

Team Insert Valve Sample Specification

The Insert Valve shall conform to the following:

The Ductile Iron 250 p.s.i.g. Insert Valve shall be a Resilient Wedge Gate Valve designed for use in potable water, raw water, reclaimed water, sewage, irrigation and backflow control systems. The design will allow the valve to be installed into an existing pressurized pipeline while maintaining constant pressure and service as usual.

Ductile Iron Construction:

- The ductile iron body, bonnet and wedge provide strength and a pressure rating that meets or exceeds the requirements of AWWA C515. Insert Valve shall be ductile iron construction meeting ASTM A536 Grade 65-45-12. Heavy-duty ductile iron construction for maximum toughness and strength.
- Chemical and modularity tests shall be performed as recommended by the Ductile iron Society, on a per ladle basis. Testing for tensile, yield and elongation shall be done in accordance with ASTM E8.
- Sizes 12" and smaller must be capable of working on Cast/Grey Iron or Ductile Iron Class A, B, C and D, IPS PVC, C900 and C909 PVC, Steel, AC pipe diameters without changing either top or bottom portion of split valve body.
- 250 psig maximum working pressure. The pressure rating markings must be cast into the body of the insert valve.
- After the installation of the insert valve body on to the existing pipe a pressure test of 1.1 times that of the contents shall sustained for 15 minutes. Once the pressure test is affectively achieved the insert valve body must not be moved in accordance with AWWA Standards. If the insert valve is moved the pressure test must be completed again. The insert valve must not be moved or repositioned once the pressure test is achieved.

Resilient Wedge Gate Assembly:

- The construction of the Resilient Wedge shall comply with AWWA C509 requirements.
- The ductile iron wedge shall be fully encapsulated with EPDM rubber by a high pressure and high temperature compression or injection mold process. This will assure the ductile gate is fully coated with molded rubber – no exposed iron.
- The resilient wedge shall seat on the valve body and not the pipe to obtain the optimum seating and flow control results. The resilient wedge shall be totally independent of the carrier pipe.
- The resilient wedge shall not come into contact with the carrier pipe or depend on the carrier pipe to create a seal. Abrasion results thus shorting the life and quality of the shut down if the wedge contacts the pipe.

- Pressure equalization on the down or upstream side of the closed wedge shall not be necessary to open the valve.
- The wedge shall be symmetrical and seal equally well with flow in either direction.
- The Resilient wedge must ride inside the body channels to maintain wedge alignment throughout its travel to achieve maximum fluid control regardless of high or low flow pressure or velocity. The resilient wedge must have more support than the operating stem as the resilient wedge enters and exits the water (fluid) way.
- Oversized flow way. Unobstructed to provide optimum flow.

Fusion-Bonded Epoxy:

- The insert valve is fully epoxy coated on the interior and the exterior. The fusion-bonded coating is applied prior to assembly so that even the bolt holes and body-to-bonnet flange surfaces are fully epoxy coated.
- Valve shall be coated with a minimum of 8 mils epoxy in compliance with AWWA C550 and certified to ANSI/NSF-61.

Gaskets and Triple O-Ring Stem Seals:

- This insert valve features triple O-Ring stem seals. Two O-Rings are located above, and one O-Ring is located below the thrust collar.
- The lower two O-Rings provide a permanently sealed lubrication chamber that will make the valve easier to operate over a longer period of time. The upper O-Ring ensures that sand, dirt or grit cannot enter the valve to cause damage to the lower O-Rings. This is especially important for buried and sewage service applications.
- Side flange seals shall be of the O-Ring type of either round, oval, or rectangular cross-sectional shape.

Valve Stem & Thrust Washers:

- The gate valve stem and wedge nut shall be copper alloy in accordance with Section 4.4.5.1 of the AWWA C515 Standard.
- The NRS stem must have an integral thrust collar in accordance with Section 4.4.5.3 of AWWA C515 Standard. Two-piece stem collars are not acceptable. The wedge nut shall be independent of the wedge and held in place on three sides by the wedge to prevent possible misalignment.

- Two thrust washers are used. One is located above, and one is located below the stem thrust collar. Two thrust washers ensure easy operation at all times.
- NRS with AWWA standard turns.
- Operated by 2" square wrench nut according to ASTM A126 CL.B – open left or open right

American Made Quality:

- All parts and components to be exclusively and completely assembled, manufactured, machined and coated in the USA.
- All physical and chemical test results shall be recorded such that they can be accessed via the identification number on the casting. These Material Traceability Records (MTR's) are to be made available, in hard copy, to the purchaser that requests such documentation..
- All components shall be manufactured and assembled in the United States. The purchaser shall, with reasonable notice, have the right to plant visitation at his/her expense.

Hardware:

- Bolting materials shall develop the physical strength requirements of ASTM A307 with dimensions conforming to ANSI B18.2.1.

Extended Life Value:

- The stuffing box, operating stem and resilient wedge (complete bonnet and all moving parts) shall be removable, repairable and or replaceable under pressure. In other words, even while the valve is fully pressurized in the system all moving components can be removed under pressure. In the event the valve stem is broken or damaged the bonnet can be removed under pressure.
- Internal pressure equalization system assures the safe entry and removal of the valve bonnet during initial installation as well as future maintenance. This alleviates the need for additional pipe penetration taps or foreign methods (i.e. compressed air or auxiliary water source) to equalize pressure.

Split Restraint Devices:

- Shall consist of multiple gripping wedges incorporated into a follower gland meeting the applicable requirements of ANSI/AWWA C110/A21.10.
- The devices shall have a working pressure rating of 350 psi for 4-12 inch. Ratings are for water pressure and must include a minimum safety factor of 2 to 1 in all sizes.
- Chemical and modularity tests shall be performed as recommended by the Ductile iron Society, on a per ladle basis. Three test bars shall be incrementally poured per production shift as per U.L. specifications and ASTM A536. Testing for tensile, yield and elongation shall be done in accordance with ASTM E8.
- Gland body wedges and wedge actuating components shall be cast from grade 65-45-12 ductile iron material in accordance with ASTM A536.
- Mechanical joint restraint shall require conventional tools and installation procedures per AWWA C600, while retaining full mechanical joint deflection during assembly as well as allowing joint deflection after assembly.
- Proper actuation of the gripping wedges shall be ensured with torque limiting twist off nuts. Set screw pressure point type hardware shall not be used.
- Restraint devices shall be listed by Underwriters Laboratories and Approved by Factory Mutual (3" through 12" inch size).

The insert valve shall be a Team InsertValve Patent number 6,776,187 and 7,225,827 or written approved equal.

For additional product information and an animation of the process please visit the web at:

http://www.teamindustrialservices.com/taps/animations/insertvalve/InsertValve_animation.html

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