

Swing-Out Ball Valves (SB & SWB Series)

*Catalog 4125-SB
May 2001*



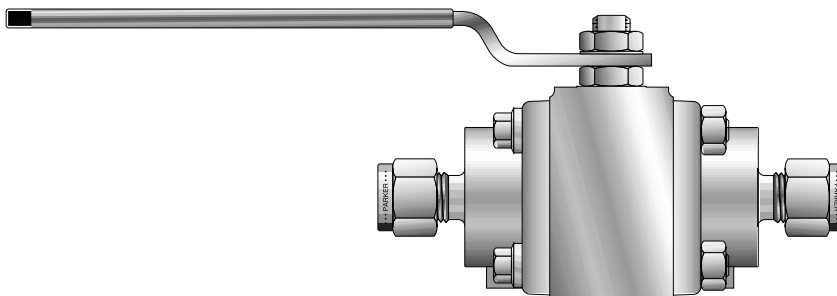
SB & SWB Series Ball Valves

Introduction

Parker's three-piece SB and SWB Series Ball Valves are durable valves that can handle the pressure and piping loads. Features which make this reliable ball valve so unique include tight shut-off, advanced seat materials, and swing away three piece construction. The center section can swing out to quickly and easily replace seats, seals and the ball without major disruption to the piping system.

Features

- Free floating ball design allows for seat wear compensation
- Spring-loaded seats on SWB4 Series
- Blow out resistant stem
- Four bolt construction
- ISO-type actuator mounting design
- Fully enclosed body bolting
- Self-compensating stem seal
- 100% factory tested
- Pneumatic and electric actuation options



Model Shown: 8Z-SB8L-T-SS

SB Series Specifications

- Body Materials:
Stainless Steel
- Seat Materials:
Acetal
Parkerfill (Multi-filled PTFE)
PEEK
PTFE (1000 psig/69 bar maximum)
Reinforced PTFE (Glass)
UHMWPE
- Seal Materials:
Buna-N Rubber
Ethylene Propylene Rubber
Fluorocarbon Rubber
Neoprene Rubber
PTFE
Stainless Steel
UHMWPE
- Flow Data:
 C_v : 0.88 to 120.0
- Pressure Ratings:
1440 psig (99 bar) CWP

SWB Series Specifications

- Body Materials:
Stainless Steel
- Seat Materials:
Reinforced PTFE (Glass)
- Seal Materials:
Fluorocarbon Rubber
- Flow Data:
 C_v : 1.07 to 4.48
- Pressure Ratings:
2500 psig (172 bar) CWP

• SB Series Valve Temperature Ratings

Seats:

Acetal Seats:

-20 °F to 180 °F (-29 °C to 82 °C)

Parkerfill Seats:

-20 °F to 500 °F (-29 °C to 260 °C)

PEEK Seats:

-20 °F to 600 °F (-29 °C to 316 °C)

PTFE Seats:

-20 °F to 450 °F (-29 °C to 232 °C)

Reinforced PTFE Seats

-20 °F to 450 °F (-29 °C to 232 °C)

UHMWPE Seats:

-20 °F to 450 °F (-29 °C to 232 °C)

Seals:

Buna-N Rubber Seals:

-20 °F to 300 °F (-29 °C to 149 °C)

Ethylene Propylene Rubber Seals:

-20 °F to 350 °F (-29 °C to 177 °C)

Fluorocarbon Rubber Seals:

-20 °F to 450 °F (-29 °C to 232 °C)

Neoprene Rubber Seals:

-20 °F to 250 °F (-29 °C to 121 °C)

PTFE Seals:

-20 °F to 400 °F (-29 °C to 204 °C)

Stainless Steel Seals:

-20 °F to 600 °F (-29 °C to 316 °C)

UHMWPE Seals:

-20 °F to 200 °F (-29 °C to 93 °C)

• SWB Series Valve Seat/Seal Temperature Ratings:

