



RESILIENT WEDGE GATE VALVES FOR WATERWORKS SERVICE SPECIFICATIONS
VSI AWWA C509/515

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RESILIENT WEDGE GATE VALVES FOR WATERWORKS SERVICE

1. SCOPE
 - 1.1. This specification covers the design, manufacture, and testing of cast resilient wedge gate valves 3 inch (75 mm) and larger under service pressure of up to 250 psig (1724 kPa).
 - 1.2. Resilient wedge gate valves shall be resilient seated and of the non-rising stem type.
2. GOVERNING STANDARDS
 - 2.1. All resilient wedge gate valves shall be in full conformance with the design, manufacturing, and testing standards set forth by the American Water Works Association (AWWA) in Standard ANSI/AWWA C509.
 - 2.2. When requested, manufacturer shall provide an Affidavit of Proof of Design Testing in accordance with AWWA C509.
3. CONNECTIONS
 - 3.1. Flanged valves shall conform to all standards of ANSI B16.1, Class 125 or Class 250.
 - 3.2. Flanged valves' lay length shall conform to ASME B16.10.
 - 3.3. Mechanical joint valves shall conform to all standards of ANSI/AWWA C111/A21.11.
4. MARKINGS
 - 4.1. Each valve shall be marked with the manufacturer's name, valve size, body material, and pressure rating cast into the body of the valve. Lettering shall be a minimum of 1/2 inch tall and project 1/10 inch from body.
 - 4.2. All resilient seated gate valves, except buried or submerged valves, shall be equipped with a type 304 or 316 stainless steel tag identifying body, gate, resilient encapsulation, and stem material in addition to manufacturer's name, pressure rating, size, date of manufacturer, and date of testing.
5. DESIGN
 - 5.1. Valves shall be equipped with a gate fully encapsulated with a resilient seat bonded per ASTM D429.
 - 5.2. Valve stem shall be of the non-rising type with either an integral thrust collar or a two-piece split ring.
 - 5.3. Valve shall be equipped with a minimum of one seal or o-ring below the thrust collar or split ring and two above.
 - 5.4. Thrust bushings shall be supplied acting upon the integral thrust collar, if equipped, in both the opening and closing direction. If equipped with a split ring the material shall not be the same as the stem.
 - 5.5. The valve should have a smooth waterway equal to 100% \pm 5% the nominal pipe size.
 - 5.6. Valve sizes 36 inch and larger shall be equipped with an AWWA C509 bypass gate valve sized per AWWA C500 Table 11.
 - 5.7. Valves 18 inch and larger where the final installation results in the valve stem being more than 22.5 degrees from vertical shall be equipped with rollers retained to the valve gate acting on a corrosion resistant track retained to the valve body.
 - 5.8. The valves shall be equipped with a mounting area for operators conforming to Manufacturers Standard Society (MMS) 101 or International Organization of Standardization (ISO) 5211 if equipped with a gearbox, pneumatic, hydraulic, or electric actuator. There shall be sufficient clearance to directly mount standardized operators with easily accessible fasteners.
 - 5.9. Stem diameter at drive shall be the preferred dimension stated in ISO 5211 Table 4.
 - 5.10. Drive keys shall comply with ISO R773, unless specifically stated otherwise. Preferred tolerance is D10. Tolerance of Js9 is acceptable for motor operated valves.
 - 5.11. Valves shall provide a bubble-tight shutoff bi-directionally at rated working pressure.
6. MATERIALS
 - 6.1. The valve body, gate, and bonnet if equipped shall be constructed of ASTM A536 Ductile Iron.
 - 6.2. The valve gate encapsulation shall be made from resilient NBR or EPDM as specified. The gate should be fully encapsulated with no voids and holiday tested before and after vulcanization.
 - 6.3. The stem shall be made of type 304 or 316 stainless steel.
 - 6.4. Thrust bearings shall be made of permanently lubricated RTFE or lead free Bronze. Split rings shall be made of lead free Bronze or Brass.
 - 6.5. All submerged coatings shall conform to AWWA C550, be holiday free, and have a minimum total dry film thickness of 10 mils.
 - 6.6. All uncovered, submerged, or buried valves shall have type 304 or 316 stainless steel exterior hardware. All others shall have zinc plated carbon steel hardware unless specified.
7. OPERATORS
 - 7.1. All manually operated valves 16 inches and larger shall be equipped with a bevel or spur gear actuator. Operator should be designed to hold the valve in any intermediate position without creeping.
 - 7.2. All actuators shall be permanently sealed and suitable for buried service.
 - 7.3. All 2 inch square operating nuts, exposed hardware and shafts shall be made of corrosion resistant stainless steel.
 - 7.4. All actuators equipped with handwheels shall have a maximum rim pull of 50lbs plus 5%.
8. MANUFACTURER
 - 8.1. Resilient seated wedge gate valves shall be VSI Series GVI as manufactured by Valve Solutions, Inc., Alpharetta, GA USA.
 - 8.2. All valves shall be warranted by manufacturer for a minimum of 12 months.