Rainharvesting Systems

Safer solutions for rainwater collection

Rainwater Solutions

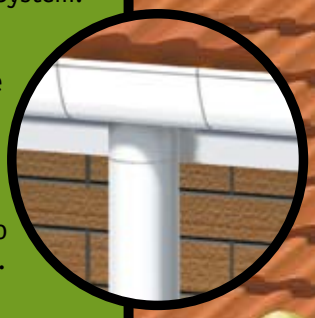
MARLEY®

Rain Harvesting Systems

Safe solutions for the collection,

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 your water storage tank.



2 Outlet Strainer

The Marley Outlet Strainer forms part of the Marley debris diversion range, stopping large leaves and other debris from entering the downpipe.

3 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.

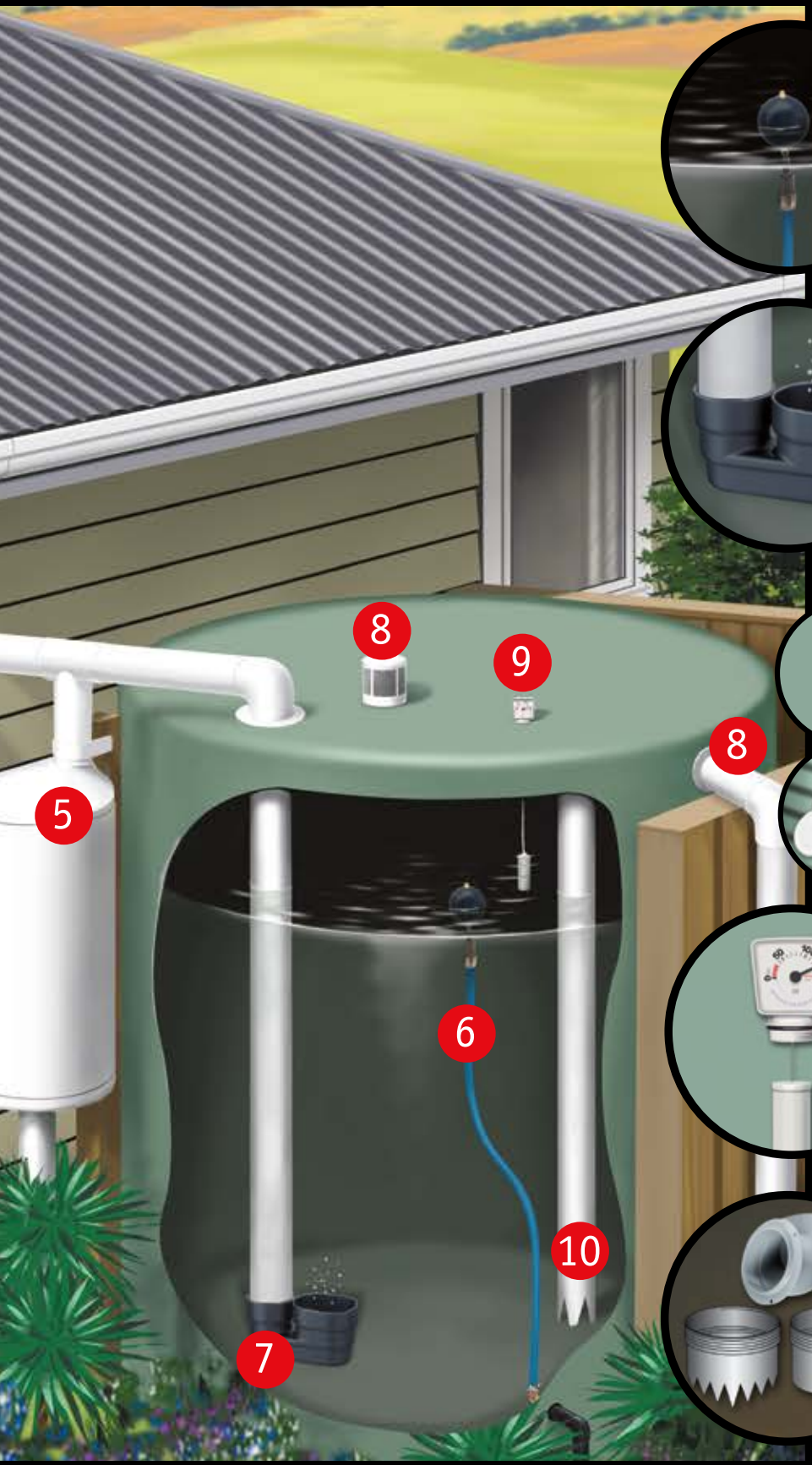
4 Downpipe Diverter

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

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.

storage and distribution of rain water.



