

Medium & High Pressure Valves

Ball Valves and Pneumatic Ball Valves



C-02

Needle Valves and Pneumatic Needle Valves



C-11

Check Valves



C-50

Excess Flow Valves



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Metering Valves



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Relief Valves



C-72

Bleed Valves and Block & Bleed Valves



C-84

Ball Valves and Pneumatic Ball Valves

10B Series, 10,000 psig (690 bar)

15B Series, 15,000 psig (1034 bar)

20B Series, 20,000 psig (1379 bar)



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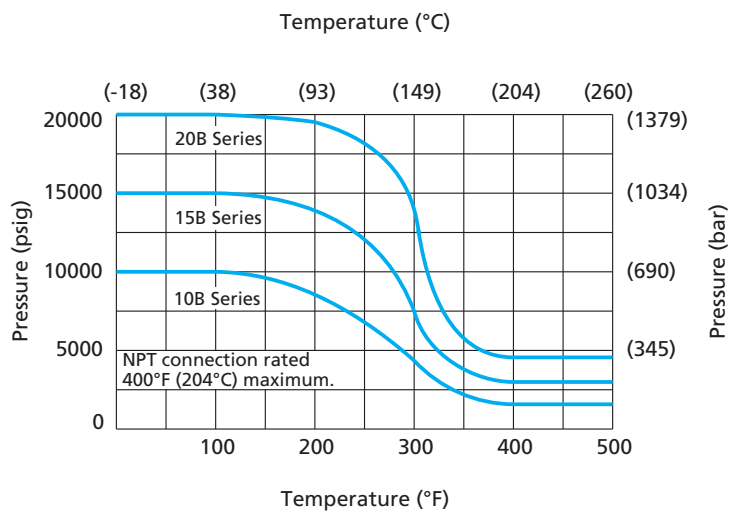
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Features

- ⦿ Working pressure up to 20,000 psig (1379 bar)
- ⦿ Fluorocarbon FKM O-ring for operation from 0°F to 400°F (-17.8°C to 204°C), other O-ring materials available
- ⦿ High tensile 316 Stainless Steel as body material
- ⦿ PEEK seats to offer excellent resistance to chemicals, heat and abrasion
- ⦿ One-piece, trunnion mounted stem design
- ⦿ Full-port flow path to minimize pressure drop
- ⦿ 2-way and 3-way valve configurations
- ⦿ Wide selection of tube and pipe end fittings available
- ⦿ Pneumatic actuator optional with air pressure from 80 psig to 116 psig (5.5 bar to 8 bar)

Pressure vs. Temperature Curve

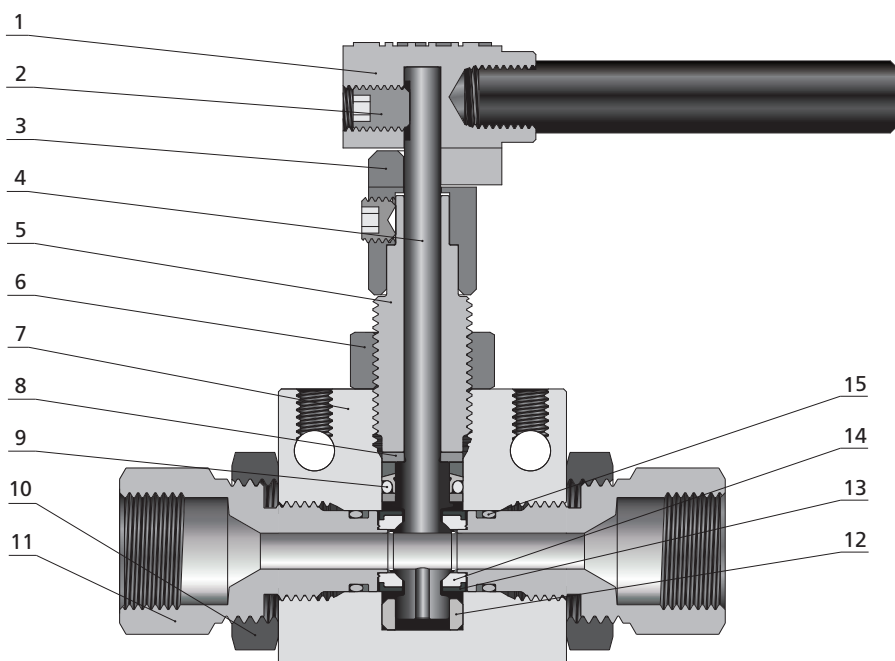


- NOTES: 1. Ball valves are not recommended for critical gas applications such as Hydrogen, Helium or other small molecular gases.
 2. The side port can not be used as inlet port for 3-way valves.

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Standard Materials of Construction

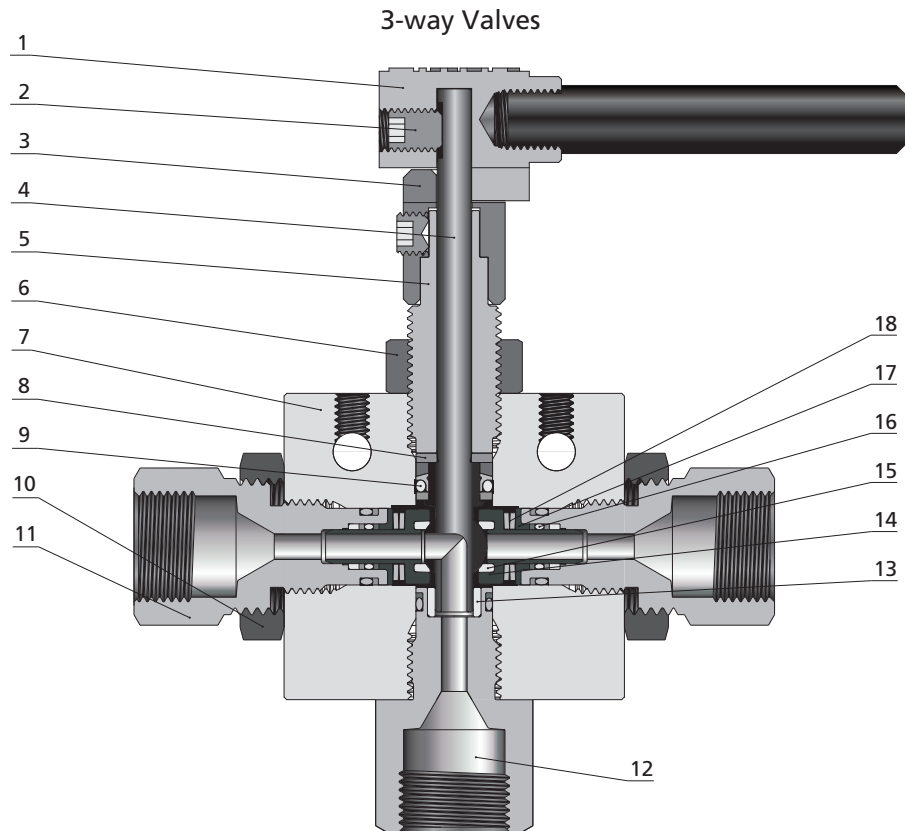
2-way Straight Valves



Item	Component	Material Grade/ASTM Specification
1	Handle	Stainless Steel
2	Set Screw	Stainless Steel
3	Stopping Device	316 SS/A479
4	Stem	316 SS/A479
5	Packing Gland	316 SS/A479
6	Locking Piece	316 SS/A479
7	Valve Body	316 SS/A479
8	Thrust Washer	Copper Alloy
9	Combination Seal	Fluorocarbon FKM
10	Lock Nut	316 SS/A479
11	Seat Gland	316 SS/A479
12	Bearing	PEEK
13	Seat Retainer	316 SS/A479
14	Seat	PEEK
15	O-ring	Fluorocarbon FKM
	Lubricant	Molybdenum Disulfide/Fluorinated-based

Wetted components listed in italics.

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Item	Component	Material Grade/ASTM Specification
1	Handle	Stainless Steel
2	Set Screw	Stainless Steel
3	Stopping Device	316 SS/A479
4	Stem	316 SS/A479
5	Packing Gland	316 SS/A479
6	Locking Piece	316 SS/A479
7	Valve Body	316 SS/A479
8	Thrust Washer	Copper Alloy
9	Combination Seal	Fluorocarbon FKM
10	Lock Nut	316 SS/A479
11	Seat Gland	316 SS/A479
12	Bottom Gland	316 SS/A479
13	Bearing	Copper Alloy
14	Seat Retainer	S17400/A564
15	Seat	Carbon Filled PEEK
16	O-ring	Fluorocarbon FKM
17	Belleville Backup	S17400/A564
18	Belleville Washers	S17700/A693
Lubricant		Molybdenum Disulfide/Fluorinated-based

Wetted components listed in italics.

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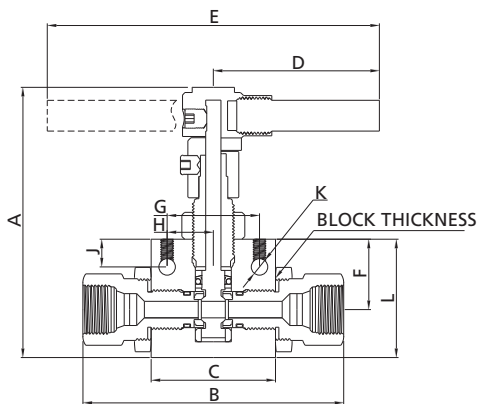
Subsea Valves

Tools and Installation Instructions

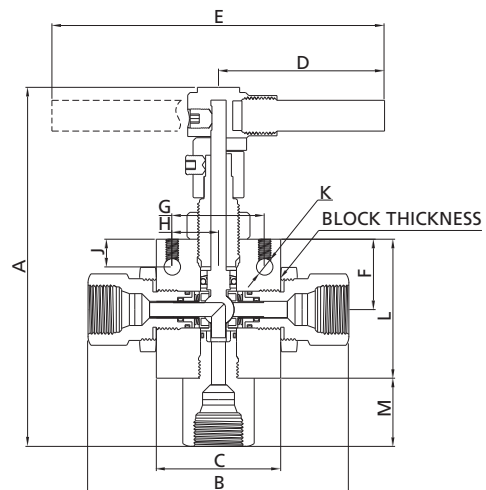
Technical Information

Dimensions

2-way Straight Valves



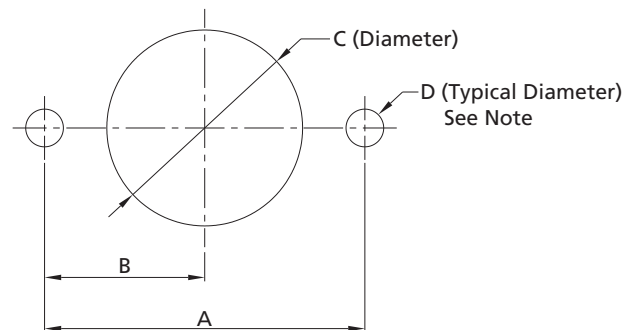
3-way Valves



Flow Pattern	Orifice No.	Dimensions, in. (mm)												Block Thickness
		A	B	C	D	E	F	G	H	J	K	L	M	
2-way		4.33 (110)	4.19 (106.5)	2 (50.8)	3.37 (85.6)	/	1.13 (28.6)	1.5 (38.1)	0.75 (19.1)	0.43 (10.9)	0.28 (7.1)	1.91 (48.4)	/	1 (25.4)
	6	4.97 (126.3)	5.53 (140.4)	3 (76.2)	4.99 (126.8)	/	1.38 (34.9)	2 (50.8)	1 (25.4)	0.41 (10.3)	0.28 (7.1)	2.5 (63.5)	/	1.38 (34.9)
	8	5.95 (151.1)	7.73 (196.5)	4.13 (104.8)	/	10.25 (260.4)	1.76 (44.7)	3 (76.2)	1.5 (38.1)	0.5 (12.7)	0.28 (7.1)	3.09 (78.6)	/	1.75 (44.5)
3-way		5.64 (143.4)	4.72 (119.9)	2.5 (63.5)	3.37 (85.6)	/	1.13 (28.6)	1.5 (38.1)	0.75 (19.1)	0.43 (10.9)	0.28 (7.1)	2.25 (57.2)	0.97 (24.6)	1 (25.4)
	6	6.55 (166.4)	5.54 (140.8)	3 (76.2)	4.99 (126.8)	/	1.38 (34.9)	2 (50.8)	1 (25.4)	0.41 (10.3)	0.28 (7.1)	2.88 (73)	1.19 (30.2)	1.38 (34.9)
	8	7.83 (198.8)	7.77 (197.4)	4.13 (104.8)	/	10.25 (260.4)	1.66 (42.2)	3 (76.2)	1.5 (38.1)	0.5 (12.7)	0.28 (7.1)	3.34 (84.9)	1.7 (43.2)	1.75 (44.5)

Panel Mounting Dimensions

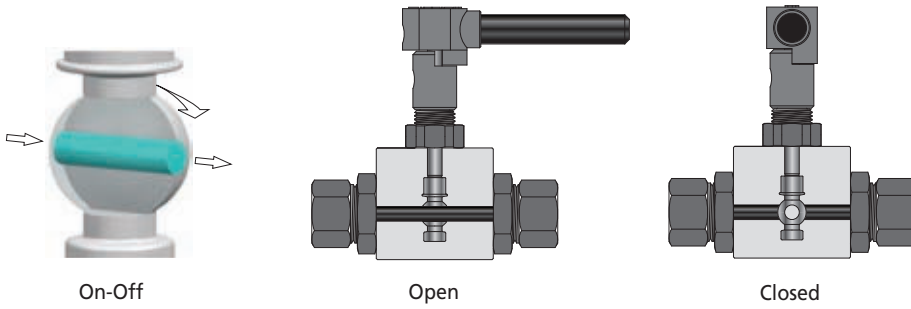
Flow Pattern	Orifice No.	Dimensions, in. (mm)			
		A	B	C	D
2-way		1.5 (38.1)	0.75 (19.1)	1.06 (26.9)	0.28 (7.1)
	6	2 (50.8)	1 (25.4)	1.5 (38.1)	0.28 (7.1)
	8	3 (76.2)	1.5 (38.1)	1.88 (47.6)	0.28 (7.1)
3-way		1.5 (38.1)	0.75 (19.1)	1.06 (26.9)	0.28 (7.1)
	6	2 (50.8)	1 (25.4)	1.5 (38.1)	0.28 (7.1)
	8	3 (76.2)	1.5 (38.1)	1.88 (47.6)	0.28 (7.1)



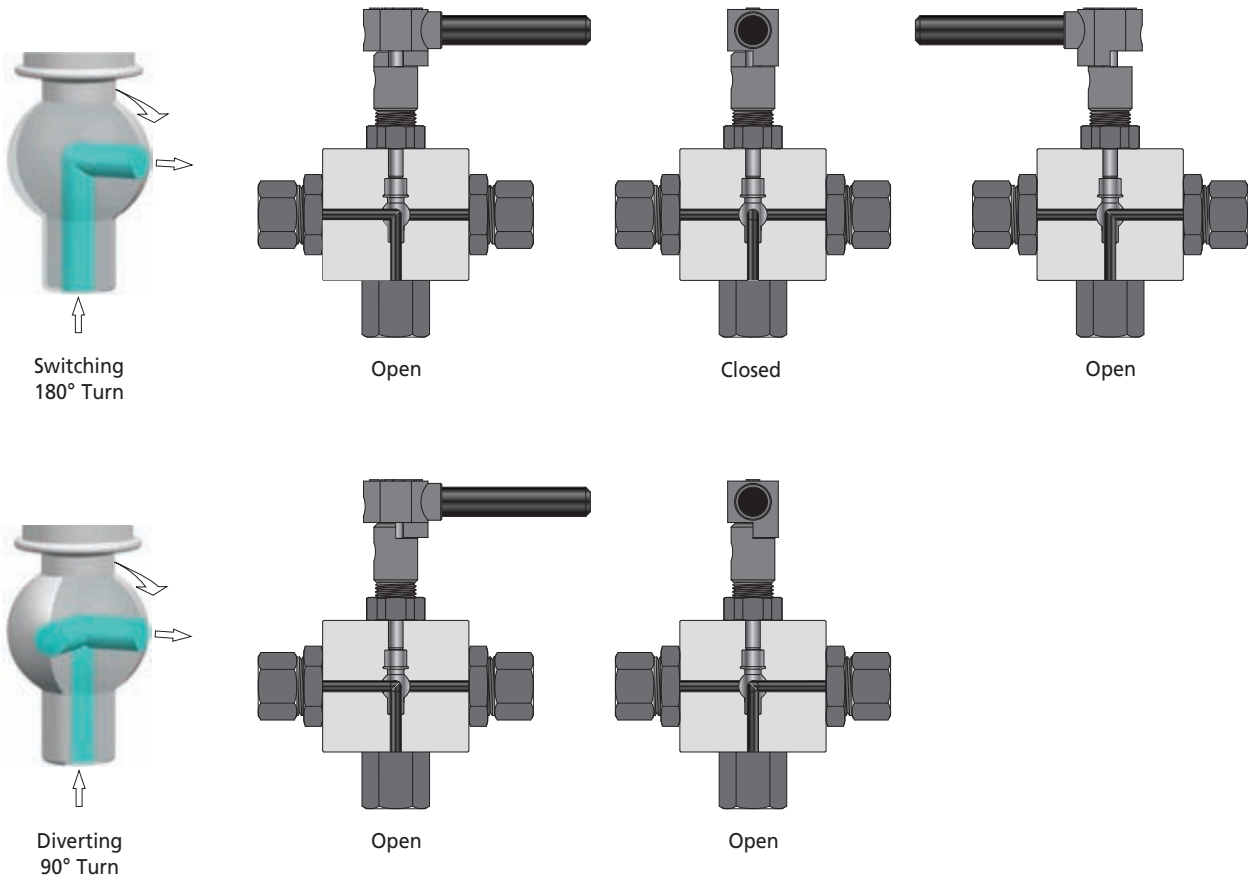
- NOTES: 1. Body mounting 1/4-20 thread.
2. All dimensions are for reference only and are subject to change.

Flow Configuration

2-way Straight Valves



3-way Valves



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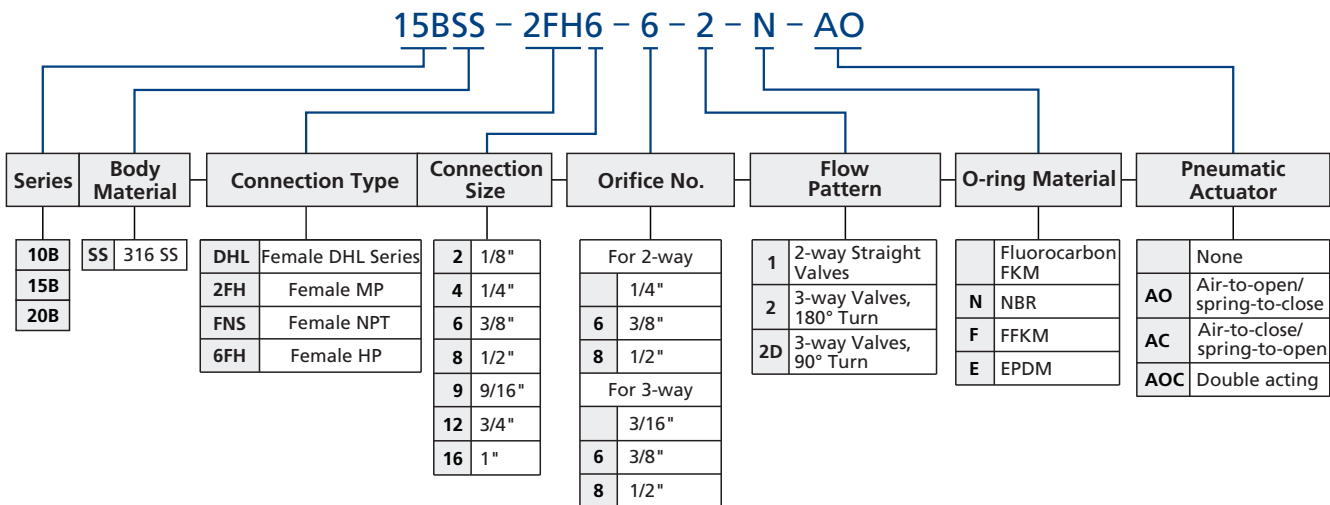
Ordering Information and Dimensions

Series	Flow Pattern	Connection	Orifice No.	Orifice Size in. (mm)	Cv	Ordering Number	Working Pressure psig (bar)				
10B	2-way	2FH12	8	0.5 (12.7)	10.2	10BSS-2FH12-8-1	10,000 (690)				
		2FH16		0.5 (12.7)	10.2	10BSS-2FH16-8-1					
		FNS12		0.5 (12.7)	10.2	10BSS-FNS12-8-1					
		FNS16		0.5 (12.7)	10.2	10BSS-FNS16-8-1					
	3-way	2FH12	8	0.5 (12.7)	4.4	10BSS-2FH12-8-2 10BSS-2FH12-8-2D					
		2FH16		0.5 (12.7)	4.4	10BSS-2FH16-8-2 10BSS-2FH16-8-2D					
		FNS12		0.5 (12.7)	4.4	10BSS-FNS12-8-2 10BSS-FNS12-8-2D					
		FNS16		0.5 (12.7)	4.4	10BSS-FNS16-8-2 10BSS-FNS16-8-2D					
		15B		2-way	DHL2	6		0.094 (2.4)	0.26	15BSS-DHL2-1	15,000 (1034)
					DHL4			0.13 (3.25)	0.26	15BSS-DHL4-1	
					DHL6			0.25 (6.35)	1.51	15BSS-DHL6-1	
					DHL8			0.25 (6.35)	1.51	15BSS-DHL8-1	
FNS2	0.25 (6.35)		1.51		15BSS-FNS2-1						
FNS4	0.25 (6.35)		1.51		15BSS-FNS4-1						
FNS6	0.25 (6.35)		1.51		15BSS-FNS6-1						
FNS8	0.25 (6.35)		1.51		15BSS-FNS8-1						
DHL8	0.375 (9.5)		3.51		15BSS-DHL8-6-1						
FNS4	0.375 (9.5)		3.51		15BSS-FNS4-6-1						
FNS6	0.375 (9.5)		3.51	15BSS-FNS6-6-1							
FNS8	0.375 (9.5)		3.51	15BSS-FNS8-6-1							
3-way	DHL2	6	0.094 (2.4)	0.13	15BSS-DHL2-2 15BSS-DHL2-2D						
	DHL4		0.13 (3.25)	0.23	15BSS-DHL4-2 15BSS-DHL4-2D						
	DHL6		0.19 (4.78)	0.5	15BSS-DHL6-2 15BSS-DHL6-2D						
	DHL8		0.19 (4.8)	0.5	15BSS-DHL8-2 15BSS-DHL8-2D						
	FNS2		0.19 (4.8)	0.5	15BSS-FNS2-2 15BSS-FNS2-2D						
	FNS4		0.19 (4.8)	0.5	15BSS-FNS4-2 15BSS-FNS4-2D						
	FNS6		0.19 (4.8)	0.5	15BSS-FNS6-2 15BSS-FNS6-2D						
	FNS8		0.19 (4.8)	0.5	15BSS-FNS8-2 15BSS-FNS8-2D						
	DHL8		0.33 (8.3)	2.1	15BSS-DHL8-6-2 15BSS-DHL8-6-2D						
	2FH6		0.2 (5.2)	0.81	15BSS-2FH6-6-2 15BSS-2FH6-6-2D						
	2FH9		0.31 (7.9)	1.9	15BSS-2FH9-6-2 15BSS-2FH9-6-2D						
	2FH12		0.33 (8.3)	2.1	15BSS-2FH12-6-2 15BSS-2FH12-6-2D						
	FNS4		0.33 (8.3)	2.1	15BSS-FNS4-6-2 15BSS-FNS4-6-2D						

Ordering Information and Dimensions (continue)

Series	Flow Pattern	Connection	Orifice No.	Orifice Size in. (mm)	Cv	Ordering Number	Working Pressure psig (bar)
15B	3-way	FNS6	6	0.33 (8.3)	2.1	15BSS-FNS6-6-2	15,000 (1034)
				15BSS-FNS6-6-2D			
		FNS8		0.33 (8.3)	2.1	15BSS-FNS8-6-2	
				15BSS-FNS8-6-2D			
20B	2-way	2FH4	6	0.11 (2.8)	0.36	20BSS-2FH4-1	20,000 (1379)
		2FH6		0.2 (5.2)	1.23	20BSS-2FH6-1	
		2FH9		0.25 (6.35)	1.51	20BSS-2FH9-1	
		6FH4		0.094 (2.4)	0.26	20BSS-6FH4-1	
		6FH6		0.125 (3.2)	0.47	20BSS-6FH6-1	
		6FH9		0.19 (4.8)	1.05	20BSS-6FH9-1	
		2FH6		0.2 (5.2)	1.23	20BSS-2FH6-6-1	
		2FH9		0.31 (7.9)	2.93	20BSS-2FH9-6-1	
		2FH12		0.375 (9.5)	3.51	20BSS-2FH12-6-1	
	3-way	2FH4	6	0.11 (2.8)	0.17	20BSS-2FH4-2	
		2FH6		0.19 (4.8)	0.5	20BSS-2FH6-2	
		2FH9		0.19 (4.8)	0.5	20BSS-2FH9-2	
		6FH4		0.094 (2.4)	0.13	20BSS-6FH4-2	
		6FH6		0.125 (3.2)	0.22	20BSS-6FH6-2	
		6FH9		0.19 (4.8)	0.5	20BSS-6FH9-2	
		2FH4-2D				20BSS-2FH4-2D	
		2FH6-2D				20BSS-2FH6-2D	
		2FH9-2D				20BSS-2FH9-2D	

Ordering Number Description



NOTE: "Ordering Number Description" is a reference to understand the combination rules of FITOK product part number. Not all combinations are available.

