Hybrid Potted Plant Irrigation Kit

Introduction

Thank you for purchasing the Hybrid Potted Plant Irrigation Kit for your home garden! This kit has been custom built to provide your home garden with the necessary tools and materials to help you 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 pressure compensating emitters, screen filtration, pressure regulation, and poly tube fittings for quick assembly of your system. In this manual you will find instructions for each part of the system, helpful tips, and the parts included in each kit.

Description

Our hybrid potted plant irrigation kit comes in two sizes, small and medium, which are designed to irrigate 100 to 180 potted plants respectively. Our kits are built within the specs of the ½" poly tube and fittings they include. The small kit has a maximum flow rate of 174 gph, which is well below the flow rate capacity of ½" poly tube. This means that you can use all the emitters and ¼" drip line included in the kit on a single line of poly tube. Our medium sized kit has a maximum flow rate of 318 gph. While this does exceed the maximum flow rate of a single line of ½" poly tube (220 gph), we have provided enough poly tube and head assembly components to create two separate systems, giving you plenty of head room. 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. Please keep in mind when installing either system that you do not exceed the 220 gph threshold of a single line of ½" poly tube.

Materials used in this kit include individual pressure compensating emitters in 0.5, 1, and 2 gph, and ¼" drip line with emitters built into the line every 6". 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. Timers are sold separately as not all projects will require automation. If you'd like a timer, we suggest TDS model number C002.

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.
- We suggest that poly tube, micro tube, and drip line be installed above ground only. It is safe to mulch over it, but burying these items beneath the ground tends to cause them to crimp, restricting flow and reducing effectiveness of the system. Contact us if you are interested in burying your poly tube.
- Drip irrigation systems using pressure compensating emitters should be used with clean water. Drip emitters 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 for more information on how to install this item.

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Important Tips and Notes (cont.)

- 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.
    - 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!
    - 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.**

Specifications

- Screen Filters
    - Maximum recommended flow rate: 660 gph
    - Maximum recommended pressure: 120 PSI

- Pressure Regulators
    - Recommended flow rate range: 20 to 720 gph
    - Maximum recommended pressure: 120 PSI

- Rivulis Supertif PC Emitters
    - Recommended pressure range: 8 to 50 PSI
    - Suggested filtration size: 150 mesh

- DIG ¼" Drip Line, 6" Spacing
    - Recommended pressure range: 10 to 25 PSI
    - Maximum lateral length: 30'

- ½" (.600 ID x .700 OD) Poly Tube
    - Maximum recommended flow rate: 220 gph
    - Recommended pressure range: 25 to 30 PSI
    - Maximum lateral run: 400'
    - Pressure loss every 100': 4.4 PSI

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Installation Instructions

Head Assembly: Connection to Hose Spigot

The start of the system should be installed directly 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 small 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 page at the end of this document.
    - A015- Backflow Preventer
    - F300- 155 Polyester Mesh Screen Filter
    - PR204- 25 PSI Pressure Regulator
    - LF003- Poly Tube Adapter

- To build the head assembly for the medium kit, follow the components in order below:
    - A015- Backflow Preventer
    - F300- 155 Polyester Mesh Screen Filter
    - A070- "Y" Ball Valve
    - PR204- 25 PSI Pressure Regulator, one on each side
    - LF003- Poly Tube Adapter, one on each side

Each component's inlet is ¾" FHT (female hose thread) and the outlets of each component are ¾" MHT (male hose thread). The poly tube adapter has a compression outlet, meaning it attaches directly to the poly tube.

1/2" Poly Tube Connections

The ½" 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. ½" 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 ½" poly tube to stop the flow of water.

1/4" Micro Tube Connections

Smaller fittings are meant to connect ¼" micro tube, ¼" drip line, or emitters to the larger ½" poly tube. These fittings are typically a straight barbed connector but can sometimes be a barbed elbow or a barbed tee. To insert ¼" fittings into ½" poly tube, use the A019 punch tool to create a hole suitable for all our small fittings. The next steps will depend on which specific part you are installing. See below for each type of ¼" fitting:

- Button Emitters- Each emitter has a ¼" barbed inlet and an 1/8" barbed outlet. You may connect an emitter directly into the ½" poly tube and allow water to drip directly from the large tube onto the soil at the base of your plant. Or you may insert a ¼" barbed connector into the ½" poly tube and run ¼" micro tube to the plant with an emitter at the end. This is useful if you have a plant that is far away (up to 30') from the ½" poly tube. To do this, first measure the distance from the ½" poly tube to the plant in question and cut a piece of ¼" micro tube to that length. Insert a ¼" barbed connecter into one end and the ¼" (black) end of a button emitter into the other end. Punch a hole in the ½" poly tube, then insert the free end of the ¼" barbed connecter into the hole. Lastly, use a V-stake to hold the end with the emitter in place.
- ¼" drip line- drip line is especially useful if you are growing row crops such as corn, spinach, or lettuce and when irrigating larger diameter trees or potted plants. The process to use drip line is much the same as to use a button emitter on a piece of ¼" micro tube: measure the distance you want the ¼" drip line to run, then cut it. Insert a ¼" barbed connecter into one end, and a goof plug into the other end. Punch a hole in the ½" poly tube and insert the open end of the ¼" barbed connecter into the hole. You can use the S040 stakes provided in the kit to secure the line in place.

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1/4" Micro Tube Connections (cont.)

- When utilizing ¼" micro tube it is recommended to build the ¼" components first, before attaching it to ½" poly tube. Connecting to the ½" poly tube should be the last step, as adjusting the components after they are installed on the ½" poly tube can be difficult. If you do not want water dripping in a certain area, attach a short length of blank ¼" micro tube with any of the ¼" barbed connectors to bridge the gap between the ½" poly tube and the area or pot to be watered. Utilizing ¼" micro tube until you are at the pot or plant will ensure that water is only applied where it is needed.

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 ½" poly tube 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 (0.5-2 gallons per hour depending on the emitter) 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 emitter is connected properly. You may see some leaks forming where holes were punched and the emitters or ¼" fittings are inserted. See the below section on leaks and repairs for more information.

Repairing and Plugging Leaks

It is normal for some of the connection points with ¼" fittings and emitters to leak slightly during the first few runs with a freshly installed system. If you see leaking after the first few runs, there is an easy solution. If the leak is coming from the base of a button emitter or a ¼" barbed connector, simply turn the system off and take out that piece. Next, take the large end of a goof plug and insert it into the empty hole until the middle flat piece is flush with the outside of the ½" poly tube. This will ensure a tight fit and solve your leaking issue. You can punch a new hole for the emitter or fitting that you removed.

If the hole is too large for a goof plug, you will need to use a ½" coupling to fix it. First, cut the poly tube on one side of the hole as close as you can while getting a straight cut. Next, do the same thing on the other side of the hole. Once both cuts are done, connect the coupling to both open sides of the poly tube. This is a convenient and easy way to connect two pieces of poly tube without having to replace a long run entirely.

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 Hybrid Potted Plant 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 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!