NOVO™
WATER CONDITIONING PRODUCTS

665AIO

CHEM-FREE FILTER

Installation and Operation Manual

FOLLOW THE INSTALLATION INSTRUCTIONS CAREFULLY. FAILURE TO INSTALL THE UNIT PROPERLY VOIDS THE WARRANTY. BEFORE YOU BEGIN INSTALLATION, READ THIS ENTIRE MANUAL. THEN, OBTAIN ALL THE MATERIALS AND TOOLS

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

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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 softener, are in a parts bag. To avoid loss of the small parts, keep them in the parts bag until you are ready to use them.

Safety Guide

For your safety, the information in this manual must be followed to minimize the risk of electric shock, property damage or personal injury.

- Check and comply with your provincial / state and local codes. You must follow these guidelines.
- Use care when handling the filter tank. Do not turn upside down, drop, drag or set on sharp protrusions.
- The system works on 12 volt-60 Hz electrical power only. Be sure to use only the included transformer.
- Transformer must be plugged into an indoor 120 volt, grounded outlet only.
- **WARNING**: This system is not intended for treating water that is microbiologically unsafe or of unknown quality without adequate disinfection before or after the system.

Proper Installation

This water filter system must be properly installed and located in accordance with the Installation Instructions before it is used.

- Install or store where it will not be exposed to temperatures below freezing or exposed to any type of weather. Water freezing in the system will break it. Do not attempt to treat water over 100°F.
- ***Do not*** install in direct sunlight. Excessive sun or heat may cause distortion or other damage to non-metallic parts.
- Properly ground to conform with all governing codes and ordinances.
- Use only *lead-free solder and flux* for all sweat-solder connections, as required by state and federal codes.
- The water filter system requires a minimum water flow of three gallons per minute at the inlet.
- Maximum allowable inlet water pressure is 125 psi. If daytime pressure is over 80 psi, night time pressure may exceed the maximum. Use a pressure reducing valve to reduce the flow if necessary.
- ***WARNING:*** Discard all unused parts and packaging material after installation. Small parts remaining after the installation could be a choke hazard.

Specifications

Item #	Model	Media Cu Ft	Flow Rate USGPM			Mineral Tank Size	Pipe Size Inches	Ship Weight Lbs
			Service	Peak	Back-			
AIO (Air Induction Oxidizer) Chemical Free Iron Filter (Single								
2231	FILTER, WG665FAIO75	0.75	2	4	3.5	8 x 44	3/4"	110
2232	FILTER, WG665FAIO10	1.0	3	6	4	9 x 48	3/4"	145
2233	FILTER, WG665FAIO15	1.5	4	10	5	10 x 54	3/4"	250
2235	FILTER, WG665FAIO75M	0.75	2	4	3.5	8 x 44	3/4"	110
2236	FILTER, WG665FAIO10M	1.0	3	6	4	9 x 48	3/4"	145
2237	FILTER, WG665FAIO15M	1.5	4	10	5	10 x 54	3/4"	250
Item #	Model	Cat Carbon Cu Ft	Flow Rate USGPM			Mineral Tank Size	Pipe Size Inches	Ship Weight Lbs
			Service	Peak	Back-			
2238	FILTER, WG665FAIOC75	0.75	2	4	3.5	8 x 44	3/4"	110
2239	FILTER, WG665FAIOC10	1.0	3	6	4	9 x 48	3/4"	145
2240	FILTER, WG665FAIOC15	1.5	4	10	5	10 x 54	3/4"	250

- Continuous operation at flow rates greater than the service flow rate may affect capacity and efficiency performance.
- 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.

- Min / Max Water Temperature = 39°F / 100°F
- Min / Max Operating Pressure = 30 PSIG / 125 PSIG
- Voltage = 110 volts 50/60Hz standard

- Peak flow rates are intended for intermittent use only and are for residential application only
- At the stated service flow rates, the pressure drop through these devices will not exceed 15 psig

How The System Works

How does the Chemical Free 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.

Optional Media Beds:
• Birm - Removes iron and manganese from water. Recommended for high pH water.
• nextSand or Multimedia- Traps precipitated iron from the water. Recommended for high pH water.

AIO Standard Chemfree Filter

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

The filter will automatically adjust the pH to neutral or higher on acid water without an acid neutralizer. The ability to raise pH greatly enhances the filter's ability to remove iron efficiently.

Replenishment of this media that raises pH will be required periodically, depending on how low the raw water pH is the amount of manganese (Mn) present in the water and usage rate.

AIO Birm Filter

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

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 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" odour. 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.

Before Starting Installation

Tools, Pipe, and Fittings, Other Materials

- Pliers
- Screwdriver
- Teflon tape
- Razor knife
- 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.
- 5/8" OD drain line is needed for the valve drain. A 10' length of hose is included. with some models.

Where To Install The Filter

- Place the filter tank as close as possible to the pressure tank (well system) or water meter (city water).
- Place the filter tank as close as possible to a floor drain, or other acceptable drain point (laundry tub, sump, standpipe, etc.).
- Connect the filter to the main water supply pipe BEFORE the water heater. **DO NOT RUN HOT WATER THROUGH THE FILTER**. Temperature of water passing through the filter must be less than 100 deg. F.
- Keep outside faucets on hard water to save soft water and salt.
- Do not install the filter in a place where it could freeze. **Damage caused by freezing is not covered by the warranty.**
- Put the filter in a place water damage is least likely to occur if a leak develops. The manufacturer will not repair or pay for water damage.
- A 120 volt electric outlet, to plug the included transformer into, is needed within 6 feet of the filter. The transformer has an attached 6 foot power cable. **Be sure the electric outlet and transformer are in an inside location, to protect from wet weather.**
- If installing in an outside location, you must take the steps necessary to assure the filter, installation plumbing, wiring, etc., are as well protected from the elements, contamination, vandalism, etc., as when installed indoors.
- **Keep the filter out of direct sunlight**. The sun's heat may soften and distort plastic parts.

