

# IRON RIVAL<sup>®</sup> w/ KATALOX LIGHT<sup>®</sup>

## OWNER'S MANUAL & INSTALLATION GUIDE

### APPLICABLE MODELS:

IR-8-IRL | IR-9-IRL | IR-10-IRL | IR-12-IRL  
IR-13-IRL | IR-14-IRL



**PLEASE READ THIS MANUAL CAREFULLY BEFORE ATTEMPTING INSTALLATION. FAILURE TO FOLLOW THESE INSTRUCTIONS MAY AFFECT THE PERFORMANCE OF YOUR SYSTEM, VOID YOUR WARRANTY, AND RESULT IN PROPERTY DAMAGE.**

**Congratulations on the purchase of your Iron Rival Series water treatment system.** You have purchased one of the finest iron treatment systems on the market today. The Iron Rival system uses a multi-faceted treatment process consisting of a combination of aeration, oxidation, and filtration for the reduction / removal of iron, manganese, and hydrogen sulfide from your water supply. This system may be used for other water treatment purposes as directed by your water treatment technician/ dealer.

This manual is designed to provide owners, installers, and service technicians with detailed information about the installation, start-up, and operation of your new filter system.

The brains of your Iron Rival system is the Fleck 2510 AIO control valve with SXT controller. It is manufactured by one of the world's largest water treatment companies. The control valve is well respected for its reliability, serviceability, simple operation, and value. The integrated digital valve controller offers unsurpassed simplicity of operation, yet complete control over all important valve operations. You can rest assured that you have made a solid investment in the quality of your water supply!

The muscles of your Iron Rival system powerful yet light-weight catalyst media called katalox Light®. It is capable of removing high levels of iron, manganese, and hydrogen sulfide (rotten egg odor).

Your Iron Rival water treatment system is designed to offer years of low maintenance operation. The control valve will perform regular backwash and regeneration functions automatically. For your convenience, your system has been pre-programmed at the factory. Should you need to change any of the settings, simply following the instructions provided in this manual. We recommend that settings only be adjusted after consultation with your water treatment technician / dealer.

Katalox Light® is a registered trademark of Watch Water.

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## IMPORTANT SAFETY SYMBOLS



Hazards or unsafe practices that may result in personal injury and/or severe property damage.



Hazards or unsafe practices that may cause operational problems with your water treatment system.

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## GENERAL WARNINGS



Do not allow children or pets to play on or around the water filter.

Do not install or store this filter system where it will be exposed to the freezing temperatures.

Do not tamper with controls.

Do not repair, replace, or attempt to service any part of the system unless specifically instructed to in this manual and you have the understanding, tools, and skills necessary to carry out the procedure.

Packing materials can be dangerous to children. Keep all packing material (plastic bags, polystyrene, boxes, etc.) well out of children's reach.

Individual components of this water treatment system, and the installed system, are heavy. Precautions should be taken to prevent personal injury or strain. Do not move heavy components without assistance if you are not physically capable of safely carrying out the procedure.

If the water treatment system is to be left unattended for an extended period of time (vacation, etc.), we strongly recommend that you turn off the water supply to the system, or the whole house, while you are away.

If your water pipes are metal (galvanized or copper), they may be used to ground electrical systems, appliances, or your phone line. If this is the case, be sure to install regulation ground clamps to the metal pipe on each side of the control valve and connect a jumper wire between the 2 clamps (#4 gauge solid copper wire recommended). Consult a certified electrician or plumber if you are unsure.

## OPERATING CONDITIONS

The following chart provides guidance on the conditions required for successful operation of your Iron Rival system.



**USE OF THIS EQUIPMENT OUTSIDE OF THESE OPERATING CONDITIONS MAY ADVERSELY AFFECT THE PERFORMANCE OF YOUR SYSTEM, RESULT IN SYSTEM DAMAGE INCLUDING WATER LEAKS AND CORRESPONDING PROPERTY DAMAGE, AND MAY VOID YOUR WARRANTY.**

Minimum Water Pressure	20 PSI
Maximum Water Pressure	90 PSI*
Recommended Water Pressure	40-70 PSI
Water Temperature	36F to 100F (2 to 38C)
Minimum Air Temperature	32°F (0°C)**
pH Range	6.0*** to 9.0
Maximum Iron	7 ppm (mg/l)
Maximum Manganese	1 ppm (mg/l)
Maximum Hydrogen Sulfide	2 ppm (mg/l)
Maximum Total Organic Carbon (TOC)	2 ppm (mg/l)

\* While the Iron Rival system is built to withstand pressures exceeding 90 PSI, if your water pressure is greater than 70 PSI, we recommend that you have a certified plumber install a pressure reduction valve ahead of the Iron Rival system.

\*\* The system cannot be subjected to freezing conditions or severe damage to the system and your property could occur.

\*\*\* pH correction is strongly recommended where pH levels are less than 6.5 to prevent damage to your control valve and plumbing system, and to prevent leaching of metals from copper and brass plumbing components and solder in your home. Contact your dealer for recommendations. A pH level of 7.5 or higher is strongly recommended for manganese removal.

### Iron Rival w/ Katalox Light® Media Service Flow Rates & Backwash Requirements:

Model	Optimal Service Flow Rate* (GPM)	Maximum Service Flow Rate* (GPM)	Backwash Flow Rate at 40F Water Temp (GPM)	Backwash Flow Rate at 70F Water Temp (GPM)
IR-8-IRL	2.8	4.2	2.7	3.5
IR-9-IRL	3.5	5.3	3.5	4.5
IR-10-IRL	4.4	6.5	4.5	6
IR-12-IRL	6.3	9.4	7	8
IR-13-IRL	7.4	11.1	8	9
IR-14-IRL	8.6	12.8	9	10

\*Service flow rates are based on the iron, manganese, and hydrogen sulfide levels not exceeding 75% of the stated maximum levels above. Reduce service flow rate expectations as contaminant levels rise above this threshold, particularly if they are approaching the stated maximum levels.



**CONFIRM THAT YOUR WATER CONDITIONS, SERVICE FLOW RATE NEEDS, AND AVAILABLE BACKWASH FLOW RATES MEET THE ABOVE SPECIFICATIONS FOR THE MODEL YOU ARE INSTALLING BEFORE COMMENCING THE INSTALLATION PROCESS. IF IN DOUBT, CALL YOUR DEALER FOR ADVICE. INSTALLED UNITS CANNOT BE RETURNED.**

