

# Water Softener Installation Guide

## Water pro unit

(Note: In order to print these, you may need to go to “edit”, then “select all”, then “copy”, open up a word processing blank document or notepad and go to “edit” then “paste” to give you a printable format. Sometimes it will not print completely from a web browser. You can also change the page layout orientation to get it all printed out. If you have problems, email us and we can reply with a word format file in which you can open and print from.)

**Read all instructions before starting!**

Some unit's ship without the media loaded due to shipping guidelines and restrictions. If shipped by UPS, you will probably be loading the filter media in the tank using instructions below. Loading your system is very easy following these instructions and will not take very long at all. The advantage to loading your own system besides saving a lot on shipping charges over shipping by truck is that it is easy to move the unit and components to the install location before loading it. If your system is already loaded, (most shipped by truck are loaded already) skip down to installation guidelines just below these filling instructions. Please follow the step-by-step loading instructions below. Loading the units should only take about 10-15 minutes.

- The number of packages you receive can vary depending on the unit you order and how it is packaged for shipping. In general, the following is what to expect.

### **For the water pro system:**

You will have 1 tall slender tank 48” – 54” in height with an opening at the top, 1 control head either shipped in place on the tank or in a separate box, 1 brine tank (salt tank which looks like a trash can, shorter than the media tank, round or square with a plastic lid), You will have 4 different media's to load in your unit.

1. Gravel bed in first 15-20 lbs of gravel
2. Ion exchange resin, standard water pro will have one full bag of ion exchange resin about 55 lbs
3. Synthetic carbon, catalytic carbon ½ cu. Ft. about 20 lbs or so will go on top of the resin when loading
4. 5 lbs of KDF 55 media usually shipped separate in a small box, pour this in on top of the other filter media

### **For Iron filters, ph filters, carbon filters, turbidity filters:**

You will have 1 tall slender tank 48” – 54” in height with an opening on the top, 1 control head either shipped in place on the tank already or in a separate box. 1 small box of gravel about 15-20 lbs. 1 or more boxes with the filter media used inside the tank.

### **Water softeners:**

You will have 1 tall slender tank 48" – 54" in height with an opening at the top, 1 control head either shipped in place on the tank or in a separate box, 1 brine tank (salt tank which looks like a trash can, shorter than the media tank, round or square with a plastic lid), 1 or more bags of ion exchange filter media. Sometimes on the 48k size unit you will have a full bag and a partial bag of the same media but packaged in a different type bag. Most water softeners do not need gravel and gravel is not shipped, but some water softeners do use gravel like the water pro or iron pro 2 unit. If your water softener shipped with gravel, go ahead and use it.

### **Dual alternating water softeners 9000 or 9100 control head:**

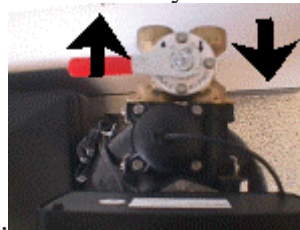
You will have 2 tall slender tanks, 9" -12" in diameter, 48" – 54" tall with openings at the top, The control head shipped in separate box with connector top for second tank, 1 brine tank (salt tank looks like trash can with plastic lid) and the filter media to go inside the tank media tanks. You will divide filter media between the 2 media tanks.

- **Look inside your media tank, if the control head is already on the tank, simply unscrew the head counter-clockwise. (The tank that is tall and slender with a hole in the top of it), and there will be a 1" plastic tube inside. This is your "Riser Tube" that delivers treated water into your home through the valve. It may have a plastic plug on the top end of it (many do not), so nothing can fall down inside the tank while you are loading the media. You should pull out the riser tube just to inspect it to make sure it is intact with no damage. These are very durable and would rarely ever be damaged. Then make sure tube is placed back into the tank all the way to the bottom and centered before filling. The riser tube sits in the center of the bottom of the tank and extends to the top either flush with the top or ¼" above the opening.**
- **If the top of the tube does not have a plug in it, simply put a piece of tape over the end, or plastic and rubber band, to keep the media from falling down into the tube!**
- **Next, stand back and look at your media tank, and make sure it is standing straight up and not tilted to one side. Sometimes during shipment, the black "Boot" on the bottom of the tank will get knocked out of alignment and you will need to straighten it out before filling the tank with media.**
- **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 tank stands straight up again.**
- **You can use a funnel with a large opening for the media or just fill by using a cup. If you do not have a large funnel to fit, the best thing to use is your household blender pitcher. Take the bottom blade section off of your blender and the pitcher will screw directly into your mineral tank making a perfect funnel. You will load the media in the top of the media tank with the riser tube still inside the media tank. Make sure the top of the tube has a plug of tape over the end of it to keep media out! Gravel and filter media loads in easily, softener resin clings to itself and it is easier to pour in a little at a time to work it down around the riser into the tank.**
- **Most filter systems come with gravel to go in the tank first. Water softeners in general do not use gravel unless you have ordered a special media or have a unit over 3 cu. Ft. size. For units using gravel, (iron filters, ph filters, birm filters, greensand filters, carbon filters, pyrolox filters, etc) load the gravel in the tank first before any other media.**
- **Scoop the media into the funnel, slowly letting it fall down inside the media tank around the riser tube. If you have a twin alternating water softener using the Fleck 9000 or 9100 head, divide the media equally between the two media tanks.**

