

## Section 3 Installation

### 3.1 UV Disinfection System

#### ⚠ CAUTION



Electronic controller must be connected to a Ground Fault Protected Circuit (GFCI) receptacle and the lamp connector ground wire connected to the stainless steel chamber.

The disinfection system is designed to be mounted either horizontally or vertically at the point-of-use or point-of-entry depending on the specific flow rate of the unit.

If installing the chamber in horizontal position the outlet port must be pointing upwards to ensure all air is fully purged from the chamber.

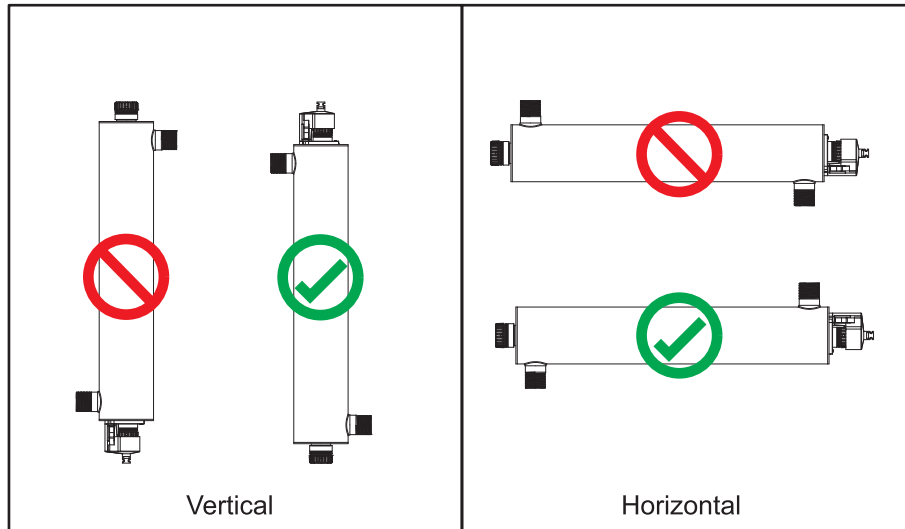


Figure 2 Disinfection Installation - Vertical and Horizontal

**Note:** The ideal installation is vertical with the lamp connector on top. This is to prevent water damage from occurring on the lamp pins and lamp connector.

- The controller should be mounted either above or beside the chamber. Always mount controller horizontally to prevent moisture from running down cordage and causing a potential fire hazard. Drip loops in all cordage connected to controller is highly recommended. Refer to [Figure 6](#).
- The complete water system, including any pressure or hot water tanks, must be sterilized before start up by flushing with chlorine (household bleach) to destroy any residual contamination. Refer to [Section 3.2](#).
- The disinfection system is intended for indoor use only, do not install disinfection system where it may be exposed to the weather.
- Install the disinfection system on cold water line only, before any branched lines.
- A 5 micron sediment filter must precede the disinfection system. Ideally, the disinfection system should be the last treatment the water receives before it reaches the faucet.

#### Procedure:

1. [Figure 3](#) shows the installation of a typical disinfection system and the related components that may be used for the installation. The use of a by-pass assembly is recommended in case the system requires “off-line” maintenance. In this case, note the system requires a supplementary disinfection for the distribution system if any water is used during by-pass condition. In addition, during by-pass, the water will NOT be disinfected and a “DO NOT CONSUME THE WATER” tag should be physically installed on the by-pass assembly until such time as the system is sanitized and returned to service. For more information, refer to [Section 3.2](#). If the water is to be consumed while the system is off-line, the water must be boiled for twenty minutes prior to consumption.

