



## Ozone for Cooling Towers

**Green Technology Saving Thousands in Energy/Water/Chemicals**

Guardian manufactures standard and custom configurations for all sizes. Our engineering team can provide the best solution for your process.



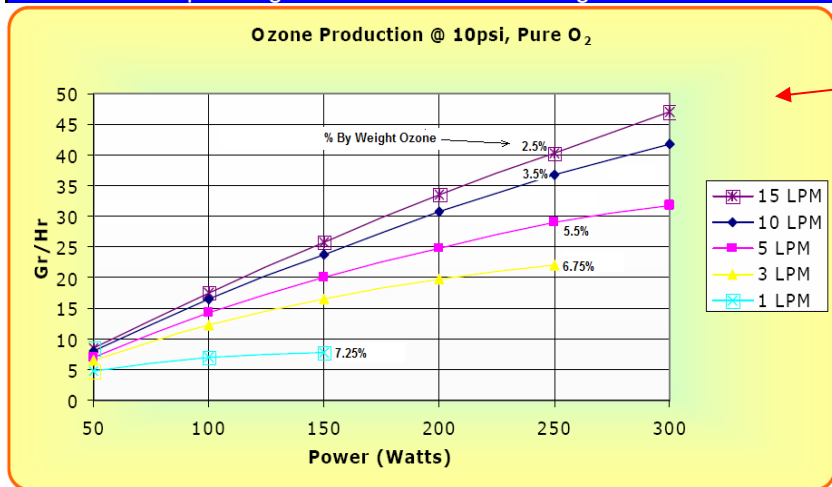
UL508A

ISO 9001



Advantages		How Does it Work	
Power Savings	No Biofilm Buildup on Condenser Coils for Improved Heat Mass Transfer		
Water Conservation	Reduces Tower Blow-down by Reducing Bacteria, Slime & Biofilm		
Lower Sewer Charges	Less Blow-down Equals Less Sanitary Water Costs		
Less Corrosion	3000 Times Faster Acting than Bleach at 1/2 the Corrosion Rate		
Kills Legionella Pneumophila	All Bacteria & Viruses Can Not and Will Never Become Ozone Resistant		
No Chemical Storage	Ozone is Produced Onsite with Low Power Input		
Improved Water Chemistry	Systems Use Onboard ORP for Exact Setpoint Control		
No Residual Chemicals	Ozone Converts Back to Oxygen		
Fully Integrated	Air>Oxygen>Ozone>Gas Mass Transfer>Control		
Safe Green Technology	Report by U.S. Department of Energy Federal Energy Management Program		
Guardian Ozone Systems		Features	
Smart Relay Technology	On Board Diagnostics and full start/run/stop System Parameters		
Oxygen Feed Gas System	Constantly Monitors Incoming Oxygen Supply Concentration & Pressure		
ORP/PID Control	Oxidation Reduction Potential/Proportional Integral Derivative - Precise Control		
UL508A	23K Hertz UL Classified Ozone Generator and UL508A Enclosures		
304 Stainless Powder Coat	Extremely Durable and Non Rusting Skid Mount System		
120/240 Volt Options	Systems Can be Single Phase 120 volt or 240 volt, 50-60 Hertz		
Backflow Device	Bullet Proof Backflow Prevents Water Entering the Generator		
Vacuum Auto Shutdown	System Only Operates When Injector Vacuum is Present		
Booster Pump	Pump Sized Appropriately to Cooling Tower Tonnage & Water Chemistry		
Ambient Ozone Alarm	Checks Ambient Ozone Levels in Confined Areas for Worker Safety		
Approximate Dimensions	Systems are Typically 26"w x 30"d x 70"h Providing a very small footprint		

Operating Conditions 32 to 102 Degrees F



Cooling Towers from 100 Tons to more than 1000 Tons and Higher.

Curve Based on Single Air Cooled Cell

Only 300 Watts Full Power producing 45 grams of ozone gas at only 15 LPM of oxygen supply gas at 10 psi.

Air Cooled Systems to 600 grams/hr

Guardian has larger enclosures for system to 100 lbs/day O<sub>3</sub>.

Custom Enclosures and Software

Guardian Manufacturing Inc.  
2971 Oxbow Circle, Suite A  
Cocoa, FL 32926

[www.guardianmfg.com](http://www.guardianmfg.com)

321-631-4580 ext. 304

321-631-4517 fax



Guardian will provide a complete power/water savings study with a guaranteed payback for your project.



### Sizes for 100 to 1200 Ton Towers

#### Plasma Block® Corona Discharge Generators

##### PB10S1 Single Air Cooled Plasma Block® 100-200 Ton Tower


Guardian is committed to the highest industrial standards for all of our products. Guardian is a registered ISO-9001:2000 company. We are listed to build UL-508A. Plasma Block® Technology is becoming the most sought after ozone generating protocol.

72" We can design to your specifications or supply one of our off-the-shelf systems. Guardian is supporting OEM ozone companies in several markets.

#### Guardian-----"We are changing everything"

##### PB30S1 Single Air Cooled Plasma Block® 300 to 500 Ton Tower

#### Plasma Block® Technology Advantage

- Integrated Guardian Engineering
- Ultra High 23K Hertz for Silent Operation
- Onboard Oxygen Monitoring Protection
- High Voltage is Safely Contained
- Efficient Air Cooled Reaction Chambers
- No Glass Tube dielectrics to Fail
- Swagelok® Stainless Steel & Orbital Welded Tubing
- Properly Sized Booster Pump & Contact Starter
- PDM or Pulse Density Modulating 100 :1 turn down
- PID Linear Precise Control from ORP
- Gas Injector>Flash Reactor>Degas Separator
- Complete Ozone Generator Protection
- Service Contract and Full Factory Support
-  UL Classified Plasma Block® Generator
- Water Analysis-Ozone Demand Study in our R&D Lab

##### PB60D1 Single Air Cooled Plasma Block® 600-1200 Ton Tower

#### Ozone Gas Mass Transfer to Water

Guardian provides the best technology available for mass transfer of ozone gas into water. System allows complete ozone control.

#### ORP - Oxidation Reduction Potential

Controlling the precise amount of ozone is critical. Guardian can insure the minimum corrosion rates possible with our ORP system analyzer and PID setpoint control. Maintaining the proper balance of water chemistry with 100:1 turndown control is key to our success.

#### Maintenance & Service

Guardian provides service and maintenance contracts that will keep your water chemistry and system operating at it's best efficiency point. This reduces power requirements and saves water. Ask Guardian for a complete study of your system.

#### Custom Systems Include PLC/Web Server Monitoring & Control

Whether your requirements are DATA LOGGING, Ethernet or Internet Monitoring and Control. Guardian has a system for you.

#### Guardian Manufacturing Inc

2971-A Oxbow Circle

Cocoa FL 32926

(321) 631-4580

[www.guardianmfq.com](http://www.guardianmfq.com)