- If you have ordered any additives like KDF ,or special carbon media in addition to your system, this smaller amount of media will go in the tank on top of the larger bag of media.
- On 48k water softeners, many times you will be shipped one full bag of media and one partial to make up the ½ cu. Ft. needed for your size system. The half bag may be different then the full bag but the contents will be the same once opened up. Since they are the same, it does not matter which goes in first.
- On iron filters, you will have the gravel bed to put in first, then the filter media, some special order units may have several filter media's to use, the order does not matter as long as you put the gravel in first.
- When you have scooped all of the media into the media tank, it will be half, or a bit more full. Some systems like the pyrolox may be a little less then half due to the density of the media. Water softeners are sized to be filled to about 2/3. Just make sure the unit is not filled past ¾ full to leave room for backwashing.
- Remove the media funnel and then the plastic plug (or tape) out of the end of the riser tube.
- Inspect the top edge of the media tank. Make sure there are no deep scratches or cuts. This is where the o ring seals against the top of the tank. If there are deep scratches, use sand paper to smooth out before connecting the control head.
- NOTE: Now is the best time to fill the tank with water. Filling the tank now before putting the control head on eliminates the amount of air to work out of the system later. On iron filters such as the Pyrolox, putting water in now will greatly help with clearing up the water later, see further instructions below.
- Use a hose or bucket and fill with water up to within a couple inches of the opening on the tank. Water can and will fill the riser tube also at this point.
- Brush any loose media and dry water off the top opening of the tank and apply a silicone lubricant or very, very light coat of regular cooking vegetable oil to the top surface of the media tank with your finger. This will help lubricate the large “O” ring on the bottom of the valve. DO NOT apply anything to the threads of the valve or to the inside of the media tank threads!
- Look at the bottom of your valve and you will see a 1” opening with “O” rings inside. Make sure to also lubricate this o ring. Tilt the valve over on top of the media tank making sure the top of the riser tube inserts inside the opening in the bottom of the valve.
- Screw the valve down onto the media tank. Have someone hold the tank as you snugly tighten the valve onto the tank. Be sure to grasp the valve close to the solid body of the valve as you tighten it onto the tank. Do not try to over tighten the valve onto the tank. The large “O” ring will seal itself, and you will not be able to turn it any further. Tighten it snugly, then snug it a bit more and stop!
- Your unit is ready to install!
- Follow basic plumbing instructions in service manual if your unit has one. **Please note:** The control heads used on iron filters and other filter systems are basically the same as control heads used on water softeners. Therefore, you will see reference to water softeners in parts of the service manual. This does not pertain to your system. Follow local plumbing codes. See supplemental instructions below. The service manuals cover several styles of the same control head. If you have an iron filter, the control head is the backwash version and some of the information relating to water softeners does not apply to you. Fleck is an OEM provider so the end dealer can label the units and control heads with their company information. We are a wholesaler of these units and do not label any of these with our information. You can identify the control head by your sales receipt and by the pictures on the manual.

