

# Small and Medium Power Laser Equipment Brochure

Precision Laser Cutting / Laser Resistor Trimming / Silver Paste Etching / Laser Marking / Laser Wire Stripping



SUZHOU TIANHONG LASER CO.,LTD

## BETTER TIANHONG BETTER LASER

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Suzhou Tianhong Laser Co., Ltd. is a global leading integrated laser solutions provider, founded in January 2001, with a registered capital of 72.32 million yuan and more than 70,000 square feet of property. There are six factories, one software company and one sub-brand company under the group, including Suzhou Tianhong headquarters, Suqian Tianhong, Zhejiang Tianhong, Guangdong Tianhong, Guangdong Xin Shijie, Zhangjiagang Collect, Suzhou Tianzuo Data and Suzhou ECO2 Laser; It has nine types of standardized intelligent equipment production bases, including: high power laser cutting, laser tube cutting, small and medium power laser processing, laser welding, laser micro (precision) processing, laser cladding (remanufacturing), and laser welding, Laser micro (precision) processing, laser cladding (remanufacturing), laser quenching (strengthening), laser 3D printing, laser automation production line, etc. Tianhong Laser focuses on the development, manufacturing and service of industrial intelligent equipment.

Our technologies cover: software, mechanical, electrical, motion control, robotics, laser, optics, image, material, laser process, etc.



Suzhou headquarter



Guangdong company



Zhejiang company



Suqian company



Company Showroom



Factory workshop



9	2001	Suzhou Tianhong Laser Co., Ltd. established to carry out small and medium power laser marking business
$\Diamond$	2004	Start solid-state laser welding machine business
þ	2007	Laser micromachining business starts, enter into semiconductor field
<b>\rightarrow</b>	2008	Certified as "National High and New Technology Enterprise"; Awarded as "Jiangsu Private Technology Enterprise".
<b>\</b>	2009	Conducted laser cutting machine development; Joint-stock company officially established
	2011	Certified as Suzhou Industrial Park "Double Hundred Project" science and technology enterprise; Awarded as Jiangsu famous trademark enterprise and Suzhou famous brand product enterprise; Started laser cladding cooperative development business
$\Diamond$	2012	Certified as "Jiangsu Province Laser 3D Forming and Microfabrication Engineering Technology Research Center"; Cooperated with Suzhou University to set up Jiangsu Province Enterprise Graduate Workstation; in October, the company's new factory was completed.
$\Diamond$	2013	Completed the acceptance of the 12th Five-Year Plan 863 Project of the Ministry of Science and Technology "High Power and Picosecond Laser Industrialization Application Demonstration"; Started the business of intelligent automated robot production line
Ŷ	2014	Listed on the New Third Board of the National Stock Exchange System; "Tianzuo Data" subsidiary established
<b>\rightarrow</b>	2015	Acquired Collect to start 3D printing remanufacturing service, acquired CO2 laser business; Certified as Jiangsu Province's two integration demonstration pilot enterprise
$\Diamond$	2016	Selected as one of the "Gazelle Plan" enterprises in Suzhou; "OFweek 2016 Most Growing Laser Enterprise" award; awarded the "Star of Entrepreneurial Leadership" award by the New Third Board to establish a high-power high-speed cutting team
Ì	2017	Subsidiary Hengfast Laser (mass production of CO2 lasers); Tianhong Laser (Suqian) was established; certified as "Most Growing High-tech Enterprise"; certified as "Suzhou Top 100 Specialized and New Enterprise"; Certified subsidiary Tianzuo as "Software Enterprise"
	2018	Selected as one of the "Gazelle Plan" enterprises in Suzhou Industrial Park
$\Diamond$	2019	Selected as an excellent demonstration enterprise of science and technology innovation in Jiangsu Province
$\Diamond$	2020	Tianhong Laser (Guangdong) company established; Zhejiang Tianhong company established; Guangdong Xinshijie Power Technology Co., Ltd. was established.
9	2021	Zhejiang Lin Mu Automation Technology Co.Ltd established;Zhejiang Tianhong Laser Technology Co.Ltd officially put into establishment

