



T&S Ball Valves

High Technology Valve & Fitting Series



120 SERIES ONE PIECE TYPE

SBV 120H Series

Features

- Simple design with one piece body
- Tight and smooth, low torque and easy operation
- One-piece ball stem
- Panel mountable
- Variety of End Connections
- Straight, Angle and 3-Way flow patterns
- Each and every valve is tested at the factory



Specifications

Pressure rating	3000psig (206bar)@70°F (21°C)
Temperature rating	50 to 150°F (10 to 65°C) with PTFE seat and packing
Body material	316 stainless steel and Brass
Port Connections	1/16" to 3/4" and 3mm to 12mm
Orifice	0.052" and 0.406" (1.3mm to 10.3mm)

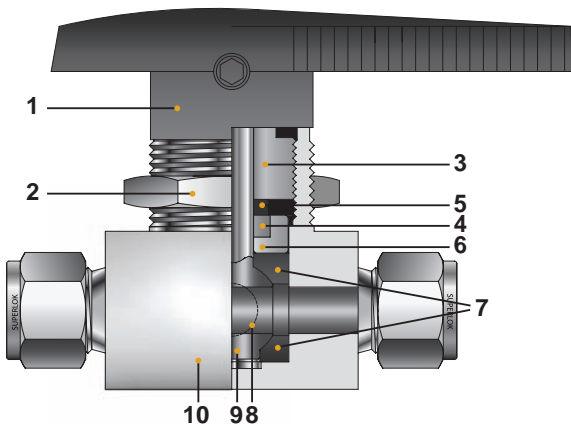
Testing

- Each Valve is tested with nitrogen at 1000psig(69bar) to maximum allowable leak rate of 0.1 SCCM.

Packing Adjustment

- Valves are adjusted for factory testing at 1000psig(69bar). ■ Packing must be readjusted for service at higher pressures.

Materials of Construction

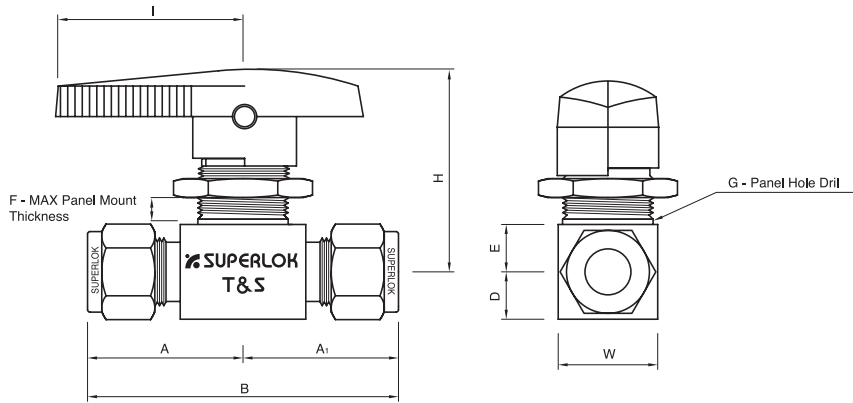


No.	Component	Material Grade / ASTM Specification	
		Stainless Steel	Brass
1	Handle	Zinc	
	Set Screw	Stainless Steel	
2	Panel Nut	Stainless Steel	Brass
3	Packing Bolt	SS316 / A479	Brass / B16
*4	Packing	PTFE	
5	Upper Packing Gland	SS316 / A479	
6	Lower Packing Gland		
*7	Upper&Lower Ball Seal	PTFE	
*8	Side Disc	SS316 - Sintered	
	Side Ring		
*9	Ball Stem	SS316 / A479	
*10	Body	SS316 / A479	Brass / B16

※ Wetted components are marked "*"※

SBV120H Series : 2-Way (On - Off Valve)

