WATERMARK

WMTS-469:2022

Waterless or limited flush urinals - With an integral sealing device

WaterMark Technical Specification

2022

Australian Building Codes Board

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Waterless or limited flush urinals – With an integral sealing device

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IMPORTANT NOTICE AND DISCLAIMER

On 25 February 2013 management and administration of the WaterMark Certification Scheme transferred to the Australian Building Codes Board (ABCB). From this date all new technical specifications will be named WaterMark Technical Specifications (WMTS). The WaterMark Schedule of Products lists all current WMTS.

This Technical Specification supersedes WaterMark Technical Specification WMTS-469:2018.

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PREFACE

Watermark Technical Specification WMTS-469: 2022 Technical Specification for plumbing and drainage products, Waterless or limited flush urinals – With an integral sealing device was prepared by industry to supersede WaterMark Technical Specification WMTS-469:2018

The objective of this revision is to include additional requirements for urinals that include a function to dose the waste pipework system with water at periodic intervals without flushing the surface of the fixture.

The word 'VOID' set against a clause indicates that the clause is not used in this Technical Specification. The inclusion of this word allows a common use clause numbering system for the WaterMark Technical Specifications.

The term 'normative' has been used in this Technical Specification to define the application of the appendices to which they apply. A 'normative' appendix is an integral part of a Technical Specification.

The test protocol and information in this Technical Specification was arranged by committee members to meet the authorization requirements given in the PCA.

The WaterMark Schedule of Specifications and List of Exempt Products are dynamic lists and change on a regular basis. Based on this function, these lists have been removed from the WaterMark Certification Scheme document known as Technical Specification for Plumbing and Drainage Products and are now located on the ABCB website (www.abcb.gov.au). These lists will be version controlled with appropriate historic references.

ACKNOWLEDGEMENTS

Australian Technical Specification ATS 5200.469 – 2005, on which this technical specification is based, was prepared by Standards Australia Committee WS-031, Technical Procedures for Plumbing and Drainage Products Certification. It was approved on behalf of the Council of Standards Australia 28 January 2005.

The following organisations were represented on Committee WS-031 in the preparation of Australian Technical Specification ATS 5200.469 – 2005.

- AUSTAP
- Australian Electrical and Electronic Manufacturers Association
- Australian Industry Group
- Certification Interests (Australia)
- Consumer Electronics Suppliers Association
- Copper Development Centre – Australia
- CSIRO Manufacturing and Infrastructure Technology
- Gas Appliances and Services Association
- Master Plumbers and Mechanical Services Association of Australia
- Master Plumbers Australia
- Master Plumbers, Gasfitters and Drainlayers New Zealand
- National Fire Industry Association
- New Zealand Water and Waste Association
- Plastics Industry Pipe Association of Australia
- Plumbing Industry Commission
- South Australian Water Corporation
- Water Services Association of Australia

Watermark Technical Specification WMTS-469:2022 was prepared by industry and reviewed by the ABCB Watermark Technical Advisory Committee. It was approved by the ABCB on 02 March 2022

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1 SCOPE

This Technical Specification specifies requirements for wall-hung and trough urinals to a maximum length of 1200 mm with an integral self-sealing device that can either be waterless or flushed with a limited volume of water.

2 APPLICATION

This Technical Specification will be referenced on the WaterMark Certification Scheme Schedule of Specifications.

Appendix A sets out the means by which compliance with this Technical Specification shall be demonstrated by a manufacturer for the purpose of product certification.

3 REFERENCED DOCUMENTS

The following documents are referred to in this Technical Specification:

AS

1976 Vitreous china used in sanitary appliances

2845.1 Water supply - Backflow prevention devices - Materials, design and performance requirements

3558 Methods of testing plastics and composite materials for use in sanitary plumbing fixtures - Introduction and list of methods

3558.2 Methods of testing plastics and composite materials sanitary plumbing fixtures - Determination of chemical and stain resistance

3558.3 Methods of testing plastics and composite materials sanitary plumbing fixtures - Determination of colour fastness

3558.4 Methods of testing plastics and composite materials sanitary plumbing fixtures - Determination of resistance to surface scratching

3558.5 Methods of testing plastics and composite materials sanitary plumbing fixtures - Determination of degradation by ultraviolet light

3558.6 Methods of testing plastics and composite materials sanitary plumbing fixtures - Visual examination of surface finish for defects

