

# Rain Harvesting Systems

Safer solutions for rainwater collection



# Rain Harvesting Systems

safe solutions for the collection,

## 1 Marley Spouting & Downpipe Systems

The harvesting of safe, quality potable rainwater starts with the spouting and downpipes. Marley products comply with AS/NZS 4020: 2005 so are certified safe for the collection of drinking water. Available in a variety of profiles and colours, Marley spouting and downpipe systems carry a 15 year guarantee. Made of uPVC they will not rust, so give off no metal contaminants to end up in your water storage tank.

## 2 Outlet Strainer

The Marley Outlet Strainer stops large debris such as sticks and tennis balls entering the downpipe system from the spouting.

## 3 Leaf Diverter

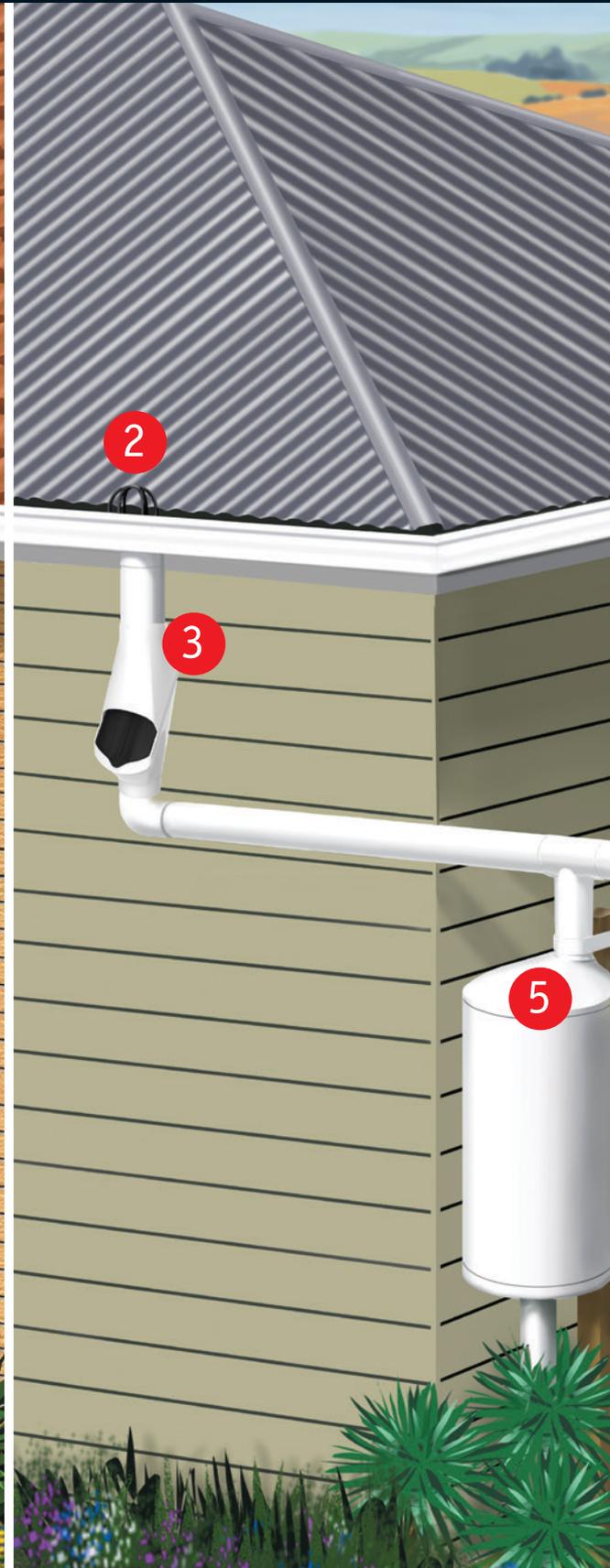
The Marley Curve™ significantly curbs the amount of solid matter that can flow into a tank. This reduces sediment build up which affects water quality and increases the strain on in-line filters and pumps. Curve has a unique screen design that minimises water wastage by drawing water through while keeping leaves and other debris out. Other options also available.

