

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)



Fittings
Tubing
Quick Couplings
Line Filters
Valves
Sour Service Products
Subsea Valves
Tools and Installation Instructions
Technical Information
Part Number Crossover Charts

Contents

Features	E-04
Pressure vs. Temperature Curve	E-04
Flow Configuration	E-04
Standard Materials of Construction	E-05
Dimensions	E-07
Panel Mounting Dimensions	E-07
Ordering Information and Dimensions	E-08
Ordering Number Description	E-10

Fittings

Tubing

Quick Couplings

Line Filters

Valves

Sour Service Products

Subsea Valves

Tools and Installation Instructions

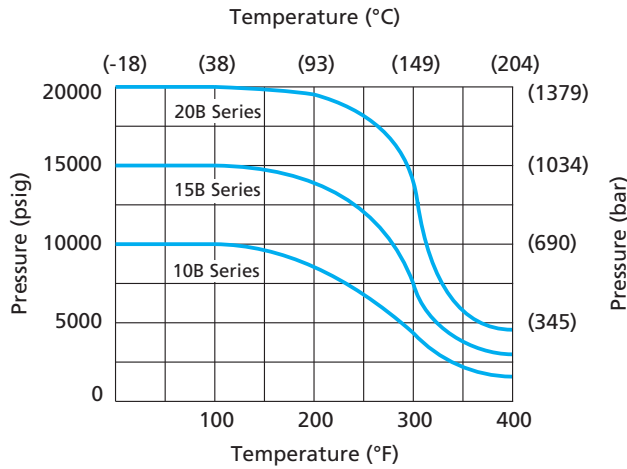
Technical Information

