

Installation Guide for the Manganese Greensand Filter System

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Overview

- This installation guide gives a step by step, start to finish procedure for installing a basic Manganese Greensand system using Fleck valves. All Manganese Greensand systems regenerate with a weak solution of Potassium Permanganate (Pot/Perm).
- [Follow the instructions at this link](#) for loading the media in the resin tank and installing the Fleck Control Valve, BEFORE continuing with these instructions.
- Your new Manganese Greensand system from the Ohio Pure Water Company comes with an owner/service manual, which, along with these instructions, will help to explain all necessary details required for successful installation and operation of your system. Please refer to these instructions and the service manual supplied with your system during installation and programming.
- All steps provided herein are for typical installations only. If you require additional plumbing to install your system, simply contact a person who is knowledgeable in residential plumbing or have a local plumbing company help you install, or install the system for you.
- There is a bit of "over-kill" in our instructions, but please bear with us as we want to ensure that you, our customer, fully understand the instructions and are completely satisfied with your installation!
- We recommend that you take a few minutes and look at the service/parts manual for your particular model, to help you better understand your new water system. Take your time, carefully read the instructions.
- Get all of the plumbing parts together before you start, and have an assistant help you, if possible. Typical installation should take no more than a few of hours.
- If you are going to turn the water off to your house while installing this system, we recommend that you turn off the electricity to your electric water heater during installation. After the system is installed with water running through it, turn on a few hot and cold-water faucets, and let them run until there is no more air in your lines, then turn the electricity back on to your water heater.
- Our conditioner systems can safely handle a pressure range of 35-95 psi. However, as with most residential plumbing and for best operation causing the least wear on critical parts, we recommend an operating range of 40-65psi.
- We will have already pre-set the valve to regenerate according to the information you provided to us about your water. Now all you have to do is plumb in the system, plug it in and set the current time of day!

Pre Installation

- Your system should be located in a protected, dry, level and non-freezing area. The Pot Perm tank

and Manganese Greensand tank should be within 5 feet of each other. The Pot Perm tank will hold up to 30lbs. of powdered Potassium Permanganate which dissolves in the water you put inside the tank.

- We recommend running the flexible drain line coming from the Fleck valve, into at least a 1 ½" house drain for the regeneration cycles. If possible, the house drain should be no more than 20 feet from the system. You will need to purchase some flexible ½" inside diameter, plastic flexible tubing from a local hardware or building supply store. This same size tubing will be used for both the valve drain fitting, and on your Pot Perm tank safety overflow fitting. (Always follow any local plumbing codes during your installation).
- You will need a standard 3-prong, 120V, grounded outlet that is not controlled by a switch. Our Fleck valves have a 5' power cord, but you can use an extension cord if an outlet is not nearby. Again, Please follow any local building/safety codes if you need to use an extension cord.
- Make a list of all the plumbing fittings you will need to completely install the system to make it ready for operation. Assemble all tools needed to install the system, and start your installation!

Installation

1. Turn off the main water shutoff valve.
2. Next, open all plumbing fixtures in the house including all outside faucets in order to drain the lines of all water possible.
3. Cut and remove a section of the main incoming water line near where the system is to be installed. Allowing this line to drain thoroughly.
4. Now, remove the yoke or Fleck bypass valve from the back of the tank valve by loosening the two small stainless steel clamps on either side of the rear valve assembly, that holds it in place. Then simply pull it off the back of the valve. Now that you have the yoke or bypass valve removed, follow the directions below to make them ready to re-install on the valve. (See Figure 1).
5. INSTRUCTIONS FOR USING A YOKE. If you have a standard Fleck Noryl Plastic yoke, it will have two ¾" or 1" male thread nipples, (one inlet & one outlet). You will need to buy two ¾" or 1" Female thread adaptersto whatever type and size of piping you are plumbing the system to.
6. INSTRUCTIONS FOR USING A BYPASS VALVE. If you are using the Fleck ¾" brass or 1" Stainless Steel bypass valve, you will need to purchase two ¾" or 1" Male thread adapters..... to whatever type and size pipe you are plumbing to.
7. If you are going to use copper piping and be soldering joints, we do not recommend applying intense heat, to your new valve assembly. We always recommend that you remove the yoke or bypass from the valve assembly, and attach the plumbing adapters you bought.....to the yoke or bypass while they are disconnected off the valve.
8. This simple step will ensure that you are not applying any intense heat as you solderor excessive pressure as you tighten the adapters onto the yoke or bypass, while they are mounted on the valve body itself.
9. Another tip if you are using copper adapters. Always solder a 3" to 5" piece of copper pipe into each of the two pipe adapters you have purchased, before threading them into the yoke of bypass. After they cool off, apply pipe compound (we do not recommend using Teflon tape on these threads) to the male threads of the Noryl yoke, (or onto the male adapters for the brass bypass valve), and securely tighten them to the yoke or bypass valve. Again, doing this before you re-attach them back onto the rear of the valve/meter body assembly.
10. Again, please do this before you re-attach either the yoke of bypass valve back onto the rear of the Fleck valve/meter



Figure 1.



