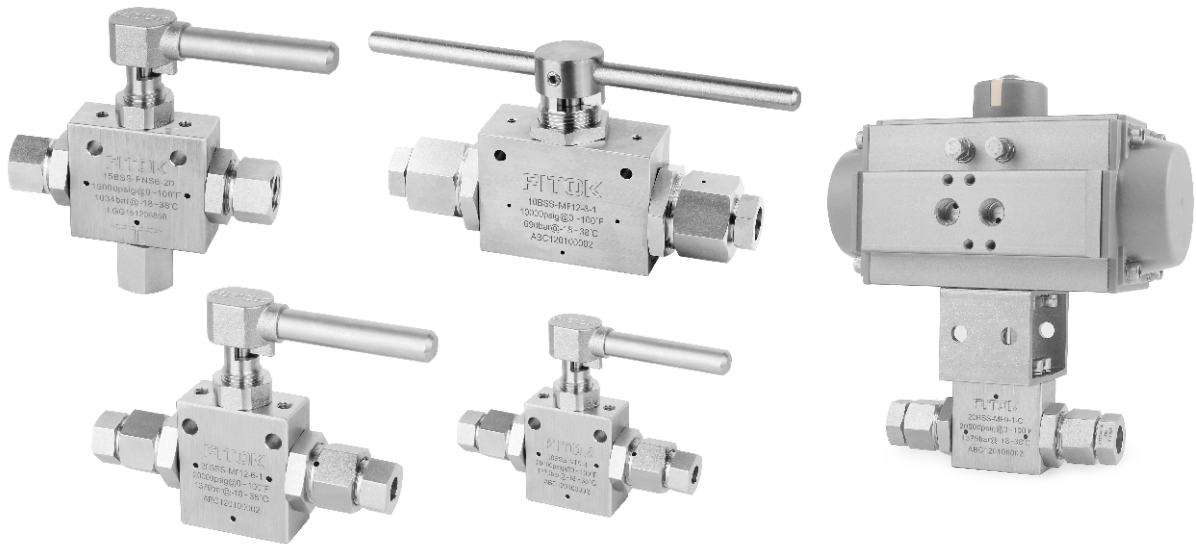


Ball Valves and Pneumatic Ball Valves

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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Features

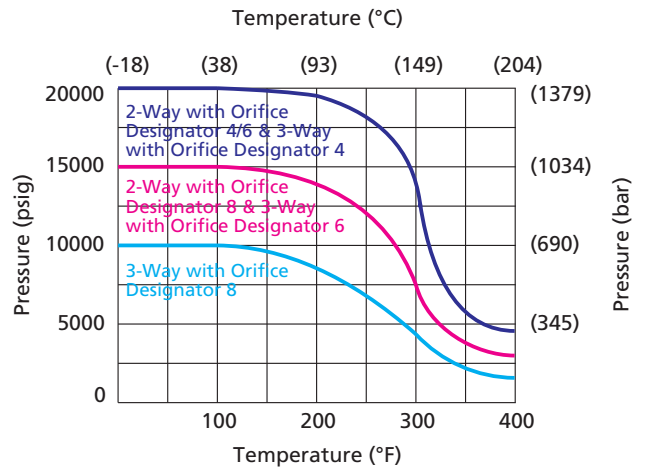
- Working pressure up to 20,000 psig (1379 bar)
- Fluorocarbon FKM O-ring for operation from 0°F to 400°F (-17.8°C to 204°C); other O-ring materials available
- PEEK seats offer excellent resistance to chemicals, heat and abrasion
- Trunnion mounted stem design
- Full-port flow path to minimize pressure drop
- 2-way and 3-way valve configurations optional, with bidirectional flow for 2-way valves
- Pneumatic actuator optional with air pressure from 80 psig to 116 psig (5.5 bar to 8 bar)

