

GENERAL HYDROPONICS®

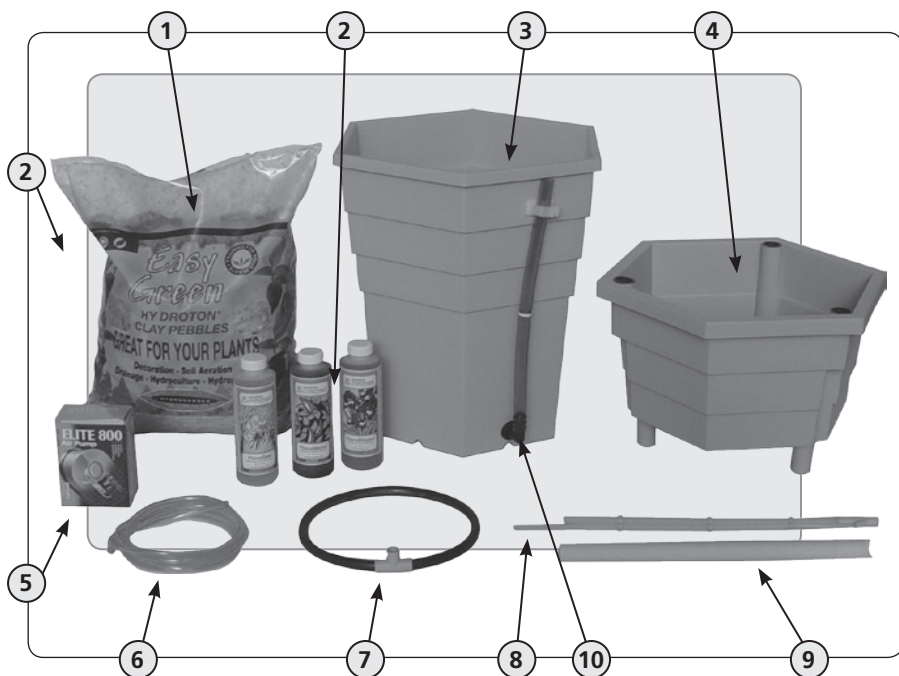
PowerGrower®

Assembly Guide



genhydro.com

Congratulations on your new PowerGrower hydroponic drip system. This system's unique hexagonal shape enables you to place units close together when plants are small and then separate them as the plants grow. When used as part of our PowerGrower controller system, you can expand and configure seven units to create a high performance hydroponics growing area. This efficient use of space resembles a high-density honeycomb. This big step forward in hydroponic system design will delight experienced growers as well as those new to hydroponics.

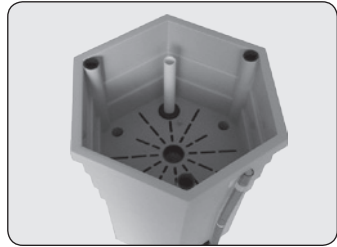


POWERSGROWER PARTS:

- 1: Clay Pebbles (9 Liter bag)
- 2: Flora Series Nutrients (8oz bottles)
- 3: Reservoir (deep chamber for water)
- 4: Growing Chamber (shallow pot with perforated bottom)
- 5: Elite 800 Air Pump
- 6: Air Line (clear tubing)
- 7: Drip Ring (circular plastic ring attached to tee)
- 8: Pumping Column (2-piece white tube with air inlet)
- 9: Pumping Column Support Tube (tube with bevel facing down)
- 10: Drain Level Tube (translucent blue tube with barbed elbow)

STEP 1

Push the beveled end of the **pumping column support tube** into the large hole in the bottom of the growing chamber. Push the tube down until it barely touches the bottom of the reservoir.



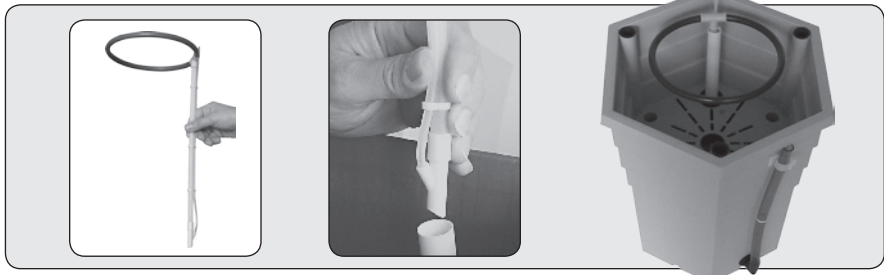
STEP 2

Attach the **circular drip ring** to the open end of the **pumping column**. Ensure that the holes in the ring are facing downwards.



