

Bar Stock Ball Valves

BP Series

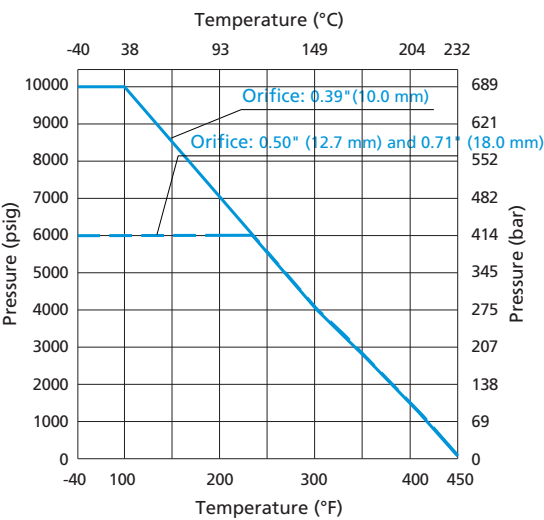
Features

- Maximum working pressure: 10000 psig (689 bar)
- Working temperature: -40°F to 450°F (-40°C to 232°C)
- Bi-directional flow for 2-way valves
- Seat wear compensation by free floating ball
- Variety of end connections
- Blowout proof stem with self-sealing function
- Options for handle color
- Optional pneumatic and electric actuator
- Leak-tight performance testing with nitrogen for every valve at the maximum working pressure, but not higher than 6000 psig

