



Features / Design

- 1.- **Three-Pieces Direct Mount High Performance Ball Valve.**
- 2.- Three-Pieces Design allows fast and simple in line maintenance; seats, seals, and ball can be replaced quickly and easily without disturbing pipe alignment – Swing Out Design.
- 3.- Full port, minimizes pressure drop and prolong life.
- 4.- Investment cast body construction.
- 5.- **Pressure Rating: 1,000 PSI Max.**
- 6.- **Patented ISO 5211 Direct Mount Pad** allows direct mounting of pneumatic and electric actuators (no brackets and coupling are required).
- 7.- Easy and Low Cost for automated service and extremely high cycle life.
- 8.- **TFV Triple – Sealing Stem (High Cycle) Stem Packing System** – live loaded maintenance free – extra long cycle life (100,000 cycles and up).– TA-Luft approved.

Primary Seal Pyramidal stem with stem seal.

Secondary Seal Chevron "V" Ring design improves seal and reduce actuation torque.

Self Adjusting Stem Packing System with Belleville Washers (automatically adjust wear temperature and pressure fluctuations).

- 9.- **Double Anti-Static Device** (stem to ball and stem to body) as standard & **Blow-Out** proof stem.

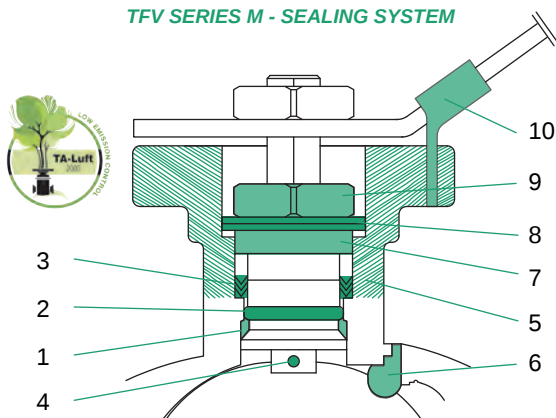
- 10.- Wide range of valve (body) and seat materials available.

For valve: ASTM A351 Gr. CF8M, WCB, CF3M, Titanium... and others.

Seats: PTFE, RPTFE, TFM 1600, Carbon Filled PTFE, 50/50 SS Filled PTFE, UHMWPE... and others.

- 11.- Inspection and testing according to API 598.
- 12.- Fire Safe Design API 607 (upon request).
- 13.- NACE MR0175 (upon request).
- 14.- Locking Device as standard.
- 15.- **Approvals available:** Fire safe as per API 607 Rev 6, CE 0035 PED 2014/68/EU Category II Module H, TA-Luft, ATEX 2014/34/EU.
- 16.- End connection: Threaded (NPT) ASME B1.20.1, Socket Weld (SW) ASME B16.11... and others.
- 17.- **All stainless weld ends in CF3M Standard.** Reduce Inter-granular corrosion in welding.
- 18.- Manufactured in ISO 9001 approved facility.

