READ THIS MANUAL

PLEASE KEEP FOR PERMANENT REFERENCE

Revised 2/03

This manual covers the preliminary installation, operation and general maintenance requirements for Aquafine Ultraviolet Water Treatment Equipment for the following applications:

- Disinfection

ATTENTION:

The information on Page 5 #10 regarding "Warranty Information" and page #8 regarding the "Intermittent Operation" Section (Note: On the "Intermittent Operation" the entire section, does not apply to either unit in the DW Series). These are misprints and should be disregarded!

Any questions contact Aquafine Corporation

DW Series

Installation, Maintenance and Operation Manual

Part No. 109-1

SAFETY ISSUE

It is imperative that those responsible for the installation of this equipment, as well as operating personnel, read this manual and carefully follow all instructions and guidelines. *EQUIPMENT OPERATORS AND INSTALLERS MUST COMPLY WITH OPERATIONAL SAFETY REQUIREMENTS.*

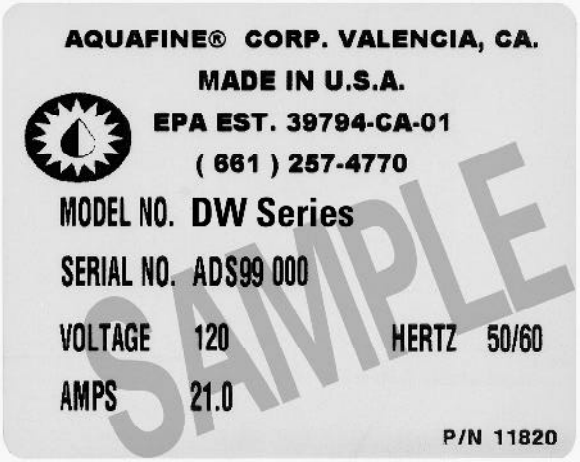
Aquafine Corporation builds the finest quality ultraviolet equipment in the world. When properly installed and operated, Aquafine ultraviolet treatment units will provide many years of service.

Aquafine®

Table of Contents

Please Note:

Refer to this nameplate decal on your unit when ordering parts or service.



Aquafine®

Installation *and Operational Safety*

safety requirements for UV equipment

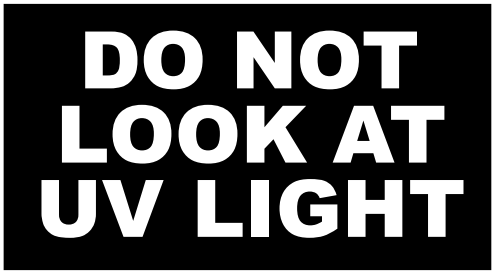
The following safety requirements directly relate to operator safety. Please review with all appropriate personnel to ensure continuous compliance.

These safety requirements are MANDATORY.

Failure to carefully follow these requirements can cause injury to the operator and damage the UV unit.

This "Safety Issue" icon marks all items relating to safety issues. Please read and adhere to these comments carefully.

1. Release the pressure in the UV treatment chamber before attempting to remove the protective covers and sealing items.
2. Disconnect all power to the UV unit before servicing. The unit operates on high voltage and should only be serviced by qualified personnel.
3. Do not look at the lighted blue ultraviolet lamp. Do not operate the ultraviolet lamp outside of the UV treatment chamber. Exposure can severely burn and damage eyes and skin.
4. Supply the unit with the correct voltage and frequency as indicated on the nameplate decal, ensuring the unit is wired in accordance with local electrical codes.
5. Properly ground the unit. Failure to comply may result in severe or fatal electrical shock.
6. Install the unit away from undue vibration that can damage the electrical components and UV lamps.
7. Ensure all water connections (flanges and compression nuts) are tightly sealed before applying pressure to the UV unit. **Do not stand in a direct line with the endplate when inspecting for water leaks; observe from the front or back.**
8. Do not allow the unit to overheat by operating without water flow. Normal operating temperature for standard UV units is 35° to 100°F (2°-38°C).
9. If the inlet water temperature exceeds 100°F (38°C), contact the factory for assistance.
10. Do not allow the water temperature to drop below 35°F (2°C).
11. Do not allow the flow rate to exceed the maximum rated capacity.
12. **DO NOT ELECTRICALLY CYCLE THE UV UNIT MORE THAN THREE(3) ON/OFF CYCLES IN A 24-HOUR PERIOD.**
13. Before start up, flush the UV unit and discharge piping to rinse out any debris left from installation.



