Ball Valves

BV Series

Contents

Contents

General-Purpose Ball Valves

BV1 Series

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-Temperature Ratings

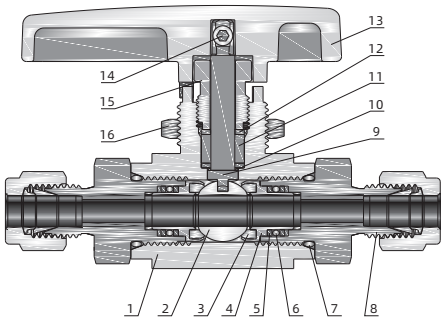
- Data based on Fluorocarbon FKM sealing material

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)	–	–	–

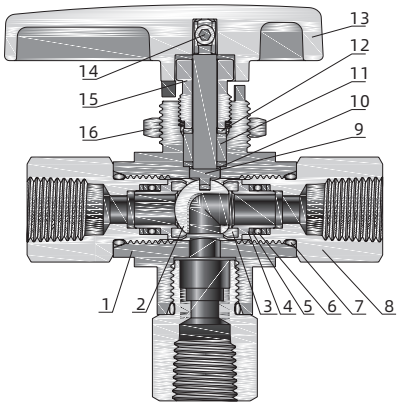
Temperature Ranges

Packing or Sealing Materials	Temperature Range °F (°C)
PTFE	-40 to 450 (-40 to 232)
Buna-N	-40 to 250 (-40 to 121)
Fluorocarbon FKM	-65 to 450 (-54 to 232)
Neoprene	-40 to 250 (-40 to 121)

Standard Materials of Construction



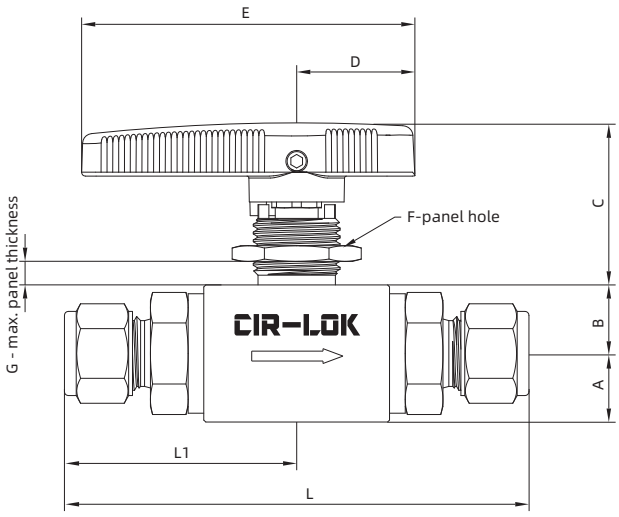
2-way Valves



3-way Valves

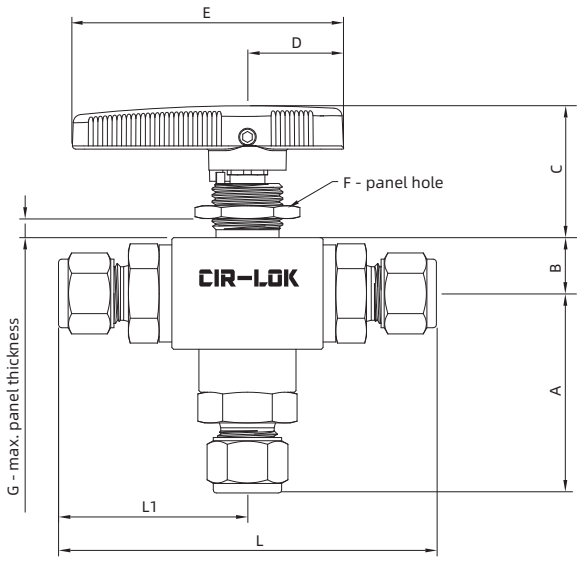
Component		Material Grade/ASTM Specification
		316 S.S.
1	Body	316 S.S./A479
2	Ball	316 S.S./A479
3	Seat	PEEK or PCTFE or PTFE
4	Seat Retainer	316 S.S./A479
5	Back Up Ring	PTFE/D1710
6	O-Ring	Fluorocarbon FKM
7	O-Ring	Fluorocarbon FKM
8	Conector	316 S.S./A479
9	Stem	316 S.S./A479
10	Stem Washer	PTFE/D1710
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 Valves

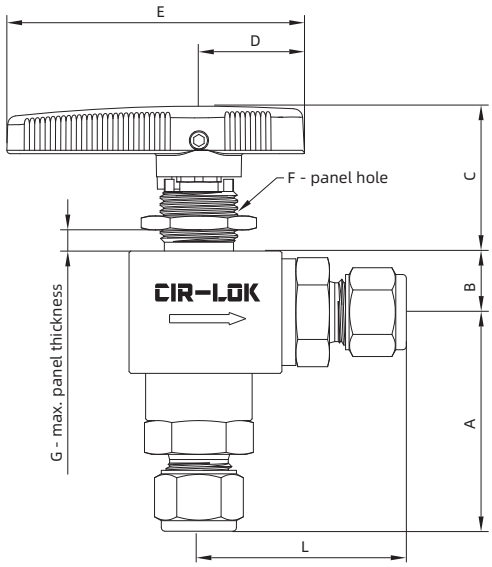
Basic Ordering Number	Connection Type and Size	Orifice in. (mm)	Cv	Dimension, in. (mm)							
				L	L1	A	B	C	D	E	F	G
BV1-F1-01-	1/16" CIR-LOK	0.093 (2.4)	0.21	2.60 (66.0)	1.30 (33.0)	0.33 (8.4)	0.33 (8.4)	1.00 (25.4)	1.16 (29.5)	1.88 (47.8)	0.58 (14.7)	0.18 (4.6)
BV1-F2-02-	1/8" CIR-LOK			2.72 (69.1)	1.36 (34.5)							
BV1-M3-02-	3 mm CIR-LOK			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)							
BV1-FBP2-04-	1/8" Female BSPP											
BV1-FNPT2-04-	1/8" Female NPT											
BV1-MBT2-04-	1/8" Male BSPT			2.36 (60.0)	1.18 (30.0)							
BV1-MBP2-04-	1/8" Male BSPP											
BV1-NPT2-04-	1/8" Male NPT											
BV1-MBT4-04-	1/4" Male BSPT			2.70 (68.6)	1.35 (34.3)							
BV1-MBP4-04-	1/4" Male BSPP											
BV1-NPT4-04-	1/4" Male NPT											
BV1-F4-05-	1/4" CIR-LOK	0.187 (4.7)	1.05	3.48 (88.4)	1.74 (44.2)							
BV1-M6-05-	6 mm CIR-LOK			3.50 (89.0)	1.75 (44.5)							
BV1-F6-06-	3/8" CIR-LOK	0.250 (6.4)	2.34	3.60 (91.4)	1.80 (45.7)	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-M8-06-	8 mm CIR-LOK			3.56 (90.4)	1.78 (45.2)							
BV1-M10-06-	10 mm CIR-LOK			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" CIR-LOK	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 CIR-LOK			4.66 (118.4)	2.33 (59.2)							
BV1-M14-10-	14 mm CIR-LOK											
BV1-M16-10-	16 mm CIR-LOK											
BV1-M18-10-	18 mm CIR-LOK											
BV1-FBT6-10-	3/8" Female BSPT			3.90 (99.0)	1.95 (49.5)							
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)	0.69 (17.5)	0.70 (17.8)					
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" CIR-LOK	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 CIR-LOK											
BV1-M22-13-	22 mm CIR-LOK											
BV1-FBT12-13-	3/4" Female BSPT			4.12 (105)	2.06 (52.3)							
BV1-FBP12-13-	3/4" Female BSPP			4.0 (101.6)	2.0 (50.8)							
BV1-FNPT12-13-	3/4" Female NPT			4.12 (105)	2.06 (52.3)							
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" CIR-LOK	0.093 (2.4)	0.21	2.60 (66.0)	1.30 (33.0)	1.39 (35.3)	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-F2-02-3-	1/8" CIR-LOK			2.72 (69.1)	1.36 (34.5)							
BV1-M3-02-3-	3 mm CIR-LOK			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)						
BV1-FBP2-04-3-	1/8" Female BSPP											
BV1-FNPT2-04-3-	1/8" Female NPT			2.36 (60.0)	1.18 (30.0)	1.26 (32.0)						
BV1-MBT2-04-3-	1/8" Male BSPT											
BV1-MBP2-04-3-	1/8" Male BSPP											
BV1-NPT2-04-3-	1/8" Male NPT											
BV1-MBT4-04-3-	1/4" Male BSPT			2.70 (68.6)	1.35 (34.3)	1.43 (36.3)						
BV1-MBP4-04-3-	1/4" Male BSPP											
BV1-NPT4-04-3-	1/4" Male NPT											
BV1-F4-05-3-	1/4" CIR-LOK	0.187 (4.7)	1.05	3.48 (88.4)	1.74 (44.2)	1.89 (48.0)						
BV1-M6-05-3-	6 mm CIR-LOK			3.50 (89.0)	1.75 (44.5)	1.88 (47.8)						
BV1-F6-06-3-	3/8" CIR-LOK	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 CIR-LOK			3.56 (90.4)	1.78 (45.2)	1.91 (48.5)						
BV1-M10-06-3-	10 mm CIR-LOK			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			3.24 (82.2)	1.62 (41.1)	1.76 (44.7)						
BV1-MBP4-06-3-	1/4" Male BSPP											
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/ 2/3			L	L1	A	B	C	D	E	F	G
BV1-F8-10-3-	1/2" CIR-LOK	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 CIR-LOK			4.66(118.4)	2.33 (59.2)	2.67 (67.8)						
BV1-M14-10-3-	14 mm CIR-LOK											
BV1-M16-10-3-	16 mm CIR-LOK											
BV1-M18-10-3-	18 mm CIR-LOK											
BV1-FBT6-10-3-	3/8" Female BSPT			3.90 (99.0)	1.95 (49.5)	2.29 (58.2)						
BV1-FBP6-10-3-	3/8" Female BSPP											
BV1-FNPT6-10-3-	3/8" Female NPT											
BV1-FBT8-10-3-	1/2" Female BSPT			4.30 (109.2)	2.15 (54.6)	2.49 (63.2)						
BV1-FBP8-10-3-	1/2" Female BSPP											
BV1-FNPT8-10-3-	1/2" Female NPT											
BV1-MBT8-10-3-	1/2" Male BSPT			4.44 (112.8)	2.22 (56.4)	2.59 (65.8)						
BV1-MBP8-10-3-	1/2" Male BSPP											
BV1-NPT8-10-3-	1/2" Male NPT											
BV1-F12-13-3-	3/4" CIR-LOK	0.50 (12.7)	10.0	4.80 (122)	2.40 (61)	2.69 (68.3)	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-M20-13-3-	20 mm CIR-LOK											
BV1-M22-13-3-	22 mm CIR-LOK											
BV1-FBT12-13-3-	3/4" Female BSPT			4.12 (105)	2.06 (52.3)	2.35 (59.6)						
BV1-FBP12-13-3-	3/4" Female BSPP			4.0 (101.6)	2.0 (50.8)	2.28 (58)						
BV1-FNPT12-13-3-	3/4" Female NPT			4.12 (105)	2.06 (52.3)	2.35 (59.6)						
BV1-MBT12-13-3-	3/4" Male BSPT			4.57 (116)	2.28 (58.0)	2.57 (65.4)						
BV1-MBP12-13-3-	3/4" Male BSPP											
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" CIR-LOK	0.093 (2.4)	0.21	1.30 (33.0)	1.39 (35.3)	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-A-	1/8" CIR-LOK			1.36 (34.5)							
BV1-M3-02-A-	3 mm CIR-LOK			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)						
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" CIR-LOK	0.187 (4.7)	1.05	1.74 (44.2)	1.89 (48.0)						
BV1-M6 -05-A-	6 mm CIR-LOK			1.75 (44.5)	1.88 (47.8)						
BV1-F6-06-A-	3/8" CIR-LOK	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 CIR-LOK			1.78 (45.2)	1.91 (48.5)						
BV1-M10-06-A-	10 mm CIR-LOK			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										

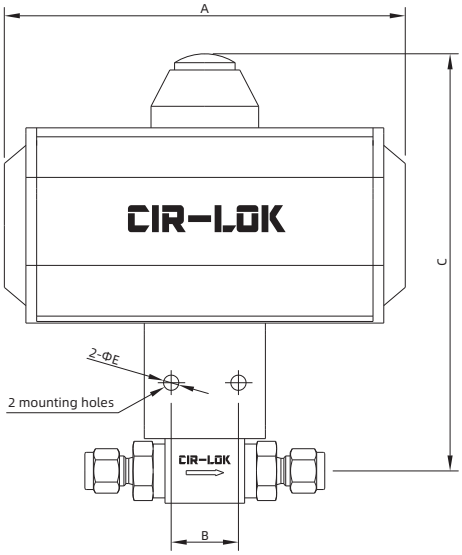
ISO 5211-Compliant Pneumatic Actuators

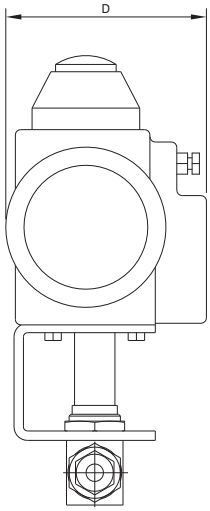
❖ CIR-LOK ISO 5211-compliant rack and pinion pneumatic actuators are available in spring-return and double-acting modes.

