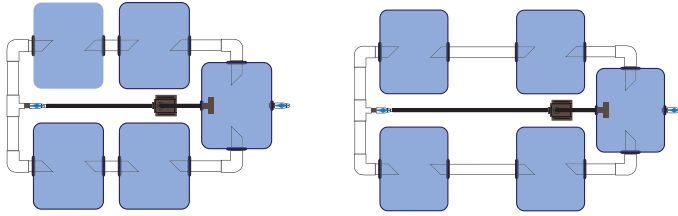
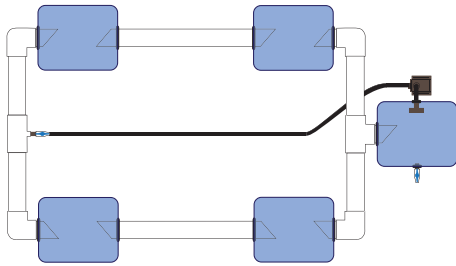


Assembly Instructions

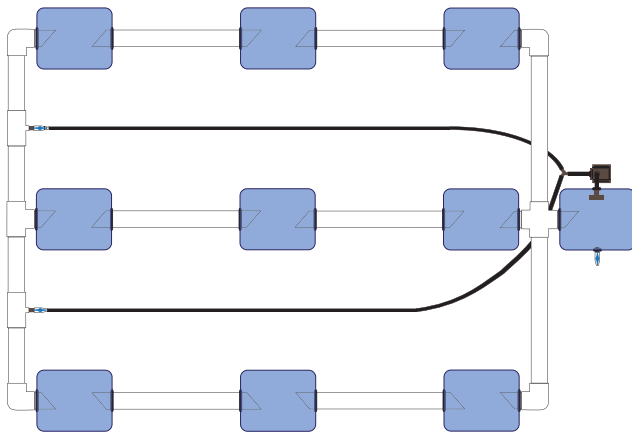
Under Current / Under Current XL



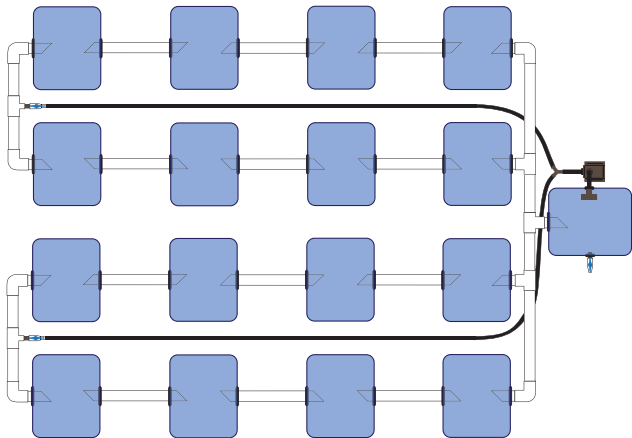
Under Current XL / XXL 13



Under Current Evolution



Under Current Double Barrel



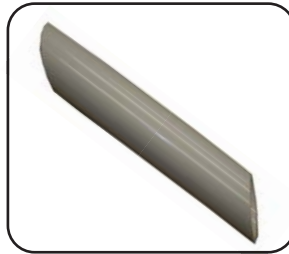
Parts



Epicenter



Module



Joint



Water Pipe



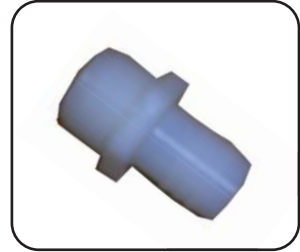
Return Manifold



Return Pump



Return Pump Manifold



Return Pump Inlet



Air Pump



Air Pump Manifold



Air Stone



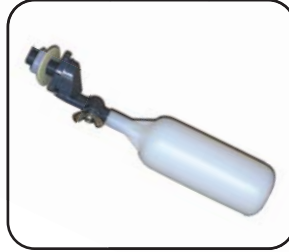
Air Hose



Drain Valve



Net Pot



Float Valve



Reservoir Adapter



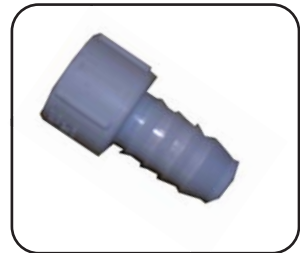
UniSeal



Lid



Return Pump Diffuser



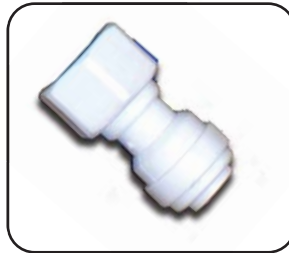
Chiller Adapter



Hose Drain Adapter



Return Hose

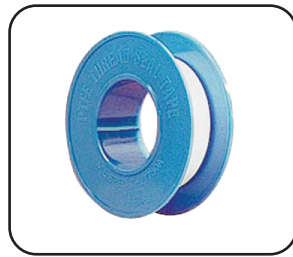


Float Valve Quick Connect



Epicenter Air Diffuser

Tools Required



Teflon Tape



Scissors



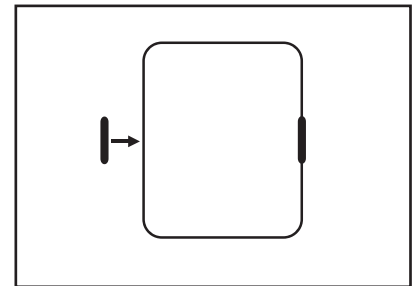
Spray Bottle & Soap

Under Current / XL

1. Unbox. Lay out all components for easy identification.

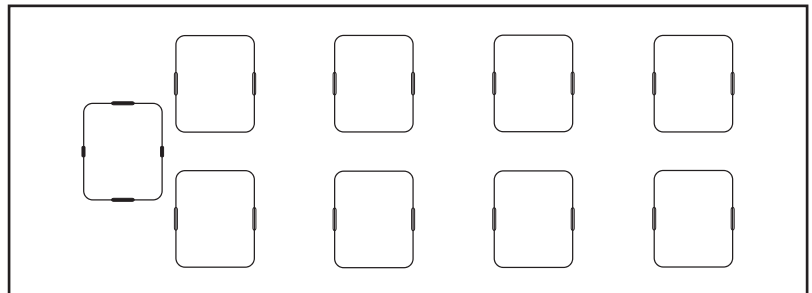
2. Mix 1-part dish soap to 1-part water in a spray bottle to use as lubricant.

