•C1ER54	112-501	6	S	630	45	0.14	
•C1AH77	112-051	8	L	250	40	0.11	
•C1ER55	112-551	8	S	630	47	0.19	
•C1AH78	112-101	10	L	250	42	0.14	
•C1ER73	112-601	10	S	630	49	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

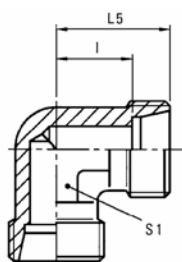
Catalog Part No.	Voss Model	Tube O.D. D1 (mm)	Series	Maximum Operating Pressure (bar)	L1 (mm)	Wt.	Price Each
•C1AJ36	120-101	10	L	250	30	0.21	
•C1AJ40	120-251	18	L	160	23.5	0.53	

1 millimeter = 0.03937 inches 1 bar = 14.5 psi °F = (°C x 1.8) + 32

Tube Fittings

Steel Metric Flareless Fittings

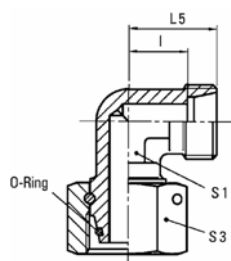
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Walterscheid
Elbow Union Connector
(Body Only)

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	

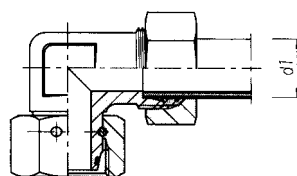
Note: Order Nuts and Profile Ring separately. See page 1056



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



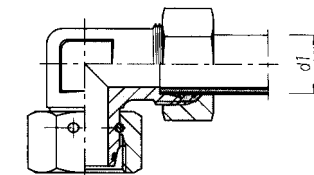
Companion Fitting
(not included)
goes here

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

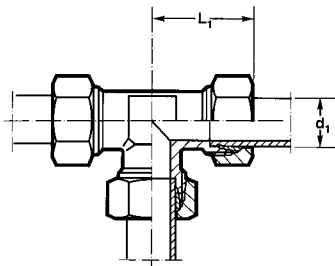


Companion Fitting
(not included)
goes here

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	

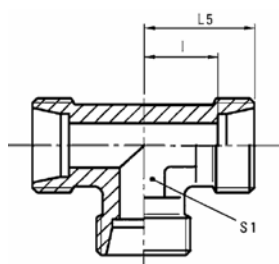
Note: Part Numbers beginning with WAL are manufactured by Eaton Walterscheid.

1 millimeter = 0.03937 inches 1 bar = 14.5 psi °F = (°C x 1.8) + 32

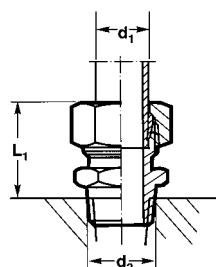
Tube Fittings

Steel Metric Flareless Fittings

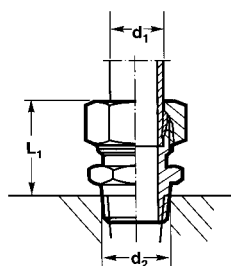
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Walterscheid
Equal Tee
(Body Only)



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

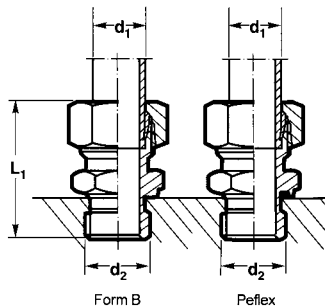
Catalog Part No.	Voss Model	Tube O.D. D1 (mm)	Series	Maximum Operating Pressure (bar)	Thread Size D2 (mm)	L1 (mm)	Wt.	Price Each
•C1AG89	104-001	6	L	250	R 1/8 K	24.5	0.05	
•C1AG91	104-051	8	L	250	R 1/4 K	27	0.09	
•C1AH27	104-151	12	L	250	R 3/8 K	28.5	0.14	
•C1AH28	104-201	15	L	250	R 1/2 K	30.5	0.22	
•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	

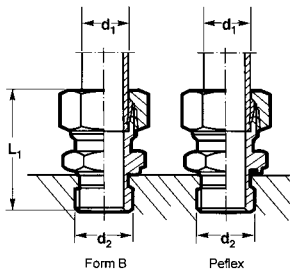
Note: Part Numbers beginning with WAL are manufactured by Eaton Walterscheid.

1 millimeter = 0.03937 inches 1 bar = 14.5 psi °F = (°C x 1.8) + 32

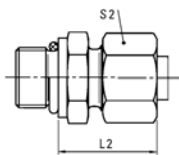
Steel Metric Flareless Fittings



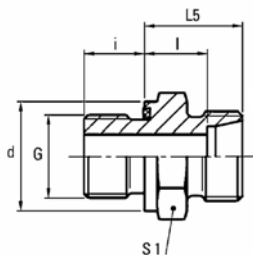
109 / 184
Male Stud Coupling



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	

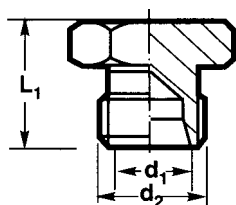
Note: Order Nuts and Profile Ring separately. See page 1056

1 millimeter = 0.03937 inches 1 bar = 14.5 psi °F = (°C x 1.8) + 32

Tube Fittings



Steel Metric Flareless Fittings

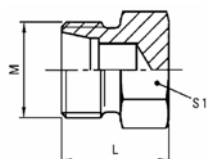


793
Tube Plug

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	

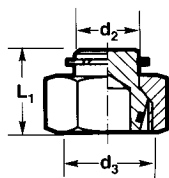
Note: 9203S is Adaptall model.