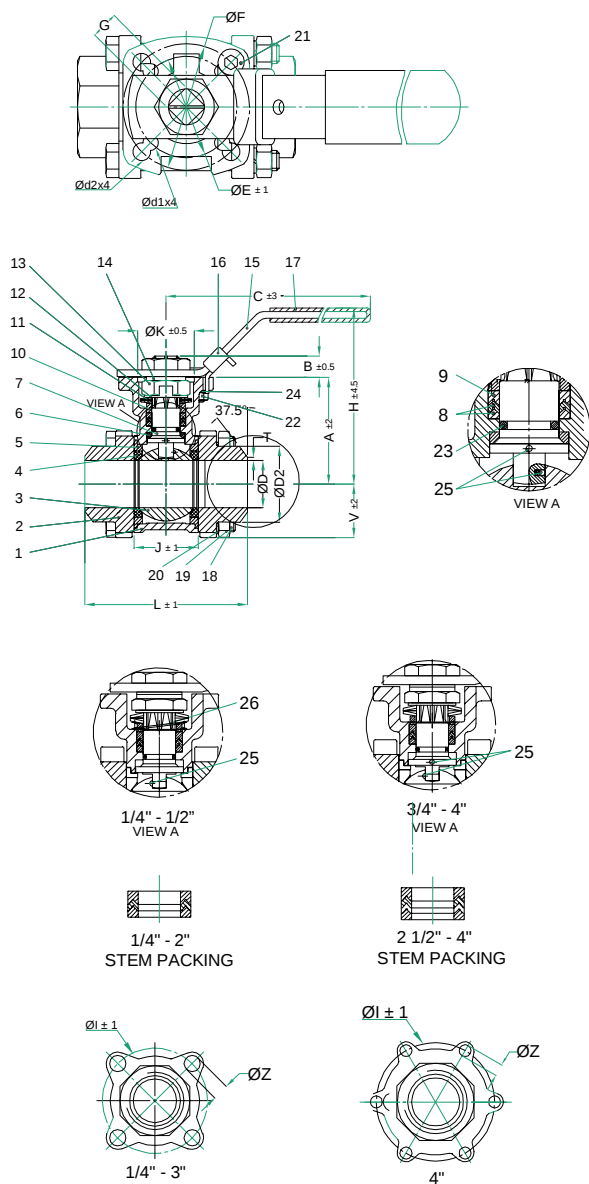
TFV SERIES M - SEALING SYSTEM



1. **Pyramidal Primary Seal.** Transform the vertical forces to horizontal forces at 360° of stem.
2. **Secondary Seal.** O'Ring Seal located between the primary and secondary seals.
3. **Tertiary Type Chevron Seal.** These seals are under constant expansion to make contact with the stem and the stuffing box.
4. **Static Loads Eliminator.** A double loaded spring is located from stem to the ball and from stem to the body (anti-static device).
5. **Direct Mount ISO 5211.** Coupling part-turn actuators (Part-turn) in industrial valves. Avoid using couplings and mounting plates.
6. **Seat & Seal.** Available in multiple materials for different applications.
7. Static charge distribution ring.
8. Live Loadings. Automatic adjustment against fluctuations in temperature, pressure and wear.
9. Anti-rotation security device.
10. Security Locking Lever avoid unnecessary return of the lever providing security in its operation.

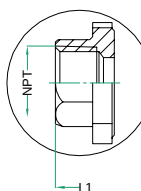


Material List

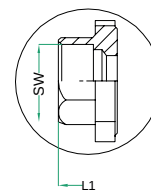


POS	DESCRIPTION	MATERIAL
1	BODY	A216 WCB / A351 CF8M
2	END CAP	A216 WCB / A351 CF8M
3	BALL	ASTM A182 F316
4	SEAT	R-PTFE
5	JOINT GASKET	PTFE
6	STEM SEAL	R-PTFE
7	STEM	SS316
8	CHEVRON PACKING	PTFE
9	STEM PACKING	R-PTFE
10	GLAND	SS304
11	BELLEVILLE WASHER	SS301
12	LOCK NUT	SS304
13	STEM NUT	SS304
14	STEM WASHER	SS304
15	HANDLE	SS304
16	LOCKING DEVICE	SS304
17	HANDLE SLEEVE	VINYL
18	BOLT	SS304
19	BOLT & NUT	SS304
20	WASHER	SS304
21	STOP PIN	SS304
22	PIN NUT	SS304
23	O-RING	VITON
24	WASHER	SS304
25	ANTISTATIC DEVICE	SS316
26	SPRING	SS316
27	HANDLE PAD	SS304
28	TRIANGLE PAD	SS304
29	TUBE	SS304
30	HANDLE SLEEVE	VINYL
31	SUB. SHAFT	SS304
32	SPRING	1/4" ~ 1 1/4" SWP 1 1/2" ~ 2" CARBON STEEL
33	SHAFT	SS304
34	WASHER	SS304
35	NUT	A194 2HM / A194 8M
36	BOLT	A193 B7M / A193 B8M
37	SCREW	SS304
38	WASHER	SS304
39	NUT	A194 2HM / A194 8M
40	STEM NUT	A194 2HM / A194 8M

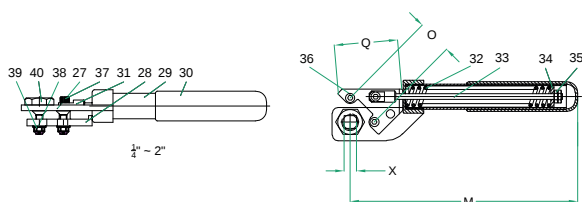
THREADED NPT
(ROSCADO NPT)



SOCKET WELD
(CAJA SOLDABLE)



Spring return safety handle



Safety Handle Dimensions (inches)	SIZE (in)	M (in)	X (in)	O (in)	Q (in)
	1/2"	7.677	0.354	1.169	1.673
	3/4"	7.677	0.354	1.169	1.673
	1"	7.677	0.354	1.169	1.673
	1 1/4"	7.677	0.354	1.169	1.673
	1 1/2"	7.677	0.433	1.720	1.720
	2"	7.677	0.433	1.720	1.720
	2 1/2"	10.433	0.551	2.154	2.154
	3"	10.433	0.551	2.154	2.154

