



## Series 77 High Purity Ball Valve

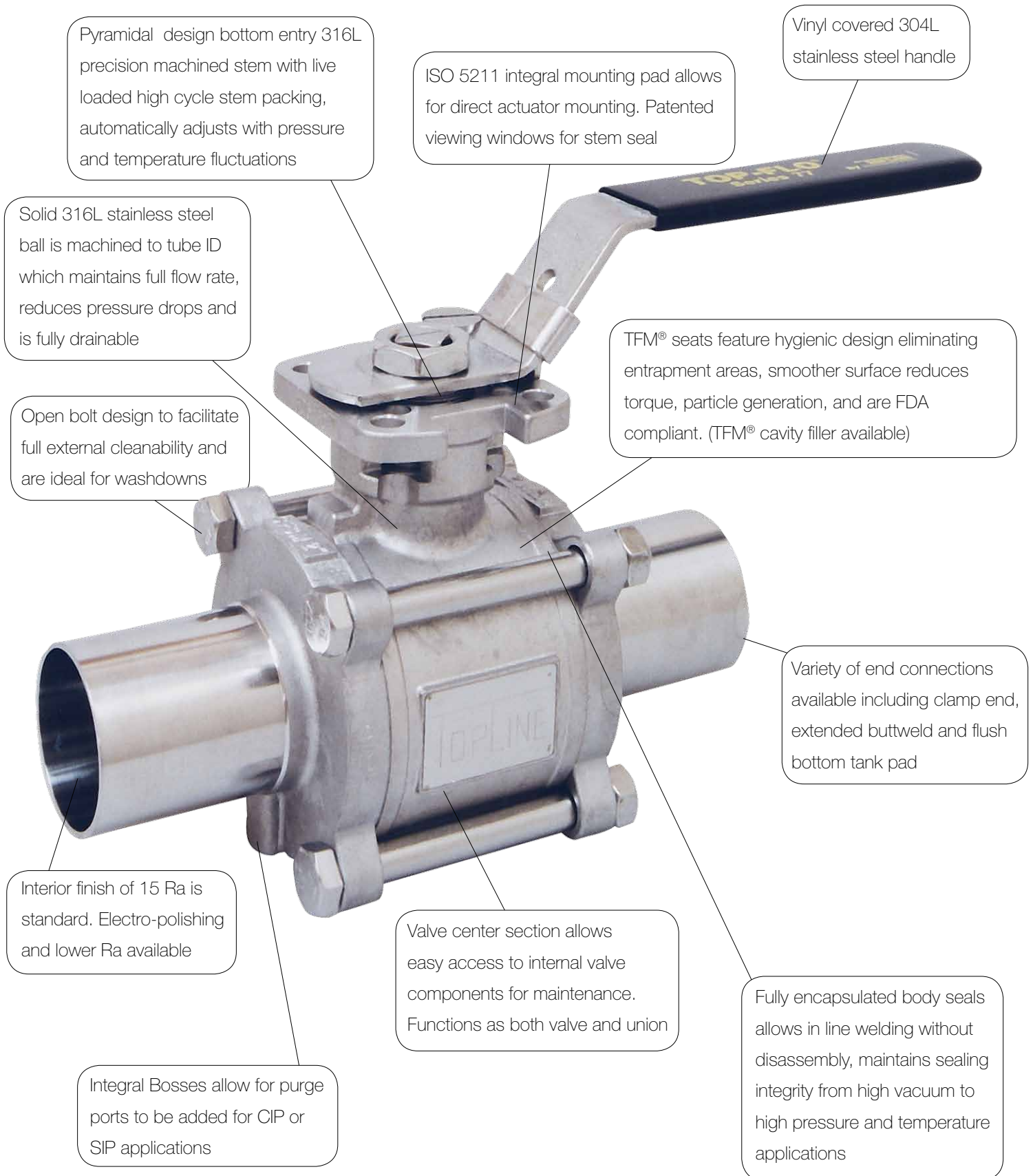


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Pharmaceutical and Electronics Processing Industries

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# Top-Flo® Series 77

## High-Purity Ball Valves



Pyramidal design bottom entry 316L precision machined stem with live loaded high cycle stem packing, automatically adjusts with pressure and temperature fluctuations

ISO 5211 integral mounting pad allows for direct actuator mounting. Patented viewing windows for stem seal

Vinyl covered 304L stainless steel handle

Solid 316L stainless steel ball is machined to tube ID which maintains full flow rate, reduces pressure drops and is fully drainable