STRAIGHT TYPE



ANGLE TYPE

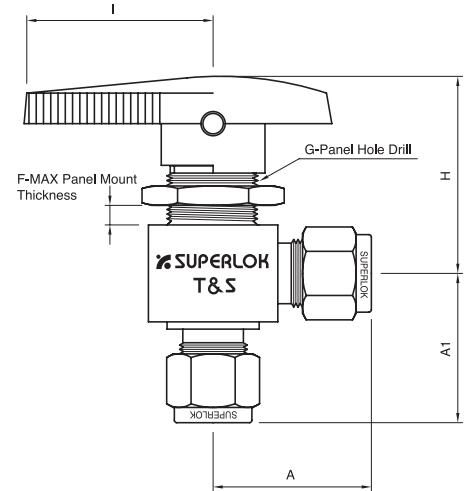


Table of dimensions

Order Number		Orifice	Cv	End Connections		Dimensions (mm)									
Series	Part No.			Inlet	Outlet	A	A1	B	D	E	F	G	H	I	W
SBV120 H1	S 1	1.3	0.1	1/16" SUPERLOK		21.3	21.3	42.6	7.1	8.7	6.4	15.0	36.0	29.0	15.0
	S 3M	2.4	0.2	3mm SUPERLOK		25.4	25.4	50.8							
	S 2		0.2	1/8" SUPERLOK											
	F 2N	3.2	0.5	1/8" FEMALE NPT		20.6	20.6	41.2							
	S 6M		0.6	6mm SUPERLOK		27.7	27.7	55.4							
S 4		0.6	1/4" SUPERLOK												
SBV120 H2	F 2N	4.8	1.2	1/8" FEMALE NPT		25.4	25.4	50.8	9.4	11.2	4.8	19.8	43.7	38.5	19.8
	F 4N		0.9	1/4" FEMALE NPT		26.2	26.2	52.4							
	F 4R		0.9	1/4" ISO FEMALE											
	M 4N		1.2	1/4" MALE NPT		25.4	25.4	50.8							
	MS 4N-4		1.6	1/4" MALE NPT	1/4" SUPERLOK	25.4	30.2	55.6							
	S 6M		2.4	6mm SUPERLOK		30.2	30.2	60.4							
	S 4		2.4	1/4" SUPERLOK											
	S 8M		1.5	8mm SUPERLOK		31.0	31.0	62.0							
S 6	1.5	3/8" SUPERLOK		32.5	32.5	65.0									
SBV120 H3	F 4N	7.1	3.0	1/4" FEMALE NPT		31.8	31.8	63.6	14.2	14.2	9.4	28.5	56.1	51.0	28.5
	F 6N		2.6	3/8" FEMALE NPT											
	F 6R		2.6	3/8" ISO FEMALE											
	S 6		6.0	3/8" SUPERLOK		38.9	38.9	77.8							
	S 10M		6.0	10mm SUPERLOK											
SBV120 H4	F 8N	10.3	6.3	1/2" FEMALE NPT		39.6	39.6	79.2	17.5	17.5	9.4	38.1	71.8	75.0	75.0
	F 8R		6.3	1/2" ISO FEMALE											
	S 12M		12.0	12mm SUPERLOK											
	S 8		12.0	1/2" SUPERLOK		50.0	50.0	100							
	S 12		6.4	3/4" SUPERLOK											

※ Dimensions shown with **SUPERLOK** nuts measure in the finger-tight, where applicable.

※ All dimensions are for reference only, subject to change

SBV120H Series : 3-Way (Switching Valve)

