



**WMTS-537:2021**

**Sanitary plumbing products - Automatic concealed urinal**

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**WaterMark Technical Specification**

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## PREFACE

This WaterMark Technical Specification (WMTS) was prepared in accordance with the Manual for the WaterMark Certification Scheme, Appendix 4, Protocol for Developing Product Specifications.

The objective of this WaterMark Technical Specification is to enable product certification in accordance with the requirements of the Plumbing Code of Australia (PCA).

The word 'VOID' set against a clause indicates that the clause is not used in this WaterMark 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 WaterMark Technical Specification to define the application of the appendices to which they apply. A 'normative' appendix is an integral part of a WaterMark Technical Specification.

The test protocol and information in this WaterMark Technical Specification was arranged to meet the authorisation requirements given in the PCA.

The WaterMark Schedule of Products and the WaterMark Schedule of Excluded Products are dynamic lists and change on a regular basis. Based on this function, these schedules are now located on the ABCB website ([www.abcb.gov.au](http://www.abcb.gov.au)). These lists will be version controlled with appropriate historic references.



## ACKNOWLEDGEMENTS

WaterMark Technical Specification WMTS-537:2021 was prepared by industry and was approved by the Administering Body on XX Month 2021.

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## 1 SCOPE

This Specification sets out requirements for a plastic bodied in-wall mounted urinal that is concealed when not in use and opens when user enabled by non-contact sensor automatic operation. The urinal is integrated with components enabling direct connection to the water supply and sanitary plumbing system.

## 2 APPLICATION

Appendix A sets out the means by which compliance with this WaterMark 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 Specification.

### AS

- 3558.2 Methods of testing plastics and composite materials sanitary plumbing fixtures, Part 2: Determination of chemical and stain resistance
- 3558.3 Methods of testing plastics and composite materials sanitary plumbing fixtures, Part 3: Determination of colour fastness
- 3558.4 Methods of testing plastics and composite materials sanitary plumbing fixtures, Part 4: Determination of resistance to surface scratching
- 3558.6 Methods of testing plastics and composite materials sanitary plumbing fixtures, Part 6: Visual examination of surface finish for defects
- 3688 Water supply and gas systems—Metallic fittings and end connectors

### 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

### NCC

PCA Plumbing Code of Australia

## **4 DEFINITIONS**

For the purpose of this WaterMark Technical Specification, the definitions given in the WaterMark Scheme Rules and AS/NZS 3500.0 apply.

## **5 MATERIALS**

The base material of the urinal shall be manufactured from a plastics material that is recommended by the material supplier as being suitable for the application, being able to support the loads applied and resistant to urine and cleaning agents.

## **6 MARKING**

Markings to be placed on products or packaging shall be in accordance with the [Manual for the WaterMark Certification Scheme](#).

In addition, each urinal shall be legibly marked with the following:

- a) Model identification.
- b) Batch Identification or Serial Number.

## **7 PACKAGING**

The urinal shall be packaged in such a manner so as to avoid damage during transportation and handling.

## **8 DESIGN**

### **8.1 End connections**

#### **8.1.1 Inlet connection**

Where threaded, the connection end shall comply with AS 3688. Other connection ends shall comply with the requirements relevant to the connection. The connection shall be capable of making a watertight joint.

#### **8.1.2 Outlet connection**

The end connection shall enable connection to the sanitary drainage system pipe work in accordance with AS/NZS 3500.2. The connection shall be capable of making a watertight joint with a WaterMark certified waste fitting.



## **8.2 Water supply system**

The urinal shall include an integral system of supplying water for cleansing the serviceable area of the urinal. The system shall be watertight and able to withstand the pressures applied in normal operation. The system shall operate on demand and deliver sufficient water to cleanse the serviceable area.

## **8.3 Integral plumbing components, accessories or fittings**

Where the urinal includes integral plumbing components, accessories or fittings that require certification as specified in the PCA, these shall comply with the applicable requirements of the specification for that product as listed on the WaterMark Schedule of Products.

## **8.4 Waste outlet and grating**

The urinal shall incorporate an integral waste and grating that provides free flow of urine into waste pipework. The grating shall prevent the intrusion of foreign articles, i.e., deodorizing tablets.

## **8.5 Water seal**

The urinal shall include an integral water seal complying with AS 3982.

## **8.6 Workmanship**

When tested in accordance with AS 3558.6, the surface of the urinal shall exhibit any cracks crazing or other surface defects.

## **8.7 Surface cleaning**

The urinal shall include a water supply system that effectively washes the serviceable area of the urinal after each user operation.

## **8.8 Opening/closing mechanism**

The urinal shall include a mechanism to open the urinal on user presence and close when the user has departed. The opening and closing mechanism design shall not harm any body parts placed in or near lid whilst closing or opening.

