



## Features / Design

- 1.- One-Piece (Uni-Body) Direct Mount High Performance Flanged Ball Valve.
- 2.- Design, manufacture and pressure-temperature rating according to ASME B16.34.
- 3.- Standard port.
- 4.- Investment cast from 1/2" to 4" and sand cast body for 6".
- 5.- Patented ISO 5211 Direct Mount Pad allows direct mounting of pneumatic and electric actuators (no brackets and coupling are required).
- 6.- Easy and Low Cost for automated service and extremely high cycle life.
- 7.- 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).

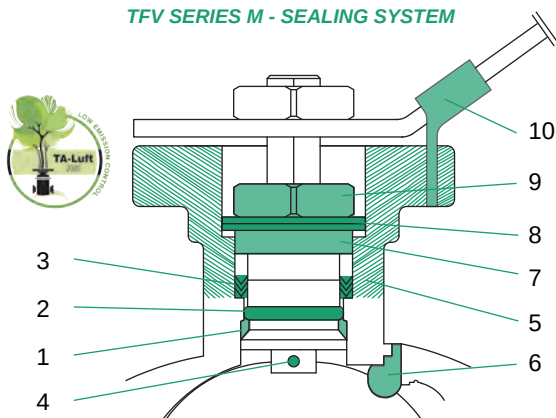
- 8.- Double Anti-Static Device (stem to ball and stem to body) as standard & Blow-Out proof stem.
- 9.- Wide range of valve (body) and seat materials available.

For valve: ASTM A351 Gr. CF8M, WCB, CF3M, Titanium, Duplex, Hastelloy C, Alloy 20.

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

- 10.- Inspection and testing according to API 598.
- 11.- Fire Safe Design API 607 (upon request).
- 12.- NACE MR0175 (upon request).
- 13.- Locking Device as standard.
- 14.- 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.
- 15.- End connection: Flanged RF according to ASME B16.5 and face to face dimension ASME B16.10.
- 16.- 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.

