Nd: YAG Laser

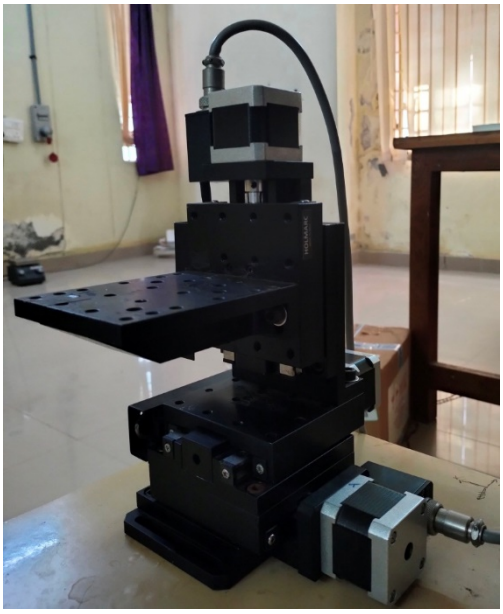


Specifications:

- Make: Beamtech Optronics
- Model: Nimma 400
- Wavelength: 1064 nm (532 nm, 355 nm)
- Energy: ≥ 450 mJ@1064 nm
  ≥ 250 mJ@532 nm
  ≥ 90 mJ@355 nm
- Frequency: 1-10 Hz
- Energy stability: ≤ 1% @1064 nm
  ≤ 2% @532 nm
  ≤ 4% @266 nm
- Beam size: 8mm
- Pulse width: ≤ 8ns@1064 nm
- Beam divergence: ≤ 0.6mrad
- Timing Jitter ≤ 1ns (STDEV)

Laser texturing is a process that alters a material's surface properties by modifying its texture and roughness. The laser beam creates micropatterns on the surface through laser ablation, removing layers with micrometer precision and perfect repeatability, typical patterns include dimples, grooves, and free forms. Laser texturing changes surface morphology and surface chemistry of the solid surface thus modifying surface wettability.

Motorised Micro Motion Stage



Specifications:

Drive details:

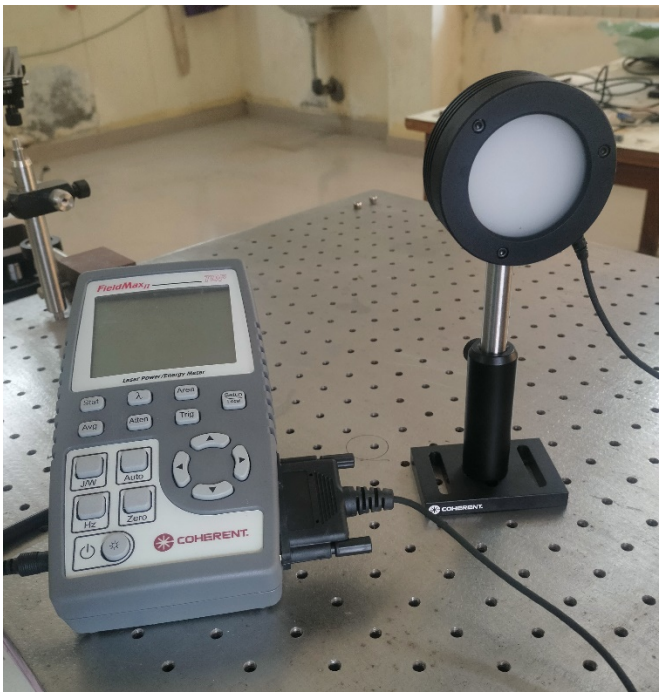
- 0.4 mm pitch lead screw
- Positioning accuracy- 0.001mm
- Repeatability- 0.001 mm
- Resolution- 0.000125 mm
- Speed- 1.6 mm/s

Stage Range:

- X-axis: 27157.1875 µm
- Y-axis: 29377.5 µm
- Z-axis: 26743.4375 µm

The motorized micromotion stage is used for linear movement along with three directions, viz. x, y, and z-axis of the specimen which is placed on the micromotion stage.

Laser Power/Energy meter



Make: COHERENT

Model: FieldMax II-TOP

The laser power/energy is measured by allowing the laser beam to strike onto the energy sensor which measures over a wide range of wavelengths, beam diameter, average power levels and repetition rates. The laser power/energy meter displays the readings such as average power, beam diameter etc. which is connected to energy sensor.

