

## **SUMMIT SERIES INTEGRATED OZONE SYSTEMS**

### **Features**

- Modular Ozone Chassis Design
- Stainless Steel Frame and Enclosures
- 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
- Programmable PID Controller
- Dissolved Ozone Sensor
- Ambient Ozone Detector with Safety Interlock
- Remote On/Off Control
- Reactor Pressure Control
- Feed Gas Flow Control

**Complete Integrated Solutions.  
Single Trusted Source.**

### **Complete Systems**

The Summit 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 process control.

All Summit Series systems are complete and fully integrated ozone systems that seamlessly combine these elements into sanitary, splash-resistant, 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



**Model: Summit with  
150 Gallon Vessel**

### **High Performance**

Summit 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.

# ***SUMMIT SERIES*** INTEGRATED OZONE SYSTEMS

## ***A Strong Foundation***

The Summit Series integrated ozone systems are built on the strong foundation of Pacific Ozone's patented ozone technology. Five standard models are available producing 0.6 to 3.2 pounds per day ozone utilizing high-quality plant air. If plant air is unavailable or insufficient, three models with onboard oil-less air compression are available providing 0.5 to 1.3 pounds of ozone per day. Custom, high-output systems producing up to 10 pounds of ozone per day are also available.



**Model: Summit with Fat Pipe Mass Transfer System**

## ***Enhanced Mass Transfer***

The Summit 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 mass transfer vessel. Standard stainless steel 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 Summit Series systems include a host of standard features including Remote On/Off ozone control and Remote Lockout, as well as a PID controller and one or two channels of dissolved ozone detection for accurate and reproducible ozone control. An ambient ozone detector with safety interlock is also provided as standard. The ambient ozone detector alarms if the ambient ozone gas concentration reaches the OSHA long-term exposure limit and shuts down ozone production if ambient ozone exceeds the OSHA short-term exposure limit.

Standard Summit systems may be augmented with the PLUS option package, which adds the Degas Separator option. The Degas Separator reduces unwanted ozone off-gas at the site of application by collecting undissolved ozone gas from the water stream and shunting it to the system ozone destruct.

Additional optional features are also available, including process pumps and process inputs, and DirectDrive™ Control. Optional air compressor packages are also available, if needed.

