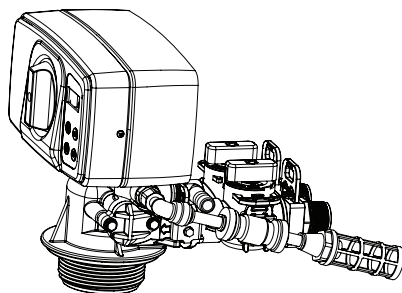




Whole House Iron, Manganese, and Hydrogen Sulfide Air Induction Oxidation Filter System

Air Induction Oxidation System WH-IRN-MG-SLFR-BW



1. Read all instructions carefully before operation.
2. Avoid pinched o-rings during installation by applying NSF certified lubricant to all seals (provided with install kit.)
3. This system is not intended for treating water that is microbiologically unsafe or of unknown quality without adequate disinfection before or after the system.

Tier1 Technical Support:
1-855-378-9116



CAUTION!

The unit should be depressurized before
installing or replacing media.

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READ THIS PAGE FIRST

BEFORE STARTING INSTALLATION

- ▶ Read this manual thoroughly to become familiar with the device and its capabilities before installing or operating your water filter. Failure to follow instructions in this manual could result in personal injury or property damage. This manual will also help you to get the most out of your filter.
- ▶ This system's installation must comply with all state or local regulations. Check with your local public works department for plumbing and sanitation codes. In the event the codes conflict with any content in this manual the local codes should be followed. Consult your licensed plumber for installation of this system.
- ▶ This water filter is designed to operate on pressures of 30 psi to 125 psi. If the water pressure is higher than the maximum use a pressure reducing valve in the water supply line to the filter.
- ▶ This unit is capable of operating at temperatures between 40°F and 110°F (4°C - 43°C). Do not use this water filter on hot water supplies.
- ▶ Do not install this unit where it may be exposed to wet weather, direct sunlight, or temperatures outside of the range specified above.
- ▶ Avoid pinched o-rings during installation by applying (provided with install kit) NSF certified lubricant to all seals.
- ▶ Filters are commonly exposed to high levels of iron, manganese, sulfur, and sediments. Damage to pistons, seals, and or spacers within the control valve are not covered in this warranty due to the harsh environment.
- ▶ It is recommended to regularly inspect and service the control valve on an annual basis. Cleaning and or replacement of piston, seals, and or spacers may be necessary depending on how harsh the conditions are.
- ▶ Do not use water that is microbiologically unsafe without adequate disinfection before or after this system.
- ▶ This publication is based on information available when approved for printing. Continuing design refinement could cause changes that may not be included in this publication. The manufacturer reserves the right to change the specifications referred to in this literature at any time, without prior notice.

INSTALL NOTES & SAFETY MESSAGES

Watch for the following messages in this manual:

NOTE

Do not remove or destroy the serial number. It must be referenced on request for warranty repair or replacement

NOTE: used to emphasize installation, operation or maintenance information which is important but does not present a hazard.



CAUTION!

Disassembly while under pressure can result in flooding.

CAUTION: used when failure to follow directions could result in damage to equipment or property.



WARNING!

ELECTRICAL SHOCK HAZARD!
Unplug the unit before removing the cover or accessing any internal control ports.

WARNING: used to indicate a hazard which could cause injury or death if ignored.

SPECIFICATIONS

MODEL SPECIFICATIONS

MODEL	MEDIA CU FT	FLOW RATE USGPM			MICRON RATING	MINERAL TANK SIZE	PIPE SIZE INCHES	SHIP WEIGHT LBS
		SERVICE	PEAK	BACKWASH				
WH_IRN_MG_SLFR_BW BACKWASHING FILTER								
IRN-MG-SLFR-BW	1.50	4	10	5	-	10X54	3/4" - 1"	101

OPERATING CONDITIONS

Working Temperature	34-110°F (1-43°C) (Do not subject the unit to freezing temperatures)
Working Pressure	30-125 PSIG (137-861 kPa)
Voltage	120V / 60 Hz

- At the stated service flow rates, the pressure drop through these devices will not exceed 15 psig.
- The manufacturer reserves the right to make product improvements which may deviate from the specifications and descriptions stated herein, without obligation to change previously manufactured products or to note the change.
- Do not use water that is microbiologically unsafe without adequate disinfection before or after the system.
- Peak flow rates intended for intermittent use only (10 minutes or less) and are for residential applications only. Do not use peak flow rate for commercial applications or for a continuous rate when treated water supplies are geothermal heat pump, swimming pool, etc.
- For satisfactory operation, the pumping rate of the well system must equal or exceed indicated backwash flow rate.
- All units come with plastic bypass.

WATER AND TIME CONSUMED DURING REGENERATION

MODEL	BACKWASH MINUTES	RAPID RINSE MINUTES	AIR DRAW MINUTES	TOTAL TIME OF REGENERATION	TOTAL WATER CONSUMED DURING REGENERATION (GAL)
IRN-MG-SLFR-BW	15	0	45	60	80

4

Maximum Iron = 30.0ppm
Hydrogen Sulfide = Trace and 5ppm for AIOC Filters
Manganese = 1.0 ppm
pH = 6.5 to 8.5

SPECIFICATIONS

SYSTEM DIMENSIONS

MODELS	A (INCHES)	B (INCHES)
1054	61.5	10

HOW DOES THE CHEMICAL FREE AND AIO IRON FILTER WORK?

This filter works by adding oxygen to the incoming water by passing it through a bubble of compressed air. The water is then passed through a special filter bed.

The special media not only increases the pH of the water to enhance iron removal, but also acts as a physical barrier to trap iron precipitate.

As more water passes through this iron filter, the oxygen in the unit is used up, and the media gets loaded with iron. The regeneration process then begins in order to replenish the supply of oxygen, and to backwash the precipitated iron trapped in the media bed.

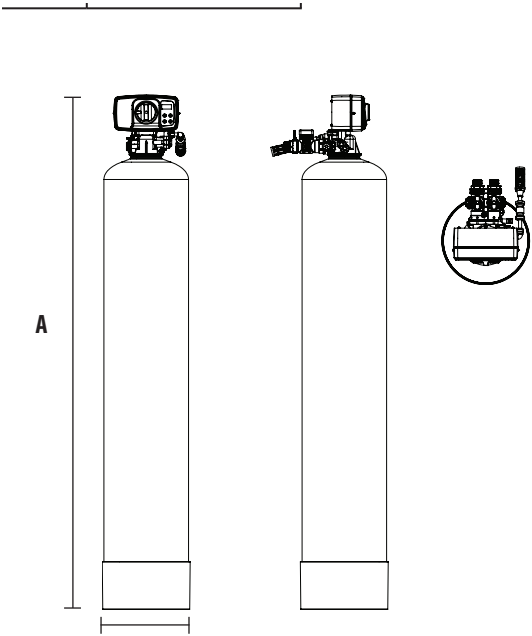
The iron removal efficiency will be more effective with high pH water.

This media acts as a catalyst for the removal of iron and manganese from the water but require pre-oxidation. The water is pre-oxidized from the air bubble on the top of the tank, and this media removes the iron and manganese from the water. This is not recommended to remove hydrogen sulfide from the water and requires high pH water. The media is not sacrificial hence no replenishment is required.

Sulfide problems in surface water sources are much less frequent because of the natural aeration that occurs in most flowing surface water sources. Aeration is the most common treatment method in terms of volume of water treated annually because it's inexpensive, easy to maintain and doesn't produce potentially harmful reaction products such as tri-halo-methanes (THMs).

