

# Ball & Plug Valves

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# 01



Catalogue No. S-LOK Mar.2024

# SBV10 / 20 Series Ball Valves

## Features

- Compact design with hexagon bar-stock for high integrity.
- SBV10 Series
  - Working pressure : 1000 psig (69bar) at 21 °C (70 °F)
  - Temperature : 0 to 450 °F ( 18 to 232 °C )
- SBV20 Series
  - Working pressure : 2000 psig (137.9bar) at 21 °C (70 °F)
  - Temperature : -44° to 450 °F ( -42 to 232 °C )
- Low torque quarter turn actuation.
- Size range of from 1/4" to 2" tubing and piping.
- Various end connections : Reliable S-LOK, NPT, ISO male & female.
- Butterfly handle or Key lock handle is available as option.
- Locking device handle in on and off position.



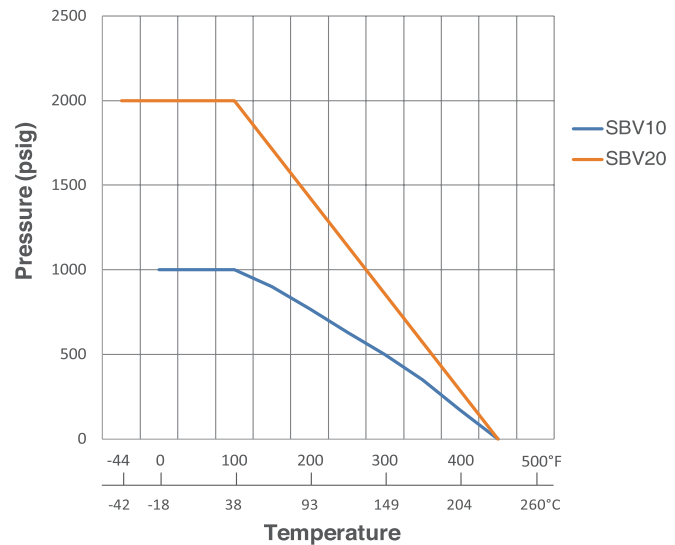
## Applications

- Water, Oil, Gas
- Petrochemical Plants
- Steel mills
- Heavy Vehicles

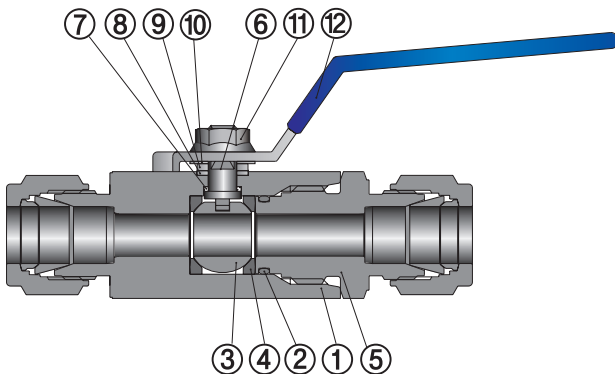
## Testing

- Every valve is factory tested with Nitrogen @ 1000psig (69bar) to maximum allowable leak of 0.1 (SSCM).
- The stem packing is tested for no detectable leakage.

## Pressure and Temperature Ratings



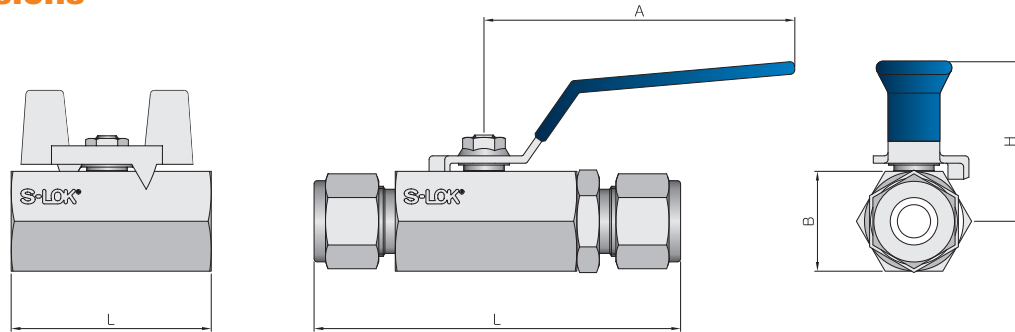
## Materials of Construction



No	Component	Material	
		Stainless Steel	Brass
1	Body	SS316 / A479 or A276	B16 or JIS H3250
2	O-ring	FKM / *HNBR	NBR
3	Ball	SS316 / A479 or A276	
4	Seat	Reinforced PTFE / * Modified PTFE	
5	End Connector	SS316 / A479 or A276	B16 or JIS H3250
	Insert		
6	Stem	SS316 / A479 or A276	
7	Lower Packing	Reinforced PTFE	
8	Upper Packing	Reinforced PTFE	
9	Gland	Stainless Steel	
10	Gland Washer	Stainless Steel	
11	Flange Nut	Stainless Steel	
12	Handle	Stainless Steel with PVC Coating	

\* HNBR / Modified PTFE is a base option for SBV20 Series.

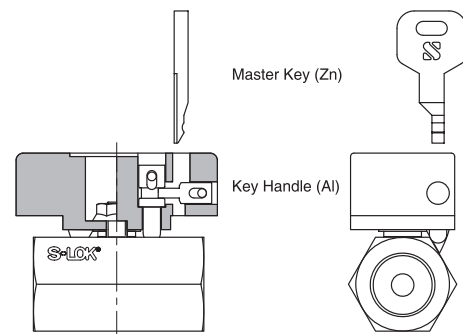
## Dimensions



Ordering Number		Orifice (mm)	Cv	End Connections	Dimensions (mm)			
					L	H	A	B
SBVA	S-6M	5.0	1.25	6mm S-LOK	79	31	55	17
	S-4T		1.25	1/4" S-LOK	79			
	F-4N		1.35	1/4" Female NPT	42			
SBVB	S-10M	7.5	2.6	10mm S-LOK	90	40	78	22
	S-6T		2.	3/8" S-LOK	90			
	F-6N		2.6	3/8" Female NPT	45			
SBVC	S-12M	9.0	9.25	12mm S-LOK	98	42	78	27
	S-8T		9.25	1/2" S-LOK	98			
	F-8N		9.25	1/2" Female NPT	54			
SBVD	S-16M	12.5	10.6	16mm S-LOK	108	51	96	32
	S-10T		10.6	5/8" S-LOK	108			
	S-12T		12.65	3/4" S-LOK	107			
	F-12N		12.65	3/4" Female NPT	63			
SBVE	S-16T	16.0	17.35	1" S-LOK	133	55	96	38
	F-16N		17.35	1" Female NPT	78			

## Key Operation Handle

- Possible to operate locking device with master key when on-off the handle.
- Just changing the handle with locking device is possible.
- Choice of handle color is possible (Blue, Red, or Green).



## Ordering Information

SBVA	F	4N	BF	S6
<b>Valve Series</b>	<b>Connection Type</b>	<b>Connection Size</b>	<b>Handle</b>	<b>Body Material</b>
<ul style="list-style-type: none"> <li>• SBVA~E : SBV10 Series</li> <li>• SBV20A~20E : SBV20 Series</li> </ul>	<ul style="list-style-type: none"> <li>• S : S-LOK</li> <li>• M : Male Thread</li> <li>• F : Female Thread</li> <li>• BW : Butt Weld</li> <li>• SW : Socket Weld</li> </ul>		<ul style="list-style-type: none"> <li>• Nil : Standard Lever Handle</li> <li>• BF : Optional Butterfly Handle</li> <li>• LD : Locking Device</li> <li>• KH : Key Operation Handle</li> <li>-Nil : Blue (Standard)</li> <li>-R : Red, -G : Green</li> </ul>	<ul style="list-style-type: none"> <li>• S6 : 316 Stainless Steel</li> <li>• BS : Brass</li> </ul>

# 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

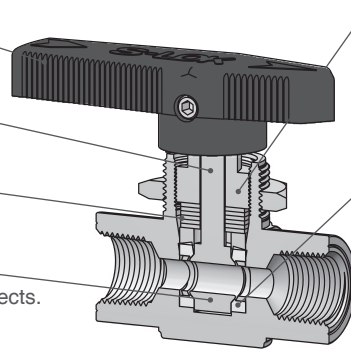
- Ensure alignment of stem and orifice.

### Top-loaded Design

- Easy packing adjustment with the valve in-line.

### Trunion Design

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



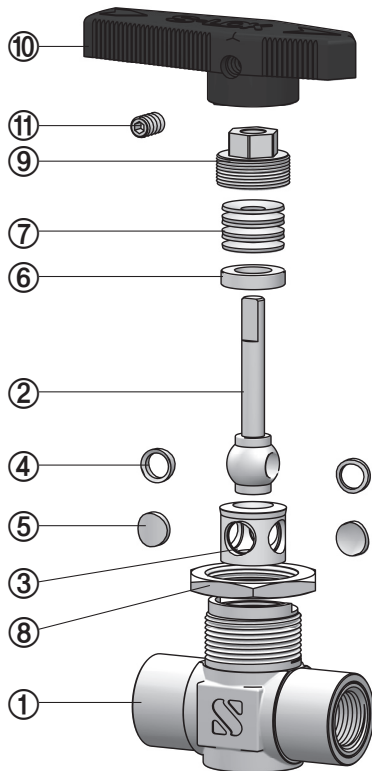
### Live-loaded Design

- 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

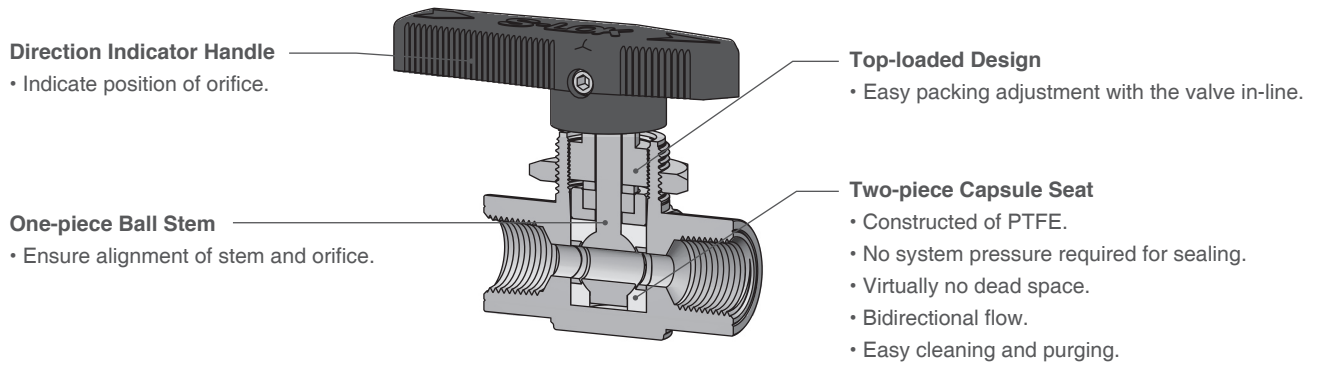


No	Component	Body Material	
		Stainless Steel	Brass
1	Body	SS316 / A182	Brass / B16
2	Ball Stem	SS316 / A276	SS316/A276
3	Seat	Modified PTFE	Modified PTFE
4	Side Ring	Fluorocarbon Coated SS316	Fluorocarbon Coated SS316
5	Side Disc	Fluorocarbon Coated SS316	Fluorocarbon Coated SS316
6	Gland	SS316 / A276	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

