



WMTS-467:2016

Rainwater tank connection valve

WaterMark Technical Specification

2016



ABCB



WMTS-467:2016

Rainwater tank connection valve

WaterMark Technical Specification

Document formerly known as:-

ATS 5200.467 – 2004 Technical Specification for Plumbing and Drainage Products
Rainwater tank connection valve

Publication History:-

First published as ATS 5200.467—2004.
Revised and redesignated as WMTS-467:2016.

2016

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 5200.467 – 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).

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 document is accurate and up to date, such information does in no 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 document.

Users should seek appropriate independent professional advice prior to relying on, or entering into any commitment based on material in this document 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 encourage readers to notify us 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 9839, Canberra ACT 2601.

Copyright within the following document is owned by the Australian Government and States and Territories of Australia and its Licensors.

Apart from any use permitted under the Copyright Act 1968, no part may be reproduced without prior permission. Requests and enquires concerning reproduction and rights should be directed to:

General Manager
Australian Building Codes Board
GPO Box 9839
Canberra ACT 2601
Phone 1300 134 631 – Fax 02 6213 7287

PREFACE

WaterMark Technical Specification WMTS-467: 2016 Technical Specification for plumbing and drainage products, Rainwater tank connection valve 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 5200.467 – 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 1 November 2004.

The following organisations were represented on Committee WS-031 in the preparation of Australian Technical Specification ATS 5200.467 – 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

TABLE OF CONTENTS

1 Scope 6

2 Application..... 6

3 Referenced documents..... 6

4 Definitions..... 7

5 Materials 7

6 Marking 8

7 Void 8

8 Design 8

9 Performance requirements and test methods..... 9

10 Void 10

11 Product documentation 10

Appendix A Means for demonstrating compliance with this technical specification.... 11

1 SCOPE

This Technical Specification sets out the requirements for automated valves of nominal sizes DN 20/25 and nominal working pressure PN 16, which enable a change of water supply between a pressurized rainwater tank supply and a water service 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 valves are designed for use in properties supplied by reticulated 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 shall 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
- 2845 Water Supply—backflow prevention devices
- 2845.1 Part 1: Materials, design and performance requirements
- 3688 Water supply—Copper and copper alloy body compression and capillary fittings and threaded-end connectors
- 4087 Metallic flanges for waterworks purposes

AS/NZS

- 1567 Copper and copper alloys—Wrought rods, bars and sections
- 1568 Copper and copper alloys—Forging stock and forgings
- 3500 Plumbing and drainage
 - 3500.0 Part 0: Glossary of terms
 - 3500.1 Part 1: Water services
- 4020 Testing of products for use in contact with drinking water
- 4129 Fittings for polyethylene (PE) pipes for pressure applications

ISO

- 5208 Industrial valves: Pressure testing of valves
- 9393 Thermoplastics valves—Pressure test methods and requirements
 - 9393-1 Part 1: General
 - 9393-2 Part 2: Test conditions and basic requirements for PE, PP, PVC-U and PVDF valves
- 9080 Plastics piping and ducting systems—Determination of long-term hydrostatic strength of thermoplastics materials in pipe form by extrapolation

4 DEFINITIONS

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

5 MATERIALS

5.1 Plastics body material test

Plastics material of the valve body shall be of a type that exhibits satisfactory long-term behaviour demonstrated by use of the principles of ISO 9080. For The purposes of this Technical Specification, the material shall exhibit compliance with Table 1.1, AS/NZS 4129 or equivalent.

5.2 Copper

Copper shall comply with the following:

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

5.3 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.

5.4 Dezincification-resistant (DR) copper alloy

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

5.5 Stainless steel

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

6 MARKING

Each valve shall be marked with the following:

- (a) Manufacturer's name, brand or trademark.
- (b) WaterMark.
- (c) Licence number.
- (d) Number of the Technical Specification, i.e., WMTS-467.
- (e) Direction of flow and identification of connection type i.e., rainwater, main supply.