Code	O-ring Material	Working Temperature Range, °F (°C)
	Fluorocarbon FKM	0 to 400 (-17.8 to 204)
N	NBR	-10 to 250 (-23 to 121)
F	FFKM	-20 to 500 (-29 to 260)
E	EPDM	-50 to 300 (-45 to 148)

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)



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15N Series

15,000 psig (1034 bar) C-19

20N Series

20,000 psig (1379 bar) C-26

30N Series

30,000 psig (2068 bar) C-31

60N Series

60,000 psig (4137 bar) C-35

Pneumatic Needle Valves

Piston Style Pneumatic Needle Valves

Air to Open (Normally Closed) C-39

Piston Style Pneumatic Needle Valves

Air to Close (Normally Open) C-45

Ordering Number Description

C-49

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Needle Valves

10N Series

10,000 psig (690 bar)

Features

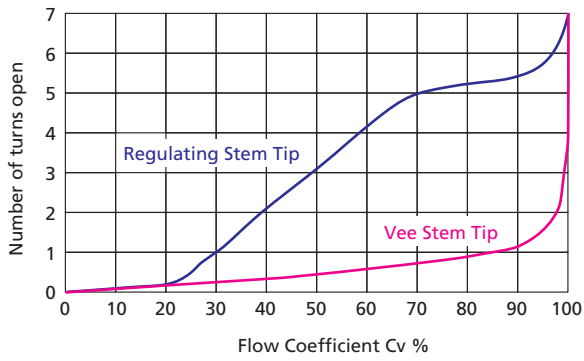
- ⦿ High tensile 316 Stainless Steel for the valve body and 17-4PH Stainless Steel for lower stem
- ⦿ Selected materials of packing gland and upper stem for optimum thread cycle life and reduced handle torque
- ⦿ Metal-to-metal seating to achieve ideal shutoff, longer stem/seat service lifetime for abrasive 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
- ⦿ Packing located under stem threads
- ⦿ Reliable locking device for packing gland
- ⦿ Options for Vee or Regulating stem tips
- ⦿ Five flow patterns available

Technical Data

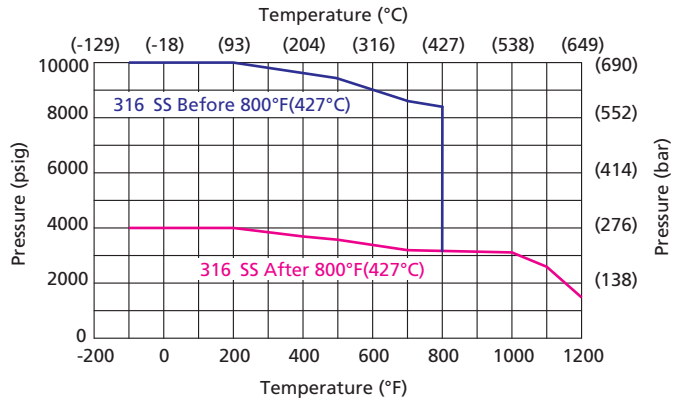
Connection Size	Connection	Orifice in. (mm)	Cv	Working Pressure psig (bar)	Working Temperature Range
9/16" O.D. Tubing	2FH9	0.359 (9.12)	1.75	10,000 (690)	-100°F~1200°F (-73°C~649°C)
3/4" O.D. Tubing	2FH12	0.516 (13.10)	2.80	10,000 (690)	
1" O.D. Tubing	2FH16	0.688 (17.48)	5.20	10,000 (690)	
3/4" Female NPT	FNS12	0.437 (11.10)	2.50	10,000 (690)	-100°F~400°F (-73°C~204°C)
3/4" Female ISO/BSP Tapered	FRT12				
1" Female NPT	FNS16	0.562 (14.27)	4.40	10,000 (690)	
1" Female ISO/BSP Tapered	FRT16				

- NOTES: 1. The values of Cv shown are for 2-way straight valve pattern.
 2. The values of Cv for 2-way angle pattern will increase by about 50% (Based on water).
 3. 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~1000°F (-73°C~649°C)

Flow Data at 100°F (38°C)

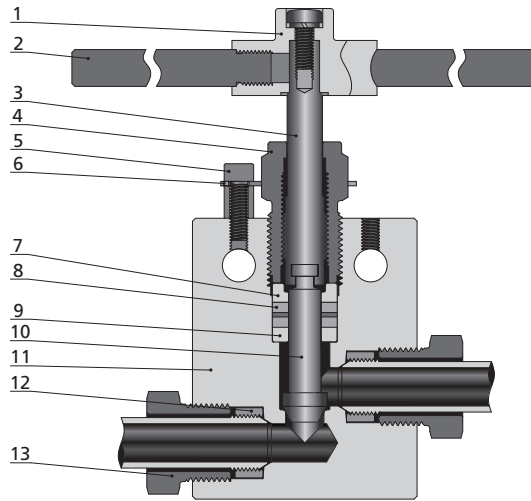


Pressure vs. Temperature Curve



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

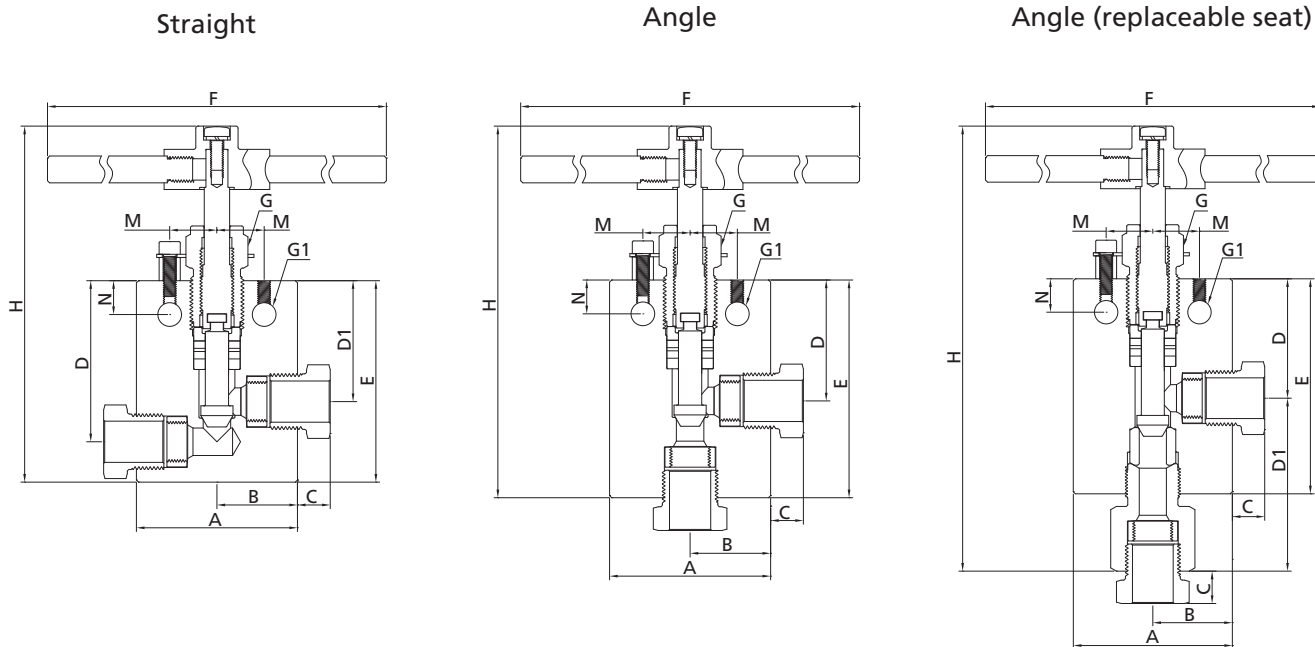


Item	Component	Material Grade/ASTM Specification
1	Handle Head	Stainless steel
2	Handle	Stainless steel
3	Upper Stem	316 SS/A479
4	Packing Gland	C63000/B150
5	Locking Screw	Stainless steel
6	Locking Plate	304 SS/A240
7	Packing Ring	C63000/B150
8	<i>Packing</i>	<i>PTFE/RPTFE glass/Graphite/Extended stuffing box with Graphite</i>
9	<i>Packing Washer</i>	<i>17-4PH SS/A564</i>
10	<i>Lower Stem</i>	<i>17-4PH SS/A564</i>
11	Body	316 SS/A479
12	Collar	316 SS/A479 (For tubing connections)
13	Gland	316 SS/A479 (For tubing connections)
	Lubricant	Molybdenum disulfide

Wetted component listed in italics.

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

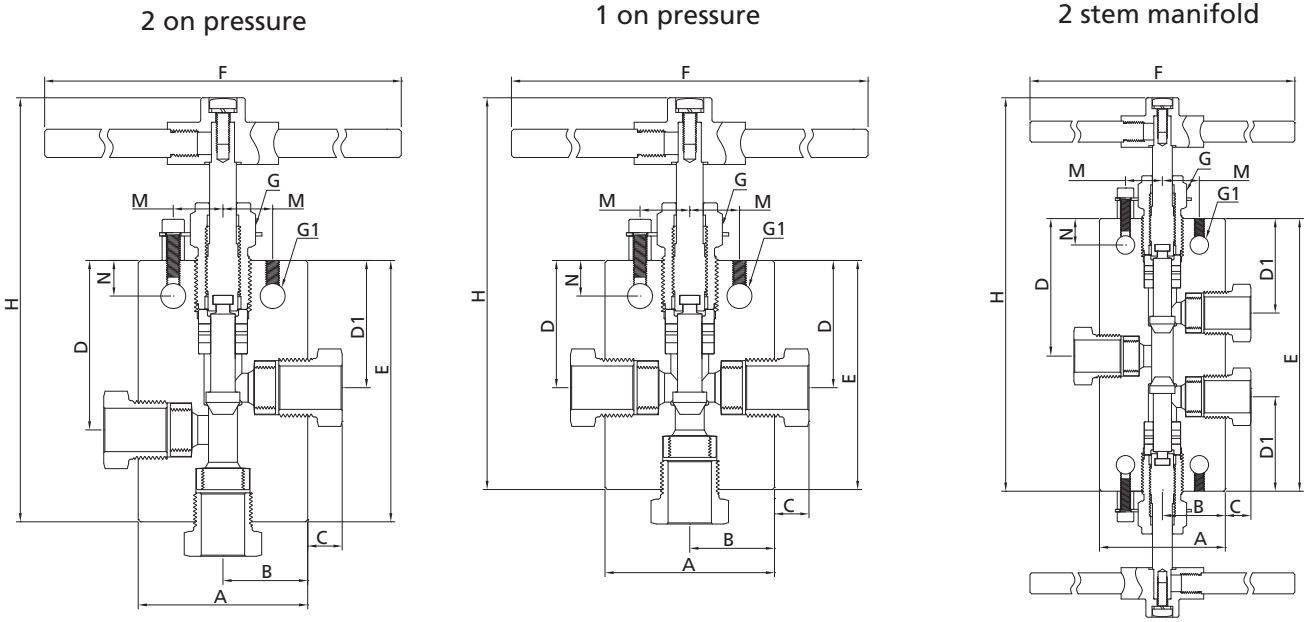


Straight															
Ordering Number	Connection	Orifice in. (mm)	Dimensions, in. (mm)												
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness
10NSS-2FH9-1	2FH9	0.359 (9.12)	2.50 (63.5)	1.25 (31.8)	0.55 (14.0)	2.38 (60.5)	1.75 (44.5)	2.88 (73.2)	4.00 (101.6)	1.00 (25.4)	0.34 (8.6)	6.20 (157.4)	0.69 (17.5)	0.50 (12.7)	1.00 (25.4)
10NSS-2FH12-1	2FH12	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)
10NSS-2FH16-1	2FH16	0.688 (17.48)	4.12 (104.7)	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)

Angle															
Ordering Number	Connection	Orifice in. (mm)	Dimensions, in. (mm)												
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness
10NSS-2FH9-2	2FH9	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)	6.70 (170.3)	0.69 (17.5)	0.50 (12.7)	1.00 (25.4)
10NSS-2FH12-2	2FH12	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)	7.73 (196.4)	0.88 (22.4)	0.63 (16.0)	1.38 (35.1)
10NSS-2FH16-2	2FH16	0.688 (17.48)	4.12 (104.7)	2.06 (52.3)	0.74 (18.7)	2.81 (71.4)	4.11 (104.5)	5.12 (130.1)	10.25 (260.4)	1.62 (41.2)	0.56 (14.2)	9.83 (249.7)	1.25 (31.8)	1.13 (28.7)	1.75 (44.5)

Angle (replaceable seat)															
Ordering Number	Connection	Orifice in. (mm)	Dimensions, in. (mm)												
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness
10NSS-2FH9-3	2FH9	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)
10NSS-2FH12-3	2FH12	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)
10NSS-2FH16-3	2FH16	0.688 (17.48)	4.12 (104.7)	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)

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



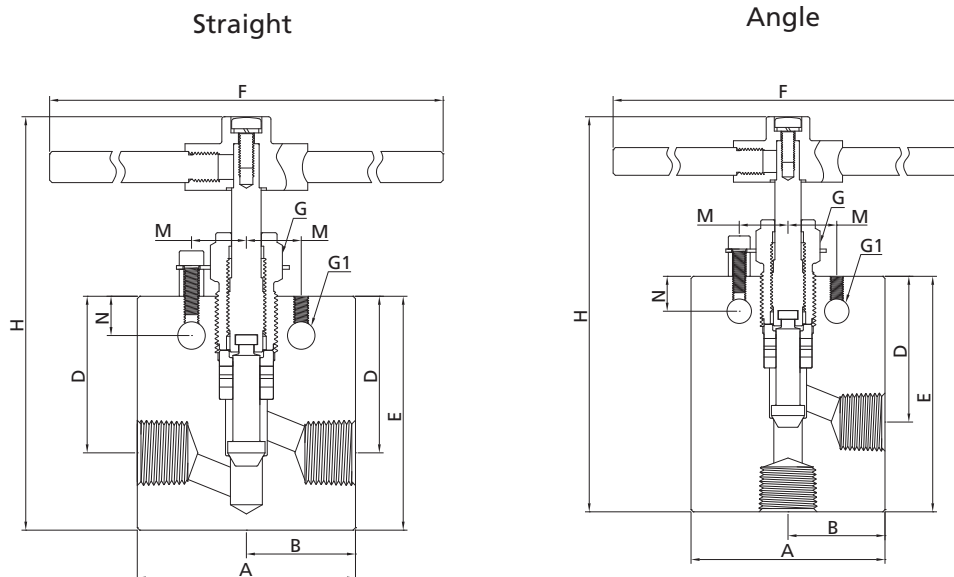
2 on pressure															
Ordering Number	Connection	Orifice in. (mm)	Dimensions, in. (mm)												
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness
10NSS-2FH9-4	2FH9	0.359 (9.12)	2.50 (63.5)	1.25 (31.8)	0.55 (14.0)	2.38 (60.5)	1.75 (44.5)	3.63 (92.1)	4.00 (101.6)	1.00 (25.4)	0.34 (8.6)	6.95 (176.5)	0.69 (17.5)	0.50 (12.7)	1.00 (25.4)
10NSS-2FH12-4	2FH12	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)
10NSS-2FH16-4	2FH16	0.688 (17.48)	4.12 (104.7)	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)

1 on pressure															
Ordering Number	Connection	Orifice in. (mm)	Dimensions, in. (mm)												
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness
10NSS-2FH9-5	2FH9	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)
10NSS-2FH12-5	2FH12	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)
10NSS-2FH16-5	2FH16	0.688 (17.48)	4.12 (104.7)	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)	9.83 (249.7)	1.25 (31.8)	1.13 (28.7)	1.75 (44.5)

2 stem manifold															
Ordering Number	Connection	Orifice in. (mm)	Dimensions, in. (mm)												
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness
10NSS-2FH9-6	2FH9	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)
10NSS-2FH12-6	2FH12	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)
10NSS-2FH16-6	2FH16	0.688 (17.48)	4.12 (104.7)	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)

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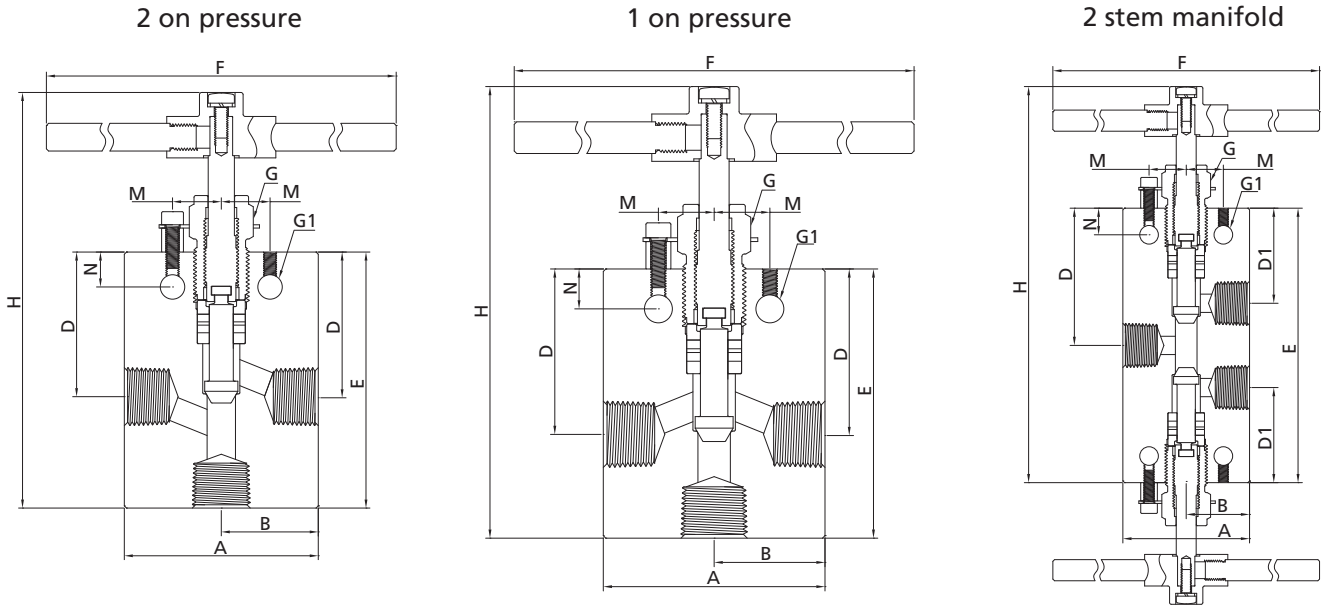
Ordering Information and Dimensions (Pipe Connection, 2-Way)



Straight															
Ordering Number	Connection	Orifice in. (mm)	Dimensions, in. (mm)												
			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)
10NSS-FRT12-1	FRT12		4.12 (104.7)	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)
10NSS-FNS16-1	FNS16	0.562 (14.27)	4.12 (104.7)	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)
10NSS-FRT16-1	FRT16		4.12 (104.7)	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)

Angle															
Ordering Number	Connection	Orifice in. (mm)	Dimensions, in. (mm)												
			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)
10NSS-FRT12-2	FRT12		4.12 (104.7)	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)
10NSS-FNS16-2	FNS16	0.562 (14.27)	4.12 (104.7)	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)
10NSS-FRT16-2	FRT16		4.12 (104.7)	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)

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



2 on pressure

Ordering Number	Connection	Orifice in. (mm)	Dimensions, in. (mm)												
			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)	/	2.65 (67.3)	/	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)
10NSS-FRT12-4	FRT12														
10NSS-FNS16-4	FNS16	0.562 (14.27)	4.12 (104.7)	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)
10NSS-FRT16-4	FRT16														

1 on pressure

Ordering Number	Connection	Orifice in. (mm)	Dimensions, in. (mm)												
			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)	/	2.65 (67.3)	/	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)
10NSS-FRT12-5	FRT12														
10NSS-FNS16-5	FNS16	0.562 (14.27)	4.12 (104.7)	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)
10NSS-FRT16-5	FRT16														

2 stem manifold

Ordering Number	Connection	Orifice in. (mm)	Dimensions, in. (mm)												
			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)
10NSS-FRT12-6	FRT12														
10NSS-FNS16-6	FNS16	0.562 (14.27)	4.12 (104.7)	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)
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 for reference only and subject to change. For dimensions not shown above, please contact the FITOK group or our authorized distributors.

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15N Series

15,000 psig (1034 bar)

Features

- ⊙ High tensile 316 Stainless Steel for valve body and 17-4PH Stainless Steel for lower stem
- ⊙ Selected materials of packing gland and upper stem for optimum thread cycle life and reduced handle torque
- ⊙ 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
- ⊙ Packing located under stem threads
- ⊙ 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" O.D. Tubing	DHL2	0.094 (2.39)	0.12	15, 000 (1034)	-100°F~800°F (-73°C~427°C)
1/4" O.D. Tubing	DHL4	0.188 (4.77)	0.65	15, 000 (1034)	
3/8" O.D. Tubing	DHL6	0.250 (6.35)	0.95	15, 000 (1034)	
1/2" O.D. Tubing	DHL8	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/BSP Tapered	FRT2				
1/4" Female NPT	FNS4	0.203 (5.16)	0.63	15, 000 (1034)	
1/4" Female ISO/BSP Tapered	FRT4				
3/8" Female NPT	FNS6	0.219 (5.56)	0.75	15, 000 (1034)	
3/8" Female ISO/BSP Tapered	FRT6				
1/2" Female NPT	FNS8	0.312 (7.92)	1.30	15, 000 (1034)	
1/2" Female ISO/BSP Tapered	FRT8				

NOTES: 1. The values of Cv shown are for 2-way straight valve pattern.

2. The values of Cv for 2-way angle pattern will increase by about 50% (Based on water).

3. Packing Options

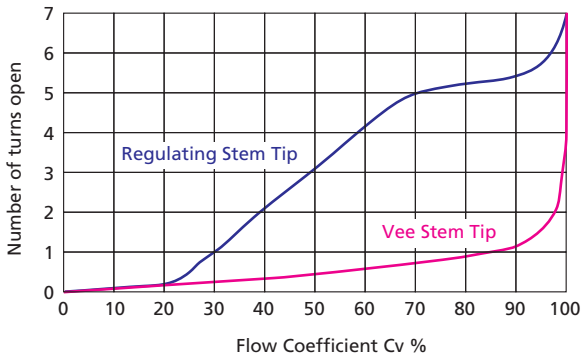
PTFE is the standard packing material, RPTFE glass and Graphite also available. Graphite packing not recommended for Hydrogen or Helium service.

PTFE: -100°F~450°F (-73°C~232°C)

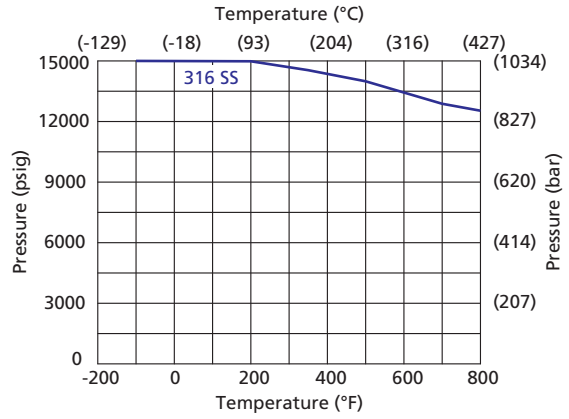
RPTFE glass: -100°F~600°F (-73°C~316°C)

Graphite: 0°F~800°F (-17.8°C~427°C)

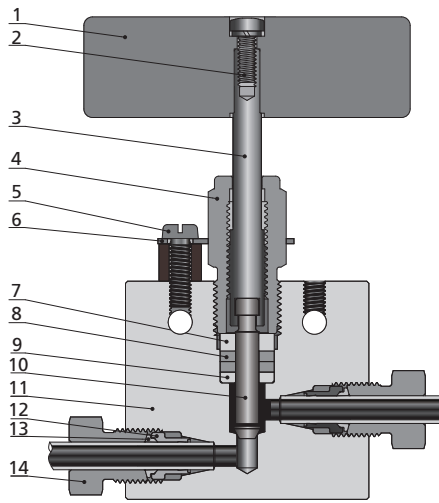
Flow Data at 100°F (38°C)



Pressure vs. Temperature Curve



Standard Materials of Construction



Item	Component	Material Grade/ASTM Specification
1	Handle	Stainless steel
2	Handle Screw	Stainless steel
3	Upper Stem	316 SS/A479
4	Packing Gland	C63000/B150
5	Locking Screw	Stainless steel
6	Locking Plate	304 SS/A240
7	Packing Ring	C63000/B150
8	<i>Packing</i>	<i>PTFE/RPTFE/Graphite</i>
9	<i>Packing Washer</i>	<i>17-4PH SS/A564</i>
10	<i>Lower Stem</i>	<i>17-4PH SS/A564</i>
11	Body	316 SS/A479
12	Front Ferrule	316 SS/A479(For tubing connections)
13	Rear Ferrule	316 SS/A479(For tubing connections)
14	Nut	316 SS/A479(For tubing connections)
	Lubricant	Molybdenum disulfide

Wetted component listed in italics.

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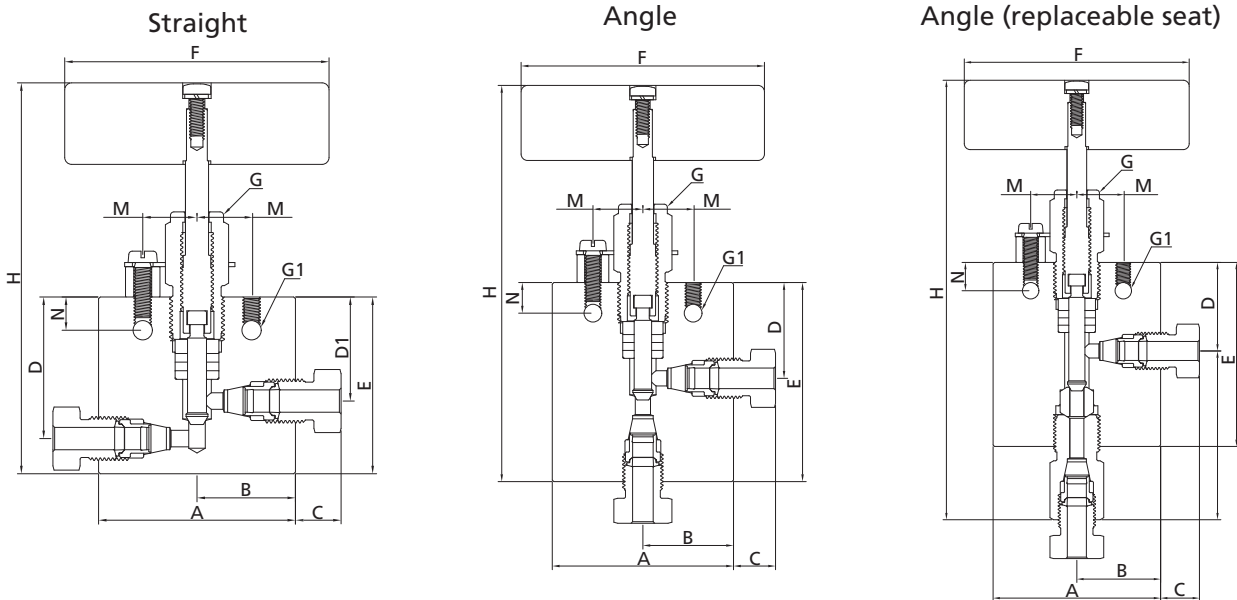
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Ordering Information and Dimensions (Tubing Connection, 2-Way)

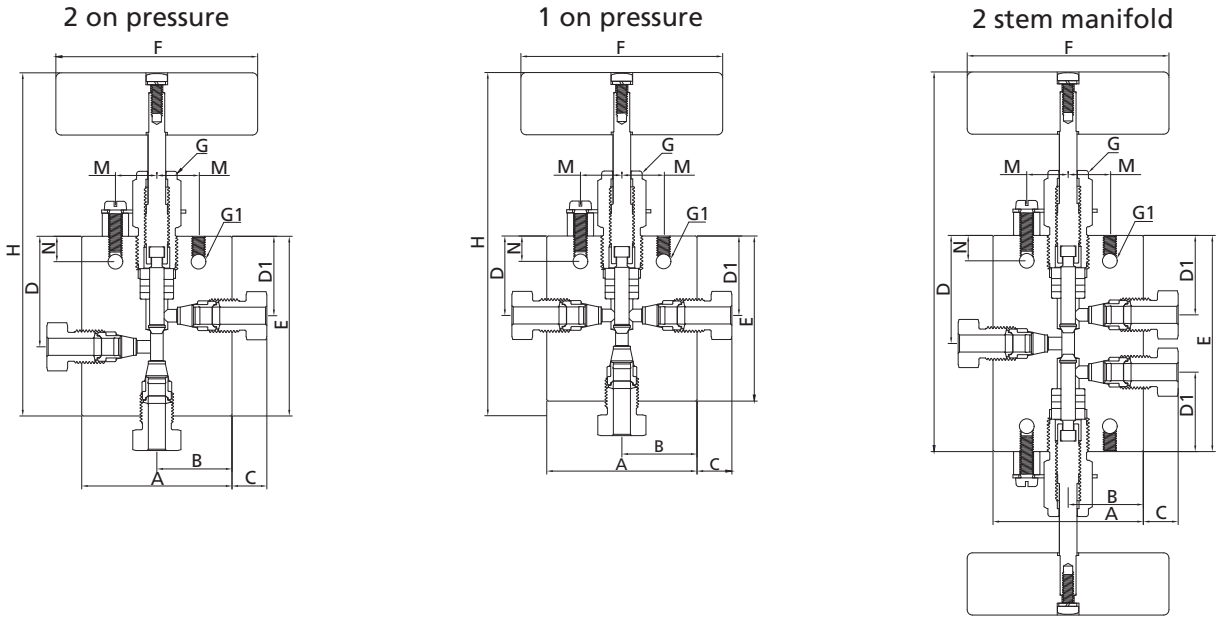


Straight															
Ordering Number	Connection	Orifice in. (mm)	Dimensions, in. (mm)												
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness
15NSS-DHL2-1	DHL2	0.094 (2.39)	1.81 (46.1)	0.91 (23.1)	0.44 (11.2)	1.06 (26.9)	0.81 (20.6)	1.38 (35.1)	1.75 (44.5)	0.62 (15.8)	0.17 (4.3)	3.13 (79.6)	0.56 (14.2)	0.31 (7.9)	0.62 (15.8)
15NSS-DHL4-1	DHL4	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)
15NSS-DHL6-1	DHL6	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-DHL8-1	DHL8	0.375 (9.53)	2.86 (72.7)	1.43 (36.4)	0.60 (15.3)	2.38 (60.5)	1.75 (44.5)	2.88 (73.2)	4.00 (101.6)	1.00 (25.4)	0.34 (8.6)	6.21 (157.7)	0.69 (17.5)	0.50 (12.7)	1.00 (25.4)

Angle															
Ordering Number	Connection	Orifice in. (mm)	Dimensions, in. (mm)												
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness
15NSS-DHL2-2	DHL2	0.094 (2.39)	1.81 (46.1)	0.91 (23.1)	0.44 (11.2)	0.81 (20.6)	/	1.56 (39.6)	1.75 (44.5)	0.62 (15.8)	0.17 (4.3)	3.32 (84.3)	0.56 (14.2)	0.31 (7.9)	0.62 (15.8)
15NSS-DHL4-2	DHL4	0.188 (4.77)	2.33 (59.2)	1.17 (29.6)	0.52 (13.3)	1.19 (30.2)	/	2.43 (61.7)	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)
15NSS-DHL6-2	DHL6	0.250 (6.35)	2.27 (57.6)	1.13 (28.8)	0.54 (13.6)	1.19 (30.2)	/	2.43 (61.7)	3.00 (76.2)	0.75 (19.1)	0.22 (5.6)	5.40 (137.2)	0.62 (15.8)	0.38 (9.7)	0.75 (19.1)
15NSS-DHL8-2	DHL8	0.375 (9.53)	2.86 (72.7)	1.43 (36.4)	0.60 (15.3)	1.75 (44.5)	/	3.38 (85.9)	4.00 (101.6)	1.00 (25.4)	0.34 (8.6)	6.71 (170.4)	0.69 (17.5)	0.50 (12.7)	1.00 (25.4)