Pressure-Temperature Ratings

Temperature Range °F (°C)	Maximum Actuator Pressure, psig(bar)
-4 to 176 (-20 to 80)	101 (7.0)

Dimensions





Valve Series①	Actuation Modes (Angle range)	Dimensions, in.(mm)②				
		A	B	C	D	E
BV1-06	Spring Return or Double Acting (0-90°)	5.70 (145)	0.98 (25)	6.10 (155)	2.79 (71)	0.22 (5.7)
BV1-10		5.70 (145)	2.18 (55.6)	6.50 (165)	2.79 (71)	0.34 (8.6)
BV1-13		7.91 (201)	2.18 (55.6)	7.71 (196)	3.70 (94)	0.34 (8.6)

① Example: BV1-06 refers to BV1 series, 2-way, orifice 6.4mm valves
② Dimensions are for reference only and are subject to change

How to Order

BV1 — M12 — FNPT8 — P10 — 3 — 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
BV 1	**FNPT** Female NPT **NPT** Male NPT **FBT** Female BSPT **MBT** Male BSPT **FMS** Female Metric **MS** Male Metric (for BG) **FBP** Female BSPP **MBP** Male BSPP (for BG) **F** Fractional Tube Fitting **M** Metric Tube Fitting **UGF** Nut + Gasket + Bulge Fractional Tube Nipple **UGM** Nut + Gasket + Metric Tube Bulge Nipple	**2** 1/8 in. **3** 3 mm **4** 1/4 in. **5** 5/16 in. **6** 3/8 in. or 6 mm **8** 1/2 in. or 8 mm **10** 10 mm **12** 3/4 in. or 12 mm **14** 14 mm **16** 1 in. or 16 mm **18** 18 mm **20** 20 mm **22** 22 mm	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 **K** PCTFE **T** PTFE	**02** 0.093 in. (2.4 mm) **04** 0.165 in. (4.2 mm) **05** 0.187 in. (4.7 mm) **06** 0.250 in. (6.4 mm) **10** 0.406 in. (10.3 mm) **13** 0.5 in. (12.7 mm)	Black **R1** Red **G1** Green **L1** Blue **Y1** Yelow **PSC** **PSO** See Note **PD** **EA**	Straight **A1** Angle **3** 3-way	**316** 316 S.S. **316L** 316L S.S. **304** 304 S.S. **304L** 304L S.S. **A400** Alloy 400 **BR** Brass

Note:
PSC (ISO 5211-Compliant Pneumatic Actuators, spring return normally closed)
PSO (ISO 5211-Compliant Pneumatic Actuators, spring return normally open)
PD (ISO 5211-Compliant Pneumatic Actuators, double acting)
EA (Electric Actuator, Please consult customer service for parameters)

One-piece Ball Valves
BV2 Series

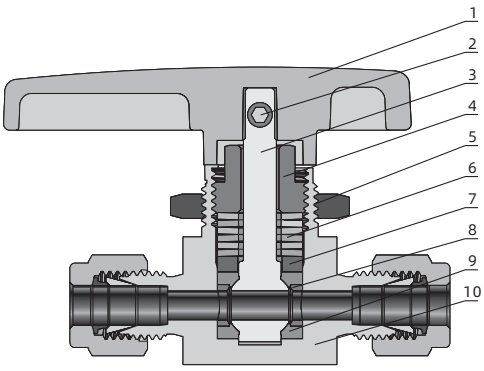
Features

- ❖ Maximum working pressure up to 3000 psig (206 bar)
- ❖ Working temperature from -65℉ to 300℉ (-54℃ to 148℃)
- ❖ 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 3/4'' or 3 mm to 12 mm

Pressure-Temperature Ratings

Body Material	316 S.S.								
Seat Material	PTFE								
Valve Type	angle, 3-way	2-way	2-way	2-way	angle, 3-way	4-way, 5-way	4-way	5-way	6-way, 7-way
Orifice (Ordering Number)	2.4(-02) 3.2(-03) 4.8(-05)	2.4(-02) 3.2(-03)	4.8(-05)	7.1(-07) 10.3(-10)	7.1(-07) 10.3(-10)	1.32(-00) 1.57(-01)	4.8(-05) 7.1(-07) 10.3(-10)	4.8(-05) 7.1(-07) 10.3(-10)	1.32(-00) 1.57(-01)
Temperature,℉ (℃)	Working Pressure, psig(bar)								
-65 (-53) to 50 (10)	2500 (172)	2500 (172)	3000 (206)	–	–	–	–	–	–
50 (10) to 150 (65)	2500 (172)	2500 (172)	3000 (206)	2500 (172)	1500 (103)	2500 (172)	1500 (103)	1500 (103)	500 (34.4)
200 (93)	2500 (172)	2500 (172)	2800 (193)	–	–	–	–	–	–
250 (121)	2500 (172)	2500 (172)	2650 (182)	–	–	–	–	–	–
300 (148)	2500 (172)	2500 (172)	2500 (172)	–	–	–	–	–	–

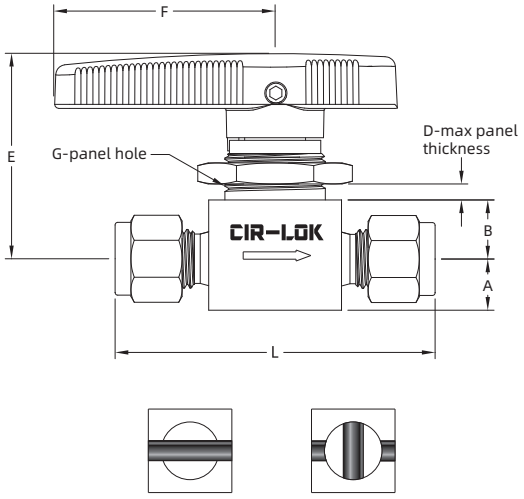
Standard Materials of Construction



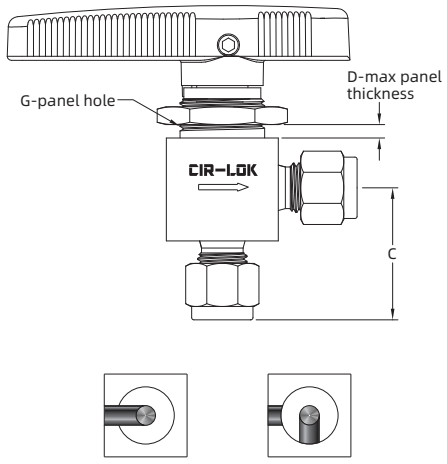
Component		Material Grade / ASTM Specification		
		316 S.S.	Brass	Alloy 400
1	Handle	Aluminum		
2	Screw	S17400 S.S. / A564		
3	Ball Stem	316 S.S. / A479	Brass CDA 360 / B16	Alloy 400 / B164
4	Packing Bolt	316 S.S. / A479	Brass CDA 360 / B16	Alloy R-405 / B164
5	Panel Nut	Powdered metal S.S.	Brass CDA 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 powderedmetal 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

Dimensions

On-Off Valves



2-way Valves

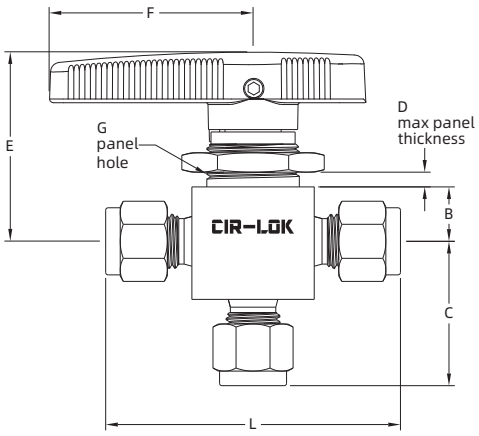


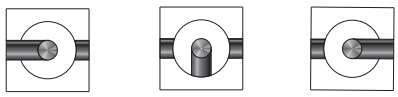
Angle Pattern Valves

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" CIR-LOK	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" CIR-LOK	0.093 (2.4)	0.20	0.15	2.01 (51.1)			0.97 (24.6)				
BV2-F4-03-	1/4" CIR-LOK	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" CIR-LOK		1.50		2.58 (65.5)			1.29 (32.8)				
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)	2.00 (50.8)	1 1/8 (28.6)
BV2-F8-10-	1/2" CIR-LOK	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" CIR-LOK		6.40	3.80								
BV2-M3-02-	3 mm CIR-LOK	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 CIR-LOK	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)	0.44 (11.2)	1.17 (29.7)	3/16 (4.8)	1.47 (37.3)	1.47 (37.3)	25/32 (19.8)
BV2-M8-05-	8 mm CIR-LOK		1.50		2.46 (62.5)			1.20 (30.5)				
BV2-M10-07-	10 mm CIR-LOK	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 CIR-LOK	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)

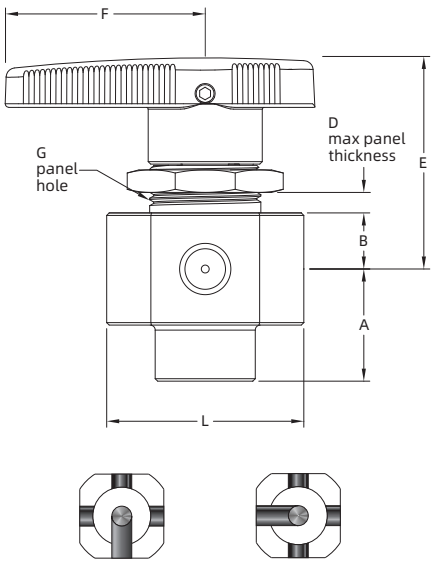
Basic Ordering Number	Connection Type and Size	Orifice in. (mm)	Cv		Dimension, in. (mm)							
			Straight	Angle	L	A	B	C	D	E	F	G
BV2-FNPT2-03-	1/8" Female NPT	0.125 (3.2)	0.50	0.30	1.63 (41.4)	0.28 (7.1)	0.34 (8.6)	0.81 (20.6)	1/4 (6.4)	1.36 (34.5)	1.12 (28.4)	19/32 (15.1)
BV2-FNPT2-05-		0.187 (4.8)	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-		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)	11/8 (28.6)
BV2-FNPT6-07-	3/8" Female NPT		2.60	1.50								
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)		2.43 (61.7)	3.00 (76.2)	11/2 (38.1)
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)	11/8 (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)	11/2 (38.1)
BV2-NPT4-F4-05-	1/4" Male NPT to 1/4" CIR-LOK	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)	11/8 (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)	11/2 (38.1)