Sizing Requirements

Water Pressure

The water system must have a pump big enough to deliver the recommended backwash rate with a minimum pressure at the inlet of the filter of 30 psi. If the existing system cannot do this, it must be upgraded to do so. Whenever possible, the water system should be adjusted to deliver at least 30 psi for even more satisfactory results.

Backwash Flow Rates

The most important criteria in sizing an iron filter is the capacity of the pump. The water must pass through the filter media at a service flow rate that allows it to oxidize and collect the iron. The filter must also be backwashed at a flow rate sufficient to dislodge and remove the captured iron. Failure to provide sufficient water will cause a build-up of iron in the filter media, impairing its iron removing ability and resulting in iron bleeding out into the service water. In order for your filter to backwash and rinse properly, your pump must be capable of providing the backwash flow rates indicated on page 4.

Backwash Frequency

This unit is factory set for backwash every 4 days. More frequent backwash may be required based on water conditions and amount of water used.

Check Your Pumping Rate

Two water system conditions must be checked carefully to avoid unsatisfactory operation or equipment damage:

1. Minimum water pressure required at the filter tank inlet is 20 psi.
2. Measuring the pumping rate of your pump:

With the pressure tank full, draw water into a container of known volume, and measure the number of gallons drawn until the pump starts again. This is draw-down. Divide this figure by cycle time and multiply the result by 60 to arrive at the pumping rate in gallons per minute (gpm). To aid in your calculation, insert the date in the following formula:

DRAW-DOWN _____ ÷ CYCLE TIME _____ x 60 = PUMPING RATE _____ (gals) (secs.) (Gpm)

EXAMPLE: CYCLE TIME is 53 seconds. DRAW-DOWN is 6 gallons; then, PUMPING RATE equals:

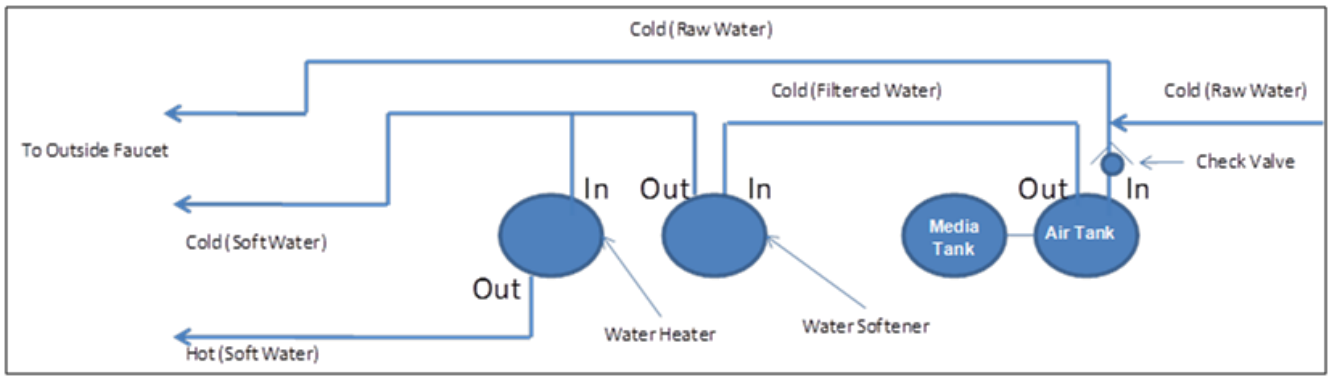
6 gallons ÷ 53 seconds x 60 = 6.8 gpm

See chart on page 3 for minimum flow rates.

NOTE: If your pumping rate is inadequate for the model, do not install your filter until the problem has been corrected.

Installation Instructions

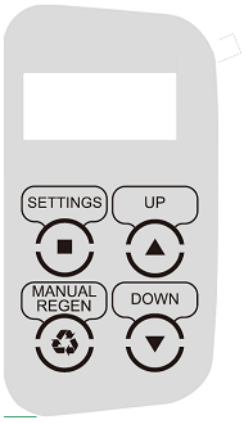
1. Locate the Media Tank close to a drain where the system will be installed. The surface should be clean and level.
2. Shut off all water at main supply. On a private well system, turn off power to pump and drain pressure tank. Make certain pressure is relieved from complete system by opening nearest faucet to drain the system. Shut off fuel supply to water heater.
3. Cut the main supply line as required to fit plumbing to the control valve with bypass.
4. Solder or solvent weld plumbing. Do not apply heat to any fitting connected to the control valve as damage may result to the internal parts. Check to be certain water supply pipe is connected to the control valve inlet fitting and pipe connected to control valve outlet fitting is in direction of house service.
5. Perform all plumbing according to local plumbing codes. Use a ½" minimum pipe or tubing size for the drain line. Use a ¾" pipe or tubing for backwash flow rates that exceed 7 gpm or length that exceeds 20ft (6 m). **NOTE: ON COPPER PLUMBING SYSTEMS BE SURE TO INSTALL A GROUNDING WIRE BETWEEN THE INLET AND OUTLET PIPING TO MAINTAIN GROUNDING.**
6. 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.
7. Install ¾" check valve on inlet of bypass valve.
8. Connect the drain line to the valve.
9. Place unit in the bypass position.
10. Slowly turn on the main water supply.
11. 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. Close the water tap when water runs clean.



