



WMTS-466:2016

Rainwater tank connection devices

WaterMark Technical Specification

2016



ABCB



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Rainwater tank connection devices

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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). Within two years all existing ATS will be renamed WMTS. During this initial period both terms may be used and accepted. All new and recertified Certificates of Conformity will reference WMTS. Certificates of Conformity that currently reference ATS will be re-issued referencing the equivalent WMTS during this initial period. The WaterMark Schedule of Specifications lists all current WMTS and, where appropriate, the former ATS name.

This Technical Specification supersedes Standards Australia ATS 5200.466 – 2004.

The rebranding of this Technical Specification has included additional information about the transition as well as changes to specific details including replacing references to Standards Australia and the National Plumbing Regulators Forum (NPRF) with the ABCB, changing the term Australian Technical Specification (ATS) to WaterMark Technical Specification (WMTS), replacing references to technical committees WS-014 and WS-031 with the WaterMark Technical Advisory Committee (WMTAC).

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PREFACE

WaterMark Technical Specification WMTS-466: 2016 Technical Specification for plumbing and drainage products, Rainwater tank connection devices was originally prepared by the Joint Standards Australia/Standards New Zealand Committee WS-031, Technical Procedures for Plumbing and Drainage Products Certification.

The objective of this 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 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 5200.466 – 2004, 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 on 3 May 2004.

The following organisations were represented on Committee WS-031 in the preparation of Australian Technical Specification ATS 5200.466 – 2004.

- AUSTAP
- Australian Industry Group
- Certification Bodies (Australia)
- Copper Development Centre, Australia
- Fire Contractors Federation
- Master Plumbers, Gasfitters and Drainlayers New Zealand
- New Zealand Water and Waste Association
- Plastics Industry Pipe Association of Australia
- Plumbing Industry Commission
- South Australian Water Corporation
- Water Services Association of Australia

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1 SCOPE

This Technical Specification sets out requirements for low pressure automated changeover devices of nominal sizes DN15 and DN20 and nominal operating pressure up to and including 400 kPa, which enable the interconnection of a pressurized rainwater tank supply and a mains water supply to designated fixtures and outlets.

NOTE: The requirements for components, such as rainwater tanks and supply pumps are outside the scope of this Technical Specification.

2 APPLICATION

Rainwater tank connection devices are designed for use in properties supplied by mains water, where permitted by the authority having jurisdiction.

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 can 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

- | | |
|------|--|
| 1432 | Copper tubes for plumbing, gasfitting and drainage applications |
| 1565 | Copper and copper alloys—Ingots and castings |
| 1572 | Copper and copper alloys—Seamless tubes for engineering purposes |
| 2136 | Method for detecting the susceptibility of copper and its alloys to stress corrosion cracking using the mercurous nitrate test |
| 2345 | Dezincification resistance of copper alloys |
| 2738 | Copper and copper alloys—Compositions and designations of refinery products, wrought products, ingots and castings |
| 3688 | Water supply—Copper and copper alloy body compression and capillary fittings and threaded-end connectors |
| 4087 | Metallic flanges for water works purposes |

AS/NZS

- 1567 Copper and copper alloys—Wrought rods, bars and sections
- 1568 Copper and copper alloys—Forging stock and forgings
- 2845 Water supply—Backflow prevention devices
- 2845.1 Part 1: Materials, design and performance requirements
- 3500 Plumbing and drainage
- 3500.0 Part 0: Glossary of terms
- 3500.1 Part 1: Water services
- 3718 Water supply—Tapware
- 4020 Testing of products for use in contact with drinking water

4 DEFINITIONS

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

5 MATERIALS

5.1 Copper

Copper shall comply with the following:

- (a) *Wrought products* AS 2738.
- (b) *Tubular components* Copper tube shall comply with AS 1432.

5.2 Copper alloy

Copper alloy shall comply with the following:

- (a) *Castings* AS 1565 or capable of passing the requirements of Clause 3.3 provided that the alloy contains not less than 58% copper and not more than 1% aluminium.
- (b) *Hot pressings* AS/NZS 1568 or an alloy complying with AS 2345.
- (c) *Rod for machined parts* AS/NZS 1567 or an alloy complying with AS 2345.
- (d) *Tubular components* Copper alloy tube shall comply with AS 1572 alloy designation C26130. Where bent or stamped in the fabrication process, the tube shall be sufficiently stress-relieved so that it is capable of passing the mercurous nitrate test specified in

AS 2136 after all fabrication processes are complete. For the purpose of this test, the entire tube component shall be tested before any coating or plating operation.

5.3 Dezincification-resistant (DR) copper alloy

Copper alloys in contact with water shall comply with AS 2345.

5.4 Stainless steel

Stainless steel shall be grade 304 or 316 complying with the relevant ASTM Standard for the product form.

5.5 Plastics

Plastic materials under hydrostatic pressure shall be able to demonstrate suitability at the maximum operating pressure and temperature for the intended life of the product.

NOTE: It is an expectation that the minimum life of the product would be 15 years.

6 MARKING

Each device shall be permanently and legibly marked with the following:

- (a) Manufacturer's name, brand or trademark.
- (b) WaterMark.
- (c) Licence number.
- (d) The maximum amperage and pump pressure (400 kPa) to be used in conjunction with the device.
- (e) Maximum operating temperature.
- (f) The number of this Specification, i.e., WMTS-466.

