

Bar Stock Ball Valves

BV1-BV8 Series



Bar Stock Ball Valves

BV1 Series



- ❖ Maximum working pressure up to 6000 psig (413 bar)
- ❖ Working temperature from -65°F to 450°F (-54°C to 232°C)
- ❖ 2-way, 3-way and angle flow pattern
- ❖ Field repairable with seal kit
- ❖ 316 stainless steel, brass and alloy body material
- ❖ Variety of end connections

Features

- ❖ Maximum working pressure up to 6000 psig (413 bar)
- ❖ Working temperature from -65°F to 450°F (-54°C to 232°C)
- ❖ 2-way, 3-way and angle flow pattern
- ❖ Field repairable with seal kit
- ❖ Low operating torque
- ❖ Panel mountable
- ❖ 316 stainless steel, brass and alloy body material
- ❖ Variety of end connections
- ❖ Color coded handles

Pressure vs. Temperature

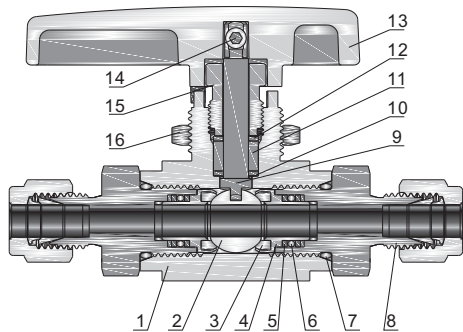
Body Material	316 S.S.			Brass
Seat Material	PEEK	PCTFE	PTFE	PTFE
Temperature, °F (°C)	Working Pressure, psig(bar)			
-65 (-54) to 100 (37)	6000 (413)	6000 (413)	1500 (103)	1500 (103)
200 (93)	5000 (344)	2000 (137)	750 (151)	750 (151)
250 (121)	4100 (282)	—	—	—
300 (148)	3200 (220)	—	—	—
350 (176)	2300 (158)	—	—	—
400 (204)	1400 (96.5)	—	—	—
450 (232)	500 (34.4)	—	—	—

Temperature Ranges

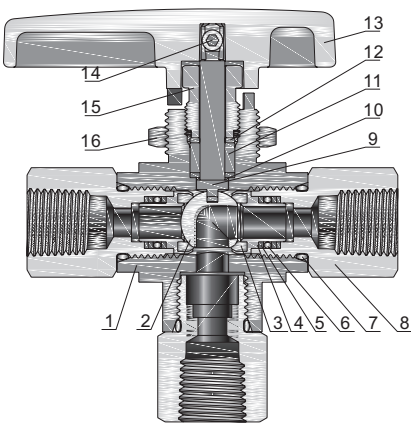
Packing Materials	Temperature Range °F (°C)
PTFE	-40 to 450 (-40 to 232)
Buna-N	-40 to 250 (-40 to 121)
Fluorocarbon FKM	-10 to 400 (-23 to 204)
Neoprene	-40 to 250 (-40 to 121)

Standard Materials of Construction

2-way Vavles



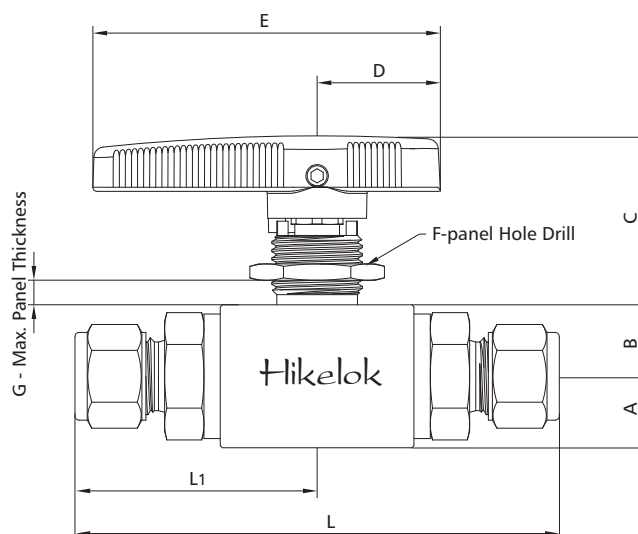
3-way Valves



Item	Component	Material Grade/ASTM Specification
		316 S.S.
1	Body	316 S.S./A479
2	Ball	316 S.S./A479
3	Seat	PEEK or PCTFE or PTFE
4	Seat Retainer	316 S.S./A479
5	Back Up Ring	PTFE/D1710
6	O-Ring	Fluorocarbon FKM
7	O-Ring	Fluorocarbon FKM
8	Conector	316 S.S./A479
9	Stem	316 S.S./A479
10	Stem Washer	PTFE/D1710
11	Packing	PTFE or Fluorocarbon FKM or Neoprene or Buna N
12	Packing Washer	316 S.S./A479
13	Handle	Aluminum
14	Screw	304 S.S.
15	Stem Bolt	316 S.S./A479
16	Nut	316 S.S./A479

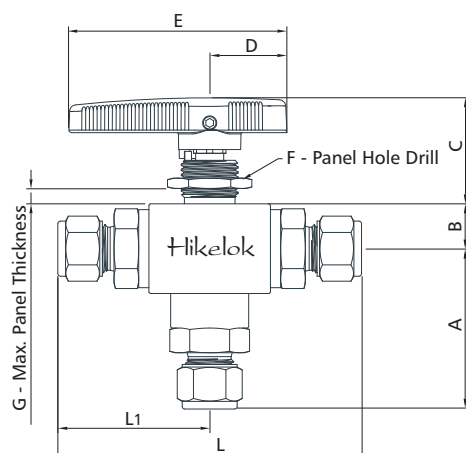
Dimensions

2-way Vavles



Basic Ordering Number	Connection Type and Size	Orifice in. (mm)	Cv	Dimension, in. (mm)																						
				L	L1	A	B	C	D	E	F	G														
BV1-F1-01-	1/16" Hikelok	0.093 (2.4)	0.21	2.60 (66.0)	1.30 (33.0)	0.33 (8.4)	0.33 (8.4)	1.00 (25.4)	1.16 (29.5)	1.88 (47.8)	0.58 (14.7)	0.18 (4.6)														
BV1-F2-02-	1/8" Hikelok			2.72 (69.1)	1.36 (34.5)																					
BV1-M3-02-	3 mm Hikelok			2.74 (69.6)	1.37 (34.8)																					
BV1-FBT2-04-	1/8 Female BSPT	0.165 (4.2)	0.93	2.14 (54.4)	1.07 (27.2)								0.42 (10.7)	0.47 (11.9)	1.48 (37.5)	0.75 (19.05)	2.52 (64.0)	0.77 (19.6)	0.25 (6.4)							
BV1-FBP2-04-	1/8 Female BSPP			2.36 (60.0)	1.18 (30.0)																					
BV1-FNPT2-04-	1/8 Female NPT																									
BV1-MBT2-04-	1/8 Male BSPT			2.70 (68.6)	1.35 (34.3)																					
BV1-MBP2-04-	1/8 Male BSPP																									
BV1-NPT2-04-	1/8 Male NPT																									
BV1-MBT4-04-	1/4 Male BSPT																									
BV1-MBP4-04-	1/4 Male BSPP																									
BV1-NPT4-04-	1/4 Male NPT																									
BV1-F4-05-	1/4" Hikelok	0.187 (4.7)	1.05	3.48 (88.4)	1.74 (44.2)															0.69 (17.5)	0.70 (17.8)	1.71 (43.5)	1.42 (36.0)	4.0 (101.6)	0.90 (22.9)	0.38 (9.7)
BV1-M6-05-	6 mm Hikelok			3.50 (89.0)	1.75 (44.5)																					
BV1-F6-06-	3/8" Hikelok	0.250 (6.4)	2.34	3.60 (91.4)	1.80 (45.7)	0.69 (17.5)	0.70 (17.8)	1.71 (43.5)	1.42 (36.0)	4.0 (101.6)	0.90 (22.9)	0.38 (9.7)														
BV1-M8-06-	8 mm Hikelok			3.56 (90.4)	1.78 (45.2)																					
BV1-M10-06-	10 mm Hikelok			3.62 (92.0)	1.81 (46.0)																					
BV1-FBT4-06-	1/4 Female BSPT			3.02 (76.8)	1.51 (38.4)																					
BV1-FBP4-06-	1/4 Female BSPP																									
BV1-FNPT4-06-	1/4 Female NPT																									
BV1-MBT4-06-	1/4 Male BSPT			3.24 (82.2)	1.62 (41.1)																					
BV1-MBP4-06-	1/4 Male BSPP																									
BV1-NPT4-06-	1/4 Male NPT																									
BV1-MBT6-06-	3/8 Male BSPT																									
BV1-MBP6-06-	3/8 Male BSPP																									
BV1-NPT6-06-	3/8 Male NPT																									
BV1-F8-10-	1/2 " Hikelok	0.406 (10.3)	6.42	4.68 (118.8)	2.34 (59.4)								0.69 (17.5)	0.70 (17.8)	1.71 (43.5)	1.42 (36.0)	4.0 (101.6)	0.90 (22.9)	0.38 (9.7)							
BV1-M12-10-	12 mm Hikelok			4.66 (118.4)	2.33 (59.2)																					
BV1-M14-10-	14 mm Hikelok																									
BV1-M16-10-	16 mm Hikelok																									
BV1-M18-10-	18 mm Hikelok																									
BV1-FBT6-10-	3/8 Female BSPT			3.90 (99.0)	1.95 (49.5)	0.69 (17.5)	0.70 (17.8)																			
BV1-FBP6-10-	3/8 Female BSPP																									
BV1-FNPT6-10-	3/8 Female NPT																									
BV1-FBT8-10-	1/2 Female BSPT			4.30 (109.2)	2.15 (54.6)																					
BV1-FBP8-10-	1/2 Female BSPP																									
BV1-FNPT8-10-	1/2 Female NPT																									
BV1-MBT8-10-	1/2 Male BSPT			4.44 (112.8)	2.22 (56.4)																					
BV1-MBP8-10-	1/2 Male BSPP																									
BV1-NPT8-10-	1/2 Male NPT																									
BV1-F12-13-	3/4 " Hikelok	0.50 (12.7)	10.0	4.80 (122)	2.15 (61)	0.75 (19.0)	0.75 (19.0)	1.78 (45.2)	1.58 (40.0)	4.58 (116.2)	1.26 (32.0)	0.38 (9.7)														
BV1-M20-13-	20 mm Hikelok			4.12 (105)	2.06 (52.3)																					
BV1-M22-13-	22 mm Hikelok																									
BV1-FBT12-13-	3/4 Female BSPT			4.0 (101.6)	2.0 (50.8)																					
BV1-FBP12-13-	3/4 Female BSPP																									
BV1-FNPT12-13-	3/4 Female NPT																									
BV1-MBT12-13-	3/4 Male BSPT			4.57 (116)	2.28 (58.0)																					
BV1-MBP12-13-	3/4 Male BSPP																									
BV1-NPT12-13-	3/4 Male NPT																									

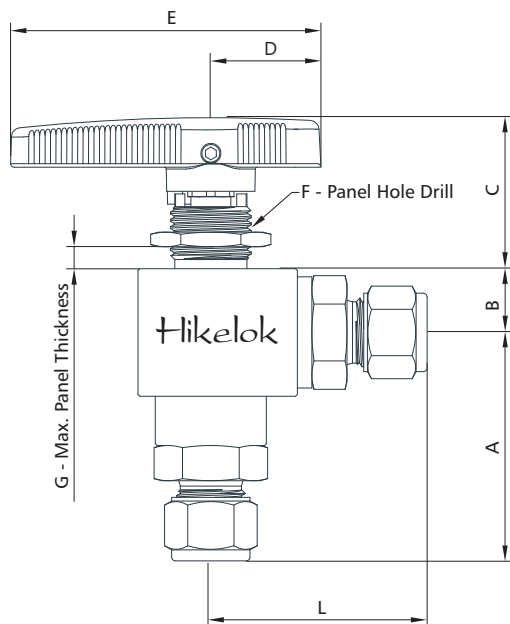
3-way Valves



Basic Ordering Number	Connection type and size	Orifice in. (mm)	Cv	Dimension, in. (mm)								
				L	L1	A	B	C	D	E	F	G
BV1-F1-01-3-	1/16" Hikelok	0.093 (2.4)	0.21	2.60 (66.0)	1.30 (33.0)	1.39 (35.3)						
BV1-F2-02-3-	1/8" Hikelok			2.72 (69.1)	1.36 (34.5)							
BV1-M3-02-3-	3 mm Hikelok			2.74 (69.6)	1.37 (34.8)							
BV1-FBT2-04-3-	1/8 Female BSPT	0.165(4.2)	0.93	2.14 (54.4)	1.07 (27.2)	1.15 (29.2)	0.33 (8.4)	1.00 (25.4)	1.16 (29.5)	1.88 (47.8)	0.58 (14.7)	0.18 (4.6)
BV1-FBP2-04-3-	1/8 Female BSPP											
BV1-FNPT2-04-3-	1/8 Female NPT											
BV1-MBT2-04-3-	1/8 Male BSPT			2.36 (60.0)	1.18 (30.0)	1.26 (32.0)						
BV1-MBP2-04-3-	1/8 Male BSPP											
BV1-NPT2-04-3-	1/8 Male NPT			2.70 (68.6)	1.35 (34.3)	1.43 (36.3)						
BV1-MBT4-04-3-	1/4 Male BSPT											
BV1-MBP4-04-3-	1/4 Male BSPP											
BV1-NPT4-04-3-	1/4 Male NPT											
BV1-F4-05-3-	1/4 " Hikelok			0.187 (4.7)	1.05	3.48 (88.4)						
BV1-M6-05-3-	6 mm Hikelok	3.50 (89.0)	1.75 (44.5)			1.88 (47.8)						
BV1-F6-06-3-	3/8" Hikelok	0.250(6.4)	2.34	3.60 (91.4)	1.80 (45.7)	1.94 (49.3)	0.47 (11.9)	1.48 (37.5)	0.75 (19.1)	2.52 (64.0)	0.77 (19.6)	0.25 (6.4)
BV1-M8-06-3-	8 mm Hikelok			3.56 (90.4)	1.78 (45.2)	1.91 (48.5)						
BV1-M10-06-3-	10 mm Hikelok			3.62 (92.0)	1.81 (46.0)	1.95 (49.5)						
BV1-FBT4-06-3-	1/4 Female BSPT			3.02 (76.8)	1.51 (38.4)	1.65 (41.9)						
BV1-FBP4-06-3-	1/4 Female BSPP											
BV1-FNPT4-06-3-	1/4 Female NPT											
BV1-MBT4-06-3-	1/4 Male BSPT											
BV1-MBP4-06-3-	1/4 Male BSPP			3.24 (82.2)	1.62 (41.1)	1.76 (44.7)						
BV1-NPT4-06-3-	1/4 Male NPT											
BV1-MBT6-06-3-	3/8 Male BSPT											
BV1-MBP6-06-3-	3/8 Male BSPP											
BV1-NPT6-06-3-	3/8 Male NPT											

