tyco
Flow Control

Tyco Valves & Controls

Two piece flanged ball valve designed to international and European standards.

Features

- Two piece split body ball valve.
- Full bore.
- Fire tested to API 607 ed. 4.
- Integral ISO 5211 top plate for the mounting of 1/4 turn actuator.
- Guided blow-out proof stem.
- Anti-static device ball-stem-body.
- Patent “Sealmaster™” stem arrangement to comply with “TA-Luft” requirements.
- Semi-encapsulated ball seats for cold flow resistance.
- Pressure self relief seat to prevent pressure built-up.
- Tightness to API 598.

Application

- Process and utilities service, for all chemical and petrochemical fluids, whenever fire-safe feature is requested.
- Stainless steel: all corrosive chemical products (acids, alkaline, solvents).
- Carbon steel: steam, hot or cold water, natural gas, compressed air.

Technical Data

Sizes (inch) : 1/2” - 6”
Temperature (°C) : -25 to +225
Pressure : ANSI #150 - #300

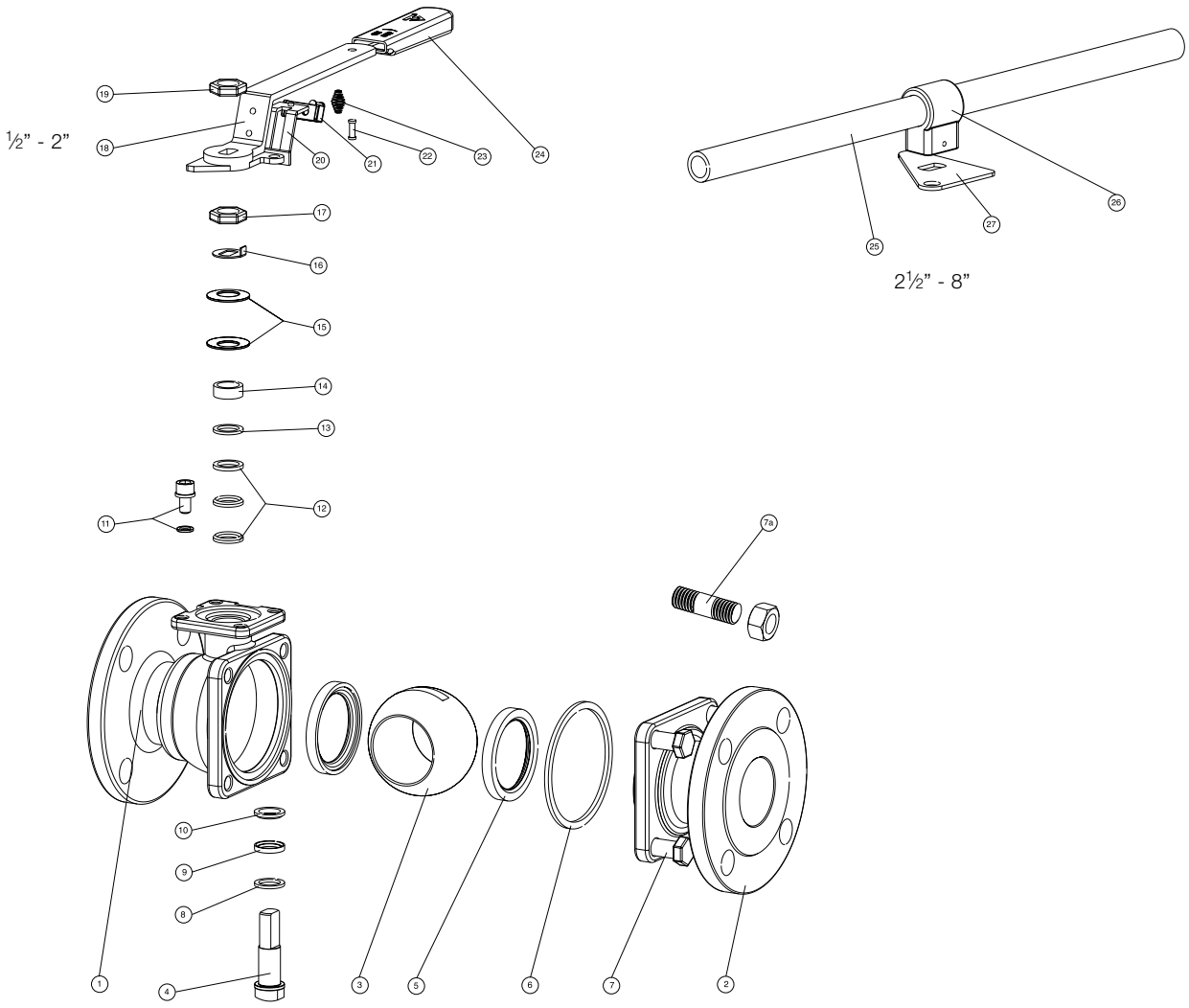
Connections

Flanges: ANSI Class 150 according B16.5 RF
ANSI Class 300 according B16.5 RF
Face to face dimensions according to ANSI B16.10

