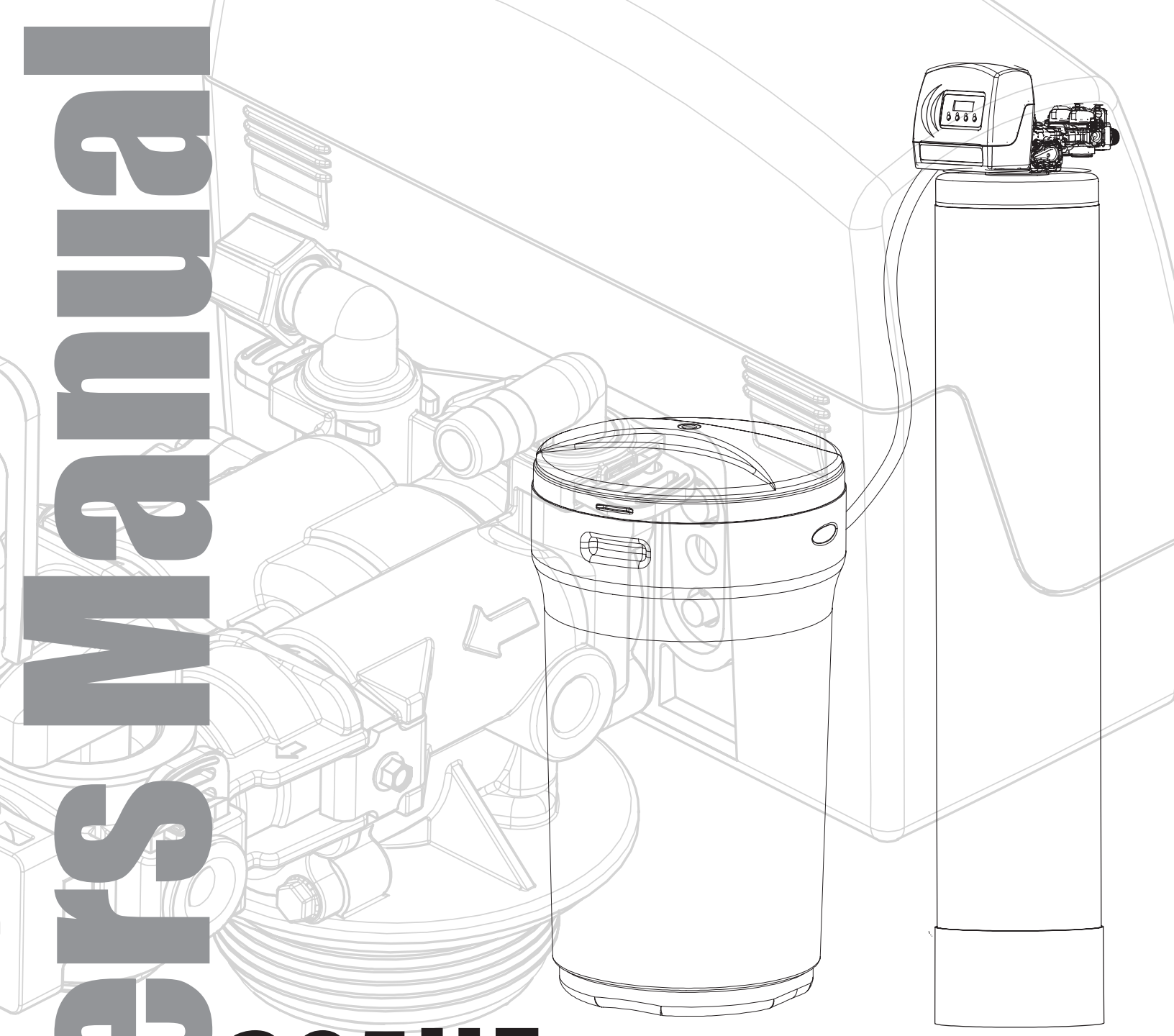
Owners Manual



285HE

Upflow Softener Manual

1. Read all instructions carefully before operation.
2. Avoid pinched o-rings during installation by applying (providedwith install kit) NSF certified lubricant to all seals.
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.

Canada West
855 Park St., Unit 1
Regina, SK S4N 6M1

7503 35th St. SE
Calgary, AB T2C 1V3

Canada East
490 Pinebush Rd., Unit 1
Cambridge, ON N1T 0A5

U.S.A.
7229 University Ave NE
Fridley, MN 55432

56 Lightcap Rd.
Pottstown, PA 19464

9760 Mayflower Park Drive,
Suite 110
Carmel, IN 46032

4655 McDowell Rd. W
Phoenix, AZ 85035

Table of Contents

READ THIS MANUAL FIRST

- Read this manual thoroughly to become familiar with the device and its capabilities before installing or operating your Water Softener. 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 Softener.
- This system and its installation must comply with state and 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. For installations in Massachusetts, Massachusetts Plumbing Code 248 CMR shall be adhered to. Consult your licensed plumber for installation of this system.
- This water Softener 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 Softener.
- This unit is capable of operating at temperatures between 40°F and 110°F (4°C - 43°C). Do not use this water Softener 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.
- Softeners 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. An Annual Maintenance kit (Part # 60010307) is available for this purpose
- 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. Big Blue H2O reserves the right to change the specifications referred to in this literature at any time, without prior notice.

Safety Messages

Watch for the following safety messages in this manual:

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

Example: NOTE: Check and comply with you state and local codes. You must follow these guidelines.

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

Example:

CAUTION! Disassembly while under pressure can result in flooding.

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

Example:

WARNING! ELECTRICAL SHOCK HAZARD! UNPLUG THE UNIT BEFORE REMOVING THE COVER OR ACCESSING ANY INTERNAL CONTROL PARTS

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

HOW YOUR WATER CONDITIONER WORKS

Why Water Gets Hard And How It Is Softened

All of the fresh water in the world originally falls as rain, snow, or sleet. Surface water is drawn upward by the sun, forming clouds. Then, nearly pure and soft as it starts to fall, it begins to collect impurities as it passes through smog and dust-laden atmosphere. And as it seeps through soil and rocks it gathers hardness, rust, acid, unpleasant tastes and odors.

Water hardness is caused primarily by limestone dissolved from the earth by rainwater. Because of this, in earlier times people who wanted soft water collected rainwater from roofs in rain barrels and cisterns before it picked up hardness from the earth.

Some localities have corrosive water. A softener cannot correct this problem and so its printed warranty disclaims liability for corrosion of plumbing lines, fixtures or appliances.

Iron is a common water problem. The chemical/physical nature of iron found in natural water supplies is exhibited in four general types:

1. **Dissolved Iron**—Also called ferrous or "clear water" iron. This type of iron can be removed from the water by the same ion exchange principle that removes the hardness elements, calcium and magnesium. Dissolved iron is soluble in water and is detected by taking a sample of the water to be treated in a clear glass. The water in the glass is initially clear, but on standing exposed to the air, it may gradually turn cloudy or colored as it oxidizes.
2. **Particulate Iron**—Also called ferric or colloidal iron. This type of iron is an undissolved particle of iron. A softener will remove larger particles, but they may not be washed out in regeneration effectively and will eventually foul the ion exchange resin. A filtering treatment will be required to remove this type of iron.
3. **Organic Bound Iron**—This type of iron is strongly attached to an organic compound in the water. The ion exchange process alone cannot break this attachment and the softener will not remove this type of iron.
4. **Bacterial Iron**—This type of iron is protected inside a bacteria cell. Like the organic bound iron, it is not removed bya water softener.

When using a softener to remove both hardness and dissolved iron it is important that it regenerates more frequently than ordinarily would be calculated for hardness removal alone. Although many factors and formulas have been used to determine this frequency, it is recommended that the softener be regenerated when it has reached 50–75% of the calculated hardness alone capacity. This will minimize the potential for bed fouling.

If you are operating a water softener on clear water iron, regular resin bed cleaning is needed to keep the bed from coating with iron. Even when operating a softener on water with less than the maximum of dissolved iron, regular cleanings should be performed. Clean every six months or more often if iron appears in your conditioned water supply. Use resin bed cleaning compounds carefully following the directions on the container.

CAUTION! Do not use where the water is microbiologically unsafe or with water of unknown quality without adequate disinfection before or after the unit.

SPECIFICATION

Model	System Capacity Grains			Flow Rate		Regeneration Water Usage (Gallons)		Mineral Tank Size	Resin Cu. Ft.	Brine Tank / Cabinet Size Inches	Salt Capacity (Lbs)	Ship Weight (Lbs)
	@ 10 lbs/ cu ft	@ 6 lbs/cu ft (Factory Setting)	@ 3 lbs/ cu ft	Service USGPM	Backwash USGPM	Clean Water (Factory Setting)	Problem Water					
30K	30,000	25,000	15,000	10.0	2.0	43.4	64.3	9 x 48	1.00	BTS 15.0^2x34.7/BTR 18.1x34.7	BTS 230 / BTR 270	110
45K	45,000	37,500	22,500	12.0	2.4	62.7	90.3	10 x 54	1.50	BTS 15.0^2x34.7/BTR 18.1x34.7	BTS 230 / BTR 270	141
60K	60,000	50,000	30,000	15.0	3.5	87.1	124.6	12 x 52	2.00	20.3 x 37.4	385	158
90K	75,000	62,500	37,500	15.0	4.0	108.9	155.8	13 X 54	2.50	20.3 x 37.4	385	198
30C	30,000	25,000	15,000	10.0	2.4	48.6	69.5	10 x 35	1.00	13.8 x 23.6 x 43.3	225	110

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
Pipe Size = 3/4"

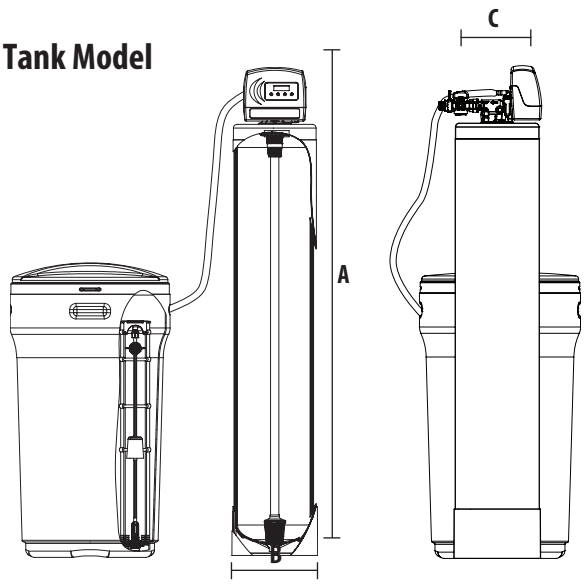
- At the stated service flow rates, the pressure drop through these devices will not exceed 15 psig.
- Changing salt settings from factory setting may require changing injector sizes to achieve stated capacities
- The manufacturer reserves the right to make product improvements which may deviate from the specifications and descriptions stated herein, without obligation to change previously manufactured products or to note the change.

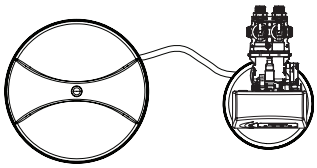
* Do not use water that is microbiologically unsafe without adequate disinfection before or after the system.
* Iron content must not exceed 1 ppm. Beyond 1 ppm an iron softener must be used. Periodic media cleaning is required by Pro-Res Cleaner is iron level exceed 0.3 ppm

SYSTEM DIMENSIONS

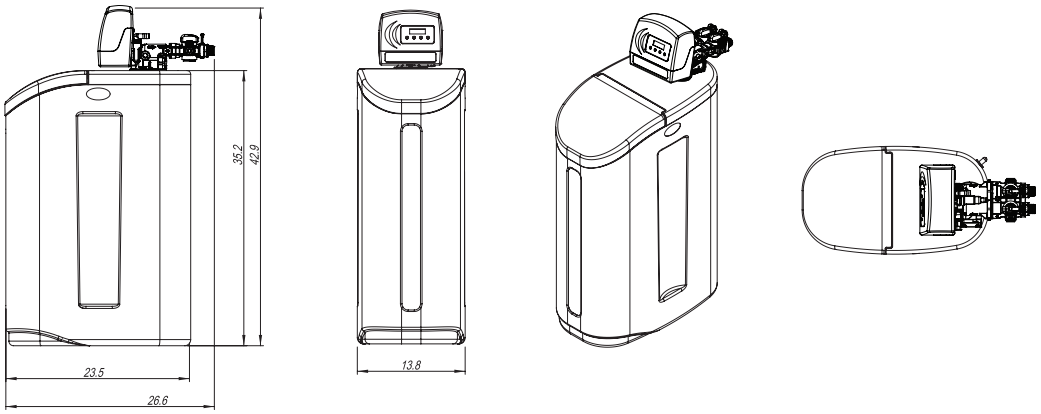
Models	A (Inches)	B (Inches)	C (Inches)
30K	57″	9"	13″
45K	63″	10"	15″
75K			
90K	61″	12"	16″
300	63″	13"	17″

Twin Tank Model





Cabinet Model



HOW A WATER SOFTENER WORKS

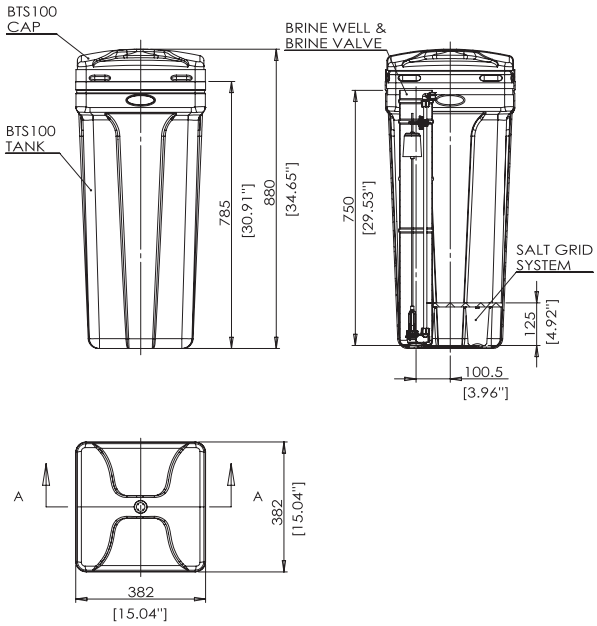
Water softeners remove hardness in the water by exchanging particles in the water, or ions. They remove hard ions the calcium and magnesium in the water by trading it for sodium ions producing soft water. Unlike the calcium and magnesium, sodium stays dissolved in water and does not form a scale. Sodium also does not interfere with the cleaning action of soaps. The sodium is released by a charged resin contained in the softener, this resin also traps the calcium and magnesium ions. Eventually this resin releases all of its sodium and has filled up with other ions, so it then must be regenerated. Regeneration is accomplished by washing the resin with a salt saturated brine solution that removes the calcium and magnesium while replenishing the sodium. This is why the softener requires a brine tank and salt. The water softener can run for days before running out of sodium, and when it does, the sodium is replenished in only a matter of a few hours

BRINE TANK DIMENSIONS

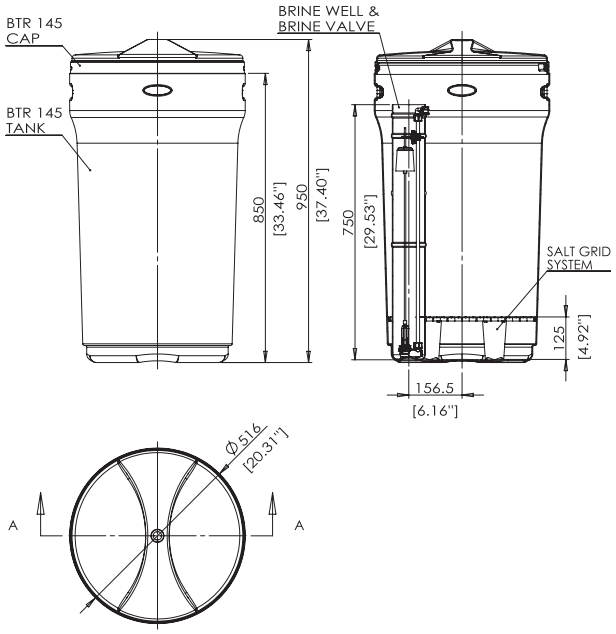
Model	Color	Liquid Volume		Tank Dimensions (inches)	5 Pack Carton Dimensions (inches)	Salt Capacity		5 Pack Carton Shipping Weight	
		US Gal	Liters	L x W x H	L x W x H	Lbs	Kg	Lbs	Kg
Brine Tanks									
BTR-145	Blue	42.3	159.7	20.3 x 37.4	21.9 x 21.9 x 72.2	385.0	174.2	65.6	29.8
BTR-200	Grey	53.0	200.3	23.0 x 40.5	24.6 x 24.6 x 84	700.0	316.7	125.0	56.6
BTS-100	Blue	25.0	94.5	15.0 x 15.0 x 34.7	16.6 x 16.7 x 61	230.0	104.1	54.4	24.7

* All brine tanks come with salt grid, safety float and brine well

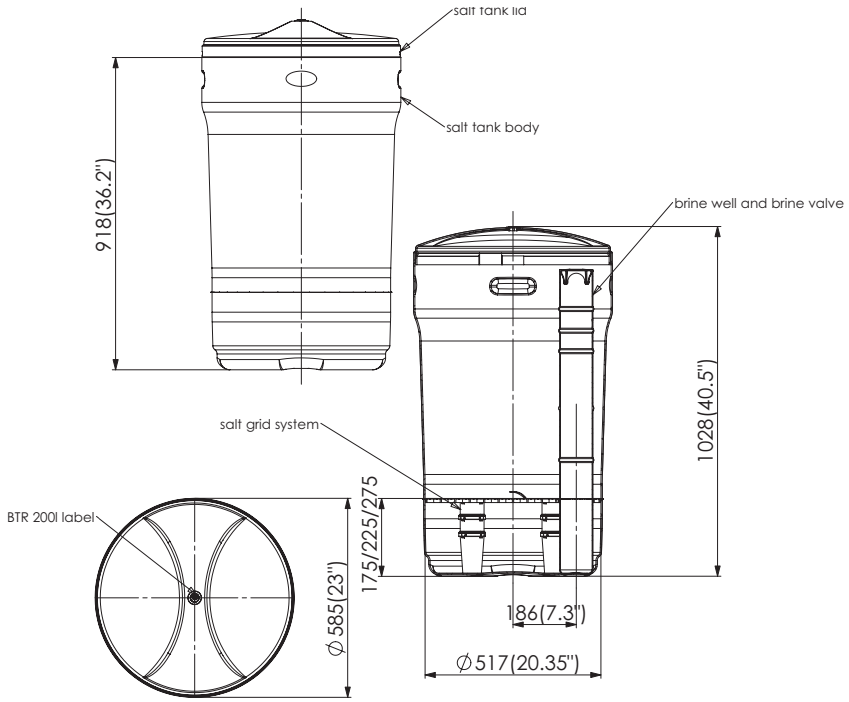
BTS100



BTR145



BTR200



UNPACKING / INSPECTION OF TWIN TANK MODEL

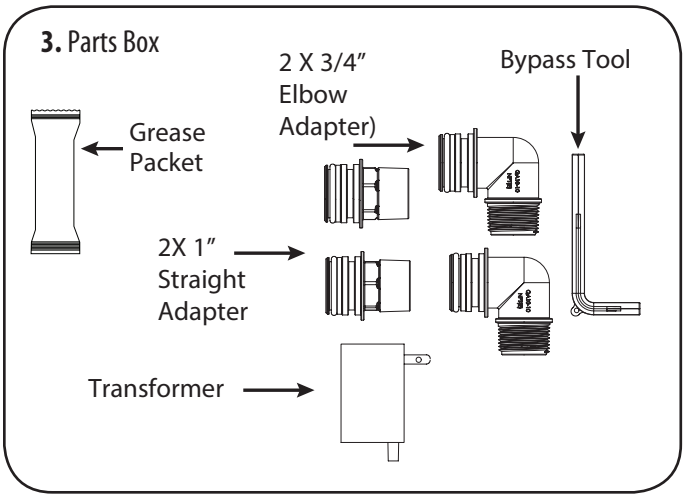
Be sure to check the entire unit for any shipping damage or parts loss. Also note damage to the shipping cartons. Contact the transportation company for all damage and loss claims. The manufacturer is not responsible for damages in transit.

