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Unpacking / Inspection

Be sure to check the entire system for any shipping damage or parts loss. Also note damage to the shipping cartons. Contact US Water Systems at 1-800-608-8792 to report any shipping damage within 24 hours of delivery. **Claims made after 24 hours may not be honored.**

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

Safety Guide

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

- Check and comply with your provincial / state and local codes. You must follow these guidelines.
- Use care when handling the water treatment system. Do not turn upside down, drop, drag or set on sharp protrusions.
- The water treatment system works on 120 volt-60 Hz electrical power only. Be sure to use only the included transformers.
- Transformers must be plugged into an indoor 120 volt, grounded outlet only.
- Be sure to keep chlorine and other chemicals out of the reach of children.
- Keep the lid for the chlorine solution tank in place.
- **DO NOT** inhale air from the solution tank.
Proper Installation

This water treatment system must be properly installed and located in accordance with the Installation Instructions before it is used or the warranty will be void.

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

Before Starting Installation

Tools, Pipe, and Fittings, Other Materials

- Channel Locks
- Screwdriver
- Teflon tape
- Razor knife
- Two adjustable wrenches
- Additional tools may be required if modification to home plumbing is required.
- Use copper, brass, or PEX pipe and fittings.
- Some codes may also allow PVC plastic pipe.
- ALWAYS install the included bypass valves, or 3 shut-off valves. Bypass valves let you turn off water to the system components for repairs if needed, but still have water in the house pipes.
- 5/8” OD drain line is needed for the backwashing valve drain.
- 1” Pipe drains are required for the retention tank

Water Pressure

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

Backwash Flow Rates

The most important criteria in sizing a filter is the confirming the flow rate available for backwashing. The water must pass through the filter media at the proper service flow rate but it also must be backwashed at the proper flow rate as well. Some of the media will actually require a higher backwash rate than the specified service flow rate. The filter must be backwashed at a flow rate sufficient to dislodge and remove the captured particles. Failure to provide sufficient backwash flow rate and pressure will cause a build-up of particles in the filter media, impairing its ability to treat the water. In order for the filter to backwash and rinse properly, the feed water supply must be capable of providing the backwash flow rates indicated on page 4 & 5. It will need to maintain this flow rate for a minimum of 20 minutes at 30 PSI.
The Matrixx Greensand Plus Iron system is designed to remove iron and manganese from the water using chlorine as an oxidizer. Once a residual chlorine is produced following the system, the iron is removed. Chlorine is injected in the feed water line to oxidize the iron, then the water goes into a high speed retention/reaction tank to complete the reaction. After retention is completed and the chlorine concentration reaches equilibrium, the water then goes through the Greensand Plus filter. This filter acts as the substrate to catch the precipitated/oxidized iron. The Greensand Plus filter is periodically backwashed to flush out the iron that has been collected. There is a drain on the bottom of the retention tank that allows iron sludge that may accumulate in the tank to be flushed periodically.

**PROPORTIONAL INJECTION SYSTEM**
This proportion injection system consists of a holding tank for the chlorine, a chemical injection pump that mounts to the top of the tank and a water meter that sends a signal to the chemical pump when water is used. The flow meter will be the first thing plumbed in the system followed by a tee for the chemical injection. From there water is conveyed to the retention tank.

**CHLORINE RETENTION TANK**
The water comes into contact with the chlorine and mixes thoroughly in the chlorine retention tank. Roughly twenty minutes (20) of contact time is required for effective oxidation of iron. This can now be done in a third of the time with half the space requirement when using our new style of retention tank.

**BACKWASHING MATRIXX GREENSAND PLUS FILTER**
The Matrixx Backwashing Greensand Plus Filter with electronic computer control removes the precipitated iron to deliver iron free water.