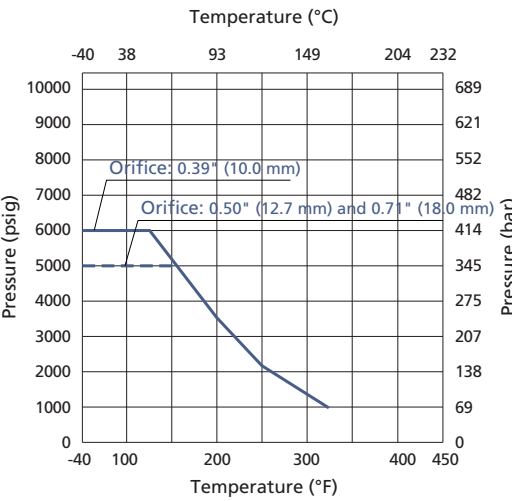


Pressure vs. Temperature

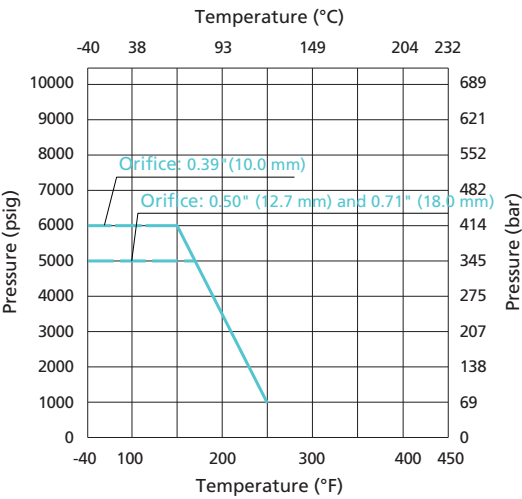
PEEK



PVDF



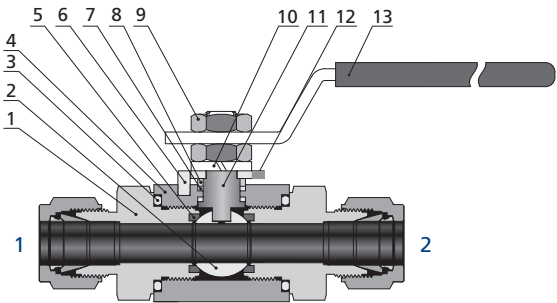
PCTFE



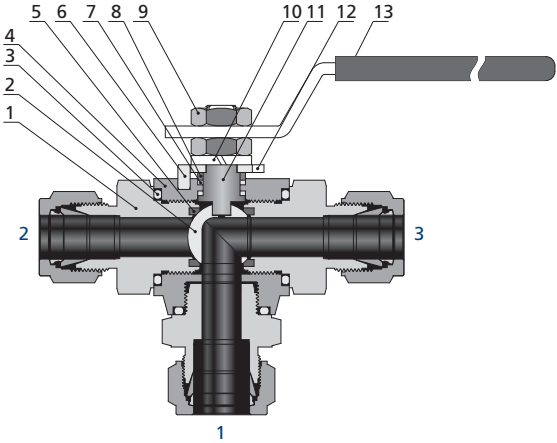
1. Graphs are for 2-way valves only.
2. Maximum working pressure for 3-way valves:
6000 psig: connection 1 as inlet, connection 2 and connection 3 as outlet
3000 psig: connection 2 and connection 3 as inlet, connection 1 as outlet