Note: Use plenty of lube for easy installation.

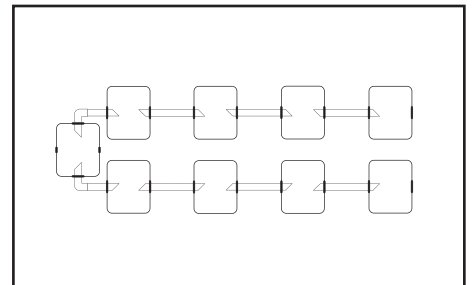
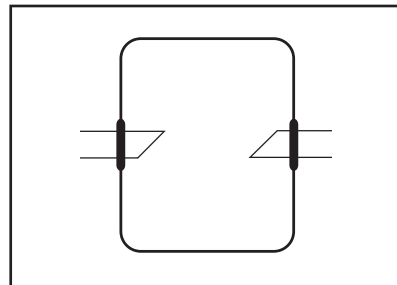
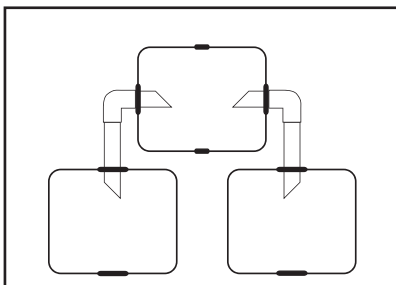


3. Install UNISEAL in all modules.

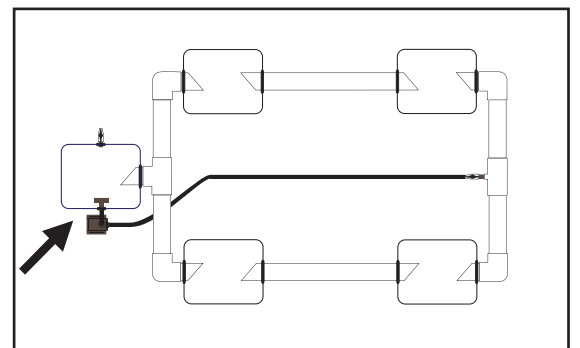
4. Layout in desired pattern.



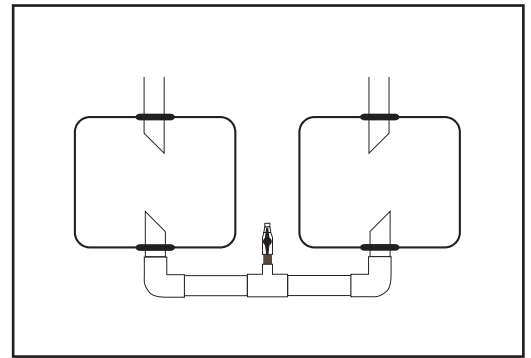
5. Insert WATER PIPES into EPICENTER and begin connecting MODULES with JOINTS. Push all JOINTS through UNISEALS until complete penetration has been achieved.



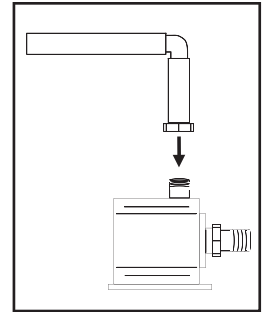
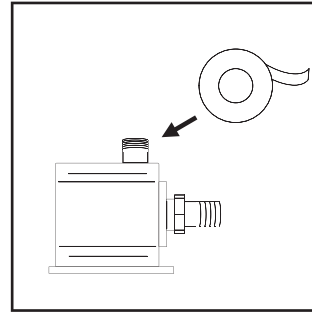
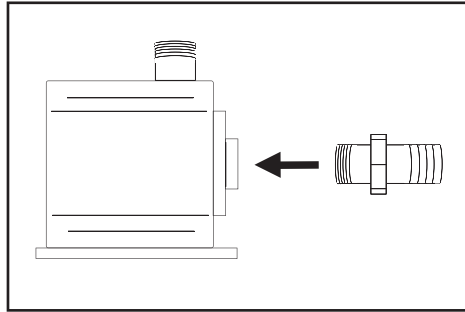
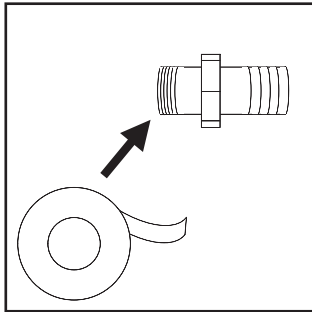
** For Under Current Systems with 13 gallon MODULES, please note parallel EPICENTER configuration.



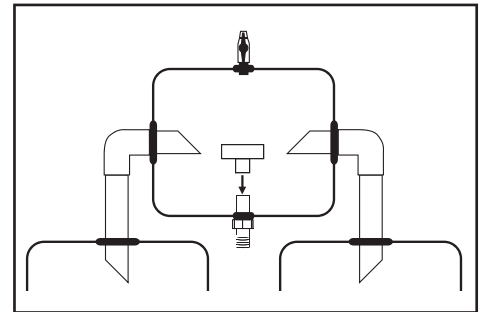
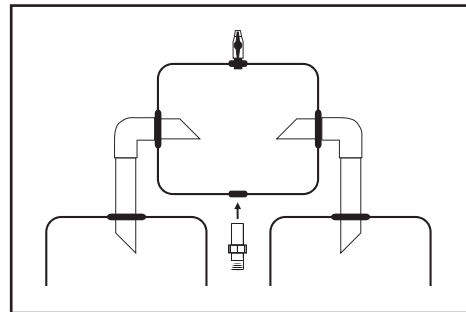
6. Once all MODULES are connected and aligned, insert RETURN MANIFOLD. Spin ball valve 90 degrees so that it is facing up. Make sure valve is open.



