

Needle Valves and Pneumatic Needle Valves

10N Series: 10,000 psig (690 bar)

15N Series: 15,000 psig (1034 bar)

20N Series: 20,000 psig (1379 bar)

30N Series: 30,000 psig (2068 bar)

60N Series: 60,000 psig (4137 bar)



Fittings

Tubing

Quick Couplings

Line Filters

Valves

Sour Service
Products

Subsea Valves

Part Number
Crossover Charts

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Notes

- ⦿ Packing adjustment may be required during the service life of the valve
- ⦿ For better quality maintenance, FITOK medium & high pressure needle valves should be kept in half open position in warehouse

Needle Valves

10N Series: 10,000 psig (690 bar)

Features

- ⦿ High tensile 316 stainless steel for the valve body and S17400 stainless steel for lower stem
- ⦿ Metal-to-metal seating to achieve ideal shutoff, longer stem/seat service lifetime for abrasive flow, excellent corrosion resistance and greater durability for repeated on/off cycles
- ⦿ Non-rotating stem and bar stock body design
- ⦿ Easy to assemble and replace packing
- ⦿ Reliable packing gland locking device
- ⦿ Options for Vee or Regulating stem tips
- ⦿ Five flow patterns available

Technical Data

Connection Size	Connection	Orifice in. (mm)	Cv	Working Pressure psig (bar)	Working Temperature Range
9/16" Female Medium Pressure	MF9	0.359 (9.12)	1.75	10,000 (690)	-100°F~1200°F (-73°C~649°C)
3/4" Female Medium Pressure	MF12	0.516 (13.10)	2.80	10,000 (690)	
1" Female Medium Pressure	MF16	0.688 (17.48)	5.20	10,000 (690)	
3/4" Female NPT	FNS12	0.437 (11.10)	2.50	10,000 (690)	-100°F~400°F (-73°C~204°C)
3/4" Female ISO Tapered Thread	FRT12				
1" Female NPT	FNS16	0.562 (14.27)	4.40	10,000 (690)	
1" Female ISO Tapered Thread	FRT16				

Notes: 1. Cv values shown are for 2-way straight valve pattern. For 2-way angle pattern, increase Cv value by about 50% (based on water).

2. Packing Options

PTFE is the standard packing material, RPTFE glass, graphite and extended stuffing box with graphite also available. Graphite packing not recommended for hydrogen or helium service.

PTFE: -100°F~450°F (-73°C~232°C)

RPTFE glass: -100°F~600°F (-73°C~316°C)

Graphite: 0°F~800°F (-17.8°C~427°C)

Extended stuffing box with graphite: 0°F~1200°F (-17.8°C~649°C)

Fittings

Tubing

Quick Couplings

Line Filters

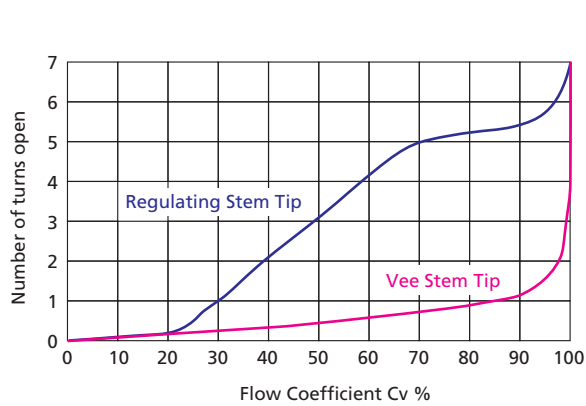
Valves

Sour Service Products

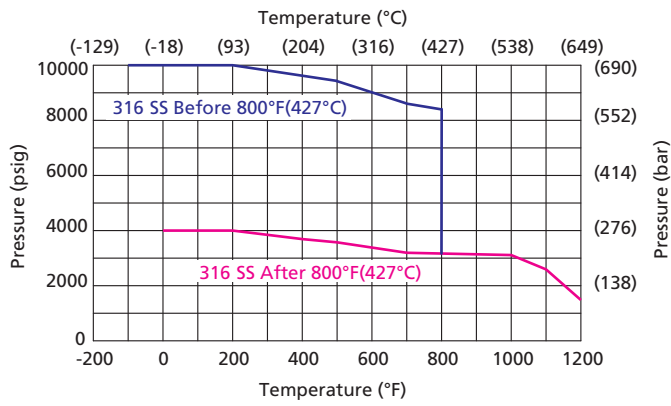
Subsea Valves

Part Number Crossover Charts

Flow Data at 100°F (38°C)

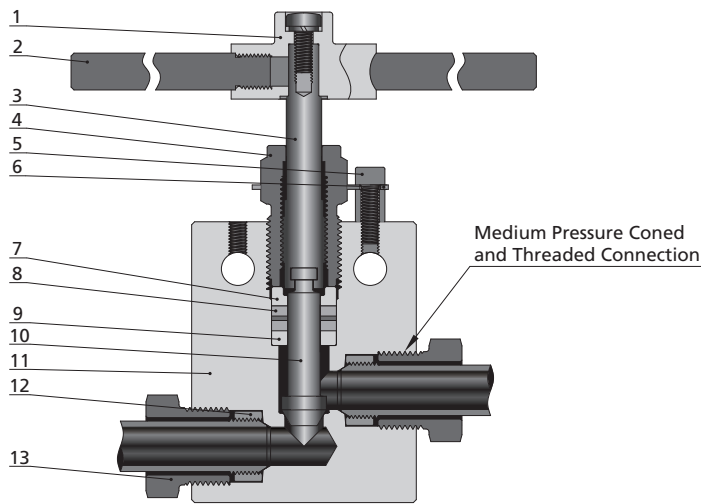


Pressure vs. Temperature Curve



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

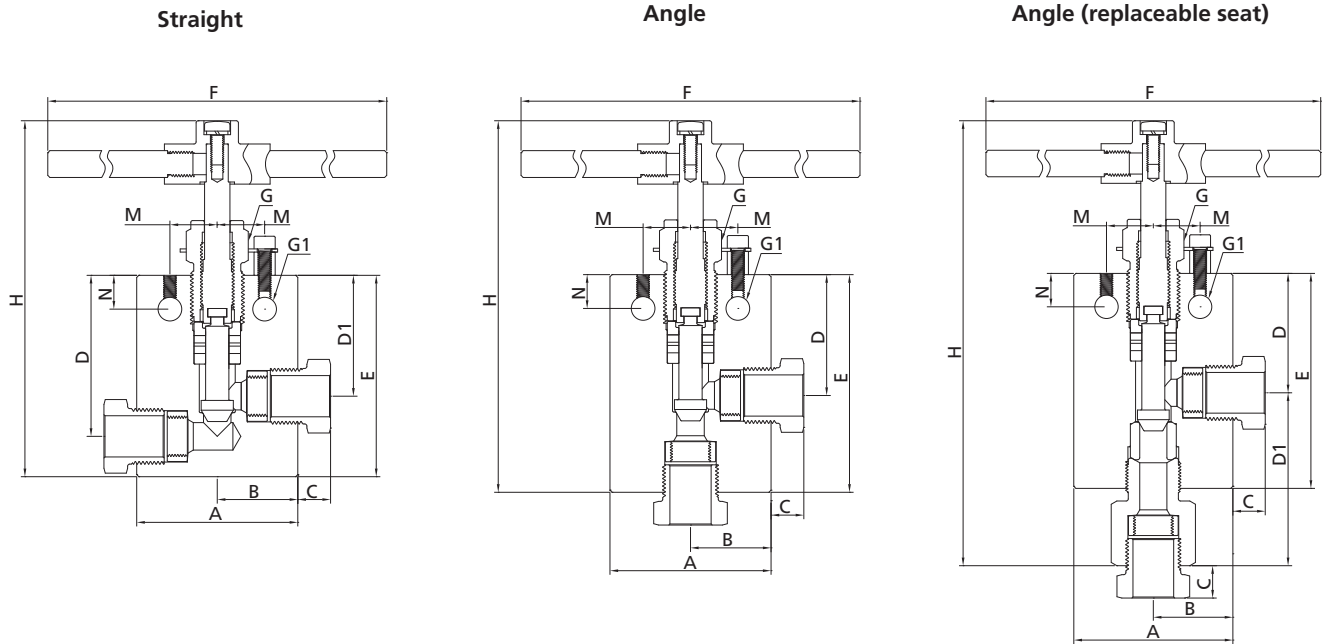
Standard Materials of Construction



Item	Component	Material Grade
1	Handle Head	Stainless Steel
2	Handle	Stainless Steel
3	Upper Stem	316 SS
4	Packing Gland	C63000
5	Locking Screw	Stainless Steel
6	Locking Plate	304 SS
7	Packing Ring	C63000
8	<i>Packing</i>	<i>PTFE/RPTFE Glass/Graphite/Extended Stuffing Box with Graphite</i>
9	<i>Packing Washer</i>	<i>S17400</i>
10	<i>Lower Stem</i>	<i>S17400</i>
11	<i>Body</i>	<i>316 SS</i>
12	Collar	316 SS (For Tubing Connections)
13	Gland	316 SS (For Tubing Connections)
Lubricant		Molybdenum Disulfide

Wetted component listed in italics.

Ordering Information and Dimensions (Tubing Connection, 2-Way)



Straight

Ordering Number	Connec-tion	Orifice in. (mm)	Dimensions, in. (mm)													Lockout Device Ordering Number
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness	
10NSS-MF9-1	MF9	0.359 (9.12)	2.50 (63.5)	1.25 (31.8)	0.55 (14.0)	2.38 (60.5)	1.75 (44.5)	2.88 (73.2)	4.00 (101.6)	1.00 (25.4)	0.34 (8.6)	6.20 (157.4)	0.69 (17.5)	0.50 (12.7)	1.00 (25.4)	HN-L-02
10NSS-MF12-1	MF12	0.516 (13.11)	3.00 (76.2)	1.50 (38.1)	0.60 (15.2)	3.00 (76.2)	2.25 (57.2)	3.75 (95.3)	10.25 (260.4)	1.19 (30.2)	0.44 (11.2)	7.24 (183.8)	0.88 (22.4)	0.63 (16.0)	1.38 (35.1)	HN-L-03
10NSS-MF16-1	MF16	0.688 (17.48)	4.12 (104.6)	2.06 (52.3)	0.74 (18.7)	3.75 (95.3)	2.81 (71.4)	4.63 (117.6)	10.25 (260.4)	1.62 (41.2)	0.56 (14.2)	9.33 (237.1)	1.25 (31.8)	1.13 (28.7)	1.75 (44.5)	HN-L-04

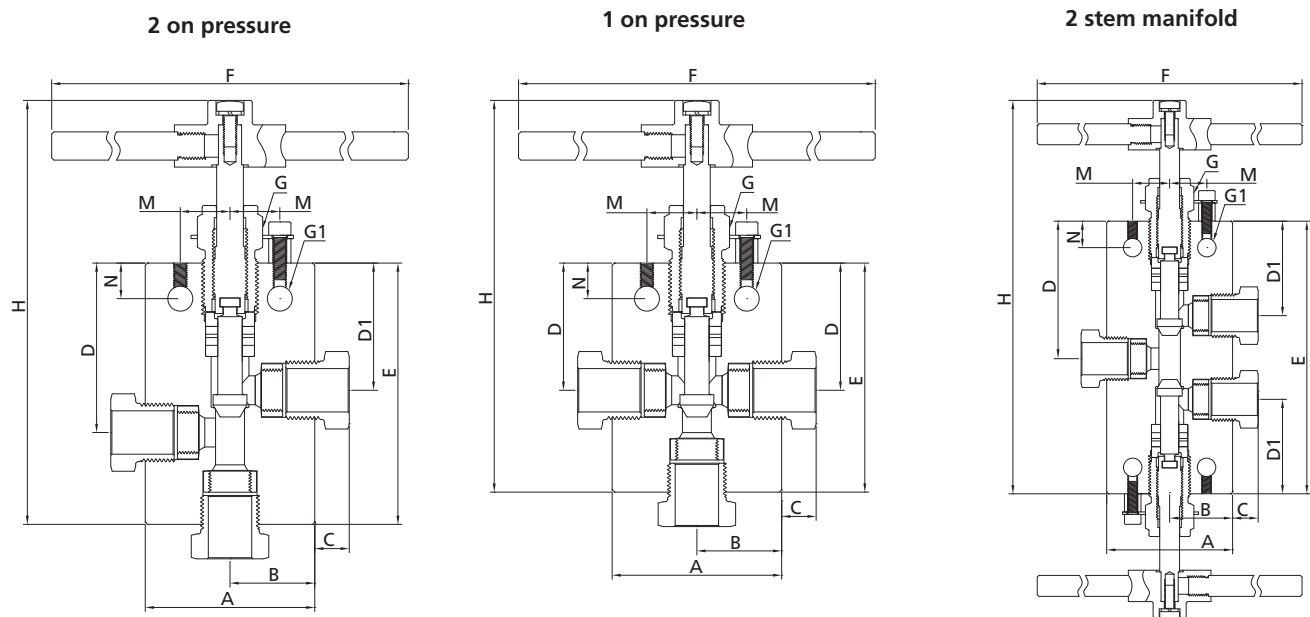
Angle

Ordering Number	Connec-tion	Orifice in. (mm)	Dimensions, in. (mm)													Lockout Device Ordering Number
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness	
10NSS-MF9-2	MF9	0.359 (9.12)	2.50 (63.5)	1.25 (31.8)	0.55 (14.0)	1.75 (44.5)		3.38 (85.9)	4.00 (101.6)	1.00 (25.4)	0.34 (8.6)	6.70 (170.3)	0.69 (17.5)	0.50 (12.7)	1.00 (25.4)	HN-L-02
10NSS-MF12-2	MF12	0.516 (13.11)	3.00 (76.2)	1.50 (38.1)	0.60 (15.2)	2.25 (57.2)		4.25 (107.9)	10.25 (260.4)	1.19 (30.2)	0.44 (11.2)	7.73 (196.4)	0.88 (22.4)	0.63 (16.0)	1.38 (35.1)	HN-L-03
10NSS-MF16-2	MF16	0.688 (17.48)	4.12 (104.6)	2.06 (52.3)	0.74 (18.7)	2.81 (71.4)		5.12 (130.1)	10.25 (260.4)	1.62 (41.2)	0.56 (14.2)	9.95 (252.6)	1.25 (31.8)	1.13 (28.7)	1.75 (44.5)	HN-L-04

Angle (replaceable seat)

Ordering Number	Connec-tion	Orifice in. (mm)	Dimensions, in. (mm)													Lockout Device Ordering Number
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness	
10NSS-MF9-3	MF9	0.359 (9.12)	2.50 (63.5)	1.25 (31.8)	0.55 (14.0)	1.75 (44.5)	2.50 (63.5)	3.38 (85.9)	4.00 (101.6)	1.00 (25.4)	0.34 (8.6)	7.57 (192.4)	0.69 (17.5)	0.50 (12.7)	1.00 (25.4)	HN-L-02
10NSS-MF12-3	MF12	0.516 (13.11)	3.00 (76.2)	1.50 (38.1)	0.60 (15.2)	2.25 (57.2)	3.19 (81.1)	4.25 (107.9)	10.25 (260.4)	1.19 (30.2)	0.44 (11.2)	8.92 (226.8)	0.88 (22.4)	0.63 (16.0)	1.38 (35.1)	HN-L-03
10NSS-MF16-3	MF16	0.688 (17.48)	4.12 (104.6)	2.06 (52.3)	0.74 (18.7)	2.81 (71.4)	4.11 (104.5)	5.25 (133.3)	10.25 (260.4)	1.62 (41.2)	0.56 (14.2)	11.62 (295.4)	1.25 (31.8)	1.13 (28.7)	1.75 (44.5)	HN-L-04

Ordering Information and Dimensions (Tubing Connection, 3-Way)



2 on pressure

Ordering Number	Connec-tion	Orifice in. (mm)	Dimensions, in. (mm)													Lockout Device Ordering Number
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness	
10NSS-MF9-4	MF9	0.359 (9.12)	2.50 (63.5)	1.25 (31.8)	0.55 (14.0)	2.38 (60.5)	1.75 (44.5)	3.63 (92.1)	4.00 (101.6)	1.00 (25.4)	0.34 (8.6)	6.95 (176.5)	0.69 (17.5)	0.50 (12.7)	1.00 (25.4)	HN-L-02
10NSS-MF12-4	MF12	0.516 (13.11)	3.00 (76.2)	1.50 (38.1)	0.60 (15.2)	3.00 (76.2)	2.25 (57.2)	4.63 (117.5)	10.25 (260.4)	1.19 (30.2)	0.44 (11.2)	8.11 (206.0)	0.88 (22.4)	0.63 (16.0)	1.38 (35.1)	HN-L-03
10NSS-MF16-4	MF16	0.688 (17.48)	4.12 (104.6)	2.06 (52.3)	0.74 (18.7)	3.75 (95.3)	2.81 (71.4)	5.88 (149.4)	10.25 (260.4)	1.62 (41.2)	0.56 (14.2)	10.58 (268.7)	1.25 (31.8)	1.13 (28.7)	1.75 (44.5)	HN-L-04

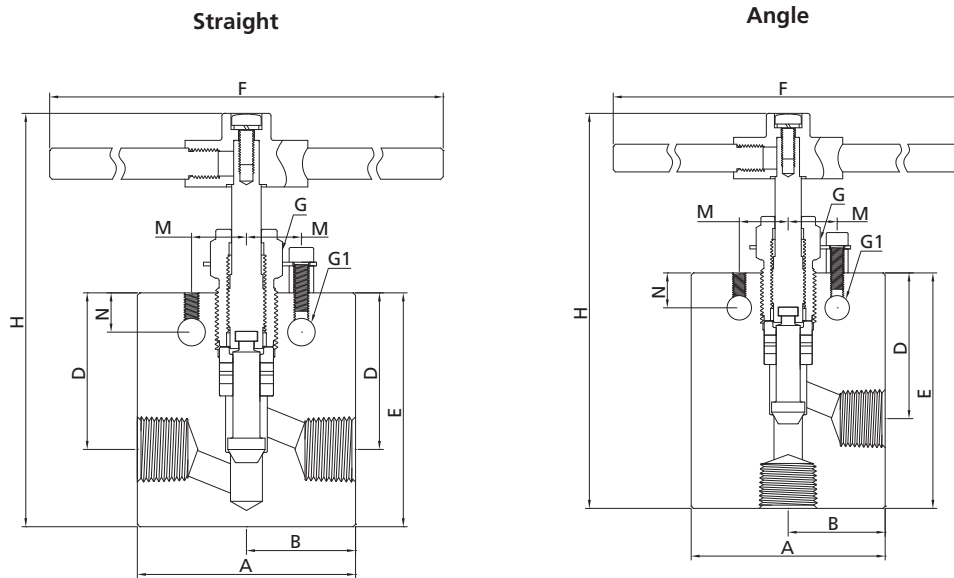
1 on pressure

Ordering Number	Connec-tion	Orifice in. (mm)	Dimensions, in. (mm)													Lockout Device Ordering Number
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness	
10NSS-MF9-5	MF9	0.359 (9.12)	2.50 (63.5)	1.25 (31.8)	0.55 (14.0)	1.75 (44.5)		3.38 (85.9)	4.00 (101.6)	1.00 (25.4)	0.34 (8.6)	6.70 (170.3)	0.69 (17.5)	0.50 (12.7)	1.00 (25.4)	HN-L-02
10NSS-MF12-5	MF12	0.516 (13.11)	3.00 (76.2)	1.50 (38.1)	0.60 (15.2)	2.25 (57.2)		4.25 (107.9)	10.25 (260.4)	1.19 (30.2)	0.44 (11.2)	7.73 (196.4)	0.88 (22.4)	0.63 (16.0)	1.38 (35.1)	HN-L-03
10NSS-MF16-5	MF16	0.688 (17.48)	4.12 (104.6)	2.06 (52.3)	0.74 (18.7)	2.81 (71.4)		5.12 (130.1)	10.25 (260.4)	1.62 (41.2)	0.56 (14.2)	9.95 (252.6)	1.25 (31.8)	1.13 (28.7)	1.75 (44.5)	HN-L-04

