

Simple and reliable portable and permanent systems

# Container Watering Solutions

Whether we live in small apartments or large estates, we all grow outdoor plants in containers. These plants, like family pets, require attention during long workdays or occasional trips. A simple automated drip system can eliminate our plants suffering and remove our guilt while we travel.

The slow flow of a drip system connected to an automatic valve applies a little water a few times a day to keep the plants happy and the deck or patio free of garden hoses and runoff. Drip systems are manageable projects; it should take a day or less to design, purchase, and install a container drip system.

Sketching out the system and listing the quantity of each part needed makes shopping easier.

## Connecting your portable system

A simple system starts at an existing hose bib. There are seven basic parts to attach:

- 1 hose wye** – so that your system can be attached to one branch, leaving the second available for the garden hose
- 2 gooseneck swivel** – makes everything hang straight, look neat, and takes stress off plastic components
- 3 battery-powered timer** – select one that is easy to program with a long warranty. DIG's is programmable, using an app on your handheld device with a Bluetooth connection, and includes many new features:
  - Monthly water adjustment
  - Programmable rain delay
- 4 vacuum breaker** – required by plumbing code
- 5 hose-thread-to-pipe-thread coupling**
- 6 DIG filter/regulator** – protects the drip devices from blockage and lowers the pressure in your system
- 7 pipe-thread-to-tubing connector** – to connect the drip system main line.

**TIP:** Always use Teflon tape on the pipe threads. Hose threads don't need Teflon tape. If you see a rubber washer or an o-ring, you don't need to use Teflon tape.

## Running your lines

Use black polyethylene tubing to run the line from the water source out to the containers; the tubing connects to compression fittings without glue. First, roll it out and let it relax so it's more flexible and easier to handle and cut. Choose 3/8" tubing

to supply water to dozens of plants, or 1/2" diameter tubing to supply water to hundreds. This line is usually hidden under a deck or rail, behind a wall, or just on the backside of plants. There are accessories available like clips and ties to make this job easier.

To attach a 1/4" line to the supply line, punch a hole in the supply line, push the 1/4" tubing on to a barbed connector, then push the other end of the barbed connector into the punched hole. The smaller tubing, often flexible vinyl, is easily hidden on the unseen side of the container. If all sides are seen, then the tubing can be run up through the pot's drain hole; but if you do this it will not be easy to move the pot.

## Watering your plants

All plants on a given line will have the same watering time. The quantity and output of each of the emitters determines the different amount of water that each plant gets. Starting with the smallest container, let's say an 8" pot, we can easily water it with a single emitter at the base of the plant. A larger plant can be watered by attaching a 1/4" tee onto the line to the plant and then an emitter to each branch.

For larger planters, multiple emitters should be used to cover the area. Quarter inch tubing with factory installed emitters spaced 6" apart is a miniaturized version of the emitter line that has been used in agriculture for decades. Emitterline can be placed down the length of a long container or around a large pot and then capped with a goof plug (a plug that can end the flow of 1/4" tubing or plug a hole made in the main line). Emitterline works well whether it is watering the area under a large plant or an area covered by many small ones.

Misters, which water slightly faster than the typical 1/2 to 2 gallons per hour of emitters, are good choices when the soil is extremely porous. Hanging moss baskets, bark, and the thin sandy soil used in bonsai are difficult to water with emitters since water doesn't spread. Misters shooting down onto a hanging basket or from behind a container plant work well.

## Using your system

There are too many soil types and other variables to be very specific, but try to follow these simple rules that will help make the most of your system:

- Start with a short watering time and look for excessive water running through. If this happens, water for a shorter time, multiple times a day.
- If some plants are too wet or too dry, modify emitter number or output rate.
- In freezing climates, bring the timer and filter indoors in the winter, and wash the filter when starting in the spring.



# A Permanent System

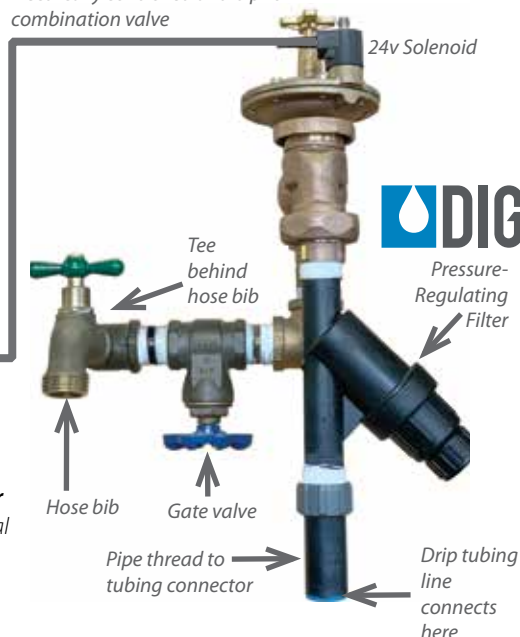
A permanent system starts with a timer that is plugged into an outlet in the garage, workshop, or other convenient location. The plug-in transformer lowers the output to 24 volts. From the timer, small, multi-strand wire is run to the valve location.

An automatic anti-siphon irrigation valve can be installed next to your hose bib. With the house water turned off, the hose bib is removed, a tee put in, and the hose bib put back on. On this new branch, one or more valves can be installed. The solenoid on the valve is wired to the timer. A gate valve should be installed before the irrigation valve so it can be isolated in case of malfunctions or for servicing.



A timer can be simple or full-featured, like the **Hunter Pro-HC** wi-fi model shown here. It has a full graphical touchscreen interface so programming the timer is a breeze either from its faceplate, the **Hydrawise** app on your handheld device, or from the desktop using your favorite web browser.

Electrically controlled anti-siphon combination valve



## Running the lines...



Drip systems water slowly, allowing us to use smaller main lines – but even those should be hidden from sight. Systems are not magic, but should appear that way.



1/4" tubing now comes in colors other than black. So, if your walls are white, the tubing coming up beside it will blend in.



A barbed elbow connecting the white tubing to the emitter line runs through a carefully drilled hole in the galvanized container, making it almost invisible.

## Connecting your containers...



The tubing going into the pot is hardly noticeable as it comes over the lip. This small container has a single emitter installed; if it were larger, more could be added.



Emitter line spreads water evenly along the length of the container. It's easy to buy a six-pack of your favorite flower or herb and plant one under each emitter.



A mister of 2-4 gallons per hour can be run on 1/4" tubing. The copper training wire used in Bonsai can be wrapped around the tubing to hold it in the optimum position.