## CORPORAT STYLE



The equipment is exported to more than 30 countries and regions With 4 R&D and production bases



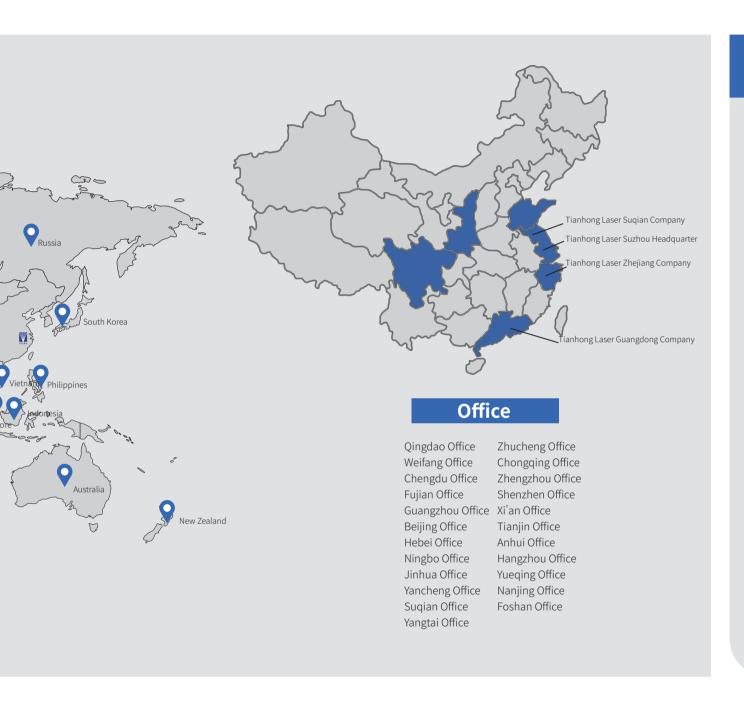




Malaysia customer visit

Marketing activity

Company reunion









Industrial park leadership inspection



863 project acceptance

## Semiconductor industry series equipment

**BETTER TIANHONG BETTER LASER** 

## **Wafer Laser Cutting Machine**

#### Features

- » High scribing speed with high efficiency and low defective rate
- » Non-contact processing without mechanical stress, thus improving wafer quality
- » CCD high speed positioning, real-time coaxial or paraxial monitoring function
- » High accuracy 2D linear motion platform and high accuracy DD rotation platform
- » Marble base with high stability and low thermal deformation
- » CNC control
- » Friendly interface and easy to operate
- » Scribing technology expert system
- » High reliability and stability
- » Equipped with automatic splitting equipment, easy to operate with high efficiency

#### **Application field**

Widely used in the scribing of integrated circuit wafers, GPP wafers and TVS wafers.



Model	TH-5212	TH-5221	TH-5210
Laser source	IR	IR	UV
Wavelength	1064nm	1064nm	355nm
Laser power	20w/30w	20w/30w	5w/10w/17w
Max. Wafer dimension	5 inch (6inch compatible)	4 inch	4 inch
Scribing speed	150mm/s、200mm/s	150mm/s、200mm/s	30mm/s、60mm/s、100mm/s
Line width	35~45μm	40~50μm	20~30μm
Line depth	< 120µm (depending on material)	50 -120μm	50-100μm
Positioning accuracy	±5μm	±5μm	±5μm
Repositioning accuracy	±2μm	±2μm	±2μm
Laser service life	100,000 hours	100,000 hours	12,000 hours
Dimension	960*730*1740mm	960*730*1740mm	960*730*1740mm
Total weight	660kg	660kg	660kg

## **Wafer Laser Cutting Machine**

#### Features

- » This equipment is a high-end automatic slicing equipment mainly developed for GPP wafers, equipped with double-sided CCD recognition function
- » CCD function solves the process that traditional equipment needs to etch line grooves on the back of the wafer for alignment cutting, and can be cut without back grooves
- » At the same time, it can integrate the CCD alignment wafer backside etching line groove cutting function, and one machine can be used for two purposes
- » Equipped with automatic splitting equipment, easy to operate with high efficiency

#### **Application field**

Widely used in scribing of GPP wafers.



