

METROPOLITAN UTILITIES DISTRICT
OMAHA NEBRASKA

SPECIFICATION FOR RESILIENT
SEATED GATE VALVES FOR WATER
SUPPLY SERVICE

Section 1.1 - Scope

This specification supplements, is numbered according to, and governs over (if the two differ) AWWA C509 and C515. Valves shall feature non-rising stems (NRS) and conform to the latest version of AWWA C509 or AWWA C515, except as superseded herein.

1.1.2 The District approves the following manufacturers for 12” and smaller gate valves:

Clow
Kennedy
M&H
US Pipe
Mueller

* Section 2.0 – References

ASTM A193 – Standard Specification for Alloy-Steel and Stainless Steel Bolting Materials for High-Temperature Service.

ASTM F593- Standard Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs

Section 4.1 – Data to be Supplied by Manufacturer

Supply all catalog data, weight information, and assembly drawings at time of bid.

Section 4.2 – Materials

4.2.3 Mechanical (Physical) and Chemical Properties

- * C509 4.2.3.5 & C515 4.2.3.3
Copper alloys: The District requires low zinc copper alloys for the stem and nut. Copper alloys (i.e. brass and bronze) shall conform to ASTM B62 C83600, ASTM B98 C66100, ASTM B763 C99500, ASTM B98 C65500 (“Everdur”), ASTM B763 C87610, or equal as approved by Engineering.
- * C509 4.2.3.6 & C515 4.2.3.6
Gasket material shall be a rubber composition. O-rings seals may be used.

Section 4.3 – General Design

The valve shall be designed for flow in either direction with seating and headloss independent of flow direction.

Section 4.4 – Detailed Design

4.4.1 *Body and Bonnet*

4.4.1.1 Material. The body and bonnet shall be made of ductile iron.

* C509 4.4.1.4 & C515 4.4.1.4
Valve ends. Do not furnish flange or mechanical-joint accessories (i.e. glands, bolts, and gaskets).

* C509 4.4.1.4.2 & C515 4.4.1.4.2
Mechanical-joint (M.J.) ends. Mechanical-joint bell dimensions shall conform to ANSI/AWWA C111/A21.11.

4.4.2 - *Gate*

4.4.2.1 Material. The metal material of the gate shall be made of ductile iron or gray iron.

4.4.2.1.1 Resilient seat. The resilient seat shall be Styrene Butadiene Rubber (SBR) or Ethylene Propylene Diene Terpolymer rubber (EPDM). The seat and gate shall be designed to seat on both sides and edge to form a double seal, with no sliding or shearing of the resilient seat when compressed to a drip tight shut off. Any cavity in the gate shall have a means to drain.

4.4.4 *Bolting*. Bolting materials (including bolts, screws, studs, and nuts) shall be made of ASTM A193, Grade B8 or ASTM F593 stainless steel (AISI Type 304 Austenitic Steel).

4.4.7 *Wrench nuts and handwheels*

4.4.7.1 Operating mechanism. All valves shall be supplied with a wrench nut unless otherwise specified at the time of order.

4.4.7.2 Direction of opening. Valves shall open in the direction as specified at the time of ordering.

4.4.7.3 Method of securing. The wrench nut on valves 12" and smaller shall be connected to the valve stem end using a hold down bolt or cap screw. Pins may be used to secure the wrench nut on valves 16" and larger. Alternate wrench nut connections shall be submitted to Engineering for approval.

The wrench nut and valve stem end shall be designed for minimal movement between the wrench nut and valve stem in absents of the hold down bolt, cap screw, or retaining pin. The hold down bolt, cap screw, or retaining pin shall prevent any movement between the wrench nut and the valve stem end. The valve stem end and hold down bolt, cap screw, or retaining pin shall be completely recessed in the wrench nut. The recess for the hold down bolt or cap screw shall be centered on the wrench nut and valve stem end so that the holddown bolt or cap screw can accept a thin wall socket, which is used to remove or tighten the wrench nut.

* 4.4.9 Gearing and Gear Ratio Tags. Gearing shall be provided on all gate valves 24" and larger per AWWA C509 4.4.9 and C515 4.4.10. The minimum gear ratio for 24" and 30" valves shall be 3:1 or approved equal. The minimum gear ratio for 36" valves

shall be 4:1 or approved equal. The gear ratio for 42" and 48" valves shall be 4:1 or an approved equal. Gear ratio tags indicating the valve serial number, year manufactured and gear ratio shall be installed on all gate valves 16" and larger.

Section 4.5 - Fabrication

4.5.1 *Workmanship.*

4.5.1.2 Castings. Repairs within the bolt circle of any flange face or M.J. hub are not allowed.

4.5.2 *Coating.* All ferrous valve components, except areas of the gate covered by the resilient seat and fasteners, shall be coated with fusion-bonded or two-part epoxy meeting AWWA C550 and NSF61. Fusion-bonded epoxy shall have an 8-mil dry film thickness (DFT). Two-part epoxy shall be applied in two 4 to 5-mil DFT coats with a total 8-10-mil DFT. Coatings shall be cured for immersion in potable water.

* Section 6.3 – Affidavit of Compliance

Furnish an affidavit of compliance with AWWA C509 and/or AWWA C515 at time of bid as well as an affidavit that valves shall meet this specification and have ductile iron body and bonnet, stainless steel bolting and low zinc copper alloy bronze stems.