Description *of Equipment*

DW series

The model DW is intended for disinfection of domestic drinking water which meets minimum acceptable water quality standards. This UV device is not intended for industrial use or harsh environments.

This unit is not intended for destruction of cysts. Should your water source be from surface waters, the possibility of cyst contamination is present and you should install a cyst removal filter which meets or exceeds National Sanitation Foundation (NSF) Standard 53.

The water entering the UV unit must meet certain "clarity and minimum contaminant standards" in order to be acceptable for UV treatment. To the untrained eye, the water must be clear, free of color and visible particles. From a technical point-of-view, the water must be pretested to insure non-visible contaminants are not present which can block the UV light rays and prevent proper performance.

Do not install or operate the UV treatment unit until the following minimum contaminant levels in the feed water are assured:

- Turbidity: Less than 2 NTU
- Suspended solids: Less than 10 mg/L
- Maximum Total Iron: 0.3 mg/L
- Maximum Total Manganese: 0.5 mg/L
- Color: None
- pH: 6.5 - 9.5

Pretreating the water with appropriate filtration and/or other devices may be necessary to bring the water quality up to acceptable "UV transmission" levels. Only then should you install and operate this or any other potable UV unit. Failure to provide acceptable water quality can promote premature and excessive fouling or coating of the quartz sleeve. This will not only effect performance, but will also create an unacceptable cleaning and maintenance schedule.

Please Note:

THIS UV DISINFECTION UNIT IS INTENDED TO TREAT DOMESTIC DRINKING WATER WHICH HAS BEEN TESTED AND PRETREATED AS REQUIRED TO INSURE THE INLET WATER TO THE UV UNIT MEETS MINIMUM ACCEPTABLE WATER QUALITY STANDARDS DESCRIBED ABOVE.

The disinfection unit is comprised of a stainless steel chamber with a water inlet and outlet. A UV lamp is located in the center of the chamber and is contained within a fused quartz sleeve.

As water flows through the chamber, the UV lamp produces UV light rays that pass through the quartz sleeve and into the water, penetrates the outer cell membrane of microorganisms, passes through the cell body, reaches the DNA and alters the genetic material. The microorganism is rendered unable to reproduce.

The design of the unit allows the UV lamp to be replaced without having to break the water seal. The chamber and electrical components are housed in a protective metal cabinet.

Warranty *Information*

To maintain your UV units warranty, please fill out and mail the Warranty Registration Card in the back pocket of this manual and return to Aquafine Customer Service.

The following installation and operating conditions are considered hazardous or damaging to the equipment and can compromise the ability of the Aquafine unit to perform as intended.

ANY OF THE FOLLOWING CONDITIONS MAY VOID THE EQUIPMENT WARRANTY.

1. Failure to connect proper electrical service to unit.
2. Failure to properly ground the unit.
3. Failure to eliminate excessive vibration, piping movement, or water hammer.
4. Failure to exercise caution in the handling of the sensitive and delicate components (such as lamps, quartz sleeves, electronic boards, etc.) during installation and/or maintenance procedures.
5. Failure to avoid excessive stops and starts. Not more than three (3) on/off cycles per 24 hours of operation.
6. Operation of visibly damaged equipment.
7. Failure to avoid undue overhead piping stress which may result in structural damage to the UV unit.
8. Use of components other than those provided or authorized by Aquafine.
9. Failure to correct overhead piping connection leaks or compression nut seal leaks which result in damage to the electrical components.
10. Operating the unit without water flow.

Aquafine®

WARRANTY

Aquafine equipment is guaranteed to be free from defects in materials and workmanship (excluding ultraviolet lamps) for a period of one year from the date of purchase. Any part suspected of being defective should be returned prepaid to Aquafine Corporation. If upon our inspection, the part(s) proves to be defective, it will be replaced or repaired (our option) and returned to sender prepaid.

Before returning any part, contact Aquafine Corporation for return authorization and shipping instructions. This guarantee is void if the equipment has not been installed and maintained in accordance with instructions. This guarantee is in lieu of all other warranties, expressed or implied.

To keep your warranty valid and to ensure peak performance, fill out and return your warranty registration card (located in the back pocket of this manual) and use only genuine Aquafine replacement parts.

