GERMICIDAL ULTRAVIOLET

Ultraviolet Disinfection is a unique and rapid method of disinfection without the use of heat or chemicals.

MEGATRON® Ultraviolet Water Disinfection Systems utilize germicidal ultraviolet lamps that produce short-wave radiation that is lethal to bacteria, viruses and other microorganisms present in water.

Economical and safe, MEGATRON® Ultraviolet Water Disinfection Systems offer rapid disinfection without the use of heat or dangerous chemicals – often for the lowest cost available by any means.

An ever-growing range of industries and consumer applications have found ultraviolet to be the ideal solution for their water treatment requirements.

Awareness of the environmental impact of chemical disinfectants and evolving discharge regulations have made ultraviolet purification a technology of choice in water recycling and disinfection of processed wastewater discharges.

ABOUT US

Since 1963, Atlantic Ultraviolet Corporation® has pioneered the discovery and development of beneficial uses of ultraviolet energy. Over the years these efforts have led to the development of valuable, cost effective and environmentally sound techniques and products now known and respected throughout the world.

The UV Application Specialists at Atlantic Ultraviolet Corporation® assist customers in the selection of germicidal lamps and equipment. Their specialized knowledge is a valuable resource in formulating effective and cost-conscious ultraviolet solutions. Extensive inventories and a dedicated staff enable Atlantic Ultraviolet Corporation® to fulfill its commitment to provide fast deliveries and responsive customer service.

Model M250
ADVANTAGES

Effective
Virtually all microorganisms are susceptible to MEGATRON® ultraviolet disinfection

Economical
Hundreds of gallons are purified for each penny of operating cost

Safe
No danger of overdosing, no addition of chemicals

Fast
Water is ready for use as soon as it leaves the purifier – no further contact time required

Easy
Installation and maintenance are less complicated than other methods

Automatic
Provides continuous disinfection without special attention or measurement

Chemical Free
No chlorine taste or corrosion problems

Versatile
Capacities available from seventy to thousands of gallons per minute (GPM)

The water enters the stainless steel disinfection chamber and flows into the space between the quartz sleeves and chamber wall where suspended microscopic organisms are exposed to intense shortwave germicidal ultraviolet radiation.

Translucent sight port and front panel indicator lights (not shown) provide positive indication of germicidal lamp operation.

Manual or automatic wiper system facilitates routine cleaning of quartz sleeves without disassembly or shutdown of disinfection systems.

Water leaving the purifier is instantly ready for use.
SPECIAL FEATURES

Modular Design
Each MEGATRON® is a completely self-contained disinfection system. The electrical enclosure and disinfection chamber form an independent unit simplifying installation; simply secure, plumb and supply suitable single-phase power. Multiple units can be interconnected to comply with nearly any flow requirement.

All internal electronic modules can be removed and replaced, simplifying troubleshooting, and reducing any possible down time.

Surelite™ Electronic Ballasts
State-of-the-art electronic ballasts developed specifically for the operation of ultraviolet lamps. These ballasts are smaller, lighter, and more efficient; operate cooler, provide higher ultraviolet lamp output with a reliable, long life.

Manual Wiper System
Permits mechanical cleaning of the quartz sleeves without service interruption, or disassembly of the system.

Automatic Wiper System (Optional)
Once programmed, permits unattended mechanical cleaning of the quartz sleeves.

Sight Port
Translucent plug mounts to the disinfection chamber and provides positive indication of germicidal lamp operation.

CRYSTAL CLEAR™ Quartz Sleeve
Fused, high quality quartz, protects and insulates the ultraviolet lamps to ensure high output over a range of operating temperatures.

Remote Outputs
12v DC: Provides an output corresponding to the UNIT STATUS and power for a low-voltage audio alarm, 50mA max.

4-20mA
Provides an output corresponding to the ULTRAVIOLET INTENSITY. Output must be displayed by a PLC, computer, or 4-20mA meter, which can interpret the signal.

Dry Contacts
Provides SPDT output corresponding to UV NORMAL or FAULT status of the monitor. Contacts are rated at 50v 100mA max.

