

Trunnion Ball Valves

BF and BFH Series

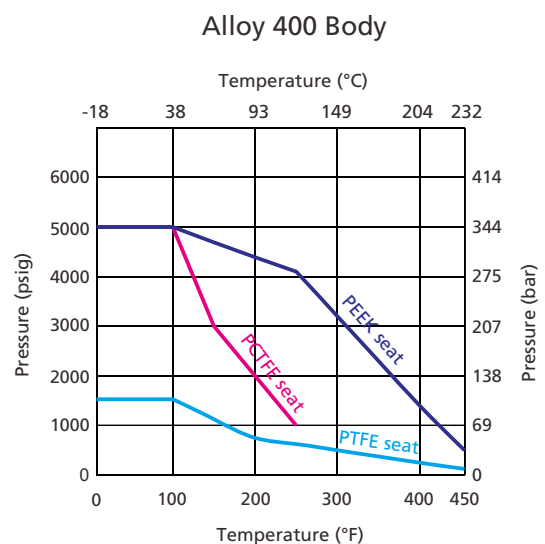
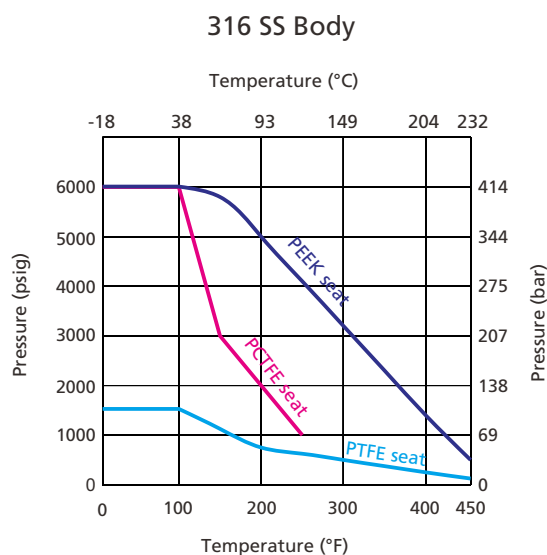
Features

- Maximum working pressures:
BF Series: 6,000 psig (414 bar)
BFH Series: 10,000 psig (690 bar)
- Working temperature: 0°F to 450°F (-18°C to 232°C)
- Compact, maximum-flow design with Cv up to 1.6
- No packing adjustment required
- Trunnion-style ball design prevents ball blowout for enhanced safety
- Blowout-proof stem minimizes failures caused by stem movement or looseness
- Disc-spring-loaded seats compensate for seat wear and pressure/temperature changes, improving leak-tight integrity
- Available in 2-way or 3-way flow patterns
- Each valve is factory leak-tested with nitrogen or compressed air at rated pressure
- Low-temperature service option available
- Available with ECE R110 type approval