Operating torques (Nm)

Size	ΔP 5 bar	ΔP 10 bar
½”	7	7
¾”	9	9
1”	15	15
1¼”	18	18
1½”	23	23
2”	34	42
2½”	62	68
3”	79	90
4”	147	169
5”	214	226
6”	282	305

Two-Piece Ball Valves Figure 190 (ANSI)
Materials of construction

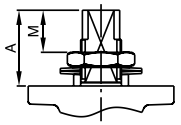


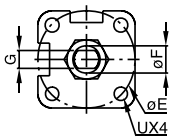
Materials of construction

No.	Part Name	Material		Quantity
		SS	CS	
1	Body	ASTM A351 Gr. CF8M	ASTM A216 Gr. WCB	1
2	End cap	ASTM A351 Gr. CF8M	ASTM A216 Gr. WCB	1
3	Ball	ASTM A351 Gr. CF8M		1
4	Anti-static stem	ASTM A276 Type 316		1
5	Ball seat	PTFE		2
6	Body seal	SS 304 Spiral wound grafoil		1
7	Flange bold (1/2"-2")	A193 Gr. B8	A193 Gr. B7	4
7a	Flange stud & nut (>2")	A193 Gr. B8/A194 Gr. 8	A193 Gr. B7/A194 Gr. 2H	6-8
8	Lower thrust washer	Grafoil		1
9	Compression ring	SUS 316		1
10	Upper thrust washer	Grafoil		1
11	Stop bolt	A193 Gr. B8	A193 Gr. B7	1
12	V-ring stem packing	Grafoil		1 set
13	Thrust washer	50% Stainless steel / 50% PTFE		1
14	Gland	SUS 304		1
15	Belleville washer	SUS 304	WCB 1075	2
16	Lock saddle	SUS 304		1
17	Stem nut	SUS 304		1
18	Handle (1/2"-2")	ASTM A351 CF8		1
19	Handle nut	SUS 304		1
20	Locking trigger	SUS 304		1
21	Fix plate	SUS 304		1
22	Rivet	SUS 304		2
23	Spring	SUS 304		1
24	Handle sleeve	Vinyl		1
25	Handle (>2")	SUS 304		1
26	Handle adaptor	ASTM A351 CF8		1
27	Triangle adaptor	SUS 304		1

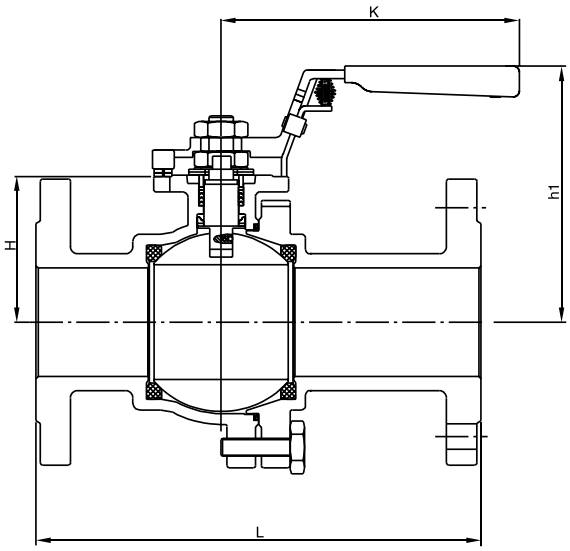
Two-Piece Ball Valves Figure 190 (ANSI)

Valve dimensions - Pressure/Temperature chart





1/2"-4"



