

QUADROSPHERE® BALL VALVE
Val-Matic® Specification

1 Scope

1.1 This specification covers the design, manufacture, and testing of QuadroSphere® Trunnion Mounted Ball Valves furnished in sizes 2 to 24 NPS, in ASME Pressure Classes 150 thru 2500.

2 Specific Design Considerations

- 2.1** Valve to incorporate QuadroSphere® high integrity ball element to promote self-flushing feature and minimize seat wear.
- 2.2** Valve ball element to be relieved on top and bottom adjacent to trunnions to minimize seat and ball element engagement and promote self-flushing feature.
- 2.3** Valve ball element to be truncated on upstream and downstream ends to minimize seat and ball element engagement.
- 2.4** Ball engagement with seat shall be less than that of standard spherical ball during interim valve travel to promote sealing integrity.
- 2.5** Geometry of ball element shall allow (5) separate and distinct flow paths to maximize efficiency of flow during interim valve travel.
- 2.6** Valve seat and ball contact shall be minimized during interim travel such that minimal contact exists between ball and seat.
- 2.7** Valve seat and ball contact shall be reduced to four (4) independent line contact points on each seat during interim valve travel.

3 Other Design Considerations

- 3.1** Valve to be trunnion mounted design to provide bi-directional sealing and to reduce running torque.
- 3.2** Valve ball to be 316 SS with Hard Chrome applied as minimum standard.
- 3.3** Valve seat and stem to be 316 SS construction as minimum standard.
- 3.4** Valve seats shall be a spring loaded/pressure energized design. They shall have an insert with a secondary metal seat back up.
- 3.5** The stem shall be anti-blowout design with anti-static devices.
- 3.6** 4 NPS valves and smaller to have drain, vent, and stem injection ports.
- 3.7** 6 NPS valves and larger to have drain, vent, stem, and two injection ports.
- 3.8** Valve shall incorporate double block and bleed sealing design (DBB).
- 3.9** Valve shall be capable of bi-directional flow.
- 3.10** Valve shall be capable of bi-directional shut-off.
- 3.11** Valve shall exhibit zero leakage per section 11 of API 6D.
- 3.12** Valve seat assemblies shall be field replaceable.
- 3.13** Valve body and ball shall be forged material.

4 Standards and Approvals

- 4.1** Valve to be manufactured per ASME B16.34 & API 6D.
- 4.2** Valve to carry API 6D Monogram.
- 4.3** Valve face-to-face dimensions to be per API 6D.
- 4.4** Valve flanged end dimensions to be per ASME B16.5.
- 4.5** Valve butt weld end dimensions to be per ASME B31.4.
- 4.6** Valve to be available in anti-static and fire-safe design to API 607.
- 4.7** Valve top works shall have ISO 5211 compliant mounting pad.
- 4.8** Valve bolting material shall conform to be ASME B16.34.
- 4.9** Valve shall be permanently marked in accordance with API 6D. Valve shall not be marked on the flanges.
- 4.10** Manufacturer shall have a quality management system that is certified to ISO 9001 by an accredited, certifying body.

5 Actuators

- 5.1** Manual, electric or pneumatic actuation shall be provided as specified.
- 5.2** Lever handles are available for certain valve sizes and pressure classes. Consult factory.
- 5.3** Manual actuators shall be worm gear design with externally adjustable stops. Actuators shall be lubricated and fully enclosed against the entry of water.
- 5.4** Pneumatic actuators shall be provided as specified.
- 5.5** Electric actuators shall be provided as specified.
- 5.6** Other types of actuation shall be provided as specified.

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 VAL-MATIC® VALVE AND MANUFACTURING CORP.

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VM-4700-S

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6 Options

- 6.1** Seating surface options are available for the ball and metal seats: Stellite, Electroless Nickel.
- 6.2** Seat materials include: RPTFE, PTFE, PEEK, Nylon, Devlon® and Delrin®.
- 6.3** Seal Materials include: Aflas®, Buna®, Chemraz®, Markez®, Viton®, and Viton® AED.
- 6.4** NACE compliant trims are as specified for special services.
- 6.5** Double piston effect seating available on one or both ends (DIB).
- 6.6** Special coatings for exterior and interior of the valve are available per application.

7 Manufacture

- 7.1** Valve exteriors on carbon steel valves shall be coated with a rust inhibiting coating.
- 7.2** Valve shall be seat and shell tested in accordance with API 6D requirements.
- 7.3** Valve shall be cycle tested and stops set for manual, pneumatic or electric actuators.
- 7.4** QuadroSphere® Ball Valve shall be Val-Matic® Model 4700, Trunnion Mounted Ball Valve as manufactured by Val-Matic® Valve & Mfg. Corporation, Elmhurst, IL, USA or approved equal.

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