Rain Harvesting Systems

Safer solutions for rainwater collection

Rainwater Solutions

MARLEY

Marley Rain Harvesting Products; safer solutions for the collection, storage and distribution of rain water.

HOW SAFE IS THE WATER YOU ARE COLLECTING?

When collecting rainwater as a partial or total source for a water supply it is essential the design of the system meets the need for potable (safe drinking) water.

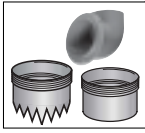
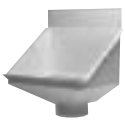
Water collected from a roof and stored and distributed from a water tank, can contain a nasty range of pollutants that can contaminate your water, for example bacteria from bird droppings, insects, rotting debris, airborne dusts (containing heavy metals).

The Marley Rain Harvesting System comprises of a number of unique and cost effective components that are designed to work with the Marley PVC range of spouting and downpipes to help make tank water as clean as possible. However, it is advisable to have your tank water analysed to check its potability.

7 STEPS TO RAIN HARVESTING POTABLE WATER;

1. Ensure the roof surface is suitable for collecting potable water
2. Ensure spouting is installed according to Building Code, allowing for adequate fall and installing suitable expansion outlets or gutter outlets to make certain water does not pond in the gutter
3. Install debris diverter rainheads with screens to direct leaf litter and larger debris items out of the flow of the water
4. Fit an appropriate sized first flush diverter, to divert the first most contaminated rain water from entering the tank
5. Attach tank overflows and vent flaps to tanks to ensure the tank is vented properly allowing air to circulate
6. Attach insect screens to rainheads and tanks to prevent insects and vermin entering the tank
7. To assist in cleaning the tank, install a tank vacuum kit to suck water from the bottom of the tank (anaerobic zone – dirty 'zone') when the tank is full to overflowing.

