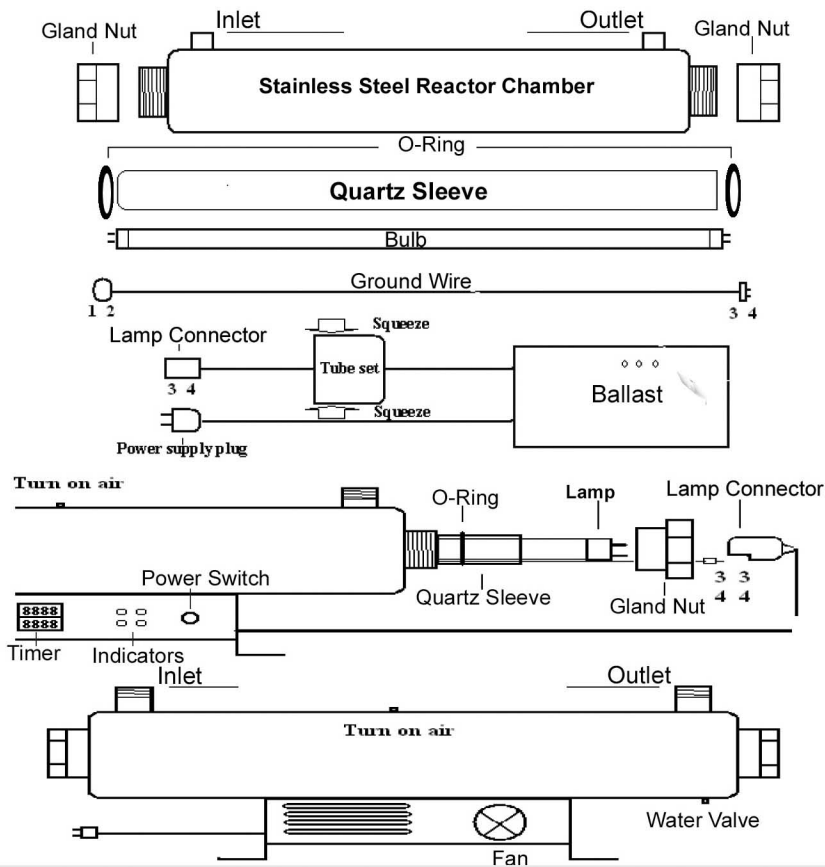




CRYSTAL QUEST® Ultraviolet Disinfection System Installation Instructions



Models:

- CQE-UV-00101
- CQE-UV-00102
- CQE-UV-00103
- CQE-UV-00104



A qualified licensed plumber should install this water filtration system (not using the service of a qualified plumber will void warranty).

- Inspect the carton and Ultraviolet Disinfection System for evidence of rough handling and concealed damages. **Report damage to the carrier. Damage claims should be filed with the carrier.** All damage related matters need to be addressed directly with the carrier.
- Remove components from shipping carton. Check that all installation parts are present, including installation hardware.
- Read the instructions carefully and learn the specific details regarding installation and use. Failure to follow them could cause serious property damage. **Crystal Quest® accepts no liability for property damage.**
- The System should be installed to meet local, state and federal plumbing codes and health department rules and regulations. (The same guidelines apply when installing the UV DISINFECTION SYSTEM).
- **All equipment needs to be plumbed into the water system by a licensed plumber.**
- Check with your local public works department for plumbing codes.
- Use the System on a potable, safe-to-drink, COLD water supply only.

SAFETY INSTRUCTIONS:

WARNING - To guard against injury, basic safety precautions should be observed, including the following:

- READ AND FOLLOW ALL SAFETY INSTRUCTIONS.
- DANGER - To avoid possible electric shock, special care should be taken since water is present near electrical equipment.
- Carefully examine the UV DISINFECTION SYSTEM after installation. It should not be plugged in if there is water on parts not intended to be wet.
- Do not operate the disinfection system if it has a damaged cord or plug, if it is malfunctioning or if it is dropped or damaged in any manner.
- Always disconnect water flow and unplug the disinfection system before performing cleaning or maintenance activities. Never yank the cord to remove from an outlet grasp the wall plug and pull to disconnect.
- Do not use this disinfection system for other than intended use (potable water applications only).
- Intended for indoor use only. Do not install or store this disinfection system where it will be exposed to the weather, temperatures below freezing or to high temperatures. When storing the unit, drain all water from it and disconnect it from water supply.
- Read and observe all the important notices and warnings on the water disinfection system.
- If an extension cord is necessary, a cord with a proper rating should be used. A cord rated for less Amperes or Watts than the disinfection system rating may overheat. Care should be taken to arrange the cord so that it will not be tripped over or pulled.