System Start-Up

Key Pad Configuration

SETTINGS	This function is to enter the basic set up information required at the time of installation.
MANUAL REGEN	This button has two functions. The first is to initiate an immediate or delayed manual regeneration. The second is while in programming mode, pressing this key allows the user to change the value of each setting.
DOWN / UP	Increase or decrease the value of the settings while in the programming mode.



Start-up Instructions

1. Plug the power transformer into an approved power source. Connect the power cord to the valve.
2. When power is supplied to the control, the screen will display "INITIALIZING WAIT PLEASE" while it finds the service position.
3. Manually step the valve past the BRINE position to the BACKWASH position. If screen is locked, press SETTINGS for 3 seconds to unlock. Press and hold the MANUL REGEN. Key for 3 seconds. Press any key to skip the BRINE cycle.
4. **(CARBON UNITS) Open the inlet on the bypass valve slightly and very slowly allow water to enter the unit. (If the water enters too quickly it will push the media or carbon up into the control valve and get plugged).**
5. **Once the unit has filled sufficiently that water is at least equal to the height of the top of the media shut down the water for 15 – 20 minutes for the carbon to soak. Unplug the power cable. After the carbon has soaked for the recommended time continue by plugging the power cable back in.**
6. **(CHEMFREE UNITS)** 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 to drain for 3-4 minutes.
7. Unplug the power cord from the power supply, open inlet. Check the drain line flow. Allow the water to run for 30 minutes.
8. Press any button to advance to the RINSE position. Check the drain line flow. Allow the water to run for 3-4 minutes or until the water is clear.
9. The valve will automatically advance to the SERVICE position. Open the outlet valve on the bypass, then open the nearest treated water faucet and allow the water to run until clear, close the tap and replace the faucet screen.
10. Program unit.

Plumbing System Clean-Up

The following procedures are guidelines only but have proven successful in most instances. Under no circumstances should any procedure outlined below be followed if contrary to the appliance manufacturer's instructions. Should there be any questions concerning the advisability of performing a procedure, it is strongly recommended the manufacturer's authorized service outlet be consulted prior to performing the procedure.

The plumbing system and water using appliances that have been exposed, even for a short time, to iron-fouled water need to be cleaned of the precipitated iron that has collected in them or iron bleed (staining) will continue to be a problem.

Depending on the amount of iron in the water and the length of time the water system has been exposed to iron fouling, select from the following procedures those that apply to the type of system and appliances that need to be cleaned to assure iron-free water at all points of use.

Water Heater

If the water heater has been exposed to both iron and hardness for a long period of time, replacement of the heater tank may be the only practical solution to prevent continued staining originating from this source. After completing the installation of the chemical free iron filter, clean the water heater by following these instructions:

1. Shut off the energy supply to the water heater and close the heater inlet water valve.
2. Drain hot water tank completely. Open inlet water valve, allowing heater tank to be refilled with iron-free water. Continue flushing until the water runs clear to the drain.
3. If, after approximately 30 minutes of flushing, water does not clear, terminate the flushing operation. Refill hot water heater with water and pour approximately 1/2 gallon of household bleach into the top of the heater tank. Allow bleach solution to stand in tank for 20 to 30 minutes. Flush the tank again until water is clear at the drain. Turn energy supply on.

NOTE: If water does not clear in approximately 10 minutes, water heater should probably be replaced.

Programming Instructions

1. Press SETTINGS to enter programming. If the system has been inactive, you may have to hold and press SETTINGS to unlock the display screen. Press UP or DOWN to select which setting to modify.
2. To adjust a value, MANUAL REGEN. When the display flashes, the value may be changed. Press UP or DOWN to change the value. Press MANUAL REGEN again to accept the value.
3. Press UP or DOWN to advance to the next option.
4. At any time, press SETTINGS to return to previous home screen menu.

Menu - Level 1

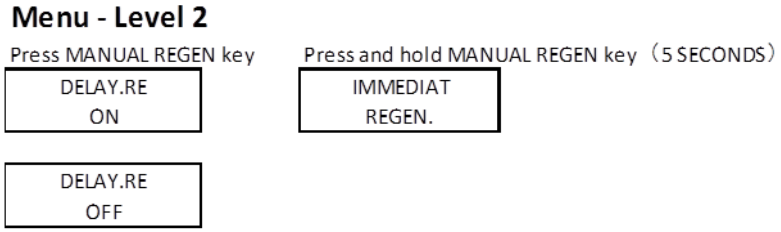
Press SETTINGS key

TIME 12:00AM	
REG.TIME 12:00AM	
DAYS 3	
	Example
Page 1	STAR PLUMBing
Page 2	TEL (552) 764-1234

Manual Regeneration (Step / Cycle Valve)

If screen is locked, press and hold SETTINGS for 3 seconds to unlock. To initiate an immediate regeneration, press and hold the MANUAL REGEN key for 5 seconds. The valve will immediately start into manual regeneration.

To initiate a delayed regeneration, press the MANUAL REGEN key once to turn on and a regeneration will be queued at the next pre-set regeneration time (i.e. 2:00 a.m.).. To cancel, press the MANUAL REGEN key again.



About The System

Operation During A Power Failure

In the event of a power failure, the valve will keep track of the time and day for 48 hours. The programmed settings are stored in a non-volatile memory and will not be lost during a power failure. If power fails while the unit is in regeneration, the valve will finish regeneration from the point it is at once power is restored. If the valve misses a scheduled regeneration due to a power failure, it will queue a regeneration at the next regeneration time once power is restored.

