

One-Piece Instrument Ball Valves

✦ Features

- Pressure rating up to 3000psig (206bar).
- Temperatures from -53 to 148°C (-65 to 300°F).
- 1/16 to 3/4 inch and 3 to 12 mm end connections.
- Both straight and angle patterns available.
- 100% factory tested.



SBV30G Series

Direction Indicator Handle

- Indicate position of orifice.

One-piece Ball Stem

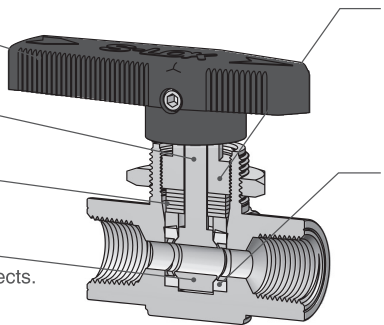
- Ensure alignment of stem and orifice.

Top-loaded Design

- Easy packing adjustment with the valve in-line.

Trunnion Design

- Reduce packing volume and minimize thermal effects.
- Support packing and minimize packing extrusion.



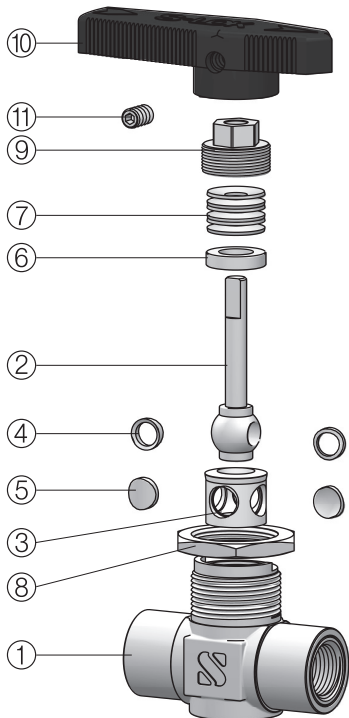
Live-loaded Design

- Reduce need for packing adjustment.
- Wear compensation.
- Improved performance for thermal cycle.

Encapsulated One-piece Seat

- Potential leakage point reduction.
- No system pressure required for sealing.
- Virtually no dead space.
- Bidirectional flow.
- Easy cleaning and purging.

✦ Materials of Construction

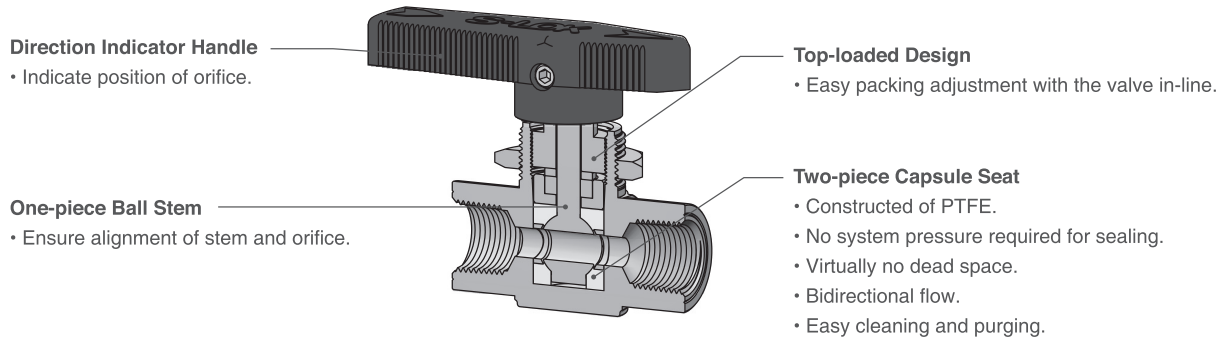


No	Component	Body Material	
		Stainless Steel	Brass
1	Body	SS316 / A182	Brass / B16
2	Ball Stem	SS316 / A276	Brass / B16
3	Seat	Modified PTFE	Modified PTFE
4	Side Ring	Fluorocarbon Coated SS316	Fluorocarbon Coated SS316
5	Side Disc	Fluorocarbon Coated SS316	Fluorocarbon Coated SS316
6	Gland	SS316 / A276	SS316 / A276
7	Disc Spring	Stainless Steel 301	Stainless Steel 301
8	Panel Nut	SS316 / A276	Brass / B16
9	Packing Bolt	SS316 / A276	SS316 / A276
10	Handle	Black Nylon with Brass Insert	Black Nylon with Brass Insert
11	Set Screw	SS304	SS304

