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AWWA Standard

Air-Release, Air/Vacuum, and Combination Air Valves for Water and Wastewater Service

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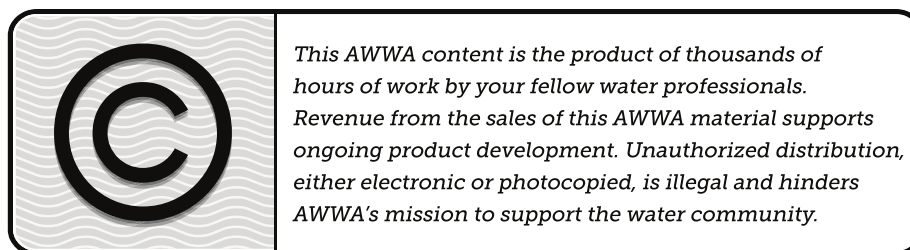
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Committee Personnel

The AWWA Standards Committee on Air Valves, which developed and approved this standard, had the following personnel at the time of approval:

Miles E. Wollam, *Chair*

General Interest Members

A. Ali, ADA Consulting Ltd., Surrey, B.C., Canada	(AWWA)
D.E. Barr, ms consultants inc., Columbus, Ohio	(AWWA)
J.J. Cusack Jr., Bryant Associates, Braintree, Mass.	(AWWA)
R. DiLorenzo, Mundelein, Ill.	(AWWA)
D.M. Flancher,* Standards Engineer Liaison, AWWA, Denver, Colo.	(AWWA)
R.G. Fuller,† HDR Engineering Inc., Denver, Colo.	(AWWA)
F.H. Hanson, Albert A. Webb Associates, Riverside, Calif.	(AWWA)
D.L. McPherson, HDR Engineering Inc., Charlotte, N.C.	(AWWA)
W.L. Meinholz, AB&H, A Donahue Group, Chicago, Ill.	(AWWA)
J.W. Snead II, JQ Infrastructure, Dallas, Texas	(AWWA)
T.J. Stolinski Jr., Black & Veatch Corporation, Kansas City, Mo.	(AWWA)
M. Stuhr,† Standards Council Liaison, Portland Water Bureau, Portland, Ore.	(AWWA)
R.J. Wahanik, Worley Parsons, Reading, Pa.	(AWWA)
R.A. Ward, Tighe & Bond, Westfield, Mass.	(AWWA)
M.E. Wollam, MWH Global, Pasadena, Calif.	(AWWA)

Producer Members

D. Alexander, Cla-Val Company, Costa Mesa, Calif.	(AWWA)
J.V. Ballun, Val-Matic Valve & Manufacturing Corporation, Elmhurst, Ill.	(AWWA)
L. Larson,† DeZURIK-APCO-Hilton Inc., Sartell, Minn.	(AWWA)
B.J. Lewis, Crispin Multiplex Manufacturing Company, Berwick, Pa.	(AWWA)
W.J. Nicholl, GA Industries LLC, Cranberry Township, Pa.	(AWWA)
T. O'Shea, DeZURIK-APCO-Hilton Inc., Schaumburg, Ill.	(AWWA)
K. Sorenson,† A.R.I. Flow Control Accessories, South Jordan, Utah	(AWWA)
J.M. Radtke, Valve Tech Sales, Mountain Top, Pa.	(AWWA)

* Liaison, nonvoting

† Alternate

J.H. Wilber, American AVK, Littleton, Colo. (AWWA)

N. Zloczower, A.R.I. Flow Control Accessories, Israel (AWWA)

User Members

L. Aguiar, Miami Dade Water and Sewer Department, Miami, Fla. (AWWA)

J.H. Bambei Jr., Denver Water Department, Denver, Colo. (AWWA)

N.E. Gronlund, East Bay Municipal Utility District, Oakland, Calif. (AWWA)

