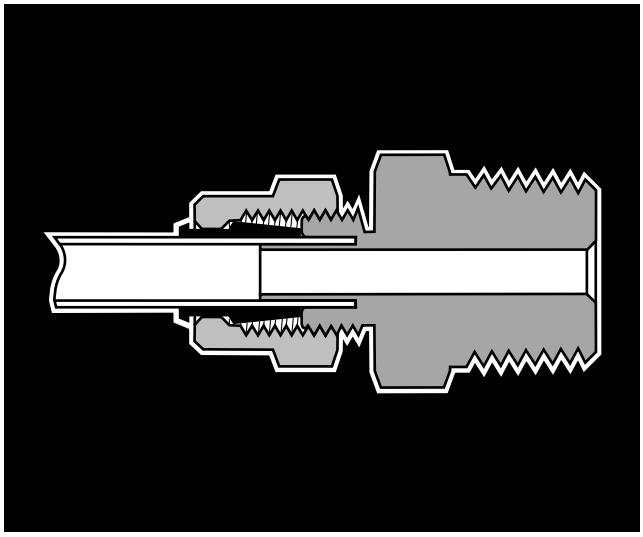
Parker Pneumatic

Fittings & Tubing

Section F

F



Advantages

A compact brass compression fitting designed to speed any installation. Body, nut and sleeve are furnished preassembled, ready for installation. An exclusive acetal copolymer sleeve holds plastic tubing where it belongs, even when the system pressure exceeds the tubing burst point. P fitting sleeves have superior resilience to resist creeping and stress caused from compression. The black acetal copolymer sleeve also resists ultra-violet ray attack and has excellent dimensional stability. P fitting nuts will rotate around the sleeve as it tightens to prevent twisting and weakening of the plastic tubing. P fittings can be assembled and disassembled repeatedly.

Materials

Elbows and Tees: Brass Forgings: CA 377

Connectors, Unions, Nuts: CA 360, CA 345

Plastic Sleeves: Acetal Copolymer (Celcon®).

Applications

Use with Parker or other high-quality thermoplastic tubing for pneumatic instrumentation circuits, lubricant and coolant lines, and applications with other gases and liquids. For use with soft metal tubing and nylon thermoplastic tubing, use brass sleeve and nut assembly 61PB.

Working Pressure and Temperature Ranges

Up to 150 PSI from 0° to 150°F with thermoplastic tubing. Up to 300 PSI from 0° to 175°F with soft metal tubing.

Assembly Instructions

Polyethylene, polyproplene and vinyl tubing:

1. Cut tubing squarely – maximum of 15° angle allowable.
2. Check that port or mating part is clean and free of debris.
3. Insert tube end until it bottoms in the fitting and tighten knurl / hex nut finger tight – plus one wrench turn.

Copper, aluminum and nylon tubing:

Brass sleeves are recommended. Insert tube until it bottoms in the P fitting and tighten one wrench turn past finger-tight.

Maximum allowable metal tube wall thickness for use with P fittings:

1/8", 3/16", O.D. — no limitation, 1/4" O.D. — .035" 5/16", 3/8", 1/2" O.D. — .049".

Nomenclature

Part numbers are constructed from symbols that identify the style and size of the fitting. The first series of numbers and letters identifies the style and type fitting. The second series of numbers describes the size.

Example:

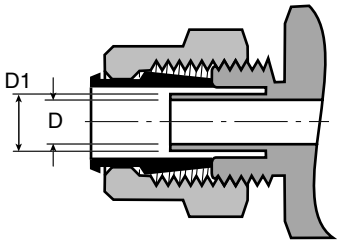
66	P	-4	-2
Female Connector (Tube to female pipe)	P Fitting	1/4" (4/16) Tube O.D.	1/8" (2/16) Pipe Thread

Sizes

Tube sizes are determined by the number of sixteenths of an inch in the tube O.D.

Tube Support O.D.

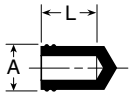
Tube Size Inches	*D1 Tube Support O.D.
1/4	.168
5/16	.185
3/8	.248
1/2	.373



*Note: No tube support for sizes 1/8" and 3/16".

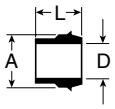
59P Plastic Cap

Part No.	Tube Size	A	L
59P-4	1/4	.247	.50
59P-5	5/16	.307	.53
59P-6	3/8	.372	.56
59P-8	1/2	.497	.63



60P Acetal Plastic Sleeve

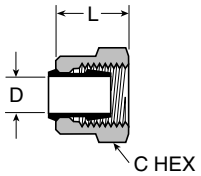
Part No.	Tube Size	A	D	L
60P-4	1/4	.334	.261	.338
60P-5	5/16	.405	.321	.340
60P-6	3/8	.465	.381	.367
60P-8	1/2	.628	.514	.399



61P Nut and Sleeve Assembly

Part No.	Tube Size	Straight Thread	C Hex	D	L
61P-2*	1/8	5/16-24	3/8	.130	.34
61P-3*	3/16	3/8-24	7/16	.192	.37
61P-4	1/4	3/8-24	7/16	.261	.38
61P-5	5/16	7/16-24	1/2	.321	.34
61P-6	3/8	1/2-24	9/16	.380	.38
61P-8	1/2	11/16-20	3/4	.514	.44

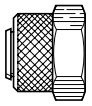
*Brass Sleeve

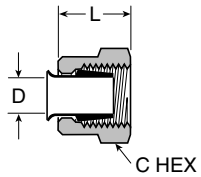


61PB* Nut and Sleeve Assembly

Part No.	Tube Size	Straight Thread	C Hex	D	L
61PB-4	1/4	3/8-24	7/16	.255	.38
61PB-5	5/16	7/16-24	1/2	.318	.34
61PB-6	3/8	1/2-24	9/16	.382	.38
61PB-8	1/2	11/16-20	3/4	.507	.44

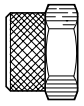
*Brass Sleeve

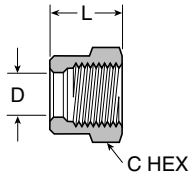




61PN Nut

Part No.	Tube Size	Straight Thread	C Hex	L
61PN-2	1/8	5/16-24	3/8	.34
61PN-3	3/16	3/8-24	7/16	.37
61PN-4	1/4	3/8-24	7/16	.38
61PN-5	5/16	7/16-24	1/2	.34
61PN-6	3/8	1/2-24	9/16	.38
61PN-8	1/2	11/16-20	3/4	.44

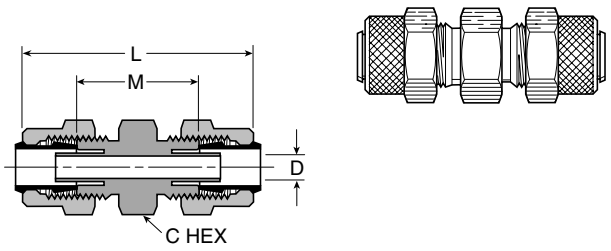




62P Union

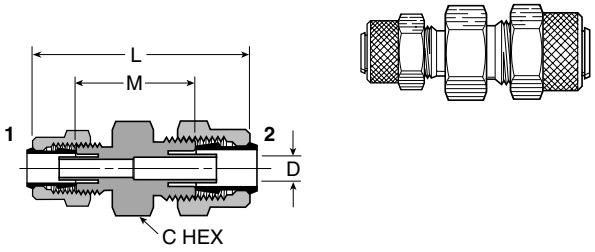
Part No.	Tube Size	Straight Thread	C Hex	L	M	Flow Dia. D
62P-2*	1/8	5/16-24	5/16	1.08	.64	.094
62P-3*	3/16	3/8-24	3/8	1.16	.73	.125
62P-4	1/4	3/8-24	3/8	1.17	.96	.125
62P-5	5/16	7/16-24	7/16	1.16	.96	.144
62P-6	3/8	1/2-24	1/2	1.23	.99	.204
62P-8	1/2	11/16-20	11/16	1.47	1.24	.323

*Brass Sleeve, No Tube Support



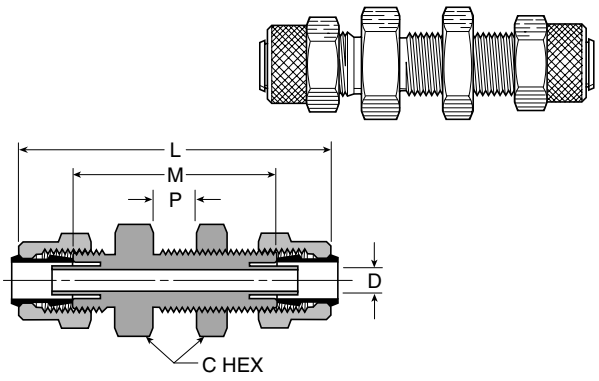
62P Union Reducer

Part No.	1 Tube Size	2 Tube Size	1 Straight Thread	2 Straight Thread	C Hex	L	M	Flow Dia. D
62P-6-4	1/4	3/8	3/8-24	1/2-24	1/2	1.22	.99	.125



62PBH Bulkhead Union

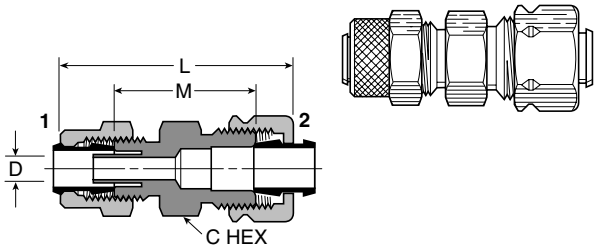
Part No.	Tube Size	Straight Thread	C Hex	P Max.	L	M	Bulkhead Hole Dia.	Flow Dia. D
62PBH-4	1/4	3/8-24	9/16	.38	1.75	1.53	3/8	.125
62PBH-5	5/16	7/16-24	5/8	.38	1.71	1.52	7/16	.144
62PBH-6	3/8	1/2-24	11/16	.47	1.89	1.65	1/2	.204
62PBH-8	1/2	11/16-20	7/8	.63	2.28	2.05	11/16	.323



62PCA Union

(Tube to CA Fitting)

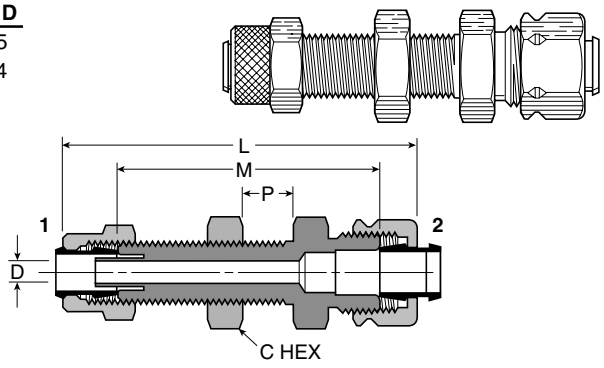
Part No.	Tube Size	1 Straight Thread	2 Straight Thread	C Hex	L	M	Flow Dia. D
62PCA-4	1/4	3/8-24	7/16-24	7/16	1.25	.89	.125
62PCA-5	5/16	7/16-24	1/2-24	1/2	1.30	.92	.144
62PCA-6	3/8	1/2-24	9/16-24	9/16	1.37	.98	.204



62PCABH Bulkhead Union

(Tube to CA Fitting)

Part No.	Tube Size	1 Straight Thread	2 Straight Thread	C Hex	P Max.	L	M	Bulkhead Hole Dia.	Flow Dia. D
62PCABH-4	1/4	3/8-24	7/16-24	9/16	.38	1.81	1.45	3/8	.125
62PCABH-6	3/8	1/2-24	9/16-24	11/16	.47	2.03	1.64	1/2	.204



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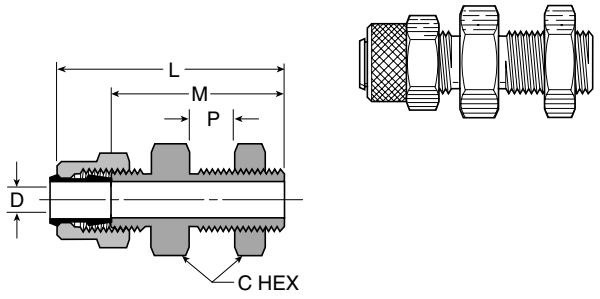
62PTBH Bulkhead Union

(Straight Through)

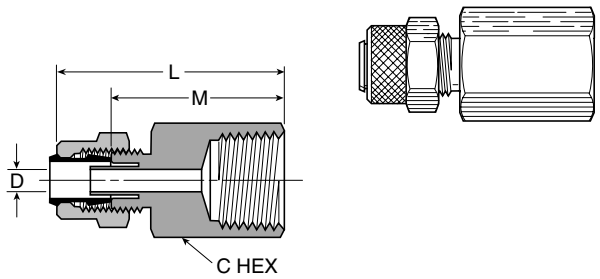
Part No.	Tube Size	Straight Thread	C Hex	P Max.	L	M	Bulkhead Hole Dia.	Flow Dia. D
62PTBH-4	1/4	3/8-24	9/16	.31	1.19	.93	3/8	.260
62PTBH-5	5/16	7/16-24	5/8	.31	1.19	.93	7/16	.323
62PTBH-6	3/8	1/2-24	11/16	.34	1.26	.99	1/2	.387



66P Female Connector

Part No.	Tube Size	Pipe Thread	Straight Thread	C Hex	L	M	Flow Dia. D
66P-2-2*	1/8	1/8	5/16-24	9/16	.97	.75	.094
66P-3-2*	3/16	1/8	3/8-24	9/16	1.00	.78	.125
66P-3-4*	3/16	1/4	3/8-24	11/16	1.18	.96	.125
66P-4-2	1/4	1/8	3/8-24	1/2	.97	.86	.125
66P-4-4	1/4	1/4	3/8-24	5/8	1.18	1.07	.125
66P-5-2	5/16	1/8	7/16-24	1/2	.97	.86	.144
66P-6-4	3/8	1/4	1/2-24	5/8	1.18	1.07	.204
66P-8-6	1/2	3/8	11/16-20	13/16	1.31	1.20	.323

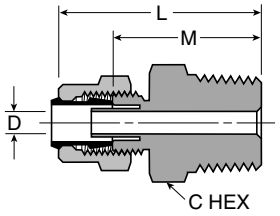
*Brass Sleeve, No Tube Support

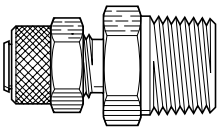


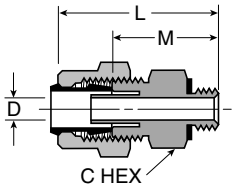
68P Male Connector

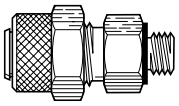
Part No.	Tube Size	Pipe Thread	Straight Thread	C Hex	L	M	Flow Dia. D
68P-2-1*	1/8	1/16	5/16-24	11/32	1.00	.78	.094
68P-2-2*	1/8	1/8	5/16-24	7/16	.99	.77	.094
68P-3-1	3/16	1/16	3/8-24	7/16	1.09	.84	.094
68P-3-2*	3/16	1/8	3/8-24	7/16	1.06	.84	.125
68P-3-4*	3/16	1/4	3/8-24	9/16	1.25	1.03	.125
68P-4-1	1/4	1/16	3/8-24	3/8	1.06	.95	.125
68P-4-2	1/4	1/8	3/8-24	7/16	1.06	.95	.125
68P-4-4	1/4	1/4	3/8-24	9/16	1.25	1.14	.125
68P-4-6	1/4	3/8	3/8-24	11/16	1.28	1.17	.125
68P-5-2	5/16	1/8	7/16-24	7/16	1.05	.95	.144
68P-5-4	5/16	1/4	7/16-24	9/16	1.24	1.14	.144
68P-6-2	3/8	1/8	1/2-24	1/2	1.10	.98	.204
68P-6-4	3/8	1/4	1/2-24	9/16	1.29	1.17	.204
68P-6-6	3/8	3/8	1/2-24	11/16	1.29	1.17	.204
68P-8-4	1/2	1/4	11/16-20	11/16	1.46	1.29	.320
68P-8-6	1/2	3/8	11/16-20	11/16	1.37	1.29	.323
68P-2-10 x 32*	1/8	10-32	5/16-24	3/8	.86	.64	.094
68P-4-10 x 32	1/4	10-32	3/8-24	3/8	.86	.75	.094

*Brass Sleeve, No Tube Support





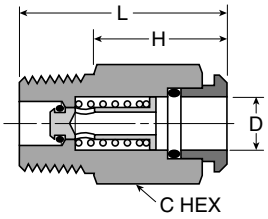


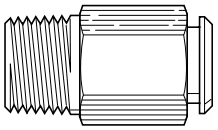


391P Pipe Coupler Body

(Chrome Plated)

Part No.	D Insert Dia.	Pipe Thread	C Hex	H	L
391P-4-2	1/4	1/8	1/2	.91	1.29
391P-4-4	1/4	1/4	9/16	.73	1.29
391P-6-4	3/8	1/4	5/8	.85	1.41

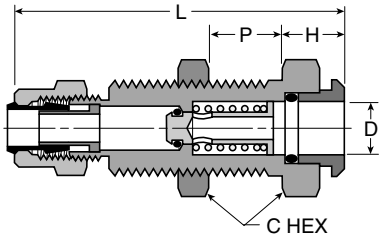


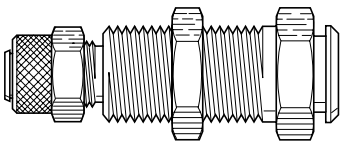


392P Bulkhead Coupler Body

(Chrome Plated)

Part No.	Tube Size	D Insert Dia.	Straight Thread	C Hex	P Max.	H	L	Bulkhead Hole Dia.
392P-4-4	1/4	1/4	1/2-24	5/8	.84	.39	2.13	1/2
392P-6-6	3/8	3/8	11/16-24	13/16	.93	.37	2.01	11/16

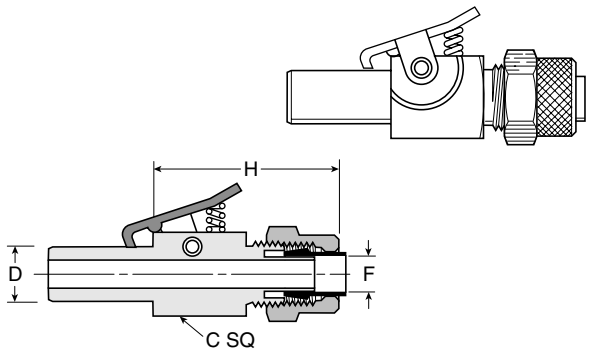




393P Through Type Insert

(Chrome Plated)

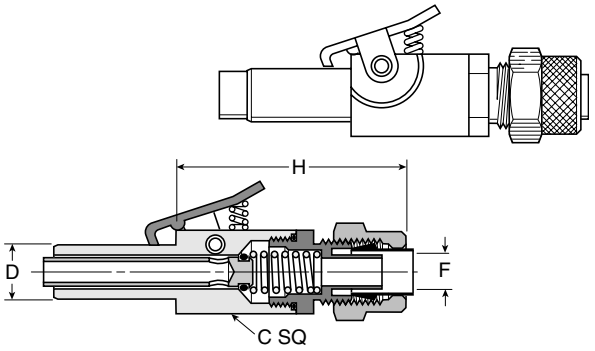
Part No.	Tube Size	D Insert Dia.	Straight Thread	C Square	H	Flow Dia. F
393P-4-4	1/4	1/4	3/8-24	7/16	1.12	.125
393P-6-6	3/8	3/8	1/2-24	1/2	1.34	.203



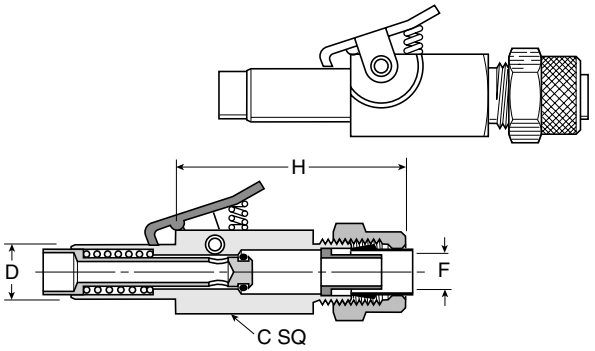
393PD Shut-off Type Insert

(Chrome Plated)

Part No.	Tube Size	D Insert Dia.	Straight Thread	C Square	H	Flow Dia. F
393PD-4-4	1/4	1/4	3/8-24	7/16	1.61	.110
393PD-6-6	3/8	3/8	1/2-24	1/2	1.45	.187



393PD-4-4



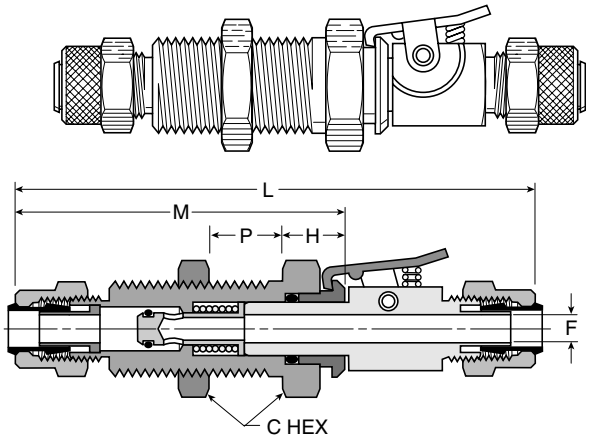
393PD-6-6

394P Single End Shut-off Bulkhead Quick Coupler‡

(Chrome Plated)

Part No.	Tube Size	Straight Thread	C Hex	P Max.	H	L	M	Bulkhead Hole Dia.	Flow Dia. F
394P-4-4	1/4	1/2 - 24	5/8	.84	.39	3.28	2.13	1/2	.125
394P-6-6	3/8	11/16-24	13/16	.93	.37	3.41	2.01	11/16	.203

‡ Same as 392P-*-* and 393P-*-* Assembled.

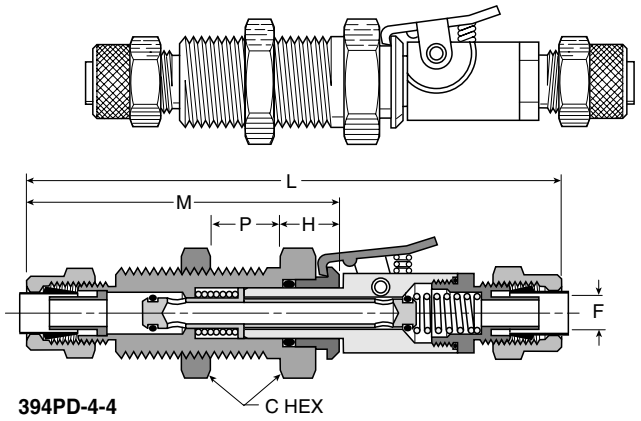


394PD Double End Shut-off Bulkhead Quick Coupler‡

(Chrome Plated)

Part No.	Tube Size	Straight Thread	C Hex	P Max.	H	L	M	Bulkhead Hole Dia.	Flow Dia. F
394PD-4-4	1/4	1/2-24	5/8	.84	.39	3.77	2.13	1/2	.125
394PD-6-6	3/8	11/16-24	13/16	.93	.47	3.48	2.01	11/16	.204

‡ Same as 393PD-*-* and 392P-*-* Assembled.



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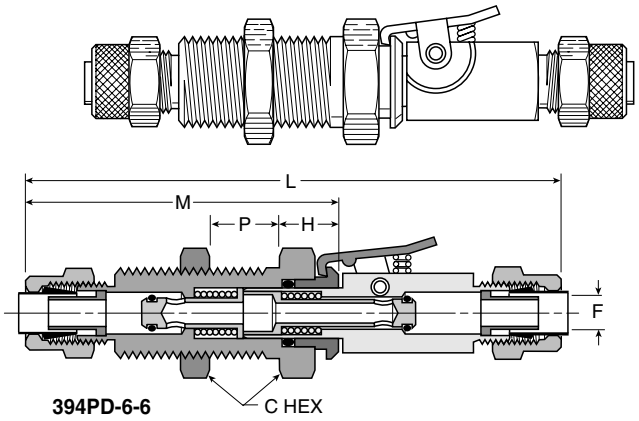


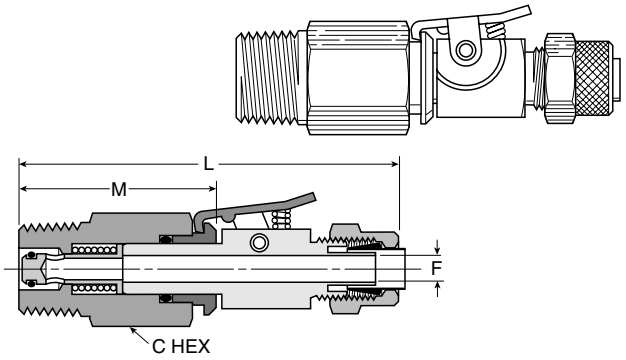
394PD-6-6

398P Single End Shut-off Pipe Connector Quick Coupler‡

(Chrome Plated)

Part No.	Tube Size	Pipe Thread	Straight Thread	C Hex	L	M	Flow Dia. F
398P-4-2	1/4	1/8	3/8-24	1/2	2.45	1.32	.125
398P-4-4	1/4	1/4	3/8-24	9/16	2.45	1.32	.125
398P-6-4	3/8	1/4	1/2-24	5/8	2.80	1.46	.203

‡ Same as 391P-*-* and 393P-*-* Assembled.

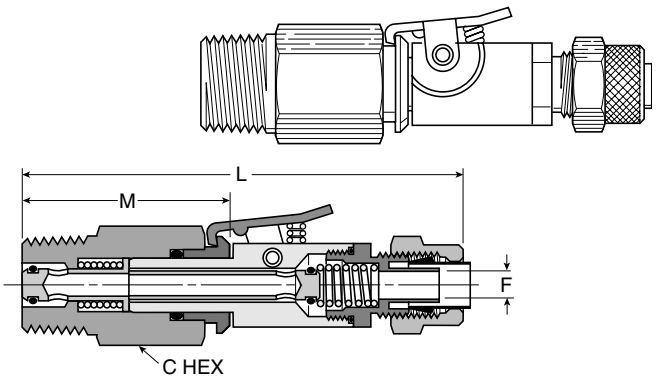


398PD Double End Shut-off Pipe Connector Quick Coupler‡

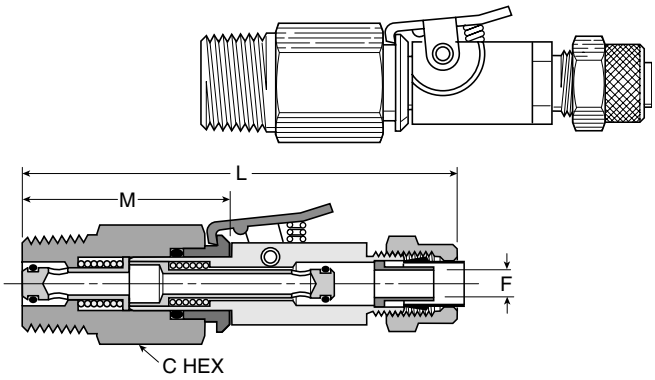
(Chrome Plated)

Part No.	Tube Size	Pipe Thread	Straight Thread	C Hex	L	M	Flow Dia. F
398PD-4-2	1/4	1/8	3/8-24	1/2	2.93	1.31	.125
398PD-4-4	1/4	1/4	3/8-24	9/16	2.93	1.32	.125
398PD-6-4	3/8	1/4	1/2-24	5/8	3.10	1.43	.204

‡ Same as 391P-*-* and 393PD-*-* Assembled.