Precision Polarizer Rotator with Linear Movement



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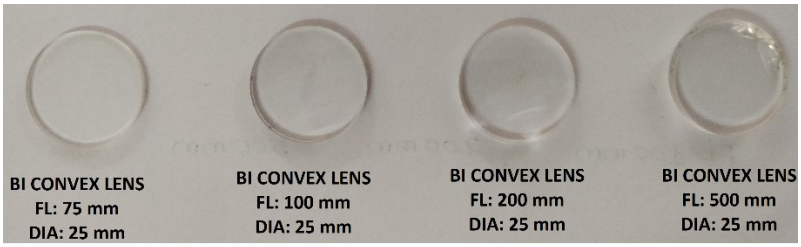
Specifications:

- Resolution: 0.1° for rotation
- Manual 360° rotation
- +/- 3° Precision Movement
- Drive-by Micrometre
- Readout from vernier
- Optics held by Threaded Ring
- Threaded Bore Depth: 12 mm
- M6 mounting holes
- Post mountable
- Aluminium alloy
- Black anodized finish

Precision rotary adjustments are possible with this mount. Plate/sheet polarizers are held between two threaded rings inside a threaded bore. The kinematic design of this mount provides fine linear adjustments in two planes for the mounted polarizer.

Lenses and Accessories

1) Bi-Convex Lens:

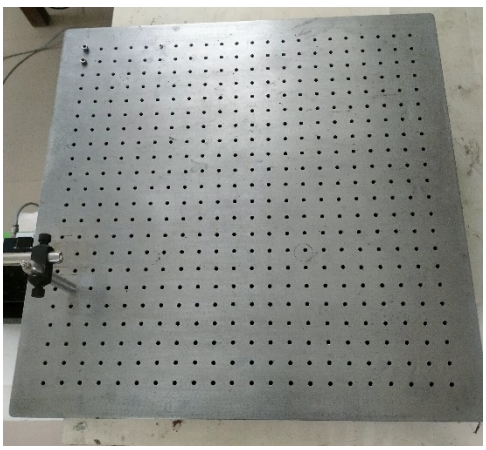


Specifications:

Material:	BK7
Diameter:	25 mm
Clear Aperture:	> 90% of Diameter
Surface Quality:	40 - 20 (scratch-dig)
Focal Length:	75, 100, 200, 500 mm
Wavelength Range:	350-2000 nm
Central thickness:	2 mm

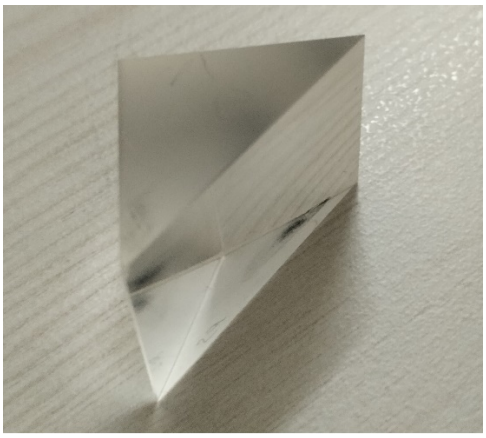
Bi-Convex Lenses are positive spherical lenses having convex surfaces on both sides. These lenses find applications in collecting, focusing, and collimating light. The laser beam size of 8 mm is converged up to 150-200 µm dimple surface texture onto the specimen by using a 75 mm focal length lens, similarly by using a 100 mm FL lens a dimple of 200-300 µm, a 200 mm FL lens a dimple of 300-400 µm and a 500 mm FL lens, we can texture a dimple of size 500- 600 µm.

2) Breadboard:



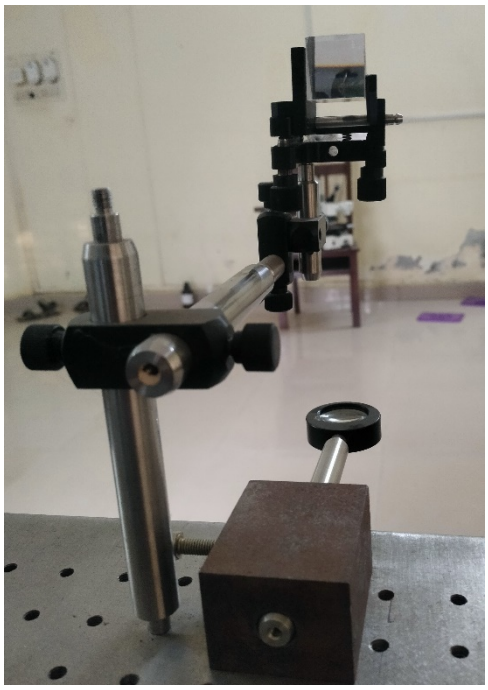
Breadboards are used mainly to construct small optical setups. The thickness of the breadboard is 60mm. There are tapped holes of 5 mm.

3) **Right Angle Prisms:**



Right Angle Prisms are used to redirect a beam of light at 90 degrees from the incident direction or used as a 180° beam retroreflector.

4) **Prism Holder and Lens Mount:**



Prism holder is used for holding the prism which will direct the laser beam on the specimen by deflecting 90^0. Bi-convex lens is mounted on the Lens mount.