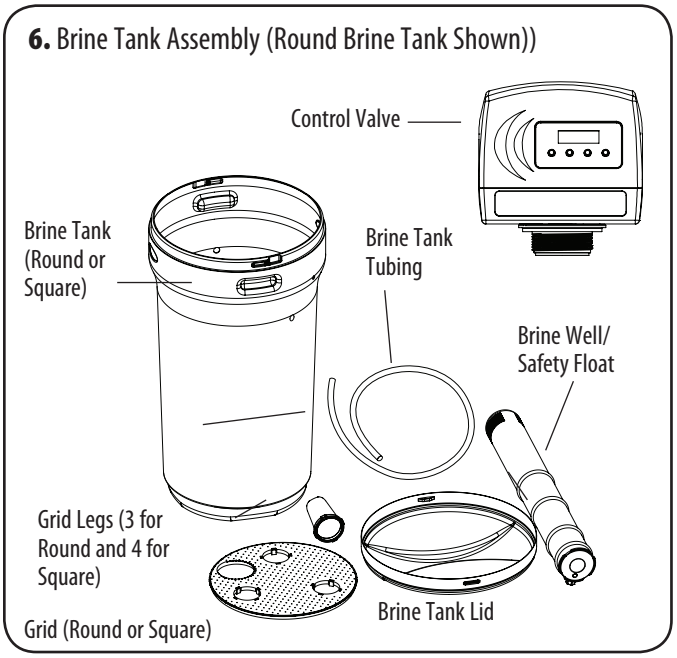
Small parts, needed to install the Softener, are in a parts box. To avoid loss of the small parts, keep them in the parts bag until you are ready to use them.

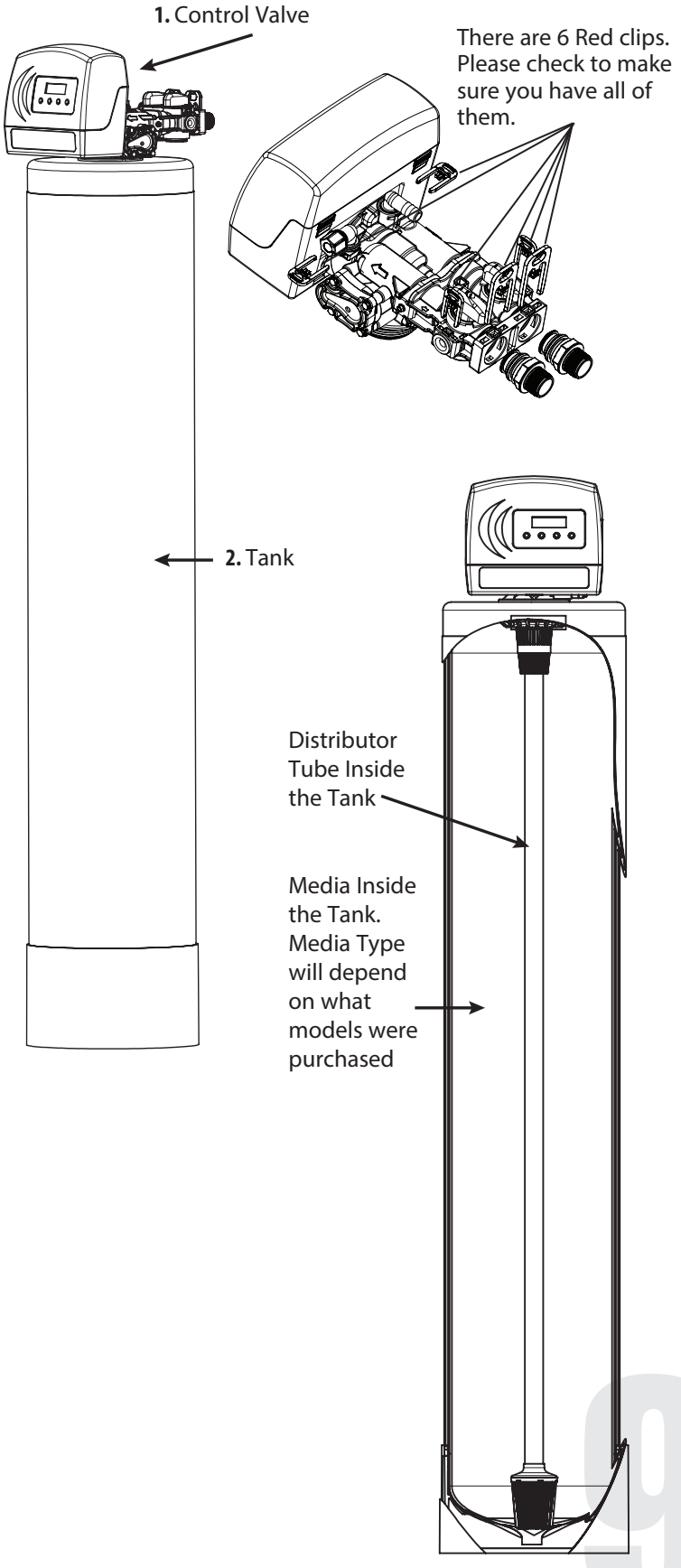
What is included in the box?

For Models 75,10,15,20, you will expect the following:

1. Control Valve
2. Tank
3. Parts Box
4. Owners Manual
5. Drain Hose & Clamp (Not included in some brands)
6. Brine Tank Assembly



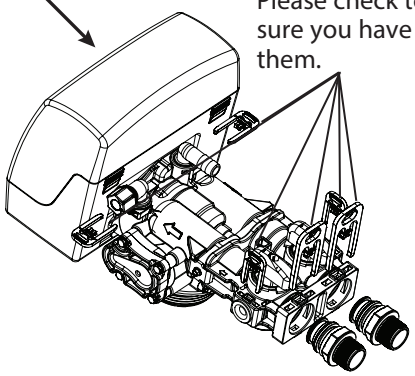


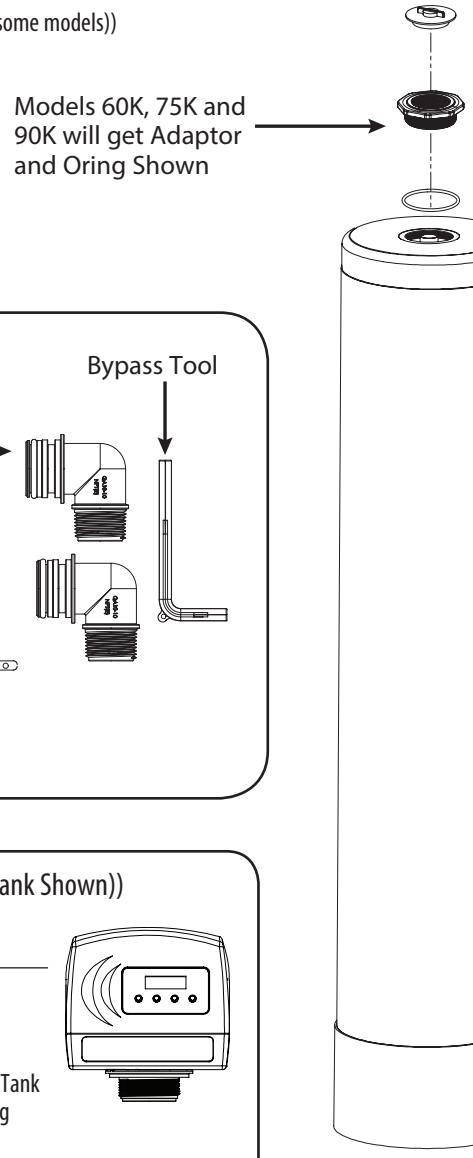


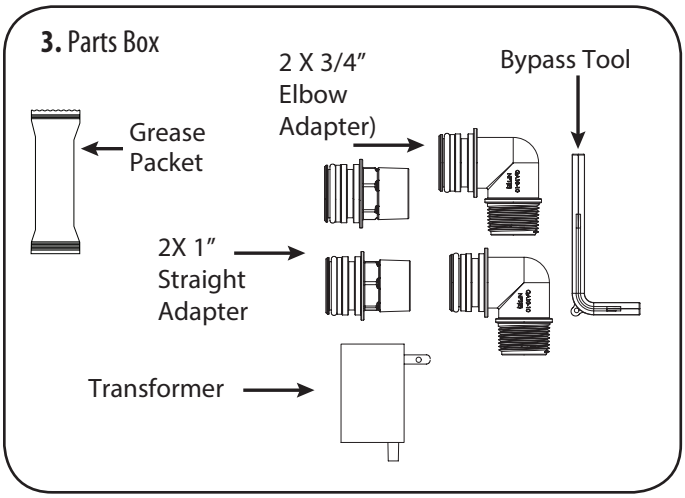
For Models 60K, 75K and 90K the media is packaged in Media Box and Control Valve is packaged in Brine Tank Assembly

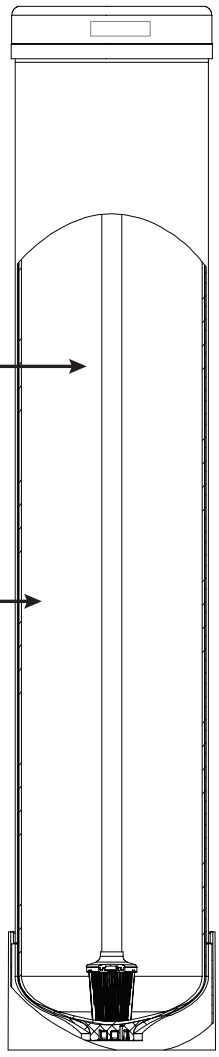
What is included with 60K, 75K and 90K models?

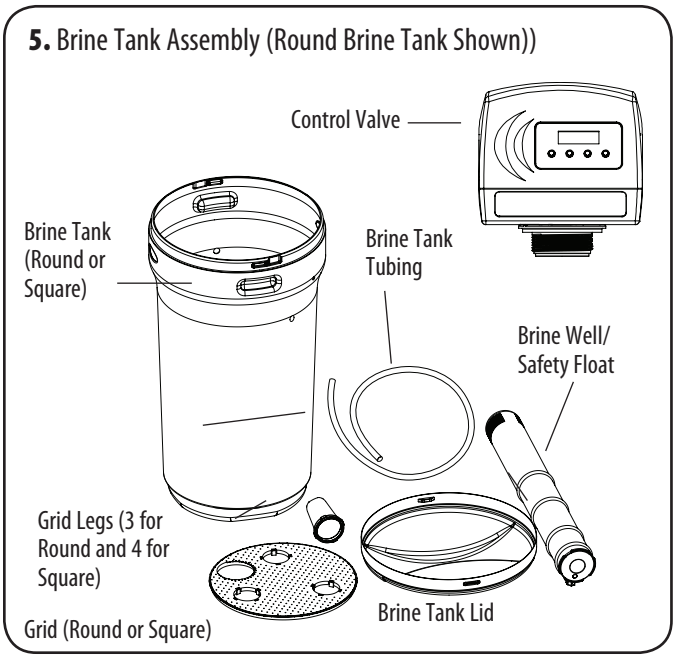
1. Tank (Models 360K, 75K and 90K will get an Adapter and Oring attached to the tank)
2. Control Valve with Parts Box
3. Media Boxes (Qty? 60K, 75K and 90K??)
4. Drain Line and Hose Clamp (Not Included with some models))
5. Brine Tank Assembly