Model	TH-4212
Laser source	IR
Wavelength	1064nm
Laser power	20W/30W
Max. Wafer dimension	4 inch
Scribing speed	150mm/s、200mm/s
Line width	40~50µm
Line depth	50-120μm
Positioning accuracy	5μm
Repositioning accuracy	2μm
Laser service life	100,000 hours
Dimension	1280x900x1620mm
Total weight	700kg

## **Full Automatic Wafer Laser Cutting Machine**

#### Features

- » Automatic loading and unloading, automatic alignment and scribing » Friendly interface and easy to operate speed, high efficiency, reduce fragmentation rate
- » Non-contact processing without mechanical stress, thus improving » High reliability and stability wafer quality
- » CCD quick positioning function
- » High accuracy 2D linear motion platform and high accuracy DD rota- » Wafer backside scribing cross alignment function
- » Marble base with high stability and low thermal deformation
- » CNC control

- » Scribing technology expert system
- » Upgradable double-sided CCD recognition
- » Equipped with automatic splitting equipment, easy to operate with high efficiency

#### Application field

Widely used for scribing and cutting of IC wafer, GPP wafer and Low-K engraving.



Model	TH-6212
Laser source	IR
Wavelength	1064nm
Laser power	20w/30w
Max. Wafer dimension	5 inch (6inch compatible)
Scribing speed	150mm/s、200mm/s
Line width	35~45μm
Line depth	< 120µm (depending on material)
Positioning accuracy	±5μm
Repositioning accuracy	±2μm
Laser service life	100,000 hours
Dimension	960*730*1740mm
Total weight	660kg

## **Full Automatic Wafer Laser Cutting Machine**

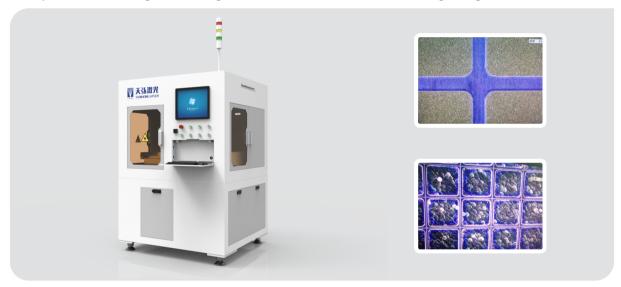
#### Features

- » Automatic loading and unloading, automatic alignment and scribing speed, high efficiency, reduce fragmentation rate
- » Non-contact processing without mechanical stress, thus improving wafer quality
- » CCD quick positioning function
- » High accuracy 2D linear motion platform and high accuracy DD rotation platform
- » Marble base with high stability and low thermal deformation
- » CNC control

- » Friendly interface and easy to operate
- » Scribing technology expert system
- » High reliability and stability
- » Upgradable double-sided CCD recognition function
- » Wafer backside scribing cross alignment function
- » Equipped with automatic splitting equipment, easy to operate with high efficiency

#### Application field

Widely used for scribing and cutting of IC wafer, GPP wafer and Low-K engraving.



Model	TH-8211	TH-8212
Laser source	UV	UV
Wavelength	355nm	355nm
Laser power	10w/15w/30w	10w/15w/30w
Max. Wafer dimension	5 inch (6inch compatible)	5 inch (6inch compatible)
Scribing speed	1000/1500/3000mm/s	50/80/100mm/s
Line width	150-300μm	20-40µm
Line depth	< 10µm (depending on material)	< 120µm (depending on material)
Positioning accuracy	±5μm	±5μm
Repositioning accuracy	±2μm	±2µm
Laser service life	12,000 hours	12,000 hours
Dimension	1260*1160*1820mm	1260*1160*1820mm
Total weight	1500kg	1500kg

## **Wafer Laser Marking Machine**

#### Features

- » This equipment is mainly aimed at the etching of graphics and logos in semiconductor wafers, and uses the corresponding precise positioning and identification system to realize automatic identification of processed parts.
- » Using a multi-axis robot or a handling module to realize the automatic unloading function and complete automatic processing.