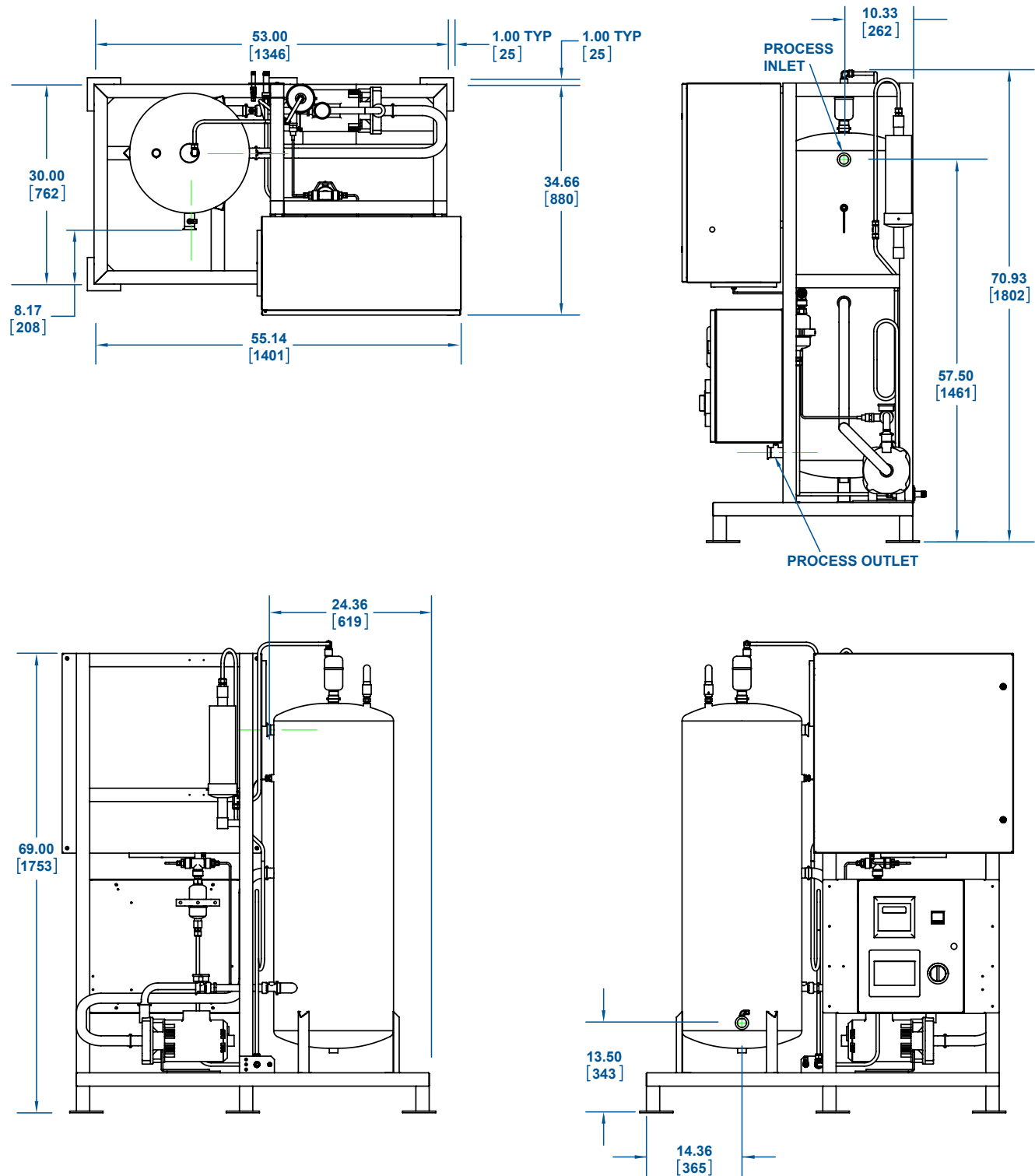
| Options                                                                                                                                                                                                                                       |                                                                   |                                                                                                                                                                    |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Standard Features                                                                                                                                                                                                                             | PLUS Option Package                                               | Additional Options                                                                                                                                                 |
| <ul style="list-style-type: none"><li>• 4-20mA/0-10 VDC Inputs</li><li>• Remote On/Off</li><li>• Remote Lockout</li><li>• PID Controller</li><li>• Dissolved Ozone Detection (One or Two Channels)</li><li>• Ambient Ozone Detector</li></ul> | <ul style="list-style-type: none"><li>• Degas Separator</li></ul> | <ul style="list-style-type: none"><li>• Process Pumps</li><li>• Additional Process Inputs</li><li>• DirectDrive™ Control System</li><li>• Air Compressor</li></ul> |

## Built to Last

The Summit Series integrated ozone systems are engineered to meet ozone process requirements found in the most demanding applications; yet they are easy to install, simple to operate, and will provide years of trouble-free operation.

