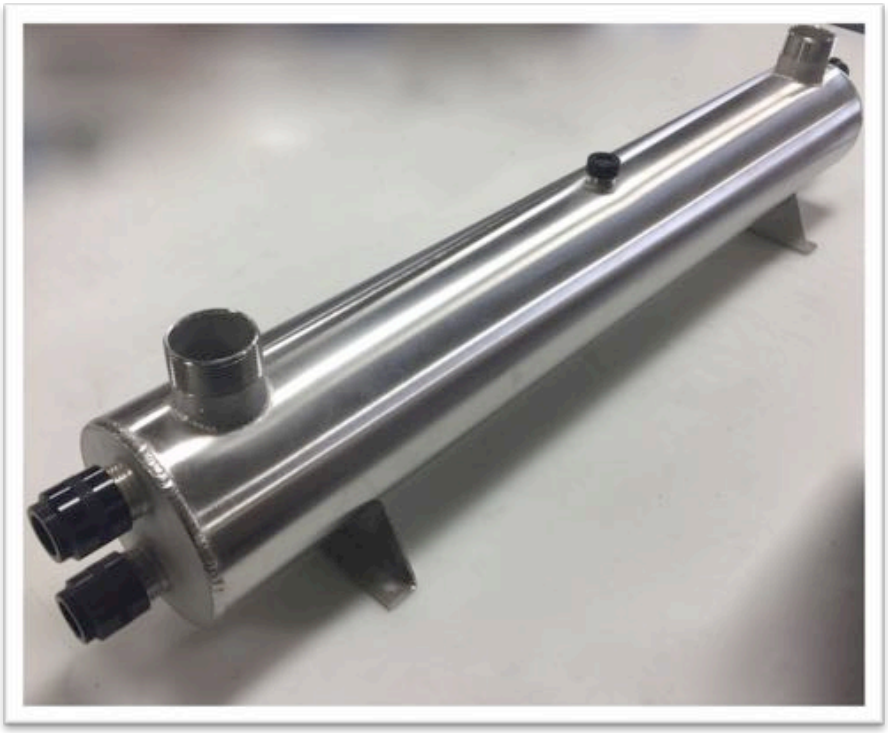
GUV SHIELD SERIES (30 and 50)
UV WATER DISINFECTION SYSTEM
OPERATION & MAINTENANCE MANUAL

GUV-SHIELD-50 MAN



GUV-SHIELD-50

Use the attached chart to record lamp changes to the system:

INSTALL DATE:	
Lamp Change Date	
Lamp Change Date	
Lamp Change Date	
Lamp Change Date	
Lamp Change Date	
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1. Your Disinfection Unit – Pre-Installation

You should have received the following:

A. A disinfection chamber
B. UV lamps
C. Quartz sleeves
D. Compression nuts
E. Power Supply
F. O-rings
G. Wiper rings (if supplied with manual wiper)

	Lamp #	Quartz #	O-ring #	Compression Fitting #
GUV SHIELD-30-MAN	#2 L-572433	#2 Q-582035	#4 M-75214O	#4 M-A100CN
GUV SHIELD 50-MAN	#2 L-024433	#2 Q-582035	#4 M-75214O	#4 M-A100CN

Your Ultraviolet (UV) water disinfection system has been tested at the manufacturing facility. The unit has been hydrostatically pressure-tested to 100 psi. In some cases, a small amount of water may remain in the vessel. In order to insure that the unit works at optimum performance, please follow the instructions outlined in this manual.

1.1. Warning

UV light is harmful to your eyes and skin. Do not look directly into the light. Always unplug (disconnect power) your unit before installing or removing a lamp. Your unit may have a green LED light that indicates that the lamp is operating and the unit has an audible alarm that will sound in the event of lamp failure. If the LED goes out, contact your dealer for service. If your unit has an audible alarm and it goes off, contact your dealer.

Since the unit is run by electricity, please remember to disconnect all power before servicing the equipment. Failure to do so may result in serious injury or death.

When handling lamps and quartz, use gloves to prevent them from becoming dirty. If they do, wipe them with alcohol.

