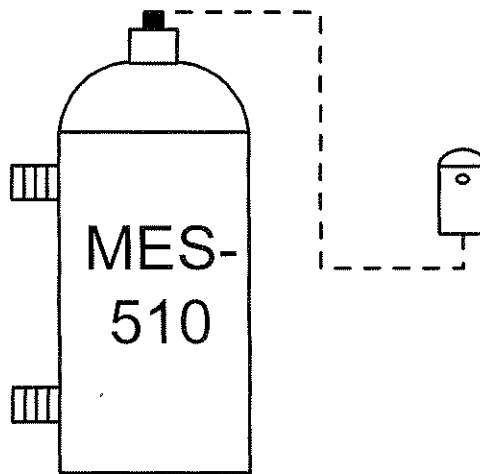


MASTER

Water Conditioning Corp.

www.masterwater.com



MES-510 Ultraviolet Sterilizers

Installation and Operation Manual

June 2004 Version

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MES-510/510A Ultraviolet Sterilizer Installation and Operating Instructions

Caution:

NEVER LOOK DIRECTLY AT THE ULTRAVIOLET LIGHT WITH THE NAKED EYE. View through a piece of ordinary glass or optical glasses. **ULTRAVIOLET LIGHT** may cause eye irritation if eye is not properly protected. You should never have to look directly at the **ULTRAVIOLET LIGHT** when installing or trouble-shooting one of our MES-510 Water Sterilizers.

Standard Features:

1. Durable 304 Stainless Steel, Plasma Welded Pressure Vessel
2. High efficiency germicidal lamp emitting 254 nanometers of UV energy
3. Quartz tube to protect the germicidal lamp
4. Durable solid state, electronic ballast with lamp failure indicator.
5. System can be installed in a horizontal or vertical position
6. The MES-510A model also features lamp outage alarm.

Pre-Treatment:

The MES-510 unit should be installed after the well tank and any water treatment equipment (softeners, filter, etc.). Always install a Cartridge type Dirt Filter before the MES unit to eliminate the possibility of a dirt build-up inside the stainless steel sterilization chamber. A complete water test is recommended to determine if additional pre-treatment equipment is required.

<u>Untreated Water Quality</u>	<u>Maximum Allowable Level</u>
Chloride	250.00 ppm
Color	0.00 units
Hardness	8.00 gpg
Iron	0.30 ppm
Manganese	0.05 ppm
pH	6.0 to 8.5
Total Dissolved Solids	500.00 ppm
Turbidity	5.00 ntu

If untreated water quality exceeds the allowable levels, specific pre-treatment is required. Inadequate pre-treatment could result in bacteria passing through the UV unit and into the piping system.

MES Pressure Vessel Installation:

1. The ultraviolet unit is designed to be installed in a vertical position. The unit is supplied with (2) brackets to help support the unit if necessary. Some piping configurations are sturdy enough to support the weight of the ultraviolet unit without using the brackets. If using brackets, follow #'s 2 thru 6.
2. Place the top bracket (larger one) over the nipple located at the top of the vessel. The end of the bracket with the three holes should be facing up towards the top of the vessel.
3. Tighten the gray PVC ring onto the nipple. This will compress down onto the top of bracket.
4. Attach the smaller bracket to the bottom of the vessel. The bracket has a clip type fastener that attaches to the bottom rim of the vessel. The end of the bracket with the three holes should be facing down towards the bottom of the vessel.
5. Secure the top bracket to a wall by using three appropriate screws or fasteners (not provided).

Be sure to leave plenty of clearance for servicing the quartz tube and germicidal lamp.

6. Secure the bottom bracket to the wall by using three screws or fasteners (not provided).
7. Pipe the inlet into the bottom nipple and the outlet into the top nipple on the UV vessel. There is an internal flow restrictor in the outlet nipple of the MES-510.
8. Use quality unions and ball valves on the inlet and outlet for servicing the unit. See Figure 1 on Page 6 for a typical installation piping layout. If sweat fittings are used, be sure soldering is done in such a manner as not to allow heat to reach the UV vessel. If Schedule 80 PVC or CPVC is used, make sure to follow the proper primer and solvent instructions.
9. It's recommended to install a boiler drain on the outlet piping of the unit for future bacteria testing.

Quartz Installation:

1. Wipe the quartz tube with alcohol to remove dirt and fingerprints.
2. Place the quartz tube into the pressure vessel through the nipple located at the top of the vessel.
3. Place the o'ring supplied over the top of the quartz tube.
4. Tighten the gray gland nut onto the nipple located on the top of the vessel. **Hand-tighten only or the quartz tube may shatter.**

Electrical Requirements and Power Supply Installation:

Always follow all local electrical codes when installing our water treatment equipment.

1. Provide a properly grounded 115V/60 HZ electrical outlet.
2. Maximum amperage required is 5 amps.
3. Make sure the electrical service provides power 24 hours per day. Avoid using outlets that are switch controlled.

Choose a wall placement that is dry and clear of all piping and metal objects, and within 4 feet of the UV vessel and the electrical outlet.

