



WMTS-536:2021

Plastic waste fittings – Fixture connector adaptor

WaterMark Technical Specification

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PREFACE

This WaterMark Technical Specification (WMTS) was prepared in accordance with the Manual for the WaterMark Certification Scheme, Appendix 4, Protocol for Developing Product Specifications.

The objective of this WaterMark 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 WaterMark 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 WaterMark Technical Specification to define the application of the appendices to which they apply. A 'normative' appendix is an integral part of a WaterMark Technical Specification.

The test protocol and information in this WaterMark Technical Specification was arranged to meet the authorisation requirements given in the PCA.

The WaterMark Schedule of Products and the WaterMark Schedule of Excluded Products are dynamic lists and change on a regular basis. Based on this function, these schedules are now located on the ABCB website (www.abcb.gov.au). These lists will be version controlled with appropriate historic references.



ACKNOWLEDGEMENTS

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1 SCOPE

This Specification sets out requirements for plastic bodied fixture connector adaptors. These adaptors are used for the connection of fixtures to the sanitary plumbing system and enable connection due to misalignment. Applications include water closet pans, baths and showers.

2 APPLICATION

Appendix A sets out the means by which compliance with this WaterMark 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

681 Elastomeric seals-Material requirements for pipe joint seals used in water and drainage applications

2887 Plastic waste fittings

2888.8 Methods of testing plastics waste fittings, Method 8: Thermal cycling test

3996 Access covers and grates

AS/NZS

1260 PVC-U pipes and fittings for drain, waste and vent application

3500.0 Plumbing and drainage, Part 0: Glossary of terms.

3500.2 Plumbing and drainage, Part 2: Sanitary plumbing and drainage

NCC

PCA Plumbing Code of Australia

4 DEFINITIONS

For the purpose of this WaterMark Technical Specification, the definitions given in the WaterMark Scheme Rules, AS/NZS 3500.0 and those below apply.

4.1 Fixture connector adaptor

A fitting that has been designed to enable connection of fixtures to the sanitary plumbing system pipework and cater for misalignment.

5 MATERIALS

5.1 Fitting body

5.1.1 General

The plastics used in the construction of the body of the fitting shall be suitable for the conditions of use and expected service life of the fitting. Conditions that are to be considered are temperature and type of wastewater, use of cleaning chemicals, external environment ie if embedded in concrete or use in outdoor applications.

5.1.2 Unplasticized polyvinyl chloride (PVC-U)

Fitting bodies manufactured from PVC-U shall comply with the material requirements of AS/NZS 1260.

5.1.3 Other plastics materials

Fitting bodies manufactured from plastics materials other than PVC-U shall comply with the material requirements of AS 2887.

5.2 Elastomeric element

Materials for any included elastomeric seal shall comply with the imperfections and defects, hardness, tensile strength and elongation at break, compression set and accelerated ageing in air requirements of AS 681.

6 MARKING

Markings to be placed on products or packaging shall, as a minimum, be in accordance with clause 9.6 of the [Manual for the WaterMark Certification Scheme](#).

In addition each fitting shall be permanently marked with the plastic material used in the body of the fitting e.g. PE, PP, ABS ASA PVC.

7 PACKAGING

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

8 DESIGN

8.1 End connections

End connections shall enable connection to the sanitary drainage system pipe work. Connection ends shall comply with the requirements of AS 2887 or AS/NZS 1260 as applicable based on the connection type and application.

8.2 Waterway

The fitting shall comply with the waterway requirements of AS 2887 as applicable to the application of the fitting in the 'as installed' condition.

8.3 Self cleaning

The fitting shall be designed so that wastewater and waste material does not pool/reside in the fitting after discharging of wastewater from the fixture.

8.4 Freedom from defects

Any defects shall not affect performance, function or safe handling of the fitting in service. Fittings shall be free from blisters and heat marks. Jointing surfaces of fittings, sockets and tapered spigots for solvent cement jointing shall taper uniformly from the mouth to the root.

9 PERFORMANCE REQUIREMENTS AND TEST METHODS

9.1 Fittings for use with WC Pan Connectors

Fittings for use with water closet pan connectors shall be tested with the requirements of Appendix B. There shall be no test media residing in the fitting, no evidence of pooling and the water seal depth of the water closet pan shall not be affected by the connection of the fixture connector adaptor.

9.2 Leakage test

The fitting shall be capable of withstanding a hydrostatic pressure of 20kPa for 5 +1, -0 min without leakage when assembled in accordance with the manufacturer's instructions.

9.3 Thermal cycling test

Where the fitting is intended to be used with heated wastewater it shall be tested to AS 2888.8. At the completion of testing the fitting shall be tested for leakage in accordance with the

Leakage Test of Clause 9.2 and not exhibit any cracking or distortion and the surface finish shall not split, flake or peel.

9.4 Load test

Where the fitting may be subjected to live loads it shall withstand the load capacity according to the Classification requirements of AS 3996 as applicable to the site of installation.

10 TEST SEQUENCE AND TEST SAMPLE PLAN

Independent samples covering the range of sizes and types shall be used for testing of the performance requirements of Clauses 9.1 and 9.2.

11 PRODUCT DOCUMENTATION

Information shall be available to aid the installer and user in the correct installation, operation and ongoing maintenance of the product and include critical data on the products, use and application and any limitations. The information shall be readily available and be in plain English and supplemented by figures and diagrams as applicable.

