GD450 LASER MARKING SYSTEM

PCB online automatic laser marking machine

Model No.GDK-C450F（CO2)

Overview：

The fully automatic laser marking machine is a professional equipment for marking 1D code, QR code, text, symbol or graphic on the surface of PCB. It consists of laser marking system, XY precision motion platform, MARK+CCD precise positioning system, transmission track automatic adjustment system and online reading system.

Features:

*** Fully automatic control, PC + QC software control, Windows 7 operating system.**

*** Optional CO2/FAYB/UV laser marking system with XY precision positioning and CCD+MARK precise positioning.**

The marking position accuracy is less than 0.02mm. (This case uses a CO2 laser)

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*** Can print Chinese characters, English, numbers, charts, serial numbers, LGOG, barcodes, QR codes, etc.**

*** Can access the shopfloor\MES system.**

* Support for document import such as Geber, DXF.

* Supports marking different types of materials such as PCB, FPC, and metal shield.

* Features high quality, high yield, high stability, no production consumables.

Software operation characteristics

*** Edit template visualization operation is displayed on the PCB in real time, so the editor can look at the marking area to adjust the size, text position, text spacing and so on. User-friendly operation is very strong. It is fast and adapts to various bar code rules. It takes about 3 minutes to edit a template.**

*** All editors use CCD visual painting operation, which is intuitive, simple and convenient.**

*** With anti-gravity printing data function, avoid repeated marking of bar code information.**

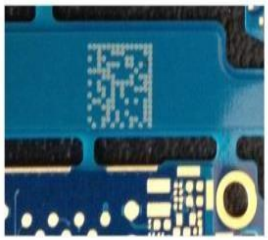
*** Bar code engraving has an array function, simple and fast. It is convenient to engrave multiple boards, or a variety of bar codes.**

*** You can palletize the barcode to any PCB position. It can realize the function of moving the current position to the position in real time. It does not need the coordinate, modify the data and change the coordinate data, but intuitively drag and drop the barcode to the corresponding The location is OK and the operation is very intuitive.**

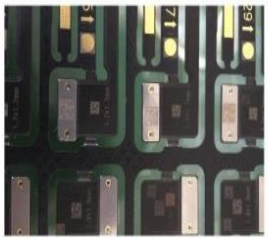
Application areas:

***Laser PCB marking** ***Laser component marking**

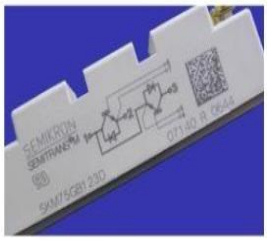
***Laser ceramic marking** *** Laser plastic marking Laser metal marking.**



激光PCB打標



激光元件打標



激光陶瓷打標

激光塑膠打標

激光金屬打標

BENTEC LTD

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CO2 laser (**USA Synrad**)

Laser Machine： Synrad’s 48-series

Rugged & reliable

More than 50,000 applications worldwide

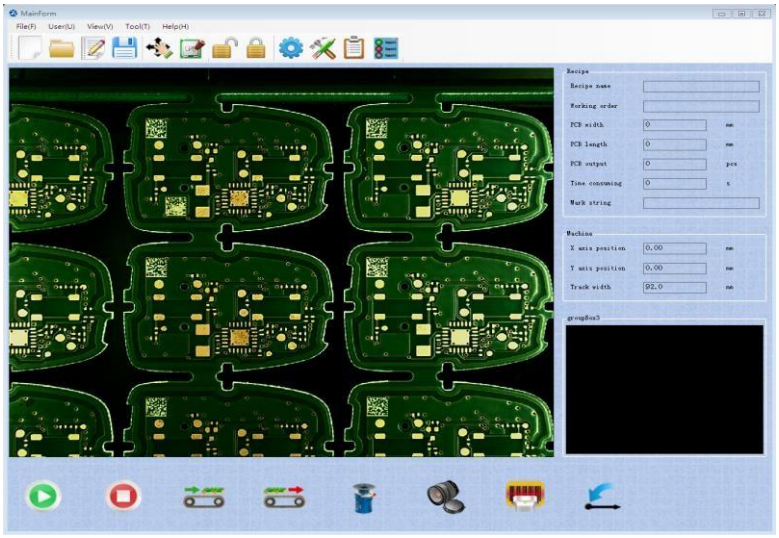
Service life : more than 40,000 hours

Transmission track (using TBI imported screw, imported TBI slide)

Stepping + screw accurately control the width of the plate, and at the same time it can fit the positioning of the workpiece in the Y-axis direction. The working position of the guide rail has a top plate device to ensure that the workpiece is accurately positioned on the laser focal plane when marking the workpiece with different thicknesses to ensure the printing effect.