2 stem manifold

Ordering Number	Connec-tion	Orifice in. (mm)	Dimensions, in. (mm)													Lockout Device Ordering Number
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness	
10NSS-MF9-6	MF9	0.359 (9.12)	2.50 (63.5)	1.25 (31.8)	0.55 (14.0)	2.56 (65.1)	1.75 (44.5)	5.13 (130.2)	4.00 (101.6)	1.00 (25.4)	0.34 (8.6)	8.45 (214.6)	0.69 (17.5)	0.50 (12.7)	1.00 (25.4)	HN-L-02
10NSS-MF12-6	MF12	0.516 (13.11)	3.00 (76.2)	1.50 (38.1)	0.60 (15.2)	3.25 (82.6)	2.25 (57.2)	6.50 (165.1)	10.25 (260.4)	1.19 (30.2)	0.44 (11.2)	9.98 (253.5)	0.88 (22.4)	0.63 (16.0)	1.38 (35.1)	HN-L-03
10NSS-MF16-6	MF16	0.688 (17.48)	4.12 (104.6)	2.06 (52.3)	0.74 (18.7)	3.75 (95.3)	2.81 (71.4)	7.50 (190.5)	10.25 (260.4)	1.62 (41.2)	0.56 (14.2)	12.20 (310.1)	1.25 (31.8)	1.13 (28.7)	1.75 (44.5)	HN-L-04

Ordering Information and Dimensions (Pipe Connection, 2-Way)



Straight																
Ordering Number	Connection	Orifice in. (mm)	Dimensions, in. (mm)													Lockout Device Ordering Number
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness	
10NSS-FNS12-1	FNS12	0.437 (11.10)	3.50 (88.9)	1.75 (44.5)		2.63 (66.8)		3.75 (95.3)	10.25 (260.4)	1.19 (30.2)	0.44 (11.2)	7.42 (188.6)	0.88 (22.4)	0.63 (16.0)	1.75 (44.5)	HN-L-03
10NSS-FRT12-1	FRT12															
10NSS-FNS16-1	FNS16	0.562 (14.27)	4.12 (104.6)	2.06 (52.3)		3.31 (84.1)		4.62 (117.4)	10.25 (260.4)	1.62 (41.2)	0.56 (14.2)	9.45 (240.1)	1.25 (31.8)	1.13 (28.7)	1.75 (44.5)	HN-L-04
10NSS-FRT16-1	FRT16															

Angle																
Ordering Number	Connection	Orifice in. (mm)	Dimensions, in. (mm)													Lockout Device Ordering Number
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness	
10NSS-FNS12-2	FNS12	0.437 (11.10)	3.50 (88.9)	1.75 (44.5)		2.63 (66.8)		4.25 (107.9)	10.25 (260.4)	1.19 (30.2)	0.44 (11.2)	7.92 (201.3)	0.88 (22.4)	0.63 (16.0)	1.75 (44.5)	HN-L-03
10NSS-FRT12-2	FRT12															
10NSS-FNS16-2	FNS16	0.562 (14.27)	4.12 (104.6)	2.06 (52.3)		3.31 (84.1)		5.12 (130.1)	10.25 (260.4)	1.64 (41.2)	0.56 (14.2)	9.94 (252.5)	1.25 (31.8)	1.13 (28.7)	1.75 (44.5)	HN-L-04
10NSS-FRT16-2	FRT16															

Fittings

Tubing

Quick Couplings

Line Filters

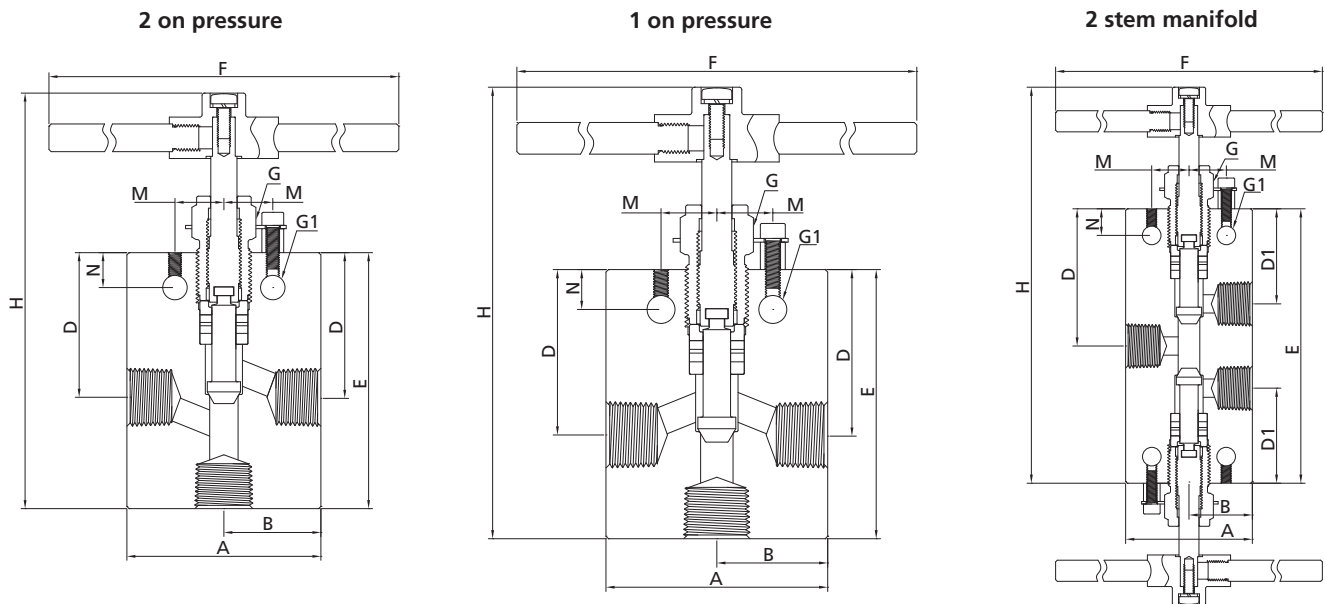
Valves

Sour Service Products

Subsea Valves

Part Number Crossover Charts

Ordering Information and Dimensions (Pipe Connection, 3-Way)



2 on pressure

Ordering Number	Connection	Orifice in. (mm)	Dimensions, in. (mm)													Lockout Device Ordering Number
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness	
10NSS-FNS12-4	FNS12	0.437 (11.10)	3.50 (88.9)	1.75 (44.5)		2.63 (66.8)		4.62 (117.4)	10.25 (260.4)	1.19 (30.2)	0.44 (11.2)	8.40 (213.4)	0.88 (22.4)	0.63 (16.0)	1.75 (44.5)	HN-L-03
10NSS-FRT12-4	FRT12															
10NSS-FNS16-4	FNS16	0.562 (14.27)	4.12 (104.6)	2.06 (52.3)		3.31 (84.1)		5.88 (149.4)	10.25 (260.4)	1.64 (41.2)	0.56 (14.2)	10.70 (271.7)	1.25 (31.8)	1.13 (28.7)	1.75 (44.5)	HN-L-04
10NSS-FRT16-4	FRT16															

1 on pressure

Ordering Number	Connection	Orifice in. (mm)	Dimensions, in. (mm)													Lockout Device Ordering Number
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness	
10NSS-FNS12-5	FNS12	0.437 (11.10)	3.50 (88.9)	1.75 (44.5)		2.63 (66.8)		4.25 (107.9)	10.25 (260.4)	1.19 (30.2)	0.44 (11.2)	7.92 (201.3)	0.88 (22.4)	0.63 (16.0)	1.75 (44.5)	HN-L-03
10NSS-FRT12-5	FRT12															
10NSS-FNS16-5	FNS16	0.562 (14.27)	4.12 (104.6)	2.06 (52.3)		3.31 (84.1)		5.12 (130.1)	10.25 (260.4)	1.62 (41.2)	0.56 (14.2)	9.94 (252.5)	1.25 (31.8)	1.13 (28.7)	1.75 (44.5)	HN-L-04
10NSS-FRT16-5	FRT16															

2 stem manifold

Ordering Number	Connection	Orifice in. (mm)	Dimensions, in. (mm)													Lockout Device Ordering Number
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness	
10NSS-FNS12-6	FNS12	0.437 (11.10)	3.50 (88.9)	1.75 (44.5)		3.25 (82.6)	2.25 (57.2)	6.50 (165.1)	10.25 (260.4)	1.19 (30.2)	0.44 (11.2)	10.28 (261.2)	0.88 (22.4)	0.63 (16.0)	1.75 (44.5)	HN-L-03
10NSS-FRT12-6	FRT12															
10NSS-FNS16-6	FNS16	0.562 (14.27)	4.12 (104.6)	2.06 (52.3)		3.75 (95.3)	2.81 (71.42)	7.50 (190.5)	10.25 (260.4)	1.62 (41.2)	0.56 (14.2)	12.32 (313.0)	1.25 (31.8)	1.13 (28.7)	1.75 (44.5)	HN-L-04
10NSS-FRT16-6	FRT16															

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. H is the dimension of stem in closed position.

5. All dimensions are for reference only and subject to change. For dimensions not shown above, please contact FITOK group or our authorized distributors.

15N Series: 15,000 psig (1034 bar)

Features

- ⦿ High tensile 316 stainless steel for valve body and S17400 stainless steel for lower stem
- ⦿ Metal-to-metal seating achieves ideal shutoff, longer stem/seat service lifetime for abrasive flow, excellent corrosion resistance and greater durability for repeated on/off cycles
- ⦿ Non-rotating stem and bar stock body design
- ⦿ Easy to assemble and replace packing
- ⦿ Reliable locking for packing gland
- ⦿ Options for Vee or Regulating stem tips
- ⦿ Five flow patterns available

Technical Data

Connection Size	Connection	Orifice in. (mm)	Cv	Working Pressure psig (bar)	Working Temperature Range
1/8" Female 20D Series Tube Fitting	DFF2	0.094 (2.39)	0.12	15, 000 (1034)	-100°F~800°F (-73°C~427°C)
1/4" Female 20D Series Tube Fitting	DFF4	0.188 (4.77)	0.65	15, 000 (1034)	
3/8" Female 20D Series Tube Fitting	DFF6	0.250 (6.35)	0.95	15, 000 (1034)	
1/2" Female 20D Series Tube Fitting	DFF8	0.375 (9.53)	1.90	15, 000 (1034)	
1/8" Female NPT	FNS2	0.078 (1.98)	0.11	15, 000 (1034)	-100°F~400°F (-73°C~204°C)
1/8" Female ISO Tapered Thread	FRT2				
1/4" Female NPT	FNS4	0.203 (5.16)	0.63	15, 000 (1034)	
1/4" Female ISO Tapered Thread	FRT4				
3/8" Female NPT	FNS6	0.219 (5.56)	0.75	15, 000 (1034)	
3/8" Female ISO Tapered Thread	FRT6				
1/2" Female NPT	FNS8	0.312 (7.92)	1.30	15, 000 (1034)	
1/2" Female ISO Tapered Thread	FRT8				

Notes: 1. Cv values shown are for 2-way straight valve pattern. For 2-way angle pattern, increase Cv value by 50% (based on water).

2. Packing Options

PTFE is the standard packing material, RPTFE glass and graphite also available. Graphite packing not recommended for hydrogen or helium service.

PTFE: -100°F~450°F (-73°C~232°C)

RPTFE glass: -100°F~600°F (-73°C~316°C)

Graphite: 0°F~800°F (-17.8°C~427°C)

Fittings

Tubing

Quick Couplings

Line Filters

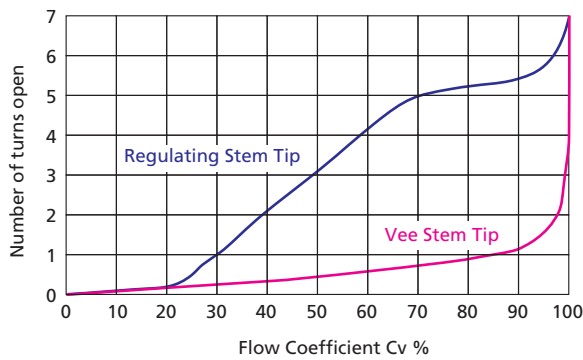
Valves

Sour Service Products

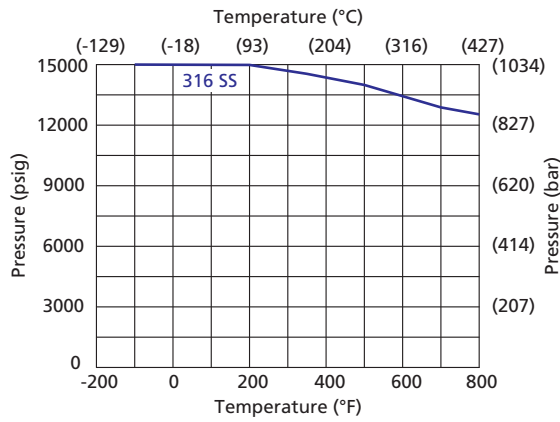
Subsea Valves

Part Number Crossover Charts

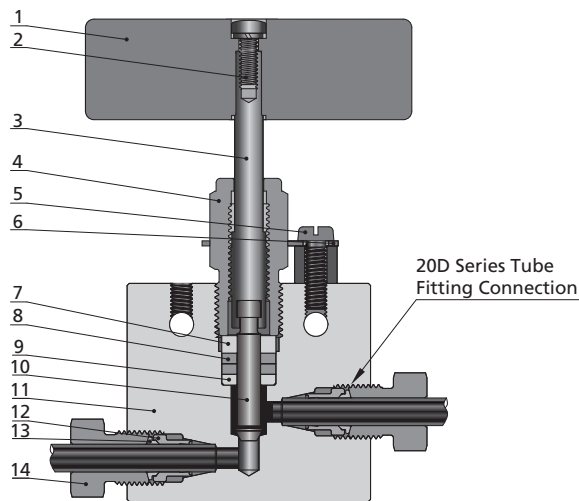
Flow Data at 100°F (38°C)



Pressure vs. Temperature Curve



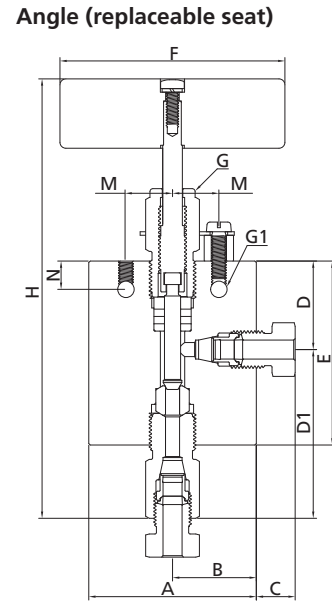
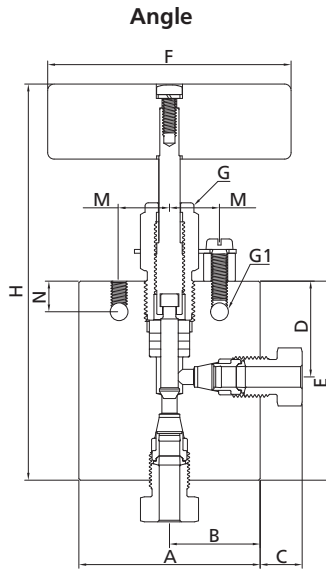
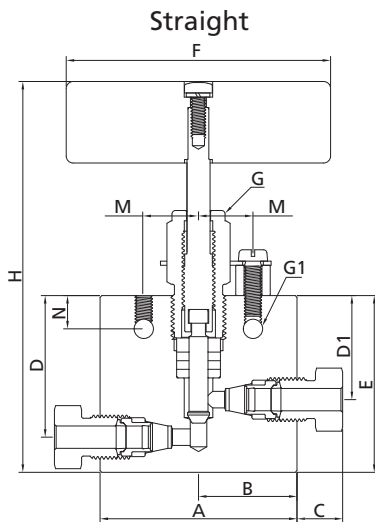
Standard Materials of Construction



Item	Component	Material Grade
1	Handle	Stainless Steel
2	Handle Screw	Stainless Steel
3	Upper Stem	316 SS
4	Packing Gland	C63000
5	Locking Screw	Stainless Steel
6	Locking Plate	304 SS
7	Packing Ring	C63000
8	<i>Packing</i>	<i>PTFE/RPTFE/Graphite</i>
9	<i>Packing Washer</i>	<i>S17400</i>
10	<i>Lower Stem</i>	<i>S17400</i>
11	<i>Body</i>	<i>316 SS</i>
12	<i>Front Ferrule</i>	<i>316 SS (For Tubing Connections)</i>
13	<i>Rear Ferrule</i>	<i>316 SS (For Tubing Connections)</i>
14	<i>Nut</i>	<i>316 SS (For Tubing Connections)</i>
	Lubricant	Molybdenum Disulfide

Wetted component listed in italics.

Ordering Information and Dimensions (Tubing Connection, 2-Way)



Straight

Ordering Number	Connec-tion	Orifice in. (mm)	Dimensions, in. (mm)													Lockout Device Ordering Number
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness	
15NSS-DFF2-1	DFF2	0.094 (2.39)	1.81 (46.1)	0.91 (23.1)	0.44 (11.2)	1.06 (27.0)	0.81 (20.6)	1.38 (35.0)	1.75 (44.5)	0.62 (15.8)	0.17 (4.3)	3.13 (79.6)	0.56 (14.2)	0.31 (7.9)	0.62 (15.8)	HN-L-00
15NSS-DFF4-1	DFF4	0.188 (4.77)	2.33 (59.2)	1.17 (29.6)	0.52 (13.3)	1.62 (41.2)	1.19 (30.2)	2.00 (50.8)	3.00 (76.2)	0.75 (19.1)	0.22 (5.6)	4.90 (124.5)	0.62 (15.8)	0.38 (9.7)	0.75 (19.1)	HN-L-01
15NSS-DFF6-1	DFF6	0.250 (6.35)	2.27 (57.6)	1.13 (28.8)	0.54 (13.6)	1.62 (41.2)	1.19 (30.2)	2.00 (50.8)	3.00 (76.2)	0.75 (19.1)	0.22 (5.6)	4.97 (126.3)	0.62 (15.8)	0.38 (9.7)	0.75 (19.1)	
15NSS-DFF8-1	DFF8	0.375 (9.53)	2.86 (72.7)	1.43 (36.4)	0.60 (15.3)	2.37 (60.3)	1.75 (44.5)	2.88 (73.2)	4.00 (101.6)	1.00 (25.4)	0.34 (8.6)	6.21 (157.7)	0.69 (17.5)	0.50 (12.7)	1.00 (25.4)	HN-L-02

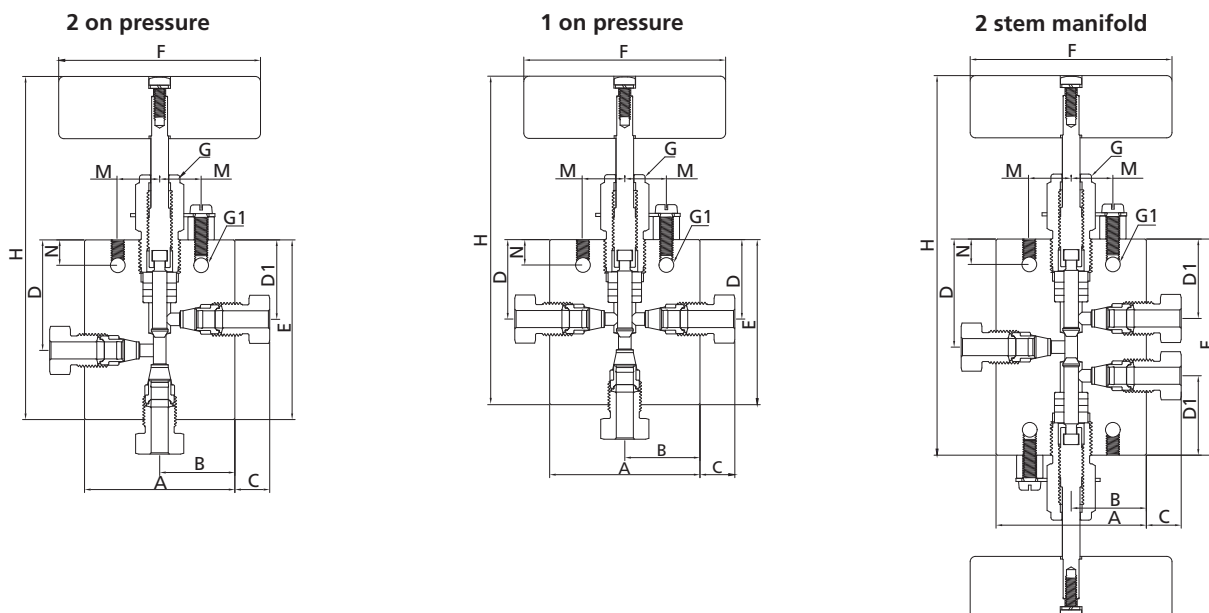
Angle

Ordering Number	Connec-tion	Orifice in. (mm)	Dimensions, in. (mm)													Lockout Device Ordering Number
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness	
15NSS-DFF2-2	DFF2	0.094 (2.39)	1.81 (46.1)	0.91 (23.1)	0.44 (11.2)	0.81 (20.6)		1.72 (43.6)	1.75 (44.5)	0.62 (15.8)	0.17 (4.3)	3.47 (88.2)	0.56 (14.2)	0.31 (7.9)	0.62 (15.8)	HN-L-00
15NSS-DFF4-2	DFF4	0.188 (4.77)	2.33 (59.2)	1.17 (29.6)	0.52 (13.3)	1.19 (30.2)		2.60 (66.0)	3.00 (76.2)	0.75 (19.1)	0.22 (5.6)	5.50 (139.7)	0.62 (15.8)	0.38 (9.7)	0.75 (19.1)	HN-L-01
15NSS-DFF6-2	DFF6	0.250 (6.35)	2.27 (57.6)	1.13 (28.8)	0.54 (13.6)	1.19 (30.2)		2.56 (65.0)	3.00 (76.2)	0.75 (19.1)	0.22 (5.6)	5.53 (140.5)	0.62 (15.8)	0.38 (9.7)	0.75 (19.1)	
15NSS-DFF8-2	DFF8	0.375 (9.53)	2.86 (72.7)	1.43 (36.4)	0.60 (15.3)	1.75 (44.5)		3.56 (90.5)	4.00 (101.6)	1.00 (25.4)	0.34 (8.6)	6.89 (175.0)	0.69 (17.5)	0.50 (12.7)	1.00 (25.4)	HN-L-02