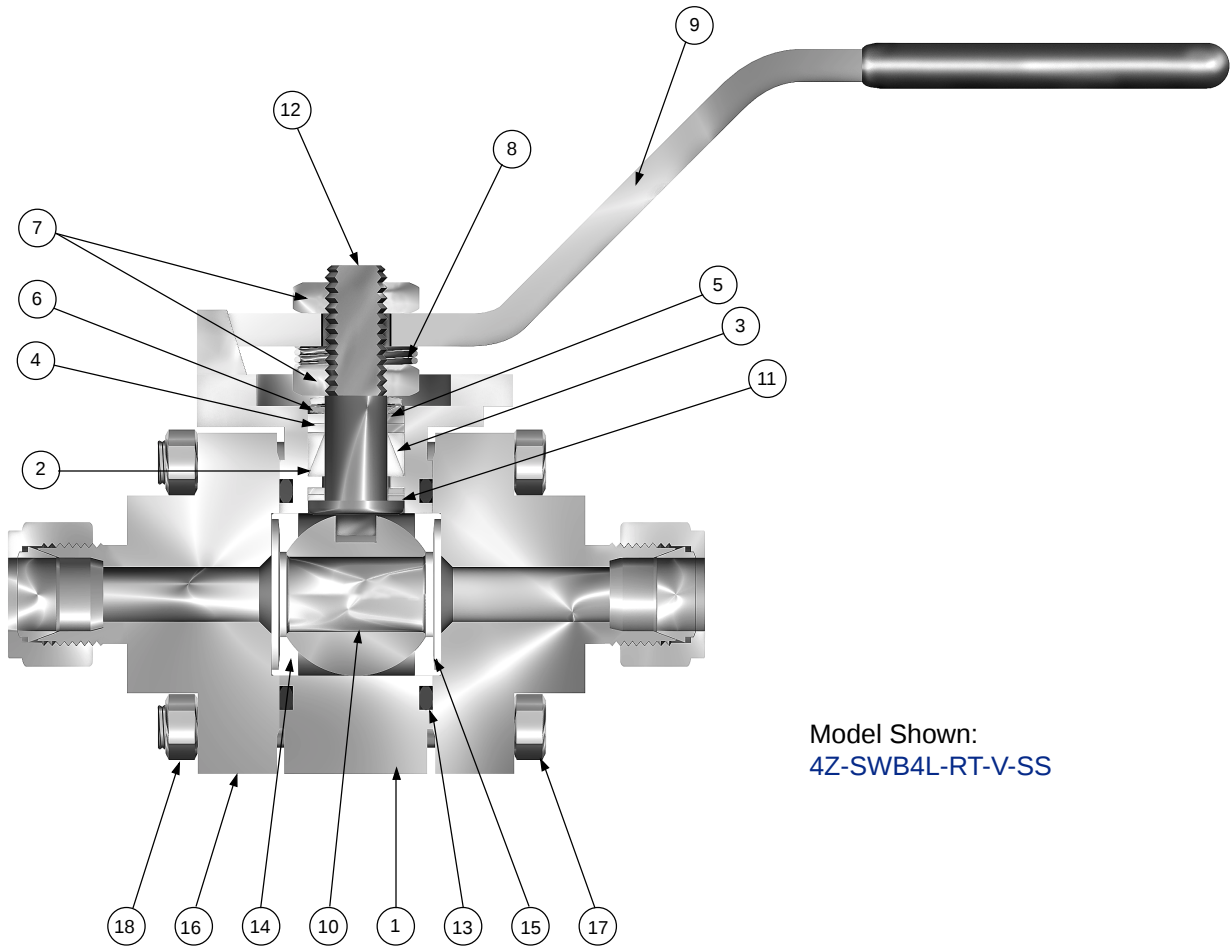
Reinforced PTFE Seats:

-65 °F to 450 °F (-54 °C to 232 °C)

Fluorocarbon Rubber Seals:

-65 °F to 450 °F (-54 °C to 232 °C)

