Plasma & Reactive Gas Solutions

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O_3MEGA® - Fully automated integrated ozone delivery subsystem designed for advanced semiconductor applications; uniquely configurable to optimize performance with cost.

O_3MEGA®

COMPACT, INTEGRATED OZONE DELIVERY SYSTEM

The O_3MEGA system redefines ozone delivery subsystems, providing a more compact, complete and integrated solution than ever before. The O_3MEGA ozone delivery system incorporates MKS field-proven, high concentration, ultraclean ozone generation technology, an integrated ozone concentration monitor, flow control for both O_2 and dopant gas species, as well as an electronic pressure controller. Designed for maximum configuration flexibility, O_3MEGA subsystems match ozone value to your process requirements in the smallest, most complete delivery system available.

The O_3MEGA system retains the compact size of MKS AX8400 Series ozone generators and includes not only ozone generation but concentration monitoring, flow control and pressure control. The result- it is 60% more compact than competing ozone delivery systems. It is also the first ozone delivery system that can be designed directly into your tool structure or be integrated into a stand-alone MKS AX8555 multi-channel ozone delivery system.

The O_3MEGA system uses MKS patented ozone generator cell technology to convert pure oxygen into ozone through silent electrical discharge and achieves the highest ozone concentration levels available. MKS ozone generators are the highest purity ultra high concentration ozone generators on the market. The combination of generator design, high purity wetted materials and extremely minute levels of dopant gas (far below the levels required for competitive ozone generators), result in ultraclean ozone and the lowest levels of contaminants, e.g. NOx compounds, available at ultra high concentrations.

Ozone is an environmentally friendly alternative to many chemical processes. It has a high redox potential, can be generated at the point-of-use and is easily converted back to oxygen. Typical ozone applications in semiconductor processing include atomic layer deposition (ALD) TEOS/Ozone chemical vapor deposition (CVD), Ta_2O_5 CVD, photoresist strip, wafer cleaning, contaminant removal, surface conditioning, and oxide growth.

Features & Benefits

60% Less Space Required than Competing Offerings

- Full ozone delivery subsystem in a generator sized package
- Easily incorporated into your tool
- No tool maintenance shadow footprint
- Also available for AX8555 stand-alone multi-channel remote delivery system

High Ozone Output

- Concentration up to 20wt% (300 g/m^3)
- Flow rates from 0.5 to 20 slm
- Patented ozone cells with advanced cooling

No Manual Set-up or Adjustment

- Full electronic control including closed loop ozone concentration control with integrated process monitor
  - — MFC control for O_2 & dopant gas
  - — Electronic pressure control for stable operation during process point change
- Flexible remote interface including discreet analog signals, RS232 and TOOLweb® for seamless integration and system monitoring

Ultraclean Ozone for Advanced Applications

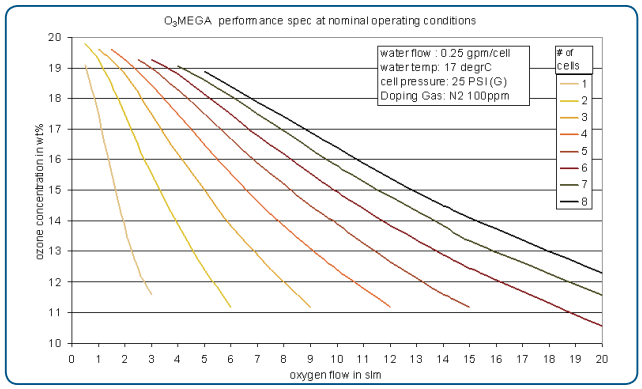
- Extremely low levels of dopant gas reduces contaminants
- Can be used with both N_2 and CO_2
- Lowest levels of NOx compounds at ultrahigh concentrations

Clean, Safe Alternative to Conventional Chemical Processing

- High redox potential
- Can be generated at the point-of-use
- Green chemical, easily converted back to oxygen

Low Cost of Ownership

- Uniquely configurable for optimum ozone output - flow, output, pressure
- No consumables, no preventive maintenance
- No chemical disposal costs