<table>
<thead>
<tr>
<th>Contaminant Level</th>
<th>Days Between Backwashes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-3 ppm</td>
<td>3 Days</td>
</tr>
<tr>
<td>3-6 ppm</td>
<td>2 Days</td>
</tr>
<tr>
<td>&gt;6 ppm</td>
<td>1 Day</td>
</tr>
</tbody>
</table>
Greensand Plus Filter Installation

<table>
<thead>
<tr>
<th>Model</th>
<th>Tank Size</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>MXF-GS-150</td>
<td>10” X 54”</td>
<td>60.25”</td>
<td>57.25”</td>
<td>10”</td>
</tr>
<tr>
<td>MXF-GS-200</td>
<td>12” X 52”</td>
<td>58.25”</td>
<td>55.25”</td>
<td>12”</td>
</tr>
<tr>
<td>MXF-GS-250</td>
<td>13” X 54”</td>
<td>60.25”</td>
<td>57.25”</td>
<td>13”</td>
</tr>
<tr>
<td>MXF-GS-300</td>
<td>14” X 65”</td>
<td>72.25”</td>
<td>68.25”</td>
<td>14”</td>
</tr>
</tbody>
</table>
1. Install the water meter. There is a flow direction arrow on the meter. Be sure the inlet plumbing is attached to the meter correctly. There should be 18” of horizontal pipe before and after the water meter to ensure it is reading properly.

2. Slide the nut over the connection nipple, apply Teflon tape and install it in the inlet plumbing. Do not over tighten the plastic nipple or damage could occur.

3. Install the rubber washer gasket in the connecting nut and install the water meter with the flow arrow pointing away from the inlet fitting. Tighten the nut hand tight channel locks can be used to tighten the nut an additional 1/4 to 1/2 turn. The rubber washer gasket will seal the connection so the nut should not be over-tightened.
4. Slide the nut over the outlet nipple and install the outlet nipple in the outlet plumbing. Use Teflon tape to seal the connection and tighten with channel locks. Do no over-tighten the nipple in the outlet plumbing connection or damage could occur.

5. Install the rubber washer gasket in the nut and tighten the outlet plumbing to the water meter outlet connection. Tighten it hand tight then turn it an additional 1/4 to 1/2 turn with channel locks. Do not over-tighten or damage could occur.
1. Install the chemical pump mounting bracket on the solution tank. Center the bracket on the back side of the tank. Install the two longer screws (supplied) in the outer holes. Tighten all screws.
2. Install the chemical injection pump on the bracket that was installed on the tank using the screws taped to the bracket.

3. Drill a 1/4” hole in the top of the solution tank and install the tubing into the tank.
4. Install the weighted suction screen on the tubing that was inserted in the tank. Push the tubing down in the tank until the weighted suction screen is around 1" from the bottom of the tank.

5. Install the other end of the tank suction tube to the chemical injection pump inlet. The inlet is identified by an arrow point toward the pump. Be sure the sleeve is installed on the tubing properly. The beveled side of the sleeve should be facing the pump. Tight the nut hand tight holding the pump fitting. Do not use tools. Hand tightening will be sufficient.
6. Install a piece of tubing on the outlet of the pump. Be sure to orient the sleeve properly and hand tighten the nut. The outlet is identified by an arrow that is pointing away from the pump.

7. The other end of outlet tube from the chemical pump will be installed in the injection check valve (Installed next). Be sure to orient the sleeve properly and hand tighten.
Chemical Pump Wiring Installation Instructions

1. The wire coming from the previously installed water meter should have three wires. A black, red and blue wire. The blue wire is not used and should be folded back and taped to prevent it from making contact with anything.