Open bolt design to facilitate full external cleanability and are ideal for washdowns

TFM® seats feature hygienic design eliminating entrapment areas, smoother surface reduces torque, particle generation, and are FDA compliant. (TFM® cavity filler available)

Variety of end connections available including clamp end, extended buttweld and flush bottom tank pad

Interior finish of 15 Ra is standard. Electro-polishing and lower Ra available

Valve center section allows easy access to internal valve components for maintenance. Functions as both valve and union

Integral Bosses allow for purge ports to be added for CIP or SIP applications

Fully encapsulated body seals allows in line welding without disassembly, maintains sealing integrity from high vacuum to high pressure and temperature applications

• TFM® is a registered trademark of Dyneon

# Top-Flo® Series 77

## 3-Piece Design

Series 77 Ball Valves feature a high quality 316L investment casting. They are available with sanitary clamp or orbital tube OD ends. Select the cavity filled or non-cavity filled design. Superior leak protection is accomplished by using a patented live-loaded packing system featuring Bellville washers and double "V" ring packing. An ISO 5211 mounting pad is provided for easy automation.

- Sizes 1/2" to 4"
- Cavity Filled and Non-Cavity Filled
- ISO 5211 Mounting Pad
- 800/1000 PSI
- 316L Body Ball and Stem Full Port
- Sanitary Clamp Ends or Extended Tube OD Ends

### Standard Features

- Main valve components are made from 316L stainless steel
- Body, and ends are 316L CF3M ASTM A-351 investment cast stainless steel
  - Ball is machined from 316L CF3M ASTM A-351 cast stainless steel
  - Stem is machined from ASTM A-493 316L bar stock

Full traceability on all wetted parts (MTR's)

Standard internal polish is 15 Ra and is polished to meet ASME BPE specification DT-12 and Table SF-6 as required.

Standard seats TFM (FDA, USP 23 Class VI)

- TFM (TFM is a trademark of Dyneon)

Stem packing TFM

Full port to I.D. of tubing for reduced pressured drop

Bottom entry 316L pyramidal live loaded blow out proof high cycle stem adjusts to temperature and pressure fluctuation

Locked stem nut to prevent loosening after continuous valve actuation

Dual anti-static devices on stem (contact between stem and ball, and stem and valve body)

ISO 5211 direct mounting pad

Direct mount actuation 1/2" to 4"

Handle locking device when manually actuated

3-piece body construction for ease of repair

Open bolt design to facilitate full external cleanability

Clamp, extended butt weld, or clamp by extended butt weld

- Clamp end requirements per ASME BPE 2009 DT-10, per table DT-2
- Extended butt weld - 316L CF3M ASTM A-351 controlled sulfur only to ASME BPE 2009 table DT-3 and dimensionally per ASME BPE 2009 tables DT-4 and DT-5-1

### Options

Flush bottom tank pad, I-line, Q-line, others available upon request.

Improved I.D. polish to 10 Ra and electropolishing available

Cavity filled seats in PTFE or RTFE

Non-cavity filled seats available in RTFE, 50/50 SS/TFE, PEEK

Pneumatic or electric actuation available

Westlock & Stonel products

Value Size	Value Cv
1/2"	6
3/4"	9
1"	21
1-1/2"	37
2"	58
2-1/2"	93
3"	139
4"	232

### Direct Mount! • Easy to Automate!

See automated data sheets for pre-sized assemblies



Pneumatic

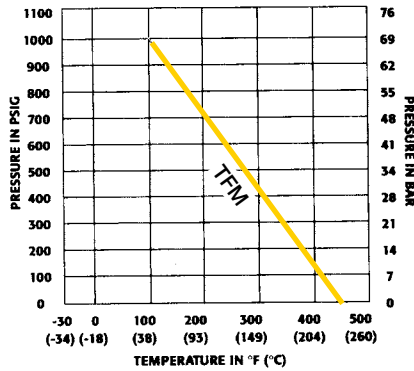
### Excellent for:

- Pharmaceutical
- Food and Beverage

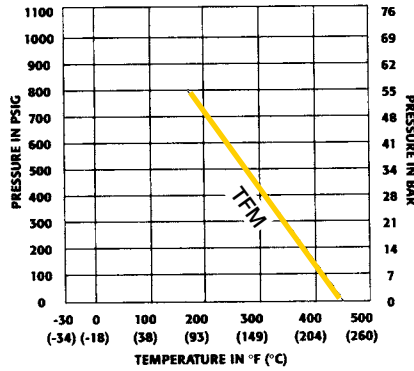
# Top-Flo<sup>®</sup> Series 77

- With or without cavity filler
- 240 Grit Internal Polish
- Standard (15) Ra

Pressure vs. Temperature Chart for valve 1/2" to 2"