#### Application field

Widely used for wafer graphics and wafer logos etching processing.



Model	TH-JYA-FLMS20	TH-JYB-FLMS20	TH-JYB-FLMS3	TH-JYB-FLMS5
Laser source	I	R	U	V
Wavelength	106	4nm	355	nm
Laser power	20W/30W		3W,	′5W
Standard position accuracy	±0.1mm			
Reclaimer	Six-axis manipulator		Multi-axis se	ervo module
Positioning method	CCD Contour Positioning CCD			
Dimension	1200x1600x2000mm		1280x850	x1700mm
Laser service life	100,000 hours		15,000	hours

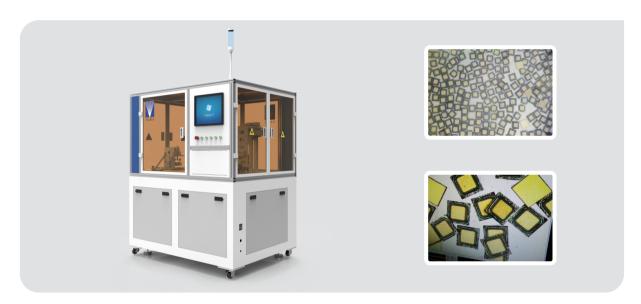
## **Automatic Wafer Edge Stripping Machine**

#### Features

- » This equipment is a high-end automatic splitting equipment mainly developed for GPP wafers; it is equipped with automatic loading and unloading, Z-axis pressure sensing, visual angle correction, double-wafer detection, and automatic liquid spraying functions;
- » The equipment has high mechanical yield and fast splitting efficiency;
- » Friendly interface and easy to operate
- » Process parameters can be stored and retrieved, easy to operate;
- » Pressure value sensing, can be displayed as a graph;
- » Automatic drainage system.

#### **Application field**

Widely used in the edge stripping of integrated circuit wafers and GPP wafers.



Model	TH-LP-05
Stick diameter	10-30mm can be customized
Stick material	Stainless steel
Receiving method	Belt conveyor / stack collection
Max. Wafer dimension	5 inch
Max. Wafer thickness	400um (depending on the material)
Wafer Alignment	CCD image capture target, automatic angle correction
Wafer alignment accuracy	±0.5°
Repetition pressure accuracy	±5N
Dimension	1500*1204*2415mm
Total weight	600kg

## New energy industry series equipment

**BETTER TIANHONG BETTER LASER** 

## Film Solar Cell Edge Laser Cleaning Machine

#### **Features**

- » The device can move the platform longitudinally and the optical box horizontally according to the need, so that the laser head can be scanned quickly under the designated area of the battery chip, and the film layer of the designated area of the battery chip can be removed by the vibrating mirror.
- » High degree of automation (optional automatic loading and unloading), high efficiency of the whole machine (processing efficiency increased by 300.
- » Laser scanning can only remove the film, and it cannot damage the film.
- » The film that has not been removed by laser is not damaged and polluted by dust.
- » After the workpiece edged by laser through the insulation performance test, insulation resistance value >1000M after lamination.
- » Dust removal effect: after edge cleaning, 400 times microscope is used to check the clear edge area without more than 1 micron pellet.

#### Application field

Suitable for film cell industry.



Model	TH-5212
Wavelength	1064nm
Laser pulse width (typical)	70ns, 10kH, 1064nm
Laser pulse stability	<3%(RMS) up to 15KHz
Output method	Single machine single laser single optical path output
Z-axis spot focal plane adjustment	Floating trimming
Average processing speed	200-400 mm/s
Average edge clearing efficiency	≤ 1 minute / board (edge clearing width ≤ 15mm)
Motion straightness	±10μm/m
Workbench flatness	50μm
Edge clearing accuracy	±0.1mm
Spot diameter	0.5-1mm
Spot shape	Square spot
Effective processing range	635mm X400mm (can be customized)
Resistance value	1000MΩ, 1000VDC
Chiller water supply	Deionized water

