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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.
- Transformer 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.
- BE SURE to change the UV light bulb every 9000 hours or 1 year.
- BE SURE to change the pleated filters annually to prevent possible organic contami-
nation.
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 bacteria and other contaminants 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 valve, or 3 shut-off valves. Bypass valves let you turn off water to the system for repairs if needed, but still have water in the house pipes.
- 5/8” OD drain line is needed for the valve drain.
- A length of 5/8” OD drain line tubing is needed for the brine tank over flow fitting (optional).

Where to Install the Treatment System

- Place the softener as close as possible to the supply pump pressure tank.
- Place the system as close as possible to a floor drain, or other acceptable drain point (laundry tub, sump, standpipe, etc.).
- Connect the system to the main water supply pipe BEFORE the water heater. **DO NOT RUN HOT WATER THROUGH THE SYSTEM.** Temperature of water passing through the system must be less than 100 deg. F.
- Do not install the system in a place where it could freeze. **Damage caused by freezing is not covered by the warranty.**
- Put the system in a place water damage is least likely to occur if a leak develops. The manufacturer will not repair or pay for water damage.
- A 120 volt electric outlet is needed within 6 feet of the system. **Be sure the electric outlet and transformer are in an inside location, to protect from wet weather.**
- If installing in an outside location, you must take the steps necessary to assure the system, installation plumbing, wiring, etc. are protected from the elements and contamination sources.
- **Keep the system out of direct sunlight.** The sun’s heat may soften and distort plastic parts.
Surface water from sources such as ponds and lakes typically call for a different treatment system than well systems. Surface water is typically soft water that is slightly acidic. There can be sediment and bacteria in the water from surface runoff and rotting vegetation.

The first step in surface water treatment is sediment removal. Typically all surface waters will require sediment treatment. A sediment filter is recommended prior to the system. A 5 percent to 10 percent chlorine solution is widely used as an oxidizer. Chlorination requires a contact tank which should have a 15-20 minute retention during peak flow. For instance, if the peak flow is 10 gallons per minute, then a 150-200 gallon contact tank would be needed. Many chlorination systems are undersized in respect to the contact tank, and meet with mixed results. After the injection of the chlorine and flow into the contact tank, a backwashing carbon filter is utilized to remove the precipitated contaminants and chlorine residual. Chlorine works well with iron/sulfur IF the contact or retention tank is sized properly and the user knows how to clean the injection point fitting and check valve. Chlorine will frequently crystalize at that injection point and clog the opening. Contact tanks are flushed periodically to remove sludge buildup. After the carbon filtration, a set of sediment filters are installed to polish the water.

**PROPORTIONAL INJECTION SYSTEM**

This component mounts on the wall and therefore takes up no floor space. It is fully assembled and ready for installation. The inlet is on the left and the outlet is on the right. There is a meter installed where the flow rate is determined and a signal is sent to the pump injection control. This assures that regardless of the flow from 1 to 20 GPM, the dosage is constant and proportional to the flow. Unlike other technologies, it works under low flow or severe flow rates.

**CHLORINE SOLUTION TANK**

The solution tank stores the chlorine in a safe container which keeps dust, dirt and kids out. It holds 35 gallons, 18 inches Diameter X 32 inches Height.

**CHLORINE CONTACT TANK**

The water comes into contact with the chlorine and mixes thoroughly in the chlorine contact tank. Roughly twenty minutes (20) of contact time is required for effective oxidation of iron, sulfur and bacteria.

**BACKWASHING CARBON FILTER**

The Matrixx Backwashing Carbon Filter with electronic computer control removes the precipitated contaminants and any excess chlorine.

**DUAL POLISHING FILTERS**

The dual polishing filters will remove any remaining particles down to 0.5 microns.
How the Pond/Lake Water Treatment System Works

The Pond/Surface water treatment system injects chlorine into the water stream to remove iron, sulfur, manganese and bacteria from water source. Chlorine is injected into the water stream proportionally. The chemical injection control panel will engage the pump based on the flow rate of the feed source water and the settings on the pump control.

