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Precision Laser Processing Solutions for the Semiconductor Industry

www.idilaser.com

Lead Frame Substrate Marker

Features

- Smallest Foot Print - 50% smaller than some popular OEM
- MAP package Handling (QFN, MAP BGA etc)
  - Warpage Handling/Correcting Mechanism
  - Vacuum Chucking of Leadframe for precise and Robust location
  - Unique Flipping Mechanism to enable both side marking
- All kind of leadframes 30mm x120mm to 100mm x 300mm size
- Integrated Vision with the Laser Head to enable following
  - Accurate marking location wrt to the package that Nagates Offset/Mismatch
  - Post Marking Inspection
  - On the fly mark location adjustment
- Optional Laser Heads
  - UV Laser or Fiber laser for very fine line width of 0.02mm for small packages
- Smart machine that is able to communicate up/down streams for lot/error reporting
- PLC/Servo Driven Handler for robust, fast and precise operation

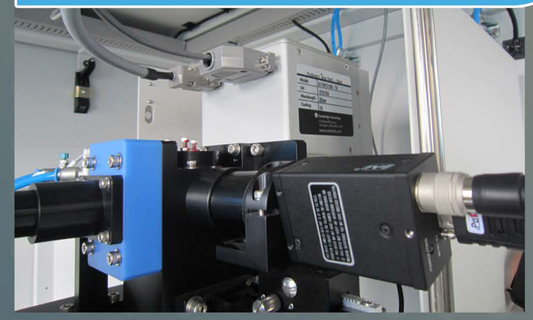
Ring Light with Scanner Head Assembly

BIV(Built in Vision) has a wide range of applications and is an outstanding functionality that can be adapted to precisely fit your needs and demands.

BIV opens the possibility of laser machining to all industrial areas which were formally reserved for high-tech manufacturing.

The laser markers of the BIV family offer a wide range of applications. BIV is developed for optimum use by our customers , and a total solution in marking.

Camera With Scanner Head Assembly



The flexible nature of the system makes it perfect for integration into machines and manufactuting Lines.

The outstanding quality also ensures fast and precise laser processing. The rugged nature of the system also ensures reliable function in tough industrial environments.

BIV System

The BIV Technology has a wide range of applications and outstanding functionality that can be adapted to precisely fit your needs and demands.

Single or Dual Head Cutting System- BIV Technology has the added advantage of being easy to use, safe and flexible.
The system is also highly customisable, with a small industrial footprint, allowing it to serve as a solution to a variety of industrial needs.

Please Contact us for the Full Brochure!

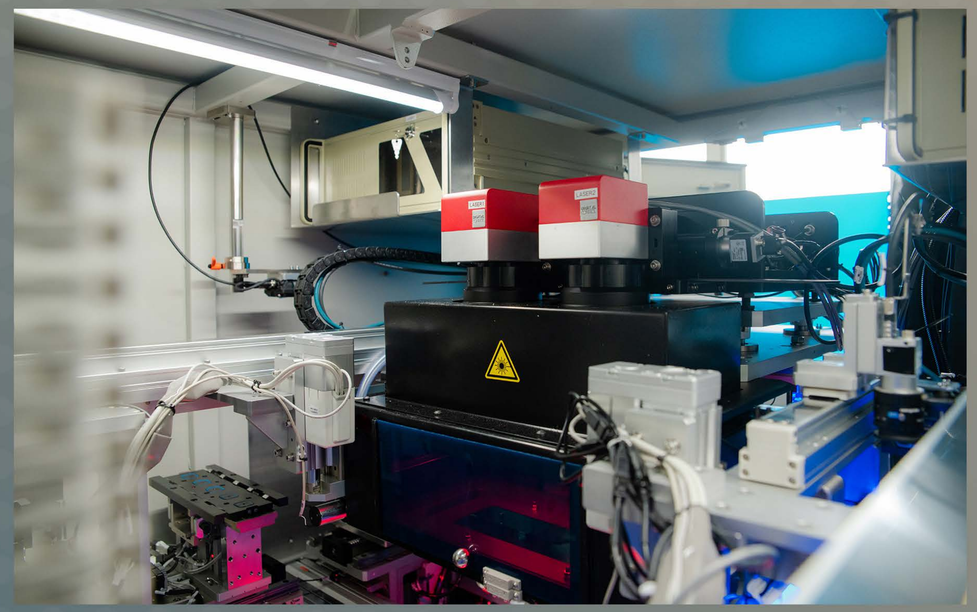
Features

- Fiducial Check
- Vision check
- Orientation check
- Laser processing
- Verification of 2D DataMatrix
- Pre/post laser marking inspection
- OCR Reading