## 4 Downpipe Diverters

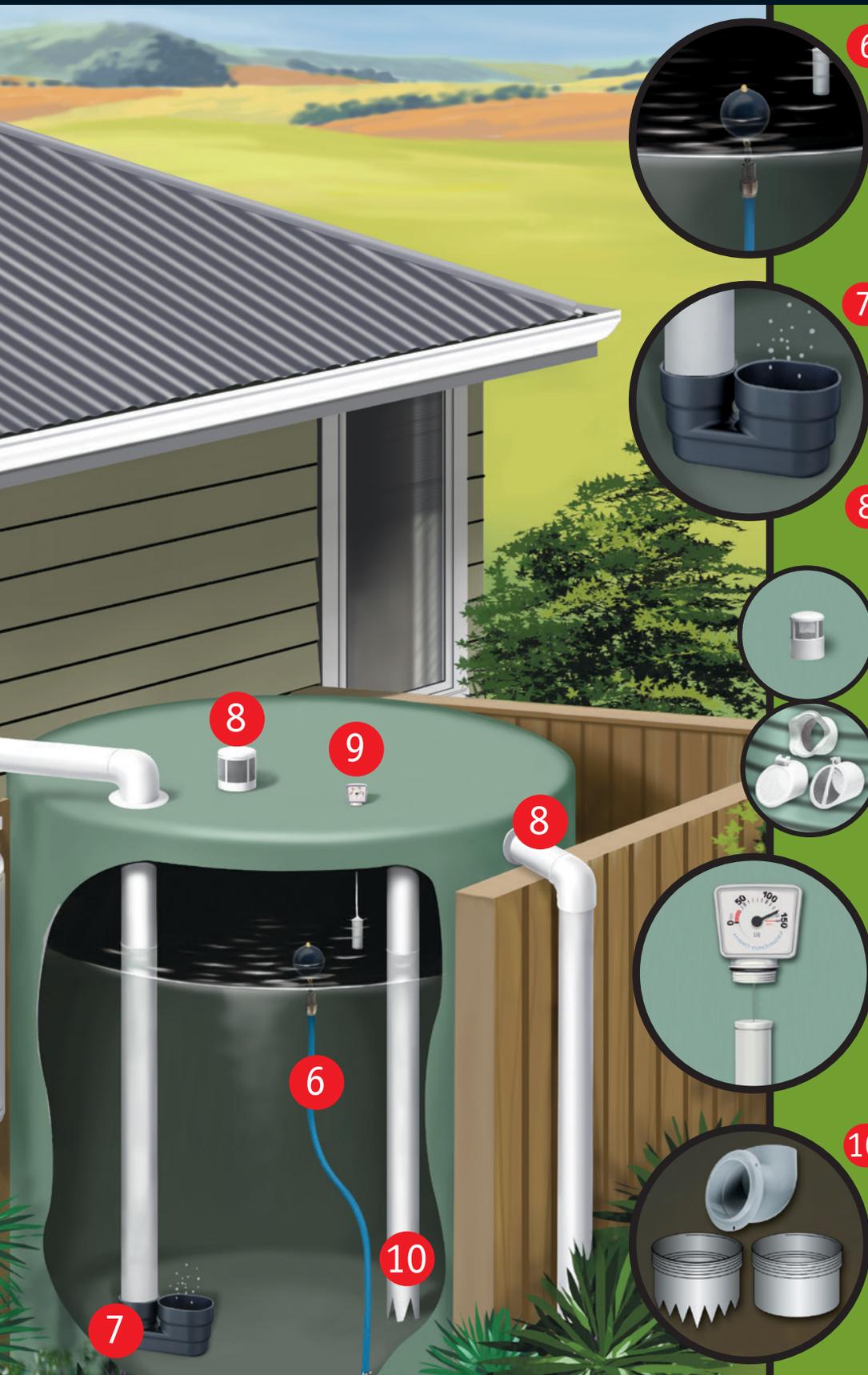
The Marley Twist® captures free rainwater for a multitude of uses. It features an easy on-off "twist" control and direct connects to a tank via a standard hose fitting. It features its own leaf filter and is ideal for diverting rainwater to an additional small tank as and when required. The Marley Downpipe Diverter is ideal for stopping debris entering the tank while spouting is being cleaned.

## 5 First Flush Diverter

Long term build-up of foreign matter on the roof is often washed into the tank in the first heavy rain. The First Flush Diverter is critical for reducing pollution of tank water by diverting this first flush of contaminated water away from the tank. Available in 90mm or 300mm kits.



