Features

• Modular Ozone Chassis Design
• Stainless Steel Frame & Ozone Generator Enclosure
• Air-Cooled Ceramic and Titanium Reactor Cell
• Over-Temperature Protection
• Optional Degas Separator
• Redundant Backflow Prevention

Controls

• 4-20mA or 0-10VDC Input
• Variable Output Control
• Reactor Pressure Control
• Feed Gas Flow Control
• Remote On/Off Control
• Optional Programmable PID Controller
• Optional Dissolved Ozone Sensor
• Optional Ambient Ozone Detector with Safety Interlock

Complete Systems

The Horizon Series integrated ozone systems eliminate the complexity of integrating the four critical elements of ozone systems: feed gas preparation/oxygen concentration, ozone generation, mass transfer, and complete process control. All Horizon Series systems are complete and fully integrated ozone systems that seamlessly combine these elements into stainless steel skid-based packages.

The performance and simplicity of Pacific Ozone’s integrated ozone systems make them ideal platforms for countless ozone processes, including:

• Beverage industry
• Bottled water
• Food processing
• Industrial water treatment and more

High Performance

Horizon Series systems are available for a variety of flow rates and process requirements: 5-200 gallon per minute water flow rates at 0.5-10 pounds per day ozone production. This range of performance allows Pacific Ozone systems to be configured to address the finest application of ozone at a small food processing plant to high ozone production for a large industrial water treatment facility.
**A Strong Foundation**

The Horizon Series integrated ozone systems are built on the strong foundation of Pacific Ozone’s SGA and SGC Series ozone generators. The SGA generator line offers five models producing 0.6 to 3.2 pounds per day ozone production from high-quality air provided from the facility. The SGC series, with three models providing 0.5 to 1.3 pounds of ozone per day, includes onboard oil-less air compression when plant air is unavailable or insufficient. Please see cut sheets for the SGA and SGC Series ozone generators for more information. Custom, high-output systems producing up to 10 pounds of ozone per day are available.

**Enhanced Mass Transfer**

The Horizon Series systems are equipped with Pacific Ozone’s unique Enhanced Mass Transfer™ ozone injection and off-gas destruction system. To ensure consistent supply of ozone-injected water to the process, applications with periodic stops and starts should generally include a stainless steel mass transfer vessel. Standard mass transfer vessels are available at 50 and 150 gallons. Larger mass transfer vessels are also available. Processes that operate continuously with few interruptions are typically best served with the tank-less Fat Pipe mass transfer system, providing complete ozone injection and off-gas destruction without a conventional tank.
Standard Features and Option Packages

Standard Horizon Series systems provide all of the basic features of the SGA or SGC ozone generators, including 4-20mA inputs and Remote On/Off control. Standard systems may be augmented with two option packages. The PLUS option package improves system control with the addition of a PID controller and one or two channels of dissolved ozone detection. The MAX option package provides the features of the PLUS package plus the safety of an ambient ozone detector with safety interlock. The ambient ozone detector alarms if the ambient ozone gas concentration reaches the OSHA long-term exposure limit and shuts down ozone production if the ambient ozone exceeds the OSHA short-term exposure limit.

Additional optional features are also available, including the Degas Separator option, process pumps, and additional process inputs. Optional air compressor packages are also available, if needed.

<table>
<thead>
<tr>
<th>Options</th>
<th>Standard Features</th>
<th>PLUS Option Package</th>
<th>MAX Option Package</th>
<th>Additional Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Features</td>
<td>• 4-20mA/0-10 VDC Inputs</td>
<td>• PID Controller</td>
<td>• Ambient Ozone Detector</td>
<td>• Degas Separator</td>
</tr>
<tr>
<td></td>
<td>• Remote On/Off</td>
<td>• Dissolved Ozone Detection (One or Two Channels)</td>
<td></td>
<td>• Process Pumps</td>
</tr>
<tr>
<td></td>
<td>• Remote Lockout</td>
<td></td>
<td></td>
<td>• Additional Process Inputs</td>
</tr>
<tr>
<td>Additional Options</td>
<td></td>
<td></td>
<td></td>
<td>• Air Compressor</td>
</tr>
</tbody>
</table>
Model: Horizon Series with 50 Gallon Mass Transfer Vessel

Dimensions: inches [mm]
Note: Drawings of other Horizon Series models are available upon request.
Model: Horizon Series with 150 Gallon Mass Transfer Vessel

Dimensions: inches [mm]
Note: Drawings of other Horizon Series models are available upon request.

www.lenntech.com
Model: Horizon Series with Fat Pipe Mass Transfer System

Dimensions: inches [mm]
Note: Drawings of other Horizon Series models are available upon request.
# Technical Specifications

