

# Ozone Systems

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Installation & Operation Manual

## Microzone 300 & 500

Corona Discharge Ozone Generators



**ClearWater Tech, LLC**

Ozone Systems for Water & Air Purification

## ACCESSORIES



Check Valve



Diffuser Stone



Parts Bag: (2) screws,  
(2) hose clamps



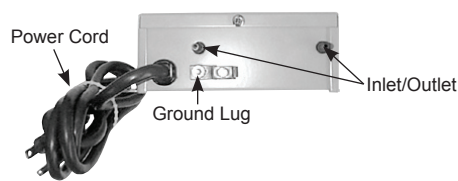
8" Clear Hose

## OZONE GENERATOR - Microzone 300

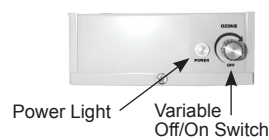
FRONT VIEW



BOTTOM VIEW



TOP VIEW

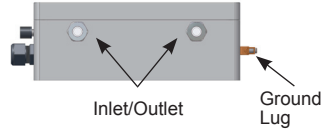


## OZONE GENERATOR - Microzone 500

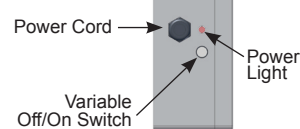
FRONT VIEW



BOTTOM VIEW



SIDE VIEW



## SAFETY WARNINGS

- Read and follow all instructions
- Save these Instructions
- Before attempting any electrical connections, be sure all power is off at the main circuit breaker.
- Install all electrical equipment at least five feet from any open body of water using non-metallic plumbing.
- Install check valves and a Hartford Loop to prevent water from contacting the electrical equipment.
- Be sure to bond (ground) the system using the copper bonding lug on the bottom of the ozone generator. The system should be bonded with solid copper wire conforming with all local, state and national electrical codes.

Two aspects of ClearWater Tech ozone generators represent potential dangers, ozone gas and high voltage electricity.

**OZONE GAS - WARNING:** Low concentrations of ozone can cause irritation to the eyes, throat and respiratory system.

**HIGH VOLTAGE - WARNING:** ClearWater Tech ozone generators operate at high voltages. If contact is made with operating high voltage components electric shock will occur.



## ClearWater Tech, LLC Limited One-Year Warranty

### SUMMARY OF THE WARRANTY

ClearWater Tech, LLC ("CWT") makes every effort to assure that its products meet high quality and durability standards and warrants the products it manufactures against defects in materials and workmanship for a period of one (1) year, commencing on the date of original shipment from CWT, with the following exceptions: 1) The warranty period shall begin on the installation date if the installation is performed within 90 days of the original shipment from CWT. 2) The warranty period shall begin on the date of the bill of sale to the end user if the installation date is more 90 days after the original shipment date. To validate the warranty, a warranty card must be returned to CWT and must include the following information:

- End user name
- Complete address, including telephone number
- Date installed
- Complete model and serial number information
- Name of company from which the unit was purchased

Repairs and replacement parts provided under this warranty shall carry only the unexpired portion of this warranty or 90 days, whichever is longer.

### ITEMS EXCLUDED FROM THE WARRANTY

This warranty does not extend to any product and/or part from which the factory assigned serial number has been removed or which has been damaged or rendered defective as a result of:

- An accident, misuse, alteration or abuse
- An act of God such as flood, earthquake, hurricane, lightning or other disaster resulting only from the forces of nature
- Normal wear and tear
- Operation outside the usage parameters stated in the product user's manual
- Use of parts not sold by CWT
- Service or unit modification not authorized by CWT
- Failure to meet service requirements as outlined in the I & O manual
- Check valve/solenoid valve failure
- Damage which may occur during shipping

### OBTAINING SERVICE UNDER THE WARRANTY

Any product and/or part not performing satisfactorily may be returned to CWT for evaluation. A Return Goods Authorization (RGA) number must first be obtained by either calling or writing your local authorized dealer, distributor or CWT direct, prior to shipping the product. The problem experienced with the product and/or part must be clearly described. The RGA number must appear prominently on the exterior of the shipped box(es). The product and/or part must be packaged either in its original packing material or in comparable and suitable packing material, if the original is not available. You are responsible for paying shipping charges to CWT and for any damages to the product and/or part that may occur during shipment. It is recommended that you insure the shipment for the amount you originally paid for the product and/or part.

If, after the product and/or part is returned prepaid and evaluated by CWT, it proves to be defective while under warranty, CWT will, at its election, either repair or replace the defective product and/or part and will return ship at lowest cost transportation prepaid to you **except for shipments going outside the 50 states of the United States of America**. If upon inspection, it is determined that there is no defect or that the damage to the product and/or part resulted from causes not within the scope of this limited warranty, then you must bear the cost of repair or replacement of damaged product and/or part and all return freight charges. Any unauthorized attempt by the end user to repair CWT manufactured products without prior permission shall void any and all warranties. For service, contact your authorized dealer or distributor or CWT direct at (805) 549-9724, extension 23.