SWB Series



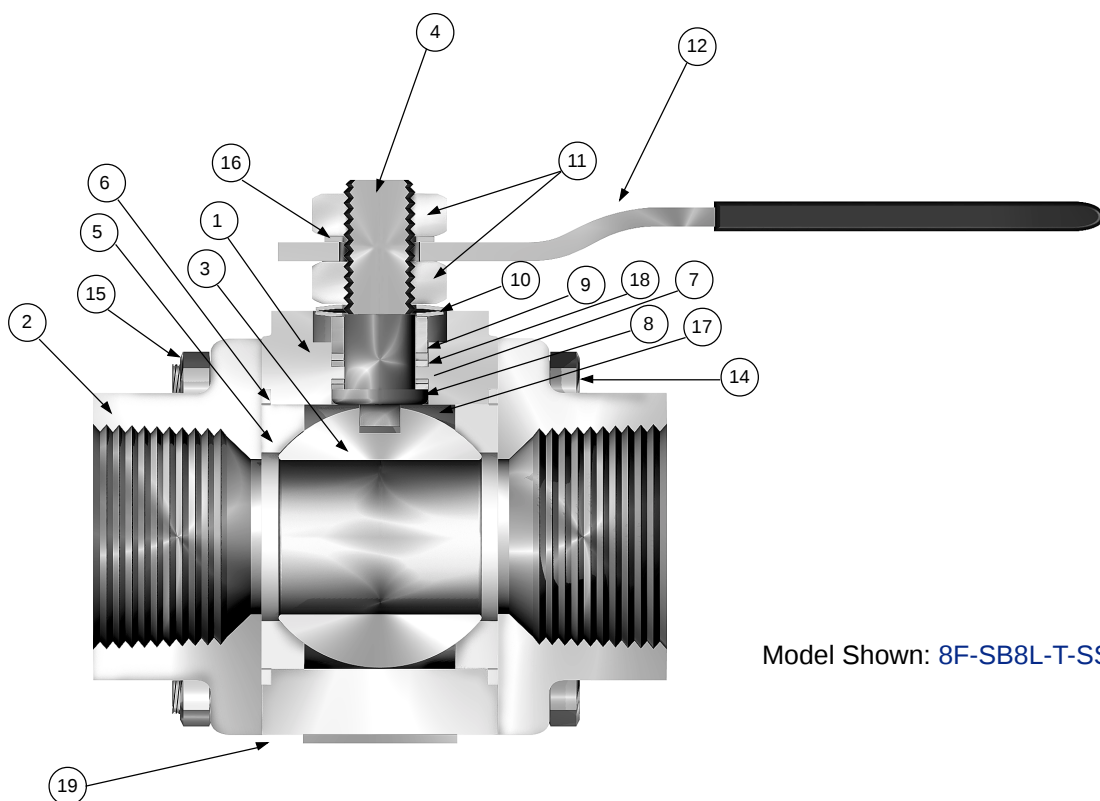
Model Shown:
4Z-SWB4L-RT-V-SS

Materials of Construction

Item #	Part	Qty	Material
1	Body	1	Stainless Steel - ASTM A 351 Gr. CF3M
2	Lower Packing	1	PTFE
3	Upper Packing	1	PTFE
4	Packing Support	1	PEEK
5	Packing Gland	1	Stainless Steel - ANSI 304
6	Stem Spring	2	Stainless Steel - ANSI 301
7	Stem Hex Nut	2	Stainless Steel - ANSI 304
8	Grounding Spring	1	Stainless Steel - ANSI 301
9	Handle Assembly	1	Stainless Steel - ANSI 304; Vinyl Covered
10	Ball	1	Stainless Steel - ANSI 316
11	Thrust Washer	2	PEEK
12	Stem	1	Stainless Steel - ANSI 316
13	End Connector O-Ring	2	Fluorocarbon Rubber
14	Seat	2	Reinforced PTFE
15	Seat Spring	2	Stainless Steel - ANSI 301
16	End Flanges	2	Stainless Steel - ASTM A 351 Gr. CF3M
17	Body Bolts	4	ASTM A 193 Gr. B8
18	Body Bolt Nuts	4	ASTM A 194 Grade 8