Angle (replaceable seat)

Ordering Number	Connec-tion	Orifice in. (mm)	Dimensions, in. (mm)													Lockout Device Ordering Number
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness	
15NSS-DFF2-3	DFF2	0.094 (2.39)	1.81 (46.1)	0.91 (23.1)	0.44 (11.2)	0.81 (20.6)	1.44 (36.5)	1.56 (39.7)	1.75 (44.5)	0.62 (15.8)	0.17 (4.3)	4.00 (101.6)	0.56 (14.2)	0.31 (7.9)	0.62 (15.8)	HN-L-00
15NSS-DFF4-3	DFF4	0.188 (4.77)	2.33 (59.2)	1.17 (29.6)	0.52 (13.3)	1.19 (30.2)	2.05 (52.0)	2.25 (57.2)	3.00 (76.2)	0.75 (19.1)	0.22 (5.6)	6.13 (155.8)	0.62 (15.8)	0.38 (9.7)	0.75 (19.1)	HN-L-01
15NSS-DFF6-3	DFF6	0.250 (6.35)	2.27 (57.6)	1.13 (28.8)	0.54 (13.6)	1.19 (30.2)	2.32 (59.0)	2.25 (57.2)	3.00 (76.2)	0.75 (19.1)	0.22 (5.6)	6.48 (164.7)	0.62 (15.8)	0.38 (9.7)	0.75 (19.1)	
15NSS-DFF8-3	DFF8	0.375 (9.53)	2.86 (72.7)	1.43 (36.4)	0.60 (15.3)	1.75 (44.5)	2.68 (68.1)	3.25 (82.6)	4.00 (101.6)	1.00 (25.4)	0.34 (8.6)	7.72 (196.1)	0.69 (17.5)	0.50 (12.7)	1.00 (25.4)	HN-L-02

Ordering Information and Dimensions (Tubing Connection, 3-Way)



2 on pressure

Ordering Number	Conne- ction	Orifice in. (mm)	Dimensions, in. (mm)													Lockout Device Ordering Number
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness	
15NSS-DFF2-4	DFF2	0.094 (2.39)	1.81 (46.1)	0.91 (23.1)	0.44 (11.2)	1.06 (27.0)	0.81 (20.6)	1.85 (46.9)	1.75 (44.5)	0.62 (15.8)	0.17 (4.3)	3.60 (91.5)	0.56 (14.2)	0.31 (7.9)	0.62 (15.8)	HN-L-00
15NSS-DFF4-4	DFF4	0.188 (4.77)	2.33 (59.2)	1.17 (29.6)	0.52 (13.3)	1.62 (41.2)	1.19 (30.2)	2.79 (70.8)	3.00 (76.2)	0.75 (19.1)	0.22 (5.6)	5.56 (144.5)	0.62 (15.8)	0.38 (9.7)	0.75 (19.1)	HN-L-01
15NSS-DFF6-4	DFF6	0.250 (6.35)	2.27 (57.6)	1.13 (28.8)	0.54 (13.6)	1.62 (41.2)	1.19 (30.2)	2.76 (70.0)	3.00 (76.2)	0.75 (19.1)	0.22 (5.6)	5.73 (145.5)	0.62 (15.8)	0.38 (9.7)	0.75 (19.1)	
15NSS-DFF8-4	DFF8	0.375 (9.53)	2.86 (72.7)	1.43 (36.4)	0.60 (15.3)	2.37 (60.3)	1.75 (44.5)	3.80 (96.6)	4.00 (101.6)	1.00 (25.4)	0.34 (8.6)	7.14 (181.3)	0.69 (17.5)	0.50 (12.7)	1.00 (25.4)	HN-L-02

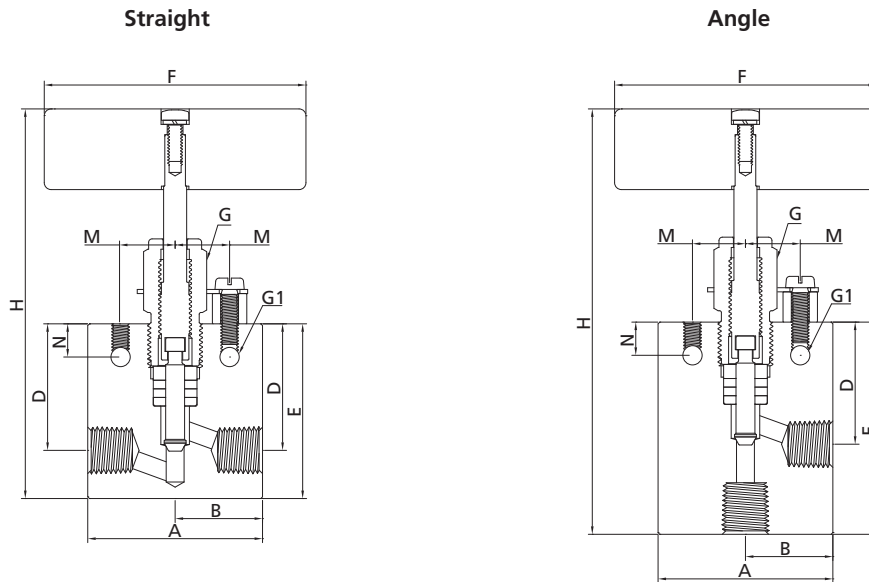
1 on pressure

Ordering Number	Conne- ction	Orifice in. (mm)	Dimensions, in. (mm)													Lockout Device Ordering Number
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness	
15NSS-DFF2-5	DFF2	0.094 (2.39)	1.81 (46.1)	0.91 (23.1)	0.44 (11.2)	0.81 (20.6)		1.72 (43.6)	1.75 (44.5)	0.62 (15.8)	0.17 (4.3)	3.47 (88.2)	0.56 (14.2)	0.31 (7.9)	0.62 (15.8)	HN-L-00
15NSS-DFF4-5	DFF4	0.188 (4.77)	2.33 (59.2)	1.17 (29.6)	0.52 (13.3)	1.19 (30.2)		2.60 (66.0)	3.00 (76.2)	0.75 (19.1)	0.22 (5.6)	5.50 (139.7)	0.62 (15.8)	0.38 (9.7)	0.75 (19.1)	HN-L-01
15NSS-DFF6-5	DFF6	0.250 (6.35)	2.27 (57.6)	1.13 (28.8)	0.54 (13.6)	1.19 (30.2)		2.56 (65.0)	3.00 (76.2)	0.75 (19.1)	0.22 (5.6)	5.53 (140.5)	0.62 (15.8)	0.38 (9.7)	0.75 (19.1)	
15NSS-DFF8-5	DFF8	0.375 (9.53)	2.86 (72.7)	1.43 (36.4)	0.60 (15.3)	1.75 (44.5)		3.56 (90.5)	4.00 (101.6)	1.00 (25.4)	0.34 (8.6)	6.89 (175.0)	0.69 (17.5)	0.50 (12.7)	1.00 (25.4)	HN-L-02

2 stem manifold

Ordering Number	Conne- ction	Orifice in. (mm)	Dimensions, in. (mm)													Lockout Device Ordering Number
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness	
15NSS-DFF2-6	DFF2	0.094 (2.39)	1.81 (46.1)	0.91 (23.1)	0.44 (11.2)	1.13 (28.6)	0.81 (20.6)	2.25 (57.2)	1.75 (44.5)	0.62 (15.8)	0.17 (4.3)	4.00 (101.8)	0.56 (14.2)	0.31 (7.9)	0.62 (15.8)	HN-L-00
15NSS-DFF4-6	DFF4	0.188 (4.77)	2.33 (59.2)	1.17 (29.6)	0.52 (13.3)	1.69 (42.9)	1.19 (30.2)	3.38 (85.8)	3.00 (76.2)	0.75 (19.1)	0.22 (5.6)	6.28 (159.6)	0.62 (15.8)	0.38 (9.7)	0.75 (19.1)	HN-L-01
15NSS-DFF6-6	DFF6	0.250 (6.35)	2.27 (57.6)	1.13 (28.8)	0.54 (13.6)	1.69 (42.9)	1.19 (30.2)	3.38 (85.8)	3.00 (76.2)	0.75 (19.1)	0.22 (5.6)	6.35 (161.3)	0.62 (15.8)	0.38 (9.7)	0.75 (19.1)	
15NSS-DFF8-6	DFF8	0.375 (9.53)	2.86 (72.7)	1.43 (36.4)	0.60 (15.3)	2.56 (65.1)	1.75 (44.5)	5.13 (130.2)	4.00 (101.6)	1.00 (25.4)	0.34 (8.6)	8.45 (214.7)	0.69 (17.5)	0.50 (12.7)	1.00 (25.4)	HN-L-02

Ordering Information and Dimensions (Pipe Connection, 2-Way)

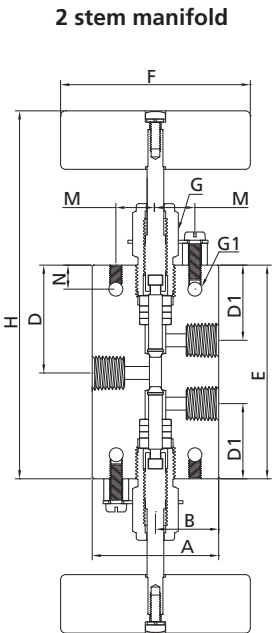
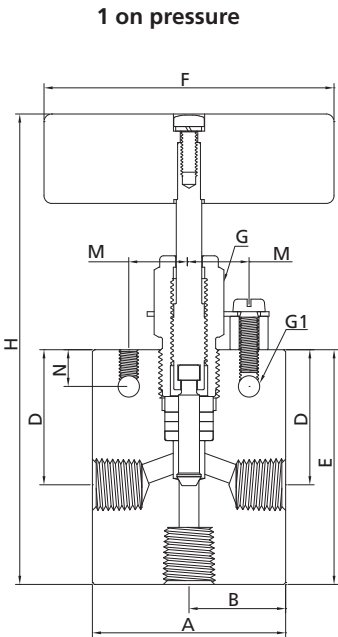
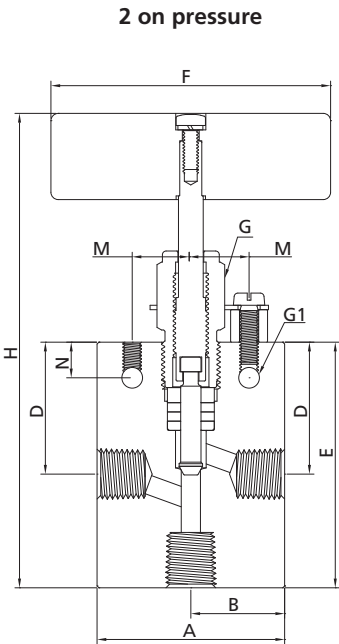


Straight																
Ordering Number	Connection	Orifice in. (mm)	Dimensions, in. (mm)													Lockout Device Ordering Number
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness	
15NSS-FNS2-1	FNS2	0.078 (1.98)	1.50 (38.1)	0.75 (19.1)		0.82 (20.6)		1.25 (31.8)	1.75 (44.5)	0.62 (15.8)	0.17 (4.3)	3.00 (76.4)	0.56 (14.2)	0.31 (7.9)	0.63 (15.9)	HN-L-00
15NSS-FRT2-1	FRT2															
15NSS-FNS4-1	FNS4	0.203 (5.2)	2.00 (50.8)	1.00 (25.4)		1.41 (35.8)		2.00 (50.8)	3.00 (76.2)	0.75 (19.1)	0.22 (5.6)	4.89 (124.1)	0.62 (15.8)	0.38 (9.7)	0.75 (19.1)	HN-L-01
15NSS-FRT4-1	FRT4															
15NSS-FNS6-1	FNS6	0.219 (5.56)	2.50 (63.5)	1.25 (31.8)		1.41 (35.8)		2.00 (50.8)	3.00 (76.2)	0.75 (19.1)	0.22 (5.6)	4.82 (122.5)	0.62 (15.8)	0.38 (9.7)	1.00 (25.4)	HN-L-02
15NSS-FRT6-1	FRT6															
15NSS-FNS8-1	FNS8	0.312 (7.92)	3.00 (76.2)	1.50 (38.1)		2.06 (52.3)		2.88 (73.2)	4.00 (101.6)	1.00 (25.4)	0.34 (8.6)	6.18 (157.2)	0.69 (17.5)	0.50 (12.7)	1.38 (35.1)	HN-L-02
15NSS-FRT8-1	FRT8															

Angle																
Ordering Number	Connection	Orifice in. (mm)	Dimensions, in. (mm)													Lockout Device Ordering Number
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness	
15NSS-FNS2-2	FNS2	0.078 (1.98)	1.50 (38.1)	0.75 (19.1)		0.81 (20.6)		1.38 (34.9)	1.75 (44.5)	0.62 (15.8)	0.17 (4.3)	3.13 (79.5)	0.56 (14.2)	0.31 (7.9)	0.63 (15.9)	HN-L-00
15NSS-FRT2-2	FRT2															
15NSS-FNS4-2	FNS4	0.203 (5.2)	2.00 (50.8)	1.00 (25.4)		1.41 (35.8)		2.44 (62.0)	3.00 (76.2)	0.75 (19.1)	0.22 (5.6)	5.33 (135.4)	0.62 (15.8)	0.38 (9.7)	0.75 (19.1)	HN-L-01
15NSS-FRT4-2	FRT4															
15NSS-FNS6-2	FNS6	0.219 (5.56)	2.50 (63.5)	1.25 (31.8)		1.41 (35.8)		2.44 (62.0)	3.00 (76.2)	0.75 (19.1)	0.22 (5.6)	5.34 (135.7)	0.62 (15.8)	0.38 (9.7)	1.00 (25.4)	HN-L-02
15NSS-FRT6-2	FRT6															
15NSS-FNS8-2	FNS8	0.312 (7.92)	3.00 (76.2)	1.50 (38.1)		2.06 (52.3)		3.38 (85.9)	4.00 (101.6)	1.00 (25.4)	0.34 (8.6)	6.69 (169.9)	0.69 (17.5)	0.50 (12.7)	1.38 (35.1)	HN-L-02
15NSS-FRT8-2	FRT8															

Ordering Information and Dimensions (Pipe Connection, 3-Way)

Fittings
Tubing
Quick Couplings
Line Filters
Valves
Sour Service Products
Subsea Valves
Part Number Crossover Charts



2 on pressure																
Ordering Number	Connec-tion	Orifice in. (mm)	Dimensions, in. (mm)													Lockout Device Ordering Number
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness	
15NSS-FNS2-4	FNS2	0.078 (1.98)	1.50 (38.1)	0.75 (19.1)		0.82 (20.6)		1.57 (40.0)	1.75 (44.5)	0.62 (15.8)	0.17 (4.3)	3.33 (84.6)	0.56 (14.2)	0.31 (7.9)	0.63 (15.9)	HN-L-00
15NSS-FRT2-4	FRT2															
15NSS-FNS4-4	FNS4	0.203 (5.2)	2.00 (50.8)	1.00 (25.4)		1.41 (35.8)		2.62 (66.6)	3.00 (76.2)	0.75 (19.1)	0.22 (5.6)	5.51 (140.0)	0.62 (15.8)	0.38 (9.7)	0.75 (19.1)	HN-L-01
15NSS-FRT4-4	FRT4															
15NSS-FNS6-4	FNS6	0.219 (5.56)	2.50 (63.5)	1.25 (31.8)		1.41 (35.8)		2.62 (66.6)	3.00 (76.2)	0.75 (19.1)	0.22 (5.6)	5.47 (138.9)	0.62 (15.8)	0.38 (9.7)	1.00 (25.4)	HN-L-02
15NSS-FRT6-4	FRT6															
15NSS-FNS8-4	FNS8	0.312 (7.92)	3.00 (76.2)	1.50 (38.1)		2.06 (52.3)		3.62 (92.0)	4.00 (101.6)	1.00 (25.4)	0.34 (8.6)	6.94 (176.26)	0.69 (17.5)	0.50 (12.7)	1.38 (35.1)	HN-L-02
15NSS-FRT8-4	FRT8															

1 on pressure																
Ordering Number	Connec-tion	Orifice in. (mm)	Dimensions, in. (mm)													Lockout Device Ordering Number
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness	
15NSS-FNS2-5	FNS2	0.078 (1.98)	1.50 (38.1)	0.75 (19.1)		0.82 (20.6)		1.38 (35.0)	1.75 (44.5)	0.62 (15.8)	0.17 (4.3)	3.13 (79.5)	0.56 (14.2)	0.31 (7.9)	0.63 (15.9)	HN-L-00
15NSS-FRT2-5	FRT2															
15NSS-FNS4-5	FNS4	0.203 (5.2)	2.00 (50.8)	1.00 (25.4)		1.41 (35.8)		2.44 (62.0)	3.00 (76.2)	0.75 (19.1)	0.22 (5.6)	5.33 (135.4)	0.62 (15.8)	0.38 (9.7)	0.75 (19.1)	HN-L-01
15NSS-FRT4-5	FRT4															
15NSS-FNS6-5	FNS6	0.219 (5.56)	2.50 (63.5)	1.25 (31.8)		1.41 (35.8)		2.44 (62.0)	3.00 (76.2)	0.75 (19.1)	0.22 (5.6)	5.34 (135.7)	0.62 (15.8)	0.38 (9.7)	1.00 (25.4)	HN-L-02
15NSS-FRT6-5	FRT6															
15NSS-FNS8-5	FNS8	0.312 (7.92)	3.00 (76.2)	1.50 (38.1)		2.06 (52.3)		3.38 (85.9)	4.00 (101.6)	1.00 (25.4)	0.34 (8.6)	6.69 (169.9)	0.69 (17.5)	0.50 (12.7)	1.38 (35.1)	HN-L-02
15NSS-FRT8-5	FRT8															

2 stem manifold																
Ordering Number	Connec- tion	Orifice in. (mm)	Dimensions, in. (mm)													Lockout Device Ordering Number
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness	
15NSS-FNS2-6	FNS2	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)	0.62 (15.8)	0.17 (4.3)	3.77 (95.8)	0.56 (14.2)	0.31 (7.9)	0.63 (15.9)	HN-L-00
15NSS-FRT2-6	FRT2															
15NSS-FNS4-6	FNS4	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)	6.27 (159.2)	0.62 (15.8)	0.38 (9.7)	0.75 (19.1)	HN-L-01
15NSS-FRT4-6	FRT4															
15NSS-FNS6-6	FNS6	0.219 (5.56)	2.50 (63.5)	1.25 (31.8)		1.69 (42.9)	1.19 (30.2)	3.38 (85.9)	3.00 (76.2)	0.75 (19.1)	0.22 (5.6)	6.22 (158.1)	0.62 (15.8)	0.38 (9.7)	1.00 (25.4)	HN-L-02
15NSS-FRT6-6	FRT6															
15NSS-FNS8-6	FNS8	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)	8.43 (214.2)	0.69 (17.5)	0.50 (12.7)	1.38 (35.1)	HN-L-02
15NSS-FRT8-6	FRT8															

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. H is the dimension of stem in closed position.

5. All dimensions are for reference only and subject to change. For dimensions not shown above, please contact FITOK Group or our authorized distributors.