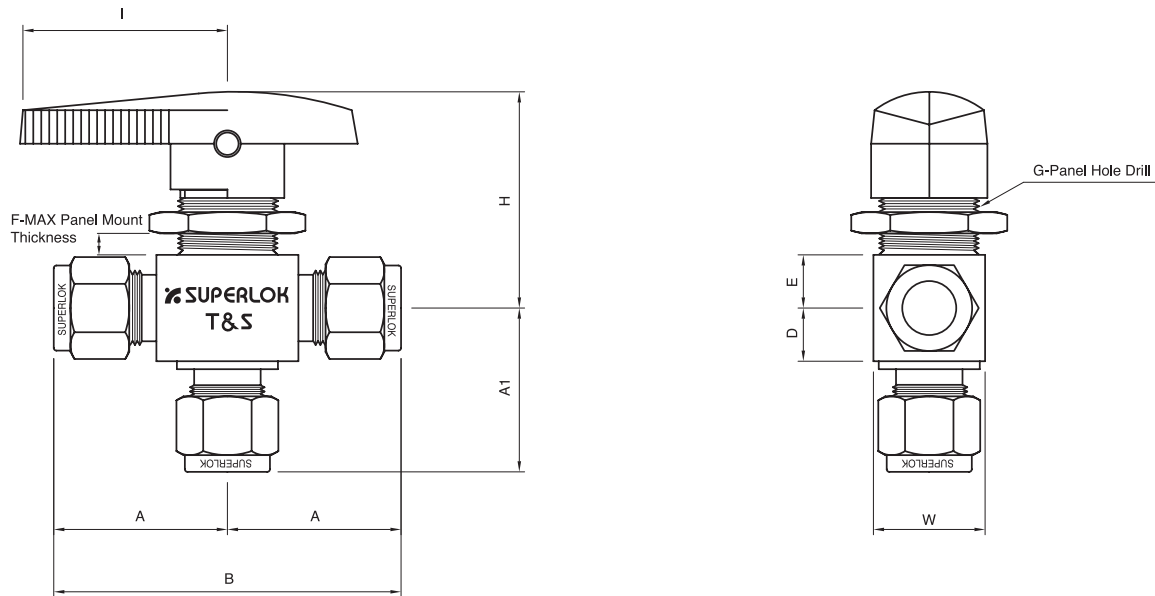


Table of dimensions

Order Number			Orifice	Cv	End Connections		Dimensions (mm)									
Series	Part No.				Inlet	Outlet	A	A1	B	D	E	F	G	H	I	W
SBV120 H13	S	1	1.3	0.08	1/16" SUPERLOK		21.3	20.6	42.6	7.1	8.7	6.4	15.0	36.0	29.0	15.0
	S	3M	2.4	0.15	3mm SUPERLOK		25.4	24.6	50.8							
	S	2		0.15	1/8" SUPERLOK		20.6	20.6	41.2							
	F	2N	3.2	0.3	1/8" FEMALE NPT		27.7	26.9	55.4							
	S	6M		0.35	6mm SUPERLOK											
	S	4	0.35	1/4" SUPERLOK												
SBV120 H23	F	4N	4.8	0.75	1/4" FEMALE NPT		26.2	26.2	52.4	9.4	11.2	4.8	19.8	43.7	38.5	19.8
	F	4R			1/4" ISO FEMALE											
	MS	4N-4	0.8	1/4" MALE NPT	1/4" SUPERLOK	25.4	30.2	55.6								
	S	6M	0.9	6mm SUPERLOK		30.2	30.2	60.4								
	S	4		1/4" SUPERLOK												
	S	8M	0.8	8mm SUPERLOK		31.0	31.0	62.0								
SBV120 H33	F	4N	7.1	1.7	1/4" FEMALE NPT		31.8	31.8	63.6	14.2	14.2	9.4	28.5	56.1	51.0	28.5
	F	6N		3/8" FEMALE NPT												
	F	6R		3/8" ISO FEMALE												
	S	6		2.0	3/8" SUPERLOK		38.9	38.9	77.8							
	S	10M			10mm SUPERLOK											
SBV120 H43	F	8N	10.3	3.5	1/2" FEMALE NPT		39.6	39.6	79.2	17.5	17.5	9.4	38.1	71.8	75.0	38.1
	F	8R			1/2" ISO FEMALE											
	S	12M		4.6	12mm SUPERLOK		50.0	50.0	100							
	S	8			1/2" SUPERLOK											
	S	12		3.8	3/4" SUPERLOK											

※ Dimensions shown with SUPERLOK nuts measure in the finger-tight, where applicable.

※ All dimensions are for reference only, subject to change

Pressure Rating

Valve	2-Way Straight Pattern psig (bar)	2-Way Angle Pattern psig (bar)	3-Way Switching psig (bar)
SBV120H1	2500 (172)	2500 (172)	2500 (172)
SBV120H2	3000 (206)	2500 (172)	2500 (172)
SBV120H3	2500 (172)	1500 (103)	1500 (103)
SBV120H4	2500 (172)	1500 (103)	1500 (103)

Flow Data at 70°F (20°C)

Straight Type

Cv	Pressure Drop to Atmosphere(Δp)psi					
	10	50	100	10	50	100
	Air Flow, SCFM			Water Flow, US GPM		
0.50	6.9	19.1	33.9	1.6	3.5	5.0
0.60	8.3	23.0	40.7	1.9	4.2	6.0
0.90	12.0	34.0	61.0	2.8	6.4	9.0
1.2	17.0	46.0	81.0	3.8	8.5	12.0
1.5	21.0	57.0	100.0	4.7	11.0	15.0
1.6	22.0	61.0	110.0	5.0	11.0	16.0
2.4	33.0	92.0	160.0	7.6	17.0	24.0
2.6	36.0	99.5	176.0	8.2	18.0	26.0
3.0	41.5	115.0	203.0	9.5	21.0	30.0
6.0	83.0	230.0	407.0	19.0	42.0	60.0
6.3	87.2	241.0	427.0	19.9	44.5	63.0
6.4	88.6	245.0	434.0	20.2	45.3	64.0
12	166.0	459.0	814.0	38.0	85.0	120.0