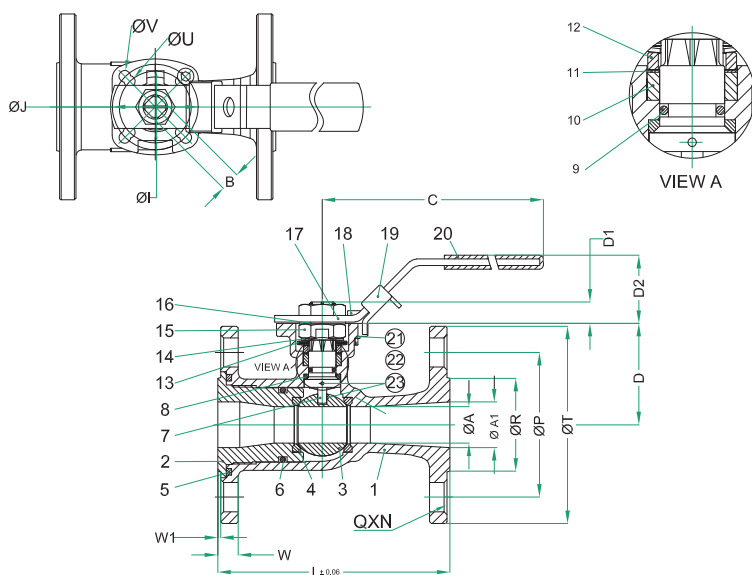


## Material List

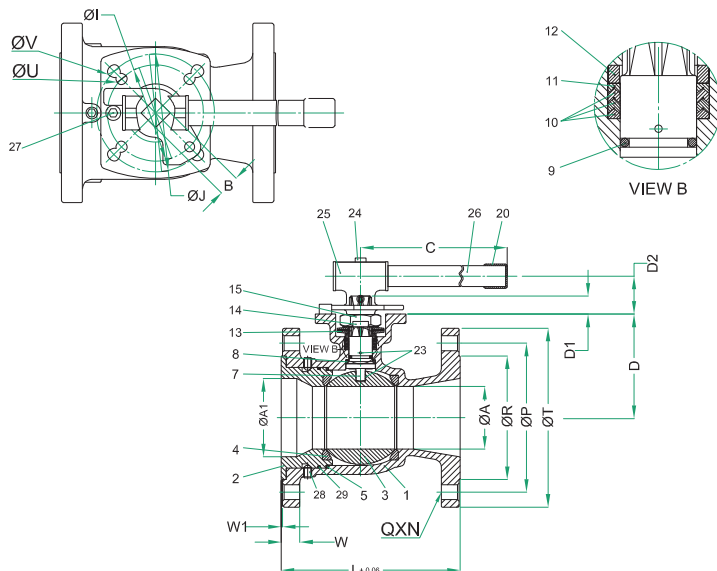
| POS | DESCRIPTION        | MATERIAL                                       |
|-----|--------------------|------------------------------------------------|
| 1   | BODY               | A216 WCB / A351 CF8M                           |
| 2   | END CAP            | A216 WCB / A351 CF8M                           |
| 3   | BALL               | 1/2" ASTM A182 F316<br>3/4" ~ 6" ASTM 351 CF8M |
| 4   | SEAT               | PTFE                                           |
| 5   | JOIN GASKET        | PTFE                                           |
| 6   | O-RING             | VITON                                          |
| 7   | STEM               | SS316                                          |
| 8   | STEM SEAL          | R-PTFE                                         |
| 9   | O-RING             | VITON                                          |
| 10  | STEM PACKING       | PTFE                                           |
| 11  | STEM PACKING       | 25% GLASS FIBER<br>FI LLED + PTFE              |
| 12  | GLAND              | SS304                                          |
| 13  | BELLEVILLE WASHER  | SS301                                          |
| 14  | LOCK SADDLE        | SS304                                          |
| 15  | STEM NUT           | SS304                                          |
| 16  | STEM WASHER        | SS304                                          |
| 17  | HANDLE             | SS304                                          |
| 18  | STOP PIN           | SS304                                          |
| 19  | LOCKING DEVICE     | SS304                                          |
| 20  | HANDLE SLEEVE      | VINYL                                          |
| 21  | WASHER             | SS304                                          |
| 22  | PIN NUT            | SS304                                          |
| 23  | ANTI-STATIC DEVICE | SS316                                          |
| 24  | HANDLE SCREW       | SS304                                          |
| 25  | HANDLE A           | SS304                                          |
| 26  | HANDLE B           | 3" - 4" - SS304<br>6" - CARBON                 |
| 27  | STOP PIN           | SS304                                          |
| 28  | SCREW              | SS304                                          |
| 29  | O-RING             | VITON                                          |
| 30  | HANDLE PAD         | SS304                                          |
| 31  | TRIANGLE PAD       | SS304                                          |
| 32  | TUBE               | SS304                                          |
| 33  | HANDLE SLEEVE      | VINYL                                          |
| 34  | SUB. SHAFT         | SS304                                          |
| 35  | SPRING             | 1/4" ~ 1 1/4" SWP<br>1 1/2" ~ 2" CARBON STEEL  |
| 36  | SHAFT              | SS304                                          |
| 37  | WASHER             | SS304                                          |
| 38  | NUT                | A194 2HM / A194 8M                             |
| 39  | BOLT               | A193 B7M / A193 B8M                            |
| 40  | SCREW              | SS304                                          |
| 41  | WASHER             | SS304                                          |
| 42  | NUT                | A194 2HM / A194 8M                             |
| 43  | STEM NUT           | A194 2HM / A194 8M                             |