6 Floating Out-take Kit

This is connected to the tank outlet to the house and ensures you are drawing the cleanest water in the tank. The Floating Out-take floats inside the tank, suspended just below the water surface where the cleanest water lies.

7 Calmed Inlet

Provides a calmed inlet for rainwater entering the storage tank. The calmed inlet avoids distributing sediment in the bottom of the tank.

8 Vent Cowls, Flap Valves & Overflow

Vent Cowls reduce the possibility of pressurising inside the tank allowing a flow of fresh air into the tank, so the water can breathe. 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.

9 Tank Gauges

Used to measure water levels in the tank.

10 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).

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

Filtration and Diversion Products

Leafslide®
Available in copper/ titanium **Code: RWLS, RWLS.COP, RWLS.TTN, RWLS.GYF, RWLS.IRO**

Leaf Beater
80/90mm dual fit
Code: RH8120

Leaf Eater
80/90mm dual fit
Code: RH8119

Leaf Catcher
90/100mm dual fit
Code: RH8117

Outlet Strainer
Code: RWST

Downpipe Diverter
Code: RWDD

First Flush Diverter Products


300mm First Flush Diverter Kit
(Kit only add 300 diam pipe to suit volume required)
Code: RH8121-1


90mm First Flush Diverter Kit
Code: RH8119-5

Tank Improvement Products

90mm diameter Insect Proof, Vented Flap Valve PVC/ Stainless Steel
Code: RH8119-3

Plain Tank Overflow Outlet 90mm X 90 degree bend M&F
Code: RH8124-2

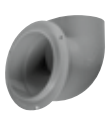
Floating Out-take Collar
Code: RHFO.C

Tank Gauge
(Mechanical or Wireless)
Code: RHMG, RHRA

90mm 304 Stainless Steel M&F Insect Proof Screen
(Fits RH8123, RH8124-1, RH 8124-2)
Code: RH8116

50mm diameter Vent Cowl PVC & S/Steel Insect Proof Screen
Code: RH8119-9

Floating Out-take
Length of hose is 2 metres and 25mm diameter to fit a 25mm hose tail.
Code: RHFO



Flanged Tank Overflow Outlet 90mm X 90 degree bend M&F
Code: RH8124-1

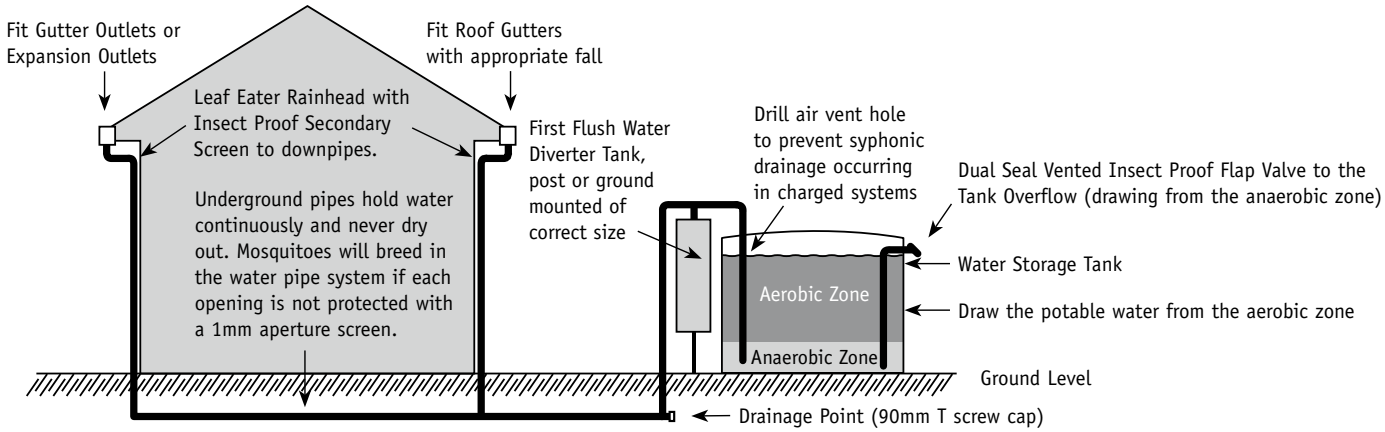
90mm Tank Vacuum Kit - Poly/F-Glass/Flat wall Tank
Code: RHFWTV90
Concrete Tanks
Code: RHCONTV90

Calmed Inlet
Code: RHCI

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.