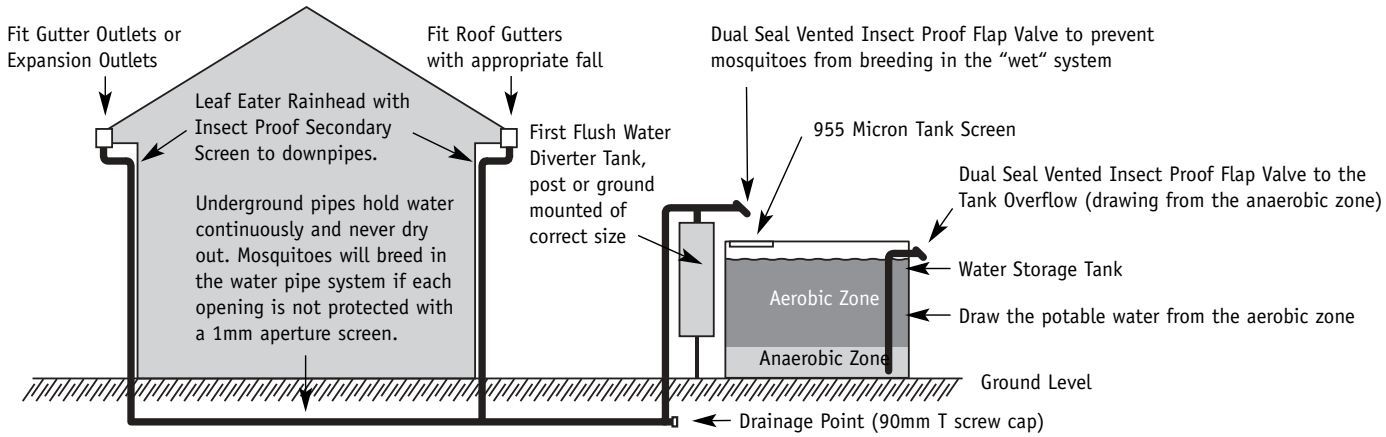
RAIN HARVESTING SYSTEM COMPONENTS

 Leafslide Rainhead **Code: RWLS**	 50mm diameter PVC Insect Proof Flap Valve **Code: RH8118-4**	 90mm diameter, Female Gutter Outlet **Code: RH8118-5**	 50mm diameter Vent Cowl PVC & S/Steel Insect Proof Screen **Code: RH8119-9**
 Leaf Beater Rain Head 80/90mm Dual Fit **Code: RH8120**	 90mm diameter Insect Proof, Vented Flap Valve PVC/Stainless Steel **Code: RH8119-3**	 100mm diameter Gutter Outlet **Code: RH8118-6**	 100mm diameter Vent Cowl PVC & S/Steel Insect Proof Screen **Code: RH8119-2**
 Leaf Catcher Rain Head 90/100mm Dual Fit **Code: RH8117**	 100mm diameter Insect Proof, Vented Flap Valve PVC/Stainless Steel **Code: RH8119-3-100V**	 100 x 50mm rectangular Gutter Outlet **Code: RH8153**	 90mm Tank Vacuum Kit - Poly/F-Glass/Flat wall Tank **Code: RHFWTV90** Concrete Tanks **Code: RHCONTV90**
 Leaf Eater Rain Head 80/90mm **Code: RH8119**	 90mm Tank Corrugated Overflow Outlet **Code: RH8123**	 90mm diameter Gutter Outlets for HALF ROUND Gutters **Code: RH8118-9**	 Downpipe Diverter **Code: RWDD**
 90/100mm Dual Fit First Flush Water Diverter Post or Wall KIT (Kit only add 300 diam pipe to suit volume required) **Code: RH8121-1**	 90mm 304 Stainless Steel M&F Insect Proof Screen (Fits RH8123, RH8124-1, RH 8124-2) **Code: RH8116**	 Flanged Tank Overflow Outlet 90mm X 90 degree bend M&F **Code: RH8124-1**	 100mm Roof Outlet **Code: RV369** 150mm Roof Outlet **Code: RV482**
 90mm First Flush Water Diverter - Downpipe **Code: RH8119-5**	 90mm diameter, Male Gutter Outlet **Code: RH8124**	 Plain Tank Overflow Outlet 90mm X 90 degree bend M&F **Code: RH8124-2**	 Outlet Strainer **Code: RWST**

Choosing the most suitable components for a rain harvesting system will be based upon whether the tank is set up as a wet or dry system.

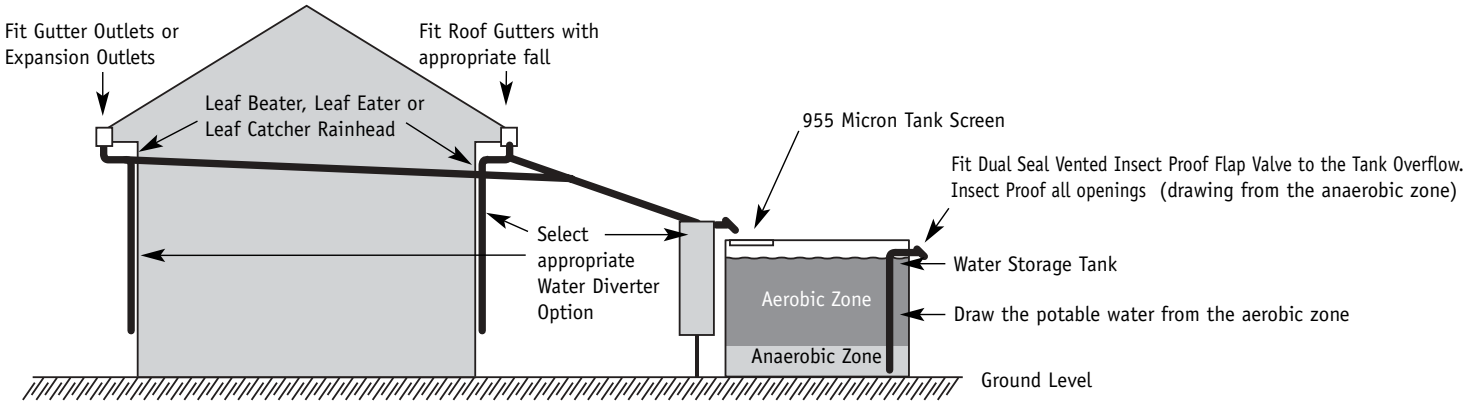
A TYPICAL "WET" SYSTEM (syphonic system)

A "Wet" System is a system where the pipes are fitted in such a way that when the rain stops the pipes to the tank do not drain out. They hold water. With this type of system, the pipes must be fitted with screens at each end to ensure that insects cannot enter and breed in the system. A "wet" system needs to be fitted with a First Flush Water Diverter at the tank, with a capacity equal to that of the pipes plus whatever amount is to be diverted from the roof. To lessen the amount of water to be diverted at the tank, a Downpipe First Flush Water Diverter can be fitted on the building to take the required first flush from the roof.



