



PS 350TM

PRODUCTION SCALE PLASMA SYSTEM

AST has long had a core business in plasma processing. Cold gas plasma is an energetic process utilizing electrical energy to transform very small amounts of innocuous gases into very chemically reactive and aggressive plasma. The gas plasma interacts with solid surfaces placed in the same environment, causing modification of the molecular structure to create the desired surface properties. Because plasma processing works without using hazardous chemicals, it is environmentally friendly and provides a safe working environment. Plasma Systems provide highly effective cleaning and surface treatment to almost any material without changing the bulk properties.



PLASMA PROCESS EXAMPLES:

- **Surface Cleaning** Oxygen plasma treatment is a safe and environmentally friendly alternative to traditional cleaning methods
- **Adhesion promotion** Improving adhesion between two surfaces is a common application. Good adhesion requires strong interfacial forces via chemical compatibility and/or chemical bonding
- **Improving biocompatibility** Biomaterials that come in contact with blood or protein require special surface treatments to enhance biocompatibility.
- **Enhancing performance** Surface crosslinking is often used to enhance the performance of polymers.

REACTOR CHAMBER

- Unimpeded work volume: W13" x H21" D28"
- Primary plasma configuration
- Patented power distribution
- 4 removable tempered glass shelves (9 slots available)
- Front-loading door
- RF- and UV-shielded view port
- Dielectric isolation of electrodes (prevents RF interaction with chamber walls)
- Front-to-back laminar distributed gas flow

CONTROL SYSTEM

- PC controlled
- 1. PROCESS TIME 2. PRESSURE 3. GAS FLOW 4. RF POWER
- Key switch selects PROGRAMMING modes
- Screen Displays indicate SYSTEM ALARMS, PROCESS STATUS and ACTIVE PARAMETERS
- Self-diagnostics displayed automatically on TOUCH SCREEN DISPLAY.
- Automatic error checking of gas flows pressure, RF, forward and reflected power. An "out-of tolerance" puts the process in HOLD, sounds an alarm, and displays an error message.
- Three gas lines available with individual mass flow controllers (optional) and isolation valves.
- Fast and slow vent controls
- Light tower for visual signaling

RF GENERATOR/AUTOMATIC IMPEDANCE MATCHING NETWORK

- 0-600 watt, 13.56 MHz, solid-state generator
- Automatic impedance matching network with fast automatic tuning

POWER DISTRIBUTION MODULE

- Distributes power to all components
- Separate circuit breaker for main power
- SYSTEM OFF, EMERGENCY OFF (EMO) button

OPTIONAL PUMP PACKAGES

- Turn-key installation when purchased from AST (includes flexible plumbing and all fittings)
- 50 cfm two stage rotary vane pump (or alternative, high-capacity 180 cfm roots blower package) with integral connection to process controller.
- EMERGENCY OFF button at system control and on the pump shuts down both the system and the pump.
- Pump option for lubricating with inert oil
- Optional External filtration system with pressure gauge
- Optional oil-mist separator
- Integral pump starter with control panel (on blower packages)

SYSTEM DIMENSIONS

- H72" x W25" x D24"

INSTALLATION REQUIREMENTS

PS 350 Plasma System

- Electrical Power: 208 VAC, 3Ø, 20 amp
- Gas inputs are 1/4" compression fittings. Regulated dry air with an inlet pressure greater than 65 psig to be supplied by the user to quick disconnect or 1/4" compression fittings.

VACUUM PUMP

- Vacuum: Adequately-rated, sealed exhaust line at 50 cfm connected to pump with a 2" ID KF-40 fitting