Angle (replaceable seat)															
Ordering Number	Connection	Orifice in. (mm)	Dimensions, in. (mm)												
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness
15NSS-DHL2-3	DHL2	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 (39.6)	1.75 (44.5)	0.62 (15.8)	0.17 (4.3)	3.84 (97.6)	0.56 (14.2)	0.31 (7.9)	0.62 (15.8)
15NSS-DHL4-3	DHL4	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)	5.97 (151.6)	0.62 (15.8)	0.38 (9.7)	0.75 (19.1)
15NSS-DHL6-3	DHL6	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)	6.35 (161.3)	0.62 (15.8)	0.38 (9.7)	0.75 (19.1)
15NSS-DHL8-3	DHL8	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)	7.54 (191.5)	0.69 (17.5)	0.50 (12.7)	1.00 (25.4)

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



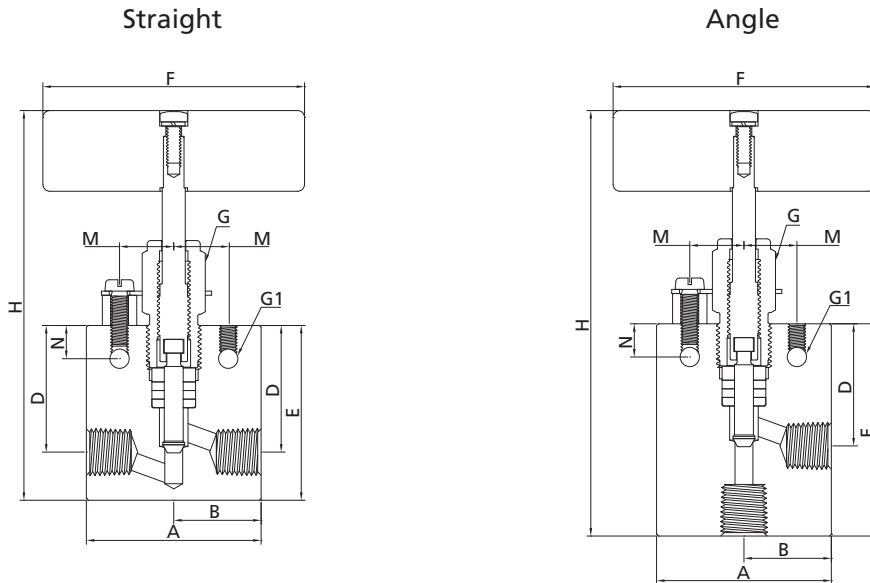
2 on pressure															
Ordering Number	Connection	Orifice in. (mm)	Dimensions, in. (mm)												
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness
15NSS-DHL2-4	DHL2	0.094 (2.39)	1.81 (46.1)	0.91 (23.1)	0.44 (11.2)	1.06 (26.9)	0.81 (20.6)	1.85 (46.9)	1.75 (44.5)	0.62 (15.8)	0.17 (4.3)	3.45 (87.5)	0.56 (14.2)	0.31 (7.9)	0.62 (15.8)
15NSS-DHL4-4	DHL4	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)	5.52 (140.3)	0.62 (15.8)	0.38 (9.7)	0.75 (19.1)
15NSS-DHL6-4	DHL6	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)	5.59 (142.1)	0.62 (15.8)	0.38 (9.7)	0.75 (19.1)
15NSS-DHL8-4	DHL8	0.375 (9.53)	2.86 (72.7)	1.43 (36.4)	0.60 (15.3)	2.38 (60.5)	1.75 (44.5)	3.80 (96.6)	4.00 (101.6)	1.00 (25.4)	0.34 (8.6)	6.96 (176.7)	0.69 (17.5)	0.50 (12.7)	1.00 (25.4)

1 on pressure															
Ordering Number	Connection	Orifice in. (mm)	Dimensions, in. (mm)												
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness
15NSS-DHL2-5	DHL2	0.094 (2.39)	1.81 (46.1)	0.91 (23.1)	0.44 (11.2)	0.81 (20.6)	/	1.56 (39.6)	1.75 (44.5)	0.62 (15.8)	0.17 (4.3)	3.32 (84.3)	0.56 (14.2)	0.31 (7.9)	0.62 (15.8)
15NSS-DHL4-5	DHL4	0.188 (4.77)	2.33 (59.2)	1.17 (29.6)	0.52 (13.3)	1.19 (30.2)	/	2.43 (61.7)	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)
15NSS-DHL6-5	DHL6	0.250 (6.35)	2.27 (57.6)	1.13 (28.8)	0.54 (13.6)	1.19 (30.2)	/	2.43 (61.7)	3.00 (76.2)	0.75 (19.1)	0.22 (5.6)	5.40 (137.2)	0.62 (15.8)	0.38 (9.7)	0.75 (19.1)
15NSS-DHL8-5	DHL8	0.375 (9.53)	2.86 (72.7)	1.43 (36.4)	0.60 (15.3)	1.75 (44.5)	/	3.38 (85.9)	4.00 (101.6)	1.00 (25.4)	0.34 (8.6)	6.71 (170.4)	0.69 (17.5)	0.50 (12.7)	1.00 (25.4)

2 stem manifold															
Ordering Number	Connection	Orifice in. (mm)	Dimensions, in. (mm)												
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness
15NSS-DHL2-6	DHL2	0.094 (2.39)	1.81 (46.1)	0.91 (23.1)	0.44 (11.2)	1.12 (28.5)	0.81 (20.6)	2.25 (57.2)	1.75 (44.5)	0.62 (15.8)	0.17 (4.3)	4.00 (101.8)	0.56 (14.2)	0.31 (7.9)	0.62 (15.8)
15NSS-DHL4-6	DHL4	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 (85.9)	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)
15NSS-DHL6-6	DHL6	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 (85.9)	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-DHL8-6	DHL8	0.375 (9.53)	2.86 (72.7)	1.43 (36.4)	0.60 (15.3)	2.56 (65.0)	1.75 (44.5)	5.12 (130.1)	4.00 (101.6)	1.00 (25.4)	0.34 (8.6)	8.45 (214.7)	0.69 (17.5)	0.50 (12.7)	1.00 (25.4)

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



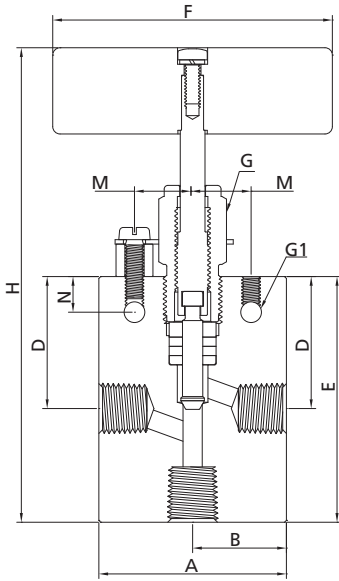
Straight															
Ordering Number	Connection	Orifice in. (mm)	Dimensions, in. (mm)												
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness
15NSS-FNS2-1	FNS2	0.078 (1.98)	1.50 (38.1)	0.75 (19.1)	/	0.82 (20.6)	/	1.25 (31.8)	1.75 (44.5)	0.62 (15.8)	0.17 (4.3)	3.00 (76.4)	0.56 (14.2)	0.31 (7.9)	0.63 (15.9)
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)
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)	4.85 (123.1)	0.62 (15.8)	0.38 (9.7)	1.00 (25.4)
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)
15NSS-FRT8-1	FRT8														

Angle															
Ordering Number	Connection	Orifice in. (mm)	Dimensions, in. (mm)												
			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)
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)
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)
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)
15NSS-FRT8-2	FRT8														

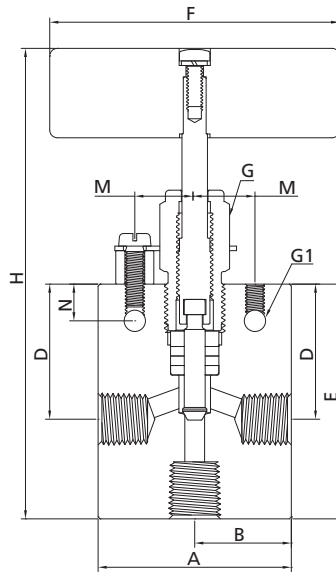
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Ordering Information and Dimensions (Pipe Connection, 3-Way)

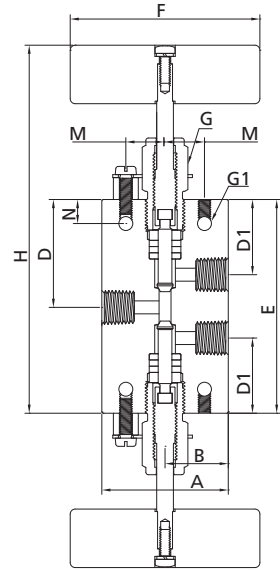
2 on pressure



1 on pressure



2 stem manifold



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

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

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C-25 Needle Valves and Pneumatic Needle Valves

2 stem manifold															
Ordering Number	Connection	Orifice in. (mm)	Dimensions, in. (mm)												
			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)
15NSS-FRT2-6	FRT2		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)
15NSS-FNS4-6	FNS4	0.203 (5.2)	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)
15NSS-FRT4-6	FRT4		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)
15NSS-FNS6-6	FNS6	0.219 (5.56)	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)
15NSS-FRT6-6	FRT6														
15NSS-FNS8-6	FNS8	0.312 (7.92)			/										
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 for reference only and subject to change. For dimensions not shown above, please contact the FITOK Group or our authorized distributors.

20N Series

20,000 psig (1379 bar)

Features

- ⦿ Tubing sizes available in 1/4", 3/8", 9/16", 3/4" and 1"
- ⦿ High tensile 316 Stainless Steel for valve body and 17-4PH Stainless Steel for lower stem
- ⦿ Selected materials of packing gland and upper stem for optimum thread cycle life and reduced handle torque
- ⦿ 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
- ⦿ Packing located under stem threads
- ⦿ 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	2FH4	0.125 (3.18)	0.31	20,000 (1379)	-100°F~1200°F (-73°C~649°C)
3/8	2FH6	0.204 (5.18)	0.68	20,000 (1379)	
9/16	2FH9	0.312 (7.92)	1.30	20,000 (1379)	
3/4	2FH12	0.438 (11.13)	2.50	20,000 (1379)	
1	2FH16	0.562 (14.27)	4.40	20,000 (1379)	

- NOTES: 1. The values of Cv shown are for 2-way straight valve pattern.
 2. The values of Cv for 2-way angle pattern will increase by about 50% (Based on water).
 3. 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~1000°F (-73°C~649°C)

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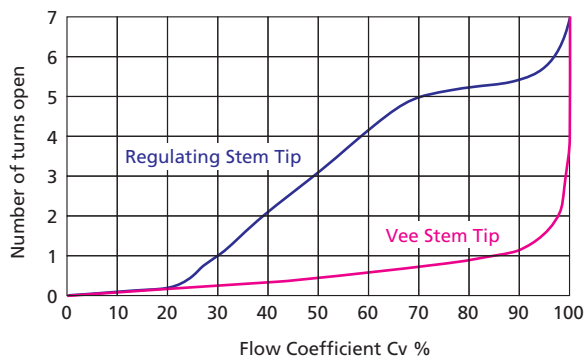
Sour Service Products

Subsea Valves

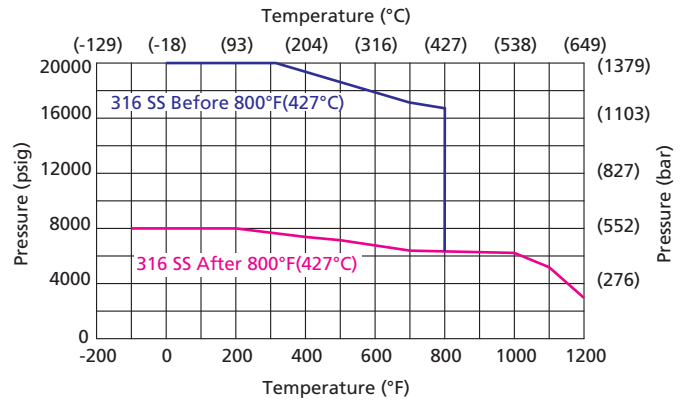
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Flow Data at 100°F (38°C)

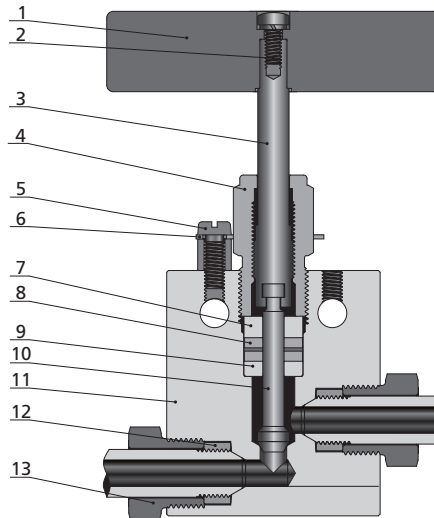


Pressure vs. Temperature Curve



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

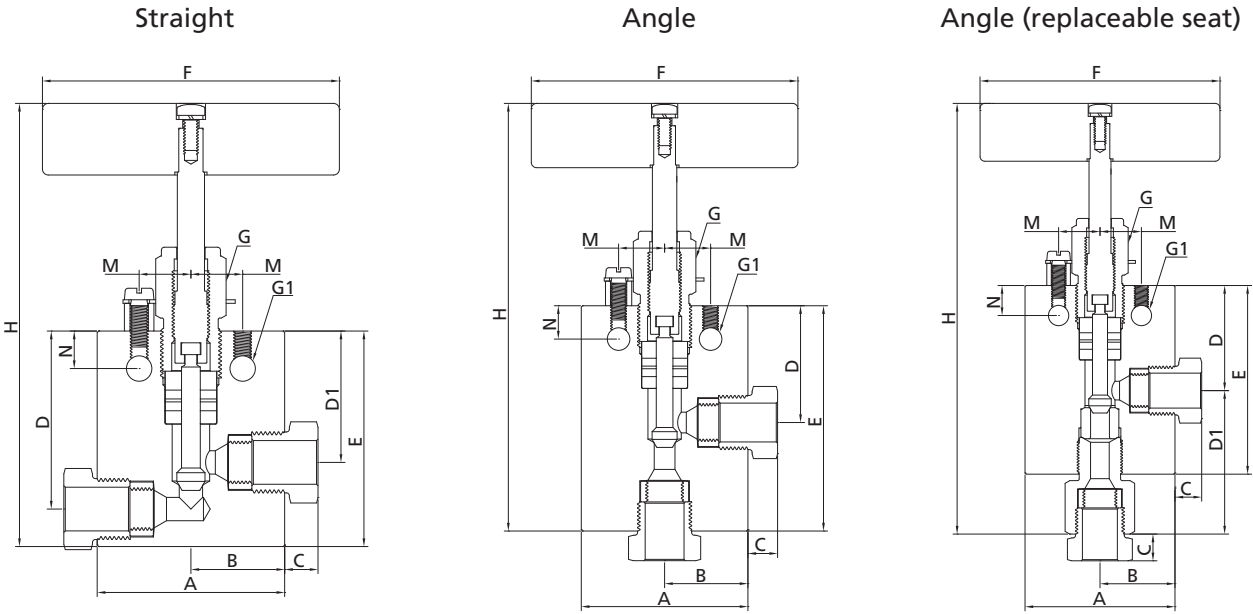


Item	Component	Material Grade/ASTM Specification
1	Handle	Stainless steel
2	Handle Screw	Stainless steel
3	Upper Stem	316 SS/A479
4	Packing Gland	C63000/B150
5	Locking Screw	Stainless steel
6	Locking Plate	304 SS/A240
7	Packing Ring	C63000/B150
8	<i>Packing</i>	<i>PTFE/RPTFE glass/Graphite/Extended stuffing box with Graphite</i>
9	<i>Packing Washer</i>	<i>17-4PH SS/A564</i>
10	<i>Lower Stem</i>	<i>17-4PH SS/A564</i>
11	Body	316 SS/A479
12	Collar	316 SS/A479(For tubing connections)
13	Gland	316 SS/A479(For tubing connections)
	Lubricant	Molybdenum disulfide

Wetted component listed in italics.

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Straight															
Ordering Number	Connection	Orifice in. (mm)	Dimensions, in. (mm)												
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness
20NSS-2FH4-1	2FH4	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)
20NSS-2FH6-1	2FH6	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-2FH9-1	2FH9	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)
20NSS-2FH12-1	2FH12	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)
20NSS-2FH16-1	2FH16	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)

Angle															
Ordering Number	Connection	Orifice in. (mm)	Dimensions, in. (mm)												
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness
20NSS-2FH4-2	2FH4	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)
20NSS-2FH6-2	2FH6	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-2FH9-2	2FH9	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)
20NSS-2FH12-2	2FH12	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)
20NSS-2FH16-2	2FH16	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)

Medium & High Pressure Fittings and Tubing

Quick Couplings

Medium & High Pressure Valves

Line Filters

Sour Service Products

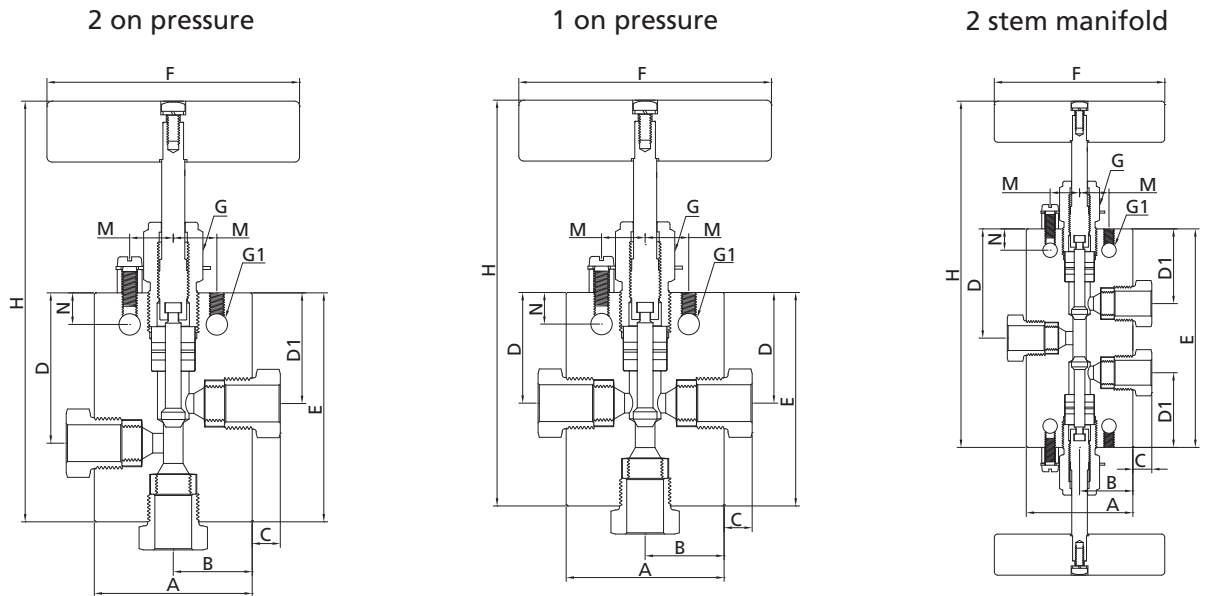
Subsea Valves

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Technical Information

Angle (replaceable seat)															
Ordering Number	Connection	Orifice in. (mm)	Dimensions, in. (mm)												
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness
20NSS-2FH4-3	2FH4	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)
20NSS-2FH6-3	2FH6	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-2FH9-3	2FH9	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)
20NSS-2FH12-3	2FH12	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)
20NSS-2FH16-3	2FH16	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)

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



2 on pressure															
Ordering Number	Connection	Orifice in. (mm)	Dimensions, in. (mm)												
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness
20NSS-2FH4-4	2FH4	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)
20NSS-2FH6-4	2FH6	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-2FH9-4	2FH9	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)
20NSS-2FH12-4	2FH12	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)
20NSS-2FH16-4	2FH16	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)

1 on pressure															
Ordering Number	Connection	Orifice in. (mm)	Dimensions, in. (mm)												
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness
20NSS-2FH4-5	2FH4	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)
20NSS-2FH6-5	2FH6	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-2FH9-5	2FH9	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)
20NSS-2FH12-5	2FH12	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)
20NSS-2FH16-5	2FH16	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)

2 stem manifold															
Ordering Number	Connection	Orifice in. (mm)	Dimensions, in. (mm)												
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness
20NSS-2FH4-6	2FH4	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)
20NSS-2FH6-6	2FH6	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-2FH9-6	2FH9	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)
20NSS-2FH12-6	2FH12	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)
20NSS-2FH16-6	2FH16	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)

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

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30N Series

30,000 psig (2068 bar)

Features

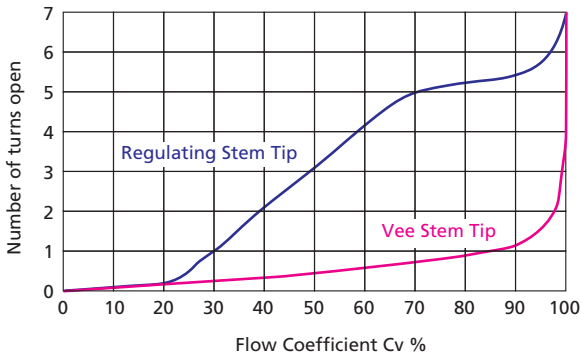
- ⦿ Tubing sizes available in 1/4", 3/8" and 9/16"
- ⦿ High tensile 316 Stainless Steel for valve body and 17-4PH Stainless Steel for lower stem
- ⦿ Selected materials of packing gland and upper stem for optimum thread cycle life and reduced handle torque
- ⦿ Metal-to-metal seating achieves ideal shutoff, 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
- ⦿ Packing located under stem threads
- ⦿ Reliable locking device for packing gland
- ⦿ Options for Vee or Regulating stem tips
- ⦿ Five flow patterns available

Technical Data

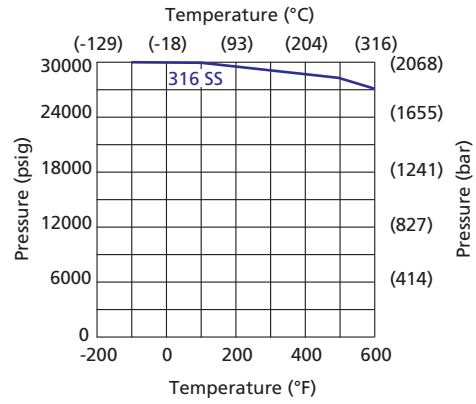
Tube O.D. in.	Connection	Orifice in. (mm)	Cv	Working Pressure psig (bar)	Working Temperature Range
1/4	6FH4	0.094 (2.39)	0.12	30,000 (2068)	-100°F~600°F (-73°C~316°C)
3/8	6FH6	0.125 (3.18)	0.23	30,000 (2068)	
9/16	6FH9	0.125 (3.18)	0.33	30,000 (2068)	

- NOTES: 1. The values of Cv shown are for 2-way straight valve pattern.
 2. The values of Cv for 2-way angle pattern will increase by about 50% (Based on water).
 3. 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)

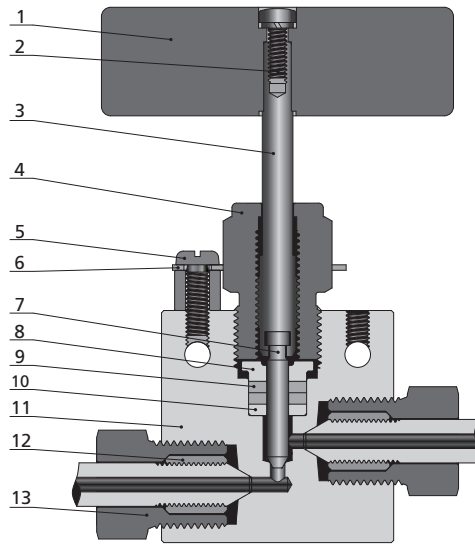
Flow Data at 100°F (38°C)



Pressure vs. Temperature Curve



Standard Materials of Construction

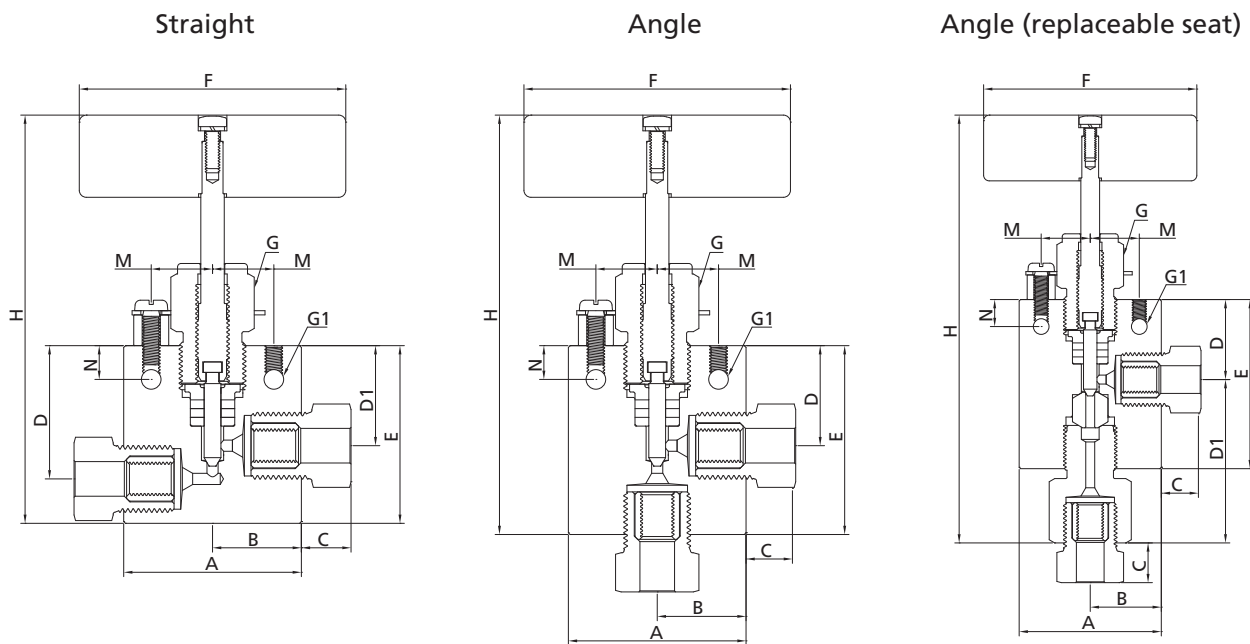


Item	Component	Material Grade/ASTM Specification
1	Handle	Stainless steel
2	Handle Screw	Stainless steel
3	Upper Stem	316 SS/A479
4	Packing Gland	C63000/B150
5	Locking Screw	Stainless steel
6	Locking Plate	304 SS/A240
7	<i>Lower Stem</i>	<i>17-4PH/A564</i>
8	Packing Ring	C63000/B150
9	<i>Packing</i>	<i>PTFE / RPTFE</i>
10	<i>Packing Washer</i>	<i>17-4PH SS/A564</i>
11	Body	316 SS/A479
12	Collar	316 SS/A479
13	Gland	316 SS/A479
	Lubricant	Molybdenum disulfide

Wetted component listed in italics.