Basic Ordering Number	Connection type and size	Orifice in. (mm)	Cv	Dimension, in. (mm)											
	Connection 1			Connection 2/3	L	L1	A	B	C	D	E	F	G		
BV1-F8-10-3-	1/2" Hikelok	0.406 (10.3)	6.42	4.68 (118.8)	2.34(59.4)	2.68(68.0)	0.70 (17.8)	1.71 (43.5)	1.42 (36.0)	4.00 (101.6)	0.90 (22.9)	0.38 (9.7)			
BV1-M12-10-3-	12 mm Hikelok			4.66(118.4)	2.33 (59.2)	2.67 (67.8)									
BV1-M14-10-3-	14 mm Hikelok														
BV1-M16-10-3-	16 mm Hikelok														
BV1-M18-10-3-	18 mm Hikelok			3.90 (99.0)	1.95 (49.5)	2.29 (58.2)									
BV1-FBT6-10-3-	3/8 Female BSPT														
BV1-FBP6-10-3-	3/8 Female BSPP														
BV1-FNPT6-10-3-	3/8 Female NPT			4.30 (109.2)	2.15 (54.6)	2.49 (63.2)									
BV1-FBT8-10-3-	1/2 Female BSPT														
BV1-FBP8-10-3-	1/2 Female BSPP														
BV1-FNPT8-10-3-	1/2 Female NPT			4.44 (112.8)	2.22 (56.4)	2.59 (65.8)									
BV1-MBT8-10-3-	1/2 Male BSPT														
BV1-MBP8-10-3-	1/2 Male BSPP														
BV1-NPT8-10-3-	1/2 Male NPT			0.50 (12.7)	10.0	4.80 (122)							2.40 (61)	2.69 (68.3)	0.75 (19.0)
BV1-F12-13-3-	3/4" Hikelok	4.12 (105)	2.06 (52.3)			2.35 (59.6)									
BV1-M20-13-3-	20 mm Hikelok														
BV1-M22-13-3-	22 mm Hikelok														
BV1-FBT12-13-3-	3/4 Female BSPT	4.0 (101.6)	2.0 (50.8)			2.28 (58)	4.57 (116)	2.28 (58.0)	2.57 (65.4)						
BV1-FBP12-13-3-	3/4 Female BSPP	4.12 (105)	2.06 (52.3)			2.35 (59.6)									
BV1-FNPT12-13-3-	3/4 Female NPT														
BV1-MBT12-13-3-	3/4 Male BSPT														
BV1-MBP12-13-3-	3/4 Male BSPP	4.57 (116)	2.28 (58.0)			2.57 (65.4)									
BV1-NPT12-13-3-	3/4 Male NPT														

Angle Pattern Valves



Basic Ordering Number	Connection type and size	Orifice in. (mm)	Cv	Dimension, in. (mm)							
				L	A	B	C	D	E	F	G
BV1-F1-01-A-	1/16" Hikelok	0.093 (2.4)	0.21	1.30 (33.0)	1.39 (35.3)						
BV1-F2-02-A-	1/8" Hikelok			1.36 (34.5)							
BV1-M3-02-A-	3 mm Hikelok			1.37 (34.8)							
BV1-FBT2-04-A-	1/8 Female BSPT	0.165 (4.2)	0.93	1.07 (27.2)	1.15 (29.2)	0.33 (8.4)	1.00 (25.4)	1.16 (29.5)	1.88 (47.8)	0.58 (14.7)	0.18 (4.6)
BV1-FBP2-04-A-	1/8 Female BSPP										
BV1-FNPT2-04-A-	1/8 Female NPT										
BV1-MBT2-04-A-	1/8 Male BSPT			1.18 (30.0)	1.26 (32.0)						
BV1-MBP2-04-A-	1/8 Male BSPP										
BV1-NPT2-04-A-	1/8 Male NPT										
BV1-MBT4-04-A-	1/4 Male BSPT			1.35 (34.3)	1.43 (36.3)						
BV1-MBP4-04-A-	1/4 Male BSPP										
BV1-NPT4-04-A-	1/4 Male NPT										
BV1-F4-05-A-	1/4" Hikelok	0.187 (4.7)	1.05	1.74 (44.2)	1.89 (48.0)						
BV1-M6-05-A-	6 mm Hikelok			1.75 (44.5)	1.88 (47.8)						
BV1-F6-06-A-	3/8" Hikelok	0.250 (6.4)	2.34	1.80 (45.7)	1.94 (49.3)	0.47 (11.9)	1.48 (37.5)	0.75 (19.1)	2.52 (64.0)	0.77 (19.6)	0.25 (6.4)
BV1-M8-06-A-	8 mm Hikelok			1.78 (45.2)	1.91 (48.5)						
BV1-M10-06-A-	10 mm Hikelok			1.81 (46.0)	1.95 (49.5)						
BV1-FBT4-06-A-	1/4 Female BSPT			1.51 (38.4)	1.65 (41.9)						
BV1-FBP4-06-A-	1/4 Female BSPP										
BV1-FNPT4-06-A-	1/4 Female NPT										

How to Order

BV1 — **M12** — **FNPT8** — **P10** — **Y3** — **316**

Series	Port 1 Type	Port 1 Size	Port 2/3 Port 2/3 Type Size	Seat Material	Orifice Size	Handle	Flow pattern	Body Material
BV1	FNPT Female NPT	2 1/8 in.	Same as port 1 type and port 2 size If port 2/3 and port 1 are the same, eliminate the port 2/3 designator	P PEEK	02 0.093 in. (2.4 mm)	Black	Straight	316 316 S.S.
	NPT Male NPT	3 3 mm		K PCTFE	03 0.125 in. (3.2 mm)	R Red	A Angle	316L 316L S.S.
	FBT Female BSPT	4 1/4 in.		T PTFE	04 0.165 in. (4.2 mm)	G Green	3 3-way	304 304 S.S.
	MBT Male BSPT	5 5/16 in.			05 0.187 in. (4.7 mm)	L Blue		304L 304L S.S.
	FMS Female ISO 261	6 3/8 in. or 6 mm			06 0.250 in. (6.4 mm)	Y Yellow		A400 Alloy 400
	MS Male ISO 261	10 10 mm			10 0.406 in. (10.3 mm)			BR Brass
	FBP Female BSPP	12 3/4 in. or 12 mm			13 0.5 in. (12.7 mm)			
	MBP Male BSPP	14 14 mm						
	F Fractional Tube Fitting	16 1 in. or 16 mm						
	M Metric Tube Fitting	18 18 mm						
	UGF Nut + Gasket + Bulge Fractional Tube Nipple	20 20 mm						
	UGM Nut + Gasket + Metric Tube Bulge Nipple	22 22 mm						

One-piece Ball Valves

BV2 Series



- ❖ Maximum working pressure: 3000 psig (207 bar)
- ❖ Working temperature: -65°F to 300°F (-54°C to 148°C)
- ❖ One-piece body and one piece seat and packing
- ❖ 2-way (On-Off), 3,5,7-way (Switching), 4,6-way (Crossover) models for service
- ❖ 316 stainless steel, brass and alloy body material
- ❖ End connection size from 1/16" to 1/2" or 3 mm to 12 mm

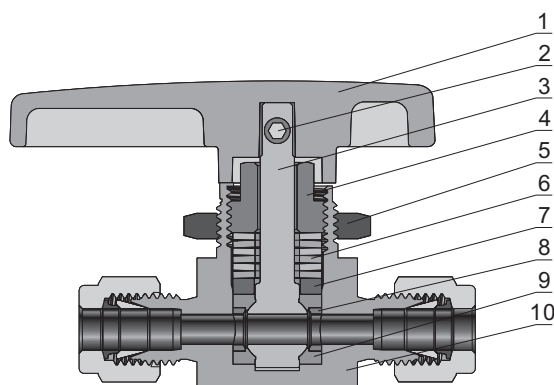
Features

- ❖ Maximum working pressure up to 3000 psig (207 bar)
- ❖ Working temperature: -65°F to 300°F (-54°C to 148°C)
- ❖ 2-way (On-Off), 3,5,7-way (Switching), 4,6-way (Crossover) models for service
- ❖ One-piece body and one piece seat and packing
- ❖ No dead space, easily cleaned and purged
- ❖ Live-loaded packing reduces adjustment
- ❖ Top-loaded design allows adjustment with the valve in-line
- ❖ Handle of different colors available
- ❖ 316 stainless steel, brass and alloy body material
- ❖ End connection size from 1/16" to 1/2" or 3 mm to 12 mm

Pressure vs. Temperature

Body Material	316 S.S.				
Seat Material	Modified PTFE	PTFE	Modified PTFE	Modified PTFE	Modified PTFE
Valve Type	2-way, angle, 3-way	2-way	4, 5, -way	4, 5, -way	6, 7-way
Orifice mm (Ordering Number)	2.4(-02) 3.2(-03) 4.8(-05)	7.1(-07) 10.3(-10)	1.3(-00) 1.6(-01)	7.1(-07) 10.3(-10)	1.3(-00) 1.6(-01)
Temperature, °F (°C)	Working Pressure, psig(bar)				
-65 (-53) to 50 (10)	3000 (207)	1500 (103)	2500 (172)	1500 (103)	500 (34.4)
150 (65)	3000 (207)	1500 (103)	2500 (172)	1500 (103)	500 (34.4)
200 (93)	2800 (193)	—	—	—	—
250 (121)	2650 (182)	—	—	—	—
300 (148)	2500 (172)	—	—	—	—

Standard Materials of Construction

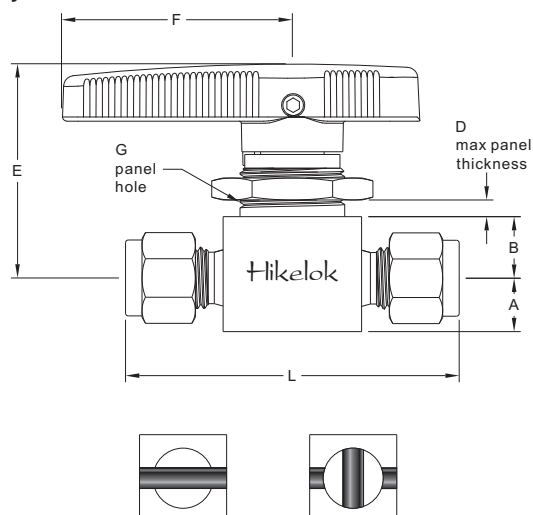


Component		Material Grade/ASTM Specification		
		316 S.S.	Brass	Alloy 400
1	Handle	Aluminum		
2	Screw	S17400 S.S./A564		
3	Ball Stem	316 S.S./A479	Brass CDA 360/B16	Alloy 400/B164
4	Packing Bolt	316 S.S./A479	Brass CDA 360/B16	Alloy R-405/B164
5	Panel Nut	Powdered metal S.S.	Brass CDA 360/B16	Powdered metal S.S.
6	Spring	S17700/A693		
7	Gland	316 S.S./A479	Brass CDA 360/B16	Alloy 400/B164
8	Support Ring	Fluorocarbon-coated powdered metal 316 S.S./B783		Fluorocarbon-coated alloy 400 powdered metal
9	Seat	PTFE/D1710		
10	Body	316 S.S./A479	Brass CDA 360/B16	Alloy 400/B164

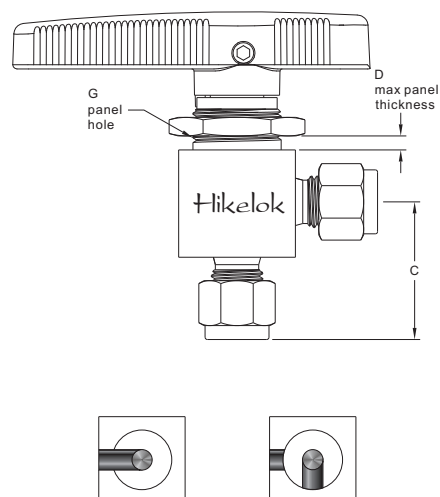
Dimension

On-Off Valves

2-way Valves



Angle Pattern Valves

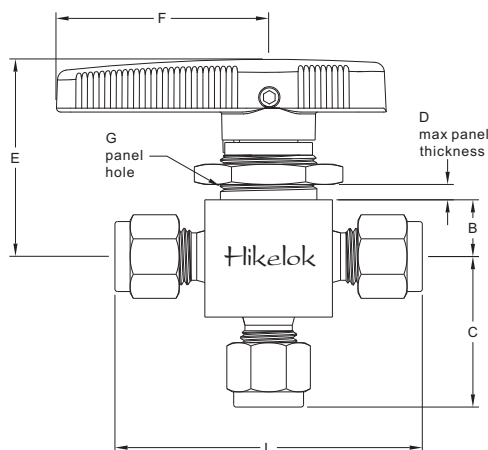


Basic Ordering Number	Connection Type and Size	Orifice in. (mm)	Cv		Dimension, in. (mm)							
			Straight	Angle	L	A	B	C	D	E	F	G
BV2-F1-00-	1/16" Hikelok	0.052 (1.32)	0.10	—	1.68 (42.7)	0.28 (7.1)	0.34 (8.6)	—	1/4 (6.4)	1.36 (34.5)	1.12 (28.4)	19/32 (15.1)
BV2-F2-02-	1/8" Hikelok	0.093 (2.4)	0.20	0.15	2.01 (51.1)			0.97 (24.6)				
BV2-F4-03-	1/4" Hikelok	0.125 (3.2)	0.60	0.35	2.21 (56.1)			1.07 (27.2)				
BV2-F4-05-		0.187 (4.8)	1.40	0.90	2.39 (60.7)	0.38 (9.7)	0.44 (11.2)	1.17 (29.7)	3/16 (4.8)	1.47 (37.3)	1.53 (38.9)	25/32 (19.8)
BV2-F6-05-	3/8" Hikelok				1.50	2.58 (65.5)						
BV2-F6-07-				0.281 (7.1)	6.00	2.00	3.05 (77.5)	0.56 (14.2)	0.56 (14.2)	1.43 (36.3)	3/8 (9.5)	2.07 (52.6)
BV2-F8-10-	1/2" Hikelok	0.406 (10.3)	12.00	4.60	3.92 (99.6)	0.69 (17.5)	0.69 (17.5)	1.74 (44.2)	2.43 (61.7)	3.00 (76.2)		1 1/2 (38.1)
BV2-F12-10-	3/4" Hikelok		6.40	3.80								
BV2-M3-02-	3 mm Hikelok	0.093 (2.4)	0.20	0.15	2.01 (51.1)	0.28 (7.1)	0.34 (8.6)	0.97 (24.6)	1/4 (6.4)	1.36 (34.5)	1.36 (34.5)	19/32 (15.1)
BV2-M6-03-	6 mm Hikelok	0.125 (3.2)	0.60	0.35	2.21 (56.1)			1.07 (27.2)				
BV2-M6-05-		0.187 (4.8)	1.40	0.90	2.39 (60.7)			0.38 (9.7)				
BV2-M8-05-	8 mm Hikelok		1.50		2.46 (62.5)			1.20 (30.5)				
BV2-M10-07-	10 mm Hikelok	0.281 (7.1)	6.00	2.00	3.07 (78.0)	0.56 (14.2)	0.56 (14.2)	1.43 (36.3)	3/8 (9.5)	2.07 (52.6)	2.07 (52.6)	1 1/8 (28.6)
BV2-M12-10-	12 mm Hikelok	0.406 (10.3)	12.00	4.60	3.92 (99.6)	0.69 (17.5)	0.69 (17.5)	1.74 (44.2)		2.43 (61.7)	2.43 (61.7)	1 1/2 (38.1)