Dimensions

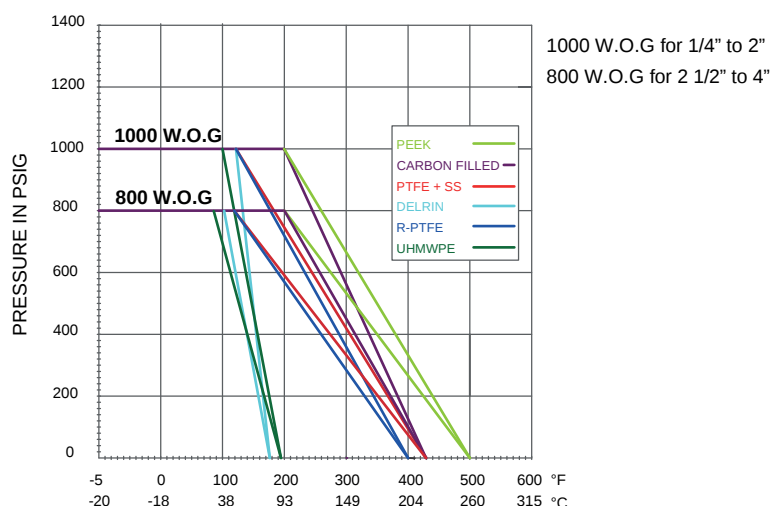
NPS (in)	ØD (in)	A (in)	B (in)	C (in)	L ⁽¹⁾ (in)	ØK (in)	ØE (in)	ØF (in)	G (in)	ØI (in)	ØZ (in)	NPT (in)	SW (in)	P MIN (in)	H (in)	J (in)	V (in)	Ød2 (in)	Ød1 (in)	ØD2 (in)	T (in)
1/4"	4.57	1.657	0.240	5.472	2.508	0.984	1.417	1.654	0.354	1.811	0.335	1/4"	0.567±0.008	0.374	3.031	0.929	0.917	0.236	0.236	0.638	0.063
3/8"	0.500	1.657	0.240	5.472	2.508	0.984	1.417	1.654	0.354	1.811	0.335	3/8"	0.701±0.008	0.374	3.031	0.929	0.917	0.236	0.236	0.689	0.063
1/2"	0.591	1.657	0.240	5.472	2.587	0.984	1.417	1.654	0.354	1.811	0.335	1/2"	0.866±0.008	0.374	3.031	0.929	0.917	0.236	0.236	0.894	0.063
3/4"	0.787	1.890	0.260	5.472	3.000	0.984	1.417	1.654	0.354	2.047	0.335	3/4"	1.079±0.008	0.492	3.268	1.102	1.000	0.236	0.236	1.083	0.063
1"	0.984	2.228	0.429	6.496	3.394	1.181	1.654	1.969	0.433	2.362	0.335	1"	1.343±0.008	0.492	3.780	1.335	1.114	0.276	0.236	1.339	0.063
1 1/4"	1.260	2.398	0.429	6.496	4.047	1.181	1.654	1.969	0.433	2.894	0.433	1 1/4"	1.689±0.008	0.492	3.937	1.673	1.358	0.276	0.236	1.681	0.063
1 1/2"	1.496	3.051	0.547	8.465	4.701	1.378	1.969	2.756	0.551	3.366	0.465	1 1/2"	1.929±0.008	0.492	5.000	2.094	1.547	0.354	0.295	1.913	0.063
2"	1.969	3.354	0.547	8.465	5.173	1.378	1.969	2.756	0.551	4.087	0.531	2"	2.421±0.010	0.630	5.276	2.543	1.962	0.354	0.295	2.382	0.063
2 1/2"	2.559	4.280	0.661	11.811	6.457	2.165	2.756	4.016	0.669	5.118	0.602	1 1/2"	2.921±0.010	0.630	6.575	3.425	2.303	0.472	0.394	3.004	0.079
3"	3.150	4.634	0.701	14.567	7.193	2.165	2.756	4.016	0.669	6.122	0.681	3"	3.547±0.010	0.630	6.929	3.898	2.717	0.472	0.394	3.543	0.079
4"	3.937	5.217	0.701	14.567	9.276	2.165	2.756	4.016	0.669	7.402	0.681	4"	4.547±0.010	0.630	7.559	5.000	3.756	0.472	0.294	4.567	0.138

