

American Water Works Association

ANSI/AWWA C515-01

(Revision of ANSI/AWWA C515-99)



AWWA STANDARD
FOR
REDUCED-WALL, RESILIENT-SEATED
GATE VALVES FOR
WATER SUPPLY SERVICE



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AMERICAN WATER WORKS ASSOCIATION

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Foreword

This foreword is for information only and is not a part of AWWA C515.

I. Introduction.

I.A. *Background.* This standard describes reduced-wall, resilient-seated gate valves with nonrising stems (NRS) and outside screw-and-yoke (OS&Y) rising stems, including tapping gate valves, for water supply service. The standard applies to water supply service having a pH range of 6.5 to 8.5 and a temperature from 33° to 125°F (0.6° to 52°C).

This standard includes the unified numbering system (UNS) copper alloy designations in place of the A, B, C, D, and E grades of bronze, which are listed in Table 1 of ANSI^{*}/AWWA C500-93 and ANSI/AWWA C509-94. AWWA required that the UNS alloy designations be substituted for the traditional grades A, B, C, D, E of bronze in all new standards and revisions. This is not intended to change the requirement for the types of bronzes to be used in the components of AWWA gate valves; it only changes the format for how those bronze requirements are designated.

I.B. *History.* The first edition of AWWA C509 Standard for Resilient-Seated Gate Valves was published in 1980. ANSI/AWWA C509 includes body and bonnet parts of either gray or ductile cast iron with shell-wall thicknesses equal to those of the ANSI/AWWA C500, Standard for Metal-Seated Gate Valves, which was first issued in 1952 as AWWA C500, but had its roots going back to the first AWWA standard for gate valves adopted June 24, 1913.

In 1993, the AWWA Standards Committee on Gate Valves and Swing Check Valves received authorization from the AWWA Standards Council to prepare a standard covering reduced-wall, resilient-seated gate valves. Just as other recent AWWA standards have been developed as a result of the attendant strength of ductile iron (for pressure pipe and compact fittings), this standard results from its application for gate valves.

The Manufacturer's Standardization Society of the Valves and Fittings Industry (MSS) has played an important role in developing this standard. Founded in 1924,

^{*}American National Standards Institute, 25 West 43rd Street, Fourth Floor, New York, NY 10036.

MSS has had official organizational representation on AWWA standards committees dealing with valve and hydrant products since 1930.

I.C. *Acceptance.* In May 1985, the US Environmental Protection Agency (USEPA) entered into a cooperative agreement with a consortium led by NSF International (NSF) to develop voluntary third-party consensus standards and a certification program for all direct and indirect drinking water additives. Other members of the original consortium included the American Water Works Association Research Foundation (AWWARF) and the Conference of State Health and Environmental Managers (COSHEM). The American Water Works Association (AWWA) and the Association of State Drinking Water Administrators (ASDWA) joined later.

In the United States, authority to regulate products for use in, or in contact with, drinking water rests with individual states.* Local agencies may choose to impose requirements more stringent than those required by the state. To evaluate the health effects of products and drinking water additives from such products, state and local agencies may use various references, including

1. An advisory program formerly administered by USEPA, Office of Drinking Water, discontinued on Apr. 7, 1990.
2. Specific policies of the state or local agency.
3. Two standards developed under the direction of NSF, ANSI/NSF[†] 60, Drinking Water Treatment Chemicals—Health Effects, and ANSI/NSF 61, Drinking Water System Components—Health Effects.
4. Other references, including AWWA standards, *Food Chemicals Codex*, *Water Chemicals Codex*,[‡] and other standards considered appropriate by the state or local agency.

Various certification organizations may be involved in certifying products in accordance with ANSI/NSF 61. Individual states or local agencies have authority to accept or accredit certification organizations within their jurisdiction. Accreditation of certification organizations may vary from jurisdiction to jurisdiction.

Annex A, “Toxicology Review and Evaluation Procedures,” to ANSI/NSF 61 does not stipulate a maximum allowable level (MAL) of a contaminant for substances not

*Persons in Canada, Mexico, and non-North American countries should contact the appropriate authority having jurisdiction.

†NSF International, 789 N. Dixboro Rd., Ann Arbor, MI 48105.

‡Both publications available from National Academy of Sciences, 2102 Constitution Ave. N.W., Washington, DC 20418.

regulated by a USEPA final maximum contaminant level (MCL). The MALs of an unspecified list of “unregulated contaminants” are based on toxicity testing guidelines (noncarcinogens) and risk characterization methodology (carcinogens). Use of Annex A procedures may not always be identical, depending on the certifier.

