



WMTS-504:2013

Sanitary Waste Flushing and Dosing System
(SWFDS) – Water Closet (WC) 3/2 L Capacity or
Proven Equivalent with Included Sewer Dosing Unit
(SDU)

WaterMark Technical Specification

2013





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On 25 February 2013 management and administration of the WaterMark Certification Scheme transferred to the Australian Building Codes Board (ABCBC). From this date all new technical specifications will be named WaterMark Technical Specifications (WMTS). Within two years all existing Australian Technical Specifications (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.

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PREFACE

This WaterMark 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 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 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 AS 5200.000 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

WaterMark Technical Specification WMTS-504:2013 was prepared by Standards Australia Committee WS-031, Technical Procedures for Plumbing and Drainage Products Authorisation. It was approved by the ABCB on 5 April 2013.

The following organisations were represented on Committee WS-031 in the preparation of WMTS 504-2013:

- Australian Industry Group
- Australian Stainless Steel Development Association
- Copper Development Centre—Australia
- CSIRO Manufacturing and Infrastructure Technology
- National Plumbing Regulators Forum
- Plastics Industry Pipe Association of Australia
- Plumbing Products Industry Group
- Water Services Association of Australia



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1 SCOPE

This WaterMark Technical Specification sets out requirements for a Sanitary Waste Flushing and Dosing System (SWFDS) that includes a low flush volume Water Closet (WC) pan and matched cistern or flush valve to perform in conjunction with a Sewer Dosing Unit (SDU). The system ensures flushing with minimum discharge volumes aligned to a maximum average full flush volume of 3.0 litres or less and maintain drainage carry by utilising the dosing capability of an in line Sewer Dosing Unit (SDU). This is a performance based specification and provided the test criteria are met then the Water Closet (WC) pan and matched cistern or flush valve need not be limited by an upper volume limit.

2 APPLICATION

Appendix A sets out the means by which compliance with the Specification is demonstrated by a manufacturer for the purpose of product certification (See Appendix A).

3 REFERENCED DOCUMENTS

The following documents are referred to in this WaterMark Technical Specification:

AS

- 1172.1 Water closet (WC) Part 1: Pans
- 1172.2 Water closet (WC) Part 2: Pans of 6/3 L capacity or proven equivalent - Cisterns

AS/NZS

- 3500 Plumbing and drainage
 - 3500.0 Part 0: Glossary of terms
 - 3500.1 Part 1: Water supply
 - 3500.2 Part 2: Sanitary plumbing and drainage
 - 3500.5 Part 5: Domestic installations

ATS

- 5200.020 Technical specification for plumbing and drainage products Part 020 Flushing valves for water closets and urinals – For use with mains supply.
- 5200.021 Technical specification for plumbing and drainage products Part 020 Flushing valves for water closets and urinals – For use with break tank supply
- 5200.499 Inline Sewer Dosing Unit (SDU)



4 DEFINITIONS

4.1 Average flush volume

The average of one full-flush discharge flush volume and four reduced-flush discharge volumes.

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 pan to ensure solids transportation within the sewer lines.

4.3 Matched performance set

A Water Closet (WC) pan, matching cistern or flush valve combination and sewer dosing unit, which when tested together, comply with the test performance requirements of this WMTS.

5 MATERIALS

5.1 General

This section specifies requirements for materials utilised in the construction of the various components. Materials shall be adequate for the intended purpose and, when in contact with water, corrosion resistant.

5.2 Water Closet (WC) pan

Materials utilised in the construction of the pan component shall comply with the requirements of AS 1171.1.

5.3 Cistern

Materials utilised in the construction of the cistern component shall comply with the requirements of AS 1171.2

5.4 Flush valve

Materials utilised in the construction of the flush valve component shall comply with the requirements of ATS 5200.020 or ATS 5200.021.

5.5 Sewer dosing unit (SDU)

Materials utilised in the construction of the sewer dosing unit component shall comply with the requirements of ATS 5200.499.