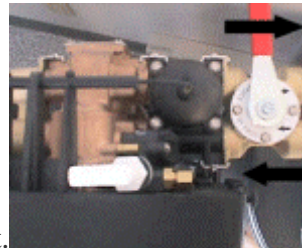
## Water softener installation instructions

- Before you start installing your new system, here are some important considerations. *These instructions are for most general installations. These instructions cover a number of systems including water softeners and iron filters as well as any type of backwashing filter. So if something refers to a unit you do not have, that would be why. Please contact us by email or phone if you have further questions. Many homeowners install their own water systems with basic plumbing skills, if you are not comfortable with projects like this, please get help from a friend or a professional plumber. HB Water systems will not be responsible for mistakes, damage or injury caused by improper installation. By making your purchase, you agree to these terms.*
- HB Water Systems can answer most questions for you, we are water treatment specialist and can answer questions relating to your needs on treating your water, but installation questions vary and we are not plumbers so please consult with a local plumbing expert for plumbing related questions. Always check with local plumbing codes to make sure you are following any local guidelines for installation needed.
- Make sure your chosen location will be fairly level, dry, and protected from possible freezing conditions. The plastic base of the media tank 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 salt tank and resin tank can sit directly on the floor, they will not corrode. DO NOT set the tanks onto make shift platforms as this can damage the salt tank, or cause the resin tank to topple.
- The actual installation of the system is very similar to installing a hot water tank. There is an inlet and an outlet and a drain line. If you are looking at the front of



the unit, the inlet is on the right side.

If Installing a Twin



demand system, the inlet is in front.

IT IS IMPORTANT

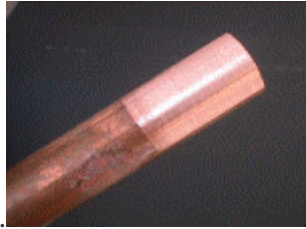
NOT TO INSTALL THE SOFTENER BACKWARDS, DOING SO WILL RESULT IN RESIN BEADS BEING THROWN INTO YOUR HOME'S PLUMBING SYSTEM CAUSING DAMAGE TO IT AS WELL AS THE SOFTENER. Refer to your service manual for the in and out, and also look for the molded arrows on the valve body. Always double and triple check this before turning your water on.

- Different states have different plumbing codes, so make sure you follow them. We recommend a GFI (ground fault interrupter) 120 volt outlet within 5 feet of the softener. Extension cords should be avoided at all costs unless only temporary.
- The following materials can be used for installing your new system, but remember to check your local plumbing codes. Copper, PVC, CPVC, and PEX are the most popular. Galvanized iron can be used but is labor intensive and requires tools that most people don't have. Flexible connectors are also used by some that don't have any interest in soldering. If code permits these can be very easy to use cutting the install time in half. A simple hot water tank installation kit available at most Home depot's or Lowes stores will do just fine if you have 3/4" (7/8" OD) copper or CPVC. These kits include compression fittings that will attach to the softener's inlet & outlet, and to the main line. Whichever material you choose, it's a good idea to set the system in the desired location and try to estimate the number of fittings and pipe you will need. Some prefer not to soften 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 softener AFTER these spigots. Installing your softener after the pressure tank on a well water system is the preferred location. If you have another filter system or iron filter, install the water softener after that system. Read the softener assembly instructions, then proceed to the next step. The service manual will give you specs on the control head, it covers 2-3 different models available in that control head.

### **Plumbing in your softener**

- If you have private well, turn the power off to the pump then shut off the main water shut off valve. If you have municipal water, simply shut off the main valve. Go to a faucet, (preferably on the lowest floor of the house) turn on the cold water until all pressure is relieved and the flow of water stops. If your hot water tank is electric, turn off the power to it to avoid damage to the element in the tank.
- Locate the resin tank with control valve installed in the desired location. If installing a 5600 or 2510, try locating the softener 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.
- Many newer homes have a plumbing loop or bypass loop already plumbed in. In this case, the standard water softener will just use a yoke connection on the back of the control head and not a bypass valve. If you need a bypass valve one can be ordered with your unit or after on our website or by calling. Fleck makes a nice bypass valve as pictured here with one handle bypass operation if needed.
- If your installing a softener with a demand meter and bypass valve, notice that these assemblies will travel slightly up and down. This is normal because of the O-ring seals at each end. You may need to support this into a level position with a temporary brace until the pipes are soldered, or glued together, and all pipe straps are installed for a neater, straighter job. When attaching adapters take care not to exert too much force on the bypass valve or pipe yoke. Take the bypass or pipe yoke off when installing fittings if need be. We recommend a liquid pipe dope for copper and brass fittings, Teflon tape for other plastic fittings.

- If you plan to solder the connections, remember the pipes must be clean (shiny),



and DRY.