## **8.9 Sensor activation**

The urinal shall be activated by a mechanism that senses user presence and opens the lid for use. Once the user has departed after urinating, the lid shall close and perform a washing function in readiness for the next user. The sensitivity shall be such that the lid does not inadvertently close while the user is present and shall not be greater than 300mm from the front of the urinal.

## 9 PERFORMANCE CRITERIA AND TEST METHODS

### 9.1 Products in contact with drinking water

Products in contact with drinking water shall comply with AS/NZS 4020.

NOTE: The only products considered to be in contact with drinking water are those upstream of the backflow prevention device.

### 9.2 Material tests

#### 9.2.1 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.

#### 9.2.2 Colourfastness test – Pigmented plastics

When a sample specimen is tested in accordance with AS 3558.3, the material shall not exhibit any visible change in colour.

#### 9.2.3 Surface scratching test

When tested in accordance with AS 3558.4, there shall be no scratches classified as severe.

### 9.3 Backflow prevention test

With the urinal in the closed position and with the water supply valve in the fully open position and a dynamic pressure of  $700\text{kPa} \pm 10\text{kPa}$ , the water level shall not rise to within 25mm of the lowest water inlet.

### 9.4 Strength of assembly test

When tested in accordance with Appendix B at twice the maximum working pressure and at ambient temperature, the inlet pressurised assembly shall not leak.

### 9.5 Vertical load test

When tested in accordance with the strength test of AS 3982 with the load on the middle of the urinal lid in the open position, there shall be no cracking or other failure of the lid to support the load.

## 9.6 Urinal capacity test

With the waste outlet blocked, instigate a cycle with the lid in the closed position. When inspected, there shall be no signs of leakage of water outside of the urinal in the open or closed position.

## 9.7 Functional, cleaning and water consumption test

When tested in accordance with Appendix B:

- a) The urinal operating mechanism shall function as described by the manufacturer's specification.
- b) The water supply system shall sufficiently wash the serviceable area.
- c) The water consumption shall be not more than specified and shall not be less than that required by AS/NZS 3500.1.

# 10 TEST SEQUENCE AND TEST SAMPLE PLAN

A single sample or independent samples may be used for testing of the performance requirements of Clauses 9.2 to 9.7.

# 11 PRODUCT DOCUMENTATION

## 11.1 Product data

Product data shall be available that identifies the following critical product characteristics as a minimum:

- a) Minimum and maximum allowable operating pressure.
- b) Jointing methods and adaptation to other piping systems.
- c) Product range and model identification.
- d) Water consumption per cycle.

## 11.2 Instructions

### 11.2.1 Installation instructions

Instructions shall be provided that give full details of installation procedures for the urinal including:

- a) Reference to installation in accordance with the PCA, including the installation of any non-integral backflow prevention device and any limitations on the product.

Note: A material or product that is listed on the WaterMark Product Database and is marked in accordance with the WaterMark Certification Scheme is recognised by authorities having jurisdiction as being authorised for use in a plumbing or drainage installation. This is because the material or product complies with the applicable product specification. The installation of an authorised material or product must meet the requirements of the PCA.

- b) The need for additional control equipment.
- c) Detailed step by step instructions.
- d) The need for special tools or training.
- e) Commissioning procedures and adjustments required.
- f) Troubleshooting guide.
- g) Contact details for after sales service.

#### **11.2.2 Operating and maintenance instructions**

Operating and maintenance instructions shall be provided that include:

- a) Any regular maintenance requirements.
- b) Spare parts information.
- c) Troubleshooting guide.
- d) Contact details for after-sales service.

## **APPENDIX A MEANS FOR DEMONSTRATING COMPLIANCE WITH THIS 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.4.3.1 Sampling plan**

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

**A.4.4 Type test batch**

Schedule of urinals of the same type. The batch is defined by the manufacturer.

**A.4.5 Type testing (TT)**

Testing performed to demonstrate that the urinal 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	Materials	Clause 5	At any change in material specification
Markings	6	Labelling/markings	Review of documentation/physical examination	At any change in design/specification
Packaging	7	Avoid damage during transportation and handling	Review of documentation/physical examination	At any change in design/specification
Design	8.1	End Connections	AS 3688, AS/NZS 3500	At any change in the design
	8.2	Water supply system	Clause 8.2	
	8.3	Integral plumbing component, accessories or fittings	PCA	
	8.4	Waste outlet and grating	Clause 8.3	
	8.5	Water seal	AS 3982	
	8.6	Workmanship	AS 3558	
	8.7	Surface cleaning	Clause 8.6	
	8.8	Opening/Closing mechanism	Clause 8.7	
	8.9	Sensor activation	Clause 8.8	
Performance	9.1	Products in contact with drinking water	AS/NZS 4020	At any change in design or manufacturing process
	9.2	Material tests	AS 3558	
	9.3	Backflow prevention test	Clause 9.3	
	9.4	Strength of assembly test	Appendix B	