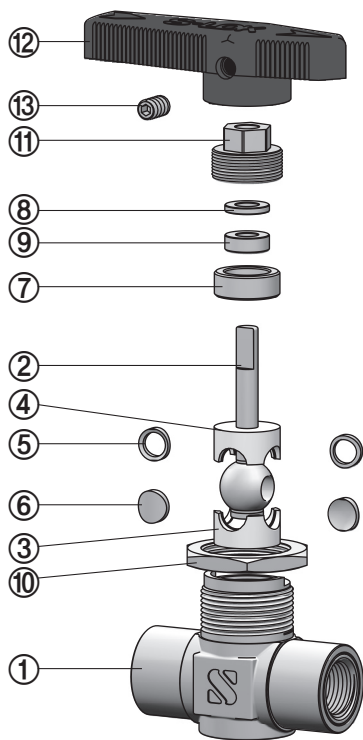
## Pressure Ratings

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

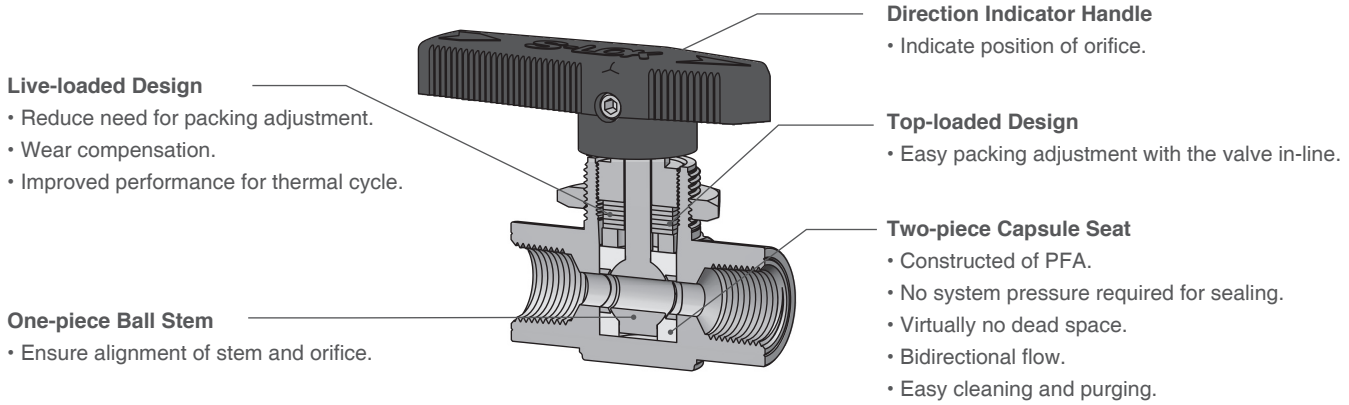


No	Component	Body Material	
		Stainless Steel	Brass
1	Body	SS316 / A182	Brass / B16
2	Ball Stem	SS316 / A276	SS316/A276
3	Lower Seat	PTFE	PTFE
4	Upper Seat	PTFE	PTFE
5	Side Ring	Fluorocarbon Coated SS316	Fluorocarbon Coated SS316
6	Side Disc	Fluorocarbon Coated SS316	Fluorocarbon Coated SS316
7	Lower 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

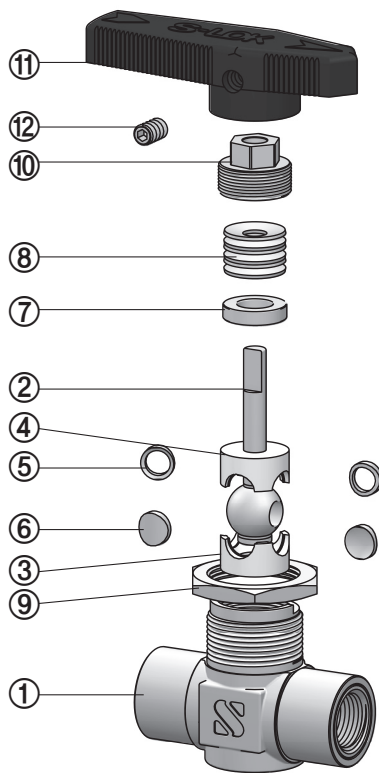
## Pressure Ratings

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



## Materials of Construction



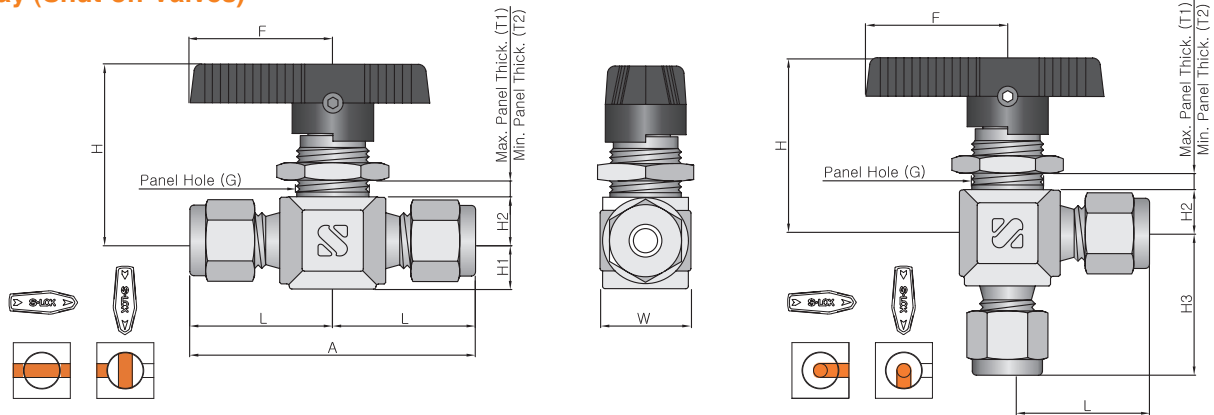
No	Component	Body Material	
		Stainless Steel	Brass
1	Body	SS316 / A182	Brass / B16
2	Ball Stem	SS316 / A276	SS316 / A276
3	Lower Seat	PFA	PFA
4	Upper Seat	PFA	PFA
5	Side Ring	Fluorocarbon Coated SS316	Fluorocarbon Coated SS316
6	Side Disc	Fluorocarbon Coated SS316	Fluorocarbon Coated SS316
7	Gland	SS316 / 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

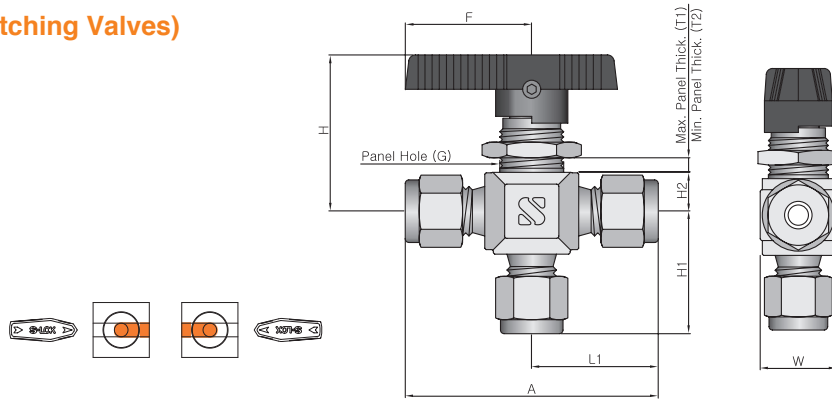
### 2-Way (Shut-off Valves)



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	11.2	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 ( $\Delta p$ ), 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							
SBV2-3B	S-4T	4.8	0.187	0.9	1/4" S-LOK	60.7	30.4	29.7	11.2	38.9	4.8	2.5	19.8	39.6	21
	S-6M			0.9	6mm S-LOK	60.7	30.4	29.7							
	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							
SBV3-3B	S-6T	7.1	0.281	2.0	3/8" S-LOK	73.4	36.7	36.3	13.5	50.8	9.5	3.0	28.6	52.6	29
	S-10M			2.0	10mm S-LOK	73.4	36.7	36.3							
	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 ( $\Delta p$ ), 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

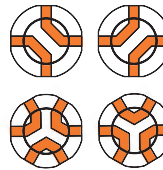
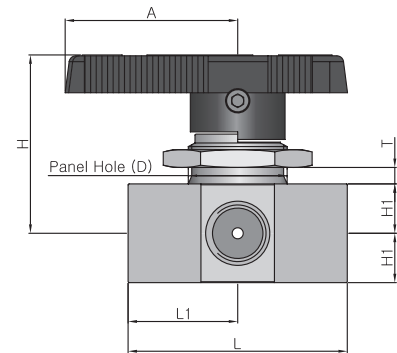
Valve Designator	Pressure Rating			Temperature Range	
	2-Way Straight	2-Way Angle	3-Way Switching	PTFE	PFA
SBV1	2500psig (172 bar)			50° to 150°F (10°C to 65°C)	-65° to 150°F (-54°C to 65°C)
SBV2	3000psig (206 bar)	2500psig (172 bar)			
SBV3	2500psig (172 bar)				
SBV4	1500psig (103 bar)				



### 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			



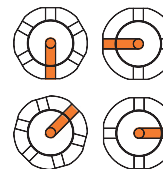
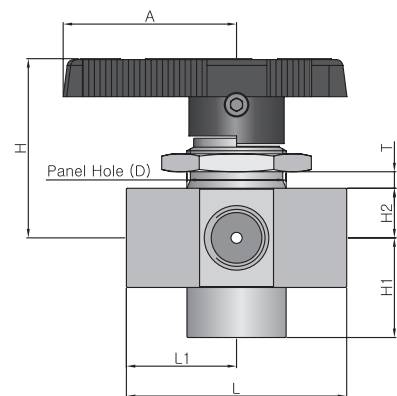
- T : Maximum panel thickness.
- D : Panel Hole

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	40.0	20.0	44.2	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	50.0	24.6	44.2	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	40.0	20.0	44.2	22.3	11.1	38.8	4.1	23.0
SBV2-5W-F-2G	1.6	0.062	0.07	1/8" Female PF								
SBV4-5W-F-8N	10.3	0.406	3.5	1/2" Female NPT	79.5	39.6	61.7	17.5	76.2	76.2	9.7	38.1
SBV2-7W-S-1T	1.3	0.052	0.05	1/16" S-LOK	50.0	24.6	44.2	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

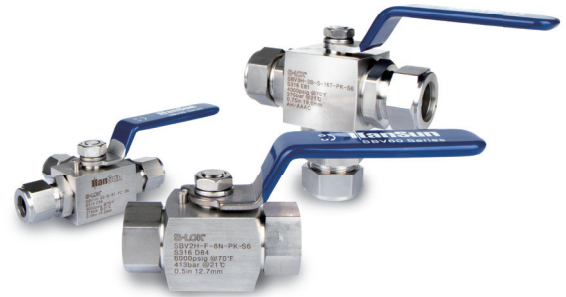
SBV1	S	4T	A	G	S6
Valve Series	Connection Type	Connection Size	Flow Pattern	Handle Color	Body Material
<ul style="list-style-type: none"> <li>• SBV1</li> <li>• SBV2</li> <li>• SBV3</li> <li>• SBV4</li> </ul>	<ul style="list-style-type: none"> <li>• S : S-LOK</li> <li>• M : Male Thread</li> <li>• F : Female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

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

# SBV60 Series High Pressure Ball Valves

## Features

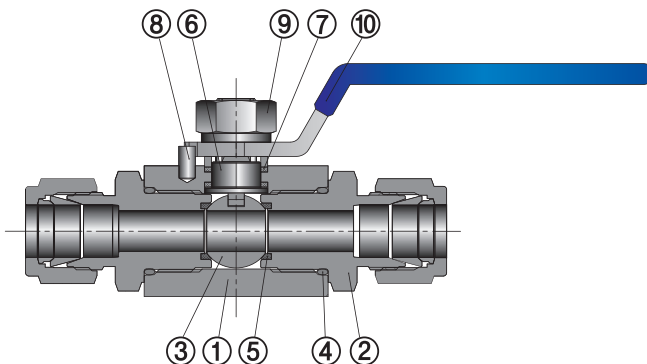
- Pressure rating up to 10000psig (689bar) @ 21°C (70°F).
- Temperature rating from -30°C (-22°F) to 180°C (355°F) with PCTFE seat or from -54°C (-65°F) to 260°C (500°F) with PEEK seat.
- Robust body is best suited for high pressure application and allows various pattern including:
  - 2-way straight pattern, 3-way side port inlet, 3-way bottom port inlet.
- Panel mounting and locking devices are available as option.
- Blow out proof design with internally loaded stem.
- Floating ball design ensures leak proof shut-off at high pressure.
- Straight through flow path for minimum pressure drop.
- Variety of end connections include reliable S-LOK tube fittings, male/female NPT & ISO/BSP threads.
- Handle with PVC color coated allows easy and quick operation with low torque.
- 90degree actuation.
- Every valve is 100% factory tested with the Nitrogen @ 1000psi (69bar).
- Optional sour gas service to NACE MR 0175.



## Operation

- S-LOK SBV60 Series ball valves provide quick 1/4 turn on-off control of fluids in process, power and instrumentation applications.
- All ports are suitable as inlets in full operation pressure of the valve.
- A broad selection of valve body, seat, and seal materials provide a wide range of pressure and temperatures at which the valve may be used.
- Valves that have not been actuated for a period of time may have a higher actuation torque.

