Series TSB7F Ball Valve

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

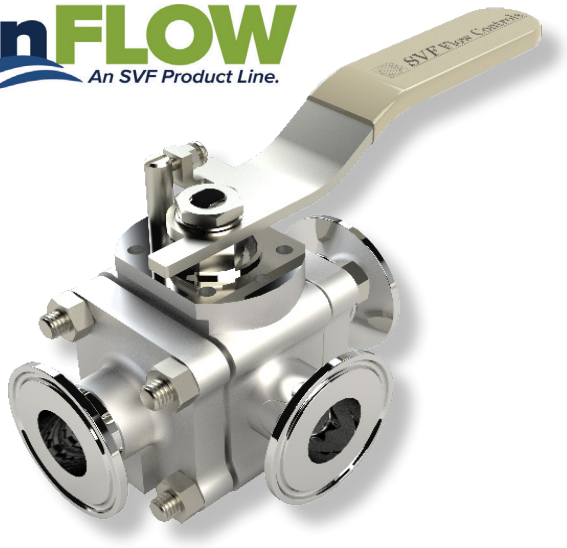
SVF FLOW CONTROLS

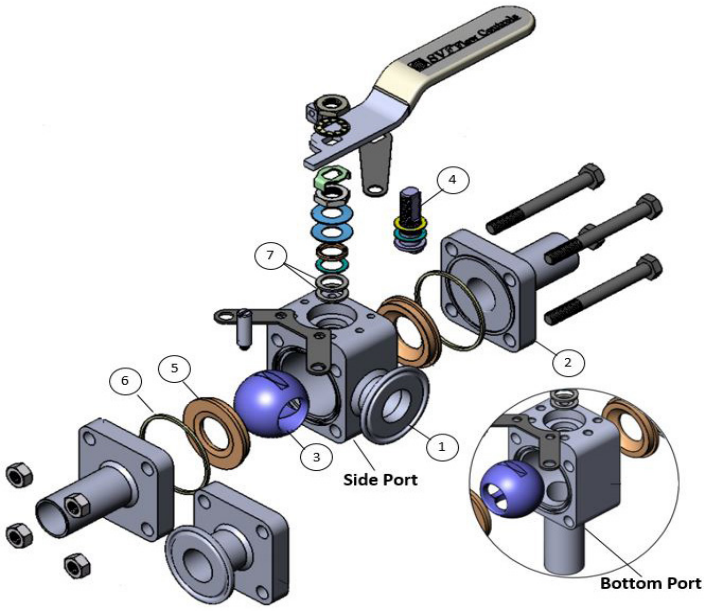
CleanFLOW™ TSB7F forged ball valves are engineered to be a true process piping component to specifically meet the demanding processes found in the pharmaceutical and food & beverage industries. The "Tube-ID" port opening is dimensionally identical to the adjacent tubing to comply with latest ASME-BPE guidelines. All materials are compliant with FDA, USDA and 3A standards.

SERIES TSB7F DESIGN FEATURES

- ✓ ASME-BPE compliant
- ✓ Silicone Free
- ✓ Cavity filled TFM1600™ seat option available
- ✓ Complete 316L Stainless Steel forged construction
- ✓ Drainable design with "Tube-ID" dimensions
- ✓ 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
- ✓ Chevron (V-Ring) Stem Seals assures low friction and leak tight performance (Sizes 2-1/2" ~ 4" only)
- ✓ Standard interior finish is 15Ra or better
- ✓ ETO ends are designed for Orbital Welding
- ✓ Exclusive "Fine Adjust" handle for precise positioning on sizes 1/2" ~ 2"

CleanFLOW An SVF Product Line.





The Series TSB7 Ball Valve is available with additional options.

