



**American Water Works
Association**

Dedicated to the World's Most Important Resource®

ANSI/AWWA C714-19
(Revision of ANSI/AWWA C714-13)

AWWA Standard

Cold-Water Meters for Residential Fire Sprinkler Systems in One- and Two- Family Dwellings and Manufactured Homes

Effective date: Nov. 1, 2019.

First edition approved by AWWA Board of Directors June 9, 2013.

This edition approved June 7, 2019.

Approved by American National Standards Institute June 7, 2019.



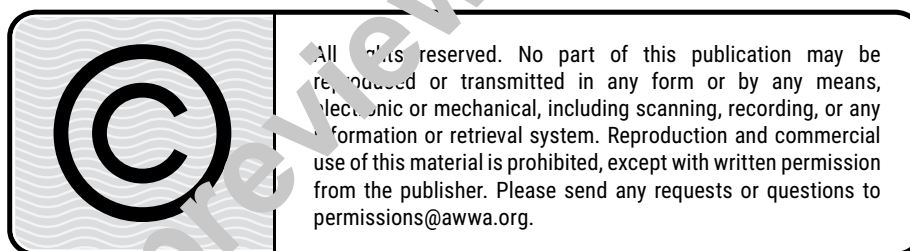
AWWA Standard

This document is an American Water Works Association (AWWA) standard. It is not a specification. AWWA standards describe minimum requirements and do not contain all the engineering and administrative information normally contained in specifications. The AWWA standards usually contain options that must be evaluated by the user of the standard. Until each optional feature is specified by the user, the product or service is not fully defined. AWWA publication of a standard does not constitute endorsement of any product or product type, nor does AWWA test, certify, or approve any product. The use of AWWA standards is entirely voluntary. This standard does not supersede or take precedence over or displace any applicable law, regulation, or code of any governmental authority. AWWA standards are intended to represent a consensus of the water industry that the product described will provide satisfactory service. When AWWA revises or withdraws this standard, an official notice of action will be placed in the Official Notice section of *Journal AWWA*. The action becomes effective on the first day of the month following the month of *Journal AWWA* publication of the official notice.

American National Standard

An American National Standard implies a consensus of those substantially concerned with its scope and provisions. An American National Standard is intended as a guide to aid the manufacturer, the consumer, and the general public. The existence of an American National Standard does not in any respect preclude anyone, whether that person has approved the standard or not, from manufacturing, marketing, purchasing, or using products, processes, or procedures not conforming to the standard. American National Standards are subject to periodic review, and users are cautioned to obtain the latest editions. Producers of goods made in conformity with an American National Standard are encouraged to state on their own responsibility in advertising and promotional materials or on tags or labels that the goods are produced in conformity with particular American National Standards.

CAUTION NOTICE: The American National Standards Institute (ANSI) approval date on the front cover of this standard indicates completion of the ANSI approval process. This American National Standard may be revised or withdrawn at any time. ANSI procedures require that action be taken to reaffirm, revise, or withdraw this standard no later than five years from the date of ANSI approval. Purchasers of American National Standards may receive current information on all standards by calling or writing the American National Standards Institute, 25 West 43rd Street, Fourth Floor, New York, NY 10036; 212.642.4900; or e-mailing info@ansi.org.



ISBN-13, print: 978-1-62576-307-6

ISBN-13, electronic: 978-1-61300-525-5

DOI: <http://dx.doi.org/10.12999/AWWA.C714.19>

All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including scanning, recording, or any information or retrieval system. Reproduction and commercial use of this material is prohibited, except with written permission from the publisher.

Copyright © 2019 by American Water Works Association
Printed in USA

Committee Personnel

The AWWA Standards Subcommittee on Cold-Water Meters for Residential Fire Sprinkler Applications, which developed this standard, had the following personnel at the time:

Michael L. Mastic, *Chair*

R.A. Barillas, Badger Meter, Milwaukee, Wis.

M.C. Bowen, City of Columbus, Division of Water, Columbus, Ohio

G.H. De Jarlais, Badger Meter, Milwaukee, Wis.

W.F. Dunnill, Consolidated Utility District of Rutherford County, Murfreesboro, Tenn.

D. Faber, Faber & Associates, Columbus, Ind.

J. Hebenstreit, UL LLC, Northbrook, Ill.

A. Hendey Sr., Hendey Meter, Beaumont, Calif.

B.H. Johnson, Neptune Technology Group, Tallahassee, Ala.

K.J. Kelly, Victaulic Company, Easton, Pa.

T.A. Kelly Jr., Washington Suburban Sanitary Commission, Hyattsville, Md.

R.N. Koch, Master Meter Inc., Pittsburgh, Pa.

M. Laird, Metron-Farnier LLC, Boulder, Colo.

M.L. Mastic, MARS Company, Ocala, Fla.

J.A. McCraven, Mueller Systems, Cleveland, N.C.

R. Molhoek, Desert Water Agency, Palm Springs, Calif.

J.A. Reiss, Elster AMCO Water LLC, Ocala, Fla.

