

Bar Stock Ball Valves

BP Series

Features

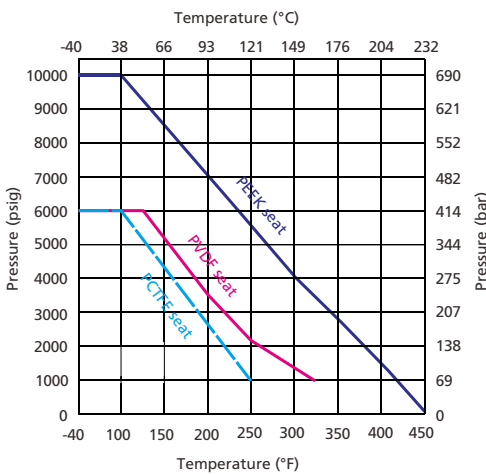
- Working pressures up to 10,000 psig (690 bar)
- Working temperature: -40°F to 450°F (-40°C to 232°C)
- Cv up to 30
- Floating ball design compensates for seat wear, improving leak-tight integrity
- Blowout-proof stem minimizes failures caused by stem movement or looseness
- Available in 2-way or 3-way flow patterns
- Each valve is factory leak-tested with nitrogen or compressed air at rated pressure



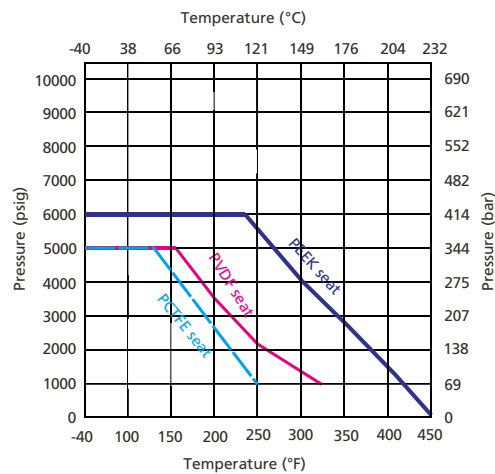
Pressure vs. Temperature

2-way Valves

Orifice code: 10

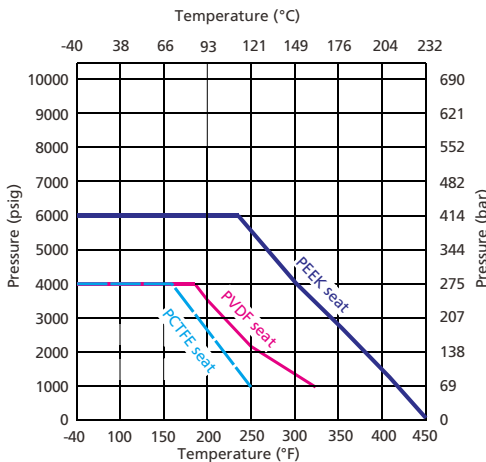


Orifice code: 13 and 19

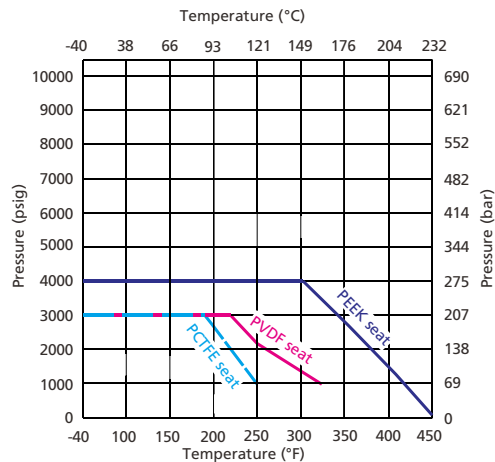


3-way Valves

Orifice code: 10



Orifice code: 13 and 19



- Notes: 1. Graphs are with 316 SS body. For information of body in other materials, please contact FITOK Group or our authorized distributors.
2. The working pressure of valves is restricted by materials of the valve body and seat, as well as end connections. When choosing a valve for your applications, please refer to the above Temperature vs. Pressure Curves and the pressure rating in the dimension table. The minimum value shall be the pressure rating of the valve.

