
ECCENTRIC PLUG VALVES

PART 1 – GENERAL

1.01 SECTION COVERS

- A. The design, manufacture, and testing of 3” through 48” eccentric plug valves of rectangular port construction with resilient faced cylindrical plugs eccentrically offset from the seat, for the purpose of providing isolation or throttling control as indicated.

1.02 REFERENCES & STANDARDS

- A. AWWA C517 “Resilient-Seated Cast-Iron Eccentric Plug Valves”
- B. ASTM A536 "Standard Specification for Ductile Iron Castings"
- C. ANSI B16.1 "Pipe Flanges and Flanged Fittings"
- D. AWWA C111 “Rubber-Gasketed Joints for Ductile-Iron Pressure Pipe and Fittings”

1.03 QUALITY ASSURANCE

- A. Valves shall be warranted by the manufacturer for defects in materials and workmanship for a period of one year (12 months) from date of shipment.
- B. Each valve and actuator shall be assembled, adjusted and tested as a unit by the valve manufacturer.

PART 2 – PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. McWane Plant & Industrial (MPI)
- B. Kennedy Valve
- C. Clow Valve
- D. M&H Valve Company

2.02 ECCENTRIC PLUG VALVES

- A. Plugs shall be solid one piece, cast ductile iron per ASTM A536. The plug shall have a cylindrical seating surface eccentrically offset from the center of the shaft. Plug shall not contact the seat until at least 90% closed. Resilient plug facing shall be Buna-N (NBR). Spherical shaped plugs are not acceptable.
- B. Body and cover shall be ductile iron per ASTM A536. Aluminum bronze bodies or covers are not acceptable. Groove shall be provided in body to accommodate an O-ring type seal between body and cover. Gasket seals are not acceptable.
- C. Ports shall be rectangular and 100% Port. The valve port area shall meet or exceed standard pipe area per ASME/ANSI B36.10M. Round ports are not acceptable.
- D. Body seats shall be raised and consist of a welded overlay of not less than 95% pure nickel.
- E. Shaft seal shall consist of Buna-N (NBR) multiple V-ring type packing and adjustable packing gland follower. For above ground service, the follower gland shall permit inspection, adjustment or complete replacement of packing without disturbing any part of the valve or actuator assembly, except the follower gland. Non-adjustable packing is not acceptable.

- F. Bearings shall be sleeve type, permanently lubricated type 316 stainless steel, ASTM A743 Grade CF8M.
- G. Upper and lower bearing journals shall be protected by Buna-N (NBR) grit seals installed around the valve stem to minimize the ingress of grit into the bearing journals.
- H. Thrust bearings of PTFE construction shall be provided in the upper and lower bearing journals. Use of the thrust bearing as a grit excluder is not acceptable.
- I. Pressure ratings shall be 175 psi on valves up to 12" and 150 psi for 14" and larger. Valves shall be hydrostatically (shell) tested to 1.5 times the rated pressure per AWWA C517.
- J. All valves larger than 8" shall be installed with worm gear actuators. All gearing shall be enclosed in a ductile iron housing, with outboard seals to protect the bearings and other internal components. The actuator shaft and gear quadrant shall be supported on permanently lubricated bearings.
- K. Buried actuators shall be 90% grease filled. Input shaft shall be stainless steel. Actuator mounting brackets for buried service shall be totally enclosed.
- L. All valve and actuator fasteners shall be stainless steel.
- M. The interior and exterior of the valve shall be coated with an NSF-61 approved two-part epoxy coating.

PART 3 – INSTALLATION

- A. Use within applications of liquids containing suspended solids:
 - 1. For valves installed in a vertical pipeline, install the valve with the seat end at the top to prevent solids from settling on the backside of the valve plug.
 - 2. For valves installed in a horizontal pipeline, install the valve with a horizontal stem so the plug rotates upwards into the valve body when opened.
- B. In applications of clean liquids, the valve can be installed in any orientation, but it is recommended that the valve be installed with the higher pressure against the end opposite the seat. For reverse pressure orientation installations, consult the manufacturer to ensure proper testing requirements are performed.