# LSK05-08

## Laser welding head - Integrated beam modulation

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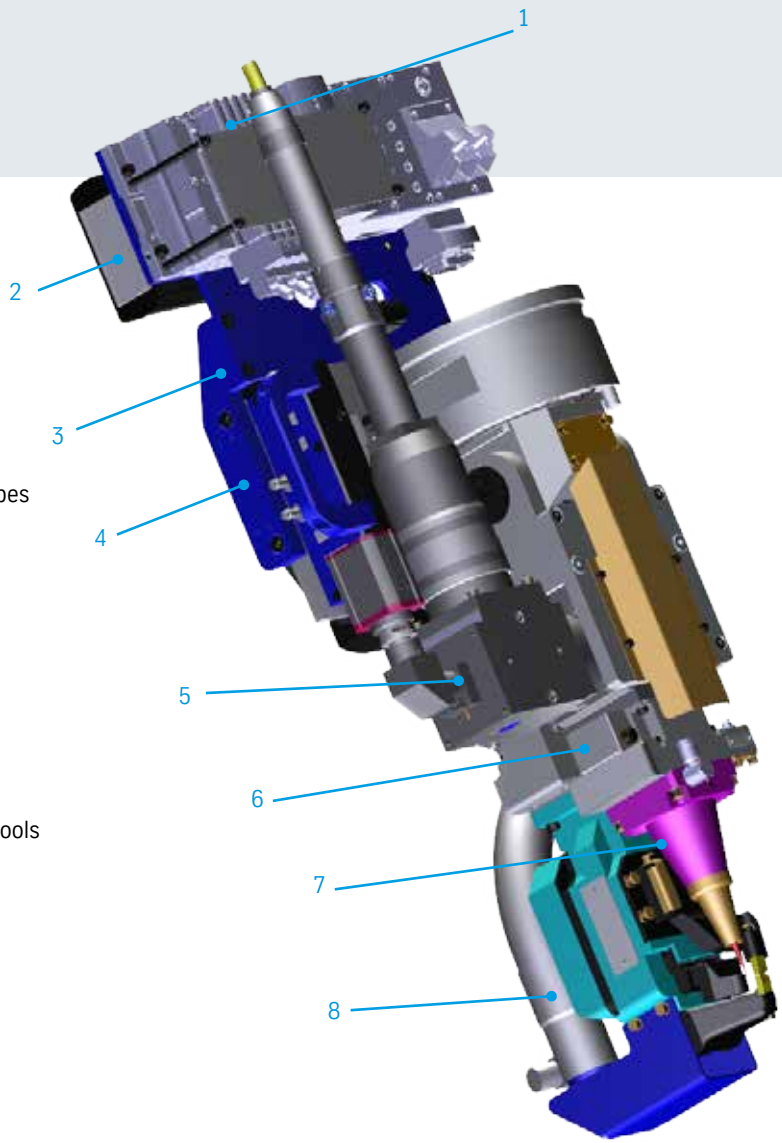


### Description

- use of functions and innovations of the LSK05-01 in combination with modern beam guiding
- high flexibility by a multitude of seam shapes
- a pointed heat input at ultra-high strength steels (weldability)
- minimisation of distortion, at once increasing of seam lenght
- essential improving of zinc degasification at galvanized sheet metals
- welding of aluminium alloys (weldability)
- high accessibility through
  - optional clamping system with different tools
  - slim design
- use of diode, disc or fiber laser
- clamping from one or two sides
- realisation of very small flange widths

1 – control components (valve block, I/O module,…)
2 – monitoring for protection glass
3 – plug for laser light cable
4 – compensation module / connection to robot
5 – laser-optic incl. scan unit and optional camera
6 – drawer for protection glass with circular-jet
7 – circular-jet
8 – clamping system with exaust system

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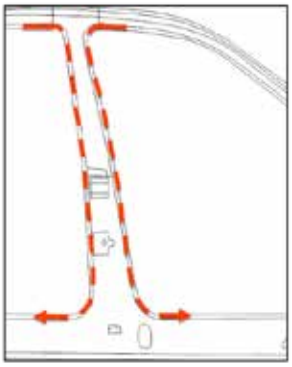
## Examples from body in white



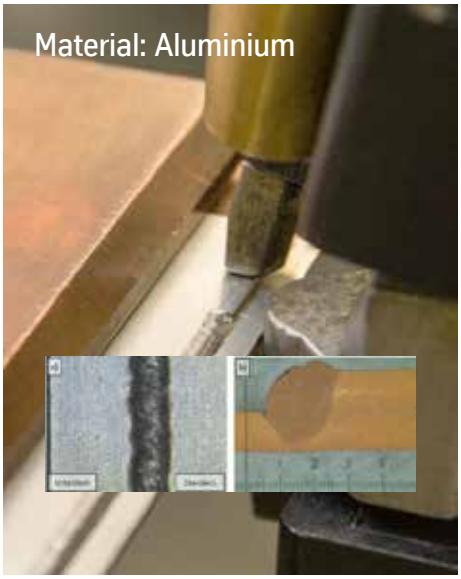

### Example for process parameter (beam guiding)

| | |
|---|---|
| Laser power | 4 kw |
| Robot speed | 30 - 70 mm/s |
| Frequency | 3 - 15 Hz |
| Scan width | 1 - 4 mm* |

