# water diverters
FIRST FLUSH

# water quality first

## downspout, post/wall mounted and in-ground diverters

**Available in kit form – just add PVC pipe**

- **Simple, effective and easy to install**
- **Includes Slow Release Control Valve - empties after rain and resets automatically**
- **Can be painted to match the home**
- **No mechanical parts – nothing to wear out**

- Helps reduce pollution of rainwater collected in tanks, barrels or cisterns!
- Essential when using rainwater inside or outside
- Amount of water diverted is customized to specific requirements of each roof
- Diverts contaminated water to the garden
- Protects rainwater pumps and internal appliances

first flush water diverters

water diverters
FIRST FLUSH

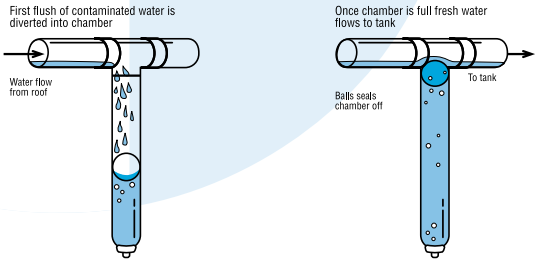
## How does a First Flush Water Diverter work?

Fitting an appropriately sized water diverter, often called 'roof washers', is critical to achieve good quality water. Water diverters improve water quality and reduce tank maintenance by **preventing the first flush of water, which may contain roof contaminants, from entering the tank or cistern.** They help ensure cleaner water is available for use, which helps **protect rainwater pumps and internal household appliances** such as clothes washing machines, toilets, hot water systems, etc.

When it rains, water slowly builds up in the roof guttering system before it exits through the downpipe. **The first flush of water from the roof can contain** amounts of bacteria from decomposed insects, skinks, bird and animal droppings and concentrated tannic acid. It may also contain sediment, water borne heavy metals and chemical residues, all of which are **undesirable elements to have in a water storage system.**

**Fitting an appropriately sized water diverter is critical to achieve good quality water.**

Instead of flowing to the rainwater tank or cistern, these pollutants are diverted with the initial flow of water into the chamber of the water diverter. The water diverters from Rain Harvesting utilise a dependable ball and seat system - **a simple automatic system that does not rely on mechanical parts or manual intervention.**



As the water level rises in the diverter chamber the ball floats, and once the chamber is full, the ball rests on a seat inside the diverter chamber preventing any further water entering the diverter. The subsequent flow of water is then automatically directed along the downspout pipe system to the tank.

**A Slow Release Control Valve ensures the chamber** empties itself after rain and resets automatically. The diverted water need not be wasted water because the drain pipe from the diverter chamber can be fitted to a standard drip irrigation system.

**The Diverter Chamber empties through a Slow Release Control Valve and can be connected to standard dripper irrigation systems**

**Installation of Leaf Eater® or Leaf Beater® downspout filters 'upstream' of first flush diverters will significantly reduce maintenance**

## Getting the best performance from First Flush Water Diverters

Water Diverters work best when a downspout filter is installed upstream of the diverter. Fitted at the downspout either directly on the underside of the roof gutter or to a wall, the Leaf Eater® or Leaf Beater® downspout filters are self cleaning devices that deflect leaves and debris away from the flow of rainwater. Not only do these devices help stop gutters blocking with leaves and debris, they also prevent eaves flooding during heavy rainfall.

By deflecting larger debris upstream, downspout filters ensure the diverter chamber and Slow Release Control Valve do not block up as easily. **Downspout filters not only help Water Diverters operate more efficiently in preventing fine sediments and pollutants from entering the rainwater tank, they also ensure Water Diverters drain and reset automatically after rainfall, significantly reducing system maintenance.**

## Calculating the amount of water to divert

Industry experience and field testing suggests that the amount of water diverted should be determined based on (1) the **surface area** of the roof, and (2) the **amount of pollutants** on the roof. The following factors can be used as a guide in determining the ideal volume of water to be diverted. If the following guidelines cannot be met, remember that diverting some of the first flush is better than none!