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## INSTALLATION



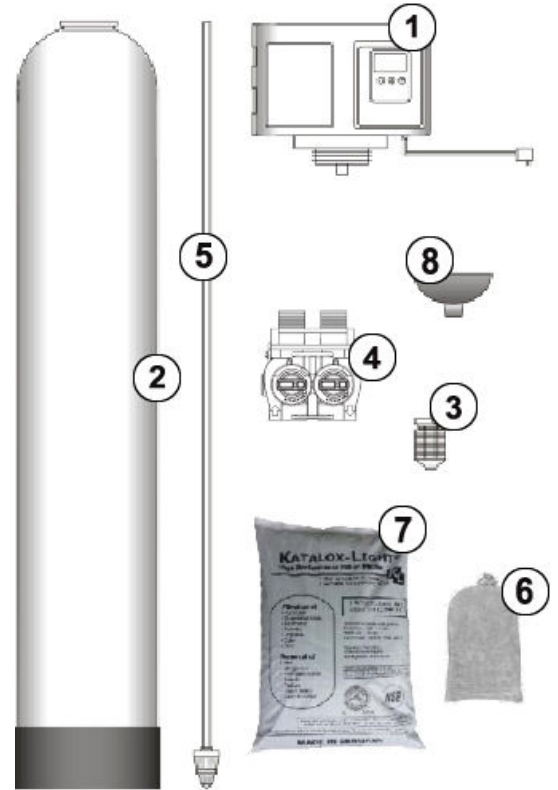
**WE RECOMMEND THAT YOU READ THIS ENTIRE MANUAL BEFORE COMMENCING THE ACTUAL INSTALLATION. WHILE WE STRONGLY RECOMMEND THAT A LICENSED PLUMBER PERFORM ALL INSTALLATION WORK, A MECHANICALLY-INCLINED HOMEOWNER WITH SUITABLE PLUMBING KNOWLEDGE CAN INSTALL THIS SYSTEM. IN ALL CASES, IT IS CRITICAL THAT THE INSTALLATION BE DONE IN ACCORDANCE WITH THESE INSTRUCTIONS AND ALL APPLICABLE PLUMBING AND ELECTRICAL CODES. BE SURE TO OBTAIN ALL REQUIRED PERMITS. IF THESE INSTRUCTIONS AND**

**THE APPLICABLE CODES ARE IN CONFLICT, THE RELEVANT PLUMBING/ELECTRICAL CODE SHALL BE FOLLOWED. EQUIPMENT FAILURE, PERSONAL INJURY, OR PROPERTY DAMAGE CAN RESULT IF THIS EQUIPMENT IS NOT INSTALLED PROPERLY.**

## Step 1. – Pre-Installation Inspection

Inspect all of the components that you received with your unit. You should have received the following:

1. Fleck 2510SXT control valve
2. Media Tank
3. Upper Screen
4. Bypass Assembly w/ 1" NPT Connector Yoke
5. Riser Tube and Lower Distributor
6. Bag or Box of Gravel
7. Bag(s) or Box(es) of Kalatox Light® media
8. Funnel



## Step 2. – Selecting an Installation Location

While exterior installation in warm climate areas is possible, we strongly recommend interior installation only. The system cannot be allowed to freeze or severe system damage could occur. The system should not be exposed to rain and it should not be installed in direct sunlight as long-term exposure to UV light could damage components of the system. Furthermore, direct sunlight could raise the internal water temperature in the treatment tank and reduce backwash effectiveness.

In most cases, the Iron Rival should be located AFTER the pump and pressure tank. Unless otherwise directed by your water treatment technician or dealer, the Iron Rival should be installed AFTER any backwashable turbidity/sediment filters, and BEFORE most other forms of treatment including cartridge filters, water softeners, carbon filters, and/or ultraviolet (UV) sterilizers, and the hot water heater, if applicable. When possible, it is also generally

desirable to place the Iron Rival AFTER the plumbing branch off to your outdoor irrigation water unless you want this water treated.



**IF YOU HAVE OTHER WATER TREATMENT EQUIPMENT, YOU SHOULD DISCUSS THE ORDER OF YOUR TREATMENT EQUIPMENT WITH YOUR DEALER PRIOR TO INSTALLATION.**

Select a location for installation of your Iron Rival that is within close proximity to the main incoming water lines of the home. The location should have a firm, level surface with sufficient space for the media tank. Ensure that there will be sufficient space surrounding the unit to facilitate maintenance.



**WHILE WATER LEAKS ARE VERY RARE AND UNEXPECTED, YOUR WATER FILTER SYSTEM SHOULD BE LOCATED NEXT TO A FLOOR DRAIN OR PROTECTED BY A WATER LEAK DETECTION SYSTEM WITH AUTOMATIC SHUT-OFF VALVE TO PREVENT WATER DAMAGE TO YOUR PROPERTY IN THE UNLIKELY EVENT OF A WATER LEAK. RECOMMENDED WATER LEAK DETECTION SYSTEMS ARE AVAILABLE AT [WWW.A-LEAK-DETECTOR.COM](http://WWW.A-LEAK-DETECTOR.COM).**

You will also require a suitable drain to discharge waste water from the backwash cycle. A drain standpipe for a washing machine, floor drain, or sump pump is an excellent drain option. We recommend that the drain line be connected to a minimum 1½" drain standpipe or floor drain located ideally below the top of the head of your Iron Rival. If possible, the drain should be no farther than 20 feet from the system.



**NEVER CONNECT THE DRAIN LINE DIRECTLY INTO A DRAIN PIPE. ALLOW AN AIR GAP BETWEEN THE DRAIN TUBING AND WASTE LINE TO PREVENT THE POSSIBILITY OF BACK-SIPHONING. WE DO NOT RECOMMEND USE OF A CHECK VALVE AS IT MAY BECOME CLOGGED WITH CONTAMINANTS EJECTED FROM THE SYSTEM DURING BACKWASH.**



You will also need access to a standard, non-switched, grounded 120volt (60 Hz) electrical outlet. The control valve comes with a 10 foot long electrical cord. An extension cord may be used to reach a suitable electrical outlet. If this option is used, ensure that the extension cord is UL/CSA certified and of an appropriate wire gauge for the application.

### **Step 3. – Prepare Media Tank**

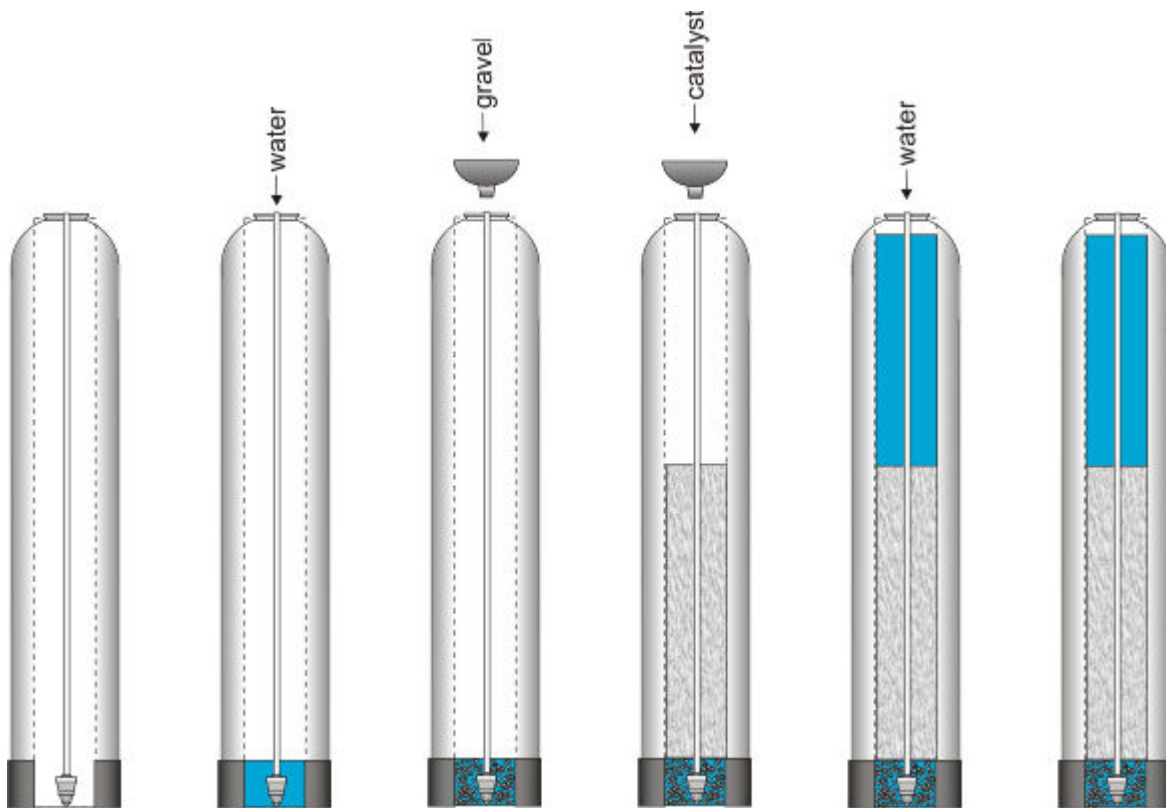
Two types of media are supplied with your Iron Rival system: gravel which forms the base layer (underbedding) in your media tank, and a specialized catalyst media called Katalox Light®. Both are NSF/ANSI 61 validated for material safety.