AWWA C515-01 does not address additives requirements. Thus, users of this standard should consult the appropriate state or local agency having jurisdiction in order to

1. Determine additives requirements, including applicable standards.
2. Determine the status of certifications by all parties offering to certify products for contact with, or treatment of, drinking water.
3. Determine current information on product certification.

II. Special Issues. This standard has no applicable information for this section.

III. Use of This Standard. AWWA has no responsibility for the suitability or compatibility of the provisions of this standard to any intended application by any user. Accordingly, each user of this standard is responsible for determining that the standard’s provisions are suitable for and compatible with that user’s intended application.

III.A. Purchaser Options and Alternatives. The following items should be included in the purchaser’s specifications:

1. Standard used—that is, AWWA C515, Standard for Reduced-Wall, Resilient-Seated Gate Valves for Water Supply Service, of latest revision.
2. Whether or not the purchaser requires all cast ferrous valve components to be made of ductile iron.
3. Size and type of valve, NRS or OS&Y (Sec. 1.1).
4. Quantity required.
5. Whether the valve is handwheel or wrench-nut operated and the direction in which the handwheel or wrench nut shall turn to open (Sec. 4.4.7).
6. Catalog data, net weight, and assembly drawings to be provided by the manufacturer (Sec. 4.1), if required.
7. Affidavit of compliance (Sec. 6.3), if required.
8. Whether or not records of tests specified in Sec. 5 are to be provided.
9. Whether or not the valve will be subjected to water that promotes corrosion and requires the use of alternative materials as described in Sec. 4.2.2.3.

10. Whether or not the valve will be used in a corrosive environment (Sec. 1.1.3) determined by methods described in AWWA M27.

11. Type of valve ends—flanged (Sec. 4.4.1.3.1), tapping valve flange (Sec. 4.4.1.3.4), mechanical joint (Sec. 4.4.1.3.2), or push-on joint (Sec. 4.4.1.3.3).

12. Detailed description of wrench nut, if not in accordance with Sec. 4.4.7.

13. Special markings (Sec. 6.1), if required.

14. Whether or not bolting material with physical and chemical properties other than ASTM A307 is required (Sec. 4.4.4). It is recommended that the purchaser verify with the supplier the appropriateness of any alternative bolting materials required. What alternative, if any, is desired in the type of rustproofing for bolts and nuts (Sec. 4.4.4).

15. Cutter diameter must be specified for tapping valves (Sec. 4.3.2).

NOTE: Tapping machine shell cutters are made in either full size (outside diameter [OD] is full nominal size) or undersize (OD is less than full nominal size, i.e., usually $\frac{1}{2}$ in. (13 mm) less [MSS SP-113]). The purchaser should specify the size of the shell cutter the valve must accept.

16. Special packaging for shipment as may be required for protection of coatings.

III.B. *Modification to Standard.* Any modification to the provisions, definitions, or terminology in the standard must be provided in the purchaser's specifications.

IV. Major Revisions. Major revisions made to the standard in this edition include the following:

1. 3 in., and 18 in. through 36 in. have been added to the standard.
2. Table 3 has been expanded to add new alloys for stem nuts.

V. Comments. If you have any comments or questions about this standard, please call the AWWA Volunteer and Technical Support Group, (303) 794-7711 ext. 6283, FAX (303) 795-7603, or write to the group at 6666 W. Quincy Ave., Denver, CO 80235.



AWWA STANDARD FOR REDUCED-WALL, RESILIENT-SEATED GATE VALVES FOR WATER SUPPLY SERVICE

SECTION 1: GENERAL

Sec. 1.1 Scope

This standard describes reduced-wall, resilient-seated gate valves with nonrising stems (NRS) and outside screw-and-yoke (OS&Y) rising stems, including tapping gate valves, for water supply service having a temperature range of 33° to 125°F (0.6° to 52°C). These valves are intended for applications where fluid velocity does not exceed 16 ft/sec (4.9 m/sec) when the valve is in the full open position.

1.1.1 Sizes. This standard describes nonrising stem resilient seated gate valves 3-in. (75-mm) NPS* through 36-in. (900-mm) NPS and outside screw and yoke (OS&Y) rising stem valves, 3-in. (75-mm) NPS through 16-in. (400-mm) NPS. Sizes refer to the nominal diameter of the waterway through the inlet and outlet connections and the closure area.

1.1.2 Valve pressure rating. The minimum design working water pressure shall be 200 psig (1,380 kPa) for all sizes.

*Nominal pipe size.