Standard Materials of Construction

2-way Valves

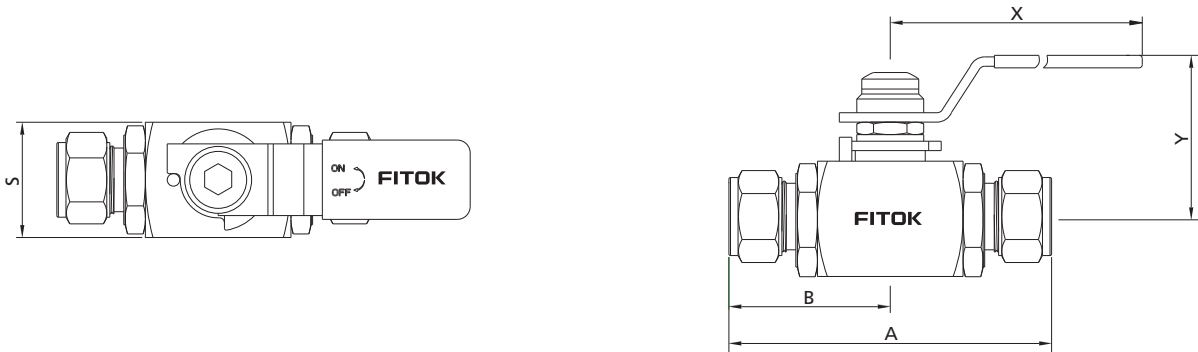


3-way Valves



Dimensions

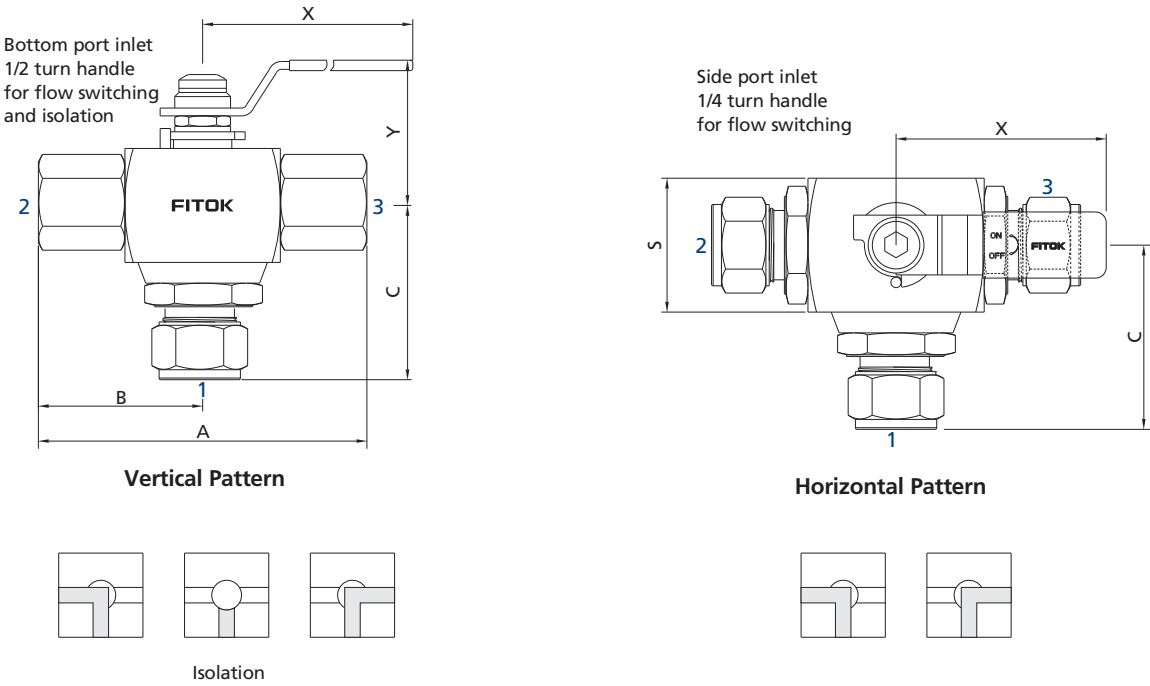
2-way Valves



Item	Component	Body Material	
		316 SS	Alloy 400
1	End Connector	316 SS/A276	Alloy 400/B164
2	Ball	316 SS/A479	Alloy R-405/B164
3	O-ring	Fluorocarbon FKM	
4	Body	316 SS/A479	Alloy 400/B164
5	Seat	PVDF or PCTFE or PEEK	
6	Stop Pin	Stainless Steel	
7	Stem Packing	PTFE/D1710	
8	Stem Washer	316 SS/A276	
9	Stem Nut	Stainless Steel	
10	Spring Washer	316 SS/A276	
11	Stem	316 SS/A276	
12	Stop Block	304 SS/A240	
13	Handle	Stainless steel with vinyl cover	