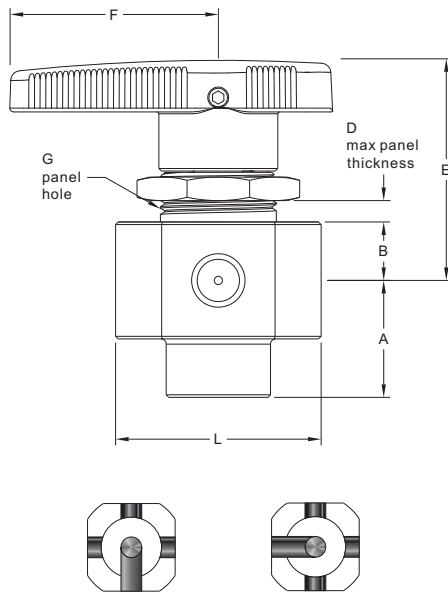
Basic Ordering Number	Connection Type and Size	Orifice in. (mm)	Cv		Dimension, in. (mm)							
			Straight	Angle	L	A	B	C	D	E	F	G
BV2-FNPT2-03-	1/8 Female NPT	0.125 (3.2)	0.50	0.30	1.63 (41.4)	0.28 (7.1)	0.34 (8.6)	0.81 (20.6)	1/4 (6.4)	1.36 (34.5)	1.12 (28.4)	19/32 (15.1)
BV2-FNPT2-05-		0.187 (4.8)	1.20	0.70	2.0 (50.8)	0.38 (9.7)	0.44 (11.2)	1.0 (25.4)	3/16 (4.8)	1.47 (37.3)	1.53 (38.9)	25/32 (19.8)
BV2-FNPT4-05-	1/4 Female NPT		0.90	0.75	2.06 (52.3)			1.03 (26.2)				
BV2-FNPT4-07-		3/8 Female NPT	0.281 (7.1)	3.00	1.70	2.50 (63.5)	0.56 (14.2)	0.56 (14.2)	1.25 (31.8)	3/8 (9.5)	2.07 (52.6)	2.00 (50.8)
BV2-FNPT6-07-	2.60			1.50					2.43 (61.7)		3.00 (76.2)	1 1/2 (38.1)
BV2-FNPT8-10-	1/2 Female NPT	0.406 (10.3)	6.30	3.50	3.12 (79.2)	0.69 (17.5)	0.69 (17.5)	1.56 (39.6)				
BV2-NPT4-05-	1/4 Male NPT	0.187 (4.8)	1.20	0.75	2.00 (50.8)	0.38 (9.7)	0.44 (11.2)	1.03 (26.2)	3/16 (4.8)	1.47 (37.3)	1.53 (38.9)	25/32 (19.8)
BV2-FBT4-05-	1/4 Female ISO Tapered		0.90		2.06 (52.3)							
BV2-FBT6-07-	3/8 Female ISO Tapered	0.281 (7.1)	2.60	—	2.50 (63.5)	0.56 (14.2)	0.56 (14.2)	—	3/8 (9.5)	2.07 (52.6)	2.00 (50.8)	1 1/8 (28.6)
BV2-FBT8-10-	1/2 Female ISO Tapered	0.406 (10.3)	6.30		3.12 (79.2)	0.69 (17.5)	0.69 (17.5)			2.43 (61.7)	3.00 (76.2)	1 1/2 (38.1)
BV2-NPT4-F4-05-	1/4 Male NPT to 1/4" Hikelok	0.187 (4.8)	1.60	0.75	2.20 (55.9)	0.38 (9.7)	0.44 (11.2)	1.03 (26.2)	3/16 (4.8)	1.47 (37.3)	1.53 (38.9)	25/32 (19.8)
BV2-OFS4-03-	1/4" Male OFS	0.125 (3.2)	0.60	0.35	1.75 (44.4)	0.38 (9.7)	0.44 (11.2)	0.94 (23.9)	1/8 (3.2)	1.36 (34.5)	1.12 (28.4)	19/32 (15.1)
BV2-OFS4-05-		0.187 (4.8)	2.40	0.90	1.88 (47.8)				3/16 (4.8)	1.47 (37.3)	1.53 (38.9)	25/32 (19.8)
BV2-GFS4-03-	1/4" Male GFS	0.125 (3.2)	0.60	0.35	2.13 (54.1)			1.09 (27.7)	1/8 (3.2)	1.36 (34.5)	1.12 (28.4)	19/32 (15.1)
BV2-GFS4-05-		0.187 (4.8)	2.40	0.90					3/16 (4.8)	1.47 (37.3)	1.53 (38.9)	25/32 (19.8)
BV2-GFS8-07-	1/2" Male GFS	0.281 (7.1)	6.00	—	2.88 (73.2)	0.56 (14.2)		—	3/8 (9.5)	2.07 (52.6)	2.00 (50.8)	1 1/8 (28.6)
BV2-GFS8-10-		0.406 (10.3)	12.00		3.12 (79.2)	0.69 (17.5)				2.43 (61.7)	3.00 (76.2)	1 1/2 (38.1)

Switching Valves

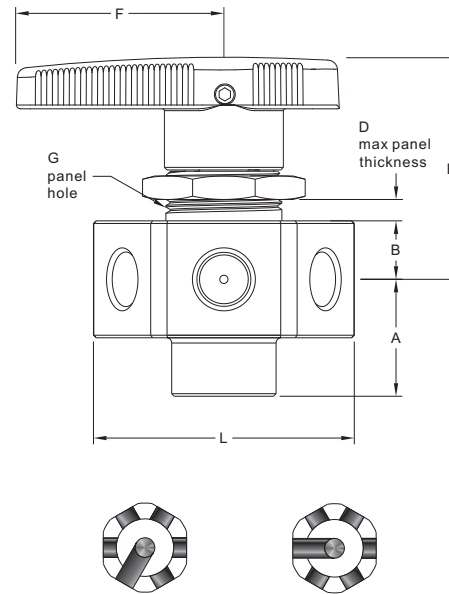
3-way Valve



5- Valve

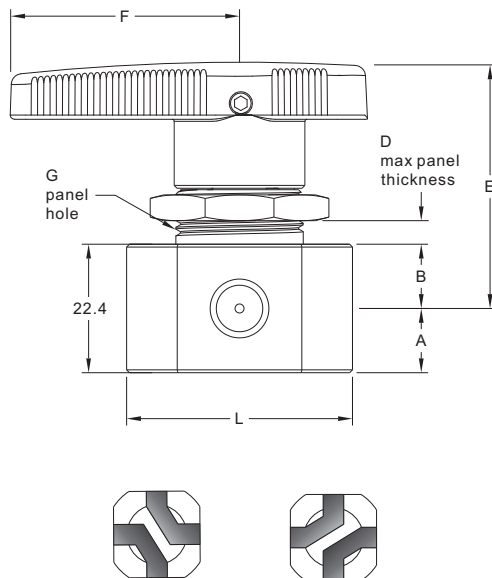


7-way Valve

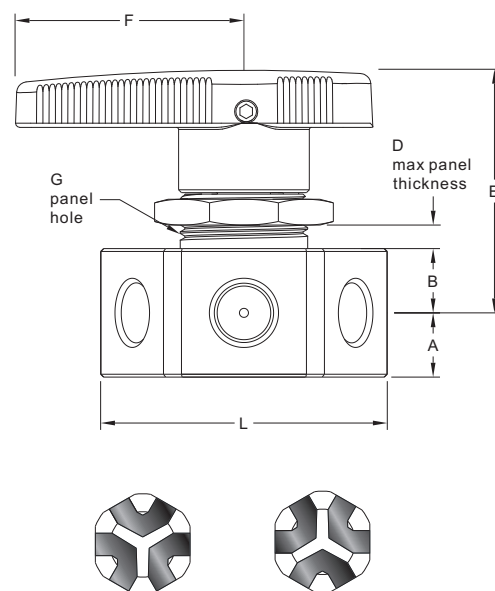


Crossover Valves

4-way Valve



6-way Valve



Basic Ordering Number	Connection Type and Size	Orifice in. (mm)	Cv	Dimension, in. (mm)							
				L	A	B	C	D	E	F	
	3-way valve										
BV2-F1-00-3-	1/16" Hikelok	0.052 (1.32)	0.08	1.68 (42.7)	0.81 (20.6)	0.34 (8.6)	1/4 (6.4)	1.36 (34.5)	1.13 (28.7)	19/32 (15.1)	
BV2-F2-02-3-	1/8" Hikelok	0.093 (2.4)	0.15	2.01 (51.1)	0.97 (24.6)						
BV2-F4-03-3-	1/4" Hikelok	0.125 (3.2)	0.35	2.21 (56.1)	1.07 (27.2)						
BV2-F4-05-3-		0.187 (4.8)	0.90	2.39 (60.7)	1.17 (29.7)	0.44 (11.2)	3/16 (4.8)	1.47 (37.3)	1.53 (38.9)	25/32 (19.8)	
BV2-F6-07-3-	3/8" Hikelok	0.281 (7.1)	2.00	2.89 (73.4)	1.43 (36.3)	0.56 (14.2)	3/8 (9.5)	2.07 (52.6)	2.00 (50.8)	1 1/8 (28.6)	
BV2-F8-10-3-	1/2" Hikelok	0.406 (10.3)	4.60	3.48 (88.4)	1.74 (44.2)	0.69 (17.5)		2.43 (61.7)	3.00 (76.2)	1 1/2 (38.1)	
BV2-F12-10-3-	3/4" Hikelok		4.90								
BV2-M3-02-3-	3 mm Hikelok	0.093 (2.4)	0.15	2.01 (51.1)	0.97 (24.6)	0.34 (8.6)	1/4 (6.4)	1.36 (34.5)	1.13 (28.7)	19/32 (15.1)	
BV2-M6-03-3-	6 mm Hikelok	0.125 (3.2)	0.35	2.21 (56.1)	1.07 (27.2)						
BV2-M6-05-3-		0.187 (4.8)	0.90	2.39 (60.7)	1.17 (29.7)						0.44 (11.2)
BV2-M8-05-3-	8 mm Hikelok		0.80	2.46 (62.5)	1.20 (30.5)						
BV2-M10-07-3-	10 mm Hikelok	0.281 (7.1)	2.00	2.89 (73.4)	1.43 (36.3)	0.56 (14.2)	3/8 (9.5)	2.07 (52.6)	2.00 (50.8)	1 1/8 (28.6)	
BV2-M12-07-3-	12 mm Hikelok	0.406 (10.3)	4.60	3.48 (88.4)	1.74 (44.2)	0.69 (17.5)		2.43 (61.7)	3.00 (76.2)	1 1/2 (38.1)	
BV2-FNPT2-03-3-	1/8 Female NPT	0.125 (3.2)	0.30	1.63 (41.4)	0.81 (20.6)	0.34 (8.6)	1/4 (6.4)	1.36 (34.5)	1.13 (28.7)	19/32 (15.1)	
BV2-FNPT4-05-3-	1/4 Female NPT	0.187 (4.8)	0.75	2.06 (52.3)	1.03 (26.2)	0.44 (11.2)	3/16 (4.8)	1.47 (37.3)	1.53 (38.9)	25/32 (19.8)	
BV2-FNPT4-07-3-		0.281 (7.1)	1.70	2.50 (63.5)	1.25 (31.8)	0.56 (14.2)	3/8 (9.5)	2.07 (52.6)	2.00 (50.8)	1 1/8 (28.6)	
BV2-FNPT6-07-3-	3/8 Female NPT		1.50								
BV2-FNPT8-10-3-	1/2 Female NPT	0.406 (10.3)	3.50	3.13 (79.5)	1.56 (39.6)	0.69 (17.5)	3/8 (9.5)	2.43 (61.7)	3.00 (76.2)	1 1/2 (38.1)	
BV2-FBT4-05-3-	1/4 Female BSPT	0.187 (4.8)	0.75	2.06 (52.3)	1.03 (26.2)	0.44 (11.2)		3/16 (4.8)	1.47 (37.3)	1.53 (38.9)	25/32 (19.8)
BV2-FBT6-07-3-	3/8 Female BSPT	0.281 (7.1)	1.50	2.50 (63.5)	1.25 (31.8)	0.56 (14.2)		3/8 (9.5)	2.07 (52.6)	2.00 (50.8)	1 1/8 (28.6)
BV2-FBT8-10-3-	1/2 Female BSPT	0.406 (10.3)	3.50	3.13 (79.5)	1.56 (39.6)	0.69 (17.5)	2.43 (61.7)		3.00 (76.2)	1 1/2 (38.1)	
4,5-way valve											
BV2-F2-01-4-	1/8" Hikelok	0.062 (1.6)	0.07	1.94 (49.3)	0.97 (24.6)	0.44 (11.2)	5/32 (4.1)	1.69 (42.9)	1.53 (38.9)	29/32 (23.1)	
BV2-F2-01-5-											
BV2-FNPT2-01-4-	1/8 Female NPT	0.062 (1.6)	0.07	1.55 (39.4)	0.88 (22.4)						
BV2-FNPT2-01-5-											
BV2-FNPT8-10-4-	1/2 Female NPT	0.406 (10.3)	3.50	3.13 (79.5)	1.56 (39.6)	0.69 (17.5)	3/8 (9.7)	2.43 (61.7)	3.00 (76.0)	1 1/2 (38.1)	
BV2-FNPT8-10-5-											
6,7-way valve											
BV2-F1-00-6-	1/16" Hikelok	0.052 (1.3)	0.05	1.94 (49.3)	0.97 (24.6)	0.44 (11.2)	5/32 (4.1)	1.69 (42.9)	1.53 (38.9)	29/32 (23.1)	
BV2-F1-00-7-											
BV2-F2-01-6-	1/8" Hikelok	0.062 (1.6)	0.07								
BV2-F2-01-7-											

How to Order

BV2 — M12 — FNPT8 — T10 — Y3 — 316

Series	Port 1 Type	Port 1 Size	Port 2/3 Type	Port 2/3 Size	Seat Material	Orifice Size	Handle	Flow Pattern	Body Material		
BV2	FNPT Female NPT	2 1/8 in.	Same as port 1 type and port 1 size		T PTFE	00 0.052in. (1.32 mm)	Black	Straight	316 316 S.S.		
	NPT Male NPT	3 3 mm				01 0.062in. (1.57 mm)	R Red	A Angle	316L 316L S.S.		
	FBT Female BSPT	4 1/4 in.	If port2/3/4/5/6/7 and port 1 are the same, eliminate the port 2/3/4/5/6/7 designator			02 0.093 in. (2.4 mm)	G Green	3 3-way	304 304 S.S.		
	MBT Male BSPT	5 5/16 in.				03 0.125 in. (3.2 mm)	L Blue	4 4-way	304L 304L S.S.		
	FMS Female ISO 261	6 3/8 in. or 6 mm				04 0.165 in. (4.2 mm)	Y Yellow	5 5-way	A400 Alloy 400		
	MS Male ISO 261	8 1/2 in. or 8 mm						6 6-way	BR Brass		
	FBP Female BSPP	10 10 mm						05 0.187in. (4.7 mm)	06 0.250in. (6.4 mm)	07 0.281in. (7.1 mm)	10 0.406in. (10.3 mm)
	MBP Male BSPP	12 3/4 in. or 12 mm									
	F Fractional Tube Fitting										
	M Metric Tube Fitting										
	GFS Male GFS										

