ANSI/AWWA **C907-23**

(Revision of ANSI/AWWA C907-17)

AWWA Standard

Injection-Molded Polyvinyl Chloride (PVC) Pressure Fittings, 4 In. Through 12 In. (100 mm Through 300 mm)

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American Water Works Association

AWWA Standard

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Foreword

This foreword is for information only and is not a part of ANSI/AWWA C907.*

I. Introduction.

I.A. *Background.* Injection-molded, gasketed PVC fittings are suitable for use exclusively with PVC pipe for underground pressure applications.

I.B. *History.* The first edition of ANSI/AWWA C907, Polyvinyl Chloride (PVC) Pressure Fittings for Water—4 In. Through 8 In. (100 mm Through 200 mm), was approved by the AWWA Board of Directors on June 23, 1991. The second edition, Injection-Molded Polyvinyl Chloride (PVC) Pressure Fittings, 4 In. Through 12 In. (100 mm Through 300 mm), for Water Distribution, was approved on June 13, 2004. This third edition was approved on June 11, 2017. This is the fourth edition of ANSI/AWWA C907. In 1966, AWWA appointed Committee 83 D to study and report on the adaptability of plastic pipe for use within the water industry. The committee presented its report on June 7, 1967, at AWWA's annual conference. The report included a recommendation that a task group be appointed to prepare standards for the use of plastic materials. The AWWA Standards Committee on Thermoplastic Pressure Pipe was established in 1968. Following years of very productive work, the committee was dissolved in June 1988 and replaced by two committees on plastic products: one for polyolefin and one for polyvinyl chloride (PVC) products. The AWWA Committee on PVC Pressure Pipe and Fittings, which prepared this standard, was formed at that time. This fifth edition was approved on June 9, 2023.

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 Water Research Foundation (formerly 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

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

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

‡ Persons outside the United States 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, provincial, and local agencies may use various references, including

1. Specific policies of the state, provincial, or local agency.

2. Four standards developed under the direction of NSF, NSF/ANSI/CAN[§] 60, Drinking Water Treatment Chemicals—Health Effects, and NSF/ANSI/CAN 61, Drinking Water System Components—Health Effects, NSF/ANSI 372—Drinking Water System Components—Lead Content, and NSF/ANSI/CAN 600, Health Effects Evaluation and Criteria for Chemicals in Drinking Water.

3. Other references, including AWWA standards, *Food Chemicals Codex, Water Chemicals Codex,*[¶] and other standards considered appropriate by the state, provincial, or local agency.

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

Annex A, "Toxicology Review and Evaluation Procedures," to NSF/ANSI/CAN 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 C907 does not address additives requirements. Users of this standard should consult the appropriate state, provincial, or local agency having jurisdiction in order to

1. Determine additives requirements, including applicable standards.

2. Determine the status of certifications by parties offering to certify products for contact with, or treatment of, drinking water.

3. Determine current information on product certification.

II. Special Issues.

A. *Proper Design Consideration.* Attention should be called to the need for users of this standard to provide proper design consideration for:

1. Trench support.

[§] Standards Council of Canada, 55 Metcalfe Street, Suite 600, Ottawa, ON K1P 6L5 Canada.

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

2. Thrust restraint at areas of unbalanced forces.

3. Long-term effect of any anticipated cyclic transient surge pressures.

4. Exact critical external or internal dimensions, which should be obtained from the manufacturer.

II.B. *Gasket Materials.*

II.B.1 *Chlorine and Chloramine Degradation of Elastomers.* The selection of materials is critical for water service and distribution piping in locations where there is a possibility that elastomers will be in contact with chlorine or chloramines. Documented research has shown that elastomers such as gaskets, seals, valve seats, and encapsulations may be degraded when exposed to chlorine or chloramines. The impact of degradation is a function of the type of elastomeric material, chemical concentration, contact surface area, elastomer cross section, environmental conditions, as well as temperature. Careful selection of and specifications for elastomeric materials and the specifics of their application for each water system component should be considered to provide long-term usefulness and minimum degradation (swelling, loss of elasticity, or softening) of the elastomer specified.