2. The wire coming from the chemical injection pump will have several colors. Fold back all wires but the red and black wire. Make sure the wires that are folded back are not touching each other or anything else. Tape the wires back. Now connect the black wires together with a wire nut or butt splice connector. Connect the two red wires using a wire nut or butt splice connector. There is no voltage on these wires. An enclosure can be used or the wires connections can simply be taped to insulate the wires if desired.
1. Remove the retention tank from the packaging. Install the drain fitting and valve on the bottom. Be sure to use Teflon tape when installing the valve. Install the nut, O-ring and retaining clip on supplied gray elbow fitting. Lube the O-ring with food grade silicone grease. If that is not available, vegetable oil may be used. DO NOT use petroleum based lubricants. Install the elbow in the bottom of the tank and tighten the nut hand tight. There is not need to tighten it with tools. This fitting will move in the nut. This is normal. Once water pressure is applied the fitting will be very secure.

2. Install the inlet from the water meter next. The 1” supplied tee must be installed prior to the inlet of the retention tank. This tee will also have a 1” x 1/2” plastic reducer that will be installed.

3. Once the tee is installed in the retention tank inlet piping, install the injection check valve for the chemical pump.

4. Now install the chemical pump outlet tubing to the check valve on the inlet piping of the retention tank.

5. Install the outlet plumbing from the retention tank to the inlet on the Matrixx Greensand Plus filter.
Matrixx Backwashing Filter Tank Installation Instructions

**WATER PRESSURE:** A minimum of 30 pounds of water pressure is required for the backwashing valve to operate effectively.

**ELECTRICAL FACILITIES:** An uninterrupted alternating current (A/C) supply is required. Note: Other voltages are available. Please make sure your voltage supply is compatible with your unit before installation.

**EXISTING PLUMBING:** Condition of existing plumbing should be free from lime and iron buildup. Piping that is built up heavily with lime and/or iron should be replaced.

**LOCATION OF MATRIXX TANK AND DRAIN:** The tank should be located close to a drain to prevent air breaks and back flow.

**CAUTION:** Water pressure is not to exceed 80 psi, water temperature is not to exceed 110°F (43°C), and the unit cannot be subjected to freezing conditions.

**Media Installation**

1. Remove the tank from carton.
2. Verify the riser tube is secured in the bottom center of the tank.
3. Place a piece of duct tape over the riser tube so no Greensand Plus enters the riser while filling.

4. Use the Blue Funnel provided, to pour the gravel and Greensand Plus into the tank. Pour the gravel into the tank first, then pour in the Greensand Plus. Pour the gravel and Greensand Plus evenly around the hole to ensure it is well distributed in the tank and pour slow enough, to keep from plugging the hole. A helper may be needed to hold the funnel during the filling process. It is recommended that a dust mask and safety goggles be worn to prevent possible injury. A shop vacuum can be used to capture dust during the filling procedure. Pour all the gravel and all the Greensand Plus shipped with the unit into the tank. US Water does not send extra/unused media.

5. When Greensand Plus is installed move tank side to side to settle the media. Remove the funnel and tape from the distributor tube. It is a good practice to soak the Greensand Plus prior to startup. If the tank is filled with water at this time, it can be soaking while the rest of the install is completed. Make sure larger tanks are in the final location prior to filling with water as they will be heavy and hard to move once they are filled.
Matrixx Valve Installation

1. Lubricate the distributor O-ring and the outer tank O-ring.

2. Install the upper basket on the bottom of the valve by lining up the tabs then turning the basket clockwise to lock it in place. Place the upper basket over the distributor tube and push the valve on the tank. Thread the valve on the tank by turning it clockwise. Be sure not to cross-thread the valve on the tank.

3. Tighten the valve hand tight, then snug it further by tapping it with the palm of the hand. DO NOT use tools to tighten the valve or damage could occur.
Backwashing Filter System Installation

1. If the hot water tank is electric, turn off the power to it to avoid damage to the element in the tank.
2. If the supply is a private well, turn the power off to the pump and then shut off the main water shut off valve. If you have municipal water, simply shut off the main valve. Go to a faucet or spigot, (preferably on the lowest floor of the house) turn on the cold water until all pressure is relieved and the flow of water stops.
3. Locate the backwashing tank close to a drain where the system will be installed. The surface should be clean and level.

