

# 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

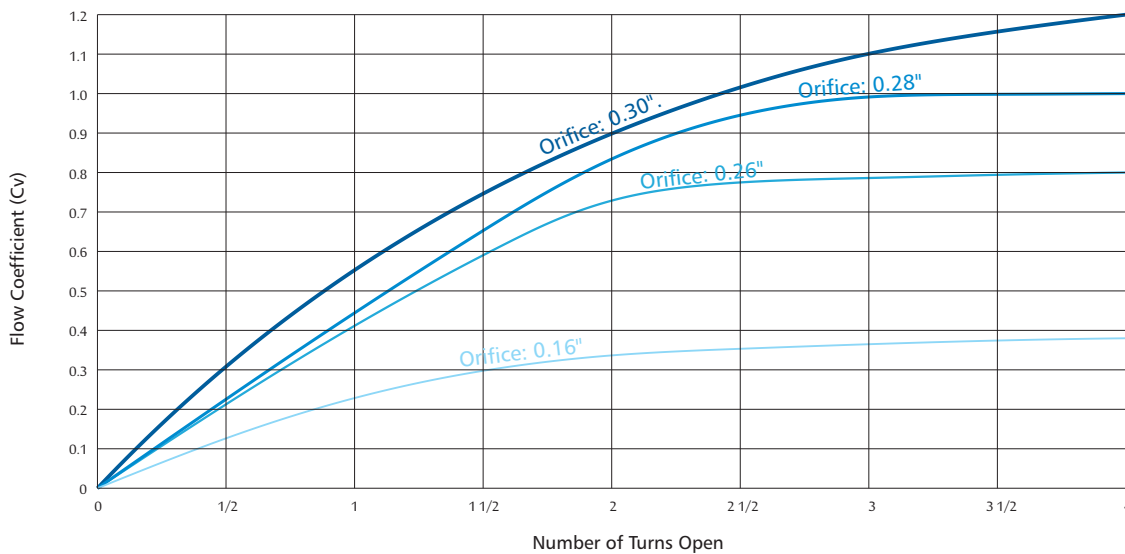
## Features

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- ❖ 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  $4 \times 10^{-9}$  std cm<sup>3</sup>/s

