

SECTION 15102 – RESILIENT WEDGE GATE VALVES

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This Section includes materials, installation, and testing of manually operated, resilient wedge gate valves including accessories, linings, coatings, valve boxes, extension stems, and anchors.
- B. Resilient wedge gate valves shall be in accordance with the latest adopted edition of the Water Utilities Manual.

1.2 RELATED WORK SPECIFIED ELSEWHERE

- 1. Section 01300 - Record Drawings and Submittals.
- 2. Section 02223 - Trenching, Backfilling, and Compacting.
- 3. Section 03300 – Cast in Place Concrete
- 4. Section 09800 - Painting and Coating.
- 5. Section 15100 – Valves – General
- 6. Section 15101 – Valve and Gate Operators
- 7. City of Oceanside Water, Wastewater, and Recycled Water Design and Construction Manual (Water Utilities Manual)

1.3 SUBMITTALS

- A. Submit shop drawings in accordance with the standard specifications. .
- B. Submit valve manufacturer's catalog data, descriptive literature, and assembly drawings. Show dimensions, materials of construction by specification reference and grade, linings, and coatings.
- C. Submit manufacturer's affidavit of compliance with referenced standards.
- D. Submit valve box manufacturer's catalog data. Show dimensions and materials of construction.

PART 2 - MATERIALS

2.1 GENERAL

- A. Provide valves complete with operating handwheel or operating nut, linings, coatings, valve box, extension stem, anchor, and marker post.
- B. Cast or mold onto the valve body or bonnet the name of the manufacturer and the valve size. Do not attach identification plates to the valve body or bonnet.
- C. Provide valves with the same type ends as the pipe or fittings, or with ends that have been designed for use on the pipe being installed.

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- D. Unless otherwise indicated, valves shall be the same size as the pipe in which they are installed.
- E. Unless otherwise indicated, valves shall have a working pressure rating not less than the pipe in which they are installed.

2.2 RESILIENT WEDGE GATE VALVES, LESS THAN 14-INCHES

- A. Valves shall be provided in accordance with the Water Utilities Manual
- B. For working pressures from zero to 200 psi, valves shall be resilient wedge, non-rising stem and conform to AWWA C509. Provide valves with resilient wedge disc, unobstructed waterway, counter-clockwise opening and designed for a working pressure of 200 psi. Construct valves of ductile iron conforming to ASTM A 395 or A 536. Bronze for internal working parts, including stems, shall not contain more than 2% aluminum nor more than 7% zinc, bronze shall be ASTM B 62 (85-5-5-5) bronze, except that stem bronze shall have a minimum tensile strength of 60,000 psi, a minimum yield strength of 30,000 psi, and a minimum of 10% elongation in 2 inches. Provide O-ring seals. Provide Type 316 stainless steel body bolts conforming to ASTM F 593. Provide 2-inch AWWA operating nut for buried installations. Provide handwheel for aboveground or in vault installations. Gate valves shall be Clow, Muller, or AVK resilient wedge gate valve per AWWA C509.

2.3 LINING AND COATING FOR VALVES

- A. Lining shall be provided in accordance with the Water Utilities Manual.

2.4 PACKING, O-RINGS, AND GASKETS

- A. Packing, O-Rings, and Gaskets shall be provided in accordance with the Water Utilities Manual.

2.5 BOLTS, NUTS AND GASKETS FOR FLANGES

- A. Nuts and Bolts shall be provided in accordance with the Water Utilities Manual.
- B. Provide washers for each nut. Washers shall be of the same material as the nuts.
- C. Gaskets shall be provided in accordance with the Water Utilities Manual.

2.6 VALVE BOXES

- A. Provide a valve box for each buried valve consisting of a frame, lid, and one piece extension pipe to the valve body. Construct frame and lid of cast iron and design for traffic loading. Castings shall be smooth, clean, and free from blisters, blowholes, and shrinkage. Machine bearing surfaces of frame and lid to provide a close fit without rocking. Valve box shall be in accordance with the Water Utilities Manual.

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2.7 EXTENSION STEMS

- A. Provide valve stem extensions in accordance with the Water Utilities Manual.

2.8 POLYETHYLENE ENCASEMENT

- A. See the Water Utilities Manual.

2.9 ANCHORS

- A. Provide anchors on valves. Anchor type depends on valve size and working pressure as shown in the Standard Drawings and shall be one of the following installations.
 - 1. Provide steel anchor straps and bolts, or reinforcing steel. Hot dip galvanize steel straps and bolts after fabrication. Completely encase in concrete after placing on valve.
 - 2. Provide reinforced concrete anchor and adapter with thrust collar. Design and sizing of the anchor will be based on the highest pressure the main will be subjected to, such as test or surge.

PART 3 - EXECUTION

3.1 INSPECTION BEFORE INSTALLATION

- A. Operate the valve from closed to fully open, then close again before installing. Check for broken, cracked, or missing parts; malfunctioning stem; scored surfaces on interior lining; and faulty operation.

3.2 INSTALLING FLANGED JOINTS

- A. Install flanged joints per the standard specifications. .
- B. After testing, coat exposed surfaces of bolts and nuts to be buried with primer for wax tape coating in accordance with the Water Utilities Manual.

3.3 INSTALLING POLYETHYLENE ENCASEMENT

- A. See the Water Utilities Manual.

3.4 INSTALLING ANCHORS

- A. Install concrete anchors under valves after completion of the polyethylene encasement. Place concrete per the standard specifications.

3.5 INSTALLING VALVE BOXES

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- A. Valve box and cover shall be installed in accordance with the most recently adopted edition Water Utilities Manual.

3.7 PAINTING AND COATING

- A. Coat valves located aboveground, or in vaults and structures, the same as the adjacent pipes and per the standard specifications. Do not apply flame spray coating to fusion-bonded epoxy coated valves. Apply finish coats in the field. Color of finish coat shall match the color of the adjacent piping. Coat handwheels the same as the valves.

3.8 FIELD TESTING

- A. Operate gate valves through 10 full cycles of opening and closing. Valves shall operate from full open to full close without sticking or binding. If valves stick or bind, repair or replace the valve and repeat the tests.

3.9 PRESSURE TESTING

- A. Test gate valves at the same time that the connecting pipelines are pressure tested.

3.10 DISINFECTION

- A. See the Water Utilities Manual.

****END OF SECTION****