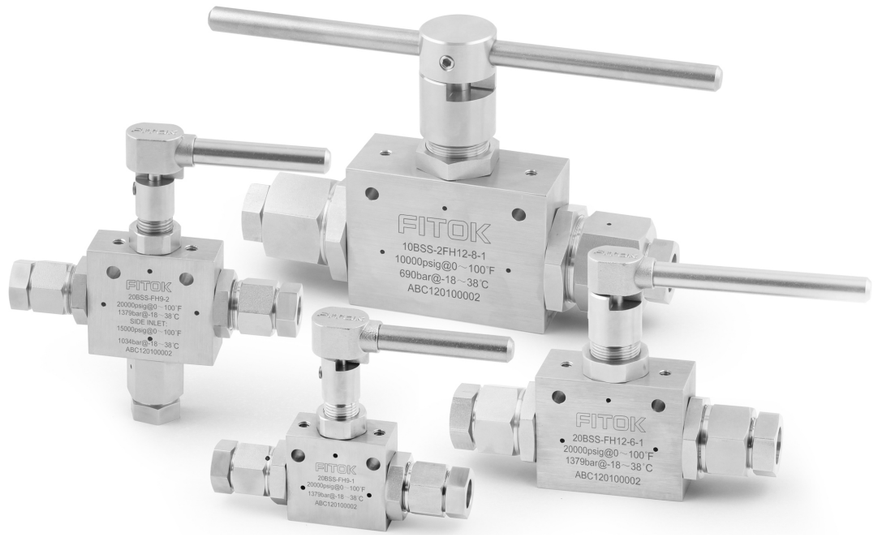
High Pressure Ball Valves

10B Series, 10,000 psi (690 bar)
15B Series, 15,000 psi (1034 bar)
20B Series, 20,000 psi (1379 bar)



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FITOK
Valves and Fittings

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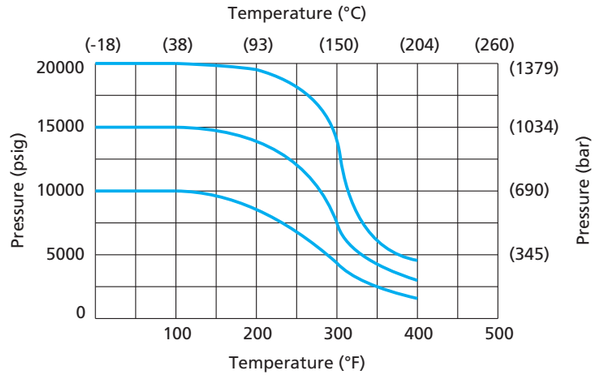
Features

- One-piece, trunnion mounted style, ideal for severe duty applications.
- Two-way and three-way valve configurations.
- PEEK seats offer excellent resistance to chemicals, heat, and wear/abrasion.
- Full-port flow path minimizes pressure drop.
- 316 cold worked stainless steel construction.
- Fluorocarbon FKM o-rings for operation from 0°F (-17.8°C) to 400°F (204°C).
- Wide selection of o-rings available.
- Wide selection of tube and pipe end fittings available.
- Electric and pneumatic actuator options. Please contact the FITOK Group for details of actuator options.

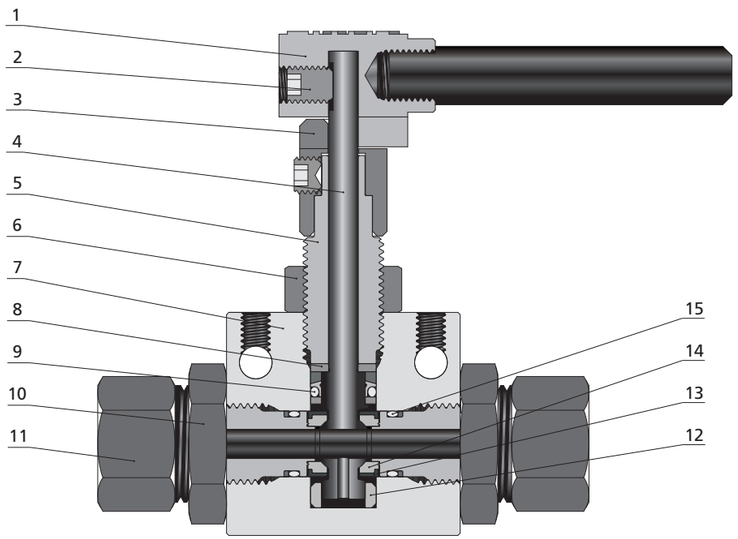
Pressure & Temperature Curve



NOTE: Ball valves are not recommended for critical gas applications such as Hydrogen, Helium or other small molecular gases.

