

American Water Works Association

ANSI/AWWA C708-96

(Revision of ANSI/AWWA C708-91)



AWWA STANDARD
FOR
COLD-WATER METERS—MULTIJET TYPE



Addendum C708a-97 is incorporated into this standard.

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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 C708.

I. Introduction

I.A. *Background.* Current or inferential-type meters, through a progressive program of design and quality improvement, have attained the ability to accurately measure low flow rates. Multijet meters are a specific class of inferential meters.

In all inferential-type meters, the moving element is a rotor; the basic principle of this meter is to design it in such a manner that, over the working range of the instrument, the speed of rotation of the rotor bears a linear relationship to the velocity of flow through the meter.

In multijet meters, the moving element takes the form of a multiblade rotor mounted on a vertical spindle within a cylindrical measuring chamber. The liquid enters the measuring chamber through several tangential orifices around the circumference and leaves the measuring chamber through another set of tangential orifices placed at a different level in the measuring chamber.

I.B. *History.* Advances made in the development of nonmetallic materials for water meter construction have been recognized in the materials section of this standard. Several plastic materials are currently being used successfully for meter components. Several suitable plastic materials are included in this revision.

The first edition of the standard was approved by the AWWA Board of Directors on June 20, 1976. The second and third editions of this standard were approved by the AWWA Board of Directors on Feb. 1, 1982, and Jan. 27, 1991, respectively. This edition was approved by the AWWA Board of Directors on June 23, 1996.

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.

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

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.

Appendix 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 Appendix A procedures may not always be identical, depending on the certifier.

AWWA C708-96 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. 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 according to the provisions of this standard, it will be necessary for the purchaser to supply specific information regarding the following:

1. Standard used—that is, ANSI/AWWA C708, Standard for Cold-Water Meters—Multijet Type, of latest revision.
2. Whether main cases are to be constructed of a copper alloy or a suitable engineering plastic (Sec. 4.1.2).
3. Whether meters are to be furnished with cast-iron, stainless-steel, copper-alloy, or suitable engineering plastic top or bottom covers (Sec. 4.1.11), if there is a preference. Corrosion protection required for cast-iron frost-protection covers (Sec. 4.2.6), if there is a preference.
4. Size of meter (Sec. 4.2.1) and quantity required.

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

[†]NSF International, 3475 Plymouth Rd., Ann Arbor, MI 48106.

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

5. Modifications of test specifications (Sec. 4.2.8) if operating water temperatures will exceed 80°F (27°C) (Sec. A.4.2).

6. Type of connections for 1½-in. (40-mm) and 2-in. (50-mm) meters (Sec. 4.3.3).

7. Whether couplings (tailpieces) are to be furnished with ⅝-in. (16-mm) to 2-in. (50-mm) meters (Sec. 4.3.4) and whether components are to be of a copper alloy or a suitable engineering plastic (Sec. 4.1.9).

8. Whether companion flanges, gaskets, bolts, and nuts are to be furnished with flanged meters (Sec. 4.3.5) and whether companion flanges are to be made of a copper alloy, cast iron, or a suitable engineering plastic (Sec. 4.1.10).

9. Details of the register to be furnished (i.e., US gallons, cubic feet, or cubic meters; dry or wet register) (Sec. 4.3.6).

10. If a direct-reading remote register or a remote encoder-type register is required (Sec. 4.3.7), to be specified in detail.

11. If warranty requirements will be specified (Sec. 5.1).

12. Whether an affidavit of compliance will be required (Sec. 6.3).

13. Special materials required, if any, to resist corrosion if water is highly aggressive (Sec. A.4.3).

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 format has been changed to AWWA standard style.

2. The acceptance clause (Sec. I.C) has been revised to approved wording.

3. The references section has been updated (Sec. 2).

4. The safe maximum operating capacity, the recommended maximum rate for continuous duty, and the normal test flow limits for 2-in. (50-mm) meters have been increased in Table 1, Operating Characteristics.

5. The rejection section has been revised (Sec. 5.1).

6. A requirement for the placement of the meter serial number on the meter case has been added (Sec. 6.1).

7. Appendix B, Future Revisions, has been deleted.

V. Comments. If you have any comments or questions about this standard, please call the AWWA Standards and Materials Development Department, (303) 794-7711 ext. 6283, FAX (303) 795-1440, or write to the department at 6666 W. Quincy Ave., Denver, CO 80235.