MATERIALS OF CONSTRUCTION

ITEM	DESCRIPTION	MATERIALS SPECIFICATIONS
1	Body	316L Stainless Steel (ASTM A182-F316L)
2	End Connector	316L Stainless Steel (ASTM A182-F316L)
3	Ball	316L Stainless Steel (ASTM A182-F316L)
4	Stem	316L Stainless Steel (ASTM 276-316L)
5	Seat	TFM1600™
6	Body Seal	TFM1600™
7	Stem Seal	TFM1600™
8	Locking Device (Optional)	304 Stainless Steel

There are no elastomers used for any of the components on the TSB7F valves.
Only PTFE and TFM are used for seats and seals.

QUALITY FLOWS THROUGH US

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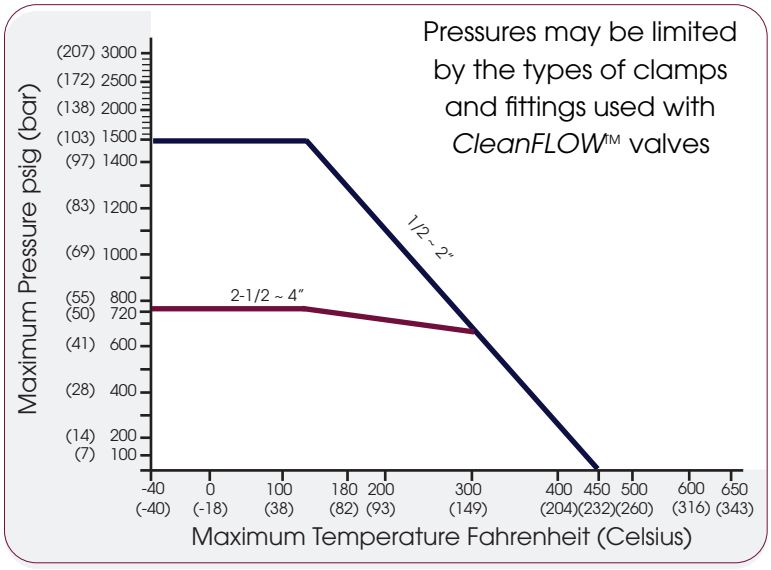
DIMENSIONS, WEIGHT, Cv, TORQUE

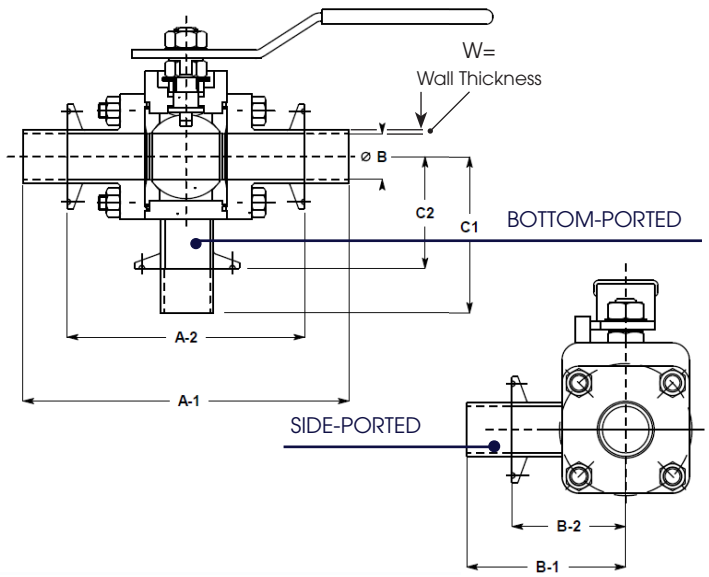
Size	A-1		A-2		B-1		B-2		C-1		C-2		W		Weight		Cv	Torque* Non-Cavity		Torque* Cavity	
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lbs	kg		in-lbf	Nm	in-lbf	Nm
1/2"	5.50	140	3.50	89	2.96	75	1.67	42	2.96	75	1.67	42	0.065	1.7	2	0.9	8	60	7	100	11
3/4"	6.00	152	4.00	102	3.05	77	1.76	45	3.05	77	1.76	45	0.065	1.7	2	0.9	29	60	7	140	16
1"	6.50	165	4.50	114	3.23	82	1.95	50	3.23	82	1.95	50	0.065	1.7	4	1.8	66	100	11	210	24
1-1/2"	7.50	191	5.50	140	3.58	91	2.30	58	3.58	91	2.30	58	0.065	1.7	8	3.6	192	200	23	490	55
2"	8.00	203	6.25	159	3.74	95	2.46	62	3.74	95	2.46	62	0.065	1.7	13	5.9	434	250	28	520	59
2-1/2"	9.50	241	6.75	171	4.50	114	3.20	81	4.50	114	3.20	81	0.065	1.7	20	9.2	723	450	51	900	102
3"	10.50	267	7.00	178	5.80	147	4.00	102	5.80	147	4.00	102	0.065	1.7	37	16.8	1124	1300	147	-	-
4"	12.50	318	8.50	216	8.00	203	5.00	127	7.00	178	5.00	127	0.083	2.1	53	24.5	2100	1400	158	-	-