6 MARKING

6.1 Marking

(a) Sewer Dosing Unit (SDU)

The SDU shall be marked in accordance with ATS 5200.499.

(b) Water Closet (WC) pan

The WC pan shall be marked in accordance with AS 1172.1.

(c) Cistern

The cistern shall be marked in accordance with AS 1172.2.

(d) Flush Valve

The flush valve shall be marked in accordance with ATS 5200.020 or ATS 5200.021.

6.2 Labels

(a) Sewer Dosing Unit (SDU)

The SDU shall be labelled in accordance with ATS 5200.499.

(b) Water Closet (WC) pan

The WC pan shall be labelled in accordance with AS 1172.1, and with the addition of the following markings:

The maximum allowable distance of 6 metres at $\geq 1:60$ (1.65%) between WC pan and SDU.

The number of this WaterMark Technical Specification, i.e. WMTS 5200-504.

(c) Cistern

The cistern shall be labelled in accordance with AS 1172.2, and with the addition of the following markings and labels:

A reference to the need to be installed with a suitable matched WC pan and SDU.

The number of this WaterMark Technical Specification, i.e. WMTS 5200-504.

(d) Flush Valve

The flush valve shall be marked in accordance with ATS 5200.020 or ATS 5200.021, with the addition of the following labels:

Reference to the need to be installed with a suitable matched WC pan and SDU.

The number of this Technical Specification, i.e. WMTS-504.

The number of the Technical Specification may be an abbreviated form ie S504 where space is limited.

7 PACKAGING

The WC pan, cistern, flush valve, SDU and any components or accessories shall be packaged in such a manner so as to avoid damage during transportation and handling.

8 DESIGN

8.1 General

This section specifies the requirements for the design of the system and included components.

8.2 Sanitary waste flushing and dosing system (SWFDS)

8.2.1 General

The sanitary waste removal system shall incorporate the following components;

- a) A WC pan that includes a cistern or flush valve of either single or dual flush action that meets the requirement of Clause 9.
- b) An SDU that will accumulate sanitary waste from the low flush volume WC pan and other sources and efficiently batch dose this to the sanitary drainage system.
- c) Miscellaneous pipes and fittings that would be utilised at point of installation to connect the WC pan to the SDU.

8.2.2 SWFDS design

A systems design approach shall be utilised where all components together shall form an effective waste disposal system to transport sanitary waste in both private and reticulation sewers. The WC pan shall be capable of effectively delivering waste to the SDU only, where it shall accumulate and be discharged at regular intervals to the private and reticulation sewers.

8.2.3 Integral plumbing components, accessories or fittings

Where the system includes other integral plumbing components, accessories or fittings that require certification as identified in the Plumbing Code of Australia they shall comply with the applicable requirements of the specification for that product as identified in AS 5200.000-2006 Technical specification for plumbing and drainage products.

8.2.4 Sewer Dosing Unit (SDU)

The system shall include an SDU complying with ATS 5200.499.

8.3 Water Closet (WC) flushing device

8.3.1 Cistern

Where the system includes a cistern as the flushing mechanism it shall comply with the design requirements of AS 1172.2.

The discharge volumes shall comply with those specified in Table 9.1.

8.3.2 Flush valve

Where the system utilises a flush valve as the flushing mechanism it shall comply with the design requirements of ATS 5200.020 or ATS 5200.021.

The discharge volumes shall comply with those specified in Table 9.1.

TABLE 9.1
DISCHARGE VOLUME

Flush Designation	Average Full Flush Volume (litres)	Average Half Flush Volume (litres)	Average Flush Volume (litres)
Single Flush	3 litres ($\pm 0.2L$)	N/a	3 Litres ($\pm 0.2L$)
Dual Flush	3 litres ($\pm 0.2L$)	2 litres ($\pm 0.2L$)	2.2 litres ($\pm 0.2L$)

8.4 Water Closet (WC) pan

The system shall include a WC pan that complies with design requirements of AS 1172.1.

