



WMTS-463:2015

Pressue attenuator

WaterMark Technical Specification

2015





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Positive air pressure attenuator

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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 5200.463 – 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), and replacing references to a proprietary product with the generic “pressure attenuator”.

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PREFACE

This Technical Specification 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 5200.463 – 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 19 August 2005.

The following organisations were represented on Committee WS-031 in the preparation of Australian Technical Specification ATS 5200.463 – 2005.

- AUSTAP
- Australian Electrical and Electronic Manufacturers Association
- Australian Industry Group
- CSIRO Manufacturing and Infrastructure Technology
- Certification Interests (Australia)
- Consumer Electronics Suppliers Association
- Copper Development Centre, Australia
- Gas Appliances and Services Association
- Master Plumbers Australia
- Master Plumbers and Mechanical Services Association of 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 sets out requirements and test methods for devices to attenuate positive pressure transients in plumbing stacks, intended for operation within the temperature range of 0°C to 40°C.

2 APPLICATION

Pressure attenuators are intended for use on the discharge stacks of sanitary plumbing and drainage systems in multi-storey buildings as an alternative to relief venting.

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 for the purposes of product certification.

3 REFERENCED DOCUMENTS

The following documents are referred to in this Specification:

AS/NZS

3500 Plumbing and drainage

3500.0 Part 0: Glossary of terms

4936 Air admittance valves (AAVs) for use in sanitary plumbing and drainage systems

4 DEFINITIONS

For the purpose of this Specification, the definitions given in AS/NZS 3500.0 and AS/NZS 4936 apply.

5 MATERIALS

Materials shall comply with relevant Standards.

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) Number of the Technical Specification, i.e., WMTS-463.
- (e) Any other markings relevant to the correct installation and safe operation of the product.

7 PACKAGING

Each device shall be packaged to enable it to be handled, transported and stored satisfactorily prior to installation.

8 DESIGN

The end connections on pressure attenuators shall be dimensionally compatible with the product to which the connection is to be made, as specified in the relevant Standard for the product.

If the design incorporates an air admittance valve, the device shall conform to AS/NZS 4936 with respect to its air admittance functions.

If the design provides for the connection of an air admittance valve, the device shall be tested to AS/NZS 4936, Appendix A, with the recommended air admittance valve installed and marking shall include the determined airflow rate capacity.

9 PERFORMANCE REQUIREMENTS AND TEST METHODS

9.1 Airtightness

Pressure attenuators shall withstand a positive internal pressure up to 10 000 Pa without leakage. When tested in accordance with Appendix B, valves shall show no signs of leakage.

9.2 Endurance

Pressure attenuators shall operate reliably throughout their service life. They shall be deemed to comply with this requirement if, when tested in accordance with Appendix C, devices pass the airtightness test of Appendix B after operating at each of the test temperatures over the given time periods.

10 VOID

11 PRODUCT DOCUMENTATION

A complete set of installation instructions, which provides all information necessary for the correct installation of the device, shall be included in the packaging of the device. Where applicable, the instructions shall also include the following:

- (a) Permissible locations for the device.
- (b) The orientation of the device.
- (c) Method of connection to the discharge stack.
- (d) Critical clearances from other stack connections or fittings.

All documentation shall be written in clear, concise, plain English supported by relevant figures and diagrams.

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 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 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	Composition		At any change in materials specification
Marking	6	Marking	Visual inspection	At any change in the marking process
Packaging	7	Packaging (if required)	Visual inspection	
Design	8	End connections		At any change in design
Performance	9.1	Airtightness	Appendix B	At any change in design or manufacturing process
	9.2	Endurance	Appendix C	
Product documentation	11	English language documentation	Visual inspection	At any change in factors that require a change in documentation.
	11	Installation instructions	Visual inspection	

Table A2— BATCH RELEASE TESTS

Characteristic	Clause	Requirement	Test method	Frequency
Materials	5	Composition	Delivery acceptance tests or supplier's quality certificate	Each production batch
Marking	6	Markings	Visual examination	One sample per batch
Design	8	Critical dimensions	Design drawings	One sample per batch
Production tests	9.1	Airtightness		One sample per batch

Appendix B AIRTIGHTNESS TEST

(Normative)

B.1 SCOPE

This Appendix sets out the method for determining airtightness of pressure attenuators.

