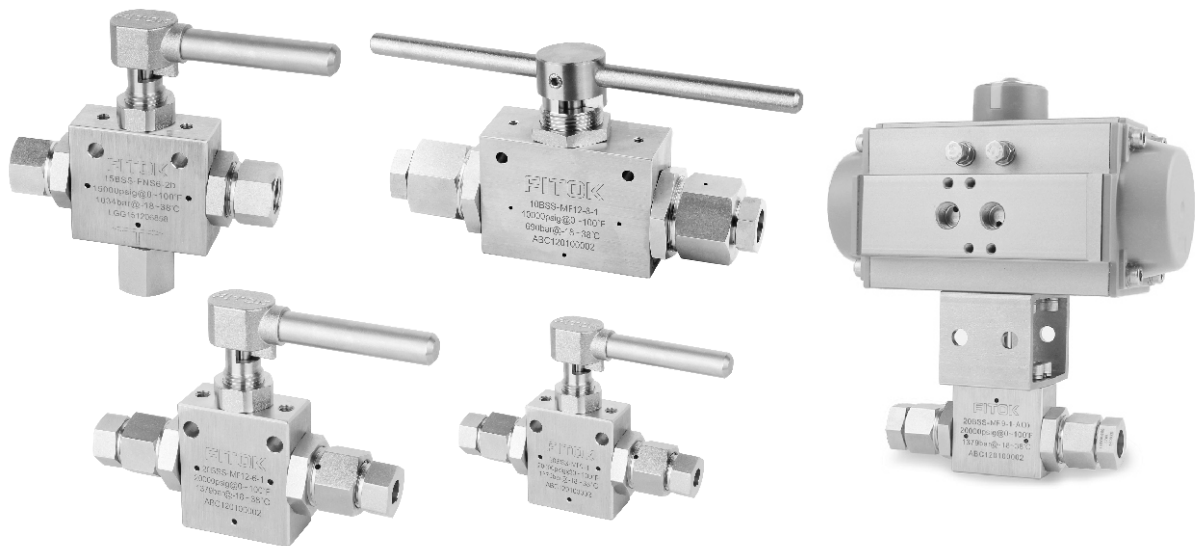


Ball Valves and Pneumatic Ball Valves

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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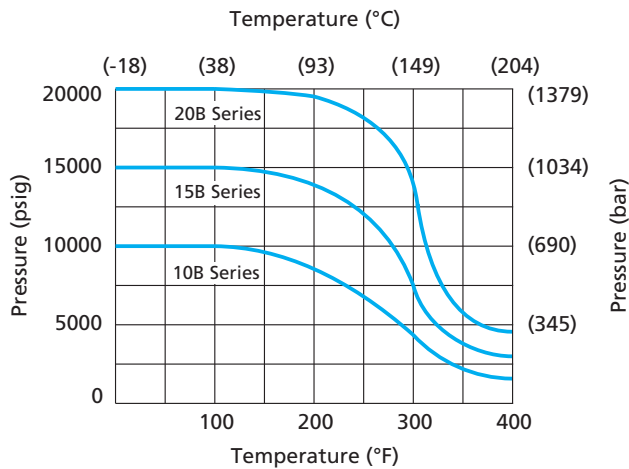
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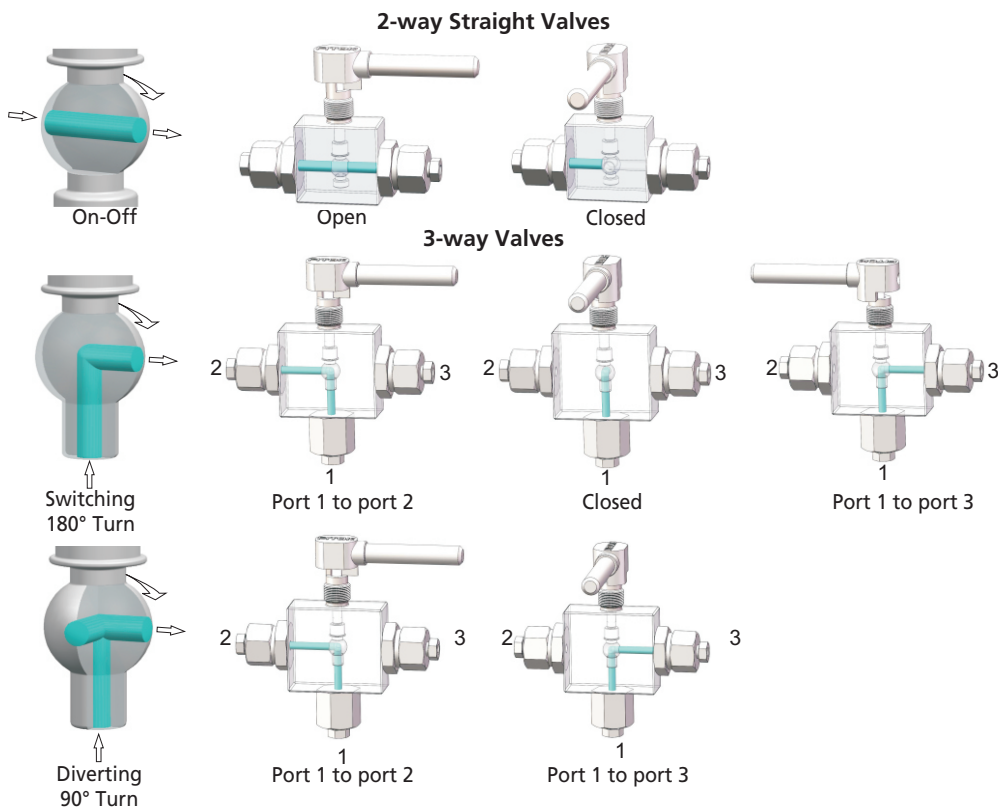
Features

