MULTI FLOW HYDROPONIC SYSTEM

Thank you for purchasing the Multi Flow Hydroponic System. The Multi Flow is an “ebb and flow” or “fill and drain” type hydroponic system. The operation is simple, the pots are filled from the bottom then drained back out. This simple process evenly moistens all the roots in each pot. Ebb and flow is one of the simplest and most reliable methods of hydroponic gardening.

Ebb and flow systems are usually limited to small plants placed close together in a large tray. The entire tray is filled watering the plants. With plants over 18 inches tall in a tray system, the plants must be spaced far apart for proper growth. So the tray is mostly empty space that must be filled each time, using a lot of water.

The Multi Flow overcomes this problem by using individual pots connected together at the base. Each of the pots can be spaced as far apart as needed without using more water. The pots are actually two parts, the base and the insert. The inserts can be removed without disconnecting the tubing. The advantage of this is, if you have plants in different stages of growth, some of the bases can be placed close together and some farther apart. When the new plants grow to a point where they are crowding each other, just lift out the inserts and place them in the bases that are farther apart. Try that with a plant growing in a Rockwool slab!

Revised Nov 15, 2016

Unpack and identify all parts carefully Use the list below as a guide.

Items included with the 12 pot system

1 Controller Assembly
2 6 pot Add-On Kits
1 55 gallon reservoir

Items included with the 24 pot system

1 Controller Assembly
4 6 pot Add-On Kits
1 55 gallon reservoir

Items included with the 36 pot system

1 Controller Assembly
6 6 pot Add-On Kits
1 55 gallon reservoir

Items included with the 48 pot system

1 Controller Assembly
8 6 pot Add-On Kits
1 55 gallon reservoir

The Controller Assembly contains

1 Level Controller with timer.
1 Fill Pump
1 Drain Pump
1 Fill/Drain Tube Set
1 Lid for Controller
1 Bag containing
  1 Instruction manual
  5 ¾" Elbows
  2 ½" Elbows
  15 ¾" Connectors
  10 ¾" Barbed Fitting End Caps
  1 10" section of ½" tubing
  1 1-5/8" Screw

Each 6 add on contains

6 Lower Pots with grommet installed
6 Upper Pots with drain holes
6 Tee fittings
1 Elbow fitting
1 Roll of ¾" tubing, approximately 20 feet

ASSEMBLY

Insert 10 of the ¾” Connectors into the grommets at the base of the Level Controller.

NOTE: A small amount of lubricant like water, or dish soap and water will make installing the connectors into the grommets much easier.

Connect the Fill Pump to the long tube on the Fill/Drain Tube Set marked “FILL” on the side marked “RESERVOIR HOLE”.

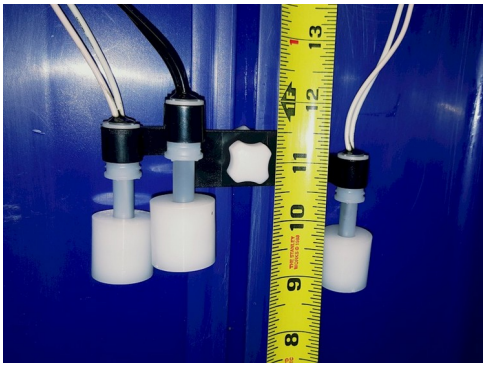
Insert the two ½” Elbows into the grommets at the top near the “FILL” marking.

Connect the the Fill/Drain Tube Set to the elbows. Looking at it from the outside, the Fill tube goes on the left and the Drain on the right.

Connect the 10” long ½” tube to the Drain Pump. Connect the other end to the drain elbow inside the controller.

Tie a knot in the Drain Pump power cord so the cord stays out of the Float Switches.

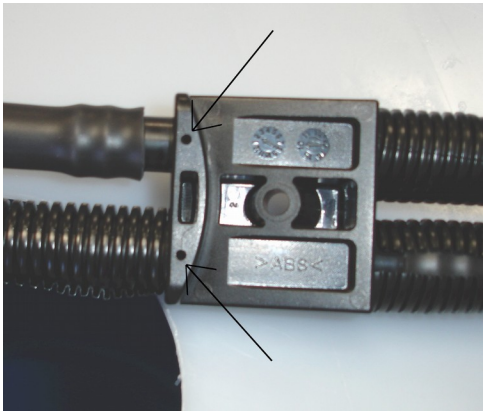
The two upper Float Switches are on an adjustable mount so the Level Controller can be used with different size pots. It should be 11-1/2” from the base of the controller to the top of the Float Switch Mount if you’re using the Multi Flow Pots. Test your fill depth carefully. It should fill the lower pot ½” from the top. Remove the upper pot to test. Do not over-tighten the thumbscrew.



Put the Fill Pump with the Fill/Drain Tube Set connected to it, into the hole in the top of the reservoir. Hang the power cord over the side, it will be plugged into the Level Controller later.