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



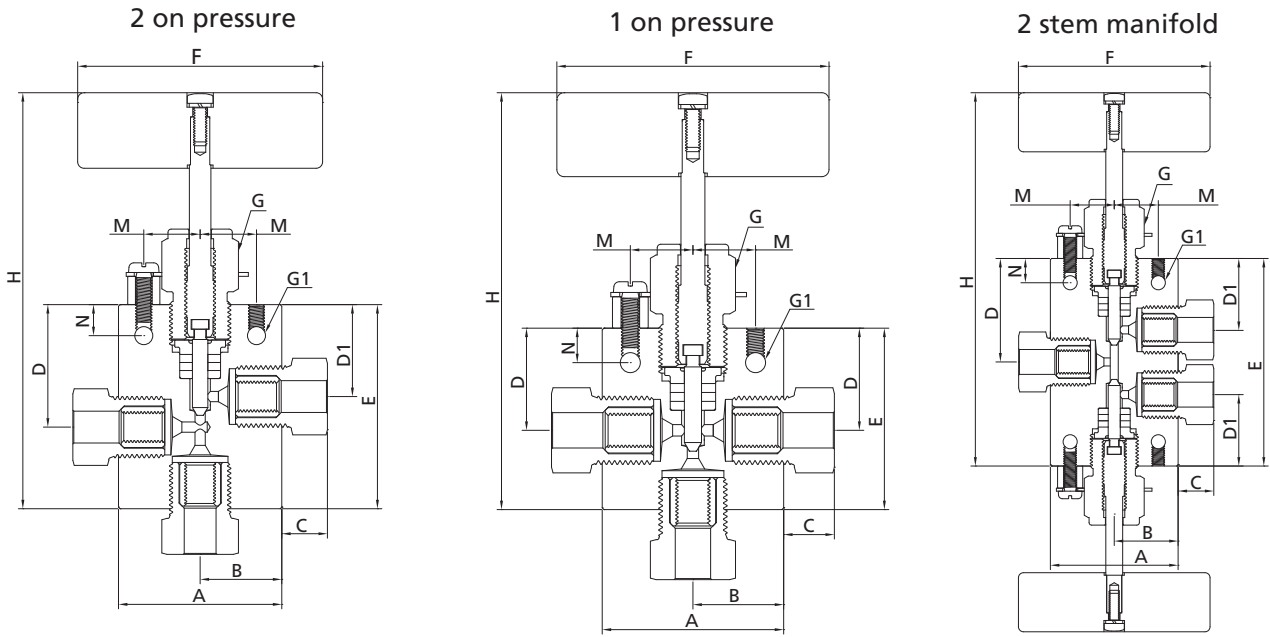
Straight															
Ordering Number	Connection	Orifice in. (mm)	Dimensions, in. (mm)												
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness
30NSS-6FH4-1	6FH4	0.094 (2.39)	2.00 (50.8)	1.00 (25.4)	0.47 (11.9)	1.50 (38.1)	1.12 (28.5)	2.00 (50.8)	3.00 (76.2)	1.00 (25.4)	0.22 (5.6)	4.69 (119.1)	0.69 (17.5)	0.38 (9.7)	1.00 (25.4)
30NSS-6FH6-1	6FH6	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-6FH9-1	6FH9	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	Connection	Orifice in. (mm)	Dimensions, in. (mm)												
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness
30NSS-6FH4-2	6FH4	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)
30NSS-6FH6-2	6FH6	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-6FH9-2	6FH9	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	Connection	Orifice in. (mm)	Dimensions, in. (mm)												
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness
30NSS-6FH4-3	6FH4	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)
30NSS-6FH6-3	6FH6	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-6FH9-3	6FH9	0.125 (3.18)	2.62 (66.6)	1.31 (33.3)	0.95 (24.1)	1.12 (28.6)	2.55 (65.0)	2.44 (62.0)	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)

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



2 on pressure															
Ordering Number	Connection	Orifice in. (mm)	Dimensions, in. (mm)												
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness
30NSS-6FH4-4	6FH4	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)
30NSS-6FH6-4	6FH6	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-6FH9-4	6FH9	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	Connection	Orifice in. (mm)	Dimensions, in. (mm)												
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness
30NSS-6FH4-5	6FH4	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)
30NSS-6FH6-5	6FH6	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-6FH9-5	6FH9	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	Connection	Orifice in. (mm)	Dimensions, in. (mm)												
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness
30NSS-6FH4-6	6FH4	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)
30NSS-6FH6-6	6FH6	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-6FH9-6	6FH9	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 for reference only and subject to change. For dimensions not shown above, please contact the FITOK Group or our authorized representatives.

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60N Series

60,000 psig (4137 bar)

Features

- ⦿ Tubing sizes available in 1/4", 3/8" and 9/16"
- ⦿ High tensile 316 Stainless Steel for valve body and 17-4PH Stainless Steel for lower stem
- ⦿ Selected materials of packing gland and upper stem for optimum thread cycle life and reduced handle torque
- ⦿ 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
- ⦿ Packing located under stem threads
- ⦿ Reliable locking device 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	6FH4	0.063 (1.59)	0.08	60,000 (4137)	-100°F~600°F (-73°C~316°C)
3/8	6FH6	0.063 (1.59)	0.09	60,000 (4137)	
9/16	6FH9	0.078 (1.98)	0.14	60,000 (4137)	

NOTES: 1. The values of Cv shown are for 2-way straight valve pattern.

2. The values of Cv for 2-way angle pattern will increase by about 50% (Based on water).

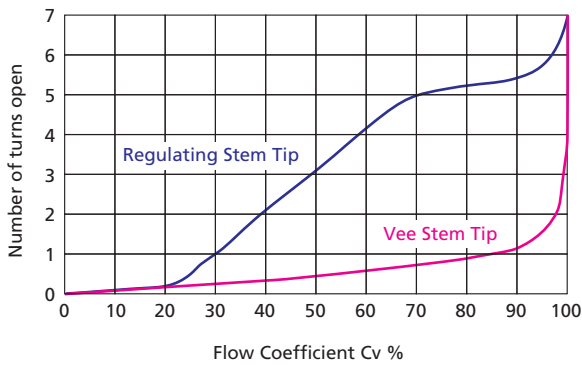
3. Packing Options

Nylon is the standard packing material, RPTFE glass also available

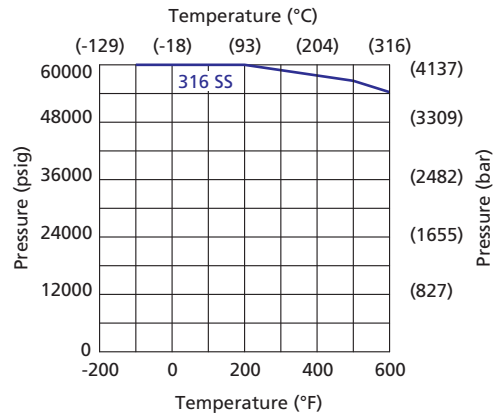
Nylon: 40°F~230°F (4.4°C~110°C)

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

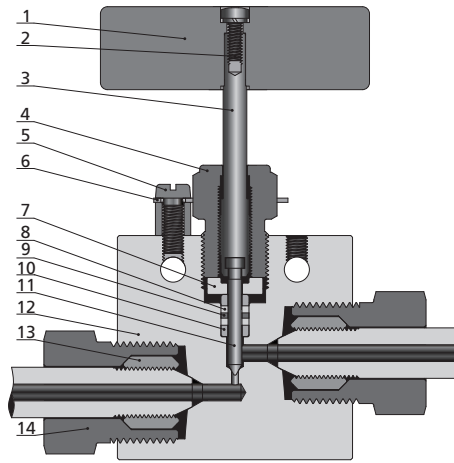
Flow Data at 100°F (38°C)



Pressure vs. Temperature Curve



Standard Materials of Construction

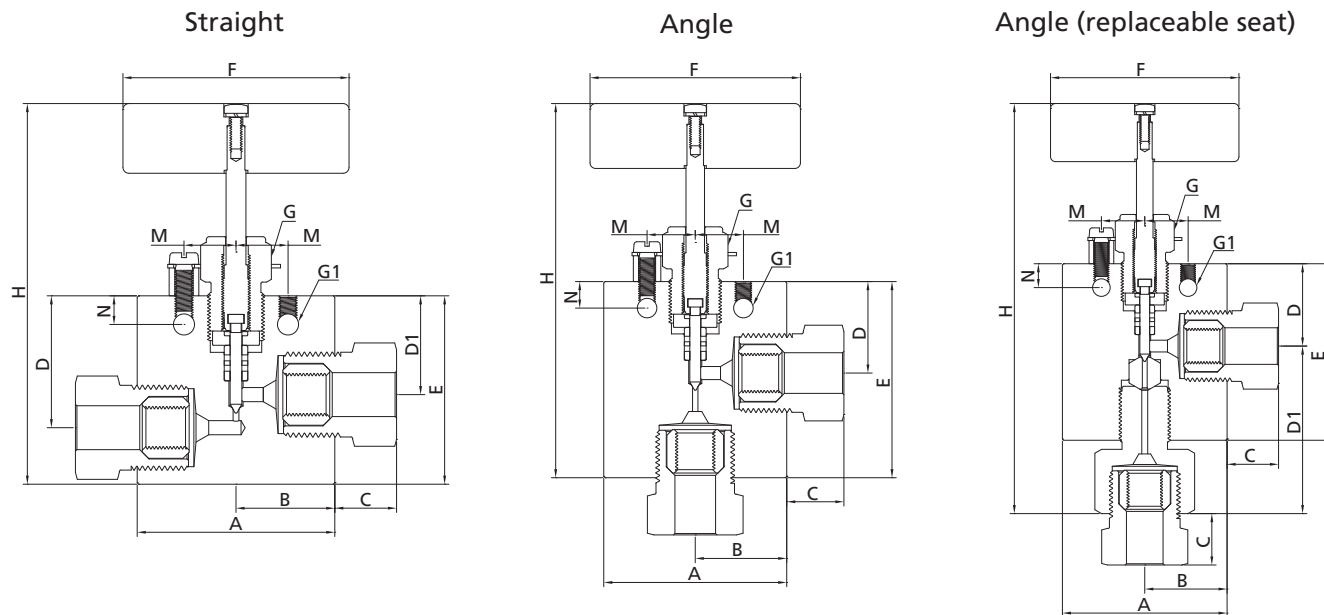


Item	Component	Material Grade/ASTM Specification
1	Handle	Stainless steel
2	Handle Screw	Stainless steel
3	Upper Stem	316 SS/A479
4	Packing Gland	C63000/B150
5	Locking Screw	Stainless steel
6	Locking Plate	304 SS/A240
7	Packing Ring	17-4PH SS/A564
8	<i>Packing</i>	<i>Nylon/IRPTFE</i>
9	<i>Retaining Ring</i>	<i>PEEK</i>
10	<i>Packing Washer</i>	<i>17-4PH SS/A564</i>
11	<i>Lower Stem</i>	<i>17-4PH SS/A564</i>
12	Body	316 SS/A479
13	Collar	316 SS/A479
14	Gland	316 SS/A479
	Lubricant	Molybdenum disulfide

Wetted component listed in italics.

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



Straight

Ordering Number	Connection	Orifice in. (mm)	Dimensions, in. (mm)												
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness
60NSS-6FH4-1	6FH4	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)
60NSS-6FH6-1	6FH6	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-6FH9-1	6FH9	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

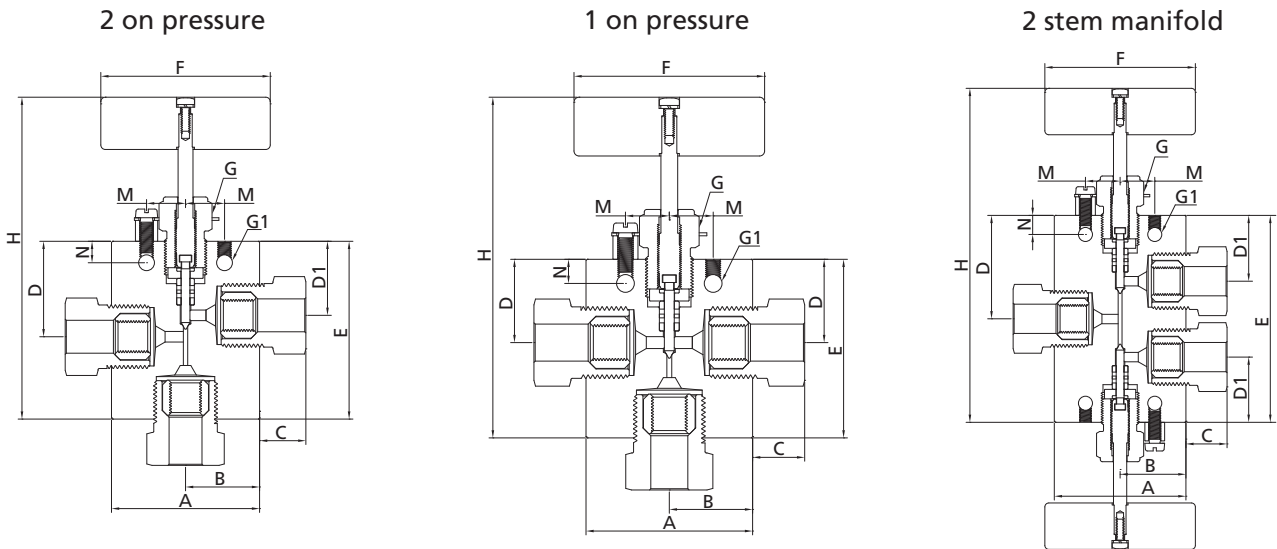
Ordering Number	Connection	Orifice in. (mm)	Dimensions, in. (mm)												
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness
60NSS-6FH4-2	6FH4	0.063 (1.59)	2.00 (50.8)	1.00 (25.4)	0.47 (11.9)	1.31 (33.3)	/	2.38 (60.5)	3.00 (76.2)	1.00 (25.4)	0.22 (5.6)	5.02 (127.5)	0.69 (17.5)	0.38 (9.7)	1.00 (25.4)
60NSS-6FH6-2	6FH6	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-6FH9-2	6FH9	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	Connection	Orifice in. (mm)	Dimensions, in. (mm)												
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness
60NSS-6FH4-3	6FH4	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)
60NSS-6FH6-3	6FH6	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-6FH9-3	6FH9	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)

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



2 on pressure															
Ordering Number	Connection	Orifice in. (mm)	Dimensions, in. (mm)												
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness
60NSS-6FH4-4	6FH4	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)
60NSS-6FH6-4	6FH6	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-6FH9-4	6FH9	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	Connection	Orifice in. (mm)	Dimensions, in. (mm)												
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness
60NSS-6FH4-5	6FH4	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)
60NSS-6FH6-5	6FH6	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-6FH9-5	6FH9	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	Connection	Orifice in. (mm)	Dimensions, in. (mm)												
			A	B	C	D	D1	E	F	G	G1	H	M	N	Thickness
60NSS-6FH4-6	6FH4	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)
60NSS-6FH6-6	6FH6	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-6FH9-6	6FH9	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 (104.7)	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 for reference only and subject to change. For dimensions not shown above, please contact the FITOK Group or our authorized representatives.

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Pneumatic Needle Valves

Piston Style Pneumatic Needle Valves Air to Open (Normally Closed)

Features

- ⦿ Small and compact piston actuator
- ⦿ Air-to-open with spring return
- ⦿ Positive shut-off with metal-to-metal seating
- ⦿ Yoke design for separation of process and air pressure
- ⦿ 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

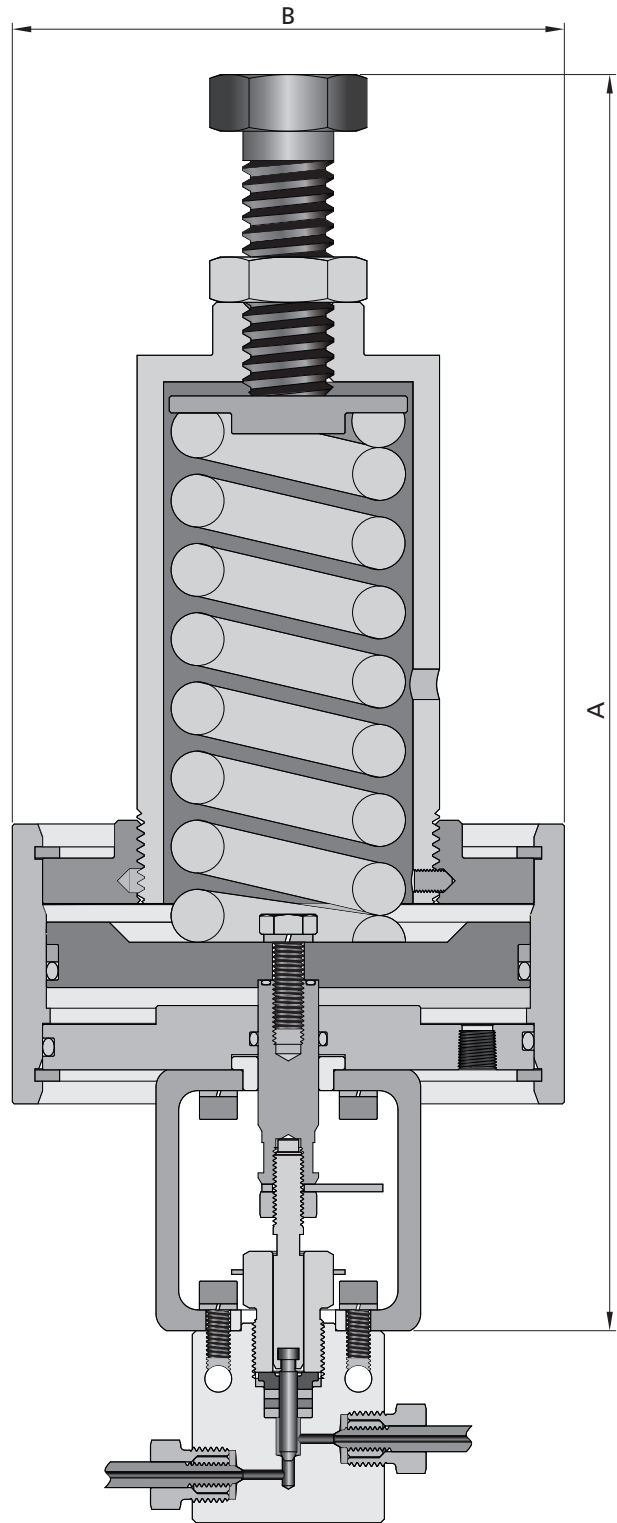
Technical Data

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-2FH9-X	1/8" NPT	51.20 (330.3)	16.24 (412.5)	6.54 (166.0)	
10NSS-2FH12-X		92.58 (597.3)	20.72 (526.3)	8.58 (218.0)	
10NSS-2FH16-X	3/8" NPT	112.55 (726.1)	24.12 (612.7)	9.57 (243.0)	
10NSS-FNS12-X	1/8" NPT	92.58 (597.3)	20.72 (526.3)	8.58 (218.0)	
10NSS-FRT12-X		92.58 (597.3)	20.72 (526.3)	8.58 (218.0)	
10NSS-FNS16-X	3/8" NPT	112.55 (726.1)	24.12 (612.7)	9.57 (243.0)	
10NSS-FRT16-X		112.55 (726.1)	24.12 (612.7)	9.57 (243.0)	
15NSS-DHL2-X	1/8" NPT	7.79 (50.3)	8.56 (217.3)	3.62 (92.0)	
15NSS-DHL4-X		19.95 (128.7)	13.08 (332.3)	5.75 (146.0)	
15NSS-DHL6-X		19.95 (128.7)	13.08 (332.3)	5.75 (146.0)	
15NSS-DHL8-X		51.20 (330.3)	16.24 (412.5)	6.54 (166.0)	
15NSS-FNS2-X		7.79 (50.3)	8.56 (217.3)	3.62 (92.0)	
15NSS-FRT2-X		7.79 (50.3)	8.56 (217.3)	3.62 (92.0)	
15NSS-FNS4-X		19.95 (128.7)	13.08 (332.3)	5.75 (146.0)	
15NSS-FRT4-X		19.95 (128.7)	13.08 (332.3)	5.75 (146.0)	
15NSS-FNS6-X		19.95 (128.7)	13.08 (332.3)	5.75 (146.0)	
15NSS-FRT6-X		19.95 (128.7)	13.08 (332.3)	5.75 (146.0)	
15NSS-FNS8-X		51.20 (330.3)	16.24 (412.5)	6.54 (166.0)	
15NSS-FRT8-X		51.20 (330.3)	16.24 (412.5)	6.54 (166.0)	
20NSS-2FH4-X		3/8" NPT	19.95 (128.7)	13.08 (332.3)	5.75 (146.0)
20NSS-2FH6-X			19.95 (128.7)	13.08 (332.3)	5.75 (146.0)
20NSS-2FH9-X			51.20 (330.3)	16.24 (412.5)	6.54 (166.0)
20NSS-2FH12-X			92.58 (597.3)	20.72 (526.3)	8.58 (218.0)
20NSS-2FH16-X	112.55 (726.1)		24.12 (612.7)	9.57 (243.0)	
30NSS-6FH4-X	1/8" NPT		19.95 (128.7)	13.08 (332.3)	5.75 (146.0)
30NSS-6FH6-X			19.95 (128.7)	13.08 (332.3)	5.75 (146.0)
30NSS-6FH9-X			19.95 (128.7)	13.08 (332.3)	5.75 (146.0)
60NSS-6FH4-X		19.95 (128.7)	13.08 (332.3)	5.75 (146.0)	
60NSS-6FH6-X		19.95 (128.7)	13.08 (332.3)	5.75 (146.0)	
60NSS-6FH9-X	19.95 (128.7)	13.08 (332.3)	5.75 (146.0)		

NOTES: 1. A is the dimension of stem in closed position.
 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.



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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-2FH9-X	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-2FH12-X	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-2FH16-X	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	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	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 6 different flow patterns (-1 to -6). For details, please refer to the FITOK Catalog for Medium & High Pressure Needle Valves.

2. The values of Cv shown are for 2-way straight pattern valves.

3. The values of Cv for 2-way angle patterns will increase by about 50% (with water).

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

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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-DHL2-X	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-DHL4-X	Air Pressure psig (bar)	50 (3.5)	55 (3.8)	60 (4.1)	65 (4.5)	70 (4.8)	75 (5.2)			0.54
	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)			
15NSS-DHL6-X	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)			0.95
15NSS-DHL8-X	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	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)			
15NSS-FRT2-X	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	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)			
15NSS-FRT4-X	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	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)			
15NSS-FRT6-X	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	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)			
15NSS-FRT8-X	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 6 different flow patterns (-1 to -6). For details, please refer to the FITOK Catalog for Medium & High Pressure Needle Valves.
 2. The values of Cv shown are for 2-way straight pattern valves.
 3. The values of Cv for 2-way angle patterns will increase by about 50% (with water).
 4. All dimensions are for reference only and are subject to change.

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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-2FH4-X	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
	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)			
20NSS-2FH6-X	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)			0.62
20NSS-2FH9-X	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-2FH12-X	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-2FH16-X	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 6 different flow patterns (-1 to -6). For details, please refer to the FITOK Catalog for Medium & High Pressure Needle Valves.
 2. The values of Cv shown are for 2-way straight pattern valves.
 3. The values of Cv for 2-way angle patterns will increase by about 50% (with water).
 4. 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-6FH4-X	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-6FH6-X	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-6FH9-X	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

- NOTES: 1. -X: Designator of valve flow patterns. Valves are available in 6 different flow patterns (-1 to -6). For details, please refer to the FITOK Catalog for Medium & High Pressure Needle Valves.
 2. The values of Cv shown are for 2-way straight pattern valves.
 3. The values of Cv for 2-way angle patterns will increase by about 50% (with water).
 4. 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-6FH4-X	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-6FH6-X	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-6FH9-X	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

- NOTES: 1. -X: Designator of valve flow patterns. Valves are available in 6 different flow patterns (-1 to -6). For details, please refer to the FITOK Catalog for Medium & High Pressure Needle Valves.
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3. The values of Cv for 2-way angle patterns will increase by about 50% (with water).
4. All dimensions are for reference only and are subject to change.

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Piston Style Pneumatic Needle Valves

Air to Close (Normally Open)

Features

- ⦿ Small and compact piston actuator
- ⦿ Air-to-close with spring return
- ⦿ Positive shut-off with metal-to-metal seating
- ⦿ Yoke design for separation of process and air pressure
- ⦿ 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

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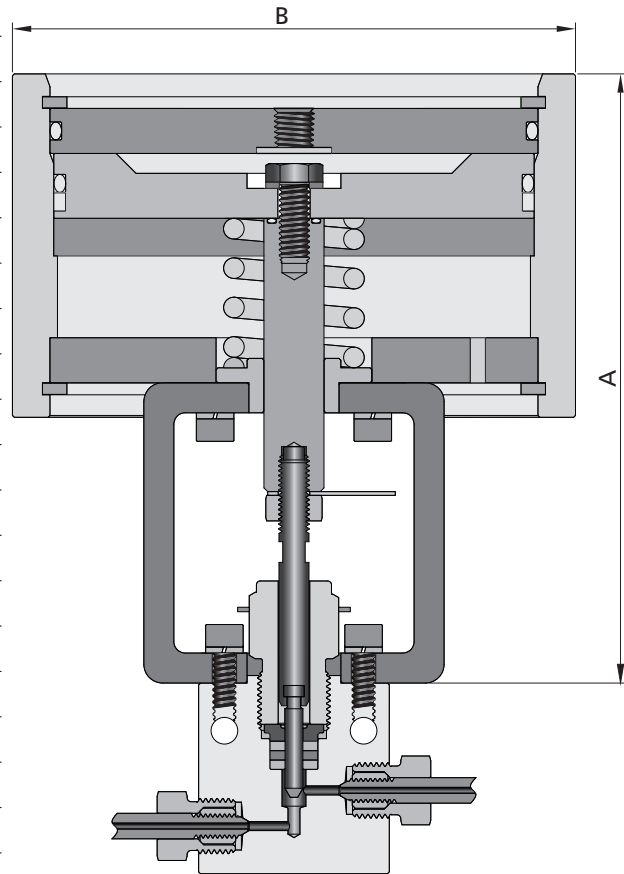
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Dimensions

Basic Ordering Number	Air Inlet Connection	Area of Piston sq.in. (sq. cm)	A in. (mm)	B in. (mm)	
10NSS-2FH9-X	1/8" NPT	51.20 (330.3)	8.27 (210.0)	6.54 (166.0)	
10NSS-2FH12-X		92.58 (597.3)	10.55 (268.0)	8.58 (218.0)	
10NSS-2FH16-X	3/8" NPT	112.55 (726.1)	12.77 (324.4)	9.57 (243.0)	
10NSS-FNS12-X	1/8" NPT	92.58 (597.3)	10.55 (268.0)	8.58 (218.0)	
10NSS-FRT12-X		92.58 (597.3)	10.55 (268.0)	8.58 (218.0)	
10NSS-FNS16-X	3/8" NPT	112.55 (726.1)	12.77 (324.4)	9.57 (243.0)	
10NSS-FRT16-X		112.55 (726.1)	12.77 (324.4)	9.57 (243.0)	
15NSS-DHL2-X	1/8" NPT	7.79 (50.3)	8.56 (217.3)	3.62 (92.0)	
15NSS-DHL4-X		19.95 (128.7)	5.94 (151.0)	5.75 (146.0)	
15NSS-DHL6-X		19.95 (128.7)	5.94 (151.0)	5.75 (146.0)	
15NSS-DHL8-X		51.20 (330.3)	8.27 (210.0)	6.54 (166.0)	
15NSS-FNS2-X		7.79 (50.3)	8.56 (217.3)	3.62 (92.0)	
15NSS-FRT2-X		7.79 (50.3)	8.56 (217.3)	3.62 (92.0)	
15NSS-FNS4-X		19.95 (128.7)	5.94 (151.0)	5.75 (146.0)	
15NSS-FRT4-X		19.95 (128.7)	5.94 (151.0)	5.75 (146.0)	
15NSS-FNS6-X		19.95 (128.7)	5.94 (151.0)	5.75 (146.0)	
15NSS-FRT6-X		19.95 (128.7)	5.94 (151.0)	5.75 (146.0)	
15NSS-FNS8-X		51.20 (330.3)	8.27 (210.0)	6.54 (166.0)	
15NSS-FRT8-X		51.20 (330.3)	8.27 (210.0)	6.54 (166.0)	
20NSS-2FH4-X		19.95 (128.7)	5.94 (151.0)	5.75 (146.0)	
20NSS-2FH6-X		19.95 (128.7)	5.94 (151.0)	5.75 (146.0)	
20NSS-2FH9-X		51.20 (330.3)	8.27 (210.0)	6.54 (166.0)	
20NSS-2FH12-X		92.58 (597.3)	10.55 (268.0)	8.58 (218.0)	
20NSS-2FH16-X		3/8" NPT	112.55 (726.1)	12.77 (324.4)	9.57 (243.0)
30NSS-6FH4-X		1/8" NPT	19.95 (128.7)	5.94 (151.0)	5.75 (146.0)
30NSS-6FH6-X			19.95 (128.7)	5.94 (151.0)	5.75 (146.0)
30NSS-6FH9-X			19.95 (128.7)	5.94 (151.0)	5.75 (146.0)
60NSS-6FH4-X	19.95 (128.7)		5.94 (151.0)	5.75 (146.0)	
60NSS-6FH6-X	19.95 (128.7)		5.94 (151.0)	5.75 (146.0)	
60NSS-6FH9-X	19.95 (128.7)		5.94 (151.0)	5.75 (146.0)	



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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-2FH9-X	Air Pressure psig (bar)	25 (1.7)	35 (2.4)	40 (2.8)	50 (3.5)					0.24 (6.0)	1.75
10NSS-2FH12-X	Air Pressure psig (bar)	25 (1.7)	35 (2.4)	45 (3.1)	50 (3.5)					0.35 (9.0)	2.80
10NSS-2FH16-X	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 10NSS-FRT12-X	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 10NSS-FRT16-X	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 6 different flow patterns (-1 to -6). For details please refer to the FITOK Catalog for Medium & High Pressure Needle Valves.
 2. The values of Cv shown are for 2-way straight pattern valves.
 3. The values of Cv for 2-way angle patterns will increase by about 50% (with water).
 4. 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-DHL2-X	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-DHL4-X 15NSS-DHL6-X	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 0.95
15NSS-DHL8-X	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 15NSS-FRT2-X	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 15NSS-FRT4-X	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 15NSS-FRT6-X	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 15NSS-FRT8-X	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 6 different flow patterns (-1 to -6). For details, please refer to the FITOK Catalog for Medium & High Pressure Needle Valves.
 2. The values of Cv shown are for 2-way straight pattern valves.
 3. The values of Cv for 2-way angle patterns will increase by about 50% (with water).
 4. All dimensions are for reference only and are subject to change.