Switching Valves

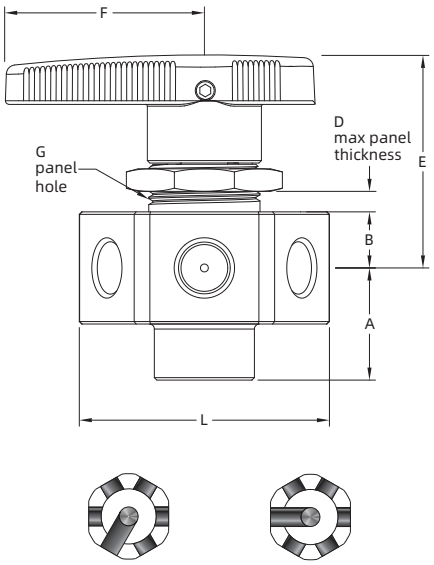




3-way Valves

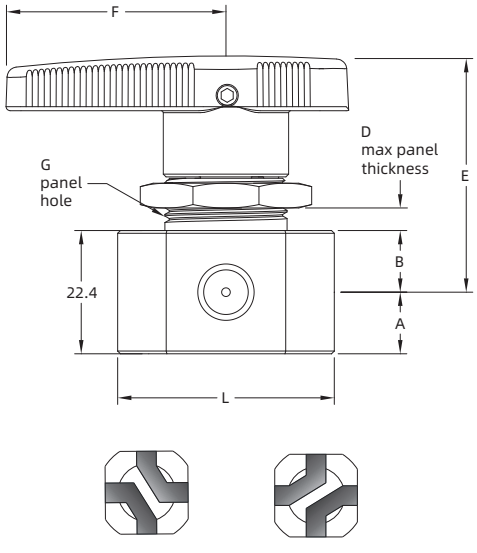


5-way Valves

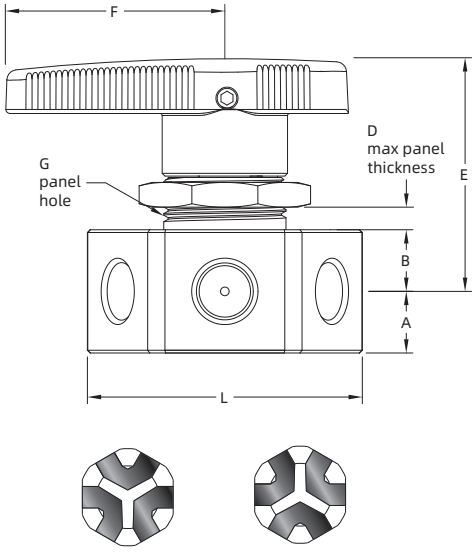


7-way Valves

Crossover Valves



4-way Valves



6-way Valves

Basic Ordering Number	Connection Type and Size	Orifice in.(mm)	CV	Dimension, in.(mm)							
				L	A	B	C	D	E	F	G
3-Way Valves											
BV2-F1-00-3-	1/16" CIR-LOK	0.052 (1.32)	0.08	1.68 (42.7)	—	0.34 (8.6)	0.81 (20.6)	1/4 (6.4)	1.36 (34.5)	1.13 (28.7)	19/32 (15.1)
BV2-F2-02-3-	1/8" CIR-LOK	0.093 (2.4)	0.15	2.01 (51.1)	—		0.97 (24.6)				
BV2-F4-03-3-	1/4" CIR-LOK	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)	—	0.44 (11.2)	1.17 (29.7)	3/16 (4.8)	1.47 (37.3)	1.65 (42)	25/32 (19.8)
BV2-F6-07-3-	3/8" CIR-LOK	0.281 (7.1)	2.00	2.89 (73.4)	—	0.56 (14.2)	1.43 (36.3)	3/8 (9.5)	2.07 (52.6)	2.00 (50.8)	1 1/8 (28.6)
BV2-F8-10-3-	1/2" CIR-LOK	0.406 (10.3)	4.60	3.48 (88.4)	—	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-	3/4" CIR-LOK		4.90		—						
BV2-M3-02-3-	3mm CIR-LOK	0.093 (2.4)	0.15	2.01 (51.1)	—	0.34 (8.6)	0.97 (24.6)	1/4 (6.4)	1.36 (34.5)	1.13 (28.7)	19/32 (15.1)
BV2-M6-03-3-	6mm CIR-LOK	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)	—	0.44 (11.2)	1.17 (29.7)	3/16 (4.8)	1.47 (37.3)	1.65 (42)	25/32 (19.8)
BV2-M8-05-3-	8mm CIR-LOK		0.80	2.46 (62.5)	—		1.20 (30.5)				
BV2-M10-07-3-	10mm CIR-LOK	0.281 (7.1)	2.00	2.89 (73.4)	—	0.56 (14.2)	1.43 (36.3)	3/8 (9.5)	2.07 (52.6)	2.00 (50.8)	1 1/8 (28.6)
BV2-M12-07-3-	12mm CIR-LOK	0.406 (10.3)	4.60	3.48 (88.4)	—	0.69 (17.5)	1.74 (44.2)		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)	—	0.34 (8.6)	0.81 (20.6)	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)	—	0.44 (11.2)	1.03 (26.2)	3/16 (4.8)	1.47 (37.3)	1.65 (42)	25/32 (19.8)
BV2-FNPT4-07-3-		0.281 (7.1)	1.70	2.50 (63.5)	—	0.56 (14.2)	1.25 (31.8)	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)	—	0.69 (17.5)	1.56 (39.6)		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)	—	0.44 (11.2)	1.03 (26.2)	3/16 (4.8)	1.47 (37.3)	1.65 (42)	25/32 (19.8)
BV2-FBT6-07-3-	3/8" Female BSPT	0.281 (7.1)	1.50	2.50 (63.5)	—	0.56 (14.2)	1.25 (31.8)	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)	—	0.69 (17.5)	1.56 (39.6)		2.43 (61.7)	3.00 (76.2)	1 1/2 (38.1)
4, 5-Way Valves											
BV2-F2-01-4-	1/8" CIR-LOK	0.062 (1.6)	0.07	2.60 (66.1)	0.44 (11.2)	0.44 (11.2)	—	5/32 (4.1)	1.69 (42.9)	1.65 (42)	29/32 (23.1)
BV2-F2-01-5-					1.30 (33.1)	0.44 (11.2)	—				
BV2-FNPT2-01-4-	1/8" Female NPT	0.062 (1.6)	0.07	1.55 (39.4)	0.44 (11.2)	0.44 (11.2)	—				
BV2-FNPT2-01-5-					0.88 (22.4)	0.44 (11.2)	—				
BV2-FNPT8-10-4-	1/2" Female NPT	0.406 (10.3)	3.50	3.30 (84)	0.82 (21)	0.82 (21)	—	3/8 (9.5)	2.62 (66.7)	3.63 (92.2)	1 3/4 (44)
BV2-FNPT8-10-5-					1.73 (44)	0.82 (21)	—				
6, 7-Way Valves											
BV2-F1-00-6-	1/16" CIR-LOK	0.052 (1.3)	0.05	1.94 (49.3)	0.44 (11.2)	0.44 (11.2)	—	1/4 (6.4)	1.36 (34.5)	1.13 (28.7)	19/32 (15.1)
BV2-F1-00-7-					0.97 (24.6)	0.44 (11.2)	—				
BV2-F2-01-6-	1/8" CIR-LOK	0.062 (1.6)	0.07	2.60 (66.1)	0.44 (11.2)	0.44 (11.2)	—	3/16 (4.8)	1.69 (39.1)	1.65 (42)	29/32 (23.1)
BV2-F2-01-7-					1.30 (33.1)	0.44 (11.2)	—				

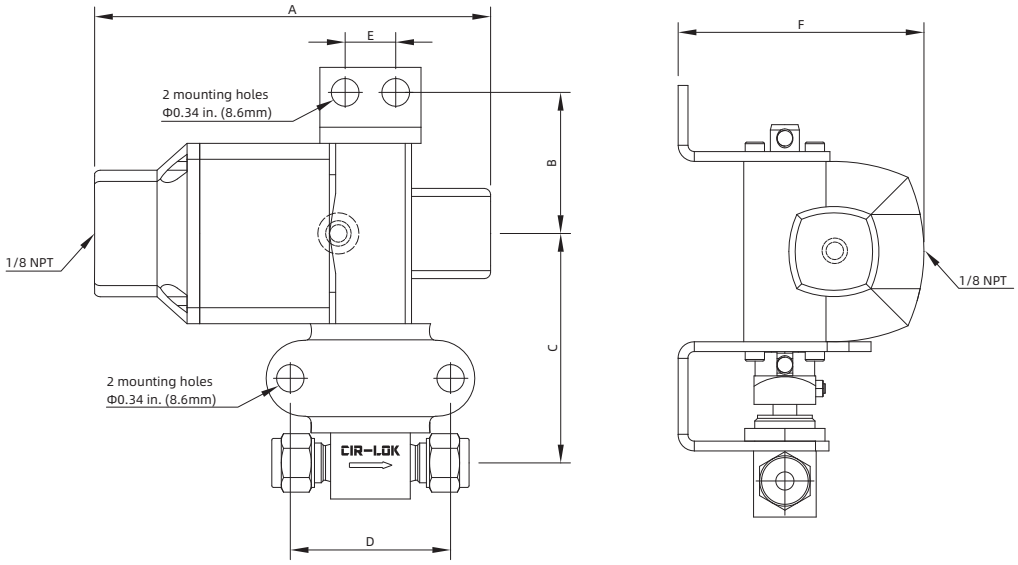
Compact Pneumatic Actuators

❖CIR-LOK rack and pinion pneumatic actuators are compact, lightweight, easily mountable, and can be operated with standard shop air, spring return normally open and normally closed option.

Pressure-Temperature Ratings

Temperature Range °F (°C)	Maximum Actuator Pressure, psig(bar)	
	At 100°F 37°C	At Maximum Temperature
-20 to 200 (-28 to 93)	200 (13.7)	165 (11.3)

Dimensions



Valve Series①	Actuation Modes (Angle range)	Dimensions, in.(mm)②					
		A	B	C	D	E	F
BV2-05-	Spring Return (0-90°)	4.91 (125)	1.75 (44.5)	2.91 (73.9)	2.00 (50.8)	0.62 (15.8)	3.04 (77.2)
BV2-05-3-	Spring Return (0-180°)						

① Example: BV2-05 refers to BV2 series, 2-way, orifice 4.8mm valves
② Dimensions are for reference only and are subject to change

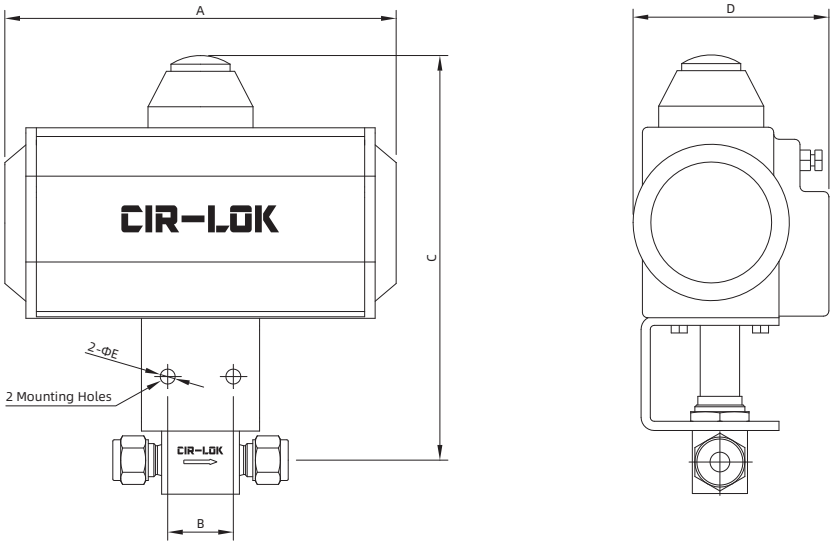
ISO 5211-Compliant Pneumatic Actuators

❖ CIR-LOK ISO 5211-compliant rack and pinion pneumatic actuators are available in spring-return and double-acting modes.

