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PM-V82 DVG3

Atmospheric Plasma Treatment Machine



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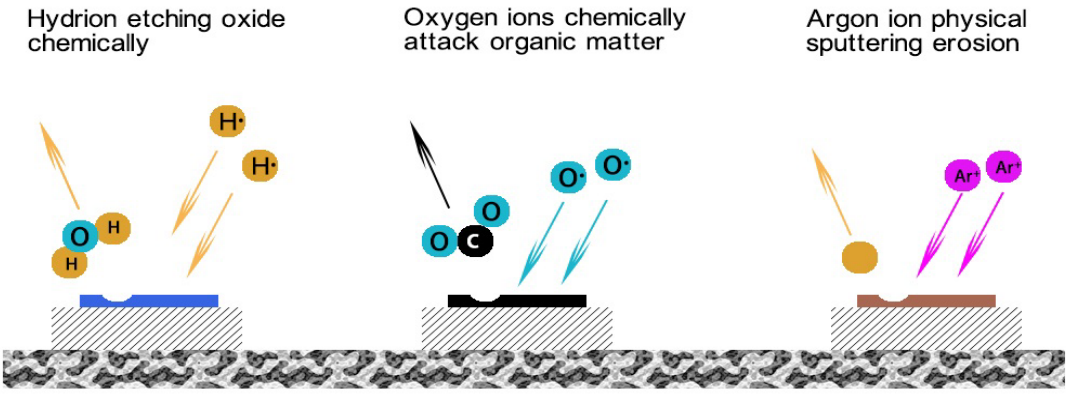
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About Plasma Technology

Plasma is recognized as the fourth state of matter, distinct from the traditional solid, liquid, and gaseous phases, and naturally occurs in environments such as stellar surfaces and the Earth's ionosphere. While macroscopically remaining electrically neutral, plasma consists of a complex mixture of high-energy free electrons, neutral atoms, molecules, excited radicals, and ultraviolet radiation generated during ionization and dissociation reactions.

The active species within a plasma environment—including ions, electrons, excited metastable nuclides, and photons—interact directly with material surfaces. Low-temperature plasma surface treatment combines chemical etching, micro-cleaning, and physical sputtering to modify substrate characteristics, thereby enhancing surface wettability, removing organic contaminants, and grafting functional chemical groups.



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Overview & Technology

The PM-V82 DVG3 atmospheric plasma cleaning system utilizes low-temperature plasma state technology to modify surface characteristics (within tens of nanometers) without changing the inherent bulk properties of the substrate. Active plasma components (ions, electrons, excited radicals, and UV photons) perform chemical micro-etching, surface activation, and contaminant cleaning to significantly enhance surface wettability and bonding adhesion.

- **Targeted Surface Modification:** Modifies only the surface layer (tens of nanometers), preserving matrix integrity.
- **Broad Substrate Compatibility:** Effective on metals, plastics (PP, PVC, PET, PC, PE, PTFE), glass, ceramics, and rubber.
- **High Process Efficiency:** Fast reaction rates, high processing uniformity, and seamless online line integration.
- **Eco-Friendly & Cost-Effective:** 100% dry process—no water consumption, zero chemical additives, and zero chemical pollution.

The advantages of plasma application

- **Targeted Surface Functionalization:** Surface modification is restricted to an ultra-thin layer (ranging from a few to several tens of nanometers), imparting specialized functional characteristics without altering the mechanical or physical bulk properties of the substrate.
- **Broad Substrate Versatility:** Highly adaptable across diverse material types, including metals, engineering plastics, glass, elastomers, and advanced polymers.
- **Operational Simplicity & Process Control:** Features a straightforward process workflow, user-friendly operation, excellent process repeatability, and high operational stability.
- **High Processing Efficiency:** Characterized by rapid cycle times, high chemical reaction rates, and uniform surface coverage.
- **Eco-Friendly & Cost-Effective:** Operates entirely as a 100% dry process—eliminating water consumption, chemical solvents, and hazardous waste emissions.