Advantages

- Eliminating tolerance associated with mechanical movements.
- Reducing processing time, delivers much higher throughput.
- Small work envelope requirement with compact design.
- Scalable processing heads with simultaneous and concurrent laser process for big area coverage.
- Software in-built with powerfull image processing.

Dual Head Leadframe Substrate Marker



Laser Deflashing

Handler Specification

IDI Laser Services' Strip laser De-Flashing system is a fully developed, all-in-one automatic strip laser marking system. This machine design is catered for stack magazines only. The system comes with an orientation vision inspection. The machine is unique as it fully utilises the laser marking field to give the maximum utilization of the laser marker. The system is good for low cost and high volume production. It is also able to cater for different strip sizes by means of conversion.

Magazine unloader

Magazine type: Stacked Magazine
Magazine width range: 30mm – 95mm
Magazine length range: 180mm – 295mm
Magazine height range: 290mm – 400mm

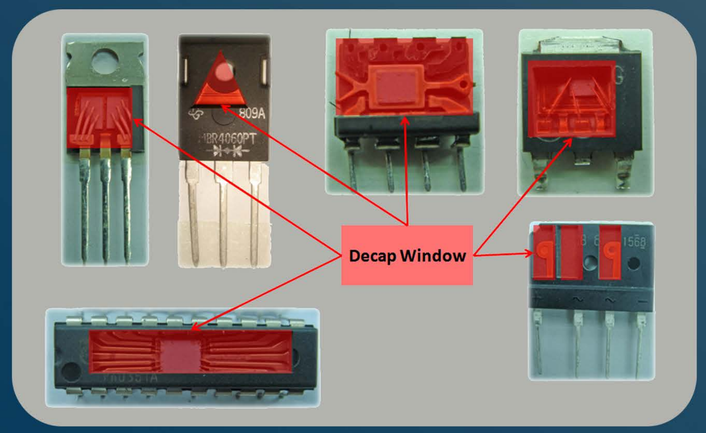
Loader/Unloader Pick & Place

- High speed stack and slot magazine loading/unloading system
- Pre-mark clamping- reduces warpage with a mechanical jig and vacuum suction
- We are able to customise your machine with UV, Green, and Fiber laser heads
- Our customised build can be as small as 1650mm (H) by 2400mm (W) by 1600mm (L)
- Fully custom software suite with various customisable parameters, easy to pick up and use, fully configurable based on operations
- Can accommodate different sizes of leadframes and all packages ranging including QFN, SOT, PDIP, SOD, SOJ, VSOP, TSOP
- Integrated CO-AXIS Machine Vision with high-accuracy
- Proprietary dual-head marking system for increased efficiency and marking speed

Laser Grooving and Drilling

Laser Decapping

IDI Laser's Laser Decapping System (Decap) is a system produced with the know-how of a team that has been working on laser solutions for the past two decades.. This system is suitable for Failure Analysis Laboratories in the semiconductor and microelectronics industry. Generally, current users are using conventional decapping mediums, which are Sulfuric & Nitric Acid, or both in combination with correct mixing ratio. However, these acids are extremely hazardous especially when operated in high temperature.
Sometimes the result provided is by acid decapping is rather inconsistent or not uniform. Furthermore, maintenance and consumable costs for the acid decapping system is always a main concern for the owners. Thus, our team has chosen to innovate with the introduction of our Decap system, a better choice for consistency and cost reduction.



