

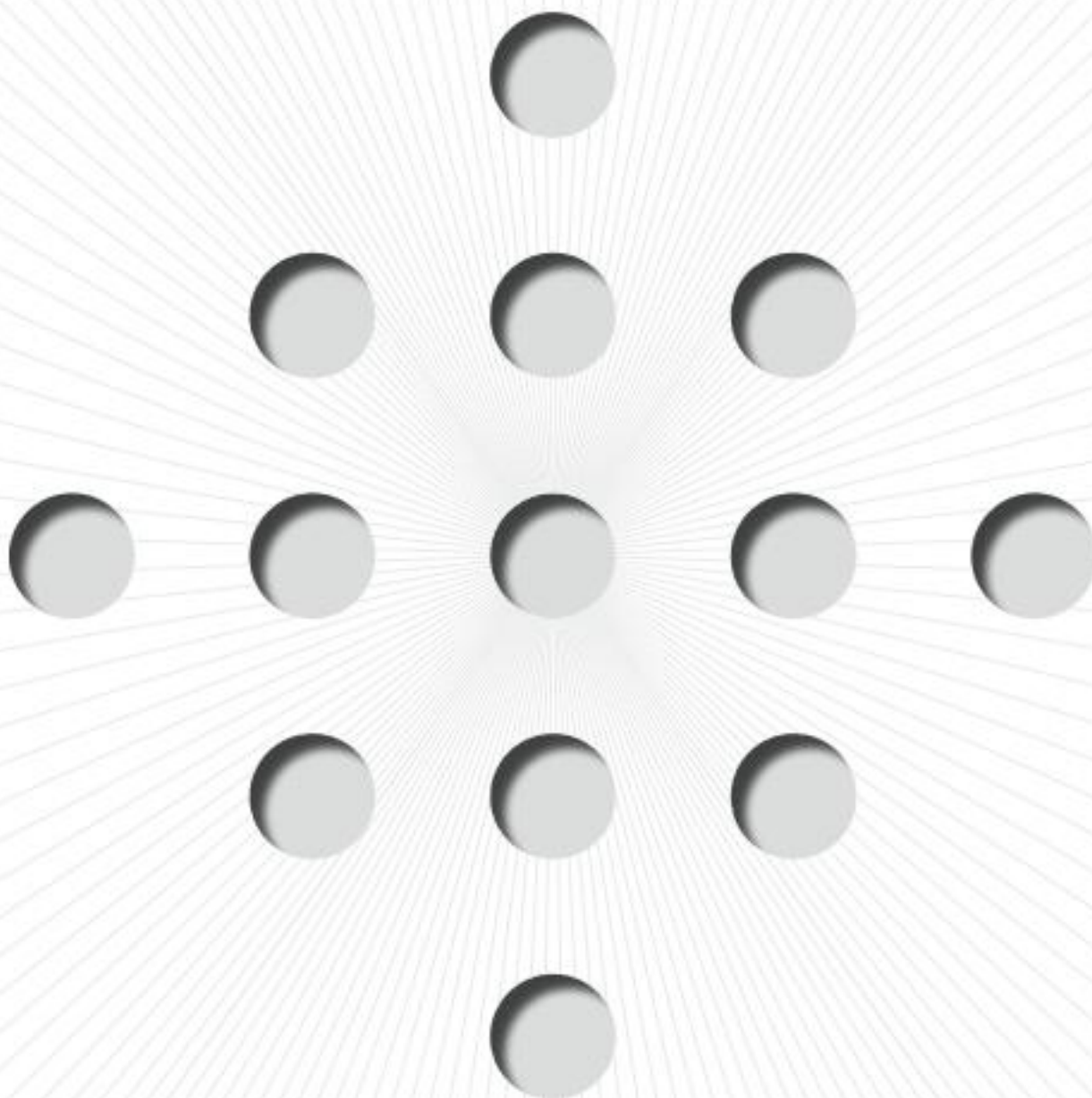
# FEMTOFAB DATASHEET

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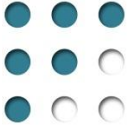
Femtosecond laser  
micromachining system datasheet