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



Steel Metric Flareless Fittings



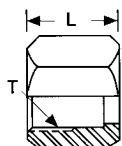
**Walterscheid
Cap**

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

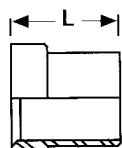
Tube Fittings

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	

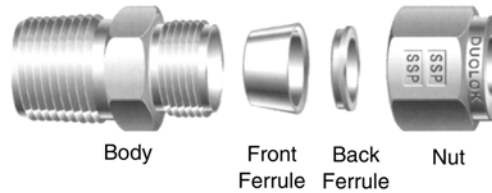


J-S
JIC 37° Flare Sleeve

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.

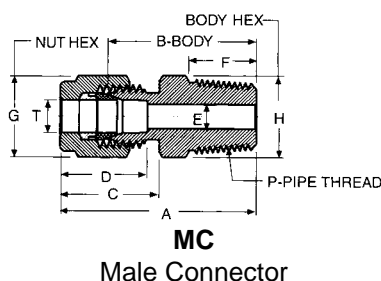
Temperature Factors: Duolok® tube fittings function reliably in an extremely wide range of operating temperatures. Elevated temperatures will reduce the maximum working pressure capability of the tubing system. For applications at elevated temperatures, contact us for application assistance.

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

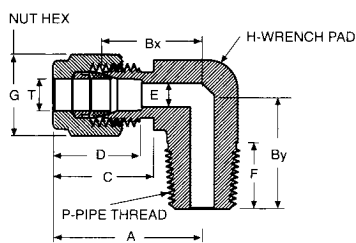
Assembly Instructions & Technical Information: page 1321 Also, please review the Important Safety Information starting on page 1519



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	

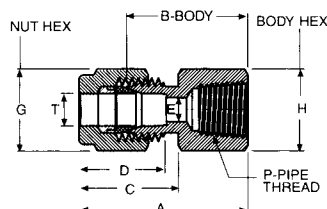
Tube Fittings

316 Stainless Steel SSP Duolok® Tube Fittings (Swagelok® Interchange)



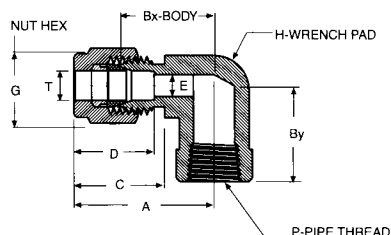
ME
Male Elbow

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	



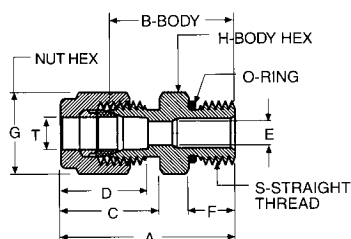
FC
Female Connector

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	

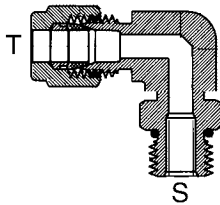


MCST
Male Connector Straight Thread O-Ring

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)

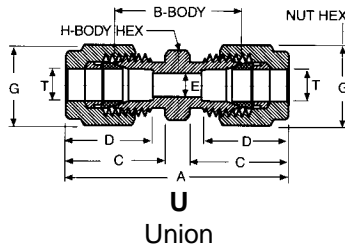


MEST

Male Connector Straight Thread O-Ring
90° Elbow

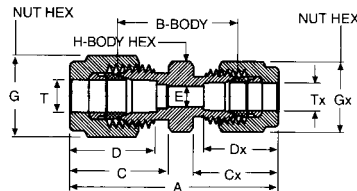
Catalog Part No.	SSP Model	Tube O.D. T (in)	Thread	Wt.	Price Each
•C1GB86	ISSD4MEST4	0.25	7/16-20	0.09	
•C1GB87	ISSD4MEST6	0.25	9/16-18	0.15	
•C1GD11	ISSD6MEST6	0.38	9/16-18	0.16	
•C1GB94	ISSD6MEST8	0.38	3/4-16	0.27	

Note: SAE O-Ring Boss O-Rings page 1267



U
Union

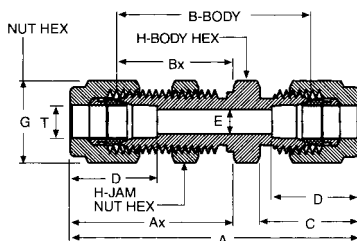
Catalog Part No.	SSP Model	Tube O.D. T (in)	A (in)	B (in)	E (in)	Wt.	Price Each
•C1FP17	ISSD4U	0.25	1.61	1.03	0.19	0.07	
•C1FP38	ISSD6U	0.38	1.77	1.19	0.28	0.11	
•C1FP59	ISSD8U	0.50	2.02	1.22	0.41	0.21	
•C1GF19	ISSD10U	0.63	2.05	1.25	0.50	0.25	
•C1FN88	ISSD12U	0.75	2.11	1.31	0.62	0.31	
•C1FQ90	ISSD16U	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	