1.2. Your Water Supply

Glasco recommends that trained professionals test and maintain your water supply. In addition to testing the water to see if UV is appropriate, we recommend pre-filtering systems (softeners, carbon or reverse osmosis) to help remove tastes, odors, minerals and cysts.

The following parameters are recommended for UV applications:

- Iron: < 0.3 ppm (0.3 mg/L)
- Hardness: < 7 gpg (120 mg/L)
- Turbidity: < 5 NTU
- Manganese: <0.05 ppm (0.05 mg/L)
- Tannins: < 0.1 ppm (0.1 mg/L)
- UV Transmittance: >75% (Lower levels can be treated but the factory should be consulted to properly size the system)

If your water contains levels in excess of the above levels proper pre-treatment is recommended to correct these levels prior to the UV system installation. A 20 micron filter is recommended.

1.3. UV Effectiveness

Your disinfection unit needs to be maintained. Change your lamp on a yearly basis and insure that the quartz sleeve is cleaned on a regular basis.

Failure to do periodic maintenance will impact your unit's effectiveness.

1.4. Flow Rate

Your unit has been designed to accommodate a certain flow rate. In order to work effectively, you may need to install a flow control device. This device attaches to the inlet and controls the water that enters the system. Note: your system may have come with a flow controller.

Failure to use a flow control (available at most plumbing supply stores) may reduce the effectiveness of your disinfection unit. It should be noted that many higher flow applications have a steady flow rate and a flow restrictor may slow down the water too much.

1.5. Inspection

Insure that lamps and quartz have not been broken. We recommend that you use gloves when handling lamps and quartz sleeves to prevent them from becoming dirty. Dirt and skin oils will impact the UV output.

A warranty sheet has been included. Please fill out the warranty and send back to manufacturer or dealer. This warrantees the chamber for 7 years and electrical components for 1-year.

1.6. Electrical Requirements

The electronics have been designed to work with standard power supplies. Since the unit is susceptible to power fluctuations, we recommend that the system be kept off any lines where there are surges. This includes pumps or motors. If there are fluctuations, please use a surge suppressor. Systems will come with plugs, which require no “hard wiring”. Please look at the outside of the electrical “box” for Voltage, Cycle and AMP draw. The ballast control should be connected to a grounded outlet and for safety purposes the system should be connected to a ground fault interrupt circuit. If the incoming power is subject to power surges it is also recommended that a surge suppressor be installed.

1.7. Location of Unit

The UV system is designed for indoor use only and should not be subject to weather conditions. UV disinfection works best when it is installed closest to point of use. The system should be installed after any pre-treatment equipment. The system should be installed after the storage tank and before the water line splits to the hot water heater. When installing, remember that you will need to be able to remove lamps and quartz as part of a maintenance schedule. Allow yourself enough room to accomplish these tasks. The chamber can be mounted vertically or horizontally. When installing horizontally we recommend the Inlet/outlet can face up to prevent air being trapped in the chamber. When installing vertically we recommend the inlet be on the bottom for the best hydraulic characteristics. If the system has been modified with a sensor port please do not install it facing down. The ballast should be mounted either above or beside the disinfection chamber. It is good practice to provide “drip loops” for the wiring going to the ballast to prevent any water from entering the ballast control box.

UV disinfection system outdoors is possible, but the factory will need to know the location. This will determine the type of electrical enclosure and the fitting required for water proofing systems from elements.

2. Your Disinfection Unit – Installation

If you are attempting to install the unit by yourself and you have questions, please call your water quality or plumbing professional. Improper installation can cause potential water damage to your property and can also reduce the effectiveness of the UV disinfection system.

2.1. Recommended Supplies

Before getting started, you will need the following:

- Screws to bolt the unit into place and the power supply
- Teflon tape to insure quality sealing
- Shutoff values for both the inlet and outlet
- Unions before and after the unit
- Optional: Flow control (from dealer or plumbing supply house) Note: many units come with this as a standard accessory. It looks like a brass disk with a rubber insert. This will be press fit into the inlet and outlet.

2.2. Mounting the Vessel - Plumbing

Your unit may be installed under the sink or where the water enters the building. In either case, we recommend that shutoff valves be installed before the inlet and after the outlet. This allows for easier yearly servicing and allows you to shut off the water supply if you have a problem with the unit.