Another method is the use of catalytic carbon to sulfide reduction through oxidation of sulfides with dissolved oxygen present in the water. Reduction of sulfides with catalytic activated carbon first involves adsorption of the sulfide species and then catalytic oxidation. The dissolved oxygen (minimum required 4 ppm) reacts with sulfides and oxidizing them to elementary sulfur and sulfates.

Our Hydrogen Sulfide reduction AIO filter combines aeration with catalytic carbon technology to effectively reduce sulfur from water. Following is the information on our AIO Filter System for the reduction of sulfides from water.



BASIC PRINCIPLES

LIFE EXPECTANCY FOR MEDIA

Sulfide (ppm)	25 GPD*	50 GPD*	100 GPD*	125 GPD*	150 GPD*	200 GPD*	250 GPD*	300 GPD*
0.5	31,623	15,811	7,906	6,325	5,270	3,953	3,126	2,635
1	15,811	7,906	3,953	3,126	2,635	1,976	1,581	1,318
1.5	10,541	5,270	2,635	2,108	1,757	1,318	1,054	878
2	7,906	3,953	1,976	1,581	1,318	988	791	659
2.5	6,325	3,162	1,581	1,265	1,054	791	632	527
3	5,270	2,635	1,318	1,054	878	659	527	439
3.5	4,518	2,259	1,129	904	753	565	452	376
4	3,953	1,976	988	791	659	494	395	329
4.5	3,514	1,757	878	703	586	439	351	293
5	3,162	1,581	791	632	527	395	316	264
5.5	2,875	1,437	719	575	479	359	287	240
6	2,635	1,318	659	527	439	329	264	220

*GALLONS PER DAY

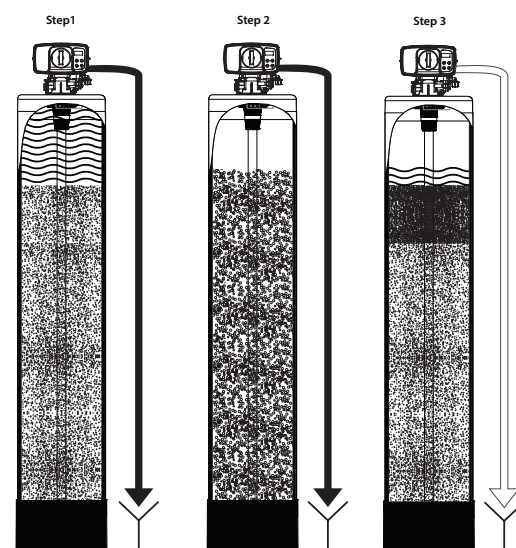
BASED ON SULFIDE INFLUENT (DAYS FOR 1 CU. FT. UNIT)

- To calculate bed life for carbon volumes other than 1 cu. ft., multiply value in table by actual carbon volume (in cu. ft.). A minimum of 4 ppm of dissolved oxygen is required for efficient removal for all sulfide concentrations listed above.
- When removing Iron and Hydrogen Sulfide, you must compensate the additional load on the media by increasing bed size and backwash frequency.
- Usage rates are based on a maximum total organic carbon (TOC) loading of 10 percent by weight. For higher loadings, the usage listed in the table will increase and bed life and volume treated will decrease.

AIO CONTROL VALVE REGENERATION SEQUENCE

The regeneration cycle goes through 3 steps.

- Backwash (minimum 30 psi inlet pressure required):** During the backwash cycle, water flows upwards through the bed, expanding the media and carrying any contaminants trapped within it to the drain. The air is evacuated from the tank.
- Air Draw:** The air is injected to oxidize the tank. With the new design, the filter pulls the air into the tank to perform the oxidation. The unit is replenished with a new bubble of air. During this step water will run to the drain. There is a delay at the start of the cycle while the pressure of the air within the tank reaches atmospheric pressure. During this time no air is drawn into the tank. Once the pressure has equalized you can usually hear the sound of air being drawn in to the unit.
- In-Service Position:** The unit then returns to the In-Service position. While this happens water continues to enter the tank., compressing the air into a bubble in the top of the tank. The actual size of the bubble will vary depending on the on-site conditions.



6

BASIC PRINCIPLES

CONTAMINANTS FOUND IN WATER

IRON (Fe)

Iron concentrations as low as 0.3 ppm will cause staining. The iron concentration, together with the flow rate demand and the consumption rate of the water, determines the basic size filter system. The higher these factors are, the larger the required system. The AIO filter system is capable of filtering out the three main types of iron found in water supplies: *Soluble iron* (also known as “clear water” or ferrous iron), *precipitated iron* (also known as “red water” or ferric iron) and *bacterial iron* (also known as iron bacteria). There is no apparent upper limit of iron concentration for the filter, but special care must be taken when selecting a filter model if your water has a combination of high iron, very low pH, and/or manganese.

MANGANESE (Mn)

The presence of manganese can be bothersome, even for a chemical free iron filter. As little as 0.05 ppm of manganese can produce a brownish or black stain. The ability of the filter to remove manganese depends on its concentration and the pH of the water.

Manganese tends to “coat” the filter media, rendering it incapable of increasing the pH, and therefore ineffective in removing either the iron or the manganese. Manganese, however, will precipitate in the filter bed when the pH is increased. To accomplish this a special “MN” type media can be provided that contains additional quantities of the pH raising component (“MN adder”). The use of “MN” type media is for applications where the manganese is not more than 1.5 ppm, and the pH is at least 6.5.

pH

The pH of water measures its acidity or its alkalinity. Water with a pH of less than 7.0 is acidic, above 7.0 it is alkaline, and a pH of 7.0 is neutral. The lower the pH value is below 7.0 the greater the acidity, and the higher the pH value is above 7.0 the more alkaline. Acidic water (pH less than 7.0) is corrosive to pipes, appliances, etc. A pH of 7.0 or higher facilitates iron removal – which is why the filter is designed to increase the pH when it is less than 7.0.

TANNINS (Humic Acid)

Tannins (also known as humic acid) which are present in some water supplies, are the result of decaying vegetable matter. If the tannin concentration is above approximately 0.5 ppm, it will form a sticky coating on the media, thus rendering it incapable of filtering the iron. A chemical-free iron filter is not recommended under this condition. If the tannin concentration is less than 0.5 ppm, a chemical-free iron filter may be installed.

HYDROGEN SULFIDE (H₂S)

Hydrogen sulphide (often referred to as “sulphur”), is easily detectable by its objectionable “rotten egg” odor. Sulphur corrodes iron, brass, copper and silver. A chemical-free iron filter is capable of removing sulphur in concentrations of up to 3 to 5 ppm. Whenever hydrogen sulphide is present, backwashing must be performed at more frequent intervals.