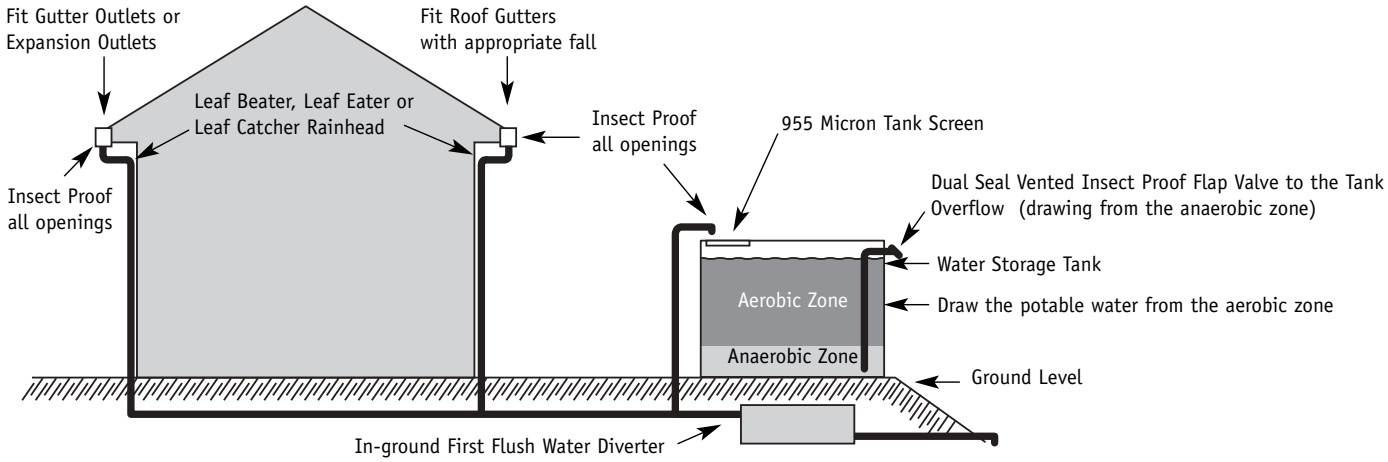
A TYPICAL "DRY" SYSTEM

A "Dry" System is a system where the pipes drain out and dry out after rain. A system where pipes do not hold water after the rain stops. Large buildings normally make it near impossible to have "dry" systems. For slightly sloping sites an In-Ground First Flush Water Diverter will turn a "wet" system into a "dry" system.



A TYPICAL "WET" SYSTEM CONVERTED TO A "DRY" SYSTEM

For slightly sloping sites an In-Ground First Flush Water Diverter will turn a "wet" system into a "dry" system.



Regular maintenance is extremely important. Clean rainhead and filter screens. Check to ensure that all insect proofing is in place and is effective. Check that the roof is free from overhanging branches and that there are no snags in the roof gutter.

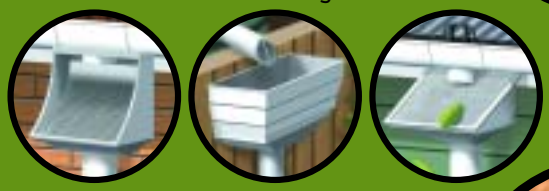
Rain Harvesting Syst
Safer

1 Spouting & Downpipes

Marley spouting systems and downpipes are key components in a Rain Harvesting System. Fit roof gutters and downpipes in compliance with Building Code E1 and Marley installation instructions. Ensure adequate fall is provided for and the correct number of downpipes are installed. Marley PVC spouting and downpipes do not rust, therefore metal contaminants from the gutter do not end up in water storage tank.

