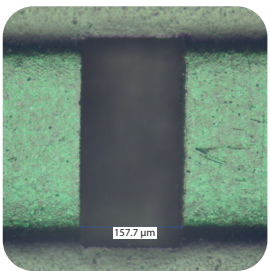
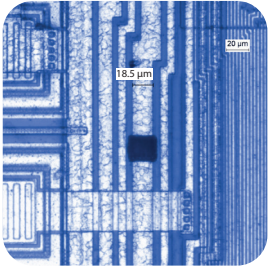
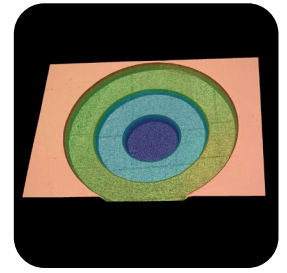


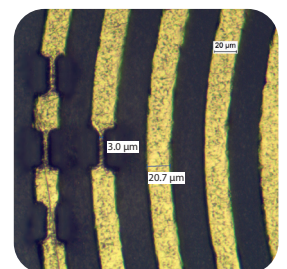
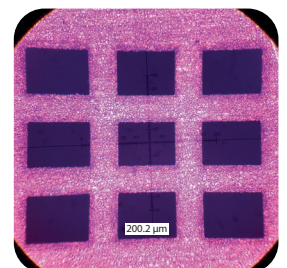
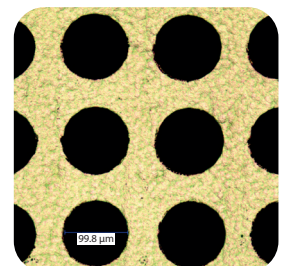
# MicroMake

## Laser Micromachining System



### Features

- Ablation and cutting of programmable arbitrary shapes
- Live imaging of the processed samples during machining
- Suitable for a wide range of materials
- 1 mm standard processing area
- Down to 2  $\mu\text{m}$  spot size
- 532/266 nm ns and ps lasers
- Embedded illumination unit
- Optional XYZ translation stage



### Applications

- 3D direct microstructuring
- Precision surface texturing
- Track interruption on PCBs
- Microcoding for anti-counterfeiting
- Thin film removal on hard substrates
- Selective metal removal on ceramic substrates
- Microcorrection on wafers, masks and displays
- Microdrilling on metals and transparent dielectrics

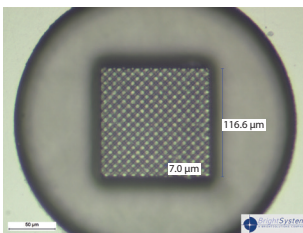
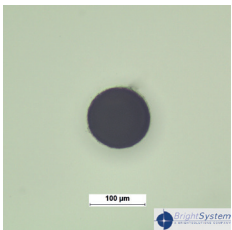
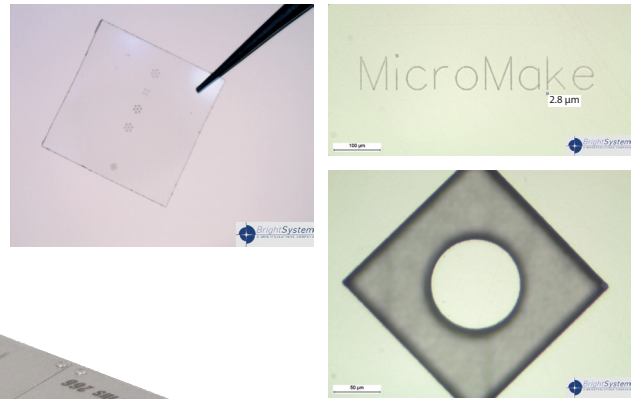
MicroMake from Bright System is an integrated and compact laser micromachining unit for high precision and resolution applications. The system includes all the needed devices for direct laser microprocessing in a single monolithic element. Live microscope imaging of the sample is offered during all process phases from alignment to immediate quality check.

