Section 15104 - RESILIENT-SEATED GATE VALVES

1. SCOPE. This section covers resilient-seated AWWA gate valves for water service. Resilient-seated gate valves shall be used for 12 inch and smaller line valves.

2. GENERAL.

2.01. Governing Standard. Except as modified or supplemented herein, all resilient-seated gate valves shall conform to the applicable requirements of ANSI/AWWA C-509.

2.02. General Equipment Stipulations. The General Equipment Stipulations shall apply to all equipment furnished under this section.

2.03. Temporary Number Plates. Each gate valve shall be factory tagged or marked to identify the valve by the number indicated in the Gate Valve Schedule.

2.04. Marking. Supplementing the requirements of Section 7.1 of the governing standard, the country of origin of the valve body shall be cast on the exterior of the body. The country of origin of the gate shall be molded into the resilient seat material.

2.05. Shop Coating. All interior and exterior ferrous metal surfaces of valves and accessories shall be shop coated for corrosion protection. The valve manufacturer's standard coating will be acceptable provided it is functionally equivalent to the specified coating and is compatible with the specified field painting.

The following surfaces shall be coated:

Interior Surfaces	Epoxy.
Exterior Surfaces of Valves	Epoxy or coal tar.
Polished or Machined Surfaces	Rust-preventive compound.

The protective coating on interior surfaces of each valve shall be subjected to a nondestructive holiday test in accordance with ASTM G62, Method A, and shall be electrically void-free.

Exterior surfaces of valves coated with coal tar shall be field painted in accordance with the painting section. Field painting of valves coated with epoxy shall be limited to touchup painting of damaged surfaces. Holiday testing of exterior coatings will not be required.

The total dry film thickness of shop-applied coatings shall be not less than:

Type of Coating	Minimum Dry Film Thickness
Coal Tar	6 mils
Epoxy	10 mils
Rust-Inhibitive Primer	3 mils

2.06. Acceptable Manufacturers. The following gate valve manufacturers have been preapproved:

Manufacturer	Model
American Flow Control	Series 2500
Clow	C 509
Kennedy	4067 / 7000

3. MATERIALS. Except as modified or supplemented herein, materials used in the manufacture of resilient-seated gate valves shall conform to the requirements of ANSI/AWWA C509.

3.01. Bronze Components. All wetted bronze valve components shall be fabricated of bronze containing less than 15 percent zinc. All wetted aluminum bronze components shall be heat treated to inhibit de-aluminization in accordance with Section 2.2 of ANSI/AWWA C504.

3.02. Gaskets. Gasket material shall be sheet paper or elastomer, free from asbestos and corrosive ingredients.

3.03. Shop Coatings. The following coating materials shall be shop applied. The valve manufacturer's standard coating will be acceptable provided it is functionally equivalent to the products specified herein and is compatible with the specified field painting.

Coal Tar	Kop-Coat "Bitumastic Super Service Black", Tnemec "46-449 Heavy Duty Black", or Valspar "35-J-10 Hi-Build Bituminous Coating".
Epoxy	Manufacturer's standard

	fusion- bonded or liquid epoxy.
Rust-Inhibitive Primer	Cook "391-N-167 Barrier Coat", Kop-Coat "340 Gold Primer", Tnemec "37-77 Chem-Prime", or Valspar "13-R-28 Chromox Primer".
Rust-Preventive Compound	Houghton "Rust Veto 344", Rust-Oleum "R-9", or equal.

4. VALVE CONSTRUCTION.

4.01. Flanges. Flanges shall be finished to true plane surfaces within a tolerance limit of 0.005 inch. The finished face shall be normal to the longitudinal valve axis within a maximum angular variation tolerance of 0.001 inch per inch of flange diameter.

4.02. Mechanical Joints. Mechanical joint ends of the valves shall conform to ANSI/AWWA C111/A21.11.

4.03. Stem Seals. All buried gate valves shall be furnished with non-rising stems. Valves with non-rising stems and all buried valves shall be provided with O-ring stem seals.

4.04. Rotation. The direction of rotation of the handwheel or wrench nut to open the valve shall be to the left (counterclockwise).

5. EXTENSION STEMS. Extension stems shall be furnished and installed where specified, indicated on the drawings, or otherwise required for proper valve operation. Extension stems shall be of solid steel and shall be not smaller in diameter than the valve stem. Extension stems shall be connected to the valve stem by means of a Lovejoy "Type D" single universal joint with grease filled protective boot. All stem connections shall be pinned.

Extension stems shall be provided for buried valves when the valve is 4 feet or more below finished grade. Each extension stem for a buried valve shall extend to within 6 inches of the ground surface, shall be provided with spacers which will center the stem in the valve box, and shall be equipped with a wrench nut.

6. FLOOR BOXES. Where openings through concrete slabs are provided for key operation of valves with the operating nut being in or below the slab, such openings shall be provided with a cast iron floor box complete with cover. Each floor box shall be of the depth required for installation in the slab indicated on the drawings. Where the operating nut is in the slab, the stem shall have a guide to maintain the nut in the center of

the box; where below the slab, the opening in the bottom of the box shall permit passage of the operating key.

Each floor box and cover shall be shop coated by dipping in asphalt varnish.

7. VALVE BOXES. Each buried valve to a depth of 4 feet or less shall be provided with a Charlotte Foundry valve box. Valve boxes shall be cast iron, extension sleeve type, for the depth of cover required by the drawings. Not more than one extension will be allowed with each slide type valve box. Valve boxes shall be not less than 5 inches in inside diameter, shall have a minimum thickness at any point of 3/16 inch, and shall be provided with suitable cast iron bases and covers.

Each valve buried to a depth greater than 4 feet shall be provided with a valve box consisting of a cast iron cover and a 6 inch cast iron pipe section. The cover shall be Clay & Bailey "No. 2193" or Tyler "Series 6890-A". The pipe shaft shall be sized to extend from the valve to 5 inches inside the valve box cover.

All parts of valve boxes, bases, and covers shall be shop coated by dipping in asphalt varnish.

Valves and valve boxes shall be set plumb. Each valve box shall be placed directly over the valve it serves, with the top of the box brought flush with the finished grade. After being placed in proper position, earthfill shall be placed around each valve box and thoroughly tamped on each side of the box. The top of the box shall be set in a concrete protector ring.

8. ENDS. Valve ends shall be mechanical joint unless otherwise indicated on the drawings. Flange by mechanical joint ends shall be provided for tapping sleeve and valve installations.

All valves shall be restrained utilizing flanges, tie rods, or restrained push-on joints as specified in the ductile iron pipe section.

Resilient-seated gate valves shall be provided with durable opaque end shields to prevent ultraviolet damage to the rubber discs.

9. INSTALLATION. Valves shall be handled and installed in accordance with the recommendations set forth in the appendix to ANSI/AWWA C-509 and the recommendations of the manufacturer.

10. DRAWINGS AND DATA. Complete drawings, details, and specifications covering the valves and their appurtenances shall be submitted in accordance with the submittals section.

Submittal drawings shall clearly indicate the country of origin of all cast gray iron or ductile iron valve components. When requested by the Engineer, certified copies of physical and chemical test results shall be submitted for the materials of construction of valve components.

All valves shall be tested in accordance with Section 6 of ANSI/AWWA C509. Certified copies of the results of all tests, together with an affidavit of compliance as indicated in Section 1.5, shall be furnished to the Engineer before the valves are shipped.

End of Section