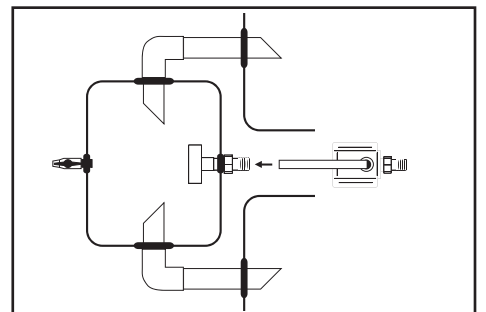
7. Remove RETURN PUMP from box. Wrap 3/4" RETURN PUMP INLET with TEFLON TAPE and screw into pump inlet. Wrap pump outlet with TEFLON TAPE attach RETURN PUMP MANIFOLD to pump outlet.



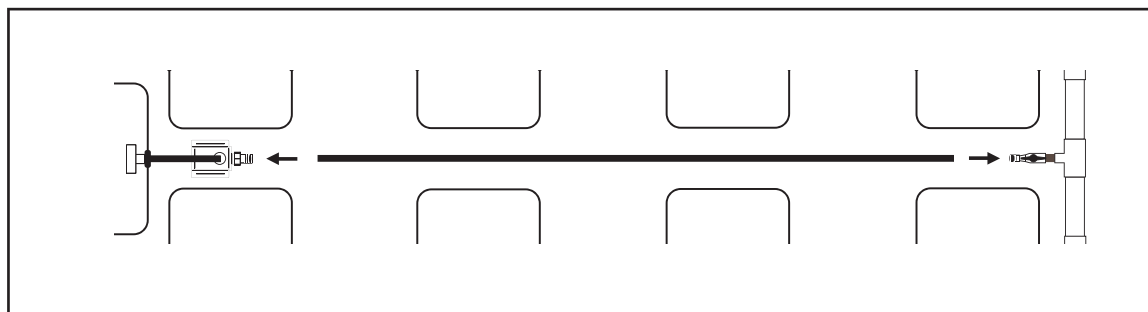
8. Install RETURN MANIFOLD DIFFUSER in upper EPICENTER UNISEAL by pulling tee off then replacing once completed.



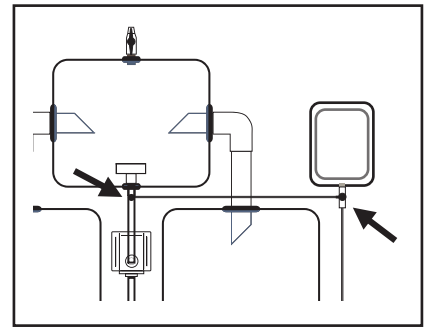
9. Connect RETURN PUMP MANIFOLD to 3/4" barb on RETURN MANIFOLD DIFFUSER.



10. Install 3/4" RETURN HOSE between RETURN PUMP INLET and RETURN MANIFOLD barb. Cut to length with scissors.



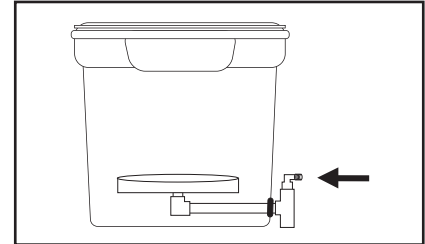
12. Remove AIR PUMP from box and place parallel to system near EPICENTER corner. Attach AIR PUMP MANIFOLD to AIR PUMP outlet. Attach 3/8" O.D. air hose (shorter length) from AIR PUMP MANIFOLD to black barb on EPICENTER.



****Note: Larger Under Current models may include multiple AIR PUMPS**

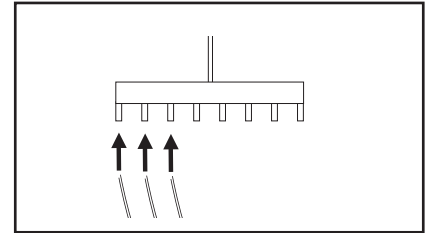
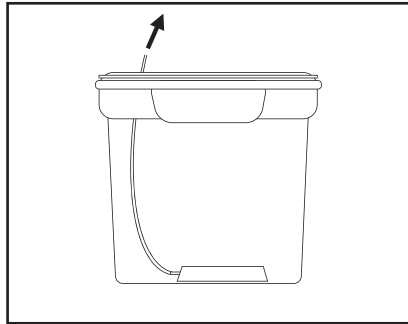
1. Smaller AIP PUMP: Attach 3/8" barb to AIR PUMP outlet, attach 3/8" O.D. air hose to black barb on EPICENTER.
2. Larger: Rest at center of system, attach AIR PUMP MANIFOLD.

13. Attach LIDS to each MODULE.



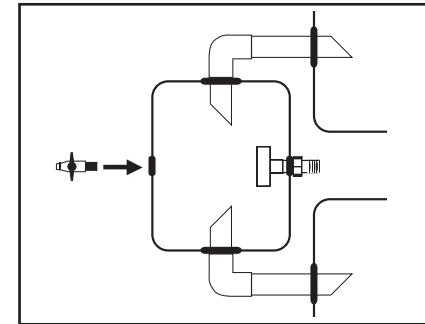
14. Remove all AIRSTONES from packaging.

15. Open AIR HOSE, place at bottom of first MODULE. Pull 1/4" AIR HOSE up and out through small hole in LID and connect to diffuser on AIR PUMP MANIFOLD. Leave 12" of AIR HOSE in MODULE and cut. Repeat for every MODULE.



