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# Leak - Proof Flow & Control Solution Partner

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**S-LOK<sup>®</sup>** Ball & Plug Valves

**HanSun**

한선엔지니어링(주)  
HANSUN ENGINEERING CO., LTD.

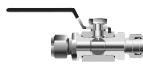


# Ball Valves

## SBV, SFBV SERIES

**SBV10** Series  3~4

**SBV30** Series  5~9

**SBV60** Series  10~13

**SFBV60** Series  14~17

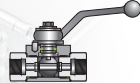
# Trunnion Ball Valves

## STBV SERIES

**STBV** Series  18~21

# Ball Valves for DIN Standard

## SDBV SERIES

**SDBV** Series  22~24

# Plug Valves

## SPV SERIES

**SPV** Series  25~27



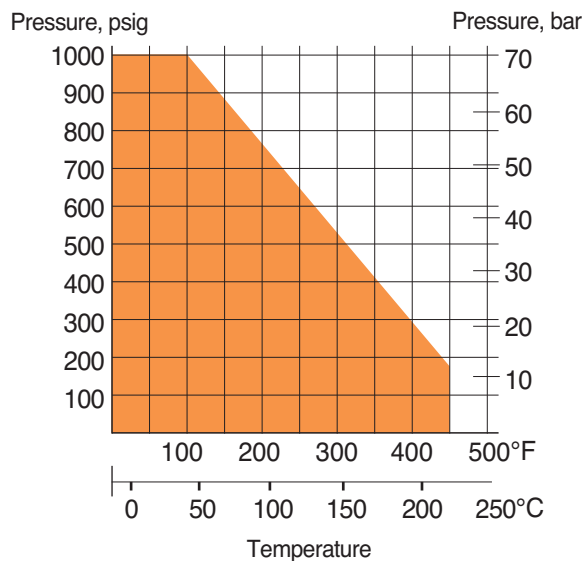
## SBV10 Series For working pressure up to 1000 psig(69bar)



### Features

- Compact design with hexagon bar-stock for high integrity.
- Working pressure up to 1000psig (69bar) at 100°F (38°C).
- Low torque quarter turn actuation.
- Size range of from 1/4" to 1" tubing and piping.
- Various end connections : reliable S-LOK, NPT & ISO male & female.
- Butterfly handle is available as option.

### Pressure-Temperature Ratings

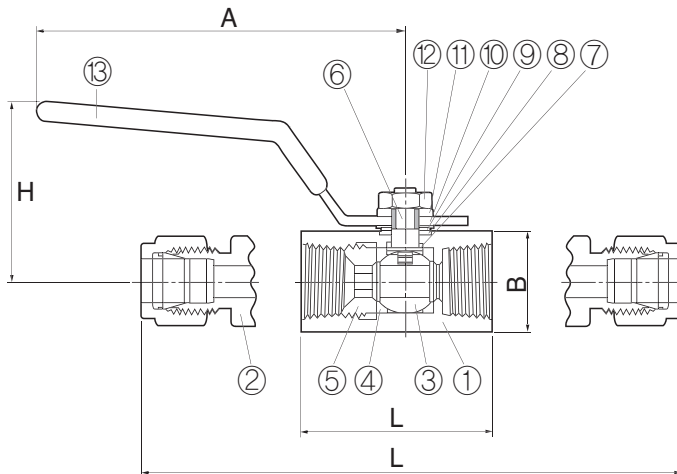


### Applications

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

### Factory Test

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



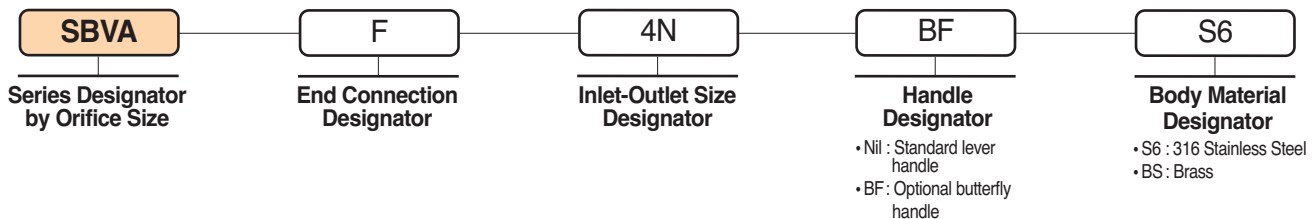
Item	Description	Material/ASTM Specification	
		S316	Brass
1	Body	S316/A479, A276	Brass/B16
2	End Connector	S316/A479, A276	Brass/B16
3	Ball	S316/A479, A276	
4	Seat	Reinforced PTFE	
5	Insert	S316/A479, A276	
6	Stem	S316/A479, A276	
7	Lower Packing	Reinforced PTFE	
8	Upper Packing	Reinforced PTFE	
9	Grand	S304	
10	Grand Washer	S304	
11	Spring Washer	S304	
12	Lock Nut	S304	
13	Handle	S304 with PVC Coating	

### Ordering Information and Dimensions

Basic Ordering Number	Orifice mm(in)	Cv	End Connections Inlet/Outlet	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				
	F-4N		1.35 1/4" Female NPT				
SBVB	S-10M	7.5	2.60 10mm S-LOK	90	40	78	22
	S-6T		2.50 3/8" S-LOK				
	F-6N		2.60 3/8" Female NPT				
SBVC	S-12M	9.0	9.25 12mm S-LOK	98	42	78	27
	S-8T		9.25 1/2" S-LOK				
	F-8N		9.25 1/2" Female NPT				
SBVD	S-16M	12.5	10.60 16mm S-LOK	108	51	96	32
	S-10T		10.60 5/8" S-LOK				
	F-12N		12.65 3/4" Female NPT				
	S-12T		12.65 3/4" S-LOK				
SBVE	S-16T	16.0	17.35 1" S-LOK	133	55	96	38
	F-16N		17.35 1" Female NPT				

### Ordering Information

Select valve ordering number, and applicable options.

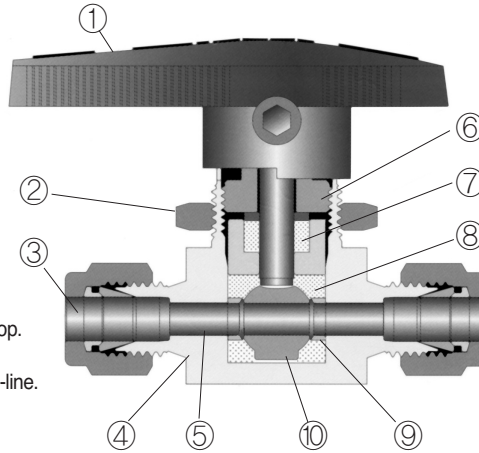


#### SAFETY in VALVE SELECTION

The selection of a valve for any application or system design must be considered to ensure safe performance. Valve function, valve rating, material compatibility, proper installation, operation and maintenance remain the sole responsibility of the system designer and the user. **HANSUN ENGINEERING** accepts no liability for any improper selection, installation, operation or maintenance.