Fittings

Tubing

Quick Couplings

Line Filters

Valves

Sour Service
Products

Subsea Valves

Part Number
Crossover Charts

20N Series: 20,000 psig (1379 bar)

Features

- High tensile 316 stainless steel for valve body and S17400 stainless steel for lower stem
- Metal-to-metal seating achieves ideal shutoff, longer stem/seat service lifetime for abrasive flow, excellent corrosion resistance and greater durability for repeated on/off cycles
- Non-rotating stem and bar stock body design
- Easy to assemble and replace packing
- Reliable locking for packing gland
- Options for Vee or Regulating stem tips
- Five flow patterns available

Technical Data

Tube O.D. in.	Connection	Orifice in. (mm)	Cv	Working Pressure psig (bar)	Working Temperature Range
1/4	MF4	0.125 (3.18)	0.31	20,000 (1379)	-100°F~1200°F (-73°C~649°C)
3/8	MF6	0.204 (5.18)	0.68	20,000 (1379)	
9/16	MF9	0.312 (7.92)	1.30	20,000 (1379)	
3/4	MF12	0.438 (11.13)	2.50	20,000 (1379)	
1	MF16	0.562 (14.27)	4.40	20,000 (1379)	

Notes: 1. Cv values shown are for 2-way straight valve pattern. For 2-way angle pattern, increase Cv value by 50% (based on water).

2. Packing Options

PTFE is the standard packing material, RPTFE glass, graphite and extended stuffing box with graphite also available.

Graphite packing not recommended for hydrogen or helium service.

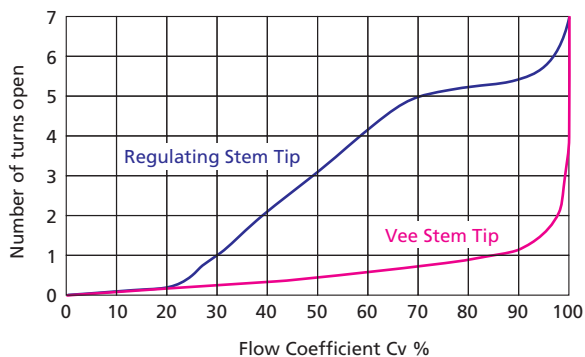
PTFE: -100°F~450°F (-73°C~232°C)

RPTFE glass: -100°F~600°F (-73°C~316°C)

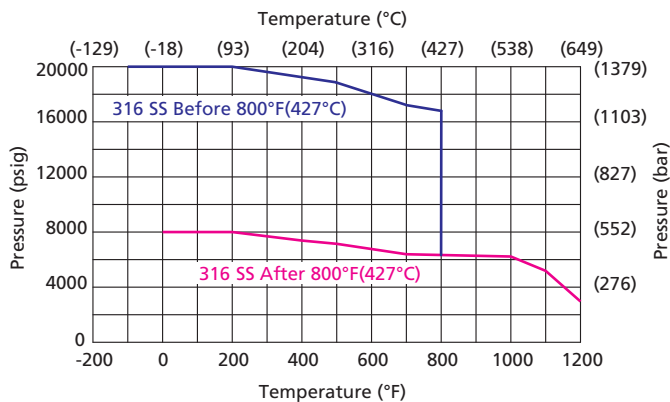
Graphite: 0°F~800°F (-17.8°C~427°C)

Extended stuffing box with graphite: -100°F~1200°F (-73°C~649°C)

Flow Data at 100°F (38°C)

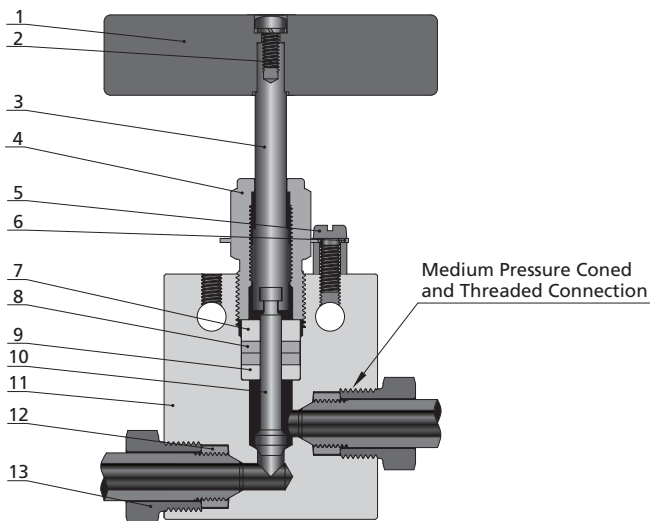


Pressure vs. Temperature Curve



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

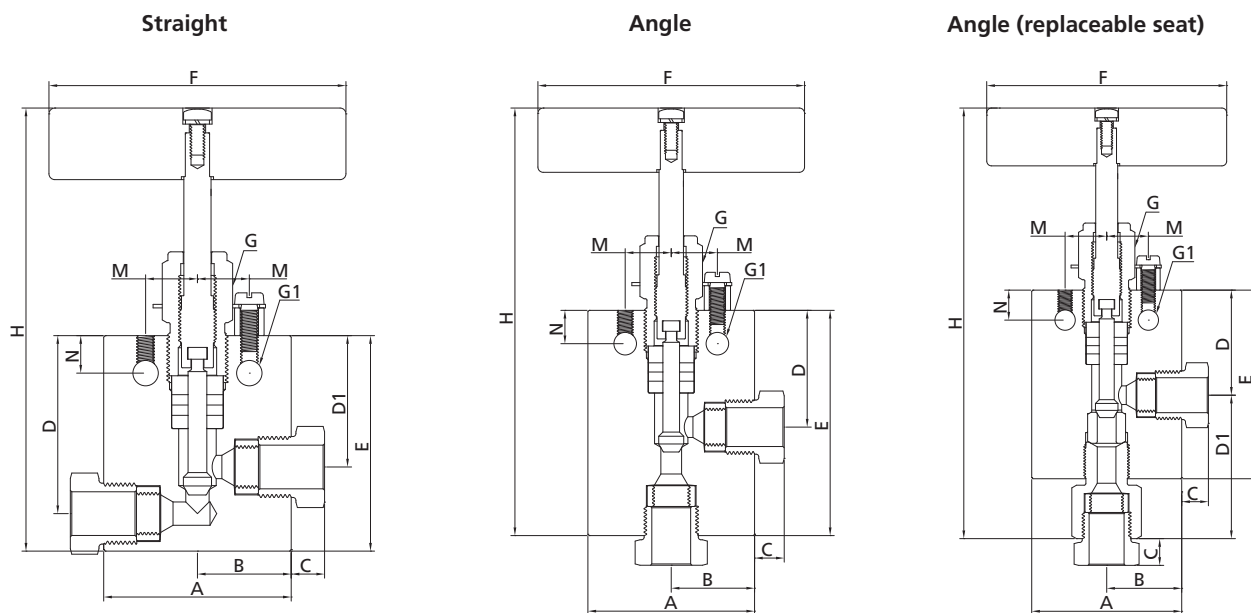
Standard Materials of Construction



Item	Component	Material Grade
1	Handle	Stainless Steel
2	Handle Screw	Stainless Steel
3	Upper Stem	316 SS
4	Packing Gland	C63000
5	Locking Screw	Stainless Steel
6	Locking Plate	304 SS
7	Packing Ring	C63000
8	<i>Packing</i>	<i>PTFE/RPTFE Glass/Graphite/Extended Stuffing Box with Graphite</i>
9	<i>Packing Washer</i>	<i>S17400</i>
10	<i>Lower Stem</i>	<i>S17400</i>
11	Body	316 SS
12	Collar	316 SS (For Tubing Connections)
13	Gland	316 SS (For Tubing Connections)
Lubricant		Molybdenum Disulfide

Wetted component listed in italics.

Ordering Information and Dimensions (Tubing Connection, 2-Way)

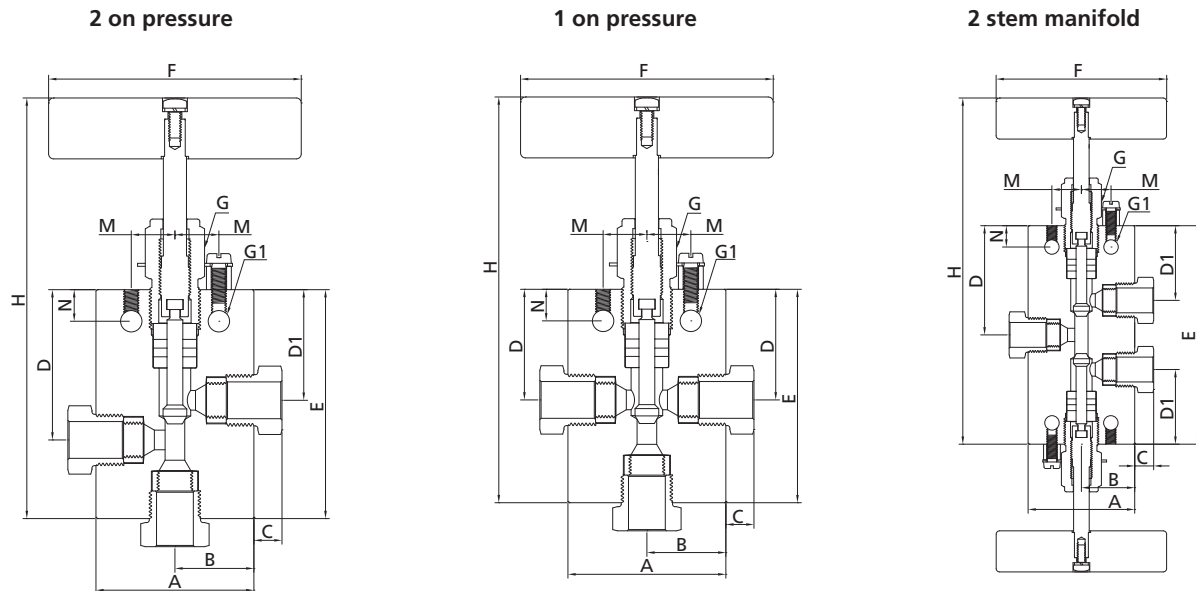


Straight																
Ordering Number	Connec-tion	Orifice in. (mm)	Dimensions, in. (mm)													Lockout Device Ordering Number
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness	
20NSS-MF4-1	MF4	0.125 (3.18)	2.00 (50.8)	1.00 (25.4)	0.38 (9.7)	1.62 (41.2)	1.19 (30.2)	2.00 (50.8)	3.00 (76.2)	0.75 (19.1)	0.22 (5.6)	4.85 (123.1)	0.62 (15.8)	0.38 (9.7)	0.75 (19.1)	HN-L-01
20NSS-MF6-1	MF6	0.204 (5.18)	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)	4.89 (124.2)	0.62 (15.8)	0.38 (9.7)	0.75 (19.1)	
20NSS-MF9-1	MF9	0.312 (7.92)	2.50 (63.5)	1.25 (31.8)	0.55 (14.0)	2.37 (60.3)	1.75 (44.5)	2.88 (73.2)	4.00 (101.6)	1.00 (25.4)	0.34 (8.6)	6.18 (157.2)	0.69 (17.5)	0.50 (12.7)	1.00 (25.4)	HN-L-02
20NSS-MF12-1	MF12	0.438 (11.13)	3.00 (76.2)	1.50 (38.1)	0.60 (15.2)	3.00 (76.2)	2.25 (57.2)	3.75 (95.3)	10.25 (260.4)	1.19 (30.2)	0.44 (11.2)	7.37 (187.2)	0.88 (22.4)	0.63 (16.0)	1.38 (35.1)	HN-L-03
20NSS-MF16-1	MF16	0.562 (14.27)	4.12 (104.6)	2.06 (52.3)	0.74 (18.7)	3.75 (95.3)	2.81 (71.4)	4.63 (117.6)	10.25 (260.4)	1.62 (41.2)	0.56 (14.2)	9.45 (240.1)	1.25 (31.8)	1.13 (28.7)	1.75 (44.5)	HN-L-04

Angle																
Ordering Number	Connec-tion	Orifice in. (mm)	Dimensions, in. (mm)													Lockout Device Ordering Number
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness	
20NSS-MF4-2	MF4	0.125 (3.18)	2.00 (50.8)	1.00 (25.4)	0.38 (9.7)	1.19 (30.2)		2.44 (61.9)	3.00 (76.2)	0.75 (19.1)	0.22 (5.6)	5.28 (134.2)	0.62 (15.8)	0.38 (9.7)	0.75 (19.1)	HN-L-01
20NSS-MF6-2	MF6	0.204 (5.18)	2.00 (50.8)	1.00 (25.4)	0.44 (11.2)	1.19 (30.2)		2.44 (61.9)	3.00 (76.2)	0.75 (19.1)	0.22 (5.6)	5.33 (135.4)	0.62 (15.8)	0.38 (9.7)	0.75 (19.1)	
20NSS-MF9-2	MF9	0.312 (7.92)	2.50 (63.5)	1.25 (31.8)	0.55 (14.0)	1.75 (44.5)		3.38 (85.9)	4.00 (101.6)	1.00 (25.4)	0.34 (8.6)	6.69 (170.0)	0.69 (17.5)	0.50 (12.7)	1.00 (25.4)	HN-L-02
20NSS-MF12-2	MF12	0.438 (11.13)	3.00 (76.2)	1.50 (38.1)	0.60 (15.2)	2.25 (57.2)		4.25 (108.0)	10.25 (260.4)	1.19 (30.2)	0.44 (11.2)	7.87 (199.9)	0.88 (22.4)	0.63 (16.0)	1.38 (35.1)	HN-L-03
20NSS-MF16-2	MF16	0.562 (14.27)	4.12 (104.6)	2.06 (52.3)	0.74 (18.7)	2.81 (71.4)		5.12 (130.1)	10.25 (260.4)	1.62 (41.2)	0.56 (14.2)	9.94 (252.6)	1.25 (31.8)	1.13 (28.7)	1.75 (44.5)	HN-L-04

Angle (replaceable seat)																
Ordering Number	Connec- tion	Orifice in. (mm)	Dimensions, in. (mm)													Lockout Device Ordering Number
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness	
20NSS-MF4-3	MF4	0.125 (3.18)	2.00 (50.8)	1.00 (25.4)	0.38 (9.7)	1.19 (30.2)	2.13 (54.0)	2.25 (57.2)	3.00 (76.2)	0.75 (19.1)	0.22 (5.6)	6.10 (154.9)	0.62 (15.8)	0.38 (9.7)	0.75 (19.1)	HN-L-01
20NSS-MF6-3	MF6	0.204 (5.18)	2.00 (50.8)	1.00 (25.4)	0.44 (11.2)	1.19 (30.2)	2.13 (54.0)	2.25 (57.2)	3.00 (76.2)	0.75 (19.1)	0.22 (5.6)	6.16 (156.5)	0.62 (15.8)	0.38 (9.7)	0.75 (19.1)	
20NSS-MF9-3	MF9	0.312 (7.92)	2.50 (63.5)	1.25 (31.8)	0.55 (14.0)	1.75 (44.5)	2.50 (63.5)	3.13 (79.4)	4.00 (101.6)	1.00 (25.4)	0.34 (8.6)	7.58 (192.1)	0.69 (17.5)	0.50 (12.7)	1.00 (25.4)	HN-L-02
20NSS-MF12-3	MF12	0.438 (11.13)	3.00 (76.2)	1.50 (38.1)	0.60 (15.2)	2.25 (57.2)	3.44 (87.4)	4.25 (108.0)	10.25 (260.4)	1.19 (30.2)	0.44 (11.2)	9.30 (236.3)	0.88 (22.4)	0.63 (16.0)	1.38 (35.1)	HN-L-03
20NSS-MF16-3	MF16	0.562 (14.27)	4.12 (104.6)	2.06 (52.3)	0.74 (18.7)	2.81 (71.4)	4.22 (107.4)	5.25 (133.4)	10.25 (260.4)	1.62 (41.2)	0.56 (14.2)	11.86 (301.3)	1.25 (31.8)	1.13 (28.7)	1.75 (44.5)	HN-L-04

Ordering Information and Dimensions (Tubing Connection, 3-Way)



2 on pressure																
Ordering Number	Connec- tion	Orifice in. (mm)	Dimensions, in. (mm)													Lockout Device Ordering Number
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness	
20NSS-MF4-4	MF4	0.125 (3.18)	2.00 (50.8)	1.00 (25.4)	0.38 (9.7)	1.63 (41.3)	1.19 (30.2)	2.63 (66.7)	3.00 (76.2)	0.75 (19.1)	0.22 (5.6)	5.47 (139.0)	0.62 (15.8)	0.38 (9.7)	0.75 (19.1)	HN-L-01
20NSS-MF6-4	MF6	0.204 (5.18)	2.00 (50.8)	1.00 (25.4)	0.44 (11.2)	1.63 (41.3)	1.19 (30.2)	2.63 (66.7)	3.00 (76.2)	0.75 (19.1)	0.22 (5.6)	5.52 (140.1)	0.62 (15.8)	0.38 (9.7)	0.75 (19.1)	
20NSS-MF9-4	MF9	0.312 (7.92)	2.50 (63.5)	1.25 (31.8)	0.55 (14.0)	2.37 (60.3)	1.75 (44.5)	3.63 (92.1)	4.00 (101.6)	1.00 (25.4)	0.34 (8.6)	6.94 (176.3)	0.69 (17.5)	0.50 (12.7)	1.00 (25.4)	HN-L-02
20NSS-MF12-4	MF12	0.438 (11.13)	3.00 (76.2)	1.50 (38.1)	0.60 (15.2)	3.00 (76.2)	2.25 (57.2)	4.63 (117.5)	10.25 (260.4)	1.19 (30.2)	0.44 (11.2)	8.24 (209.4)	0.88 (22.4)	0.63 (16.0)	1.38 (35.1)	HN-L-03
20NSS-MF16-4	MF16	0.562 (14.27)	4.12 (104.6)	2.06 (52.3)	0.74 (18.7)	3.75 (95.3)	2.81 (71.4)	5.88 (149.4)	10.25 (260.4)	1.62 (41.2)	0.56 (14.2)	10.70 (271.9)	1.25 (31.8)	1.13 (28.7)	1.75 (44.5)	HN-L-04

E-30 Needle Valves and Pneumatic Needle Valves

1 on pressure																
Ordering Number	Conne- ction	Orifice in. (mm)	Dimensions, in. (mm)													Lockout Device Ordering Number
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness	
20NSS-MF4-5	MF4	0.125 (3.18)	2.00 (50.8)	1.00 (25.4)	0.38 (9.7)	1.19 (30.2)		2.44 (61.9)	3.00 (76.2)	0.75 (19.1)	0.22 (5.6)	5.28 (134.2)	0.62 (15.8)	0.38 (9.7)	0.75 (19.1)	HN-L-01
20NSS-MF6-5	MF6	0.204 (5.18)	2.00 (50.8)	1.00 (25.4)	0.44 (11.2)	1.19 (30.2)		2.44 (61.9)	3.00 (76.2)	0.75 (19.1)	0.22 (5.6)	5.33 (135.4)	0.62 (15.8)	0.38 (9.7)	0.75 (19.1)	
20NSS-MF9-5	MF9	0.312 (7.92)	2.50 (63.5)	1.25 (31.8)	0.55 (14.0)	1.75 (44.5)		3.38 (85.9)	4.00 (101.6)	1.00 (25.4)	0.34 (8.6)	6.69 (170.0)	0.69 (17.5)	0.50 (12.7)	1.00 (25.4)	HN-L-02
20NSS-MF12-5	MF12	0.438 (11.13)	3.00 (76.2)	1.50 (38.1)	0.60 (15.2)	2.25 (57.2)		4.25 (108.0)	10.25 (260.4)	1.19 (30.2)	0.44 (11.2)	7.87 (199.9)	0.88 (22.4)	0.63 (16.0)	1.38 (35.1)	HN-L-03
20NSS-MF16-5	MF16	0.562 (14.27)	4.12 (104.6)	2.06 (52.3)	0.74 (18.7)	2.81 (71.4)		5.12 (130.1)	10.25 (260.4)	1.62 (41.2)	0.56 (14.2)	9.94 (252.6)	1.25 (31.8)	1.13 (28.7)	1.75 (44.5)	HN-L-04

2 stem manifold																
Ordering Number	Conne- ction	Orifice in. (mm)	Dimensions, in. (mm)													Lockout Device Ordering Number
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness	
20NSS-MF4-6	MF4	0.125 (3.18)	2.00 (50.8)	1.00 (25.4)	0.38 (9.7)	1.69 (42.9)	1.19 (30.2)	3.38 (85.7)	3.00 (76.2)	0.75 (19.1)	0.22 (5.6)	6.23 (158.1)	0.62 (15.8)	0.38 (9.7)	0.75 (19.1)	HN-L-01
20NSS-MF6-6	MF6	0.204 (5.18)	2.00 (50.8)	1.00 (25.4)	0.44 (11.2)	1.69 (42.9)	1.19 (30.2)	3.38 (85.7)	3.00 (76.2)	0.75 (19.1)	0.22 (5.6)	6.24 (158.6)	0.62 (15.8)	0.38 (9.7)	0.75 (19.1)	
20NSS-MF9-6	MF9	0.312 (7.92)	2.50 (63.5)	1.25 (31.8)	0.55 (14.0)	2.56 (65.1)	1.75 (44.5)	5.13 (130.2)	4.00 (101.6)	1.00 (25.4)	0.34 (8.6)	8.44 (214.4)	0.69 (17.5)	0.50 (12.7)	1.00 (25.4)	HN-L-02
20NSS-MF12-6	MF12	0.438 (11.13)	3.00 (76.2)	1.50 (38.1)	0.60 (15.2)	3.00 (76.2)	2.25 (57.2)	6.50 (165.1)	10.25 (260.4)	1.19 (30.2)	0.44 (11.2)	10.11 (257.0)	0.88 (22.4)	0.63 (16.0)	1.38 (35.1)	HN-L-03
20NSS-MF16-6	MF16	0.562 (14.27)	4.12 (104.6)	2.06 (52.3)	0.74 (18.7)	3.75 (95.3)	2.81 (71.4)	7.50 (190.5)	10.25 (260.4)	1.62 (41.2)	0.56 (14.2)	12.32 (313.0)	1.25 (31.8)	1.13 (28.7)	1.75 (44.5)	HN-L-04

- 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. H is the dimension of stem in closed position.
5. All dimensions are for reference only and subject to change. For dimensions not shown above, please contact FITOK Group or our authorized distributors.