Safety Float

The brine tank is equipped with a safety float which prevents your brine tank from overfilling as a result of a malfunction such as a power failure.

Main Display

When power is supplied to the control, the screen will display TIME OF DAY, GALLONS REMAINING, and DEALER NAME and PHONE NUMBER.

New Sounds

You may notice new sounds as your water softener operates. The regeneration cycle lasts up to 180 minutes. During this time, you may hear water running intermittently to the drain.

Regeneration Process

Periodically the filter will require a back wash to clean the trapped particles, unpack the filter bed to restore the system flow rates, and replenish the air in the contact tank.. The table below explains the regeneration steps.

Step	Name	Description
#1	Back Wash	Fresh water is introduced to the bottom of the tank flowing upwards expanding the filter media to rinse out any dirt or small particles to the drain and to uncompact the bed to restore full service flow rates.
#2	Air-Draw	Air is drawn into the system and fills the first and second tank.

Automatic Raw Water Bypass During Regeneration

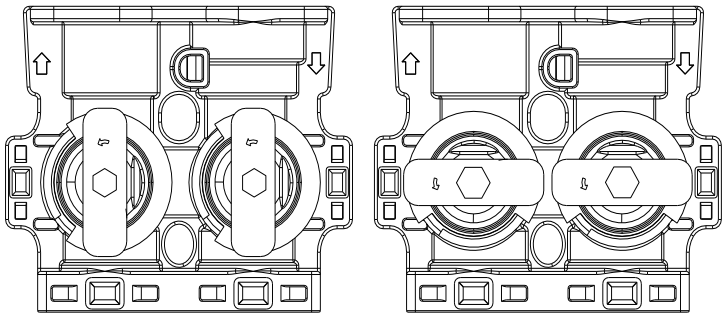
The regeneration cycle can last 80 minutes after which filtered water service will be restored. During regeneration, un-filtered water is automatically bypassed for use in the household. Hot water should be used as little as possible during this time to prevent unfiltered water from filling the water heater. This is why automatic regeneration is set for sometime during the night and manual regenerations should be performed when little or no water will be used in the household.

Normal regeneration time is 12:00 AM.

Manual Bypass

In the case of emergency you can isolate your water filter from the water supply using the bypass valve located at the back of the control. In normal operation the bypass is open with the on/off knobs in line with the inlet and outlet pipes.

To isolate the filter, simply rotate the knobs clockwise (as indicated by the word BYPASS and arrow) until they lock. You can use your water related fixtures and appliances as the water supply is bypassing the filter. However, the water you use will be hard. To resume water service, open bypass valve by rotating the knobs counterclockwise.



SERVICE POSITION BYPASS POSITION

System Configuration

Model	CYCLE TIME (MINUTES)			
	BACKWASH	BRINE (AIR DRAW)	RINSE	REFILL
665AIO-1.0	15.0	45.0	0.0	0.0
665AIO-1.5	15.0	60.0	0.0	0.0
665AIO-1.0	15.0	60.0	0.0	0.0

Maintenance

Maintenance of your new water filter requires very little time or effort but it is essential. Regular maintenance will ensure many years of efficient and trouble-free operation.

1. Periodically make sure your pump is performing satisfactorily to ensure sufficient water is available for backwashing the filter.
2. Periodically test your raw and filtered water to ensure conditions are still the same for your original settings and that the unit is working they way it is intended to. Water testing is often the best way to determine when the filter media will require replacement.
3. Periodically check that the drain line is clear and free from any obstructions.

Care of Your System

To retain the attractive appearance of your new water softener, clean occasionally with mild soap solution. Do not use abrasive cleaners, ammonia or solvents. Never subject your softener to freezing or to temperatures above 100°F.

Installation & Replacement Filter Media Pak

Check to ensure all media parts are received.

The first step in replacing the media bed is to shut off the water supply to the filter. Then place the unit into the backwash position to release any pressure in the lines. At this point, you must disconnect the plumbing from the inlet and outlet. Then unscrew the control valve from the fibreglass tank. Once this has been done, remove the distributor tube. Then you can remove the filter media and two types of gravel from the tank. The quickest way to do this is by simply tipping the tank upside down into a large drum or pail. The tank must be rinsed out completely and have no media or gravel left in it at all.

Loading the Media Pak

1. Remove the tank adaptor from the second mineral tank.
2. Temporarily plug the open end of the central pipe in the tank to insure that no media falls down into the distribution.
3. Fill mineral tank one quarter full of water to protect distribution during gravel installation.
4. Slowly and carefully add the gravel support bed and the filtration media leveling each layer as it is placed into the tank.
5. Unplug the riser tube, carefully position the tank adaptor over it and turn it into the threads in the fiberglass tank, tightening securely into tank. Note: Ensure that the internal O-ring in the tank adaptor fits securely over the riser tube. Silicone grease or other food grade lubricant may be applied to the O-ring to ease installation of the riser tube. DO NOT use petroleum based lubricants as they will cause swelling of O-ring seals.