394PD-4-X

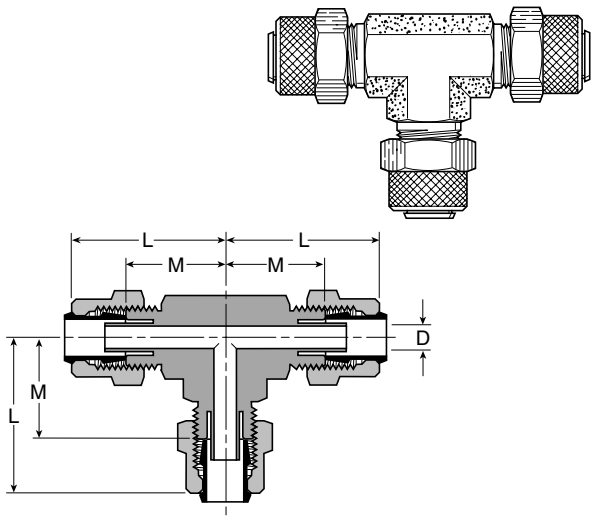


394PD-6-4

164P-264P Union Tee

Part No.	Tube Size	Straight Thread	L	M	Flow Dia. D
164P-2*	1/8	5/16-24	.83	.61	.094
264P-3*	3/16	3/8-24	.83	.61	.125
164P-4	1/4	3/8-24	.84	.73	.125
164P-5	5/16	7/16-24	.83	.73	.144
164P-6	3/8	1/2-24	.98	.86	.203
164P-8	1/2	11/16-20	1.12	1.04	.323

*Brass Sleeve, No Tube Support



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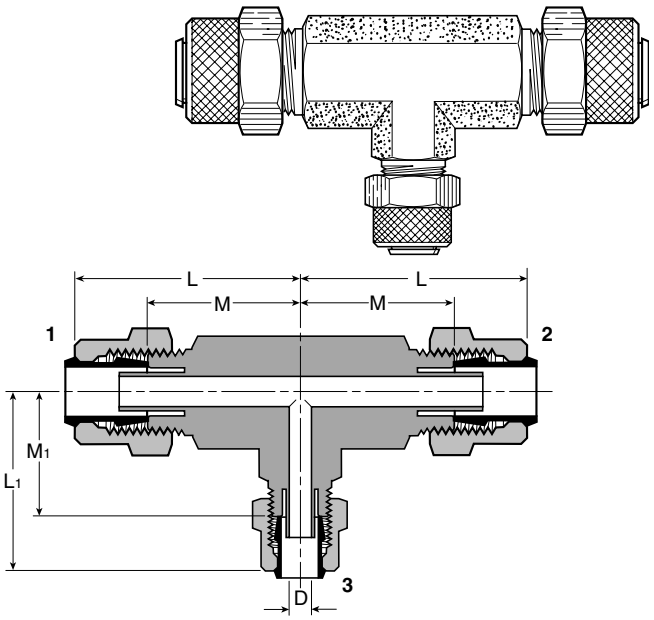
164P Union Tee Combination Size

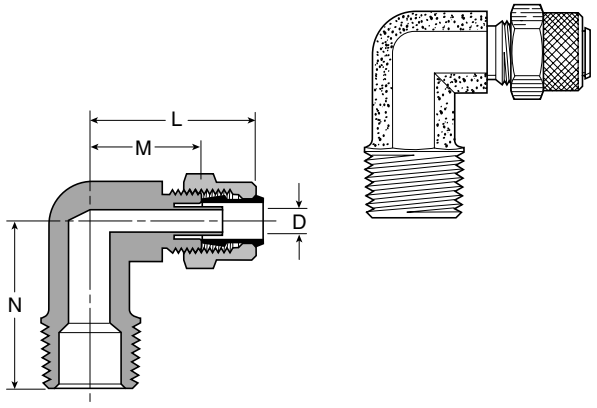
Part No.	1 Tube Size	2 Tube Size	3 Tube Size	L	L_1	M	M_1	Flow Dia. D
164P-6-4A	3/8	3/8	1/4	.98	.90	.86	.79	.125



169P-269P Male Elbow

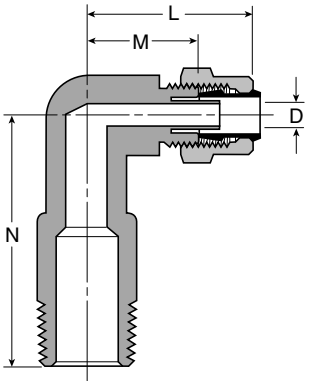
Part No.	Tube Size	Pipe Thread	Straight Thread	L	M	N	Flow Dia. D
169P-2-1	1/8	1/16	5/16-24	.88	.63	.69	.094
269P-2-2*	1/8	1/8	5/16-24	.83	.61	.67	.094
169P-3-1	3/16	1/16	3/8-24	.88	.63	.69	.094
169P-3-2*	3/16	1/8	3/8-24	.83	.61	.69	.125
169P-3-4*	3/16	1/4	3/8-24	.85	.63	.94	.125
169P-4-1	1/4	1/16	3/8-24	.92	.58	.67	.130
169P-4-2	1/4	1/8	3/8-24	.84	.73	.75	.121
169P-4-4	1/4	1/4	3/8-24	.90	.79	.92	.125
169P-4-6	1/4	3/8	3/8-24	.93	.84	1.08	.125
169P-5-2	5/16	1/8	7/16-24	.87	.73	.68	.144
169P-6-2	3/8	1/8	1/2-24	.93	.81	.73	.203
169P-6-4	3/8	1/4	1/2-24	.98	.86	1.05	.203
169P-6-6	3/8	3/8	1/2-24	.98	.86	1.08	.203
169P-8-6	1/2	3/8	11/16-20	1.12	1.04	1.13	.323

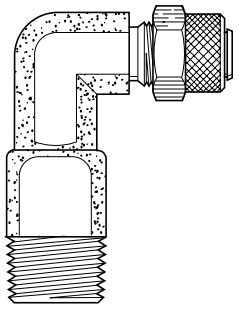
*Brass Sleeve, No Tube Support



169LP Long Male Elbow

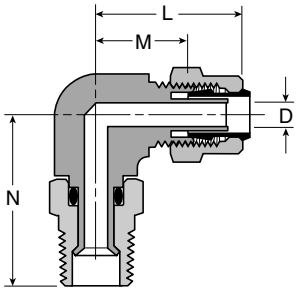
Part No.	Tube Size	Pipe Thread	Straight Thread	L	M	N	Flow Dia. D
169LP-4-4	1/4	1/4	3/8-24	.90	.79	1.38	.125

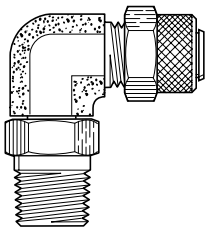




169PS Male Elbow Swivel

Part No.	Tube Size	Pipe Thread	Straight Thread	C Hex	E Hex	L	M	N	Flow Dia. D
169PS-4-2	1/4	1/8	3/8-24	3/8	7/16	.81	.59	.86	.121
169PS-4-4	1/4	1/4	3/8-24	9/16	9/16	.91	.69	1.22	.125
169PS-6-2	3/8	1/8	1/2-24	7/16	7/16	.88	.63	.90	.203
169PS-6-4	3/8	1/4	1/2-24	9/16	9/16	.94	.69	1.22	.203
169PS-6-6	3/8	3/8	1/2-24	9/16	11/16	.86	.60	1.19	.203
169PS-8-6	1/2	3/8	11/16-20	1/2	11/16	1.03	.78	1.22	.323

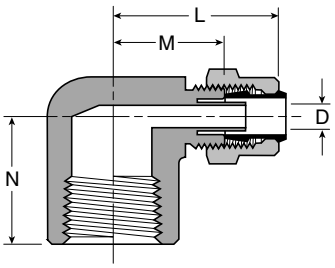


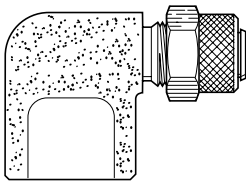


170P Female Elbow

Part No.	Tube Size	Pipe Thread	Straight Thread	L	M	N	Flow Dia. D
170P-2-2*	1/8	1/8	5/16-24	.91	.69	.56	.094
170P-3-2*	3/16	1/8	3/8-24	.91	.69	.56	.125
170P-4-2	1/4	1/8	3/8-24	.90	.79	.56	.125
170P-4-4	1/4	1/4	3/8-24	1.00	.89	.69	.125
170P-6-4	3/8	1/4	1/2-24	1.01	.89	.69	.204
170P-8-6	1/2	3/8	11/16-20	1.19	1.11	1.13	.323

*Brass Sleeve, No Tube Support

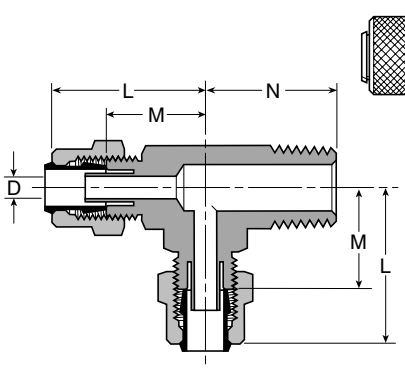


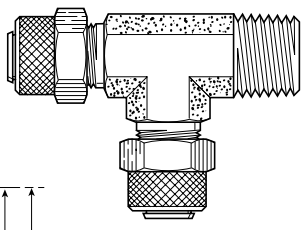


171P Male Run Tee

Part No.	Tube Size	Pipe Thread	Straight Thread	L	M	N	Flow Dia. D
171P-2-2*	1/8	1/8	5/16-24	.82	.60	.67	.094
171P-3-2*	3/16	1/8	3/8-24	.82	.60	.67	.125
171P-4-2	1/4	1/8	3/8-24	.84	.73	.72	.125
171P-4-4	1/4	1/4	3/8-24	.92	.81	.92	.125
171P-5-2	5/16	1/8	7/16-24	.83	.73	.72	.144
171P-6-4	3/8	1/4	1/2-24	.98	.86	1.03	.203
171P-8-6	1/2	3/8	11/16-20	1.12	1.04	1.13	.323

*Brass Sleeve, No Tube Support

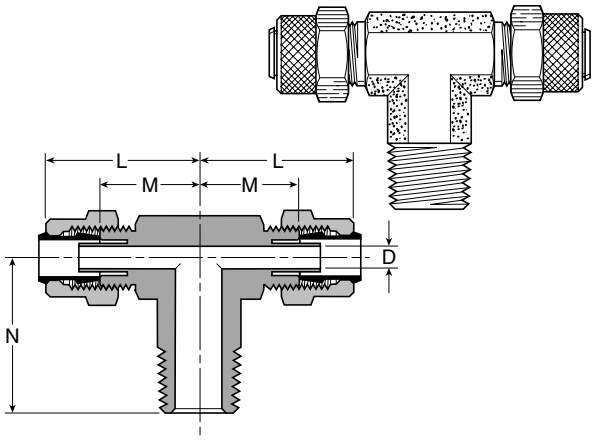




172P Male Branch Tee

Part No.	Tube Size	Pipe Thread	Straight Thread	L	M	N	Flow Dia. D
172P-2-2*	1/8	1/8	5/16-24	.82	.60	.67	.094
172P-3-2*	3/16	1/8	3/8-24	.82	.60	.67	.125
172P-4-2	1/4	1/8	3/8-24	.84	.73	.72	.125
172P-4-4	1/4	1/4	3/8-24	.92	.81	.92	.125
172P-5-2	5/16	1/8	7/16-24	.83	.73	.72	.144
172P-6-2	3/8	1/8	1/2-24	.88	.86	.743	.204
172P-6-4	3/8	1/4	1/2-24	.98	.86	1.03	.204
172P-8-6	1/2	3/8	11/16-20	1.12	1.04	1.13	.323

*Brass Sleeve, No Tube Support



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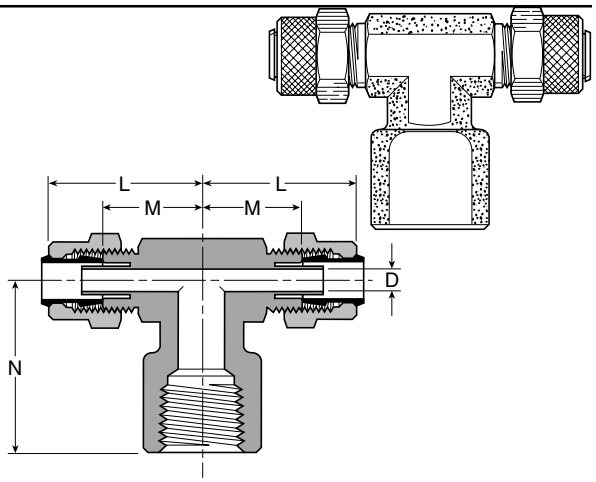
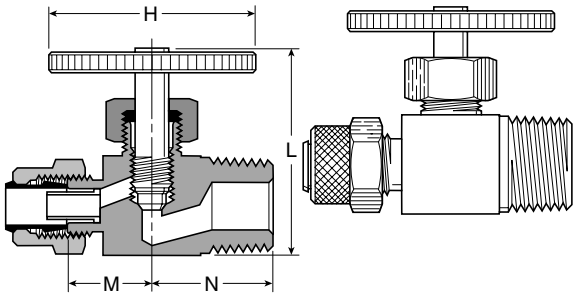
177P Female Branch Tee

Part No.	Tube Size	Pipe Thread	Straight Thread	L	M	N	Flow Dia. D
177P-4-2	1/4	1/8	3/8-24	.92	.81	.88	.125
177P-4-4	1/4	1/4	3/8-24	.92	.81	1.03	.125
177P-4-6	1/4	3/8	3/8-24	1.03	.92	1.13	.125



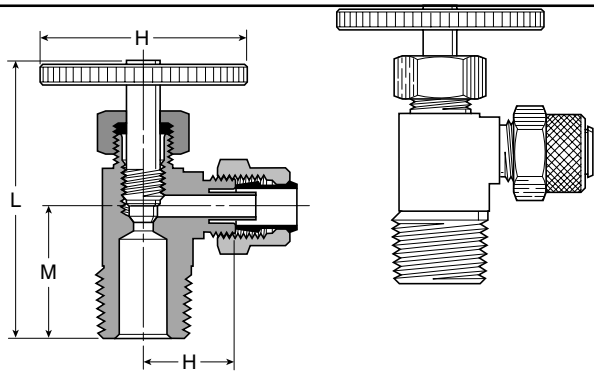
NV311P Needle Valve

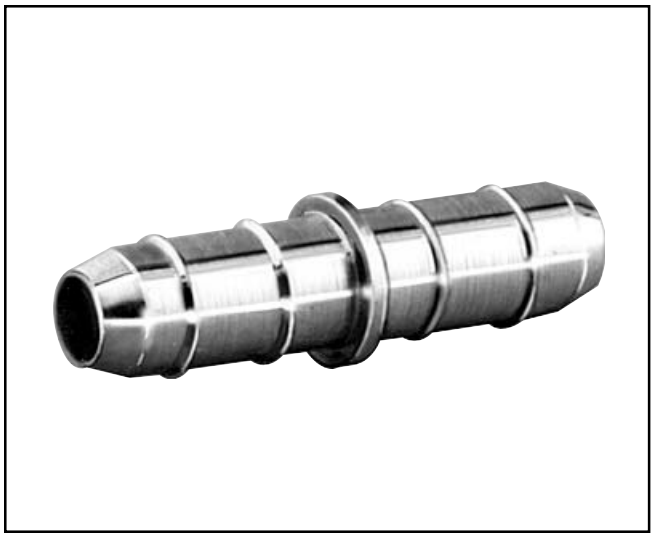
Part No.	Tube Size	Pipe Thread	H	L Open	L Closed	M	N
NV311P-4-2	1/4	1/8	1.06	1.36	1.16	.64	.63
NV311P-4-4	1/4	1/4	1.06	1.38	1.18	.64	.72
NV312P-6-4	3/8	1/4	1.06	1.38	1.18	.64	.72

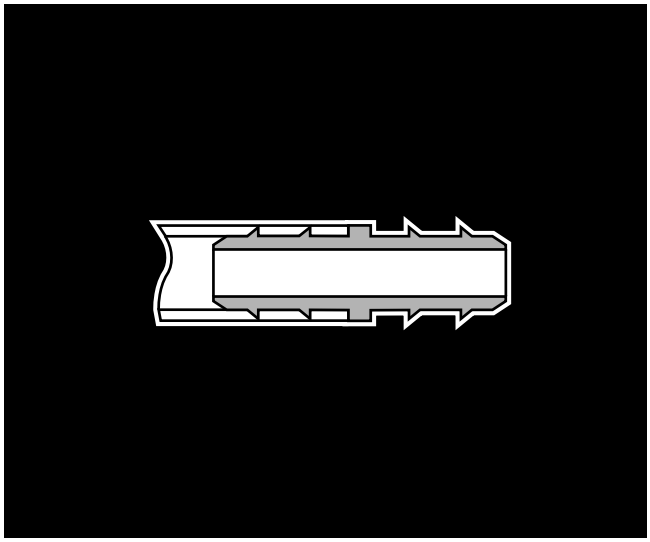


NV312P Angle Needle Valve

Part No.	Tube Size	Pipe Thread	H	L Open	L Closed	M	N
NV312P-4-2	1/4	1/8	1.06	1.70	1.50	.63	.68
NV312P-4-4	1/4	1/4	1.06	2.07	1.82	.71	.86
NV312P-6-4	3/8	1/4	1.06	2.00	1.75	.74	.86







Advantages
Compact one piece, push-on barbed fitting for a quick, economical way to connect polyethylene tubing. Extruded from CA 360 or CA 345 brass rod.

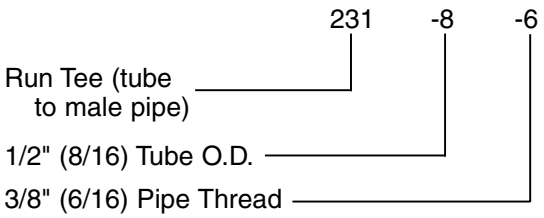
Applications
Because of the many available variations in qualities of polyethylene tubing DB fittings are recommended for use with Parker polyethylene tubing (or an equal grade). Parker tubing is highly resistant to environmental stress cracking which is necessary for long life when coupled with expansion fittings.

Working Pressure and Temperature Ranges
In tube sizes 1/4 to 3/8 working pressures up to 150 PSI are practical at temperatures ranging from -65° to 90°F On 1/2" tube size, working pressures to 100 PSI at temperatures ranging from -65° to 75°F.

Assembly Instructions
Simply push tube over the two barbs – be sure tubing is cut square.

Nomenclature
Part numbers are constructed from symbols that identify the style and size of the fitting. The first series of numbers and letters identifies the style and type fitting. The second series of numbers describes the size.

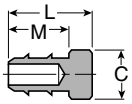
Example:



Sizes
Tube sizes are determined by the number of sixteenths of an inch in the tube O.D.

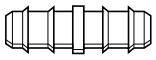
20 Plug

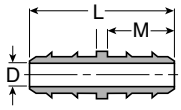
Part No.	Tube O.D.	Tube I.D.	C Dia.	L	M
20-4	1/4	.170	.290	.56	.41
20-6	3/8	.250	.390	.68	.44
20-8	1/2	.377	.577	.81	.56



22 Union

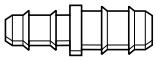
Part No.	Tube O.D.	Tube I.D.	L	M	Flow Dia. D
22-5/32	5/32x5/32	.096x.096	.59	.28	.062
22-4	1/4x1/4	.170x.170	.84	.41	.120
22-6	3/8x3/8	.250x.250	.94	.44	.187
22-8	1/2x1/2	.375x.375	1.19	.56	.312

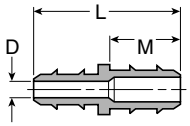




22 Union Reducer

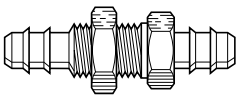
Part No.	Tube O.D.	Tube I.D.	L	M	Flow Dia. D
22-4-5/32	1/4x5/32	.170x.096	.72	.41	.062
22-4-6	1/4x3/8	.170x.250	.88	.44	.120
22-4-8	1/4x1/2	.170x.375	1.06	.56	.120
22-6-8	3/8x1/2	.250x.375	1.06	.56	.187

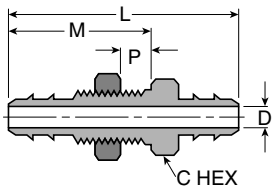




22BH Bulkhead Union

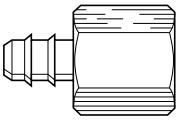
Part No.	Tube O.D.	Tube I.D.	Straight Thread	C Hex	P Max.	L	M	Flow Dia. D
22BH-4-4	1/4	.170	5/16-24	7/16	.219	1.38	.78	.120
22BH-6-6	3/8	.250	3/8-24	7/16	.375	1.63	1.00	.187

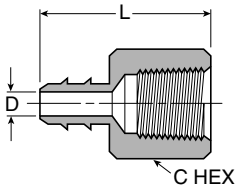




26 Female Connector

Part No.	Tube O.D.	Tube I.D.	Pipe Thread	C Hex	L	Flow Dia. D
26-5/32-2	5/32	.096	1/8	1/2	.79	.062
26-4-2	1/4	.170	1/8	1/2	.91	.120
26-6-2	3/8	.250	1/8	1/2	.93	.187
26-6-4	3/8	.250	1/4	11/16	1.06	.187

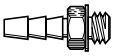


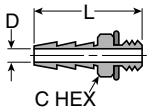


27 Male Connector

Part No.	Tube O.D.	Tube I.D.	Pipe Thread	C Hex	L	Flow Dia. D
27-1*	1/8	.062	10-32 UNF	1/4	.61	.052
27-2*	1/4	.125	10-32 UNF	1/4	.74	.093

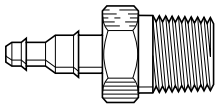
*For vinyl tubing only.

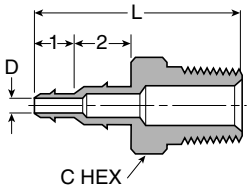




28-4-5 Barb to Pipe Adapter

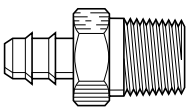
Part No.	Tube O.D. 1	Tube I.D. 1	Tube O.D. 2	Tube I.D. 2	Pipe Thread	C Hex	F	Flow Dia. D
28-4-5/32-2	5/32	.096	1/4	.170	1/8	7/16	1.07	.062

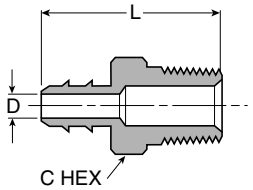




28 Male Connector

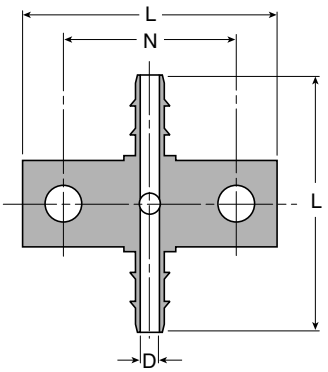
Part No.	Tube O.D.	Tube I.D.	Pipe Thread	C Hex	L	Flow Dia. D
28-5/32-2	5/32	.096	1/8	7/16	.84	.062
28-4-1	1/4	.170	1/16	11/32	.93	.120
28-4-2	1/4	.170	1/8	7/16	.97	.120
28-4-4	1/4	.170	1/4	9/16	1.09	.120
28-6-2	3/8	.250	1/8	7/16	1.00	.187
28-6-4	3/8	.250	1/4	9/16	1.13	.187
28-8-4	1/2	.375	1/4	9/16	1.25	.312
28-8-6	1/2	.375	3/8	11/16	1.28	.312
28-8-8	1/2	.375	1/2	7/8	1.44	.312

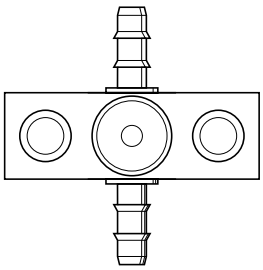




220 Adapter Tee

Part No.	Tube O.D.	Tube I.D.	Pipe Thread	L	M	Flow Dia. D
220-4-2	1/4	.170	1/8	1.5	1.0	.120

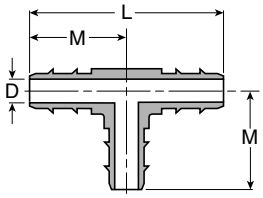


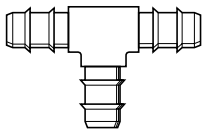


F

224 Union Tee

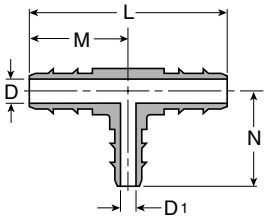
Part No.	Tube O.D.	Tube I.D.	L	M	Flow Dia. D
224-5/32	5/32	.096	1.000	.50	.062
224-4	1/4	.170	1.250	.63	.120
224-6	3/8	.250	1.375	.69	.187
224-8	1/2	.375	1.625	.81	.312

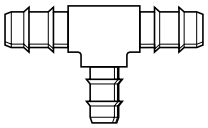




224 Union Tee (Combination Sizes)

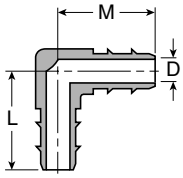
Part No.	Tube O.D.	Tube I.D.	L	M	N	Flow Dia. D	Flow Dia. D_1
224-4-4-5/32	1/4x5/32	.170x.096	1.25	.63	.50	.120	.062
224-6-6-5/32	3/8x5/32	.250x.096	1.38	.69	.50	.187	.062
224-6-6-4	3/8x1/4	.250x.170	1.38	.69	.62	.187	.120
224-8-8-4	1/2x1/4	.375x.170	1.62	.81	.65	.312	.120
224-8-8-6	1/2x3/8	.375x.250	1.62	.81	.69	.312	.187

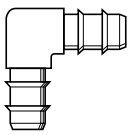




225 Union Elbow

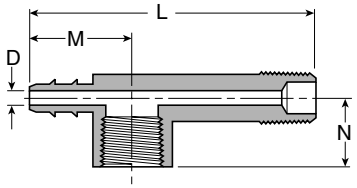
Part No.	Tube O.D.	Tube I.D.	L	M	Flow Dia. D
225-5/32	5/32	.096	.50	.50	.062
225-4-4	1/4	.170	.63	.63	.120
225-6-6	3/8	.250	.69	.69	.187
225-8-8	1/2	.375	.81	.81	.312

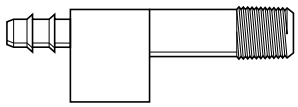




228 Gauge Tee

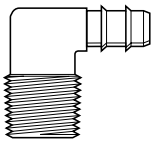
Part No.	Tube O.D.	Tube I.D.	Pipe Thread	L	M	N	Flow Dia. D
228-4-2	1/4	.170	1/8	1.91	.66	.44	.120

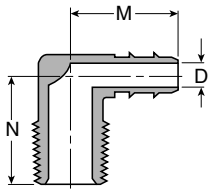




229 Male Elbow

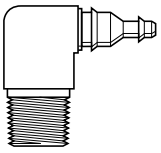
Part No.	Tube O.D.	Tube I.D.	Pipe Thread	M	N	Flow Dia. D
229-5/32-2	5/32	.096	1/8	.56	.63	.062
229-4-1	1/4	.170	1/16	.62	.60	.120
229-4-2	1/4	.170	1/8	.69	.63	.120
229-4-4	1/4	.170	1/4	.72	.72	.120
229-6-2	3/8	.250	1/8	.69	.69	.187
229-6-4	3/8	.250	1/4	.75	.75	.187
229-8-6	1/2	.375	3/8	.94	.81	.312

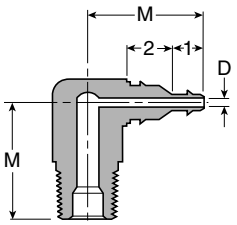




229 Barb Adapter Elbow 90°

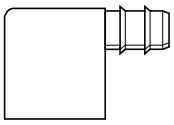
Part No.	Tube O.D. 1	Tube I.D. 1	Tube O.D. 2	Tube I.D. 2	Pipe Thread	M	Flow Dia. D
229-4-5/32-25/32	.096	1/4	.170	1/8	.78	.062	

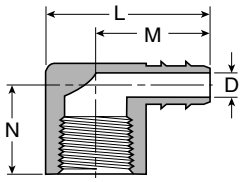




230 Female Elbow

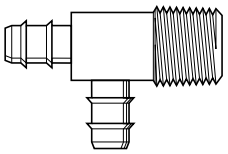
Part No.	Tube O.D.	Tube I.D.	Pipe Thread	L	M	N	Flow Dia. D
230-4-2	1/4	.170	1/8	.91	.66	.44	.120
230-6-4	3/8	.250	1/4	1.12	.78	.63	.187

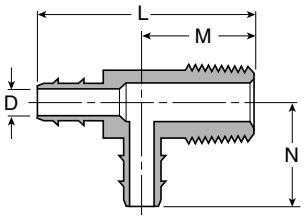




231 Male Run Tee

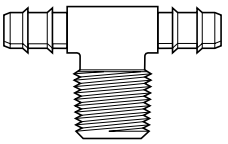
Part No.	Tube O.D.	Tube I.D.	Pipe Thread	L	M	N	Flow Dia. D
231-4-2	1/4	.170	1/8	1.28	.66	.69	.120
231-6-2	3/8	.250	1/8	1.38	.69	.69	.187
231-6-4	3/8	.250	1/4	1.44	.75	.75	.187

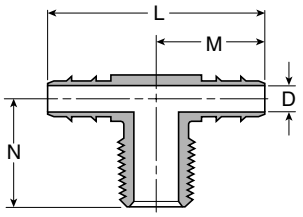




232 Male Branch Tee

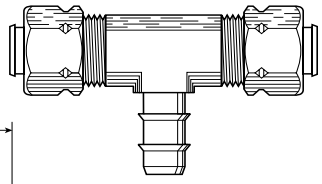
Part No.	Tube O.D.	Tube I.D.	Pipe Thread	L	M	N	Flow Dia. D
232-4-1	1/4	.170	1/16	1.33	.66	.65	.120
232-4-2	1/4	.170	1/8	1.38	.69	.66	.120
232-6-2	3/8	.250	1/8	1.38	.69	.69	.187
232-6-4	3/8	.250	1/4	1.50	.75	.75	.187

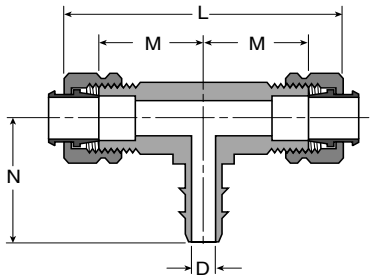




233 Tee

Part No.	Tube O.D.	Tube I.D.	Comp. Tube	L	M	N	Flow Dia. D
233-4-4-4	1/4	.170	1/4	.73	.53	.74	.120
233-6-6-4	1/4	.170	3/8	.87	.59	.80	.120





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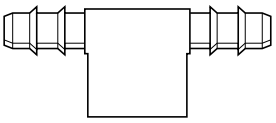
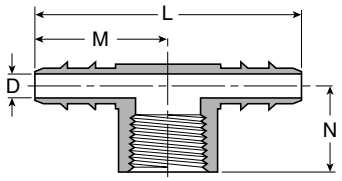
237 Female Branch Tee

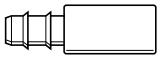
Part No.	Tube O.D.	Tube I.D.	Pipe Thread	L	M	N	Flow Dia. D
237-4-2	1/4	.170	1/8	1.34	.67	.49	.120

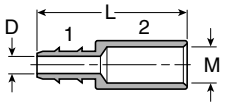




238 Solder Connector

Part No.	Tube O.D. 1	Tube I.D. 2	L	M	Flow Dia. D
238-4-4	1/4	.170	.91	.254	.120

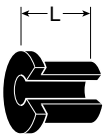


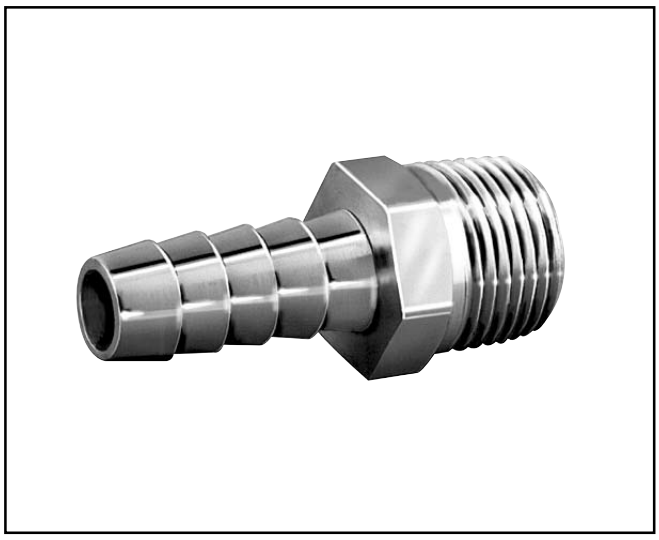


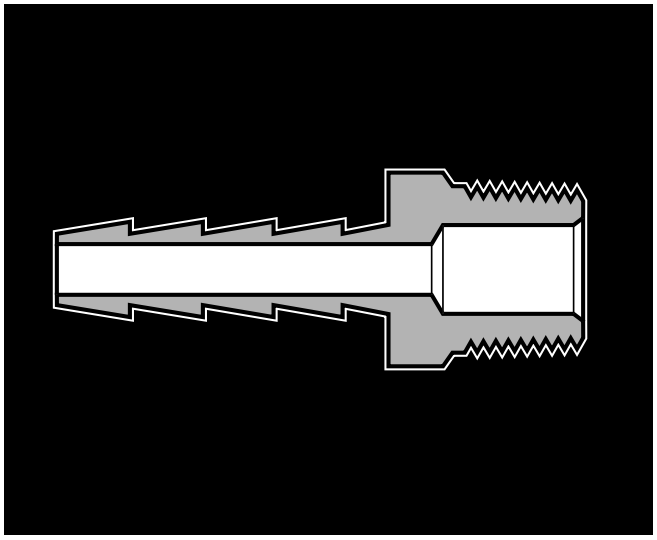
20GT DB Tool*

Part No.	Tube O.D.	L	Thru Dia.
20GT-4	1/4	1.00	.245

*For ease in assembling polyethylene tubing onto DB Fittings.





