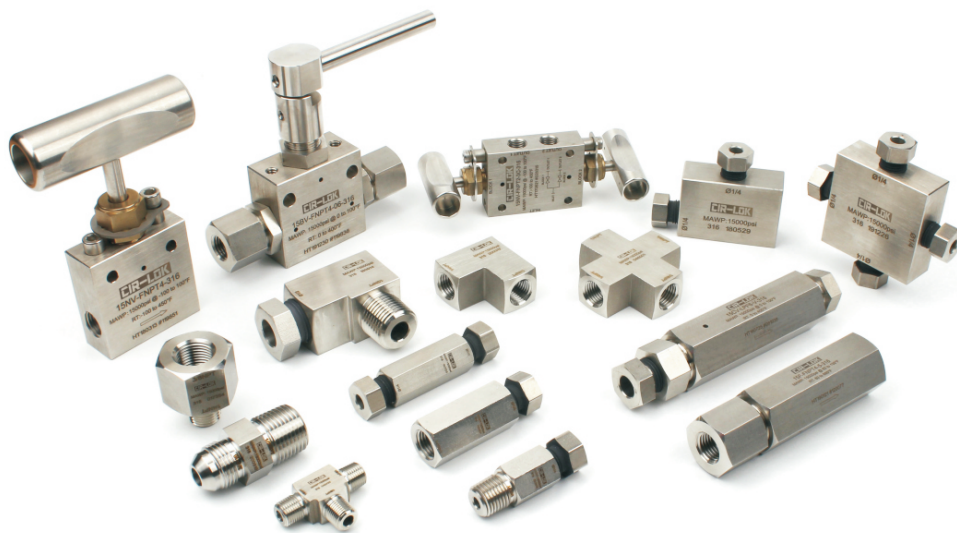




Ultra-High Pressure

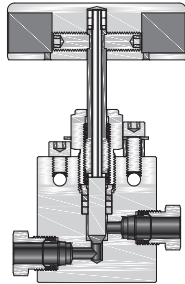
Low Pressure Valves,
Fittings and Tubing 15000 psig

15 and P Series

Contents

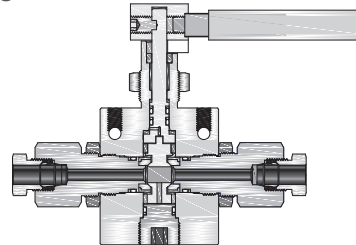
Needle Valves (15NV Series)

12-3



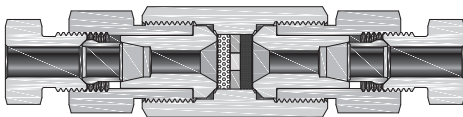
Ball Valves (15BV Series)

12-10



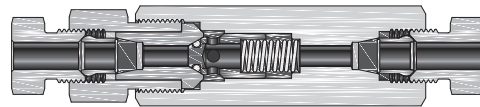
Filters (15F Series)

12-13



Check Valves (15CV Series)

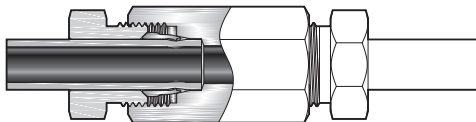
12-17



Single Ferrule

Compression Fittings (15 Series)

12-20



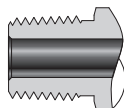
Tubing (15 Series)

12-23



Pipe Connection Fittings (P Series)

12-24



Needle Valves

15NV Series

Features

- ❖ Tubing sizes available for 1/8", 1/4", 3/8", 1/2"
- ❖ Non-rotating stem prevents stem/seat galling.
- ❖ Metal-to-metal seating achieves bubble-tight shutoff, longer stem/seat service life in abrasive flow, greater durability for repeated on/off cycles
- ❖ PTFE is the standard packing material and provides dependable stem and body sealing
- ❖ Graphite packing working temperature up to 800°F(427°C)
- ❖ Stem sleeve and packing gland materials have been selected to achieve extended thread cycle life and reduced handle torque
- ❖ Cold-worked type 316 stainless steel body and aluminum bronze packing gland
- ❖ Vee or Regulating stem tips for options
- ❖ Packing below the thread of valve stem
- ❖ The locking device of packing gland is reliable
- ❖ Five body patterns are available

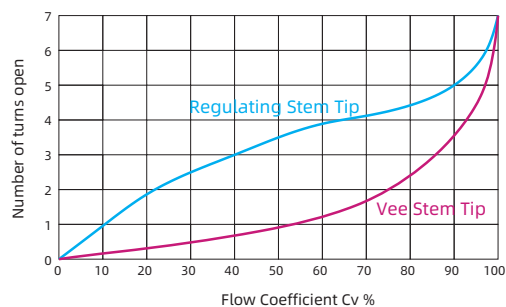
Technical Data

Connection Size	Connection Type	Orifice in.(mm)	Cv	Working Pressure psig(bar)
1/8" OD.	LPF2	0.094(2.39)	0.12	15,000(1034)
1/4" OD.	LPF4	0.188(4.77)	0.65	15,000(1034)
3/8" OD.	LPF6	0.250(6.35)	0.95	15,000(1034)
1/2" OD.	LPF8	0.375(9.53)	1.90	10000(689)
1/8	NPT/BSPT	0.078(1.98)	0.11	15,000(1034)
1/4	NPT/BSPT	0.203(5.16)	0.63	15,000(1034)
3/8	NPT/BSPT	0.219(5.56)	0.75	15,000(1034)
1/2	NPT/BSPT	0.312(7.92)	1.30	15,000(1034)

Notes:

- ❖ Cv value shown are for 2-way straight valve pattern.
- ❖ Cv value of for 2-way angle pattern will be increase about 50%(Base on water).
- ❖ Working temperature
 - PTFE** packing : -65°F (-53°C) to 450°F (232°C)
 - RPTFE** glass packing : -65°F(-53°C) to 600°F (316°C)
 - Graphite** packing : -65°F (-53°C) to 800°F (427°C)

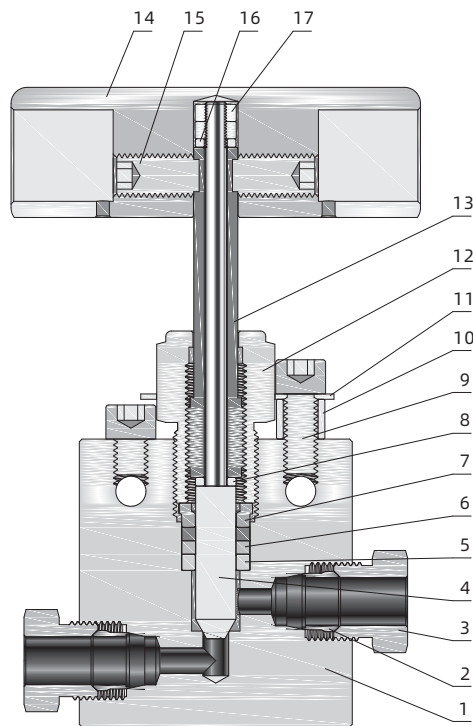
Flow Data at 100°F(38°C)



Pressure vs. Temperature

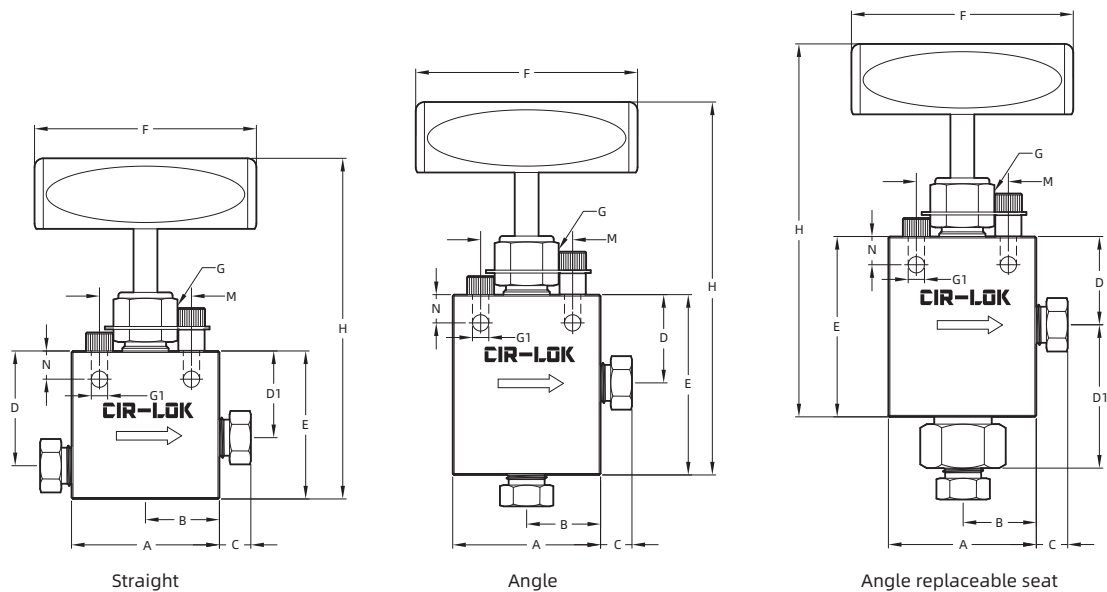
Temperature, °F(°C)	Working Pressure, psig(bar)
-65(-53)	15000(1034)
0(-18)	15000(1034)
100(37)	15000(1034)
200(93)	15000(1034)
300(148)	14600(1006)
400(204)	14000(965)
500(260)	13500(931)
600(316)	13000(896)
700(371)	12500(862)
800(427)	12000(827)

Standard Materials of Construction



Component		Material Grade / ASTM Specification
1	Body	316 S.S. / A479
2	Ferrule	316 S.S. / A479
3	Nut	316 S.S. / A479
4	Stem	630 S.S. / A564
5	Gland	316 S.S. / A479
6	Packing	PTFE / RPTFE / GRAPHITE
7	Packing ring	316 S.S. / A479
8	Gland	316 S.S. / A479
9	Screw	304 S.S.
10	Ring	316 S.S. / A276
11	Lock plate	304 S.S. / A240
12	Bonnet	C63000 / B150
13	Stem guard	316 S.S. / A479
14	Handle	303 S.S.
15	Screw	304 S.S.
16	Gland	C63000 / B150
17	Nut	304 S.S.

Dimensions



Dimensions(Straight)

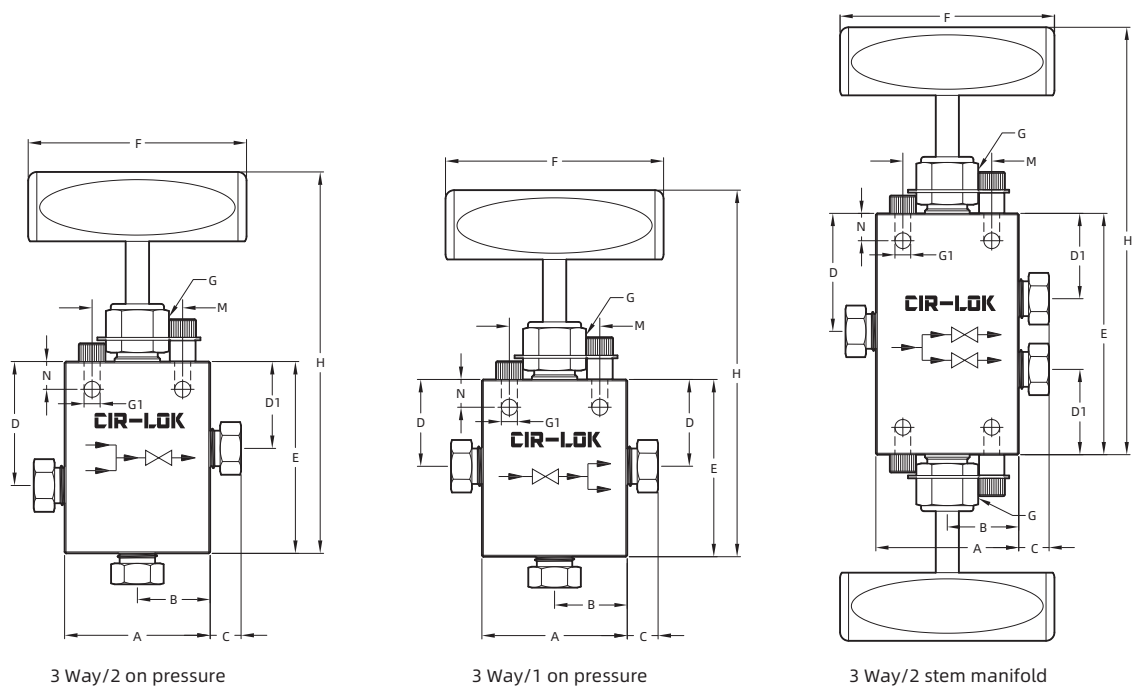
Ordering Number	Connection Type	Orifice in.(mm)	A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness
			in.(mm)												
15NV-LPF2-	LPF2	0.094 (2.39)	1.50 (38.1)	0.75 (19.1)	0.31 (7.90)	1.06 (26.9)	0.81 (206)	1.38 (35.1)	1.75 (44.5)	0.62 (15.8)	0.17 (4.3)	3.75 (95.3)	0.56 (14.2)	0.31 (7.9)	0.62 (15.8)
15NV-LPF4-	LPF4	0.188 (4.77)	2.00 (50.8)	1.00 (25.4)	0.44 (11.2)	1.62 (41.2)	1.19 (30.2)	2.00 (50.8)	3.00 (76.2)	0.75 (19.1)	0.22 (5.6)	4.50 (114.3)	0.62 (15.8)	0.38 (9.7)	0.75 (19.1)
15NV-LPF6-	LPF6	0.250 (6.35)	2.00 (50.8)	1.00 (25.4)	0.53 (13.5)	1.62 (41.2)	1.19 (30.2)	2.00 (50.8)	3.00 (76.2)	0.75 (19.1)	0.22 (5.6)	4.50 (114.3)	0.62 (15.8)	0.38 (9.7)	0.75 (19.1)
15NV-LPF8-	LPF8	0.375 (9.53)	2.50 (63.5)	1.25 (31.8)	0.53 (13.5)	2.38 (60.5)	1.75 (44.5)	2.88 (73.2)	4.00 (101.6)	1.00 (25.4)	0.34 (8.6)	5.95 (151.4)	0.69 (17.5)	0.50 (12.7)	1.00 (25.4)

Dimensions(Angle)

Ordering Number	Connection Type	Orifice in.(mm)	A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness
			in.(mm)												
15NV-LPF2-A-	LPF2	0.094 (2.39)	1.50 (38.1)	0.75 (19.1)	0.31 (7.9)	0.81 (20.6)	—	1.56 (39.6)	1.75 (44.5)	0.62 (15.8)	0.17 (4.3)	3.94 (100.1)	0.56 (14.2)	0.31 (7.9)	0.62 (15.8)
15NV-LPF4-A-	LPF4	0.188 (4.77)	2.00 (50.8)	1.00 (25.4)	0.44 (11.2)	1.19 (30.2)	—	2.43 (61.7)	3.00 (76.2)	0.75 (19.1)	0.22 (5.6)	5.00 (127.0)	0.62 (15.8)	0.38 (9.7)	0.75 (19.1)
15NV-LPF6-A-	LPF6	0.250 (6.35)	2.00 (50.8)	1.00 (25.4)	0.53 (13.5)	1.19 (30.2)	—	2.43 (61.7)	3.00 (76.2)	0.75 (19.1)	0.22 (5.6)	5.00 (127.0)	0.62 (15.8)	0.38 (9.7)	0.75 (19.1)
15NV-LPF8-A-	LPF8	0.375 (9.53)	2.50 (63.5)	1.25 (31.8)	0.53 (13.5)	1.75 (44.5)	—	3.38 (85.9)	4.00 (101.6)	1.00 (25.4)	0.34 (8.6)	6.45 (163.8)	0.69 (17.5)	0.50 (12.7)	1.00 (25.4)

Dimensions(Angle/replaceable seat)

Ordering Number	Connection Type	Orifice in.(mm)	A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness
			in.(mm)												
15NV-LPF2-AR-	LPF2	0.094 (2.39)	1.50 (38.1)	0.75 (19.1)	0.31 (7.9)	0.81 (20.6)	1.28 (32.5)	1.56 (39.6)	1.75 (44.5)	0.62 (15.8)	0.17 (4.3)	4.50 (114.3)	0.56 (14.2)	0.31 (7.9)	0.62 (15.8)
15NV-LPF4-AR-	LPF4	0.188 (4.77)	2.00 (50.8)	1.00 (25.4)	0.44 (11.2)	1.19 (30.2)	1.88 (47.8)	2.25 (57.2)	3.00 (76.2)	0.75 (19.1)	0.22 (5.6)	5.75 (146.1)	0.62 (15.8)	0.38 (9.7)	0.75 (19.1)
15NV-LPF6-AR-	LPF6	0.250 (6.35)	2.00 (50.8)	1.00 (25.4)	0.53 (13.5)	1.19 (30.2)	2.19 (55.6)	2.25 (57.2)	3.00 (76.2)	0.75 (19.1)	0.22 (5.6)	5.75 (146.1)	0.62 (15.8)	0.38 (9.7)	0.75 (19.1)
15NV-LPF8-AR-	LPF8	0.375 (9.53)	2.50 (63.5)	1.25 (31.8)	0.53 (13.5)	1.75 (44.5)	2.50 (63.5)	3.25 (82.6)	4.00 (101.6)	1.00 (25.4)	0.34 (8.6)	7.51 (190.8)	0.69 (17.5)	0.50 (12.7)	1.00 (25.4)



Dimensions(3-way/2 on pressure)

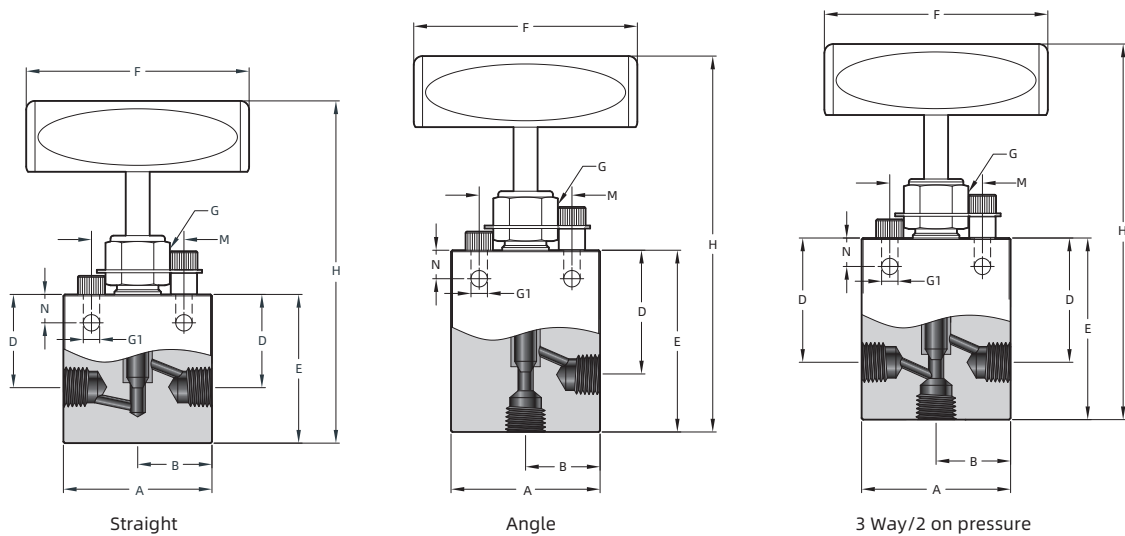
Ordering Number	Connection Type	Orifice in.(mm)	A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness
			in.(mm)												
15NV-LPF2-3A-	LPF2	0.094 (2.39)	1.50 (38.1)	0.75 (19.1)	0.31 (7.9)	1.06 (26.9)	0.81 (20.6)	1.69 (42.9)	1.75 (44.5)	0.62 (15.8)	0.17 (4.3)	4.06 (103.1)	0.56 (14.2)	0.31 (7.9)	0.62 (15.8)
15NV-LPF4-3A-	LPF4	0.188 (4.77)	2.00 (50.8)	1.00 (25.4)	0.44 (11.2)	1.62 (41.2)	1.19 (30.2)	2.62 (66.6)	3.00 (76.2)	0.75 (19.1)	0.22 (5.6)	5.18 (131.6)	0.62 (15.8)	0.38 (9.7)	0.75 (19.1)
15NV-LPF6-3A-	LPF6	0.250 (6.35)	2.00 (50.8)	1.00 (25.4)	0.53 (13.5)	1.62 (41.2)	1.19 (30.2)	2.62 (66.6)	3.00 (76.2)	0.75 (19.1)	0.22 (5.6)	5.18 (131.6)	0.62 (15.8)	0.38 (9.7)	0.75 (19.1)
15NV-LPF8-3A-	LPF8	0.375 (9.53)	2.50 (63.5)	1.25 (31.8)	0.53 (13.5)	2.38 (60.5)	1.75 (44.5)	3.62 (92.0)	4.00 (101.6)	1.00 (25.4)	0.34 (8.6)	6.70 (170.2)	0.69 (17.5)	0.50 (12.7)	1.00 (25.4)

Dimensions(3-way/1 on pressure)

Ordering Number	Connection Type	Orifice in.(mm)	A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness
			in.(mm)												
15NV-LPF2-3B-	LPF2	0.094 (2.39)	1.50 (38.1)	0.75 (19.1)	0.31 (7.9)	0.81 (20.6)	—	1.56 (39.6)	1.75 (44.5)	0.62 (15.8)	0.17 (4.3)	3.94 (100.1)	0.56 (14.2)	0.31 (7.9)	0.62 (15.8)
15NV-LPF4-3B-	LPF4	0.188 (4.77)	2.00 (50.8)	1.00 (25.4)	0.44 (11.2)	1.19 (30.2)	—	2.43 (61.7)	3.00 (76.2)	0.75 (19.1)	0.22 (5.6)	5.00 (127.0)	0.62 (15.8)	0.38 (9.7)	0.75 (19.1)
15NV-LPF6-3B-	LPF6	0.250 (6.35)	2.00 (50.8)	1.00 (25.4)	0.53 (13.5)	1.19 (30.2)	—	2.43 (61.7)	3.00 (76.2)	0.75 (19.1)	0.22 (5.6)	5.00 (127.0)	0.62 (15.8)	0.38 (9.7)	0.75 (19.1)
15NV-LPF8-3B-	LPF8	0.375 (9.53)	2.50 (63.5)	1.25 (31.8)	0.53 (13.5)	1.75 (44.5)	—	3.38 (85.9)	4.00 (101.6)	1.00 (25.4)	0.34 (8.6)	6.45 (163.8)	0.69 (17.5)	0.50 (12.7)	1.00 (25.4)

Dimensions(3-way/2 stem manifold)

Ordering Number	Connection Type	Orifice in.(mm)	A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness
			in.(mm)												
15NV-LPF2-3C-	LPF2	0.094 (2.39)	1.50 (38.1)	0.75 (19.1)	0.31 (7.9)	1.12 (28.5)	0.81 (20.6)	2.25 (57.2)	1.75 (44.5)	0.62 (15.8)	0.17 (4.3)	4.63 (117.6)	0.56 (14.2)	0.31 (7.9)	0.62 (15.8)
15NV-LPF4-3C-	LPF4	0.188 (4.77)	2.00 (50.8)	1.00 (25.4)	0.44 (11.2)	1.69 (42.9)	1.19 (30.2)	3.38 (85.9)	3.00 (76.2)	0.75 (19.1)	0.22 (5.6)	5.94 (150.9)	0.62 (15.8)	0.38 (9.7)	0.75 (19.1)
15NV-LPF6-3C-	LPF6	0.250 (6.35)	2.00 (50.8)	1.00 (25.4)	0.53 (13.5)	1.69 (42.9)	1.19 (30.2)	3.38 (85.9)	3.00 (76.2)	0.75 (19.1)	0.22 (5.6)	5.94 (150.9)	0.62 (15.8)	0.38 (9.7)	0.75 (19.1)
15NV-LPF8-3C-	LPF8	0.375 (9.53)	2.50 (63.5)	1.25 (31.8)	0.53 (13.5)	2.56 (65.0)	1.75 (44.5)	5.12 (130.1)	4.00 (101.6)	1.00 (25.4)	0.34 (8.6)	8.20 (208.3)	0.69 (17.5)	0.50 (12.7)	1.00 (25.4)



Dimensions(Straight)

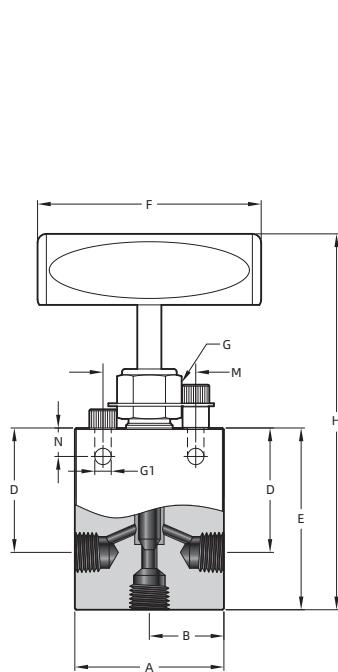
Ordering Number	Connection Type	Orifice in.(mm)	A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness
			in.(mm)												
15NV-FNPT2-	FNPT2	0.078 (1.98)	1.50	0.75	—	0.82	—	1.25	1.75	0.56	0.17	2.53	0.56	0.31	0.63
15NV-FBT2-	FBT2		(38.1)	(19.1)	—	(20.6)	—	(31.8)	(44.5)	(14.2)	(4.3)	(64.3)	(14.2)	(7.9)	(15.9)
15NV-FNPT4-	FNPT4	0.203 (5.2)	2.00	1.00	—	1.41	—	2.00	3.00	0.75	0.22	4.63	0.62	0.38	0.75
15NV-FBT4-	FBT4		(50.8)	(25.4)	—	(35.8)	—	(50.8)	(76.2)	(19.1)	(5.6)	(117.6)	(15.8)	(9.7)	(19.1)
15NV-FNPT6-	FNPT6	0.219 (5.56)	2.50	1.25	—	1.41	—	2.00	3.00	0.75	0.22	4.63	0.62	0.38	1.00
15NV-FBT6-	FBT6		(63.5)	(31.8)	—	(35.8)	—	(50.8)	(76.2)	(19.1)	(5.6)	(117.6)	(15.8)	(9.7)	(25.4)
15NV-FNPT8-	FNPT8	0.312 (7.92)	3.00	1.50	—	2.06	—	2.88	4.00	1.00	0.34	5.93	0.69	0.50	1.38
15NV-FBT8-	FBT8		(76.2)	(38.1)	—	(52.3)	—	(73.2)	(101.6)	(25.4)	(8.6)	(150.6)	(17.5)	(12.7)	(35.1)

Dimensions(Angle)

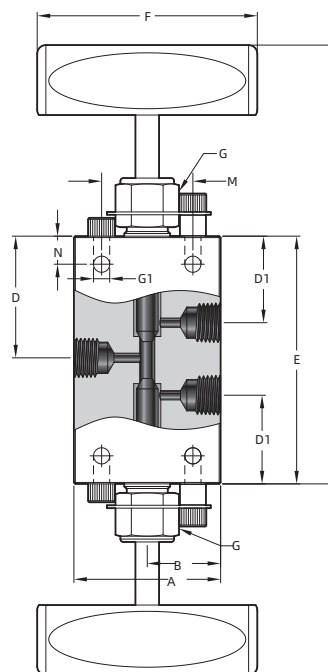
Ordering Number	Connection Type	Orifice in.(mm)	A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness
			in.(mm)												
15NV-FNPT2-A-	FNPT2	0.078 (1.98)	1.50	0.75	—	0.56	—	1.38	1.75	0.56	0.17	2.66	0.56	0.31	0.63
15NV-FBT2-A-	FBT2		(38.1)	(19.1)	—	(14.2)	—	(34.9)	(44.5)	(14.2)	(4.3)	(67.6)	(14.2)	(7.9)	(15.9)
15NV-FNPT4-A-	FNPT4	0.203 (5.2)	2.00	1.00	—	1.41	—	2.44	3.00	0.75	0.22	4.81	0.62	0.38	0.75
15NV-FBT4-A-	FBT4		(50.8)	(25.4)	—	(35.8)	—	(62.0)	(76.2)	(19.1)	(5.6)	(122.2)	(15.8)	(9.7)	(19.1)
15NV-FNPT6-A-	FNPT6	0.219 (5.56)	2.50	1.25	—	1.41	—	2.44	3.00	0.75	0.22	4.81	0.62	0.38	1.00
15NV-FBT6-A-	FBT6		(63.5)	(31.8)	—	(35.8)	—	(62.0)	(76.2)	(19.1)	(5.6)	(122.2)	(15.8)	(9.7)	(25.4)
15NV-FNPT8-A-	FNPT8	0.312 (7.92)	3.00	1.50	—	2.06	—	3.38	4.00	1.00	0.34	6.43	0.69	0.50	1.38
15NV-FBT8-A-	FBT8		(76.2)	(38.1)	—	(52.3)	—	(85.9)	(101.6)	(25.4)	(8.6)	(163.3)	(17.5)	(12.7)	(35.1)

Dimensions(3-way/2 on pressure)

Ordering Number	Connection Type	Orifice in.(mm)	A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness
			in.(mm)												
15NV-FNPT2-3A-	FNPT2	0.078 (1.98)	1.50	0.75	—	0.82	—	1.57	1.75	0.56	0.17	2.86	0.56	0.31	0.63
15NV-FBT2-3A-	FBT2		(38.1)	(19.1)	—	(20.6)	—	(40.0)	(44.5)	(14.2)	(4.3)	(72.6)	(14.2)	(7.9)	(15.9)
15NV-FNPT4-3A-	FNPT4	0.203 (5.2)	2.00	1.00	—	1.41	—	2.62	3.00	0.75	0.22	5.00	0.62	0.38	0.75
15NV-FBT4-3A-	FBT4		(50.8)	(25.4)	—	(35.8)	—	(66.6)	(76.2)	(19.1)	(5.6)	(127.0)	(15.8)	(9.7)	(19.1)
15NV-FNPT6-3A-	FNPT6	0.219 (5.56)	2.50	1.25	—	1.41	—	2.62	3.00	0.75	0.22	5.00	0.62	0.38	1.00
15NV-FBT6-3A-	FBT6		(63.5)	(31.8)	—	(35.8)	—	(66.6)	(76.2)	(19.1)	(5.6)	(127.0)	(15.8)	(9.7)	(25.4)
15NV-FNPT8-3A-	FNPT8	0.312 (7.92)	3.00	1.50	—	2.06	—	3.62	4.00	1.00	0.34	6.52	0.69	0.50	1.38
15NV-FBT8-3A-	FBT8		(76.2)	(38.1)	—	(52.3)	—	(92.0)	(101.6)	(25.4)	(8.6)	(165.6)	(17.5)	(12.7)	(35.1)



3 Way/1 on pressure



3 Way/2 stem manifold

Dimensions(3-way/1 on pressure)

Ordering Number	Connection Type	Orifice in.(mm)	A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness
			in.(mm)												
15NV-FNPT2-3B-	FNPT2	0.078 (1.98)	1.50	0.75	—	0.82	—	1.38	1.75	0.56	0.17	2.86	0.56	0.31	0.63
15NV-FBT2-3B-	FBT2		(38.1)	(19.1)	—	(20.6)	—	(35.0)	(44.5)	(14.2)	(4.3)	(72.6)	(14.2)	(7.9)	(15.9)
15NV-FNPT4-3B-	FNPT4	0.203 (5.2)	2.00	1.00	—	1.41	—	2.44	3.00	0.75	0.22	4.81	0.62	0.38	0.75
15NV-FBT4-3B-	FBT4		(50.8)	(25.4)	—	(35.8)	—	(62.0)	(76.2)	(19.1)	(5.6)	(122.2)	(15.8)	(9.7)	(19.1)
15NV-FNPT6-3B-	FNPT6	0.219 (5.56)	2.50	1.25	—	1.41	—	2.44	3.00	0.75	0.22	4.81	0.62	0.38	1.00
15NV-FBT6-3B-	FBT6		(63.5)	(31.8)	—	(35.8)	—	(62.0)	(76.2)	(19.1)	(5.6)	(122.2)	(15.8)	(9.7)	(25.4)
15NV-FNPT8-3B-	FNPT8	0.312 (7.92)	3.00	1.50	—	2.06	—	3.38	4.00	1.00	0.34	6.31	0.69	0.50	1.38
15NV-FBT8-3B-	FBT8		(76.2)	(38.1)	—	(52.3)	—	(85.9)	(101.6)	(25.4)	(8.6)	(160.3)	(17.5)	(12.7)	(35.1)

Dimensions(3-way/2 stem manifold)

Ordering Number	Connection Type	Orifice in.(mm)	A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness
			in.(mm)												
15NV-FNPT2-3C-	FNPT2	0.078 (1.98)	1.50 (38.1)	0.75 (19.1)	—	1.00 (25.6)	0.68 (17.2)	2.02 (51.2)	1.75 (44.5)	0.56 (14.2)	0.17 (4.3)	3.30 (83.8)	0.56 (14.2)	0.31 (7.9)	0.63 (15.9)
15NV-FBT2-3C-	FBT2														
15NV-FNPT4-3C-	FNPT4	0.203 (5.2)	2.00 (50.8)	1.00 (25.4)	—	1.69 (42.9)	1.19 (30.2)	3.38 (85.9)	3.00 (76.2)	0.75 (19.1)	0.22 (5.6)	5.75 (146.1)	0.62 (15.8)	0.38 (9.7)	0.75 (19.1)
15NV-FBT4-3C-	FBT4														
15NV-FNPT6-3C-	FNPT6	0.219 (5.56)	2.50 (63.5)	1.25 (31.8)	—	1.69 (65.1)	1.19 (30.2)	3.38 (85.9)	3.00 (76.2)	0.75 (19.1)	0.22 (5.6)	5.75 (146.1)	0.62 (15.8)	0.38 (9.7)	1.00 (25.4)
15NV-FBT6-3C-	FBT6														
15NV-FNPT8-3C-	FNPT8	0.312 (7.92)	3.00 (76.2)	1.50 (38.1)	—	2.56 (65.1)	1.75 (44.5)	5.12 (130.1)	4.00 (101.6)	1.00 (25.4)	0.34 (8.6)	8.05 (204.5)	0.69 (17.5)	0.50 (12.7)	1.38 (35.1)
15NV-FBT8-3C-	FBT8														

Notes:

1. G is the drill dimension of packing gland mounting hole.
2. G1 is the dimension of bracket mounting hole.
3. Panel mounting drill size: 0.25" all valves.
4. The dimension of stem in closed position.

How to Order

15NV — LPF4 — R — RG — A — 316					
Series	Connector Sizes	Stem Tips	Packing	Flow Patterns	Body Material
15NV	LPF2 1/8"	Vee	PTFE	Straight	316 316 S.S. A825 Alloy 825
	LPF4 1/4"	R Regulating	RG RPTFE Glass	A Angle	
	LPF6 3/8"		G Graphite	AR Angle, replaceable seat	
	LPF8 1/2"			3A 3-way, 2 on pressure	
	FNPT2 1/8" Female NPT			3B 3-way, 1 on pressure	
	FNPT4 1/4" Female NPT			3C 3-way, 2 stem manifold	
	FNPT6 3/8" Female NPT				
	FNPT8 1/2" Female NPT				
	FBT2 1/8" Female BSPT				
	FBT4 1/4" Female BSPT				
	FBT6 3/8" Female BSPT				
	FBT8 1/2" Female BSPT				

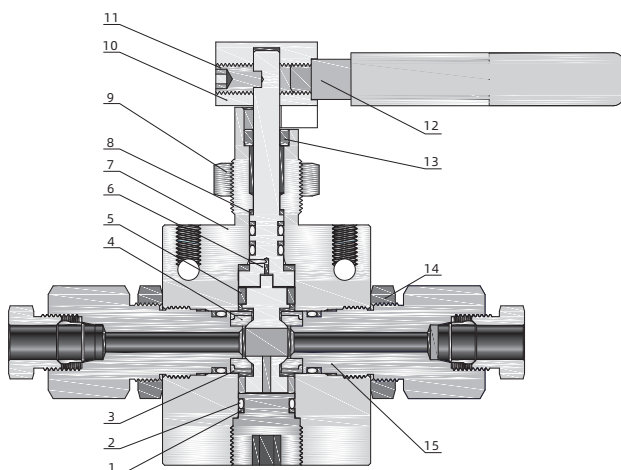
Ball Valves

15BV Series

Features

- ❖ Working pressure up to 15,000 psig (1034 bar)
- ❖ Working temperature from 0°F to 400°F (-18°C to 204°C)
- ❖ Two-way and three-way valve configurations
- ❖ PEEK seats offer excellent resistance to chemicals, heat, and wear/abrasion
- ❖ Full-port flow path minimizes pressure drop
- ❖ 316 cold worked stainless steel construction
- ❖ Wide selection of tube and pipe end connections available

Standard Materials of Construction

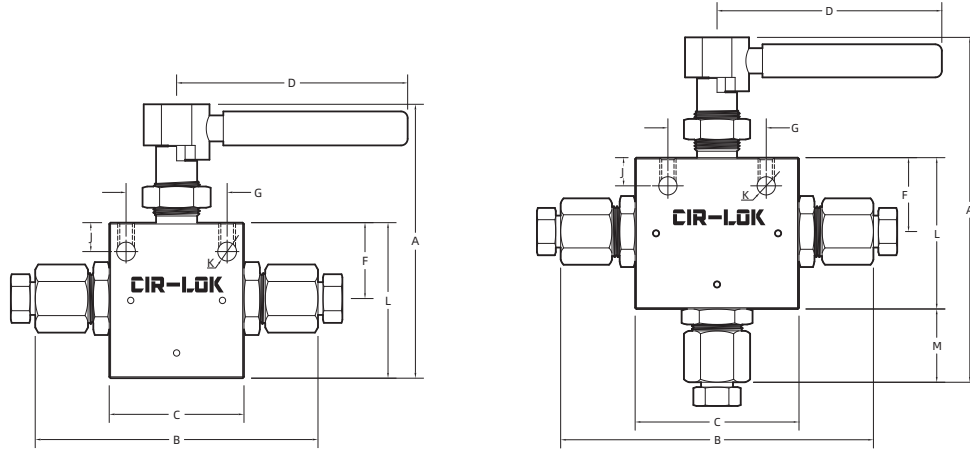


Component		Material Grade / ASTM Specification
1	Ring	PTFE / D1710
2	O-ring	FKM
3	Seat Retainer	316 S.S. / A479
4	Seat	PEEK
5	Bearing	PEEK
6	Stem	316 S.S. / A479
7	Body	316 S.S. / A479
8	Bearing	PEEK
9	Nut	316 S.S. / A479
10	Handle Seat	316 S.S. / A479
11	Screw	304 S.S.
12	Handle	304 S.S.
13	Sleeve	C63000 / B150
14	Lock Nut	316 S.S. / A479
15	Seat Gland	304 S.S. / A479

Pressure vs. Temperature

Temperature, °F(°C)	Working Pressure, psig(bar)
0(-18)	15,000(1034)
100(38)	15,000(1034)
200(93)	15,000(1034)
300(148)	15,000(1034)
400(204)	10,000(689)

Dimensions

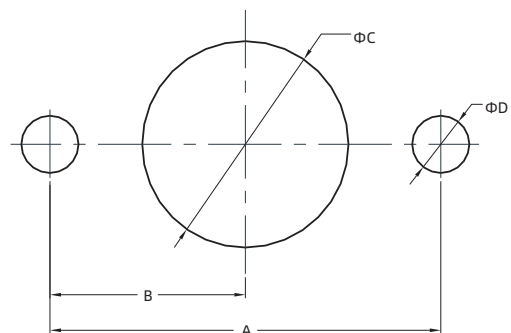


Body Style	Ordering Number	Connection Type and Size	CV	A	B	C	D	F	G	H	J	K	L	M	Thickness	Pressure at Room Temperature, psig(bar)
2-Way	15BV-LPF2-06-	LPF2	0.26	4.33 (110)	4.19 (106.5)	2 (50.8)	3.37 (85.6)	1.13 (28.6)	1.5 (38.1)	0.75 (19.1)	0.43 (10.9)	0.28 (7.1)	1.91 (48.4)	—	1 (25.4)	15000 (1034)
	15BV-LPF4-06-	LPF4	0.26													
	15BV-LPF6-06-	LPF6														
	15BV-LPF8-06-	LPF8														
	15BV-FNPT2-06-	1/8" Female NPT														
	15BV-FNPT4-06-	1/4" Female NPT														
	15BV-FNPT6-06-	3/8" Female NPT														
	15BV-FNPT8-06-	1/2" Female NPT														
	15BV-LPF8-10-	LPF8	3.51	4.97 (126.3)	5.53 (140.4)	3 (76.2)	4.99 (126.8)	1.38 (34.9)	2 (50.8)	1 (25.4)	0.41 (10.3)	0.28 (7.1)	2.5 (63.5)	—	1.38 (34.9)	
	15BV-FNPT4-10-	1/4" Female NPT														
	15BV-FNPT6-10-	3/8" Female NPT														
	15BV-FNPT8-10-	1/2" Female NPT														
15BV-FNPT8-13-	1/2" Female NPT	10.2	5.95 (151.1)	7.73 (196.5)	4.13 (104.8)	5.13 (130.2)	1.76 (44.7)	3 (76.2)	1.5 (38.1)	0.5 (12.7)	0.28 (7.1)	3.09 (78.6)	—	1.75 (44.5)	10000 (689)	
15BV-FNPT12-13-	3/4" Female NPT															
15BV-FNPT16-13-	1" Female NPT															
3-Way	15BV-LPF2-05-3-	LPF2	0.13	5.64 (143.4)	4.72 (119.9)	2.5 (63.5)	3.37 (85.6)	1.13 (28.6)	1.5 (38.1)	0.75 (19.1)	0.43 (10.9)	0.28 (7.1)	2.25 (57.2)	0.97 (24.6)	1 (25.4)	15000 (1034)
	15BV-LPF4-05-3-	LPF4	0.23													
	15BV-LPF6-05-3-	LPF6														
	15BV-LPF8-05-3-	LPF8														
	15BV-FNPT2-05-3-	1/8" Female NPT														
	15BV-FNPT4-05-3-	1/4" Female NPT														
	15BV-FNPT6-05-3-	3/8" Female NPT														
	15BV-FNPT8-05-3-	1/2" Female NPT														
	15BV-LPF8-10-3-	LPF8	2.1	6.55 (466.4)	5.54 (140.8)	3 (76.2)	4.99 (126.8)	1.38 (34.9)	2 (50.8)	1 (25.4)	0.41 (10.3)	0.28 (7.1)	2.88 (73)	1.19 (30.2)	1.38 (34.9)	
	15BV-FNPT4-10-3-	1/4" Female NPT														
	15BV-FNPT6-10-3-	3/8" Female NPT														
	15BV-FNPT8-10-3-	1/2" Female NPT														
	15BV-FNPT8-13-3-	1/2" Female NPT	4.4	7.83 (198.8)	7.77 (197.4)	4.13 (104.8)	5.13 (130.2)	1.66 (42.2)	3 (76.2)	1.5 (38.1)	0.5 (12.7)	0.28 (7.1)	3.34 (84.9)	1.7 (43.2)	1.75 (44.5)	10000 (689)
	15BV-FNPT12-13-3-	3/4" Female NPT														
15BV-FNPT16-13-3-	1" Female NPT															

Panel Mounting Dimensions

Body Style	Orifice No.	A	B	C	D
		in.(mm)			
2-Way	06	1.5 (38.1)	0.75 (19.1)	1.06 (26.9)	0.28 (7.1)
	10	2 (50.8)	1 (25.4)	1.5 (38.1)	0.28 (7.1)
	13	3 (76.2)	1.5 (38.1)	1.88 (47.6)	0.28 (7.1)
3-Way	05	1.5 (38.1)	0.75 (19.1)	1.06 (26.9)	0.28 (7.1)
	10	2 (50.8)	1 (25.4)	1.5 (38.1)	0.28 (7.1)
	13	3 (76.2)	1.5 (38.1)	1.88 (47.6)	0.28 (7.1)

❖ Note: Body Mounting 1/4-20 Thread



How to Order

15BV — LPF4 — 05 — 3 — 316

Series	Connector Sizes	Orifice No.	Flow Patterns	Body Material
15BV	LPF2 1/8" Tubing	For 2-way	Straight	316 316 S.S.
	LPF4 1/4" Tubing	06 1/4"	3 3-way	
	LPF6 3/8" Tubing	10 3/8"		
	LPF8 1/2" Tubing	13 1/2"		
	FNPT2 1/8" NPT(Female)	For 3-way		
	FNPT4 1/4" NPT(Female)	05 3/16"		
	FNPT6 3/8" NPT(Female)	10 3/8"		
	FNPT8 1/2" NPT(Female)	13 1/2"		
	FNPT12 3/4" NPT(Female)			
	FNPT16 1" NPT(Female)			

❖ 3/4" and 1" Female NPT Working pressure to 10000psig

Filters

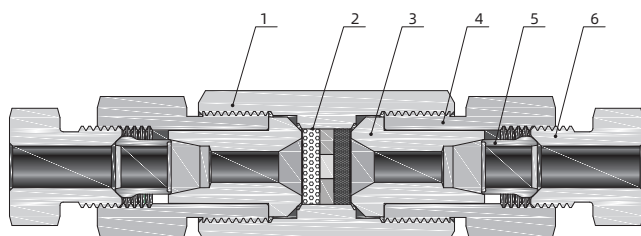
15F Series

Dual-Disc Line Filters

Features

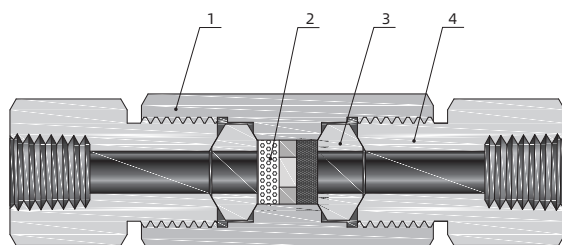
- ❖ Working pressure up to 15,000 psig (1034 bar)
- ❖ Working temperature range:
Tubing connection: -65°F to 650°F (-53°C to 343°C)
Pipe connection: -65°F to 450°F (-53°C to 232°C)
- ❖ Connection types and sizes:
1/8", 1/4", 3/8" and 1/2" O.D. tubing
1/8", 1/4", 3/8", 1/2", 3/4" and 1" Female NPT
- ❖ Dual-disc design allows the upstream filter element to trap the large particulate contaminants before they can reach and clog the smaller pore-size downstream element
- ❖ Downstream/upstream element nominal pore size: 5/10, 10/35 and 35/65 µm. Other element combinations available on request
- ❖ Easy to replace filter elements
- ❖ Pressure differential not to exceed 1000 psig (68.9 bar) in a flowing condition

Standard Materials of Construction



Tube Connection

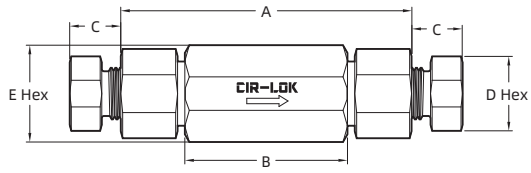
Component		Material Grade / ASTM Specification
1	Body	316 S.S. / A479
2	Filter Element	Sintered 316 S.S.
3	Cover	316 S.S. / A479
4	Cover Gland	316 S.S. / A479
5	Ferrule	316 S.S. / A479
6	Nut	316 S.S. / A479



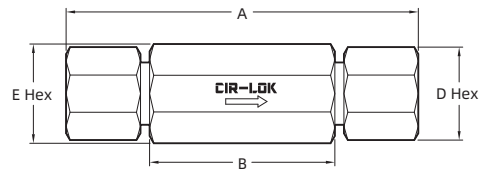
NPT Connection

Component		Material Grade / ASTM Specification
1	Body	316 S.S. / A479
2	Filter Element	Sintered 316 S.S.
3	Cover	316 S.S. / A479
4	Cover Gland	316 S.S. / A479

Dimensions



Tube Connection



NPT Connection

Ordering Number	Connection Type	Orifice, in.(mm)	Nominal Pore Size (μm)	Effective Filter Element Area in. ² (mm ²)	A	B	C	D Hex	E Hex
15F-LPF2-0510-	LPF2	0.094 (2.39)	5/10	0.06(38.70)	2.31 (58.67)	1.25 (31.75)	0.31 (7.87)	0.38 (9.6)	0.63 (15.88)
15F-LPF2-1035-			10/35						
15F-LPF2-3565-			35/65						
15F-LPF4-0510-	LPF4	0.125 (3.18)	5/10	0.15(96.77)	2.94 (75.56)	1.68 (42.67)	0.44 (11.17)	0.63 (15.88)	0.81 (20.57)
15F-LPF4-1035-			10/35						
15F-LPF4-3565-			35/65						
15F-LPF6-0510-	LPF6	0.188 (4.78)	5/10	0.15(96.77)	2.94 (75.56)	1.68 (42.67)	0.53 (13.46)	0.75 (19.05)	1.00 (25.4)
15F-LPF6-1035-			10/35						
15F-LPF6-3565-			35/65						
15F-FNPT2-0510-	FNPT2	0.13 (3.2)	5/10	0.06(38.7)	2.79 (70.8)	1.50 (38.1)	-	0.63 (15.9)	0.63 (15.9)
15F-FNPT2-1035-			10/35						
15F-FNPT2-3565-			35/65						
15F-FNPT4-0510-	FNPT4	0.19 (4.8)	5/10	0.15(96.8)	4.15 (105.5)	2.19 (55.6)	-	0.94 (23.8)	1.00 (25.4)
15F-FNPT4-1035-			10/35						
15F-FNPT4-3565-			35/65						
15F-FNPT6-0510-	FNPT6	0.19 (4.8)	5/10	0.15(96.8)	4.15 (105.5)	2.19 (55.6)	-	1.13 (28.6)	1.13 (28.6)
15F-FNPT6-1035-			10/35						
15F-FNPT6-3565-			35/65						
15F-FNPT8-0510-	FNPT8	0.31 (7.9)	5/10	0.25(161.3)	5.27 (133.8)	2.94 (74.6)	-	1.38 (35.0)	1.38 (35.0)
15F-FNPT8-1035-			10/35						
15F-FNPT8-3565-			35/65						

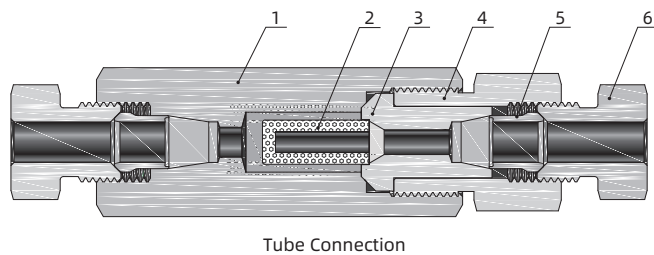
❖ All dimensions for reference only and subject to change.

Cup-Type Line Filters

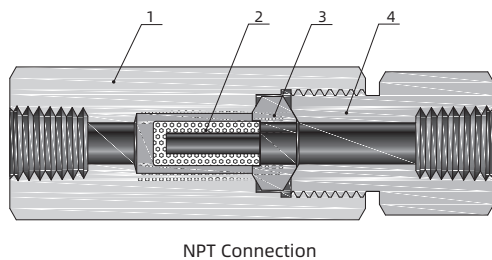
Features

- ❖ Working pressure up to 15,000 psig(1034 bar)
- ❖ Working temperature range:
Tubing connection: -100°F to 650°F(-73°C to 343°C)
NPT connection: -65°F to 450°F(-53°C to 232°C)
- ❖ Connection types and sizes:
1/8", 1/4", 3/8" and 1/2" O.D. tubing
1/8", 1/4", 3/8", 1/2", 3/4" and 1" Female NPT
- ❖ Cup design to offer about six times the effective filter area as compared to disc-type units, and recommended in systems requiring both maximum filter surface area and high flow rates ·Nominal pore sizes for filter elements: 5, 35 and 65 µm
- ❖ Easy to replace filter elements
- ❖ Pressure differential not to exceed 1000 psig(69 bar) in a flowing condition

Standard Materials of Construction

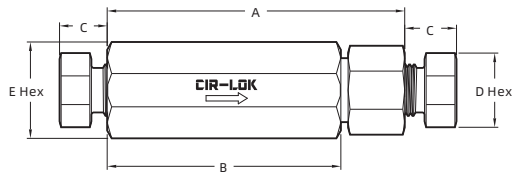


Component		Material Grade / ASTM Specification
1	Body	316 S.S. / A479
2	Filter Element	Sintered 316 S.S.
3	Cover	316 S.S. / A479
4	Cover Gland	316 S.S. / A479
5	Ferrule	316 S.S. / A479
6	Nut	316 S.S. / A479

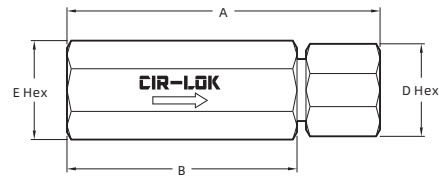


Component		Material Grade / ASTM Specification
1	Body	316 S.S. / A479
2	Filter Element	Sintered 316 S.S.
3	Cover	316 S.S. / A479
4	Cover Gland	316 S.S. / A479

Dimensions



Tube Connection



NPT Connection

Ordering Number	Connection Type	Orifice, in.(mm)	Nominal Pore Size (µm)	Effective Filter Element Area in. ² (mm ²)	A	B	C	D Hex	E Hex
15F-LPF4-5-	LPF4	0.188 (4.78)	5	0.81(522.57)	3.18 (80.77)	2.56 (65.02)	0.44 (11.17)	0.63 (15.88)	0.81 (20.57)
15F-LPF4-35-			35						
15F-LPF4-65-			65						
15F-LPF6-5-	LPF6	0.312 (7.92)	5	0.81(522.57)	3.56 (90.42)	3.00 (76.20)	0.53 (13.46)	0.75 (19.05)	1.00 (25.40)
15F-LPF6-35-			35						
15F-LPF6-65-			65						
15F-FNPT2-5-	FNPT2	0.13 (3.2)	5	0.38(245.0)	2.58 (65.6)	1.94 (49.2)	-	0.63 (15.9)	0.63 (15.9)
15F-FNPT2-35-			35						
15F-FNPT2-65-			65						
15F-FNPT4-5-	FNPT4	0.31 (7.9)	5	0.81(522.6)	3.66 (93.0)	2.69 (68.3)	-	0.94 (23.8)	1.00 (25.4)
15F-FNPT4-35-			35						
15F-FNPT4-65-			65						
15F-FNPT6-5-	FNPT6	0.31 (7.9)	5	0.81(522.6)	3.66 (93.0)	2.69 (68.3)	-	1.13 (28.6)	1.13 (28.6)
15F-FNPT6-35-			35						
15F-FNPT6-65-			65						
15F-FNPT8-5-	FNPT8	0.44 (11.1)	5	1.53(987.1)	4.55 (115.6)	3.37 (85.7)	-	1.38 (35.0)	1.38 (35.0)
15F-FNPT8-35-			35						
15F-FNPT8-65-			65						

❖ All dimensions for reference only and subject to change.

How to Order

15F — FNPT8 — 5 — 316

Series	Connector Sizes	Nominal Pore Size	Body Material
15F	LPF2 1/8" Tubing	Dual-Disc Line Filters	316 316 S.S.
	LPF4 1/4" Tubing	0510 5/10 µm	316L 316L S.S.
	LPF6 3/8" Tubing	1035 10/35 µm	
	LPF8 1/2" Tubing	3565 35/65 µm	
	FNPT2 1/8" NPT(Female)	Cup-Type Line Filters	
	FNPT4 1/4" NPT(Female)	5 5 µm	
	FNPT6 3/8" NPT(Female)	35 35 µm	
	FNPT8 1/2" NPT(Female)	65 65 µm	
	FNPT12 3/4" NPT(Female)		
	FNPT16 1" NPT(Female)		

❖ 3/4" and 1" Female NPT Working pressure to 10000 psig

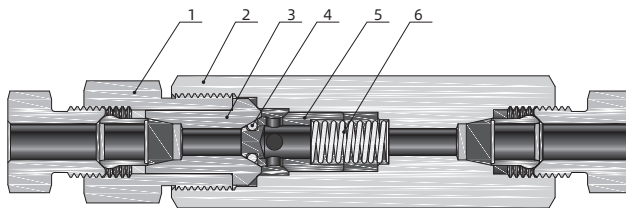
Check Valves

15CV Series

Features

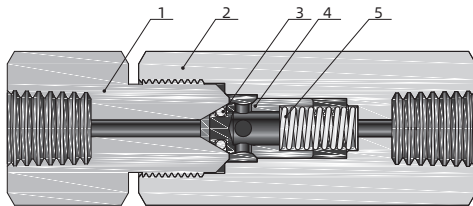
- ❖ Working pressure up to 15,000 psig (1034 bar)
- ❖ Working temperature from 0°F to 400°F (-18°C to 204°C)
- ❖ Cracking Pressure: 14 psi - 26 psi (0.966 bar - 1.794 bar)
- ❖ Tubing sizes available for 1/8", 1/4", 3/8"
- ❖ Provides unidirectional flow and tight shut-off for liquids and gases with high reliability.
When differential drops below cracking pressure, valve shuts off (Not for use as relief valve)
- ❖ Resilient O-ring seat design for noise-free closing and zero leakage

Standard Materials of Construction



Tube Connection

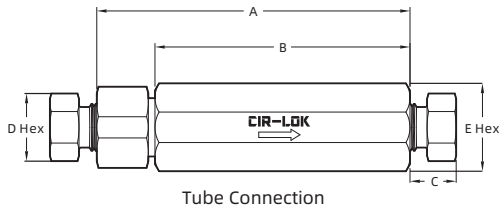
Component		Material Grade / ASTM Specification
1	Cover Gland	316 S.S. / A479
2	Valve Body	316 S.S. / 479
3	Cover	316 S.S. / 479
4	O-ring	FKM
5	Poppet	316 S.S. / 479
6	Spring	300 Series Stainless Steel



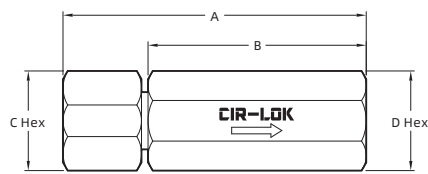
NPT Connection

Component		Material Grade / ASTM Specification
1	Cover Gland	316 S.S. / A479
2	Valve Body	316 S.S. / A479
3	O-ring	FKM
4	Poppet	316 S.S. / A479
5	Spring	300 Series Stainless Steel

Dimensions



Tube Connection



NPT Connection

Ordering Number	Connection Type	Orifice, in.(mm)	Cv	A	B	C	D	E
15CV-LPF2-V-	LPF2	0.094 (2.39)	0.15	2.25 (57.15)	1.88 (47.75)	0.31 (7.87)	0.50 (12.7)	0.63 (16.00)
15CV-LPF4-V-	LPF4	0.188 (4.78)	0.63	3.18 (80.77)	2.56 (65.02)	0.44 (11.18)	0.63 (16.00)	0.81 (20.57)
15CV-LPF6-V-	LPF6	0.250 (6.35)	1.70	3.56 (90.42)	3.00 (76.20)	0.53 (13.46)	0.75 (19.05)	1.00 (25.40)

❖ All dimensions for reference only and subject to change.

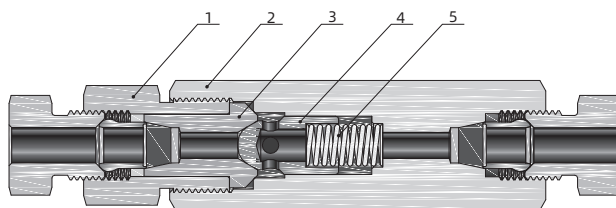
Ordering Number	Connection Type	Orifice, in.(mm)	Cv	A	B	C	D
15CV-FNPT4-V-	FNPT4	0.12 (3.05)	0.28	3.37 (85.60)	2.38 (60.33)	0.81 (20.57)	0.81 (20.57)
15CV-FNPT6-V-	FNPT6	0.22 (5.59)	0.84	3.95 (100.33)	2.88 (73.15)	1.00 (25.4)	1.00 (25.4)
15CV-FNPT8-V-	FNPT8	0.36 (9.14)	2.30	5.36 (136.14)	3.88 (98.55)	1.19 (30.23)	1.38 (35.05)

❖ All dimensions for reference only and subject to change.

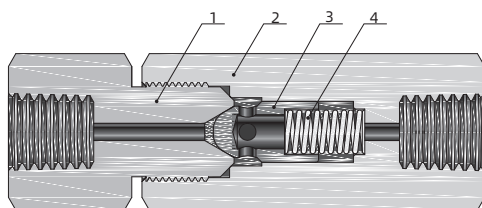
Features

- ❖ Working pressure up to 15,000 psig (1034 bar)
- ❖ Working temperature from 0°F to 650°F (-18°C to 343°C)
- ❖ Cracking Pressure: 14 psi - 26 psi (0.966 bar - 1.794 bar)
- ❖ Tubing sizes available for 1/8", 1/4", 3/8"
- ❖ Prevents reverse flow where leak-tight shut-off is not mandatory (Not for use as relief valve)
- ❖ An integral design of the ball and poppet to assure positive, in-line seating without "chatter"
- ❖ Poppet designed essentially for axial flow with minimum pressure drop
- ❖ Optional wet cap gland and ball cone material for longer service life

Standard Materials of Construction



Tube Connection

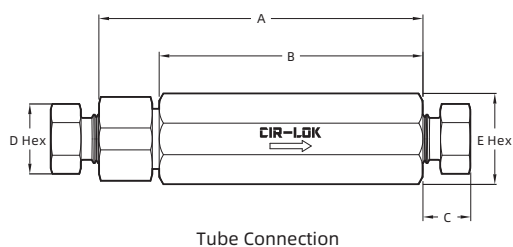


NPT Connection

Component	Material Grade / ASTM Specification
1 Cover Gland	316 S.S. / A479
2 Valve Body	316 S.S. / A479
3 Cover	316 S.S. / A479
4 Poppet	316 S.S. / A479
5 Spring	300 Series Stainless Steel

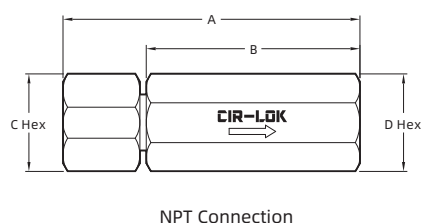
Component	Material Grade / ASTM Specification
1 Cover Gland	316 S.S. / A479
2 Valve Body	316 S.S. / A479
3 Poppet	316 S.S. / A479
4 Spring	300 Series Stainless Steel

Dimensions



Ordering Number	Connection Type	Orifice, in.(mm)	Cv	A	B	C	D	E
15CV-LPF2-B-	LPF2	0.094 (2.39)	0.15	2.25 (57.15)	1.88 (47.75)	0.31 (7.87)	0.38 (9.6)	0.63 (15.88)
15CV-LPF4-B-	LPF4	0.188 (4.78)	0.63	3.18 (80.77)	2.56 (65.02)	0.44 (11.18)	0.63 (15.88)	0.81 (20.64)
15CV-LPF6-B-	LPF6	0.250 (6.35)	1.70	3.56 (90.42)	3.00 (76.20)	0.53 (13.46)	0.75 (19.05)	1.00 (25.40)

❖ All dimensions for reference only and subject to change.



Ordering Number	Connection Type	Orifice, in.(mm)	Cv	A	B	C	D
15CV-FNPT4-B-	FNPT4	0.12 (3.05)	0.28	3.37 (85.60)	2.38 (60.33)	0.81 (20.57)	0.81 (20.57)
15CV-FNPT6-B-	FNPT6	0.22 (5.59)	0.84	3.95 (100.33)	2.88 (73.15)	1.00 (25.4)	1.00 (25.4)
15CV-FNPT8-B-	FNPT8	0.36 (9.14)	2.30	5.36 (136.14)	3.88 (98.55)	1.19 (30.23)	1.38 (35.05)

❖ All dimensions for reference only and subject to change.

How to Order

15CV — LPF4 — B — Z — 316

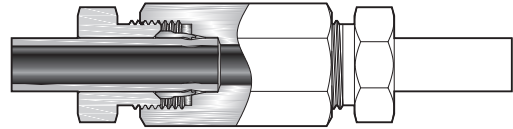
Series	Connector Sizes	Seal Type	Seal material	Body Material
15CV	LPF2 1/8" Tubing	V Blunt	Fluorocarbon FKM	316 316 S.S.
	LPF4 1/4" Tubing	B Ball	BN Buna N	316L 316L S.S.
	LPF6 3/8" Tubing		E Ethylene Propylene	
	FNPT4 1/4" NPT(Female)		N Neoprene	
	FNPT6 3/8" NPT(Female)		Z Kalrez	
	FNPT8 1/2" NPT(Female)			

Single Ferrule Compression Fittings

15 Series

Features

- ❖ Single-ferrule compression sleeve connections for up to 15,000 psig MAWP
- ❖ Operating temperature from -100°F(-73°C) to 650°F(343°C)
- ❖ Fittings are easy to disconnect and retighten
- ❖ Available sizes are 1/8", 1/4", 3/8", and 1/2"
- ❖ Molybdenum disulfide-coated gland nuts to prevent galling
- ❖ CIR-LOK 15 series tube fittings are designed for use with CIR-LOK 15 series valves



Materials Standards

Component	Material	Standard
Body, Ferrule Sleeve	316 Stainless Steel	ASTM A479
Gland		

- ❖ CIR-LOK 15 Series Tube Fittings and Tubing can be made with materials suitable for sour gas service are available, materials are selected in accordance with NACE MR0175/ISO 15156

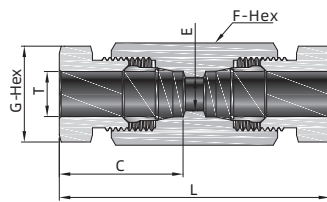
Working Pressure

- ❖ The maximum working pressure of the 15 series tube fittings at ambient temperature is determined by the maximum working pressure of the tubing that is used, refer to 15 series tubing data

Dimensions

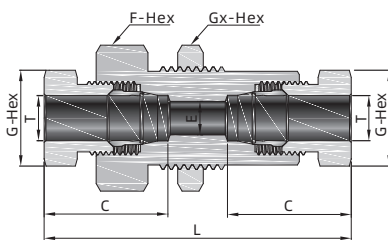
- ❖ All dimensions for reference only and subject to change

Unions



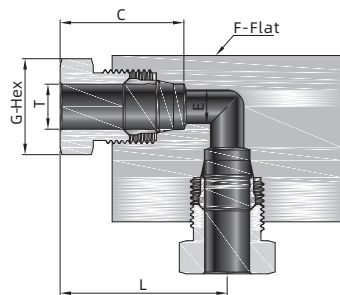
T-Tube O.D. in.	Basic Ordering Number	Dimensions, in.(mm)				
		L	C	E	F	G
1/8	15U-LPF2-	2.13(54.2)	0.91(23.1)	0.09(2.4)	0.50(12.7)	0.37(9.5)
1/4	15U-LPF4-	2.67(67.8)	1.21(30.8)	0.19(4.8)	0.63(15.9)	0.63(15.9)
3/8	15U-LPF6-	2.82(71.7)	1.29(32.7)	0.25(6.4)	0.75(19.1)	0.75(19.1)
1/2	15U-LPF8-	3.20(81.4)	1.38(35.1)	0.31(7.9)	1.00(25.4)	0.94(23.8)

Bulkhead Unions



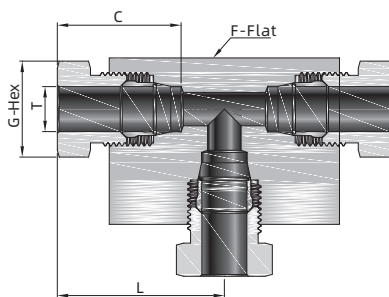
T-Tube O.D. in.	Basic Ordering Number	Dimensions, in.(mm)						Panel Hole Size	Maximum Panel Thickness
		L	C	E	F	G	GX		
1/8	15BU-LPF2-	2.64(67.0)	0.91(23.1)	0.09(2.4)	0.75(19.1)	0.37(9.5)	0.81(20.6)	0.69(17.5)	0.38(9.7)
1/4	15BU-LPF4-	2.93(74.3)	1.21(30.8)	0.19(4.8)	1.00(25.4)	0.63(15.9)	1.00(25.4)	0.94(23.9)	0.38(9.7)
3/8	15BU-LPF6-	2.95(74.9)	1.29(32.7)	0.25(6.4)	1.00(25.4)	0.75(19.1)	1.06(27.0)	0.94(23.9)	0.38(9.7)
1/2	15BU-LPF8-	3.58(90.9)	1.38(35.1)	0.31(7.9)	1.38(34.9)	0.94(23.8)	1.38(34.9)	1.13(28.6)	0.38(9.7)

Unions Elbows



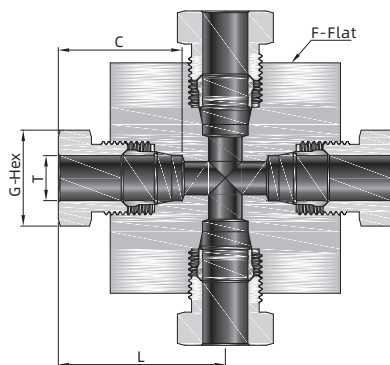
T-Tube O.D. in.	Basic Ordering Number	Dimensions, in.(mm)				
		L	C	E	F	G
1/8	15UE-LPF2-	1.13(28.7)	0.91(23.1)	0.09(2.4)	0.63(15.9)	0.37(9.5)
1/4	15UE-LPF4-	1.52(38.7)	1.21(30.8)	0.19(4.8)	0.75(19.1)	0.63(15.9)
3/8	15UE-LPF6-	1.54(39.0)	1.29(32.7)	0.25(6.4)	0.75(19.1)	0.75(19.1)
1/2	15UE-LPF8-	1.85(47.1)	1.38(35.1)	0.31(7.9)	1.00(25.4)	0.94(23.8)

Unions Tees



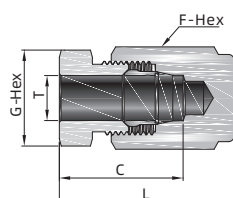
T-Tube O.D. in.	Basic Ordering Number	Dimensions, in.(mm)				
		L	C	E	F	G
1/8	15UT-LPF2-	1.19(30.3)	0.91(23.1)	0.09(2.4)	0.63(15.9)	0.37(9.5)
1/4	15UT-LPF4-	1.52(38.7)	1.21(30.8)	0.19(4.8)	0.75(19.1)	0.63(15.9)
3/8	15UT-LPF6-	1.54(39.0)	1.29(32.7)	0.25(6.4)	0.75(19.1)	0.75(19.1)
1/2	15UT-LPF8-	1.85(47.1)	1.38(35.1)	0.31(7.9)	1.00(25.4)	0.94(23.8)

Unions Crosses



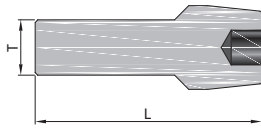
T-Tube O.D. in.	Basic Ordering Number	Dimensions, in.(mm)				
		L	C	E	F	G
1/8	15UC-LPF2-	1.19(30.3)	0.91(23.1)	0.09(2.4)	0.63(15.9)	0.37(9.5)
1/4	15UC-LPF4-	1.52(38.7)	1.21(30.8)	0.19(4.8)	0.75(19.1)	0.63(15.9)
3/8	15UC-LPF6-	1.54(39.0)	1.29(32.7)	0.25(6.4)	0.75(19.1)	0.75(19.1)
1/2	15UC-LPF8-	1.85(47.1)	1.38(35.1)	0.31(7.9)	1.00(25.4)	0.94(23.8)

Caps



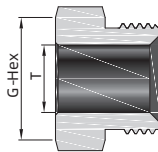
T-Tube O.D. in.	Basic Ordering Number	Dimensions, in.(mm)			
		L	C	F	G
1/8	15CA-LPF2-	1.06(27.1)	0.91(23.1)	0.50(12.7)	0.37(9.5)
1/4	15CA-LPF4-	1.52(38.7)	1.21(30.8)	0.63(15.9)	0.63(15.9)
3/8	15CA-LPF6-	1.63(41.4)	1.29(32.7)	0.75(19.1)	0.75(19.1)
1/2	15CA-LPF8-	1.85(47.1)	1.38(35.1)	1.00(25.4)	0.94(23.8)

Plugs



T-Tube O.D. in.	Basic Ordering Number	Dimensions, in.(mm)
		L
1/8	15P-LPF2-	0.80(20.2)
1/4	15P-LPF4-	1.02(26.0)
3/8	15P-LPF6-	1.06(26.9)
1/2	15P-LPF8-	1.19(30.1)

Glands



T-Tube O.D. in.	Basic Ordering Number	Dimensions, in.(mm)
		G
1/8	15G-LPF2-	0.37(9.5)
1/4	15G-LPF4-	0.63(15.9)
3/8	15G-LPF6-	0.75(19.1)
1/2	15G-LPF8-	0.94(23.8)

Ferrules Sleeves



T-Tube O.D. in.	Basic Ordering Number
1/8	15C-LPF2-
1/4	15C-LPF4-
3/8	15C-LPF6-
1/2	15C-LPF8-

How to Order

15U



LPF4



316

Fitting Type	Port1/2/3/4 Type	Port1/2/3/4 Size	Body Material
15U Unions	LPF Low Pressure Female	2 1/8 in.	316 316 S.S.
15BU Bulkhead Unions		4 1/4 in.	316L 316L S.S.
15UE Unions Elbows		6 3/8 in.	
15UT Unions Tees		8 1/2 in.	
15UC Unions Crosses			
15CA Caps			
15P Plugs			
15G Nuts			
15C Ferrules			

Tubing

15 Series

Features

- ❖ 316 and 316L Stainless Steel(Annealed) to commercial OD sizing tolerances
- ❖ Working pressure up to 15000 psig(1034 bar)

Material Standards and Mechanical Properties

- ❖ CIR-LOK 15 series tube fittings used with heavy-wall annealed stainless steel tubing

Grade	UNS	Specification
316/316L	S31600/S31603	ASTM A213,A269
		ASME SA213

Working Pressure

- ❖ The allowable working pressure in the table below are based on ASME B31.3 at -100°F(-73°C) to 100°F(37.8°C)

T-Tube O.D. in.	Wall Thickness in.	Working Pressure psig(bar)
1/8	0.037	15000(1034)
1/4	0.083	15000(1034)
3/8	0.118	15000(1034)
1/2	0.118	10000(689)

How to Order

15FT — 4 — 0.083 — 6M — TP316

Tubing Type	Tubing O.D. (in.)	Wall Thickness (in.)	Nominal Length (m/feet)		Material Grade
15 Series Fractional Tubing	2 1/8 in.	0.037	1M	1 meter	TP316
	4 1/4 in.	0.083	2M	2 meter	TP316L
	6 3/8 in.	0.118	3M	3 meter	
	8 1/2 in.	0.118	4M	4 meter	
			5M	5 meter	
			6M	6 meter	
			10F	10 feet	
			20F	20 feet	

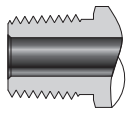
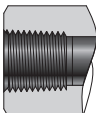
Pipe Connection Fittings

P Series

Features

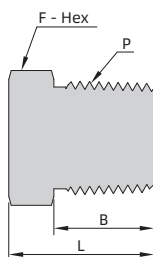
- ❖ Available sizes are 1/8, 1/4, 3/8, 1/2, 3/4 and 1
- ❖ Working temperature from -65°F to 1000°F (-53°C to 537°C)
- ❖ Special 316 stainless steel and Alloy 825 material

End Connection Configuration, Size and Working Pressure

End Connection	Configuration	Size	Working Pressure psig(bar)
Male NPT, BSPT Thread		1/4": NPT4, MBT4 3/8": NPT6, MBT6 1/2": NPT8, MBT8	15,000(1,034)
		3/4": NPT12, MBT12 1": NPT16, MBT16	10,000(689)
Female NPT, BSPT Thread		1/4": FNPT4, FBT4 3/8": FNPT6, FBT6 1/2": FNPT8, FBT8	15,000(1,034)
		3/4": FNPT12, FBT12 1": FNPT16, FBT12	10,000(689)

Dimensions

Pipe Plugs



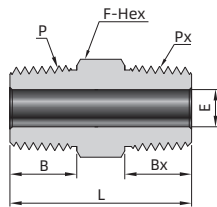
Male NPT Threads

P-NPT Size	Ordering Number	Dimension, in.(mm)		
		L	F	B
1/8	HTP-NPT2-	0.63(16.0)	0.44(11.1)	0.38(9.7)
1/4	HTP-NPT4-	0.87(22.2)	0.56(14.3)	0.56(14.2)
3/8	HTP-NPT6-	0.93(23.6)	0.69(17.5)	0.56(14.2)
1/2	HTP-NPT8-	1.16(29.5)	0.87(22.2)	0.75(19.1)
3/4	HTP-NPT12-	1.25(31.8)	1.06(27.0)	0.75(19.1)
1	HTP-NPT16-	1.55(39.3)	1.37(34.9)	0.94(23.9)

Male BSPT Tapered Threads

P-BSPT Size	Ordering Number	Dimension, in.(mm)		
		L	F	B
1/8	HTP-MBT2-	0.63(16.0)	0.44(11.1)	0.38(9.7)
1/4	HTP-MBT4-	0.87(22.2)	0.56(14.3)	0.56(14.2)
3/8	HTP-MBT6-	0.93(23.6)	0.69(17.5)	0.56(14.2)
1/2	HTP-MBT8-	1.16(29.5)	0.87(22.2)	0.75(19.1)
3/4	HTP-MBT12-	1.25(31.8)	1.06(27.0)	0.75(19.1)
1	HTP-MBT16-	1.55(39.3)	1.37(34.9)	0.94(23.9)

Hex Nipples



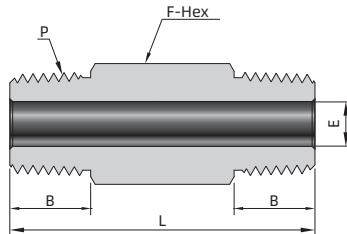
Male NPT Threads

P-NPT Size	Px-NPT Size	Ordering Number	Dimension, in.(mm)				
			L	F	B	Bx	E
1/8	1/8	NPT2-HTHN-NPT2-	1.05(26.6)	0.44(11.1)	0.38(9.7)	0.38(9.7)	0.19(4.8)
1/4	1/8	NPT4-HTHN-NPT2-	1.30(32.9)	0.56(14.3)	0.56(14.2)	0.38(9.7)	0.19(4.8)
1/4	1/4	NPT4-HTHN-NPT4-	1.47(37.4)	0.56(14.3)	0.56(14.2)	0.56(14.2)	0.25(6.4)
3/8	1/8	NPT6-HTHN-NPT2-	1.34(34.1)	0.69(17.5)	0.56(14.2)	0.38(9.7)	0.19(4.8)
3/8	1/4	NPT6-HTHN-NPT4-	1.52(38.6)	0.69(17.5)	0.56(14.2)	0.56(14.2)	0.25(6.4)
3/8	3/8	NPT6-HTHN-NPT6-	1.52(38.6)	0.69(17.5)	0.56(14.2)	0.56(14.2)	0.31(7.9)
1/2	1/8	NPT8-HTHN-NPT2-	1.58(40.2)	0.87(22.2)	0.75(19.1)	0.38(9.7)	0.19(4.8)
1/2	1/4	NPT8-HTHN-NPT4-	1.76(44.7)	0.87(22.2)	0.75(19.1)	0.56(14.2)	0.25(6.4)
1/2	3/8	NPT8-HTHN-NPT6-	1.76(44.7)	0.87(22.2)	0.75(19.1)	0.56(14.2)	0.31(7.9)
1/2	1/2	NPT8-HTHN-NPT8-	1.95(49.6)	0.87(22.2)	0.75(19.1)	0.75(19.1)	0.38(9.6)
3/4	1/8	NPT12-HTHN-NPT2-	1.67(42.4)	1.06(27.0)	0.75(19.1)	0.38(9.7)	0.22(5.5)
3/4	1/4	NPT12-HTHN-NPT4-	1.85(46.9)	1.06(27.0)	0.75(19.1)	0.56(14.2)	0.28(7.1)
3/4	3/8	NPT12-HTHN-NPT6-	1.85(46.9)	1.06(27.0)	0.75(19.1)	0.56(14.2)	0.38(9.6)
3/4	1/2	NPT12-HTHN-NPT8-	2.04(51.8)	1.06(27.0)	0.75(19.1)	0.75(19.1)	0.47(11.9)
3/4	3/4	NPT12-HTHN-NPT12-	2.04(51.8)	1.06(27.0)	0.75(19.1)	0.75(19.1)	0.58(14.8)
1	1/8	NPT16-HTHN-NPT2-	1.96(49.8)	1.37(34.9)	0.94(23.9)	0.38(9.7)	0.22(5.5)
1	1/4	NPT16-HTHN-NPT4-	2.14(54.3)	1.37(34.9)	0.94(23.9)	0.56(14.2)	0.28(7.1)
1	3/8	NPT16-HTHN-NPT6-	2.14(54.3)	1.37(34.9)	0.94(23.9)	0.56(14.2)	0.38(9.6)
1	1/2	NPT16-HTHN-NPT8-	2.33(59.2)	1.37(34.9)	0.94(23.9)	0.75(19.1)	0.47(11.9)
1	3/4	NPT16-HTHN-NPT12-	2.33(59.2)	1.37(34.9)	0.94(23.9)	0.75(19.1)	0.58(14.8)
1	1	NPT16-HTHN-NPT16-	2.52(64.0)	1.37(34.9)	0.94(23.9)	0.94(23.9)	0.79(20.0)

Male BSPT Tapered Threads

P-BSPT Size	Px-BSPT Size	Ordering Number	Dimension, in.(mm)				
			L	F	B	Bx	E
1/8	1/8	MBT2-HTHN-MBT2-	1.05(26.6)	0.44(11.1)	0.38(9.7)	0.38(9.7)	0.19(4.8)
1/4	1/8	MBT4-HTHN-MBT2-	1.30(32.9)	0.56(14.3)	0.56(14.2)	0.38(9.7)	0.19(4.8)
1/4	1/4	MBT4-HTHN-MBT4-	1.47(37.4)	0.56(14.3)	0.56(14.2)	0.56(14.2)	0.25(6.4)
3/8	1/8	MBT6-HTHN-MBT2-	1.34(34.1)	0.69(17.5)	0.56(14.2)	0.38(9.7)	0.19(4.8)
3/8	1/4	MBT6-HTHN-MBT4-	1.52(38.6)	0.69(17.5)	0.56(14.2)	0.56(14.2)	0.25(6.4)
3/8	3/8	MBT6-HTHN-MBT6-	1.52(38.6)	0.69(17.5)	0.56(14.2)	0.56(14.2)	0.31(7.9)
1/2	1/8	MBT8-HTHN-MBT2-	1.58(40.2)	0.87(22.2)	0.75(19.1)	0.38(9.7)	0.19(4.8)
1/2	1/4	MBT8-HTHN-MBT4-	1.76(44.7)	0.87(22.2)	0.75(19.1)	0.56(14.2)	0.25(6.4)
1/2	3/8	MBT8-HTHN-MBT6-	1.76(44.7)	0.87(22.2)	0.75(19.1)	0.56(14.2)	0.31(7.9)
1/2	1/2	MBT8-HTHN-MBT8-	1.95(49.6)	0.87(22.2)	0.75(19.1)	0.75(19.1)	0.38(9.6)
3/4	1/8	MBT12-HTHN-MBT2-	1.67(42.4)	1.06(27.0)	0.75(19.1)	0.38(9.7)	0.22(5.5)
3/4	1/4	MBT12-HTHN-MBT4-	1.85(46.9)	1.06(27.0)	0.75(19.1)	0.56(14.2)	0.28(7.1)
3/4	3/8	MBT12-HTHN-MBT6-	1.85(46.9)	1.06(27.0)	0.75(19.1)	0.56(14.2)	0.38(9.6)
3/4	1/2	MBT12-HTHN-MBT8-	2.04(51.8)	1.06(27.0)	0.75(19.1)	0.75(19.1)	0.47(11.9)
3/4	3/4	MBT12-HTHN-MBT12-	2.04(51.8)	1.06(27.0)	0.75(19.1)	0.75(19.1)	0.58(14.8)
1	1/8	MBT16-HTHN-MBT2-	1.96(49.8)	1.37(34.9)	0.94(23.9)	0.38(9.7)	0.22(5.5)
1	1/4	MBT16-HTHN-MBT4-	2.14(54.3)	1.37(34.9)	0.94(23.9)	0.56(14.2)	0.28(7.1)
1	3/8	MBT16-HTHN-MBT6-	2.14(54.3)	1.37(34.9)	0.94(23.9)	0.56(14.2)	0.38(9.6)
1	1/2	MBT16-HTHN-MBT8-	2.33(59.2)	1.37(34.9)	0.94(23.9)	0.75(19.1)	0.47(11.9)
1	3/4	MBT16-HTHN-MBT12-	2.33(59.2)	1.37(34.9)	0.94(23.9)	0.75(19.1)	0.58(14.8)
1	1	MBT16-HTHN-MBT16-	2.52(64.0)	1.37(34.9)	0.94(23.9)	0.94(23.9)	0.79(20.0)

Hex Long Nipples



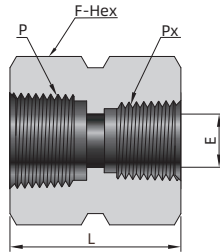
Male NPT Threads

P-NPT Size	Ordering Number	Dimension, in.(mm)			
		L	F	B	E
1/8	NPT2-HTLN-NPT2-1.5-	1.50(38.1)	0.44(11.1)	0.38(9.7)	0.19(4.8)
1/8	NPT2-HTLN-NPT2-2-	2.00(50.8)	0.44(11.1)	0.38(9.7)	0.19(4.8)
1/8	NPT2-HTLN-NPT2-2.5-	2.50(63.5)	0.44(11.1)	0.38(9.7)	0.19(4.8)
1/8	NPT2-HTLN-NPT2-3-	3.00(76.2)	0.44(11.1)	0.38(9.7)	0.19(4.8)
1/4	NPT4-HTLN-NPT4-2-	2.00(50.8)	0.56(14.3)	0.56(14.3)	0.25(6.4)
1/4	NPT4-HTLN-NPT4-2.5-	2.50(63.5)	0.56(14.3)	0.56(14.3)	0.25(6.4)
1/4	NPT4-HTLN-NPT4-3-	3.00(76.2)	0.56(14.3)	0.56(14.3)	0.25(6.4)
1/4	NPT4-HTLN-NPT4-4-	4.00(101.6)	0.56(14.3)	0.56(14.3)	0.25(6.4)
3/8	NPT6-HTLN-NPT6-2-	2.00(50.8)	0.69(17.5)	0.56(14.3)	0.31(7.9)
3/8	NPT6-HTLN-NPT6-2.5-	2.50(63.5)	0.69(17.5)	0.56(14.3)	0.31(7.9)
3/8	NPT6-HTLN-NPT6-3-	3.00(76.2)	0.69(17.5)	0.56(14.3)	0.31(7.9)
3/8	NPT6-HTLN-NPT6-4-	4.00(101.6)	0.69(17.5)	0.56(14.3)	0.31(7.9)
1/2	NPT8-HTLN-NPT8-3-	3.00(76.2)	0.87(22.2)	0.75(19.1)	0.38(9.6)
1/2	NPT8-HTLN-NPT8-4-	4.00(101.6)	0.87(22.2)	0.75(19.1)	0.38(9.6)
1/2	NPT8-HTLN-NPT8-6-	6.00(152.4)	0.87(22.2)	0.75(19.1)	0.38(9.6)
3/4	NPT12-HTLN-NPT12-3-	3.00(76.2)	1.06(27.0)	0.75(19.1)	0.58(14.8)
3/4	NPT12-HTLN-NPT12-4-	4.00(101.6)	1.06(27.0)	0.75(19.1)	0.58(14.8)
1	NPT16-HTLN-NPT16-3-	3.00(76.2)	1.37(34.9)	0.94(23.9)	0.79(20.0)
1	NPT16-HTLN-NPT16-4-	4.00(101.6)	1.37(34.9)	0.94(23.9)	0.79(20.0)

Male ISO Tapered Threads

P-BSPT Size	Ordering Number	Dimension, in.(mm)			
		L	F	B	E
1/8	MBT2-HTLN-MBT2-1.5-	1.50(38.1)	0.44(11.1)	0.38(9.7)	0.19(4.8)
1/8	MBT2-HTLN-MBT2-2-	2.00(50.8)	0.44(11.1)	0.38(9.7)	0.19(4.8)
1/8	MBT2-HTLN-MBT2-2.5-	2.50(63.5)	0.44(11.1)	0.38(9.7)	0.19(4.8)
1/8	MBT2-HTLN-MBT2-3-	3.00(76.2)	0.44(11.1)	0.38(9.7)	0.19(4.8)
1/4	MBT4-HTLN-MBT4-2-	2.00(50.8)	0.56(14.3)	0.56(14.2)	0.25(6.4)
1/4	MBT4-HTLN-MBT4-2.5-	2.50(63.5)	0.56(14.3)	0.56(14.2)	0.25(6.4)
1/4	MBT4-HTLN-MBT4-3-	3.00(76.2)	0.56(14.3)	0.56(14.2)	0.25(6.4)
1/4	MBT4-HTLN-MBT4-4-	4.00(101.6)	0.56(14.3)	0.56(14.2)	0.25(6.4)
3/8	MBT6-HTLN-MBT6-2-	2.00(50.8)	0.69(17.5)	0.56(14.2)	0.31(7.9)
3/8	MBT6-HTLN-MBT6-2.5-	2.50(63.5)	0.69(17.5)	0.56(14.2)	0.31(7.9)
3/8	MBT6-HTLN-MBT6-3-	3.00(76.2)	0.69(17.5)	0.56(14.2)	0.31(7.9)
3/8	MBT6-HTLN-MBT6-4-	4.00(101.6)	0.69(17.5)	0.56(14.2)	0.31(7.9)
1/2	MBT8-HTLN-MBT8-3-	3.00(76.2)	0.87(22.2)	0.75(19.1)	0.38(9.6)
1/2	MBT8-HTLN-MBT8-4-	4.00(101.6)	0.87(22.2)	0.75(19.1)	0.38(9.6)
1/2	MBT8-HTLN-MBT8-6-	6.00(152.4)	0.87(22.2)	0.75(19.1)	0.38(9.6)
3/4	MBT12-HTLN-MBT12-3-	3.00(76.2)	1.06(27.0)	0.75(19.1)	0.58(14.8)
3/4	MBT12-HTLN-MBT12-4-	4.00(101.6)	1.06(27.0)	0.75(19.1)	0.58(14.8)
1	MBT16-HTLN-MBT16-3-	3.00(76.2)	1.37(34.9)	0.94(23.9)	0.79(20.0)
1	MBT16-HTLN-MBT16-4-	4.00(101.6)	1.37(34.9)	0.94(23.9)	0.79(20.0)

Hex Couplings



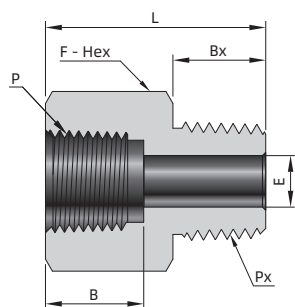
Female NPT Threads

P-NPT Size	Px-NPT Size	Ordering Number	Dimension, in.(mm)		
			L	F	E
1/8	1/8	FNPT2-HTHC-FNPT2-	0.94(23.8)	0.63(15.9)	0.31(8.0)
1/4	1/8	FNPT4-HTHC-FNPT2-	1.14(28.9)	0.94(23.8)	0.31(8.0)
1/4	1/4	FNPT4-HTHC-FNPT4-	1.32(33.5)	0.94(23.8)	0.41(10.4)
3/8	1/8	FNPT6-HTHC-FNPT2-	1.14(28.9)	1.13(28.6)	0.31(8.0)
3/8	1/4	FNPT6-HTHC-FNPT4-	1.32(33.5)	1.13(28.6)	0.41(10.4)
3/8	3/8	FNPT6-HTHC-FNPT6-	1.32(33.5)	1.13(28.6)	0.54(13.8)
1/2	1/8	FNPT8-HTHC-FNPT2-	1.35(34.2)	1.37(34.9)	0.31(8.0)
1/2	1/4	FNPT8-HTHC-FNPT4-	1.53(38.8)	1.37(34.9)	0.41(10.4)
1/2	3/8	FNPT8-HTHC-FNPT6-	1.53(38.8)	1.37(34.9)	0.54(13.8)
1/2	1/2	FNPT8-HTHC-FNPT8-	1.72(43.8)	1.37(34.9)	0.67(17.0)
3/4	1/8	FNPT12-HTHC-FNPT2-	1.40(35.5)	1.50(38.1)	0.31(8.0)
3/4	1/4	FNPT12-HTHC-FNPT4-	1.58(40.1)	1.50(38.1)	0.41(10.4)
3/4	3/8	FNPT12-HTHC-FNPT6-	1.58(40.1)	1.50(38.1)	0.54(13.8)
3/4	1/2	FNPT12-HTHC-FNPT8-	1.79(45.4)	1.50(38.1)	0.67(17.0)
3/4	3/4	FNPT12-HTHC-FNPT12-	1.84(46.7)	1.50(38.1)	0.88(22.3)
1	1/8	FNPT16-HTHC-FNPT2-	1.59(40.5)	1.75(44.5)	0.31(8.0)
1	1/4	FNPT16-HTHC-FNPT4-	1.76(44.8)	1.75(44.5)	0.41(10.4)
1	3/8	FNPT16-HTHC-FNPT6-	1.76(44.8)	1.75(44.5)	0.54(13.8)
1	1/2	FNPT16-HTHC-FNPT8-	1.96(49.7)	1.75(44.5)	0.67(17.0)
1	3/4	FNPT16-HTHC-FNPT12-	2.00(50.7)	1.75(44.5)	0.88(22.3)
1	1	FNPT16-HTHC-FNPT16-	2.19(55.5)	1.75(44.5)	1.11(28.1)

Female BSPT Tapered Threads

P-BSPT Size	Px-BSPT Size	Ordering Number	Dimension, in.(mm)		
			L	F	E
1/8	1/8	FBT2-HTHC-FBT2-	0.94(23.8)	0.63(15.9)	0.31(8.0)
1/4	1/8	FBT4-HTHC-FBT2-	1.14(28.9)	0.94(23.8)	0.31(8.0)
1/4	1/4	FBT4-HTHC-FBT4-	1.32(33.5)	0.94(23.8)	0.41(10.4)
3/8	1/8	FBT6-HTHC-FBT2-	1.14(28.9)	1.13(28.6)	0.31(8.0)
3/8	1/4	FBT6-HTHC-FBT4-	1.32(33.5)	1.13(28.6)	0.41(10.4)
3/8	3/8	FBT6-HTHC-FBT6-	1.32(33.5)	1.13(28.6)	0.54(13.8)
1/2	1/8	FBT8-HTHC-FBT2-	1.35(34.2)	1.37(34.9)	0.31(8.0)
1/2	1/4	FBT8-HTHC-FBT4-	1.53(38.8)	1.37(34.9)	0.41(10.4)
1/2	3/8	FBT8-HTHC-FBT6-	1.53(38.8)	1.37(34.9)	0.54(13.8)
1/2	1/2	FBT8-HTHC-FBT8-	1.72(43.8)	1.37(34.9)	0.67(17.0)
3/4	1/8	FBT12-HTHC-FBT2-	1.40(35.5)	1.50(38.1)	0.31(8.0)
3/4	1/4	FBT12-HTHC-FBT4-	1.58(40.1)	1.50(38.1)	0.41(10.4)
3/4	3/8	FBT12-HTHC-FBT6-	1.58(40.1)	1.50(38.1)	0.54(13.8)
3/4	1/2	FBT12-HTHC-FBT8-	1.79(45.4)	1.50(38.1)	0.67(17.0)
3/4	3/4	FBT12-HTHC-FBT12-	1.84(46.7)	1.50(38.1)	0.88(22.3)
1	1/8	FBT16-HTHC-FBT2-	1.59(40.5)	1.75(44.5)	0.31(8.0)
1	1/4	FBT16-HTHC-FBT4-	1.76(44.8)	1.75(44.5)	0.41(10.4)
1	3/8	FBT16-HTHC-FBT6-	1.76(44.8)	1.75(44.5)	0.54(13.8)
1	1/2	FBT16-HTHC-FBT8-	1.96(49.7)	1.75(44.5)	0.67(17.0)
1	3/4	FBT16-HTHC-FBT12-	2.00(50.7)	1.75(44.5)	0.88(22.3)
1	1	FBT16-HTHC-FBT16-	2.19(55.5)	1.75(44.5)	1.11(28.1)

Adapters

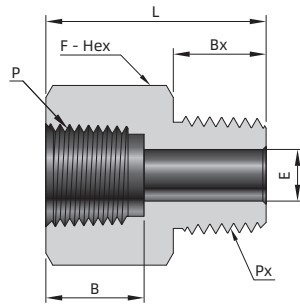


Female NPT Threads

Male NPT Threads

P-NPT Size	Px-NPT Size	Ordering Number	Dimension, in.(mm)				
			L	F	B	Bx	E
1/8	1/8	FNPT2-HTA-NPT2-	0.96(24.5)	0.63(15.9)	0.41(10.4)	0.38(9.7)	0.19(4.8)
1/8	1/4	FNPT2-HTA-NPT4-	1.13(28.8)	0.63(15.9)	0.41(10.4)	0.56(14.2)	0.25(6.4)
1/8	3/8	FNPT2-HTA-NPT6-	1.14(29.0)	0.69(17.5)	0.41(10.4)	0.56(14.2)	0.31(7.9)
1/8	1/2	FNPT2-HTA-NPT8-	1.08(27.4)	0.87(22.2)	0.41(10.4)	0.75(19.1)	0.31(8.0)
1/8	3/4	FNPT2-HTA-NPT12-	1.08(27.4)	1.06(27.0)	0.41(10.4)	0.75(19.1)	0.31(8.0)
1/4	1/8	FNPT4-HTA-NPT2-	1.25(31.8)	0.94(23.8)	0.59(15.0)	0.38(9.7)	0.19(4.8)
1/4	1/4	FNPT4-HTA-NPT4-	1.37(34.9)	0.94(23.8)	0.59(15.0)	0.56(14.2)	0.25(6.4)
1/4	3/8	FNPT4-HTA-NPT6-	1.37(34.9)	0.94(23.8)	0.59(15.0)	0.56(14.2)	0.31(7.9)
1/4	1/2	FNPT4-HTA-NPT8-	1.58(40.1)	0.94(23.8)	0.59(15.0)	0.75(19.1)	0.38(9.6)
1/4	3/4	FNPT4-HTA-NPT12-	1.34(34.1)	1.06(27.0)	0.59(15.0)	0.75(19.1)	0.41(10.4)
1/4	1	FNPT4-HTA-NPT16-	1.37(34.8)	1.37(34.9)	0.59(15.0)	0.94(23.9)	0.41(10.4)
3/8	1/4	FNPT6-HTA-NPT4-	1.42(36.0)	1.13(28.6)	0.59(15.0)	0.56(14.2)	0.25(6.4)
3/8	3/8	FNPT6-HTA-NPT6-	1.42(36.0)	1.13(28.6)	0.59(15.0)	0.56(14.2)	0.31(7.9)
3/8	1/2	FNPT6-HTA-NPT8-	1.61(41.0)	1.13(28.6)	0.59(15.0)	0.75(19.1)	0.38(9.6)
3/8	3/4	FNPT6-HTA-NPT12-	1.61(41.0)	1.06(27.0)	0.59(15.0)	0.75(19.1)	0.54(13.8)
3/8	1	FNPT6-HTA-NPT16-	1.47(37.3)	1.37(34.9)	0.59(15.0)	0.94(23.9)	0.54(13.8)
1/2	1/4	FNPT8-HTA-NPT4-	1.72(48.1)	1.37(34.9)	0.78(19.8)	0.56(14.2)	0.25(6.4)
1/2	3/8	FNPT8-HTA-NPT6-	1.72(48.1)	1.37(34.9)	0.78(19.8)	0.56(14.2)	0.31(7.9)
1/2	1/2	FNPT8-HTA-NPT8-	1.89(48.0)	1.37(34.9)	0.78(19.8)	0.75(19.1)	0.38(9.6)
1/2	3/4	FNPT8-HTA-NPT12-	1.89(48.0)	1.19(30.2)	0.78(19.8)	0.75(19.1)	0.58(14.8)
1/2	1	FNPT8-HTA-NPT16-	2.08(52.8)	1.37(34.9)	0.78(19.8)	0.94(23.9)	0.67(17.0)
3/4	1/2	FNPT12-HTA-NPT8-	1.89(48.0)	1.50(38.1)	0.81(20.6)	0.75(19.1)	0.47(11.9)
3/4	3/4	FNPT12-HTA-NPT12-	1.89(48.0)	1.50(38.1)	0.81(20.6)	0.75(19.1)	0.58(14.8)
3/4	1	FNPT12-HTA-NPT16-	2.08(52.9)	1.50(38.1)	0.81(20.6)	0.94(23.9)	0.79(20.0)
1	1/2	FNPT16-HTA-NPT8-	2.10(53.3)	1.75(44.5)	1.00(25.4)	0.75(19.1)	0.47(11.9)
1	3/4	FNPT16-HTA-NPT12-	2.10(53.3)	1.75(44.5)	1.00(25.4)	0.75(19.1)	0.58(14.8)
1	1	FNPT16-HTA-NPT16-	2.29(58.1)	1.75(44.5)	1.00(25.4)	0.94(23.9)	0.79(20.0)

Adapters

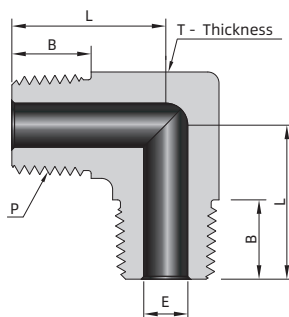


Female BSPT Tapered Threads

Male BSPT Tapered Threads

P-BSPT Size	Px-BSPT Size	Ordering Number	Dimension, in.(mm)				
			L	F	B	Bx	E
1/8	1/8	FBT2-HTA-MBT2-	0.96(24.5)	0.63(15.9)	0.41(10.4)	0.38(9.7)	0.19(4.8)
1/8	1/4	FBT2-HTA-MBT4-	1.13(28.8)	0.63(15.9)	0.41(10.4)	0.56(14.2)	0.25(6.4)
1/8	3/8	FBT2-HTA-MBT6-	1.14(29.0)	0.69(17.5)	0.41(10.4)	0.56(14.2)	0.31(7.9)
1/8	1/2	FBT2-HTA-MBT8-	1.08(27.4)	0.87(22.2)	0.41(10.4)	0.75(19.1)	0.31(8.0)
1/8	3/4	FBT2-HTA-MBT12-	1.08(27.4)	1.06(27.0)	0.41(10.4)	0.75(19.1)	0.31(8.0)
1/4	1/8	FBT4-HTA-MBT2-	1.25(31.8)	0.94(23.8)	0.59(15.0)	0.38(9.7)	0.19(4.8)
1/4	1/4	FBT4-HTA-MBT4-	1.37(34.9)	0.94(23.8)	0.59(15.0)	0.56(14.2)	0.25(6.4)
1/4	3/8	FBT4-HTA-MBT6-	1.37(34.9)	0.94(23.8)	0.59(15.0)	0.56(14.2)	0.31(7.9)
1/4	1/2	FBT4-HTA-MBT8-	1.58(40.1)	0.94(23.8)	0.59(15.0)	0.75(19.1)	0.38(9.6)
1/4	3/4	FBT4-HTA-MBT12-	1.34(34.1)	1.06(27.0)	0.59(15.0)	0.75(19.1)	0.41(10.4)
1/4	1	FBT4-HTA-MBT16-	1.37(34.8)	1.37(34.9)	0.59(15.0)	0.94(23.9)	0.41(10.4)
3/8	1/4	FBT6-HTA-MBT4-	1.42(36.0)	1.13(28.6)	0.59(15.0)	0.56(14.2)	0.25(6.4)
3/8	3/8	FBT6-HTA-MBT6-	1.42(36.0)	1.13(28.6)	0.59(15.0)	0.56(14.2)	0.31(7.9)
3/8	1/2	FBT6-HTA-MBT8-	1.61(41.0)	1.13(28.6)	0.59(15.0)	0.75(19.1)	0.38(9.6)
3/8	3/4	FBT6-HTA-MBT12-	1.61(41.0)	1.06(27.0)	0.59(15.0)	0.75(19.1)	0.54(13.8)
3/8	1	FBT6-HTA-MBT16-	1.47(37.3)	1.37(34.9)	0.59(15.0)	0.94(23.9)	0.54(13.8)
1/2	1/4	FBT8-HTA-MBT4-	1.72(48.1)	1.37(34.9)	0.78(19.8)	0.56(14.2)	0.25(6.4)
1/2	3/8	FBT8-HTA-MBT6-	1.72(48.1)	1.37(34.9)	0.78(19.8)	0.56(14.2)	0.31(7.9)
1/2	1/2	FBT8-HTA-MBT8-	1.89(48.0)	1.37(34.9)	0.78(19.8)	0.75(19.1)	0.38(9.6)
1/2	3/4	FBT8-HTA-MBT12-	1.89(48.0)	1.19(30.2)	0.78(19.8)	0.75(19.1)	0.58(14.8)
1/2	1	FBT8-HTA-MBT16-	2.08(52.8)	1.37(34.9)	0.78(19.8)	0.94(23.9)	0.67(17.0)
3/4	1/2	FBT12-HTA-MBT8-	1.89(48.0)	1.50(38.1)	0.81(20.6)	0.75(19.1)	0.47(11.9)
3/4	3/4	FBT12-HTA-MBT12-	1.89(48.0)	1.50(38.1)	0.81(20.6)	0.75(19.1)	0.58(14.8)
3/4	1	FBT12-HTA-MBT16-	2.08(52.9)	1.50(38.1)	0.81(20.6)	0.94(23.9)	0.79(20.0)
1	1/2	FBT16-HTA-MBT8-	2.10(53.3)	1.75(44.5)	1.00(25.4)	0.75(19.1)	0.47(11.9)
1	3/4	FBT16-HTA-MBT12-	2.10(53.3)	1.75(44.5)	1.00(25.4)	0.75(19.1)	0.58(14.8)
1	1	FBT16-HTA-MBT16-	2.29(58.1)	1.75(44.5)	1.00(25.4)	0.94(23.9)	0.79(20.0)

Male Elbows



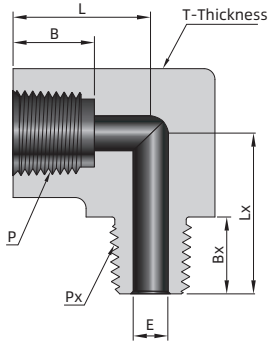
Male NPT Threads

P-NPT Size	Ordering Number	Dimension, in.(mm)			
		L	B	E	T
1/8	NPT2-HTME-NPT2-	0.75(19.1)	0.38(9.7)	0.19(4.8)	0.50(12.7)
1/4	NPT4-HTME-NPT4-	1.00(25.4)	0.56(14.2)	0.25(6.4)	0.63(15.9)
3/8	NPT6-HTME-NPT6-	1.10(28.0)	0.56(14.2)	0.31(7.9)	0.75(19.1)
1/2	NPT8-HTME-NPT8-	1.44(36.6)	0.75(19.1)	0.38(9.6)	1.00(25.4)
3/4	NPT12-HTME-NPT12-	1.56(39.6)	0.75(19.1)	0.58(14.8)	1.37(34.9)
1	NPT16-HTME-NPT16-	1.89(48.0)	0.94(23.9)	0.79(20.0)	1.50(38.1)

Male BSPT Tapered Pipe Threads

P-BSPT Size	Ordering Number	Dimension, in.(mm)			
		L	B	E	T
1/8	MBT2-HTME-MBT2-	0.75(19.1)	0.38(9.7)	0.19(4.8)	0.50(12.7)
1/4	MBT4-HTME-MBT4-	1.00(25.4)	0.56(14.2)	0.25(6.4)	0.63(15.9)
3/8	MBT6-HTME-MBT6-	1.10(28.0)	0.56(14.2)	0.31(7.9)	0.75(19.1)
1/2	MBT8-HTME-MBT8-	1.44(36.6)	0.75(19.1)	0.38(9.6)	1.00(25.4)
3/4	MBT12-HTME-MBT12-	1.56(39.6)	0.75(19.1)	0.58(14.8)	1.37(34.9)
1	MBT16-HTME-MBT16-	1.89(48.0)	0.94(23.9)	0.79(20.0)	1.50(38.1)

Street Elbows



Female NPT Threads

Male NPT Threads

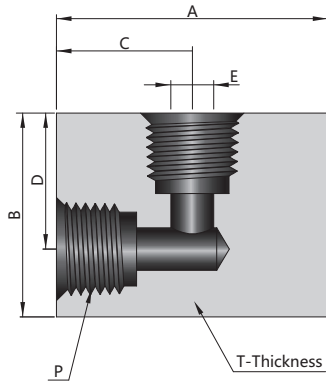
P-NPT Size	Px-NPT Size	Ordering Number	Dimension, in.(mm)					
			L	B	E	Lx	Bx	T
1/8	1/8	FNPT2-HTSE-NPT2-	0.75(19.1)	0.41(10.4)	0.19(4.8)	0.75(19.1)	0.38(9.7)	0.63(15.9)
1/8	1/4	FNPT2-HTSE-NPT4-	0.78(19.8)	0.41(10.4)	0.25(6.4)	1.00(25.4)	0.56(14.2)	0.63(15.9)
1/8	3/8	FNPT2-HTSE-NPT6-	0.95(24.2)	0.41(10.4)	0.31(7.9)	1.07(27.2)	0.56(14.2)	0.75(19.1)
1/4	1/4	FNPT4-HTSE-NPT4-	1.00(25.4)	0.59(15.0)	0.25(6.4)	1.06(27.0)	0.56(14.2)	0.75(19.1)
1/4	3/8	FNPT4-HTSE-NPT6-	1.00(25.4)	0.59(15.0)	0.31(7.9)	1.06(27.0)	0.56(14.2)	0.75(19.1)
1/4	1/2	FNPT4-HTSE-NPT8-	1.15(29.1)	0.59(15.0)	0.38(9.6)	1.40(35.5)	0.75(19.1)	1.00(25.4)
3/8	3/8	FNPT6-HTSE-NPT6-	1.20(30.6)	0.59(15.0)	0.31(7.9)	1.20(30.6)	0.56(14.2)	1.00(25.4)
3/8	1/2	FNPT6-HTSE-NPT8-	1.20(30.6)	0.59(15.0)	0.38(9.6)	1.38(35.0)	0.75(19.1)	1.00(25.4)
3/8	3/4	FNPT6-HTSE-NPT12-	1.23(31.2)	0.59(15.0)	0.54(13.8)	1.56(39.6)	0.75(19.1)	1.37(34.9)
1/2	1/2	FNPT8-HTSE-NPT8-	1.50(38.1)	0.78(19.8)	0.38(9.6)	1.61(40.8)	0.75(19.1)	1.37(34.9)
1/2	3/4	FNPT8-HTSE-NPT12-	1.43(36.2)	0.78(19.8)	0.58(14.8)	1.61(40.8)	0.75(19.1)	1.37(34.9)
1/2	1	FNPT8-HTSE-NPT16-	1.45(36.9)	0.78(19.8)	0.67(17.0)	1.86(47.3)	0.94(23.9)	1.37(34.9)
3/4	3/4	FNPT12-HTSE-NPT12-	1.50(38.1)	0.81(20.6)	0.58(14.8)	1.77(44.9)	0.75(19.1)	1.50(38.1)
3/4	1	FNPT12-HTSE-NPT16-	1.63(41.4)	0.81(20.6)	0.79(20.0)	1.86(47.3)	0.94(23.9)	1.50(38.1)
1	1	FNPT16-HTSE-NPT16-	1.91(48.5)	1.00(25.4)	0.79(20.0)	2.07(52.5)	0.94(23.9)	1.75(44.5)

Female BSPT Tapered Pipe Threads

Male BSPT Tapered Threads

P-BSPT Size	Px-BSPT Size	Ordering Number	Dimension, in.(mm)					
			L	B	E	Lx	Bx	T
1/8	1/8	FBT2-HTSE-MBT2-	0.75(19.1)	0.41(10.4)	0.19(4.8)	0.75(19.1)	0.38(9.7)	0.63(15.9)
1/8	1/4	FBT2-HTSE-MBT4-	0.78(19.8)	0.41(10.4)	0.25(6.4)	1.00(25.4)	0.56(14.2)	0.63(15.9)
1/8	3/8	FBT2-HTSE-MBT6-	0.95(24.2)	0.41(10.4)	0.31(7.9)	1.07(27.2)	0.56(14.2)	0.75(19.1)
1/4	1/4	FBT4-HTSE-MBT4-	1.00(25.4)	0.59(15.0)	0.25(6.4)	1.06(27.0)	0.56(14.2)	0.75(19.1)
1/4	3/8	FBT4-HTSE-MBT6-	1.00(25.4)	0.59(15.0)	0.31(7.9)	1.06(27.0)	0.56(14.2)	0.75(19.1)
1/4	1/2	FBT4-HTSE-MBT8-	1.15(29.1)	0.59(15.0)	0.38(9.6)	1.40(35.5)	0.75(19.1)	1.00(25.4)
3/8	3/8	FBT6-HTSE-MBT6-	1.20(30.6)	0.59(15.0)	0.31(7.9)	1.20(30.6)	0.56(14.2)	1.00(25.4)
3/8	1/2	FBT6-HTSE-MBT8-	1.20(30.6)	0.59(15.0)	0.38(9.6)	1.38(35.0)	0.75(19.1)	1.00(25.4)
3/8	3/4	FBT6-HTSE-MBT12-	1.23(31.2)	0.59(15.0)	0.54(13.8)	1.56(39.6)	0.75(19.1)	1.37(34.9)
1/2	1/2	FBT8-HTSE-MBT8-	1.50(38.1)	0.78(19.8)	0.38(9.6)	1.61(40.8)	0.75(19.1)	1.37(34.9)
1/2	3/4	FBT8-HTSE-MBT12-	1.43(36.2)	0.78(19.8)	0.58(14.8)	1.61(40.8)	0.75(19.1)	1.37(34.9)
1/2	1	FBT8-HTSE-MBT16-	1.45(36.9)	0.78(19.8)	0.67(17.0)	1.86(47.3)	0.94(23.9)	1.37(34.9)
3/4	3/4	FBT12-HTSE-MBT12-	1.50(38.1)	0.81(20.6)	0.58(14.8)	1.77(44.9)	0.75(19.1)	1.50(38.1)
3/4	1	FBT12-HTSE-MBT16-	1.63(41.4)	0.81(20.6)	0.79(20.0)	1.86(47.3)	0.94(23.9)	1.50(38.1)
1	1	FBT16-HTSE-MBT16-	1.91(48.5)	1.00(25.4)	0.79(20.0)	2.07(52.5)	0.94(23.9)	1.75(44.5)

Female Elbows



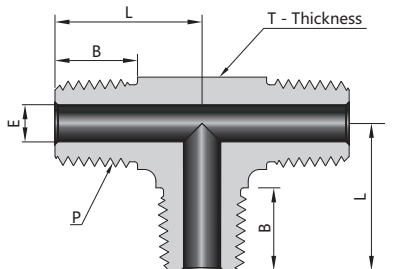
Female NPT Threads

P-NPT Size	Ordering Number	Dimension, in.(mm)					
		A	B	C	D	E	T
1/4	FNPT4-HTFE-FNPT4-	1.50(38.1)	1.25(31.8)	1.00(25.4)	0.81(20.6)	0.12(3.0)	0.75(19.05)
3/8	FNPT6-HTFE-FNPT6-	2.00(50.8)	1.50(38.1)	1.00(25.4)	1.00(25.4)	0.31(8.0)	1.00(25.4)
1/2	FNPT8-HTFE-FNPT8-	3.0(76.2)	1.88(47.8)	1.50(38.1)	1.25(31.75)	0.31(8.0)	1.25(31.75)
3/4	FNPT12-HTFE-FNPT12-	3.0(76.2)	2.18(55.3)	1.50(38.1)	1.50(38.1)	0.39(10.0)	1.38(35.05)
1	FNPT16-HTFE-FNPT16-	4.12(104.65)	2.5(63.5)	2.06(52.37)	1.56(39.67)	0.39(10.0)	1.75(44.45)

Female BSPT Tapered Threads

P-BSPT Size	Ordering Number	Dimension, in.(mm)					
		A	B	C	D	E	T
1/4	FBT4-HTFE-FBT4-	1.50(38.1)	1.25(31.8)	1.00(25.4)	0.81(20.6)	0.12(3.0)	0.75(19.05)
3/8	FBT6-HTFE-FBT6-	2.00(50.8)	1.50(38.1)	1.00(25.4)	1.00(25.4)	0.31(8.0)	1.00(25.4)
1/2	FBT8-HTFE-FBT8-	3.0(76.2)	1.88(47.8)	1.50(38.1)	1.25(31.75)	0.31(8.0)	1.25(31.75)
3/4	FBT12-HTFE-FBT12-	3.0(76.2)	2.18(55.3)	1.50(38.1)	1.50(38.1)	0.39(10.0)	1.38(35.05)
1	FBT16-HTFE-FBT16-	4.12(104.65)	2.5(63.5)	2.06(52.37)	1.56(39.67)	0.39(10.0)	1.75(44.45)

Male Tees



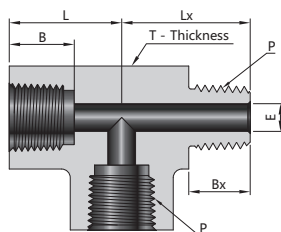
Male NPT Threads

P-NPT Size	Ordering Number	Dimension, in.(mm)			
		L	B	E	T
1/8	NPT2-HTMT-NPT2-NPT2-	0.75(19.1)	0.38(9.7)	0.19(4.8)	0.50(12.7)
1/4	NPT4-HTMT-NPT4-NPT4-	1.00(25.4)	0.56(14.2)	0.25(6.4)	0.63(15.9)
3/8	NPT6-HTMT-NPT6-NPT6-	1.10(28.0)	0.56(14.2)	0.31(7.9)	0.75(19.1)
1/2	NPT8-HTMT-NPT8-NPT8-	1.44(36.6)	0.75(19.1)	0.38(9.6)	1.00(25.4)
3/4	NPT12-HTMT-NPT12-NPT12-	1.56(39.6)	0.75(19.1)	0.58(14.8)	1.37(34.9)
1	NPT16-HTMT-NPT16-NPT16-	1.89(48.0)	0.94(23.9)	0.79(20.0)	1.50(38.1)

Male BSPT Tapered Threads

P-BSPT Size	Ordering Number	Dimension, in.(mm)			
		L	B	E	T
1/8	MBT2-HTMT-MBT2-MBT2-	0.75(19.1)	0.38(9.7)	0.19(4.8)	0.50(12.7)
1/4	MBT4-HTMT-MBT4-MBT4-	1.00(25.4)	0.56(14.2)	0.25(6.4)	0.63(15.9)
3/8	MBT6-HTMT-MBT6-MBT6-	1.10(28.0)	0.56(14.2)	0.31(7.9)	0.75(19.1)
1/2	MBT8-HTMT-MBT8-MBT8-	1.44(36.6)	0.75(19.1)	0.38(9.6)	1.00(25.4)
3/4	MBT12-HTMT-MBT12-MBT12-	1.56(39.6)	0.75(19.1)	0.58(14.8)	1.37(34.9)
1	MBT16-HTMT-MBT16-MBT16-	1.89(48.0)	0.94(23.9)	0.79(20.0)	1.50(38.1)

Male Street Tees



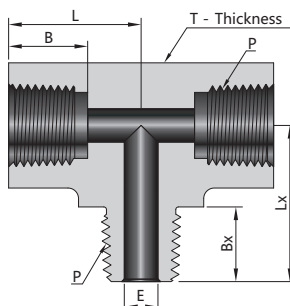
NPT Threads

P-NPT Size	Ordering Number	Dimension, in.(mm)					
		L	B	Lx	Bx	E	T
1/8	FNPT2-HTMST-NPT2-FNPT2-	0.75(19.1)	0.41(10.4)	0.75(19.1)	0.38(9.7)	0.19(4.8)	0.63(15.9)
1/4	FNPT4-HTMST-NPT4-FNPT4-	1.00(25.4)	0.59(15.0)	1.06(27.0)	0.56(14.2)	0.25(6.4)	0.75(19.1)
3/8	FNPT6-HTMST-NPT6-FNPT6-	1.20(30.6)	0.59(15.0)	1.20(30.6)	0.56(14.2)	0.31(7.9)	1.00(25.4)
1/2	FNPT8-HTMST-NPT8-FNPT8-	1.50(38.1)	0.78(19.8)	1.61(40.8)	0.75(19.1)	0.38(9.6)	1.37(34.9)
3/4	FNPT12-HTMST-NPT12-FNPT12-	1.50(38.1)	0.81(20.6)	1.77(44.9)	0.75(19.1)	0.58(14.8)	1.50(38.1)
1	FNPT16-HTMST-NPT16-FNPT16-	1.91(48.5)	1.00(25.4)	2.07(52.5)	0.94(23.9)	0.79(20.0)	1.75(44.5)

BSPT Tapered Pipe Threads

P-BSPT Size	Ordering Number	Dimension, in.(mm)					
		L	B	Lx	Bx	E	T
1/8	FBT2-HTMST-MBT2-FBT2-	0.75(19.1)	0.41(10.4)	0.75(19.1)	0.38(9.7)	0.19(4.8)	0.63(15.9)
1/4	FBT4-HTMST-MBT4-FBT4-	1.00(25.4)	0.59(15.0)	1.06(27.0)	0.56(14.2)	0.25(6.4)	0.75(19.1)
3/8	FBT6-HTMST-MBT6-FBT6-	1.20(30.6)	0.59(15.0)	1.20(30.6)	0.56(14.2)	0.31(7.9)	1.00(25.4)
1/2	FBT8-HTMST-MBT8-FBT8-	1.50(38.1)	0.78(19.8)	0.61(40.8)	0.75(19.1)	0.38(9.6)	1.37(34.9)
3/4	FBT12-HTMST-MBT12-FBT12-	1.50(38.1)	0.81(20.6)	1.77(44.9)	0.75(19.1)	0.58(14.8)	1.50(38.1)
1	FBT16-HTMST-MBT16-FBT16-	1.91(48.5)	1.00(25.4)	2.07(52.5)	0.94(23.9)	0.79(20.0)	1.75(44.5)

Male Branch Tees



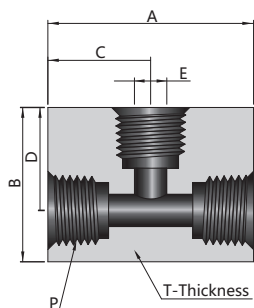
NPT Threads

P-NPT Size	Ordering Number	Dimension, in.(mm)					
		L	B	Lx	Bx	E	T
1/8	FNPT2-HTMBT-FNPT2-NPT2-	0.75(19.1)	0.41(10.4)	0.75(19.1)	0.38(9.7)	0.19(4.8)	0.63(15.9)
1/4	FNPT4-HTMBT-FNPT4-NPT4-	1.00(25.4)	0.59(15.0)	1.06(27.0)	0.56(14.2)	0.25(6.4)	0.75(19.1)
3/8	FNPT6-HTMBT-FNPT6-NPT6-	1.20(30.6)	0.59(15.0)	1.20(30.6)	0.56(14.2)	0.31(7.9)	1.00(25.4)
1/2	FNPT8-HTMBT-FNPT8-NPT8-	1.50(38.1)	0.78(19.8)	1.61(40.8)	0.75(19.1)	0.38(9.6)	1.37(34.9)
3/4	FNPT12-HTMBT-FNPT12-NPT12-	1.50(38.1)	0.81(20.6)	1.77(44.9)	0.75(19.1)	0.58(14.8)	1.50(38.1)
1	FNPT16-HTMBT-FNPT16-NPT16-	1.91(48.5)	1.00(25.4)	2.07(52.5)	0.94(23.9)	0.79(20.0)	1.75(44.5)

BSPT Tapered Pipe Threads

P-BSPT Size	Ordering Number	Dimension, in.(mm)					
		L	B	Lx	Bx	E	T
1/8	FBT2-HTMBT-FBT2-MBT2-	0.75(19.1)	0.41(10.4)	0.75(19.1)	0.38(9.7)	0.19(4.8)	0.63(15.9)
1/4	FBT4-HTMBT-FBT4-MBT4-	1.00(25.4)	0.59(15.0)	1.06(27.0)	0.56(14.2)	0.25(6.4)	0.75(19.1)
3/8	FBT6-HTMBT-FBT6-MBT6-	1.20(30.6)	0.59(15.0)	1.20(30.6)	0.56(14.2)	0.31(7.9)	1.00(25.4)
1/2	FBT8-HTMBT-FBT8-MBT8-	1.50(38.1)	0.78(19.8)	1.61(40.8)	0.75(19.1)	0.38(9.6)	1.37(34.9)
3/4	FBT12-HTMBT-FBT12-MBT12-	1.50(38.1)	0.81(20.6)	1.77(44.9)	0.75(19.1)	0.58(14.8)	1.50(38.1)
1	FBT16-HTMBT-FBT16-MBT16-	1.91(48.5)	1.00(25.4)	2.07(52.5)	0.94(23.9)	0.79(20.0)	1.75(44.5)

Female Tees



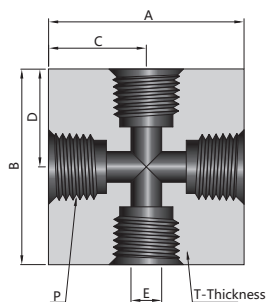
Female NPT Threads

P-NPT Size	Ordering Number	Dimension, in.(mm)					
		A	B	C	D	E	T
1/4	FNPT4-HTFT-FNPT4-FNPT4-	2.00(50.8)	1.25(31.8)	1.00(25.4)	0.81(20.6)	0.12(3.0)	0.75(19.05)
3/8	FNPT6-HTFT-FNPT6-FNPT6-	2.00(50.8)	1.50(38.1)	1.00(25.4)	1.00(25.4)	0.31(8.0)	1.00(25.4)
1/2	FNPT8-HTFT-FNPT8-FNPT8-	3.0(76.2)	1.88(47.8)	1.50(38.1)	1.25(31.75)	0.31(8.0)	1.25(31.75)
3/4	FNPT12-HTFT-FNPT12-FNPT12-	3.0(76.2)	2.18(55.3)	1.50(38.1)	1.50(38.1)	0.39(10.0)	1.38(35.05)
1	FNPT16-HTFT-FNPT16-FNPT16-	4.12(104.65)	2.5(63.5)	2.06(52.37)	1.56(39.67)	0.39(10.0)	1.75(44.45)

Female BSPT Tapered Pipe Threads

P-BSPT Size	Ordering Number	Dimension, in.(mm)					
		A	B	C	D	E	T
1/4	FBT4-HTFT-FBT4-FBT4-	2.00(50.8)	1.25(31.8)	1.00(25.4)	0.81(20.6)	0.12(3.0)	0.75(19.05)
3/8	FBT6-HTFT-FBT6-FBT6-	2.00(50.8)	1.50(38.1)	1.00(25.4)	1.00(25.4)	0.31(8.0)	1.00(25.4)
1/2	FBT8-HTFT-FBT8-FBT8-	3.0(76.2)	1.88(47.8)	1.50(38.1)	1.25(31.75)	0.31(8.0)	1.25(31.75)
3/4	FBT12-HTFT-FBT12-FBT12-	3.0(76.2)	2.18(55.3)	1.50(38.1)	1.50(38.1)	0.39(10.0)	1.38(35.05)
1	FBT16-HTFT-FBT16-FBT16-	4.12(104.65)	2.5(63.5)	2.06(52.37)	1.56(39.67)	0.39(10.0)	1.75(44.45)

Female Crosses



Female NPT Threads

P-NPT Size	Ordering Number	Dimension, in.(mm)					
		A	B	C	D	E	T
1/4	FNPT4-HTFC-FNPT4-FNPT4-FNPT4-	2.00(50.8)	2.00(50.8)	1.00(25.4)	1.00(25.4)	0.25(6.4)	0.75(19.05)
3/8	FNPT6-HTFC-FNPT6-FNPT6-FNPT6-	2.00(50.8)	2.00(50.8)	1.00(25.4)	1.00(25.4)	0.25(6.4)	1.00(25.4)
1/2	FNPT8-HTFC-FNPT8-FNPT8-FNPT8-	2.49(63.2)	2.49(63.2)	1.25(31.6)	1.25(31.6)	0.31(8.0)	1.25(31.75)
3/4	FNPT12-HTFC-FNPT12-FNPT12-FNPT12-	3.0(76.2)	3.0(76.2)	1.50(38.1)	1.50(38.1)	0.39(10.0)	1.38(35.05)
1	FNPT16-HTFC-FNPT16-FNPT16-FNPT16-	4.12(105)	4.12(105)	2.06(52.3)	2.06(52.3)	0.39(10.0)	1.75(44.45)

Female BSPT Tapered Pipe Threads

P-BSPT Size	Ordering Number	Dimension, in.(mm)					
		A	B	C	D	E	T
1/4	FBT4-HTFC-FBT4-FBT4-FBT4-	2.00(50.8)	2.00(50.8)	1.00(25.4)	1.00(25.4)	0.25(6.4)	0.75(19.05)
3/8	FBT6-HTFC-FBT6-FBT6-FBT6-	2.00(50.8)	2.00(50.8)	1.00(25.4)	1.00(25.4)	0.25(6.4)	1.00(25.4)
1/2	FBT8-HTFC-FBT8-FBT8-FBT8-	2.49(63.2)	2.49(63.2)	1.25(31.6)	1.25(31.6)	0.31(8.0)	1.25(31.75)
3/4	FBT12-HTFC-FBT12-FBT12-FBT12-	3.0(76.2)	3.0(76.2)	1.50(38.1)	1.50(38.1)	0.39(10.0)	1.38(35.05)
1	FBT16-HTFC-FBT16-FBT16-FBT16-	4.12(105)	4.12(105)	2.06(52.3)	2.06(52.3)	0.39(10.0)	1.75(44.45)

How to Order

NPT4

HTHN

NPT4

316

Port1 Type	Port1 Size	Fitting Type	Port2/3/4 Type	Port2/3/4 Size	Material
NPT NPT(Male)	2 1/8 in.	HTHN Hex Nipple	Same as the Port1	Same as the Port1	316 316 S.S.
FNPT NPT(Female)	4 1/4 in.	HTLN Hex Long Nipple			316L 316L S.S.
MBT BSPT(Male)	6 3/8 in.	HTHC Hex Coupling			304 304 S.S.
FBT BSPT(Female)	8 1/2 in.	HTA Adapter			304L 304L S.S.
	12 3/4 in.	HTME Male Elbow			A825 Alloy 825
	16 1 in.	HTSE Street Elbow			
		HTFE Female Elbow			
		HTMT Male Tee			
		HTMST Male Street Tee			
		HTMBT Male Branch Tee			
		HTFT Female Tee			
		HTFC Female Cross			
		HTP Pipe Plug			