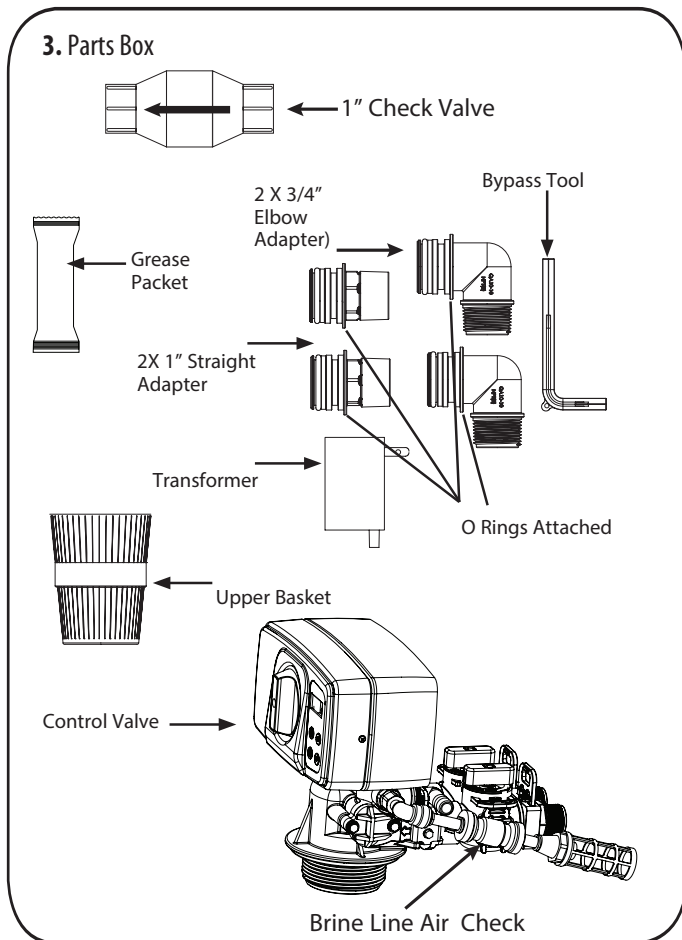


UNPACKING/INSPECTION

Be sure to check the entire unit for any shipping damage or parts loss. Also note damage to the shipping cartons. Contact the transportation company for all damage and loss claims. The manufacturer is not responsible for damages in transit. Small parts, needed to install the filter, are in a parts box. To avoid loss of the small parts, keep them in the parts bag until you are ready to use them.

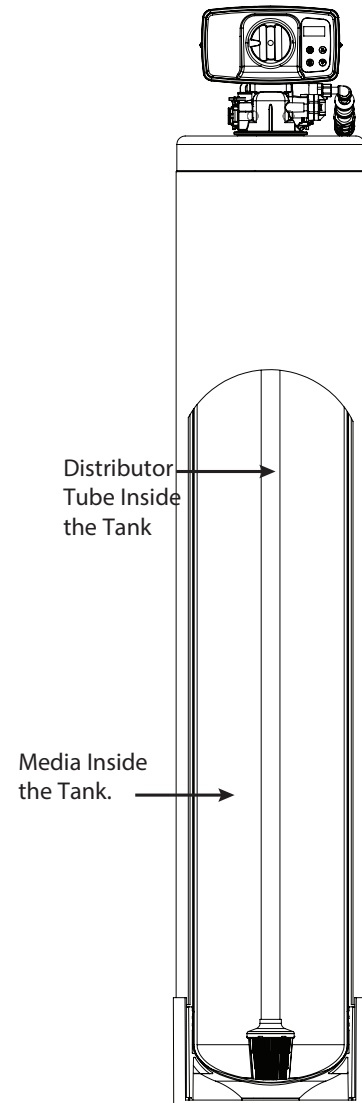
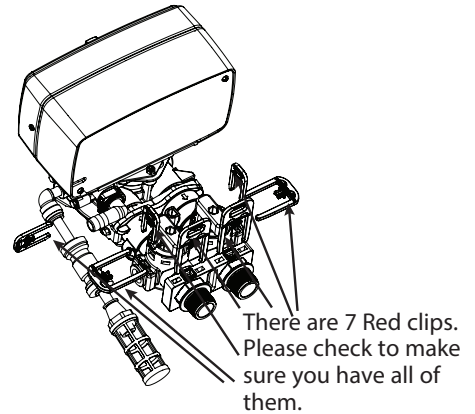
What is included in the box?

1. Control Valve
2. Tank
3. Parts Box
4. Owner's Manual
5. Drain Hose & Clamp



1. Control Valve

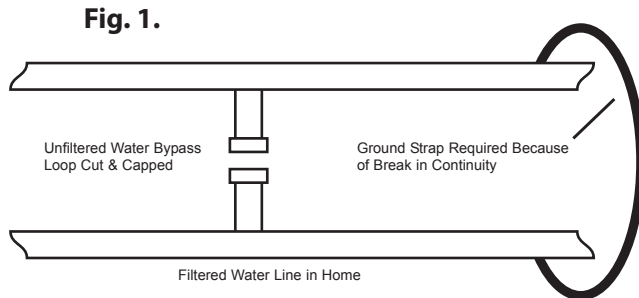
2. Tank



BEFORE INSTALLATION

Make sure you have a copy of your most recent water test results. **It is important that this product not be installed until you have this information.**

In all cases where metal pipe was originally used and is later interrupted by poly pipe or the Noryl bypass valve or by physical separation, an approved ground clamp with no less than #6 copper conductor must be used for continuity, to maintain proper metallic pipe bonding.



Inspecting and Handling

Inspect the equipment for any shipping damage. If damaged, notify the transportation company and request a damage inspection. Damage to cartons should also be noted.

Handle the filter unit with care. Damage can result if it is dropped or set on sharp, uneven projections on the floor.

Do not turn the filter unit upside down.

To Ensure this Product Functions Properly:

Your feed water line size to the unit must be a minimum of 3/4 inch with an operating pressure of no less than 30 psi and no more than 125 psi.

MECHANICAL:

Do not use petroleum based lubricants such as petroleum jelly, oils or hydrocarbon based lubricants. Use only 100% silicone lubricants (grease packet provided in parts kit). All plastic connections should be hand tightened only. Teflon tape may be used on connections that do not use an O-ring seal. Do not use pliers or pipe wrenches except where indicated by Nut shape (eg. pipe adapters) All plumbing must be completed according to local codes. Soldering connections should be done before connecting any pieces to the pipe as excessive heat can damage them.

Tools Required for Installation:

NOTE: We recommend installation only be completed by a competent installer or plumbing professional to insure this product is installed in accordance with local plumbing codes.

- ▶ Two adjustable wrenches
- ▶ Additional tools may be required if modification to home plumbing is required.
- ▶ Plastic inlet and outlet fittings are included with the filter. To maintain full valve flow, 3/4" or 1" pipes to and from the filter fittings are recommended. You should maintain the same, or larger, pipe size as the water supply pipe, up to the filter inlet and outlet.
- ▶ Use copper, brass, or PEX pipe and fittings.
- ▶ Some codes may also allow PVC plastic pipe.
- ▶ ALWAYS install the included bypass valve, or 3 shut-off valves. Bypass valves let you turn off water to the filter for repairs if needed, but still have water in the house pipes.

NOTE

All government codes and regulations governing the installation of these devices must be observed.



CAUTION!

If the ground from the electrical panel or breaker box to the water meter or underground copper pipe is tied to the copper water lines and these lines are cut during installation of the Noryl bypass valve and/or poly pipe, an approved grounding strap must be used between the two lines that have been cut in order to maintain continuity. The length of the grounding strap will depend upon the number of units being installed and/or the amount of copper pipe being replaced with plastic pipe.

See Fig. 1.

NOTE

Check your local electrical code for the correct clamp and cable size.

NOTE

If a severe loss in water pressure is observed when the filter unit is initially placed in service, the filter tank may have been laid on its side during transit. If this occurs, backwash the filter to "reclassify" the media.

*NOTE

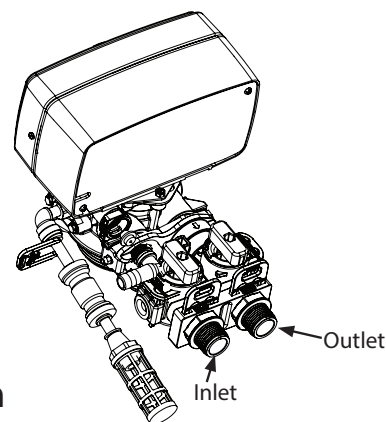
Due to transportation and climatic conditions all connections including the valve to the tank need to be checked at time of installation and tightened if necessary.