*DO NOT try to stuff bread into a pipe to stop water from dripping into your fittings. If a shut off valve leaks some water slightly or the pipes above keep dripping, try to install a new valve, or drain down the house's plumbing further by opening more taps and or removing some water from the bottom of the hot water tank with power and or gas off. Use a high quality soldering flux and solder used for making plumbing connections, not electric wire. Always wear safety glasses. A fire extinguisher nearby is also a good idea for novice plumbers to have handy.....just in case. Soldering will cause some smoke detectors to go off if located in close proximity.*

- measure out two pieces of 4 or 5" pipe, assemble into two male adapters and



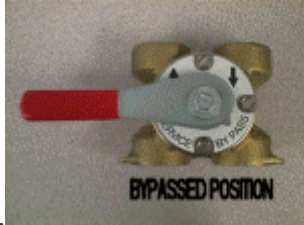
solder them away from the unit.



- Let cool or dunk in a bucket of water after one minute to rapid cool. Apply pipe dope to the threads, then screw the inlet piece on first, then the outlet piece. Line up the tank so that the inlet is lined up with the main line. Measure over to the "cut in point" of the main line and make a mark with a pencil. Cut the tubing on this mark. Cut the tubing again about 2 to 4 inches above the first mark, then remove the section of pipe just cut. Clean the cut ends, flux and wait for any water to drain completely out. You may also want to siphon some water out of the main line, just enough so the water level standing in the pipe is lower than where you will solder you fitting. Measure pieces of pipe, clean, flux and complete the inlet connection to the main line. *(The hard water feeding the softener from the well or water meter)* Do the same for the outlet. *(the soft water line returning to the house)* Make sure you have a faucet open before soldering or steam will buildup and the last joint soldered will most likely leak. If soldering to the yoke or bypass valve, remove the yoke or bypass from the control head to avoid heating up the control head which can be damaged by too much heat.
- Once soldered, let the pipes cool for 5 minutes. **If using a Yoke**, remove the softener from the yoke by removing the small clamps on each side. Put a bucket under the yoke and flush the lines with water by slowly turning the main valve

slightly on then off quickly. *Do Not stand in front of the Yoke while doing this in case the water is very hot. This flushes any solder, or grit out of the pipes. Leave the water off until the drain line steps and brine tank steps have been completed.* Then follow startup procedure in owners manual.

- **If using a bypass valve, make sure the valve is in the "bypassed"**



position. Then turn the main 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.

- Some control heads will have the drain fitting already in place on the back of the control head. A white or black elbow fitting, barbed on one end to connect the drain line to. If not installed on the head, wrap with tape as below and install. If already in place, you a hose clamp to connect your drain line to the drain barb fitting. Drain line is not usually provided for the unit since it is part of your plumbing and every application is different. Sometimes we do include a short piece of tubing that can use for your drain if it is long enough. Otherwise you will need some 1/2" id flexible tubing you can get from any hardware store to use. Install the backwash line by applying Teflon tape on the drain fitting



first. 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 softener 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 SOFTENER.** Standpipes of at least 1-1/2" are always best.

- Install the salt tank by using the 3/8" tubing (*provided*) and locating the brine valve that accepts the tubing on the control valve, then secure the tubing to the

compression nut. The nut, tubing insert, and ferrule are found in the service



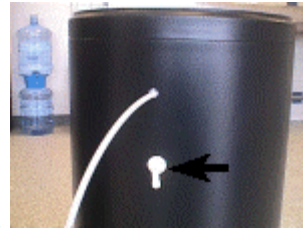
manual plastic cover.

The other end of the tubing goes through the small hole near the top of the salt tank. The parts for this are usually found in the salt tank taped to the top of the brine well. Remove the white cap on the 4" diameter brine well inside the salt 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 salt tank is for a "gravity" overflow line in case of a malfunction resulting in a salt tank overflow. This must be ran downhill if used. It



uses the same size tubing as the drain line. THESE TWO TOGETHER.