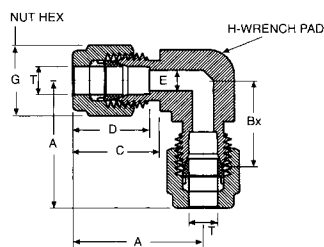
BU

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	

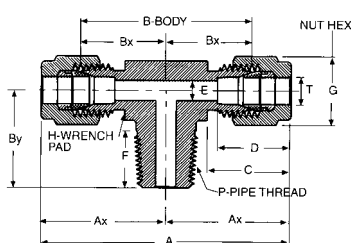
Tube Fittings

316 Stainless Steel SSP Duolok® Tube Fittings (Swagelok® Interchange)



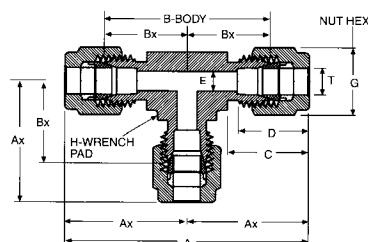
UE
Union Elbow

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	



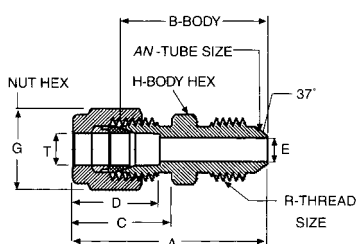
MBT
Male Branch Tee

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

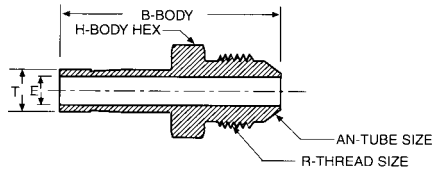
Catalog Part No.	SSP Model	Tube O.D. T (in)	A (in)	Ax (in)	B (in)	Bx (in)	E (in)	Wt.	Price Each
•C1FP19	ISSD4UT	0.25	2.12	1.06	1.54	0.77	0.19	0.14	
•C1FP40	ISSD6UT	0.38	2.40	1.20	1.82	0.91	0.28	0.22	
•C1FP61	ISSD8UT	0.50	2.84	1.42	2.04	1.02	0.41	0.40	
•C1KG14	ISSD12UT	0.75	3.14	1.57	2.34	1.17	0.62	1.36	
•C1KG19	ISSD16UT	1.00	3.86	1.93	2.90	1.45	0.88	0.75	



ANU
AN Union

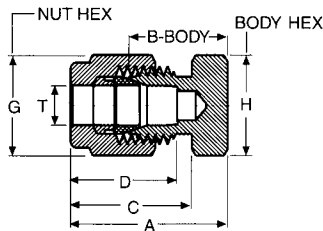
Catalog Part No.	SSP Model	Tube O.D. T (in)	Thread R	A (in)	B (in)	D (in)	E (in)	Wt.	Price Each
•C1FR25	ISSD4ANU4	0.25	7/16-20	1.48	1.19	0.60	0.17	0.06	
•C1FR32	ISSD6ANU6	0.38	9/16-18	1.56	1.27	0.66	0.28	0.09	
•C1GJ95	ISSD8ANU8	0.50	3/4-16	1.81	1.41	0.90	0.39	0.17	
•C1GJ89	ISSD12ANU12	0.75	1-1/16-12	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)



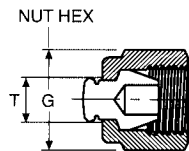
ANA
AN Adapter

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	



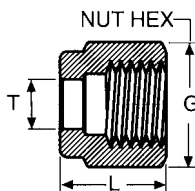
CP
Cap

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	

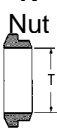


P
Plug

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



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

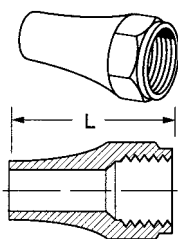
Miscellaneous Products

Indexes & Technical Information



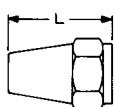
Tube Fittings

Brass Flare & Inverted Flare Nuts



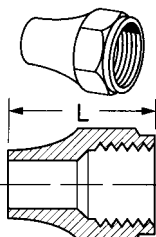
41

Flare Nut (Long)



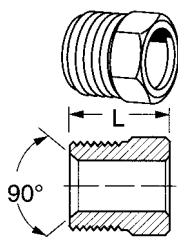
241

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	

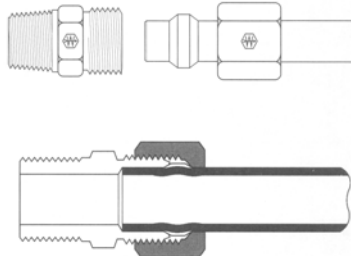
Catalog Part No.	Eaton Model	Tube O.D. (in)	L (in)	Wt.	Price Each
•C1HL48	100X3	0.19	0.56	0.01	
•C1HL49	100X4	0.25	0.56	0.01	
•C1HL50	100X5	0.31	0.62	0.02	
•C1HL51	100X6	0.38	0.66	0.03	

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.)

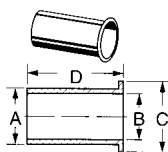
Material: CA360 Brass.