Part Number Crossover Charts

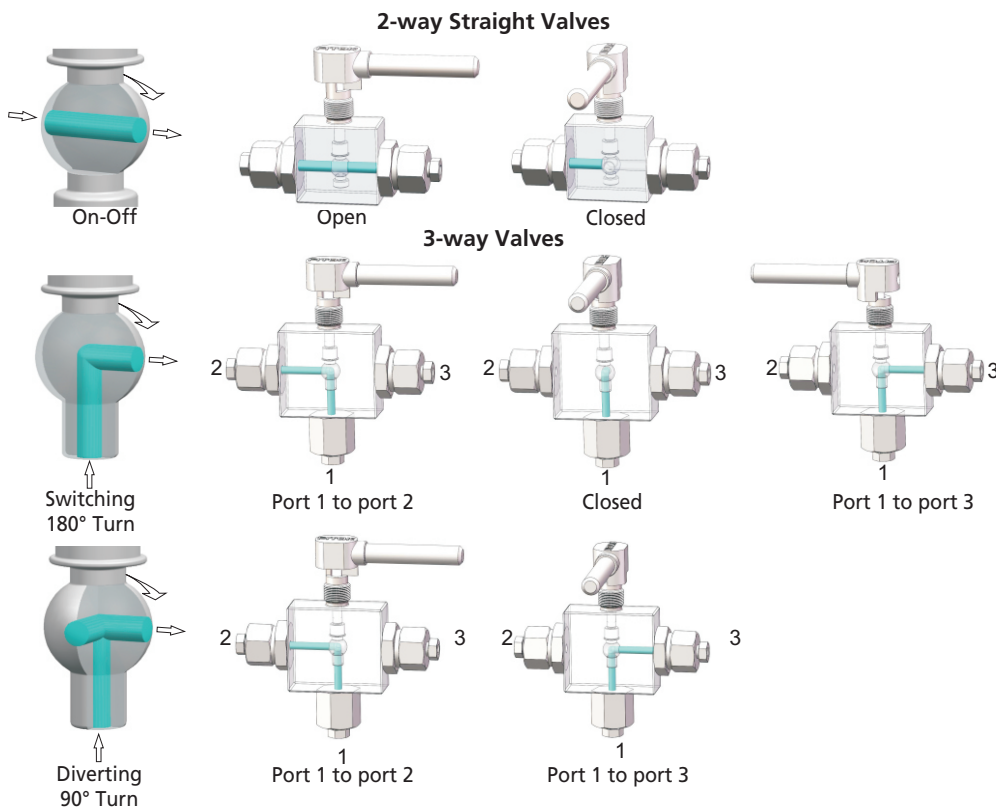
Features

- 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



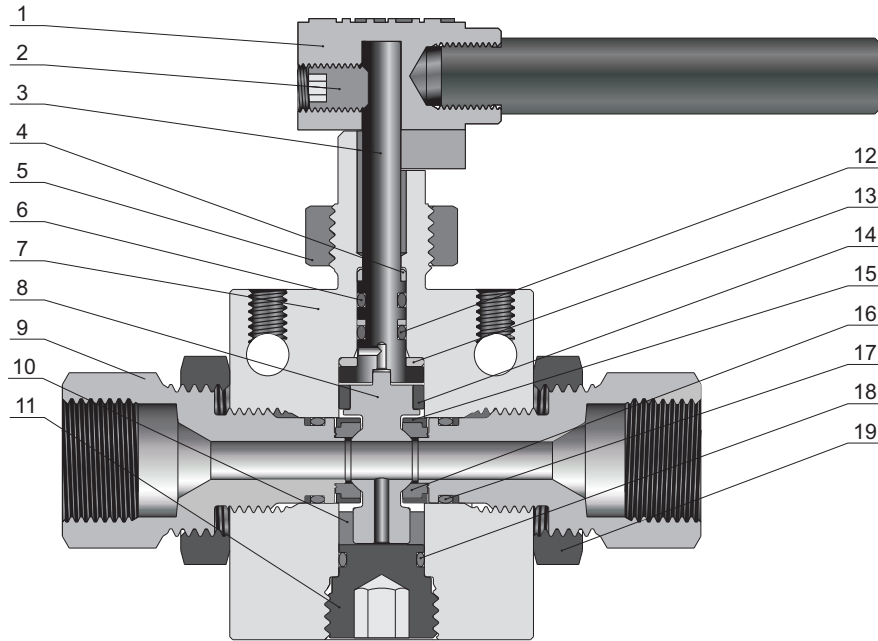
Flow Configuration



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.

Fittings

Tubing

Quick Couplings

Line Filters

Valves

Sour Service Products

Subsea Valves

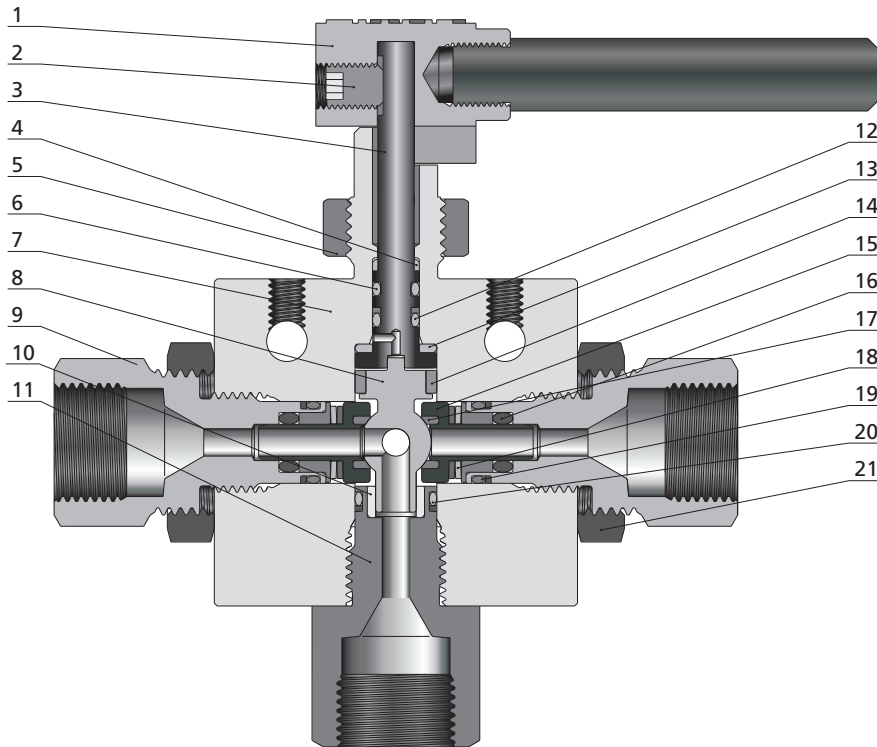
Tools and Installation Instructions

Technical Information

Part Number Crossover Charts

Fittings
 Tubing
 Quick Couplings
 Line Filters
 Valves
 Sour Service Products
 Subsea Valves
 Tools and Installation Instructions
 Technical Information
 Part Number Crossover Charts