Basic Ordering Number	Connection Type and Size		Orifice in. (mm)	Cv	Dimension, in. (mm)				
	Connection 1	Connection 2			A	B	X	Y	S
BP□□-ML6-10	6 mm FITOK	6 mm FITOK	0.39 (10.0)	1.2	3.54 (90.0)	1.77 (45.0)	5.12 (130.0)	1.73 (44.0)	1.30 (32.0)
BP□□-ML8-10	8 mm FITOK	8 mm FITOK			3.60 (91.6)	1.80 (45.8)			
BP□□-ML10-10	10 mm FITOK	10 mm FITOK		3.7	3.70 (94.0)	1.85 (47.0)			
BP□□-ML12-10	12 mm FITOK	12 mm FITOK		7.5	3.94 (100.0)	1.97 (50.0)			
BP□□-ML14-10	14 mm FITOK	14 mm FITOK							
BP□□-FL4-10	1/4" FITOK	1/4" FITOK		1.2	3.60 (91.6)	1.80 (45.8)			
BP□□-FL6-10	3/8" FITOK	3/8" FITOK		3.7	3.72 (94.6)	1.86 (47.3)			
BP□□-FL8-10	1/2" FITOK	1/2" FITOK		7.5	3.92 (99.6)	1.96 (49.8)			
BP□□-FNS4-10	1/4 Female NPT	1/4 Female NPT			3.03 (77.0)	1.52 (38.5)			
BP□□-FNS6-10	3/8 Female NPT	3/8 Female NPT			2.80 (71.0)	1.40 (35.5)			
BP□□-FNS8-10	1/2 Female NPT	1/2 Female NPT			3.11 (79.0)	1.56 (39.5)			
BP□□-NS4-10	1/4 Male NPT	1/4 Male NPT		3.7	3.36 (85.4)	1.68 (42.7)			
BP□□-NS6-10	3/8 Male NPT	3/8 Male NPT		7.5					
BP□□-NS8-10	1/2 Male NPT	1/2 Male NPT			3.75 (95.2)	1.88 (47.6)			
BP□□-ML16-13	16 mm FITOK	16 mm FITOK	0.50 (12.7)	10.0	4.42 (112.2)	2.21 (56.1)	5.71 (145.0)	1.89 (48.0)	1.50 (38.0)
BP□□-ML18-13	18 mm FITOK	18 mm FITOK			4.12 (104.6)	2.06 (52.3)			
BP□□-ML20-13	20 mm FITOK	20 mm FITOK			4.43 (112.6)	2.22 (56.3)			
BP□□-ML22-13	22 mm FITOK	22 mm FITOK							
BP□□-FL10-13	5/8" FITOK	5/8" FITOK			4.36 (110.6)	2.18 (55.3)			
BP□□-FL12-13	3/4" FITOK	3/4" FITOK							
BP□□-FNS8-13	1/2 Female NPT	1/2 Female NPT			3.54 (90.0)	1.77 (45.0)			
BP□□-FNS12-13	3/4 Female NPT	3/4 Female NPT			4.09 (104.0)	2.05 (52.0)			
BP□□-NS12-13	3/4 Male NPT	3/4 Male NPT			4.14 (105.2)	2.07 (52.6)			
BP□□-ML20-19	20 mm FITOK	20 mm FITOK	0.71 (18.0)	19.0	4.87 (123.8)	2.43 (61.9)	6.30 (160.0)	2.08 (53.0)	1.96 (50.0)
BP□□-ML22-19	22 mm FITOK	22 mm FITOK		30.0	5.11 (129.8)	2.66 (64.9)			
BP□□-ML25-19	25 mm FITOK	25 mm FITOK		19.0	4.59 (116.6)	2.29 (58.3)			
BP□□-FL12-19	3/4" FITOK	3/4" FITOK		30.0	5.11 (129.8)	2.66 (64.9)			
BP□□-FL16-19	1" FITOK	1" FITOK			3.81 (96.8)	1.91 (48.4)			
BP□□-FNS12-19	3/4 Female NPT	3/4 Female NPT			4.26 (108.2)	2.13 (54.1)			
BP□□-FNS16-19	1 Female NPT	1 Female NPT							
BP□□-NS12-19	3/4 Male NPT	3/4 Male NPT		19.0	4.54 (115.2)	2.27 (57.6)			
BP□□-NS16-19	1 Male NPT	1 Male NPT		30.0	4.91 (124.8)	2.45 (62.4)			

3-way Valves



Basic Ordering Number	Connection Type and Size		Orifice in. (mm)	Cv	Dimension, in. (mm)					
	Connection 1	Connection 2/3			A	B	C	X	Y	S
BP□□-ML6-10-3□	6 mm FITOK	6 mm FITOK	0.39 (10.0)	1.2	3.54 (90.0)	1.77 (45.0)	2.00 (51.0)	5.12 (130.0)	1.73 (44.0)	1.30 (32.0)
BP□□-ML8-10-3□	8 mm FITOK	8 mm FITOK			3.60 (91.6)	1.80 (45.8)	2.02 (51.3)			
BP□□-ML10-10-3□	10 mm FITOK	10 mm FITOK			3.70 (94.0)	1.85 (47.0)	2.07 (52.5)			
BP□□-ML12-10-3□	12 mm FITOK	12 mm FITOK		7.5	3.94 (100.0)	1.97 (50.0)	2.18 (55.5)			
BP□□-ML14-10-3□	14 mm FITOK	14 mm FITOK			4.10 (104.1)	2.02 (51.3)	2.24 (56.9)			
BP□□-FL4-10-3□	1/4" FITOK	1/4" FITOK		1.2	3.60 (91.6)	1.80 (45.8)	2.01 (51.3)			
BP□□-FL6-10-3□	3/8" FITOK	3/8" FITOK		3.7	3.72 (94.6)	1.86 (47.3)	2.16 (54.8)			
BP□□-FL8-10-3□	1/2" FITOK	1/2" FITOK		7.5	3.92 (99.6)	1.96 (49.8)	2.13 (54.0)			
BP□□-FNS4-10-3□	1/4 Female NPT	1/4 Female NPT			3.03 (77.0)	1.52 (38.5)	1.44 (36.5)			
BP□□-FNS6-10-3□	3/8 Female NPT	3/8 Female NPT			2.80 (71.0)	1.40 (35.5)	1.57 (40.0)			
BP□□-FNS8-10-3□	1/2 Female NPT	1/2 Female NPT			3.27 (83.0)	1.63 (41.5)	1.83 (46.4)			
BP□□-NS4-10-3□	1/4 Male NPT	1/4 Male NPT		3.7	3.36 (85.4)	1.68 (42.7)	1.90 (48.2)			
BP□□-NS6-10-3□	3/8 Male NPT	3/8 Male NPT		7.5	3.75 (95.2)	1.88 (47.6)	2.09 (53.1)			
BP□□-NS8-10-3□	1/2 Male NPT	1/2 Male NPT			3.92 (99.6)	2.02 (51.3)	2.24 (56.9)			