## SBV30 Series For working pressure up to 3000 psig(206bar)

- 1. Handle with Arrow**  
indicates flow direction.  
allows quick operation to open and close.
- 2. Panel Mounting Nut**  
allow easy installation.
- 3. Variety of End Connections**  
include fractional/metric S-LOK tube fittings,  
NPT female, ISO female threads.
- 4. One-piece body**  
reduces the number of potential leak points.
- 5. Orifice**  
is optimized design for minimum pressure drop.
- 6. Packing Bolt**  
allows easy packing adjustment with valve in-line.



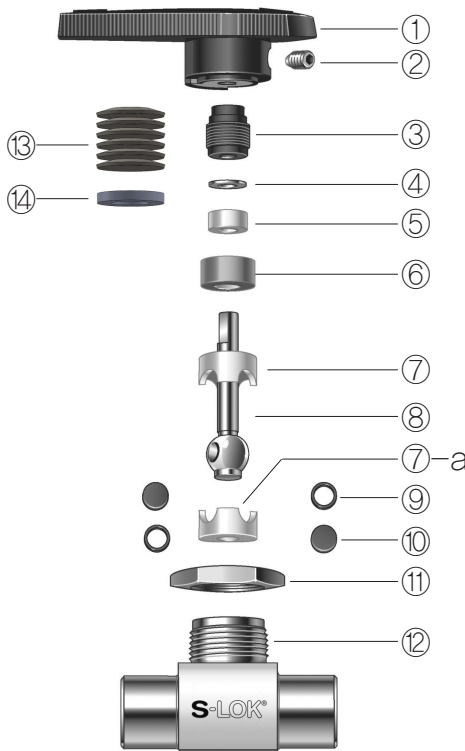
- 7. PTFE Packing**  
is supported by top and bottom glands.
- 8. Encapsulating Ball Seats**  
virtually allow no dead volume.  
are uniformly forced to form tight seals  
against ball and body cavity.
- 9. Support rings and discs**  
retains the capsule packing and prevent cold flow.
- 10. Integral Ball-Stem**  
is machined from one piece bar stock.  
is best suited to encapsulate ball seats.



### Features

- Pressure rating up to 3000psig(206bar) @70°F(21°C).
- Temperature rating from 50°F(10°C) to 150°F(65°C) with standard PTFE seat and packing.
- Choice of materials : Standard S316 and available in alloy 400 and Brass.
- Vent to atmosphere available.
- Every valve is 100% factory tested with the Nitrogen @1000psi (69bar).

### Technical Data



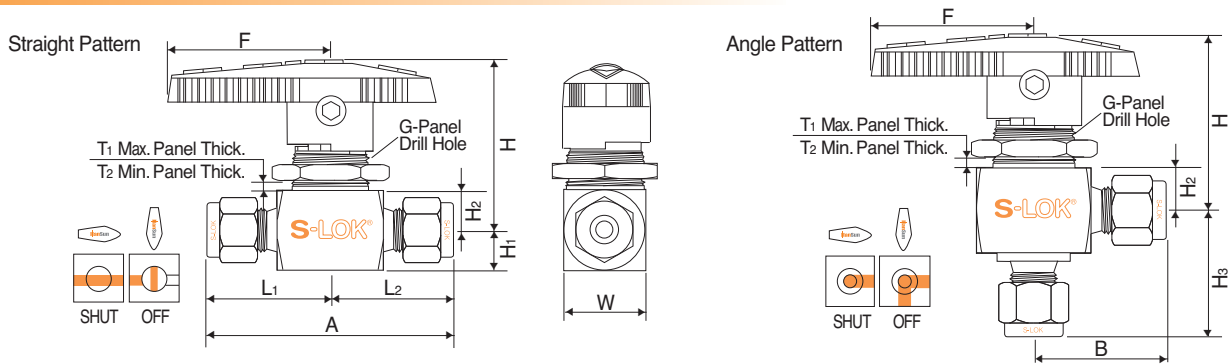
### Materials of construction

Description	Grade / ASTM Specification	
	Valve Body Materials	
	S316	Brass
1 Handle	Black Nylon	
2 Set screw	17-4PH/A564	
3 Packing bolt	S316/A479, A276	Brass/B16
4 Upper grand	S316/A479, A276	
5 Packing	PTFE/D1710	
6 Lower grand	S316/A479, A276	Brass/B16
7 & 7-a Upper&Lower Ball seat	PTFE/D1710 (standard) PFA (Option)	
8 Ball stem	S316/A479, A276	
9 Support rings	S316 (Fluorocarbon-coated)	
10 Side discs		
11 Panel nut	S316 /A479, A276	Brass/B16
12 Body		
13 Packing spring	17-4PH / A693	
14 Packing grand	S316 / A276	

### • Pressure Rating with standard PTFE & PFA seat

Valve Designator	Straight 2-way	Angle 2-way	Switching 3-way	Temperature Range	
				PTFE	PFA
SBV 1			2500psig (172bar)		
SBV 2	3000psig (206bar)		2500psig (172bar)	50°F to 150°F (10°C to 65°C)	-65°F to 150°F (-54°C to 65°C)
SBV 3			1500psig		
SBV 4	2500psig (172bar)		103bar		

## 2-Way (Shut-Off Valve)



## Ordering Information and Dimensions

Basic Ordering Number	Orifice		Cv		End Connections		Dimensions (mm)											
	mm	inch	Inline	Angle	Inlet	Outlet	A	L1	L2	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	7.1	28.4	6.4	2.0	15.1	34.5	14.7
	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								
S-4T	1.4			0.9	1/4"	S-LOK	59.9	30.0	29.7									
SBV2	S-6T	4.8	0.187	1.5	0.9	3/8"	S-LOK	65.5	32.8	32.8	11.2	9.7	38.9	4.8	2.5	19.8	39.6	19.8
	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	1/4"	ISO Female Tapered	52.3	26.2	-								
	S-6T			7.1	0.281	6.0	2.0	3/8"	S-LOK	77.5								
S-10M	6.0	2.0	10mm			S-LOK	78.0	38.9	36.9									
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"			ISO Female Tapered	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	17.5	17.5	76.2	9.5	3.0	38.1	61.7	38.1
	S-12T			6.4	3.8	3/4"	S-LOK	99.6	49.8	44.2								
	S-12M	9.5	0.375	12.0	4.6	12mm	S-LOK	99.6	49.8	44.2								
	F-8N	10.3	0.406	6.3	3.5	1/2"	Female NPT	79.2	39.6	39.6								
	F-8R			6.3	3.5	1/2"	ISO Female Tapered	79.2	39.6	-								