# 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 uPVC 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 Marley 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 leaf and debris diverters 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

### Debris and Rainwater Diverters\*

	CURVE™ Leaf Diverter Available in six colours Code: CURVE, CURVE.GYF, CURVE. IRO, CURVE.BLK, CURVE.COP, CURVE.TTN	 <b>PRODUCT OF THE YEAR 2018</b>	TWIST® Rainwater Diverter <sup>^</sup> Available in six colours Code: TWIST, TWIST.GYF, TWIST.IRO, TWIST.BLK, TWIST.COP, TWIST.TTN		Downpipe Diverter Code: RWDD		Outlet Strainer Code: RWST
--	--	---	--	---	---------------------------------	---	-------------------------------



<sup>^</sup>Marley Twist® won Product of the Year 2018 at the New Zealand Plumbing Awards.

\*Also see back page

### First Flush Diverters

	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
--	--	---	---

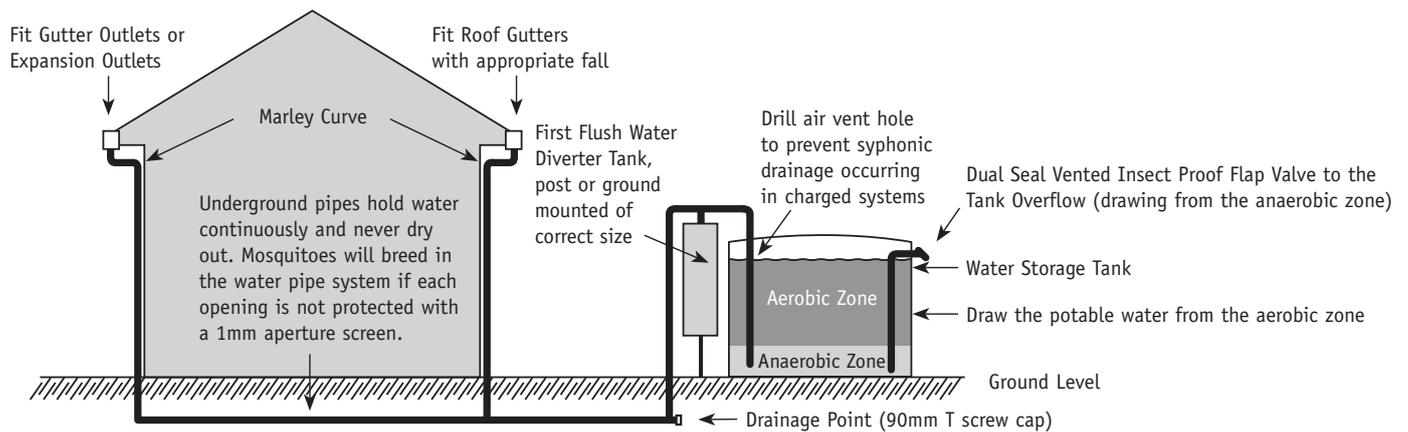
### Tank Improvement Products

	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: RHF0.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: RHF0		
	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.

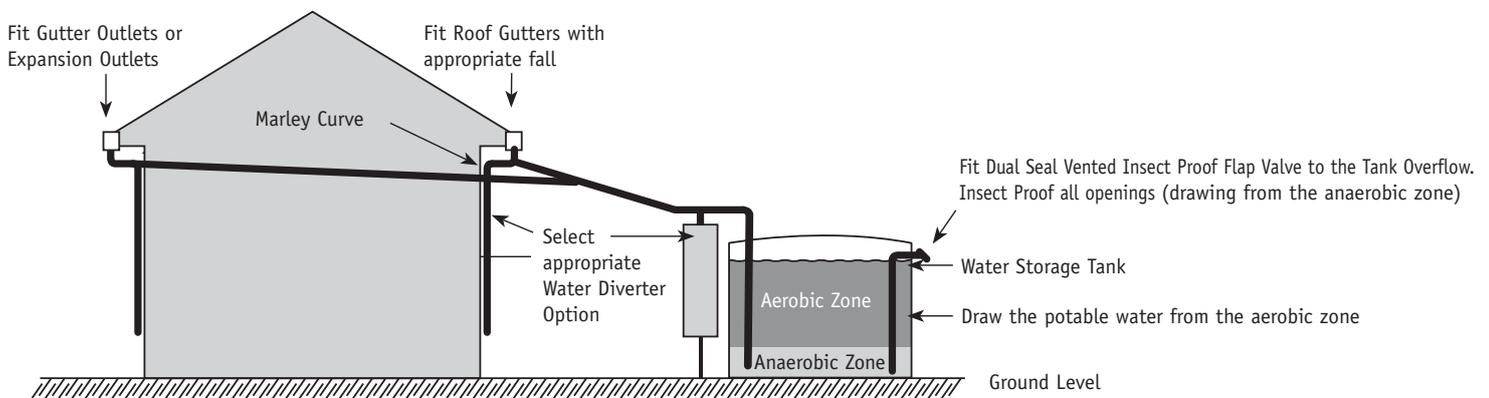
**A TYPICAL “WET” SYSTEM (syphonic system)**