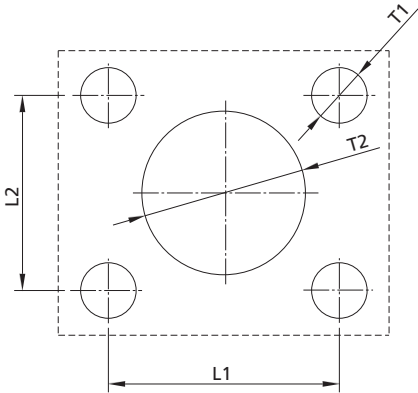
Basic Ordering Number	Connection Type and Size		Orifice in. (mm)	Cv	Dimension, in. (mm)					
	Connection 1	Connection 2/3			A	B	C	X	Y	S
BP□□-ML16-13-3□	16 mm FITOK	16 mm FITOK	0.50 (12.7)	10.0	4.04 (102.6)	2.02 (51.3)	2.41 (61.3)	5.71 (145.0)	1.89 (48.0)	1.50 (38.0)
BP□□-ML18-13-3□	18 mm FITOK	18 mm FITOK			4.12 (104.6)	2.06 (52.3)	2.45 (62.3)			
BP□□-ML20-13-3□	20 mm FITOK	20 mm FITOK			4.43 (112.6)	2.22 (56.3)	2.61 (66.3)			
BP□□-ML22-13-3□	22 mm FITOK	22 mm FITOK			4.36 (110.6)	2.18 (55.3)	2.57 (65.3)			
BP□□-FL10-13-3□	5/8" FITOK	5/8" FITOK			3.82 (97.0)	1.91 (48.5)	1.95 (49.5)			
BP□□-FL12-13-3□	3/4" FITOK	3/4" FITOK					2.16 (55.0)			
BP□□-FNS8-10-3□	1/2 Female NPT	1/2 Female NPT			4.14 (105.2)	2.07 (52.6)	2.46 (62.6)			
BP□□-FNS12-13-3□	3/4 Female NPT	3/4 Female NPT					2.46 (62.6)			
BP□□-NS12-13-3□	3/4 Male NPT	3/4 Male NPT					2.46 (62.6)			
BP□□-ML20-19-3□	20 mm FITOK	20 mm FITOK	0.71 (18.0)	19.0	4.87 (123.8)	2.43 (61.9)	2.89 (73.4)	6.30 (160.0)	2.08 (53.0)	1.96 (50.0)
BP□□-ML22-19-3□	22 mm FITOK	22 mm FITOK		30.0	5.11 (129.8)	2.66 (64.9)	3.00 (76.2)			
BP□□-ML25-19-3□	25 mm FITOK	25 mm FITOK		19.0	4.86 (123.4)	2.43 (61.7)	3.02 (76.7)			
BP□□-FL12-19-3□	3/4" FITOK	3/4" FITOK		30.0	5.11 (129.8)	2.66 (64.9)	2.85 (72.4)			
BP□□-FL16-19-3□	1" FITOK	1" FITOK			3.82 (97.0)	1.91 (48.5)	2.22 (56.5)			
BP□□-FNS12-19-3□	3/4 Female NPT	3/4 Female NPT			4.26 (108.2)	2.13 (54.1)	2.40 (60.8)			
BP□□-FNS16-19-3□	1 Female NPT	1 Female NPT			4.54 (115.2)	2.27 (57.6)	2.72 (69.1)			
BP□□-NS12-19-3□	3/4 Male NPT	3/4 Male NPT		19.0	4.54 (115.2)	2.27 (57.6)	2.72 (69.1)			
BP□□-NS16-19-3□	1 Male NPT	1 Male NPT		30.0	4.91 (124.8)	2.45 (62.4)	2.90 (73.9)			
BP□□-NS16-19-3□	1 Male NPT	1 Male NPT		30.0	4.91 (124.8)	2.45 (62.4)	2.90 (73.9)			