Angle Type & 3-Way

Cv	Pressure Drop to Atmosphere(Δp)psi					
	10	50	100	10	50	100
	Air Flow, SCFM			Water Flow, US GPM		
0.30	4.2	11.5	20.3	0.9	2.1	3.0
0.35	4.8	13.4	23.7	1.1	2.4	3.5
0.75	10.0	29.0	51.0	2.3	5.3	7.5
0.80	11.0	31.0	54.0	2.5	5.6	8.0
0.90	12.0	34.0	61.0	2.8	6.3	9.0
1.5	20.6	57.4	102.0	4.7	11.0	15.0
1.7	23.5	65.0	115.0	5.3	12.0	17.0
20.	27.7	76.5	136.0	6.3	14.0	20.0
3.5	48.4	134.0	237.0	11.0	25.0	35.0
3.8	52.6	145.0	258.0	12.0	27.0	38.0
4.6	63.7	176.0	312.0	15.0	33.0	46.0

Ordering Information

Example : **SBV120H1 A - S - 6M - SS**

1
2
3
4
5

1. Valve Series

■ SBVH120H1 ■ SBVH120H2 ■ SBVH120H3 ■ SBVH120H4

2. Pattern Designator

■ Nil:2-Way Straight (Standard) ■ A:2-Way Angle ■ 3:3-Way

3. End Connection Type

■ S : SUPERLOK Tube Fitting ■ F : Female Thread ■ M : Male Thread ■ MS : Male Thread to SUPERLOK Tube Fitting

4. End Connection Size

-Tube O.D Designation

Tube O.D (inch)	1/16	1/8	1/4	3/8	1/2
Designation	1	2	4	6	8
Tube O.D (mm)	3	6	8	10	12
Designation	3M	6M	8M	10M	12M

- Pipe Thread Designation

Size(inch)	1/8	1/4	3/8	1/2
Screwed NPT	2N	4N	6N	8N
Screwed BSPT	2R	4R	6R	8R

5. Material Designator

■ SS : 316 Stainless Steel ■ B : BRASS

210 SERIES TWO PIECE TYPE

SBV210 Series

Features

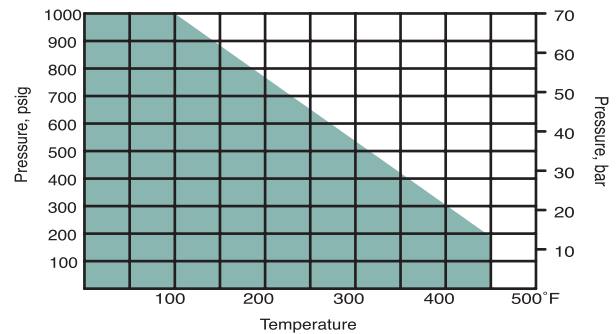
- Compact design
- Tight and smooth, low torque and easy operation
- Butterfly and lever handle available
- Panel mountable
- Variety of End Connections
- Each and every valve is tested at the factory



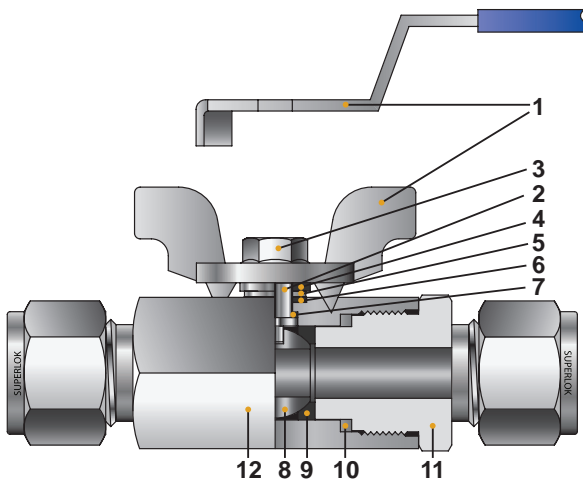
Specifications

Pressure rating	1000psig (69bar)@100°F (38°C)
Body material	316 stainless steel and Brass
Port Connections	1/4" to 1" and 6mm to 16mm
Orifice	5.0mm to 16.0mm

Pressure-Temperature Ratings



Materials of Construction



No.	Component	Material Grade / ASTM Specification	
		Stainless Steel	Brass
1	Handle	SS304 Lever handle with PVC color coated Zinc butterfly handle with nickel plated	
2	Stem	SS316 / A479	
3	Lock Nut	Stainless Steel	
4	Upper Stem Washer	SS304 / A479	
5	Lower Stem Washer		
6	Upper Stem Seal	PTFE	
7	Lower Stem Seal		
8	Ball	SS316 / A479	
9	Seat	PTFE	
10	Connector Seal		
11	End Connector	SS316 / A479	Brass / B16
	Insert (for Female Thread)	SS316 / A479	
12	Body	SS316 / A479	Brass / B16