## Materials of Construction

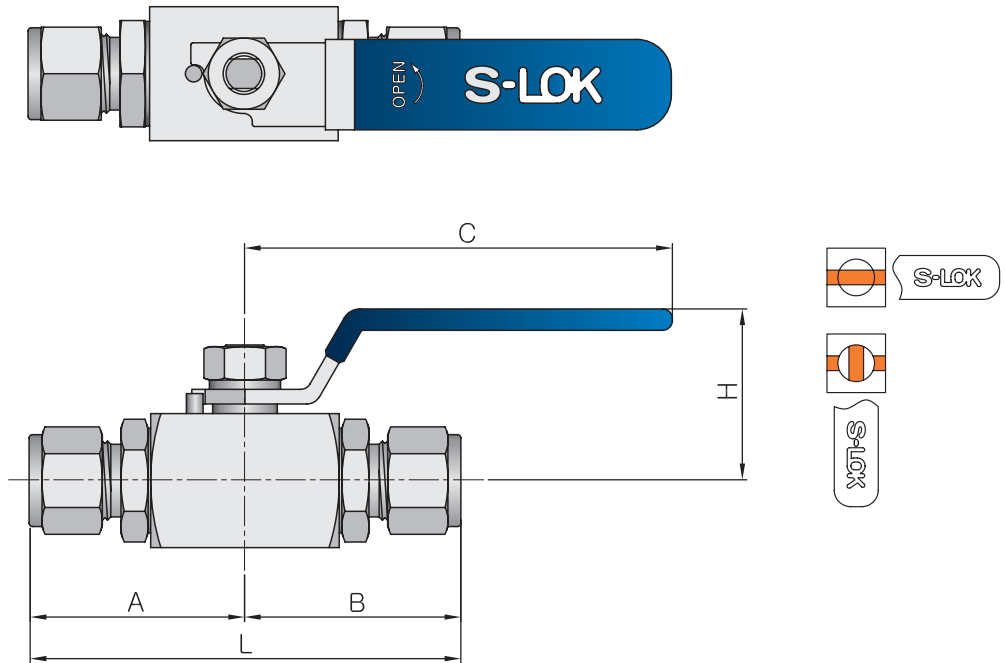


No	Component	Material
1	Body	SS316 / A479 or A276
2	End Connector	SS316 / A479 or A276
3	Ball	SS316 / A479 or A276
4	End Seal	FKM (VITON)
5	Seat	PCTFE (Optional PEEK)
6	Stem	SS316 / A479 or A276
7	Stem Packing	PTFE
8	Stop Pin	Stainless Steel
9	Hex Nut	Stainless Steel
10	Handle	Stainless Steel with PVC Coating

- Note : Wetted parts lubricant is fluorocarbon based.

## Dimensions

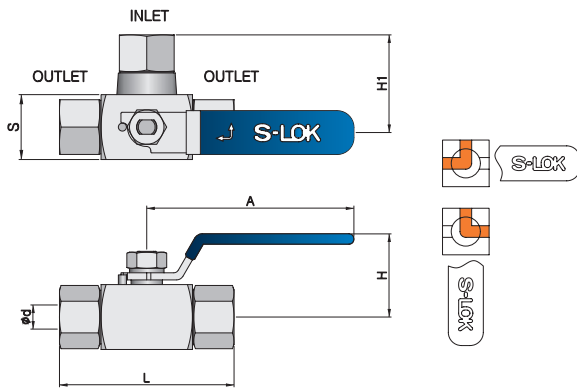
### 2-Way



Ordering Number		Orifice		Cv	End Connections		Dimensions (mm)					
		mm	inch		Inlet	Outlet	A	B	L	H	C	S
SBV1H	S-4T	4.8	0.19	1.2	1/4" S-LOK		46.0		92.0	39.0	101.0	32.0
	S-6T	7.1	0.28	3.7	3/8" S-LOK		47.5		95.0			
	S-8T				1/2" S-LOK		50.0		100.0			
	F-4N	10.0	0.39	7.5	1/4" Female NPT		32.5		65.0			
	F-6N				3/8" Female NPT		38.0		76.0			
	F-8N				1/2" Female NPT		43.0		86.0			
	M-4N	7.1	0.28	3.7	1/4" Male NPT		42.0		84.0			
	M-6N	9.7	0.38	7.2	3/8" Male NPT		42.0		84.0			
	M-8N	10.0	0.39	7.5	1/2" Male NPT		47.5		95.0			
SBV2H	S-10T	12.7	0.5	10.1	5/8" S-LOK		55.5		111.0	51.0	135.0	40.0
	S-12T				3/4" S-LOK		55.5		111.0			
	F-8N				1/2" Female NPT		45.5		91.0			
	F-12N				3/4" Female NPT		47.5		95.0			
	M-12N				3/4" Male NPT		54.5		109.0			
SBV3H	S-12T	15.8	0.62	19.0	3/4" S-LOK		58.5		117.0	56.0	135.0	50.0
	S-16T	19.0	0.75	30.0	1" S-LOK		65.0		130.0			
	F-12N				3/4" Female NPT		48.0		96.0			
	F-16N	1" Female NPT		50.0		100.0						
	M-12N	15.8	0.62	19.0	3/4" Male NPT		58.0		116.0			
	M-16N	19.0	0.75	30.0	1" Male NPT		62.5		125.0			

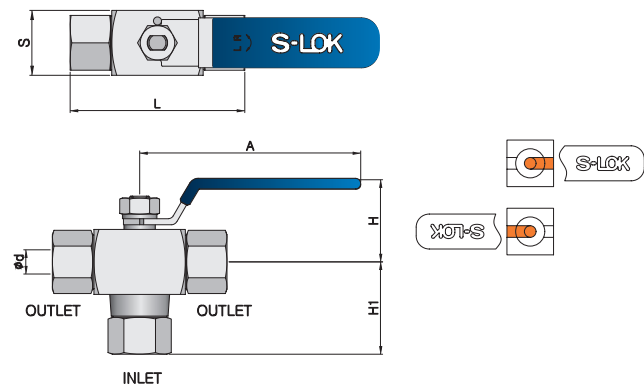
### 3-Way Side Port (3S)

- 1/4 Turn handle for flow switching.



### 3-Way Bottom Port (3B)

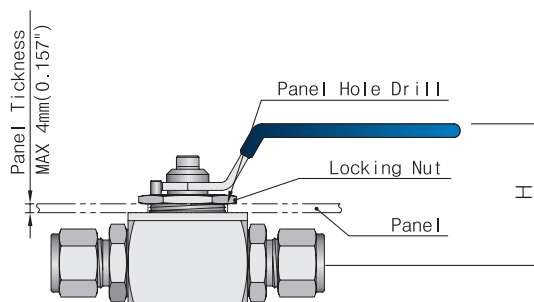
- 1/2 Turn handle for flow switching and isolation.



Ordering Number		Orifice		End Connections		Dimensions (mm)				
		mm	inch	Inlet	Outlet	A	H	H1	L	S
SBV1H-3B or SBV1H-3S	S-4T	4.8	0.19	1/4" S-LOK		101.0	39.0	51.5	92.0	32.0
	S-6T	7.1	0.28	3/8" S-LOK				53.0	95.0	
	S-8T	10.0	0.39	1/2" S-LOK				55.8	100.0	
	F-4N			1/4" Female NPT				36.7	65.0	
	F-6N			3/8" Female NPT				40.2	76.0	
	F-8N			1/2" Female NPT				45.5	86.0	
SBV2H-3B or SBV2H-3S	S-10T	12.7	0.5	5/8" S-LOK		135.0	51.0	65.5	111.0	40.0
	S-12T			3/4" S-LOK				65.5	111.0	
	F-8N			1/2" Female NPT				49.7	91.0	
	F-12N			3/4" Female NPT				55.2	95.0	
SBV3H-3B or SBV3H-3S	S-12T	15.8	0.62	3/4" S-LOK		135.0	56.0	70.0	117.0	50.0
	S-16T	19.0	0.75	1" S-LOK				76.6	130.0	
	F-12N			3/4" Female NPT				56.7	96.0	
	F-16N			1" Female NPT				60.8	100.0	

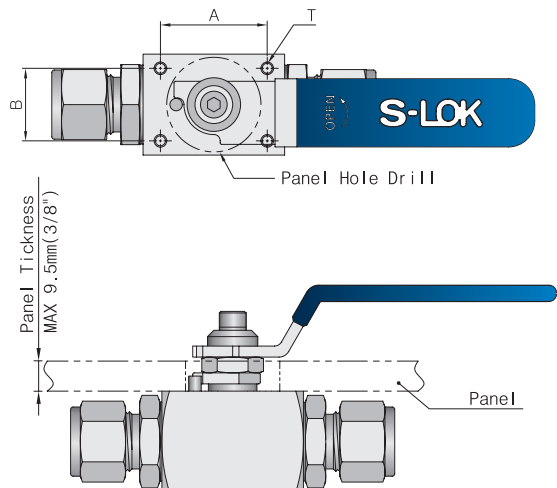
\* '3S' for side port 3-way, '3B' for Bottom port 3-way.

### Locking Nut Panel Mounting Option (PN)



Valve Series	Panel Hole Drill	H	A	B	T
SBV1H	30.0(1.18)	49.9	34.0(1.33)	23.0(0.91)	M4
SBV2H	38.0(1.50)	64.5	36.0(1.42)	29.2(1.15)	M5
SBV3H	38.0(1.50)	69.3	40.0(1.57)	35.0(1.37)	M5

### Screw Hole Panel Mounting Option (PS)



## Technical Data

### Pressure and Temperature Rating

Valve Series	Sealing Material			Pressure Rating @ 21°C(70°F)		Temperature Range
	Seat	Stem Packing	End Seal	2-Way	3-Way	
SBV1H	PCTFE	PTFE	FKM	6000psig (413 bar)	4000psig (275 bar)	-30 to 180°C (-22 to 355°F)
	PEEK			10000psig (689 bar)	6000psig (413 bar)	-54 to 260°C (-65 to 500°F)
SBV2H SBV3H	PCTFE	PTFE	FKM	5000psig (344 bar)	3000psig (206 bar)	-23 to 160°C (-9 to 320°F)
	PEEK			6000psig (413 bar)	4000psig (275 bar)	-35 to 210°C (-31 to 410°F)

- The above pressure rating is for 2-way In-line pattern valves. 80% of the above rating shall be applicable to 2-way angle pattern valves and 3-way valves.
- The rated pressure shown above is the maximum allowable pressure to the seat. If the system requires higher pressure to test, the valve must be in open position before and during test so as not to damage the seat.
- Pressure ratings of valves are sometimes limited to the maximum working pressure of pipe ends and tubing connected.
- The working pressure of tubing must be considered in the calculation of total system working pressure.

### CNG / NGV Certifications (SBVC Series)

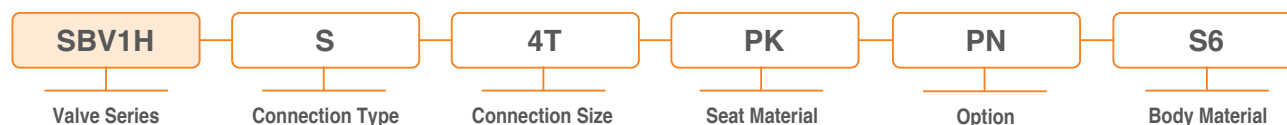
- SBVC Series valve provides leak tight integrity in both low and high pressure systems in CNG & NGV applications.
- Valves with PEEK seat, HNBR O-ring and add Disc Spring are compatible with CNG fluid.

