

systems designed
for mould repairing



Laser Innovations
Made in Germany

www.sigma-laser.com

Precise. Intelligent. Reliable.

Our systems are designed to satisfy the specific requirements of the tool- and the mould making industry for efficient laser deposit welding. QMax provides an intelligent solution to process on parts regardless of the geometry with the integrated 3-axes movement into the welding head.

The laser beam is delivered to the welding head by fiber optic cable.



Laser beam source Nd.YAG: available with 120, 160 and 300 Watt output power and up to 20 meter fiber optic cable.



Flexible. Compact. Ergonomic.

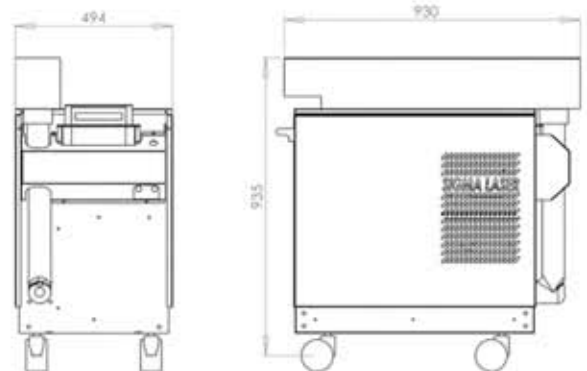
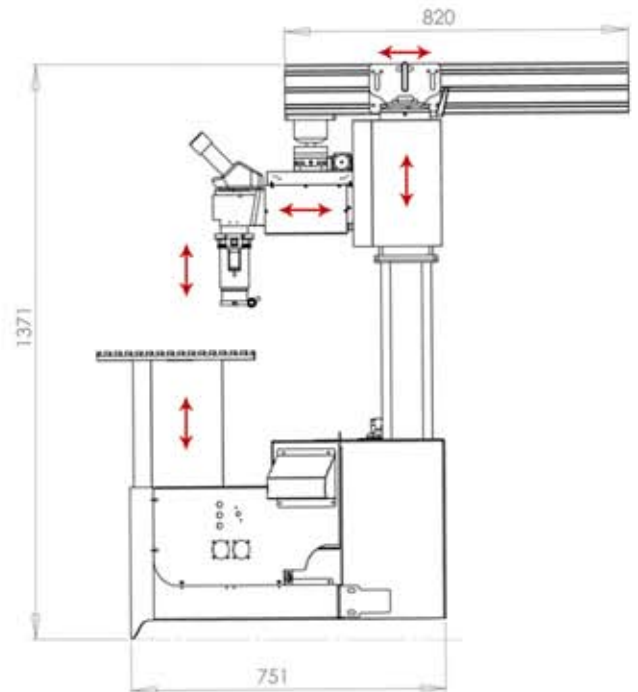
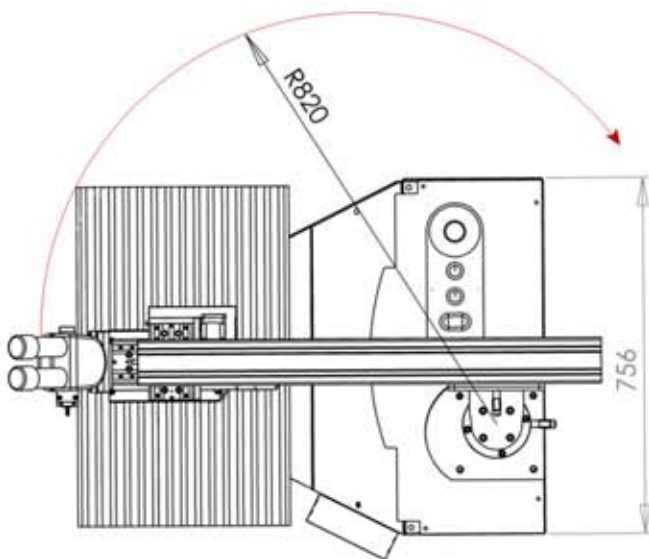
The pivoting welding head allows easy positioning and flexible operation.

QMax is equipped with a detachable welding head and has the ability to weld inside the injection moulding machine.