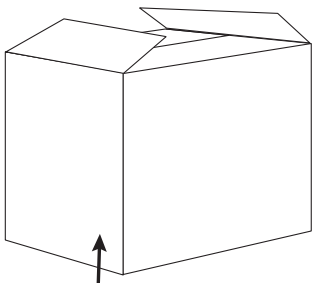






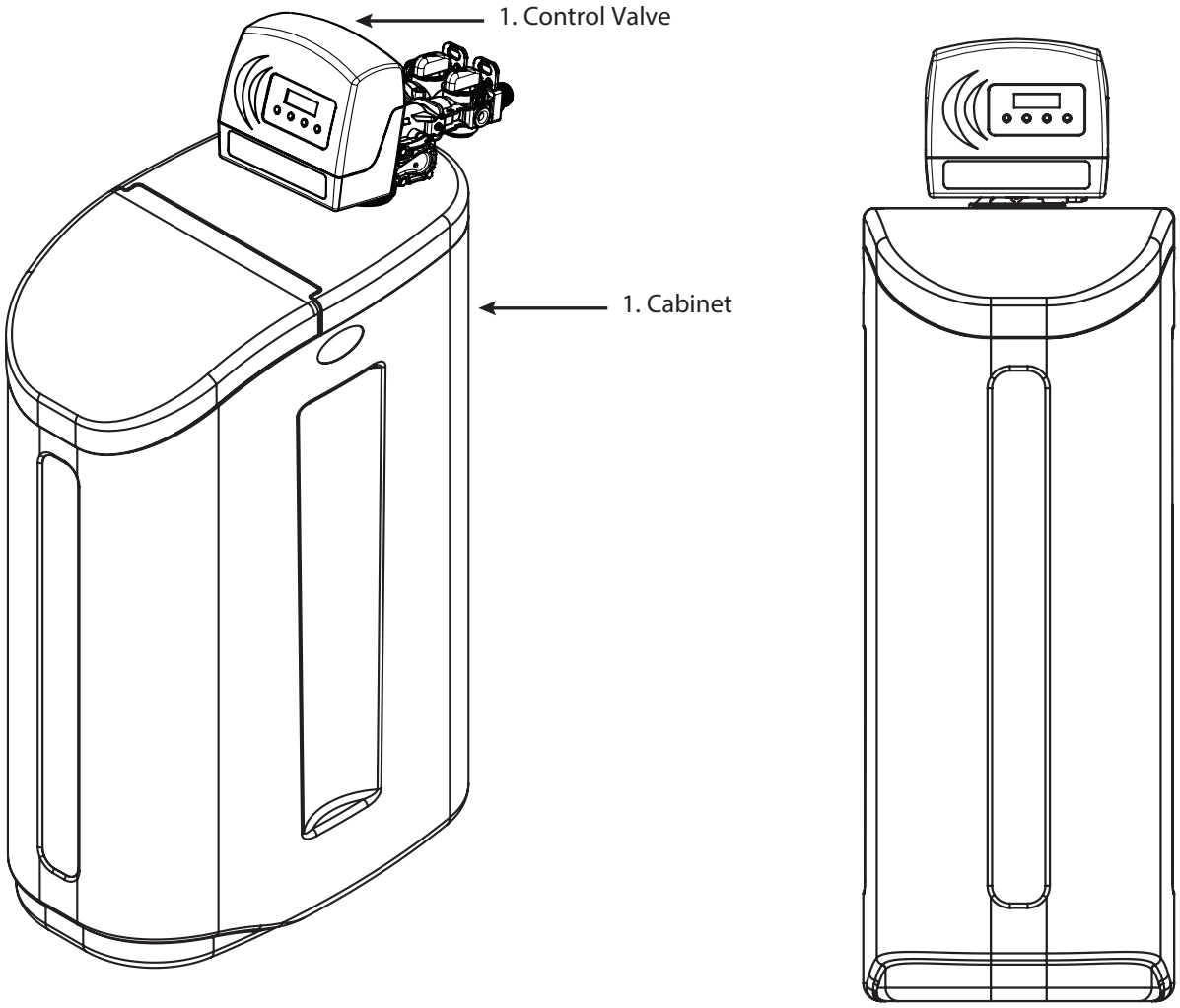


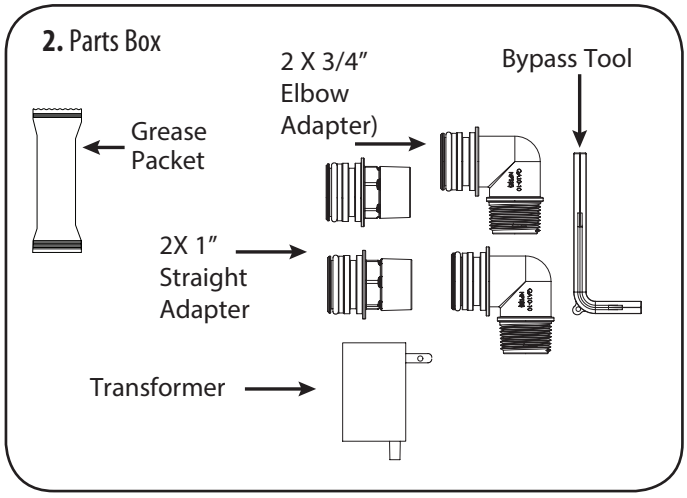




UNPACKING / INSPECTION OF CABINET MODEL

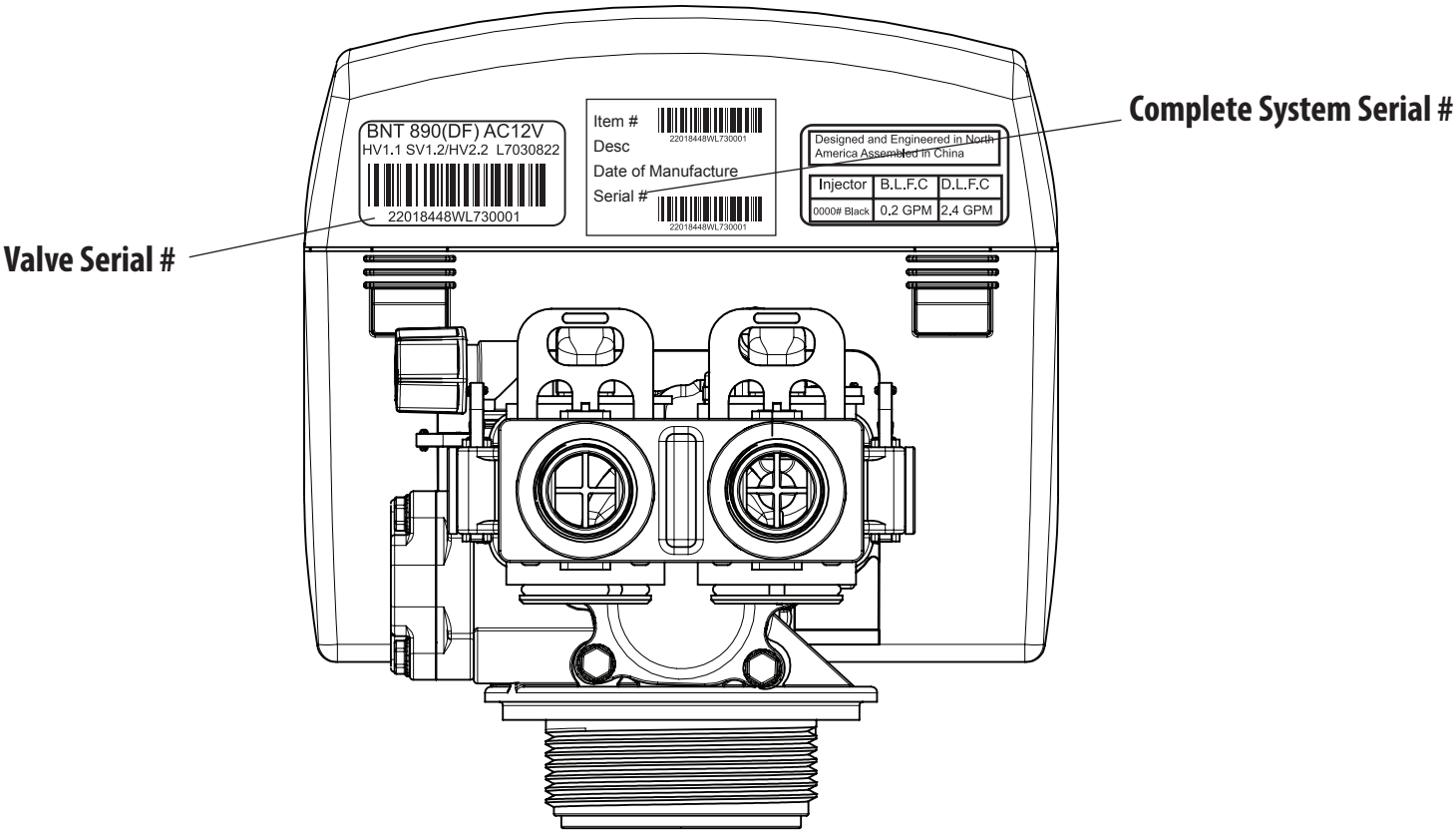
1. Cabinet with Valve attached
2. Parts Box
3. Drain Line and Hose Clamp (Not Included with some models))



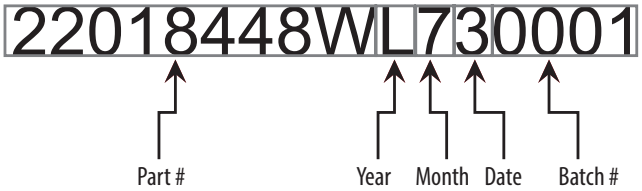


Check Valve Type and Valve Serial

Check to make sure the valve type is what you ordered. The serial # label on the left will show 285HE0 (DF) for downflow valve and 285HE0 (UF) for Upflow valve The right Sticker shows the serial # of the control valve. The middle Sticker is dataplate which provides information of Serial # and Date of Manufacture of complete system. Both Serial # labels are important for troubleshooting.



Valve Serial #:



(22018448W): Part #

(L)Year : " M" stand for 2016 year," L" stand for 2015, "K" stand for 2014, "J" stand for 2013

(7)Month: 1 (Jan) 2(Feb) 3(Mar) 4(April) 5(May) 6(June) 7(July) 8(Aug) 9(Sep) A(Oct) B(Nov) C(Dec)

(3)Date: 1 2 3 4 5 6 7 8 9 A(10) B(11) C(12) D(13) E(14) F(15) G(16) H(17) I(18) J(19) K(20) L(21) M(22) N(23) O(24) P(25) Q(26) R(27) S(28) T(29) U(30) V(31)

(0001): Batch code

BEFORE INSTALLATION

Contact your local distributor to use Big Blue H2O laboratory for complete water analysis free of cost and no obligation to you.

The laboratory addresses can be found on the front page of the manual.

Check your water hardness. Use test strips (Part # 2793828-20) to get an estimation of water hardness and contact your local distributor to use Big Blue H2O laboratory for complete water analysis free of cost and no obligation to you.

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

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 below.

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.

NOTE: Check your local electrical code for the correct clamp.

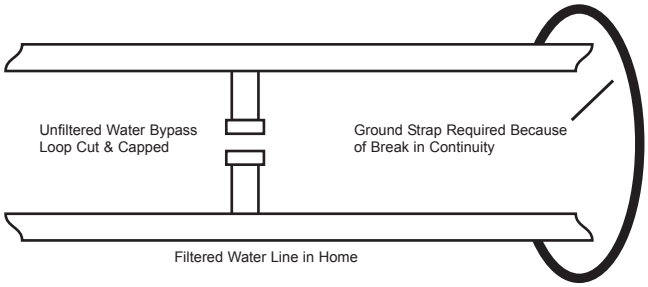
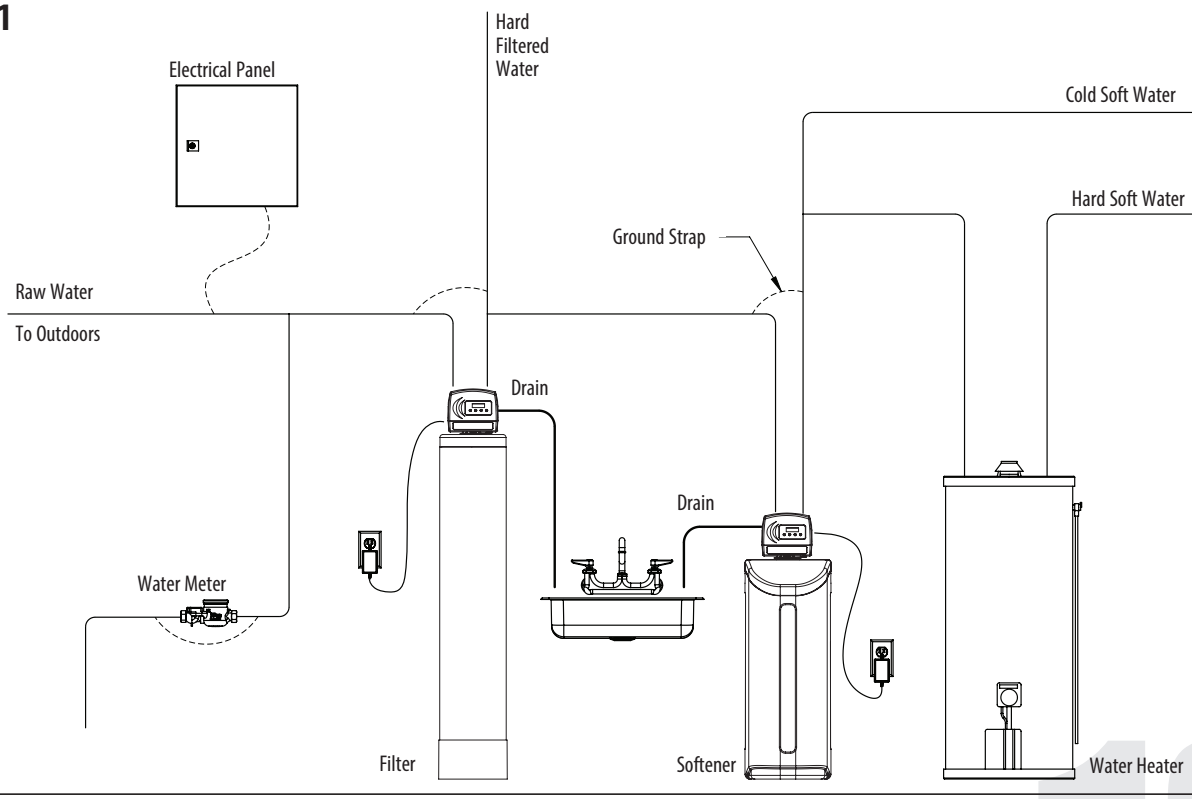


Figure 1



Inspecting and Handling Your 285HE Water Softener

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

Do not turn the Softener unit upside down.

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

Check Your Water Pressure and Pumping Rate

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

1. Minimum water pressure required at the Softener tank inlet is 30 psi.
2. The pumping rate of your well pump must at least equal the required backwash flow rate of your model (see Specifications on Page 5 for backwash flow rates).

To measure the pumping rate of your pump, follow these instructions:

- **a.** Make certain no water is being drawn. Open spigot nearest pressure tank. When pump starts, close spigot and measure time (in seconds) to refill pressure tank (when pump shuts off). This figure represents cycle time.
- **b.** 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 data in the following formula:

DRAWDOWN_____÷ CYCLE TIME_____x 60
(gals) (seconds)
= PUMPING RATE_____
(gpm)

EXAMPLE: DRAWDOWN is 6 gals; CYCLE TIME is 53 secs; then, PUMPING RATE equals:
6 gals ÷ 53 secs x 60 = 6.8 gpm

See Specifications on page 5 for minimum flow rates.

NOTE: If the plumbing system is used as the ground leg of the electric supply, continuity should be maintained by installing ground straps around any nonconductive plastic piping used in installation.

Tools Required for Installation:

- Two adjustable wrenches
- Additional tools may be required if modification to home plumbing is required.
- Plastic inlet and outlet fittings are included with the softener. To maintain full valve flow, 3/4" or 1" pipes to and from the softener fittings are recommended. You should maintain the same, or larger, pipe size as the water supply pipe, up to the softener 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 Softener 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 not included with some brands.

Locate Water Conditioning Equipment Correctly

Select the location of your Softener tank with care. Various conditions which contribute to proper location are as follows:

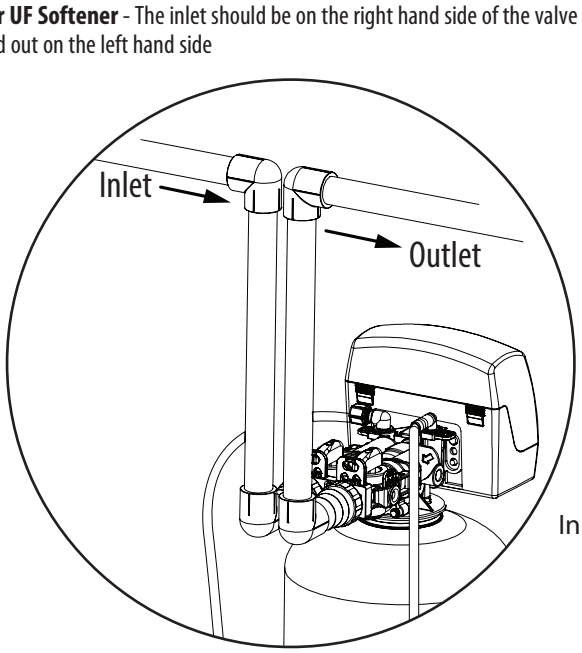
1. Locate as close as possible to the water supply source.
2. Locate as close as possible to a floor or laundry tub drain.
3. Locate in correct relationship to other water conditioning equipment (see Fig. 1).
4. Softener should be located in the supply line before the water heater. Temperatures above 120°F damage softeners.
5. Do not install a softener in a location where freezing temperatures occur. Freezing may cause permanent damage to this type of equipment and will void the factory warranty.
6. Allow sufficient space around the unit for easy servicing.
7. If your water source is a community water supply, a public water supply or you wish to bypass water used for a geothermal heat pump, lawn sprinkling, out-buildings or other high demand applications, refer to Fig. 1.
8. Keep the softener out of direct sunlight. The sun''s heat may soften and distort plastic parts.

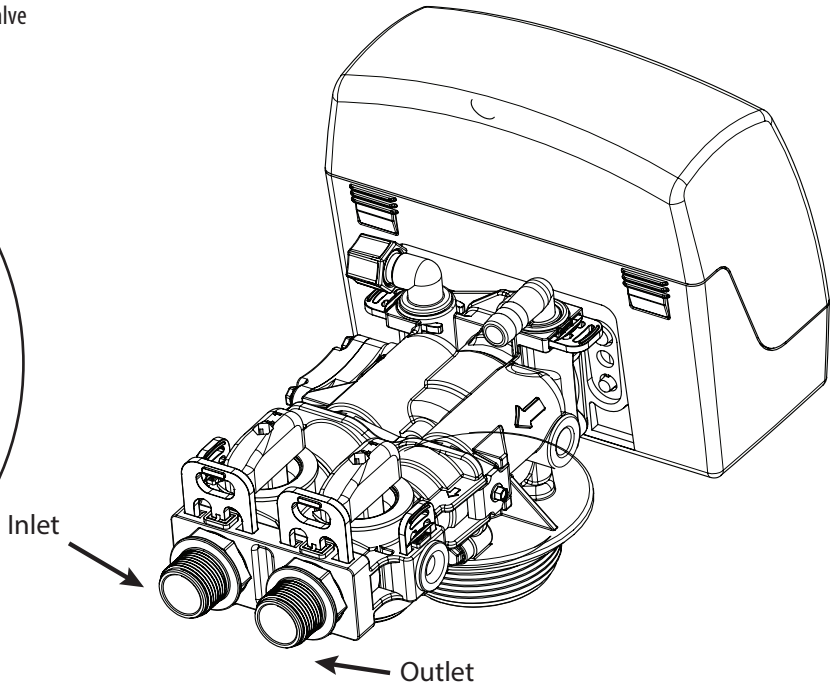
INSTALLATION STEPS

Determine the best location for your water Softener, bearing in mind the location of your water supply lines, drain line and 120 volt AC electrical outlet. Subjecting the Softener to freezing or temperatures above 43°C (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:

For UF Softener - The inlet should be on the right hand side of the valve and out on the left hand side

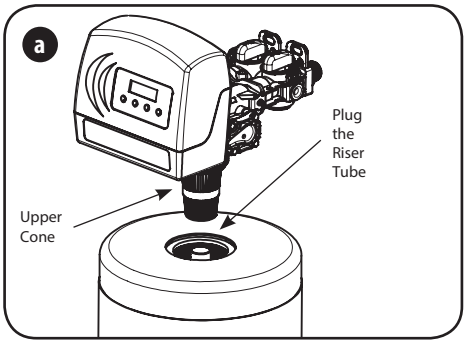




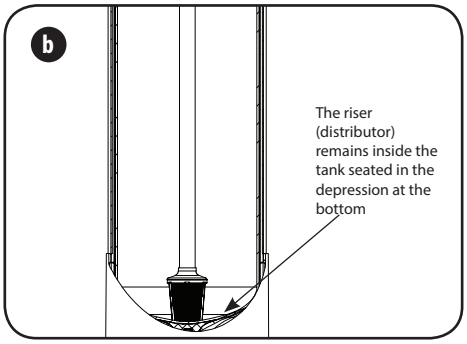
PREPARATIONS

1. Media Installation (When Necessary). Models including and higher than 2 CF (Models 250,300) of media are shipped with separate media in pails or boxes. Models lower than 2 CF of media come loaded with media and this step can be skipped for new installation.

CAUTION! The unit should be de-pressurized before installing or replacing media

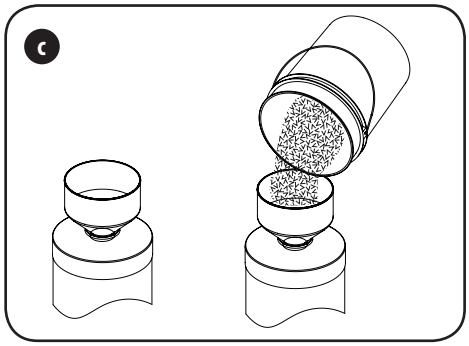


a) Lube the bottom oring (picture **d**) and attach the upper cone to the valve.



b) Temporarily plug the open end of the riser tube to ensure that no resin or gravel falls down into the distribution. The riser (distributor) remains inside the tank seated in the depression at the bottom.

Plug tube with a tape. Remove after media is loaded.