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

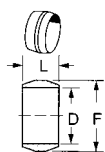
Tube Support for Plastic Tubing

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

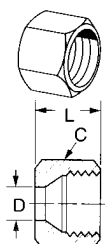
Compression Fittings - Plastic, Copper & Aluminum Tubing



60

Compression Sleeve

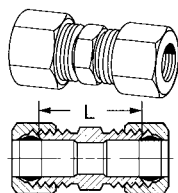
Catalog Part No.	Eaton Model	Tube O.D. (in)	D (in)	F (in)	L (in)	Wt.	Price Each
•C1HQ65	60X2	1/8	0.13	0.19	0.19	0.01	
•C1HQ66	60X3	3/16	0.19	0.27	0.22	0.01	
•C1HQ67	60x4	1/4	0.26	0.34	0.25	0.01	
•C1HQ68	60X5	5/16	0.32	0.41	0.25	0.01	
•C1HQ69	60X6	3/8	0.38	0.47	0.25	0.01	
•C1HQ70	60X8	1/2	0.51	0.59	0.38	0.01	
•C1HQ64	60X10	5/8	0.63	0.72	0.38	0.01	



61

Nut

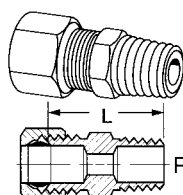
Catalog Part No.	Eaton Model	Tube O.D. (in)	C (in)	D (in)	L (in)	Wt.	Price Each
•C1HQ74	61X2	1/8	3/8	0.13	0.38	0.01	
•C1HQ75	61X3	3/16	7/16	0.19	0.41	0.01	
•C1HQ76	61X4	1/4	1/2	0.26	0.44	0.01	
•C1HQ77	61X5	5/16	9/16	0.32	0.44	0.02	
•C1HQ78	61X6	3/8	5/8	0.38	0.47	0.02	
•C1HQ79	61X8	1/2	13/16	0.51	0.62	0.05	
•C1HQ73	61X10	5/8	15/16	0.63	0.62	0.05	



62

(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	

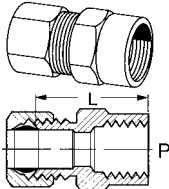


68

(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	

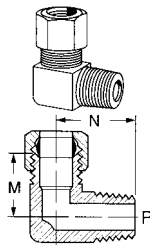
Brass Compression Fittings - Plastic, Copper & Aluminum Tubing



66

Female Connector

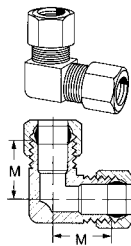
Catalog Part No.	Eaton Model	Tube O.D. (in)	Thread P	L (in)	Wt.	Price Each
•C1HQ95	66X2	1/8	1/8-27	0.75	0.04	
•C1HQ96	66X3	3/16	1/8-27	0.78	0.04	
•C1HQ97	66X4	1/4	1/8-27	0.78	0.05	
•C1HQ98	66X4X4	1/4	1/4-18	1.03	0.07	
•C1HQ99	66X6	3/8	1/4-18	1.06	0.08	
•C1HR11	66X8	1/2	3/8-18	1.12	0.12	



69

(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	



65

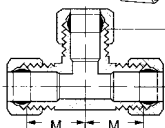
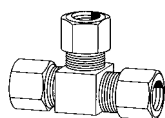
90° Union Elbow

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

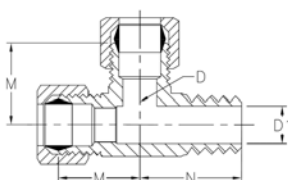
Compression Fittings - Plastic, Copper & Aluminum Tubing



64

Union Tee

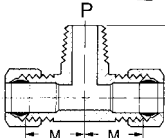
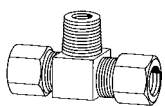
Catalog Part No.	Eaton Model	Tube O.D. (in)	M (in)	Wt.	Price Each
•C1HQ88	64X4	1/4	0.60	0.10	
•C1HQ89	64X6	3/8	0.73	0.15	



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		



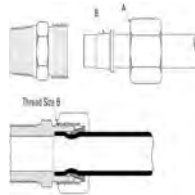
72

(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.)

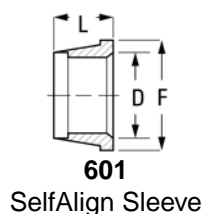
Material: CA360 Brass.

Used With: Aluminum, copper and plastic tubing. Plastic tubing, except for Eaton PT230 and TP160, requires the 2030x insert. Not recommended for steel tubing.

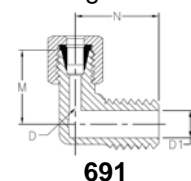
Features: Very low cost and reusable. Self aligning - no need to disassemble fitting to line up sleeve on tube. Easy to assemble, no flaring. Available with long or short nut. Broad selection of styles and sizes.

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.



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		

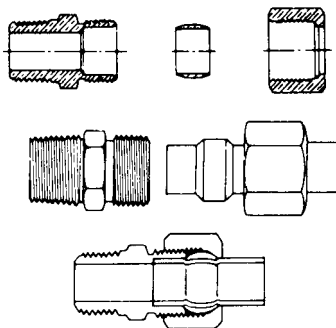


Catalog Part No.	Eaton Model	Tube Size	Male Pipe Thread	D (in)	D1 (in)	M (in)	N (in)	Wt.	Price Each
C1KV25	691X5	5/16	1/8-27	0.25	0.25	0.62	0.75	0.06	

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.



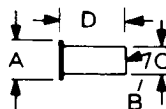
260
Sleeve

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	



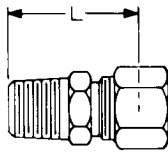
295
Insert

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

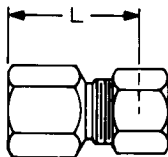
Brass Compression Fittings - Copper & Aluminum Tubing



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

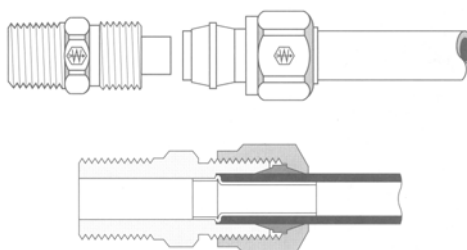
Indexes & Technical Information

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.