Place the media tank in the location where it will sit when the installation is complete. Note that the black base of your tank is not permanently attached to the rest of the tank. If your tank appears to be crooked, the base has likely been knocked out of alignment during shipping. This can be corrected by picking the tank up and tapping it on a hard surface while holding it perpendicular to the floor. A few light taps will generally straighten it out.

Temporarily remove the riser/tube distributor assembly from the media tank. Hand tighten the control valve on the tank and mark where the front of the tank will be. Turn the tank so that the front of the tank is where you want it when it is full – once it is full of media and water, it becomes very heavy and difficult to move!

Remove the control valve and re-insert the distributor and riser tube assembly into the tank. The distributor, which looks like a cone-shaped plastic screen, is pre-connected to the end of the long plastic riser tube which extends from the bottom of the tank to the top of the tank where the control valve is attached. At the bottom of the tank, there is a recess in the center of the tank to accept the distributor and keep it properly aligned. The riser tube has been pre-cut to the correct height for you. When the distributor is correctly positioned, the top of the riser tube will be approximately 1/8 to 1/4 of an inch below the top of the tank. If the tube is flush or protruding above the top of the tank, the distributor tube is not nested correctly in the recess at the bottom of the tank.

Add enough water to the tank to cover the lower distributor with a minimum of 6 inches of water. This will prevent damage to the lower distributor as gravel is loaded. Place the funnel into the tank so that the riser tube is in the middle. Place tape over the open end of the riser tube. This will prevent gravel or media from accidentally going down the tube during the following steps.



For the following steps, we recommend that you wear a dust mask. Take the bag/box of gravel and, using a small scoop, add the gravel to the tank through the funnel to completely cover the lower distributor. Be sure to provide some pressure on the riser tube while adding the gravel to ensure that the distributor does not shift out of its recess or rise up. Use all of the gravel. Ensure that you create an even layer of gravel across the bottom of the tank. A rigid piece of thin wall tubing (conduit, copper pipe, etc.), approximately 1" longer than the tank height works well as a leveling tool if you need it. Ensure that the riser tube remains centered in the opening at the top of the tank.

Once this is complete, add the catalyst media in the same manner. Use all of the catalyst media provided. Depending on the capacity of the system, there will only be enough media to fill the tank to about 1/2 to 2/3 full. The media tank should never be filled to the top of the tank as the remaining space, known as the "freeboard," is necessary for the media to have room to expand during the backwash cycle. Once the set-up is complete, the freeboard space will also contain a pressurized pocket of air that provides aeration to enhance the contaminant removal process.

Once you have finished adding the media to the tank, remove the tape from the distributor tube. Be careful not to pull upwards on the riser tube while doing this as it is important that the distributor remain in its recess at the bottom of the tank.

Fill the media tank with water up to within a couple of inches of the top of the tank. This will allow the media to pre-soak, thereby preventing media loss during the initial backwash.



**DO NOT INITIATE A REGENERATION OF THIS SYSTEM FOR A MINIMUM OF 12 HOURS AFTER ADDING THE WATER TO ALLOW ADEQUATE PRE-SOAKING. BACKWASHING BEFORE THE MEDIA IS SATURATED MAY CAUSE A LOSS OF MEDIA AND POTENTIAL DAMAGE TO THE CONTROL VALVE.**

Attach the upper screen to the underside of the control valve. Be sure to twist clockwise and lock it into place.

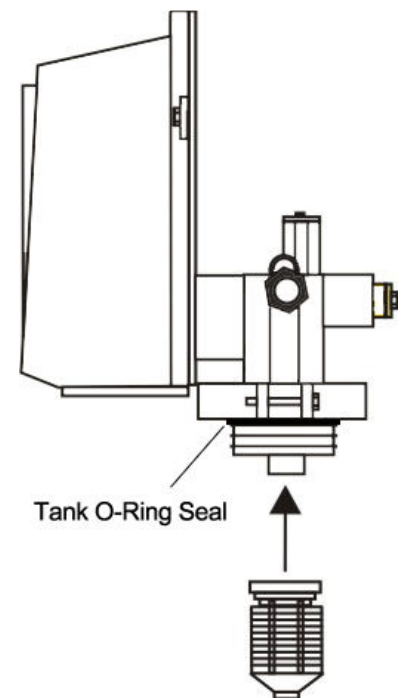
Apply a small amount of lubricant to the top inch of the outside of the riser tube, and to the tank o-ring seal.

**Note: Only use food-grade silicone lubricant. A small tube of lubricant is provided. Do NOT use petroleum jelly.**

The control valve can now be secured to the top of the tank. Before attaching the valve, check to make sure that there is no debris such as gravel or media in the tank threads.

Screw the control valve onto the tank – make sure that the riser tube inserts into the center hole in the upper screen and the control valve as you screw down the valve. The control valve should be hand-tightened (clockwise).

Do NOT use the control valve's timer assembly for leverage and do not use tools. A firm grasp with both hands at the base of the valve will work. Do NOT use pipe cement (“pipe dope”) or Teflon® tape on the threads.



## Step 4. – Turn off the Water & Electric Water Heaters



**FAILURE TO FOLLOW THIS PROCEDURE COULD RESULT IN SERIOUS, PERMANENT DAMAGE TO THE HEATING ELEMENTS IN YOUR WATER HEATER.**

If you have a conventional electric water heater or an on-demand (tankless) electric water heater, we highly recommend that you turn off the power to the heater while installing any water treatment equipment. Turn off power to your water heater now.

Turn off the household main water shutoff valve. Open several plumbing fixtures inside the home as well as the outside faucets to drain as much water out of the plumbing system as possible.

Following completion of the entire installation, restore the water flow by turning on the household main water valve and allow all air to be purged from the plumbing system before turning the power back on to your water heater.

