

WHOLE HOUSE

iSpring WCSTB45KG Whole House Central Softener



Model: WCSTB45KG

Installation Instructions & User Manual

Ver. 09/2025



iSpring Water Systems

Any questions?
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We stand behind our products

Since 2007, iSpring has been committed to delivering safe and clean water solutions to families and businesses worldwide. We provide a wide range of residential and commercial water filtration systems designed to purify your water, ensuring that you and your family enjoy pure, healthy, and great-tasting water every day.

At iSpring, we strive to develop products to the highest standards and aim to make excellent drinking water accessible for all households. With affordable pricing, reliable quality, prompt delivery, and top-notch customer service, we hope to assist in bringing you great water for years to come.

Prior to Installation

Read this instruction manual carefully prior to installation.
Keep this manual readily available for future reference.

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User Information & Guidelines

The user must adhere to the specifications described in this Product Installation and Operation Manual (hereinafter referred to as the "instruction manual"). iSpring is not responsible for damage, loss, or injury resulting from neglect, improper maintenance, or unauthorized unit modification.

- Activation of this product indicates that the owner has carefully read, understood, and accepted the contents of this manual, including the safety notices and instructions. Read and understand the manual before operating the unit.
- Do not disassemble, modify, or attempt repairs yourself.
- Do not tilt, overturn, or lay the unit flat during transport, installation, or use.
- Activating this product implies acceptance of all safety notices and operating instructions.
- For residential use only. Contact iSpring for non-residential applications.
- Keep the unit out of reach for children.
- All plumbing and electrical connections must meet national codes and standards for drinking water and electrical safety.
- Install in a well-ventilated indoor area, away from direct sunlight, high heat, corrosive chemicals, or gases.
- Install the unit only on the ground, not on walls or elevated surfaces.
- Use only silicone-based grease for connections, and ensure all fittings are tight and leak-free.
- Use only the provided 110–240 V / 50–60 Hz AC power adapter.
- Ensure all electrical connections are properly grounded.
- Avoid contact with plugs when hands are wet to prevent electric shock.
- Do not overload electrical outlets.
- Immediately unplug the unit if you notice smoke, unusual sounds, or unpleasant odors.
- Do not disconnect power while the unit is operating to avoid data or timing errors.
- Do not use hot water as it may damage internal components.
- Insulate the pipes and tubes if used in environments could be out of the rated temperature range.
- Do not touch or remove locking clips while the system is in operation.
- Keep objects away from the power cord to prevent damage.
- If a leak is detected, place the bypass valve in bypass mode and unplug the unit. Contact iSpring customer service.
- Avoid installation near acidic substances or corrosive gases.
- If the main water supply is interrupted, place the system in bypass mode and flush the unit once the water supply is restored.
- Do not operate multiple regeneration cycles simultaneously.
- During emergencies, use the bypass valve to isolate the system.
- Periodically evaluate water quality to ensure softening performance.

- This product is designed for use with cold water only; do not use it with hot or freezing water.
- Avoid placing external force or objects on the unit.
- Installation may be completed by the user or a certified technician authorized by iSpring.
- When resuming use after downtime, perform regeneration to restore soft water.
- Do not use unauthorized accessories or parts that are incompatible with the system. Doing so voids the warranty.
- Check that all seals and threaded connections are tightened to prevent leaks.
- Ensure brine suction tubing is secure to prevent salt leakage.
- During drainage, if a sudden shutdown occurs, allow air to vent to avoid overflow.

Salt Usage

- Use only coarse, pelletized salt. Avoid fine or powdered salts.
- Do not fill the brine tank above two-thirds capacity; halfway is optimal.
- Refill salt when the waterline is visible above the salt level.
- The resin life expectancy is approximately 5 years, depending on water quality, temperature, and usage.

Regeneration Cycle

- Do not use water during the regeneration cycle.
- Water used during regeneration is untreated and not softened.
- If the unit is unused for 7 days or more, perform a manual regeneration before reuse.
- Regeneration is typically scheduled for nighttime.
- Avoid powering off the unit, as this may disrupt scheduled cycles.
- After a power outage, reset the clock and the regeneration schedule.

Maintenance & Inspection

- Routinely check for:
 - Leaking connections
 - Blocked overflow pipe
 - Salt bridging or tank misalignment
 - Salt level dropping below the waterline
- Replace media only when capacity is exhausted or contamination is present. Contact iSpring customer service.
- Periodic inspections are recommended.
- Ensure proper drainage during power interruptions to avoid excessive waste discharge. For any issues, contact iSpring customer support promptly.

Product Operation & Specifications

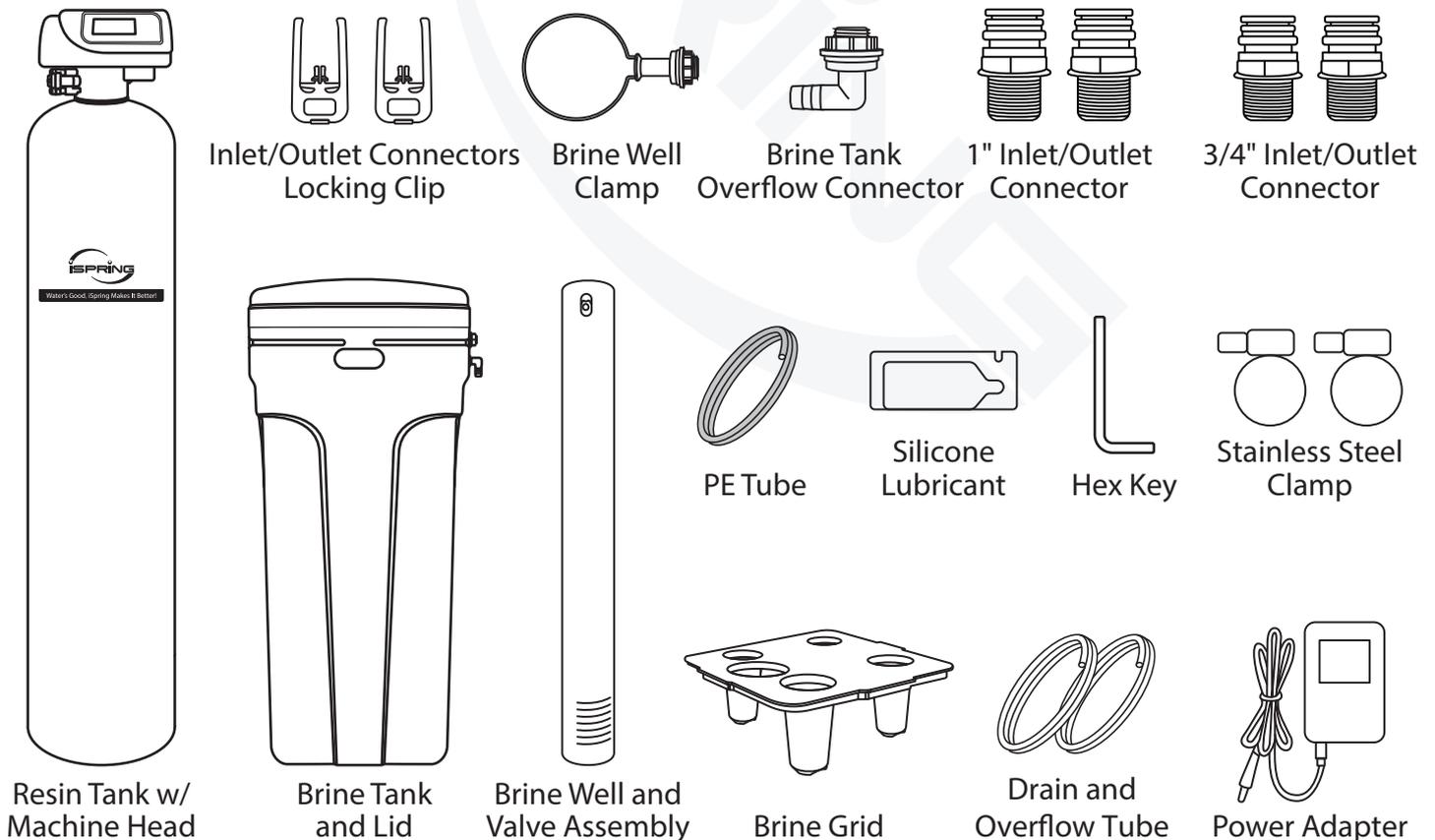
Although testing was performed under standard laboratory conditions, the system's performance may vary depending on local water conditions and quality.