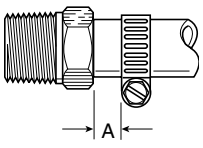


Advantages
All HB fitting pipe threads are made to Dryseal standards. Connectors, unions, nuts and extruded elbows and tees are machined from CA 360 and CA 345 brass rod.

Temperature and Working Pressure Ranges
From -40°F to 160°F at 150 PSI maximum.

Note: These fittings are intended for use with 97HC hose clamp, similar type clamp or a crimped ferrule.

Assembly Instructions
1. Cut hose cleanly and squarely to length.
2. Slide clamp on hose.
3. Lubricate hose. Push hose on fitting until hose bottoms against stop ring or hex.
4. Position hose clamp as shown below and secure with a screwdriver or wrench. Maintain “A” dimension noted below for proper clamp positioning.



Hose Size	Hose Clamp	A
3/16"	97 HC-3	1/4"
1/4"	97 HC-3	1/4"
5/16"	97 HC-6	1/4"
3/8"	97 HC-6	1/8"
1/2"	97 HC-8	1/8"
5/8"	97 HC-12	1/8"
3/4"	97 HC-12	1/8"

Nomenclature
Part numbers are constructed from symbols that identify the style and size of the fitting. The first series of numbers and letters identifies the style and type fitting. The second series of numbers describes the size.

Example

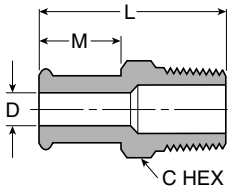
128	HBL	SV	-6	-4

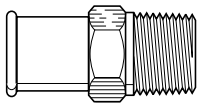
- 128 — Female Ball End
- HBL — Hose Barb
- SV — Swivel
- -6 — 3/8" (6/16) Hose I.D.
- -4 — 1/4" (4/16) F.M.N.P.S. Thread

Sizes
Pipe sizes are determined by the number of sixteenths of an inch in the pipe size.

68HB Beaded Hose Barb to Male Pipe

Part No.	I.D. Hose Size	Pipe Thread	C Hex	L	M	Flow Dia. D
68HB-6-6	3/8	3/8	11/16	1.53	.78	.281
68HB-8-4	1/2	1/4	5/8	1.56	.78	.406
68HB-8-6	1/2	3/8	11/16	1.53	.78	.406
68HB-10-6	5/8	3/8	3/4	1.62	.88	.501
68HB-10-8	5/8	1/2	7/8	1.92	.88	.501
68HB-12-8	3/4	1/2	7/8	1.98	.88	.564
68HB-16-12	1	3/4	1-1/8	2.12	1.00	.750

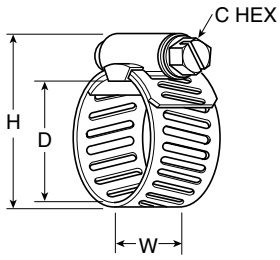




F

97HC Steel Worm Drive Clamp

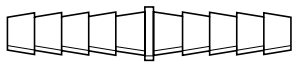
Part No.	D Max.	D Min.	C Hex	H Max.	W
97HC-3	.62	.25	.25	1.00	.31
97HC-6	.87	.38	.31	1.40	.50
97HC-8	1.00	.44	.31	1.53	.50
97HC-12	1.25	.50	.31	1.80	.50

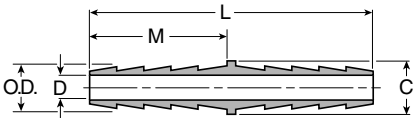


122HBL Hose Mender

Part No.	I.D. Hose Size	C Dia.	L	M	O.D.	Flow Dia. D
122HB-3*	3/16	5/16	1.44	.69	.227	.125
122HBL-4	1/4	3/8	2.00	.97	.290	.187
122HBL-5	5/16	7/16	2.00	.97	.353	.250
122HBL-6	3/8	1/2	2.00	.97	.415	.281
122HBL-8	1/2	5/8	2.00	.97	.530	.375

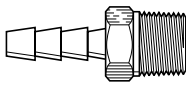
*3 Barb design.

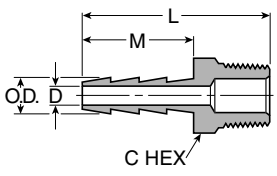




125HB Hose Barb to Male Pipe

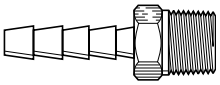
Part No.	I.D. Hose Size	Pipe Thread	C Hex	L	M	O.D.	Flow Dia. D
125HB-2-2	1/8	1/8	7/16	1.07	.50	.185	.093
125HB-3-2	3/16	1/8	7/16	1.25	.69	.227	.125
125HB-3-4	3/16	1/4	9/16	1.44	.69	.227	.125

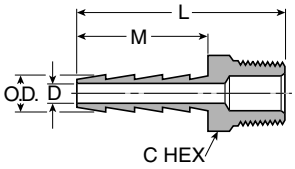




125HBL Hose Barb to Male Pipe

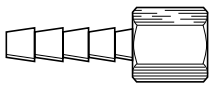
Part No.	I.D. Hose Size	Pipe Thread	C Hex	L	M	O.D.	Flow Dia. D
125HBL-4-2	1/4	1/8	7/16	1.54	.97	.290	.187
125HBL-4-4	1/4	1/4	9/16	1.72	.97	.290	.187
125HBL-4-6	1/4	3/8	11/16	1.77	.97	.290	.187
125HBL-5-2	5/16	1/8	7/16	1.54	.97	.353	.250
125HBL-5-4	5/16	1/4	9/16	1.72	.97	.353	.250
125HBL-5-6	5/16	3/8	11/16	1.77	.97	.353	.250
125HBL-6-2	3/8	1/8	7/16	1.54	.97	.415	.281
125HBL-6-4	3/8	1/4	9/16	1.72	.97	.415	.281
125HBL-6-6	3/8	3/8	11/16	1.77	.97	.415	.281
125HBL-6-8	3/8	1/2	7/8	1.97	.97	.415	.281
125HBL-8-4	1/2	1/4	9/16	1.72	.97	.530	.375
125HBL-8-6	1/2	3/8	11/16	1.77	.97	.530	.375
125HBL-8-8	1/2	1/2	7/8	1.97	.97	.530	.375
125HBL-8-12	1/2	3/4	1-1/16	1.98	.97	.530	.375
125HBL-10-6	5/8	3/8	11/16	1.77	.97	.645	.468
125HBL-10-8	5/8	1/2	7/8	1.97	.97	.645	.468
125HBL-10-12	5/8	3/4	1-1/16	1.98	.97	.645	.468
125HBL-12-8	3/4	1/2	7/8	1.97	.97	.790	.562
125HBL-12-12	3/4	3/4	1-1/16	1.98	.97	.790	.562
125HBL-16-12	1	3/4	1-1/16	2.18	1.17	1.03	.750
125HBL-16-16	1	1	1-3/8	2.36	1.17	1.03	.875

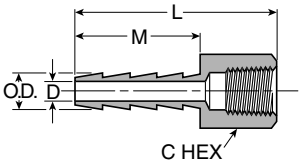




126HBL Hose Barb to Female Pipe

Part No.	I.D. Hose Size	Pipe Thread	C Hex	L	M	O.D.	Flow Dia. D
126HBL-4-2	1/4	1/8	1/2	1.47	.97	.290	.187
126HBL-4-4	1/4	1/4	11/16	1.58	.97	.290	.187
126HBL-5-4	5/16	1/4	11/16	1.58	.97	.353	.250
126HBL-6-2	3/8	1/8	1/2	1.47	.97	.415	.281
126HBL-6-4	3/8	1/4	11/16	1.58	.97	.415	.281
126HBL-6-6	3/8	3/8	13/16	1.63	.97	.415	.281
126HBL-8-6	1/2	3/8	13/16	1.59	.97	.530	.375
126HBL-8-8	1/2	1/2	1	1.73	.97	.530	.375

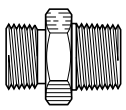


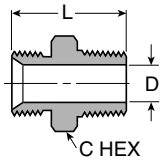


127HB Ball End Joint Adapter to Male Pipe

(For use with 128HBLSV)

Part No.	Pipe Thread (NPSM)	Pipe Thread	C Hex	L	Flow Dia. D
127HB-4-2	1/4	1/8	9/16	.91	.219
127HB-4-4	1/4	1/4	9/16	1.10	.281
127HB-6-4	3/8	1/4	11/16	1.10	.312
127HB-6-6	3/8	3/8	11/16	1.15	.406
127HB-8-6	1/2	3/8	27/32	1.25	.406
127HB-8-8	1/2	1/2	27/32	1.50	.531

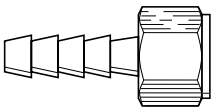


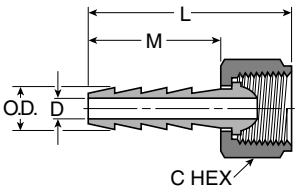


128HBLSV Hose Barb to Swivel Female Ball End

(Must be used with 127HP Adapter)

Part No.	I.D. Hose Size	Pipe Thread (NPSM)	C Hex	L	M	O.D.	Flow Dia. D
128HBLSV-4-4	1/4	1/4	5/8	1.50	.97	.290	.187
128HBLSV-5-4	5/16	1/4	5/8	1.50	.97	.353	.250
128HBLSV-4-4	3/8	1/4	5/8	1.63	.97	.415	.250
128HBLSV-6-6	3/8	3/8	3/4	1.50	.97	.415	.281
128HBLSV-8-8	1/2	1/2	29/32	1.50	.97	.530	.375





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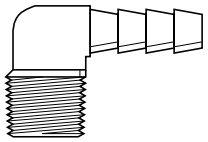
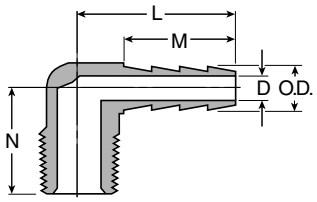
129HB Hose Barb 90° Elbow to Male Pipe

Part No.	I.D. Hose Size	Pipe Thread	L	M	N	O.D.	Flow Dia. D
129HB-4-2	1/4	1/8	1.04	.76	.66	.290	.187
129HB-4-4	1/4	1/4	1.06	.76	.86	.290	.187
129HB-6-4*	3/8	1/4	1.32	.97	.89	.415	.281
129HB-6-6	3/8	3/8	1.50	.97	1.06	.415	.281
129HB-8-6	1/2	3/8	1.53	.97	1.06	.530	.375

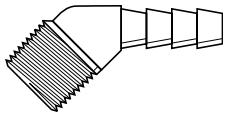
*Four barbs.

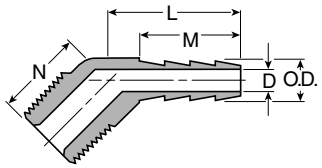




139HB Hose Barb 45° Elbow to Male Pipe

Part No.	I.D. Hose Size	Pipe Thread	L	M	N	O.D.	Flow Dia. D
139HB-4-2	1/4	1/8	.91	.76	.68	.290	.187
139HB-4-4	1/4	1/4	1.00	.76	.68	.290	.187
139HB-6-4	3/8	1/4	1.00	.76	.68	.415	.281

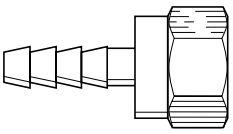


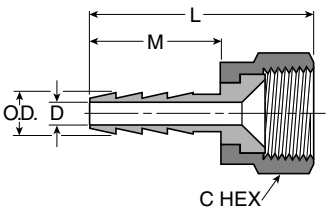


146HBLFSV Hose Barb to Swivel 45° Female Flare

(Use with 45° Flare Fittings)

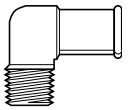
Part No.	I.D Hose Size	Straight Thread	C Hex	L	M	O.D.	Flow Dia. D
146HBLFSV-4-4	1/4	7/16-20	9/16	1.55	.97	.290	.187
146HBLFSV-4-6	1/4	5/8-18	3/4	1.72	.97	.290	.187
146HBLFSV-6-6	3/8	5/8-18	3/4	1.72	.97	.415	.281

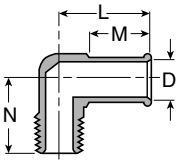


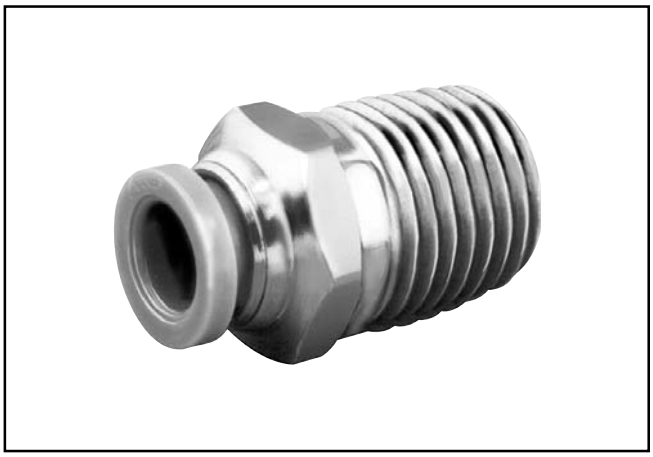


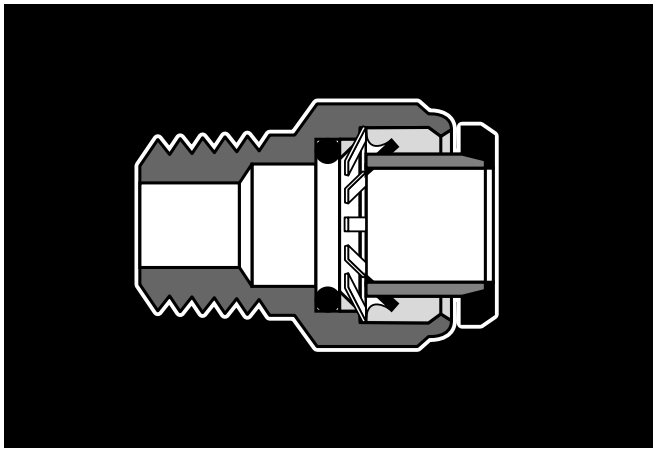
269HB Beaded Hose Barb 90° Elbow Tube to Male Pipe

Part No.	I.D. Hose Size	Pipe Thread	L	M	N	Flow Dia D
269HB-6-6	3/8	3/8	1.19	.78	.88	.281
269HB-8-6	1/2	3/8	1.16	.78	1.08	.406
269HB-10-4	5/8	1/4	1.13	.78	.99	.312
269HB-10-6	5/8	3/8	1.16	.78	.99	.406
269H8-10-8	5/8	1/2	1.28	.78	1.25	.501
269HB-12-8	3/4	1/2	1.28	.78	1.27	.625









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Advantages

Ready-to-use compact one-piece fitting for use with most thermoplastic and copper tubing. This fitting is specially designed for low pressure circuits where fast assembly, disassembly and reassembly is important. No special tools are needed for assembly; just insert the tubing until it bottoms. Prestolok/Prestolok II is designed to be used with no tube support. Radial claws on the stainless steel grab ring grip the tubing securely to provide retention. Brass Male pipe threads come standard with a white acrylic sealant pre-applied ("W" prefix) swivels are featured on all male pipe threaded shapes for installation in tight places and for precise positioning. Prestolok/Prestolok II should not be used for live swivel applications. The outside diameter of the tubing to be used with the fitting is marked on the release button. The removable release button can be color coded for ease of identification. Standard release button is green.

Materials

Prestolok Bodies: CA377, CA360, CA345
Prestolok II Bodies: Glass Filled Nylon
O-Ring: Nitrile (other compounds available on request)
Release Button: Polyacetal
Grab Ring: Stainless Steel

Applications

Use with Parker Parflex series "E" polyethylene tubing, series "N" nylon tubing, series "U" polyurethane tubing or copper tubing. Perfectly adapted for use in a large variety of industries, Prestolok II was designed as an economical alternative for pneumatic applications that do not require the higher pressure capacity of the standard prestolok fittings, consult the factory with any questions regarding special product applications. All applications should be carefully tested through the range of conditions which may be encountered prior to use. For inch O.D. tubing

Working Pressure and Temperature Ranges

Prestolok: Zero to 200°F at up to 300 PSI depending on tubing being used.
Prestolok II: Zero to 150°F at up to 150 PSI depending on tubing being used.
Vacuum applications are dependent upon temperature and type of tubing used.

Assembly Instructions

1. Cut thermoplastic tubing squarely, using Parker Tube Cutter PTC 001. Metal tubing should be cut squarely and free of burrs. Be certain the port or mating part is clean and free of debris.
2. Insert tubing into fitting until it bottoms. A slight twisting motion will ease the insertion. Pull on tubing to verify it is properly retained in the fitting.
3. To disassemble, simply push the release button against the body and remove tubing.

Order

By part number and name.

Nomenclature

Part numbers are constructed from symbols that identify the style and size of the fitting. The first series of numbers and letters identify the style and type fitting. The second series of numbers describe the size.

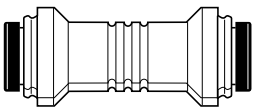
Example	**69**	**PL**	**–4**	**–2**
Male Connector				
Prestolok				
1/4" (4/16) Tube O.D.				
1/8" (2/16) Pipe Thread				

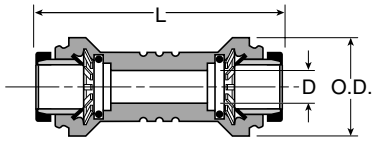
Sizes

Tube sizes are determined by the number of sixteenths of an inch in the tube O.D.

32PL Equal Union

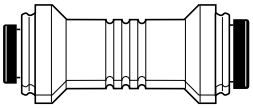
Part No.	Tube Size	O.D.	L	Flow Dia. D
32PL-2	1/8	.51	1.32	.09
32PL-5/32	5/32	.51	1.32	.12
32PL-3	3/16	.59	1.37	.16
32PL-4	1/4	.59	1.37	.19
32PL-5	5/16	.67	1.49	.25
32PL-6	3/8	.83	1.76	.31

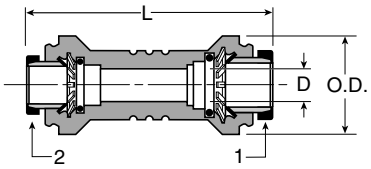




32PL Unequal Union

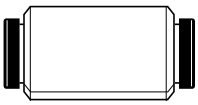
Part No.	1 Tube Size	2 Tube Size	O.D.	L	Flow Dia. D
32PL-5/32-2	5/32	1/8	.51	1.32	.09
32PL-4-2	1/4	1/8	.59	1.37	.09
32PL-5-4	5/16	1/4	.67	1.47	.19
32PL-6-4	3/8	1/4	.82	1.75	.19

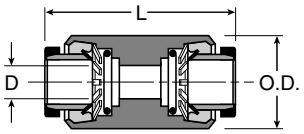




62PL Union

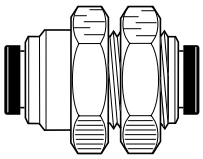
Part No.	Tube Size	O.D.	L	D
62PL-2	1/8	.406	1.44	.094
62PL-3	3/16	.437	1.35	.156
62PL-5/32	5/32	.406	1.49	.125
62PL-4	1/4	.500	1.51	.188
62PL-5	5/16	.562	1.68	.250
62PL-6	3/8	.625	1.68	.312
62PL-8	1/2	.750	1.86	.375

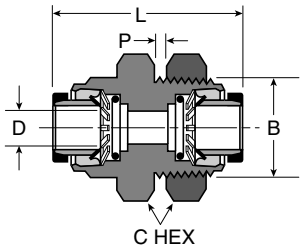




62PLBH Bulkhead Union

Part No.	Tube Size	B	C Hex	p Max.	L	D
62PLBH-2	1/8	7/16	9/16	.39	1.44	.094
62PLBH-5/32	5/32	7/16	9/16	.39	1.44	.125
62PLBH-4	1/4	9/16	11/16	.29	1.51	.188
62PLBH-5	5/16	5/8	3/4	.60	1.68	.250
62PLBH-6	3/8	3/4	7/8	.54	1.68	.312
62PLBH-8	1/2	7/8	1	.66	2.07	.375

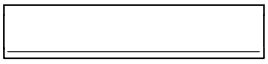


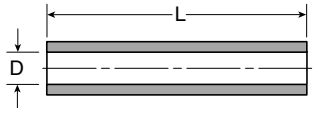


63PL Double Male Union

Plastic Body

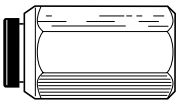
Part No.	Tube Size	L	D
63PL-2	1/8	1.49	.078
63PL-5/32	5/32	1.49	.106
63PL-4	1/4	1.61	.188
63PL-5	5/16	1.61	.236
63PL-6	3/8	2.00	.295
63PL-8	1/2	2.12	.374

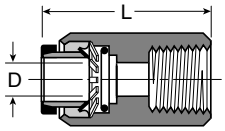




66PL Female Connector

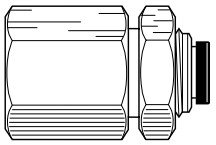
Part No.	Tube Size	Pipe Thread (NPTF)	L	D
66PL-2-2	1/8	1/8	1.18	.094
66PL-3-2	3/16	1/8	1.16	.156
66PL-5/32-2	5/32	1/8	1.18	.125
66PL-5/32-4	5/32	1/4	1.39	.125
66PL-4-2	1/4	1/8	1.21	.188
66PL-4-4	1/4	1/4	1.42	.188
66PL-5-2	5/16	1/8	1.27	.250
66PL-5-4	5/16	1/4	1.47	.250
66PL-6-4	3/8	1/4	1.46	.312
66PL-6-6	3/8	3/8	1.51	.312

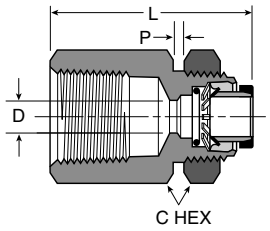




66PLBH Female Bulkhead

Part No.	Tube Size	Pipe Thread (NPTF)	C Hex	P Max.	L	Flow Dia. D
66PLBH-5/32-4	5/32	1/4	11/16	.24	1.38	.13
66PLBH-4-4	1/4	1/4	11/16	.19	1.35	.18
66PLBH-6-6	3/8	3/8	1	.22	1.44	.31
66PLBH-8-6	1/2	3/8	1 1/4	.35	1.57	.34



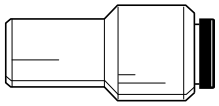


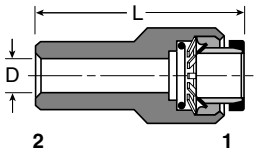
67PPL Tube End Reducer

Plastic Body

Part No.	1 Tube Size	2 Tube Size	L	D
67PPL-2-5/32	1/8	5/32	1.48	.078
67PPL-2-4	1/8	1/4	1.48	.078
67PPL-5/32-4 *	5/32	1/4	1.48	.118
67PPL-5/32-5 *	5/32	5/16	1.41	.118
67PPL-5/32-6 *	5/32	3/8	1.63	.118
67PPL-4-5	1/4	5/16	1.52	.177
67PPL-4-6	1/4	3/8	1.64	.177
67PPL-4-8	1/4	1/2	1.72	.177
67PPL-5-6 *	5/16	3/8	1.79	.236
67PPL-6-8	3/8	1/2	1.92	.295

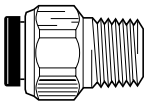
* Parts supplied with black bodies and black release buttons

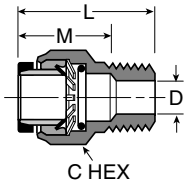




W68PL Male Connector

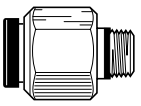
Part No.	Tube Size	Pipe Thread (NPTF)	C Hex	L	M	D
W68PL-2-1	1/8	1/16	3/8	.85	.68	.094
W68PL-2-2	1/8	1/8	7/16	.85	.68	.094
W68PL-2-4	1/8	1/4	9/16	1.10	.68	.094
W68PL-3-2	3/16	1/8	7/16	.92	.63	.156
W68PL-3-4	3/16	1/4	9/16	1.10	.64	.156
W68PL-5/32-2	5/32	1/8	7/16	.85	.69	.125
W68PL-5/32-4	5/32	1/4	9/16	1.10	.69	.125
W68PL-4-1	1/4	1/16	1/2	1.15	.71	.140
W68PL-4-2	1/4	1/8	1/2	.97	.71	.188
W68PL-4-4	1/4	1/4	9/16	1.10	.71	.188
W68PL-4-6	1/4	3/8	3/4	1.14	.71	.188
W68PL-5-2	5/16	1/8	9/16	1.23	.78	.234
W68PL-5-4	5/16	1/4	9/16	1.11	.78	.250
W68PL-5-6	5/16	3/8	11/16	1.12	.79	.250
W68PL-6-2	3/8	1/8	11/16	1.26	.78	.234
W68PL-6-4	3/8	1/4	11/16	1.14	.78	.312
W68PL-6-6	3/8	3/8	11/16	1.09	.79	.312
W68PL-6-8	3/8	1/2	7/8	1.34	.78	.312
W68PL-8-4	1/2	1/4	13/16	1.52	.87	.344
W68PL-8-6	1/2	3/8	13/16	1.31	.87	.344
W68PL-8-8	1/2	1/2	7/8	1.43	.87	.375

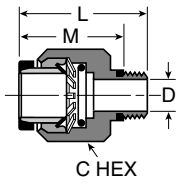




68PL-X-10x32 Male connector

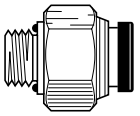
Part No.	Tube Size	Thread (UNF)	C Hex	L	M	D	Internal Broach
68PL-2-10X32	1/8	10-32	3/8	.93	.68	.094	.094
68PL-5/32-10X32	5/32	10-32	13/32	.95	.69	.094	.094
68PL-4-10X32	1/4	10-32	1/2	1.00	.71	.094	.094