2 Leaf Diverters

Leaf and debris diversion rainheads should be fitted where water is captured for storage in tanks or as a debris removing device in urban areas. As the water flows from a gutter it brings the small pieces of debris with it. As water washes over the angle screen of the leaf diversion system the debris is forced away and the water continues through the screen.



Code: RH8120, RH8117, RH8119, RWLS

3 Downpipe Diverter

The Marley Downpipe Diverter can be installed easily to PVC downpipes allowing collection of fresh rainwater for tank filling, garden watering, aquariums etc. to reduce dependance on town supply.

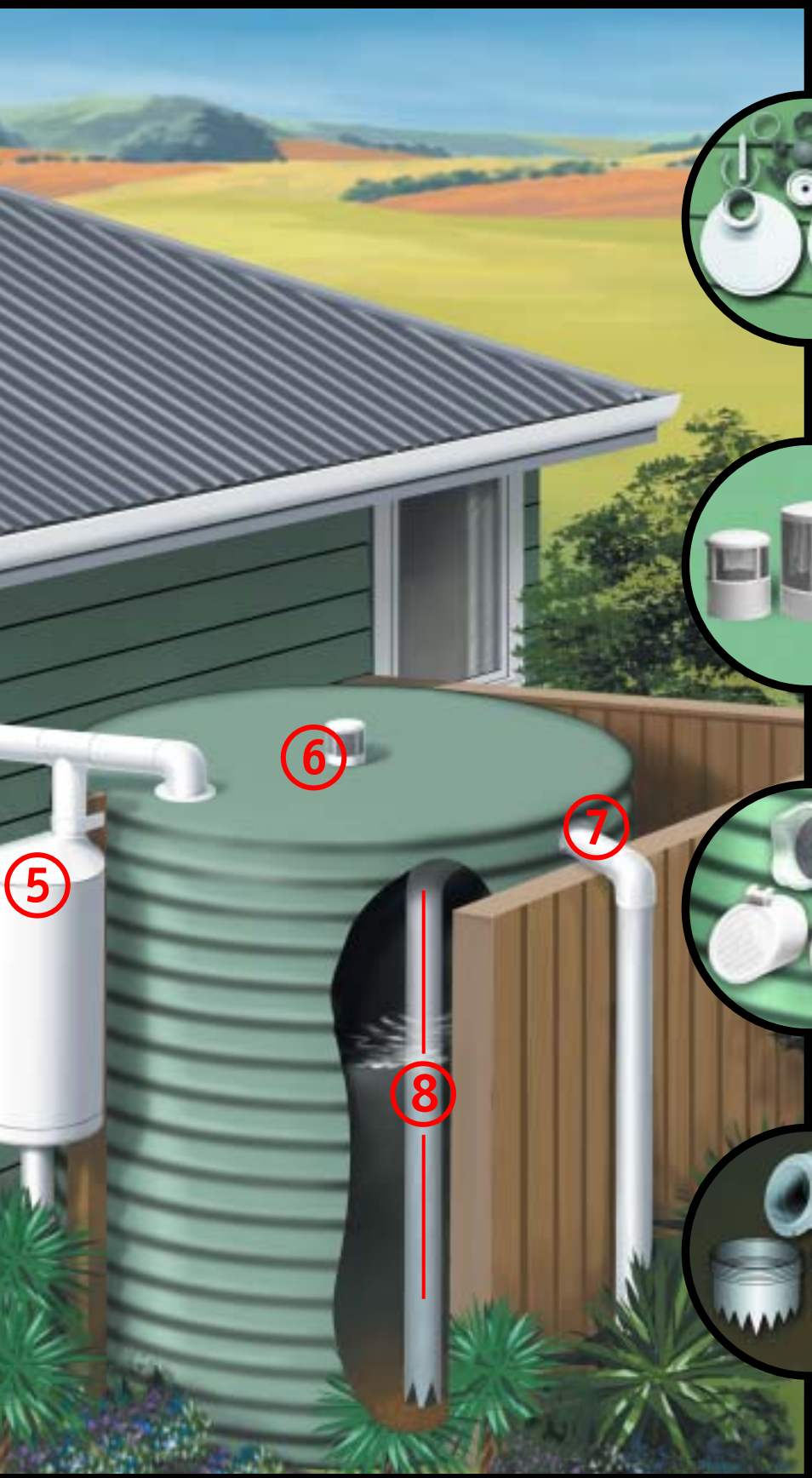
Code: RWDD

4 Expansion Outlets & Gutter Outlets

Use Marley expansion outlets and gutter outlets to ensure gutters drain out fully after rainfall stops. Where a building has Marley spouting the use of Marley expansion outlets is recommended.

