

Characteristics of all generators

- Comprehensive self-diagnostics / status text display system in several languages
- Power regulation
- Setpoint limiting
- Power measurement and display in Watts
- Plug connections
- Voltages and currents, frequency and setpoint displayable during operation
- Monitoring of the process gas
- Maximum ambient temperature 40°C



Additional characteristics for the G10P/G12P

- Floating contact output "Ready for operation"
- Temperature monitor, with pre-warning, displayable in °F or °C
- Inhibit output for the process gas
- RS232 interface for connection to a remote controller, etc.
- Fault history log, with real-time clock and operating hours counter

	G05P	G10P/G12P
Dimensions in mm (W x H x D)	120 x 100 x 345	210,8 x 375 x 420
Weight	3,5 kg	15 kg
Colour	RAL 7030	RAL 7030
Output power (W)	500	1000 / 1200
Mains supply	230V 50/60 Hz	230V 50/60 Hz
Maximum current consumption	2,5 A	9,5 A
Pre-fuse	6,3 A	16 A
Protection category	IP 52	IP 52

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The PlasmaJet®

An innovative technology for treatment and modification of material surfaces



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PlasmaJet®-Treatment technology



Plasma Generator G12 P

A powerful, yet compact generator, with an enormous range of functions. Its high efficiency, reliability, and simplicity of operation make it the perfect power source for all PlasmaJet® applications.

What is Plasma?

Plasma is an electrically-conductive gas, consisting of positive and negative ions, and energised as well as neutral atoms and molecules. This is known in physics as the "Fourth state of matter". The plasma state is inherently unstable, and requires a permanent supply of energy to keep the plasma active.

Air is the preferred medium for conversion to plasma. For special applications, other gases and gas mixtures can be used directly, provided that they are non-flammable. The plasma gases ionise and dissociate through the energy in the plasma arc. Directly after the plasma arc has been formed, the atoms and molecules recombine at the end of the PlasmaJet® nozzle, instantaneously setting the produced energy free. This reinforces the chemical and physical

effects of the plasma beam on the material surface. The results include chemical modification to the polymer surface through the combination of oxygen molecules. A cleaning effect is also realised by the destruction of surface contaminants. Functional nanosubstrates can also be produced using a suitable choice of the process gas.



Plasma Generator G05P

Advantages of the technology

- Operates at atmospheric pressure – no evacuation chambers necessary
- Extremely low energy costs (approx. 500W power consumption per PlasmaJet®)
- Extremely clean and safe operation in comparison with flame treatment systems
- Potential-free plasma beam, so that metallic surfaces can also be easily treated
- Excellent controllability of the plasma output, both with single and multiple systems
- Individual monitoring of each PlasmaJet® when used as part of a multiple system
- Fast stopping and starting of the plasma output, for short process interruptions
- Can be easily integrated into existing lines
- Quiet operation, due to special generator technology
- New generator concept produces the highest possible energy yield
- Microprocessor control ensures constant and reproducible treatment results
- System bus integration (CAN-Bus, ProfiBus, MOD-Bus)

Function of the PlasmaJet®

A PlasmaJet® consists of a high-voltage source and a nozzle assembly. The plasma is formed inside of the nozzle assembly through a high-voltage discharge between two electrodes. The process gas is flushed around the electrodes, where it is converted into a plasma arc, and is then, by its own pressure, forced out of the end of the nozzle tip. This is known as a remote plasma. If the activated gas is then, for example, directed onto a plastic surface, the surface wettability will be increased. Excellent treatment results are obtained using air, which is also the least expensive process gas. Although related to corona treatment technology, no ozone is produced!