Figure 2.



Figure 3.

- body assembly.
11. DO NOT connect any adapters to either the yoke or bypass valve, while the yoke or bypass valve is connected to the Valve/Meter assembly! You may exert too much pressure on the valve while securing the adapters, causing damage to the valve housing!)
 12. After all soldering is finished and the adapters are securely threaded onto either the yoke or the brass bypass valve assembly, then attach the yoke or bypass valve back onto the valve/meter assembly and secure it there with the two small stainless steel clamps. (See Figure 1).
 13. Now position your conditioning system in place for the final water line installation.
 14. Remember; If you are using our optional brass bypass valve, make certain the bypass valve is set in the "Service" position, while soldering the pipes to the system. Then return it to the "Bypass" position before turning your water back on to the house. (See Figure 2).
 15. Measure and cut the lengths of pipe you need to plumb the main hard water line into your system. Then do the same for the conditioned water line that will exit from the system, back out into the house.
 16. *NOTE* AS YOU LOOK DIRECTLY INTO THE TWO WATERLINE HOLES ON YOUR FLECK VALVE.... THE HARD WATER LINE FROM YOUR HOUSE WILL ALWAYS ENTER THE HOLE ON THE LEFT SIDE OF THE VALVE, YOKE OR BYPASS!! There are also arrows stamped into the body of the valve, showing the direction of flow. (See Figure 3).
 17. If you use our optional bypass valve, arrows indicating water flow direction are printed on the top of the bypass valve assembly. (See Figure 2). DO NOT TURN THE FLECK BYPASS VALVE UPSIDE DOWN ATTEMPTING TO MAKE THE HARD WATER ENTER ON THE OPPOSITE SIDE OF THE VALVE!!
 18. Just remember, as you are looking directly into the two waterline holes where the water enters and exits the valve, the hard water line from your house always enters the hole on the LEFT. The conditioned water flowing out from the system, back into your house is always the hole on the RIGHT. (See Figure 3).

Installing the Drain Line to the Valve

1. All of our Fleck valves have a drain hose barb, generally located on the lower, backside or side of the valve. First, check to make certain this drain hose barb is securely threaded into the valve body after the threads have been wrapped with Teflon tape. (See Figure 4).
2. Once you know the drain hose barb is installed properly, carefully push the 1/2" ID flexible plastic drain hose completely over the barbed end of the fitting, and then attach a small hose clamp to the end of the line so it cannot work loose over time. Run the opposite end of this drain hose to the drain you are going to use for your system. Remember to leave a small air gap at the end of the hose going to the house drain. (Follow all local plumbing codes), and secure it there.
3. When the system is in the backwash/regeneration mode, water will flow out of this drain line with a fair amount of pressure, especially during the "rapid rinse phases" of the process, and the line may sometimes "jump" a little when

changing cycles.



Figure 4.

Connecting the Potassium Permanganate Tank

1. Next, connect your Pot/Perm tank to your Manganese Greensand system. One end of the supplied 3/8" brine line tubing will be connected to your Pot Perm tank and the opposite end needs to be connected to your Fleck valve. (See Figure 5).
2. Look inside your Pot Perm tank and you will see a 3" diameter "Brine Well" tube. Remove the lid from the top of the brine well and look inside this tube. Here you will find the "Brine Float" assembly. Remove the rubber band, (which secures the brine float during shipping), from the brine float and then replace the brine float back into the 3" brine well. (See Figures 6 and 7).
3. On top of the brine float, you will see a large elbow with a plastic nut. Carefully remove the nut. Then insert one end of the 3/8" tubing through the hole near the top edge, in the side of the Pot Perm tank, and slide the nut onto the tube with the threads facing the end of the tube. The nut has a permanent compression ring made inside. (See Figure 8).
4. Now insert the end of the tube into the elbow as far as it will go. Thread the nut onto the elbow, tightening it snugly finger tight which compresses the ring inside the nut onto the tubing. (See Figure 9).
5. Your Pot Perm tank is now ready to be connected to your Manganese Greensand system.
6. Take the other end of the 3/8" brine tube and find the 3/8" brass nut located on the valve body of your system. Remove this brass nut and you will find a small plastic compression ring inside.
7. Slide the brass nut over the end of the tube, threads facing the end of the tube. Then slide the compression ring on with the narrow side facing the end of the tube. (See Figure 10).
8. Insert the end of the tube fully into the opening on the valve where the brass nut was located, then slide the compression ring and brass nut up the tube, finally threading the brass nut back onto the threads. Tighten the brass nut gently with a small wrench.
9. Notice the plastic elbow that is located on the outside of your Pot Perm tank. This is a "Safety Overflow" and will use



Figure 5.

the same size drain line that is used on the valve drain (1/2" ID flexible plastic line.) This drain line will not be under pressure, so it must be directed to a drain that is physically lower than the tank is. DO NOT connect this drain line into the drain line coming from your filter system valve!! It must be run separately to the drain.