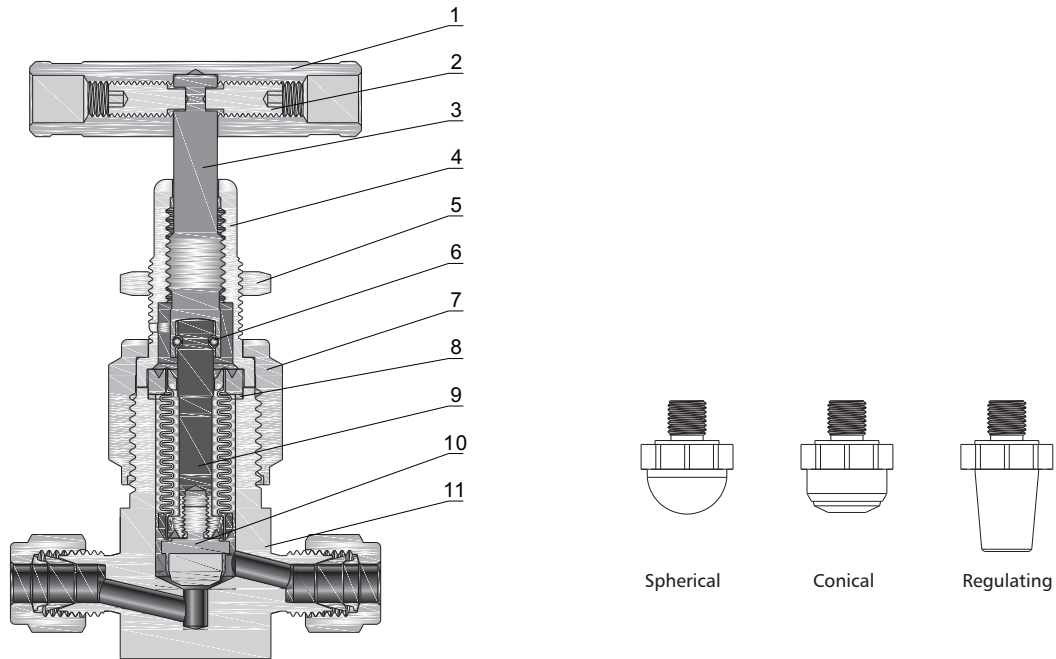
## Pressure-Temperature Ratings

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

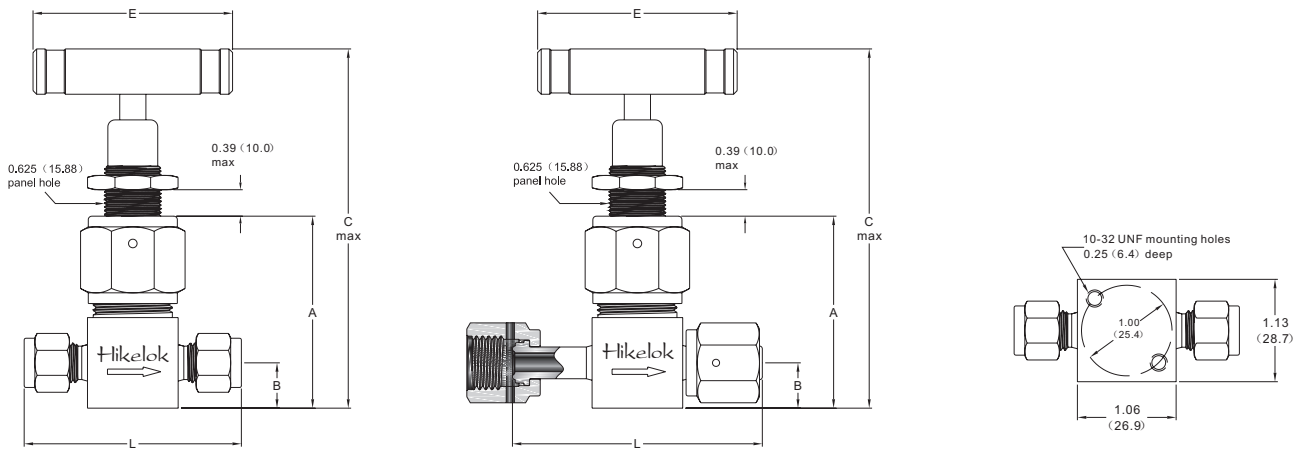


## Standard Materials of Construction



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-M10-08-	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-FSW6-08-	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-FBW6-08-	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**

Series	Inlet Type	Inlet Size	Outlet Type	Outlet Size	Orifice Size	Tip Material	Tip Type	Handle	Body Material	
BS1	<b>FBW</b> 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		<b>04</b> 0.16 in. (4.1 mm)	Gasket Seal	<b>Soft</b>	Black Aluminum	<b>304</b> 304 S.S.	
	<b>MBW</b> Metric Tube Butt Weld	4 1/4 in.			<b>08</b> 0.3 in. (7.6 mm)	<b>W</b> Welded Seal	<b>P</b> PEEK	<b>Same as Body</b>	<b>L1</b> Blue Aluminum	<b>304L</b> 304L S.S.
		6 3/8 in. or 6 mm			<b>A</b> Ball				<b>R1</b> Red Aluminum	<b>316</b> 316 S.S.
	<b>F</b> Fractional Tube Fitting	8 1/2 in. or 8 mm				<b>R</b> Regulating	<b>G1</b> Green Aluminum	<b>316L</b> 316L S.S.		
	<b>M</b> Metric Tube Fitting	10 10 mm					<b>NC</b>	<b>S1</b> 304 Stainless Steel		
	<b>UGF</b> Nut+Gasket+Fractional Bulge Nipple	12 3/4 in. or 12 mm				<b>NO</b>		<b>K1</b> Black Knob		
	<b>UGM</b> Nut+Gasket+Metric Bulge Nipple						<b>PD</b>	<b>HNC</b>		
	<b>FGFS</b> Female GFS Fitting					<b>HNO</b>		<b>HPD</b>		
	<b>GFS</b> 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.