Typical applications of this compact system include controlled ablation, microdrilling, precision cutting, selective material removal and direct 3D microfabrication. All these features suit perfectly a large variety of materials utilized in the fields of microelectronic circuits and displays fabrication and correction, biomedical devices machining, optical substrates microprocessing, micromechanics for manufacturing.

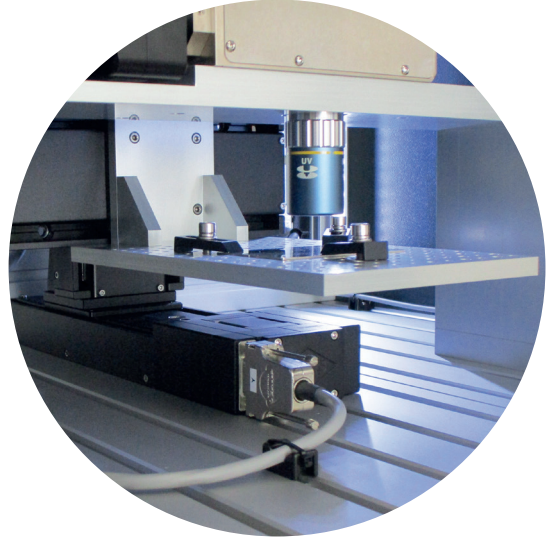
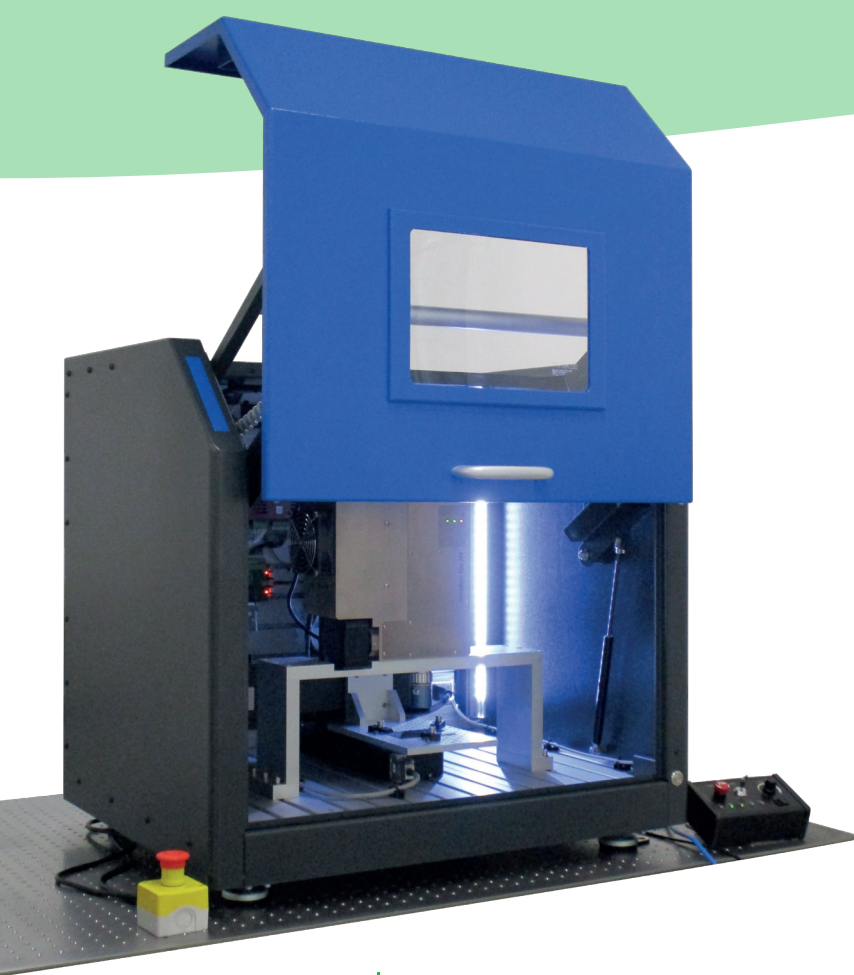
Thanks to its compactness and single low-voltage electrical power requirements, MicroMake is conceived for OEM customers. Nevertheless, the inclusion of additional options available can turn MicroMake into a ready-to-use all-in-one laser micromachining work-station.

