

# Drip Tape Irrigation Kit



## Introduction

Thank you for purchasing the Drip Tape Irrigation Kit for your home garden! This kit has been custom built to provide you with the necessary tools and materials to grow healthy plants. With the items included, you will be able to water plants of varying sizes with a multitude of useful equipment. We utilize high quality 15mil thickness drip tape, screen filtration, pressure regulation, and poly tube and drip tape fittings for quick assembly of your system. In this manual you will find instructions for each part of the system, helpful tips, and an overview of the parts included in each kit.

## Description

Our drip tape irrigation kit comes in four sizes: mini, small, medium, and large. These kits are designed specifically for row crop applications, meaning they are best for irrigating straight rows of plants such as those found in raised beds. Drip tape is not meant to bend or curve, but rather lay flat on top of the soil. Any twists or turns will cut off water to the rest of the drip tape. Additionally, stakes are not meant to be used with drip tape as there is a possibility of installing the stakes too deep to the point that it is cutting off water like in the previous example.

Each kit is built within the specs of the ½" poly tube and fittings they include. The mini kit is designed to irrigate five 20-foot-long rows, all fed off a single ½" poly tube mainline. The small, medium, and large kits exceed the maximum flow rate capacity of a single line of ½" poly tube. These three kits are designed to irrigate 10, 15, and 20 rows respectively, all at 50 feet per row. Because of this, we have provided enough fittings and ½" poly tube to utilize two separate lines of ½" poly tube, effectively doubling how many rows can be watered using the kit. This is accomplished with a "Y" ball valve which allows you to connect to separate lines of poly tube. See the "Head Assembly: Connection to Hose Spigot" section of the Installation Instructions on Page 3.

Materials used in this kit include poly tube, poly tube fittings, drip tape, and 5/8" drip tape fittings. The kit also includes a head assembly designed to connect directly to a hose spigot or garden hose, comprised of a backflow preventer, filter, pressure regulator, and poly tube adapter. Larger kits also include a "Y" ball valve as part of the head assembly. Timers are sold separately as not all projects will require automation. If you'd like a timer, we suggest TDS model number C002.

Please keep in mind when installing either system that you should not exceed the 220 gph threshold of a single line of ½" poly tube. The large kit does exceed this threshold even with two head assemblies. To be able to irrigate efficiently and operate the system correctly, we have provided ½" barbed ball valves in each kit which will allow you to isolate a single zone or multiple zones while staying within the 220 gph threshold of ½" poly tube. Here is a simple equation to determine the flow rate in each zone:

$$\text{Zone Flow Rate} = \left( \frac{\text{Length of Rows in inches}}{\text{Emitter Spacing in inches}} \right) \times \text{Flow Rate of Emitters}$$

## Important Tips and Notes

Before setting up your irrigation system, please read through the tips and notes below as well as the rest of the manual, so you fully understand the system. If you have any questions not answered in the manual, please contact one of our customer service representatives at **877-597-1669** or by emailing **customerservice@dripirrigation.com**

- Each kit contains all the parts required to install a complete drip irrigation system. If more parts are needed, the system you will build with the kit is easily expandable using the other parts found on our website.

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## Important Tips and Notes (cont.)

- We suggest that poly tube and micro tube be installed above ground only. It is safe to mulch over it, but burying poly tube beneath the ground tends to cause it to crimp, restricting flow and reducing effectiveness of the system. Contact us if you are interested in burying your poly tube.
- Drip tape is a thin-walled tube which tends to crimp easily, cutting off water flowing to the rest of the tube. Please keep in mind when installing these to keep the tube as straight as possible. Using a stake to hold down the end cap of each row will suffice. Do not put any stakes over the tape itself as this may cause crimping.
- Drip irrigation systems should be used with clean water. Drip emitters, including those built into drip tape, have many small passageways inside them that can clog if particulate matter is introduced to the system. To avoid this, flush the system prior to start up by opening the flush valve at the end of the line with the hose spigot turned on all the way and let the water run for a few seconds. Make sure to use the filter included in the kit, as it is designed to catch any debris coming out of the water source. Even good quality well or city water can have debris in it, so always use a filter.
- The included pressure regulator should be installed between the filter and the poly tube adapter. This item will ensure that the pressure within your system remains within the operating pressure of the emitters and allows them to function properly. Check the "Head Assembly" section of this manual on how to install this item.
- If installing your system in an area where freezes occur, make sure to winterize your system before the first freeze. If possible, disconnect the system and store inside until temperatures warm. If this is not feasible, disconnect your system from the water source, open all line ends, and allow to drain thoroughly for at least a week before the first freeze. Allowing the components to freeze with water inside can result in cracks, causing leaks when you start the system again.
- Poly tube softens and becomes more flexible when warm, making it easier to install emitters and fittings and punch holes. Do not use direct flame or intense heat with any poly tube or plastic fitting as this will cause irreparable damage. Leaving the poly tube out in the sun for a while will usually suffice.
- Compression fittings and spin-loc fittings are used to connect poly tube to poly tube or threaded components to poly tube. Check the parts list that came with your kit to determine which type of fitting your kit includes.
  - o To use a compression fitting, push the poly tube into the end of the fitting firmly and at an angle, then walk it up and down while pushing in until the poly tube is inside the fitting by at least half an inch. Be aware that once you've gotten the poly tube into the fitting it's *very* difficult to remove it!
  - o To use a spin-loc fitting, screw the nut all the way down against the body of the fitting, push the poly tube onto the barb, then screw the nut back down over the poly tube. **Do not remove the nut and put the poly tube through it, spin-loc fittings do not work this way. Drip Tape fittings have a similar functionality.**