SPECIFICATIONS		
Inlet Water Pressure		21–87 psi (1.45–6 bar)
Inlet Water Temperature		40–100°F (4–38°C)
Ambient Temperature		34–120°F (1–50°C)
Power Adapter		Input: AC 100–240 V, 50–60 Hz; Output: DC 12 V
Inlet/Outlet Connector		3/4" NPT & 1" NPT
Rated Service Flow		8.81 GPM (33.35 L/min.)
Dimensions	Resin Tank w/ Machine Head	Ø10 × 50 (inch); Ø260 × 1260 (mm)
	Brine Tank	15 × 15 × 35 (inch); 390 × 390 × 880 (mm)

- Maintain inlet pressure between 21–87 psi (1.45–6 bar). Install a booster pump or pressure-reducing valve if pressure is out of this range.

Packing List

Inspect the packaging for the following components:



General Product Information

iSpring's whole-house central softeners provide large water output, optimal water softening, and stable performance. They can also be fully automatic and intelligent in operation, regeneration, and dynamic salt dissolution. In addition, these softeners not only meet the needs of household bathing, laundry, cleaning, water heaters, etc., but they also provide softened water for businesses, institutions, hospitals, schools, and other enterprises.

This product uses cation-exchange resin to remove cations from the water, such as calcium and magnesium. There are five main working stages for this system, as shown below:

1. **Service:** After the source water flows through the water softener at an absolute pressure and flow rate, the Na^+ in the ion exchange resin exchanges with Ca^{2+} , Mg^{2+} , and other cations in the water to reduce the concentration of Ca^{2+} and Mg^{2+} ions, thereby softening the water quality.
2. **Backwash:** After the ion exchange resin is saturated, it must be backwashed before regeneration. The purpose here is to wash away the suspended, retained, agglomerated impurities on the resin surface and remove any broken resin. The other purpose is to loosen the compressed resin layer, which benefits ion exchange resin regeneration.
3. **Brine:** With a specific concentration and flow rate, the salt solution flows through the entire ion exchange resin layer to regenerate the saturated resin and restore the original softening exchange capacity.
4. **Refill:** Replenish the brine tank with water that dissolves the salt for regeneration to produce a saturated brine for the next regeneration.
5. **Rinse:** Removes any remaining brine between the resin and wash until the water is qualified; presses the resin layer tightly to achieve a high-quality softening effect.

The main functions of this system are listed below.

- Fully Automatic Control
- A built-in time controller, twenty-four-hour time control. Based on the set number of interval days or the amount of treated water, the filter material is cleaned at the set regeneration time (usually in the early morning before any use).
- The control system can calculate and design an economical and effective soft water treatment plan based on the water source and the treated water volume.
- The regeneration cycle can be set based on time or treated water volume.
- Users can arbitrarily set the start time of the regeneration process.
- Produce a saturated brine with a uniform concentration

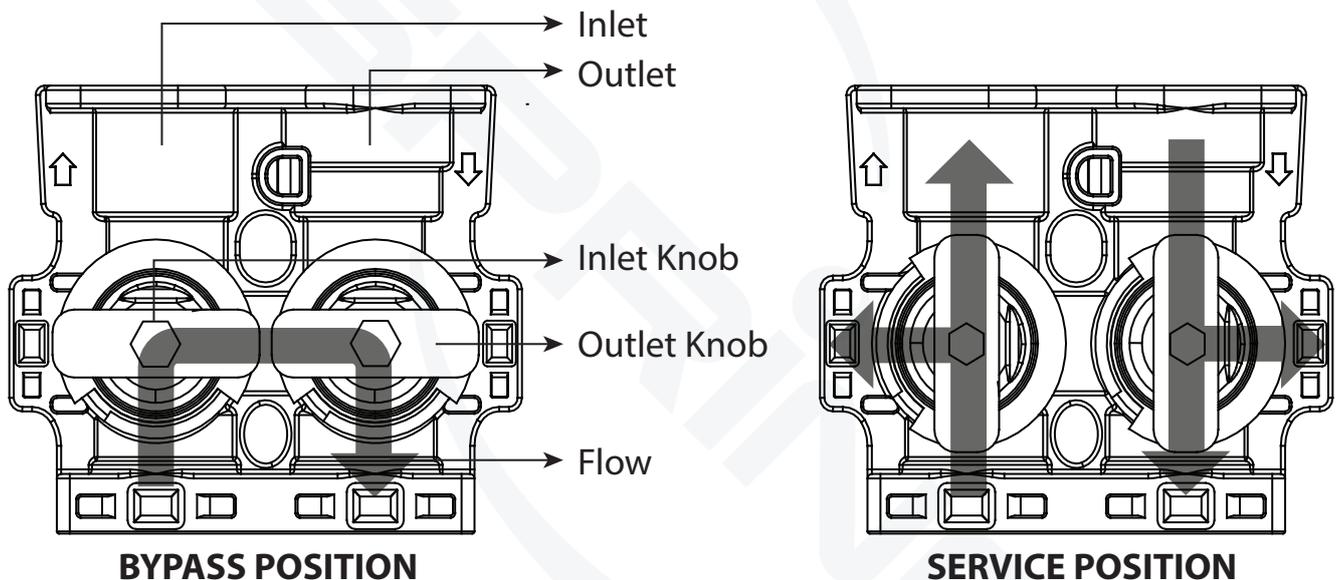
The brine tank's water is replenished from bottom to top, and the brine settles from top to bottom by natural convection, evenly mixing the brine until it reaches a saturated state.

Installation Requirements

- The installation surface must be level and capable of supporting more than 21 psf (100 kg/m²). Ensure the area includes a grounded power outlet, water inlet and outlet connections, and an accessible drain.
- Install an overflow drain tube to ensure safe drainage.
- Maintain a proper air gap between the drainage pipe and waste line to prevent backflow from negative pressure.
- Do not connect overflow and drainage pipes into a single waste line.

Installation Instructions

General Bypass



- a. Hold the knob or use a bypass tool to rotate the knobs. The water supply will be **bypassed** when the knobs are **horizontal**. The bypass valve is in **service** when knobs are oriented **vertically**. When the bypass valve is in service, users can take raw water and filter water samples for testing at the water-taking port on either side of the bypass.
- b. In case of equipment failure or other exceptional circumstances, the bypass can be adjusted to the bypass position, allowing users to use tap water temporarily. After the failure or problem is resolved, adjust the bypass to the vertical service position

Before Installation

- If the installed outlet pipe or storage water tank is positioned higher than the control valve, a check valve must be installed at the outlet. Otherwise, during the water refill process, water from the outlet pipe or storage tank may flow backward.