**As a rule of thumb, the more water that is diverted the better the quality of water in the cistern or tank.**

Rain Harvesting First Flush Diverters are sold in kit form – just add the desired length of standard 3", 4" or 12" PVC pipe to create the diverter chamber section. The length of pipe used will vary depending on the volume to be diverted. **Diverters with a variable volume chamber are better** than fixed-volume diverters **because the volume of diverted water can be customized** to the specific requirements of each roof.

| POLLUTION FACTOR FOR THE ROOF |
| --- |
| **Minimal Pollution – divert 0.0125 gallons per square foot of roof area**<br>Open field, no trees, no bird droppings, clean environment<br>**Substantial Pollution – divert 0.05 gallons per square foot of roof area**<br>Leaves and debris, bird droppings, various animal matter, e.g. dead insects, skinks etc. |

| DIVERSION VOLUME FOR A FIRST FLUSH WATER DIVERTER |
| --- |
| Square Foot Roof Area X Pollution Factor = Rainwater to be diverted.<br>**Example for a minimal polluted roof of 1000 square feet**<br>1000 square feet x 0.0125 = 12.5 gallons to be diverted.<br>**Example for a heavily polluted roof of 1000 square feet**<br>1000 square feet x 0.05 = 50 gallons to be diverted. |

## Types available

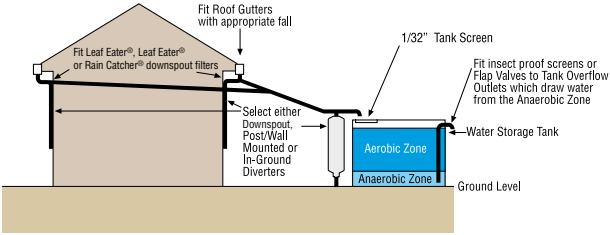
Three types are available - all require minimal maintenance and will improve water quality. The volume of water to be diverted, type of downspout system and site characteristics will determine the type of diverter required.

**Standard 3", 4"or 12" PVC pipes are used as the diverter chamber section. The length of pipe used will vary depending on the volume to be diverted.**

# “WET” AND “DRY” SYSTEMS

## “Dry” systems

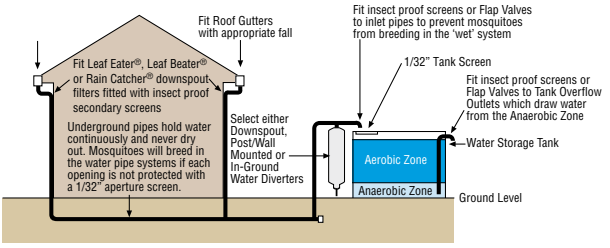
The pipe system runs direct from the gutter into the tank. The pipes drain out after rain and do not hold water when the rain stops. “Dry” systems are best because water sitting idle in pipes can become stagnant and provides a potential breeding ground for mosquitoes. You can remove the secondary stainless steel screen included with the Leaf Eater®, Leaf Beater® and Rain Catcher® downspout filters in “dry” systems, and this will help them perform better.




## “Wet” systems

The pipes from the gutter go down the wall and underground and then up into the tank. Because the pipes are underground and below the entry point to the tank, even during periods without rainfall water remains in the pipes. Where pipes hold water they must be screened with a non-corrosive screen of not more than 1/32” aperture to prevent the entry of mosquitoes and vermin. The Leaf Eater®, Leaf Beater® and Rain Catcher® downspout filters include stainless steel screens to prevent mosquitoes and other pests accessing the pipe system and are designed to meet all legislative guidelines.

“Wet” systems can be converted to “dry” by installing an in-ground water diverter that not only diverts the first flush of contaminated water from the roof, but also drains water from the underground pipe system on a sloping site. (Visit www.rainharvesting.com for more information).



