



# **WMTS-047:2016**

## **Self-sealing devices**

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**WaterMark Technical Specification**

**2016**



**ABC**





**WMTS-047:2016**

**Self-sealing devices**

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**WaterMark Technical Specification**

Document formerly known as:-

ATS 5200.047 – 2005 Technical Specification for Plumbing and Drainage Products  
Self-sealing devices

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**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 5200.047 – 2005.

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.

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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](mailto: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-047: 2016 Technical Specification for plumbing and drainage products, Self-sealing 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](http://www.abcb.gov.au)). These lists will be version controlled with appropriate historic references.

## **ACKNOWLEDGEMENTS**

Australian Technical Specification ATS 5200.047 – 2005, 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 28 January 2005.

The following organisations were represented on Committee WS-031 in the preparation of Australian Technical Specification ATS 5200.047 – 2005:

- AUSTAP
- Australian Electrical and Electronic Manufacturers Association
- Australian Industry Group
- Certification Interests (Australia)
- Consumer Electronics Suppliers Association
- Copper Development Centre—Australia
- CSIRO Manufacturing and Infrastructure Technology
- Gas Appliances and Services Association
- Master Plumbers and Mechanical Services Association of Australia
- Master Plumbers Australia
- Master Plumbers, Gasfitters and Drainlayers New Zealand
- National Fire Industry Association
- New Zealand Water & 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 specifies requirements for self-sealing devices of nominal sizes DN 32, DN 40 and DN 50.

## **2 APPLICATION**

Self-sealing devices may be used as an alternative to traps as identified in AS/NZS 3500.2.

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

- 2887 Plastic waste fittings
- 2888 Methods of testing plastics waste fittings
- 2888.8 Part 8: Thermal cycling test

### AS/NZS

- 3500 Plumbing and drainage
- 3500.0 Part 0: Glossary of terms
- 3500.2 Part 2: Sanitary plumbing and drainage

### BS EN

- 274 Waste fittings for sanitary appliances
- 274-2 Part 2: Test methods

## **4 DEFINITIONS**

For the purpose of this Standard, the definitions given in AS/NZS 3500.0 and those below apply.



#### **4.1 Self-sealing device**

A sanitary device that incorporates an elastomeric diaphragm that allows waste water to discharge from a fixture in one direction but seals to prohibit the entry of gases in the opposite direction.

## **5 MATERIALS**

### **5.1 General**

Materials employed in the construction of self-sealing devices shall be such that they can withstand contact with domestic wastewater up to 80°C and comply with the performance requirements of this Technical Specification.

### **5.2 Stainless Steel**

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

## **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 number of this Technical Specification, i.e., WMTS-047.

## **7 VOID**

## **8 DESIGN**

### **8.1 Connection ends**

Connection ends shall comply with one of the alternatives specified in AS 2887.

## **9 PERFORMANCE REQUIREMENTS AND TEST METHODS**

### **9.1 Flow capacity**

When tested in accordance with EN 274-2 the flow rate shall be not less than that listed in Table 1.

**TABLE 1**  
**MINIMUM FLOW RATES**

<b>Size (DN)</b>	<b>Flow rate (L/min)</b>
32	40
40	50
50	70

### **9.2 Seal integrity**

The valve shall retain the seal under a backpressure equivalent to 70 mm +5, -0 water column for 10 s.

### **9.3 Thermal cycling test**

Plastics-bodied valves shall be tested for compliance with the thermal cycling test of AS 2887. At the completion of the test, the device shall be tested for seal integrity in accordance with Clause 9.2.

### **9.4 Resistance to environmental agents**

A sample shall be exposed to three test mixtures, each for 10 000 cycles.

A cycle comprises 10 s exposure to the mixture, followed by 10 s draining.

Each test mixture consists of the ingredients listed in Table 2, mixed in water at ambient temperature. The ingredients shall comprise 5% (+1, -0%) of the total mass of the test mixture.

At the completion of the test the device shall be tested for seal integrity in accordance with Clause 9.2.

**TABLE 2**  
**TEST MIXTURES**

<b>Test mixture</b>	<b>Ingredients</b>
1	Organic materials such as tea leaves, mixed vegetables, rice and pasta
2	Dishwashing detergents containing sodium hydroxide
3	Hair, soap portions and grit

### **9.5 Resistance to solvents**

A sample shall be exposed to a test solution for 10 000 cycles.

A cycle comprises 10 s exposure to the solution, followed by 10 s draining.

The test mixture consists of an organic solvent (e.g., paint brush cleaner, turpentine, kerosene or paint thinners) mixed with water at ambient temperature. The solvent shall comprise 0.5% of the total volume of the mixture.

At the completion of the test, the device shall be tested for seal integrity in accordance with Clause 9.2.

#### **9.6 Resistance to cigarette burns**

The device shall be fastened to a fixture outlet and in a dry environment a burning cigarette shall be dropped into the device and allowed to extinguish.

At the completion of the test the device shall be tested for seal integrity in accordance with Clause 9.2.

## **10 VOID**

## **11 PRODUCT DOCUMENTATION**

### **11.1 Product data**

Product data that identifies critical product characteristics, such as flow rate and temperature limitations, shall be available.

### **11.2 Installation instructions**

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

- (a) Reference to installation in accordance with AS/NZS 3500.2 and any limitations.
- (b) Detailed step-by-step instruction.
- (c) Contact details for after-sales service.

## **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 this 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 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 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	End connections	AS 2887	At any change in the design
Performance	9.1	Flow capacity	EN 274-2	At any change in design or manufacturing process
	9.2	Seal integrity	Clause 9.2	
	9.3	Thermal cycling test	AS 2888.8/AS 2887	
	9.4	Resistance to environmental agents	Clause 9.4	
	9.5	Resistance to solvents	Clause 9.5	
	9.6	Resistance to cigarette burns	Clause 9.6	
Product documentation	11	Product data / installation instructions	Documentation review	At any change to installation requirements

**Table A2—BATCH RELEASE TESTS**

Characteristic	Clause	Requirement	Test method	Frequency
Materials	5	Composition, etc	Delivery acceptance tests or supplier's quality certificate	
Marking	6	Marking	Visual examination	100%
Design	8.1	End connections	AS 2887	Once per batch
Performance	9.2	Seal integrity	Clause 9.2	Once per batch



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