SAFETY INSTRUCTIONS:

Warning: The light given off by this unit can cause serious burns to unprotected eyes and skin. Never look directly at a burning UV lamp. When performing any work on the UV Disinfection System, always unplug the unit first. Never operate the UV system while the UV lamp is outside of the UV Chamber.

Note: The UV lamp inside of the disinfection system is rated at an effective life of approximately 9000 hours. To ensure continuous protection, replace the UV lamp annually.

Water Condition:

Feed water quality is extremely important for the optimum performance of your UV DISINFECTION SYSTEM. The following levels are recommended for installation:

- **Turbidity:** < 1 NTU
- **Hardness*:** < 7 gpg (120 mg/L)
- **Iron:** < 0.3 ppm (0.3 mg/L)
- **Manganese:** < 0.05 ppm (0.05 mg/L)
- **Tannins:** < 0.1 ppm (0.1 mg/L)
- **UV Transmittance:** > 75% (call for recommendations on applications where UVT < 75%)

* Where total hardness is less than 7 gpg, the UV DISINFECTION SYSTEM should operate efficiently provided the quartz sleeve and/or sensor probe is cleaned periodically. If total hardness is over 7 gpg, the water should be softened.

If your water contains levels in excess of those mentioned above, proper pre-treatment is recommended to correct these water problems prior to the installation of your UV DISINFECTION SYSTEM. These water quality parameters can be tested by your local dealer, or by most private analytical laboratories. Proper pre-treatment is essential for the UV DISINFECTION SYSTEM to operate as intended.

INSTALLING

CAUTION: Electronic ballast must be connected to a grounded outlet and the lamp connector ground wire connected to the stainless steel reactor chamber.

- The disinfection system is designed to be mounted horizontally or vertically at the point-of-use or point-of-entry depending on the specific flow rate of the unit.
- 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 ballast should be mounted either above or beside the reactor chamber. This will prevent moisture caused by condensation from entering the ballast enclosure, causing a potential for ballast failure.
 - 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.
 - For safety purposes, the UV disinfection system should be connected to a ground fault interrupt circuit.
 - The UV disinfection system is intended for indoor use only. Do not install disinfection system where it may be exposed to the weather or extreme temperatures.
 - Install the disinfection system on a cold water line only.
 - If treating the entire house, install the disinfection system before any branch lines.
 - A 5-micron sediment filter must precede the UV disinfection system. Ideally, the UV disinfection system should be the last treatment the water receives before it reaches the faucet.

1. Carefully remove the UV lamp from the shipping tube being careful not to touch the "glass" portion with your fingers. Insert the UV lamp into the quartz sleeve and chamber making sure the connection end is inserted last. Mount the UV disinfection system to the wall with the supplied clamp.
2. If the UV disinfection system is to be hard plumbed, make sure you leave enough clearance in front of the lamp connector to allow for lamp service (a length equal to the length of the unit should suffice).
3. Various connection methods can be used to connect the water source to the UV disinfection system, however union type connectors are recommended. The use of a flow restrictor device is strongly recommended when installing your disinfection system in order that the recommended flow rate not be exceeded. In addition, the use of a by-pass assembly is recommended for emergency use of untreated water when your disinfection system is being serviced.

Note: When the UV unit is returned to service after being on bypass, the complete water system must be sterilized once again with chlorine (household bleach) to destroy any contamination that may have entered the distribution system while on by-pass. **DO NOT SOLDER CONNECTIONS WHILE ATTACHED TO THE DISINFECTION SYSTEM AS THIS COULD DAMAGE THE O-RING SEALS.**

4. Prior to connecting the power source, check all connections to ensure that they are indeed secure, turn on water supply and check for any leaks. If satisfied that there are no leaks, proceed with the following steps.
5. To properly ground the stainless steel reactor chamber, attach the green wire coming from the power source to the grounding lug on the UV chamber. Remove the green cap nut and slide the eyelet connector onto the screw. Fasten the cap nut to the screw with a 5/16" wrench.
6. The power source provided with your disinfection system must be located within (5) feet of an electrical outlet. **DO NOT USE AN OUTLET THAT CAN BE SWITCHED OFF** (ie. A WASTE DISPOSAL OUTLET). Attach the lamp connector to the UV lamp and press into the gland nut. Plug the ballast into the outlet and ensure the POWER-ON LED is illuminated. The audible ballast will enter a self test mode when power is first applied to verify ballast operation.

Note: If ballast enters alarm condition, power must be removed for 30 seconds to allow ballast to reset.

Note: As the system requires time to reach its full operating capacity, allow the disinfection system to operate 3 - 5 minutes prior to using the water from the unit. In addition, to clear any air or debris from the system, open the faucet and allow water to run through the disinfection system for 2 - 3 minutes (when using an RO application, run the water for 30 - 45 seconds).

OPERATING & MAINTENANCE INSTRUCTIONS:

NOTE: PRIOR TO PERFORMING ANY WORK ON THE DISINFECTION SYSTEM, ALWAYS DISCONNECT THE POWER SUPPLY FIRST.