Pressure vs. Temperature Chart for valve 2-1/2" to 4"

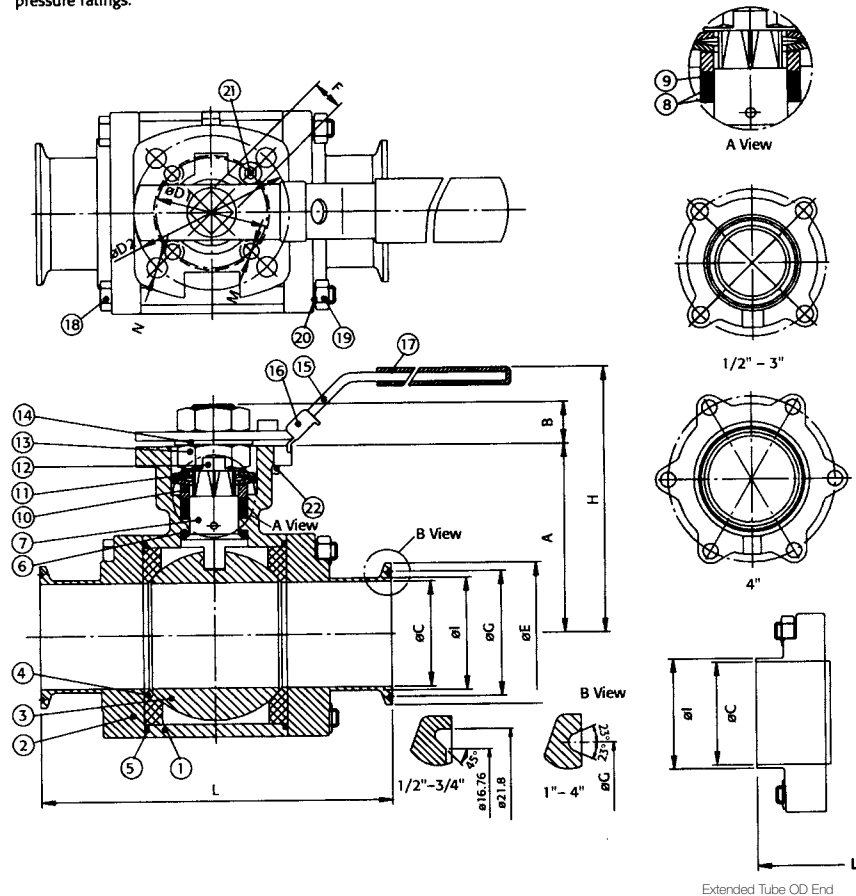


NOTE: Use of sanitary clamp ends will affect pressure ratings.

Valve Operating Torques

	Non-Cavity Filled	Cavity Filled
1/2"	80	95
3/4"	89	100
1"	127	160
1-1/2"	210	410
2"	354	490
2-1/2"	580	1010
3"	755	1075
4"	1317	1400

NOTE: PTFE Seats. Consult factory when using other seat material.



No.	Part Name	Qty.	Material
1	Body	1	CF3M
2	End Cap	2	CF3M
3	Ball	1	SS316L
4	Seat	2	TFM
5	Joint Gasket	2	TFM
6	Stem Seal	1	TFM
7	Stem	1	SS316L
8	Gland Packing	*	TFM
9	Gland Packing	1	‡
10	Gland Bush	1	SS304
11	Belleville Washer	2	SS301
12	Stop Washer	1	SS304
13	Stem Nut	2	SS304
14	Stem Washer	1	SS304
15	Handle	1	SS304
16	Locking Device	1	SS304
17	Handle Sleeve	1	Vinyl
18	Bolt	#	SS304
19	Bolt Nut	§	SS304
20	Bolt Washer	§	SS304
21	Stop Pin	1	SS304
22	Pin Nut	1	SS304

