ORION III

Plasma Enhanced Chemical Vapor Deposition

The Orion III PECVD system produces production-quality films on a compact platform. The unique reactor design produces low stress films with excellent step coverage at extremely low power levels. The system meets all safety, facility and process requirements within the laboratory and pilot line production environments. The Orion III has many standard features not typically found on a system so reasonably priced, which is why many users worldwide have made it their PECVD system of choice.

Applications

Non-pyrophoric PECVD processes. Films deposited: oxides, nitrides, oxynitrides, amorphous silicon. Process gases: <20% silane, ammonia, TEOS, diethylsilane, nitrous oxide, oxygen, nitrogen.

The Orion III comes with full process support both prior to and subsequent to purchase. For a more detailed discussion of applications and processes, please visit www.triontech.com.

Tool Features

Reactor	The cathode and anode are each machined out of single blocks of aluminum. After critical inspection they are hard anodized for protection from process chemistries. The bottom electrode is available in either 200mm or 300mm sizes and can process single wafers, dies or parts (2” - 300mm). Process gases are introduced into the chamber either by an annular ring or a showerhead manifold.
Lower Electrode	The system comes with a 300Watts (350-460kHz) bottom-powered electrode.
Touch Screen Operator Interface	A color flat panel display with touch screen interface provides the operator with full process information at all times. The software interface guides the operator through each sequence in a logical fashion and gives fingertip control of all process parameters.
PC Process Controller	The PC process controller provides simple and reliable system control. The graphical software package creates programs in block diagram form. Process recipes are stored on the hard drive or can be stored on USB flash drives allowing each operator to maintain individual recipes.
AC Distribution Module	The AC distribution module automatically distributes predefined power quantities to the various internal components. When the Emergency Power Off button is tripped, the RF power is shut off and all valves involved with gas delivery are automatically closed and the machine powers down to a safe standby mode. This system includes separate power controls for the main AC and peripherals.

Automatic Pressure Control	Every Trion system includes a butterfly pressure control valve operated directly by the process controller. This provides independent pressure control separate from all other processing parameters.
Gas Delivery System	State-of-the-art technology is utilized to ensure the utmost integrity and purity. Each reaction chamber accommodates up to eight mass flow controllers and all plumbing utilizes surface mount, C-seal technology or orbital welded VCR fittings.
Safety	The system meets SEMI S2-0310/S8-0308 safety requirements. The system is CE compliant with Machinery Directive 98/37/EC, the Low Voltage Directive 73/23/EEC and the Electromagnetic Compatibility Directive 89/336/EEC for CE Marking requirements. A third party safety review is available upon request.
Facilities	Facility schematics can be provided upon request.

Advanced Options

Pumping Systems	Each reaction chamber requires it’s own pump. Trion can supply these as needed according to your requirements. There are mechanical, dry and turbo pump options available. You may choose to provide your own pump(s) or they can be purchased directly from Trion. All pump options provided by Trion are proven systems chosen to best meet your specific process needs.
Temperature Control	Bottom electrode temperature can be controlled from 50°C to 400°C using a resistive heater and IR thermo-couple.
Triode Source	A 600Watts, 13.56MHz top-powered triode source can be added to give stress control capability.