

Laser Inline Routing Machine (LIRM)

The LIRM is an inline scanning laser singulation machine specially designed to handle FR4 / FR2 and flex printed circuit board assemblies (PCBA) up to 1.6 mm in thickness.

The LIRM operates two tables for simultaneous cutting and load/unload operations for maximum production effectiveness and flexibility. Parts handling is as simple as positioning on a flat vacuum platen or a simple alignment fixture reducing the expenses usually associated with tooling.

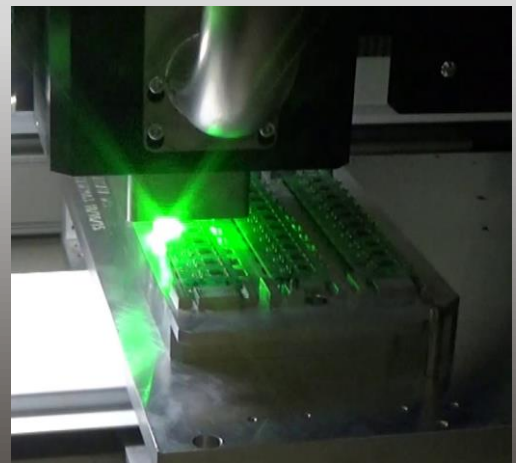
The LIRM employs a 30W green laser source with wavelength at 532 nm. The green wavelength is well-absorbed by PCB materials and this enables cuts with minimum thermal discoloration.

Fully protected with shielded work area meeting Class 1 Laser standards.



FEATURES

- ❑ 2 tables with PCB panel size of :
200 mm x 200 mm (Version 1)
400 mm x 400 mm (Version 2)
- ❑ Powerful servo motors powered axis
- ❑ CE Certification (Option)
- ❑ 30 Watts Green Laser (UV or IR laser options available)
- ❑ Move, Teach and Cut Visual
- ❑ Programming System



SPECIFICATIONS:

Manipulator

Configuration	: X, Y, W & Z axis
Manipulator	: 4 axis AC brushless servo
Motors	motors
Manipulator	: ±0.02mm
Repeatability	
Resolution	: ±0.01mm

Workstation

Board Positioning	: Dual workstation with nest fixture or pin fixture
Panel Location	: Located by tooling holes, edges of PCB or vacuum fixture
Loading	: Inline Auto Loading
Unloading	: Inline Auto Unloading
Panel Size	: 200 mm x 200 mm (Version 1) : 400 mm x 400 mm (Version 2)
Panel Thickness	: less than 1.6 mm for FR4 [Design Guidelines Available]

Laser System

Green Laser	: 25W to 30W @ 40 kHz
Nominal Power	
Laser Medium	: Nd:YVO ₄
Wavelength	: 532 nm
Cooling	: On board chiller unit
Peak Power	: 31.25kW to 37.5 kW @ 40 kHz
Repetition Rate	: Single shot to 400 kHz
Pulse Width	: < 20nS @ 40 kHz
Pulse Energy	: 625 µJ to 750 µJ @ 40 kHz

Fume Extractor Unit

Power	: 220W fume extractor unit
Filtration	: 3 stage filtration with disposable filters : Hepa Class H14, 99.997% @ 0.3micron & Activated carbon

Vision system

Video camera	: High resolution CCD video camera : PCB Fiducial capturing or PCB Edge positioning (Optional)
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Programming

On line	: Vision assisted point to point manual teaching
Offline	: CAD and Manual program generation capability
Editing Function	: Dry run vision assisted / test run mode

Safety Feature

E Stops, Laser safety shutter, Servo overload detection, Class 4 Laser enclosure work area with laser safety viewing windows

Machine Dimensions & Utilities

Machine size	: 1.70 M x 1.90 M x 1.80 M (Version 1) : 2.00 M x 2.50 M x 1.80 M (Version 2)
Power Supply	: (options available)

OPTIONS:

- | | | |
|---|------------|---|
| <input type="checkbox"/> Bar code support | : 1D or 2D | <input type="checkbox"/> MES Connectivity & Interfacing |
| <input type="checkbox"/> Fiducial alignment | | |