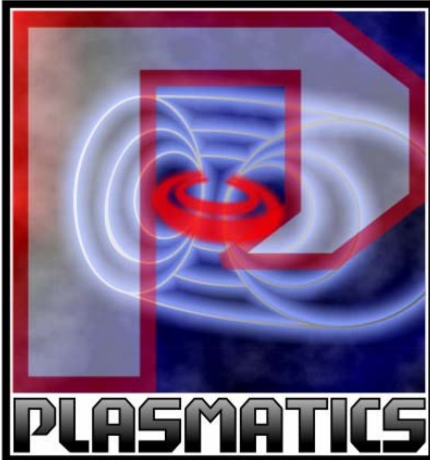
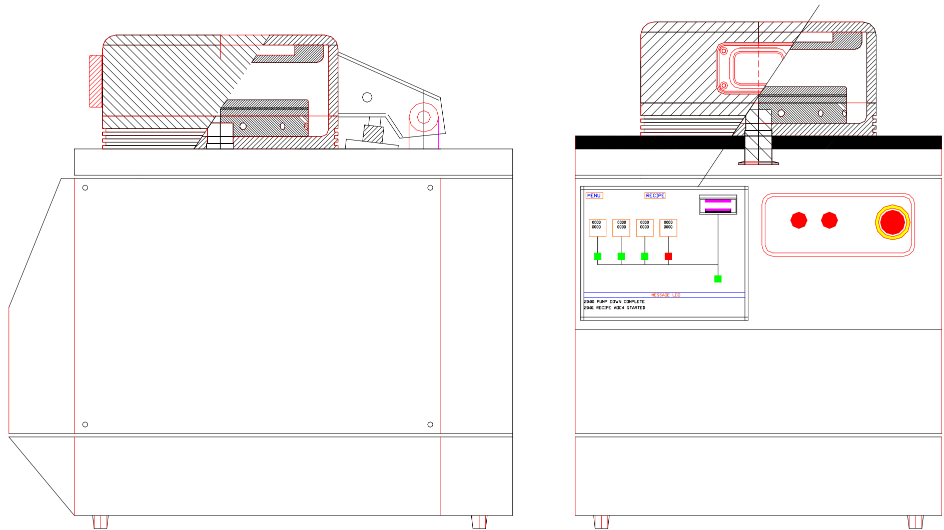


Plasmatics
Helios PECVD

Plasma technology utilized in manufacturing has a history dating back forty years. The applications for gas plasma technology continue to grow at an exponential rate. Helios PECVD is designed for thin film deposition for the failure analysis laboratory, MEMS, and research applications. With the latest solar cell deposition requirements the Helios has demonstrated film properties that are both excellent in step coverage and conformality



Plasmatics Helios PECVD

Specializes in bench top processing tools, that offer versatility, affordability, and performance in a small footprint system

PLASMATICS LLC.

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San Ramon, CA 94583
With local support centers in CA, TX, VT and International locations

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General Information and Usage:

The Helios PECVD system was developed for depositing low cost highly conformal films. The system uses a capacitively-coupled 30KHz or 13.56 MHz source excitation to produce the plasma between two parallel aluminum plates. The gas is injected over the sample through a 6” diameter showerhead. The samples are placed on the system anode (to minimize ion damage) which is heated up to 450°C
SiO_2 is typically deposited at rates of 10-400 Å/min.
Si_3N_4 is typically deposited at rates of 30-400 Å/min.
Fluorinated plasma are used for chamber clean cycles.
These films are typically used for capacitor dielectrics, chemical passivation layers, electrical insulators, etching masks, and optical anti-reflective coatings. The system is fully programmable with windows-based software that simplify the design of custom recipes, also included is a wide array of pre-defined processes.

Silicon Oxides	Silicon OxyNitrides
Silicon Nitrides	Amorphous Silicon
Poly Silicon	Plasma Clean

Specifications

All stainless steel construction for clean room environments

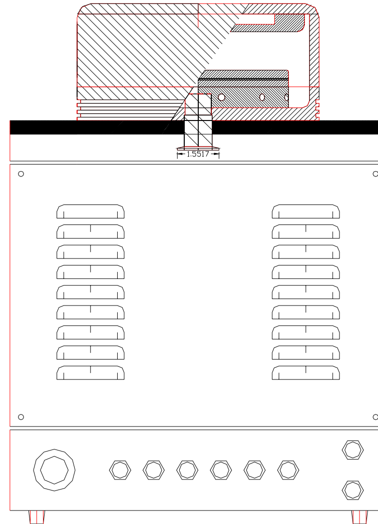
Automated chamber lift system for particle reduction and ergonomics

Axial exhaust porting for uniform process gas distribution and ionization efficiency

Gas porting and internal plumbing utilizes VCR flanges

Reactor design provides optimal anode to cathode ratio for highest self-induced DC bias

Conforms to Semi standards S2-00 and S8-95



PECVD Rear View

Modular design for ease of servicing and low MTTR

Highly reliable PC based controller

Easy recipe storage and edit functions as well as process data logging

Network interface, and easy process file backup

Wide process pressure range for versatile deposition characteristics

Quartz view port with UV filter

Standard Features	Options
2 Channels Mass Flow Control	Additional 2 Channels MFC
30KHz 300 Watt RF Generator	13.56MHz 300Watt plus Autotuner
11 CFM Corrosive Rotary Pump	Multiple Pump Options
150mm heated sample platen (450°C Max)	Oil Filtration System
Configurable single touch interface for recipe start, intended for production	**Single wafer load lock:** Atmospheric pressure, N2 environment, single wafer automatic loading, and unloading from process chamber
Touch screen controlled: HMI (human machine interface)	**Fully automatic cassette to cassette load lock:** Atmospheric pressure, N2 environment fully automatic cassette to cassette loading and unloading from process chamber
Industrial based computer: Windows™ XP based software platform	**Dual Frequency RF power supplies:** 300 watt 13.56MHz high frequency and 300 watt 30 KHz capable of simultaneous processing

Utilities Requirements

Voltage	110/220 Vac, 50/60Hz, 15A (circuit)
Ground	D Type <100 ohms
CDA	60-90 PSIG (0.4-0.6MPa)
Nitrogen	15 PSIG (0.1MPa)
Process Gasses	30 PSIG (0.2MPa)
Cooling Water	1 GPM