

## **Material Specification – 5 for Resilient Seated Gate Valves**

### **150 Pound Class: 3 through 12-Inch Nominal Diameter**

**1. GENERAL**

Resilient seated gate valves shall be designed and manufactured in accordance with AWWA C509 or AWWA C515, as applicable, with the following additional requirements or exceptions.

**2. SERVICE**

Valves shall be suitable for frequent operation and for long periods of inactivity. Valves shall be capable of operating satisfactorily with flows in either direction and shall provide zero leakage past the seat; the operating pressure for all sizes shall be 200 psi. Components shall be suitable for exposure to chloraminated water.

**3. SIZES**

This Specification covers 150 pound class resilient seated gate valves in 3-inch through 20-inch nominal diameters.

**4. VALVE DESCRIPTION**

Valves shall be iron body, resilient seated gate valves with non-rising stems. If the resilient seats are bonded to the gates, the gates shall be completely encapsulated with the material, except for guide tabs or slots. Valve bodies shall be designed to allow for the lifting of the valves by the bonnet flange, gland flanges, or other appurtenances.

Valves shall be supplied with a 2-inch square wrench nut. Valves shall open clockwise.

**5. INSTALLATION**

The 3-inch through 12-inch valves shall be installed with the stem positioned vertically in buried horizontal water lines without gearing, bypasses, rollers, or tracks. The 14-inch through 20-inch valves shall be installed horizontally in buried horizontal water lines without bypasses, rollers or tracks. Horizontal installations shall include a bevel gear to rotate the input shaft vertical and provide a mechanical advantage.

**6. BEVEL GEAR**

Bevel gear shall be bury duty rated, grease filled for life, totally enclosed gearing and fully sealed with nitrile rubber O-rings. Bevel gear housing shall be ductile iron and bevel gears shall be AISI/SAE 4340 steel with the input shaft supported by a ball bearing.

**7. VALVE STEMS**

Valve stems shall be made of bronze in accordance with ASTM B 763, Copper Alloy No. C99500; stainless steel in accordance with ASTM A 276, Type 304, Type 316, or

AISI 420; or copper alloy in accordance with ASTM B 98, Copper Alloy No. C66100/H02.

The stem seal shall consist of two O-rings of nitrile rubber.

**8. BOLTING MATERIAL**

The bonnet gland bolts and nuts shall be in accordance with ASTM F 593, Type 304 stainless steel or electro-plated with zinc or cadmium. The hot-dip galvanized process is not acceptable.

**9. END-CONNECTIONS**

**A. Flanges:** Flanges shall be sized and drilled in accordance with ANSI B16.1, Class 125. Flanges shall be machined to a flat surface with a serrated finish in accordance with AWWA C207.

**B. Mechanical Joint:** Mechanical joint components shall be in accordance with AWWA C111 with tee-head bolts and hexagon nuts fabricated from a high-strength, low alloy steel known in the industry as Cor-Ten, Usalloy, or Durabolt.

Accessories for the mechanical joint shall consist of the gasket, gland, and fasteners and shall be furnished and packaged separately from valves. Each package shall be labeled in a manner that provides for proper identification, and the number of units listed per package or bundle.

**10. TESTING**

Each valve, after shop assembly, shall be operated and hydrostatically tested in accordance with AWWA C509 or AWWA C515.

**11. COATING**

Valves shall have a fusion-bonded epoxy coating in accordance with AWWA C509 or AWWA C515 with a minimum DFT of 10 mil. Machined flange faces shall be shop coated with a rust preventive compound; they shall not be painted or coated with the same coating as the body.

**12. CERTIFICATION**

The manufacturer shall furnish a sworn statement that the inspection and all specified tests have been completed and that results comply with the requirements of these Standards. A copy of the Certification, including compliance with NSF/ANSI 61, shall be provided to Denver Water.

**13. ACCEPTABLE MANUFACTURERS**

<b>Manufacturers</b>	<b>AWWA C509</b>	<b>Size (Inches)</b>	<b>AWWA C515</b>	<b>Size (Inches)</b>
American AVK	X	3 to 16	X	3 to 12
American Flow Control			X	3 to 20
Clow	X	3 to 12	X	3 to 20
EJ			X	3 to 20
Kennedy	X	3 to 12	X	3 to 20
Mueller	X	3 to 12	X	4 to 20
U.S. Pipe and Foundry Company	X	3 to 12	X	4 to 20

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