SBV210 Series

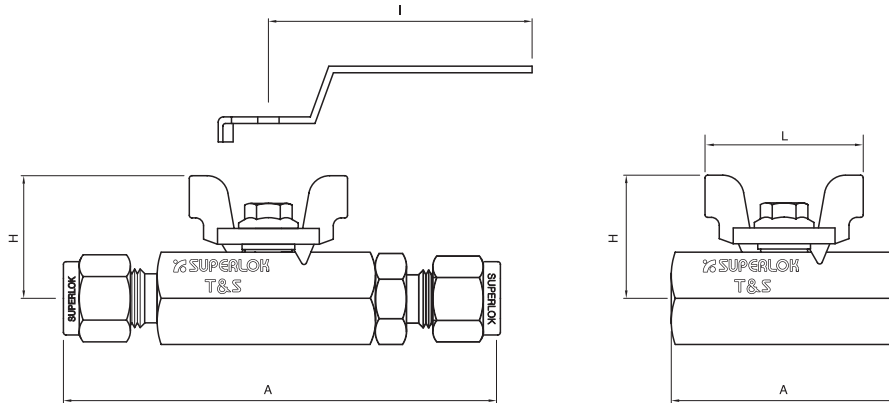


Table of dimensions

Order Number		Orifice (mm)	Cv	End Connections	Dimensions (mm)				
Series	Part No.				A	H	I	L	
SBV210	S	6M	5.0	1.25	6mm SUPERLOK	79.8	23.0	60.0	30.0
	S	4		1.25	1/4" SUPERLOK	79.8			
	F	4N		1.4	1/4" FEMALE NPT	42.8			
	S	10M	7.5	2.6	10mm SUPERLOK	91.5	31.0	90.0	48.0
	S	6		2.5	3/8" SUPERLOK	91.5			
	F	6N		2.6	3/8" FEMALE NPT	46.6			
	S	12M	9.0	9.5	12mm SUPERLOK	101.4	34.0	90.0	50.0
	S	8		9.5	1/2" SUPERLOK	101.4			
	F	8N		9.5	1/2" FEMALE NPT	55.0			
	S	16M	12.5	10.6	16mm SUPERLOK	107.6	39.0	100.0	55.0
	S	10		10.6	5/8" SUPERLOK	107.0			
	S	12		12.7	3/4" SUPERLOK	107.0			
	F	12N	12.7	3/4" FEMALE NPT	61.3	45.0	100.0	68.0	
	S	16	17.5	1" SUPERLOK	131.0				
	F	16N	17.5	1" FEMALE NPT	76.0				

※ All dimensions are for reference only, subject to change

SBVA210 Series

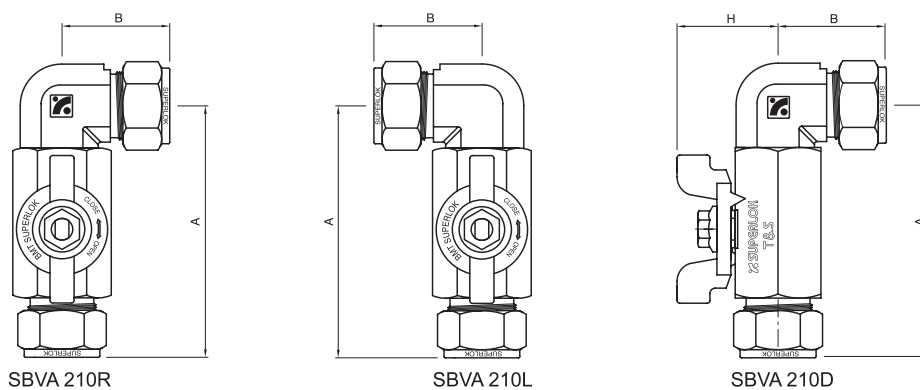


Table of dimensions

Order Number		Orifice (mm)	End Connections	Dimensions (mm)			
Series	Part No.			A	B	H	
SBVA210	S	4	5.0	1/4" SUPERLOK	65.3	30.5	23.0
	S	6	7.5	3/8" SUPERLOK	77.5	36.1	31.0
	S	8	9.0	1/2" SUPERLOK	87.9	38.1	34.0
	S	12	12.5	3/4" SUPERLOK	93.8	39.9	39.0
	S	16	16.0	1" SUPERLOK	115.3	49.0	45.0

