



Installation, Operation, and Maintenance Manual

Waterlogix Metered Residential Water Softener



**Waterlogix WLS-075
Waterlogix WLS-075C
Waterlogix WLS-100
Waterlogix WLS-100C
Waterlogix WLS-150
Waterlogix WLS-200**

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PLEASE NOTE THESE SPECIFICATIONS BEFORE PROCEEDING

OPERATING PRESSURE RANGE : 20 – 125 PSI

OPERATING TEMPERATURE RANGE : 33° F – 120° F

INLET / OUTLET PIPE SIZE : 1" FNPT

PROTECT THE SOFTENER AND PIPING FROM FREEZING TEMPERATURES!!

Please read the entire Owner's Manual and Instructions before installation.

This Owner's Manual must stay with the unit.

How A Water Softener Works

Water hardness is derived from **Calcium and Magnesium** minerals that have been dissolved into water under the earth's surface. These minerals are found in limestone deposits and are the source of hard water. The amount of hardness in a given water supply is dependent upon the quantity of Calcium and Magnesium present and the length of time water has been in contact with them. This can vary dramatically from well to well and, for this reason, a water analysis is imperative in order to determine the proper treatment method. The degree of hardness increases as the concentration of Calcium and Magnesium **ions** increases and is measured in **Grains Per Gallon (gpg)**.

The problem of hard water in the home / business comes to light in many facets of daily use. Water spots and scum left behind in bathtubs, fixtures and showers: wear and tear on appliances: calcium build-up in hot water heaters and piping.: and greater amounts of soaps and detergents being used are just a few examples.

The modern water softener is designed to reduce hardness ions and their unpleasant side effects. Special resin beads in the softener mineral tank are used to change hard water into soft water. The surfaces of these beads are covered with sodium ions. As hard water enters the mineral tank and comes in contact with the resin, an exchange of ions takes place as dissolved Calcium and Magnesium ions cling to the resin surface and sodium ions take their place, thus softening the water. This process is called **Ion Exchange**. Over time, the sodium ions used for the exchange process become depleted and must be replenished.

The water softener provides a **Regeneration** process whereby brine solution enters the mineral tank driving-off the collected hardness ions and replenishes the surface of the resin beads with more sodium ions. The control valve on the mineral tank automatically initiates this process. The regeneration process has four basic cycles as follows :

1. **Backwash** – The control valve directs the water flow in a reverse direction through the mineral tank, separating the resin beads from flushing any accumulated particles to a waste drain.
2. **Brine & Rinse** – In the first part of this cycle, the control valve directs brine solution downward through the mineral tank, driving-off collected hardness ions and replenishing the resin beads with sodium ions. The second part of the cycle rinses hardness ions and excess brine from the mineral tank to the waste drain.
3. **Brine Refill** – The control valves directs fresh water into the salt compartment to create new brine solution for the next scheduled regeneration.
4. **Service** – This is the normal *operating* cycle where hard water enters the mineral tank, comes into contact with the resin beads and exchanges hardness ions for sodium ions – the water then becomes **soft** and ready for use.

Pre-Installation Check List

A water test should always be performed in order to determine total water hardness (in gpg) and total dissolved iron (in parts per million (ppm)). This is critical for proper equipment selection, sizing and for determining the program for regeneration frequency. If heavy concentration of iron (above 5 ppm), iron coloration, iron bacteria or sediment is present, filtration prior to the softener will most generally be required. Certain states may require a licensed plumber for installation.

NOTE : Flexible water supply connectors and flexible drain line tubing may not be allowed in your locale. Please check with local plumbing code officials prior to installation.

Softener Location / Other Requirements

- Locate the unit near an unswitched, 115 volt / 60 Hz grounded electrical outlet.
- Check for distance and proper drain installation (e.g. floor drain, washing machine standpipe).
- Determine type and size of piping required for softener connection (e.g. copper, galvanized, PVC plastic).

NOTE : If household plumbing is galvanized and you intend to make the installation with cooper (or vice versa), obtain di-electric unions to prevent dissimilar metal corrosion.