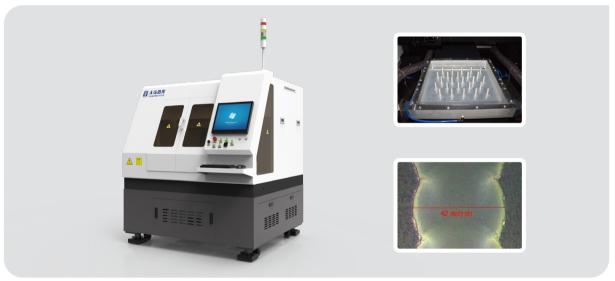
## Film Solar Cell Laser Processing Equipment

#### **Features**

- » In order to obtain high efficiency amorphous / microcrystalline sillicon laminated thin film solar cell, laser cutting is one of the key technologies to achieve the good performance of the components. The equipment of microcrystalline silicon thin film solar cells after the introduction of the P2, P3 (second and third) laser marking processing for high efficiency amorphous silicon / gain laminated microcrystalline silicon thin film solar cell module provides a good data base.
- » When the scribing process is performed, the substrate glass faces upward, and the coating surface faces downwards, and the laser marks the film surface through the glass.
- » The dust generated in the laser scribing process is sucked away from the lower side through the dust collector in real time.
- » Adopts CCD imaging system

#### Application field

Processing film: copper、indium、gallium、selenium、cadmium telluride、perovskite.



Model	TH-LPE-G-6000
Laser	532nm+1064nm
Processing format	450mmX450mm( can be customized )
Focus spot	≤ 0.02mm
Etching line width	<40um
Workbench positioning accuracy	±2um
Workbench repetition accuracy	±lum

## Display industry series devices

**BETTER TIANHONG BETTER LASER** 

## **Film Cutting Machine**

#### Features

- » Adopts sealed-off CO2 metal-encapsulated RF laser, which has a working life of more than 450,000 hours, and can be used for recycled circulation .
- » The maximum curve movement speed: 50000 mm/min, which is an artifact of both high speed and high stability.
- » The equipment optimizes the cutting path, supports the automatic overcut function of closed graphics, and ensures that the cutting seam is smooth and flat.
- » Standard configuration, including auto focus, red light preview, blowing auxiliary device, easy operation and more user-friendly characteristic.
- » The laser power and the engraving and cutting speed can be freely controlled, and the laser energy control: 0-100% can be set by the software.

#### **Application field**

Applicable to the mobile phone film industry, communications, consumer electronics, PMMA, packaging and printing, clothing, leather, computer embroidery cutting, models, templates, handicrafts, advertising decoration, paper products and other industries.



Model	32 inch-43 inch 43 inch-110 inch	
Processing format	600mmx700mm (can be customized) 2500mmx1600mm (can be customized)	
Laser power	30w/60	w/100w
Wavelength	9.3um/	10.6um
Positioning method	CC	CD
Driven method	Servo motor + screw Servo motor + rack and gear	
Positioning accuracy	±0.05mm ±0.05mm	
Repetition accuracy	±0.01mm	
Max. speed	≤ 60m/min	
Processing line width	0.1mm±0.02mm	
Electricity demand	Three-phase 380V/50HZ/3.5KW	
Dimension	1700x1600x1500mm 3760x2590x1340mm	
Weight	900kg 3250kg	

## **CO<sub>2</sub> Laser Die Cutting Machine**

#### Features

- » Imported laser source, with good cutting effect and long service life.
- » Imported galvo with fine cutting line, high speed and stability.
- » Equipped with ventilation system. Install the smoke pipe near the cutting point to extract the smoke generated during cutting.
- » Equipped with adsorption platform, which ensures plane cutting. Ensure that the PET film is flat and has no displacement during cutting and moving.
- » Easy to operate and environment protection.

#### Application field

Mobile shell side laser carving/engraving. Logo cutting of mobile, computer, etc.



