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TEST REPORT

Report No. 112213 2916

Client

Waterco Ltd
PO Box 230
Rydalmere BC NSW 1701

Product Tested

Manufacturer:	Waterco
Model Nos:	293000
Model Name:	Main Drain complete white MKII
Description:	Main Drain complete white MKII
Sample No:	2916
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
Appendix 2: Installation instructions

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Prepared by: Davon Isackson
Reviewed by: Simon Clarke

Outlet covers

Applicable standard: AS 1926.3 Clause 6.2

The following requirements apply: (a) Outlet covers shall be tested in accordance with Appendix A by an accredited testing laboratory (Clause 3.1).	a) License No. 14783
(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.	b) Not marked as complying to ASME A112.19.8.
(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.	c) This requirement is not applicable at time of testing.
(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.	d) See test data in this Report.
(e) Outlet covers shall be installed on outlet points in a manner that prevents their removal without the use of tools.	e) Tools are required for removal after installation.

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

Withdraw – Perpendicular	Withdraw – 40° to Perpendicular
Hold duration = 2 minutes Removal rate = 125 mm/s Force to withdraw = 20 N Max.	Hold duration = 2 minutes Removal rate = 125 mm/s Force to withdraw = 20 N Max.

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	390	0.22	2.15	1	390	0.18	1.77
2	390	0.26	2.55	2	390	0.18	1.77
3	390	0.24	2.35	3	390	1.44	14.13

Criteria Test Method: Appendix A5.1.2	Observation
Does the hair enter the cover?	Yes, hair enters into the cover initially, but remaining hair begins to fold on the outside of the suction cover.

Body entrapment test

Applicable standard: AS 1926.3 Appendix A
Test Method: Appendix A5.2

COMPLIES

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
Withdraw – Perpendicular 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.	Withdraw – Perpendicular Rated flow[#1] (L/min) = 390 Applied Force to suction cover (N) = 250 Applied Force to suction cover (kg) = 25.5

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	390	25.5	27.00	14.7
2	390	25.5	28.16	26.1
3	390	25.5	27.52	19.8

Note: [#1] Determined in accordance with Appendix A5.1

Physical entrapment test

Applicable standard: AS 1926.3 Appendix A
Test Method: Appendix A5.3

COMPLIES

Criteria		
Part 1 ≤ 8 mm Outlet covers with openings sized less than 8 mm in any dimension.		
Test Requirements	Test Conditions	Observation
Conditioning Temperature = 20 ± 2 °C Duration = 24 Hours minimum A5.3.1 (a)Dimensional Opening size ≤ 8 mm	Conditioning Temperature (°C) = 20.3 Duration (Hours) = > 48	Opening size (mm) = 7.81
Part 1 > 8mm 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 – smaller than 8mm
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

COMPLIES

Criteria		
A5.4.2.2 Pressure tests 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) = 21.1 Pressure (kPa) = 150 Duration (Hours) = 24:01	No sign of permanent deformation or cracks and no loss of material.
A5.4.3 Shear test 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) = Force (N) = 501 Force (kg) = 50.1 Duration (minute) = 2:10	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) = 390
The force required to remove the body blocking element at the flow rate recorded in Item (a) above	Force (N) = 19.8
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.	Flow Rate (L/min) = 390
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
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	112213 2916
Date of Test	05/03/2012
Pipe sizing used in testing	DN50
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.	312 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
293000	Main Drain Complete White MKII	Colour changed from white
293080	Main Drain Complete Beige MKII	Colour changed from white
293090	Main Drain Complete Black MKII	Colour changed from white

End of Report

Simon Clarke

Simon Clarke
Approved Signatory

Test Report Number **112213**

Figure 1. Test sample

Figure 2 Test Sample cover plate

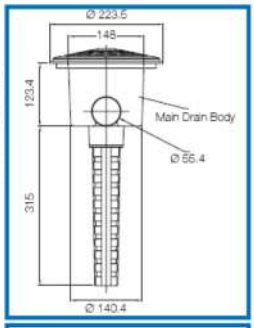
Figure 1: Technical drawing

Circulation Accessories

Waterco Main Drains

Waterco Main Drains are manufactured using the highest quality, impact resistant thermoplastic (ABS plastic). Main Drain incorporates a Hydrostatic valve. This valve will safeguard and stop your pool from lifting out of the ground or "popping" when the water level is low or when there is water under the pool. The long ground water spear detects underground water at a greater depth and causes the hydrostatic valve to release it before it can build up to a level that may damage your pool.

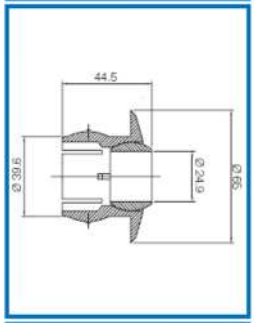
Waterco Main Drains are available in white and beige.



Slip Fit
For Concrete Pools

Eyeball Fittings – Concrete Pools

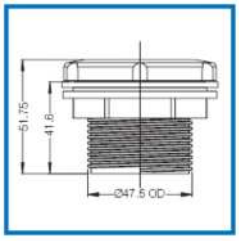
> Slip fit tail has crosshair slots for easy access into 40mm pipe
> Adjustable eyeball to assist directional flow of water
> Flush fitting wall collar
> Max flow rate: 245 lpm
> Available in black, white and brown
> Also available in white with 50mm slip fit tail

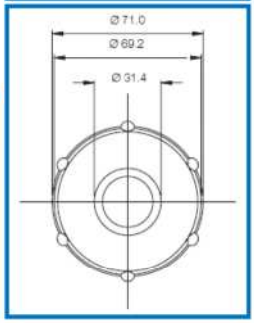


Threaded
For Fibreglass Pools

Eyeball Fittings – Fibreglass Pools

> Available as threaded unit with back nut or a 40mm thread.
> Only available in white

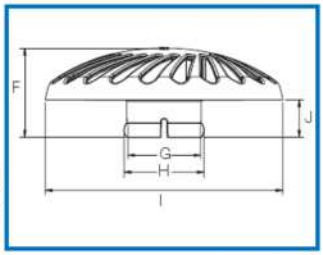




Suction fittings

> Slip fit tail has crosshair slots for easy access into 40mm or 50mm pipe.
> Low profile for minimal intrusion into the pool
> Suction area of 7500mm²
> Max flow rate: 245 lpm
> Available in white, brown and beige
> Also available in white with 50mm threaded tail

Model	F	G	H	I	J
453496	62mm	Ø40mm	Ø44.7mm	Ø165.9mm	28mm
453497	62mm	Ø50mm	Ø55.8mm	Ø165.9mm	28mm



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ZZB1204 08/06

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