

Perfect Water Technologies

HydroGardener[®] Series Installation & Service Manual

HydroGardener[®]
HydroGardener[®] Pro



Fig. 1 Angle stop



Fig. 4 Mounting clips for system & permeate pump



Fig. 2 EZ adapter



Fig. 5 Drain saddle



Fig. 3 Garden hose adapter



Fig. 6 Inline ball valve

HydroGardener® and HydroGardener® Pro Contents:

- (1) Instruction book: detailed descriptions, photos and troubleshooting guide
- (1) 10" Sediment pre-filter: 5 micron bonded spun poly depth
- (1) 10" Carbon pre filter: 5 micron granular activated coconut shell carbon
- (1) 10" IRON pre filter (PRO ONLY): 5 micron granular activated coconut shell catalytic carbon & KDF85
- (1) 10" Artesian post filter: 5 micron granular activated coconut shell carbon with advanced remineralization media
- (1) Thin Film Composite membrane 0.001 micron ultra-fine pore, 150 gallon per day, 10,000 gallon service life. GPD performance based upon 70psi and 77°F input.
- (1) Flow restriction architecture: integrated flow restrictor and water check valve, and central auto shut-off valve or permeate pump (option)
- (1) Drain saddle; all fittings and connecting hardware
- (1) EZ adapter—feed water adapter 3/8" mc x 3/8" fc x 1/4" tube
- (1) Garden Hose Adapter —feed water adapter 3/4" x 1/4" tube
- (1) Inline Ball valve 1/4" tube x 1/4" tube

Maintenance Schedule

Sediment filter	3,300 gallons or as needed
Carbon filter	3,300 gallons or annual replacement
Iron filter	(PRO ONLY) 3,000 gallons or as needed
Membrane (150 gpd TFC)	10,000 gallons or as needed
Artesian filter	2,500 gallons or annual replacement

General System Specifications

- Feed water: PSI 40 - 100 PSI
- Feed water Temperature: 40° - 100°(F)
- Max. Total Dissolved Solids (TDS): 2000 ppm
- Max. Hardness: 10 gpg
- pH limits: 4 - 10

System Location

The HydroGardener® should be installed indoors or protected from the elements such as under a sink, or in a basement, provided it is in a location that could not be damaged by a water leak. If the HydroGardener® is exposed to freezing it will burst. If the HydroGardener® is exposed to the elements it can lead to premature wear and/or contamination. For best results the HydroGardener® should be mounted vertically where the drain line out is found at the bottom of the system.

Tools Required

Safety glasses	Towels
Phillips screwdriver	Scissors
Medium Crescent wrench	Teflon tape
Medium pliers	

READ ALL INSTRUCTIONS THOROUGHLY PRIOR TO INSTALLATION

Installing The HydroGardener® Reverse Osmosis System

EITHER 1A. UNDERSINK INSTALLATION: Install feed water EZ adapter on COLD water line - Always wear protective eyewear while under sink. Locate the COLD angle-stop (the main water lines under the sink – one hot water, one cold water, see Fig. 1), and turn clock-wise to shut off the water. Locate 3/8" fitting, typically found on the line out of the angle-stop or where the existing line connects to the kitchen faucet. Disconnect the 3/8" fitting on either the angle-stop, or the kitchen faucet. Use Teflon tape on the EZ adapter (see Fig. 2) and the angle-stop male threads, and make sure o-rings are properly seated. Fit the EZ adapter to the threads and HAND tighten. Locate inline ball valve (see Fig. 6) in parts bag and its accompanying length of tubing. Insert one end of the tubing into the EZ adapter and the other end into the inline ball valve. Have a bowl or cup nearby to catch water, and position the bowl near the inline ball valve. Turn ON water by rotating angle-stop counter-clockwise until water is seen, then close the ball valve by turning the handle perpendicular to the ball valve body. Dry all parts, check for leaks, and snugness.