30N Series: 30,000 psig (2068 bar)

Features

- High tensile 316 stainless steel for valve body and S17400 stainless steel for lower stem
- Metal-to-metal seating achieves ideal shutoff, longer stem/seat service lifetime for abrasive flow, excellent corrosion resistance and greater durability for repeated on/off cycles
- Non-rotating stem and bar stock body design
- Easy to assemble and replace packing
- Reliable packing gland locking device
- Options for Vee or Regulating stem tips
- Five flow patterns available

Technical Data

Tube O.D. in.	Connection	Orifice in. (mm)	Cv	Working Pressure psig (bar)	Working Temperature Range
1/4	HF4	0.094 (2.39)	0.12	30,000 (2068)	-100°F~600°F (-73°C~316°C)
3/8	HF6	0.125 (3.18)	0.23	30,000 (2068)	
9/16	HF9	0.125 (3.18)	0.33	30,000 (2068)	

Notes: 1. Cv values shown are for 2-way straight valve pattern. For 2-way angle pattern, increase Cv value by 50% (based on water).

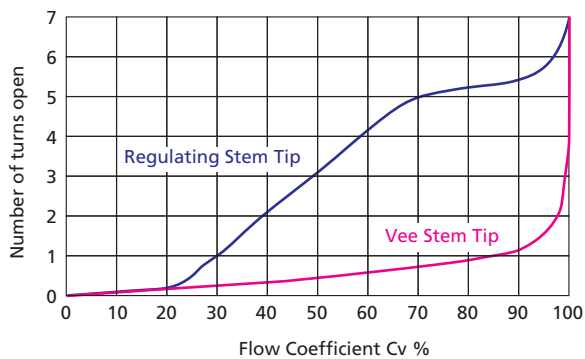
2. Packing Options

PTFE is the standard packing material, RPTFE glass also available

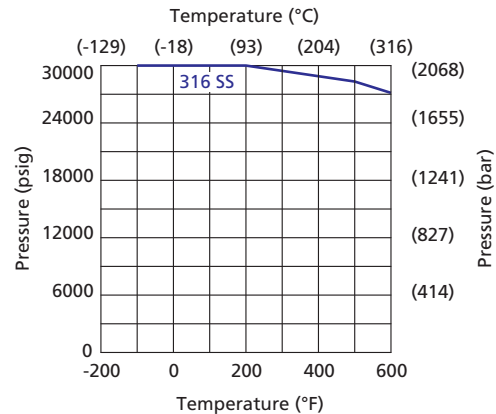
PTFE: -100°F~450°F (-73°C~232°C)

RPTFE glass: -100°F~600°F (-73°C~316°C)

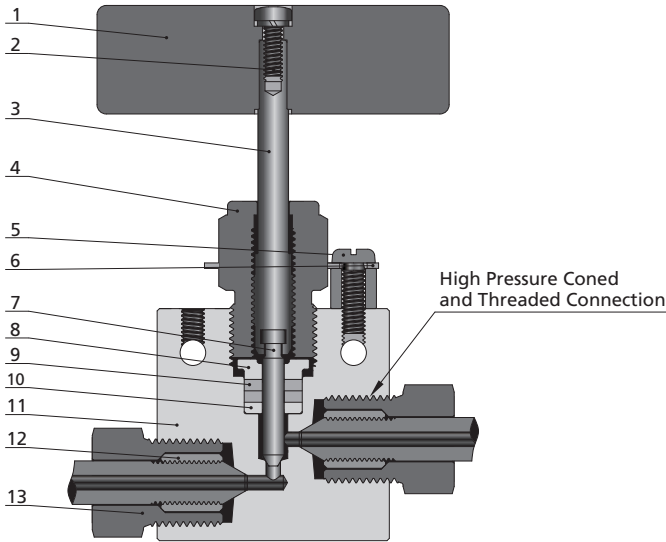
Flow Data at 100°F (38°C)



Pressure vs. Temperature Curve



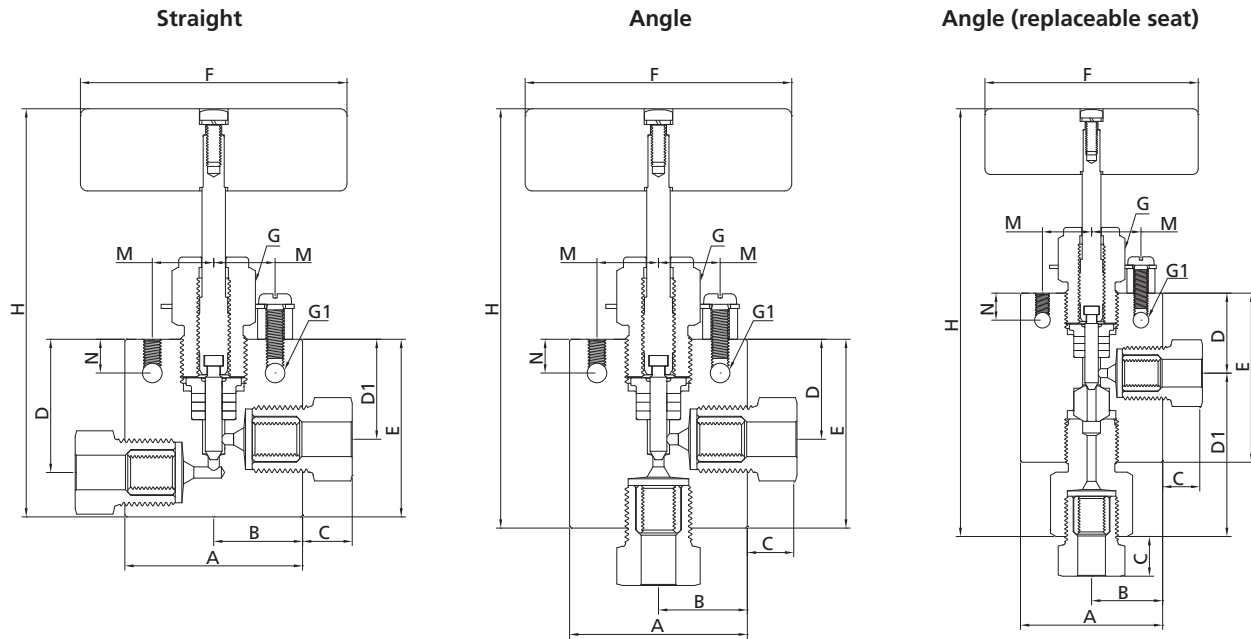
Standard Materials of Construction



Item	Component	Material Grade
1	Handle	Stainless Steel
2	Handle Screw	Stainless Steel
3	Upper Stem	316 SS
4	Packing Gland	C63000
5	Locking Screw	Stainless Steel
6	Locking Plate	304 SS
7	<i>Lower Stem</i>	<i>S17400</i>
8	Packing Ring	C63000
9	<i>Packing</i>	<i>PTFE / RPTFE</i>
10	<i>Packing Washer</i>	<i>S17400</i>
11	<i>Body</i>	<i>316 SS</i>
12	Collar	316 SS
13	Gland	316 SS
Lubricant		Molybdenum Disulfide

Wetted component listed in italics.

Ordering Information and Dimensions (Tubing Connection, 2-Way)



Straight

Ordering Number	Connec-tion	Orifice in. (mm)	Dimensions, in. (mm)													Lockout Device Ordering Number
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness	
30NSS-HF4-1	HF4	0.094 (2.39)	2.00 (50.8)	1.00 (25.4)	0.47 (11.9)	1.50 (38.1)	1.12 (28.5)	2.00 (50.8)	3.00 (76.2)	1.00 (25.4)	0.22 (5.6)	4.69 (119.1)	0.69 (17.5)	0.38 (9.7)	1.00 (25.4)	HN-L-01
30NSS-HF6-1	HF6	0.125 (3.18)	2.00 (50.8)	1.00 (25.4)	0.61 (15.6)	1.50 (38.1)	1.12 (28.5)	2.00 (50.8)	3.00 (76.2)	1.00 (25.4)	0.22 (5.6)	4.69 (119.1)	0.69 (17.5)	0.38 (9.7)	1.00 (25.4)	
30NSS-HF9-1	HF9	0.125 (3.18)	2.62 (66.6)	1.31 (33.3)	0.95 (24.1)	1.56 (39.6)	1.12 (28.5)	2.44 (62.0)	3.00 (76.2)	1.00 (25.4)	0.28 (7.1)	5.13 (130.3)	0.69 (17.5)	0.38 (9.7)	1.50 (38.1)	

Angle

Ordering Number	Connec-tion	Orifice in. (mm)	Dimensions, in. (mm)													Lockout Device Ordering Number
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness	
30NSS-HF4-2	HF4	0.094 (2.39)	2.00 (50.8)	1.00 (25.4)	0.47 (11.9)	1.12 (28.5)		2.00 (50.8)	3.00 (76.2)	1.00 (25.4)	0.22 (5.6)	4.69 (119.1)	0.69 (17.5)	0.38 (9.7)	1.00 (25.4)	HN-L-01
30NSS-HF6-2	HF6	0.125 (3.18)	2.00 (50.8)	1.00 (25.4)	0.61 (15.6)	1.12 (28.5)		2.25 (57.2)	3.00 (76.2)	1.00 (25.4)	0.22 (5.6)	4.95 (125.7)	0.69 (17.5)	0.38 (9.7)	1.00 (25.4)	
30NSS-HF9-2	HF9	0.125 (3.18)	2.62 (66.6)	1.31 (33.3)	0.95 (24.1)	1.12 (28.5)		2.44 (62.0)	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)	

Angle (replaceable seat)

Ordering Number	Connec-tion	Orifice in. (mm)	Dimensions, in. (mm)													Lockout Device Ordering Number
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness	
30NSS-HF4-3	HF4	0.094 (2.39)	2.00 (50.8)	1.00 (25.4)	0.47 (11.9)	1.12 (28.5)	2.06 (52.3)	2.38 (60.5)	3.00 (76.2)	1.00 (25.4)	0.22 (5.6)	5.88 (149.2)	0.69 (17.5)	0.38 (9.7)	1.00 (25.4)	HN-L-01
30NSS-HF6-3	HF6	0.125 (3.18)	2.00 (50.8)	1.00 (25.4)	0.61 (15.6)	1.12 (28.5)	2.31 (58.67)	2.38 (60.5)	3.00 (76.2)	1.00 (25.4)	0.22 (5.6)	6.12 (155.4)	0.69 (17.5)	0.38 (9.7)	1.00 (25.4)	
30NSS-HF9-3	HF9	0.125 (3.18)	2.62 (66.6)	1.31 (33.3)	0.95 (24.1)	1.12 (28.6)	2.57 (65.3)	2.46 (62.4)	3.00 (76.2)	1.00 (25.4)	0.28 (7.1)	6.39 (162.4)	0.69 (17.5)	0.38 (9.7)	1.50 (38.1)	

Fittings

Tubing

Quick Couplings

Line Filters

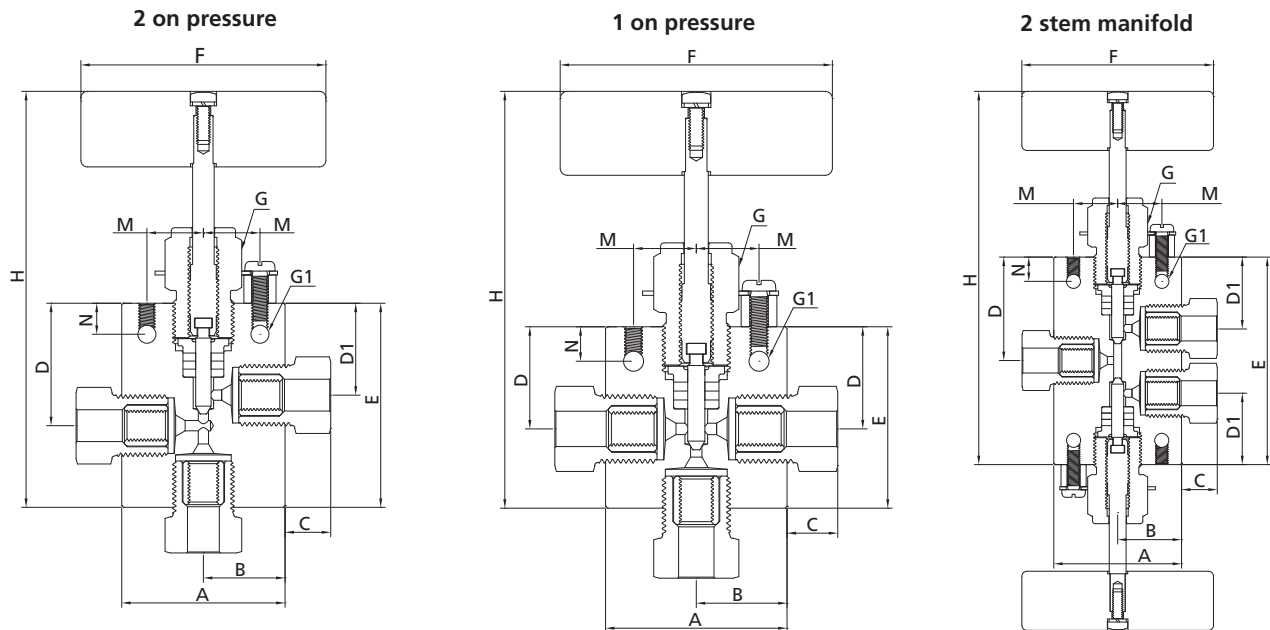
Valves

Sour Service Products

Subsea Valves

Part Number Crossover Charts

Ordering Information and Dimensions (Tubing Connection, 3-Way)



2 on pressure

Ordering Number	Conne- ction	Orifice in. (mm)	Dimensions, in. (mm)													Lockout Device Ordering Number
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness	
30NSS-HF4-4	HF4	0.094 (2.39)	2.00 (50.8)	1.00 (25.4)	0.47 (11.9)	1.50 (38.1)	1.12 (28.5)	2.12 (53.9)	3.00 (76.2)	1.00 (25.4)	0.22 (5.6)	4.81 (122.1)	0.69 (17.5)	0.38 (9.7)	1.00 (25.4)	HN-L-01
30NSS-HF6-4	HF6	0.125 (3.18)	2.00 (50.8)	1.00 (25.4)	0.61 (15.6)	1.50 (38.1)	1.12 (28.5)	2.50 (63.5)	3.00 (76.2)	1.00 (25.4)	0.22 (5.6)	5.19 (131.9)	0.69 (17.5)	0.38 (9.7)	1.00 (25.4)	
30NSS-HF9-4	HF9	0.125 (3.18)	2.62 (66.6)	1.31 (33.3)	0.95 (24.1)	1.56 (39.6)	1.12 (28.5)	2.88 (73.2)	3.00 (76.2)	1.00 (25.4)	0.28 (7.1)	5.57 (141.5)	0.69 (17.5)	0.38 (9.7)	1.50 (38.1)	

1 on pressure

Ordering Number	Conne- ction	Orifice in. (mm)	Dimensions, in. (mm)													Lockout Device Ordering Number
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness	
30NSS-HF4-5	HF4	0.094 (2.39)	2.00 (50.8)	1.00 (25.4)	0.47 (11.9)	1.12 (28.5)		2.00 (50.8)	3.00 (76.2)	1.00 (25.4)	0.22 (5.6)	4.69 (119.1)	0.69 (17.5)	0.38 (9.7)	1.00 (25.4)	HN-L-01
30NSS-HF6-5	HF6	0.125 (3.18)	2.00 (50.8)	1.00 (25.4)	0.61 (15.6)	1.12 (28.5)		2.25 (57.2)	3.00 (76.2)	1.00 (25.4)	0.22 (5.6)	4.95 (125.7)	0.69 (17.5)	0.38 (9.7)	1.00 (25.4)	
30NSS-HF9-5	HF9	0.125 (3.18)	2.62 (66.6)	1.31 (33.3)	0.95 (24.1)	1.12 (28.5)		2.44 (62.0)	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)	

2 stem manifold

Ordering Number	Conne- ction	Orifice in. (mm)	Dimensions, in. (mm)													Lockout Device Ordering Number
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness	
30NSS-HF4-6	HF4	0.094 (2.39)	2.00 (50.8)	1.00 (25.4)	0.47 (11.9)	1.53 (38.9)	1.12 (28.5)	3.06 (77.7)	3.00 (76.2)	1.00 (25.4)	0.22 (5.6)	5.75 (146.0)	0.69 (17.5)	0.38 (9.7)	1.00 (25.4)	HN-L-01
30NSS-HF6-6	HF6	0.125 (3.18)	2.00 (50.8)	1.00 (25.4)	0.61 (15.6)	1.62 (41.2)	1.12 (28.5)	3.25 (82.6)	3.00 (76.2)	1.00 (25.4)	0.22 (5.6)	5.94 (150.9)	0.69 (17.5)	0.38 (9.7)	1.00 (25.4)	
30NSS-HF9-6	HF9	0.125 (3.18)	2.62 (66.6)	1.31 (33.3)	0.95 (24.1)	1.88 (47.8)	1.12 (28.5)	3.75 (95.3)	3.00 (76.2)	1.00 (25.4)	0.28 (7.1)	6.44 (163.6)	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. H is the dimension of stem in closed position.
 5. All dimensions are for reference only and subject to change. For dimensions not shown above, please contact FITOK Group or our authorized distributors.

60N Series: 60,000 psig (4137 bar)

Features

- High tensile 316 stainless steel for valve body and S17400 stainless steel for lower stem
- Metal-to-metal seating achieves ideal shutoff, longer stem/seat service lifetime for abrasive flow, excellent corrosion resistance and greater durability for repeated on/off cycles
- Non-rotating stem and bar stock body design
- Easy to assemble and replace packing
- Reliable packing gland locking device
- Options for Vee or Regulating stem tips
- Five flow patterns available

Technical Data

Tube O.D. in.	Connection	Orifice in. (mm)	Cv	Working Pressure psig (bar)	Working Temperature Range
1/4	HF4	0.063 (1.59)	0.08	60,000 (4137)	-100°F~600°F (-73°C~316°C)
3/8	HF6	0.063 (1.59)	0.09	60,000 (4137)	
9/16	HF9	0.078 (1.98)	0.14	60,000 (4137)	

Notes: 1. Cv values shown are for 2-way straight valve pattern. For 2-way angle pattern, increase Cv value by 50% (based on water).

