

**Erratum**  
**to**  
**ASME A112.19.15-2001**  
**Bathtub/Whirlpool Bathtubs With Pressure**  
**Sealed Doors**

On page 2, in para. 3.1, 2 gal corrected to read  $\frac{1}{2}$  gal.

THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS  
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# BATHTUB / WHIRLPOOL BATHTUBS WITH PRESSURE SEALED DOORS

AN AMERICAN NATIONAL STANDARD



The American Society of  
Mechanical Engineers



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A N A M E R I C A N N A T I O N A L S T A N D A R D

# **BATHTUB / WHIRLPOOL BATHTUBS WITH PRESSURE SEALED DOORS**

**ASME A112.19.15-2001**

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## FOREWORD

With the awareness which 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 to use plumbing systems with greater ease and comfort. This Standard addresses one such product which will enable easier use by the consumer of bathtubs and whirlpool bathtubs which are equipped with pressure sealed doors.

These products have factory installed doors with the bathtub apron which allow 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, which note the presence of water entering the vessel, activate an air pump which pressurizes the door seal, thereby keeping 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, thereby allowing the door to open.

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 was assigned to the ASME A112 Project Team 19.15, and subsequently reviewed and approved by the ASME A112 Main Committee.

Suggestions for improvement of this Standard will be welcomed. 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 Standard was approved as an American National Standard on April 6, 2001.

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# BATHTUB/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 maintains water tightness when the tub is full.

The use of alternate materials or methods are 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 as 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 D2000, 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), 20001 Walnut Drive, South Walnut, CA 91789-2096

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

ASME A112.19.7M, Whirlpool Bathtub Appliances

Publisher: The American Society of Mechanical Engineers (ASME International), 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 hydraulic, air, compression, or displacement.

*secondary seal:* a redundant 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 the standards referenced in 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 a minimum of 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 and 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 D2000:

(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 1782 lbf/ft (26 kN/m).

## 3 TESTING

Test shall be conducted in the following sequence.

### 3.1 Secondary Seal

Any secondary seal shall have a leakage of not more than 2 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 three hundred 300 lb (136 kg) vertical load when the door is open at 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 completed, 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.

### 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 1/2 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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