AS/NZS

3500.0 Plumbing and drainage, - Part 0: Glossary of terms

3500.1 Plumbing and drainage, - Part 1: Water services

3500.2 Plumbing and drainage, - Part 2: Sanitary plumbing and drainage

3982 Urinals

ISO

105.AO2 Textiles—Tests for colourfastness - Part A02: grey scale for assessing change in colour

ASME

A112.19.19 Vitreous China Nonwater Urinals

ASTM

A240/A240M Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet and Strip for Pressure Vessels and for General Applications

ANSI

Z124.9 Plastic urinal fixtures

NCC National Construction Code

PCA Plumbing Code of Australia

4 DEFINITIONS

For the purpose of this Technical Specification, the definitions given in AS/NZS 3500.0 and the one below apply.

4.1 Sealing device

A device that performs a sealing function. The device may be mechanical or liquid based.

4.2 Waterless Urinal

A urinal that does not use water to flush the surface of the fixture.

4.3 Hybrid Urinal

A Waterless Urinal, that includes a function to dose the waste pipework system connected to the Waterless Urinal, with water at periodic intervals, and does not use water to flush the surface of the fixture.

4.4 Water Fed Urinal

A urinal that uses water to flush the external surface of the fixture.

5 MATERIALS

5.1 Vitreous china

5.1.1 *Material*

Vitreous china shall comply with AS 1976.

5.1.2 *Thickness*

The thickness, at any point of the urinal, shall not be less than 6 mm.

5.1.3 *Surface finish*

All external surfaces visible after installation shall be glazed.

5.2 Plastics and composite

5.2.1 *Materials and workmanship*

5.2.1.1 Materials

Urinals made from thermo set or thermoplastic materials in either pure or composite form shall comply with the requirements of Clause 5.2.2.

5.2.1.2 Gel coat thickness

Gel coat film thickness shall be not less than 0.4 mm.

5.2.2 *Properties of finished urinals*

5.2.2.1 General

Tests shall be carried out on not less than one test specimen cut from a urinal or a complete urinal.

5.2.2.2 Surface quality

5.2.2.2.1 Distortion and defects

When viewed from a distance of between 500 mm and 600 mm with a surface illumination of not less than 100Lx the surface of the urinal shall be without distortion, defects or blemishes. Any doubtful area shall be tested in accordance with AS 3558.6.

5.2.2.2.2 *Surface finish*

Urinals may have a lustrous or non-gloss finish.

5.2.2.3 *Chemical and stain resistance test*

When sample specimens are tested in accordance with AS 3558.2, the material shall be unaffected by the following reagents:

(a) Household detergent 'Teepol' Gold D6515 (5% solution/deionized water) or equivalent.

(b) Urea 6% (urine), analar grade.

5.2.2.4 *Colourfastness test*

When a sample specimen is tested in accordance with AS 3558.3 the material shall not craze, crack or exhibit signs of any defect and change in colour shall not register less than grey scale of ISO 105.AO2.

5.2.2.5 *Surface scratching test*

When a sample specimen is tested in accordance with AS 3558.4 using a 2H lead there shall be no indentation or scratching deeper than 0.15 mm. Removable scratches as defined in AS 3558.4 are acceptable.

5.2.2.6 *Impact test*

When a sample specimen is tested in accordance with AS 3558.5 it shall not crack, craze or show any signs of delamination.

5.3 Stainless steel

Stainless steel shall be a minimum nominal thickness of 0.9 mm and comply with ASTM A240/A240M Grade 304 or 316 (see AS/NZS 3982).

5.4 Vitreous Enamelled Steel

5.4.1 Steel base material and construction

Urinals shall be manufactured from cold-rolled unalloyed low carbon steel of minimum thickness 1.5mm. Urinals shall be formed by stamping, pressing or fabrication. Where welding is employed, the welding materials shall be compatible with the material to be welded. All welds shall be finished smooth without pitting or crevices

5.4.2 Enamel coating

Urinals shall be wholly enamelled on the inside and over the exposed rim with vitreous enamel. All other surfaces shall be fully coated with a corrosion-resistant bonding coat. The enamel shall

not exhibit any defects that might be obvious to the user and be a site for initiation of corrosion of base steel.

6 MARKING

Markings to be placed on products shall be in accordance with the Manual-for-the-WaterMark-Certification-Scheme

Additionally the product shall be permanently and legibly marked with the following

(a) Model number.