PREPARATIONS

INSTALLATION STEPS

Determine the best location for your water filter system, bearing in mind the location of your water supply lines, drain line and 120 volt AC electrical outlet. Subjecting the system to freezing or temperatures above 110°F will void the warranty.

Please notice the inlet and outlet labels on the valve as shown here to determine the position of the equipment



Facts to Remember When Planning Your Installation

1. All installation procedures must conform to local and state plumbing codes.
2. Outside faucets used to water lawns and gardens should not supply untreated water, replace untreated water with feed water to the unit. If necessary to do this please install check valve. A new water line is often required to be connected to supply untreated water to the inlet of the water filter and to the outside faucets.
3. Make sure the bypass is attached well to the control valve. Connect the straight or elbow connectors to the bypass with red clips. Connect the inlet and outlet of the water filter to the plumbing of the house. The control valve must not be submitted to temperatures above 43°C (110°F). When sweat fittings are used, to avoid damaging the control valve, solder the threaded copper adapters to the copper pipe and then, using Teflon tape, screw the assembly into the bypass valve. Do not use pipe thread compound as it may attack the material in the valve body.
4. Apply Teflon Tape and O-rings to the fittings.
5. Connect Filter to the house plumbing. Any solder joints near the valve must be done before connecting any piping to the valve. Always leave at least 6" (152 mm) between the valve and joints when soldering pipes that are connected to the valve. Failure to do this could cause damage to the valve.
6. **Drain Line connection:** Using Teflon tape, screw the 1/2" hose barb and attach o-ring into the drain port in the valve. Attach drain hose to the hose barb and tighten securely with a hose clamp. Run the drain line to a floor drain or a laundry drain. Complete any necessary plumbing.
7. Using the Allen Key (included), place the unit in the bypass position. Slowly turn on the main water supply. At the nearest cold treated water tap nearby remove the faucet screen, open the faucet and let water run a few minutes or until the system is free of any air or foreign material resulting from the plumbing work.
8. Make sure there are no leaks in the plumbing system before proceeding. Close the water tap when water runs clean.
9. **Outside faucets** used to water lawns and gardens should not supply treated water. A new water line is often required to be connected to supply hard water to the inlet of the filter and to the outside faucets. Cut the water line between where it enters the house and before any lines that branch off to feed the hot water heater or other fixtures in the house and as near the desired location of the filter as possible. Install a tee fitting on the feed end of the cut pipe, and an elbow fitting on the other end. Install piping from the tee to the inlet of the filter and from the elbow to the outlet of the filterer. To sever the water lines which branch off to feed any outside faucets, cut the branch lines approximately two inches from the fitting on the main water line. Install an elbow on the end of the pipe nearest the outside faucet and a cap on the end connected to the existing water line. Install piping from the tee installed on the inlet line to the filter to the elbow installed on the pipe to the outside faucet.

PREPARATIONS

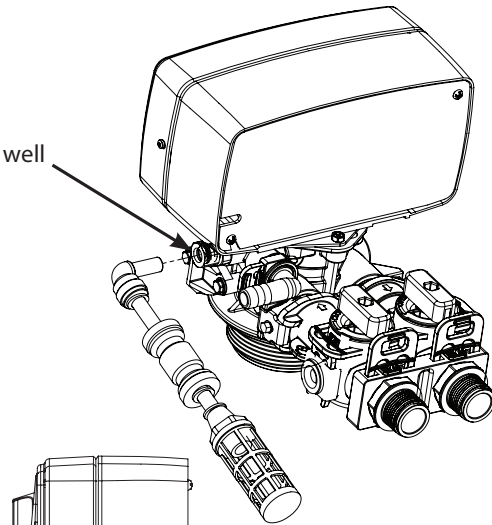
NOTE

Inspect and check that the brine line air check assembly is connected to the valve.

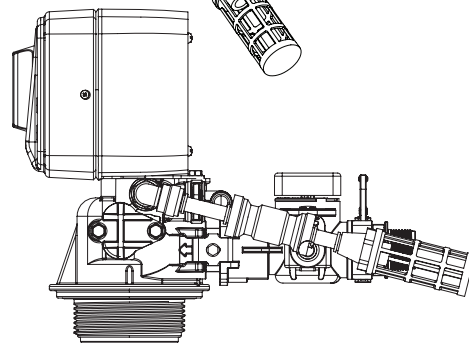
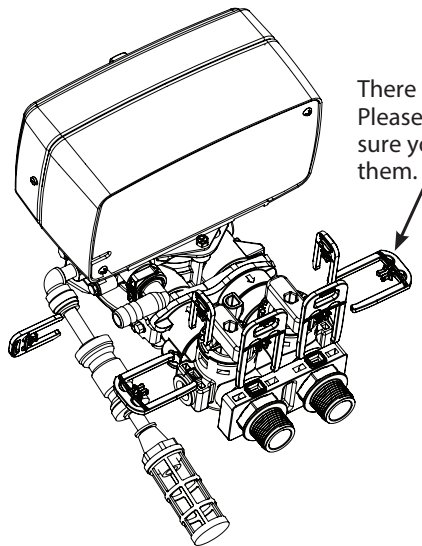
NOTE

Ensure that the brass and plastic nut connected to the air check assembly is tight.

Make sure both brass and plastic nuts are tightened well



There are 7 Red clips. Please check to make sure you have all of them.



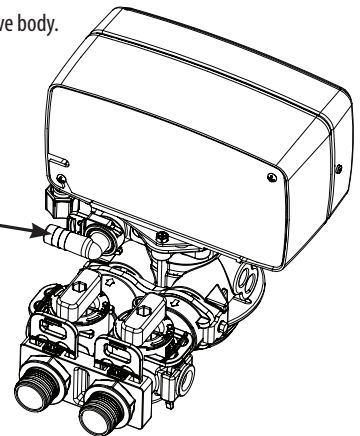
Make sure the bypass is attached well to the control valve. Connect the straight or elbow connectors to the bypass with red clips. Connect the inlet and outlet of the water filter to the plumbing of the house. The control valve must not be submitted to temperatures above 43°C (110°F). When sweat fittings are used, to avoid damaging the control valve, solder the threaded copper adapters to the copper pipe and then, using Teflon tape, screw the assembly into the bypass valve.

Do not use pipe thread compound as it may attack the material in the valve body.

Drain Line connection: Using Teflon tape, screw the 1/2" hose barb and attach o-ring into the drain port in the valve. Attach 1/2" drain hose to the hose barb and tighten securely with a hose clamp.

Run the drain line to a floor drain or a laundry drain. Complete any necessary plumbing.

