



**American Water Works
Association**

The Authoritative Resource on Safe WaterSM

ANSI/AWWA C713-05
(First Edition)

AWWA Standard

Cold-Water Meters— Fluidic-Oscillator Type



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Foreword

This foreword is for information only and is not a part of ANSI/AWWA C713.

I. Introduction.

I.A. *Background.* Fluidic-oscillator meters covered by this standard represent a new measurement technique that differs from those used in other AWWA standards. The basis for volume measurement is a transducer element that utilizes fluidic oscillation in place of the moving mechanical element required in most traditional cold-water volumetric meters.

Flowing water enters the transducer and a converging entrance nozzle forms a jet flow. Two diverging walls produce opposing forces on the jet flow due to the Coanda^{*} effect and cause the jet to oscillate. Each oscillation corresponds to a specific volume of water flowing through the meter, and these are electronically detected, integrated, and displayed on the register.

I.B. *History.* While the knowledge of fluidic principles is quite old, it was not until the 1960s that fluidic devices began to be used commercially in measurement and control applications. Fluidic-oscillator meters were initially used in both gas and liquid industrial measurement because of high costs. Within the last 10 or 15 years, advances in electronics have made reductions in size and power requirements possible and have made fluidic-oscillator meters commercially feasible for residential water use measurement.

This standard is the first edition for meters of this type and was developed by AWWA Subcommittee 380.10, which was originally formed on June 10, 2000, to develop a standard for solid state meters of capacity and application similar to ANSI/AWWA C700.

On June 15, 2002, the work of the subcommittee was redirected to develop a standard for fluidic-oscillator meters. This first edition of the standard was approved by the AWWA Board of Directors on Jan. 16, 2005.

I.C. *Acceptance.* In May 1985, the US Environmental Protection Agency (USEPA) entered into a cooperative agreement with a consortium led by NSF

^{*}The Coanda effect is the observed tendency of a stream of fluid emerging from a nozzle to follow a nearby curved or flat surface. The effect was discovered in the 1930s by Romanian Henri Coanda.

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 include the American Water Works 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 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 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).

*Persons outside the US should contact the appropriate authority having jurisdiction.

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

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

§Both publications available from National Academy of Sciences, 500 Fifth St., Washington, DC 20001.

Use of Annex A procedures may not always be identical, depending on the certifier. ANSI/AWWA C713 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 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. *Fire Flow.* The meters described in this standard are not designed to be used in water service piping intended to extinguish fire. Requirements for residential fire service products and combined residential domestic/fire service products are currently being developed as a part of ANSI/AWWA C703, Standard for Cold-Water Meters—Fire Service Type.

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 C713, Standard for Cold-Water Meters—Fluidic-Oscillator Type, of latest revision.
2. Whether compliance with NSF/ANSI 61, Drinking Water System Components—Health Effects, is required.
3. Whether the main case shall be of conventional double case construction or of modified double case construction (Sec. 4.1.2), and if there is a preference.
4. If meters are to be furnished with cast iron, stainless steel, copper alloy, or suitable engineering plastic top or bottom covers (Sec. 4.1.5.1 and Sec. 4.1.5.2), and if there is a preference.
5. If meters are to be furnished with breakable bottom covers (frost protection devices) (Sec. 4.1.5.2). Breakable bottom covers are only to be used for meter sets properly equipped to handle functioning failed frost bottoms that can flood surroundings with pressurized water when thawing occurs.
6. If meters are to be furnished with full polymer liners (Sec. 4.1.5.2).
7. Size of meters (Sec. 4.2.1) and number of units required.
8. If meters are to be furnished with coupling nuts and tailpieces (Sec. 4.3.2.1) and whether they are to be copper alloy or suitable engineering plastic (Sec. 4.1.7).