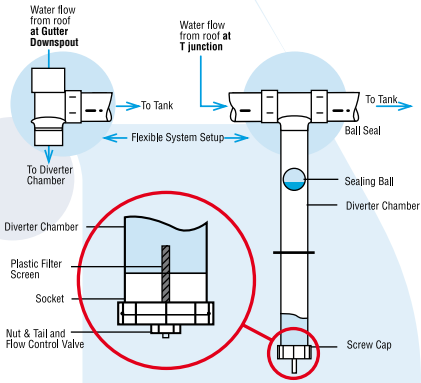
# downspout diverter
FIRST FLUSH

A simple and effective first flush device requiring minimal maintenance. **Installed at the gutter downspout or via a T-junction** to a new or existing system of 3" or 4"diameter PVC downspouts. **Add the appropriate length of pipe based on the quantity of water you wish to divert.**

Consider as a guide that each 3 foot length of 4" PVC pipe holds approximately 2 gallons of water.

**It is preferable to fit the longest length chamber as possible to ensure better quality water.** Install from the roof gutter and after the downspout filter, and ensure a gap of a minimum of 6" above the ground to allow easy access to the end cap.

Downspout Diverters should be **installed at each downspout that supplies water to the tank system** and are ideal diverters for use with under eaves tanks, cisterns or barrels.




**As a rule of thumb, the more water that is diverted the better the quality of water in the tank.**

**Downspout Diverter installed with a Leaf Eater® filter, both painted to color match the home.**

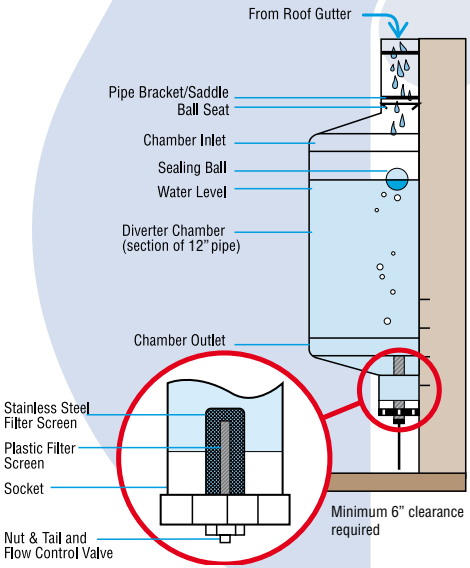
# post/wall diverter

FIRST FLUSH

A versatile unit that can be mounted on a wall, post or stand, **to hold larger volumes**. Can be adapted to suit a wide range of applications and **will manage single or multiple pipes** coming from the roof to divert between 6 and 38 gallons. Includes a saddle and a galvanized steel mounting bracket. Add the appropriate length of 12" pipe based on the quantity of water you wish to divert. For example, a 78" length of 12" diameter PVC pipe is required to hold 38 gallons of diverted water.

The kit is easy to freight, and the diverter volume can be made on site to match exact requirements – just add the desired length of pipe.

| SIZES | PIPE | TOTAL |
|---|---|---|
| US Gallons (approx) | Length (inches) | Total Height Required (inches) |
| 6 | 12 | 26 |
| 9 | 18 | 32 |
| 12 | 24 | 38 |
| 15 | 30 | 44 |
| 18 | 36 | 50 |
| 21 | 42 | 56 |
| 23 | 48 | 62 |
| 26 | 54 | 68 |
| 29 | 60 | 74 |
| 32 | 66 | 80 |
| 35 | 72 | 86 |
| 38 | 78 | 92 |