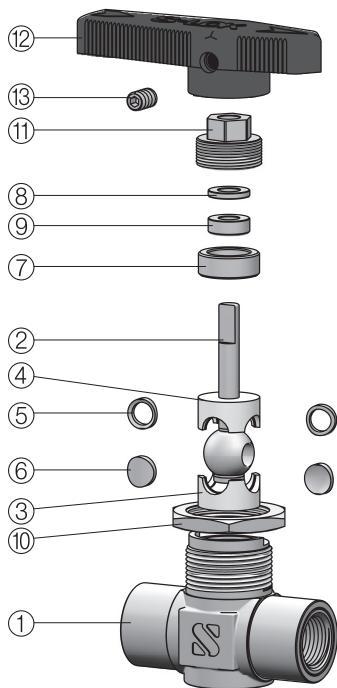
✦ Pressure Ratings

Valve Series	2-Way Straight	2-Way Angle & 3-Way Switching	Temperature Range
SBV1G	2500psig (172bar)	2500psig (172bar)	-54°C to 148°C -65°F to 300°F
SBV2G	3000psig (206bar)	2500psig (172bar)	
SBV3G	2500psig (172bar)	1500psig (103bar)	
SBV4G	2500psig (172bar)	1500psig (103bar)	

SBV30 Series



Materials of Construction

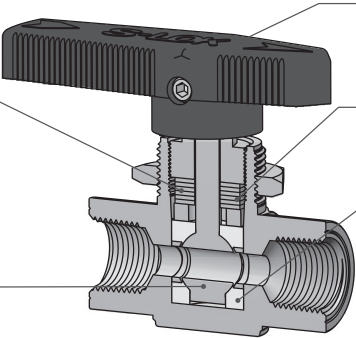


No	Component	Body Material	
		Stainless Steel	Brass
1	Body	SS316 / A182	Brass / B16
2	Ball Stem	SS316 / A276	Brass / B16
3	Lower Seat	PTFE	PTFE
4	Upper Seat	PTFE	PTFE
5	Side Ring	Fluorocarbon Coated SS316	Fluorocarbon Coated SS316
6	Side Disc	Fluorocarbon Coated SS316	Fluorocarbon Coated SS316
7	Lower Gland	SS316 / A276	Brass / B16
8	Upper Gland	SS316 / A276	SS316 / A276
9	Packing	PTFE	PTFE
10	Panel Nut	SS316 / A276	Brass / B16
11	Packing Bolt	SS316 / A276	Brass / B16
12	Handle	Black Nylon with Brass Insert	Black Nylon with Brass Insert
13	Set Screw	SS304	SS304

Pressure Ratings

Valve Series	2-Way Straight	2-Way Angle & 3-Way Switching	Temperature Range
SBV1	2500psig (172bar)	2500psig (172bar)	10°C to 65°C 50°F to 150°F
SBV2	3000psig (206bar)	2500psig (172bar)	
SBV3	2500psig (172bar)	1500psig (103bar)	
SBV4	2500psig (172bar)	1500psig (103bar)	

SBVP Series



Live-loaded Design

- Reduce need for packing adjustment.
- Wear compensation.
- Improved performance for thermal cycle.

One-piece Ball Stem

- Ensure alignment of stem and orifice.

Direction Indicator Handle

- Indicate position of orifice.