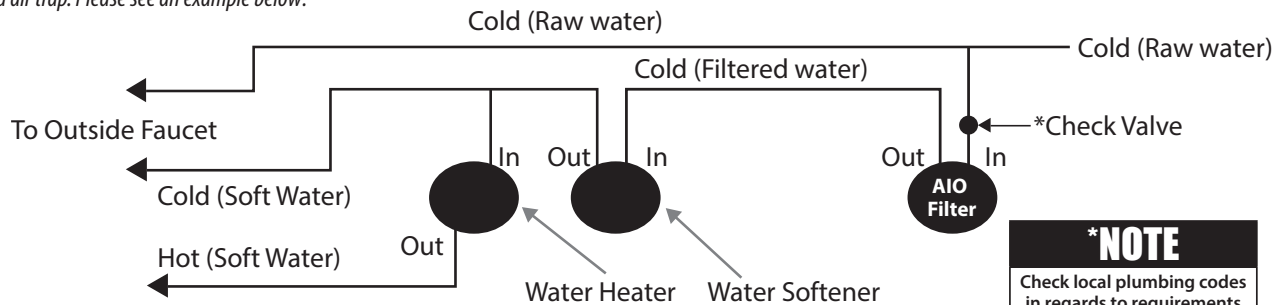
Drain Line Connection



INSTALLATION

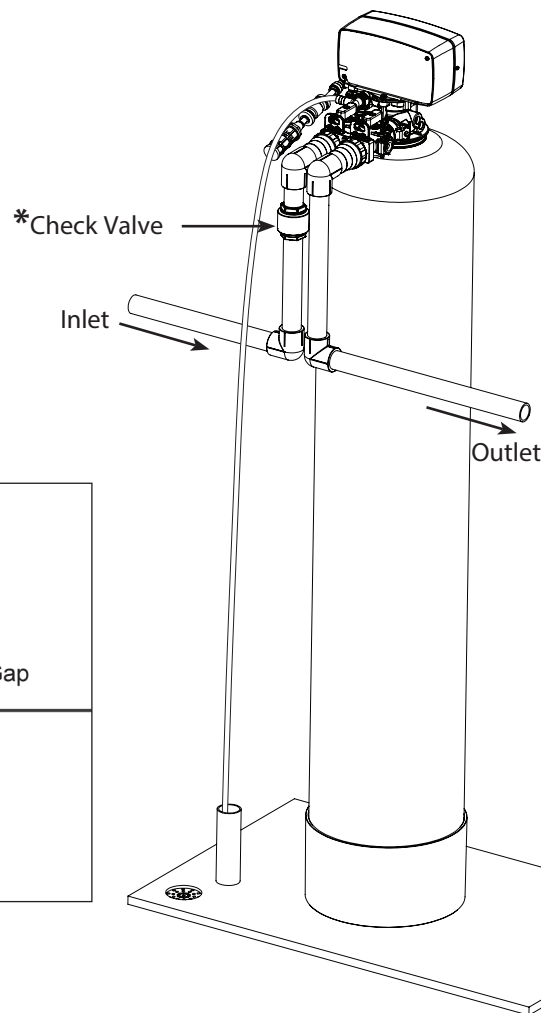
Connect Filter to the house plumbing. Any solder joints near the valve must be done before connecting any piping to the valve. Always leave at least 6" (152 mm) between the valve and joints when soldering pipes that are connected to the valve. Failure to do this could cause damage to the valve.

Correct Installation of the Check Valve: Install 1" check valve on inlet of bypass valve. *The check valve needs to be installed at the highest possible level of the plumbing line to avoid air trap. Please see an example below:*

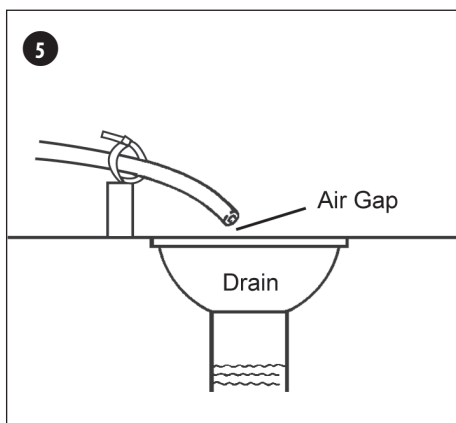
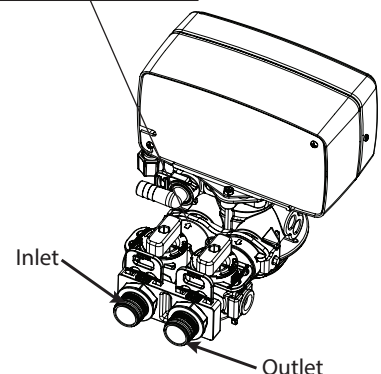


*NOTE

Check local plumbing codes in regards to requirements for use of Check Valve or back flow prevention or vacuum breaker



NOTICE - THERE ARE RAISED ARROWS ON THE BYPASS ASSEMBLY INDICATING DIRECTION OF WATER FLOW



NOTE

Waste connections or drain outlet shall be designed and constructed to provide for connection to the sanitary waste system through an air-gap of 2 pipe diameters or 1 inch (22 mm) whichever is larger.



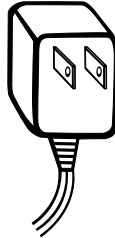
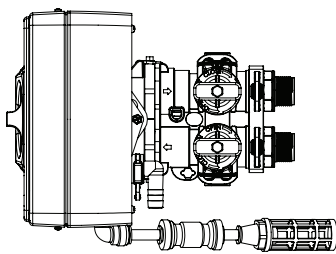
CAUTION!

Never insert drain line directly into a drain, sewer line, or trap. Always allow an air gap between the drain line and the wastewater to prevent the possibility of sewage being back-siphoned into the conditioner.

STARTUP INSTRUCTIONS

1. Connect the Transformer to the Valve

Plug the 12-volt transformer into a 120 VAC 60 Hz outlet.



2. Screen Display

Familiarize with Button Configuration:



- The controller will show the following on the screen - Time, Date and number of Days Remaining for Regeneration.

Key Pad Configuration:



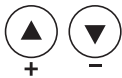
MENU

This function is to enter the basic set up information required at the time of installation.



SET

This function is to accept the values if changed and advance to the next page in the menu.







+

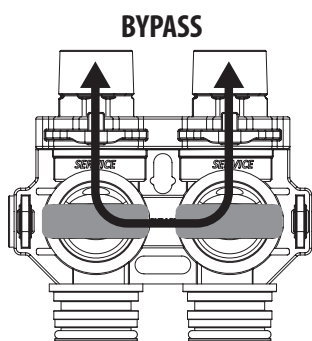
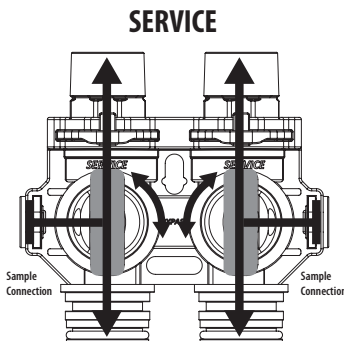


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These buttons are used to increase or decrease the value of the settings while in the programming mode.

3. Manually Regenerate the Valve

Manually index the valve with the control knob to BA.WA. or press **SET**  and hold display will come up showing delay flashing press Up and Down Arrows   to immediate and press **MENU**  to initiate a manual regeneration. Once the valve is in the Backwash position please unplug.



MANUAL REGEN
Delay **Immediate**

BACKWASH
BRINE DRAW
RINSE (SKIP)
REFILL (SKIP)

Regen Sequence - Once in Regeneration, the cycle can be skipped by pressing any button.

BACKWASH

||||| 15 Minutes

BRINE DRAW

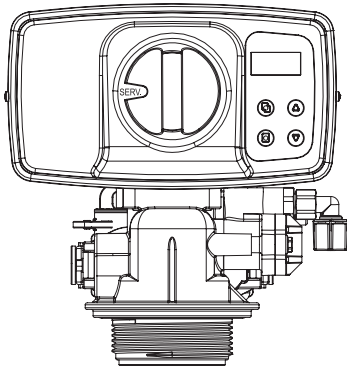
50 Minutes

MANUAL REGENERATION

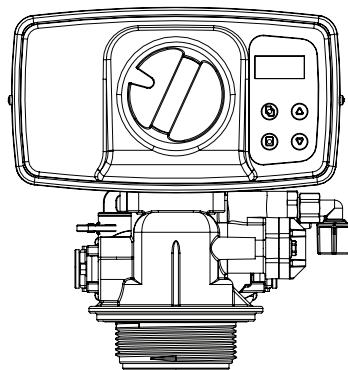
Manual Regeneration

To start an immediate regeneration turn the knob clockwise from the service position (9:00) to the 10:00 position. Within a few seconds the an immediate regeneration will begin. Using the knob you can manually advance to the next position. Pressing any button will also advance to the next position.

