DYNE

TECHNOLOGY

Atmospheric Plasma

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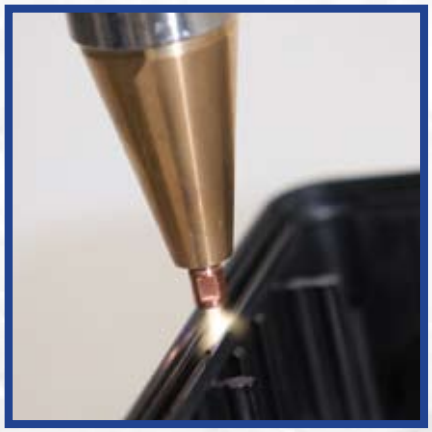


What is Plasma?

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
- Phone/Loyalty Cards
- Keypads
- Cables
- Extruded pipes
- Extruded profiles
- Injection mouldings
- Visors
- And many more……

Surface modification prior to:
- Bonding/Gluing
- Coating
- Painting
- Flocking
- Printing
- Sealing
- Over moulding
- Gasketing
- Potting
- Surface cleaning
- And many more…….

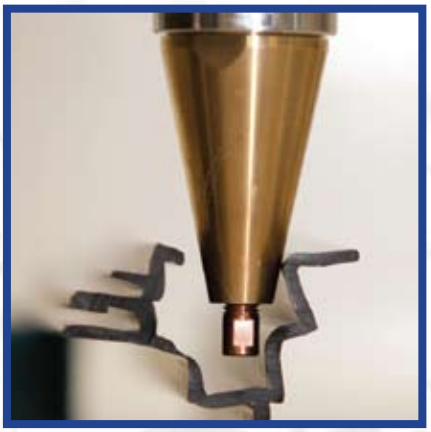
Materials processed:
- PP
- PEEK
- PA
- TPE
- PE, HDPE
- Glass
- Composites
- Acrylics
- Metals
- And many more……

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

Atmospheric Plasma

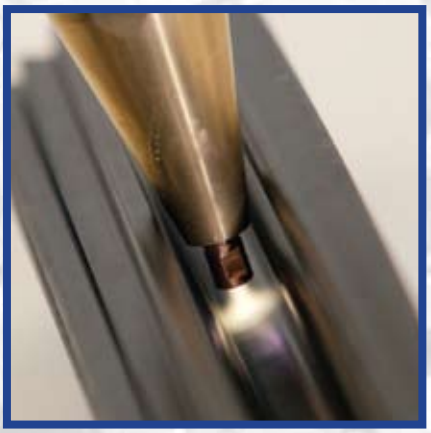
How does it work?

Compressed air is passed through a cylinder and nozzle assembly and subjected to a strong electrical field that ionises most of its atoms. The resulting super ionised air or Atmospheric Plasma is ejected through the nozzle tip and can be used for surface modification or surface cleaning.



Key Features:

Potential free discharge	Allows treatment of both conductive and non conductive surfaces.
High power plasma output	High processing speeds of up to 400 m/min.
Choice of nozzle tips	Round and Oval nozzle tips are available to suit processing needs.
Plug and Play installation	Easy to integrate into new or existing production lines. No adjustments or fine tuning required after installation. Independent nozzle operation option. Simultainuous nozzle operation option.
Multiple nozzle configurations	From 1 to 4 nozzles can be powered from a single generator.
Built in monitoring	Alarm output should discharge power drop below the preset level.
Nozzle mounting choices	Fixed nozzle (moving part). Moving nozzle - ”X” ”Y” Machine. Moving nozzle - linear actuator. Moving nozzle - multi axis robot.



Technical Specifications

Mains voltage & frequency:	100 - 240 VAC 50/60Hz.
Output power:	approx 500W/nozzle.
Ramp up time:	5 - 30ms, depending on power load.
Shut down time:	< 1ms.
Interface control & connectivity:	16 pole “Phoenix” PLC interface.
Nozzle cable:	flexible, robot proof hose (1.8m).
Nozzle weight:	approx 900g (not including cable).
Treatment width:	6 -14 mm depending on nozzle type.
Compressed air supply:	5 - 6 bar, clean & dry.
Air consumption:	35 - 50 L/min.
Regulation compliance:	CE, WEEE & RoHs.

Atmospheric 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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