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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-2FH4-X	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-2FH6-X													0.62
20NSS-2FH9-X	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-2FH12-X	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-2FH16-X	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 6 different flow patterns (-1 to -6). For details, please refer to the FITOK Catalog for Medium & High Pressure Needle Valves.

- The values of Cv shown are for 2-way straight pattern valves.
- The values of Cv for 2-way angle patterns will increase by about 50% (with water).
- 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-6FH4-X	Air Pressure psig (bar)	45	50	55	60	65	70	75	80	85	85	0.19 (4.9)	0.12
30NSS-6FH6-X													0.22
30NSS-6FH9-X													0.31

NOTES: 1. -X: Designator of valve flow patterns. Valves are available in 6 different flow patterns (-1 to -6). For details, please refer to the FITOK Catalog for Medium & High Pressure Needle Valves.

- The values of Cv shown are for 2-way straight pattern valves.
- The values of Cv for 2-way angle patterns will increase by about 50% (with water).
- 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-6FH4-X	Air Pressure psig (bar)	35	40	50	55	65	70	75	85	90		0.19 (4.9)	0.08
60NSS-6FH6-X													0.09
60NSS-6FH9-X													0.14

NOTES: 1. -X: Designator of valve flow patterns. Valves are available in 6 different flow patterns (-1 to -6). For details, please refer to the FITOK Catalog for Medium & High Pressure Needle Valves.

- The values of Cv shown are for 2-way straight pattern valves.
- The values of Cv for 2-way angle patterns will increase by about 50% (with water).
- All dimensions are for reference only and are subject to change.

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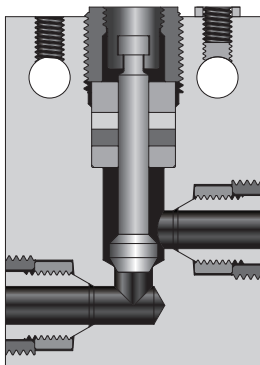
15NSS - DHL4 - RG2 - ATO

Series	Body Material	Connection Type	Connection Size	Stem Tip	Packing	Flow Pattern	Pneumatic Actuator Type
10N 15N 20N 30N 60N	SS 316 SS	For 10N Series 2FH Female MP FNS Female NPT FRT Female ISO/BSP Tapered For 15N Series DHL Female DHL Series FNS Female NPT FRT Female ISO/BSP Tapered For 20N Series 2FH Female MP For 30N/60N Series 6FH Female HP	2 1/8" 4 1/4" 6 3/8" 8 1/2" 9 9/16" 12 3/4" 16 1"	Vee R Regulating	PTFE Nylon (60N Only) TG RPTFE Glass G Graphite (10N, 15N and 20N Series Only) HT Extended stuffing box with Graphite (10N and 20N Only)	1 Straight 2 Angle 3 Angle / Replaceable Seat 4 3-way / 2 on Pressure 5 3-way / 1 on Pressure 6 3-way / 2-Stem Manifold	None ATO Air to Open (Normally Closed) ATC Air to Close (Normally Open)

- NOTES: 1. "Ordering Number Description" is a reference to understand the combination rules of FITOK product part number. Not all combinations are available.
 2. Pneumatic needle valves are open/closed valves, and will not regulate flow. Ordering pneumatic valve models with regulating stems is not recommended.

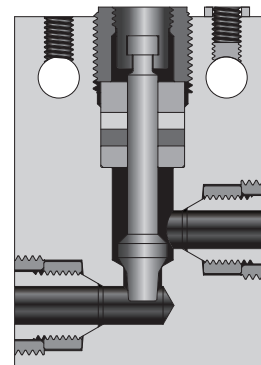
Stem Types

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.

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

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

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



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60C Series

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60CO Series

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10C Series

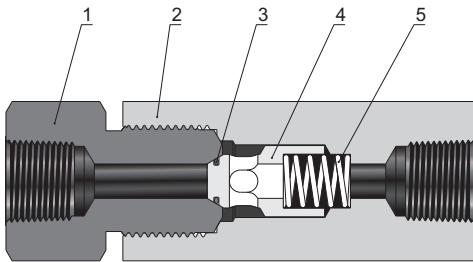
10,000 psig (690 bar)

Pipe O-ring Check Valves

Features

- Fluorocarbon FKM O-ring for operation from 0°F to 400°F (-17.8°C to 204°C), other materials of O-rings available
- Cracking pressure: 14 psig~26 psig (0.966 bar~1.794 bar)
- 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

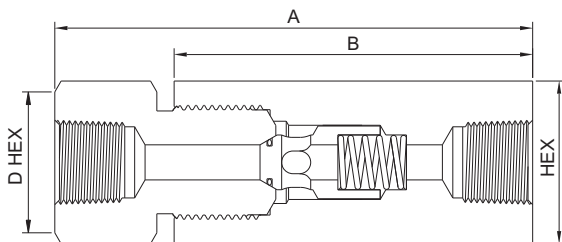
Standard Materials of Construction



Item	Component	Material Grade/ASTM Specification
1	<i>Cover Gland</i>	<i>316 SS/A479</i>
2	<i>Valve Body</i>	<i>316 SS/A479</i>
3	<i>O-ring</i>	<i>Fluorocarbon FKM</i>
4	<i>Poppet</i>	<i>316 SS/A479</i>
5	<i>Spring</i>	<i>300 Series Stainless Steel</i>
	Lubricant	Molybdenum Disulfide/Fluorinated-based

Wetted components listed in italics.

Ordering Information and Dimensions



Ordering Number	Connection	Orifice in. (mm)	Cv	Dimensions, in. (mm)				Working Pressure psig (bar)
				A	B	D - HEX	HEX	
10CSS-FNS12	FNS12	0.52 (13.21)	4.70	6.11 (155.3)	4.75 (120.7)	1.5 (38.1)	1.75 (44.5)	10,000 (690)
10CSS-FNS16	FNS16	0.69 (17.53)	7.40	7.33 (186.2)	5.75 (146.1)	1.75 (44.5)	1.88 (47.8)	10,000 (690)

NOTE: For other pipe connections, please refer to 15C Series Pipe O-ring Check Valves for details.

10CO Series

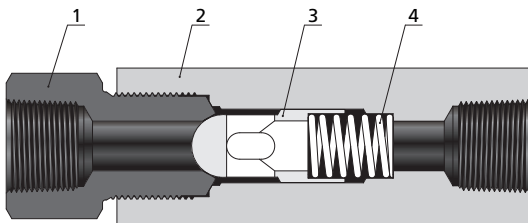
10,000 psig (690 bar)

Pipe Ball Check Valves

Features

- ⦿ Working temperature range: -110°F to 400°F (-79°C to 204°C)
- ⦿ 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 materials of cover gland and ball poppet for longer life

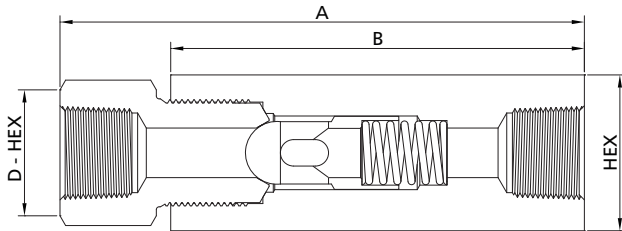
Standard Materials of Construction



Item	Component	Material Grade/ASTM Specification
1	<i>Cover Gland</i>	<i>316 SS/A479</i>
2	<i>Valve Body</i>	<i>316 SS/A479</i>
3	<i>Ball Poppet</i>	<i>316 SS/A479</i>
4	<i>Spring</i>	<i>300 Series Stainless Steel</i>
	Lubricant	Molybdenum Disulfide/Fluorinated-based

Wetted components listed in italics.

Ordering Information and Dimensions



Ordering Number	Connection	Orifice in. (mm)	Cv	Dimensions, in. (mm)				Working Pressure psig (bar)
				A	B	D - HEX	HEX	
10COSS-FNS12	FNS12	0.52 (13.21)	4.70	6.11 (155.3)	4.75 (120.7)	1.5 (38.1)	1.75 (44.5)	10,000 (690)
10COSS-FNS16	FNS16	0.69 (17.53)	7.40	7.33 (186.2)	5.75 (146.1)	1.75 (44.5)	1.88 (47.8)	10,000 (690)

NOTE: For other pipe connections, please refer to 15CO Series Pipe Ball Check Valves for details.

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15C Series

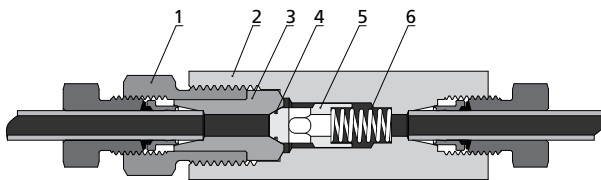
15,000 psig (1034 bar)

O-ring Check Valves

Features

- Fluorocarbon FKM O-ring for operation from 0°F to 400°F (-17.8°C to 204°C), other materials of O-rings available
- Tubing sizes available in 1/4", 3/8" and 1/2"
- Cracking pressure: 14 psig~26 psig (0.966 bar~1.794 bar)
- 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

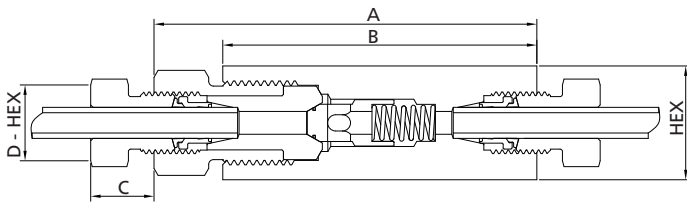
Standard Materials of Construction



Item	Component	Material Grade/ASTM Specification
1	Cover Gland	316 SS/A479
2	Valve Body	316 SS/A479
3	Cover	316SS/A479
4	O-ring	Fluorocarbon FKM
5	Poppet	316 SS/A479
6	Spring	300 Series Stainless Steel
	Lubricant	Molybdenum Disulfide/Fluorinated-based

Wetted components listed in italics.

Ordering Information and Dimensions



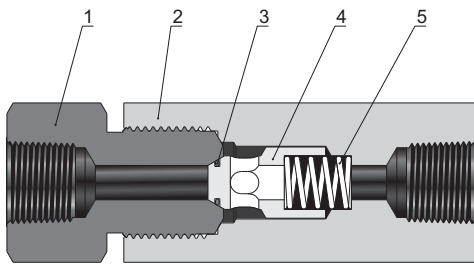
Ordering Number	Connection	Orifice in. (mm)	Cv	Dimensions, in. (mm)					Working Pressure psig (bar)
				A	B	C	D - HEX	HEX	
15CSS-DHL4	DHL4	0.188 (4.78)	0.63	3.35 (85)	2.72 (69.2)	0.52 (13.3)	0.63 (16.0)	0.81 (20.6)	15,000 (1034)
15CSS-DHL6	DHL6	0.250 (6.35)	1.70	3.72 (94.6)	3.13 (79.6)	0.53 (13.5)	0.75 (19.1)	1.00 (25.4)	15,000 (1034)
15CSS-DHL8	DHL8	0.375 (9.53)	3.40	4.41 (112.0)	3.68 (93.5)	0.60 (15.3)	0.93 (23.6)	1.38 (35.1)	15,000 (1034)

Pipe O-ring Check Valves

Features

- Fluorocarbon FKM O-ring for operation from 0°F to 400°F (-17.8°C to 204°C), other materials of O-rings available
- Cracking pressure: 14 psig~26 psig (0.966 bar~1.794 bar)
- 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

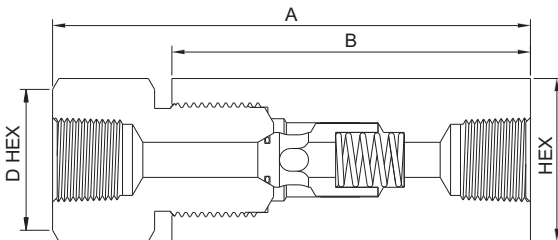
Standard Materials of Construction



Item	Component	Material Grade/ASTM Specification
1	<i>Cover Gland</i>	<i>316 SS/A479</i>
2	<i>Valve Body</i>	<i>316 SS/A479</i>
3	<i>O-ring</i>	<i>Fluorocarbon FKM</i>
4	<i>Poppet</i>	<i>316 SS/A479</i>
5	<i>Spring</i>	<i>300 Series Stainless Steel</i>
	Lubricant	Molybdenum Disulfide/Fluorinated-based

Wetted components listed in italics.

Ordering Information and Dimensions



Ordering Number	Connection	Orifice in. (mm)	Cv	Dimensions, in. (mm)				Working Pressure psig (bar)
				A	B	D - HEX	HEX	
15CSS-FNS4	FNS4	0.12 (3.05)	0.28	3.30 (83.8)	2.38 (60.3)	0.94 (23.8)	0.94 (23.8)	15,000 (1034)
15CSS-FNS6	FNS6	0.22 (5.59)	0.84	3.95 (100.3)	2.88 (73.2)	1.13 (28.6)	1.13 (28.6)	15,000 (1034)
15CSS-FNS8	FNS8	0.36 (9.12)	2.30	5.07 (128.9)	3.88 (98.6)	1.38 (34.9)	1.38 (34.9)	15,000 (1034)

15CO Series

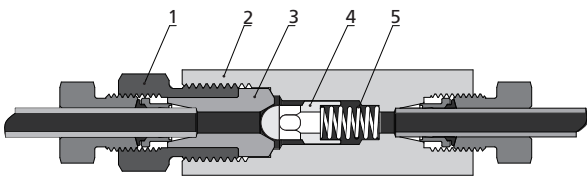
15,000 psig (1034 bar)

Ball Check Valves

Features

- Working temperature range: -110°F to 800°F (-79°C to 427°C)
- Tubing sizes available in 1/4", 3/8" and 1/2"
- 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 materials of cover and ball poppet for longer life

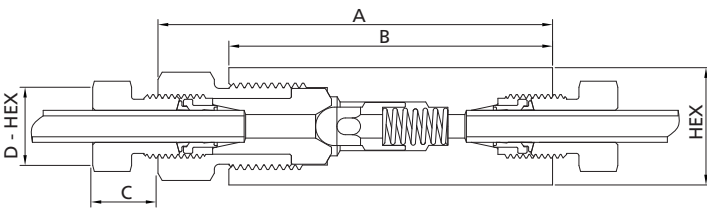
Standard Materials of Construction



Item	Component	Material Grade/ASTM Specification
1	Cover Gland	316 SS/A479
2	Valve Body	316 SS/A479
3	Cover	316 SS/A479
4	Ball Poppet	316 SS/A479
5	Spring	300 Series Stainless Steel
	Lubricant	Molybdenum Disulfide/Fluorinated-based

Wetted components listed in italics.

Ordering Information and Dimensions



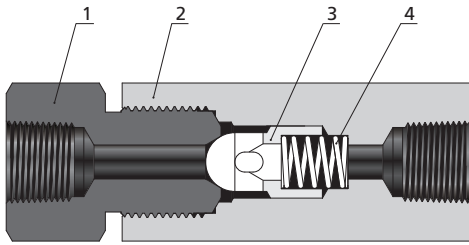
Ordering Number	Connection	Orifice in. (mm)	Cv	Dimensions, in. (mm)					Working Pressure psig (bar)
				A	B	C	D - HEX	HEX	
15COSS-DHL4	DHL4	0.188 (4.78)	0.63	3.35 (85)	2.72 (69.2)	0.52 (13.3)	0.63 (16.0)	0.81 (20.6)	15,000 (1034)
15COSS-DHL6	DHL6	0.250 (6.35)	1.70	3.72 (94.6)	3.13 (79.6)	0.53 (13.5)	0.75 (19.1)	1.00 (25.4)	15,000 (1034)
15COSS-DHL8	DHL8	0.375 (9.53)	3.40	4.41 (112.0)	3.68 (93.5)	0.60 (15.3)	0.93 (23.6)	1.38 (35.1)	15,000 (1034)

Pipe Ball Check Valves

Features

- ⦿ Working temperature range: -110°F to 400°F (-79°C to 204°C)
- ⦿ 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 is designed essentially for axial flow with minimum pressure drop
- ⦿ Optional materials of cover gland and ball poppet for longer life

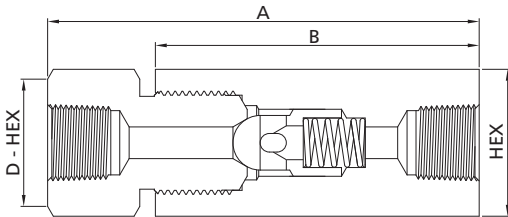
Standard Materials of Construction



Item	Component	Material Grade/ASTM Specification
1	<i>Cover Gland</i>	<i>316 SS/A479</i>
2	<i>Valve Body</i>	<i>316 SS/A479</i>
3	<i>Ball Poppet</i>	<i>316 SS/A479</i>
4	<i>Spring</i>	<i>300 Series Stainless Steel</i>
	Lubricant	Molybdenum Disulfide/Fluorinated-based

Wetted components listed in italics.

Ordering Information and Dimensions



Ordering Number	Connection	Orifice in. (mm)	Cv	Dimensions, in. (mm)				Working Pressure psig (bar)
				A	B	D - HEX	HEX	
15COSS-FNS4	FNS4	0.12 (3.05)	0.28	3.30 (83.8)	2.38 (60.3)	0.94 (23.8)	0.94 (23.8)	15,000 (1034)
15COSS-FNS6	FNS6	0.22 (5.59)	0.84	3.95 (100.3)	2.88 (73.2)	1.13 (28.6)	1.13 (28.6)	15,000 (1034)
15COSS-FNS8	FNS8	0.36 (9.12)	2.30	5.07 (128.9)	3.88 (98.6)	1.38 (34.9)	1.38 (34.9)	15,000 (1034)

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20C Series

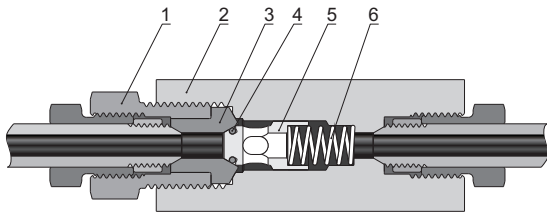
20,000 psig (1379 bar)

O-ring Check Valves

Features

- Fluorocarbon FKM O-ring for operation from 0°F to 400°F (-17.8°C to 204°C), other materials of O-rings available
- Tubing sizes available from 1/4" to 1"
- Cracking pressure: 14 psig~26 psig (0.966 bar~1.794 bar)
- 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

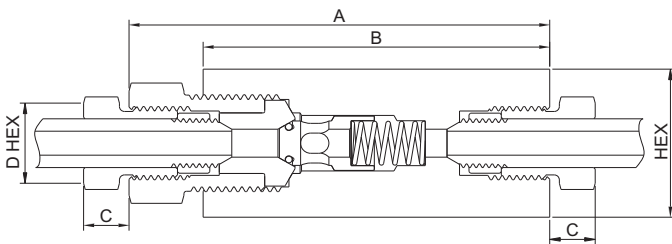
Standard Materials of Construction



Item	Component	Material Grade/ASTM Specification
1	Cover Gland	316 SS/A479
2	Valve Body	316 SS/A479
3	Cover	316 SS/A479
4	O-ring	Fluorocarbon FKM
5	Poppet	316 SS/A479
6	Spring	300 Series Stainless Steel
	Lubricant	Molybdenum Disulfide/Fluorinated-based

Wetted components listed in italics.

Ordering Information and Dimensions



Ordering Number	Connection	Orifice in. (mm)	Cv	Dimensions, in. (mm)					Working Pressure psig (bar)
				A	B	C	D - HEX	HEX	
20CSS-2FH4	2FH4	0.125 (3.18)	0.28	2.94 (74.7)	2.50 (63.5)	0.38 (9.7)	0.50 (12.7)	0.81 (20.6)	20,000 (1379)
20CSS-2FH6	2FH6	0.218 (5.54)	0.84	3.12 (79.3)	2.62 (66.6)	0.44 (11.2)	0.62 (15.8)	1.00 (25.4)	20,000 (1379)
20CSS-2FH9	2FH9	0.359 (9.12)	2.30	4.18 (106.2)	3.50 (88.9)	0.55 (14.0)	0.94 (23.9)	1.38 (35.1)	20,000 (1379)
20CSS-2FH12	2FH12	0.516 (13.11)	4.70	5.50 (139.7)	4.75 (120.7)	0.60 (15.2)	1.19 (30.2)	1.75 (44.5)	20,000 (1379)
20CSS-2FH16	2FH16	0.688 (17.48)	7.40	6.91 (175.6)	5.75 (146.1)	0.74 (18.8)	1.38 (35.1)	2.12 (53.9)	20,000 (1379)

20CO Series

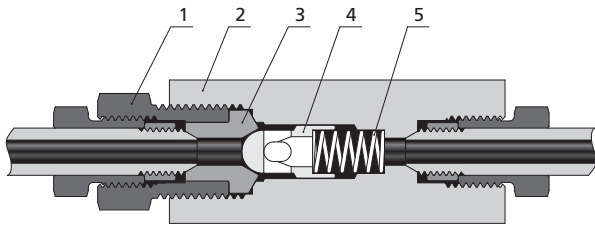
20,000 psig (1379 bar)

Ball Check Valves

Features

- Working temperature range: -110°F to 1200°F (-79°C to 649°C)
- Tubing sizes available from 1/4" to 1"
- 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 is designed essentially for axial flow with minimum pressure drop
- Optional materials of cover and ball poppet for longer life

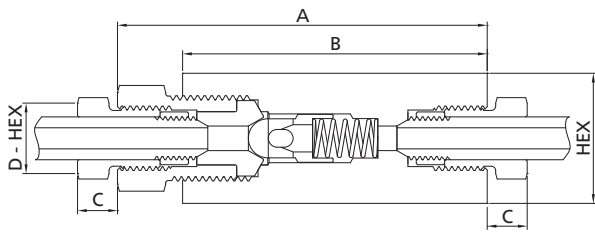
Standard Materials of Construction



Item	Component	Material Grade/ASTM Specification
1	Cover Gland	316 SS/A479
2	Valve Body	316 SS/A479
3	Cover	316 SS/A479
4	Ball Poppet	316 SS/A479
5	Spring	300 Series Stainless Steel
	Lubricant	Molybdenum Disulfide/Fluorinated-based

Wetted components listed in italics.

Ordering Information and Dimensions



Ordering Number	Connection	Orifice in. (mm)	Cv	Dimensions, in. (mm)					Working Pressure psig (bar)
				A	B	C	D - HEX	HEX	
20COSS-2FH4	2FH4	0.125 (3.18)	0.28	2.94 (74.7)	2.50 (63.5)	0.38 (9.7)	0.50 (12.7)	0.81 (20.6)	20,000 (1379)
20COSS-2FH6	2FH6	0.218 (5.54)	0.84	3.12 (79.3)	2.62 (66.6)	0.44 (11.2)	0.62 (15.8)	1.00 (25.4)	20,000 (1379)
20COSS-2FH9	2FH9	0.359 (9.12)	2.30	4.18 (106.2)	3.50 (88.9)	0.55 (14.0)	0.94 (23.9)	1.38 (35.1)	20,000 (1379)
20COSS-2FH12	2FH12	0.516 (13.11)	4.70	5.50 (139.7)	4.75 (120.7)	0.60 (15.2)	1.19 (30.2)	1.75 (44.5)	20,000 (1379)
20COSS-2FH16	2FH16	0.688 (17.48)	7.40	6.91 (175.6)	5.75 (146.1)	0.74 (18.8)	1.38 (35.1)	2.12 (53.9)	20,000 (1379)

60C Series

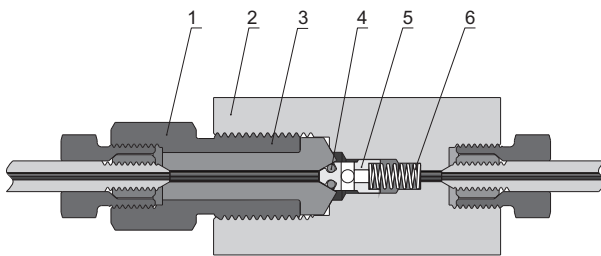
60,000 psig (4137 bar)

O-ring Check Valves

Features

- Fluorocarbon FKM O-ring for operation from 0°F to 400°F (-17.8°C to 204°C), other materials of O-rings available
- Tubing sizes available from 1/4" to 9/16"
- Cracking pressure: 14 psig~26 psig (0.966 bar~1.794 bar)
- 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

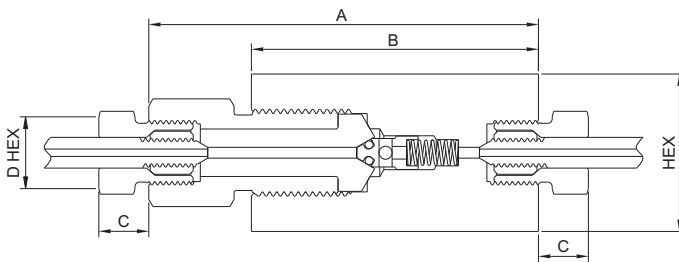
Standard Materials of Construction



Item	Component	Material Grade/ASTM Specification
1	Cover Gland	316 SS/A479
2	Valve Body	316 SS/A479
3	Cover	316 SS/A479
4	O-ring	Fluorocarbon FKM
5	Poppet	316 SS/A479
6	Spring	300 Series Stainless Steel
	Lubricant	Molybdenum Disulfide/Fluorinated-based

Wetted components listed in italics.

Ordering Information and Dimensions



Ordering Number	Connection	Orifice in. (mm)	Cv	Dimensions, in. (mm)					Working Pressure psig (bar)
				A	B	C	D - HEX	HEX	
60CSS-6FH4	6FH4	0.094 (2.39)	0.15	3.38 (85.9)	2.50 (63.5)	0.47 (11.9)	0.63 (16.0)	1.18 (30.0)	60,000 (4137)
60CSS-6FH6	6FH6	0.125 (3.18)	0.28	3.86 (98.1)	2.80 (71.1)	0.61 (15.5)	0.81 (20.6)	1.18 (30.0)	60,000 (4137)
60CSS-6FH9	6FH9	0.187 (4.75)	0.63	4.62 (117.4)	3.38 (85.9)	0.95 (24.1)	1.12 (28.5)	1.50 (38.1)	60,000 (4137)

60CO Series

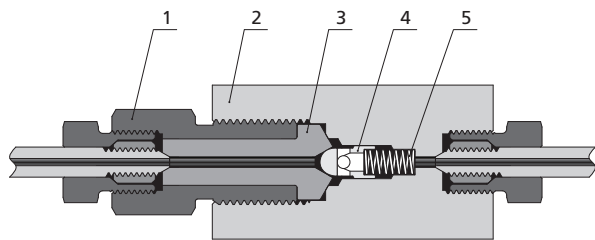
60,000 psig (4137 bar)

Ball Check Valves

Features

- Working temperature range: -110°F to 1200°F (-79°C to 649°C)
- Tubing sizes available from 1/4" to 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 is designed essentially for axial flow with minimum pressure drop
- Optional materials of cover and ball poppet for longer life

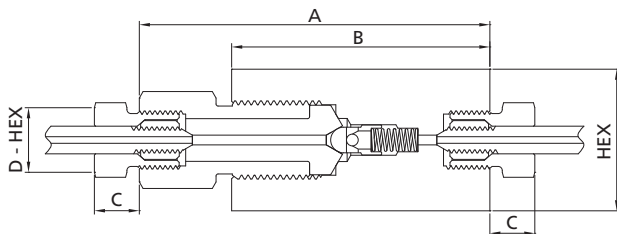
Standard Materials of Construction



Item	Component	Material Grade/ASTM Specification
1	Cover Gland	316 SS/A479
2	Valve Body	316 SS/A479
3	Cover	316 SS/A479
4	Ball Poppet	316 SS/A479
5	Spring	300 Series Stainless Steel
	Lubricant	Molybdenum Disulfide/Fluorinated-based

Wetted components listed in italics.

