

ASME A112.19.10-2017
[Revision of ASME A112.19.10-2003 (R2008)]

Retrofit Dual Flush Devices for Water Closets

AN AMERICAN NATIONAL STANDARD



**The American Society of
Mechanical Engineers**

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Two Park Avenue • New York, NY • 10016 USA

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FOREWORD

The purpose of this Standard is to establish a nationally recognized standard for dual flush devices to achieve volumetric water saving performance for water closets. This Standard provides guidance to manufacturers, distributors, purchasers, and jurisdiction officials, specifiers, or water utility planners for water conservation, to promote better understanding between suppliers and users, and to furnish a basis for fair competition in furnishing such products to meet the principal demands of the trade.

This Standard includes a series of tests for retrofit dual flush devices for modification of the flush volume from installed water closets that use 1.28 gal per flush or a greater volume, to reduce water consumption, that may apply such control options to provide two distinctive modes of operation. The devices considered to be covered in this Standard are those required to provide at least a 30% reduction in water consumption in the reduced flush mode and still meet the required performance levels of the Standard.

The reduction in water closet flush volume discharges that may be made by a variety of techniques other than one or another single motion selector actuation and leaving the unit, are not covered by this Standard. Other active or passive techniques, or methods not covered, include, but are not restricted to: installation of dams, displacement volume containers; cylindrical or other shaped water barrier containment elements; and a stand-by observer, evaluator, and/or controls for termination of the flush. OEM devices are not covered by this Standard.

The tests specified in this Standard for the removal of liquid wastes and toilet tissues, or other comparable waste loads, are derived from industry experience, from field unit installations, independent laboratory evaluations by the methods included herein, and research studies. The endeavor accounts for service requirements that are necessary for the sanitary protection provided by water closets and water conservation achievable through the installation of these devices. The tests presented are from demonstrated applications by competent laboratory personnel and from other standards applications giving results of suitable reproducibility for the purposes intended.

ASME A112.19.10-1994 was the first edition of this Standard. The second edition, ASME A112.19.10-2003, changed the performance requirements to provide for an acceptable amount of leakage. In addition, soft metric conversion of the U.S. customary units were added and a number of minor editorial errors have been corrected.

This revision of the 2003 edition has changed the scope of this Standard to cover retrofit devices which are to be fitted into installed water closets that use 1.28 gal per flush or greater volume. This Standard was approved as an American National Standard on June 19, 2017.

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Standardization of Plumbing Materials and Equipment

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Secretary, A112 Standards Committee
The American Society of Mechanical Engineers
Two Park Avenue
New York, NY 10016-5990
<http://go.asme.org/Inquiry>

Proposing Revisions. Revisions are made periodically to the Standard to incorporate changes that appear necessary or desirable, as demonstrated by the experience gained from the application of the Standard. Approved revisions will be published periodically.

The Committee welcomes proposals for revisions to this Standard. Such proposals should be as specific as possible, citing the paragraph number(s), the proposed wording, and a detailed description of the reasons for the proposal, including any pertinent documentation.

Proposing a Case. Cases may be issued to provide alternative rules when justified, to permit early implementation of an approved revision when the need is urgent, or to provide rules not covered by existing provisions. Cases are effective immediately upon ASME approval and shall be posted on the ASME Committee Web page.

Requests for Cases shall provide a Statement of Need and Background information. The request should identify the Standard and the paragraph, figure, or table number(s), and be written as a Question and Reply in the same format as existing Cases. Requests for Cases should also indicate the applicable edition(s) of the Standard to which the proposed Case applies.

Interpretations. Upon request, the A112 Standards Committee will render an interpretation of any requirement of the Standard. Interpretations can only be rendered in response to a written request sent to the Secretary of the A112 Standards Committee.

Requests for interpretation should preferably be submitted through the online Interpretation Submittal Form. The form is accessible at <http://go.asme.org/InterpretationRequest>. Upon submittal of the form, the Inquirer will receive an automatic e-mail confirming receipt.