In fact, MicroMake is provided with control software interfaces, for both laser process parameters control and live camera interaction. Initial configuration and calibration settings are included in all MicroMake versions.

Due to the achievable high peak power, the visible 532 nm wavelength versions are the most versatile and robust tool for laser microprocessing on a vast variety of materials with different nature. The deep ultra-violet 266 nm wavelength versions are the perfect fit for clean and precise microprocessing on transparent substrates like glass, crystals and technical polymers thanks to efficient optical absorption and enhanced spatial resolution.

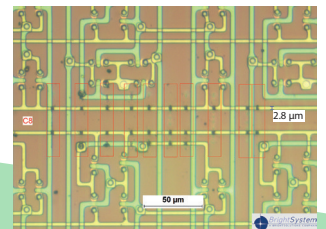
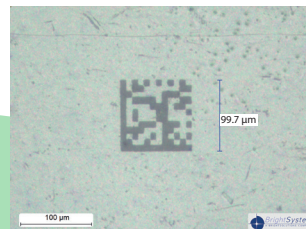
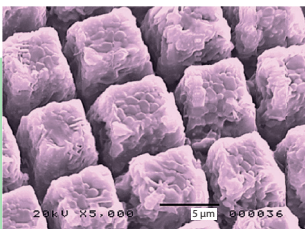




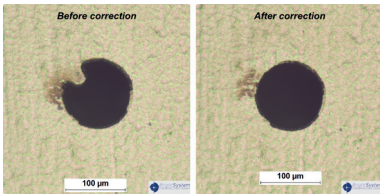


Model	MicroMake 532	MicroMake Plus 532	MicroMake 266	MicroMake Plus 266
Wavelength	532 nm	532 nm	266 nm	266 nm
Lens magnification	10X *	10X *	10X *	10X *
Working distance	39 mm	39 mm	20 mm	20 mm
Spatial resolution	4.5 μm	5 μm	2.5 μm	3 μm
Max processing area	1x1 mm <sup>2</sup>	1x1 mm <sup>2</sup>	1x1 mm <sup>2</sup>	1x1 mm <sup>2</sup>
Frequency	1 kHz	10-100 kHz	1 kHz	10-50 kHz
Max peak power	>10 kW	>40 kW	>0.7 kW	>7 kW
Typical processing linear speed	up to 4 mm/s	up to 100 mm/s	up to 2 mm/s	up to 50 mm/s
Cooling	Air-cooled	Air-cooled	Air-cooled	Air-cooled
Overall mechanical dimensions	35x20x11 cm <sup>3</sup>	35x24x11 cm <sup>3</sup>	39x20x11 cm <sup>3</sup>	39x24x11 cm <sup>3</sup>
Weight	8 kg	11 kg	10 kg	13 kg

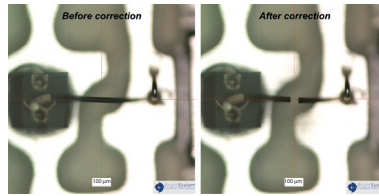
\* Standard version. Other options are available on request.



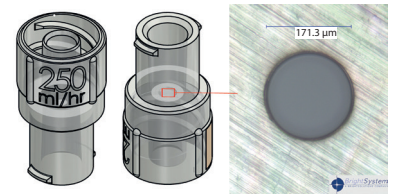
### Microcorrection of metal mask defects