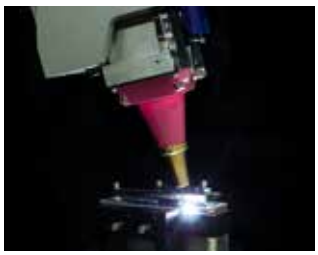
### Example for process parameter (beam shaping)

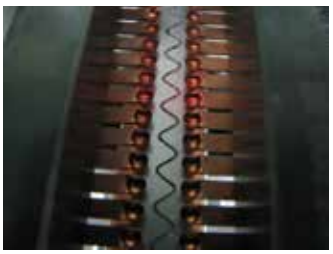
| | |
|---|---|
| Laser power | 4 kw |
| Robot speed | 20 - 80 mm/s |
| Frequency | 100 - 600 Hz |
| Scan width | 0,1 - 4 mm* |

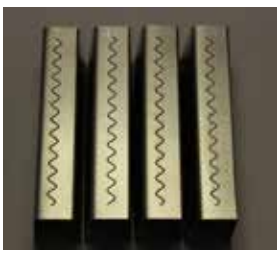
*depending from frequency




## Examples from battery technology







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## Technical data

### General data

| | | | |
|---|---|---|---|
| Dimension (L x W x H) | | [mm] | 830 x 400 x 260 |
| Mass base module for diode laser (LDF4000-30) | | [kg] | ca. 45 |
| Mass base module for disc and fiber laser | | [kg] | ca. 35 |
| Mass tool LSK05-14-000-R010/R000 | | [kg] | ca. 3 |
| Mass vario clamping tool LSK05-25-000-R010/R000 | | [kg] | ca. 6 |
| Environmental temperature | | [°C] | +15 to +35 |
| Relative air moisture at production site (no condensation) | | [%] | up to 85 |
| Optic for laser power (other at request) Laser beam class 4 | | [kW] | ≤ 4 |
| Focal distance | | [mm] | 200 |
| Optic for diode laser | | | Co. Laserline |
| Optic for disc and fiber laser | | | Co. Trumpf |
| Wave length laser light (Diode laser LDF 4000-30) | | [nm] | 880 - 1080 |
| Wave length laser light (Disc and Fiber laser) | | [nm] | 1030 - 1080 |
| Core diameter of used laser light cable | | [µm] | ≤ 600 |
| Diameter of focus at 600 µm laser light cable | | [mm] | 0,6 |
| Reproduction scale | | | 1:1 |
| Width of flange min. | | [mm] | 7 |
| Clamping force | | [N] | 100 to 700 |
| Compensation vertical to cut flange in sheet level (Y-compensation) | | [mm] | ±5 |
| Compensation vertical to flange (Z-compensation) | | [mm] | ±5 |
| Rotation angle of axis 7 (potential adjustment) | | [°] | -180 - +135 |
| | manual | [°] | grid 15° |

### Beam modulation with 1D scan unit

| | | | |
|---|---|---|---|
| Amplitude (up to 15 mm on request) | | [mm] | 0 - 4 |
| | | [Hz] | 3 - 600 |
| Only on request: laser power regulation | | [V] | 0 - 10 |

### Pneumatically interface

| | | | |
|---|---|---|---|
| Air pressure 1 plug in | for Tube Tubo PU 8 | [mm] | 12 |
| Air pressure | | [MPa] | 0,6 |
| Compressed air unoiled, dry | filtered to | µ | 0,1 |
| Usage of compressed air at 0,6 MPa max. | | [l/min] | ca. 350 |

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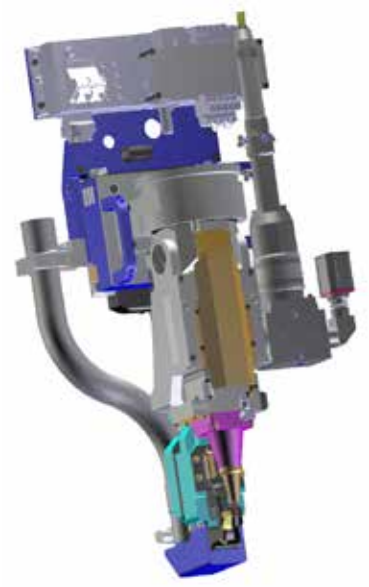
## Technical data

### Cooling water interface

| | | | |
|---|---|---|---|
| Plug in for cooling water | 2x Tube | [mm] | 6 |
| Connection at LSK | Fa. Rectus | | 21SBTF04DPX |
| Quality of cooling water | deionized water | µS | ca. 1 - 200 |
| Temperature of cooling water **Avoid of condensation !** | | [°C] | +15 to +30 |
| Min. cooling power for each system | | [W] | >750 |

### Electrical interface

| | | |
|---|---|---|
| Fieldbus plug | | |
| Power supply for digital in/output - modules at valve block | [V] | 24 DC |
| Control voltage | [V] | 24 DC |
| Power output | [W] | 30 |
| Degree of protection | | IP 54 |



## Contact

thyssenkrupp System Engineering GmbH
Zeissigstraße 12
D-09337 Hohenstein-Ernstthal
Germany

holger.guenther@thyssenkrupp.com
www.thyssenkrupp-system-engineering.com