7 VOID

8 DESIGN

8.1 Actuator and operating/changeover mechanism

The operating/changeover mechanism may be of the manufacturer's own design. However, it shall be capable of passing the endurance test specified in Clause 9.4.

8.2 Backflow prevention

The device shall be fitted with a dual check valve (Dual CV) backflow prevention device certified to AS/NZS 2845.1.

8.3 End connectors

Threaded end connectors for connection to either pipes or fittings shall comply with AS 3688. Flanged end connectors for connection to either pipes or fittings shall comply with AS 4087. Other connection ends shall comply with the requirements relevant to the connection.

8.4 Mains supply pressure control

A pressure control valve shall be provided on the mains supply to reduce the inlet pressure to below the pressure rating of the pump on the rainwater supply.

9 PERFORMANCE REQUIREMENTS AND TEST METHODS

9.1 Products in contact with water

The device shall comply with the requirements of AS/NZS 4020. A scaling factor of 0.1 shall be applied.

NOTE: Rainwater may be used for drinking purposes, where permitted by the authority having jurisdiction.

9.2 Hydraulic strength test

When tested at twice the maximum operating pressure and at the maximum operating temperature, the assembled device shall comply with the requirements of AS/NZS 3718.

NOTE: To subject the complete assembly to the test pressure the check valves should be removed.

9.3 Watertightness

When tested in accordance with the watertightness tests in AS/NZS 3718, the device shall not leak.

9.4 Endurance test

The device shall be installed and commissioned in accordance with the manufacturer's instructions. With a pressure of between 500 and 800 kPa applied to the mains supply inlet and at the manufacturer's maximum flow rate, the device shall be operated in its normal manner through rainwater/mains supply/rainwater for 50 000 cycles. During this period there shall be no leakage, visible or functional failure of any component of the operating mechanism and the

operational characteristics of the device shall not evidence any change, i.e., discharge pressure mains/rainwater.

10 VOID

11 PRODUCT DOCUMENTATION

11.1 Product data

Product data shall be available, which shall identify critical product characteristics such as maximum amperage and minimum and maximum pressure range of pumps to be used in conjunction with the device, flow rate and temperature limitations.

11.2 Installation and maintenance instructions

11.2.1 *Installation instructions*

Installation instructions shall be provided, which shall give full details of installation procedures for the device, including the following:

- (a) Reference to installation in accordance with AS/NZS 3500.1.
- (b) Detailed step-by-step instruction.
- (c) The need for special tools or training.
- (d) Commissioning procedures and adjustments required.
- (e) Troubleshooting guide.
- (f) Contact details for after-sales service.

11.2.2 *Operating and maintenance instructions*

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

- (a) Any regular maintenance requirements.
- (b) Spare parts information.
- (c) Troubleshooting guide.
- (d) Contact details for after-sales service.
- (e) Recommended mains and tank supply pressures.

Appendix A MEANS FOR DEMONSTRATING COMPLIANCE WITH THIS TECHNICAL SPECIFICATION

(Normative)

A.1 SCOPE

This Appendix sets out the means by which compliance with this Technical Specification can 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 Technical Specification.

The certification scheme serves to indicate that products consistently conform to the requirements of this Technical Specification.

The frequency of the sampling and testing plan, as detailed in Paragraph A5, shall be used by the WaterMark Conformity Assessment Body.

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

Clearly identifiable collection of units, manufactured consecutively or continuously under the same conditions.

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, which indicates the number of units of components or assemblies to be tested.

A.4.5 Type test batch

Schedule of units of the same type and nominal size. The batch is defined by the manufacturer.

A.4.6 Type testing

Testing performed to demonstrate that the material, component, joint or assembly is capable of conforming to the requirements given in the 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 Technical Specification on an ongoing basis. However, where the manufacturer can demonstrate adequate process control to the WaterMark Conformity Assessment 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 test failure, the products within the batch shall be 100% tested and only those batches found to comply may be claimed and/or marked as complying with this Technical Specification.

Table A1—TYPE TESTS

| Characteristic | Clause | Requirement | Test method | Frequency |
|-----------------------|---------------|--|--|---|
| Materials | 5 | Materials | Review materials parts lists and compliance certificates | At any change in materials specification |
| Design | 8.1 | Actuator and operating/changeover mechanism | Design review | At any change in the design |
| | 8.2 | Backflow prevention | Design review | |
| | 8.3 | End connectors – AS 3688 or AS 4087 | Dimensional assessment | |
| | 8.4 | Mains pressure control | Design review | |
| Performance | 9.1 | Products in contact with water | AS/NZS 4020 | At any change in materials, formulation or design or every five years, whichever occurs first |
| | 9.2 | Hydraulic strength test | AS/NZS 3718 | At any change in design or manufacturing process |
| | 9.4 | Endurance test | Clause 9.4 | |
| Product documentation | 11 | Product data/installation and maintenance instructions | Documentation review | At any change to installation requirements |

Table A2— BATCH RELEASE TESTS

| Characteristic | Clause | Requirement | Test method | Frequency |
|-----------------------|---------------|--------------------------|---|---------------------------------|
| Materials | 5 | Composition, temper, etc | Delivery acceptance tests or supplier's quality certificate | Each delivery batch |
| Marking | 6 | Marking | Visual examination | 100% |
| Design | 8.3 | End connectors | AS 3688 or AS 4087 | One sample per production batch |
| Performance | 9.3 | Watertightness | AS/NZS 3718 | 100% |

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