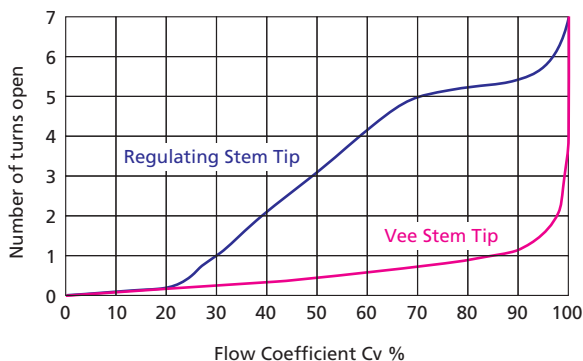
2. Packing Options

Nylon is the standard packing material, RPTFE glass also available

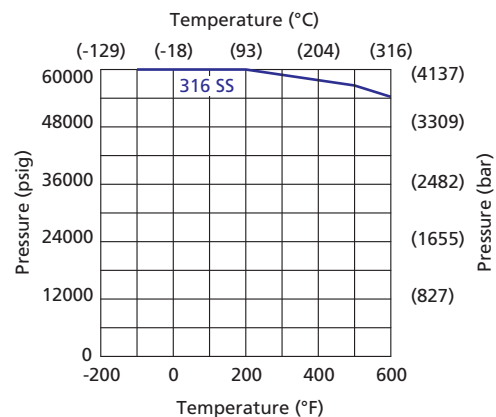
Nylon: 40°F~230°F (4.4°C~110°C)

RPTFE glass: -100°F~600°F (-73°C~316°C)

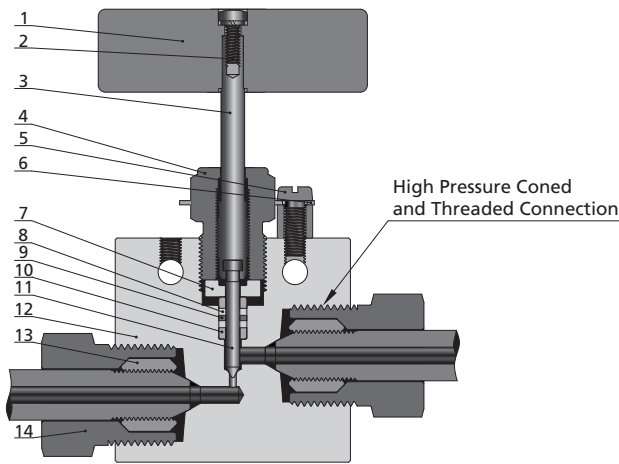
Flow Data at 100°F (38°C)



Pressure vs. Temperature Curve



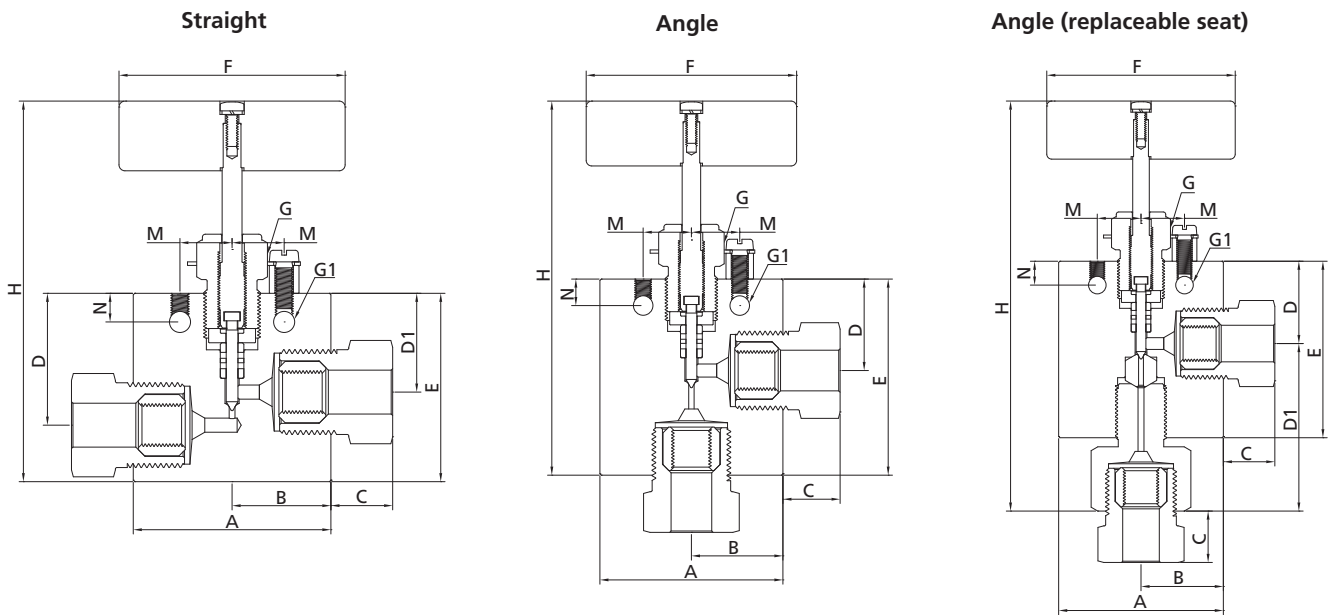
Standard Materials of Construction



Item	Component	Material Grade
1	Handle	Stainless Steel
2	Handle Screw	Stainless Steel
3	Upper Stem	316 SS
4	Packing Gland	C63000
5	Locking Screw	Stainless Steel
6	Locking Plate	304 SS
7	Packing Ring	<i>S17400</i>
8	<i>Packing</i>	<i>Nylon/RPTFE</i>
9	<i>Retaining Ring</i>	<i>PEEK</i>
10	<i>Packing Washer</i>	<i>S17400</i>
11	<i>Lower Stem</i>	<i>S17400</i>
12	<i>Body</i>	<i>316 SS</i>
13	<i>Collar</i>	<i>316 SS</i>
14	<i>Gland</i>	<i>316 SS</i>
Lubricant		Molybdenum Disulfide

Wetted component listed in italics.

Ordering Information and Dimensions (Tubing Connection, 2-Way)

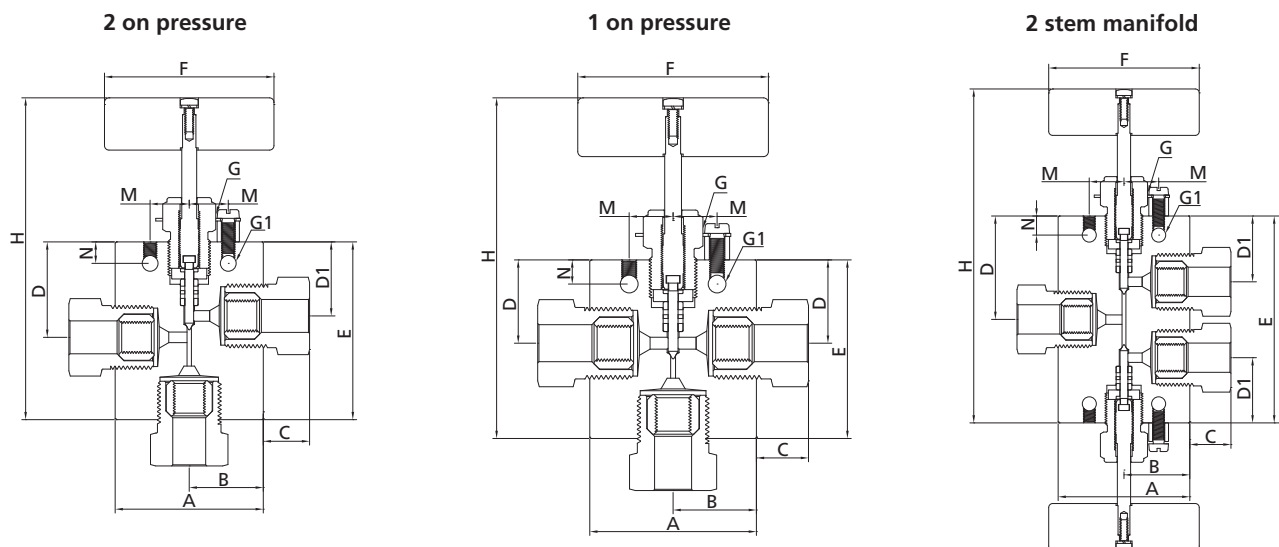


Straight																
Ordering Number	Connec-tion	Orifice in. (mm)	Dimensions, in. (mm)													Lockout Device Ordering Number
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness	
60NSS-HF4-1	HF4	0.063 (1.59)	2.00 (50.8)	1.00 (25.4)	0.47 (11.9)	1.69 (42.9)	1.31 (33.3)	2.13 (54.0)	3.00 (76.2)	1.00 (25.4)	0.22 (5.6)	4.77 (121.1)	0.69 (17.5)	0.38 (9.7)	1.00 (25.4)	HN-L-01
60NSS-HF6-1	HF6	0.063 (1.59)	2.00 (50.8)	1.00 (25.4)	0.61 (15.6)	1.69 (42.9)	1.31 (33.3)	2.25 (57.2)	3.00 (76.2)	1.00 (25.4)	0.22 (5.6)	4.89 (124.3)	0.69 (17.5)	0.38 (9.7)	1.00 (25.4)	
60NSS-HF9-1	HF9	0.078 (1.98)	2.62 (66.6)	1.31 (33.3)	0.95 (24.1)	1.75 (44.5)	1.31 (33.3)	2.50 (63.5)	3.00 (76.2)	1.00 (25.4)	0.28 (7.1)	5.14 (130.6)	0.69 (17.5)	0.38 (9.7)	1.50 (38.1)	

Angle																
Ordering Number	Connec-tion	Orifice in. (mm)	Dimensions, in. (mm)													Lockout Device Ordering Number
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness	
60NSS-HF4-2	HF4	0.063 (1.59)	2.00 (50.8)	1.00 (25.4)	0.47 (11.9)	1.31 (33.3)		2.38 (60.5)	3.00 (76.2)	1.00 (25.4)	0.22 (5.6)	5.02 (127.5)	0.69 (17.5)	0.38 (9.7)	1.00 (25.4)	HN-L-01
60NSS-HF6-2	HF6	0.063 (1.59)	2.00 (50.8)	1.00 (25.4)	0.61 (15.6)	1.31 (33.3)		2.62 (66.6)	3.00 (76.2)	1.00 (25.4)	0.22 (5.6)	5.26 (133.5)	0.69 (17.5)	0.38 (9.7)	1.00 (25.4)	
60NSS-HF9-2	HF9	0.078 (1.98)	2.62 (66.6)	1.31 (33.3)	0.95 (24.1)	1.31 (33.3)		2.81 (71.4)	3.00 (76.2)	1.00 (25.4)	0.28 (7.1)	5.45 (138.5)	0.69 (17.5)	0.38 (9.7)	1.50 (38.1)	

Angle (replaceable seat)																
Ordering Number	Connec-tion	Orifice in. (mm)	Dimensions, in. (mm)													Lockout Device Ordering Number
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness	
60NSS-HF4-3	HF4	0.063 (1.59)	2.00 (50.8)	1.00 (25.4)	0.47 (11.9)	1.31 (33.3)	2.12 (53.9)	2.62 (66.6)	3.00 (76.2)	1.00 (25.4)	0.22 (5.6)	6.07 (154.1)	0.69 (17.5)	0.38 (9.7)	1.00 (25.4)	HN-L-01
60NSS-HF6-3	HF6	0.063 (1.59)	2.00 (50.8)	1.00 (25.4)	0.61 (15.6)	1.31 (33.3)	2.36 (59.9)	2.62 (66.6)	3.00 (76.2)	1.00 (25.4)	0.22 (5.6)	6.30 (160.1)	0.69 (17.5)	0.38 (9.7)	1.00 (25.4)	
60NSS-HF9-3	HF9	0.078 (1.98)	2.62 (66.6)	1.31 (33.3)	0.95 (24.1)	1.31 (33.3)	2.68 (68.8)	2.62 (66.6)	3.00 (76.2)	1.00 (25.4)	0.28 (7.1)	6.65 (168.9)	0.69 (17.5)	0.38 (9.7)	1.50 (38.1)	

Ordering Information and Dimensions (Tubing Connection, 3-Way)



2 on pressure

Ordering Number	Connec-tion	Orifice in. (mm)	Dimensions, in. (mm)													Lockout Device Ordering Number
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness	
60NSS-HF4-4	HF4	0.063 (1.59)	2.00 (50.8)	1.00 (25.4)	0.47 (11.9)	1.69 (42.9)	1.31 (33.3)	2.38 (60.5)	3.00 (76.2)	1.00 (25.4)	0.22 (5.6)	5.26 (133.6)	0.69 (17.5)	0.38 (9.7)	1.00 (25.4)	HN-L-01
60NSS-HF6-4	HF6	0.063 (1.59)	2.00 (50.8)	1.00 (25.4)	0.61 (15.6)	1.69 (42.9)	1.31 (33.3)	2.75 (68.9)	3.00 (76.2)	1.00 (25.4)	0.22 (5.6)	5.34 (135.8)	0.69 (17.5)	0.38 (9.7)	1.00 (25.4)	
60NSS-HF9-4	HF9	0.078 (1.98)	2.62 (66.6)	1.31 (33.3)	0.95 (24.1)	1.75 (44.5)	1.31 (33.3)	3.03 (77.0)	3.00 (76.2)	1.00 (25.4)	0.28 (7.1)	5.67 (143.9)	0.69 (17.5)	0.38 (9.7)	1.50 (38.1)	

1 on pressure

Ordering Number	Connec-tion	Orifice in. (mm)	Dimensions, in. (mm)													Lockout Device Ordering Number
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness	
60NSS-HF4-5	HF4	0.063 (1.59)	2.00 (50.8)	1.00 (25.4)	0.47 (11.9)	1.31 (33.3)		2.38 (60.5)	3.00 (76.2)	1.00 (25.4)	0.22 (5.6)	5.02 (127.5)	0.69 (17.5)	0.38 (9.7)	1.00 (25.4)	HN-L-01
60NSS-HF6-5	HF6	0.063 (1.59)	2.00 (50.8)	1.00 (25.4)	0.61 (15.6)	1.31 (33.3)		2.62 (66.6)	3.00 (76.2)	1.00 (25.4)	0.22 (5.6)	5.26 (133.5)	0.69 (17.5)	0.38 (9.7)	1.00 (25.4)	
60NSS-HF9-5	HF9	0.078 (1.98)	2.62 (66.6)	1.31 (33.3)	0.95 (24.1)	1.31 (33.3)		2.81 (71.4)	3.00 (76.2)	1.00 (25.4)	0.28 (7.1)	5.45 (138.5)	0.69 (17.5)	0.38 (9.7)	1.50 (38.1)	

2 stem manifold

Ordering Number	Connec-tion	Orifice in. (mm)	Dimensions, in. (mm)													Lockout Device Ordering Number
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness	
60NSS-HF4-6	HF4	0.063 (1.59)	2.00 (50.8)	1.00 (25.4)	0.47 (11.9)	1.72 (43.69)	1.31 (33.3)	3.44 (87.4)	3.00 (76.2)	1.00 (25.4)	0.22 (5.6)	6.08 (154.5)	0.69 (17.5)	0.38 (9.7)	1.00 (25.4)	HN-L-01
60NSS-HF6-6	HF6	0.063 (1.59)	2.00 (50.8)	1.00 (25.4)	0.61 (15.6)	1.88 (47.8)	1.31 (33.3)	3.75 (95.3)	3.00 (76.2)	1.00 (25.4)	0.22 (5.6)	6.39 (162.3)	0.69 (17.5)	0.38 (9.7)	1.00 (25.4)	
60NSS-HF9-6	HF9	0.078 (1.98)	2.62 (66.6)	1.31 (33.3)	0.95 (24.1)	2.06 (52.3)	1.31 (33.3)	4.12 (104.6)	3.00 (76.2)	1.00 (25.4)	0.28 (7.1)	6.76 (171.8)	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.

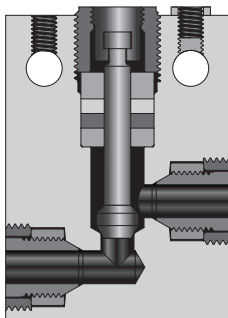
3. Panel mounting drill size: 0.25" all valves.

4. H is the dimension of stem in closed position.

5. All dimensions are for reference only and subject to change. For dimensions not shown above, please contact FITOK Group or our authorized distributors.

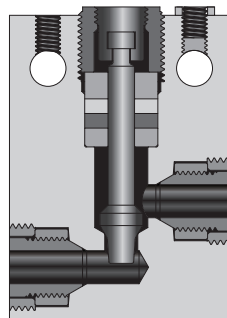
Stem Types

Two types of stems are offered by FITOK: Vee and Regulating. Both Vee and Regulating stems are interchangeable on most valves and provide bubble-tight shut-off against liquids and gases.



Vee Stem

The Vee stem is used for direct on-off, metal-to-metal shut-off with quick-opening flow characteristics.



Regulating Stem

In some applications, more precise flow control is required than is possible with a Vee stem. For these cases, FITOK offers a non-rotating, two-piece regulating stem which can be used for both control and shut-off.

Needle Valve Lockout Device

The needle valve lockout device encloses the valve handle to secure the valve in either the open or closed position, effectively preventing unauthorized operation.

Ordering Information (without Lock)

For ease of selection, FITOK offers two ordering methods:

Method 1: Valve part number + "-L"

Method 2: Order separately. Refer to the Ordering Information and Dimensions section for details.

Locked Needle Valve



Example: 20NSS-MF9-1-L

Lockout Device



Installation Instructions

Hold both sides of the lockout device and gently separate the housing along the seam. Position the device over the valve handle, then close the housing securely to ensure the lockout device is firmly fixed onto the valve.



Pneumatic Needle Valves

Piston Style Air to Open (Normally Closed)

Features

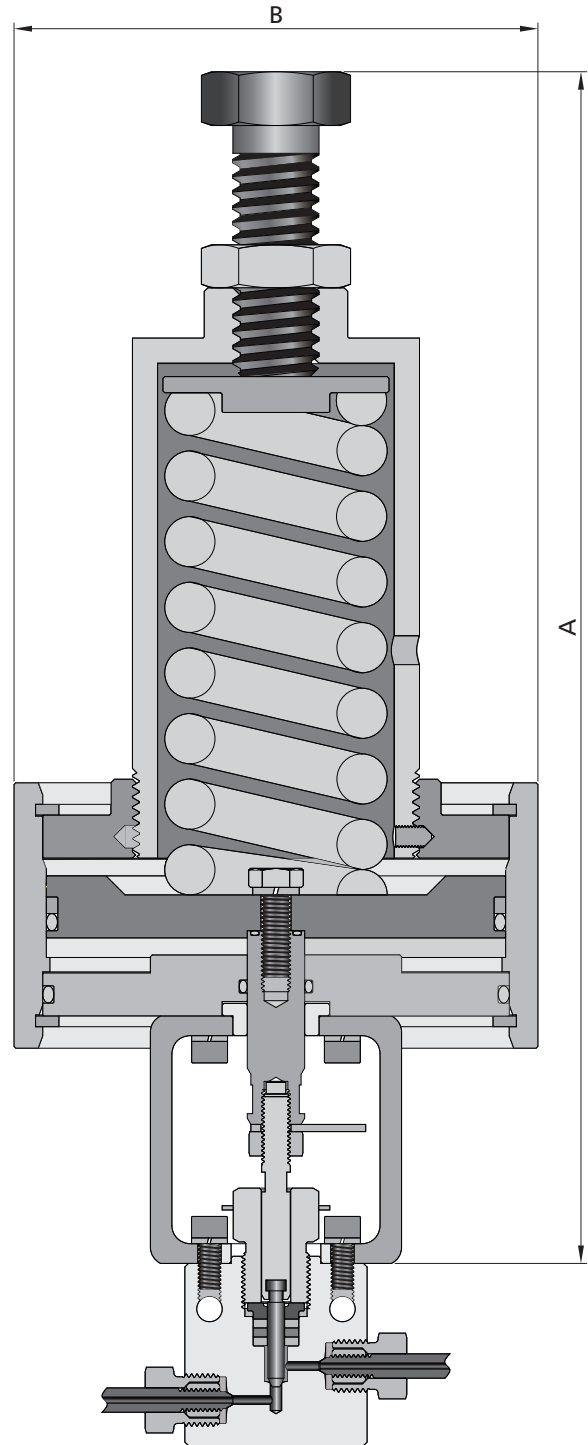
- ⦿ Air-to-open with spring return
- ⦿ Positive shut-off with metal-to-metal seating
- ⦿ Easy stem replacement
- ⦿ Standard stem position indicator
- ⦿ High actuator cycle life
- ⦿ Anodized aluminum actuator to provide good corrosion and wear resistance
- ⦿ Tested to 100,000 cycles at 100 psig (6.9 bar) with no leakage, no signs of wear or fatigue

Technical Data

Maximum working pressure for air operator		100 psig (6.9 bar)
Air operator temperature range		-10°F~200°F (-23°C~93°C)
Air operator material	Cylinder, piston, cover plates, spring housing	Anodized Aluminum
	Yoke	Stainless Steel
	O-ring	NBR
Air inlet connection		1/8 " or 3/8 " Female NPT