Certificates	ECE R110	ANSI NGV3.1-2012	ISO 15500
CERT. No.	E4-110R-010333	126840AUT14	12684MECH103
Classification	Class 0	P36	Manual Valve
Temperature Range	-40 to 120°C (-40 to 248°F)	-40 to 120°C (-40 to 248°F)	-40 to 120°C (-40 to 248°F)
Pressure Rating	260 bar	248 bar	260 bar

## 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



- **SBV<sup>H</sup>** : Standard
- **SBV<sup>H</sup>-3S** : Side port 3-way
- **SBV<sup>H</sup>-3B** : Bottom port 3-way
- **SBVC<sup>H</sup>** : CNG / NGV Service

- **Nil** : PCTFE (Standard)
- **PK** : PEEK
- **Nil** : Standard
- **PN** : Lock Nut Panel Mounting
- **PS** : Screw Hole Panel Mounting
- **LD** : Locking Device
- **OH** : Oval Handle  
(Applicable only for SBV1H)
- **SG** : Sour Gas Service

- **S6** : 316 Stainless Steel

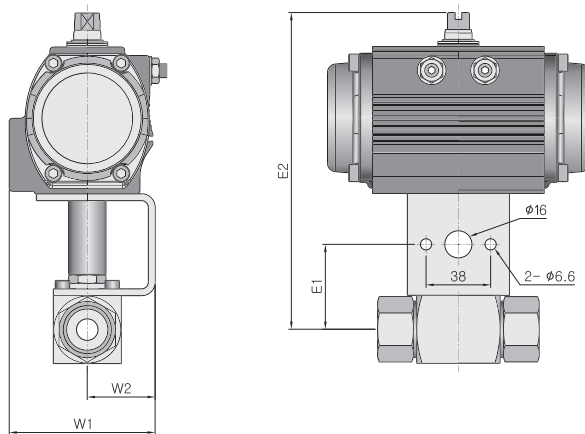
# Actuated Ball Valves (SBV60 Series)

## Features

- Rack and pinion pneumatic actuator.
- Double acting and spring return mode.
- Operating Pressure : 3 ~ 8bar
- Rotating Angle : 90° ±3°
- Temperature Range : -20°C (-4°F) to 80°C (176°F).



## Ordering Information and Dimensions



Valve Series	Dimensions (mm)			
	E1	E2	W1	W2
SBV1H	40.0	154.0	40.0	86.0
	40.0	154.0	40.0	86.0
SBV2H	50.0	186.5	40.0	86.0
	50.0	186.5	40.0	86.0
SBV3H	55.0	211.0	45.0	94.5
	55.0	211.0	45.0	94.5

**SBV1H-S-4T**

Valve Basic Ordering Number

**PDA**

Actuator Type Designator

- PDA : Double Acting (Normal Close)
- PNO : Spring Return (Normal Open)
- PNC : Spring Return (Normal Close)

**40**

Actuator Series Designator

- 40 : R40 Actuator
- 50 : R50 Actuator(Standard for SBV1H)
- 65 : R65 Actuator(Standard for SBV2H)
- 80 : R80 Actuator(Standard for SBV3H)

**S6**

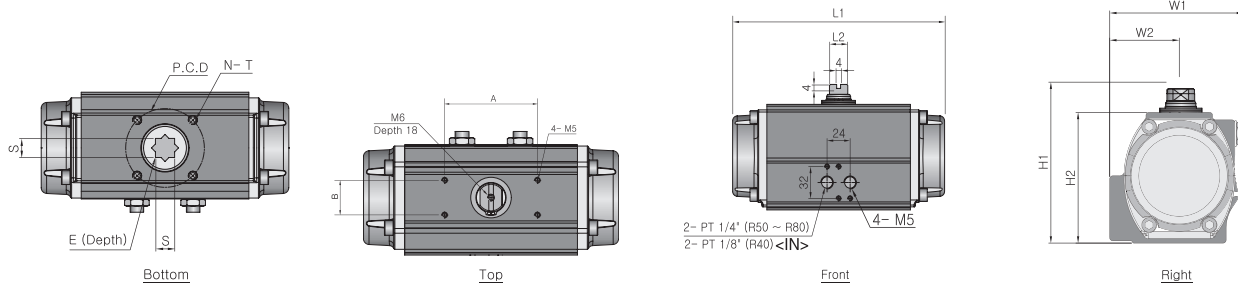
Valve Material Designator

- S6 : 316 Stainless Steel

## Torque Table for SBV60 Series

Valve Series	Torque (N·m)					
	1000psig	2000psig	3000psig	4000psig	5000psig	6000psig
SBV1H	1.0	1.8	2.5	3.3	4.0	4.8
SBV2H	2.0	3.7	5.4	7.0	8.7	10.4
SBV3H	4.7	9.0	13.3	17.6	21.9	26.3

## Actuator Dimensions



Actuator Series	ISO Flange Type	P.C.D	N- T	Dimensions (mm)										Weight (kg)	
				L1	L2	H1	H2	W1	W2	S	E	A	B	RD	RS
R40	F03/F05	36/50	4- M5/M6	97.0	9.0	75.0	55.0	63.0	32.0	9.0	9.0	50.0	25.0	0.5	0.6
	*F04	*42	*4- M5												
R50	F03/F05/F07	36/50/70	4- M5/M6/M8	133.0	9.0	90.0	70.0	75.0	40.0	11.0	13.0	80.0	30.0	1.0	1.1
	*F04	*42	*4- M5												
R65	F05/F07	50/70	4- M6/M8	154.0	13.0	106.5	86.5	89.0	46.0	14.0	16.0	80.0	30.0	1.4	1.5
	*F07	*70	*4- M8												
R80	F07	70	4- M8	220.0	19.0	126.0	106.0	101.0	49.5	17.0	19.0	80.0	30.0	2.9	3.3

\* Option.

### Torque Table for RD Series - Double Acting

Actuator Model	Supply Air (bar)							
	3	4	4.5	5	6	7	8	
	Torque (N·m)							
RD40-AL	5.5	7.4	8.4	9.2	11.1	13.0	14.8	
RD50-AL	9.4	12.5	14.3	15.9	19.1	22.5	25.8	
RD65-AL	18.3	24.7	27.8	30.8	36.8	42.9	49.2	
RD80-AL	44.5	58.9	66.5	74.4	89.3	104.3	117.8	

### Torque Table for RS Series - Spring Return

Actuator Model	Supply Air (bar) to Open															
	3		4		4.5		5		6		7		8		Spring to Close	
	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°
	Torque (N·m)															
RS40-AL	1.0	-	2.9	0.5	3.8	1.2	4.8	2.1	6.7	3.8	8.6	5.1	10.5	6.4	5.9	3.9
RS50-AL	4.1	1.2	7.4	4.4	9.0	6.1	10.7	7.6	14.2	11.1	17.3	14.5	20.8	18.0	8.1	5.2
RS65-AL	4.1	1.2	8.7	3.6	14.7	9.5	17.9	12.5	21.1	15.7	27.2	22.0	33.3	28.1	13.7	8.4
RS80-AL	21.1	6.1	35.3	21.0	42.9	29.1	50.5	35.7	65.6	51.3	80.8	66.4	95.7	80.5	33.7	21.7



# SFBV60 Series

## High Pressure Forged Ball Valves

### Features

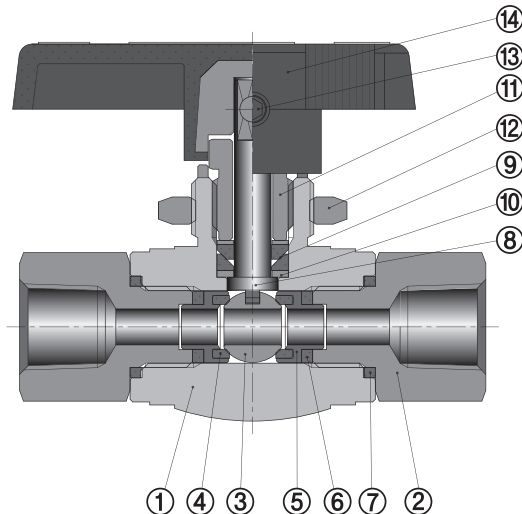
- Pressure rating up to 6000psig (413bar) @ 21°C (70°F).
- Temperature rating from -54°C (-65°F) to 177°C (350°F) with standard PCTFE seat.
- Free floating ball design provides seat wear compensation, therefore ensures leak proof shut-off at high pressure.
- High flow in a compact design.
- Panel mountable as standard.
- Blow out proof design with internally loaded stem.
- Micro-finished ball provides a positive seal.
- Low operating torques and positive handle stops.
- Handle indicates flow direction.
- Straight through flow path for minimum pressure drop.
- Bi-directional flow.
- Chevron packing standard for positive leak tight.
- 90 degree actuation.
- Every valve is 100% factory tested with the Nitrogen @ 1000psi (69bar).
- Variety of end connections include reliable S-LOK tube fittings Male/Female NPT & ISO/BSP threads.



### Applications

- Water, Oil, Gas, Petrochemical

### Materials of Construction

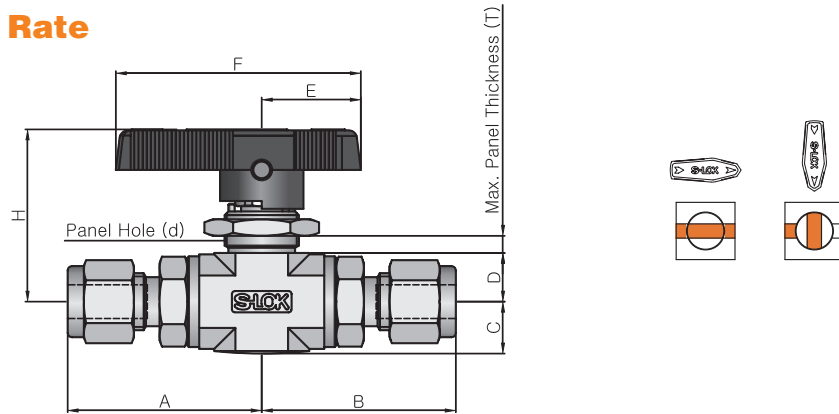


No	Component	Material
1	Body	A182 F316
2	End Connector	SS316 / A479 or A276
3	Ball	SS316 / A479 or A276
4	Seat	PCTFE (Optional PTFE, PEEK)
5	Retainer	SS316 / A479 or A276
6	Retainer Seal	PTFE
7	End Seal	PTFE
8	Stem	SS316 / A479 or A276
9	Stem Packing	PTFE
10	Stem Washer	Stainless Steel
11	Packing Bolt	SS316 / A479 or A276
12	Lock Nut	Stainless Steel
13	Set Screw	Stainless Steel
14	Handle	Black Nylon

- **Note** : Wetted parts lubricant is fluorocarbon based.

### Dimensions & Flow Rate

#### 2-Way (Shut-off Valves)

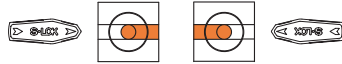


Ordering Number		Orifice		Cv	End Connections		Dimensions (mm)										
		mm	inch		Inlet	Outlet	A	B	C	D	E	F	H	d	T		
SFBV1	S-1T	1.3	0.052	0.06	1/16" S-LOK		33.0										
	S-2T	2.4	0.093	0.21	1/8" S-LOK		34.5										
	F-2N	4.2	0.165	0.93	1/8" Female NPT		27.2	10.0	9.4	19.0	47.0	33.2	16.3	3.3			
	M-2N				1/8" Male NPT		29.9										
	S-4T				1/4" S-LOK		37.6										
	M-4N				1/4" Male NPT		34.3										
S-3M	2.2	0.086	0.18	3mm S-LOK		34.8											
S-2T	2.4	0.093	0.26	1/8" S-LOK		41.9											
SFBV2	S-4T	4.8	0.189	1.04	1/4" S-LOK		44.2	10.7	11.9	25.6	78.0	49.6	19.6	6.4			
	MS-4N-4T				1/4" Male NPT	1/4" S-LOK	44.2								41.1		
	FS-4N4T				1/4" Female NPT	1/4" S-LOK	44.2								38.4		
	F-4N				1/4" Female NPT		38.4										
	M-4N	1/4" Male NPT		41.1													
	MF-4N	1/4" Male NPT	1/4" Female NPT	38.4	41.1												
	MS-4N6T	1/4" Male NPT	3/8" S-LOK	45.7	41.1												
	FS-4N6T	1/4" Female NPT	3/8" S-LOK	45.7	38.4												
	S-6T	3/8" S-LOK		45.7													
	M-6N	3/8" Male NPT		41.1													
	S-6M	4.8	0.189	1.04	6mm S-LOK		44.5										
	S-8M	6.4	0.25	2.34	8mm S-LOK		45.2										
	S-10M				10mm S-LOK		46.0										
	SFBV3	F-6N	10.3	0.406	6.42	3/8" Female NPT									49.5	17.5	17.8
F-8N		1/2" Female NPT				54.6											
S-8T		1/2" S-LOK				59.4											
M-8N		1/2" Male NPT				56.4											
S-12T		3/4" S-LOK		59.2													
S-12M		9.5	0.375		5.57	12mm S-LOK											
S-16M		10.3	0.406		6.42	16mm S-LOK											

Pressure Drop to Atmosphere ( $\Delta p$ ), psi		Cv								
		0.06	0.18	0.21	0.26	0.93	1.04	2.34	5.57	6.42
<b>Air</b> SCFM @70°F(21°C)	10	5.9	17.7	20.7	25.6	91.5	102.4	230.3	548.2	631.9
	50	13.2	39.6	46.2	57.2	204.7	228.9	515.0	1225.9	1413.0
	100	18.7	56.0	65.4	80.9	289.5	323.7	728.3	1733.7	1998.3
<b>Water</b> US GPM @70°F(21°C)	10	0.2	0.6	0.7	0.8	2.9	3.3	7.4	17.6	20.3
	50	0.4	1.3	1.5	1.8	6.6	7.4	16.5	39.4	45.4
	100	0.6	1.8	2.1	2.6	9.3	10.4	23.4	55.7	64.2

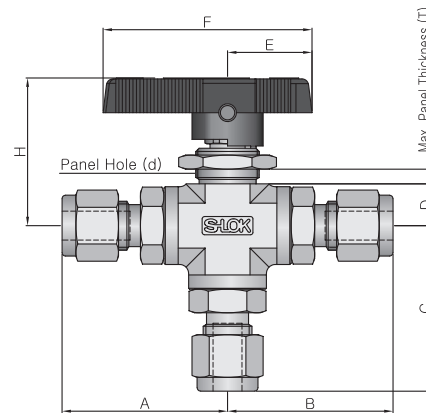
\* Flow rate calculated with 1000psig (69 bar) inlet pressure.  
 \* To determine m<sup>3</sup>/hr multiply GPM by SCFM by 1.69.

