

## What is Drip Irrigation?

Drip Irrigation is generally recognised as the most efficient method of irrigating. While sprinkler systems are around 75-85% efficient, drip systems typically are 90% or higher. What that means is much less wasted water! Drip irrigation systems do not suffer from overspray onto paths and driveways and they do not lose water due to misting and evaporation. For these reasons drip irrigation is the preferred method of water distribution by almost all water authorities in Australia and is, in fact, the only method exempt from water restrictions in Sydney.

Drip Irrigation works by applying water slowly, directly to the soil. This means that the water soaks into the soil before it can evaporate or run off and that the water is only applied where it is needed; at the plant's roots, rather than sprayed onto the foliage.

**Drip Irrigation saves water, saves money, is easy to install, easy to design, and keeps your garden healthy.**

The most common method of Drip Irrigation is the use of what is generally referred to as Inline Drip or Dripline. The Dripline sold by Dural Irrigation is developed and manufactured by Netafim. It is high quality poly tubing with self-contained drippers welded into the interior wall at regular intervals.



## What Type of Dripline Should I Use?

**Dural Irrigation carries three Netafim Driplines:**



- **Mini-Scape**

Mini-Scape is a spaghetti tube style of dripline with non-pressure compensated drip emitters spaced at either 150mm or 300mm. Each emitter drips at 1.9 litres per hour. This product is suitable for surfaces with a change in elevation of no more than 1.5 metres. The 300mm spacing has a maximum run length of 15 metres and the 150mm spacing has a maximum run length of 8 metres.

Miniscape is great in new installations but its true starring role is the ease with which it can be used for converting spray systems to drip.



- **Scapeline**

Scapeline uses the same style of built in non-pressure compensated drip emitters as Mini-Scape but the tube is a standard 13mm poly pipe. The larger diameter pipe allows it to be run out in lengths of up to 45 metres. The drip emitters are spaced at either 300mm or 400mm and each dripper delivers 2 litres per hour. This product, like Mini-Scape, is suitable for surfaces with no more than a 1.5 metre change in elevation.

Scapeline is also suitable for converting existing spray systems to Drip as well as new installations using standard 13mm poly fittings connections.



- **Techline**

Techline uses a pressure compensated dripper different from Scapeline and Mini-Scape. The tube is a standard 13mm poly pipe but the dripper used in allows the product to be used on a sloping or terraced block without a variation in the flow rate across the change in elevation. The drip emitters are spaced at either 300mm or 400mm and each dripper delivers 2.3 litres per hour. It can also be used under higher pressure and the maximum run lengths increased to 75 metres.

Techline is suitable for converting existing systems as well as new installations. It is connected using standard 13mm poly fittings.

## How do I install it?

While drip systems are simple to design and install, there are some basic guidelines to follow that will assist your drip system to work efficiently.

The soil type dictates how far apart each run of Drip line should be installed and therefore how much Drip line is necessary for each site. If the spacing of the Drip line is wrong the system will not work efficiently. Once the correct spacing has been decided the meterage can either be paced out on site or if a scale drawing is available the meterage can be worked out very quickly from the square meterage of the gardens. It is crucial that you determine what type of soil you have before you decide which product is best for you. As an example the standard spacing for installation of Techline, Scapeline and Mini-Scape is 400mm, but:

1. If the your garden beds are **sandy** the water will drain straight down and this will mean that you need to install the runs length of drip line closer together at around 300mm.
2. If your gardens have high **clay** content the water will remain closer to the surface and the runs could be spaced out at 500mm.

Drip line is best installed in a grid pattern that includes a header and collector pipe in 19mm poly pipe. This will provide the most efficient system as well as providing the best locations to install air release and flush valves. If a system gets a break in it and the Drip line includes a dead end there is a good chance that this is where the debris will end up and this means there will be a blocked dripper at some stage.



If it is difficult to install the system in a grid pattern due to the garden being heavily planted and established, Drip line can be snaked though the garden in order to supply an adequate amount of water to the area. It is important to note that it is not necessary to have a dripper at the base of each plant. The plants roots are not all underneath the base of the plant they spread out so it is more important to apply an even amount of water the whole garden area than try to water each individual plant.