Load the bag(s) of media into the tank in the following order:

Chem-Free Filters

1. Coarse gravel
2. Fine gravel
3. Chem-free media / OR Carbon

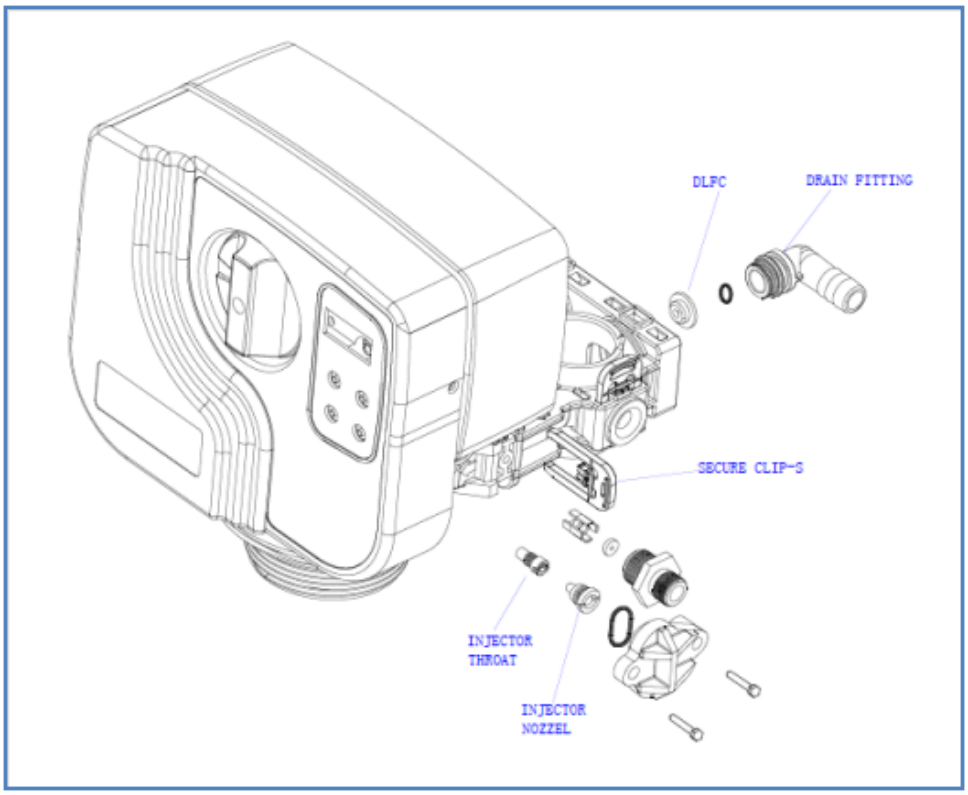
Connect or reconnect the inlet and outlet and drain. The control valve should be in the backwash position. Slowly open the inlet valve water supply and slowly fill the filter tank until water appears at the open drain line. Return the control to the service position and shut the inlet off for approximately one hour to allow the media to soak in the water.

After one hour, turn inlet water on slowly and place the control into the backwash position and plug the unit's electrical cord into a constant power source. Let the unit continue through its regeneration cycle automatically. The regeneration is necessary so all media fines are backwashed down the drain to ensure clean filtered water.

Cleaning or Replacing Injectors

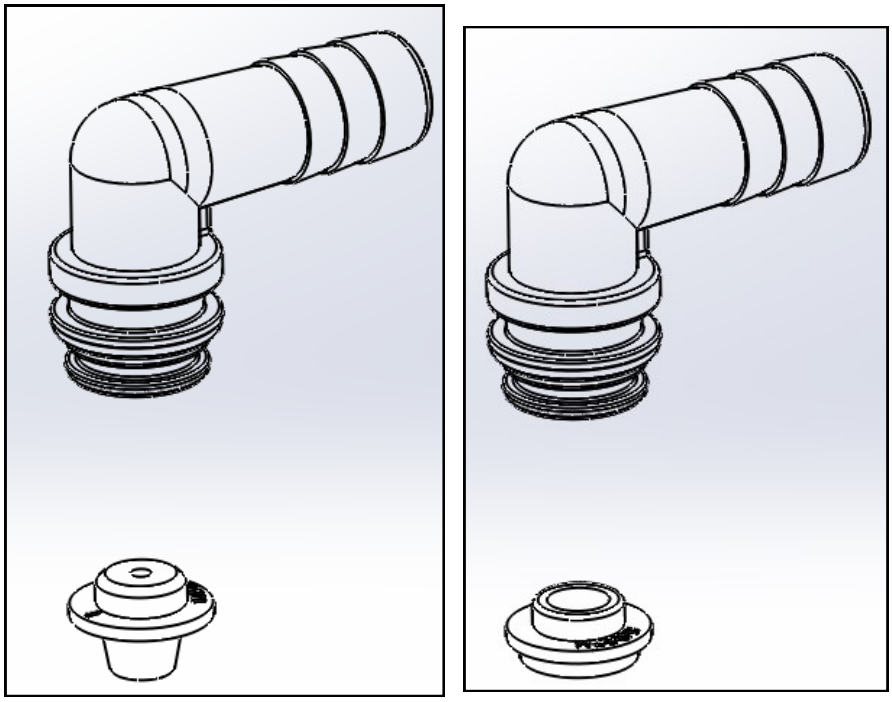
Sediment, salt and silt will restrict or clog the injector. A clean water supply and pure salt will prevent this from happening.

The injector assembly is located on the right side of the control valve. This assembly is easy to clean.



1. Shut off the water supply to your softener and reduce the pressure by opening a cold soft water faucet.
2. Using a screwdriver, remove the two screws holding the injector cover to the control valve body.
3. Carefully remove the assembly and disassemble as shown above. The injector orifice is removed from the valve body by carefully turning it out with a large screwdriver. Remove the injector throat the same way.
4. Carefully flush all parts including the screen. Use a mild acid such as vinegar or Pro-Rust Out to clean the small holes in the orifice and throat.
5. Re-assemble using the reverse procedure.