### 3-Way (Switching Valves)



#### 3-Way ball valve

SFBV 3-way ball valve is designed to switch media through the bottom port and direct it to out of two outlet ports.



Ordering Number		Orifice		Cv	End Connections		Dimensions (mm)							
		mm	inch		Inlet	Outlet	A	B	C	D	E	F	H	d
SFBV1-3B	S-1T	1.3	0.052	0.06	1/16" S-LOK		33.0	33.7	8.5	19.0	47.0	33.2	16.3	3.3
	S-2T	2.4	0.093	0.21	1/8" S-LOK		34.5	36.4						
	F-2N	4.2	0.165	0.63	1/8" Female NPT		27.2	29.9						
	M-2N				1/8" Male NPT		29.9	29.9						
	S-4T				1/4" S-LOK		37.6	37.2						
	M-4N				1/4" Male NPT		34.3	29.9						
S-3M	2.2	0.086	0.18	3mm S-LOK		34.8	36.4							
SFBV2-3B	S-2T	2.4	0.093	0.21	1/8" S-LOK		41.9	45.5	11.9	25.6	78.0	49.6	19.6	6.4
	S-4T	4.8	0.189	0.7	1/4" S-LOK		44.2	47.8						
	F-4N	5.0	0.196	0.87	1/4" Female NPT		38.4	41.9						
	M-4N				1/4" Male NPT		41.1	44.7						
	S-6T				3/8" S-LOK		45.7	49.3						
	M-6N				3/8" Male NPT		41.1	44.7						
	S-6M	4.8	0.189	0.7	6mm S-LOK		44.5	47.8						
	S-8M	5.0	0.196	0.87	8mm S-LOK		45.2	48.5						
S-10M	10mm S-LOK				46.0	49.5								
SFBV3-3B	F-6N	10.3	0.406	3.62	3/8" Female NPT		49.5	58.2	17.8	38.1	99.0	62.9	22.9	9.7
	F-8N				1/2" Female NPT		54.6	63.2						
	S-8T				1/2" S-LOK		59.4	68.1						
	M-8N				1/2" Male NPT		56.4	65.8						
	S-12T	3/4" S-LOK		59.2	68.1									
	S-12M	9.5	0.375	3.46	12mm S-LOK		59.2	67.8						
	S-16M	10.3	0.406	3.62	16mm S-LOK		59.2	65.5						

Pressure Drop to Atmosphere ( $\Delta p$ ), psi		Cv										
		0.06	0.18	0.21	0.63	0.7	0.87	0.93	2.34	3.46	3.62	6.42
Air SCFM @ 70°F (21°)	10	5.9	17.7	20.7	62.0	68.9	85.6	91.5	230.3	340.6	356.3	631.9
	50	13.2	39.6	46.2	138.7	154.1	191.5	204.7	515.0	761.5	796.7	1413.0
	100	18.7	56.0	65.4	196.1	217.9	270.8	289.5	728.3	1077.0	1126.8	1998.3
Water US GPM @ 70°F (21°)	10	0.2	0.6	0.7	2.0	2.2	2.8	2.9	7.4	10.9	11.4	20.3
	50	0.4	1.3	1.5	4.5	4.9	6.2	6.6	16.5	24.5	25.6	45.4
	100	0.6	1.8	2.1	6.3	7.0	8.7	9.3	23.4	34.6	36.2	64.2

\* Flow rate calculated with 1000psig (69 bar) inlet pressure.  
 \* To determine  $m^3/hr$  multiply GPM by 0.227 SCFM by 1.69.

## Technical Data

### Pressure and Temperature Rating

Seat Material	Pressure Rating @ 21°C (70°F)	Temperature Range	Pressure Rating @ Max. Temperature
PCTFE	6000psig (413 bar)	-54 to 177°C (-65 to 350°F)	1000psig (69 bar) @ 177°C (350°F)
PEEK	6000psig (413 bar)	-54 to 232°C (-65 to 450°F)	700psig (48 bar) @ 232°C (450°F)
PTFE	1500psig (103 bar)	-54 to 177°C (-65 to 350°F)	250psig (17.2 bar) @ 177°C (350°F)

\* Pressure Rating with 3-way side ports of as inlet : 150psig (10bar)

### CNG / NGV Certifications (SFBVC Series)

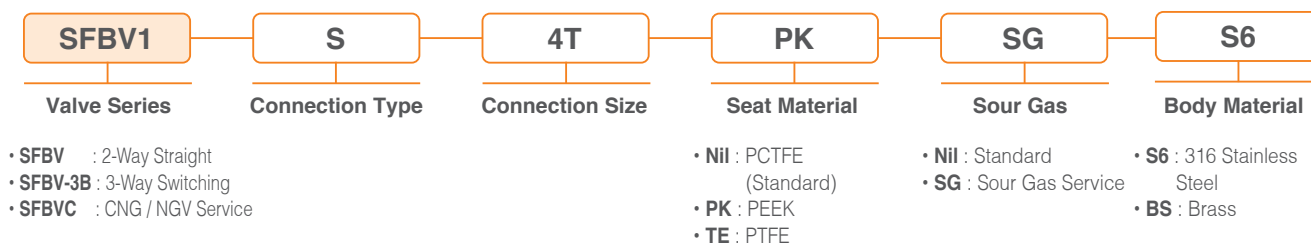
- SFBVC Series valve provides leak tight integrity in both low and high pressure systems in CNG & NGV applications.
- Valves with PEEK seat, HNBR O-ring and add Disc Spring are compatible with CNG fluid.

Certificates	ECE R110	ANSI NGV3.1-2012	ISO 15500
CERT. No.	E4-110R-010333	126840AUT14	12684MECH103
Classification	Class 0	P36	Manual Valve
Temperature Range	-40 to 120°C (-40 to 248°F)	-40 to 120°C (-40 to 248°F)	-40 to 120°C (-40 to 248°F)
Pressure Rating	260 bar	248 bar	260 bar

## Testing

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

## Ordering Information



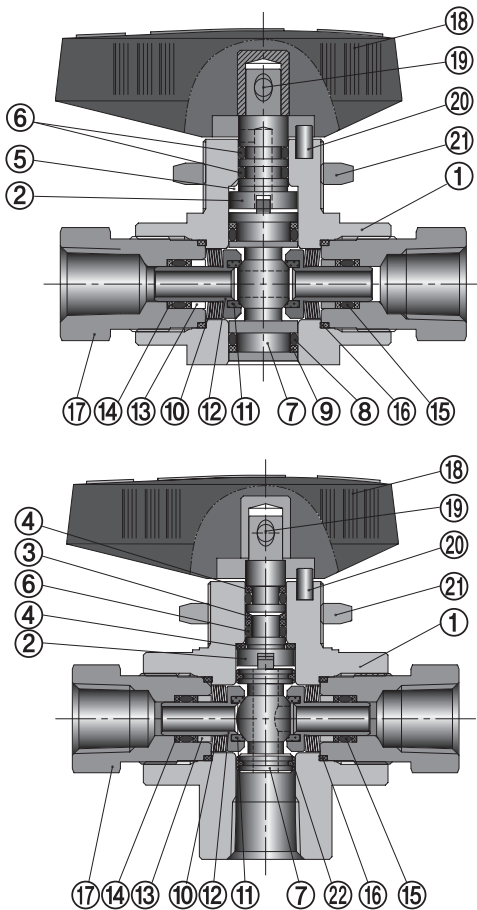
# STBV60 Series Trunnion Ball Valves

## Features

- Pressure rating up to 6000psig (413bar) @ 21°C (70°F).
- Maximum flow in a compact design.
- Panel mountable as standard.
- Handle indicates flow direction.
- Lower torque actuation.
- 2-way “Shut-up” and 3-way “Switching” type.
- Variety of end connections include reliable S-LOK tube fittings Male/Female NPT & ISO/BSP threads.
- Optional sour gas service to NACE MR 0175.
- Every valve is 100% factory tested with Nitrogen @ 1000psig (69bar).



## Material of Construction

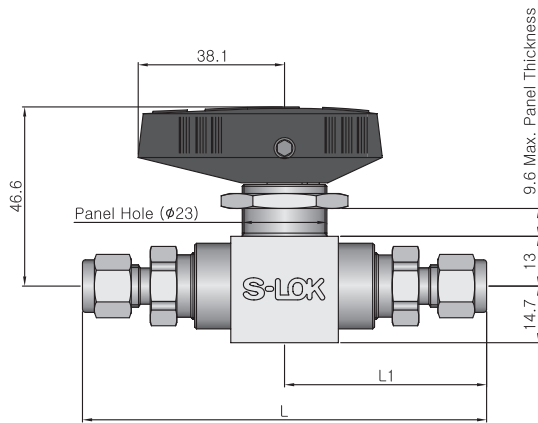


No	Component	Material	
		2-Way	3-Way
1	Body	SS316 / A479 or A276, A182	
2	*Stem	SS316 / A479 or A276	
3	*Stem Support Ring	-	PEEK
4	*Stem Backup Ring	-	PTFE
5	*Stem Bearing	PEEK	
6	*Stem O-ring	FKM	
7	*Trunnion Ball	SS316 / A479 or A276	
8	*Ball O-ring	FKM	-
9	*Ball Backup Ring	PTFE	-
10	*Disc Spring	Alloy X-750	
11	*Seat	PCTFE (Optional PTFE, PEEK)	
12	*Seat Carrier	Stainless Steel	
13	*Seat Carrier Guide	SS316 / A479 or A276	
14	*Seat Carrier Backup Ring	PTFE	
15	*Seat Carrier O-ring	FKM	
16	*Connector Seal	PTFE	
17	End Connector	SS316 / A479 or A276	
18	*Handle	Phenolic with Brass Insert	
19	*Set Screw	Stainless Steel	
20	Stop Pin	Stainless Steel	
21	Lock Nut	Stainless Steel	
22	*Slip Ring	-	PTFE

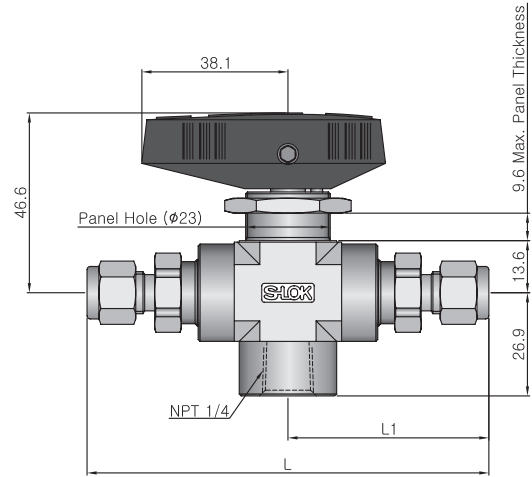
\* Service kits contain part.

