



American Water Works
Association

Erratum to
ANSI/AWWA C700-02
Standard
for

Cold-Water Meters—Displacement Type, Bronze Main Case

(April 2008)

On page 23, replace Table B.1 with the following table (in the last row, the meter size has been corrected to 2 in.):

Table B.1. Most frequently used intervals between meter tests

Meter Size		Years Between Tests
<i>in.</i>	<i>(mm)</i>	
½	(13)	10
⅝	(15)	10
¾	(20)	8
1	(25)	6
1½	(40)	4
2	(50)	4



**American Water Works
Association**

The Authoritative Resource for Safe Drinking WaterSM

ANSI/AWWA C700-02
(Revision of ANSI/AWWA C700-95)

AWWA Standard

Cold-Water Meters— Displacement Type, Bronze Main Case



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AWWA Standard

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Foreword

This foreword is for information only and is not part of AWWA C700.

I. Introduction.

I.A. *Background.* For the past century, no tool available to water utilities has played a greater part in the conservation of water than the water meter. It has reduced waste and distributed the cost of operating a water system in the most equitable manner possible.

Although patents were issued earlier, it is thought that the first meter produced in the United States was made in 1857. It was a positive-displacement type with reciprocating pistons. This design consisted of two cylinders and pistons with inlet and outlet ports arranged so that while water in one cylinder was discharging, the other was filling. Water flowing through the meter was subject to pulsation and high friction loss. Other types of displacement meters manufactured before the turn of the century were the rotary piston, oscillating piston, and nutating disc. Only the oscillating and nutating types remain in production today, as they have proved satisfactory for metering domestic water services.

I.B. *History.* Standardization of water meters was a matter of concern for many years before the first standard was adopted. An American Water Works Association committee appointed in 1913 proposed the adoption of standards on overall meter lengths and connections in 1915 and 1916.

The standards were not adopted officially but were recorded in the proceedings for 1915^{*} and for 1916.[†]

The New England Water Works Association (NEWWA), in separate action, appointed a committee in 1916 that produced drafts of standards in 1917. Action on adoption or publication was delayed on the recommendation of manufacturers.

In 1916, the meter manufacturers, who for several years had worked informally on the matter of meter standards, formally organized a meter standards committee on which most of the meter manufacturers were represented. The records indicate that those who were not represented were kept informed of the committee's activities and given the opportunity to comment on drafts of proposed standards.

^{*}AWWA Proceedings 35th Year, *Journal of the American Water Works Association*, 3:283 (1915).

[†]AWWA Proceedings 36th Year, *Journal of the American Water Works Association*, 2:690 (1916).

On Mar. 9–10, 1920, the AWWA and NEWWA committees met for the first time as a joint committee to review drafts of a proposed standard that had been prepared by the manufacturers' committee. Subcommittees appointed at that meeting prepared a final draft that was approved by the joint committee and submitted to both associations for approval. AWWA adopted the standard on June 9, 1921, and NEWWA adopted it on Sept. 14, 1921. The standard, the first for any type of meter, was titled "Standard Specifications for Cold-Water Meters, Disc Type."

The first revision of the standard was approved as tentative by AWWA on Oct. 31, 1941. The effective date of the standard was delayed until Jan. 1, 1943. On Mar. 15, 1943, it was approved by NEWWA. The document was advanced from tentative to standard by AWWA on May 10, 1946.

Emergency alternative provisions were imposed by the War Production Board from Dec. 1, 1942, to Jan. 8, 1945. Emergency provisions were imposed again on Jan. 1, 1952.

The next edition of the standard was approved by AWWA as tentative on Jan. 23, 1961, and was later advanced to standard without revision on Feb. 11, 1964, and subsequently revised on Jan. 24, 1971, May 8, 1977, Jan. 28, 1990, and June 17, 1995. This edition was approved on June 16, 2002.

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 all direct and indirect drinking water additives. Other members of the consortium included the American Water Works Association 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

*Persons in Canada, Mexico, and non-North American countries should contact the appropriate authority having jurisdiction.

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, ANSI^{*}/NSF[†] 60, Drinking Water Treatment Chemicals—Health Effects, and ANSI/NSF 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 ANSI/NSF 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 ANSI/NSF 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.

AWWA C700 does not address additives requirements. Thus, 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 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. The flow measuring components of the meters have relatively close tolerances. While instantaneous fire

^{*}American National Standards Institute, 25 W. 43rd St., Fourth Floor, New York, NY 10036.

[†]NSF International, 789 N. Dixboro Rd., Ann Arbor, MI 48105-9723.

[‡]Both publications available from National Academy of Sciences, 2102 Constitution Ave. N.W., Washington, D.C. 20418.

flows called upon to supply fire sprinkler heads might pass through the measuring chamber without problems, the pistons or discs could be stopped by small particles in the flow stream, which become lodged between the chamber and adjacent components, thus shutting off the fire flow. If this condition occurs in a domestic water supply scenario, only a “temporary” interruption in service will occur until the cause is discovered and corrected. However, in a “fire protection” scenario, the risk of using a meter covered by this standard could interrupt expected fire flow, rendering the sprinkler system useless.

III. Use of This Standard. AWWA has no responsibility for the suitability or compatibility of this standard to any intended application by any user. 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. This standard provides for several options and alternatives that purchasers must designate if they wish to exercise the options or if they have a preference among the alternatives. Also, several items must be specified by purchasers to describe completely the type, size, and quantity of meters required. All such items, options, and alternatives are summarized in the following itemized list. Purchasers should review each one and then make the appropriate provisions in the purchaser’s specifications to describe specific requirements.

1. Standard used—that is, AWWA C700, *Standard for Cold-Water Meters—Displacement Type, Bronze Main Case*, of latest revision.
2. If meters are to be furnished with nutating discs or oscillating pistons (Sec. 1.1), and if there is a preference.
3. The purchaser should state whether compliance with ANSI/NSF 61 Drinking Water System Components—Health Effects, is to be required, in addition to the requirements of the Safe Drinking Water Act.
4. If meters are to be furnished with cast-iron, stainless-steel, copper alloy, or suitable engineering plastic top or bottom covers (Sec. 4.1.9), and if there is a preference.
5. Size of meter (Sec. 4.2.1 and Tables 1 and 2) and quantity required.
6. If corrosion protection is required for cast-iron, frost-protection covers (Sec. 4.1.9.1 and 4.2.5), if there is a preference.
7. Modifications of test specifications (Sec. 4.2.8), if operating water temperature will exceed 80° F (27° C).