Working Pressure at Ambient Temperature

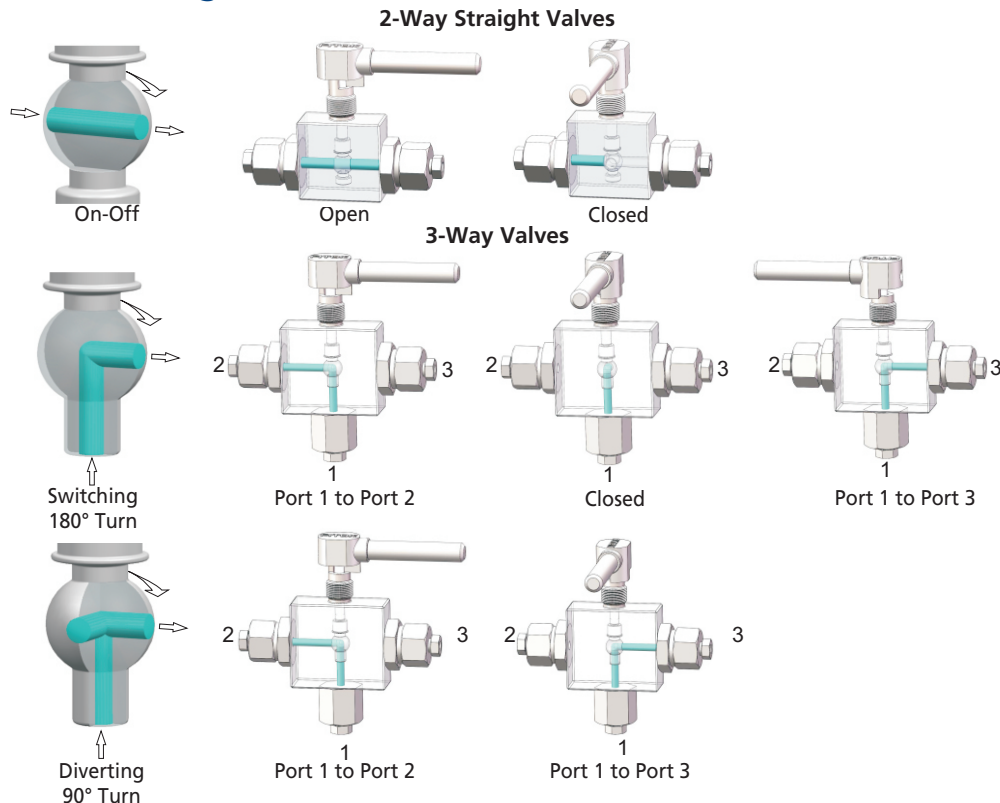
Flow Pattern	Orifice		Working Pressure ^① psig (bar)
	Designator	Dimensions, in. (mm)	
2-Way	4	0.25 (6.35)	20,000 (1379)
	6	0.375 (9.5)	20,000 (1379)
	8	0.5 (12.7)	15,000 (1034)
3-Way	4	0.19 (4.8)	20,000 (1379)
	6	0.33 (8.3)	15,000 (1034)
	8	0.5 (12.7)	10,000 (690)

① The working pressure of NPT connections 1/2" or under is 15,000 psig (1034 bar), while that of NPT connections over 1/2" is 10,000 psig (690 bar).