Code: MC8.65, MC8.80, MC8.100, MS8.65, MS8.80, MS8.100, MF8.65S, MF8.80S, MF8.100S, RH8124, RH8118-5, RH8118-6, RH8153, 8118-9

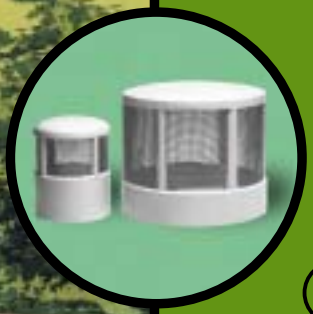
ems
solutions for rainwater collection.



5 First Flush Diverter

The First Flush Diverter reduces pollution of tank water by diverting the first flush of contaminated water away from the tank. There are no mechanical parts, nothing to wear out, its innovative and cost saving.

Code: RH8121-1, RH8119-5



6 Vent Cowl

Reduces the possibility of pressurising inside the tank allowing a flow of fresh air into the tank, so the water can breathe. The stainless mesh ensures the tank water is protected from insects and vermin.

Code: RH8119-9, RH8119-2

7 Flap Valves & Tank Overflow

Fitting insect proof flap valves and tank overflows to a storage tank ensures the tank is vented allowing air to circulate while protecting it from insects, vermin and other contaminants.

Flap Valve Code: RH8118-4, RH8119-3, RH8119-3-100V,
Corrugated Tank Overflow Code: RH8123

8 Tank Vacuum Kit

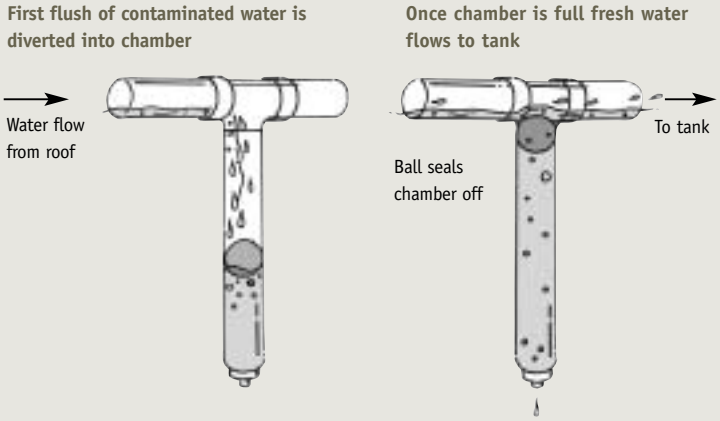
By fitting a Tank Vacuum Kit, when the tank fills up the overflow will be sucked from the bottom of the tank (from the "Anaerobic Zone" - dirty zone). Fine sediment which can contain harmful bacteria and heavy metals, eventually builds up in the bottom of the tank. Some finds its way out the outtake pipe and into the home and is ingested.

Code: RHFWTV90 (Poly/F-glass/Flat tanks), RHCONTV90 (Concrete tanks)

Water diversion is a key component to water quality. The main function of the first flush diverter is to prevent the first flow of water from the roof from entering the water storage tank.

When it begins to rain, the first flow of contaminated water is diverted into the diverter chamber. Once the chamber is full, the fresh water automatically flows into the storage tank.

The type of first flush diverter to be fitted should be chosen by assessing the quantity of water to be diverted.



FIRST FLUSH DIVERTERS

90/100MM DUAL FIT FIRST FLUSH DIVERTER – WALL MOUNTED OR FITTED UNDERGROUND

Can be installed to a new or existing downpipe system.

Add the appropriate length of 300mm diameter pipe to suit the quantity of water you wish to divert (see table below).

