

Q-Guard™

STORMWATER TREATMENT DEVICE



James Hardie
FRC Pipes

Q-Guard™ Stormwater Treatment Device

The new Q-Guard™ stormwater treatment device from James Hardie FRC Pipes represents a long awaited breakthrough in stormwater drainage technology. This unique system provides a superior solution for the treatment of stormwater runoff and achieves a treatment integrity that is second-to-none.

The innovative and cost-effective design of the Q-Guard™ stormwater treatment device provides the stormwater design industry with an ideal, quality solution to combat the growing environmental concerns associated with stormwater runoff.



INNOVATIVE DESIGN

The Q-Guard™ stormwater treatment device is a state-of-the-art treatment solution which provides: -

- An advanced treatment system with high treatment flow rates.
- Modular precast concrete (with galvanised reinforcement) and MDPE construction for durability.
- Efficient design to provide fast and easy installation (a shallow installation depth will also reduce installation costs).
- An extensive range of components to suit varying pipe depths.
- A small rectangular footprint to assist in achieving good pavement compaction.
- Large hinged lids and a user friendly design provide for easy inspection.

Q-Guard™ units are subject to International Patent Application No PCT/AU01/00816 and Australian Patent Application No PR7243

POLLUTANT CONTROLS

The Q-Guard™ stormwater treatment device was developed in Australia for Australian conditions removing unsightly and harmful pollutants and sediment from stormwater runoff. The unit operates by directing stormwater runoff through a treatment chamber, trapping and temporarily storing pollutants for periodic extraction. Targeted pollutants include cans, litter, plastics, cigarettes, bottles, organic matter (leaves, grass, sticks etc.) aggregates and sediments, and free oils and greases.

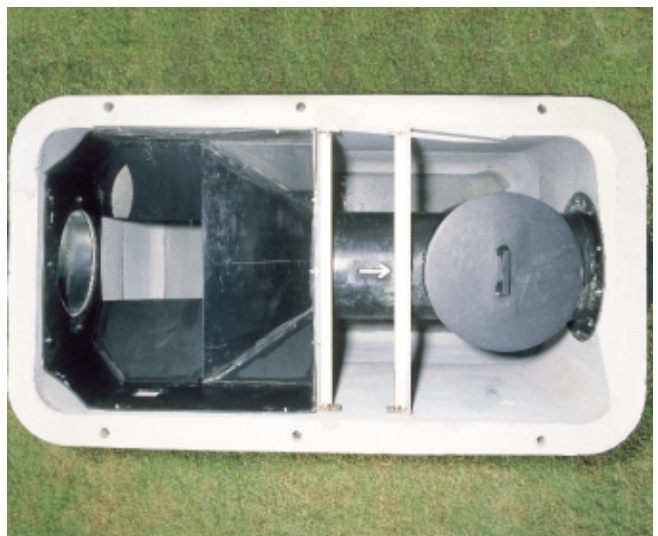
Thorough full scale testing provides testament to the impressive performance of the Q-Guard™ stormwater treatment device which commands a high level of integrity in the treatment and trapping of stormwater pollutants.

SUITABLE APPLICATIONS

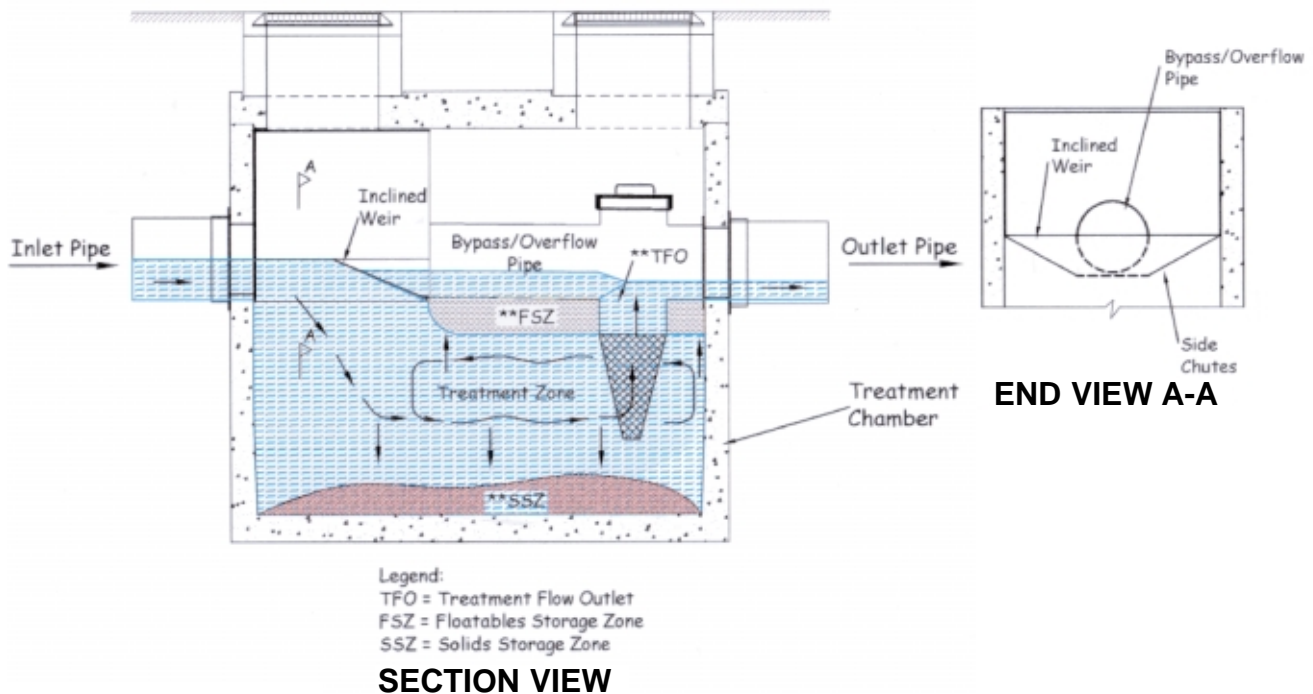
The Q-Guard™ stormwater treatment device is designed for use in new or existing developments including: -