7 VOID

8 DESIGN

8.1 Valve actuator

The valve actuator shall be of the manufacturer's design and shall be capable of passing the endurance test of 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 Operating mechanism

The valve shall be capable of closing one inlet fully before opening the other inlet.

8.4 End Connections

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.

9 PERFORMANCE REQUIREMENTS AND TEST METHODS

9.1 General workmanship and finish

The valve shall be clean smooth and free from any burrs, fins or any irregularities and sharp edges that could affect the performance or function of the valve in service and the safe handling of the valve during installation or use. The surface of plastic components of the valve shall be free from grooves, pinholes, blisters and heat marks and other imperfections that could affect the performance or function of the valve in service.

9.2 Products in contact with water

The device shall comply with the requirements 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.

9.3 Pressure resistance

9.3.1 Plastics-bodied valves

The body (shell) and seat (in all configurations) shall be tested for compliance with the requirements of ISO 9393-1 and ISO 9393-2, and there shall be no leakage.

9.3.2 Metal-bodied valves

The body (shell) and seat (in all configurations) shall be tested for compliance with the requirements of ISO 5208, and there shall be no leakage.

9.4 Endurance test

The valve shall be installed and commissioned in accordance with the manufacturer's instructions. With a main supply pressure of 500 to 800 kPa and at the manufacturer's maximum flow rate, the device shall be operated in its normal manner through rainwater/mains supply/rainwater for 2 000 cycles. During this period, there shall be no leakage or visible or functional failure of any component of the operating mechanism.

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 valve, flow rate and temperature limitations.

11.2 Installation and maintenance instructions

11.2.1 *Installation instructions*

Installation instructions shall be provided, which shall include the following;

- (a) Reference to installation in accordance with AS/NZS 3500.1.
- (b) Detailed step by step instructions.
- (c) The need for special tools or training.
- (d) Commissioning procedures and adjustments required.

11.2.2 *Maintenance instructions*

The manufacturer shall provide maintenance instructions, which shall include the following:

- (a) Any regular maintenance requirements including routine service to be undertaken and frequency of service, i.e., cleaning of filters, routine operation of switching mechanism.
- (b) Spare parts information.
- (c) Troubleshooting guide.
- (d) Contact details for after-sales service.

11.2.3 *Operating instructions*

Consumer instructions shall be provided in a form suitable for display at the location of installation, e.g., affixed to the rainwater tank.

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 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

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 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 tested at an appropriate acceptable quality level (AQL) 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	5.1	Plastic body material	ISO 9080	At any change in plastics material designation
	5.2/5.3/5.4/5.5	Metallic materials composition	Review materials parts lists and compliance certificates	At any change in materials specification
Design	8.1	Valve actuator	Visual inspection of design drawings	At change in the valve design
	8.2	Backflow prevention	Visual inspection of design drawings/product build	
	8.3	Operating mechanism	Design review	At change in the design
	8.4	End connections	Relevant Standard	
Performance test and methods	9.2	Products in contact with drinking water	AS/NZS 4020	At any change in drinking water contact materials
	9.3	Pressure resistance test	ISO 9393/ISO 5208	At any change in the valve design
	9.4	Endurance test	Clause 9.4	
Product documentation	11.2.1	Installation instructions	Documentation review	At any change to installation requirements or valve design
	11.2.2	Maintenance instructions		

Table A2— BATCH RELEASE TESTS

Characteristic	Clause	Requirement	Test method	Frequency
Marking	6	Marking	Visual inspection	100%
Design	8.4	End connections	Dimensional compliance	Once per batch
Performance	9.1	General workmanship and finish	Visual inspection	100%
	9.3	Pressure resistance	ISO 9393/ISO 5208	100%

Australian Building Codes Board
Building Australia's Future

Australian Building Codes Board
GPO Box 9839
Canberra ACT 2601
www.abcb.gov.au