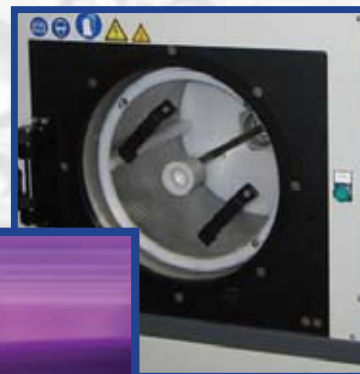


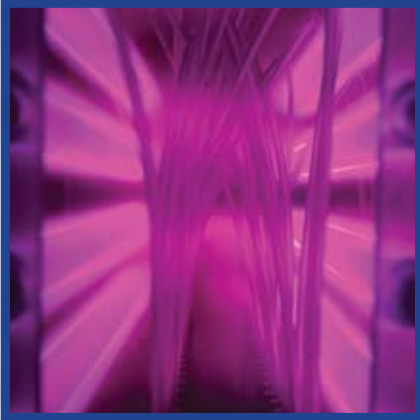
DYNE

TECHNOLOGY

Vacuum Plasma



Vacuum Plasma



What is Plasma?

Plasma is generally described as an ionized gas or as an electrically neutral medium of positive and negative particles. "Ionised" refers to the presence of free electrons which are not bound to an atom or molecule. Plasma or "Radiant Matter" as it was known, was first identified by Sir William Crook in 1879. Radiant Matter was later called "Plasma" by Irving Langmuir in 1928.

Plasma is the most common type of matter in the known universe whether measured by mass or volume. Every star is a giant ball of plasma, even the space between all of the stars is composed of plasma. Plasma is considered to be the 4th state of matter after solid, liquid & gas. The state of matter can be changed by adding enough energy:

Solid + Energy = Liquid

Liquid + Energy = Gas

Gas + Energy = Plasma

In general terms, when you add enough energy to atoms or molecules, what happens very quickly is that the electrons around the nucleus start to "boil off", the temperature becomes too high for them to stay in orbit around the nucleus; that in fact is the state of most of the known universe including the state of our nearby star, that incredibly hot ball of plasma, the Sun!

What Plasma can do for you

Plasma surface modification technology offers innovative solutions to adhesion and wetting problems in many industries. Component preparation using plasma is an important step prior to printing, bonding, painting, varnishing and coating processes. Plasma surface modification provides an economical solution for the cleaning and activation of component surfaces before further processing.

Dyne Technology supplies both Atmospheric Plasma and Vacuum Plasma solutions to improve the surface energy of plastic and rubber components to ensure good adhesion of printing inks, paints, adhesives, coatings, potting materials etc. and for the surface cleaning of plastic, rubber and metal parts. Plasma surface modification equipment is widely used throughout a diverse range of industries and onto an ever increasing range of substrates. Our growing list of customers includes many in the following industries: medical, automotive component, electronics, cable, ophthalmic, pipe and many more. Through our many years of experience and continuous product development we have become one of the leading suppliers of Plasma Surface Modification equipment.

Whatever your equipment needs are in the field of Plasma Surface Modification, Dyne Technology is here to help you find the most appropriate surface modification technology and equipment to solve your problem.

Components processed:

- Automotive components
- Medical devices
- Electrical Appliances
- Keypads
- Cable harnesses
- Circuit boards
- Rubber injection mouldings
- Plastic injection mouldings
- Visors
- And many more.....

Materials processed:

- PP
- PEEK
- PA
- TPE
- PE, HDPE
- Glass
- Composites
- Acrylics
- Metals
- And many more.....

Surface modification prior to:

- Bonding/Gluing
- Coating
- Painting
- Flocking
- Printing
- Sealing
- Over moulding
- Potting
- Surface cleaning
- And many more.....

Industries served:

- Automotive
- Manufacturing
- Injection moulding
- Extrusion
- Electrical
- Medical device manufacture
- Research establishments
- Universities
- R&D Departments / Test labs
- And many more.....



Vacuum Plasma

How does it work?