- 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 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
- Bidirectional flow for 2-way valves
- 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



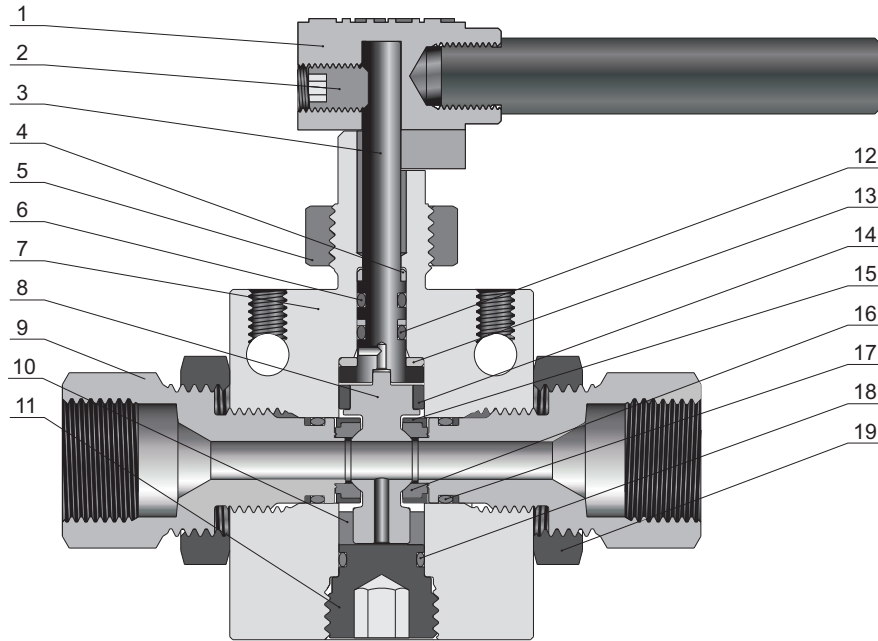
Flow Configuration



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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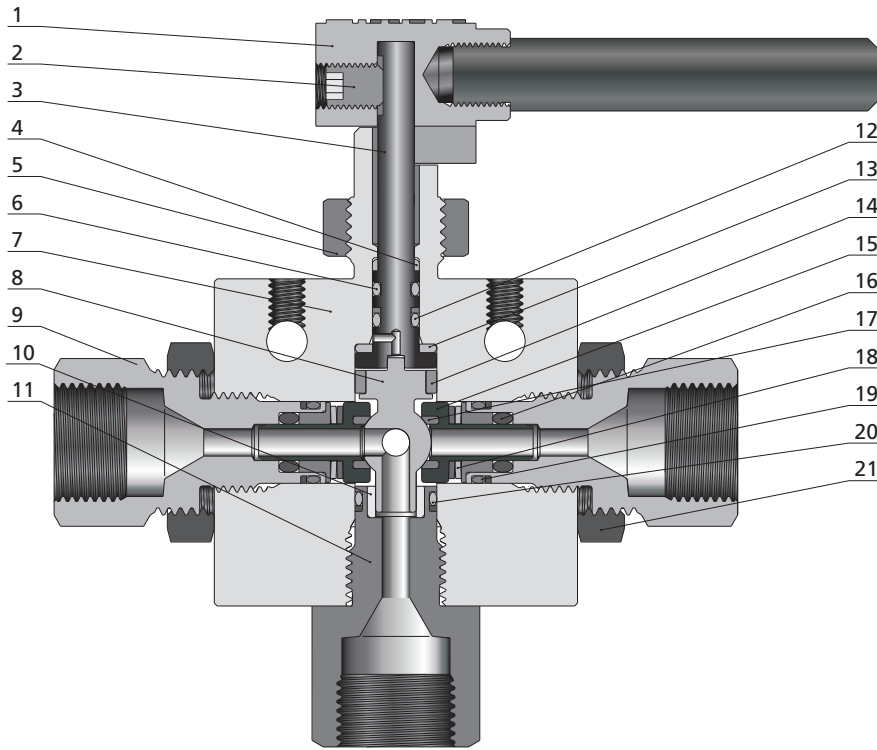
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3-way Valves

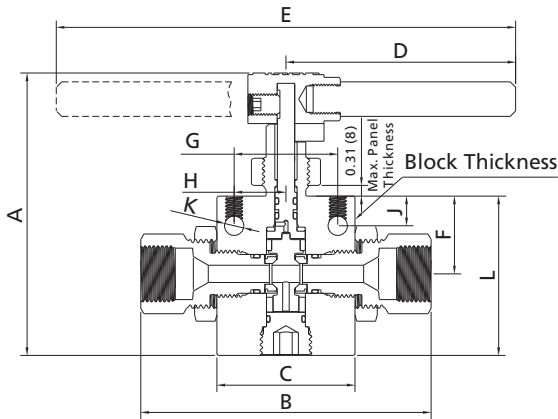


Item	Component	Material Grade
1	Handle	Stainless Steel
2	Set Screw	Stainless Steel
3	Stem	316 SS
4	Stem Backup	PEEK
5	Panel Nut	316 SS
6	Stem O-Ring	Fluorocarbon FKM
7	<i>Body</i>	316 SS
8	<i>Ball</i>	316 SS
9	<i>Seat Gland</i>	316 SS
10	<i>Ball Bearing</i>	Copper Alloy
11	<i>Bottom Gland</i>	316 SS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

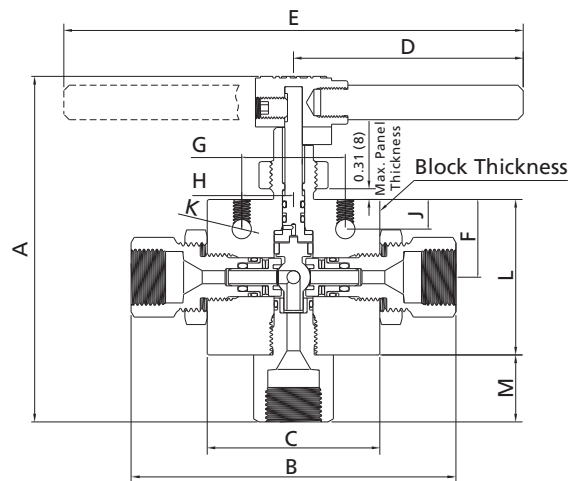
Wetted components listed in italics.