Dimensions

ISO5211, Cv, Torque, Weight & Safety Spring Handle Data (Inches)

NPS (in)	ISO5211 (in)	CV (USGAL/min)	TORQUE ⁽²⁾ (Lb*in) R-PTFE	Weight ⁽³⁾ (lb)	Weight ⁽⁴⁾ (SR Handle) (lb)
1/2"	F03/F04	7.000	58	1.4	0.857
3/4"	F03/F04	8.000	58	1.4	0.857
1"	F03/F04	15.000	58	1.5	0.857
1 1/4"	F03/F04	40	69	1.8	0.857
1 1/2"	F04/F05	70	127	2.8	0.868
2"	F04/F05	110	173	4.3	0.868
2 1/2"	F05/F07	250	253	7	1.650
3"	F05/F07	430	323	10.2	1.650
4"	F07/F10	700	518	20.9	/
5"	F07/F10	1100	806	28.2	/
6"	F07/F10	2000	1014	48.1	/

Pressure-Temperature Chart



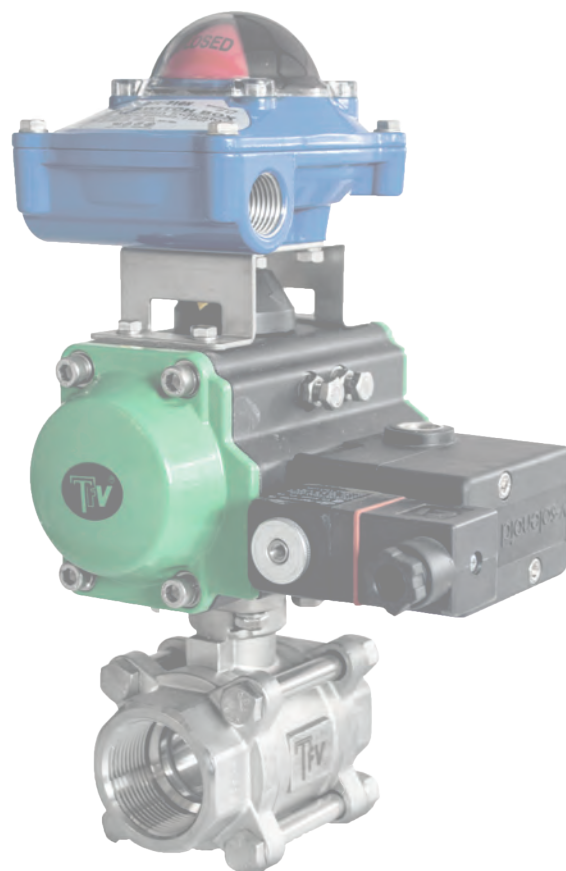
How to Order

CLASS	VALVE BODY DESIGN (SERIES)	SPECIAL FEATURES	MATERIAL			ENDS	SIZE		OPERATION
			BODY	TRIM	SEAT				
1 800/1000# WOG ⁽⁵⁾	13M Full Port 3 Pcs Ball Valve ISO 5211 MK Bracket	NONE NONE O Oxygen Service N NACE	2 WCB	3 316 SS	P PTFE	T Threaded	0.25	1/4"	L Manual Lever Operator
			3 CF8M	4 304 SS	R R-PTFE	M Two different ends to be specify on each order	0.38	3/8"	C Manual Lever with Locking Device
					U UHMWPE	S Socket Weld	0.5	1/2"	O Oval Handle
					S 50/50 SS Filled PTFE	B Butt Weld	0.75	3/4"	S Spring Return safety Handle
					C Carbon Filled PTFE	F Flanged RF (150#)	01	1"	SR Spring Return Sliding lock
					M MG1241		01.25	1 1/4"	X Economical Stem extention
					D DELRIN		01.5	1 1/2"	B Bare Shaft
					K PEEK		02	2"	P Pneumatic Actuator
					B NBR		02.5	2 1/2"	E Electric Actuator
							03	3"	
							04	4"	

Example:

Full Port Ball Valve ISO 5211 MK, Body & Trim 316SS, Seats: R-PTFE, Ends:
Threaded, 1/2" 1000# WOG with Lever with Locking Device.

13M23PT0.5C



Notes:

- (1) Face to face for threaded NPT and socketweld valves.
- (2) The torque es measured based on the conditions of with 30% safety factor, with grease, at 0 bar pressure and ambiental temperature.
- (3) The weight change depending on the type of lever .
- (4) Spring safety handle weight.
- (5) 1000# WOG from 1/4" - 2", 800# WOG from 2 1/2" - 4".