Model TH-MQ-CO2LMS150	
Max. laser power	150w
Max. consumption	5KW
Engraving line speed	≤ 12000mm/s
Min. Line width	0.1mm
Min. character	0.5mm
Engraving range	80mmx80mm/100mmx100mm (optional)
Platform movement range	400x400mm (can be customized)
Platform movement speed	≤ 300mm/s
CCD positioning accuracy	±0.01mm
Platform repetition accuracy	±0.02mm
Electricity demand	220V/ single phase 50HZ/20A
Controlling method	Motion control card, Tianhong specialized die-cutting software
Cutting method	CO2 laser, galvanometer processing + XY platform processing
Positioning method	CCD positioning, 2D servo mobile platform
Automation degree	Manual loading, automatic engraving and cutting, manual reclaiming
整机外形尺寸	1040x1732x1672mm

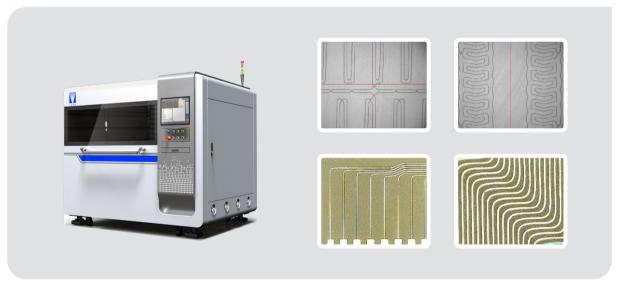
## **ITO Laser Etching Machine**

#### Features

- » The marble platform is driven by a linear motor to ensure the precision and stability of the high-speed operation of the equipment.
- » The multi-waveform adjustable pulse width version of the imported SPI laser ensures the consistency of the processing effect of different products.
- » The processing table can be customized, and the functions of double-head and multi-head equipment can also be customized.
- » Original German imported galvanometer to ensure processing accuracy and splicing effect.

#### **Application field**

Capacitive screen wire and visible area etching in capacitive touch panel, high-speed direct etching of silver paste, ITO, graphene, nanosilver, carbon nanotube, polymer conductive film and other materials on PET/ PC / PMMA / and glass substrates.



Model	TH-TPL2514-1	TH-TPL2514-2		
Laser	MOPA			
Working head	1	2		
Laser working mode	Pul	se		
Wavelength	1064	Inm		
Laser power	20	W		
Etching line width and line spacing	25μm~45μm (depending on processing material)			
Single field lens processing format	170X170mm/120X120mm			
Working platform	500X500mm/800X800mm (can be customized)			
Effective processing area	Can be transferred, width: 1400mm, length (customized on demand)			
Scanning accuracy	±5μm(f=	25φ170)		
Comprehensive positioning accuracy	±10	μm		
Repositioning accuracy	±2 <sub>1</sub>	μm		
Stitching accuracy	≤ 10um (splicing point can be set according to customer r			
Motion platform	Linear	motor		
Machining workpiece	Silver paste, ITO, nanosilver, graphene, etc. on PET substrate			
Electricity demand	Three-phase 380V/50HZ/5KW			
Dimension	1770X1420	X1810mm		

## Multi-head ITO Laser Etching Machine

#### Features

- » Using high-precision laser processing direct writing scanning technology, which is applied to various graphic direct writing and etching processing in resistive and capacitive touch panels.
- » With the array pattern of X-axis and Y-axis linear motor platform, it can simultaneously realize high-speed direct writing and etching processing of "Ag, ITO, nano-silver, graphene" which are applied to Glass or PET coil substrates. The equipment has high stability and high performance, high security, tenfold increase in production efficiency.
- » The equipment supports automatic loading and receiving system, which can realize full automatic processing. The equipment has optimized the adsorption platform and dust collection function for large-size products. It adopts a full marble table, bilateral drives, and supports high-speed target grabbing.

#### Application field

In the capacitive touch panel, applied in the etching of capacitive screen wire and visible area, and the high-speed direct writing and etching of materials such as silver paste, ITO, graphene, nano-silver, carbon nano-tube, polymer conductive film, etc. on PET/ PC / PMMA / and glass substrates.