- If using copper piping, the copper pipes should be welded before connecting to the control valve. The heat generated during welding may damage the plastic connectors.
- When tightening threaded connectors, avoid applying excessive force to prevent damage to the threads and the control valve.

Equipment Installation

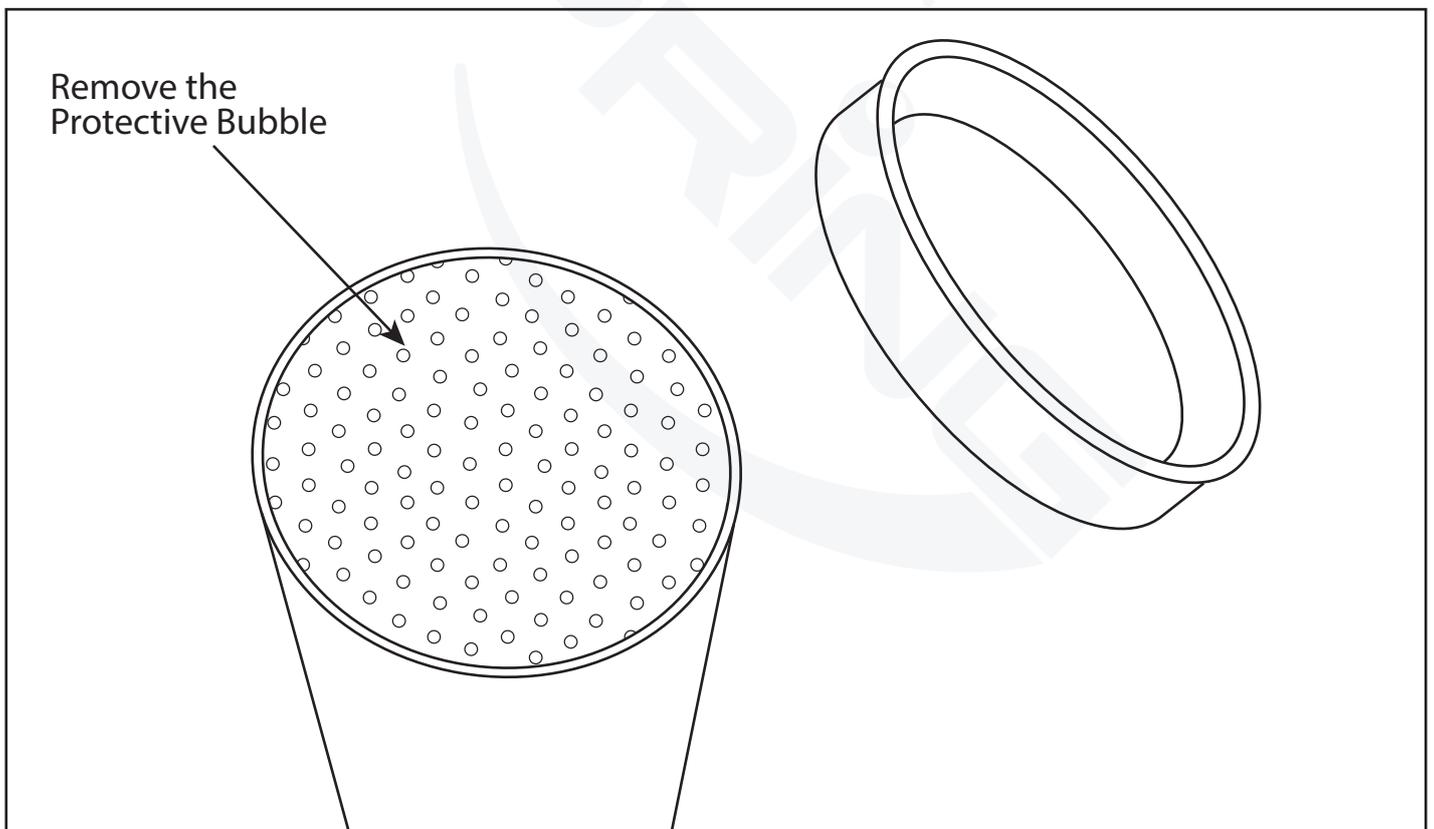
It is highly recommended that you watch the video *“How to Install iSpring WCSTB45KG Whole House Water Central Softener | DIY Installation”* on YouTube.

Step 1. Confirm proper installation conditions, unpack the equipment and verify that all accessories are present. Prepare the installation tools and confirm that the installation site's water inlet and outlet pipes, power supplies, drain tube, and floor drain meet the appropriate requirements.

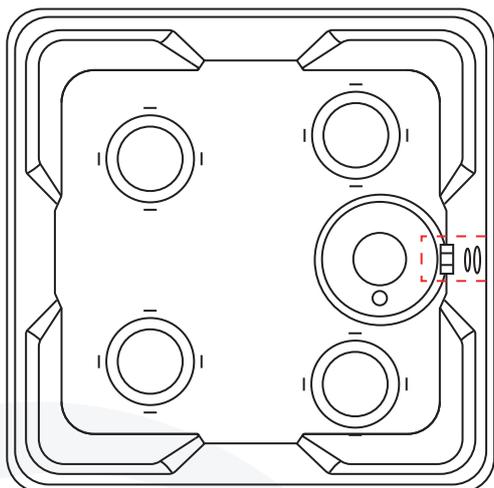
Step 2. **Close the main water supply** completely, then **open any faucets** in the room to remove the remaining water in the indoor water pipe.

Step 3. Brine tank installation:

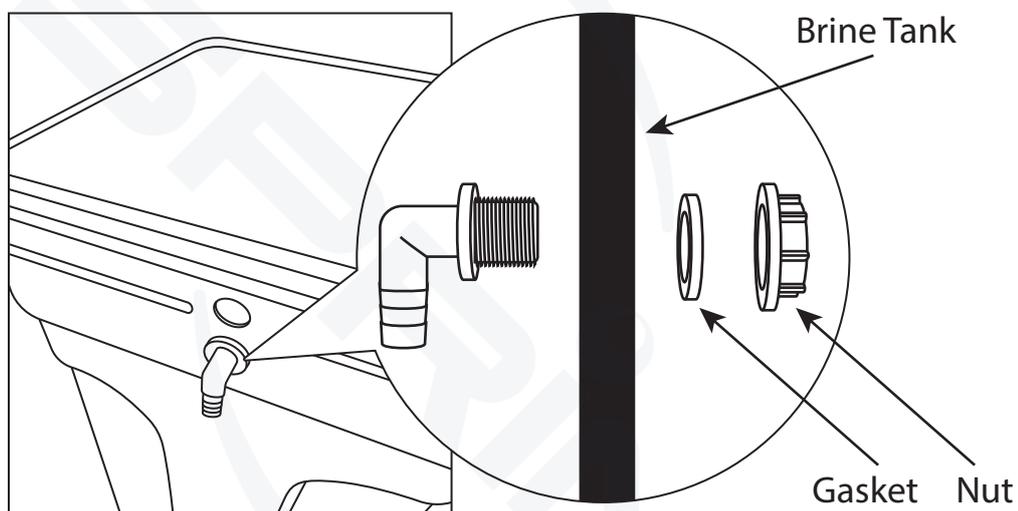
Step 3.a. Open the brine well top cover and remove the protective bubble in the brine well.