## Specifications

- Screen Filters
  - o Maximum recommended flow rate: 660 gph
  - o Maximum recommended pressure: 120 PSI
- Pressure Regulators
  - o Recommended flow rate range: 20 to 720 gph
  - o Maximum recommended pressure: 120 PSI
- 5/8" (15 mil) Drip Tape, 12" Spacing
  - o Flow rate @ 10 psi: about 0.46 gph per 12"
  - o Flow rate @ 15 psi: about 0.60 gph per 12"
  - o Recommended pressure range: 7 to 25 PSI
- 1/2" (.600 ID x .700 OD) Poly Tube
  - o Maximum recommended flow rate: 220 gph
  - o Recommended pressure range: 25 to 30 PSI
  - o Maximum lateral run: 400'

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- Pressure loss every 100': 4.4 PSI

## Installation Instructions

### Head Assembly: Connection to Hose Spigot

A drip irrigation system begins at the water source. The parts at the beginning of the system are called the “head assembly,” which is designed to attach to a hose spigot or garden hose.

To build the head assembly for the mini kit, use the following components in order from the hose spigot or garden hose. All items provided in this kit are shown on the parts list included with your kit.

- A015- Backflow Preventer
- F300- 155 Polyester Mesh Screen Filter
- PR202- 15 PSI Pressure Regulator
- LF003- Poly Tube Adapter

To build the head assembly for the small, medium, and large kits, follow the components in order below:

- A015- Backflow Preventer
- F300- 155 Polyester Mesh Screen Filter
- A070- “Y” Ball Valve
- PR202- 15 PSI Pressure Regulator, one on each side
- LF003- Poly Tube Adapter, one on each side

Each component’s inlet is  $\frac{3}{4}$ ” FHT (female hose thread) and the outlets of each component are  $\frac{3}{4}$ ” MHT (male hose thread). The poly tube adapter has a compression outlet, meaning it attaches directly to the poly tube.

### 1/2” Poly Tube Fittings

The  $\frac{1}{2}$ ” poly tube will be your main distribution line, getting water from the spigot or hose to the various parts of the garden you want to water. It is very important to make sure the lengths are correct before you cut. *Remember the adage: measure twice, cut once.* Make all cuts as straight as possible as any angled cuts on poly tube can result in loose fittings and an increased chance of leaking once the system is operational. The tees and elbows are meant to help route poly tube at right angles.  $\frac{1}{2}$ ” poly tube tends to crimp when bent at too tight an angle, restricting the flow of water, and decreasing the functionality of your system. The poly tube line end components are meant to be used as their name implies: put them at the end of the  $\frac{1}{2}$ ” poly tube to stop the flow of water.

### Drip Tape Fittings

Drip Tape fittings function very similar to  $\frac{1}{2}$ ” poly tube fittings. However, drip tape fittings can not be used on  $\frac{1}{2}$ ” poly tube and vice versa. To install these fittings, cut a length of drip tape straight across the width of the tube. Just like with  $\frac{1}{2}$ ” poly tube, any angle or curved cuts may cause leaks to form at the connection points. To attach a fitting to the drip tape, spin the nut towards the opposite end of the barb, push the tape onto the barb, then spin the nut back over the tape to secure it in place. You do not need to warm drip tape up prior to working with it as it has a thinner wall and is thus easier to work with regardless of temperature.

### System Startup

After you have installed all the components, it is time to begin the initial startup of the irrigation system. To do this, make sure all  $\frac{1}{2}$ ” poly tube and  $\frac{5}{8}$ ” drip tape line ends are open, then turn the system on for about one minute. This will flush any debris (bits of soil, pieces of plastic, small rocks, etc.) out of the system. Turn the water off, close the line ends, then turn the water back on. This will let the system pressurize so you can check that your emitters are working and that there are no leaks. You should see water begin to drip out of each emitter installed on the system. Remember that because the flow rate of each emitter is so low it will seem as though very little water is coming out. This is intentional! If you leave the system running for about 30 minutes and return you will see a large, wetted area on and below the surface of the soil. If you do not see a wetted area around an emitter after 30 minutes, double check that the

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emitter is connected properly. You may see some leaks forming where the tube or tape was connected to a fitting. The next section gives more information on how to handle leaks.

## Repairing Leaks

It is normal for some of the connection points with ½" poly tube to leak during the first few runs of the system. However, if there is a constant leak at the connection point, you will have to take out the fitting and replace it with a new fitting. Compression fittings have an internal fitting at both sides that hold the tube. Once you pull poly tube out, the fitting inside is no longer usable as it can become warped and cause leaking. Leaks can also be caused by small punctures. To fix both types of leaks, first cut the poly tube on one side of the hole or fitting as close as you can while getting a straight cut. Next, do the same thing on the other side of the hole or fitting. Once both cuts are done, a coupling or other fitting to connect the two ends of poly tube.

It is also normal for 5/8" drip tape to leak at the connection point during the first few runs of the system. If you do see leaks from small punctures, you can do the same repair as the ½" poly tube. Cut a straight line on both sides of the hole and insert a 5/8" drip tape coupling. If you need to replace a drip tape fitting, don't worry! Drip tape fittings have a locking nut and barb which allows them to be reusable and easier to install than the poly tube compression fittings.

## Next Steps

Now that your system is installed you can rest easy knowing you are on your way to having the nicest garden in the neighborhood! We hope you enjoy the simplicity and convenience of our Drip Tape Irrigation Kit. If you would like to add more items to your kit in the future, feel free to reach out to a customer service representative by emailing [customerservice@dripirrigation.com](mailto:customerservice@dripirrigation.com) or by calling us at 877-597-1669. We will guide you through any additions and offer our knowledge and expertise to make your system even better.

Thank you from The Drip Store Team!