Hex Bar Stock Ball Valves

BV3 Series

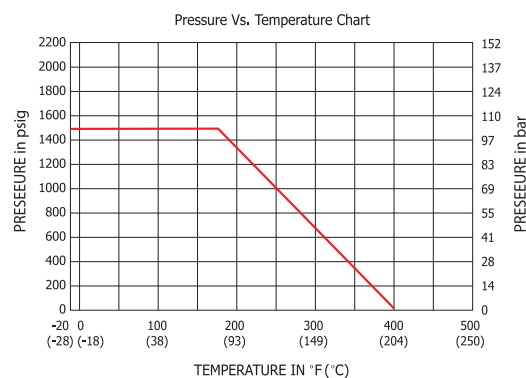


- ❖ Maximum working pressure: 1500 psig (103.4 bar)
- ❖ Working temperature: -30°F to 400°F (-34°C to 204°C)
- ❖ 316 stainless steel and steel body material
- ❖ Variety of end connections

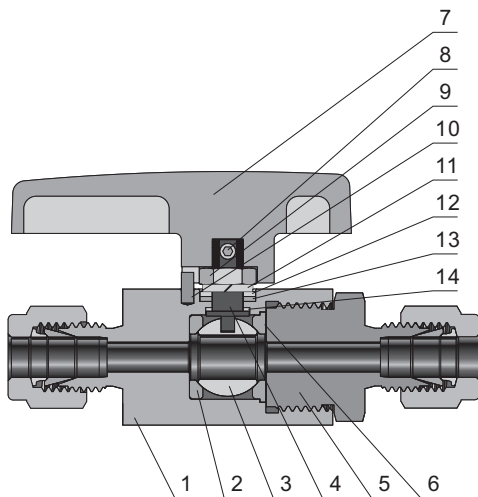
Features

- ❖ Maximum working pressure: 1500 psig (103.4 bar)
- ❖ Working temperature: -30°F to 400°F (-34°C to 204°C)
- ❖ Compact and economical design
- ❖ Free floating ball design for seat wear compensation
- ❖ Bi-directional flow
- ❖ Blowout proof stem
- ❖ Options for handle color

Pressure vs. Temperature

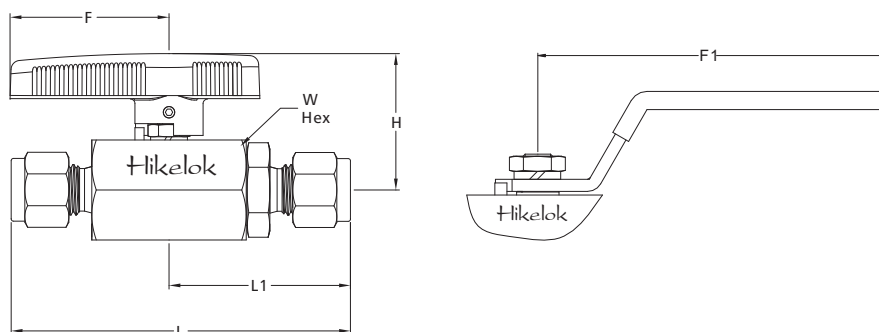


Standard Materials of Construction



Item	Component	Material Grade/ASTM Specification		
		316 S.S.	304 S.S.	Brass
1	Body	316 S.S./A276	304 S.S./A276	Brass/B16
2	Seat	PTFE/D1710		
3	Ball	316 S.S./A276		
4	Stem	316 S.S./A276		
5	Connector	316 S.S./A276	304 S.S./A276	Brass/B16
6	Seat	PTFE/D1710		
7	Handle	Aluminum		
8	Screw	S17400/A564		
9	Nut	316 S.S./A194		
10	Pin	304 S.S./A276		
11	Washer	304 S.S.		
12	Gland	316 S.S./A276		
13	Packing	PTFE/D1710		
14	Stem Washer	PTFE/D1710		

Dimensions



Basic Ordering Number	Connection Type and Size	Orifice in. (mm)	Cv	Dimension, in. (mm)								
				L	L1	W	H	F	F1			
BV3-M6-07-	6 mm Hikelok	0.281 (7.1)	2.3	2.63 (66.8)	1.50 (38.1)	3/4 (19.05)	1.18 (30)	1.38 (35.0)	3.22 (82.0)			
BV3-M8-07-	8 mm Hikelok											
BV3-F4-07-	1/4" Hikelok											
BV3-F5-07-	5/16" Hikelok											
BV3-FNPT2-07-	1/8 Female NPT			1.85 (47.0)	1.08 (27.4)	7/8 (22.23)						
BV3-FBP2-07-	1/8 Female BSPP											
BV3-FBP4-07-	1/4 Female BSPP											
BV3-FNPT4-07-	1/4 Female NPT											
BV3-M10-07-	10 mm Hikelok			2.87 (72.9)	1.68 (42.7)	15/16 (24.0)						
BV3-F6-07-	3/8" Hikelok											
BV3-FBP6-07-	3/8 Female BSPP											
BV3-FNPT6-07-	3/8 Female NPT											
BV3-M12-09-	12 mm Hikelok	0.354 (9.0)	6.4	3.15 (80.0)	1.83 (46.5)	1.54 (39)	1.65 (42.0)	3.22 (82.0)				
BV3-F8-09-	5/8" Hikelok											
BV3-F10-09-	5/8" Hikelok											
BV3-FBP8-09-	1/2 Female BSPP			2.05 (52.1)	1.12 (28.5)							
BV3-FNPT8-09-	1/2 Female NPT											

❖ If working pressure up to 6,000 psi, please refer to BV36 series.
If working pressure up to 10,000 psi, please refer to BV31 series.

How to Order

BV3 — M12 — FNPT8 — T09 — LL — 316

Series	Inlet Type	Inlet Size	Outlet Type	Outlet Size	Seat Material	Orifice Size	Handle	Body Material
BV3	FNPT Female NPT	2 1/8 in.	Same as inlet type and inlet size		T PTFE	07 0.281 in. (7.1mm)	Black Aluminium Directional Handle (ADH)	316 316 S.S.
	NPT Male NPT	3 3 mm				09 0.354 in (9.0mm)		316L 316L S.S.
	FBT Female BSPT	4 1/4 in.				13 0.5 in. (12.7 mm)		304 304 S.S.
	MBT Male BSPT	5 5/16 in.	If outlet and inlet are the same, eliminate the outlet designator			15 0.59 in (15.0mm)	R1 Red ADH	304L 304L S.S.
	FMS Female ISO 261	6 3/8 in. or 6 mm				G1 Green ADH		
	MS Male ISO 261	8 1/2 in. or 8 mm				L1 Blue ADH		
	FBP Female BSPP	10 10 mm				Y1 Yelow ADH		
	MBP Male BSPP	12 3/4 in. or 12 mm				BL Black Lever Handle		
	F Fractional Tube Fitting	14 14 mm				RL Red Lever Handle		
	M Metric Tube Fitting	16 1 in. or 16 mm				GL Green Lever Handle		
	UGF Nut + Gasket + Bulge Fractional Tube Nipple	18 18 mm				LL Blue Lever Handle		
		20 11/4 in. or 20 mm				YL Yelow Lever Handle		
		22 22 mm						
	UGM Nut + Gasket + Metric Tube Bulge Nipple	25 1 in. or 25 mm						

Bar Stock Ball Valves

BV4 Series



- ❖ Maximum working pressure: 6000 psig (413 bar)
- ❖ Working temperature: -40°F to 450°F (-40°C to 232°C)
- ❖ 316 stainless steel and steel body material
- ❖ Orifice from 10.3 to 38.1mm
- ❖ Variety of end connections

Features

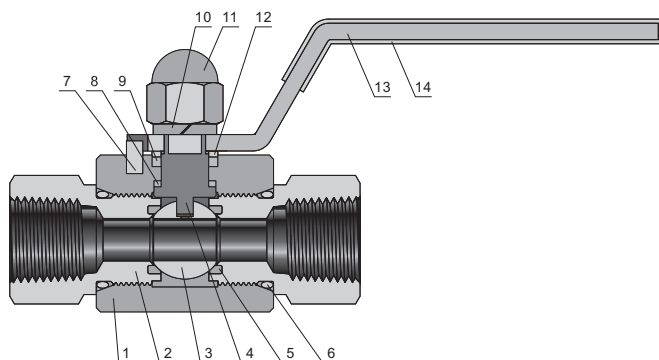
- ❖ Maximum working pressure: 6000 psig (413 bar)
- ❖ Working temperature: -40°F to 450°F (-40°C to 232°C)
- ❖ Bi-directional flow for 2-way valves
- ❖ Seat wear compensation by free floating ball
- ❖ Variety of end connections
- ❖ Blowout proof stem with self-sealing function
- ❖ Handle of different colors available for option
- ❖ Optional pneumatic and electric actuator
- ❖ All wetted components are compatible with hydrogen and compressed natural gas (CNG)

Technical Data

Seat Material	Temperature Range °F (°C)	Pressure Rating at 100 °F (37°C) psig(bar)	
		Stainless Steel	Steel
Orifice: 0.39" (10.0 mm)			
PCTFE, PEEK	-40 to 450 (-40 to 232)	6000(413)	6000(413)
Orifice: 0.5" (12.7 mm) to 0.75" (19.0 mm)			
PCTFE	-40 to 50 (-40 to 11)	6000(413)	5000(344)
PEEK	-40 to 450 (-40 to 232)	6000(413)	5000(344)
PTFE		1500(103)	
Orifice: 1" (25.4 mm) to 1.5" (38.1 mm)			
PCTFE	-40 to 50 (-40 to 11)	4500(310)	4500(310)
PEEK	-40 to 450 (-40 to 232)	4500(310)	4500(310)
PTFE		1500(103)	

Standard Materials of Construction

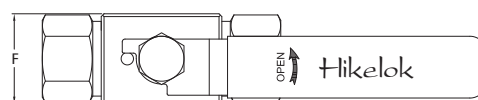
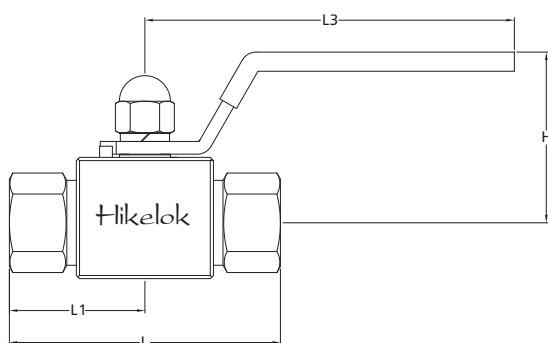
2-way Vavles



Item	Component	Body Material	
		316 S.S.	Steel
1	Body	316 S.S./A479	Alloy 1020/A108
2	End Connector	316 S.S./A276	Alloy 1020/A108
3	Ball	316 S.S./A479	Alloy 1020/A108
4	Stem	316 S.S./A276	
5	Seat	PTFE or PCTFE or PEEK	
6	End Seal	Fluorocarbon FKM or Neoprene or Buna N	
7	Pin	Stainless Steel	
8	Stem Washer	PTFE/D1710	
9	Stem Packing	PTFE/D1710	
10	Spring Washer	Stainless Steel	
11	Nut	Stainless Steel	
12	Gland	316 S.S./A276	
13	Handle	Stainless Steel	
14	Handle sleeve	Vinyl	

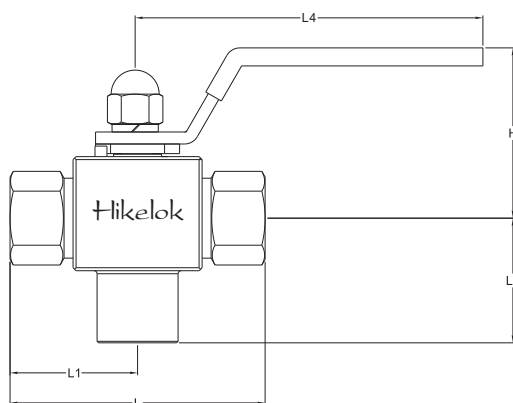
Dimensions

2-way Valves

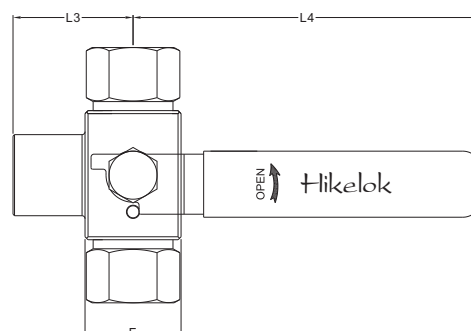


Basic Ordering Number	Connection Type and Size	Orifice in. (mm)	Cv	Dimension, in. (mm)				
				L	L1	L3	H	F
BV4-M6-10-	6 mm Hikelok	0.406 (10.3)	1.2	3.54 (90.0)	1.77 (45.0)	5.12 (130.0)	1.73 (44.0)	1.30 (32.0)
BV4-M8-10-	8 mm Hikelok			3.60 (91.6)	1.80 (45.8)			
BV4-M10-10-	10 mm Hikelok		3.7	3.70 (94.0)	1.85 (47.0)			
BV4-M12-10-	12 mm Hikelok		7.5	3.94 (100.0)	1.97 (50.0)			
BV4-M14-10-	14 mm Hikelok							
BV4-F4-10-	1/4" Hikelok		1.2	3.60 (91.6)	1.80 (45.8)			
BV4-F6-10-	3/8" Hikelok		3.7	3.72 (94.6)	1.86 (47.3)			
BV4-F8-10-	1/2" Hikelok		7.5	3.92 (99.6)	1.96 (49.8)			
BV4-FNPT4-10-	1/4 Female NPT			2.52 (64.0)	1.26 (32.0)			
BV4-FNPT6-10-	3/8 Female NPT			2.80 (71.0)	1.40 (35.5)			
BV4-FNPT8-10-	1/2 Female NPT			3.11 (79.0)	1.56 (39.5)			
BV4-NPT4-10-	1/4 Male NPT		3.7	3.36 (85.4)	1.68 (42.7)			
BV4-NPT6-10-	3/8 Male NPT		7.5					
BV4-NPT8-10-	1/2 Male NPT			3.75 (95.2)	1.88 (47.6)			
BV4-24C12-10-	24°O-ring (M18X1.5)							
BV4-M16-13-	16 mm Hikelok	0.5 (12.7)	10.0	4.04 (102.6)	2.02 (51.3)	5.71 (145.0)	1.89 (48.0)	1.50 (38.0)
BV4-M18-13-	18 mm Hikelok			4.12 (104.6)	2.06 (52.3)			
BV4-M20-13-	20 mm Hikelok			4.43 (112.6)	2.22 (56.3)			
BV4-M22-13-	22 mm Hikelok							
BV4-F10-13-	5/8" Hikelok			4.36 (110.6)	2.18 (55.3)			
BV4-F12-13-	3/4" Hikelok							
BV4-FNPT8-13-	1/2 Female NPT			3.54 (90.0)	1.77 (45.0)			
BV4-FNPT12-13-	3/4 Female NPT							
BV4-NPT12-13-	3/4 Male NPT			4.14 (105.2)	2.07 (52.6)			
BV4-24C18-13-	24°O-ring (M26X1.5)							
BV4-M20-19-	20 mm Hikelok	0.71 (19.0)	19.0	4.87 (123.8)	2.43 (61.9)	6.30 (160.0)	2.08 (53.0)	1.96 (50.0)
BV4-M22-19-	22 mm Hikelok		30.0	5.11 (129.8)	2.66 (64.9)			
BV4-M25-19-	25 mm Hikelok		19.0	4.59 (116.6)	2.29 (58.3)			
BV4-F12-19-	3/4" Hikelok		30.0	5.11 (129.8)	2.66 (64.9)			
BV4-F16-19-	1" Hikelok			3.54 (90.0)	1.77 (45.0)			
BV4-FNPT12-19-	3/4 Female NPT			3.86 (98.2)	1.93 (49.1)			
BV4-FNPT16-19-	1 Female NPT		19.0	4.54 (115.2)	2.27 (57.6)			
BV4-NPT12-19-	3/4 Male NPT							
BV4-NPT16-19-	1 Male NPT		30.0	4.91 (124.8)	2.45 (62.4)			
BV4-24C22-19-	24°O-ring(M30X2)							
BV4-24C28-25-	24°O-ring(M36X2)	1 (25.4)	38.0	4.25 (108)	2.13 (54)	6.70 (170.0)	5.28 (134.0)	2.28 (58.0)
BV4-24C35-32-	24°O-ring(M45X2)	1.25 (31.8)	90.0	4.41 (112)	2.21 (56)			
BV4-24C42-40-	24°O-ring(M52X2)	1.5 (38.1)	100.0	4.41 (112)	2.21 (56)			