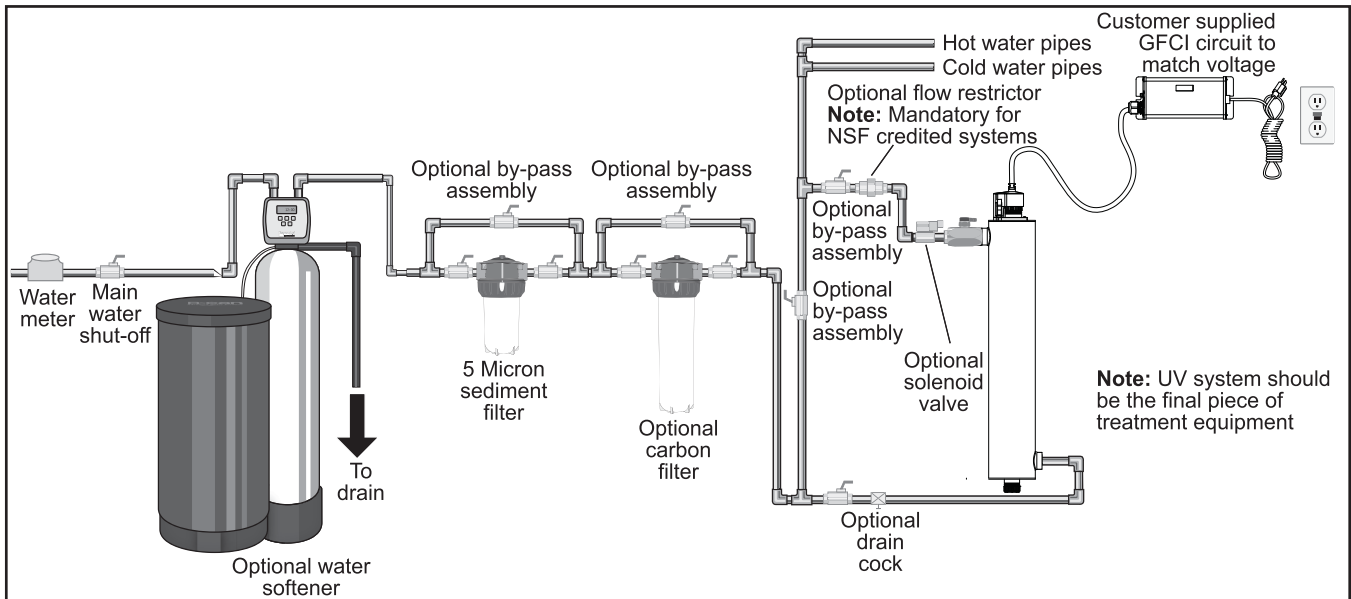


Figure 3 Disinfection System

2. Select a suitable location for the disinfection system and its related components. As it is recommended to install a GFCI, make sure that this is taken into consideration prior to any installation. The system can either be installed vertically (inlet port at the bottom) as shown in Figure 4 A, or horizontally as shown in Figure 4 B. However, the vertical installation is the most preferred method. When selecting a mounting location, leave enough space to allow the removal of the UV lamp and/or quartz sleeve (typically leave a space equal to the size of the chamber itself).

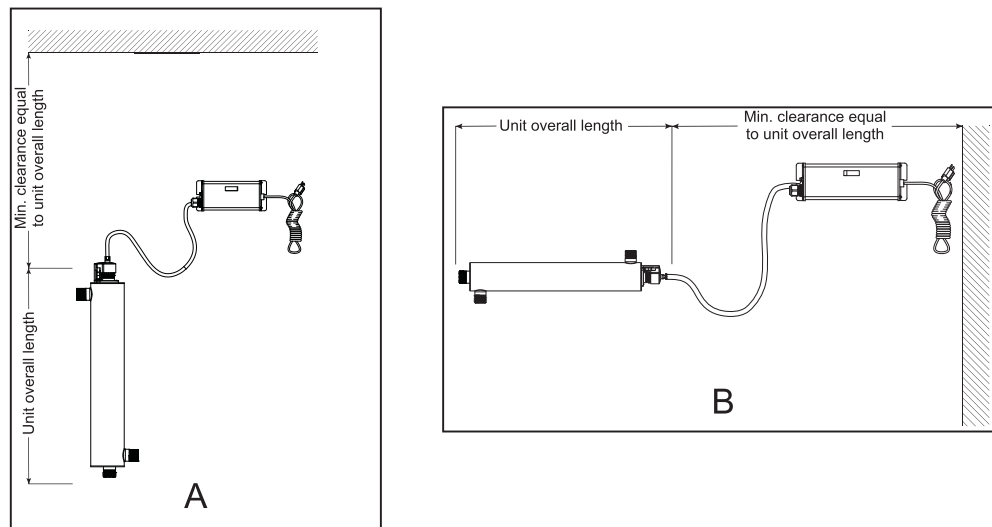


Figure 4 Disinfection Installation - Vertical and Horizontal

3. Mount the system to the wall using the supplied clamps. Various connection methods can be used to connect the water source to the system, however union type connectors are recommended. The use of a flow restrictor device will help to maintain the manufacturer's rated flow. The flow restrictor should be installed on the outlet port and is designed to be installed in one direction only. Ensure that the flow of the water matches the flow direction as indicated on the flow restrictor. Refer to Figure 5.

