

TEST REPORT

Report No. 112131 2646

Client

Waterco Ltd
PO Box 230
Rydalmere BC NSW 1701

Product Tested

Manufacturer: Waterco Ltd
Brand: Waterco
Model Nos: 453498
Description: Suction 40 mm Threaded (White)
Sample No: 2646
Sample: Selected by Client

Testing accordance with AS1926.3 2010

| | |
|----------------------------------|---|
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Test results relate to item tested

Attachments

Appendix 1: Photo of test sample

Tested by: Dave Hewitt & Simon Clarke

Prepared by: Simon Clarke

Reviewed by: Simon Clarke

Outlet covers

Applicable standard: AS 1926.3 Clause 6.2

| | |
|--|--|
| <p>The following requirements apply:</p> <p>(a) Outlet covers shall be tested in accordance with Appendix A by an accredited testing laboratory (Clause 3.1).</p> <p>(b) Outlet covers that are certified as having been tested and marked in accordance with ASME A112.19.8 shall be deemed to comply under this Standard and not be subject to the testing and approval procedure in Appendix A.</p> <p>(c) Outlet covers shall be permanently marked with— (i) the minimum nominal pipe diameter, in millimetres, to which it can be fitted; (ii) the maximum allowable flow rate, in litres per minute (L/min) (see item (d)); and (iii) the testing authority test number and date of test.</p> <p>(d) The maximum allowable flow rate (see item (c)(ii)) shall be 80% of the lesser of the flow rates determined in the tests in Paragraphs A5.1 and A5.2.</p> <p>(e) Outlet covers shall be installed on outlet points in a manner that prevents their removal without the use of tools.</p> | <p>a) License No. 14783</p> <p>b) Not marked as complying to ASME A112.19.8.</p> <p>c) This requirement is not applicable at time of testing.</p> <p>d) See test data in this Report.</p> <p>e) Tools are required for removal after installation.</p> |
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Sampling

Applicable standard: AS 1926.3 Appendix A4

| Criteria | Sampling |
|---|--|
| The outlet cover manufacturer shall supply the accredited testing laboratory (see Clause 3.1) with 10 samples of each cover to be tested from which the laboratory shall select three at random to be tested. | Client has supplied 10 samples and three Test Specimens were selected randomly for testing and reported as 1, 2 and 3. |

Hair entrapment test

Applicable standard: AS 1926.3 Appendix A

Test Method: Appendix A5.1

| Criteria | | | | | | | |
|--|-------------------|------------|-----------|---|-------------------|------------|-----------|
| The force required to remove the hair shall not exceed 20 N. | | | | | | | |
| The flow rate at which the hair can be removed with 20 N or less, shall be the maximum flow rating for the outlet cover | | | | | | | |
| Test Requirements | | | | | | | |
| <u>Withdraw – Perpendicular</u> Hold duration = 2 minutes Removal rate = 125 mm/s Force to withdraw = 20 N Max. | | | | <u>Withdraw – 40° to Perpendicular</u> Hold duration = 2 minutes Removal rate = 125 mm/s Force to withdraw = 20 N Max. | | | |
| Preliminary Observations | | | | Preliminary Observations | | | |
| Flow rate range (L/min) | | Force (kg) | Force (N) | Flow rate range (L/min) | | Force (kg) | Force (N) |
| 270 to 300 | | 2.44 | 24 | | | | |
| 240 to 270 | | 0.68 | 7 | | | | |
| Test Data for flow with removal at < 20N | | | | Test Data for flow with removal at < 20N | | | |
| Test Specimen | Flow rate (L/min) | Force (kg) | Force (N) | Test Specimen | Flow rate (L/min) | Force (kg) | Force (N) |
| 1 | 240 | 0.65 | 6 | 1 | 240 | 0.58 | 6 |
| 2 | 240 | 0.40 | 4 | 2 | 240 | 0.62 | 6 |
| 3 | 240 | 0.40 | 4 | 3 | 240 | 0.43 | 4 |

Body entrapment test

Applicable standard: AS 1926.3 Appendix A

Test Method: Appendix A5.2

| Criteria | | | | |
|---|-------------------------------------|--|--------------------------|--------------|
| The force required to remove the body blocking element when pulling perpendicular to the wall or floor surface shall not exceed 50 N. | | | | |
| Test Requirements | | Test Conditions | | |
| <u>Withdraw – Perpendicular</u> Initial loading = 250 N Force to withdraw = 50 N Max. Body blocking element to Figure A6 with weight adjusted to neutral buoyancy before adding applied force. | | <u>Withdraw – Perpendicular</u> Rated flow ^{#1} = 240 L/min Applied Force to suction cover (N) = 250 Applied Force to suction cover (kg) = 25.48 | | |
| Test Data for flow with removal at Rated Flow | | | | |
| Test Specimen | Rated flow ^{#1} (L/min) | Total Force (kg) | Removal Force (kg) | Force (N) |
| 1 | 240 | 27.13 | 1.65 | 16 |
| 2 | 240 | 26.70 | 1.22 | 12 |
| 3 | 240 | 26.88 | 1.40 | 14 |
| Note: ^{#1} Determined in accordance with Appendix A5.1 | | | | |

