RAIN HARVESTING
by Blue Mountain Co

First Flush Delta Post/Wall

Installation and Specification Guide

PRODUCT DETAILS

A high volume first flush diverter, designed specifically for mounting on a wall or any vertical structure.

The unique manifold design uses standard 100mm or 4" pipe to create a high capacity storage and diversion chamber for your first flush. Using these smaller pipe sizes makes it easier to source pipe and assemble the system, when compared to using large diameter pipe on traditional high volume diverters.

Code	Size	Country
WDPW10	100mm	**Australia**
WDPW610	100/105/110mm	**EU**
WDPW110	4"	**USA**

Installation

WHAT'S IN THE BOX?

- Delta chamber end caps x 2
- Cage/Seat & Ball
- Chamber support spacer
- 100mm-90mm (4"-3") socket reducer
- Transparent Rapid Release Exit Funnel
- Electronic Release Valve
- Post/Wall Brackets x 2
- Catch-All Tee
- Primary Filter Screen

TOOLS/MATERIALS YOU MAY REQUIRE

- Tape measure
- Marker pen
- Saw
- File
- Priming fluid
- Solvent weld glue
- Screws/Anchors
- Screw driver
- Drill
- 100mm (4") pipe & fittings

INSTALLATION

For installations with existing 90mm (3") or 100mm (4") rain harvesting feed lines that require large diversion volumes, we provide an alternative setup of manifolding Delta First Flush, like the Delta Commercial. Consideration should be given to the vertical and horizontal space available at your chosen installation point.

1 - It is a requirement to install a rain head upstream of any downpipe feeding the Delta Post/Wall First Flush. Large debris must not enter the First Flush chambers to prevent blockages and damage to the Electronic Release Valve.

2 - Select an installation point for your Manifolded First Flush Delta Post/Wall units. Your diverter chamber must be installed vertically when using the supplied Wall Brackets. Consider the location of the Catch-All Tee in your Rain Harvesting line and the space required for your assembled Delta Chambers. The Catch-All Tee can be installed in the horizontal or vertical orientation to suit your installation. The outlet and Flow Controller must also be accessible for maintenance and inspection (see Figure 1 for suggested installation locations).

3 - Remove Delta components from packaging and lay out parts ready for assembly.

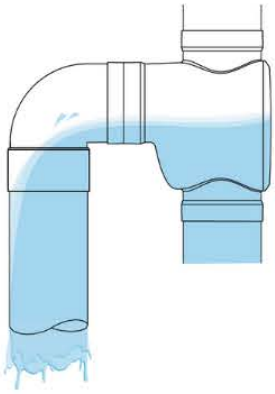
4 - Using one of your Post/Wall brackets, screw the lower bracket to the wall at your chosen installation point. The outlet of your Electronic Release Valve must sit at least 150mm (6") from the ground when fully assembled, so securing your lower bracket approx. 600mm (24") above the ground should achieve this adequately

5 - Determine chamber length using the calculation chart provided, based on your Rain Harvesting roof collection area and considered pollution level (see Figure 7 - Delta Diversion Chamber Calculator).

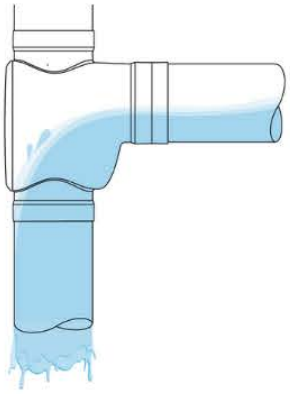
Figure 1

Suggested Installation Orientations

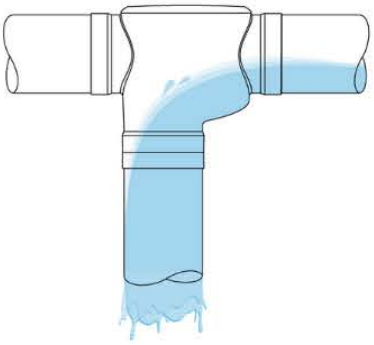
1a. Wet System or 'Charged'



1b. Vertical



1c. Horizontal



6 - Using a tape measure, mark, cut and deburr 6 equal lengths of 100mm (4") pipe to be used as the Chamber Pipes.

