

# 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

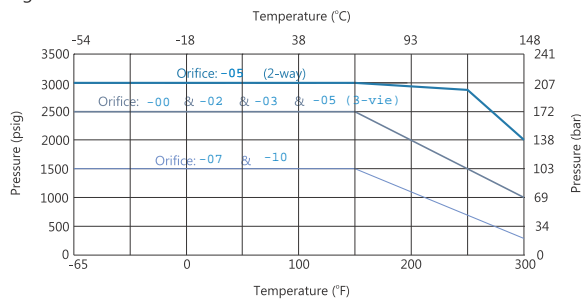
- ❖ Maximum working pressure up to 3000 psig (207 bar)
- ❖ Working temperature: -65°F to 300°F (-54°C to 148°C)
- ❖ 2-way (On-Off), 3,5,7-way (Switching), 4,6-way (Crossover) models for service
- ❖ One-piece body and one piece seat and packing
- ❖ No dead space, easily cleaned and purged
- ❖ Live-loaded 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

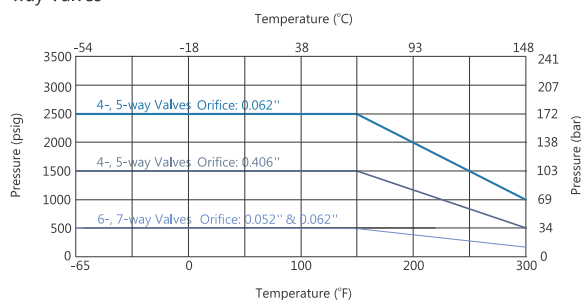
Body Material	316 S.S.				
Seat Material	Modified PTFE	PTFE	Modified PTFE	Modified PTFE	Modified PTFE
Valve Type	2-way, angle, 3-way	2-way	4, 5, -way	4, 5, -way	6, 7-way
Orifice mm (Ordering Number)	2.4(-02) 3.2(-03) 4.8(-05)	7.1(-07) 10.3(-10)	1.3(-00) 1.6(-01)	7.1(-07) 10.3(-10)	1.3(-00) 1.6(-01)
Temperature, °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)	—	—	—	—

## Pressure vs. Temperature

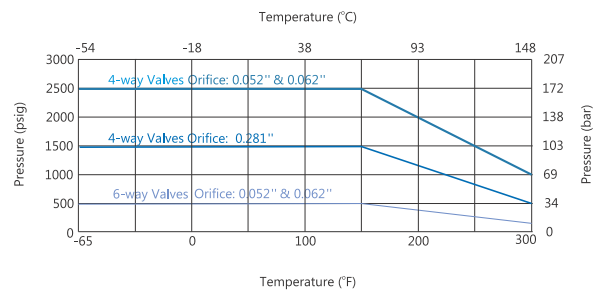
### 2-, 3-way, Angle Valves



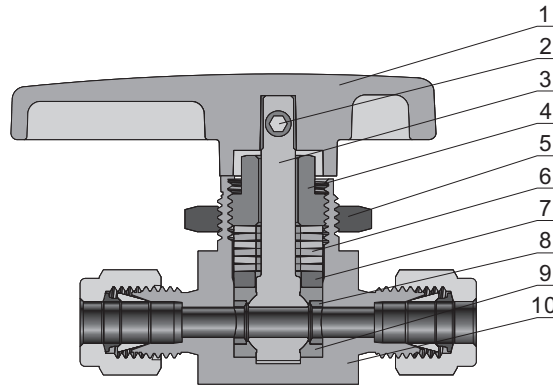
### 4-, 5-, 6-, 7-way Valves



### Crossover (4-, 6-way) Valves



## Standard Materials of Construction

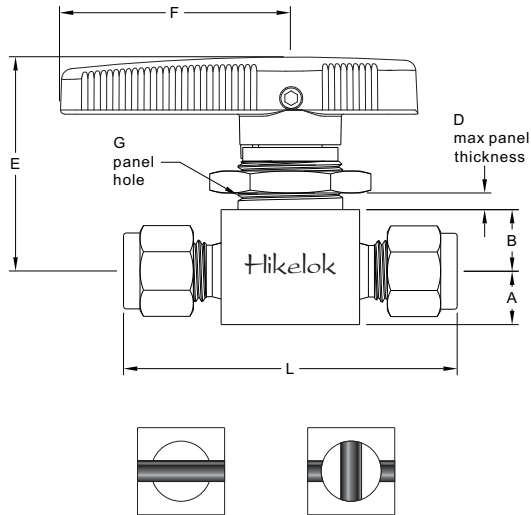


Component		Material Grade/ASTM Specification		
		316 S.S.	Brass	Alloy 400
1	Handle	Aluminum		
2	Screw	S17400 S.S./A564		
3	Ball Stem	316 S.S./A479	Brass CDA 360/B16	Alloy 400/B164
4	Packing Bolt	316 S.S./A479	Brass CDA 360/B16	Alloy R-405/B164
5	Panel Nut	Powdered metal S.S.	Brass CDA 360/B16	Powdered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