FOR ADDITIONAL INFORMATION ON USING QUICK CONNECT FITTINGS SEE PAGE 7

OR 1B. GARDEN HOSE INSTALLATION: Install garden hose adapter on garden hose - Locate the garden hose adapter (see Fig. 3) in the parts bag. Fit the garden hose adapter onto the garden hose. Use Teflon tape on the garden hose threads if necessary to make a leak proof seal, and make sure o-ring is properly seated. Fit the garden hose adapter to the garden hose threads and HAND tighten. Locate inline ball valve (see Fig. 6) in parts bag and its accompanying length of tubing. Insert one end of the tubing into the garden hose adapter and the other end into the inline ball valve. Have a bowl or cup nearby to catch water, and position the bowl near the inline ball valve. Turn ON the water to the garden hose, then close the ball valve by turning the handle perpendicular to the ball valve body after the air is purged and water flows. Failure to purge the air can lead to system damage and/or diminished performance and/or air bubbles in the product water for months. Dry all parts, check for leaks, and snugness.

2. Mount the HydroGardener® Reverse Osmosis System - Identify a location for installing the HydroGardener® RO unit mounting clips. The location should allow enough room for the for connecting and disconnecting the unit, and for performing general service on the unit. (see Fig. 4) For under sink installation typical locations are on either right or left side, near the back wall. Use supplied mounting clips and mounting template located inside the back cover of this manual. The HydroGardener® should be mounted vertically where the drain line out is on the bottom. Insert ORANGE 1/4" tubing from the HydroGardener® into feed water adapter inline ball valve used in step 1.

2a. Mounting Permeate Pump (PRO MODEL ONLY) - Mount the permeate pump on the right side of the tap master using supplied mounting clip and screws. **IMPORTANT: permeate pump must be mounted with indicator arrow pointing up. Indicator arrow is the large, center arrow. See page 10 for mounting orientation diagram.**

3a. UNDERSINK INSTALLATION: Install drain saddle clamp and drain line –

Identify a vertical section of drainpipe with enough space to mount the drain saddle clamp. (See Fig. 5) A horizontal section of drain pipe may be use to locate the drain saddle, but you must be sure to drill the drain hole downward into the pipe so that the waste water from the Tap Master drips down into the pipe. Drainpipe material can be either metal or plastic. Locate drain hole template/gasket supplied with drain saddle clamp, peel off its backing, and discard the perforated center piece. Affix the sticky side of the template/gasket on the previously identified location of drainpipe. Place ¼" drill bit inside template hole, and drill a hole into the drainpipe. Drill through one side only. DO NOT drill a hole clean through both sides of the drainpipe. This will result in a leak, and require replacement of that piece of drainpipe. Mount the drain saddle clamp on top of the template with the holes aligned. You may use a screwdriver to align the holes. Fit drain saddle clamp back-plate and screws. Alternate tightening screws on each side of the drain saddle clamp to ensure an even, snug fit. (See Fig. 5) Locate RED ¼' drain tubing and push on black plastic nut found in drain saddle bag onto the tubing, then wrap excess tubing around the drainpipe before hand tightening black plastic nut onto the drain saddle male fitting until it is snug.

TUBING COLOR CODING

ORANGE—FEED WATER IN
RED—WASTE WATER

BLUE— PURIFIED WATER OUT

MOUNTING ORIENTATION

CORRECT



INCORRECT

PERMEATE PUMP MOUNTING (PRO MODEL)

Permeate pump should be mounted with inlet and outlet ports to the sides, and the center indicating arrow pointing up. (Also see Fig. 4)

3b. Floor drain installation— Affix the RED ¼' drain tubing above the floor drain such that the drain tubing is at least 3" above the high point of any standing water. Do not allow the opening of the RED ¼' drain tubing to come in contact with the ground or any standing water.

4. Water line out to point of use – Locate BLUE ⅜" tubing and connect to the user supplied point of use using a user supplied fitting. Do not allow the opening of the BLUE ⅜" tubing to come in contact with the ground or any standing water.