# SUMMIT SERIES INTEGRATED OZONE SYSTEMS

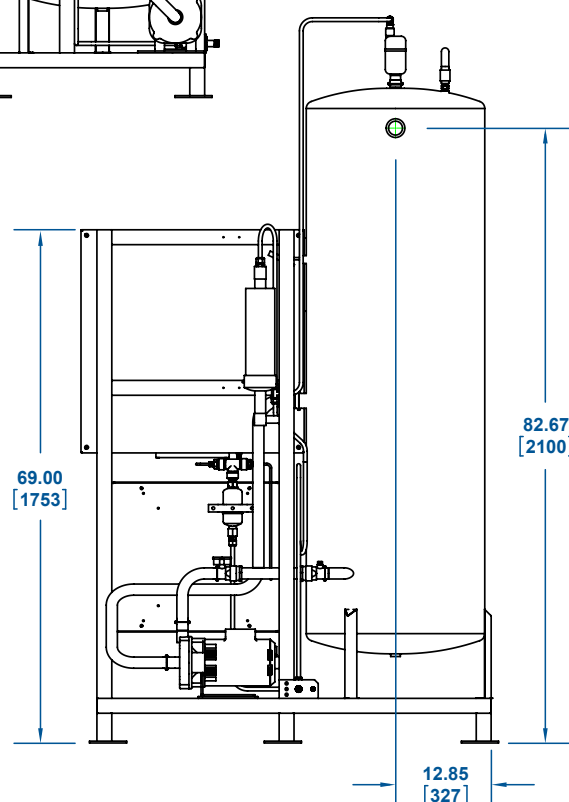
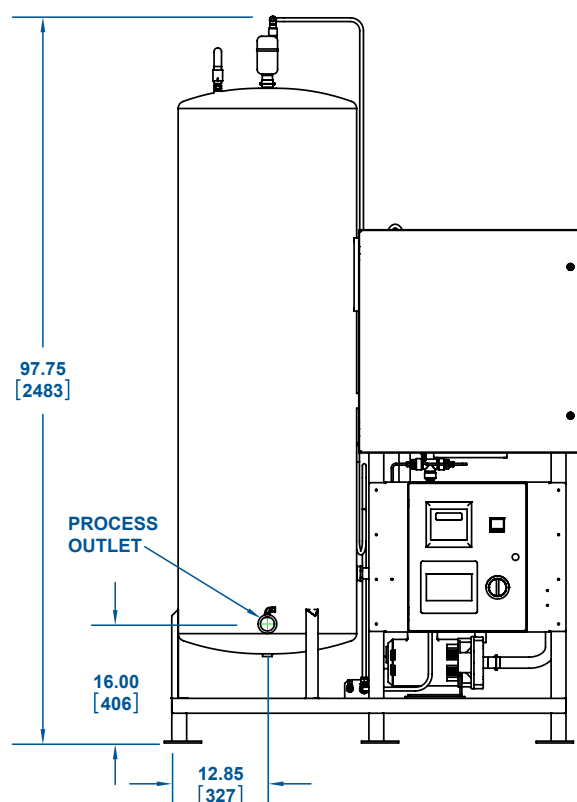
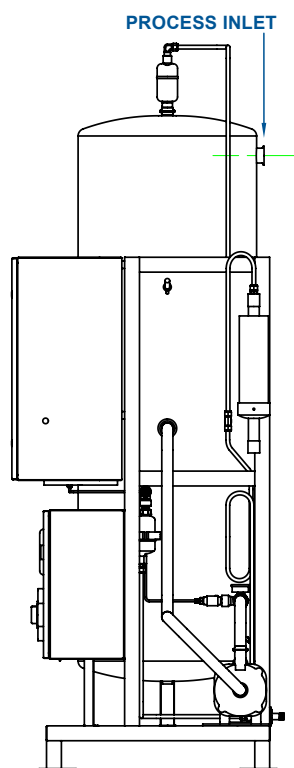
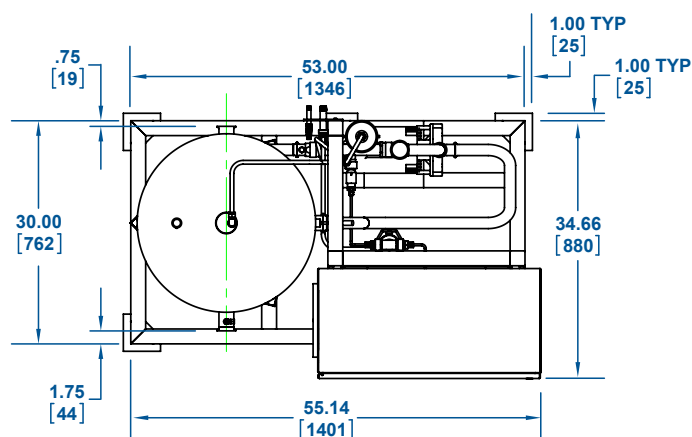
Model: Summit Series with 50 Gallon Mass Transfer Vessel



