

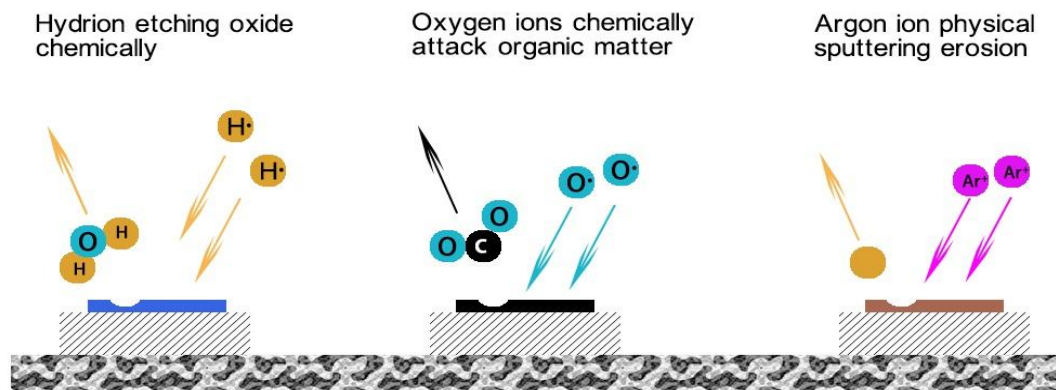
GM-6000 DVG3 Plasma Treatment Machine Technical Specification

I. About Plasma Treatment Technology

Plasma is a state of existence of matter. Generally, matter exists in three states: solid, liquid, and gaseous, such as matter on the surface of the sun and the ionosphere in the earth's atmosphere. The state in which this type of matter exists is called the plasma state, also known as the fourth state of matter.

The following substances exist in the plasma: electrons in high-speed moving transition states, neutral atoms, molecules, atomic groups (radicals) in excited transition states, and ultraviolet rays generated during the dissociation reaction of ionized atoms, molecules, and molecules reacting molecules, atoms, etc. but the substance remains electrically neutral in general. The "active" components of plasma include ions, electrons, active groups, excited nuclides (metastable states), photons, and so on.

Plasma cleaning technology uses the characteristics of low-temperature plasma to make the plasma contact and react with the surface of the material, so that the surface of the processed material is chemically and surface etching and physically cleaned, improving the wettability of the surface, implanting new chemical functional groups.



II. Plasma Advantage

Compared with traditional processes, plasma surface treatment technology has the following advantages:

- **Strong function:** The modification only occurs on the surface of the material (about several to tens of nanometers), giving it one or more new functions without changing the inherent properties of the matrix;
- **Wide application:** It can be processed regardless of the type of substrate of the object to be processed, such as metal, plastic, glass, polymer materials, etc.;
- **Easy to operate:** The process is simple, the operation is convenient, the production controllability is strong and the stability is high;
- **High Efficiency:** Short processing time, high reaction rate, and good processing uniformity;
- **Energy saving and environmental protection:** The whole process of drying treatment method does not consume water resources, does not need to add chemicals, and does not produce pollution.

III. Product Introduction

GM-6000 DVG3 atmospheric plasma cleaning machines are widely used in electronics, solar energy, automobiles, packaging and printing, biomedical and general industries. They are characterized by high processing efficiency, good repeatability and stability, online use, and easy operation. Cleaning, activation, improving adhesion, adhesion and other processes, and can customize professional, efficient and stable solutions according to different product needs of customers.

IV. Overview of the technical functions of the equipment

1. A variety of control modes are optional

- ① Screen control: control the start and stop of the device through the touch screen button
- ② External terminal control: control start and stop through the external terminal
- ③ RS485 interface modbus Communication control: control start and stop through modbus RTU communication and RS485 interface

2. With the real-time data reading function

- ① The voltage, current, air pressure and nozzle speed are read and monitored in real time to ensure the best processing effect
- ② With voltage, current, pressure, nozzle flow data graph, real-time display of the index parameters with time changes, convenient for users to more intuitive analysis of data

3. With the upper limit and lower limit voltage alarm function

Alarm when voltage exceeds upper or lower limit, default voltage range (190V~250V), during the alarm, the equipment stops and the alarm signal can be output and it need manually reversing the alarm for restart equipment

4. With the upper and lower limit of air pressure alarm function

It will alarm when the air pressure exceeds the set upper or lower limit, it need manually reversing the alarm for restart equipment

5. With function of alarm the motor fault

When the motor stops abnormally, it can be started after manually reset the alarm

6. With the plasma injection abnormal alarm function

When the current is greater than 2A and the delay is 3 seconds, the alarm occurs. After the current is less than 2A delay for 2 seconds, the alarm delay can be set.