When water is being used the water meter on the injection panel sends a pulse to the pump control to engage the pump. So when large amounts of water are being used the pump will run more frequently during the usage period than in times when small amounts of water are being used.

When chlorine is injected into the water stream, it oxidizes the iron, sulfur, manganese and bacteria and causes it to precipitate from solution. This reaction requires retention time to fully react. When these contaminants are oxidized they can be removed from the water stream with a GAC carbon filter.

Once the water has been injected with chlorine it passes through the retention tank to provide reaction time, the water passes through the backwashing carbon filter. The backwashing carbon filter uses GAC carbon to remove the oxidized/precipitated contaminants. As the water passes through carbon filter the contaminants are removed from the water and collected on the carbon media. Once the water has passed through the carbon filter the water is iron, sulfur and bacteria free. Any residual chlorine is removed as well.

The carbon filter will need to be backwashed on a frequency (in days) to flush out the collected contaminants. The frequency varies on each system depending on the contaminant level. Please use the following table as a guideline for backwash frequency combining iron and sulfur values (these are baseline values and actual frequency may vary);

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

Following the carbon filter are two sediment filters. The first is a 5 micron and the second is a 0.5 micron. Both are housed in a dual filtration system. These filters remove the fine particles that may have made it through the carbon filter and other system components.
1. Select a dry location to mount panel to avoid water intrusion. When selecting the location, note the water flow direction as indicated on the flow meter. Location should allow mounting hardware to be anchored into studs or concrete to support the weight of the panel.

2. Isolate and depressurize the water system.

3. Mark location of lag bolt holes 1 1/4" above center line of the horizontal pipe.

4. Secure wall mount bracket to wall studs using the included lag bolts or other suitable hardware. Hang panel on to wall mount bracket.

5. For convenience, the panel has 3/4" NPT (or 1" NPT) connections on the inlet and outlet. Connect the inlet and outlet of the panel to the water system. Connect the inlet on the water meter connection. Connect the outlet plumbing to the inlet of the retention tank.

6. Cut necessary length of suction tubing and connect to the suction side of the pump. Secure the weighted strainer to one end and secure the tubing to the pump tube fitting with the provided nut and ferrule. DO NOT use wrenches or thread seal tape. Connection needs to be finger tightened.

7. Plug pump power cord into an appropriate receptacle as specified in the pump manual. Follow the wiring directions for your model and application.

8. Prime the pump, per the instruction manual, and observe the liquid being drawn from the solution tank. When it reaches the injection point, discontinue priming.

9. Pressurize the system slowly, check for leaks, and verify pump operation.

**WARNING** When pressurizing the system, gradually allow water to flow. Shocking the meter by over speeding it with high flow rates can damage the internal assembly.

**CAUTION** Ensure the piping is properly aligned and supported both upstream and downstream of the panel.

**NOTE:** It is the installer's responsibility to comply with all national and local plumbing and electrical codes.

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### Retention Tank Installation

1. Connect the outlet plumbing from chlorine injection panel to the inlet on the bottom of the retention tank. (see figure on page 7).

2. Connect the outlet pipe on the retention tank to the inlet of the carbon filter (or to the next retention tank).

**BE SURE** to install a sample port on the outlet plumbing of the retention tank(s). This will be needed to adjust the chlorine injection level. See the drawing on page 31.

3. Connect a ball valve to the dump port (see figure on page 7) on the retention tank and convey a pipe or hose from this valve to a dump pipe or pit. This will be used periodically to dump any accumulated sludge from the retention tank.
Retention Tank Installation

**Materials of Construction**
- **Top and bottom domes**: Injection molded copolymer polypropylene
- **Shell**: Extruded copolymer polypropylene
- **Outer shell**: High strength, fiberglass-wound, epoxy resin coated
- **Base**: Injection molded, high-impact ABS
- **Connection**: Rigid schedule 80 PVC
- **Top port fitting**: Stainless steel reinforced, glass filled polypropylene insert molded into the top dome
- **Inner baffle**: Anti-microbial, copolymer polypropylene
- **Inner standpipe**: Schedule 40 PVC with diffuser cap
- **Testing**: High pressure, submerged leak test
- **Warranty**: 5 year limited