CAUTION : *If sweat soldering copper pipe (remember to always use lead free solder and flux), cover yoke or bypass valve with wet rags to prevent damage to connections and control valve!! If using PVC or plastic pipe, primers and solvent cements specifically recommended for use with potable water are required.*

Installation Procedure

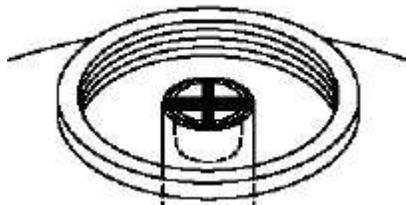
Filling the Tank with Media

Your new softener may or may not have the media in the tank. It will depend on the size of the unit and where it is shipped from. If your softener doesn't have the media in the tank it will come with the unit in separate boxes. If your unit has the media in the tank, please move to the next step.

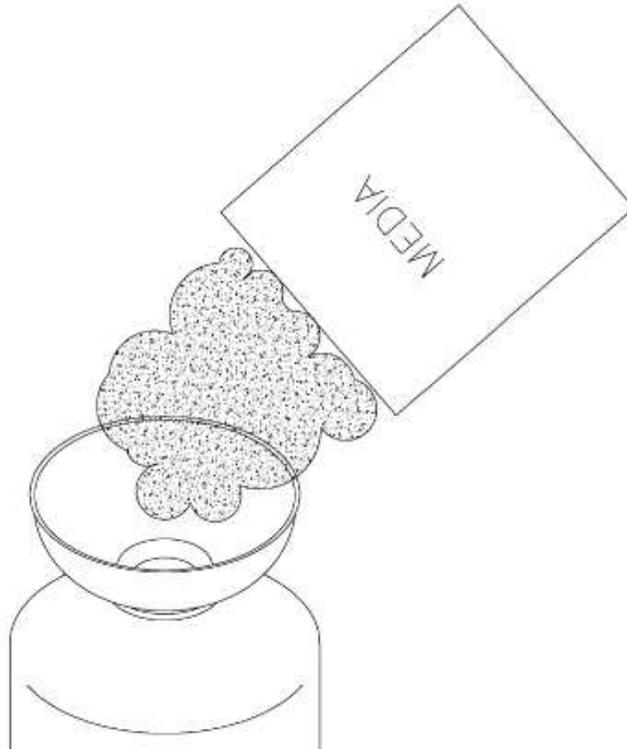
To install the media in your new water softener tank you will remove the control valve by turning it counter clockwise. Do not use tools to remove the valve. The valve can be broken with use of channel locks or pipe wrenches. When the valve is removed you will need to check the inner distributor tube. The distributor tube will be loose in the tank. You will need to make sure that it is centered in the tank before installing the media.



Typically it will center in an indentation in the bottom of the tank. Once it is centered, you will need to put duct tape over the tube to prevent media from getting in the tube during the fill procedure.



With the tape in place, install the supplied funnel and start to pour the media in the tank. You will put all the media that was sent to you in the tank. If you received gravel with your unit, you will pour the gravel in first before the softening resin.



Once the tank is filled with media rinse the threads on tank. Remove the duct tape and apply food grade silicone grease to the distributor tube and the control valve threads and o-rings. Put the control valve back on the unit confirming that the distributor tube is in the center port on the bottom of the valve. Fit the valve on the tank and turn clockwise to start the threads. You will tighten the valve hand tight then give it a couple of taps with the palm of your hand to tighten it further. It doesn't need to be really tight because the O-ring will seal the tank and not the threads.

– Water Supply Connections and Bypass Valve –

To allow for softener servicing, swimming pool filling or lawn sprinkling, a manual bypass valve has been installed at the factory. The bypass valve allows hard water to be manually routed around the softener.

1. Position softener at desired location for installation.
2. Turn OFF main water supply and OPEN nearest faucet to relieve pressure.
3. Cut main line and install appropriate elbows and extensions.

CAUTION : *Arrows located on the top of the bypass valve indicate proper direction of water flow. Install inlet and outlet in direction of arrows.*

4. Rotate handle on bypass valve to the bypass position.
5. Turn the main supply line on to restore water service to the home.
6. OPEN nearest faucet to evacuate air and depressurize plumbing lines.
7. Check for leaks!

– Drain Line Connection –

1. Remove drain line hose barb located on back side of control valve. Wrap threads of hose barb with Teflon tape. Reinstall drain line hose barb. **CAUTION :** *Hand tighten only!!*
2. Install 1 / 2" I.D. drain line tubing (not included) from hose barb to an open drain. A 4" air gap between the end of the drain line and the open drain is required to prevent wastewater backflow. Keep the drain line as short as possible. An overhead drain line can be used if necessary, but should discharge below the control valve. A siphon trap (taped loop)

at the outlet of the drain line is advisable to keep the drain line full and assure correct flow during regeneration. Elbows or other fittings must be kept at a bare minimum.