Dimensions

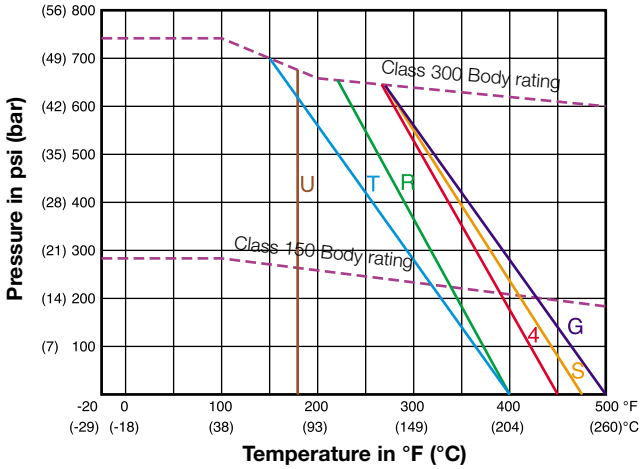
Size	A	øE	øF	G	H	M	U	h1	K	L	L*
½"	18,0	42	9,7	6,3	38,5	11,2	ø5.5	82	135	108,0	140,0
¾"	17,5	42	9,7	6,3	42,0	11,5	ø5.5	86	135	117,0	152,0
1"	20,0	50	11,2	8,0	51,5	12,0	ø6.5	98	165	127,0	165,0
1½"	23,5	70	16,0	9,5	65,5	14,0	ø8.5	119	200	165,0	190,0
2"	23,5	70	16,0	9,5	74,5	14,0	ø8.5	128	200	178,0	216,0
2½"	41,5	102	22,3	17,0	90,0	22,4	M12	162	250	190,0	241,0
3"	41,5	102	22,3	17,0	99,9	19,0	M12	172	250	203,0	283,0
4"	47,5	102	28,6	17,0	122,0	25,9	M12	197	300	229,0	305,0
5"	53,5	102	28,6	17,0	140,0	25,0	M12	226	500	355,6	381,0
6"	65,0	125	34,0	23,0	167,0	36,5	M12	281	800	393,7	403,4

L = ANSI #150 L* = ANSI #300

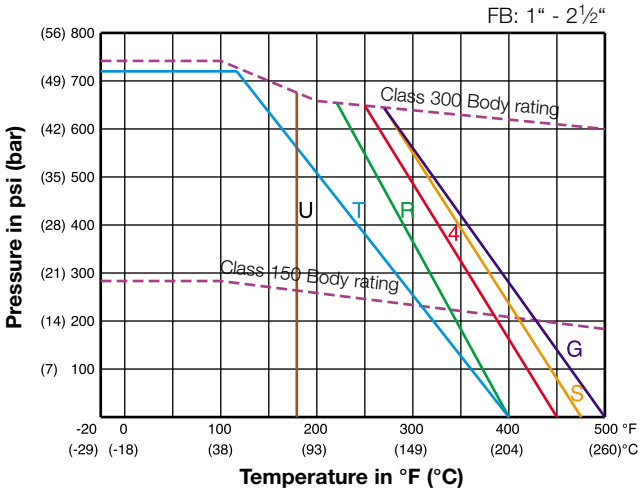
Notes

T = PTFE
4 = 25% Carbon Filled PTFE
G = Stainless Steel, MoS2 & PTFE Filled
R = RPTFE
S = 50% Stainless Steel Filled PTFE
U = UHMWPE

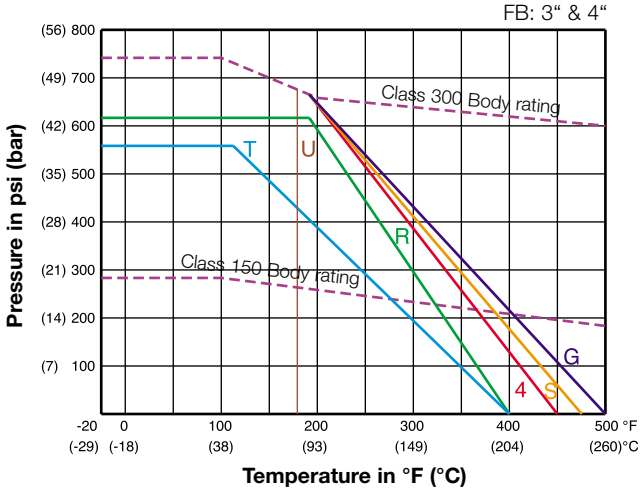
FB: ½" & ¾"