Dimensions

2-way Straight Valves



3-way Valves

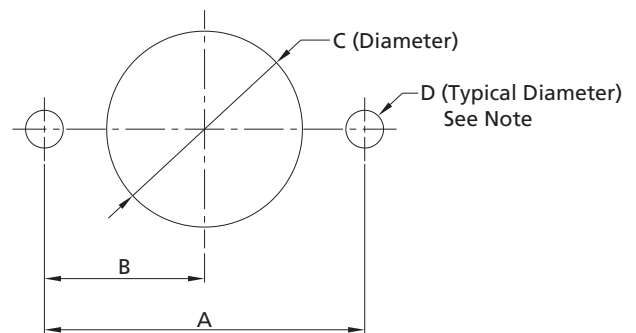


Flow Pattern	Orifice	Dimensions, in. (mm)												
		A	B	C	D	E	F	G	H	J	K	L	M	Block Thickness
2-way	1/4"	4.09 (103.9)	4.19 (106.5)	2.00 (50.8)	3.33 (84.5)	/	1.13 (28.6)	1.50 (38.1)	0.75 (19.1)	0.43 (10.9)	0.28 (7.1)	2.31 (58.6)	/	1.00 (25.4)
	3/8"	4.84 (121.0)	5.53 (140.3)	3.00 (76.2)	4.96 (126.0)	/	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)
	1/2"	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	3/16"	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)
	3/8"	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)
	1/2"	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	Dimensions, in. (mm)			
		A	B	C	D
2-way	1/4"	1.50 (38.1)	0.75 (19.1)	0.75 (19.1)	0.28 (7.1)
	3/8"	2.00 (50.8)	1.00 (25.4)	1.13 (28.6)	0.28 (7.1)
	1/2"	3.00 (76.2)	1.50 (38.1)	1.44 (36.5)	0.28 (7.1)
3-way	3/16"	1.50 (38.1)	0.75 (19.1)	0.75 (19.1)	0.28 (7.1)
	3/8"	2.00 (50.8)	1.00 (25.4)	1.13 (28.6)	0.28 (7.1)
	1/2"	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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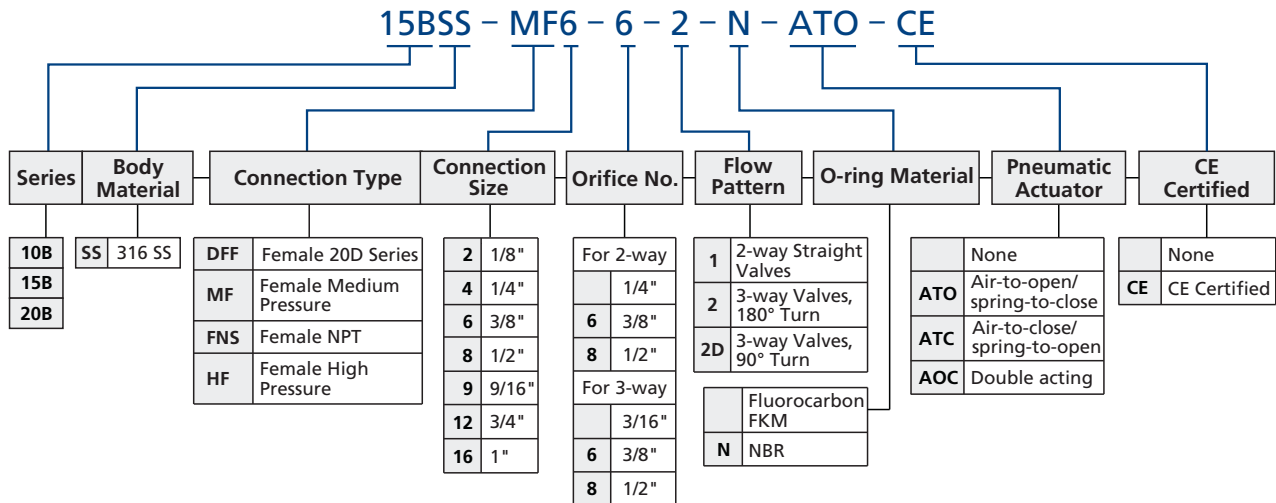
Series	Flow Pattern	Orifice	Connection	Orifice Size in. (mm)	Cv	Ordering Number	Working Pressure psig (bar)
10B	2-way	1/2"	MF12	0.5 (12.7)	10.2	10BSS-MF12-8-1	10,000 (690)
			MF16	0.5 (12.7)	10.2	10BSS-MF16-8-1	
			FNS12	0.5 (12.7)	10.2	10BSS-FNS12-8-1	
