WMTS-517:2016
Offset Pan Connectors

WaterMark Technical Specification

2016

ABCB

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PREFACE

This WaterMark Technical Specification was originally prepared by industry and reviewed by the ABCB WaterMark Technical Advisory Committee (WMTAC).

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 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 ABCB WaterMark Certification Scheme document known as Procedures for Certification of 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

WaterMark Technical Specification WMTS-517:2016 was prepared by industry and reviewed by the ABCB WaterMark Technical Advisory Committee. It was approved by the ABCB on 26 April 2016.

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1 SCOPE

This WaterMark Technical Specification sets out requirements for injected moulded offset pan connectors that are of a design which is outside of those covered by AS 2887 and AS/NZS 1260. It specifies relevant performance based testing requirements from AS 1172.1 to ensure that the offset pan connectors are fit for purpose when AS 1172.1 compliant pans are connected.

Offset pan connectors require certification to WaterMark Level 2.

2 APPLICATION

Off-set pan connectors may be used in situations where the discharge pipe for WC pans are not located in the exact location to enable the licensed plumber to install the WC pan. Offset pan connectors allow plumbers to make slight adjustments in the positioning of the WC pan without the need to relocate the sewer discharge pipe.

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 (see Appendix A).

3 REFERENCED DOCUMENTS

AS

681	Elastomeric seals. Material requirements for pipe joint seals used in water and drainage applications
1172	Water Closets (WC)
1172.1	Part 1: Pans
2887	Plastic Waste Fittings

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

4 DEFINITIONS

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

4.1 Offset Pan Connector

A water closet pan connector with an offset angle greater than 30° to the vertical, to allow water closet pan fit adjustments.

4.2 Trailing water volume

The remaining full flush volume of water discharged from the pan after the last of four test pieces is expelled satisfactorily from the outlet spigot of the offset pan to ensure solids transportation within the sewer lines.

5 MATERIALS

5.1 General

Any plastic material may be used to manufacture the body of offset pan connectors, provided that the pan connector is capable of complying with the appropriate requirements of this WaterMark Technical Specification and compliance with recognized national material Standards, including the specification of the particular grade, type, condition, form, etc.

The offset pan connector body may be manufactured from polymer resins that may include but not limited to UPVC, HDPE, ABS and PP.

5.2 Flexible diaphragms

Materials for flexible diaphragms for offset pan connectors shall comply with the relevant requirements of AS 681.

6 MARKING

Each offset pan connector shall be legibly marked with the following information:

a) The manufacturer’s name or trademark.

b) The nominal size / size range and material of the discharge waste pipe, the offset pan connector is designed to connect to.

c) The plastic material used in the body of the fitting.

d) The WaterMark logo.

e) The Licence Number.

f) The number of the WaterMark Technical Specification.

7 PACKAGING

Whilst under the manufacturer's control, the offset pan connectors manufactured in accordance with this WaterMark Technical Specification shall be packaged, stored and transported in a manner so as to prevent damage, including deterioration caused by exposure to direct sunlight.

8 DESIGN

8.1 General

Offset pan connectors manufactured in plastics materials i.e. UPVC, PP, ABS, HDPE etc. shall comply with requirements set out herein.

8.2 Connection ends

8.2.1 General

Connection ends for offset pan connectors shall be as specified below.

8.2.2 Outlets

The offset pan connector outlet shall be suitable for connection to DN80, DN100 or DN110 nominal waste pipes in accordance with AS/NZS 3500.2.

8.2.2.1 Permanent Outlet Connection Ends

The outlet connection ends of offset pan connectors designed to be permanently connected to the sewer discharge pipework by solvent jointing, electrofusion, socket fusion, butt welding etc. shall comply with the dimensional requirements of the relevant Australian Standard for the pipe material.

8.2.2.2 Non-Permanent Outlet Connection Ends

The outlet connection ends of offset pan connectors designed to be non-permanent i.e. push fit ribbed seal spigot into a DWV waste pipe; are permitted subject to compliance with the *Leakage Test* in Clause 9.5, and all of the remaining performance requirements in Section 9 of this WMTS.

8.2.3 Inlet

The inlet connection ends of offset pan connectors shall be designed with a flexible diaphragm or rubber ring for connection over the outlet spigot of a water closet pan complying with AS 1172.1, and shall pass the performance requirements in Section 9 of this WMTS.

8.3 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

The following performance tests are to be undertaken on the offset pan connector when connected to each of the following AS 1172.1 WaterMark certified 4.5/3 dual flush WC toilet suites or ABCB approved equivalent substitute toilet suite(s).