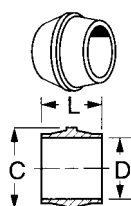
Features: Easy to assemble (no tube preparation or flaring required.) Built in tube support.

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.

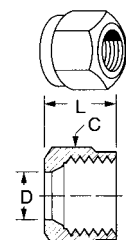
Reassembly: Push tubing and insert into fitting body until it bottoms. Thread nut onto fitting body and torque as in Step 4.



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	

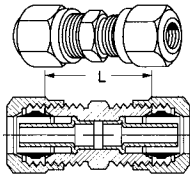


1461

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	

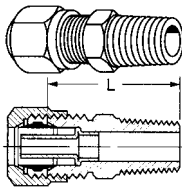
Brass DOT Approved Air Brake - Nylon Air Brake Tubing



1462

Union (Ref SAE 100101BA)

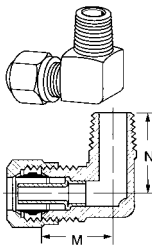
Catalog Part No.	Eaton Model	Tube O.D. (in)	L (in)	Wt.	Price Each
•C1HM80	1462X4	1/4	0.85	0.07	
•C1HM81	1462X6	3/8	1.10	0.10	
•C1HM82	1462X8	1/2	1.31	0.19	
•C1HM79	1462X10	5/8	1.43	0.25	



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)

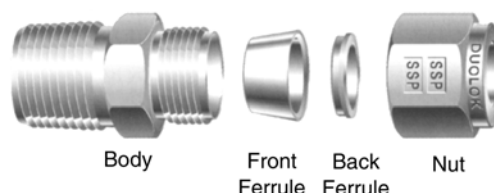
Catalog Part No.	Eaton Model	Tube O.D. (in)	Male Pipe Thread	M (in)	N (in)	Wt.	Price Each
•C1HH67	1469X4	1/4	1/8-27	0.63	0.67	0.06	
•C1HH68	1469x4x4	1/4	1/4-18	0.69	0.88	0.08	
•C1HH83	1469X6	3/8	1/4-18	0.80	0.93	0.10	
•C1HJ23	1469X6X6	3/8	3/8-18	0.85	0.92	0.14	
•C1JB26	1469X6X8	3/8	1/2-14	0.95	1.11	0.19	
•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.

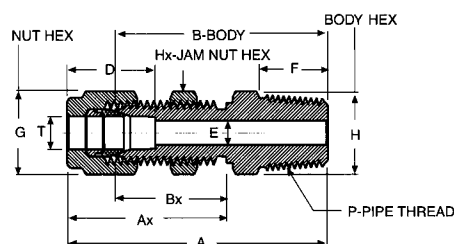
Temperature Factors: Duolok® tube fittings function reliably in an extremely wide range of operating temperatures. Elevated temperatures will reduce the maximum working pressure capability of the tubing system. For applications at elevated temperatures, contact us for application assistance.

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

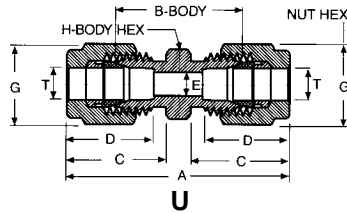
Catalog Part No.	SSP Model	Tube O.D. T (in)	Thread P	A (in)	Max Panel Thickness (in)	Panel Hole Drill Dia (in)	Wt.	Price Each
C1JB21	ISSD4BMC4	0.25	1/4-18	2.10	0.40	0.45	0.13	



Tube Fittings

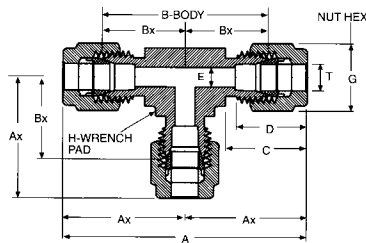
Brass SSP Duolok® Tube Fittings (Swagelok® Interchange)

SSP



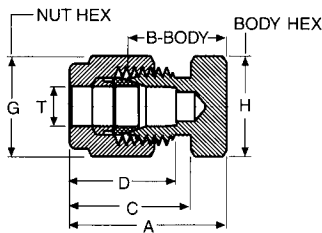
U
Union

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	



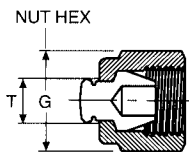
UT
Union Tee

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

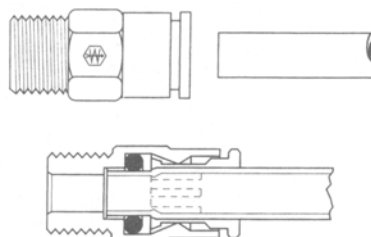
Indexes & Technical Information

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.)

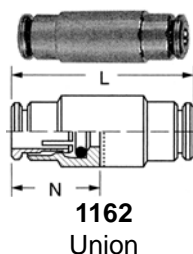
Temperature Range: -40°F to 200°F for these fittings. Also need to take into account when using a compatible plastic tubing, do not exceed the tubing temperature range. (Refer to tubing temperature range).

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.



