SLS 200

Pulsed Nd:YAG lasers
10 to 220 W output

- Engineered for precision welding of challenging materials
- Exciting pulse to pulse stability down to ± 0.5% through real-time controlled power supply
- Long pulses up to 100 ms and high pulse energy, even for SHADOW® welding
- High resolution pulse forming with pulse-on-demand and powerburst features
- High uptime through real-time check of laser performance

LASAG
INDUSTRIAL-LASERS

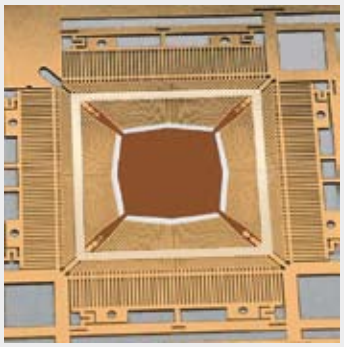
A COMPANY OF THE SWATCH GROUP

SLS 200 ... an innovative welding laser

- **Series SLS 200 lasers are designed exclusively to process materials via fiber optic beam delivery. The output range between 10 and 220 W allows many welding tasks to be cost-effectively implemented.**
- **Applications include spot welding, seam welding, SHADOW welding and micromachining, serving industries such as electronic, medical device, automotive, aerospace and various others.**
- **The unique laser source is equipped with a real-time power supply, which allows the joining of identical or dissimilar materials with high quality and repeatability.**
- **The laser unit can power up to six fibers with time- and/or energy-sharing. In combination with real-time power supply it allows instantaneous and individual laser parameter settings per output.**
- **Due to its compact industrial design, the unit can easily be integrated in manufacturing environments. Additionally, the LASAG interface is compatible with all conventional CNC, PLC, or PC control systems.**
- **Convenient servicing is made possible by the modular design and remote diagnostics via modem.**

SLS 200 ... for precise microwelds

LASAG application know-how with pulsed Nd:YAG lasers
- Precision spot and seam welds
- High-speed SHADOW® welding
- Weld penetration and diameters from 25 to 1000 µm
- Helium- and pressure-tight welds
- Precision welding of thin foils
- Joining of different materials such as alloys and plain steels, nonferrous and precious metals as well as nickel, cobalt, and titanium alloys.

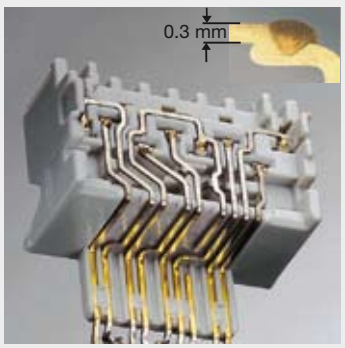


Cu/Cu spot welds of heat sinks on leadframes
- repeatable high peak power output
- select pulse form

Single pulse hermetic sealing of titanium tubes
- energy-sharing for uniform energy distribution
- smooth weld surface
- optimal shielding gas

Spot welds for high mechanical loads
- deep penetration welds
- distortion- and crack-free welds

Seam welding of materials for medical devices
- capable of welding dissimilar materials
- optimal melt dynamics



Spot welding of electrical contacts
- intelligent selection of process parameters
- use of a scanner for short cycle times
- superb reliability and repeatability

SLS 200 ... for flexible fiber optic solutions

The SLS 200 gives you a solution for any welding task in any manufacturing environment.

Multiplexer
Optional integrated mirrors for time- and energy-sharing provide operations simultaneously or consecutively at up to six outputs.

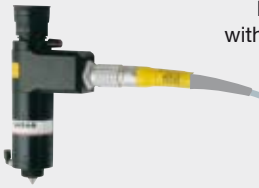
Time sharing

Energy sharing

Beam delivery
Preadjusted, plug-in fiber optic cables with core diameters of 50 to 600 µm and up to 80 m length provide flexible beam delivery and convenient integration into existing systems. The user can choose from an extensive range of standard or mini processing heads with different focal lengths. LASAG also provides a comprehensive line of accessories for observation, process gas management and diagnostics.

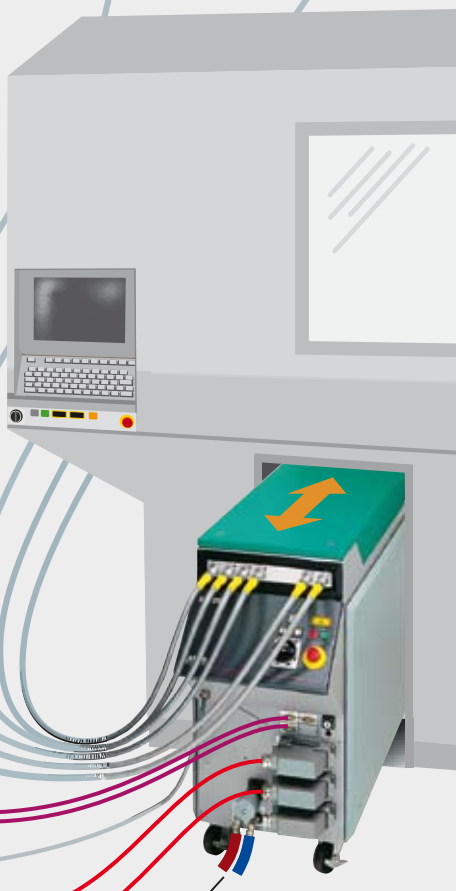
Scanner

LLBK 45
with camera



LLBK 45
with monocular

LLBK 25
with gas nozzle



SLS 200 ... for convenient integration

All LASAG lasers have a variety of interface options.