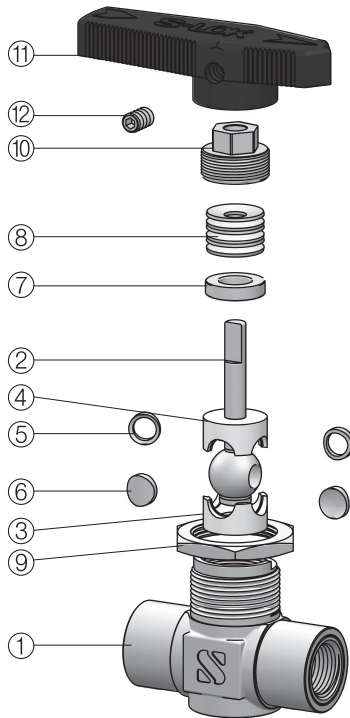
Top-loaded Design

- Easy packing adjustment with the valve in-line.

Two-piece Capsule Seat

- Constructed of PFA.
- No system pressure required for sealing.
- Virtually no dead space.
- Bidirectional flow.
- Easy cleaning and purging.

↗ Materials of Construction



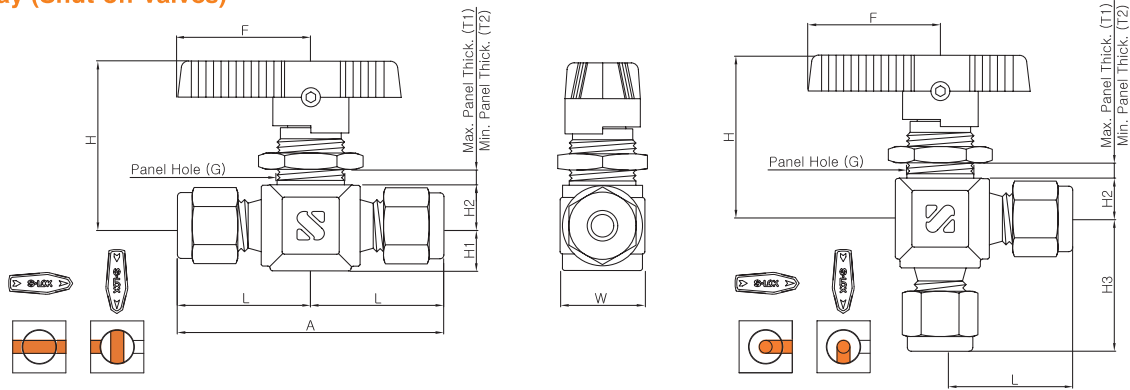
No	Component	Body Material	
		Stainless Steel	Brass
1	Body	SS316 / A182	Brass / B16
2	Ball Stem	SS316 / A276	Brass / B16
3	Lower Seat	PFA	PFA
4	Upper Seat	PFA	PFA
5	Side Ring	Fluorocarbon Coated SS316	Fluorocarbon Coated SS316
6	Side Disc	Fluorocarbon Coated SS316	Fluorocarbon Coated SS316
7	Gland	SS316 / A276	SS316 / A276
8	Disc Spring	Stainless Steel 301	Stainless Steel 301
9	Panel Nut	SS316 / A276	Brass / B16
10	Packing Bolt	SS316 / A276	Brass / B16
11	Handle	Black Nylon with Brass Insert	Black Nylon with Brass Insert
12	Set Screw	SS304	SS304

↗ Pressure Ratings

Valve Series	2-Way Straight	2-Way Angle & 3-Way Switching	Temperature Range
SBVP1	2500psig (172bar)	2500psig (172bar)	-54°C to 65°C -65°F to 150°F
SBVP2	3000psig (206bar)	2500psig (172bar)	
SBVP3	2500psig (172bar)	1500psig (103bar)	
SBVP4	2500psig (172bar)	1500psig (103bar)	

