

# Swing - Out Ball Valves

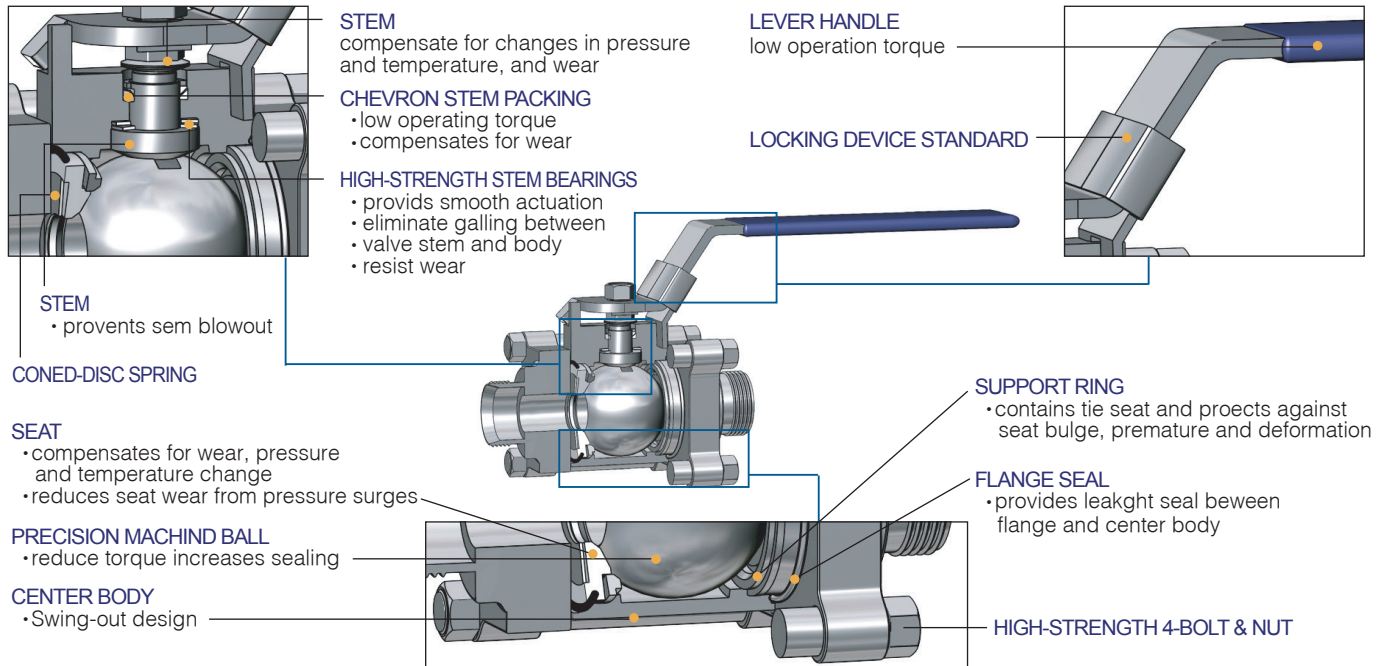
## SWB 320 SERIES

### SPECIFICATION

- Pressure Rating up to 3000 psig (206 bar) at 100°F (37°C)
- Temperature Range from -20°F (-28°C) to 450°F (232°C)