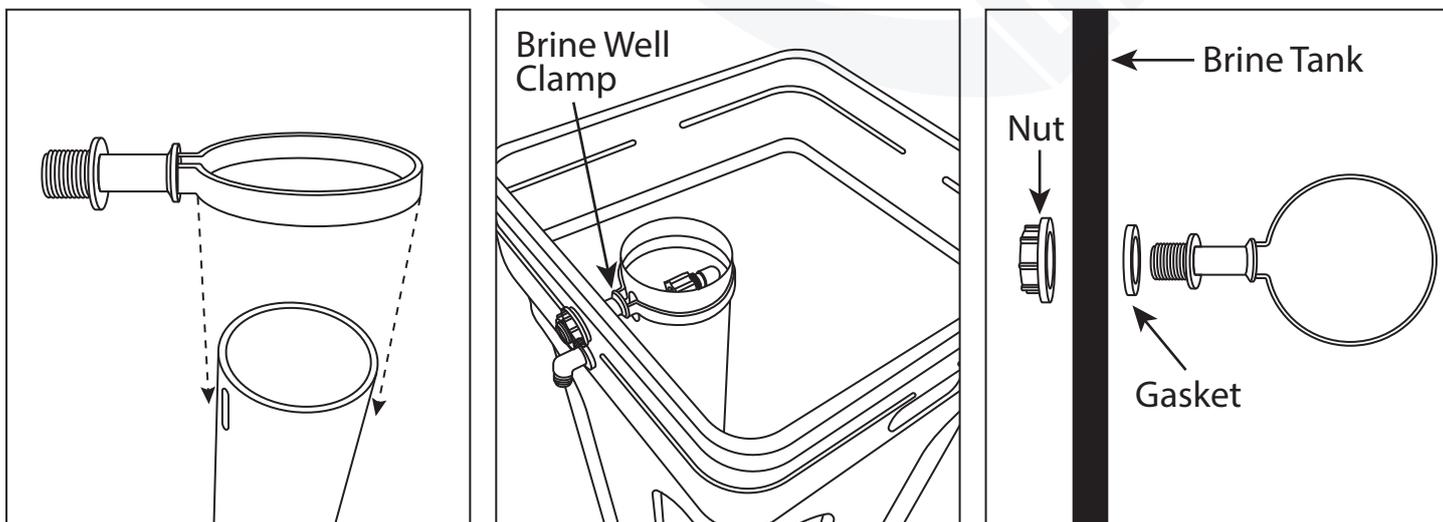
Step 3. b. Check whether the brine grid with brine well inside the brine tank evenly touches the bottom of the brine tank, and the brine well should align with the holes on the brine tank.



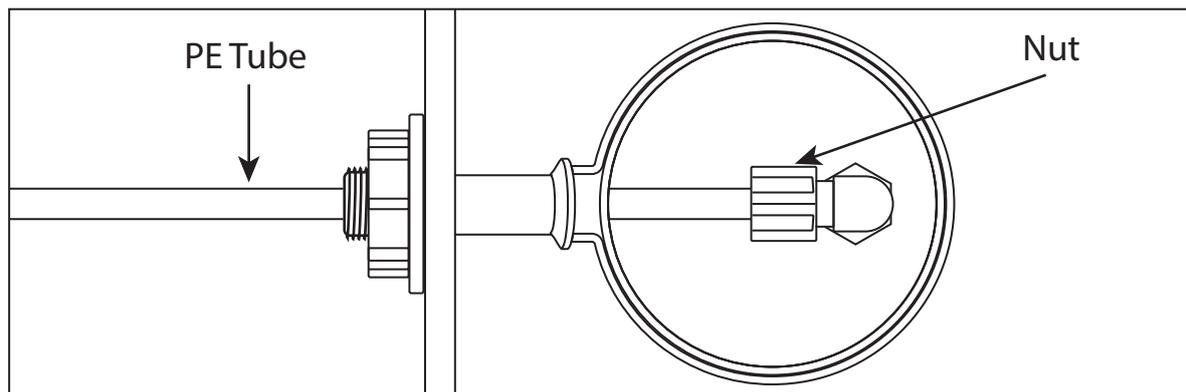
Step 3. c. Install the overflow connector to the designated hole on the brine tank and tighten.



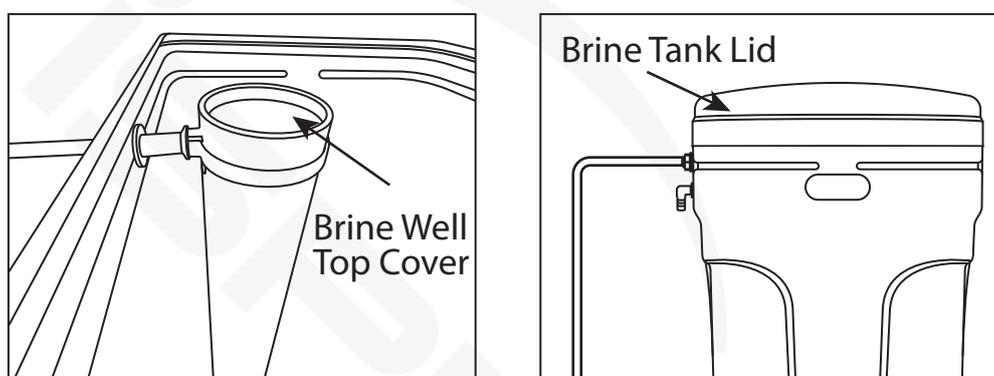
Step 3. d. Slide the brine well clamp over the brine well such that the nut fitting faces the hole on the brine tank. Install the brine well clamp to the designated hole on the brine tank and tighten.



Step 3.e. Loosen the nut on the brine valve (no need to remove entirely). Insert the PE tube through the brine well clamp and into the nut, then retighten the nut.



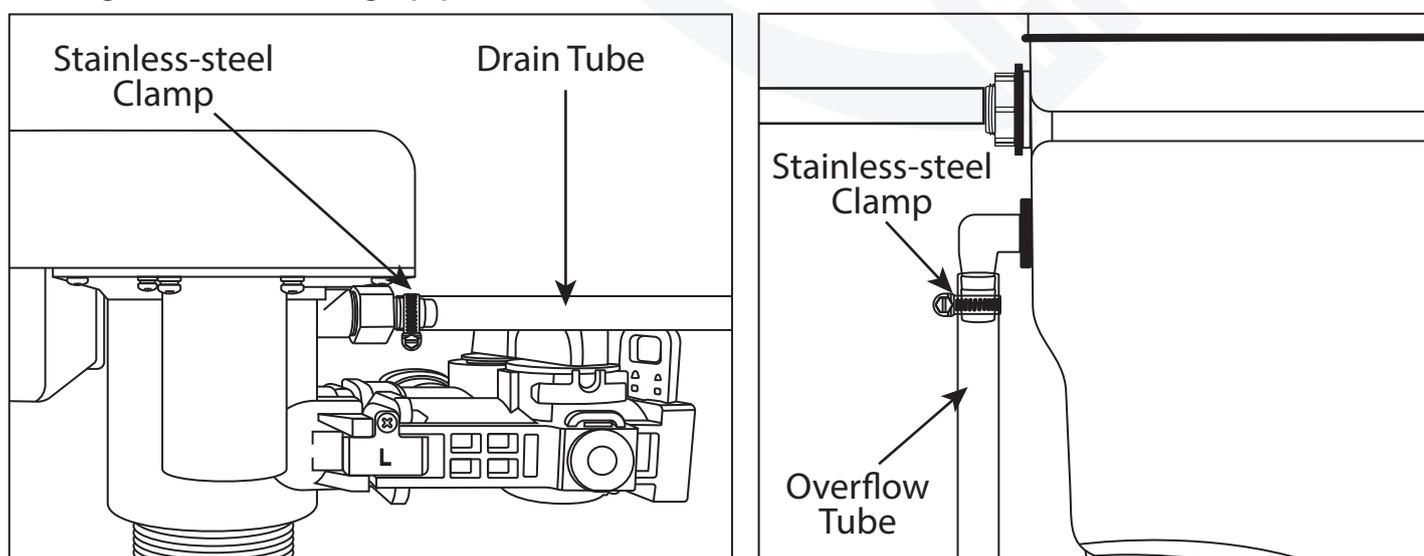
Step 3.f. Reinstall the brine well top cover and the brine tank lid.