NOTE: It is critical that all the Chamber Pipes are exactly equal length. It is also recommended to apply a small chamfer to the outside ends of the 6 Chamber Pipes to improve ease of insertion into the Chamber Sockets.

7 - Using priming fluid, clean all internal sockets of both Delta End Caps and each external end of the six Chamber Pipes.

8 - Working with one Delta End Cap, apply solvent weld glue internally to a Chamber Socket and then externally to one of the Chamber Pipes. Bring the two together ensuring the pipe is inserted fully into the socket and hold until firm. Repeat this step for all remaining pipes until all six Chamber Pipes are glued into one Delta End Cap.

NOTE: Refer to solvent weld glue manufacturers specifications and curing times. All sockets of the Delta End Cap are stepped internally. The inner socket is for use with 100mm UPVC pipe and the outer socket for 4" SCH40 pipe. Only apply solvent weld glue to the socket relating to the pipe in use.

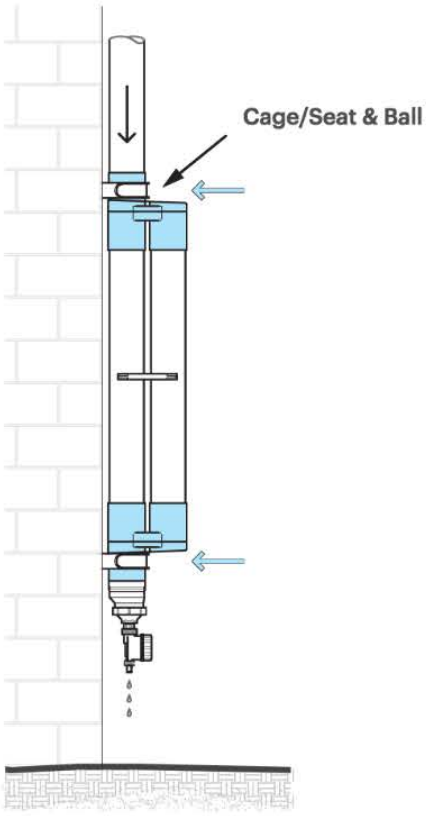
9 - Slide the Chamber Support Spacer over the open end of the Chamber Pipes and position approx. 200mm (8") from the unglued end.

10 - Before completing the next step consider the installation position of your Delta and how the inlet and outlet should be oriented (Figure 2 - Delta Post/Wall – Inlet/Outlet Positions).

Figure 2

Delta Post/Wall – Inlet/Outlet Positions

Post/Wall Mount



11 - Working quickly, apply solvent weld glue to each of the six internal Chamber Sockets of the remaining Delta End Cap and then externally to the six Chamber Pipes. Quickly bring the Delta End Cap together with the six pipes by first aligning three pipes and sockets on one side and then rolling onto the remaining three pipes. Using some force, push the Delta End Cap down onto the Chamber Pipes ensuring the pipes enter the socket fully and hold in position until secure (Figure 3 - Delta Diagram).

NOTE: Refer to solvent weld glue manufacturers specifications and curing times.

12 - Move the Chamber Support Spacer down the Chamber Pipes to approximately the half way position ensuring the pipes will be supported evenly.

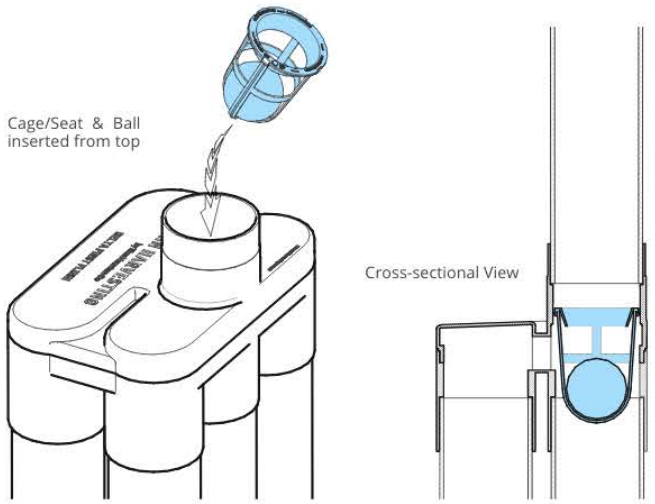
13 - Insert Cage/Seat & Ball into the inlet (upstream) Delta End Cap, ensuring it is oriented correctly then snap into position (Figure 4).