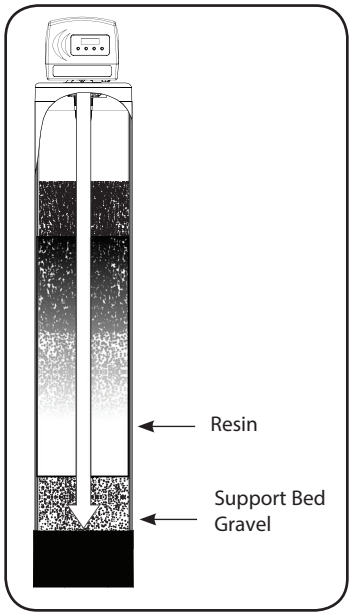


c) Fill support bed first.
The media will not always spill down inside the tank and may need to be swept inside.

The large funnel (sold separately makes filling the tank easier and neater. (Or an empty 1 gallon or 4 liter container with the bottom cut out makes a good funnel.)

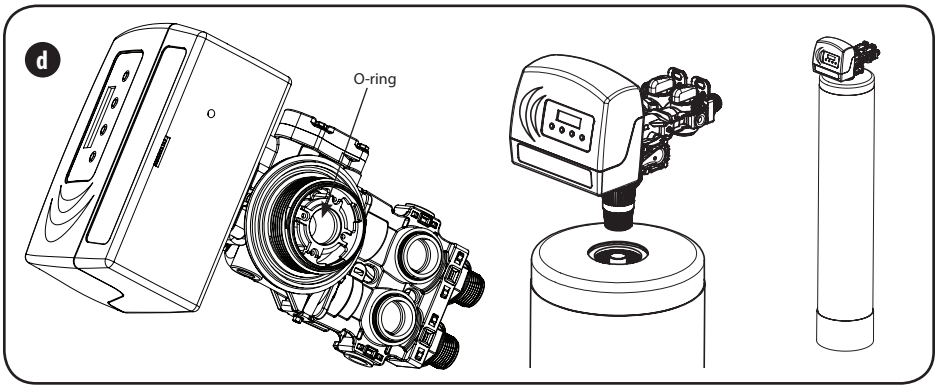
PREPARATIONS

1. Media Installation (continued)

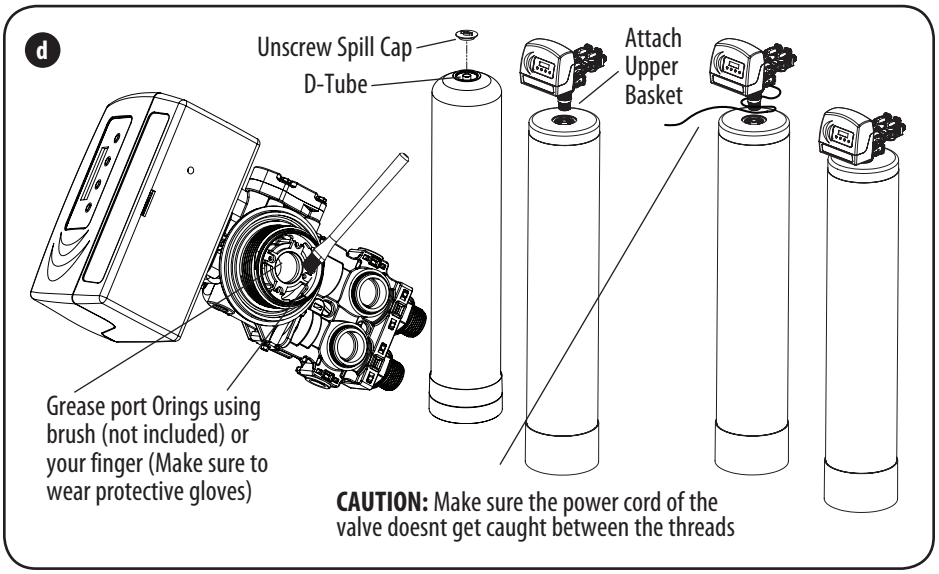


Fill tank one quarter full of water to protect distribution during gravel installation.

Place the media into the tank in the order indicated above. Slowly and carefully add the gravel support bed and the filtration media leveling each layer as it is placed into the tank.



d) Unplug the riser tube, carefully position the valve over it and turn the valve into the threads in the fiberglass tank, tightening securely into tank. Note: Ensure that the internal O-ring in the valve fits securely over the riser tube. Silicone grease (part # 92360) or other food grade lubricant may be applied to the O-ring to ease installation of the riser tube.



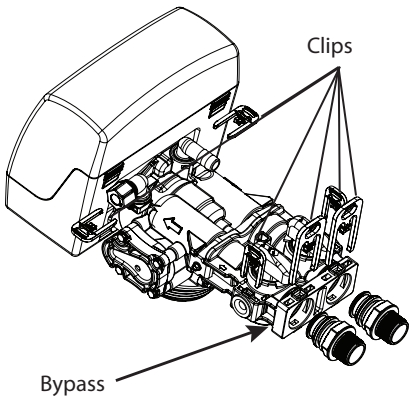
d) Lube the bottom Valve Orings with the grease supplied, Attach the Upper Basket. Unscrew the spill cap. Carefully Slide the D-Tube inside the Valve and Screw the Valve inside the Tank such that the power cord doesnt get caught between the valve and the tank.

CAUTION: Make sure that the unit is de-pressurized before conducting this task.

DO NOT use petroleum based lubricants as they will cause swelling of O-ring seals.

2. Water Lines

Outside faucets used to water lawns and gardens should not supply softened water. A new water line is often required to be connected to supply hard water to the inlet of the water softener 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 water softener 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 water softener and from the elbow to the outlet of the softener. 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 water softener to the elbow installed on the pipe to the outside faucet. Following this procedure will result in all lines in the house, with the exception of the outside faucets, but including the water heater and therefore the hot water lines, being supplied with soft water.



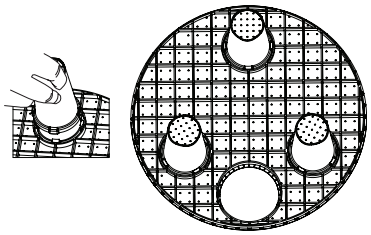
3. Attaching Bypass to Valve (Bypass is already attached to the valve)

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 Softener 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.

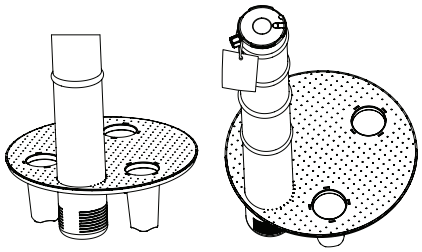
Do not use pipe thread compound as it may attack the material in the valve body.

4. Assembling Brine Tank

a) Attach the three brine grid legs to grid plate. The legs will snap on to the tabs of the salt plate making a "click" sound. For square brine tank there are four legs.)

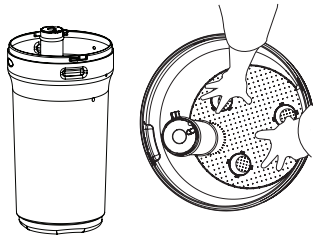


b) Insert the brine well assembly inside the grid plate as well below.

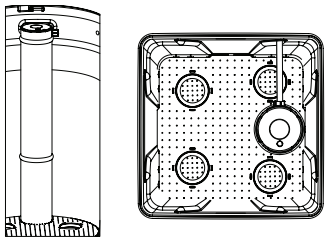


c) Drop the brine grid with brine well inside the brine tank such that the nut fitting faces the hole on the brine tank. Then press the grid evenly inside the brine tank until the brine grid legs touches the bottom of the brine tank.

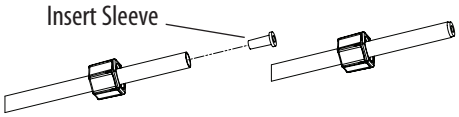
IMPORTANT: IN ROUND BRINE TANK, IT IS IMPORTANT TO ALIGN THE HANDLE TO THE BRINE WELL AS SHOWN



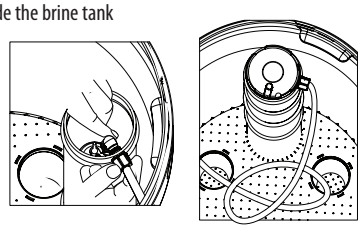
The hole in the brine tank should line up with the brine line as shown for round and square brine tank.



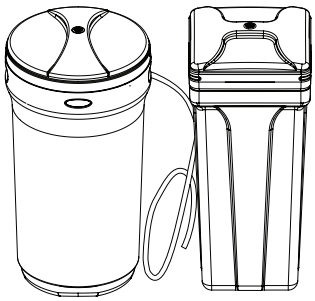
d) Take the brine tube and insert the nut and plastic sleeve as shown below.



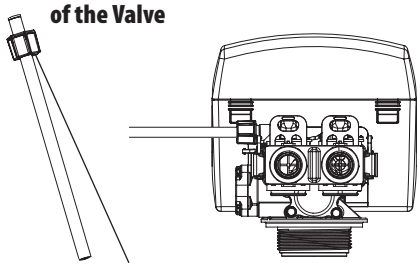
e) Insert the tube in the float assembly elbow and hand tighten the nut. In many cases the brine line already come installed from the factory. Leave the other end of the brine line tube inside the brine tank



f) For installation of brine tank at the installation site, pull the other end of the brine tube from the hole on the brine tank. The completed assembly is shown below.

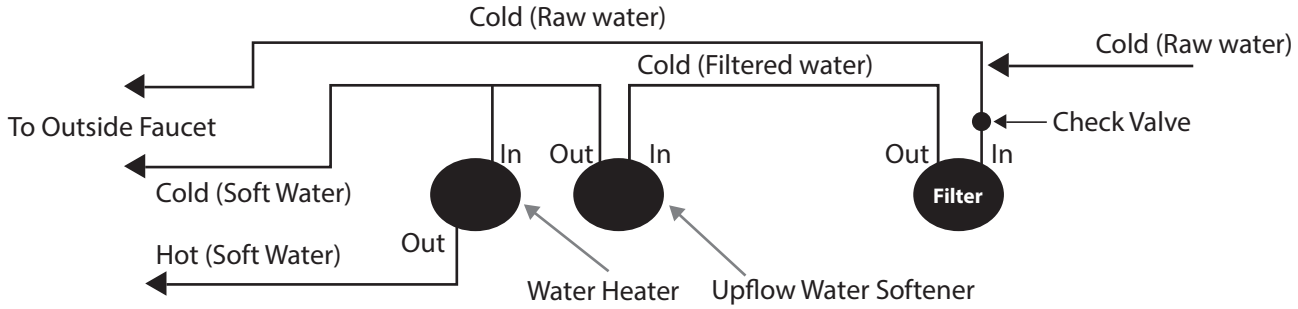


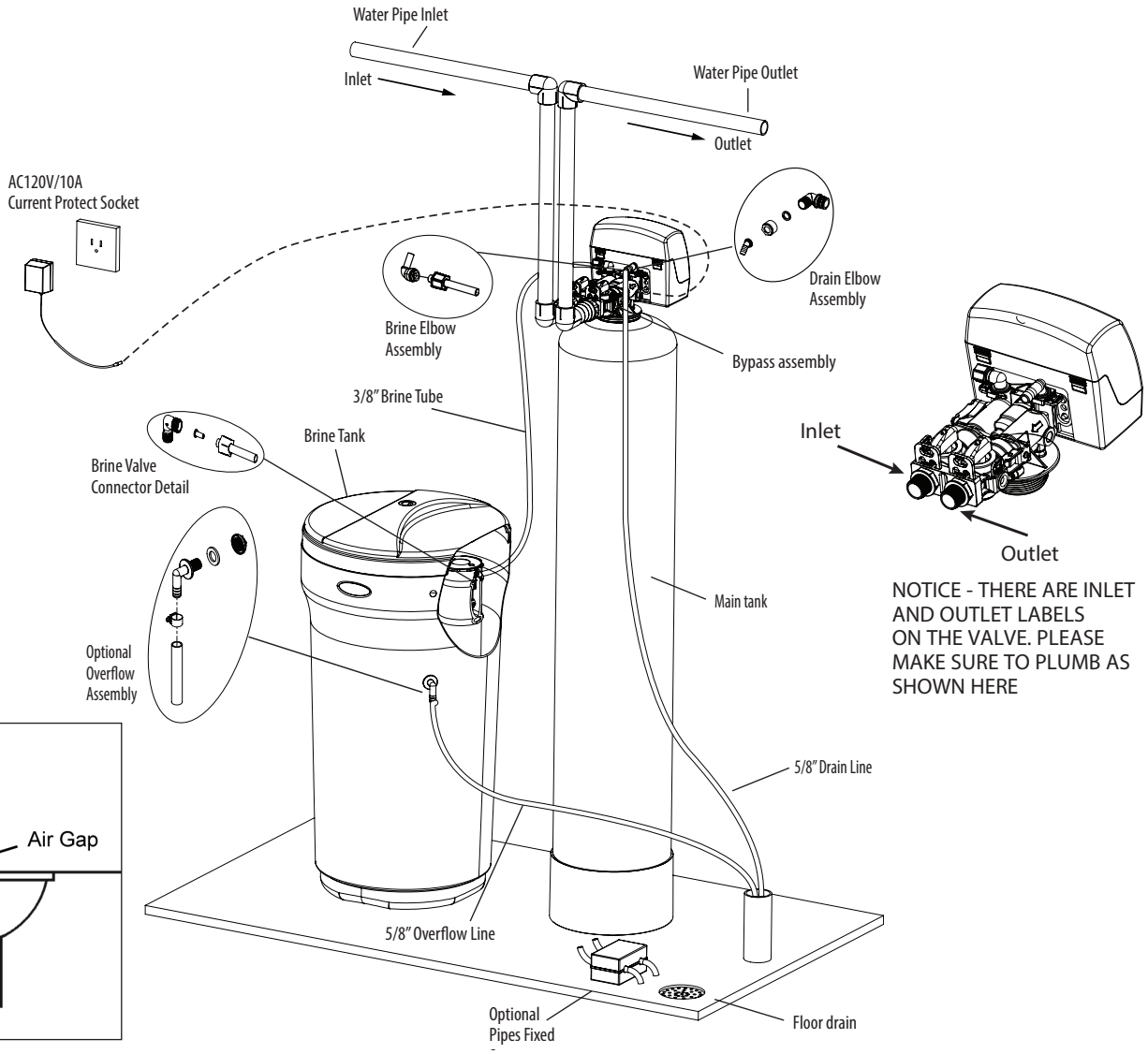
6. Attaching Brine Tubing to the Brine Line of the Valve



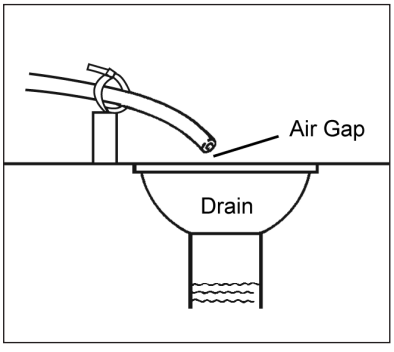
5. **Connect Softener to the HousePlumbing** Any solder joints near the valve must be done before connecting any piping to the valve. Always leave at least 6" (152 mm) between the valve and joints when soldering pipes that are connected to the valve. Failure to do this could cause damage to the valve.

Water Softener Installation





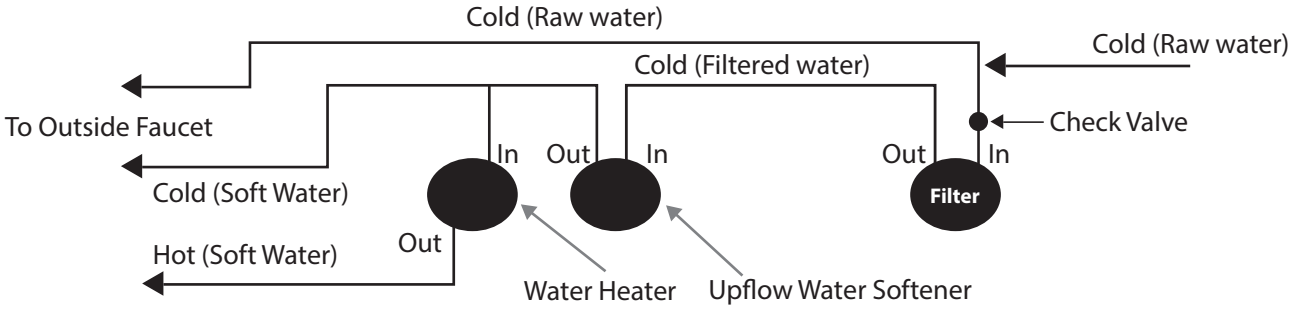
NOTICE - THERE ARE INLET AND OUTLET LABELS ON THE VALVE. PLEASE MAKE SURE TO PLUMB AS SHOWN HERE

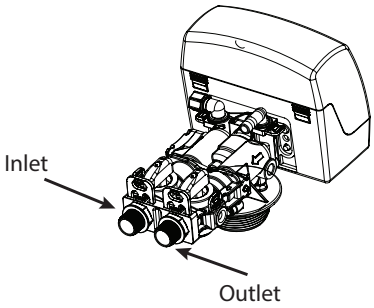


!	**Waste connections or drain outlet shall be designed and constructed to provide for connection to the sanitary waste system through an air-gap of 2 pipe diameters or 1 inch (22 mm) whichever is larger.**