Pressure-Temperature Ratings

Temperature Range °F (°C)	Maximum Actuator Pressure, psig(bar)
-4 to 176 (-20 to 80)	101 (7.0)

Dimensions



Valve Series①	Actuation Modes (Angle range)	Dimensions, in.(mm)②				
		A	B	C	D	E
BV2-02	Spring Return or Double Acting (0-90°)	5.70 (145)	0.98 (25)	5.70 (145)	2.79 (71)	0.22 (5.7)
BV2-03		5.70 (145)	0.98 (25)	5.70 (145)	2.79 (71)	0.22 (5.7)
BV2-05		5.70 (145)	0.98 (25)	5.70 (145)	2.79 (71)	0.22 (5.7)
BV2-07		5.70 (145)	0.98 (25)	6.18 (157)	2.79 (71)	0.22 (5.7)
BV2-10		6.65 (169)	1.37 (35)	7.24 (184)	3.23 (82)	0.34 (8.6)

① BV2-03 refers to BV2 series, 2-way, orifice 3.2mm valves
② Dimensions are for reference only and are subject to change

How to Order

BV2 — M12 — FNPT8 — T10 — 3 — 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 **NPT** Male NPT **FBT** Female BSPT **MBT** Male BSPT **FMS** Female Metric **MS** Male Metric (for BG) **FBP** Female BSPP **MBP** Male BSPP (for BG) **F** Fractional Tube Fitting **M** Metric Tube Fitting **GFS** Male GFS	**2** 1/8 in. **3** 3 mm **4** 1/4 in. **5** 5/16 in. **6** 3/8 in. or 6 mm **8** 1/2 in. or 8 mm **10** 10 mm **12** 3/4 in. or 12 mm	Same as Port1 Type and Port1 Size If Port 2/3 and Port1 are the same, eliminate the Port 2/3 designator		**T** PTFE	**00** 0.052 in. (1.32 mm) **01** 0.062 in. (1.57 mm) **02** 0.093 in. (2.4 mm) **03** 0.125 in. (3.2 mm) **05** 0.187 in. (4.7 mm) **07** 0.281 in. (7.1 mm) **10** 0.406 in. (10.3 mm)	Black **R1** Red **G1** Green **L1** Blue **Y1** Yelow **PSC** **PSO** **PD** **CPSC** **CPSO** **EA** See Note	**A1** Angle **3** 3-way **4** 4-way **5** 5-way **6** 6-way **7** 7-way	**316** 316 S.S. **316L** 316L S.S. **304** 304 S.S. **304L** 304L S.S. **A400** Alloy 400 **BR** Brass

Note:
PSC (ISO 5211-Compliant Pneumatic Actuators, spring return normally closed)
PSO (ISO 5211-Compliant Pneumatic Actuators, spring return normally open)
PD (ISO 5211-Compliant Pneumatic Actuators, double acting)
CPSC (Compact Pneumatic Actuators, spring return normally closed)
CPSO (Compact Pneumatic Actuators, spring return normally open)
EA (Electric Actuator, please consult customer service for parameters)

Two-Piece Ball Valves

BV3 Series

Features

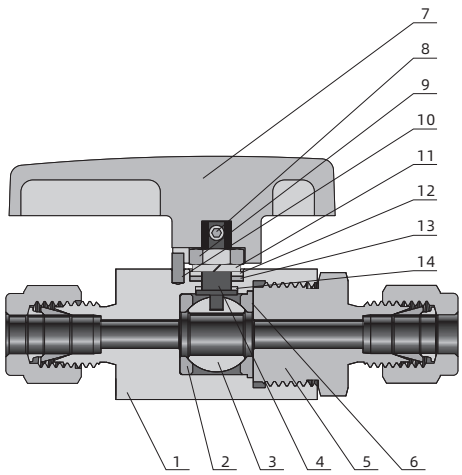
- ❖ Maximum working pressure up to 1500 psig (103.4 bar)
- ❖ Working temperature from -30℉ to 400℉ (-34℃ to 204℃)
- ❖ Compact and economical design
- ❖ Free floating ball design for seat wear compensation
- ❖ Bi-directional flow
- ❖ Blowout proof stem
- ❖ Options for handle color

Pressure-Temperature Ratings

Temperature,℉(℃)	Working Pressure, psig(bar)
-30 (-34) to 100 (37)	1500 (103)
200 (93)	1000 (68)
300 (148)	800 (55)
400 (204)	330 (23)

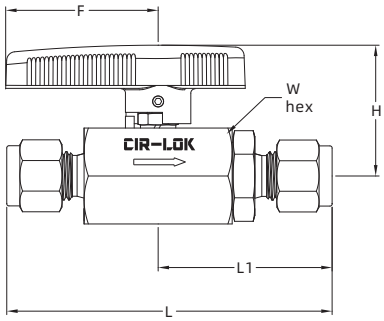
❖ The above data is based on 316 S.S. valve bodies and connectors

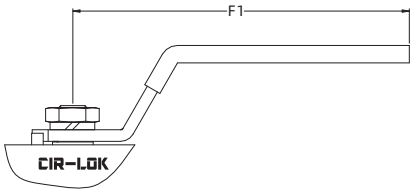
Standard Materials of Construction



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	Connecter	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 CIR-LOK	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 CIR-LOK								
BV3-F4-07-	1/4" CIR-LOK								
BV3-F5-07-	5/16" CIR-LOK								
BV3-FNPT2-07-	1/8" Female NPT			1.85 (47.0)	1.08 (27.4)				
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 CIR-LOK			2.87 (72.9)	1.68 (42.7)	7/8 (22.23)			
BV3-F6-07-	3/8" CIR-LOK								
BV3-FBP6-07-	3/8" Female BSPP			2.03 (51.6)	1.18 (30.0)				
BV3-FNPT6-07-	3/8" Female NPT								
BV3-M12-09-	12 mm CIR-LOK	0.354 (9.0)	6.4	3.15 (80.0)	1.83 (46.5)	15/16 (24.0)	1.54 (39)	1.65 (42.0)	3.22 (82.0)
BV3-F8-09-	5/8" CIR-LOK								
BV3-F10-09-	5/8" CIR-LOK								
BV3-FBP8-09-	1/2" Female BSPP			2.05 (52.1)	1.12 (28.5)				
BV3-FNPT8-09-	1/2" Female NPT								
BV3-M16-13-	16mm CIR-LOK	0.50 (12.7)	8.0	4.05 (103)	2.18 (55.5)	1.25 (31.75)	1.59 (40.4)	1.97 (50.0)	3.46 (88.0)
BV3-M18-13-	18mm CIR-LOK								
BV3-F12-13-	3/4" CIR-LOK								
BV3-FBP12-13-	3/4" Female BSPP			3.05 (77.5)	1.60 (40.8)				
BV3-FNPT12-13-	3/4" Female NPT			3.46 (87.9)	1.96 (49.8)				
BV3-M25-15-	25mm CIR-LOK	0.59 (15.0)	17.0	4.78 (121.5)	2.56 (65.0)	1.62 (41.29)	1.89 (48.0)	2.36 (60.0)	4.02 (102.0)
BV3-F16-15-	1" CIR-LOK								
BV3-FBP16-15-	1" Female BSPP			3.62 (92.0)	1.85 (47.0)				
BV3-FNPT16-15-	1" Female NPT			3.86 (98.0)	1.93 (49.0)				

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

High Pressure Ball Valves

BV4 Series

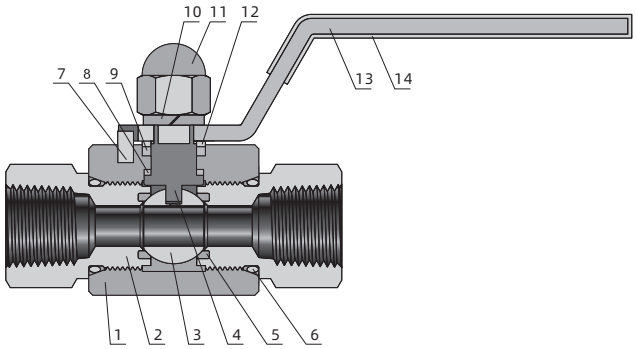
Features

- Maximum working pressure up to 6000 psig (413 bar)
- Working temperature from -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)	

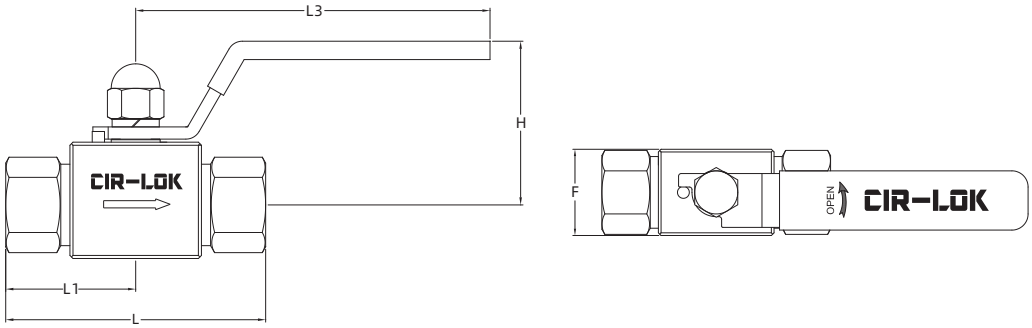
Standard Materials of Construction



2-way Valves

Component		Body Material	
		316 S.S.	Steel
1	Body	316 S.S./A479	Alloy 1020/A108
2	End Connecter	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	Stalinless Steel	
8	Stem Washer	PTFE/D1710	
9	Stem Packing	PTFE/D1710	
10	Spring Washer	Stalinless Steel	
11	Nut	Stalinless Steel	
12	Gland	316 S.S./A276	
13	Handle	Stalinless Steel	
14	Handle sleeve	Vinyl	