Pressure vs. Temperature Curve



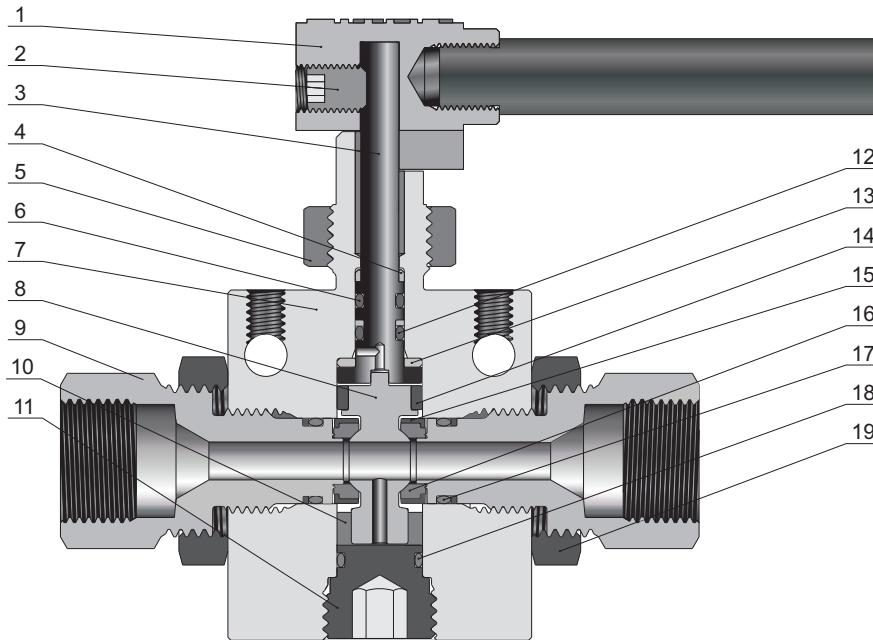
Flow Configuration



Note: The maximum allowable working pressure drops if the side connection works as inlet.

Standard Materials of Construction

2-Way Straight Valves

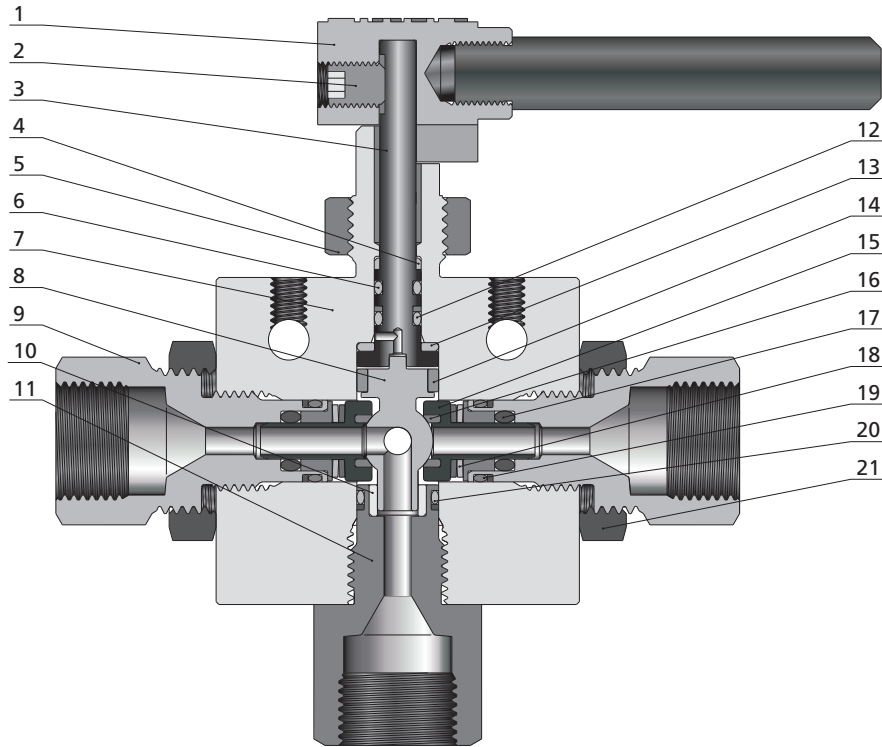


Item	Component	Material Grade
1	Handle	Stainless Steel
2	Set Screw	Stainless Steel
3	<i>Stem</i>	<i>316 SS</i>
4	Stem Backup	PEEK
5	Panel Nut	316 SS
6	Stem O-Ring	Fluorocarbon FKM
7	<i>Body</i>	<i>316 SS</i>
8	<i>Ball</i>	<i>316 SS</i>
9	<i>Seat Gland</i>	<i>316 SS</i>
10	<i>Ball Bearing</i>	<i>PEEK</i>
11	<i>Plug</i>	<i>316 SS</i>
12	<i>Stem O-Ring</i>	<i>Fluorocarbon FKM</i>
13	<i>Thrust Washer</i>	<i>PEEK</i>
14	<i>Ball Bearing</i>	<i>PEEK</i>
15	<i>Seat Retainer</i>	<i>316 SS</i>
16	<i>Seat</i>	<i>PEEK</i>
17	<i>Seat Gland O-Ring</i>	<i>Fluorocarbon FKM</i>
18	<i>Plug O-Ring</i>	<i>Fluorocarbon FKM</i>
19	Lock Nut	316 SS
	Lubricant	Molybdenum Disulfide/Fluorinated-Based

Wetted components listed in italics.

