

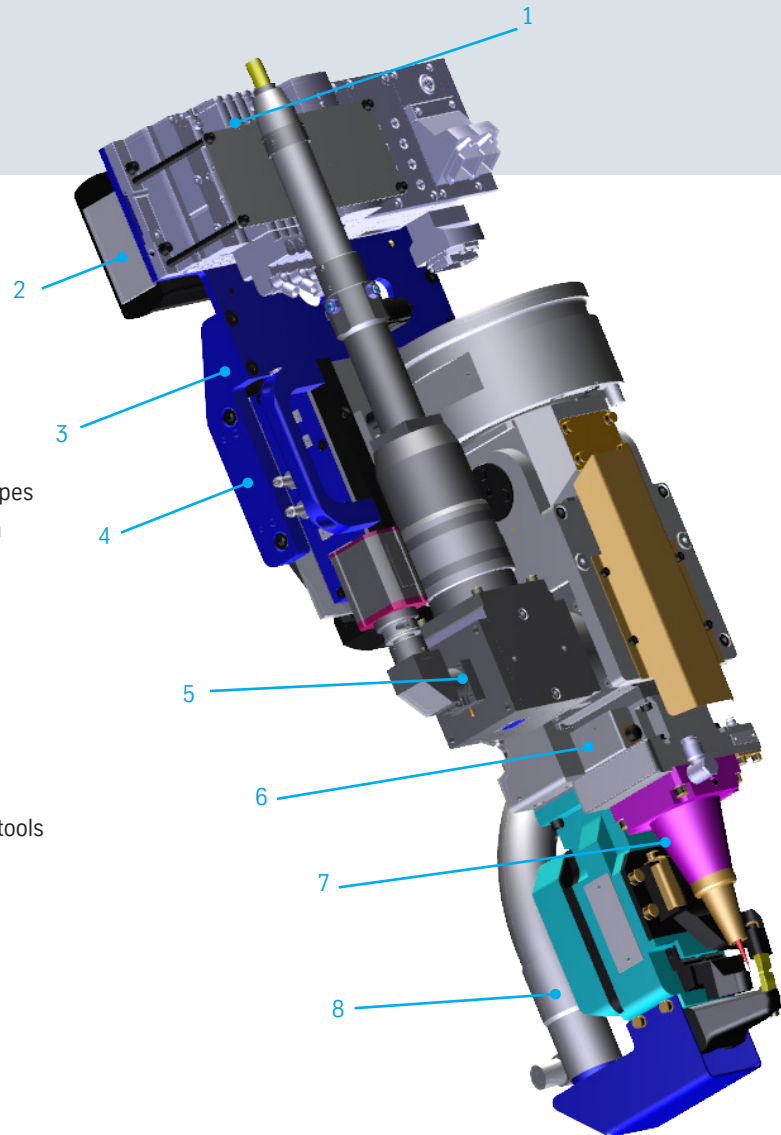
# LSK05-08

Laser welding head - Integrated beam modulation



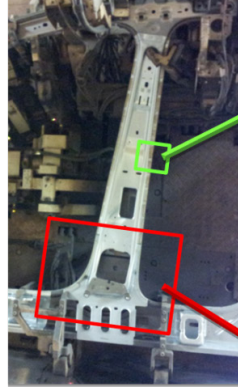
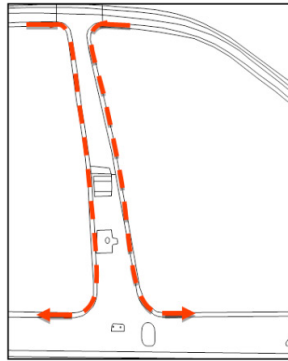
## Description

- 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 length
- 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 exhaust system

## Examples from body in white



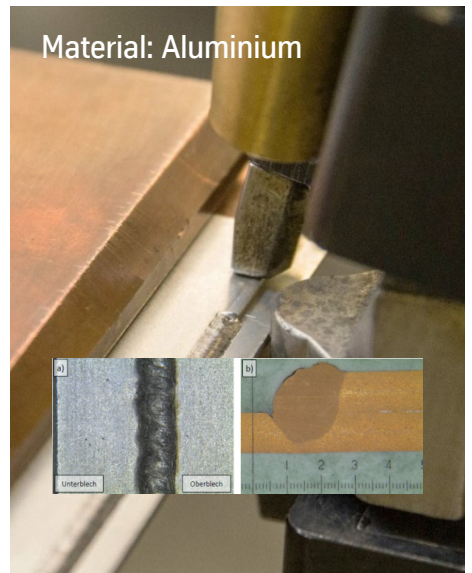
### Example for process parameter (beam guiding)

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

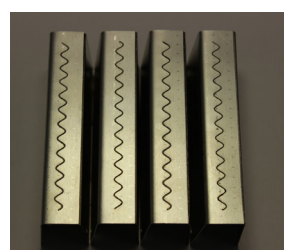
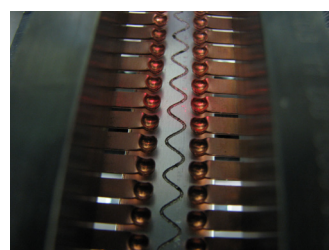
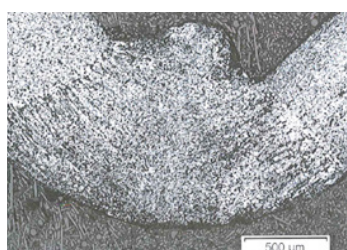
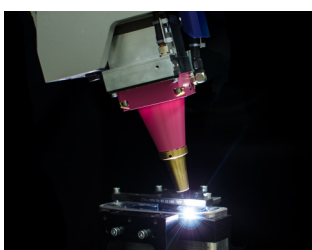
### Example for process parameter (beam shaping)

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



## 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	[mm]	12
	Tubo PU 8		
Air pressure		[MPa]	0,6
Compressed air unooled, dry	filtered to	µ	0,1
Usage of compressed air at 0,6 MPa max.		[l/min]	ca. 350

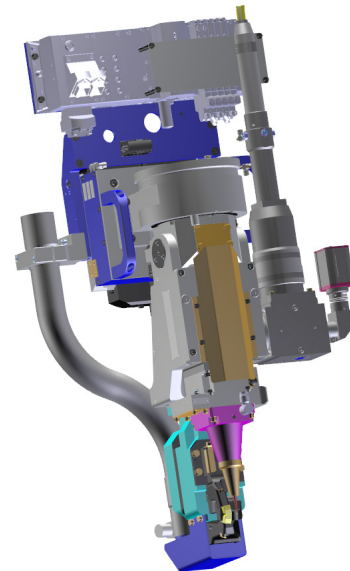
## Technical data

### Cooling water interface

Plug in for cooling water	2x Tube	[mm]	6
Connection at LSK	Fa. Rectus		21SBTF04DPX
Quality of cooling water	deionized water	$\mu\text{S}$	ca. 1 - 200
Temperature of cooling water	<b>Avoid of condensation !</b>	[°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

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