16. Install 6" AIR STONE in each MODULE and rest at bottom.

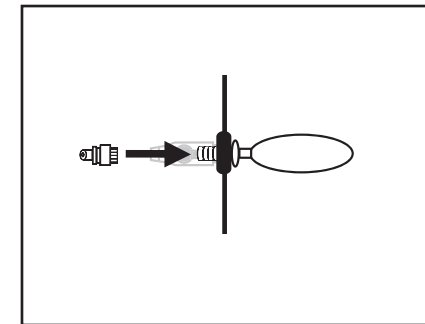
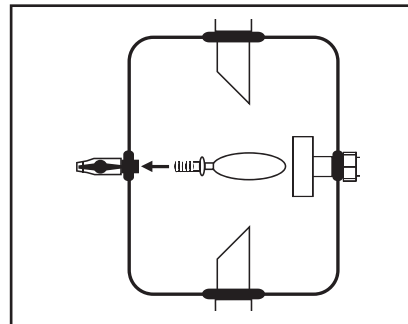
17. Insert heavy duty NET POT in each LID.



18. Install DRAIN VALVE in EPICENTER. Make sure DRAIN VALVE is closed.



19. Install FLOAT VALVE in upper EPICENTER Lip through pre-drilled hole. Be sure to tighten nut down completely to ensure seal. Apply TEFLON TAPE to threaded barb on FLOAT VALVE. Attach FLOAT VALVE QUICK CONNECT. Adjust FLOAT VALVE to desired nutrient level.

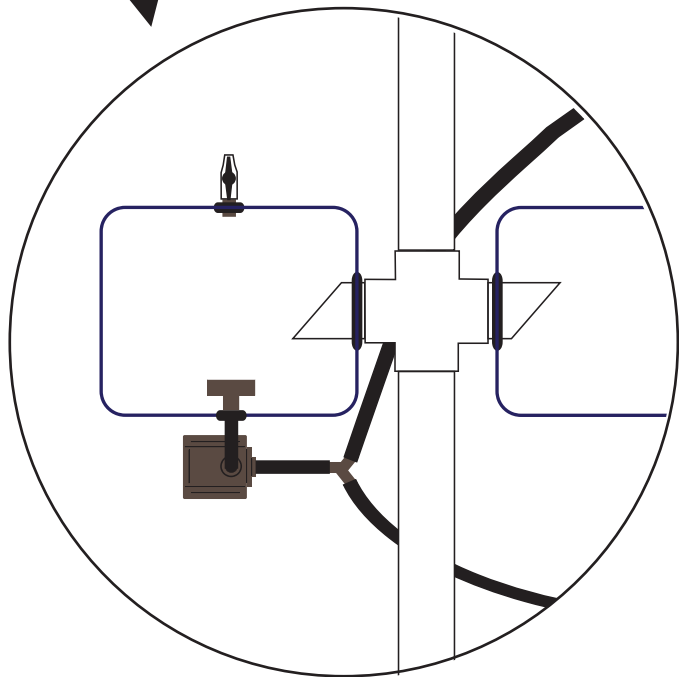
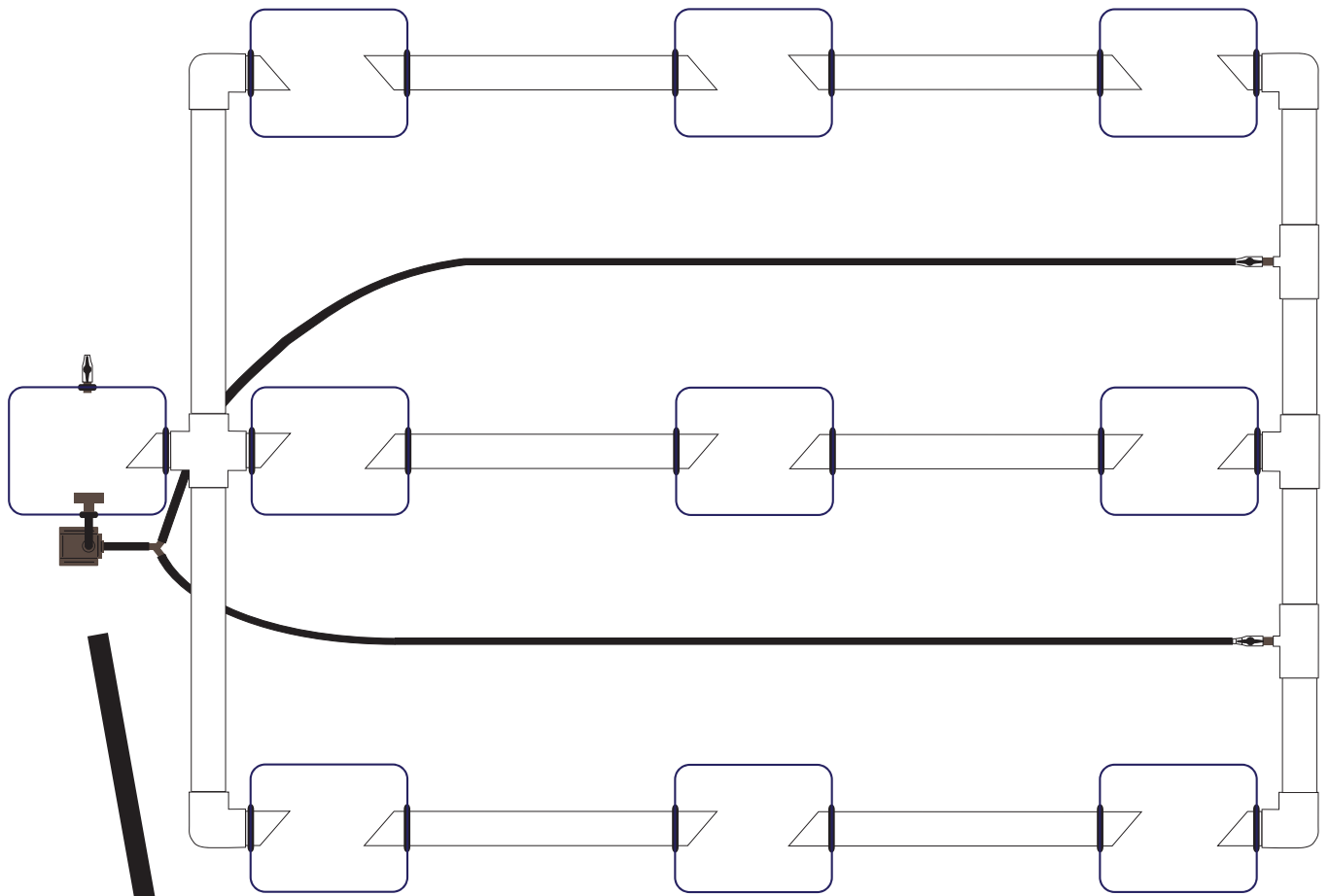


