Plasma & Reactive Gas Solutions

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SEMOZON® AX8575

STAND-ALONE OZONE DELIVERY SYSTEM FOR ADVANCED PROCESSES

The SEMOZON® AX8575 stand-alone ozone gas delivery system is designed to provide high flow, high concentration, ultra-clean ozone generation and delivery. This unit has the highest flexibility to meet the ever changing needs of the semiconductor industry. The SEMOZON AX8575 is a fully integrated, high output ozone gas delivery system specifically designed for use with an increasing number of semiconductor process applications such as ALD, CVD, TEOS/Ozone CVD, photoresist strip, wafer cleaning, contaminant removal, and oxide growth. The system can be configured as a multi-channel system delivering ozone for up to 4 channels supporting multiple chambers or multiple tools. The SEMOZON AX8575 has the highest flexibility with an in-rack chiller option for ultra high concentrations. Flow rates of up to 40 slm and concentrations up to 350g/Nm_3 can be achieved depending on the configuration of the system.

Features & Benefits

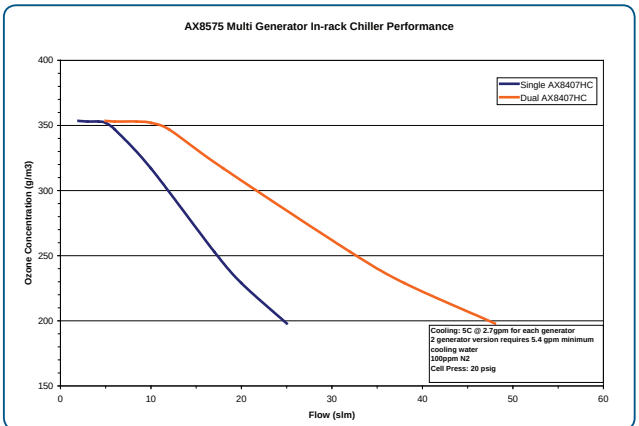
- The SEMOZON AX8575 can provide concentrations up to 350g/Nm_3 at higher flow rates to meet newer process requirements
- Ozone is an environmentally friendly chemical which converts back to benign O_2 eliminating hazardous chemical disposal
- Ozone is generated at point of use, no storage or transportation is required
- Ozone has a high redox potential reducing oxidation time and increasing throughput
- The fully integrated Ozone Delivery system allows for a fast, easy installation and quick start up with minimum connections required
- MKS patented, field-proven ozone generating technology is implemented in this system for proven reliability
- The SEMOZON AX8575 can support single or multiple process tools for maximum efficiency and a lower cost of operation
- The modular design of the SEMOZON AX8575 allows each channel to be process matched for maximum flexibility
- Closed-loop concentration control provides tighter process control for higher yields
- User friendly controller with touch screen provides easy, central controls for interfacing with the tool, ozone concentration and flow rate monitoring, and safety monitoring

Ozone has many advantages over other oxidizers as a strong oxidizing agent. Ozone has a high redox potential, can be generated at the point-of-use, and it decays naturally into oxygen ($2O_3 \Rightarrow 3O_2$). Therefore, it is considered a “green” chemical. If required, ozone can also be destroyed at the output of the process chamber using a catalytic or thermal destruct unit. This significantly lowers the chemical disposal cost, as the output is oxygen and contains no ozone. Ozone is very stable at room temperature, making it a good choice for most applications. Typical ozone applications include atomic layer deposition (ALD), chemical vapor deposition (CVD), photoresist strip, wafer cleaning, contaminant removal, surface conditioning, and oxide growth.

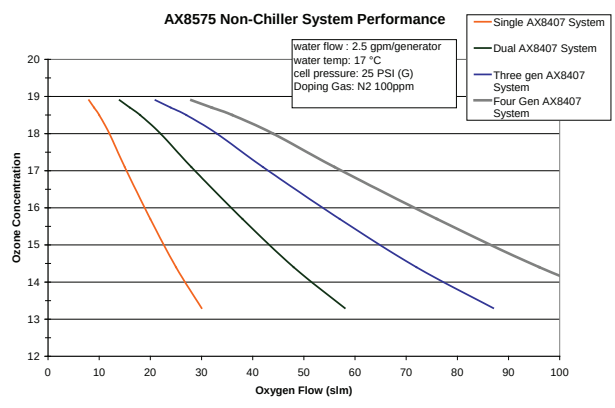
The SEMOZON AX8575 system is configurable with up to four (4) independent channels to support multiple tools or chambers concurrently. Each channel can be matched to the specific concentration and flow required for your specific process. For ultra high concentration processes the system can be configured for up to two (2) channels with an in-rack chiller thereby maintaining the same footprint. The ozone source for each channel is the production-proven SEMOZON AX8407 series ozone generators. It incorporates MKS patented, field proven, high concentration, ultraclean ozone generation technology. The SEMOZON AX8575 includes all subassemblies required for stand-alone operation, including power distribution, an ambient ozone safety monitor and status indicator panel.