Germicidal Lamp Installation and Power Supply Start Up:

1. Gently insert the 4-pin germicidal lamp into the quartz tube through the center of the gland nut located at the top of the vessel.
2. Press the white end of the power supply cord onto the pins on the end of the lamp.
3. Press the black fitting into the center of the gland nut.
4. Plug power supply power cord into the electrical outlet. The germicidal lamp is now operating.

Filling the UV Unit with Water:

1. Open the inlet ball valve about 25% to fill the UV vessel slowly with water.
2. Inspect for leaks and repair if any are found.
3. Open the inlet and outlet ball valve to their 100% open position.

Disinfecting the Piping System with Chlorine:

1. Shut off the water on the inlet and outlet of the cartridge type pre-filter.
2. Remove the filter sump and fill with household bleach, 5.25% sodium hypochlorite.
3. Attach the sump to the filter assembly and open the filter's inlet and outlet valves.
4. Run all the hot and cold water faucets in the home until you detect the bleach odor. Once the odor is detected, close that faucet. Continue this procedure until the bleach odor has been detected at every faucet.
5. Allow the water to stand for at least (4) hours to kill the bacteria residual in the piping system.

Annual Germicidal Lamp Replacement Procedure:

1. Unplug the power supply from the electrical outlet.
2. Pull the black fitting from the center of the gland nut.
3. Lift the white connector on the end of the power supply cord away from the end of the germicidal lamp.
4. Carefully lift the germicidal lamp out of the quartz tube and discard the lamp. Remember the lamp is glass and can cause injury to you if the lamp is dropped.
5. Gently insert the new germicidal lamp into the quartz tube through the center of the gland nut located at the top of the vessel.
6. Press the white end of the power supply cord onto the appropriate pins on the end of the lamp.
7. Press the black fitting into the center of the gland nut.
8. Plug the power supply into the electrical outlet.

Quartz Tube Cleaning Procedure:

1. Close the inlet and outlet ball valves on the UV unit piping.
2. Remove the germicidal lamp by following steps 1 - 4 of the Annual Germicidal Lamp Replacement Procedure.
3. Remove the gland nut located on the top of the UV pressure vessel.
4. Remove the o'ring from the top of the quartz tube.
5. Carefully lift the quartz tube out of the top of the vessel. Remember the quartz tube is glass and can cause injury to you if the quartz is dropped.
6. Wipe the quartz tube with alcohol to remove dirt and fingerprints.

7. Place the quartz tube back into the pressure vessel through the nipple located at the top of the vessel.
8. Place the o'ring again over the top of the quartz tube.
9. Tighten the gray gland nut onto the nipple on the top of the vessel.
Hand-tighten only or the quartz tube may shatter.
10. Insert the same germicidal lamp by following steps 5-8 of the Annual Lamp Replacement Procedure.

Final Check:

1. Make sure the Inlet and Outlet ball valves are open.
2. Make sure the MES UV Unit is plugged into an electrical outlet with power 24 hours per day.
3. Check all piping for leaks.
4. Make sure adequate pre-treatment equipment is installed.

Specifications

Model	Inlet Pipe	Outlet Pipe	Depth	Width	Height
MES-510	3/4" NPT	3/4" NPT	6.00"	8.00"	16.00"

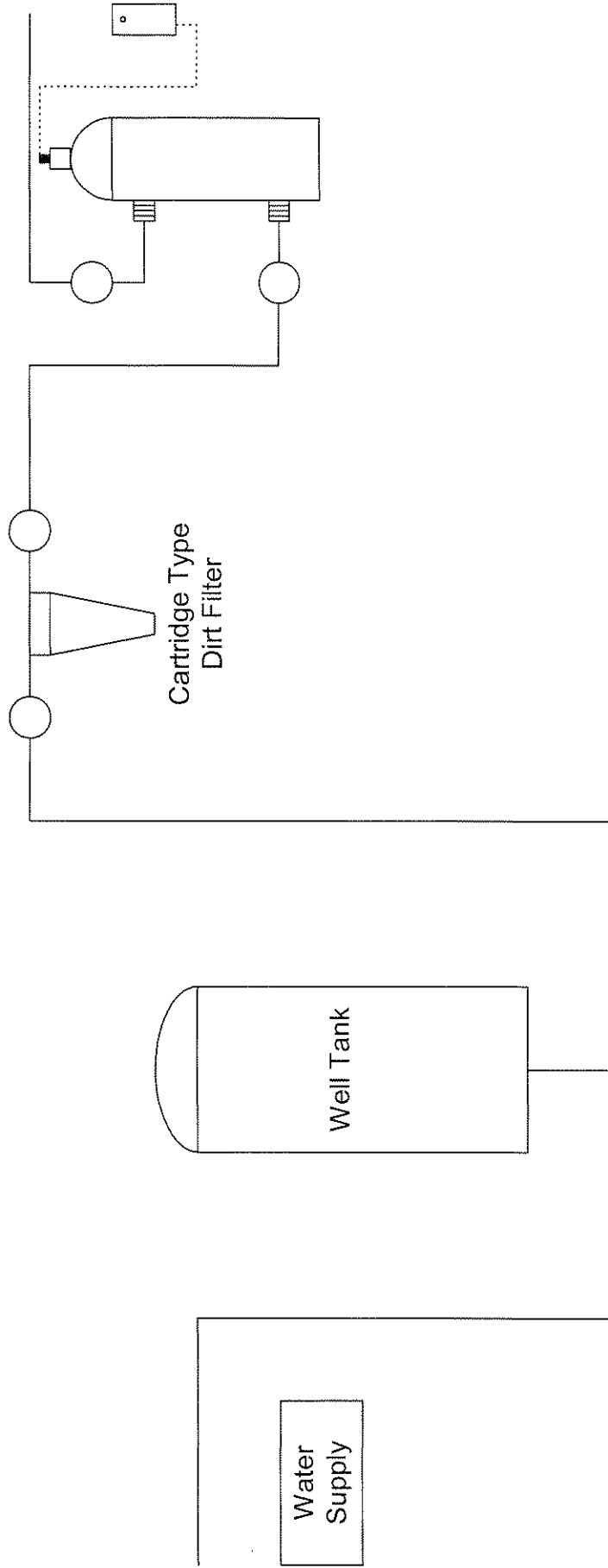
Model	Flow Rate*	Lamp Wattage	Amperage Voltage	Maximum Pressure	Maximum Temperature
MES-510	5.0-10.0 gpm	14 watts	0.5/115V	100.00 psi	100.00 F