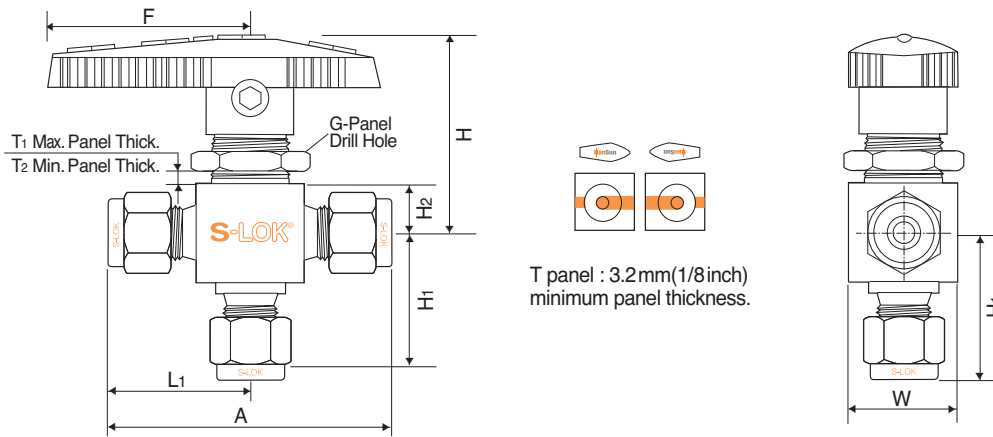
All dimensions shown are for reference only and are subject to change. Dimensions with S-LOK nuts are in finger-tight position. Patterns : To order angle pattern, use-A as a suffix to the basic ordering number. *Example* : SBV1-S-4T-A-S6

### • Flow Rate

Pressure Drop to Atmosphere ( $\Delta p$ ) in 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°F(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°F(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	

The Cv is for the straight pattern valves, Cvs of angle pattern valves are the same as those of 3-way valves.

### 3-Way switching Valves



### Ordering Information and Dimensions

Basic Ordering Number	Orifice		Cv	End Connections	Dimensions (mm)										
	mm	inch			A	L <sub>1</sub>	H <sub>1</sub>	H <sub>2</sub>	F	T <sub>1</sub>	T <sub>2</sub>	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	14.7
	S-2T	2.4	0.093	0.15	1/8" 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-3M	2.4	0.093	0.15	3mm S-LOK	51.1	25.6	24.6							
	S-6M	3.2	0.125	0.35	6mm S-LOK	56.1	28.1	27.2							
	F-2N	3.2	0.125	0.3	1/8" Female NPT	41.1	20.6	20.6							
SBV2-3B	S-4T	4.8	0.187	0.90	1/4" S-LOK	60.7	30.4	29.7	11.2	38.9	4.8	2.5	19.8	39.6	19.8
	S-6M			0.90	6mm S-LOK	60.7	30.4	29.7							
	S-8M			0.90	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" ISO Female Tapered	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	14.2	50.8	9.5	3.0	28.6	52.6	28.4
	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" ISO Female Tapered	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	17.5	76.2	9.5	3.0	38.1	61.7	38.1
	S-12T	10.3	0.406	3.8	3/4" S-LOK	88.4	44.2	44.2							
	S-12M	9.5	0.375	4.6	12mm S-LOK	88.4	44.2	44.2							
	F-8N	10.3	0.406	3.5	1/2" Female NPT	79.5	39.8	39.6							
	F-8R	10.3	0.406	3.5	1/2" ISO Female Tapered	79.5	39.8	39.6							

All dimensions shown are for reference only and are subject to change. Dimensions with S-LOK nuts are in finger-tight position.

#### • Flow Rate

Pressure Drop to Atmosphere ( $\Delta p$ ) in psi	Cv													
	0.08	0.15	0.30	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

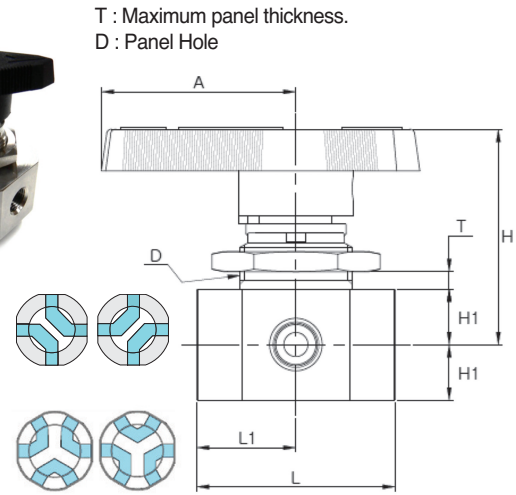
## SBV2-4W/6W Series Ball Valves

### Features

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

### Technical Data

Ordering Number	Seat Material	Pressure Rating		Temperature Range
		psig	bar	
SBV2-4W-F-2N	PTFE	2500	172	10°C to 65°C (50°F to 150°F)
SBV2-4W-F-8N		1500	103	
SBV2-6W-S-1T/2T		500	34.4	
SBV2-4W-F-2N-PFA	PFA	2500	172	-54°C to 65°C (-65°F to 150 °F)
SBV2-4W-F-8N-PFA		1500	103	
SBV2-6W-1T-PFA/2T-PFA		500	34.4	



Ordering Number	End Connection	Cv	Orifice		Dimensions, mm(in.)							
			mm	in.	L	L1	H	H1	A	T	D	
SBV2-4W-F-2N	1/8 Female NPT	0.08	1.6	0.062	39.4 (1.55)	19.8 (0.78)	43 (1.69)	11.1 (0.44)	38.8 (1.53)	4.8 (0.19)	23.0 (0.91)	
SBV2-4W-F-8N	1/2 Female NPT	1.6	7.1	0.281	79.5 (3.13)	39.6 (1.56)	61.7 (2.43)	17.5 (0.69)	76.2 (3.0)	9.7 (0.38)	38.1 (1.5)	
SBV2-6W-S-1T	1/16 S-LOK Tube Fitting	0.06	1.3	0.052	49.3 (1.94)	24.6 (0.97)	42.7 (1.68)	11.2 (0.44)	38.9 (1.53)	4.8 (3/16)	23.1 (29/32)	
SBV2-6W-S-2T	1/8 S-LOK Tube Fitting	0.08	1.6	0.062								