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3-Way Valves



Item	Component	Material Grade
1	Handle	Stainless Steel
2	Set Screw	Stainless Steel
3	Stem	316 SS
4	Stem Backup	PEEK
5	Panel Nut	316 SS
6	Stem O-Ring	Fluorocarbon FKM
7	<i>Body</i>	<i>316 SS</i>
8	<i>Ball</i>	<i>316 SS</i>
9	<i>Seat Gland</i>	<i>316 SS</i>
10	<i>Ball Bearing</i>	<i>Copper Alloy</i>
11	<i>Bottom Gland</i>	<i>316 SS</i>
12	<i>Stem O-Ring</i>	<i>Fluorocarbon FKM</i>
13	<i>Thrust Washer</i>	<i>PEEK</i>
14	<i>Ball Bearing</i>	<i>PEEK</i>
15	<i>Seat Retainer</i>	<i>S17400</i>
16	<i>Seat</i>	<i>Carbon Filled PEEK</i>
17	<i>Seat Retainer O-Ring</i>	<i>Fluorocarbon FKM</i>
18	<i>Bellville Washer</i>	<i>S17700</i>
19	<i>Seat Gland O-Ring</i>	<i>Fluorocarbon FKM</i>
20	<i>Bottom Gland O-Ring</i>	<i>Fluorocarbon FKM</i>
21	Lock Nut	316 SS
	Lubricant	Molybdenum Disulfide/Fluorinated-Based

Wetted components listed in italics.

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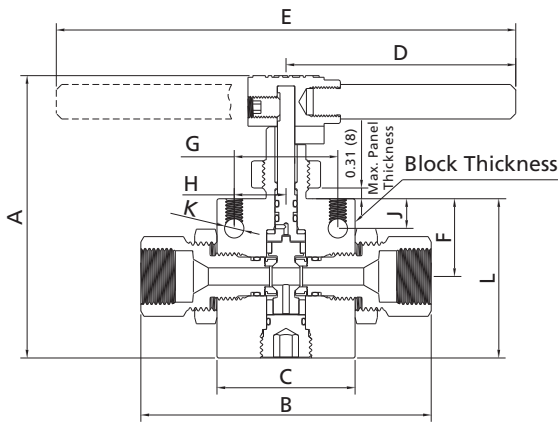
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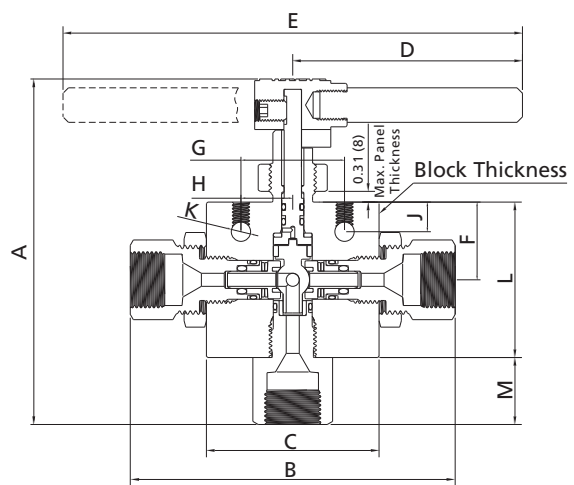
Part Number Crossover Charts

