

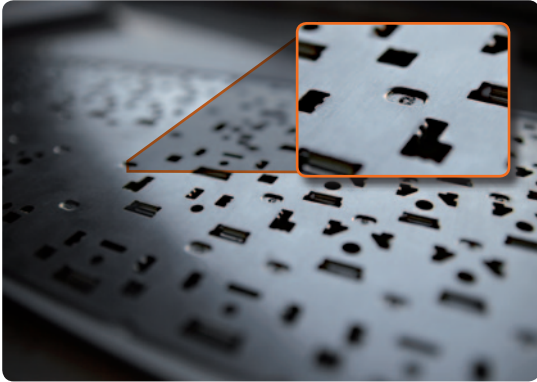
Versatility meets Stability

Laser technology for big and small workpieces



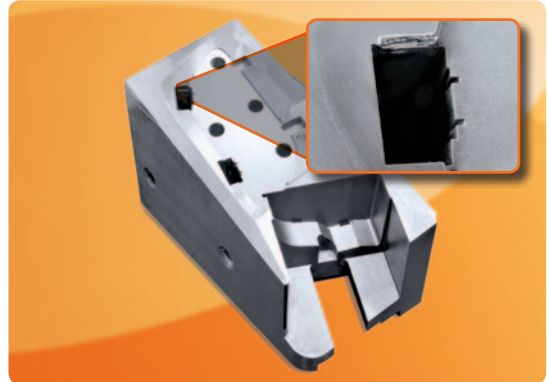
Various industries, always ready for use: HTS MOBILE

Electronics



Point welding of keyboards

Tool and die making



Die insert injection moulding tool

Medical technology



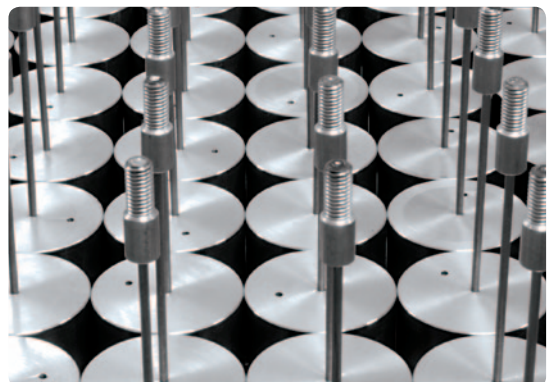
Implants for invasive transplants

Aviation engineering



Engine components for military and civil aviation

Mechanical engineering



Machine parts with complex alloys

Extremely powerful, reliable and adaptable

The HTS MOBILE combines flexibility and stability in servicing and repairing small precision components for the aerospace industry as well as large die-casting molds that are, for example, required for the manufacturing of automobile bumpers.

The mobile laser system can easily be moved and fixed in a stable position by means of the brakes.

The movement of the axes permits a very long traverse range, which is accomplished via the digital joystick. The welding position can be determined at a precision of 0.1 mm.



Highlights

- Motor traverse in x/y/z and r-axis
- Teach-in function
- Autoweld (CNC control)
- Direct laser beam source
- Low oscillation due to high quality rail system

Practical example

Job definition

Signs of wear and tear become apparent in the areas of plastic tools that are subject to high stress during mass production, which have a sustained adverse impact on the quality of the product and the functioning of the tool.

Problem description

Extensive and time-consuming assembly and disassembly work for the tools.

Solution

The HTS MOBILE allows the repair welding to be undertaken directly on the operating site of the tool. Hence downtime is minimised. Locations that are difficult to access can easily be reached by the 360° swivel optics.

The joystick control allows precision traverse mobility in x/y/z direction during the welding process and permits comfortable work without fatigue.



Processing of a 20 t mold for the production of automobile bumpers

We optimise your molds



Reconditioning of plastic injection molds used for bumper production.

The ideal solution for big or recessed workpieces



Low vibration

As a result of the swiveling arm and the mobile resonator, the welding of large components is virtually independent of geometry and position! In the process 3D geometries are easily mastered. The stable and rigid construction method gives you the opportunity to extend or raise the standardized swivel arm. To achieve an even greater traverse range.

Precision work

The determination of the welding position is achieved by means of the high quality "Leica" binoculars with 10- or 15-fold magnification. Additional ergonomically designed products make your work even more pleasant.

Whether you wish to apply the conventional metallurgic alloys in tool and mold construction or apply coatings in aluminium, copper or titan, the laser capacity of the HTS MOBILE range is optimally designed for the process.



The high-quality binoculars allow precision work to be conducted with the smallest detail.



The productive laser concept

No angle will remain concealed with the optic extension and the 360° swivel optic as a supplementary module. The laser beam is guided to the welding position accurately to the millimeter.

The fast assembly and disassembly of the HTS MOBILE as well as long traverse ranges for the axes minimize the overall expenditure during the process of tools or molds.