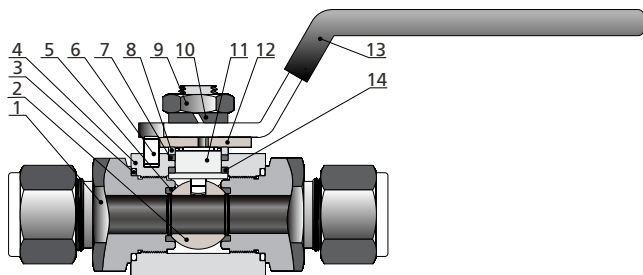
Pressure Rating@100°F (38°C)

Material	End Connection	Pressure Rating, psig (bar)
316 SS	FNS4, FNS6, FNS8, NS4, NS6, NS8, FL4, ML6	10000 (690)
	ML10	8400 (578)
	FL6, ML8	7500 (516)
	ML12	6800 (470)
	FL8	6700 (462)
	ML14	6200 (427)
	FL10, FNS12, FNS16, NS12, NS16	6000 (414)
	ML16, FL12	5800 (400)
	ML20	5500 (379)
	ML18	5400 (372)
	ML22	4900 (338)
	FL16	4700 (324)
	ML25	4600 (317)

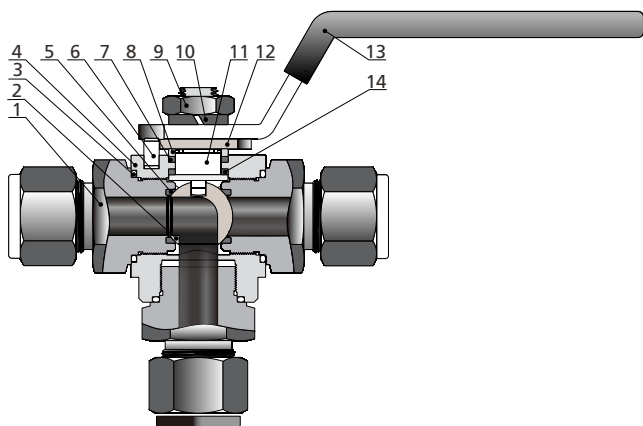
Note: Maximum working pressure of BP Series ball valves is 10,000 psig. The specified pressure rating is restricted by end connections.

Standard Materials of Construction

2-way Valves



3-way Valves



Item	Component	Body Material
		316 SS
1	<i>End Connection</i>	<i>316 SS/A479</i>
2	<i>Ball</i>	<i>316 SS/A479</i>
3	<i>O-ring^①</i>	<i>FKM</i>
4	<i>Body</i>	<i>316 SS/A479</i>
5	<i>Seat</i>	<i>PVDF or PCTFE or PEEK</i>
6	<i>Stop Pin</i>	<i>SS</i>
7	<i>Stem Packing</i>	<i>PTFE/D1710</i>
8	<i>Stem Washer</i>	<i>316 SS/A479</i>
9	<i>Stem Nut^②</i>	<i>SS</i>
10	<i>Spring Washer</i>	<i>SS</i>
11	<i>Stem</i>	<i>316 SS/A479</i>
12	<i>Stop Block</i>	<i>304 SS/A240</i>
13	<i>Handle</i>	<i>SS with vinyl cover</i>
14	<i>Lower Packing^③</i>	<i>PEEK</i>

Note: Wetted components are listed in italics.

For other materials, please contact FITOK Group or our authorized distributors.