Dimensions

Basic Ordering Number	Air Inlet Connection	Area of Piston sq.in. (sq. cm)	A in. (mm)	B in. (mm)
10NSS-MF9-X-C	1/8" NPT	51.20 (330.3)	16.24 (412.5)	6.54 (166.0)
10NSS-MF12-X-C		92.58 (597.3)	20.72 (526.3)	8.58 (218.0)
10NSS-MF16-X-C	3/8" NPT	112.55 (726.1)	24.12 (612.7)	9.57 (243.0)
10NSS-FNS12-X-C	1/8" NPT	92.58 (597.3)	20.72 (526.3)	8.58 (218.0)
10NSS-FRT12-X-C		92.58 (597.3)	20.72 (526.3)	8.58 (218.0)
10NSS-FNS16-X-C	3/8" NPT	112.55 (726.1)	24.12 (612.7)	9.57 (243.0)
10NSS-FRT16-X-C		112.55 (726.1)	24.12 (612.7)	9.57 (243.0)
15NSS-DF2-X-C	1/8" NPT	7.79 (50.3)	8.56 (217.3)	3.62 (92.0)
15NSS-DF4-X-C		19.95 (128.7)	13.08 (332.3)	5.75 (146.0)
15NSS-DF6-X-C		19.95 (128.7)	13.08 (332.3)	5.75 (146.0)
15NSS-DF8-X-C		51.20 (330.3)	16.24 (412.5)	6.54 (166.0)
15NSS-FNS2-X-C		7.79 (50.3)	8.56 (217.3)	3.62 (92.0)
15NSS-FRT2-X-C		7.79 (50.3)	8.56 (217.3)	3.62 (92.0)
15NSS-FNS4-X-C		19.95 (128.7)	13.08 (332.3)	5.75 (146.0)
15NSS-FRT4-X-C		19.95 (128.7)	13.08 (332.3)	5.75 (146.0)
15NSS-FNS6-X-C		19.95 (128.7)	13.08 (332.3)	5.75 (146.0)
15NSS-FRT6-X-C		19.95 (128.7)	13.08 (332.3)	5.75 (146.0)
15NSS-FNS8-X-C		51.20 (330.3)	16.24 (412.5)	6.54 (166.0)
15NSS-FRT8-X-C		51.20 (330.3)	16.24 (412.5)	6.54 (166.0)
20NSS-MF4-X-C		19.95 (128.7)	13.08 (332.3)	5.75 (146.0)
20NSS-MF6-X-C		19.95 (128.7)	13.08 (332.3)	5.75 (146.0)
20NSS-MF9-X-C		51.20 (330.3)	16.24 (412.5)	6.54 (166.0)
20NSS-MF12-X-C		92.58 (597.3)	20.72 (526.3)	8.58 (218.0)
20NSS-MF16-X-C	3/8" NPT	112.55 (726.1)	24.12 (612.7)	9.57 (243.0)
30NSS-HF4-X-C	1/8" NPT	19.95 (128.7)	13.08 (332.3)	5.75 (146.0)
30NSS-HF6-X-C		19.95 (128.7)	13.08 (332.3)	5.75 (146.0)
30NSS-HF9-X-C		19.95 (128.7)	13.08 (332.3)	5.75 (146.0)
60NSS-HF4-X-C		19.95 (128.7)	13.08 (332.3)	5.75 (146.0)
60NSS-HF6-X-C		19.95 (128.7)	13.08 (332.3)	5.75 (146.0)
60NSS-HF9-X-C		19.95 (128.7)	13.08 (332.3)	5.75 (146.0)



- Notes: 1. -X: Designator of valve flow patterns. Valves are available in 5 different flow patterns (-1 to -6). For details, please refer to the FITOK Needle Valves catalog.
2. A is the dimension of stem in closed position.
3. All dimensions are for reference only and are subject to change. For dimensions not shown above, please contact FITOK Group or our authorized distributors.

Air Operator Technical Data

10N Series: 10,000 psig (690 bar)

Basic Ordering Number		System Pressure KSI (MPa)				Flow Coefficient (Cv)
		1-4 (6.9-27.6)	6 (41.4)	8 (55.2)	10 (69.0)	
10NSS-MF9-X-C	Air Pressure psig (bar)	40 (2.8)	50 (3.5)	60 (4.1)	65 (4.5)	1.75
	Spring Pre-Compression in. (mm)	0.17 (4.2)	0.25 (6.3)	0.33 (8.4)	0.41 (10.5)	
	Stem Travel in. (mm)	0.26 (6.5)	0.26 (6.5)	0.26 (6.5)	0.26 (6.5)	
10NSS-MF12-X-C	Air Pressure psig (bar)	45 (3.1)	50 (3.5)	60 (4.1)	70 (4.8)	2.80
	Spring Pre-Compression in. (mm)	0.23 (5.8)	0.34 (8.7)	0.46 (11.6)	0.57 (14.5)	
	Stem Travel in. (mm)	0.36 (9.2)	0.36 (9.2)	0.36 (9.2)	0.36 (9.2)	
10NSS-MF16-X-C	Air Pressure psig (bar)	50 (3.5)	60 (4.1)	70 (4.8)	80 (5.5)	5.20
	Spring Pre-Compression in. (mm)	0.29 (7.4)	0.44 (11.1)	0.58 (14.8)	0.73 (18.5)	
	Stem Travel in. (mm)	0.41 (10.3)	0.41 (10.3)	0.41 (10.3)	0.41 (10.3)	
10NSS-FNS12-X-C 10NSS-FRT12-X-C	Air Pressure psig (bar)	40 (2.8)	45 (3.1)	50 (3.5)	60 (4.1)	2.09
	Spring Pre-Compression in. (mm)	0.17 (4.4)	0.26 (6.5)	0.34 (8.7)	0.43 (10.9)	
	Stem Travel in. (mm)	0.36 (9.2)	0.36 (9.2)	0.36 (9.2)	0.36 (9.2)	
10NSS-FNS16-X-C 10NSS-FRT16-X-C	Air Pressure psig (bar)	45 (3.1)	50 (3.5)	60 (4.1)	65 (4.5)	4.40
	Spring Pre-Compression in. (mm)	0.20 (5.1)	0.30 (7.7)	0.41 (10.3)	0.51 (12.9)	
	Stem Travel in. (mm)	0.41 (10.3)	0.41 (10.3)	0.41 (10.3)	0.41 (10.3)	

- Notes: 1. -X: Designator of valve flow patterns. Valves are available in 5 different flow patterns (-1 to -6). For details, please refer to the FITOK Needle Valves catalog.
2. Cv values shown are for 2-way straight valve pattern. For 2-way angle pattern, increase Cv value by 50% (based on water).
3. All dimensions are for reference only and are subject to change.

15N Series: 15,000 psig (1034 bar)

Basic Ordering Number		System Pressure KSI (MPa)						Flow Coefficient (Cv)
		1-6 (6.9-41.4)	8 (55.2)	10 (69.0)	12 (82.7)	14 (96.5)	15 (103.4)	
15NSS-DFF2-X-C	Air Pressure psig (bar)	60 (4.1)	65 (4.5)	75 (5.2)	80 (5.5)	90 (6.2)	95 (6.6)	0.10
	Spring Pre-Compression in. (mm)	0.10 (2.5)	0.13 (3.3)	0.16 (4.1)	0.19 (4.9)	0.22 (5.7)	0.24 (6.1)	
	Stem Travel in. (mm)	0.14 (3.5)	0.14 (3.5)	0.14 (3.5)	0.14 (3.5)	0.14 (3.5)	0.14 (3.5)	
15NSS-DFF4-X-C 15NSS-DFF6-X-C	Air Pressure psig (bar)	50 (3.5)	55 (3.8)	60 (4.1)	65 (4.5)	70 (4.8)	75 (5.2)	0.54 (15NSS-DFF4-X-C) 0.95 (15NSS-DFF6-X-C)
	Spring Pre-Compression in. (mm)	0.11 (2.9)	0.15 (3.8)	0.19 (4.8)	0.23 (5.8)	0.26 (6.7)	0.28 (7.2)	
	Stem Travel in. (mm)	0.19 (4.9)	0.19 (4.9)	0.19 (4.9)	0.19 (4.9)	0.19 (4.9)	0.19 (4.9)	
15NSS-DFF8-X-C	Air Pressure psig (bar)	50 (3.5)	60 (4.1)	70 (4.8)	75 (5.2)	85 (5.9)	90 (6.2)	1.90
	Spring Pre-Compression in. (mm)	0.27 (6.8)	0.36 (9.1)	0.45 (11.4)	0.54 (13.6)	0.63 (15.9)	0.67 (17.0)	
	Stem Travel in. (mm)	0.26 (6.5)	0.26 (6.5)	0.26 (6.5)	0.26 (6.5)	0.26 (6.5)	0.26 (6.5)	
15NSS-FNS2-X-C 15NSS-FRT2-X-C	Air Pressure psig (bar)	60 (4.1)	65 (4.5)	75 (5.2)	80 (5.5)	90 (6.2)	95 (6.6)	0.07
	Spring Pre-Compression in. (mm)	0.10 (2.5)	0.13 (3.3)	0.16 (4.1)	0.19 (4.9)	0.22 (5.7)	0.24 (6.1)	
	Stem Travel in. (mm)	0.14 (3.5)	0.14 (3.5)	0.14 (3.5)	0.14 (3.5)	0.14 (3.5)	0.14 (3.5)	
15NSS-FNS4-X-C 15NSS-FRT4-X-C	Air Pressure psig (bar)	50 (3.5)	55 (3.8)	60 (4.1)	65 (4.5)	70 (4.8)	75 (5.2)	0.47
	Spring Pre-Compression in. (mm)	0.11 (2.9)	0.15 (3.8)	0.19 (4.8)	0.23 (5.8)	0.26 (6.7)	0.28 (7.2)	
	Stem Travel in. (mm)	0.19 (4.9)	0.19 (4.9)	0.19 (4.9)	0.19 (4.9)	0.19 (4.9)	0.19 (4.9)	
15NSS-FNS6-X-C 15NSS-FRT6-X-C	Air Pressure psig (bar)	50 (3.5)	55 (3.8)	60 (4.1)	65 (4.5)	70 (4.8)	75 (5.2)	0.59
	Spring Pre-Compression in. (mm)	0.11 (2.9)	0.15 (3.8)	0.19 (4.8)	0.23 (5.8)	0.26 (6.7)	0.28 (7.2)	
	Stem Travel in. (mm)	0.19 (4.9)	0.19 (4.9)	0.19 (4.9)	0.19 (4.9)	0.19 (4.9)	0.19 (4.9)	
15NSS-FNS8-X-C 15NSS-FRT8-X-C	Air Pressure psig (bar)	45 (3.1)	50 (3.5)	60 (4.1)	65 (4.5)	70 (4.8)	75 (5.2)	1.04
	Spring Pre-Compression in. (mm)	0.20 (5.0)	0.26 (6.6)	0.33 (8.3)	0.39 (9.9)	0.46 (11.6)	0.49 (12.4)	
	Stem Travel in. (mm)	0.26 (6.5)	0.26 (6.5)	0.26 (6.5)	0.26 (6.5)	0.26 (6.5)	0.26 (6.5)	

Notes: 1. -X: Designator of valve flow patterns. Valves are available in 5 different flow patterns (-1 to -6). For details, please refer to the FITOK Needle Valves catalog.

2. Cv values shown are for 2-way straight valve pattern. For 2-way angle pattern, increase Cv value by 50% (based on water).

3. All dimensions are for reference only and are subject to change.

Fittings

Tubing

Quick Couplings

Line Filters

Valves

Sour Service Products

Subsea Valves

Part Number Crossover Charts

E-44 Needle Valves and Pneumatic Needle Valves

20N Series: 20,000 psig (1379 bar)

Basic Ordering Number		System Pressure KSI (MPa)									Flow Coefficient (Cv)
		1-4 (6.9-27.6)	6 (41.4)	8 (55.2)	10 (69.0)	12 (82.7)	14 (96.5)	16 (110.3)	18 (124.1)	20 (137.9)	
20NSS-MF4-X-C 20NSS-MF6-X-C	Air Pressure psig (bar)	40 (2.8)	50 (3.5)	55 (3.8)	60 (4.1)	65 (4.5)	70 (4.8)	75 (5.2)	80 (5.5)	90 (6.2)	0.29 (20NSS-MF4-X-C) 0.62 (20NSS-MF6-X-C)
	Spring Pre-Compression in. (mm)	0.07 (1.9)	0.11 (2.9)	0.15 (3.8)	0.19 (4.8)	0.23 (5.8)	0.26 (6.7)	0.30 (7.7)	0.34 (8.6)	0.38 (9.6)	
	Stem Travel in. (mm)	0.19 (4.9)	0.19 (4.9)	0.19 (4.9)	0.19 (4.9)	0.19 (4.9)	0.19 (4.9)	0.19 (4.9)	0.19 (4.9)	0.19 (4.9)	0.19 (4.9)
20NSS-MF9-X-C	Air Pressure psig (bar)	40 (2.8)	45 (3.1)	50 (3.5)	60 (4.1)	65 (4.5)	70 (4.8)	75 (5.2)	80 (5.5)	90 (6.2)	1.30
	Spring Pre-Compression in. (mm)	0.13 (3.3)	0.20 (5.0)	0.26 (6.6)	0.33 (8.3)	0.39 (9.9)	0.46 (11.6)	0.52 (13.2)	0.59 (14.9)	0.65 (16.5)	
	Stem Travel in. (mm)	0.26 (6.5)	0.26 (6.5)	0.26 (6.5)	0.26 (6.5)	0.26 (6.5)	0.26 (6.5)	0.26 (6.5)	0.26 (6.5)	0.26 (6.5)	
20NSS-MF12-X-C	Air Pressure psig (bar)	40 (2.8)	45 (3.1)	50 (3.5)	60 (4.1)	65 (4.5)	70 (4.8)	75 (5.2)	85 (5.9)	90 (6.2)	2.41
	Spring Pre-Compression in. (mm)	0.17 (4.4)	0.26 (6.5)	0.34 (8.7)	0.43 (10.9)	0.52 (13.1)	0.60 (15.3)	0.69 (17.4)	0.77 (19.6)	0.86 (21.8)	
	Stem Travel in. (mm)	0.36 (9.2)	0.36 (9.2)	0.36 (9.2)	0.36 (9.2)	0.36 (9.2)	0.36 (9.2)	0.36 (9.2)	0.36 (9.2)	0.36 (9.2)	
20NSS-MF16-X-C	Air Pressure psig (bar)	45 (3.1)	50 (3.5)	60 (4.1)	65 (4.5)	70 (4.8)	80 (5.5)	85 (5.9)	95 (6.6)	100 (6.9)	4.40
	Spring Pre-Compression in. (mm)	0.20 (5.1)	0.30 (7.7)	0.41 (10.3)	0.51 (12.9)	0.61 (15.4)	0.71 (18.0)	0.81 (20.6)	0.91 (23.1)	1.01 (25.7)	
	Stem Travel in. (mm)	0.41 (10.3)	0.41 (10.3)	0.41 (10.3)	0.41 (10.3)	0.41 (10.3)	0.41 (10.3)	0.41 (10.3)	0.41 (10.3)	0.41 (10.3)	

Notes: 1. -X: Designator of valve flow patterns. Valves are available in 5 different flow patterns (-1 to -6). For details, please refer to the FITOK Needle Valves catalog.

2. Cv values shown are for 2-way straight valve pattern. For 2-way angle pattern, increase Cv value by 50% (based on water).

3. All dimensions are for reference only and are subject to change.

30N Series: 30,000 psig (2068 bar)

Basic Ordering Number		System Pressure KSI (MPa)											Flow Coefficient (Cv)	
		1-10 (6.9-69.0)	12 (82.7)	14 (96.5)	16 (110.3)	18 (124.1)	20 (137.9)	22 (151.7)	24 (165.5)	26 (179.3)	28 (193.1)	30 (206.8)		
30NSS-HF4-X-C 30NSS-HF6-X-C 30NSS-HF9-X-C	Air Pressure psig (bar)	55 (3.8)	60 (4.1)	65 (4.5)	65 (4.5)	70 (4.8)	75 (5.2)	80 (5.5)	85 (5.9)	90 (6.2)	95 (6.6)	100 (6.9)	0.12 (30NSS-HF4-X-C)	
	Spring Pre-Compression in. (mm)	0.14 (3.8)	0.18 (4.6)	0.21 (5.4)	0.24 (6.1)	0.27 (6.9)	0.30 (7.7)	0.33 (8.4)	0.36 (9.2)	0.39 (10)	0.42 (10.7)	0.45 (11.5)	0.22 (30NSS-HF6-X-C)	
	Stem Travel in. (mm)	0.19 (4.9)	0.19 (4.9)	0.19 (4.9)	0.19 (4.9)	0.19 (4.9)	0.19 (4.9)	0.19 (4.9)	0.19 (4.9)	0.19 (4.9)	0.19 (4.9)	0.19 (4.9)	0.31 (30NSS-HF9-X-C)	

Notes: 1. -X: Designator of valve flow patterns (-1 to -6). For details, please refer to the FITOK Needle Valves catalog.

2. Cv values shown are for 2-way straight valve pattern. For 2-way angle pattern, increase Cv value by 50% (based on water).

3. All dimensions are for reference only and are subject to change.

60N Series: 60,000 psig (4137 bar)

Basic Ordering Number		System Pressure KSI (MPa)										Flow Coefficient (Cv)
		1-15 (6.9-103.4)	20 (137.9)	25 (172.4)	30 (206.8)	35 (241.3)	40 (275.8)	45 (310.3)	50 (344.7)	55 (379.2)	60 (413.7)	
60NSS-HF4-X-C	Air Pressure psig (bar)	55 (3.8)	65 (4.5)	65 (4.5)	75 (5.2)	75 (5.2)	85 (5.9)	95 (6.6)	95 (6.6)	95 (6.6)	95 (6.6)	0.08 (60NSS-HF4-X-C)
60NSS-HF6-X-C	Spring Pre-Compression in. (mm)	0.12 (3.2)	0.19 (4.8)	0.19 (4.8)	0.25 (6.4)	0.25 (6.4)	0.31 (7.9)	0.38 (9.7)	0.38 (9.7)	0.44 (11.2)	0.50 (12.7)	0.09 (60NSS-HF6-X-C)
60NSS-HF9-X-C	Stem Travel in. (mm)	0.19 (4.9)	0.19 (4.9)	0.19 (4.9)	0.19 (4.9)	0.19 (4.9)	0.19 (4.9)	0.19 (4.9)	0.19 (4.9)	0.19 (4.9)	0.13 (3.2)	0.14 (60NSS-HF9-X-C)

Notes: 1. -X: Designator of valve flow patterns. Valves are available in 5 different flow patterns (-1 to -6). For details, please refer to the FITOK Needle Valves catalog.

2. Cv values shown are for 2-way straight valve pattern. For 2-way angle pattern, increase Cv value by 50% (based on water).