Dimensions

2-Way Straight Valves



3-Way Valves

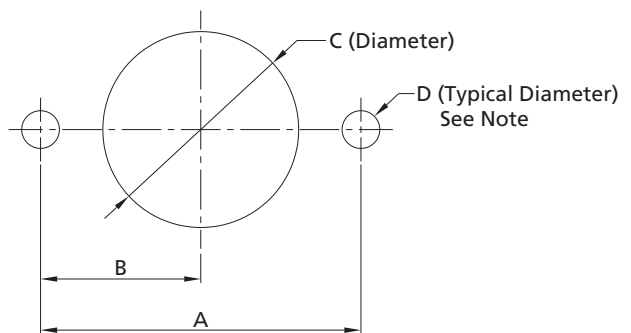


Flow Pattern	Orifice Designator	Dimensions, in. (mm)												Block Thickness
		A	B	C	D	E	F	G	H	J	K	L	M	
2-Way	4	4.09 (103.9)	4.19 (106.5)	2.00 (50.8)	3.33 (84.5)	/	1.13 (28.6)	1.50 (38.1)	0.75 (19.1)	0.43 (10.9)	0.28 (7.1)	2.31 (58.6)	/	1.00 (25.4)
	6	4.84 (121.0)	5.53 (140.3)	3.00 (76.2)	4.96 (126.0)	/	1.38 (34.9)	2.00 (50.8)	1.00 (25.4)	0.41 (10.3)	0.28 (7.1)	2.95 (74.9)	/	1.38 (34.9)
	8	5.39 (136.8)	7.73 (196.5)	4.12 (104.6)	/	10.25 (260.0)	1.66 (42.2)	3.00 (76.2)	1.50 (38.1)	0.50 (12.7)	0.28 (7.1)	3.52 (89.4)	/	1.75 (44.5)
3-Way	4	5.00 (127.0)	4.70 (119.5)	2.50 (63.5)	3.33 (84.5)	/	1.13 (28.6)	1.50 (38.1)	0.75 (19.1)	0.43 (10.9)	0.28 (7.1)	2.25 (57.2)	0.48 (12.3)	1.00 (25.4)
	6	5.88 (149.3)	5.53 (140.3)	3.00 (76.2)	4.96 (126.0)	/	1.38 (34.9)	2.00 (50.8)	1.00 (25.4)	0.41 (10.3)	0.28 (7.1)	2.87 (73.0)	1.89 (30.2)	1.38 (34.9)
	8	6.91 (175.6)	7.77 (197.4)	4.12 (104.6)	/	10.25 (260.0)	1.66 (42.2)	3.00 (76.2)	1.50 (38.1)	0.50 (12.7)	0.28 (7.1)	3.34 (84.9)	1.70 (43.2)	1.75 (44.5)

Note: All dimensions are for reference only and are subject to change.

Panel Mounting Dimensions

Flow Pattern	Orifice Designator	Dimensions, in. (mm)			
		A	B	C	D
2-Way	4	1.50 (38.1)	0.75 (19.1)	0.75 (19.1)	0.28 (7.1)
	6	2.00 (50.8)	1.00 (25.4)	1.13 (28.6)	0.28 (7.1)
	8	3.00 (76.2)	1.50 (38.1)	1.44 (36.5)	0.28 (7.1)
3-Way	4	1.50 (38.1)	0.75 (19.1)	0.75 (19.1)	0.28 (7.1)
	6	2.00 (50.8)	1.00 (25.4)	1.13 (28.6)	0.28 (7.1)
	8	3.00 (76.2)	1.50 (38.1)	1.44 (36.5)	0.28 (7.1)



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

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Ordering Information and Dimensions