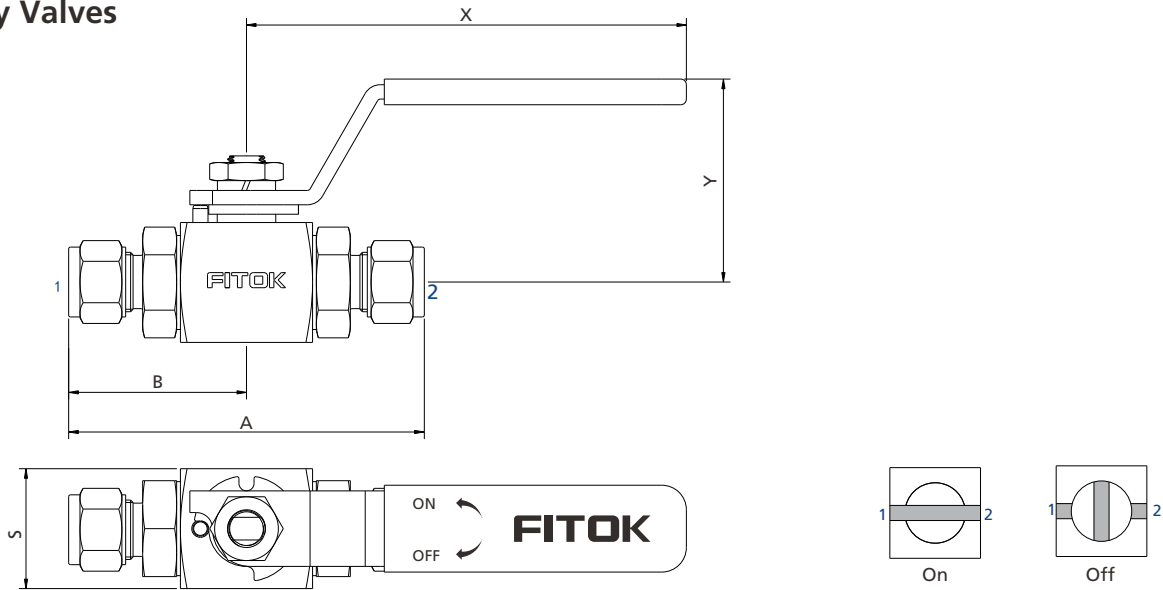
① Ball valves with orifice designator 10 and PEEK seats include a PEEK flange seal.

② Ball valves with orifice code 13 or 19 have 2 stem nuts.

③ Lower packing material of ball valves with orifice code 19 is PTFE.