Step 3.g. Add salt to the brine tank. Add sufficient softening salt to the brine tank, or about 2/3 of the brine tank volume.

Step 4. Resin Tank Installation:

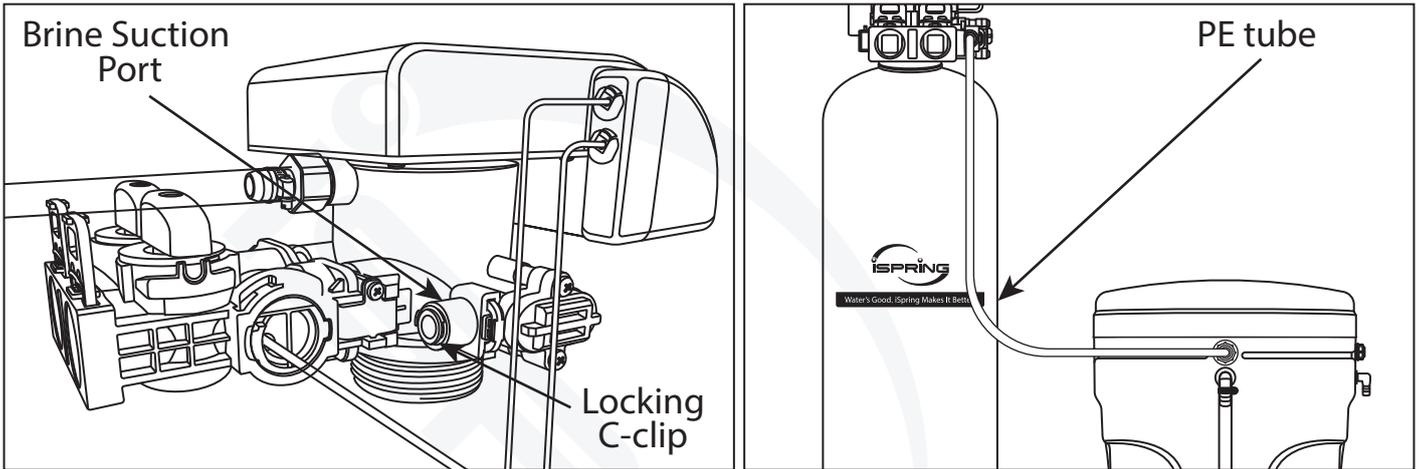
Step 4.a. Take the **drain tube** and **overflow tube**. Use the included **stainless-steel clamps** to secure the two tubes onto the machine head and the brine tank. The other end of the tubes goes to the sewage pipe.



The sewage pipe should be lower than the machine head, and the length of the drain tube should be kept short.

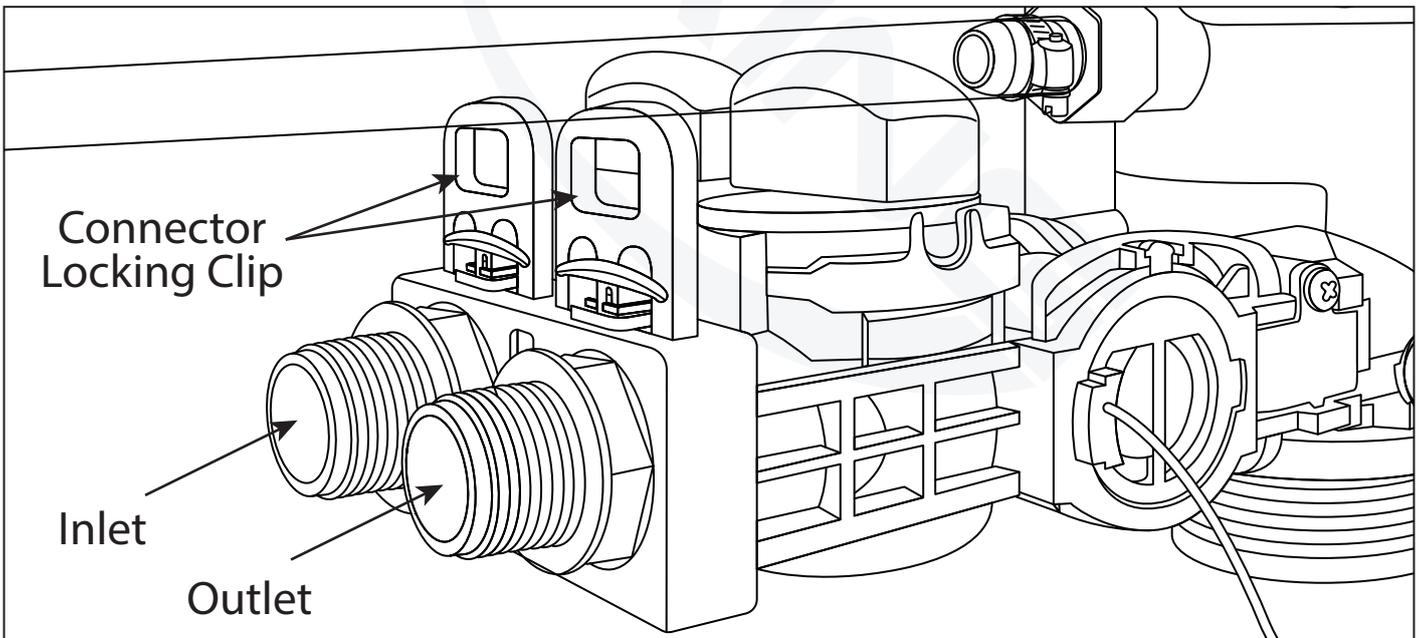
There must be sufficient space (~4 inches) (~10 cm) between the outlet of the drain tube, overflow tube, and the sewage level to prevent sewage from flowing back to the system. The sewage pipe should be 1 ft. (30 cm) higher than the ground, and the drain tube should be fixed on the sewage pipe.

Step 4. b. Remove the **Locking C-clip** on the salt suction **quick-connect fitting** at the back of the control valve. Insert the **PE tube** from the brine tank into the quick-connect fitting and reinstall the locking C-clip.



