

Industrial Microwave +  
Plasma Systems

**MUEGGE**

## MW-Plasma Applicator MA3000C-713BB

### Plasma-Applicator RPS

The MUEGGE MA-Series 3000 is a complete microwave-plasma-generator developed for the fast and easy integration into existing systems.

It offers a reliable solution for fluorine and fluorine-free applications and covers a wide range for oxidizing and reducing chemistries.

Ceramic applicators guarantee a long life time providing stable process results and excellent particle performance.

The patented R3T-design is optimized for high throughput, long life time and lowest cost-of-ownership (\*CoO)

The Remote Plasma Source (\*\*RPS) of the MA-Series 3000 guarantees outstanding process-stability by generating a dense downstream of neutral atoms (radicals). The source is optimized for a huge variety of applications, including fast removal of photoresist and polymers, isotropic etching of semiconductors, oxides and nitrides and the deposition of dense layers using PECVD. Furthermore, the isotropic nature of the radicals offers unparalleled advantages for the removal of highly doped photoresist (\*\*HDIS) and remote chamber clean.

\*CoO: Cost of ownership.

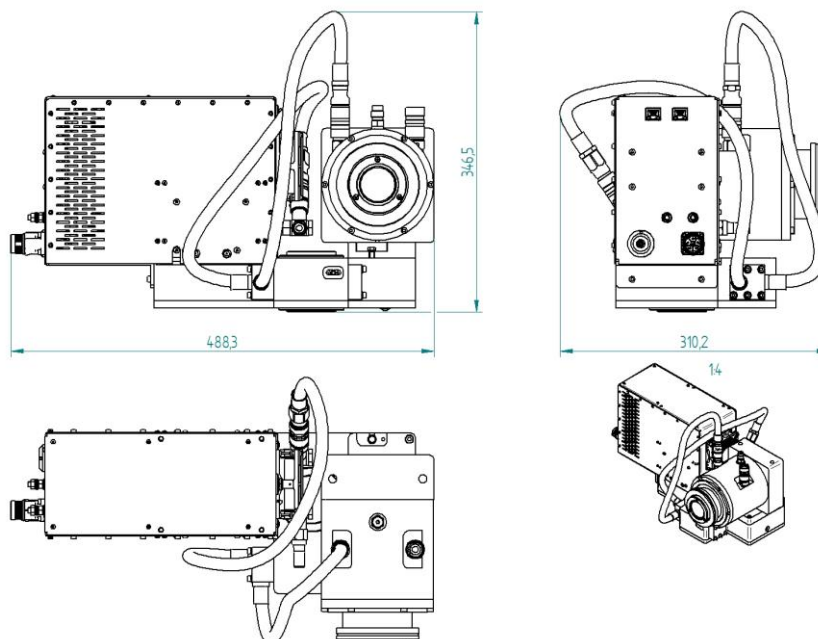
\*\*RPS: Plasma is only generated and maintained in the RPS, no plasma in the chamber, only radicals that react with the substrate.

\*\*\*HDIS: High Dose Implant Strip

Characteristics:

- Wide range of applications
  - Pure isotropic and sputter-free etching
  - Selective removal of photoresist and organic polymers
  - High selective etch processes
  - Surface passivation and activation
  - Remote chamber clean
  - Residue free removal of thick polymer layers
- Fast and easy integration ISO-K 63
- Ceramic plasma applicator
  - Fluorine and fluorine free chemistries
  - Oxidizing and reducing chemistries
- Patented R3T design
  - Water cooled plasma applicator
  - High power
  - High throughput
  - Low cost of ownership (CoO)
- Integrated magnetron head
- No ion bombardment
- Damage free processing of sensitive substrates and surfaces
- Negligible heat transfer to the substrate
- No charging of the substrate
- No ignition gas or ignition step required

Exterior dimensions:



Components and connectors:



1	[X82] Muegge bus (external power measurement)
2	[X80] Muegge bus (connection between MX power supply unit and plasma applicator)
3	[A1] Magnetron unit
4	[X71] Reflection IN interface (Obscured interface in the view)
5	[M1] Blower
6	[A2] Plasma source
7	Gas connection (Obscured interface in the view)
8	[OUT] Cooling water outlet
9	Flange connection ISO-K 63
10	[X75] Reflection OUT interface
11	[IN] Cooling water inlet
12	[X101] GND connection
13	[X102] PE connection (protective earth)
14	[X60] Connection for heating current circuit
15	[X100] High-voltage connection

## Specifications:

<b>Microwave-Power:</b>	3000 W cw max.	<b>Cooling water</b>	≥ 4 (1,06) l/min (US.gal/min), ≤ 4 (58,02) bar (psi) @ 20 - 25 (68 - 77) °C (°F)
		<b>Connection magnetron unit:</b>	Stäubli (CBI 06.7151/IA/JV)
		<b>Connection plasma source:</b>	Stäubli (CBI 06.1151/IA)
<b>Frequency:</b>	2450 MHz ±20 MHz	<b>discharge tube:</b>	Ceramic
<b>Reactor outlet connector:</b>	ISO-K 63	<b>Dimensions:</b>	Compact design width: 310,20 (12,21) mm (inch) height: 346,50 (13,64) mm (inch) depth: 488,30 (19,22) mm (inch)
<b>Magnetron:</b>	3000 W @ 2450 MHz	<b>Conditions:</b>	5°C (41°F) – 45°C (113°F) non-condensing T max. = 45°C (113°F) < 3 h / day 80% to 30 °C (86 °F), above linearly reduced to 50 % at 45 °C (113 °F)
<b>Prim. power circuit:</b>	-5100 DC / 0,84 A	<b>Prim. heating circuit:</b>	230 / 208 V AC / 50 / 60 Hz / 0,38 A
<b>Connection:</b>	Lemos (ERA.3Y.415.CA)	<b>Connection:</b>	Phoenix Contact (1605520)
<b>Primary control circuit:</b>	24 V / DC / 0,2 A	<b>Weight:</b>	Approximately: 29 (63,93) kg (lbs)
<b>Connection:</b>	Various (RJ45)		
<b>Applicator alignment:</b>	90 °	<b>Operating pressure:</b>	0.2 - 2 torr (maximum 5 torr)
<b>Gas connection:</b>	Swagelok (SS-4-VCR-1-2RS)	<b>Process gases:</b>	O <sub>2</sub> , N <sub>2</sub> , H <sub>2</sub> , F <sub>2</sub> , Ar, NH <sub>3</sub> , CF <sub>4</sub> and other Fluorine based gases