Note: *For ozone performance of each output channel, please refer to the SEMOZON AX8575 performance graph to the right.*

SEMOZON® AX8407 Ozone Generator



SEMOZON® AX8575 Multi Generator In-rack Chiller Performance



SEMOZON® AX8575 Non-Chiller System Performance

Specifications

Gases

Type	Ozone Oxygen Nitrogen (20 - 100 ppm of total flow)
Purity	99.9995% minimum
Supply Pressure	50 psig (3.5 kg/cm²) nominal, 60 psig (4.2 kg/cm²) maximum
	N_2 pressure 10 psi higher than O_2 pressure
Connections	Ozone - ¼" face seal (VCR) Feed gases: N_2- ¼" face seal (VCR®), O_2 – ½" face seal (VCR)

Electrical Power

Voltage	208 volts AC (±10%), three phase
Current	31 amps RMS, 50 amps service (*depending on configuration)* minimum of 10,000 A.I.C, 60 amps service with chiller
Frequency	50/60 Hz

Cooling Water

Facilities PCW requirement for systems with Internal Chiller

Flow Rate	10 gpm nominal (water modulating valve range: 2-10 gpm)
Pressure	40 - 100 psig
Temperature Range	12 - 21°C
Quality	100 micron Filtration PWC
Connection	1" compression (Swagelok®)
Heat Load	10 kw (based on two generator configuration)

Facilities PCW requirement for systems without Internal Chiller

Flow Rate	2.5 gpm per Generator (configuration dependant)
Pressure	40 - 100 psig
Temperature Range	5* -17°C
	Note: Ozone performance is PWC temperature dependant. Refer to performance graphs for specific system performance
	*Temperatures < 12°C require additional line insulation as well as a system purge kit.
Quality	1-3 MOhm DI with 100 micron filter Note: Max DI water/Glycol blend: 70/30
Connection	1" compression (Swagelok)
Heat Load	5 kw per generator

Exhaust

Type	SEMI Category 4 (accidental or emergency release of hazardous gas or vapor)
Flow Rate	150 cfm (70.8 l/s)
Static Pressure	0.10 in. (2.54 mm) H_2O minimum, measured at the bottom of the duct flange adapter on cabinet
Connection	6" diameter duct opening or 4" diameter duct opening

Control Air (if required)

Type	CDA or dry nitrogen, 40µm filtered
Pressure	70 - 100 psig
Fitting	¼" compression (Swagelok)

Environmental

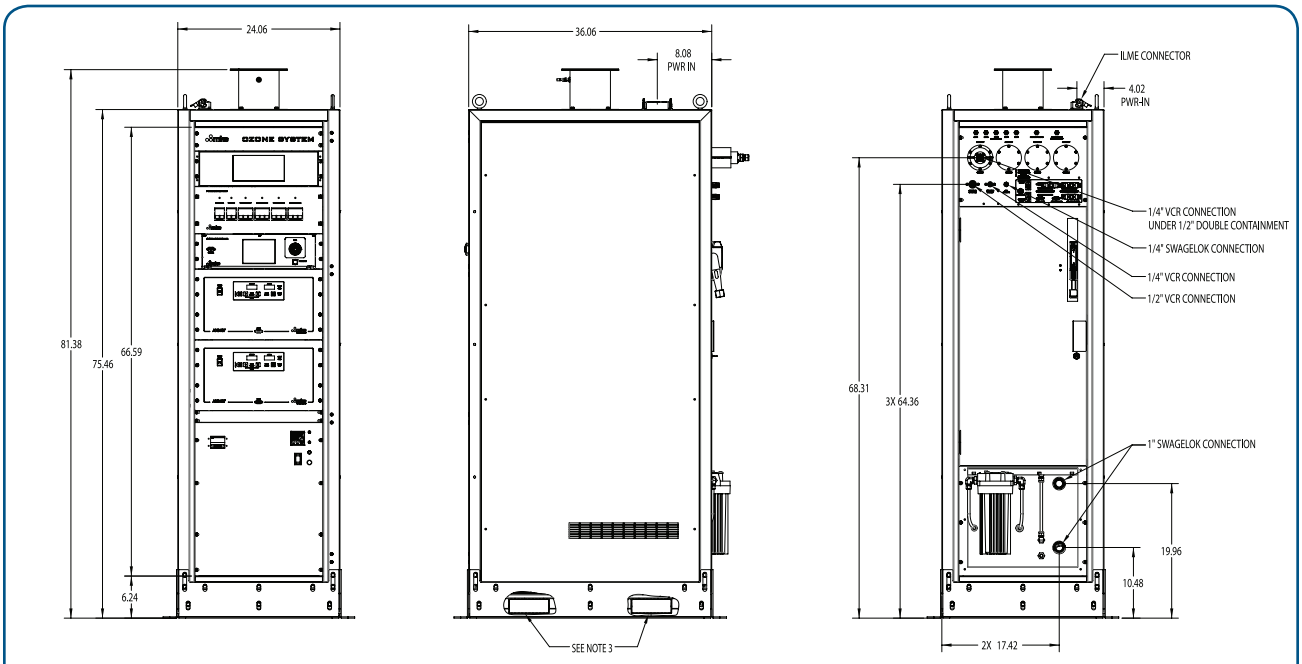
Ambient Air Temperature	41 - 104°F (5 - 40°C)
Relative Humidity	30% - 90% (non-condensing)
Altitude	Up to 3280 ft. (1000 m) above mean sea level

Mechanical

Dimensions (W x H x D)	24 in. x 75 in. x 36 in. (610 mm x 1575 mm x 914 mm)
Weight	600 lbs.(272 kg) for system with one generator 880 lbs.(400 kg) for system with four generators 1100 lbs. (499 kg) for system with two generators and internal chiller
Compliance	CE, SEMI S2-0302, SEMI F47

Ordering Information

Please contact your local sales office for price and availability.



NOTES:
1. RACK HAS SWIVEL CASTORS, LEVELING FEET, AND SEISMIC BRACE COMBINATION.
2. ALL FLOOR HEIGHTS ARE WITH CASTORS TOUCHING THE FLOOR.
   LEVELING FEET ALLOW CASTORS TO RAISE 3/16" MAXIMUM.
3. TUBES FOR FORKLIFT BLADES: 5.80" X 2.00" INSIDE DIMENSIONS ON 18.16" CENTERS.

Dimensional Drawing —

Note: Unless otherwise specified, dimensions are nominal values in inches.

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