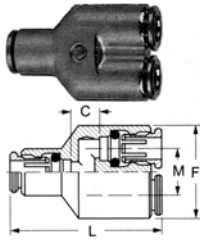
Catalog Part No.	Eaton Model	Tube O.D. (in)	L (in)	N (in)	Wt.	Price Each
•C1HL63	1162X2	1/8	1.26	0.59	0.03	
•C1HL64	1162X2.5	5/32	1.18	0.55	0.02	
•C1HL65	1162X4	1/4	1.40	0.64	0.04	
•C1HY44	1162X5	5/16	1.23	0.69	0.05	
•C1HL67	1162X6	3/8	1.67	0.79	0.09	
•C1HL69	1162X8	1/2	1.75	0.83	0.09	



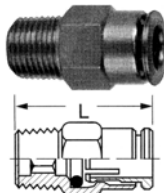
Catalog Part No.	Eaton Model	Tube O.D. (in)	B (in)	L (in)	Max (in)	Wt.	Price Each
•C1HM64	1174X4	1/4	M14 x 1	1.40	0.37	0.06	
•C1HM65	1174X6	3/8	M18 x 1	1.67	0.47	0.12	
•C1HM66	1174X8	1/2	M20 x 1	1.75	0.53	0.12	

Brass

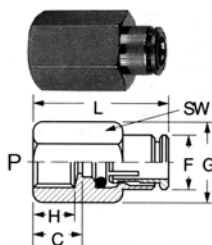
Push > Connect® Tube Fittings - Nylon & Polyethylene Tubing



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	

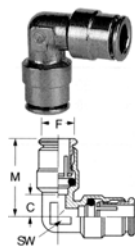
Note: Models with Z suffix have sealant on threads.

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

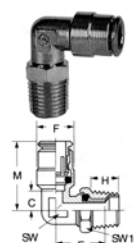
Catalog Part No.	Eaton Model	Tube O.D. (in)	F (in)	M (in)	Wt.	Price Each
•C1HL83	1165X4	1/4	0.50	0.91	0.04	
•C1HY46	1165X5	5/16	0.59	0.98	0.06	
•C1HL84	1165X6	3/8	0.69	1.12	0.10	
•C1HL85	1165X8	1/2	0.77	1.22	0.11	



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	

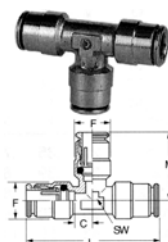


1169S

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.



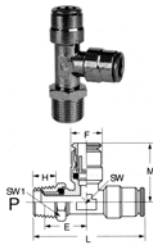
1164

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	

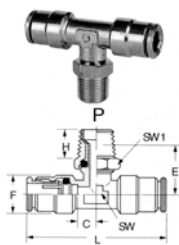
Brass

Push > Connect® Tube Fittings - Nylon & Polyethylene Tubing



1171S

Swivel Male Run Tee



1172S

Swivel Male Branch Tee

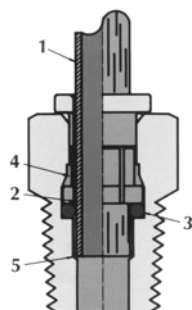
Catalog Part No.	Eaton Model	Tube O.D. (in)	Thread P	F (in)	L (in)	M (in)	Wt.	Price Each
•C1HM55	1171X4X4S	1/4	1/4-18	0.46	1.79	0.89	0.08	
•C1HM56	1171X6X6S	3/8	3/8-18	0.64	2.26	1.10	0.16	

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.

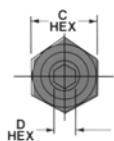
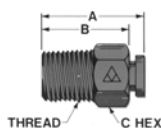
Construction: Brass construction (Elbows and tees are forged brass). Buna-N O-rings are standard.

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.

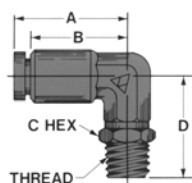
Tubing: Polyethylene Tubing page 1039 Polyurethane Tubing (90 durometer and over), Polybutylene Tubing and soft metal tubing.

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

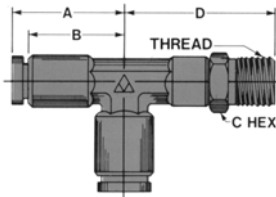
Swivel Male Elbow

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.

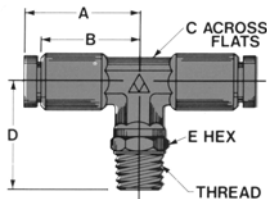
Catalog Part No.	Alkon Model	Tube O.D. (in)	Pipe Thread	A (in)	B (in)	D (in)	Wt.	Price Each
•C1CK23	AQ69-PS-3X2	0.19	1/8-27	0.89	0.75	1.17	0.05	
•C1CK31	AQ69-PS-6X4	0.38	1/4-18	1.08	0.94	1.45	0.11	

