



ABCB

WMTS-542:2024

Push-Fit Couplings

WaterMark Technical Specification

Publication History:-

First published as WMTS-542:2024

2024

IMPORTANT NOTICE AND DISCLAIMER

While the ABCB, the participating Governments and other groups or individuals who have endorsed or been involved in the development of the WaterMark Technical Specification (WMTS) have made every effort to ensure the information contained in this WMTS is accurate and up to date, such information does not in any way constitute the provision of professional advice.

The ABCB gives no warranty or guarantee and accepts no legal liability whatsoever arising from or connected to, the accuracy, reliability, currency or completeness of any material contained in this WMTS.

Users should seek appropriate independent professional advice prior to relying on, or entering into any commitment based on material in this WMTS 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 encourages readers to notify it immediately of any apparent inaccuracies or ambiguities. Contact the WaterMark Administering Body at watermark@abcb.gov.au.

© Australian Government and States and Territories of Australia 2024

This work is copyright. Apart from any use as permitted under the Copyright Act 1968, no part may be reproduced by any process without prior written permission from the Commonwealth and State and Territory Governments of Australia. Requests and inquiries concerning reproduction and rights should be addressed to the:

Chief Executive Officer
Australian Building Codes Board
GPO Box 2013
Canberra ACT 2601

Phone 1300 134 631
watermark@abcb.gov.au

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

WaterMark Technical Specification WMTS-542:2024 was prepared by industry and was approved by the Administering Body on **DD Month Year**.

DRAFT

TABLE OF CONTENTS

1	Scope	1
2	Application.....	1
3	Referenced documents.....	1
4	Definitions	2
5	Materials	2
6	Marking	2
7	Packaging	3
8	Design.....	3
9	Performance criteria and test methods	3
10	Test sequence and test sample plan	4
11	Product documentation	4
Appendix A	Means for demonstrating compliance with this Specification	5

DRAFT

1 SCOPE

This technical specification sets out the minimum requirements for pipe couplings (spigot x spigot) that provide an interference seal on the internal surface of non-pressure soil, waste and vent pipe of similar or dissimilar pipe materials.

The coupling is to be used in vertical installations only within all classes of buildings and installation to be undertaken via a performance solution.

Operating temperature range: -50°C to 80°C constant. 100°C intermittent.

Operating Pressure range: Up to 250kPa

2 APPLICATION

Products covered by this Technical Specification shall be those intended only for use in vertical installations.

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 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

1462 Methods of test for plastics pipes and fittings

1462.8 Method 8: Method of testing the leak tightness of assemblies

1462.10 Method 10: Method for hydrostatic pressure testing of fittings and elastomeric seal joints for non-pressure applications

1462.13 Method 13: Method for the determination of elastomeric seal joint contact width and pressure

3500.0 Plumbing and drainage, Part 0: Glossary of terms

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

BS EN

295 Vitrified clay pipes and fittings and pipe joints for drains and sewers

NCC

PCA Plumbing Code of Australia

4 DEFINITIONS

For the purpose of this specification, the definitions given in the WaterMark Scheme Rules, Plumbing Code of Australia and AS/NZS 3500.0

5 MATERIALS

5.1 Plastic materials

Fittings shall be manufactured from plastic materials as defined in the standards relating to the material type.

5.2 UV resistance

For any exposed outdoor applications, the plastic material shall be directly protected from ultraviolet radiation, or the formulation shall be stabilized by suitable ultraviolet light stabilizers.

5.3 Elastomeric jointing seals

Elastomeric seals utilized as joints in the fittings shall be manufactured from materials complying with AS 1646.

6 MARKING

Markings to be placed on products or packaging shall be in accordance with clause 9.6 of the Manual for the WaterMark Certification Scheme.

Additionally the following text to be included on the product: FOR VERTICAL INSTALLATION ONLY.

7 PACKAGING

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

8 DESIGN

8.1 Dimensions

8.1.1 Waterway

The waterway of a coupling shall be restricted to not more than 20% reduction of internal diameter and have a tapered edge.

8.2 Freedom from defects

Defects shall not affect the performance or function of the couplings in service. Couplings shall be free from blisters and heat marks. Spigot ends shall be free from chips and rough edges and shall have sharp edges removed.

9 PERFORMANCE CRITERIA AND TEST METHODS

9.1 Elastomeric joints—Contact width and pressure

When determined in accordance with AS/NZS 1462.13, the contact pressure shall exceed 0.4 MPa when tested at the centre of the sealing surface.

9.2 Hydrostatic pressure test

When tested in accordance with the hydrostatic pressure test of AS/NZS 1462.10, at an internal pressure of 85 +5, -0 kPa for 60 +5, -0 min., the assembled fitting shall not leak.