Stop automatically and output the alarm signal when the plasma injection is abnormal, it can be started after manually reset the alarm

7. With the function of maintenance time about the consumptive part

The remaining maintenance time of the damaged parts is displayed in real time on the maintenance cycle screen

V. Product Application

★ Optoelectronic and electronic industries

- Clean the surface of all kinds of glass, improve the hydrophilia of glass surface, optimize the glass coating, printing, bonding and spraying and so on;
- Clean the contacts of flexible and non-flexible PCBs and LED fluorescent lamps, improve the adhesion of surface glue;
- Clean electronic components and PCBs, clean and activate IC and other surfaces to enhance the binding;
- Plasma cleaning before LCD terminal bonding;

★ Auto industry

- Replace the primer for pre-treatment of auto EPDM sealing strips before flocking and coating;
- Plasma pre-treatment before bonding and spraying for headlamp base, groove, brake pad, bumper and so on;
- Pre-treatment before gluing for self-sealing tires;
- Welding, surface activation before coating, cleaning, etc. for lithium battery electrodes of new energy vehicles;

★ Plastic industry

- Treatment before coating, printing, electroplating, bonding and flocking of various plastic materials such as PP, PVC, PET, PC, PE, PTFE, etc.;
- Surface modification and removal of surface pollutants before coating, printing, electroplating and bonding for various plastic, silica gel, rubber and metal materials;
- Pre-treatment before printing and painting for plastic shells of mobile phones, computers, toys, etc., so as to improve the surface adhesion;
- Pre-treatment before printing for plastic cosmetics bottles, so as to improve the surface adhesion to prevent removal of words and raise the product quality;

★Packaging industry

- Professionally improve the adhesion of color boxes and color cartons made of coated paper, glazing paper, polishing paper, gold or silver card, aluminized paper, UV, OPP, PP, PET, etc.;
- Plasma pre-treatment before welding for milk powder tins and beverage cans;

★Printing and code spraying industries

- Plasma pre-treatment before surface pad printing, screen printing and code spraying for composite plastic, metal glass and other materials, so as to enhance the surface adhesion to ink;
- Pre-treatment before code spraying for PE, PTFE and silicone rubber cables;
- Pre-treatment before code spraying for PVC, PET and ABS smart cards;

★Household appliance industry

- Plasma activation before surface coating, spraying and bonding for daily necessities and household appliances, so as to enhance the surface adhesion;
- Plasma cleaning for heating plate of health pot to improve the adhesion of glue;

VI. Product Parameter

Name	Plasma Treatment Machine
Model	GM-6000 DVG3
Power Supply	AC 220V, 50/60Hz
Power	1000 W (Adjustable)
Frequency	18-25 kHz
Dimension (L*W*H) mm	586 × 260 × 420
Nozzle Type	DVG3(Rotary Nozzle)
Air Pressure	2.5-3.5 kg
Nozzle Treatment Width	35-40 mm /55-60 mm /75-80 mm (Optional)
Online Function	Support
Distance from nozzle to substrate	5-15mm (Suggest 10 ± 2 mm)
Cable	2.5 m (Can be extend)
Used Gas	N ₂ 、 CDA (Compressed Air)
MES	Machine parameters can be read and written through MES system It has the RS485 communication interface,adopt the MODBUS-RTU agreement
Alarm Function	Pressure detection, power detection, temperature detection, overload protection plasma spout abnormal alarm output

VII. Product Main Configuration List

NO	Item	Unit	Quantity
1	Plasma Host	Set	1
2	Plasma Gun	Set	1
3	Operation Manual	Set	1

VIII. Accessories

NO	Name	Unit	Quantity	Use Time
1	Electrode	Piece	1	1 year
2	Nozzle	Piece	1	2 years
3	Carbon Brush	Piece	1	8 months

©Quality assurance and after-sales service

1. Our company is responsible for the one-year warranty for the equipment provided (except for consumables), and free maintenance and repairs for problems arising under normal application conditions;

2. After the one-year warranty expires, provide non-profit paid services to the equipment (only charge the cost of related services);

3. Provide long-term equipment maintenance, maintenance or improvement and other related matters.

IX. Product Show