## Step 5. – Prepare and Install Inlet and Outlet Plumbing Connections



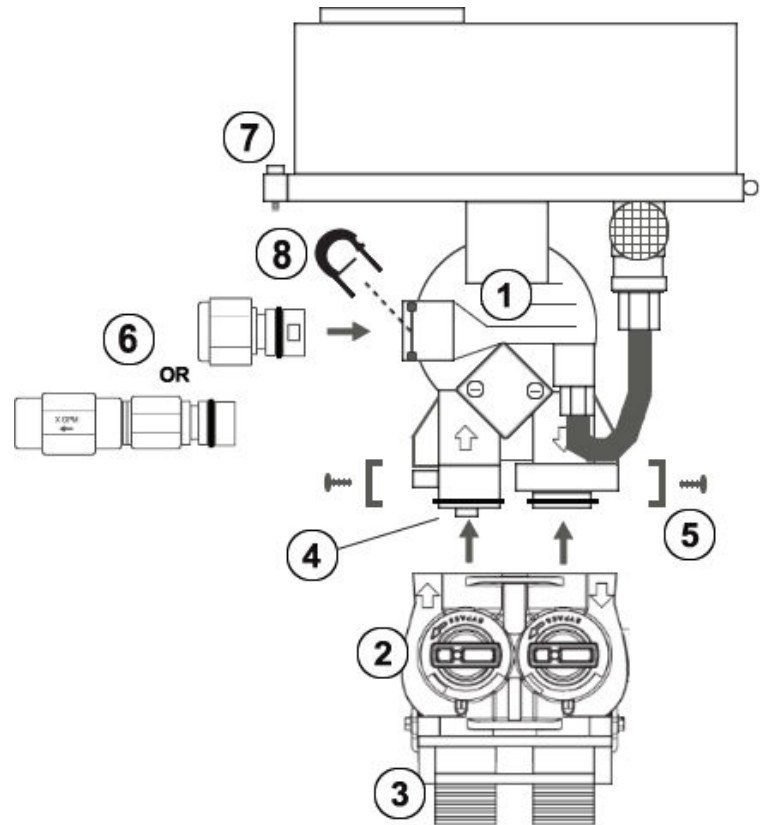
**TEFLON® TAPE IS THE ONLY SEALANT TO BE USED ON THE 1" NPT CONNECTOR AND DRAIN FITTINGS.**



**IF YOU WISH TO USE COPPER PIPING FOR YOUR INSTALLATION AND WILL BE SOLDERING THE JOINTS, DO NOT APPLY HEAT NEAR YOUR CONTROL VALVE, BYPASS ASSEMBLY, 1" NPT CONNECTOR YOKE, OR THE DRAIN FITTINGS; OTHERWISE SERIOUS DAMAGE TO THESE PARTS COULD OCCUR. ALWAYS SOLDER JOINTS WITH THESE COMPONENTS DETACHED. IF YOU ARE USING COPPER ADAPTERS TO CONNECT TO THE 1" NPT CONNECTOR, IT IS RECOMMENDED THAT YOU SOLDER A 6" PIECE OF COPPER PIPE INTO EACH OF THE CONNECTION ADAPTERS AWAY FROM THE VALVE, THEN LET THEM COOL OFF BEFORE THREADING THEM ONTO THE 1" NPT CONNECTOR YOKE.**

## Key control valve Components

1. Control Valve Body
2. Bypass Assembly
3. 1" NPT (Male) Connector Yoke
4. Inlet Check Valve
5. Stainless Steel Clip w/ Screw
6. Drain Line Flow Control (DLFC)
7. Screw to remove protective cover
8. DLFC Retention Clip



The system's control valve is connected to your incoming and outgoing water lines by way of a bypass assembly with 1"NPT threaded fittings. This assembly is composed of the bypass valve and the 1"NPT connector yoke. The 2 piece bypass assembly is secured to the control valve using 2 stainless steel clips. Similarly, the 2 pieces of the bypass assembly, the bypass and the 1" NPT connector yoke, are connected to each other in the same manner (they are normally shipped to you pre-connected but you can separate them to make plumbing easier if you want). You will need to purchase the appropriate NPT threaded fittings to connect the bypass assembly to the material and size of your main inlet and outlet water lines.

Locate the inlet and outlet ports on the back of the control valve. Note that the inlet and outlet are marked with arrows indicating the correct direction of water flow. When you are looking at the back of the control valve, the inlet is on the left and the outlet is on the right. A check valve is pre-installed on the inlet side of the control valve. Check the corresponding markings on the bypass to ensure the correct direction of water flow and insert the bypass (do not secure the clips yet). The in and out arrows on the bypass should be pointing the same direction as the in and out arrows on the outside of the control valve.

## CAUTION

**BE VERY CAREFUL TO MAKE SURE YOU PLUMB THE SYSTEM IN THE RIGHT DIRECTION.**

Plumb your main incoming and outgoing water lines using suitable pipe, fittings, elbows, etc. as necessary to create a tidy, secure installation up to the back of the bypass valve (including the correct connection adapters to mate with the threaded fittings on bypass assembly's connection yoke. Be sure to follow all local plumbing codes.

## WARNING

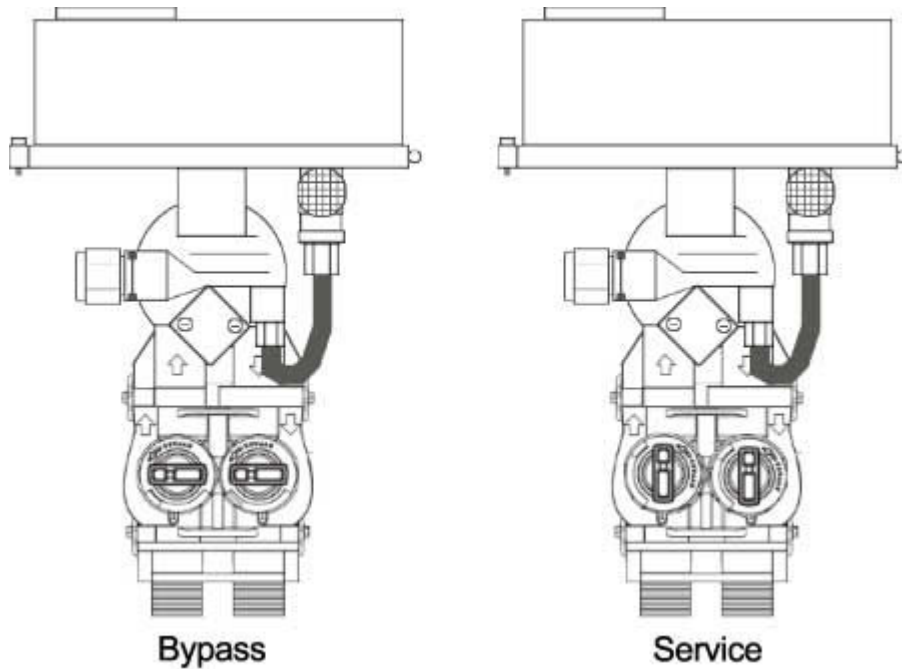
**WE HIGHLY RECOMMEND THAT YOU REMOVE THE BYPASS ASSEMBLY FROM THE CONTROL VALVE BEFORE MAKING THESE FINAL CONNECTIONS AS YOU MAY INADVERTENTLY APPLY TOO MUCH PRESSURE ON THE VALVE WHILE SECURING THE ADAPTERS, CAUSING DAMAGE TO THE VALVE BODY.**

It is recommended that downward loops (minimum 12") be created in the plumbing pipe immediately before and after the Iron Rival. These loops serve to limit the migration of air in the plumbing system in the event that some escapes the treatment system during regeneration.



