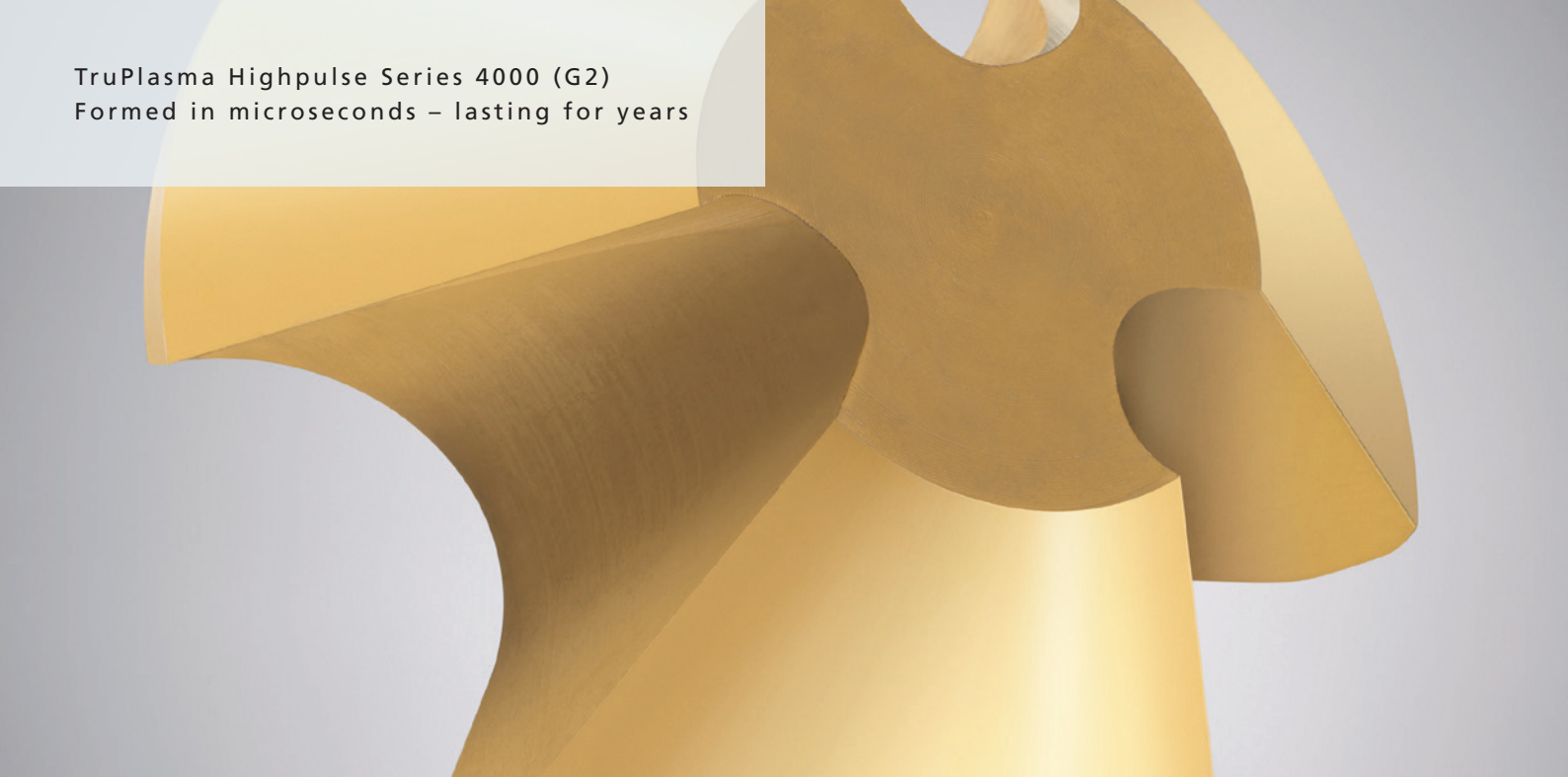


TruPlasma Highpulse  
Series 4000 (G2)

Generate high  
density plasmas for  
superior deposition  
results.



**TRUMPF Hüttinger**  
generating confidence



TruPlasma Highpulse Series 4000 (G2)  
Formed in microseconds – lasting for years

## Droplet-free deposition and excellent adhesion. TruPlasma Highpulse Series 4000 (G2).

The TruPlasma Highpulse Series 4000 (G2) power supplies are specifically designed for High Power Impulse Magnetron Sputtering. Pulses of up to 8 megawatts produce extremely dense metal plasma. High ion fluxes and high ion-to-neutral ratios yield films with superior mechanical characteristics.