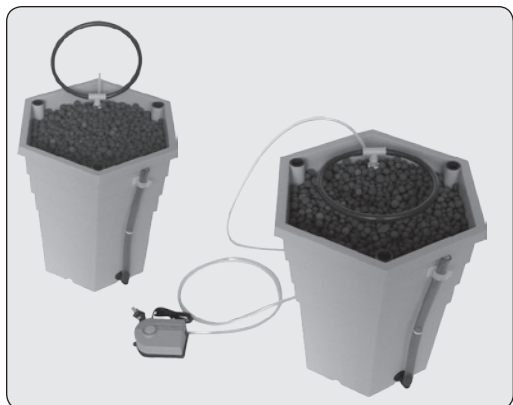
STEP 3

Push the entire pumping column assembly (which is composed of the drip ring with tee and pumping column) down into the **pumping column support tube** until the assembly barely touches the bottom of the **reservoir**.



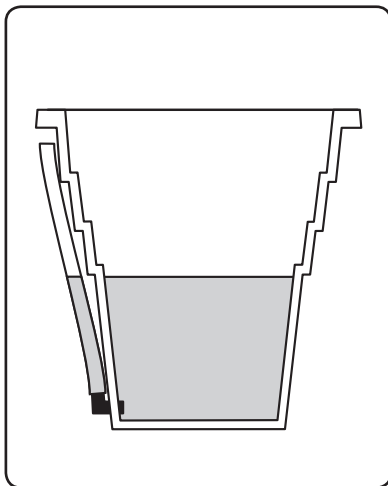
STEP 4

Move drip ring out of the way and pour the rinsed **clay pebbles** into the growing chamber. Securely attach the **air line** to the thin, flexible clear tubing connected to the pumping column assembly and the other end of the **air line** to the outlet nipple on the **air pump**. Plug your PowerGrower into any standard household electrical outlet. If you're using your PowerGrower outside, use only extension cords and outlets designed for outdoor use.



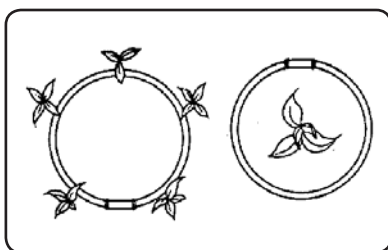
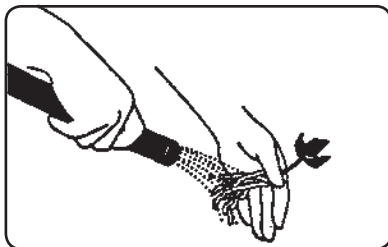
FILLING

When filling the system with a nutrient solution it is best to mix the nutrients in a known volume of fresh water and pour into the reservoir or over the clay pebbles until the system reaches the desired level. The PowerGrower reservoir holds approximately 2.5 gallons. Small plants will have enough nutrient solution for at least a week and the reservoir will need to be replenished every few days for larger actively growing plants.



PLANTING

To prepare a seedling or a plant for transplanting, remove all soil and/or organic material from around the roots. Plants must be sturdy with established roots before transplanting into the PowerGrower. Choose seedlings because it's more difficult to successfully transplant older plants. If your plant has been growing in soil or peat moss, gently remove the plant from its pot and carefully rinse as much soil as possible from the roots before transplanting. Although this method of transplanting from soil to hydroponics is somewhat risky, as soil may contain disease organisms that proliferate in the rich hydroponic solution, we have had success using this transplant method and encourage you to try it. Or, you can avoid these problems by starting plants from cuttings in one of our RainForest Systems.



PLACEMENT

Abundant light, proper temperature and adequate ventilation are crucial for fast growth, healthy plants and higher yields. Place the PowerGrower in a warm, well-lit, well-ventilated location, such as an outdoor garden, sunlit window, patio or greenhouse. Keep your PowerGrower away from areas where the inevitable dripping that occurs during filling, draining and pH adjustment could cause water damage.

If you plan to grow several small plants in the PowerGrower, place your plants just outside the drip ring, near the drip holes. If you prefer a single large plant, place it in the center of the drip ring. Gently add clay pebbles around the plant roots until thoroughly covered.