Once all plumbing to the bypass has been completed, you can connect the bypass assembly to the control valve. Push the bypass onto the back of the control valve and secure it using the two stainless steel clips with screws located on the back of the control valve. Do not overtighten - it is normal for some “play” to exist when the bypass assembly is properly seated. This allows for minor misalignment of the piping connections and relieves stress on the valve.

Place the bypass in the “bypass” position as pictured:



## Step 6. – Drain Line Connection

During the backwash and regeneration cycle, your Iron Rival will send captured contaminants and waste water out the drain port. This port needs to be connected to a suitable household drain, ideally within 20 feet of your media tank. A nearby floor drain, sump pump, or a standpipe for a washing machine is an excellent option. We recommend that the drain line be connected to a minimum 1 1/2 inch drain standpipe or floor drain located ideally below the top of the head of your Iron Rival. You will need to purchase suitable pipe or tubing for the drain line, either 1/2 or 3/4 inch diameter. To determine your MINIMUM drain line diameter, look up your model and incoming water temperature using the chart below. **If in doubt, use a 3/4 inch drain line.**

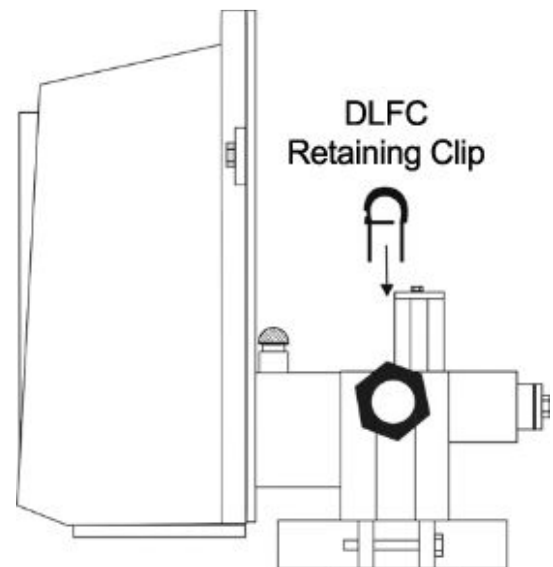
**Iron Rival w/ kataloxLight® Media MINIMUM Drain Line Diameter:**

Model	40F Water Temp	70F Water Temp
IR-8-IRL	1/2"	1/2"
IR-9-IRL	1/2"	1/2"
IR-10-IRL	1/2"	1/2"
IR-12-IRL	1/2"	1/2"
IR-13-IRL	3/4"	3/4"
IR-14-IRL	3/4"	3/4"

Polyethylene tubing, PEX, PVC, CPVC, or copper pipe are all acceptable material choices for the drain line. If you are using flexible tubing, be sure that there are no “kinks” or “crimps” in the tubing after installation that may cause a flow restriction. If used, overhead drain lines are not to exceed a height of 5 feet above the control valve and should be not more than 50 feet in length. Should an overhead drain line be utilized, it is recommended that the drain line be increased in size (diameter), and that it not be fastened flush to the bottom of a floor joist to minimize noise transfer to the upstairs of the building during regeneration.

Locate the drain port on the back of your control valve. The drain line flow control assembly (DLFC) is pre-attached to the control valve. For backwash flow rates of 7 GPM or less, the DLFC will be a black plastic housing with 1/2 inch female NPT threads. This housing contains a flow control washer that limits the backwash flow rate. For backwash flow rates exceeding 7 GPM, the DLFC will be a brass housing with a pre-attached external flow restrictor with 3/4 inch female NPT threads.

Using an appropriate fitting, connect the drain line flow control to your drain line tubing/pipe. The DLFC can be removed from the control valve to facilitate easier plumbing if desired. To remove the drain line flow control, pull up on the retaining clip to remove it and then grasp the drain line flow control and pull outward.



Re-insert the DLFC into the control valve and securely lock into place with the retaining clip when done.



Ensure that the drain line is thoroughly secured along its route to the drain. The drain line will be under pressure when the regeneration / backwash cycle is working. If not adequately secured, the drain line could vibrate during backwash, particularly during the initial purge of air from the top of the tank, causing excessive noise. If this is experienced, use additional fixtures to better secure the drain line.



**NEVER CONNECT THE DRAIN LINE DIRECTLY INTO A DRAIN. ALLOW AN AIR-GAP OF A MINIMUM OF 1 INCH (CHECK LOCAL CODES) BETWEEN THE DRAIN LINE AND WASTE LINE TO PREVENT THE POSSIBILITY OF BACK-SIPHONING. ALWAYS FOLLOW LOCAL CODES. THE DRAIN LINE SHOULD NOT BE EXPOSED TO FREEZING TEMPERATURES.**

## Step 7 – Control Valve Set-up

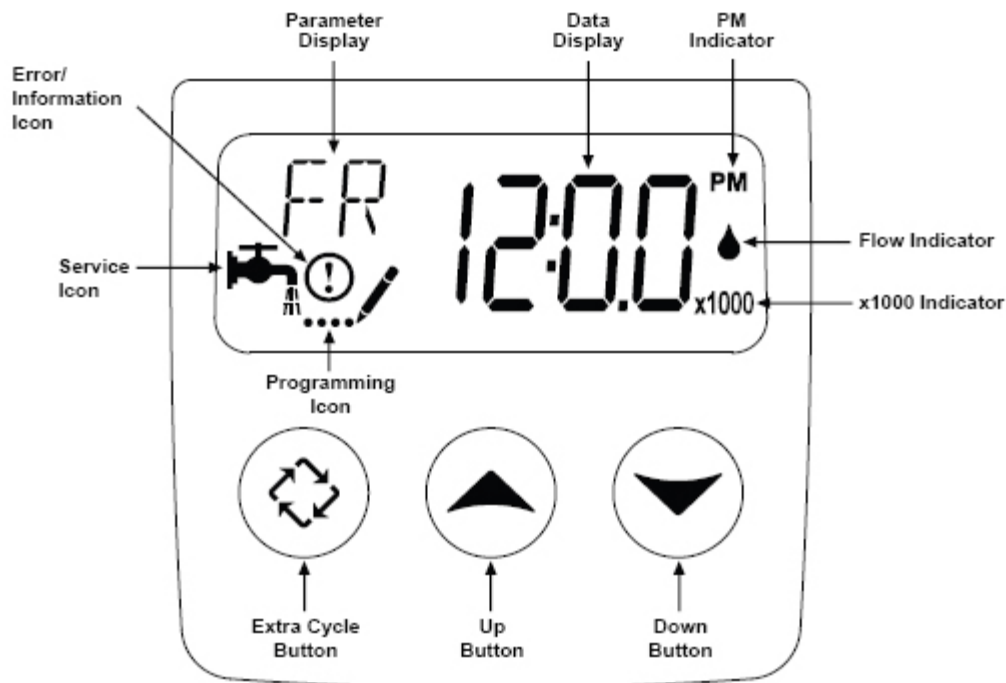
During cold weather, the installer should warm the control valve to room temperature before operating.