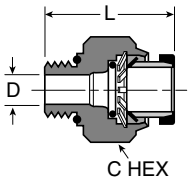




PLHBF4-B BSPP Male Connector

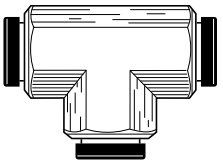
Part No.	Tube Size	Pipe Thread (BSPP)	C Hex	L	D
3-1/8PLHBF4-B	3/16	1/8-28	11/16	.96	.156
3-1/4PLHBF4-B	3/16	1/4-19	3/4	.97	.156
4-1/8PLHBF4-B	1/4	1/8-28	11/16	1.13	.188
4-1/4PLHBF4-B	1/4	1/4-19	3/4	1.13	.188
4-3/8PLHBF4-B	1/4	3/8-19	7/8	1.13	.188
6-1/4PLHBF4-B	3/8	1/4-19	3/4	1.26	.256
6-3/8PLHBF4-B	3/8	3/8-19	7/8	1.26	.312
6-1/2PLHBF4-B	3/8	1/2-14	1-1/16	1.26	.312
8-3/8PLHBF4-B	1/2	3/8-19	7/8	1.41	.452
8-1/2PLHBF4-B	1/2	1/2-14	1-1/16	1.37	.452

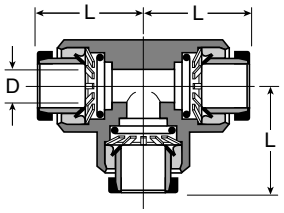




164PL Union Tee

Part No.	Tube Size	L	D
164PL-2	1/8	.78	.094
164PL-3	3/16	.79	.156
164PL-5/32	5/32	.81	.125
164PL-4	1/4	.94	.188
164PL-5	5/16	.99	.250
164PL-6	3/8	1.04	.312
164PL-8	1/2	1.17	.375

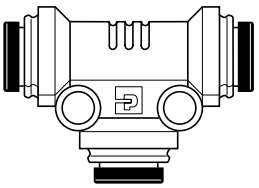


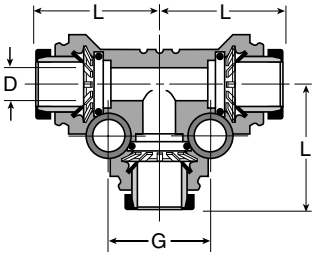


364PL Union Tee

Composite Body

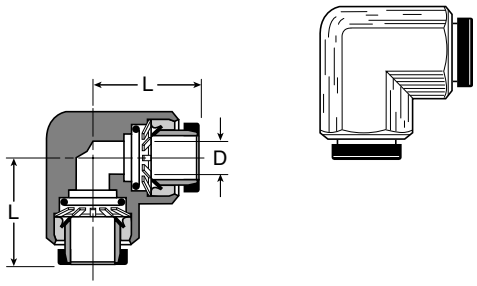
Part No.	Tube Size	Mounting Hole Dia.	L	G	D
364PL-2	1/8	.13	.71	.52	.094
364PL-5/32	5/32	.13	.71	.52	.125
364PL-3	3/16	.17	.76	.64	.156
364PL-4	1/4	.17	.76	.64	.188
364PL-5	5/16	.17	.84	.71	.250
364PL-6	3/8	.17	1.04	.83	.312
364PL-8	1/2	.17	1.30	.99	.344





165PL Union Elbow

Part No.	Tube Size	L	D
165PL-2	1/8	.77	.094
165PL-5/32	5/32	.79	.125
165PL-4	1/4	.86	.188
165PL-5	5/16	.97	.250
165PL-6	3/8	1.03	.312
165PL-8	1/2	1.17	.375

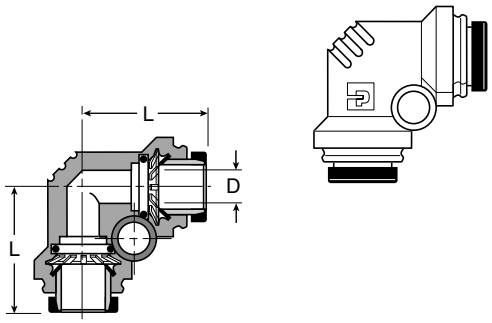


F

365PL Union Elbow

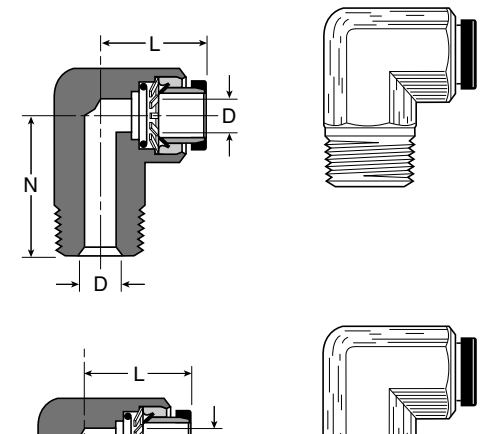
Composite Body

Part No.	Tube Size	Mounting Hole Dia.	L	D
365PL-2	1/8	.13	.71	.094
365PL-3	3/16	.17	.76	.156
365PL-5/32	5/32	.13	.71	.125
365PL-4	1/4	.17	.76	.188
365PL-5	5/16	.17	.84	.250
365PL-6	3/8	.17	1.04	.312
365PL-8	1/2	.17	1.03	.344



W169PL Male Elbow Swivel 90°

Part No.	Tube Size	Pipe Thread (NPTF)	C Hex	L	N	D
W169PL-2-2	1/8	1/8	7/16	.78	1.22	.094
169PL-2-10X32	1/8	10-32	3/8	.78	1.02	.094
W169PL-2-4	1/8	1/4	9/16	.78	1.40	.094
W169PL-3-2	3/16	1/8	7/16	.79	1.16	.156
W169PL-5/32-2	5/32	1/8	7/16	.80	1.24	.109
W169PL-5/32-4	5/32	1/4	9/16	.81	1.42	.109
169PL-5/32-10X32	5/32	10-32	3/8	.81	1.04	.094
W169PL-4-2	1/4	1/8	7/16	.86	1.13	.172
W169PL-4-4	1/4	1/4	9/16	.86	1.31	.172
W169PL-4-6	1/4	3/8	3/4	.86	1.35	.172
169PL-4-10X32	1/4	10-32	7/16	.86	.94	.094
W169PL-5-2	5/16	1/8	1/2	.99	1.42	.234
W169PL-5-4	5/16	1/4	9/16	.99	1.60	.234
W169PL-6-2	3/8	1/8	9/16	1.04	1.49	.297
W169PL-6-4	3/8	1/4	9/16	1.04	1.66	.297
W169PL-6-6	3/8	3/8	11/16	1.04	1.70	.297
W169PL-6-8	3/8	1/2	7/8	1.04	1.89	.297
W169PL-8-4	1/2	1/4	11/16	1.17	1.74	.344
W169PL-8-6	1/2	3/8	3/4	1.17	1.77	.375
W169PL-8-8	1/2	1/2	7/8	1.16	1.97	.375

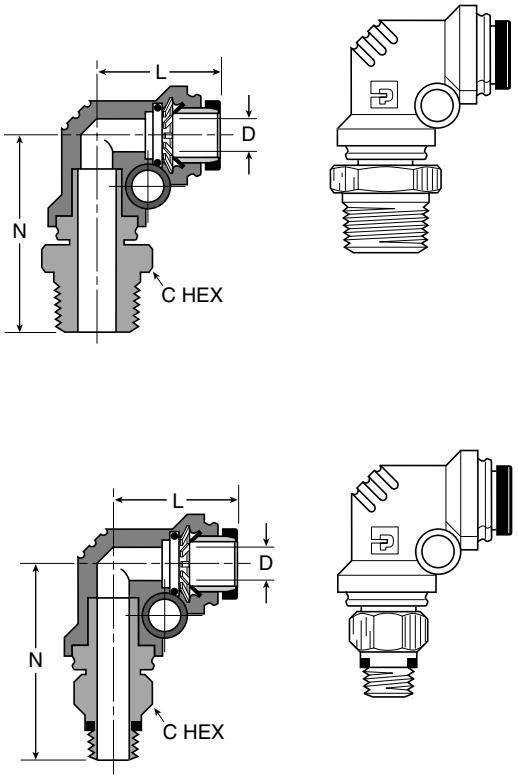


169PL-X-10/32

W369PL Male Elbow Swivel 90°

Composite Body

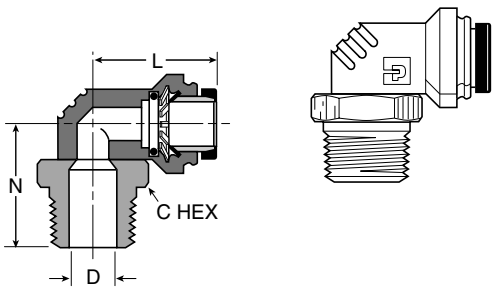
Part No.	Tube Size	Pipe Thread (NPTF)	C Hex	Mounting Hole Dia.	L	N	D
W369PL-2-1	1/8	1/16	3/8	.13	.71	1.08	.078
W369PL-2-2	1/8	1/8	7/16	.13	.71	1.14	.078
369PL-2-10X32	1/8	10-32	3/8	.13	.71	.94	.078
W369PL-2-4	1/8	1/4	9/16	.13	.71	1.32	.078
W369PL-3-2	3/16	1/8	7/16	.17	.76	1.20	.147
W369PL-3-4	3/16	1/4	9/16	.17	.76	1.44	.147
W369PL-5/32-2	5/32	1/8	7/16	.13	.74	1.14	.094
W369PL-5/32-4	5/32	1/4	9/16	.13	.74	1.32	.094
369PL-5/32-10X32	5/32	10-32	3/8	.13	.74	.94	.094
W369PL-4-1	1/4	1/16	7/16	.17	.76	1.20	.094
W369PL-4-2	1/4	1/8	7/16	.17	.76	1.20	.172
W369PL-4-4	1/4	1/4	9/16	.17	.77	1.38	.172
W369PL-4-6	1/4	3/8	11/16	.17	.77	1.42	.172
369PL-4-10X32	1/4	10-32	7/16	.17	.76	1.05	.094
W369PL-5-2	5/16	1/8	1/2	.17	.84	1.23	.234
W369PL-5-4	5/16	1/4	9/16	.17	.84	1.46	.234
W369PL-6-2	3/8	1/8	9/16	.17	1.04	1.48	.234
W369PL-6-4	3/8	1/4	5/8	.17	1.04	1.66	.234
W369PL-6-6	3/8	3/8	11/16	.17	1.04	1.66	.297
W369PL-6-8	3/8	1/2	7/8	.17	1.05	1.85	.297
W369PL-8-4	1/2	1/4	3/4	.17	1.03	1.80	.314
W369PL-8-6	1/2	3/8	3/4	.17	1.03	1.80	.375
W369PL-8-8	1/2	1/2	7/8	.17	1.03	1.99	.375



369PL-X-10/32

W369PLC Compact Elbow

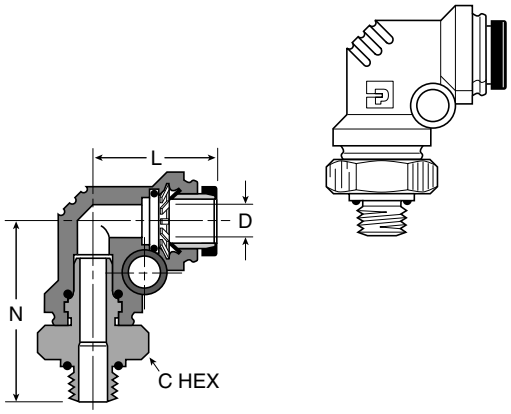
Part No.	Tube Size	Pipe Thread (NPTF)	C Hex	L	N	Flow Dia. D
W369PLC-2-2	1/8	1/8	7/16	.81	.71	.08
W369PLC-5/32-2	5/32	1/8	7/16	.83	.71	.08
W369PLC-5/32-4	5/32	1/4	9/16	.83	.89	.08
W369PLC-3-2	3/16	1/8	7/16	.86	.81	.08
W369PLC-4-2	1/4	1/8	7/16	.86	.81	.08
W369PLC-4-4	1/4	1/4	9/16	.86	.99	.08
W369PLC-5-4	5/16	1/4	9/16	.94	.97	.11
W369PLC-6-4	3/8	1/4	5/8	1.13	1.07	.20
W369PLC-6-6	3/8	3/8	3/4	1.13	1.15	.20



PLE2BF4-K BSPP Male Ebow Swivel

Composite Body

Part No.	Tube Size	Pipe Thread (BSPP)	C Hex	Mounting Hole Dia.	L	N	D
3-1/8PLE2BF4-K	3/16	1/8-28	11/16	.17	.76	1.17	.147
3-1/4PLE2BF4-K	3/16	1/4-19	3/4	.17	.76	1.31	.147
4-1/8PLE2BF4-K	1/4	1/8-28	11/16	.17	.76	1.06	.180
4-1/4PLE2BF4-K	1/4	1/4-19	3/4	.17	.76	1.31	.172
4-3/8PLE2BF4-K	1/4	3/8-19	7/8	.17	.76	1.31	.182
6-1/4PLE2BF4-K	3/8	1/4-19	3/4	.17	1.04	1.57	.297
6-3/8PLE2BF4-K	3/8	3/8-19	7/8	.17	1.04	1.68	.297
6-1/2PLE2BF4-K	3/8	1/2-14	1-1/16	.17	1.04	1.85	.297
8-3/8PLE2BF4-K	1/2	3/8-19	7/8	.17	1.03	1.63	.406
8-1/2PLE2BF4-K	1/2	1/2-19	1-1/16	.17	1.03	1.78	.406

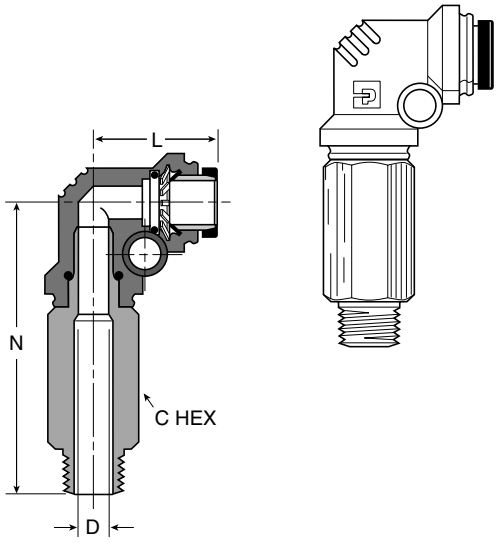


F

W369PLX Male Elbow Swivel 90°

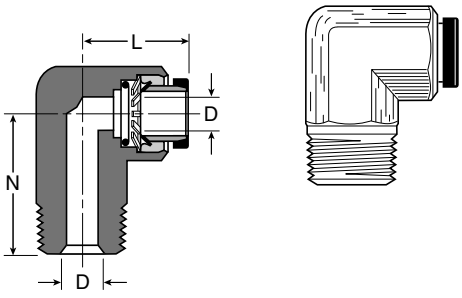
Composite Body

Part No.	Tube Size	Pipe Thread (NPTF)	C Hex	Mounting Hole Dia.	L	N	D
W369PLX-2-2	1/8	1/8	7/16	.13	.73	1.74	.080
W369PLX-2-4	1/8	1/4	9/16	.13	.73	1.74	.080
W369PLX-3-2	3/16	1/8	7/16	.17	.76	1.88	.150
W369PLX-3-4	3/16	1/4	9/16	.17	.76	1.88	.150
W369PLX-3-6	3/16	3/8	11/16	.17	.76	1.88	.150
W369PLX-4-2	1/4	1/8	7/16	.17	.76	1.88	.170
W369PLX-4-4	1/4	1/4	9/16	.17	.76	1.88	.170
W369PLX-4-6	1/4	3/8	11/16	.17	.76	1.88	.170
369PLX-5/32-0	5/32	10-32	3/8	.13	.73	1.54	.090
W369PLX-5/32-2	5/32	1/8	7/16	.13	.73	1.54	.090
W369PLX-5/32-4	5/32	1/4	9/16	.13	.73	1.54	.090
W369PLX-5-2	5/16	1/8	9/16	.17	.84	1.99	.223
W369PLX-5-4	5/16	1/4	9/16	.17	.84	1.99	.230
W369PLX-5-6	5/16	3/8	11/16	.17	.84	1.99	.230
W369PLX-6-4	3/8	1/4	5/8	.17	1.04	2.56	.223
W369PLX-6-6	3/8	3/8	11/16	.17	1.04	2.56	.330
W369PLX-6-8	3/8	1/2	7/8	.17	1.04	2.56	.300
W369PLX-8-4	1/2	1/4	3/4	.17	1.03	2.80	.310
W369PLX-8-6	1/2	3/8	3/4	.17	1.03	2.80	.340
W369PLX-8-8	1/2	1/2	7/8	.17	1.03	2.80	.340



W169PLNS Male elbow 90°

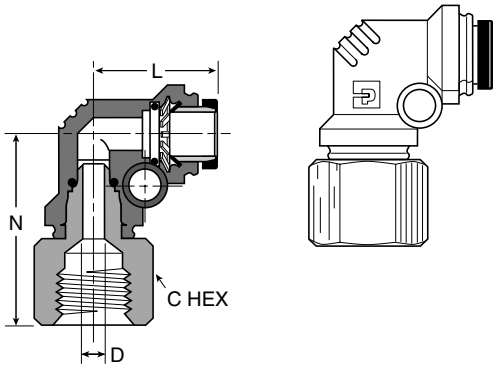
Part No.	Tube Size	Pipe Thread (NPTF)	L	N	D
W169PLNS-2-2	1/8	1/8	.78	.68	.094
W169PLNS-5/32-2	5/32	1/8	.81	.68	.125
W169PLNS-5/32-4	5/32	1/4	.81	.89	.125
W169PLNS-4-2	1/4	1/8	.86	.69	.188
W169PLNS-4-4	1/4	1/4	.96	.89	.188
W169PLNS-5-2	5/16	1/8	.98	.78	.234
W169PLNS-5-4	5/16	1/4	1.02	.97	.250
W169PLNS-6-4	3/8	1/4	1.04	.97	.312
W169PLNS-6-6	3/8	3/8	1.11	1.09	.312
W169PLNS-6-8	3/8	1/2	1.20	1.26	.312
W169PLNS-8-6	1/2	3/8	1.31	1.15	.375
W169PLNS-8-8	1/2	1/2	1.31	1.31	.375



370PL Female Elbow Swivel

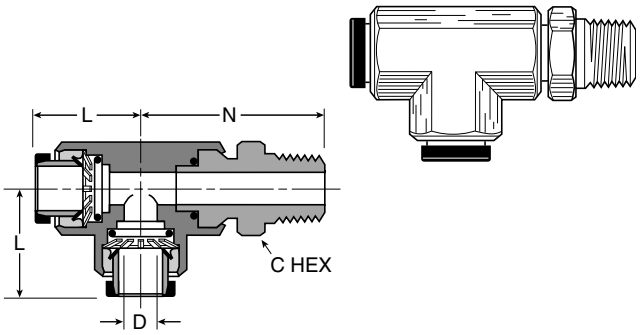
Composite Body

Part No.	Tube Size	Pipe Thread (NPTF)	C Hex	Mounting Hole Dia.	L	N	D
370PL-2-2	1/8	1/8	9/16	.13	.71	1.01	.078
370PL-5/32-2	5/32	1/8	9/16	.13	.73	1.01	.090
370PL-5/32-4	5/32	1/4	3/4	.13	.73	1.23	.090
370PL-4-10x32	1/4	10x32	7/16	.17	.76	1.02	.159
370PL-4-2	1/4	1/8	9/16	.17	.76	1.07	.170
370PL-4-4	1/4	1/4	3/4	.17	.76	1.29	.170
370PL-5-4	5/16	1/4	3/4	.17	.84	1.37	.230
370PL-6-4	3/8	1/4	3/4	.17	1.04	1.57	.297
370PL-8-6	1/2	3/8	7/8	.17	1.03	1.57	.340



W171PL Male Run Tee Swivel

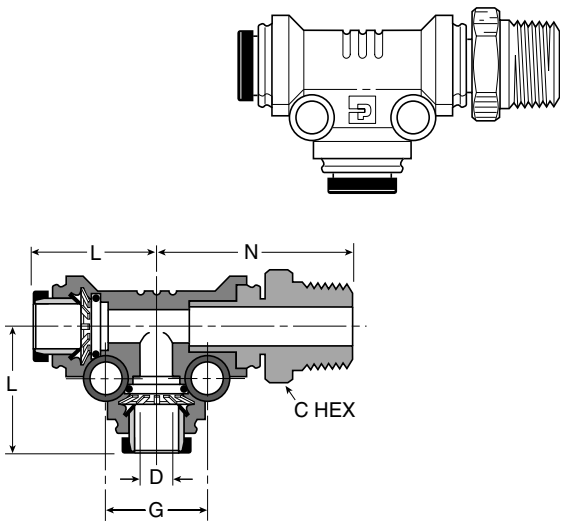
Part No.	Tube Size	Pipe Thread (NPTF)	C Hex	L	N	D
W171PL-2-2	1/8	1/8	7/16	.78	1.22	.078
W171PL-5/32-2	5/32	1/8	7/16	.80	1.24	.109
W171PL-4-2	1/4	1/8	7/16	.96	1.29	.188
W171PL-4-4	1/4	1/4	9/16	.96	1.47	.188
W171PL-5-2	5/16	1/8	1/2	.99	1.42	.234
W171PL-5-4	5/16	1/4	9/16	.99	1.60	.234
W171PL-6-4	3/8	1/4	9/16	1.04	1.66	.297
W171PL-6-6	3/8	3/8	11/16	1.04	1.70	.297
W171PL-8-6	1/2	3/8	3/4	1.19	1.79	.375
W171PL-8-8	1/2	1/2	7/8	1.19	1.98	.375



W371PL Male Run Tee Swivel

Composite Body

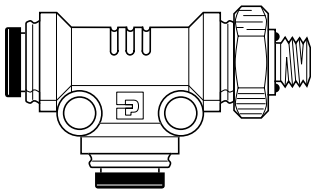
Part No.	Tube Size	Pipe Thread (NPTF)	C Hex	Mounting Hole Dia.	L	N	G	D
W371PL-2-1	1/8	1/16	3/8	.13	.71	1.08	.52	.078
W371PL-2-2	1/8	1/8	7/16	.13	.71	1.14	.52	.078
W371PL-2-4	1/8	1/4	9/16	.13	.71	1.32	.52	.080
371PL-2-10x32	1/8	10-32	3/8	.13	.71	.94	.52	.078
W371PL-3-2	3/16	1/8	7/16	.17	.76	1.20	.64	.150
W371PL-3-4	3/16	1/4	9/16	.17	.76	1.40	.64	.147
W371PL-5/32-2	5/32	1/8	7/16	.13	.71	1.14	.52	.094
W371PL-5/32-4	5/32	1/4	9/16	.13	.71	1.14	.52	.094
371PL-5/32-10x32	5/32	10-32	3/8	.13	.71	.94	.52	.090
W371PL-4-1	1/4	1/16	7/16	.17	.76	1.20	.64	.094
W371PL-4-2	1/4	1/8	7/16	.17	.76	1.20	.64	.170
W371PL-4-4	1/4	1/4	9/16	.17	.76	1.38	.64	.170
371PL-4-10x32	1/4	10-32	7/16	.13	.76	1.05	.64	.094
W371PL-4-6	1/4	3/8	11/16	.17	.76	1.42	.64	.170
W371PL-5-2	5/16	1/8	9/16	.17	.84	1.28	.71	.220
W371PL-5-4	5/16	1/4	9/16	.17	.84	1.46	.71	.234
W371PL-6-2	3/8	1/8	9/16	.13	1.04	1.48	.83	.230
W371PL-6-4	3/8	1/4	5/8	.17	1.04	1.66	.83	.297
W371PL-6-6	3/8	3/8	11/16	.17	1.04	1.70	.83	.297
W371PL-6-8	3/8	1/2	7/8	.13	1.04	1.85	.83	.300
W371PL-8-4	1/2	1/4	3/4	.17	1.30	2.07	1.00	.310
W371PL-8-6	1/2	3/8	3/4	.17	1.30	1.68	1.00	.344
W371PL-8-8	1/2	1/2	7/8	.17	1.30	2.26	1.00	.344

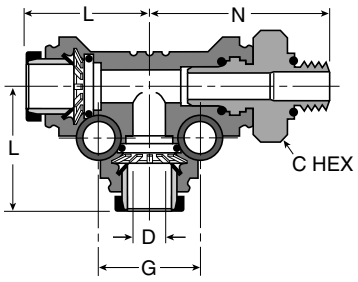


PLR2BF4-K BSPP Male Run Tee Swivel

Composite Body

Part No.	Tube Size	Pipe Thread (BSPP)	C Hex	Mounting Hole Dia.	L	N	G	D
3-1/4PLR2BF4-K	3/16	1/4-19	3/4	.17	.76	1.31	.64	.150
4-1/8PLR2BF4-K	1/4	1/8-28	11/16	.17	.76	1.06	.64	.170
4-1/4PLR2BF4-K	1/4	1/4-19	3/4	.17	.76	1.31	.64	.170
6-1/4PLR2BF4-K	3/8	1/4-19	3/4	.17	1.04	1.52	.83	.300
6-3/8PLR2BF4-K	3/8	3/8-19	7/8	.17	1.04	1.68	.83	.300
8-3/8PLR2BF4-K	1/2	3/8-19	7/8	.17	1.30	1.90	.99	.340
8-1/2PLR2BF4-K	1/2	1/2-19	1-1/16	.17	1.30	2.05	.99	.340

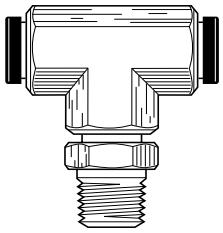


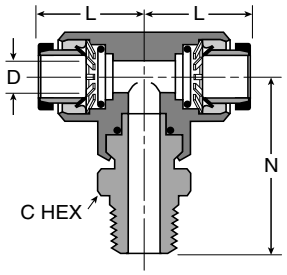


F

W172PL Male Branch Tee Swivel

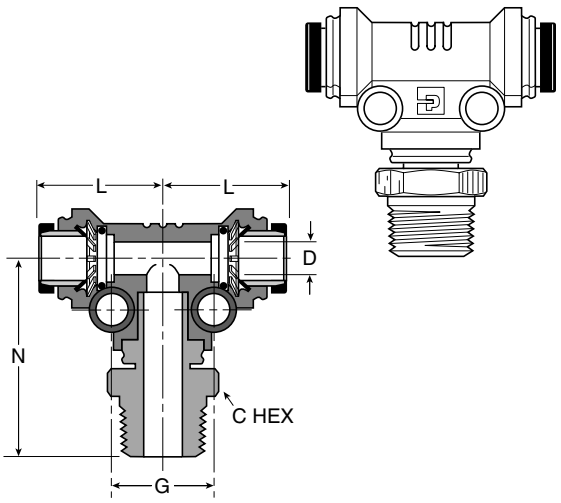
Part No.	Tube Size	Pipe Thread (NPTF)	C Hex	L	N	D
W172PL-2-2	1/8	1/8	7/16	.78	1.22	.078
W172PL-3-2	3/16	1/8	7/16	.78	1.17	.156
W172PL-5/32-2	5/32	1/8	7/16	.80	1.24	.109
W172PL-4-2	1/4	1/8	7/16	.96	1.26	.188
W172PL-4-4	1/4	1/4	9/16	.96	1.44	.188
W172PL-5-2	5/16	1/8	1/2	.99	1.42	.234
W172PL-5-4	5/16	1/4	9/16	.99	1.60	.234
W172PL-6-4	3/8	1/4	9/16	1.04	1.66	.297
W172PL-6-6	3/8	3/8	11/16	1.04	1.70	.297
W172PL-8-6	1/2	3/8	3/4	1.19	1.79	.375
W172PL-8-8	1/2	1/2	7/8	1.19	1.98	.375