Lamp Operation Indicators
Provide positive indication of each germicidal lamp’s operation.

Digital GUARDIAN™ Ultraviolet Monitor
Displays the intensity of germicidal ultraviolet energy within the disinfection chamber. Signals are provided by the Ultraviolet Sensor Probe.

Elapsed Time Indicator
Non-resettable display of accumulated operating hours.
Electrical Enclosure
A NEMA style enclosure, fabricated from stainless steel type 304. All electronics are accessible through either of the access doors. System status is viewed through the status display window of the front access door.

Ster-l-Ray® Instant Start
Germicidal Ultraviolet Lamps
Specially designed lamps are instant starting and provide the utmost in quality, sustained output and longevity. (Not Shown - Inside Chamber).

Disinfection Chamber
Made from stainless steel type 316, all internal and external surfaces are passivated, exterior is also electropolished. Integral drain fittings allow for in-place drainage.

Sampling Ports
Located on the inlet/outlet and allow inline sample gathering, monitoring or other user specific requirement.

Chamber Head Plates
Made from stainless steel type 316, passivated and electropolished, and are removable allowing access into the chamber.

Ultraviolet Sensor Probe
Mounts to the disinfection chamber, senses the intensity of germicidal ultraviolet energy that penetrates the quartz sleeve and water within the disinfection chamber.

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ULTRAVIOLET DOSAGE

Germicidal lamps provide effective protection against microorganisms. A small cross-section is shown below.

<table>
<thead>
<tr>
<th>ORGANISM</th>
<th>ALTERNATE NAME</th>
<th>TYPE</th>
<th>DISEASE</th>
<th>DOSE*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bacillus subtilis spores</td>
<td><em>B. subtilis</em></td>
<td>Bacteria</td>
<td></td>
<td>22,000</td>
</tr>
<tr>
<td>Bacteriophage</td>
<td>Phage</td>
<td>Virus</td>
<td></td>
<td>6,600</td>
</tr>
<tr>
<td>Coxsackie virus</td>
<td></td>
<td>Virus</td>
<td>Intestinal infection</td>
<td>6,300</td>
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<tr>
<td><em>Shigella spores</em></td>
<td></td>
<td>Bacteria</td>
<td>Bacterial Dysentery</td>
<td>4,200</td>
</tr>
<tr>
<td><em>Escherichia coli</em></td>
<td><em>E. coli</em></td>
<td>Bacteria</td>
<td>Food poisoning</td>
<td>6,600</td>
</tr>
<tr>
<td>Fecal coliform</td>
<td></td>
<td>Bacteria</td>
<td>Intestinal infection</td>
<td>6,600</td>
</tr>
<tr>
<td>Hepatitis A virus</td>
<td>Infectious Hepatitis virus</td>
<td>Virus</td>
<td>Hepatitis of the liver</td>
<td>8,000</td>
</tr>
<tr>
<td>Influenza virus</td>
<td>Flu virus</td>
<td>Virus</td>
<td>Influenza</td>
<td>6,600</td>
</tr>
<tr>
<td><em>Legionella pneumophila</em></td>
<td></td>
<td>Bacteria</td>
<td>Legionnaires' Disease</td>
<td>12,300</td>
</tr>
<tr>
<td><em>Salmonella typhi</em></td>
<td></td>
<td>Bacteria</td>
<td>Typhoid Fever</td>
<td>7,000</td>
</tr>
<tr>
<td>Staphylococcus aureus</td>
<td>Staph</td>
<td>Bacteria</td>
<td>Food poisoning, Toxic Shock Syndrome, etc.</td>
<td>6,600</td>
</tr>
<tr>
<td>Streptococcus spores</td>
<td>Strep</td>
<td>Bacteria</td>
<td>Strep throat</td>
<td>3,800</td>
</tr>
</tbody>
</table>

When used as directed to disinfect clear water, MEGATRON® Water Purifiers provide an ultraviolet dosage in excess of 30,000 microwatt seconds per square centimeter (µWSec/cm²).