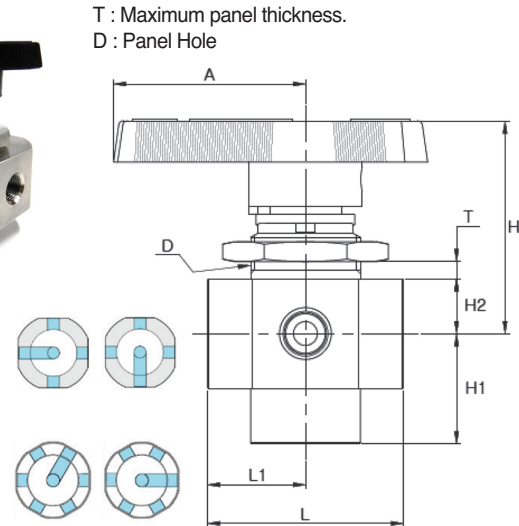
## SBV2-5W/7W Series Ball Valves

### Features

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

### Technical Data

Ordering Number	Seat Material	Pressure Rating		Temperature Range
		psig	bar	
SBV2-5W-F-2N	PTFE	2500	172	10°C to 65°C (50°F to 150°F)
SBV2-5W-F-2G		1500	103	
SBV2-5W-F-8N		500	34.3	
SBV2-7W-S-1T/2T	PFA	2500	172	-54°C to 65°C (-65°F to 150 °F)
SBV2-5W-F-2N-PFA		1500	103	
SBV2-5W-F-2G-PFA		1500	103	
SBV2-5W-F-8N-PFA		500	34.3	



Ordering Number	End Connection	Cv	Orifice		Dimensions, mm(in.)							
			mm	in.	L	L1	H	H1	H2	A	T	D
SBV2-5W-F-2N	1/8 F.NPT	0.07	1.6	0.062	39.4 (1.55)	19.8 (0.78)	43 (1.69)	22.3 (0.88)	11.1 (0.44)	38.8 (1.53)	4.1 (0.16)	23.0 (0.91)
SBV2-5W-F-2G	1/8 F.PF				79.5 (3.13)	39.6 (1.56)	61.7 (2.43)	17.5 (0.69)	76.2 (3.0)	76.2 (3.0)	9.7 (0.38)	38.1 (1.5)
SBV2-5W-F-8N	1/2 Female NPT	3.5	10.3	0.406	49.3 (1.94)	24.6 (0.97)	42.9 (1.69)	24.6 (0.97)	11.2 (0.44)	38.9 (1.53)	4.1 (5/32)	23.1 (29/32)
SBV2-7W-S-1T	1/16 S-LOK Tube Fitting	0.05	1.3	0.052	49.3 (1.94)	24.6 (0.97)	42.9 (1.69)	24.6 (0.97)	11.2 (0.44)	38.9 (1.53)	4.1 (5/32)	23.1 (29/32)
SBV2-7W-S-2T	1/8 S-LOK Tube Fitting	0.07	1.6	0.062								

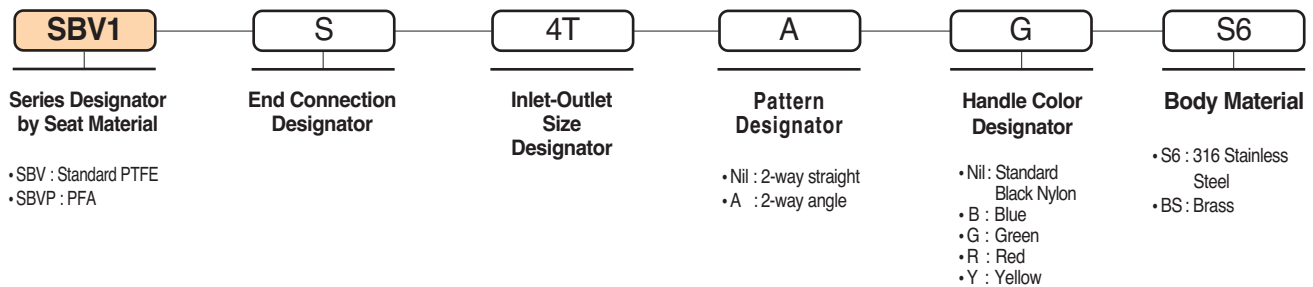
## Packing Adjustment

- 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 70°F(21°C).
- 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 factory tested for bubble-tight leakage at both seat and stem packing with nitrogen at 1000psi (69bar).
- Seats have a maximum allowable leak rate of 0.1sccm. Optional tests are available upon request.

## • Ordering Information



### **SAFETY in VALVE SELECTION**

When selecting a valve, the total system design must be considered to ensure safe, trouble-free performance. Valve function, materials compatibility, adequate ratings, proper installation, operation, and maintenance are the responsibility of the system designer and user.

## SBV60 Series High Pressure Ball Valves

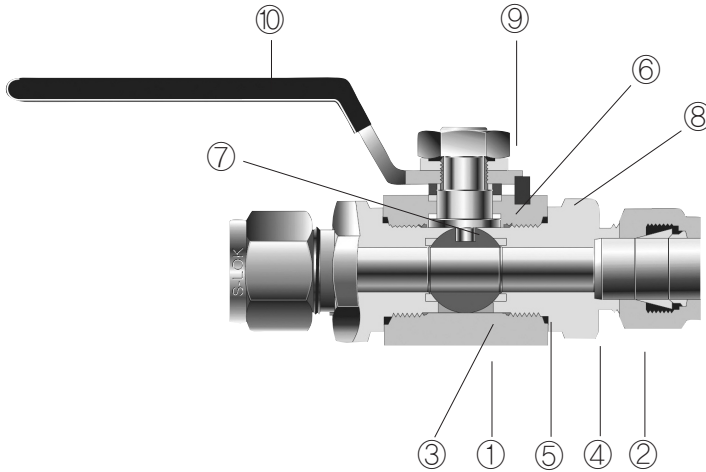
### Features

- Pressure rating up to 10,000psig (689bar) @70°F (21°C).
- Temperature rating from -22°F (-30°C) to 265°F (130°C) with PVDF seat or from -65°F (-54°C) to 500°F (260°C) 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 options.
- 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.
- 90 degree actuation.
- Every valve is 100% factory tested with the nitrogen @1000psi (69bar).
- Optional sour gas service to NACE MR 0175.



### Operation

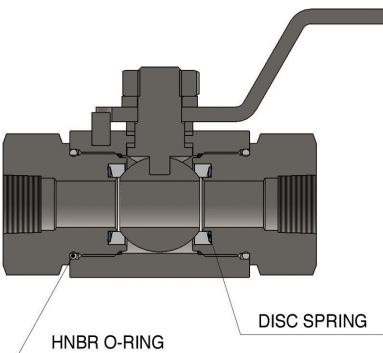
- HANSUN SBV60 Series ball valves provide quick 1/4 turn on-off control of fluids in process, power and instrumentation applications.
- All ports are suitable as inlets in full operation pressure of the valve.
- A broad selection of valve body, seat, and seal materials provide a wide range of pressure 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

Item	Description	Grade/ASTM Specification
1	Body	S316/A276, A479
2	End Connector	S316/A276, A479
3	Ball	S316/A276, A479
4	End Seals	Fluorocarbon FKM O-ring
5	Seats	PCTFE, optional PEEK
6	Stem	S316/A276, A479
7	Stem Packing	PTFE/D1710
8	Pin	Stainless Steel
9	Lock Nut	Stainless Steel with Washer
10	Handle	S304 with PVC Coating

※ Note : wetted parts are listed in orange color.  
Lubricant is Fluorocarbon based.