| Safety Handle<br>Dimensions (inches) | SIZE   | M<br>(in) | X<br>(in) | O<br>(in) | Q<br>(in) | Weight <sup>(3)</sup><br>(Lb) Note 2 |
|--------------------------------------|--------|-----------|-----------|-----------|-----------|--------------------------------------|
|                                      | 1/2"   | 7.677     | 0.354     | 1.169     | 1.7       | 0.857                                |
|                                      | 3/4"   | 7.677     | 0.354     | 1.169     | 1.7       | 0.857                                |
|                                      | 1"     | 7.677     | 0.433     | 1.390     | 1.7       | 0.868                                |
|                                      | 1 1/2" | 10.433    | 0.551     | 1.949     | 2.2       | 1.653                                |
|                                      | 2"     | 10.433    | 0.551     | 1.949     | 2.2       | 1.653                                |

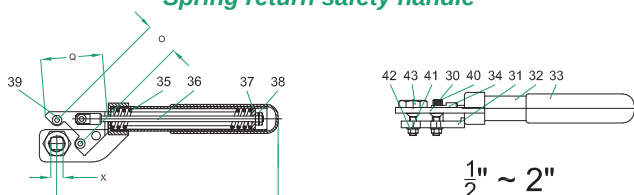
For 1/2" - 2"



For 2 1/2" - 6"



Spring return safety handle



1/2" ~ 2"

