

LSO

Lens Shifting Optics for laser welding

Seam Tracking – Process Monitoring – Seam Inspection

The **LSO welding optics** from **Lessmüller Lasertechnik** closes the gap between fixed processing optics and scanner processing optics. LSO and OCT are designed to work perfectly together. For joints with an expected deviation of less than 2.5 mm, the **LSO with integrated OCT system** provides a fast and precise correction of seam and focus position during the welding process. This results in optimal welding results.

Advantages of LSO welding optics with OCT:

- Precise welding with solid-state lasers up to 6 kW
- Fast and precise welding position control for various joint geometries
- Fast and precise focus control
- Weld depth measurement (keyhole depth) during the welding process
- Reliable automatic detection of faults in the geometry of the welded seam
- Tried-and-tested algorithms for fault recognition and evaluation

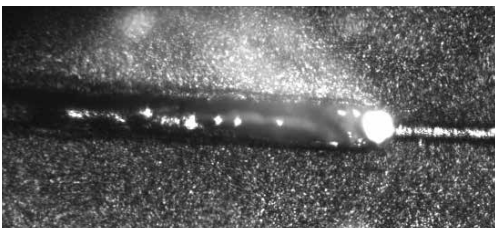
Special features:

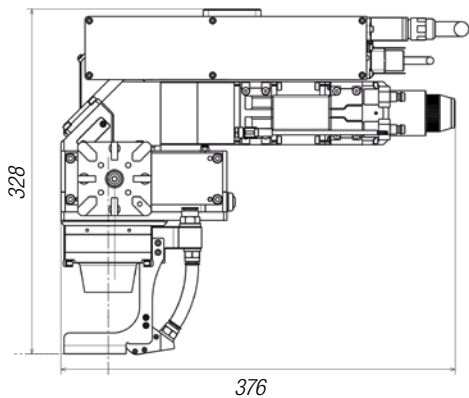
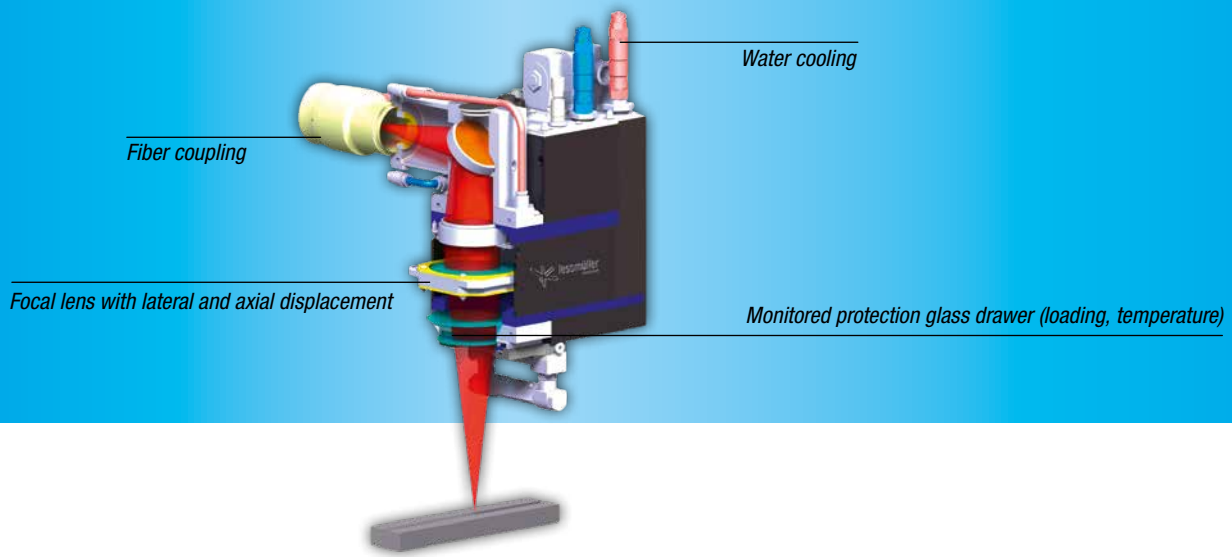
- Compact system containing both process control and measurement equipment
- Custom adaptation to your process
- Standard interface for common industrial fieldbuses
- Storing of all measurement and evaluation data for traceability
- Available with LLK-D and QBH fiber coupling



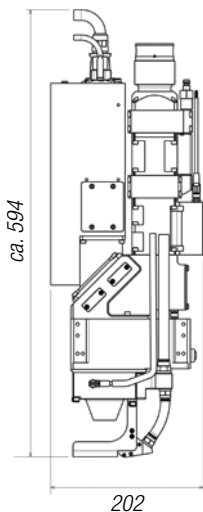
LSO welding optics with OCT scanner

Real-time positioning:





Angled **LSO** optics with **OCT** scanner



Straight **LSO** optics with **OCT** scanner

Technical data:

Optical data

Wavelength of processing laser	1030 nm - 1080 nm
Laser power	up to 6000 W (cw)
Collimation focal length	200 mm
Focal length of processing optics	200 mm or 280 mm
Magnification	1:1 or 1:1.4
Fiber coupling	QBH, Q5 / LLK-B, QD / LLK-D

Axial adaptation of working range

± 15 mm (Z stroke)

Lateral adaption of working range

± 2.5 mm

Resolution of position	10 µm
Control bandwidth of positioning	100 Hz

Communication interfaces

Fieldbus protocols	via OCT
Data and service protocol	via OCT
Internal interfaces	CAN
Electrical supply	+24 VDC from OCT

Mechanical data

Overall dimensions of system (angled)	376 mm x 328 mm x 138 mm
Overall dimensions of system (straight)	594 mm x 202 mm x 130 mm
Total net weight of system	< 10 kg
Degree of protection	IP 65, DIN EN 60529:2014
Protection glass	Ø 55 mm, 1.5 mm thick
Crossjet	6 bar, 500 l/min
Free operating distance	70 mm or 138 mm

Our team supports your application testing as well as system planning and integration on- and off-site.



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