## Dimensions

### 2-Way (Shut-off Valves)



### 3-Way (Switching Valves)



Ordering Number		Orifice		Cv	End Connections		Dimensions (mm)	
		mm	inch		Inlet	Outlet	L	L1
STBV	F-2N	4.75	0.187	1.2	1/8" Female NPT		76.2	38.1
	F-4N			1/4" Female NPT		76.2	38.1	
	F-8N			1/2" Female NPT		108.2	54.1	
	S-4T			1/4" S-LOK		105.2	52.6	
	S-6T			3/8" S-LOK		111.2	55.6	
	S-8T			1/2" S-LOK		116.8	58.4	
	S-6M			6mm S-LOK		105.2	52.6	
	S-8M			8mm S-LOK		105.2	52.6	
	S-10M			10mm S-LOK		111.8	55.9	
	S-12M			12mm S-LOK		116.8	58.4	
STBV-3B	F-2N	4.75	0.187	0.75	1/8" Female NPT		76.2	38.1
	F-4N				1/4" Female NPT		76.2	38.1
	S-4T				1/4" S-LOK		105.2	52.6
	S-6T				3/8" S-LOK		111.2	55.6
	S-8T				1/2" S-LOK		116.8	58.4
	S-6M				6mm S-LOK		105.2	52.6
	S-8M				8mm S-LOK		105.2	52.6
	S-10M				10mm S-LOK		111.8	55.9
	S-12M				12mm S-LOK		116.8	58.4

\* Bottom port of all 3-way valves is 1/4" Female NPT.

## Technical Data

### Pressure and Temperature Rating

Seat Material	Pressure Rating @21°C (70°F)	Temperature Range
PCTFE	6000psig (413 bar)	-17 to 121°C (0 to 250°F)
PEEK	6000psig (413 bar)	-17 to 232°C (0 to 450°F)
PTFE	1500psig (103 bar)	-17 to 232°C (0 to 450°F)

### CNG / NGV Certifications (STBVC Series)

- STBVC Series valve provides leak tight integrity in both low and high pressure systems in CNG & NGV applications.
- Valves with PEEK seat and HNBR O-ring are compatible with CNG fluid.

Valve Series	Certificates	ECE R110	ANSI NGV3.1-2012	ISO 15500
STBVC / STBVC-3B	CERT. No.	E4-110R-010333	126840AUT14	12684MECH103
	Classification	Class 0	P36	Manual Valve
	Temperature Range	-40 to 120°C (-40 to 248°F)	-40 to 120°C (-40 to 248°F)	-40 to 120°C (-40 to 248°F)
	Pressure Rating	260 bar	248 bar	260 bar

## Testing

- The rated pressure shown above is the maximum allowable pressure to the seat. If the system requires higher pressure to test, the valve must be in open position before and during test so as not to damage the seat.
- Every valve is tested for bubble-tight leakage at both seat and stem packing with nitrogen at 1000psig (69bar).
- Seats have a maximum allowable leak rate of 0.1(SCCM).
- Optional tests are available upon request.

## Ordering Information

### Product



### Service Kit

- Service kits contain components of the same materials as new components.
- To order the service kit selection of the applicable options from the designators are listed mark(\*) of Material of Construction.



# SDBV Series Ball Valves for DIN Standard

## ↗ Features

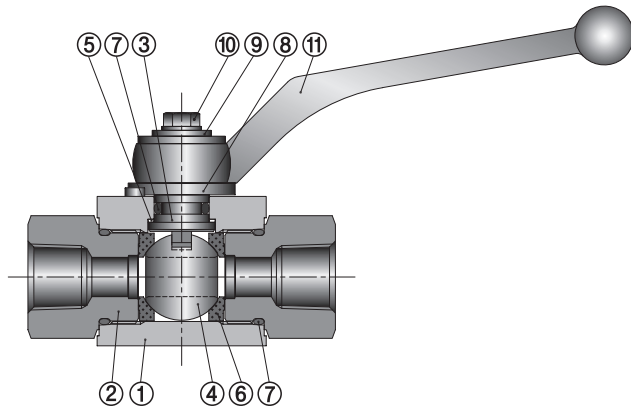
- Pressure rating up to 500bar @ 21°C.
- Temperature rating from -20°C to 100°C with POM and FKM standard.
- Conforms to DIN standard.
- Compact design with maximum orifice.
- Variety of end connections such as DIN2353 "L" & "S" series, Male/Female DIN / ISO / BSP and NPT threads.
- Handle is only available in cast stainless steel standard.
- Every valve is 100% factory tested with Nitrogen @ 1000psig (69bar).



## ↗ Applications

- Hydraulic fluids, Compressed air, Lubricants and Fuel oil system

## ↗ Materials of Construction



No	Component	Material
1	Body	SS316 / A479 or A276 DIN 17440 / 1.4401
2	End Connector	
3	Stem	
4	Ball	
5	Stem Bearing	PEEK
6	Ball Seat	POM (Optional PTFE)
7	Stem & End Seal	FKM
8	Locking Device	Stainless Steel
9	Upper Washer	Stainless Steel
10	Hex Bolt	Stainless Steel
11	Handle	A351 CF8M

## ↗ Temperature Rating

Seal Material	Temperature Range
NBR	-23 to 121°C
FKM	-23 to 200°C
EPDM	-46 to 149°C

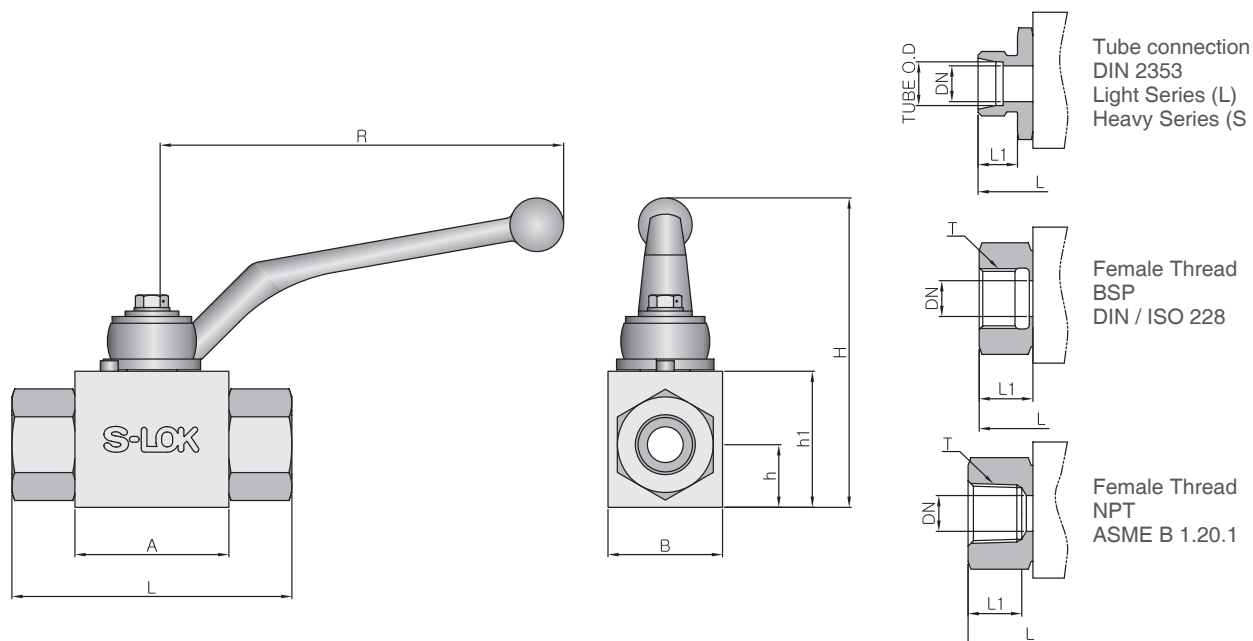
Seat Material	Temperature Range
POM	-30 to 100°C
PTFE	-54 to 65°C

## ↗ 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).
- Hydraulic shell test is performed at 1.5 times the working pressure.



## Dimensions



### DIN 2353 Light (L) Tube Series

Ordering Number	DN	PB	End Connections		Dimensions (mm)								Weight (kg)	
			Inlet	Outlet	L	L1	A	B	H	h	h1	R		
SDBV1	6L	4	315	6mm		67.0	10.0	40.0	26.0	82.0	13.5	33.0	115.0	0.4
	8L	6		8mm		67.0	10.0							0.4
	10L	6		10mm		74.0	11.0							0.5
SDBV2	12L	10	315	12mm		74.0	11.0	43.0	32.0	87.0	17.5	38.0	115.0	0.6
SDBV3	15L	13	315	15mm		82.0	12.0	48.0	35.0	89.0	19.0	40.0	115.0	0.7
	18L	13		18mm		82.0	12.0							0.8
SDBV4	22L	20	160	22mm		101.0	14.0	62.0	49.0	114.0	24.5	57.0	159.0	2.1
SDBV5	28L	25	160	28mm		108.0	14.0	66.2	58.0	122.0	29.5	65.0	159.0	2.3
	35L	25		35mm		112.0	16.0							2.3

### DIN 2353 Heavy (S) Tube Series

Ordering Number	DN	PB	End Connections		Dimensions (mm)								Weight (kg)	
			Inlet	Outlet	L	L1	A	B	H	h	h1	R		
SDBV1	8S	4	500	8mm		73.0	12.0	40.0	26.0	82.0	13.5	33.0	115.0	0.4
	10S	6		10mm		73.0	12.0							0.4
SDBV2	12S	6	500	12mm		76.0	12.0	43.0	32.0	87.0	17.5	38.0	115.0	0.5
	14S	10		14mm		80.0	14.0							0.6
SDBV3	16S	13	400	16mm		86.0	14.0	48.0	35.0	89.0	19.0	40.0	115.0	0.7
	20S	20		20mm		90.0	16.0							0.8
SDBV4	25S	20	315	25mm		109.0	18.0	62.0	49.0	114.0	24.5	57.0	159.0	2.1
SDBV5	30S	25	315	30mm		120.0	20.0	66.2	58.0	122.0	29.5	65.0	159.0	2.3
	38S			38mm		124.0	22.0							2.3

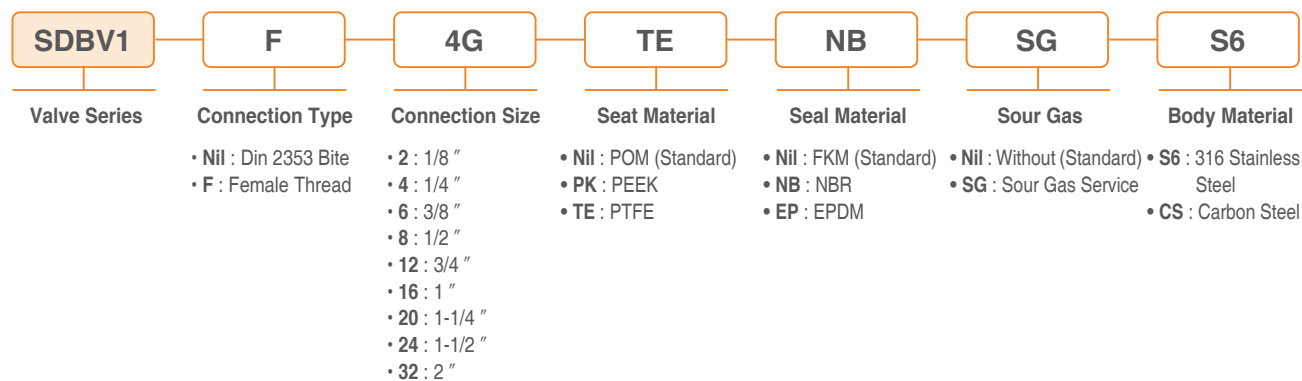
### Female BSP (DIN / ISO 228)

Ordering Number		DN	PB	End Connections		Dimensions (mm)								Weight (kg)
				Inlet	Outlet	L	L1	A	B	H	h	h1	R	
SDBV1	F-2G	6	500	PF 1/8"		68.8	10.0	40.0	26.0	82.0	13.5	33.0	115.0	0.4
	F-4G			PF 1/4"		68.8	14.0							0.4
SDBV2	F-6G	10	500	PF 3/8"		71.9	14.0	43.0	32.0	87.0	17.5	38.0	115.0	0.6
SDBV3	F-8G	13	500	PF 1/2"		82.3	16.5	48.0	35.0	89.0	19.0	40.0	115.0	0.7
SDBV4	F-12G	20	315	PF 3/4"		95.4	18.0	62.0	49.0	114.0	24.5	57.0	159.0	1.6
SDBV5	F-16G	25	315	PF 1"		112.7	20.0	66.2	58.0	122.0	29.5	65.0	159.0	2.3
SDBV6	F-20G	32	315	PF 1-1/4"		120.0	22.0	68.0	75.0	165.0	37.5	82.0	260.0	4.4
SDBV7	F-24G	38	315	PF 1-1/2"		130.0	24.0	85.0	95.0	182.0	47.5	99.1	260.0	6.8
SDBV8	F-32G	50	315	PF 2"		140.0	26.0	100.0	115.0	198.0	57.5	115.2	260.0	9.5