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### Composite BAF Tank Dimensions

<table>
<thead>
<tr>
<th>Model</th>
<th>Total Tank Volume</th>
<th>A Height</th>
<th>B Floor to CL</th>
<th>C Diameter</th>
<th>D (E2) Threaded connection</th>
<th>E FPT</th>
<th>Total Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>gpf</td>
<td>lbs</td>
<td>in</td>
<td>cm</td>
<td>in</td>
<td>cm</td>
<td></td>
<td>lbs/kg</td>
</tr>
<tr>
<td>BAFA80</td>
<td>49</td>
<td>151</td>
<td>133.6</td>
<td>1.75</td>
<td>4.4</td>
<td></td>
<td>16.5/14.1</td>
</tr>
<tr>
<td>BAFA120</td>
<td>90</td>
<td>341</td>
<td>145.0</td>
<td>2.25</td>
<td>5.7</td>
<td>24.0</td>
<td>61.4/33.0</td>
</tr>
</tbody>
</table>

Maximum working pressure 100 psig. Maximum working temperature, internal & external 120° F.
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 8. It will need to maintain this flow rate for a minimum of 20 minutes at 30 PSI.
Fusion 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 FUSION TANK AND DRAIN: The tank should be located close to a drain to prevent air breaks and backflow.

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. A flashlight may be necessary.
Carbon Filter Installation

3) Place a piece of duct tape over the riser tube so no media enters the riser while filling.

4) Use the Blue Funnel provided, to pour the gravel and media into the tank. **Pour the gravel into the tank first**, then pour in the carbon. Pour the gravel and media evenly around the hole to ensure it is well distributed in the tank. 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 media shipped with the unit into the tank. US Water does not send extra/unused media.

5) When media 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 media 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. If filling the tank with water is not possible, that is fine. There just may be more rinse time required to remove the carbon dust and fines during the startup procedure.
Carbon Filter Installation

6) Lubricate the distributor O-ring and the outer tank O-ring.

7) 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.

8) 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.
Carbon Filter 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. The inlet will be attached to the retention tank(s) and the outlet will be connected to the dual sediment filters.

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.

Hose barb fitting for drain line. Be sure to use a hose clamp to secure the line.

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.
Carbon Filter Installation

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

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.

Manual Bypass

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 BYPASS 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.
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
   - First complete above step.
   - 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)

Filter Cycles

<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></td>
<td>10</td>
</tr>
<tr>
<td>Step 3</td>
<td>Rest</td>
</tr>
<tr>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Step 4</td>
<td>Rinse</td>
</tr>
<tr>
<td></td>
<td>10</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.
Programming Using Water Logix App

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.

www.waterlogix.com
Go here for more information and instructional videos!
(Must have an internet connection)
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 to regenerate at the specified regeneration time chose in the programming.
Sediment Filtration System Dimensions
1. Install the Big Blue filter system in the desired location in the water treatment system. The cap are marked “IN” and “OUT” on the top of the housing.

2. Mount the housing to the bracket using the supplied screws, orienting the housing to match the applications desired flow direction. **Double and Triple housings are pre-assembled.** However, if your applications flow direction is right to left, the bracket will need to be turned 180 degrees.
Filter Installation Instructions

1. Install the Single and Dual system in the desired location in the water treatment system. The caps are marked “IN” and “OUT” on the top of the housings.

2. Mount the housing to the bracket using the supplied screws, orienting the housing to match the application’s desired flow direction. The dual system will be built when it arrives flowing left to right. This can be disassembled and changed to match a right to left flow application.

3. Mount the filter to the wall using the necessary fasteners for the wall type. Mark the hole locations on the wall using a marker or pencil while holding the filter housing level. If this is to be mounted to a studded wall, a mounting board can be used. A shelf board or plywood can be mounted to the studs, then the filter housing can be screwed to the plywood or shelf board. (Shelf board pictured below).

4. Install threaded nipples or other threaded fittings in the housing. Be sure to use Teflon tape on the fittings. Tighten them with channels locks.
Filter Installation Instructions

5. Shut off the water and release the water pressure at the lowest sink or spigot. Cut the pipe and connect it to the filter using the necessary fittings or tubing. Connect the inlet plumbing to the inlet on the filter housing. Tighten with channel locks.

