



# WMTS-485:2018

## Pressure compensating tank

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WaterMark Technical Specification

2018





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**WaterMark Technical Specification**

Document formerly known as:-

ATS 5200.485 – 2006 Technical Specification for Plumbing and Drainage Products  
Pressure compensating tank

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First published as ATS 5200.485—2006.  
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**2018**

## **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 5200.485:2006.

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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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-485:2016 Technical Specification for plumbing and drainage products, Pressure compensating tank was originally prepared by the Joint Standards Australia/Standards New Zealand Committee WS-031, Technical Procedures for Plumbing and Drainage Products Certification.

WaterMark Technical Specification WMTS-485:2018 Technical Specification for plumbing and drainage products, Pressure Compensating Tanks, incorporates a revision to scope to allow for increased tank capacity.

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 5200.485–2006, 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 29 May 2006.

The following organisations were represented on Committee WS-031 in the preparation of Australian Technical Specification ATS 5200.485–2006.

- AUSTAP
- Australian Electrical and Electronic Manufacturers Association
- Australian Industry Group
- Australian Stainless Steel Development Association
- Building Officials Institute of New Zealand
- Building Research Association of New Zealand
- Certification Interests (Australia)
- Copper Development Centre – Australia
- Master Plumbers, Gasfitters and Drainlayers New Zealand
- National Fire Industry 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 a pressure-compensating tank, for use within cold and heated water supply systems incorporating water supply pumps or systems with fluctuating pressures.

## 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 Technical Specification:

AS

- 1646 Elastomeric seals for waterworks purposes AS/NZS
- 3500.0 Part 0: Glossary of terms
- 3500.1 Part 1: Water services
- 3500.4 Part 4: Heated water services
- 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 General

This Clause specifies requirements for materials utilized in the construction of the product.

### 5.2 Metallic materials

Metallic materials in contact with water shall be corrosion resistant. For the purposes of this Technical Specification, the material requirements as specified in AS 3688 apply.



### 5.3 Plastics materials

#### 5.3.1 General

Plastics materials shall comply with the relevant Standard for the product type or type of plastics used.

##### 5.3.1.1 UV resistance

For outdoor applications, the plastics material formulation shall be stabilized by suitable ultraviolet light stabilizers.

### 5.4 Elastomeric materials

The materials used for seals or gaskets shall comply with AS 1646

## 6 MARKING

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

- (a) Manufacturer's name, brand or trademark.
- (b) Nominal capacity.
- (c) Maximum operating pressure.
- (d) Batch Identification or Serial Number
- (e) WaterMark.
- (f) Licence number.
- (g) The number of this Technical Specification, i.e., WMTS-485.

*NOTE: Where space is limited the number of this Technical Specification may be in abbreviated form, i.e., S485.*

## 7 PACKAGING

The tank shall be packaged in such a manner so as to avoid damage during transportation and handling.

## 8 DESIGN

### 8.1 Integral plumbing components, accessories or fittings

Where the product includes integral plumbing components, accessories or fittings that require certification as identified in the PCA, they shall comply with the applicable requirements of the specification for that product, as identified in Procedure for Certification of Plumbing & Drainage Products.

## 8.2 End connectors

End connectors for connection to metallic or plastics piping systems shall comply with the requirements of the Standard relevant to the piping system.

# 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. Products shall be tested as 'in line' products with a scaling factor of 0.1.

## 9.2 Hydrostatic strength test

When tested in accordance with Appendix B at the manufacturers Maximum Operating Temperature and 1.5 times the maximum operating pressure, at the maximum/minimum equalizing side pressure for 60 s–0 +10 s there shall be no leakage or failure.

Note: For pressure compensating tanks for use in cold water systems only the test is undertaken at ambient conditions.

## 9.3 Endurance test

When tested in accordance with Appendix C at the manufacturers Maximum Operating Temperature for 10 000 cycles, there shall be no leakage, visible or functional failure of the device.

Note: For pressure compensating tanks for use in cold water systems only the test is undertaken at ambient conditions

# 10 TEST SEQUENCE AND TEST SAMPLE PLAN

VOID

# 11 PRODUCT DOCUMENTATION

## 11.1 Product data

Product data that identifies critical product characteristics, such as the following, shall be available:

- (a) Capacity and function.
- (b) Maximum allowable operating pressure and temperature.
- (c) Minimum operating pressure.

## **11.2 Installation and maintenance instructions**

### **11.2.1 *Installation instructions***

Installation instructions that give full details of tank installation procedures shall be available. The instructions shall include the following:

- (a) References to installation in accordance with AS/NZS 3500.1 and AS/NZS 3500.4 where applicable.
- (b) Step-by-step instruction.
- (c) The need for special tools or training, if applicable.
- (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.