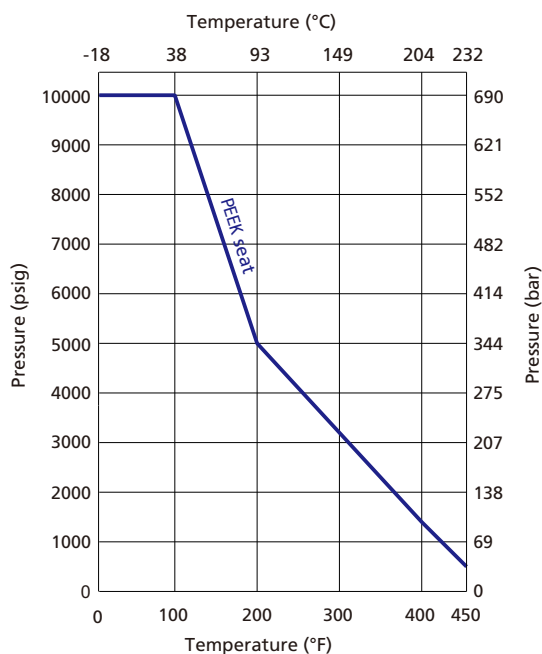
Pressure vs. Temperature

BF Series



BFH Series

316 SS Body



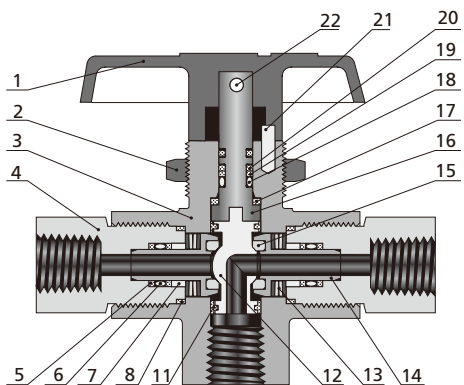
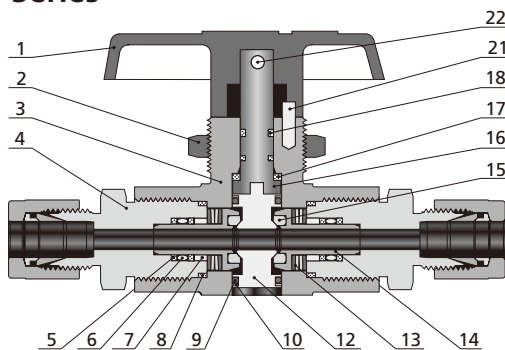
Pressure Rating@100°F (38°C)

Material	End Connection	Pressure Rating, psig (bar)
316 SS	FNS2, FNS4 FL4, ML6	10000 (690)
	ML10	8400 (578)
	FL6/ML8	7500 (516)
	FL8	6700 (461)
	ML12	6800 (470)

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

Standard Materials of Construction

BF Series

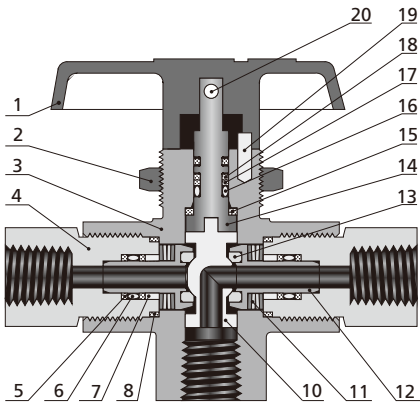
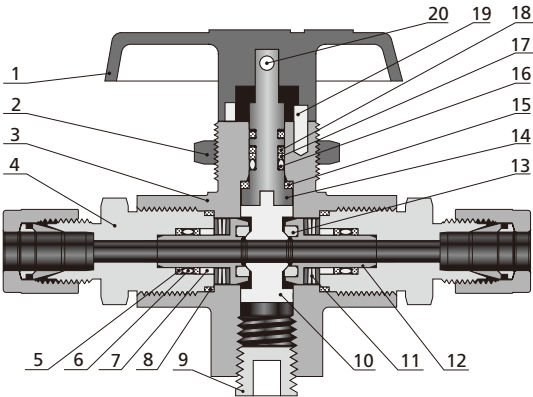


Notes: Wetted components are listed in italics.

1. Ball trunnions are PTFE coated for BF series 2-way valves.
2. For other materials, please contact FITOK Group or our authorized distributors.

Item	Component	Valve Body Material			
		316 SS		Alloy 400	
		2-way	3-way	2-way	3-way
		Material Grade/ASTM Specification			
1	Handle	Nylon with SS insert			
2	Panel Nut	316 SS/A479			
3	Body	F316 SS/A182		Alloy 400/B164	
4	End Connection	316 SS/A479		Alloy 400/B164	
5	Seat Retainer Backup Ring	Reinforced PTFE			
6	Seat Retainer O-ring	FKM			
7	Seat Retainer Guide	316 SS/A479		Alloy 400/B164	
8	End Connection Seal	Silver-plated 316L/A269			
9	Trunnion O-ring	FKM	——	FKM	——
10	Trunnion Backup Ring	Reinforced PTFE	——	Reinforced PTFE	——
11	Trunnion Bearing	——	PEEK	——	PEEK
12	Ball	316 SS/A479	S21800/A479	Alloy 400/B164	
13	Seat Spring	Alloy X-750/AMS 5542			
14	Seat Retainer	316 SS/A479		Alloy 400/B164	
15	Seat	PTFE or PEEK or PCTFE			
16	Stem	316 SS/A479		Alloy 400/B164	
17	Stem Washer	PEEK			
18	Stem O-ring	FKM		FKM	
19	Secondary Stem Backup Ring	——	PTFE/D1710	——	PTFE/D1710
20	Primary Stem Backup Ring	——	PEEK	——	PEEK
21	Stop Pin	SS			
22	Set Screw	Zinc-plated carbon steel			
Lubricants		Fluorinated-based			