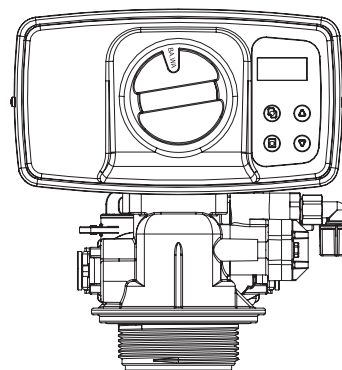
For Delayed Regeneration, Press Settings Button Once



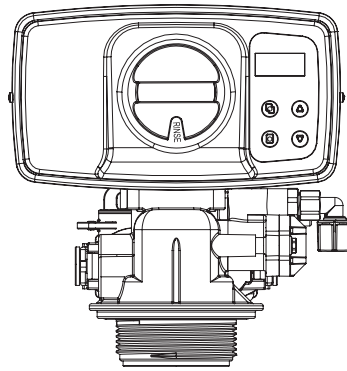
SERV.
Service



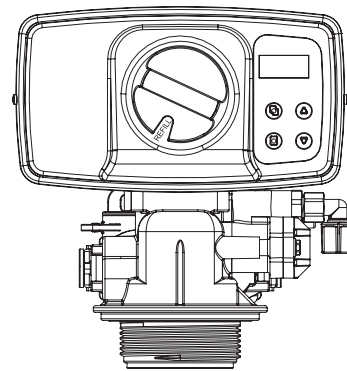
BA.WA.
BACKWASH



BRINE



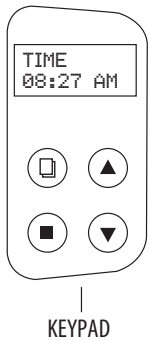
RINSE



REFILL

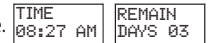
- 4a. Open the inlet on the bypass valve slowly and allow water to enter the unit. (The outlet of the bypass should remain closed to prevent any fines or debris from entering the plumbing system. Allow all air to escape from the unit before turning the water on fully then allow water to run until the drain water appears to be clear of any fines or color.
- 4b. Plug in the valve. Allow the valve to continue its cycles until complete and back in service. Do not manually shorten this cycle as it is critical to have the valve go through all cycles normally to purge all air from the control valve for the upflow injection system to work correctly.
- 4c. The Valve is already programmed from factory. Please set up date and time of day and days between regenerations.

PROGRAMMING THE VALVE



3. Power and Program the Valve

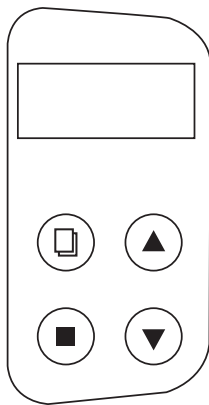
Attach the Transformer cable to the valve and plug in the transformer to the 110V Power outlet. you will notice the two screens on right will alternate.



1. Press MENU key to advance to TIME OF DAY. TIME OF DAY will flash.
2. Press the UP or DOWN key to adjust the TIME OF DAY. Press & hold the UP or DOWN key to quickly advance the hour and minutes. When desired time is displayed press SET to advance to the DAYS setting. DAYS will flash.
3. Press the UP or DOWN key to adjust the DAYS (Min 1.Max 199). When desired days is displayed press SET

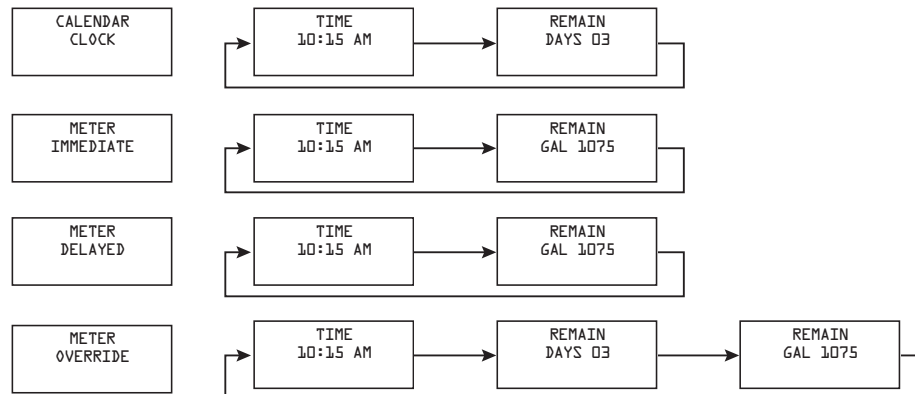
NOTE All units are factory programmed for the correct size and regeneration cycle, alteration should only be done by a factory trained technician or after consultation with one of our technical representatives if you have any questions please call: 1-855-378-9116**

Key Pad Configuration:



MAIN DISPLAY OPTIONS

The main display page according to the regeneration mode setting. The display will alternate between the time of day, remaining gallons, and remaining days..



Key Pad Configuration:

- This function is to enter the basic set up information required at the time of installation.
- This function is to accept the values if changed and advance to the next page in the menu.
- These buttons are used to increase or decrease the value of the settings while in the programming mode.

MAINTENANCE INSTRUCTIONS

Your iron filter requires some minor maintenance to ensure optimum performance and years of trouble-free clean water. The following steps should be performed once or twice a year (more often under harsh conditions):

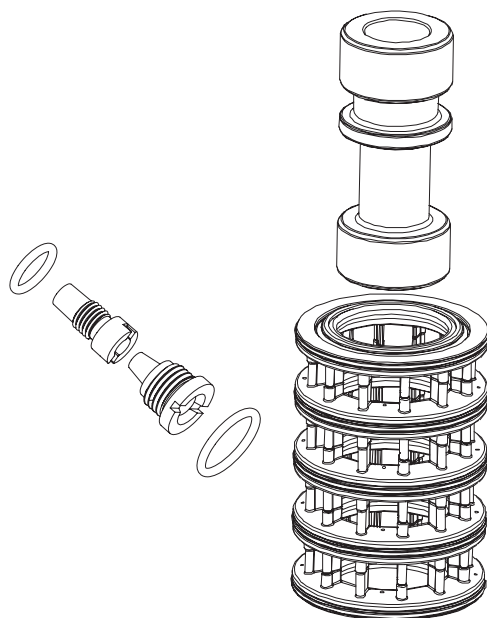
1. Have your water tested - for pH, iron and manganese on both the treated and raw water to ensure your water conditions haven't changed.
2. Inspect the Control Valve and the piping between the iron filter and the pressure tank to ensure they are not plugged with raw iron. If the line becomes plugged, the flow of water to the home will be reduced. This will result in a reduction of water available for backwashing the unit which will inhibit operation of the system.
3. Air-to-water pressure tank - periodically drain and flush your tank to prevent a build-up of precipitated iron from forming in the bottom of the tank.
4. Bladder tank - periodically check that the bladder air pressure remains at 2 psi lower than the cut-in pressure of your pump.
5. For applications with low pH, manganese or hydrogen sulfide, consult your local dealer for specific instructions to maintain the efficiency and operation of your filter.
6. Periodic cleaning of the air vent assembly with mild acid or vinegar will ensure that it continues to vent excess air properly.
7. The filter tank can be cleaned with a mild soap solution.
8. Never subject the unit to freezing.