Calculation Method: m^2 Roof Area x Pollution Factor x 1000 + (length of wet pipe m x pipe cross section factor) = litres to be diverted

Pipe Allowance

Pipe Size	Pipe Cross Section Factor
RP65	3.30
RP80	4.40
90SW	5.75

Pollution Factor 0.0005 Minimal Pollution; open field
Pollution Factor 0.0020 Substantial Pollution; leaves, debris, bird droppings, various insect matter.

PRODUCT CODE	DESCRIPTION	VOLUME IN LITRES
CHR.300.1	300mm x 1metre	80 Litres
CHR.300.1.5	300mm x 1.5metre	120 Litres
CHR.300.2	300mm x 2metre	160 Litres
CHR.300.3	300mm x 3metre	240 Litres

Installation instructions

Step 1 - Determine the length of the Diverter Chamber (see table above). Make sure the Screw Cap is at least 150mm from the ground to allow for cleaning.

Step 2 - Bevel both ends of the 300mm pipe with an angle grinder so that the pipe fits easily onto the end caps.

For Post/Wall mounting glue (Marley Gold) the caps on each of the chamber making sure the cap outlets are both at 12 o'clock.

For an underground unit (horizontal) glue one cap at 12 o'clock and the other at 6 o'clock.

Step 3 - Attach the wall/post bracket in position.

Place the diverter chamber into the bracket and secure the chamber to the wall at the top with a 100mm pipe bracket.

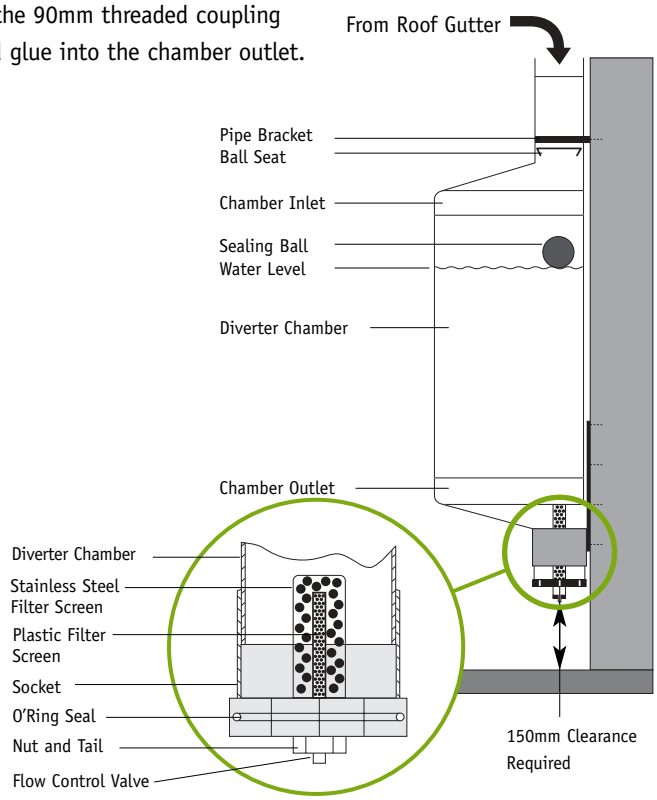
Step 4 - Connecting to the Chamber Inlet

If connecting to 90mm pipe; insert the ball seat with the small end (seat) down into the top of the chamber inlet and insert the infeed pipe directly hard down on the diverter seat.

If connecting to a 100mm pipe: Insert the ball seat with the small end (seat) down into the top of the chamber inlet and insert and glue the 20mm (long) 90mm spacer (provided) and push the spacer hard down on top of the seat to hold it in place. Attach the 100mm infeed pipe.

Step 5 - Connecting to the Chamber Outlet

Glue the 100mm long 90mm diameter pipe provided into the plain end of the 90mm threaded coupling and glue into the chamber outlet.



Insert the Stainless Steel filter into the socket with the open end of the filter facing downwards, insert the 20mm (long) 90mm pipe (spacer) into the socket to hold the filter in place.

