



**American Water Works
Association**

The Authoritative Resource on Safe Water®

AWWA Standard

Bolted, Split-Sleeve Restrained and Nonrestrained Couplings for Plain-End Pipe



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AWWA Standard

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Foreword

This foreword is for information only and is not a part of ANSI/AWWA C227.

I. Introduction.

I.A. *Background.* This standard describes bolted split-sleeve couplings used to join plain-end pipe. It also includes materials of construction, inspection, and testing. These couplings have been utilized on water pipe since 1981.

I.B. *History.* In October 1999, the AWWA Standards Council authorized the AWWA Standards Committee for Steel Pipe to develop a new standard for the use of bolted, split-sleeve couplings for plain-end pipe. This is the first edition of that standard.

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 April 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.

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

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

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

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.

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 C227 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.* Though details differ, all couplings of this type work in a similar fashion and have similar components as depicted in the standard. Coupling manufacturers should be contacted for detailed design information regarding the capabilities of the couplings supplied and proper methods of field 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 C227, Bolted, Split-Sleeve Restrained

*Both publications available from National Academy of Sciences, 500 Fifth Street, N.W., Washington, DC 20001.

and Nonrestrained Couplings For Plain-End Pipe, of latest revision.

2. Quantity.
3. Nominal pipe size(s).
4. Flange specification for flanged coupling adaptors, if used.
5. Whether compliance with NSF/ANSI 61, Drinking Water Treatment Chemicals—Health Effects, is required.
6. Details of other federal, state or provincial, and local requirements (Sec. 4.2.1).
7. Special service conditions and operating temperature range (Sec. 4.2.6).
8. Standard classification of rubber gaskets (Sec. 4.2.5).
9. Anticipated angular deflection of pipes (Sec. 4.4 and Table 2).
10. Special requirements, such as coatings (Sec. 4.5.2), linings (Sec. 4.5.2), gasket material (Table 1), gaskets for electrical insulation (Sec. 4.2.7), and special types of bolting (Sec. 4.2.9.1).
11. Actual outside diameter(s) (OD) of pipe ends, including coating (Sec. 4.6.2).
12. Purchaser's pipe-end preparation requirements (Sec. 4.6.2).
13. Type of pipe(s), including specification to which it is made, or specifications and tolerance of pipe ends (Sec. 4.6.2.1).
14. Additional nondestructive weld evaluation (Sec. 5.1.1.2).
15. Material certifications (Sec. 5.1.1.4).
16. Purchaser's inspection requirements (Sec. 5.1.2).
17. Rated pressure, including transient pressure and test pressure (Sec. 5.2.1).
18. Hydrostatic test data report (Sec. 5.2.2.2).
19. Purchaser's proof test requirements (Sec. 5.2.3).
20. Type of gasket material (Sec. 4.2.5).
21. Certificate of compliance (Sec. 6.3).

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

IV. Major Revisions. This is the first edition of this standard.

V. Comments. If you have any comments or questions about this standard, please call the AWWA Volunteer and 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 at standards@awwa.org.

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American Water Works
Association

ANSI/AWWA C227-07
(First Edition)

AWWA Standard

Bolted, Split-Sleeve Restrained and Nonrestrained Couplings for Plain-End Pipe

SECTION 1: GENERAL

Sec. 1.1 Scope

This standard describes bolted, split-sleeve couplings (couplings) used to join plain-end pipe of similar outside diameter. Couplings may be manufactured from carbon steel or stainless steel and are intended for use in systems conveying water, wastewater, or air used in water treatment. This standard covers nominal pipe sizes from $\frac{3}{4}$ in. (20 mm) through 144 in. (3,600 mm).

Sec. 1.2 Purpose

The purpose of this standard is to provide the minimum requirements for bolted, split-sleeve couplings for plain-end pipe, including requirements for materials, design, testing and inspection, installation, marking, and shipping.