7 PACKAGING

VOID

8 DESIGN

8.1 Waste outlet and grating

The urinal shall incorporate an integral waste and grating that provides free flow of urine into the mechanical sealing device. The grating shall prevent the intrusion of foreign articles, e.g., cigarettes or deodorizing tablets.

8.2 Sealing device

The sealing device shall be an integral part of the fixture and capable of complying with the performance requirements of Clause 9. The design of the urinal shall be such as to enable disassembly for easy replacement or cleaning of the sealing device in situ.

8.3 Sealing device free passage

The design of the device shall be such to allow free passage of urine and shall not build up to an extent to be above the level of the seal.

8.4 Outlet connection

The outlet of the urinal shall be designed to enable a watertight connection to the sanitary drainage system, of a type and size that complies with AS 3500.2.

8.5 Integral Components

Where the product includes other integral plumbing components, accessories or fittings that require certification as identified in the Plumbing Code of Australia, they shall comply with the applicable requirements of the specification for that product as identified in the WaterMark Schedule of Specifications.

8.6 Maximum water dosage for hybrid urinals

Hybrid urinals shall be designed such that water used to dose sewer lines shall not flush more than 10 litres over a 72 hour period.

9 PERFORMANCE REQUIREMENTS AND TEST METHODS

9.1 Requirements for Waterless and Water Fed Urinals

9.1.1 Structural strength and integrity

Wall-hung urinals shall comply with the load test of AS/NZS 3982.

9.1.2 Sanitary performance

Urinals shall comply with the requirements of ANSI Z124.9, Odour Evaluation Test.

9.1.3 Waste seal

The valve shall retain seal under a backpressure equivalent to 70 mm +5,−0 water column for 10 s.

9.1.4 Resistance to environmental agents

Where urinals have a diaphragm type sealing mechanism, this mechanism shall be exposed to the test solutions identified below, each for 3000 cycles.

A cycle comprises 10 s exposure to the solution, followed by 10 s draining.

Each test solution with the exception of (a) consist of the listed ingredients mixed with water at ambient temperature, the ingredients being 5% (+1, −0%) of the total volume of the test solution as follows:

(a) Urea 6% (urine), analar grade.

(b) Household detergent “Teepol” Gold D6515 (5% solution/deionised water) or equivalent.

(c) Crushed cigarettes.

At the completion of the above test the device shall be tested for seal integrity in accordance with Clause 9.3.

9.1.5 Flushing test

For urinals that incorporate a flushing system when tested in accordance with Appendix B the urinal shall flush coloured water over the serviced area 130 mm below the spreader on a spreader type and 50 mm below the weir outlet on a box rim type at the manufacturer’s nominated flush volume.

9.2 Requirements for Hybrid Urinals

9.2.1 Performance

Hybrid Urinals shall comply with ASME A112.19.19.

9.2.2 Backflow Prevention

Hybrid Urinals shall include an air gap device that complies with the backsiphonage test in AS 2845.2 : 1996

10 TEST SEQUENCE AND TEST SAMPLE PLAN

VOID

11 PRODUCT DOCUMENTATION

11.1 PRODUCT DATA

Product data that identifies critical product characteristics shall be available.

11.2 INSTALLATION AND MAINTENANCE INSTRUCTIONS

11.2.1 *General*

Installation instructions shall be provided, which shall give full details of installation procedures for urinal, including the need for special tools or training. Care and maintenance instructions shall be provided and affixed to the urinal.

11.2.2 *Installation instructions*

The installation instructions for waterless urinals shall include reference to installation in accordance with the Plumbing Code of Australia. The installation instruction shall also draw attention to the following requirement of AS/NZS 3500.2:

(a) prior to installing a waterless wall-hung urinal to an existing system the installer shall determine the materials of the pipes in the existing system; and

(b) the undiluted discharge from a waterless urinal shall not be transported through copper or copper alloy pipework.

11.2.3 *Hybrid urinal Installation Instructions*

Hybrid Urinals shall include the following statement:

This Hybrid Urinal has been tested to and has meet the backspihonage requirement in AS 2845.2:1996. Further zone protection may be required. Please consult with the local regulator for any further cross-connection installation requirements.

11.2.4 *Operating and maintenance instructions*

Operating instructions shall be provided, which shall include the following:

(a) Method of cleaning.

(b) Identification of spare parts items and instructions for their replacement.