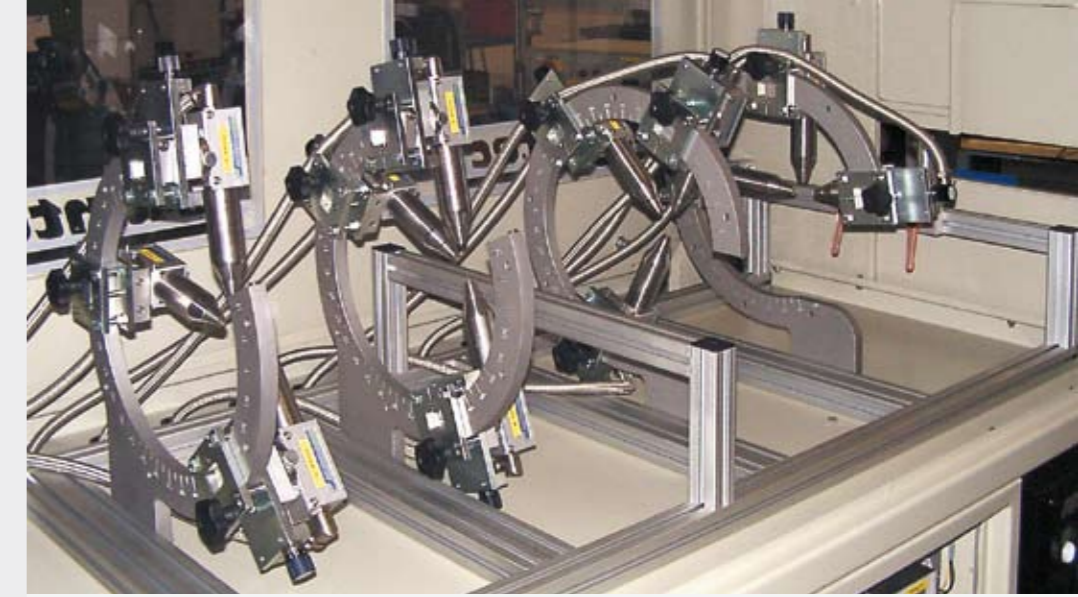
Through a suitable choice of nozzle tip, parts with poorly accessible surfaces can also be treated. The light weight of

the PlasmaJet® nozzle assembly, and the flexible coupling of the process gas and electrical energy source, make it possible to mount the complete assembly on a robotic arm, enabling complex or three-dimensional forms to be treated.

This technology is also perfectly suited to welding plastic webs and contours.



A combination of G05P generators



Multiple PlasmaJets® – this example is used to treat EPDM profiles.

Generators

The generators, which are specially designed for plasma applications, produce an energy transfer which has never previously been obtainable. Just 500 Watts is sufficient energy for surface treatment applications, and a maximum of 1000W is necessary for cleaning and welding applications.

G10P:

Generator in half-size 19" housing, for one PlasmaJet® nozzle, with a maximum power of 1000W

G12P:

Generator in half-size 19" housing, for two PlasmaJet® nozzles, with a maximum power of 1200W

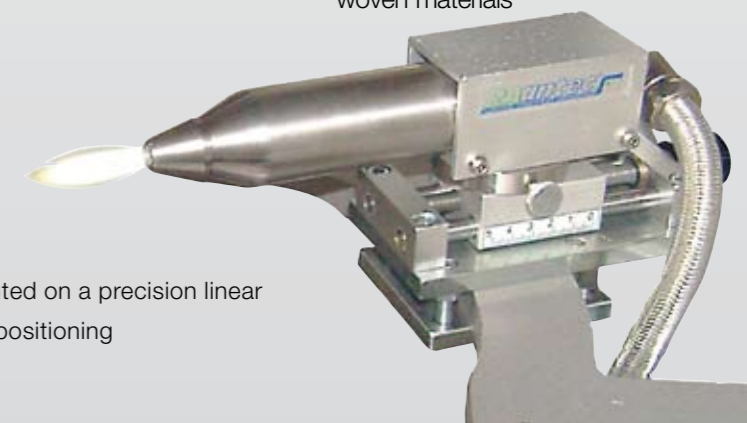
G05P:

Generator for one PlasmaJet® nozzle, with a maximum power of 500W, for multiple jet applications (specifically designed to be built into an electrical cabinet).

Applications for the PlasmaJet®

Surface activation to increase the wettability of a wide variety of materials (for example, body parts and head and tail-lamp housings for the automobile industry, electronic circuit boards, glass and polycarbonate sheets, window profiles, etc.)

- Improvement to the reliability and long-term stability of glued joints
- Treatment of Silicon, PTFE and EPDM profiles, prior to foiling, or the application of anti-friction coatings
- Neutralisation of electrostatic charges
- Cleaning
- Dust removal
- Production of functional nano-layer on a wide range of substrate materials
- Single-filament treatment during the manufacture of fabric materials
- Longitudinal and contoured welding of plastic foils
- Binding of PE or PP foils with non-woven materials



PlasmaJet®, mounted on a precision linear bearing, for exact positioning