SB & SWB Series Ball Valves

SB Series



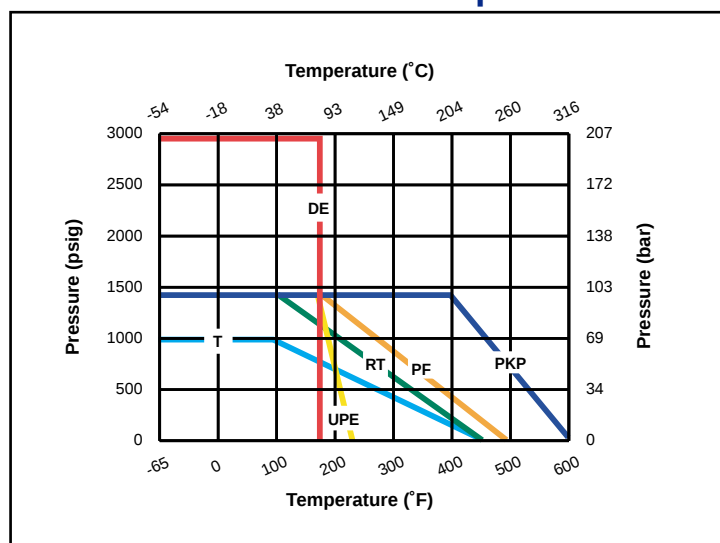
Model Shown: **8F-SB8L-T-SS**

Materials of Construction

Item #	Part	Qty	Material
1	Body	1	Stainless Steel - ASTM A 351 Grade CF8M Cast
2	End Flanges	2	Same as body material except stainless weld ends are Grade CF8M and compression ports are Grade CF3M for SB8 to SB16 or ASTM A 479 Grade 316 Stainless Steel for SB20 to SB32
3 & 4	Ball & Stem	1	Stainless Steel - ASTM A 479 Grade 316
5	Seats	2	PTFE, Reinforced PTFE, Parkerfill, PEEK, UHMWPE
6	Body Seals	2	Buna-N, Neoprene, PTFE, Ethylene Propylene, Fluorocarbon, Stainless Steel Gasket, UHMWPE
7	Stem Seal	1	Parkerfill (UHMWPE with UHMWPE seats, Graphite with PEEK seats)
8	Thrustbearing	1	Parkerfill (UHMWPE with UHMWPE seats, PEEK with PEEK seats)
9	Stem Seal Follower	1	Stainless Steel - ANSI 316
10	Belleville Washers	2	Stainless Steel - ANSI 301
11	Retaining Nut	2	Stainless Steel - ANSI 300 Series; Zinc Plated
12	Handle Assembly	1	Stainless Steel - ANSI 300 Series; Vinyl Covered
13	Stop Pin	1	Stainless Steel - ASTM A 276 300 Series (not shown)
14 & 15	Body Bolts & Nuts	4	Bolts: ASTM A 193 Grade B8; Nuts: ASTM A 194 Grade 8
16	Lockwasher	1	Stainless Steel - ANSI 300 Series
17	Thrust Bearing	1	PEEK (UHMWPE with UHMWPE Seats)
18	Seal Protector	1	PEEK
19	Name Plate	1	Stainless Steel - ANSI 314

