



**American Water Works
Association**

The Authoritative Resource for Safe Drinking WaterSM

ANSI/AWWA C606-04
(Revision of ANSI/AWWA C606-97)

AWWA Standard

Grooved and Shouldered Joints



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Foreword

This foreword is for information only and is not a part of ANSI/AWWA C606.

I. Introduction.

I.A. *Background.* Grooved and shouldered joints have been used for more than 70 years in pipelines that carry liquids and gases. In recent years, the economy and reliability of this type of joint have caused it to gain increasing acceptance for use in water treatment plants and water supply lines. To ensure continued quality of this type of joint, this standard has been developed for its manufacture.

In 1971, the AWWA Standards Council received a request to develop a standard for a type of pipe jointing that employs the principle of clamping together grooved or shouldered ends of pipe and fittings with a flexible gasket for closure. As a result of this request, the AWWA Standards Council formed an exploratory ad hoc committee "... to consider grooved and shouldered type joints and fittings, and to determine how best to arrive at an appropriate AWWA standard for such joints and fittings."

The ad hoc committee recommended "... that the AWWA Standards Council establish a standards committee for the development of a standard in one document for grooved and shouldered type joints and fittings for steel, gray-iron, and ductile-iron pipe for water and other liquids as appropriate." On June 7, 1972, the council established the AWWA Standards Committee on Grooved and Shouldered Type Joints, and the committee held its first meeting on that date.

I.B. *History.* The first edition of this standard, designated ANSI/AWWA C606-78, Standard for Grooved and Shouldered Type Joints, was published in 1978. The second edition of the standard, designated as ANSI/AWWA C606-81, was approved by AWWA on Jan. 25, 1981, by ANSI* on May 12, 1981, and was accepted by the Department of Defense on Apr. 5, 1982.

The third edition, designated ANSI/AWWA C606-87, was approved by the AWWA Board of Directors on Jan. 25, 1987, and by ANSI on Apr. 15, 1987. The major revisions contained in the 1987 edition were the deletion of all information on and references to gray cast-iron pipe. Tables relating to gray cast-iron pipe were eliminated, tables showing metric dimensions were eliminated, and metric conversion

*American National Standards Institute, 25 W. 43rd St., 4th Floor, New York, NY 10036.

factors were added as footnotes; all tables were renumbered. The fourth edition was approved by the AWWA Board of Directors on June 15, 1997. This edition was approved by the AWWA Board of Directors on Jan. 18, 2004.

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, NSF[†]/ANSI[‡] 60, Drinking Water Treatment Chemicals—Health Effects, and NSF/ANSI 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 NSF/ANSI 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.

*Persons outside the US should contact the appropriate authority having jurisdiction.

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

‡American National Standards Institute, 25 W. 43rd St., Fourth Floor, New York, NY 10036.

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

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

ANSI/AWWA C606 does not address additives requirements. 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.

II.A. *Advisory Information on Product Application.*

1. This standard includes definitions for both the manufacturer and the fabricator. For the purpose of this standard, the manufacturer is the party that produces the coupling. The fabricator is the party that grooves, or fabricates, special ends for the pipe, fittings, valves, or other components.
2. Care should be taken to prevent point loading of the coupling in underground installation.

III. Use of This Standard. It is the responsibility of the user of an AWWA standard to determine that the products described in that standard are suitable for use in the particular application being considered.

III.A. *Purchaser Options and Alternatives.* Whether compliance with NSF/ANSI 61 Drinking Water System Components—Health Effects, is required, in addition to the requirements of the Safe Drinking Water Act.

When placing orders for pipe and couplings to be manufactured in accordance with this standard, purchasers should specify the following:

1. Standard used—that is, ANSI/AWWA C606, Grooved and Shouldered Joints, of latest revision.
2. Size of pipe.
3. Pipe and coupling specification or standard, class or thickness, grade, and nominal outside diameter.
4. Kind of joint, that is, grooved, shouldered, flexible-grooved, or rigid-grooved.

5. Type of shouldered end, if shoulders are to be used.
6. pH or temperature of water, if unusual.
7. Internal working pressure.
8. Type of protective coating, if other than the standard of the coupling and pipe manufacturer.
9. Whether drawings and descriptive data are required to be submitted for approval prior to fabrication (Sec. 4.1).
10. Affidavit of compliance, if required (Sec. 6.3).
11. Whether records are to be provided of the hydrostatic pressure tests, the deflected joint hydrostatic test, or both, as specified in Sec. 5 (also see Sec. 4.1).
12. Type of material required for housings (Sec. 4.2.1).
13. Type of material required for bolts and nuts (Sec. 4.2.2).
14. Type of material required for gaskets (Sec. 4.2.3.1).
15. If the purchaser desires to inspect the couplings at the manufacturer's plant or to inspect the end preparations at the fabricator's location, or both, then the purchase order or governing specifications should state the conditions of time, extent of the inspection, and so forth, under which such inspection(s) shall be made (Sec. 5.1.3).
16. If the proof test as described in Sec. 5.2.3 is to be performed, then the percentage or number of each size and type of coupling on which the test is to be performed should be stated, as well as whether or not records are to be provided.
17. Details and requirements of state, local, and provincial requirements (Sec. 4.2).

III.B. *Modification to Standard.* Any modification of the provisions, definitions, or terminology in this 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. The definition of dimension "T" in Tables 2 and 3 was revised.
2. Metric conversions were changed from soft to hard values.
3. Tolerance values were corrected in Table 2.

V. **Comments.** If you have any comments or questions about this standard, please call the AWWA Volunteer and Technical Support Group (303) 794-7711, FAX (303) 795-7603, or write to the group at 6666 West Quincy Avenue, Denver, CO 80235-3098, or by e-mail at standards@awwa.org.