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Home (/) > FPC depaneling



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FPC Laser Depaneling Machine

Product description: FPC Laser Depaneling Machine

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FPC Laser Depaneling Machine, CWVC-5L

PCB depaneling (singulation) laser machines and systems have been gaining popularity over recent years. Mechanical depaneling/singulation is done with routing, die cutting, and dicing saw methods. However, as the boards get smaller, thinner, flexible, and more sophisticated, those methods produce even more exaggerated mechanical stress to the parts. Large boards with heavy substrates absorb these stresses

better, while these methods used on ever-shrinking and complex boards can result in breakage. This brings lower throughput, along with the added costs of tooling and waste removal associated with mechanical methods.

Increasingly, flexible circuits are found in the PCB industry, and they also present challenges to the old methods. Delicate systems reside on these boards and non-laser methods struggle to cut them without damaging the sensitive circuitry. A non-contact depaneling method is required and lasers provide a highly precise way of singulation without any risk of harming them, regardless of substrate.

Challenges of Depaneling using Routing/Die Cutting/Dicing Saws

- Damages and fractures to substrates and circuits due to mechanical stress

- Damages to PCB due to accumulated debris

- Constant need for new bits, custom dies, and blades

- Lack of versatility – each new application requires ordering of custom tools, blades, and dies

- Not good for high precision, multi-dimensional or complicated cuts

- Not useful PCB depaneling/singulation smaller boards

Lasers, on the other hand, are gaining control of the PCB depaneling/singulation market due to higher precision, lower stress on the parts, and higher throughput. Laser depaneling can be applied to a variety of applications with a simple change in settings. There is no bit or blade sharpening, lead time reordering dies and parts, or cracked/broken edges due to torque on the substrate. Application of lasers in PCB depaneling is dynamic and a non-contact process.

Advantages of Laser PCB depaneling/singulation

- No mechanical stress on substrates or circuits

- No tooling cost or consumables.

- Versatility – ability to change applications by simply changing settings

- Fiducial Recognition – more precise and clean cut

- Optical Recognition before PCB depaneling/singulation process begins. CMS Laser is one of the few companies to provide this feature.

- Ability to depanel virtually any substrate. (Rogers, FR4, ChemA, Teflon, ceramics, aluminum, brass, copper, etc)

- Extraordinary cut quality holding tolerances as small as < 50 microns.

- No design limitation – ability to cut virtually any size PCB board including complex contours and multidimensional boards

Specification

Parameter		
Technical parameters	Main body of laser	1480mm*1360mm*1412 mm
	Weight of the	1500Kg
	Power	AC220 V
	Laser	355 nm
	Laser	Optowave 10W(US)
	Material	≤1.2 mm
	Precisio	±20 μm
	Platfor	±2 μm
	Platform	±2 μm
	Working area	600*450 mm
	Maximum	3 KW
	Vibrating	CTI(US)
	Power	AC220 V
	Diameter	20±5 μm
	Ambient	20±2 °C
	Ambient	< 60 %
	The Machine	Marble

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