



**American Water Works  
Association**

The Authoritative Resource on Safe Water®

ANSI/AWWA C606-06  
(Revision of ANSI/AWWA C606-06)

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*AWWA Standard*

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# Grooved and Shouldered Joints



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## Committee Personnel

The AWWA Standards Committee on Grooved and Shouldered Joints, which reviewed and approved this standard, had the following personnel at the time of approval:

Roger L. Coffey, *Chair*  
David Gibbons, *Secretary*

### *General Interest Members*

B.R. Bullert, Toltz King Duvall Anderson & Associates Inc., Saint Paul, Minn.	(AWWA)
R.L. Coffey, Kirkham Michael and Associates, Omaha, Neb.	(AWWA)
R.J. Holt, Bowen Engineering Corporation, Fishers, Ind.	(AWWA)
R.L. Jackson, Mission, Texas	(AWWA)
T.J. McCandless,* Standards Engineer Liaison, AWWA, Denver, Colo.	(AWWA)
P.I. McGrath Jr., Consultant, Birmingham, Ala.	(AWWA)
J. Toyoda, Camp Dresser & McKee Inc., Walnut Creek, Calif.	(AWWA)
K.E. Wilson,* Standards Council Liaison, PBS & J, Tampa, Fla.	(AWWA)

### *Producer Members*

R.W. Bonds, Ductile Iron Pipe Research Association, Birmingham, Ala.	(DIPRA)
L.R. Dunn, U.S. Pipe & Foundry Company, Birmingham, Ala.	(DIPRA)
D. Gibbons, Victaulic Company of America, Easton, Pa.	(AWWA)
T.J. Muntz, Fab Pipe Inc., Rogers, Minn.	(AWWA)
G.L. Washburn,† Victaulic Company of America, Easton, Pa.	(AWWA)

### *User Members*

M. Acosta, Severn Trent Services, Sarasota, Fla.	(AWWA)
B.E. Kennedy, Pasco County Utilities, New Port Richey, Fla.	(AWWA)

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\* Liaison, nonvoting

† Alternate

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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 since the early 1900s. 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 factors were added as footnotes; tables were renumbered. The fourth edition was approved by the AWWA Board of Directors on June 15, 1997. The fifth edition was

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

approved on Jan. 18, 2004. This sixth edition was approved by the AWWA Board of Directors on June 11, 2006.

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 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<sup>†</sup>/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*,<sup>‡</sup> 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.

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

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\*Persons outside the United States should contact the appropriate authority having jurisdiction.

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

‡Both publications available from National Academy of Sciences, 500 Fifth Street NW, Washington, DC 20001.

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.* The following items should be provided by the purchaser:

1. Standard used—that is, ANSI/AWWA C606, Grooved and Shouldered Joints, of latest revision.
2. 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.
3. Size of pipe.
4. Pipe and coupling specification or standard, class or thickness, grade, and nominal outside diameter.
5. Kind of joint, that is, grooved, shouldered, flexible-grooved, or rigid-grooved.
6. Type of shouldered end, if shoulders are to be used.
7. pH or temperature of water, if unusual.

8. Internal working pressure.
9. Type of protective coating, if other than the standard of the coupling and pipe manufacturer.
10. Whether drawings and descriptive data are required to be submitted for approval prior to fabrication (Sec. 4.1).
11. Whether records of the hydrostatic pressure tests, the deflected joint hydrostatic test, or both, as specified in Section 5 (also see Sec. 4.1), are to be provided.
12. Details and requirements of state, local, and provincial requirements (Sec. 4.2).
13. Type of material required for housings (Sec. 4.2.1).
14. Type of material required for bolts and nuts (Sec. 4.2.2).
15. Type of material required for gaskets (Sec. 4.2.3.1).
16. 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, 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).
17. If the proof test described in Sec. 5.2.3 is to be performed, 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.
18. Affidavit of compliance, if required (Sec. 6.3).

III.B. *Modification to Standard.* Any modification of the provisions, definitions, or terminology in this standard must be provided by the purchaser.

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

1. Minor changes made in the foreword to conform with AWWA format.

V. **Comments.** If you have any comments or questions about this standard, please call the AWWA Volunteer & Technical Support Group at 303.794.7711, FAX at 303.795.7603, write to the group at 6666 West Quincy Avenue, Denver, CO 80235-3098, or e-mail [standards@awwa.org](mailto:standards@awwa.org).



American Water Works  
Association

ANSI/AWWA C606-06  
(Revision of A NSI/AWWA C606-04)

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## *AWWA Standard*

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# Grooved and Shouldered Joints

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## SECTION 1: GENERAL

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### Sec. 1.1 Scope

This standard describes grooved and shouldered joints for ductile-iron pipe, metallic pressure pipe of iron pipe size, and fittings, and other components for water service. The standard describes 4-in. through 24-in. (102-mm through 610-mm) diameter grooved ductile-iron pipe;  $\frac{3}{4}$ -in. through 24-in. (19-mm through 610-mm) diameter grooved steel, aluminum, brass, and other metallic pipe of iron pipe size (IPS) dimensions; and 4-in. through 64-in. (102-mm through 1,626-mm) nominal diameter shouldered ends for ductile-iron pipe and metallic pipe of IPS dimensions.

### Sec. 1.2 Purpose

The purpose of this standard is to provide the minimum requirements for grooved and shouldered joints, including materials, dimensions, tolerances, finishes, tests, and testing procedures.