1. Regularly inspect your disinfection system to ensure that the UV lamp is operating.
2. Replace the UV lamp with a new lamp after one year of continuous use to ensure a high bacteria and virus kill rate. It should be noted that the UV lamp should be ON continuously, as repeatedly turning the lamp on and off will severely shorten the lamp life and allow bacteria to pass through without being affected by the UV.
3. To replace the UV lamp, first disconnect power. Disconnect the lamp connector by carefully separating it from the gland nut (use the aid of a slot screwdriver if required). Disconnect lamp connector from lamp and carefully remove the UV lamp. Replace the new lamp being careful not to touch the new UV lamp "glass" with your fingers as oils may impair UV transmission. If contact does occur, clean lamp with alcohol and reconnect lamp connector. Carefully replace lamp into stainless steel chamber. Press lamp connector into aluminum gland nut. Plug power source into outlet. Verify POWER-ON LED is illuminated and ballast audible start-up sequence operates.
4. If the water contains any hardness minerals (calcium or magnesium), iron or manganese, the quartz sleeve will require periodic cleaning. To remove the quartz sleeve, first remove the UV lamp as outlined in step 3 and follow the following steps:
 - a) Shut off water supply and drain all lines.
 - b) Remove the lowest connection on the disinfection system and drain the UV chamber (use a small bucket under the unit to prevent a spill).
 - c) Remove gland nuts from chamber. (do not allow quartz sleeve to fall).
 - d) Carefully remove O-rings from the quartz sleeve. As the O-rings may tend to adhere to the quartz sleeve, it is recommended to replace the O-rings annually.
 - e) Clean the quartz sleeve with a cloth soaked in vinegar or some other mild acid and then rinse.
 - f) Re-assemble the quartz sleeve in the UV chamber allowing the sleeve to protrude an equal distance from both ends of the UV chamber.
 - g) Wet the O-rings and slide onto each end of the quartz sleeve and reassemble the gland nuts (hand tight is sufficient).
 - h) Re-tighten all connections, turn on water and check for leaks.
 - i) Re-install the UV lamp and lamp connector as per prior instructions.
 - j) Plug in ballast and verify the POWER-ON LED is illuminated and ballast power-up sequence operates.

Note: If the system is put on a temporary by-pass or if it becomes contaminated after the disinfection system, it will be necessary to shock the system with household bleach for a full 20 minutes before resuming the use of the water.





Model	Watts	ELECTRICAL Volts	ELECTRICAL HZ	Output Power	Housing Material SS	Dosage uW/cm ²
CQE-UV-00101 1 GPM	11W	180~230	50~60	50mA	304 #	>30000
CQE-UV-00102 6 GPM	25W	180~230	50~60	113mA	304 #	>30000
CQE-UV-00103 8 GPM	30W	180~230	50~60	136mA	304 #	>30000
CQE-UV-00104 12 GPM	55W	180~230	50~60	250mA	304 #	>30000

Model	Inlet/Outlet Port Size MNPT	Audible Lamp Failure	Maximum Pressure Lbs
CQE-UV-00101 1 GPM	1/4"	yes	11
CQE-UV-00102 6 GPM	1/2"	yes	15.5
CQE-UV-00103 8 GPM	1/2"	yes	15.5
CQE-UV-00104 12 GPM	3/4"	yes	15.5

**KEEP THIS MANUAL FOR FUTURE
REFERENCE AND UNIT MAINTENANCE**
Product design is subject to change without notice.

One-Year Limited Warranty

CRYSTAL QUEST® warrants your CRYSTAL QUEST® Ultraviolet Disinfection Systems for one year from the date of purchase against all defects in materials and workmanship when used in compliance with the manual. This warranty does not include replacement cartridges unless defective upon receipt. CRYSTAL QUEST® disclaims all implied warranties, including without limitation, warranties of merchantability and fitness for a particular purpose. If for any reason the product proves to be defective within one year from the date of purchase, please call for assistance. This warranty gives you specific legal rights and you may have other legal rights which vary from state to state. CRYSTAL QUEST® assumes no responsibility for incidental or consequential damages; for damages arising out of misuse of the product or the use of any unauthorized attachment. Some states do not allow the exclusion or limitation of implied warranties or incidental or consequential damages, so the above limitations or exclusions may not apply to you. Should service be required during or after the warranty period or should you have any questions regarding how to use your CRYSTAL QUEST® Ultraviolet Disinfection Systems, please contact our Technical Support department at service@crystalquest.com, Monday through Friday, 9 A.M. to 5 P.M. Eastern Time.

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For further assistance contact your
Crystal Quest® dealer
Or visit us at www.crystalquest.com

Online warranty registration
<http://crystalquest.com/warranty.htm>