(c) Occupational health instructions, such as safety equipment.

(d) Essential requirements and precautions.

(e) Other instructions as necessary.

Appendix A MEANS FOR DEMONSTRATING COMPLIANCE WITH THIS PRODUCT SPECIFICATION

(Normative)

A.1 SCOPE

This appendix sets out the means by which compliance with this WaterMark Technical Specification shall be demonstrated by a manufacturer under the WaterMark Certification Scheme.

A.2 RELEVANCE

The long-term performance of plumbing systems is critical to the durability of building infrastructure, protection of public health and safety, and protection of the environment.

A.3 PRODUCT CERTIFICATION

The purpose of product certification is to provide independent assurance of the claim by the manufacturer that products comply with this WaterMark Technical Specification.

The WaterMark Certification Scheme serves to indicate that the products consistently conform to the requirements of this WaterMark Technical Specification.

The sampling and testing plan, as detailed in Paragraph A5 and Table A1, shall be used by the WaterMark Conformity Assessment Body. Where a batch release testing program is required, it shall be carried out by the manufacturer as detailed in Paragraph A5 and Table A2.

A.4 DEFINITIONS

A.4.1 Batch release test

A test performed by the manufacturer on a batch of components, which has to be satisfactorily completed before the batch can be released.

A.4.2 Production batch

A clearly identifiable collection of units, manufactured consecutively or continuously under the same conditions, using material or compound to the same specification.

A.4.3 Sample

One or more units of product drawn from a batch, selected at random without regard to quality.

NOTE: The number of units of product in the sample is the sample size.

A.4.4 Sampling plan

A specific plan that indicates the number of units of components or assemblies to be inspected.

A.4.5 Type test batch

Schedule of units of the same type, identical dimensional characteristics, all the same nominal diameter and wall thickness, from the same compound. The batch is defined by the manufacturer.

A.4.6 Type testing (TT)

Testing performed to demonstrate that the material, component, joint or assembly is capable of conforming to the requirements given in the WaterMark Technical Specification.

A.5 TESTING

A.5.1 Type testing

Table A1 sets out the requirements for type testing and frequency of re-verification.

A.5.2 Batch release testing

Table A2 sets out the minimum sampling and testing frequency plan for a manufacturer to demonstrate compliance of product(s) to this WaterMark Technical Specification on an ongoing basis. However, where the manufacturer can demonstrate adequate process control to the certifying body, the frequency of the sampling and testing nominated by the manufacturer's quality plan and/or documented procedures shall take precedence for the purposes of WaterMark product certification.

A.5.3 Retesting

In the event of a batch release test failure, the products within the batch may be retested at a frequency agreed to with the WaterMark Conformity Assessment Body and only those batches found to comply may be claimed and/or marked as complying with this WaterMark Technical Specification.

A.5.4 Minimum annual inspection requirements

Table A3 sets out the minimum annual inspection requirements to be undertaken.

A.5.5 Re-evaluation testing

Table A4 sets out the requirements for re-evaluation testing.

Table A1

TYPE TESTS

Characteristic	Clause	Requirement	Test method	Frequency
Materials	5.1	Vitreous china	AS 1976	At any change in materials specification
	5.2	Plastics and composite	AS 3558	
	5.3	Stainless steel	Clause 5.3	
	5.4	Vitreous Enamel	Clause 5.4	
Design	8.1	Waste outlet and grating	Design review/physical examination	At any change in the design
	8.2	Sealing device	Design review	
	8.3	Sealing device free passage		
	8.4	Outlet connection		
Performance	9.1	Structural strength and integrity	AS/NZS 3982	At any change in design or manufacturing process
	9.2	Sanitary performance	ANSI Z124.9	
	9.3	Waste Seal	Clause 9.4	
	9.4	Resistance to environmental agents	Clause 9.5	
	9.5	Flushing test	Appendix B	
Product documentation	11	Product data/Installation/Maintenance instructions	Documentation review	At any change to installation requirements

Table A2
BATCH RELEASE TESTS

Characteristic	Clause	Requirement	Test method	Frequency
Materials	5.1	Vitreous China/Thickness/Surface finish	AS 1976/Physical measurement/Visual	AS 1976/100%
	5.2	Plastics and composite-thickness/surface quality, finish	AS 3558	Once per batch
	5.3	Stainless steel	Review compliance certificates	Once per batch
Marking	6	Marking	Visual	100%
Performance	9.3	Waste seal	Clause 9.4	Once per batch
	9.4	Flushing test	Appendix B	
Product Documentation	11	Product data/installation/maintenance instructions	Documentation review	At any change to installation requirements

