

Bellows-Sealed Valves

BS1 Series



- ❖ Maximum working pressure up to 1000 psig (68.9 bar)
- ❖ Working temperature from -20°F to 900°F (-28°C to 482°C)
- ❖ Flow coefficients (Cv) from 0.12 to 1.2
- ❖ Variety of end connections
- ❖ 316 S.S., brass and monel 400 materials

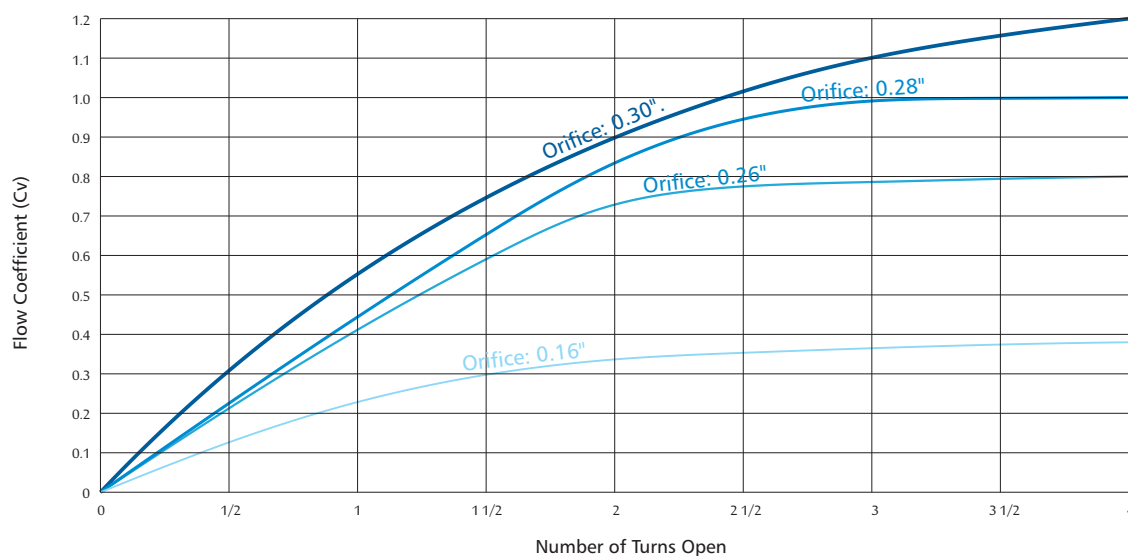
Features

- ❖ Maximum working pressure up to 1000 psig (68.9 bar)
- ❖ Working temperature from -20°F to 900°F (-28°C to 482°C)
- ❖ Flow coefficients (Cv) from 0.12 to 1.2
- ❖ Variety of end connections
- ❖ 316 S.S., brass and monel 400 materials
- ❖ Panel and bottom mounting
- ❖ Bar, round handle are available
- ❖ Precision-formed metal bellows provides reliable seal
- ❖ Nonrotating stem tip: spherical, conical and regulating
- ❖ Gasket body to bellows seal is standard, weld seal also available
- ❖ Replaceable bellows and stem assembly
- ❖ Every valve is tested with helium for 10s to a maximum leak rate of 4×10^{-9} std cm³/s

