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AWWA Standard

Cold-Water Meters—Electromagnetic and Ultrasonic Type, for Revenue Applications

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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 C715.*

I. Introduction

I.A. *Background*. Electronic meters of the electromagnetic and ultrasonic types have been used in water distribution systems in North America for many years. These modern meter types offer alternatives to traditional mechanical-type meters, which were first standardized in the United States in 1913. Electronic meters require an energy source, such as line power or a battery. They have no moving parts. As such, mechanical wear and tear is low compared to mechanical meters.

I.B. *History*. This standard is the first edition for meters used in this application. It was developed by the AWWA Standards Subcommittee on Cold-Water Meters, Electronic Revenue Type, and it was approved by the AWWA Standards Committee on Water Meters. This first edition of the standard was approved by the AWWA Board of Directors on June 9, 2018, and it was reaffirmed without revision on Oct. 24, 2022.

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. Specific policies of the state or local agency.

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

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

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2. 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.

3. 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.

In an alternative approach to inadvertent drinking water additives, some jurisdictions (including California, Louisiana, Maryland, and Vermont, at the time of this writing) are calling for reduced lead limits for materials in contact with potable water. Various third-party certifiers have been assessing products against these lead content criteria, and a new 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 these products meet a weighted average lead content of not more than 0.25 percent.

ANSI/AWWA C715 does not address additive requirements. Users of this standard should consult the appropriate state or local agency having jurisdiction in order to

1. Determine additive 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.

[‡] NSF International, 789 North Dixboro Road, Ann Arbor, MI 48105.

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

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II. Special Issues.

II.A. *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, and 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.

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 information should be provided by the purchaser:

1. Standard used—that is, ANSI/AWWA C715, Cold-Water Meters—Electromagnetic and Ultrasonic Type, for Revenue Applications, of latest revision.
2. Whether compliance with NSF/ANSI 61 Drinking Water System Components—Health Effects; NSF/ANSI 372, Drinking Water System Components—Lead Content; or an alternative lead content criterion is required.
3. Whether specific warranty provisions are required.
4. If meters are required to be listed by Underwriters Laboratories Inc. (UL), Factory Mutual Insurance Company (FM Global), or other insurance underwriting agency as fire-service type meters.
5. Details of other federal, state or provincial, or local requirements (Sec. 4).
6. Limitations on acceptable materials, if any, as referenced throughout Sec. 4.1.
7. Restrictions on corrosion resistant treatment process (Sec. 4.1), if any.
8. Special materials required, if any, to resist corrosion if water is highly aggressive (Sec. 4.1).
9. If meters are to be provided with full polymer liners (Sec. 4.1.2).
10. Length of filler piece (Sec. 4.1.7 and 4.3.4), if required.
11. If meters are to be provided with coupling nuts and tailpieces (Sec. 4.1.7 and Sec. 4.3.4).

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12. If flanged meters are to be provided with companion flanges, gaskets, bolts, and nuts (Sec. 4.1.8 and Sec. 4.3.5).

13. Meter size (not pipe size) (Sec. 4.2.1) and number of units required.

14. If 2 in. meters are to be supplied with internal NPT threaded ends, external NPSM threaded ends, flanged oval ends, or flanged round ends (Sec. 4.2.3, Sec. 4.3.3.1, and Sec. 4.3.3.2).

15. If 1½ meters are to be supplied with internal NPT threaded ends, external NPSM threaded ends, or flanged oval ends (Sec. 4.2.3, Sec. 4.3.3.1, and Sec. 4.3.3.2).

16. Details of register to be provided, where there is a preference, with regard to whether the registers shall read in US gallons, cubic feet, or cubic meters (Sec. 4.3.6.6).

17. Whether the meter serial number is imprinted on the main case (Sec. 4.4).

18. Whether an affidavit of compliance (Sec. 6.2), a certificate of testing for accuracy (Sec. A.3.3), or both are to be provided.

19. Modification of test specifications, if required, if operating water temperatures are to exceed 80°F (27°C) (Sec. A.5.1).

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 AWWA Engineering and Technical Services at 303.794.7711, FAX at 303.795.7603, write to the department at 6666 W. Quincy Ave., Denver, CO 80235-3098, or e-mail at standards@awwa.org.

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(Reaffirmed without revision 2022)

AWWA Standard

Cold-Water Meters—Electromagnetic and Ultrasonic Type, for Revenue Applications

SECTION 1: GENERAL

Sec. 1.1 Scope

This standard describes two performance classes of potable cold-water meters of the electromagnetic and ultrasonic type, in sizes ½ in. (13 mm) through 20 in. (500 mm), for revenue applications, and the materials and workmanship employed in their fabrication.

1. Type I. This type represents residential and commercial applications where low flow accuracy is of particular concern.

2. Type II. This type represents commercial applications where low flow is not of primary concern.

Sec. 1.2 Purpose

The purpose of this standard is to provide the minimum requirements for potable cold-water meters of the electromagnetic and ultrasonic type, in sizes ½ in. (13 mm) through 20 in. (500 mm), for revenue applications.

Sec. 1.3 Application

This standard can be referenced in specifications for purchasing and receiving potable cold-water meters of the electromagnetic and ultrasonic type, in sizes ½ in.

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