

Internal Use Only

INTERNATIONAL ASSOCIATION OF PLUMBING AND MECHANICAL OFFICIALS

MATERIAL AND PROPERTY STANDARD

FOR

WATER OR AIR JET FITTINGS

SPS 5-2006

1. PURPOSE

- 1.1** The purpose of this standard is to establish a generally acceptable standard for water or air jet fittings intended for use in commercial or residential spas or whirlpool bathtubs. It is intended to serve as a guide for producers, distributors, architects, engineers, contractors, installers, inspectors and users; to promote understanding regarding materials, manufacture, installation, and performance; and to identify water or air jet fittings complying with this standard.
- 1.2** The provisions of this standard are not intended to prevent the use of any alternate material or method of construction, provided any such alternate meets the intent and requirements of this document and changes are amended to this standard.

2. SCOPE

- 2.1** This standard applies to water or air jet fittings for use in commercial or residential spas or whirlpool bathtubs and covers general requirements, strength and performance tests for such products, in addition to method of markings and identification.

3. REFERENCED STANDARDS

- 3.1** All standards referenced herein shall be the current edition of those standards.

ASME A112.19.7
ASME A112.19.8

ASTM C 564
ASTM D 2000
IAPMO PS 33

Whirlpool Bathtub Appliances
Suction Fittings for Swimming & Wading Pools
Spas Hot Tubs & Whirlpool Bathtub Appliances
Rubber Gaskets for Cast Iron Soil Pipe and Fittings
Rubber Products in Automotive Applications
Flexible PVC Hose for Pools, Hot Tubs, Spa and
Jetted Bathtubs

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4. GENERAL REQUIREMENTS

- 4.1 **Materials.** Fitting materials shall comply with the requirements in Table 1 of ASME A112.19.7.
- 4.2 **Working Pressure.** The fittings shall be designed to function at a minimum working pressure of 20 psi (140 kPa).
- 4.3 **Working Temperatures.** The fittings shall be designed for use in cold and hot water applications at temperatures from $40 \pm 5^{\circ}\text{F}$ ($4.4 \pm 5^{\circ}\text{C}$) to $140 \pm 5^{\circ}\text{F}$ ($60 \pm 5^{\circ}\text{C}$).
- 4.4 **Joints.** Fitting joints shall comply with the requirements in Table 1 of ASME A112.19.7.
- 4.5 **Seals.** O-ring or gaskets shall comply with ASTM C 564 or D 2000, or equivalent standard.
- 4.6 **Flexible Hose.** Flexible hoses shall comply with the requirements in IAPMO PS 33.

5. TESTING REQUIREMENTS

- 5.1 **Hydrostatic Pressure Test.** Install fittings in accordance with manufacturer's installation instructions. The fittings shall be hydrostatically pressure tested at a pressure of 20 psi for 15 minutes. After 15 minutes, inspect lavatory test assembly for any visible cracks or leaks. Fitting shall show no signs of cracking, leaking or deformation.
- 5.2 **Thermal Cycling Test.** Install fittings in accordance with manufacturer's installation instructions. The fittings shall be subjected to a water flow of 2.0 ± 0.2 gpm (7.5 ± 0.8 L/min) at $140 \pm 3^{\circ}\text{F}$ ($60 \pm 2^{\circ}\text{C}$) for 1.5 min., followed immediately by a water flow at $70 \pm 3^{\circ}\text{F}$ ($21 \pm 2^{\circ}\text{C}$) for 1.5 min. The test shall continue for 6 more cycles without pausing between cycles. Fitting shall show no signs of cracking, leaking or deformation.
- 5.3 **Life Cycle Test.** Fittings incorporating moving or potentially wearing parts shall be life cycle tested for 1000 cycles. The speed of the life cycle test apparatus shall be adjusted to minimum 125 cycles per hour or more suitable cycle rate specified by the manufacturer may be used. The fittings shall be cycled without water. During and after the testing, the fittings shall continue to function as intended and shall not develop any defeats that may adversely affect their serviceability.
- 5.4 **Shear Load Test.** For fittings whose horizontal edges extend from the vertical wall $\frac{1}{2}$ in. or more shall comply with the performance requirements in Section 4.2.3 of ASME A112.19.8.