※ All dimensions are for reference only, subject to change

SBVT210 Series

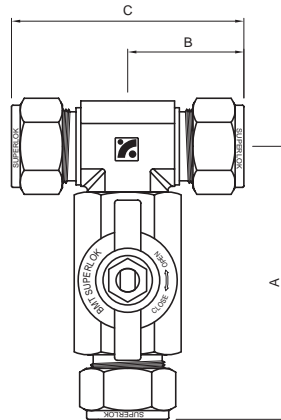


Table of dimensions

Order Number		Orifice (mm)	End Connections	Dimensions (mm)			
Series	Part No.			A	B	C	
SBVT210	S	4	5.0	1/4" SUPERLOK	65.3	30.5	61.0
	S	6	7.5	3/8" SUPERLOK	77.5	36.1	72.2
	S	8	9.0	1/2" SUPERLOK	87.9	38.1	76.2
	S	12	12.5	3/4" SUPERLOK	93.8	39.9	79.8
	S	16	16.0	1" SUPERLOK	115.3	49.0	98.0

※ All dimensions are for reference only, subject to change

Ordering Information

Example : **SBV120 - S - 8 - BH - SS**

1
2
3
4
5

1. Valve Series

■ SBV210 ■ SBVA210 ■ SBVT210

2. End Connection

■ S : SUPERLOK Tube Fitting ■ F : Female Thread

3. End Connection Size

-Tube O.D Designation

Tube O.D (inch)	1/4	3/8	1/2	3/4	1
Designation	4	6	8	12	16
Tube O.D (mm)	6	10	12	16	
Designation	6M	10M	12M	16M	

- Pipe Thread Designation

Size (inch)	1/4	3/8	1/2	3/4	1
Screwed NPT	4N	6N	8N	12N	16N
Screwed BSPT	4R	6R	8R	12R	12R

4. Handle Designator

■ Nil : Butterfly Handle (Standard) ■ BH : Bar Handle

5. Material Designator

■ SS : 316 Stainless Steel ■ B : BRASS

360 SERIES THREE PIECE HIGH-PRESSURE TYPE SBVH360 Series



Features

- Compact design
- High flow rate with maximum orifice
- Variety of End Connections
- Anti blow-out stem design
- Each and every valve is tested at the factory

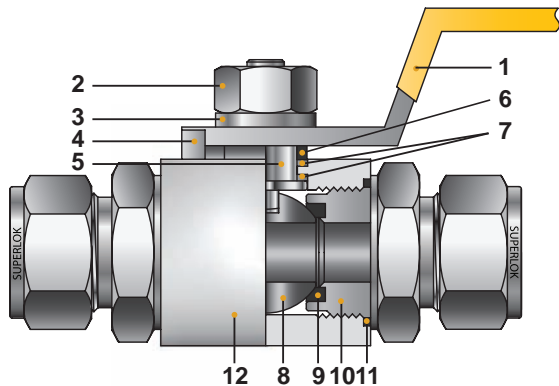
Specifications

Pressure rating	6000psig (414bar)@70°F (21°C)
Temperature rating	-22 to 265°F (-30 to 130°C) with PVDF seat -65 to 500°F (-54 to 260°C) with PEEK seat
Body material	316 stainless steel and Brass
Port Connections	1/4" to 1" and 6mm to 25mm
Orifice	10.0mm to 19.0mm

Testing

- Each Valve is tested with nitrogen at 1000psig(69bar) to maximum allowable leak rate of 0.1 SCCM.
- Hydrostatic shell test is performed at 1.5 times of the working pressure. (OPTION)

Materials of Construction



No.	Component	Material Grade / ASTM Specification
		Stainless Steel
1	Handle	SS304 Lever handle with PVC color coated
2	Lock Nut	Stainless Steel
3	Spring Washer	
4	Pin	
*5	Stem	SS316 / A479
6	Stem Washer	SS304 / A479
*7	Stem Packing	PTFE
*8	Ball	SS316 / A479
*9	Seat	PVDF (Standard)
*10	End Connector	SS316 / A479
*11	Connector Seal	PTFE
*12	Body	SS316 / A479

※ Wetted components are marked "*"※

SBVH360 SERIES (2-Way)