Note: All electrical connections must be done according to local codes.

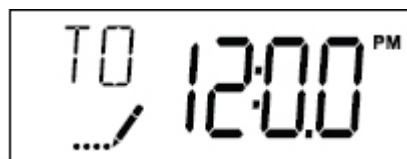
Plug the control valve into a standard, grounded 120volt (60 Hz) electrical outlet. Be certain that the outlet is uninterrupted and not controlled by a switch. The Fleck 2510SXT control valve comes with a 10 foot long electrical cord. An extension cord may be used to reach a suitable electrical outlet. Ensure that the extension cord is UL/CSA certified and of an appropriate wire gauge for the application.

The digital display on the control valve will illuminate. Open the valve's protective cover by removing the screw located at the top right of the control valve and swinging the door open. This will give you access to the buttons on the control valve's timer assembly. The digital display should be alternating between the current time setting (which is probably incorrect), and the number "3" which indicates the number of days remaining until the next regeneration cycle. You will also see the "service" icon which appears as a small faucet in the bottom left corner of the display window.

**NOTE:** The control valve may need to reset to the home position when it is powered up. If it does, you will hear the motor running for a few seconds before the display appears.



We will first set the time of day to the correct time. Press either the UP or DOWN button and hold for a few seconds. The parameter display will read “TD” (Time of Day) and the “programming” mode icon will appear (4 dots and a pencil). Use the UP and/or DOWN buttons to change the time displayed to the correct time of day. Once the display shows the correct time, press the EXTRA CYCLE button to save your changes.



Your Iron Rival has been pre-programmed to regenerate every 3 days and to perform the regeneration process at 12:30AM in the morning when it is very unlikely that water will be required in the home. Unless advised by your water treatment professional or dealer, we do not recommend altering the frequency of regeneration. However, you may adjust the time that the regeneration process occurs if 12:30AM is not ideal for you. If you have a water softener or other automatic backwashing water treatment systems, make sure that they are not set to regenerate at the same time. Follow the instructions under “User Programming Mode” to change the regeneration time if desired.

## Step 8 – Initial Start-up and Leak Testing

Ensure that the bypass valve is in the bypass position (see above). Turn on the main water supply. Open a cold water tap nearby and let the water run for a few minutes or until the system is free of foreign material and air that may have resulted from the installation. Once clean and free of air, close the water tap.



**INSPECT YOUR PLUMBING CONNECTIONS AND CONTROL VALVE FOR LEAKS AND REPAIR ANY LEAKS FOUND BEFORE PROCEEDING.**



**DO NOT INITIATE A REGENERATION OF THIS SYSTEM FOR A MINIMUM OF 12 HOURS AFTER ADDING WATER TO THE MEDIA TANK TO ALLOW ADEQUATE PRE-SOAKING. BACKWASHING BEFORE THE MEDIA IS SATURATED COULD CAUSE A LOSS OF MEDIA AND POTENTIAL DAMAGE TO THE CONTROL VALVE.**

Once the catalyst media has been adequately pre-soaked for 12 hours:

WITH THE BYPASS VALVE STILL IN THE BYPASS POSITION, press the EXTRA CYCLE button and hold it down for about 5 seconds until you hear the valve change positions and the parameter display changes to read “BW” (Backwash) and the time starts counting down. Once the motor has stopped moving (no more noise), press the EXTRA CYCLE button again to advance to the next stage of the regeneration cycle – “BD” (Brine Draw / Air Draw). Once the valve has stopped moving, press the EXTRA CYCLE button again to advance to the next stage of the regeneration cycle – “RR” (Rapid Rinse).

Without delay, immediately begin to slowly open the bypass valve to the service position, allowing water to flow into the system. Water and air will begin to flow to the drain line and will continue for 3 minutes. At the end of this time, the control valve will re-position and the system will return to normal service mode.



**INSPECT YOUR DRAIN LINE PLUMBING CONNECTIONS AND REPAIR ANY LEAKS IMMEDIATELY BEFORE PROCEEDING. IF THE PLUMBING PIPE RATTLED OR VIBRATED**

**DURING THIS PROCESS CAUSING EXCESSIVE NOISE, USE ADDITIONAL FASTENERS TO BETTER SECURE THE DRAIN LINE.**

Slowly open a cold filtered water tap nearby and let the water run for a few minutes until the system is purged of all air that may have resulted from the installation. Repeat for other faucets in the home starting at the highest elevation and working down to the lowest point until all air is purged. The initial flow of water may be discolored. This is normal and will go away quickly.

It is now safe to turn the electricity back on to your water heater.

Press the EXTRA CYCLE button and hold it down for about 5 seconds to initiate a complete regeneration cycle.



**DO NOT INITIATE A REGENERATION OF THIS SYSTEM FOR A MINIMUM OF 12 HOURS AFTER ADDING WATER TO THE MEDIA TANK TO ALLOW ADEQUATE PRE-SOAKING. BACKWASHING BEFORE THE MEDIA IS SATURATED COULD CAUSE A LOSS OF MEDIA AND POTENTIAL DAMAGE TO THE CONTROL VALVE.**

The control valve will perform a standard regeneration automatically, including a 12 minute backwash, 30 minute air draw, and 3 minute rapid rinse (your settings may differ due to programming selected by our technicians for your specific water conditions). Once this process is complete, your set-up and installation is done!

**Congratulations!**

**Your system is now ready to provide treated water to your home!**

If you have a tank-style water heater, it will still contain untreated water for a few days, but your cold water lines will begin dispensing treated water right away.

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## **REGENERATION**

The regeneration process is automatically engaged and controlled by your control valve. Your system was pre-programmed at the factory. In most cases, your system will be

programmed at the factory to regenerate every 3 days at 12:30AM, however, this can be adjusted to suit your specific preferences and needs.

There are 3 steps to the regeneration process:

Step 1: Backwash: factory pre-set for 12 minutes (parameter display code BW)

Step 2: Air Draw: factory pre-set for 30 minutes (parameter display code BD)

Step 3: Rapid Rinse: factory pre-set for 3 minutes (parameter display code RR)

Unless directed by a water treatment professional familiar with this system and your water conditions, we do not recommend that you alter the duration of any of the regeneration cycles. If necessary, these parameters can be adjusted through the Master Programming Mode (see below).

During each step of regeneration, the digital display on the control valve will indicate the cycle currently underway and the amount of time remaining in that cycle.

There may be instances where more frequent regeneration is required. For instance, if your water consumption increases considerably due to additional guests at your home, or if your feed water conditions temporarily worsen, you may want to perform a manual regeneration. You can choose to initiate a manual regeneration immediately or the next time the regeneration time of day is reached:

**To initiate a manual regeneration the next time the regeneration time of day is reached:**

Press the EXTRA CYCLE button once. The "service" icon will begin to flash indicating that a regeneration is scheduled next time the regeneration time of day is reached.