Dimensions

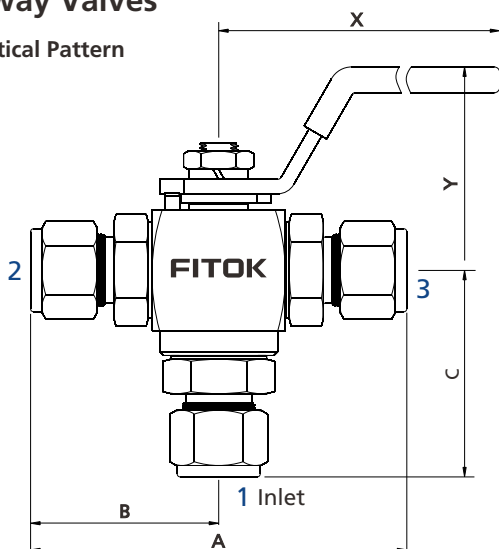
2-way Valves



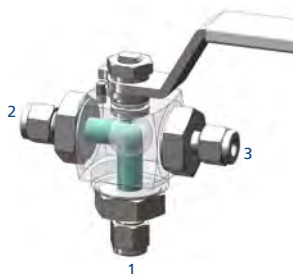
Basic Ordering Number	Connection Type and Size	Orifice in. (mm)	Cv	Dimensions, in. (mm)				
	Connection 1/2			A	B	X	Y	S
BP□□-ML6-10	6 mm FITOK	0.19(4.8)	1.2	3.54 (90.0)	1.77 (45.0)	4.57 (116.0)	2.12 (53.9)	1.30 (32.0)
BP□□-ML8-10	8 mm FITOK	0.25(6.4)	2.3	3.60 (91.6)	1.80 (45.8)			
BP□□-ML10-10	10 mm FITOK	0.31(7.9)	3.8	3.70 (94.0)	1.85 (47.0)			
BP□□-ML12-10	12 mm FITOK	0.39 (10.0)	7.5	3.94 (100.0)	1.97 (50.0)			
BP□□-ML14-10	14 mm FITOK							
BP□□-FL4-10	1/4" FITOK	0.19(4.8)	1.2	3.56 (90.4)	1.78 (45.2)			
BP□□-FL6-10	3/8" FITOK	0.28(7.1)	3.7	3.72 (94.6)	1.86 (47.3)			
BP□□-FL8-10	1/2" FITOK	0.39 (10.0)	7.5	3.92 (99.6)	1.96 (49.8)			
BP□□-FNS4-10	1/4 Female NPT			3.03 (77.0)	1.52 (38.5)			
BP□□-FNS6-10	3/8 Female NPT			2.80 (71.0)	1.40 (35.5)			
BP□□-FNS8-10	1/2 Female NPT			3.27 (83.0)	1.63 (41.5)			
BP□□-NS4-10	1/4 Male NPT	0.28(7.1)	3.7	3.36 (85.4)	1.68 (42.7)	5.59 (142.0)	2.54 (64.4)	1.50 (38.0)
BP□□-NS6-10	3/8 Male NPT	0.39 (10.0)	7.5					
BP□□-NS8-10	1/2 Male NPT			3.75 (95.2)	1.88 (47.6)			
BP□□-ML16-13	16 mm FITOK	0.50 (12.7)	10.0	4.42 (112.2)	2.21 (56.1)			
BP□□-ML18-13	18 mm FITOK			4.12 (104.6)	2.06 (52.3)			
BP□□-ML20-13	20 mm FITOK			4.43 (112.6)	2.22 (56.3)			
BP□□-ML22-13	22 mm FITOK			4.29 (109.0)	2.15 (54.5)			
BP□□-FL10-13	5/8" FITOK			4.36 (110.6)	2.18 (55.3)			
BP□□-FL12-13	3/4" FITOK							
BP□□-FNS8-13	1/2 Female NPT			3.54 (90.0)	1.77 (45.0)			
BP□□-FNS12-13	3/4 Female NPT			4.09 (104.0)	2.05 (52.0)			
BP□□-NS12-13	3/4 Male NPT			4.14 (105.2)	2.07 (52.6)			
BP□□-ML20-19	20 mm FITOK	0.71 (18.0)	30.0	4.87 (123.8)	2.43 (61.9)	6.46 (164.0)	2.72 (69.0)	1.96 (50.0)
BP□□-ML22-19	22 mm FITOK			5.11 (129.8)	2.66 (64.9)			
BP□□-ML25-19	25 mm FITOK							
BP□□-FL12-19	3/4" FITOK			4.59 (116.6)	2.29 (58.3)			
BP□□-FL16-19	1" FITOK			5.11 (129.8)	2.66 (64.9)			
BP□□-FNS12-19	3/4 Female NPT			3.81 (96.8)	1.91 (48.4)			
BP□□-FNS16-19	1 Female NPT			4.26 (108.2)	2.13 (54.1)			
BP□□-NS16-19	1 Male NPT			4.91 (124.8)	2.45 (62.4)			

3-way Valves

Vertical Pattern



Port 1 as inlet
180° rotation handle

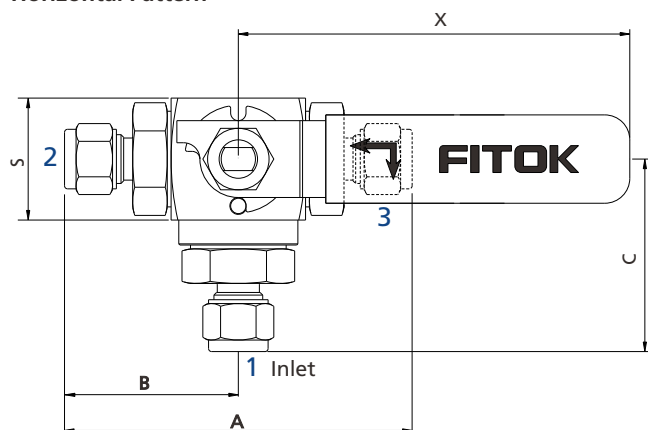


Port 1 to port 2

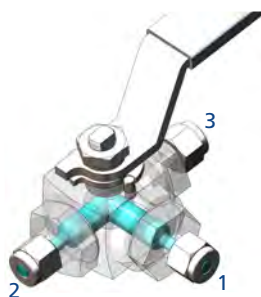


Port 1 to port 3

Horizontal Pattern



Port 1 as inlet
90° rotation handle



Port 1 to port 2



Port 1 to port 3

Note: Restricted flow path for BP series: only port 1 as inlet, port 2 and port 3 as outlet