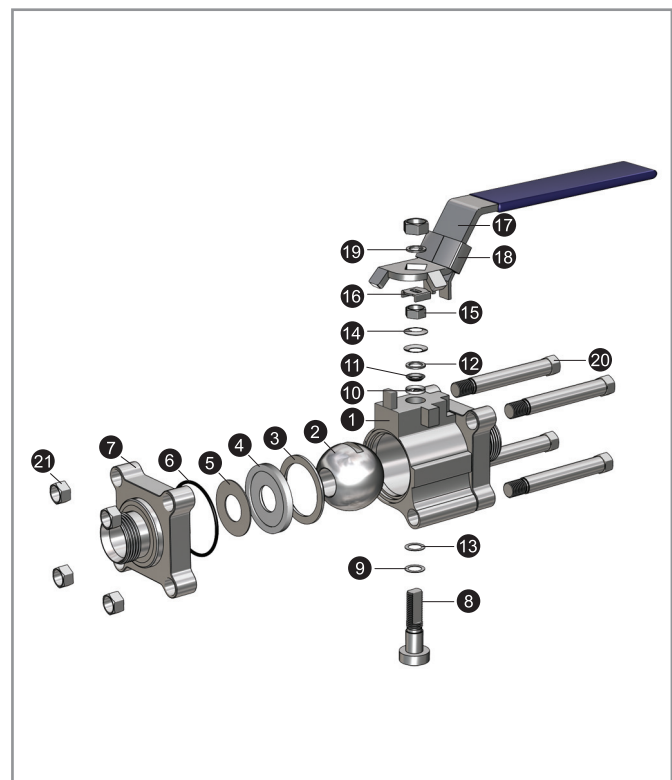
### TESTING

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



### MATERIALS OF CONSTRUCTION

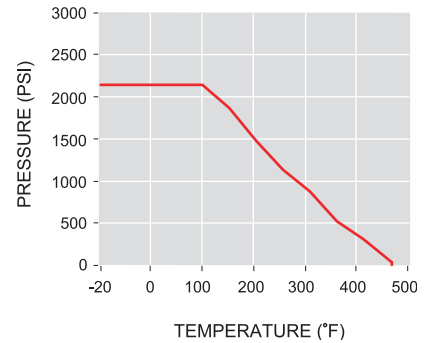
Component		Valve Body Materials Material / ASTM Specification	Q'TY
1	Body	CF8M / A351	1
2	Ball	SS 316 / A479	1
3	Support ring	SS 316 / A479	2
4	Seats	Reinforced PTFE	2
5	Seat spring	Strain Hardned 316 SS / A240	2
6	Flange seal	PTFE	2
7	Flange	CF8M / A351 or SS 316 / A479	2
8	Stem	SS 316 / A479	1
9	Stem bearing	Alloy X750	1
10	Lower packing	Reinforced PTFE	1
11	Upper packing		1
12	Packing support	PEEK	1
13	Packing gland	SS 316 / A479	1
14	Stem spring	Strain Hardned 316	2
15	Packing nut	Stainless Steel	2
16	Stem nut lock		1
17	Handle		1
18	Locking device		1
19	Tooth washer		1
20	Flange bolt	SS304	4
21	Flange nut	SS304	4



## PRESSURE/TEMPERATURE RATING

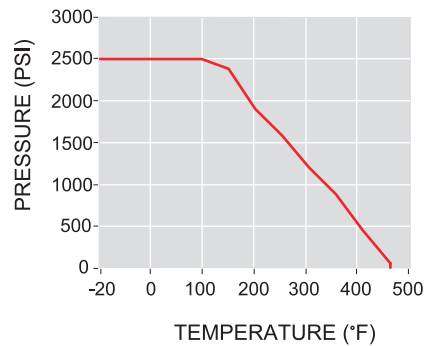
### ■ REINFORCED PTFE SEATS (R-PTFE) : STANDARD

Series	Pressure - Temperature Rating	
	Temperature °C (°F)	Working Pressure psig (bar)
SWB 320	-20 to 100 (-28 to 37)	2200 (151)
	150 (65)	1850 (127)
	200 (93)	1500 (103)
	250 (121)	1150 (79.2)
	300 (148)	800 (55.1)
	350 (176)	560 (38.5)
	400 (204)	330 (22.7)
	450 (232)	100 (6.8)



### ■ CARBON / GLASS PTFE SEATS : OPTION

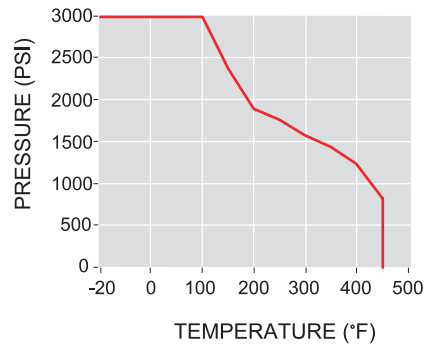
Series	Pressure - Temperature Rating	
	Temperature °C (°F)	Working Pressure psig (bar)
SWB 320	-20 to 100 (-28 to 37)	2500 (172)
	150 (65)	2430 (167)
	200 (93)	1870 (128)
	250 (121)	1620 (111)
	300 (148)	1240 (85.4)
	350 (176)	860 (59.2)
	400 (204)	480 (33.0)
	450 (232)	100 (6.8)



To order option item, add C to the end of ordering number.

### ■ PEEK SEATS : OPTION

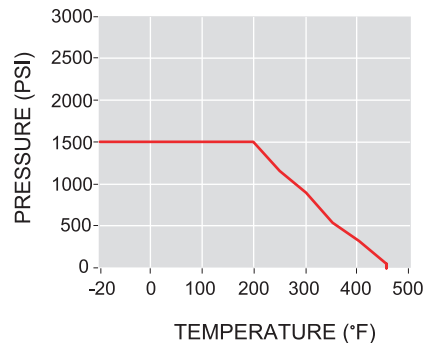
Series	Pressure - Temperature Rating	
	Temperature °C (°F)	Working Pressure psig (bar)
SWB 320	-20 to 100 (-28 to 37)	3000 (206)
	150 (65)	2420 (166)
	200 (93)	1870 (128)
	250 (121)	1770 (121)
	300 (148)	1600 (110)
	350 (176)	1430 (98.5)
	400 (204)	1260 (86.8)
	450 (232)	800 (55.1)



To order option item, add P to the end of ordering number.

