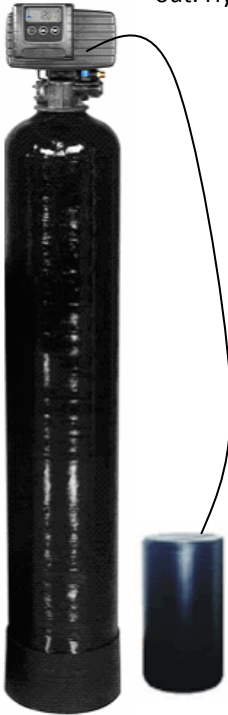


## RAINFRESH EGFE GREENSAND FILTERS FOR REMOVAL OF IRON, MANGANESE & HYDROGEN SULFIDE

### Installation & operation instructions

#### INTRODUCTION

Your Rainfresh EGFE filter utilizes oxidation and filtration technology to remove dissolved iron, manganese and hydrogen sulfide from water. Rainfresh Greensand Filters are based on the technology of oxidation and filtration. They incorporate a special high-oxidant media called Manganese Greensand. When water flows through the Greensand filter system, dissolved iron and manganese are oxidized to insoluble precipitates by contact with the greensand media, and simultaneously filtered out. Hydrogen Sulphide is reduced to an insoluble sulphur precipitate, which is also filtered in the bed.



Water coming out of the greensand filter is virtually free of iron, manganese and hydrogen sulphide.

When the oxidizing capacity of the greensand bed is exhausted, the system automatically backwashes to rid it of the trapped iron, manganese & hydrogen sulphide and regenerates using potassium permanganate which is stored in a separate small container.

**Note:** EGFE systems do not kill or remove bacteria or any other pathogenic microorganisms. To continuously disinfect all the water in your house, we recommend that you install a Rainfresh UV system. Call Rainfresh for details.

Max water temperature	26.7°C (80°F)
Water pH range	6.3 to 8.5
Max feed water turbidity	5 NTU
Max feed water iron or manganese	15 PPM
Max feed water hydrogen sulphide	5 PPM

Table 1

#### Electrical Requirements:

- The automatic control valve works on 110V AC. We recommend a GFI (ground fault interrupter) 120 volt outlet within 5 feet of the filter. Extension cords are not recommended.
- If water pipes are used to ground electrical system, you will need to install a jumper wire across the filter unit.

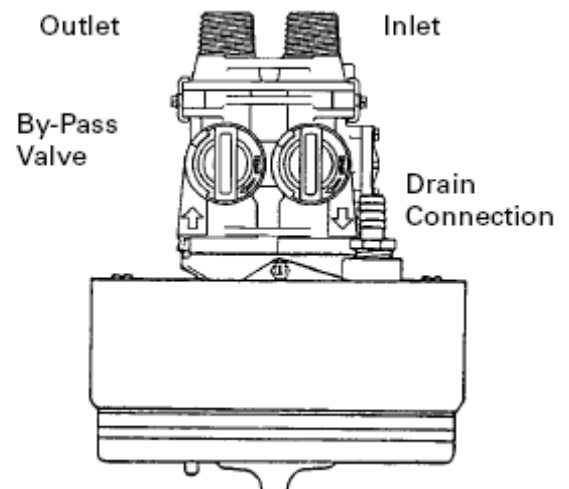
#### Unpacking the unit

The Rainfresh EGFE filter system includes:

- 1) The main media tank with fully automatic electronic control system.
- 2) Regenerant storage tank (for storing potassium permanganate)
- 3) By-pass valve (3/4" or 1" Male NPT)
- 4) Drain Fitting (for 1/2" Hose – Hose not included)

Unpack the unit and place it at the location where you intend to install the unit.

- Stand back and look at the main media tank and make sure it is standing straight up and not tilted to one side. Sometimes during shipment, the bottom of the tank will get knocked out of alignment and you will need to straighten it out before starting installation. If your tank is a bit tilted, simply pick the tank up 2 – 3 inches off the floor and drop it gently but firmly down, favoring the side of the boot that needs to be adjusted to make the filter stand straight up again.
- Make sure your chosen location is fairly level, dry, and protected from possible freezing conditions. The plastic base of the filter is slightly adjustable to non-even floors. If shimming is needed, you can make shims from small, flattened pieces of copper pipe, or some other non-corrosive material. Do not use wood. The filter can sit directly on the floor, it will not corrode. DO NOT set the tanks onto make shift platforms as this may cause the filter to topple.



- The system has an inlet, an outlet, a Regenerant connection and a drain connection. If you are looking at the front of the unit, the inlet is on the right side. **Warning:** Make sure that you have correctly identified the inlet of the system. REVERSING THE CONNECTIONS WILL RESULT IN FILTER MEDIA BEING THROWN INTO YOUR HOME'S PLUMBING SYSTEM CAUSING DAMAGE TO IT AS WELL AS THE EGFE FILTER.
- The following materials can be used for installing your new system, but it is recommended that you check your local plumbing codes. Copper and PVC, CPVC, and PEX are the most popular.
- You may choose not to treat the water spigots that go outside used for irrigation or sprinkler systems. You will have to plan the job so that you cut in to feed the EGFE filter AFTER these spigots. Installing the EGFE filter after the pressure tank on a well water system is the preferred location. If you intend to install a water softener or a UV system, these should be installed **after** the EGFE filter.