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

The Backwashing Filter is equipped with 1" female pipe threaded ports on the control valve bypass. The bypass is marked with arrows to show proper flow direction. The arrow pointing toward the valve indicates the inlet. The arrow pointing away from the valve is the outlet.

4. Be sure to use Teflon tape or other pipe sealant on the plumbing fitting threads and install them in the bypass accordingly. Use channel locks to ensure they are tight.

**NOTE:** All piping should be secured to prevent stress on the bypass valve and connectors.
5. Connect the drain hose to the valve and secure it with a hose clamp. Run the drain hose to the nearest laundry tub, floor drain or approved air gap fitting. The drain can be ran overhead or down along the floor. Drain tubing should be a minimum of 1/2" ID. When running the drain overhead it is important that the tubing has no dips or kinks. If the drain is ran overhead and must run linearly to the available drain it is recommended that a hard pipe is used of larger diameter than the drain line. This linear pipe should have a physical “drop” toward the drain (1/2":10’). The goal is to have a gravity drain without much back pressure when traveling long distances.

**NOTE:** A DIRECT CONNECTION INTO A WASTE DRAIN IS NOT RECOMMENDED. A PHYSICAL AIR GAP OF AT LEAST 1.5” SHOULD BE USED TO AVOID BACTERIA AND WASTEWATER TRAVELLING BACK THROUGH THE DRAIN LINE INTO THE SYSTEM.

**NOTE:** Be sure to secure the drain line. The system will drain with force and it should be secured to prevent a leak. Hose clamps should be used to secure the drain line at the connection points.
The regeneration cycle can last 25 to 30 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 untreated water from filling the water heater. This is why automatic backwash is set for sometime during the night and manual backwashes should be performed when little or no water will be used in the household. Normal regeneration time is 2:00 AM.

New Sounds

There may be new sounds when the system operates. The Backwash cycle lasts up to 25 minutes. During this time, water can be heard running intermittently to the drain.

Automatic Hard Water Bypass During Regeneration

In the case of emergency, the system can be isolated from the water supply using the bypass valve located at the back of the control. In normal operation the bypass is open with the handle in line with the inlet and outlet pipes.

To isolate the system, simply rotate the handle counter-clockwise (as indicated by the word BY-PASS and arrow pointer on the handle) until it stops. Water can be used at related fixtures and appliances as the water supply is bypassing the system. However, the water used will be untreated. To resume treated water service, open the bypass valve by rotating the handle clockwise.

Manual Bypass
Chemical Injection Pump Start-up Instructions

1. Plug the chemical pump power cord into a continuously energized 110v outlet. The chemical pump should be set when the unit is shipped. It should be set to “5 SECONDS” and the percentage should be set on 50%.

2. If changes need to be made, the pump must be unlocked. If the pump is locked, push and hold the mode and the % “percentage” buttons at the same time and hold them for 3-5 seconds. The pump locked sentence will disappear. If “STANDBY” is on the screen. Push and hold the “Mode” and “Stby” buttons and “STANDBY” will disappear.

3. To change the “mode” to “5 SECONDS”, hold the mode button while using the up or down arrows to change the setting.

4. To change the percentage, press and hold the “%” button while using the up or down arrows to change the percentage to the desired rate. The pump is now programmed. See the “Bubble Method” for pump adjustment.

5. Once the pump is programmed pour in the chlorine mixture in the chemical tank. Now push and hold the “prime” button until the pump pulls the solution from the container up to the pump and on to the injector. The level can be seen in the tubing as the pump becomes primed. Once it is primed, the pump is ready to use. The pump will operate during the startup process. If the pump is not working see below.