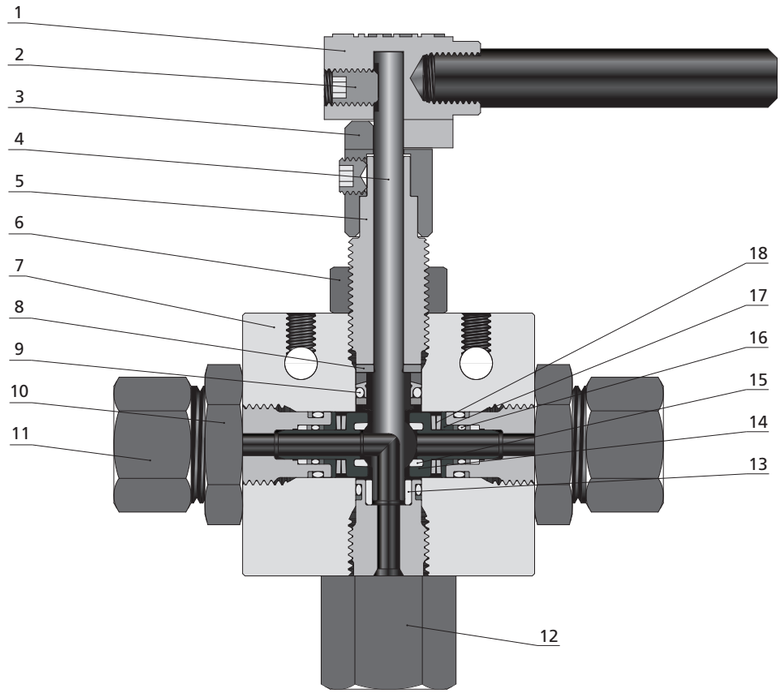
Standard Materials of Construction

2-Way Straight Valves



Item	Component	Valve Material
1	Handle	Stainless Steel
2	Set Screw	Stainless Steel
3	Stopping Device	316 SS/A276
4	Ball Stem	316 SS/A479
5	Packing Gland	316 SS/A479
6	Locking Piece	316 SS/A276
7	Valve Body	316 SS/A479
8	Thrust Washer	C63000/B150
9	Combination Seal	Fluorocarbon FKM
10	Lock Nut	316 SS/A276
11	Seat Gland	316 SS/A479
12	Bearing	PEEK
13	Seat Retainer	316 SS/A479
14	Seat	PEEK
15	End Seal	Fluorocarbon FKM
	Lubricant	Molybdenum Disulfide/Fluorinated-based

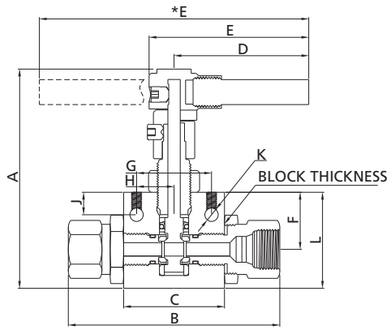
3-Way Valves



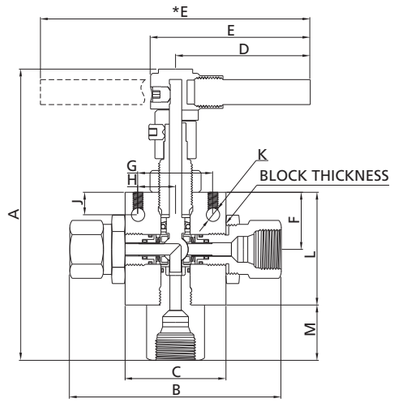
Item	Component	Valve Material
1	Handle	Stainless Steel
2	Set Screw	Stainless Steel
3	Stopping Device	316 SS/A276
4	Ball Stem	316 SS/A479
5	Packing Gland	316 SS/A479
6	Locking Piece	316 SS/A276
7	Valve Body	316 SS/A479
8	Thrust Washer	C63000/B150
9	Combination Seal	Fluorocarbon FKM
10	Lock Nut	316 SS/A276
11	Seat Gland	316 SS/A479
12	Botton Gland	316 SS/A479
13	Bearing	C63000/B150
14	Seat Retainer	316 SS/A479
15	Seat	Carbon Filled PEEK
16	End Seal	Fluorocarbon FKM
17	Belleville Backup	316 SS/A479
18	Belleville Washers	17-7PH/A693
	Lubricant	Molybdenum Disulfide/Fluorinated-based