****Optional:** Drill 1-1/4" hole in desired reservoir, install UNISEAL and RESERVOIR ADAPTER. Connect FLOAT VALVE QUICK CONNECT to RESERVOIR ADAPTER with RESERVOIR HOSE and BALL VALVE.

20. Inspect system, double check all steps. Make sure all threaded unions are taped. Test fill system to just above UNISEALS and run to check for leaks.

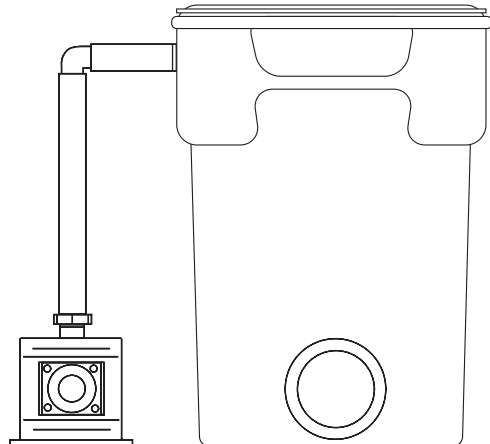
****** When using CO₂, we recommend placing AIR PUMPS outside of grow space.

Under Current Evolution

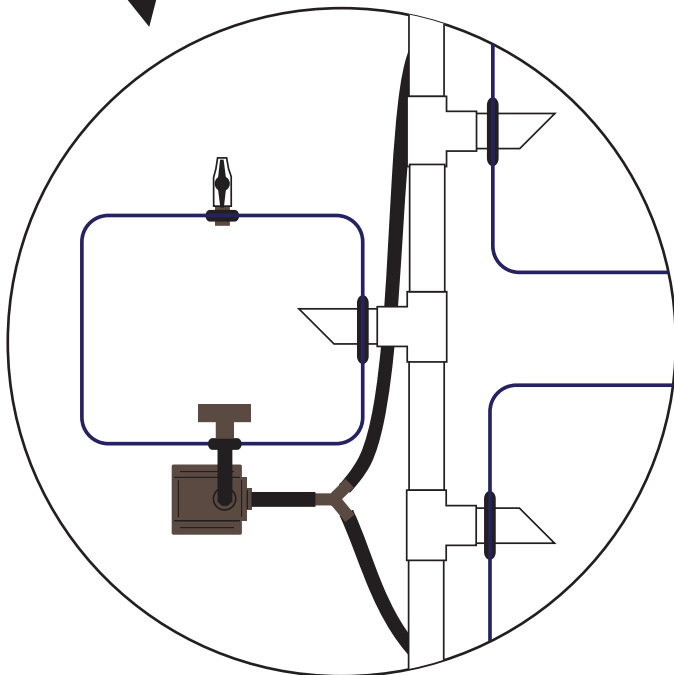
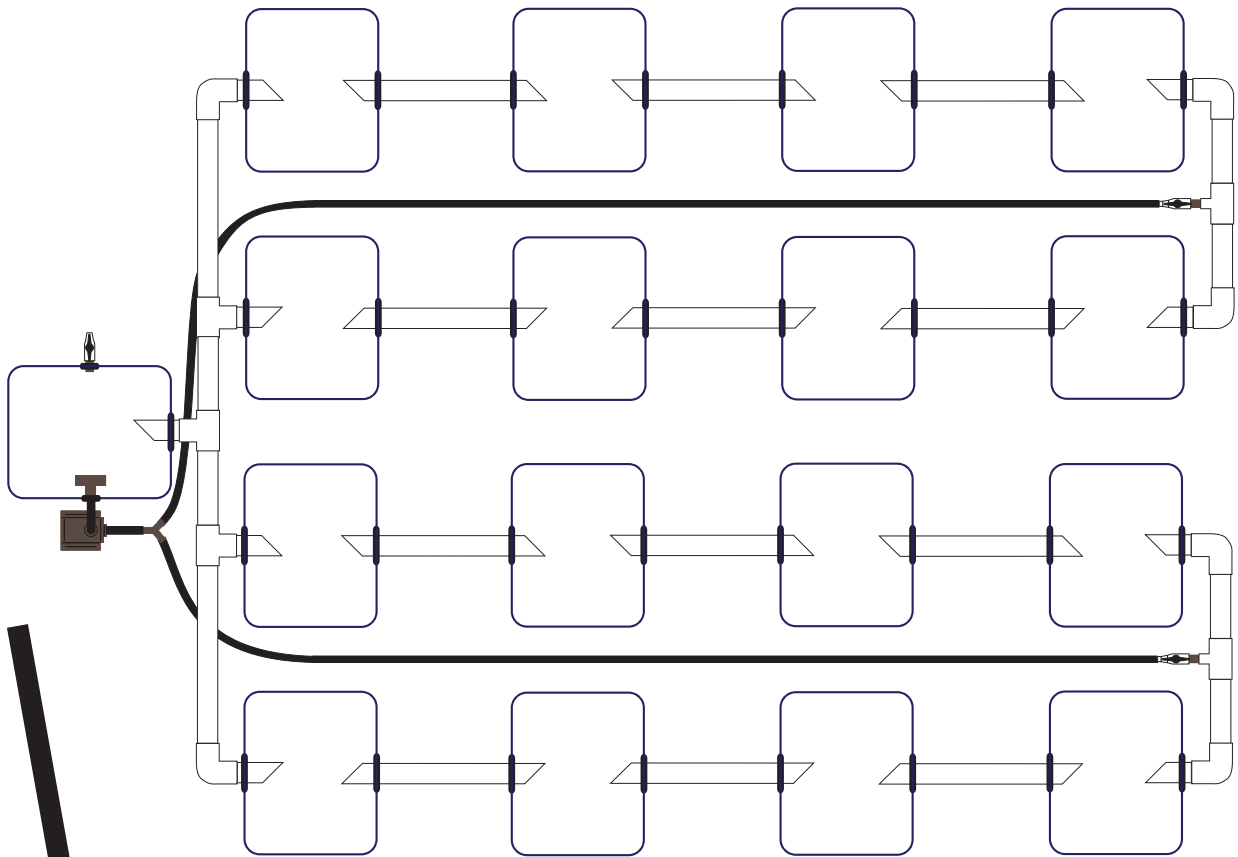