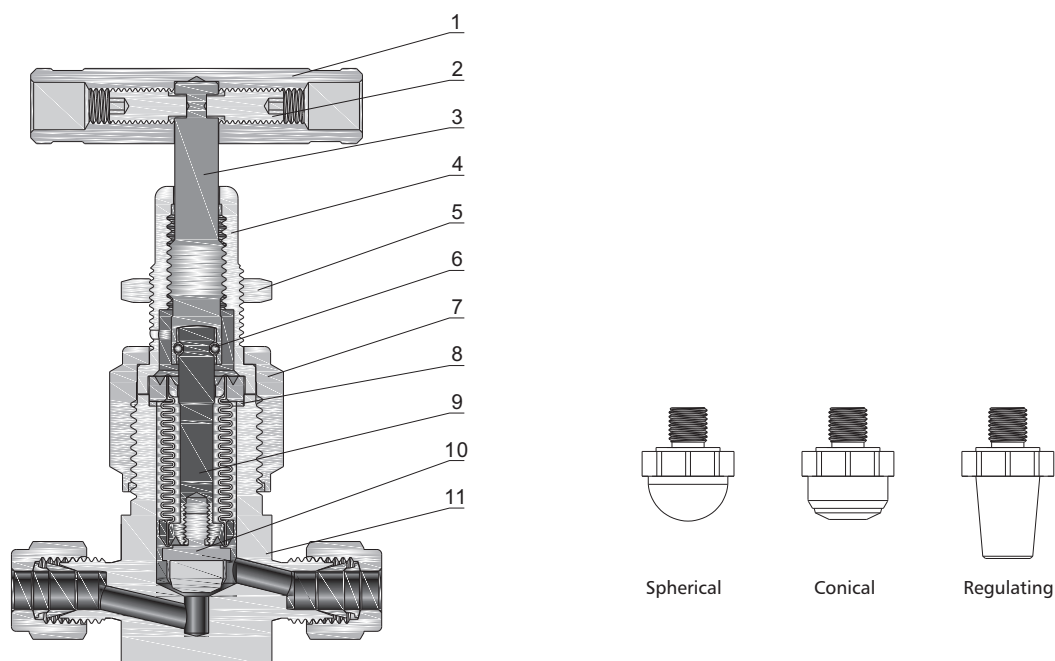
Pressure-Temperature Ratings

Body Material	316 S.S.	Brass	Alloy 400
Temperature, °F(°C)	Working Pressure, psig(bar)		
-20 (-28) to 100 (37)	1000 (68.9)	1000 (68.9)	700 (48.2)
200 (93)	830 (57.1)	710 (48.9)	610 (42.0)
300 (148)	660 (45.4)	430 (29.6)	530 (36.5)
400 (204)	500 (34.4)	430 (29.6)	450 (31.0)
500 (260)	450 (31.0)	—	375 (25.8)
600 (315)	400 (27.5)	—	—