3-way Valves



Vertical Pattern



Horizontal Pattern

Basic Ordering Number	Connection Type and Size	Orifice	Cv	Dimension, in. (mm)					
		in. (mm)		L	L1	L2	L3	H	F
BV4-M6-10-3-	6 mm Hikelok	0.406 (10.3)	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)
BV4-M8-10-3-	8 mm Hikelok			3.60 (91.6)	1.80 (45.8)	2.02 (51.3)			
BV4-M10-10-3-	10 mm Hikelok			3.70 (94.0)	1.85 (47.0)	2.07 (52.5)			
BV4-M12-10-3-	12 mm Hikelok		3.7	3.94 (100.0)	1.97 (50.0)	2.18 (55.5)			
BV4-M14-10-3-	14 mm Hikelok			3.60 (91.6)	1.80 (45.8)	2.01 (51.3)			
BV4-F4-10-3-	1/4" Hikelok			3.72 (94.6)	1.86 (47.3)	2.16 (54.8)			
BV4P-F6-10-3-	3/8" Hikelok		7.5	3.92 (99.6)	1.96 (49.8)	2.13 (54.0)			
BV4-FNPT4-10-3-	1/4 Female NPT			2.52 (64.0)	1.26 (32.0)	1.44 (36.5)			
BV4-FNPT6-10-3-	3/8 Female NPT			2.80 (71.0)	1.40 (35.5)	1.57 (40.0)			
BV4-FNPT8-10-3-	1/2 Female NPT		3.7	3.11 (79.0)	1.56 (38.5)	1.73 (44.0)			
BV4-NPT4-10-3-	1/4 Male NPT			3.36 (85.4)	1.68 (42.7)	1.90 (48.2)			
BV4-NPT6-10-3-	3/8 Male NPT			3.75 (95.2)	1.88 (47.6)	2.09 (53.1)			
BV4-NPT8-10-3-	1/2 Male NPT		7.5	4.04 (102.6)	2.02 (51.3)	2.41 (61.3)			
BV4-M16-13-3-	16 mm Hikelok			4.12 (104.6)	2.06 (52.3)	2.45 (62.3)			
BV4-M18-13-3-	18 mm Hikelok			4.43 (112.6)	2.22 (56.3)	2.61 (66.3)			
BV4-M20-13-3-	20 mm Hikelok	0.5 (12.7)	10.0	4.36 (110.6)	2.18 (55.3)	2.57 (65.3)	5.71 (145.0)	1.89 (48.0)	1.50 (38.0)
BV4-M22-13-3-	22 mm Hikelok			4.36 (110.6)	2.18 (55.3)	2.57 (65.3)			
BV4P-F10-13-3-	5/8" Hikelok			4.36 (110.6)	2.18 (55.3)	2.57 (65.3)			
BV4-F12-13-3-	3/4" Hikelok			4.36 (110.6)	2.18 (55.3)	2.57 (65.3)			
BV4-FNPT8-13-3-	1/2 Female NPT			3.54 (90.0)	1.77 (45.0)	1.95 (49.5)			
Bv4-FNPT12-13-3-	3/4 Female NPT			3.54 (90.0)	1.77 (45.0)	2.16 (55.0)			
BV4-NPT12-13-3-	3/4 Male NPT			4.14 (105.2)	2.07 (52.6)	2.46 (62.6)			
BV4-M20-19-3-	20 mm Hikelok			4.14 (105.2)	2.07 (52.6)	2.46 (62.6)			
BV4-M22-19-3-	22 mm Hikelok	0.71 (19.0)	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)
BV4-M25-19-3-	25 mm Hikelok			5.11 (129.8)	2.66 (64.9)	3.00 (76.2)			
Bv4-F12-19-3-	3/4" Hikelok			4.59 (116.6)	2.29 (58.3)	2.75 (69.8)			
BV4-F16-19-3-	1" Hikelok		30.0	5.11 (129.8)	2.66 (64.9)	2.85 (72.4)			
BV4-FNPT12-19-3-	3/4 Female NPT			3.54 (90.0)	1.77 (45.0)	2.22 (56.5)			
BV4-FNPT16-19-3-	1 Female NPT			3.86 (98.2)	1.93 (49.1)	2.40 (60.8)			
BV4-NPT12-19-3-	3/4 Male NPT		19.0	4.54 (115.2)	2.27 (57.6)	2.72 (69.1)			
BV4-NPT16-19-3-	1 Male NPT			4.91 (124.8)	2.45 (62.4)	2.90 (73.9)			

❖ If working pressure up to 10,000 psi, please refer to BV41 series.

How to Order

BV4 — **M12** — **FNPT8** — **P10** — **3** — **316**

Series	Port 1 Type	Port 1 Size	Port 2/3 Port Type Size	Seat Material	Orifice Size	Handle	Flow Pattern	Body Material
BV4	FNPT Female NPT	2 1/8 in.	Same as port 1 type and port 1 size	P PEEK	10 0.406 in. (10.3 mm)	Blue	Straight	316 316 S.S.
	NPT Male NPT	3 3 mm		K PCTFE	13 0.5 in. (12.7 mm)	R1 Red	3-way Vertical Pattern	316L 316L S.S.
	FBT Female BSPT	4 1/4 in.	If Port 2/3 and port 1 are the same, eliminate the port 2/3 designator	T PTFE	19 0.75 in. (19.0 mm)	G1 Green	3-way Horizontal Pattern	304 304 S.S.
	MBT Male BSPT	5 5/16 in.		R RPTFE	25 1 in. (25.4 mm)	B1 Black		304L 304L S.S.
	FMS Female ISO 261	6 3/8 in. or 6 mm			32 1.25 in. (31.8 mm)	Y1 Yellow		A400 Alloy 400
	MS Male ISO 261	8 1/2 in. or 8 mm			40 1.5 in. (38.1 mm)	PSC		CS Steel
	FBP Female BSPP	10 10 mm				PSO		
	MBP Male BSPP	12 3/4 in. or 12 mm				PD		
	F Fractional Tube Fitting	14 14 mm				E		
	M Metric Tube Fitting	16 1 in. or 16 mm						
	MSW Metric Tube Socket Weld	18 18 mm						
	FSW Fractional Tube Socket Weld	20 1 1/4 in or 20 mm						
	MBW Metric Tube Butt Weld	22 22 mm						
	FBW Fractional Tube Butt Weld	24 1 1/2 in.						
	PSW Pipe Socket Weld	25 25 mm						
	PBW Pipe Butt Weld	27 M27 x 2						
	UGF Nut + Gasket + Bulge Fractional Tube Nipple	28 28 mm						
	UGM Nut + Gasket + Metric Tube Bulge Nipple	32 2 in. or 32 mm						
	24C 24°C Cone Connection							

❖ Pneumatic Actuators: **PSC** Spring return, normally closed / **PSO** Spring return, normally open / **PD** Double acting

❖ Electric Actuators: **E**

General Application Ball Valves

BV5 Series



- ❖ Maximum working pressure up to 1000 psig (68.9 bar)
- ❖ Working temperature from -20°F to 450°F (-28°C to 232°C)
- ❖ Orifice sizes from 4.8 mm to 50 mm
- ❖ Pneumatic and electric actuation are available

Features

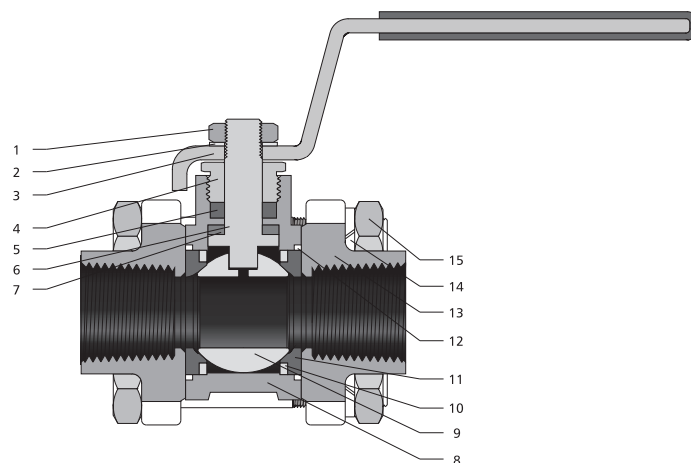
- ❖ Maximum working pressure: 1000 psig (68.9 bar)
- ❖ Working temperature from -20°F to 450°F (-28°C to 232°C)
- ❖ Orifice sizes: 4.8 mm to 50 mm
- ❖ Blowout-proof stem
- ❖ Pneumatic and electric actuation are available

Pressure vs. Temperature

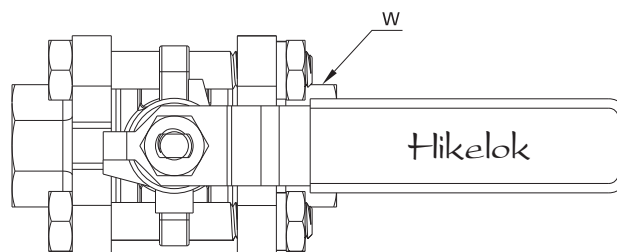
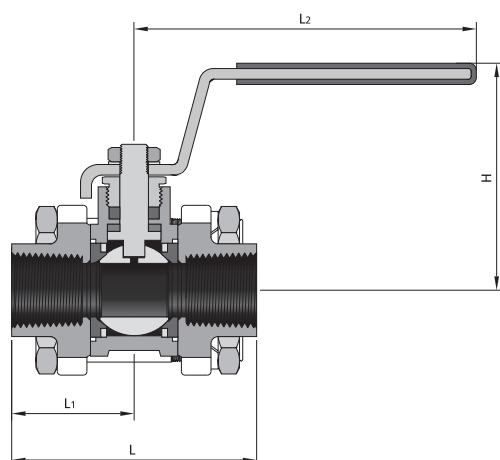
Body Material	CF3M	CF8M	CF3	CF8
Seat Material	PTFE			
Temperature, °F (°C)	Working Pressure, psig(bar)			
-20(-28) to 100 (37)	1000 (68.9)			
150 (65)	1000 (68.9)			
200 (93)	1000 (68.9)			
250 (121)	1000 (68.9)			
300 (148)	800 (55.1)			
350 (176)	560 (38.5)			
400 (204)	330 (22.7)			
450 (232)	100 (6.8)			

Standard Materials of Construction

Item	Component	Valve Body Material			
		CF8M/ A351	CF3M/ A351	CF8/ A351	CF3/ A351
1	Stem Nut	Gr. 8M/A194			
2	Gasket	304 S.S.			
3	Handle	304 S.S./A240 (with vinyl sleeve)			
4	Gland	316 S.S./A479 or 304 S.S./A479			
5	Stem Packing	Graphite			
6	Stem	316 S.S./A479			
7	Stem Bearing	Graphite			
8	Body	CF8M/A351	CF3M/A351	CF8/A351	CF3/A351
9	Body Bolt	Gr. B8M/A193			
10	Ball	316 S.S./A479			
11	Support Ring	316 S.S./A479			
12	Seat	PTFE/D1710			
13	Flange Seal	PTFE/D1710			
14	Flange	CF8M/A351	CF3M/A351	CF8/A351	CF3/A351
15	Gasket	304 S.S.			
16	Nut	Gr. 8M/A194			



Dimensions



Basic Ordering Number	Connection Type and Size	Orifice in. (mm)	Cv	Dimension, in. (mm)							
				L	L ₁	W	H	L ₂			
BV5-FNPT2-05-	1/8 Female NPT	0.188 (4.8)	1.2	2.57 (65.2)	1.28 (32.6)						
BV5-FBT2-05-	1/8 Female BSPT										
BV5-PBW4-05-	1/4 PBW										
BV5-F4-05-	1/4" Hikelok			3.17 (80.5)	1.59 (40.4)						
BV5-M6-05-	6 mm Hikelok										
BV5-M8-05-	8 mm Hikelok										
BV5-FNPT4-07-	1/4 Female NPT	0.281 (7.1)	3.8	2.57 (65.2)	1.28 (32.6)	0.93 (23.5)	3.94 (100.0)	2.15 (54.7)			
BV5-FBT4-07-	1/4 Female BSPT										
BV5-PSW4-07-	1/4 PSW										
BV5-PBW6-07-	3/8 PBW			3.17 (80.5)	1.59 (40.4)						
BV5-F6-07-	3/8" Hikelok										
BV5-M10-07-	10 mm Hikelok										
BV5-F8-10-	1/2" Hikelok	0.417 (10.6)	7.5	4.04 (103.0)	2.02 (51.3)	0.88 (22.3)	3.94 (100.0)	2.26 (57.5)			
BV5-M12-10-	12 mm Hikelok										
BV5-M14-10-	14 mm Hikelok										
BV5-FNPT6-13-	3/8 Female NPT	0.50 (12.7)	11.3	2.57 (65.2)	1.28 (32.6)						
BV5-FBT6-13-	3/8 Female BSPT										
BV5-PSW6-13-	3/8 PSW										
BV5-PBW8-13-	1/2 PBW			4.06 (103.0)	2.03 (51.6)						
BV5-F10-13-	5/8" Hikelok										
BV5-M16-13-	16 mm Hikelok										
BV5-FNPT8-15-	1/2 Female NPT	0.591 (15.0)	13.0	2.74 (69.5)	1.37 (34.8)	1.06 (27.0)					
BV5-FBT8-15-	1/2 Female BSPT										
BV5-PSW8-15-	1/2 PSW										
BV5-MBW22-15-	22 mm MBW			4.06 (103.2)	2.03 (51.6)						
BV5-PSW12-15-	3/4 PSW										
BV5-MSW18-15-	18 mm MSW										
BV5-F12-15-	3/4" Hikelok										
BV5-M18-15-	18 mm Hikelok										
BV5-M20-15-	20 mm Hikelok										
BV5-FNPT12-20-	3/4 Female NPT	0.787 (20.0)	50.0	3.15 (80.0)	1.57 (40.0)	1.34 (34.0)	5.08 (129.0)	2.48 (63.0)			
BV5-FBT12-20-	3/4 Female BSPT										