*Nominal Ultraviolet dosage (µWSec/cm²) necessary to inactivate better than 99% of specific microorganism. Consult factory for more complete listing.

OPERATING CHARACTERISTICS

Approximately 95% of the ultraviolet energy emitted from STER-L-RAY® germicidal lamps is at the mercury resonance line of 254 nanometers, the region of germicidal effectiveness most destructive to bacteria, mold and virus.
STER-L-RAY® Germicidal Ultraviolet Lamps are shortwave, low pressure mercury vapor discharge tubes that produce ultraviolet wavelengths lethal to microorganisms.

Approximately 95% of the ultraviolet energy emitted from STER-L-RAY® Germicidal Ultraviolet Lamps is at the mercury resonance line of 254 nanometers, the region of germicidal effectiveness most destructive to bacteria, mold and virus.

STER-L-RAY® and the STER-L-RAY® logo are trademarks of Atlantic Ultraviolet Corporation®.

CAUTION: Exposure to direct or reflected germicidal ultraviolet rays will cause painful eye irritation and reddening of the skin. Personnel subject to such exposure must wear suitable faceshield, gloves and protective clothing.

GERMICIDAL LAMP DATA

<table>
<thead>
<tr>
<th>Lamp Number</th>
<th>Purifier Model No.</th>
<th>Nominal Lamp Length</th>
<th>Power Consumption</th>
<th>Ultraviolet Output</th>
<th>Rated Effective Life</th>
</tr>
</thead>
<tbody>
<tr>
<td>05-1313A-R</td>
<td>M50, M90, M150, M250</td>
<td>1554mm</td>
<td>75 Watts</td>
<td>33 Watts</td>
<td>10,000 Hrs</td>
</tr>
</tbody>
</table>

1. Wattage is lamp watts only and does not include ballast loss (approximate).
2. Maximum rated output at 254 nanometers.

The lamp listed above has been specially developed and is the only lamp recommended for use with MEGATRON® Water Purifiers.

All STER-L-RAY® lamps used in MEGATRON® units are low pressure type which afford the maximum efficiency in producing the required germicidal rays. In addition has advantage of high efficiency and low power requirements.
WATER QUALITY RECOMMENDATIONS

FOR CLEAR, FRESH WATER APPLICATIONS

Turbidity:
5 Nephelometric turbidity units (N.T.U.)

Total Suspended Solids:
10 milligrams per liter (mg/L) - maximum

pH: 6.5 - 9.5

Color: None

Hardness:
6 grains per gallon (g.p.g.) or 102 parts per million (p.p.m.)

Iron:
0.3 milligrams per liter (mg/L) - maximum

Manganese:
0.05 milligrams per liter (mg/L) - maximum

Ultraviolet Transmission:
80% through one centimeter - minimum

FOR WASTEWATER APPLICATIONS

Biological Oxygen Demand:
30 milligrams per liter (mg/L) - maximum

Total Suspended Solids:
30 milligrams per liter (mg/L) - maximum

Ultraviolet Transmission at 254 nanometers:
65% through one centimeter - minimum

* Other water quality applications may be treated by ultraviolet. Contact one of our ultraviolet specialists with your requirements.
SPECIFICATIONS FOR STANDARD MODELS

<table>
<thead>
<tr>
<th>Model</th>
<th>Standard Inlet/Outlet</th>
<th>NOMINAL CAPACITIES/ Gallons Per Minute</th>
<th>Number of Lamps</th>
<th>Power Requirements** VOLTS AC and AMPS</th>
<th>Unit Dimensions (Inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Clear Wastewater</td>
<td>Clear Fresh Water</td>
<td>High Purity Water</td>
<td>120V</td>
</tr>
<tr>
<td>M50</td>
<td>2&quot; NPT</td>
<td>70</td>
<td>90</td>
<td>100</td>
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<td>M90</td>
<td>3&quot; 150# Socket Weld Flange</td>
<td>115</td>
<td>150</td>
<td>190</td>
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<tr>
<td>M150</td>
<td>4&quot; 150# Socket Weld Flange</td>
<td>200</td>
<td>270</td>
<td>325</td>
<td>12</td>
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<tr>
<td>M250</td>
<td>6&quot; 150# Socket Weld Flange</td>
<td>335</td>
<td>450</td>
<td>560</td>
<td>19</td>
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</table>

* Environmental Technology Verification Program® Verified.  