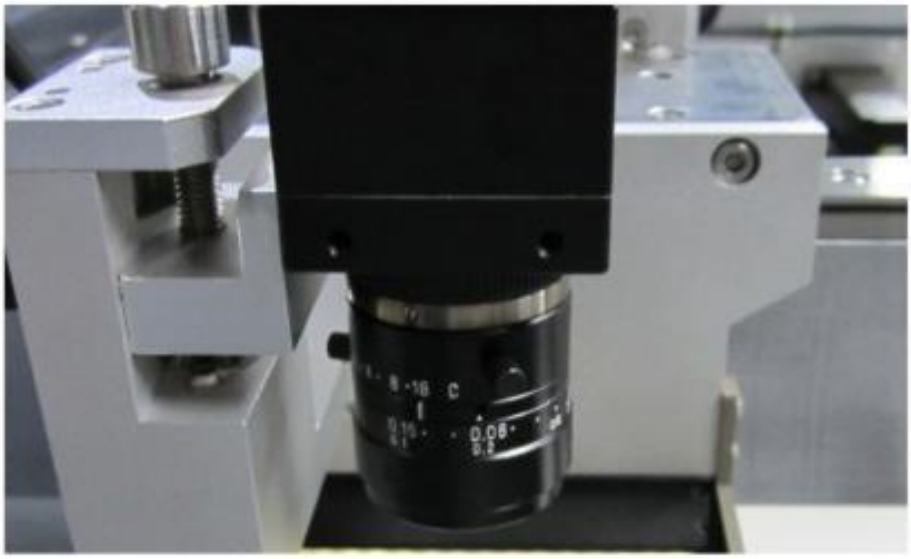
Operating software

The vivid and easy-to-use graphical interactive interface is full-featured and easy to operate. It can be imported into Gerber file programming, and optional offline image editing mode can be edited and debugged at any time.



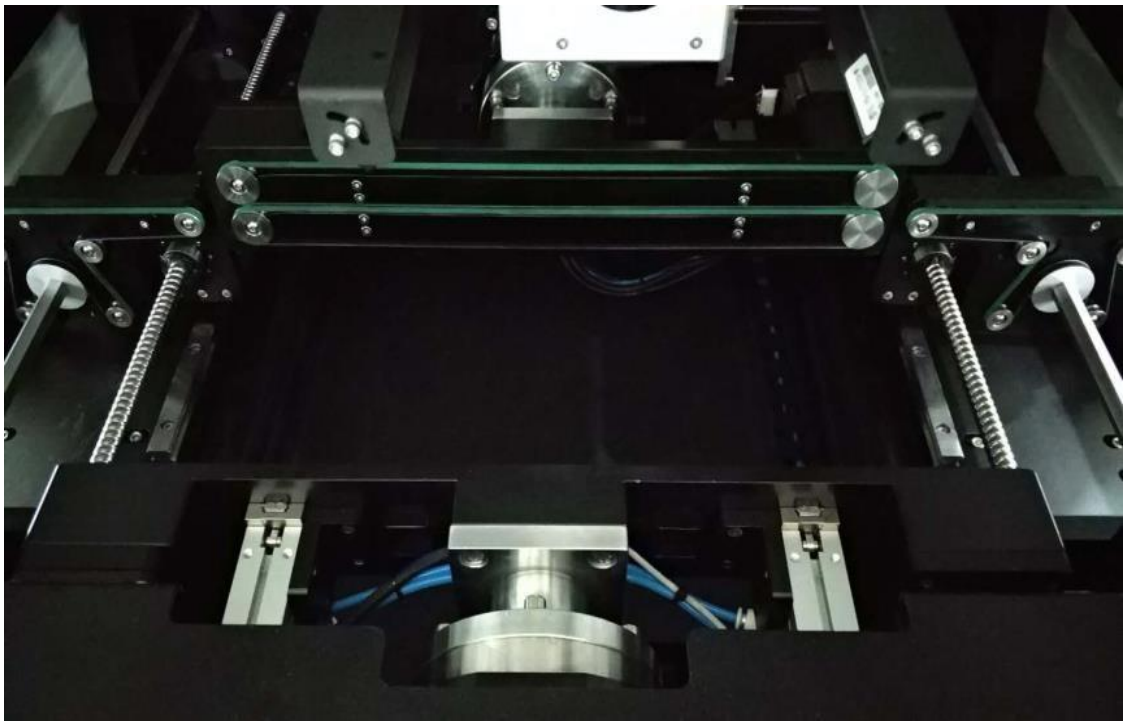
CCD system (using German IMAGING Industrial Camera)