9 PERFORMANCE REQUIREMENTS AND TEST METHODS

9.1 Water Closet (WC) pan

9.1.1 Full-flush paper discharge test

When tested in accordance with Appendix A of AS 1172.1, a WC pan shall discharge from the outlet spigot all of the paper in at least two out of the three tests.

9.1.2 Reduced-flush paper discharge test

When tested in accordance with Appendix B of AS 1172.1, a WC pan shall discharge from the outlet spigot all of the paper in at least two out of the three tests.

9.1.3 Solids discharge test

When tested in accordance with Appendix C of AS 1172.1 without the measurement of trailing water volume, a WC pan shall discharge all four test pieces in at least eight out of ten consecutive tests. If the pan does not pass in the initial ten tests, it may be tested a further ten times (giving a total of twenty consecutive tests) and discharge all test pieces in at least sixteen out of twenty tests.

The measurement of trailing water volume is superseded by the performance drainline carry test in Appendix B of this WMTS.

9.1.4 Leakage and capacity test

When tested in accordance with Appendix D of AS 1172.1, a WC pan shall not overflow or leak and the stub pan connector or adaptor, if supplied as integral, shall not leak.

9.1.5 Splash test

When tested in accordance with Appendix E of AS 1172.1, a WC pan shall not splash water onto the floor.

9.1.6 Wetting test

When tested in accordance with Appendix F of AS 1172.1, a WC pan shall wash the sawdust from all areas more than 50 mm below the lower edge of the flushing rim on full and half flush operations.

9.1.7 Load safety test

When tested in accordance with Appendix G of AS 1172.1 a WC pan and supporting brackets, where applicable shall be capable of supporting the load and shall not crack, split or craze.

9.1.8 Reduced-flush liquid contaminant test

When tested in accordance with Appendix H of AS 1172.1 no more than 7% of the dye shall be left in the sump after flushing for full and half flush operations.

9.2 Cistern

9.2.1 Front thrust test

When tested in accordance with Appendix A of AS1172.2 the cistern shall not crack, fail or permanently distort so as to be rendered inoperable.

9.2.2 Distortion and leakage test

The cistern shall be assembled according to the manufacturer's instructions. Measurements shall be taken with the cistern empty and with water flowing through the overflow. The cistern shall not distort more than 6 mm at any one point, shall not leak and the cover shall not be displaced.

9.2.3 Back-siphonage test

When tested in accordance with Appendix B of AS 1172.2, there shall be no back-siphonage.

9.2.4 Endurance test (outlet valve)

When tested in accordance with Appendix C of AS 1172.2, the outlet valve shall not deteriorate to such an extent that it is not capable of passing the specified discharge test.

9.2.5 Endurance test (inlet valve)

When tested in accordance with Appendix D of AS 1172.2., the inlet valve shall not deteriorate to such an extent that it is not capable of shutting off against a pressure of 2 +0.1, -0 MPa.

9.2.6 Discharge volume test

When tested in accordance with Appendix F of AS 1172.2 the discharge volume shall be in accordance with the volumes identified in Table 9.1.

9.3 Flush valve

9.3.1 Flush valves – Mains supply

Mains supply flush valves shall comply with the performance requirements of ATS 5200.020 and the discharge volumes of table 9.1.

9.3.2 Flush valves – Break tank supply

Mains supply flush valves shall comply with the performance requirements of ATS 5200.020 and the discharge volumes of table 9.1.



9.4 Sanitary waste flushing and dosing system (SWFDS)

9.4.1 Venting

When tested in accordance with Appendix C, the manometer reading in millimetres shall not exceed the water seal depth of the WC pan.

An air admittance valve or minimum 40 mm vent pipe may be installed upstream from the SDU if included in the manufacturer's installation instructions.

9.4.2 Drain line carry determination test

When tested in accordance with Appendix B, a WC pan shall discharge all four test pieces in at least eight out of ten consecutive tests.

