microSTRUCT C™

Laser micromachining system for ablation, structuring, cutting and drilling of various materials
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Due to the advancing miniaturization in electronics, semiconductor manufacturing and medical technology, it has become increasingly indispensable to possess the capability of machining smaller and finer structures into various substrates.

The microSTRUCT C™ system is equipped with two working areas and perfectly suited for the processing of different kinds of substrates, e.g. metals, alloys, transparent and biological material, ceramics and thin film compound systems.

The major advantages of the system are its maximal degree of freedom regarding the positioning of the substrate, its open system concept for the integration of different laser sources for sequential operation as well as its flexible, upgradeable control concept for a possible future integration of further components (e.g. additional axis systems and optical components).

**microSTRUCT™ is suitable for applications in**
- Photovoltaic industry
- Organic photovoltaics
- Medical technology
- OLED processing
- Nozzle drilling
- Semiconductor/MEMS
- Automotive/Aerospace
- Security applications

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**Technology**
- microDrilling
- microCutting
- microAblation
- microEngraving
- 2D, 3D microStructuring

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**microSTRUCT C™ - System Description**

**Assembly**
- Granite base for mounting of all optical and mechanical components
- Housing suitable for laser class 1
- Standard degree of protective IP 20
- Approx. total weight 3 t

**Laser Source/Optics**
- Integration of two laser sources and three beam paths for different wavelengths possible
- Standard laser source: ps laser 1064 nm with SHG and THG
- Further available laser types (ns, fs, fiber-/disc laser), laser optics, scanner systems and fixed optics can be integrated

**Positioning System**
- Direct-driven positioning system
- XY-traverse path 600 mm x 400 mm
- Positioning accuracy ± 0.01 mm (@0.1 K for specified traverse path)
- Repeatability ± 0.005 mm (@0.1 K for specified traverse path)
- Travel speed max. 150 mm/s
- Acceleration max. 100 mm/s²
- Positioning system is upgradeable
- Integration of special positioning systems on customers’ demand

**Workpiece Alignment**
- Manual, semi automatic or fully automatic workpiece alignment with XY-system and optical measurement system are available
- Adaption to different heights of work pieces by using a separate Z positioning system

**Working Area**
- 2 working areas for the use of scan systems or fixed optics
- Working area for every station: 225 mm x 225 mm
- On request, one station can be used as measuring station

**Suction**
- The system is prepared for integration of an exhaust system for the suction of ablated material

**Control Software**
- Multilingual software based on English
- Full worldwide remote access via network
- Customized log file to store all commands, processes and laser parameters
- Separate modes for operators, supervisors and service
- Programming language: Visual Basic Script
- Data import: interfaces GDS II, STL, DXF
- Selecting of up to 32 NC axes
- Intuitive graphical operator interface with preview
- Image recognition system
- Integrated energy monitor

**Options**
- Fully automatic work piece handling
- Integrated picture recognition system with up to four observation cameras
- Optical or tactile distance sensor
- Vacuum chuck or other clamping devices on request
- Quality control systems are available on customers’ demand