NOTE: Readers may reference the article titled "Effect of Chloramines on Ductile-Iron Pipe Gaskets of Various Elastomer Compounds" (Journal AWWA, Volume 96, Number 4, April 2004, pp. 153–160) for additional information regarding the potential for gasket degradation upon exposure to an oxidant. This paper concluded that a pipe gasket having the compressed hardness of an elastomer with a large mass relative to the exposed surface area experiences minimal degradation following exposure to a 110-mg/L chloramine solution.

II.B.2. *PVC Oxidative Resistance*. PVC pipe and fittings are immune to both internal and external galvanic corrosion. PVC pipe and fittings are resistant to degradation from long-term exposure to water that has been treated with disinfectants, such as chlorine, chlorine dioxide, chloramines, bromine, and ozone. There are no performance evaluation requirements for either galvanic corrosion or water disinfectant oxidation resistance for PVC pipe and fittings.

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.

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 provided by the purchaser.

1. Standard to be used—that is, ANSI/AWWA C907, Injection-Molded Polyvinyl Chloride (PVC) Pressure Fittings, 4 In. Through 12 In. (100 mm Through 300 mm), for Water, Wastewater, and Reclaimed Water Service, of latest revision.

2. Whether compliance with NSF/ANSI/CAN 61, Drinking Water System Components—Health Effects, is required.

3. Applicable details of federal, state, provincial, territorial, and local requirements (Sec. 4.2).

4. Fittings.
   a. Nominal size, for example, 6 in. (150 mm); or, for tees, 6 in. × 6 in. × 4 in. (150 mm × 150 mm × 100 mm) where naming sequence is body size × body size × leg size.
   b. Configuration (for example, tee).
   c. Quantity of each size and configuration to be provided.

5. Request for change in testing temperature. (Sec. 5.1.1.1).

6. Requested selection of fittings for testing (Sec. 5.1.1.2).

7. Request for test records (Sec. 5.1.4.2).

8. Request for notification of time and date for in-plant inspection (Sec. 5.2).

9. Request for an affidavit of compliance (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. Major changes made to the standard in this revision include the following:

1. Fitting Figures 2 through 18 have been reworked for clarity and consistency (Sec. 4.3).

2. References to dimension ratio (DR) and pressure class (PC) revised to be consistent with requirements in ANSI/AWWA C900 and ANSI/AWWA C909.

V. Comments. If you have any comments or questions about this standard, please call AWWA Engineering and Technical Services at 303.794.7711; write to the department at 6666 West Quincy Avenue, Denver, CO 80235-3098; or email at standards@awwa.org.

ANSI/AWWA C907-23
(Revision of ANSI/AWWA C907-17)

American Water Works Association
Dedicated to the World's Most Vital Resource®

AWWA Standard

Injection-Molded Polyvinyl Chloride (PVC) Pressure Fittings, 4 In. Through 12 In. (100 mm Through 300 mm)

SECTION 1: GENERAL

Sec. 1.1 Scope

This standard describes Pressure Class 235 (PC 235) polyvinyl chloride (PVC) injection-molded fittings with push-on rubber-gasketed joints in nominal sizes 4 in. through 12 in. (100 mm through 300 mm)* for conveying potable water, reclaimed water, irrigation water, wastewater, or any fluid compatible with nonplasticized PVC. The fittings are for use with PVC and molecularly oriented polyvinyl chloride (PVCO) pressure pipe having an outside diameter conforming to the dimensions of cast-iron pipe as described in ANSI/AWWA C900, Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4 In. Through 60 In. (100 mm Through 1,500 mm), AWWA Manual M23—*PVC Pipe—Design and Installation*, and ANSI/AWWA C909, Molecularly Oriented Polyvinyl Chloride (PVCO) Pressure Pipe, 4 In. and Larger.

* Throughout the body of this standard, metric equivalents (rounded) are set in parentheses next to the US customary units.