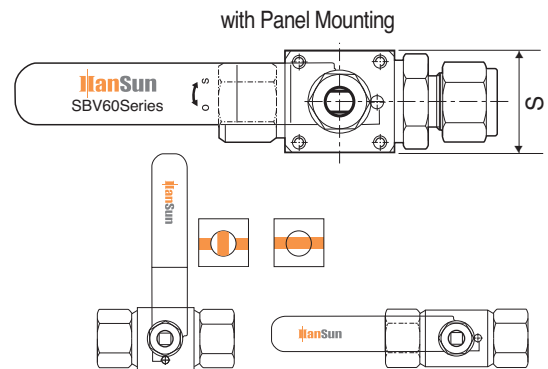
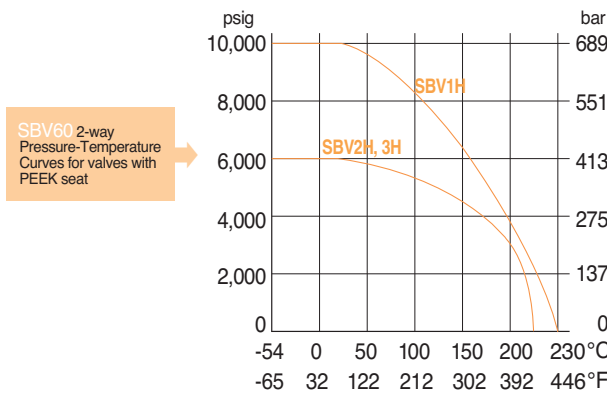
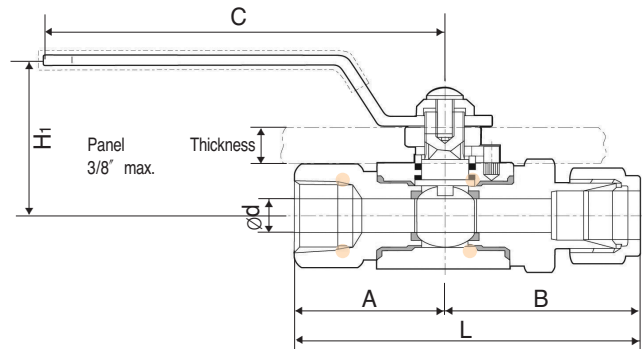
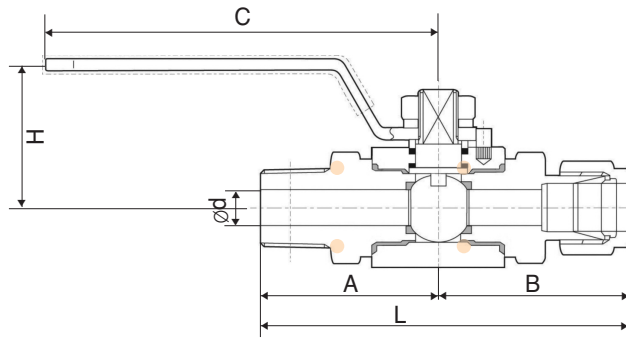


### CNG / NGV Certifications

- End Seal : HNBR O-ring
- Added Disc Spring
- Seat : PEEK

Valve Series	Certificates	ECE R110	ANSI NGV 3.1 - 2012	ISO 15500
SBVC Series	Certificate No.	110R-010333	126840AUT14	126840MECH103
	Classification	Class 0	Manual valve	Manual valve
	Temperature	-40 to 120°C (-40 to 248°F)	-40 to 120°C (-40 to 248°F)	-40 to 120°C (-40 to 248°F)
	Working Pressure	260 bar @ 120°C	248 bar @ 120°C	260 bar @ 120°C

2-Way



Ordering Information and Dimensions

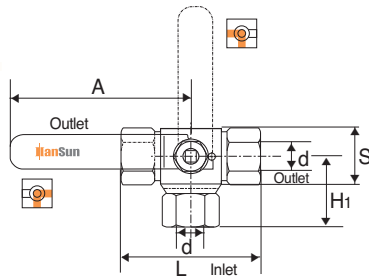
Basic Ordering Number	Orifice mm (inch)	Cv	End Connections	d mm	Dimensions (mm)						
					A	B	L	H	H <sub>1</sub>	C	S
SBV1H	S-4T	1.2	1/4" S-LOK	4.8	46	46	92	39	46.7	101	32
	S-6T		3/8" S-LOK	7.1	47.5	47.5	95				
	S-8T	7.5	1/2" S-LOK	10.0	50	50	100				
	F-4N		1/4" Female NPT		32.5	32.5	65				
	F-6N		3/8" Female NPT		36	36	72				
	F-8N	1/2" Female NPT	43	43	86						
	M-4N	3.7	1/4" Male NPT	7.1	42	42	84				
	M-6N	7.2	3/8" Male NPT	9.7	42	42	84				
	M-8N	7.5	1/2" Male NPT	10.0	47.5	47.5	95				
SBV2H	F-8N	10.1	1/2" Female NPT	12.7	45.5	45.5	91	51	60.6	135	40
	F-12N		3/4" Female NPT		47.5	47.5	95				
	M-12N		3/4" Male NPT		54.5	54.5	109				
	S-10T		5/8" S-LOK		55.5	55.5	111				
	S-12T		3/4" S-LOK		55.5	55.5	111				
SBV3H	F-12N	30.0	3/4" Female NPT	20.0	48	48	96	56	65.6	135	50
	F-16N		1" Female NPT		50	50	100				
	S-12T	19.0	3/4" S-LOK	15.8	58.5	58.5	117				
	S-16T	30.0	1" S-LOK	20.0	65	65	130				
	M-12N	19.0	3/4" Male NPT	15.8	58	58	116				
	M-16N	30.0	1" Male NPT	20.0	62.5	62.5	125				

All dimensions shown are for reference only and are subject to change. Dimensions with S-LOK nuts are in finger-tight position.