Physical entrapment test

Applicable standard: AS 1926.3 Appendix A

Test Method: Appendix A5.3

| | | | |
|---|--|---|-----------------|
| Criteria | | | |
| <u>Part 1 < 8 mm</u> Outlet covers with openings sized less than 8 mm in any dimension. | | | |
| Test Requirements | | Test Conditions | |
| <u>Conditioning</u> Temperature = 20 ± 2 °C Duration = 24 Hours minimum <u>A5.3.1 (a) Dimensional</u> Opening size ≤ 8 mm | | <u>Conditioning</u> Temperature (°C) = 20 Duration (Hours) = > 24 | |
| <u>Part 1 > 8mm</u> Outlet covers with openings greater than 8 mm in any dimension. | | | |
| Test Requirements | | Observation | |
| (a) Outlet covers with openings more than 8 mm in any one dimension shall not allow access of the large end of the jointed test finger (A3(e)). (b) Outlet covers which allow entry of the test probe past the first joint shall have no abrasion, cutting, pinching, or puncture hazards within 60 mm of the entry point. (c) The force required to remove the test probe from openings in the outlet cover shall not exceed 50 N. | | Not applicable as opening is less than 8 mm | |
| Test Requirements | | Observation | |
| Rated flow ^{#2} = N/A Force to withdraw = 50 N Max. | | Test Specimen 1 | Test Specimen 2 |
| | | Force (N) = N/A | Force (N) = N/A |
| | | Test Specimen 3 | Force (N) = N/A |
| NOTE: ^{#2} Lesser of flow rates determined in A5.1.2(g) and A5.2.2(d) | | | |

Structural integrity test

Applicable standard: AS 1926.3 Appendix A

Test Method: Appendix A5.4

| Criteria | | |
|---|--|--|
| <u>A5.4.2.2 Pressure tests</u> When tested the outlet cover shall show no sign of permanent deformation or cracks and no loss of material exclusive of plating or finish. | | |
| Test Requirements | Test Conditions | Observation |
| Temperature = Ambient Pressure = 150 kPa Duration = 24 Hours | Temperature (°C) = 20 Pressure (kPa) = 150 Duration (Hours) = 24 | No sign of permanent deformation or cracks and no loss of material. |
| <u>A5.4.3 Shear test</u> At completion of the test, the outlet cover is inspected, and shall show no sign of permanent deformation or cracks, and no loss of material exclusive of plating or finish | | |
| Test Requirements | Test Conditions | Observation |
| Temperature = Ambient Force = 500 N Duration = 2 minutes | Temperature (°C) = 20 Force (N) = 500 Duration (min) = 2 | No sign of permanent deformation or cracks, and no loss of material. |

Summary of data

Applicable standard: AS 1926.3 Appendix A6

COMPLIES

| Test requirement | Observation |
|---|--|
| The water flow rate at which the hair sample could be removed from the outlet cover with a force 20 N or less. | Flow rate (L/min) = 240 |
| The force required to remove the body blocking element at the flow rate recorded in Item (a) above | Force (N) = 16 |
| If the recorded force in Item (b) above is greater than 50 N then the reduced flow rate at which the force required was 50 N or less. | Not required |
| Where the outlet cover opening size was such that the physical entrapment test was undertaken, the force applied to remove the test object from the cover openings. | Not applicable opening is less than 8 mm |
| Whether or not the outlet cover passed the structural integrity tests and, if not, then details of its failings. | Meets acceptance criteria |

Maximum allowable flow rate

Applicable standard: AS 1926.3 Clause 6.2 c , d and e

| Requirement | Observation |
|---|-----------------|
| Test Number | QTL 112131 2646 |
| Date of Test | 20/05/2011 |
| Pipe sizing used in testing | 40 mm (DN40) |
| The maximum allowable flow rate shall be 80% of the lesser of the flow rates determined in the tests in Paragraphs A5.1 and A5.2. | 192 L/min |

Related models

Applicable standard: AS 1926.3

A range of models manufactured by the same manufacturer of the same brand which will have the same performance requirements and physical characteristics relevant to maximum allowable flow, design and structural integrity.

For example an outlet cover with a variety of colours or finishes or different end connection types.

| Model Number | Description | Notes |
|--------------|--------------------------------|-----------------------------|
| 453494 | Suction 40 mm Slip fit (Black) | Equivalent to white fitting |
| 453496 | Suction 40 mm Slip fit (White) | Equivalent to white fitting |
| 4534980 | Suction 40 mm Threaded (Black) | Equivalent to white fitting |

End of Report

Simon Clarke
Approved Signatory

Test Report Number 112131

Figure 1. Test sample