To cancel a queued regeneration, press the EXTRA CYCLE button.

**To initiate an immediate manual regeneration:**

Press the EXTRA CYCLE button and hold it down for 5 seconds until the regeneration process begins.

**Skip through regeneration steps:**

There may be times when it may be desirable to skip through regeneration steps without allowing them to fully complete. This would be most typical during servicing. When a cycle engages, always wait until the valve motor has stopped before skipping to the next cycle. You can hear the valve motor while it is repositioning the valve piston at the beginning of

each cycle. During the regeneration process, you can advance to the next step by pressing the EXTRA CYCLE button.

The control valve will continue to keep time and the passage of days for a minimum of 48 hours in the event of power failure.

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## CHANGING TIME OF DAY

During regular service mode, the digital display will alternate between the current time of day and the number of days until the next scheduled regeneration. For proper operation, it is important that the valve display the correct time of day. To change the time of day, press either the UP or DOWN button and hold for a few seconds. The “programming” icon will appear. Use the UP and/or DOWN buttons to change the time displayed to the correct time of day. Once the display shows the correct time, press the EXTRA CYCLE button to save your changes.



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## USER PROGRAMMING MODE

The User Programming Mode allows you to set the frequency of regeneration and the time of day that regeneration will take place.

To enter the User Programming Mode, press the UP and DOWN arrows at the same time and hold for 5 seconds until the “programming” mode icon appears. If the current time display is 12:01PM, you cannot enter the User Programming Mode – simply wait a minute before attempting.

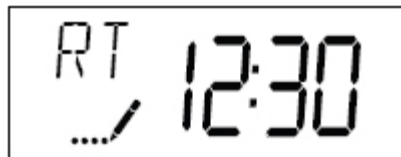
The display will first show the **DAY OVERRIDE** (parameter display code DO). This is the setting that determines the frequency of regenerations (measured in days). It is generally recommend that the system regenerate at least every 3 days for models using Katalox

Light® media. Failure to do so could result in decline in contaminant removal performance and loss of water pressure due to media clogging.



To change the setting, use the UP and DOWN buttons. Press the EXTRA CYCLE button when done. If you do not want to change the current setting, simply press the EXTRA CYCLE button to skip to the next step.

The display will now show the **REGENERATION TIME** (parameter display code RT). This is the setting that determines the time of day that the automatic regeneration will start. It is strongly recommended that regenerations be set to occur at night when water will not be in use. If you have other water treatment equipment that backwashes (such as a water softener), make sure that your Iron Rival is not set to backwash at the same time.



To change the setting, use the UP and DOWN buttons. Press the EXTRA CYCLE button when done. If you do not want to change the current setting, simply press the EXTRA CYCLE button return to service mode.

The system should now return to normal service mode. The unit will also return to normal operation after 5 seconds if no buttons are pressed.

# MASTER PROGRAMMING MODE



THE MASTER PROGRAMMING MODE IS DESIGNED FOR PROFESSIONAL USE ONLY. UNLESS DIRECTED BY A WATER TREATMENT PROFESSIONAL FAMILIAR WITH THE SYSTEM, IT IS STRONGLY RECOMMENDED THAT YOU DO NOT ALTER ANY OF THE MASTER PROGRAMMING MODE SETTINGS.

To enter the Master Programming Mode, first set the time of day to 12:01PM. With the time display showing 12:01PM, enter the Master Programming Mode by pressing the UP and DOWN arrows at the same time and holding for 5 seconds until the “programming” mode icon appears.

In this mode, you can adjust a parameter setting by using the UP and DOWN buttons. To save your changes and/or to skip to the next parameter, press the EXTRA CYCLE button. Press the EXTRA CYCLE button at the last parameter to save all settings and return to normal operation. The control will automatically disregard any programming changes and return to normal operation if it is left in Master Programming Mode for 5 minutes without any keypad input. The following settings are the factory default settings for Iron Rival systems with Filox media:

Parameter	Parameter Code	Option Code	Option Description
Display Format	DF	GAL	Gallons
Valve Type	VT	St1b	Standard Downflow/Upflow, Single Backwash
Control Type	CT	tc	Time Clock
Number of Tanks	NT	1	Single Tank System
Day Override	DO	3	Every 3 days
Regeneration Time	RT	12:30	12:30am
Backwash	BW	12	12 minutes
Air Draw	BD	30	30 minutes
Rapid Rinse	RR	3	3 minute
Brine Fill	BF	OFF	off



## RESETS



USE OF THE RESET FUNCTIONS IS NOT RECOMMENDED EXCEPT UNDER THE GUIDANCE OF A WATER TREATMENT PROFESSIONAL FAMILIAR WITH THIS EQUIPMENT.

**Soft Reset:** Press and hold the EXTRA CYCLE and DOWN buttons for 25 seconds while in normal Service mode. This resets all parameters to the system default values except days since regeneration in the time clock system.

**Master Reset:** Hold the Extra Cycle button while powering up the unit. This resets all of the parameters in the unit. Check and verify the choices selected in Master Programming Mode.

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## OPERATION DURING A POWER FAILURE

The control valve includes integral power backup. In the event of power failure, the control shifts into a power-saving mode. The display and motor shut down, but the controller continues to keep track of the time and day for a minimum of 48 hours.

The system configuration settings are stored in a non-volatile memory and are stored indefinitely with or without line power. The Time of Day flashes when there has been a power failure. Press any button to stop the Time of Day from flashing.

If power fails while the unit is in regeneration, the control will save the current valve position before it shuts down. When power is restored, the control will resume the regeneration cycle from the point where power failed. Note that if power fails during a regeneration cycle, the valve will remain in its current position until power is restored.



THE DRAIN LINE PLUMBING CONFIGURATION SHOULD INCLUDE ALL REQUIRED SAFETY COMPONENTS TO PREVENT OVERFLOWS RESULTING FROM A POWER FAILURE DURING REGENERATION.

The control will not start a new regeneration cycle without line power. If the valve misses a scheduled regeneration due to a power failure, it will queue a regeneration. Once power is restored, the control will initiate a regeneration cycle the next time that the Time of Day equals the programmed regeneration time. Typically, this means that the valve will regenerate one day after it was originally scheduled.

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## MAINTENANCE & TROUBLESHOOTING



**THE CONTROLLER MUST BE DEPRESSURIZED BEFORE REMOVING ANY QUICK CONNECTION CLIPS FOR SERVICING. THE CONNECTOR SHOULD BE PUSHED TOWARD THE CONTROL VALVE WHILE REMOVING CLIPS.**

### Service Recommendations

Your Iron Rival is built for long term operation with limited maintenance. It is recommended that the injectors and inlet screen be cleaned annually. See Service Bulletin #IR-1 for instructions on this procedure.

The seals and spacers and piston assembly may require periodic servicing or replacement, generally about every 2 years. In harsh conditions, particular where water is acidic, highly contaminated, or where excessive levels of hydrogen sulfide are present, more frequent replacement of these parts may be required. It is recommended that a service professional be contacted for this maintenance. See Service Bulletin #IR-2 for instructions on this procedure.

Filox media will generally last in excess of 10 years as long as it is adequately backwashed to remove trapped contaminants. In ideal conditions, it can last indefinitely. Inadequate backwash duration or flow rates could cause media clogging which could require the replacement of the media to restore flow and pressure performance.