Basic Ordering Number	Connection Type and Size	Orifice in. (mm)	Dimensions, in. (mm)					
	Connection 1/2/3		A	B	C	X	Y	S
BP□□-ML6-10-3□	6 mm FITOK	0.19 (4.8)	3.54 (90.0)	1.77 (45.0)	2.00 (51.0)	4.57 (116.0)	2.12 (53.9)	1.30 (32.0)
BP□□-ML8-10-3□	8 mm FITOK	0.25 (6.4)	3.60 (91.6)	1.80 (45.8)	2.02 (51.3)			
BP□□-ML10-10-3□	10 mm FITOK	0.31 (7.9)	3.70 (94.0)	1.85 (47.0)	2.07 (52.5)			
BP□□-ML12-10-3□	12 mm FITOK	0.39 (10.0)	3.94 (100.0)	1.97 (50.0)	2.18 (55.5)			
BP□□-ML14-10-3□	14 mm FITOK							
BP□□-FL4-10-3□	1/4" FITOK	0.19 (4.8)	3.56 (90.4)	1.78 (45.2)	1.95 (49.5)			
BP□□-FL6-10-3□	3/8" FITOK	0.28 (7.1)	3.72 (94.6)	1.86 (47.3)	2.16 (54.8)			
BP□□-FL8-10-3□	1/2" FITOK	0.39 (10.0)	3.92 (99.6)	1.96 (49.8)	2.13 (54.0)			
BP□□-FNS4-10-3□	1/4 Female NPT		3.03 (77.0)	1.52 (38.5)	1.44 (36.5)			
BP□□-FNS6-10-3□	3/8 Female NPT		2.80 (71.0)	1.40 (35.5)	1.57 (40.0)			
BP□□-FNS8-10-3□	1/2 Female NPT		3.27 (83.0)	1.63 (41.5)	1.83 (46.4)			
BP□□-NS4-10-3□	1/4 Male NPT	0.28 (7.1)	3.36 (85.4)	1.68 (42.7)	1.90 (48.2)			
BP□□-NS6-10-3□	3/8 Male NPT	0.39 (10.0)						
BP□□-NS8-10-3□	1/2 Male NPT		3.75 (95.2)	1.88 (47.6)	2.09 (53.1)			

Basic Ordering Number	Connection Type and Size	Orifice in. (mm)	Dimensions, in. (mm)					
	Connection 1/2/3		A	B	C	X	Y	S
BP□□-ML16-13-3□	16 mm FITOK	0.50 (12.7)	4.42 (112.2)	2.21 (56.1)	2.60 (66.1)	5.59 (142.0)	2.54 (64.4)	1.50 (38.0)
BP□□-ML18-13-3□	18 mm FITOK		4.12 (104.6)	2.06 (52.3)	2.45 (62.3)			
BP□□-ML20-13-3□	20 mm FITOK		4.43 (112.6)	2.22 (56.3)	2.61 (66.3)			
BP□□-ML22-13-3□	22 mm FITOK		4.29 (109.0)	2.15 (54.5)	2.54 (64.5)			
BP□□-FL10-13-3□	5/8" FITOK		4.36 (110.6)	2.18 (55.3)	2.57 (65.3)			
BP□□-FL12-13-3□	3/4" FITOK		3.54 (90.0)	1.77 (45.0)	2.02 (51.2)			
BP□□-FNS8-13-3□	1/2 Female NPT		4.09 (104.0)	2.05 (52.0)	2.44 (62.0)			
BP□□-FNS12-13-3□	3/4 Female NPT		4.14 (105.2)	2.07 (52.6)	2.46 (62.6)			
BP□□-NS12-13-3□	3/4 Male NPT							
BP□□-ML20-19-3□	20 mm FITOK	0.71 (18.0)	4.87 (123.8)	2.43 (61.9)	2.89 (73.4)	6.46 (164.0)	2.72 (69.0)	1.96 (50.0)
BP□□-ML22-19-3□	22 mm FITOK		5.11 (129.8)	2.66 (64.9)	3.00 (76.2)			
BP□□-ML25-19-3□	25 mm FITOK		4.86 (123.4)	2.43 (61.7)	3.02 (76.7)			
BP□□-FL12-19-3□	3/4" FITOK		5.11 (129.8)	2.66 (64.9)	2.85 (72.4)			
BP□□-FL16-19-3□	1" FITOK		3.82 (97.0)	1.91 (48.5)	2.22 (56.5)			
BP□□-FNS12-19-3□	3/4 Female NPT		4.26 (108.2)	2.13 (54.1)	2.72 (69.1)			
BP□□-FNS16-19-3□	1 Female NPT		4.54 (115.2)	2.27 (57.6)	2.72 (69.1)			
BP□□-NS12-19-3□	3/4 Male NPT		4.91 (124.8)	2.45 (62.4)	2.90 (73.9)			
BP□□-NS16-19-3□	1 Male NPT							