Fit the Screw cap to the socket making sure that the "O" Ring is in place in the cap. Insert the plastic screen into the cap, select the appropriate Flow Control Valve (rubber seal with holes) with the smallest hole giving slowest flow. Place Flow Control Valve in the Nut and Tail and screw the Nut and Tail into the cap.

To install the unit underground, ensure that before Chamber Inlets and Outlets are glued to the Chamber, the Chamber Inlet is at 12 O'clock and the Chamber Outlet at 6 O'clock to ensure water can drain out effectively.

Hint: Make sure diverter water flows away from house or tank. Use diverted water for gardens.

Maintenance

To ensure continuing function, unscrew the screw cap on a regular basis to allow debris to fall out. Hose or wash the filter screen if needed and check and clean the flow control valve.

90MM FIRST FLUSH DIVERTER – DOWNPIPE

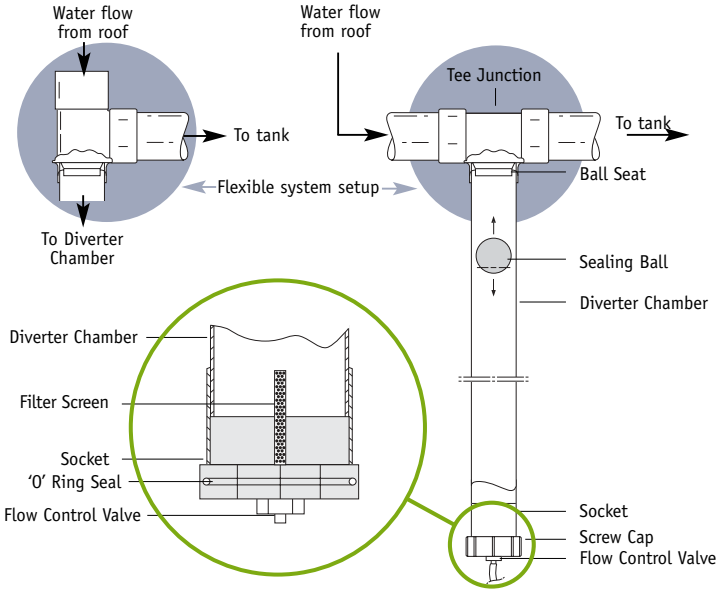
A simple First Flush Diverter requiring minimal maintenance.

Can be installed to a new or existing downpipe system. Use a Marley adaptor to install with a 65mm or 80mm downpipe system (RA65.90 or RA80.90).

Add the appropriate length of 90mm diameter pipe to suit the quantity of water you wish to divert.

Installation Instructions

Step 1 - Determine the length of the Diverter Chamber (cut 90mm pipe as long as possible) making sure the Screw Cap is at least 150mm from the ground to allow for removal and cleaning.



Step 2 - Place the Ball Seat into the Tee Junction and then fit the Diverter Chamber up against the Ball Seat and hold until the glue sets. Then fit the socket to the bottom end of the Diverter Chamber.

Step 3 - Fix the assembled chamber to the wall in the desired position using the steel Pipe Brackets.

Step 4 - For wall mounting, connect a M & F Elbow to the Diverter Chamber and connect the downpipe. Bracket if necessary. Fit an elbow to the Tee Junction inlet and connect to the bottom of the selected Leaf Diverter.

Step 5 - Place the Sealing Ball into the Diverter Chamber and attach the Screw Cap.

Step 6 - Select the appropriate Flow Control Valve and insert into the Nut and Tail. Insert plastic Filter Screen into Screw Cap and attach the Nut and Tail.

Maintenance

To ensure continuing function, unscrew the screw cap on a regular basis to allow debris to fall out. Hose or wash the filter screen if needed and check and clean the flow control valve.

DOWNPIPE DIVERTER

The Marley Downpipe Diverter can be installed easily to Marley PVC downpipes allowing collection of fresh rainwater for tank filling, garden watering, etc.

The Downpipe Diverter is especially useful for those wishing to reduce dependence on reticulated water.

The Downpipe Diverter should not be used in a 'wet system'.

Dimensions - 80mm pipe that can easily be adapted to fit all Marley downpipe profiles.

Installation Instructions

Cut a 320mm gap in the downpipe, join the Downpipe Diverter to the enclosed attachment.