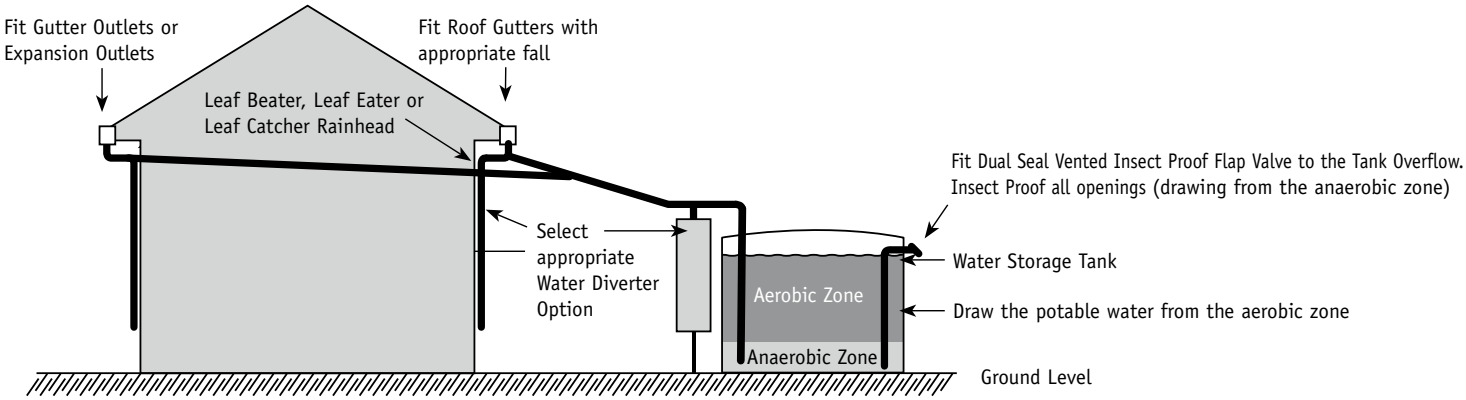
A TYPICAL "WET" SYSTEM (syphonic system)

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.



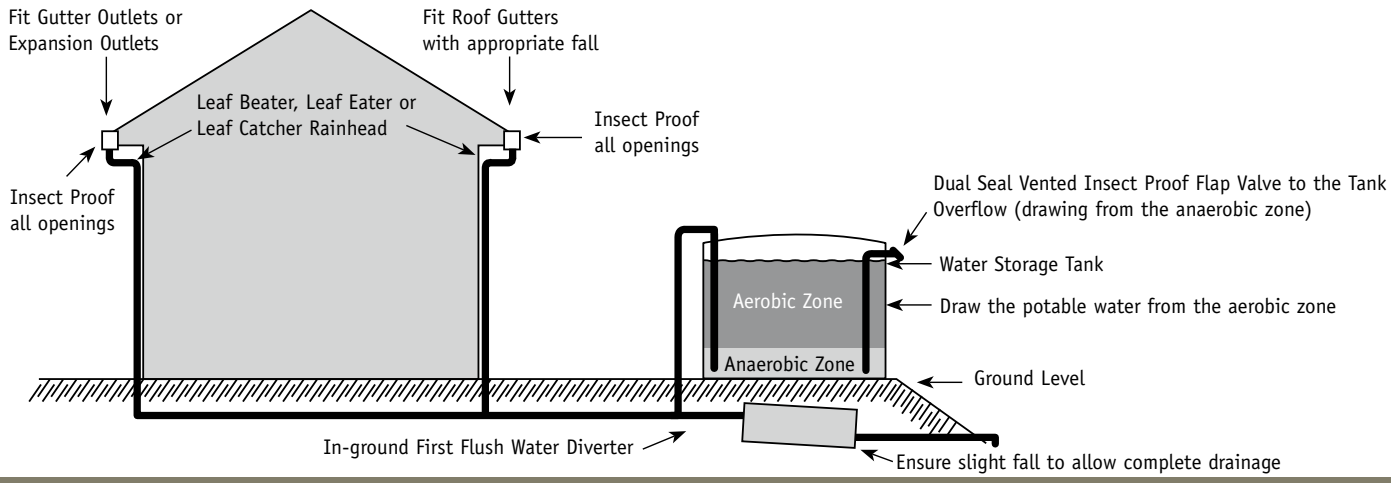
A TYPICAL "DRY" SYSTEM

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.