12 - Move the Chamber Support Spacer down the Chamber Pipes to approximately the half way position ensuring the pipes will be supported evenly.

13 - Insert Cage/Seat & Ball into the inlet (upstream) Delta End Cap, ensuring it is oriented correctly, then snap into position (Figure 4).

Figure 4

Inserting the Cage/Seat and Ball



14- Place your assembled Delta in the Post/Wall Bracket and support the chamber as you fit your upper bracket around the inlet on the upper Delta End Cap and screw it to the wall or post. CAUTION: Failure to support the unit in the upright position while attaching the upper bracket could crack the bottom Chamber End Cap.

15 - Measure your existing pipe and cut to create space for the Catch-All Tee. Ensure all cut edges are clean and smooth then use priming fluid to clean all external pipe ends and internal sockets of the Catch-All Tee. NOTE: If you are installing your Catch-All Tee into 90mm (3") pipe you will require socket reducers to complete this step and the length of these should be considered before cutting any pipe work.

16 - Install the Catch-All Tee to the existing pipe and extend the branch line of the Tee with 100mm (4") pipe to the inlet of the upper Delta End Cap using solvent weld glue.

17 - If you have chosen to utilise multiple flush points with your Delta Manifold installation skip to Step 20. If you have chosen a single flush point with your Delta Manifold installation, use a 90° bend for one of the chamber outlets and additional 90° junctions for each additional chamber, connect the outlets of the Delta End Caps together using 100mm UPVC pipe and solvent weld glue ensuring to allow minimum fall of 1 in 100 (1%) to the open end.

18 - Using solvent weld glue and a 120mm piece of 100mm UPVC pipe, attach the 100mm-90mm (4"-3") Socket Reducer to the open end. Insert the Primary Filter Screen into the Socket Reducer and screw the Transparent Rapid Release Exit Funnel onto the threaded end of the Socket Reducer (see Figure 5).

19 - Using solvent weld glue and a 120mm piece of 100mm UPVC pipe, attach the 100mm-90mm (4”-3”) Socket Reducer to the open end. Insert the Primary Filter Screen into the Socket Reducer and screw the Transparent Rapid Release Exit Funnel onto the threaded end of the Socket Reducer (see Figure 5).

20 - For multiple flush points complete the following steps for each Delta chamber. Use a minimum of 170mm of 100mm pipe (3.7” of 4”) and solvent weld glue, attach the 100mm-90mm (4”-3”) Socket Reducer to the outlet (downstream) of each Delta End Cap. Screw the Transparent Rapid Release Exit Funnel onto the threaded end of the Socket Reducer. Follow the detailed instructions on Figure 5 (next page) on how to install the Electronic Release Valve.

Figure 5

Installing and setting up the Electronic Release Valve

5a. Insert the Primary Filter into the end of the First Flush chamber. It should fit snuggly into the socket on the end of the pipe.

5b. Install the Transparent Rapid Release Exit Funnel, ensuring the o-ring is seated correctly. It should be screwed up firmly to compress the o-ring.

5c. Attach the Electronic Release Valve by first installing the 25mm x 20mm (1" x 3/4") reducing adaptor and washer to the 25mm (1") thread of the screw cap.

5d. Remove the union from the valve and attach to the reducing adaptor with 20mm (3/4") washer in place.

5e. Attach the valve at the union and orientate dial for easy access.

5f. Remove the waterproof cover from the Electronic Release Valve.