J.R. Scarborough III, Neptune Technology Group, Tallahassee, Ala.

M.J. Scarpelli, Itron, Liberty Lake, Wash.

S.H. Seehoffer, Master Meter Inc., Mansfield, Tex.

M. Shamley, Metron-Farnier LLC, Boulder, Colo.

T. Smith, Sensus, Morrisville, N.C.

S.M. Stevanis, California Water Service, Torrance, Calif.

S.M. Swanson, Sensus, Uniontown, Pa.

M.A. Thomas, Mueller Systems, Cleveland, N.C.

A.M. Watson, Elster AMCO Water LLC, Ocala, Fla.

The AWWA Standards Committee on Water Meters, which reviewed and approved this standard, had the following personnel at the time of approval:

Thomas A. Kelly Jr., *Chair*

Michael L. Mastic, *Secretary*

General Interest Members

J.E. Cray, Wright-Pierce, Andover, Mass.

A. Dabak, Texas Instruments, Dallas, Tex.

D. Faber, Faber & Associates, Columbus, Ind.

R.C. Graff, Poway, Calif.

J.G. Gunn,* Johnson Controls Inc., Victor, N.Y.

C.C. Hannah, Johnson Controls Inc., Lubbock, Tex.

D.E. Hood, M.E. Simpson Company Inc., Valparaiso, Ind.

A.M. Horbovetz,* M.E. Simpson Company Inc., Valparaiso, Ind.

M.C. Johnson, Utah State University, Utah Water Research Laboratory, Logan, Utah

F.S. Kurtz,† Standards Engineer Liaison, AWWA, Denver, Colo.

M.L. Mastic, MARS Company, Ocala, Fla.

R.A. Richter, National Institute of Standards and Technology, Gaithersburg, Md.

S. Thakurdesai,* Texas Instruments, Dallas, Tex.

Producers Members

F.J. Begale,* Badger Meter, Milwaukee, Wis.

T.D. Bianchi, Neptune Technology Group, Tallahassee, Ala.

C. Brunson,* Neptune Technology Group, Tallahassee, Ala.

D. Casper,* Mueller Systems, Cleveland, N.C.

G.H. De Jarlais, Badger Meter, Milwaukee, Wis.

D.J. Devane, Zenner USA, Leeds, Ala.

L. Gregory, F.G. Meter Company, Longview, Tex.

A. Hender Sr., Hender Meter, Beaumont, Calif.

R.N. Koch, Master Meter Inc., Pittsburgh, Pa.

M. Laird,* Metron-Farnier LLC, Boulder, Colo.

J.A. McCraven, Mueller Systems, Cleveland, N.C.

* Alternate.

† Liaison, non-voting.

J.E. Pintok, RG3 Meter Company, Lake Mary, Fla.
J.A. Reiss,* Elster AMCO Water LLC, Ocala, Fla.
M. Shamley, Metron-Farnier LLC, Boulder, Colo.
T. Smith,* Sensus, Morrisville, N.C.
S.M. Swanson, Sensus, Uniontown, Pa.
W.J. Vetter,* Master Meter Inc., Mansfield, Tex.
A.M. Watson, Elster AMCO Water LLC, Ocala, Fla.

User Members

M.J. Aragon, Denver Water, Denver, Colo.
M.C. Bowen, City of Columbus, Division of Water, Columbus, Ohio
J. Conover Jr., City of Sacramento, Sacramento, Calif.
W.F. Dunnill, Consolidated Utility District of Rutherford County, Murfreesboro, Tenn.
W.M. Garfield, Arizona Water Company, Phoenix, Ariz.
G.M. Gehringer, Philadelphia Water Department, Philadelphia, Pa.
D. Griffin, City of Winnipeg Water and Waste Department, Winnipeg, Man.
P.A. Hayes, Mammoth Community Water District, Mammoth Lakes, Calif.
D.M. Hill, American Water, Voorhees, N.J.
N.D. Kaufman, Truckee Donner Public Utility District, Truckee, Calif.
T.A. Kelly Jr., Washington Suburban Sanitary Commission, Hyattsville, Md.
A. Land, Dallas Water Utilities, Dallas, Tex.
S.U. Mills-Wright,† Standards Council Liaison, Dallas Water Utilities, Dallas, Tex.
R. Molhoek, Desert Water Agency, Palm Springs, Calif.
K.C. Molli, Veolia Water North America, Chicago, Ill.
J.A. Novak, Milwaukee Water Works, Milwaukee, Wis.
R. Sloan, Birmingham Water Works Board, Birmingham, Ala.
D. Strub, Austin Water Utility, Austin, Tex.

* Alternate.

† Liaison, non-voting.

Contents

All AWWA standards follow the general format indicated subsequently. Some variations from this format may be found in a particular standard.