Basic Ordering Number	Connection Type and Size	Orifice in. (mm)	Cv	Dimension, in. (mm)				
				L	L ₁	W	H	L ₂
BV5-PBW12-20-	3/4 PBW	0.787 (20.0)	50.0	3.15 (80.0)	1.57 (40.0)	1.34 (34.0)	5.08 (129.0)	2.48 (63.0)
BV5-PSW12-20-	3/4 PSW							
BV5-PSW16-20-	1 PSW							
BV5-MBW25-20-	25 mm MBW							
BV5-MSW25-20-	25 mm MSW			5.36 (136.0)	2.68 (68.1)			
BV5-F16-20-	1" Hikelok							
BV5-M22-20-	22 mm Hikelok							
BV5-M25-20-	25 mm Hikelok							
BV5-M28-20-	28 mm Hikelok							
BV5-FNPT16-25-	1 Female NPT	1.00 (25.4)	93.0	3.54 (90.0)	1.77 (45.0)	1.63 (41.3)	6.14 (156.0)	2.97 (75.5)
BV5-FBT16-25-	1 Female BSPT							
BV5-PSW16-25-	1 PSW							
BV5-PBW16-25-	1 PBW							
BV5-F20-25-	1 1/4" Hikelok			7.59 (193.0)	3.79 (96.3)			
BV5-FNPT20-32-	1 1/4 Female NPT	1.250 (31.75)	110.0	4.33 (110.0)	2.17 (55.0)	1.94 (49.2)	6.14 (156.0)	3.19 (81.0)
BV5-FBT20-32	1 1/4 Female BSPT							
BV5-PBW20-32-	1 1/4 PBW							
BV5-FNPT24-38-	1 1/2 Female NPT	1.50 (38.1)	130.0	4.72 (120.0)	2.36 (60.0)	2.24 (57.0)	7.19 (182.5)	3.70 (94.0)
BV5-FBT24-38-	1 1/2 Female BSPT							
BV5-PBW24-38-	1 1/2 PBW							
BV5-FNPT32-50-	2 Female NPT	1.97 (50.0)	270.0	5.51 (140.0)	2.75 (70.0)	2.76 (70.0)	7.19 (182.5)	4.11 (104.5)
BV5-FBT32-50-	2 Female BSPT							
BV5-PBW32-50-	2 PBW							

How to Order

BV5 — M12 — FNPT8 — T10 — Y1 — 316

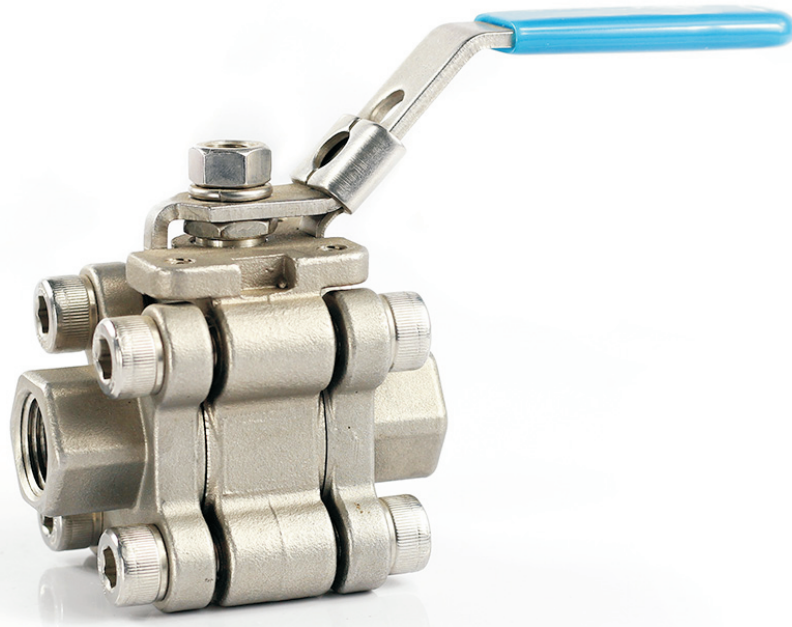
Series	Port 1 Type	Port 1 Size	Port 2 Type	Port 2 Size	Seat Material	Orifice Size	Handle	Body Material
BV5	FNPT Female NPT	2 1/8 in.	Same as port 1 type and port 2 size		T PTFE	05 0.188 in. (4.8 mm)	Blue	316L CF3M
	NPT Male NPT	3 3 mm				07 0.281 in. (7.1 mm)	R1 Red	316 CF8M
	FBT Female BSPT	4 1/4 in.	If port2 and port 1 are the same, eliminate the port 2 designator			10 0.417 in. (10.6 mm)	G1 Green	304L CF3
	MBT Male BSPT	5 5/16 in.				13 0.5 in. (12.7 mm)	B1 Black	304 CF8
	FMS Female ISO 261	6 3/8 in. or 6 mm				15 0.591 in. (15.0 mm)	Y1 Yellow	
	MS Male ISO 261	8 1/2 in. or 8 mm				20 0.787 in. (20.0 mm)	PSC	
	FBP Female BSPP	10 10 mm				25 1.00 in. (25.4 mm)	PSO	
	MBP Male BSPP	12 3/4 in. or 12 mm				32 1.250 in. (31.75 mm)	PD	
	F Fractional Tube Fitting	14 14 mm				38 1.5 in. (38.1 mm)	E	
	M Metric Tube Fitting	16 1 in. or 16 mm				50 2.00 in. (50.8 mm)		
	MSW Metric Tube Socket Weld	18 18 mm						
	FSW Fractional Tube Socket Weld	20 1 1/4 in. or 20 mm						
	MBW Metric Tube Butt Weld	22 22 mm						
	FBW Fractional Tube Butt Weld	24 1 1/2 in.						
	PSW Pipe Socket Weld	25 25 mm						
	PBW Pipe Butt Weld	27 M27x 2						
		28 28 mm						
		32 2 in. or 32 mm						

❖ Pneumatic Actuators: **PSC** Spring return, normally closed / **PSO** Spring return, normally open / **PD** Double acting

❖ Electric Actuators: **E**

3-piece High Pressure Ball Valves

BV6 Series



- ❖ Maximum working pressure up to 3000 psig (207 bar)
- ❖ Working temperature from -20°F to 450°F (-28°C to 232°C)
- ❖ 2-way and 3-way pattern
- ❖ Orifice sizes: 4.8 mm to 38.1 mm
- ❖ Blowout-proof stem and coned-disc spring-loaded seat
- ❖ Variety of end connections

Features

On-off (2-way) valves

- ❖ Maximum working pressure up to 3000 psig (207 bar)
- ❖ Working temperature from -20°F to 450°F (-28°C to 232°C)
- ❖ Orifice sizes: 4.8 mm to 38.1 mm
- ❖ Blowout-proof stem
- ❖ Coned-disc spring-loaded seat
- ❖ Live-loaded chevron stem packing
- ❖ Pneumatic and electric actuators
- ❖ Variety of end connections
- ❖ Lever, oval, extended oval, and locking handles

Switching (3-Way) valves

- ❖ Maximum working pressure up to 1000 psig (68.9 bar)
- ❖ Working temperature from -20°F to 450°F (-28°C to 232°C)
- ❖ Orifice sizes: 4.8 mm to 50 mm
- ❖ One-piece center body
- ❖ Incorporate many of the features of the on-off (2-way) design

Fire series valves

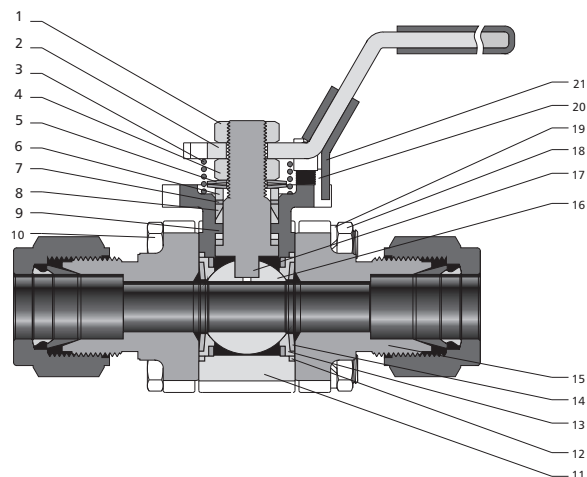
- ❖ Maximum working pressure up to 2200 psig (151 bar)
- ❖ Working temperature from -20°F to 450°F (-28°C to 232°C)
- ❖ Orifice sizes: 4.8 mm to 50 mm
- ❖ Meet fire test specification API Standard 607
- ❖ Live-loaded Grafoil stem packing
- ❖ Grafoil flange seals for body
- ❖ Seats with integral weir rings for fire conditions

Pressure vs. Temperature

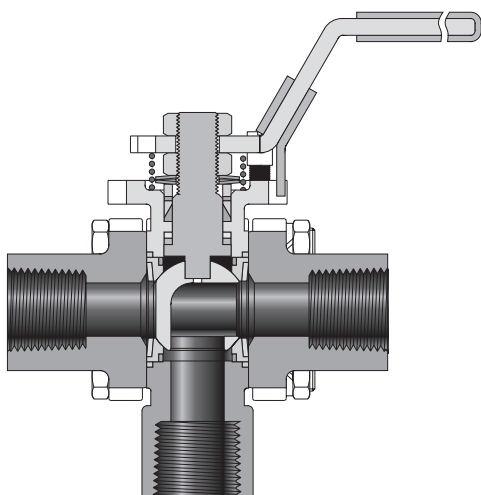
Pattern	On-Off	Switching	Fire
Body Material	CF3M, CF8M, CF3, CF8		
Seat Material	PEEK		
Temperature, °F (°C)	Working Pressure, psig(bar)		
-20 (-28) to 100 (37)	3000 (207)	1000 (68.9)	2200 (151)
150 (65)	2420 (166)	1000 (68.9)	1960 (135)
200 (93)	1870 (128)	1000 (68.9)	1760 (121)
250 (121)	1770 (121)	1000 (68.9)	1570 (108)
300 (148)	1600 (110)	1000 (68.9)	1370 (94.3)
350 (176)	1430 (98.5)	1000 (68.9)	1180 (81.3)
400 (204)	1260 (66.8)	1000 (68.9)	990 (68.2)
450 (232)	800 (55.1)	800 (55.1)	800 (55.1)

Standard Materials of Construction

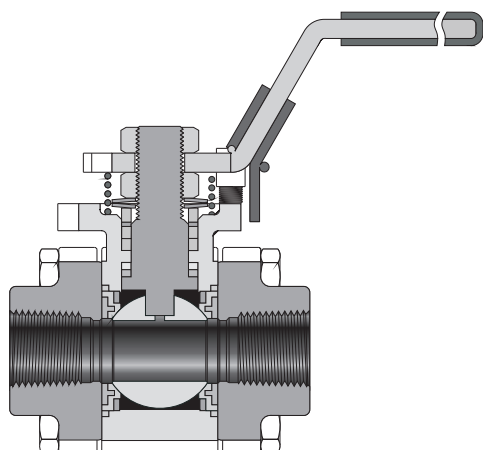
On-off (2-way) valves



Switching (3-Way) valves



Fire series valves

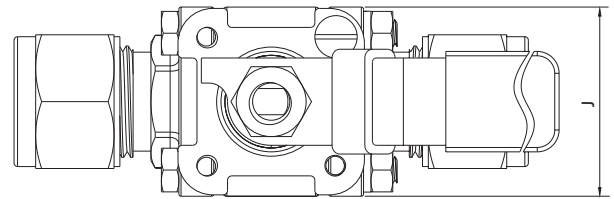
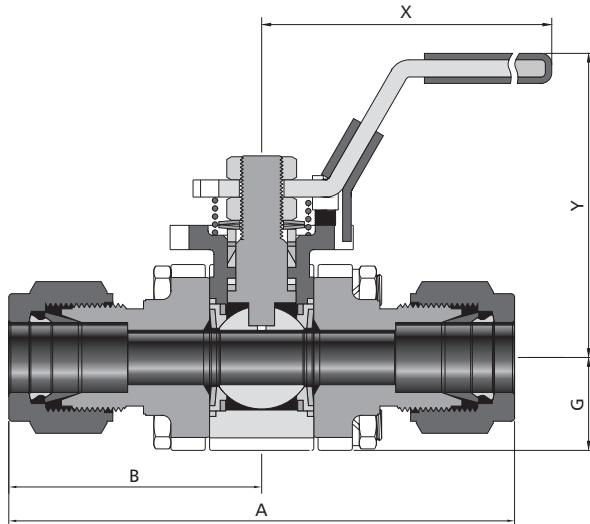


Item	Component	Valve Body Material
		CF3M, CF8M, CF3, CF8/A351
1	Stem Nut	Gr. 8M/A194
2	Handle	CF8/A351 (with vinyl sleeve)
3	Grounding Spring	304 SS/A313
4	Stem Nut	Gr. 8M/A194
5	Stem Spring	Strain-hardened 316 S.S./A240
6	Gland	PTFE-coated 316 S.S./B 783
7	Packing Support	PEEK or Grafoil
8	Top Packing	PTFE/D1710 or Grafoil
9	Bottom Packing	PTFE/D1710 or Grafoil
10	Body Bolt	Gr. B8M/A193
11	Body	CF3M, CF8M, CF3, CF8/A351
12	Flange Seal	PTFE/D1710 or Graphite
13	Seat	PEEK or PEEK with Grafoil weir ring
14	Coned-disc Spring	Strain-hardened 316 SS/A167 or 316 SS/A240
15	Flange	PTFE/D1710 or Graphite
16	Ball	316 S.S./A479
17	Stem	316 S.S./A479
18	Nut	Gr. 8M/A194
19	Gasket	304 S.S.
20	Stop Bolt	304 S.S./A479
21	Handle Lock	304 S.S./A240

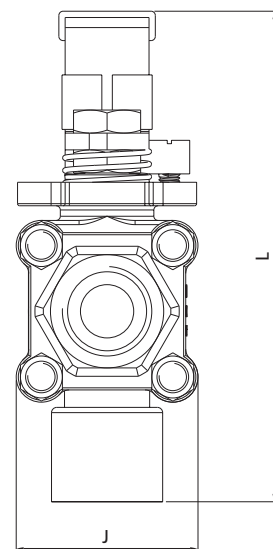
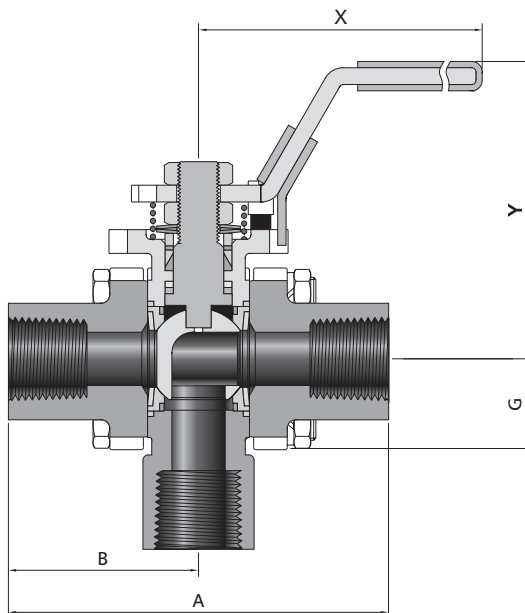
Dimensions