Also effective for smaller components

Constructive application of laser welding in the manufacturing of tools and molds



Basic component

Mold core for the production of bottle caps. Consisting of tool steel 1.2343 combined with CuBe (Copper Beryllium)



First step

Edge protection by means of material coating



Second step

Fusing mold core with insert



Third step

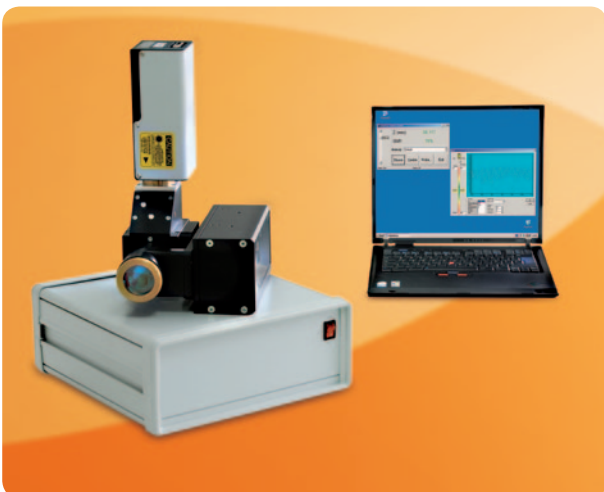
Entire application of a 0.2 mm thick protection and wear-resistant coating

Increased performance per AUTOFOCUS system (OPTIONAL)

The welding capabilities can be further improved with the AUTOFOCUS system. This optional expansion allows automated adaptation of the working distance during welding. This automatically corrects for small shape deviations, allowing consistent weld seam quality.

360° rotating optics and telescoping extension are additional optional expansions that make the HTS MOBILE from O.R. Lasertechnology GmbH an even more efficient laser welding.

Mode of operation: A laser beam of a wavelength of 655 nm is coaxially coupled in the processing laser. The radiation reflected back from the workpiece is absorbed by the sensor at a scanning rate of 750 Hz and evaluated by means of interferometry. The distance so determined is transmitted in form of a digital signal and processed in a computer controlled manner. A controller regulates the drive of the lens positioning at a precision rate of up to 50 µm.



AUTOFOCUS Highlights

- Work faster and more precise with an increase in productivity of up to 50%
- Automatic online focussing
- Accurate and rapid operating mode
- Coaxial distance regulation
- Measuring accuracy at 15 µm
- Fast and precise work
- 750 Hz scanning rate

Technical data

POWER

	Typ: 120 W	Typ: 160 W	Typ: 200 W	Typ: 300 W
Lasertype	Nd: YAG	Nd: YAG	Nd: YAG	Nd: YAG
Max. mean power	120 W	160 W	200 W	300 W
Pulse peak power	6 kW	7,5 kW	9 kW	13 kW
Max. pulse energy	60 J	80 J	100 J	150 J
Pulse duration	0,4 - 20 ms	0,4 - 20 ms	0,4 - 20 ms	0,4 - 20 ms
Pulse frequency	1 - 20 Hz (100 Hz)	1 - 20 Hz (100 Hz)	1 - 20 Hz (100 Hz)	1 - 20 Hz (100 Hz)
Focus diameter	0,2 - 2,0 mm	0,2 - 2,0 mm	0,2 - 2,0 mm	0,2 - 2,0 mm
Line voltage (V/Ph/Hz)	400/3/50	400/3/50	400/3/50	400/3/50

SYSTEM EQUIPMENT

Laser system

- Laser resonator inclusive resonator mechanics
- Laser rod
- Cavity
- Resonator mirror
- Safety shutter
- Beam expansion
- Mains supply including mains fuse
- Mains isolator
- Emergency stop
- Motor circuit breaker
- Low voltage power supply 24 VDC
- Interface with hardware monitoring function
- Lamp switch
- Industry controller for setting and display of power, pulse duration, pulse repetition frequency with external trigger via footswitch
- C-bank
- Water/air Cooling system

Processing optics

- Variable beam expansion
- Beam deflection
- Safety glass
- LCD anti-glare
- Binoculars 10x
- Focussing lens

Linear system

- z-axis for mounting the resonator
- Swiveling unit for resonator for the motor-controlled welding of large molds
- Operation via joystick
- Shielding gas supply direct
- Traverse range z-axis: 570 mm controlled via solenoid valve
- x-y axis for positioning the resonator
- Positioning speed 0,5 – 15 mm/s
- Stable construction made of aluminum sections adjustable via step motors with powder-coated steel plate covers
- Massive steel substructure mounted on heavy duty rollers
- Traverse range: x-axis: 700 mm / y-axis: 400 mm
- LED lighting

Dimensions and weight

Dimensions: width 950 mm x height 1550 mm x length 1250 mm
Weight: 370 kg net

wORLD of LASER



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YOUR ENGINEERING QUALITY IS ALWAYS ON OUR FOCUS