B.2 PRINCIPLE

The valve is subjected to various pressure tests to determine leakage.

B.3 APPARATUS

- (a) Air pump.
- (b) Air isolating valve.
- (c) Manometer.
- (d) Means for connecting the source of air pressure to the pressure attenuator to be tested so that it can be installed in accordance with the manufacturer's instructions.

NOTES:

- 1 *The means of connection may be a short length of pipe capped or plugged at one end and carrying the connections for the manometer and air inlet valve.*
- 2 *A suitable clamp may be required to retain push-fit connections during testing. Such a clamp should not damage or deform or affect the device's performance, neither should it restrain any part of the device that might otherwise be displaced during testing.*
- 3 *Pressure attenuators intended for installation by solvent welding may be solvent welded to the length of pipe.*
- 4 *Tests should be conducted in a draught-free constant-temperature environment.*

B.4 PROCEDURE

The procedure shall be as follows:

- (a) Assemble the pressure attenuator in the test rig in accordance with the manufacturer's instructions.

- (b) Open the air inlet valve and slowly raise the pressure to 500 +10, -0 Pa. Close the air inlet valve.
- (c) After 5 min, record the internal pressure.
- (d) If the pressure is less than 450 Pa, check the apparatus is airtight. If a leak is detected in the apparatus, rectify and repeat from Step (b).
- (e) Raise the pressure by opening the air inlet valve and pumping air into the apparatus until it reaches 10 000 +0, -100 Pa. Close the air valve.
- (f) After 5 min, record the internal pressure.
- (g) If the test pressure is less than 9000 Pa, check the apparatus is airtight. If a leak is detected in the apparatus, rectify and repeat from Step (b).

B.5 TEST REPORT

The following shall be reported:

- (a) Manufacturer, model, type and size of pressure attenuator.
- (b) Internal pressure (see Paragraph B4 (f)).
- (c) Reference to this test method, i.e., WMTS-463, Appendix B.

Appendix C ENDURANCE AND TEMPERATURE TEST

(Normative)

C.1 SCOPE

This Appendix sets out the method for determining the endurance of pressure attenuators.

C.2 PRINCIPLE

The device is operated at various temperatures for specified periods of time.

C.3 APPARATUS

A rig comprised of—

- (a) An electric fan.
- (b) A means for alternately applying the fan pressure and suction to the device under test.
- (c) Temperature measuring and pressure recording devices.
- (d) An environmentally controlled cabinet or area.

An atmospheric vent may be required to ensure that the applied suction and pressure are within the specified limits.

C.4 PROCEDURE

The procedure shall be as follows:

- (a) Assemble the pressure attenuator in the test rig in accordance with the manufacturer's instructions.
- (b) Place the test rig and the device in an environmentally controlled cabinet or area with the air temperature maintained at $20 \pm 5^\circ\text{C}$.
- (c) Cycle the air pressure in the device between -500 ± 25 Pa and $+500 \pm 25$ Pa, at a rate of 15 ± 2 cycles per minute for a period of 480 ± 5 min.
- (d) Conduct the air tightness test in accordance with the procedure given in Appendix B.
- (e) Repeat Steps (a) and (b) with the air temperature at $40 \pm 5^\circ\text{C}$ and again at $0 - 0, +5^\circ\text{C}$.

C.5 TEST REPORT

The following shall be reported:

- (a) Manufacturer, model, type and size of valve.
- (b) Internal pressure (see Paragraph B4 (f), Appendix B) for each temperature.
- (c) Reference to this test method, i.e., WMTS-463, Appendix C.

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