### Selective interruption of microwires



### Calibrated microdrilling on medical devices



## Options available

Different objective lenses available – standard 10X included

High speed/high resolution USB camera

Circular polarization on the workpiece

External control box

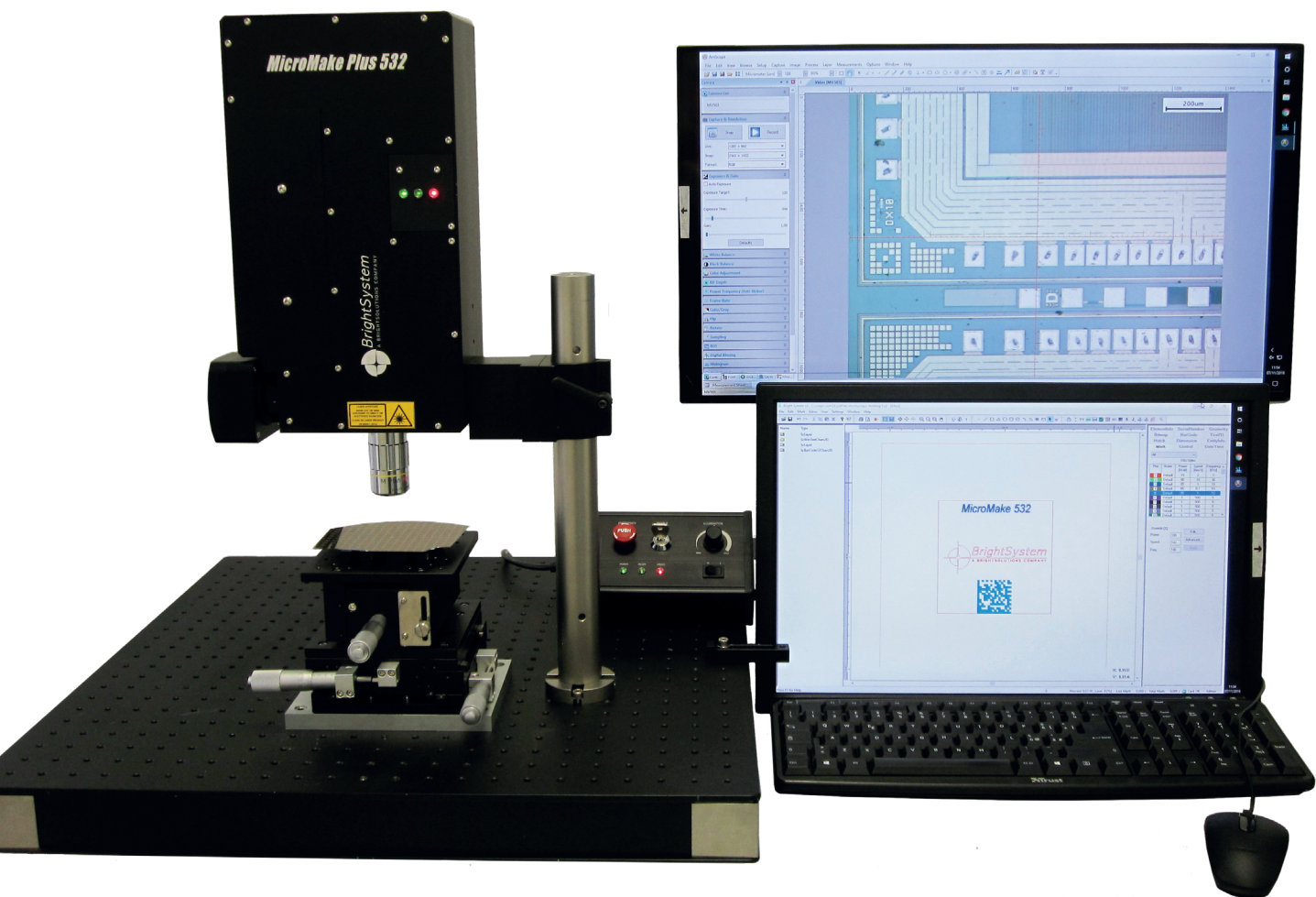
Table-top version: external mounts and manual stages with AC PSU

XY manual or motorized stage – typical 120 mm XY travel

Z manual or motorized stage – typical 40 mm Z travel

Class 1 safety enclosure with interlocked door

Electrical connector for advanced I/O operations



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