Flow Coefficient vs. Turns Open

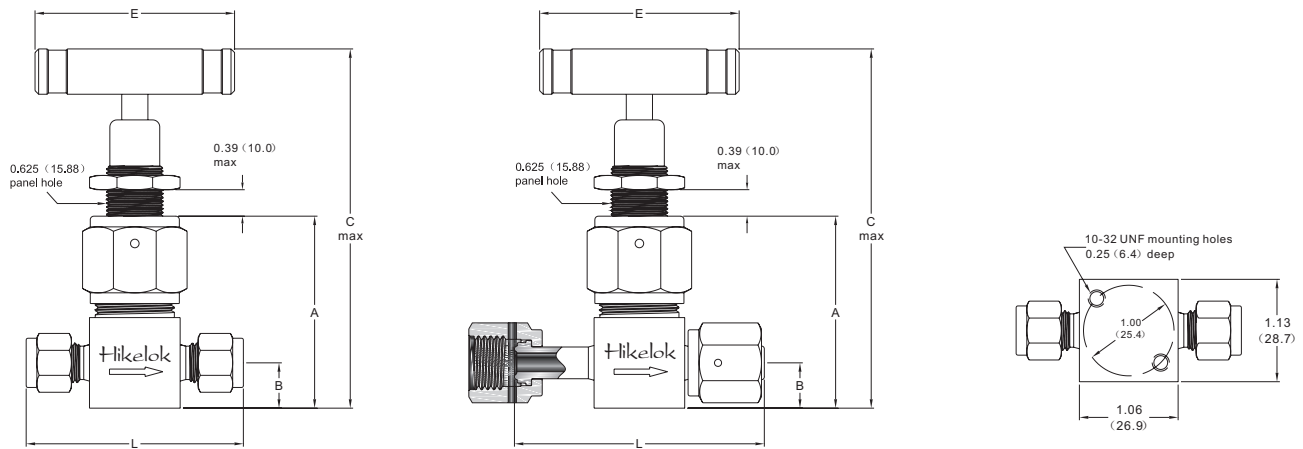


Standard Materials of Construction



Component		Material Grade/ASTM Specification		
		316 S.S.	Brass	Alloy 400
1	Handle	Anodized aluminum 2024-T4/B211		
2	Screw	Alloy Steel/ANSI 18.3		
3	Actuator	416 S.S./A582	416 S.S./A582	416 S.S./A582
4	Bonnet	316 S.S./A479	Brass/B16	316 S.S./A479
5	Nut	316 S.S./B783		
6	Pin	420 S.S.		
7	Bonnet Nut	Sliver-plated 316 S.S./A479	Slive-plated Brass/B16	Sliver-plated 316 S.S./A479
8	Gasket	Silver-plated 316 S.S./A580		Sliver-plated Alloy 400/AMS4730
		PTFE-coated 316 S.S./A580		PTFE-coated Alloy 400/AMS4730
9	Stem	316 S.S./A479		Alloy 400/B164
	Weld Ring	316 S.S./A479		Alloy 400/B164
	Bellows	316L S.S.		Alloy 400/B165
10	Stem Tip	316 S.S./A479 (regulating)		Alloy k-500/AMS4676 (regulating)
		PCTFE/D1430 (conical)		PCTFE/D1430 (conical)
		Weld Stellite (regulating or spherical)		—
11	Body	316 S.S./A479	Brass/B16	Alloy 400/B164

Dimensions



Basic Ordering Number	Connection Type and Size	Orifice in. (mm)	Cv	Dimension in. (mm)								
				A	B	C	D	E	L	W	H	Ød
BS1-F4-04-	1/4" Hikelok	0.16 (4.1)	0.36	2.12 (53.8)	0.5 (12.7)	4.01 (101.8)	0.39 (10.0)	2.20 (56.0)	2.46 (62.5)	1.00 (25.4)	1.06 (27.0)	1.00 (25.4)
BS1-F6-06-	3/8" Hikelok	0.26 (6.6)	0.80	2.12 (53.8)	0.5 (12.7)	4.01 (101.8)	0.39 (10.0)	2.52 (64.0)	3.09 (78.5)	1.00 (25.4)	1.57 (39.9)	1.00 (25.4)
BS1-F8-08-	1/2" Hikelok	0.30 (7.6)	1.20	2.24 (56.8)	0.56 (14.2)	4.13 (104.8)	0.39 (10.0)	2.52 (64.0)	3.30 (83.8)	1.13 (28.7)	1.57 (39.9)	1.13 (28.7)
BS1-M6-04-	6 mm Hikelok	0.16 (4.1)	0.36	2.12 (53.8)	0.5 (12.7)	4.01 (101.8)	0.39 (10.0)	2.20 (56.0)	2.46 (62.5)	1.00 (25.4)	1.06 (27)	1.00 (25.4)
BS1-M10-07-	10 mm Hikelok	0.28 (7.1)	1.00	2.24 (56.8)	0.56 (14.2)	4.13 (104.8)	0.39 (10.0)	2.52 (64.0)	3.11 (79.0)	1.13 (28.7)	1.57 (39.9)	1.13 (28.7)
BS1-M12-08-	12 mm Hikelok	0.30 (7.6)	1.20	2.24 (56.8)	0.56 (14.2)	4.13 (104.8)	0.39 (10.0)	2.52 (64.0)	3.30 (83.8)	1.13 (28.7)	1.57 (39.9)	1.13 (28.7)
BS1-FSW4-04-	1/4" FSW	0.16 (4.1)	0.36	2.12 (53.8)	0.5 (12.7)	4.01 (101.8)	0.39 (10.0)	2.20 (56.0)	1.68 (42.7)	1.00 (25.4)	1.00 (25.4)	1.00 (25.4)
BS1-FSW6-07-	3/8" FSW	0.28 (7.1)	1.00	2.12 (53.8)	0.5 (12.7)	4.01 (101.8)	0.39 (10.0)	2.20 (56.0)	2.27 (57.7)	1.00 (25.4)	1.06 (27)	1.00 (25.4)
BS1-FSW8-08-	1/2" FSW	0.30 (7.6)	1.20	2.12 (53.8)	0.5 (12.7)	4.01 (101.8)	0.39 (10.0)	2.20 (56.0)	2.27 (57.7)	1.00 (25.4)	1.06 (27)	1.00 (25.4)
BS1-FBW4-04-	1/4" FBW	0.16 (4.1)	0.36	2.12 (53.8)	0.5 (12.7)	4.01 (101.8)	0.39 (10.0)	2.20 (56.0)	1.68 (42.7)	1.00 (25.4)	1.00 (25.4)	1.00 (25.4)
BS1-FBW6-07-	3/8" FBW	0.28 (7.1)	1.00	2.12 (53.8)	0.5 (12.7)	4.01 (101.8)	0.39 (10.0)	2.20 (56.0)	2.18 (55.4)	1.00 (25.4)	1.06 (27.0)	1.00 (25.4)
BS1-FBW8-08-	1/2" FBW	0.30 (7.6)	1.20	2.12 (53.8)	0.5 (12.7)	4.01 (101.8)	0.39 (10.0)	2.20 (56.0)	2.18 (55.4)	1.00 (25.4)	1.06 (27.0)	1.00 (25.4)
BS1-FGFS4-04-	1/4" Female GFS	0.16 (4.1)	0.36	2.12 (53.8)	0.5 (12.7)	4.01 (101.8)	0.39 (10.0)	2.52 (64.0)	2.76 (70.1)	1.00 (25.4)	1.00 (25.4)	1.00 (25.4)
BS1-FGFS8-08-	1/2" Female GFS	0.30 (7.6)	1.20	2.24 (56.8)	0.56 (14.2)	4.13 (104.8)	0.39 (10.0)	2.52 (64.0)	3.12 (79.2)	1.13 (28.7)	1.50 (38.1)	1.13 (28.7)
BS1-GFS4-04-	1/4" Male GFS	0.16 (4.1)	0.36	2.12 (53.8)	0.5 (12.7)	4.01 (101.8)	0.39 (10.0)	2.20 (56.0)	2.24 (56.9)	1.00 (25.4)	1.00 (25.4)	1.00 (25.4)
BS1-GFS8-08-	1/2" Male GFS	0.30 (7.6)	1.20	2.24 (56.8)	0.56 (14.2)	4.13 (104.8)	0.39 (10.0)	2.52 (64.0)	3.00 (76.2)	1.13 (28.7)	1.50 (38.1)	1.13 (28.7)