11.1 Product data

Product data shall be available that identifies the following critical product characteristics as a minimum:

- a) Jointing methods and adaptation to other piping systems.
- b) Product range and model identification.
- c) Suitable application/s ie water closet pan, bath, shower.
- d) Product limitations ie pressure or temperature.

11.2 Installation

Full installation instructions shall be provided with the device including the following:

- a) References to installation in accordance with the PCA.

NOTE: A product that is listed on the WaterMark Product Database and is marked in accordance with the WaterMark Certification Scheme is recognised by authorities having jurisdiction as being authorised for use in a plumbing or drainage installation. This is because the product complies with the applicable product specification. The installation of an authorised product must meet the requirements of the PCA. Where the PCA does not contain installation requirements applicable to the authorised product, acceptance of the installation is at the discretion of the authority having jurisdiction.

- b) Detailed step by step instructions.

- c) 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 A.5 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 A.5 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	5.1.1	Fitting body-General	Clause 5.1.1	At any change in material specification
	5.1.2	Fitting body-PVC-U	Clause 5.1.2	
	5.1.1	Fitting body-Other plastics	Clause 5.1.3	
	5.2	Elastomeric element	AS 681	
Markings	6	Labelling/markings	Review of documentation/physical examination	At any change in design/specification
Packaging	7	avoid damage during transportation and handling	Review of documentation/physical examination	At any change in design/specification
Design	8.1	End Connections	AS/NZS 3500.2	At any change in design
	8.2	Waterway	AS 2887	
	8.3	Self cleaning	Clause 8.3	
	8.4	Freedom from defects	Clause 8.4	
Performance	9.1	Fittings for use with installation of WC Pans	Appendix B	At any change in design
	9.2	Leakage test	Clause 9.2	At any change in design/Material
	9.3	Thermal cycling test	AS 2888.8	
	9.4	Load test	AS 3996	At any change in design
Product documentation	11	Product data/Installation and maintenance instructions	Product documentation	At any change to installation requirements

TABLE A2
BATCH RELEASE TESTS

Characteristic	Clause	Requirement	Test method	Frequency
Markings	6	Labelling/markings	Clause 6	Each unit
Design	8.4	Freedom from defects	Clause 8.4	Each unit
Product documentation	11	Product data/Installation and maintenance instructions	Product documentation	At any change to installation requirements

TABLE A3
MINIMUM ANNUAL INSPECTION REQUIREMENTS

Characteristic	Clause	Requirement	Verification method
Design	8.1-8.4	General design/construction	Visual and dimensional examination
Product marking	6	Product marking, use of the WaterMark logo and licence number	Visual inspection of marked product, relevant packaging and documentation
Product documentation	11	Product data/Installation and maintenance instructions	Product documentation

TABLE A4
RE-EVALUATION TESTING

Characteristic	Clause	Requirement	Test method
Performance	9.2	Leakage test	Clause 9.2

APPENDIX B FLUSHING TEST

(Normative)

B.1 SCOPE

This appendix sets out the method for determining the ability of a fixture connector adaptor to provide a smooth transition to the sanitary drainage system and in doing so not affect the performance or included water seal of the water closet pan.

B.2 PRINCIPLE

The fixture connector adaptor is installed as per manufacturer's instructions with a water closet pan and at the maximum offset. The pan is flushed with media and the transport of the media is observed as well as the effect on the flushing performance and retention of water seal is observed.

B.3 APPARATUS

The following apparatus is required:

- a) 4.5/3L close coupled water closet suite.
- b) One or more 50 ± 4 g test specimens ("test specimen") consisting of extruded soybean paste and fifteen loosely crumpled balls of toilet paper ("paper") meeting the requirements of B.4. Each test specimen shall be 100 ± 13 mm in length and 25 ± 6 mm in diameter.
- c) A suitable container to collect the test media and discharge volume.
- d) Stop watch.

B.4 TEST MEDIA

B.4.1 Soybean paste

Nominal specification of test media: 35.5% water, 33.8% soybean, 18.5% rice, and 12.2% salt, and having a density of 1.15 ± 0.10 g/mL (i.e. density greater than water).

B.4.2 Toilet paper

Single ply toilet paper.

B.5 PROCEDURE

The procedure shall be as follows:

- a) Set up the water closet suite in accordance with the manufacturer's instructions and connect the fixture connector adaptor and pan connector at the maximum offset achievable. Allowance shall be made for collection of the flushed media and easy disconnection in order to examine the internal contents of the fixture adaptor connector at the end of the test.
- b) Connect the water supply to the water closet cistern and flush at least 3 times full and half flush and ensure volumes are as declared, adjust if necessary.
- c) Measure and record the water seal depth.
- d) Activate the full flush mechanism and measure and record the water seal depth.
- e) Repeat d) a further two times.
- f) Activate the half flush mechanism and measure and record the water seal depth.
- g) Repeat f) a further two times.
- h) Drop 4 test media test specimens into the centre of the bowl of the pan.
- i) Drop 3 test media paper into the bowl randomly.
- j) Wait 10 seconds then activate the full flush mechanism.
- k) Measure and record the water seal depth and note any media left in the pan.
- l) Repeat h) to k) a further two times.
- m) Disconnect fixture connector adaptor and inspect for presence of media or pooling.

B.6 REPORT

The following shall be reported:

- a) Manufacturer, model and description of water closet suite.
- b) Manufacturer, model and description of fixture connector adaptor and pan connector.
- c) As installed offset.
- d) Flush activations, media additions and water seal depth measurements in tabular form.
- e) Noted media in fixture connector adaptor at the end of the test.
- f) Reference to this test method, i.e. WMTS 536, Appendix B.