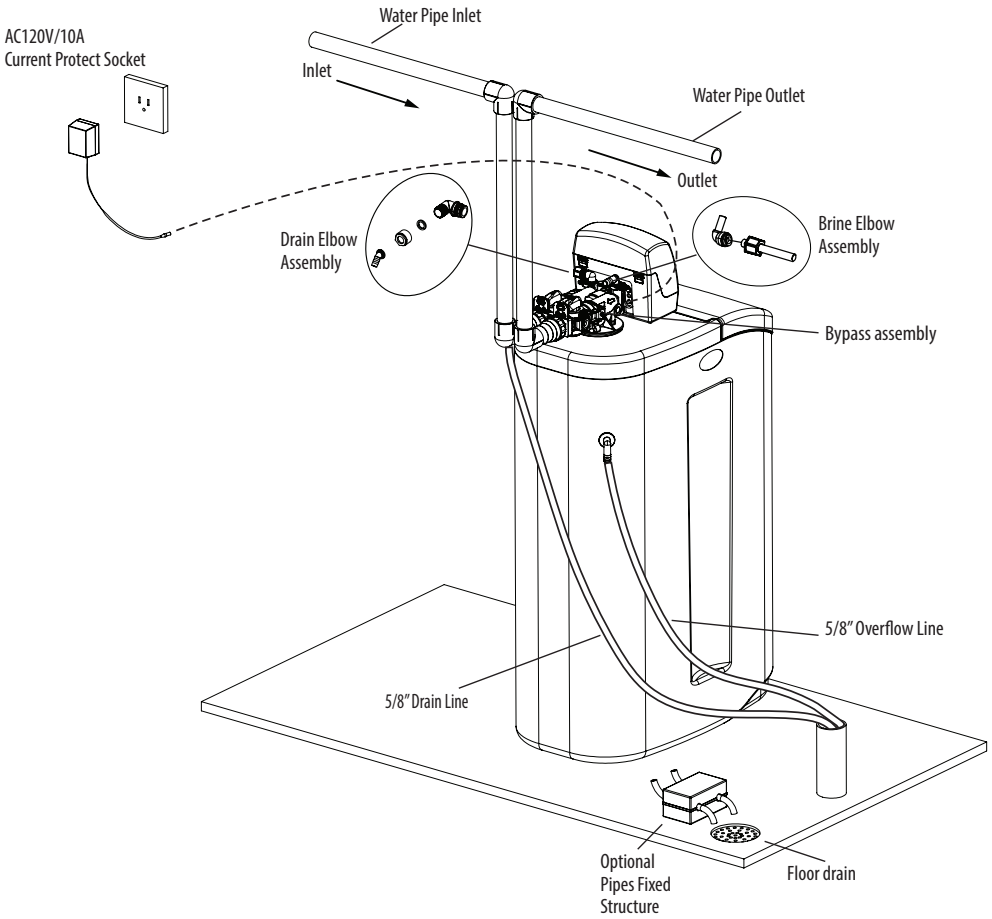
!	**Never insert drain line directly into a drain, sewer line, or trap. Always allow an air gap between the drain line and the wastewater to prevent the possibility of sewage being back-siphoned into the conditioner.**

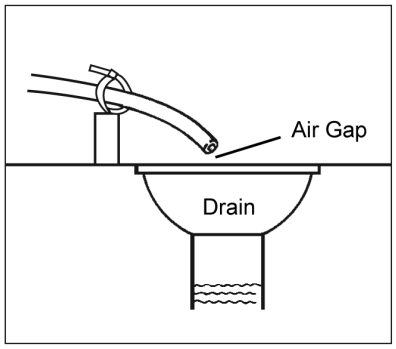
Cabinet Water Softener Installation





NOTICE - THERE ARE INLET AND OUTLET LABELS ON THE VALVE. PLEASE MAKE SURE TO PLUMB AS SHOWN HERE

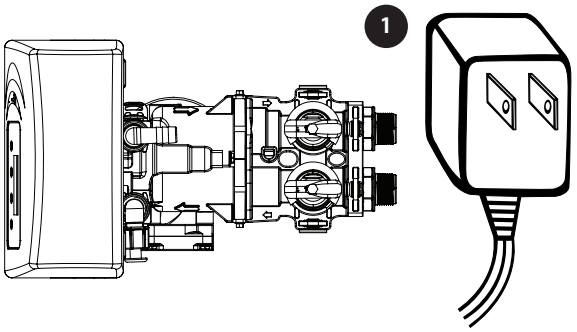




!	**Waste connections or drain outlet shall be designed and constructed to provide for connection to the sanitary waste system through an air-gap of 2 pipe diameters or 1 inch (22 mm) whichever is larger.**

!	**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. Open the brine tank / cabinet salt lid and add water according to the chart on below. Do not add salt to the brine tank at this time.

"WARNING – It is Recommended to add water to the brine tank as per the below chart at the time of installation"

BRINE TANK MODEL – Water to be Added at the Time of Installation:

BTS- 70 (15.8" x 32.1") - 2.25 US Gallons

BTS- 90 (14" x 32.1") - 3 US Gallons

BTS-100 (15.0" x 15.0" x 34.7") - 2.25 US Gallons

BTR-100 (18.1" x 34.7") - 2.5 US Gallons

BTR-145 (20.3" x 37.4") - 3.25 US Gallons

BTR-200 (23.0" x 40.5") - 5.5 US Gallons

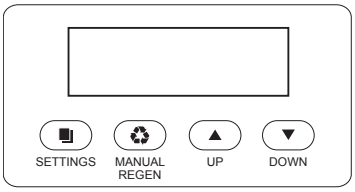
3. Power and Program Valve

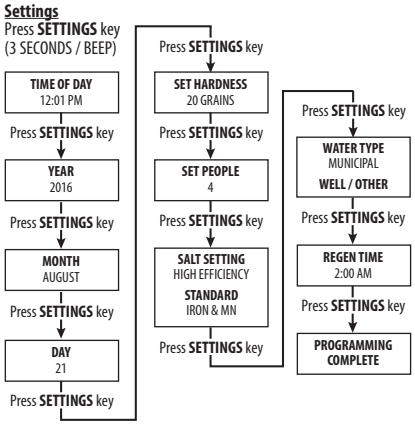
Key Pad Configuration

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

MANUAL REGEN This function is to initiate an immediate or delayed manual regeneration.

DOWN / UP Increase or decrease the value of the settings while in the programming mode.





SALT SETTING

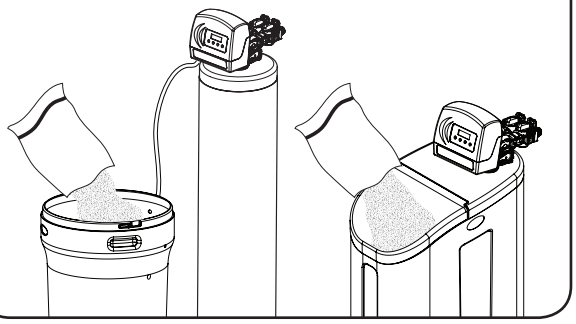
Choose HIGH EFFICIENCY to minimize salt usage. Your system will regenerate a little more often but your salt usage can be reduced by 20% compared to the STANDARD setting. Choose STANDARD when you need to maximize your capacity but still operate the system with good efficiency. Choose IRON & MN if you have problem water containing these minerals. The high salt setting will be needed since these minerals are more difficult to clean out of the resin bed. Note: A resin cleaner will also need to periodically added to the brine tank to insure proper operation.

WATER TYPE

This setting will determine if the BACKWASH OVERIDE function will be on or off. Select MUNICIPAL if the water source is clean (<1NTU turbidity) and the system will skip the back wash cycle based on the setting in BACKWASH OVERIDE. Select WELL / OTHER if any Iron or Manganese is present or if the water source is not clean (< 1NTU turbidity). The system will back wash every time.
his setting determines the time of day to perform a scheduled regeneration.

4. Please Manual Regen key to start manual regeneration. Skip the brine draw cycle and go to backwash. Dont skip the backwash cycle to let all the air out from the system. Then the valve will move to Rinse cycle which can be skipped. Next cycle will be Refill and should Not be skipped to let the air out of the injector body

5. Add Salt to the brine tank/cabinet



5. Put 40 kgs of crystal water softener salt in the brine tank. The unit will automatically fill the water to the correct level when it regenerates.

Automatic Raw Water Bypass During Regeneration

The regeneration cycle can last 80 minutes after which Softenered water service will be restored. During regeneration, un-Softenered water is automatically bypassed for use in the household. Hot water should be used as little as possible during this time to prevent un-Softenered 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.

SYSTEM CHECK LIST

More than 90% of problems affecting the efficiency of a chemical iron free softener system can be identified in 9 minutes or less by following this diagnostic schedule. Start with Step 1, then follow each step in sequence to ensure proper diagnostic procedures.

1. Check for Proper Installation

a. Is the pipe from the pressure tank to the softener unit attached to the inlet port of the control valve? Is the pipe from the softener unit to the water heater attached to the outlet port of the control valve?

b. Is the drain line of adequate diameter? Drain line must be sized to prevent back pressure from reducing backwash flow rate below minimum for the model installed.

Typical examples of minimum drain line diameters are:

i) 5/8" ID when drain is up to 15 ft from unit and backwash water discharge point is slightly higher than the control valve

ii) 3/4" ID when drain is 25 ft away and/or drain is installed overhead

c. Has the drain line been "kinked"? A kinked drain line must be replaced.

d. Is the drain line installed in a way that it will freeze in cold weather?

e. If the system incorporates a standard air-to-water pressure tank, does it have the required deep well air volume control (air release valve) and is it functioning? (Proper installation of this type of pressure tank should have inlet from pump higher than outlet to service.)

2. Check pH, Iron and Manganese Content of Treated Water

Is the treated water pH reading less than 6.7 (8.2 when manganese is present)? If yes, replenish the media with MpH adder and check the bed for "channelling".

3. Check Pumping Rate

Do not refer to a pumping rate curve for this data. Follow the instructions found on Page 7. Is the measured pumping rate less than the backwash rate of the softener? If yes, increase the pumping rate by first reducing the system operating pressure. If the pumping rate is still too low, replace the pump.

4. Determine Other Uses of Water in Addition to Normal Domestic Purposes

(e.g. geothermal heating or cooling, swimming pool fill, lawn irrigation, farm animal watering, etc.) Have any high demand water uses been added subsequent to the installation of the softener system or overlooked when originally sizing the system? (If a high demand situation exists, resize the system using continuous service flow rate data.)

DURING REGENERATION

Automatic Bypass

The regeneration cycle lasts approximately 60 minutes, after which treated water service will be restored. During regeneration, untreated water is automatically bypassed for use in the household. Hot water should be used as little as possible during this time to prevent hard water from filling the water heater.

IMPORTANT: This is why the 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.

New Sounds

You may notice new sounds as your water softener operates. The regeneration cycle lasts approximately 2-1/2 hours. During this time, you may hear water running intermittently to the drain.

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 by 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 the point of use.

Softener

1. Disconnect brine draw line from the brine cabinet and place the loose end into a five gallon plastic pail filled with a solution of warm water and 4 oz. of resin mineral cleaner.

2. Manually advance control timer to brine draw position (refer to instructions provided with your softener). Allow all the warm mineral cleaner solution to be drawn into mineral bed. Then immediately:

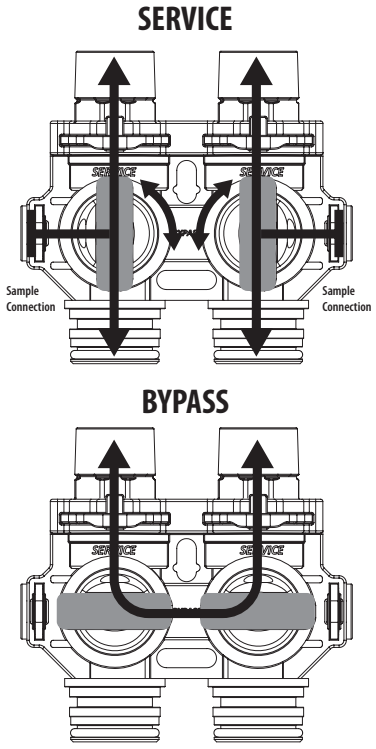
3. Close main water supply valve or turn power off to pump and proceed with Softener installation. During time required to install Softener system, iron- fouled softener resin will be chemically cleaned.

4. After Softener installation is completed and final adjustments are made with the water turned on and brine draw tube reconnected, manually reposition timer on softener to backwash position. Allow timer to perform an automatic regeneration cycle. During backwash of softener, all iron cleaned from the resin will be washed down the drain. It is advisable, after chemically cleaning softener, to regenerate system twice to fully restore capacity lost due to iron fouling.

WATER BYPASS

Manual Bypass

In case of an emergency such as Softener maintenance, you can isolate your water Softener 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 Softener, 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 watersupply is bypassing the softener. However, the water you use will be hard. To resume treated service, open the bypass valve by rotating the knobs counterclockwise.



OPERATING CONDITIONS

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 maybe the only practical solution to prevent continued staining originating from this source. After completing the installation of the chemical free iron Softener system, clean the water heater by following these instructions:

1. Shut off energy supply to water heater and close 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 water runs clear to drain.
3. If, after approximately 30 minutes flushing, water does NOT clear, terminate flushing operation. Refill hot water heater with water and pour approximately 1/2 gallon of household bleach into top of heater tank. Allow bleach solution to stand in tank for 20 to 30 minutes. Flush tank again until water is clear at drain. Turn energy supply on.

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

Dishwasher

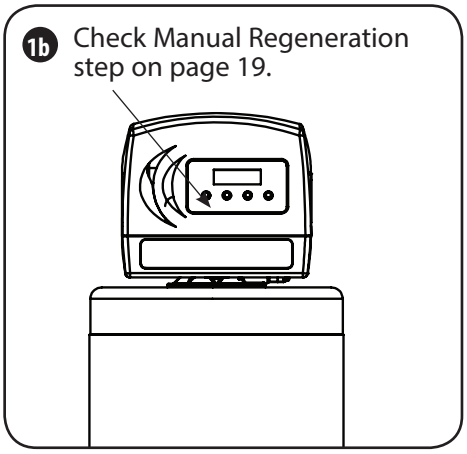
Consult owners' handbook and follow manufacturer's instructions.

Toilet Flush Tanks

Prior to commencing installation of the Softener system, pour 4 to 6 ounces of resin mineral cleaner Pro-Rust Out or inhibited muriatic acid into flush tanks and bowls and let stand. When installation is completed, flush toilets several times with iron-free water. If iron deposits or stains remain, repeat procedure until clear.

WATER SOFTENER SANITIZATION

1a. Pour entire packet of Sani-System Liquid Concentrate – Part # 50032 (24 packets) into the brine well. If no brine well is present, pour entire packet into bottom of brine tank when salt is nearly empty.



1b. Manually regenerate the softeneraccording to the manufacturer's specications.

Sanitization can also achieved by the application of chlorine in the regeneration cycle of the conditioner. A liquid solution of 5.25% sodium hypochlorite (commonly referred to as household bleach) is recommended as a suitable disinfectant. Use only unscented products. For every cubic foot of resin in the softener, pour approximately two (2) tablespoons of sodium hypochlorite into the brine well tube. The brine tank refill step of regeneration should add the correct amount of water to the brine tank. If not, the water can be added manually now. Press and hold to begin a manual regeneration. Allow softener to complete the Brine/Rinse cycle, then let the manual regeneration continue until the brine tank is refilled again with the correct amount of water.

NOTE: ALL STATE AND LOCAL GOVERNMENT CODES GOVERNING INSTALLATION OF THESE DEVICES MUST BE OBSERVED.

MAINTENANCE INSTRUCTIONS

Checking the Salt Level

Check the salt level monthly. Remove the lid from the cabinet or brine tank, make sure salt level is always above the brine level.

NOTE: You should not be able to see water

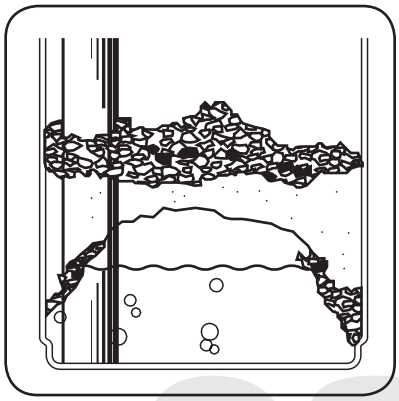
Adding Salt

Use only clean salt labeled for water conditioner use, such as crystal, pellet, nugget, button or solar. The use of rock salt is discouraged because it contains insoluble silt and sand which build up in the brine tank and can cause problems with the system's operation. Add the salt directly to the tank, filling no higher than the top of the brine well.

Bridging

Humidity or the wrong type of salt may create a cavity between the water and the salt. This action, known as "bridging", prevents the brine solution from being made, leading to your water supply being hard.

If you suspect salt bridging, carefully pound on the outside of the plastic brine tank or pour some warm water over the salt to break up the bridge. This should always be followed up by allowing the unit to use up any remaining salt and then thoroughly cleaning out the brine tank. Allow four hours to produce a brine solution, then manually regenerate the softener.



CAUTION: Liquid brine will irritate eyes, skin and open wounds - gently wash exposed area with fresh water. Keep children away from your water conditioner.

Care of Your Softener

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

Servicing Components

- The injector assembly should be cleaned or replaced every year depending on the inlet water quality and water usage.
- The seals and spacer cartridge should be inspected/cleaned or replaced every year depending on the inlet water quality and water usage.

Please refer to the servicing section of this manual for step by step procedure.

Not following the above will void all warranty on the control valve.

Resin Cleaner

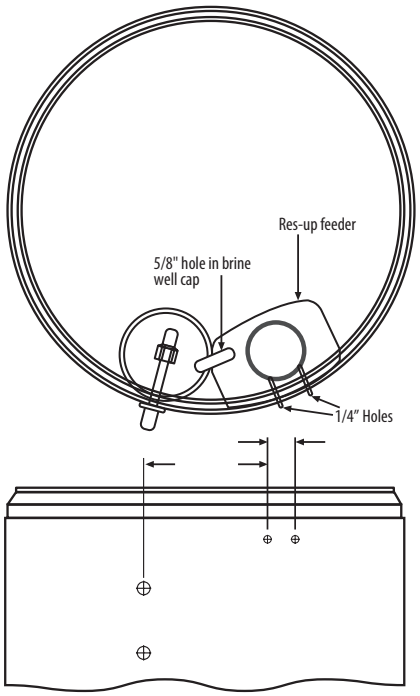
An approved resin cleaner MUST be used on a regular basis if your water supply contains iron. The amount of resin cleaner and frequency of use is determined by the quantity of iron in your water (consult your local representative or follow thedirections on the resin cleaner package).

Res-Up® Feeder Installation Instructions

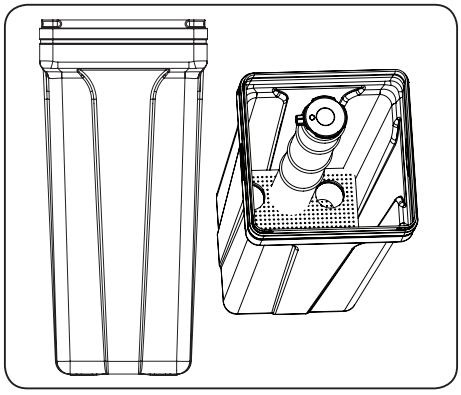
Res-Up Feeders attach to your brine tank and automatically dispense the Res-Up cleaner into the brine solution where it cleans the resin during the regeneration cycle.

