

American Water Works Association

**ANSI/AWWA C606-97**

(Revision of ANSI/AWWA C606-87)



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**AWWA STANDARD**  
FOR  
**GROOVED AND SHOULDERED JOINTS**



*Effective date: Feb. 1, 1998.*

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*This edition approved June 15, 1997.*

*Approved by American National Standards Institute Dec. 1, 1997.*

**AMERICAN WATER WORKS ASSOCIATION**

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## AWWA Standard

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\*Liaison, nonvoting

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# Contents

All AWWA standards follow the general format indicated subsequently. Some variations from this format may be found in a particular standard.

| SEC.            | PAGE                                                           | SEC.              | PAGE                                                                                                       |
|-----------------|----------------------------------------------------------------|-------------------|------------------------------------------------------------------------------------------------------------|
| <b>Foreword</b> |                                                                | <b>6 Delivery</b> |                                                                                                            |
| I               | Introduction..... vii                                          | 6.1               | Marking..... 16                                                                                            |
| I.A             | Background..... vii                                            | 6.2               | Packaging and Shipping ..... 16                                                                            |
| I.B             | History ..... vii                                              | 6.3               | Affidavit of Compliance..... 16                                                                            |
| I.C             | Acceptance ..... vii                                           |                   |                                                                                                            |
| II              | Special Issues..... viii                                       | <b>Figures</b>    |                                                                                                            |
| II.A            | Advisory Information on Product<br>Application ..... viii      | 1                 | General Coupling and Joint<br>Configurations ..... 4                                                       |
| III             | Use of This Standard..... viii                                 | 2                 | Special Ends..... 12                                                                                       |
| III.A           | Purchaser Options and<br>Alternatives..... ix                  | 3                 | Test to Determine Pressure<br>Capacity of Coupling ..... 14                                                |
| III.B           | Modification to Standard..... ix                               | 4                 | Hydrostatic Test for Deflected<br>Flexible Joints ..... 15                                                 |
| IV              | Major Revisions..... ix                                        |                   |                                                                                                            |
| V               | Comments..... x                                                | <b>Tables</b>     |                                                                                                            |
| <b>Standard</b> |                                                                | 1                 | Gasket Material Grade and Physical<br>Properties..... 3                                                    |
| 1               | <b>General</b>                                                 | 2                 | Cut Grooving Dimensions for<br>Flexible Joints—Ductile-Iron<br>Pressure Pipe..... 5                        |
| 1.1             | Scope ..... 1                                                  | 3                 | Cut Grooving Dimensions for Rigid<br>Joints—Ductile-Iron Pressure<br>Pipe..... 6                           |
| 1.2             | Purpose ..... 1                                                | 4                 | Cut Grooving Dimensions—Steel,<br>Aluminum, Brass, and Other<br>Metallic Pipe of IPS<br>Dimensions ..... 7 |
| 1.3             | Application..... 1                                             | 5                 | Roll Grooving Dimensions—Steel,<br>Aluminum, Brass, and Other<br>Metallic Pipe of IPS Dimensions ..... 8   |
| 2               | <b>References</b> ..... 2                                      | 6                 | Dimensions of Shouldered Ends<br>for Flexible Joints..... 10                                               |
| 3               | <b>Definitions</b> ..... 2                                     |                   |                                                                                                            |
| 4               | <b>Requirements</b>                                            |                   |                                                                                                            |
| 4.1             | Information to Be Furnished by<br>Coupling Manufacturer..... 2 |                   |                                                                                                            |
| 4.2             | Materials..... 3                                               |                   |                                                                                                            |
| 4.3             | General Design..... 3                                          |                   |                                                                                                            |
| 5               | <b>Verification</b>                                            |                   |                                                                                                            |
| 5.1             | Inspection ..... 11                                            |                   |                                                                                                            |
| 5.2             | Testing ..... 13                                               |                   |                                                                                                            |
| 5.3             | Basis for Rejection ..... 15                                   |                   |                                                                                                            |

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# Foreword

*This foreword is for information only and is not a part of 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 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; all tables were renumbered. This edition was approved by the AWWA Board of Directors on June 15, 1997.

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

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\*American National Standards Institute, 11 W. 42nd St., New York, NY 10036.

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

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<sup>\*</sup>/NSF<sup>†</sup> 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*,<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 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.

Appendix A, “Toxicology Review and Evaluation Procedures,” to ANSI/NSF 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 Appendix A procedures may not always be identical, depending on the certifier.

AWWA C606-97 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.**

### **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.** 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.

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<sup>\*</sup>American National Standards Institute, 11 W. 42nd St., New York, NY 10036.

<sup>†</sup>NSF International, 3475 Plymouth Rd., Ann Arbor, MI 48106.

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

III.A. *Purchaser Options and Alternatives.* 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. Whether test records or an affidavit of compliance should be furnished showing that the material or materials used in housings, bolts and nuts, and gaskets comply with the requirements of Sec. 4.2 (also see Sec. 6.3).
11. Whether records are to be furnished 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. Whether the purchaser desires a sworn statement from the coupling manufacturer that the inspection and all specified tests have been made and that the results comply with ANSI/AWWA C606 (Sec. 5.1.1.1).
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, 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).
17. 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 furnished.

III.B. *Modification to Standard.* Any modification to 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 format has been changed to AWWA standard style.
2. Table 1, covering gasket material grades and physical properties, was added. All tables have been renumbered. The ovality tolerances have been deleted. Table 3 (new number), Pipe OD, has been revised to be consistent with other standards.
3. The figure preceding Table 5 (new number) has been revised to show a rolled groove.
4. Section 6.1 (previously Sec. 3.7) has been revised and now requires field grooves to be identified by the groover's unique mark.