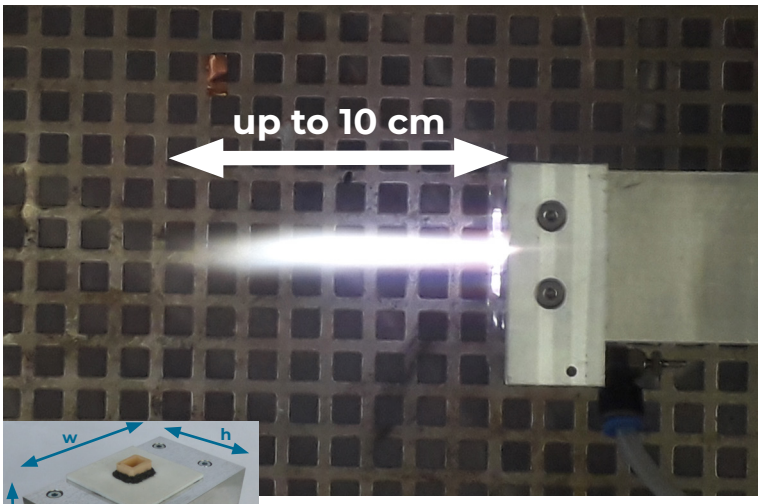
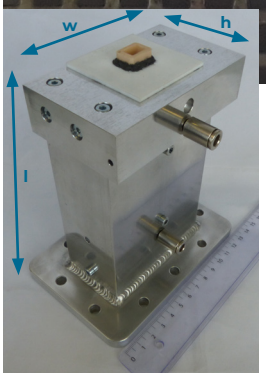
Data Sheet

PlasGen PG-L 3000.1

The Magnetron Plasma Jet System for Rapid Heating and more

Overview





Dimensions (without waveguide flange and gas connectors)

	Min
Width (w) [mm]	103
Length (l) [mm]	160
Height (h) [mm]	62

- World strongest atmospheric plasma at 2.45 GHz for power levels up to 3 kW
- Plasma for high temperature processes of up to 5,000 °C
- Applicable in rapid heating, surface cleaning, melting metals or high speed surface activation

The **PlasGen PG-L 3000.1** is the first commercially available atmospheric plasma sources in the power range from a 1.4 kW up to 3 kW! The magnetron plasma jet (MagJet) PS-MJ is part of the microwave plasma jets available at **Heuermann HF-Technik GmbH**, which, in combination with the special adapted industrial 3kW magnetron generator unit from the **Fricke and Mallah Microwave Technology GmbH** built the PlasGen.
The physical advantages of the 2.45 GHz plasmas (microwave plasmas) have been verified in many scientific publications. These new jets now offer practical users and scientists these advantages for a variety of implementations.
The full 3 kW-electronic consist out of the power supply PS3KW400 including gas control electronic and a 3 kW magnetron unit.

The PlasGen unit is available for different application:
- **PlasGen PG-L 3000**: Standalone for laboratory use (includes control unit).
- **PlasGen PG-I 3000**: Industrial version for use in a SPS-system.

Specifications and Safety Issues

Parameters	Min	Typ.	Max	Unit	Comment
Frequencies of ignition and operation	2.46	2.465	2.47	GHz	In the ISM frequency band
Gas flow	25	30	40	sl / min	Air or nitrogen at 4 bar
Ignition power required	2	2.2	2.5	kW	Depending on gas flow
Ignition time (cold)	0.5	1	3	sec.	
Ignition time (hot)	0.1	0.2	0.5	sec.	
Operation power CW	1.4	2.0	2.5	kW	
Operation power pulse	2.0		3.0	kW	Max.: 50% duty cycle, 5 s pulses

- The magnetron jet radiates a certain amount of microwave energy and needs to be operated within a closed housing, such as a Faraday cage.
- For inline applications, a special shielding needs to be designed.
- To monitor the radiated power, a simple hand held device (e.g. EME Guard 3140 from ANTENESSA) can be used.
- For longer usage, a good ventilation is essential.
- The plasma is very bright. Refrain from looking at it directly.
- Please ensure that the airflow is sufficiently high. At too low flow levels, the plasma may turn yellowish or red, carrying with it traces of the inner electrode. This is generally accompanied by deterioration of the electrode.
  At higher airflow levels, the plasma temperature reduces, reducing the process efficiency.