Mechanical features:

- 3 operational moving axes integrated into the welding head: 150, 100, 100 mm (x,y,z)
- 2 additional moving z-axes for the working table and ergonomically positioning of the welding head
- All operational movements are operated by joystick
- Load capacity of working table up to 500 kg
- Pivoting arm can be rotated 180° with a radius of 820 mm



Features of the laser:

- Industrial fiber optic with protective tube and connectors
- 2-lamp-system for stable permanent performance of the laser
- Remote diagnostic with electronic error detection integrated
- Motor-operated focussing
- High pulse peak power
- Parameter memory
- Available from 120 Watt and upgradeable to 300 Watt at any time
- External cooling system

Mobile Welder

laser power
up to 400 Watt



Mobile. Flexible. Steady.

The Mobile Welder has been designed for working on large tools regardless of size and geometry. The unit is mounted on steerable castors for high mobility. The pivoting arm can be moved and positioned at the desired area.



The laser arm has a pivoting joint for easy positioning.

Mobile Welder

flexible. reliable. steady.



Multifunctional joystick: fast and easy handling of the welding application.



Transport position: laser arm can easily be folded for transport.

Technical Data*

Specification	Mobile Welder 120	Mobile Welder 160	Mobile Welder 300	Mobile Welder 400
laser type	flash lamp Nd:YAG with 2 lamps			
wavelength	1064 nm	1064 nm	1064 nm	1064 nm
max. mean power	120 Watt	160 Watt	300 Watt	400 Watt
max. pulse energy	60 Joule	120 Joule	120 Joule	120 Joule
pulse peak power	9 kW	13 kW	13 kW	13 kW
pulse duration	0.5 - 20 ms	0.5 - 20 ms	0.5 - 50 ms	0.5 - 50 ms
repetition rate	0.5 - 20 Hz	0.5 - 20 Hz	0.5 - 100 Hz	0.5 - 100 Hz
focus diameter	0.2 - 2.0 mm	0.2 - 2.0 mm	0.2 - 2.0 mm	0.2 - 2.0 mm
cooling system	water/air - internal	water/air - internal	water/air - external	water/air - external
total weight	300 kg	300 kg	350 kg	450 kg
line voltage	380 V / 3 Ph / 50 Hz	380 V / 3 Ph / 50 Hz	380 V / 3 Ph / 50 Hz	380 V / 3 Ph / 50 Hz
traverse path	600 x 600 x 450 (x-y-z)			
beam expander	motorized	motorized	motorized	motorized
remote diagnostic	integrated	integrated	integrated	integrated
upgrade to higher power	yes	yes	yes	n.a.
pulse shaping function	integrated	integrated	n.a.	n.a.
memory function	50	50	50	50

Stationary Laser

laser power
up to 400 Watt

Compact. Ergonomic. Modular.

The stationary laser system "SL" has been designed for repairing of tools weighting up to 250 kg. The open construction ensures high ergonomics and efficiency for the user during the operation.



Modular construction: "SL" can be upgraded to a Mobile Welder at any time.

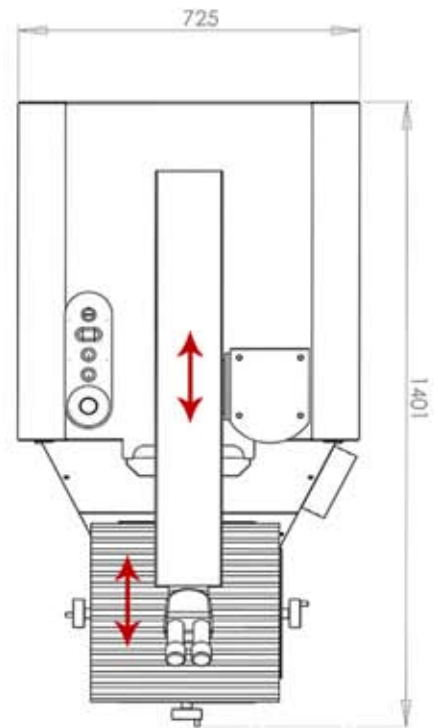
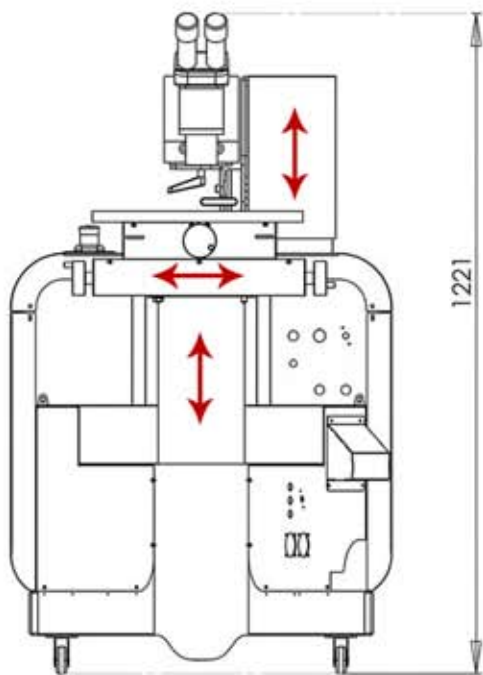


