

ASME A112.19.15-2012
[Revision of ASME A112.19.15-2005 (R2010)]

Bathtubs/Whirlpool Bathtubs With Pressure Sealed Doors

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AN AMERICAN NATIONAL STANDARD



**The American Society of
Mechanical Engineers**

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Three Park Avenue • New York, NY • 10016 USA

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FOREWORD

With the awareness that has resulted from the passage of the Americans With Disabilities Act in 1990, the plumbing fixture industry has continued to respond with the development of a number of special plumbing products to assist the physically challenged and the elderly in using plumbing systems with greater ease and comfort. This Standard addresses bathtubs and whirlpool bathtubs equipped with pressure sealed doors that will enable easier use by the consumer.

These products have factory installed doors with the bathtub apron, thus allowing the bather to enter the fixture at approximately the same level as the floor. The door can be opened, allowing the bather easier access to the bathtub. Once inside the fixture, the door is closed and the water is turned on. Sensor switches note the presence of water entering the vessel, thereby activating an air pump that pressurizes the door seal and keeps the water within the bathing vessel. Upon completion of the bathing activity, the door can be opened only when the bath water is drained from the vessel.

This Standard establishes test criteria for these fixtures to ensure that the bathtubs are watertight and sturdy. It was based on a standard of an ad hoc Committee of the International Association of Plumbing and Mechanical Officials (IAPMO). The IAPMO standard was then referred to ASME and assigned to the ASME A112 Project Team 19.15. It was then reviewed and approved by the ASME A112 Main Committee, and subsequently approved as an American National Standard on April 6, 2001.

This is a revision of the performance requirements of primary and secondary seals.

Suggestions for improvement of this Standard are welcome. They should be sent to the Secretary, ASME A112 Standards Committee, Three Park Avenue, New York, NY 10016-5990.

This revision was approved as an American National Standard on March 5, 2012.

ASME A112 COMMITTEE

Standardization of Plumbing Materials and Equipment

(The following is the roster of the Committee at the time of approval of this Standard.)

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	D. W. Viola , International Association of Plumbing and Mechanical Officials
	W. C. Whitehead , Whitehead Consulting Services

PROJECT TEAM 19.15 — BATHTUBS/WHIRLPOOLS WITH PRESSURE SEALED DOORS

S. Rawalpindiwala , <i>Project Team Leader</i> , Kohler Co.	N. M. Kummerlen , Consultant
M. Campos , International Code Council	C. J. Lagan , American Standard
I. Chang , Intertek	

CORRESPONDENCE WITH THE A112 COMMITTEE

General. ASME Standards are developed and maintained with the intent to represent the consensus of concerned interests. As such, users of this Standard may interact with the Committee by requesting interpretations, proposing revisions, and attending Committee meetings. Correspondence should be addressed to

Secretary, A112 Standards Committee
The American Society of Mechanical Engineers
Three 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 edition, the paragraph number(s), the proposed wording, and a detailed description of the reasons for the proposal, including any pertinent documentation. When appropriate, proposals should be submitted using the A112 Project Initiation Request Form.

Proposing a Case. Cases may be issued for the purpose of providing 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, 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 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.

The request for 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.
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. 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 this format will be rewritten in this format by the Committee prior to being answered, which may inadvertently change the intent of the original request.

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.

Attending Committee Meetings. The A112 Standards Committee schedules meetings as needed, which are open to the public. Persons wishing to attend any meeting should contact the Secretary of the A112 Standards Committee. The A112 home page, <http://go.asme.org/A112committee>, contains information on future meeting dates and locations.

ASME A112.19.15-2012

SUMMARY OF CHANGES

Following approval by the ASME A112 Committee and ASME, and after public review, ASME A112.19.15-2012 was approved by the American National Standards Institute on March 5, 2012.

ASME A112.19.15-2012 includes editorial changes, revisions, and corrections introduced in A112.19.15-2005, as well as the following changes identified by a margin note, (12).

<i>Page</i>	<i>Location</i>	<i>Change</i>
1	1.2	Revised
1	1.3	Revised
1	2.1	Revised
1	2.4	Editorially revised
1	2.5	Revised
2	3	Revised

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BATHTUBS/WHIRLPOOL BATHTUBS WITH PRESSURE SEALED DOORS

1 GENERAL

1.1 Scope

This Standard establishes material, mechanical, electrical, marking, and testing requirements for bathtubs/whirlpool bathtubs with doors that are made water tight by the use of a pressure seal. It addresses the functional performance and physical characteristics for a pressure sealed door of a bathtub/whirlpool bathtub. The door is intended to allow for entry into the fixture when the tub is empty and to maintain water tightness when the tub is full. The use of alternate materials or methods is permitted, provided the proposed material and method comply with the performance requirements and intent of this Standard.