Figure 6.



Figure 7.



Figure 8.



Figure 9.



Figure 10.

Turning the Water Back On

1. Pour water into the Pot/Perm tank until there is about 1" of water above the felt pad that is on top of the brine grid inside the tank.
2. Pour a couple pounds of Potassium Permanganate Powder into the Pot Perm Tank, and let it dissolve for a few hours while you are installing the unit.
3. INSTRUCTIONS FOR USING A YOKE. If you are using the standard yoke with no bypass, turn all faucets in the house to the off position, except one faucet, (preferably an outside faucet, a laundry sink or bathtub). Turn your water on slowly going into the unit while you let this one faucet run about half way open. This will allow the water entering the unit to rinse the inside of the resin tank out and settle the media. After the resin tank is full, turn the faucet off and start opening each faucet in the house one by one until all the air is out of the water lines. You now have filtered water on your cold side! The hot water will take a couple of days to be filtered as your water heater is full of raw water.
4. INSTRUCTIONS FOR USING A BYPASS VALVE. If you are using a bypass valve, make sure your bypass valve is now in the bypass position. Turn your water on slowly, leaving all your faucets open until water starts coming out of them. After they are running steady and all the air is out of the water lines, turn them off one by one. The raw water will be bypassing your water filter system at this time. After all the waterlines in your house are running again, clear of air in the lines, then turn them all off except one cold water faucet. Leave it on about half way while you fill the resin tank with water. Slowly open your bypass valve and begin filling the resin tank with water. After the resin tank is

full..... continue to run water through the unitout of the one cold water faucet you left open, for a few minutes until the water is clear and free from any rinsed out resin particles that may be present.

Post Installation

1. Look in your service manual, at your particular model Fleck valve, and manually run your valve through a regeneration cycle. To do this, simply turn the manual "Regen" dial clockwise just a few "clicks" at a time, stopping at each cycle for a couple of minutes, to help clear air out of the resin tank and valve. At this time, water and air will both will be coming out of your valve drain line.
2. Once you have completed turning the "Regen" knob one complete revolution it should be set back to the original "Service" position!
3. After the installation is totally complete and the unit is plugged in to the electrical outlet and set to the current time of day.....we recommend all Manganese Greensand units, be set to "Regen" on the valve....so it will automatically run through a complete cycle by itself...which will take about 90 minutes. This way the Manganese Greensand media is immediately rinsed with a fresh charge of Potassium Permanganate solution, which will help the new media remove dissolved elements from your water better and faster.
4. Our Manganese Greensand system will regenerate automatically around 1:00am, when the valve is set on the correct time of day. (See Figure 11).
5. Check all connections for leaks. You now have filtered water!



Figure 11.

Notes

- Even though you now have conditioned water in your cold water lines, your water heater is still full of raw water. Through normal use, this water will be replaced with conditioned water in about 2 or 3 days.
- We supply a toll free number to all of our customers to use, in case they don't understand something contained in our installation instructions.
- Hard copper pipe generally comes in two types. Use the thicker "L" type copper pipe rather than thinner "M" type copper pipe.
- Follow your local plumbing and building codes when installing our systems.
- Please Email us a picture of your installed system! Let us see how good of a job you did on the installation.

Refilling the Pot/Perm tank with Potassium Permanganate

1. Once the unit is placed in operation, it will automatically refill the Pot/Perm tank with fresh water after each regeneration cycle... dissolving a few ounces of Potassium Permanganate after each regeneration.
2. Check the level of Potassium Permanganate inside the Pot/Perm tank about every 8 weeks, and add a couple of pounds or 2 - 24 oz bottles as needed.
3. Remember to check with your local building/plumbing code officials and perform your installation per these codes.
4. Please work slowly and carefully for your personal safety and for a proper long-lasting installation!
5. We recommend that you initially set your new system to regenerate every 4th day.
6. Be safe and read the cautionary instructions for use and handling found on the Potassium Permanganate container. Potassium Permanganate is a strong oxidizer, and care must be used when adding the material to the Pot Perm tank.

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