BFH Series

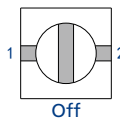
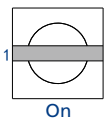
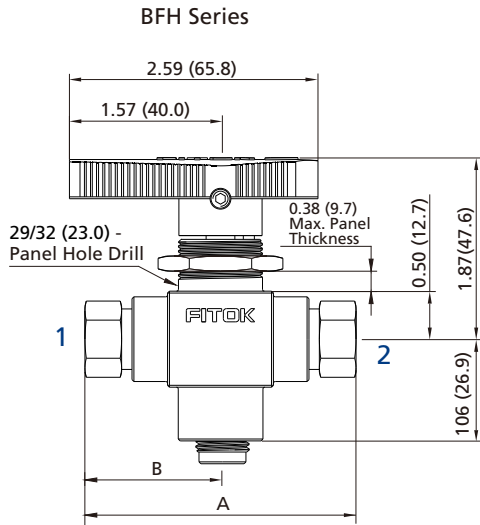
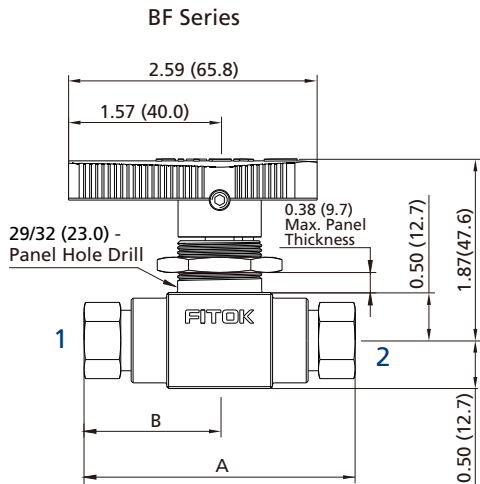


Item	Component	2-way	3-way
		Material Grade/ASTM Specification	
1	Handle	Nylon with SS insert	
2	Panel Nut	316 SS/A479	
3	Body	316 SS/A479	
4	End Connection	316 SS/A479	
5	Seat Retainer Backup Ring	Reinforced PTFE	
6	Seat Retainer O-ring	FKM	
7	Seat Retainer Guide	316 SS/A479	
8	End Connection Seal	Silver-plated 316L/A269	
9	Plug	316 SS/A479	
10	Ball	S21800/A479	
11	Seat Spring	Alloy X-750/AMS 5542	
12	Seat Retainer	316 SS/A479	
13	Seat	PEEK	
14	Stem	316 SS/A479	
15	Stem Washer	PEEK	
16	Stem O-ring	FKM	
17	Secondary Stem Backup Ring	PTFE/D1710	
18	Primary Stem Backup Ring	PEEK	
19	Stop Pin	SS	
20	Set Screw	Zinc-plated carbon steel	
Lubricants		Fluorinated-based	

Notes: Wetted components are listed in italics.
1. Ball trunnions are PTFE coated for BFH series ball valves.
2. For other materials, please contact FITOK Group or our authorized distributors.

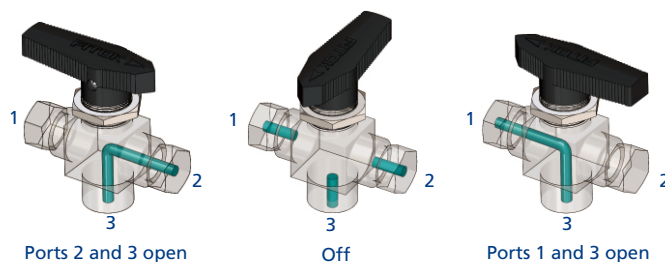
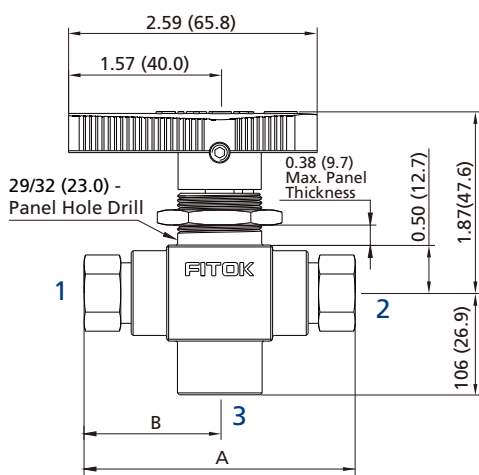
Dimensions