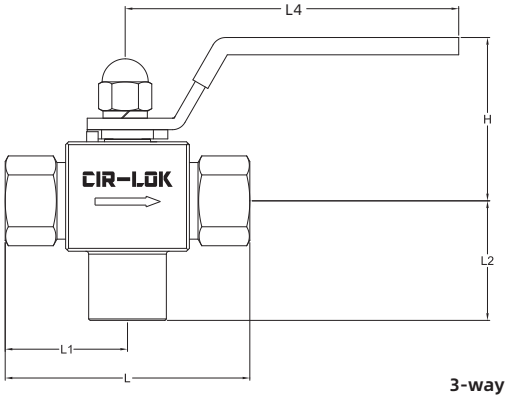
Dimensions



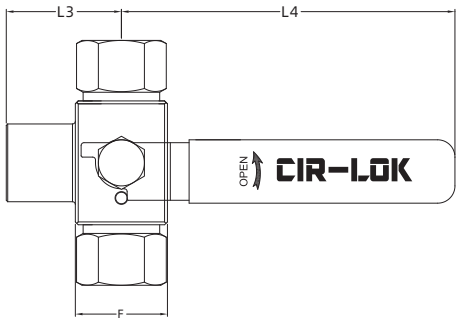
2-way Valves

Basic Ordering Number	Connection Type and Size	Orifice in. (mm)	Cv	Dimension, in. (mm)				
				L	L1	L3	H	F
BV4-M6-10-	6 mm CIR-LOK	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 CIR-LOK			3.60 (91.6)	1.80 (45.8)			
BV4-M10-10-	10 mm CIR-LOK		3.7	3.70 (94.0)	1.85 (47.0)			
BV4-M12-10-	12 mm CIR-LOK		7.5	3.94 (100.0)	1.97 (50.0)			
BV4-M14-10-	14 mm CIR-LOK							
BV4-F4-10-	1/4" CIR-LOK		1.2	3.60 (91.6)	1.80 (45.8)			
BV4-F6-10-	3/8" CIR-LOK		3.7	3.72 (94.6)	1.86 (47.3)			
BV4-F8-10-	1/2" CIR-LOK		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 CIR-LOK	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 CIR-LOK			4.12 (104.6)	2.06 (52.3)			
BV4-M20-13-	20 mm CIR-LOK			4.43 (112.6)	2.22 (56.3)			
BV4-M22-13-	22 mm CIR-LOK							
BV4-F10-13-	5/8" CIR-LOK			4.36 (110.6)	2.18 (55.3)			
BV4-F12-13-	3/4" CIR-LOK							
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 CIR-LOK	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 CIR-LOK							
BV4-M25-19-	25 mm CIR-LOK		30.0	5.11 (129.8)	2.66 (64.9)			
BV4-F12-19-	3/4" CIR-LOK		19.0	4.59 (116.6)	2.29 (58.3)			
BV4-F16-19-	1" CIR-LOK		30.0	5.11 (129.8)	2.66 (64.9)			
BV4-FNPT12-19-	3/4" Female NPT			3.54 (90.0)	1.77 (45.0)			
BV4-FNPT16-19-	1" Female NPT			3.86 (98.2)	1.93 (49.1)			
BV4-NPT12-19-	3/4" Male NPT		19.0	4.54 (115.2)	2.27 (57.6)			
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)			

Vertical Pattern



Horizontal Pattern



3-way Valves

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 CIR-LOK	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 CIR-LOK			3.60 (91.6)	1.80 (45.8)	2.02 (51.3)			
BV4-M10-10-3-	10 mm CIR-LOK		3.7	3.70 (94.0)	1.85 (47.0)	2.07 (52.5)			
BV4-M12-10-3-	12 mm CIR-LOK		7.5	3.94 (100.0)	1.97 (50.0)	2.18 (55.5)			
BV4-M14-10-3-	14 mm CIR-LOK								
BV4-F4-10-3-	1/4" CIR-LOK		1.2	3.60 (91.6)	1.80 (45.8)	2.01 (53.3)			
BV4P-F6-10-3-	3/8" CIR-LOK		3.7	3.72 (94.6)	1.86 (47.3)	2.16 (54.8)			
BV4P-F8-10-3-	1/2" CIR-LOK		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			3.11 (79.0)	1.56 (38.5)	1.73 (44.0)			
BV4-NPT4-10-3-	1/4" Male NPT		3.7	3.36 ϕ5.4)	1.68 (42.7)	1.90 (48.2)			
BV4-NPT6-10-3-	3/8" Male NPT		7.5						
BV4-NPT8-10-3-	1/2" Male NPT			3.75 ϕ5.2)	1.88 (47.6)	2.09 (53.1)			
BV4-M16-13-3-	16 mm CIR-LOK	0.5 (12.7)	10.0	4.04 (102.6)	2.02 (51.3)	2.41 (61.3)	5.71 (145.0)	1.89 (48.0)	1.50 (38.0)
BV4-M18-13-3-	18 mm CIR-LOK			4.12 (104.6)	2.06 (52.3)	2.45 (62.3)			
BV4-M20-13-3-	20 mm CIR-LOK			4.43 (112.6)	2.22 (56.3)	2.61 (66.3)			
BV4-M22-13-3-	22 mm CIR-LOK								
BV4-F10-13-3-	5/8" CIR-LOK			4.36 (110.6)	2.18 (55.3)	2.57 (65.3)			
BV4-F12-13-3-	3/4" CIR-LOK								
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					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 CIR-LOK	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-M22-19-3-	22 mm CIR-LOK								
BV4-M25-19-3-	25 mm CIR-LOK		30.0	5.11 (129.8)	2.66 (64.9)	3.00 (76.2)			
BV4-F12-19-3-	3/4" CIR-LOK		19.0	4.59 (116.6)	2.29 (58.3)	2.75 (69.8)			
BV4-F16-19-3-	1" CIR-LOK		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		30.0	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.

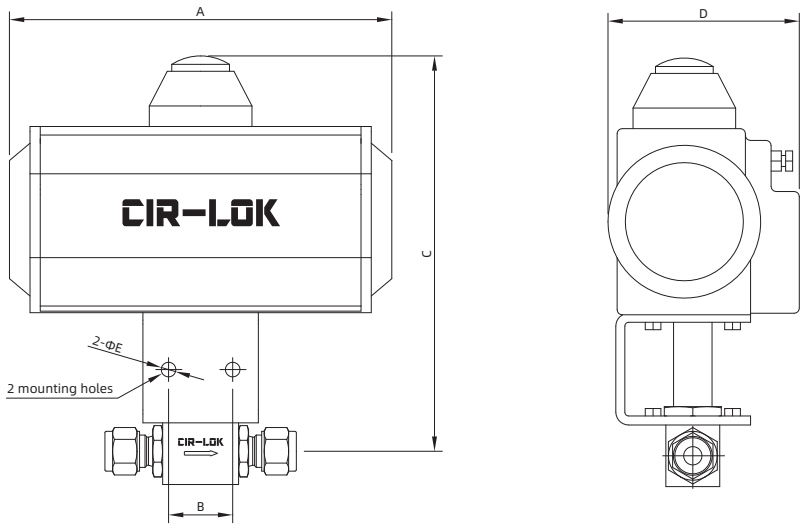
ISO 5211-Compliant Pneumatic Actuators

❖ CIR-LOK ISO 5211-compliant rack and pinion pneumatic actuators are available in spring-return and double-acting modes.

Pressure-Temperature Ratings

Temperature Range °F (°C)	Maximum Actuator Pressure, psig(bar)
-4 to 176 (-20 to 80)	101 (7.0)

Dimensions



Valve Series①	Actuation Modes (Angle range)	Dimensions, in.(mm)②				
		A	B	C	D	E
BV4-10	Spring Return or Double Acting (0-90°)	5.70 (145)	1.18 (30)	6.65 (169)	2.79 (71)	0.34 (8.6)
BV4-13		5.70 (145)	1.18 (30)	6.65 (169)	2.79 (71)	0.34 (8.6)
BV4-19		7.91 (201)	2.18 (55.6)	7.71 (196)	3.70 (94)	0.34 (8.6)

① Example: BV4-10 refers to BV4 series, 2-way, orifice 10.3mm valves
② Dimensions are for reference only and are subject to change

How to Order

BV4 — M12 — FNPT8 — P10 — 3 — 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
BV4	**FNPT** Female NPT **NPT** Male NPT **FBT** Female BSPT **MBT** Male BSPT **FMS** Female Metric **MS** Male Metric (for BG) **FBP** Female BSPP **MBP** Male BSPP (for BG) **F** Fractional Tube Fitting **M** Metric Tube Fitting **MSW** Metric Tube Socket Weld **FSW** Fractional Tube Socket Weld **MBW** Metric Tube Butt Weld **FBW** Fractional Tube Butt Weld **PSW** Pipe Socket Weld **PBW** Pipe Butt Weld **UGF** Nut + Gasket + Bulge Fractional Tube Nipple **UGM** Nut + Gasket + Metric Tube Bulge Nipple **24C** 24°C Cone Connection	**2** 1/8 in. **3** 3 mm **4** 1/4 in. **5** 5/16 in. **6** 3/8 in. or 6 mm **8** 1/2 in. or 8 mm **10** 10 mm **12** 3/4 in. or 12 mm **14** 14 mm **16** 1 in. or 16 mm **18** 18 mm **20** 1 1/4 in or 20 mm **22** 22 mm **24** 1 1/2 in. **25** 25 mm **27** M27x 2 **28** 28 mm **32** 2 in. or 32 mm	Same as port 1 type and port 1 size If Port 2/3 and port1 are the same, eliminate the port 2/3 designator		**P** PEEK **K** PCTFE **T** PTFE **R** RPTFE	**10** 0.406 in. (10.3 mm) **13** 0.5 in. (12.7 mm) **19** 0.75 in. (19.0 mm) **25** 1 in. (25.4 mm) **32** 1.25 in. (31.8 mm) **40** 1.5 in. (38.1 mm)	Blue **R1** Red **G1** Green **B1** Black **Y1** Yelow **PSC** **PSO** See Note **PD** **EA**	Straight **3** 3-way Vertical Pattern	**316** 316 S.S. **316L** 316L S.S. **304** 304 S.S. **304L** 304L S.S. **A400** Alloy 400 **CS** Steel

Note:
PSC (ISO 5211-Compliant Pneumatic Actuators, spring return normally closed)
PSO (ISO 5211-Compliant Pneumatic Actuators, spring return normally open)
PD (ISO 5211-Compliant Pneumatic Actuators, double acting)
EA (Electric Actuator, Please consult customer service for parameters)

Three-Piece Ball Valves

BV5 Series

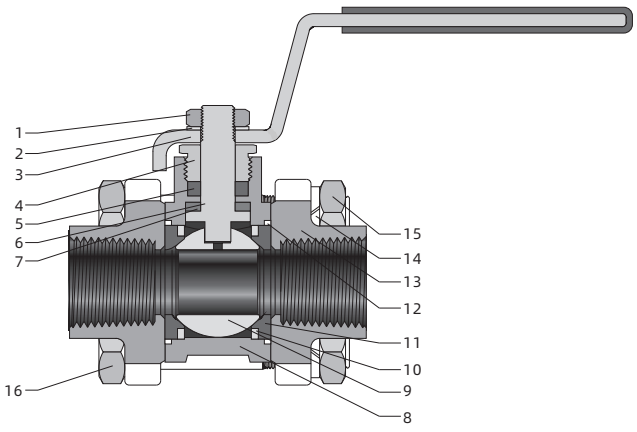
Features

- 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
- Blowout-proof stem
- Pneumatic and electric actuation are available

Pressure-Temperature Ratings

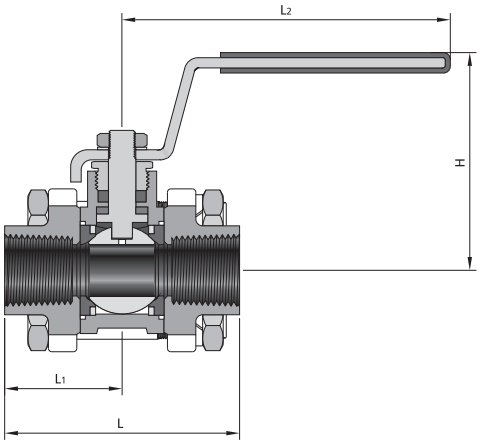
Body Material	CF3M	CF8M	CF3	CF8
Seat Material	PTFE			
Temperature,°F (°C)	Working Pressure, psig(bar)			
-20(-28) to 100(37)	1000(68.9)			
150(65)	1000(68.9)			
200(93)	1000(68.9)			
250(121)	1000(68.9)			
300(148)	800(55.1)			
350(176)	560(38.5)			
400(204)	330(22.7)			
450(232)	100(6.8)			