Built-in terminal

Hand terminal

PC terminal

Remote diagnostic modem

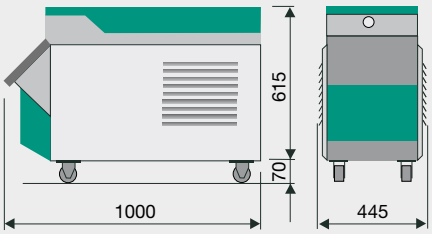
Universal power input

SYSTEM
USER

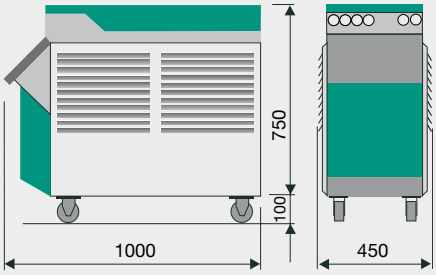
External cooling water to SLS 200 CL32/CL60

SLS 200

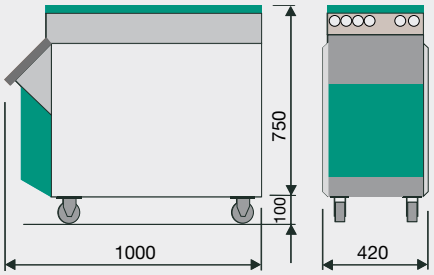
Welding LightWare™



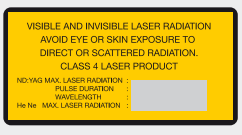
SLS 200 CL8 air-cooled



SLS 200 CL16 air-cooled



SLS 200 CL32/CL60 water-cooled



Specifications

Sources available in series	SLS 200 CL8	SLS 200 CL16	SLS 200 CL32	SLS 200 CL60
Laser type	Pulsed Nd:YAG-solid-state laser			
Wavelength	1064 nm	1064 nm	1064 nm	1064 nm
Pulse length [1]	0.01-100 ms	0.01-100 ms	0.01-100 ms	0.01-100 ms
Pulse repetition rate	0.1-200 Hz	0.1-500 Hz	0.1-500 Hz	0.1-500 Hz
Pulse energy max. [2]	8 J	40 J	55 J	70 J
Peak power at 3 ms max. [2]	2.0 kW	6.0 kW	6.0 kW	7.0 kW
Average power max. [2]	10 W	50 W	110 W	220 W

[1] Min. pulse length for controlled pulse is 0.5 ms [2] measured without beam delivery with new flash lamp

Fiber optic beam delivery				
Number of outputs	1 port	1-6 ports	1-6 ports	1-6 ports
Modes	n/a	Energy-sharing, time-sharing or combined		
Fiber core diameter NA 0.11 [µm]	50/100/200	100/200/400	100/200/400	400/600
Fiber core diameter NA 0.22 [µm]	100/200	100/200/400	100/200/400	200/400
Fiber length, [m]	standard 3/5/10 m, max. 80 m			

Line power				
Configuration	1-phase...	3-phase + ground, ± 10%		
multitap transformer for	110 V, 230 V	3x200 V, 208 V, 230 V, 380 V, 400 V, 480 V		
Power consumption	2.2 kVA	4 kVA	7 kVA	11 kVA
Line frequency	50 Hz or 60 Hz			

Cooling				
Type of chiller	built-in water to air chiller		external chiller needed	
Water inlet max.	n/a	n/a	20°C/8bar	20°C/8bar
Pressure drop to outlet, min.	n/a	n/a	4 bar	4 bar
Cooling power max.	n/a	n/a	4.5 kW	8.5 kW

Weight				
Laser unit	140 kg	180 kg	210 kg	230 kg

Ambient conditions				
Ambient temperature max.	10-35°C	10-35°C	10-35°C	10-35°C
Relative humidity max.	80%	80%	80%	80%

Emissions				
Heat dissipation approx.	1.25 kW	2.5 kW	n/a	n/a
Noise at 1 m, idle	65 dBA	70 dBA	60 dBA	60 dBA

Compliance with standards	
CE compliant, EN 60825-1, EN 60204-1, EN 207, EN 61000-6-4, EN 61000-6-2	
IEC 825-1, FDA-CDRH: U.S. 21 CFR 1040.10, ISO 11553	Subject to change

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CE