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

# SUMMIT SERIES INTEGRATED OZONE SYSTEMS

Model: Summit Series with 150 Gallon Mass Transfer Vessel

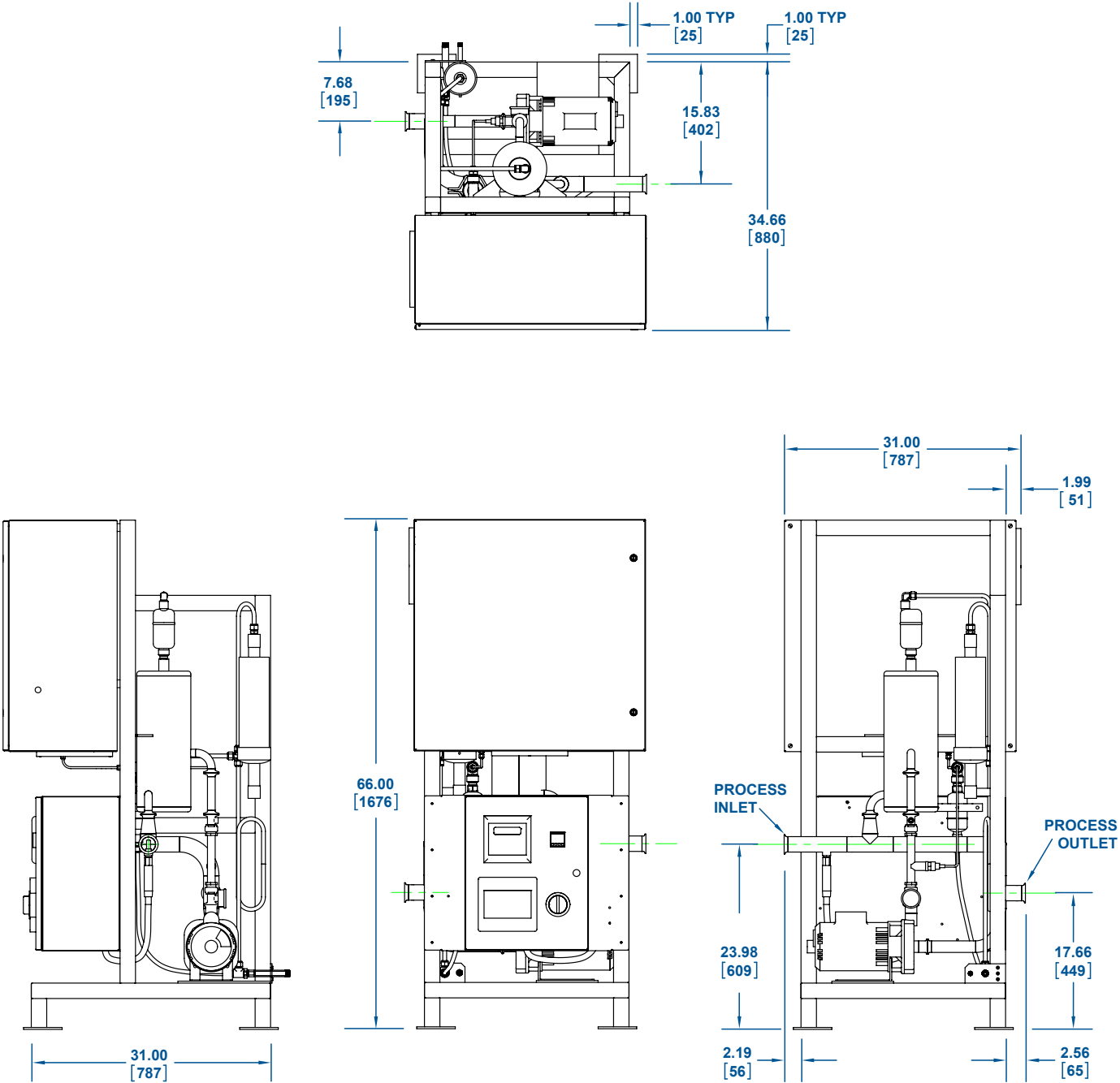


Dimensions: inches [mm]

Note: Drawings of other Summit Series models are available upon request.