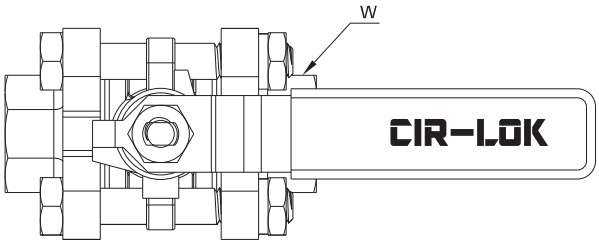
Standard Materials of Construction



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	Ball	316 S.S./A479			
10	Support Ring	316 S.S./A479			
11	Seat	PTFE/D1710			
12	Flange Seal	PTFE/D1710			
13	Flange	CF8M/A351	CF3M/A351	CF8/A351	CF3/A351
14	Gasket	304 S.S.			
15	Nut	Gr.8M/A194			
16	Body Bolt	Gr.B8M/A193			

Dimensions





Basic Ordering Number	Connection Type and Size	Orifice in. (mm)	Cv	Dimension, in. (mm)				
				L	L1	W	H	L2
BV5-FNPT2-05	1/8" Female NPT	0.188 (4.8)	1.2	2.57 (65.2)	1.28 (32.6)	0.93 (23.5)	3.94 (100.0)	2.15 (54.7)
BV5-FBT2-05-	1/8" Female BSPT							
BV5-PBW4-05	1/4" PBW							
BV5-F4-05	1/4" CIR-LOK							
BV5-M6-05-	6 mm CIR-LOK			3.17 (80.5)	1.59 (40.4)			
BV5-M8-05	8 mm CIR-LOK							
BV5-FNPT4-07-	1/4" Female NPT	0.281 (7.1)	3.8	2.57 (65.2)	1.28 (32.6)			
BV5-FBT4-07-	1/4" Female BSPT							
BV5-PSW4-07-	1/4" PSW							
BV5-PBW6-07-	3/8" PBW							
BV5-F6-07-	3/8" CIR-LOK			3.17 (80.5)	1.59 (40.4)			
BV5-M10-07-	10 mm CIR-LOK							
BV5-F8-10-	1/2" CIR-LOK	0.417 (10.6)	7.5	4.04 (103.0)	2.02 (51.3)			
BV5-M12-10-	12 mm CIR-LOK							
BV5-M14-10-	14 mm CIR-LOK							
BV5-FNPT6-13-	3/8" Female NPT	0.50 (12.7)	11.3	2.57 (65.2)	1.28 (32.6)	0.88 (22.3)	3.94 (100.0)	2.26 (57.5)
BV5-FBT6-13-	3/8" Female BSPT							
BV5-PSW6-13-	3/8" PSW							
BV5-PBW8-13-	1/2" PBW							
BV5-F10-13-	5/8" CIR-LOK			4.06 (103.0)	2.03 (51.6)			
BV5-M16-13-	16 mm CIR-LOK							
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							
BV5-PSW12-15	3/4" PSW							
BV5-MSW18-15-	18 mm MSW							
BV5-F12-15-	3/4" CIR-LOK			4.06 (103.2)	2.03 (51.6)			
BV5-M18-15-	18 mm CIR-LOK							
BV5-M20-15-	20 mm CIR-LOK							
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	L1	W	H	L2
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							
BV5-F16-20	1" CIR-LOK			5.36 (136.0)	2.68 (68.1)			
BV5-M22-20	22 mm CIR-LOK							
BV5-M25-20	25 mm CIR-LOK							
BV5-M28-20	28 mm CIR-LOK							
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" CIR-LOK			7.59(193.0)	3.79(96.3)			
BV5-FNPT20-32	1 1/4" Female NPT	1.25 (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 **NPT** Male NPT **FBT** Female BSPT **MBT** Male BSPT **FMS** Female Metric **MS** Male Metric (for BG) **FBP** Female BSPP **MBP** Male BSPP (for BG) **F** Fractional Tube Fitting **M** Metric Tube Fitting **MSW** Metric Tube Socket Weld **FSW** Fractional Tube Socket Weld **MBW** Metric Tube Butt Weld **FBW** Fractional Tube Butt Weld **PSW** Pipe Socket Weld **PBW** Pipe Butt Weld	**2** 1/8 in. **3** 3 mm **4** 1/4 in. **5** 5/16 in. **6** 3/8 in. or 6 mm **8** 1/2 in. or 8 mm **10** 10 mm **12** 3/4 in. or 12 mm **14** 14 mm **16** 1 in. or 16 mm **18** 18 mm **20** 1 1/4 in. or 20 mm **22** 22 mm **24** 1 1/2 in. **25** 25 mm **27** M27x 2 **28** 28 mm **32** 2 in. or 32 mm	Same as port 1 type and port 2 size If port2 and port 1 are the same, eliminate the port 2 designator	**T** PTFE	**05** 0.188 in. (4.8 mm) **07** 0.281 in. (7.1 mm) **10** 0.417 in. (10.6 mm) **13** 0.5 in. (12.7 mm) **15** 0.591 in. (15.0 mm) **20** 0.787 in. (20.0 mm) **25** 1.00 in. (25.4 mm) **32** 1.250 in. (31.75 mm) **38** 1.5 in. (38.1 mm) **50** 2.00 in. (50.8 mm)	Blue **R1** Red **G1** Green **B1** Black **Y1** Yelow **PSC** **PSO** **PD** **E**	**316L** CF3M **316** CF8M **304L** CF3 **304** CF8

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

❖ Electric Actuators: **E**

Swing-Out Ball Valves

BV6 Series

Features

- Maximum working pressure up to 3000 psig (206 bar)
- Working temperature from -20℉ to 450℉ (-28℃ to 232℃)
- 3-piece precision cast body construction
- Orifize sizes: 0.188''(4.8mm) to 1.500''(38.1mm)
- Blowout proof stem
- Multiple end connections available
- Pneumatic and electric actuator available
- Leak-tight performance testing with nitrogen or compressed air for every valve at the rated pressure to meet the requirement of no visible leak

Pressure-Temperature Ratings

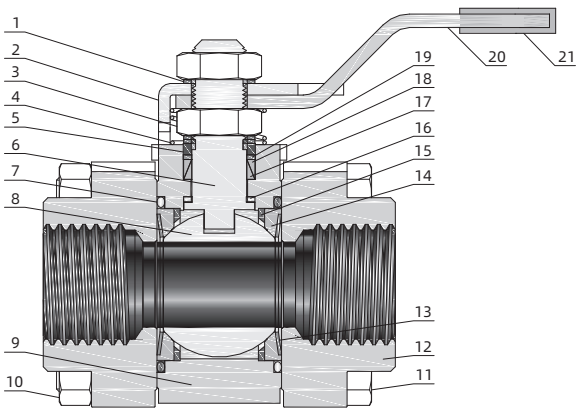
PEEK Seats

Orifice, in.(mm)	0.188 (4.8) 0.281 (7.1) 0.516 (13.1) 0.875 (22.2)	1.250 (31.8) 1.500 (38.1)
Temperature,℉ (℃)	Pressure, psig(bar)	
-20 (-28) to 100 (37)	3000 (206)	1500 (103)
150 (65)	2420 (166)	1210 (83.3)
200 (93)	1870 (128)	930 (64.0)
250 (121)	1770 (121)	880 (60.6)
300 (148)	1600 (110)	780 (53.7)
350 (176)	1430 (98.5)	690 (47.5)
400 (204)	1260 (86.8)	590 (40.6)
450 (232)	800 (55.1)	500 (34.4)

PTFE Seats

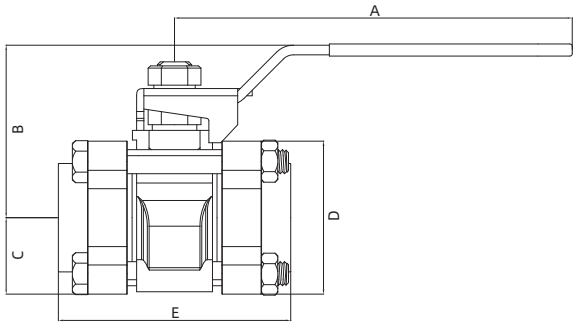
Orifice, in.(mm)	0.188 (4.8) 0.281 (7.1) 0.516 (13.1) 0.875 (22.2)	1.250 (31.8) 1.500 (38.1)
Temperature,℉ (℃)	Pressure, psig(bar)	
-20 (-28) to 100 (37)	1500 (103)	1500 (103)
150 (65)	1500 (103)	1210 (83.3)
200 (93)	1500 (103)	930 (64.0)
250 (121)	1150 (79.2)	880 (60.6)
300 (148)	800 (55.1)	780 (53.7)
350 (176)	560 (38.5)	560 (38.5)
400 (204)	330 (22.7)	330 (22.7)
450 (232)	100 (6.8)	100 (6.8)

Standard Materials of Construction



	Component	Material Grade/ASTM Specification
1	Stem spring	Strain hardened 316 S.S. /ASTM A240
2	Stop plate	304 S.S. /ASTM A240
3	Stem Nut	304 S.S.
4	Grounding spring	302 S.S. /ASTM A313
5	Gland	PTFE-coated 316 S.S./ASTM B783
6	Stem	316 S.S. /ASTM A479
7	Flange seals	Fluorocarbon FKM
8	Ball	316 S.S. /ASTM A479
9	Body	CF3M /ASTM A351
10	Body hex nuts	304 S.S.
11	Body fasteners	304 S.S.
12	Flange	CF3M /ASTM A351
13	Coned-disc springs	Strain hardened 316 S.S. /ASTM A240
14	Seats	PTFE or PEEK
15	Support rings	316 S.S. /ASTM A240, ASTM A479
16	Stem bearings	PEEK
17	Bottom packing	PTFE or Reinforced PTFE
18	Top packing	PTFE or Reinforced PTFE
19	Packing support	PEEK
20	Handle	304 S.S.
21	Handle Sleeve	PVC

Dimensions



Basic Ordering Number	Connection Type and Size	Orifice, in.(mm)	Cv	A in.(mm)	B in.(mm)	C in.(mm)	D in.(mm)	E in.(mm)
BV6-F4-05-	1/4" CIR-LOK	0.188 (4.8)	1.2	4.50 (114)	2.35 (59.7)	0.89 (22.6)	1.78 (45.2)	3.72 (94.5)
BV6-M6-05-	6 mm CIR-LOK							
BV6-FSW4-05-	1/4" Tube Socket Weld							3.76 (81.5)
BV6-PBW4-05-	1/4 Pipe Butt Weld							
BV6-F6-07-	3/8" CIR-LOK	0.281 (7.1)	3.8					3.76 (95.5)
BV6-M10-07-	10 mm CIR-LOK							
BV6-FNPT2-07-	1/8 Female NPT							2.70 (68.6)
BV6-FNPT4-07-	1/4 Female NPT							
BV6-FBT4-07-	1/4 Female BSPT							
BV6-FSW6-07-	3/8" Tube Socket Weld							
BV6-FNPT6-13-	3/8 Female NPT	0.516 (13.1)	12	4.50 (114)	2.35 (59.7)	0.89 (22.6)	1.78 (45.2)	2.70 (68.6)
BV6-FNPT8-13-	1/2 Female NPT							
BV6-FBT8-13-	1/2 Female BSPT							
BV6-F12-13-	3/4" CIR-LOK		13.6					4.04 (103)
BV6-M18-13-	18 mm CIR-LOK							
BV6-FSW12-13-	3/4" Tube Socket Weld							2.70 (68.6)
BV6-PSW8-13-	1/2 Pipe Socket Weld		15					
BV6-PBW8-13-	1/2 Pipe Butt Weld							2.69(68.3)
BV6-FNPT12-22-	3/4 Female NPT	0.875 (22.2)	31	6.50 (165)	2.76 (70.0)	1.25 (31.8)	2.50 (63.5)	3.59 (91.2)
BV6-FNPT16-22-	1 Female NPT		38					
BV6-FBT12-22-	3/4 Female BSPT		31					
BV6-FBT16-22-	1 Female BSPT		38					
BV6-M25-22-	25 mm CIR-LOK		40					5.36 (136)
BV6-F16-22-	1" CIR-LOK							
BV6-FSW16-22-	1" Tube Socket Weld							3.59 (91.2)
BV6-PSW12-22-	3/4 Pipe Socket Weld		36					
BV6-PBW16-22-	1 Pipe Butt Weld		40					3.46 (87.9)
BV6-F24-32-	1 1/2" CIR-LOK	1.250 (31.8)	100	9.14 (232)	4.16 (106)	1.74 (44.2)	3.47 (88.1)	7.59 (193)
BV6-FNPT20-32-	1 1/4 Female NPT		90					4.39 (112)
BV6-FNPT24-32-	1 1/2 Female NPT		100					
BV6-FBT24-32-	1 1/2 Female BSPT							
BV6-FSW24-32-	1 1/2" Tube Socket Weld		100					
BV6-PSW20-32-	1 1/4 Pipe Socket Weld		90					4.51(115)
BV6-PSW24-32-	1 1/2 Pipe Socket Weld		100					4.57(116)
BV6-PBW24-32-	1 1/2 Pipe Butt Weld		100					
BV6-FNPT32-38-	2 Female NPT	1.500 (38.1)	130	9.14 (232)	4.16 (106)	1.74 (44.2)	3.47 (88.1)	4.94 (125)
BV6-FBT32-38-	2 Female BSPT							
BV6-F32-38-	2" CIR-LOK							9.95(253)
BV6-FSW32-38-	2" Tube Socket Weld							4.94(125)
BV6-PSW32-38-	2 Pipe Socket Weld							
BV6-PBW32-38-	2 Pipe Butt Weld							5.09(129)