SB & SWB Series Ball Valves

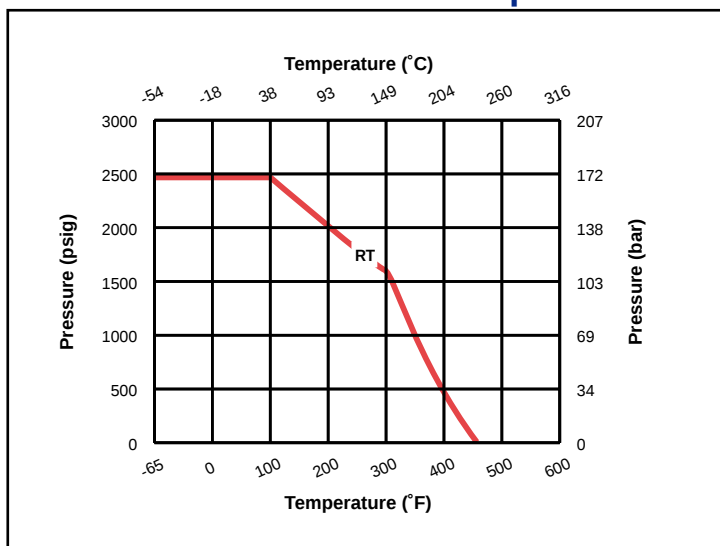
SB Series Pressure vs. Temperature



Notes:

- These Pressure versus Temperature charts reflect the use of indicated seat materials in Stainless Steel valves without consideration of seal materials. When combining seat and seal materials, the most restrictive temperature rating of the elastomer seals becomes the limiting factor on temperature range. Please refer to Page 2 for seal temperature ranges.
- Elastomeric seals are recommended if the application subjects the valve to thermal cycling.
- SB Series Valves with Acetal seats may be used at the following pressures:
 SB8 and SB12 - 3,000 psig (207 bar)
 SB16 - 2,500 psig (172 bar)
 SB20 to SB32 - 2,000 psig (138 bar)

SWB Series Pressure vs. Temperature



SB Series Steam Service

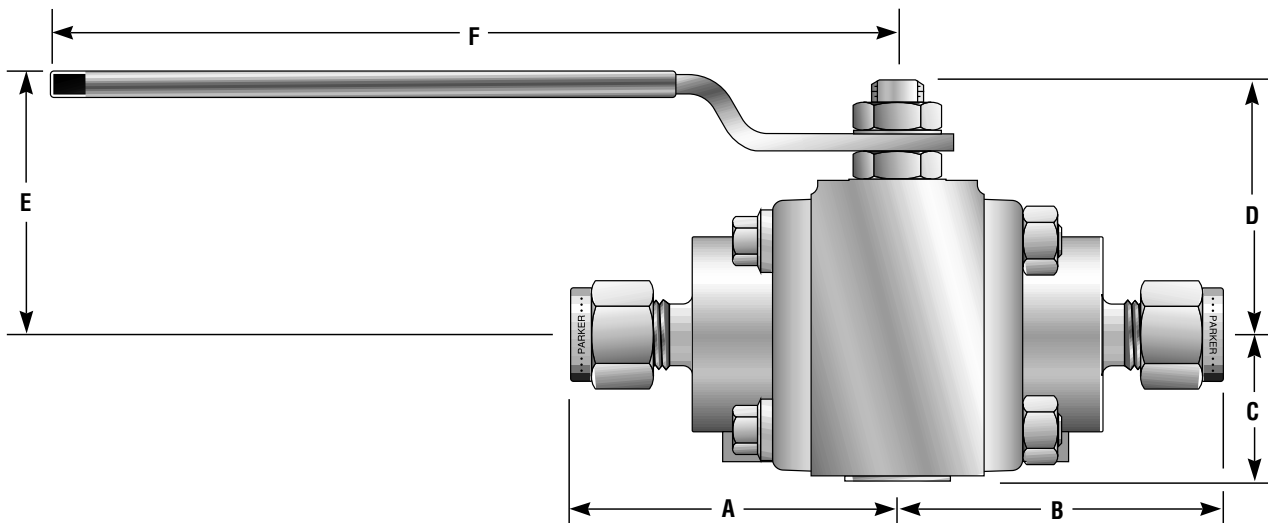
Seats	Recommended Body Seats	Valve Rating On/Off Service	Allowable Throttling Pressure Drop
PTFE	Ethylene Propylene	50 psig (3.4 bar)	Do Not Throttle
Reinforced PTFE	316 Stainless Steel	150 psig (10.3 bar)	Do Not Throttle
Parkerfill	316 Stainless Steel	250 psig (17.2 bar)	50 psig (3.4 bar)