Attach the Diverter to the downpipe, starting at the top with the diverter offset slightly, then push up and across.

Let the Diverter then slide down into the downpipe.

To Use - Simply lower the side arm and ensure it is clipped in and on a downwards slope.

LEAF DIVERTERS

Leaf and debris diversion rainheads should be fitted where water is captured for storage in tanks or as a debris removing device in areas on reticulated water.

As the water flows from the spouting it brings the small pieces of debris with it and as water washes over the angle screen of the leaf diversion system the debris is forced away and the water continues through the screen.

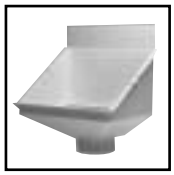
LEAF SLIDE

The leafslide has been designed for ease of installation. The filter box has anchor tabs provided for screwing or nailing it to the wall or fascia. The leafslide has a standard 90mm stormwater outlet which is easily adapted to fit Marley downpipe.

Best performance is achieved by using 65mm diameter downpipe above the filter screen.

Dimensions - 280mm in length. The top of the Leafslide is 120mm by 100mm deep.

LEAF EATER - for high rainfall areas



The ultimate high performance rainhead for use in heavy rainfall areas. Primary screen of 6mm aperture and an insect proof secondary stainless steel screen of 0.995mm.

To install mount the main box evenly under the gutter outlet or expansion outlet by securing it to the fascia with pop rivets or screws, making sure the backing plate fits snugly up to the bottom edge of the gutter but not between the fascia and back of the gutter.

Place the insect screen in the main box over the outlet ensuring that the screen clips into place. Replace the primary screen, making sure the screen fits inside the front lip of the Leaf Eater®, and secure in place with the clips provided. The Leaf Eater® is now ready for connection to the downpipe. Do not glue the Leaf Eater® to the down pipe. Secure downpipe with a screw for easy replacement.

Dimensions - 290mm in length, 270 wide and 190mm in depth

LEAF BEATER - for low rainfall areas

A high performance rain head with a 4mm aperture adjustable elliptical primary screen. Sheds leaves from the gutter onto the ground. Comes complete with an integrated directional gutter outlet and an insect proof stainless steel low flow rate secondary screen. For midmounting remove the top directional outlet. Bevel the entry downpipe at 60° and allow 50mm clearance between the pipe and screen.

Dimensions - 280mm in length, 210mm wide and 180mm in depth.

LEAF CATCHER - gutter or wall mounted

A budget leaf and debris catcher with two horizontal internal screens.
Screen one: 6mm aperture screen
Screen two: 0.955mm stainless steel insect proof screen.

Cleaning - Simply lift the screen out and empty and replace when cleaned. Perfect for low rain fall, low leaf areas where tank water is required. Fits both 90 and 100mm PVC pipe.

Dimensions - 210mm in length, 290mm wide and 190 mm in depth.

TANK VACUUM KIT

Fine sediment, which can contain harmful bacteria and heavy metals, eventually builds up in the bottom of the tank and some can find its way out the outtake pipe and into the home and can be ingested. This can be removed by using a tank vacuum kit.

How the Tank Vacuum System Works

Water flows into the tank through your existing pipework. The 90mm diameter Tank Vacuum Kit becomes charged with water and a suction action starts as the excess water exits the tank. This exiting water sucks the sediment/waste from the bottom of the tank (from the "Anaerobic Zone" - dirty zone) up the syphon pipe and out the tank. Position the tank vacuum kit directly over the outtake. Cut the vacuum pipe so that the serrated pick up rests on the bottom of the tank. The anti syphon feature prevents all the water in the tank from syphoning.

AUCKLAND
Mahia Road, Manurewa, Private Bag 802 Manurewa
Sales Department: Telephone 09 279 2777
Direct Fax 09 279 2778 Freefax 0800 652 621
Head Office: Telephone 09 279 2799 Fax 09 279 2798
Sales Hotline: 0800 222 922

CHRISTCHURCH
Shands Road, Hornby, PO Box 16233 Christchurch
Sales Hotline: 0800 222 922

For a quotation, installation or more information call free
0800 MARLEY (0800 627 539)