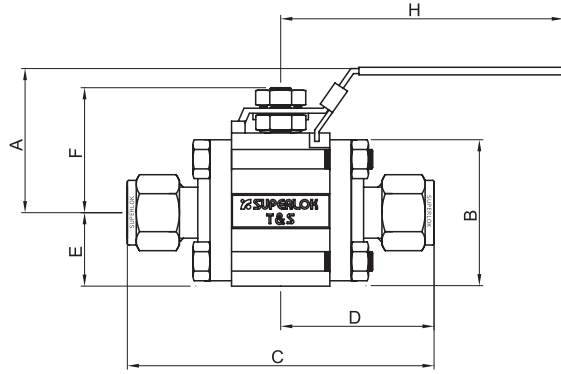
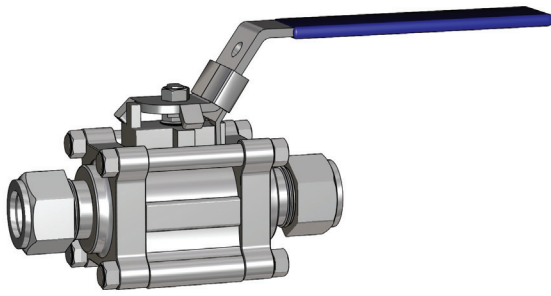
### ■ VIRGIN PTFE SEATS : OPTION

Series	Pressure - Temperature Rating	
	Temperature °C (°F)	Working Pressure psig (bar)
SWB 320	-20 to 100 (-28 to 37)	1500 (103)
	150 (65)	1500 (103)
	200 (93)	1500 (103)
	250 (121)	1150 (79.2)
	300 (148)	800 (55.1)
	350 (176)	560 (38.5)
	400 (204)	330 (22.7)
	450 (232)	100 (6.8)



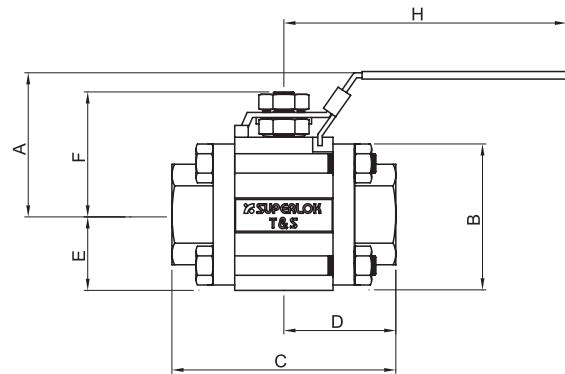
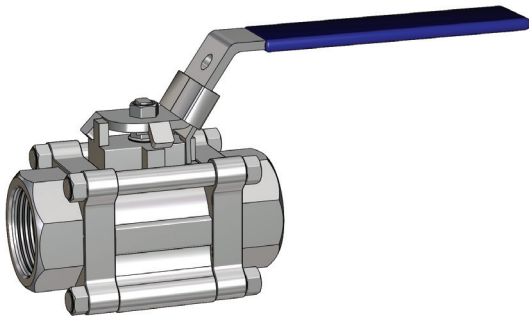
To order option item, add V to the end of ordering number.