Brass Push-In Tube Fittings - Polyethylene & Nylon Tubing



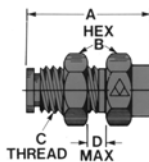
AQ71-PS
Swivel Male Run Tee

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	



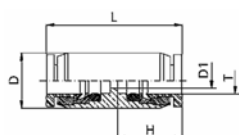
AQ86-P
Female Bulkhead Union

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

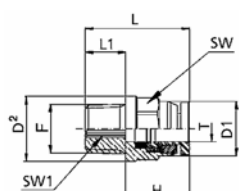
Brass Push Tube Fittings

numatics



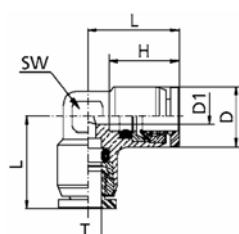
INB100
Union

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		

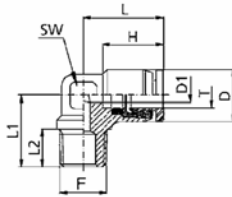


INB106
Union Elbow

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		

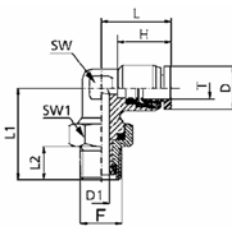
Brass Push Tube Fittings

NUMATICS



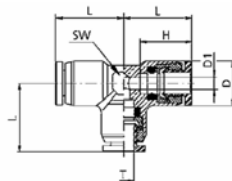
INB107
Fixed Elbow

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		

Hydraulic Power & Control

Pneumatic Power & Control

Fluid Conveying

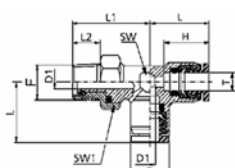
Miscellaneous Products

Indexes & Technical Information

Tube Fittings

Brass Push Tube Fittings

NUMATICS



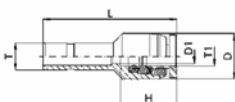
INB116
Swivel Run Tee

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		



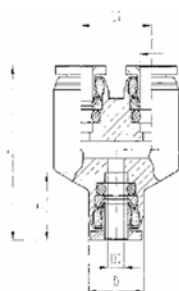
IN118
Plug

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

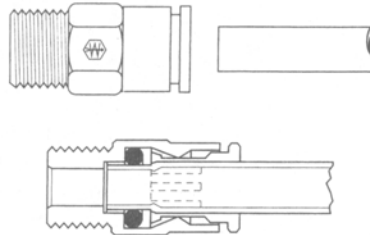
Catalog Part No.	Numatics Model	Tube O.D. (T)	L	H	L1	D	D1	Wt.	Price Each
•C1LC55	INB131-532-000	5/32	1.280	0.492	0.512	0.394	0.118		
•C1LC54	INB131-104-000	1/4	1.398	0.531	0.598	0.472	0.157		



Brass

Push > Connect® Metric Tube Fittings - Metric Nylon & Polyethylene Tubing **EAT•N** Powering Business Worldwide

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.

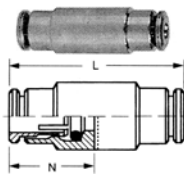
Sealing Method: O-Ring of Buna-N Construction. (Viton® available on request by special order.)

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.

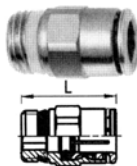
Features: Ease of assembly. No tools required, reusability of fittings and the time savings of assembly and disassembly.

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)

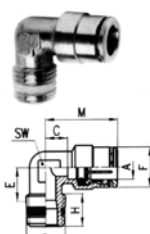
Catalog Part No.	Eaton Model	Tube O.D. (mm)	BSP Thread Size D	F (mm)	L (mm)	Wt.	Price Each
•C1HM13	1168X4MX2PT	4	1/8-28	8.8	18.0	0.02	
•C1HM14	1168X4MX4PT	4	1/4-19	8.8	19.5	0.03	
•C1HM18	1168X6MX2PT	6	1/8-28	11.7	20.5	0.02	
•C1HM19	1168X6MX4PT	6	1/4-19	9.8	20.0	0.03	
•C1HM23	1168X8MX4PT	8	1/4-19	13.7	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

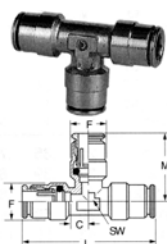
EATON
Powering Business Worldwide



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

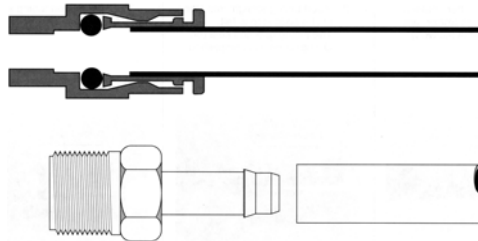
Union Tee

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.

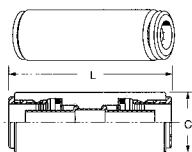
Nylon Air Brake Tubing:

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.

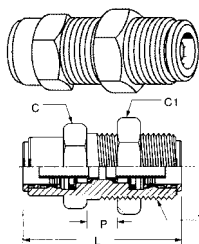
Disassembly: 1. Check to be sure there isn't any air pressure. 2. Depress collet head using fingers or Eaton tube release tool to release grip on tubing. 3. With the collet depressed, pull the tubing from the fitting.