### Plumbing in your EGFE Greensand Filter

- Turn the power off to the well pump then shut off the main water shut off valve which should be located after the pressure tank. If your hot water tank is electric, turn off the power to it to avoid damage to the element in the tank. Open a faucet closest to the pressure tank, but after the main shut-off valve to de-pressurize the lines.
- Position the filter in the desired location, which is after the pressure tank. Try locating the filter to the left of a vertical main line. This way the inlet can be easily ran to the main line, then the outlet a few inches higher.
- Plumb in the inlet and outlet of the EGFE filter.
- The system requires a 1/2" flexible plastic drain line running from the iron-filter. There will be a fair amount of pressure on this flexible plastic drain line when the iron-filter is in the regeneration mode, so make certain it is secured in place.
- Install the drain line by applying Teflon tape on the drain fitting first (see fig 1). In some cases, the drain fitting may come pre-installed on the unit. The barbed elbow is made for 1/2" poly tubing which can be purchased by the foot at most well-stocked hardware stores. This can be ran up overhead or down along the floor. If running drain line more than 30 feet overhead, increasing the line size to 3/4" will be required. Please follow your local health dept. Codes for where to run filter discharge water. NEVER MAKE A DIRECT CONNECTION INTO A WASTE WATER DRAIN. A PHYSICAL AIR GAP OF AT LEAST 3" SHOULD BE USED TO AVOID BACTERIA AND WASTEWATER TRAVELING BACK THROUGH THE DRAIN LINE INTO THE IRON-FILTER.

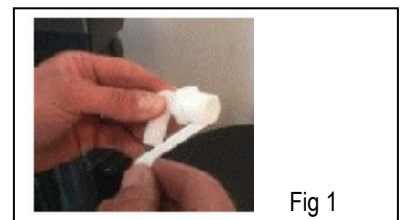
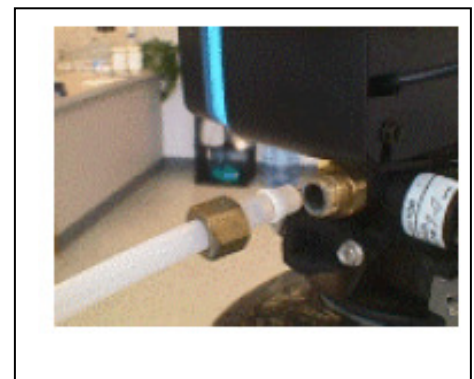
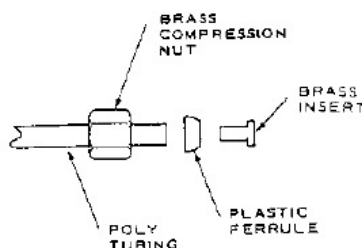


Fig 1





- Connect the 3/8" tubing (*included*) to the control valve (see fig 2) and secure the tubing to the compression nut. The other end of the tubing goes through the small hole near the top of the chemical tank. Remove the white cap on the brine well inside the chemical tank. This should expose the safety float. Bring the end of the 3/8" tubing into the brine well and make the connection with the compression fitting on the safety float. The barbed elbow near the middle of the chemical tank is for a "gravity" overflow line in case of a malfunction resulting in a tank overflow. This must be run downhill if used. It uses the same size tubing as the drain line. **DO NOT TEE THESE TWO TOGETHER.**
- With a bucket or hose, pour approximately 1 gallon of water into the chemical tank. The exact level is not critical, but be careful not to overflow the tank. Place up to five pounds of potassium permanganate (POT PERM for short) into the chemical tank. Typically, five pounds of potassium permanganate should last three to four months before refilling with new potassium permanganate powder is required.
- Turn on the switch for the well pump. If you had emptied the pressure tank, allow it to fill up until the well pump shuts off.
- Turn the inlet valve (in the plastic by-pass valve) on slightly all the time watching for leaks. Make sure a faucet is on somewhere and that any aerator is removed to avoid clogging from loosened scale in the pipes. Leave the bypass valve in the bypassed position and slowly turn the main shutoff valve on all the way. If you have no leaks, proceed to the next steps.
- Connect the control valve to the AC power source. Manually put the EGFE filter into the regeneration cycle by pressing the regeneration button. Turn the bypass valve slightly into the service position to allow water to run into the unit. You want water to initially fill the tank slowly. Once the tank is full of water, you can open valve fully. This prevents filter media from being pushed up into the control head by the initial surge of water going in. Once the tank is full of water you should start to see water flowing from the drain line. It may look somewhat discolored at first. This is normal. Once the water runs clear and free from air pockets, turn the bypass valve further and further into the "service position". You should have a full flow to the drain at this point.
- Details on the control valve are explained in the booklet enclosed with this unit.