**Note:** DO NOT solder connections while attached to the system as this could damage the O-ring seals.

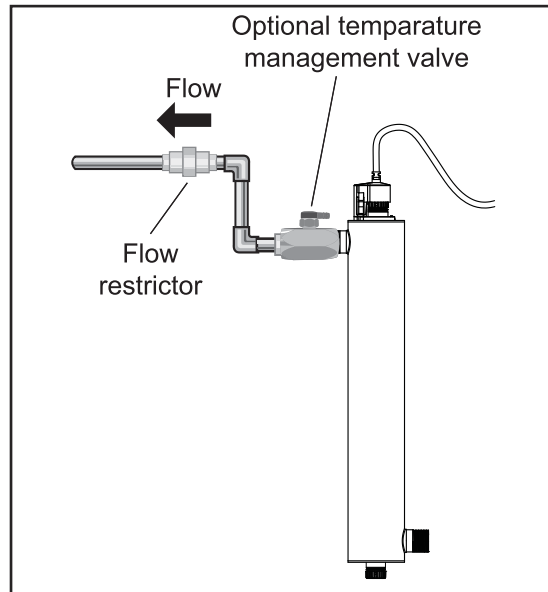


Figure 5 Flow Restrictor

4. Mount the VIQUA ICE controller horizontally to the wall, near the chamber. Ideally place the controller above the chamber and away from any water connection point, to prevent any water from potentially leaking onto the controller by means of a leak at a connection point or a “sweating” system. Make sure you allow for a “drip-loop” as shown in [Figure 6](#) on the lamp, sensor, and power cord, again, to prevent any water from potentially entering the controller.

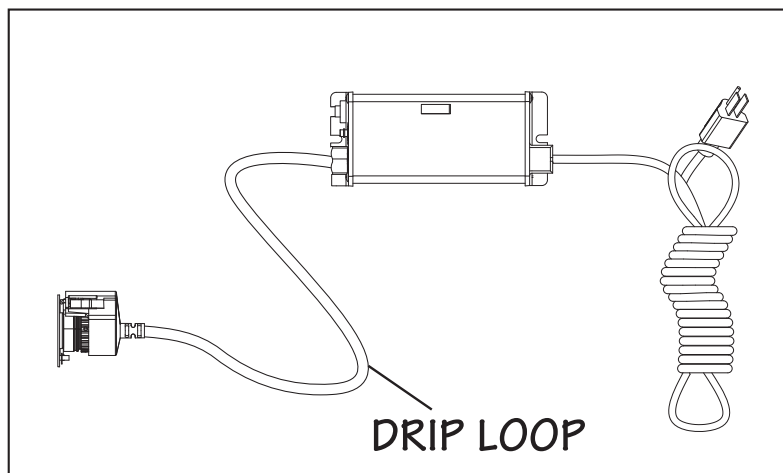


Figure 6 Drip Loop

5. Install the UV lamp. Refer to [Section 4.1](#).
6. When all plumbing connections are complete, slowly turn on the water supply and check for leaks. The most likely cause of leaks is from the O-ring seal. In case of a leak, shut water off, drain cell, remove the retaining nut, wipe the O-ring and threads. Clean and re-install.
7. Once it is determined that there are no leaks, plug the system into the ground fault interrupter and check controller to ensure the system is operating properly. The controller should illuminate without any alarms.

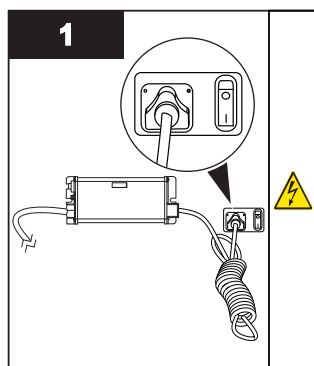
**Note:** DO NOT look directly at the glowing UV lamp.

8. Allow the water to run for a few minutes to clear any air or dust that may be in the chamber.

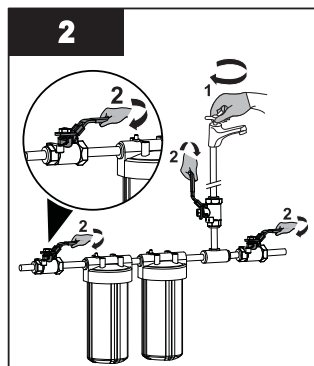
**Note:** When there is no flow, the water in the cell will become warm, as the UV lamp is always on. To remedy this, run a cold water tap anywhere in the house for a minute to flush out the warm water.