Typical Ozone Output in wt%

Specifications

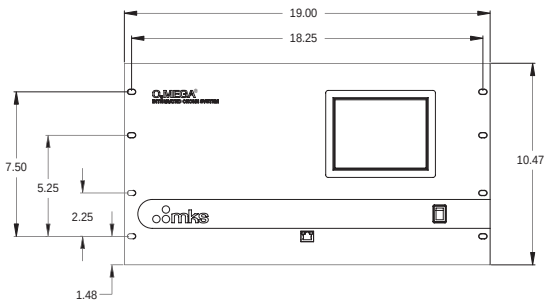
Model	O_3MEGA AX8561
Maximum Ozone Output*	25 - 225 g/hr (configuration dependent)
Flow Range	0.5 to 20 slm
Operating Range	
Ambient Temperature	20 – 40°C (68 – 104°F)
Nominal Cell Pressure (Delivery)	0.7 – 3.1 bar_{gauge} (10 – 45 psig)
Control Interface	Front Panel Control and Remote Operation
Feed Gas	
Oxygen	Grade 6 or better O_2
Nitrogen or CO_2	20 – 100 ppm grade 5 or better N_2 1000 – 2000 ppm grade 5 or better CO_2
Cooling Water	
Temperature	17 – 23°C (63 – 73°F)
Filtration	100 microns
Quality	Resistivity ≥ 50 KΩ/cm
Minimum Flow @ 20°C	
L/min	0.95 – 7.60 l/min minimum (configuration dependent)
Gpm	0.25 – 2.00 gpm minimum (configuration dependent)
AC Power	
VAC (± 10%)	208 VAC
Phase	3 Ø
Amps	Nominal Current 5A – 12A max (configuration dependent)
Hz	50/60 Hz
Weight (approximate)	40 kg (88 lb)
Dimensions (W x D x H)	482 x 429 x 267 mm (19 x 16.89 x 10.5 in)
Compliance	SEMI S2-0302, SEMI F47, UL 61010-1, CAN/CSA-61010-1

*@ 25 psi ozone delivery pressure and 17°C cooling water

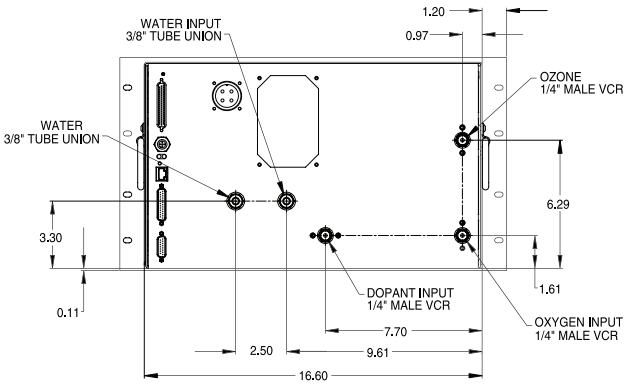
Ordering Information

Please contact your local sales office for price and availability.

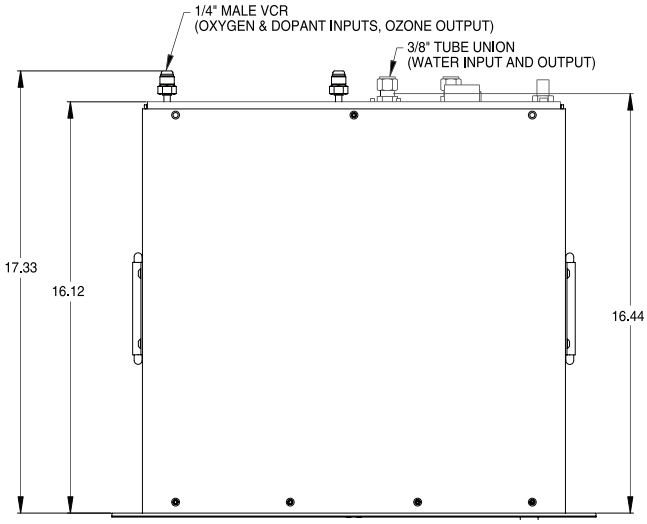
Front View



Back View



Top View



Dimensional Drawing —

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

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