Mount the chamber to the wall using the mounting brackets attached to the chamber. Various connections may be used for the water inlet/outlet but be sure to perform any solder connections without the quartz sleeve and O-ring installed to prevent any damage from the heat generated.

A damaged quartz sleeve can cause a potential leaking problem. An unchecked leak can lead to severe flooding.

2.3 Mounting the Power Control Center

The unit will come with a remote Ballast Control Center (BCC). This is an enclosure that houses the electronics. The UV lamps are powered thru the use of electronic ballasts. The BCC will display lamp operating status in the form of a GREEN LED indicating lamp is operating. The system will also have a non-resettable digital run time meter that should be used to change your lamps every 9,000 hours.

2.4 Quartz for Open-ended Units (creating a watertight unit)

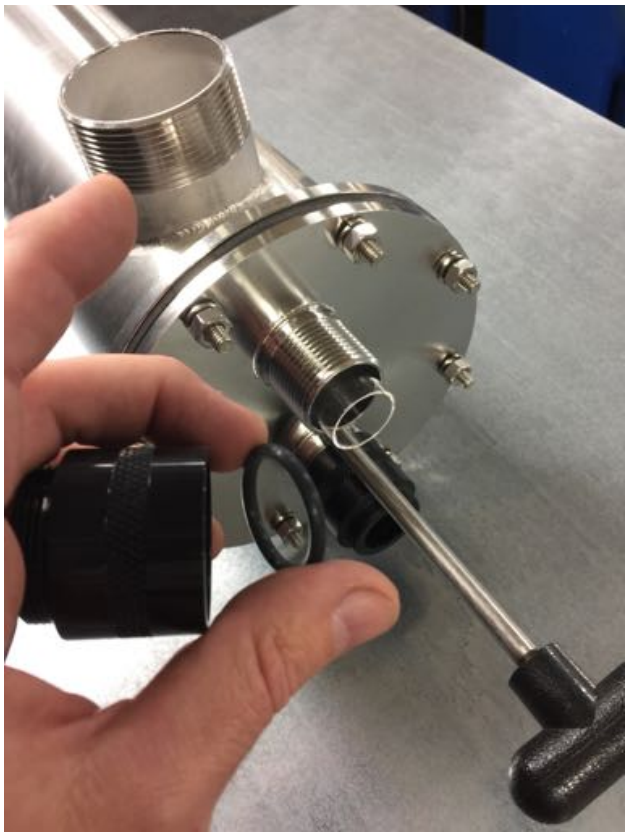
An open system has openings on each end of the unit. The quartz will also have openings on both ends.

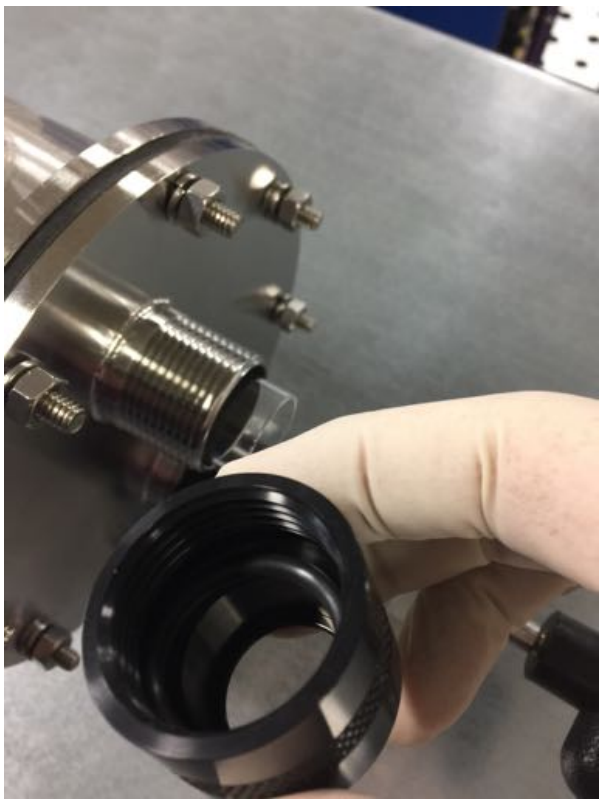
The unit will have come with compression nuts that are in place and hold O-rings. Remove the nut and the O-ring. Insert the quartz into the unit. Use your fingers on both sides to guide it into place. Move the quartz so it comes out of the unit at equal lengths on both sides.