Dimensions

2-Way Straight Valves



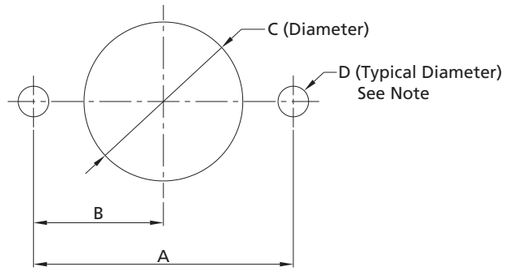
3-Way Valves



Body Style	Orifice No.	A	B	C	D	E	F	G	H	J	K	L	M	Block Thickness
		in. (mm)												
2-way		4.33 (110)	4.19 (106.5)	2 (50.8)	3.37 (85.6)	3.9 (99)	1.13 (28.6)	1.5 (38.1)	0.75 (19.1)	0.43 (10.9)	0.28 (7.1)	1.91 (48.4)		1 (25.4)
	6	4.97 (126.3)	5.53 (140.4)	3 (76.2)	4.99 (126.8)	5.52 (140.3)	1.38 (34.9)	2 (50.8)	1 (25.4)	0.41 (10.3)	0.28 (7.1)	2.5 (63.5)		1.38 (34.9)
	8	5.97 (126.3)	7.73 (196.5)	4.13 (104.8)	5.13 (130.2)	*10.25 (260.4)	1.76 (44.7)	3 (76.2)	1.5 (38.1)	0.5 (12.7)	0.28 (7.1)	3.09 (78.6)		1.75 (44.5)
3-way		5.64 (143.4)	4.72 (119.9)	2.5 (63.5)	3.37 (85.6)	3.9 (99)	1.13 (28.6)	1.5 (38.1)	0.75 (19.1)	0.43 (10.9)	0.28 (7.1)	2.25 (57.2)	0.97 (24.6)	1 (25.4)
	6	6.55 (166.4)	5.74 (145.8)	3 (76.2)	4.99 (126.8)	5.52 (140.3)	1.38 (34.9)	2 (50.8)	1 (25.4)	0.41 (10.3)	0.28 (7.1)	2.88 (73)	1.19 (30.2)	1.38 (34.9)
	8	7.83 (198.8)	7.77 (197.4)	4.13 (104.8)	5.13 (130.2)	*10.25 (260.4)	1.66 (42.2)	3 (76.2)	1.5 (38.1)	0.5 (12.7)	0.28 (7.1)	3.34 (84.9)	1.7 (43.2)	1.75 (44.5)

Ball Valve Panel Mounting Dimensions

Body Style	Orifice No.	A in. (mm)	B in. (mm)	C in. (mm)	D in. (mm)
2-way		1.5 (38.1)	0.75 (19.1)	1.06 (26.9)	0.28 (7.1)
	6	2 (50.8)	1 (25.4)	1.5 (38.1)	0.28 (7.1)
	8	3 (76.2)	1.5 (38.1)	1.88 (47.6)	0.28 (7.1)
3-way		1.5 (38.1)	0.75 (19.1)	1.06 (26.9)	0.28 (7.1)
	6	2 (50.8)	1 (25.4)	1.5 (38.1)	0.28 (7.1)
	8	3 (76.2)	1.5 (38.1)	1.88 (47.6)	0.28 (7.1)

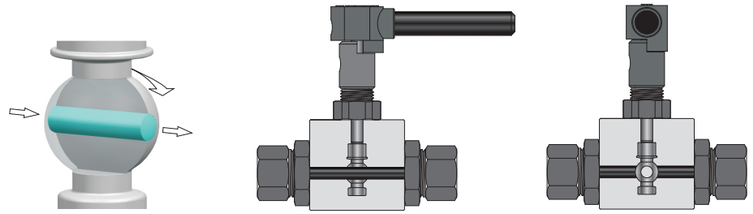


All dimensions are for reference only and are subject to change.