SEC.	PAGE	SEC.	PAGE
Foreword		6 Delivery	
I	ix	6.1	13
I.A	ix	6.2	3
I.B	ix	6.3	13
I.C	ix	Appendix	
II	xi	A	15
II.A	xi	A.1	15
	xi	A.2	15
III	xi	A.3	15
III.A	xi	A.4	17
III.B	xii	A.5	17
IV	xii	A.6	18
V	xii	A.7	19
		A.8	19
Standard		Tables	
1 General		1a	8
1.1	1	1b	8
1.2	1		8
1.3	2	2	8
1.4	2		8
2 References	2	2	8
3 Definitions	4		8
4 Requirements		3	9
4.1	5	4	10
4.2	7		10
4.3	9	A.1	19
5 Verification			19
5.1	12		

Foreword

This foreword is for information only and is not a part of ANSI/AWWA C714.

I. Introduction.

I.A. *Background.* Since the 1990s, utilities have increasingly found a need to install water meters in applications involving one- and two-family dwellings and manufactured homes that require both domestic service (potable water) and fire sprinkler systems installed in accordance with NFPA[†] 13D, Standard for the Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes. This standard provides the minimum requirements for cold-water meters in sizes ¾ in. (20 mm) through 2 in. (50 mm) for these specific applications. It should be noted that meters conforming to ANSI/AWWA C714 will also conform to at least one of the AWWA water meter standards, C700, C701, C708, C710, C712, C713, and C715; meter types outside of the scope of these AWWA standards will not conform to ANSI/AWWA C714.

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 for Residential Fire Sprinkler Applications, and it was approved by the AWWA Standards Committee on Water Meters. The first edition of the standard was approved by the AWWA Board of Directors on June 3, 2013. This second edition of the standard was approved on June 7, 2019.

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

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

† National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169.

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

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.
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 in the SDWA require that these products meet a weighted average lead content of not more than 0.25 percent.

ANSI/AWWA C714 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.

^{*} 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.

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.

II. Special Issues.

II.A. *Use of Residential Fire Sprinkler Meters.* The use of residential fire sprinkler meters is a water purveyor choice. The preferable arrangement according to NFPA 13D has no meter on the fire sprinkler supply line. This arrangement limits the devices on the water supply line that could restrict or shut off the water supply during a fire.

NOTE: Underwriters Laboratories Subjects UL 327A and UL 327B cover UL requirements for residential fire sprinkler meters for residential structures.

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 C714, Cold-Water Meters for Residential Fire Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes, 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. If meters are to be provided with stainless steel, copper alloy, or suitable engineering plastic top and bottom covers, and if there is a preference.

4. If meters are to be provided with full polymer liners.

5. Whether an affidavit is to be required that meters provided will continue to deliver water to the system under a locked measuring element condition.

6. If meters are required to be listed by Underwriters Laboratories Inc. (UL), Factory Mutual Insurance Company (FM Global), or other insurance underwriting agency as residential fire meters.

7. Details of federal, state, and local requirements (Sec. 4.1).

8. Size of meters (Sec. 4.2.1) and number of units required.

9. If 1½-in. (40-mm) and 2-in. (50-mm) meters are to be provided with flanged ends or threaded (spud) ends (Sec. 4.3.3).

10. If meters are to be provided with coupling nuts and tailpieces (Sec. 4.3.4).

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

12. If meters are to be provided with direct-reading registers or electronic display registers (Sec. 4.3.6).

13. If compliance with ANSI/AWWA C707, Standard for Encoder-Type Remote-Registration Systems for Cold-Water Meters, is to be required for meters that will be connected to encoder-type remote systems (Sec. 4.3.6.1.6).

14. Whether the strainer screen surface area is required to be at least four times, rather than at least two times as provided in Sec. 4.3.9, the cross-sectional area of the pipe waterway.

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

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. Major revisions made to the standard in this edition include the following:

1. The scope has been expanded to include electromagnetic- and ultrasonic-type meters for revenue applications (ANSI/AWWA C715-type meters).

2. The definition of *manufacturer* has been updated (Sec. 3).

3. Minor updates to material requirements have been made (Sec. 4).

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 West Quincy Avenue, Denver, CO 80235-3098, or email at standards@awwa.org.



**American Water Works
Association**

Dedicated to the World's Most Important Resource®

ANSI/AWWA C714-19
(Revision of ANSI/AWWA C714-13)

AWWA Standard

Cold-Water Meters for Residential Fire Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes

SECTION 1: GENERAL

Sec. 1.1 Scope

This standard describes cold-water meters used for residential fire sprinkler applications that meet the requirements of NFPA* 13D in one- and two-family dwellings and manufactured homes, in sizes $\frac{3}{4}$ in. (20 mm) through 2 in. (50 mm), and the materials and workmanship employed in their fabrication. Meter types addressed in this standard for the purpose stated in Sec. 1.2 are positive displacement-type meters meeting the requirements of ANSI†/AWWA C700 or C710, turbine-type meters meeting the requirements of ANSI/AWWA C701, multijet-type meters meeting the requirements of ANSI/AWWA C708, singlejet-type meters meeting the requirements of ANSI/AWWA C712, fluidic-oscillator-type meters meeting the requirements of ANSI/AWWA C713, and electromagnetic- and ultrasonic-type meters meeting the requirements of ANSI/AWWA C715.

* National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169.

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