IMPORTANT

The Fill/Drain Tube Mount has two small holes on the bottom side. **These are siphon breaks and must not be obstructed!** A small amount of water may come out of the hole so position them over the large opening in the reservoir.



Use the screw to hold the Fill/Drain Tube Mount to the top of the reservoir. There is a small hole for the screw next to the large hole. Make sure the tube clamp hangs over the reservoir hole so the siphon breaks are clear and unobstructed.

Layout the pots in rows in your grow room and connect them together with the tubing and tee fittings. You can use the elbows for the end. Lubing the grommets with a small amount of water will make it easier to insert the fittings.

Connect the first pot on each row to one of the connectors at the base of the Level Controller.

Use the Barbed Fitting End Caps to plug any unused outlets in the base of the Level Controller.

The tubes connecting the pots should lay as flat as possible and should not be kinked. Any kinks or high spots will reduce the flow of nutrient.

We recommend expanded clay media for the system, Hydrocorn, Hydroton or similar brands.

You should wash the media to keep any fine debris from clogging the system. The easiest way to do this is by filling the insert pots with rock and running a hose through the top of the pots until the water is clear.

If you have cuttings ready to plant, fill the pots half way, place the cutting in the pot and fill the rest of the way with the media.

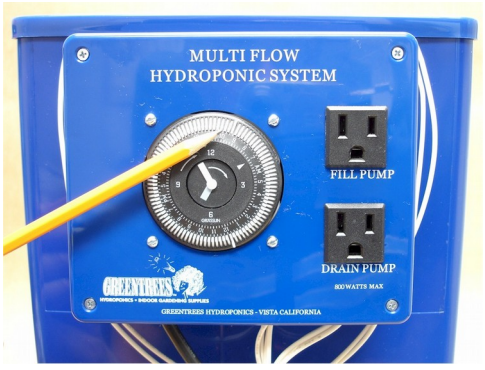
Plug in the Drain pump, (the pump in the Level Controller) to the outlet labeled “Drain Pump”.

Plug in the Fill Pump, (the pump in the reservoir) to the outlet labeled “Fill Pump”. If the Level Controller is not near the reservoir, you may need an extension cord (not supplied).

Fill the reservoir with water to about two inches from the top. We recommend adjusting the pH of the water to 6.3 **before and after adding nutrient.** Add nutrient according to the instructions on the label. Hydroponic nutrient is most soluble at 6.3 pH. Adjusting the water before adding nutrient will make the nutrient dissolve better than not adjusting first. You should also adjust after because the nutrient itself will make the pH change.

Prime the pumps. When a pump is started for the first time or if it has been allowed to run dry, the impeller chamber is full of air. It might not pump water until the air has been pumped out of the impeller chamber. You can apply power to the pump when it’s submerged and simply jiggle the pump or the tube to get the air out. Always keep the pump inlet submerged so it does not pull in air.

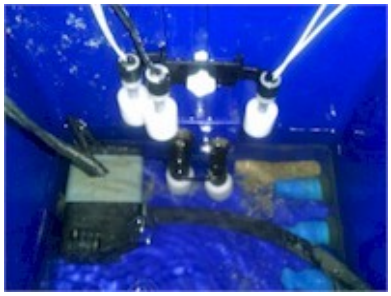
Plug in the power cord and set the timer to the time of day. **Only turn the dial in the direction of the arrows!** Push the pins out to set the watering times. One pin will turn on the system for 15 minutes and fill the pots. It will drain automatically after the 15 minutes is up. 30 minutes may be needed for the 48 pot system fill completely. If so, push out two adjacent pins. If you want the system to water three times a day, just push out the pins at the desired time in the dial.



Common Setup Errors

If your Multi Flow Controller drain pump is turning on and off continuously long after the water has been drained out of the pots, or the timer box is buzzing, the system is not operating correctly. This can lead to damage of the electrical components and eventual failure of the drain circuit causing the system not to drain.

If you're hearing a buzzing sound from the timer box, make sure the drain pump is at least three inches away from the bottom level switches. When the pump is running it generates a magnetic field that can disrupt the operation of the level switch causing the drain pump relay to cycle on and off very fast sounding like a loud buzz. This can damage the drain circuit quickly. Secure the pump in the corner, use the short tube included and connect it to the elbow in the drain hole at the top so the pump does not freely move inside the controller.



A pump on a long tube close to a level switch. The pump is creating a magnetic field that triggers the switch.

Incorrect

Multi Flow pump connected to a short tube and elbow. The tube is short enough to keep the pump from moving.

Correct

If the drain pump is turning on and off every few seconds, this could be an indication that the water is siphoning into the controller from the reservoir after the drain pump turns off. This is usually caused by a missing fill/drain tube mount, a tube mount that's not mounted correctly causing the siphon break to fail, or a siphon break hole that's obstructed. The fill/drain tube mount must be mounted with a screw to keep it from becoming submerged when the reservoir is full.