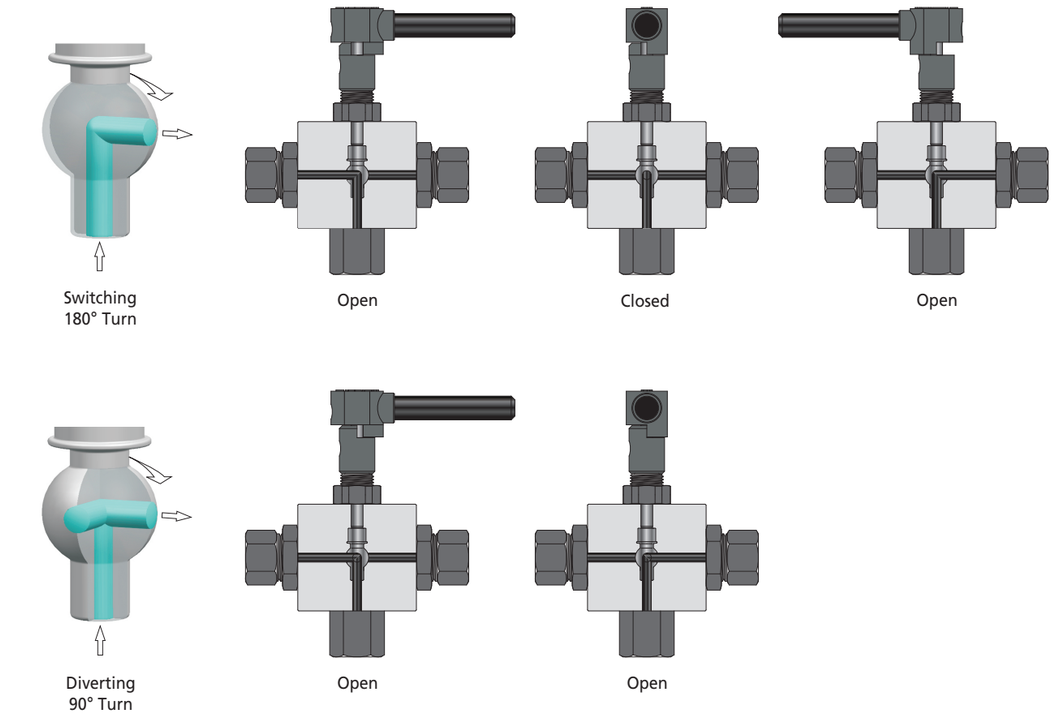
Note: Body mounting 1/4-20 thread

Flow Configuration

2-Way Straight Valves



3-Way Valves



Note: Maximum side connection inlet pressure 15,000 psig (1034 bar) for 20B series 3-Way Valves.

Part Number Description

Series	Body Style	Connection Type	Orifice No.	Orifice Size in. (mm)	Rated Cv	Catalog No.	Pressure/Temperature Rating psig (bar) @ Room Temperature
10B	2-way	2FH12	8	0.5 (12.7)	10.2	10BSS-2FH12-8-1	10,000 (690)
		2FH16		0.5 (12.7)	10.2	10BSS-2FH16-8-1	
		FNS12		0.5 (12.7)	10.2	10BSS-FNS12-8-1	
		FNS16		0.5 (12.7)	10.2	10BSS-FNS16-8-1	
	3-way	2FH12	8	0.5 (12.7)	4.4	10BSS-2FH12-8-2	
						10BSS-2FH12-8-2D	
		2FH16		0.5 (12.7)	4.4	10BSS-2FH16-8-2	
						10BSS-2FH16-8-2D	
		FNS12		0.5 (12.7)	4.4	10BSS-FNS12-8-2	
						10BSS-FNS12-8-2D	
		FNS16		0.5 (12.7)	4.4	10BSS-FNS16-8-2	
						10BSS-FNS16-8-2D	
15B	2-way	FH2	8	0.094 (2.4)	0.26	15BSS-FH2-1	15,000 (1034)
		FH4		0.13 (3.25)	0.26	15BSS-FH4-1	
		FH6		0.25 (6.35)	1.51	15BSS-FH6-1	
		FH8		0.25 (6.35)	1.51	15BSS-FH8-1	
		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	
		FH8	6	0.375 (9.5)	3.51	15BSS-FH8-6-1	
		FNS4		0.375 (9.5)	3.51	15BSS-FNS4-6-1	
		FNS6		0.375 (9.5)	3.51	15BSS-FNS6-6-1	
		FNS8		0.375 (9.5)	3.51	15BSS-FNS8-6-1	
	3-way	FH2	8	0.094 (2.4)	0.13	15BSS-FH2-2	
						15BSS-FH2-2D	
		FH4		0.13 (3.25)	0.23	15BSS-FH4-2	
						15BSS-FH4-2D	
		FH6		0.19 (4.78)	0.5	15BSS-FH6-2	
						15BSS-FH6-2D	
		FH8		0.19 (4.8)	0.5	15BSS-FH8-2	
						15BSS-FH8-2D	
		FNS2		0.19 (4.8)	0.5	15BSS-FNS2-2	
						15BSS-FNS2-2D	
		FNS4		0.19 (4.8)	0.5	15BSS-FNS4-2	
						15BSS-FNS4-2D	
		FNS6		0.19 (4.8)	0.5	15BSS-FNS6-2	
						15BSS-FNS6-2D	
		FNS8		0.19 (4.8)	0.5	15BSS-FNS8-2	
						15BSS-FNS8-2D	
		FH8	6	0.33 (8.3)	2.1	15BSS-FH8-6-2	
						15BSS-FH8-6-2D	
		2FH6		0.2 (5.2)	0.81	15BSS-2FH6-6-2	
						15BSS-2FH6-6-2D	
		2FH9		0.31 (7.9)	1.9	15BSS-2FH9-6-2	
						15BSS-2FH9-6-2D	
		2FH12		0.33 (8.3)	2.1	15BSS-2FH12-6-2	
						15BSS-2FH12-6-2D	
		FNS4		0.33 (8.3)	2.1	15BSS-FNS4-6-2	
						15BSS-FNS4-6-2D	