❖ All dimensions for reference only and subject to change

How to Order

BV6 — FNPT8 — FNPT6 — P13 — R1 — 316

Series	Port 1 Type	Port 1 Size	Port 2 Type / Port 2 Size	Seat Material	Orifice Size	Handle	Body Material
BV6	**F** Fractional Tube Fitting **M** Metric Tube Fitting **NPT** Male NPT **FNPT** Female NPT **MBT** Male BSPT **FBT** Female BSPT **MBW** Metric Tube Butt Weld **FBW** Fractional Tube Butt Weld **PBW** Pipe Butt Weld **MSW** Metric Tube Socket Weld **FSW** Fractional Tube Socket Weld **PSW** Pipe Socket Weld	**4** 1/4 in. **6** 3/8 in. or 6 mm **8** 1/2 in. or 8 mm **10** 10 mm **12** 3/4 in. or 12 mm **14** 14 mm **16** 1 in. or 16 mm **24** 1 1/2 in. **25** 25 mm **32** 2 in. or 32 mm	Same as port 1 type and port 1 size If port 2 and port 1 are the same, eliminate the port 2 designator	**P** PEEK **T** PTFE	**05** 0.188 in. (4.8mm) **07** 0.281 in. (7.1mm) **13** 0.516 in. (13.1 mm) **22** 0.875 in. (22.2 mm) **32** 1.250 in. (31.8 mm) **38** 1.500 in. (38.1 mm)	Blue **R1** Red **G1** Green **B1** Black **Y1** Yelow	**316** CF8M **316L** CF3M **304** CF8 **304L** CF3

Trunnion Ball Valves
BV7 Series

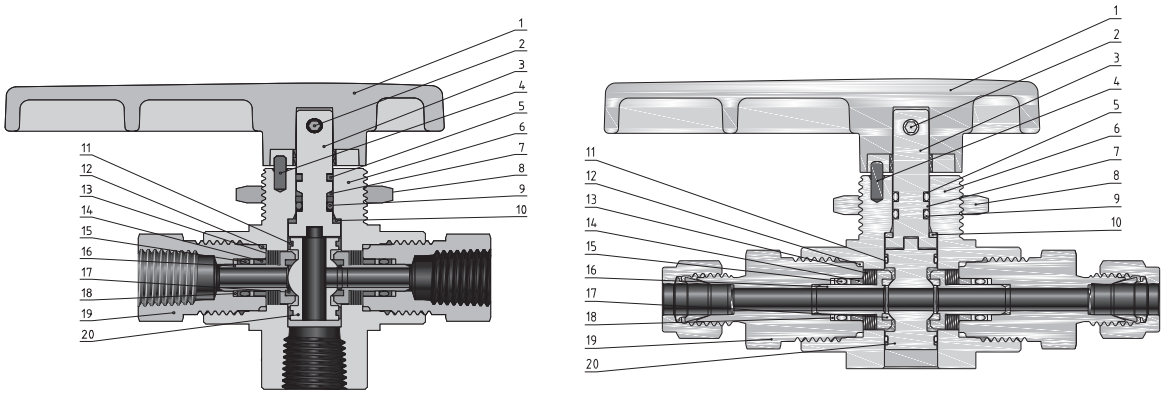
Features

- 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-Temperature Ratings

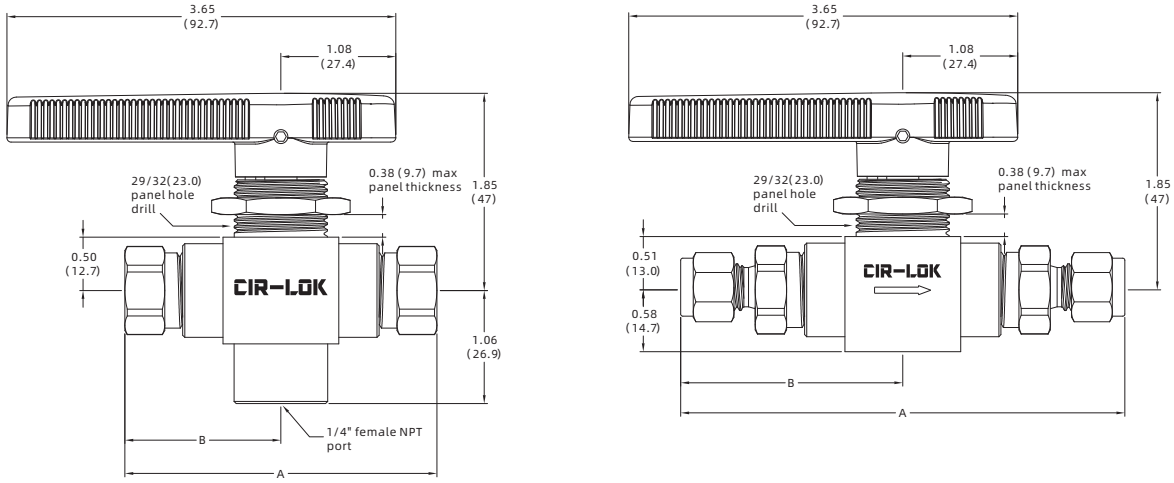
Body Material	316 S.S.			Alloy 400		
Seat Material	PEEK	PCTFE	PTFE	PEEK	PCTFE	PTFE
Temperature, °F (°C)	Working Pressure, psig (bar)					
-65 (-54) to 100 (37)	6000 (413)	6000 (413)	1500 (103)	5000 (344)	5000(344)	1500 (103)
200 (93)	5000 (344)	2000 (137)	750 (151)	4390 (302)	2000(137)	750 (151)
250 (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



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" CIR-LOK			4.14 (105.2)	2.07 (52.6)
BV7-F6-05-	3/8" CIR-LOK			4.39 (111.5)	2.19 (55.6)
BV7-F8-05-	1/2" CIR-LOK			4.60 (116.8)	2.30 (58.4)
BV7-M6-05-	6 mm CIR-LOK			4.14 (105.2)	2.07 (52.6)
BV7-M8-05-	8 mm CIR-LOK			4.15 (105.4)	
BV7-M10-05-	10 mm CIR-LOK			4.41 (112.0)	2.20 (55.9)
BV7-M12-05-	12 mm CIR-LOK			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" CIR-LOK			4.14 (105.2)	2.07 (52.6)
BV7-F6-05-3-	3/8" CIR-LOK			4.39 (111.5)	2.19 (55.6)
BV7-F8-05-3-	1/2" CIR-LOK			4.60 (116.8)	2.30 (58.4)
BV7-M6-05-3-	6 mm CIR-LOK			4.14 (105.2)	2.07 (52.6)
BV7-M8-05-3-	8 mm CIR-LOK			4.15 (105.4)	
BV7-M10-05-3-	10 mm CIR-LOK			4.41 (112.0)	2.20 (55.9)
BV7-M12-05-3-	12 mm CIR-LOK			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.

How to Order

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 Alloy 400	**T** PTFE **K** PCTFE **P** PEEK

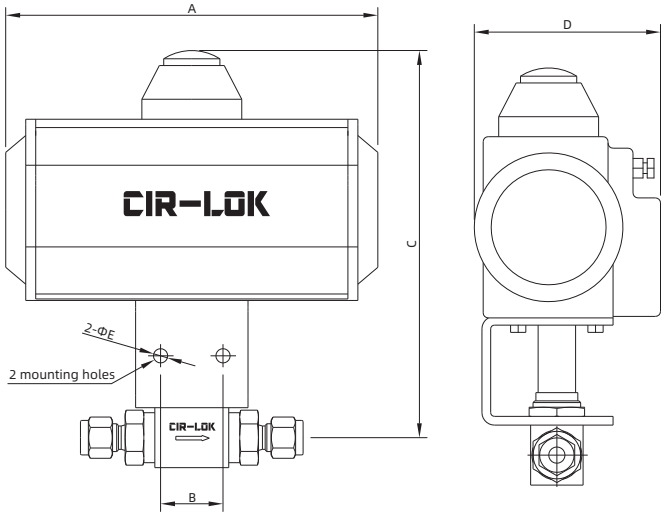
ISO 5211-Compliant Pneumatic Actuators

❖ CIR-LOK ISO 5211-compliant rack and pinion pneumatic actuators are available in spring-return and double-acting modes.

Pressure-Temperature Ratings

Temperature Range °F (°C)	Maximum Actuator Pressure, psig(bar)
-4 to 176 (-20 to 80)	101 (7.0)

Dimensions



Valve Series①	Actuation Modes (Angle range)	Dimensions, in.(mm)②				
		A	B	C	D	E
BV7-05	Spring Return or Double Acting (0-90°)	5.70 (145)	0.98 (25)	6.10 (155)	2.79 (71)	0.22 (5.7)

① Example: BV7-05 refers to BV7 series, 2-way, orifice 4.75mm valves
② Dimensions are for reference only and are subject to change

How to Order

BV7 — M10 — FNPT4 — P05 — L3 — 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
BV7	**FNPT** Female NPT **NPT** Male NPT **FBT** Female BSPT **MBT** Male BSPT **FMS** Female Metric **MS** Male Metric (for BG) **FBP** Female BSPP **MBP** Male BSPP (for BG) **F** Fractional Tube Fitting **M** Metric Tube Fitting	**2** 1/8 in. **3** 3 mm **4** 1/4 in. **5** 5/16 in. **6** 3/8 in. or 6 mm **8** 1/2 in. or 8 mm **10** 10 mm **12** 12 mm	Same as port 1 type and port 2 size If port2/3 and port 1 are the same, eliminate the port 2/3 designator	**K** PCTFE **P** PEEK **T** PTFE	**05** 0.187 in. (4.7 mm)	Black **L** Blue **R** Red **G** Green **Y** Yelow **PSC** **PSO** **PD** **EA** See Note	Straight **3** 3-way	**316** 316 S.S. **316L** 316L S.S. **304** 304 S.S. **304L** 304L S.S. **A400** Alloy 400

Note:
PSC (ISO 5211-Compliant Pneumatic Actuators, spring return normally closed)
PSO (ISO 5211-Compliant Pneumatic Actuators, spring return normally open)
PD (ISO 5211-Compliant Pneumatic Actuators, double acting)
EA (Electric Actuator, Please consult customer service for parameters)

Metal Seated Ball Valves

BV8 Series

Features

- Working pressure from ASME class 600 to 4500
- Working temperature from -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

Applicable Codes and Standards

- Working temperature fromASME 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 LIMITED CLASS	BORE	Cv	
			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

SIZE	ANSI LIMITED CLASS	BORE	Cv	
			SCHEDULE- 160	SCHEDULE- XXS
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.