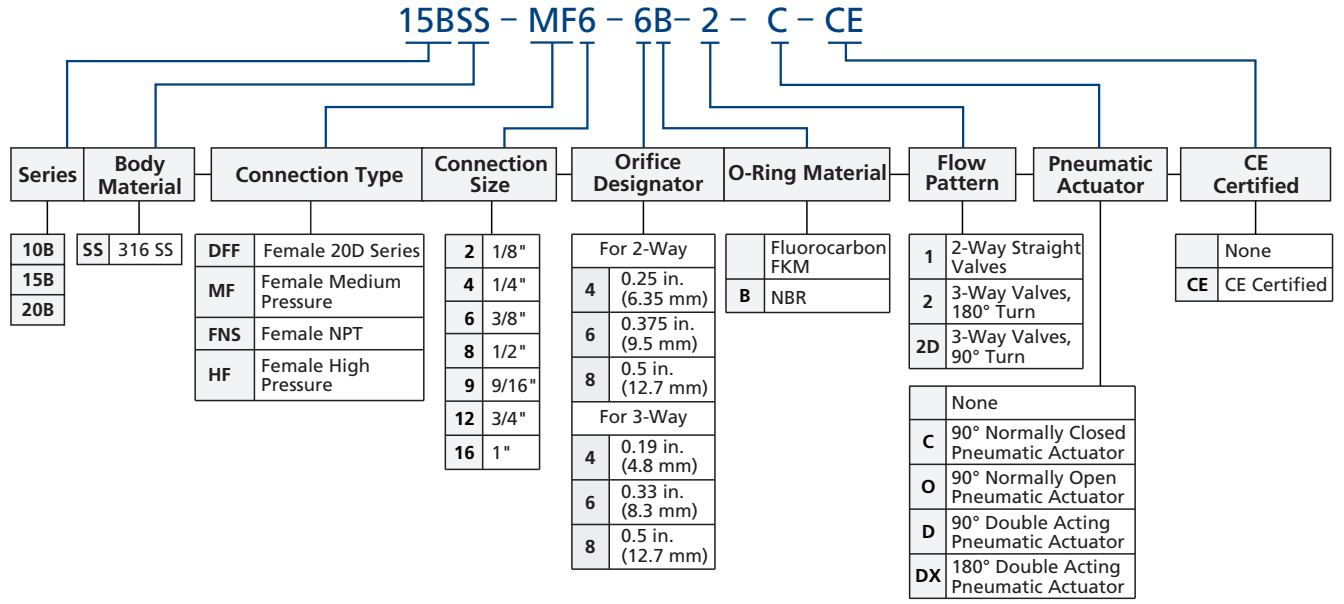
Ordering Information and Dimensions							
Flow Pattern	Orifice Designator	Connection	Orifice Size in. (mm)	Cv	Ordering Number	Working Pressure psig (bar)	
2-Way	4	FNS2	0.25 (6.35)	1.51	15BSS-FNS2-4-1	15,000 (1034)	
		FNS4	0.25 (6.35)	1.51	15BSS-FNS4-4-1		
		FNS6	0.25 (6.35)	1.51	15BSS-FNS6-4-1		
		FNS8	0.25 (6.35)	1.51	15BSS-FNS8-4-1		
		DFF2	0.094 (2.4)	0.26	15BSS-DFF2-4-1	20,000 (1379)	
		DFF4	0.19 (4.8)	1.27	20BSS-DFF4-4-1		
		DFF6	0.25 (6.35)	1.51	20BSS-DFF6-4-1		
		DFF8	0.25 (6.35)	1.51	20BSS-DFF8-4-1		
	MF4	0.11 (2.8)	0.36	20BSS-MF4-4-1	20,000 (1379)		
	MF6	0.2 (5.2)	1.23	20BSS-MF6-4-1			
	MF9	0.25 (6.35)	1.51	20BSS-MF9-4-1			
	HF4	0.094 (2.4)	0.26	20BSS-HF4-4-1			
	HF6	0.125 (3.2)	0.47	20BSS-HF6-4-1	15,000 (1034)		
	HF9	0.19 (4.8)	1.05	20BSS-HF9-4-1			
	6	FNS4	0.375 (9.5)	3.51		15BSS-FNS4-6-1	15,000 (1034)
		FNS6	0.375 (9.5)	3.51		15BSS-FNS6-6-1	
FNS8		0.375 (9.5)	3.51	15BSS-FNS8-6-1			
DFF8		0.375 (9.5)	3.51	20BSS-DFF8-6-1	20,000 (1379)		
DFF9		0.375 (9.5)	3.51	20BSS-DFF9-6-1			
MF6		0.2 (5.2)	1.23	20BSS-MF6-6-1			
MF9		0.31 (7.9)	2.93	20BSS-MF9-6-1			
MF12		0.375 (9.5)	3.51	20BSS-MF12-6-1			
8	FNS12	0.5 (12.7)	10.2	10BSS-FNS12-8-1	10,000 (690)		
	FNS16	0.5 (12.7)	10.2	10BSS-FNS16-8-1	15,000 (1034)		
	DFF12	0.5 (12.7)	10.2	15BSS-DFF12-8-1			
	MF12	0.5 (12.7)	10.2	15BSS-MF12-8-1			
	MF16	0.5 (12.7)	10.2	15BSS-MF16-8-1			
3-Way	4	FNS2	0.19 (4.8)	0.5	15BSS-FNS2-4-2	15,000 (1034)	
					15BSS-FNS2-4-2D		
		FNS4	0.19 (4.8)	0.5	15BSS-FNS4-4-2		15BSS-FNS4-4-2D
					15BSS-FNS6-4-2		
		FNS6	0.19 (4.8)	0.5	15BSS-FNS6-4-2		15BSS-FNS6-4-2D
					15BSS-FNS8-4-2		
		FNS8	0.19 (4.8)	0.5	15BSS-FNS8-4-2		15BSS-FNS8-4-2D
					15BSS-DFF2-4-2		
		DFF2	0.094 (2.4)	0.13	15BSS-DFF2-4-2		15BSS-DFF2-4-2D
					20BSS-DFF4-4-2		
		DFF4	0.19 (4.8)	0.5	20BSS-DFF4-4-2		20BSS-DFF4-4-2D
					20BSS-DFF6-4-2		
	DFF6	0.19 (4.8)	0.5	20BSS-DFF6-4-2	20BSS-DFF6-4-2D		
				20BSS-DFF8-4-2			
	DFF8	0.19 (4.8)	0.5	20BSS-DFF8-4-2	20BSS-DFF8-4-2D		
				20BSS-MF4-4-2			
	MF4	0.11 (2.8)	0.17	20BSS-MF4-4-2	20BSS-MF4-4-2D		
				20BSS-MF6-4-2			
	MF6	0.19 (4.8)	0.5	20BSS-MF6-4-2	20BSS-MF6-4-2D		
				20BSS-MF9-4-2			
	MF9	0.19 (4.8)	0.5	20BSS-MF9-4-2	20BSS-MF9-4-2D		