3. All dimensions are for reference only and are subject to change.

Fittings

Tubing

Quick Couplings

Line Filters

Valves

Sour Service Products

Subsea Valves

Part Number Crossover Charts

Piston Style Air to Close (Normally Open)

Features

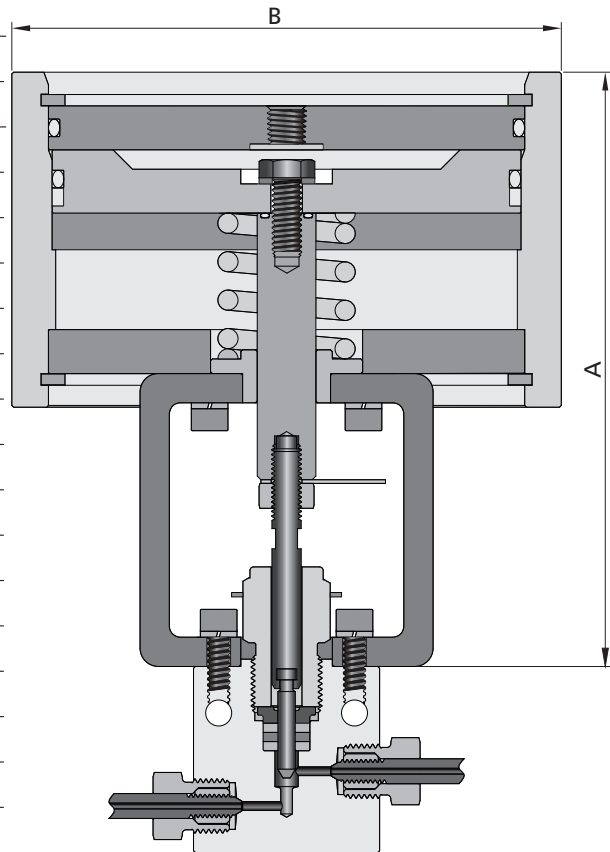
- ⦿ Air-to-close with spring return
- ⦿ Positive shut-off with metal-to-metal seating
- ⦿ Easy stem replacement
- ⦿ Standard stem position indicator
- ⦿ High actuator cycle life
- ⦿ Anodized aluminum actuator to provide good corrosion and wear resistance
- ⦿ Tested to 100,000 cycles at 100 psig (6.9 bar) with no leakage, no signs of wear or fatigue

Technical Data

Maximum working pressure for air operator		100 psig (6.9 bar)
Air operator temperature range		-10°F~200°F (-23°C~93°C)
Air operator material	Cylinder, piston, cover plates, spring housing	Anodized Aluminum
	Yoke	Stainless Steel
	O-ring	NBR
Air inlet connection		1/8" or 3/8" Female NPT

Dimensions

Basic Ordering Number	Air Inlet Connection	Area of Piston sq.in. (sq. cm)	A in. (mm)	B in. (mm)
10NSS-MF9-X-O	1/8" NPT	51.20 (330.3)	8.27 (210.0)	6.54 (166.0)
10NSS-MF12-X-O		92.58 (597.3)	10.55 (268.0)	8.58 (218.0)
10NSS-MF16-X-O	3/8" NPT	112.55 (726.1)	12.77 (324.4)	9.57 (243.0)
10NSS-FNS12-X-O	1/8" NPT	92.58 (597.3)	10.55 (268.0)	8.58 (218.0)
10NSS-FRT12-X-O		92.58 (597.3)	10.55 (268.0)	8.58 (218.0)
10NSS-FNS16-X-O	3/8" NPT	112.55 (726.1)	12.77 (324.4)	9.57 (243.0)
10NSS-FRT16-X-O		112.55 (726.1)	12.77 (324.4)	9.57 (243.0)
15NSS-DF2-X-O	1/8" NPT	7.79 (50.3)	8.56 (217.3)	3.62 (92.0)
15NSS-DF4-X-O		19.95 (128.7)	5.94 (151.0)	5.75 (146.0)
15NSS-DF6-X-O		19.95 (128.7)	5.94 (151.0)	5.75 (146.0)
15NSS-DF8-X-O		51.20 (330.3)	8.27 (210.0)	6.54 (166.0)
15NSS-FNS2-X-O		7.79 (50.3)	8.56 (217.3)	3.62 (92.0)
15NSS-FRT2-X-O		7.79 (50.3)	8.56 (217.3)	3.62 (92.0)
15NSS-FNS4-X-O		19.95 (128.7)	5.94 (151.0)	5.75 (146.0)
15NSS-FRT4-X-O		19.95 (128.7)	5.94 (151.0)	5.75 (146.0)
15NSS-FNS6-X-O		19.95 (128.7)	5.94 (151.0)	5.75 (146.0)
15NSS-FRT6-X-O		19.95 (128.7)	5.94 (151.0)	5.75 (146.0)
15NSS-FNS8-X-O		51.20 (330.3)	8.27 (210.0)	6.54 (166.0)
15NSS-FRT8-X-O		51.20 (330.3)	8.27 (210.0)	6.54 (166.0)
20NSS-MF4-X-O		19.95 (128.7)	5.94 (151.0)	5.75 (146.0)
20NSS-MF6-X-O		19.95 (128.7)	5.94 (151.0)	5.75 (146.0)
20NSS-MF9-X-O		51.20 (330.3)	8.27 (210.0)	6.54 (166.0)
20NSS-MF12-X-O		92.58 (597.3)	10.55 (268.0)	8.58 (218.0)
20NSS-MF16-X-O	3/8" NPT	112.55 (726.1)	12.77 (324.4)	9.57 (243.0)
30NSS-HF4-X-O	1/8" NPT	19.95 (128.7)	5.94 (151.0)	5.75 (146.0)
30NSS-HF6-X-O		19.95 (128.7)	5.94 (151.0)	5.75 (146.0)
30NSS-HF9-X-O		19.95 (128.7)	5.94 (151.0)	5.75 (146.0)
60NSS-HF4-X-O		19.95 (128.7)	5.94 (151.0)	5.75 (146.0)
60NSS-HF6-X-O		19.95 (128.7)	5.94 (151.0)	5.75 (146.0)
60NSS-HF9-X-O		19.95 (128.7)	5.94 (151.0)	5.75 (146.0)



Notes: 1. -X: Designator of valve flow patterns. Valves are available in 5 different flow patterns (-1 to -6).

For details, please refer to the FITOK Needle Valves catalog.

2. All dimensions are for reference only and are subject to change.

For dimensions not shown above, please contact FITOK Group or our authorized distributors.

Air Operator Technical Data

10N Series: 10,000 psig (690 bar)

Basic Ordering Number		System Pressure KSI (MPa)				Stem Travel in. (mm)	Flow Coefficient (Cv)
		1-4 (6.9-27.6)	6 (41.4)	8 (55.2)	10 (69.0)		
10NSS-MF9-X-O	Air Pressure psig (bar)	25 (1.7)	35 (2.4)	40 (2.8)	50 (3.5)	0.24 (6.0)	1.75
10NSS-MF12-X-O	Air Pressure psig (bar)	25 (1.7)	35 (2.4)	45 (3.1)	50 (3.5)	0.35 (9.0)	2.80
10NSS-MF16-X-O	Air Pressure psig (bar)	30 (2.1)	40 (2.8)	50 (3.5)	60 (4.2)	0.39 (10.0)	5.20
10NSS-FNS12-X-O 10NSS-FRT12-X-O	Air Pressure psig (bar)	25 (1.7)	30 (2.1)	35 (2.4)	40 (2.8)	0.35 (9.0)	2.09
10NSS-FNS16-X-O 10NSS-FRT16-X-O	Air Pressure psig (bar)	25 (1.7)	30 (2.1)	40 (2.8)	45 (3.1)	0.39 (10.0)	3.40

Notes: 1. -X: Designator of valve flow patterns. Valves are available in 5 different flow patterns (-1 to -6). For details, please refer to the FITOK Needle Valves catalog.

2. Cv values shown are for 2-way straight valve pattern. For 2-way angle pattern, increase Cv value by 50% (based on water).

3. All dimensions are for reference only and are subject to change.

15N Series: 15,000 psig (1034 bar)

Basic Ordering Number		System Pressure KSI (MPa)							Stem Travel in. (mm)	Flow Coefficient (Cv)
		1-4 (6.9-27.6)	6 (41.4)	8 (55.2)	10 (69.0)	12 (82.7)	14 (96.5)	15 (103.4)		
15NSS-DFF2-X-O	Air Pressure psig (bar)	45 (3.1)	55 (3.8)	60 (4.2)	70 (4.8)	75 (5.2)	85 (5.9)	90 (6.2)	0.12 (3.0)	0.10
15NSS-DFF4-X-O	Air Pressure psig (bar)	30 (2.1)	35 (2.4)	40 (2.8)	50 (3.5)	55 (3.8)	60 (4.2)	60 (4.2)	0.19 (4.9)	0.54
15NSS-DFF6-X-O										0.95
15NSS-DFF8-X-O	Air Pressure psig (bar)	25 (1.7)	35 (2.4)	45 (3.1)	50 (3.5)	60 (4.2)	70 (4.8)	75 (5.2)	0.24 (6.0)	1.90
15NSS-FNS2-X-O 15NSS-FRT2-X-O	Air Pressure psig (bar)	65 (4.5)	75 (5.2)	80 (5.5)	90 (6.2)	95 (6.6)	100 (6.9)	100 (6.9)	0.12 (3.0)	0.07
15NSS-FNS4-X-O 15NSS-FRT4-X-O	Air Pressure psig (bar)	30 (2.1)	35 (2.4)	40 (2.8)	50 (3.5)	55 (3.8)	60 (4.2)	60 (4.2)	0.19 (4.9)	0.47
15NSS-FNS6-X-O 15NSS-FRT6-X-O	Air Pressure psig (bar)	30 (2.1)	35 (2.4)	40 (2.8)	50 (3.5)	55 (3.8)	60 (4.2)	60 (4.2)	0.19 (4.9)	0.59
15NSS-FNS8-X-O 15NSS-FRT8-X-O	Air Pressure psig (bar)	20 (1.4)	30 (2.1)	35 (2.4)	40 (2.8)	45 (3.1)	55 (3.8)	55 (3.8)	0.24 (6.0)	1.04

Notes: 1. -X: Designator of valve flow patterns. Valves are available in 5 different flow patterns (-1 to -6). For details, please refer to the FITOK Needle Valves catalog.

2. Cv values shown are for 2-way straight valve pattern. For 2-way angle pattern, increase Cv value by 50% (based on water).

3. All dimensions are for reference only and are subject to change.

20N Series: 20,000 psig (1379 bar)

Basic Ordering Number		System Pressure KSI (MPa)									Stem Travel in. (mm)	Flow Coefficient (Cv)
		1-4 (6.9-27.6)	6 (41.4)	8 (55.2)	10 (69.0)	12 (82.7)	14 (96.5)	16 (110.3)	18 (124.1)	20 (137.9)		
20NSS-MF4-X-O	Air Pressure psig (bar)	30 (2.1)	35 (2.4)	40 (2.8)	50 (3.5)	55 (3.8)	60 (4.2)	65 (4.5)	70 (4.8)	75 (5.2)	0.19 (4.9)	0.29
20NSS-MF6-X-O												0.62
20NSS-MF9-X-O	Air Pressure psig (bar)	20 (1.4)	30 (2.1)	35 (2.4)	40 (2.8)	45 (3.1)	55 (3.8)	60 (4.2)	65 (4.5)	70 (4.8)	0.24 (6.0)	1.30
20NSS-MF12-X-O	Air Pressure psig (bar)	25 (1.7)	30 (2.1)	35 (2.4)	40 (2.8)	45 (3.1)	55 (3.8)	60 (4.2)	65 (4.5)	70 (4.8)	0.35 (9.0)	2.41
20NSS-MF16-X-O	Air Pressure psig (bar)	25 (1.7)	30 (2.1)	40 (2.8)	45 (3.1)	55 (3.8)	60 (4.2)	65 (4.5)	75 (5.2)	80 (5.5)	0.39 (10.0)	3.40

Notes: 1. -X: Designator of valve flow patterns. Valves are available in 5 different flow patterns (-1 to -6). For details, please refer to the FITOK Needle Valves catalog.
 2. Cv values shown are for 2-way straight valve pattern. For 2-way angle pattern, increase Cv value by 50% (based on water).
 3. All dimensions are for reference only and are subject to change.

30N Series: 30,000 psig (2068 bar)

Basic Ordering Number		System Pressure KSI (MPa)										Stem Travel in. (mm)	Flow Coefficient (Cv)
		1-12 (6.9-82.7)	14 (96.5)	16 (110.3)	18 (124.1)	20 (137.9)	22 (151.7)	24 (165.7)	26 (179.3)	28 (193.1)	30 (206.8)		
30NSS-HF4-X-O	Air Pressure psig (bar)	45 (3.1)	50 (3.5)	55 (3.8)	60 (4.1)	65 (4.5)	70 (4.8)	75 (5.2)	80 (5.5)	85 (5.9)	85 (5.9)	0.19 (4.9)	0.12
30NSS-HF6-X-O													0.22
30NSS-HF9-X-O													0.31

Notes: 1. -X: Designator of valve flow patterns. Valves are available in 5 different flow patterns (-1 to -6). For details, please refer to the FITOK Needle Valves catalog.
 2. Cv values shown are for 2-way straight valve pattern. For 2-way angle pattern, increase Cv value by 50% (based on water).
 3. All dimensions are for reference only and are subject to change.

60N Series: 60,000 psig (4137 bar)

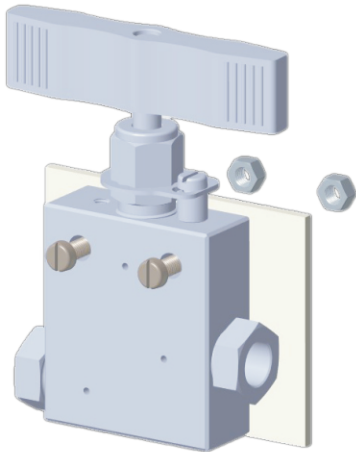
Basic Ordering Number		System Pressure KSI (MPa)									Stem Travel in. (mm)	Flow Coefficient (Cv)
		1-20 (6.9-137.9)	25 (172.4)	30 (206.8)	35 (241.3)	40 (275.8)	45 (310.3)	50 (344.7)	55 (379.2)	60 (413.7)		
60NSS-HF4-X-O	Air Pressure psig (bar)	35 (2.4)	40 (2.8)	50 (3.5)	55 (3.8)	65 (4.5)	70 (4.8)	75 (5.2)	85 (5.9)	90 (6.2)	0.19 (4.9)	0.08
60NSS-HF6-X-O												0.09
60NSS-HF9-X-O												0.14

Notes: 1. -X: Designator of valve flow patterns. Valves are available in 5 different flow patterns (-1 to -6). For details, please refer to the FITOK Needle Valves catalog.
 2. Cv values shown are for 2-way straight valve pattern. For 2-way angle pattern, increase Cv value by 50% (based on water).
 3. All dimensions are for reference only and are subject to change.

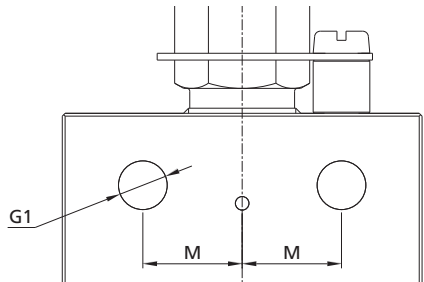
Mounting Instructions

Bracket or panel mounting options are available, as illustrated below. For dimensions M, G, and G1, refer to the Ordering Information and Dimensions section.

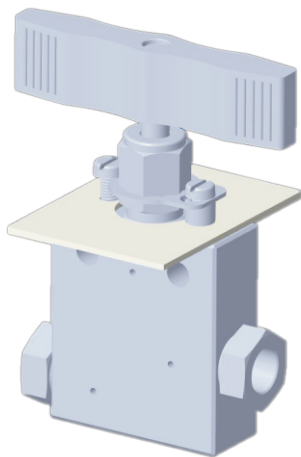
Bracket Mounting



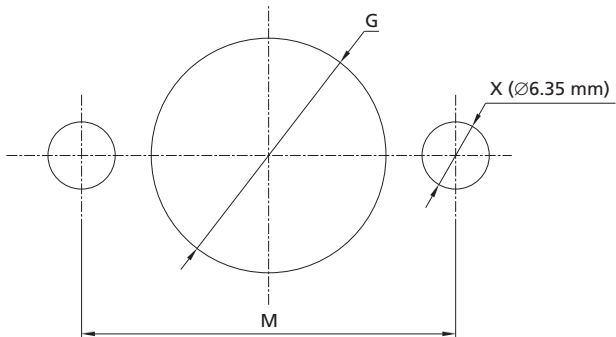
Bracket Mounting Schematic



Panel Mounting



Panel Mounting Schematic



Maintenance Components

Troubleshooting Guide

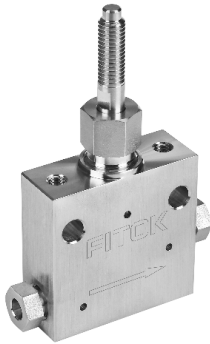
Issue	Possible Cause	Solution
Leakage from the stuffing box weep hole	Minor packing wear	Re-seal by adjusting the packing gland
	Damaged stem or severe packing wear	Replace with -RK service kit or -PRK packing kit
Leakage after valve closure	Poor sealing between lower stem and valve body	Replace with -AM valve assembly

Component Types

FITOK offers a comprehensive range of maintenance components to support servicing of needle valves and pneumatic needle valves under various fault conditions.

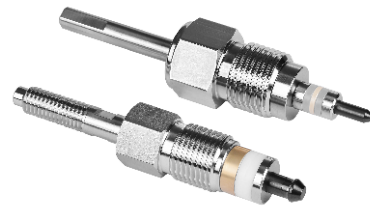
-AM Valve Assembly (Pneumatic needle valves only)

A complete needle valve assembly without actuator, including: upper stem, packing gland, lower stem, packing, packing washer, packing ring, valve body, (retaining ring), (seat), lubricant, and instructions.



-RK Service Kit

Includes upper stem, packing gland, lower stem, packing, packing washer, packing ring, (retaining ring), (seat), lubricant, and instructions.



-PRK Packing Kit

Includes packing, (retaining ring), lubricant, and instructions.



-SRK Seat (Flow Pattern -3 needle valves / pneumatic needle valves only)

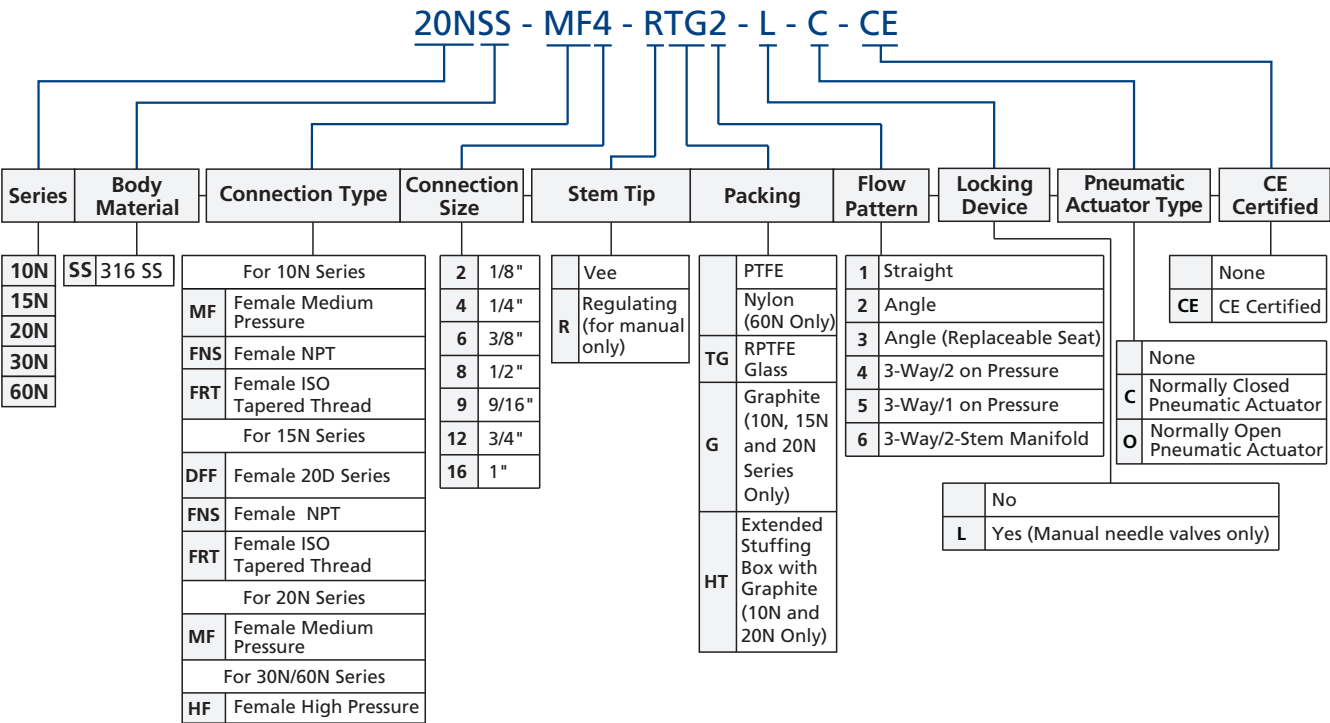
Includes seat, lubricant, and instructions.



Ordering Information

Designator	Applicability	Example Part Numbers	
		Flow Pattern-1/-2/-4/-5/-6	Flow Pattern-3
-AM	Pneumatic needle valves	20NSS-MF9-1-AM	
-RK	Needle valves	20NSS-MF9-RK	20NSS-MF9-3-RK
	Pneumatic needle valves	20NSS-MF9-OC-RK	20NSS-MF9-3-OC-RK
-PRK	Needle valves / Pneumatic needle valves	Default packing (PTFE or Nylon): 20NSS-MF9-PRK RPTFE Glass (TG): 20NSS-MF9-TG-PRK Graphite (G): 20NSS-MF9-G-PRK	
-SRK		N/A	20NSS-MF9-3-SRK

Ordering Number Description



- Notes:
- 1. Pneumatic needle valves are on/off valves, and will not regulate flow. It is not recommended to order pneumatic valves with regulating stems.
 - 2. For more details regarding 20D Series and Medium/High Pressure connections, please see **Connection Information** on A-02.
 - 3. "Ordering Number Description" is a reference to understand the combination rules of FITOK product part number. Not all combinations are available.

Check Valves

10C, 10CO Series: 10,000 psig (690 bar)

15C, 15CO Series: 15,000 psig (1034 bar)

20C, 20CO Series: 20,000 psig (1379 bar)

60C, 60CO Series: 60,000 psig (4137 bar)



Fittings

Tubing

Quick Couplings

Line Filters

Valves

Sour Service
Products

Subsea Valves

Part Number
Crossover Charts