Dimensions / Flow Data

Basic Part Number	Flow Data				Dimensions											
	Orifice		C_v	X_T^*	A†		B†		C		D		E		F	
	Inch	mm			Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm
4Z(A)-SWB4L	0.19	4.8	1.07	0.19	1.59	40.4	1.59	40.4	0.68	17.3	1.28	32.5	2.00	50.8	3.00	76.2
4F-SWB4L	0.28	7.1	2.95	0.29	1.09	27.7	1.09	27.7								
6Z(A)-SWB4L	0.28	7.1	4.48	0.19	1.59	40.4	1.59	40.4								
4W-SB8L	0.18	4.6	0.88	0.55	1.25	31.8	1.25	31.8	0.88	22.4	1.50	38.1	1.76	44.7	5.53	140.5
6Z(A)-SB8L	0.28	7.1	3.17	0.35	1.59	40.4	1.59	40.4								
6F-SB8L	0.44	11.2	7.12	0.36	1.28	32.5	1.28	32.5								
6W-SB8L	0.44	11.2	7.12	0.36	1.25	31.8	1.25	31.8								
8Z(A)-SB8L	0.41	10.4	6.38	0.36	2.03	51.6	2.03	51.6								
8F-SB8L	0.44	11.2	7.12	0.36	1.28	32.5	1.28	32.5								
8W-SB8L	0.44	11.2	7.12	0.36	1.25	31.8	1.25	31.8								
8PSW-SB8L	0.44	11.2	7.12	0.36	1.25	31.8	1.25	31.8								
8PBW-SB8L	0.44	11.2	7.12	0.36	1.25	31.8	1.25	31.8								
12Z(A)-SB12L	0.56	14.2	11.7	0.29	2.03	51.6	2.03	51.6	1.05	26.7	1.62	41.1	1.86	47.2	5.53	140.5
12F-SB12L	0.56	14.2	11.7	0.29	1.39	35.3	1.39	35.3								
12W-SB12L	0.56	14.2	11.7	0.29	1.36	34.5	1.36	34.5								
12PSW-SB12L	0.56	14.2	11.7	0.29	1.36	34.5	1.36	34.5								
16Z(A)-SB16L	0.81	20.6	24.5	0.27	2.68	68.1	2.68	68.1	1.19	30.2	2.19	55.6	2.28	57.9	6.53	165.9
16F-SB16L	0.81	20.6	24.5	0.27	1.84	46.7	1.84	46.7								
16W-SB16L	0.81	20.6	24.5	0.27	1.81	46.0	1.81	46.0								
16PSW-SB16L	0.81	20.6	24.5	0.27	1.81	46.0	1.81	46.0								
20Z(A)-SB20L	1.00	25.4	46.0	0.27	3.78	96.0	3.78	96.0	1.35	34.3	2.38	60.5	2.47	62.7	6.53	165.9
20F-SB20L	1.00	25.4	46.0	0.27	2.09	53.1	2.09	53.1								
20W-SB20L	1.00	25.4	46.0	0.27	2.06	52.3	2.06	52.3								
20PSW-SB20L	1.00	25.4	46.0	0.27	2.06	52.3	2.06	52.3								
24Z(A)-SB24L	1.25	31.8	82.0	0.27	3.78	96.0	3.78	96.0	1.58	40.1	2.88	73.2	2.83	71.9	8.03	204.0
24F-SB24L	1.25	31.8	82.0	0.27	2.26	57.4	2.26	57.4								
24W-SB24L	1.25	31.8	82.0	0.27	2.23	56.6	2.23	56.6								
24PSW-SB24L	1.25	31.8	82.0	0.27	2.23	56.6	2.23	56.6								
32Z(A)-SB32L	1.50	38.1	120.0	0.27	4.97	126.2	4.97	126.2	1.78	45.2	3.06	77.7	3.02	76.7	8.03	204.0
32F-SB32L	1.50	38.1	120.0	0.27	2.49	63.2	2.49	63.2								
32W-SB32L	1.50	38.1	120.0	0.27	2.45	62.2	2.45	62.2								
32PSW-SB32L	1.50	38.1	120.0	0.27	2.45	62.2	2.45	62.2								
32PBW-SB32L	1.50	38.1	120.0	0.27	2.45	62.2	2.45	62.2								