2-way Valves



Basic Ordering Number		Connection Type and Size	Orifice in. (mm)	Cv	Dimensions, in. (mm)	
BF Series	BFH Series	Connection 1/2			A	B
BFSS-FNS4	_____	1/4 Female NPT	0.19 (4.8)	1.0	2.94 (74.7)	1.47 (37.3)
BFSS-FNS4-K						
BFSS-FNS4-P						
_____	BFHSS-FNS4-P			3.93 (99.8)	1.97 (50.0)	
BFSS-FNS8	_____	1/2 Female NPT		1.2	4.25 (108.0)	2.13 (54.1)
BFSS-FNS8-K						
BFSS-FL4	BFHSS-FL4-P	1/4" FITOK		1.6	4.14 (105.2)	2.07 (52.6)
BFSS-FL4-K						
BFSS-FL4-P						
BFSS-FL6	BFHSS-FL6-P	3/8" FITOK		1.4	4.39 (111.5)	2.19 (55.6)
BFSS-FL6-P						
BFSS-FL8	_____	1/2" FITOK		1.0	4.60 (116.8)	2.30 (58.4)
BFSS-FL8-P						
BFSS-ML6		6 mm FITOK		1.6	4.14 (105.2)	2.07 (52.6)
BFSS-ML6-P						
BFSS-ML8		8 mm FITOK		1.5	4.15 (105.4)	
BFSS-ML10-P		10 mm FITOK		1.3	4.41 (112.0)	2.20 (55.9)
BFSS-ML12		12 mm FITOK		1.0	4.60 (116.8)	2.30 (58.4)
BFSS-ML12-P						

3-way Valves



Basic Ordering Number	Connection Type and Size		Orifice in. (mm)	Cv	Dimensions, in. (mm)	
BF Series	Connection 1/2	Connection 3			A	B
BFSS-FNS4-K-3	1/4 Female NPT	1/4 Female NPT	0.19 (4.8)	0.75	2.94 (74.7)	1.47 (37.3)
BFSS-FNS4-P-3						
BFSS-FL6-K-3	3/8" FITOK				4.39 (111.5)	2.19 (55.6)
BFSS-FL6-P-3						
BFSS-FL8-K-3	1/2" FITOK				4.60 (116.8)	2.30 (58.4)
BFSS-ML6-P-3	6 mm FITOK				4.14 (105.2)	2.07 (52.6)

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.

4. Bottom port of all 3-way valves is 1/4 in. female NPT.

Special Application Ball Valves

Low-Temperature Service

BF and BFH series ball valves for low-temperature service, with a temperature rating of -40°F to 200°F (-40°C to 93°C), are available.

Low-temperature service valves have low-temperature NBR O-rings. All other materials are the same as those of standard valves.

To order a valve for low-temperature service, add -LT into the valve ordering number.