## **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.

### **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**

A 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 WaterMark 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 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	Relevant Standard	Review materials parts lists and data/test reports	At any change in materials specification
Marking	6	Marking	Visual inspection	At any change in design/specification
Packaging	7	Protection from damage during transportation and handling	Review of documentation/physical examination	
Design	8.1	Integral plumbing components, accessories or fittings	Applicable specification	At any change in design/specification
	8.2	End connectors	AS or WMTS relevant to the piping system	
Performance	9.1	Products in contact with drinking water	AS/NZS 4020	At any change in materials, formulation or design or every five years whichever occurs first
	9.2	Hydrostatic strength test	Appendix B	At any change in design or manufacturing process
	9.4	Endurance test	Appendix C	
Product documentation	11	Product data/installation, operation and maintenance instructions	Documentation review	At any change factors that require a change in documentation, e.g., amendments to AS/NZS 3500 series of Standards

**Table A2  
BATCH RELEASE TESTS**

Characteristic	Clause	Requirement	Test method	Frequency
Materials	5	Relevant Standard	Delivery acceptance tests or supplier's test data	Each delivery batch
Marking	6	Marking	Visual examination	Once per batch
Performance	9.2	Hydrostatic strength test	Appendix B	Once per batch

**TABLE A3  
MINIMUM ANNUAL INSPECTION REQUIREMENTS BY CAB**

Characteristic	Clause	Requirement	Verification method	Frequency
Marking	6	Marking	Visual inspection	Each Inspection
Packaging	7	Protection from damage during transportation and handling	Review of documentation/physical examination	
Design	8.1	Integral plumbing components, accessories or fittings	Review of Specification/Physical examination	
	8.2	End connectors	Review of Specification/Physical examination	
Product documentation	11	Product data/installation, operation and maintenance instructions	Documentation review	

**TABLE A4  
RE-EVALUATION TESTING**


## **Appendix B HYDROSTATIC STRENGTH TEST**

(Normative)

### **B.1 SCOPE**

This Appendix sets out the method for determining the ability of a pressure compensating tank to withstand hydrostatic pressures.

### **B.2 PRINCIPLE**

The tank is subjected to a hydrostatic pressure for a period of time and inspected for structural damage.

### **B.3 APPARATUS**

The following apparatus is required:

- (a) Water supply source sufficient to maintain the required pressure.
- (b) Pressure gauge.

### **B.4 PROCEDURE**

The procedure shall be as follows:

- (a) Mount the pressure compensating tank in a suitable jig and connect the water supply to the inlet of mains water supply. Block the other ends with suitable plugs that contain fittings in order to de-air the device.
- (b) Supply water to the pressure compensating tank and purge all the air. For testing with heated water the pressure compensating tank is to be conditioned at this temperature for a minimum of 30 min.

Note: For pressure compensating tanks for use in cold water systems only the test is undertaken at ambient conditions

- (c) Slowly increase the pressure until it reaches the test pressure.
- (d) Maintain this pressure for the test duration.
- (e) Release the pressure.
- (f) Record the test pressure, temperature and duration at this pressure.
- (g) Inspect the device for any leaks or structural damage.

### **B.5 TEST REPORT**

The following shall be reported:

- (a) Manufacturer, model, type and size of pressure compensating tank.
- (b) Any leakage or structural damage.
- (c) Reference to this test method, i.e., WMTS-485, Appendix B.

## **Appendix C ENDURANCE TEST**

**(Normative)**

### **C.1 SCOPE**

This Appendix sets out the method for determining the ability of a pressure compensating tank to withstand repetitive cycles of operation.

### **C.2 PRINCIPLE**

The tank is subjected to repetitive cycles of pressure as would occur in normal installation and then checked for any failures in terms of function, leakage or damage to components.

### **C.3 APPARATUS**

The following apparatus is required:

- (a) A water supply system with necessary controls capable of maintain temperature, varying pressure and flow rate.
- (b) Suitable measuring equipment capable of measuring temperature pressure and flow rate.

### **C.4 PROCEDURE**

The procedure shall be as follows:

- (a) Mount the tank in a suitable jig and connect the water supply.
- (b) Supply water at the manufacturers maximum operating temperature to the valve and purge all the air.

Note: For pressure compensating tanks for use in cold water systems only the test is undertaken at ambient conditions

- (c) Adjust the pressure to 500 kPa with flow rate of between 10 L/min and 15 L/min.
- (d) Stop flow and adjust pressure to the manufacturer's set draw-off pressure.
- (e) Start flow again to reach a pressure of 500 kPa and flow rate of between 10 L/min and 15 L/min.
- (f) Repeat Steps (c) to (e) for the identified number of cycles.
- (g) Test device in accordance with Appendix B.

### **C.5 TEST REPORT**

The following shall be reported:

- (a) Manufacturer, model, type and size of pressure compensating tank.
- (b) Pressure and flow rates.
- (c) Draw-off pressure and any changes to this pressure during the cycling.
- (d) Any leakage, visible or functional failure of the device.
- (e) Reference to this test method, i.e., WMTS-485, Appendix C.

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