

Contents

ASME Standards Committee on Plumbing Materials and Equipment v

ASME Project Team 19.7 — Hydromassage Bathtubs vii

CSA Technical Committee on Plumbing Fixtures viii

ASME/CSA Joint Harmonization Task Group on Plumbing Fixtures xi

Preface xii

1 Scope 1

2 Reference publications 1

3 Definitions and abbreviations 3

3.1 Definitions 3

3.2 Abbreviations 4

4 General requirements 4

4.1 Electrical components 4

4.2 Plumbing fixtures 4

4.3 Plumbing supply fittings 4

4.4 Piping and tubing 4

4.4.1 Copper 4

4.4.2 Plastic 4

4.4.3 Flexible hoses 4

4.4.4 Alternative materials 4

4.5 Solvent cements for use with flexible piping 5

4.6 Suction fittings 5

4.7 Circulation system installation 5

4.8 Pump or blower 5

4.9 Field-assembled or retrofitted bathtubs 5

4.10 Backflow prevention 5

4.11 Suction fitting assemblies (whirlpool bathtubs only) 5

4.12 Suction fitting cover apertures 6

5 Testing 6

5.1 Installation 6

5.2 Water retention in whirlpool or air-jetted bathtubs 6

5.2.1 General 6

5.2.2 Preconditioning 6

5.2.3 Performance 6

5.2.4 Chlorine test 6

5.2.5 Volumetric test 9

5.3 Physical tests for suction fittings (whirlpool bathtubs only) 10

5.3.1 General 10

5.3.2 Test conditions 10

5.3.3 Surface exhaustion 10

5.3.4 Deflection test 11

5.3.5 Shear load test 11

5.3.6 Vacuum and point impact test 11

- 5.4 Hair entanglement test for suction fittings 12
- 5.4.1 General 12
- 5.4.2 Test preparation 12
- 5.4.3 Test with the fitting affixed to the test fixture 13
- 5.4.4 Test with the fitting affixed to the bathtub 13

6 Markings and installation instructions 14

- 6.1 General 14
- 6.2 Factory-assembled whirlpool or air-jetted bathtubs 14
- 6.3 Field assemblies and retrofitted bathtubs (whirlpool bathtubs only) 14
- 6.4 Suction fittings (whirlpool bathtubs only) 15
- 6.5 Installation instructions 15
- 6.5.1 General 15
- 6.5.2 Factory-assembled whirlpool or air-jetted bathtubs 15
- 6.5.3 Roughing-in dimensions 15
- 6.5.4 Service access and controls 15
- 6.5.5 Electrical 15
- 6.5.6 Operation, use, and care instructions 15
- 6.5.7 Flushing instructions 15

Annexes

- A** (informative) — Unit conversion and rounding criteria 23
- B** (normative) — Random sampling method for testing bathtubs 24

Tables

- 1** — Preparation of chlorine solution 8
- 2** — Residual water comparison 9

Figures

- 1** — Shear load test 16
- 2** — Test tank 17
- 3** — Baffles 18
- 4** — Pull structure 19
- 5** — Test equipment with puller assembly 20
- 6** — Test cylinder assembly 21
- 7** — Test procedure 22

ASME Standards Committee on Plumbing Materials and Equipment

D.W. Viola	IAPMO, Mokena, Illinois, USA	<i>Chair</i>
S.A. Remedios	Delta Faucet Company, Indianapolis, Indiana, USA	<i>Vice-Chair</i>
R.H. Ackroyd	Rand Technical Consulting, Newburyport, Massachusetts, USA	
S.F. Aridi	NSF International, Ann Arbor, Michigan, USA	
J.A. Ballanco	JB Engineering & Code Consulting, PC, Munster, Indiana, USA	
J. Bouwer	Euro Sales Inc., Elora, Ontario	
M.N. Burgess	Burgess Group Incorporated, San Diego, California, USA	
S.L. Cavanaugh	Cavanaugh Consulting, Burbank, California, USA	
P.V. DeMarco	IAPMO, Dayton, New Jersey, USA	
G.S. Duren	Code Compliance Inc., Keystone Heights, Florida, USA	
A.R. Emmerson	Mundelein, Illinois, USA	
K. Fromme	Brasserie Corporation, Menomonie Falls, Wisconsin, USA	
L.S. Galowin	Bethesda, Maryland, USA	
R.L. George	Plumb-Tech Design and Consulting Services LLC, Monroe, Michigan, USA	
R.I. Greenwald	Dover, Delaware, USA	
G.V. Harrison	Wayne Harrison Consulting, Edmond, Oklahoma, USA	
D. Holloway	IAPMO, Tulsa, Oklahoma, USA	
J.M. Koeller	Koeller and Company, Yorba Linda, California, USA	