For Under Current Evolution systems use provided "Y" fitting to connect both RETURN HOSES to RETURN PUMP. For best results, route RETURN HOSES under JOINTS and MANIFOLDS.

**Tape all threaded unions.

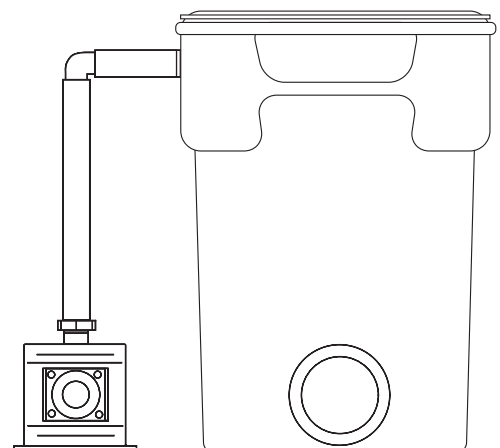


Under Current Double Barrel



For Under Current Double Barrel systems use provided "Y" fitting to connect both RETURN HOSES to RETURN PUMP. For best results, route RETURN HOSES under JOINTS and MANIFOLDS.

**Tape all threaded unions.



Frequently Asked Questions (FAQ's)

Air Pump and water temp run 24/7?

Yep, the inline water pump powers the negative solution displacement which drives the Sub Current Culture (SCC) method. The linear, high efficiency air pumps provide the active aeration which super charges the nutrient uptake.

Even during the night cycle?

In properly aerated & balanced nutrient solution plant roots can stay submerged 24/7, even through the dark cycle. Plants continue to metabolize nutrients & exchange gases in the dark, keeping the solution moving aids in these processes.

How much solution is in each module?

We recommend an operating volume of approximately 6 gallons per module. That makes 100 gallons +/- in a 16XL (6 x 17 modules). A very small volume of solution is held in each joint (conduit) between the modules as well.

Is it the same for the bloom cycle?

We advise to drop the operating level to about 4 gallons per module during the fruit and flowering cycle. This helps ensure ample atmospheric oxygen uptake by the non submerged roots within the module. This oxygen exposure aids in proper fruit set and essential oil production as the plants mature.

This technique can also mimic "drought conditions" which triggers the plant to produce more oils as a means of reducing transpiration rates.

Can the system be automated?

Ease of use is one of the UC's main attributes. The return module (epicenter) comes equipped with a high quality float valve built in for easy auto top-off. Each system also includes a bulkhead adapter for plumbing straight to your favorite reservoir. We would suggest our 100 gallon cylindrical aquifer of course. And remember, no timers for pumps means no worries!

What about auto dosing systems?

Combining the UC with an auto doser like the Intellidose from AM HYDRO is a match made in ... (insert your favorite place). In this case you would plumb the UC float valve directly to a pure water source & let the Intellidose do the rest. Of course you'll need to set the doser to your specs, but then it's on like Donkey Kong. The likelihood of a zero dump out run increases exponentially when a doser is used.

What should the top off res be balance to?

When operated properly, top off should be balanced the same as the solution in the system. Traditionally hydro growers have been instructed to top off with 1/2 strength or pure water to avoid nutrient toxicity but because the UC runs best with 1/2 strength nutes there is less of a chance of salt build-up. Ideally the solution in the system should stay balanced even as the plants use the nutrient and water. As a rule of thumb if the nutrient EC/TDS rises as the solution is depleted you are likely running your levels too high to begin with. Conversely, if your EC/TDS drops it indicates you've started to low. Ultimately, as solution levels drop in the system the EC/TDS should stay stable, this is a good indicator that you're dialed in. This EC/TDS stability will translate into improved plant health and greater pH stability to boot.

What if I experience drift in my nutes?

Correct it with your top off solutions. Example: system started at 500ppm but has crept to 625ppm as the solution level has decreased. That's a 25% increase, which can be easily offset by a top off res balanced @ 25% below the initial 500ppm. This results in a top off res balanced at 375ppm to compensate. Ideally solution strength should stay constant as the plants consume it. This is a good indicator that minerals & water are being used at equal proportions.

Does this help pH stability?

Absolutely! Any upward or downward fluctuations in EC/PPM can have an effect on pH. By avoiding excess TDS, the solution is easier to keep stable. If any pH adjustments are needed they can most easily be altered by the top off input. Example pH @ 6.0 to start drifts to 6.5 over a 5 day period can easily be offset by making the top off res slightly more acidic so when top off solution enters system it gradually maintains proper pH levels as the plants access the nutrients. This will help avoid any potential nutrient lock outs caused by adjusting the pH with concentrated acid or bases. Observations and slight adjustments are the best way to dial your system in when in doubt, give CCH2O a call.