EITHER 5A. UNDERSINK INSTALLATION: Pressurize the HydroGardener® -

Make sure unit exterior and fittings are dry. Water should flow normally from your sink's cold and hot faucet. Double check to make sure all systems valves are in the CLOSED position, except for the main cold angle-stop valve, which should be OPEN. SLOWLY open the inline ball valve at the EZ adapter. You should hear water flowing through the system. Check for leaks at all fittings. Allow 5-15 minutes for system pressure to build. A thin steady (or pulsing in Pro model) trickle of water should be present after 2-20 minutes from the BLUE ⅜" tubing or your point of use. Some blackening of the water may present due to loose carbon being flushed out. Allow 10 gallons of water to be produced to flush the system and make it ready for use. System must be flushed prior to use.

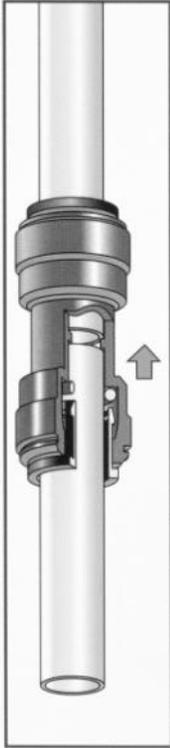
OR 5B. GARDEN HOSE INSTALLATION: Pressurize the HydroGardener® - Make

sure unit is dry. SLOWLY open the garden hose water valve. SLOWLY open the inline ball valve at the EZ adapter. You should hear water flowing through the system. Check for leaks at all fittings. Allow 5-15 minutes for system pressure to build. A thin steady (or pulsing in Pro model) trickle of water should be present after 2-20 minutes from the BLUE ⅜" tubing or your point of use. Some blackening of the water may present due to loose carbon being flushed out. Allow 10 gallons of water to be produced to flush the system and make it ready for use. System must be flushed prior to use.

6. IMPORTANT— the HydroGardener® is meant for a wide variety of plant types. Test the product water pH and TDS and adjust to your plant's needs. Once the system flush is complete (step 5) your product water TDS should be equal to >98% of tap plus 15-30 ppm of added cal/mag. pH will vary between 7-8. **You may need to add acid down drops depending on your plant type.**

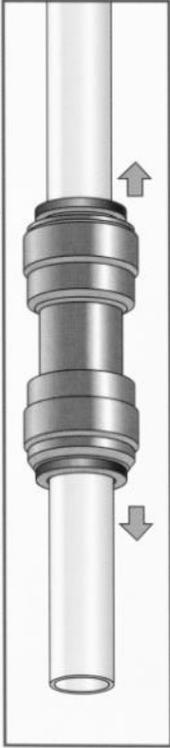
USING QUICK CONNECT FITTINGS

Insert tube Push up to tube stop



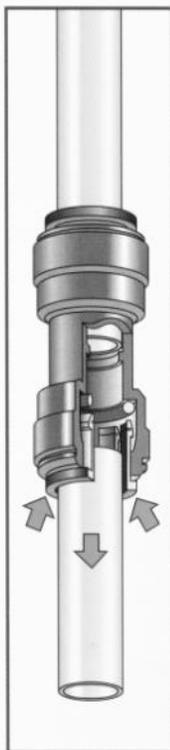
Push the tube into the fitting, to the tube stop. The collet (gripper) has stainless steel teeth which hold the tube firmly in position while the 'O' ring provides a permanent leak proof seal.

Pull to check secure



Pull on the tube to check that it is secure. It is a good practice to test the system prior to leaving site and/or before use.

Push in collet and remove tube



To disconnect, ensure the system is depressurized before removing the tube. Push in collet squarely against face of fitting. With the collet held in this position, the tube can be removed.

Troubleshooting

IMPORTANT NOTE: Before performing service on the HydroGardener® at any time, and for any reason: first switch to the OFF position all under-sink water valves, except for the RO faucet or your user supplied point of use which you should switch OPEN to relieve system pressure and drain away excess water from the lines. Quick connect fittings are nearly impossible to remove when under pressure.

Leaks from metal fittings Unscrew fittings and re-tape male fitting. Tape should be wound 5-7 times around male thread. Tape should not cover opening. Use only Teflon tape. Re-tighten fitting securely. Over tightening can crush the tubing insert and cause a **water blockage**.

Leaks from plastic fittings Plastic fittings should be firmly finger tightened. Under tightening can result in leaks, over tightening can crush the tubing and result in a **water blockage**. For plastic fittings only; make sure the plastic tubing has an insert in the tube end, and a feral (o-ring which compresses the tubing around the insert) in the plastic female fitting. Drain tubing does not need an insert.