N.M. Kummerlen	Lorain, Ohio, USA	
J.W. Lauer	Sloan Valve Company, Franklin Park, Illinois, USA	
C.J. Lagan	American Standard, Piscataway, New Jersey, USA	
L.A. Mercer	Moen Inc., North Olmsted, Ohio, USA	
T.C. Pitcherello	New Jersey Department of Community Affairs, Trenton, New Jersey, USA	
S. Rawalpindiwala	Kohler Co., Kohler, Wisconsin, USA	
G.L. Simmons	Charlotte Pipe and Foundry Co., Charlotte, North Carolina, USA	
W.M. Smith	Jay R. Smith Mfg. Co., Montgomery, Alabama, USA	
W.C. Whitehead	Whitehead Consulting Services, Danvers, Massachusetts, USA	
F. Constantino	ASME International, New York, New York, USA	<i>Secretary</i>

ASME Project Team 19.7 — Hydromassage Bathtubs

S.F. Aridi	NSF International, Ann Arbor, Michigan, USA	<i>Chair</i>
D. Allen	ITT Hydroair, Brea, California, USA	<i>Vice-Chair</i>
C. Arnold	NAHB Research Center Inc., Upper Marlboro, Maryland, USA	
D.R. Berge	5D Infusion Canada Inc., Saint-Jean-sur-Richelieu, Québec	
M. Campos	IAPMO, Ontario, California, USA	
S.L. Cavanaugh	Cavanaugh Consulting, Burbank, California, USA	
I.W. Chang	Intertek, Coquitlam, British Columbia	
P.V. DeMarco	IAPMO, Dayton, New Jersey, USA	
N. Dickey	CSA International, Cleveland, Ohio, USA	
G. Gloodt	R-S Distribution, Burr Ridge, Illinois, USA	
E. Ho	IAPMO, Ontario, California, USA	
D.E. Holloway	IAPMO, Tulsa, Oklahoma, USA	
C.J. Lagan	American Standard, Piscataway, New Jersey, USA	
S.E. Martin	International Code Council, Whittier, California, USA	
H.W. Newhard	World Wide Sports, LLC, St. Louis, Missouri, USA	
S. K. Nandiwala	Kohler Co., Kohler, Wisconsin, USA	
G. Siggins	Underwriters Laboratories Inc., San Jose, California, USA	
D.W. Viola	IAPMO, Mokena, Illinois, USA	

CSA Technical Committee on Plumbing Fixtures

S. Rawalpindiwala	Kohler Co., Kohler, Wisconsin, USA	<i>Chair</i>
F. Lemieux	Health Canada, Ottawa, Ontario	<i>Vice-Chair</i>
R. Beck	ICC Evaluation Service Inc., Birmingham, Alabama, USA	<i>Associate</i>
J. Bouwer	Euro Sales Inc., Elora, Ontario	
R. Brown	Franke Kindred Canada Limited, Midland, Ontario	
C. Caruana	CSA International, Toronto, Ontario	<i>Associate</i>
S.L. Cavanaugh	Cavanaugh Consulting, Burbank, California, USA	
I.W. Chang	Intertek, Coquitlam, British Columbia	<i>Associate</i>
Y. Duchesne	Régie du bâtiment du Québec, Québec, Québec	
T.D. Ellison	Cheffell Associates, Ottawa, Ontario	
K. Ernst	Oakville Metalworking & Bending Limited, Oakville, Ontario	
A.U. Esteban	Comisión Nacional del Agua, México, D.F., México	<i>Associate</i>
F. Fernández	FOTO USA Inc., Ontario, California, USA	
P. Georgopoulos	City of Toronto, Toronto, Ontario	
D. Corvick	City of Windsor, Windsor, Ontario <i>Representing the Ontario Plumbing Inspectors Association</i>	
J. Green	National Research Council Canada, Ottawa, Ontario	