SS372PL Male Branch Tee Swivel
Stainless Steel Componentry

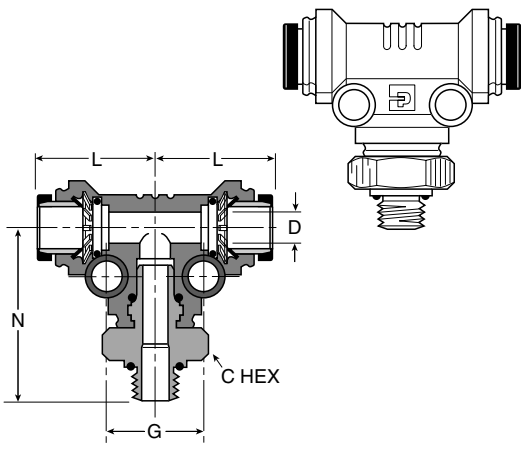
Part No.	Tube Size	Pipe Thread (NPTF)	Mounting C Hex	Mounting Hole Dia.	L	N	G	D
W372PL-2-1	1/8	1/16	3/8	.13	.71	1.08	.52	.078
W372PL-2-2	1/8	1/8	7/16	.13	.71	1.14	.52	.078
W372PL-2-4	1/8	1/4	9/16	.13	.70	1.32	.52	.080
372PL-2-10X32	1/8	10-32	3/8	.13	.70	.94	.52	.080
W372PL-3-2	3/16	1/8	7/16	.17	.76	1.20	.64	.147
W372PL-3-4	3/16	1/4	9/16	.17	.76	1.40	.64	.147
W372PL-5/32-2	5/32	1/8	7/16	.13	.71	1.14	.52	.094
W372PL-5/32-4	5/32	1/4	9/16	.13	.68	1.32	.52	.090
372PL-5/32-10x32	5/32	10-32	3/8	.13	.70	.94	.52	.090
W372PL-4-1	1/4	1/16	7/16	.17	.76	1.20	.64	.094
W372PL-4-2	1/4	1/8	7/16	.17	.76	1.20	.64	.170
W372PL-4-4	1/4	1/4	9/16	.17	.76	1.38	.64	.170
372PL-4-10x32	1/4	10-32	7/16	.17	.76	1.05	.64	.090
W372PL-4-6	1/4	3/8	11/16	.17	.76	1.42	.64	.170
W372PL-5-2	5/16	1/8	9/16	.17	.84	1.28	.71	.234
W372PL-5-4	5/16	1/4	9/16	.17	.84	1.23	.71	.234
W372PL-6-2	3/8	1/8	9/16	.17	1.03	1.48	.83	.230
W372PL-6-4	3/8	1/4	5/8	.17	1.04	1.66	.83	.297
W372PL-6-6	3/8	3/8	11/16	.17	1.04	1.66	.83	.297
W372PL-6-8	3/8	1/2	7/8	.17	1.03	1.85	.83	.300
W372PL-8-4	1/2	1/4	3/4	.17	1.30	2.07	.99	.310
W372PL-8-6	1/2	3/8	3/4	.17	1.30	2.07	.99	.344
W372PL-8-8	1/2	1/2	7/8	.17	1.30	2.26	.99	.344



PLS2BF4-K BSPP Male Branch Tee Swivel

Composite Body

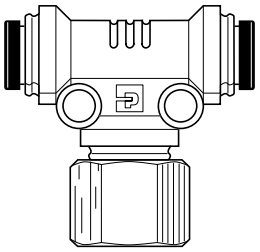
Part No.	Tube Size	Pipe Thread (BSPP)	Mounting C Hex	Mounting Hole Dia.	L	N	G	D
3-1/8PLS2BF4-K	3/16	1/8-28	11/16	.17	.76	1.05	.64	.150
3-1/4PLS2BF4-K	3/16	1/4-19	3/4	.17	.76	1.31	.64	.150
4-1/8PLS2BF4-K	1/4	1/8-28	11/16	.17	.76	1.06	.64	.180
4-1/4PLS2BF4-K	1/4	1/4-19	3/4	.17	.76	1.31	.64	.170
6-1/4PLS2BF4-K	3/8	1/4-19	3/4	.17	1.04	1.57	.83	.300
6-3/8PLS2BF4-K	3/8	3/8-19	7/8	.17	1.04	1.68	.83	.300
6-1/2PLS2BF4-K	3/8	1/2-14	1-1/16	.17	1.04	1.83	.83	.300
8-3/8PLS2BF4-K	1/2	3/8-19	7/8	.17	1.30	1.90	.99	.410

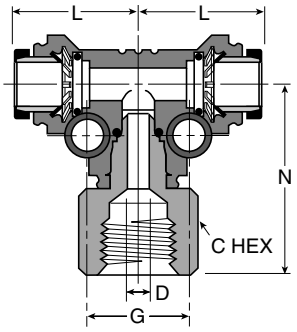


377PL Female Branch Tee Swivel

Composite Body

Part No.	Tube Size	Pipe Thread (NPTF)	Mounting Hole C Hex	Dia.	L	N	G	D
377PL-2-2	1/8	1/8	9/16	.17	.70	1.01	.52	.080
377PL-5/32-2	5/32	1/8	9/16	.13	.70	1.01	.52	.090
377PL-5/32-4	5/32	1/4	3/4	.13	.70	1.23	.52	.090
377PL-4-2	1/4	1/8	9/16	.17	.76	1.07	.64	.170
377PL-4-4	1/4	1/4	3/4	.17	.76	1.29	.64	.170
377PL-5-4	5/16	1/4	3/4	.17	.84	1.37	.72	.230
377PL-6-4	3/8	1/4	3/4	.17	1.04	1.57	.83	.300
377PL-8-6	1/2	3/8	7/8	.17	1.30	1.84	.99	.410

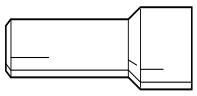


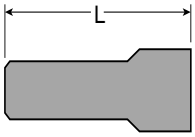


F

639PL Plug

Part No.	Tube Size	L
639PL-2	1/8	1.30
639PL-5/32	5/32	1.34
639PL-4	1/4	1.34
639PL-5	5/16	1.28
639PL-6	3/8	1.50
639PL-8	1/2	1.69

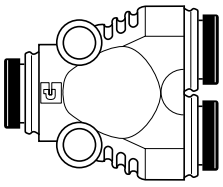


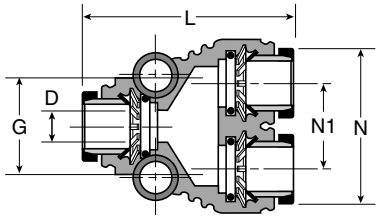


362PL Union Y Connector

Composite Body

Part No.	Tube Size	Mounting Hole Dia.	L	N	N1	G	D
362PL-2	1/8	.13	1.38	.92	.41	.57	.130
362PL-5/32	5/32	.13	1.36	.92	.41	.57	.160
362PL-3	3/16	.17	1.49	1.13	.54	.67	.200
362PL-4	1/4	.17	1.49	1.13	.53	.67	.260
362PL-5	5/16	.17	1.49	1.21	.54	.72	.320
362PL-6	3/8	.17	1.88	1.54	.71	.76	.380

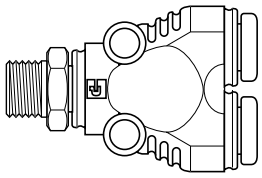


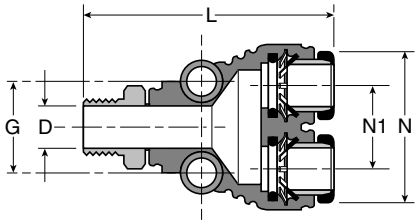


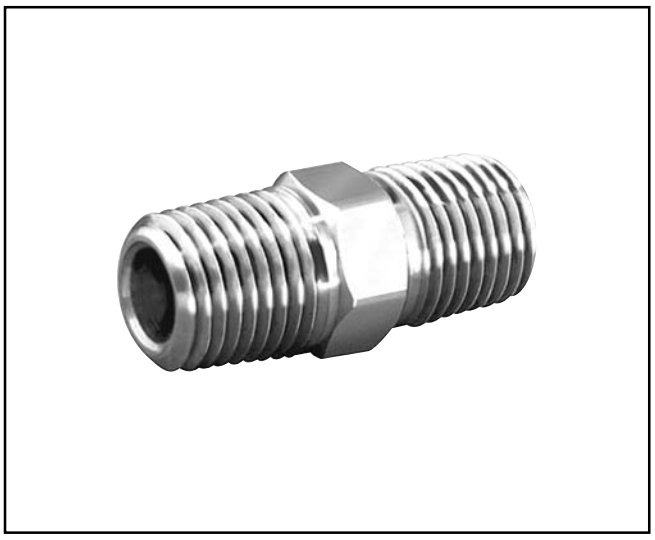
W368PL Union Y Male Connector

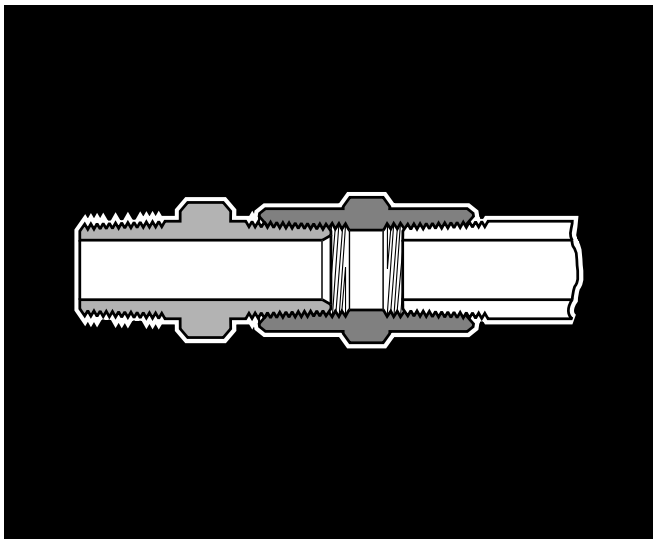
Composite Body

Part No.	Tube Size	Pipe Size	G	Mounting Hole Dia.	L	N	N1	D
W368PL-2-2	1/8	1/8	.57	.13	1.81	.91	.41	.080
W368PL-2-4	1/8	1/4	.57	.13	1.98	.91	.41	.080
368PL-5/32-10x32	5/32	10-32	.57	.13	1.60	.92	.41	.090
W368PL-5/32-2	5/32	1/8	.57	.13	1.80	.92	.41	.090
W368PL-5/32-4	5/32	1/4	.57	.13	1.98	.92	.41	.090
368PL-3-10x32	3/16	10-32	.67	.17	1.77	1.13	.54	.094
W368PL-3-2	3/16	1/8	.67	.17	1.92	1.13	.54	.150
W368PL-3-4	3/16	1/4	.67	.17	2.16	1.13	.54	.150
W368PL-3-6	3/16	3/8	.67	.17	2.16	1.13	.54	.147
368PL-4-10x32	1/4	10-32	.67	.17	1.78	1.13	.53	.090
W368PL-4-2	1/4	1/8	.67	.17	1.93	1.13	.53	.172
W368PL-4-4	1/4	1/4	.67	.17	2.11	1.13	.53	.170
W368PL-4-6	1/4	3/8	.67	.17	2.15	1.13	.53	.170
W368PL-5-2	5/16	1/8	.72	.17	1.87	1.20	.54	.230
W368PL-5-4	5/16	1/4	.72	.17	2.10	1.20	.54	.230
W368PL-5-6	5/16	3/8	.72	.17	2.04	1.20	.54	.234
W368PL-6-4	3/8	1/4	.76	.17	2.50	1.53	.71	.300
W368PL-6-6	3/8	3/8	.76	.17	2.50	1.53	.71	.300
W368PL-6-8	3/8	1/2	.76	.17	2.69	1.53	.71	.300









F

Advantages
All pipe fitting threads are made to Dryseal standards. Connectors, unions, nuts and extruded elbows and tees are machined from CA 360 or CA 345 brass rod; forged elbows and tees are machined from CA 377 brass.

Approvals
Meets functional requirements of the SAE, J530, SAE J531 and ASA.

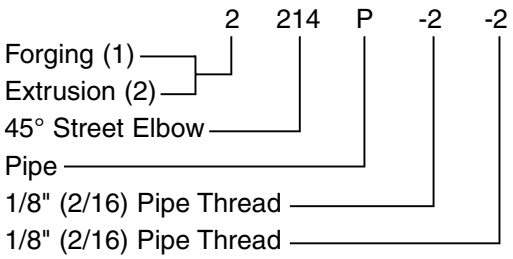
Applications
Use with brass, copper, or iron pipe. Manufactured for low and medium pressure line connection work.

Temperature and Working Pressure Ranges
From -65°F to 250°F at 1000 PSI.

Vibration
Fair resistance to vibration and pipe movement depending upon conditions.

Nomenclature
Part numbers are constructed from symbols that identify the style and size of the fitting. The first series of numbers and letters identifies the style and type fitting. The second series of numbers describes the size.

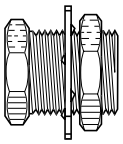
Example

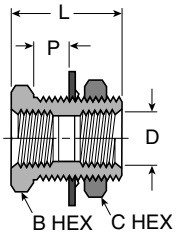


Sizes
Pipe sizes are determined by the number of sixteenths of an inch in the pipe size.

Anchor Connector 207ACBH

Part No.	Pipe Thread	Straight Thread	B Hex	C Hex	P Max.	L	Flow Dia. D
207ACBH-2	1/8	5/8-18	.88	.94	.80	1.50	.328
207ACBH-4	1/4	3/4-16	1.00	1.12	.75	1.50	.422
207ACBHS-4	1/4	3/4-16	1.00	1.00	.19	.94	.422
207ACBH-6	3/8	1.00-14	1.12	1.25	.50	1.31	.562
207ACBH-8	1/2	1-1/8-14	1.25	1.38	.67	1.50	.688

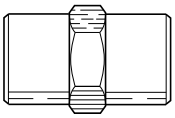


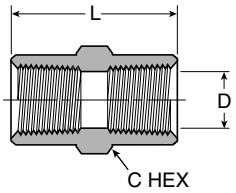


Coupling 207P

Ref. SAE 130138

Part No.	Pipe Thread	C Hex	L	Flow Dia. D
207P-2	1/8	9/16	.75	.328
207P-4	1/4	3/4	1.12	.422
207P-6	3/8	7/8	1.12	.562
207P-8	1/2	1-1/16	1.50	.687
207P-12	3/4	1-3/8	1.53	.900

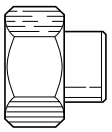


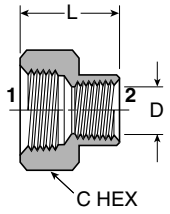


Reducer Coupling 208P

Ref. SAE 130138

Part No.	1 Pipe Thread	2 Pipe Thread	C Hex	L	Flow Dia. D
208P-4-2	1/4	1/8	3/4	.97	.328
208P-6-4	3/8	1/4	7/8	1.16	.422
208P-8-4	1/2	1/4	1-1/16	1.28	.422
208P-8-6	1/2	3/8	1-1/16	1.38	.562

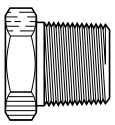


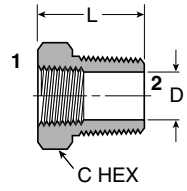


Bushing 209P

Ref. SAE 130140

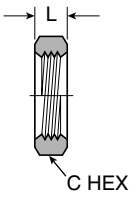
Part No.	1 Pipe Thread	2 Pipe Thread	C Hex	L	Flow Dia. D
209P-4-2	1/8	1/4	9/16	.75	.328
209P-6-2	1/8	3/8	11/16	.75	.328
209P-6-4	1/4	3/8	11/16	.75	.422
209P-8-2	1/8	1/2	7/8	1.00	.328
209P-8-4	1/4	1/2	7/8	1.00	.422
209P-8-6	3/8	1/2	7/8	1.00	.562
209P-12-2	1/8	3/4	1-1/8	1.00	.328
209P-12-4	1/4	3/4	1-1/8	1.00	.422
209P-12-6	3/8	3/4	1-1/8	1.00	.562
209P-12-8	1/2	3/4	1-1/8	1.00	.688





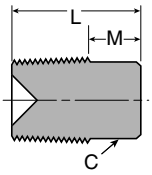
210P Lock Nut

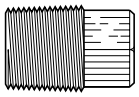
Part No.	Pipe Thread	C Hex	L
210P-2	1/8	11/16	.19
210P-4	1/4	7/8	.25
210P-6	3/8	1	.25
210P-8	1/2	1-1/8	.25



211P Square-head Plug

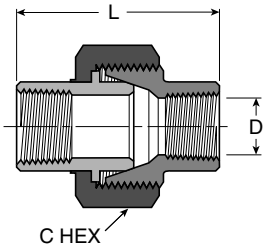
Part No.	Pipe Thread	C Square	L	M
211P-2	1/8	9/32	.59	.25
211P-4	1/4	3/8	.80	.30
211P-6	3/8	15/32	.80	.30
211P-8	1/2	9/16	1.07	.39
211P-12	3/4	5/8	1.14	.45

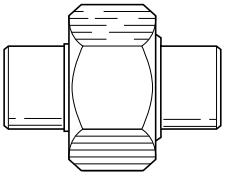




212P Union

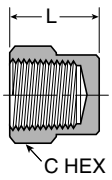
Part No.	Pipe Thread	C Hex	L	Flow Dia. D
212P-4	1/4	1-3/16	1.53	.422
212P-6	3/8	1-1/4	1.79	.562

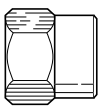




213P Cap

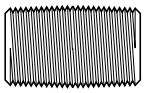
Part No.	Pipe Thread	C Hex	L
213P-2	1/8	9/16	.50
213P-4	1/4	11/16	.63
213P-6	3/8	13/16	.63
213P-8	1/2	1-1/16	.87

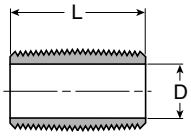




215PN Close Nipple

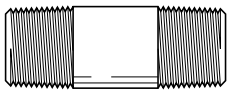
Part No.	Pipe Thread	L	Flow Dia. D
215PN-2	1/8	.75	.281
215PN-4	1/4	.88	.375
215PN-6	3/8	1.00	.500
215PN-8	1/2	1.13	.625
215PN-12	3/4	1.31	.750

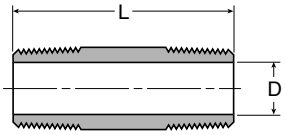




215PNL Long Nipple

Part No.	Pipe Thread	L	Flow Dia. D
215PNL-2-15	1/8	1-1/2	.250
215PNL-4-15	1/4	1-1/2	.375
215PNL-6-15	3/8	1-1/2	.500
215PNL-8-15	1/2	1-1/2	.625
215PNL-2-20	1/8	2	.250
215PNL-4-20	1/4	2	.375
215PNL-6-20	3/8	2	.500
215PNL-8-20	1/2	2	.625
215PNL-2-25	1/8	2-1/2	.250
215PNL-4-25	1/4	2-1/2	.375
215PNL-6-25	3/8	2-1/2	.500
215PNL-8-25	1/2	2-1/2	.625
215PNL-2-30	1/8	3	.250
215PNL-4-30	1/4	3	.375
215PNL-6-30	3/8	3	.500
215PNL-8-30	1/2	3	.625
215PNL-2-35	1/8	3-1/2	.250
215PNL-4-35	1/4	3-1/2	.375
215PNL-6-35	3/8	3-1/2	.500
215PNL-8-35	1/2	3-1/2	.625

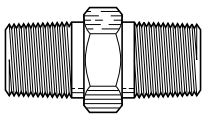


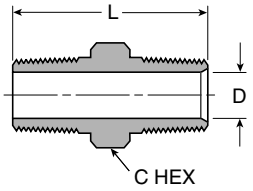


216P Hex Nipple

Ref. SAE 130137

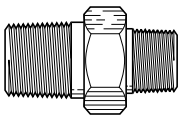
Part No.	Pipe Thread	C Hex	L	Flow Dia. D
216P-2	1/8	7/16	.97	.220
216P-4	1/4	9/16	1.38	.314
216P-6	3/8	11/16	1.41	.440
216P-8	1/2	7/8	1.81	.564
216P-12	3/4	1-1/16	1.81	.752

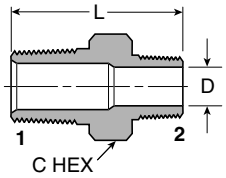




216P Reducers

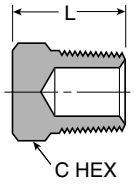
Part No.	1 Pipe Thread	2 Pipe Thread	C Hex	L	Flow Dia. D
216P-4-2	1/4	1/8	9/16	1.19	.220
216P-6-2	3/8	1/8	11/16	1.22	.220
216P-6-4	3/8	1/4	11/16	1.41	.314
216P-8-4	1/2	1/4	7/8	1.62	.314
216P-8-6	1/2	3/8	7/8	1.62	.440
216P-12-8	3/4	1/2	1-1/16	1.80	.564

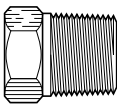




218P Hex-head Plug

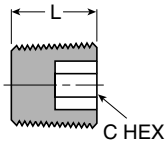
Part No.	Pipe Thread	C Hex	L
218P-2	1/8	7/16	.56
218P-4	1/4	9/16	.75
218P-6	3/8	11/16	.78
218P-8	1/2	7/8	.97

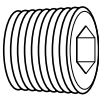




219P Countersunk Hex-head Plug

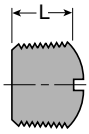
Part No.	Pipe Thread	C Hex	L
219P-2	1/8	3/16	.30
219P-4	1/4	1/4	.46
219P-6	3/8	5/16	.47
219P-8	1/2	3/8	.61





220P Slotted Head Plug

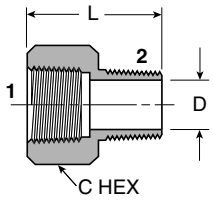
Part No.	Pipe Thread	L
220P-2	1/8	.31
220P-4	1/4	.42
220P-6	3/8	.43

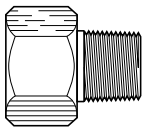


222P Adapter

Ref. SAE 130139

Part No.	1 Pipe Thread	2 Pipe Thread	C Hex	L	Flow Dia. D
222P-2-2	1/8	1/8	9/16	.88	.218
222P-4-2	1/4	1/8	3/4	1.06	.218
222P-4-4	1/4	1/4	3/4	1.25	.314
222P-6-4	3/8	1/4	7/8	1.25	.314
222P-6-6	3/8	3/8	7/8	1.25	.440
222P-8-4	1/2	1/4	1	1.47	.312
222P-8-6	1/2	3/8	1-1/16	1.47	.440
222P-8-8	1/2	1/2	1-1/16	1.66	.562
222P-12-8	3/4	1/2	1-3/8	1.69	.562

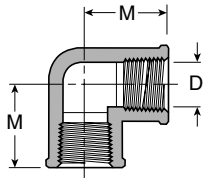


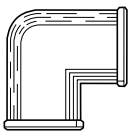


1200P-2200P Union Elbow 90°

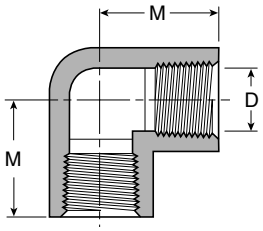
Ref. SAE 130238

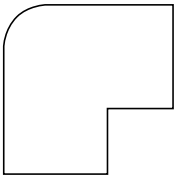
Part No.	Pipe Thread	M	Dia. D
1200P-2-2	1/8	.56	.328
2200P-2-2	1/8	.55	.328
1200P-4-4	1/4	.81	.422
2200P-4-4	1/4	.78	.422
2200P-6-6	3/8	.84	.563
2200P-8-8	1/2	1.07	.687





1200P





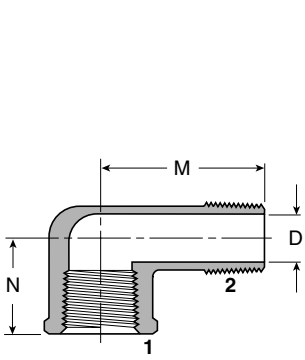
2200P

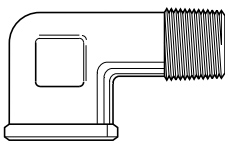
1202P-2202P Street Elbow 90°

Ref. SAE 130239

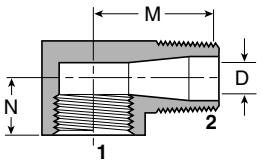
Part No.	1 Pipe Thread	2 Pipe Thread	M	N	Flow Dia. D
1202P-2-2	1/8	1/8	.81	.56	.22
2202P-2-2	1/8	1/8	.62	.48	.22
2202PA-2-2*	1/8	1/8	.66	.48	.22
2202P-4-2	1/4	1/8	.72	.45	.23
1202P-4-4	1/4	1/4	1.08	.69	.31
2202P-4-4	1/4	1/4	.91	.45	.34
2202PA-4-4*	1/4	1/4	.91	.72	.42
1202P-6-6	3/8	3/8	1.25	.78	.42
2202P-6-6	3/8	3/8	.98	.54	.41
2202PA-6-6*	3/8	3/8	.97	.78	.43
2202P-8-8	1/2	1/2	1.25	1.03	.56

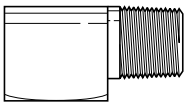
* Meets SAE dimensions.





1202P



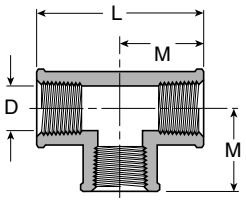


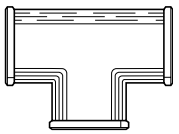
2202P

1203P-2203P Union Tee

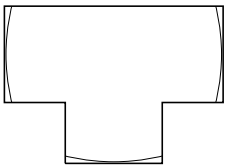
Ref. SAE 130438

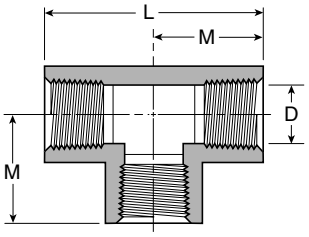
Part No.	Pipe Thread	L	M	Flow Dia. D
1203P-2	1/8	1.12	.56	.328
2203P-2	1/8	1.08	.53	.328
1203P-4	1/4	1.38	.69	.422
2203P-4	1/4	1.52	.76	.422
2203P-6	3/8	1.68	.84	.562
2203P-8	1/2	2.14	1.07	.688





1203P

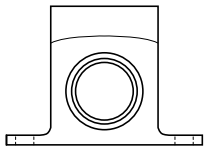


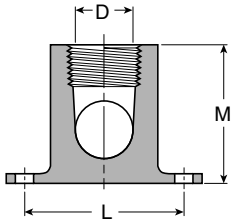


2203P

2200PDE Drop-ear Elbow 90°

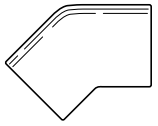
Part No.	Pipe Thread	L	M	Dia. D
2200PDE-2	1/8	1.38	1.00	.328

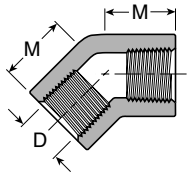




2201P Female Elbow 45°

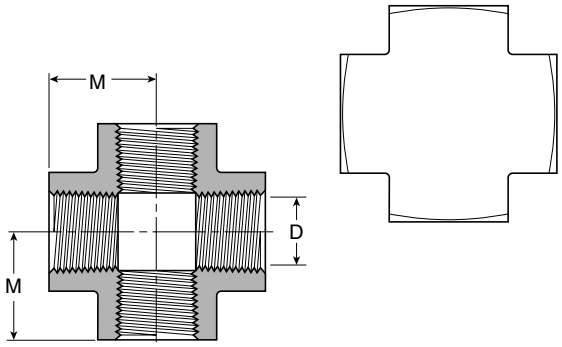
Part No.	Pipe Thread	M	Flow Dia. D
2201P-2-2	1/8	.43	.328





2205P Cross

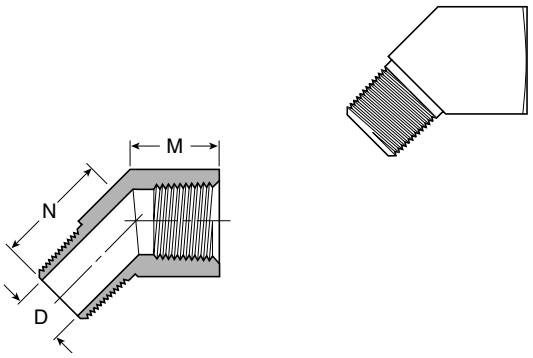
Part No.	Pipe Thread	M	Flow Dia. D
2205P-2	1/8	.53	.328
2205P-4	1/4	.75	.421
2205P-6	3/8	.82	.562



2214P Street Elbow 45°

Ref. SAE 130339

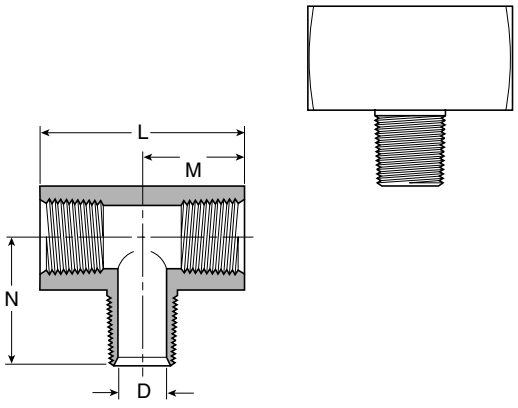
Part No.	Pipe Thread	M	N	Flow Dia. D
2214P-2-2	1/8	.38	.50	.220
2214P-4-4	1/4	.54	.70	.314
2214P-6-6	3/8	.54	.78	.440
2214P-8-8	1/2	.73	1.00	.562



2224P Male Branch Tee

Ref. SAE 130425

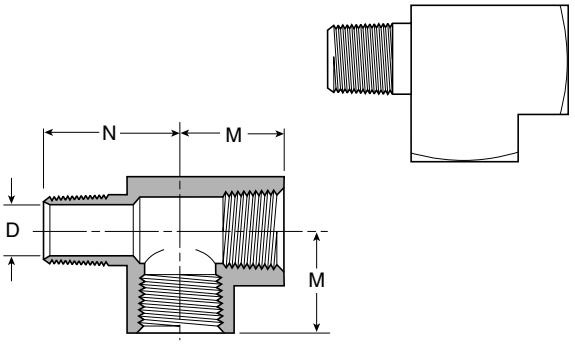
Part No.	Pipe Thread	L	M	N	Flow Dia. D
2224P-2	1/8	1.06	.53	.66	.220
2224P-4	1/4	1.52	.76	.91	.314
2224P-6	3/8	1.68	.84	.97	.438

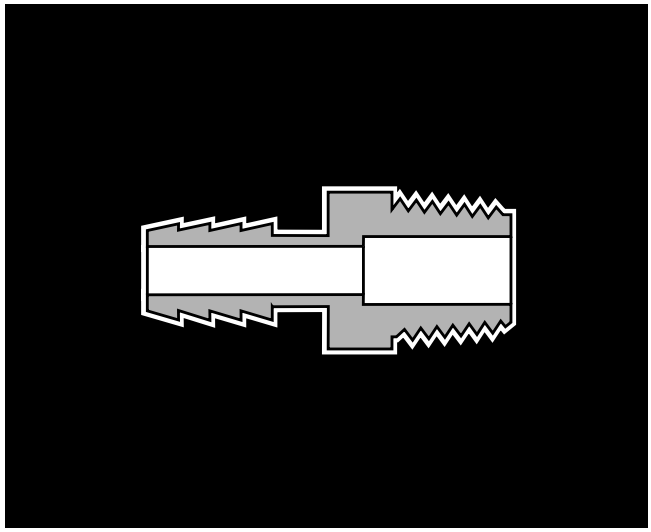


2225P Street Tee

Ref. SAE 130424

Part No.	Pipe Thread	M	N	Flow Dia. D
2225P-2	1/8	.53	.66	.220
2225P-4	1/4	.76	.91	.312
2225P-6	3/8	.84	.98	.440
2225P-8	1/2	1.07	1.26	.564





F

Advantages
PB thermoplastic fittings are precision injection molded from high strength, chemically inert materials.

