MPS 3D Modular Processing System for 3D Applications

The MPS 3D is a medium-sized, multi-purpose workstation for a very wide range of 2.5 and 3D laser material processing applications.

- Steel frame housing with embedded granite base
- Spacious working chamber with a large pneumatic door and long axis travels
- Integration of fiber coupled or direct beam sources such as ultra short pulse lasers
- Integration of galvo or fixed optics
- Spindle or linear driven motion systems
- High precision and high dynamic packages

Flexibility

- The system setup with its granite bridge allows the integration of direct beam sources, such as ultra short pulse lasers for finest applications
- Large working chamber for flexible cutting, welding and other laser processes
- High precision and high dynamic motion packages

4-axis laser workstation for 2.5D applications

- Four interpolated axis for either direct beam or fiber coupled laser sources
- Swivelling rotary axis or various cutting boxes available

5-axis laser workstation for 3D applications

- Optimized and compact system design
- Complete 5 axis interpolation with workpiece layout compilation via CAD/CAM solution
- Cutting or welding head with flexible tilt axis ±135° also with direct beam lasers
- Multi-axis laser material processing of large workpieces
**Interface and Operation**

The MPS core is a high-performance CNC/PLC controller. It supports all data exchange based on industry standards and is operated via a large color touch screen. The ergonomic concept in combination with different technical features make the MPS 3D the ideal workstation system for your individual application.

- External programming with CAD/CAM software
- High-performance CNC/PLC controller can be operated via touch screen interface
- Swivelling panel with all operational elements can easily be reached
- Large pneumatic door for optimum access
- Free 19" rack for integration of additional modules or handlings

**Laser Processing**

- Integration of a broad range of ROFIN lasers from direct beam to fiber delivered sources
- Laser processing of complex part contours
- Multi-axis laser cutting, welding and ablation
- 3D applications in electronic industry, medical device technology, research and others
- Applications which require customized R&D turnkey systems for laboratories and institutes and many more

- Cold laser material processing
- High precision cutting, structuring and ablation of almost all kinds of material
- No thermal damage
- Realisation of previously impossible features and applications
- Reduction of or even no post processing

- Smallest "trigger to light" effect, i.e. shortest switch-on time
- Especially for complex fine cutting
- Significantly higher peak power over a wide frequency range, which is also available at high repetition rates of up to 170 kHz
- Very small heat affected zone, less taper, excellent cutting quality
- Better performance, higher yields

- Pulsed solid state lasers with 40 to 500 W power
- Double closed loop, power control, patented SweetSpot® resonator, flexible pulse shaping
- Real-time pulse monitoring
- Convenient operator control

- High pulse peak power at reduced average power
- High beam quality for a very high cutting quality with reduced heat affected zone
- Flexible pulse shaping for optimized welding results
- Large choice of beam shaping optics for a flexible solution
- High electrical efficiency and low maintenance

---

**StarFemto FX / StarPico**

- Integration of a broad range of ROFIN lasers from direct beam to fiber delivered sources
- Laser processing of complex part contours
- Multi-axis laser cutting, welding and ablation
- 3D applications in electronic industry, medical device technology, research and others
- Applications which require customized R&D turnkey systems for laboratories and institutes and many more

- Cold laser material processing
- High precision cutting, structuring and ablation of almost all kinds of material
- No thermal damage
- Realisation of previously impossible features and applications
- Reduction of or even no post processing

- Smallest "trigger to light" effect, i.e. shortest switch-on time
- Especially for complex fine cutting
- Significantly higher peak power over a wide frequency range, which is also available at high repetition rates of up to 170 kHz
- Very small heat affected zone, less taper, excellent cutting quality
- Better performance, higher yields

- Pulsed solid state lasers with 40 to 500 W power
- Double closed loop, power control, patented SweetSpot® resonator, flexible pulse shaping
- Real-time pulse monitoring
- Convenient operator control

- High pulse peak power at reduced average power
- High beam quality for a very high cutting quality with reduced heat affected zone
- Flexible pulse shaping for optimized welding results
- Large choice of beam shaping optics for a flexible solution
- High electrical efficiency and low maintenance
### MPS 3D

#### Performance Specifications
- Travel x/y/2-axis
- Positioning accuracy per axis*:
  - ± 30 µm (± 5 µm**)
- Repeat accuracy per axis*:
  - ± 15 µm (± 2 µm**)
- Max. speed:
  - 20 m/min
- Acceleration:
  - 3 m/s²
- Ultimate load on x/y table:
  - 50 kg

#### Operation
- User interface:
  - 15" touch screen + keyboard
  - USB and Ethernet
- Interface:
  - 3x400 VAC+N+P, 50/60 Hz, 63 A
  - max. 20 bar

#### Installation conditions
- Weight (module independent):
  - 3500 kg
- Dimensions (W x H x D):
  - 1862 x 2520 x 1485 mm
- Dimensions door open (W x H x D):
  - 1862 x 3185 x 1485 mm
- Ambient temperature:
  - 18 - 28°C

#### Axis Options
- High precision package
- 4th axis: Rotary with servo or direct drive at 90 or 1100 turns/min
- 5th axis (tilt axis for optics): ± 135°

#### System Configuration Options
- Pneumatic door
- Camera observation incl. 8" TFT-display, customized image recognition solution possible
- Gas board for cutting or welding
- Pneumatics on working layer for fixtures and clamping
- Cutting box
- CAD/CAM Software
- Laser power/motion synchronization

#### Electric
- Gas connection (2 switchable pressure levels)

#### Circuit points
- USB and Ethernet

---

### SPINDLE DRIVE

- 500 x 500 x 300 mm
- ± 30 µm (± 5 µm**)
- ± 15 µm (± 2 µm**)
- 20 m/min
- 3 m/s²
- 50 kg
- 15" touch screen + keyboard
- USB and Ethernet
- 3x400 VAC+N+P, 50/60 Hz, 63 A
- max. 20 bar

### LINEAR DRIVE

- 500 x 500 x 300 mm
- ± 5 µm (for x/y)
- ± 2 µm (for x/y)
- 50 m/min
- 10 m/s²
- 50 kg
- 15" touch screen + keyboard
- USB and Ethernet
- 3x400 VAC+N+P, 50/60 Hz, 63 A
- max. 20 bar

---

*822°C ±1K for 300 mm range  
**with the option high precision package