OPERATION

For moisture-loving plants, operate your PowerGrower pump continuously. Plants preferring drier conditions grow best when the pump runs for 1/2 hour on and 1 hour off during daylight hours; off at night (a simple timer will turn the pump on and off for you automatically). Use mild to normal strength nutrient solution and avoid strong or aggressive nutrient. As your plants consume nutrient solution, the level in the reservoir will drop. Top off with half strength solution or plain water (the pump is more efficient when the reservoir is full). It is necessary to change the water and nutrients every one to two weeks depending upon the size of your plants and their rate of growth; with bigger plants change more often. Simply empty the reservoir by rotating the blue drain/level tube 90 degrees so water drains on the ground, or indoors in a pail. When changing or topping off solution, pour directly over the clay pebbles (rather than into the reservoir itself) to flush out excess salts.

PREPARATION FOR REPLANTING

After harvesting and before replanting your PowerGrower, dismantle the system and clean all parts with hot water. Rinse clay pebble in very hot water and soak overnight. It is a good idea to dis-assemble and wash the drip ring assembly and pumping tube from time to time in hot water.

TROUBLE SHOOTING

If white salt deposits form on the clay pebbles:

1. Try using a milder nutrient solution and topping off with plain water only.
2. Occasionally drain your system, refill with plain water and run the pump overnight. After the overnight rinse, empty reservoir and refill with fresh nutrient.

If plants are not growing well and you suspect "hard" water:

1. Use FloraMicro Hardwater in place of FloraMicro.
2. Try distilled or purified water. You should see a significant improvement in plant health and growth within one week.
3. Collect rainwater for use in your PowerGrower.

If nutrient solution stops flowing from the drip ring:

1. Check to ensure that pump is plugged in and reservoir is filled with nutrient solution.
2. Disconnect air line from the air inlet and check whether the air is coming through (put end under water and look for bubbles if you are not sure). No air flow could mean that the pump is broken and must be replaced or that the air line is loose or blocked. Try cutting an inch off each end of the line to provide a tighter fit.
3. Blow into the air inlet to check whether it is clogged, and rinse the pumping column in hot water. This type of clogging is usually an indication that you have hard water or too strong a nutrient solution.
4. Check whether emitter holes in the drip ring are clogged. To clear, dis-assemble drip ring by pulling it apart at the tee, rinse drip ring and tee in hot water and clear the holes with a toothpick.



FLORANOVA®

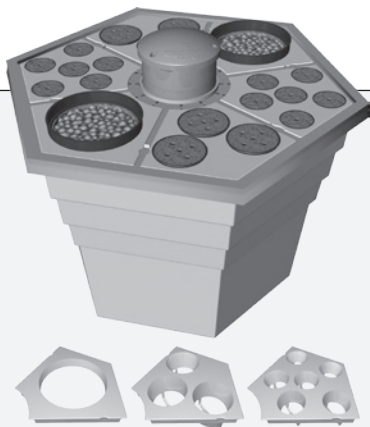
FloraNova represents a break-through in fertilizer technology. FloraNova gives users both the strength of a dry concentrate and the ease of a liquid. This unique formulation of highly purified minerals and natural additives combines the benefits of both organic and soil-less gardening methods. Optimum nutrient absorption is aided by natural humic extracts for increased quality and superb yields. FloraNova is a one part formula that is pH stabilized outstanding for all plant types.

RAPIDROOTER®

Rapid Rooter's advanced technology produces a unique matrix of composted organic materials bonded together with plant-derived polymers. Rapid Rooter plugs are manufactured using a scientifically controlled process that yields large populations of beneficial microbes in the media. These naturally-occurring microbes colonize young roots, helping plants resist disease while maximizing nutrient uptake. Rapid Rooter plugs are fortified with General Hydroponic micro nutrients for abundant root growth. The optimal air-to-water ratio within the plug matrix results in explosive early root growth. Use RapidRooter for robust early rooting that supports explosive plant growth.

Rapid Rooter plugs are available in the following sizes:

- 50 plug tray
- 50 plug bag
- 98 cell mat



RAINFOREST®

The Rainforest is perfect for propagation or growing plants to full maturity. Our patented Vortex Sprayer provides a super-oxygenated mist for rapidly developing plants. With a compact design and small footprint, the Rainforest is available with 2", 3", and 6", site lid inserts to suit specific growing needs.



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