High resolution color industrial camera + visual image processing system + CCD positioning system, bar code reading and inspection system.



Flipper mechanism

The adoption of SAMSR hollow turnover mechanism can ensure the horizontal precision of turnover up to 0.02mm, to prevent the situation that the turnover is not in place or not horizontal.



Processing advantages

After focusing, the extremely thin laser beam is like a cutting tool, which can remove the surface material of the object point by point. The advancement is that the marking process is in non-contact processing and avoid damage caused by mechanical extrusion or mechanical stress. Since the focusing laser has a small spot size, a small heat-affected area, and fine processing, it can fulfill the perfect process.

Low cost, fully automatic, easy to operate

The tool used in laser machining is the spot after focusing. The processing speed is fast, and only the power consumption is required, no additional equipment and materials need to be added, and the processing cost is low. Laser processing is automatically controlled by a computer and requires no human intervention during production.

Easy product identification

The laser-marked information and symbols will not be dissipated due to the harsh environment, and the information can be permanently maintained. The laser can mark the unique serial number,

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Supervision number, and easy product identification and traceability. Conventional processes are difficult to mimic the unique effects of laser marking, so laser marking is superior in terms of security.

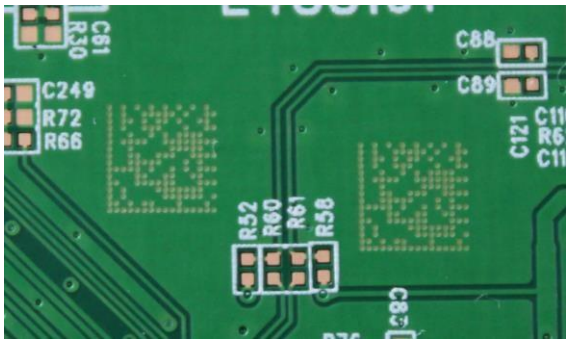
Meet environmental requirements

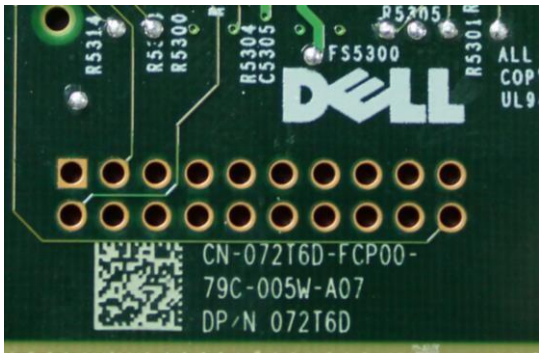
Laser processing is non-toxic and harmless. The processed products exceed the environmental protection requirements of various countries. It is a safe and clean processing method, and there is no need to worry about the export restrictions caused by silk screen and corrosion.

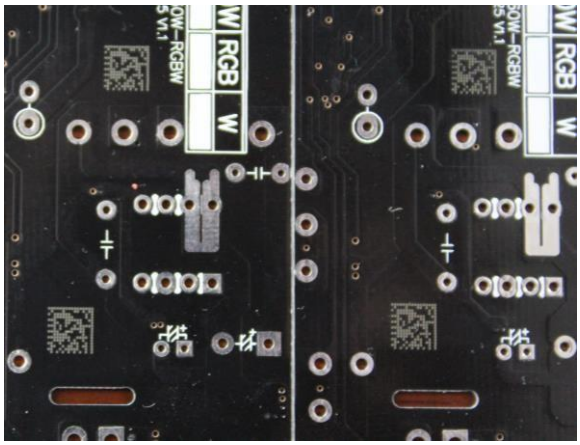
Achieve zero backlog inventory

Laser processing is flexible and easy to control. It is controlled by computer and has no minimum processing volume requirements. You can mark products for different customer orders, which can easily achieve flexible customization and differentiated production, thus reducing the risk of product backlog.