1. FITOK means FITOK double ferrule tube fittings, TS means fractional tube socket weld, MTS means metric tube socket weld, TB means fractional tube butt weld, MTB means metric tube butt weld, PS means pipe socket weld, PB means pipe butt weld.
2. Sizes and types listed are standard. Other sizes and types are available upon request, refer to the ordering information.
3. Dimensions are shown with FITOK nuts finger-tightened. All dimensions are for reference only and are subject to change. For dimensions not shown above, please contact the authorized representative or FITOK Group.

Panel Mounting Options

Dimension for panel mounting

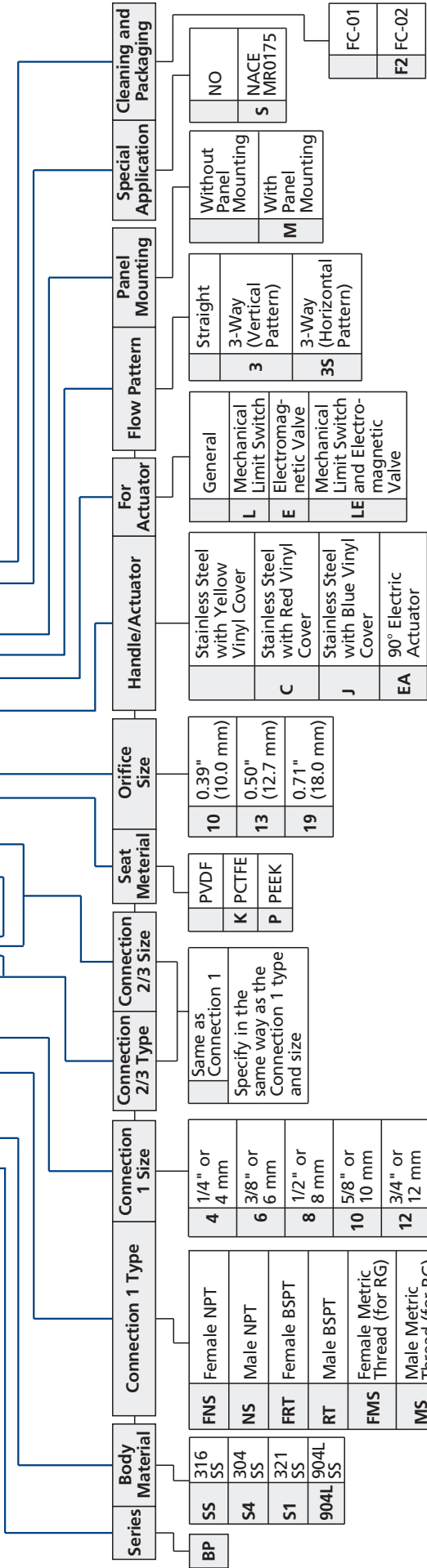
Orifice in. (mm)	L1 in. (mm)	L2 in. (mm)	T1 in. (mm)	T2 in. (mm)	Panel Thickness in. (mm)
0.39 (10.0)	1.02 (26.0)	1.02 (26.0)	0.20 (5.0)	1.18 (30.0)	Max. 3/8 (9.5)
0.50 (12.7)	1.26 (32.0)	1.26 (34.0)	0.20 (5.0)	1.50 (38.0)	
0.71 (18.0)	1.42 (36.0)	1.42 (36.0)	0.20 (5.0)	1.50 (38.0)	