### EXCLUSIVE WARRANTY

There is no other expressed warranty on CWT products and/or parts. Neither this warranty, or any other warranty, expressed or implied, including any implied warranties or merchantability of fitness, shall extend beyond the warranty period. Some states do not allow limitations on how long an implied warranty lasts, so that the above limitation or exclusion may not apply to you.

### DISCLAIMER OF INCIDENTAL AND CONSEQUENTIAL DAMAGES

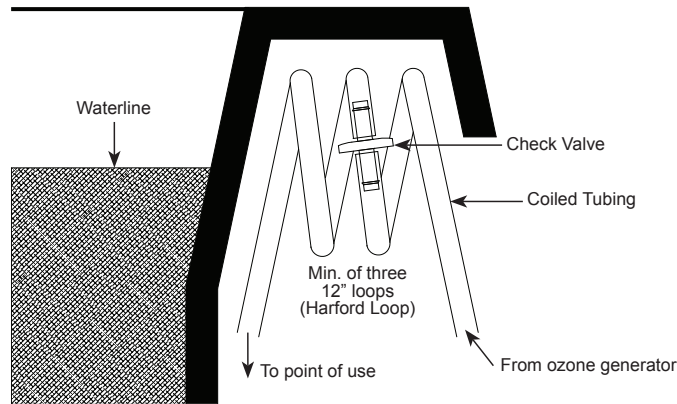
No responsibility is assumed for any incidental or consequential damages; this includes any damage to another product or products resulting from such a defect. Some states do not allow the exclusion or limitation of incidental or consequential damages, so that above limitation or exclusion may not apply to you.

### LEGAL REMEDIES OF PURCHASER

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

**THIS STATEMENT OF WARRANTY SUPERSEDES ALL OTHERS PROVIDED TO YOU AT ANY PRIOR TIME.**

**Figure 3**  
Shown: Hartford Loop



**NOTE:** The top of the Hartford loop and the check valve must be mounted above the water line

## START-UP

- The ozone generator is equipped with a 0 to 100% variable OFF/ON switch. Depending on the amount of ozone required you may adjust the ozone output control switch counter clockwise for minimum output or off and clockwise for maximum output.
- The ozone generator is equipped with a main power indicating light next to the variable switch. This light will be illuminated when the switch is not in the off position.
- The ozone generator will not produce ozone until airflow is initiated.

## MAINTENANCE

Disconnect power from unit before any maintenance procedures.

- Check valve – replace diaphragm check valve, annually.
- Reaction chamber - replace the reaction chamber every 3 years.

## SPECIFICATIONS

### Microzone 300

- Electrical – 120VAC 60Hz 0.2A, 220VAC 50Hz 0.1A
- Dimensions – 5.875" h x 5.375" w x 2" d, 2 lbs.
- Ozone Output – 0.3 g/h @ 6 SCFH

### Microzone 500

- Electrical – 120VAC 60Hz 0.4A, 220VAC 50Hz 0.2A
- Dimensions – 6.250" h x 9.375" w x 3.5" d, 3 lbs.
- Ozone Output – 0.5 g/h @ 5 SCFH

## UNPACKING

Compare the ozone system equipment to packing list provided. Before beginning any installation procedures, thoroughly inspect all components for damage. If damage is noticed, promptly notify the freight carrier and request an on site inspection. Inspect all packing materials for small parts before discarding.

## EQUIPMENT PLACEMENT

- When placing ozone system components, make sure to consider safety, maintenance requirements, local building and fire codes.
- To determine the most favorable placement, the following should be considered:
  - Located downstream of all other existing water system components.
  - Located upstream of the residual sanitizer injection point (if so equipped).
  - The pH adjustment chemical injection point should be located downstream of the residual sanitizer injection point (if so equipped).
  - Location of ozone generator should be no more than 8 feet from point of use.
  - Adequate protection from weather, dust and excessive heat. Ambient temperature range: 20°F to 85° F continuous.

**NOTE:** Equipment installed in extreme environmental conditions will void manufacturers warranty.

## THEORY OF OPERATION & PRODUCT DESCRIPTION

The microzone ozone generators may be used to inject or diffuse ozone into water. The injection method requires a venturi injector to draw the ozone from the ozone generator and into the water line. ClearWater Tech has developed the PRO Series System with magnetic drive pump, programmable timer and venturi to provide a suitable suction port for the injection method (see Figure 1). For typical spa applications the spa manufacture has provided an "ozone ready" suction port, which eliminates the need for additional equipment (see spa manual for installation). The diffusion method requires a pressurized air source, which feeds air

through the ozone generator and out to an atmospheric body of water. A diffuser stone provided with the Microzone ozone generator is used for increased mixing of ozone in solution. For this application ClearWater Tech has developed the OAS7 compressor, with programmable timer to provide the pressure required (see Figure 2).