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.



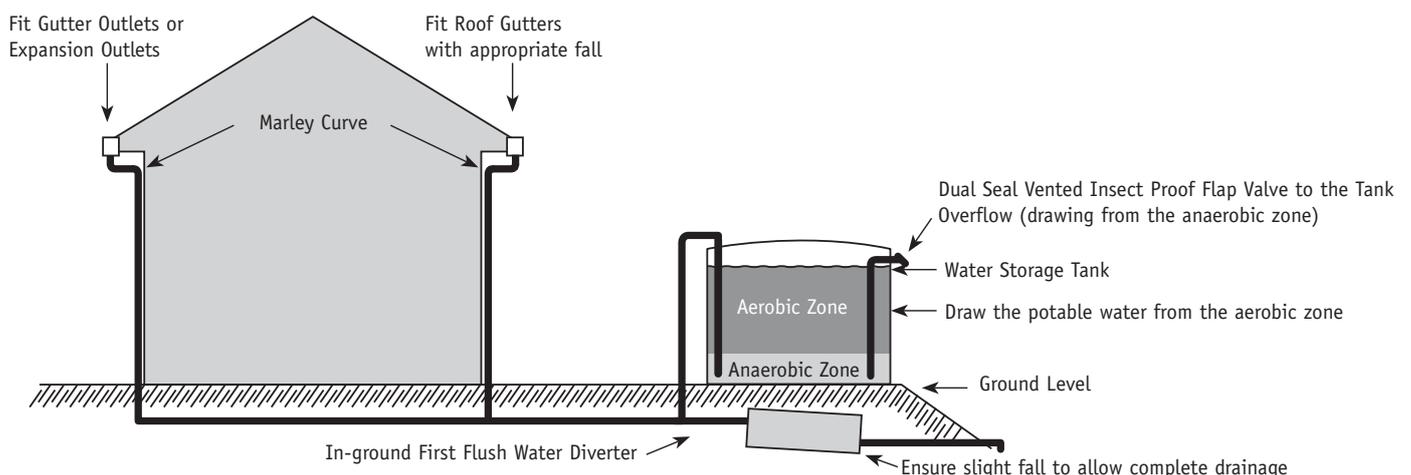
**A TYPICAL “DRY” SYSTEM**

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.



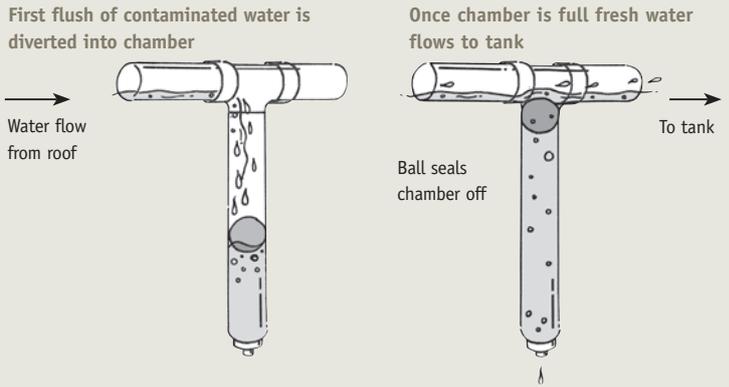
Regular maintenance is extremely important. Clean rainhead and filter screens. Check to ensure that all insect proofing is in place and is effective. Check that the roof is free from overhanging branches and that there are no snags in the roof gutter.