NOTE: If the pump is showing “Standby”, hold the “MODE” and push the “STBY” button to take the pump out of the standby mode. The display will not show “Standby” if it is normal operation. BE SURE to check that the pump is not in the “Standby” mode. If the pump is left in “Standby”, it will not operate during regeneration as intended. If the pump is “Locked”, it will need to be unlocked to make changes. If the valve is “Locked”, press and hold the “MODE” and “%” button at the same time for 3-5 seconds to unlock.
**System Regeneration Using Onboard Buttons**

**Normal Operation**

**1. Home Display**
The home display will alternate between the Time of Day and Gallons left until the next regeneration. The meter will count down to zero (0000) and then regenerate at the scheduled time set.

**Starting a Regeneration Cycle**

1. To Start **Delayed Extra Cycle**
   - If Days Remaining Until Next Regeneration does not read ‘000’, press and hold the Set/Change button for 3 seconds until the display reads ‘0000’
   - Regeneration cycle will initiate at the next designated regeneration time.

2. To start **Immediate Extra Cycle**  
   - With Gallons Remaining Until Next Regeneration at ‘0000’,
   - Press and hold the **Set/Change** button.
   - After 3 seconds, the regeneration cycle will begin.

3. To **Fast Cycle** thru regeneration  
   - First complete above 2 steps.
   - **Note:** Press and hold the Set/Change button for 3 seconds to advance to the next cycle step. Fast Cycle is not necessary unless desired to manually step through each cycle step. (Repeat until valve returns to the home display)

<table>
<thead>
<tr>
<th>Filter Cycles</th>
<th>Default (Min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td>Backwash</td>
</tr>
<tr>
<td>Step 3</td>
<td>Rest</td>
</tr>
<tr>
<td>Step 4</td>
<td>Rinse</td>
</tr>
</tbody>
</table>
Programming Using Onboard Buttons

1. To enter Main Menu, press the Menu/Enter button. (Time of Day will flash)

2. To set the Time of Day, press the Set/Change button. (First digit will flash)
   - To change digit value, press the Set/Change button.
   - To accept the digit value, press the Menu/Enter button.
   - Next digit will flash to begin setting.
   - Once the last digit display is accepted, all digits will flash.

3. To set A.M. or P.M., press the Menu/Enter button.
   - To change digit value, press the Set/Change button.
   - To accept the digit value, press the Menu/Enter button.
   - Once A.M. or P.M. is accepted, the next menu item will flash.

4. To set the Number of Days between Backwash Cycles(A), press the Set/Change button. - Repeat instructions from step (2).

Notes: 1) Maximum value is 29.
        2) If value set to 0, Automatic Backwash will never occur.
        3) Default setting is 7 days for filters

5. To Exit Main Menu, press the Menu/Enter button.

Note: If no buttons are pressed for 60 seconds, the Main Menu will be exited automatically.

Home Display

Alternates between the display of Time of Day and Number of Days until the Next Backwash. - Days Remaining until the Next Backwash will count down from the entered value until it reaches 1 day remaining. - A Backwash Cycle will then be initiated at the next designated regeneration time.
US Water Systems has moved into the 21st century with our latest line of equipment that utilizes the Water Logix Bluetooth System Control Application for iPhone and Android. This app allows the user to control every aspect of the water systems from convenience of a smart phone. The Water Logix system control app will allow the user to monitor usage history, change cycle times, start a regeneration and advance through a regeneration. Although the Matrixx system has buttons on the control,

To use the Water Logix Bluetooth app;
1. Go to the App store on the phone to be used and search for “Water Logix”.
2. Download the free Water Logix app.
3. Open the app to begin programming.
4. Once the app is open it will begin scanning for control valves in the Bluetooth vicinity.

5. Once the app connects to the control valve or valves they will appear on the screen. Each valve can be renamed by tapping on the three vertical dots on the valve listed on the screen. Choose “Label Device” and a lettered keyboard will appear. The user can name the valve using the key board then save it by pushing “OK”.
6. Choose the valve to be programmed by tapping on the name. A “Dashboard” will show up for the control valve.
Dashboard

Parameters that can be changed are indicated with orange font. To change a parameter tap on the orange font then use the keyboard that appears to change the value.