### Note:

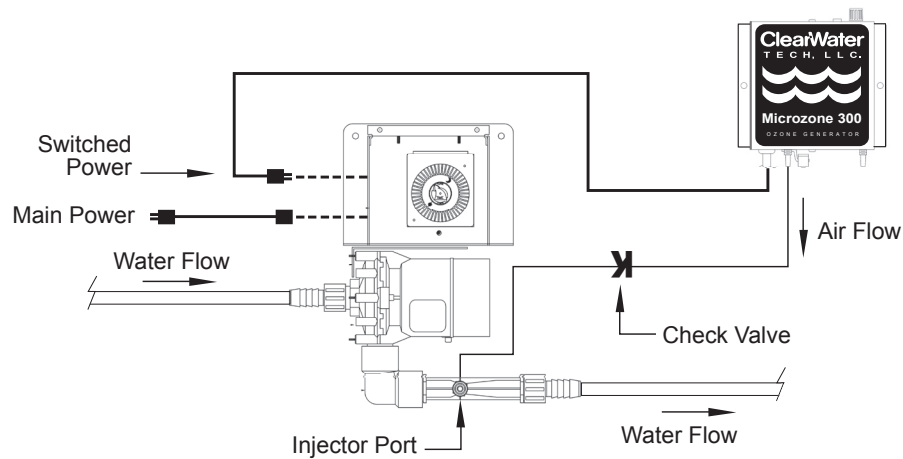
Regardless of application, water back flow prevention devices such as a check valve and Hartford Loop should be implemented with the use of the Microzone ozone generators (see figure 3).

## INJECTION METHOD INSTALLATION

- Step 1:** Mount the Microzone ozone generator to a suitable flat surface, using the two self-tapping screws provided. **NOTE:** The distance from the Microzone to the injection port should be no more than 8 feet.
- Step 2:** Attach one end of the supplied tubing to the ozone outlet port of the Microzone generator and secure with a hose clamp provided.
- Step 3:** Coil the tubing to create a “Hartford Loop” above the water line. Insert the check valve provided at the highest point of the Hartford Loop (see Figure 3). Determine orientation of the check valve by blowing through it, flow should be directed to the point of use.
- Step 4:** Attach the other end of the tubing to the injection port and secure with the hose clamp provided.
- Step 5:** Plug the Microzone into a suitable outlet. If the PRO Series system is being used, the Microzone may be plugged into its switched outlet provided. **NOTE:** All equipment wiring and grounding must comply with all local electrical codes.

**Figure 1**

Shown: PRO10 with Microzone 300 ozone generator

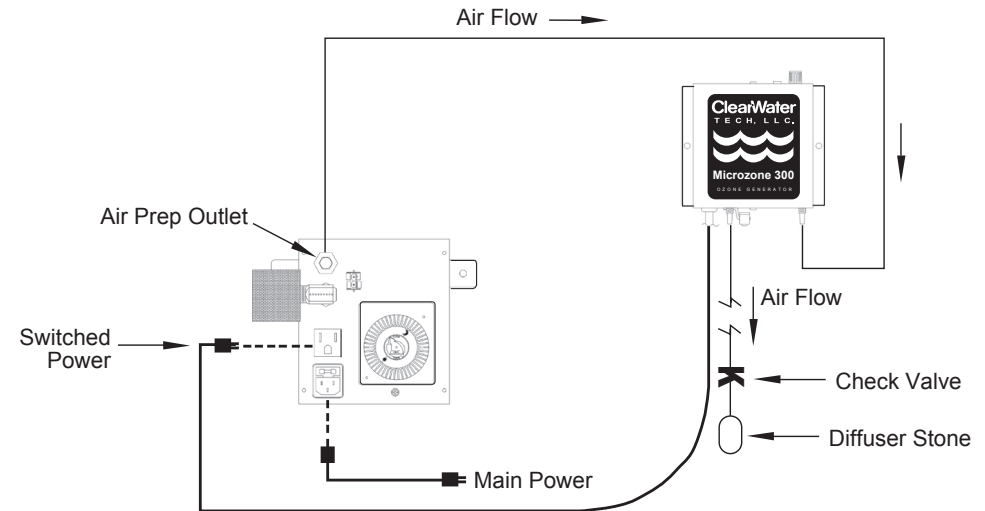


## DIFFUSION METHOD INSTALLATION

- Step 1:** Mount the Microzone ozone generator to a suitable flat surface, using the two self-tapping screws provided. **NOTE:** The distance from the Microzone to point of diffusion should be no more than 8 feet.
- Step 2:** Cut a suitable length of the supplied tubing, attach one end to the air prep outlet of the pressurized source used. Attach the other end to the air inlet port of the Microzone and secure with a hose clamp provided.
- Step 3:** Attach one end of the supplied tubing to the ozone outlet port of the Microzone and secure with the hose clamp provided.
- Step 4:** Coil the tubing to create a “Hartford Loop” above the water line. Insert the check valve provided at the highest point of the Hartford Loop (see Figure 3). Determine orientation of the check valve by blowing through it, flow should be directed to the point of use.
- Step 5:** Attach the opposite end of the tubing to the barbed fitting of the diffuser stone provided.
- Step 6:** Plug the Microzone into a suitable outlet. If the OAS7 is being used the Microzone may be plugged into its switched outlet provided. **NOTE:** All equipment wiring and grounding must comply with all local electrical codes.

**Figure 2**

Shown: OAS7 with Microzone 300 ozone generator



**Note:** OAS7 maximum head pressure: 6 feet