9.3 Liquid infiltration test

When an assembled fitting is subjected to an internal vacuum or external hydrostatic pressure resulting in a pressure differential of 80 +5, -0 kPa for 60 +5, -0 min, in accordance with AS/NZS 1462.8, it shall not leak.

9.4 Angular deflection

When tested in accordance with the angular deflection test of BS EN295, at an internal and external pressure of 5kPa and 50kPa for 5 minutes, the assembled fitting shall not leak.

9.5 Shear resistance

When tested in accordance with the shear resistance test of BS EN295, at an internal and external pressure of 5kPa and 50kPa for 15 minutes, the assembled fitting shall not leak.

10 TEST SEQUENCE AND TEST SAMPLE PLAN

Void

11 PRODUCT DOCUMENTATION

11.1 Product data

Product data that identifies critical product characteristics such as installation as a performance solution only shall be available. These shall include pressure/temperature or other limitations.

11.2 Installation instructions

Instructions that give full details of installation procedures for the fitting shall be provided. The instructions shall include the following:

- a) Product shall only be installed as a Performance Solution
- b) Installation shall be in accordance with the manufacturer's instructions, the PCA and AS/NZS3500 series.
- c) The installation shall be tested in accordance with AS/NZS3500.2 section 15 'Testing of sanitary plumbing and sanitary drainage installations.
- d) Installation shall be in vertical position only.
- e) The pipe must be restrained after installation to prevent dislodgment of pipe from fitting
- f) Fittings installed in direct sunlight shall be painted with light coloured water-based paints, or be otherwise protected.
- g) Detailed step-by-step instructions, including reference to connection of dissimilar materials if applicable.
- h) Contact details for after-sales service.

APPENDIX A MEANS FOR DEMONSTRATING COMPLIANCE WITH THIS SPECIFICATION

(Normative)

A.1 SCOPE

This appendix sets out the means by which compliance with this 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 specification.

The WaterMark Certification Scheme serves to indicate that the products consistently conform to the requirements of this 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.

Annual product conformity surveillance shall be undertaken by the WaterMark Conformity Assessment Body in accordance with Paragraph A5 and Table A3. Re-evaluation testing for re-certification, as detailed in Paragraph A5 and Table A4, shall be used by the WaterMark Conformity Assessment Body.

A.4 DEFINITIONS

A.4.1 Batch release test

Testing performed by the manufacturer on a batch of components, which has to be satisfactorily completed before the batch can be released.

A.4.2 Product inspection

Examination of certified product, conducted during annual product conformity surveillance, to determine its conformity with the specific requirements of its current certification and WaterMark Licence.

A.4.3 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.4.4 Re-evaluation testing

Testing carried out in conjunction with renewal of the certification.

A.4.5 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.4.6 Sampling plan

A specific plan that indicates the number of units of components or assemblies to be inspected.

A.4.7 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.4.8 Type testing (TT)

Testing performed to demonstrate that the material, component, joint or assembly is capable of conforming to the requirements given in the specification.

A.5 TESTING AND INSPECTION**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 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 specification.

A.5.4 Minimum annual inspection requirements

Table A3 sets out the minimum annual inspection requirements

A.5.5 Re-evaluation testing

Table A4 sets out the minimum re-evaluation requirements and frequency.

DRAFT

**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
Marking	6	Marking	Review against documentation/Physical examination	At any change in design/Specifications
Packaging	7	Protect from transit and handling damage		
Design	8.1.1	Waterway	Direct measurement	At any change in the design
	8.2	Freedom from defects	Visual/Physical examination	
Performance	9.1	Elastomeric seal joint – contact width pressure	AS.NZS1462.13	At any change in design, materials, or manufacturing process
	9.2	Hydrostatic pressure test	AS.NZS1462.10	
	9.3	Liquid infiltration test	AS.NZS1462.8	
	9.4	Angular deflection	BS EN295	
	9.5	Shear resistance	BS EN295	
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
Materials	5	Relevant Standard	Delivery acceptance test of supplier's test data	Once per batch
Marking	6	Marking	Visual examination	100%
Design	8.1.1	Waterway	Direct measurement	Once per batch
	8.2	Freedom from defects	Visual/Physical examination	100%

TABLE A3
MINIMUM ANNUAL INSPECTION REQUIREMENTS

Characteristic	Clause	Requirement	Test method	Frequency
Marking	6	Marking	Review against documentation/Physical examination	Sample from product family, covering all families within 5-year certification cycle
Packaging	7	Protect from transit and handling damage		
Design	8.2	Freedom from defects	Visual/Physical examination	
Product documentation	11	Product data/Installation and maintenance instructions	Product documentation	

TABLE A4
RE-EVALUATION TESTING

Characteristic	Clause	Requirement	Test method
Performance	9.2	Hydrostatic pressure test	AS/NZS1462.10