6. Connect the outlet plumbing to the outlet on the filter housing. Tighten with channel locks.

NOTE: The connections above are made using the Flex Pipes used with the US Water Systems Equipment. These flex pipes have a rubber gasket and do not require Teflon tape. If pipe fittings are used be sure to use Teflon tape on the threads prior to installing the fitting on the filter housing. Or if Flex pipes with male threaded ends are used be sure to Teflon tape them. If copper pipe and fittings are being used make sure all solder joints within 12-15” of the filter housing are completed and the pipe is cool, prior to connecting it to the housing fittings. Use care to keep the plumbing cool during other sweat connections.
Filter Installation Instructions

1. Remove the sump from the filter housing and install the filter. A very small amount of silicone grease or water can be used to lubricate the O-rings on the filter. The filter housing cap has a coupling that will accept the o-ringed nipple on top of the filter. Install the filter so the nipple on the top is fully seated in the filter housing cap.

2. Lubricate the O-ring on the filter housing sump and install it. Tighten the filter sump hand tight. That should be adequate. Do not use abrasive tools to tighten the housing or damage may occur.

3. Install the 5 micron filter in the first sump in the and the 0.5 micron filter in the second sump.

NOTE: The filter will fit tightly in the housing cap. It will take force to push the filter in the cap. This ensures a positive seal. BE SURE the filter is pushed all the way in the cap.
Chlorine Injection Setting

To set the chlorine injection rate you will use the previously installed sample port (sample port should be installed in the outlet piping after the retention tank).

1. Set the proportional control on the Stenner injection panel (gray wall mount panel) to 40% (there is a dial on the little black box (PCM) that the pump is plugged in to).
2. Run water for 20-25 minutes.
3. Take a sample after the retention tank. Test the chlorine level. The chlorine level should be 1-2 ppm of residual chlorine.
4. Continue adjusting the knob up or down in increments of 10% until the sample reads 1-2 ppm of residual chlorine waiting 20 minutes between taking samples.
5. Continue the same process until the 1-2 ppm of chlorine is maintained. Once 1-2 ppm of chlorine stays consistent the chlorine injection system is adjusted properly.

1-2 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.
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, sulfur and bacteria 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 Fusion Liquid Chlorination 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 Panel

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(s)
Periodically drain the retention tank to remove the accumulated solids and sludge.

Carbon Filter
The carbon 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 carbon filter backwashes at a time when there is no water being used in the house. Periodically check the drain flow.

Sediment Cartridge Filters
Replace the sediment filters annually.
<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 Panel Pump Tube</td>
<td>Inspect pump tube and replace as needed. F Tube.</td>
<td>1-5 Years</td>
<td>411-EC30F-2</td>
</tr>
<tr>
<td>Injection Panel Injection Fitting</td>
<td>Remove the injection fitting and clean off build up.</td>
<td>1-6 Months</td>
<td>411-UCDBINJ</td>
</tr>
<tr>
<td>Injection Panel 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(s)</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>Carbon Tank</td>
<td>Check the clock and settings periodically or after a power outage.</td>
<td>4 Months</td>
<td>N/A</td>
</tr>
<tr>
<td>Carbon Tank</td>
<td>Periodically check the water after the carbon tank to ensure the chlorine is being removed. When chlorine is detected, replace the carbon in the tank.</td>
<td>3-5 Years Typically</td>
<td>600-GCS-1240</td>
</tr>
<tr>
<td>Dual Filtration System</td>
<td>Replace the filters and disinfect.</td>
<td>Annually</td>
<td>361-USP-MF-4520-05-222</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>361-USP-MF-4520-0.5-222</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**
Retention Tank and Carbon Backwashing Filter Tanks

We warrant that for the lifetime of the system from the date of installation, we will replace or repair the fiberglass media tank and retention 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 or repair the control valve and electronics 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.

**TWO YEAR COVERAGE**
STENNER Injection Panel

We warrant that for two (2) years from the date of installation, we will replace or repair the Stenner injection panel 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.