DO NOT TEE

- Inside the brine well, there is a float assembly rod. This is a safety overflow device that will shut off the water flow into the salt tank if the control head was to fail. The float should be adjusted to be around the middle of the tank. You want it to be at least half way up but below the overflow outlet. There are two rubber grommets on the rod that slide up and down to adjust the float with. Sometimes one of these will fall off in shipping and be at the bottom of the salt tank. If your tank has a salt grid on the bottom, it may be under that.
- You can now put water in your brine tank. To start with put 5 gallons of water in the brine tank. This is not a critical level but just helps with the process for the first regeneration. You can then add 1 or 2 bags of salt to start with. Once you make sure all is working good, you can fill the brine tank with salt.
- Manually put the softener into the backwash cycle. (*see owners manual, usually by turning the knob on the front clockwise into the backwash position. Each unit can be a little different*) Turn the bypass valve slightly 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 resin 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. If the resin tank is overfilled, some resin may come out the drain at first. This is ok as long as it is just a slight

amount. If the water is running clear and free from air pockets, go ahead and turn the bypass valve further and further into the "service position". You should have a full flow to the drain at this point.

- Plug the electric cord in. You can manually turn through each cycle on the control valve to test each position. When turning the control valve, pause for 30 seconds to a minute in each position to allow the gears to rotate and fully engage. If turned through too fast, you will have to go all the way around to the "in service" position and let it time out for a while before attempting again. You can rotate into the brine rinse position to make sure water is drawn from the brine tank to the softener, and then one of the last cycles is the brine fill where it will put water back into the salt tank to make a brine for the next regeneration.
- You can add salt at this time to fill if not done already. The softener only uses 6 to 15 pound of salt at a time depending on the size of the system, so the tank doesn't have to be full at all times. We recommend any salt pellets made for water softener usage. The pellets work the best. If iron levels are more than 1.0ppm, a salt with an extra iron removing additive is good preventive maintenance, and mandatory when iron levels are much higher. In higher levels of iron, you also want the system set to regenerate more often than normal. The salt tank holds 250 to 300 pounds. The tank *does not* have to be full in order to work properly.
- We recommend filling the tank, then letting the salt level drop to the point you see water in the bottom of the tank before filling again.



- **Note: If Potassium chloride is used, the salt grid deck(if supplied) must be removed, and the regeneration frequency should be increased by 30%.**



- Note: models 5600 and 2510 owners manuals have instructions for both standard timer (*12 day estimated*) and Econominder (*metered, or Demand*) control valves. At the bottom of this page, we have supplied some supplemental instructions on setting up the control head. But always refer to the service manual for specifics on setting your control head.
- When resin is new, the water will be soft as soon as raw water flows through the tank so regeneration is not required unless you just want to observe the regeneration process.

- If you have a metered unit, please remember to **insert the meter cable** (*black wire with brass tip*) that protrudes from the back of the timer into the meter assembly (*black plastic dome shaped assembly on the outlet side of the softener*)



or the softener will never regenerate on it's own.



For setting a metered on demand water softener:

The best and most accurate way to set the softener is to use the total gallon capacity dial. The number of people dial is not the most accurate way to set it up and we do not put the people dial sticker on most units. Once you have figured your capacity for treatment, you pull out on the inner wheel and then you will be able to turn the outer wheel to line up the numbers 1-21 with the small white dot. The 1-21 represents 100 gallons up to 2100 gallons of water treated before it regenerates.

To figure your total capacity, divide your water hardness in grains per gallon into the size of the unit. For a 32,000 grain capacity unit use this example:

32,000 divided by 14 grains per gallon hardness = 2285, Subtract a reserve capacity from this number of 200-300 leaving you with a capacity in your unit to treat 2000 gallons before needing to regenerate. For this example, you will set the wheel to line up the number 20 with the small white dot. After 2000 gallons has passed through your softener, it will regenerate that night at 2 am.

If you have a high iron problem, you should have the unit regenerate more often to prevent fouling of the resin bed.

Make sure to set the current time of day on the clock wheel to the left. This allows the unit to wait until 2 am for regeneration when you are not using water in the house. Depress the red button while turning the time to the current time of day. Make sure to place the cable coming from the top of the unit into the meter dome which is located by the in and out on the back of the water softener control head. This cable will just firmly push into place and this will measure the water being used.

If you do not know how hard your water is, start with the number above and if you run out of soft water before the unit regenerates, adjust down a couple numbers until you have a continuous supply of soft water all the time.

For Timer control heads:

Figure the capacity of the unit using the same formula as above. Then estimate your daily water usage in the home. Divide that into the capacity giving you the number of days to go between regenerations. Set the control head to regenerate after the number of days you determined using that formula. Push the metal tabs outward on the timer head for the days you want it to regenerate.

Your water will 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 soft water right away, it will take a few days to get all the hard water out of your hot water tank. So you will experience some hard water from your hot water tank for a few days.