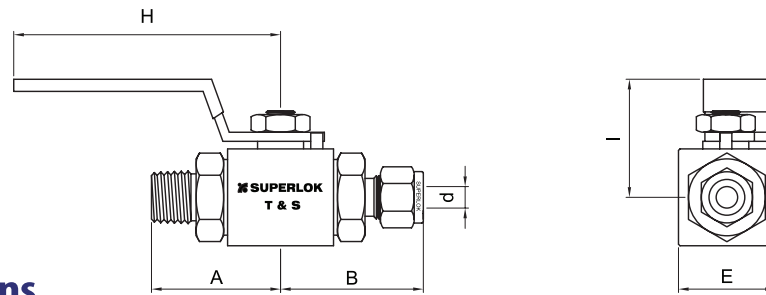


Table of dimensions

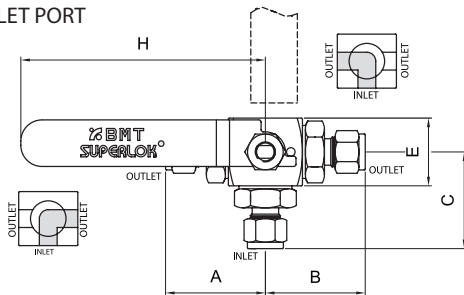
Order Number		Orifice	Cv	End Connections	Dimensions (mm)						
Series	Part No.				A	B	I	H	d (min)		
SBVH3601	S	4	10.0	1.2	1/4" SUPERLOK	45.7	45.7	91.4	105	4.8	
	S	6		3.7	3/8" SUPERLOK	47.5	47.5	94.4		7.1	
	S	8		7.5	1/2" SUPERLOK	49.8	49.8	99.6		10.0	
	F	4N	7.5	1/4" FEMALE NPT	37.0	37.0	74.0	10.0			
	F	6N	7.5	3/8" FEMALE NPT	38.0	38.0	76.0	10.0			
	F	8N	7.5	1/2" FEMALE NPT	41.5	41.5	83.0	10.0			
	M	4N	3.7	1/4" MALE NPT	42.1	42.1	84.2	7.1			
	M	6N	7.2	3/8" MALE NPT	42.1	42.1	84.2	9.65			
	M	8N	7.5	1/2" MALE NPT	47.0	47.0	94.0	10.0			
SBVH3602	F	8N	12.7	10.0	1/2" FEMALE NPT	45.5	45.5	91.0	125	12.7	
	F	12N			3/4" FEMALE NPT	51.0	51.0	102.0			
	M	12N			3/4" MALE NPT	52.5	52.5	105.0			
	S	10			5/8" SUPERLOK	54.0	54.0	108.0			
	S	12			3/4" SUPERLOK	54.0	54.0	108.0			
SBVH3603	F	12N	19.0	30.0	3/4" FEMALE NPT	54.0	54.0	108.0	149	20.0	
	F	16N			1" FEMALE NPT	62.5	62.5	125.0			
	S	12			3/4" SUPERLOK	61.9	61.9	123.8			15.74
	S	16			1" SUPERLOK	66.4	66.4	132.8			20.0
	M	12N			3/4" MALE NPT	59.0	59.0	118.0			15.74
	M	16N			1" MALE NPT	63.8	63.8	127.6			20.0

※All dimensions are for reference only, subject to change

SBVH360-3S SERIES (3-Way)

SBVH360-3B SERIES (3-Way)