<table>
<thead>
<tr>
<th>Model/Part Number</th>
<th>Ozone Generator Model **</th>
<th>Max. Ozone Production</th>
<th>Performance † (at 2 ppm O₃)</th>
<th>Power Consumption</th>
<th>Water Inlet/Outlet</th>
<th>Compressed Air Inlet Fitting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Horizon A11/R-HA11XX</td>
<td>SGA11</td>
<td>0.6 (12)</td>
<td>25 (95)</td>
<td>2500</td>
<td>1.5&quot; (38mm) Sanitary Fitting</td>
<td>1/4&quot; fnpt (6.35 mm)</td>
</tr>
<tr>
<td>Horizon A21/R-HA21XX</td>
<td>SGA21</td>
<td>1.0 (18)</td>
<td>40 (151)</td>
<td>2500</td>
<td>1.5&quot; (38mm) Sanitary Fitting</td>
<td>1/4&quot; fnpt (6.35 mm)</td>
</tr>
<tr>
<td>Horizon A22/R-HA22XX</td>
<td>SGA22</td>
<td>1.6 (30)</td>
<td>65 (246)</td>
<td>2500</td>
<td>1.5&quot; (38mm) Sanitary Fitting</td>
<td>1/4&quot; fnpt (6.35 mm)</td>
</tr>
<tr>
<td>Horizon A23/R-HA23XX</td>
<td>SGA23</td>
<td>2.4 (45)</td>
<td>100 (379)</td>
<td>2500</td>
<td>1.5&quot; (38mm) Sanitary Fitting</td>
<td>1/4&quot; fnpt (6.35 mm)</td>
</tr>
<tr>
<td>Horizon A24/R-HA24XX</td>
<td>SGA24</td>
<td>3.2 (60)</td>
<td>130 (492)</td>
<td>2500</td>
<td>1.5&quot; (38mm) Sanitary Fitting</td>
<td>1/4&quot; fnpt (6.35 mm)</td>
</tr>
<tr>
<td>Horizon C11/R-HC11XX</td>
<td>SGC11</td>
<td>0.5 (10)</td>
<td>20 (76)</td>
<td>2500</td>
<td>1.5&quot; (38mm) Sanitary Fitting</td>
<td>N/A Onboard Air Compressor</td>
</tr>
<tr>
<td>Horizon C21/R-HC21XX</td>
<td>SGC21</td>
<td>0.8 (16)</td>
<td>35 (132)</td>
<td>2500</td>
<td>1.5&quot; (38mm) Sanitary Fitting</td>
<td>N/A Onboard Air Compressor</td>
</tr>
<tr>
<td>Horizon C22/R-HC22XX</td>
<td>SGC22</td>
<td>1.3 (25)</td>
<td>55 (208)</td>
<td>2500</td>
<td>1.5&quot; (38mm) Sanitary Fitting</td>
<td>N/A Onboard Air Compressor</td>
</tr>
</tbody>
</table>

Notes:
* The value of "XX" in the part number indicates the mass transfer vessel size (Fat Pipe = 00, 50 gal. = 05, 150 gal. = 15, etc.). The value of "Y" indicates the number of channels dissolved ozone detection (1 or 2). The letter "P" indicates the PLUS option package and the letter "M" indicates the MAX option package.
** See ozone generator cut sheets for additional specifications pertaining to the generators.
† Typical system water flow rate at 2 ppm dissolved ozone concentration. Performance as tested with municipal water at 70° F (21° C).

## Ozone Mass Transfer System
- **Injection Pump:** Stainless steel, sized to system requirements
- **Venturi:** MIC natural Kynar injector
- **Back Flow Prevention:** Stainless steel check valve and proprietary backflow prevention system
- **Mass Transfer Vessel:** Fat Pipe, 50 gal., or 150 gal. standard. Larger vessels available
- **Inlet/Outlet:** 1.5" stainless steel sanitary connections. Larger fittings available.
- **Pump Protection:** Tank level switch, interlocked
- **Assembly:** Stainless steel frame

## Ozone Destruct System
- **Catalyst:** Manganese Dioxide/Copper Oxide
- **Destruct Potential:** Sized to application requirements
- **Air Relief Valve:** Stainless steel air relief vent
- **Operating Temperature:** 130°-140° F (54°-60° C), electronically controlled
## Operational Requirements

<table>
<thead>
<tr>
<th>Model</th>
<th>Compressed Air Flow</th>
<th>Compressed Air Pressure</th>
<th>Water Pressure</th>
<th>Electrical Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>scfm (lpm)</td>
<td>psig (bar)</td>
<td>psig (bar)</td>
<td>volts, Hz</td>
</tr>
<tr>
<td>Horizon A11</td>
<td>6 (170)</td>
<td>30 (2.07)</td>
<td>20-30 (1.4-2.1)</td>
<td>230V 50/60Hz, 1 phase 30A Circuit</td>
</tr>
<tr>
<td>Horizon A21</td>
<td>6 (170)</td>
<td>30 (2.07)</td>
<td>20-30 (1.4-2.1)</td>
<td>230V 50/60Hz, 1 phase 30A Circuit</td>
</tr>
<tr>
<td>Horizon A22</td>
<td>6 (170)</td>
<td>30 (2.07)</td>
<td>20-30 (1.4-2.1)</td>
<td>230V 50/60Hz, 1 phase 30A Circuit</td>
</tr>
<tr>
<td>Horizon A23</td>
<td>12 (340)</td>
<td>30 (2.07)</td>
<td>20-30 (1.4-2.1)</td>
<td>230V 50/60Hz, 1 phase 30A Circuit</td>
</tr>
<tr>
<td>Horizon A24</td>
<td>12 (340)</td>
<td>30 (2.07)</td>
<td>20-30 (1.4-2.1)</td>
<td>230V 50/60Hz, 1 phase 30A Circuit</td>
</tr>
<tr>
<td>Horizon C1, C21, C22</td>
<td>N/A*</td>
<td>N/A*</td>
<td>20-30 (1.4-2.1)</td>
<td>230V 50/60Hz, 1 phase 30A Circuit</td>
</tr>
</tbody>
</table>

*Not Applicable - All Horizon C-Line models (C1, C21, and C22) include onboard air compression.*