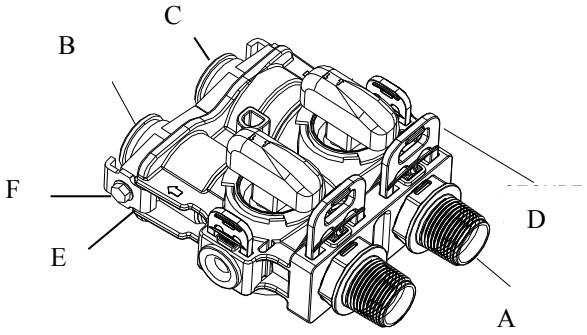
Replacing Drain Line Flow Control (DLFC)



1. Remove the red clip that secures the drain line elbow.
2. Remove the BLFC washer from the elbow fitting.
3. Reassemble using the reverse procedure.

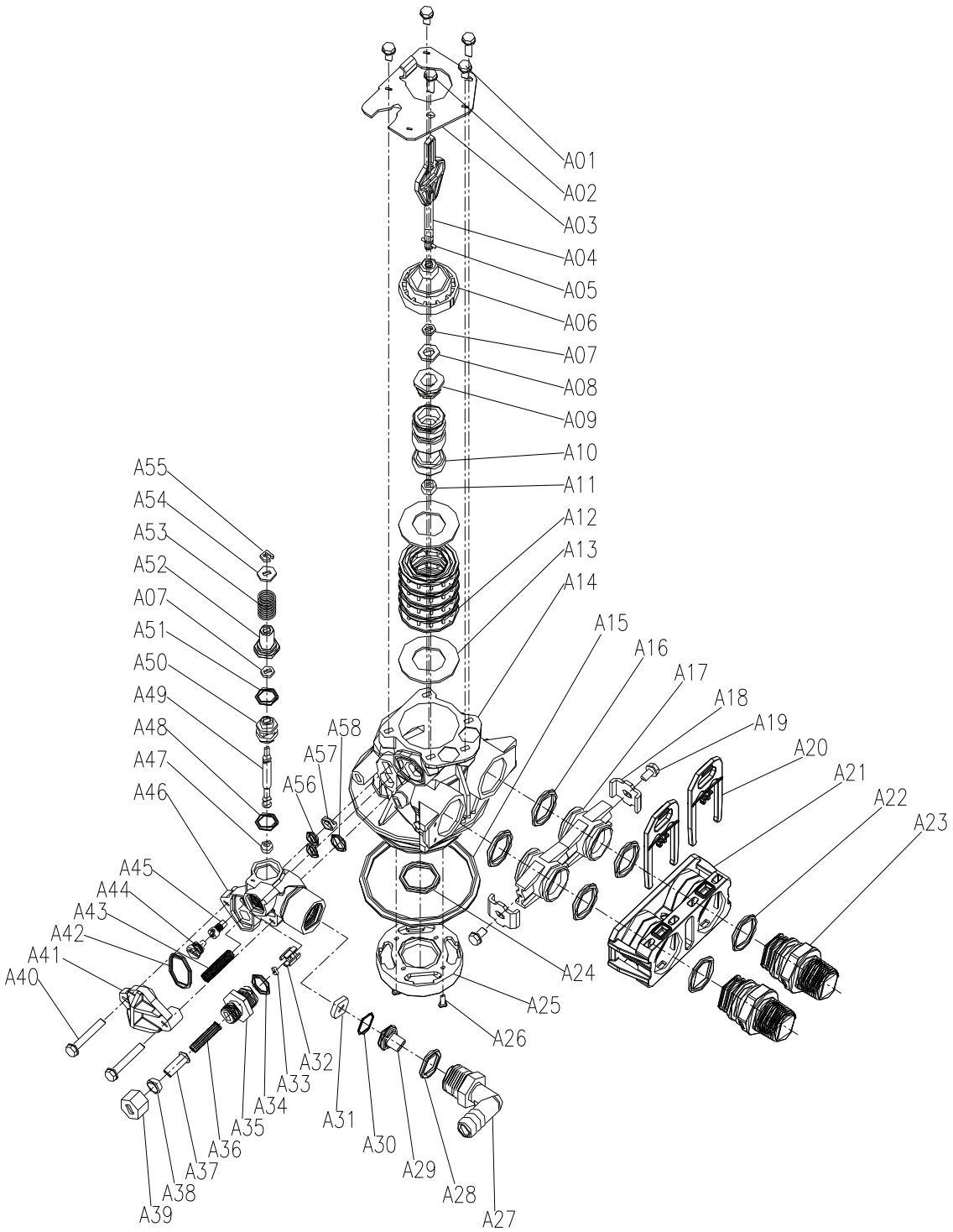
Main Repair Parts - Connectors





REPLACEMENT PARTS - CONNECTORS			
Replacement Part Number	Part Description	DWG #	Quantity
60010020	3/4" NPT ELBOW	A	2
60010019	1" NPT STRAIGHT	A	2
60010023	3/4" NPT STRAIGHT	A	2
60010079	VALVE COUPLING INLET	B	1
60010101	VALVE COUPLING OUTLET (METER SIDE)	C	1
60010025	PLASTIC SECURE CLIP	D	2
60010046	BYPASS SS CLIP	E	2
60010047	BYPASS SS SCREW	F	2

