

Product Specification for TriO – Triple Offset Valve

Valve Type: Series 4 - Wafer / Lugged / Double Flanged – Short & Long / Butt weld ends

Body:

- Shall be one-piece Wafer, Lug, Double flanged Short, Double flanged Long or Butt weld ends design.
- End Flange drilling confirm to International flange standard as specified.
- Top bracket flange is drilled as per ISO 5211 to accommodate direct mounting of a wide range of actuators.
- The body seat is integral and hard faced.
- The seat geometry ensures that the disc seal contacts the body seat only at the final shut-off position without rubbing or galling, providing a torque generated resilient seal with sufficient wedging to ensure a uniform seal contact.



Disc:

- The disc has been Engineered to maximize flow and minimize resistance to provide a high flow coefficient (Cv).
- The disc is positioned offset from the centre for easy operation.

Stem:

- Shall be one-piece design.
- Shall be blow out proof.
- The weakest point shall be outside the pressure boundary.
- The high strength, stainless steel one-piece stem provides maximum strength for high torque applications.
- Disc to stem connection by wedge pins and positioned tangentially on the stem which places them in compression rather than shear thus eliminating potential for failure. The pins are precision fit and wedge type which provide positive mechanical attachment of disc to stem.

Seal:

- Elliptical laminated seal ring is located on the disc. The seal is precision machined for bi-directional and bubble tight sealing
- Seal ring shall be replaceable.
- Alternating layers of metal and graphite flex generate a circumferential compressive force on the precision machined hard face seat on the body. Metal laminations in duplex stainless steel provide a rigid back up for the soft graphite laminations. The combination makes the seal / seat suitable for bubble tight sealing at high and low temperatures alike.

Stem packing:

- Gland flange assembly is live loaded with Belleville springs.
- The Rocker shaped gland bridge compensates for uneven adjustment of gland bolts.
- Adjustable stem packing with multiple graphite rings seal on high surface finish of the stem and ensures tight sealing, suitable for fugitive emission control

Bearings:

- The bearings shall be provided on both sides of the stem to support the disc.
- The bearings shall be nitrided to reduce the wear.
- Bearing protectors in graphite is provisioned in the bearings to avoid ingress of the foreign material.

Operators:

- Shall be self-locking and work gear as standard.
- Electric, Pneumatic and Hydraulic actuators can be supplied if specified.

Material of Construction:

- **Body:** ASTM A216 Gr WCB / ASTM A216 Gr WCC / ASTM A352 Gr LCC / ASTM A351 Gr CF8 / ASTM A351 Gr CF8M
- **Disc:** ASTM A216 Gr WCB / ASTM A216 Gr WCC / ASTM A352 Gr LCC / ASTM A351 Gr CF8 / ASTM A351 Gr CF8M
- **Seat:** Stellite 21 / Stellite 6
- **Seal:** ASTM A240 S31803 (Duplex)+Graphite / ASTM A240 S20910 (XM-19)+Graphite / Solid Metal
- **Stem:** ASTM A479 410 / ASTM A564 630 (17-4-PH) / ASTM A479 XM-19
- **Seat Retainer:** ASTM A516 Gr.70 / ASTM A240 SS 304 / ASTM A240 SS 316
- **Retainer Screws:** ISO 3506 A4-70 (SS 316)
- **Bearing:** SS 316 + Nitriding
- **Stem Packing:** Graphite
- **Gland Flange:** ASTM A516 Gr.70 / ASTM A240 SS 304 / ASTM A240 SS 316

Bi-directional Service:

- 3"-60" (DN 80 – DN 1500) 285 psi (19.6 barg)
- 3"-60" (DN 80 – DN 1500) 740 psi (51.1 barg)
- 3"-30" (DN 80 – DN 750) 1480 psi (102.1 barg)

Design: API 609, EN 593 & ASME B16.34

Testing: API 598, BS EN 12266-1 & ISO 5208

Approvals & Certifications:

- API 609
- CE/PED Certification
- ATEX
- SIL
- Fire-Test Standard API 607
- IBR
- ABS
- IBR

Special Applications:

- Vacuum
- Oxygen
- Steam – Jacketed valves
- Buried service