CARE OF YOUR FILTER

To retain the attractive appearance of your new water filter, clean occasionally with a mild soap solution. Do not use abrasive cleaners, ammonia or solvents. Never subject your filter to freezing or to temperatures above 43°C (110°F).

SERVICING COMPONENTS

The seals and cartridge should be inspected and cleaned, depending on the inlet water quality and water usage.



BACKWASH FREQUENCY

Backwash frequency for households with average water use can be determined using the following guide. The guide cannot be used if the filtered water supplies a swimming pool, geothermal pump, outside spigots or other high water demand devices or activities. If your application includes any of the foregoing refer to the paragraph on "Special Applications" below:

People in Family	IRON CONTENT (PPM)									
	2	4	6	8	10	12	14	16	18	20
1	1	1	1	1	1	1	1	1	1	1
2	1	1	1	1	1	2	2	2	2	2
3	1	1	1	2	2	2	3	3	3	3
4	1	1	2	2	2	3	3	4	4	4
5	1	1	2	2	3	3	4	4	6	6
6	1	2	2	3	3	4	6	6	6	6

1. Locate the box intersected by the number of people in your family and the parts per million (ppm) of iron in your water (if your ppm is between two numbers on the guide, use the higher number).
2. The number in the box represents how many times your filter has to backwash in a twelve day schedule.

TO CALCULATE BACKWASH FREQUENCY - SPECIAL APPLICATIONS

To ensure adequate reserve capacity and prevent loss of water pressure between backwashes the figure of 15,000 (not the full 30,000 ppm capacity) is used to calculate backwash frequency. Determine your backwash frequency as follows:

1. Estimate daily iron removal requirements using the following calculation:

No. of people in family

x 75 gallons of water per person

+ No. of gallons of water for special use

= No. of gallons of water required per day

x Iron concentration (ppm)

= Daily iron removal requirements (ppm)

2. Establish backwash frequency using daily iron removal requirements to complete the following calculation: 15,000 iron removal capacity (ppm)

÷ Daily iron removal requirements (ppm)

= No. of backwashes required in 12 day schedule

Example: You have four in the family, 8 ppm of iron and a swimming pool requiring 46 gallons of water per day.

4 People in the family

x 75 Gallons of water per person

= 300 Gallons of water for family

+ 46 Gallons of water for the pool

= 346 Gallons of water required per day

x 8 Iron concentration

= 2,768 Daily iron removal requirements (ppm)

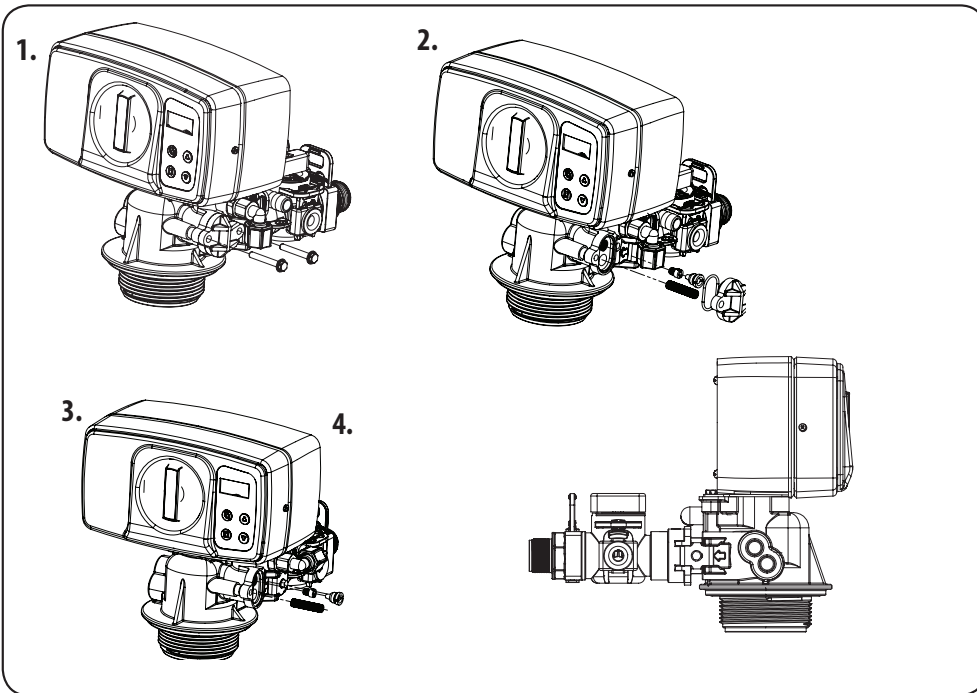
5,000 Iron removal capacity (ppm)

÷ 2,768 Daily iron removal requirements (ppm)

= 5.4 Backwash frequency (days)

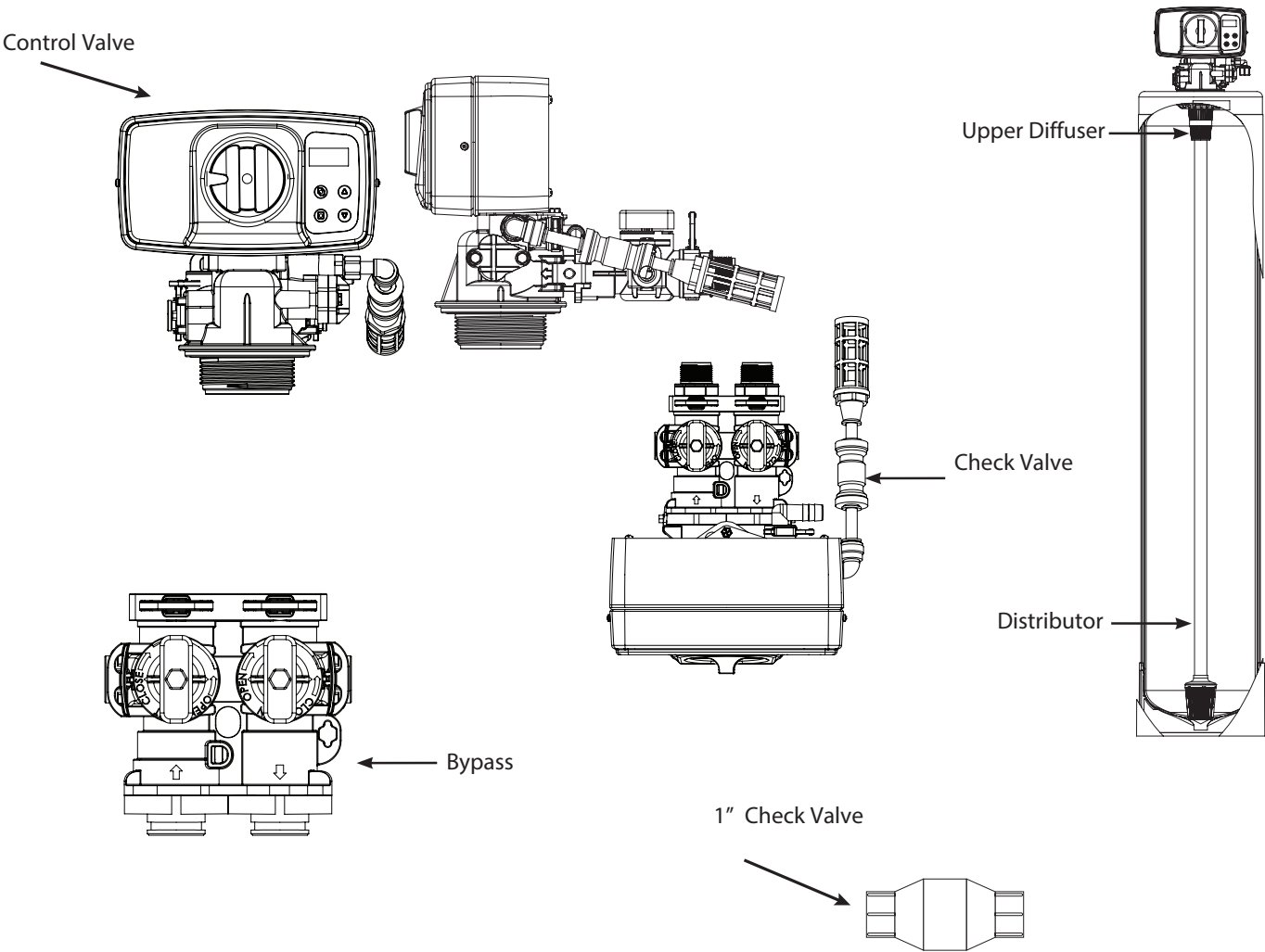
The calculation indicates the need to backwash every 5.4 days. The control can only be programmed to backwash at intervals of two, three, four, six and twelve days. The control would be programmed to the closest more frequent setting i.e. every four days.

