

LS-Lab

The right set-up for micromachining



Just like a high-end micromachining machine, this small lab set-up, combined with LASEA's beam management modules, allows performing **high precision laser processes**. Equipped with **Nano positioning stages** and an **electrical cabinet** with safety controller, the LS-Lab is the link between OEM modules and a **ready-to-use laser micromachining set-up**.

Designed to give access to **cutting, drilling (zero taper), texturing, marking, engraving, or thin film removal** applications, this set-up is pre-mounted and aligned with the chosen optical configuration and is to be placed on an optical table, next to a laser. **Nothing else is required to start micro-machining!**

Far more **flexible** than an enclosed micromachining machine, the LS-Lab ensures a **quick access to the highest quality processes** with the laser of your choice.

Considered as a partly completed machinery, this set-up is a class 4 system, and therefore requires the use of safety eyewear and all the appropriate protections. It can easily be integrated into a class 1 environment as it already includes a safety shutter with several sensors indicating if it is actually closed or open.

Key features

- Small footprint (600 x 700 mm)
- 10 high quality beam benders
- 500 nm stage resolution
- 160 x 160 x 300 mm stage field
- Safety controller
- Easy alignment
- Supplied with LASEA's beam management modules:
 - o LS-Shape
 - o LS-Precess
 - o LS-Polar
 - o LS-View
 - o LS-Scan



Top: Global view with optical table and PC package

Bottom left: Front view with LS-Shape and LS-Scan

Middle right: Back view with LS-Shape, and LS-Precess

Bottom right: Sliding input beam bender

Specifications	LS-Lab Access	LS-Lab	LS-Lab Plus
Material	Aluminum profiles	Granite	
Beam path	10 high accuracy kinematic and lockable beam benders, dust protection		
Input aperture	22 mm (Beam diameter of max 12 mm)		
Wavelength	Dual wavelength 515 + 1030 nm		
Z stage	Manual Travel of 20 mm	Motorized Travel of 300 mm Resolution of 100 nm Repeatability of +/- 1 µm Accuracy of +/- 2.5 µm Straightness of +/- 6 µm Pitch/Roll/Yaw of 60 µrad Maximum speed of 50 mm/s	
XY stages	Manual Travel of 50 x 50 mm	Motorized Travel of 160 x 160 mm Resolution of 50 nm Repeatability of +/- 100 nm Accuracy of +/- 500 nm Flatness of +/- 2 µm Pitch/Roll/Yaw of 70 µrad Maximum speed of 250 mm/s	Motorized Travel of 300 x 300 mm Resolution of 100 nm Repeatability of +/- 100 nm Accuracy of +/- 1 µm Flatness of +/- 2 µm Pitch/Roll/Yaw of 90 µrad Maximum speed of 500 mm/s
Sample holder	Suction system (vacuum pump not provided) with kinematic tilting base plate		
Electrical cabinet	19" 12U cabinet with several racks for safety, module, and stage management		
Control panel	Movable control panel with emergency stop and reset pushbuttons, and various pushbuttons depending on the chosen options		
Size	600 x 1.000 x 700 mm	600 x 700 x 1.056 mm	900 x 1.100 x 1.100 mm
Power supply	100-240VAC - 16 A max		
PC interface	Ethernet	Ethernet & Firewire	
PC package option	Workstation with PC, 2 screens, keyboard, and mouse		
Available modules	LS-Shape, LS-Precess, LS-Polar, LS-View, LS-Scan		
Options	Laser, optical table, safety enclosure, fume extractor		