3-Way

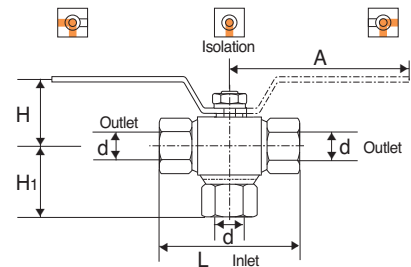
**SIDE PORT INLET**

1/4 turn handle  
For flow switching



**BOTTOM PORT INLET**

1/2 turn handle  
For flow switching and isolation



**Ordering Information and Dimensions**

Basic Ordering Number	End Connections Inlet & Outlet	Orifice mm (inch)	d mm	Dimensions mm				
				A	H	H1	L	S
SBV1H-3*	S-4T 1/4" S-LOK	10.0(0.39)	4.8	101	39	51.5	92	32
	S-6T 3/8" S-LOK		7.1			53.0	95	
	S-8T 1/2" S-LOK		10.0			55.8	100	
	F-4N 1/4" Female NPT		36.7			65		
	F-6N 3/8" Female NPT		40.2			72		
	F-8N 1/2" Female NPT		45.5			86		
SBV2H-3*	F-8N 1/2" Female NPT	12.7(0.50)	12.7	135	51	49.7	91	40
	F-12N 3/4" Female NPT					55.2	95	
	S-10T 5/8" S-LOK					65.5	111	
	S-12T 3/4" S-LOK					65.5	111	
SBV3H-3*	S-12T 3/4" S-LOK	19.0(0.75)	15.8	135	56	70.0	117	50
	S-16T 1" S-LOK		20.0			76.6	130	
	F-12N 3/4" Female NPT		56.7			116		
	F-16N 1" Female NPT		60.8			125		

All dimensions shown are for reference only and are subject to change. Dimensions with S-LOK nuts are in finger-tight position.  
Ordering information : \* "S" for side entry 3-way ordering i.e., SBV1H-3S-S-8T, \* "B" for bottom entry 3-way ordering i.e., SBV1H-3B-S-8T

**Handle Turn torque Table (N·m)**

Valve Series	Applied Working Pressures – psig(bar)						
	0(0)	69(1000)	137(2000)	206(3000)	275(4000)	344(5000)	413(6000)
SBV1H	0.30(0.22)	0.35(0.25)	0.40(0.29)	0.40(0.29)	0.40(0.29)	0.40(0.29)	0.45(0.33)
SBV2H	1.20(0.88)	1.50(1.10)	1.70(1.25)	1.70(1.25)	1.80(1.32)	1.90(1.40)	2.00(1.47)
SBV3H	1.70(1.25)	1.80(1.32)	1.90(1.40)	2.00(1.47)	2.10(1.55)	2.20(1.62)	2.30(1.69)

**Technical Data-Pressure and Temperature Rating**

2-way

Valve Series	Sealing Materials			Pressure Rating @ -54°C to 21°C (-65°F to 70°F)	Temperature Rating
	Seat	Stem Packing	End Seal		
SBV1H	PCTFE	PTFE	FKM	6,000psig (413bar)	-30°C to 180°C (-22°F to 355°F)
	PEEK			10,000psig (689bar)	-54°C to 230°C (-65°F to 446°F)
SBV2H	PCTFE	PTFE	FKM	5,000psig (344bar)	-23°C to 160°C (-9°F to 320°F)
SBV3H	PEEK			6,000psig (413bar)	-35°C to 210°C (-31°F to 410°F)

3-way

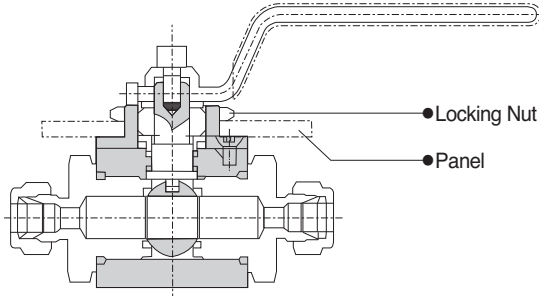
Valve Series	Sealing Materials			Pressure Rating @ -54°C to 21°C (-65°F to 70°F)	Temperature Rating
	Seat	Stem Packing	End Seal		
SBV1H	PCTFE	PTFE	FKM	4,000psig (275bar)	-30°C to 180°C (-22°F to 355°F)
	PEEK			6,000psig (413bar)	-54°C to 230°C (-65°F to 446°F)
SBV2H	PCTFE	PTFE	FKM	3,000psig (206bar)	-23°C to 160°C (-9°F to 320°F)
SBV3H	PEEK			4,000psig (275bar)	-35°C to 210°C (-31°F 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.

## Panel Mounting

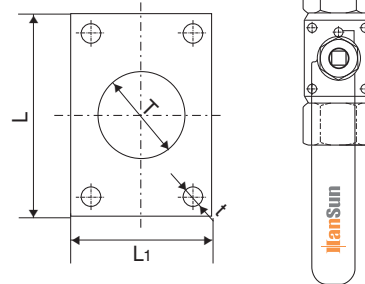
### Locking nut panel mounting

Ordering designator : PN



### Screw hole panel mounting

Ordering designator : PS



### • PN-Panel Mount Information Unit:mm(inch)

Valve Series	Panel Hole Drill	Panel Thickness
SBV1H	30.0(1.18)	Max. 4.0(0.157)
SBV2H	38.0(1.50)	Max. 4.0(0.157)
SBV3H	38.0(1.50)	Max. 4.0(0.157)

### • PS-Panel Mount Information Unit:mm(inch)

Valve Series	L	L1	t	T
SBV1H	34.0(1.33)	23.0(0.91)	4.0(0.15)	30.0(1.18)
SBV2H	36.0(1.42)	29.0(1.14)	5.0(0.20)	38.0(1.50)
SBV3H	40.0(1.57)	35.0(1.37)	6.0(0.23)	38.0(1.50)

### • Sour Gas Service

Is provided to meet NACE Standard MR 0175.

### Testing

- Every valve is factory tested for bubble-tight leakage at both seat and stem packing with nitrogen at 1000psi (69bar).
  - Hydraulic shell test is performed at 1.5 times the working pressure.
  - Seats have a maximum allowable leak rate of 0.1 sccm.
- optional tests are available upon request.

### • Ordering Information

Selection the applicable options from designators listed below.

<b>SBV1H</b>	<b>S</b>	<b>4T</b>	<b>PK</b>	<b>PN</b>	<b>LD</b>	<b>OH</b>	<b>SG</b>	<b>S6</b>
Series Designator by Orifice Size	End Connection Designator	Inlet-Outlet Size Designator	Seat Material Designator	Panel Mounting	Locking Device	Handle	Sour Gas Designator	Body Material
			• Nil : Standard PCTFE • PK : PEEK	• PN : Lock nut panel mounting • PS : Screw hole panel mounting	• LD : Locking Device	• Nil : Standard lever handle • OH: Oval Handle (Applicable only for SBV1H)	• Nil : Without(Standard) • SG: Sour Gas Service	• S6 : 316 Stainless Steel

### ※ CNG / NGV Service

- To order CNG / NGV Service, insert the designator "C" to the valve ordering number.
  - Material's PEEK standard.
- ex) SBVC1H-S-4T-S6

### SAFETY in VALVE SELECTION

When selecting a valve, the total system design must be considered to ensure safe, trouble-free performance. Valve function, materials compatibility, adequate ratings, proper installation, operation, and maintenance are the responsibility of the system designer and user.

