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bgLAB

Tabletop laser micromachining workstation



Easy to use laser workstationwhich is designed using the highest quality components. Furthermore, this platform meets the most exacting standards, but is small and affordable. This was achieved by using just two automated positioning axes and other ones being manually adjustable what is enough for many surfacebased applications. However, this direct drive stagebased system allows manufacturing of sub 10micron features. It can be externally combined with almost any DPSS laser source and run with pulse durations from ns to fs range as well as have wavelengths from IR to UV depending on your laser application. Or maybe you already have your own laser source so it can be integrated with it also. As this is just two direct drive axes for automation system can be controlled from industry popular software solutions the same that mechanical processing CNC machines are controlled.

This way even non laser experts can operate the system. bgLAB is a perfect tool for university and high school laboratories as well as for small job shops and startups who just plan to start their experience with laser technology.

XY positioning	
Travel:	120 x 120 mm
Max speed:	>500 mm/s
Accuracy:	<2 μm
Z positioning	
Manual adjustment of focus position in 50 mm range	
Beam focusing	
Fixed aspheric lens *:	Typical spot size <5µm
Laser source	
Pulse duration **:	100 ns – 200 fs
Wavelength **:	1064 -266 nm

* Depends on laser source beam quality and wavelength

**Select when ordering. Not adjustable.

Application notes

Precision engraving of transparent materials

Precision glass, fused silica and sapphire engraving with ultra-fast lasers allows manufacturing features less than 5 micron in size with chipping on the edges less than 0.5 micron. Such technology can be used for precision optical reticle manufacturing. Laser technology lets digitalize the process and allows quick manufacturing small batches of custom reticles and reduce manufacturing cost Different optical reticle



types can be used in microscopes, theodolites, optical sights, astronomic telescopes oscilloscopes and many other. Manufacturing of custom reticles is available from Beagle Optics. Or we can discuss building complete workstation for your own laboratory if needed.



Polymer ablation

Ablation of light diffusing structures from porous PTFE







Polycarbonate reticle marking



Polycarbonate reticles. 12 micron minimum width achievable. High contrast black lines right after laser marking and no additional dye needed. Affordable cost.



Optical coating patterning

Linie 10µm 123456789

Metal, ITO, metal oxide, reflective, conductive or any other coatings on transparent materials like glass, quartz and sapphire or ceramics can be patterned to form inverted reticles, microfluidic chips, conductive circuits, antennas or whatever is needed to be directly patterned.

