

### VALVE DETAILS

- > Flanged End Connections
- > 1/2" to 12" | DN 15 to 300
- > ASME Class 150 and 300 | PN 10, 16, 25, 40

### BODY

- > Body shall be offered in a two-piece, side entry assembly.
- > Body shall be offered in cast material grades.
- > 1/2" – 4" valve bodies shall be investment castings.
- > Body casting shall be marked with a foundry heat code for full traceability.
- > Body shall be full port.
- > Standard product shall be designed in accordance with ASME B16.34 and pressure-temperature ratings established by ASME B16.34.
- > Body and end cap wall thickness shall meet or exceed ASME B16.34 minimum wall thickness requirements.
- > End flanges designed per international flange standard as specified. ASME B16.5 | DIN EN 1092-1
- > Valve face-to-face dimensions are in accordance with ASME B16.10:
  - Long Pattern: F15/F30, 1/2" – 12"
  - Short Pattern: F15, 1/2" – 4"
  - Short Pattern: F30, 1/2" – 6"
- > Materials are in accordance with NACE MR0175.
- > Bolted body connection shall utilize a spiral wound, 316SS/graphite body joint gasket.
- > For valve sizes 6" through 12", a ball support is utilized to help maintain ball-to-seat contact and lower operating torque.
- > Carbon steel bodies and end caps are to be phosphate coated for increased corrosion resistance.
- > The body shall be designed for internal stem entry to create a safe, blowout proof assembly.

### BALL

- > Ball is to be precision machined and polished for a smooth surface that will allow for bubble tight shut off and low operating torque.
- > The ball is provided with a pressure equalization hole in the stem slot to equalize pressure between the body cavity and the pipe when the valve is in the full open position.
- > The ball shall be offered in cast material grades. The standard ball material is ASTM A351 Gr CF8M stainless steel. Custom materials are available upon request.
- > When metal seats are used, the ball shall receive advanced coating or hard chrome plating. The ball is to be 360° mate lapped with the seats after coating to ensure proper sealing and low-torque.

### STEM

- > The stem shall be a one-piece, blowout proof design.
- > The stem shall have a double "D" design at the ball and operator interface.
- > The stem must contain (2) anti-static devices which maintain constant contact with the body and ball to eliminate risk of static discharge.
- > As a standard, the stem for valve sizes 1/2" to 2" shall be threaded for installation of the stem nut that is used to compress the live-load, Belleville washers.
- > As a standard, top portion of the stem for valves sizes 2-1/2" to 12" is non-threaded for utilization of an independent packing gland.
- > The standard stem material is ASTM A479 Type 316 stainless steel. Additional materials are available upon request.
- > For valve sizes 1/2" to 2", a lock washer is utilized to prevent the stem nut from unthreading in high-cycle automation applications due to vibration.



#### **SEAT**

- > Seats are designed to ensure bidirectional, bubble tight shut off with low operating torques.
- > Seats are positively preloaded to ensure low-pressure and vacuum sealing ability.
- > The standard resilient seat material is TFM 1600. Other resilient seat materials available are: PTFE, RPTFE, Tek-Fil™, UHMWPE, and PEEK.
- > Metal seats are available and are ANSI/FCI 70-2 Class V shut off rated.
- > Metal seats are coated or hard faced for resistance to wear, reduced torque, and extended seal surface life.
- > Metal seats are 360° mate-lapped with the ball to ensure proper sealing and low-torque.
- > Wave springs are used with the metal seats to maintain contact with the ball through thermal cycling.
- > The standard metal seat base material is ASTM A351 Gr. CF8M stainless steel.
- > Utilizing metal seats allows for use of the valve in temperatures up to 750°F.
- > When metal seats are used, the valve becomes unidirectional.

#### **PACKING AND BEARINGS**

- > Valve sizes 1/2" – 2" shall have a live-loaded, self-adjusting stem seal that utilizes Belleville Washers. The stem seal adjusts to compensate for changes in temperature and normal wear.
- > For valve sizes 1/2" – 2" where live-load stem sealing is used, the stem nut is to be tightened until the Belleville washers are flat and then the stem nut is to be backed off 1/2 turn and secured with the lock washer.
- > Valves sizes 2-1/2" – 12" utilize an independent packing gland that can be adjusted without removal of the mounting hardware or operator. The packing gland uniformly distributes load to the packing.
- > The standard stem packing is composed of RPTFE V-rings.
- > The adjustable V-Ring stem seal design creates a seal between the stem and body packing box. The stem packing is composed of 3 or 4 seal rings (quantity is dependent on size) to provide high-cycle life and resistance to creep and cold flow.
- > A thrust washer and thrust washer protector are required to reduce torque and prevent galling.
- > Graphite stem packing is available for fire safe configurations in compliance with API 607. Graphite packing is composed of a single ring.
- > Combination packing (TFM / Graphite) stem packing is available for valves with fugitive emissions requirements to API 641 or ISO 15848-1.

#### **APPROVALS AND CERTIFICATIONS:**

- > API 607 - Optional
- > API 608 - Optional
- > API 641 - Optional
- > ISO 15848-1 - Optional
- > NACE MR0175
- > PED 2014/68/EU - Optional
- > ATEX 94/9/EC
- > SIL IEC 61508 SC 3
- > NSF/ANSI/CAN 61 & 372 – Optional
- > ABS
- > CRN
- > CSA
- > TSG
- > TR CU
- > UA TR
- > UKCA

#### **VALVE ACTUATOR MOUNTING PAD**

- > ISO 5211
- > Integrally cast actuator mounting pad.

#### **TESTING**

- > API 598
- > MSS SP-72
- > Others upon request

#### **PRESSURE RATINGS**

- > Bidirectional, Zero Leakage
- > F15 - ASME Class 150 | PN 10 & 16
- > F30 - ASME Class 300 | PN 25 & 40



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