## TABLE OF DIMENSIONS



### ■ SUPERLOK TUBE END CONNECTION

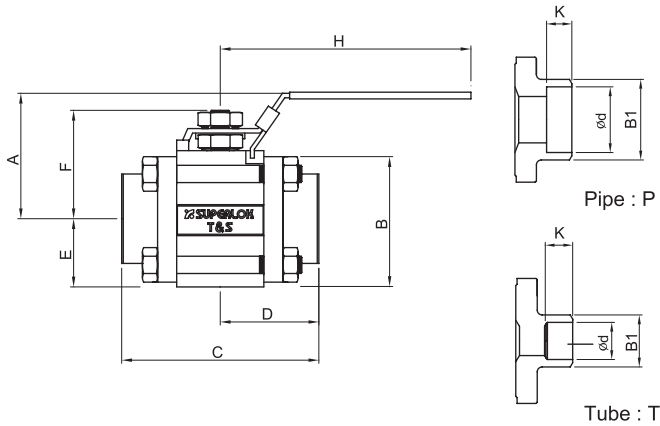
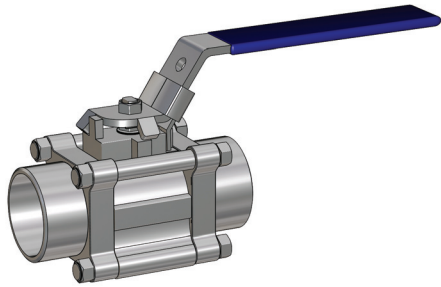
Ordering Number		Orifice in. (mm)	Cv	End Connection	Dimension (mm)							
Series	Part NO.				A	B	C	D	E	F	H	
SWB3201	S	4	0.188 (4.8)	1.2	1/4 " Superlok	47.7	33.0	80.8	40.40	16.75	31.8	57.2
		6	0.281 (7.1)	3.8	3/8 " Superlok							
		6M	0.188 (4.8)	1.2	6mm Superlok							
		8M	0.250 (6.4)	2.5	8mm Superlok							
		10M	0.281 (7.1)	3.8	10mm Superlok							
SWB3202	S	8	0.411 (10.4)	7.5	1/2 " Superlok	64.8	44.5	103.8	51.90	22.25	44.2	111.0
		12	0.516 (13.1)	13.6	3/4 " Superlok							
		12M	0.411 (10.4)	7.5	12mm Superlok							
SWB3203	S	16	0.875 (22.2)	40.0	1 " Superlok	79.0	62.0	136.7	68.35	31.0	61.9	149.4
		25M			25mm Superlok							
SWB3204		24	1.250 (31.8)	100	1-1/2 " Superlok	102.0	77.7	192.6	96.3	38.9	79.8	232.0
SWB3205		32	1.500 (38.1)	130	2 " Superlok	106.0	88.1	252.0	126.0	44.2	85.3	232.0



### ■ FEMALE PIPE THREAD END CONNECTIONS

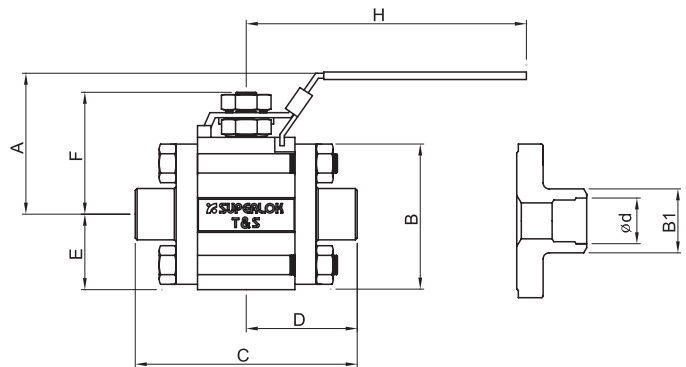
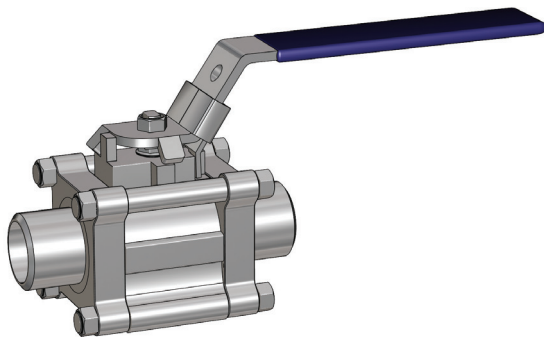
Ordering Number		Orifice in. (mm)	Cv	End Connection	Dimension (mm)							
Series	Part NO.				A	B	C	D	E	F	H	
SWB3201	F	2N	0.281 (7.1)	3.8	1/8 " Female NPT	47.7	33.0	55.4	27.70	16.75	31.8	57.2
		4N			1/4 " Female NPT							
		4R			1/4 " Female PT							
SWB3202	F	6N	0.516 (13.1)	12.0	3/8 " Female NPT	64.8	44.5	68.9	34.45	22.25	44.2	111.0
		8N			1/2 " Female NPT							
		8R			1/2 " Female PT							
SWB3203	F	12N	0.875 (22.2)	40.0	3/4 " Female NPT	79.0	62.0	92.0	46.0	31.0	61.9	149.4
		16N			1 " Female NPT							
		12R			3/4 " Female PT							
		16R			1 " Female PT							
SWB3204	F	20N	1.250 (31.8)	90	1-1/4 " Female NPT	102.0	77.7	112.2	55.6	38.9	79.8	232.0
		24N		1-1/2 " Female NPT								
		24R		1-1/2 " Female PT								
SWB3205	F	32N	1.500 (38.1)	130	2 " Female NPT	106.0	88.1	125.4	62.7	44.2	85.3	232.0
		32R			2 " Female PT							

