HTS DPL

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The mobile allrounder

Laser technology for large and small workpieces

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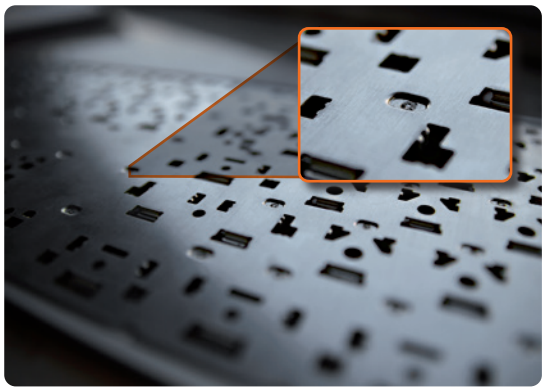
SERVICE

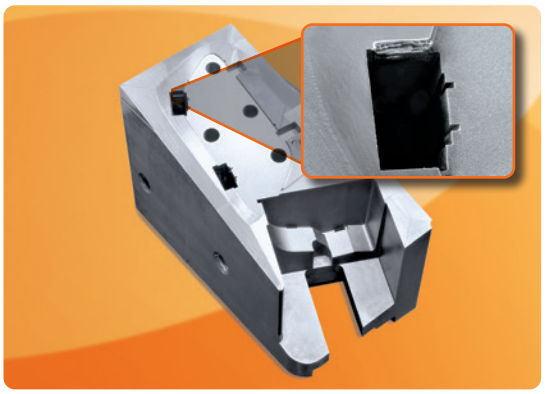
Many industries, always ready for use: HTS MOBILE

Electronic



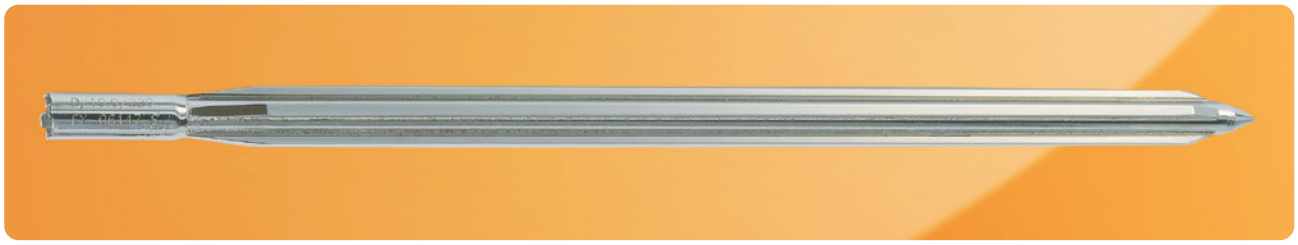
Spot welding a keyboard

Tool and mold making



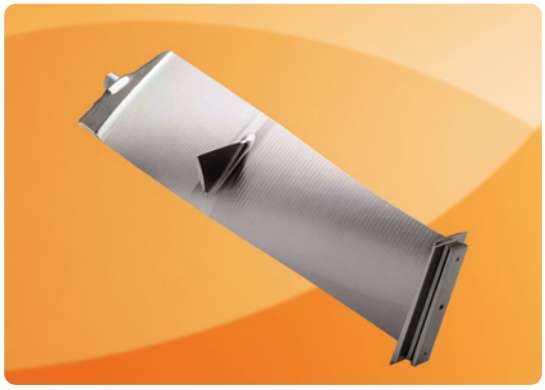
Mold insert injection tool

Medical



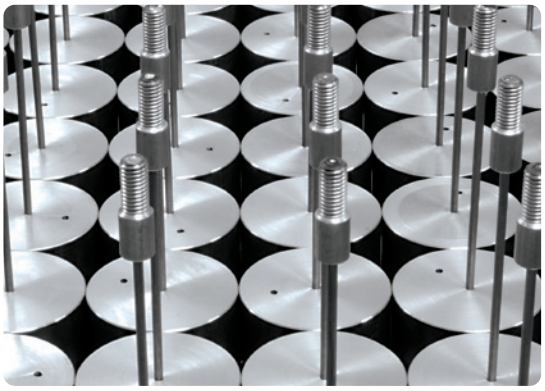
Implants for invasive transplants

Aeronautical engineering



Engine components for the aviation industry

Mechanical engineering



Machine components with complex alloys

Extremely strong, robust and adaptable

The HTS MOBILE laser system combines flexibility and stability when repairing small precision parts for the aviation industry, for example, as well as large injection molds used for the production of bumpers, for example. The HTS MOBILE system can be moved easily and positioned stably using the brakes.