*Flow rate affects UV intensity

Replacement Parts

Model	Lamp Number	Power Supply	Quartz
MES-510	14w lamp sv6	MES Power Pack	MWC-7 Quartz

Figure 1



224 Shoemaker Rd.
Pottstown, PA 19464
MES Series Typical Piping Layout
June 2004

1 YEAR LIMITED WARRANTY

As of June 2004

This MES Series Ultraviolet Sterilizer is warranted for a period of **one year** from date of purchase by first user against defects in materials and workmanship, except for the Ultraviolet Lamp which is warranted for 90 days from date of purchase against defects in materials and workmanship. Except, as specifically set forth in this paragraph, Master Water Conditioning Corporation makes no other warranties, express or implied.

This warranty shall be void if the ultraviolet sterilizer is moved from the place of original installation, or if damage is caused by misuse, misapplication, accident, freezing, flood, fire or if not installed in accordance with instructions furnished by Master Water Conditioning Corporation.

This warranty shall be void in the event of damages from external sources or where the ultraviolet sterilizer has been operated at pressure in excess of 100 pounds per square inch or at a temperature in excess of 100 degrees F., or below 32 degrees F. Incidental costs or consequential damages are not covered by this warranty.

All defective parts shall be returned prepaid to Master Water Conditioning Corporation for inspection. Master shall not be liable for labor charges other than Master factory repairs.

This warranty gives you specific legal rights, and you may have other rights which vary from state to state. Some states do not allow limitations on duration of implied warranties or exclusion of incidental or consequential damages, so the above limitations may not apply to you.

All claims must be submitted in writing to Master Water Conditioning Corporation at 224 Shoemaker Road, Pottstown, Pennsylvania 19464, within thirty (30) days from the discovery of the defect. Master Water Conditioning Corporation thereafter will correct defective parts and workmanship or rusting, corrosion or bursting within sixty (60) days.

Failure to notify Master by completing, signing and returning the registration card within twenty (20) days of the purchase shall void the warranty.



224 Shoemaker Rd. Pottstown, Pa. 19464

12 YEAR LIMITED WARRANTY

As of Oct. 1, 1995

This Residential Water Conditioner is warranted for a period of **one year** from date of purchase by first user against defects in materials and workmanship. In addition, the complete control valve is warranted for **five years**. The control valve body (excluding internals and electrical parts) is warranted for **six years**. The mineral tank, plastic brine tank or cabinet tank (excluding mineral) is warranted against rust, corrosion or bursting for a period of **twelve years** from date of manufacture. Except, as specifically set forth in this paragraph, Master Water Conditioning Corporation makes no other warranties, express or implied.

This warranty shall be void if the conditioner is moved from the place of original installation, or if damage is caused by misuse, misapplication, accident, freezing, flood, fire or if not installed in accordance with instructions furnished by Master Water Conditioning Corporation.

This warranty shall be void in the event of damages from external sources or where the conditioner has been operated at pressure in excess of 100 pounds per square inch or at a temperature greater than 100 degrees F. or less than 32 degrees F. Incidental costs or consequential damages are not covered by this warranty.

All defective parts shall be returned prepaid to Master Water Conditioning Corporation for inspection. Master shall not be liable for labor charges other than Master factory repairs.

This warranty gives you specific legal rights, and you may have other rights which vary from state to state. Some states do not allow limitations on duration of implied warranties or exclusion of incidental or consequential damages, so the above limitations may not apply to you.

All claims must be submitted in writing to Master Water Conditioning Corporation at 224 Shoemaker Road, Pottstown, Pennsylvania 19464 within thirty (30) days from the discovery of the defect. Master Water Conditioning Corporation thereafter will correct defective parts and workmanship or rusting, corrosion or bursting within sixty (60) days.

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