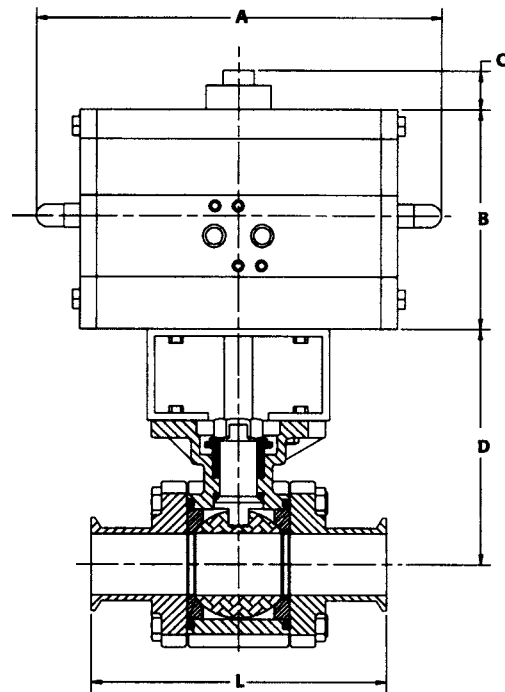
\* For 1/2" to 2" - 2 pcs.; For 2-1/2" to 4" - 3 pcs.  
 # For 1/2" to 3" - 4 pcs.; For 4" - 6 pcs.  
 § For 1-1/2" to 2" - 4 pcs.; For 2-1/2" to 4" - 12 pcs.  
 ‡ 25% glass fiber filled and PTFE  
 1/2" to 2" single ended external thread  
 2-1/2" to 4" double extended external thread

Dimension (IN)

Size	A	B	C dia	D1 dia	D2 dia	E dia	F	G dia.	I dia.	H	L	L1	M	N	ISO 5211
1/2"	1.66	0.34	0.37	1.42	1.65	0.99	0.35	N/A	0.50	3.03	3.51	5.50	0.24	0.28	F03/F04/F05
3/4"	1.89	0.33	0.62	1.42	1.65	0.99	0.35	N/A	0.75	3.27	4.00	5.75	0.24	0.28	F03/F04/F05
1"	2.23	0.45	0.87	1.64	1.97	1.98	0.43	1.71	1.00	3.74	4.51	6.25	0.24	0.28	F04/F05
1-1/2"	3.05	0.55	1.37	1.97	2.76	1.99	0.55	1.71	1.50	5.00	5.52	7.50	0.28	0.35	F05/F07
2"	3.35	0.55	1.87	1.97	2.76	2.52	0.55	2.20	2.00	5.28	6.26	8.50	0.28	0.35	F05/F07
2-1/2"	4.28	0.66	2.37	2.76	4.02	3.05	0.67	2.78	2.50	6.54	6.85	9.75	0.39	0.47	F07/F10
3"	4.63	0.70	2.87	2.76	4.02	3.58	0.67	3.28	3.00	6.93	7.61	10.50	0.39	0.47	F07/F10
4"	5.22	0.66	3.83	2.76	4.02	4.68	0.67	4.34	4.00	7.48	8.90	12.50	0.39	0.47	F07/F10

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## Double Acting or Spring Return Pneumatic Automated Ball Valve Package



### Non-Cavity Filled

Valve Size	A	B	C	D	L
1/2"	6.81	2.68	0.79	3.50	3.51
3/4"	7.50	3.39	0.79	3.66	4.00
1"	7.50	3.39	0.79	3.94	4.51
1-1/2"	8.23	4.45	0.79	5.07	5.52
2"	8.23	4.45	0.79	5.37	6.26
2-1/2"	8.23	4.45	0.79	6.28	6.85
3"	9.60	4.88	0.79	6.63	7.61
4"	9.96	5.28	0.79	7.26	8.90

### Cavity Filled

Valve Size	A	B	C	D	L
1/2"	7.50	3.39	0.79	3.50	3.51
3/4"	8.23	4.45	0.79	3.66	4.00
1"	8.23	4.45	0.79	3.94	4.51
1-1/2"	8.23	4.45	0.79	5.07	5.52
2"	9.60	4.88	0.79	5.37	6.26
2-1/2"	11.30	6.18	0.79	6.28	6.85
3"	11.30	6.18	0.79	6.63	7.61
4"	12.56	6.93	0.79	7.26	8.90

### Other Available Options

Electric actuators                      Stainless Actuators  
 Solenoid valves                          Steam ports  
 Switch packs                              CIP ports  
     Mechanical  
     Proximity  
     AS-I  
 Positioners (4-20 ma or 3-15 psi)  
 Westlock & Stonel products  
 Stem extensions  
 "V" port control ball  
 Alternate seat materials upon request

# Top Line Process Equipment

*Our Name Says It All*

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