## SFBV60 Series Forged High pressure Ball Valves

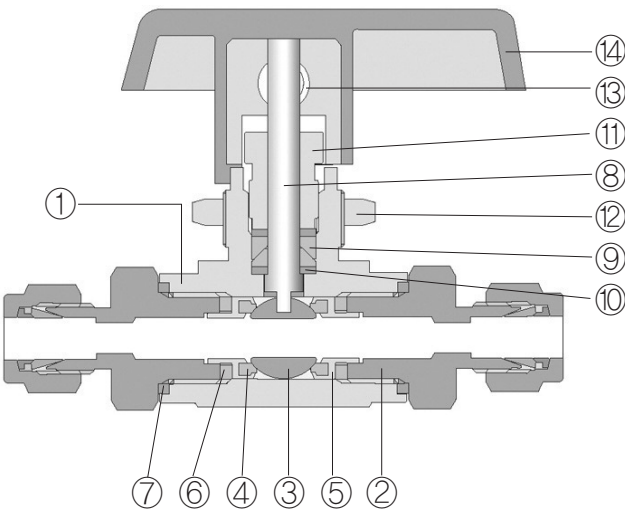
### Features

- Pressure rating up to 6,000psig (413bar) @70°F (21°C).
- Temperature rating from -65°F (-54°C) to 350°F (177°C) 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



### Testing

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

### Materials of Construction

Item	Description	Grade /ASTM Specification
1	Body	S316/A276, A479
2	End Connector	S316/A276, A479
3	Ball	S316/A276, A479
4	Seats	PCTFE, optional PTFE, PEEK
5	Retainer	S316/A276, A479
6	Retainer Seal	PTFE
7	End Seals	PTFE
8	Stem	S316/A276, A479
9	Stem Packing	PTFE
10	Stem Washer	S316
11	Packing Bolt ①	S316/A276, A479
12	Lock Nut	S316/A276, A479
13	Set Screw	Stainless Steel
14	Handle	Black Nylon standard

① Molybdenum disulfide with hydrocarbon coating.

※ Note : wetted parts are listed in orange color.  
Lubricant is Fluorocarbon based.

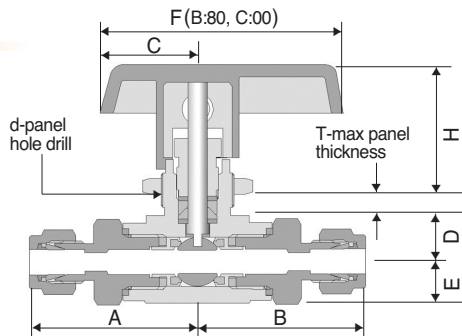
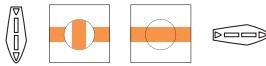
### CNG / NGV Certifications

- CNG / NGV Valves added HNBR o-ring and added disc spring.
- Seat Material's PEEK standard

Valve Series	Certificates	ECE R110	ANSI NGV 3.1 - 2012	ISO 15500
SFBVC Series	Certificate No.	110R-010333	126840AUT14	126840MECH103
	Classification	Class 0	Manual valve	Manual valve
	Temperature	-40 to 120°C (-40 to 248°F)	-40 to 120°C (-40 to 248°F)	-40 to 120°C (-40 to 248°F)
	Working Pressure	260 bar @ 120°C	248 bar @ 120°C	260 bar @ 120°C

### 2-Way (Shut-Off Valve)

In-line pattern



### Ordering Information and Dimensions

Basic Ordering Number	End Connections		Orifice mm (in.)	Cv	Dimensions mm (inch)								
	Inlet	Outlet			A	B	D	E	H	C	F	d	T
SFBV1	S-1T	1/16" S-LOK	1.3(0.052)	0.06	33.0(1.30)	33.0(1.30)	9.4 (0.37)	10.0 (0.39)	23.2 (0.91)	19 (0.75)	47.0 (1.85)	16.3 (0.64)	3.3 (0.13)
	S-2T	1/8" S-LOK	2.4(0.093)	0.21	34.5(1.36)	34.5(1.36)							
	F-2N	1/8" Female NPT	4.2(0.165)	0.93	27.2(1.07)	27.2(1.07)							
	M-2N	1/8" Male NPT			29.9(1.18)	29.9(1.18)							
	S-4T	1/4" S-LOK			37.6(1.48)	37.6(1.48)							
	M-4N	1/4" Male			34.3(1.35)	34.3(1.35)							
S-3M	3mm S-LOK	2.2(0.086)	0.18	34.8(1.37)	34.8(1.37)	11.9 (0.47)	10.7 (0.42)	38.9 (1.53)	25.6 (1.01)	78 (3.07)	19.6 (0.77)	6.4 (0.25)	
S-2T	1/8" S-LOK	2.4(0.093)	0.26	41.9(1.65)	41.9(1.65)								
S-4T	1/4" S-LOK	4.8(0.189)	1.04	44.2(1.74)	44.2(1.74)								
MS-4N4T	1/4" Male NPT   1/4" S-LOK			41.1(1.62)	41.1(1.62)								
FS-4N6T	1/4" Female NPT   1/4" S-LOK	6.4(0.250)	2.34	38.4(1.51)	38.4(1.51)								
F-4N	1/4" Female NPT			41.1(1.62)	41.1(1.62)								
M-4N	1/4" Male NPT			38.4(1.51)	41.1(1.62)								
MF-4N	1/4" Male NPT   1/4" Female NPT			45.7(1.80)	38.4(1.51)								
MS-4N6T	1/4" Male NPT   3/8" S-LOK			41.1(1.62)	41.1(1.62)								
FS-4F6T	1/4" Female NPT   3/8" S-LOK	6.4(0.250)	2.34	45.7(1.80)	45.7(1.80)								
S-6T	3/8" S-LOK			41.1(1.62)	41.1(1.62)								
M-6N	3/8" Male NPT			44.5(1.75)	44.5(1.75)								
S-6M	6mm S-LOK			45.2(1.78)	45.2(1.78)								
S-8M	8mm S-LOK	6.4(0.250)	2.34	46.0(1.81)	46.0(1.81)	17.8 (0.70)	17.5 (0.69)	44.2 (1.74)	38.1 (1.50)	99 (3.9)	22.9 (0.90)	9.7 (0.38)	
S-10M	10mm S-LOK			49.5(1.95)	49.5(1.95)								
F-6N	3/8" Female NPT	10.3(0.406)	6.42	54.6(2.15)	54.6(2.15)								
F-8N	1/2" Female NPT			59.4(2.34)	59.4(2.34)								
S-8T	1/2" S-LOK			56.4(2.22)	56.4(2.22)								
M-8N	1/2" Male NPT	9.5(0.375)	5.57	59.2(2.33)	59.2(2.33)								
S-12T	3/4" S-LOK			10.3(0.406)	6.42								59.2(2.33)
S-12M	12mm S-LOK												
S-16M	16mm S-LOK	10.3(0.406)	6.42										

Dimensions are for reference only and are subject to change. Dimensions with S-LOK nuts are in finger-tight position.

