



WMTS-006:2014

Reflux Valves - Sewerage

WaterMark Technical Specification

2014





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Part: 006 Reflux Valves - Sewerage

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First published as ATS 5200.006—2005.
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2014

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 5200.006-2005.

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).

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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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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-006:2014 Technical Specification for plumbing and drainage products, Part 006: Reflux valves – Sewerage 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 5200.006 – 2005, on which this Technical Specification is based, was prepared by Standards Australia Committee WS-031, Technical Procedures for Plumbing and Drainage Products Authorisation. It was approved on behalf of the Council of Standards Australia on 19 August 2005.

The following organisations were represented on Committee WS-031:

- 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 Inc
- Certification Interests (Australia)
- Consumer Electronics Suppliers Association
- 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 plastics-bodied reflux valves, manufactured from PVC-U (Polyvinyl Chloride Unplasticised) and ABS (Acrylonitrile Butadiene Styrene), that are intended to prevent the reversal of wastewater flow by means of a resilient-seated disc/flap or other mechanism. It covers nominal sizes DN 100 to DN 600.

2 APPLICATION

This Technical Specification will be referenced on the WaterMark Certification Scheme Schedule of Specifications.

NOTE: The WaterMark Certification Scheme Schedule of Specifications also provides the level of WaterMark Certification required for this product to be used in plumbing systems in accordance with the Plumbing Code of Australia.

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/NZS

1260	PVC-U pipes and fittings for drain, waste and vent application
3500	Plumbing and drainage
3500.0	Part 0: Glossary of terms
3500.2	Part 2: Sanitary plumbing and drainage
3879	Solvent cements and priming fluids for use with unplasticized PVC (uPVC) pipes and fittings

ISO

7682	Plastics piping systems for soil and waste discharge (low and high temperature) inside buildings - Acrylonitrile-butadiene-styrene (ABS)
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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 valve.

5.2 Valve body

The body of the valve shall be constructed from PVC-U utilizing materials specified in AS/NZS 1260 or ABS utilizing materials specified in ISO 7682.

5.3 Resilient seat

The seat shall be constructed from an elastomeric material to ensure a positive seal.

5.4 Other materials

Other materials utilized in the construction of the valve shall be corrosion-resistant and compatible with each other in a sewage environment.

6 MARKING

Each valve shall be legibly marked with the following:

- a) Manufacturer's name, brand or trademark.
- b) WaterMark.
- c) Licence number.
- d) Nominal size.
- e) Direction of flow.
- f) Batch identification, including the year of manufacture.
- g) The number of this Technical Specification, i.e., WMTS-006.

NOTE: The number of the Technical Specification may be in abbreviated form i.e. S006 where space is limited.

7 PACKAGING

Valves shall be suitably packed to prevent damage whilst in transit.

8 DESIGN

8.1 Construction

The valve body shall be constructed in accordance with AS/NZS 1260 for PVC U and ISO 7682 for ABS, utilizing components manufactured under that Standard.

8.2 End connections

End connections shall comply with the dimensional requirements of AS/NZS1260 and ISO 7682 for effective sealing using elastomeric seals as specified in AS/NZS 3500.2.

8.3 Waterway

The waterway flow area shall be designed to permit free and unhindered passage of a ball of diameter equal to 0.9 times the minimum bore of the pipe to which it designed to be connected.

There shall be no protrusions into the waterway flow area.

8.4 Reflux action

The flap/disc or other mechanism shall be arranged to move freely and not dislodge in service. The resilient seat of the flap/disc or other mechanism shall seat completely against the body of the valve.

8.5 Access cover

An access cover shall be an integral part of the valve.

The access cover shall be an integral part of the valve and shall be of sufficient size, and positioned such as to enable all components to be removed and replaced while the valve remains in situ.

9 PERFORMANCE REQUIREMENTS AND TEST METHODS

9.1 Seating test

When subjected to backpressures of 0.1, 0.2, 0.3, 0.4 and 0.5 m, the leakage rate past the resilient seated flap/disc or other mechanism shall not exceed 50 ml/min.

The method of test shall be as follows:

- a) Perform the test at ambient conditions with water at ambient temperature.
- b) Apply backpressure in increments of 0.1 m, starting at 0.1 m, measured at the invert of the valve.
- c) Apply the pressure at each increment for a minimum of 5 min.
- d) Average the leakage rate over the period of applied pressure for each pressure increment.

9.2 Hydrostatic pressure test

When tested in accordance with the hydrostatic pressure test of AS/NZS 1260, the valve body shall not leak.

9.3 Elastomeric seal joint test

Where applicable, elastomeric seal joints shall comply with the requirements of AS/NZS 1260.

9.4 Freedom from defects

The valve shall be free from defects that may affect its performance in service. Spigots shall be free of chips and rough edges, and shall have sharp edges removed. Jointing surfaces shall be smooth.

10 VOID

11 PRODUCT DOCUMENTATION

11.1 Product data

Product data that identifies critical product characteristics shall be available. These shall include pressure/temperature or other limitations.

11.2 Installation instruction

Installation instructions shall be provided, which shall—

- a) be consistent with AS/NZS 3500.2;
- b) include detailed step-by-step instructions;
- c) give details of any special tools or training that may be required to install the valve; and
- d) include 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 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 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	5.2	Valve body	AS/NZS 1260	At any change in materials specification
	5.3	Resilient seat	Clause 5.2	
	5.4	Other materials	Clause 5.3	
Marking	6	Labelling/markings	Review of documentation/physical examination	At any change in design / specification
Packaging	7	Protection from transit damage		
Design	8.1	Construction	Design review	At any change in the design
	8.2	End connection	Design review/Direct measurement	
	8.3	Waterway	Direct measurement	
	8.4	Reflux action	Design review	
	8.5	Access cover	Design review/physical inspection	
Performance Testing	9.1	Seating test	Clause 9.1	At any change in design
	9.2	Hydrostatic pressure test	AS/NZS 1260	
	9.3	Elastometric seal joint	AS/NZS 1260	
	9.4	Freedom from defects	Visual inspection	

Table A2
BATCH RELEASE TESTS

Characteristic	Clause	Requirement	Test method	Frequency
Marking	6	Marking	Visual inspection	100%
Design	8.2	End connections	Direct measurement	Once per batch
Performance Testing	9.1	Seating test	Clause 9.1	Once per batch
	9.2	Hydrostatic pressure test	AS/NZS 1260	
	9.4	Freedom from defects	Visual inspection	100%

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Australian Building Codes Board
GPO Box 2013
Canberra ACT 2601
www.abcb.gov.au