	9.5	Vertical load test	AS 3982	
	9.6	Urinal capacity test	Clause 9.5	
	9.7	Functional, cleaning and water consumption test	Appendix C	
Product documentation	11	Product data/Installation and maintenance instructions	Product documentation	At any change to installation requirements

**TABLE A2**
**BATCH RELEASE TESTS**

<b>Characteristic</b>	<b>Clause</b>	<b>Requirement</b>	<b>Test method</b>	<b>Frequency</b>
Markings	6	Labelling/markings	Clause 6	Each urinal
Performance	9.7a)	Functional test	Appendix C	Each urinal
Product documentation	11	Product data/Installation and maintenance instructions	Product documentation	At any change to installation requirements



**TABLE A3****MINIMUM ANNUAL INSPECTION REQUIREMENTS BY CAB**

<b>Characteristic</b>	<b>Clause</b>	<b>Requirement</b>	<b>Verification method</b>	<b>Frequency</b>
Design	8.1-8.9	General design/construction	Visual and component examination	Each inspection
Product marking	6	Product marking, use of the WaterMark logo and licence number	Visual inspection of marked product, relevant packaging and documentation	
Product documentation	11	Product data/Installation and maintenance instructions	Product documentation	

**TABLE A4****RE-EVALUATION TESTING**

<b>Characteristic</b>	<b>Clause</b>	<b>Requirement</b>	<b>Test method</b>
Performance	9.7	Functional, cleaning and water consumption test	Appendix B

## APPENDIX B STRENGTH OF ASSEMBLY TEST

(Normative)

### B.1 SCOPE

This Appendix sets out the method for determining the ability of components and joints of the assembly to withstand hydrostatic pressure without leakage or permanent distortion.

### B.2 PRINCIPLE

The components and joints subject to permanent hydrostatic pressure within the assembly are subjected to a hydrostatic pressure for a period of time and inspected for leakage and permanent distortion.

### B.3 APPARATUS

The following apparatus is required:

- a) Cold water supply sufficient to maintain the required pressure.
- b) Pressure gauge.

### B.4 PROCEDURE

The procedure shall be as follows:

- a) Connect the water supply to the assembly.
- b) Open the shut off valve to bleed the assembly of air.
- c) Slowly increase the pressure until it reaches the test pressure.
- d) Maintain this pressure for 60 +5, -0 min.
- e) Release the pressure.
- f) Record the test pressure, and duration at this pressure.
- g) Inspect the assembly for any leaks or permanent distortion.

### B.5 REPORT

The following shall be reported:

- a) Manufacturer, model and description of bathroom appliance, pipework and components.
- b) Any leakage or structural damage.
- c) Reference to this test method, i.e., WMTS 537, Appendix B.

## APPENDIX C URINAL FUNCTIONAL TEST

(Normative)

### C.1 SCOPE

This Appendix sets out the method for determining the general function of the urinal, as specified by the manufacturer, ability to wash the serviced area, water consumption and leakage/splashing to the outside area/floor.

### C.2 PRINCIPLE

The urinal is to be installed as recommended by the manufacturer and operated by activating the sensor. General function, water consumption, splashing/leakage and washing of the serviced area is to be determined.

### C.3 APPARATUS

The following apparatus is required:

- a) Water supply capable of delivering water at—
  - i a flow rate of more than 20 L/min; and
  - ii a dynamic flow pressure of at least 500 kPa.
- b) Water volume measuring instrument with a resolution of 0.1 L or better and with an accuracy of measurement of 2% or better.

### C.4 PROCEDURE

The procedure shall be as follows:

- a) Install the urinal as recommended by the manufacturer.
- b) Activate the urinal at least 5 times without water supply prior to formal testing and compare function to the manufacturer's specification.
- c) If the urinal functions as specified open water supply and operate the urinal at the manufacturer's maximum operating pressure and when finished:
  - i. Note the water consumption.
  - ii. Visually check for any leakage or splashing on the floor.
- d) Repeat c) for a further 3 cycles and calculate the average water consumption per cycle in litres.
- e) Repeat c) and d) at manufacturer's minimum operating pressure.



- f) Dry the serviceable area.
- g) Activate the urinal then when the cycle has finished turn the water supply off and open the lid of the urinal and visually inspect the effectiveness in washing of the serviceable area.

### **C.5 REPORT**

The following shall be reported:

- a) Manufacturer, model and description of urinal.
- b) Any deviations of function from manufacturer's specification.
- c) Average water consumption in litres.
- d) Any leakage or splashing on the floor.
- e) If the serviceable area is sufficiently washed.
- f) Reference to this test method, i.e., WMTS 537, Appendix C.