The feeder hooks onto the tube inside your brine tank and you just pour some chemical in it and your water conditioner should last significanly longer. A res-up feeder is essential if your raw water contains measurable amounts of iron.

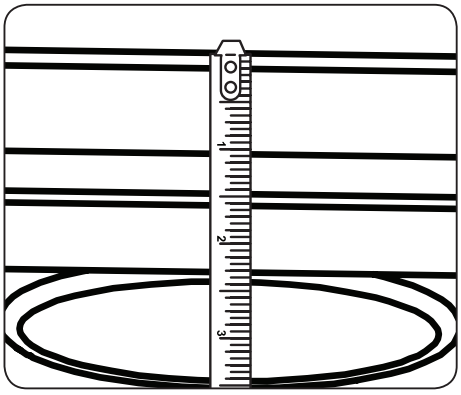
Res-up Feeder Bottle (Chemical sold Separately)
The 12 cc feeder (Part # 33010) is for conditioners up to 64,000 grains (2 ft3 of resin).
The 30 cc feeder (Part # 33018) is for larger conditioners over 64,000 grains.
Pro-Res Care Chemicals
Item #45147 Pro-ResCare - Gallon
Item #45148 Pro-ResCare - Quart



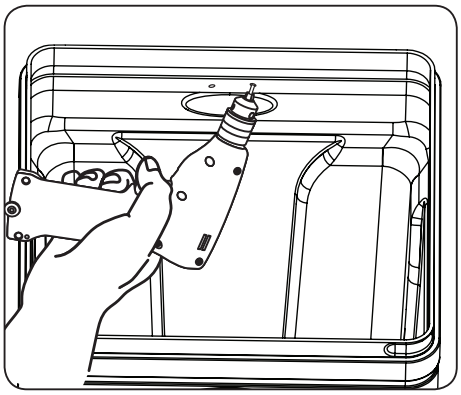
Install Resup Feeder



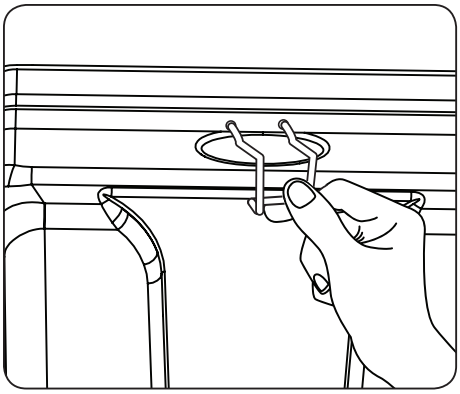
1. Install the grid and brine well inside the square tank.



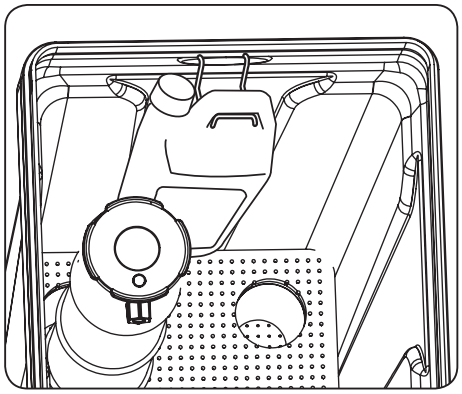
2. Measure 2 inches from the top of the tank beside the oblong molding.

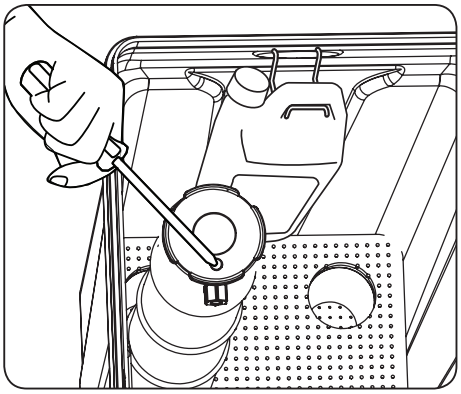


3. Mark the location of the holder and drill.

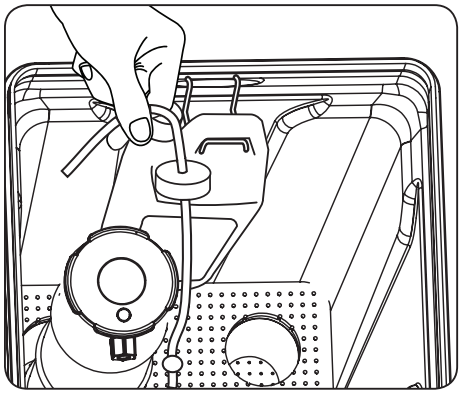


4. IInstall the holder and the Res Care Solution





5. Take off the small hole cover on the Brine Well lid.



6. Take off the cover of the Res care bottle . Insert the wick, making sure it touches the bottom of the bottle. Insert the other end of the tube completely into the hole in the brine well cap. Automatic feeding will start in a few hours.

SERVICING 285HE VALVE

Before Servicing

1. Turn off water supply to conditioner :
- **a.** If the conditioner installation has a 3 valve bypass system first open the valve in the bypass line, then close the valves at the conditioner inlet & outlet.
- b. If the conditioner has an integral bypass valve, put it in the bypass position.
- c. If there is only a shut-off valve near the conditioner inlet, close it.

2. Relieve water pressure in the conditioner by stepping the control into the backwash position momentarily. Return the control to the In Service position.

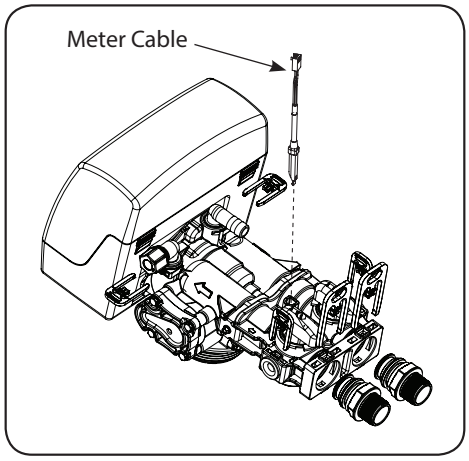
3. Unplug Electrical Cord from outlet.

4. Disconnect drain line connection.

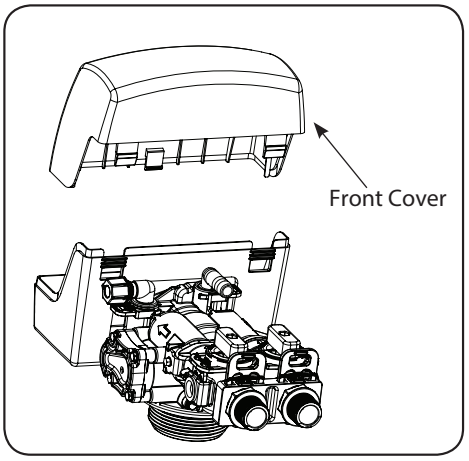
!	**WARNING!** ELECTRICAL SHOCK HAZARD! UNPLUG THE UNIT BEFORE REMOVING THE COVER OR ACCESSING ANY INTERNAL CONTROL PARTS.

!	**CAUTION!** Disassembly while under pressure can result in flooding. Always follow these steps prior to servicing the valve.

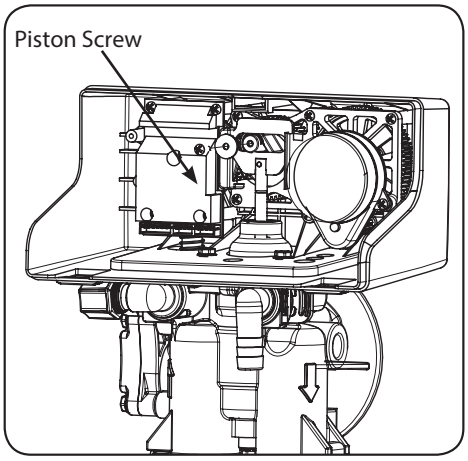
TIMER REPLACEMENT



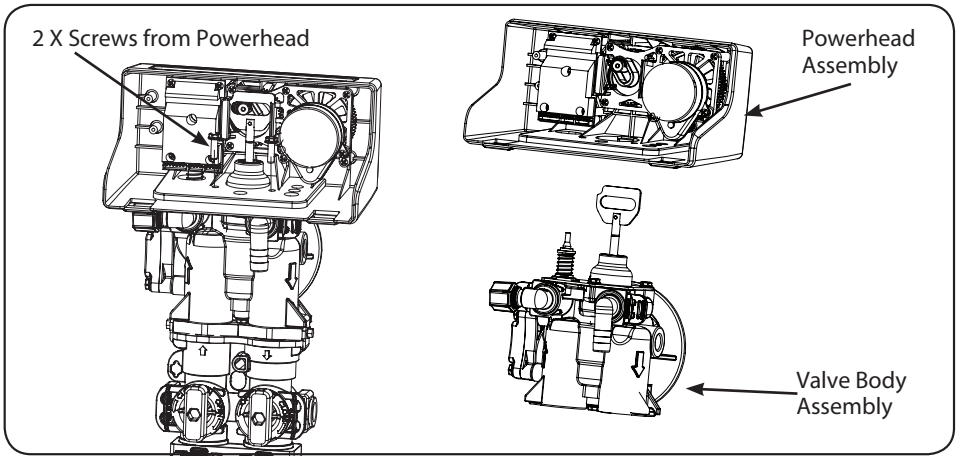
1. Disconnect the meter cable from the meter. (If flow meter is attached)



2. Remove the front cover of the valve.

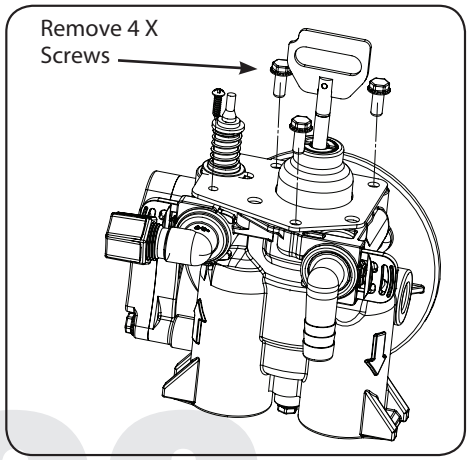


3. Remove the piston screw and washer from the piston rod.

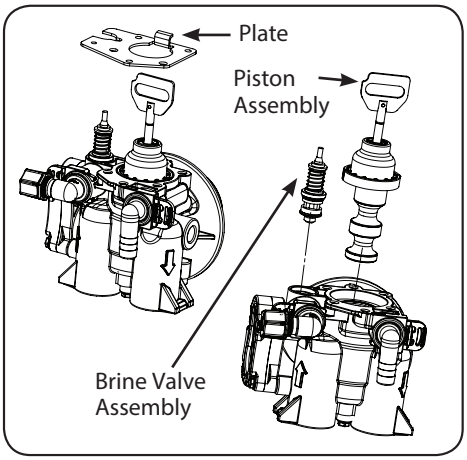


4. Remove the two screws from the powerhead as shown
5. Life the powerhead from the valve body assembly
6. Replace the powerhead by reverse following the steps in this section

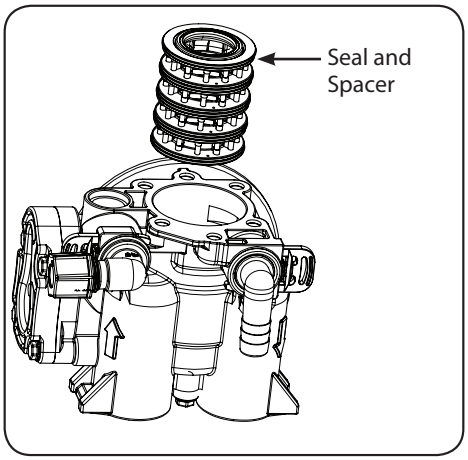
PISTON AND/OR BRINE VALVE ASSEMBLY REPLACEMENT



1. Follow steps 1 to 6 of timer /Powerhead replacement.
2. Remove four screws from the plate on the valve body.

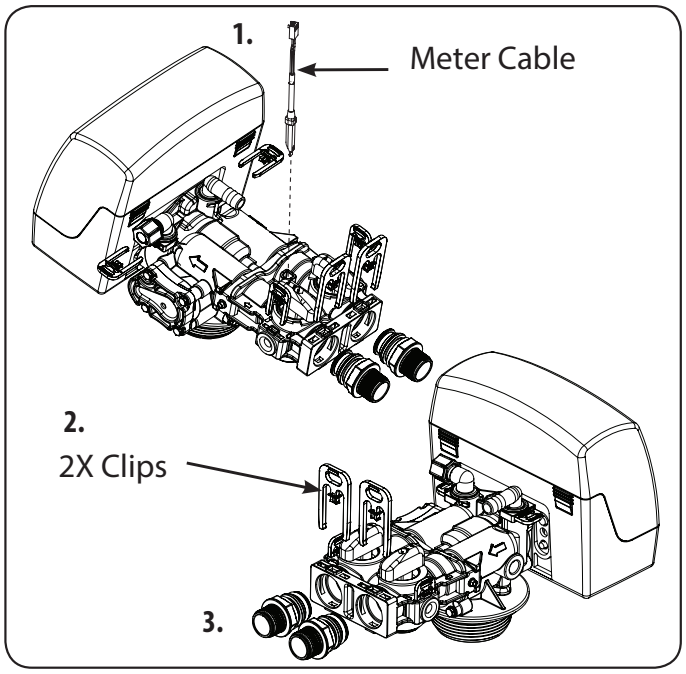


3. Remove the plate from the valve body and pull the Piston Assembly from the valve. The brine valve assembly can also be removed in this stage.
4. Remove the seal spacer assembly, grease it with silicone lubricant and put back in.



5. Replace piston assembly followed by timer assembly.
6. Replace the piston assembly and reverse following steps in this section

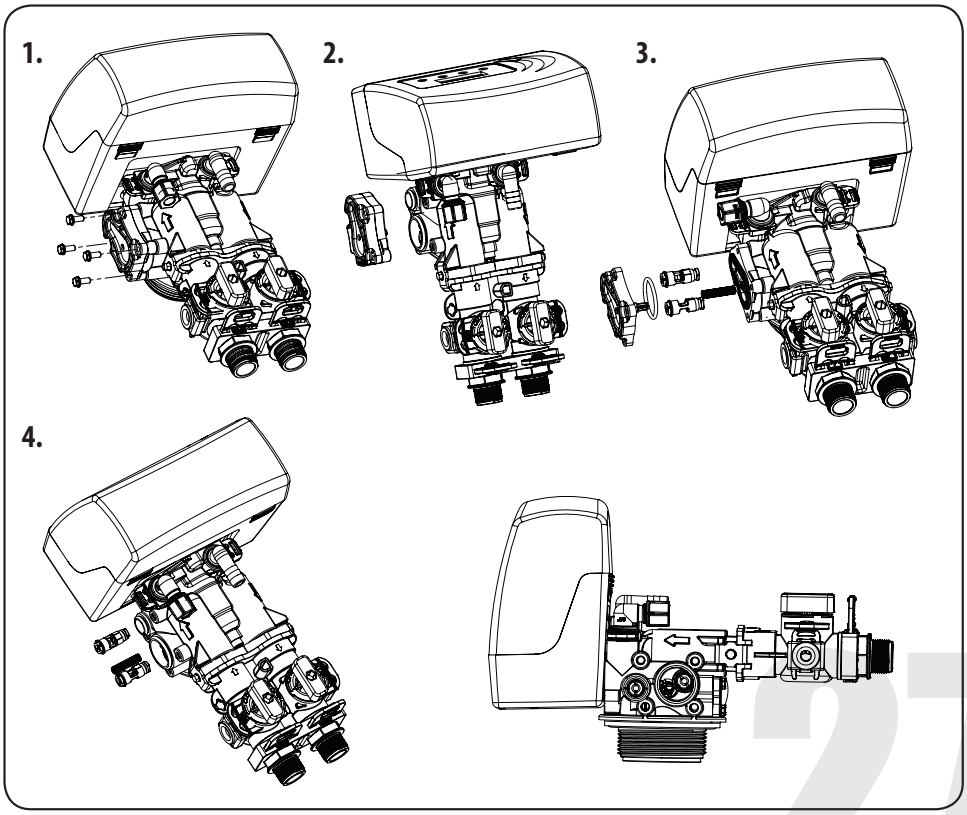
METER ASSEMBLY REPLACEMENT



1. Disconnect the meter cable from the meter.
2. Disconnect the valve from bypass by removing clips
3. Remove the coupling adapter from the valve