Make sure to set the current time of day by pressing the up (∧) or down (∨) buttons on the control head. This allows the unit to wait until 2 am for backwash when you are not using water in the house.

▪

Manual Regeneration Button

UP & DOWN Arrow Keys



**HOW TO PROGRAM SXT CONTROL VALVE**

- Connect the control valve to 110V AC power source.
- Press UP or DOWN key and keep depressed until time starts to change
- Then use UP & DOWN arrow keys to set the time to 12:01PM (Make sure time is PM)
- With the time set at 12:01 PM, press both keys for 4 seconds and the display will change from time to programming mode.
- Press the manual regeneration button to go through different programming cycles.
- Check the pink/yellow sheet in the manual for details.

Your water may be discolored for a day to two after initial installation. You can turn on a close faucet and let the water run for a couple hours to help clear up the water initially, but do not be alarmed by discolored water for a couple days or air in the water. Also even though you will have iron-free water right away, it will take a few days to get all the untreated water out of your hot water tank. So you will experience some discolored water from your hot water tank for a few days. You may choose to empty your hot water tank at the time of installation and clean it before letting water in from the iron-filter.

The system is ready for use.

Check the chemical level in the chemical tank about once a month and top up if required.

### System Specifications

Model No.	Rated Service Flow (US GPM)	Max Flow Rate (US GPM)	Backwash Flow Rate Required (US GPM)	Inlet / Outlet	Drain Connection
EGFE 948	2.2	5	4.5	3/4" Male NPT	1/2" Hose
EGFE 1054	2.75	6	5.5	3/4" Male NPT	1/2" Hose

### Backwash frequency

The unit should be set to backwash at least once every 3 to 4 days. For setting the backwash frequency, enter the programming mode and change as required.

### Winterizing the system

If the unit is to be winterized, the best way is to close the by-pass valve and unscrew the 2 screws adjacent to the by-pass valves that hold the unit and the by-pass valve together, and carry the unit to a place where it will not be subject to freezing temperatures.

If, however, it is not possible to easily move the system, then there are two options.

- 1) Use food grade antifreeze – inject it at any spot before the filter and keep the by-pass valve open so that the antifreeze goes through it. Open a faucet and run it until you are sure that the antifreeze is coming out of the faucet. Then turn the faucet off and leave the antifreeze in the lines and the filter for the winter. Please note that use of antifreeze can reduce the life of the media.
- 2) Use a brine solution. Unscrew the control valve carefully by holding it with both hands and slowly rotating it anti-clockwise while holding the tank. The control valve is internally connected to a tube which should not come out with the valve. Therefore, when the control head is completely unscrewed, do not lift it up with force. Gently make screw in and out motions until the valve is high enough that you can hold on to the internal tube with one hand. Now insert a 3/8" flexible tube into the tank to the top of the media and siphon off as much water as you can and add a saturated brine solution to the tank. This will protect the tank from freezing up to -20°C (-4°F). In spring, screw on the control valve back to the tank and connect the screws back on to the by-pass valve

In both cases, when re-starting, backwash the unit thoroughly at least twice in succession and flush it for 10-15 minutes to make sure that it is now clean and ready to use.

The chemical tank should be simply emptied and dried for winter.

### Troubleshooting

PROBLEM	POTENTIAL CAUSE	SOLUTION
Filter fails to backwash	<ol style="list-style-type: none"> <li>1. Electricity interrupted to system</li> <li>2. Control head malfunction</li> </ol>	<ol style="list-style-type: none"> <li>1. Assure continuous power supply to system.</li> <li>2. Check control head manual for solution.</li> </ol>
Filter does not seem to remove iron, manganese or hydrogen sulfide.	<ol style="list-style-type: none"> <li>1. Bypass valve is in the bypass position.</li> <li>2. System may not be regenerating soon enough</li> </ol>	<ol style="list-style-type: none"> <li>1. Move bypass valve to service position.</li> <li>2. Reduce backwash/regeneration interval.</li> </ol>
Loss of water pressure.	<ol style="list-style-type: none"> <li>1. Iron/Manganese buildup in filter.</li> <li>2. Not enough water flow available for backwash.</li> <li>3. Inlet of control plugged.</li> </ol>	<ol style="list-style-type: none"> <li>1. Increase backwash/regeneration frequency.</li> <li>2. Remove piston and clean control of foreign material.</li> </ol>
Drain flows continuously.	<ol style="list-style-type: none"> <li>1. Internal control leak.</li> <li>2. Control valve jammed in back-wash position.</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace seals, spacers or pistons.</li> </ol>



**Envirogard Products Limited**

446 Major Mackenzie Drive East,  
Richmond Hill, ON L4C 1J2, CANADA

Toll Free: 1.800.667.8072, Tel: (905)884 9388 Fax:(905) 884 3532

E-Mail: [info@rainfresh.ca](mailto:info@rainfresh.ca). Web: [www.rainfresh.ca](http://www.rainfresh.ca)