1. FITOK means FITOK double ferrule tube fittings.

2. Sizes and types listed are standard. Other sizes and types are available upon request, please contact FITOK Group or our authorized distributors.

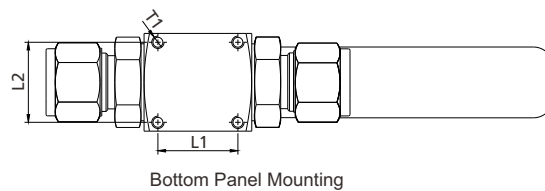
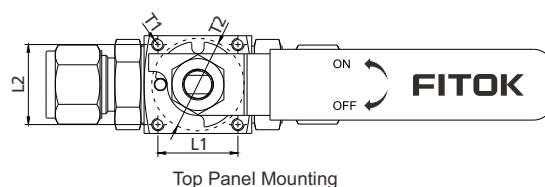
3. Dimensions are shown with tube fitting nuts finger-tightened. All dimensions are for reference only and are subject to change.

For dimensions not shown above, please contact FITOK Group or our authorized distributors.

Panel Mounting Options

Dimension for Panel Mounting

Orifice in. (mm)	in. (mm)			
	L1	L2	T1	T2
0.39 (10.0)	1.02 (26.0)	1.02 (26.0)	M4×0.7P deep 0.19 (5.0)	1.18 (30.0)
0.50 (12.7)	1.18 (30.0)	1.18 (30.0)	M5×0.8P deep 0.19 (5.0)	1.18 (30.0)
0.71 (18.0)	1.37 (35.0)	1.57 (40.0)	M5×0.8P deep 0.19 (5.0)	1.50 (38.0)



Seal Kits

Valve Orifice	Flow Pattern	Basic Seal Kit Ordering Number	Content
10	2-way	BPSS-□10-RK	Seat, upper packing, lower packing, O-ring, stem, ball, instructions
	3-way (vertical)	BPSS-□10-3-RK	
	3-way (horizontal)	BPSS-□10-3S-RK	
13	2-way	BPSS-□13-RK	
	3-way (vertical)	BPSS-□13-3-RK	
	3-way (horizontal)	BPSS-□13-3S-RK	
19	2-way	BPSS-□19-RK	
	3-way (vertical)	BPSS-□19-3-RK	
	3-way (horizontal)	BPSS-□19-3S-RK	

Seat Material	Designator
PVDF	-
PCTFE	K
PEEK	P

1. Seal kit components are the same materials and grades listed in materials of construction.
2. The default seat material in the seal kit for BP series valves is PVDF. To order seats with other materials, add a seat material designator to "□" in the basic seal kit ordering number to get a complete ordering number.
Example: BPSS-10-RK
BPSS-P10-RK
3. The listed basic seal kit ordering numbers specify 316 stainless steel material. To order kits with other materials, such as 304 stainless steel material, replace "SS" with "S4" in the ordering number.
Example: BPS4-10-RK

Locking Device

- ⦿ Locking Device 1 locks BP series 2-way and 3-way valves with a locking hole diameter of 0.23 in. (6.0 mm).
- ⦿ To order a ball valve with locking device 1, add **-L** to the valve ordering number.
Example: BPSS-FL4-10-L/BPSS-FL4-10-3S-L/BPSS-FL4-10-3-L
- ⦿ Locking Device 2 locks BP series 2-way and horizontal 3-way valves. The locking hole diameter is 0.23 in. (6.0 mm) for orifices 10 and 13, and 0.28 in. (7.2 mm) for orifice 19.
- ⦿ To order a ball valve with locking device 2, add **-LK** to the valve ordering number.
Example: BPSS-FL4-10-LK/BPSS-FL4-10-3S-LK
- ⦿ When both top mounting holes and locking devices are present, only locking device 2 should be selected. When both bottom mounting holes and locking devices are present, either locking device may be selected.
Example: BPSS-FL4-10-MLK/BPSS-FL4-10-MDL/BPSS-FL4-10-MDLK