If the pan does not pass in the initial ten tests, it may be tested a further ten times (giving a total of twenty consecutive tests) and discharge all test pieces in at least sixteen out of twenty tests.

Discharge includes WC pan evacuation and carriage to the SDU.

10 TEST SEQUENCE AND TEST SAMPLE PLAN

10.1 General

For the performance testing of the WC pan, cistern or flush valve and SDU, the one sample shall be utilised, the discharge test Clause 9.2.6 should be undertaken first. Another sample can be provided for the safety load test, Clause 9.1.7. In testing of the system the same water closet sample that was utilised for the performance tests shall be used for testing the system.

10.2 Test sequence

Tests can be undertaken in an order at the discretion of the testing laboratory however discharge volume tests should be undertaken in the first instance.

11 PRODUCT DOCUMENTATION

11.1 General

Information shall be available to aid the installer and user in the correct installation, operation and ongoing maintenance of the system and include critical data on the product's use and application and any limitations. The documentation shall satisfy the requirements of a warranty as referenced in the Plumbing Code of Australia (PCA) and those requirements of the AS/NZS 3500 series of Standards. The information shall be readily available and be in plain English and supplemented by figures and diagrams as applicable.

11.2 Installation, operating and maintenance instructions

Instructions shall be provided in English that give full details of installation, operating and maintenance procedures for the sanitary waste system including;

- a) References to AS/NZS 3500 where applicable.
- b) Detailed step by step instruction.
- c) The maximum distance between the WC pan and the SDU.
- d) The need for special tools or training.
- e) Commissioning procedures and adjustments required.
- f) Trouble-shooting guide.
- g) Any regular maintenance requirements.
- h) 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 WaterMark Technical Specification can be demonstrated by a manufacturer under the WaterMark product 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 certification scheme serves to indicate that the products consistently conform to the requirements of this Specification.

The frequency of the sampling and testing plan as detailed in Section A5, 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 Section A5 and Table A2.

A.4 DEFINITIONS

A.4.1 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.4.2 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.4.3 Sampling plan

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

A.4.4 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.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 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 WaterMark Technical Specification.

**TABLE A1
TYPE TESTS**

Characteristic	Clause	Requirement	Test method	Frequency
Material	5	Composition etc.	Review materials parts lists and compliance certificates	At any change in material specification
Marking	6	Labelling/markings	Review of documentation/physical examination	At any change in design/ specification
Packaging	7	Protection from transportation and handling damage		
Design	8.2.1	SWFDS - general	Design review	At any change in design/ specification
	8.2.2	SWFDS – system design	Satisfactory testing to Clause 9.1.3 and 9.3.1	At any change in design/ specification

Characteristic	Clause	Requirement	Test method	Frequency
	8.2.3	SWFDS – Integral plumbing components, accessories or fittings	Design review and relevant testing or evidence of compliance/certification	At any change in design/ specification
	8.3	Sewer Dosing Unit (SDU)	ATS 5200.499	At any change in the design
	8.4.1	Cistern	AS 1172.2	
	8.4.2	Flush Valve	ATS 5200.020/021	
	8.5	Water Closet (WC) Pan	AS 1172.1	
Performance	9.1.1	Water Closet (WC) Pan- Paper discharge test	AS 1172.1 Appendix A	At any changes in design or manufacturing process
	9.1.2	Water Closet (WC) Pan- Paper discharge test Reduced flush	AS 1172.1 Appendix B	
	9.1.3	Water Closet (WC) Pan- Solids discharge test	AS 1172.1 Appendix C (and per Ref. Clause 9.1.3)	
	9.1.4	Water Closet (WC) Pan- Leakage and capacity test	AS 1172.1 Appendix D	
	9.1.5	Water Closet (WC) Pan- Splash test	AS 1172.1 Appendix E	
	9.1.6	Water Closet (WC) Pan- Wetting test	AS 1172.1 Appendix F	At any change in design or manufacturing process.
	9.1.7	Water Closet (WC) pan - Load safety test	AS 1172.1 Appendix G	
	9.1.8	Water Closet (WC) Pan- Liquid contaminant test	AS 1172.1 Appendix H	At any change in design or manufacturing process
	9.2.1	Cistern - Front thrust test	AS 1172.2 Appendix A	
	9.2.2	Cistern - Distortion and leakage test	AS 1172.2 Clause 4.3	
	9.2.3	Cistern - Backsiphonage test	AS 1172.2 Appendix B	