The specially engineered **four barb** design generates the maximum gripping and sealing power when combined with a hose clamp. The unique barb design requires the tube or hose to expand slightly to accept the fitting, providing a positive seal on the barbs.

Applications and Approvals
PB thermoplastic fittings are widely used with clear vinyl tubing, urethane tubing, and a variety of rubber tubing and hose. PB thermoplastic fittings meet FDA and NSF specs for food contact and potable water.

These fittings are recommended in medical, pollution control, food and beverage applications. Other uses include irrigation, instrumentation, reverse osmosis and deionized water systems.

Temperature Range
Black Polyethylene: -65°F to 190°F (-54°C to 88°C)
White or Black Nylon: -40°F to 200°F (-40°C to 93°C)

Working Pressures
PB thermoplastic fittings are generally used in systems where pressures do not exceed 125 psi. When used in excess of 125 psi, these fittings, in all sizes, should be tested by the customer in this particular application.

Operating pressures are governed by ambient and fluid temperatures, type of fluid conveyed, hose or tubing used, clamping mechanism employed, and conditions of mechanical abuse.

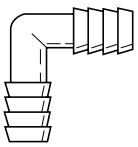
Nomenclature
Part numbers are constructed from symbols that identify the style and size of the fitting. Letters identify style and material. Numbers identify size in 1/16's of an inch.

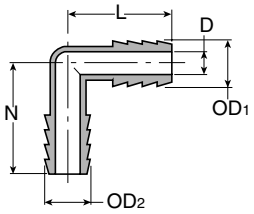
Example:

P	4	MC	B	2
Polyethylene				
	1/4" (4/16) Tube I.D.			
		Style Male Connector		
			Barb	
				1/8" (2/16) Pipe Thread

EUB Union Elbow

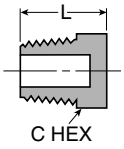
Black High Density Linear Polyethylene Part No.	White Nylon Part No.	Tube or Hose I.D. 1	Tube or Hose I.D. 2	O.D. 1	O.D. 2	L	N	Flow Dia. D
P4EUB4	N4EUB4	1/4	1/4	.308	.308	1.002	1.256	.153
P6EUB6	N6EUB6	3/8	3/8	.425	.425	1.060	1.256	.247
P8EUB4	N8EUB4	1/2	1/4	.550	.308	1.002	1.256	.153
P8EUB6	N8EUB6	1/2	3/8	.550	.425	1.060	1.256	.247
P8EUB8	N8EUB8	1/2	1/2	.550	.550	1.123	1.256	.372
P10EUB10	N10EUB10	5/8	5/8	.644	.644	1.170	1.256	.465
P12EUB12	N12EUB12	3/4	3/4	.788	.788	1.242	1.256	.606





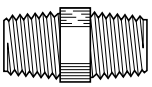
HPL Hex Head Pipe Plug

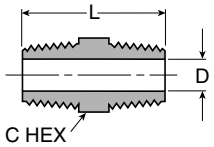
Black High Density Linear Polyethylene Part No.	White Nylon Part No.	Pipe Thread	C Hex	L
P2HPL	N2HPL	1/8	7/16	.660
P4HPL	N4HPL	1/4	9/16	.880
P6HPL	N6HPL	3/8	11/16	.905
P8HPL	N8HPL	1/2	7/8	1.092
P12HPL	N12HPL	3/4	1-1/8	1.115



HPN Hex Pipe Nipple

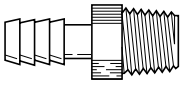
Black High Density Linear Polyethylene Part No.	White Nylon Part No.	Pipe Thread 1	Pipe Thread 2	C Hex	L	Flow Dia D_1	Flow Dia. D_2
P2HPN2	N2HPN2	1/8	1/8	7/16	1.062	.187	.187
P4HPN2	N4HPN2	1/4	1/8	9/16	1.281	.286	.187
P4HPN4	N4HPN4	1/4	1/4	9/16	1.469	.285	.285
P6HPN2	N6HPN2	3/8	1/8	11/16	1.332	.406	.187
P6HPN4	N6HPN4	3/8	1/4	11/16	1.488	.406	.285
P6HPN6	N6HPN6	3/8	3/8	11/16	1.500	.406	.406
P8HPN2	N8HPN2	1/2	1/8	7/8	1.485	.618	.187
P8HPN4	N8HPN4	1/2	1/4	7/8	1.687	.618	.285
P8HPN6	N8HPN6	1/2	3/8	7/8	1.687	.618	.406
P8HPN8	N8HPN8	1/2	1/2	7/8	1.875	.618	.618
P12HPN6	N12HPN6	3/4	3/8	1-1/8	1.703	.750	.408
P12HPN8	N12HPN8	3/4	1/2	1-1/8	1.891	.750	.618
P12HPN12	N12HPN12	3/4	3/4	1-1/8	1.932	.750	.750

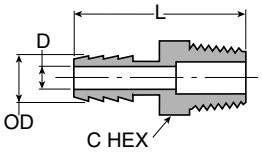




MCB Male Connector

Black High Density Linear Polyethylene Part No.	White Nylon Part No.	Tube or Hose I.D.	Pipe Thread	C Hex	O.D.	L	Flow Dia. D
P3MCB2	N3MCB2	3/16	1/8	7/16	.245	1.530	.106
P3MCB4	N3MCB4	3/16	1/4	9/16	.245	1.750	.106
P3MCB8	N3MCB8	3/16	1/2	7/8	.245	1.970	.106
P4MCB2	N4MCB2	1/4	1/8	7/16	.308	1.530	.153
P4MCB4	N4MCB4	1/4	1/4	9/16	.308	1.750	.153
P4MCB6	N4MCB6	1/4	3/8	11/16	.308	1.780	.153
P4MCB8	N4MCB8	1/4	1/2	7/8	.308	1.970	.153
P4MCB12	N4MCB12	1/4	3/4	1-1/8	.308	1.980	.153
P5MCB2	N5MCB2	5/16	1/8	7/16	.361	1.530	.215
P5MCB4	N5MCB4	5/16	1/4	9/16	.361	1.750	.215
P5MCB6	N5MCB6	5/16	3/8	11/16	.361	1.780	.215
P6MCB2	N6MCB2	3/8	1/8	7/16	.425	1.530	.247
P6MCB4	N6MCB4	3/8	1/4	9/16	.425	1.750	.247
P6MCB6	N6MCB6	3/8	3/8	11/16	.425	1.780	.247
P6MCB8	N6MCB8	3/8	1/2	7/8	.425	1.970	.247
P6MCB12	N6MCB12	3/8	3/4	1-1/8	.425	1.980	.247
P8MCB4	N8MCB4	1/2	1/4	9/16	.550	1.750	.372
P8MCB6	N8MCB6	1/2	3/8	11/16	.550	1.780	.372
P8MCB8	N8MCB8	1/2	1/2	7/8	.550	1.970	.372
P8MCB12	N8MCB12	1/2	3/4	1-1/8	.550	1.980	.372
P10MCB6	N10MCB6	5/8	3/8	11/16	.644	1.780	.465
P10MCB8	N10MCB8	5/8	1/2	7/8	.644	1.970	.465
P10MCB12	N10MCB12	5/8	3/4	1-1/8	.644	1.980	.465
P12MCB8	N12MCB8	3/4	1/2	7/8	.788	1.970	.606
P12MCB12	N12MCB12	3/4	3/4	1-1/8	.788	1.980	.606





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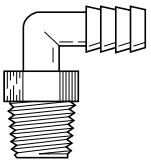
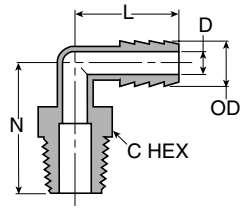
MEB Male Elbow Connector

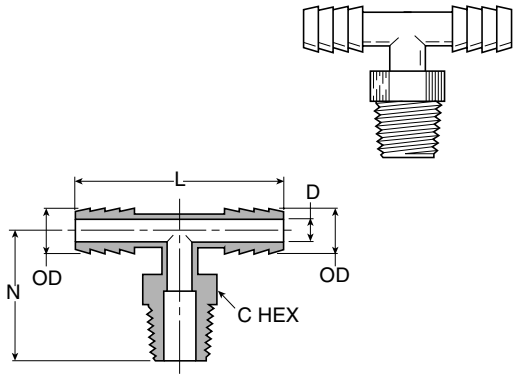
Black High Density Linear Polyethylene Part No.	White Nylon Part No.	Tube or Hose I.D.	Pipe Thread	C Hex	O.D.	L	N	Flow Dia. D
P3MEB2	N3MEB2	3/16	1/8	7/16	.245	.971	1.186	.106
P3MEB4	N3MEB4	3/16	1/4	9/16	.245	.971	1.406	.106
P4MEB2	N4MEB2	1/4	1/8	7/16	.308	1.002	1.186	.153
P4MEB4	N4MEB4	1/4	1/4	9/16	.308	1.002	1.406	.153
P4MEB6	N4MEB6	1/4	3/8	11/16	.308	1.002	1.436	.153
P4MEB8	N4MEB8	1/4	1/2	7/8	.308	1.002	1.626	.153
P4MEB12	N4MEB12	1/4	3/4	1-1/8	.308	1.002	1.636	.153
P6MEB2	N6MEB2	3/8	1/8	7/16	.425	1.060	1.186	.247
P6MEB4	N6MEB4	3/8	1/4	9/16	.425	1.060	1.406	.247
P6MEB6	N6MEB6	3/8	3/8	11/16	.425	1.060	1.436	.247
P6MEB8	N6MEB8	3/8	1/2	7/8	.425	1.060	1.626	.247
P6MEB12	N6MEB12	3/8	3/4	1-1/8	.425	1.060	1.636	.247
P8MEB4	N8MEB4	1/2	1/4	9/16	.550	1.123	1.406	.372
P8MEB6	N8MEB6	1/2	3/8	11/16	.550	1.123	1.436	.372
P8MEB8	N8MEB8	1/2	1/2	7/8	.550	1.123	1.626	.372
P8MEB12	N8MEB12	1/2	3/4	1-1/8	.550	1.123	1.636	.372
P10MEB6	N10MEB6	5/8	3/8	11/16	.644	1.170	1.436	.465
P10MEB8	N10MEB8	5/8	1/2	7/8	.644	1.170	1.626	.465
P10MEB12	N10MEB12	5/8	3/4	1-1/8	.644	1.170	1.636	.465
P12MEB8	N12MEB8	3/4	1/2	7/8	.788	1.242	1.626	.606





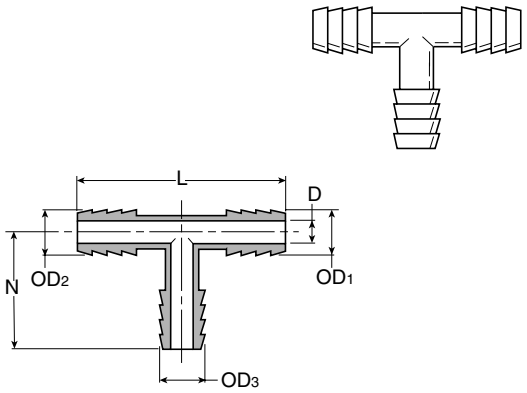
MBT Male Branch Tee

Black High Density LInear Polyethylene Part No.	White Nylons Part No.	Tube or Hose I.D.	Pipe Thread	C Hex	O.D.	L	N	Flow Dia. D
P3MTB2	N3MTB2	3/16	1/8	7/16	.245	1.941	1.187	.106
P3MTB4	N3MTB4	3/16	1/4	9/16	.245	1.941	1.406	.106
P4MTB2	N4MTB2	1/4	1/8	7/16	.308	2.004	1.187	.153
P4MTB4	N4MTB4	1/4	1/4	9/16	.308	2.004	1.406	.153
P4MTB6	N4MTB6	1/4	3/8	11/16	.308	2.004	1.436	.153
P6MTB4	N6MTB4	3/8	1/4	9/16	.425	2.121	1.406	.247
P6MTB6	N6MTB6	3/8	3/8	11/16	.425	2.121	1.436	.247
P6MTB8	N6MTB8	3/8	1/2	7/8	.425	2.121	1.626	.247
P8MTB4	N8MTB4	1/2	1/4	9/16	.550	2.246	1.406	.281
P8MTB6	N8MTB6	1/2	3/8	11/16	.550	2.246	1.436	.372
P8MTB8	N8MTB8	1/2	1/2	7/8	.550	2.246	1.626	.372



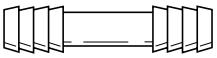
TUB Union Tee

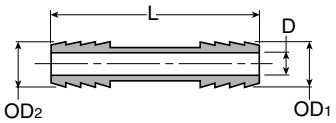
Black High Density Linear Polyethylene Part No.	White Nylon Part No.	Tube or Hose I.D. 1 & 2	Tube or Hose I.D. 3	O.D. 1 & 2	O.D. 3	L	N	Flow Dia. D
P2TUB2	N2TUB2	1/8	1/8	.141	.141	1.203	.594	.078
P3TUB3	N3TUB3	3/16	3/16	.245	.245	1.941	1.256	.106
P4TUB4	N4TUB4	1/4	1/4	.308	.308	2.004	1.256	.153
P5TUB5	N5TUB5	5/16	5/16	.361	.361	2.058	1.256	.215
P6TUB4	N6TUB4	3/8	1/4	.425	.308	2.121	1.256	.153
P6TUB6	N6TUB6	3/8	3/8	.425	.425	2.134	1.256	.247
P6TUB8	N6TUB8	3/8	1/2	.425	.550	2.121	1.256	.247
P8TUB6	N8TUB6	1/2	3/8	.550	.425	2.248	1.256	.247
P8TUB8	N8TUB8	1/2	1/2	.550	.550	2.248	1.256	.372
P10TUB10	N10TUB10	5/8	5/8	.644	.644	2.340	1.256	.465



UCB Union Connector

Black High Density Polyethylene Part No.	White Nylon Part No.	Tube or Hose I.D. 1	Tube or Hose I.D. 2	O.D. 1	O.D. 2	L	Flow Dia. D
P2UCB2	N2UCB2	1/8	1/8	.152	.152	.625	.050
P3UCB3	N3UCB3	3/16	3/16	.245	.245	1.750	.106
P4UCB3	N4UCB3	1/4	3/16	.308	.245	1.750	.106
P4UCB4	N4UCB4	1/4	1/4	.308	.308	1.750	.153
P5UCB5	N5UCB5	5/16	5/16	.361	.361	1.750	.215
P6UCB4	N6UCB4	3/8	1/4	.425	.308	1.750	.153
P6UCB6	N6UCB6	3/8	3/8	.425	.425	1.750	.247
P8UCB4	N8UCB4	1/2	1/4	.550	.308	1.750	.153
P8UCB6	N8UCB6	1/2	3/8	.550	.425	1.750	.247
P8UCB8	N8UCB8	1/2	1/2	.550	.550	1.750	.372
P10UCB6	N10UCB6	5/8	3/8	.644	.425	1.750	.247
P10UCB8	N10UCB8	5/8	1/2	.644	.550	1.750	.372
P10UCB10	N10UCB10	5/8	5/8	.644	.644	1.750	.465





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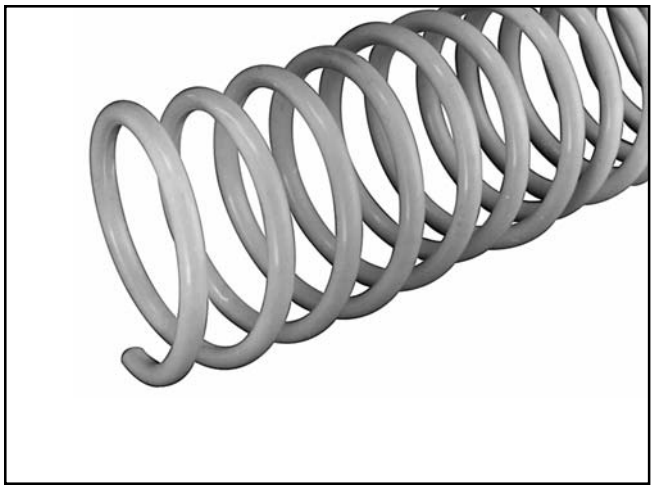
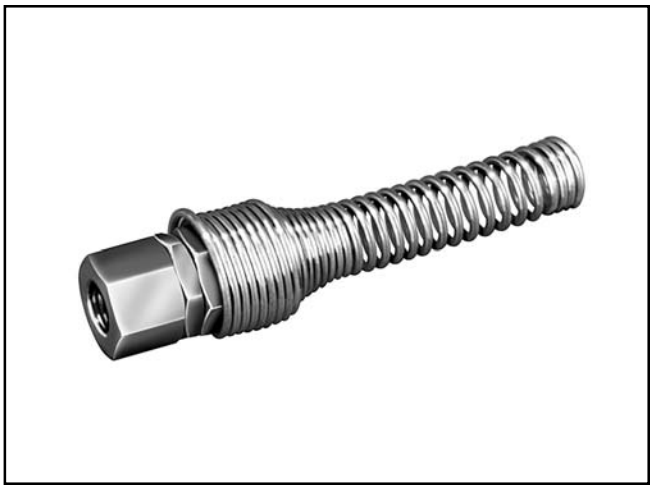


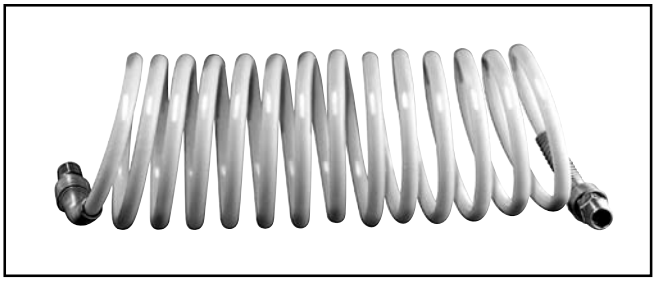
Advantages

FS self retracting air hose is manufactured from an extremely tough, abrasion resistant nylon. FS hose has excellent “memory” characteristics over a wide temperature range for long service life in the most rugged applications. The SAFETY YELLOW color of FS hose is highly desirable due to U.S. Government “OSHA” directives. Service temperature range from -40°F to 200°F.



Advantages

Fittings for FS hose are heavy duty brass construction with built in insert-supports. Fitting bodies are SAE standard sizes. Hose entry length into the fittings is the longest in the industry due to SAE body design and size standardization, assuring a strong grip on the hose.



Popular Stock Assemblies

Assembly Part No.	FS Hose I.D.	Total Length of Hose	Usable Length	Fitting End #1	Fitting End #2 (Live Swivel)
A0312-MC4-ML4	3/16"	12'	9'	1/4" MPT	1/4" MPT
A0325-MC4-ML4	3/16"	25'	18'	1/4" MPT	1/4" MPT
A0350-MC4-ML4	3/16"	50'	38'	1/4" MPT	1/4" MPT
A0412-MC4-ML4	1/4"	12'	9'	1/4" MPT	1/4" MPT
A0425-MC4-ML4	1/4"	25'	18'	1/4" MPT	1/4" MPT
A0450-MC4-ML4	1/4"	50'	38'	1/4" MPT	1/4" MPT
A0612-MC6-ML6	3/8"	12'	9'	3/8" MPT	3/8" MPT
A0625-MC6-ML6	3/8"	25'	18'	3/8" MPT	3/8" MPT
A0650-MC6-ML6	3/8"	50'	38'	3/8" MPT	3/8" MPT
A0812-MC8-ML8	1/2"	12'	9'	1/2" MPT	1/2" MPT
A0825-MC8-ML8	1/2"	25'	18'	1/2" MPT	1/2" MPT
A0850-MC8-ML8	1/2"	50'	38'	1/2" MPT	1/2" MPT

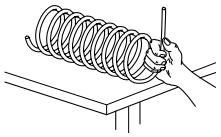
Bulk hose FS

Part No.	Hose I.D.	Average Wall Thick.	Hose Length	Master Carton Quantity	Coil Min. I.D.	Coil Max. O.D.	Maximum Working Pressure psi*
FS-03-100	3/16"	.023	100'	600'	2.0	2.5	170
FS-04-100	1/4"	.030	100'	600'	3.0	3.7	170
FS-06-100	3/8"	.045	100'	400'	4.5	5.5	170
FS-08-100	1/2"	.062	100'	400'	6.5	7.8	170
FS-12-100	3/4"	.075	100'	100'	12.0	14.0	170

* Maximum working pressure listed at 75°F or lower and based on safety factor of 4:1 over burst.

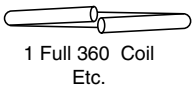
Measuring Bulk Hose

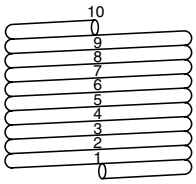
Measuring FS hose is quick and easy and may be accomplished by either of two accurate methods:

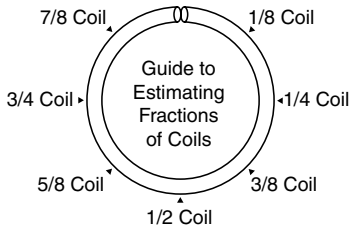


Position bulk length coils on work table extending away from you, cut-end up in 12:00 o'clock position.

1. Counting







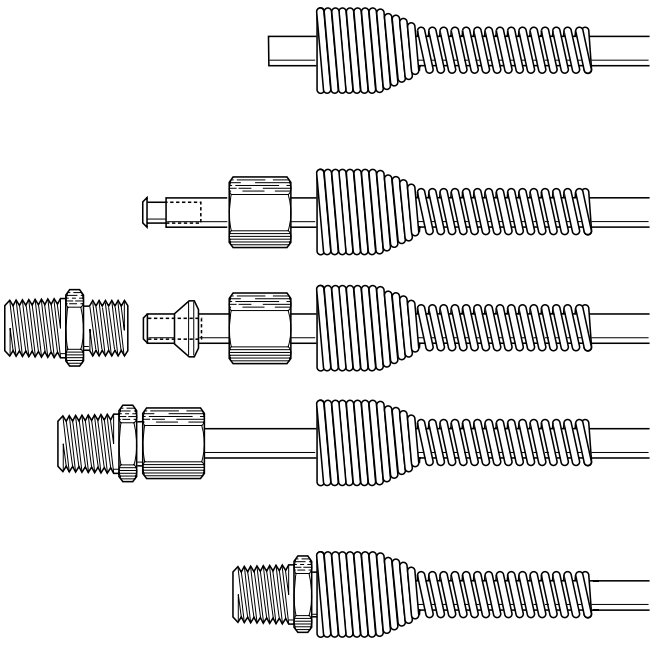
Total Length of hose		Number of Coils Needed to Obtain Required Net Extended Length +38%				
Feet	Inches	3/16" I.D.	1/4" I.D.	3/8" I.D.	1/2" I.D.	3/4" I.D.
3	36	5-1/8 coils	3-1/2 coils	2-1/4 coils	1-5/8 coils	7/8 coils
5	60	8-1/2 coils	5-3/4 coils	3-7/8 coils	2-5/8 coils	1-1/2 coils
7	84	12 coils	8-1/8 coils	5-3/8 coils	3-3/4 coils	2-1/8 coils
10	120	17-1/8 coils	11-1/2 coils	7-3/4 coils	5-3/8 coils	3 coils
12	144	20-1/2 coils	13-7/8 coils	9-1/4 coils	6-1/2 coils	3-1/2 coils
15	180	25-3/4 coils	17-3/8 coils	11-1/2 coils	8 coils	4-1/2 coils
16	192	27-3/8 coils	18-1/2 coils	12-3/8 coils	8-5/8 coils	4-3/4 coils
17	204	29-1/8 coils	19-5/8 coils	13-1/8 coils	9-1/8 coils	5 coils
18	216	30-7/8 coils	20-3/4 coils	13-7/8 coils	9-5/8 coils	5-3/8 coils
19	228	32-1/2 coils	22 coils	14-5/8 coils	10-1/4 coils	5-5/8 coils
20	240	34-1/4 coils	23-1/8 coils	15-3/8 coils	10-3/4 coils	6 coils
25	300	42-7/8 coils	28-7/8 coils	19-1/4 coils	13-3/8 coils	7-1/2 coils
30	360	51-3/8 coils	34-5/8 coils	23-1/8 coils	16-1/8 coils	8-7/8 coils
33	396	56-1/2 coils	38-1/8 coils	25-3/8 coils	17-3/4 coils	9-3/4 coils
50	600	85-5/8 coils	57-3/4 coils	38-1/2 coils	26-7/8 coils	14-7/8 coils

F

2. Division Into Even Numbers of Lengths

Bulk retracted lengths of FS hose are always exactly 100 feet long when shipped from the factory. Some diameter expansion of the coils may have occurred in shipment due to temperature and storage conditions. This may appear to have shortened a given 100' retracted length slightly in relation to other 100' retracted lengths in the same master carton. The shorter appearance should not be mistaken for an actual shortage in extended length. A bulk retracted length may be easily divided into smaller lengths by first measuring the tightly retracted length in inches, and dividing by 4 to determine the cut off length for 25', by 3 for 33 feet, by 8 for 12-1/2 feet, etc. Pieces should be tagged with their proper length before returning to storage.

Assembly Instructions

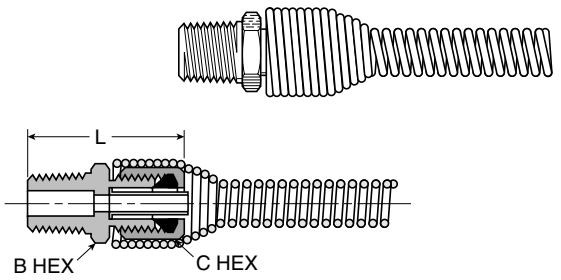


1. Cut end of hose as square as possible. Disassemble fitting and install spring guard on hose with larger coiled end of spring toward end of hose.
2. Install nut on hose, insert brass tube support.
3. Slip plastic ferrule over hose, with thin, tapered end toward end of hose.
4. Push hose into fitting body, until hose bottoms in fitting and slide nut and ferrule assembly up to engage thread and tighten hand-tight. Add 1-1/2 to 2 turns with a wrench.
5. Insert assembled fitting into spring guard. Assembly is now complete.