Aquafine Corporation phone:661.257.4770 fax:661.257.2489

Unit *Installation*

where to install the unit

The UV unit should be installed after all other water conditioning equipment. Mount the unit to a wall or braced frame using the mounting tabs. Install a bypass with unions.

Install the UV treatment unit in a sheltered area with ample ventilation. Ambient temperatures surrounding the unit should be between 35°F (2°C) and 110°F (43°C). Should your requirements differ, contact the factory for assistance.

As an ultraviolet UV treatment unit does not introduce any chemical residue within the water, it is desirable to install the unit as close as possible to the point of use in order to avoid potential recontamination by discharge pipes, fittings, etc. The base of the UV treatment unit should be mounted on suitable support to avoid undue strain on the unit or your related pipes and fittings.

The UV unit should be installed after all other water conditioning equipment and as close to the end point of use as possible. For example, it should not be installed in a remote well house; it should be installed at the house. If filtration or other water treatment equipment is installed, the UV unit must be installed after all such equipment.

how to protect your unit

The location should be free from undue vibration which could be caused by proximity to heavy equipment and erratic or improper pumps. Excessive vibration will damage internal electrical components and cause premature failure of the UV lamps.

If your piping system is subject to impulse pressure resulting in a "water hammer" condition, a surge tank or other means must be provided to remove this condition, otherwise the extreme momentary pressure may rupture and fracture the quartz sleeves.

operating pressure

Standard units are rated for a maximum operating pressure of 120 psig (8.3 bar).

DW-8 installation

Allow 40" (102cm) service access clearance on the inlet side and 12" (31cm) on the outlet side clearance on the opposite end of the unit. For the DW-8 DE unit, a minimum of 2 feet clearance is required below the bottom of the unit to operate the drain valve (supplied by others).

If vertical installation is required due to lack of horizontal access space, the inlet water connection must be at the bottom.

DW-5 installation

Allow 16" (41 cm) service access clearance on both ends of the unit.

If vertical installation is required due to lack of horizontal access space, the inlet water connection must be at the bottom.

grounding

It is imperative that the unit be properly grounded for safe and proper operation.

Failure to properly ground the UV unit automatically voids the equipment warranty.

Line voltage to the UV unit must be stable. Performance will be reduced should incoming line voltage drop more than 5% from the rated voltage as indicated on the nameplate decal on the unit.

Please Note:

A parts check list was included when this unit was shipped. Please refer to this list and note that some parts are small and can be easily overlooked when discarding packaging.

special piping requirements for users of ultrapure water

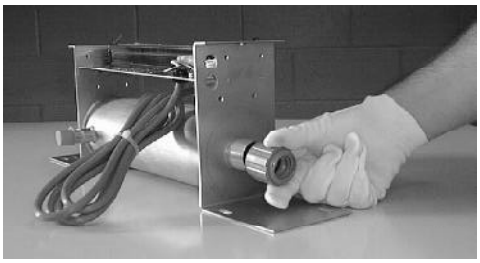
Ultrapure water users have reported that over time, exposure to ultraviolet light may photochemically degrade nonmetallic piping materials, including most or all fluoro-polymers, resulting in material break-down and/or structural failure. Should your water application and piping material be so classified, we recommend you install "UV light traps" to isolate any such susceptible material from direct exposure to the ultraviolet light. Install the UV light traps to the inlet/ outlet of the UV treatment chamber prior to the connection of any nonmetallic materials. UV light traps protect nonmetallic piping. Should you require additional assistance, please contact your local Aquafine representative or the factory directly.

Please Note:

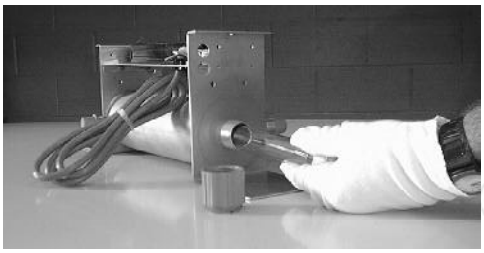
If the location of the UV unit is vacant for 3 or more days, the UV unit should be unplugged to prevent overheating. After plugging in the UV unit from a cold start, it takes about 3 minutes for the lamp to warm up to 100% UV power.