NOTE : Where the drain line is elevated above the control valve or exceeds 20 foot in length, 3 / 4" I.D. drain line tubing should be used. A hose clamp (optional, not included) can be used to secure drain line tubing to drain barb.

– Brine Line and Overflow Connection –

1. Position brine tank on a smooth level surface near the softener resin tank. If necessary, the brine tank can be placed at a higher level than the resin tank, but **never at a lower level.**
2. Install one end of 3 / 8" O.D. by 1 / 4" I.D. brine line tubing (included with unit) to compression fitting located on right side of control valve.
3. Remove brine tank cover or salt compartment lid.
4. Remove cap from brine well.
5. Insert opposite end of brine line through outer hole in brine tank.
6. Connect brine line to compression fitting on safety brine valve located inside brine well.
7. Install 1 / 2" I.D. drain line 90 elbow on outside of brine tank.
8. Run the opposite end of brine tank drain line to a suitable drain.

NOTE : The brine tank drain line is gravity flow and must discharge below the overflow fitting.

CAUTION : *DO NOT "TEE" to the main drain line from control valve.*

NOTE : The brine overflow is provided as a back up in the event the safety float shut-off should fail, allowing the brine tank to overflow. This drain connection would then carry the excess water to the drain and prevent flooding of the floor. Therefore, no liability will or can be assumed by the manufacturer of the softener should this occur.

– Electrical Connection –

1. Plug the cord from the control valve into a standard 115 volt / 60 Hz receptacle.

NOTE : **DO NOT** plug into an outlet controlled by a wall switch or pull chain that could inadvertently be turned off.

2. For your protection, this unit is equipped with a 3-prong plug and should be plugged into a grounded receptacle. If the receptacle is designed only to accept 2-prong plugs, obtain a 3-prong adapter and secure the ground wire to the receptacle plate mounting screw.

WARNING : **DO NOT remove grounding plug! An improperly grounded unit could cause injury from electrical shock!**

– Pressurizing The System –

1. The control valve **must be in the SERVICE position!** The word SERVICE is imprinted in the notch on the manual regeneration knob.

WARNING : **NEVER turn regeneration knob counter clockwise as this will cause damage to the control valve!**

2. Slowly rotate handle of the bypass valve to the SERVICE position.
3. Open the nearest faucet to evacuate air from plumbing lines.
4. Check for leaks!

– Control Valve Operation –

Each control valve position can be manually selected by rotating the regeneration knob CLOCKWISE until the desired position appears in the knob notch.

1. Manually index regeneration knob to **BACKWASH** position and allow water to run to drain for 3-4 minutes or until clear.
2. Manually index regeneration knob to **BRINE REFILL** position and allow the brine tank to fill just over the salt grid plate.
3. Manually index regeneration knob to **BRINE & RINSE** position and allow the control valve to draw water from the brine tank until the water stops flowing.
4. Manually index regeneration knob to **BRINE REFILL** position and allow softener to refill brine tank. The valve will return to the SERVICE position when finished.

Metered Controls



– Setting the Regeneration Schedule –

When adjusting the softener settings, it is a good idea to write down the settings you used to determine the adjustment so you have that information in the future. You will need to know the size of your unit and the level of your hardness in GPG (Grains per Gallon). If you have iron that you want to remove with the softener, you will need the iron reading expressed in ppm/mg/L (parts per million/milligrams per liter) and multiply that by 4. Add that figure to your hardness level (GPG) and that will give you a “compensated hardness level”.

Example;

Your hardness is 25 GPG and your iron reading is 1.5 ppm. The formula is as follows;

1.5 ppm of iron * 4 = 6. Iron is 4 times harder to remove than hardness.

6 + 20 GPG = 26 GPG of compensated hardness.

Use the following formula to determine the capacity setting;

System Capacity (size in Grains)/Hardness level (GPG) or compensated hardness = Gallons between regeneration.
Always add 5 GPG to the hardness level for an added cushion to ensure the system will regenerate prior to the actual determined set point.

Example:

You have a 53,000 Grain Softener with a regeneration capacity of 36,000 Grains and a hardness level of 26 GPG.