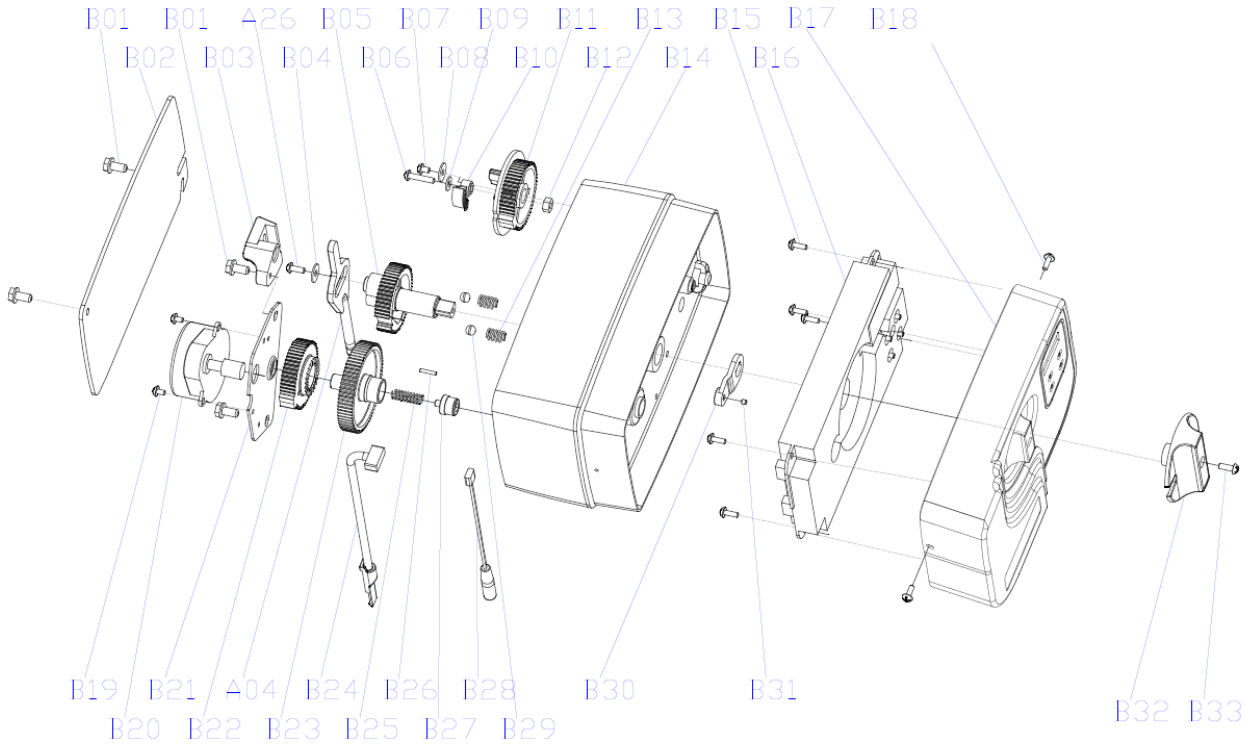
Control Valve Exploded View



Control Valve Parts List

Item No.	Part No.	Part Discription	Quantity
A01	05056087	Screw-M5×12(Hexagon)	3
A02	05056088	Screw-M5×16(Hexagon with Washer)	2
A03	05056047	End Plug Retainer	1
A04	05010081	Bnt65 Piston Rod	1
A05	05056097	Piston Pin	1
A06	05056023	End Plug	1
A07	05056070	Quad Ring	2
A08	05056024	End Plug Washer	1
A09	05056022	Piston Retainer	1
A10	05056181	Piston (Electrical)	1
A11	05056104	Muffler	1
A12	05056021	Spacer	4
A13	05056073	Seal	5
A14	05056019	Bnt65 Valve Body	1
A15	05056063	O-ring-φ78.74×5.33	1
A16	05056129	O-ring-φ23×3	4
A17	05056025	Adaptor Coupling	2
A18	05056044	Adaptor Clip	2
A19	05056090	Screw-ST4.2×13(Hexagon with Washer)	2
A20	21709003	Secure Clip	2
A21	05056140	Valve Connector	1
A22	05056065	O-ring-φ23.6×2.65	2
A23	21319006	Screw Adaptor	2
A24	26010103	O-ring-φ25×3.55	1
A25	07060007	Valve Bottom Connector	1
A26	13000426	Screw-ST2.9×13(Large Wafer)	2
A27	05056038	Drain Fitting	1
A28	26010003	O-Ring-φ18×2.65	1
A29	05056036	DLFC Button Retainer	1
A30	05056079	O-Ring-φ15×0.8	1
A31	05056143	DLFC-2#	1
A32	05056035	BLFC Button Retainer	1
A33	05056191	BLFC-2#	1
A34	05056138	O-Ring-φ14×1.8	1
A35	05056100B	BLFC Fitting	1
A36	05056106	Brine Line Screen	1
A37	05056107	BLFC Tube Insert	1
A38	05056033	BLFC Ferrule	1
A39	05056108	BLFC Fitting Nut	1
A40	05056086	Screw-M5×30(Hexagon with Washer)	2
A41	05056029	Injector Cover	1

