



WMTS-106:2019

Small bore pumping units

WaterMark Technical Specification

2019



ABC B



WMTS-106:2019

Small bore pumping units

WaterMark Technical Specification

Publication History:-

First published as WMTS-106—2019

2019

IMPORTANT NOTICE AND DISCLAIMER

While the ABCB, the participating Governments and other groups or individuals who have endorsed or been involved in the development of the WMTS have made every effort to ensure the information contained in this WMTS is accurate and up to date, such information does not in any way constitute the provision of professional advice.

The ABCB gives no warranty or guarantee and accepts no legal liability whatsoever arising from or connected to, the accuracy, reliability, currency or completeness of any material contained in this WMTS.

Users should seek appropriate independent professional advice prior to relying on, or entering into any commitment based on material in this WMTS in relation to plumbing or related activities. Its interpretation in no way overrides the approvals processes in any jurisdiction.

The ABCB welcomes suggestions for improvement in the WMTS and encourages readers to notify it immediately of any apparent inaccuracies or ambiguities. Contact the ABCB via phone on 1300 134 631, email at watermark@abcb.gov.au or write to the WaterMark Administering Body, ABCB, GPO Box 2013, Canberra ACT 2601.

© Australian Government and States and Territories of Australia 2019

This work is copyright. Apart from any use as permitted under the Copyright Act 1968, no part may be reproduced by any process without prior written permission from the Commonwealth and State and Territory Governments of Australia. Requests and inquiries concerning reproduction and rights should be addressed to the:

Chief Executive Officer – Australian Building Codes Board
GPO Box 2013
Canberra ACT 2601

Phone 1300 134 631 – Fax 02 6213 7287

PREFACE

This WaterMark Technical Specification 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). These lists will be version controlled with appropriate historic references.



ACKNOWLEDGEMENTS

WaterMark Technical Specification WMTS-106:2019 was prepared by industry and reviewed by the ABCB WaterMark Technical Advisory Committee. It was approved by the Administration Body on 22 July 2019.

TABLE OF CONTENTS

1	Scope	1
2	Application	1
3	Referenced documents	1
4	Definitions	2
5	Materials	2
6	Marking	2
7	Packaging	3
8	Design	3
9	Performance requirements and test methods.....	4
10	Test sequence and test sample plan.....	5
11	Product documentation.....	5
Appendix A	Means for demonstrating compliance with this product specification.....	7

1 SCOPE

This Specification sets out requirements for small bore pumping units used for the discharge of waste and wastewater from dedicated fixtures to the sanitary plumbing and drainage system.

2 APPLICATION

Small bore pumping units covered by this WaterMark Technical Specification are designed to function on demand and are utilised for the removal of discharges from:

- waste fixtures (not containing faecal matter); and/or
- a single soil fixture (containing faecal matter).

When connected to a soil fixture, small bore pumping units may be either directly or indirectly coupled to a single water closet pan.

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

1172.1 Sanitary plumbing products, Part 1: Water closet pans

2888.3 Methods of testing plastics waste fittings, Method 3: Methods for pressure testing of plastics waste fittings

AS/NZS

3500.0 Plumbing and drainage, Part 0: Glossary of terms

NCC

PCA Plumbing Code of Australia

EN

12050.2 Wastewater lifting plants for buildings and sites - Principles of construction and testing, Part 2: Lifting plants for faecal – free wastewater

- 12050.3 Wastewater lifting plants for buildings and sites - Principles of construction and testing, Part 3: Lifting plants for wastewater containing faecal matter for limited applications
- 12050.4 Wastewater lifting plants for buildings and sites - Principles of construction and testing, Part 4: Non-return valves for faecal-free wastewater and wastewater containing faecal matter

WMTS

- 516 Water closet (WC) pan and flushing device with included macerating and lifting plant

4 DEFINITIONS

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

4.1 Small bore pumping unit

A small bore pumping unit that includes a pump and receiving vessel used for the discharge of waste and wastewater from dedicated fixtures (such as a WC pan, basins, showers, kitchen sinks, laundry troughs, baths and/or bidets) to the sanitary plumbing and drainage system. The small bore pumping unit may include a macerator where discharging waste from a soil fixture.

