

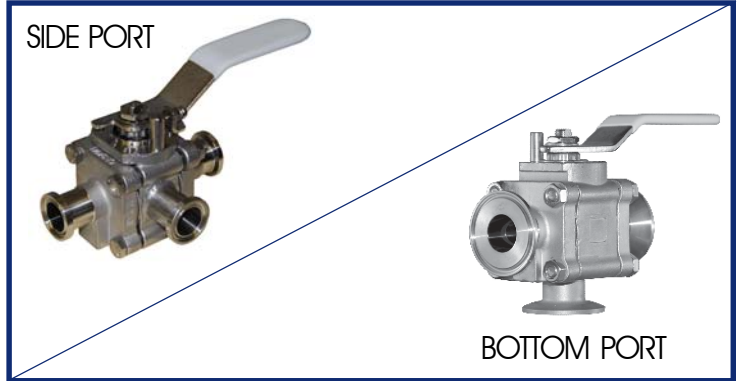
CleanFLOW™ Multi-Ported, High Purity Ball Valve, Sizes 1/2" ~ 4"



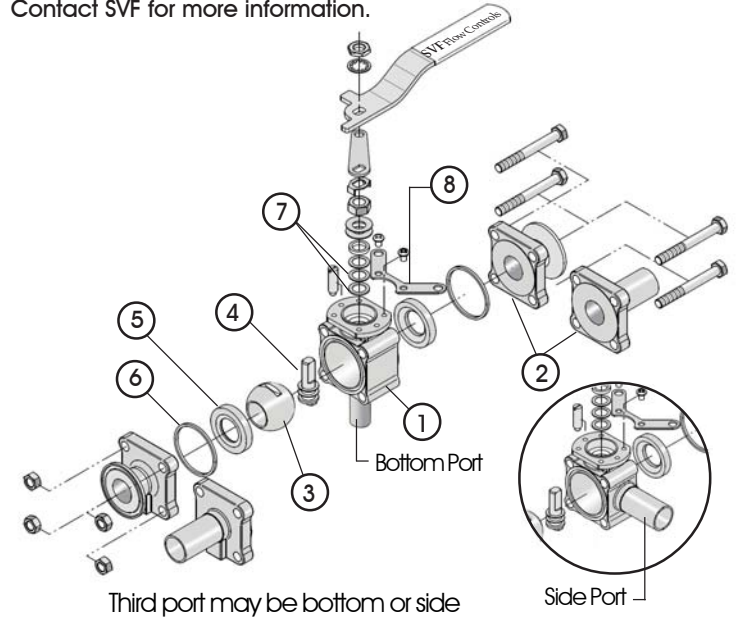
CleanFLOW™ TSB7 Ball Valves are engineered to be a true process piping component to specifically meet the demanding processes found in the pharmaceutical and food & beverage industries. The "Tube-ID" port opening is dimensionally identical to the adjacent tubing to comply with ASME-BPE guidelines. The standard TFM1600™ seat material complies with 21CFR 177.1550.

SERIES TSB7 DESIGN FEATURES

- ✓ ASME-BPE compliant
- ✓ Cavity filled TFM1600™ seat option available (TSBC7)
- ✓ Complete 316L Stainless Steel cast construction
- ✓ Drainable design with "Tube-ID" dimensions
- ✓ Weld bosses for easy purge porting on ends
- ✓ ISO 5211 mounting pad for easy actuation
- ✓ Encapsulated body seals to facilitate welding without disassembly
- ✓ End connections include Tri-Clamp and Extended Tube O.D.
- ✓ Controlled delta ferrite chemistry
- ✓ Standard interior finish is 20Ra or better
- ✓ ETO ends are designed for Orbital Welding
- ✓ Exclusive "Fine Adjust" handle for precise positioning



The Series TSB7 Ball Valve is available with additional options. Contact SVF for more information.



MATERIALS OF CONSTRUCTION

ITEM	DESCRIPTION	MATERIALS SPECIFICATIONS (Additional options available)
1	Body	316L Stainless Steel (ASTM A351 CF3MN)
2	End Connector	316L Stainless Steel (ASTM A351 CF3MN)
3	Ball	316L Stainless Steel (ASTM A351 CF3M)
4	Stem	316L Stainless Steel (ASTM A351 CF3M)
5	Seat	TFM1600™
6	Body Seal	PTFE
7	Stem Seal	TFM1600™
8	Locking Device (Optional)	304 Stainless Steel