Leaks from quick connect, fittings Disconnect fitting by pushing in the tubing with one hand and depressing the ring on the fitting with the other hand. Then pull out tubing while the ring is still depressed. Tubing cannot be pulled out without depressing the fitting ring, and relieving system pressure. Make sure the tubing is cut is straight, the edge is completely smooth, and the tube is rounded. Scratched, gouged, damaged, or oblong tubing end will leak. Re-insert the tubing into the push-pull fitting. Push tubing all the way in, then pull back gently, to check fit. Most push-pull fittings take about a 1/3" of tubing inserted into them.

No water from Tap Master™ RO System Make sure all valves are on the ON position. Check for over tightening of fittings. Eliminate possible blockage points by disconnecting each system component and checking for pressure. Check for blockage in drain saddle and drain tubing. Have a bowl and towel at hand.

Hissing, clicking or flowing sounds from Tap Master™ RO are normal during the water purification process. Sounds may last for approximately 1 hour per gallon of water used. Sounds should stop once the reserve tank is full. Permeate pump equipped systems will "click" and "whoosh."

Weak pressure and filling slowly

NOTE: Seasonal changes in temperature will cause slower water production and can cause pressure imbalances within the system. Oftentimes the imbalance will correct itself on its own within a few days. You may also restore the internal system pressure balance by removing a tube to relieve system pressure, then shut off the system overnight. Turn it back on, and allow the tank to refill, then shut it off again when full for another night. Also you should test the system performance against the

specifications on page 8.

1. Make sure the angle-stop or garden hose valve is fully open.
2. Check all tubing for kinks or sharp bends - this can impede the flow of water.
3. Check household water pressure and water temperature. System performance based upon 70psi and 77°F input., max hardness 171mg/L, <0.3 mg/L iron.
4. Check flow to the membrane housing. Turn off the water at the EZ adapter, and briefly turn on the RO faucet or user supplied point of use to relieve any system pressure. Then pull the black tube out of the top of the blue membrane housing at the quick connect fitting. (There is only one fitting on the top of the membrane housing, the bottom has two - one white, one grey). Point the tube you have just disconnected into a pitcher and open the feed adapter valve. The water flow from the tube should be fairly strong—about a gallon per minute.
5. If the flow to the membrane housing is weak, then check the water flow at each point in the system backwards to the feed valve until the blockage is found.
6. If the flow to the membrane housing is strong (#5), then check flow at the RED ¼" drain tube ensuring that it is unobstructed. The water flow from the ⅜" BLUE tube should be thin trickle, either steady or pulsing (permeate pump).

Discoloration of water The first batch of water produced from your purification system may be discolored due to the presence of carbon from the carbon filters, and a small amount of preservative. This is normal. **DO NOT drink the first 10 gallons of water. Drinking from un-flushed system may cause gastrointestinal discomfort, colic and/or diarrhea. Consult a physician if discomfort persists. Running out 10 gallons of water will effectively flush out the system, and make it ready for use.**

Air Bubbles Tiny air bubbles may be present in product water for some time after installation and filter changes and will dissipate when left to stand for a few seconds. The air bubbles are harmless oxygenation and should not be mistaken for sedimentation or a defect in filtration.

Testing Water Production

oz / minute	=	gallons / hour	=	gallons / day
6		2.81		67.5
9		4.22		101.3
11		5.16		123.8
13		6.09		146.3
15		7.03		168.8