5g. Ensure the reset interval and drain time control knobs are in the "RESET" and "CLOSED" positions. Carefully slide out the battery box and install two new 1.5-volt AAA batteries.

5h. Test the unit by turning the drain time knob to the "OPEN" position. You should hear the sound of the motor within 5 seconds. Turn the drain time knob back to the "CLOSED" position ready for setting.

NOTE: If you do not hear the sound of the motor, check that the batteries are installed correctly.

5i. Ensure that the reset interval and drain time knobs are in the "RESET" and "CLOSED" positions.

NOTE: The first time you program the Electronic Release Valve it will not begin to operate until after a time delay equal to the setting of the reset interval knob you select. The Electronic Release Valve starts to keep time when you set it. It is important that you set the timer at the hour you want it to operate. For example, if you want the Electronic Release Valve to operate at 07:00AM, you must physically set it at 07:00AM.

Set your reset interval and drain time according to the tables in Figure 6, then replace the battery box cover. A long reset interval will mean that the first flush diversion chamber empties less frequently, leading to higher rainwater yield. A short reset interval will mean that the first flush diversion chamber empties more frequently, resulting in a lower water yield.

Figure 6

Electronic Release Valve Reset and Drain Time Settings

Suggested Reset Setting	Pollution Level
1 day	Very high
2 days	Very high
3 days	High
4 days	Medium
5 days	Medium
1 week	Low
2 weeks	Very Low
4 weeks	Very Low

Recommended drain time setting	Approx. First Flush chamber size	
5 minutes	20 litres	5.3 gallons
10	40	10
20	80	20
30	120	30
45	180	50
60	240	60
75	30	80
100	400	100
125	500	130
150	600	160

Figure 7

Delta Diversion Chamber Calculator

AUSTRALIA	
Chamber Volume in Litres	Total Length in Millimetres
30	185
40	374
50	564
60	753
70	942
80	1132
100	1511
110	1700
120	1889
130	2079
140	2268
150	2458
180	3026
200	3405

USA	
Chamber Volume in Gallons	Total Length in Inches
8	4
10	10
12	16
14	22
18	34
20	40
24	52
28	64
32	76
40	100
50	130
56	148
72	196
80	220

NOTE:

2 x Delta End Caps hold approximately 20.24 litres. (Excluding the pipe sockets of chamber.)

The above figure is total volume of delta end cap excluding the liquid contained within the 6x pipe chambers.

NOTE:

2 x Delta End Caps hold approximately 6.52 gallons. (Excluding the pipe sockets of chamber.)

The above figure is total volume of delta end cap excluding the liquid contained within the 6x pipe chambers.

POLLUTION FACTOR FOR THE ROOF	
MINIMAL POLLUTION	SUBSTANTIAL POLLUTION
DIVERT 0.5L PER M^2 Open field, no trees, no bird droppings, clean environment	DIVERT 0.5L PER M^2 Leaves and debris, bird droppings, various animal matter, e.g. dead insects, skinks, etc.

The above quantum are the results of preliminary testing. Individual site analysis and field testing is required to more accurately assess the quantum to be diverted in each individual case.

DIVERSION FACTOR FOR A FIRST FLUSH WATER DIVERTER	
MINIMAL POLLUTION	SUBSTANTIAL POLLUTION
M^2 ROOF AREA X POLLUTION FACTOR = LITERS TO BE DIVERTED	
Example for a minimal polluted roof of 100m^2 100 x 0.5 = 50 Litres to be diverted	Example for a heavily polluted roof of 100m^2 100 x 2 = 200 Litres to be diverted