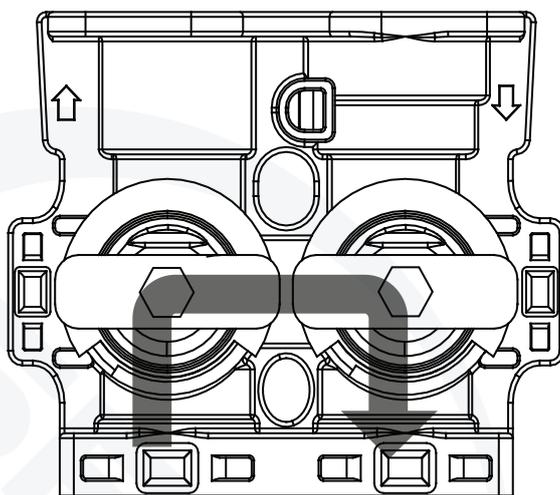
Step 4. c. Lubricate the inlet/outlet connectors' O-rings.

Step 4. d. Insert the **connectors** into the water **inlet** and **outlet** and insert the connectors' locking clips.



Step 4.e. Connect pipeline plumbing to the control valve, observing correct flow direction. Double check the direction of the water flow matches the sign on the system. Pay attention to the pipeline's height and placement angle when connected to prevent the connection pipes from bearing stress. While connecting pipes, keep the pipes as close to the wall as possible. The routing of the pipes should be straight, and the corners should be clear. The pipes should be fixed on the wall after installation.

Step 5. Rotate the bypass valve knobs to the **bypass position**.

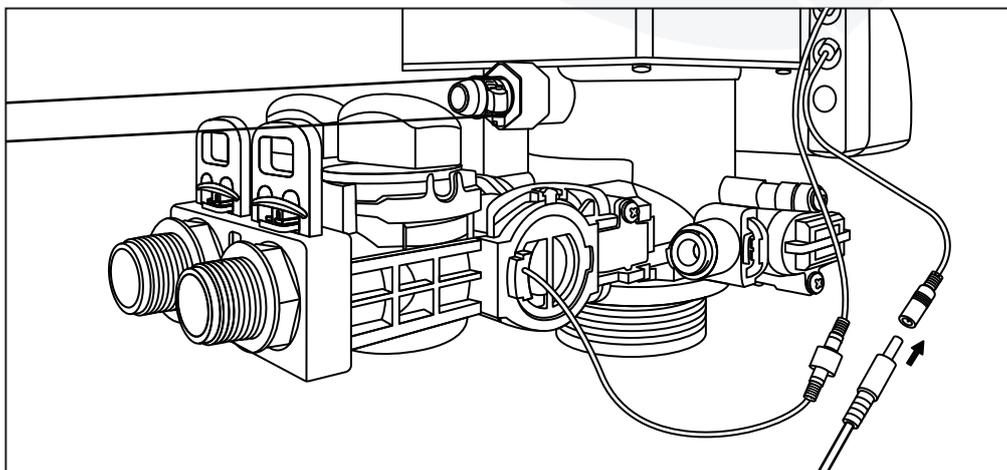


Step 6. Slowly **turn on the main water supply**.

Step 7. **Open a cold water tap** nearby and let the water run for a few minutes till the water runs clean or until the system is free of foreign material caused by plumbing work. Then **close the tap**. Observe whether there is water leakage or any other leakage at each connection.

Step 8. Starting up:

Step 8.a. Plug in the **power adapter** and connect the other end of the socket to supply power to the system.

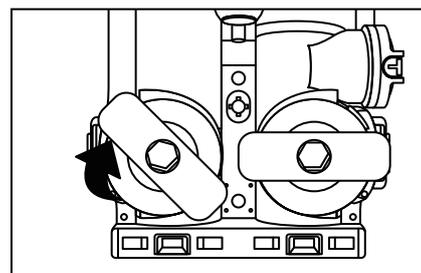
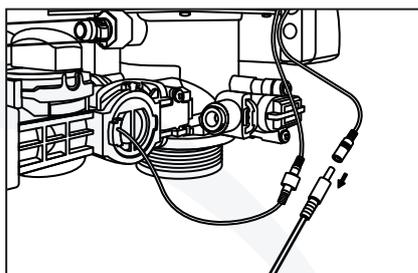
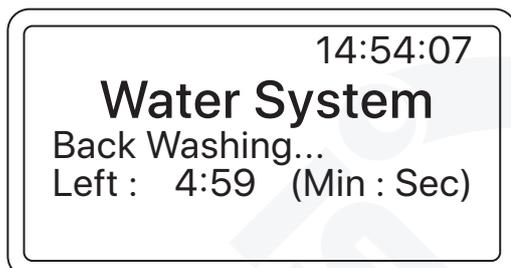


Step 8.b. Set the parameters for the control valve.

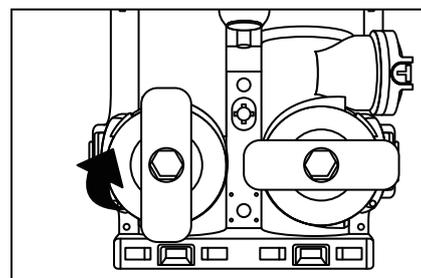


Note: All keys will lock after 1 minute while standby. Press and hold the "▲" and "▼" key for 5 seconds to unlock.

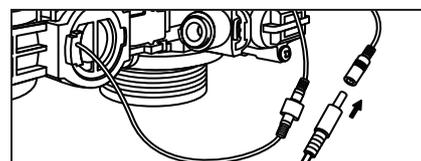
Step 8.c. Press the "⏪" key in the unlocked state to **start regeneration** and slowly **open the water inlet knob** on the bypass valve. The valve should be opened at about 45° (rapid openings will cause equipment damage and resin loss). Wait for the "**Back Washing**" text display and start to count down, then **unplug the power supply**, and keep the device in the backwash state.



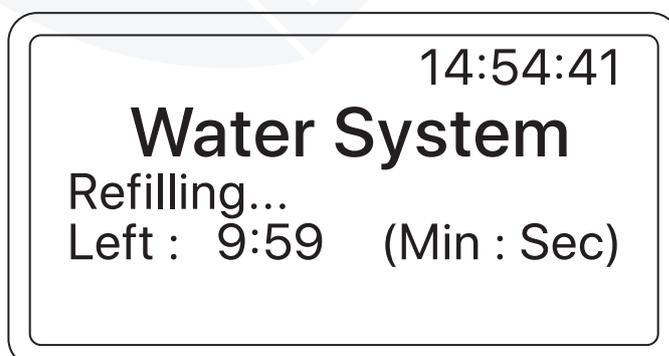
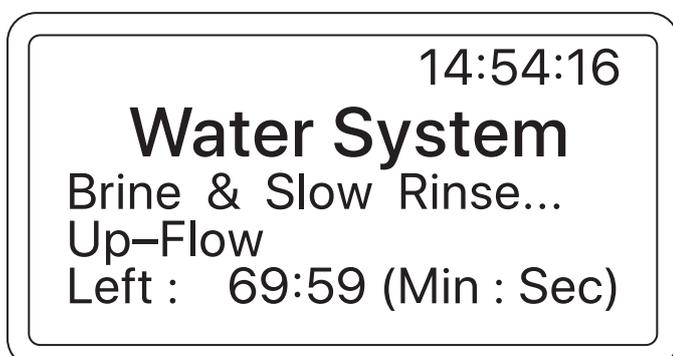
After the air in the resin tank is discharged (the exhaust sound disappears, and water steadily flows out of the drain hose), completely open the water inlet valve and flush the resin tank until the water is completely clean. The flushing time should not be less than 10 minutes, and the tank's air should be completely exhausted.