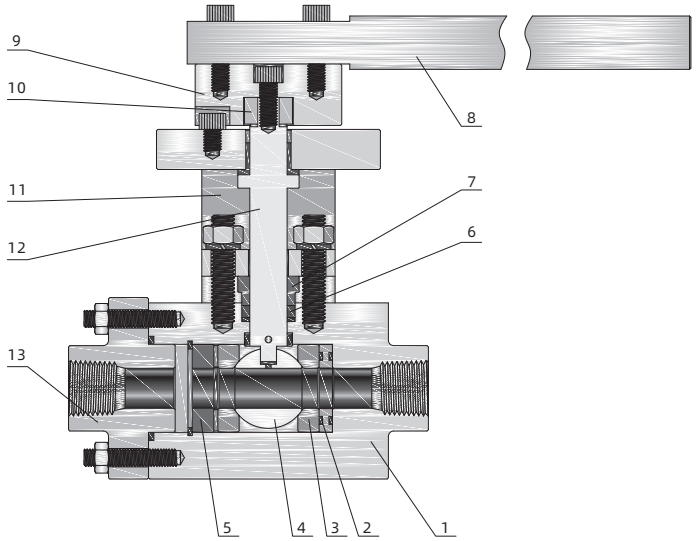
A182-F316 (316 Stainless Steel)

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.)

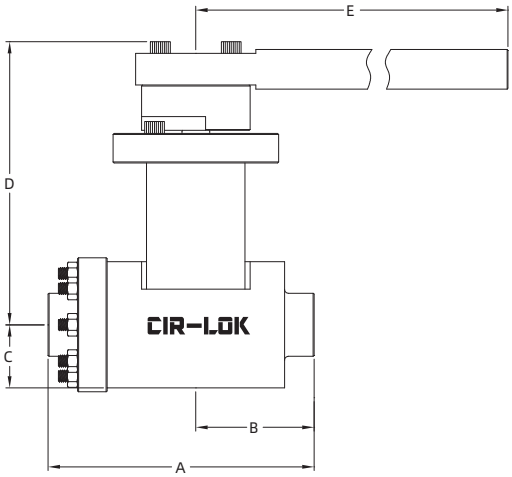
Ansi Rating	Temperature, °F																	
	-20 to 100	200	300	400	500	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200
	psig																	
900	2250	2250	2185	2115	1995	1815	1765	1705	1595	1525	1460	1350	1109	1090	1080	965	718	448
1500	5625	5625	5463	5293	4986	4536	4414	4258	3988	3808	2904	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



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	316S.S. 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 **FSW** Fractional Tube Socket Weld **MBW** Metric Tube Butt Weld **FBW** Fractional Tube Butt Weld **PSW** Pipe Socket Weld **PBW** Pipe Butt Weld	**8** 1/2 in. **12** 3/4 in. **16** 1 in. **18** 18 mm **20** 20 mm **24** 1 1/2 in. or 24 mm **32** 2 in. or 32 mm **48** 3 in. or 48 mm **64** 4 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) **20** 0.787 in. (20.0mm) **25** 0.984 in. (25.0mm) **32** 1.26 in. (32.0mm) **40** 1.575 in. (40.0mm) **50** 1.969 in. (50.0mm) **65** 2.559 in. (65.0mm)	**CL600** Class600 **CL900** Class900 **CL1500** Class1500 **CL2500** Class2500 **CL4500** Class4500	Lever **G** Geared **P** Pneumatic **E** Electric	**304** 304 S.S. **304L** 304L S.S. **316** 316 S.S. **316L** 316L S.S.

Plug Valves

PV1 Series

Plug Valves

PV1 Series

Features

- Maximum working pressure up to 3000 psig (207 bar)
- Working temperature from -10°F to 400°F (-23°C to 204°C)
- Quarter turn operation
- O-ring seal
- Easy to maintain and clean
- Replaceable plug assembly
- 316 stainless steel and brass material
- Variety of end connections
- Color coded handles for option

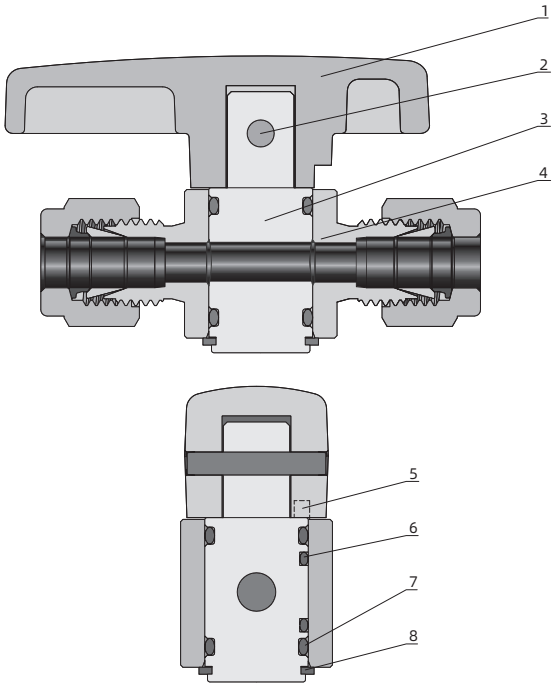
Pressure-Temperature Ratings

Body Material	316 S.S.	Brass	
Orifice in. (mm)	0.093 (2.4) 0.172 (4.4) 0.283 (7.2)	0.093 (2.4) 0.172 (4.4)	0.283 (7.2)
Temperature, °F (°C)	Working Pressure, psig (bar)		
-10 (-23) to 100 (37)	3000 (207)	3000 (207)	2000 (137)
150 (65)	3000 (207)	2500 (172)	2000 (137)
200 (93)	3000 (207)	2000 (137)	2000 (137)
250 (121)	2000 (137)	1500 (103)	1500 (103)
300 (148)	1000 (68.9)	1000 (68.9)	1000 (68.9)
350 (176)	1000 (68.9)	1000 (68.9)	1000 (68.9)
400 (204)	1000 (68.9)	400 (27.5)	400 (27.5)

Seal Materials

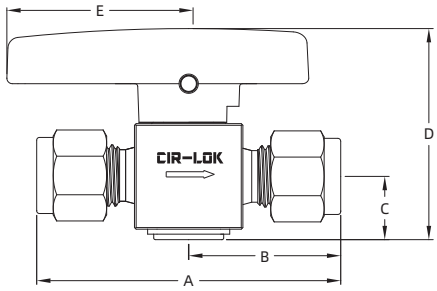
Seal Material	Temperature Range °F (°C)
Buna N	-10 to 250 (-23 to 121)
Ethylene propylene	-50 to 300 (-45 to 148)
Fluorocarbon FKM	-10 to 400 (-23 to 204)
Neoprene	-40 to 250 (-40 to 121)
Kalrez	0 to 525 (-17 to 273)

Standard Materials of Construction



Component		Material Grade/ASTM Specification	
		316 S.S.	Brass
1	Handle	Aluminium	
2	Pin	316 S.S.	
3	Plug	PTFE-coated 316 S.S./A479	PTFE-coated brass/B453
4	Body	316 S.S./A479	Brass/B453
5	Pin	316 S.S.	
6	O-ring	Fluorocarbon FKM or neoprene or ethylene propylene or buna N or kalrez	
7	O-ring	Fluorocarbon FKM or neoprene or ethylene propylene or buna N or kalrez	
8	Retaining Ring	316 S.S.	

Dimensions



Basic Ordering Number	Connection Type and Size	Orifice in. (mm)	Cv	Dimension, in. (mm)						
				A	B	C	D	E	F	G
PV1-F2-02-	1/8" CIR-LOK	0.093 (2.4)	0.10	1.99 (50.5)	0.98 (24.9)	0.46 (11.7)	1.54 (39.1)	1.14 (29.0)	1.89 (48.0)	0.87 (22.0)
PV1-F4-04-	1/4" CIR-LOK	0.172 (4.4)	1.6	2.17 (55.1)	1.08 (27.4)					
PV1-F6-04-	3/8" CIR-LOK		1.1	2.29 (58.2)	1.14 (29.0)					
PV1-F6-07-	3/8" CIR-LOK	0.283 (7.2)	6.4	2.66 (67.6)	1.33 (33.8)	0.66 (16.8)	2.14 (54.4)	1.50 (38.1)	2.47 (62.7)	1.12 (28.5)
PV1-F8-07-	1/2" CIR-LOK		4.4	2.88 (73.2)	1.44 (36.6)					
PV1-M3-02-	3 mm CIR-LOK	0.093 (2.4)	0.10	1.99 (50.5)	0.98 (24.9)	0.46 (11.7)	1.54 (39.1)	1.14 (29.0)	1.89 (48.0)	0.87 (22.0)
PV1-M6-04-	6 mm CIR-LOK	0.172 (4.4)	1.6	2.17 (55.1)	1.08 (27.4)					
PV1-M8-07-	8 mm CIR-LOK	0.283 (7.2)	6.4	2.66 (67.6)	1.30 (33.0)	0.66 (16.8)	2.14 (54.4)	1.50 (38.1)	2.47 (62.7)	1.12 (28.5)
PV1-M10-07-	10 mm CIR-LOK		6.4	2.68 (68.1)	1.34 (34.0)					
PV1-M12-07-	12 mm CIR-LOK		4.8	2.96 (75.2)	1.44 (36.6)					
PV1-FNPT2-04-	1/8" Female NPT	0.172 (4.4)	1.2	1.78 (45.2)	0.89 (22.6)	0.46 (11.7)	1.54 (39.1)	1.14 (29.0)	1.89 (48.0)	0.87 (22.0)
PV1-FNPT4-04-	1/4" Female NPT		0.9	2.09 (53.1)	1.05 (26.7)					
PV1-FNPT4-07-	1/4" Female NPT	0.283 (7.2)	4.3	2.38 (60.5)	1.19 (30.2)	0.66 (16.8)	2.14 (54.4)	1.50 (38.1)	2.47 (62.7)	1.12 (28.5)
PV1-FNPT8-07-	1/2" Female NPT		2.7	2.88 (73.2)	1.44 (36.6)					
PV1-NPT2-04-	1/8" Male NPT	0.172 (4.4)	1.0	1.53 (38.9)	0.76 (19.3)	0.46 (11.7)	1.54 (39.1)	1.14 (29.0)	1.89 (48.0)	0.87 (22.0)
PV1-NPT4-04-	1/4" Male NPT		1.0	1.90 (48.3)	0.95 (24.1)					

How to Order

PV1 — M10 — FNPT4 — V07 — R — 316

Series	Port 1 Type	Port 1 Size	Port 2 Type / Port 2 Size	Seat Material	Orifice Size	Handle	Body Material
PV1	**FNPT** Female NPT **NPT** Male NPT **FBT** Female BSPT **MBT** Male BSPT **FMS** Female Metric **MS** Male Metric (for BG) **FBP** Female BSPP **MBP** Male BSPP (for BG) **F** Fractional Tube Fitting **M** Metric Tube Fitting	**2** 1/8 in. **3** 3 mm **4** 1/4 in. **5** 5/16 in. **6** 3/8 in. or 6 mm **8** 1/2 in. or 8 mm **10** 10 mm **12** 12 mm	Same as port 1 type and port 2 size If port2 as port 1 are the same, eliminate the port 2 designator	**V** Fluorocarbon FKM **B** BunaN **E** Ethylene propylene **N** Neoprene **Z** Kalrez	**02** 0.093 in. (2.4 mm) **04** 0.172 in. (4.4 mm) **07** 0.283 in. (7.2 mm)	Black **L1** Blue **R1** Red **G1** Green **Y1** Yelow	**316** 316 S.S. **316L** 316L **304** 304 **304L** 304L **BR** Brass