A fill/drain tube mount not secured could become submerged causing water to siphon into the controller.

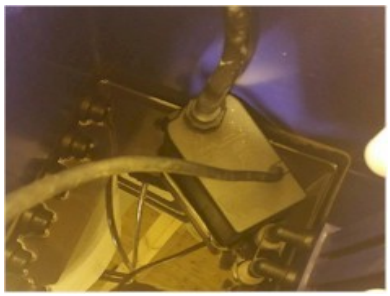
Incorrect

Fill/drain tube mount secured with a screw above the water level.

Correct

Common Setup Errors Continued

If the drain pump is turning on and off every ½ second or so, this could indicate a problem with one of the two lower level switches. If one is operating and the other is stuck, the drain pump turns on just long enough to lower the water level then turns off. The water then rushes back out of the tube and raises the water level, starting the cycle over again. Look for anything that comes in contact with the lower level switches or any debris in the water that could get caught between the float and the float stem.



Drain pump connected to long tube is contacting a level switch causing it to fail.

Incorrect

Drain pump on a short tube connected to the inlet elbow will not interfere with the switch operation.

Correct

If the system has been modified to operate as a top feed drip that causes the drain pump to operate many more times than it was designed for, this will reduce the life of the electrical components. Also, if the drain pump has been changed to a larger pump that requires more current, this will also reduce the life of the electrical components. Modifications of this type would void the warranty.

Frequently asked questions

Q: How often should I water the plants?
A: The number of fill cycles depends on the growth rate of your plants and the evaporation rate. Fast growing adult plants may need anywhere from three to six fill cycles per day. New cuttings may only need one fill per day. Just like soil gardening, if you can stick your whole finger into the soil (or rock in this case) and it's dry, it's time to water.

Q: How long should the system stay filled?
A: Just long enough to fill the pots. Usually 15 minutes.

Q: When should I fill the reservoir?
A: The reservoir should be topped off as often as possible. If the water level gets below 2/3 full the nutrient may become too concentrated. Only fill the reservoir after the system has had at least 30 minutes to drain. If you add water to the reservoir when it's filling the pots, it may overflow when the water drains back.

Q: Should I drain the system and flush it out once in a while?
A: Yes, it's a good idea to drain the system and replace the nutrient solution every 2 weeks. Fill the reservoir about half full with water and let it fill the pots. Let the system drain back out and discard the water in the reservoir. Scrubbing the reservoir and pots is usually not needed.

Q: When should I add nutrient?
A: You should add nutrient every time you fill the reservoir. If you're topping off the reservoir between regular nutrient changes, use half strength nutrient. When the water evaporates it leaves the nutrient behind, increasing the concentration.

Q: When should I check and adjust the pH?
A: The pH should stay close to 6.3. A system that uses a lot of water will probably need to be checked every day. For low water usage plants like orchids, once a week should be fine.

Q: Do I need to replace the Hydroton?
A: No, Hydroton can be reused many times. We do recommend cleaning it between crops. Remove the large root material and let it soak in a 0.5% hydrogen peroxide solution overnight. Rinse it well and reuse.

Q: Do I need a bigger Level Controller if I want to add more pots?
A: No, the same Level Controller can be used for up to 48 pots but it does make maintaining the nutrient much easier if you have fewer pots on a controller. 48 large plants might need to have the reservoir topped off twice a week.

Q: Can I add more than 48 pots?
A: You can, but it's not a good idea. All the water goes into the system through a 3/4 inch hose. A system with 100 pots could take an hour to fill and drain. The longer the plants are submerged, the less oxygen the roots get, slowing the growth. If you need that many pots, you should run two Level Controllers.

Q: What size plants can I grow in the Multi Flow?
A: Anything up to about 5 feet tall without some other means of support. If the plants are supported with a trellis, the sky's the limit.

Q: The bottom of the Controller has about two inches of water left in it after draining. Is this normal?
A: Yes, the pump will shut off when there is about 1-2 inches left in the Controller. If not, the pump runs dry and it may need to be primed. The water level should be just below the inner pot.

Q: Can the pots or reservoir be placed higher or lower than the Level Controller?
A: No, the reservoir, Level Controller and pots should all be on a flat level surface.

Q: Can I grow different types of plants in the same system?
A: Yes. All the plants must be able to use the same nutrient mix and have similar watering needs.

Q: Some of my pots don't fill up all the way, or drain down to the one inch level, what's up?
A: If after 15 minutes of filling you still have some pots that don't fill all the way, there is probably an obstruction. Some common causes of this are, a rock in the tube, a kink in the tube, a rubber stopper left in or the roots have grown so large they clog the tube.

Greentrees Hydroponics
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