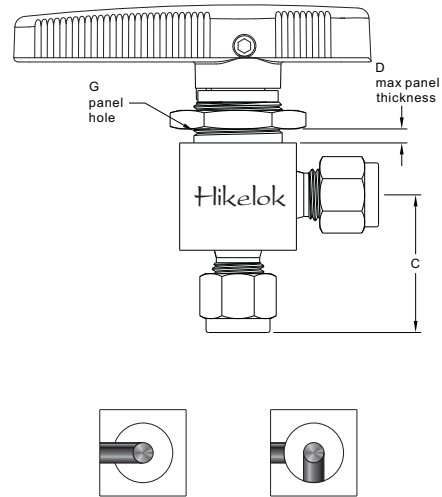
# Dimension

## On-Off Valves

### 2-way Valves



### Angle Pattern Valves

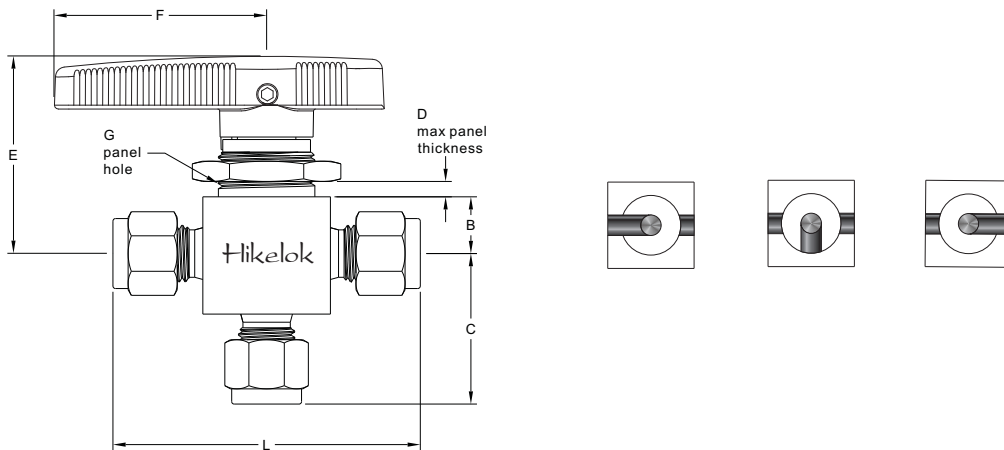


Basic Ordering Number	Connection Type and Size	Orifice in. (mm)	Cv		Dimension, in. (mm)								
			Straight	Angle	L	A	B	C	D	E	F	G	
BV2-F1-00-	1/16" Hikelok	0.052 (1.32)	0.10	—	1.68 (42.7)			—					
BV2-F2-02-	1/8" Hikelok	0.093 (2.4)	0.20	0.15	2.01 (51.1)	0.28 (7.1)	0.34 (8.6)	0.97 (24.6)	1/4 (6.4)	1.36 (34.5)	1.12 (28.4)	19/32 (15.1)	
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	0.281 (7.1)	1.50		2.58 (65.5)	0.56 (14.2)	0.56 (14.2)	1.29 (32.8)					
BV2-F6-07-				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" 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)	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 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)

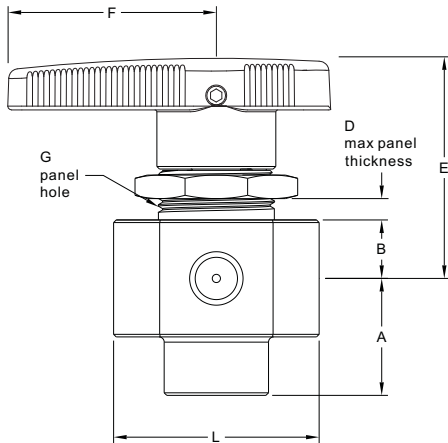
Basic Ordering Number	Connection Type and Size	Orifice in. (mm)	Cv		Dimension, in. (mm)							
			Straight	Angle	L	A	B	C	D	E	F	G
BV2-FNPT2-03-	1/8 Female NPT	0.125 (3.2)	0.50	0.30	1.63 (41.4)	0.28 (7.1)	0.34 (8.6)	0.81 (20.6)	1/4 (6.4)	1.36 (34.5)	1.12 (28.4)	19/32 (15.1)
BV2-FNPT2-05-		0.187 (4.8)	1.20	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	0.281 (7.1)	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	3.12 (79.2)	0.69 (17.5)	0.69 (17.5)	1.56 (39.6)	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)		2.43 (61.7)	3.00 (76.2)	1 1/2 (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)	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)	0.38 (9.7)	0.44 (11.2)	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