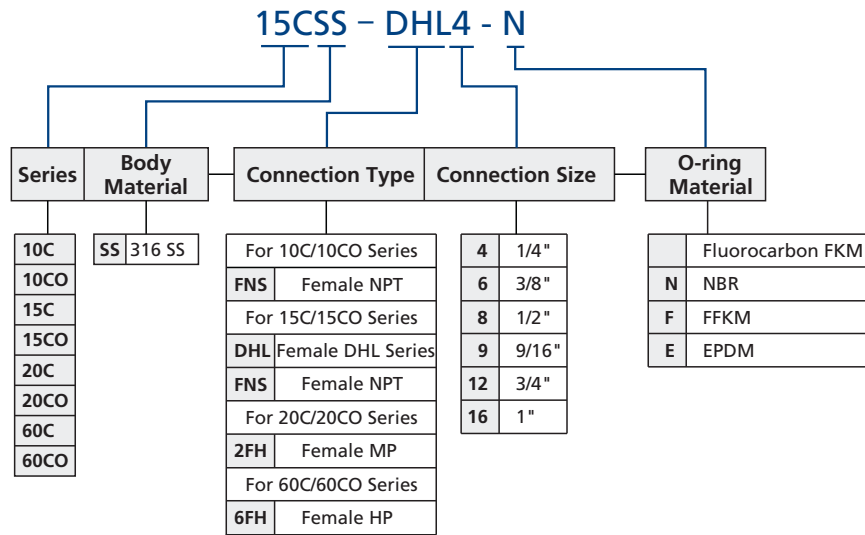
Ordering Information and Dimensions



Ordering Number	Connection	Orifice in. (mm)	Cv	Dimensions, in. (mm)					Working Pressure psig (bar)
				A	B	C	D - HEX	HEX	
60COSS-6FH4	6FH4	0.094 (2.39)	0.15	3.38 (85.9)	2.50 (63.5)	0.47 (11.9)	0.63 (16.0)	1.18 (30.0)	60,000 (4137)
60COSS-6FH6	6FH6	0.125 (3.18)	0.28	3.86 (98.1)	2.80 (71.1)	0.61 (15.5)	0.81 (20.6)	1.18 (30.0)	60,000 (4137)
60COSS-6FH9	6FH9	0.187 (4.75)	0.63	4.62 (117.4)	3.38 (85.9)	0.95 (24.1)	1.19 (30.16)	1.50 (38.1)	60,000 (4137)

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

Ordering Number Description



- NOTES: 1. "Ordering Number Description" is a reference to understand the combination rules of FITOK product part number. Not all combinations are available.
2. For products applied under lower temperature, please contact FITOK Group or our authorized distributors.

Code	O-ring Material	Working Temperature Range, °F (°C)
	Fluorocarbon FKM	0 to 400 (-17.8 to 204)
N	NBR	-10 to 250 (-23 to 121)
F	FFKM	-20 to 550 (-29 to 288)
E	EPDM	-50 to 300 (-45 to 148)

Medium & High Pressure Fittings and Tubing

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Excess Flow Valves

15EF Series, 15,000 psig (1034 bar)

20EF Series, 20,000 psig (1379 bar)

60EF Series, 60,000 psig (4137 bar)



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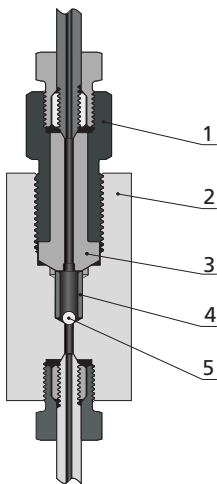
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Features

- ⦿ Working temperature range:
 - 15EF Series (NPT ends): -110°F to 400°F (-79°C to 204°C)
 - 15EF Series (DHL ends): -110°F to 800°F (-79°C to 427°C)
 - 20EF and 60EF Series: -110°F to 1200°F (-79°C to 649°C)
- ⦿ Protect pressure gauges and pressure instrumentation from sudden surges in flow or venting in the event of line failure
- ⦿ Equalize the pressure across the ball, and the ball will drop and reset automatically
- ⦿ The valve must be installed in vertical position with arrow on valve body pointing up
- ⦿ Valve body made of high tensile 316 stainless steel for maximum wear and corrosion resistance
- ⦿ Optional materials of cover and ball for longer life

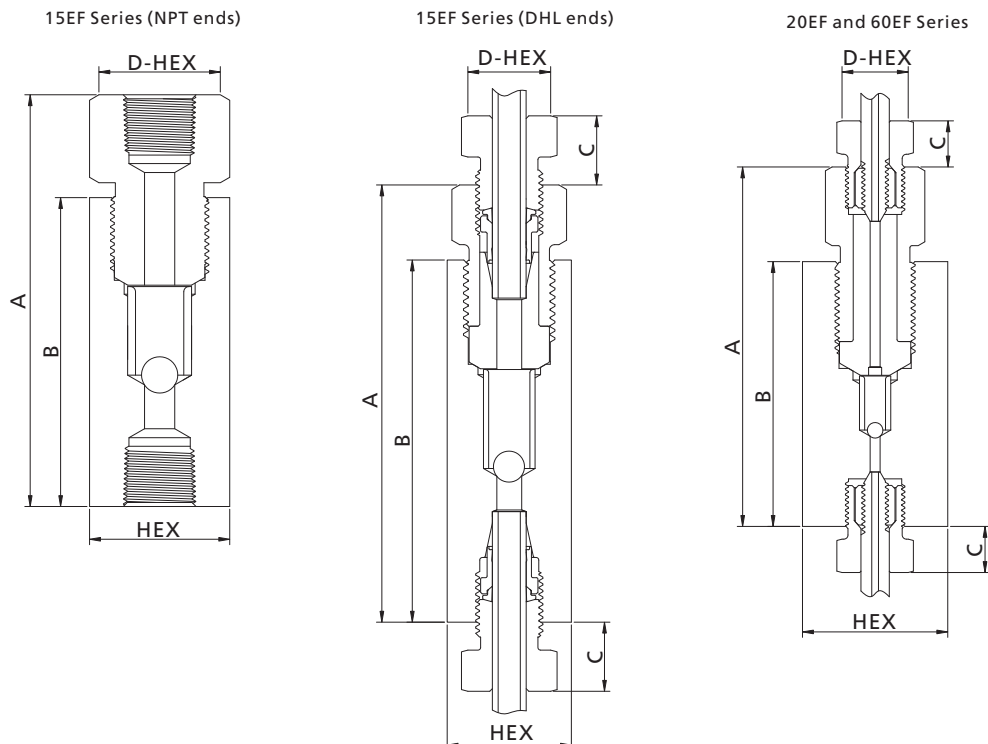
Standard Materials of Construction



Item	Component	Material Grade/ASTM Specification
1	Cover Gland	316 SS/A479
2	<i>Valve Body</i>	<i>316 SS/A479</i>
3	Cover	316 SS/A479
4	<i>Sleeve</i>	<i>316 SS/A479</i>
5	<i>Ball</i>	<i>Stainless Steel</i>
Lubricant		Molybdenum Disulfide/Fluorinated-based

Wetted components listed in italics.

Ordering Information and Dimensions

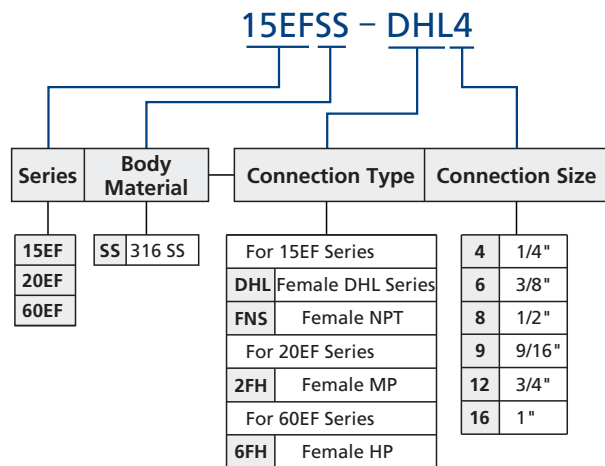


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Ordering Number	Connection	Orifice in. (mm)	Dimensions, in. (mm)					Working Pressure psig (bar)
			A	B	C	D - HEX	HEX	
15EFSS-DHL4	DHL4	0.188 (4.78)	3.35 (85)	2.72 (69.2)	0.52 (13.3)	0.63 (16.0)	0.81 (20.6)	15,000 (1034)
15EFSS-DHL6	DHL6	0.250 (6.35)	3.72 (94.6)	3.13 (79.6)	0.53 (13.5)	0.75 (19.1)	1.00 (25.4)	15,000 (1034)
15EFSS-DHL8	DHL8	0.375 (9.53)	4.41 (112.0)	3.68 (93.5)	0.60 (15.3)	0.93 (23.6)	1.38 (35.1)	15,000 (1034)
15EFSS-FNS4	FNS4	0.12 (3.05)	3.30 (83.8)	2.38 (60.3)		0.94 (23.8)	0.94 (23.8)	15,000 (1034)
15EFSS-FNS6	FNS6	0.22 (5.59)	3.95 (100.3)	2.88 (73.2)		1.13 (28.6)	1.13 (28.6)	15,000 (1034)
15EFSS-FNS8	FNS8	0.36 (9.12)	5.07 (128.9)	3.88 (98.6)		1.38 (34.9)	1.38 (34.9)	15,000 (1034)
20EFSS-2FH4	2FH4	0.125 (3.18)	2.94 (74.7)	2.50 (63.5)	0.38 (9.7)	0.50 (12.7)	0.81 (20.6)	20,000 (1379)
20EFSS-2FH6	2FH6	0.218 (5.54)	3.12 (79.3)	2.62 (66.6)	0.44 (11.2)	0.62 (15.8)	1.00 (25.4)	20,000 (1379)
20EFSS-2FH9	2FH9	0.359 (9.12)	4.18 (106.2)	3.50 (88.9)	0.55 (14.0)	0.94 (23.9)	1.38 (35.1)	20,000 (1379)
20EFSS-2FH12	2FH12	0.516 (13.11)	5.50 (139.7)	4.75 (120.7)	0.60 (15.2)	1.19 (30.2)	1.75 (44.5)	20,000 (1379)
20EFSS-2FH16	2FH16	0.688 (17.48)	6.91 (175.6)	5.75 (146.1)	0.74 (18.8)	1.38 (35.1)	2.12 (53.9)	20,000 (1379)
60EFSS-6FH4	6FH4	0.094 (2.39)	3.38 (85.9)	2.50 (63.5)	0.47 (11.9)	0.63 (16.0)	1.18 (30.0)	60,000 (4137)
60EFSS-6FH6	6FH6	0.125 (3.18)	3.86 (98.1)	2.80 (71.1)	0.61 (15.5)	0.81 (20.6)	1.18 (30.0)	60,000 (4137)
60EFSS-6FH9	6FH9	0.187 (4.75)	4.62 (117.4)	3.38 (85.9)	0.95 (24.1)	1.19 (30.16)	1.50 (38.1)	60,000 (4137)

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

Ordering Number Description



NOTE: "Ordering Number Description" is a reference to understand the combination rules of FITOK product part number. Not all combinations are available.

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Metering Valves

15M Series, 15,000 psig (1034 bar)

30M Series, 30,000 psig (2068 bar)

60M Series, 60,000 psig (4137 bar)



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Features

- Precisely tapered valve stem accurately controls flow for gases and liquids
- The design of Barrel and Thimble micrometer permits repeatable settings
 Each division of barrel equals to 0.025"
 Thimble is divided into 25 divisions, each division of thimble equals to 0.001" stem travel
 One revolution equals to valve stem 0.025" travel
- Valve body made of high tensile 316 stainless steel for maximum wear and corrosion resistance
- Packing located under stem threads
- Reliable locking device for packing gland
- Not intended as shut-off valves. Install a correlated shutoff valve when shut-off is required
- Minimum flow rate set at "0" position, and operation below "0" position not allowed

Technical Data

Series	Tube O.D. in.	Connection	Orifice in. (mm)	Cv	Working Pressure psig (bar)
15M	1/8	DHL2	0.062 (1.57)	0.04	15,000 (1034)
15M	1/4	DHL4	0.062 (1.57)	0.04	15,000 (1034)
30M	1/4	6FH4	0.062 (1.57)	0.04	30,000 (2068)
60M	1/4	6FH4	0.062 (1.57)	0.04	60,000 (4137)
60M	3/8	6FH6	0.062 (1.57)	0.04	60,000 (4137)

Packing Options:

Nylon is the standard packing material for 60M series, PTFE for other series. RPTFE is available for all series.

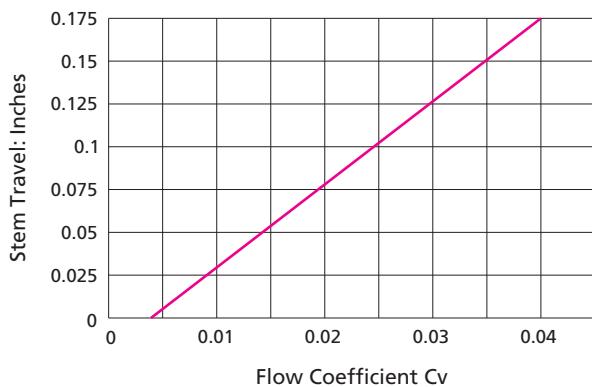
Nylon: 40°F~230°F (4.4°C~110°C).

PTFE: -100°F~450°F (-73°C~232°C).

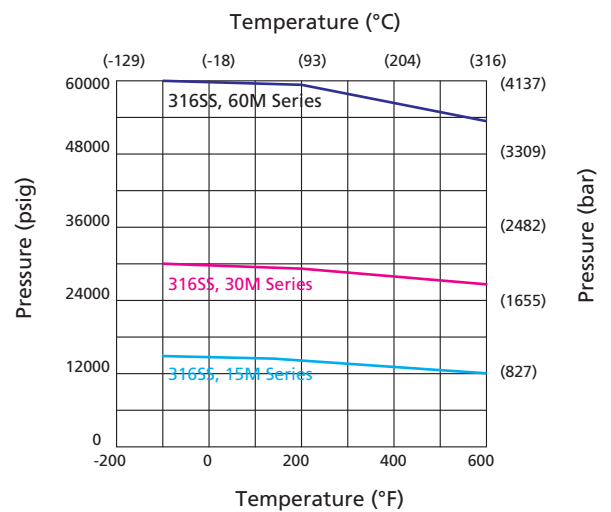
RPTFE glass: -100°F~600°F (-73°C~316°C).

Graphite: 0°F~800°F (-17.8°C~427°C).

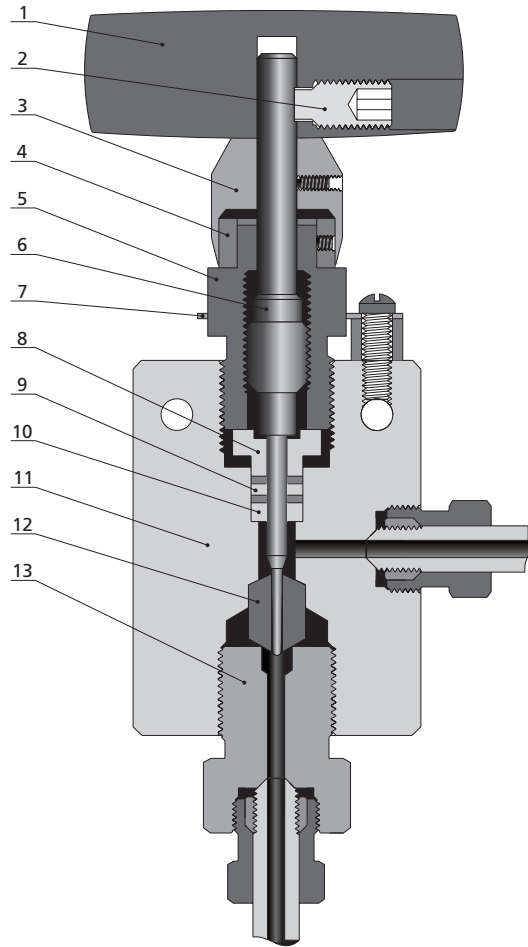
Flow Data at 100°F (38°C)



Pressure vs. Temperature Curve



Standard Materials of Construction



Item	Component	Material Grade/ASTM Specification
1	Handle	Stainless steel
2	Handle Screw	Stainless steel
3	Thimble	304 SS/A479
4	Barrel	304 SS/A479
5	Packing Bolt	C63000/B150
6	<i>Stem</i>	<i>17-4PH/A564</i>
7	Locking Plate	304 SS/A240
8	Packing Gland	C63000/B150
9	<i>Packing</i>	<i>PTFE/RPTFE/Nylon</i>
10	<i>Packing Washer</i>	<i>17-4PH/A564</i>
11	<i>Body</i>	<i>316 SS/A479</i>
12	<i>Seat</i>	<i>17-4PH/A564</i>
13	<i>Seat Gland</i>	<i>316 SS/A479</i>
	Lubricant	Molybdenum Disulfide/Fluorinated-based

Wetted components listed in italics.

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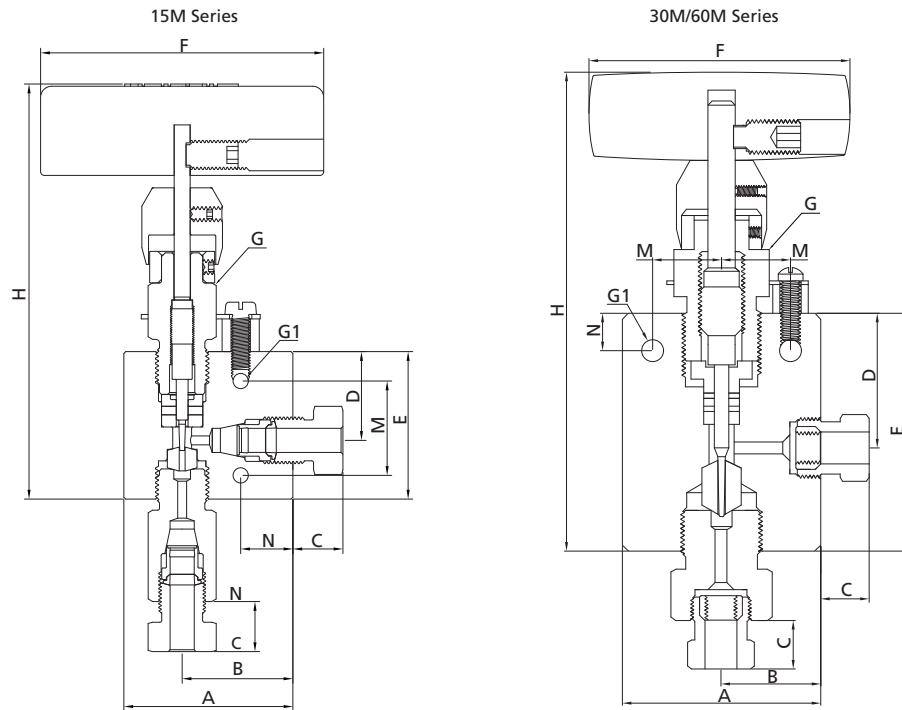
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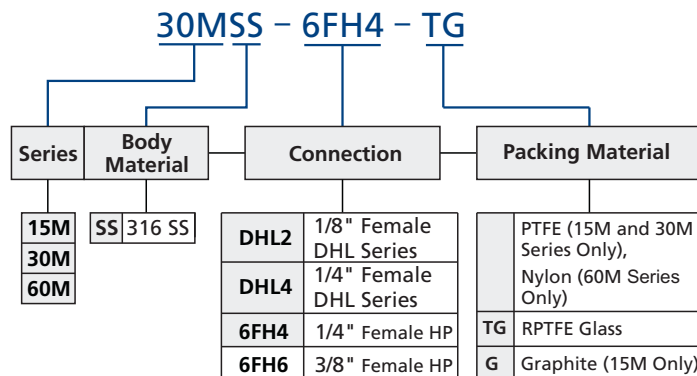
Ordering Information and Dimensions



Ordering Number	Connection	Orifice in. (mm)	Dimensions, in. (mm)											
			A	B	C	D	E	F	G	G1	H	M	N	Thickness
15MSS-DHL2	DHL2	0.062 (1.57)	1.79 (45.5)	1.17 (29.8)	0.44 (11.2)	0.94 (23.8)	1.56 (39.6)	3.00 (76.2)	0.87 (22.1)	0.16 (4.1)	5.06 (128.5)	1.00 (25.4)	0.55 (14.1)	0.75 (19.1)
15MSS-DHL4	DHL4	0.062 (1.57)	1.79 (45.5)	1.17 (29.8)	0.53 (13.5)	0.94 (23.8)	1.56 (39.6)	3.00 (76.2)	0.87 (22.1)	0.16 (4.1)	5.06 (128.5)	1.00 (25.4)	0.55 (14.1)	0.75 (19.1)
30MSS-6FH4	6FH4	0.062 (1.57)	2.00 (50.8)	1.00 (25.4)	0.50 (12.7)	1.12 (28.5)	2.00 (50.8)	3.00 (76.2)	0.97 (24.6)	0.22 (5.6)	5.06 (128.5)	0.69 (17.3)	0.50 (12.7)	1.00 (25.4)
60MSS-6FH4	6FH4	0.062 (1.57)	2.00 (50.8)	1.00 (25.4)	0.50 (12.7)	1.31 (33.3)	2.63 (66.8)	3.00 (76.2)	0.97 (24.6)	0.22 (5.6)	6.00 (152.4)	0.69 (17.3)	0.38 (9.7)	1.00 (25.4)
60MSS-6FH6	6FH6	0.062 (1.57)	2.00 (50.8)	1.00 (25.4)	0.53 (13.5)	1.31 (33.3)	2.63 (66.8)	3.00 (76.2)	0.97 (24.6)	0.22 (5.6)	6.06 (153.9)	0.69 (17.3)	0.38 (9.7)	1.00 (25.4)

- NOTES: 1. G is the drill dimension of packing bolt 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 when stem is in "0" position.
 5. All dimensions are for reference only and are subject to change. For dimensions not shown above, please contact the FITOK Group or our authorized distributors.

Ordering Number Description



NOTE: "Ordering Number Description" is a reference to understand the combination rules of FITOK product part number. Not all combinations are available.

Relief Valves

HSR Series, 20,000 psig (1379 bar)

HMR Series, 60,000 psig (4137 bar)

HAR Series, 20,000 psig (1379 bar)



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HSR Series

20,000 psig (1379 bar) C-74

HMR Series

60,000 psig (4137 bar) C-77

HAR Series

20,000 psig (1379 bar) C-80

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HSR Series

20,000 psig (1379 bar)

Features

- ⦿ Set pressure: 1,500 to 20,000 psig (103 to 1379 bar)
- ⦿ Working temperature range: 32°F to 400°F (0°C to 204°C)
- ⦿ Liquid or gas service
- ⦿ Soft seat design to provide bubble tight shut-off of gas
- ⦿ Factory-set, test, locked, and tagged with the set pressure
- ⦿ Lock wire the cap and body together to maintain relief setting
- ⦿ Free assembly positions

Ordering Information and Technical Data

Ordering Number	Inlet		Outlet Connection	Orifice in. (mm)	Cv	Minimum Set Pressure psig (bar)	Maximum Set Pressure psig (bar)	Maximum Back Pressure psig (bar)
	Tube O.D. in.	Connection						
HSRSS-2FH9-FNS12-1	9/16	2FH9	FNS12	0.312 (7.92)	1.2	1,500 (103)	5,000 (345)	500 (34.5)
HSRSS-2FH9-FNS12-2	9/16	2FH9	FNS12	0.25 (6.35)	0.8	5,000 (345)	10,000 (690)	500 (34.5)
HSRSS-2FH9-FNS12-3	9/16	2FH9	FNS12	0.156 (3.96)	0.3	10,000 (690)	20,000 (1379)	500 (34.5)

NOTES: 1. Please specify the required set pressure when ordering.

2. Maximum system operating pressure should not exceed 90% of the set pressure.

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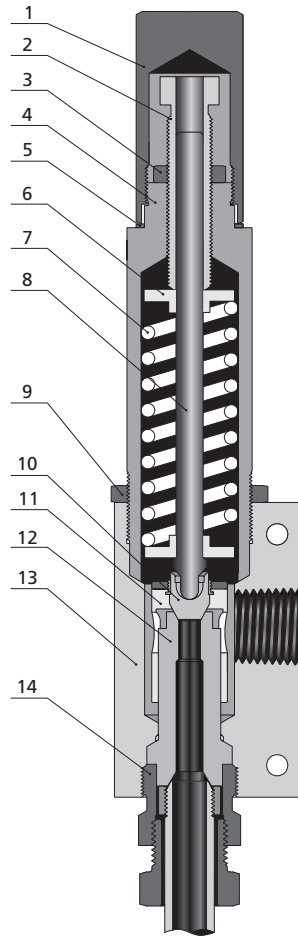
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Standard Materials of Construction



Item	Component	Material Grade/ASTM Specification
1	<i>Cap</i>	316 SS/A479
2	<i>Adjusting Bolt</i>	316 SS/A479
3	<i>Lock Nut</i>	316 SS/A479
4	<i>Spring Cylinder</i>	316 SS/A479
5	<i>Gasket</i>	316L SS/A479
6	<i>Spring Washer</i>	316 SS/A479
7	<i>Spring</i>	17-7PH/AMS5678
8	<i>Spindle</i>	316 SS/A479
9	<i>Lock Nut</i>	316 SS/A479
10	<i>Plug</i>	PEEK
11	<i>Plug Guide</i>	316 SS/A479
12	<i>Seat</i>	316 SS/A479
13	<i>Valve Body</i>	316 SS/A479
14	<i>Seat Gland</i>	316 SS/A479
	Lubricant	Molybdenum Disulfide/Fluorinated-based

Wetted components listed in italics.

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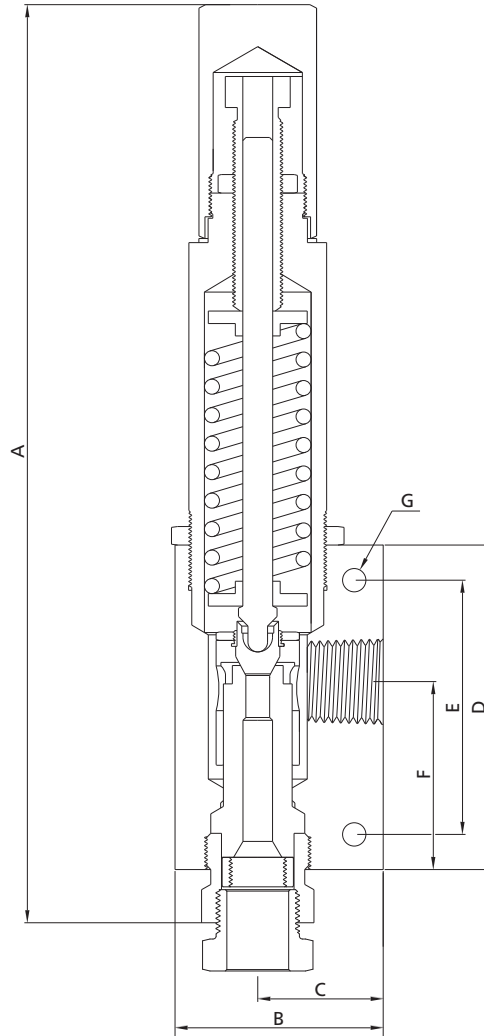
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Dimensions



Dimensions, in.(mm)						
A	B	C	D	E	F	G
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)

NOTES: 1. G is the dimension of Mounting Holes.

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.

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HMR Series

60,000 psig (4137 bar)

Features

- ⦿ Set pressure: 3,000 to 60,000 psig (207 to 4137 bar)
- ⦿ Working temperature range: -110°F to 400°F (-79°C to 204°C)
- ⦿ Liquid or gas service
- ⦿ Metal-to-metal seating to provide shut-off of liquids and gases under pressure to commercial tightness standards
- ⦿ Factory-set, test, locked, and tagged with the set pressure
- ⦿ Lock wire the cap and body together to maintain relief setting
- ⦿ Free assembly positions

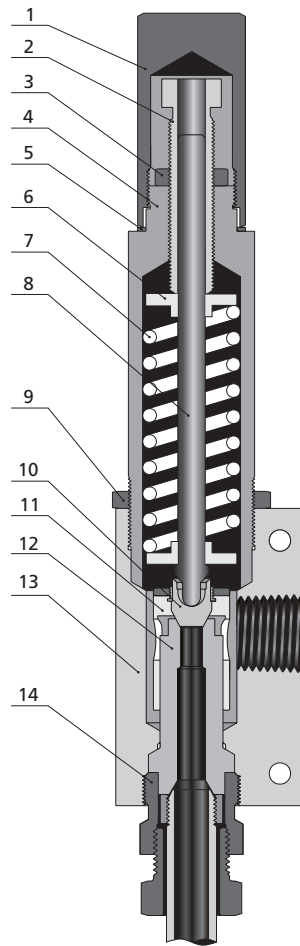
Ordering Information and Technical Data

Ordering Number	Inlet		Outlet Connection	Orifice Size in. (mm)	Cv	Minimum Set Pressure psig (bar)	Maximum Set Pressure psig (bar)	Maximum Back Pressure psig (bar)
	Tube O.D. in.	Connection						
HMRSS-2FH9-FNS12-1	9/16	2FH9	FNS12	0.312 (7.92)	1.2	3,000 (207)	5,000 (345)	500 (34.5)
HMRSS-2FH9-FNS12-2	9/16	2FH9	FNS12	0.250 (6.35)	0.8	5,000 (345)	10,000 (690)	500 (34.5)
HMRSS-2FH9-FNS12-3	9/16	2FH9	FNS12	0.188 (4.78)	0.45	10,000 (690)	15,000 (1034)	500 (34.5)
HMRSS-2FH9-FNS12-4	9/16	2FH9	FNS12	0.156 (3.96)	0.3	15,000 (1034)	20,000 (1379)	500 (34.5)
HMRSS-6FH6-FNS12-5	3/8	6FH6	FNS12	0.125 (3.18)	0.2	20,000 (1379)	30,000 (2068)	500 (34.5)
HMRSS-6FH6-FNS12-6	3/8	6FH6	FNS12	0.093 (2.36)	0.1	25,000 (1724)	45,000 (3103)	500 (34.5)
HMRSS-6FH6-FNS12-7	3/8	6FH6	FNS12	0.078 (1.98)	0.07	30,000 (2068)	60,000 (4137)	500 (34.5)

NOTES: 1. Please specify the required set pressure when ordering.