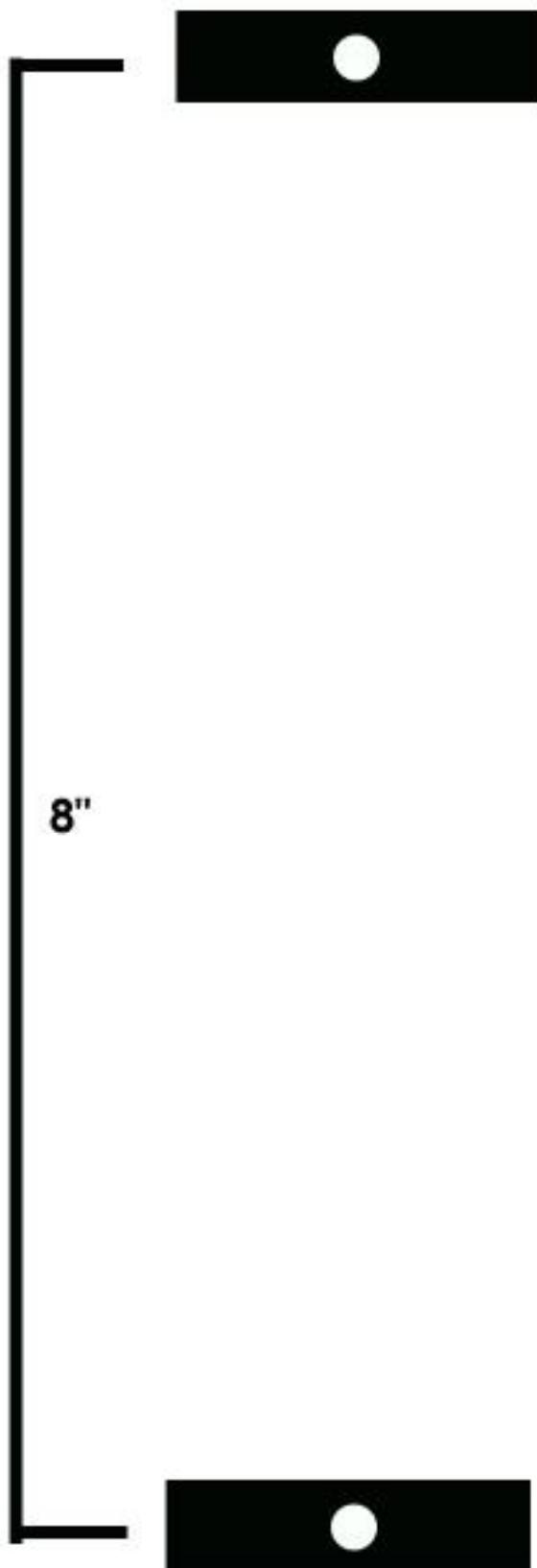
System production: 150 gallons per day @ 77°F and 70 PSI

Water temperature correction factor - change in production:

-45% @ 50°F, - 20% @ 65°F, +7% 80°F, +15% @ 85°F

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ALLOW 6" CLEARANCE FROM TOP



ALLOW 6" CLEARANCE FROM BOTTOM —

7 Tips for an Easy and Successful Installation

1. Keep it simple - there are 3 connections to make, and the tubing is color coded.
2. Have plenty of time, light, space, and towels before getting started. If everything goes well, you should be done in 45 minutes. However, it can take somewhat longer.
3. NEVER use plumber's putty, thread-lock, or anything else you wouldn't eat on any part of this system. You may use as much white Teflon plumber's tape as you like. If you use plumber's putty on your fittings, you will have disgusting and potentially toxic water for the life of the system
4. Mount the HydroGardener® vertically so that the blue cap is on top. There is only one "blue cap" and it has a single fitting at its top. Mount the permeate pump (pro model) correctly or nothing will work. There is a big arrow on the permeate pump, make sure it points up.
5. Mount the drain saddle on a vertical section of drain pipe. If you must mount the drain saddle on a horizontal section, then drill the drain hole on the top side of the pipe or at least at an angle where the drain water from the HydroGardener® drops down into the drain pipe. [Think of a manhole passage into the sewer] When making the connection from the system to the drain saddle - wrap the tubing around the drain pipe a few times, so that some loops of tubing are higher than the fitting.
6. Read the instructions thoroughly before beginning. There is a lot of information here, some of which you may not need for your application. If you have questions - call or email. Email will usually be answered within hours even at night.
7. Have patience. Your new HydroGardener® may take some time to break in and start flowing. Make sure you produce and flush out 10 gallons of water before use.

TUBING COLOR CODING

ORANGE—FEED WATER IN
RED— TO DRAIN

BLUE—PURIFIED WATER OUT

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