FAILURE POSITION CODE FOR AUTOMATED VALVES

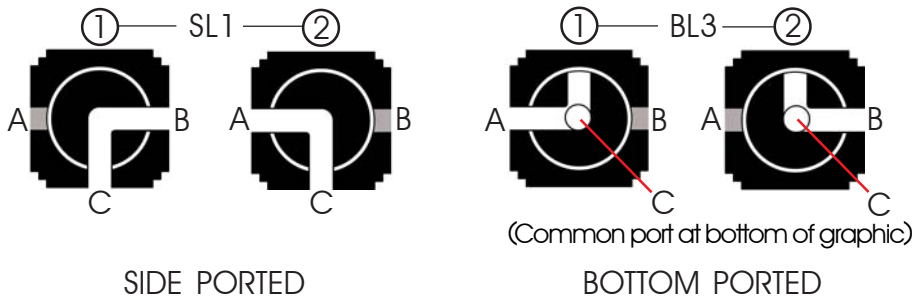
EXAMPLE:

For side-ported valves with spring return actuator: SL1-2

Actuator fail position is with flow path between A to C

See page 3 for 3D graphical details.

Views are shown with valve stem coming up from page (Plan View)



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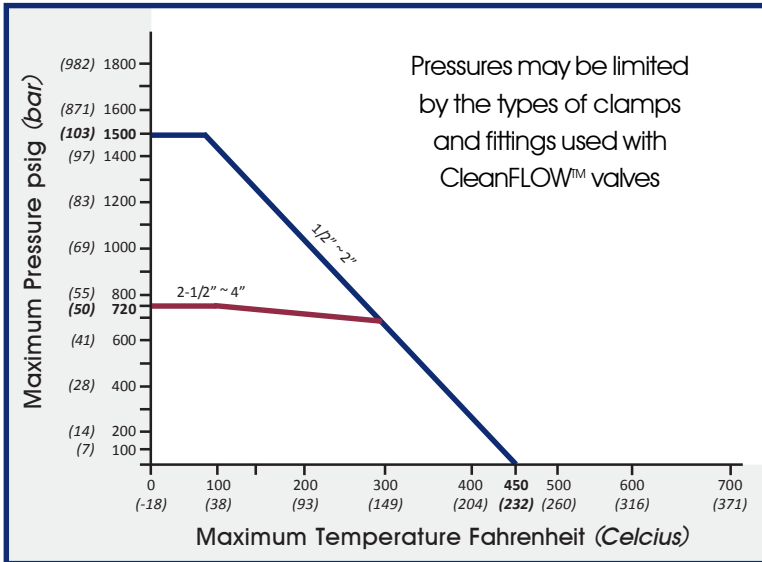
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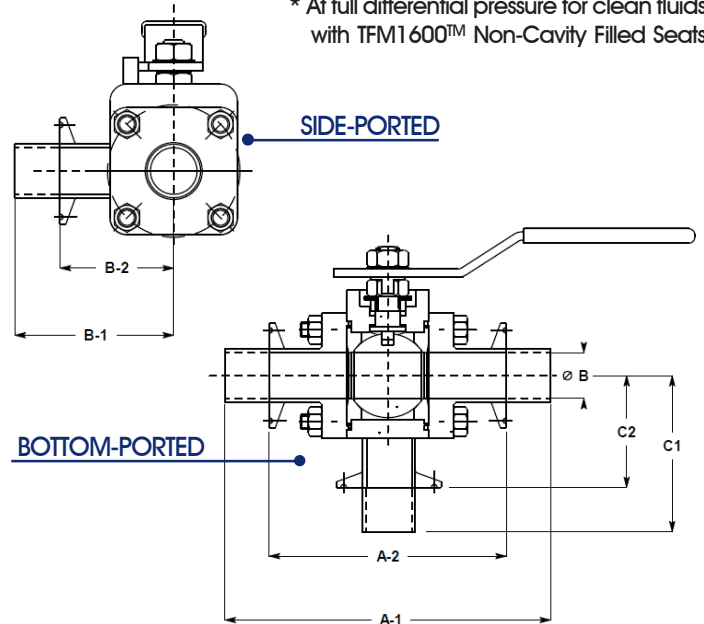
DIMENSIONS, WEIGHT, C_v, TORQUE