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### **Large gardens**

These areas are best watered in a grid pattern with a collector pipe at each end. This will ensure an even flow of water to all the drippers and help prevent a blocked dripper in the event of a break in the line.

### **Formal hedges or straight plantings**

In these situations a single run of the appropriate product installed on each side of the hedge will do the job. If the area is more or less level and the runs are short Scapeline or Mini-Scapeline can be used.

## Boundary trees or shrubs

Where certain trees or shrubs need more water than the surrounding area a lateral line can be installed with a ring of the appropriate dripline product installed around each individual plant.

## What Accessories do I need for a drip system?

It is worth noting that with drip systems the accessories can be viewed as insurance for the system. If you plan on irrigating a complete residence with drip then filters, pressure reduction valves, air release and flush valves are essential. However, if it is only being used to irrigate a small garden bed then its overkill to outlay \$120 on protection for \$30 worth of product in this case a cheaper filter/pressure reduction valve (as pictured) and an air release valve might be all you need.



### Backflow Prevention Valve

A Backflow Prevention Valve prevents back siphoning of non-potable water into the water supply and come in a range of varieties. All water authorities require backflow prevention devices to be used on all fixed irrigation systems. You should consult your local water authority to find out which one is required for your proposed system. Generally, most domestic watering systems require a Dual Check valve but if you are installing a Techfilter or applying fertiliser through your irrigation lines then you will probably be required to install a Reduced Pressure Zone device. Backflow Prevention valves are the first item in your line after your tap.



### Filter

You must use a filter. Drip emitters have very small openings that can become clogged. City water is **not** free from particles that will clog your drip emitters! There are two basic filter options (disc and basket) and which filter used depends on how much Drip line is being protected.

A basket filter can be used for small gardens with up to 50 metres of Drip line however any more Drip line it is recommended that a disc filter is used. For larger areas use at least a 120 mesh disc filter which should be installed after the backflow valve and before the pressure reduction valve.

There is also a [Techfilter](#) available that is used in sub-surface dripline installations. This filter has a root retardant in it to protect your drip emitters from root intrusion and the cartridge needs to be replaced every 2 years.

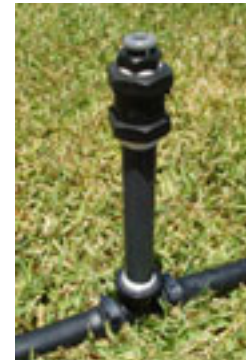
### [Pressure Reduction Valve](#)

If you are coming off a mains water supply you must use a Pressure Reduction Valve (PRV). Dripline is intentionally made from weak walled poly pipe so that is extremely flexible for ease of installation. A PRV must be installed to reduce the pressure inside the Dripline. This pressure needs to be between 10 and 30 psi. There are a few options but this time it is the flow rate and the amount of drip line being used that dictates which unit should be used. The PRV is installed after the filter, and after the solenoid valves in an automatic system.

### [Air Release Valves](#)

These valves are essential protection for the system. An air valve should be installed at the highest point of the system, this is to allow air into the system once it is turned off.

This prevents the drippers from sucking in air and possibly soil particles when the system is turned off and the water in the system drains out through the lowest point.



### [Flush Valves](#)



A flush valve should be installed at the lowest point of the system, this is to allow any rubbish that may have made its way into the system out without blocking up the drippers. Its worth noting that the flush valve lets about 2 litres of water out each time the system turns on and so a gravel pit installed under it is advisable.

### [Wire Pegs](#)

All of the different types of Drip line should be staked at least every 2 metres to prevent the pipe from rising up through your mulch. The pipe will expand and contract with changing temperature which will push it up through the mulch if it is not staked down.



### [Adapters and Fittings](#)



These fittings are used to connect the Dripline to the lateral lines. It is important to make sure the fittings are the right size! Using fittings made for a different tubing size will result in the fitting blowing out of the tube.

**You can now go ahead and design and install an efficient drip irrigation system and more importantly gain maximum enjoyment from your garden.**