- Car parks and transport depots.
- Commercial and industrial developments.
- Residential developments.
- Urban drainage systems.
- Construction sites.

Q-Guard™ stormwater treatment devices have been designed to meet the protection requirements of designers by treating a diverse range of pollutant run-off mixes.



OPERATION



The Q-Guard™ stormwater treatment device operates in “treatment” mode as follows:

1. Stormwater run-off enters the flow control unit and is directed into the treatment zone by the inclined weir and the side chutes.
2. As the stormwater is directed into the treatment zone it creates an expanding three-dimensional spiral flow pattern in a vertical plane, reducing flow velocities and providing sufficient in-chamber retention times to allow for the removal of pollutants.
3. As the pollutants enter the treatment zone they are processed as follows: -
 - Free oils and hydrocarbons rise to the water surface and are stored in the floatables storage zone.

- Floating litter also rises to the water surface and is stored in the floatables storage zone (if floating litter is waterlogged then it may settle in the solids storage zone).
 - Aggregates and sediment settle to the solids storage zone on the chamber floor.
4. Once the stormwater run-off is treated it passes through the inverted conical screen. The screen is designed to maximise the discharge area whilst retaining floating and submerged litter and providing a self-cleansing operation.
 5. Treated run-off then leaves the chamber via the treatment flow outlet and outlet pipe.

Large hinged lids and a relatively shallow treatment chamber allows for the easy removal of trapped pollutants with a standard eductor or vacuum truck.

SIZE RANGE

The Q-Guard™ stormwater treatment device is available in many combinations to provide a fit-for-purpose solution for any project. The following table outlines the standard range of units currently available however if non-standard units are required please contact our Customer Service Team to discuss specifications in more detail.

SIZE RANGE	Q-GUARD™ MODEL	EXTERNAL LENGTH (MM)	EXTERNAL WIDTH (MM)	DEPTH* BELOW PIPE INVERT (MM)	RANGE OF DEPTH* OF PIPE INVERT (MM)
	A1 Models	1750	1000	1120	900 to 2600
	A2 Models	1750	1000	1245	1000 to 2800
	B1 Models	2650	1450	1245	1000 to 2800
	B2 Models	2650	1450	1400	1150 to 2800
	C1 Models	3300	1800	1305	1300 to 3200
	C2 Models	3300	1800	1440	1400 to 3100

ORDERING Q-GUARD™ STORMWATER TREATMENT DEVICES

To ensure easy ordering please have the following information available when placing a order for Q-Guard™ stormwater treatment devices:

- Inlet pipe size.
- Outlet pipe size.
- Depth to outlet pipe invert (this is the distance from the finished ground level to the invert of the outlet pipe). Note: There is a nominal 1% fall between the inlet and outlet of each unit

TREATMENT RATES AND STORAGE CAPACITIES

Q-GUARD™ MODEL	INLET PIPE SIZE (MM)	OUTLET PIPE SIZE (MM)	DESIGN TREATMENT FLOW RATE (L/S)	STORAGE CAPACITY ** ⁴ (M ³)		CHAMBER HOLDING CAPACITY (M ³) ^{*5}
				TOTAL FLOATABLES (FREE OIL ONLY) ^{*3}	SOLIDS	
A1 2222	225	225	19 ^{*2}	0.27 (0.14)	0.54	1.26
A1 2230	225	300	19 ^{*2}	0.27 (0.14)	0.54	1.26
A1 3030	300	300	26 ^{*1}	0.27 (0.14)	0.54	1.26
A2 3037	300	375	26 ^{*2}	0.24 (0.12)	0.69	1.40
A2 3737	375	375	31 ^{*2}	0.24 (0.12)	0.69	1.40
A2 3745	375	450	31 ^{*2}	0.24 (0.12)	0.69	1.40
A2 4545	450	450	34 ^{*2}	0.24 (0.12)	0.69	1.40
B1 3737	375	375	59 ^{*1}	1.06 (0.53)	1.24	3.59
B1 3745	375	450	59 ^{*2}	1.06 (0.53)	1.24	3.59
B1 4545	450	450	74 ^{*1}	1.06 (0.53)	1.24	3.59
B2 4552	450	525	74 ^{*2}	0.99 (0.49)	1.66	4.03
B2 5252	525	525	85 ^{*2}	0.99 (0.49)	1.66	4.03
B2 5260	525	600	85 ^{*2}	0.99 (0.49)	1.66	4.03
B2 6060	600	600	93 ^{*2}	0.99 (0.49)	1.66	4.03
C1 5252	525	525	140 ^{*2}	2.34 (1.17)	2.03	5.18
C1 5260	525	600	140 ^{*2}	2.34 (1.17)	2.03	5.18
C1 6060	600	600	150 ^{*2}	2.34 (1.17)	2.03	5.18
C2 6067	600	675	150 ^{*2}	2.16 (1.08)	2.48	5.85
C2 6767	675	675	157 ^{*2}	2.16 (1.08)	2.48	5.85
C2 6775	675	750	157 ^{*2}	2.16 (1.08)	2.48	5.85
C2 7575	750	750	163 ^{*2}	2.16 (1.08)	2.48	5.85