# 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

$$m^2 \text{ Roof Area} \times \text{Pollution Factor} + (\text{Length of wet pipe(m)} \times \text{pipe cross-section factor}) = \text{litres to be diverted}$$

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 <sup>2</sup>
FFD.300.2	300mm x 2 metre (white)	147 Litres	294m <sup>2</sup>

**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.

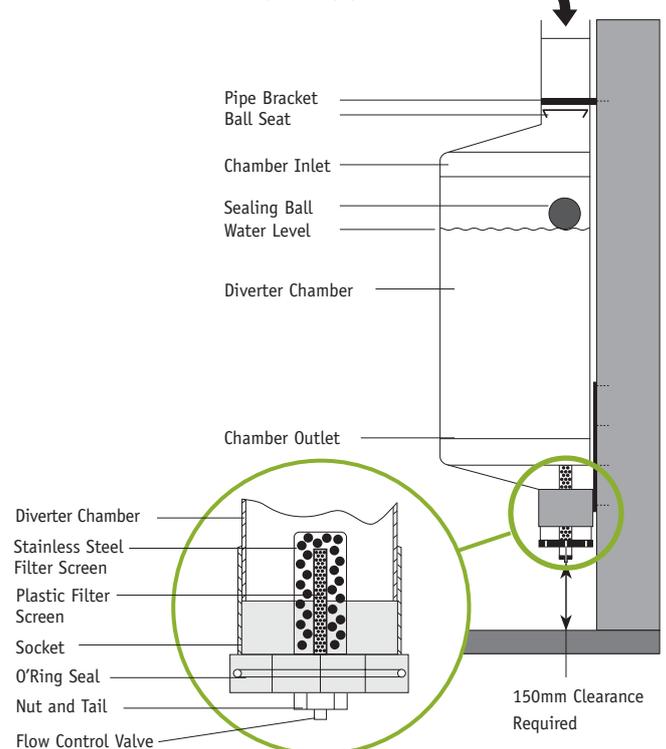
Place the diverter chamber into the bracket and secure the chamber to the wall at the top with a 100mm pipe bracket.

### 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

From Roof Gutter / downpipe or T-Junction



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

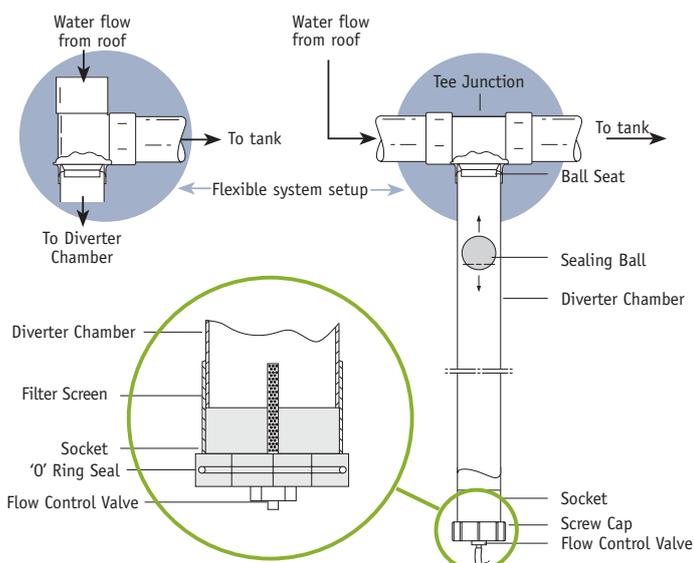


A simple First Flush Diverter requiring minimal maintenance.

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 <sup>2</sup>
2 Metres	11.4 Litres	22.8m <sup>2</sup>
3 Metres	17.1 Litres	34.2m <sup>2</sup>

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 Diverters



### MARLEY CURVE™

Suitable for new or existing downpipes, the Marley Curve has been designed in New Zealand to meet all rainfall conditions. Curve fits anywhere on the downpipe and does not need to be fixed to cladding or spouting. Containing no metal parts, Curve will not rust. It also features a quick release upper body for easy removal of its innovative screen for cleaning.

**Dimensions:** 330mm high; 126mm wide; 133mm deep. Fits Marley RP80® 80mm downpipe system. Adaptors available for other sizes.