On-off (2-way) valves

Fire series valves



Switching (3-Way) valves



Basic Ordering Number	Connection Type and Size	Orifice in. (mm)	Cv	Dimension, in. (mm)									
				A	B	G	J	X	Y	L			
BV6-F4-05-	1/4" Hikelok	0.188 (4.8)	1.2	3.17 (80.5)	1.59 (40.4)	0.68 (17.3)	1.35 (34.3)	2.37 (60.2)	1.66 (42.2)	3.35 (85.1)			
BV6-M6-05-	6 mm Hikelok												
BV6-M8-05-	8 mm Hikelok												
BV6-FSW4-05-	1/4" FSW			2.16 (54.8)	1.08 (27.4)					—			
BV6-MSW6-05-	6 mm MSW												
BV6-PBW4-05-	1/4 PBW												
BV6-FNPT2-07-	1/8 Female NPT	0.281 (7.1)	3.8	2.16 (54.9)	1.08 (27.4)	0.68 (17.3)	1.35 (34.6)	2.37 (60.2)	1.66 (42.2)	3.12 (79.2)			
BV6-FBT2-07-	1/8 Female BSPT												
BV6-FBP2-07-	1/8 Female BSPP												
BV6-FNPT4-07-	1/4 Female NPT							2.31 (58.7)					
BV6-FBT4-07-	1/4 Female BSPT												
BV6-FBP4-07-	1/4 Female BSPP												
BV6-F5-07-	5/16" Hikelok			3.17 (80.5)	1.59 (40.4)			2.37 (60.2)		4.37 (111)			
BV6-F6-07-	3/8" Hikelok												
BV6-M10-07-	10 mm Hikelok												
BV6-FSW6-07-	3/8" FSW										2.16 (54.8)	1.08 (27.4)	—
BV6-PBW6-07-	3/8 PBW												
BV6-F8-10-	1/2" Hikelok			7.5	4.04 (102.6)					2.02 (51.3)	0.89 (22.6)	1.78 (45.2)	4.50 (114.0)
BV6-M12-10-	12 mm Hikelok	0.406 (10.3)											
BV6-FSW8-10-	1/2" FSW	0.375 (9.5)											
BV6-FNPT6-13-	3/8 Female NPT	0.411 (10.4)	12	2.70 (68.6)	1.34 (34.0)	0.89 (22.6)	1.78 (45.2)	4.50 (114.0)	2.35 (59.7)	4.19 (106)			
BV6-FBT6-13-	3/8 Female BSPT												
BV6-FBP6-13-	3/8 Female BSPP												
BV6-FNPT8-13-	1/2 Female NPT												
BV6-FBT8-13-	1/2 Female BSPT												
BV6-FBP8-13-	1/2 Female BSPP												
BV6-F12-13-	3/4" Hikelok			13.6	4.04 (102.6)					2.02 (51.3)	4.84 (123)		
BV6-M16-13-	16 mm Hikelok												
BV6-M18-13-	18 mm Hikelok												
BV6-FSW12-13-	3/4" FSW			15	2.70 (68.6)					1.34 (34.0)	—		
BV6-PSW8-13-	1/2 PSW												
BV6-PBW8-13-	1/2 PBW												

Basic Ordering Number	Connection Type and Size	Orifice in. (mm)	Cv	Dimension, in. (mm)						
				A	B	G	J	X	Y	L
BV6-PBW12-13-	3/4 PBW	0.516 (13.1)	13.6	2.69 (68.3)	1.34 (34.0)	0.89 (22.6)	1.78 (45.2)	4.50 (114.0)	2.35 (59.7)	only 3-way
BV6-FNPT12-22-	3/4 Female NPT	0.875 (22.2)	31.0	3.59 (91.2)	1.80 (45.7)	1.25 (31.8)	2.50 (63.5)	6.00 (152.0)	2.94 (74.7)	5.45 (138)
BV6-FBT12-22-	3/4 Female BSPT									
BV6-FBP12-22-	3/4 Female BSPP									
BV6-FNPT16-22-	1 Female NPT		38.0	4.45 (113.0)	2.23 (56.6)					
BV6-FBT16-22-	1 Female BSPT									
BV6-FBP16-22-	1 Female BSPP									
BV6-F16-22-	1" Hikelok		40.0	5.36 (136.0)	2.68 (68.0)					5.91 (150)
BV6-F20-22-	11/4" Hikelok			6.34 (161.0)	3.17 (80.5)					
BV6-M25-22-	25 mm Hikelok		40.0	5.36 (136.0)	2.68 (68.0)					
BV6-M28-22-	28 mm Hikelok			6.14 (156.0)	3.07 (78.0)					
BV6-FSW16-22-	1" FSW			3.59 (91.2)	1.80 (45.7)					
BV6-MSW25-22-	25 mm MSW		38.0	3.59 (91.2)	1.80 (45.7)					
BV6-PSW12-22-	3/4 PSW		36.0							
BV6-PSW16-22-	1 PSW		42.0							
BV6-PBW12-22-	3/4 PBW		36.0							
BV6-PBW16-22-	1 PBW		40.0	1.25 (31.8)	2.51 (63.8)	6.00 (152.0)				
BV6-FSW20-29-	11/4" FSW	1.125 (28.6)	80.0	4.39 (112.0)	2.19 (55.6)	1.53 (38.9)	3.06 (77.7)	9.14 (232.0)	4.03 (102.0)	—
BV6-PBW20-29-	11/4 PBW			4.57 (116.0)	2.28 (57.9)					
BV6-FNPT20-32-	11/4 Female NPT	1.25 (31.8)	100.0	4.39 (112.0)	2.19 (55.6)	1.53 (38.9)	3.06 (77.7)	9.14 (232.0)	4.03 (102.0)	6.86 (174)
BV6-FNPT24-32-	11/2 Female NPT									
BV6-FSW24-32-	11/2" FSW		90.0	4.50 (114.3)	2.25 (57.2)					—
BV6-PSW20-32-	11/4 PSW			100.0	4.57 (116.0)					
BV6-PSW24-32-	11/2 PSW		4.57 (116.0)		2.29 (58.0)					
BV6-PBW24-32-	11/2 PBW									
BV6-FNPT32-38-	2 Female NPT	1.5 (38.1)	130.0	4.94 (125.4)	2.47 (62.7)	1.74 (44.2)	3.47 (88.1)	9.14 (232.0)	4.16 (106.0)	7.21 (183)
BV6-FBT32-38-	2 Female BSPT									
BV6-FSW32-38-	2" FSW					1.70 (43.2)	3.47 (86.6)			—
BV6-PSW32-38-	2 PSW									
BV6-PBW32-38-	2 PBW					5.09 (129.0)	2.55 (64.8)			

How to Order

BV6 —		M12	— FNPT8 —		P10	— Y3 —		316		
Series	Port 1 Type	Port 1 Size	Port 2/3 Port 2/3 Type Size		Seat Material	Orifice Size	Handle	Flow Pattern	Body Material	
BV6	FNPT Female NPT	2 1/8 in.	Same as port 1 type and port 1 size If port 2/3 and port 1 are the same, eliminate the port 2/3 designator		P PEEK	05 0.188 in. (4.8 mm)	Blue	Straight	316L CF3M	
	NPT Male NPT	3 3 mm			G PEEK with Grafoil weir ring	07 0.281 in. (7.1 mm)	R Red	3 3-way	316 CF8M	
	FBT Female BSPT	4 1/4 in.				10 0.417 in. (10.6 mm)	G Green	F Fire series	304L CF3	
	MBT Male BSPT	5 5/16 in.				13 0.5 in. (12.7 mm)	B Black		304L CF8	
	FMS Female ISO 261	6 3/8 in. or 6 mm				22 0.875 in. (22.2 mm)	Y Yellow			
	MS Male ISO 261	8 1/2 in. or 8 mm				28 1.125 in. (28.6 mm)				
	FBP Female BSPP	10 10 mm				32 1.250 in. (31.75 mm)				
	MBP Male BSPP	12 3/4 in. or 12 mm				38 1.5 in. (38.1 mm)				
	F Fractional Tube Fitting	14 14 mm								
	M Metric Tube Fitting	16 1 in. or 16 mm								
	MSW Metric Tube Socket Weld	18 18 mm								
	FSW Fractional Tube Socket Weld	20 1 1/4 in. or 20 mm								
	MBW Metric Tube Butt Weld	22 22 mm								
	FBW Fractional Tube Butt Weld	24 1 1/2 in.								
	PSW Pipe Socket Weld	25 25 mm								
	PBW Pipe Butt Weld	27 M27x 2								
		28 28 mm								
		32 2 in. or 32 mm								

Trunnion Ball Valves

BV7 Series



- ❖ Maximum working pressure up to 6000 psig (413 bar)
- ❖ Working temperature from -65°F to 450°F (-54°C to 232°C)
- ❖ 2-way and 3-way flow pattern
- ❖ Spring-loaded seats
- ❖ Field repairable with seal kits
- ❖ 316 stainless steel and alloy 400 body material

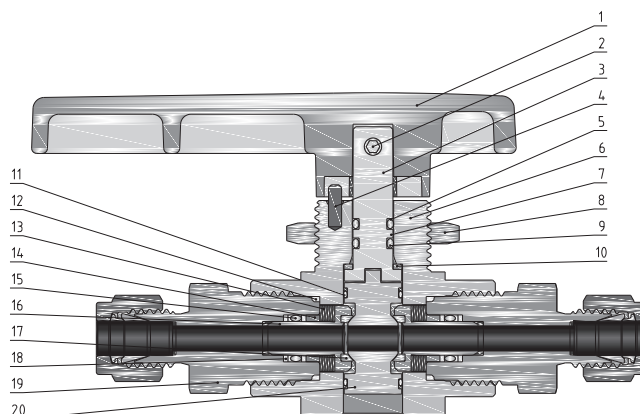
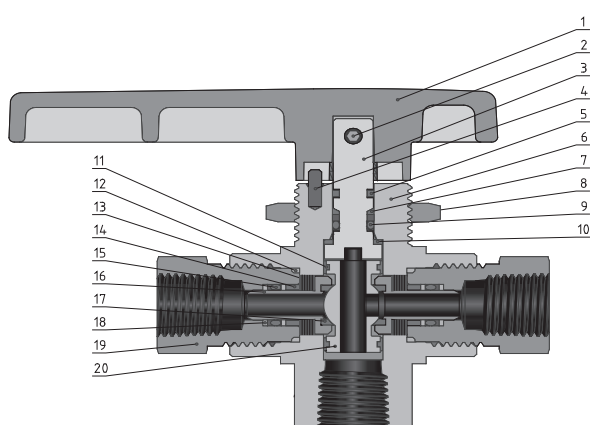
Features

- ❖ Maximum working pressure up to 6000 psig (413 bar)
- ❖ Working temperature from -65°F to 450°F (-54°C to 232°C)
- ❖ 2-way and 3-way pattern
- ❖ Spring-loaded seats reduce seat wear from pressure surges
- ❖ Field repairable with seal kits
- ❖ Trunnion-style ball and low operating torque
- ❖ Bottom-loaded stem prevents stem blowout
- ❖ Panel mountable
- ❖ 316 stainless steel, brass and alloy body material
- ❖ Variety of end connections
- ❖ Color coded handles

Pressure vs. Temperature

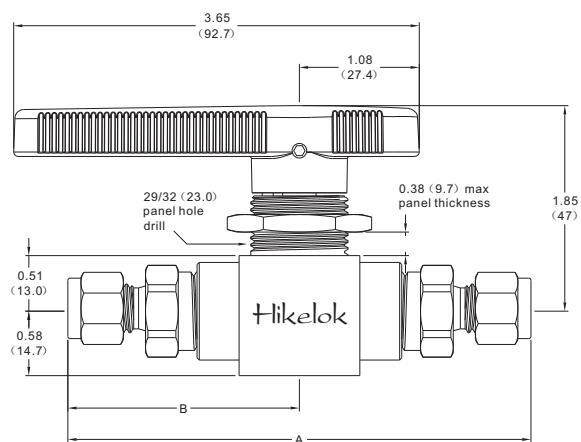
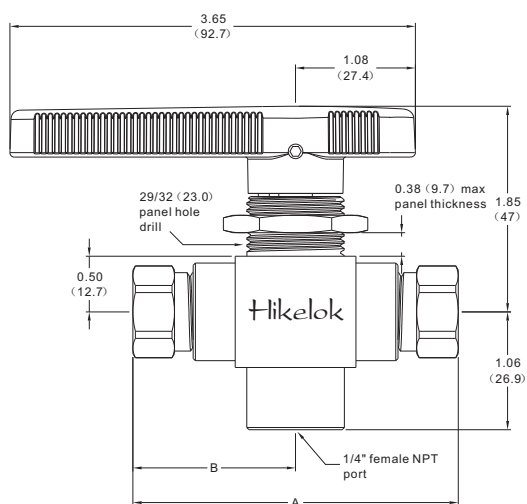
Body Material	316 S.S.			Alloy 400		
Seat Material	PEEK	PCTFE	PTFE	PEEK	PCTFE	PTFE
Temperature, °F (°C)	Working Pressure, psig (bar)					
-65 (-54) to 100 (37)	6000 (413)	6000 (413)	1500 (103)	5000 (344)	5000 (344)	1500 (103)
200 (93)	5000 (344)	2000 (137)	750 (151)	4390 (302)	2000 (137)	750 (151)
250 (121)	4100 (282)	1000 (68.9)	625 (43.0)	4100 (282)	1000 (68.9)	625 (43.0)
300 (148)	3200 (220)	—	500 (34.4)	3200 (220)	—	500 (34.4)
350 (176)	2300 (158)	—	375 (25.8)	2300 (158)	—	375 (25.8)
400 (204)	1400 (96.5)	—	250 (17.2)	1400 (96.5)	—	250 (17.2)
450 (232)	500 (34.4)	—	125 (8.6)	500 (34.4)	—	125 (8.6)

Standard Materials of Construction



Item	Component	Valve Body Material			
		316 Stainless Steel		Alloy 400	
		2-way	3-way	2-way	3-way
		Material Grade/ASTM Specification			
1	Handle	Nylon or aluminium			
2	Set Screw	S17400 S.S.			
3	Stem	316 S.S./A276		Alloy R-405/B164	
4	Pin	Stainless Steel			
5	Primary Stem Backup Ring	PTFE/D1710			
6	Body	316 S.S./A479		316 S.S./A182 Alloy 400/B164	
7	Secondary Stem Backup Ring	—	PEEK	—	PEEK
8	Panel Nut	Stainless Steel			
9	Stem O-ring	—	Fluorocarbon FKM	—	Fluorocarbon FKM
10	Stem Washer	Reinforced PTFE	PEEK	Reinforced PTFE	PEEK
11	Trunnion Bearing	Fluorocarbon FKM	PEEK	Fluorocarbon FKM	PEEK
12	End Connector Seal	PTFE/D1710			
13	Seat Spring	Alloy X-750/AMS 5542			
14	Seat Carrier Guide	316 S.S./A276		Alloy R-405/B164	
15	Seat Retainer O-ring	Fluorocarbon FKM			
16	Seat Retainer	316 S.S./A276		Alloy R-405/B164	
17	Seat	PTFE or PEEK or PCTFE			
18	Seat Retainer Guide	Reinforced PTFE			
19	End Connector	316 S.S./A479		Alloy R-405/B164	
20	Ball	316 S.S./A276		S21800/A276 Alloy R-405/B164	