Size	A-1		A-2		B-1		B-2		C-1		C-2		ØB		Weight		C _v	Torque*	
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lbs	kg		in-lb _f	Nm
1/2"	5.50	140	3.50	89	2.96	75	1.67	42	2.96	75	1.67	42	0.37	9	2	0.9	8	60	7
3/4"	6.00	152	4.00	102	3.05	77	1.76	45	3.05	77	1.76	45	0.62	16	2	0.9	29	60	7
1"	6.50	165	4.50	114	3.23	82	1.95	50	3.23	82	1.95	50	0.87	22	4	1.8	66	100	11
1-1/2"	7.50	191	5.50	140	3.58	91	2.30	58	3.58	91	2.30	58	1.37	35	8	3.6	192	200	23
2"	8.00	203	6.25	159	3.74	95	2.46	62	3.74	95	2.46	62	1.87	47	13	5.9	434	250	28
2-1/2"	9.50	241	6.75	171	4.50	114	3.20	81	4.50	114	3.20	81	2.37	60	23	10.4	723	450	51
3"	10.50	267	7.00	178	5.80	147	4.00	102	5.80	147	4.00	102	2.87	73	31	14.1	1124	1300	147
4"	12.50	318	8.50	216	7.00	178	5.00	127	7.00	178	5.00	127	3.83	97	46	20.9	2100	1400	158

TSB7 - PRESSURE/TEMPERATURE CHART



* At full differential pressure for clean fluids with TFM1600™ Non-Cavity Filled Seats



HOW TO ORDER SERIES TSB7 BALL VALVES

SERIES	BODY & END MATERIAL	BALL & STEM MATERIAL	SEAT	BODY SEAL	ENDS	SIZE
TSB7 TSBC7 = Cavity Filled	66=316L Stainless Steel ASTM A351 CF3MN	66=316L Stainless Steel ASTM A351 CF3M	A = TFM1600™	T = PTFE	TR =Tri-Clamp ETO = Extended Tube OD Other End Connection Options Available	05= 1/2" 20= 2" 07= 3/4" 25= 2-1/2" 10= 1" 30= 3" 15= 1-1/2" 40= 4"
Order Example: (TSB7666ATTR05)						
Example Description: Stainless Steel Body & Ends, Stainless Steel Ball & Stem, TFM1600™ Seat, PTFE Body Seal, Tri-Clamp Ends, 1/2" Size						
TSB7	66	66	A	T	TR	05

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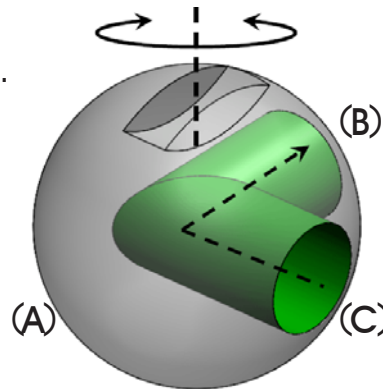
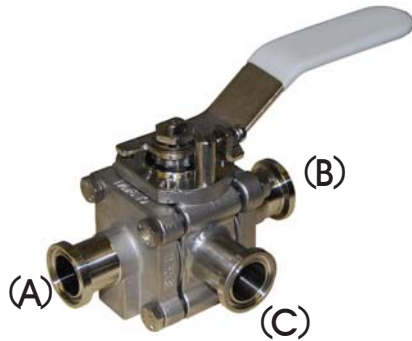
TSB7

TSB7 COMMON FLOW PATHS

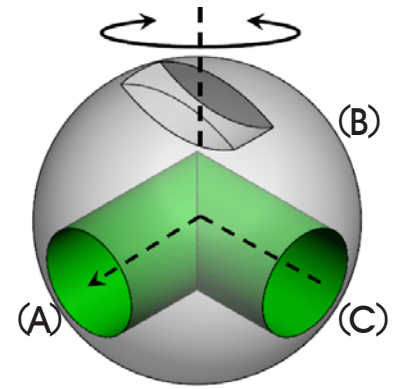
At the heart of the TSB7 design is the use of a common port that facilitates directional flow requirements and drainability in the optimal position. The common port "C" may be located at the bottom or the side of the valve. The two most common flow paths are the Side Ported (SL1) and the Bottom Ported (BL3)*.

SL1 (L-HORIZONTAL) - SIDE PORTED

This position utilizes an "L-Port" ball and requires quarter-turn operation.



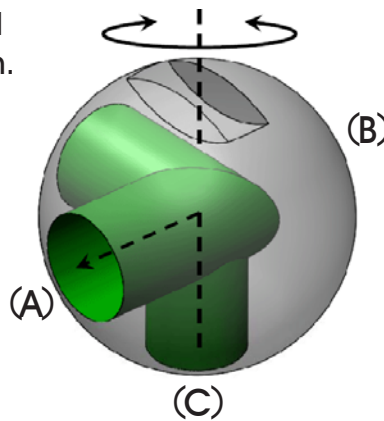
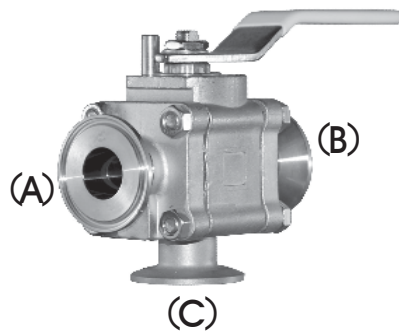
Position (1)
Flow (C to B)