3-way Valves

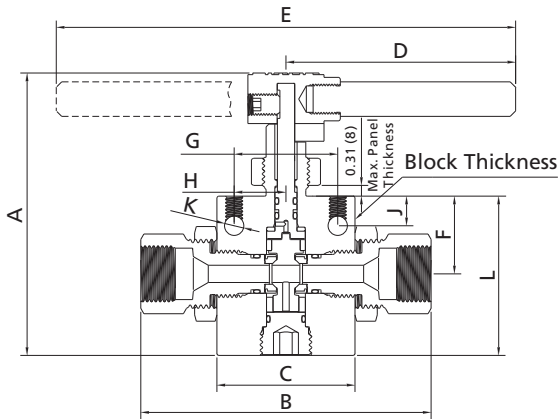


Item	Component	Material Grade
1	Handle	Stainless Steel
2	Set Screw	Stainless Steel
3	Stem	316 SS
4	Stem Backup	PEEK
5	Panel Nut	316 SS
6	Stem O-Ring	Fluorocarbon FKM
7	<i>Body</i>	316 SS
8	<i>Ball</i>	316 SS
9	<i>Seat Gland</i>	316 SS
10	<i>Ball Bearing</i>	Copper Alloy
11	<i>Bottom Gland</i>	316 SS
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

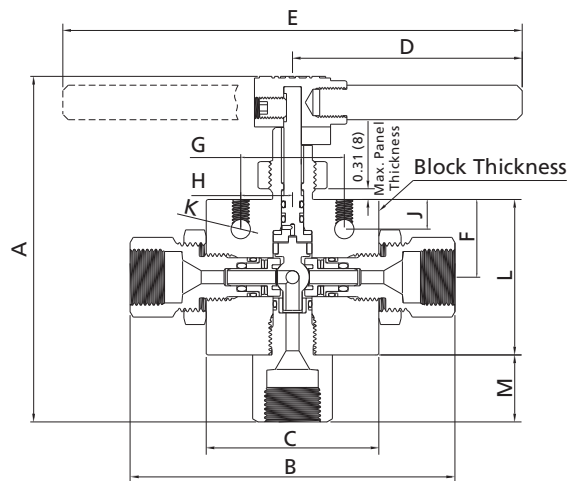
Wetted components listed in italics.

Dimensions

2-way Straight Valves



3-way Valves

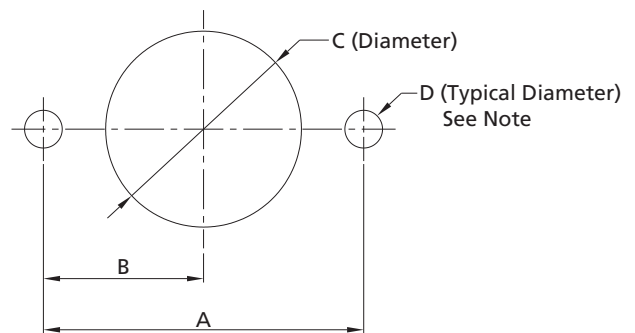


Flow Pattern	Orifice	Dimensions, in. (mm)												
		A	B	C	D	E	F	G	H	J	K	L	M	Block Thickness
2-way	1/4"	4.09 (103.9)	4.19 (106.5)	2.00 (50.8)	3.33 (84.5)	/	1.13 (28.6)	1.50 (38.1)	0.75 (19.1)	0.43 (10.9)	0.28 (7.1)	2.31 (58.6)	/	1.00 (25.4)
	3/8"	4.84 (121.0)	5.53 (140.3)	3.00 (76.2)	4.96 (126.0)	/	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.

