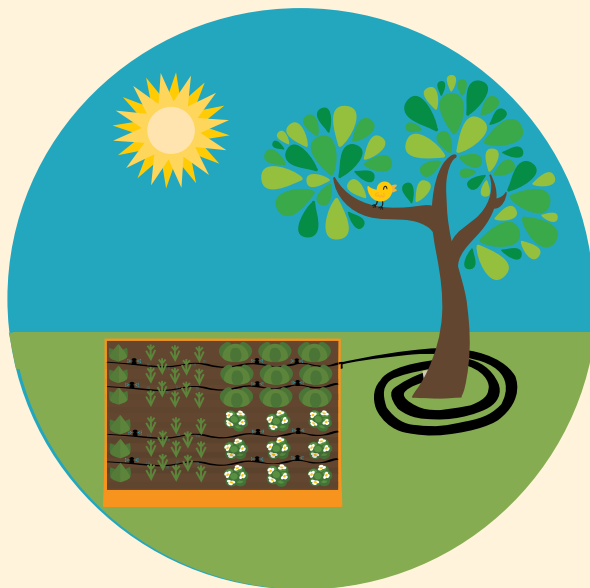


Driplines

Great for **Trees**, **Shrubs**,
Plants, **Gardens**, **Pots**
and **Containers**



Tips for Installing Drip

Design, Installation & Maintenance Guide

Dripline irrigation is the slow, measured delivery of water directly to the plant roots through devices called emitters. Drip irrigation can greatly reduce or eliminate water waste while promoting healthier plant and root growth, controlling weed growth, and providing solutions for difficult-to-irrigate landscape. Designing your own drip irrigation system is not difficult to do, but does require some careful planning. Some benefits include:

- * A solution for narrow, curved, sloped and steep areas
- * Prevent overspray onto windows, walls and fences
- * Eliminate runoff on sidewalks and paved areas

1 Design

- **Divide** your garden by water needs. Flowerbeds, trees, a vegetable garden, and potted plants all have different water needs and should be on separate circuits.
- **Sketch** out the area and show length and width, the distance to the faucet, and where your drip tubing will be placed in each bed.
- **Determine** your soil type: sand, loam, or clay. Sandy soil requires more frequent watering for a shorter period of time and the emitters closer together, just the opposite for clay soil.

2 Figure Out How Many Plants a System Serves

Flow Rate and Pressure:

Your flow- the gallons per hour (gph) determines the maximum area that can be operated at one time, creating a watering zone. Make sure no water is being used inside your home when you perform the following tests.

- With faucet on full, time how many seconds it takes to fill a 5 gallon bucket.
- Divide 18,000 by the fill time (in seconds) to get rate in gallons/hour.
 - * **Ex:** It takes 50 seconds to fill a 5 gallon bucket. $18,000/50 = 360$ gph
That's 360 emitters at 1 gph or 720 emitters at 0.5 gph.

Water Pressure: To determine water pressure (the force pushing the flow of water) in pounds per square inch (psi), use a water pressure gauge (available at garden centers). Most homes have water pressure that is greater than drip irrigation systems require.

A pressure regulator reduces the pressure so that drip parts are not damaged.

3 Determine Which Type of Drip System to Install

Check specifications on all products for gallons per hour (gph), pressure (psi), and maximum tubing length per zone.

| | |
|--------------------------------|--|
| Pressure Compensating Emitters | Applies water uniformly on slopes and large gardens and is resistant to clogging. Best used on sloped or large gardens, shrubs, trees, and perennials. |
| Soaker Hoses | Inexpensive, readily available, and easy to lay out. Best used on dense annual and perennial beds, as well as small gardens. |
| Individual Drip Emitters | Easy to apply water only where needed. Best used on young shrubs and trees that only need water for the first few years and containers. |
| In-Line Emitters | Easy to install in large areas, damage-resistant, pressure-compensating types apply water uniformly. Best used on dense perennial, tree and shrub plantings. |
| Drip Tape | Inexpensive, easy to install in large areas and waters uniformly. Best used in annual, perennial, and vegetable gardens and temporary systems. |
| Micro-sprays | Applies water only where needed. Best used on groundcovers, seedlings, dense vegetable beds, large trees, and small turf areas. |

4 Handy Tools

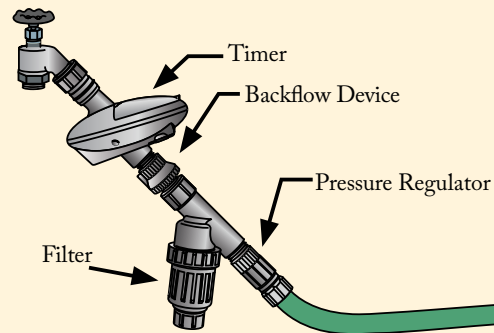
Make a list of the parts and tubing needed to construct the system. Allow for a few extra connectors, couplers, plugs, emitters, and end fittings for quick repair and maintenance.

- Poly Pipe Cutter
- Pruning Shears- to cut spaghetti tubing
- Rebar tie-wire
- Large Needle Nose Pliers- to bend wire with ability to cut the wire
- Zip Ties- to secure tubing to posts, rails, and close off pipe ends
- Teflon Tape

5 Assembly

Connect to the faucet in this order:

- Splitter (optional)
- Timer (a.k.a. valve controller)
- Backflow Preventer
- Filter (make sure it's rated for the source water pressure)
- Pressure Regulator (most emitters are designed for 25-40 psi compared to a soaker hose for 10-15 psi.)
- Attach hose or install to a female hose connector to poly pipe with a hose clamp



6 Spacing

| Planting Type | Spacing Between Emitters & Rows of Dripline | Weekly Water Needed |
|------------------------------|---|----------------------|
| Vegetable Gardens or Annuals | Emitters: 12-18 inches apart Rows: 12-18 inches apart | 3/4- 1 inch per week |
| Perennials | Emitters: 18-24 inches apart Rows: 18-24 inches apart | 1/2 inch per week |
| Shrubs | Emitters: 18-24 inches apart Rows: 18-24 inches apart With large shrubs, put the tubing at the plant's dripline where feeder roots can get water. | 1/4 inch per week |
| Trees (planted <5 yrs ago) | Emitters: 18-24 inches apart (18" for sandy soil, 24" for clay soil) Rows: 1 foot from both sides of the trunk and a second line at the tree's dripline. | 1/2- 1 inch per week |

7 Maintenance

- Check and clean the filter as needed (as often as every few weeks for a screen filter). Reduced pressure may be a sign of a clog.
- Remove the filter-timer-pressure reducer assembly from the faucet when temperatures approach freezing.
- Take the end caps off of each line and flush the line by running water through it at the beginning of each summer and at least one more time during the season. This is not necessary with self-scrubbing in-line emitter tubing.