Characteristic	Clause	Requirement	Test method	Frequency
	9.2.4	Cistern - Endurance test (Outlet Valve)	AS 1172.2 Appendix C	
	9.2.5	Cistern - Endurance test (Inlet Valve)	AS 1172.2 Appendix D	
	9.2.6	Cistern - Discharge volume test	AS 1172.2 Appendix F (and per Ref. Clause 9.2.6)	
	9.3.1	Flush valve – Mains supply	ATS 5200.020	
	9.3.2	Flush valve – Break tank supply	ATS 5200.021	
	9.4.1	SWFDS - Venting test	Appendix C	
	9.4.2	SWFDS - Drainline carry determination test	Appendix B	
Product documentation	11	Product data/installation and maintenance instructions	Documentation review	At changes in factors that require change in documentation e.g., amendments to AS/NZS 3500 series of Standards

**TABLE A2
BATCH RELEASE TESTS**

Characteristic	Clause	Requirement	Test method	Frequency
Materials	5	Relevant Standard	Delivery acceptance tests or supplier's test data	Each delivery batch
Markings	6	Markings	Visual examination	100%
Performance	9.1.4	Water Closet (WC) Pan-Leakage and capacity test	AS 1172.1 Appendix D	100%
	9.2.2	Cistern - Distortion and leakage test	AS 1172.2 Clause 4.3	
	9.2.6	Cistern - Discharge volume test	AS 1172.2 Appendix F (and per Ref. Clause 9.2.6)	
	9.1.2	Water Closet (WC) Pan-splash test	AS 1172.1 Appendix E	At any change in design or manufacturing process
	9.1.6	Water Closet (WC) Pan-Wetting test	AS 1172.1 Appendix F	
	9.1.1	Water Closet (WC) Pan-Paper discharge test	AS 1172.1 Appendix A	
	9.1.7	Water Closet (WC) Pan-Liquid contaminant test	AS 1172.1 Appendix H	
	9.1.8	Water Closet (WC) Pan-Solids discharge test	Appendix B	
	9.2.2	Cistern - Distortion and leakage test	AS 1172.2 Clause 4.3	
	9.2.6	Cistern - Discharge volume test	AS 1172.2 Appendix F (and per Ref. Clause 9.2.6)	

APPENDIX B BACK-SIPHONAGE TEST

(Normative)

B.1 SCOPE

This Appendix sets out the method for determining the ability of the low flush volume Water Closet (WC) pan to efficiently remove and transport waste material to a Sewer Dosing Unit (SDU).

B.2 PRINCIPLE

This test verifies the WC pan's ability to move the required number of artificial test pieces over a distance of 6 metres through 100 mm diameter pipe at a grade of 1.65% (1:60).

The Water Closet (WC) pan is installed in accordance with the manufacturer's instructions and flushes artificial test pieces as used in AS 1172.1 Appendix C.

The findings of testing are to be included on the manufacturer's design documents and the installation instructions with reference to effective transportation distances.

B.3 APPARATUS

The following apparatus is required:

- a) Matching cistern complying with WMTS-504 Table 9.1 or preset volume flush valve and flush pipe (if required), as specified by the manufacturer.
- b) A sewer dosing unit WaterMarked to ATS 5200.499.
- c) A suitable container capable of measuring 37 +2, -0mL.
- d) A suitable container to collect the test pieces and discharge volume.
- e) A water supply.
- f) Artificial test pieces manufactured according to AS 1172.1 Appendix C, Section C4 (a) to (d).
- g) DN 100 pipe.
- h) A suitable container to collect the test pieces and discharge volume.
- i) A timing device with an accuracy of ± 0.05 seconds.