			FNS16	0.5 (12.7)	10.2	10BSS-FNS16-8-1	
	3-way	1/2"	MF12	10BSS-MF12-8-2			
				10BSS-MF12-8-2D			
			MF16	10BSS-MF16-8-2			
				10BSS-MF16-8-2D			
			FNS12	10BSS-FNS12-8-2			
				10BSS-FNS12-8-2D			
			FNS16	10BSS-FNS16-8-2			
				10BSS-FNS16-8-2D			
15B	2-way	1/4"	DFF2	0.094 (2.4)	0.26	15BSS-DFF2-1	15,000 (1034)
			DFF4	0.19 (4.8)	1.27	15BSS-DFF4-1	
			DFF6	0.25 (6.35)	1.51	15BSS-DFF6-1	
			DFF8	0.25 (6.35)	1.51	15BSS-DFF8-1	
			FNS2	0.25 (6.35)	1.51	15BSS-FNS2-1	
			FNS4	0.25 (6.35)	1.51	15BSS-FNS4-1	
		3/8"	FNS6	0.25 (6.35)	1.51	15BSS-FNS6-1	
			FNS8	0.25 (6.35)	1.51	15BSS-FNS8-1	
			DFF8	0.375 (9.5)	3.51	15BSS-DFF8-6-1	
			DFF9	0.375 (9.5)	3.51	15BSS-DFF9-6-1	
			FNS4	0.375 (9.5)	3.51	15BSS-FNS4-6-1	
			FNS6	0.375 (9.5)	3.51	15BSS-FNS6-6-1	
		1/2"	FNS8	0.375 (9.5)	3.51	15BSS-FNS8-6-1	
			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	3/16"	DFF2	15BSS-DFF2-2	
						15BSS-DFF2-2D	
	DFF4	15BSS-DFF4-2					
		15BSS-DFF4-2D					
	DFF6	15BSS-DFF6-2					
		15BSS-DFF6-2D					
	DFF8	15BSS-DFF8-2					
		15BSS-DFF8-2D					
FNS2	15BSS-FNS2-2						
	15BSS-FNS2-2D						
FNS4	15BSS-FNS4-2						
	15BSS-FNS4-2D						
FNS6	15BSS-FNS6-2						
	15BSS-FNS6-2D						
FNS8	15BSS-FNS8-2						
	15BSS-FNS8-2D						
3-way	3/8"	DFF8	15BSS-DFF8-6-2				
			15BSS-DFF8-6-2D				
		DFF9	15BSS-DFF9-6-2				
			15BSS-DFF9-6-2D				
	MF6	15BSS-MF6-6-2					
		15BSS-MF6-6-2D					
	MF9	15BSS-MF9-6-2					
		15BSS-MF9-6-2D					