Available in:

STRATUS®  
DESIGN SERIES



### LEAF BEATER

Mount mid or top of downpipe. PVC body with Clean Shield™ stainless steel screen. Features VH Pivot™ outlet that swivels to suit vertical or horizontal downpipes. Fits Marley RP80® 80mm round downpipe or Marley 90mm Stormline pipe. Adaptor available to fit Marley RP65® 65mm round downpipe.

**Dimensions:** 280mm high, 211mm wide, 183mm deep.



### LEAF EATER

Mount mid or top of downpipe. PVC body with 6mm aperture screen for large debris and 1mm aperture mosquito proof stainless steel mesh screen. Fits Marley RP80® 80mm round downpipe or Marley 90mm Stormline pipe. Adaptor available to fit Marley RP65® 65mm round downpipe.

**Dimensions:** 289mm high, 275mm wide, 188mm deep.



### LEAF CATCHER

Spouting or wall mounted. PVC body with dual 6mm aperture screen for large debris and 1mm aperture mosquito proof stainless steel mesh screen. Fits Marley Magnum® 100mm round downpipe or Marley 90mm Stormline pipe. Adaptors available to fit Marley RP80® 80mm round downpipe.

**Dimensions -** 210mm high, 290mm wide, 190mm deep.



### 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.

## Rainwater Diverters



### MARLEY TWIST®

The Marley Twist lets you capture extra rainwater as you need it via a convenient on-off 'twist' control. It quick connects to a secondary tank via a standard hose fitting. This additional water supply can be used for watering the garden, topping up pools, general cleaning or emergency supply.

**Dimensions:** 230mm high, 97mm wide including hose spigot. Fits Marley RP80® 80mm downpipe system. Adaptors available for other sizes.

**To Use:** Direct connect to a collection tank. Simply "twist" the upper body to the 'on' position when a fill is required, then twist to 'off' when finished.

Available in:

STRATUS®  
DESIGN SERIES



### DOWNPIPE DIVERTER

The Marley Downpipe Diverter is ideal when cleaning roofing and spouting. It removes the majority of debris flushed down the downpipe without the need to disconnect the downpipe. Note: Do not use the Downpipe Diverter in a 'wet' system.

**Dimensions -** 335mm high. Fits Marley RP80® 80mm downpipe system.

**To Use:** Lower the diverter arm and ensure it is clipped in a downwards sloping position.

**For further installation information please refer to the technical section of the applicable product page at [www.marley.co.nz](http://www.marley.co.nz)**

### SUSTAINABLE MANUFACTURING

Marley is committed to creating environmentally sustainable processes and products and was the first plastics manufacturer in New Zealand to achieve ISO14001 registration. We are also Best Environmental Practice certified for our entire range of manufactured uPVC systems. This means we get our raw materials from sustainable and responsible sources, continuously work on our manufacturing processes to reduce our environmental footprint and accept our products back at the end of their useful life for recycling.



**DISCLAIMER** This technical catalogue has been compiled by Marley New Zealand Limited ("The Company") to promote better understanding of the technical aspects of the Company's products to assist users in obtaining from them the best possible performance. The technical catalogue is supplied subject to acknowledgment of the following conditions: The technical catalogue is protected by Copyright and may not be copied or reproduced in any form or by any means in whole or in part without prior consent in writing by the Company. Product specifications, usage data and advisory information may change from time to time with advances in research and field experience. The Company reserves the right to make such changes at any time without notice. Correct usage of the Company's products involve engineering judgements which cannot be properly made without full knowledge of all the conditions pertaining to each specific installation. The Company expressly disclaims all and any liability to any person whether supplied with this publication or not in respect of anything and of the consequences of anything done or omitted to be done by any such person in reliance whether whole or partial upon the whole or any part of the contents of this publication. No offer to trade, nor any conditions of trading, are expressed or implied by the issue or content of this manual. Nothing herein shall override the Company's Conditions of Sale, which may be obtained from the Registered Office or any Sales Office of the Company. This technical catalogue is and shall remain the property of the Company, and shall be surrendered on demand to the Company. Actual colours may vary slightly from those shown. For a more accurate colour comparison, please request a product sample.

For more information: **0800 MARLEY (0800 627539)**

[www.marley.co.nz](http://www.marley.co.nz)

an *OAliaxis* company

Rainwater Solutions