(12) 1.2 Units of Measurement

The values stated in either SI (metric) or inch/pound units 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 non-conformance with this Standard. All references to gallon are in U.S. gallon.

(12) 1.3 Reference Standards

The following documents form a part of this Standard to the extent specified herein. The latest issue shall apply.

ASME A112.19.1/CSA B45.2, Enamelled Cast Iron and Enamelled Steel Plumbing Fixtures

ASME A112.19.7, Hydromassage Bathtub Appliances

Publisher: The American Society of Mechanical Engineers (ASME), Three Park Avenue, New York, NY 10016; Order Department: 22 Law Drive, P.O. Box 2900, Fairfield, NJ 07007-2900 (www.asme.org)

ASTM D2000, Standard Classification System for Rubber Products in Automotive Applications

Publisher: The American Society for Testing and Materials (ASTM International), 100 Barr Harbor Drive, West Conshohocken, PA 19428 (www.astm.org)

CSA B45.5/IAPMO Z124, Plastic Plumbing Fixtures

Publisher: International Association of Plumbing and Mechanical Officials (IAPMO), 5001 E. Philadelphia St., Ontario, CA 91761 (www.iapmo.org)

UL 1795, Hydromassage Bathtubs

Publisher: Underwriter's Laboratories, Inc. (UL), 333 Pfingsten Road, Northbrook, IL 60062 (www.ul.com)

1.4 Definitions

primary seal (pressure seal): a main water barrier activated by hydraulics, air, compression, or displacement.

secondary seal: a safeguard water barrier to the primary seal.

2 GENERAL REQUIREMENTS

2.1 Materials

(12)

The materials incorporated in the door and components of the seals shall be made of plastics, rubbers, or other materials suitable for application in plumbing fixtures or devices, or in accordance with this Standard. The bathing shell shall meet all of the applicable requirements of CSA B45.5/IAPMO Z124 or ASME A112.19.1/CSA B45.2, and a whirlpool bathtub shall meet all the requirements of ASME A112.19.7.

2.2 Door

The bathtub door shall meet the performance criteria as specified in section 3 of this Standard.

2.3 Electrical Components

Electrical components shall meet the applicable requirements of UL 1795.

2.4 Door And Seals

(12)

The door shall have at least one of the following:

- (a) primary and secondary seal
- (b) seal with adequate means for drainage

The door drain shall be designed as an integral part of the bathing unit. Units with primary and secondary seals with or without a catch basin shall not permit any leakage of the primary seal.

2.5 Primary Seal Materials

(12)

The primary seal material shall meet the following requirements of ASTM D2000:

- (a) be heat aged at 125°C (257°F) for 70 h
- (b) have a maximum water absorption of no more than 5% after 70 h of sustained heat of 100°C (212°F)

(c) have a minimum tear resistance of 14 kN/m (960 lbf/ft)

(12) 3 TESTING

Tests shall be conducted in the following sequence.

3.1 Secondary Seal

Any secondary seal shall have a leakage rate of no more than 1.9 L (0.5 gal) in 20 min with the tub filled to the overflow level and the primary seal disabled.

3.2 Door Load Test

The door shall withstand a 140 kg (300 lb) vertical load when it is open at a 45-deg position. The load shall be placed on the top edge of the door on the opposite end from the hinge post. Deflection under load shall be less than 16 mm (0.63 in.). After the load test is complete, the door and hinge post shall be examined and any damage shall be noted. Any cracking to the door or the fixture shell caused by the load test shall be cause for rejection. Pocket-type doors shall be exempt from the load test.

3.3 Door Cycle With Primary Seal

The door shall be cycled opened and closed sufficiently to break and affix the seal 10,000 times with the primary seal activated. At the end of the 10,000 cycles, the primary seal shall be water tight and show no signs of leakage with the tub filled to the overflow level.

3.4 Door Cycle Test for Secondary Seal

When a secondary seal is used, the door shall be cycled opened and closed sufficiently to break and affix the seal 10,000 times with the primary seal disabled. At the end of the 10,000 cycles, the secondary seal shall have a leakage rate of no more than 1.9 L (0.5 gal) in 20 min with the tub water maintained at the overflow level.

4 MARKING

A bathtub or whirlpool bath with a pressure sealed door shall be permanently and legibly marked with the following information:

- (a) manufacturer's name or trademark
- (b) model number
- (c) markings as required by other standards