Installing *the Quartz Sleeves*

Step 5: Remove the cover. (Unit pictured is a DW-5)

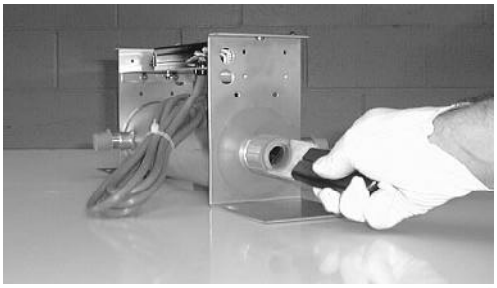


Step 6: Remove compression nut from threaded nipple



Step 7: Place end of quartz sleeve into threaded nipple

Step 8: Place o-ring inside compression nut



Step 9-10: Place compression nut on threaded nipple and gently tighten with compression nut tool.

quartz sleeve installation procedure: single-ended units

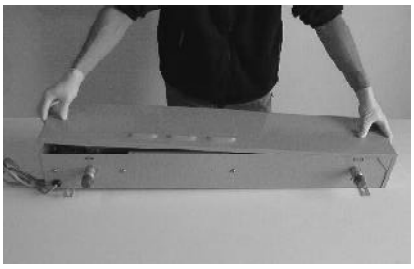
The quartz sleeves designed for this unit utilize a quartz tube that is open on one end and closed on the other end. The closed end of the tube is inserted into the threaded nipple.

1. Turn off all power to the unit.
2. Wear clean cotton gloves to prevent contamination of the quartz sleeves.
3. Carefully remove the quartz sleeve from the factory packaging. Handle these with care as they are fragile.
4. Visually inspect all quartz sleeves for cracks or other damage. Do not install damaged quartz sleeves.
5. Remove the cover from the treatment chamber.
6. Remove the compression nut.
7. Place the closed end of the quartz sleeve into the threaded nipple and slowly push the sleeve through the chamber.
8. Assemble the compression nut and o-ring. Place the o-ring into the internal relief of the compression nut below the threaded area. The o-ring should fit into the compression nut.
9. Place the compression nut and o-ring onto the end of the quartz sleeve until the end of the quartz sleeve touches the end of the compression nut, and hand-tighten until snug. Deionized water may be used as a lubricant.
10. Tighten the compression nut securely using the provided compression nut tool. Be careful not to overtighten.
11. Slowly pressurize the system and fill the chamber with water to check for leaks.
12. You are now ready to install the UV lamp.

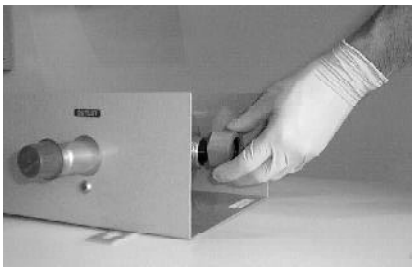
Please Note:

Over tightening can break the quartz sleeve or create leaks.

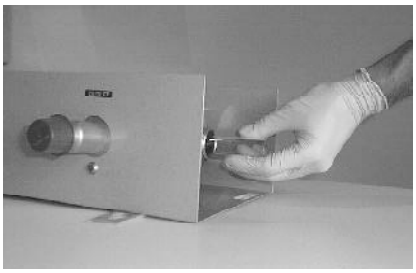
Installing *the Quartz Sleeves*



Step 5: Remove the cover. (Unit pictured is a DW-8)

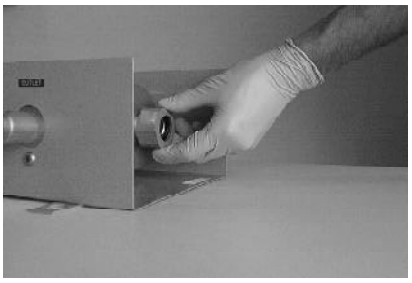


Step 6: Remove compression nut from threaded nipple



Step 7: Place end of quartz sleeve into threaded nipple

Step 8: Place o-ring inside compression nut



Step 9: Place compression nut on threaded nipple.

quartz sleeve installation procedure: double-ended units

The quartz sleeves designed for this unit utilize a quartz tube that is open on both ends.