2. Maximum system operating pressure should not exceed 90% of the relief valve set pressure.

Standard Materials of Construction



Item	Component	Material Grade/ASTM Specification
1	<i>Cap</i>	316 SS/A479
2	<i>Adjusting Bolt</i>	316 SS/A479
3	<i>Lock Nut</i>	316 SS/A479
4	<i>Spring Cylinder</i>	316 SS/A479
5	<i>Gasket</i>	316L SS/A479
6	<i>Spring Washer</i>	316 SS/A479
7	<i>Spring</i>	17-7PH/AMS5678
8	<i>Spindle</i>	316 SS/A479
9	Lock Nut	316 SS/A479
10	<i>Plug</i>	S17400/A564
11	<i>Plug Guide</i>	316 SS/A479
12	<i>Seat</i>	17-4PH/A564
13	<i>Valve Body</i>	316 SS/A479
14	<i>Seat Gland</i>	316 SS/A479
	Lubricant	Molybdenum Disulfide/Fluorinated-based

Wetted components listed in italics.

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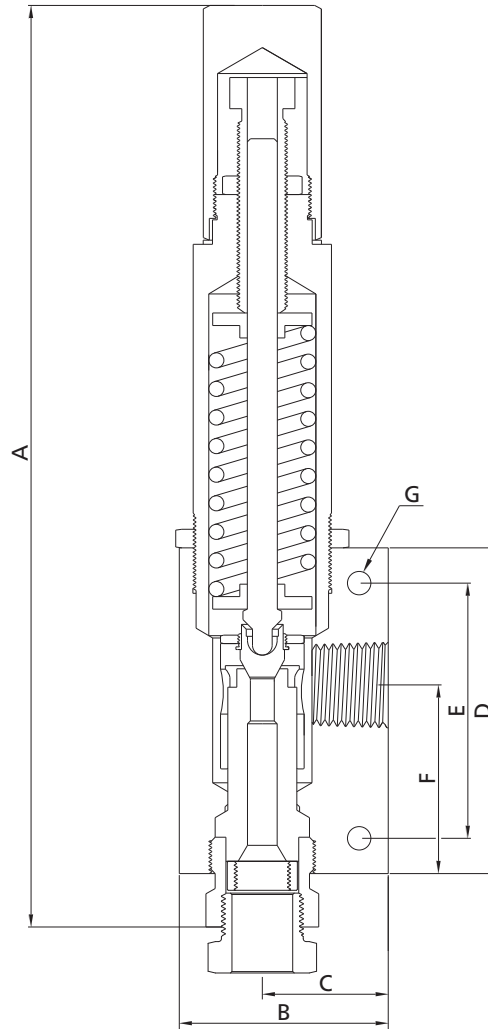
Sour Service Products

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Dimensions



Dimensions, in.(mm)						
A	B	C	D	E	F	G
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)

NOTES: 1. G is the dimension of Mounting Holes.

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.

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HAR Series

20,000 psig (1379 bar)

Features

- ⦿ Set pressure: 3,000 to 20,000 psig (207 to 1379 bar)
- ⦿ Working temperature range: 32°F to 400°F (0°C to 204°C)
- ⦿ Field adjustable
- ⦿ Liquid or gas service
- ⦿ Soft seat design to provide bubble tight shut-off of gas
- ⦿ Easily exchangeable seat
- ⦿ Free assembly positions

Ordering Information and Technical Data

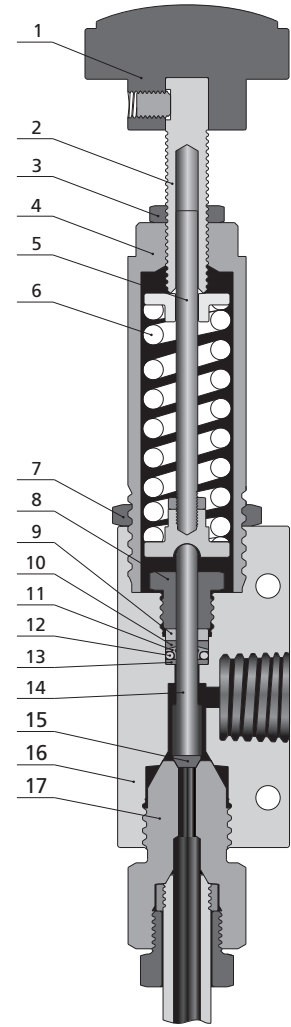
Ordering Number	Inlet		Outlet Connection	Orifice Size in. (mm)	Cv	Minimum Set Pressure psig (bar)	Maximum Set Pressure psig (bar)	Maximum Back Pressure psig (bar)
	Tube O.D. in.	Connection						
HARSS-2FH9-FNS12-1	9/16	2FH9	FNS12	0.197 (5.0)	0.5	3,000 (207)	10,000 (690)	500 (34.5)
HARSS-2FH9-FNS12-2	9/16	2FH9	FNS12	0.093 (2.36)	0.1	10,000 (690)	20,000 (1379)	500 (34.5)

NOTE: Maximum system operating pressure should not exceed 90% of the relief valve set pressure.

Standard Materials of Construction

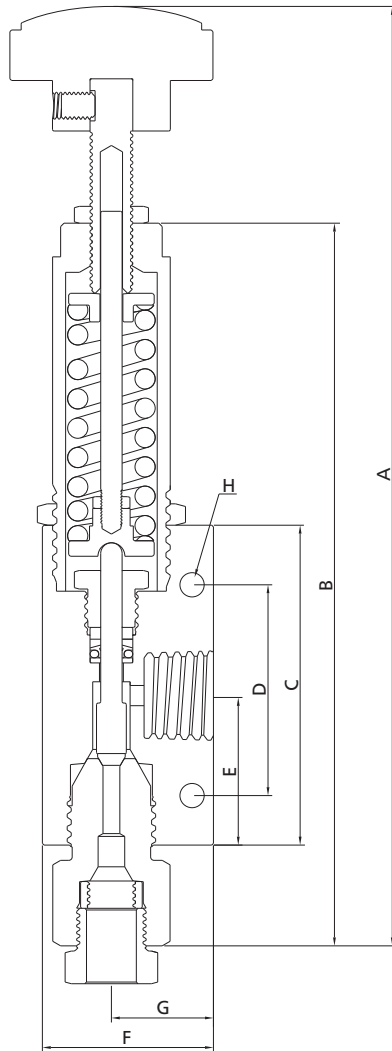
Item	Component	Material Grade/ASTM Specification
1	Handle	6061/B211
2	Set Screw	316 SS/A479
3	Lock Nut	316 SS/A476
4	Bonnet	316 SS/A479
5	Upper Stem	316 SS/A479
6	Spring	17-7PH/AMS5678
7	Lock Nut	316 SS/A479
8	Packing Gland	C63000/B150
9	Washer	C63000/B150
10	<i>Backing Ring</i>	<i>PEEK</i>
11	<i>Backing Ring</i>	<i>PTFE</i>
12	<i>O-ring</i>	<i>Fluorocarbon FKM</i>
13	<i>Ring</i>	<i>PEEK</i>
14	<i>Lower Stem</i>	<i>316 SS/A479</i>
15	<i>Plug</i>	<i>PEEK</i>
16	<i>Body</i>	<i>316 SS/A479</i>
17	<i>Seat</i>	<i>316 SS/A479</i>
	Lubricant	Molybdenum Disulfide/Fluorinated-based

Wetted components listed in italics.



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Dimensions



Dimensions, in.(mm)							
A	B	C	D	E	F	G	H
10.98 (278.8)	8.45 (214.6)	3.74 (95.0)	2.46 (62.6)	1.75 (44.4)	2.00 (50.8)	1.19 (30.3)	0.28 (7.1)

NOTES: 1. H is the dimension of mounting Holes.

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

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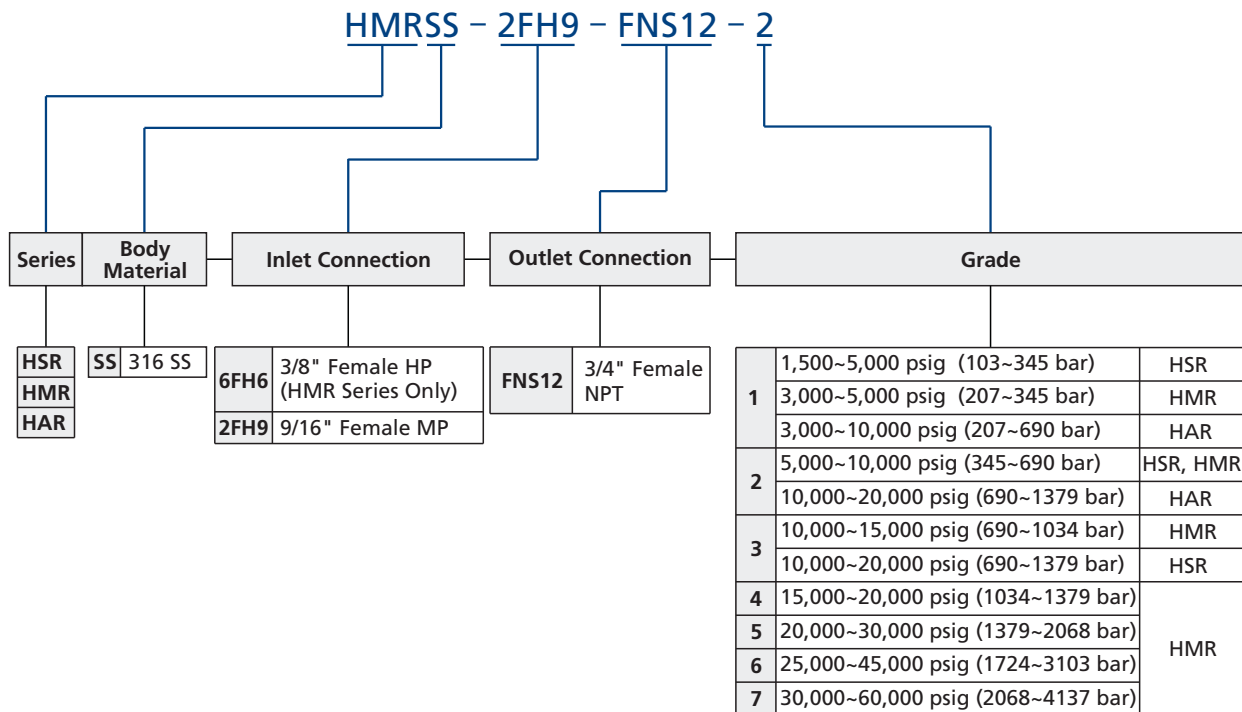
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Ordering Number Description



- NOTES: 1. Valves are factory-set, test, locked, and tagged with the set pressure. Please specify the required set pressure when ordering.
2. "Ordering Number Description" is a reference to understand the combination rules of FITOK product part number. Not all combinations are available.

Bleed Valves and Block & Bleed Valves



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Bleed Valves

Pressures to 30,000 psig (2068 bar) C-86

Block & Bleed Needle Valves

Pressures to 20,000 psig (1379 bar) C-89

Double Block & Bleed Needle Valves

Pressures to 20,000 psig (1379 bar) C-93

Double Block & Bleed Ball Valves

Pressures to 15,000 psig (1034 bar) C-97

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Bleed Valves

Pressures to 30,000 psig (2068 bar)

Features

- ⦿ One piece hex construction compact design allows easy installation
- ⦿ Fluorocarbon FKM O-ring for operation from 0°F to 400°F (-17.8°C to 204°C), other O-ring materials available
- ⦿ 1/8" Female NPT outlet connection
- ⦿ High tensile 316 Stainless Steel body material
- ⦿ Easy to assemble and replace O-ring
- ⦿ Positive locking screw design prevents accidental removal of the stem
- ⦿ Tee handle for easy operation

Technical Data

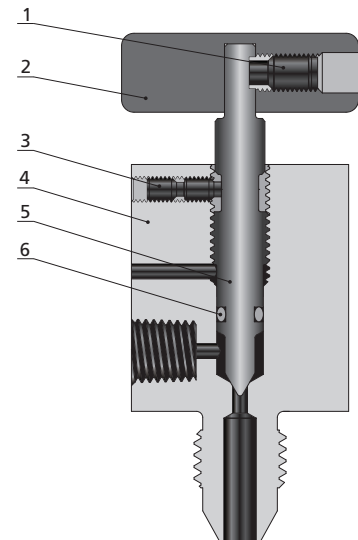
Series	Inlet Connection	Orifice in. (mm)	Working Pressure psig (bar)
15BV	DHM6	0.094 (2.4)	15,000 (1034)
	DHM8	0.094 (2.4)	15,000 (1034)
	DHM9	0.094 (2.4)	15,000 (1034)
20BV	2MP6	0.094 (2.4)	20,000 (1379)
	2MP9	0.094 (2.4)	20,000 (1379)
	2CT6	0.094 (2.4)	20,000 (1379)
	2CT9	0.094 (2.4)	20,000 (1379)
30BV	6MP6	0.094 (2.4)	30,000 (2068)
	6MP9	0.094 (2.4)	30,000 (2068)
	6CT6	0.094 (2.4)	30,000 (2068)
	6CT9	0.094 (2.4)	30,000 (2068)

- NOTES: 1. Working pressure shown is in closed position.
 2. Working pressure is 15,000 psig (1034 bar) in open position.
 3. A variety of end connections available on request. For connections not shown above, please contact FITOK Group or our authorized distributors.

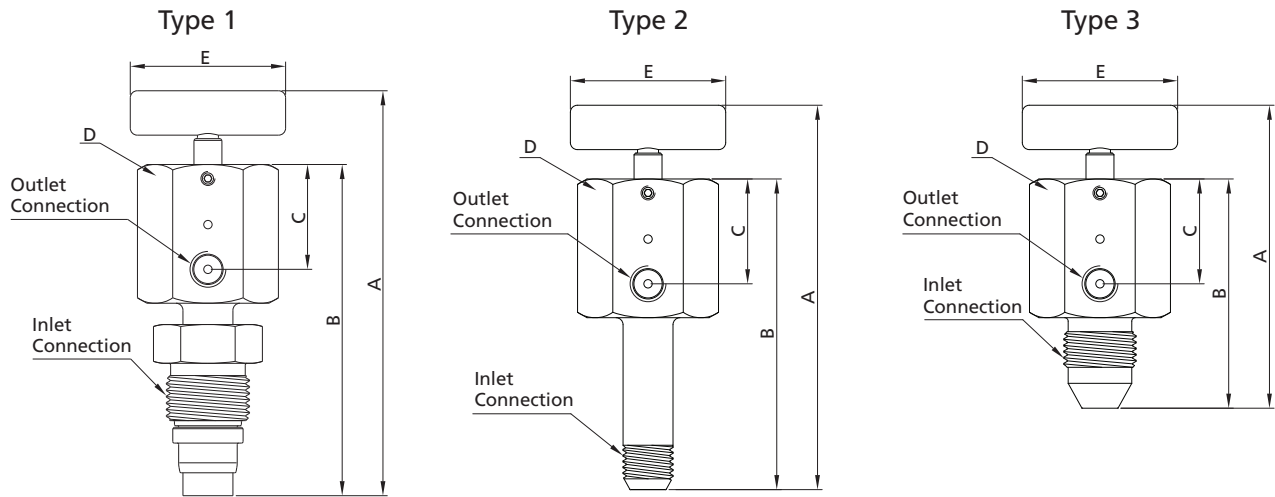
Standard Materials of Construction

Item	Component	Material Grade/ASTM Specification
1	Handle screw	Stainless steel
2	Handle	Stainless steel
3	Locking screw	Stainless steel
4	<i>Body</i>	<i>316 SS/A479</i>
5	<i>Stem</i>	<i>S17400/A564</i>
6	<i>O-ring</i>	<i>Fluorocarbon FKM</i>
	Lubricant	Molybdenum disulfide/Fluorinated-based

Wetted components listed in italics.



Ordering Information and Dimensions



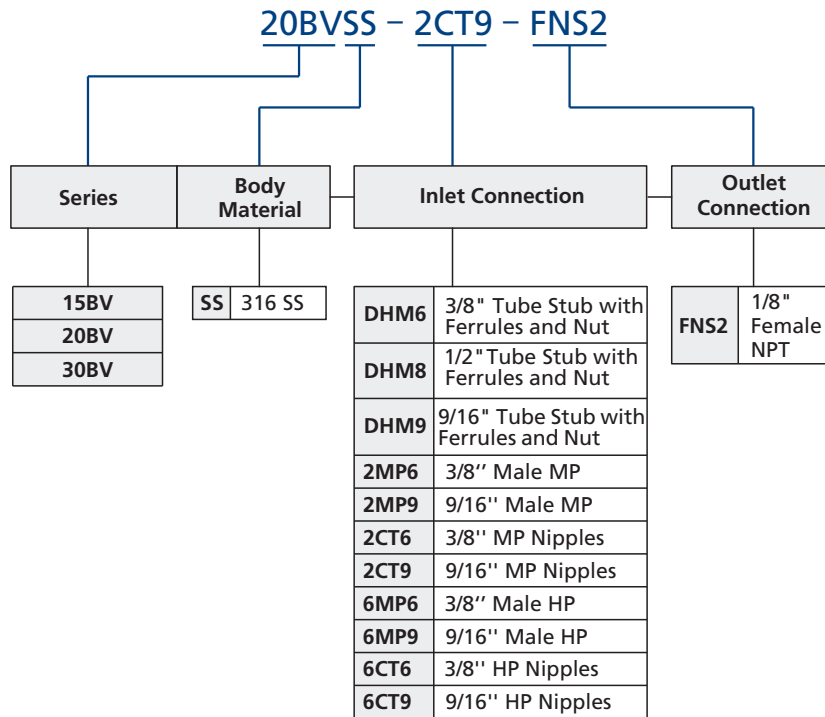
Type 1								
Ordering Number	Inlet Connection	Outlet Connection	Orifice in. (mm)	Dimensions, in. (mm)				
				A	B	C	D	E
15BVSS-DHM6-FNS2	DHM6	FNS2	0.094 (2.4)	3.83 (97.2)	3.04 (77.1)	1.18 (30.0)	1.37 (34.9)	1.75 (44.5)
15BVSS-DHM8-FNS2	DHM8	FNS2	0.094 (2.4)	3.99 (101.3)	3.11 (78.1)	1.18 (30.0)	1.37 (34.9)	1.75 (44.5)
15BVSS-DHM9-FNS2	DHM9	FNS2	0.094 (2.4)	4.56 (115.9)	3.73 (94.8)	1.18 (30.0)	1.37 (34.9)	1.75 (44.5)

Type 2								
Ordering Number	Inlet Connection	Outlet Connection	Orifice in. (mm)	Dimensions, in. (mm)				
				A	B	C	D	E
20BVSS-2CT6-FNS2	2CT6	FNS2	0.094 (2.4)	3.65 (92.6)	2.81 (71.5)	1.18 (30.0)	1.37 (34.9)	1.75 (44.5)
20BVSS-2CT9-FNS2	2CT9	FNS2	0.094 (2.4)	3.93 (99.8)	3.10 (78.7)	1.18 (30.0)	1.37 (34.9)	1.75 (44.5)
30BVSS-6CT6-FNS2	6CT6	FNS2	0.094 (2.4)	3.93 (99.8)	3.10 (78.7)	1.18 (30.0)	1.37 (34.9)	1.75 (44.5)
30BVSS-6CT9-FNS2	6CT9	FNS2	0.094 (2.4)	4.38 (111.3)	3.55 (90.2)	1.18 (30.0)	1.37 (34.9)	1.75 (44.5)

Type 3								
Ordering Number	Inlet Connection	Outlet Connection	Orifice in. (mm)	Dimensions, in. (mm)				
				A	B	C	D	E
20BVSS-2MP6-FNS2	2MP6	FNS2	0.094 (2.4)	3.41 (86.7)	2.58 (65.6)	1.18 (30.0)	1.37 (34.9)	1.75 (44.5)
20BVSS-2MP9-FNS2	2MP9	FNS2	0.094 (2.4)	3.41 (86.7)	2.58 (65.6)	1.18 (30.0)	1.37 (34.9)	1.75 (44.5)
30BVSS-6MP6-FNS2	6MP6	FNS2	0.094 (2.4)	3.41 (86.7)	2.58 (65.6)	1.18 (30.0)	1.37 (34.9)	1.75 (44.5)
30BVSS-6MP9-FNS2	6MP9	FNS2	0.094 (2.4)	3.41 (86.7)	2.58 (65.6)	1.18 (30.0)	1.37 (34.9)	1.75 (44.5)

- NOTES: 1. D is the dimension of hex.
 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.

Ordering Number Description



NOTE: "Ordering Number Description" is a reference to understand the combination rules of FITOK product part number. Not all combinations are available.

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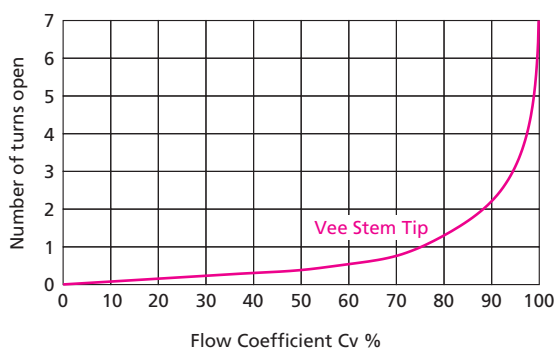
Block & Bleed Needle Valves

Pressures to 20,000 psig (1379 bar)

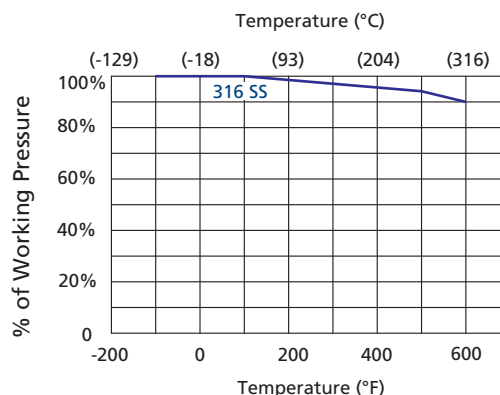
Features

- ⦿ Compact design offers advantages over configurations with multiple valves and fittings
- ⦿ Minimal space needed for installation and operation
- ⦿ Cost savings from fewer components required
- ⦿ Reduced potential for leakage
- ⦿ 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
- ⦿ Selected materials of packing gland and upper stem for reduced handle torque and extended thread cycle life
- ⦿ Packing located under stem threads
- ⦿ Reliable locking device for packing gland

Flow Data at 100°F (38°C)



Pressure vs. Temperature Curve



Technical Data

Series	Connection	Orifice in. (mm)	Cv	Working Pressure psig (bar)
15BN	FNS4	0.094 (2.4)	0.20	15,000 (1034)
	FNS6	0.094 (2.4)	0.20	15,000 (1034)
20BN	2FH4	0.094 (2.4)	0.20	20,000 (1379)
	2FH6	0.094 (2.4)	0.20	20,000 (1379)

NOTES: 1. 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).

2. A variety of end connections are available on request . For connections not shown above, please contact FITOK Group or our authorized distributors.

Medium & High Pressure Fittings and Tubing

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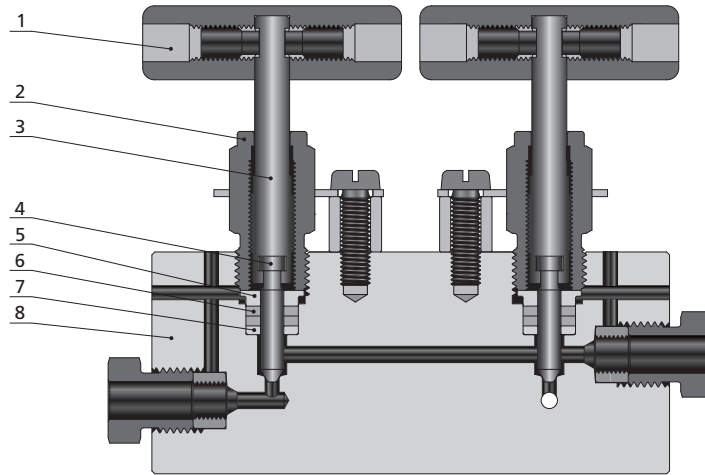
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Technical Information

Standard Materials of Construction



Item	Component	Material Grade/ASTM Specification
1	Handle	Stainless steel
2	Packing Gland	C63000/B150
3	Upper stem	316 SS/A479
4	<i>Lower Stem</i>	<i>S17400/A564</i>
5	Packing Ring	C63000/B150
6	<i>Packing</i>	<i>PTFE/RPTFE</i>
7	<i>Packing washer</i>	<i>S17400/A564</i>
8	<i>Body</i>	<i>316 SS/A479</i>
	Lubricant	Molybdenum disulfide

Wetted components listed in italics.