## 3.2 Disinfection Procedure

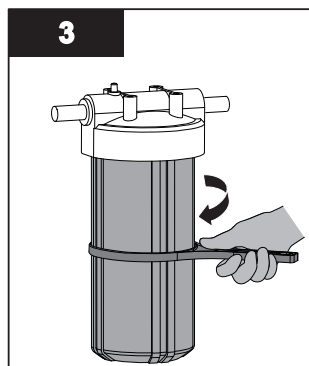
UV disinfection is a physical disinfection process and does not add any potentially harmful chemicals to the water. As UV does not provide a disinfection residual, it is imperative that the entire distribution system located after the UV be chemically disinfected to ensure that the plumbing system is free from any bacteriological contaminants. The disinfection process must be performed immediately after the UV unit is installed and repeated thereafter whenever the UV is shut down for service, without power, or inoperative for any reason. The procedure for sanitizing the plumbing system is readily accomplished as follows:



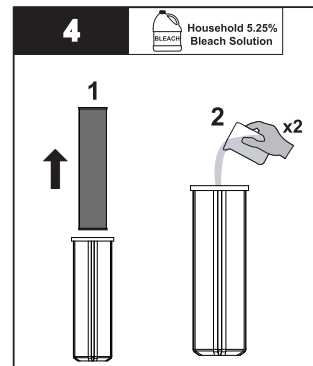
- Ensure the controller is plugged in for entire disinfection process.



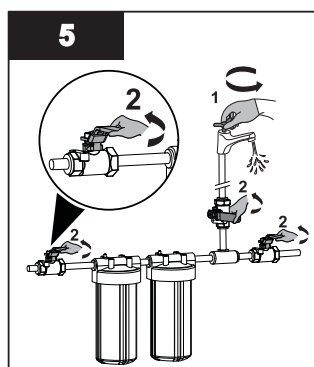
- Shut off the water supply.
- Close each faucet.



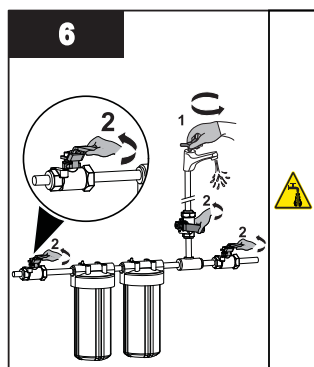
- Remove filter cartridge(s).



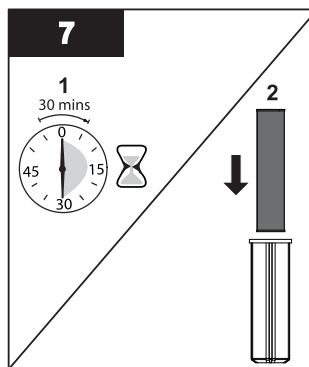
- Pour 2 cups of household bleach solution into the filter housing(s).
- Note: DO NOT use Hydrogen Peroxide.**



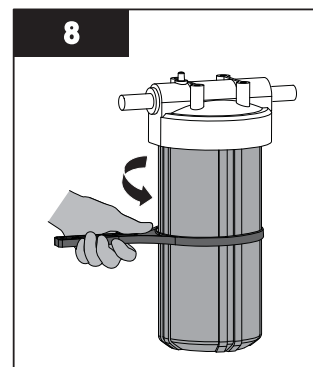
- Re-install the housings.
- Turn on the cold water supply.
- Open each faucet and all water openings until you smell the bleach and then close the faucets.



- Turn on the hot water supply.
- Open each faucet and all water openings until you smell the bleach and then close the faucets.



- DO NOT use water for 30 minutes.
- Flush the system until no chlorine smell is detectable and reinstall the filters.



- Reinstall filter cartridge(s).

**Notes:** 1) The addition of chlorine (bleach) to a hot water tank that has in the past been fed with untreated raw water with high levels of other contaminants (iron, manganese, hydrogen sulphide, organics, etc.) will result in oxidation of these contaminants and may require repeated flushing of the hot water tank. This contingency must be dealt with independently under the start-up procedure for any other conditioners that may form a part of the pre-treatment for the UV unit.

2) The above disinfection procedure will result in a massive chlorine residual far in excess of the 0.5 to 1.0 mg/L typically present in municipally chlorinated water and of a magnitude consistent with the minimum 50 mg/L chlorine solution recommended for the disinfection of distribution systems known to be contaminated. Do not consume water until complete system has been flushed.

3) As the monitored systems include a 254nm UV intensity monitor, note that the introduction of the bleach solution required for disinfection will trigger a temporary low UV condition. This is due to the fact that the bleach physically "clouds" the raw water. Once the bleach runs through the system, the alarm condition will return to normal. During this sanitization process, the audible alarm condition on the controller can be temporarily deferred by pressing the "RESET" switch for 5 seconds. By doing this, the audible alarm will be silenced. The system will display **R2** on the controller LED. This condition will remain for 12 hours unless the system is manually reset as outlined on page 10 of this manual.