* Larger size inlets and outlets are available for these units. Consult factory with specific power requirements.  
** MEGATRON® is available for operation on public power supplied throughout the world.
APPLICATIONS FOR ULTRAVIOLET WATER PURIFIERS

**Institution systems**
- laboratories
- hospital
- clinics
- maternity areas
- labor & delivery areas
- pathology labs
- kidney dialysis labs
- nursing homes
- universities
- schools
- veterinary clinics

**Transient systems**
- resorts, hotels, & motels
- ships, yachts, boats
- campgrounds

**Community systems**
- restaurants
- water parks
- amusement parks
- golf course water holes
- lakes and ponds
- fountain water features
- ornamental ponds
- fish ponds
- swimming pool

**Industry systems**
- animal husbandry
- aquariums
- fish farms
- mollusk hatcheries
- water preserves
- well water

**Transient systems**
- pharmacetical mfg.
- electronic production
- cosmetic production
- cooling tower
- power generation
- food industry
- ice makers
- pulp & paper production
- water vending machines

- laundry water
- pure wash water
- bottled water
- beer, wine
- soft drinks
- fruit juices
- bottling facilities
- edible oils
- liquid sugar
- sweeteners
- water based lubricants
- dairy processing
- cistern applications

- TOC Reduction
- Ozone Reduction

**Model M250**
**Parallel Arrangement**
1005 GPM Clear Wastewater,
1350 GPM Clear Fresh Water,
1680 GPM High Purity Water
# COMPARISON OF ATLANTIC ULTRAVIOLET WATER PURIFIERS

<table>
<thead>
<tr>
<th>FEATURES</th>
<th>Bio-Logic® Pure Water Pack™ 1.5 GPM</th>
<th>MINIPURE® 1 to 9 GPM</th>
<th>MIGHTY®PURE® 3 to 20 GPM</th>
<th>SANITRON® 3 to 20 GPM</th>
<th>SANITRON® 40 to 416 GPM</th>
<th>MEGATRON® 90 to 450 GPM</th>
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<tbody>
<tr>
<td>Stainless Steel Construction</td>
<td>S</td>
<td>S</td>
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<tr>
<td><strong>STER-L-RAY™</strong> Germicidal Ultraviolet Lamp with 10,000 Hours Rated Effective Life</td>
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<td>Quick Lamp Change with the EASY-OFF™ End Cap</td>
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<tr>
<td><strong>CRYSTAL CLEAR™</strong> Quartz Sleeve</td>
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<td>Lamp Out Indicator Light(s)</td>
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<td>Sight Port to View Lamp Operation</td>
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<td>Drain Fitting</td>
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<td>Patented Dual Action Wiper Mechanism - Manual</td>
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<tr>
<td>Patented Dual Action Wiper Mechanism - Automatic</td>
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<tr>
<td>Head(s) that can be removed or rotated</td>
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<td>S</td>
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<td>Sediment and Carbon Filter</td>
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<td>Promate™ Mounting Kit / Bracket</td>
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<td>SENTRY™ Safety Sensor</td>
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<td>Promate™ Audio Alarm</td>
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<td>Promate™ Solenoid Valve</td>
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<td>SureFLO™ Flow Control Valve</td>
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<td>Promate™ Elapsed Time Indicator</td>
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<td>Promate™ Time Delay Mechanism</td>
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<td>Residential Use</td>
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<td>Commercial Use</td>
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<td>Certified Models ⊕</td>
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- Model S10,000C & larger come equipped with mounting rack
- MIGHTY®PURE® MP36C and SANITRON® S37C, S2400C, S5,000C, S10,000C, S15,000C and S20,000C are available as C Certified

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