If the Inquirer is unable to use the online form, he/she may mail the request to the Secretary of the A112 Standards Committee at the above address. The request for an interpretation should be clear and unambiguous. It is further recommended that the Inquirer submit his/her request in the following format:

Subject: Cite the applicable paragraph number(s) and the topic of the inquiry in one or two words.
Edition: Cite the applicable edition of the Standard for which the interpretation is being requested.
Question: Phrase the question as a request for an interpretation of a specific requirement suitable for general understanding and use, not as a request for an approval of a proprietary design or situation. Please provide a condensed and precise question, composed in such a way that a "yes" or "no" reply is acceptable.
Proposed Reply(ies): Provide a proposed reply(ies) in the form of "Yes" or "No," with explanation as needed. If entering replies to more than one question, please number the questions and replies.
Background Information: Provide the Committee with any background information that will assist the Committee in understanding the inquiry. The Inquirer may also include any plans or drawings that are necessary to explain the question; however, they should not contain proprietary names or information.

Requests that are not in the format described above may be rewritten in the appropriate format by the Committee prior to being answered, which may inadvertently change the intent of the original request.

Moreover, ASME does not act as a consultant for specific engineering problems or for the general application or understanding of the Standard requirements. If, based on the inquiry information submitted, it is the opinion of the Committee that the inquirer should seek assistance, the inquiry will be returned with the recommendation that such assistance be obtained.

ASME procedures provide for reconsideration of any interpretation when or if additional information that might affect an interpretation is available. Further, persons aggrieved by an interpretation may appeal to the cognizant ASME Committee or Subcommittee. ASME does not “approve,” “certify,” “rate,” or “endorse” any item, construction, proprietary device, or activity.

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RETROFIT DUAL FLUSH DEVICES FOR WATER CLOSETS

1 GENERAL

1.1 Scope

This Standard establishes physical, material, testing, and marking requirements for retrofit dual flush devices that are installed within gravity-type water closet tanks and have a full flush volume of 4.8 Lpf (1.28 gpf) or greater volume.

1.2 Units of Measurement

The values stated in either SI (metric) or U.S. Customary (inch/pound) units of measure are to be regarded as the standard. In this Standard, the inch/pound units are shown in parentheses. The values stated in each measurement system are equivalent in application; however, each system is to be used independently. Combining values from the two measurement systems can result in nonconformance with this Standard. All references to gallons are to U.S. gallons.

1.3 References

The following document forms a part of this Standard to the extent specified herein. Unless otherwise specified, the latest edition shall apply.

ASME A112.19.5/CSA B45.15, Flush Valves and Spuds for Water Closets, Urinals, and Tanks

Publisher: The American Society of Mechanical Engineers (ASME), Two Park Avenue, New York, NY 10016-5990
(www.asme.org)

1.4 Definitions

cycle time: the time beginning at the instant the flush release device is operated, and ending at the instant the water supply valve is completely shut off and the water stops flowing.

dual flush device: a mechanism for control of water closet discharge that provides the user with two options for selective operation with either a normal fill volume or a reduced volume of water from the tank.

flapper valve: see *flush valve*.

flowing pressure: the pressure in a water supply pipe at the inlet to an open valve.

flush tank (gravity type): a vessel that stores a predetermined quantity of water and includes a flushing device to discharge water (plus some through-flow from the water supply line) into a water closet bowl or urinal.

NOTE: A common type of flush tank is a wall-hung vessel or a vessel close-coupled with the water closet bowl that is fitted with a fill valve and flush valve.

flush valve: a valve located in a flush tank and used to flush a fixture by discharging water into the fixture.

sanitary: reasonably acceptable appearance and not necessarily microbiologically clean.

water closet: a plumbing fixture having a water-containing receptor that receives liquid and solid body waste and, upon actuation, conveys the waste through an exposed integral trap seal into a gravity drainage system.

water savings: the amount of flush volume water reduction in gallons or percentage when comparing consumption with and without a dual flush device for a water closet.

water surface: the surface of the still water in the water closet bowl when filled to the trap weir.