B.4 PROCEDURE

The procedure shall be as follows:

- a) Set up the Water Closet (WC) pan and sewer dosing unit in accordance with the manufacturer's installation instructions and in accordance with Figure B1. Connect the water supply if required.

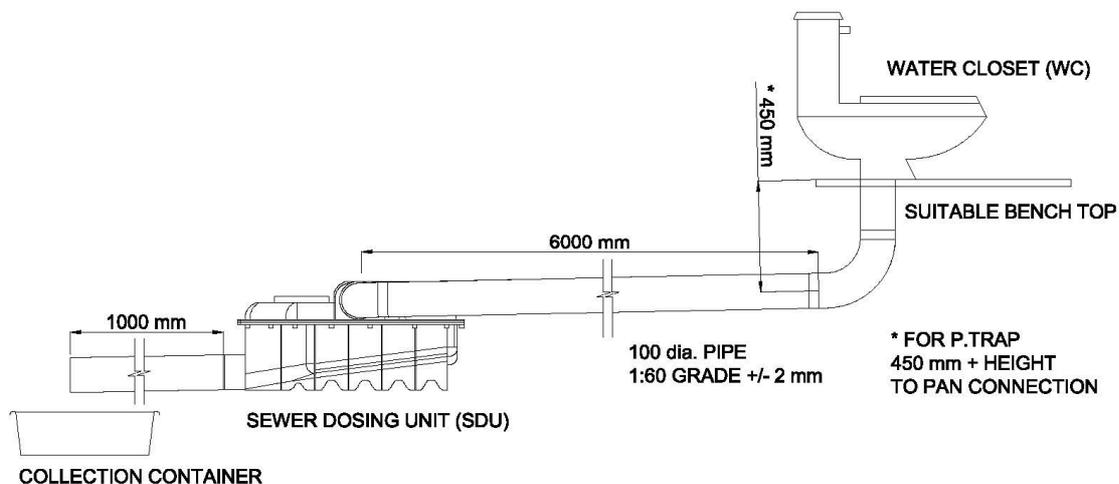


FIGURE B1 TYPICAL SETOUT

- b) Fill and flush the matched set at least three times prior to the commencement of the tests.
- c) Fill the cistern to the nominated full flush water level under normal filling conditions.
- d) Drop four test pieces into the water area of the bowl of the pan from a point level with the top of the rim using a directional device according to AS 1172.1 Appendix C, Figure 8.
- e) Activate the full flush mechanism of the water closet after $10 + 0 -5$ seconds. With the cistern filled to the nominated working level and the water supply (if connected), turned off, activate the flush valve or cistern for a full-flush operation to discharge the pan $10 +0, -5$ s after the paper is dropped into the bowl.
- f) Inspect SDU and record the number of test pieces fully discharged to the SDU collection chamber.
- g) Remove all four test pieces from the apparatus recording where each piece came to rest.
- h) Repeat d) to g) a further 9 times to provide a total of ten tests.
- i) If the pan does not meet the requirements in Clause 9.2.1 for ten tests, it may be tested a further ten times (giving a total of twenty consecutive tests).



B.5 TEST REPORT

The following shall be reported:

- a) Manufacturer, model and type of water closet (WC), type of cistern or flush valve including nominal flush volume and SDU.
- b) The number of test pieces discharged to the SDU in each test.
- c) Reference to this test method, i.e. Appendix B of WMTS-504.

APPENDIX C VENTING TEST

(Normative)

C.1 SCOPE

This Appendix sets out the method for examining the basic functionality of the sanitary waste flushing and dosing system and the effect the SDU may have on the operation of the water seal of the Water Closet (WC) pan.

