WATERMARK

WMTS-533:2022

Wet well washers

WaterMark Technical Specification

2022

Australian Building Codes Board

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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 WaterMark website (www.watermark.abcb.gov.au). These lists will be version controlled with appropriate historic references.

ACKNOWLEDGEMENTS

WaterMark Technical Specification WMTS-533:2022 was prepared by industry and was approved by the Administering Body on 01 March 2022

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1 SCOPE

This Specification sets out requirements for a prefabricated washing device consisting of a rotating arm with included spray nozzles designed specifically for use with wet wells and tanks. These devices are designed to be permanently fixed to the wet well and not portable.

These devices operate on mains or pumped water supply pressure and control is integrated with the pump so as to function when the pump is operational or may be operated manually.

These units may be supplied complete with associated fittings and control equipment for ease of installation on site.

2 APPLICATION

Wet well washers covered by this WaterMark Technical Specification are utilised in order to reduce maintenance intervals by the removal of build-up of accumulated waste material on the walls.

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/NZS

2845.1	Water supply—Backflow prevention devices Part 1: Materials, design and performance requirements
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 systems

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 and those below apply.

4.1 Wet well washer

A device designed to operate by water pressure and includes a spinning arm with spray nozzles that rotates and sprays water on the tank wall in order to avoid build-up of fats, oils and greases (FOGs). The device is automated to operate in conjunction with the pump or to be operated manually.

5 MATERIALS

5.1 General

The wet well washer and associated fittings shall be constructed of materials that will resist corrosion from the sewage and sewage gases. Materials of fixing devices shall be compatible with the materials of metal tanks or be isolated so as to avoid dissimilar metal corrosion.

5.2 Acceptable materials

Materials that are utilised in the construction of the wet well washer and considered acceptable for direct contact with sewage or sewage gases are identified below.

5.2.1 Metallic Materials

Metallic materials utilised as components or fittings (brackets, bolts, nuts, washers etc.) shall be Stainless Steel grade 316 or equivalent in corrosion resistance.

5.2.2 Plastics Materials

Plastics materials utilised as components shall be Polyvinyl Chloride (PVC), Polyethylene (PE) or Polyamide (PA6G), or equivalent.

5.2.3 Elastomeric Materials

Elastomeric materials utilised for gaskets or seals shall be EPDM (Ethylene Propylene Diene Monomer), NBR (Buna-N) or Viton (Fluoroelastomer), or equivalent.

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 wet well washer shall be legibly marked with the following:

a) Model identification.

b) A label as follows:

'WARNING: THIS PRODUCT MUST BE INSTALLED WITH HIGH HAZARD BACKFLOW PROTECTION IN ACCORDANCE THE NATIONAL CONSTRUCTION CODE – VOLUME THREE'

7 PACKAGING

The wet well washer and associated fittings shall be packaged in such a manner so as to avoid damage during storage, transportation and handling.

8 DESIGN

8.1 Wet well washer

The design of the wet well washer shall include the following to enable effective operation as installed:

a) Over a range of pressures, as nominated by the manufacturer, the installed wet well washer shall effectively wash the walls of nominated diameter tanks.

b) The speed of rotation is adjustable.

c) The spray nozzles are able to be adjusted and enable targeting of specific areas of the tank or components.

8.2 Assembly to tanks

The design of the device shall enable installation to appropriate tanks by use of brackets and fixing devices. The installation shall not include drilling into, or attachment to, a plastic tank structure.

8.3 Back flow prevention

Backflow prevention for the wet well washer shall be suitable for a high hazard rating and of a type listed in AS/NZS 3500.1.

8.4 End connections

8.4.1 General

End connections shall be water tight.

8.4.2 Metallic end connections

End connectors for connection to metallic pipes or fittings shall comply with AS 3688.

8.4.3 Other end connections

Other connection ends shall comply with the requirements of the Australian Standard (AS) or WaterMark Technical Specification (WMTS) relevant to the piping system.

8.5 Integral plumbing components, accessories or fittings

Where the unit includes integral plumbing components, accessories or fittings that require certification as identified in the Plumbing Code of Australia, they shall comply with the requirements of the applicable specification in the WaterMark Certification Scheme.

9 PERFORMANCE REQUIREMENTS AND TEST METHODS

9.1 Strength of assembly

9.1.1 Hydrostatic strength

When tested at twice the maximum working pressure and at the maximum working temperature for 5 minutes, the inlet assembly shall not leak.

9.1.2 Watertightness – Batch release test

When tested at maximum working pressure and ambient temperature, the water inlet and outlet assembly shall not crack or leak. Testing of outlet assembly shall be undertaken with outlets sealed.

9.2 Wet well washer – Functional test

When tested in accordance with Appendix B, the wet well washer shall perform in accordance with the manufacturer's specifications for water usage, rotation and effective wash diameter.