Technical Specifications

Equipment Type	Atmospheric Plasma Treatment Machine
Power Supply	AC 220V, 50/60 Hz
Power Consumption	1000W × 2 (Adjustable)
Operating Frequency	18 – 25 kHz
Nozzle Configuration	2× DVG3 Rotary Nozzles
Treatment Width	35–40 mm / 55–60 mm / 75–80 mm (Optional)
Treatment Distance	5–15 mm (Recommended: 10 ± 2 mm)
Process Gas	Compressed Air (CDA) / Nitrogen (N2)
Operating Air Pressure	2.5 – 3.5 kg/cm^2
Dimensions (L × W × H)	550 mm × 320 mm × 1020 mm
Cable Length	2.5 m (Extendable)
Net Weight	62 kg
Automation Support	Full Online Automated Line Integration

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Industry Applications

Optoelectronics & Electronics	Glass hydrophilia activation, PCB/FPC contact cleaning, LED fluorescent lamp glue adhesion enhancement, IC surface activation, and LCD terminal bonding pre-treatment.
Automotive Industry	EPDM sealing strip pre-flocking treatment (replaces chemical primers), headlamp/brake pad pre-gluing activation, self-sealing tire bonding, and lithium battery electrode pre-coating cleaning.
Plastics & Rubber	Surface modification prior to coating/printing/plating on PP, PVC, PET, PC, PE, and PTFE; pre-treatment for mobile phone/computer shells and cosmetic bottles.
Packaging & Printing	Adhesion optimization for coated, glazed, UV, OPP, PET, and metallic foil cartons; pre-welding treatment for beverage/powder tins; cable and smart card inkjet coding pre-treatment.
Household Appliances	Surface activation before spraying/bonding daily appliances and health pot heating plate glue adhesion enhancement.

Standard Configuration & Consumables

Main System Configuration

1	Plasma Host System	Set	1
2	Plasma Gun Assembly (DVG3)	Set	2
3	Operation & Maintenance Manual	Set	1

Consumable Replacement Lifecycle

Consumable Item	Unit	Qty	Expected Service Life
Electrode	Piece	1	6,000 Hours
Nozzle	Piece	1	6,000 Hours
Carbon Brushes	Piece	1	5,000 Hours

Warranty & After-Sales Service

- **Post-Warranty Technical Support:** Lifetime technical support and non-profit maintenance service (charging component costs only) after warranty expiration.

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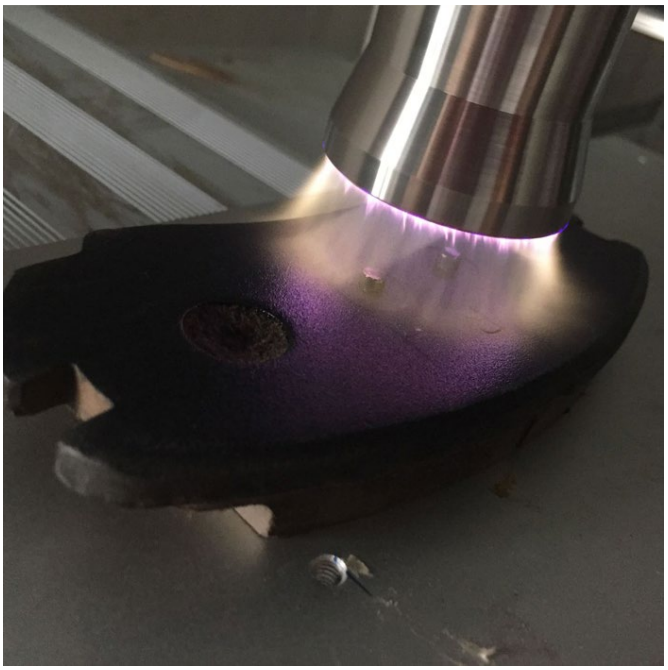
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- **Long-Term Service Commitment:** Ongoing availability of spare parts, system maintenance, efficiency retrofits, and customized process optimization.









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