MC Male Connector

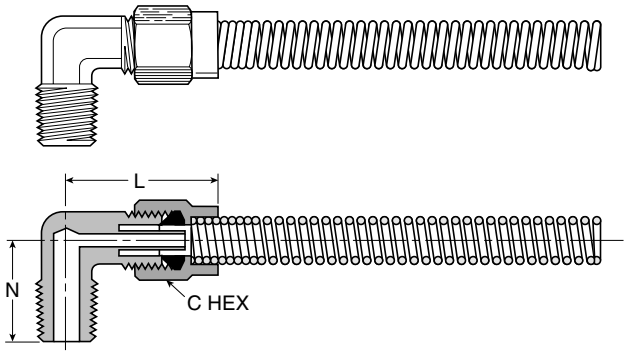
Part No.	Hose I.D.	End Type	End Size	B Hex	C Hex	L	Box Qty.
MC-03-2	3/16	MPT-Straight	1/8 MPT	9/16	1/2	1-3/8	20
MC-03-4	3/16	MPT-Straight	1/4 MPT	9/16	1/2	1-9/16	20
MC-04-2	1/4	MPT-Straight	1/8 MPT	9/16	9/16	1-3/8	20
MC-04-4	1/4	MPT-Straight	1/4 MPT	9/16	9/16	1-9/16	20
MC-06-6	3/8	MPT-Straight	3/8 MPT	11/16	13/16	1-13/16	20
MC-08-6	1/2	MPT-Straight	3/8 MPT	7/8	15/16	2-1/8	20
MC-08-8	1/2	MPT-Straight	1/2 MPT	7/8	15/16	2-1/8	20
*MC-12-12	3/4	MPT-Straight	3/4 MPT	1-1/4	1-3/8	2-1/4	10

*No Spring Guard Required



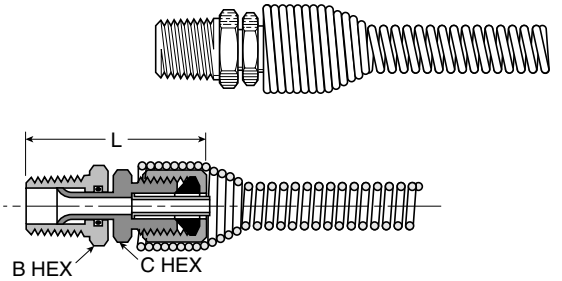
ME Male Elbow

Part No.	Hose I.D.	End Type	End Size	C Hex	L	N	Box Qty.
ME-03-4	3/16	90° Male Elbow	1/4 MPT	9/16	1-1/4	15/16	20
ME-04-4	1/4	90° Male Elbow	1/4 MPT	9/16	1-13/16	15/16	20
ME-06-6	3/8	90° Male Elbow	3/8 MPT	13/16	1-9/16	1-1/8	20
ME-08-8	1/2	90° Male Elbow	1/2 MPT	15/16	1-3/4	1-3/8	20



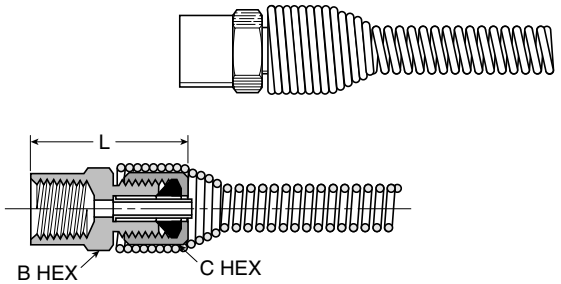
ML Live Male Pipe Swivel

Part No.	Hose I.D.	End Type	End Size	B Hex	C Hex	L	Box Qty.
ML-03-4	3/16	MPT Live Swivel	1/4 MPT	9/16	1/2	1-11/16	20
ML-04-4	1/4	MPT Live Swivel	1/4 MPT	9/16	9/16	1-9/16	20
ML-06-6	3/8	MPT Live Swivel	3/8 MPT	3/4	13/16	1-7/8	20
ML-08-8	1/2	MPT Live Swivel	1/2 MPT	7/8	15/16	2-3/8	20



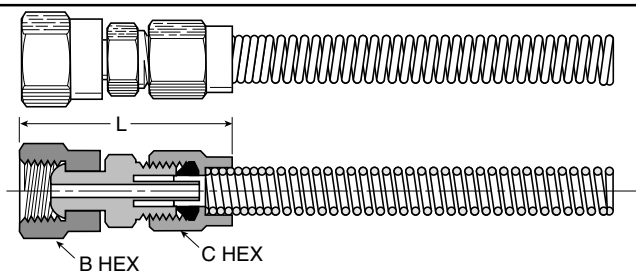
FC Female Connector

Part No.	Hose I.D.	End Type	End Size	B Hex	C Hex	L	Box Qty.
FC-04-4	1/4	Female Pipe FPT	1/4 FPT	11/16	9/16	1-9/16	10
FC-06-6	3/8	Female Pipe FPT	3/8 FPT	13/16	13/16	1-3/4	10



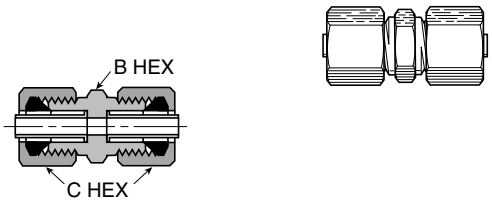
FL Female Pipe Swivel

Part No.	Hose I.D.	End Type	End Size	B Hex	C Hex	L	Box Qty.
FL-04-4	1/4	Female NPSM 30° Swivel	1/4 NPSM	5/8	9/16	1-3/4	20
FL-06-6	3/8	Female NPSM 30° Swivel	3/8 NPSM	3/4	9/16	2-1/8	10



UC Union Connector

Part No.	Hose I.D.	End Type	End Size	B Hex	C Hex	L	Box Qty.
UC-04-4	1/4	Union Connector	1/4 x 1/4 I.D. Hose	1/2	9/16	1-7/8	10
UC-06-6	3/8	Union Connector	3/8 x 3/8 I.D. Hose	11/16	13/16	2-5/16	10



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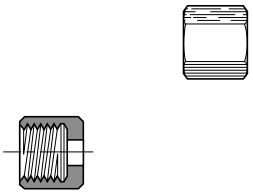
Replacement Parts

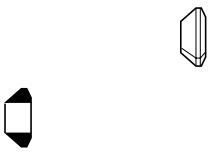
FN Brass Nuts

Part No.	Hose I.D.	Box Qty.
FN-03	3/16	20
FN-04	1/4	20
FN-06	3/8	20
FN-08	1/2	20
FN-12	3/4	10



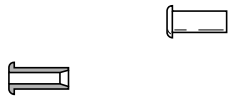
FR Plastic Ferrule

Part No.	Hose I.D.	Box Qty.
FR-03	3/16	50
FR-04	1/4	50
FR-06	3/8	30
FR-08	1/2	20
FR-12	3/4	10



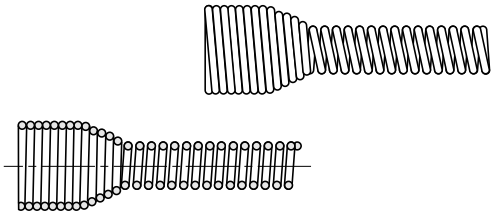
TS Tube Support

Part No.	Hose I.D.	Box Qty.
TS-03	3/16	100
TS-04	1/4	100
TS-06	3/8	100
TS-08	1/2	100
TS-12	3/4	100



SG Steel Spring Guard

Part No.	Hose I.D.	Box Qty.
SG-03	3/16	20
SG-04	1/4	20
SG-06	3/8	20
SG-08	1/2	20



Advantages

Chemical resistant, flexible, low cost, eight colors, five tube sizes and choice of reel lengths.

Construction

Flexible polyethylene thermoplastic tubing is extruded from high molecular weight resin for increased dimensional stability, uniformity and long-term strength. Its resistance to environmental stress cracking greatly exceeds that of ordinary polyethylene tubing as measured by ASTM D-1693, (10% IGEPAL).

Applications & Approvals

Polyethylene tubing is available in black as well as seven coding colors as recommended by the Instrument Society of America. Black (EB) tubing contains an ultra-violet inhibitor which is recommended for use in sunlit areas. Ingredients of natural and color tubing (except black) listed below meet FDA requirements for food contact applications. All tubing conforms to ASTM D-1248, Type I, Class A, Category 4, Grade E5.

Temperature Range

Suggested operating temperature range is -80°F to 150°F (-62°C to 66°C).

Fitting Recommendation

- Brass fittings

Nomenclature

Part numbers are constructed from symbols that identify the style and size of the fitting. Letters identify style and material. Numbers identify size in 1/16's of an inch.

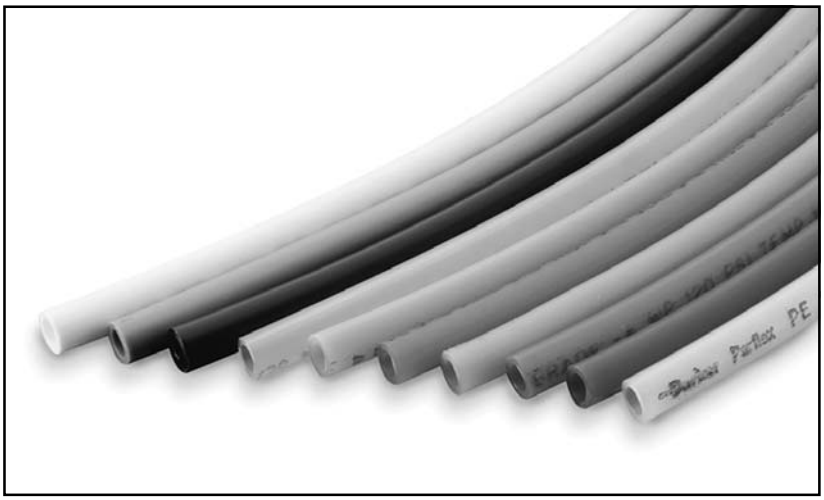
Example:

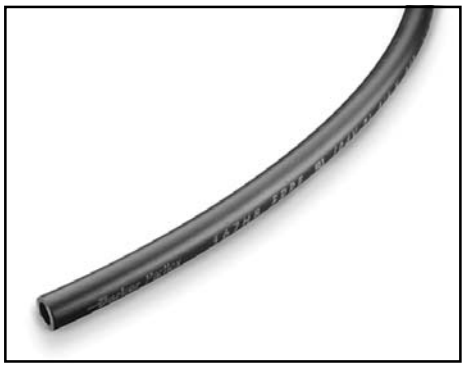
E - 6 4 - Y - 0500

- Polyethylene
- 3/8" (6/16) Tube O.D.
- 1/4" (4/16) Tube I.D.
- Color, Yellow
- Reel Footage

E Instrument Grade Tubing

Part Number	Color	O.D.	I.D.	Wall	Reel Length Feet	Working Pressure psi at 73°F	Min. Burst psi at 73°F	Min. Bend Radius Inches	Weight Per 100 Feet
E-43-0100	Natural	1/4	.170	.040	100	120	625	1	1.1
E-43-0500	Natural	1/4	.170	.040	500	120	625	1	1.1
E-43-1000	Natural	1/4	.170	.040	1000	120	625	1	1.1
EB-43-0100	Black	1/4	.170	.040	100	120	625	1	1.1
EB-43-0500	Black	1/4	.170	.040	500	120	625	1	1.1
EB-43-1000	Black	1/4	.170	.040	1000	120	625	1	1.1
E-43-R-0100	Red	1/4	.170	.040	100	120	625	1	1.1
E-43-R-0500	Red	1/4	.170	.040	500	120	625	1	1.1
E-43-B-0100	Blue	1/4	.170	.040	100	120	625	1	1.1
E-43-B-0500	Blue	1/4	.170	.040	500	120	625	1	1.1
E-43-O-0500	Orange	1/4	.170	.040	500	120	625	1	1.1
E-43-Y-0500	Yellow	1/4	.170	.040	500	120	625	1	1.1
E-43-P-0500	Purple	1/4	.170	.040	500	120	625	1	1.1
E-43-G-0500	Green	1/4	.170	.040	500	120	625	1	1.1
E-53-0500	Natural	5/16	.187	.062	500	145	800	1-1/8	2.1
EB-53-0500	Black	5/16	.187	.062	500	145	800	1-1/8	2.1
E-64-0100	Natural	3/8	.250	.062	100	125	675	1-1/4	2.5
E-64-0500	Natural	3/8	.250	.062	500	125	675	1-1/4	2.5
EB-64-0100	Black	3/8	.250	.062	100	125	675	1-1/4	2.5
EB-64-0500	Black	3/8	.250	.062	500	125	675	1-1/4	2.5
E-64-R-0500	Red	3/8	.250	.062	500	125	675	1-1/4	2.5
E-64-B-0500	Blue	3/8	.250	.062	500	125	675	1-1/4	2.5
E-64-O-0500	Orange	3/8	.250	.062	500	125	675	1-1/4	2.5
E-64-Y-0500	Yellow	3/8	.250	.062	500	125	675	1-1/4	2.5
E-64-P-0500	Purple	3/8	.250	.062	500	125	675	1-1/4	2.5
E-64-G-0500	Green	3/8	.250	.062	500	125	675	1-1/4	2.5
E-86-0100	Natural	1/2	.375	.062	100	90	425	2-1/2	3.6
EB-86-0100	Black	1/2	.375	.062	100	90	425	2-1/2	3.6
E-108-0100	Natural	5/8	.500	.062	100	70	325	4	4.6
EB-108-0100	Black	5/8	.500	.062	Coil	70	325	4	4.6





Construction & Approvals

Flame resistant polyethylene is manufactured from a distinctively formulated compound which meets the UL94 V-2 flame classification. It also meets the flame spread, fuel contribution and smoke density requirements of the ASTM E84-81a tunnel test.

Applications

Parker series FRPE tubing is the preferred product for pneumatic control applications in the heating- ventilating-air conditioning-energy conservation industry. It is also suitable for use in petrochemical plants, petroleum refineries, pulp and paper mills, mines, steel mills and other industries where protection against intermittent flame and hot sparks is necessary.

Temperature Range

Suggested operating temperature range is -85°F to 150°F (-65°C to +66°C).

Nomenclature

Order by tubing part number and name.

Example:

FR PE 4 — 0500

- FR — Flame Resistant
- PE — Polyethylene
- 4 — 1/4" (4/16) Tube O. D.
- 0500 — Reel Footage

F

FRPE Flame Resistant Tubing

Part Number	Color	O.D.	I.D.	Wall	Reel Length Feet	Working Pressure psi at 73°F	Min. Burst psi at 73°F	Min. Bend Radius Inches	Weight Per 100 Feet
FRPE2.5-0500	Black	5/32	.096	.030	500	225	900	1/2	.56
FRPE4-0250	Black	1/4	.170	.040	250	160	650	3/4	1.24
FRPE4-0500	Black	1/4	.170	.040	500	160	650	3/4	1.24
FRPE4-1000	Black	1/4	.170	.040	1000	160	650	3/4	1.24
FRPE6-0250	Black	3/8	.250	.062	250	195	780	1-1/2	2.90
FRPE6-0500	Black	3/8	.250	.062	500	195	780	1-1/2	2.90
FRPE8-0250	Black	1/2	.375	.062	250	135	540	1-3/4	4.05

Advantages

Flexible nylon tubing is carefully made from high-grade, abrasion-resistant, heat-and light-stabilized nylon. Resistance to stress-cracking greatly exceeds that of ordinary nylon tubing. Extremely low level water absorption.

Chemical-resistant nylon tubing has the additional benefits of better flexibility, lighter weight and resistance to flexural fatigue.

Colors

Available in natural (NN) and black (NB). Black tubing is recommended for use outdoors and in sunlit areas.

Temperature Range

Operating temperatures, depending upon conditions, are -65°F to 200°F (-54°C to 93°C) continuous.

Fitting Recommendations

• Brass fittings

Nomenclature

Order by tubing part number and name.

Example:

N N — 2 — 016

Nylon

Color, Natural

1/8" (2/16) Tube O.D.

Wall Thickness in thousandths of an inch

N Flexible Tubing

Nylon Part No.	Color	Nom. Tube O.D.	Nom. Tube I.D.	Average Wall Thick.	*Min. Burst Pressure at 73°F psi	Min. Bend Radius Inches	Std. Reel Length Feet
NN-2-016	Natural	1/8	.093	.016	1000	1/4	250
NB-2-016	Black	1/8	.093	.016	1000	1/4	250
NN-2-031	Natural	1/8	.064	.031	2000	1/4	250
NB-2-031	Black	1/8	.064	.031	2000	1/4	250
NN-2.5-025	Natural	5/32	.106	.025	1200	1/2	250
NB-2.5-025	Black	5/32	.106	.025	1200	1/2	250
NN-3-025	Natural	3/16	.138	.025	1000	5/8	250
NB-3-025	Black	3/16	.138	.025	1000	5/8	250
NN-3-046	Natural	3/16	.096	.046	2000	7/16	250
NB-3-046	Black	3/16	.096	.046	2000	7/16	250
NN-4-035	Natural	1/4	.180	.035	1000	7/8	250
NB-4-035	Black	1/4	.180	.035	1000	7/8	250
NN-4-040	Natural	1/4	.170	.040	1250	7/8	250
NB-4-040	Black	1/4	.170	.040	1250	7/8	250
NN-4-062	Natural	1/4	.127	.062	2000	1/2	250
NB-4-062	Black	1/4	.127	.062	2000	1/2	250
NN-5-040	Natural	5/16	.233	.040	1250	1-1/8	250
NB-5-040	Black	5/16	.233	.049	1250	1-1/8	250
NN-6-050	Natural	3/8	.275	.050	1250	1-1/8	250
NB-6-050	Black	3/8	.275	.050	1250	1-1/8	250
NN-6-093	Natural	3/8	.190	.093	2000	3/4	250
NB-6-093	Black	3/8	.190	.093	2000	3/4	250
NN-8-062	Natural	1/2	.375	.062	1000	1-1/4	250
NB-8-062	Black	1/2	.375	.062	1000	1-1/4	250
NN-8-124	Natural	1/2	.253	.124	2000	1	250
NB-8-124	Black	1/2	.253	.124	2000	1	250

*Suggested working pressure is 1/4 of burst pressure.

Nomenclature

Order by tubing part number and name.

Example:

N B R 2 016

- Nylon
- Color, Black
- Rigid
- 1/8" (2/16) Tube O.D.
- Wall Thickness in thousandths of an inch

F

NR Semi-rigid High Strength Tubing

Nylon Part No.	Color	Nom. Tube O.D.	Nom. Tube I.D.	Average Wall Thick.	*Min. Burst Pressure at 73°F psi	Min. Bend Radius Inches	Std. Reel Length Feet
NNR-2-017	Natural	1/8	.091	.017	1700	1/2	500
NBR-2-017	Black	1/8	.091	.017	1700	1/2	500
NNR-2-026	Natural	1/8	.073	.026	2500	3/8	500
NBR-2-026	Black	1/8	.073	.026	2500	3/8	500
NNR-3-024	Natural	3/16	.140	.024	1700	3/4	500
NBR-3-024	Black	3/16	.140	.024	1700	3/4	500
NNR-3-039	Natural	3/16	.110	.039	2500	5/8	500
NBR-3-039	Black	3/16	.110	.039	2500	5/8	500
NNR-4-035	Natural	1/4	.180	.035	1700	1	250
NBR-4-035	Black	1/4	.180	.035	1700	1	250
NNR-4-050	Natural	1/4	.150	.050	2500	7/8	250
NBR-4-050	Black	1/4	.150	.050	2500	7/8	250
NNR-5-040	Natural	5/16	.233	.040	1700	1-1/2	250
NBR-5-040	Black	5/16	.233	.040	1700	1-1/2	250
NNR-6-048	Natural	3/8	.279	.048	1700	1-3/4	250
NBR-6-048	Black	3/8	.279	.048	1700	1-3/4	250
NNR-6-075	Natural	3/8	.225	.075	2500	1-1/2	250
NBR-6-075	Black	3/8	.225	.075	2500	1-1/2	250
NNR-8-062	Natural	1/2	.376	.062	1500	2-3/8	250
NBR-8-062	Black	1/2	.376	.062	1500	2-3/8	250
NNR-8-075	Natural	1/2	.350	.075	2200	2-1/2	250
NBR-8-075	Black	1/2	.350	.075	2200	2-1/2	250

*Suggested working pressure is 1/4 of burst pressure.

Advantages

Series NR semi-rigid nylon tubing offers better chemical resistance than series N, good resistance to high ambient temperature and low moisture absorption. NR has a high tensile strength which will give excellent coupling retention in high pressure, temperature and vibration environments.

Construction

Parker series NR tubing is manufactured from a semi-rigid nylon II material. The tubing does not contain plasticizers.

Applications & Approvals

NR tubing is specified for machine tool lubricating systems, marine control systems, process lines for chemicals and oils and other applications requiring a high quality nylon tube.

Temperature Range

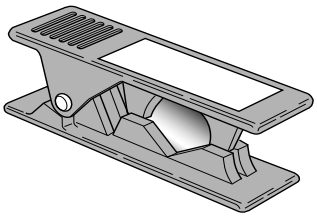
The recommended operating temperature range for service at rated pressures with compatible fluids is -60°F to 200°F (-51°C to 93°C).

Fitting Recommendations

- Brass fittings

PTC Plastic Tube Cutter

Part No. PTC

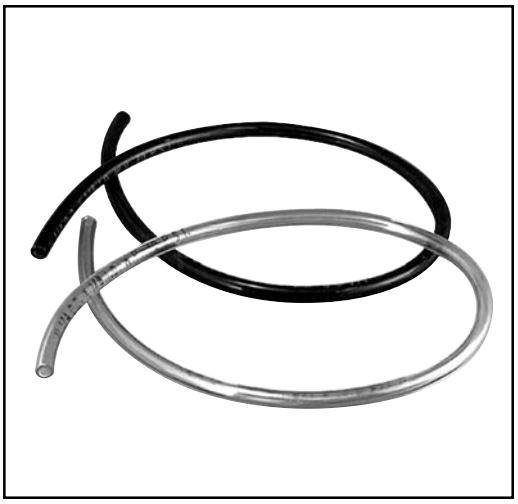


An easy to handle razor/edged tube cutter, closes automatically, assuring clean and square cuts.

May be used with polyethylene, polypropylene, nylon and other plastic tubing.

How To Use

Insert plastic tube to desired length, allow tube cutter to close, then apply pressure until tube snaps off.



Advantages

Polyurethane tubing is a high quality, precision-made tubing used in a wide range of demanding and critical applications.

Polyether based, polyurethane tubing occupies a unique position among polymers, sharing the best properties of both rubber and plastic. Urethane exhibits the elongation and recovery characteristics of rubber and the chemical resistance associated with plastics. The tubing is tough, strong, kink-resistant and abrasion resistant, yet it's flexible and easy to assemble onto designated fittings.

- Tough
- Flexible
- Broad Temperature Range
- Eight Colors
- Abrasion Resistant
- Chemical Resistant

Applications & Approvals

Polyurethane tubing is used for a wide variety of applications. Typical usage includes air tools, robotics, pneumatic logic and actuation systems, analytical instrumentation, vacuum equipment, pressure measurement apparatus, semi-conductor equipment manufacturers and a variety of medical and laboratory applications.

Temperature Range

Suggested operating temperatures, depending upon conditions are 0°F to 200°F (-18°C to 93°C).

Fitting Recommendations

- Thermoplastic fittings
- Brass fittings

Nomenclature

Order by tubing part number and name.

Example:

U — 2 1 — BLK — 0250

- U — Polyurethane
- 2 — 1/8" (2/16) Tube O.D.
- 1 — 1/6" (1/16) Tube I.D.
- BLK — Color - Black
- 0250 — Reel Length in feet

U Polyether Base Tubing

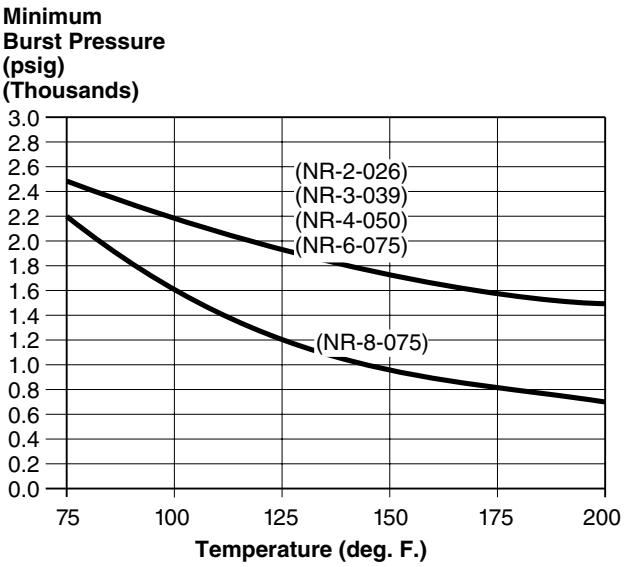
Part No.*	Nom. Tube O.D.	Nom. Tube I.D.	Wall Thick.	Working** Pressure (PSI)	Burst Pressure (PSI)	Reel Length Feet
U-21-0500	1/8	1/16	1/32	125	375	500
U-21-0250						250
U-42-0500	1/4	1/8	1/16	125	375	500
U-42-0250						250
U-64-0250	3/8	1/4	1/16	125	375	250
U-64-0100						100 (coil)
U-86-0250	1/2	3/8	1/16	85	255	250
U-86-0100						100 (coil)

* Colors: Clear-Blank, Black-BLK, Green-GRN, Red-RED, Yellow-YEL, Blue-BLU, Orange-ORG, Gray-GRA

** Based on a full 4:1 safety factor.

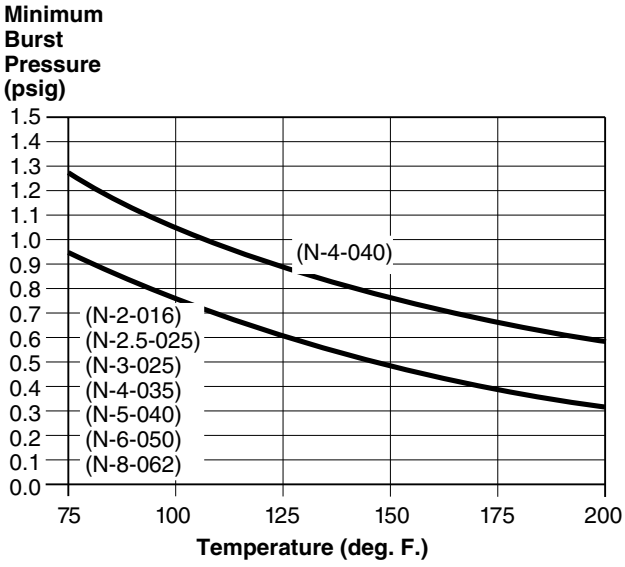
Nylon Semi-Rigid Tubing

NR Series (NNR, NBR)
1/8 thru 1/2 O.D. Inches



Nylon Flexible Tubing

N Series (NN, NB)
1/8 thru 1/2 O.D. Inches



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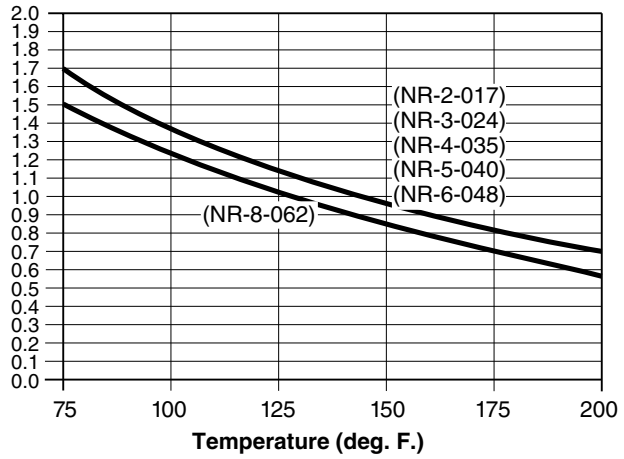
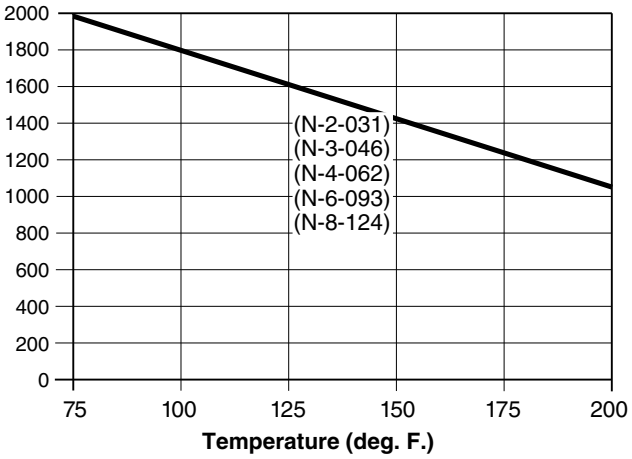
Nylon Semi-Rigid Tubing

NR Series (NNR, NBR)
1/8 thru 1/2 O.D. Inches



Nylon Flexible Tubing

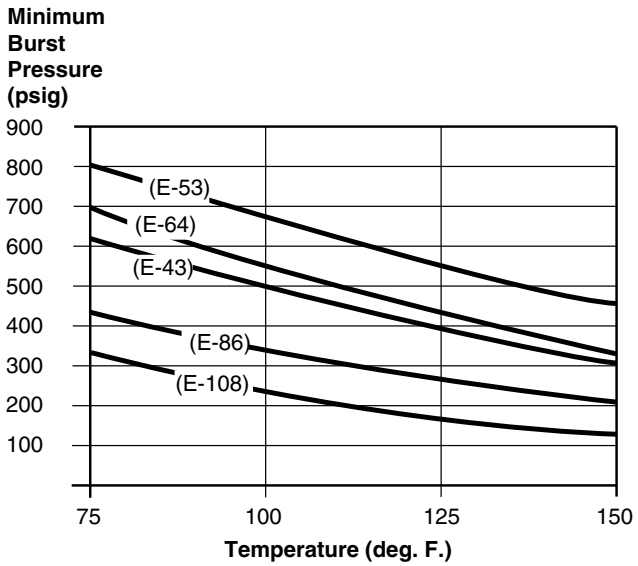
N Series
1/8 thru 1/2 O.D. Inches



Suggested working pressures are 1/4 of burst pressure at system operating temperature.