Features & Applications

- Customised and self-developed XY platform of high precision and straightness
- Customised and self-developed external optical path
- Automatic focusing function to adapt to substrate surface and height changes during moving, ensuring the processing effect of the product's modified layer
- Seamless loading and unloading
- Fully automatic operation, customisable laser source and machine specifications
- Wide variety of customisation options
- Enhanced variations of offload processing methods
- Can be built to handle small packages
- Capable of correcting product offset and optimising cut accuracy via integrated machine vision

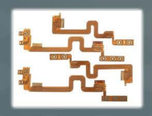
FPC Inline Cutting

Features

- Contactless processing without mechanical stress or deformation
- Able to process complex geometries
- Flexibility in processing and adapting to design change
- Vision System allows for high-precision
- Optional Laser Source
  UV, Green and Fiber

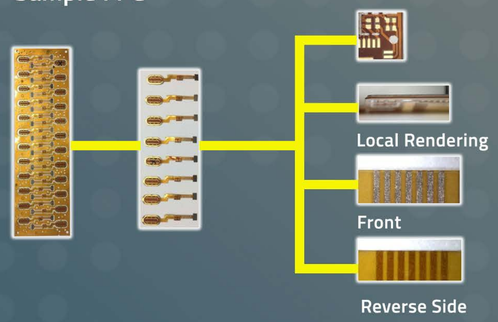
Application Examples

FPC Cutting

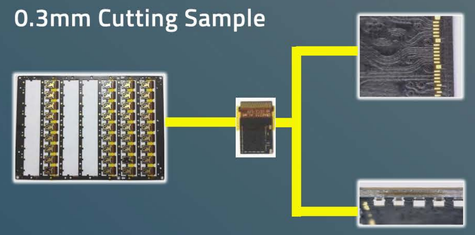


Soft and hard combination/ hard boardcutting

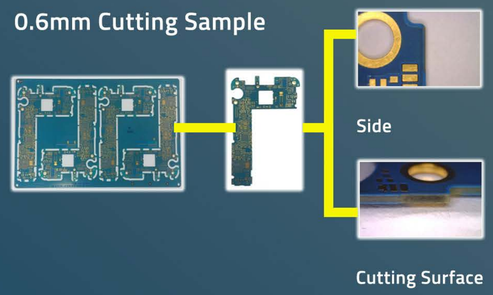
Sample FPC



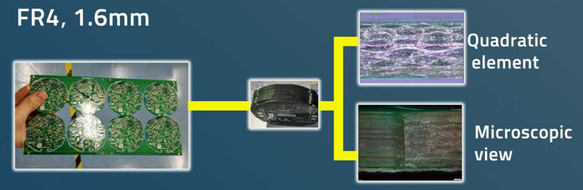
0.3mm Cutting Sample



0.6mm Cutting Sample

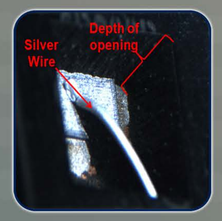


FR4, 1.6mm

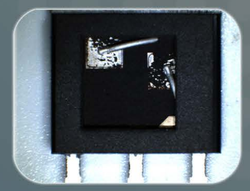


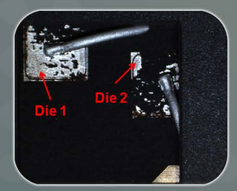
IC Packages After Decapping

- Decapping speed is approximately 5mins. Laser decapping as compared to acid decapping is – acid decapping needs to consume very much of acid (nitric or sulfuric) to achieve this depth of opening. Furthermore, by doing such thick mould IC package, the risk of getting the drainage system clogging is very high. With our laser decap, we eliminate your worries.



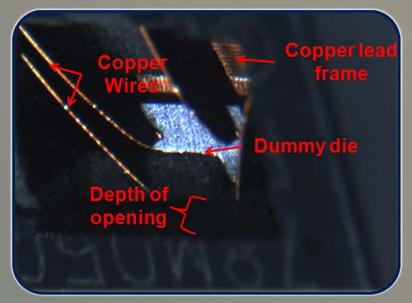
- The decapping speed is approximately 4 minutes. With sufficient information from end users, such as package outline drawing, mould thickness, die size, etc, we are able to do a selective decapping function using our software. User can define the ROI or decapping area.



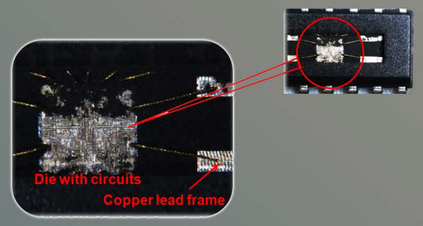


Laser Decapping

- The decapping speed is approximately 3.5 mins With our software, we can design and assign the size of openings.