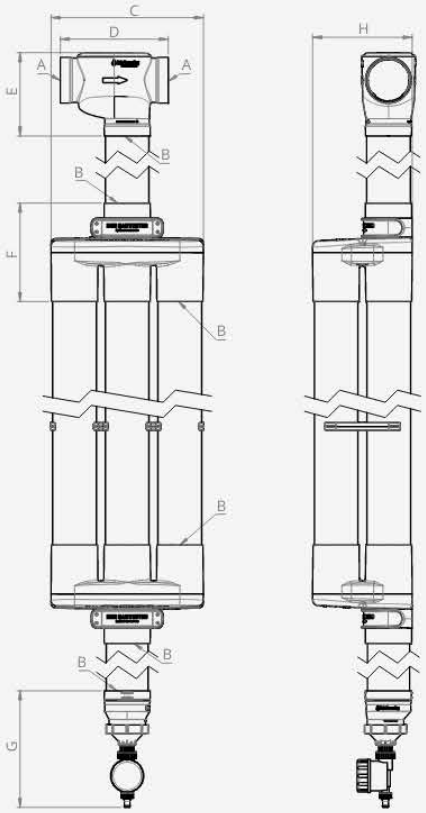
POLLUTION FACTOR FOR THE ROOF	
MINIMAL POLLUTION	SUBSTANTIAL POLLUTION
DIVERT 0.0125 GALLONS PER FT^2 Open field, no trees, no bird droppings, clean environment	DIVERT 0.05 GALLONS PER FT^2 Leaves and debris, bird droppings, various animal matter, e.g. dead insects, skinks, etc.

The above quantum are the results of preliminary testing. Individual site analysis and field testing is required to more accurately assess the quantum to be diverted in each individual case.

DIVERSION FACTOR FOR A FIRST FLUSH WATER DIVERTER	
MINIMAL POLLUTION	SUBSTANTIAL POLLUTION
FT^2 ROOF AREA X POLLUTION FACTOR = GALLONS TO BE DIVERTED	
Example for a minimal polluted roof of 1000ft^2 1000ft^2 x 0.0125 = 12.5 gallons to be diverted	Example for a minimal polluted roof of 1000ft^2 1000ft^2 x 0.5 = 50 gallons to be diverted

Product Specifications

First Flush Delta Post/Wall



Dimensions & Pipe Fittings

COUNTRY	CODE	A	B	C	D	E	F	G	H
Australia	WDPW10	100 F	100 F	400	283	219	258	304	261
EU	WDPW610	100 F / 105 F / 110 F	100 F	400	283	219	258	304	261
USA	WDPW110	4" SCH40 F/ SDR35 F	4" SCH40 F / SDR35 F	15.7"	11.1"	8.6"	10.2"	12"	10.3"

All dimensions are in mm unless otherwise stated.

Fitting guide:
F = Female / Socket Fitting
M = Male / Spigot Fitting (Pipe size)
IP = In-Pipe Fitting

Maintenance

It's important to ensure that your first flush diverter outlet remains clear of any debris. If your outlet becomes blocked, the chamber will not empty and the first flush of water will not be diverted when it rains.

To ensure the flow of water out through your Electronic Release Valve, periodically remove from the Transparent Rapid Release Exit Funnel to check for any build-up of matter. Remove primary filter plus ball, and clean if required.

Periodically check that the Electronic Release Valve batteries have charge. This is indicated by the flashing light.

To protect your Electronic Release Valve from freezing or "winterising", remove the timer prior to the first frost or freeze and store it indoors until spring. Remember to remove the batteries from the battery compartment.

For best results and minimal maintenance, rain heads with 0.955mm aperture mesh such as Leaf Eater Rain Heads must be installed upstream of the Delta First Flush to limit the entry of debris that can reach your diverter.

supported by RAIN HARVESTING

A common misconception about collecting rainwater is that all you need is a roof, a tank and some rain. This 'tanking' approach cannot always be relied on to deliver the volume – or quality – of water that you require. That is where we can help.

With some thought, your rain harvesting system can provide you with cleaner water and lots of it. Whether you're completely reliant on tank water or wanting to keep the garden green, our simple steps will help you achieve your goal.

The Rain Harvesting approach to rainwater collection involves using tested and proven products to make quality rainwater available for use in and around your property. You don't need much to get started and you will be surprised how easy it is to get the most out of your rainwater system.

How can we help you?

RAIN HARVESTING

by Blue Mountain Co

For more information or to find out
how we can help, just give us a call on

+61 7 3248 9600

Or visit our website at

rainharvesting.com