

Introduction

What is commonly known as drip irrigation is actually a combination of several types of low-pressure, low-volume water delivery systems. The correct term for these systems is microirrigation. Each microirrigation system is distinguished by a different style of emitter (the part that discharges the water). These microirrigation systems originated with commercial growers and farmers. With the ever-increasing desire and necessity of water conservation, drip irrigation is a great idea for the home gardener.

Some of these systems deliver water literally one drop at a time. Far from water torture, this type of system is the best way to maximize your water resources and get the most from your plants. By keeping the plant's roots moist (but not to the point of saturation) you actually use less water than with conventional watering techniques. Other systems can be configured to mist and provide humidity.

Made from flexible vinyl or polyethylene pipe, drip systems are commonly installed in the subsoil in commercial agricultural applications. At home, you can "hide" the system with a layer of mulch. Leaving it on top of the ground is fine, especially if you are troubled by mice or voles (they sometimes seem to think of the tubing as a snack). As smaller plants mature and spread, the water supply lines are less visible. To help prevent clogging, make sure that any part that emits water remains above ground.

Why a Drip System?

The list of the benefits of using drip irrigation over hand watering applies both to plants and gardeners.

A drip system:

- Saves water — you could experience up to a 50% reduction when using a properly installed and maintained drip irrigation system.
- Connects directly to the hose bib and doesn't require cutting water supply lines.
- Avoids randomly watering your plants (and the weeds).
- Targets the exact area where you want the water (for example, the roots) and allows you to deliver it at the exact time you wish (using a timer).
- Installs easily, plus the system components are relatively inexpensive. Kits are available or you can purchase individual components to customize and expand your system.
- Delivers water without creating an overly moist environment that promotes fungal diseases.
- Adapts easily to changes in landscape. Systems can be used for containers, raised beds, vegetable rows or balconies. Drip irrigation can circle a tree or shrub at the dripline.
- Reduces erosion on slopes (remember to place the emitter upslope, above the plant).
- Improves water-holding capacity in sandy soils.



Good idea: Drip irrigation systems conserve water, but still may be under restrictions in some areas. Learn your local water regulations before buying and installing a microirrigation system.

Drip Irrigation Parts

The irrigation system will only be as efficient as its components and the way they are assembled. Make sure you buy components from the same manufacturer to insure compatibility. You may want to start with a kit and work your way up to your own customized system. Here are the basic parts:



Backflow preventer - or anti-siphon device is required to prevent water from the system re-entering your water supply when the system is turned off. Backflow prevention devices are required in most areas.



Pressure regulator - or pressure reducer. The typical home water supply has too much pressure. If the pressure is over 50 psi, you will need a pressure regulator.



Hose fitting - connects the tubing to the pressure regulator.



Tubing - 1/2, 1/4, 3/8, 5/8, or .710 depending on the needs and manufacturer. Used for the main supply line and smaller lines for individual plants and containers. Tubing is usually made from black polyethylene. The smaller "microtubes" can be used in tight spaces and are easily disguised.

Fittings -



Straight - used to connect one section of tubing to another



Elbow - to allow right angle turns



Tee - fittings are used to split the direction



End fitting/figure eight - closes the system at the end of the line

Emitters - available with different flow rates to accommodate the needs of the plant. Located at soil level or elevated on stakes or risers. There are several types, choose based on where you want the water to go. All are rated by their GPH delivery.



Bubblers - often used for trees and shrubs - deliver more water in less time



Dripper - slow, low quantity delivery right at the root system.



Mister - provides humidity



Hole punch - used to make insertion points in the tubing where emitter are located

Remember

- Fine tuning your system to your plants and soil may require a few days of observation and tinkering. Monitor the soil moisture and adjust the watering time and placement of emitters accordingly.
- Larger plants need more water and may require more than one emitter. Also, as plants mature they may need additional water.
- When cutting tubing, use a sharp blade and make sure the cut is square (not angled).
- If you bury the lines, mark the spot where the end is located. This helps you locate it for flushing or draining.
- Attach a Y-coupling to the hose bib to allow use of a regular garden hose without disconnecting the system.

Important

Maintaining sufficient pressure throughout the system is critical to success. Follow the manufacturer's recommendations for the maximum length of tubing the system can accommodate as well as the proper spacing of emitters.

A stopped line or plugged emitter can virtually shut down a microirrigation system. To maintain a clog-free irrigation system:

Flush the line before closing the system to clear debris.

Flush the system and clean filters regularly, especially if your water supply contains a lot of minerals.

Drain the system before freezing weather arrives.