Fricke und Mallah Microwave Technology GmbH
Werner-Nordmeyer-Str. 25 | 31226 Peine | Germany
Tel.: +49 (0) 5171 54 57-0 | Fax: +49 (0) 5171 54 57-26
info@microwaveheating.net | www.microwaveheating.net

Heuermann HF-Technik GmbH
Auf dem Anger Nr. 29 | 52076 Aachen | Germany
Tel.: +49 (0) 2408 9379019 | Fax: +49 (0) 2408 93979952
info@hhft.de | www.hhft.de

Data Sheet

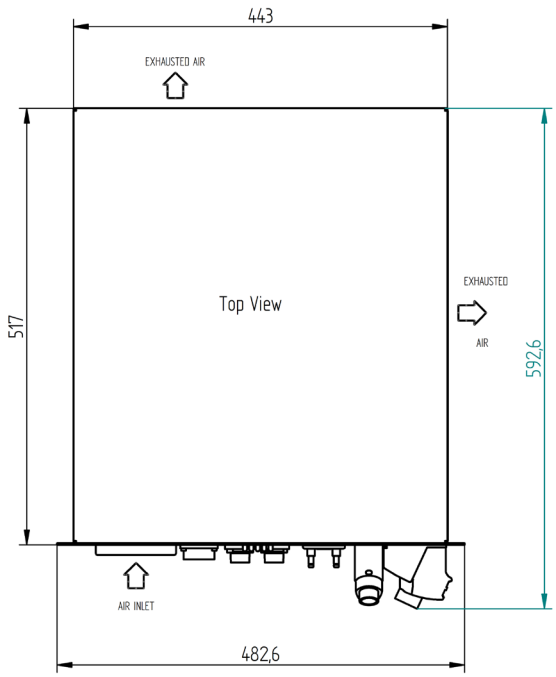
Switch Mode Power Supply PS3KW400 2.45 GHz and Magnetron 3kW 2.45 GHz

Full Generator Solution for Magnetron Plasma Jet MagJet PS-MJ

Specifiation

Electrical and Technical Data

Input	
Line Input	3 x 400 V_{AC}
Line Frequency	50 / 60 Hz
Input Power	4.72 kVA @ 400 V_{AC}
Maximum Intake Current	7.5A @ 360 V_{AC}
Output	
Output Power Magnetron	3000 W
Output Current	840 mA
Filament	Adjustable for all type of magnetrons
Control / Monitoring	
Power Adjustment Signal Range	0-10 V_{DC}
Interface	Profinet or analog PLC
Gasflow Control	Control unit for optimal gas flow



Cooling

Air Cooling	
Intake Airflow (without Filter)	Appx. 45 m³/h
Intake Airflow (with FM Filter)	Appx. 22 m³/h
Water Cooling	
Waterflow	≥0.5 l/min
Water Pressure	8 bar max.
Water Temperature	+18°C to +22°C
Water Quality	Clear Water

Mechanical Data

Front Panel Dimensions	19“ x 3HE (482.6 x 135 mm)
Rack Total Width	443 mm
Rack Total Height	135 mm
Depth with Connectors Applied	592.6 mm
Total Weight	Appx. 18 kg

Ambient Conditions

Use	Indoor use only
Operation Mode	Continous operation
Ambient Temperature	+5°C to +40°C operating
Relative Humidity	80% @ 30°C to 50% @ 40°C
Efficiency	>91%

Magnetron

Output	
Output Power	3kW
Frequency	2440..2470 MHz
Type	MW3000NNN

Please contact us for price information. The guaranty period is 1 year after delivery. The guaranty does not cover defects based on wrong operation or improper usage, such as connectors not being properly attached or insufficient gas flow.

Fricke und Mallah Microwave Technology GmbH
Werner-Nordmeyer-Str. 25 | 31226 Peine | Germany
Tel.: +49 (0) 5171 54 57-0 | Fax: +49 (0) 5171 54 57-26
info@microwaveheating.net | www.microwaveheating.net

Heuermann HF-Technik GmbH
Auf dem Anger Nr. 29 | 52076 Aachen | Germany
Tel.: +49 (0) 2408 9379019 | Fax: +49 (0) 2408 93979952
info@hhft.de | www.hhft.de