First add 5 GPG to 26 GPG = 31 GPG

Then use the following formula;

$36,000 \text{ Grains} / 31 \text{ GPG} = 1,161.00$ Subtract 75 gallons per person in the family $4 \times 75 = 300 \text{ gallons}$

So we would set the capacity wheel to 861 Gallons. You will set the gallons capacity to the setting just below the actual gallons from the formula.

The softener setting can be adjusted as follows;

1. Locate the program wheel just to right of the manual regeneration knob.
2. Rotate program wheel until the white dot located on the outermost gear is aligned with the capacity (gallons) arrow on the control panel.
3. Place your thumb firmly on the white dot to hold the outer gear while setting the program wheel.
4. Lift out the "gallons" dial (clear plastic) and rotate it so that the number of gallons from the previous formula is lined up with the blue capacity arrow.

For our aforementioned example the outer wheel with the white dot will be aligned with the blue capacity arrow and the clear dial will be rotated so that the gallons are aligned at 850 at the blue arrow.

Note: The Gallons wheel (clear plastic wheel) is labeled with double digits. This is x100 gallons so for 850 gallons the wheel will be just past 8 on the second mark for 50. The interval between the two digit numbers is in 25 gallon increments.

Setting The Time Of Day

1. Depress the button on left side of valve control panel next to the large wheel.
2. Rotate the 24-hour gear on the manual regeneration knob until the time of day appears in the window (note a.m. and p.m.).
2. Check that the time of regeneration is factory pre-set to occur at 2:00 a.m. on each day for which a program tab is extended.

NOTE : If a different regeneration time is desired, set the time of day ahead or behind the actual time of day. If this is done, it is recommended that time dial be re-labeled.

Example;

The desired regen time is 8am and the factory regen time is 2 am. You will set the time of day 6 hours behind the actual time where you live.

Start Up Procedure

– Disinfection –

The material used in the construction of the modern water softener will not support the growth of bacteria. However, the conditions existing during shipment, storage and installation are unknown and thus dictates the disinfecting of a softener after installation, before it is used to treat potable water. With this in mind, your newly installed water softener should be disinfected using the recommended procedure described in this section. Ordinary chlorine laundry bleach is an excellent disinfecting agent for this purpose. The proper dosage for your particular softener model is listed below.

Total Unit Capacity	Regen Capacity	Salt dosage	Cubic Feet of Resin	Chlorine Dosage
26,000	18,000	6 lb	0.75	.9 ounces
35,000	24,000	8 lb	1.00	1.2 ounces
53,000	36,000	12 lb	1.50	1.8 ounces
70,000	48,000	18 lb	2.00	2.4 ounces

– Filling The Brine Tank With Salt –

To expect a high level of performance and reliability, a salt manufactured specifically for water softeners must be used. Salt of this grade is virtually free from dirt and other particulates that would eventually cause the softener to malfunction. Any high quality water softener salt (such as solar salt) will suffice. If iron is present in the raw water, use of iron inhibiting salt is recommended. The salt level will decrease after each regeneration cycle. Consequently, the salt compartment will need to be check and replenished periodically.

1. Fill the brine tank with water softener salt as described above.

WARNING : Do not fill salt above level of the brine well! About 3” below the white tube in the brine tank.

2. Replace brine tank.
3. Replace control valve cover.

– Final Check –

1. Be certain the bypass valve is in the SERVICE position.
2. Make sure the electric cord is connected to an uninterrupted 115-volt outlet.
3. Check that the time of day is set.
4. Double check regeneration schedule.
5. Make final check for leaks!
6. Leave this manual with the unit.

US WATER WATERLOGIX WATER SOFTENER LIMITED WARRANTY

This water conditioner is guaranteed to be free of material of manufacturing defects at the time of installation, where originally installed, to the original purchaser. The warranty period begins on the installation date, but shall not begin later than six (6) months from the date of sale.

There is a ten (10) year warranty on the fiberglass resin tank and brine tank, five (5) years on the valves, electronics, and all other parts. Water softener resin subject to iron, manganese, and chlorine levels greater than 1ppm are expressly not covered by this warranty.

Labor is not included. Warranty is limited to repair or replacement of defective part (manufacturer's choice). Freight and shipping are not covered by this warranty, and are for the customer's account. **Return Goods Authorization (RGA) is required on all returns. Collect freight returns will not be accepted.**

This limited warranty does not cover failure in service due to fire, freezing, abuse, shipping damages, misapplication, sunlight damage, high temperature failure (i.e. hot water back up), improper electrical connection or hi/low voltage, nor does it extend to consequential damages such as water damage, or salt damage.