Dimensions & Flow Rate

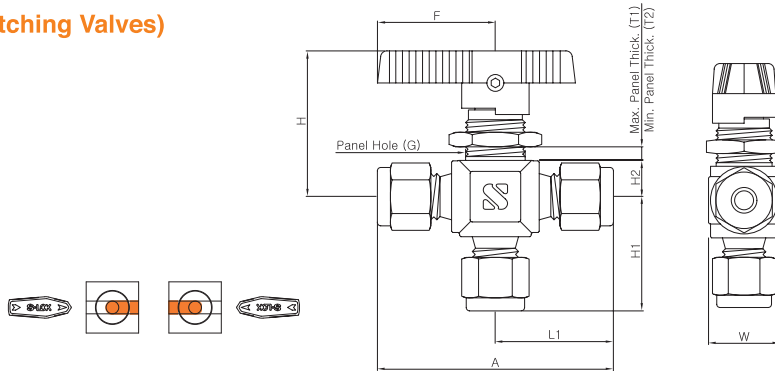
2-Way (Shut-off Valves)



Ordering Number	Orifice		Cv		End Connections		Dimensions (mm)										
	mm	inch	Inline	Angle	Inlet	Outlet	A	L	H3	H2	H1	F	T1	T2	G	H	W
SBV1	S-1T	1.3	0.052	0.1	-	1/16" S-LOK	42.7	21.3	-	8.6	9.5	28.4	6.4	2.0	15.1	34.5	18
	S-2T	2.4	0.093	0.2	0.15	1/8" S-LOK	51.1	25.6	24.6								
	S-3M			0.2	0.15	3mm S-LOK	51.1	25.6	24.6								
	S-4T	3.2	0.125	0.6	0.35	1/4" S-LOK	56.1	28.1	27.2								
	S-6M			0.6	0.35	6mm S-LOK	56.1	28.1	27.2								
	F-2N			0.5	0.3	1/8" Female NPT	41.1	20.6	20.6								
SBV2	S-4T	4.8	0.187	1.4	0.9	1/4" S-LOK	59.9	30.0	29.7	10	11	38.9	4.8	2.5	19.8	39.6	21
	S-6T			1.5	0.9	3/8" S-LOK	65.5	32.8	32.8								
	S-6M			1.4	0.9	6mm S-LOK	60.7	30.4	29.7								
	S-8M			1.5	0.9	8mm S-LOK	62.5	31.2	30.5								
	F-2N			1.2	0.7	1/8" Female NPT	50.8	25.4	25.4								
	F-4N			0.9	0.75	1/4" Female NPT	52.3	26.2	26.2								
	M-4N			1.2	0.75	1/4" Male NPT	50.8	25.4	26.2								
	F-4R			0.9	0.75	1/8" Female PT	52.3	26.2	-								
SBV3	S-6T	7.1	0.281	6.0	2.0	3/8" S-LOK	77.5	38.8	36.3	13.5	15.5	50.8	9.5	3.0	28.6	52.6	29
	S-10M			6.0	2.0	10mm S-LOK	78.0	38.9	36.9								
	S-8T			6.0	1.5	1/2" S-LOK	83.1	41.6	39.1								
	F-4N			3.0	1.7	1/4" Female NPT	63.5	31.8	31.8								
	F-6N			2.6	1.5	3/8" Female NPT	63.5	31.8	31.8								
	F-6R			2.6	1.5	3/8" Female PT	63.5	31.8	-								
SBV4	S-8T	10.3	0.406	12.0	4.6	1/2" S-LOK	99.6	49.8	44.2	16.7	20.5	76.2	9.5	3.0	38.1	61.7	39
	S-12T			6.4	3.8	3/4" S-LOK	99.6	49.8	44.2								
	S-12M			12.0	4.6	12mm S-LOK	99.6	49.8	44.2								
	F-8N			6.3	3.5	1/2" Female NPT	79.2	39.6	39.6								
	F-8R			6.3	3.5	1/2" Female PT	79.2	39.6	-								