## TABLE OF DIMENSIONS



### ■ SOCKET WELD END CONNECTIONS

Ordering Number		Orifice in. (mm)	Cv	End Connection	Dimension (mm)									
Series	Part NO.				φd	B1	A	B	C	D	E	F	H	K
SWB3201	4T	0.188 (4.8)	1.2	1/4" Socket Weld	6.50	13.70	47.7	33.0	55.4	27.70	16.75	31.8	57.2	7.1
	6T	0.281 (7.1)	3.8	3/8" Socket Weld	9.70	17.10								7.9
SWB3202	8T	0.411 (10.4)	7.5	1/2" Socket Weld	12.90	21.30	64.8	44.5	68.9	34.45	22.25	44.2	111.0	9.7
	12T	0.516 (13.1)	13.6	3/4" Socket Weld	19.20	26.70								11.2
SWB3203	8P	0.516 (13.1)	15.0	1/2" Socket Weld	21.80	31.20	79.0	62.0	92.0	46.00	31.00	61.9	149.4	9.7
	16T	0.875 (22.2)	40.0	1" Socket Weld	25.65	33.40								16.0
SWB3204	12P		1.250 (31.8)	36.0	3/4" Socket Weld	27.20	42.16	102.0	77.7	112.2	55.6	38.9	79.8	232.0
	16P	42.0		1" Socket Weld	33.90	45.30	15.7							
	20T	80.0		1-1/4" Socket Weld	32.00	42.20	19.1							
	24T	100.0		1-1/2" Socket Weld	38.30		12.7							
SWB3205	20P	1.500 (38.1)	90.0	1-1/4" Socket Weld	42.70	62.20	106.0	88.1	125.4	62.7	44.2	85.3	232.0	19.1
	24P		100.0	1-1/2" Socket Weld	48.80									16.0
	32T		130.0	2" Socket Weld	51.10	70.10								43.2
	32P		130.0	2" Socket Weld	61.20	75.10								86.8



### ■ BUTT WELD END CONNECTIONS

Ordering Number		Schedule	Orifice in. (mm)	Cv	End Connection	Dimension (mm)								
Series	Part NO.					φd	B1	A	B	C	D	E	F	H
SWB3201	4P	10	0.188 (4.8)	1.2	1/4" Butt Weld	10.40	13.70	47.7	33.0	52.4	26.20	16.75	31.8	57.2
SWB3202	8P		0.516 (13.1)	15.0	1/2" Butt Weld	17.10	21.30	64.8	44.5	68.9	34.45	22.25	44.2	111.0
SWB3203	12P		0.875 (22.2)	36.0	3/4" Butt Weld	22.45	26.67	79.0	62.0	92.0	46.00	31.0	61.9	149.4
SWB3203	16P	40.0	1" Butt Weld	27.90	33.40	88.9	44.45							
SWB3201	4P	40	0.188 (4.8)	1.2	1/4" Butt Weld	9.20	13.70	47.7	33.0	52.4	26.20	16.75	31.8	57.2
SWB3202	8P		0.516 (13.1)	15.0	1/2" Butt Weld	15.80	21.30	64.8	44.5	68.9	34.45	22.25	44.2	111.0
SWB3203	12P		0.875 (22.2)	36.0	3/4" Butt Weld	20.93	26.67	47.7	62.0	92.0	46.00	31.0	61.9	149.4
SWB3203	16P	40.0	1" Butt Weld	26.60	33.40	88.9	44.45							
SWB3201	4P	80	0.188 (4.8)	1.2	1/4" Butt Weld	7.70	13.70	79.0	33.0	52.4	26.20	16.75	31.8	57.2
SWB3201	6P		0.281 (7.1)	3.8	3/8" Butt Weld	10.70	17.10							
SWB3202	8P		0.411 (10.4)	7.5	1/2" Butt Weld	13.90	21.30							
SWB3202	12P	0.516 (13.1)	13.6	3/4" Butt Weld	18.80	26.70	64.8	44.5	68.9	34.45	22.25	44.2	111.0	
SWB3203	16P	0.875 (22.2)	40.0	1" Butt Weld	23.90	33.40								79.0
SWB3204	24P	10	1.125 (28.6)	100	1-1/2" Butt Weld	42.70	48.30	102.0	77.7	113.2	56.60	38.90	79.8	232.0
SWB3205	32P		1.500 (38.1)	130	2" Butt Weld	54.80	60.30	106.0	88.1	121.4	60.70	44.20	85.3	
SWB3204	24P	40	1.125 (28.6)	100	1-1/2" Butt Weld	40.90	48.30	102.0	77.7	113.2	56.60	38.90	79.8	232.0
SWB3205	32P		1.500 (38.1)	130	2" Butt Weld	52.50	60.30	106.0	88.1	123.4	61.70	44.20	85.3	
SWB3204	24P	80	1.125 (28.6)	100	1-1/2" Butt Weld	38.10	48.30	102.0	77.7	115.8	57.90	38.90	79.8	232.0
SWB3205	32P		1.500 (38.1)	130	2" Butt Weld	49.30	60.30	106.0	88.1	129.6	64.80	44.20	85.3	

