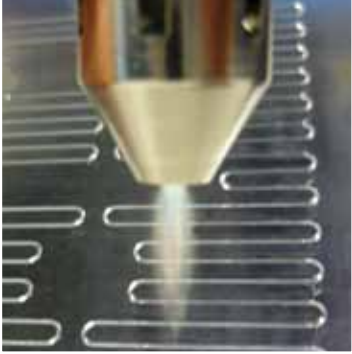


RoboPen™





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The **RoboPen™** is an automated version of the patented atmospheric **PlasmaPen™**. The **RoboPen™** is used to prepare surfaces by cleaning and activating materials such as polymers, glass, ceramics, metals, etc. for a broad range of applications spanning Life Science, Electronics and Industrial markets. Surface cleaning with the **RoboPen™** ensures reliable wire and die bonding in semiconductor packaging, and has shown particular success in adhesion promotion of anisotropic conductive film (ACF) used in flat panel display manufacturing. The **RoboPen™** increases the surface energy of materials promoting wettability of potting compounds, adhesives, inks, paints and dyes.

The **RoboPen™** is a self-contained, automated atmospheric plasma treatment system that can be configured and/or customized to meet a broad variety of manufacturing applications. PVA TePla works with a number of robot manufacturers in order to offer our customers a complete range of custom automation solutions. We provide any range of options starting with a basic table-top XYZ model up to the most complex multiple axis, vision recognition and high speed pick and place solution. Our product range allows customized programming and integration into any manufacturing line concept and we are able to partner with any customer preferred Robot Manufacturer.

Process gasses are flowed through the **PlasmaPen™** assembly, activated and ejected through the nozzle. PVA TePla's design allows compressed air (CDA) 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

Width of treatment band 3 - 10 mm (configurable)

Service Interval 1500 hours (gas dependent)

Standard Cable Length 3 m - 6 m
(9 - 18 ft.)

Power Requirements

Electricity 115 VAC, 1 phase, 60 Hz
(4 amps max)
100 or 230 VAC, 1 phase, 50/60 Hz
(4 amps max)

Compressed Air Clean Dry Air (6 Bar, 88 psi), 1275 liters/hour (45cf3/h)

Other Gasses N₂, N₂/H₂, O₂, CO₂, He

Weight 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
 - Photovoltaic Si-cell manufacturing
 - Photovoltaic Thin Film module 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

RoboPen™ Markets

- Chip Scale Devices
- Electronics Packaging
- Solar Panel module assembly
- 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

- Multiple plasma jet array
- Custom fixtures
- Plasma detection
- Secondary gas cooling
- Ventilation hood (meets nationally recognized safety standards OSHA 1910)
- 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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