1. Turn off all power to the unit.
2. Wear clean cotton gloves to prevent contamination of the quartz sleeves.
3. Carefully remove the quartz sleeve from the factory packaging. Handle these with care as they are fragile.
4. Visually inspect all quartz sleeves for cracks or other damage. Do not install damaged quartz sleeves.
5. Remove the cover from the treatment chamber.
6. Remove the compression nut.
7. Place the end of the quartz sleeve into the threaded nipple and slowly push the sleeve through the chamber to the second endplate.
8. Assemble the compression nut and o-ring. Place the o-ring into the internal relief of the compression nut below the threaded area. The o-ring should fit into the compression nut.
9. Place the compression nut and o-ring onto the end of the quartz sleeve until the end of the quartz sleeve touches the end of the compression nut, and hand-tighten until snug. Deionized water may be used as a lubricant.
10. Tighten the compression nut securely using the provided compression nut tool. Be careful not to overtighten.
11. Verify that the drain plug is tightly closed (DW-8 models only).
12. Slowly pressurize the system and fill the chamber with water to check for leaks.
13. You are now ready to install the UV lamp.

Please Note:

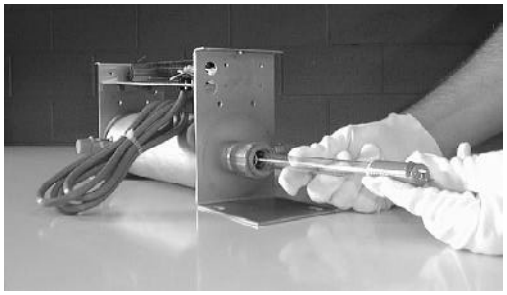
Over tightening can break the quartz sleeve or create leaks.

Installing *the Ultraviolet (UV) Lamps*

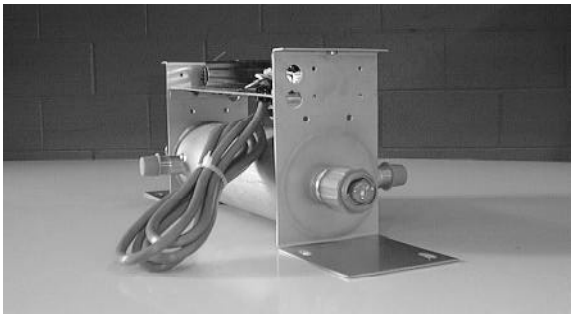
installing the UV lamps: single-ended units

Once is has been verified that there are no leaks in the system, the unit is ready for UV lamp installation.

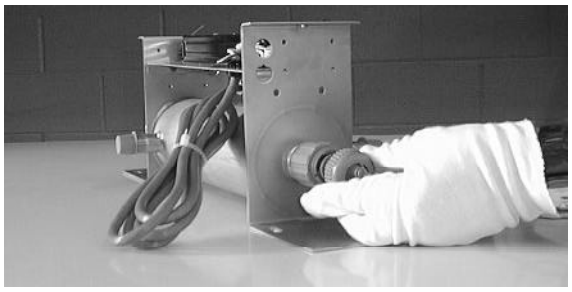
1. Turn off all power to the UV unit.
2. Depressurize the system.
3. Wear clean cotton gloves to prevent contamination of the UV lamps.
4. Carefully remove the UV Lamp from the factory packaging. Handle the lamp with care, as it is fragile.
5. Visually inspect all lamps for cracks or damage. Do not install damaged lamps.
6. Using both hands, slowly insert the lamp into the quartz sleeve by pushing it with one hand while guiding it with the other in a level, horizontal position. This is very important. If not installed properly, lamp or quartz breakage will occur.
7. Twist the lamp into the locking mechanism of the compression nut. This ensures the lamp is secure within the chamber.
8. The lamp pins must be pushed down to fit securely in the lamp socket connector.
9. Screw the lamp socket retainer cap clockwise into place over the lamp socket. Only hand tightening is required. Do not overtighten.



Step 6: Insert the UV lamp into the quartz sleeve



Step 6: UV lamp inserted



Step 9: Tighten the lamp socket retainer cap.

CAUTION! Prior to energizing the ballasts and lamps, ensure there is no water leaking into the quartz sleeves and compression nut cavities by properly installing these components. Even a small leak can flood a quartz sleeve and compression nut cavity.

During operation, high voltage is present at the lamp pins and receptacles of the lamp connectors. Prolonged flooding of a quartz sleeve and compression nut cavity can cause premature failure of the lamp due to repeated arcing, overheating of the lamp connector cable, and may result in a meltdown of the cable insulation.