Workshop of Photonics



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## FEMTOFAB SYSTEM FEATURES

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- Nanometer accuracy sample positioning and/or laser beam scanning
- Industrial grade femtosecond laser source
- High efficiency harmonics generator
- Industry\* design
- 1 year full-service warranty \*\*

\*highly extendable systems;

\*\* extendable to 3 years



## SYSTEM CONTROL APPLICATION

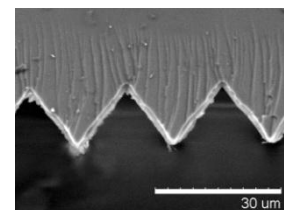
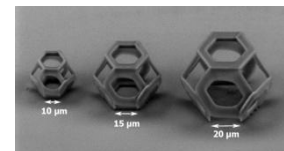
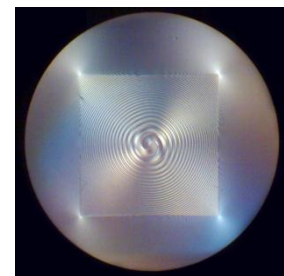
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### Software features

- Complete hardware automation for convenient workflow
- Control of laser parameters
- Control of positioning stages and galvanometer scanners
- User-friendly interface
- Simple to advanced algorithms
- Virtual joystick
- Graphical preview window WYSIWYG

### Applications

- Surface micro- and nano-structuring
- Refractive index modification in transparent materials
- Solar cell processing
- Ablation, engraving, 2.5 D milling
- 3D multi-photon polymerization
- Photo-induced etching
- Custom pattern scribing





# FEMTOSECOND MICROMACHINING WORKSTATION

## Main performance characteristics

<b>Sample Properties</b>	
Material	Any solid material, liquid polymers
Dimensions (mm)	150 x 150 x 150
<b>Beam Shaping and Control</b>	
Pulse Picker	Integrated, automatically controlled
Galvanometer- Scanners*	
Scanning Field (mm)	Up to 10 m/s scanning speed 5 x 5 (with 4F optical system)
Focusing optics	High NA aspheric lenses or objectives
Focal length (mm)	1.45 – 18.4
SLM*	
Pixels	1920x1080
Panel Size (mm)	15.36 x 8.64
Addressing	16 bit
Operation mode	Reflection
<b>Positioning</b>	
Type	XYZ, linear motor, cross-bearing, air bearing*
Processing Speed (mm/s) (max.)	350
Working Field Area (mm)	160 x 160
Resolution (nm)	1
Positioning Accuracy (nm)	±300
Repeatability (nm)	±50
In position stability (nm)	3
Sample Holder	Vacuum Chuck
<b>Laser parameters</b>	
Lasing Medium	Yb:KGW
Wavelength	1028 nm ± 5 nm
Power (W)	4, 6*, 8*, 10*
Oscillator Output Power (W)	0.7-1.5
Pulse Energy (max., mJ)	1
Repetition Rate (kHz)	200, 600*, 1000*
Pulse-Widths	<200 fs - 10 ps (tunable); <80 fs (osc.);
Beam Quality Parameters	M2 < 1.2
Output Pulse Stability	< 1 % RMS
<b>Harmonics Generator</b>	
Harmonics	SH (515nm), TH (343nm)*, FH (258nm)*
Conversion Efficiency (@ 200 kHz)	>50% (SH); >30% (TH)*; >10% (FH)*
<b>Software Control Application Features</b>	
Beam Power Control	Laser Output; Motorized Attenuators
Positioning Stages Control	2.5 D micromachining; 3D XYZ commands
Control Interface	Algorithm Window, Virtual or GUI Joystick
Graphic and vector formats	*.bmp, *.plt
<b>Workstation Data</b>	
Size (W x D x H) (m)	1.2 x 1.8 x 2**
Weight (max., kg)	500**
<b>Utility Requirements</b>	
Electrical Input (kW)	3-4, configuration dependent
Ambient Temperature (°C)	15-30
Relative Humidity (%)	20-80
Laser Safety	Class 1** equivalent

*\*Optional components and features, integrated on request  
\*\*In case the system is put into an enclosure  
Specifications are subject to change without notice.*

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