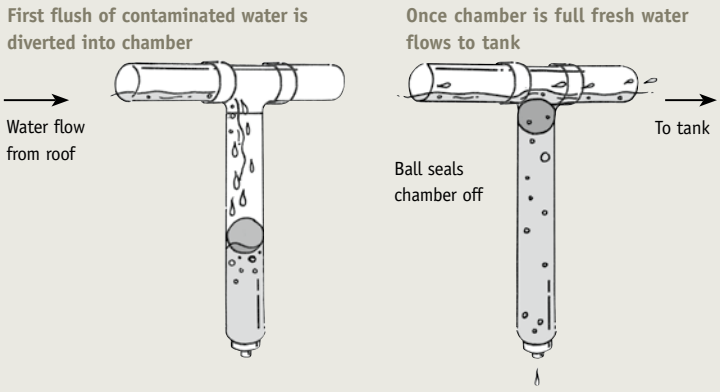
Regular maintenance is extremely important. Clean rainhead and filter screens. Check to ensure that all insect proofing is in place and is effective. Check that the roof is free from overhanging branches and that there are no snags in the roof gutter.

FIRST FLUSH DIVERTERS

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.



300MM FIRST FLUSH DIVERTER

Can be installed to a new or existing downpipe system, designed to fit 90 or 100mm pipe and can be wall-mounted or fitted underground.

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

Calculation Method: 300mm First Flush Diverter KIT only
m^2 Roof Area x Pollution Factor +
(Length of wet pipe(m) x pipe cross-section factor) = litres to be diverted

CATEGORY	DESCRIPTION	POLLUTION FACTOR	PIPE SIZE	PIPE CROSS SECTION FACTOR
Minimal Pollution	Open field	0.5	65mm Round Downpipe	3.30
Average Pollution	Some trees & shrubs in neighbourhood but not directly adjacent to collection area	1	80mm Round Downpipe	4.40
			90mm Stormwater pipe	5.75
Substantial Pollution	Trees and foliage on and around property. Leaves, debris, bird droppings, various insect matter	2	100mm Stormwater pipe	8.60

300MM FIRST FLUSH DIVERTER

PRODUCT CODE	DESCRIPTION	VOLUME IN LITRES	MAX SERVICABLE ROOF AREA (Minimal pollution in dry system)
FFD.300.1.5	300mm x 1.5 metre (white)	112 Litres	224m^2
FFD.300.2	300mm x 2 metre (white)	147 Litres	294m^2

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.

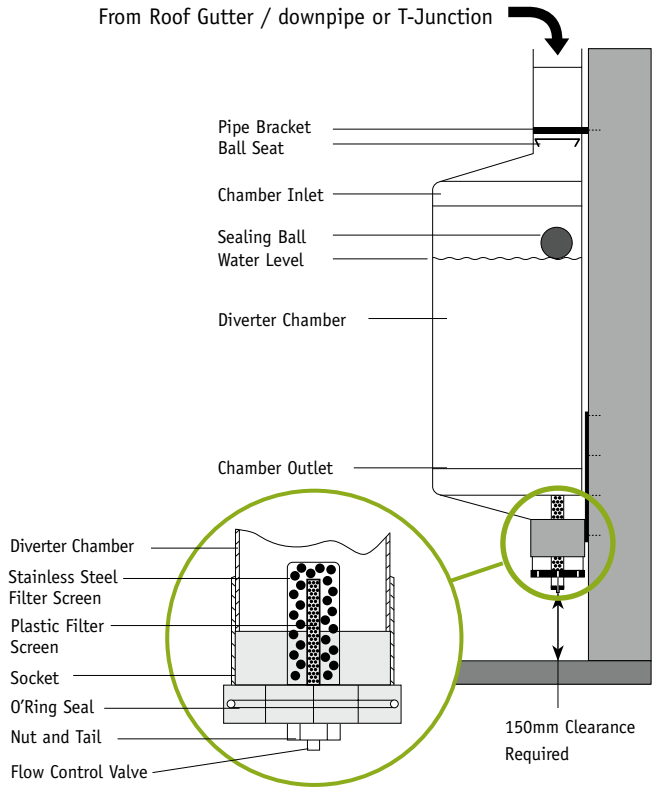
For Post/Wall mounting glue (Marley Gold) the caps on each of the chamber making sure the cap outlets are both at 12 o'clock.