Dimensions



2-way Valve

Basic Ordering Number	Connection Size	Orifice Size in. (mm)	Cv	Dimension, in. (mm)	
				A	B
BV7-FNPT2-05-	1/8 Female NPT	0.187 (4.75)	1.2	2.94 (74.7)	1.47 (37.3)
BV7-FNPT4-05-	1/4 Female NPT				
BV7-FNPT8-05-	1/2 Female NPT			4.25 (108.0)	2.13 (54.1)
BV7-F4-05-	1/4" Hikelok			4.14 (105.2)	2.07 (52.6)
BV7-F6-05-	3/8" Hikelok			4.39 (111.5)	2.19 (55.6)
BV7-F8-05-	1/2" Hikelok			4.60 (116.8)	2.30 (58.4)
BV7-M6-05-	6 mm Hikelok			4.14 (105.2)	2.07 (52.6)
BV7-M8-05-	8 mm Hikelok			4.15 (105.4)	
BV7-M10-05-	10 mm Hikelok			4.41 (112.0)	2.20 (55.9)
BV7-M12-05-	12 mm Hikelok			4.60 (116.8)	2.30 (58.4)

3-way Valve

Basic Ordering Number	Connection Size	Orifice Size in. (mm)	Cv	Dimension, in. (mm)	
				A	B
BV7-FNPT2-05-3-	1/8 Female NPT	0.187 (4.75)	0.75	2.94 (74.7)	1.47 (37.3)
BV7-FNPT4-05-3-	1/4 Female NPT				
BV7-F4-05-3-	1/4" Hikelok			4.14 (105.2)	2.07 (52.6)
BV7-F6-05-3-	3/8" Hikelok			4.39 (111.5)	2.19 (55.6)
BV7-F8-05-3-	1/2" Hikelok			4.60 (116.8)	2.30 (58.4)
BV7-M6-05-3-	6 mm Hikelok			4.14 (105.2)	2.07 (52.6)
BV7-M8-05-3-	8 mm Hikelok			4.15 (105.4)	
BV7-M10-05-3-	10 mm Hikelok			4.41 (112.0)	2.20 (55.9)
BV7-M12-05-3-	12 mm Hikelok			4.60 (116.8)	2.30 (58.4)

Seal Kits

Seal kits contain components of the same materials as new components

Valve Series	Basic Seal Kits Ordering Number	Kit Contents
BV7 2-way	BV7-SK-S-316-	Instructions, O-rings, stem bearing, ball, seat subassemblies (seats and seat carriers), seat springs, end screw seals, lubricant.
BV7 3-way	BV7-SK-3-316-	Instructions, stem, O-rings, backup rings, bearings, ball, seat subassemblies (seats and seat carriers), seat springs, end screw seals, lubricant.

Seal Kits Ordering Number

BV7 — SK — S — 316 — P

Series	Seal kits	Flow pattern	Body Material	Packing Material
BV7	SK Seal kits	S Straight 3 3-way	316 316L 304 304L Alloy400	T PTFE K PCTFE P PEEK

How to Order

BV7 —		M10	— FNPT4		— P05		— L3		— 316			
Series	Port 1 Type	Port 1 Size	Port 2/3 Port Type Size		Seat Material	Orifice Size	Handle	Flow Pattern	Body Material			
BV7	FNPT Female NPT	2 1/8 in.	Same as port 1 type and port 2 size If port 2/3 and port 1 are the same, eliminate the port 2/3 designator		K PCTFE	05 0.187 in. (4.7 mm)	Black	Straight	316 316 S.S. 316L 316L S.S. 304 304 S.S. 304L 304L S.S. A400 Alloy 400			
	NPT Male NPT	3 3 mm			P PEEK		L Blue					
	FBT Female BSPT	4 1/4 in.			T PTFE		R Red			3 3-way		
	MBT Male BSPT	5 5/16 in.					G Green					
	FMS Female ISO 261	6 3/8 in. or 6 mm			T PTFE		Y Yellow					
	MS Male ISO 261	8 1/2 in. or 8 mm										
	FBP Female BSPP	10 10 mm			T PTFE							
	MBP Male BSPP	12 12 mm										
	F Fractional Tube Fitting				T PTFE							
	M Metric Tube Fitting											

Metal Seated Ball Valves

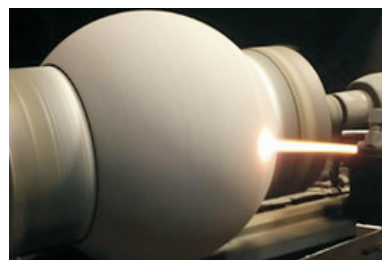
BV8 Series



- ❖ Working pressure from ASME class 600 to 4500
- ❖ Working temperature: -20°F to 1500°F (-28°C to 815°C)
- ❖ Valve nominal size from 1/2 to 4 in.
- ❖ Variety of end connections
- ❖ Lever, gear, pneumatic or electric actuation

Features

- ❖ Working pressure from ASME class 600 to 4500
- ❖ Working temperature: -20°F to 1500°F (-28°C to 815°C)
- ❖ One-piece forged body
- ❖ Live-loaded Grafoil and Stainless Steel packing
- ❖ High velocity oxygen fueled (HVOF) coating
- ❖ Mate-lapped ball & seats
- ❖ Guide bearing for smooth, quarter-turn opening
- ❖ Variety of end connections
- ❖ Lever, gear, pneumatic or electric actuation



HVOF Coating

Applicable Codes and Standards

- ❖ ASME TDP-1: Prevention of Water Damage to Steam Turbines
- ❖ ASME B16.34: Valves-Flanged, Threaded and Welding End
- ❖ ASME B31.1: Power Piping Code
- ❖ MSS-SP 61: Pressure Testing of Steel Valves
- ❖ API 598: Valve Inspection and Testing

Typical applications

- ❖ Feedwater Drains
- ❖ Gauge Glass Drain and Isolation
- ❖ Boiler/Reheat/Superheat Drain, Vents and Root
- ❖ Economizer Stop
- ❖ Flash Tank
- ❖ HP Feedwater System
- ❖ IP Heater Applications
- ❖ Blowdown
- ❖ Condensate Drain
- ❖ Mud Drum Drain
- ❖ Steam Trap Isolation
- ❖ Sootblower System
- ❖ Inert Steam System
- ❖ HP Turbine Steam Supply & Extraction

Technical Data

SIZE	ANSI	BORE	Cv	
	LIMITED CLASS		SCHEDULE- 160	SCHEDULE- XXS
0.5"	1500	0.56"	5.5	4.5
0.75"	1500	0.56"	19	13
1"	1500	0.56"	15	32
1"	1500	0.76"	55	35
1.5"	1500	0.76"	21	27
1.5"	1500	1.12"	86	194
2"	1500	1.12"	40	49
2"	1500	1.4"	132	202
2.5"	1500	1.4"	63	89
0.5"	2500	0.56"	5.5	4.5
0.75"	2500	0.56"	19	13
1"	2500	0.56"	15	32
1"	2500	0.76"	55	35
1.5"	2500	0.76"	21	27
1.5"	2500	1.12"	86	194
2"	2500	1.12"	40	49
2"	2500	1.4"	132	202
2.5"	2500	1.4"	63	89
0.5"	4500	0.65"	—	6
0.75"	4500	0.65"	—	7
1"	4500	0.65"	—	56
1.5"	4500	0.65"	—	15
2"	4500	0.65"	—	13
2"	4500	1.25"	—	103
2.5"	4500	1.25"	—	72

Pressure Temperature Ratings

A182-F22 (2 1/4 Cr.- 1 Mo.)

Ansi Rating	Temperature, °F																	
	-20 to 100	200	300	400	500	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200
	psig																	
900	2250	2150	2030	1945	1920	1815	1765	1705	1595	1525	1460	1350	1130	780	525	330	205	125
1500	5625	5369	5076	4860	4798	4536	4414	4258	3988	3808	3654	3370	2830	1954	1310	824	514	310
2500	7750	7551	7226	6956	6721	6249	6081	5866	5492	5244	5034	4644	3901	2692	1806	1134	708	426
4500	11250	11250	10925	10585	9965	9070	8825	8515	7970	7610	7305	6740	5665	3910	2625	1645	1030	615

A105 (Carbon Steel)**

Ansi Rating	Temperature, °F													
	-20 to 100	200	300	400	500	600	650	700	750	800	850	900	950	1000
	psig													
900	2250	2025	1970	1900	1795	1640	1610	1600	1510	1235	805	515	310	155
1500	5625	5063	4923	4753	4491	4104	4028	3996	3780	3088	2008	1288	774	388
2500	7750	6974	6783	6548	6187	5655	5549	5505	5208	4252	2764	1772	1066	532
4500	11250	10120	9845	9505	8980	8210	8055	7990	7560	6170	4010	2570	1545	770

** per ASME/ANSI B16.34
Permissible, but not
recommended for
prolonged usage
above 800 °F.

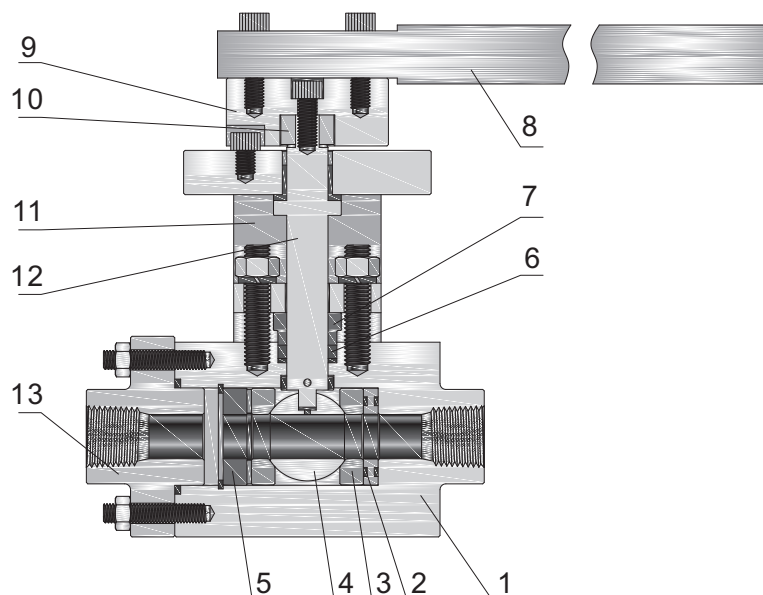
A182-F316 (316 Stainless Steel)

Ansi Rating	Temperature, °F																	
	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500
	psig																	
900	1330	1305	1280	1265	1255	1245	1160	1050	1030	915	710	555	440	350	290	225	175	125
1500	3330	3258	3204	3168	3133	3114	2898	2624	2579	2290	1774	1390	1106	874	720	568	436	310
2500	4588	4489	4415	4365	4316	4291	3993	3614	3552	3154	2444	1914	1524	1204	992	780	602	428
4500	6660	6515	6410	6335	6265	6230	5795	5245	5155	4575	3550	2775	2210	1750	1440	1130	875	620

A182-F91 (9Cr-1 Mo.)

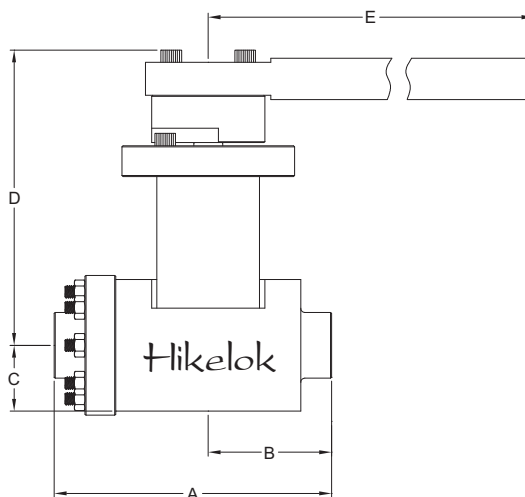
Ansi Rating	Temperature, °F																	
	-20 to 100	200	300	400	500	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200
	psig																	
900	2250	2250	2185	2115	1995	1815	1765	1705	1595	1525	1460	1350	1109	1090	1080	965	718	448
1500	5625	5625	5463	5293	4986	4536	4414	4258	3988	3808	2904	3370	2898	2728	2700	2416	1800	1105
2500	7750	7750	7527	7292	6868	6249	6081	5866	5492	5244	4334	4644	3993	3756	3720	3330	2480	1523
4500	11250	11250	10925	10585	9965	9070	8825	8515	7970	7610	7305	6740	5795	5450	5400	4835	3600	2211

Standard Materials of Construction



Item	Description	Materials
1	Body	316 S.S.
2	Packing	Graphite
3	Seat	316S.S. HVOF-CC Coating
4	Ball	316S.S. HVOF-CC Coating
5	Adjustment set	316 S.S.
6	Stem packing	Graphite
7	Packing sets	316 S.S.
8	Handle	304 S.S.
9	Limiting block	316 S.S.
10	Anti-flight ring	316SS Spray PTFE Coating
11	Support plate	304 S.S.
12	Stem	316 S.S.
13	Connector	316 S.S.

Dimensions



Class 600/900/1500/2500-Socket welding/butt welding

Termination in. (mm)			Orifice Size in. (mm)	Dimension, in. (mm)				
				A	B	C	D	E
3/4 (20)	1 (25)	1-1/2 (40)	0.63 (16)	8.5 (216)	4.25 (108)	6.85 (174)	8.9 (226)	15.75 (400)
1-1/2 (40)	2 (50)		0.984 (25)	8.5 (216)	4.25 (108)	6.85 (174)	8.9 (226)	15.75 (400)
2 (50)	2-1/2 (65)		1.3 (33)	10.39 (264)	5.2 (132)	7.87 (200)	10.31 (262)	20.78 (528)
2 (50)	2-1/2 (65)		1.5 (38)	10.39 (264)	5.2 (132)	7.87 (200)	10.31 (262)	20.78 (528)

Class 4500-Socket welding/butt welding

Termination in. (mm)			Orifice Size in. (mm)	Dimension, in. (mm)				
				A	B	C	D	E
3/4 (20)	1 (25)	1-1/2 (40)	0.63 (16)	10.39 (264)	5.2 (132)	7.87 (200)	10.31 (262)	17.72 (450)
1-1/2 (40)	2 (50)		0.984 (25)	10.39 (264)	5.2 (132)	7.87 (200)	10.31 (262)	17.72 (450)

订购信息

BV8 — PSW8 — PBW8 — 15 — CL1500 — G — 316

Series	Inlet Type	Inlet Size	Outlet Type	Outlet Size	Orifice Size	ASME Class	Type of Drive	Body Material
BV8	MSW Metric Tube Socket Weld	8 1/2 in.	Same as inlet type and inlet size If outlet and inlet are the same, eliminate the outlet designator		15 0.591 in. (15.0mm)	CL600 Class600	Lever	304 304 S.S.
	FSW Fractional Tube Socket Weld	12 3/4 in.			20 0.787 in. (20.0mm)	CL900 Class900	G Geared	304L 304L S.S.
	MBW Metric Tube Butt Weld	16 1 in.			25 0.984 in. (25.0mm)	CL1500 Class1500	P Pneumatic	316 316 S.S.
	FBW Fractional Tube Butt Weld	18 18 mm			32 1.26 in. (32.0mm)	CL2500 Class2500	E Electric	316L 316L S.S.
	PSW Pipe Socket Weld	20 20 mm			40 1.575 in. (40.0mm)	CL4500 Class4500		
	PBW Pipe Butt Weld	24 1 1/2 in. or 24 mm			50 1.969 in. (50.0mm)			
		32 2 in. or 32 mm			65 2.559 in. (65.0mm)			
		48 3 in. or 48 mm						
		64 4 in.						