Medium & High Pressure Fittings and Tubing

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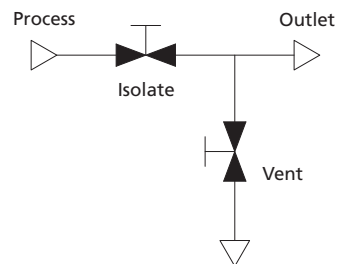
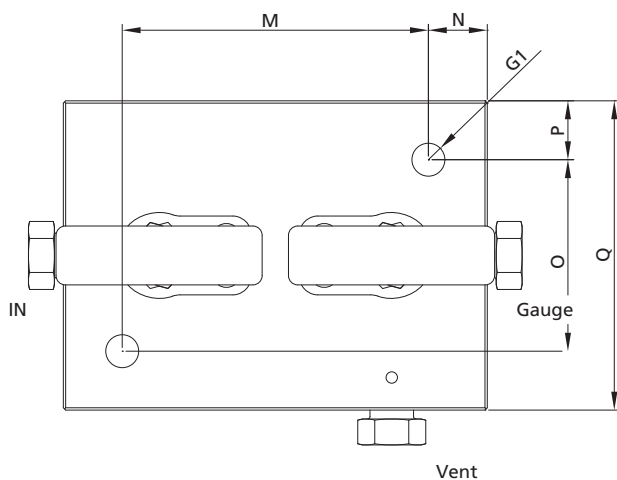
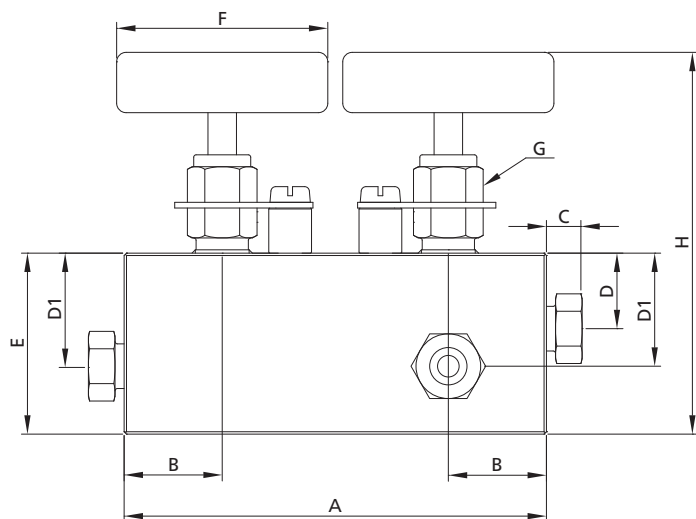
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Ordering Information and Dimensions

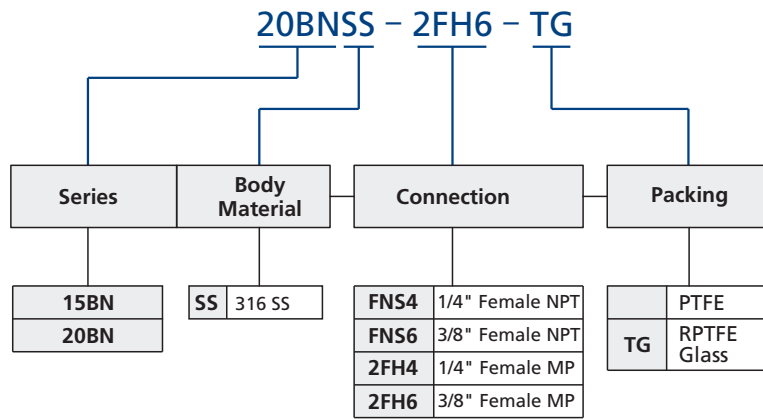


Dimensions																	
Ordering Number	Connection	Orifice in. (mm)	Dimensions, in. (mm)														
			A	B	C	D	D1	E	F	G	G1	H	M	N	O	P	Q
15BNSS-FNS4	FNS4	0.094 (2.4)	3.78 (96.0)	1.00 (25.4)	/	0.81 (20.6)	1.08 (27.5)	1.50 (38.1)	1.75 (44.5)	0.50 (12.7)	0.28 (7.1)	3.26 (82.7)	2.74 (69.5)	0.37 (9.5)	1.25 (31.8)	0.37 (9.5)	2.00 (50.8)
15BNSS-FNS6	FNS6	0.094 (2.4)	3.78 (96.0)	1.00 (25.4)	/	0.81 (20.6)	1.08 (27.5)	1.50 (38.1)	1.75 (44.5)	0.50 (12.7)	0.28 (7.1)	3.26 (82.7)	3.50 (89.1)	0.37 (9.5)	1.25 (31.8)	0.37 (9.5)	2.00 (50.8)
20BNSS-2FH4	2FH4	0.094 (2.4)	3.5 (88.9)	0.81 (20.6)	0.38 (9.7)	0.81 (20.6)	1.08 (27.5)	1.50 (38.1)	1.75 (44.5)	0.50 (12.7)	0.28 (7.1)	3.26 (82.7)	2.74 (69.5)	0.37 (9.5)	1.25 (31.8)	0.37 (9.5)	2.00 (50.8)
20BNSS-2FH6	2FH6	0.094 (2.4)	3.88 (98.5)	1.00 (25.4)	0.44 (11.1)	0.81 (20.6)	1.08 (27.5)	1.50 (38.1)	1.75 (44.5)	0.50 (12.7)	0.28 (7.1)	3.26 (82.7)	3.50 (89.1)	0.37 (9.5)	1.25 (31.8)	0.37 (9.5)	2.00 (50.8)

- NOTES: 1. G is the drill dimension of packing gland mounting hole.
 2. G1 is the panel mounting drill size.
 3. H is the dimension of stem in closed position.
 4. All dimensions are for reference only and are subject to change. For dimensions not shown above, please contact FITOK Group or our authorized distributors.

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Ordering Number Description



NOTE: "Ordering Number Description" is a reference to understand the combination rules of FITOK product part number. Not all combinations are available.

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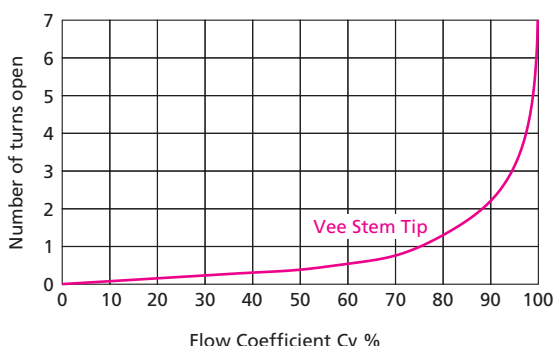
Double Block & Bleed Needle Valves

Pressures to 20,000 psig (1379 bar)

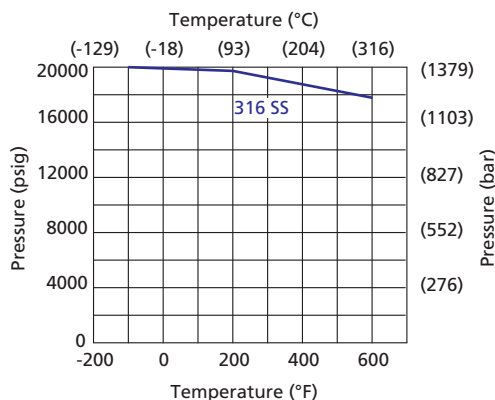
Features

- ⦿ Compact design provides large valve performance in a small package
- ⦿ Reduced potential for leakage
- ⦿ 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
- ⦿ Selected materials of packing gland and upper stem for reduced handle torque and extended thread cycle life
- ⦿ Packing located under stem threads
- ⦿ Reliable locking device for packing gland
- ⦿ Wide selection of tube and pipe end fittings available

Flow Data at 100°F (38°C)



Pressure vs. Temperature Curve



Technical Data

Series	Connection Type (Inlet and Outlet)	Vent Connection	Orifice in. (mm)	Cv	Working Pressure psig (bar)
20DBN	2FH4	2FH4	0.094 (2.4)	0.10	20,000 (1379)
	2FH6	2FH4	0.094 (2.4)	0.27	20,000 (1379)
	2FH9	2FH4	0.094 (2.4)	0.27	20,000 (1379)
	6FH9	2FH4	0.094 (2.4)	0.27	20,000 (1379)

Notes: 1. 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).

2. A variety of end connections are available on request. For connections not shown above, please contact FITOK Group or our authorized distributors.

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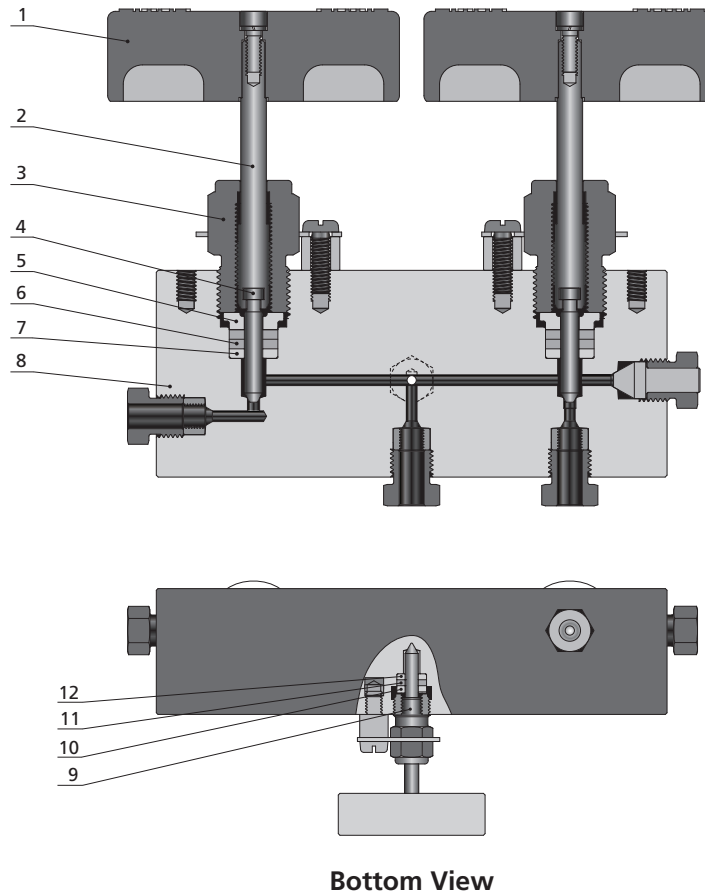
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Standard Materials of Construction



Item	Component	Material Grade/ASTM Specification
1	Handle	Stainless steel
2	Upper stem	316 SS/A479
3	Packing Gland	C63000/B150
4	<i>Lower Stem</i>	<i>S17400/A564</i>
5	<i>Packing Ring</i>	<i>C63000/B150</i>
6	<i>Packing</i>	<i>PTFE/RPTFE</i>
7	<i>Packing washer</i>	<i>S17400/A564</i>
8	<i>Body</i>	<i>316 SS/A479</i>
9	<i>Vent valve stem</i>	<i>S17400/A564</i>
10	<i>Vent valve Ring</i>	<i>C63000/B150</i>
11	<i>Vent valve Packing</i>	<i>PTFE/RPTFE</i>
12	<i>Vent valve Packing washer</i>	<i>S17400/A564</i>
	Lubricant	Molybdenum disulfide

Wetted components listed in italics.

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Medium & High Pressure Valves

Line Filters

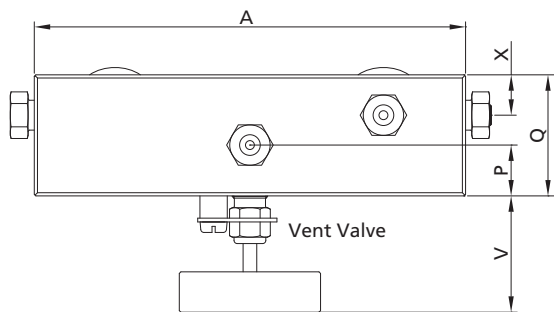
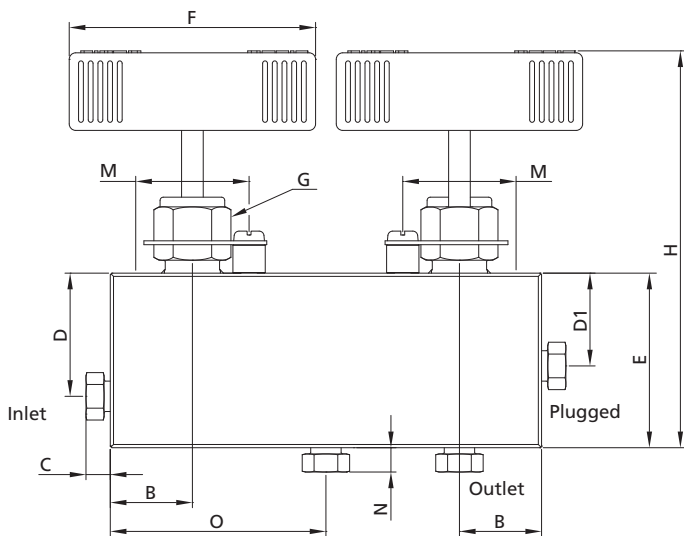
Sour Service Products

Subsea Valves

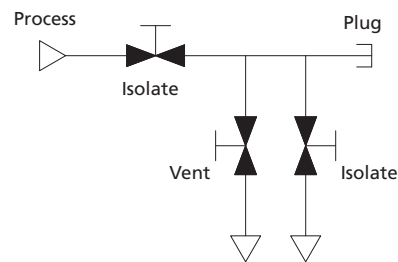
Tools and Installation Instructions

Technical Information

Ordering Information and Dimensions



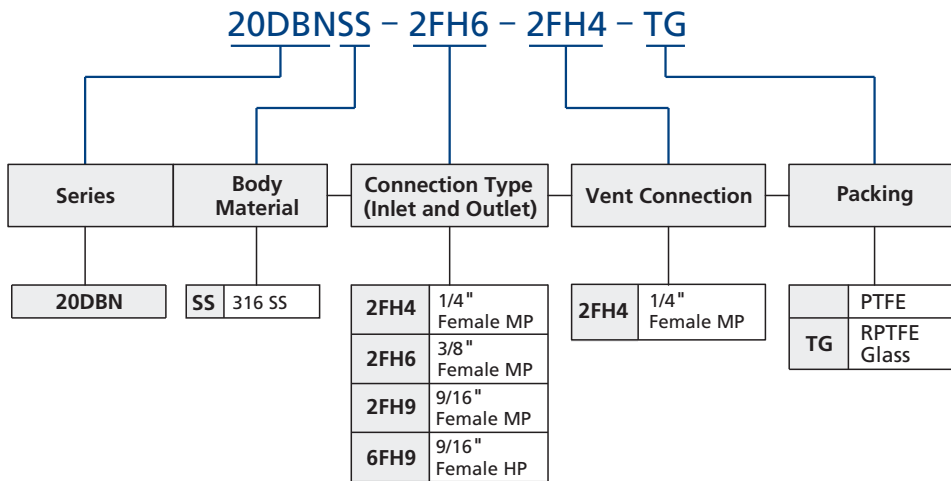
Bottom View



Dimensions																		
Ordering Number	Connection Type (Inlet and Outlet)	Orifice in. (mm)	Dimensions, in. (mm)															
			A	B	C	D	D1	E	F	G	H	M	N	O	P	Q	V	X
20DBNSS-2FH4-2FH4	2FH4	0.094 (2.4)	5.25 (133.4)	1.00 (25.4)	0.38 (9.65)	1.50 (38.1)	1.13 (28.7)	2.13 (54.1)	3.00 (76.2)	0.81 (20.6)	4.65 (118.1)	0.69 (17.5)	0.50 (12.7)	2.62 (66.7)	0.63 (16.0)	1.50 (38.1)	1.43 (36.3)	0.50 (12.7)
20DBNSS-2FH6-2FH4	2FH6	0.094 (2.4)	5.25 (133.4)	1.00 (25.4)	0.44 (11.2)	1.50 (38.1)	1.13 (28.7)	2.13 (54.1)	3.00 (76.2)	0.81 (20.6)	4.65 (118.1)	0.69 (17.5)	0.50 (12.7)	2.62 (66.7)	0.63 (16.0)	1.50 (38.1)	1.43 (36.3)	0.50 (12.7)
20DBNSS-2FH9-2FH4	2FH9	0.094 (2.4)	5.88 (149.4)	1.31 (33.3)	0.55 (14.0)	1.50 (38.1)	1.13 (28.7)	3.00 (76.2)	3.00 (76.2)	0.81 (20.6)	5.53 (140.5)	0.69 (17.5)	0.50 (12.7)	2.94 (74.7)	0.63 (16.0)	1.75 (44.5)	1.43 (36.3)	0.75 (19.1)
20DBNSS-6FH9-2FH4	6FH9	0.094 (2.4)	5.88 (149.4)	1.31 (33.3)	0.95 (24.1)	1.50 (38.1)	1.13 (28.7)	3.00 (76.2)	3.00 (76.2)	0.81 (20.6)	5.53 (140.5)	0.69 (17.5)	0.50 (12.7)	2.94 (74.7)	0.63 (16.0)	1.75 (44.5)	1.43 (36.3)	0.75 (19.1)

- NOTES: 1. Vent Connection: 1/4" Female MP.
 2. G is the drill dimension of packing gland mounting hole.
 3. G1 is the panel mounting drill size.
 4. H is the dimension of stem in closed position.
 5. All dimensions are for reference only and are subject to change. For dimensions not shown above, please contact FITOK Group or our authorized distributors.

Ordering Number Description



NOTE: "Ordering Number Description" is a reference to understand the combination rules of FITOK product part number. Not all combinations are available.

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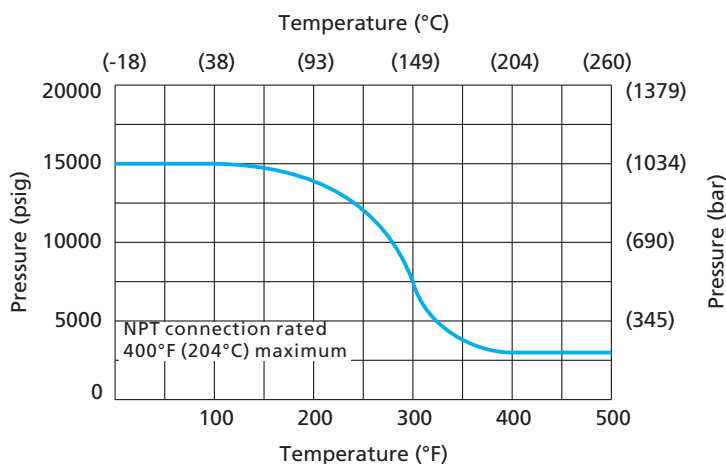
Double Block & Bleed Ball Valves

Pressures to 15,000 psig (1034 bar)

Features

- ⦿ Working temperature range from 0°F to 400°F (-17.8°C to 204°C) with Fluorocarbon FKM O-rings, other O-ring materials available
- ⦿ High tensile 316 Stainless Steel body material
- ⦿ Carbon filled PEEK seats to offer excellent resistance to chemicals, heat and abrasion
- ⦿ One piece, trunnion mounted stem design
- ⦿ Full-port flow path to minimize pressure drop
- ⦿ Vee-stem vent valve
- ⦿ Wide selection of tube and pipe end fittings available
- ⦿ Quarter turn from open to close with positive stop

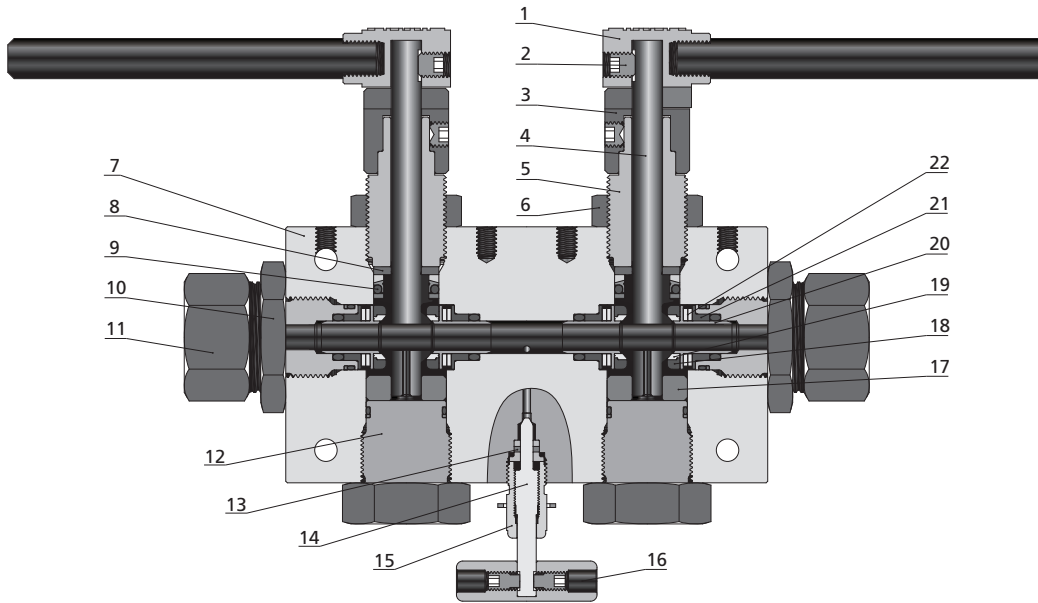
Pressure vs. Temperature Curve



NOTE: Ball valves are not recommended for critical gas applications such as Hydrogen, Helium or other small molecular gases.

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Standard Materials of Construction



Item	Component	Material Grade/ASTM Specification
1	Handle	Stainless Steel
2	Set Screw	Stainless Steel
3	Stopping Device	316 SS/A479
4	<i>Stem</i>	<i>316 SS/A479</i>
5	Packing Gland	316 SS/A479
6	Locking Piece	316 SS/A479
7	<i>Valve Body</i>	<i>316 SS/A479</i>
8	Thrust Washer	C63000/B150
9	<i>Combination Seal</i>	<i>Fluorocarbon FKM</i>
10	Lock Nut	316 SS/A479
11	<i>Seat Gland</i>	<i>316 SS/A479</i>
12	<i>Bottom Gland</i>	<i>316 SS/A479</i>
13	<i>Vent Valve Packing</i>	<i>PTFE</i>
14	<i>Vent Valve Stem</i>	<i>S17400/A564</i>
15	Vent Valve Packing Gland	C63000/B150
16	Vent Valve Handle	Stainless Steel
17	<i>Bearing</i>	<i>PEEK</i>
18	<i>Seat Retainer</i>	<i>S17400/A564</i>
19	<i>Seat</i>	<i>Carbon Filled PEEK</i>
20	<i>Support</i>	<i>316 SS/A479</i>
21	<i>Belleville Backup</i>	<i>S17400/A564</i>
22	<i>Belleville Washers</i>	<i>S17700/A693</i>
	Lubricant	Molybdenum Disulfide/Fluorinated-based

Wetted components listed in italics.

Medium & High Pressure Fittings and Tubing

Quick Couplings

Medium & High Pressure Valves

Line Filters

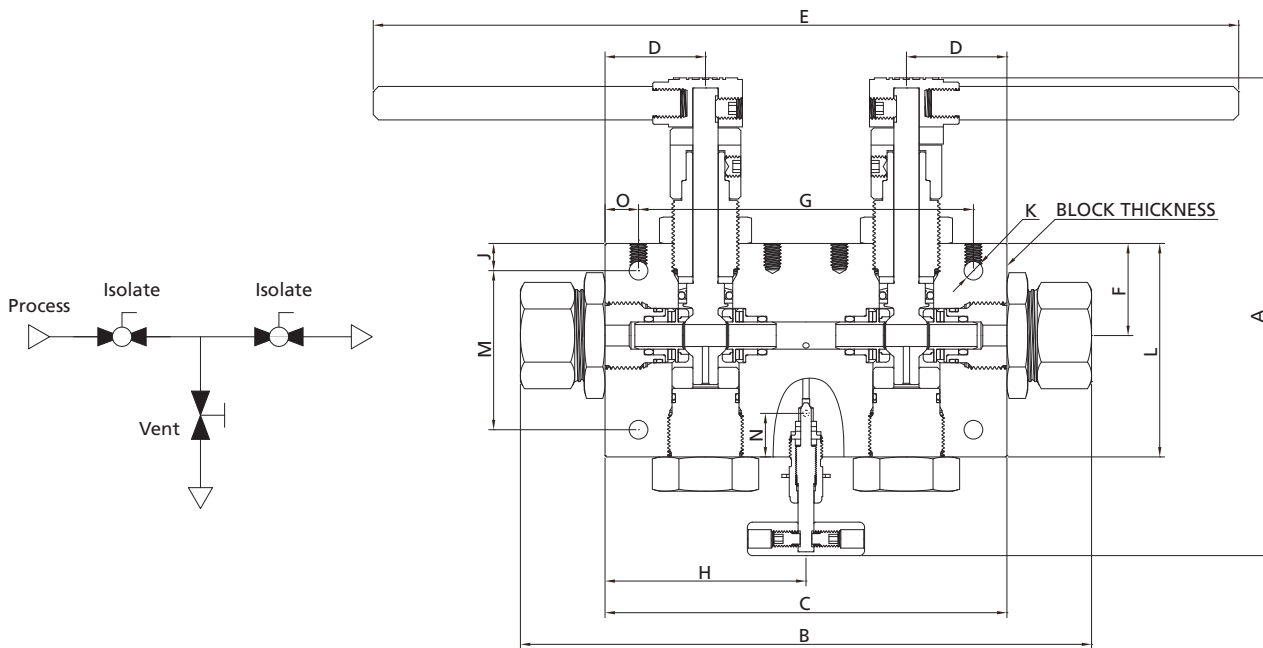
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Dimensions

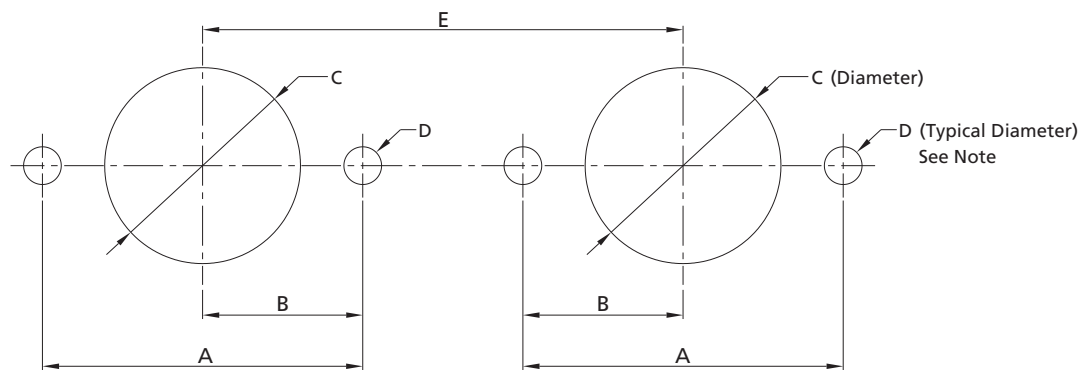


Dimensions, in. (mm)

A	B	C	D	E	F	G	H	J	K	L	M	N ^①	O	Block Thickness
7.14 (181.4)	8.81 (223.8)	6 (152.4)	1.5 (38.1)	12.94 (328.7)	1.38 (34.9)	5 (127)	3 (76.2)	0.41 (10.3)	0.28 (7.1)	3.19 (81)	2.38 (60.4)	0.65 (16.5)	0.5 (12.7)	1.75 (44.45)

① N: Vent connection on back side.

Panel Mounting Dimensions



Dimensions, in. (mm)

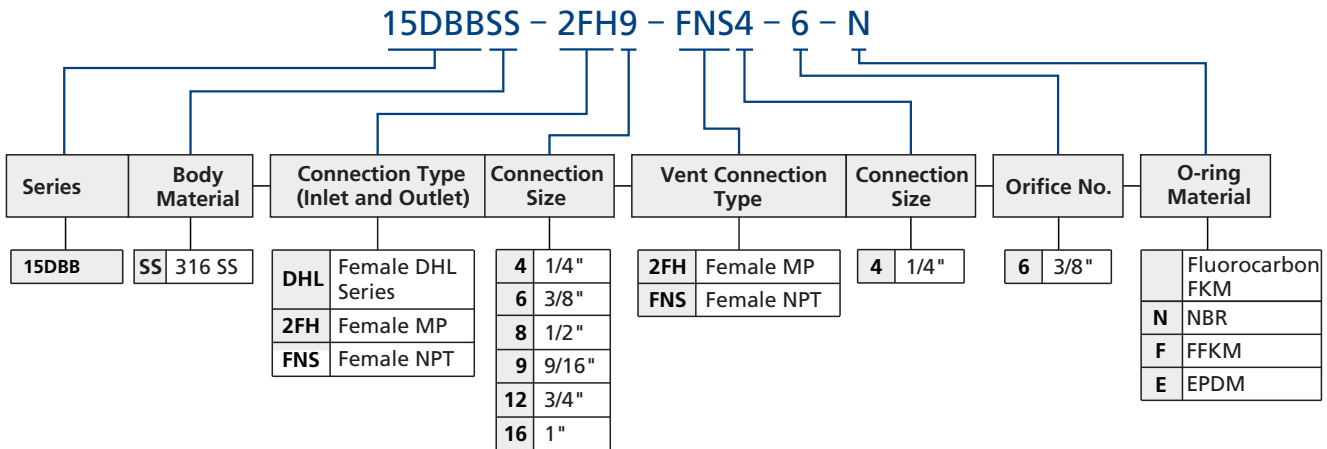
A	B	C	D	E
2 (50.8)	1 (25.4)	1.5 (38.1)	0.28 (7.1)	3 (76.2)

NOTE: 1. Body mounting 1/4-20 thread.
2. All dimensions are for reference only and are subject to change.

Ordering Information and Dimensions

Series	Ordering Number	Connection Type (Inlet and Outlet)	Vent Connection	Orifice No.	Orifice Size in. (mm)	Cv	Working Pressure psig (bar)
15DBB	15DBBSS-DHL8-FNS4-6	DHL8	FNS4	6	0.33 (8.3)	2.3	15,000 (1034)
	15DBBSS-2FH4-2FH4-6	2FH4	2FH4		0.20 (5.2)	0.9	
	15DBBSS-2FH6-2FH4-6	2FH6	2FH4		0.30 (7.9)	2.1	
	15DBBSS-2FH9-2FH4-6	2FH9	2FH4		0.33 (8.3)	2.3	
	15DBBSS-2FH9-FNS4-6	2FH9	FNS4		0.33 (8.3)	2.3	
	15DBBSS-2FH12-2FH4-6	2FH12	2FH4		0.33 (8.3)	2.3	
	15DBBSS-2FH16-FNS4-6	2FH16	FNS4		0.33 (8.3)	2.3	
	15DBBSS-FNS4-FNS4-6	FNS4	FNS4		0.33 (8.3)	2.3	
	15DBBSS-FNS6-FNS4-6	FNS6	FNS4		0.33 (8.3)	2.3	
15DBBSS-FNS8-FNS4-6	FNS8	FNS4	0.33 (8.3)	2.3			

Ordering Number Description



NOTE: "Ordering Number Description" is a reference to understand the combination rules of FITOK product part number. Not all combinations are available.

Code	O-ring Material	Working temperature Range, °F (°C)
	Fluorocarbon FKM	0 to 400 (-17.8 to 204)
N	NBR	-10 to 250 (-23 to 121)
F	FFKM	-20 to 500 (-29 to 260)
E	EPDM	-50 to 300 (-45 to 148)

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