Model	TH-LD-AGE2	TH-LD-AGE8	TH-LD-AGE10		
Laser		MOPA			
Working head	2	8	10		
Wavelength		1064nm			
Laser power		20W			
Etching line width and line spacing	30μm~45μm	(depending on processing	material)		
Single field lens processing format		170X170mm			
Working platform	86 inch	100 inch	100 inch		
Effective processing area	Can be transferred, width: 1400mm, length (customized on demand)				
Comprehensive positioning accuracy	±5μm				
Repositioning accuracy	±2μm				
Stitching accuracy	≤ 10um (splicing point can be set according to customer needs)				
Motion platform	Linear motor				
Processing positioning method	Automatically use CCD positioning system for automatic positioning and pattern adjustment processing				
Smoke-exhausting method	Independently design the smoke-exhausting system collection pipe to ensure a safe production environment				
Machining material	Silver paste, ITO, r	nanosilver, graphene, etc. o	n PET substrate		
Electricity demand	Tł	ree-phase 380V 50HZ 5kw			
Total weight	About 4000Kg	About 4000Kg	About 4500Kg		

## **Glass Laser Drilling Machine**

#### Features

- » Compact structure, small occupying space, easy to use. Originally from China, smaller and more flexible.
- » Basic configuration, using imported lasers from Europe and the United States, with 3D dynamic focusing galvanometer scanning system, the processing speed can reach 40 mm/s, cutting edge chipping ≤ 70um. Sub-picosecond laser cutting edge chipping ≤ 40um, processing size: 0.1mm-90 mm.
- » Intelligent CCD vision system, realizes automatic sluggish recognition, precise positioning and calibration, and CCD can be used for visual inspection.
- » Directly edit or import cutting programs, automatic counting function, set the number of cuttings at will and count the total number of cut products.

#### Application field

Suitable for drilling and cutting of various glass in optoelectronics, flat display, mobile phone, semi-conductor, medical, home appliances, solar energy, construction, automobile and other industries.



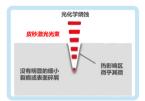
Model	TH-G-LD-30	
Cutting path	500×500 (mm)	
Processing positioning method	CCD positioning	
Wavelength	532nm	
Laser power	10w 12w 20w 30w optional	
Repetition accuracy	0.005mm	
Positioning accuracy	±0.01mm	
Machining chipping	≤ 70um	
Minimum hole diameter	0.1mm	
Single field lens cutting format	50mm×50mm	
Glass thickness range	≤ 6mm	
Electricity demand	Three-phase 380V/60Hz	
Dimension	1540x1460x1752mm	
Total weight	2300kg	

### **Infrared Picosecond Glass Laser Drilling Machine**

#### Features

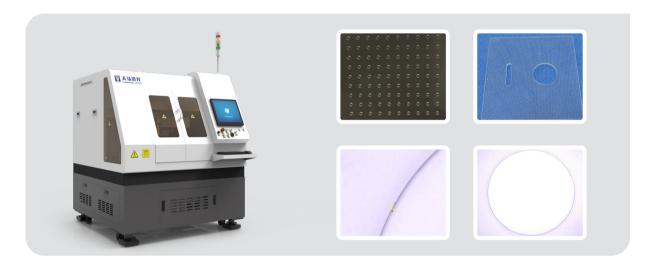
- » The laser adopts picosecond laser, which has small cutting edge chipping, high strength after cutting, and small heat affected area.
- » The optical path system adopts imported lenses to ensure high-quality optical transmission.
- » The machine is all made of marble stone, which has good flatness, is not easy to deform, and has strong shock absorption and shock absorption ability, ensuring the stability of equipment processing.
- » The equipment adopts imported high-speed galvanometer, which has high processing precision and good long-term stability.

#### 光热作用 <del>館材激光光東</del> 東面碎屑 銀小製痕



#### **Application field**

Widely used in smart phone glass cutting, tablet computer glass cutting, LCD TV glass panel cutting and other industries.