TREATMENT RATES AND STORAGE CAPACITIES

*¹ Treatment Flow Rates have been calculated from the results of a 225mm diameter large scale laboratory model, with no tidal influences.

*² Treatment Flow Rates have been calculated by extrapolation from the results of 225mm diameter large scale laboratory tests, with no tidal influences.

*³ Storage capacities for both floatables and solids allow for more than 12 months of typical urban pollutant generation rates for developed areas.

*⁴ Total floatables capacity includes free oil. Free oil only capacity is included in brackets.

*⁵ Sum of capacities of floatables storage, treatment, and solid storage zones.

The recommended 'K' value for an Q-Guard™ stormwater treatment device is 1.3, based on pipe full velocity head in the downstream pipe reach. This value is based on a stormwater treatment device operating within a stormwater system for pipe design flow.

STORMWATER DRAINAGE SOLUTIONS

The Q-Guard™ stormwater treatment device signifies another addition to the extensive range of stormwater drainage solutions from James Hardie FRC Pipes.

Renowned for innovation in design and cutting-edge technologies, James Hardie FRC Pipes provide a seamless solution for stormwater drainage including pipes, junctions, saddles, bends, adaptor couplings, pits, and a variety of product innovations including SlimDrain™, Slotted Drain™ and Spoon Drain™.

The extensive range of pipes and accessories from James Hardie FRC Pipes continues to raise the industry benchmark on the manufacture and delivery of world-class stormwater drainage solutions.

TECHNICAL SERVICES

To assist customers, James Hardie FRC Pipes maintains a staff of experienced technical consultants. These specialists are able to advise on design and technical matters associated with any application of James Hardie FRC Pipe products.

PRODUCT LITERATURE

Technical manual, installation and maintenance instructions are available. Contact James Hardie FRC Pipes Customer Service for additional literature or advice.

HEALTH AND SAFETY INFORMATION

Information on any known health risks of our products and how to handle them safely is on their packaging and/or the documentation accompanying them.

Additional information is listed in the Material Safety Data Sheets available from James Hardie Building Products, (James Hardie Australia Pty Limited ABN 12 084 635 558) 10 Colquhoun Street, Rosehill, NSW 2142. Ph. 13 11 03

CONTACT DETAILS

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WARRANTY

The systems recommended in this manual are intended to assist those interested in the specification and installation of Q-Guard™ Stormwater Treatment Devices. As the successful installation of this product depends on numerous factors outside the control of James Hardie FRC Pipes (eg. quality of workmanship, particular design, detail requirements), James Hardie accepts no responsibility for, or in connection with, the quality or suitability of the system or its suitability when completed. This brochure is not intended to be an exhaustive statement of relevant data.

James Hardie will accept responsibility as follows, for or in connection with the quality or suitability of the product when installed strictly in accordance with James Hardie's written design recommendations.

James Hardie warrants the product supplied for a period of one (1) year from the date of purchase against defects arising during recommended use caused by defective factory materials.

If it is proven to the reasonable satisfaction of James Hardie that the products supplied by or any services performed by James Hardie are so defective, then James Hardie will rectify the defect by (at its option):

- In the case of goods, the replacement, repair or reimbursement of the cost of such goods or, the payment of the repair of such goods or,
- In the case of services, the supply of the services again or payment of the cost of having the services supplied again.

Under no circumstances will James Hardie be liable for consequential losses, loss of profits or damages however they occur.

All warranties other than those specified by James Hardie are hereby excluded, and all conditions, obligations and liabilities however arising are hereby excluded. Nothing in this warranty, however, shall be construed as affecting any rights under the Trade Practices Act or other Commonwealth or State Legislation which gives the buyer rights which cannot be modified or excluded by agreement.



This brochure supersedes all previous literature on this subject.
Due to James Hardie FRC Pipes policy of continued improvement to its systems, the specifications and details contained in this publication may change.

Please check with James Hardie FRC Pipes Customer Service for confirmation of current issue.

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