If pH adjusting is necessary is it a pain like in other modular systems?

The UC exchanges no less than 50 gallons of solution per module per hour. That equates to replacing the solution in each module 8 times per hour. With this being said, getting the pH balanced is a lot less drama then it has been in the past. (Rule of thumb, if the pH is between 5.5-6.5 let it be. Nutrients in this pH range are abundantly available. At times dialing in your solution to the "perfect" pH can be more counterproductive then just letting it ride. If you are experiencing severe pH fluctuations (0.2-0.5+/- a day) you might consider changing to a more pH stable nutrient.

What solution temperatures are optimal?

The system operates well anywhere from 65-80 degrees F. We recommend maintaining a temperature between 68-72 degrees F. This is a happy medium between optimum dissolved oxygen capacity without getting to cold and slowing the plants metabolism. If necessary a chiller can be easily adapted to the return pump on the UC.

Besides high water temps what else can reduce dissolved oxygen levels in the system?

Elevated levels of dissolved solids can displace D.O. as they compete for real estate in the nutrient solution. So cool, 1/2 strength nutes are a perfect environment for high D.O. levels

What D.O. levels should growers expect in the UC?

We've tested on average +/- 9ppm of D.O. in solution. Water temps and quality will influence levels. As a point of reference Dr. Elaine Ingham recommends no less than 6ppm to brew actively aerated teas.

Do bio inoculants thrive in the UC?

Given our increased levels of D.O. the UC does make a pretty good bio tea brewer, but... we do recommend very dilute amounts of inoculants to be added to the systems. Unlike a tea brewer, the solution in the UC is intended to be recirculated for prolonged periods of time. Most tea brewing cycles should conclude between 24-72 hours. Teas in hydro water culture systems can build up harmful bio films resulting in potential pathogen outbreaks. (If teas & inoculants are used we recommend more frequent nutrient change outs.)

What is the best nutrient additive for the UC?

As with all hydro starting with pure water is paramount. Low EC/TDS, de-chlorinated water always works best. Low TDS in the parent water allows room for a well balanced nutrient concentrate to occupy the nutrient solution. The more balanced the nutrient to start, the better it will operate at low concentrations in solution and in turn the more usable it will be for your plants.

What strength nutes?

Simple question, not so simple of an answer. Depending on environment, genetics, quality nutrient, etc. your responses nutritionally should vary. Generically speaking we recommend 1/2 strength, the regular strength usage direction on the bottle. More importantly we recommend sticking to base nutrients only, especially if you're new to DWC. If your nutes are worth their salt (pun intended) you should be blown away by the results you get. Any top shelf base nutes will provide all your plants need to thrive.

What about nutrient schedules that change by week?

Given we encourage zero nutrient change outs this does complicate things a bit. Best technique is to dilute any primary supplement into the top off reservoir. Any heavy additives...i.e. molasses, carbos, etc. can be introduced by hand directly to the root crown. Preferably avoiding run off into the solution below. This will help to avoid fouling the solution and hastening the need for a nutrient change out. And remember most supplements work great as foliar sprays.

BLOOM BOOSTER TIP -When following a nutrient schedule go 1/2 strength throughout, but increase to full strength in the second trimester (week 4-6) of bloom to ensure proper fruit and flower development.

ORGANIC FRUITING TIP -Veg plants with a quality synthetic fertilizer to produce a vigorous plant and root mass. Once 1/3 into bloom, begin introducing organic inputs if desired. The vigorous roots developed in synthetic nutes will be better able to absorb soluble organics and provide the high yield/quality we all strive for.

How do you veg for the system?

With our Quad Tops of course. You can transplant our 5.5" heavy duty net pots right into your blooming UC rig. Other systems that veg well for our system include the GH AeroFlo2, AH N.F.T., or transplant straight out of any aero cloner. Veg times in the UC are notoriously quick so start your fruiting cycles early to avoid overgrown madness. No...seriously though.

What grow media works best in the net pots?

Any non wicking inert grow media tends to work best. Expanded clay pellets, growstones, silics stones, lava rock, sure to grow to name a few. When using a wicking media like rockwool be sure to adjust solution level to below contact with the R.W. We are working toward a zero grow media system but haven't solved the plant stability issue yet. Ideally all you grow medium will come out of the faucet!

How much longer will nutrient stay viable vs. traditional Ebb n flow set ups?

Time frames vary but typical change outs in E/F are about 7-10 days. In the UC change outs should be necessary no sooner than 21-28 days. Many variables influence this time frame, so adjust your time frame to best meet your needs. *Change nutes once they destabilize or become murky.

If plants use nutrient so efficiently how are they conserved?

Less frequent nutrient change outs, lower usage rates, less pH fluctuations (less pH adjusters needed) and the conservation of precious H2O. Just a few of the reasons we feel the UC is the system for ECO-HYDRO HEADS to hang their Alpaca hats on. Huge yields, ease of use, short days to harvest... perfect for anybody in their right mind.

Do I need to disassemble to clean the UC?

Disassembly is not necessary. A bottle brush, green pad, biogreen and some elbow grease is all you need. A shop vac helps a lot too.

