



## Assembly of your new AQUAPONIC Tower



Congratulations on your purchase. Your Foody Aquaponic tower can provide years of fresh produce as well as a place for your fish (edible or non-edible). Setup is not difficult however we do recommend that you read through all of the directions before actually beginning. Note: it may be helpful to have another person lend an extra hand when first stacking the units.

### **Pump Setup:**

Unpack the submersible pump. Screw the smallest of the 3 fittings onto the top of the pump (photo at right). Make sure that the Flow Control Valve at one end of the pump is open at least half way. Turn it counterclockwise to open further if needed. (Note how the cover on one end of the pump can be pulled off to access and clean the pump filter as needed.) Attach one end of the black poly water hose to the submersible pump and place the pump inside of the fish tank.



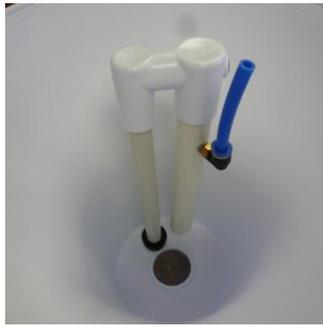
Set the lid onto the fish tank. Make sure that it's aligned so that the holes along its outside edges fit down over the corresponding raised "pins" along the upper edges of the tank. If needed turn the lid around to get proper alignment. The pump's electrical cord may be routed out through one of the smaller diameter holes in the lid. Pull the other end of the black poly water hose up through the large hole in the center of the reservoir lid.

Place the stainless steel ball bearings inside of the race that's around the large center hole of the tank lid. Then slide the Rotating Wheel (white with teeth around its outside edge) down over the black poly hose and onto the ball bearings. If your tower is equipped with an optional auto-rotation motor align the teeth of the Rotating Wheel with the gear attached to the motor. Then push the Rotating Wheel down into the large center hole over the ball bearings.

**Air Pump:** Insert one end of the air hose onto the air pump; run the hose through one of the smaller 1" diameter holes in a corner of the tank lid, and attach the enclosed air stone to that end of the hose. The air pump ensures that the fish will get the oxygen they need.

### **Growing pod assembly:**

The Growing Pods are the containers for the water and the plants that stack on top of the fish tank. You'll see a plastic bag with the PVC pipes (all PVC is BPA free) and silicone grommets which are to be placed into the Growing Pods as shown on the next page.



One set of parts, as shown at left, needs to be placed into each Growing Pod. (Note: during transit some of the plastic tubes may have slipped out of their fittings as they are not glued. Just press them firmly back together. The tube with an open slit in its side near the metal elbow goes into the fitting with a "T" on it.) With each Growing Pod on a firm surface insert the smaller pipe and press the end with the grommet on it down into the smaller hole. Push down with your fingers on the silicone grommet to seat it well. Then press the larger size pipe down into the center hole (photos at right above). Rotate or turn the section of pipe with the blue air hose on it to position it closely to the center pipe as shown.

**IMPORTANT: The siphon pipe set with the letter "T" on the top must be used in the topmost growing pod.** Make sure that all of the blue colored air hoses are in a vertical position.



After inserting the PVC pipes into each Growing Pod take a moment to turn each Growing Pod upside down and look to ensure that the silicone grommets are properly seated. You should not be able to see *any* light around the outer edges of the grommets. A *good, secure fit (as shown on right)* is necessary to prevent water leakage. If you do see any light simply turn the growing pod back over and press down a bit more on the grommet from the top. Then re-inspect.



Snap a lid onto each Growing Pod by tapping it down firmly around its edges with the palm of your hand. Each completed Growing Pod should look as shown in the figure on the left above. Note how the siphon pipe is close to the large, center PVC.

Now the Growing Pods may be stacked. Simply slide the water hose from the fish tank up through the center hole of each successive Growing Pod as they are stacked. After each of the Growing Pods are stacked insert the emitter & washer, as shown above, into the topmost end of the water supply hose. Then push the emitter and hose down so that the washer rests against the top of the PVC as shown in photo above right. If the hose won't push back down enough just open the fish tank and move the water pump to the side a bit more. That will take up the slack in the water hose and allow the emitter to sit down on top of the upper PVC section.

Only the six net pots that are to be placed into the holes in the fish tank lid need a rope wick inserted in them (as shown at right). Simply pull one end of a brown rope up and through the base of the net pot and then back down through another hole. The bottom of at least one end of each wick will need to always be in contact with water so that it can move up the wick to the plants. After the wicks are inserted into the 6 net pots the metal ends may be cut off.