5 MATERIALS

VOID

6 MARKING

Each unit shall be legibly marked with the following:

- a) Manufacturer's name, brand or trademark.
- b) Model identification.
- c) Batch identification or serial number.
- d) WaterMark certification trademark.
- e) Certificate No.
- f) The number of this Technical Specification, i.e. WMTS 106.

- g) Products intended for use with faecal matter must provide a warning located so as to be clearly visible to the user advising the type of waste material not suitable for the unit, e.g. tampons, handtowels.

7 PACKAGING

The small bore pumping unit shall be packaged in such a manner so as to avoid damage during transportation and handling.

8 DESIGN

8.1 Integral plumbing components, accessories or fittings

Where the unit includes integral components that would normally require individual certification, each component shall comply with relevant applicable specification(s) for that component and may, but is not required to, be individually certified.

8.2 Connections

All connections shall form a watertight seal. Outlet connections shall enable connection to the sanitary plumbing and drainage system pipe work.

8.3 Construction

8.3.1 General

The small bore pumping unit shall include a receiving vessel and pump of sufficient capacity to manage inflows from the fixtures. The collection tank shall be closed and watertight.

8.3.2 Accumulation of waste

Small bore pumping units intended for use with faecal and other waste material shall be designed in such a manner that solid matter does not accumulate.

8.3.3 Fixing devices

Small bore pumping units shall incorporate fixing devices to prevent rotation or flotation when in use. These fixing devices shall be corrosion resistant.

8.4 Control equipment

Small bore pumping units shall be fitted with control equipment that enables automatic operation on demand.

8.5 Minimum flow velocity

Small bore pumping units shall be designed so that there is a minimum flow velocity of 0.7 m/s at the manufacturer's maximum nominated discharge point.

8.6 Non-return valve

The small bore pumping unit shall include a non-return valve in the discharge line to prevent reverse flow. The non-return valve shall comply with the requirements of EN 12050.4.

8.7 Ventilation

The small bore pumping unit shall provide ventilation in accordance with the Plumbing Code of Australia.

9 PERFORMANCE REQUIREMENTS AND TEST METHODS

9.1 Watertightness

9.1.1 9.1.1 Wastewater

The small bore pumping unit shall be capable of withstanding a hydrostatic pressure of 8 kPa for 5+1,-0min without any leakage when tested in accordance with AS 2888.3. Units shall be tested with end connections installed.

9.1.2 9.1.2 Faecal-free wastewater

The small bore pumping unit shall be capable of withstanding any leakage when filled to the maximum level with ambient water (20°C max) for a period of ten minutes. Units shall be tested with end connections installed.

9.2 Lifting effectiveness tests

9.2.1 Wastewater small bore pumping units utilised for the removal of faecal-free wastewater

Small bore pumping units utilised for the removal of faecal-free wastewater, when tested in accordance with EN 12050.2 Clause 8.4 Lifting Effectiveness shall—

- a) effectively circulate all of test waste material;
- b) not suffer any damage or breakdown during the test; and
- c) not suffer any pump, pipework or valve blockages during the test period.

9.2.2 Wastewater small bore pumping units directly or indirectly coupled to a WC pan utilised for the removal of wastewater containing faecal matter

Small bore pumping units utilised for the removal of waste containing faecal matter, when tested in accordance with EN 12050.3 Clause 8.4 Lifting Effectiveness shall—

- a) effectively discharge all of the test media;

Note: minor residual deposits of test media at the conclusion of the test may be acceptable provided only negligible deposits remain.

- b) not decrease or affect the trap seal depth of the WC pan;
- c) when subjected to inflows from additional connections, the rise of water shall not flow into any fixtures and the affect the WC pan flushing performance;
- d) not suffer any damage or breakdown during the test; and
- e) not suffer any pump, pipework or valve blockages during the test period.