Part Number Description



BPSS – ML20 – FL12 – FNS8 – P13 – OSLE3M – SF2



Series	Body Material	Connection 1 Type	Connection 1 Size	Connection 2/3 Type	Connection 2/3 Size	Seat Material	Orifice Size	Handle/Actuator	For Actuator	Flow Pattern	Panel Mounting	Special Application	Cleaning and Packaging
BP	SS	FNS	Female NPT	4	1/4" or 4 mm	PVDF	10	0.39" (10.0 mm)	General	Straight	Without Panel Mounting	NO	FC-01 F2 FC-02
	S4	NS	Male NPT	6	3/8" or 6 mm	K PCTFE	13	0.50" (12.7 mm)	L Mechanical Limit Switch	3 3-Way (Vertical Pattern)	With Panel Mounting	NACE S MR0175	
	S1	FRT	Female BSPT	8	1/2" or 8 mm	P PEEK	19	0.71" (18.0 mm)	E Electromagnetic Valve	3S 3-Way (Horizontal Pattern)	M		
	904L SS	RT	Male BSPT	10	5/8" or 10 mm			J Stainless Steel with Blue Vinyl Cover	LE Mechanical Limit Switch and Electromagnetic Valve				
		FMS	Female Metric Thread (for RG)	12	3/4" or 12 mm			EA 90° Electric Actuator					
		MS	Male Metric Thread (for RG)	14	14 mm or M14 x 1.5			EX 180° Electric Actuator					
		FRP	Female BSPP (for RP)	16	1" or 16 mm			CS 90° Normally Closed Spring Return Pneumatic Actuator					
		BP	Male BSPP (for RG)	18	18 mm			DA 90° Double Acting Pneumatic Actuator					
		FL	Fractional Tube Fitting	20	20 mm or M20 x 1.5			OS 90° Normally Open Spring Return Pneumatic Actuator					
		MIL	Metric Tube Fitting	22	22 mm or M22 x 1.5			CX 180° normally closed spring return three positions pneumatic actuator					
		UFB	British Tube Pipe union joint butt welding	25	25 mm			RX 180° right end normally open spring return pneumatic actuator					
		UMB	Metric Tube Pipe union joint butt welding	30	30 mm			DX 180° Double Acting Pneumatic Actuator					
		UPB	Then live Pipe pipe butt welding	32	32 mm								

1. Standard thread pitch for metric threads are as follows:

M10 and below: 1 mm

M12 to M24: 1.5 mm

M27 and above: 2 mm

Standard thread pitch should be ignored in the

ordering number, others should be specified.

2. FO means FITOK O-seal fittings.

FR means FITOK metal ring seal fittings.

3. For information about pneumatic and electric actuator, please contact the authorized

representative or FITOK Group.

4. For oxygen or virulent medium service, contact the authorized representative or FITOK Group.

5. Cleaning and Packaging:

FC-01: Standard cleaning and packaging for general industrial procedures.

FC-02: Special cleaning and packaging for wetted system components to ensure compliance with

product cleanliness requirements as stated in ASTM G93 Lever C.

Note: "Part Number Description" is used for composition rules of FITOK product model, Not suitable for specific product part number selection, not random combinations. If in doubt, please contact FITOK company or authorized agents.

