

# Plasma Pen





## PlasmaPen™

The **PlasmaPen™** is a patented atmospheric plasma system used to solve surface preparation problems. The **PlasmaPen™** produces high density plasma with a low heating effect, giving it the ability to clean and activate the surfaces including low melting point polymers. Our worldwide customer base uses the **PlasmaPen™** for a broad range of applications that span the Life Science, Electronics and Industrial markets.

The **PlasmaPen™** cleans and activates the surface of materials promoting wettability of potting compounds, adhesives, inks, paints and dyes. Surface cleaning with the **PlasmaPen™** ensures reliable wire and die bonding for semiconductor packaging. It has shown particular success in adhesion promotion of anisotropic conductive film (ACF) used in flat panel display manufacturing.

The patented design of the **PlasmaPen™** keeps voltages and current safely away from the plasma jet. This means that the user is not exposed to potentially dangerous voltages and surfaces are not subjected to damaging filamentary discharges.

The **PlasmaPen™** can be used manually or remotely through host automation. It is ideally suited to *in situ* treatments enabling rapid in-line processing, eliminating any activation lifetime issues. Process gasses are flowed through the pen, activated and ejected through the nozzle. PVA TePla's design allows compressed air to be the standard treatment gas for most applications and provides for a very low cost of ownership. Other gasses can be utilized depending on the specific application.

## Technical Data

<b>Width of treatment band</b>	3 - 10 mm (configurable)
<b>Service Interval</b>	1500 hours (gas dependent)
<b>Standard Cable Length</b>	3 m - 6 m (9 - 18 ft.)
<b>Power Requirements</b>	
<b>Electricity</b>	115 VAC, 1 phase, 60 Hz (4 amps max)  100 or 230 VAC, 1 phase, 50/60 Hz (4 amps max)
<b>Compressed Air</b>	(6 Bar, 88 psi) 1275 liters/hour (45cf3/h)
<b>Other Gasses</b>	N2, N2/H2, O2, CO2, He
<b>Weight</b>	25 kg / 55 lbs

## Advantages

- High density plasma in contrast to corona discharge
- No electrical current or filamentary streamers in the plasma jet
- Broad material application capability
- Low thermal load allows treatment of low melting point polymers
- Simple host automation integration
- Low environmental impact (no chemicals, primers or vacuum)
- Onboard systems monitoring and diagnostics

## Applications

- Adhesion Promotion of:
  - Anisotropic Conductive Film (ACF) – Flat Panel Display Assembly
  - Polymer adhesive bonding
  - Inks, dyes and paints
  - Potting, over mold and under-fill compounds
  - Bio Materials
- Critical Cleaning:
  - Wire and Die Bond pads
  - Fiber Optic Cables
  - Weld Lines
  - Packaging, caps and closures
  - Connectors
  - Optics

## PlasmaPen™ Markets

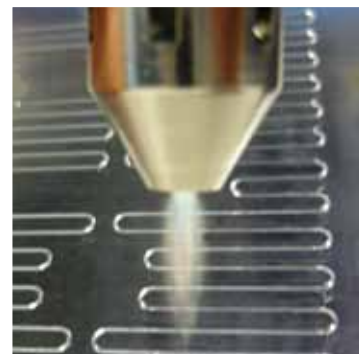
- Chip scale devices
- Electronics packaging
- Solar devices
- Flat panel displays
- Textiles
- Life Science and Medical device products
- Automotive, Aerospace and Nautical parts
- Wires, cables, fibers
- Toys and consumer goods
- Window/glass manufacturing

## Options

- Robotic operation (Multi Axis or X, Y & Z)
- Multiple plasma jet array
- Foot pedal
- Custom fixtures
- Plasma detection
- Secondary gas cooling
- Ventilation hood
- Calibration equipment
- Full onsite service maintenance contract
- Plasma pulsing and secondary gas cooling

## Safety Certification Standards

- CE certified
- EN 61010
- EN 61326



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