Making sure that the O-ring is sitting properly in the compression nut, loosely hand tighten each nut into place. Before tightening, re-check to insure that the quartz is extending equally out of each side. You can do this by inserting your fingers on both sides and judging the

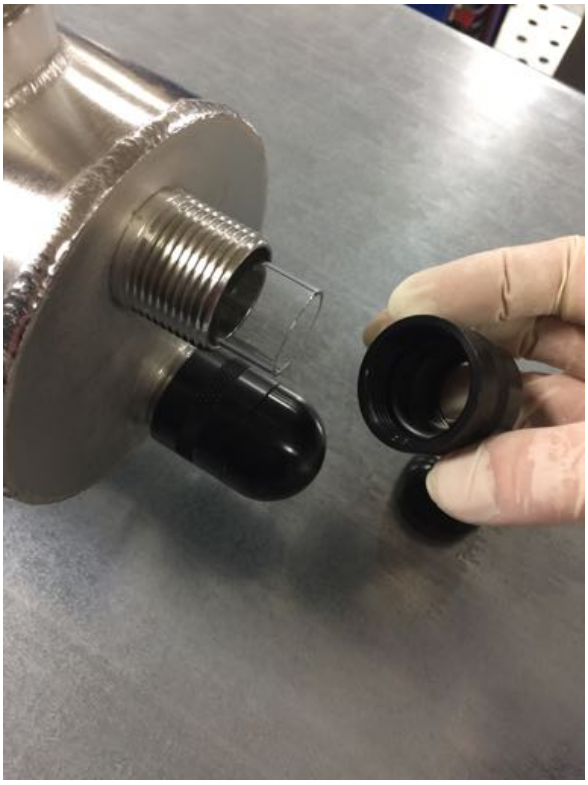
appropriate distance. Once done, tighten until you have a secure fit. Create a tight seal, but not too tight as you may crack the quartz sleeve.

Now that it is in place, you can test the unit to see if it is watertight. Slowly pressurize the unit by allowing water to run through the unit for five minutes. As this is happening, check to see if the seal is dry. If it is not, you will need to redo the seal. If it is dry, you are prepared for lamp installation.





Front Head (removable if equipped with wiper)



Back Head (welded closed)

Removable Head with Gasket for systems with manual wipers

2.4 Installing the Lamp

Carefully slide the lamp into the quartz (dropping the lamp can break the quartz). Once it is in place, connect the lamp to the socket. When you have done that, tighten the cap to the nut and then plug in the unit. For systems that are designed for outdoor use, the cap will have a strain relief to prevent water from infiltration.

3. Maintenance –(optional quartz sleeve wiper)

As noted in this manual, your lamp needs to be replaced on a yearly basis to insure proper disinfection. The quartz sleeve should be inspected and cleaned at this time. Depending on the water quality the quartz sleeve may need to be cleaned on a more frequent basis.

The quartz may have "build up" on it. If it does, clean it with soap and water. If the quartz is stained, use a product like CLR or Lime-A-way (both available at the grocery store).

In many projects, the unit has come equipped with a manual quartz cleaning system. This plunger allows the operator to push a yoke back and forth to clean the UV systems quartz sleeves.

When using the wiper system, insure that the Blades are not parked in front of the UV sensor as this will provide false readings.

When you remove the quartz, please follow the same instructions as above in reverse.

Track you maintenance record on the front page of this manual.

4. Operation Status and Alarms

Basic systems come with lamp status displays LEDs. The Green LED indicates that the lamp is operating. In the event that it goes out, it may mean that the lamp is out.

A run time meter allows the user to track the operating hours of the system and allows the operator to track the 9,000 hours and allows the operator to replace the lamp at the right time.

