

High Pressure Needle Valve

60NV Series, 60,000 psi (4137 bar)



- ❖ Maximum working pressure up to 60,000 psig (4137 bar)
- ❖ Working temperature from -325°F to 1200°F (-198°C to 649°C)
- ❖ Non-rotating stem and bar stock body design
- ❖ Tubing sizes available for 1/4", 3/8", 9/16"
- ❖ 316 stainless steel body material

Features

- ❖ Tubing sizes available for 1/4", 3/8", 9/16"
- ❖ Non-rotating stem and rising stem design
- ❖ Metal-to-metal seating achieves bubble-tight shutoff, longer stem/seat service life in abrasive flow, greater durability for repeated on/off cycles
- ❖ Nylon is the standard packing material, RPTFE glass, Graphite are available
- ❖ Graphite packing working Temperatures up to 1200°F (649°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 flow patterns are available

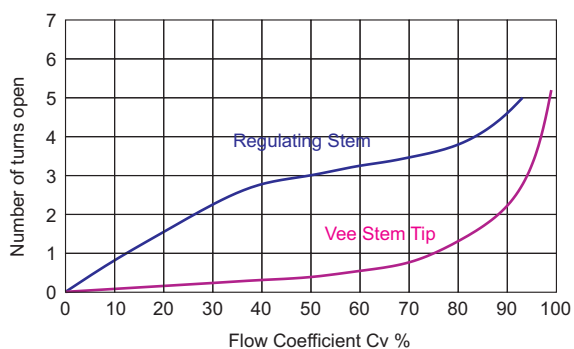
Technical Data

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)

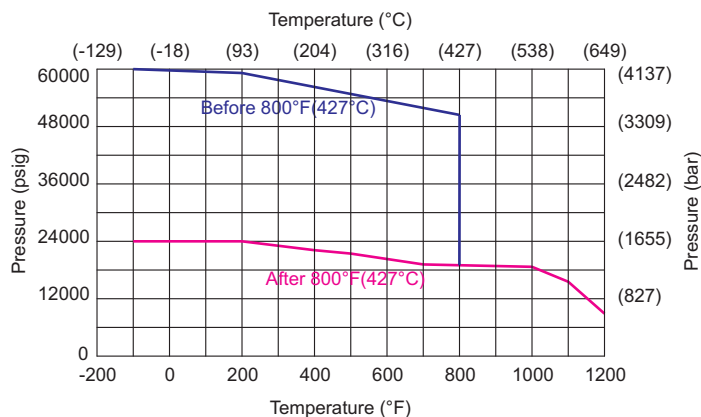
Notes:

- ❖ 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 Temperatures
PTFE packing: -100°F (-73°C) to 450°F (232°C)
RPTFE glass packing: -100°F (-73°C) to 600°F (316°C)
Graphite packing: -100°F (-73°C) to 1200°F (649°C)

Flow Data at 100°F (38°C)

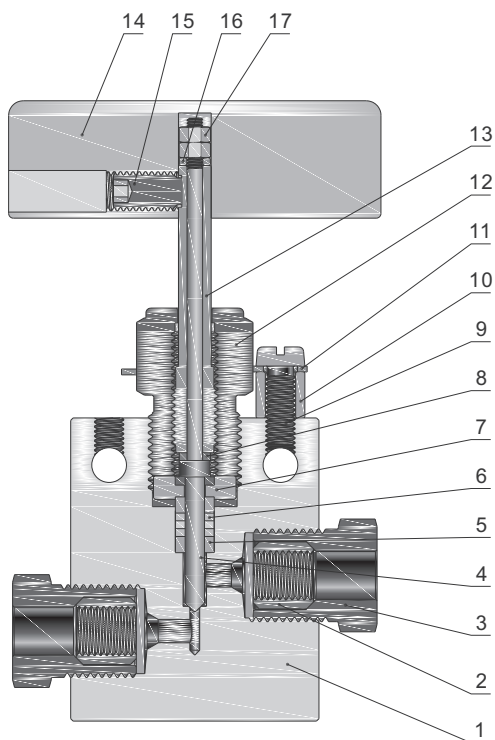


Pressure & Temperature



When exceeding 800°F (427°C), use the pink curve as its cold-worked rating for future operating of the components.