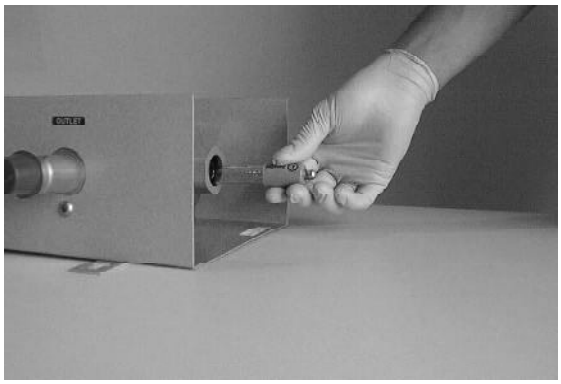
SAFETY ISSUE

Installing *the Ultraviolet (UV) Lamps*

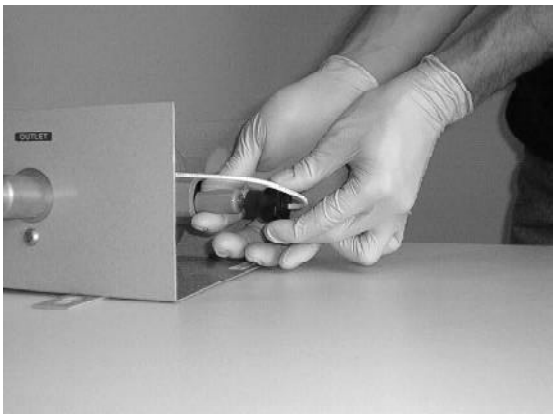
installing the UV lamps: double-ended units

Once is has been verified that there are no leaks in the system, the unit is ready for UV lamp installation.

1. Remove all power to the UV unit.
2. Depressurize the system.
3. Wear clean cotton gloves to prevent contamination of the UV lamps. Carefully remove the UV lamp from the factory packaging. Handle the lamp with care, as it is fragile.
4. Visually inspect all lamps for cracks or damage. Do not install damaged lamps.
5. Insert the UV lamp into open quartz sleeve and push it about 2”-3” (51-76mm) out beyond the opposite compression nut, so as to be able to hold the lamp with one hand.
6. Insert the lamp base into the rubber socket. Push until you feel a firm “bottomed out” connection.
7. With one hand, push the lamp socket boot onto the end of the ultraviolet lamp and connect the opposite lamp socket. When properly attached, a slight “snap” can be felt, which indicates a proper connection. **Verify no portion of the rubber boot has folded under during this process.**



Step 5: Insert the UV lamp into the quartz sleeve



Step 8: Connect lamp socket to lamp locating pin

CAUTION! Prior to energizing the ballasts and lamps, ensure there is no water leaking into the quartz sleeves and compression nut cavities by properly installing these components. Even a small leak can flood a quartz sleeve and compression nut cavity.

During operation, high voltage is present at the lamp pins and receptacles of the lamp connectors. Prolonged flooding of a quartz sleeve and compression nut cavity can cause premature failure of the lamp due to repeated arcing, overheating of the lamp connector cable, and may result in a meltdown of the cable insulation.

Powering Up *the Ultraviolet (UV) Unit*

prior to turning on the UV unit, the following must be verified:

- With water flowing through the system, ensure there are no system leaks and no piping connection leaks
- All earth ground connections are properly made
- All lamp connections are properly made

1. Verify that all incoming power conductors, including the ground conductor, are properly terminated.
2. Plug in the unit.
3. Observe the UV lamp LED to verify the lamp is operating properly.
4. Turn the power off until actual operational start up begins.

CAUTION! Rapid successive cycling of the power to the ballast can cause premature failure of the system components.

sanitizing the system

It is imperative all discharge piping valves, faucets, etc., be sanitized and flushed to insure a clean start. Super-chlorinate all plumbing lines by putting the equivalent of two gallons or 5¼ % bleach into the well or the point closest to the well. Open every faucet until a strong chlorine odor is detectable. Leave this solution in all lines for at least four hours before purging. Before flushing lines, proceed to the next step, since UV-treated water must be used to rinse the chlorine water from all lines.

