



**American Water Works  
Association**

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**ANSI/AWWA C514-15**  
(First Edition)

**AWWA Standard**

# Air Valve and Vent Inflow Preventer Assemblies for Potable Water Distribution System and Storage Facilities

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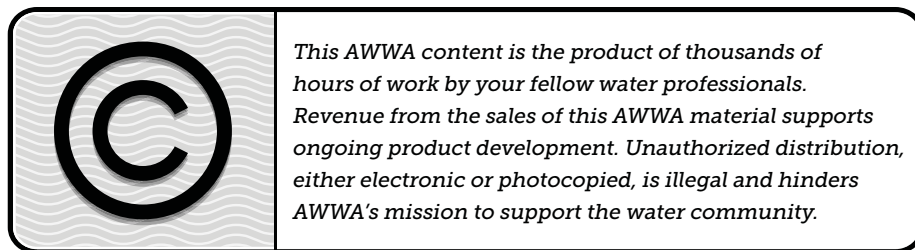
## AWWA Standard

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# Foreword

*This foreword is for information only and is not a part of ANSI\*/AWWA C514.*

## **I. Introduction.**

I.A. *Background.* This standard describes air valve and vent inflow preventer assemblies, which are cross-connection assemblies piped to the outlet of air valves and vents to prevent the entry of contaminated water into the potable water distribution system or storage facilities during flooded conditions. Under normal conditions, the inflow preventer allows air flow in and out of air valves and vents, but when the assembly is submerged, redundant float-operated closure mechanisms automatically close to prevent the entry of contaminated water into the potable water distribution system or storage facilities.

The production and preservation of safe, potable water are the objectives of greatest priority for public water utilities and other agencies having jurisdiction over potable water systems. When potable water has been produced and put into the water distribution system or storage facilities, precautions must be taken to be certain the potable water is not contaminated. While cross-connection control programs usually require that backflow prevention assemblies be installed at the water service connections to premises where potentially contaminated water conditions exist, inflow preventer assemblies may be needed within the potable water distribution system or at the storage facilities to protect the potable water distribution system and storage facilities from contamination. Recommendations for specifying the type and use of cross-connection assemblies may be found in AWWA Manual M14, *Backflow Prevention and Cross-Connection Control: Recommended Practices*.

I.B. *History.* The AWWA Standards Committee on Air Valves was authorized in September 2012, in response to a request for a standard on inflow preventer assemblies for potable water distribution systems and storage facilities. In 2014, the AWWA Standards Committee on Air Valves began work on a new standard for the assembly to be congruent with American Society of Sanitary Engineering Standard ASSE 1063-08, which is used in the plumbing industry. This first edition of this standard, AWWA/ANSI C514, was approved by the AWWA Board of Directors on June 7, 2015.

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

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 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 jurisdictions. 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.

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

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

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



AWWA/ANSI C514 does not address product certifications. Thus, users of this standard should consult the appropriate state or local agency having jurisdiction in order to

1. Determine the status and accreditation of certification organizations offering to certify products of this type in the applicable jurisdiction.
2. Determine current information on product certifications to this or related standards.

## **II. Special Issues.**

II.A. *Advisory Information on Product Application.* For additional guidance regarding the use of the inflow preventer, see AWWA Manual M51, *Air-Release, Air/Vacuum, and Combination Air Valves*.

II.B. *Field Testing.* Because of the importance of cross-connection issues, regular field testing by a certified professional is recommended in the appendix of this standard.

II.C. *Vacuum Protection.* Air valves are sometimes required to relieve a vacuum in a liquid piping system to protect the appurtenant equipment. During flooded conditions, the inflow preventer assembly will be closed and will not provide vacuum protection. Similarly, a submerged air valve without an inflow preventer will also not provide vacuum protection. If vacuum protection is required to protect the associated pipe from collapse, a pipe riser with screened outlet that extends above the maximum expected flood level should be considered.

II.D. *Sizing.* The published flow capacity of air valves or vents will be diminished when an inflow preventer assembly is installed on its discharge. As in any piping system where multiple components are piped together, the resultant flow capacity must be calculated with consideration for all assemblies and piping in the system.

**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.* This standard includes certain options and alternatives, summarized in the following list, that the purchaser should designate when purchasing inflow preventer assemblies described in this standard. The purchaser should review each item and make appropriate provisions in required documents to stipulate additional requirements. The following information should be provided by the purchaser:

1. Standard used—that is, AWWA/ANSI C514, Air Valve and Vent Inflow Preventer Assemblies for Potable Water Distribution System and Storage Facilities, of latest revision.
2. Nominal size.
3. Quantity required.
4. Warranty statement, if other than manufacturer's standard warranty.
5. Catalog data, if specified (Sec. 4.1.1).
6. Certified drawings, if specified (Sec. 4.1.2).
7. Operation and maintenance manual, if specified (Sec. 4.1.3).
8. Details of other federal, state or provincial, and local requirements (Sec. 4.2.1).
9. Records of all tests (Sec 4.2.2).
10. Whether stainless-steel bolts shall be provided (Sec 4.2.2.5).
11. Physical strength of body bolting (Sec 4.2.2.5 and 4.3.2.4).
12. Body configuration, threaded or flanged (Sec. 4.3.2.1.1).
13. Body material of construction (Sec 4.3.2.1.1 and Sec 4.3.2.7).
14. Whether field test equipment shall be provided (Sec. 4.3.2.2.3.2).
15. Whether a wall support shall be provided (Sec 4.3.2.6).
16. Trim material (Sec 4.3.2.7).
17. Test records, if specified (Sec. 5.1).
18. Plant inspection by purchaser (Sec. 5.2).
19. Affidavit of compliance or certificate of approval, if specified (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 the standard.

**V. Comments.** If you have any comments or questions about this standard, please call the AWWA Engineering and Technical Services at 303.794.7711, FAX at 303.795.7603; write to the department at 6666 West Quincy Avenue, Denver, CO 80235-3098; or email at [standards@awwa.org](mailto:standards@awwa.org).



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# Air Valve and Vent Inflow Preventer Assemblies for Potable Water Distribution System and Storage Facilities

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## SECTION 1: GENERAL

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### **Sec. 1.1 Scope**

This standard describes 1-in. (25-mm) through 12-in. (300-mm) air valve and vent inflow preventer assemblies designed for use on the outlet of potable water distribution system air valves furnished in accordance with ANSI/AWWA C512 or storage facility vent pipes. The assemblies shall have a minimum design pressure of 25 psig (172.4 kPa [gauge]) and prevent the entry of contaminated water between 0 and 57.7 ft (17.6 m) of submergence at liquid temperatures ranging from 32°F (0°C) to a maximum of 125°F (52°C).

### **Sec. 1.2 Purpose**

The purpose of this standard is to provide the minimum requirements for inflow preventer assemblies including material, design, inspection, testing, marking, handling, and packaging for shipment.