ASME A112.19.15-2005
(Revision of ASME A112.19.15-2001)

Bathtubs/ Whirlpool Bathtubs With Pressure Sealed Doors

AN AMERICAN NATIONAL STANDARD

The American Society of Mechanical Engineers

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Three Park Avenue • New York, NY 10016

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The next edition of this Standard is scheduled for publication in 2010. There will be no addenda issued to this edition.

ASME issues written replies to inquiries concerning interpretations of technical aspects of this Standard. Interpretations are published on the ASME Web site under the Committee Pages at http://www.asme.org/codes/ as they are issued.

The American Society of Mechanical Engineers
Three Park Avenue, New York, NY 10016-5990

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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 seal material.

Suggestions for improvement of this Standard are welcome. They should be sent to The American Society of Mechanical Engineers; Attn: Secretary, A112 Main Committee; Three Park Avenue; New York, NY 10016-5990.

This revision was approved as an American National Standard on January 21, 2005.

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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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PERSONNEL OF A112 PROJECT TEAM 19.15 — BATHTUBS/WHIRLPOOLS WITH PRESSURE SEALED DOORS

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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
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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.

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 contains information on future meeting dates and locations.

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 complies with the performance requirements and intent of this Standard.

1.2 Units of Measurement

Values are stated in U.S. Customary Units and the International System of Units (SI). The U.S. Customary Units shall be considered the standard.

1.3 Reference Standards

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

ASTM D 2000, Standard Classification System for Rubber Products in Automotive Applications

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

ANSI Z124.1, Plastic Bathtub Units

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

ASME A112.19.4M, Porcelain Enameled Formed Steel Plumbing Fixtures

ASME A112.19.7M, Whirlpool Bathtub Appliances

Publisher: The Americal Society of Mechanical Engineers (ASME), Three Park Avenue, New York, NY 10016

UL 1795, Hydromassage Bathtubs

Publisher: Underwriter's Laboratories (UL), 333 Pfingsten Road, Northbrook, IL 60062

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

The materials incorporated in the door and components of the seals shall be made of plastics, rubbers, or other material 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 ANSI Z124.1 or ASME A112.19.4M, and a whirlpool bathtub shall meet all the requirements of ASME A112.19.7M.

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

The door shall have at least one of the following:

(a) primary and secondary seal; or

(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 without a catch basin shall not permit any leakage of the primary seal.

2.5 Primary Seal Materials

The primary seal material shall meet the following requirements of ASTM D 2000:

(a) The primary seal shall be heat aged at 257°F (125°C) for 70 hr.

(b) The primary seal shall have a maximum water absorption of no more than 5% after 70 hr of sustained heat of 212°F (100°C).

(c) The primary seal material shall have a minimum tear resistance of 960 lbf/ft (14 kN/m).

3 TESTING

Tests shall be conducted in the following sequence.

3.1 Secondary Seal

Any secondary seal shall have a leakage of not more than ½ gal (1.9 L) 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 300 lb (136 kg) 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 0.625 in. (16 mm). 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 20,000 times with the primary seal activated. At the end of the 20,000 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 20,000 times with the primary seal disabled. At the end of the 20,000 cycles, the secondary seal shall have a leakage rate of no more than ½ gal (1.9 L) in 20 min with the tub water maintained to 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

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