

## ECCENTRIC PLUG VALVE SPECIFICATION

### Scope

- 1.1 This specification covers the design, manufacture, and testing of 2 1/2 in. (60 mm) through 36 in. (900 mm) Cast Iron Eccentric Plug Valves suitable for water or wastewater service with pressures up to 175 psig (1200 kPa).
- 1.2 Plug Valves shall be quarter-turn, non-lubricated, eccentric type with resilient faced plug.

### Connections

- 2.1 Flanged valves shall have flanges with drilling to ANSI B16.1, Class 125.
- 2.2 Mechanical Joint valves shall fully comply with ANSI/AWWA C111/A21.11.
- 2.3 Threaded valves shall have NPT full size inlets. The connection shall be hexagonal for a wrench connection.

### Design

- 3.1 Port areas of not less than 100% of pipe area shall be supplied on valves 4" (100 mm) and smaller, 85% on 16" (400 mm) and smaller, 80% on 18"-24" (150 mm - 600 mm), and 75% on 30" (800 mm) and larger.
- 3.2 The valve seat shall be a welded overlay of 99% pure nickel applied directly to the body on a pre-machined, cast seating surface and machined to a smooth finish.
- 3.3 Shaft seals shall conform to ANSI/AWWA C504 and consist of V-type packing in a fixed gland with an adjustable follower designed to prevent over compression of the packing and to meet design parameters of the packing manufacturer. Removable, slotted shims shall be provided under the follower flanges to provide for adjustment and prevent over tightening.
- 3.4 Permanently lubricated, radial shaft bearings shall be supplied in the upper and lower bearing journals. Thrust bearings shall be provided in the upper and lower journal areas.
- 3.5 Both the packing and bearings in the upper and lower journals shall be protected by a Grit-Guard™ shaft seal located on the valve shaft to minimize the entrance of grit into the bearing journal and shaft seal areas.

### Materials

- 4.1 The valve body and cover shall be constructed of ASTM A126 Class B cast iron for working pressures up to 175 psig (1200 kPa). The words "SEAT END" shall be cast on the exterior of the body seat end.
- 4.2 The plug shall be of one-piece construction and made of ASTM A126 Class B cast iron with a resilient facing per ASTM D2000-BG and ANSI/AWWA C504 requirements.
- 4.3 Radial shaft bearings shall be constructed of self-lubricating type 316 stainless steel. The top thrust bearing shall be Teflon. The bottom thrust bearing shall be Type 316 stainless steel. Cover bolts shall be corrosion resistant with zinc plating.

### Actuators

- 5.1 8 in. (200 mm) and smaller valves shall be equipped with a 2 inch square nut for direct quarter turn operation. The packing gland shall include a friction collar and an open position memory stop. The friction collar shall include a nylon sleeve to produce friction without exerting pressure on the valve packing.
- 5.2 When specified, 4 in. (100 mm) and larger valves shall include a totally enclosed and sealed worm gear actuator with position indicator (above ground service only) and externally adjustable open and closed stops. The worm segment gear shall be ASTM A536 Grade 65-45-12 ductile iron with a precision bore and keyway for connection to the valve shaft. Bronze radial bearings shall be provided for the segment gear and worm shaft. Alloy steel roller thrust bearings shall be provided for the hardened worm.
- 5.3 All gear actuators shall be designed to withstand, without damage, a rim pull of 200 lb. on the handwheel and an input torque of 300 ft-lbs for nuts.
- 5.4 Buried service actuators shall be packed with grease and sealed for temporary submergence to 20 feet of water. Exposed worm shafts shall be stainless steel.

### Options

- 6.1 When specified, the port area shall have not less than 100% of pipe area.
- 6.2 Open and closed limit switches shall be provided on the actuator when specified.
- 6.3 The interior and exterior of the valve shall be coated with an ANSI/NSF 61 approved fusion bonded epoxy.
- 6.4 The interior and exterior of the valve shall be coated with an ANSI/NSF 61 approved two-part epoxy.

### Manufacture

- 7.1 The manufacturer shall demonstrate a minimum of five (5) years experience in the manufacture of plug valves. The valves shall be proof of design tested in accordance with ANSI/AWWA C504. When requested, the manufacturer shall provide test certificates, dimensional drawings, parts list drawings, and operation and maintenance manuals.
- 7.2 The exterior of the valve shall be coated with a universal alkyd primer.
- 7.3 Valves shall be marked with the Serial Number, Manufacturer, Size, Cold Working Pressure (CWP) and the Direct and Reverse Actuator Pressure Ratings on a corrosion resistant nameplate.
- 7.4 Eccentric Plug Valves shall be Series 5800R (Flanged) or 5900R (Mechanical Joint) as manufactured by Val-Matic® Valve & Mfg. Corporation, Elmhurst, IL, USA. or approved equal.

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**VAL-MATIC®** VALVE AND MANUFACTURING CORP.

DRWG. NO.

**SS-1122**