



**American Water Works
Association**

The Authoritative Resource for Safe Drinking WaterSM

ANSI/AWWA C750-03
(First Edition)

AWWA Standard

Transit-Time Flowmeters in Full Closed Conduits



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Foreword

This foreword is for information only and is not a part of AWWA C750.

I. Introduction.

I.A. *Background.* The first water meter that was produced in the United States was thought to be a positive displacement meter that was fabricated in 1857. Since then, a number of other technologies and designs have been introduced to the water industry, each with its special characteristics. The ultrasonic flowmeter is one of the latest additions to the industry. The use of ultrasonic flowmeters has received wide commercial acceptance since the 1970s. There are currently two distinct types of ultrasonic flowmeters available; Doppler Effect and Transit-Time. While the Doppler Effect meter is used extensively for water and other fluids containing solid particles, the transit-time ultrasonic flowmeter is receiving increased acceptance in the water industry.

I.B. *History.* In 1985, the American Society of Mechanical Engineers published the first standard for the transit-time ultrasonic (transit-time) flowmeters. The needs of the water industry differ, in some respects, from other industries, therefore necessitating the development of an AWWA standard for transit-time flowmeters.

In 1990, the AWWA Standards Committee on Rate Type Flowmeters was formed to develop standards for transit-time meters. The Subcommittee on Ultrasonic Meters was later developed for this purpose. The Subcommittee prepared a first draft of the transit-time flowmeter standard in 1992. The first draft was reviewed and commented on by the Subcommittee members as well as members of the Rate Type Flowmeter Committee. Subsequent drafts were sent out to a number of transit-time flowmeter manufacturers in 1994 for their review and comments. A 1995 draft addressed these comments, where possible, and was distributed to all who had previously commented on the drafts. A revised draft was presented to the Subcommittee in 1995. The Subcommittee met in January of 1996 to finalize the standard. However, the subcommittee decided that leaving the draft open to the general public for review and comment, prior to finalizing the standard, would produce a more thorough standard. The *AWWA Journal* was considered a suitable medium for reaching the water industry. The Subcommittee changed the format of the standard into an *AWWA Journal* article that was published in the July 1997 edition of the *Journal* as a Committee Report. The article encouraged the public to

comment on the contents of the Committee Report. A few written comments were received and were addressed in developing the final draft of the standard.

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

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

†American National Standards Institute, 25 W. 43rd St., Fourth Floor, 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.

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 C750-03 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 is different in format from other AWWA standards which contain specific requirements for material, dimensions, workmanship and other physical requirements. Different transit-time flowmeters employ different materials and technologies. The software and the electronic components of transit-time flowmeters are generally designed to work with the physical characteristics of each make of the equipment.

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. 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 the purchasers to describe completely the type, size, and quantity of the transit-time flowmeters required. The following list provides these items. Purchasers should review this list and Appendix A of this standard to make the appropriate provisions in their specifications to describe specific requirements.

1. Standard used—AWWA Standard C750 for Transit-time Flowmeters, of latest revision.
2. Size of the conduit (Sec. 4.1).
3. Single path or multipath (Sec. 4.3).