Each of the following five 4.5/3 L pedestal close coupled toilet suites are to be fully inserted into the offset pan connector under test:

- Stylus Symphony toilet suite (S-Trap) 4.5/3L
  Cistern code: CN210W (WM-001242)
  Pan code: WC602S/P (WM-001368)

- Porcher Heron concealed close coupled toilet suite (S-Trap) 4.5/3L
  Cistern code: 9501154 (WM-021023)
  Pan code: 9501152 (WM-021023)

- POSH Dominique concealed close coupled toilet suite (S-Trap) 4.5/3L
  Cistern Code: 9500940 (WM-021192)
  Pan code: 9500942 (WM-021192)

- POSH Canterbury concealed close coupled toilet suite (S-Trap) 4.5/3L
  Cistern Code: 9501527 (WM-021192)
  Pan code: 9501526 (WM-021192)

- Caroma Caravelle concealed close coupled toilet suite (S-Trap) 4.5/3L
  Cistern Code: 629150W (WM-001368)
  Pan code: 609400W (WM-001368)

9.1 Full-flush—paper discharge test

When tested in accordance with AS 1172.1 Appendix A, each of the five 4.5/3 L pedestal close coupled toilet suites shall discharge from the outlet of the offset pan connector, all of the paper in at least two of the three tests.

9.2 Reduced-flush—paper discharge test

When tested in accordance with AS 1172.1 Appendix B, each of the five 4.5/3 L pedestal close coupled toilet suites shall discharge from the outlet of the offset pan connector, all of the paper in at least two out of the three tests.

9.3 Solids discharge test

When tested in accordance with AS 1172.1 Appendix C, each of the five 4.5/3 L pedestal close coupled toilet suites shall discharge from the outlet of the offset pan connector, all four test pieces with a trailing water volume of not less than 2.5 L in at least eight of ten consecutive tests.

If each of the five 4.5/3 L pedestal close coupled toilet suites when connected to the offset pan connector, does not pass in the initial ten tests, the procedure may be repeated for a further ten tests and the trailing water volume shall be not less than 2.5 L in at least sixteen out of the twenty tests.

9.4 Combined solids and paper discharge test

When tested in accordance with Appendix B, each of the five 4.5/3 L pedestal close coupled toilet suites shall discharge from the outlet of the offset pan connector, all four artificial solids and toilet paper in at least two out of the three tests and retain the test pan’s water seal in all three tests.

9.5 Leakage test

The offset pan connector shall be tested for leakage when tested in accordance with AS 2887 Clause 4.10.4.

10 PRODUCT DOCUMENTATION

10.1 Product data

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

a) The nominal diameter and material of sewer waste pipe the offset pan connector is designed for connection to.

b) Offset measurement for each model.

c) Reference that installation shall be in accordance with AS/NZS 3500.2.

10.2 Installation instructions

Instructions shall be provided, which shall give full details of installation procedures for offset pan connectors. The instructions shall include clauses reflecting the requirements of the Plumbing Code of Australia, including any limitations on the product's use, but including as a minimum the following:

a) References to AS/NZS 3500 where applicable.

b) Detailed step-by-step instruction.

c) The need for special tools or training.

d) Contact details for after-sales service.

10.3 Installation warranty

All products shall be supplied with a supplier's warranty in the form of a statement as per the requirements of the Plumbing Code of Australia. The warranty may be attached to the product, printed on the packaging or included as part of the installation instruction.

APPENDIX A MEANS FOR DEMONSTRATING COMPLIANCE WITH THIS TECHNICAL SPECIFICATION

(Normative)

10.3.1 SCOPE

This Appendix sets out the means by which compliance with this WaterMark Technical Specification shall be demonstrated by a manufacturer under the WaterMark Product Certification Scheme.

10.3.2 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.

10.3.3 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 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.

10.3.4 DEFINITIONS

10.3.4.1 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.

10.3.4.2 Production batch

Clearly identifiable collection of units, manufactured consecutively or continuously under the same conditions, using material or compound to the same specification.

10.3.4.3 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.

10.3.4.4 Sampling plan

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

10.3.4.5 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.

10.3.4.6 Type testing

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.1 TESTING

10.3.4.7 Type testing

Table A1 sets out the requirements for type testing and frequency of re-verification.

10.3.4.8 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 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.

10.3.4.9 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.