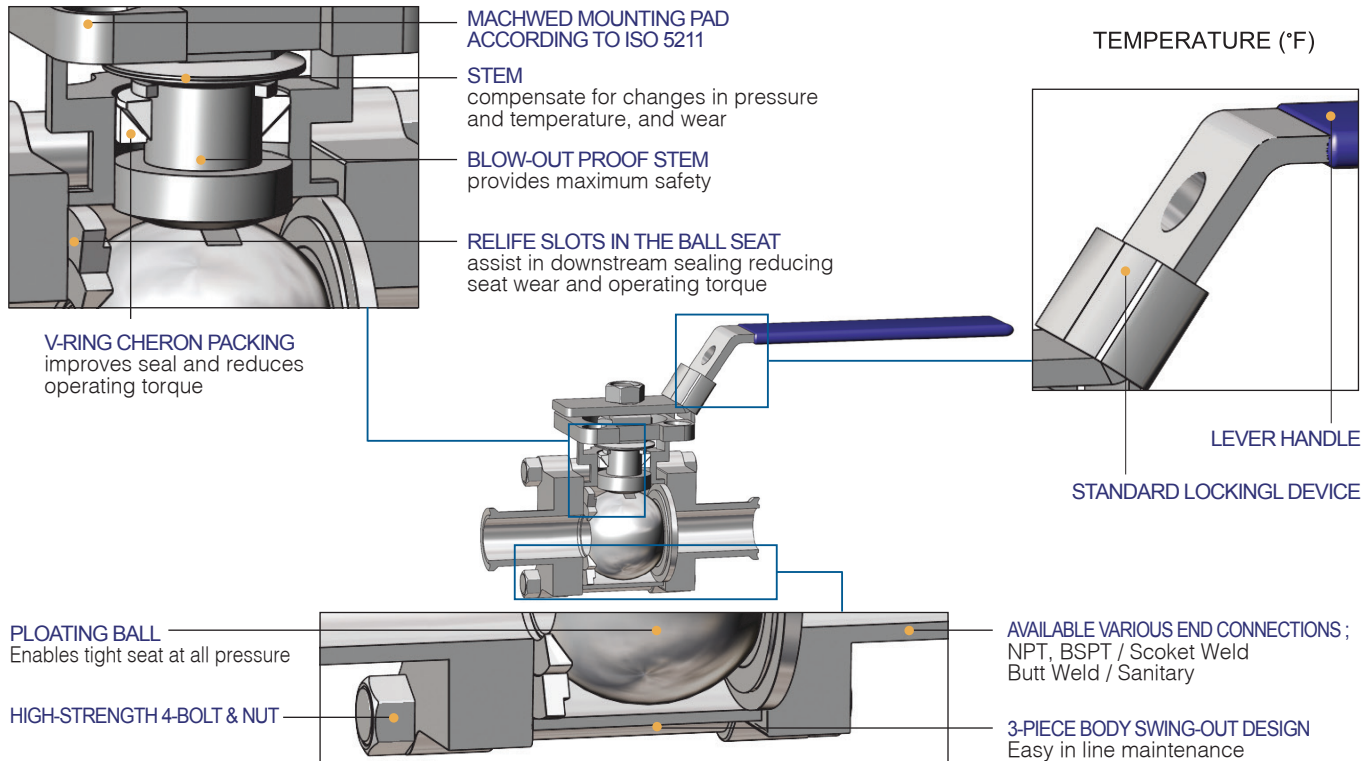
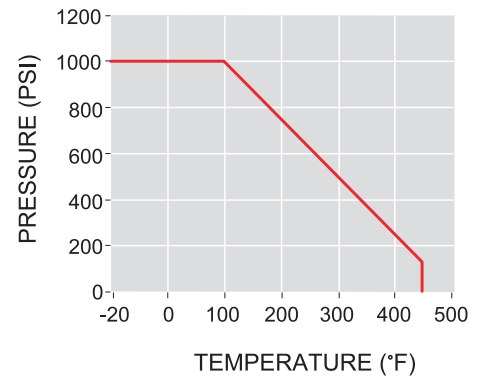
# SWB 310 SERIES

## SPECIFICATION

- Pressure Rating up to 1000 psig (69 bar) at 100°F (37°C)
- Temperature Range from -20°F (-28°C) to 450°F (232°C)