Pressure Drop to Atmosphere (Δp), psi		Cv														
		0.1	0.2	0.5	0.6	0.9	1.2	1.5	1.6	2.4	2.6	3.0	6.0	6.3	6.4	12.0
Air SCFM @70° (21°C)	10	1.1	2.7	6.9	8.3	12.0	17.0	21.0	22.0	33.0	36.0	41.5	83.0	87.2	88.6	166.0
	50	3.0	7.6	19.1	23.0	34.0	46.0	57.0	61.0	92.0	99.5	115.0	230.0	241.0	245.0	459.0
	100	5.3	14.0	33.9	40.7	61.0	81.0	100.0	110.0	160.0	176.0	203.0	407.0	427.0	434.0	814.0
Water US GPM @70° (21°C)	10	0.3	0.6	1.6	1.9	2.8	3.7	4.7	5.0	7.5	8.2	9.5	19.0	19.9	20.2	37.9
	50	0.7	1.4	3.5	4.2	6.3	8.4	11.0	11.0	17.0	18.4	21.2	42.3	44.5	45.3	84.9
	100	1.0	2.0	5.0	6.0	9.0	12.0	15.0	16.0	24.0	26.0	30.0	60.0	63.0	64.0	120.0

3-Way (Switching Valves)



Ordering Number		Orifice		Cv	End Connections	Dimensions (mm)									
		mm	inch			A	L1	H1	H2	F	T1	T2	G	H	W
SBV1-3B	S-1T	1.3	0.052	0.08	1/16" S-LOK	42.7	21.3	20.6	8.6	28.7	6.4	2.0	15.1	34.5	18
	S-2T	2.4	0.093	0.15	1/8" S-LOK	51.1	25.6	24.6							
	S-3M			0.15	3mm S-LOK	51.1	25.6	24.6							
	S-4T	3.2	0.125	0.35	1/4" S-LOK	56.1	28.1	27.2							
	S-6M			0.35	6mm S-LOK	56.1	28.1	27.2							
	F-2N			0.3	1/8" Female NPT	41.1	20.6	20.6							
S-4T	0.9			1/4" S-LOK	60.7	30.4	29.7								
SBV2-3B	S-6M	4.8	0.187	0.9	6mm S-LOK	60.7	30.4	29.7	10	38.9	4.8	2.5	19.8	39.6	21
	S-8M			0.9	8mm S-LOK	62.5	31.2	30.5							
	F-4N			0.75	1/4" Female NPT	52.3	26.2	26.2							
	F-4R			0.75	1/4" Female PT	52.3	26.2	26.2							
	S-6T			2.0	3/8" S-LOK	73.4	36.7	36.3							
SBV3-3B	S-10M	7.1	0.281	2.0	10mm S-LOK	73.4	36.7	36.3	13.5	50.8	9.5	3.0	28.6	52.6	29
	F-4N			1.7	1/4" Female NPT	63.5	31.8	31.8							
	F-6N			1.5	3/8" Female NPT	63.5	31.8	31.8							
	F-6R			1.5	3/8" Female PT	63.5	31.8	31.8							
SBV4-3B	S-8T	10.3	0.406	4.6	1/2" S-LOK	88.4	44.2	44.2	16.7	76.2	9.5	3.0	38.1	61.7	39
	S-12T			3.8	3/4" S-LOK	88.4	44.2	44.2							
	S-12M			4.6	12mm S-LOK	88.4	44.2	44.2							
	F-8N			3.5	1/2" Female NPT	79.5	39.8	39.6							
	F-8R			3.5	1/2" Female PT	79.5	39.8	39.6							

