

SPECIFICATIONS - DETAILED PROVISIONS
Section 15102 - Resilient-Seated Gate Valves

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SECTION 15102
RESILIENT-SEATED GATE VALVES

PART 1 - GENERAL

1.01 DESCRIPTION

The Contractor shall furnish, deliver, and unload within the time specified in the Special Conditions, the resilient-seated gate valves as hereinafter described.

1.02 QUALITY ASSURANCE

Quality Assurance includes the requirements of this specification and the requirements of the latest revision of the following standards, as applicable. Unless specifically stated otherwise, the most stringent requirement will govern when there is a conflict.

- A. AWWA C-509. American Water Works Association Standard for Resilient Seated Gate Valves, 3" through 30" NPS, for Water and Sewage Systems
- B. AWWA C-515. American Water Works Association Standard for Reduced-Wall, Resilient Seated Gate Valves, 3"-16" & 3"-36" NRS.
- C. AWWA C-550. American Water Works Association Standard for Protective Interior Coatings for Valves and Hydrants.

1.03 SUBMITTALS

The name of the manufacturer of the valves to be furnished by the bidder shall be stated on the bidding sheets. Proposed valves other than those listed on the EMWD approved Material List must be submitted for evaluation well in advance of the bid opening, for acceptance prior to the award of the contract. Generally, the specified 35-day period following issuance of the Notice-of-Acceptance-of-Proposal is not sufficient for approval of alternate valves.

1.04 PRODUCT DELIVERY

- A. Storage. Valves shall be stored in the closed position to protect seating surfaces.
- B. Handling. Valves shall be carefully lowered from the truck to the ground. Do not hook hoists or fasten chains around stem, gearing, motors, cylinders, or handwheels.

1.05 JOB CONDITIONS

Valves shall not be fabricated, stored, coated, or installed in climatic conditions that will adversely affect the quality of the finished project.

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1.06 ALTERNATIVES

Valve ends shall be as specified on the bidding sheet, plans or specifications as applicable; these may be flanged both ends, hub-end both ends, or one flanged end and one hub-end, conforming to the following specifications:

- A. Flanged End. Flanged ends shall be designed for the water pressure as specified in AWWA C-509 and drilled to the American Standard for 125# Cast Iron Flanges, and flange face shall not be raised. Flange face shall have standard machine finish.
- B. Hub-End. Hub-ends shall be designed for the water pressure as specified in AWWA C-509 and shall be "Ring-tite", "Fluid-tite" or approved equal.

1.07 GUARANTEE

Contractor shall guarantee all materials and workmanship of items furnished under these specifications shall be free from defects for a period of one (1) year after final completion and acceptance of the entire contract work. The Contractor shall, at his own expense, repair or replace all defective materials or workmanship supplied by him that are found to be deficient with respect to any provisions of this specification.

PART 2 - PRODUCT

2.01 MATERIALS

Resilient Seated Gate Valves shall include the following materials:

- A. Non-Rising Stems. Clockwise to close, counterclockwise to open. Valve stems shall be of bronze, having a minimum tensile strength of 55,000 psi and a yield point of not less than 40,000 psi, with an elongation of not less than 10% in 2". Heat treatment will be permitted to develop these requirements. All bronze shall contain not more than 7% zinc nor more than 2% aluminum.
- B. 2" Square Nut with arrow cast in metal to indicate opening direction, except where specified otherwise.
- C. Resilient Seats may be bonded or mechanically attached to either the gate or valve body.

2.02 COATINGS

- A. All valves shall have internal and external ferrous parts epoxy coated. Wetted surfaces shall have an 8 mil minimum (dry film) thickness, unless otherwise specified. The epoxy shall be approved for potable water, and shall conform to AWWA C-550.

- B. All coated surfaces shall be visually and electrically examined for defects. The coating shall be holiday free as determined by a low voltage wet sponge test per AWWA C-550.

2.03 FABRICATION AND MANUFACTURE

- A. Interchangeability. All like parts of all valves of the same model number and size shall be interchangeable.
- B. Waterway. With the valve open, there shall be a smooth and unobstructed waterway at least equal to the nominal valve diameter. There shall be no sediment pockets in the valve.
- C. Valve Actuator. Resilient Seated Gate Valves 16-inches through 36 inches shall have a gear reduction actuator that meets the following maximum values for torque and number of turns:

Valve Size	Maximum Input Torque (ft. lbs.)	Maximum Number of Turns to Open/Close
16"	65	200
18"	80	225
20"	125	250
24"	150	310
30"	350	380
36"	385	450

- D. Cast Marking. Valves shall have the manufacturer's name, the size of the valve, and the working pressure cast on the side of the valves.
- E. Stem Sealing. Stems shall be sealed by the use of multiple stem seal o-rings.
- F. Stem Orientation. Stems shall be vertical. In no case shall stems be oriented horizontally.
- G. Bypass Valves. Where required in the bidding sheets or in the Special Conditions of these specifications, gate valves 30-inches and larger shall be equipped with standard bypass valves. The Engineer will determine such on a case-by-case basis.

PART 3 - EXECUTION

3.01 INSPECTION

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- A. Hydrostatic Tests. All valves shall have hydrostatic shell test of 400 psi and a bubble tight shut-off test of 200 psi.
- B. Coating Tests. All coated surfaces shall be visually and electrically examined for defects. The coatings shall be holiday free with a low voltage wet sponge test per AWWA C-550.
- C. Operation Test. Each valve shall be operated through one complete cycle in the position for which it is designed, to ensure proper functioning of all parts.
- D. Additional Testing (RSGVs 16-inch and Larger). Resilient Seated Gate Valves 16-inch and larger shall be hydrostatically tested and performance tested per AWWA C509 and C515. This test shall be conducted within 100 miles of the District office and shall be performed in the presence of a District Inspector. No valve shall be installed until this testing has been completed and approved by the District. Each valve shall be tested as detailed in AWWA and District Standard Specifications and as specified below:
 - 1. Visually inspect each valve for obvious damage, substandard construction and compliance with specifications.
 - 2. Each valve shall be operated through one complete cycle in the position for which it is designed, to ensure proper functioning of all parts.
 - 3. Each valve shall be hydrostatically tested at its rated pressure. The testing medium shall be water (no air shall be used as the test medium under any circumstance). Both sides of the valve are to be tested.
 - 4. The test duration on each side of the valve shall be 5 minutes. A passing test is one where there is no visible leakage and no decrease in the initial test pressure.
 - 5. A valve that fails the hydrostatic test shall be either repaired or replaced. Repaired/replaced valves shall be retested using the same procedure.
 - 6. Valves shall only be repaired by personnel authorized by the valve manufacturer. Unless specifically authorized by the valve manufacturer, supplier or contractor shall not be permitted to perform repairs.
- E. Records. After installation, each valve location, size, make, type, date of installation, and number of turns to open shall be documented by the Contractor and furnished to District Operations through the District Inspector.

3.02 PREPARATION

Valves shall be complete when shipped. They shall be drained and closed before shipment.

END OF SECTION 15102