Part Number Description (continue)

Series	Body Style	Connection Type	Orifice No.	Orifice Size in. (mm)	Rated Cv	Catalog No.	Pressure/Temperature Rating psig (bar) @ Room Temperature
15B	3-way	FNS6	6	0.33 (8.3)	2.1	15BSS-FNS6-6-2	15,000 (1034)
						15BSS-FNS6-6-2D	
		FNS8		0.33 (8.3)	2.1	15BSS-FNS8-6-2	
						15BSS-FNS8-6-2D	
20B	2-way	2FH4		0.11 (2.8)	0.36	20BSS-FH4-1	20,000 (1379)
		2FH6		0.2 (5.2)	1.23	20BSS-FH6-1	
		2FH9		0.25 (6.35)	1.51	20BSS-FH9-1	
		6FH4		0.094 (2.4)	0.26	20BSS-6FH4-1	
		6FH6		0.125 (3.2)	0.47	20BSS-6FH6-1	
		6FH9		0.19 (4.8)	1.05	20BSS-6FH9-1	
		2FH6	6	0.2 (5.2)	1.23	20BSS-FH6-6-1	
		2FH9		0.31 (7.9)	2.93	20BSS-FH9-6-1	
		2FH12		0.375 (9.5)	3.51	20BSS-FH12-6-1	
	3-way	2FH4		0.11 (2.8)	0.17	20BSS-FH4-2	
						20BSS-FH4-2D	
		2FH6		0.19 (4.8)	0.5	20BSS-FH6-2	
						20BSS-FH6-2D	
		2FH9		0.19 (4.8)	0.5	20BSS-FH9-2	
						20BSS-FH9-2D	
		6FH4		0.094 (2.4)	0.13	20BSS-6FH4-2	
						20BSS-6FH4-2D	
		6FH6		0.125 (3.2)	0.22	20BSS-6FH6-2	
						20BSS-6FH6-2D	
		6FH9		0.19 (4.8)	0.5	20BSS-6FH9-2	
						20BSS-6FH9-2D	

15BSS – 2FH6 – 6 – 2

Series	Body Material	Connection	Size	Orifice No.	Body Style
10B	SS 316 SS	For 10B Series	2 1/8"	For 2-way	1 2-Way Straight Valves
15B		FH 15 Series	4 1/4"	1/4"	2 3-Way Valves, 180° Turn
20B		2FH 20 Series	6 3/8"	6 3/8"	2D 3-Way Valves, 90° Turn
		FNS NPT(Female)	8 1/2"	8 1/2"	
		For 15B Series	9 9/16"	For 3-way	
		FH 15 Series	12 3/4"	3/16"	
		2FH 20 Series	16 1"	6 3/8"	
		FNS NPT(Female)		8 1/2"	
		For 20B Series			
		FH 20 Series			
		6FH 60 Series			

Code	O-ring Material	Temperature Range
	Fluorocarbon FKM	0 to 400°F (-17.8 to 204°C)
N	NBR	-40 to 250°F (-40 to 121°C)
K	Kalrez	-40 to 500°F (-40 to 260°C)
E	EPDM	-50 to 300°F (-45 to 148°C)

Options: O-ring
Fluorocarbon FKM is standard. For other materials, add a material code to the valve ordering number. Example: 15BSS-2FH6-6-2-K

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.