M. MacConnell, Metro Vancouver, Burnaby, B.C., Canada (AWWA)

B. Schade, WaterOne, Lenexa, Kan. (AWWA)

P. Ries,* Denver Water Department, Denver, Colo. (AWWA)

* Alternate

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Foreword

*This foreword is for information only and is not a part of ANSI*AWWA C512.*

I. Introduction.

I.A. *Background.* Air valves have been used in the United States for over a century on liquid piping systems that provide water and wastewater service. They perform various functions in providing a safe and efficient operation of a liquid piping system. Their functions include (1) automatically releasing small pockets of accumulated air and wastewater gases, and (2) admitting or venting large quantities of air during the draining or filling operation of a liquid piping system. Following are the three basic types of air valves:

1. Air-release valves, also called *small-orifice valves*, are designed to automatically release small pockets of accumulated air and wastewater gases from a liquid piping system while the system operates at a pressure exceeding atmospheric pressure.

2. Air/vacuum valves, also called *large-orifice valves*, are designed to vent large quantities of air automatically during a liquid piping system filling and to admit large quantities of air automatically when the pressure in the liquid piping system drops below atmospheric pressure.

3. Combination air valves are designed to perform the same function as air/vacuum valves but, in addition, they will automatically release small pockets of accumulated air and wastewater gases from a liquid piping system while the system operates at a pressure exceeding atmospheric pressure, like an air-release valve.

I.B. *History.* The AWWA Standards Committee on Waterworks Air-Release Valves was authorized on Nov. 17, 1984, in response to the water industry's request for a standard on air valves. The first edition of this standard entitled Air-Release, Air/Vacuum, and Combination Air Valves for Waterworks Service, designated as AWWA/ANSI C512, was approved by the AWWA Board of Directors on Jan. 26, 1992, the second edition on June 20, 1999, the third edition on June 13, 2004, and the fourth edition on June 24, 2007. In 2009, the committee name was changed to Air Valve Committee to reflect the committee's attention to both the water and wastewater industries. This edition entitled Air-Release, Air/Vacuum, and Combination Air Valves for Water and Wastewater Service was approved on June 7, 2015.

* 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. The standard developed under the direction of NSF: 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.

* NSF International, 789 North Dixboro Road, Ann Arbor, MI 48105 (formerly the National Sanitation Foundation).

† 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 C512 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 parties offering to certify products for contact with, or treatment of, drinking water.
3. Determine current information on product certification.

An ANSI-approved national standard, NSF/ANSI 372, Drinking Water System Components—Lead Content, was published in 2010. On Jan. 4, 2011, legislation was signed revising the definition for “lead free” within the Safe Drinking Water Act (SDWA) as it pertains to “pipe, pipe fittings, plumbing fittings, and fixtures.” The changes went into effect on Jan. 4, 2014. In brief, the new provisions to the SDWA require that wetted surfaces of these products meet a weighted average lead content of not more than 0.25 percent.

II. Special Issues.

II.A. *Advisory Information on Product Application.* For additional guidance regarding selecting, sizing, locating, and installing air-release, air/vacuum, and combination air valves, see AWWA Manual M51, *Air-Release, Air/Vacuum, and Combination Air Valves*.

II.B. *Venting.* When selecting types of air valves, it must be noted that air/vacuum valves, once closed, will not reopen to vent air and wastewater gases while a liquid piping system operates at a pressure exceeding atmospheric pressure. To vent air and wastewater gases from a liquid piping system operating at a pressure exceeding atmospheric pressure, an air-release valve or combination air valve is required. Air/vacuum and combination air valve orifices should be suitably sized using the manufacturer’s sizing data, to admit air and to release air and wastewater gases at a required flow rate specific to the system application.

II.C. *Service.* Air valves are designed for either water or wastewater service. The type of service must be specified.

II.D. *Pressure Surge Suppression.* Large outlet-orifice sizes on air/vacuum and combination air valves (air-release valves not included) may allow the rapid venting of air and wastewater gases followed by the sudden orifice closure that may cause pipeline pressure surges. To suppress surges, the attachment of throttling devices on the outlet of the air/vacuum valve or combination air valve or the attachment of slow-closing devices on the outlet or inlet of the air/vacuum valve or combination air valve should be considered.