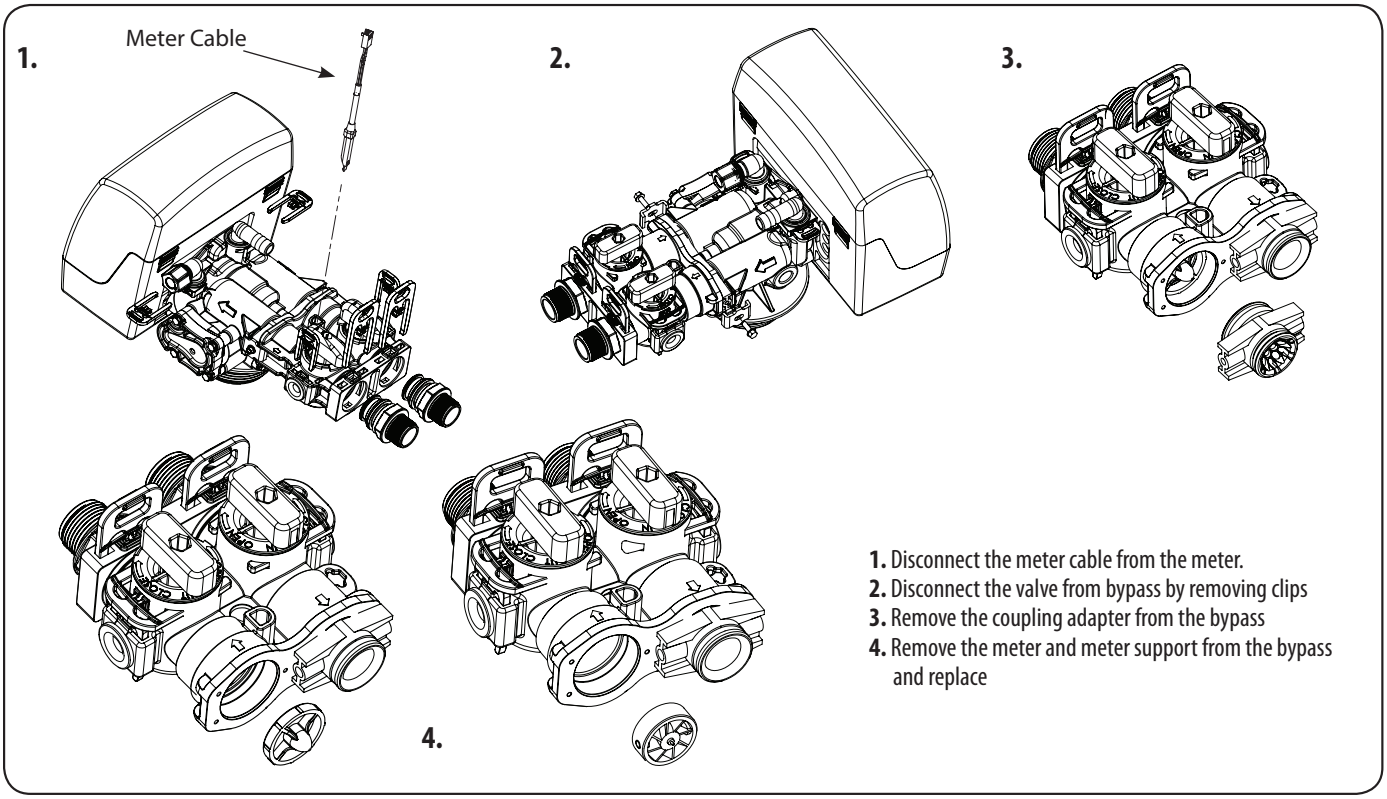
4. Remove the meter support and then the impeller out from the coupling and clean it
5. Replace meter with the help of special tool and re-assemble the removed components back in the section

CLEAN INJECTOR ASSEMBLY



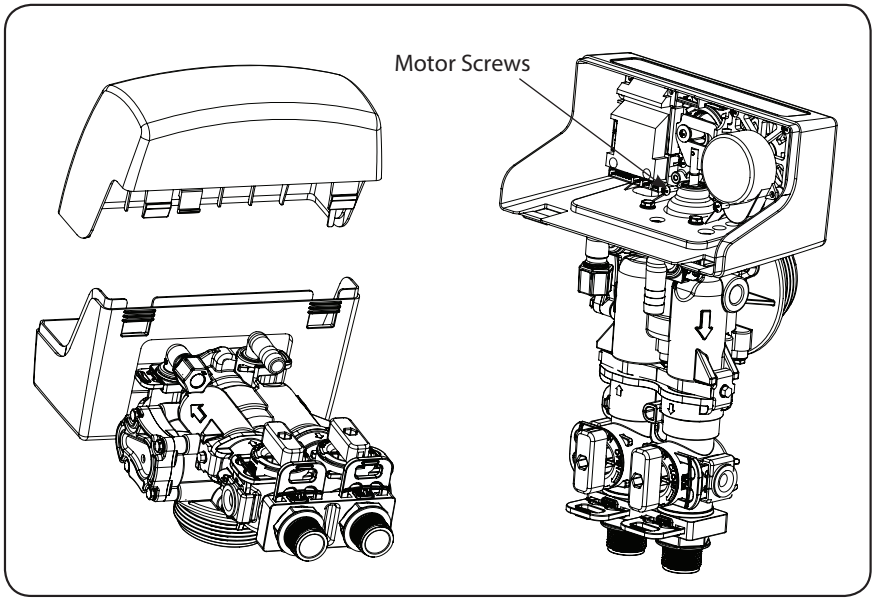
1. Remove four screws of the injector cap.
2. Pull the Injector Cap Out
3. Remove the injector assembly, oring and screen
4. Clean the injectors and replace cap

REPLACE METER ASSEMBLY



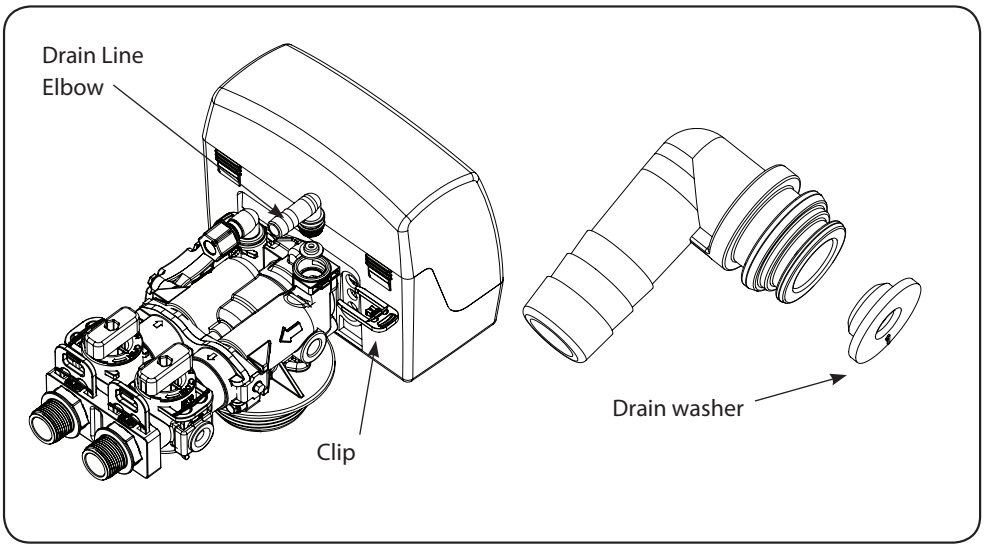
1. Disconnect the meter cable from the meter.
2. Disconnect the valve from bypass by removing clips
3. Remove the coupling adapter from the bypass
4. Remove the meter and meter support from the bypass and replace

REPLACE MOTOR



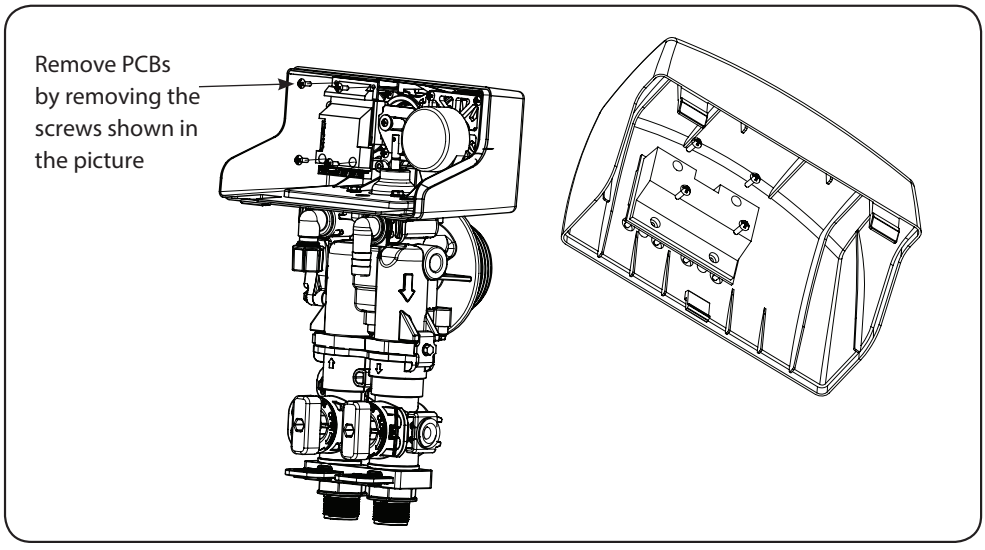
1. Pull the powerhead cover
2. Remove all connections from the circuit board
3. Remove the motor screws and pull the motor out from powerhead

REPLACE DRAIN LINE FLOW CONTROL



1. Pull the drain line clip and remove the drain line elbow and washer
2. Clean/replace drain line washer

REPLACING PCBS



AFTER SERVICING

1. Reconnect drain line

2. Return bypass or inlet valve to normal in service position. Water Pressure will automatically build in the Softener

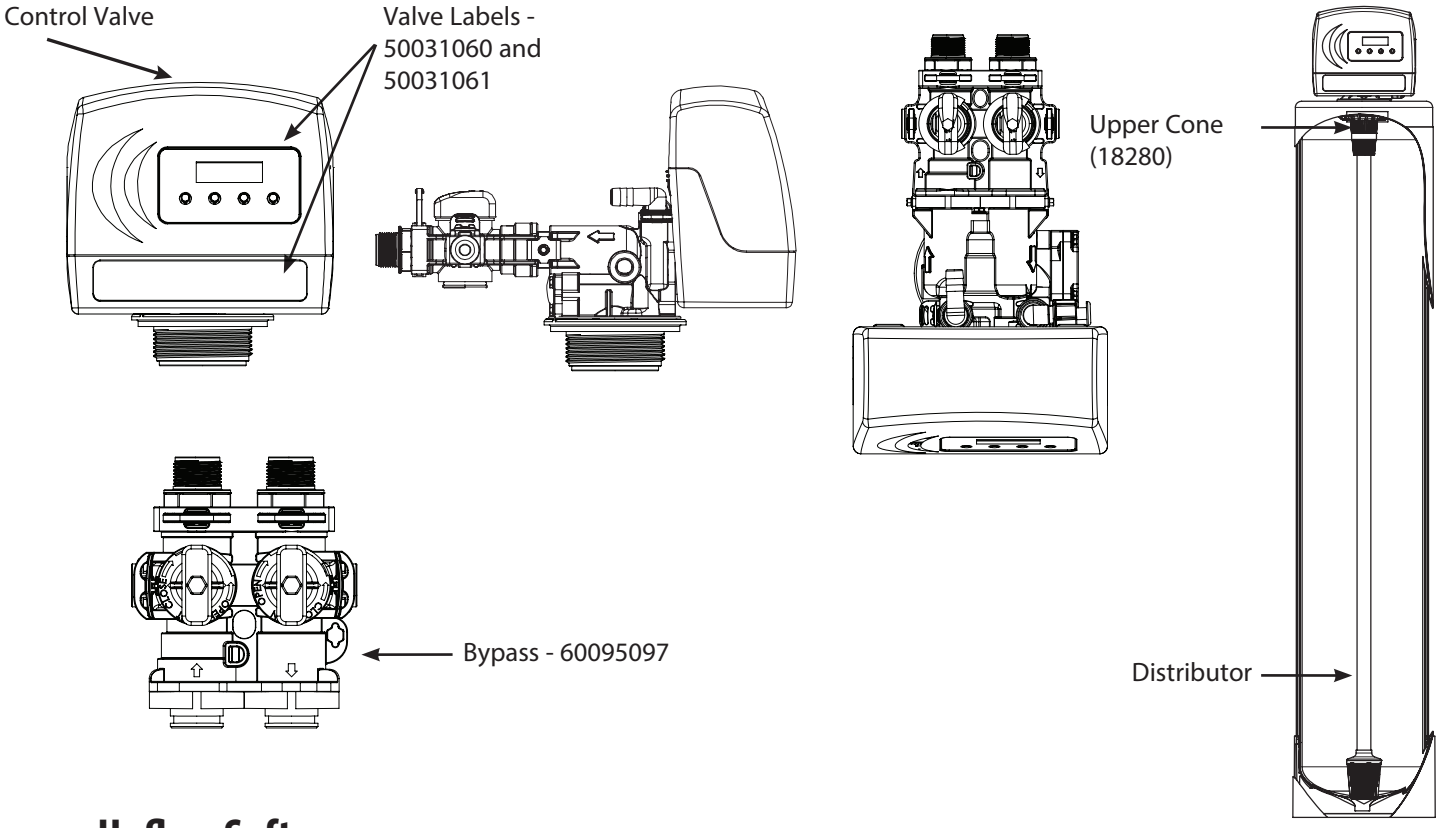
> **NOTE:** Be sure to shut off any bypass line.

3. Check for leaks at all sealed areas. Check Drain seal with the control in the backwash position

4. Plug electrical cord into outlet

5. Set Time of Day and cycle the control valve manually to assure proper function. Make sure control valve is returned to the In Service position

PARTS BREAKDOWN



Upflow Softener

Model	Mineral Tank Size	Tank # (Natural Color)	Tank # (Black Color)	Tank # (Blue Color)	Distrubutor#	Valve #	Media Bed #
Softener Upflow (Single Tank)							
30K	9 x 48	25010034	25010036	25010035	50010005	10010112	95601
45K	10 x 54	25010049	25010051	25010050	50010005		95606
60K	12 x 52	25010058	25010060	25010059	50010005		95609
90K	13 x 54	25010064	25010066	25010065	50010010		95610
30C	14 x 65	25030001 and 50040039	Not Available	Not Available	50010010		95604

MASTER PROGRAMMING

Press **Up** and **Down** Button for 5 seconds

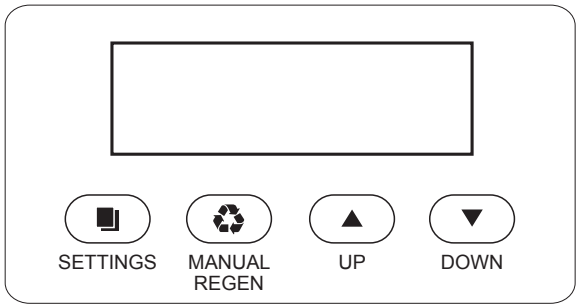
Press **Manual Regen** Button and and change value using **Up** and **Down** Buttons

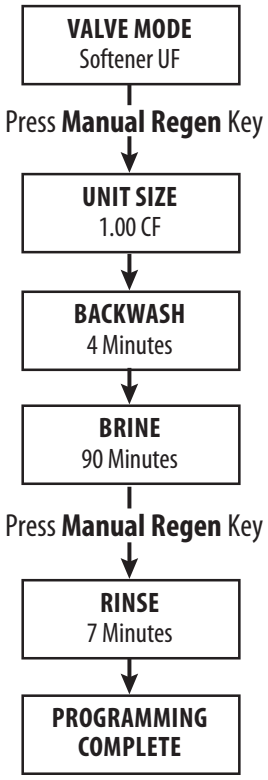
Key Pad Setting

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

MANUAL REGEN This function is to initiate an immediate or delayed manual regeneration.

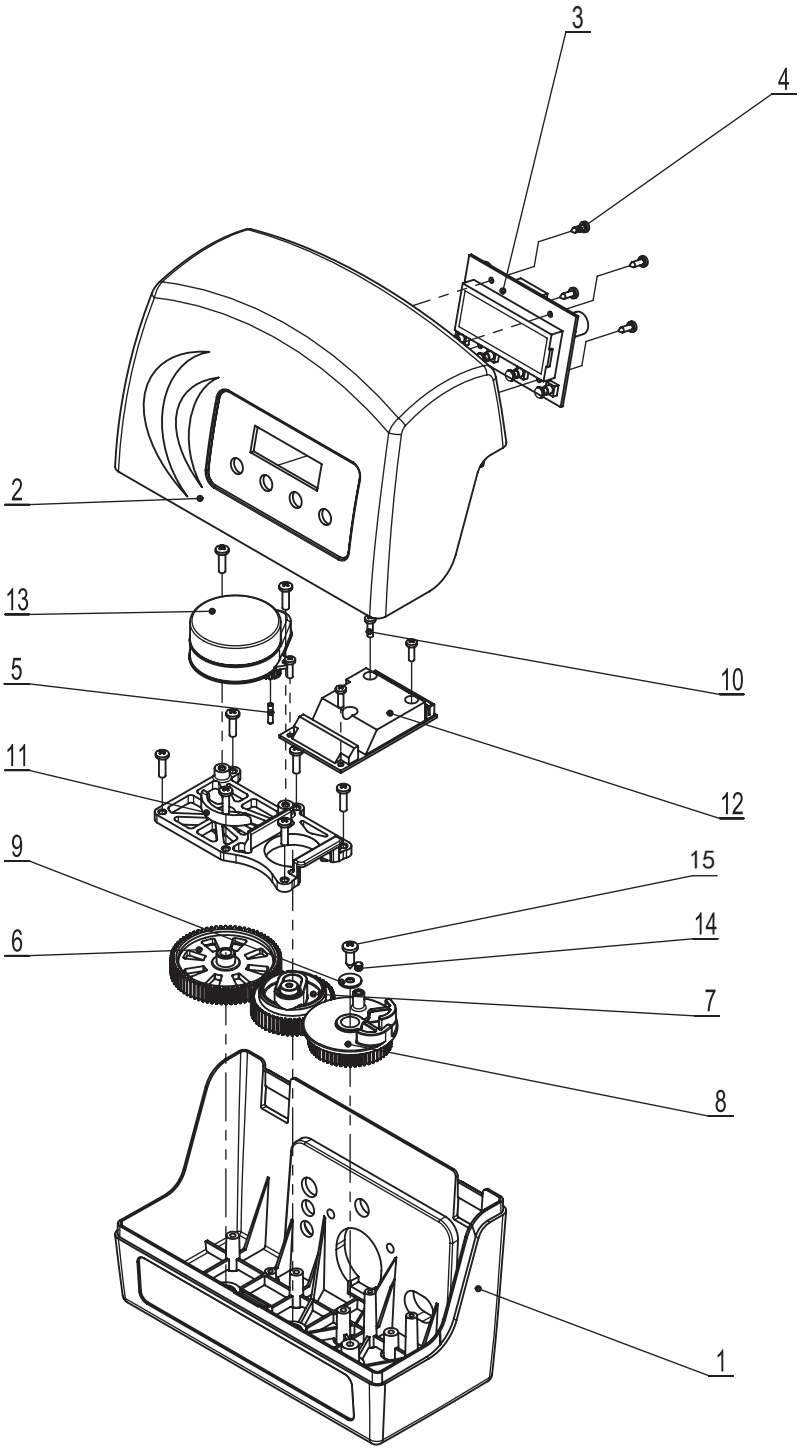
DOWN / UP Increase or decrease the value of the settings while in the programming mode.