TSB7F - PRESSURE/TEMPERATURE CHART



Class 600 (Sizes: 1/2" to 2")
Class 300 (Sizes: 2-1/2" to 4")

* At full differential pressure for clean fluids



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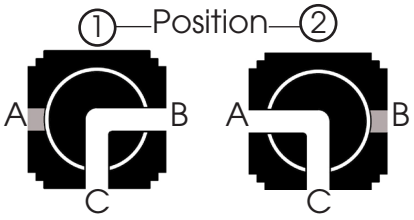
SVF FLOW CONTROLS

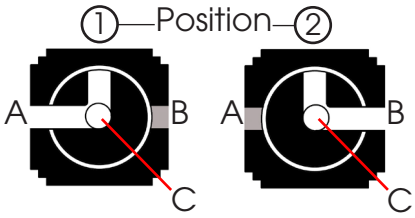
TSB7F COMMON FLOW PATHS

At the heart of the TSB7F 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 (SL) and the Bottom Ported (BL).

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



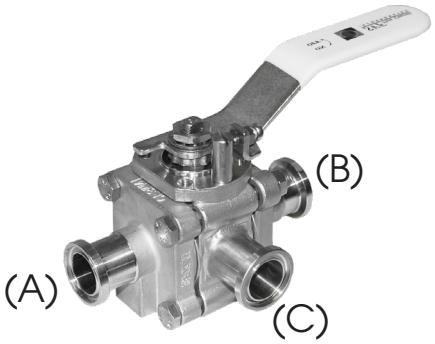
"SL" - SIDE PORTED

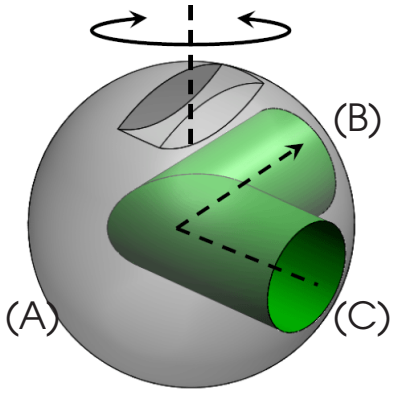


"BL" - BOTTOM PORTED
(Common port "C" at bottom of graphic)

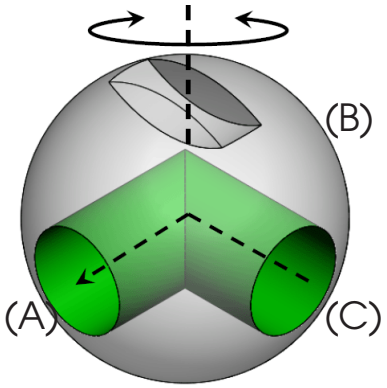
SL (L-HORIZONTAL) - SIDE PORTED

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





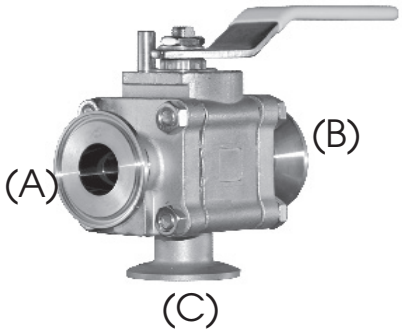
Position (1)
Flow (C to B)