Pressure Drop to Atmosphere (Δp), psi		Cv													
		0.08	0.15	0.3	0.35	0.75	0.8	0.9	1.5	1.7	2.0	3.5	3.8	4.6	
Air SCFM @70°F(21°C)	10	0.9	2.0	4.2	4.8	10.0	11.0	12.0	20.8	23.5	27.7	48.4	52.6	63.7	
	50	2.4	5.7	11.5	13.4	29.0	31.0	34.0	57.4	65.0	76.5	134.0	145.0	176.0	
	100	4.3	10.1	20.3	23.7	51.0	54.0	61.0	102.0	115.0	136.0	237.0	258.0	312.0	
Water US GPM @70°F(21°C)	10	0.3	0.4	0.9	1.1	2.3	2.5	2.8	4.7	5.4	6.3	11.1	12.0	14.5	
	50	0.6	1.0	2.1	2.5	5.3	5.6	6.3	10.6	12.0	14.1	24.7	26.9	32.5	
	100	0.8	1.5	3.0	3.5	7.5	8.0	9.0	15.0	17.0	20.0	35.0	38.0	46.0	

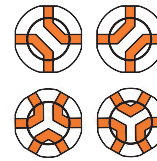
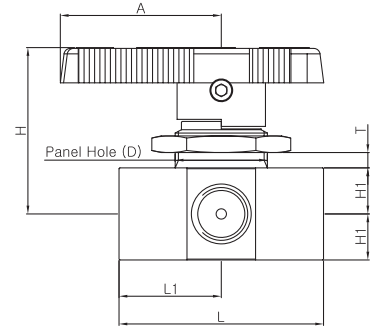
Pressure Rating with PTFE(Standard) & PFA Seat

Valve Designator	Pressure Rating			Temperature Range	
	2-Way Straight	2-Way Angle	3-Way Switching	PTFE	PFA
SBV1	2500psig (172 bar)			50° to 150°F (10°C to 65°C)	-65° to 150°F (-54°C to 65°C)
SBV2	3000psig (206 bar)	2500psig (172 bar)			
SBV3	2500psig (172 bar)				
SBV4					

4-Way / 6-Way Type

- Crossover of two streams.
- Machined stops provide positive port positioning.

Valve Designator	Pressure Rating	Temperature Range	
		PTFE	PFA
SBV2-4W-F-2N	2500psig (172 bar)	50 °F to 150 °F (10 °C to 65 °C)	-65 °F to 150 °F (-54 °C to 65 °C)
SBV4-4W-F-8N	1500psig (103 bar)		
SBV2-6W-S-1T	500psig (34.4 bar)		
SBV2-6W-S-2T			
SBVP2-4W-F-2N	2500psig (172 bar)		
SBVP4-4W-F-8N	1500psig (103 bar)		
SBVP2-6W-S-1T	500psig (34.4 bar)		
SBVP2-6W-S-2T			



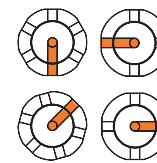
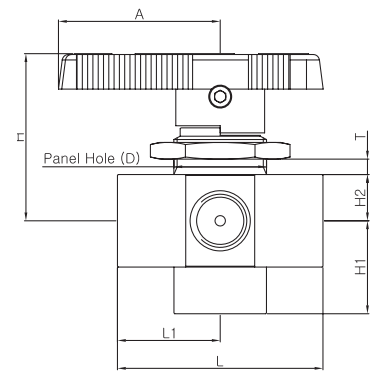
- T : Maximum panel thickness.
- D : Panel Hole

Ordering Number	Orifice		Cv	End Connections	Dimensions (mm)						
	mm	inch			L	L1	H	H1	A	T	D
SBV2-4W-F-2N	1.6	0.062	0.08	1/8" Female NPT	39.4	19.8	43.0	11.1	38.8	4.8	23.0
SBV4-4W-F-8N	7.1	0.281	1.6	1/2" Female NPT	79.5	39.6	61.7	17.5	76.2	9.7	38.1
SBV2-6W-S-1T	1.3	0.052	0.06	1/16" S-LOK	49.3	24.6	42.7	11.2	38.9	4.8	23.1
SBV2-6W-S-2T	1.6	0.062	0.08	1/8" S-LOK							

5-Way / 7-Way Type

- Flow can be switched from a single port to multiple ports or from multiple ports to a single port.
- 5-Way series valves have a spring-loaded detent for exact port positioning.