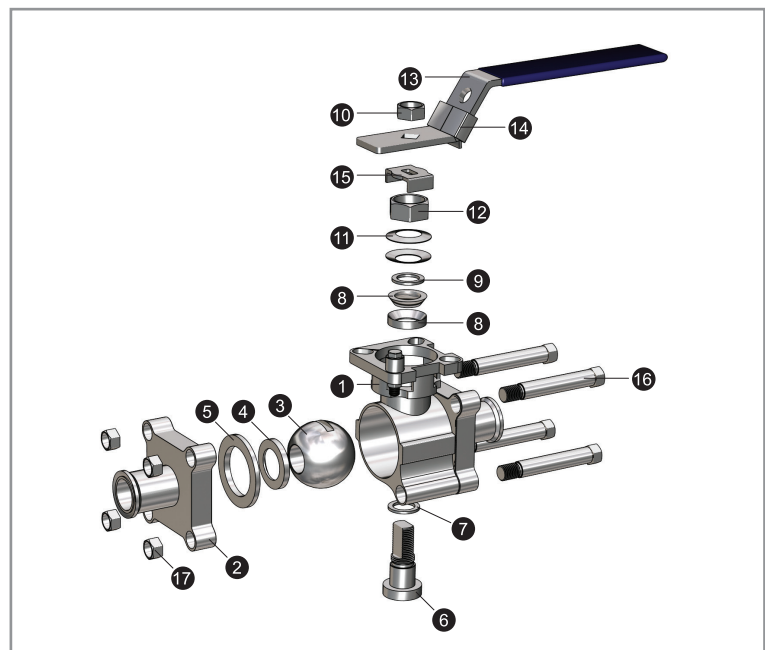
## TESTING

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

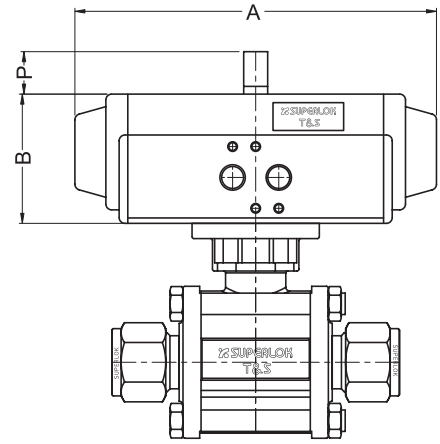
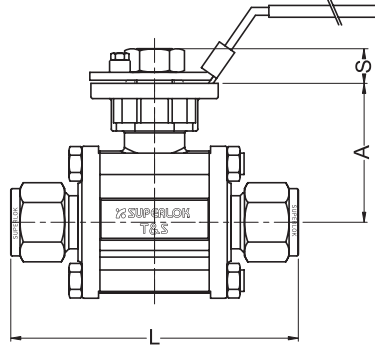
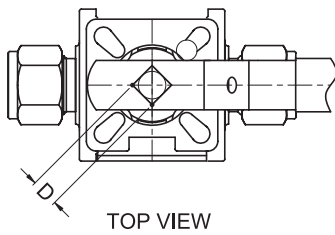


## MATERIALS OF CONSTRUCTION

Component	Material	Q'TY
1 Body	ASTM A351GR/CF8M	1
2 End Cap	ASTM A351GR/CF8M	2
3 Ball	SS 316	1
4 Ball Seal	PTFE	2
5 Flange Seal	PTFE	2
6 Stem	SS316	1
7 Stem Seal	PTFE	1
8 Upper/Lower Packing	PTFE	1
9 Packing Gland	SS304	1
10 Handle Nut	STRAIN HARDNED 316	1
11 Disc Spring	SS304	2
12 Stem Nut	SS304	1
13 Handle	SS304	1
14 Locking Device	SS304	1
15 Stem Nut Lock	SS304	1
16 Flange Bolt	SS304	4
17 Flange Nut	SS304	4



## TABLE OF DIMENSIONS



ROTATING PNEUMATIC ACTUATORS  
(DOUBLE ACTING TYPE)