## Troubleshooting

PROBLEM	CAUSE	CORRECTION
1. Iron Rival valve does not attempt to regenerate when scheduled	A. Electrical service to unit has been interrupted. B. Timer is defective.	A. Assure permanent electrical service (check fuse, plug, pull chain or switch). B. Replace timer.
2. Loss of water pressure.	A. Iron buildup in line to water filter. B. Iron buildup in water filter. C. Inlet of control plugged due to foreign material broken loose from pipe by recent work done on plumbing system.	A. Clean line to water conditioner. B. Clean control valve and add mineral cleaner to mineral bed. Increase frequency of regeneration and/or backwash time. C. Remove pistons and clean control.
3. Loss of mineral through drain line.	A. Drain line flow control too large.	A. Check to ensure drain line flow control is sized properly for your tank.
4. Iron in treated water.	A. Bypass valve is open. B. Unit does not draw air during regeneration. C. Injector screen plugged. D. Inadequate air draw. E. Water usage depletes oxidizer capacity before regeneration. F. Leak at distributor tube. G. Internal valve leak	A. Close bypass valve. B. Check the air inlet check valve. Clean or replace as needed. C. Clean injector screen. D. Verify the draw time setting and adjust as needed. E. Adjust regeneration frequency to meet demand. F. Make sure distributor tube is not cracked. Check O-ring and tube pilot. G. Replace seals and spacers and/or piston.
5. Water running to drain during service mode.	A. Internal valve leak. B. Jammed piston.	A. Replace seals and spacers and/or piston. B. Remove obstruction/debris and inspect seals and spacers and/or piston for damage.

## ERROR CODES

Code	Error	Cause	Reset & recovery
0	Cam Sense Error	The valve drive took longer than 6 minutes to advance to the next regeneration position.	Unplug the unit and examine the control valve. Verify that all cam switches are connected to the circuit board and functioning properly. Verify that the motor and drive train components are in good condition and assembled properly. Check the valve and verify that the piston travels freely. Replace/ reassemble the various components as necessary. Plug the unit back in and observe its behavior. The unit should cycle to the next valve position and stop. If the error re-occurs, unplug the unit and contact technical support.
1	Cycle Step Error	The control experienced an unexpected cycle input.	Unplug the unit and examine the control valve. Verify that all cam switches are connected to the circuit board and functioning properly. Enter Master Programming mode and verify that the valve type and system type are set correctly with regard to the unit itself. Step the unit through a manual regeneration and verify that it functions correctly. If the error re-occurs unplug the unit and contact technical support.
2	Regen Failure	The system has not regenerated for more than 99 days.	Perform a Manual Regeneration to reset the error code. Enter Master Programming mode and verify that the unit is configured properly. As appropriate for the valve configuration, check that the correct system capacity has been selected, and that the day override is set properly. Correct the settings as necessary.
3	Memory Error	Control board memory failure.	Perform a Master Reset and reconfigure the system via Master Programming mode. After reconfiguring the system, set the valve through a manual regeneration. If the error re-occurs, unplug the unit and contact technical support.

## WARRANTY INFORMATION

Iron Rival systems are backed by a comprehensive warranty program.

The Fleck 2510AIO SXT control valve and related bypass assembly and media tank are manufactured by Pentair LLC and are subject to Pentair LLC's Limited Warranty. See Pentair's Limited Warranty for details.

**Fleck 2510AIO SXT control valve: 5 Years\***

**Media tanks up to 13" in Diameter: 10 Years**

**Media tanks 14" and Greater in Diameter: 5 Years**

\*Note: Pistons, piston seals and spacers, injectors, and injector screens are considered wear and tear items and require regularly scheduled maintenance and replacement.

HomePlus Products Inc. will assist you in obtaining warranty coverage from Pentair LLC. To report a warranty problem with your system or request warranty assistance, please call HomePlus Products Inc. Toll free: 1-866-376-2690

**Subject to the limitations noted below, all other components of the Iron Rival system are warranted by HomePlus Products Inc. to be free of defects in material and workmanship for a period of 1 year except as noted\*\*.**

\*\*Note: Due to the wide variety of potential feed water conditions, there is no warranty on the Katalox Light® media or underbed gravel.

The term of these warranties begins on the date of delivery of the product to the customer and continues until the earlier of:

- the end of the warranty term noted above; or
- the date in which the product(s) is/are removed from the original location of installation; or
- the date in which the original purchaser sells or otherwise transfers ownership of the home in which the product(s) was/were originally installed.

Only products purchased from an Authorized Dealer or HomePlus Products Inc. directly are eligible for this warranty. The products must have been installed and operated in accordance with the instructions and operating conditions stated in the Owner's Manual.

Customer must register his or her warranty with HomePlus products Inc. within 90 days of original purchase for the warranty to remain valid.

This warranty applies only in Canada and the United States of America.

In the event that a part is deemed defective, the user must immediately inform HomePlus Products Inc. who will furnish a replacement part at no cost to the user. HomePlus' obligation to the customer shall be limited to the replacement of the defective part by prepaid standard freight to the original point of installation. Expedited shipping is available at the discretion and cost of the customer. When required, the return of defective parts to HomePlus is the responsibility of the customer.

This warranty does not cover any labour costs including labour costs related to troubleshooting, repair, installation, replacement, or maintenance.

This warranty does not apply to the following situations: misuse; normal wear and tear; neglect; unauthorized repair or damage caused through installation, adaptation, or modification; use in an improper manner or manner inconsistent with the manufacturer's installation, operating, and maintenance instructions; misapplication; wear or deterioration due to environmental conditions; damage occurring during transit; mishandling; improper storage; incorrect supply of water; tampering or alteration; fire, freezing; act of God; or any cause beyond the control of HomePlus Products Inc.

The original warranty period does not change in the event of part replacement by HomePlus Products Inc.

This warranty is issued exclusively to the original consumer purchaser of record so long as the product remains installed in the original location of installation, and is not transferable.

The provisions of the foregoing warranties are in lieu of any other warranty, whether expressed or implied, written or oral (including any warranty of merchantability or fitness for a particular purpose). HomePlus Product Inc.'s liability arising out of the manufacture, sale, or supplying of the products or their use or disposition, whether based upon warranty, contract, tort, or otherwise, shall not exceed the actual purchase price paid by the authorized dealer or consumer for the product. In no event shall HomePlus Products Inc. be liable to the distributor or any other person or entity for special, incidental, consequential or punitive damages (including, but not limited to, property damage or loss, loss of incomes, or loss of use damages) arising out of the manufacture, sale, or supplying of the products, even if HomePlus Products Inc. has been advised of the possibility of such damages or losses.

These warranties are governed by the laws of the Province of British Columbia, Canada, and may change without notice.

To report a warranty problem with your system or request warranty assistance, please call HomePlus Products Inc. Toll free: 1-866-376-2690

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MANUFACTURED BY:



**HomePlus Products Inc.**

5-1490 Pearson Place  
Kamloops, BC V1S 1J9  
Canada

Phone: 250-374-2690

Fax: 250-374-2692

[www.homeplusproducts.com](http://www.homeplusproducts.com)