How to Order

BS1		MBW10		M10		08		WR		G1		316	
Series	Inlet Type	Inlet Size	Outlet Type	Outlet Size	Orifice Size	Tip Material	Tip Type	Handle	Body Material				
BS1	FBW Fractional Tube Butt Weld	2 1/8 in.	Same as inlet type and inlet size If outlet and inlet are the same, eliminate the outlet designator	0.16 in. (4.1 mm) 0.3 in. (7.6 mm) 0.433 in. (11 mm) 0.591 in. (15 mm) 0.787 in. (20 mm)	04 08 11 15 20	Gasket Seal W Welded Seal	Soft Tip-PCTFE P Soft Tip-PEEK A Ball R Regulating	Black Aluminum L1 Blue Aluminum R1 Red Aluminum G1 Green Aluminum S1 304 Stainless Steel K1 Black Knob NC NO PD HNC HNO HPD	304 304 S.S. 304L 304L S.S. 316 316 S.S. 316L 316L S.S.				
	MBW Metric Tube Butt Weld	4 1/4 in.											
	F Fractional Tube Fitting	3/8 in. or 6 mm											
	M Metric Tube Fitting	8 1/2 in. or 8 mm											
	UGF Nut+Gasket+Fractional Bulge Nipple	10 10 mm											
	UGM Nut+Gasket+Metric Bulge Nipple	12 3/4 in. or 12 mm											
	FGFS Female GFS Fitting												
	GFS Male GFS Fitting												

❖ Pneumatic actuators : **NC** low pressure Pneumatic, normally closed; **NO** low pressure Pneumatic, normally open; **PD** low pressure Double action;
HNC high pressure Pneumatic, normally closed; **HNO** high pressure Pneumatic, normally open; **HPD** high pressure Double action.