CLEAN INJECTOR ASSEMBLY



1. Remove two screws of the injector cap.
2. Pull the Injector Cap Out
3. Remove the injector assembly, oring and screen
4. Clean the injectors and replace cap

PARTS BREAKDOWN



TROUBLESHOOTING GUIDE

1. Water is clear when drawn, turns red upon standing (stain producing)

- a. Insufficient air drawn by the valve- Check Air Draw time.
- b. Bypass open or leaking - Close bypass valve and/or repair as necessary.
- c. Filter bed backwashed at improper intervals - Refer to backwash frequency chart in operation manual to ensure unit is set correctly.
- d. Do not increase the backwash frequency unless required to based on the chart, since the media needs to be some what iron-fouled for best performance (in more severe iron-fouling cases, filter bed may need chemical cleaning.)
- e. Presence of manganese or tannins - Recheck water analysis.
- f. Loss of air pocket in unit - generally caused by the check valve failing - clean and or replace the check valve .

2. Water is red when drawn from tap

- a. Filter bed overloaded with precipitated iron due to insufficient backwash flow rate - causing channelling a) Recheck well pumping rate and correct as required.
- b. Check for obstructions or kink in drain line, or for improper drain line flow controller (see specs). Upon correction of this problem, if manually backwashing does not clear bed of iron, filter bed may need chemical cleaning.
- c. Filter bed backwashed at improper intervals - Refer to backwash frequency chart in operation manual to ensure unit is set correctly. Do not increase the backwash frequency unless required to based on the chart, since the media needs to be somewhat iron-fouled for best performance (in more severe iron-fouling cases, filter bed may need chemical cleaning.)

3. Excessive pressure loss through filter

- a. Filter bed overloaded with precipitated iron - Refer to Section 2 above.
- b. Control inlet/outlet valve(s) not fully open - open valves.
- c. Sand, silt or mud collecting in filter media - check well for these conditions.
- d. Filter bed not properly “classified” - Manually backwash to reclassify.
- e. “Cementing” or “channelling” of filter media - Prod (stir) filter bed to break up hardened layer, backwash frequency to prevent recurrence increase.
- f. Pipes from pump or pressure tank to filter are clogged or restricted - clean or replace as required then refer to section 2 above.

4. “Milky” or “bubbly” water (appears to contain small bubbles)

- a. Excess air-draw - Check adjustment for duration of draw in “Air Draw” cycle.
- b. Excess gases in water (carbon dioxide, hydrogen sulfide, methane) - May require cleaning or installation or air-relief control.
- c. Excessive flow rate through the unit - refer to specifications for the unit do not exceed recommended service flow rates restrict manually with a valve or flow controller.

5. Valve not drawing air

- a. Check direction of brine line check valve. The arrow on the check valve should be towards the valve.
- a. Check Programming.
- a. Check Valve Inlet and Outlet direction. Looking at the control valve from the front, the water should enter the valve from left hand side.
- a. Check the brass nut of the brine line assembly is not loose.

MASTER PROGRAMMING

Below is how the settings are set at factory:

Press ‘^’ and ‘v’ for 8 seconds																PRESS ‘^’ AND ‘V’						VALVE SETTINGS					
MODEL	SYSTEM LANGUAGE	VALVE OPERATION	REGEN MODE	REGEN TIME	CAP CALC	REGEN DAYS	GAL	RESIN VOL	SALT SET	Refill	UNIT CAP	RESERV CAP	BACKWASH	BRINE RINSE	RINSE	REFILL	Injector	Injector Color	BLFC Washer	DLFC Washer	DLFC Code	Upper Cone					
75	ENGLISH	IRON FILTER	CALENDAR CLOCK	12:00AM	MANUAL	3DAYS				0.7			15	45	0	0	#2	Blue	0.7	3.5	#5	NO					
100	ENGLISH	IRON FILTER	CALENDAR CLOCK	12:00AM	MANUAL	3DAYS				0.7			15	45	0	0	#2	Blue	0.7	4	#6	NO					
150	ENGLISH	IRON FILTER	CALENDAR CLOCK	12:00AM	MANUAL	3DAYS				0.7			15	45	0	0	#2	Blue	0.7	5	#A	NO					
200	ENGLISH	IRON FILTER	CALENDAR CLOCK	12:00AM	MANUAL	3DAYS				0.7			15	45	0	0	#2	Blue	0.7	5	#A	NO					
300	ENGLISH	IRON FILTER	CALENDAR CLOCK	12:00AM	MANUAL	3DAYS				0.7			15	45	0	0	#2	Blue	0.7	5	#A	NO					
400	ENGLISH	IRON FILTER	CALENDAR CLOCK	12:00AM	MANUAL	3DAYS				0.7			15	45	0	0	#2	Blue	0.7	5	#A	NO					

Key Pad Configuration:



MENU

This function is to enter the basic set up information required at the time of installation.



SET

This function is to accept the values if changed and advance to the next page in the menu.

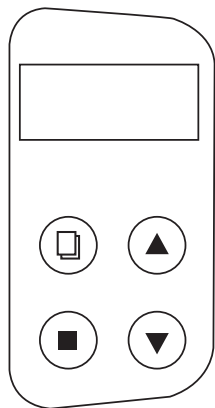


+



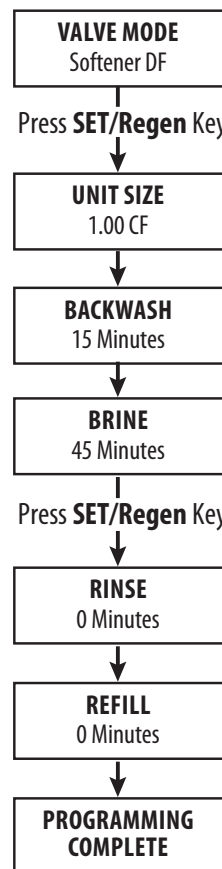
-

These buttons are used to increase or decrease the value of the settings while in the programming mode.



Main Valve Settings

Meter Ratio	5.714
Service Delay	2.0
Backwash Delay	2.0
Brine Delay	2.0
Rinse Delay	0.0
Refill Delay	2.0



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TECHNICAL SUPPORT

QUESTIONS?



For questions about your Tier1 whole home water system product installation or performance troubleshooting, please call Tier1 Technical Support at **1-855-378-9116** Monday - Friday, 8 am - 5 pm central time or send an email to support@tier1water.com.