10 TEST SEQUENCE AND TEST SAMPLE PLAN

Independent samples covering the range of well washer units shall be used for the testing of the performance requirements of Clause 9.

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 shall include critical data on the product, 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 and model identification.

b) Performance data, including:

i. Min/max water supply pressure (kPa)

ii. Water consumption (L/min) over a range of water pressure (kPa)

NOTE: This data may be represented in a table or a graph.

iii. Compatible tank shapes and dimensions based on the wet well washer's effective wash diameter.

c) Inclusions and exclusions.

d) Features and benefits.

11.2 Instructions

11.2.1 Installation instructions

Instructions shall be provided that give full details of the installation procedures for the wet well washer 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) Detailed step by step instructions.

c) The need for isolation valves.

d) The need for a high hazard backflow prevention device and details of installation and any ongoing maintenance.

e) The need for special tools or training.

f) Commissioning procedures and adjustments required including those that apply to backflow prevention devices.

g) Troubleshooting guide.

h) 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 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.

Minimum annual inspection requirements, as detailed in Paragraph A5 and Table A3, shall be used by the WaterMark Conformity Assessment Body for annual product conformity surveillance.

Re-evaluation testing, as detailed in Paragraph A5 and Table A4, shall be used by the WaterMark Assessment Body in conjunction with renewal of the certification.

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 Product inspection

Examination of certified product, conducted during annual product conformity surveillance, to determine its conformity with the specific requirements of its current certification and WaterMark Licence.

A.4.3 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.4.4 Re-evaluation testing

Testing carried out in conjunction with renewal of the certification.

A.4.5 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.4.6 Sampling plan

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

A.4.7 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.4.8 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 AND INSPECTION

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
Markings	6	Marking	Review of documentation/physical examination	At any change in design/specification
Packaging	7	Avoid damage during storage, transportation and handling	Review of documentation/physical examination	At any change in design/specification
Design	8.1	Wet well washer	Review of documentation/physical examination	At any change in the design
	8.2	Assembly to tanks		
	8.3	Backflow prevention		
	8.4	End connections		
	8.5	Integral plumbing component, accessories and fittings		
Performance	9.1.1	Strength of assembly-Hydrostatic strength	Clause 9.1.1	At any change in design or manufacturing process
	9.1.2	Strength of assembly-Watertightness	Clause 9.1.2	
	9.2	Wet well washer – Functional Test	Appendix B	
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 device
Performance	9.1.2	Strength of assembly-Watertightness	Clause 9.1.2	Each device

TABLE A3
MINIMUM ANNUAL INSPECTION REQUIREMENTS

Characteristic	Clause	Requirement	Verification method	Frequency
Design	8	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	Review of documentation	

TABLE A4
RE-EVALUATION TESTING

Characteristic	Clause	Requirement	Test method
Performance	9.1.1	Strength of assembly-Hydrostatic strength	Clause 9.1.1

APPENDIX B WET WELL WASHER – FUNCTIONAL TEST

(Normative)

B.1 SCOPE

This Appendix sets out the method for determining the general function of the wet well washer as specified by the manufacturer, ability to wash the serviced area, water consumption and spray adjustment.

B.2 PRINCIPLE

The wet well washer is installed as recommended by the manufacturer and operated by opening the water supply solenoid. Spray/wash capability, water consumption, and adjustability of sprays in order to vary speed is assessed.

B.3 APPARATUS

The following apparatus is required:

a) Water supply capable of delivering water at—

   i. a flow rate of more than 40 L/min; and

   ii. a dynamic flow pressure of at least 500 kPa.

b) A pressure gauge (digital or analogue) that must have evidence demonstrating accuracy to ±1% of the true value.

c) Water volume measuring instrument with a resolution of 0.1 L or better and with an accuracy of measurement of 2% or better.

B.4 PROCEDURE

The procedure shall be as follows:

a) Install the wet well washer as recommended by the manufacturer in an open area in order to be able to assess its functionality.

b) Set the nozzles extended so as not to enable rotation.

c) Open water supply solenoid and adjust the pressure to minimum identified by the manufacturer.

d) Note flow rate.

e) Adjust nozzles to enable rotation and note minimum and maximum speed and the effective wash diameter.

f) Repeat b) to e) at 250 kPa and manufacturer's maximum recommended pressure.

B.5 REPORT

The following shall be reported:

a) Manufacturer, model and description of the wet well washer.

b) Any deviations of function from the manufacturer's specification.

c) Water consumption in litres per minute at each pressure.

d) Speed of rotation in revolutions per minute.

e) Maximum wash diameter in metres at each adjustment.

f) Reference to this test method, i.e. WMTS 533, Appendix B.

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