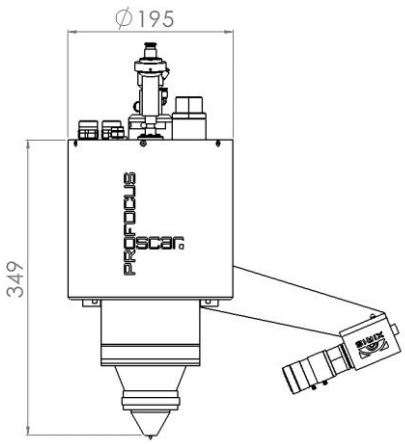
Technical Data

ProFocus1000 – for wire and powder

The Direct-Diode-Laser ProFocus1000 allows direction-independent lasermetaldeposition with wire or powder. Due to the coaxial feeding of the filler material and integrated sensors for process monitoring unattended welding is possible. For challenging applications the intensity of each of the 6 laser beams can be adjusted directionally leading to precise energy distribution inside the part.

Technical Data Laserhead

max. opt. laserpower	1000 W
wavelength	915 nm & 976 nm ±20 nm
number of laserbeams	6 (individually controllable)
focus length	92.5 mm
beam diameter in focus	1,0 mm (86 % of power)
angle of divergence	760 mrad ± 40 mrad
Laser class	4 (acc. IEC 60825-1)
cooling	active water cooling
feeding of filler material	wire and powder switchable
shielding gas cap	copper cap cooled/ changable
protection class	IP 43
operating temperature	10 – 40 °C
shockproofness	3 G
dimensions	Ø 195 x 349mm
weight	14 kg



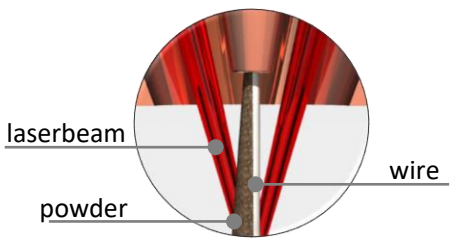
spot settings (examples):

6 x 100%

3 x 100%

Process Data

welding wire	Ø 0.8 – 1.2 mm
deposition rate wire	up to1 kg/h
min. layer height wire	0.3 mm
min. track width wire	2.0 mm
min. layer height powder	0.3mm
materials (selection)	steels/ Ni-based / Ti-based / copper / aluminum Hard materials (powder)
powder fraction	45 - 150 µm
shielding gas flow rate	max. 20 l/min
powder feeding gas	max. 15 l/min