- The decapping speed is approximately 6 mins. Our laser decapping system can program to variable speed and power to reduce the risk of damaging the die surface



Comparison Between Laser Decap and Acid Decap

	Laser Decap	Acid Decap
Rubber Mask (For opening size)	Do not need any masking to perform any kind of shape or size of opening	Custom made shape and size needed for selective package type and size.
Decapping mode	Available in semi-auto or fully auto mode. Users can define the laser power and speed by using our software.	Only fully auto mode is available.
Decapping speed	Approximately 300mm per second, subject to the size of opening. Average decapping speed for thick mould package, about 2~10 minutes.	For thick mould package, acid takes longer time. Laser decap takes 4mins to decap, but acid decap takes more than 8mins.
Parameters & settings	Unlimited pre-program recipes can be saved into hard drive memory. User can select the designated IC packages to perform the decapping.	Maximum storage of recipe is limited to 99 only.
Setup duration	IC package to decap is placed on a holder, call-out the pre-program recipe from our software. Pree start to perform the decapping.	Place the IC package guide into the etching head. Then, place the rubber mask onto etching head before placing the IC package onto it. All these steps have to be done carefully, as mis-alighment will result to uncertain or non-uniform decapping. Select the parameter from memory storage. After setting, user has to wait for the acid to be heat up. Upon reaching the set temperature value, then ecapping can be started.
Maintenance & Consumables	No regular maintenance is available. Only yearly maintenance needed.Laser source running hours is approximately 10,000 hours. Consumables are lens and optics which are subjected to environment of the system. Normal circumstances, they last more than 1 year.	The regular maintenance jobs include, system drainage (may clog due to melted mould transported from glass tube into the waste collector), acid pump, wastage pump, ceramic etchinig head, etc. The common consumables includes, rubber mask (MOQ100 pieces).

Specification

PCB Marking

Please Contact us for the Full Brochure!

PCB Laser Marking System

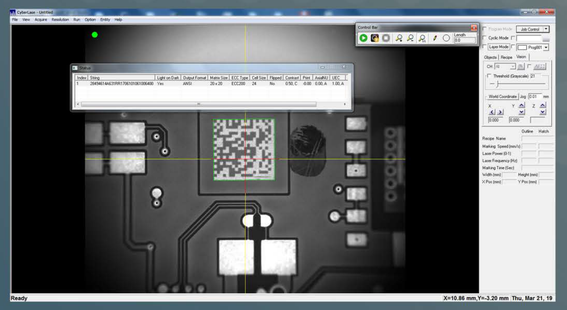
IDI Laser's PCB Laser Marking system comes with a conveyor for PCB/PCBA marking. It also comes as a standalone with board destacker and stacker with capability to mark PCB. With programmable servo driven X-Y tables it allows for precision multiple laser firing positions over a wide area of the PCB. Both systems incorporate state-of-the-art laser, optics and servo control software.

- Larger Head Moves Along X, Y to Mark on Large Area
- PCB is Moved by Conveyor Track and Position with the CCD System

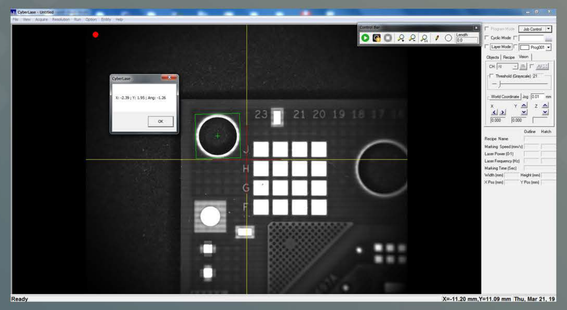
CCD Camera

Software Features

Barcode Check



Fiducial Check



- Friendly HMI, fast programming, coordinates template editable with the imported information.
- Positions automaticaly with the feature points on the PCB, and is able to recognize the PCB Positions
- Download marks data automaticaly from the information system.
- Checks the barcode after marking and feeds the information back.
- Waste PCB recognition and avoids remarking Real time display of the marking results, and outputs the production statistical data.