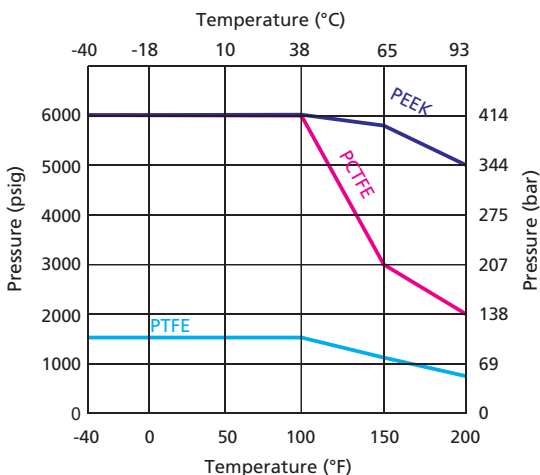
For example: BFSS-FL4-P-LT

BFSS-FL4-P-3-LT

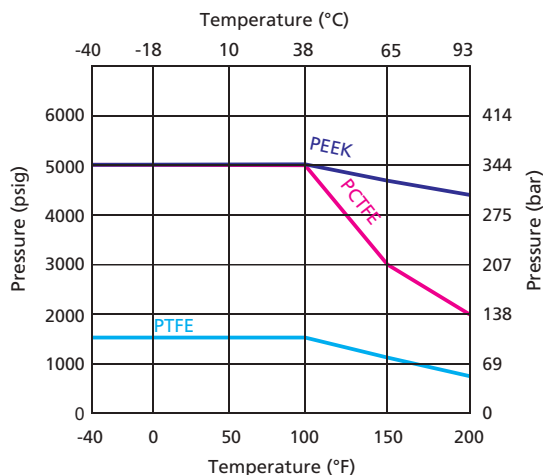
Seal kit for field replacement is available, see "Seal Kits" on Page B-09.

Low-Temperature Service BF Series Pressure vs. Temperature

316 SS Body

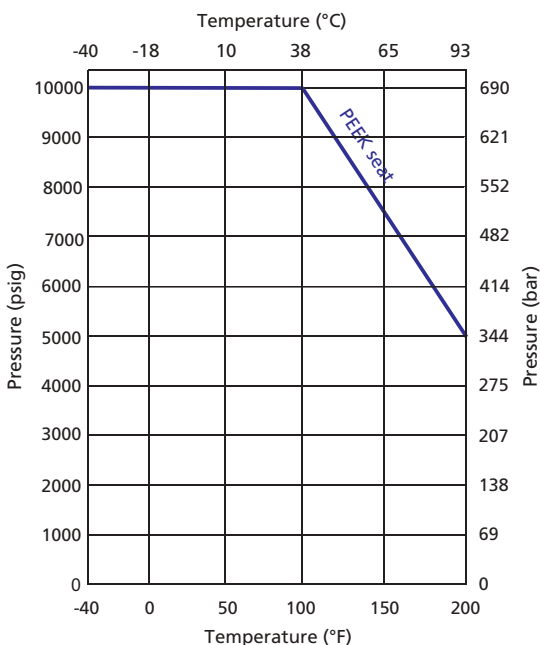


Alloy 400 Body



Low-Temperature Service BFH Series Pressure vs. Temperature

316 SS Body



Note: The maximum working pressure for BFH series low-temperature service ball valves is the same as that of standard ball valves.

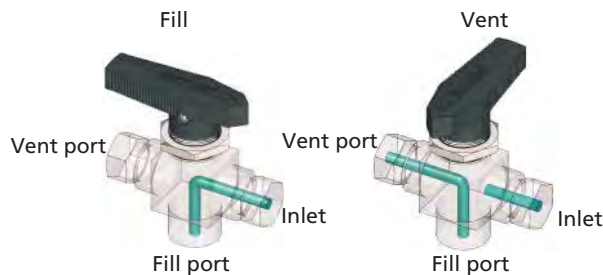
"Fast Fill" CNG Filling Station Application

BF series 3-way valves for use in "fast-fill" CNG filling station as well as a variety of filling station applications are available.

Features

- ⦿ A directional installation with 90 degree actuation for ease of operation during filling
 - ⦿ 3-way design with vent port for ease of venting after fill
 - ⦿ PEEK seats to reduce maintenance required in high-cycle applications
 - ⦿ Cycle life test report available upon request
 - ⦿ Field repairable with seal kit, see "Seal Kits" on Page B-09
- To order, the flow pattern designator should be specified as "3DL" in the valve ordering number.

Example: BFSS-FNS4-P-3DL (The material and pressure vs. temperature curve are the same with those of BF series standard valves.)
 BFSS-FNS4-P-3DL-LT (The material and pressure vs. temperature curve are the same with those of BF series low-temperature service valves.)



CNG/NGV Application

BF series ball valves with ECE R110 manual valve type approval available.

Classification: Class 0

Temperature rating: -40°F to 248°F (-40°C to 120°C)

Pressure rating: 3770 psig (260 bar)

CNG/NGV application valves have low-temperature FKM O-rings and PEEK seats. All other materials are the same as those of standard valves.

To order a valve for CNG/NGV application, add **-R110** into the valve ordering number.

For example: BFSS-FL4-P-**R110**

BFSS-FL4-P-3-**R110**

Seal kit for field replacement is available, see "Seal Kits" on Page B-09.