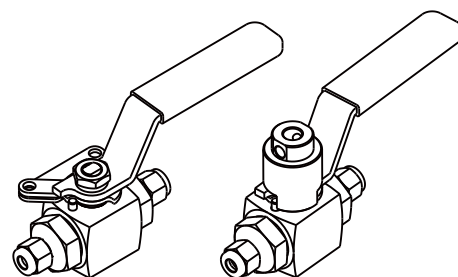


Diagram of Locking
Device 1

Diagram of Locking
Device 2

Ball Valve without Handle

- ⦿ Ball Valve without handle can be directly connected to the FITOK actuator assembly.
- ⦿ To order, please add **-AM** to the valve ordering number.
Example: BPSS-FL12-13-AM

Ordering Number Description

BPSS - ML20 - FL12 - FNS8 - P13 - OHQ3MLK - SCEF2

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	Locking Device	Special Application	Cleaning and Packaging								
BP	SS	316 SS	FNS	Female NPT	4	Same as Connection 1 Specified in the same way as Connection 1 type and size		PVDF	10	Max. 0.39" (10.0 mm)		Yellow Handle Sleeve					FC-01							
	S4	304 SS	NS	Male NPT	6				K	PCTFE	13	0.50" (12.7 mm)	I	Red Handle Sleeve	H	Mechanical Limit Switch	3	3-Way (Vertical Pattern)	L	Locking Device 1	S	NACE MR0175	F2	FC-02
	S1	321 SS	FRT	Female BSPT	8				P	PEEK	19	0.71" (18.0 mm)	J	Blue Handle Sleeve	N	Inductive Limit Switch	3S	3-Way (Horizontal Pattern)	LK	Locking Device 2	SI	Inert Silicon Coating		
			RT	Male BSPT	10							AM	Without Handle	Q	Solenoid Valve									
			FRP	Female BSPP (for RP)	12	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 omitted in the ordering number, others should be specified. 2. For oxygen-enriched environment or hazardous media service, contact FITOK Group or our authorized distributors. 3. 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 of ASTM G93 Level C. 4. For more information about pneumatic actuator ball valves, please refer to the catalog Actuated Ball Valves. 5. Inert Silicon Coating: Except for ball valves with PEEK seat, wetted metal components Inert Silicon coated.			14	3/4" or 12 mm	C	90° Normally Closed Pneumatic Actuator	HQ	Mechanical Limit Switch and Solenoid Valve										
		ML	Metric Tube Fitting	16	1" or 16 mm				O	90° Normally Open Pneumatic Actuator	NQ	Inductive Limit Switch and Solenoid Valve												
		UFB	Rotatable Fractional Tube Butt Weld	18	18 mm				D	90° Double Acting Pneumatic Actuator														
		UMB	Rotatable Metric Tube Butt Weld	20	20 mm or M20 × 1.5				LX	180° Left End Normally Open Pneumatic Actuator														
		UPB	Nut + Gasket + Pipe Bulged Nipple	22	22 mm or M22 × 1.5				RX	180° Right End Normally Open Pneumatic Actuator														
				25	25 mm				DX	180° Double Acting Pneumatic Actuator														
				28	28 mm				E	90° Electric Actuator														
				30	30 mm				EX	180° Electric Actuator														
				32	32 mm																			

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

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 omitted in the ordering number, others should be specified.
2. For oxygen-enriched environment or hazardous media service, contact FITOK Group or our authorized distributors.
3. 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 of ASTM G93 Level C.
4. For more information about pneumatic actuator ball valves, please refer to the catalog Actuated Ball Valves.
5. Inert Silicon Coating: Except for ball valves with PEEK seat, wetted metal components Inert Silicon coated.
6. CE certification is available. For more information, please contact FITOK group or our authorized distributors.
7. The rated working pressure of BP series ball valves for "NACE MRO175" application is lower than that of standard valves. For detailed pressure values, please contact FITOK Group or our authorized distributors.

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