TABLE A3
MINIMUM ANNUAL INSPECTION REQUIREMENTS

Characteristic	Clause	Requirement	Verification method	Frequency
Markings	6	Clause 4	Marking proposal/Drawings	Each Inspection
Product documentation	11	Instructions for installation and maintenance	Visual	

TABLE A4
RE-EVALUATION TESTING

Characteristic	Clause	Requirement	Test method
Performance	9.3	Sanitary performance – Tightness test	ANSI Z124.9

APPENDIX B - FLUSHING TEST - CLEANLINESS

(Normative)

B1 SCOPE

This Appendix sets the method for testing the flush effectiveness of wall-hung urinals.

B2 PRINCIPLE

The urinal is set up in accordance with the manufacturer's instructions and flush testing performed.

B3 APPARATUS

The following is required:

(a) A flushing cistern or flushing apparatus;

(b) Dye or coloured water for supply to the flushing apparatus or cistern; and

(c) Suitable volume-measuring equipment, to 0.1 L.

B4 PREPARATION

The cistern and flush pipes shall be connected to the urinal installed so that the bottom of the cistern is 450 +10, −0 mm or to the manufacturer's height specification (see Figure B1).

B5 PROCEDURE

The procedure shall be as follows:

(a) Mount the urinal in accordance with the manufacturer's instructions.

(b) Degrease wet areas.

(c) Connect the urinal to the flushing apparatus.

(d) Activate the flushing device to deliver the volume of water as nominated by the manufacturer (up to 2.5 L max.) (see AS/NZS 3500.1).

B6 TEST REPORT

The following shall be reported:

(a) Manufacturer, model and type of urinal.

(b) Whether the coloured water flushed the urinal wall areas shown in Figure B1.

(c) Volume of discharge in litres.

(d) Reference to this test method, i.e., Appendix B, WMTS 469.

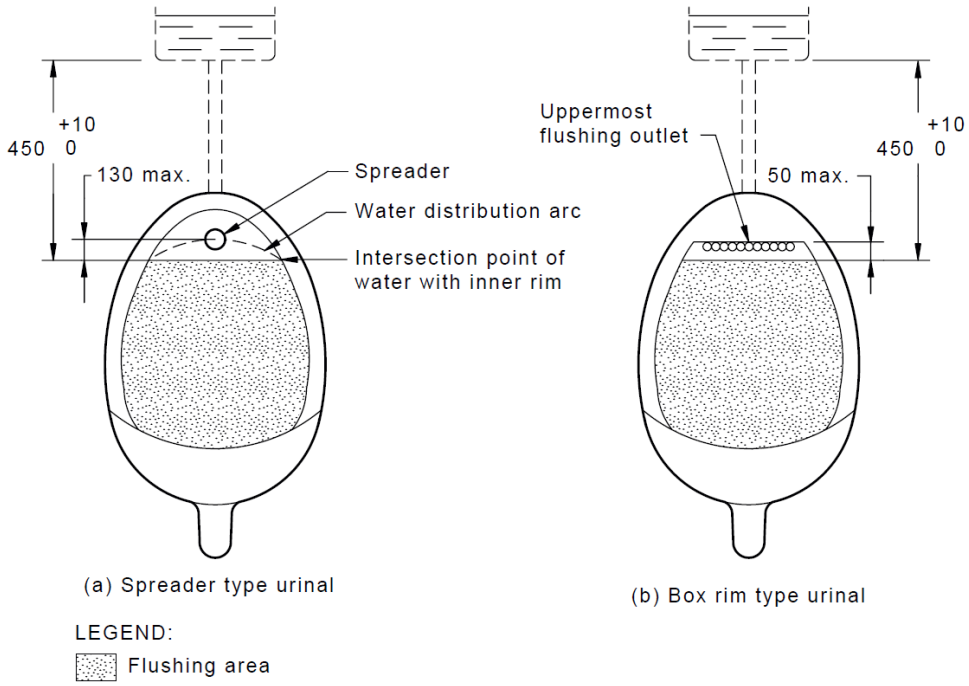

FIGURE B1 TYPICAL FLUSH TEST ARRANGEMENT FOR SINGLE STALL WALL-HUNG URINALS

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