J.C. Gunn	John C. Gunn Consulting, Roches Point, Ontario	
C. Hernández	Plumbing Manufacturers Institute, Rolling Meadows, Illinois, USA	Associate
R. Hildebrand	Regional Municipality of Waterloo, Kitchener, Ontario	
L. Himmelblau	Chicago Faucet Company, Des Plaines, Illinois, USA	
E. Ho	IAPMO, Ontario, California, USA	Associate
K.S. Hui	Ontario Ministry of Municipal Affairs and Housing, Toronto, Ontario	
J. Knapton	SAIT Polytechnic, Calgary, Alberta	
J.M. Koeller	Koeller and Company, Yorba Linda, California, USA	
N.M. Kummerlen	Lorain, Ohio, USA	
C.J. Lagan	American Standard, Piscataway, New Jersey, USA	
B. Lagueux	Saint-Nicolas, Québec Consumer Representative	
J. Manente	Region of Peel, Brampton, Ontario	Associate
S.E. Martin	International Code Council, Whittier, California, USA	Associate
T.J. McCann	Department of National Defence, Ottawa, Ontario	
D. McNamara	Frankel Kindred Canada Limited, Midland, Ontario	Associate
D. Orton	NSF International, Ann Arbor, Michigan, USA	Associate
S.A. Remedios	Delta Faucet Company, Indianapolis, Indiana, USA	
S. Rouleau	CG Air Systèmes Inc., Sainte-Marguerite, Québec	Associate
W. Trendelman	Delta Faucet Company, Indianapolis, Indiana, USA	Associate

C. Wright

Ontario Pipe Trades,
Dundalk, Ontario

L. Pilla

Canadian Standards Association,
Mississauga, Ontario

Project Manager

Currently in preview, click buy full version

ASME/CSA Joint Harmonization Task Group on Plumbing Fixtures

C.J. Lagan	American Standard, Piscataway, New Jersey, USA	<i>Co-Chair</i>
F. Lemieux	Health Canada, Ottawa, Ontario	<i>Co-Chair</i>
I.W. Chang	Intertek, Coquitlam, British Columbia	
N. Dickey	CSA International, Toronto, Ontario	
K. Ernst	Oakville Stamping and Bending Limited, Oakville, Ontario	
F. Fernández	TOTO USA Inc., Ontario, California, USA	
P. Georgopoulos	City of Toronto, Toronto, Ontario	
J.C. Gunn	John C. Gunn Consulting, Roches Point, Ontario	
L. Himmelblau	Chicago Faucet Company, Des Plaines, Illinois, USA	
E. Ho	IAPMO, Ontario, California, USA	
N.M. Kummerlen	Lorain, Chicago, USA	
S.E. Martin	International Code Council, Westborough, California, USA	
T.J. McCann	Department of National Defence, Ottawa, Ontario	
S. Rawalpindiala	Kohler Co., Kohler, Wisconsin, USA	
S.A. Remedios	Delta Faucet Company, Indianapolis, Indiana, USA	
S. Rouleau	CG Air Systèmes Inc., Sainte-Marguerite, Québec	
L. Pilla	Canadian Standards Association, Mississauga, Ontario	<i>Project Manager</i>

Preface

This is the first edition of ASME A112.19.7/CSA B45.10, *Hydromassage bathtub systems*.

This Standard replaces ASME A112.19.7-2006, *Hydromassage Bathtub Appliances*, and CAN/CSA-B45.10-01 (R2006), *Hydromassage bathtubs*.

This Standard is considered suitable for use for conformity assessment within the stated scope of the Standard.

This Standard was prepared by the ASME/CSA Joint Harmonization Task Group on Plumbing Fixtures, under the jurisdiction of the ASME Standards Committee on Plumbing Materials and Equipment and the CSA Technical Committee on Plumbing Fixtures. The CSA Technical Committee operates under the jurisdiction of the CSA Strategic Steering Committee on Water Management Products, Materials, and Systems. This Standard has been formally approved by the ASME Standards Committee and the CSA Technical Committee. This Standard was approved as an American National Standard by the American National Standards Institute on February 23, 2012.

March 2012

ASME Notes:

- (1) This standard was developed under procedures accredited as meeting the criteria for American National Standards and it is an American National Standard. The Standards Committee that approved the standard was balanced to assure that individuals from competent and concerned interests have had an opportunity to participate. The proposed Standard was made available for public review and comment that provided an opportunity for additional public input from industry, academia, regulatory agencies, and the public-at-large.
- (2) ASME does not "approve," "rate," or "endorse" any item, construction, proprietary device, or activity.
- (3) ASME does not take any position with respect to the validity of any patent rights asserted in connection with any items mentioned in this document, and does not undertake to insure anyone utilizing a standard against liability for infringement of any applicable letters patent, nor assume any such liability. Users of a standard are expressly advised that determination of the validity of any such patent rights, and the risk of infringement of such rights, is entirely their own responsibility.
- (4) Participation by federal agency representative(s) or person(s) affiliated with industry is not to be interpreted as government or industry endorsement of this standard.
- (5) ASME accepts responsibility for only those interpretations of this document issued in accordance with the established ASME procedures and policies, which preclude issuance of interpretations by individuals.
- (6) ASME issues written replies to inquiries concerning interpretation of technical aspects of this Standard. All inquiries regarding this Standard, including requests for interpretations, should be addressed to:

Secretary, A112 Standards Committee
The American Society of Mechanical Engineers
Three Park Avenue
New York, NY 10016-5990

A request for interpretation should be clear and unambiguous. The request should

- cite the applicable portion of the Standard for which the interpretation is being requested.
- 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, which are necessary to explain the question; however, they should not contain proprietary names or information.

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.

Interpretations are published on the ASME Web site under the Committee Pages at <http://cstools.asme.org/> as they are issued.

CSA Notes:

- (1) Use of the singular does not exclude the plural (and vice versa) when the sense allows.
- (2) Although the intended primary application of this Standard is stated in its Scope, it is important to note that it remains the responsibility of the users of the Standard to judge its suitability for their particular purpose.
- (3) This publication was developed by consensus, which is defined by CSA Policy governing standardization — Code of good practice for standardization as “substantial agreement. Consensus implies much more than a simple majority, but not necessarily unanimity”. It is consistent with this definition that a member may be included in the Technical Committee list and yet not be in full agreement with all clauses of this publication.
- (4) To submit a request for interpretation of CSA Standards, please send the following information to inquiries@csa.ca and include “Request for interpretation” in the subject line:
 - (a) define the problem, making reference to the specific clause, and, where appropriate, include an illustrative sketch;
 - (b) provide an explanation of circumstances surrounding the actual field condition; and
 - (c) where possible, phrase the request in such a way that a specific “yes” or “no” answer will address the issue.Committee interpretations are processed in accordance with the CSA Directives and guidelines governing standardization and are published in CSA’s periodical Info Update, which is available on the CSA website at <http://standardsactivities.csa.ca>.
- (5) CSA Standards are subject to periodic review, and suggestions for their improvement will be referred to the appropriate committee. To submit a proposal for change to CSA Standards, please send the following information to inquiries@csa.ca and include “Proposal for change” in the subject line:
 - (a) Standard designation (number);
 - (b) relevant clause, table, and/or figure number;
 - (c) wording of the proposed change; and
 - (d) rationale for the change.
- (6) Attention is drawn to the possibility that some of the elements of this Standard may be the subject of patent rights. CSA is not to be held responsible for identifying any or all such patent rights. Users of this Standard are expressly advised that determination of the validity of any such patent rights is entirely their own responsibility.

INTENTIONALLY LEFT BLANK

ASME A112.19.7-2012/CSA B45.10-12

Hydromassage bathtub systems

1 Scope

1.1

This Standard specifies general requirements, test methods, and markings for whirlpool and air-jetted bathtubs and suction fittings used in hydromassage bathtub systems that incorporate a bathtub and circulation pump. The circulation pump can be with or without

- (a) a piping system; and
- (b) induction of air (which can be achieved by integral suction or through an air pump).

1.2

This Standard does not cover

- (a) spas and hot tubs covered in CAN/CSA-C22.2 No. 218.1 and UL 1563;
- (b) portable hydromassage products covered in CSA Electrical Bulletin 1268 and CSA Electrical Bulletin 1270; and
- (c) hydrotherapy bathtubs or patient bathing systems for institutional use.

1.3

In this Standard, “shall” is used to express a requirement, i.e., a provision that the user is obliged to satisfy in order to comply with the standard; “should” is used to express a recommendation or that which is advised but not required; and “may” is used to express an option or that which is permissible within the limits of the standard.

Notes accompanying clauses do not include requirements or alternative requirements; the purpose of a note accompanying a clause is to separate from the text explanatory or informative material.

Notes to tables and figures are considered part of the table or figure and may be written as requirements.

Annexes are designated normative (mandatory) or informative (nonmandatory) to define their application.

1.4

SI units are the units of record in Canada. 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 gallons are to U.S. gallons.

For information on the conversion criteria used in this Standard, see [Annex A](#).

2 Reference publications

This Standard refers to the following publications, and where such reference is made, it shall be to the edition listed below, including all amendments published thereto.

ASME/CSA (The American Society of Mechanical Engineers/Canadian Standards Association)

ASME A112.18.1-2011/CAN/CSA-B125.1-11
Plumbing supply fittings