Seal Kits

Valve Series	Flow Pattern	Special Application	Basic Seal Kit Ordering Number	Content
BF	2-way	/	BFSS-2-□	Seat retainer backup ring, seat retainer O-ring, seat retainer guide, end connection seal, trunnion O-ring, trunnion backup ring, ball, seat spring, seat retainer, seat, stem, stem washer, stem O-ring, instructions.
		Low-temperature service	BFSS-2-□-LT	
		CNG/NGV application	BFSS-2-P-R110	
	3-way	/	BFSS-3-□	Seat retainer backup ring, seat retainer O-ring, seat retainer guide, end connection seal, trunnion bearing, ball, seat spring, seat retainer, seat, stem, stem washer, stem O-ring, secondary stem backup ring, primary stem backup ring, instructions.
		Low-temperature service	BFSS-3-□-LT	
		"Fast Fill" CNG filling station application	BFSS-3DL-P	
			BFSS-3DL-P-LT	
		CNG/NGV application	BFSS-3-P-R110	
BFH	2-way	/	BFHSS-2-P	Seat retainer backup ring, seat retainer O-ring, seat retainer guide, end connection seal, ball, seat spring, seat retainer, seat, stem, stem washer, stem O-ring, secondary stem backup ring, primary stem backup ring, instructions.
		Low-temperature service	BFHSS-2-P-LT	
	3-way	/	BFHSS-3-P	
		Low-temperature service	BFHSS-3-P-LT	

Seat Material	Designator
PTFE	T
PCTFE	K
PEEK	P

1. Seal kit components are the same materials and grades listed in materials of construction.

2. To order seal kits for BF series standard and low-temperature service ball valves, select a seat designator from the table at left and add to the basic seal kit ordering number.

Example: BFSS-2-T

BFSS-2-P-LT

3. The listed basic seal kit ordering numbers specify 316 stainless steel material.

To order kits with other materials, such as Alloy 400 material, replace "SS" with "M" in the ordering number.

Example: BFM-2-T

Locking Device

⊙ Lock BF series 2-way or 3-way valves, locking hole diameter is 0.21 in (5.2 mm).

⊙ To order a ball valve with locking device, add **-L** to the valve ordering number.

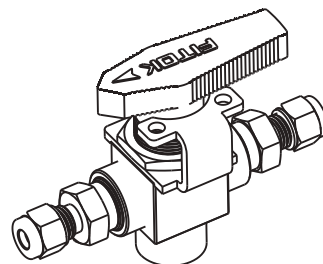
Example: BFSS-ML6-L/BFSS-ML6-3-L

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: BFSS-FL4-P-AM



Ordering Number Description

BFSS - FNS4 - ML12 - P - RXHQ3 - L - SCEF2																									
Series		Body Material		Connection 1 Type		Connection 1 Size		Connection 2 Type		Connection 2 Size		Seat Material		Handle/Actuator		For Actuator		Flow Pattern		Locking Device		Special Application		Cleaning and Packaging	
BF	SS	316 SS	FNS	Female NPT	2	1/8"	Same as Connection 1	Specified in the same way as connection 1 type and size	BF Series	PTFE	K	PCTFE	P	PEEK	Black Nylon Handle	None	3	2-Way	L	No	S	None	FC-01		
BFH	M	Alloy 400	NS	Male NPT	4	1/4"																			
			FRT	Female BSPT	6	3/8" or 6 mm																			
			RT	Male BSPT	8	1/2" or 8 mm																			
			FRP	Female BSPP (for RP)	10	10 mm																			
			BP	Male BSPP (for RG)	12	12 mm																			
			FMS	Female Metric Thread (for RG-M)																					
			MS	Male Metric Thread (for RG-M)																					
			FL	Fractional Tube Fitting																					
			ML	Metric Tube Fitting																					

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

1. 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 requirement of ASTM G93 Level C.
2. For more information about pneumatically actuated ball valves, please refer to the catalog Actuated Ball Valves.
3. Inert Silicon Coating: Except for ball valves with PEEK seat, wetted metal components Inert Silicon coated.
4. CE certification is available. For more information, please contact FITOK group or our authorized distributors.
5. Certifications do not include attachments to the valve, such as actuators or a different handle mechanism.