SIDE INLET PORT



BOTTOM INLET PORT

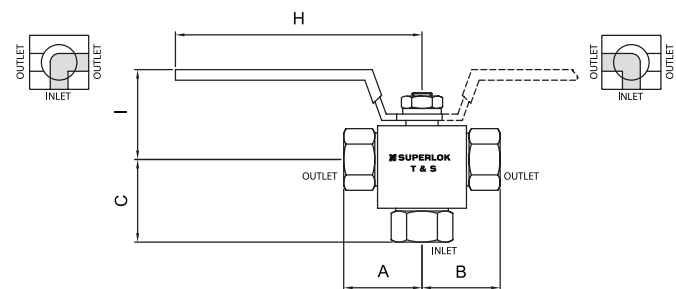


Table of dimensions

Order Number		Orifice	End Connections	Dimensions (mm)						
Series	Part No.			A	B	I	H	C		
SBVH3601-3B & SBVH3601-3S	S	4	10.0	1.2	1/4" SUPERLOK	45.7	45.7	91.4	105	53.3
	S	6		3.7	3/8" SUPERLOK	47.2	47.2	94.4		54.8
	S	8		7.5	1/2" SUPERLOK	49.8	49.8	99.6		54.0
	F	4N		7.5	1/4" FEMALE NPT	37.0	37.0	74.0		36.5
	F	6N		7.5	3/8" FEMALE NPT	38.0	38.0	76.0		40.0
	F	8N		7.5	1/2" FEMALE NPT	41.5	41.5	83.0		44.0
SBVH3602-3B & SBVH3602-3S	S	10	12.7	10.0	5/8" SUPERLOK	54.0	54.0	108.0	125	65.3
	S	12			3/4" SUPERLOK	54.0	54.0	108.0		65.3
	F	8N			1/2" FEMALE NPT	45.5	45.5	91.0		49.5
	F	12N			3/4" FEMALE NPT	51.0	51.0	102.0		55.0
SBVH3603-3B & SBVH3603-3S	S	12	19.0	30.0	3/4" SUPERLOK	61.9	61.9	123.8	149	69.8
	S	16			1" SUPERLOK	66.4	66.4	132.8		69.8
	F	12N			3/4" FEMALE NPT	59.0	59.0	118.0		56.5
	F	16N			1" FEMALE NPT	63.8	63.8	127.6		60.6

Pressure & Temperature Rating

2-Way Straight

Valve Series	Materials			Pressure Rating @-54°C to 21°C (-65°F to 70°F)	Temperature Rating
	Seat	Stem Packing	End Connector Seal		
3601	PVDF	PTFE		6000psig (413bar)	-30°C to 130°C(-22°F to 265°F)
	PCTFE				-30°C to 150°C(-22°F to 355°F)
	PEEK				-54°C to 230°C(-65°F to 446°F)
3602 & 3603	PVDF			5000psig (344bar)	-23°C to 191°C(-10°F to 375°F)
	PCTFE				
	PEEK				

2-Way Angle & 3-Way

Valve Series	Materials			Pressure Rating @-54°C to 21°C (-65°F to 70°F)	Temperature Rating
	Seat	Stem Packing	End Connector Seal		
3601	PVDF	PTFE	VITON	4000psig(275bar)	-30°C to 130°C(-22°F to 265°F)
	PCTFE				-30°C to 150°C(-22°F to 355°F)
	PEEK				-54°C to 230°C(-65°F to 446°F)
3602 & 3603	PVDF			3000psig(206bar)	-23°C to 191°C(-10°F to 375°F)
	PCTFE				
	PEEK				

Ordering Information

Example : **SBVH3602 - S - 12 - PE - SS**

1 2 3 4 5

1. Valve Series

- 2-Way straight ■ 2-Way Angle ■ 3-Way : Bottom Inlet Port ■ 3-Way : Side Inlet Port
- SBVH3601 - SBVH3601-A - SBVH3601-3B - SBVH3601-3S
- SBVH3602 - SBVH3602-A - SBVH3602-3B - SBVH3602-3S
- SBVH3603 - SBVH3603-A - SBVH3603-3B - SBVH3603-3S

2. End Connection

- S : SUPERLOK Tube Fitting ■ F : Female Thread ■ M : Male Thread

3. Connection Size

-Tube O.D Designation

Tube O.D (inch)	1/4	3/8	1/2	5/8	3/4	1
Designation	4	6	8	10	12	16

- Pipe Thread Designation

Size(inch)	1/4	3/8	1/2	3/4	1
Screwed BSPT	4N	6N	8N	12N	16N
Screwed NPT	4R	6R	8R	12R	12R

4. Seat Material Designator

- Nil: PVDF(Standard) ■ PC: PCTFE ■ PE: PEEK

5. Material Designator

- SS : 316 Stainless Steel ■ M : ALLOY (Monel)



Valve Series

- Key Operation Ball Valves
- Key Operation Needle Valves
- Ball Valves
- Integral Bonnet Needle Valves
- Union Bonnet Needle Valves
- Check Valves
- High Pressure Check Valves
- High Pressure Needle Valves
- Plug Valves
- Manifold Valves
- Vacuum Clamps
- Water Regulators
- Flexible Hoses
- Double Block & Bleed Valves
- Swing-Out Ball Valves
- Toggle Valves
- Bleed & Purge Valves
- Quick Connectors
- High Pressure Ball Valves
- Hydraulic Ball Valves
- Trunnion Ball Valves
- Rising Plug Valves
- Relief Valves
- Cryogenic Needle Valves
- Cryogenic Ball Valves
- Micron in-Line Filters
- Gauge Root Valves
- Hydraulic Flange and Components

Fitting Series

- Tube Fittings (Compression Type)
- Instrument Thread Fittings
- Forged Fittings
- Bite Type Tube Fittings (DIN2353)
- Bite Type Tube Fittings (JIS B2351)
- 37° Flared Tube Fittings (SAE J514)
- O-Ring Face Seal Fittings
- Hose Connectors & Push-On Hose Fittings

Electric

- MCPD(Molded Case Power Distributor)

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