1. **Time of Day**: Tap on the “Time of Day” box. A box will appear that allows you to set the unit to the time that matches the device being used to program the unit. Press “OK” and the time will change to the current time of the device.

2. **Backwash Frequency**: Tap on the “Filter Backwash Frequency” box and input the desired days between backwashing. Most municipal applications should set this to 7 days. Some conservative applications can be set as far as 14 days but 7 days is recommended.

3. **Regeneration Time**: Tap on the “Regeneration Time” box. Input the desired regeneration time for normal operation. This is typically two hours after everyone in the house is asleep or the business is closed for the day.
Advanced Settings

Parameters that can be changed are indicated with orange font. To change a parameter tap on the orange font then use the keyboard that appears to change the value.

4. **Backwash**: This should be set to “10” mins and should not be changed.
5. **Rest**: This should be set to “2” mins and should not be changed.
6. **Rapid Rinse**: This should be set to “10” mins and should not be changed.
Status and History

The Status and History screen shows current conditions of the system as well as flow rate and usage history. There are two parameters that can be reset:

1. **Total Regenerations**: This parameter shows how many times the system has regenerated since it was put in service or since the last time the value was reset.
2. **Total Water Treated**: This parameter shows the total amount of water that has been treated since the system was put in service or since the last time the value was reset.
Contact Information

The Contact Information screen is used to provide the customer with contact info for US Water Systems. There is a link to the website and to our support team.

Regeneration Initiation

There are two options for regenerating the system. Tap on the desired option and press “OK”.

**Regenerate Now**: Regenerate Now will queue an immediate regeneration and will start instantly.

**Regenerate at Next Regen Time**: Regenerate at Next Regen Time will queue the system regenerate at the specified regeneration time chose in the programming.
1. With the bypass handle in the bypass position, turn on the main water supply and initiate an immediate regeneration. (see pages 22 or 28). This will advance the valve to the backwash position.

2. Once the valve has stopped moving and is in the backwash position, slow open the bypass handle about 1/8th turn. Water should slowly enter the tanks.

**NOTE:** If there is a loud knocking sound simply turn the bypass handle back slightly as the system is filling too quickly.

3. During the backwash cycle slowly open the bypass valve until there is water coming out of the drain hose on the Greensand filter. Then open the bypass valve fully.

4. Allow the system to backwash and push all the air out through the drain.

5. The valve will automatically move to the rest cycle when the backwash cycle is complete. Skip this cycle by pressing and holding the “Set/Change” button on the control valve or by pressing “Go to Next Regen Step” on the Water Logix App.

6. This will move the valve to Rapid Rinse. Allow the unit to rinse for the entire cycle. The water in the drain should be running clear by the end of the Rapid Rinse cycle.

7. The valve will then advance to Service.

8. Once the system has returned to the Service position, the system is installed and ready for chlorine adjustment.
To set the chlorine injection pump open a faucet directly after the system and take a sample. The injection pump should be adjust so there is about 1 ppm of residual chlorine after the system. Mix the chlorine in a 5 gallon bucket. Mix on bottle of granular chlorine to 5 gallons of warm water. Then pour the buck in the holding tank. Make up 10 gallons of solution then trend the usage over the first month. The goal is to only make about 3 months worth of chlorine solution to ensure that it is always fresh and concentrated.

1. Set the proportional control on the Stenner injection pump to 40% (See page 23 for adjustment procedure).
2. Run water for 20-25 minutes.
3. Take a sample after the system. Test the chlorine level. The chlorine level should be 1 ppm of residual chlorine.
4. Continue adjusting the knob up or down in increments of 10% until the sample reads 1 ppm of residual chlorine waiting 20 minutes between taking samples.
5. Continue the same process until the 1 ppm of chlorine is maintained. Once 1 ppm of chlorine stays consistent the chlorine injection system is adjusted properly.