The engraved sample pictures are as follow







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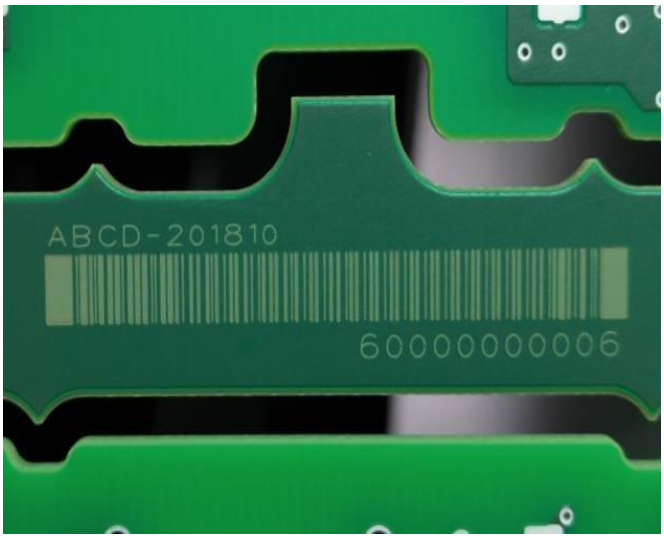

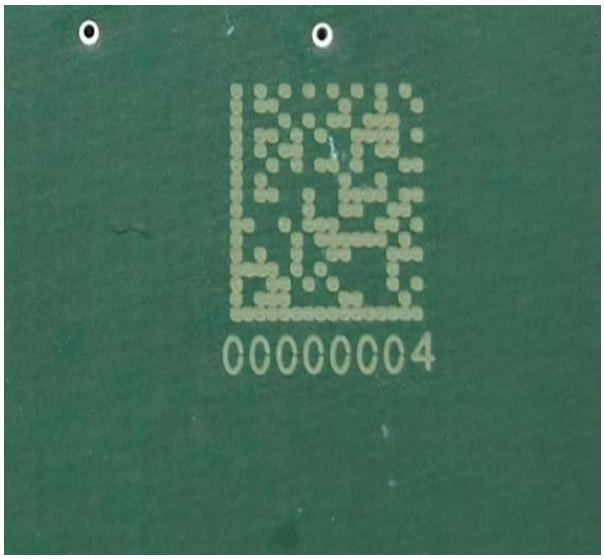

Main technical parameters of PCB online laser marking machine

Model No:GDK-C450F (CO2)

Item	Parameter	Remarks
——●**Host specification**		
Host size approx.	Left to right width: 900mm Front to back depth: 1760mm Up to down height: 1650mm (machine body height) (excluding three-color lamp height)	Direction: left to right Right to left (optional)
Machine weight	About 650KG	
Machine power	Power: 1.5KW Power supply: single phase 220VAC, 50Hz	

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Item	Parameter	Remarks
Machine air source	5-7Kgf/cm2 OR 0.5-0.7MPa	
Pipeline working height	900±20mm adjustable	
Lens height focal length adjustment	Manual adjustment Adjustment range: plus or minus 10mm	Automatic adjustment (optional)
Pipeline flow path width adjustment	CNC automatic adjustment	
Flow path transfer speed	Max： 1000mm/s	
Smoking tube specifications	2 inches	
——●PCB requirements		
Applicable PCB specifications	Min： 50mmX50mm Max： 450mmX450mm thickness： 0.5-3mm	
Flipper function	**including**	
PCB maximum allowable weight	<=2kg	
PCB allowable deformation	<5mm	
Track transfer speed	50-3000mm/min	
The maximum height of the board surface components on the PCB (excluding the board thickness)	15mm	
PCB bottom surface board component maximum height (excluding board thickness)	15mm	
Mechanism repeatability	Positive and negative 0.02mm	