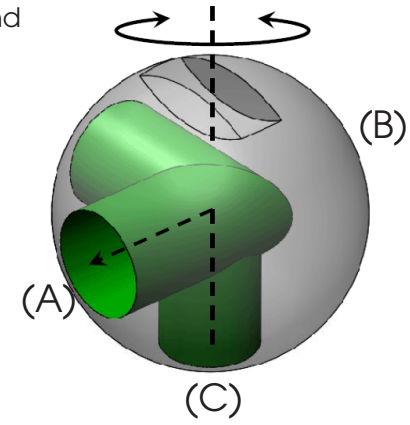


Position (2)
Flow (C to A)

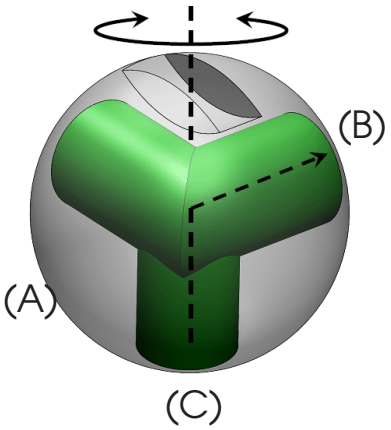
BL (LL) - BOTTOM PORTED

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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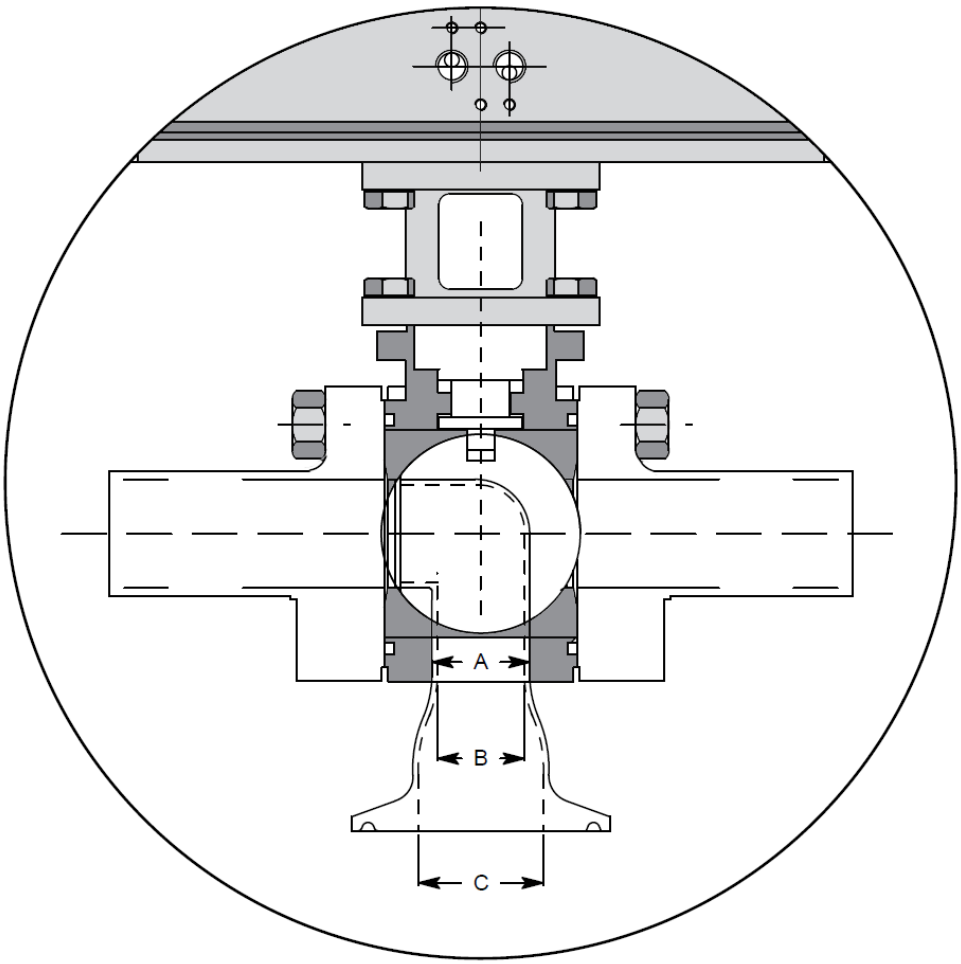
THIRD PORT DIMENSION - SIZES 3" & 4"