Polyethylene Tubing

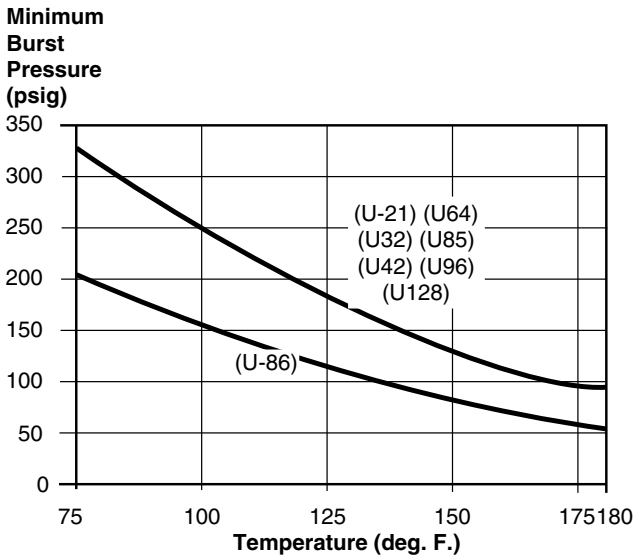
Laboratory Grade E Series
1/4 thru 5/8 O.D. Inches



Polyurethane Tubing

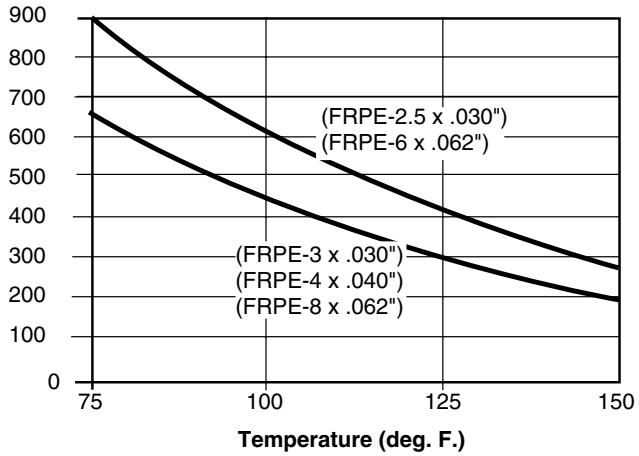
"U" Series Polyether Base4

1/8 thru 1/4 O.D. Inches



Polyethylene Tubing

Flame Resistant FRPE Series
1/4 thru 5/8 O.D. INches



Suggested working pressure of polyethylene is 1/3 of burst pressure at system operating temperature.

	All Brass Body Fittings (Except Prestolok) Rating	Prestolok Fitting Rating
Acetic Acid	4	4
Acetic Anhydride	4	4
Acetone	1	4
Alum	4	4
Aluminum Chloride	4	4
Aluminum Sulfate	4	4
Ammonium Hydroxide	4	4
Ammonium Chloride	4	4
Ammonium Nitrate	4	4
Ammonium Sulfate	4	4
Amyl Acetate	2	4
Aniline	3	4
Aniline Dyes	3	4
Asphalt	1	2
Barium Chloride	4	4
Beer	2	4
Beet Sugar Syrups	2	2
Benzoic Acid	2	4
Black Liquor, Sulfate Process	4	4
Bleaching Powder, Wet	4	4
Borax	1	2
Bordeaux Mixture	2	2
Boric Acid	2	2
Bromine, Dry	1	4
Bromine, Moist	4	4
Butyric Acid	3	4
Calcium Bisulfite	4	4
Calcium Chloride	4	4
Calcium Hydroxide	2	2
Calcium Hypochlorite	4	4
Cane Sugar Syrups	2	2
Carbolic Acid	2	4
Carbon Dioxide, Dry	1	1
Carbon Dioxide, Moist	3	3
Carbon Disulfide	1	4
Carbon Tetrachloride, Moist	4	4
Castor Oil	1	1
Chlorine, Dry	1	4
Chlorine, Moist	4	4
Chloracetic Acid	4	4
Chloroform, Dry	1	4

	All Brass Body Fittings (Except Prestolok) Rating	Prestolok Fitting Rating
Citric Acid	3	3
Coffee	1	4
Copper Chloride	4	4
Copper Sulfate	4	4
Corn Oil	2	2
Cottonseed Oil	2	2
Creosote	2	2
Crude Oil	3	3
Ethers	1	4
Ethyl Acetate	2	4
Ethyl Chloride	3	3
Ethylene Glycol	2	2
Ferric Chloride	4	4
Formaldehyde	3	3
Furfural	3	4
Gelatine	1	1
Glucose	1	1
Glycerine	1	1
Hydrobromic Acid	4	4
Hydrochloric Acid	4	4
Hydrocyanic Acid	4	4
Hydrofluoric Acid	4	4
Hydrofluosilicic Acid	4	4
Hydrogen Peroxide	3	4
Hydrogen Sulfide, Moist	3	4
Lacquers	1	4
Lacquer Solvents	1	4
Lactic Acid Cold	3	3
Lime	1	1
Lime-Sulfur	2	4
Linseed Oil	2	2
Magnesium Chloride	4	4
Magnesium Hydroxide	1	2
Magnesium Sulfate	3	3
Methyl Chloride, Dry	1	4
Milk	2	4
Nitric Acid	4	4
Nitrogen	1	1
Oleic Acid	3	3
Oxalic Acid	3	3
Palmitic Acid	3	3

1 — SATISFACTORY
2 — FAIR
3 — RECOMMEND TESTING
4 — UNSATISFACTORY

F

	All Brass Body Fittings (Except Prestolok) Rating	Prestolok Fitting Rating
Phosphoric Acid	4	4
Potassium Chloride	4	4
Potassium Cyanide	4	4
Potassium Dichromate, Acid	4	4
Potassium Hydroxide	3	3
Potassium Sulfate	2	2
Sea Water	3	3
Soap Solutions	2	2
Sodium Bicarbonate	3	3
Sodium Bisulfate	4	4
Sodium Bisulfite	4	4
Sodium Carbonate	2	2
Sodium Chloride	4	4
Sodium Cyanide	4	4
Sodium Hydroxide	3	3
Sodium Hypochlorite	4	4
Sodium Nitrate	3	3
Sodium Peroxide	4	4
Sodium Phosphate	2	2
Sodium Silicate	2	2
Sodium Sulfite	4	4
Sodium Thiosulfate	2	2
Steam	3	4
Stearic Acid	3	3
Sulfur, Dry	1	4
Sulfur Chloride, Dry	1	4
Sulfur Dioxide, Dry	1	4
Sulfur Dioxide, Moist	4	4
Sulfur Trioxide, Dry	1	4
Sulfuric Acid	4	4
Sulfurous Acid	4	4
Tar	2	2
Tartaric Acid	3	3
Toluene	1	4
Trichloracetic Acid	4	4
Trichlorethylene, Dry	1	3
Trichlorethylene, Moist	3	3
Vinegar	4	4
Zinc Chloride	4	4
Zinc Sulfate	4	4

Ratings Code

1 — SATISFACTORY
2 — FAIR
3 — RECOMMEND TESTING
4 — UNSATISFACTORY

This brass compatibility chart is a ready reference for brass fittings with various media. It is intended as a guide to chemical compatibility and has been compiled from the best available sources. Many factors (concentration, temperature, intermittent or continuous exposure, etc.) have a bearing upon the suitability of any material and, therefore, no guarantee, expressed or implied, is made to compatibility in any specific set of circumstances.

Media	PB Polyethylene	PB, Mini-PB Nylon	Mini-PB
Acetaldehyde	L	L	G
Acetates	G	L	G
Acetic Acid	G	L	G
Acetic Anhydride	G	P	G
Acetone	G	L	G
Acetyl Bromide	L	L	L
Acetyl Chloride	L	L	L
Air	G	G	G
Alcohols	G	G	G
Aluminum Salts	G	G	G
Ammonia	G	G	G
Amyl Acetate	G	L	G
Aniline	G	L	L
Animal Oils	G	G	L
Arsenic Salts	G	G	G
Aromatic Hydrocarbons	L	L	L
Barium Salts	G	G	G
Benzaldehyde	L	L	L
Benzene (Benzol)	L	L	L
Benzyl Alcohol	G	L	L
Bleaching Liquors	L	L	G
Boric Acid Solutions	G	G	G
Bromine	L	L	L
Butane	G	P	G
Butanol	G	G	G
Butyl Acetate	G	G	G
Calcium Salts	G	G	G

Media	PB Polyethylene	PB, Mini-PB Nylon	Mini-PB
Carbon Dioxide	G	G	G
Carbon Disulfide	L	L	L
Carbon Tetrachloride	P	L	G
Caustic Potash	G	G	G
Caustic Soda	G	G	G
Chloracetic Acid	G	L	L
Chlorine (Dry)	L	L	L
Chlorine (Wet)	L	L	L
Chlorobenzene	L	L	L
Chloroform	L	L	G
Chromic Acid	L	P	L
Copper Salts	G	G	G
Cresol	L	L	L
Cyclohexanone	L	L	L
Ethers	L	L	G
Ethyl Acetate	G	L	G
Ethyl Alcohol	G	L	G
Ethylamine	G	L	L
Ethyl Bromide	L	L	L
Ethyl Chloride	L	L	L
Fatty Acids	L	G	L
Ferric Salts	G	G	G
Formaldehyde	G	L	G
Formic Acid	G	L	G
Freon	L	L	L
Gasoline	G	G	L

F

Ratings Code

G — Good to excellent. Little or no swelling, tensile or surface changes. Preferred choice.

L — Marginal or conditional. Noticeable effects but not necessarily indicating lack of serviceability. Further testing suggested for specific application. Very long term effects such as stiffening or potential for crazing should be evaluated.

P — Poor or unsatisfactory. Not recommended without extensive and realistic testing.

—— Not tested.

Media	PB Polyethylene Polypropylene	PB, Mini-PB Nylon	Mini-PB
Glucose	G	G	G
Glycerine	G	G	G
Hydriodic Acid (Conc.)	G	P	G
Hydrochloric Acid	G	L	G
Hydrochloric Acid (Med. Conc.)	G	L	G
Hydrofluoric Acid	L	P	G
Hydrogen Peroxide (Conc.)	G	L	L
Hydrogen Peroxide (Dil.)	G	L	L
Hydrogen Sulfide	G	G	G
Iodine	G	G	G
Kerosene	L	G	L
Ketones	G	G	G
Lacquer Solvent	L	L	L
Lactic Acid	G	G	G
Lead Acetate	G	G	G
Linseed Oil	G	G	G
Magnesium Salts	G	G	G
Naphtha	L	G	L
Natural Gas	L	G	L
Nickel Salts	G	G	G
Nitric Acid (Conc.)	L	P	L
Nitric Acid (Dil.)	G	L	L
Nitrobenzene	L	L	G
Nitrogen Oxides	L	L	G
Nitrous Acid	L	L	G
Oils (Animal and Mineral)	L	G	L
Oils (Vegetable)	L	L	L
Oxygen	G	G	G
Perchloric Acid	G	P	L
Phenol	G	P	G
Potassium Salts	G	G	G
Pyridine	L	L	L
Silver Nitrate	G	G	G
Soap Solutions	G	G	G
Sodium Salts	G	G	G
Stearic Acid	L	G	L
Sulfur Chloride	L	L	L
Sulfuric Acid (Conc.)	G	P	G
Sulfuric Acid (Dil.)	G	G	G
Sulfurous Acid	G	L	L
Tannic Acid	G	G	G
Tanning Extracts	G	G	G
Titanium Salts	G	G	G
Toluene (Toluol)	L	L	L
Trichloracetic Acid	L	P	L
Trichlorethylene	L	G	L
Turpentine	L	G	L
Urea	G	G	G
Uric Acid	G	G	G
Water	G	G	G
Xylene (Xylol)	L	L	L
Zinc Chloride	G	G	G

Ratings Code

G — Good to excellent. Little or no swelling, tensile or surface changes. Preferred choice.

L — Marginal or conditional. Noticeable effects but not necessarily indicating lack of serviceability. Further testing suggested for specific application. Very long term effects such as stiffening or potential for crazing should be evaluated.

P — Poor or unsatisfactory. Not recommended without extensive and realistic testing.

—— Not tested.

Media	E "E" Series Polyethylene	FRPE Flame Resistant Polyethylene	N Nylon "N"	NR Nylon "NR"	U Polyurethane
Acetaldehyde	L	—	L	G	L
Acetates	G	—	L	G	L
Acetic Acid	L	—	L	G	L
Acetic Anhydride	L	—	P	L	P
Acetone	G	L	L	G	P
Acetyl Bromide	L	—	L	—	—
Acetyl Chloride	L	—	L	—	—
Air	G	G	G	G	G
Alcohols	G	G	G	G	G
Aluminum Salts	G	G	G	G	G
Ammonia	G	L	G	G	G
Amyl Acetate	G	—	L	G	L
Aniline	L	—	L	L	P
Animal Oils	L	—	G	G	G
Arsenic Salts	G	G	G	G	G
Aromatic Hydrocarbons	P	P	L	G	G
Barium Salts	G	G	G	G	G
Benzaldehyde	P	P	L	G	L
Benzene (Benzol)	P	P	L	G	L
Benzyl Alcohol	P	P	L	L	L
Bleaching Liquors	G	—	L	L	L
Boric Acid Solutions	G	G	G	G	G
Bromine	L	—	L	P	P
Butane	L	—	P	G	P
Butanol	G	G	G	G	G
Butyl Acetate	G	G	G	G	L
Calcium Salts	G	G	G	G	G
Carbon Dioxide	G	G	G	G	G
Carbon Disulfide	L	—	L	G	L
Carbon Tetrachloride	P	P	L	L	L
Caustic Potash	G	—	G	G	G
Caustic Soda	G	—	G	G	G
Chloracetic Acid	L	—	L	L	P
Chlorine (Dry)	L	—	L	P	L
Chlorine (Wet)	L	—	L	P	L
Chlorobenzene	P	P	L	L	L
Chloroform	P	P	L	L	L
Chromic Acid	L	—	P	P	P
Copper Salts	G	G	G	G	G
Cresol	P	P	L	P	P
Cyclohexanone	L	—	L	G	P
Ethers	L	—	L	G	L
Ethyl Acetate	G	—	L	G	L
Ethyl Alcohol	G	G	L	G	G
Ethylamine	L	—	L	L	L
Ethyl Bromide	P	P	L	L	—
Ethyl Chloride	P	P	L	L	—
Fatty Acids	L	P	G	G	G
Ferric Salts	G	—	G	G	G
Formaldehyde	G	—	L	G	G
Formic Acid	L	G	L	P	P
Freon	L	—	L	G	L
Gasoline	P	P	G	G	L

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P — Poor or unsatisfactory. Not recommended without extensive and realistic testing.

—— Not tested.

Media	E "E" Series Polyethylene	FRPE Flame Resistant Polyethylene	N Nylon "N"	NR Nylon "NR"	U Polyurethane
Glucose	G	G	G	G	G
Glycerine	G	G	G	G	G
Hydriodic Acid	L	—	P	L	—
Hydrochloric Acid (Conc.)	L	—	L	L	L
Hydrochloric Acid (Med. Conc.)	L	—	L	G	L
Hydrofluoric Acid	L	—	P	P	P
Hydrogen Peroxide (Conc.)	L	—	L	G	G
Hydrogen Peroxide (Dil.)	L	—	L	G	G
Hydrogen Sulfide	G	—	G	G	P
Iodine	L	—	G	G	L
Kerosene	L	—	G	G	G
Ketones	G	—	G	G	P
Lacquer Solvent	L	—	L	L	—
Lactic Acid	G	—	G	G	G
Lead Acetate	G	—	G	G	G
Linseed Oil	L	—	G	G	G
Magnesium Salts	G	—	G	G	G
Naphtha	L	G	G	G	G
Natural Gas	L	—	G	G	G
Nickel Salts	G	—	G	G	G
Nitric Acid (Conc.)	P	G	P	P	P
Nitric Acid (Dil.)	P	P	L	L	P
Nitrobenzene	P	P	L	L	P
Nitrogen Oxides	L	—	L	L	—
Nitrous Acid	L	—	L	L	L
Oils (Animal and Mineral)	L	—	G	G	G
Oils (Vegetable)	L	—	L	G	G
Oxygen	G	G	G	G	G
Perchloric Acid	P	P	P	P	P
Phenol	P	P	P	P	P
Potassium Salts	G	G	G	G	G
Pyridine	L	—	L	L	P
Silver Nitrate	G	G	G	G	G
Soap Solutions	G	G	G	G	G
Sodium Salts	G	G	G	G	G
Stearic Acid	L	—	G	G	L
Sulfur Chloride	L	—	L	L	—
Sulfuric Acid (Conc.)	P	P	P	P	P
Sulfuric Acid (Dil.)	P	P	G	L	L
Sulfurous Acid	P	P	L	L	L
Tannic Acid	G	—	G	G	P
Tanning Extracts	G	—	G	G	P
Titanium Salts	G	G	G	G	G
Toluene (Toluol)	P	P	L	G	L
Trichloracetic Acid	L	—	P	P	P
Trichlorethylene	P	P	G	L	P
Turpentine	L	—	G	G	G
Urea	G	—	G	G	G
Uric Acid	G	—	G	G	G
Water	G	G	G	G	G
Xylene (Xylol)	P	P	L	G	G
Zinc Chloride	G	—	G	G	G

Ratings Code

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—— Not tested.

Products-
Government & Agency Approvals

Agency and Specifications	Approved Products
Flame Resistance: UL94V-2	**Tubing:** FRPE
Dry Food Contact: FDA, CFR21 Part 177.	**Tubing:** E, **Fittings:** PB (Nylon & Polyethylene)
Potable Water, Liquid Foods: NSF Std. 14, 42, 53 NSF Std. 51	**Tubing:** N, P, U **Fittings:** PB (Nylon & Polyethylene)

F

⚠ **DANGER:** Failure or improper selection or improper use of hose, fittings, or related accessories can cause death, personal injury and property damage.

Possible consequences of failure or improper selection or improper use of hose, fittings or related accessories include but are not limited to:

- Fittings thrown off at high speed.
- High velocity fluid discharge.
- Explosion or burning of the conveyed fluid.
- Electrocution from high voltage electric power lines or other sources of electricity.
- Contact with suddenly moving or falling objects that are to be held in position or moved by the conveyed fluid.
- Dangerously whipping hose.
- Contact with conveyed fluids that may be hot, cold, toxic or otherwise injurious.
- Sparking or explosion caused by static electricity buildup.
- Sparking or explosion while paint or flammable liquid spraying.

Before selecting or using any hose or fittings or related accessories, it is important that you read and follow the instructions in the Guide below.

1.0 GENERAL INSTRUCTIONS

1.1 Scope: This guide provides instructions for selecting and using (including assembling, installing, and maintaining) hose (including all rubber and/or plastic products commonly called "hose" or "tubing"), fittings (including all products commonly called "fittings" or "couplings" for attachment to hose), and related accessories (including crimping and swaging machines and tooling). This guide is a supplement to and is to be used with, the specific publications for the specific hose, fittings and related accessories that are being considered for use.

1.2 Fail-Safe: Hose and hose assemblies can and do fall without warning for many reasons. Design all systems and equipment in a fail-safe mode, so that failure of the hose or hose assembly will not endanger persons or property.

1.3 Distribution: Provide a copy of this guide to each person that is responsible for selecting or using hose and fitting products. Do not select or use hose and fittings without thoroughly reading and understanding this guide as well as the specific publications for the products considered or selected.

1.4 User Responsibility: Due to the wide variety of operating conditions and uses for hose and fittings, the manufacturer and its distributors do not represent or warrant that any particular hose or fitting is suitable for any specific and use system. This guide does not analyze all technical parameters that must be considered in selecting a product. The user, through their own analysis and testing, are solely responsible for:

- Making the final selection of the hose and fitting.
- Assuring that the user's requirements are met and that the use presents no health or safety hazards.
- Providing all appropriate health and safety warnings on the equipment on which the hose and fittings are used.

1.5 Additional Questions: Consult the supplier if you have any additional questions or require additional information.

2.0 HOSE AND FITTING SELECTION INSTRUCTIONS

2.1 Electrical Conductivity: Certain applications require that a hose be nonconductive to prevent electrical current flow. Other applications require the hose to be sufficiently conductive to drain off static electricity. Extreme care must be exercised when selecting hose and fittings for these or any other applications in which electrical conductivity or nonconductivity is a factor.

For applications that require hose to be electrically nonconductive, including but not limited to applications near high voltage electric lines, only special nonconductive hose can be used. The manufacturer of the equipment in which the nonconductive hose is to be used must be consulted to be certain that the hose and fittings that are selected are proper for the application. Do not use any hose or fitting for any such application requiring nonconductive hose, including but not limited to applications near high voltage electric lines, unless (I) the application is expressly approved in the technical publication for the product, (II) the hose is both orange color and marked "nonconductive", and (III) the manufacturer of the equipment on which the hose is to be used specifically approves the particular hose and fitting for such use.

The manufacturer does not supply any hose or fittings for conveying paint in airless paint spraying or similar applications, and hose and fittings must not be so used. A special hose and fitting assembly is required for this application, to avoid static electricity buildup. If the proper hose and fitting assembly is not used for this application, static electricity can build up and cause a spark that may result in an explosion and/or fire.

The electrical conductivity or nonconductivity of hose and fittings is dependent upon many factors and may be susceptible to change. These factors include but are not limited to the various materials used to make the hose and the fittings, manufacturing methods (including moisture control), how the fittings contact the hose, age and amount of deterioration or damage or other changes, moisture content of the hose at any particular time, and other factors.

2.2 Pressure: Hose selection must be made so that the published maximum recommended working pressure of the hose is equal to or greater than the maximum system pressure. Surge pressures in the system higher than the published maximum recommended working pressure will cause failure or shorten hose life. Do not confuse burst pressure or other pressure values with working pressure and do not use burst pressure or other pressure values for this purpose.

2.3 Suction: Hoses used for suction applications must be selected to ensure that the hose will withstand the vacuum and pressure of the system. Improperly selected hose may collapse in suction application.

2.4 Temperature: Be certain that fluid and ambient temperatures, both steady and transient, do not exceed the limitations of the hose. Care must be taken when routing hose near hot objects such as manifolds.

2.5 Fluid Compatibility: Hose selection must assure compatibility of the hose tube, cover, reinforcement, and fittings with the fluid media used. See the fluid compatibility chart in the publication for the product being considered or used.

2.6 Permeation: Permeation (that is, seepage through the hose) will occur from inside the hose to outside when hose is used with gases, liquid and gas fuels, and refrigerants (including but not limited to such materials as helium, fuel, oil, natural gas, or freon). This permeation may result in high concentrations of vapors which are potentially flammable, explosive, or toxic, and in loss of fluid. Dangerous explosions, fires, and other hazards can result when using the wrong hose for such applications. The system designer must take into account the fact that this permeation will take place and must not use hose if this permeation could be hazardous. The system designer must take into account all legal, government, insurance, or any other special regulations which govern the use of fuels and refrigerants. Never use a hose even though the fluid compatibility is acceptable without considering the potential hazardous effects that can result from permeation through the hose assembly.

Permeation of moisture from outside the hose to inside the hose will also occur in hose assemblies, regardless of internal pressure. If this moisture permeation would have detrimental effects (particularly but not limited to refrigeration and air conditioning systems), incorporation of sufficient drying capacity in the system or other appropriate system safeguards should be selected and used.

2.7 Size: Transmission of power by means of pressurized fluid varies with pressure and rate of flow. The size of the components must be adequate to keep pressure losses to a minimum and avoid damage due to heat generation or excessive fluid velocity.

2.8 Routing: Attention must be given to optimum routing to minimize inherent problems (kinking or flow restriction due to hose collapse). Freon® is a registered trademark of the E.I. DuPont De Nemours Co., Inc.

2.9 Environment: Care must be taken to ensure that the hose and fittings are either compatible with or protected from the environment (that is, surrounding conditions) to which they are exposed. Environmental conditions include but are not limited too ultraviolet radiation, sunlight, heat, ozone, moisture, water, salt water, chemicals, and air pollutants that can cause degradation and premature failure.

2.10 Mechanical Loads: External forces can significantly reduce hose life or cause failure. Mechanical loads which must be considered include excessive flexing, twist, kinking, tensile or side loads, bend radius, and vibration. Use of swivel type fittings or adapters may be required to ensure no twist is put into the hose. Applications must be tested prior to hose selection.

2.11 Physical Damage: Care must be taken to protect hose from wear, snagging and cutting, which can cause premature hose failure.

2.13 Length: When establishing a proper hose length, motion absorption, hose length changes due to pressure, and hose and machine tolerances must be considered.

2.14 Specifications and Standards: When selecting hose and fittings, government, industry, and manufacturer specifications and recommendations must be reviewed and followed as applicable.

2.15 Hose Cleanliness: Hose components may vary in cleanliness levels. Care must be taken to ensure that the assembly selected has an adequate level of cleanliness for the application.

2.16 Fire Resistant Fluids: Some fire resistant fluids require the same hose as petroleum oil. Some use a special hose, while a few fluids will not work with any hose at all. See instructions 2.5 and 1.5. The wrong hose may fail after a very short service. In addition, all liquids may burn fiercely under certain conditions, and leakage may be hazardous.

2.17 Radiant Heat: Hose can be heated to destruction without contact, by such nearby items as hot manifolds or molten metal. The same heat source may then initiate a fire. This can occur despite the presence of cool air around the hose.

2.18 Welding and Brazing: Heating of plated parts, including hose fittings and adapters, above 450°F (232°C) such as during welding, brazing, or soldering may emit deadly gases.

2.19 Radiation: Radiation affects all materials used in hose assemblies. Since the long term effects may be unknown, do not expose hose assemblies to radiation.

3.0 HOSE AND FITTING ASSEMBLY AND INSTALLATION INSTRUCTIONS

3.1 Pre-Installatlon Inspection: Prior to installation, a careful examination of the hose must be performed. All components must be checked for correct style, size, catalog number, and length. In addition, the hose must be examined for cleanliness, obstructions, blisters, cover looseness, or any other viable detects.

3.2 Hose and Fitting Assembly: Do not assemble fittings onto a hose that is not specifically listed by the manufacturer for that fitting unless authorized in writing by the chief engineer. Do not assemble one manufacturer's fitting on another manufacturer's hose.

The published instructions must be followed for assembling fittings on the hose. These instructions are provided in the fitting catalog for the specific fitting being used.

3.3 Related Accessories: Do not crimp or swage any hose or fitting with anything but the proper listed swage or crimp machine, and dies, and in accordance with published instructions. Do not crimp or swage one manufacturer's hose fitting with another's crimp or swage die unless authorized in writing by their chief engineer.

3.4 Parts: Do not use any hose fitting part (including but not limited to socket, shell, nipple, or insert) except with the correct mating parts, in accordance with instructions, unless authorized in writing by the chief engineer of the appropriate manufacturer.

3.5 Reusable/Permanent: Do not reuse any reusable hose product that has blown or pulled off a hose. Do not reuse a permanent (that is, crimped or swaged) hose fitting or any part thereof.

3.6 Minimum Bend Radius: Installation of a hose at less than the minimum listed bend radius may significantly reduce the hose life. Particular attention must be given to preclude sharp bending at the hose/fitting juncture.

3.7 Twist Angle and Orientation: Hose installations must be such that relative motion of machine components does not produce twisting.

3.8 Securement: In many applications, it may be necessary to restrain, protect, or guide the hose to protect it from damage by unnecessary flexing, pressure surges, and contact with other mechanical components. Care must be taken to ensure such restraints do not introduce additional stress or wear points.

3.9 Proper Connection of Ports: Proper physical installation of the hose requires a correctly installed port connection while ensuring that no twist or torque is transferred to the hose.

3.10 External Damage: Proper installation is not complete without ensuring that tensile loads, side loads, kinking, flattening, potential abrasion, thread damage, or damage to sealing surfaces are corrected or eliminated. See instruction 2.10.

3.11 System Checkout: All air entrapment in hydraulic lines must be eliminated, all systems must be pressurized to the maximum system pressure and checked for proper function and freedom from leaks. Personnel must stay out of potential hazardous areas while testing and using.

4.0 HOSE AND FITTING MAINTENANCE INSTRUCTIONS

4.1 Visual Inspection Hose/Fitting: Any of the following conditions require immediate shut down and replacement of the hose assembly
- Fitting slippage on hose.
- Damaged, cut or abraded cover (any reinforcement exposed).
- Hard, stiff, heat cracked, or charred hose.
- Cracked, damaged, or badly corroded fittings.
- Leaks at fitting or in hose.
- Kinked, crushed, flattened or twisted hose.
- Blistered, soft, degraded, or loose cover.

4.2 Visual Inspection All Other: The following items must be tightened, repaired or replaced as required:
- Leaking port conditions.
- Remove excess dirt buildup.
- Clamps, guards, shields.
- System fluid level, fluid type and any air entrapment.

4.3 Functional Test: Operate the system at maximum operating pressure and check for possible malfunctions and freedom from leaks. Personnel must avoid potential hazardous areas while testing and using.

4.4 Replacement Intervals: Specific replacement intervals must be considered based on previous service life, government or industry recommendations, or when failure could result in unacceptable downtime, damage, or injury risk. See instructions 1.2.