## Dimensions (inches)

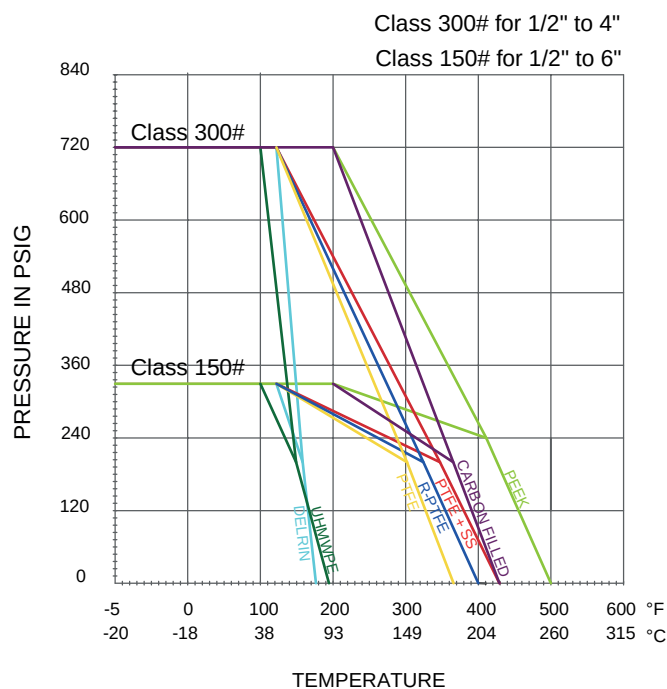
## CLASS 150#

| SIZE   | OA<br>(in) | OA1<br>(in) | B<br>(in) | C<br>(in) | D<br>(in) | D1<br>(in) | D2<br>(in) | ØI<br>(in) | ØJ<br>(in) | L<br>(in) | N<br>(in) | ØP<br>(in) | ØQ<br>(in) | ØR<br>(in) | ØT<br>(in) | W<br>(in) | W1<br>(in) | ØU<br>(in) | ØV<br>(in) | ISO5211 | CV<br>(USgal/<br>min) | TORQUE <sup>(1)</sup><br>(Lb*in)<br>PTFE | WT <sup>(2)</sup><br>(Lb) |
|--------|------------|-------------|-----------|-----------|-----------|------------|------------|------------|------------|-----------|-----------|------------|------------|------------|------------|-----------|------------|------------|------------|---------|-----------------------|------------------------------------------|---------------------------|
| 1/2"   | 0.500      | 0.591       | 0.433     | 6.496     | 1.839     | 0.370      | 1.417      | 1.654      | 1.969      | 4.264     | 4         | 2.382      | 0.630      | 1.382      | 3.500      | 0.441     | 0.063      | 0.256      | 0.276      | F04/F05 | 9.0                   | 89.0                                     | 3.6                       |
| 3/4"   | 0.591      | 0.787       | 0.433     | 6.496     | 2.016     | 0.390      | 1.417      | 1.654      | 1.969      | 4.618     | 4         | 2.752      | 0.630      | 1.689      | 3.882      | 0.441     | 0.063      | 0.256      | 0.276      | F04/F05 | 15.0                  | 89.0                                     | 4.4                       |
| 1"     | 0.787      | 0.984       | 0.433     | 6.496     | 2.185     | 0.390      | 1.417      | 1.654      | 1.969      | 5.004     | 4         | 3.118      | 0.630      | 2.000      | 4.252      | 0.441     | 0.063      | 0.256      | 0.276      | F04/F05 | 42.0                  | 124.0                                    | 5.7                       |
| 1 1/2" | 1.260      | 1.496       | 0.551     | 8.465     | 2.858     | 0.508      | 1.850      | 1.969      | 2.756      | 6.500     | 4         | 3.882      | 0.630      | 2.882      | 5.000      | 0.563     | 0.063      | 0.295      | 0.354      | F05/F07 | 125.0                 | 204.0                                    | 11.9                      |
| 2"     | 1.496      | 1.969       | 0.669     | 10.315    | 3.508     | 0.713      | 2.165      | 2.756      | 4.016      | 7.020     | 4         | 4.752      | 0.748      | 3.618      | 6.000      | 0.626     | 0.063      | 0.394      | 0.472      | F07/F10 | 165.0                 | 301.0                                    | 17.9                      |
| 1 1/2" | 1.969      | 2.559       | 0.669     | 10.315    | 3.803     | 0.748      | 2.165      | 2.756      | 4.016      | 7.480     | 4         | 5.500      | 0.748      | 4.118      | 7.000      | 0.693     | 0.063      | 0.394      | 0.472      | F07/F10 | 245.0                 | 346.0                                    | 26.3                      |
| 3"     | 2.559      | 3.150       | 0.669     | 14.370    | 4.567     | 0.748      | 1.744      | 2.756      | 4.016      | 8.012     | 4         | 6.000      | 0.748      | 5.000      | 7.500      | 0.748     | 0.063      | 0.394      | 0.472      | F07/F10 | 350.0                 | 523.0                                    | 35.3                      |
| 4"     | 3.150      | 3.937       | 0.866     | 14.370    | 5.217     | 0.906      | 1.906      | 4.016      | 4.921      | 9.000     | 8         | 7.500      | 0.748      | 6.189      | 9.000      | 0.941     | 0.063      | 0.472      | 0.551      | F10/F12 | 680.0                 | 851.0                                    | 57.3                      |
| 6"     | 4.370      | 6.024       | 1.063     | 27.756    | 7.075     | 1.122      | 2.559      | 4.921      | 5.512      | 10.500    | 8         | 9.500      | 0.874      | 8.500      | 11.000     | 1.000     | 0.063      | 0.551      | 0.709      | F12/F14 | 1020.0                | 1878.0                                   | *                         |

**CLASS 300#**

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## Pressure-Temperature chart



