WMTS-532:2021

Pre-packaged wastewater pumping wells

WaterMark Technical Specification

Publication History:-

First published as WMTS-532:2021

2021

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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). These lists will be version controlled with appropriate historic references.

ACKNOWLEDGEMENTS

WaterMark Technical Specification WMTS-532:2021 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 Pre-Packaged Wastewater Pumping Wells for the conveyance of wastewater from multiple fixtures from a single dwelling to the gravity sewer invert level.

These units can be installed above or below ground and designed to function with a working volume depending on tank capacity. Pumping Wells covered by this Specification are limited to a capacity of 6,000 Liters.

These units would be manufactured complete with pumps/s associated fittings and control equipment for ease of installation on site.

2 APPLICATION

For Pre-Packaged Wastewater Pumping Wells covered by this WaterMark Technical Specification are utilised for delivery of waste material from below flood level to the gravity sewer invert level. This Specification is not intended to cover those units that are constructed on site.

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

1546.1 On-site domestic wastewater treatment units, Part 1: Septic tanks

AS/NZS

3500.0 Plumbing and drainage, Part 0: Glossary of terms

3500.1 Plumbing and drainage, Part 1: Water Supply

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

NCC

PCA Plumbing Code of Australia

4 DEFINITIONS

For the purpose of this WaterMark Technical Specification, the definitions given in the WaterMark Scheme Rules, AS/NZS 3500.0, AS 1546.1 and those below apply.

4.1 Wastewater

The spent or used water (black or grey) which contains dissolved and suspended matter.

4.2 Holding Volume

The volume of the tank below the high level pump activation point

4.3 Pumping well

An above or below ground tank for the collection of sewage or wastewater and fitted with a pumping device to raise the contents to a suitable disposal point.

5 MATERIALS

5.1 General

The pumping well and associated fittings shall be constructed of materials that will resist corrosion from the sewerage and sewerage gases internally and aggressive soils externally**.** Materials used shall be consistent with the requirements included in AS/NZS 3500

5.2 Collection Tank-Below Ground

Materials for the collection tank shall comply with AS 1546.1

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 pumping well shall be legibly marked with the following:

On the top external face of the tank adjacent to the inlet

a) Manufacturer’s name, brand or trademark.

b) Model identification.

c) Batch Identification or Serial Number

d) Holding Volume in Litres

e) Design capacity or Rated Daily Capacity

Other Marking

a) Identification of the Inlet to the tank

b) On the Access Cover Load Capacity in accordance with AS 3996

7 PACKAGING

The pre-packaged pumping well and associated pump and fittings shall be packaged in such a manner so as to avoid damage during transportation and handling.

8 DESIGN

8.1 Construction

8.1.1 General

The pre-packaged wastewater pumping well shall include a collection tank, pump of sufficient capacity to manage inflows from the fixtures and valves and fittings. The collection tank shall be closed gas and watertight and enabled to be vented in accordance with AS/NZS 3500.2**.** The pumping well shall be designed such that holding volume of the tank is sufficient so as to minimise pump starts and to avoid excessive stagnation time of included wastewater.

8.1.2 Base

The base shall include a self-cleansing grade towards the pump inlet

8.1.3 Cover

The cover shall be manufactured with materials that are compatible with the pumping well and shall have an access opening with a removable watertight and gas-tight sealed cover sized for maintenance purposes. The cover shall have a load classification in accordance with AS 3996 as applicable for the designed application.

8.1.4 Ventilation

The pumping well shall provide ventilation in accordance with manufacturers specifications and be minimum of DN50.

8.1.5 Pumps

Pumps shall be suitable for unscreened sewerage and;

a) Either incorporate a grinder/cutter or be of vortex design with a minimum free passage of 40mm

b) Be fitted with an isolating valve and non-return valve on the delivery side

c) Be installed with connections to enable removal and replacement of the pump without entry to the chamber

d) Be suitable for the application and have verifiable hydraulic performance data, including maximum recommended discharge height (head) and flow rate

8.1.6 Valves

The wastewater pumping unit shall include an isolation and non-return valve in the discharge line to enable isolation and prevent reverse flow. The isolation valve is installed downstream of non return valve and be accessible without entry to the tank.

8.1.7 Control equipment

Wastewater pumping units shall be fitted with;

a) equipment that enables operation on demand with high and low level control

b) High level alarm

c) The units may also incorporate functionality to enable manual operation.

8.2 End connections

End connections shall enable connection to the pipe work in accordance with AS/NZS 3500.2. Units shall be supplied with end connections.

9 PERFORMANCE REQUIREMENTS AND TEST METHODS

9.1 Resistance to load – Collection tank

Where the Collection tanks/pump well is designed to be installed below ground it shall comply with the load testing requirements of AS 1546.1

9.2 Watertightness

9.2.1 Collection tank – Below ground

The collection tank shall comply with the watertightness test requirements of AS 1546.1

9.2.2 Collection tank – Above ground

The collection tank shall be capable of withstanding a hydrostatic pressure of 5 kPa +1,−0 kPa for 10 +1,−0min at the top of the tank without any leakage without any leakage, or any other signs of permanent damage when tested in accordance with AS 2888.3. Units shall be tested with end connections installed

10 TEST SEQUENCE AND TEST SAMPLE PLAN

Independent samples covering the range of pumping wells 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 (PCA) and those 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) Product range model identification

b) Product application and suitability for the type of wastewater

c) Hydraulic performance data, including maximum recommended discharge height (head) and maximum flow rate.

d) Jointing methods and adaptation to other piping systems.

11.2 INSTRUCTIONS

11.2.1 Installation instructions

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

a) Reference to installation in accordance with the PCA.

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 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) Details of materials not considered to be suitable for the unit.

d) Detailed step by step instructions.

e) The need for special tools or training.

f) Commissioning procedures and adjustments required.

g) Troubleshooting guide.

h) Emergency procedures

i) 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.

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
Materials	5.1	Corrosion resistance	Review of material specifications	Any change in material specification
	5.2	Collection tank – below ground	AS 1546.1	
Markings	6	Marking	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	8.1.1	General	Review of documentation/physical examination	At any change in the design
	8.1.2	Construction-Base		
	8.1.3	Construction-Cover		
	8.1.4	Construction-Ventilation		
	8.1.5	Construction-Pumps		
	8.1.6	Construction-Valves		
	8.1.7	Construction-Control Equipment		
	8.2	End Connections		
Performance	9.1	Resistance to Load - Collection Tank below ground	AS 1546.1	At any change in design or manufacturing process
	9.2.1	Watertightness/Collection Tank – Below Ground	AS 1546.1	
	9.2.2	Watertightness/Collection Tank – Above Ground	Clause 9.2.2	
Product documentation	11	Product data/Installation and maintenance instructions	Review of documentation	At any change to installation requirements

TABLE A2
BATCH RELEASE TESTS

Characteristic	Clause	Requirement	Test method	Frequency
Markings	6	Marking	Clause 6	Each Pumping Well
Performance	9.2	Watertightness	AS 1546.1/Clause 9.2.2	Each Tank

TABLE A3
MINIMUM ANNUAL INSPECTION REQUIREMENTS BY CAB

Characteristic	Clause	Requirement	Verification method	Frequency
Design	8.1-8.2	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	Review of documentation	

TABLE A3
RE-EVALUATION TESTING

Characteristic	Clause	Requirement	Test method
Performance	9.2	Watertightness	AS 1546.1/Clause 9.2.2