MASTER PROGRAMMING CHART						
MASTER SETTINGS	HE-100C	HE-75	HE-100	HE-150	HE-200	HE-300
ADVANCED						
VALVE MODE	SOFTENER UF	SOFTENER UF	SOFTENER UF	SOFTENER UF	SOFTENER UF	SOFTENER UF
UNIT SIZE	1.0 ft	0.75 ft	1.0 ft	1.5 ft	2.0 ft	3.0 ft
BACKWASH	DEFAULT	DEFAULT	DEFAULT	DEFAULT	DEFAULT	DEFAULT
BRINE	DEFAULT	DEFAULT	DEFAULT	DEFAULT	DEFAULT	DEFAULT
RINSE	DEFAULT	DEFAULT	DEFAULT	DEFAULT	DEFAULT	DEFAULT
Injector	#0000 BLACK	#0000 BLACK	#0000 BLACK	#0000 BLACK	#00 PURPLE	#1 WHITE
BLFC Washer	0.2 GPM	0.2 GPM	0.2 GPM	0.2 GPM	0.2 GPM	0.2 GPM
DLFC Washer	#3 2.4 GPM	#1 1.5 GPM	#2 2.0 GPM	#3 2.4 GPM	#5 3.5 GPM	#A 5.0 GPM

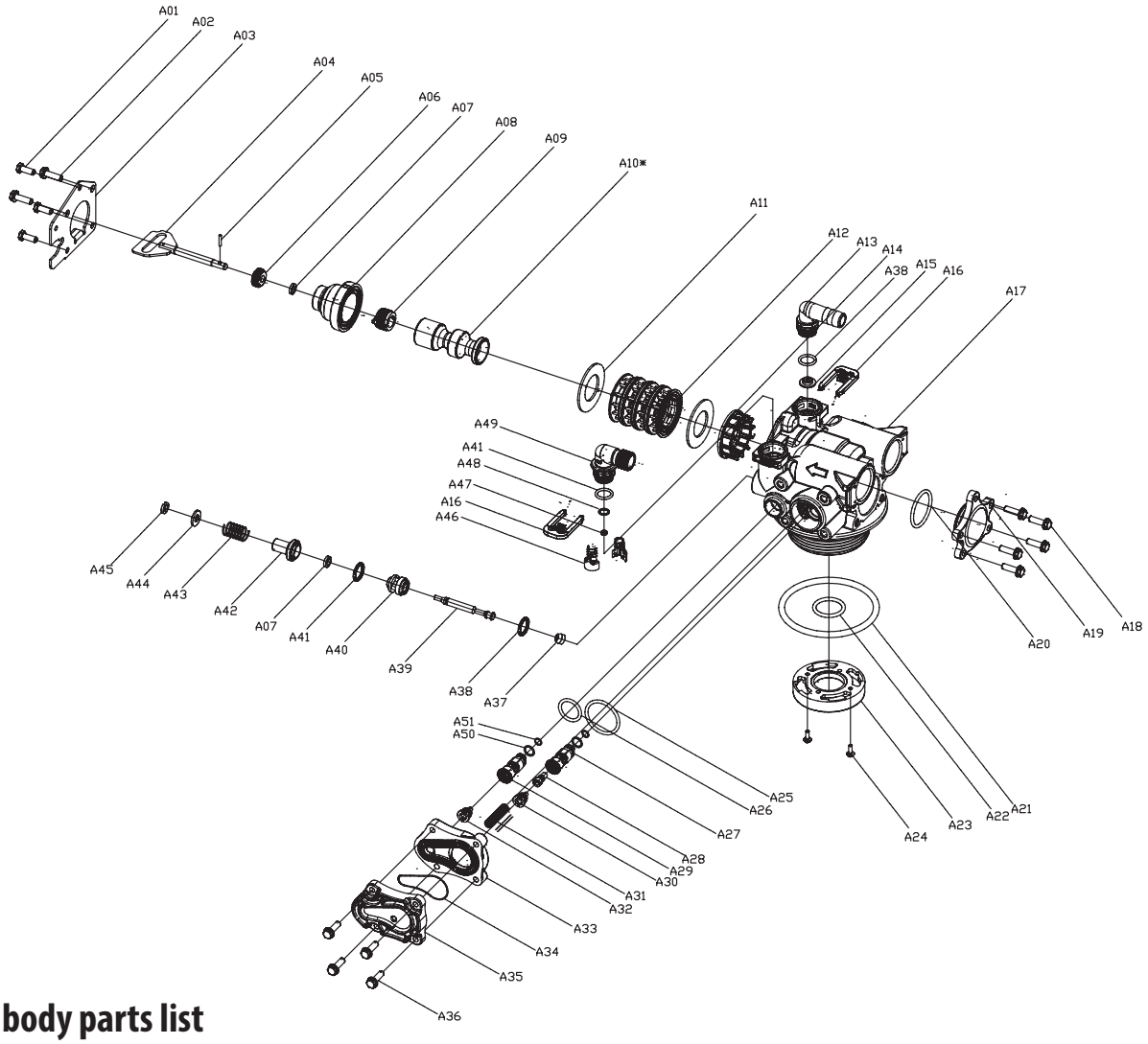
PARTS BREAKDOWN



285HE power head parts list

No.	Part # (Water group)	Description	Qty
15		Screw-4.2×12	1
14		Magnet-φ3×2.7	1
13	92393	Bnt85 Motor	1
12	60010178	Bnt85 Main Pcb(UF)	1
	60010179	Bnt85 Main Pcb(DF)	1
11		Bnt85HE Mounting Plate	1
10		Screw-ST3.5x13	8
9		Washer-4x12	1
8		Bnt85HE Brine Gear(UF)	1
	92392	Bnt85HE Brine Gear(DF)	1
7	92391	Bnt85HE Main Gear	1
6	92389	Bnt85 Drive Gear	1
5		Motor Pin	1
4		Screw-ST2.9×10	8
3	60010180	Bnt85HE Display	1
2		Bnt285 Housing	1
1		Bnt285 Base	1

PARTS BREAKDOWN

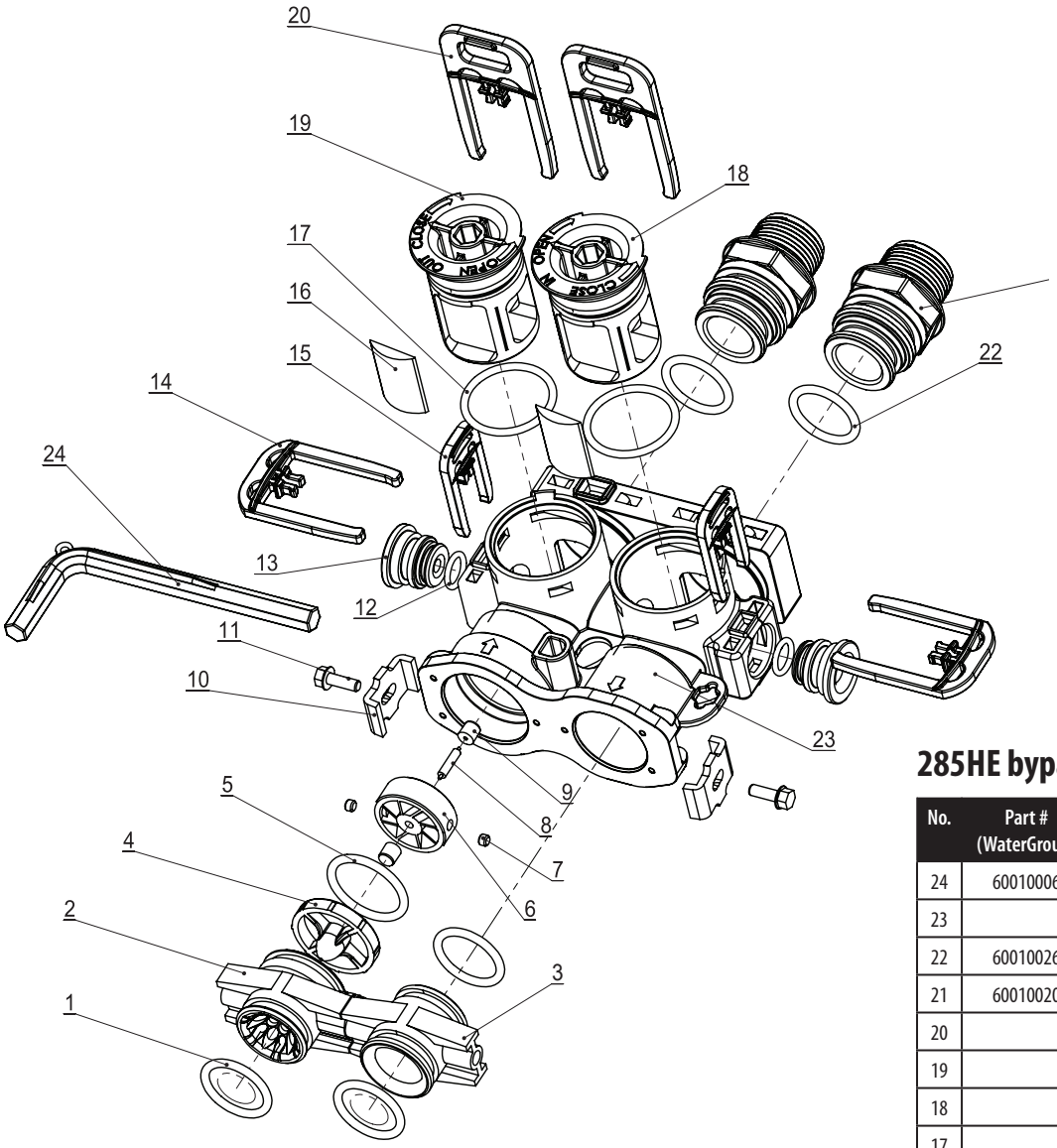


285HE valve body parts list

No.	Part # (WaterGroup)	Description	Qty
A01	60010075	Screw-M5x12(Hexagon)	3
A02	60010076	Screw-M5x16(Hexagon With Washer)	2
A03		End Plug Retainer	1
A04		BNT85HE Rod	1
A05		Piston Pin	1
A06	13446	BNT85HE Quad Ring Plug Cover	1
A07		Quad Ring	2
A08		BNT85HE End Plug	1
A09		BNT85HE Piston Retainer	1
A10		BNT85HE Piston(Up flow)	1
A11	13242-02	Seal	5
A12	14241	Spacer	8
A13	60010229	Drain Fitting-B	1
A14		BNT85HE Spacer	1
A15		DLFC(optional)	1
A16	60010069	Secure Clip-s	2
A17		BNT85HE Valve Body	1
A18		Screw-M5x12(Hexagon With Washer)	5
A19		BNT85 End Cover	1
A20		O-Ring-¢30×2.65	1
A21	60010077	O-Ring-¢78.74×5.33	1
A22	60010080	O-Ring-¢25×3.55	1
A23		Valve Bottom Connector	1
A24	60010099	Screw-ST2.9X13(Large Washer)	2
A25	60010190	O-Ring-¢32×3	1
A26	60010189	O-Ring-¢18×3	1

No.	Part # (WaterGroup)	Description	Qty
A27	60010174	BNT85HE Injector Fixed Sleeve	1
A28		Injector Throat(optional)	1
A29	60010175	Injector Plug Body	1
A30		Injector Nozzle(optional)	1
A31	10227	Injector Screen	1
A32		Injector Plug	1
A33	60010193	BNT85HE Injector Cover Body	1
A34	60010195	O-Ring-¢40×2.65	1
A35	60010194	BNT85HE Injector Cover Cap	1
A36	60010196	Screw-M5×25(Hexagon with Washer)	4
A37	92381	Seal Mat	1
A38		O-Ring-¢12×2	3
A39		Injector Stem	1
A40		Injector Spacer	1
A41		O-Ring-¢12.5×1.8	1
A42		Injector Cap	1
A43		Injector Screen	1
A44		Spacer Washer	1
A45		Retaining Ring	1
A46	60010173	BNT85HE BLFC Fixed Sleeve	2
A47		BLFC(optional)	1
A48	60010188	O-Ring-¢8×1	1
A49	60010172	BNT85HE Brine Line Elbow	1
A50	60010186	O-Ring-¢12.5×1.5	2
A51	60010187	O-Ring-¢8×1.5	2

PARTS BREAKDOWN



285HE bypass parts list

No.	Part # (WaterGroup)	Description	Qty
24	60010006	Bypass Tool	1
23		063 Bypass Body	1
22	60010026	O-ring(22.4×3.55)	2
21	60010020	Connector 3/4"NPT	2
20		Connector Clip	2
19		Bypass Shaft(Outlet)	1
18		Bypass Shaft(Inlet)	1
17		O-ring(30×2.65)	2
16		Shaft Seal	2
15	92846	Plug Clip	2
14		Shaft Clip	2
13	60010209	Bypass Plug	2
12	60010044	O-ring(12×2)	2
11	60010126	Screw M4×12	2
10	60010046	SS Clip	2
9		Bush	2
8		Impeller Pin	1
7		Magnet	2
6	60010238	Impeller	1
5	60010102	O-ring(27×3)	1
4		Impeller Support	1
3	60010079	Valve-Bypass Connector(Inlet)	1
2	60010101	Valve-Bypass Connector(Outlet)	1
1	60010562	O-ring(23×3)	3

Canature WaterGroup™ warrants 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.

Seven Year Complete Parts Warranty

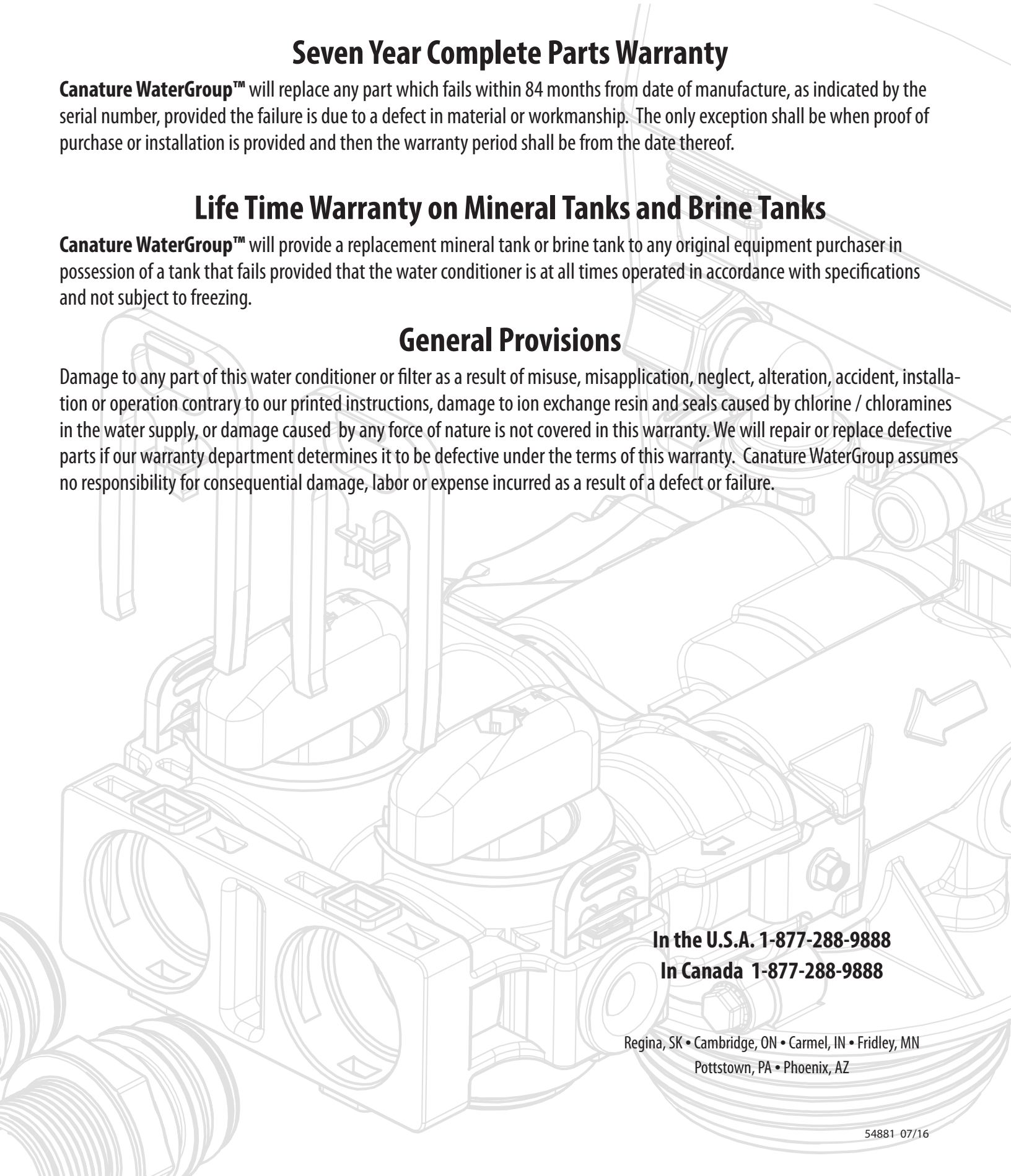
Canature WaterGroup™ will replace any part which fails within 84 months from date of manufacture, as indicated by the serial number, provided the failure is due to a defect in material or workmanship. The only exception shall be when proof of purchase or installation is provided and then the warranty period shall be from the date thereof.

Life Time Warranty on Mineral Tanks and Brine Tanks

Canature WaterGroup™ will provide a replacement mineral tank or brine tank to any original equipment purchaser in possession of a tank that fails provided that the water conditioner is at all times operated in accordance with specifications and not subject to freezing.

General Provisions

Damage to any part of this water conditioner or filter 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. 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, labor or expense incurred as a result of a defect or failure.



In the U.S.A. 1-877-288-9888
In Canada 1-877-288-9888

Regina, SK • Cambridge, ON • Carmel, IN • Fridley, MN
Pottstown, PA • Phoenix, AZ

54881 07/16