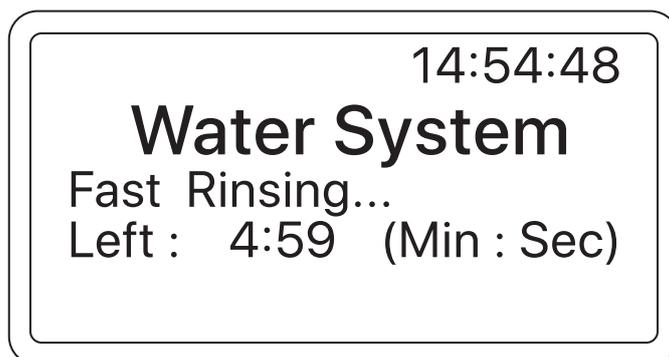
Step 8.d. After completing the above steps, **connect the power supply**. The control valve will continue to run the remaining regeneration steps.



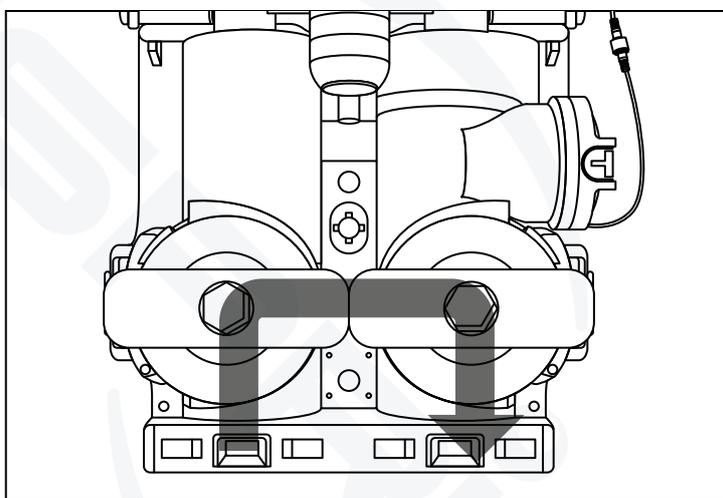
Step 8.e. Press the "⏪" key in the unlocked state to skip the "**Brine & Slow Rinse... Up-Flow**" count down, then the "**Refilling...**" text display and start to count down. The "**Refilling...**" process will add a certain amount of water to the brine tank to ensure the next regeneration's effectiveness and is an essential step.



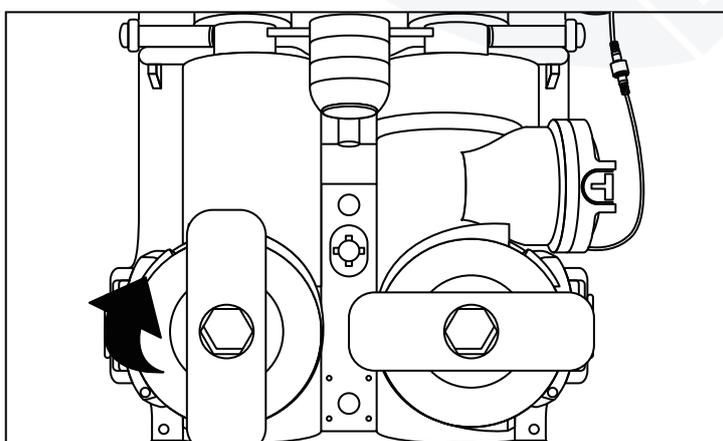
Step 8.f. After "Refilling...", the control valve will continue to run the "Fast Rinsing..." step.



Step 8.g. After completing the above steps, let the system **stand for 24 hours** to produce enough concentrated brine in the brine tank. Set the water inlet valve to the **bypass position**. Observe whether there is water leakage or any other leakage at each connection.



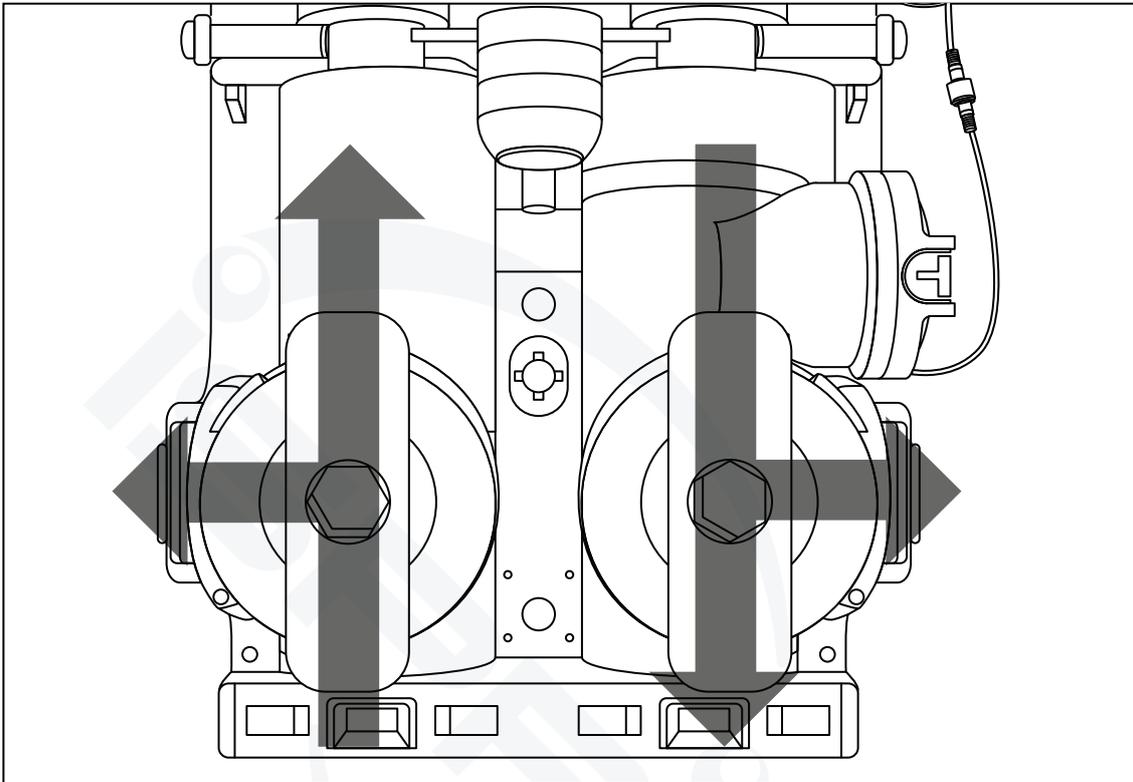
Step 8.h. 24 hours later, **reopen the water inlet valve**. Then start a complete regeneration process to ensure that the resin meets the requirements of regular use. Press the " " key in the unlocked state to **start the regeneration**, and the valve will begin automatically running the regeneration process. During this period, do not cut off the water or power, and do not touch any buttons on the valve (be sure to follow the procedure through the entire regeneration process and return to regular use).





Note: All keys will lock after 1 minute while standby. Press and hold the "▲" and "▼" key for 5 seconds to unlock.

Step 9. Rotate the bypass valve knobs to the **service position** and observe whether there is water leakage or any other leakage at each connection.



Step 10. Open a cold water tap nearby and let the water run for at least 5 minutes or until the water is clear. Then **close the tap**. Verify that the water is completely clear before use.