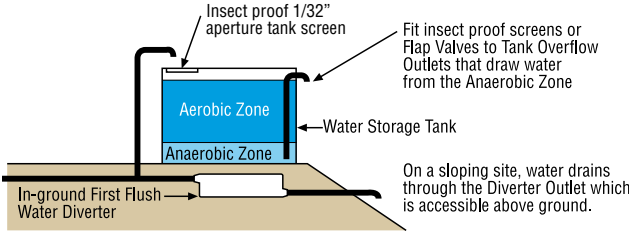
# in-ground diverter

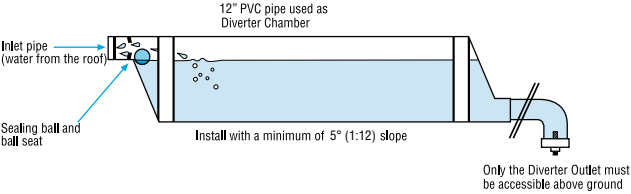
FIRST FLUSH

Buried and out of site, an In-Ground Diverter is **perfect for sloping allotments**. On a site with a minimum 5˚ slope, an In-Ground Diverter allows a “wet” system to be converted into a “dry” system.

After rainfall when an In-Ground Diverter is installed, not only will the diverter chamber empty, the water held in underground pipes will also drain out through the diverter, converting it to a “dry” system.

**In-Ground Diverters are perfect for sloping allotments and can convert “wet” systems into “dry” systems.**


| SIZES | PIPE | TOTAL |
|---|---|---|
| Length (Feet) | Volume in US Gallons (approx) | |
| 2 | 12 | Plus (add) the volume of water held in the pipe section down-stream of the Diverter, between the Chamber and the Flow Control Valve / Outlet. For every 3 feet of 4” pipe add approximately 2 gallons. |
| 4 | 23 | |
| 6 | 35 | |
| 8 | 47 | |
| 10 | 59 | |
| 12 | 70 | |
| 14 | 82 | |
| 16 | 94 | |
| 18 | 106 | |
| 20 | 117 | |

**In-Ground First Flush Diverter kit**

## Installation*

Detailed installation instructions are supplied with each Water Diverter kit. The diverters are easy to install, and importantly, can be adapted on site to suit the needs of the application.

## Maintenance

Ensure the outlet of the diverter is clear of any debris. If the outlet is blocked, the chamber will not empty and the first flush of water when it rains will not be diverted. Instead it will flow to the tank and pollute the water. Installing a self-cleaning downspout filter, such as a Leaf Eater® or Leaf Beater® upstream of the Water Diverter will improve performance of the diverter and significantly reduce maintenance.

Periodically unscrew the End Cap of the water diverter to allow debris to fall out. Hose or wash the Filter Screen if required and clean the Slow Release Control Valve.

**A well maintained water diverter will improve water quality and reduce tank maintenance**

## Legislative requirements

Many Local Authorities have developed or are developing guidelines for the installation of rainwater tanks. In fact in some, some states of Australia, where rainwater is the sole water supply for over 3 million people, it is law that downspout filters, first flush devices and insect proof screens are fitted when rainwater is captured and stored in tanks.

Before installing a rainwater tank or cistern, you should check whether your Local Authority has such guidelines in place. It is critical to keep the catchment system free of bacteria at all times to harvest good quality water. Mosquitoes must be kept out of pipe systems and the tank to prevent breeding and the spread of disease. Ensure that all plumbing work that is carried out complies with regulations. If in doubt, seek professional advice.

**It is critical that downspout filters, first flush water diverters and insect proof screens are fitted when rainwater is captured and stored in tanks.**

# Install the complete Rain Harvesting system

In addition to its range of First Flush Water Diverters, Rain Harvesting has developed a complete range of rainwater products.

If you are considering purchasing a rainwater tank, we recommend installing a complete system to improve water quality and catchment efficiency, protect pumps and internal household appliances and reduce tank maintenance. Please visit **www.rainharvesting.com** for more information.