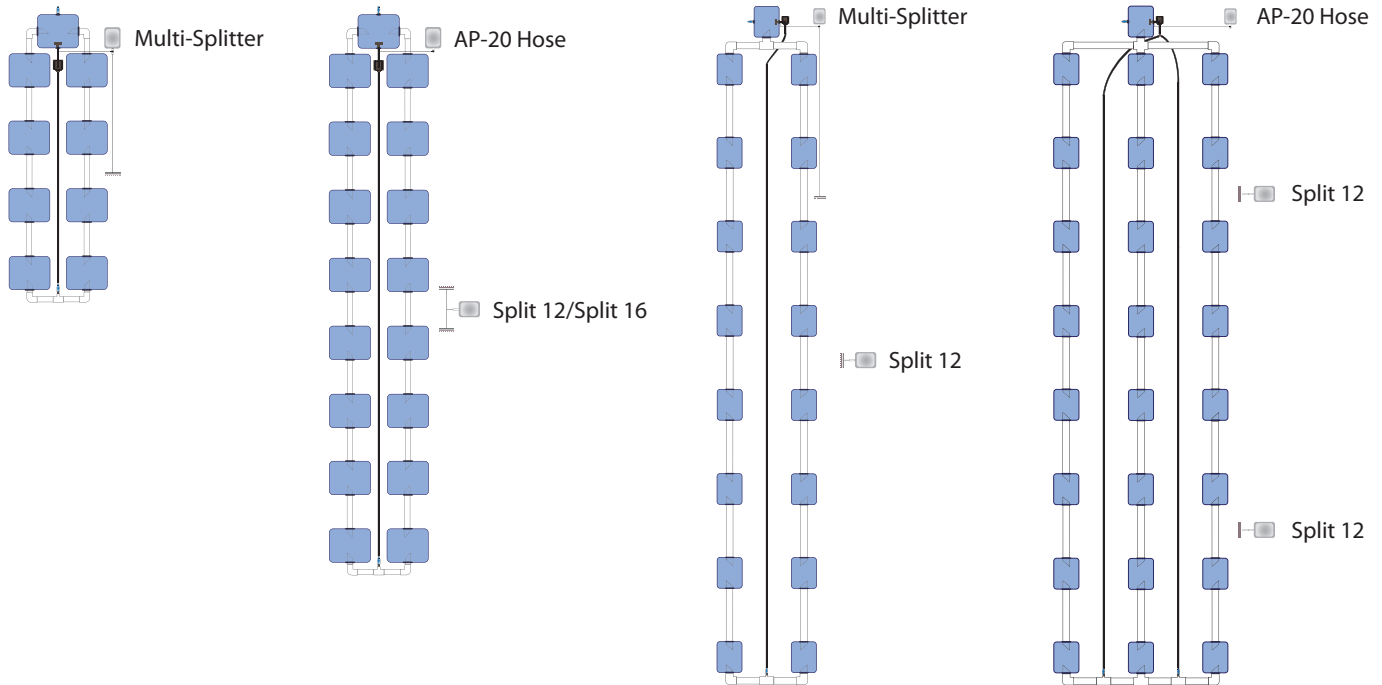
What different configurations are available?

The UC comes in several configurations...UC4,UC6, UC8, UC12, UC16, UC24, UC32(coming soon), UC4XL, UC8XL, UC12XL, UC16XL, UC24XL, UC32XL (coming soon), UC416, UC624, UC832, UC1248, UC1662, UC2496, UC32128(coming soon), and the new XXL series with plants on the 40" centers for (1) plant per light applications and high density vertical lighting applications. That's 28 different options and many more in the pipe line.

Simplify your grow and you may find yourself with more time. When used properly the UC will give you lots of extra time. You can't buy that in a bottle.

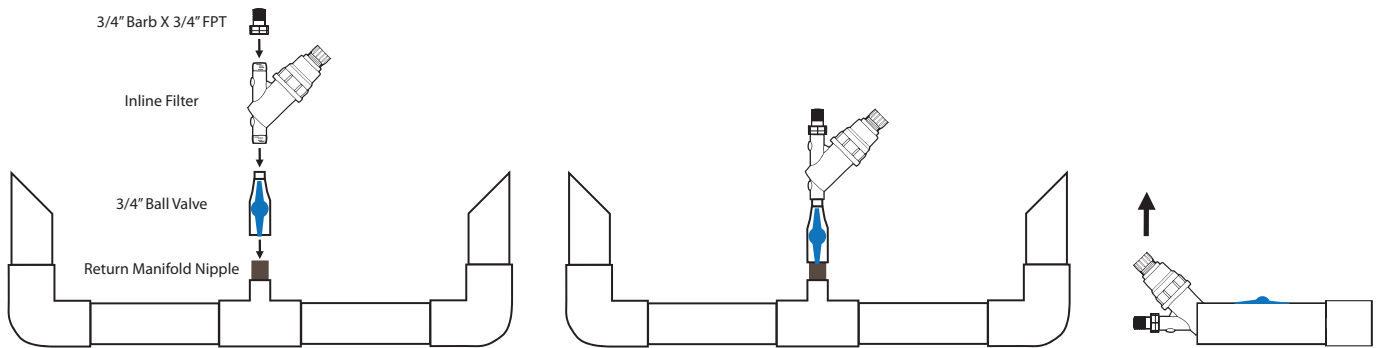
Air Pump/Manifold Setup

Each Under Current® model includes specific air pump(s) and air manifold(s). Depending on which configuration you have your air delivery system will be setup in one of the following four ways:



Inline Filter Installation

Each Under Current® model includes an Inline filter for easy debris clean out. Use included TEFLON TAPE for all connections. Thread 3/4" BALL VALVE to RETURN MANIFOLD NIPPLE, thread IN-LINE FILTER to 3/4" BALL VALVE, thread 3/4" BARB X 3/4" FPT to IN-LINE FILTER. **ORIENT FILTER HOUSING UPWARD!** **For Evolution Models repeat these steps for the second IN-LINE FILTER.



Water Chiller Installation

The Under Current® can easily be adapted to a water chiller in the following ways: 1.) Remove the RETURN INLET TEE from inside the EPICENTER, attach the included CHILLER ADAPTER fitting, attach 3/4" hose (not included) from the fitting to the chiller and back to the EPICENTER. 2.) Remove the RETURN L from the RETURN PUMP output/EPICENTER inlet, attach 3/4" hose (not included) from the output barb on the RETURN PUMP to the chiller and back to the EPICENTER inlet barb. 3.) For cooling multiple Under Currents®, insert Cool Coil® into each Epicenter. 4.) For all 13 gallon systems, same as #2.