Next, plug in the UV unit and observe the viewing lens to verify the UV lamp is operating. Once the UV unit is in operation, turn on the main water supply and open every faucet until the chlorine odor is dissipated. Start with the faucet closest to the well or supply source.

If considerable red water and/or turbid water is noted coming from the faucets after the super-chlorination procedure, it is recommended that you inspect the quartz sleeve and clean if dirty (See Maintenance Section.)

Over time, follow-up water testing analysis can show regrowth of bacteria in the discharge piping and faucets; re-sanitization would then be required.

Monitoring *Devices*

lamp viewport

DW-8 Models with double-ended lamp design

When the UV lamp is operating properly, you will be able to see a faint blue glow through the viewport on the outside of the unit.

If you do not see a faint blue glow through the viewport, the lamp will need to be replaced.

Remember: NEVER look directly at the lighted blue UV lamp or allow it to be operated outside the UV chamber.

Lamp-failure buzzer option

For single-ended units only

The buzzer is an optional accessory that is activated when the UV lamp fails to operate. Upon such condition, the LED indicator will automatically turn off and the buzzer will sound.At this time, check the power connections and UV lamp, which may need to be replaced.

This option is provided only for the DW-5 and DW-8 SE units.

Maintenance *Requirements*

cleaning the unit

The exterior surfaces of the Aquafine UV unit should be kept clean as part of routine maintenance. Use a soft cloth with soap and water or any commercial stainless steel cleaner.

UV lamp replacement

Replace the DW unit's UV lamps after 8,000 hours of use.

THIS IS BASED ON NO MORE THAN THREE (3) ON/OFF POWER CYCLES PER 24 HOUR PERIOD.

Please follow all operating requirements outlined the warranty section of this manual.

Premature lamp failure or lamp life deterioration can be expected if the UV unit is cycled on/off more than three (3) times per day. To replace the lamps, follow the procedures on page 11-12.

quartz sleeve cleaning & replacement

As water passes through the ultraviolet treatment unit, minerals, debris and other substances in the water will settle and deposit onto the quartz sleeve. This will impair the ability of the ultraviolet rays to penetrate the water.

Recent studies have shown that degradation of the quartz sleeve from continuous exposure to UV reduces the amount of UV radiation transmitted into the water stream. Based on these findings, we recommend the annual replacement of the quartz sleeves in addition to routine cleaning.

cleaning the quartz sleeves

Visually inspect a quartz sleeve thirty days after use to see if any debris or film has settled on the outside. If dirty, follow these cleaning procedures:

1. Turn off the main water to the unit.
2. Disconnect the electrical power to the unit.

CAUTION! Prior to removing the cover to access the lamps and quartz sleeves, you must release all pressure to the UV treatment chamber. Drain the chamber if required.

3. Remove the exterior unit cover.
4. Remove the retainer caps for unit with single-ended lamp and lamp sockets.
5. Wear clean cotton gloves to prevent contamination of the quartz sleeves and UV lamps.
6. Remove the UV lamp from the chamber. Set aside in a safe place.
7. Loosen the compression nuts and let water drain from the chamber and plumbing lines.
8. For the DW-8 with double-ended lamp design, loosen the compression nuts and remove the quartz sleeve by inserting your finger in the opposing end to guide the sleeve as it is pulled through the chamber. **WARNING: Do not let the free end of the quartz sleeve drop into the chamber. Doing so will chip or break the quartz.**
9. Wash the quartz sleeves with mild soap and water and rinse with clean, hot water.
10. Reinstall the quartz sleeve and ultraviolet lamp as previously instructed.
11. Replace the UV unit cover.

Should this be insufficient to clean the quartz sleeves, they should be replaced.

To place an order, contact Aquafine or your local representative.

To replace the quartz sleeves, follow the procedures on page 9 and 10.

ballast replacement

Ballast replacement is not part of the UV unit's routine maintenance. However, in the event that a ballast needs to be replaced, the following procedure should be followed:

1. Power down the UV unit. If not, ensure that power to the unit is removed by opening the switch or breaker upstream of the UV unit.
2. Locate the old ballast to be replaced. Refer to the electrical diagram, if necessary.
3. Isolate the old ballast from rest of system by disconnecting the wires.
4. Using 5/32 L-shaped hex wrench completely remove the bolt securing the ballast to the sub panel. Put the bolt aside.
5. Remove the old ballast by pulling it towards you. Discard the old or defective ballast.
6. Install the new ballast, securing it with the bolt removed earlier.
7. Tighten the bolt with 5/32 L-shaped hex wrench.
8. Reconnect ballast connector(s).
9. Restore the power to the UV unit by closing the upstream switch or breaker.

measuring performance

Every UV treatment unit should be tested periodically to verify actual efficiency. Regardless of the intended application or any optional equipment which may have been provided with your UV unit, the most accurate and dependable procedure is to conduct post-UV sample analysis in accordance with standard testing methods.