Fittings
Tubing
Quick Couplings
Line Filters
Valves
Sour Service Products
Subsea Valves
Tools and Installation Instructions
Technical Information
Part Number Crossover Charts

Ordering Information and Dimensions

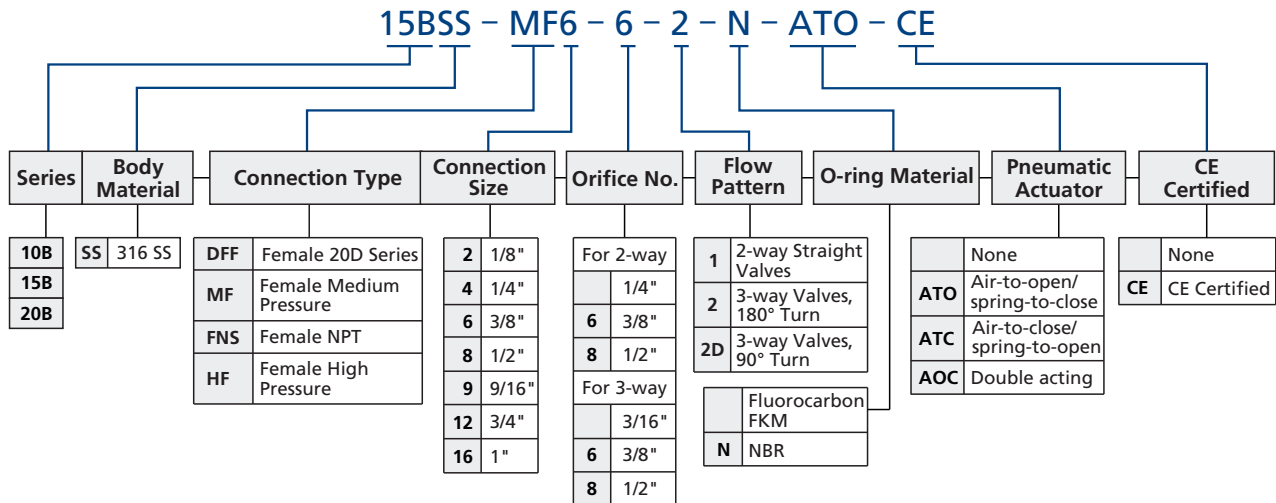
Series	Flow Pattern	Orifice	Connection	Orifice Size in. (mm)	Cv	Ordering Number	Working Pressure psig (bar)				
10B	2-way	1/2"	MF12	0.5 (12.7)	10.2	10BSS-MF12-8-1	10,000 (690)				
			MF16	0.5 (12.7)	10.2	10BSS-MF16-8-1					
			FNS12	0.5 (12.7)	10.2	10BSS-FNS12-8-1					
			FNS16	0.5 (12.7)	10.2	10BSS-FNS16-8-1					
	3-way	1/2"	MF12	10BSS-MF12-8-2	4.4	10BSS-MF12-8-2D					
				MF16		4.4		10BSS-MF16-8-2	10BSS-MF16-8-2D		
			FNS12	4.4	10BSS-FNS12-8-2			10BSS-FNS12-8-2D			
					FNS16	4.4		10BSS-FNS16-8-2	10BSS-FNS16-8-2D		
			15B	2-way				1/4"	DFF2	0.094 (2.4)	0.26
					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						
FNS6	0.25 (6.35)	1.51			15BSS-FNS6-1						
FNS8	0.25 (6.35)	1.51			15BSS-FNS8-1						
3/8"	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	0.13	15BSS-DFF2-2D						
			DFF4		0.22	15BSS-DFF4-2	15BSS-DFF4-2D				
		DFF6	0.5	15BSS-DFF6-2		15BSS-DFF6-2D					
				DFF8	0.5	15BSS-DFF8-2	15BSS-DFF8-2D				
		FNS2	0.5	15BSS-FNS2-2		15BSS-FNS2-2D					
				FNS4	0.5	15BSS-FNS4-2	15BSS-FNS4-2D				
		FNS6	0.5			15BSS-FNS6-2	15BSS-FNS6-2D				
				FNS8	0.5	15BSS-FNS8-2	15BSS-FNS8-2D				
	3/8"	DFF8	2.1			15BSS-DFF8-6-2	15BSS-DFF8-6-2D				
				DFF9	2.1	15BSS-DFF9-6-2	15BSS-DFF9-6-2D				
		MF6	0.81			15BSS-MF6-6-2	15BSS-MF6-6-2D				
				MF9	1.9	15BSS-MF9-6-2	15BSS-MF9-6-2D				

Ordering Information and Dimensions (continued)

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						

Fittings
Tubing
Quick Couplings
Line Filters
Valves
Sour Service Products
Subsea Valves
Tools and Installation Instructions
Technical Information
Part Number Crossover Charts

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)