The movements of the axes allow very long travel distances and are carried out via the joystick. The system is supplied with a digital joystick with teach-in control. This allows the welding position to be determined with absolute precision to 0.1 mm.

Highlights

- motorized axis travel in x/y/z and r-axis
- Teach-in function Low vibration due to high-quality rail systems

Practical example on a 20 t injection mold

Assignment

In the course of series production, wear damage occurs in the highly stressed areas of the plastic tools, which has a lasting effect on the quality of the product and the function of the tool.

Problem definition

Complex dismantling and reassembly of the tools.

Solution

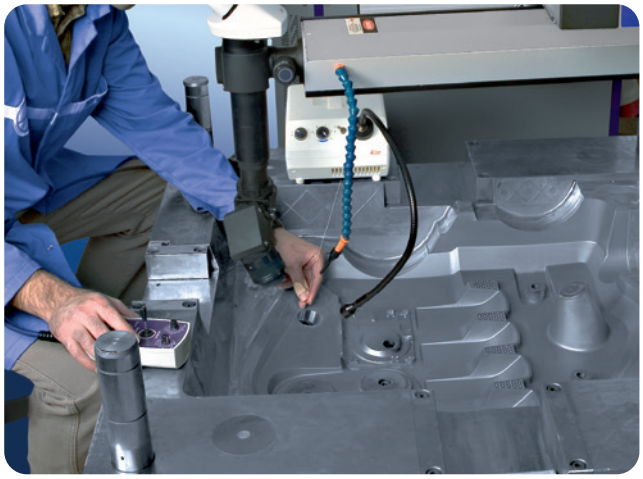
The HTS DPL enables welding directly at the tool's place of use. This makes it possible to minimize downti-mes. Even hard-to-reach areas can be easily reached with the 360° swivel optics. The joystick control enables precise traverse movements in the x/y/z direction during welding and allows comfortable and fatigue-free working.

Processing of a 20t injection mold for bumper production.

We bring your shape back into form

Overhaul of plastic injection molds for the production of bumpers.

The ideal solution for large or recessed workpieces



Low vibration

By means of a swivel arm and the movable resonator, the welding of large components becomes almost independent of the geometry and position! Even 3D geometries can be mastered without any problems. Thanks to the stable and rigid design, you have the option of extending or increasing the length of the standardized swivel arm in order to achieve even greater travel distances.

Precise overview

The welding position can be precisely determined using the high-quality “Leica” binoculars with 10x or 16x magnification. Whether you want to apply common metallurgical alloys in tool and mold making or aluminum, copper or titanium, the laser power of the HTS MOBILE is ideally designed for processing.

The high-quality binoculars enable precise work down to the smallest detail.

Productive laser concept

With the optical extension and 360° swivel optics as an additional module, no angle will remain hidden. The laser beam is guided to the welding position with millimeter precision. Minimal set-up and dismantling times for the HTS DPL, as well as long axis travel distances, minimize the overall effort involved in processing the tools and moulds.

Effective even with small workpieces

Constructive use of laser welding in tool and mold making

Basic workpiece

Mold core for the production of bottle caps. Consisting of tool steel 1.2343 combined with CuBe insert.

First step

Protect edges through material application.

Second step

Connect mold core to insert.

Third step

Complete application of a 0.2 mm thick protective and wear layer.

Technical data

Power

	Typ: 150 W	Typ: 300 W	Typ: 450 W	Typ: 600 W
Lasertype	Fiber	Fiber	Fiber	Fiber
Max. mean power	150 W	300 W	450 W	600 W
Pulse peak power	1,5 kW	3 kW	4,5 kW	6 kW
Max. pulse energy	20 J	30 J	45 J	60 J
Pulse duration	0,1 - 50 ms	0,1 - 50 ms	0,1 - 50 ms	0,1 - 50 ms
Pulse frequency	0,1 - 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)	230/1/50	230/1/50	230/1/50	230/1/50

System equipment

Laser system

· Hermetically sealed resonator
· Diode-pumped, including fiber monitoring
· Power regulation
· Safety shutter
· Beam expansion
· Mains supply including mains fuse
· Mains isolator
· Emergency stop switch
· Motor circuit breaker
· Low voltage power supply 24 VDC
· Interface with hardware monitoring function
· Industry controller for setting and display of power, pulse duration, pulse repetition frequency with external trigger via footswitch
· Cooling system: air cooling

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: 250 kg net

wORld of LASER

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Your Engineering Quality is always on our focus