Periodic sample collection and testing should be scheduled as often as the user deems sufficient to be assured the quality of the Aquafine ultraviolet unit effluent is acceptable.

obtaining proper water samples

Our experience has shown that the vast majority of unsatisfactory post-UV bacteriological samples are directly related to improper sample-taking techniques.

There are variety of commercial sample collection apparatus available and should you choose one, be sure to follow the manufacturer's recommended procedures.

We recommend you select a valve with a discharge **orifice no larger than** 1/4" (6 mm).

sampling procedure

The following procedure is recommended for collecting samples for bacteriological analysis when sample valves are installed:

1. Prior to taking the water sample, have on hand an adequate supply of sterile bottles. These should be obtained from a source laboratory and should have been autoclaved and contained within a plastic outer wrapping.
2. The inside diameter of a sample valve must not exceed 1/4" (6 mm) to ensure proper velocity. Prior to taking the sample, it is imperative that the test sample valve be fully opened under full pressure for complete three and one half minutes. Temporary tubing or some other material may be used to direct the water to a container or drain to avoid unnecessary spillage.
3. After the valve has been left fully open for three and one half minutes, reduce the flow to a reasonable stream of water (not less than 50% of full flow). Continue flowing to drain three additional minutes.
4. Remove any temporary used for flow diversion.
5. Open the sterile bottle. Holding the cap in a down position, the operator should then hold his breath while taking the sample so as to avoid atmospheric contamination of the sample. The operator must also not allow his finger to touch the inside of the cap or the neck of the bottle.
6. After the water sample has been taken, the cap should be immediately secured on the sample container.
7. The sample container should be labeled and placed in a plastic wrapping and must be taken to the laboratory for plating as soon as possible. Processing should begin within three hours of sample collection and should comply with accepted standard methods.

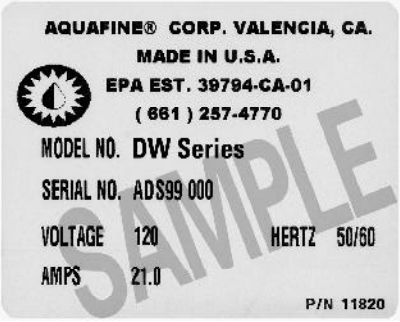
The above procedure was developed by a leading national pharmaceutical firm after an 18 month study. It has been found that virtually all removable debris which may accumulate within a sample valve can be mechanically flushed during the procedures detailed above.

We recommend duplicate samples be taken at each test station, during each specific test, to avoid laboratory error and to ensure reasonable repeatability and validity through comparison.

Replacement *Parts List*

Please Note:

Refer to this nameplate decal on your unit when ordering parts or service.



general part description **part number**

Common Parts for DW-5 and DW-8 SE Models

1. Compression nut - CPVC 17496
   Compression nut - 316 LSS 18468
2. Lamp socket cap 17489
3. Lamp socket 17816-3
4. O-ring- EPDM 4253
5. Compression nut tool 18517

DW-5 Parts

1. Ballast, 120 Volt 18855
2. UV lamps, standard SE 254 mauve 19306
3. Quartz sleeves, domed 19330

DW-8 Single-Ended (SE) Parts

1. UV lamps, standard SE 254 mauve 17491
2. Quartz sleeves, domed 18347
3. Ballast, 120 Volt 4035
4. Ballast, 240 Volt 3493

DW-8 Double-Ended (DE) Lamp Unit Parts

1. UV lamps, standard DE 254 mauve 3084
2. Quartz sleeves, open end 3184
3. O-ring, EPDM 4253
4. Compression nut, CPVC 4252
5. Lamp socket 16184
6. Ballast, 120 Volt 4035
7. Ballast, 240 Volt 3493
8. Compression Nut tool 3105