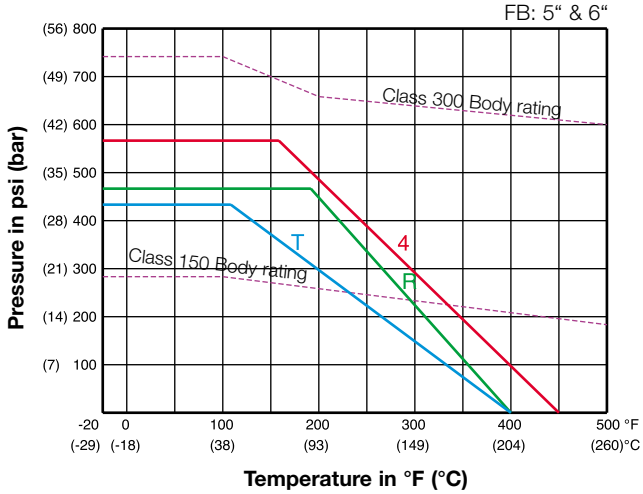
FB: 1" - 2½"



FB: 3" & 4"

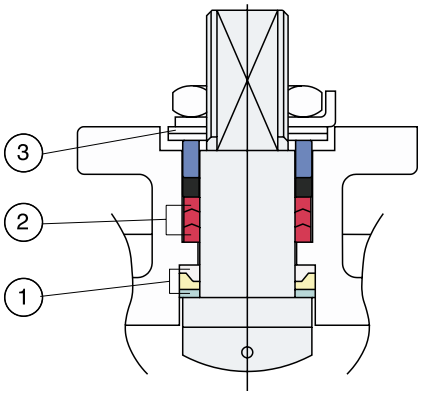


FB: 5" & 6"



Two-Piece Ball Valves Figure 190 (ANSI)

Patented SealMaster™ Stem Seal Arrangement



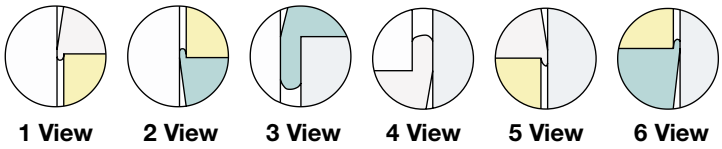
Notes

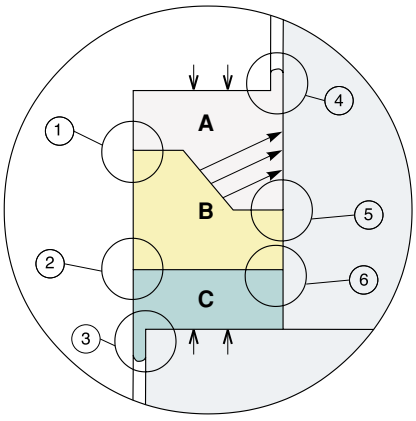
1 SealMaster™
2 V-Ring stem packing
3 Belleville washers

Our extremely high cycle stem sealing design is accomplished by double sealing system. The high performance of Tyco Ball Valves is mainly due to unique SealMaster™ ① stem seal arrangement, which provides a primary sealing. It has been specially designed and constructed to prevent line fluid permeation and resultant leakage. On top of this arrangement are multiple layers of V-Ring stem packing ②, this acts as secondary sealing.
A set of Belleville washers ③ automatically and constantly compresses the seals to adjust for wear, pressure and temperature fluctuations. Every Tyco Ball Valve is a stalwart barrier against Fugitive Emissions.

Explanation of SealMaster™

The live loaded SealMaster is a combination of 3 components; (A) a cup and cone PFA/TFE upper thrust seal, (B) a cup and cone sintered SS316 center load ring and (C) a flat SS/TFE lower thrust seal. When tightened, the live loaded stem pulls up and compressing the stem thrust seals.
As this happens, material from upper and lower thrust seal extrude between stem and body enclosures. (See 1 - 6). The surfaces between the bottom of lower thrust seal and top of stem flange are smooth and all rotation occurs between these two surfaces leaving the stem thrust seal “static” to create the best possible seal.
As rotation continues, components bed in and keep seal performance constant with usage.
As operating wear takes place, the stem thrust seal can be re-tightened to recommend torque multiple times.





Main features of SealMaster™-patented stem seal arrangement

- “Multiple” sealings up to 6 areas (see 1 - 6) for pressure and high vacuum.
- Encapsulated “static” sealing achieved on upper thrust seal.
- Constant sealing force reflects to stem (see arrow) and makes stem primary sealing “positive”.
- Excellent wear resistance on lower thrust seal (50% SS filled PTFE). Standard stem finish better than Ra 0.8µm (150 Grit) to reduce seals friction to a minimum.