### Female NPT (ASME B 1.20.1)

Ordering Number		DN	PB	End Connections		Dimensions (mm)								Weight (kg)
				Inlet	Outlet	L	L1	A	B	H	h	h1	R	
SDBV1	F-4N	6	500	NPT 1/4"		68.8	15.0	40.0	26.0	82.0	13.5	33.0	115.0	0.4
SDBV2	F-6N	10	500	NPT 3/8"		78.0	15.0	43.0	32.0	87.0	17.5	38.0	115.0	0.7
SDBV3	F-8N	13	500	NPT 1/2"		104.0	20.5	48.0	35.0	89.0	19.0	40.0	115.0	1.0
SDBV4	F-12N	20	315	NPT 3/4"		102.0	21.5	62.0	49.0	114.0	24.5	57.0	159.0	1.8
SDBV5	F-16N	25	315	NPT 1"		119.0	25.4	66.2	58.0	122.0	29.5	65.0	159.0	2.5
SDBV6	F-20N	32	315	NPT 1-1/4"		120.0	27.0	68.0	75.0	165.0	37.5	82.0	260.0	4.4
SDBV7	F-24N	38	315	NPT 1-1/2"		130.0	27.0	85.0	95.0	182.0	47.5	99.1	260.0	6.8
SDBV8	F-32N	50	315	NPT 2"		162.0	31.0	100.0	115.0	198.0	57.5	115.2	260.0	11.5

### Ordering Information



# SOBV Series Swing-Out Ball Valves

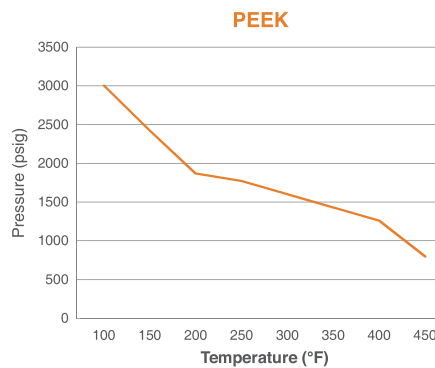
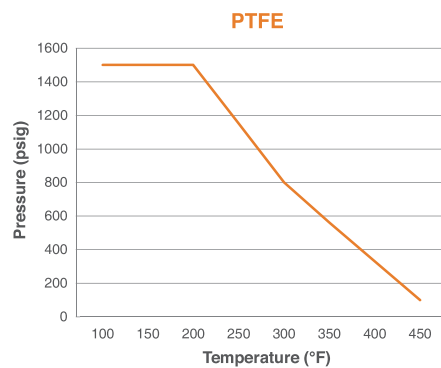
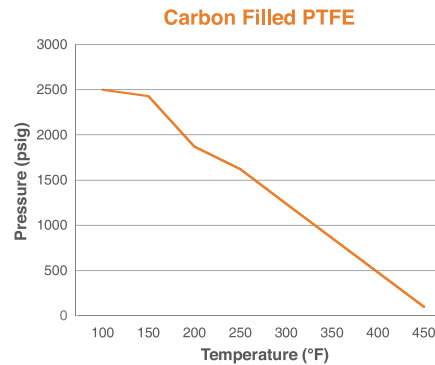
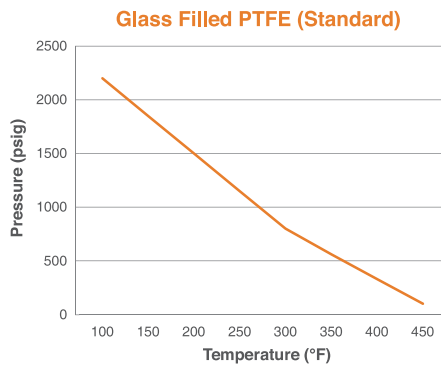
S-LOK Swing out Ball Valves(SOBV Series) are durable valves that can handle the pressure and piping loads. The structure allows for quick and easy replacement of seats, seals and balls without a major disruption to the piping system.

## Features

- Three-piece swing-out design & Spring-loaded seats design
- Actuator mounting design
- 100% Factory tested
- Temperature range from -20°F(-28°C) to 450°F(232°C)
- Pressure rating to seats
  - 3000 psig(207bar) @ 100°F(38°C) : PEEK
  - 2500 psig(172bar) @ 100°F(38°C) : Carbon Filled PTFE
  - 2200 psig(151bar) @ 100°F(38°C) : Glass Filled PTFE (Standard)
  - 1500 psig(103bar) @ 100°F(38°C) : Virgin PTFE



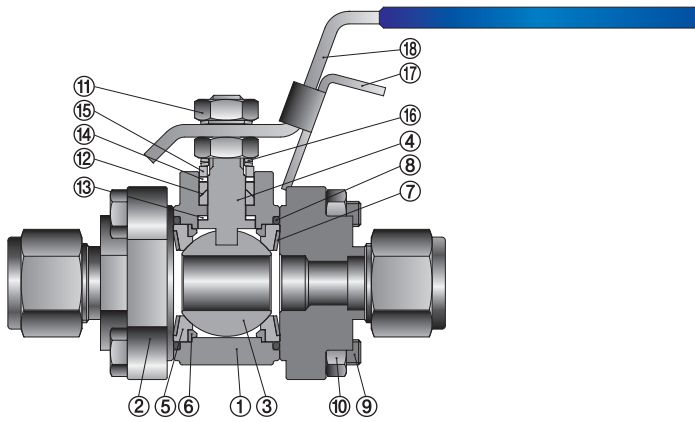
## Pressure and Temperature Ratings



## Testing

- Each swing-out ball valve is tested with Nitrogen@1,000 psig (69 bar) to max. leak rate of 0.1 (SSCM).
- Hydrostatic shell test is performed at 1.5 times the working pressure as an option.

### Materials of Construction



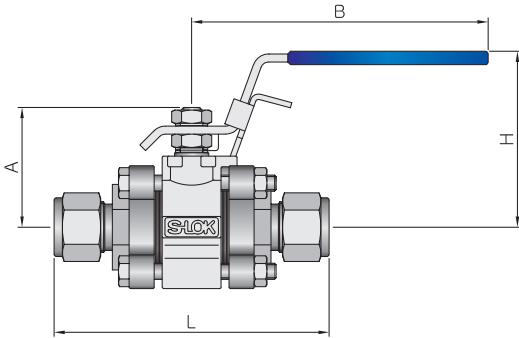
No	Part Name	Material
1	Body	CF8M / A351
2	End Connector	CF8M / A351
3	Ball	SS316 / A276 or A479
4	Stem	SS316 / A276 or A479
5	Ball Seat	Reinforced PTFE
6	Support ring	SS316 / A276 or A479
7	Disc Spring	X-750
8	O-Ring	FKM
9	Hex Long Bolt	A193 B8M CL.2
10	Hex Nut	A194 8M
11	Stem Nut	Stainless Steel
12	Stem Packing	Reinforced PTFE
13	Thrust Washer	PEEK
14	Bearing	PEEK
15	Packing Gland	SS316 / A276 or A479
16	Stem Spring	Stainless Steel
17	Locking Device	Stainless Steel
18	Bar Handle	Stainless Steel

**NOTE**

• Stainless steel is standard body material but such a Monel, Carbon steel, and other special material are available upon request

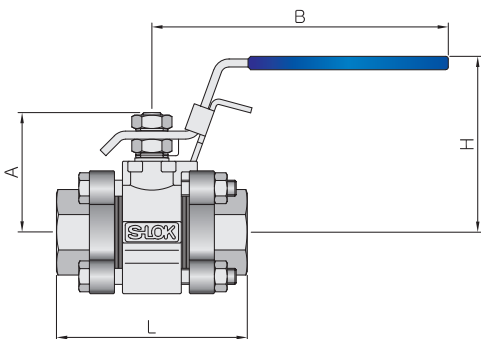
### Ordering Information & Dimension

#### S-LOK Tube Fitting End



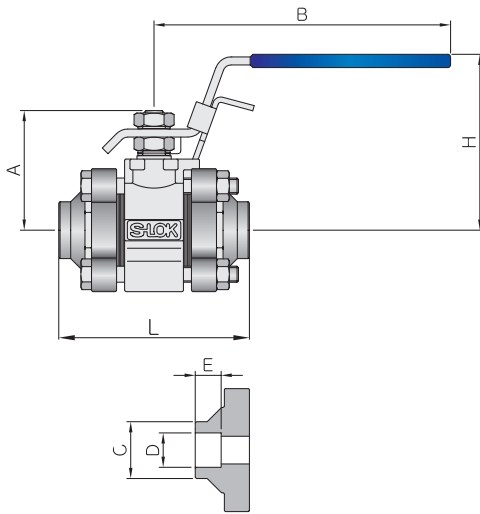
Ordering Number	Size	Cv	Orifice (mm)	Dimensions (mm)				
				A	B	L	H	
SOBV1	S-4T	1/4	1.2	30.2	65	80.5	45.8	
	S-6M	6mm						
	S-8M	8mm						
	S-6T	3/8						
	S-10M	10mm	3.8			81.4		
SOBV2	S-12M	12mm	7.5	44.8	110	103	64.8	
	S-8T	1/2	10.3					
	S-12T	3/4	13.6	13.1				
	S-18M	18mm						
SOBV3	S-16T	1	40	22.2	62.2	150	136	
	S-25M	25mm						
SOBV4	S-24T	1-1/2	100	31.8	78	210	193	105

#### Female Thread End



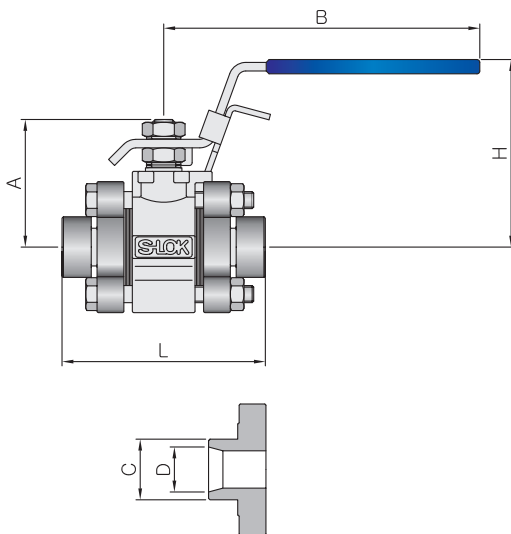
Ordering Number	Size	Cv	Orifice (mm)	Dimensions (mm)				
				A	B	L	H	
SOBV1	F-2N	1/8 NPT	3.8	7.1	30.2	65	54.9	45.8
	F-4N	1/4 NPT						
SOBV2	F-6N	3/8 NPT	12	13.1	44.8	110	68.6	64.8
	F-8N	1/2 NPT						
SOBV3	F-12N	3/4 NPT	31	22.2	62.2	150	91.2	81.6
	F-16N	1 NPT	38					
SOBV4	F-20N	1-1/4 NPT	90	31.8	78	210	112	105
	F-24N	1-1/2 NPT	100					

Socket Weld End



Ordering Number	Size	Cv	Orifice (mm)	Dimensions (mm)								
				A	B	C	D	E	L	H		
SOBV1	SW-4T	1/4 Tube	1.2	4.8	30.2	65	13.7	6.5	7.1	54.9	45.8	
	SW-6T	3/8 Tube	3.8	7.1			17.1	9.7	7.9			
SOBV2	SW-8T	1/2 Tube	7.5	10.4	44.8	110	21.3	12.9	9.7	68.6	64.8	
	SW-12T	3/4 Tube	13.6	13.1			26.7	19.2	11.2			
SOBV3	SW-8P	1/2 Pipe	15	22.2	62.2	150	31.2	21.8	9.7	91.2	81.6	
	SW-12P	3/4 Pipe	36				39.2	27.2	12.7			
	SW-16T	1 Tube	40				33.4	25.6	15.7			
SOBV4	SW-16P	1 Pipe	42	28.6	78	210	46	33.9	12.7	112	105	
	SW-20T	1-1/4 Tube	80				42.2	32	15.7			
	SW-20P	1-1/4 Pipe	90				62.2	42.7	12.7			115
	SW-24T	1-1/2 Tube	100				38.3	19.1	112			
	SW-24P	1-1/4 Pipe					48.8	12.7	116			