5. Service Instructions

- Disconnect power to the system
- Remove expired lamp from the system
- Depressurize, drain chamber and inspect clean the quartz sleeve if necessary.
- Reassemble quartz sleeve, pressurize and inspect for leaks.
- Install new UV lamp and securely attach lamp connector.
- Power the system back up

6. Recommendations

- Use a licensed plumber or qualified water professional to do the installation.
- Check the unit on a regular basis to see if the lamp is on (the green LED indicator will tell you if the lamp is working).
- When first installing the unit, you will need to make insure that all plumbing after the unit has been sanitized. This will make sure that all microorganisms have been destroyed. Plumbers often fill the UV chamber with disinfectant and flush out the pipes. They do this by opening all spigots and allowing the disinfectant to run its course through the pipes. Professionals should do this because many disinfectants can be harmful or fatal if swallowed.
- Install carbon filters, softeners and reverse osmosis systems BEFORE the UV system. These types of filters can breed microorganisms.
- Use a flow control device that is rated for your unit's GPM flow rate.

7. Options

Your system may have come with optional equipment. If it did, instructions for these options are attached.

Manual Quartz Cleaning System

Your system may have come with an optional manual quartz cleaning system. This device will allow you to clean the quartz sleeve without having to disassemble the disinfection chamber.

! WARNING ! The plunger may be forced out when water pressure builds up. When installing the unit, make sure that you stand clear of the plunger when pressurizing the system.

In order for the system to work at optimum performance, you must clean the quartz on a periodic basis. To clean quartz, pull the plunger toward you and then push it in again. Do this a few times a month.

You may need to change the o-rings on the wiper on a periodic basis. Please open the system once a year to inspect the quartz and the wiper rings.

UV monitoring system

A sensor will view one lamp and provide an output from 0-100%. The meter will display the output. In the event of a low reading, it may mean that the lamp is getting toward the end of its life, the quartz sleeve has become fouled or the water quality may have changed.

Hand Off Auto

A hand off auto switch can be integrated to allow for remote On/Off.

Automatic Shut-off Valve aka Normally Closed Solenoid

Your system may have come with an optional automatic solenoid valve.

This device will stop the water flow if the UV lamp goes out or if the UV intensity falls. It is considered a “normally closed” valve. This means that when there is no power to it, it closes. This will occur during a power outage or lamp failure.

The solenoid will work off of a signal from the ballast, which indicates lamp out. If lamp fails, then the solenoid will shut off the water supply.

The solenoid will also work off of a signal from the UV monitor, when the UV intensity has fallen to an unsafe level. In the event of water stoppage, you will need to correct the problems.

Reasons for stoppage include: Power failure, Lamp is out, Ballast is out, UV lamp is failing, Solenoid is damaged

There is a manual override on some of the valves. Call your water professional in case of an emergency. The manual valve is a white toggle switch. In order to open the valve, it must have power. This is generally provided by the UV system, but in emergencies, power can be brought directly to the valve.

The main power box control will have leads for attaching the solenoid. These leads will need to be connected to the leads on the actual solenoid valve. The solenoid will have come with connectors.

The solenoid valve will have an arrow on it indicating flow direction. Please install it the solenoid so that the path of the water goes with the arrow.

WARRANTY REGISTRATION

MODEL NUMBER/TYPE: _____

DEALER NAME: _____

PURCHASE DATE:_____

NAME:_____

ADDRESS:_____

CITY: STATE: _____POSTAL CODE: ___

COUNTRY:_____

PHONE:_____ EMAIL:_____

Please fill out the above information and forward it to your dealer. This will provide you with a 7-year warranty on the stainless steel chamber and a 1-year warranty on the electrical components. UV lamps are warranted for 30 days. After the initial 30 days of operation, replacement or refund will be pro-rated based on the expected lamp life of 9,000 hours.

In addition, this will allow your dealer to remind you when it is time to replace your lamp and quartz.

This warranty applies to equipment that has been installed and maintained according to the instructions in this manual. Manufacturer is not responsible for damage due to improper use, operation or installation.

This warranty needs to be received by American UV within 25 days of initial operation. The warranty applies to replacing defective equipment.

AUV shall have no liability hereunder, either direct or contingent, for any consequential damages. AUV recommends that you use pre-filters, flow-control devices and inspect the lamp to insure that it is functioning.