TSB7F valves, 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.



	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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How To Order Guide (Columns 1 thru 11)

1 SERIES	2 BODY	3 ENDS	4 BALL	5 STEM	6 SEAT MATERIAL
TSB7F	6 = 316L Forged Stainless Steel ASTM A182-F316L	6 = 316L Forged Stainless Steel ASTM A182-316L	6 = 316L Forged Stainless Steel ASTM A182-316L	6 = 316L Forged Stainless Steel ASTM A276-316L	A = TFMT1600™ Q = TFM1600™ Cavity Filled

7 BODY SEAL	8 END CONNECTIONS	9 VALVE SIZE	10 OPTIONS*	11 SPECIAL SERVICES*
A = TFM1600™	TR0 = Tri-Clamp Ends ETO = Extended Tube-OD Ends NAA = ETO (Port A) X ETO (Port B) X TR0 (Port C) NAB = ETO (Port A) X TR0 (Port B) X ETO (Port C) NAC = ETO (Port A) X TR0 (Port B) X TR0 (Port C) NAD = TR0 (Port A) X TR0 (Port B) X ETO (Port C) NAE = TR0 (Port A) X ETO (Port B) X TR0 (Port C) NAF = TR0 (Port A) X ETO (Port B) X ETO (Port C)	005 = 1/2" 007 = 3/4" 010 = 1" 015 = 1-1/2" 020 = 2" 025 = 2-1/2" 030 = 3" 040 = 4"	00 = None BL = BL3 Ball, 90° Turn (Bottom Port) SL = SL1 Ball, 90° Turn (Side Port) B2 = BL2 Ball, 180° Turn (Bottom Port) AB = BL3 Ball & Locking Device Extension and Locking Device BA = BL3 Ball & ISO Cast Stem Extension BD = SL1 Ball & Locking Device BF = SL1 Ball & ISO Cast Stem Extension KF = BL3 Ball, Locking Device & ISO Cast Stem Extension KK = BL3 Ball, Anti-Static Device & ISO Cast Stem Extension KM = SL1 Ball, Locking Device & ISO Cast Stem Extension KP = SL1 Ball, Anti-Static Device & ISO Cast Stem Extension	00 = None XC = Oxygen Cleaned EP = Electropolished SB = 10Ra ID Finish SC = 5 Ra ID Finish AA = Electropolished & 15Ra ID Finish AB = Electropolished & 10Ra ID Finish AC = Electropolished & 5Ra ID Finish AD = Oxygen Cleaned & Electropolished JA = Electropolished, Oxygen Cleaned & 15Ra ID Finish JB = Electropolished, Oxygen Cleaned & 10Ra ID Finish

Order Example: (TSB7F6666ATETO005BL00) The Part Number will contain 21 digits.

Ordering Code Sequence >>	1	2	3	4	5	6	7	8	9	10	11
Sample Part Number >>	TSB7F	6	6	6	6	A	A	ETO	005	BL	00
	Valve Series	Body Material	End Material	Ball	Stem	Seat Material	Seal Material	End Connections	Valve Size	Options*	Special Services*

*Not all Options or Special Services available on ball valves. Consult SVF for additional information.