1 ppm of residual chlorine is an indicator that there is a small amount of residual chlorine in the treated water and the contaminant is being oxidized. Once this setting is determined the system will operate automatically.

Over the first 1-3 months it is important to monitor the chlorine level in the storage/solution tank and start to gain usage data that will help you determine the chlorine usage and allow you to plan/order replenishment chlorine accordingly. This setting should be periodically checked and adjusted due to changes in the aquifer (well) and loss of chlorine concentration by degradation. After 6-8 months the chlorine can lose concentration, so only replenish the tank to a level that can be used in 6-8 months to ensure the chlorine concentration strength is consistent.
Matrixx Valve Battery Backup

Battery Back-Up (Uses a standard 9-volt alkaline battery.)
• During power failures, the battery will maintain the time of day as long as the battery has power. The display is turned off to conserve battery power during this time. To confirm that the battery is working, press either button and the display will turn on for five (5) seconds.

• If power failure occurs while system is regenerating, the Signature 2 will motor to a shut off position to prevent constant flow to drain. Depending upon system pressure and other factors, it is possible to observe a reduced flow to drain during this step. After power is restored, the Signature 2 will return and finish the cycle where it left off prior to the power interruption.

• When used without battery back-up, during a power failure, the unit stops at its current point in the regeneration position and then restarts at that point when the power is restored. The time will be offset by the increment of time the unit was without power, so it is necessary to reset the time of day on the unit. No other system will be affected.

**WARNING! DO NOT INSTALL THE BATTERY BACKUP UNTIL THE SYSTEM HAS BEEN PROGRAMMED AND START UP IS COMPLETE!**

1. Remove the two screws on the back of the valve.
2. Pull out the 9V battery connector, remove battery cover and attach the battery to the connector.
3. Push the battery back in the holder on the valve and replace the cover and screws.
What To Expect and Routine Maintenance

Now that the US Water Pond and Surface Water Treatment system has been installed here are a few things to expect;

1. The system will produce iron free water immediately after installation. Depending on the raw water quality there may be contaminants built up in the water heater, plumbing system and other devices. Over the first few weeks as water is used there could be traces of this build up that are being removed by the newly installed system. This typically clears up after a couple weeks.

2. Depending on the contaminants being removed there may be iron bacteria or sulfur reducing bacteria in the plumbing system prior to the new treatment system install. This bacteria can potentially survive after the installation. This is usually indicated by a sulfur smell that will appear after a few weeks of initial usage. If this is the case, the well and entire plumbing system will need to be chlorinated to remove any existing bacteria. If the bacteria is not removed, it will begin to “grow” backwards toward the treatment system and the sulfur smell will not go away. If this does occur, it is easily eradicated with a chlorination procedure.

3. The chlorine sample reading may be indicate an overfeeding of the chemical a few weeks after installation. This occurs because after installation the water will become cleaner and the initial dosage of chlorine may need to be adjusted to compensate for the lower contaminant level once the build up is removed.

Routine Maintenance

Pressure Tank
If your plumbing system uses a bladder pressure tank it will be in the system prior to the system. This tank should be drained periodically to remove build up of contaminants. Typically once a quarter is sufficient but that frequency may need to be increased on systems with high contaminant levels.

Injection System

Solution Tank
Periodically stir the solution tank and be sure the chlorine solution is mixed and concentrated.

Pump Tube
The internal pump tube may need to be replaced periodically. They typically last 1-5 years depending on the usage. There is a spare tube shipped with the system and instructional videos explaining how to change the tube at www.USWaterSystems.com.

Check Valve
Remove the check valve and replace the duck bill if needed. Remove crystals from the check valve and pipe.

Retention Tank
Periodically drain the retention tank to remove the accumulated solids and sludge.