TABLE A1
TYPE TESTS

Characteristic	Clause	Requirement	Test method	Frequency
Materials	5	Compliance with relevant material Standard	Refer relevant material Standard	At any change in materials specification
Design	8.2	Connection ends	Inlet – AS 2887 Cl. 4.4.3.2 Outlet - Refer relevant waste pipe Standard	At any change in design
	8.3	Freedom from defects	Visual	100%
Performance	9.1	Full-flush paper discharge test	AS 1172.1 App. A	At any change in design
	9.2	Reduced-flush paper discharge test	AS 1172.1 App. B	
	9.3	Solids discharge test	AS 1172.1 App. C	
	9.4	Combined solids and paper discharge test	Appendix B	
	9.5	Leakage test	AS 2887 Cl. 4.10.4	
Product documentation	10.1	Product data	Documentation review	At any change to product characteristics

TABLE A2
BATCH RELEASE TESTS

Characteristic	Clause	Requirement	Test method	Frequency
Materials	5	Composition	Review of material delivery documentation	Each delivery batch
Design	8.2	Connection ends	Outlet - Direct measurement	Once per batch
	8.3	Freedom from defects	Visual	100%

APPENDIX B COMBINED SOLIDS AND PAPER DISCHARGE TEST

(NORMATIVE)

B1 SCOPE

This Appendix sets out the method for determining the ability of a toilet suite when connected to an offset pan connector to clear a combination of solids and toilet paper from the outlet of the offset pan connector when a 4.5L full flush is activated.

B2 PERFORMANCE REQUIREMENTS OF TEST

1. Combined solids and paper discharge test

When tested in accordance with the test method in this Appendix, each of the representative WC toilet suites referenced in Section 9 shall discharge from the outlet of the offset pan connector all four artificial solids and toilet paper in at least two out of the three tests.

2. Retention of the water seal depth

When tested in accordance with the test method in this Appendix, the offset pan connector is deemed to comply if the minimum water seal of each of the representative WC toilet suites referenced in Section 9, is maintained at the conclusion of each of the three Combined solids and paper discharge tests.

B3 APPARATUS

a) Representative WC toilet suites referenced in Section 9. The matching cisterns, where height adjustable, shall be set at a height where the outlet is no further than 100mm above the top surface of the pans).

b) Offset pan connector under test.

c) Four artificial solid test pieces complying with AS 1172.1-2005 Appendix C3 (b).

d) 3 Crumbled balls of single ply toilet paper consisting of 15 joined sheets of size 115 ± 5 x 100 ± 5mm. The 15 joined sheets are to be loosely rolled around a 25mm pipe and then placed into a paper crumbling device complying with AS 1172.1 Fig. A1. The 15 joined sheets are to be crumbled in accordance with AS 1172.1 Fig. A7 and Fig. A8. Repeat 3 times to produce 3 crumbled balls of single ply toilet paper.

e) Drop guide.

f) Stop watch.

B4 PROCEDURE

a) Assemble each of the representative WC toilet suites referenced in Section 9 to the offset pan connector under test, at the maximum offset possible with the centre line of each of the 5 nominated pans. The installation shall be set up to ensure that each pan spigot outlet is inserted into the offset pan connector to the maximum possible depth.

b) Activate a full flush cistern discharge into the pan and offset connector combination three times prior to commencement of the tests.

c) Fill the cistern to the marked working level and isolate the water supply to the inlet valve.

d) Activate the full flush cistern discharge into the pan and collect the water from the outlet. Verify that the toilet pan is discharging the correct full flush volume in accordance with the allowable limits given in AS 1172.2.

e) Measure the height of the water seal.

f) Fill the cistern to the marked working level and isolate the water supply to the inlet valve.

g) Place the drop guide across the pan directly above the centre of the sump.

h) Drop the four artificial solid test pieces in a vertical orientation through the opening of the drop guide.

i) Remove the drop guide and randomly drop the 3 crumbled balls consisting of 15 sheets of single ply toilet paper in over the centre of the bowl.

j) Wait 10 ±1 seconds.

k) Activate the full flush mechanism and collect the discharged media.

l) Record if any waste remains in the bowl or trap of the pan and the offset pan connector.

m) Record the water seal height.

n) A second flush may be required into a clean receptacle to ensure no waste has remained in a concealed part of the waterway. This shall occur only after the water seal height has been first recorded.

o) Remove discharged paper from test specimens and repeat steps (e) to (n) two more times (total of three tests) for each of the representative WC toilet suites referenced in Section 9.

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