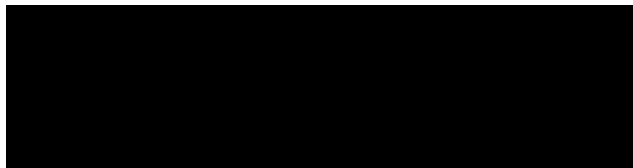


American Water Works Association

ANSI/AWWA C702-01
(Revision of ANSI/AWWA C702-92)



AWWA STANDARD
FOR
COLD-WATER METERS—COMPOUND TYPE



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AMERICAN WATER WORKS ASSOCIATION

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Foreword

This foreword is for information only and is not a part of AWWA C702.

I. Introduction.

I.A. *Background.* The first compound-type water meter was developed in 1914, when it became evident that there was a need for a measuring device combining a valve with a small displacement-type bypass meter. The new meter would, by design, divert and register water at flow rates below the minimum flow-rate capability of the main water-line meter, which was usually of the turbine type.

Initially, standard meters of the turbine type and displacement type were assembled into units with suitable valves. Main-line meter cases were first made of cast iron, but after five or six years, some were made of bronze. In the field, meters were also converted to the compound type by the attachment of bypass meters and diversion valves.

Currently, some compound-type meters are made almost entirely of bronze in single main-line cases. Others, in all sizes, continue to be constructed with cast-iron cases. Some compound-type meters are assembled units, particularly those in large sizes. Compound-type meters have applications in commercial, industrial, and institutional services where wide ranges of flow rates are encountered.

I.B. *History.* The first standard that covered compound-type meters was adopted by the New England Water Works Association (NEWWA) in March 1923, and by the American Water Works Association (AWWA) on May 24, 1923. On Jan. 14, 1946, the standard was approved as tentative as AWWA 7M.3-T. On July 25, 1947, the standard was approved under the designation 7M.3-1947/C702-47. Subsequent editions of the standard were approved by the AWWA Board of Directors on Jan. 26, 1970, Jan. 28, 1978, June 22, 1986, and June 18, 1992. This edition was approved by the AWWA Board of Directors on January 21, 2001.

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 original 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

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 C702 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.

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

†American National Standards Institute, 11 W. 42nd St., New York, NY 10036.

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

§Both publications available from National Academy of Sciences, 2102 Constitution Ave. N.W., Washington, DC 20418.

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. This standard has no applicable information for this section.

III. Use of This Standard. AWWA has no responsibility for the suitability or compatibility of the provisions 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. When placing orders for meters manufactured in accordance with this standard, specific information about the following should be included in the purchaser's specifications:

1. Standard used—that is, AWWA C702, Standard for Cold-Water Meters—Compound Type, of latest edition.

2. If an affidavit of compliance (Sec. 6.3), a certificate of testing accuracy (Sec. A.3.3), or both, are to be provided.

3. Limitations on acceptable materials, if any, as referenced throughout Sec. 4.1.

4. 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. If this certification is to be required, the purchaser's specification shall read, "This product shall be certified as suitable for contact with drinking water by an accredited certification organization in accordance with ANSI/NSF Standard 61, Drinking Water Systems Components—Health Effects."

5. Restrictions on corrosion-resistance treatment process (Sec. 4.1.8), if any.

6. Sizes of meters (Sec. 4.2.1) and quantity required.

7. Length of filler piece (Sec. 4.2.3) if required.

8. Modifications of test specifications (Sec. 4.2.6) if operating water temperatures will exceed 80°F (27°C) (Sec. A.5.2).

9. Round or oval flanges on 2-in. (50-mm) meters (Sec. 4.3.3.1).

10. If companion flanges, gaskets, bolts, and nuts (Sec. 4.3.4) are to be provided, and designation of flange material (Sec. 4.1.9) if other than cast iron is desired.

11. If main casing is to be provided with tapped boss for field-testing purposes (Sec. 4.3.5).

12. Details of register to be provided: US gallons, cubic feet, or cubic metres; with or without center-sweep test hand; open, sealed, or permanently sealed (Sec. 4.3.6).

13. If an encoder-type register, direct-reading remote register, or an adapter (Sec. 4.3.7) is required.

14. If meters are to be provided with strainers (Sec. 4.3.14). If strainers are requested, specify whether they are internal or external and whether the strainer shall be removable without removing the meter from the service line.

15. Special materials required, if any, to resist corrosion if water is highly aggressive (Sec. A.5.3).

16. Whether the meter serial number is to be imprinted on the main case (Sec. 6.1).

17. If specific warranty provisions will be required.

III.B. *Modification to Standard.* Any modification to the provisions, definitions, or terminology in this standard must be provided in the purchaser's specifications.

IV. Major Revisions. The major revisions to the standard in this edition include the following:

1. The acceptance clause (Sec. I.C) has been revised to approved wording.
2. Created class II compound specifications.
3. 10-in. (250 mm) meters have been deleted from the scope of the standard because this size of compound type meter is no longer manufactured.
4. The references section has been updated (Sec. 2).
5. Tables 1, 2, 3, 4, 5, and A.1 have been modified, removing 10 in. (250 mm) meters. Created Table 1.1 and 3.1 to reflect class II compounds.
6. In Table 2, Meter Dimensions, the maximum overall length dimensions have been revised.
7. The title of Table 3 has been changed to Span of Changeover Flow Rate, and the difference in flow rates have been revised.
8. The choice of materials section has been revised (Sections 4.1.1 and 4.1.1.1.).
9. Sec. 4.1.2 on main casings has been expanded to include strainer main casings.
10. Sec. 4.1.2.1, Strainer screen, has been added.
11. Sec. A.8, a paragraph on installation, has been added.
12. Sec. A.9, bypass shutoff valves, has been deleted (C702-92 edition).

V. Comments. If you have any comments or questions about this standard, please call the AWWA Volunteer & Technical Support Group at (303) 794-7711 ext. 6283, or fax (303) 795-7603, or write to the group at 6666 W. Quincy Ave., Denver, CO 80235.

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AWWA STANDARD FOR COLD-WATER METERS— COMPOUND TYPE

SECTION 1: GENERAL

Sec. 1.1 Scope

This standard describes the various types and classes of cold-water compound-type meters in sizes 2 in. (50 mm) through 8 in. (200 mm) and the materials and workmanship used in their fabrication. Compound meters shall consist of a combination of a turbine-type, main-line meter for measuring high rates of flow and a bypass meter of an appropriate size for measuring low rates of flow. The compound meter shall have an automatic valve mechanism for diverting low rates of flow through the bypass meter.

Sec. 1.2 Purpose

The purpose of this standard is to provide purchasers, manufacturers, and suppliers with the minimum requirements for cold-water meters—compound type, including materials and design.

Sec. 1.3 Application

This standard can be referenced in specifications for purchasing and receiving cold-water meters—compound type. This standard can be used as a guide for