# How To Create the Complete

**1.** Check ROOF SURFACE is suitable for collecting quality rainwater.

**2.** Install GUTTER MESH to prevent leaves and debris from blocking gutters.

**3.** Fit GUTTER OUTLETS from the underside of the gutter to prevent obstruction of water flow.

**4.** Fit DOWNSPOUT FILTERS to stop gutters blocking. Downspout filters deflect leaves and debris and keep mosquitoes out of pipes that hold water ("wet" systems).

**5.** Install WATER DIVERTER/S (sometimes called "roof washers") to prevent the first flush of most contaminated rainwater from entering the tank. Fit to each downspout that supplies water to the tank, or install a larger diverter that can handle multiple downspouts, beside the tank or in-ground.

**6.** Ensure a TANK SCREEN is installed at tank entry point to keep mosquitoes and pests out.

**7.** Choose a WATER TANK, CISTERN OR RAIN BARREL. Consider annual rainfall, roof catchment area and water usage when determining its size.

**8.** Fit INSECT PROOF SCREENS or FLAP VALVES to the end of all pipes to the tank screen and to TANK OVERFLOW OUTLETS to keep mosquitoes and pests out and ensure tank is vented properly.

**9.** Utilise a TANK 'TOP UP' system (if required) to automatically 'top-up' the tank with mains water when water levels fall to a designated minimum level.

**10.** Select a PUMP SYSTEM (if required) to distribute water for use inside or outside the home.

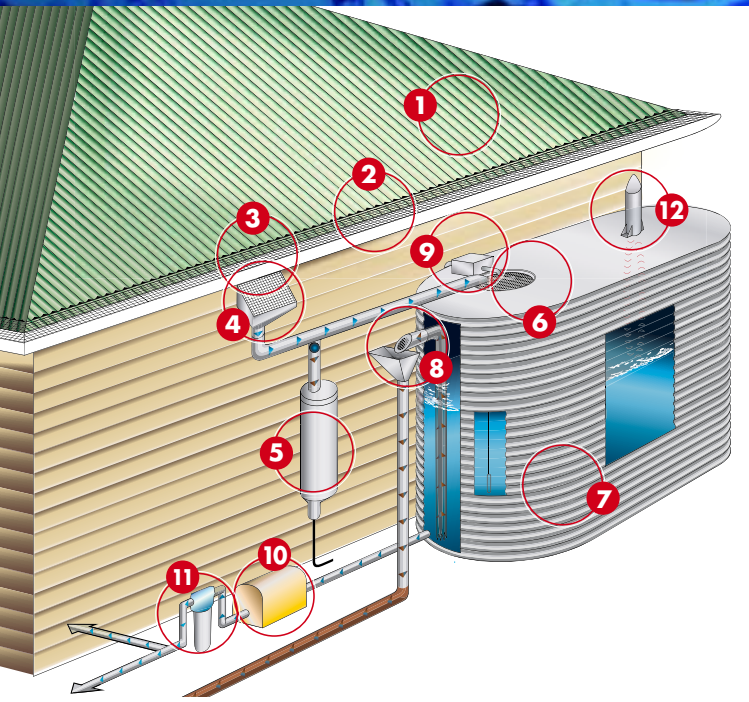
**11.** Fit a purpose designed RAINWATER FILTER after the pump to help reduce residual sediment, color and odor.

**12.** WATER LEVEL MONITOR. Install a level indicator to help monitor your water usage. Wireless systems are most convenient and display a reading inside the home.

- **Improve water quality and catchment efficiency**
- **Reduce tank maintenance**
- **Protect pumps and household appliances**

*Consider the requirements of local authorities and have a plumber complete installation where required.

# Rain Harvesting System.




Rain Harvesting

www.rainharvesting.com

Downspout First Flush Water Diverters and Leaf Eater® filters

Wall Mounted First Flush Diverter

In-Ground First Flush Diverter

Downspout First Flush Diverter kit

*Consider the requirements of local authorities and have a plumber complete installation where required.

**Available from:**

P0111/0

Rain Harvesting
www.rainharvesting.com

For product availability details in America, please visit www.rainharvesting.com

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