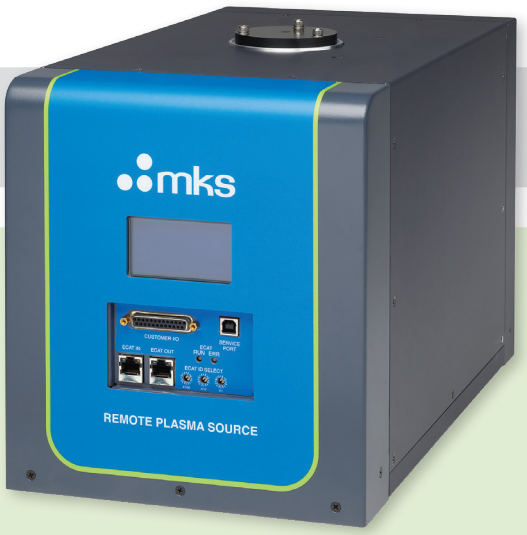
RPS-CM12P1

Remote Plasma Source for ALD, CVD and PVD Chambers

The RPS-CM12P1, 12 kW remote plasma source provides for radical enhanced deposition or selective etch pre-clean processes in Atomic Layer Deposition (ALD), Chemical Vapor Deposition (CVD), or Physical Vapor Deposition (PVD) processes. In chamber clean applications, the RPS-CM12P1 has an increased power range and process gas flow capacity to shorten chamber clean times while maintaining the same footprint as the previous generation remote plasma source Paragon® product.

A new magnetics design combined with new power boost electronics reduces power losses, enhances ignition repeatability, and increases plasma stability. These design advances also provide improved product reliability and repeatable process performance results. Additional enhancements in the remote plasma source cooling design permit running mixed gas species and high recombination gas species without sacrificing the plasma block life resulting in reduced service cost. An innovative, patent pending control architecture reduces storage capacitance while adhering to SEMI F47 immunity response requirements. Power accuracy of ±1% to the user defined plasma power set point provides lower unit to-unit variation across process chambers.

Equipped with EtherCAT® communication protocols, the RPS-CM12P1 streams key parametric data enabling on-tool or in-fab diagnostics. When the unit does require routine maintenance, servicing the plasma block applicator can be accomplished without removing the power electronics, reducing service times.



Product Features

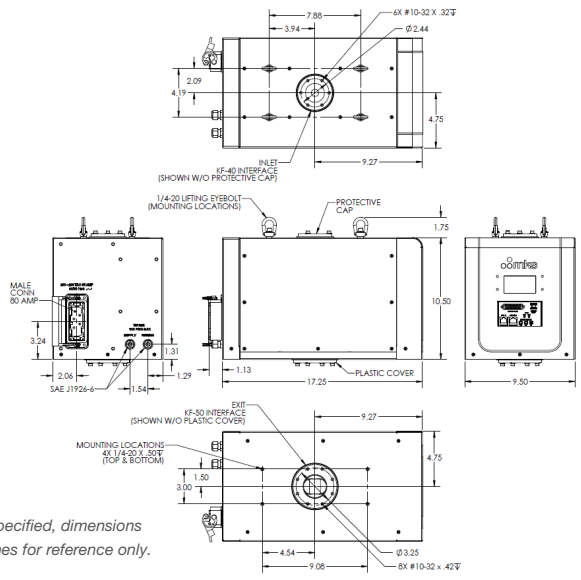
- Power Architecture
  - 12 kW RF power output
  - ±1% accuracy to power setting
  - DC boost power regulation
- Process
  - NF_3 process for chamber clean
  - Mixed gas species capable
  - Supports NF_3, O_2, N_2, Ar
- Maintenance
  - Plasma Electrolytic Oxide plasma block coatings for extended block life, lower operating expenses

Key Benefits

- Compact design enables easy integration to OEM process chambers
- Increased Fluorine radical output shortens clean time cycle
- EtherCAT® communications provides fast, reliable, data streaming and unit control
- A new plasma block assembly results in fast turn maintenance

Specifications		
Description	**AC Power** **Frequency/Phase** **RF Power** **RF Frequency** **Power Accuracy** **THD** **Water Flow**	• 208 V • 3 phase 50/60 Hz, 40 Amps RMS max phase • 12 kW • 400 kHz • ±1% to power set point • >15% • 2 gpm (7.57 Lpm)
Operating Window	**NF_3** **NF_3 Flow @ 98% DE** **Mixed Species Space** **Compatible Species** **Ignition Gas**	• 1-12 slm, 1-10 T • 1-12 slm • 30-60 slm • NF_3, O_2, N_2, Ar • Ar
Vacuum Connections	**Gas Inlet** **Gas Outlet**	• KF40 • KF50 or KF40
Communications/Control	**Analog** **Digital**	• DB25 • EtherCAT
Dimensions/Weight	**Size** **Weight**	• 18.4'' x 9.5'' x 10.5'' (46.73cm x 24.13cm x 26.67cm) • 73 lbs. (33.11 kg)
Compliance		SEMI F47

Ordering Code Example: RPS-CM12P1-MKS-02	Code	Configuration
Model		
Remote Plasma Source CM12P1	P12C	P12C



Dimensional Drawing —
Note: Unless otherwise specified, dimensions are nominal values in inches for reference only.

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