Greensand Plus Filter
The Greensand Plus filter is virtually maintenance free. However, if there is a power outage the clock and other settings need to be checked to ensure the filter will backwash properly at the proper time of day. It is crucial that the Greensand Plus filter backwashes at a time when there is no water being used in the house. Periodically check the drain flow.
<table>
<thead>
<tr>
<th>Component</th>
<th>Action</th>
<th>Frequency</th>
<th>Replacement Part #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing Well Pressure Tank</td>
<td>Drain tank until the water runs clear.</td>
<td>1-6 Months</td>
<td>N/A</td>
</tr>
<tr>
<td>Injection Pump Tube</td>
<td>Inspect pump tube and replace as needed.</td>
<td>1-5 Years</td>
<td>411-EC30F-2</td>
</tr>
<tr>
<td>Injection Check Valve Fitting</td>
<td>Remove the injection fitting and clean off build up.</td>
<td>1-6 Months</td>
<td>N/A</td>
</tr>
<tr>
<td>Injection System Duck Bill Check Valve</td>
<td>Replace injection check valve as needed.</td>
<td>1-5 Years</td>
<td>411-UCCVDBO</td>
</tr>
<tr>
<td>Chlorine Solution Tank</td>
<td>Periodically check the solution level and refill as needed.</td>
<td>Varies by water usage and quality</td>
<td>710-PELLETS</td>
</tr>
<tr>
<td>Retention Tank</td>
<td>Blow down retention tanks periodically to remove sludge from contaminant build up.</td>
<td>Varies by water usage and quality</td>
<td>N/A</td>
</tr>
<tr>
<td>Greensand Plus Tank</td>
<td>Check the clock and settings periodically or after a power outage.</td>
<td>4 Months</td>
<td>N/A</td>
</tr>
</tbody>
</table>
For the lifetime of the original purchaser, at the original residential place of installation of this Pond/Lake Water Treatment System, US WATER SYSTEMS, INC. warrants the following:

**LIFETIME COVERAGE**
Greensand Plus Backwashing Filter Tank

We warrant that for the lifetime of the system from the date of installation, we will replace or repair the fiberglass media tanks free of charge to you except for transportation and standard labor charges, if for any reason it is found to be defective, because of faulty materials or workmanship.

**TEN YEAR COVERAGE**
Valve and Electronics

We warrant that for ten (10) years from the date of installation, we will replace the Valve and electronics free of charge to you except for transportation and standard labor charges.

**FIVE YEAR COVERAGE**
Chlorine Tank
Retention Tank

We warrant that for five (5) years from the date of installation, we will replace the chlorine solution tank and retention tank free of charge to you except for transportation and standard labor charges.

**ONE YEAR COVERAGE**
STENNER Injection System

We warrant that for one (1) years from the date of installation, we will replace the STENNER Pump & All Other Parts free of charge to you except for transportation and standard labor charges.

**GENERAL PROVISIONS**

This warranty does not apply to any commercial or industrial installations or to any part of the water conditioner which has been subjected to misuse, neglect, alteration or accident; or to any damage caused by fire, flood, freezing, Acts of God, or any other casualty, or if the original serial numbers have been removed. Fouling or damage to the resin caused by iron, sulfur, bacterial iron, silt, sand, tannins, organics, bacteria, hot water or chlorine voids the warranty on resin. These warranties are in lieu of all other warranties expressed or implied, and we do not authorize any person to assume for us any other obligation on the sale of this water conditioner. No responsibility is assumed for delays or failure to meet these warranties caused by strike, government regulations or other circumstances beyond the control of US WATER SYSTEMS, INC.

To obtain warranty service, call or write: US WATER SYSTEMS, INC.  1209 Country Club Road  Indianapolis, IN  46234  (317) 271-8600.

Any implied warranties of fitness or merchantability are limited to the terms of this expressed warranty and there are no warranties which extend beyond those herein. US WATER shall not be liable for any incidental or consequential damages.

Some states do not allow the exclusion or limitations of incidental or consequential damages so the above limitation may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

This warranty may be transferred to a subsequent owner with written approval of US WATER and payment of standard transfer fee.