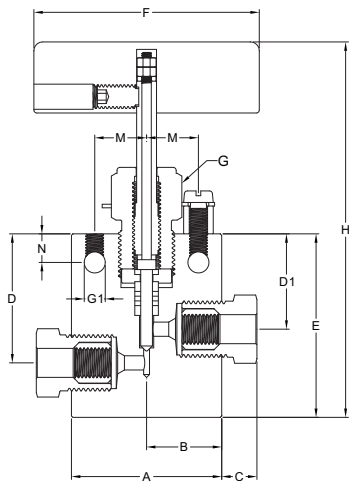
Standard Materials of Construction



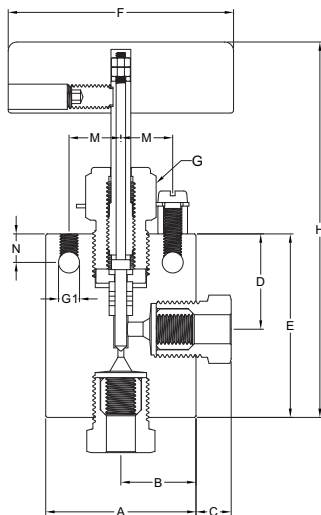
Item	Component	Material Grade/ASTM Specification
1	Body	316 S.S./A479
2	Collar	316 S.S./A479
3	Nut	316 S.S./A479
4	Stem	S17400/A564
5	Gland	316 S.S./A479
6	Packing	Nylon/RPTFE/GRAPHITE/Extend stuffing box valve with of Graphite
7	Packing ring	316 S.S./A479
8	Gland	316 S.S./A479
9	Screw	304 S.S.
10	Ring	316 S.S./A276
11	Lock plate	304 S.S./A240
12	Bonnet	316 S.S./A479
13	Stem guard	316 S.S./A479
14	Handle	Aluminum
15	Screw	304 S.S.
16	Gland	316 S.S./A276
17	Nut	304 S.S.

Dimensions

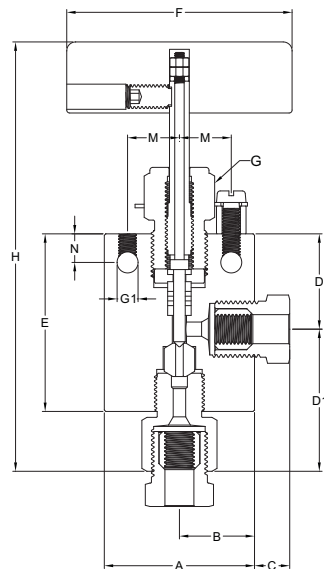
Straight



Angle



Angle (replacable)



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

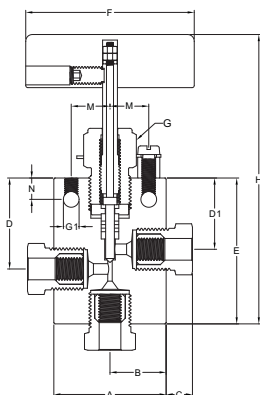
Basic Ordering Number	Connection Type	Orifice in. (mm)	A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness
			in. (mm)												
60NV-HPF4-A-	HPF4	0.063 (1.59)	2.00 (50.8)	1.00 (25.4)	0.50 (12.7)	1.31 (33.3)	—	2.38 (60.5)	3.00 (76.2)	1.00 (25.4)	0.22 (5.6)	5.00 (127.0)	0.69 (17.5)	0.38 (9.7)	1.00 (25.4)
60NV-HPF6-A-	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

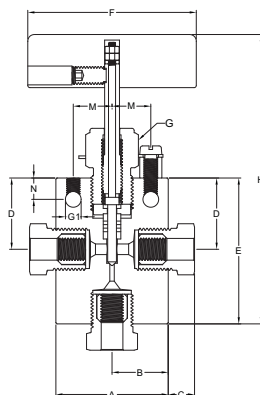
Basic Ordering Number	Connection Type	Orifice in. (mm)	A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness
			in. (mm)												
60NV-HPF4-AR-	HPF4	0.063 (1.59)	2.00 (50.8)	1.00 (25.4)	0.50 (12.7)	1.31 (33.3)	2.12 (53.9)	2.62 (66.6)	3.00 (76.2)	1.00 (25.4)	0.22 (5.6)	6.28 (159.5)	0.69 (17.5)	0.38 (9.7)	1.00 (25.4)
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)

Dimensions

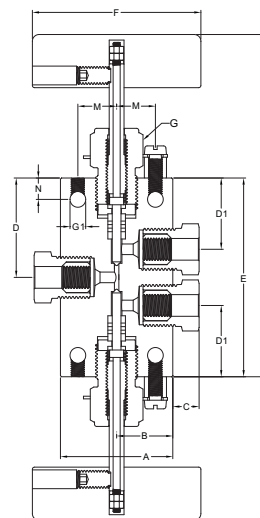
3-way/2 on pressure



3-way/1 on pressure



3-way/2 stem manifold



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 — G — 3A — 316

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