Note: Testing shall be conducted with a 4.5L nominal flush pan complying with AS 1172.1 and with the test media identified in WMTS 516 Appendix E in lieu of the test material identified EN 12050.3.

10 TEST SEQUENCE AND TEST SAMPLE PLAN

Independent samples covering the range of pumping units shall be used for testing of the performance requirements of Clauses 9.1 to 9.2.

11 PRODUCT DOCUMENTATION

Information shall be available to aid the installer and user in the correct installation, operation and ongoing maintenance of the product and include critical data on the products, use and application and any limitations. The documentation shall satisfy the requirements of a warranty as referenced in the Plumbing Code of Australia and the requirements of the AS/NZS 3500 series of standards. The information shall be readily available and be in plain English and supplemented by figures and diagrams as applicable.

11.1 Product data

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

- a) Maximum allowable operating pressure and temperature.
- b) Jointing methods and adaptation to other piping systems.
- c) Product range and model identification.

- d) Hydraulic performance data, including maximum recommended discharge height (head) and maximum inflow.

11.2 Instructions

11.2.1 Installation instructions

Instructions shall be provided that give full details of installation procedures for the small bore pumping unit including the following:

- (a) Reference to installation in accordance with the Plumbing Code of Australia, including any limitations on the product's use.

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. Where the installation does not comply with the PCA installation requirements, or where the PCA does not contain installation requirements applicable to the authorised material or product, acceptance of the installation is at the discretion of the authority having jurisdiction.

- b) The need for isolation valves and additional non-return valves where required.
- c) Clearance and ventilation requirements.
- d) Details of materials not considered to be suitable for the unit.
- e) Detailed step by step instructions.
- f) The need for special tools or training.
- g) Commissioning procedures and adjustments required.
- h) Troubleshooting guide.
- i) Contact details for after-sales service.

11.2.2 Operating and maintenance instructions

Operating and maintenance instructions shall be provided that include the following:

- 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 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
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	Integral plumbing components , accessories or fittings	Clause 8.1	At any change in the design
	8.2	Connections	Clause 8.2	
	8.3.1	Construction - General	Clause 8.3.1	
	8.3.2	Construction – Accumulation of waste	Clause 8.3.2	
	8.3.3	Construction – Fixing devices	Clause 8.3.3	
	8.4	Control equipment	Clause 8.4	
	8.5	Minimum flow velocity	Clause 8.5	
	8.6	Non return valve	EN 12050.4	
	8.7	Ventilation	Clause 8.7	
Performance	9.1.1	Watertightness	AS 2888.3	At any change in design or manufacturing process
	9.1.2	Watertightness	Clause 9.1.2	
	9.2.1	Lifting effectiveness test - Wastewater small bore pumping units utilised for the removal of faecal-free wastewater	EN 12050.2	

	9.2.2	Lifting effectiveness test - Wastewater small bore pumping units directly coupled or indirectly coupled to a WC pan utilised for the removal of wastewater containing faecal matter	EN 12050.3	
Product documentation	11	Product data/Installation and maintenance instructions	Product documentation	At any change to installation requirements

**TABLE A2
BATCH RELEASE TESTS**

Characteristic	Clause	Requirement	Test method	Frequency
Markings	6	Labelling/markings	Clause 6	Each unit
Performance	9.1.1	Watertightness	AS 2888.3	Each unit
	9.1.2	Watertightness	Clause 9.1.2	Each unit
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

Characteristic	Clause	Requirement	Verification method	Frequency
Design	8.1-8.6	General design/construction	Visual and component examination	Each inspection
Product marking	6	Product marking, use of the WaterMark logo and license 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

Characteristic	Clause	Requirement	Test method
Performance	9.1.1	Watertightness	AS 2888.3
	9.1.2	Watertightness	Clause 9.1.2

Australian Building Codes Board
Building Australia's Future

Australian Building Codes Board
GPO Box 2013
Canberra ACT 2601
abcb.gov.au