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Item	Parameter	Remarks
X-Y motion speed	1000mm/s	
System access	To access intelligent management systems such as Shopfloor, MES, and IMS	
Laser type	**CO2 laser, wavelength 10640nm**	
Laser power	10W	
Laser spot diameter	CO2 0.08mm	
Printing angle	360 degrees	
focal length	100mm	
cooling method	Forced air cooling	
Scanning range of the laser scanning head	60mmX60mm	
Laser scanning field lens standard focal length	f=100mm	
Positioning system	CCD+mark positioning	
Online reading function	Yes	
Marking accuracy	Up/down left/ right direction ± 0.02mm	
Bar code compatible	One-dimensional code, two-dimensional code, graphics, text, etc.	
Marking time	4-piece plate, 9 seconds in and out of the board (including positioning + marking + reading, from the PCB board completely into the device, to the time of the device)	

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Item	Parameter	Remarks
Track width adjustment system	auto-adjust	
Control System	PC+ solid high motion axis card + Panasonic servo motor	
Transmission direction	Left to right, right to left (optional)	
——●Software and network		
Computer operating system	Windows7 Simplified Chinese version	
Coded operating software	R-TEK self-developed software	
Computer support network type	Ethernet	
surroundings	Natural environment	
——●Environmental requirements		
Temperature	0-40 ° C, no condensation, no icing	
Humidity	35-85% RH no condensation, no icing	
Transportation and storage environment	This series of machines can be transported and stored in the range of -25 to 55 ° C. Within 24 hours, it can withstand temperatures up to 65 ° C.	
——●**Dust extraction system**	Independent ventilation (standard)	
Air volume	⩾5 cubic/min	

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Item	Parameter	Remarks
Main configuration list		
Item	Brand and model	Remarks
Laser device	USA Synrad 48-1 10W	CO2
Industrial computer	YanHua Industrial Computer	I5 processor, 4G RAM, 500G hard drive
industrial camera	German IMAGING DFK 33 Series	
Galvanometer	Galvotech (standard configuration) Germany Raylase(optional for extra cost)	
Screw	Taiwan TBI screw 20*20	
Slide rail	Taiwan PMIMSA20S	
servo motor	Panasonic Servo Motor A6/400W	
Transport motor	Japan Samsr	
Light eye	Panasonic reflected light eye	
Motion control card	Googol Tech GTS400	
Marking card	JCZ PCIE Digital Card	
controlling software	R-TEK self developed software	

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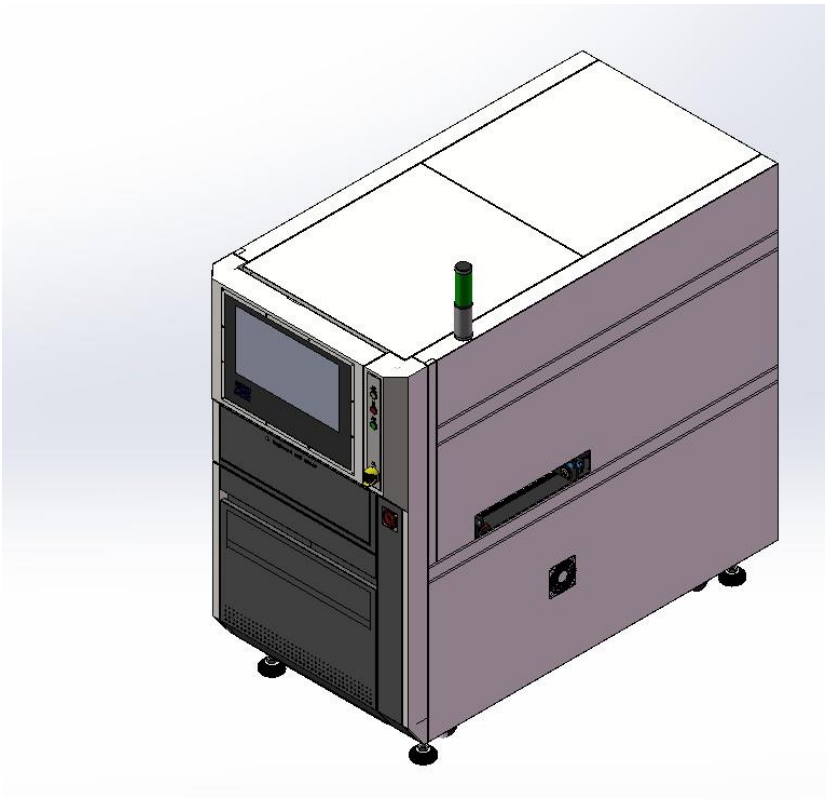
Laser machine outline Picture: