



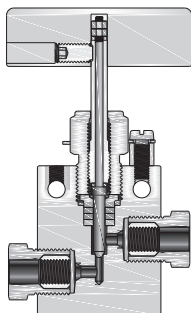
Ultra-High Pressure

High Pressure Valves, Fittings and Tubing
30000 & 60000 psig
30 and 60 Series

Contents

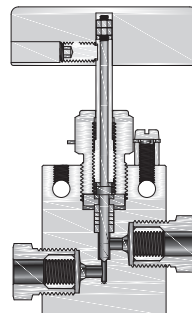
High Pressure Needle Valves (30NV Series)

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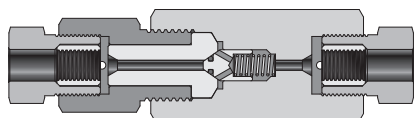
High Pressure Needle Valves (60NV Series)

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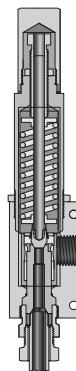
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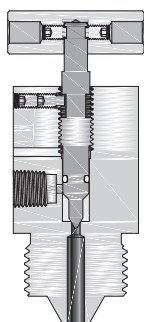
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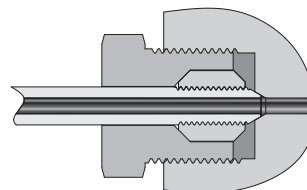
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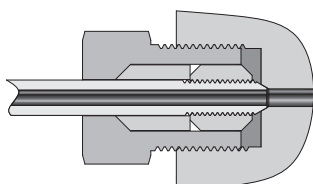
High Pressure Fittings, Tubing and Nipples (60 Series)

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High Pressure Needle Valve

30NV Series

Features

- ❖ Tubing sizes available for 1/4", 3/8", 9/16"
- ❖ 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 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

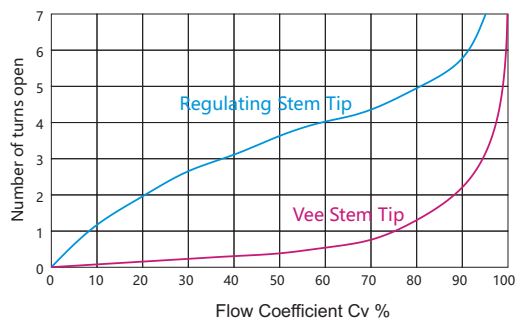
Technical Data

Tube OD in.	Connection Type	Orifice in.(mm)	Cv	Working Pressure psig(bar)
1/4	HPF4	0.094(2.39)	0.12	30,000(2068)
3/8	HPF6	0.125(3.18)	0.23	30,000(2068)
9/16	HPF9	0.125(3.18)	0.33	30,000(2068)

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)

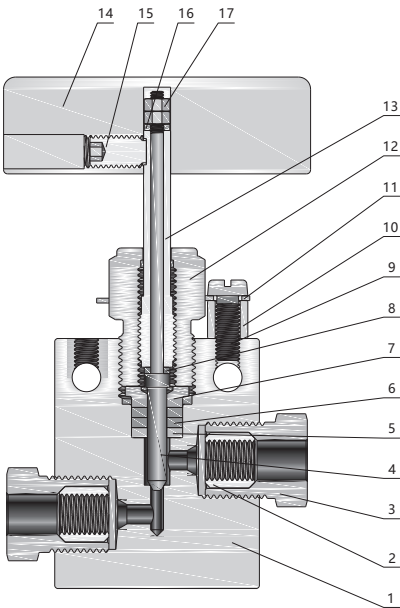
Flow Data at 100°F(38°C)



Pressure & Temperature

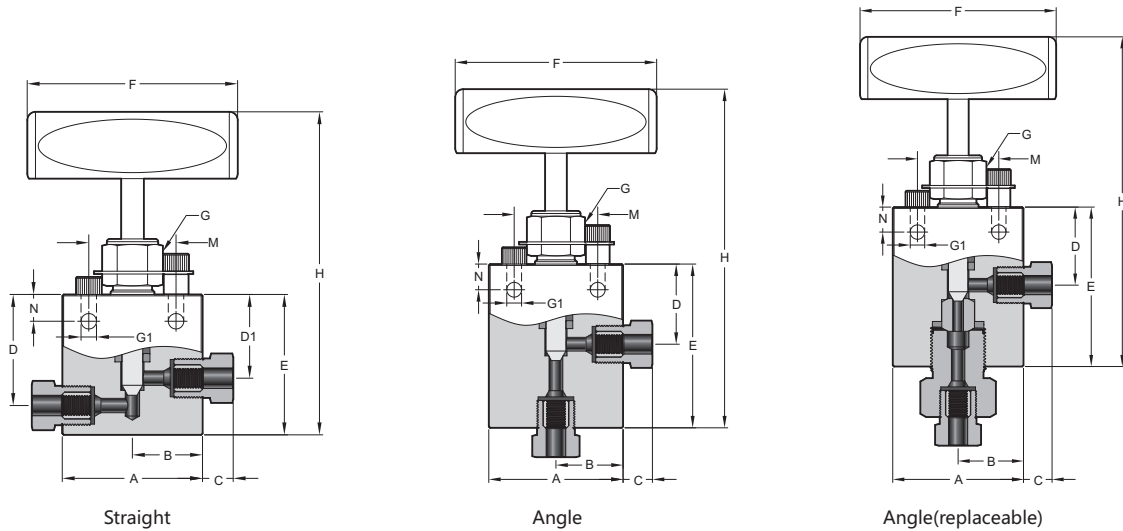
Temperature, °F (°C)	Working Pressure, psig(bar)
-65(-53)	30000(2068)
0(-18)	30000(2068)
100(37)	29700(2048)
200(93)	29500(2034)
300(148)	28800(1986)
400(204)	28200(1944)
500(260)	27300(1882)
600(316)	26700(1841)
700(371)	25900(1786)
800(427)	25200(1737)

Standard Materials of Construction



Item	Component	Material Grade / ASTM Specification
1	Body	316 S.S. / A479
2	Collar	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 / Graphite / RPTFE Glass
7	Packing ring	316 S.S. / A479
8	Gland	C63000 / B150
9	Screw	304 S.S.
10	Ring	304 S.S.
11	Lock plate	304 S.S.
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)

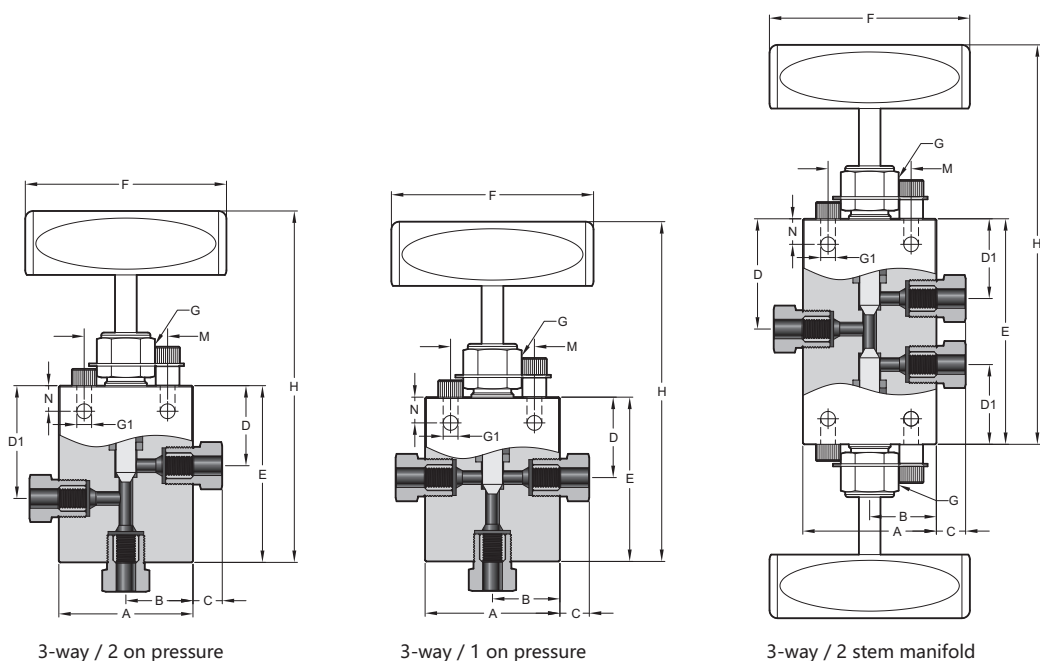
Basic Ordering Number	Connection Type	Orifice in.(mm)	A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness
			in.(mm)												
30NV-HPF4-	HPF4	0.094 (2.39)	2.00 (50.8)	1.00 (25.4)	0.50 (12.7)	1.50 (38.1)	1.12 (28.5)	2.00 (50.8)	3.00 (76.2)	1.00 (25.4)	0.22 (5.6)	4.62 (117.4)	0.69 (17.5)	0.38 (9.7)	1.00 (25.4)
30NV-HPF6-	HPF6	0.125 (3.18)	2.00 (50.8)	1.00 (25.4)	0.53 (13.5)	1.50 (38.1)	1.12 (28.5)	2.00 (50.8)	3.00 (76.2)	1.00 (25.4)	0.22 (5.6)	4.68 (118.9)	0.69 (17.5)	0.38 (9.7)	1.00 (25.4)
30NV-HPF9-	HPF9	0.125 (3.18)	2.62 (66.6)	1.31 (33.3)	0.81 (20.6)	1.56 (39.6)	1.12 (28.5)	2.44 (62.0)	3.00 (76.2)	1.00 (25.4)	0.28 (7.1)	5.06 (128.5)	0.69 (17.5)	0.38 (9.7)	1.50 (38.1)

Dimensions(Angle)

Basic Ordering Number	Connection Type	Orifice in.(mm)	A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness
			in.(mm)												
30NV-HPF4-A-	HPF4	0.094 (2.39)	2.00 (50.8)	1.00 (25.4)	0.50 (12.7)	1.12 (28.5)	—	2.00 (50.8)	3.00 (76.2)	1.00 (25.4)	0.22 (5.6)	4.62 (117.4)	0.69 (17.5)	0.38 (9.7)	1.00 (25.4)
30NV-HPF6-A-	HPF6	0.125 (3.18)	2.00 (50.8)	1.00 (25.4)	0.53 (13.5)	1.12 (28.5)	—	2.13 (54.0)	3.00 (76.2)	1.00 (25.4)	0.22 (5.6)	4.68 (118.9)	0.69 (17.5)	0.38 (9.7)	1.00 (25.4)
30NV-HPF9-A-	HPF9	0.125 (3.18)	2.62 (66.6)	1.31 (33.3)	0.81 (20.6)	1.12 (28.5)	—	2.44 (62.0)	3.00 (76.2)	1.00 (25.4)	0.28 (7.1)	5.06 (128.5)	0.69 (17.5)	0.38 (9.7)	1.50 (38.1)

Dimensions(Angle / replaceable seat)

Basic Ordering Number	Connection Type	Orifice in.(mm)	A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness
			in.(mm)												
30NV-HPF4-AR-	HPF4	0.094 (2.39)	2.00 (50.8)	1.00 (25.4)	0.50 (12.7)	1.12 (28.5)	2.06 (52.3)	2.38 (60.5)	3.00 (76.2)	1.00 (25.4)	0.22 (5.6)	5.80 (147.3)	0.69 (17.5)	0.38 (9.7)	1.00 (25.4)
30NV-HPF6-AR-	HPF6	0.125 (3.18)	2.00 (50.8)	1.00 (25.4)	0.53 (13.5)	1.12 (28.5)	2.31 (58.67)	2.38 (60.5)	3.00 (76.2)	1.00 (25.4)	0.22 (5.6)	6.05 (153.7)	0.69 (17.5)	0.38 (9.7)	1.00 (25.4)
30NV-HPF9-AR-	HPF9	0.125 (3.18)	2.62 (66.6)	1.31 (33.3)	0.81 (20.6)	1.19 (30.2)	2.62 (66.6)	2.44 (62.0)	3.00 (76.2)	1.00 (25.4)	0.28 (7.1)	6.45 (163.8)	0.69 (17.5)	0.38 (9.7)	1.50 (38.1)



Dimensions(3-way / 2 on pressure)

Basic Ordering Number	Connection Type	Orifice in.(mm)	A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness
			in.(mm)												
30NV-HPF4-3A-	HPF4	0.094 (2.39)	2.00 (50.8)	1.00 (25.4)	0.50 (12.7)	1.50 (38.1)	1.12 (28.5)	2.12 (53.9)	3.00 (76.2)	1.00 (25.4)	0.22 (5.6)	4.74 (120.4)	0.69 (17.5)	0.38 (9.7)	1.00 (25.4)
30NV-HPF6-3A-	HPF6	0.125 (3.18)	2.00 (50.8)	1.00 (25.4)	0.53 (13.5)	1.50 (38.1)	1.12 (28.5)	2.50 (63.5)	3.00 (76.2)	1.00 (25.4)	0.22 (5.6)	5.12 (130.1)	0.69 (17.5)	0.38 (9.7)	1.00 (25.4)
30NV-HPF9-3A-	HPF9	0.125 (3.18)	2.62 (66.6)	1.31 (33.3)	0.81 (20.6)	1.56 (39.6)	1.12 (28.5)	2.88 (73.2)	3.00 (76.2)	1.00 (25.4)	0.28 (7.1)	5.49 (139.5)	0.69 (17.5)	0.38 (9.7)	1.50 (38.1)

Dimensions(3-way / 1 on pressure)

Basic Ordering Number	Connection Type	Orifice in.(mm)	A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness
			in.(mm)												
30NV-HPF4-3B-	HPF4	0.094 (2.39)	2.00 (50.8)	1.00 (25.4)	0.50 (12.7)	1.12 (28.5)	—	2.00 (50.8)	3.00 (76.2)	1.00 (25.4)	0.22 (5.6)	4.62 (117.4)	0.69 (17.5)	0.38 (9.7)	1.00 (25.4)
30NV-HPF6-3B-	HPF6	0.125 (3.18)	2.00 (50.8)	1.00 (25.4)	0.53 (13.5)	1.12 (28.5)	—	2.00 (50.8)	3.00 (76.2)	1.00 (25.4)	0.22 (5.6)	4.74 (120.4)	0.69 (17.5)	0.38 (9.7)	1.00 (25.4)
30NV-HPF9-3B-	HPF9	0.125 (3.18)	2.62 (66.6)	1.31 (33.3)	0.81 (20.6)	1.12 (28.5)	—	2.44 (62.0)	3.00 (76.2)	1.00 (25.4)	0.28 (7.1)	5.12 (130.1)	0.69 (17.5)	0.38 (9.7)	1.50 (38.1)

Dimensions(3-way / 2 stem manifold)

Basic Ordering Number	Connection Type	Orifice in.(mm)	A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness
			in.(mm)												
30NV-HPF4-3C-	HPF4	0.094 (2.39)	2.00 (50.8)	1.00 (25.4)	0.50 (12.7)	1.53 (38.9)	1.12 (28.5)	3.06 (77.7)	3.00 (76.2)	1.00 (25.4)	0.22 (5.6)	5.68 (144.3)	0.69 (17.5)	0.38 (9.7)	1.00 (25.4)
30NV-HPF6-3C-	HPF6	0.125 (3.18)	2.00 (50.8)	1.00 (25.4)	0.53 (13.5)	1.62 (41.2)	1.12 (28.5)	3.25 (82.6)	3.00 (76.2)	1.00 (25.4)	0.22 (5.6)	5.87 (149.1)	0.69 (17.5)	0.38 (9.7)	1.00 (25.4)
30NV-HPF9-3C-	HPF9	0.125 (3.18)	2.62 (66.6)	1.31 (33.3)	0.81 (20.6)	1.88 (47.8)	1.12 (28.5)	3.75 (95.3)	3.00 (76.2)	1.00 (25.4)	0.28 (7.1)	6.37 (161.8)	0.69 (17.5)	0.38 (9.7)	1.50 (38.1)

Notes:

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

How to Order

30NV — HPF4 — R — G — A — 316L

Series	Connector Sizes	Stem Tips	Packing	Flow Patterns	Body Material
30NV	HPF4 1/4 in.	Vee	PTFE	Straight	316 316 S.S.
	HPF6 3/8 in.	R Regulating	RG RPTFE Glass	A Angle	316L 316L S.S.
	HPF9 9/16 in.		G Graphite	AR Angle, replaceable seat	
				3A 3-way, 2 on pressure	
				3B 3-way, 1 on pressure	
				3C 3-way, 2 stem manifold	

High Pressure Needle Valve

60NV Series

Features

- ❖ Tubing sizes available for 1/4", 3/8", 9/16"
- ❖ 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
- ❖ 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 flow patterns are available

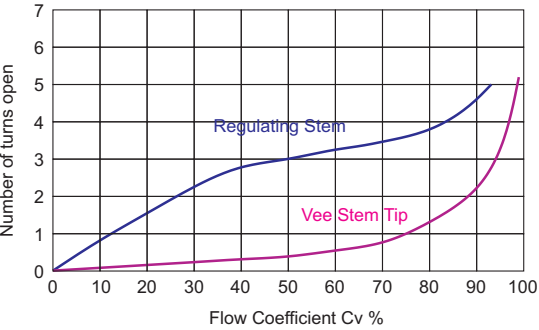
Technical Data

Tube OD in.	Connection Type	Orifice in.(mm)	Cv	Working Pressure psig(bar)
1/4	HPF4	0.063(1.59)	0.08	60,000(4137)
3/8	HPF6	0.063(1.59)	0.09	60,000(4137)
9/16	HPF9	0.078(1.98)	0.14	60,000(4137)

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 (315°C)

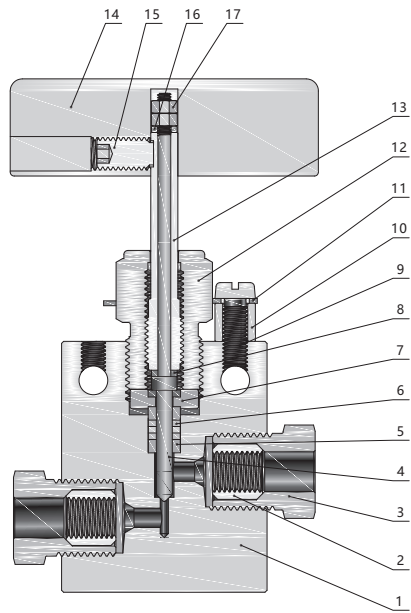
Flow Data at 100°F(38°C)



Pressure & Temperature

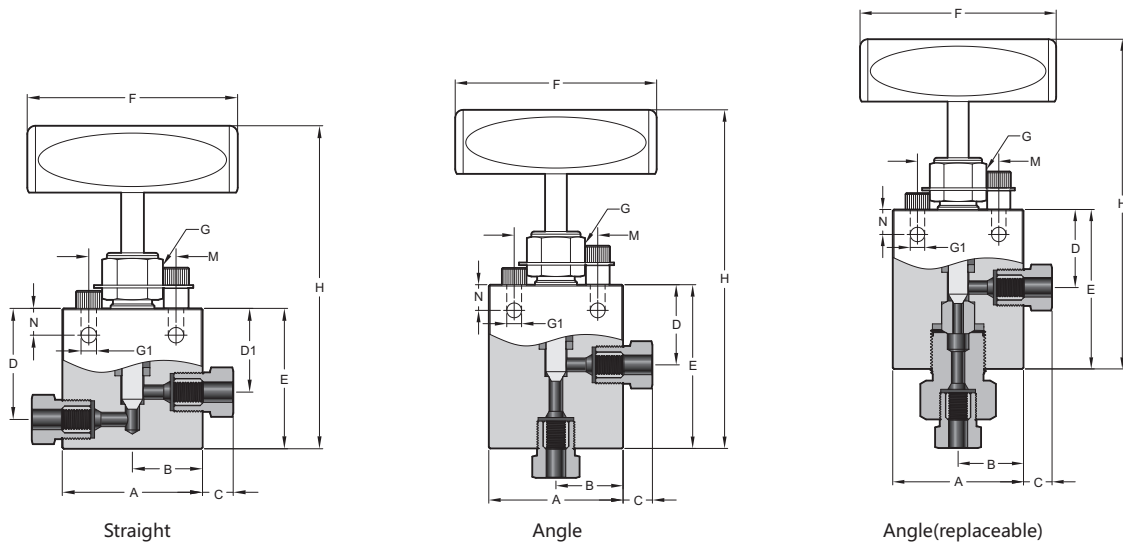
Temperature, °F(°C)	Working Pressure, psig(bar)
-65(-53)	60000(4137)
0(-18)	60000(4137)
100(37)	59400(4096)
200(93)	59100(4075)
300(148)	57600(3972)
400(204)	56400(3889)
500(260)	54900(3786)
600(315)	53400(3682)

Standard Materials of Construction



Item	Component	Material Grade/ASTM Specification
1	Body	316 S.S. / A479
2	Collar	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
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



Straight

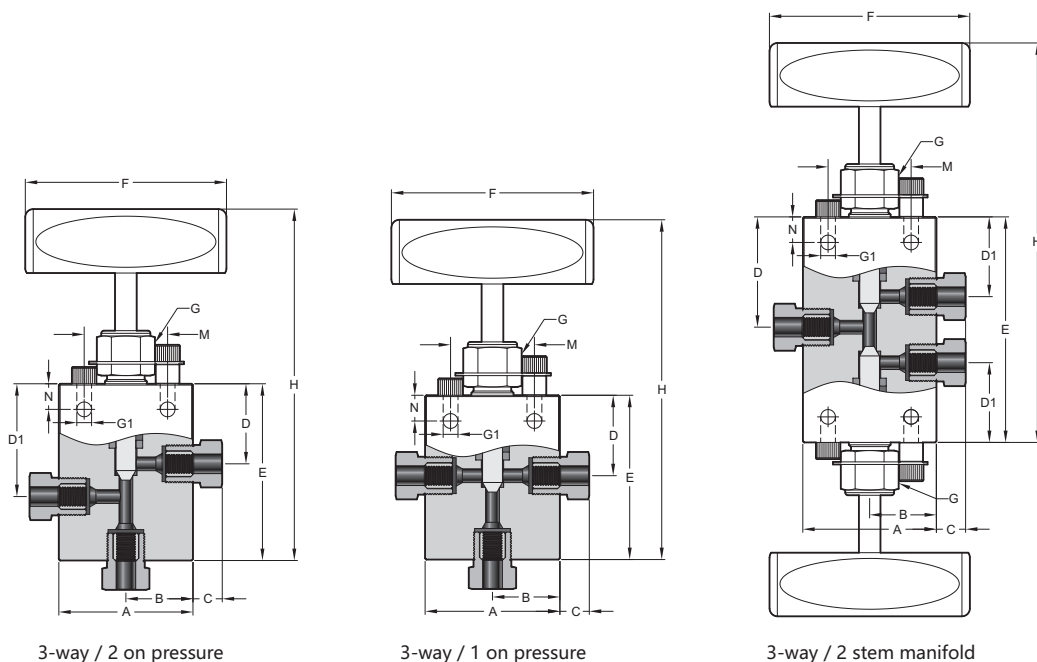
Basic Ordering Number	Connection Type	Orifice in.(mm)	A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness
			in.(mm)												
60NV-HPF4-	HPF4	0.063 (1.59)	2.00 (50.8)	1.00 (25.4)	0.50 (12.7)	1.69 (42.9)	1.31 (33.3)	2.13 (54.0)	3.00 (76.2)	1.00 (25.4)	0.22 (5.6)	4.75 (120.7)	0.69 (17.5)	0.38 (9.7)	1.00 (25.4)
60NV-HPF6-	HPF6	0.063 (1.59)	2.00 (50.8)	1.00 (25.4)	0.53 (13.5)	1.69 (42.9)	1.31 (33.3)	2.25 (57.2)	3.00 (76.2)	1.00 (25.4)	0.22 (5.6)	4.75 (120.7)	0.69 (17.5)	0.38 (9.7)	1.00 (25.4)
60NV-HPF9-	HPF9	0.078 (1.98)	2.62 (66.6)	1.31 (33.3)	0.72 (18.3)	1.75 (44.5)	1.31 (33.3)	2.50 (63.5)	3.00 (76.2)	1.00 (25.4)	0.28 (7.1)	5.13 (130.3)	0.69 (17.5)	0.38 (9.7)	1.50 (38.1)

Angle

Basic Ordering Number	Connection Type	Orifice in.(mm)	A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness
			in.(mm)												
60NV-HPF4-A-	HPF4	0.063 (1.59)	2.00 (50.8)	1.00 (25.4)	0.50 (12.7)	1.31 (33.3)	—	2.38 (60.5)	3.00 (76.2)	1.00 (25.4)	0.22 (5.6)	5.00 (127.0)	0.69 (17.5)	0.38 (9.7)	1.00 (25.4)
60NV-HPF6-A-	HPF6	0.063 (1.59)	2.00 (50.8)	1.00 (25.4)	0.53 (13.5)	1.31 (33.3)	—	2.62 (66.6)	3.00 (76.2)	1.00 (25.4)	0.22 (5.6)	5.25 (133.4)	0.69 (17.5)	0.38 (9.7)	1.00 (25.4)
60NV-HPF9-A-	HPF9	0.078 (1.98)	2.62 (66.6)	1.31 (33.3)	0.72 (18.3)	1.31 (33.3)	—	2.81 (71.4)	3.00 (76.2)	1.00 (25.4)	0.28 (7.1)	5.44 (138.2)	0.69 (17.5)	0.38 (9.7)	1.50 (38.1)

Angle, replaceable seat

Basic Ordering Number	Connection Type	Orifice in.(mm)	A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness
			in.(mm)												
60NV-HPF4-AR-	HPF4	0.063 (1.59)	2.00 (50.8)	1.00 (25.4)	0.50 (12.7)	1.31 (33.3)	2.12 (53.9)	2.62 (66.6)	3.00 (76.2)	1.00 (25.4)	0.22 (5.6)	6.28 (159.5)	0.69 (17.5)	0.38 (9.7)	1.00 (25.4)
60NV-HPF6-AR-	HPF6	0.063 (1.59)	2.00 (50.8)	1.00 (25.4)	0.53 (13.5)	1.31 (33.3)	2.36 (59.9)	2.62 (66.6)	3.00 (76.2)	1.00 (25.4)	0.22 (5.6)	6.52 (165.6)	0.69 (17.5)	0.38 (9.7)	1.00 (25.4)
60NV-HPF9-AR-	HPF9	0.078 (1.98)	2.62 (66.6)	1.31 (33.3)	0.72 (18.3)	1.31 (33.3)	2.68 (68.8)	2.62 (66.6)	3.00 (76.2)	1.00 (25.4)	0.28 (7.1)	6.90 (175.3)	0.69 (17.5)	0.38 (9.7)	1.50 (38.1)



3-way, 2 on pressure

Basic Ordering Number	Connection Type	Orifice in.(mm)	A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness
			in.(mm)												
60NV-HPF4-3A-	HPF4	0.063 (1.59)	2.00 (50.8)	1.00 (25.4)	0.50 (12.7)	1.69 (42.9)	1.31 (33.3)	2.38 (60.5)	3.00 (76.2)	1.00 (25.4)	0.22 (5.6)	4.75 (120.7)	0.69 (17.5)	0.38 (9.7)	1.00 (25.4)
60NV-HPF6-3A-	HPF6	0.063 (1.59)	2.00 (50.8)	1.00 (25.4)	0.53 (13.5)	1.69 (42.9)	1.31 (33.3)	2.75 (68.9)	3.00 (76.2)	1.00 (25.4)	0.22 (5.6)	4.87 (123.7)	0.69 (17.5)	0.38 (9.7)	1.00 (25.4)
60NV-HPF9-3A-	HPF9	0.078 (1.98)	2.62 (66.6)	1.31 (33.3)	0.72 (18.3)	1.75 (44.5)	1.31 (33.3)	3.03 (77.0)	3.00 (76.2)	1.00 (25.4)	0.28 (7.1)	5.13 (130.3)	0.69 (17.5)	0.38 (9.7)	1.50 (38.1)

3-way, 1 on pressure

Basic Ordering Number	Connection Type	Orifice in.(mm)	A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness
			in.(mm)												
60NV-HPF4-3B-	HPF4	0.094 (2.39)	2.00 (50.8)	1.00 (25.4)	0.50 (12.7)	1.31 (33.3)	—	2.38 (60.5)	3.00 (76.2)	1.00 (25.4)	0.22 (5.6)	5.00 (127.0)	0.69 (17.5)	0.38 (9.7)	1.00 (25.4)
60NV-HPF6-3B-	HPF6	0.125 (3.18)	2.00 (50.8)	1.00 (25.4)	0.53 (13.5)	1.31 (33.3)	—	2.62 (66.6)	3.00 (76.2)	1.00 (25.4)	0.22 (5.6)	5.25 (133.4)	0.69 (17.5)	0.38 (9.7)	1.00 (25.4)
60NV-HPF9-3B-	HPF9	0.125 (3.18)	2.62 (66.6)	1.31 (33.3)	0.72 (18.3)	1.31 (33.3)	—	2.81 (71.4)	3.00 (76.2)	1.00 (25.4)	0.28 (7.1)	5.44 (138.2)	0.69 (17.5)	0.38 (9.7)	1.50 (38.1)

3-way, 2 stem manifold

Basic Ordering Number	Connection Type	Orifice in.(mm)	A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness
			in.(mm)												
60NV-HPF4-3C-	HPF4	0.094 (2.39)	2.00 (50.8)	1.00 (25.4)	0.50 (12.7)	1.72 (43.69)	1.31 (33.3)	3.44 (87.4)	3.00 (76.2)	1.00 (25.4)	0.22 (5.6)	6.07 (154.2)	0.69 (17.5)	0.38 (9.7)	1.00 (25.4)
60NV-HPF6-3C-	HPF6	0.125 (3.18)	2.00 (50.8)	1.00 (25.4)	0.53 (13.5)	1.88 (47.8)	1.31 (33.3)	3.75 (95.3)	3.00 (76.2)	1.00 (25.4)	0.22 (5.6)	6.37 (161.8)	0.69 (17.5)	0.38 (9.7)	1.00 (25.4)
60NV-HPF9-3C-	HPF9	0.125 (3.18)	2.62 (66.6)	1.31 (33.3)	0.72 (18.3)	2.06 (52.3)	1.31 (33.3)	4.12 (104.7)	3.00 (76.2)	1.00 (25.4)	0.28 (7.1)	6.37 (161.8)	0.69 (17.5)	0.38 (9.7)	1.50 (38.1)

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

60NV — **HPF4** — **R** — **RG** — **3A** — **316**

Series	Connector Sizes	Stem Tips	Packing	Flow Patterns	Body Material
60NV	HPF4 1/4 in.	Vee	PTFE	Straight	316 316 S.S.
	HPF6 3/8 in.	R Regulating	RG RPTFE Glass	A Angle	A825 Alloy 825
	HPF9 9/16 in.			AR Angle, replaceable seat	
				3A 3-way, 2 on pressure	
				3B 3-way, 1 on pressure	
				3C 3-way, 2 stem manifold	

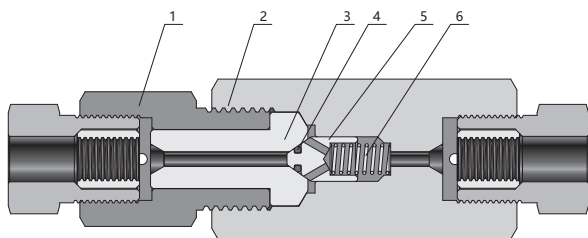
High Pressure Check Valve

O-ring Check Valves

Features

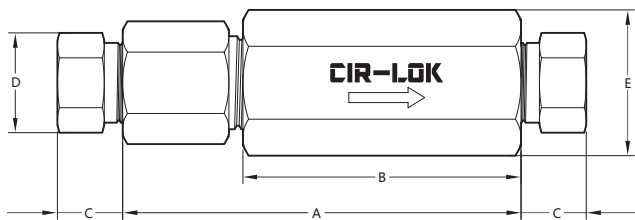
- ❖ Maximum working pressure up to 60,000 psi(4137 bar)
- ❖ Working temperature from 0°F to 400°F(-18°C to 204°C)
- ❖ Cracking Pressure: 14 psi ~ 26 psi(0.966 bar ~ 1.794 bar)
- ❖ Tubing sizes available for 1/4",3/8",9/16"
- ❖ Provides unidirectional flow and tight shut-off for liquids and gases with 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



Item	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	O-ring	FKM
5	Poppet	316 S.S. / A479
6	Spring	300 Series Stainless Steel

Dimensions



Ordering Number	Connection Type	Orifice in.(mm)	Cv	A	B	C	D-Hex	E-Hex
60CV-HPF4-V-	HPF4	0.094(2.39)	0.15	3.38(85.85)	2.50(63.50)	0.50(12.70)	0.63(16.00)	1.18(30.00)
60CV-HPF6-V-	HPF6	0.125(3.18)	0.28	3.75(95.25)	2.62(66.55)	0.53(13.46)	0.75(19.05)	1.18(30.00)
60CV-HPF9-V-	HPF9	0.187(4.75)	0.63	4.62(117.35)	3.38(85.85)	0.81(20.57)	1.12(28.45)	1.50(38.10)

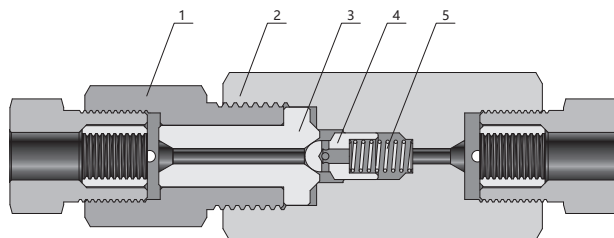
❖ All dimensions for reference only and subject to change.

Ball Check Valves

Features

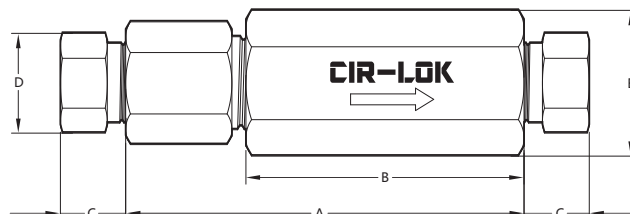
- ❖ Maximum working pressure up to 60,000 psi(4137 bar)
- ❖ Working temperature from -110°F to 1200°F(-79°C to 649°C)
- ❖ Cracking Pressure:14 psi ~ 26 psi(0.966 bar ~ 1.794 bar)
- ❖ Tubing sizes available for 1/4",3/8",9/16"
- ❖ Prevents reverse flow where leak-tight shut-off is not mandatory(Not for 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



Item	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

Dimensions



Ordering Number	Connection Type	Orifice in.(mm)	Cv	A	B	C	D-Hex	E-Hex
60CV-HPF4-B-	HPF4	0.094(2.39)	0.15	3.38(85.85)	2.50(63.50)	0.50(12.70)	0.63(16.00)	1.18(30.00)
60CV-HPF6-B-	HPF6	0.125(3.18)	0.28	3.75(95.25)	2.62(66.55)	0.53(13.46)	0.75(19.05)	1.18(30.00)
60CV-HPF9-B-	HPF9	0.187(4.75)	0.63	4.62(117.35)	3.38(85.85)	0.81(20.57)	1.12(28.45)	1.50(38.10)

❖ All dimensions for reference only and subject to change.

How to Order

60CV — HPF4 — B — 316L				
Series	Connection Size	Seal Type	Seal material	Body Material
60CV	HPF4 1/4 in.	V Blunt	Fluorocarbon FKM	316 316 S.S.
	HPF6 3/8 in.	B Ball	BN Buna N	
	HPF9 9/16 in.		E Ethylene Propylene	
			N Neoprene	
			Z Kalrez	

High Pressure Relief Valve

60RV Series

Features

- ❖ Soft seat relief valves.
- ❖ Set pressure: 20000 to 60000 psig(1379 to 4137 bar)
- ❖ Working temperature: -110°F to 500°F(-79°C to 260°C)
- ❖ Liquid or gas service. Provide bubble tight shut-off of gas
- ❖ Pressure settings are made at the factory and valves are tagged accordingly
State the required set pressure with the order please
- ❖ Lock wired secure cap to maintain set pressure
- ❖ Easily exchangeable seat
- ❖ Free assembly positions



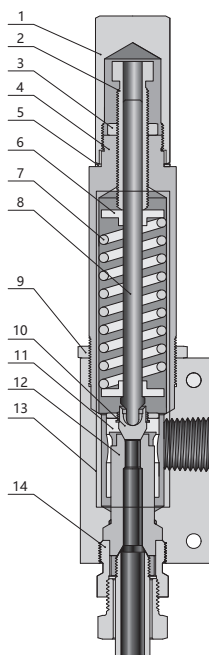
Technical Data

Ordering Number	Inlet		Outlet Connection Type	Orifice Size in.(mm)	Cv	Pressure Rating psig(bar)@100°F(38°C)		
	Tube OD in.	Connection Type				Minimum Set Pressure	Maximum Set Pressure	Maximum Back Pressure
60RV-HPF6-FNPT12-30-	3/8	HPF6	FNPT12	0.125(3.18)	0.2	20,000(1379)	30,000(2068)	500(34.5)
60RV-HPF6-FNPT12-45-	3/8	HPF6	FNPT12	0.093(2.36)	0.1	25,000(1724)	45,000(3103)	500(34.5)
60RV-HPF6-FNPT12-60-	3/8	HPF6	FNPT12	0.078(1.98)	0.07	30,000(2068)	60,000(4137)	500(34.5)

NOTE:

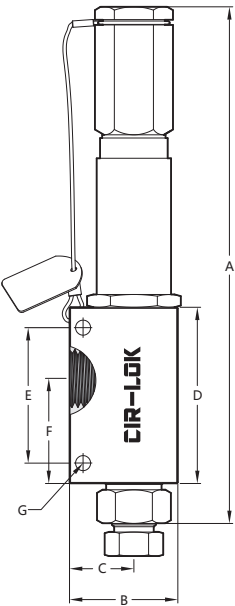
- ❖ Maximum system operating pressure should not exceed 90% of relief valve set pressure.

Standard Materials of Construction



Item	Component	Valve Material
1	Cap	316 S.S. / A479
2	Adjusting Bolt	316 S.S. / A479
3	Lock Nut	316 S.S. / A479
4	Spring Cylinder	316 S.S. / A479
5	Gasket	316L S.S. / A276
6	Spring Washer	316 S.S. / A479
7	Spring	17-7PH/AMS5678
8	Spindle	316 S.S. / A479
9	Lock Nut	316 S.S. / A276
10	Plug	630 S.S./ A564
11	Plug Guide	316 S.S. / A479
12	Seat	17-4PH / A564
13	Valve Body	316 S.S. / A479
14	Seat Gland	316 S.S. / A479
Lubricant		Molybdenum Disulfide

Dimensions



Relief Valves Dimensions

A	B	C	D	E	F	G
in.(mm)						
9.46 (240.4)	2.00 (50.8)	1.19 (30.2)	3.25 (82.6)	2.25 (57.1)	1.94 (49.3)	0.28 (7.1)

NOTE:

- ❖ G is the dimension of Mounting Holes.
- ❖ All dimensions are for reference only and are subject to change. For dimensions not shown above, please contact the authorized representative or CIR-LOK Group.

How to Order

60RV— HPF6 — FNPT12 — 60 — 316

Series	Intel Type and Size	Outel Type and Size	Spring Designato	Body Material
60RV	HPF6 3/8 in.	FNPT12 3/4 in. Female NPT	30 20000-30000 psi 45 30000-45000 psi 60 45000-60000 psi	316 316 S.S.

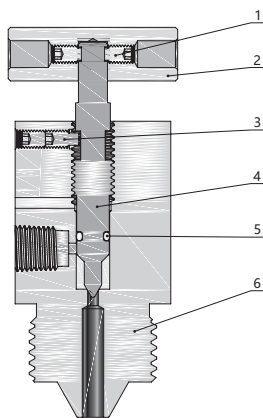
High Pressure Bleed Valve

30BP Series

Features

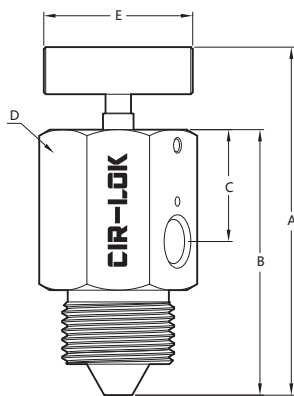
- ❖ Maximum working pressure up to 30,000 psig (2068 bar)
- ❖ Working temperature from 0°F to 400°F (-18°C to 204°C)
- ❖ One piece hex construction compact design allows easy installation.
- ❖ Easy to assemble and replace O-ring.
- ❖ Positive locking screw design prevents accidental removal of the stem.
- ❖ Tee handle for easy operation.
- ❖ 1/8" Female NPT outlet connection.

Standard Materials of Construction



Item	Component	Material Grade / ASTM Specification
1	Screw	stainless steel
2	Handle	303 S.S.
3	Screw	stainless steel
4	Stem	630 S.S.
5	O-ring	Fluorocarbon FKM
6	Body	316 S.S. / A479

Dimensions



Ordering Number	Connection Type(Inlet)	Connection Type(Outlet)	Orifice in.(mm)	A	B	C	D	E
30BP-HPF6-	HPF6	FNPT2	0.094 (2.4)	3.41 (86.7)	2.58 (65.6)	1.18 (30.0)	1.37 (34.9)	1.75 (44.5)
30BP-HPF9-	HPF9							

Note:
❖ D is the dimension of hex.
❖ A is the dimension of stem in closed position.
❖ All dimensions are for reference only and are subject to change. For dimensions not shown above, please contact the authorized representative or CIR-LOK Group.

How to Order

30BP — HPF6 — 316

Series	Connector Sizes	Body Material
30BP	HPF6 3/8 in.	316 316 S.S.
	HPF9 9/16 in.	

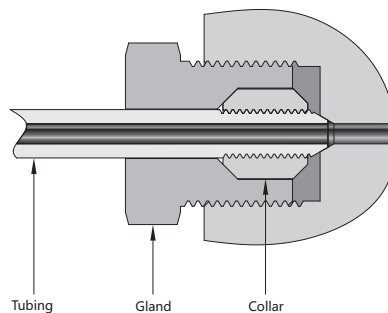


High Pressure Fittings Nipples and Tubing

60 Series

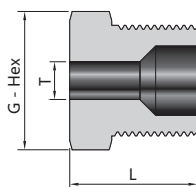
Features

- ❖ Coned-and-Threaded Connection
- ❖ Available sizes are 1/4, 3/8, 9/16 and 1 in.
- ❖ Working pressure:
 - 1/4, 3/8 and 9/16 in: 60000 psi(4136 bar)
 - 1 in: 43000 psi(2964.7 bar)
- ❖ Working temperature from -423°F to 1200°F(-252°C to 649°C)
- ❖ Special 316 stainless steel and Alloy 826 material
- ❖ Anti-vibration connection components available
- ❖ CIR-LOK 60 series high pressure fittings are designed for use with 30 and 60 series high pressure valves



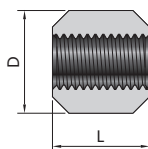
Dimensions

Glands



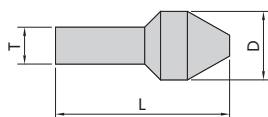
T-Tube O.D. in.	Ordering Number	Dimensions, in.(mm)	
		G	L
1/4	60G-HPF4-	0.63(15.9)	0.82(20.8)
3/8	60G-HPF6-	0.81(20.6)	1.13(28.7)
9/16	60G-HPF9-	1.19(30.2)	1.50(38.1)
1	60G-HPF16-	1.38(34.9)	1.38(34.9)

Collars



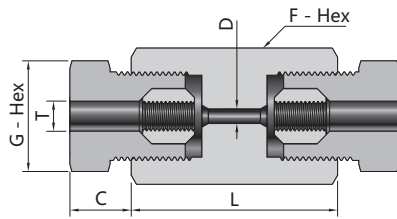
T-Tube O.D. in.	Ordering Number	Dimensions, in.(mm)	
		D	L
1/4	60C-HPF4-	0.38(9.6)	0.38(9.6)
3/8	60C-HPF6-	0.50(12.7)	0.54(13.7)
9/16	60C-HPF9-	0.81(20.6)	0.62(15.8)
1	60C-HPF16-	1.25(31.8)	0.62(15.8)

Plugs



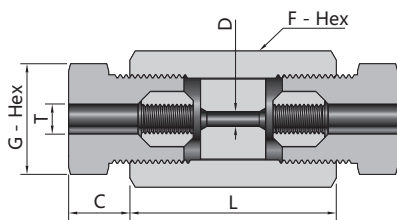
T-Tube O.D. in.	Ordering Number	Dimensions, in.(mm)	
		D	L
1/4	60P-HPF4-	0.38(9.6)	1.04(26.4)
3/8	60P-HPF6-	0.50(12.7)	1.35(34.3)
9/16	60P-HPF9-	0.81(20.6)	1.89(48.0)
1	60P-HPF16-	1.25(31.8)	2.37(60.2)

Union Couplings



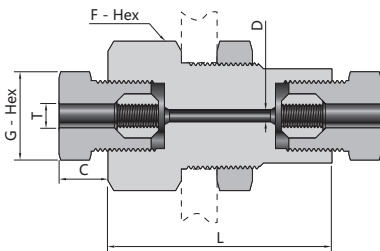
T-Tube O.D. in.	Ordering Number	Dimensions, in.(mm)				
		L	C	D	G	F
1/4	60U-HPF4-	1.38(34.9)	0.50(12.7)	0.09(2.3)	0.63(15.9)	0.75(19.1)
3/8	60U-HPF6-	1.75(44.5)	0.53(13.5)	0.13(3.3)	0.81(20.6)	1.00(25.4)
9/16	60U-HPF9-	2.19(55.6)	0.81(20.6)	0.19(4.8)	1.19(30.2)	1.38(34.9)
1	60U-HPF16-	3.50(88.9)	0.72(18.3)	0.44(11.1)	1.38(34.9)	1.75(44.5)

Union Couplings(Slip Type)



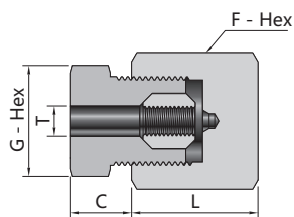
T-Tube O.D. in.	Ordering Number	Dimensions, in.(mm)				
		L	C	D	G	F
1/4	60SU-HPF4-	1.38(34.9)	0.50(12.7)	0.09(2.3)	0.63(15.9)	0.75(19.1)
3/8	60SU-HPF6-	1.75(44.5)	0.53(13.5)	0.13(3.3)	0.81(20.6)	1.00(25.4)
9/16	60SU-HPF9-	2.19(55.6)	0.81(20.6)	0.19(4.8)	1.19(30.2)	1.38(34.9)
1	60SU-HPF16-	3.50(88.9)	0.72(18.3)	0.44(11.1)	1.38(34.9)	1.75(44.5)

Bulkhead Couplings



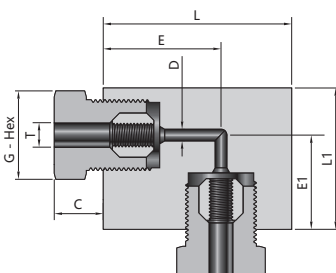
T-Tube O.D. in.	Ordering Number	Dimensions, in.(mm)						
		L	C	D	G	F	Panel Hole Size	Max. Panel Thickness
1/4	60BU-HPF4-	1.88(47.8)	0.50(12.7)	0.09(2.3)	0.63(15.9)	1.06(27.0)	0.94(23.9)	0.38(9.7)
3/8	60BU-HPF6-	2.38(60.5)	0.53(13.5)	0.13(3.3)	0.81(20.6)	1.38(34.9)	1.13(28.6)	0.38(9.7)
9/16	60BU-HPF9-	2.75(69.9)	0.81(20.6)	0.19(4.8)	1.19(30.2)	1.88(47.6)	1.69(42.9)	0.38(9.7)
1	60BU-HPF16-	3.50(88.9)	0.72(18.3)	0.44(11.1)	1.38(34.9)	2.13(54.0)	1.94(49.3)	0.50(12.7)

Caps



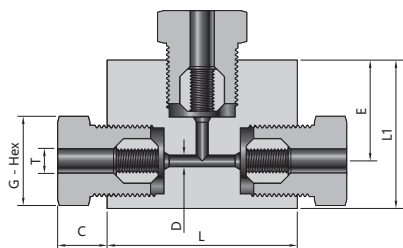
T-Tube O.D. in.	Ordering Number	Dimensions, in.(mm)			
		L	C	G	F
1/4	60CA-HPF4-	0.75(19.1)	0.50(12.7)	0.63(15.9)	0.75(19.1)
3/8	60CA-HPF6-	1.13(28.6)	0.53(13.5)	0.81(20.6)	1.00(25.4)
9/16	60CA-HPF9-	1.38(34.9)	0.81(20.6)	1.19(30.2)	1.38(34.9)
1	60CA-HPF16-	2.25(57.2)	0.72(18.3)	1.38(34.9)	1.75(44.5)

Elbows



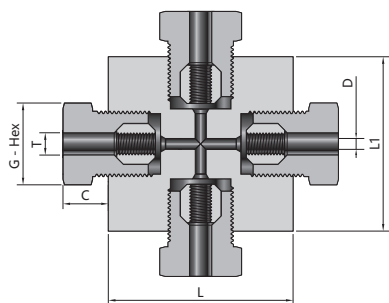
T-Tube O.D. in.	Ordering Number	Dimensions, in.(mm)							
		C	D	G	L	E	L1	E1	Thickness
1/4	60UE-HPF4-	0.50(12.7)	0.09(2.3)	0.63(15.9)	1.50(38.1)	0.88(22.4)	1.00(25.4)	0.62(15.7)	0.75(19.1)
3/8	60UE-HPF6-	0.53(13.5)	0.13(3.3)	0.81(20.6)	2.00(50.8)	1.25(31.8)	1.50(38.1)	1.00(25.4)	1.00(25.4)
9/16	60UE-HPF9-	0.81(20.6)	0.19(4.8)	1.19(30.2)	2.62(66.5)	1.88(47.8)	1.88(47.8)	1.12(28.4)	1.50(38.1)
1	60UE-HPF16-	0.72(18.3)	0.44(11.1)	1.38(34.9)	3.00(76.2)	2.06(52.3)	3.00(76.2)	2.06(52.3)	1.75(44.5)

Tees



T-Tube O.D. in.	Ordering Number	Dimensions, in.(mm)						
		C	D	G	L	L1	E	Thickness
1/4	60UT-HPF4-	0.50(12.7)	0.09(2.3)	0.63(15.9)	2.00(50.8)	1.25(31.8)	0.88(22.4)	0.75(19.1)
3/8	60UT-HPF6-	0.53(13.5)	0.13(3.3)	0.81(20.6)	2.00(50.8)	1.56(39.6)	1.06(26.9)	1.00(25.4)
9/16	60UT-HPF9-	0.81(20.6)	0.19(4.8)	1.19(30.2)	2.62(66.5)	2.12(53.8)	1.38(35.0)	1.50(38.1)
1	60UT-HPF16-	0.72(18.3)	0.44(11.1)	1.38(34.9)	4.12(104.6)	3.00(76.2)	2.06(52.3)	1.75(44.5)

Crosses



T-Tube O.D. in.	Ordering Number	Dimensions, in.(mm)						
		C	D	G	L	L1	Thickness	
1/4	60UC-HPF4-	0.50(12.7)	0.09(2.3)	0.63(15.9)	2.00(50.8)	1.25(31.8)	0.75(19.1)	
3/8	60UC-HPF6-	0.53(13.5)	0.13(3.3)	0.81(20.6)	2.00(50.8)	2.12(53.8)	1.00(25.4)	
9/16	60UC-HPF9-	0.81(20.6)	0.19(4.8)	1.19(30.2)	2.62(66.5)	2.75(69.9)	1.50(38.1)	
1	60UC-HPF16-	0.72(18.3)	0.44(11.1)	1.38(34.9)	4.12(104.6)	4.12(104.6)	1.75(44.5)	

How to Order

60U

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HPF4

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316

Fitting Type	Port1/2/3/4 Type	Port1/2/3/4 Size	Material
60U Unions	HPF High Pressure Female	4 1/4 in.	316 316 S.S.
60RU Reducing Unions		6 3/8 in.	316L 316L S.S.
60BU Bulkhead Unions		9 9/16 in.	
60UE Unions Elbows		16 1 in.	
60UT Unions Tees			
60UC Unions Crosses			
60CA Caps			
60P Plugs			
60G Gland			
60C Collars			

60 Series Tubing

Features

- ❖ Working pressure:
1/4, 3/8 and 9/16 in: 60000 psi(4136 bar)
1 in: 43000 psi(2964.7 bar)
- ❖ 316 stainless steel are standard materials. Other materials are available upon request
- ❖ Material, size and heat code are indicated on the tubing surface



T-Tube O.D. in.	Tx-Tube I.D. in.	Material	Basic Ordering Number
1/4	0.083	316S	FT-4-0.083-6M-
3/8	0.125	316S	FT-6-0.125-6M-
9/16	0.188	316S	FT-9-0.188-6M-
1	0.281	316S	FT-16-0.281-6M-

Working Pressure

T-Tube O.D. in.	Working Pressure, psig(bar)				
	-423 to 100°F (-252 to 37.8°C)	200°F (93°C)	400°F (204°C)	600°F (316°C)	800°F (427°C)
1/4	60000(4137)	60000(4137)	57750(3982)	54250(3740)	50700(3496)
3/8	60000(4137)	60000(4137)	57750(3982)	54250(3740)	50700(3496)
9/16	60000(4137)	60000(4137)	57750(3982)	54250(3740)	50700(3496)
1	43000(2964.7)	43000(2964.7)	43000(2964.7)	41380(2853)	36330(2504.8)

How to Order

60FT — 4 — 0.083 — 6M — TP316

Tubing Type	Tubing O.D. (in.)	Wall Thickness (in.)	Nominal Length (m/feet)	Material Grade
60FT 60 Series Fractional Tubing	4 1/4 in.	0.083	1M 1 meter	TP316
	6 3/8 in.	0.125	2M 2 metres	
	9 9/16 in.	0.188	3M 3 metres	
	16 1 in.	0.281	4M 4 metres	
			5M 5 metres	
			6M 6 metres	
			10F 10 feet	
			20F 20 feet	

Coned and Threaded Nipples

Features

- ❖ CIR-LOK supplies precut, coned-and-threaded nipples in various sizes and lengths for 60 series high pressure valves and fittings

Dimensions



Coned and Threaded Nipples

T-Tube O.D. in.	Tx-Tube I.D. in.	Ordering Number	L in.(mm)
1/4	0.083	NIP-HPF4-2.75	2.75(69.9)
1/4	0.083	NIP-HPF4-3	3(76.2)
1/4	0.083	NIP-HPF4-4	4(101.6)
1/4	0.083	NIP-HPF4-6	6(152.4)
1/4	0.083	NIP-HPF4-8	8(203.2)
1/4	0.083	NIP-HPF4-10	10(254.0)
1/4	0.083	NIP-HPF4-12	12(304.8)
3/8	0.125	NIP-HPF6-3	3(76.2)
3/8	0.125	NIP-HPF6-4	4(101.6)
3/8	0.125	NIP-HPF6-6	6(152.4)
3/8	0.125	NIP-HPF6-8	8(203.2)
3/8	0.125	NIP-HPF6-10	10(254.0)
3/8	0.125	NIP-HPF6-12	12(304.8)
9/16	0.188	NIP-HPF9-4	4(101.6)
9/16	0.188	NIP-HPF9-6	6(152.4)
9/16	0.188	NIP-HPF9-8	8(203.2)
9/16	0.188	NIP-HPF9-10	10(254.0)
9/16	0.188	NIP-HPF9-12	12(304.8)
1	0.281	NIP-HPF16-4	4(101.6)
1	0.281	NIP-HPF16-6	6(152.4)
1	0.281	NIP-HPF16-8	8(203.2)
1	0.281	NIP-HPF16-10	10(254.0)
1	0.281	NIP-HPF16-12	12(304.8)

How to Order

NIP — HPF4 — 4 — 316

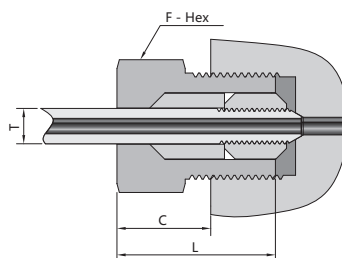
Type	Connection Type	Connection Size	Nominal Length	Material
NIP Coned and Threaded Nipples	HPF High Pressure Fittings	4 1/4 in. 6 3/8 in. 9 9/16 in. 16 1 in.	2.75 2.75" 3 3" 4 4" 6 6" 8 8" 10 10"	316 316 S.S.

Anti-Vibration Collet Gland Assemblies

Typical 60 Series anti-vibration collet gland assembly

Features

- ❖ Anti-vibration collet gland assembly sizes from 1/4, 3/8, 9/16 and 1 in.
- ❖ Completely interchangeable with standard CIR-LOK 60 series high pressure connections
- ❖ Moving the stress concentration back to the unthreaded part of the tubing and providing a wedge-type gripping action
- ❖ Anti-vibration collet gland assembly strengthens the entire structure



Dimensions

T-Tube O.D. in.	Basic Ordering Number	Dimensions, in.(mm)		
		L	C	F
1/4	AVA-HPF4-	0.81(20.6)	0.50(12.7)	0.63(15.9)
3/8	AVA-HPF6-	1.12(28.4)	0.62(15.7)	0.81(20.6)
9/16	AVA-HPF9-	1.50(38.1)	1.00(25.4)	1.19(30.2)
1	AVA-HPF16-	2.38(60.5)	1.69(42.9)	1.50(38.1)

How to Order

AVA — HPF4 — 316

Type	Connection Type	Connection Size	Material
AVA Anti-Vibration Collet Gland Assemblies	HPF High Pressure Fittings	4 1/4 in. 6 3/8 in. 9 9/16 in. 16 1 in.	316 316 S.S.