Hard, homogeneous and smooth coatings are ideal for functional and decorative applications. The unique characteristics of ions created by TruPlasma Highpulse Series 4000 (G2) can also be used for metal ion etching (pre-sputter treatment) and semiconductor applications (trench filling).

### Features

- The world's broadest range of TruPlasma Highpulse power force
- Patented CompensateLine Circuit
- Active arc suppression
- Full water cooling
- Adjustable pulse duration and frequency
- Current regulation during pulse duration

TruPlasma Highpulse Series 4000 (G2) generators deliver repeated, short, megawatt pulses with up to 4 kiloamperes peak current and up to 2 kilovolts peak voltage. However, short pulse durations and low duty cycles ensure that the average power stays within the kilowatt range. This means you can use existing magnetrons, whether for laboratory or production systems, without modification.

Thanks to integration of patented CompensateLine circuit TRUMPF Hüttinger new generation of HiPIMS power supplies features a market-leading arc energy reduction. Full water cooling of TruPlasma Highpulse power supplies allows to reach best-in-class integration level. Standard models are available with 10 kilowatts (kW), 20 kW and 40 kW average output power. Models offering higher or lower power are available upon request.

### Benefits

- Unsurpassed flexibility for lab or industrial processes
- Prevents negative effects of arc both to cathode and coating
- Droplet-free sputtering, reduced film defects
- Compact size, easy system integration
- Easily adoptable to existing cathodes and process requirements
- Control of ionization level, excellent film quality

## TruPlasma Highpulse Series 4000 (G2)

### Output Parameters

<b>Output Peak Power</b>	1 MW to 8 MW
<b>Output Peak Voltage</b>	Up to 2 kV
<b>Output Peak Current</b>	Up to 4 kA
<b>Output Average Power</b>	10, 20, 40 kW
<b>Pulse Frequency</b>	Up to 40 kHz
<b>Output Modes</b>	Monopulse, Bipulse, DC
<b>Average Power Control Modes</b>	Control by Current, Voltage, Frequency, Pulse Time, OFF
<b>Current Shape</b>	Square
<b>Arc Handling</b>	CompensateLine Imax – current based detection Uxl – cross detection
<b>Arc Detection Time</b>	< 500 ns
<b>Arc Energy</b>	< 0.3 mJ / kW (Independent of cable length)

### Input Parameters

<b>Line Voltage</b>	3 x 400 V – 480 V ± 10 %
<b>Line Frequency</b>	50 Hz / 60 Hz ± 5 %

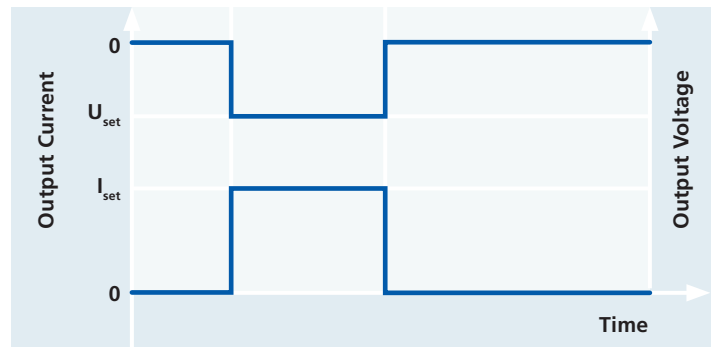
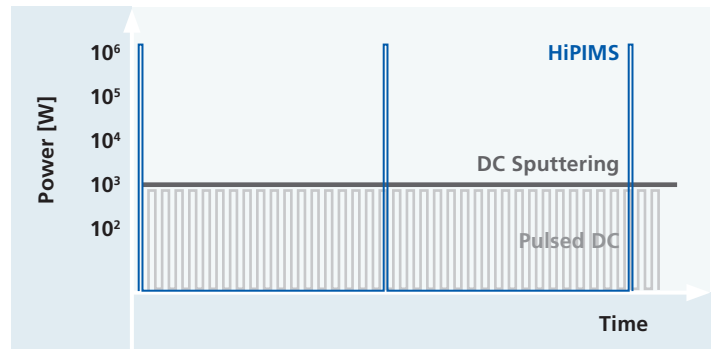
### Interfaces

<b>RS 232 / RS 485</b>	9-pin male Sub-D
<b>USB</b>	USB type B
<b>PROFIBUS</b>	9-pin female Sub-D
<b>EtherCAT*</b>	RJ45
<b>DeviceNet*</b>	5-pin DeviceNet Connector

\*Available on request

### Mechanical and Operation Data

<b>Cooling</b>	Water only (no air flow needed)
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## TruPlasma Highpulse 4002 (G2)

