



ORION HDCVD

High Density Chemical Vapor Deposition

The Orion HDCVD uses a plasma deposition technique where inert gases are introduced above an inductive coil placed around a ceramic tube. RF is applied to the coil to create a plasma. Volatile gas is introduced near the substrate surface through a gas ring. A chemical reaction occurs when the inert gases combine with the volatile species, and a film is then deposited on the substrate surface.

This technique does not require the substrate to be heated to typical PECVD temperatures, and the process is very well suited for depositing onto organics, flexible substrates, and other surfaces that have temperature limitations. RF can be applied to the chuck to change the film properties.

These processes are backed by over 25 years' experience in rapid process development.

FEATURES

TOUCH SCREEN

The touch screen interface provides the operator with full operator process information at all times. The intuitive software interface guides the operator interface through each sequence in a logical fashion, and gives fingertip control of all process parameters.

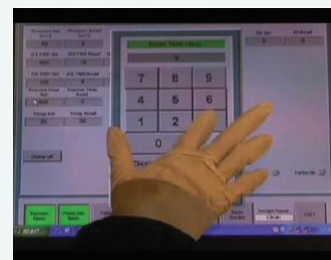
A Program Logic Controller provides simple and reliable system control. The standard Trion Technology interface ensures quick connections to all components, and the additional ports allow for future upgrades.

REACTOR

The cathode and anode are each machined out of single blocks of aluminum reducing the possibility of vacuum leaks. Heater sticks are embedded into the chamber, which can be controlled from 30-80°C to increase process reproducibility, and reduce sidewall deposition.

HEATED CHUCK

Chuck temperature can be controlled from 50°C to 400°C using a resistive heater.



Touch Screen



Chuck



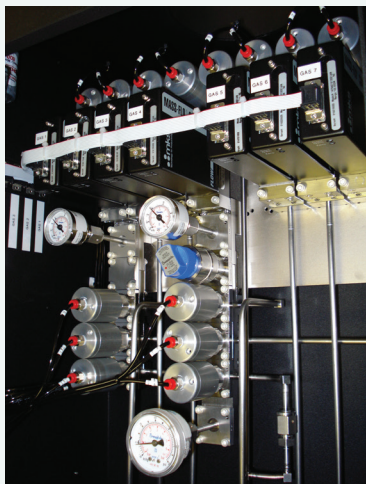
ICP

ICP

The Inductively Coupled Plasma source has been designed to allow rapid plasma strikes at very low powers. The base system includes a LF generator for chuck bias. This is upgradable to a HF generator if required.

GAS DELIVERY

The gas cabinet uses self-closing doors, and includes nitrogen purging for toxic or corrosive gases controlled by the on-board computer. All plumbing utilizes surface mount, C-seal technology, and orbital welded VCR fittings. Silane is typically used for HDCVD processes; however there are alternative chemistries available that use liquid sources.



Gas Delivery

PUMPING SYSTEMS

The turbo pump is mounted in a position that provides easy removal with minimal effort, and is backed by a rotary pump to provide efficient pumping. The controllable pumpdown heater reduces the possibility of contaminants attaching to the sides of the pipes.



Pumping Systems

STANDARD PECVD

An option is available to increase flexibility by converting the system to a standard PECVD Mode. This requires a simple change over to the standard PECVD lid, and can be achieved in less than 60 minutes.

LOADLOCK UPGRADABLE

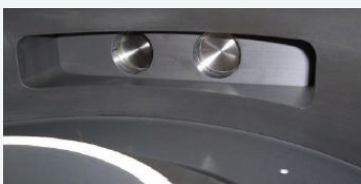
All Orion systems have a blank installed behind the touchscreen which allows an easy upgrade to a loadlock when funds become available. In addition, the blank can have additional diagnostic ports added to it as shown here.

SAFETY

Our systems have been designed and manufactured following Semi S2 guidelines, and are CE compliant. Large, well-marked EPO buttons are placed on the front of the system so the system can be easily put into shutdown mode should any dangerous situation arise.

FACILITIES

Facility schematics can be provided upon request.



Loadlock Upgradable

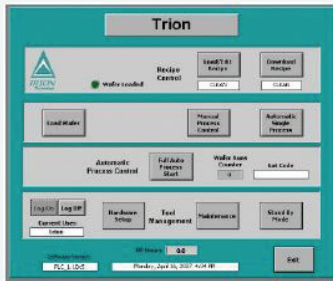
A COMMON CORE



All main components are used across the complete product platform. This means that they are time tested for production, easier to support, and result in a lower cost of ownership.

This approach has also resulted in improved reliability and uptime as it is easy to identify potential issues from our experiences from production that are transferred back into the core platform.

SOFTWARE INTERFACE



A consistent software interface gives the user a sense of familiarity and confidence in tool operation. It is easy to do major code updates whilst retaining recipes, and the software also allows easy recipe transfer between systems, and includes hardware diagnostics, data logging, easy hardware configuration, and can be interfaced to factory automation software.

PROCESS LAB



Trion Technology operates a full Applications Laboratory that can provide guidance, and support of our customers through a large process library. Standard datasheets can be provided for a wide range of applications such as:

- Photoresist Strip
- De-scum
- Failure Analysis
- General Dielectric Etch
- Deep Silicon
- Compound Materials
- Metal Etch
- Photovoltaics
- PECVD
- PVD
- ALD

Please also consider Trion Technology to provide process solutions for:

PR Removal
RIE
PE
ICP
DRIE
PECVD
PVD
PEALD



Manufacturing, Sales and Service



Onsite Machine Shop for fast turnaround of custom designs for new and unique tools

Founded in 1989 by Randy Crockett, Trion Technology is a privately held company that manufactures leading-edge processing equipment in the USA. We delivered our first system to Sematech in 1990, and have an installed base of over 550 systems. Our customers range from a small university department, to a start-up with limited funding, to large corporations running 24/7 production operations. With such a diverse customer base, and a 25+ year process library, we are uniquely positioned to provide a true "Lab to Fab" philosophy.

+1 727 461 1888 • www.triontech.com
Affiliate Sales & Service Offices Worldwide.