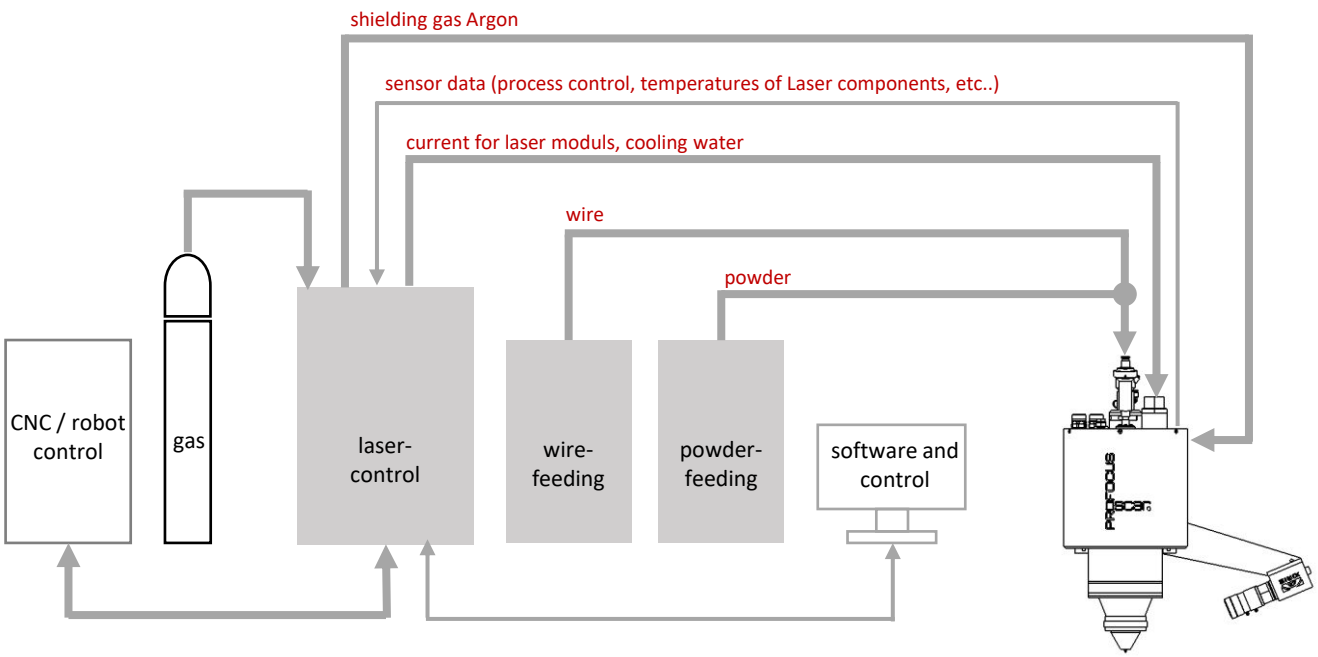
wire / powder switchable

Features and Options

The ProFocus1000 includes a ready for welding lasersystem, prepared for easy integration in robot- or CNC guiding systems. Furthermore there are additional options available for process control and management.

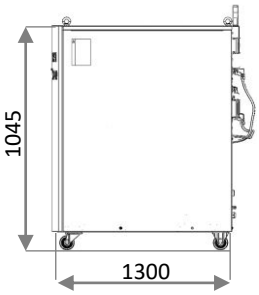
	Basic	Optional
process monitoring in UHDR quality	•	
switch between wire and powder in process	•	
assistance system wire breakage control: „Wire-Watcher“	•	
shielding gas cap – quick change system	•	
individual Laserbeam adjustment/ variable energy distribution	•	
3D-printed shieldinggas cap for improved accessibility (PA, PB, PC)		•
gas consumption control		•
automated height control/ distance between Laser head and part		•
part temperature detection and recording		•
process monitoring through Laser beam path		•

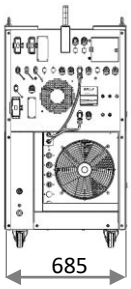
System Overview

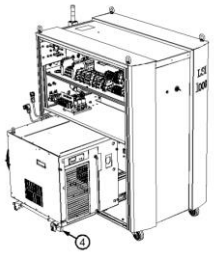


Technical Data Total System

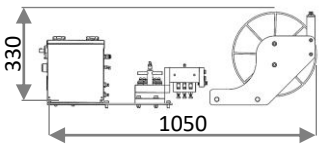
Laser Power Source LSI1000	
mains voltage U1	3/N ~ + PE ; U_1 = 400 V ; 50/60 Hz AV ,
connection power (100% power-on)	max. 11 kVA
protection class:	I
weight/ dimension	253 kg / 1045 x 685 x 1300 mm
Cooling	
equipment cooling	compressor cooling
refrigerant chiller	R134a
refrigerant cooling circuit Laser	water / G34
Refrigerant cooling circuit peripherals	water / G34
refrigerant temperature	20 °C (Laser) ; 20-30 °C (peripherals)
min. flow rate	7 l/min
M´max. flow rate	10 l/min
Control	
interface Laser security	Hardwiring / Wieland
interface Hardwiring	Hardwiring / Wieland
Interface industrial bus	EtherCAT