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. Use a t-junction to divert the pipe into the chamber inlet.

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. Use a t-junction to divert the pipe into the chamber inlet.

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.

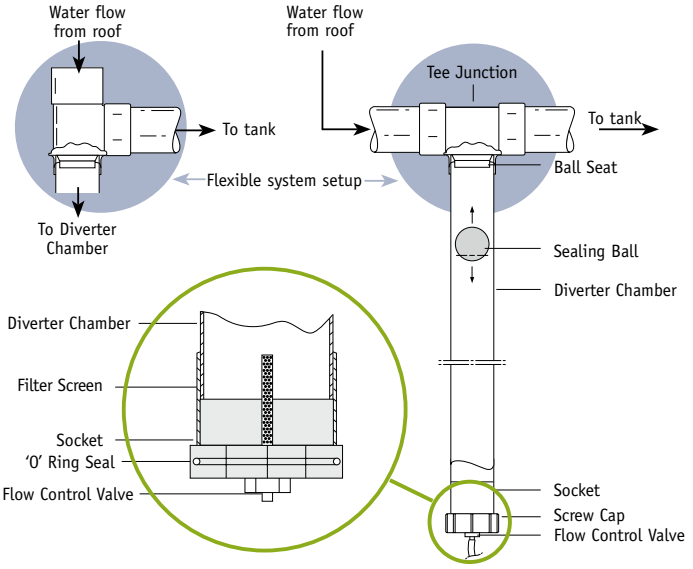
90MM FIRST FLUSH DIVERTER

A simple First Flush Diverter requiring minimal maintenance.

Can be installed to a new or existing downpipe system and is designed to be installed in-line with each downpipe connecting to the tank.

LENGTH OF CHAMBER	VOLUME IN LITRES	MAX SERVICABLE ROOF AREA (Minimal pollution in dry system)
1 Metre	5.7 Litres	11.4m^2
2 Metres	11.4 Litres	22.8m^2
3 Metres	17.1 Litres	34.2m^2

NB. The 90mm First Flush diverter requires a section of Marley Stormline 90mm pipe sold separately in 1m, 3m and 6m lengths.



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.

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.

DEBRIS AND WATER DIVERSION

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.

LEAFSLIDE® - for low rainfall areas

Suitable for new or existing downpipes, the Leafslide® is manufactured from uPVC and features a stainless steel mesh screen, ensuring over 95% of water is captured whilst diverting leaves and debris. Its sleek compact design is designed for small to medium roof areas in urban locations that experience low – average annual rainfall.

Dimensions - 135mm width, 145mm depth, 282mm height.

Flow rate: 3.5 litres/sec (95% water capture with clean water)

Available in:

LEAF BEATER - for medium rainfall areas

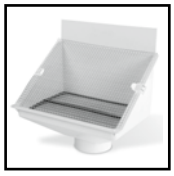
Suitable for new or existing downpipes, the Leaf Beater features Clean Shield™ a patented technology for advanced debris shedding.

It is designed for medium size roof areas that experience average annual rainfall. 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 - 211mm width, 183mm depth, 280mm height.

Flow rate: 3.5 litres/sec (99% water capture with clean water)

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.

Dimensions - 275mm width, 188mm depth, 289mm height.

Flow rate: 3.5 litres/sec (100% water capture with clean water)

LEAF CATCHER - gutter or wall mounted

Suitable for new or existing downpipes, the Leaf Catcher is a large capacity debris diverter and features a horizontal internal stainless steel screen that traps debris and keeps mosquitoes out for those collecting rainwater.

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 length, 290mm width, 190mm depth.

OUTLET STRAINER

The Marley Outlet Strainer is made from UV resistant black polypropylene and is able to be used with 65mm, 80mm or 100mm outlets. Cost effective, simple to install and ideal for preventing large debris such as sticks and tennis balls from entering your downpipe system.

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.

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

For further installation information please refer to the technical section of the applicable product page at www.marley.co.nz

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FUTURE-PROOF BUILDING

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