### ■ SUPERLOK TUBE END CONNECTION

Ordering Number		Size		Dimension (mm)																																	
Series	Part NO.			A	S	D	L	A1	B	P																											
SWB	3101	S	4	1/4 " SUPERLOK	39.0	8.5	9.0	72.6	188.0	67.0	20.0																										
			6	3/8 " SUPERLOK				74.2																													
			8	1/2 " SUPERLOK				75.6																													
		F	4N(R)	1/4 " FEMALE NPT (PT)				39.0				8.5	9.0	63.5	188.0	67.0	20.0																				
			6N(R)	3/8 " FEMALE NPT (PT)																																	
			8N(R)	1/2 " FEMALE NPT (PT)																																	
		SW	4P	1/4 " SOCKET WELD														39.0	8.5	9.0	63.5	188.0	67.0	20.0													
			6P	3/8 " SOCKET WELD																																	
			8P	1/2 " SOCKET WELD																																	
		BW	4P	1/4 " BUTT WELD																					39.0	8.5	9.0	62.5	188.0	67.0	20.0						
			6P	3/8 " BUTT WELD																								65.5									
			8P	1/2 " BUTT WELD																								65.5									
	SA	8	1/2 " SANITARY	39.0	9.0	9.0	89.0		188.0	67.0	20.0																										
	3102	S	12				3/4 " SUPERLOK																					43.0				8.5	9.0	86.0	188.0	67.0	20.0
			12N(R)				3/4 " FEMALE NPT (PT)																											72.5			
		SW	12P				3/4 " SOCKET WELD	76.2																													
		BW	12P				3/4 " BUTT WELD	102.0																													
		SA	12				3/4 " SANITARY	102.0																													
	3103	S	16				1 " SUPERLOK	53.0				11.4	9.0	104.0	188.0	67.0	20.0																				
			16N(R)				1 " FEMALE NPT (PT)							81.0																							
		SW	16P				1 " SOCKET WELD							86.0																							
		BW	16P				1 " BUTT WELD							124.0																							
		SA	16				1 " SANITARY							124.0																							
	3104	F	24N(R)				1-1/2 " FEMALE NPT (PT)	70.0				14.0	11.0	104.0	234.0	86.0	20.0																				
24P			1-1/2 " SOCKET WELD	119.0																																	
BW		24P	1-1/2 " BUTT WELD	141.0																																	
SA		24	1-1/2 " SANITARY	141.0																																	
3105	F	32N(R)	2 " FEMALE NPT (PT)	78.0	13.7	14.0	121.5	234.0	86.0	20.0																											
		32P	2 " SOCKET WELD				131.4																														
	BW	32P	2 " BUTT WELD				131.4																														
	SA	32	2 " SANITARY				162.0																														

## OVAL HANDLE

- Oval as an option. If require oval handle as option, add OH to the end of ordering number.  
ex) SWB3202 - S - OH

## ACTUATOR

- We can provide pneumatic actuation package as optional item with following features. If require actuator as option, add P(number) to the end of ordering number.  
ex) SWB3202 - F6N - P3

## Ordering Information

Example : **SWB3202-S 12-PE-OH-SS**

1
2
3
4
5
6

### 1) Valve Series

- SWB3201 - SWB3101
- SWB3202 - SWB3102
- SWB3203 - SWB3103
- SWB3204 - SWB3104
- SWB3205 - SWB3105

### 2) Port Type

- S : SUPERLOK Tube Fitting
- M : Male Thread
- F : Female Thread
- SW : Socket Weld
- BW : Butt Weld
- SA : SANITARY

### 3) Port Size

- Tube O.D Designation

Tube O.D (inch)	1/4	3/8	1/2	3/4	1	1-1/4	1-1/2	2
Designation	4	6	8	12	16	20	24	32
Tube O.D (mm)	6	8	10	12	20	25	32	38
Designation	6M	8M	10M	12M	20M	25M	32M	38M

- Pipe Thread Designation

Size (inch)	1/8	1/4	3/8	1/2	3/4	1	1-1/4	1-1/2	2
Screwed BSPT	2R	4R	6R	8R	12R	16R	20R	24R	32R
Screwed NPT	2N	4N	6N	8N	12N	16N	20N	24N	32N

- Socket Weld & Butt Weld Designation

Size (inch)	1/4	3/8	1/2	3/4	1	1-1/4	1-1/2	2
Tube	4T	6T	8T	12T	16T	20T	24T	32T
Pipe	4P	6P	8P	12P	16P	20P	24P	32P

### 4) Seat Material

- Nil : R-PTFE
- PE : PEEK
- PT : PTFE
- T4 : CARBON25% PTFE

### 5) Option

- OH : Oval Handle
- Actuator
  - P1 : Single Acting - 90° Turn
  - P2 : Single Acting - 180° Turn
  - P3 : Double Acting - 90° Turn
  - P4 : Double Acting - 180° Turn

### 6) Body Material

- SS : 316 Stainless Steel

### Examples

- ex1) SWB3103 - SA16 - SS  
- SWB3103 Series / [Port1]SANITARY x [Port2]SANITARY / Port Size: 1" x 1"  
Seat Material: R-PTFE / Body Material: 316 Stainless Steel
- ex2) SWB3201 - S6 - T4 - SS  
- SWB3201 Series / [Port1]SUPERLOK x [Port2]SUPERLOK / Port Size: 3/8" x 3/8"  
Seat Material: Carbon PTFE / Body Material: 316 Stainless Steel