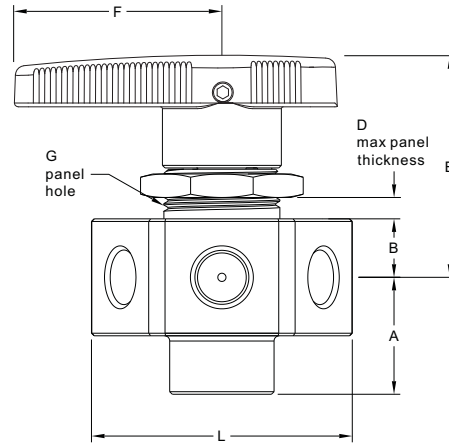
### 3-way Valve



5- Valve

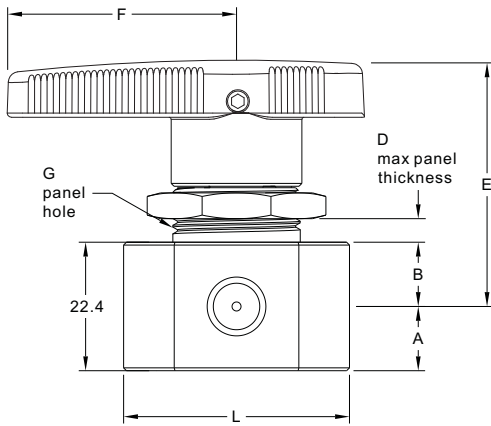


7-way Valve

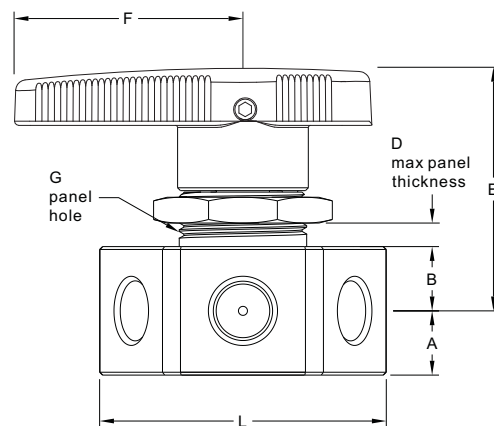


## Crossover Valves

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
<b>3-way valve</b>										
BV2-F1-00-3-	1/16" Hikelok	0.052 (1.32)	0.08	1.68 (42.7)	0.81 (20.6)					
BV2-F2-02-3-	1/8" 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-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)		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)	3/8 (9.5)	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)	3/16 (4.8)	1.47 (37.3)	1.53 (38.9)	25/32 (19.8)
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)		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)
<b>4,5-way valve</b>										
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-										
<b>6,7-way valve</b>										
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
<b>BV2</b>	<b>FNPT</b> Female NPT	2 1/8 in.	Same as port 1 type and port 1 size		<b>T</b> PTFE	<b>00</b> 0.052in. (1.32 mm)	Black	Straight	<b>316</b> 316 S.S.
	<b>NPT</b> Male NPT	3 3 mm				<b>01</b> 0.062in. (1.57 mm)	<b>R</b> Red	<b>A</b> Angle	<b>316L</b> 316L S.S.
	<b>FBT</b> 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	<b>02</b> 0.093 in. (2.4 mm)		<b>G</b> Green	<b>3</b> 3-way	<b>304</b> 304 S.S.	
	<b>MBT</b> Male BSPT	5 5/16 in.		<b>03</b> 0.125 in. (3.2 mm)		<b>L</b> Blue	<b>4</b> 4-way	<b>304L</b> 304L S.S.	
	<b>FMS</b> Female ISO 261	6 3/8 in. or 6 mm		<b>04</b> 0.165 in. (4.2 mm)		<b>Y</b> Yellow	<b>5</b> 5-way	<b>A400</b> Alloy 400	
	<b>MS</b> Male ISO 261	8 1/2 in. or 8 mm		<b>05</b> 0.187in. (4.7 mm)		<b>6</b> 6-way	<b>BR</b> Brass		
	<b>FBP</b> Female BSPP	10 10 mm		<b>06</b> 0.250in. (6.4 mm)		<b>7</b> 7-way			
	<b>MBP</b> Male BSPP	12 3/4 in. or 12 mm		<b>07</b> 0.281in. (7.1 mm)					
	<b>F</b> Fractional Tube Fitting			<b>08</b> 0.315in. (8.0 mm)					
	<b>M</b> Metric Tube Fitting			<b>09</b> 0.354in. (9.0 mm)					
	<b>GFS</b> Male GFS			<b>10</b> 0.406in. (10.3 mm)					

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

Electric Actuators: **E**