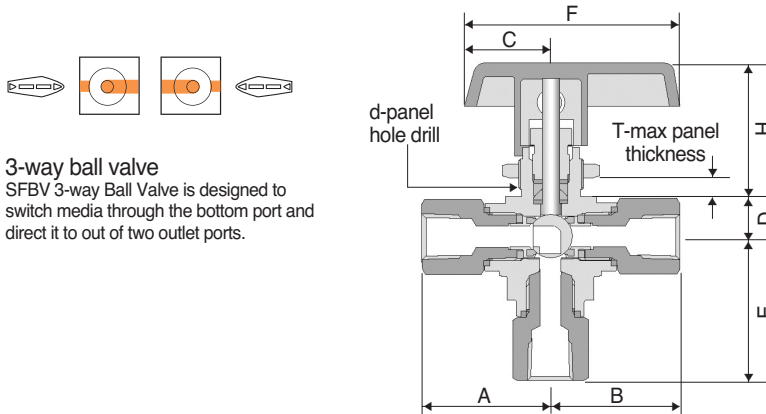
#### • Flow Rate

Pressure Drop to Atmosphere ( $\Delta p$ ) in psi	Cv									
	0.06	0.18	0.21	0.26	0.93	1.04	2.34	5.57	6.42	
Air 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
Water US GPM @60°F (16°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 (69bar) inlet pressure.

\* To determine m<sup>3</sup>/hr multiply GPM by 0.227 and SCFM by 1.69

### 3-Way (Switching Valve)



**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 Information and Dimensions

Basic Ordering Number	End Connections		Orifice mm(in.)	Cv	Dimensions mm(inch)								
	Inlet	Outlet			A	B	E	D	H	C	F	d	T
SFBV1-3B	S-1T	1/16" S-LOK	1.3(0.052)	0.06	33.0(1.30)	33.7(1.30)	8.5 (0.33)	23.2 (0.91)	18.0 (0.71)	47.0 (1.85)	16.3 (0.64)	3.3 (0.13)	
	S-2T	1/8" S-LOK	2.4(0.093)	0.21	34.5(1.36)	36.4(1.36)							
	F-2N	1/8" Female NPT	4.2(0.165)	0.63	27.2(1.07)	29.9(1.18)							
	M-2N	1/8" Male NPT			29.9(1.18)	29.9(1.18)							
	S-4T	1/4" S-LOK			37.6(1.48)	37.2(1.46)							
	M-4N	1/4" Male			34.3(1.35)	29.9(1.18)							
S-3M	3mm S-LOK	2.2(0.086)	0.18	34.8(1.37)	36.4(1.36)								
SFBV2-3B	S-2T	1/8" S-LOK	2.4(0.093)	0.21	41.9(1.65)	45.5(1.79)	11.9 (0.47)	38.9 (1.53)	30 (1.18)	78 (3.07)	19.6 (0.77)	6.4 (0.25)	
	S-4T	1/4" S-LOK	4.8(0.189)	0.70	44.2(1.74)	47.8(1.88)							
	F-4N	1/4" Female NPT	5.0(0.196)	0.87	38.4(1.51)	41.9(1.65)							
	M-4N	1/4" Male NPT	5.0(0.196)	0.87	41.1(1.62)	44.7(1.76)							
	S-6T	3/8" S-LOK			45.7(1.80)	49.3(1.94)							
	M-6N	3/8" Male NPT	41.1(1.62)	44.7(1.76)									
	S-6M	6mm S-LOK	4.8(0.189)	0.70	44.5(1.75)	47.8(1.88)							
	S-8M	8mm S-LOK	5.0(0.196)	0.87	45.2(1.78)	48.5(1.91)							
S-10M	10mm S-LOK	46.0(1.81)			49.5(1.95)								
SFBV3-3B	F-6N	3/8" Female NPT	10.3(0.406)	3.62	49.5(1.95)	58.2(2.29)	17.8 (0.70)	44.2 (1.74)	38.1 (1.50)	99 (3.9)	22.9 (0.90)	9.7 (0.38)	
	F-8N	1/2" Female NPT			54.6(2.15)	63.2(2.49)							
	S-8T	1/2" S-LOK			59.4(2.34)	68.1(2.68)							
	M-8N	1/2" Male NPT			56.4(2.22)	65.8(2.59)							
	S-12T	3/4" S-LOK			59.2(2.33)	68.1(2.68)							
	S-12M	12mm S-LOK											9.5(0.375)
	S-16M	16mm S-LOK			10.3(0.406)	3.62							56.9(2.33)

Dimensions are for reference only and are subject to change. Dimensions with S-LOK nuts are in finger-tight position.

#### • Flow Rate

Pressure Drop to Atmosphere ( $\Delta p$ ) in 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°C)	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 @ 60°F (16°C)	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 (69bar) inlet pressure.  
 \* To determine m<sup>3</sup>/hr multiply GPM by 0.227 and SCFM by 1.69

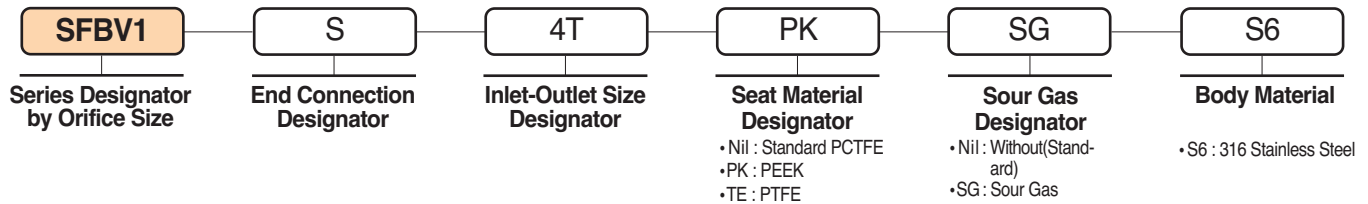
## Technical Data-Pressure and Temperature Rating

Seat Materials	Pressure Rating @ 100°F (70°C)	Temperature Rating	Pressure Rating @ Max Temperature
PCTFE	6,000psig (413bar)	-54°C to 177°C (-65°F to 350°F)	1,000psig @ 350°F (69bar @ 177°C)
PEEK	6,000psig (413bar)	-54°C to 232°C (-65°F to 450°F)	700psig @ 450°F (48bar @ 232°C)
PTFE	1,500psig (103bar)	-54°C to 177°C (-65°F to 350°F)	250psig @ 350°F (17.2bar @ 177°C)

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

## Ordering Information

Selection the applicable options from designators listed below.



### ※ CNG / NGV Service

- To order CNG / NGV Service, insert the designator “C” to the valve ordering number.
  - Seat Material’s PEEK standard.
- ex) SFBV**C**1 – S – 4T – S6

### **SAFETY in VALVE SELECTION**

When selecting a valve, the total system design must be considered to ensure safe, trouble-free performance. Valve function, materials compatibility, adequate ratings, proper installation, operation, and maintenance are the responsibility of the system designer and user.