Ordering Information and Dimensions (continue)

Series	Flow Pattern	Orifice	Connection	Orifice Size in. (mm)	Cv	Ordering Number	Working Pressure psig (bar)		
15B	3-way	3/8"	MF12	0.33 (8.3)	2.1	15BSS-MF12-6-2	15,000 (1034)		
						15BSS-MF12-6-2D			
			FNS4	0.33 (8.3)	2.1	15BSS-FNS4-6-2			
						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			
20B	2-way	1/4"	DFF4	0.19 (4.8)	1.27	20BSS-DFF4-1	20,000 (1379)		
			DFF6	0.25 (6.35)	1.51	20BSS-DFF6-1			
			DFF8	0.25 (6.35)	1.51	20BSS-DFF8-1			
			MF4	0.11 (2.8)	0.36	20BSS-MF4-1			
			MF6	0.2 (5.2)	1.23	20BSS-MF6-1			
			MF9	0.25 (6.35)	1.51	20BSS-MF9-1			
			HF4	0.094 (2.4)	0.26	20BSS-HF4-1			
			HF6	0.125 (3.2)	0.47	20BSS-HF6-1			
		HF9	0.19 (4.8)	1.05	20BSS-HF9-1				
		3/8"	DFF8	0.375 (9.5)	3.51	20BSS-DFF8-6-1			
			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			
			3-way	3/16"	DFF4	0.125 (3.2)		0.22	20BSS-DFF4-2
									20BSS-DFF4-2D
	DFF6				0.19 (4.8)	0.5		20BSS-DFF6-2	
		20BSS-DFF6-2D							
	DFF8	0.19 (4.8)		0.5	20BSS-DFF8-2				
					20BSS-DFF8-2D				
	MF4	0.11 (2.8)		0.17	20BSS-MF4-2				
					20BSS-MF4-2D				
	MF6	0.19 (4.8)		0.5	20BSS-MF6-2				
					20BSS-MF6-2D				
	MF9	0.19 (4.8)		0.5	20BSS-MF9-2				
					20BSS-MF9-2D				
	HF4	0.094 (2.4)	0.13	20BSS-HF4-2					
				20BSS-HF4-2D					
HF6		0.125 (3.2)	0.22	20BSS-HF6-2					
				20BSS-HF6-2D					
HF9	0.19 (4.8)	0.5	20BSS-HF9-2						
			20BSS-HF9-2D						

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Ordering Number Description



- NOTES: 1. For more details regarding 20D Series and Medium/High Pressure connections, please see **Connection Information** on I-02.
2. "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)