Power Head Exploded View



Power Head Parts List

Item No.	Part No.	Part Description	Quantity
B01	5056136	Screw-ST3.5×13(Hexagon with Washer)	4
B02	5056014	Bnt65 Back Cover	1
B03	5010045	Piston Stem Holder	1
A26	13000426	Screw-ST2.9×13(Large Wafer)	1
B04	5056139	Washer-3x13	1
B05	5056005	Main Gear	1
B06	5056083	Screw-M4x14	1
B07	5056166	Screw-ST4.2×12(Large Wafer)	1
B08	5056141	Washer-4x12	1
B09	13111004	Washer-4x9	1
B10	5056016	Refill Regulator	1
B11	5056015	Brine Gear	1
B12	5056089	Nut-M4	1
B13	5056095	Spring Detent	2
B14	5056001	Bnt65 Housing	1
B15	5010037	Screw-ST2.9×10	5
B16	5056504	Bnt165 Pcb	1
B17	5056500	Bnt165 Front Cover	1
	5056505	Bnt165 Operation Label	1
	5056506	Bnt165 Regen. Label	1
B18	5056509	Screw-ST2.9×10(CSK)	2
B19	5056082	Screw-M3×5	2
B20	5056510	Motor-12v/2rpm	1
	11700005	Wire Connector	2
B21	5056045	Motor Mounting Plate	1
B22	5056501	Bnt165 Drive Gear	1
A04	5010081	Bnt65 Piston Rod	1
B23	5056002	Idler Gear	1
B24	5010031	Meter Assembly	1
	5010046	Meter Strain Relief	1
B25	5056094	Spring Idler	1
B26	5056098	Motor Pin	1
B27	5056502	Spring Retainer	1
B28	5056507	Bnt165 Power Cable	1
	5056013	Bnt65 Power Strain Relief	1
B29	5056092	Ball-1/4inch	2
B30	5056503	Magnet Holder	1
B31	5010023	Magnet-φ3×2.7	1
B32	5056008	Bnt65 Knob	1
	5056111	Bnt65 Knob Label	1
B33	5056084	Screw-ST3.5x13	1

Trouble Shooting

Issue	Possible Cause	Possible Solution
A. Water clear when drawn; turns red upon standing (stain producing)	1. Insufficient air in air tank.	a) Increase Brine Time (air draw) b) Check valve not working.
	2. Bypass open or leaking	Close bypass and/or repair as necessary.
	3. Filter bed overloaded with precipitated iron due to insufficient backwash	Increase backwash frequency. Upon correction of problem, manually backwash until backwash water starts to clear. In more severe iron-fouling cases, bed may chemical cleaning - contact dealer.
	4. Presence of manganese or tannins	Recheck water analysis
	5. Flow rate excessive for model	Reread "Sizing Requirements" Page 5-6.
B. Water red when drawn from tap	1. Filter bed overloaded with precipitated iron due to insufficient backwash flow rate	a. Recheck well pumping rate for backwash and repair or replace as required. b. Check for obstructions or kink in drain line c. 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 - contact dealer.
	2. Filter bed overloaded with precipitated iron due to insufficient backwash	Increase backwash frequency. Upon correction of problem, manually backwash until backwash water starts to clear. In more severe iron-fouling cases, bed may need chemical cleaning - contact dealer.
	3. Insufficient air in air tank.	a) Increase Brine Time (air draw) b) Check valve not working.
C. Excessive pressure loss through filter	1. Filter bed overloaded with precipitated iron.	See problem above
	2. Control inlet/outlet valve(s) not fully open	Open valves
	3. Sand, silt or mud collecting in filter bed	Check well for these conditions
	4. Filter bed not properly classified	Manually backwash to reclassify
D. Milky or bubbly water (appears to contain small bubbles)	1. Excess Mazzei injector air draw	Check adjustment for duration of draw in excess of 1/3 pumping cycle.
	2. Excess gases in water (carbon dioxide, hydrogen sulphide, methane)	May require draining of water system or installation of air relief control - contact dealer.
E. Unit fails to initiate a regeneration cycle.	1. No power supply.	Check electrical service, fuse, etc.
	2. Defective circuit board.	Replace faulty parts.
	3. Power failure.	Reset time of day.
F. Low water pressure.	1. Iron or scale build up in line feeding unit.	Clean pipes.
	2. Iron build up inside valve or tank.	Clean control and add resin cleaner to clean bed. Increase regeneration frequency.
	3. Inlet of control plugged due to foreign material.	Remove piston and clean control valve.
G. Filter media in drain line.	1. Air in water system.	Check well system for proper air eliminator control.
	2. Incorrect drain line flow control (DLFC) button.	Check for proper flow rate.
H. Valve continuously cycles.	1. Defective position sensor PCB.	Replace faulty parts.
I. Flow to drain continuously.	1. Valve settings incorrect.	Check valve settings.
	2. Foreign material in control valve.	Clean control.
	3. Internal leak.	Replace seals, spacers, and piston assembly.

Warranty

Canature WaterGroup guarantees that your new water conditioner is built of quality material and workmanship. When properly installed and maintained, it will give years of trouble free service.

Five Year Limited Warranty

Canature WaterGroup will replace the salt tank or cabinet tank, the ion exchange resin, valve parts and the fibreglass mineral tank which has a 10 year warranty, provided the failure is due to a defect in material or workmanship and not the result of damage from any of the conditions described in the general conditions of this warranty.

General Conditions

Damage to any part of this water conditioner as a result of misuse, misapplication, neglect, alteration, accident, installation or operation contrary to our printed instructions, damage to ion exchange resin and seals caused by chlorine / chloramines in the water supply, or damage caused by any force of nature is not covered in this warranty. Filters are commonly exposed to high levels of iron, manganese, sulphur, and sediment. Damage to pistons, seals, and or spacers within the control valve are not covered in this warranty due to harsh environment. We will repair or replace defective parts if our warranty department determines it to be defective under the terms of this warranty. Canature WaterGroup assumes no responsibility for consequential damage, labour or expense incurred as a result of a defect or failure.