C.2 PRINCIPLE

The sanitary waste flushing and dosing system is installed in accordance with the manufacturer's instructions and operated over its sequence of operation to establish functionality and effect of the SDU on the WC pan water seal. A manometer is used to measure the WC pan water seal.

C.3 APPARATUS

The following apparatus is required and is to be set up in accordance with Figure C1.

The following apparatus is required:

- a) Matching cistern complying with WMTS-504 Table 9.1 or preset volume flush valve and flush pipe (if required), as specified by the manufacturer.
- b) A sewer dosing unit complying with ATS 5200.499.
- c) A manometer.
- d) A tube and fittings to connect the SDU to the manometer.
- e) Pipe fittings connected to the SDU to ensure it is airtight.
- f) A suitable container to collect discharge water.
- g) A water supply.
- h) DN 100 pipe.

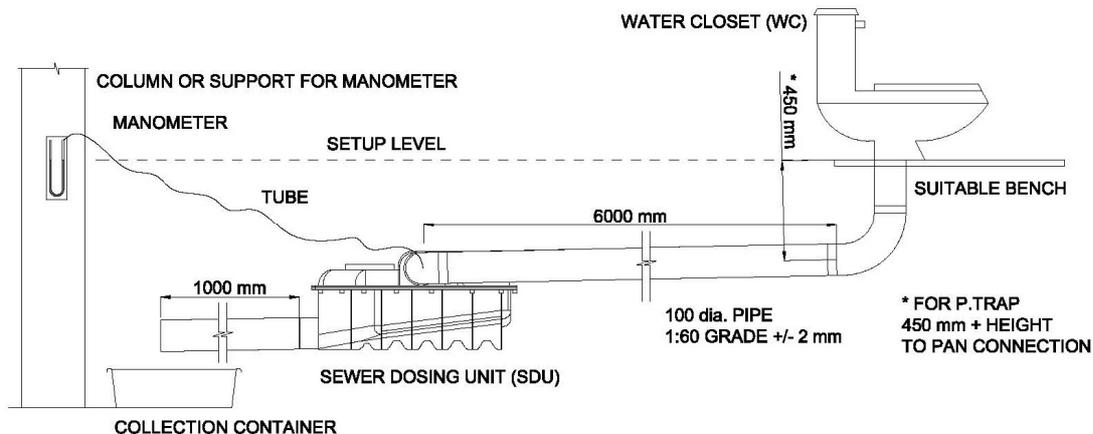


FIGURE C1 TYPICAL SETOUT

C.4 PROCEDURE

The procedure shall be as follows:

- a) Set up the sanitary waste flushing and dosing system in accordance with the manufacturer's installation instructions and at the set up distance and minimum grade as determined in Appendix C.
- b) Fill the WC pan bowl with water and measure the trap seal depth.
- c) Flush the WC pan prior to the commencement of tests so that the SDU activates and doses at least once.
- d) Replenish the water seal in the WC pan.
- e) Measure the water seal of the WC pan.
- f) Activate the flush mechanism of the cistern or flush valve sufficient times to activate the SDU.
- g) Measure any change in level on the manometer as the SDU is activated.
- h) Repeat d) to f) until the SDU has activated a further two times.
- i) Record the operation of the SDU for each of the three tests and record the manometer maximum reading.
- j) Should the manometer reading exceed the WC pan trap seal depth then introduce a minimum 40 mm vent pipe upstream of the SDU or a suitable AAV as directed by the manufacturer.
- k) Repeat tests d) to f) and record the results.



C.5 TEST REPORT

The following shall be reported:

- a) Manufacturer, model and type of water closet (WC), type of cistern or flush valve including nominal flush volume and SDU.
- b) The trap seal depth of the WC.
- c) The maximum reading on the manometer for each reading.
- d) If an AAV or a 40 mm upstream vent were used in accordance with the manufacturer's installation instructions.
- e) Reference to this test method, i.e. Appendix C of WMTS-504.

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