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

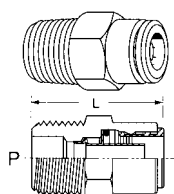
Quick Connect Bulkhead Union (Ref SAE AA0601)
(Ref SAE AA0601)

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

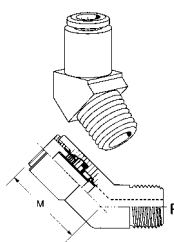
Quick > Connect® Air Brake - Nylon Air Brake Tubing



1868

Male Connector (Ref SAE AA0102)

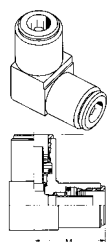
Catalog Part No.	Eaton Model	Tube O.D. (in)	Thread P	L (in)	Wt.	Price Each
•C1HN16	1868X2.5X1	5/32	1/16	0.92	0.01	
•C1HN17	1868X4	1/4	1/8-27	0.95	0.03	
•C1HN18	1868X4X4	1/4	1/4-28	1.18	0.05	
•C1HN19	1868X4X6	1/4	3/8-18	1.27	0.07	
•C1HN21	1868X6X2	3/8	1/8-27	1.33	0.08	
•C1HN20	1868X6	3/8	1/4-18	1.29	0.07	
•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)

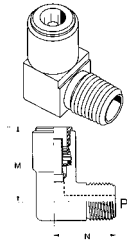
Catalog Part No.	Eaton Model	Tube O.D. (in)	M (in)	Wt.	Price Each
•C1HN13	1865X8	1/2	1.24	0.16	



Tube Fittings

Brass

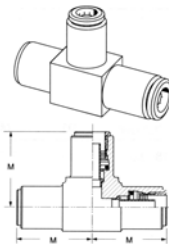
Quick > Connect® Air Brake - Nylon Air Brake Tubing



1869S

Swivel 90° Male Elbow
(Ref SAE AA02DD)

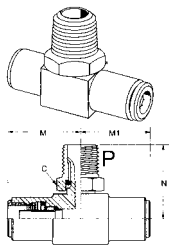
Catalog Part No.	Eaton Model	Tube O.D. (in)	Thread P	M (in)	N (in)	Wt.	Price Each
•C1HN29	1869X4S	1/4	1/8-27	0.89	0.88	0.06	
•C1HN30	1869X4X4S	1/4	1/4-18	0.99	1.06	0.09	
•C1HN31	1869X4X6S	1/4	3/8-18	0.98	1.06	0.11	
•C1HN33	1869X6X2S	3/8	1/8-27	1.03	0.97	0.10	
•C1HN32	1869X6S	3/8	1/4-18	1.10	1.14	0.14	
•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	

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Pneumatic Power & Control

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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	

Hydraulic Power & Control

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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

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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



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

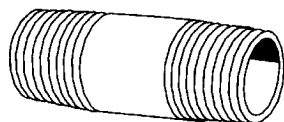
Miscellaneous Products

Indexes & Technical Information

Pipe Nipples, Steel

Steel

Schedule 40 Pipe Nipples



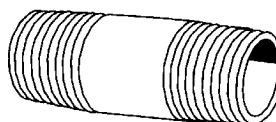
Schedule 40 Pipe Nipples

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

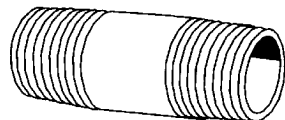
Indexes & Technical Information



Pipe Nipples, Brass

Brass

Brass Pipe Nipples



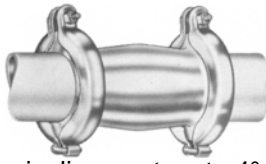
Brass Pipe Nipples

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	



Flexmaster® Pipe & Tube Joints

Joints for Rigid Pipe

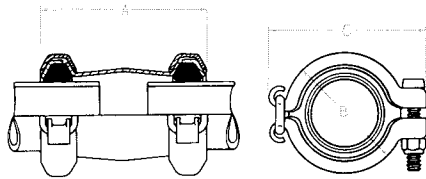


Styles Available: Flexmaster® joints are available in both standard and self-restrained styles. The self-restrained style has a stainless steel gripping ring inside each gasket. This feature allows the joint to maintain a firm grip on the pipe or tube, preventing movement along the pipe or tube.

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.

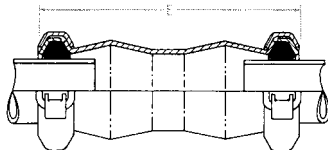


NH1600 / NH1650
Straight

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)

Hydraulic Power & Control

Pneumatic Power & Control

Fluid Conveying

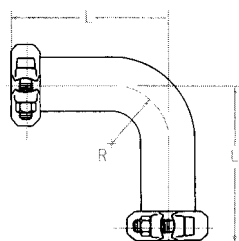
Miscellaneous Products

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Flexmaster® Pipe & Tube Joints

Joints for Rigid Pipe

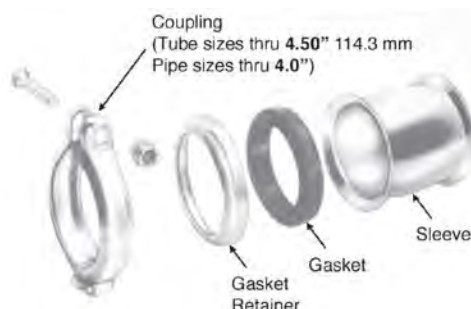


NH1602 / NH1652
90° Long Elbow

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)

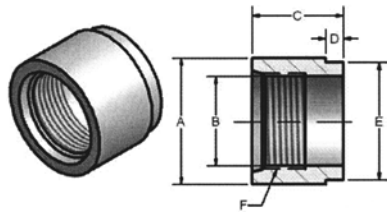


Standard (Un-Restrained) Style

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	

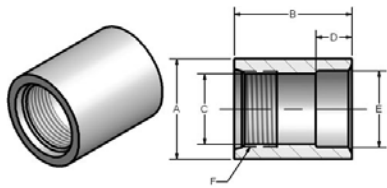
Steel Weld Couplings



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	