Using a vacuum pump most of the air is removed from a sealed chamber. When the chamber pressure reaches the required level the remaining air (or other gas if added) is subjected to a strong electrical field that ionises most of its atoms. The resulting super ionised air/gas or Plasma occupies the chamber for a pre-determined time and can be used for surface modification or cleaning.

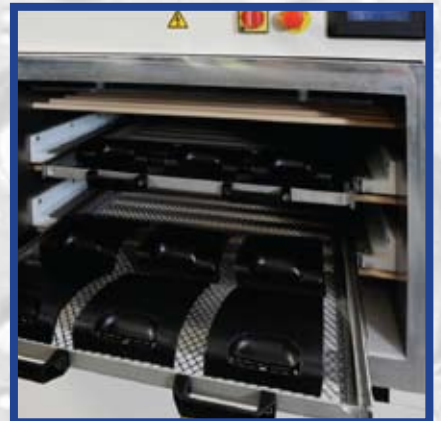
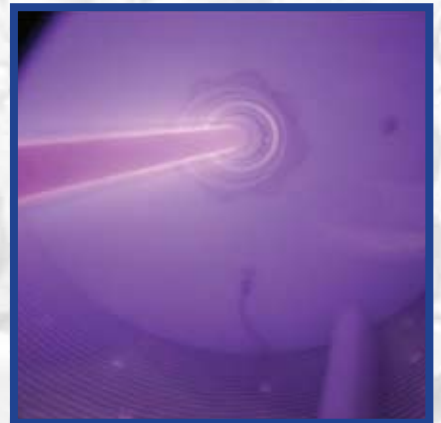
Key Features:

Potential free discharge	Allows treatment of both conductive and non conductive surfaces.
High power plasma output	High treatment levels. Fast processing speeds.
Choice of Chamber Types	Rotary – for small parts. Single shelf – for large parts. Multi shelf – for flat parts. Laboratory – for test facilities.
Choice of shelf configurations	Captive trays. Removable trays. Heavy duty trays.
Choice of Door Options	Rise & Fall – automatic. Side hinged – manual.
Choice of treatment gasses	Air, Oxygen, Argon, Nitrogen.....
Choice of chamber sizes	To suit your production needs.
Easy installation	Wheel it in... Plug it in... Switch it on!. Adjustable plasma power. Adjustable process time.
Built in monitoring	Alarm outputs.

Technical Specifications

Treatment power:	Depending on model
Treatment gasses:	Options..... Air, O ₂ , Ar, N ₂
Treatment time:	2 to 120 seconds
Chamber pressure:	2 to 5 mbar
Number of treatment trays:	1 to 8 (standard)
Ozone:	None
Radiated temperature to part:	5°C to 30°C,*
By-product from Plasma discharge:	NOx (< OEL)
Electrical potential:	Potential-free discharge
Interface control & connectivity:	HMI touch screen 16 pole "Phoenix" PLC interface
Compressed air supply:	5 - 6 bar, clean & dry
Mains voltage & frequency:	240 or 415Vac 50Hz depending on model
Compressed air supply:	5 bar, free from oil and water
Compressed air consumption:	5 L/hour
Achievable treatment level:	> 72 Dynes/cm ² (mN/m)*
Regulation compliance:	CE, WEEE & RoHS

* Depends on materials/settings



Vacuum Plasma



How Dyne Technology can help you:

Dyne Technology can help you in a number of ways. Not only do we supply Plasma Treatment Equipment, we also offer support on Surface Testing and Measurement, Process & Application Consultancy, Training, Service, Maintenance, Repair, Spare Parts, Contract Surface Treatment and even Equipment Rental.

Our technical support team will be delighted to conduct no obligation free of charge process evaluation on your parts in our fully equipped U.K. Applications Laboratory. Simply send us a sample of your parts and we will treat it and ship it back to you for evaluation.

Our customers can take advantage of the following outstanding Technical Support:

Development phase support:

- Process Development
- Equipment Evaluation
- Consultancy
- Training
- Testing
- Pilot Production
- Equipment Rental

Introduction phase support:

- Installation
- Commissioning
- Training
- Start-up Support

Production phase support:

- Service
- Training
- Testing
- Spares & Repairs
- Maintenance agreements
- Process Improvement support



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