Pipe Butt Weld End



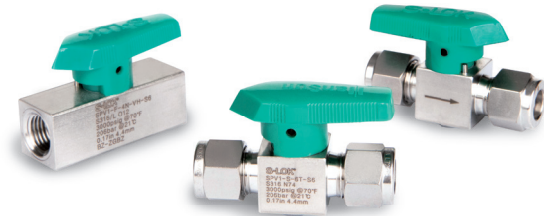
Ordering Number	Size	Pipe Sch.	Cv	Orifice (mm)	Dimensions (mm)									
					A	B	C	D	L	H				
SOBV1	BW-4P10	1/4	10	1.2	4.8	30.2	65	13.7	10.4	52.8	45.8			
	BW-4P40		40						9.2					
	BW-4P80		80						7.7					
	BW-6P80	3/8	80						3.8			7.1	17.1	10.7
SOBV2	BW-8P10	1/2	10	15	13.1	44.8	110	21.3	17.1	68.3	64.8			
	BW-8P40		40						15.8					
	BW-8P80		80						13.9					
	BW-12P80	3/4	80						13.6			26.7	18.8	
SOBV3	BW-12P10	3/4	10	36	22.2	62.2	150	26.7	22.5	91.2	81.6			
	BW-12P40		40		20.9				20.9					
	BW-16P10	1	10	40	22.2				33.4			27.9	26.6	87.9
	BW-16P40		40										23.9	
BW-16P80	80													
SOBV4	BW-20P80	1-1/4	80	80	28.6	78	210	42.2	32.5	116	105			
	BW-24P10	1-1/2	10	100	31.8				48.3			42.7		
	BW-24P40		40									40.9		
	BW-24P80		80									38.1	116	

<b>SOBV2</b>	<b>S</b>	<b>8T</b>	<b>T1</b>	<b>OH</b>	<b>S6</b>
<b>Valve Series</b>	<b>Connection Type</b>	<b>Connection Size</b>	<b>Seat / Seal Material</b>	<b>Option</b>	<b>Body Material</b>
	<ul style="list-style-type: none"> <li>S : S-LOK Tube fitting</li> <li>F : Female Thread</li> <li>SW : Socket Weld</li> <li>BW : Butt Weld (Pipe Size + SCH)</li> </ul>	<ul style="list-style-type: none"> <li>2 : 1/8"</li> <li>4 : 1/4"</li> <li>6 : 3/8"</li> <li>8 : 1/2"</li> <li>12 : 3/4"</li> <li>16 : 1"</li> <li>20 : 1-1/4"</li> <li>24 : 1-1/2"</li> </ul>	<ul style="list-style-type: none"> <li>TE : PTFE</li> <li>T1 : Glass 15% Filled PTFE (Standard)</li> <li>T3 : Carbon 15% Filled PTFE</li> <li>PK : PEEK</li> <li>VT : FKM (Standard, Nill)</li> <li>EP : EPDM</li> <li>KA : FFKM</li> </ul>	<ul style="list-style-type: none"> <li>OH : Oval Handle</li> <li>PDA : Double Acting</li> <li>NC : Normal Close</li> <li>NO : Normal Open</li> <li>MP : Mounting Pad</li> <li>VP : Vent Port</li> <li>FS : Fire Safety Design</li> </ul>	<ul style="list-style-type: none"> <li>S6 : A351 CF8M</li> <li>S6L : A351 CF3M</li> <li>A400 : Monel 400</li> <li>CS : Carbon Steel</li> </ul>

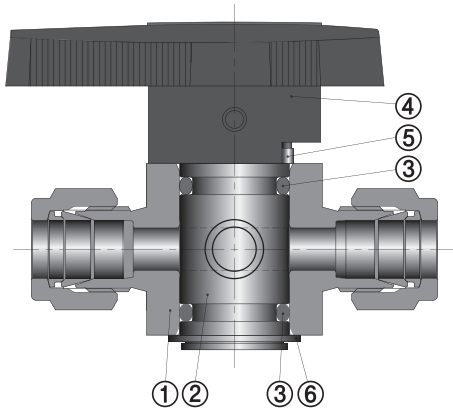
# SPV30 Series Plug Valves

## ⚡ Features

- Pressure rating up to 3000psi @ 21°C (70°F).
- Temperature rating from -23°C to 204°C with PTFE coated FKM seal.
- Small and compact design.
- Easy maintenance and cleaning.
- Size available up to 1/2" tube and pipe.
- Body material available in 316 stainless steel and brass.



## ⚡ Materials of Construction



No	Component	Material	
		Stainless Steel	Brass
1	Body	SS316 / A479 or A276	B16 or JIS H3250
2	Plug	PTFE Coated SS316 / A479 or A276	PTFE Coated Brass / B16
3	O-ring	PTFE Coated FKM Standard	
4	Handle	Nylon	
5	Pin	Stainless Steel	
6	Snap Ring	Stainless Steel	

## ⚡ Technical Data

### Pressure and Temperature Ratings

Valve Series	Body Material	Pressure Rating @21°C (70°F)	Temperature Range
SPV1	Stainless Steel	3000psig (206 bar)	-23 to 204°C (-10 to 400°F)
	Brass		
SPV2	Stainless Steel	3000psig (206 bar)	
	Brass	2000psig (137 bar)	

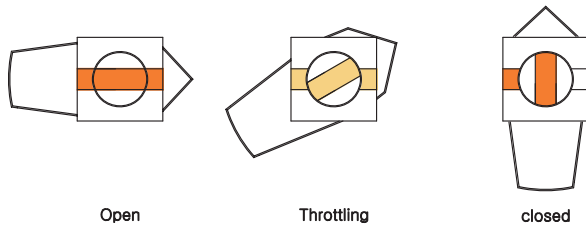
- Differential pressure is limited to maximum 150psig (10.3bar) when reverse flow occurs.
- Throttling reverse flow may damage O-ring.

### Optional O-ring Material Temperature Ratings

Seal Material	Temperature Range
FKM (PTFE Coated)	-28 to 204°C (-20 to 400°F)
NBR (PTFE Coated)	-20 to 105°C (-68 to 221°F)
EPDM (PTFE Coated)	-45 to 135°C (-49 to 275°F)

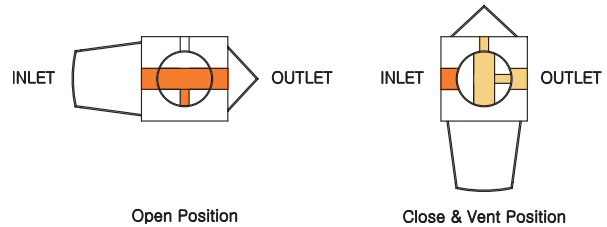
### Operation

- S-LOK plug valves provide positive shut-off, high flow capacity and quick quarter-turn operation.
- S-LOK plug valves provides flow throttling capability.

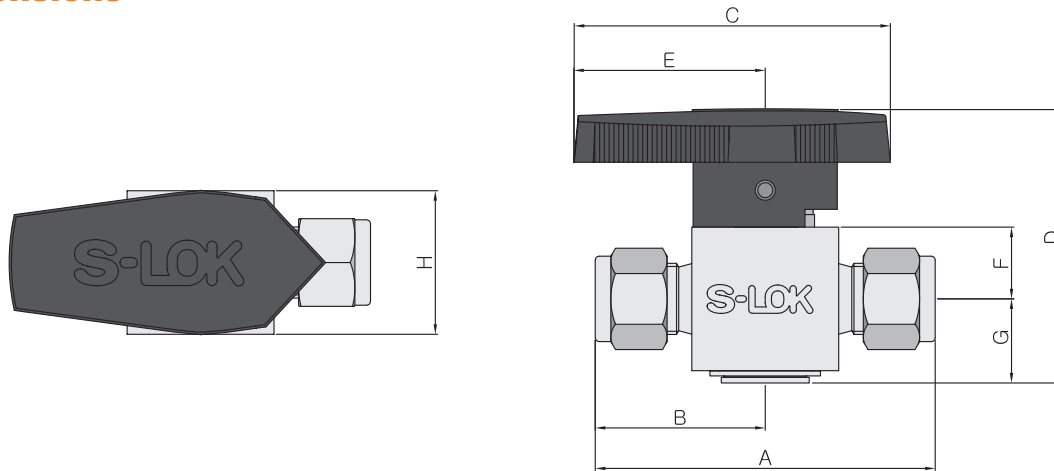


### Downstream Vent

- Optional vented plug and valve body allow pressure release to atmosphere when the valve is closed.
- Maximum operating pressure 150psig (10.3bar).



### Dimensions



Ordering Number	Orifice	Cv	End Connections		Dimensions (mm)								
			Inlet	Outlet	A	B	C	D	E	F	G	H	
SPV1	S-2T	4.4 (0.17)	0.1	1/8" S-LOK		50.5	25.3	47.8	36.6	29.0	9.4	11.7	19.1
	S-4T		1/4" S-LOK		55.1	27.6							
	S-6T		3/8" S-LOK		58.2	29.2							
	S-6M		6mm S-LOK		55.1	27.6							
	M-2N		1/8" Male NPT		38.9	19.5							
	M-4N		1/4" Male NPT		48.3	24.2							
	MS-4N4T		1/4" Male NPT	1/4" S-LOK	51.8	24.2	27.6						
	MF-4N		1/4" Male NPT	1/4" Female NPT	50.8	24.2	26.6						
	F-2N		1/8" Female NPT		45.2	22.6							
	F-4N		1/4" Female NPT		53.1	26.6							
F-4R	1/4" Female PT		56.1	28.1									
SPV2	S-6T	7.2 (0.28)	6.4	3/8" S-LOK		67.6	33.8	63.2	54.1	38.1	14.2	16.8	28.6
	S-8T		1/2" S-LOK		73.2	36.6							
	S-8M		8mm S-LOK		66.6	33.3							
	S-10M		10mm S-LOK		68.1	34.1							
	S-12M		12mm S-LOK		73.2	36.6							
	M-8N		1/2" Male NPT		67.1	33.5							
	F-6N		3/8" Female NPT		60.5	30.3							
	F-8N		1/2" Female NPT		73.2	36.6							
	F-8R		1/2" Female PT		79.8	39.9							

## Flow Rate

Ordering Number	Cv	Pressure Drop to Atmosphere ( $\Delta p$ ), psi						
		Air Flow, SCFM@70°F(21°C)			Water Flow, US GPM @70°F(21°C)			
		1	5	10	1	5	10	
SPV1	S-2T	0.1	0.3	0.8	1.1	0.1	0.2	0.3
	S-4T	1.6	6.0	13.0	18.0	1.6	3.6	5.1
	S-6T	1.1	4.1	8.9	12.4	1.1	2.5	3.5
	S-6M	1.6	6.0	13.0	18.0	1.6	3.6	5.1
	M-2N	1.0	3.7	8.1	11.3	1.0	2.2	3.2
	M-4N	0.9	3.7	8.1	11.3	1.0	2.2	3.2
	MS-4N4T	1.0	3.3	7.3	10.1	0.9	2.0	2.8
	MF-4N	1.0	3.7	8.1	11.3	1.0	2.2	3.2
	F-2N	1.0	4.4	9.7	13.5	1.2	2.7	3.8
	F-4N	0.9	3.3	7.3	10.1	0.9	2.0	2.8
	F-4R	0.9	3.3	7.3	10.1	0.9	2.0	2.8
SPV2	S-6T	6.4	23.9	52.0	72.3	6.4	14.3	20.2
	S-8T	4.4	16.4	35.7	49.7	4.4	9.8	13.9
	S-8M	6.4	23.9	52.0	72.3	6.4	14.3	20.2
	S-10M	6.4	23.9	52.0	72.3	6.4	14.3	20.2
	S-12M	4.8	17.9	39.0	54.2	4.8	10.7	15.2
	M-8N	2.4	9.0	19.5	27.1	2.4	5.4	7.6
	F-6N	4.3	16.0	34.9	48.6	4.3	9.6	13.6
	F-8N	2.7	10.1	21.9	30.5	2.7	6.0	8.5
	F-8R	2.7	10.1	21.9	30.5	2.7	6.0	8.5

## Testing

- Every valve is tested for shut off at 600psig (41bar).

## Ordering Information