Valve Designator	Pressure Rating	Temperature Range	
		PTFE	PFA
SBV2-5W-F-2N	2500psig (172 bar)	50 °F to 150 °F (10 °C to 65 °C)	-65 °F to 150 °F (-54 °C to 65 °C)
SBV2-5W-F-2G			
SBV4-5W-F-8N	1500psig (103 bar)		
SBV2-7W-S-1T	500psig (34.4 bar)		
SBV2-7W-S-2T			
SBVP2-5W-F-2N	2500psig (172 bar)		
SBVP2-5W-F-2G	1500psig (103 bar)		
SBVP4-5W-F-8N			
SBVP2-7W-S-1T	500psig (34.4 bar)		
SBVP2-7W-S-2T			



- T : Maximum panel thickness.
- D : Panel Hole

Ordering Number	Orifice		Cv	End Connections	Dimensions (mm)							
	mm	inch			L	L1	H	H1	H2	A	T	D
SBV2-5W-F-2N	1.6	0.062	0.07	1/8" Female NPT	40	19.8	43.0	22.3	11.1	38.8	4.1	23.0
SBV2-5W-F-2G	1.6	0.062	0.07	1/8" Female PF	79.5	39.6	61.7	17.5	76.2	76.2	9.7	38.1
SBV4-5W-F-8N	10.3	0.406	3.5	1/2" Female NPT								
SBV2-7W-S-1T	1.3	0.052	0.05	1/16" S-LOK	49.3	24.6	42.9	24.6	11.2	38.9	4.1	23.1
SBV2-7W-S-2T	1.6	0.062	0.07	1/8" S-LOK								

↗ Packing Adjustment

- SBV30 Valves are designed to control fluid in full open and closed position ; using SBV30 valves to throttle the flow may reduce the valve life.
- Every valves are factory adjusted for 1000psig service at 21 °C (70 °F).
- For use in higher pressure, the packing must be readjusted.
- Exposure of valves to varying temperature can affect the initial packing load. You may need check leak and readjust packing bolt.
- Packing adjustment may be required during the valve in service.

↗ Testing

- Every valve is tested for bubble-tight leakage at both seat and stem packing with Nitrogen @ 1000psig (69bar).
- Seats have a maximum allowable leak rate of 0.1(SCCM).
- Optional tests are available upon request.

↗ Ordering Information

SBV1	S	4T	A	G	S6
Valve Series	Connection Type	Connection Size	Flow Pattern	Handle Color	Body Material
<ul style="list-style-type: none"> • SBV1 • SBV2 • SBV3 • SBV4 	<ul style="list-style-type: none"> • S : S-LOK • M : Male Thread • F : Female Thread 	<ul style="list-style-type: none"> • 1T : 1/6" Tube OD • 2T : 1/8" Tube OD • 4T : 1/4" Tube OD • 6T : 3/8" Tube OD • 8T : 1/2" Tube OD • 12T : 3/4" Tube OD 	<ul style="list-style-type: none"> • Nil : 2-Way Straight • A : 2-Way Angle 	<ul style="list-style-type: none"> • Nil : Black Nylon (Standard) • B : Blue Nylon • G : Green Nylon • R : Red Nylon • Y : Yellow Nylon 	<ul style="list-style-type: none"> • S6 : 316 Stainless Steel • BS : Brass
<ul style="list-style-type: none"> • SBV1G • SBV2G • SBV3G • SBV4G 					
<ul style="list-style-type: none"> • SBVP1 • SBVP2 • SBVP3 • SBVP4 		<ul style="list-style-type: none"> • 3M : 3mm Tube OD • 6M : 6mm Tube OD • 8M : 8mm Tube OD • 10M : 10mm Tube OD • 12M : 12mm Tube OD • 2N : 1/8" NPT • 4N : 1/4" NPT • 6N : 3/8" NPT • 8N : 1/2" NPT 			

*To order 3-Way Switching Valves, select ordering number and add -3B to the valve series.