**SUMMIT SERIES** INTEGRATED OZONE SYSTEMS

Model: Summit Series with Fat Pipe Mass Transfer System



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

# SUMMIT SERIES INTEGRATED OZONE SYSTEMS

## Technical Specifications

| Model/<br>Part Number*                        | Ozone Generator<br>Model** | Max. Ozone<br>Production | Performance†<br>(at 2 ppm O <sub>3</sub> ) | Power<br>Consumption | Water<br>Inlet/Outlet            | Compressed Air<br>Inlet Fitting |
|-----------------------------------------------|----------------------------|--------------------------|--------------------------------------------|----------------------|----------------------------------|---------------------------------|
|                                               |                            | lbs/day<br>(grams/hour)  | gpm (lpm)                                  | watts                | inches (mm)                      | inches (mm)                     |
| <b>Summit A11/</b><br>R-SA11XXY<br>R-SA11XXYP | SGA11                      | 0.6 (12)                 | 25 (95)                                    | 2500                 | 1.5" (38 mm)<br>Sanitary Fitting | 1/4" fnpt<br>(6.35 mm)          |
| <b>Summit A21/</b><br>R-SA21XXY<br>R-SA21XXYP | SGA21                      | 1.0 (18)                 | 40 (151)                                   | 2500                 | 1.5" (38 mm)<br>Sanitary Fitting | 1/4" fnpt<br>(6.35 mm)          |
| <b>Summit A22/</b><br>R-SA22XXY<br>R-SA22XXYP | SGA22                      | 1.6 (30)                 | 65 (246)                                   | 2500                 | 1.5" (38 mm)<br>Sanitary Fitting | 1/4" fnpt<br>(6.35 mm)          |
| <b>Summit A23/</b><br>R-SA23XXY<br>R-SA23XXYP | SGA23                      | 2.4 (45)                 | 100 (379)                                  | 2500                 | 1.5" (38 mm)<br>Sanitary Fitting | 1/4" fnpt<br>(6.35 mm)          |
| <b>Summit A24/</b><br>R-SA24XXY<br>R-SA24XXYP | SGA24                      | 3.2 (60)                 | 130 (492)                                  | 2500                 | 1.5" (38 mm)<br>Sanitary Fitting | 1/4" fnpt<br>(6.35 mm)          |
| <b>Summit C11/</b><br>R-SC11XXY<br>R-SC11XXYP | SGC11                      | 0.5 (10)                 | 20 (76)                                    | 2500                 | 1.5" (38 mm)<br>Sanitary Fitting | N/A Onboard<br>Air Compressor   |
| <b>Summit C21/</b><br>R-SC21XXY<br>R-SC21XXYP | SGC21                      | 0.8 (16)                 | 35 (132)                                   | 2500                 | 1.5" (38 mm)<br>Sanitary Fitting | N/A Onboard<br>Air Compressor   |
| <b>Summit C22/</b><br>R-SC22XXY<br>R-SC22XXYP | SGC22                      | 1.3 (25)                 | 55 (208)                                   | 2500                 | 1.5" (38 mm)<br>Sanitary Fitting | N/A Onboard<br>Air Compressor   |

### 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.
- \*\* 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

# SUMMIT SERIES INTEGRATED OZONE SYSTEMS

| Operational Requirements |                     |                         |                 |                                   |
|--------------------------|---------------------|-------------------------|-----------------|-----------------------------------|
| Model                    | Compressed Air Flow | Compressed Air Pressure | Water Pressure  | Electrical Requirement            |
|                          | scfm (lpm)          | psig (bar)              | psig (bar)      | volts, Hz                         |
| Summit A11               | 6 (170)             | 30 (2.07)               | 20-30 (1.4-2.1) | 230V 50/60Hz, 1 phase 30A Circuit |
| Summit A21               | 6 (170)             | 30 (2.07)               | 20-30 (1.4-2.1) | 230V 50/60Hz, 1 phase 30A Circuit |
| Summit A22               | 6 (170)             | 30 (2.07)               | 20-30 (1.4-2.1) | 230V 50/60Hz, 1 phase 30A Circuit |
| Summit A23               | 12 (340)            | 30 (2.07)               | 20-30 (1.4-2.1) | 230V 50/60Hz, 1 phase 30A Circuit |
| Summit A24               | 12 (340)            | 30 (2.07)               | 20-30 (1.4-2.1) | 230V 50/60Hz, 1 phase 30A Circuit |
| Summit C11, C21, C22     | N/A*                | N/A*                    | 20-30 (1.4-2.1) | 230V 50/60Hz, 1 phase 30A Circuit |

\* Not Applicable - All Summit C-Line models (C11, C21, and C22) include onboard air compression.



info@lennotech.com Tel. +31-152-610-900  
www.lennotech.com Fax. +31-152-616-289