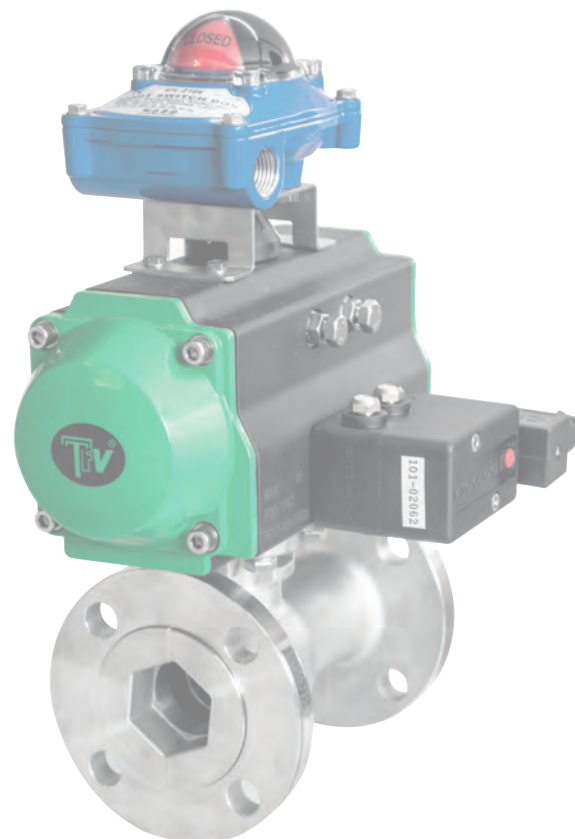
## How to Order

| VALVE BODY<br>DESIGN (SERIES)                    | SPECIAL<br>FEATURES |      | MATERIAL    |             |                           | ENDS         | CLASS                      | SIZE  |        | OPERATION |                                        |
|--------------------------------------------------|---------------------|------|-------------|-------------|---------------------------|--------------|----------------------------|-------|--------|-----------|----------------------------------------|
|                                                  |                     |      | BODY        | TRIM        | SEAT                      |              |                            |       |        |           |                                        |
| 1M<br>Std Port 1 Pc Ball<br>Valve ISO 5211<br>MK | None                | None | 2 WCB       | 3 316 SS    | P PTFE                    | F Flanged RF | 0 ANSI 150#<br>3 ANSI 300# | 0.5   | 1/2"   | L         | Manual Lever<br>Operator               |
|                                                  |                     |      | 3 CF8M      | 5 316L SS   | R R-PTFE                  |              |                            | 0.75  | 3/4"   | C         | Manual Lever<br>with Locking<br>Device |
|                                                  |                     |      | 5 CF3M      | 8 Alloy 20  | U UHMWPE                  |              |                            | 01    | 1"     | G         | Gear Operator                          |
|                                                  |                     |      | 8 Alloy 20  | 9 Hastelloy | S 50/50 SS<br>Filled PTFE |              |                            | 01.25 | 1 1/4" | B         | Gear Operator                          |
|                                                  |                     |      | 9 Hastelloy | 0 Monel     | C Carbon<br>Filled PTFE   |              |                            | 01.5  | 1 1/2" | O         | Oval Handle                            |
|                                                  |                     |      | 0 Monel     | T Titanium  | M MG1241                  |              |                            | 02    | 2"     | S         | Spring Return<br>Safety Handle         |
|                                                  |                     |      | T Titanium  |             | D DELRIN                  |              |                            | 02.5  | 2 1/2" | SR        | Spring Return<br>Sliding lock          |
|                                                  |                     |      |             |             | K PEEK                    |              |                            | 03    | 3"     | X         | Economical<br>Stem Extention           |
|                                                  |                     |      |             |             |                           |              |                            | 04    | 4"     | P         | Pneumatic<br>Actuator                  |
|                                                  |                     |      |             |             |                           |              |                            | 05    | 5"     | E         | Electric<br>Actuator                   |
|                                                  |                     |      |             |             |                           |              |                            | 06    | 6"     |           |                                        |
|                                                  |                     |      |             |             |                           |              |                            |       |        |           |                                        |
|                                                  |                     |      |             |             |                           |              |                            |       |        |           |                                        |

### Example:

Std Port Ball Valve ISO 5211 Integral Mounting Kit, Body & Trim 316SS, Seats: PTFE, Ends: Flanged ANSI Class 150#, Size 1/2" with Lever and Locking Device.

**1M33PF00.5C**



#### Notes:

- (1) The torque es measured based on the conditions of with 30% safety factor, with grease, at 0 bar pressure and ambiental temperature.
- (2) The weight change depending on the type of lever .
- (3) Spring safety handle weight.