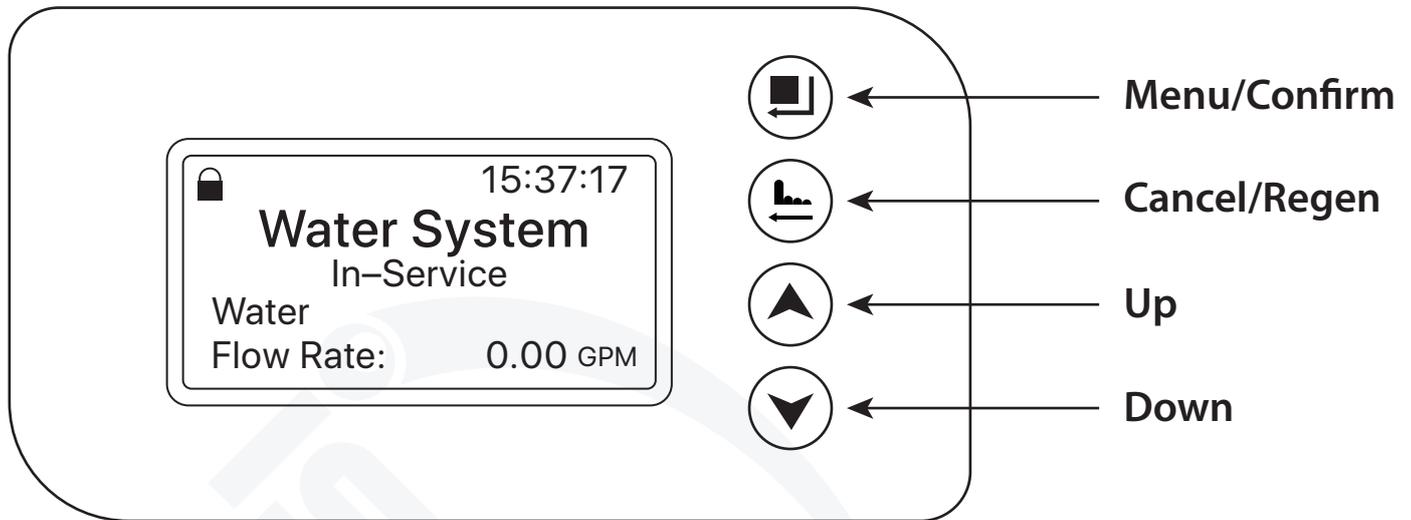
Step 11. Check again for any water leakage in the pipeline and whether the fittings at the connection parts with the original pipeline cause loosening or water seepage from construction.

Step 12. Set up the system parameters of the equipment ([see Programming the Central Water Filtration System](#) for details, page 16-18).

Step 13. Clean the installation site.

Programming the Central Softener System

Button Configuration



a. Lock Indicator

When the lock icon is lit, all keys are locked. All keys will lock after 1 minute while standby. Press and hold the "▲" and "▼" key for 5 seconds to unlock.

b. Menu or Confirm Button

- While in standby and keys unlocked, press to enter the settings menu to view or adjust various parameters.
- After finishing parameter settings, press the button. A beep will sound to indicate successful setting and return to the menu.

c. Cancel or Regeneration Button

- While in standby and keys unlocked, press to immediately start regeneration. During regeneration and keys unlocked, press to skip to the next step.
- In the settings menu, press to return to standby.
- In the parameter setting, press to return to the menu without saving the value.

d. "UP" / "DOWN" Buttons

- In the settings, press to scroll up or down through options.
- In parameter settings, press to increase or decrease values.
- When the lock icon is lit, press and hold the "▲" and "▼" key for 5 seconds to unlock.

Press "■" in the unlocked state while standby to enter the following menu settings:

Parameter	Default Setting	Available Settings	Description
Clock	00:00	00:00–23:59	Current time.
Regen Time	02:00	00:00–23:59	Time when regeneration starts. You can set the system's regeneration time according to your routine or schedule. It is recommended to set it in a period when water is not in use.
Water Hardness	350 ppm	0–800 ppm	Input source water hardness. This value is the maximum compensated water hardness of the untreated water. It is used to calculate the system capacity.

Press "■" and "⏪" while powering on the system to enter language setup.

Troubleshooting

Issue & Error Code	Possible Cause	Possible Solution
<i>Constant Drainage</i>	Power lost during backwash/brine/rinse steps	Set the bypass valve to the bypass position and reopen after power is restored.
	Water leakage inside control valve	Replace machine head.
<i>Does not regenerate</i>	Control panel failure	Inspect or replace the control panel.
	Incorrect regeneration time	Reset the regeneration time.
	Motor failure	Inspect or replace the machine head.
	Power failure	Check if power is normal (check fuse, adapter, switch, etc.)
<i>Incorrect regeneration time</i>	Incorrect current time setting	Check and reset the current time.
	Power off, power failure or loose power plug (>3 days), current time incorrect	Recalibrate the time according to the instructions.
<i>Water flow/drip from drain or brine tube after regeneration</i>	Control valve unable to reseat because of debris	Flush or replace control valve.
	High water pressure, control valve fails to reseat	Lower water pressure.
<i>The control valve does not work</i>	Control panel failure	Replace control panel.
	Damaged or incompatible power adapter	Replace the power adapter.
	Disconnected or faulty cable	Reconnect or replace cable.
	Unstable voltage	Check power supply, power socket, and any extension.
<i>The effluent contains bubbles</i>	Air is entering the equipment	Backwash again, exhaust air.
<i>Intermittent or failed brine suction</i>	Air inside resin tank	Backwash again, exhaust air.
	Unstable/low water pressure	Increase pressure.
<i>Leaking water</i>	Loose connection	Tighten the connection or reconnect.

Issue & Error Code	Possible Cause	Possible Solution
<i>Excessive salt use or brine tank overflow</i>	Brine refill time too long	Adjust brine refill time.
	During the "Refilling..." step, the power went out	Set the bypass valve to the bypass position and reopen after power is restored.
	Excess brine left after "Brine & Slow Rinse... Up-Flow" step	Check the brine valve.
	Float position on the brine valve incorrect	Check the float.
	Foreign objects in brine line	Clean brine tank, tubes, and pipeline.
<i>No brine suction</i>	Brine valve clogged	Check and clean or replace the brine valve.
	Brine valve leaking	Inspect and replace the brine valve.
	Drainage insufficient	Check drain tube and sewer pipeline.
	Inlet water pressure too low	Increase inlet water pressure.
	Water leakage inside control valve	Replace machine head.
<i>The effluent water has high hardness</i>	Brine tank has no salt	Ensure brine tank has salt.
	Bypass valve incorrect position or leaking	Correct or replace the valve.
	High hardness from the water source, resin volume too low	Add resin tank.
	Incorrect regeneration cycle setting	Verify and adjust settings according to the manual.
	Insufficient resin	Replace resin.
	Low quality from the water source or stuck flow meter	Reduce flow rate, clean the flow meter, or contact iSpring.
	The water in the brine tank is insufficient	Check the brine tank refill time.
	Water leakage inside control valve	Replace machine head.
<i>Resin discharge from drain tube</i>	Air in the system	Backwash again, exhaust air.
	Upper basket damaged	Replace the upper basket.
<i>Noise in the system</i>	Air is entering the equipment	Backwash again, exhaust air.
<i>Salty water at outlet</i>	Rinse time too short	Increase rinse time.

Issue & Error Code	Possible Cause	Possible Solution
<i>E1</i>	Faulty cable	Replace cable.
	Control panel failure	Replace control panel.
	Motor failure	Replace the machine head.
<i>E2</i>	Control panel failure	Replace control panel.
	Control valve failure	Replace machine head.
<i>E3 or E4</i>	Control panel failure	Replace control panel.





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Thank you!

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