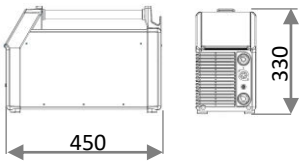




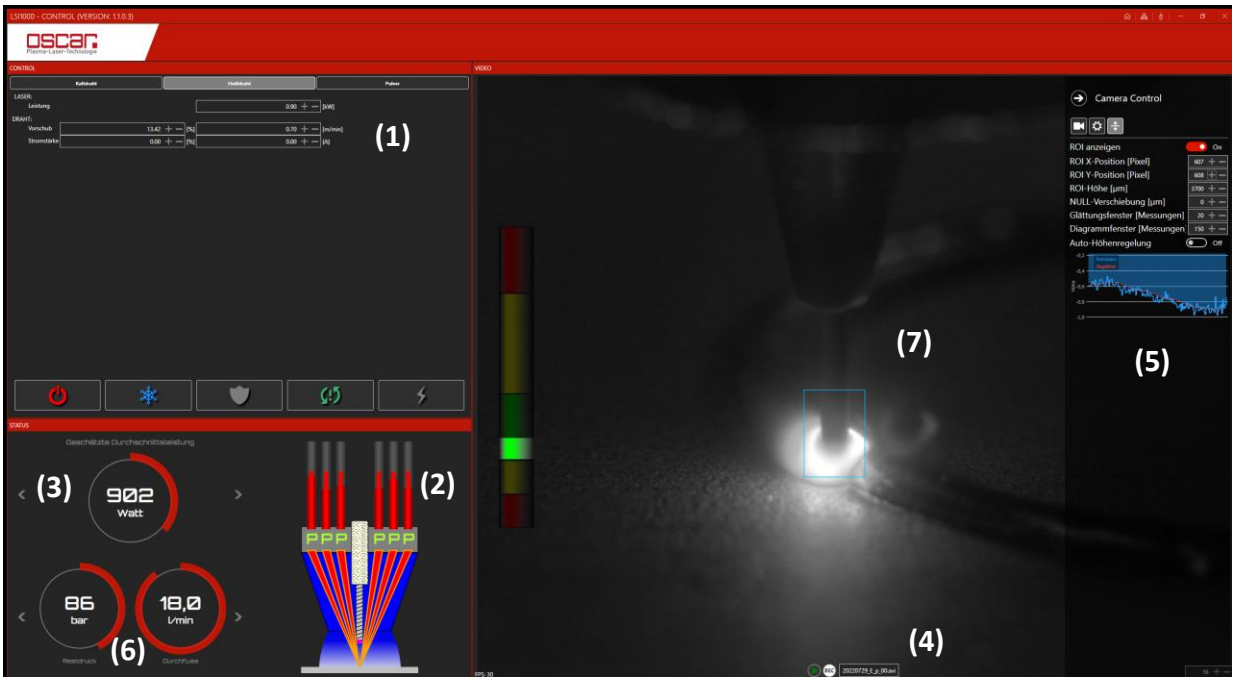
Wirefeeding Unit	
feeding rate	0-6 m/min
input	230 V at 50-60 Hz , I_{max}= 3 A
security class	IP23S
straightening set	8 rolls / adjustable / isolated
weight / dimensions	20 kg / 1050 x 240 x 330 mm



Hotwire	
heating current at 100 % power-on	160 A
power input (at 100 % power-on)	2.0 kVA
input	230 V at 50 – 60 Hz , I_{max}= 13.1 A
protection class	23S
software	customized for hotwire
weight / dimensions	12.3 kg / 450 x 190 x 330 mm



	Basic	Optional
parameter adjustment while processing (Laser power, feed rate,…) (1)	●	
Laser beams power adjustment (individually for each beam)	●	
display of actual power of each Laser beam (2)	●	
status display of Laser system (operating temperatures,…) (3)	●	
record process videos (4)	●	
error log	●	
height control – switch manually / automated (5)		●
status display gas consumption (6)		●
process monitoring in UHDR quality incl. false colors options (7)		●
room monitoring		●
remote access for software updates and maintenance		●



Check out our Youtube and LinkedIn accounts to follow application examples as well as current developments:

Youtube:

LinkedIn:

About Us

The **OSCAR PLT GmbH** develops arc and plasma torches as well as laser system technology for welding, cutting and 3D generation with ProFocus technology.

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