Ordering Information and Dimensions (continued)

Flow Pattern	Orifice Designator	Connection	Orifice Size in. (mm)	Cv	Ordering Number	Working Pressure psig (bar)
3-Way	4	HF4	0.094 (2.4)	0.13	20BSS-HF4-4-2	20,000 (1379)
					20BSS-HF4-4-2D	
		HF6	0.125 (3.2)	0.22	20BSS-HF6-4-2	
					20BSS-HF6-4-2D	
		HF9	0.19 (4.8)	0.5	20BSS-HF9-4-2	
					20BSS-HF9-4-2D	
	6	FNS4	0.33 (8.3)	2.1	15BSS-FNS4-6-2	15,000 (1034)
					15BSS-FNS4-6-2D	
		FNS6	0.33 (8.3)	2.1	15BSS-FNS6-6-2	
					15BSS-FNS6-6-2D	
		FNS8	0.33 (8.3)	2.1	15BSS-FNS8-6-2	
					15BSS-FNS8-6-2D	
		DFF8	0.33 (8.3)	2.1	15BSS-DFF8-6-2	
					15BSS-DFF8-6-2D	
		DFF9	0.33 (8.3)	2.1	15BSS-DFF9-6-2	
					15BSS-DFF9-6-2D	
		MF6	0.2 (5.2)	0.81	15BSS-MF6-6-2	
					15BSS-MF6-6-2D	
	MF9	0.31 (7.9)	1.9	15BSS-MF9-6-2		
				15BSS-MF9-6-2D		
	MF12	0.33 (8.3)	2.1	15BSS-MF12-6-2		
				15BSS-MF12-6-2D		
	8	FNS12	0.5 (12.7)	4.4	10BSS-FNS12-8-2	10,000 (690)
					10BSS-FNS12-8-2D	
FNS16		0.5 (12.7)	4.4	10BSS-FNS16-8-2		
				10BSS-FNS16-8-2D		
MF12		0.5 (12.7)	4.4	10BSS-MF12-8-2		
				10BSS-MF12-8-2D		
MF16	0.5 (12.7)	4.4	10BSS-MF16-8-2			
			10BSS-MF16-8-2D			

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Ordering Number Description



Designator	O-Ring Material	Working Temperature Range, °F (°C)
	Fluorocarbon FKM	0 to 400 (-17.8 to 204)
B	NBR	-10 to 250 (-23 to 121)

- Notes: 1. For more details regarding 20D Series and Medium/High Pressure connections, please see **Connection Information** on A-02.
2. "Ordering Number Description" is a reference to understand the combination rules of FITOK product part number. Not all combinations are available.