Fill your fish tank with water up to about 5" below the top. Then turn on the water pump and water should flow up and out of the emitter in the topmost growing pod. Once it is full then water will flow down through its siphon into the growing pod just below it and then into the lowest growing pod. (Note: the siphon system allows the water level in each growing pod to cycle up and down about 3 inches every 2 minutes. This cycling ensures that plants have adequate water and oxygen.) Initially, you'll need to add more water to the fish tank to replace the water that was used to fill the growing pods the first time.

There is a 6" solid white plastic cover that is to be placed over the large center hole of the topmost growing pod. This cover keeps sunlight from hitting the inside of the tower which helps to reduce the chances of algae formation. It may be removed at any time for checking the emitter.

**Capacities: The fish tank holds 20 gallons of water and each growing pod holds 1 ¾ gallons. The total water capacity of the system is just over 25 gallons.**

**Auto-rotation motor option:** (mainly needed just for indoor) The optional auto-rotation unit rotates the growing pods ensuring that all plants receive natural light when the tower is placed near a large south facing window, glass door, or artificial grow lights. It should only be run during daylight hours and may be plugged into the supplied timer. The timer may be set to turn on the rotational motor for 15-30 minutes 2-3 times throughout daylight hours. It does not need to constantly run all day long. *Be sure that the auto-rotation motor is unplugged or timed to shut off at the end of each day.*

***The water pump may be run constantly or used with a timer. We do not recommend that the pump off-periods exceed 30 min as water circulation will be minimized.***

### **"Cycling" of the System**

Fishless cycling which can be accomplished by adding a small amount of "Pure Ammonia", "Clear Ammonia", or "100 percent Ammonia" to your system. Avoid anything with colorants, soaps, or additives of any kind. Look for it at your local hardware store, well-stocked superstore, or cleaning supply store. Add ammonia only a very little at a time until you reach a reading of 2-4ppm from your ammonia kit (see below). Allow at least a couple of weeks for the ammonia to begin breaking down before adding fish to the tank. Too high of an ammonium level will kill fish.

"Cycling" is a term for the process of establishing a biofilter so that the nitrogen cycle can take place within your aquaponics system. The nitrogen cycle is the process in which bacteria convert ammonia and nitrites into food that your plants can consume. An aquaponic system is fully "cycled" after a period of 2-3 weeks when little or no measurable ammonia or nitrites are present.

A great book which is a step-by-step guide to raising fish and vegetables together is titled "Aquaponic Gardening" by Sylvia Bernstein. We heartily recommend it!

Pet stores usually carry a stock of aquarium bacteria that is another option for "cycling" your system.

An optional method of cycling that is done in Australia uses liquid seaweed instead of ammonia. Add only 2-3 ounces of the liquid seaweed to your fish tank. Plants may be placed into the growing pods but wait two weeks before adding fish to the fish tank.

Generally it is best to delay planting until after your system has "cycled". Remember that it's the waste from the fish that will produce the nutrients to feed the plants.

Also remember that heavily chlorinated water can reduce or kill all beneficial bacteria in a holding tank. Chlorine will dissipate if the water is allowed to sit for 24 hours (as in a 5 gallon bucket) *before* pouring it into your holding tank.

### **Monitoring is important during the "cycling" process**

The levels of ammonia, nitrite levels, nitrate levels, and pH are important to keep in a desirable range. Most aquaponic gardeners use a test kit by Aquarium Pharmaceuticals Inc. called the **API Freshwater master Test Kit**. The kit is easy to use, inexpensive and designed for monitoring the water in fish tank systems. It's available in most pet stores, some large box stores, as well as online.

If you have no prior experience in raising fish, don't buy tilapia and other larger fish to begin with. Buy smaller 'feeder fish' or gold fish to start your aquaponic system. The ideal ratio is 1/4 pound of live fish for every gallon of water in your tank. We do not recommend greater than 4 Tilapia in the 20 gallon tank of your system as cramped conditions increase fish mortality and can also stunt growth. After all, Tilapia can grow to 1 pound in just six months time.

**Planting:** Since Hydroponic growing mediums will not grow plants from seeds we suggest purchasing small plants (2-6" in height) and gently washing off the soil before placing them into your net pots. Another option is to grow your seeds in Rapid Rooter or similar type plugs and then, when the plant roots grow through the bottom of the plug they may be placed into the 2" net pots of each growing pod. You may wish to place some growing medium such as Hydroton or Plant!t around and on top of the plugs as this helps to create a more stable environment for the young plants.

A couple of good books on the subject of Aquaponics are: [Aquaponic Gardening](#) by Sylvia Bernstein and also [What is Aquaponics](#) by Jacob Daniels.

*Welcome to the **Foody** family! Please email or call us if you've any questions.  
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