The operation of the working table is **manually or motorized**. Both manually and the motorized working table provide high precision during the process of welding. The pivoting arm maximizes the accessibility. Two motorized z-axes are integrated as standard in order to provide the required ergonomical operation.

Stationary Laser

compact. ergonomic. modular.

Ergonomic: 2 motorized z-axes are integrated as standard. Motorized table with joystick is available as option.



Technical Data*

Specification	Stationary Laser 120	Stationary Laser 160	Stationary Laser 300	Stationary Laser 400
laser type	flash lamp Nd:YAG with 2 lamps			
wavelength	1064 nm	1064 nm	1064 nm	1064 nm
max. mean power	120 Watt	160 Watt	300 Watt	400 Watt
max. pulse energy	80 Joule	120 Joule	120 Joule	120 Joule
pulse peak power	9 kW	13 kW	13 kW	13 kW
pulse duration	0.5 - 20 ms	0.5 - 20 ms	0.5 - 50 ms	0.5 - 50 ms
repetition rate	0.5 - 20 Hz	0.5 - 20 Hz	0.5 - 100 Hz	0.5 - 100 Hz
focus diameter	0.2 - 2.0 mm	0.2 - 2.0 mm	0.2 - 2.0 mm	0.2 - 2.0 mm
cooling system	water/air - internal	water/air - internal	water/air - external	water/air - external
total weight	300 kg	300 kg	350 kg	450 kg
line voltage	380 V / 3 Ph / 50 Hz	380 V / 3 Ph / 50 Hz	380 V / 3 Ph / 50 Hz	380 V / 3 Ph / 50 Hz
traverse path	200 x 200 300 mm (x-y-z) with 250kg load capacity			
beam expander	motorized	motorized	motorized	motorized
remote diagnostic	integrated	integrated	integrated	integrated
upgrade to higher power	yes	yes	yes	n.a.
pulse shaping function	integrated	integrated	n.a.	n.a.
memory function	50	50	50	50

Technical Data*

Specification	QMax 120	QMax 160	QMax 300
laser type	flash lamp Nd.YAG with 2 lamps		
wavelength	1064 nm	1064 nm	1064 nm
max. mean power	120 Watt	160 Watt	300 Watt
max. pulse energy	80 Joule	100 Joule	100 Joule
pulse peak power	9 kW	9 kW	9 kW
pulse duration	0.5 - 20 ms	0.5 - 20 ms	0.5 - 50 ms
repetition rate	0.5 - 20 Hz	0.5 - 20 Hz	0.5 - 100 Hz
focus diameter	0.6 - 1.5 mm	0.6 - 1.5 mm	0.6 - 1.5 mm
cooling system	water/air - external	water/air - external	water/air - external
total weight	300 kg	300 kg	350 kg
line voltage	380 V / 3 Ph / 50 Hz	380 V / 3 Ph / 50 Hz	380 V / 3 Ph / 50 Hz
fiber optics	industrial protective tubes with connectors		
beam expander	motorized	motorized	motorized
remote diagnostic	✓	✓	✓
upgrade to higher power	✓	✓	✗
pulse shaping function	✓	✓	✗
memory function	50	50	50

Worldwide references



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