



WMTS-103:2016

Water treatment systems (other than those specified in AS/NZS 3497)

WaterMark Technical Specification

2016



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AS/NZS 3497)**

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Document formerly known as:-

ATS 5200.103 – 2004 Technical Specification for Plumbing and Drainage Products
Water treatment systems (other than those specified in AS/NZS 3497)

Publication History:-

First published as ATS 5200.103—2004.
Revised and redesignated as WMTS-103:2016.

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 5200.103 – 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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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.

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PREFACE

WaterMark Technical Specification WMTS-103: 2016 Technical Specification for plumbing and drainage products, Water treatment systems (other than those specified in AS/NZS 3497) 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 5200.103 – 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 8 October 2004.

The following organisations were represented on Committee WS-031 in the preparation of Australian Technical Specification ATS 5200.103 – 2004.

- AUSTAP
- Australian Electrical and Electronic Manufacturers Association
- Australian Industry Group
- Certification Interests (Australia)
- Consumer Electronics Suppliers Association
- Copper Development Centre—Australia
- Gas Appliances and Services Association
- Master Plumbers, Gasfitters and Drainlayers New Zealand
- National Fire Industry Association
- 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 the minimum requirements for water treatment system componentry, other than those specified in AS/NZS 3497, for use on domestic drinking water supply (private or public). It may be applied to systems used in commercial or industrial applications.

The water systems componentry covered by this Technical Specification includes the following:

- (a) Storage tanks, with a maximum operating pressure of 860 kPa at 48°C.
- (b) Deionizing tank with a maximum operating pressure of 860 kPa at 48°C.
- (c) Strainers.
- (d) Water sanitizers (including UV).
- (e) Water treatment units, upstream of appliances for performance verification in accordance with AS/NZS 4348.
- (f) UV for non-drinking water purposes, i.e., bathing.

NOTE: This list is not exhaustive.

2 APPLICATION

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 Specification:

AS/NZS

- 2845 Water supply—Backflow prevention devices
- 2845.1 Part 1: Materials, design and performance requirements
- 3497 Drinking water treatment units—Plumbing requirements
- 3500 Plumbing and drainage
- 3500.0 Part 0: Glossary of terms
- 3500.1 Part 1: Water services

- 3707 Method for testing pressure cycling resistance of pipes and fittings
- 4020 Testing of products for use in contact with drinking water
- 4348 Water supply—Domestic type water treatment appliances—Performance requirements

4 DEFINITIONS

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

5 MATERIALS

Materials shall comply with AS/NZS 3497.

6 MARKING

Each device shall be marked with the following:

- (a) Manufacturer's name, brand or trademark.
- (b) WaterMark.
- (c) License Number.
- (d) Warning, stating the following:

FOR THE CORRECT OPERATION AND MAINTENANCE OF THIS PRODUCT, IT IS ESSENTIAL TO OBSERVE THE MANUFACTURER'S INSTRUCTIONS.

- (e) For items in Clause 1(a), warning labels stating that a certified dual check valve shall be fitted upon installation.
- (f) Model number and serial or batch number.
- (g) Maximum and minimum pressure, temperature and flow rates where applicable.
- (h) The number of this Specification, i.e., WMTS-103.

7 VOID

8 DESIGN

8.1 Backflow prevention

All components used for water treatment purposes at a first point of entry of a system shall incorporate a non-testable backflow prevention device, complying with the performance requirements of AS/NZS 2845.1 for hot water and positive pressure.

9 PERFORMANCE REQUIREMENTS AND TEST METHODS

9.1 Products in contact with drinking water

Products in contact with drinking water shall comply with AS/NZS 4020. A scaling factor of 0.1 shall be applied to fittings.

9.2 Hydrostatic pressure

When subjected to permanent hydrostatic pressure test of $2 +0.1, -0$ MPa at the manufacturer's stated maximum operating temperature of 'x' $+5, -0^{\circ}\text{C}$ for 60 min $+10, -0$ s, all component shall not leak.

9.3 Endurance test

All components shall be subjected to cyclic testing of 100 000 pressure cycles (10 000 cycles for disposable units) at a minimum pressure cycle frequency of 30 ± 2 cycles/min at a temperature of $23 \pm 2^{\circ}\text{C}$ and a minimum and maximum pressure range of 0 to 1034 kPa, with the following ratios:

- a) The ratio of the pressure rise/pressure fall rates2:1.
- b) The 'on time' (i.e., rise + dwell times), 'off time' (i.e., fall + dwell times)
.....1:1 in accordance with AS 3707.

9.4 Burst pressure

When tested at ambient temperature, components subjected to permanent hydrostatic pressure shall meet a minimum burst pressure of 3.5 MPa when tested at ambient temperature.

Where components subjected to permanent hydrostatic pressure do not have a working pressure in excess of 1200 kPa, the component shall include a suitable certified pressure control device.

NOTE: Current approvals with test reports from another nationally recognized regulatory laboratory, e.g., NSF, covering structural integrity of the appliance, may be considered.

10 VOID

11 PRODUCT DOCUMENTATION

11.1 Installation instructions

Installation instructions shall be provided, which shall include full details of installation procedures for tube and fittings, and reference to AS/NZS 3500.1.

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 is to 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 the 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	Materials	AS/NZS 3497	On change of material
Marking	6	Marking	Visual inspection	At any change in marking process
Design	8	Back flow prevention	Review of the design	On change of design
Performance	9.1	Products in contact with water	AS/NZS 4020	On change of pipe/joint materials
	9.2	Hydrostatic pressure	Clause 9.2	On change of joint design
	9.3	Endurance test	Clause 9.3 and AS 3707	
	9.4	Burst pressure	Clause 9.4	
Product documentation	11.1	Installation instructions	Documentation review	At any change to installation requirements

Table A2—BATCH RELEASE TESTS

Characteristic	Clause	Requirement	Test method	Frequency
Materials	5	Materials	AS/NZS 3497	Once per batch
Marking	6	Legibility	Visual	100%
Design	8.1	Backflow Prevention	Visual	Once per batch
Performance	9.2	Hydrostatic pressure	Clause 9.2	Once/batch
	9.4	Burst pressure	Clause 9.4	

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