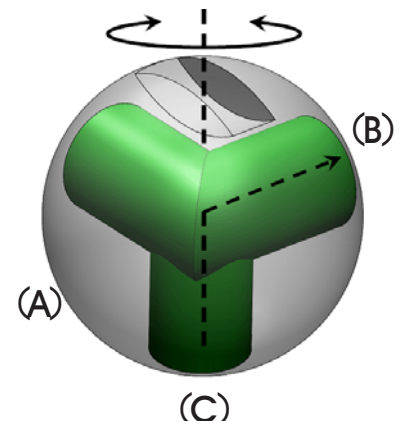
Position (2)
Flow (C to A)

BL3 (LL) - BOTTOM PORTED

This position utilizes an "LL-Port" ball and requires quarter-turn operation.



Position (1)
Flow (C to A)



Position (2)
Flow (C to B)

*Other flow paths are available.

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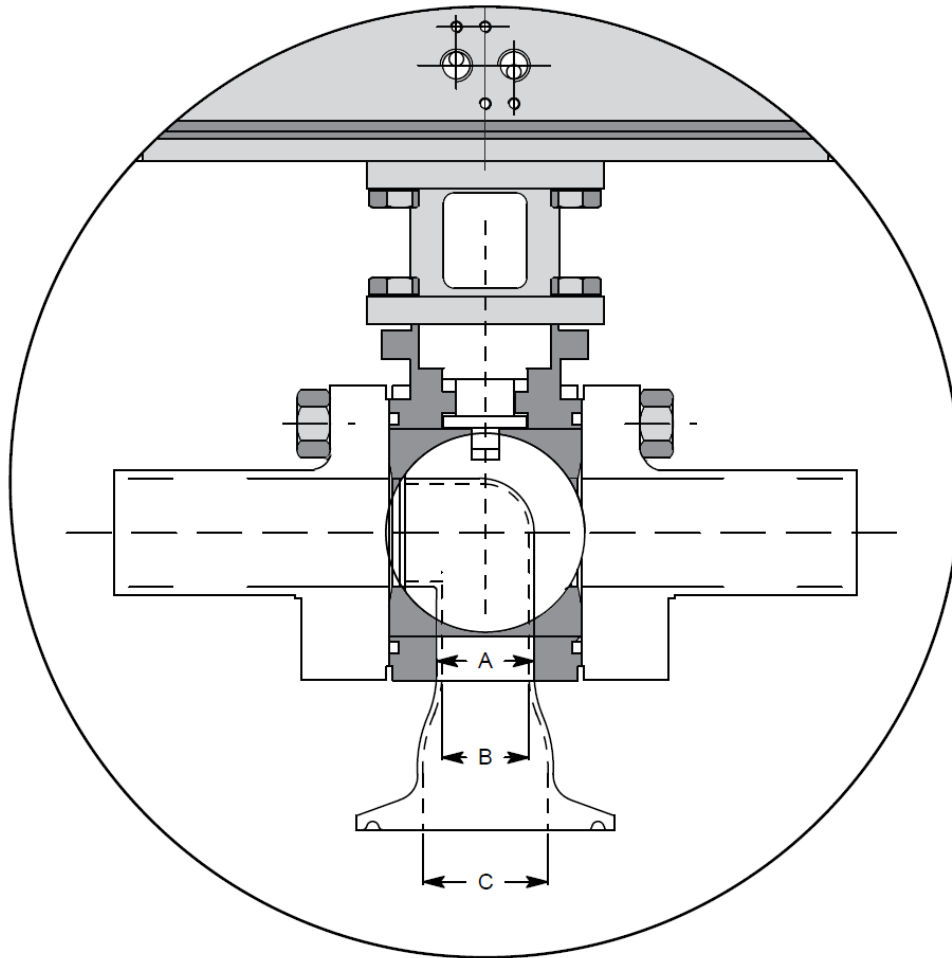
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TSB7

THIRD PORT DIMENSIONS - SIZES 3" & 4"

TSB7 valves, in line sizes 3" and 4", require that the third port be slightly reduced at the valve body due to the lack of material (body width) at the point of weld.

The dimensions for the reduction are shown in the table below the following drawing.



	3" TSB7		4" TSB7	
	in.	mm	in.	mm
A = O.D. DIMENSION	2.50	64	3.00	76
B = I.D. DIMENSION	2.37	61	2.87	73
C = TRI-CLAMP FERRULE I.D.	2.87	73	3.83	97

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