* Tested in accordance with ISA S75.02. Gas flow will be choked when $P_2 - P_1 / P_1 = X_T$.

† For CPI™ and A-LOK®, dimensions are measured with nuts in the finger tight position.



How to Order

The correct part number is easily derived from the following number sequence. The seven product characteristics required are coded as shown below.

Example: **8A** ***** **-** **SB8L** **-** **T** **-** **BN** **-** **SS**
 (1) (2) (4) (5) (6) (7)

Describes a SB8L Two-Way Ball Valve with 1/2" A-LOK® end connections for ports 1 and 2, PTFE seats, Buna-N rubber body seals, and stainless steel construction. ***Note:** If ports 1 and 2 are the same, eliminate the port 2 designator. If seat and body seal materials are the same, the letter designator only needs to be used once; i.e., product characteristics 5 and 6 would become one listing. **Example:** 8A-SB8L-T-SS

Port Size	1 Port 1	2 Port 2	3 Valve Series	4 Valve Configuration	5 Seat Material	6 Seal Material	7 Body Material
	Z - CPI™ Tube A - A-LOK® Tube F - Female NPT		SWB4		T - PTFE DE - Acetal	T - PTFE BN - Buna-N	
4			SB8		PF - Parkerfill	EPR - Ethylene	
6	W - Tube Socket Weld		SB12		PKP - PEEK (filled with glass and graphite)	Propylene Rubber	
8	PSW - Pipe Socket Weld		SB16	L - 2 Way	RT - Reinforced PTFE	NE - Neoprene	SS - Stainless Steel
12	PBW1 - Pipe Butt weld (Schedule 10)		SB20		UPE - UHMWPE	UPE - UHMWPE	
16	PBW4 - Pipe Butt weld (Schedule 40)		SB24			V - Fluorocarbon Rubber	
20	PBW5 - Pipe Butt weld (Schedule 50)		SB32			SS - Stainless Steel Gasket (PTFE Coated)	
24							
32	PBW8 - Pipe Butt weld (Schedule 80)						

Note: The SWB Series is only available with Reinforced PTFE (RT) Seats and Fluorocarbon Rubber (V) Seals. Available ports for the SWB4 are 4A, 4F, 4Z, 6A, and 6Z.

How to Order Options

Lock-Out Devices – Add the suffix **LD** to the end of the part number to order directly on the valve. **Example:** 4F-SB8L-BN-SS-LD. For field installation, substitute the correct valve series number after **LD**. **Example:** LD-SB8L

Oval Handles – Add the suffix **-S** to the end of the part number. **Example:** 8A-SB8L-T-SS-S

Pneumatic Actuators – For detailed actuator information, refer to Catalog 4123-PA. For factory assembly, add the actuator part number as the suffix to the valve part number. **Example:** 8F-SB8L-T-V-SS-61AC-2. For field installation, specify the actuator desired. **Example:** 61AC-2. The appropriate mounting hardware may be obtained by adding the valve series and actuator size to the prefix **MK-**. **Example:** MK-SB8L-61

Electric Actuators – For detailed actuator information, refer to Catalog 4123-EA. For factory assembly, add the actuator part number as the suffix to the valve part number. **Example:** 8A-SB8L-PKP-BN-SS-71A. For field installation, specify the actuator desired. **Example:** 71A. The appropriate mounting hardware may be obtained by adding the valve series and actuator series to the prefix **MK-**. **Example:** MK-SB8L-70

WARNING

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