Model	TH-G-LD-ps-20
Cutting path	500×500 (mm)
Processing positioning method	CCD positioning
Wavelength	1064nm
Laser power	10w 20w 30w optional
Repetition accuracy	0.005mm
Positioning accuracy	±0.01mm
Machining chipping	≤ 20um
Minimum hole diameter	0.1mm
Single field lens cutting format	50mm×50mm
Glass thickness range	≤1mm
Electricity demand	Three-phase 380V/60Hz
Dimension	1540x1460x1752mm
Total weight	2300kg

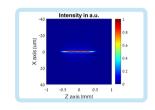
## **Infrared Picosecond Laser Wire Cutting Machine**

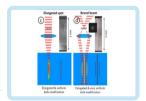
#### Features

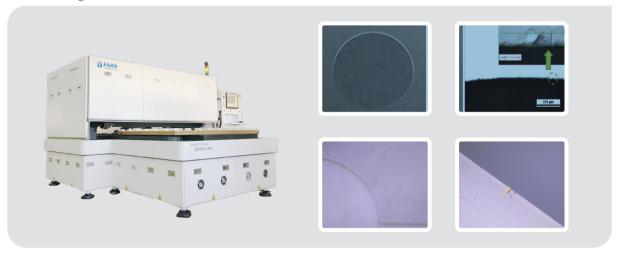
- » The equipment adopts marble platform. X/Y system adopts linear motor drive system to ensure the accuracy and stability of the platform while running at high speed.
- » Equipped with high-pixel CCD automatic alignment function to ensure product cutting alignment accuracy.
- » Imported high-power picosecond laser, PSO signal control mode, to ensure that the laser spot spacing is uniform when the platform accelerates and decelerates.
- » Adopt imported optical gas elements, with reliable quality.

#### Application field

This equipment is suitable for straight or special-shaped cutting of ordinary glass or chemically strengthened glass. Mainly used in mobile phone glass cover, ultra-narrow frame LCD, OLED, LTPS and other display panel glass, as well as glass slides in the medical industry and glass cutting in architectural glass, automotive glass and other industries.







Model	TH-G-LD-ps-20
Cutting path	500×500mm (can be customized)
Laser pulse width	<15ps
Wavelength	1064nm
Laser power	40w optional
Repetition accuracy	2um
Comprehensive positioning accuracy	±5um
Max. speed	≤ 1000mm/s
Minimum machining radius	≥ 1mm
Glass material	Ordinary glass or chemically strengthened glass (DOL<60um)
Machining chipping	≤ 10um
Electricity demand	Three-phase 380V/60Hz
Dimension	1200x1400x1600mm
Total weight	2300kg

## **Filter Laser Cutting Equipment**

#### **Features**

- » The cutting edge is smaller than the cutter wheel, less than 20µm.
- » Cutting without water consumption and blade to achieve low consumption cutting.
- » The cutting efficiency is 6-8 times that of the cutter wheel.
- » The cutting cost is much lower than the cutter wheel.
- » Able to cut large warped films, both AR and IR surfaces can be cut.
- » Fully automatic cutting, less dependence on manpower, to ensure the stability of cutting effect.

#### Application field

Suitable for the cutting of coated glass (filters) in the camera industry.

Used for linear processing of thin glass or transparent materials in electronics, medical, display and other industries.



Model	TH-G-ps-5		
Cutting path	500×500mm (can be customized)		
Laser pulse width	<15ps		
Wavelength	532nm		
Laser power	5 w		
Repetition accuracy	±1um		
Comprehensive positioning accuracy	±2um		
Max. speed	≤ 800mm/s		
Max. processing glass thickness	≤ 1mm		
Glass material	Filter or ordinary white glass		
Machining chipping	≤ 20um		
Electricity demand	Three-phase 380V/60Hz		
Dimension	1200x1400x1600mm		
Total weight	2300kg		

# FPC/PCB series equipment

**BETTER TIANHONG BETTER LASER** 

## **UV Laser Cutting Machine**

#### Features

- » Smooth cutting edge without burrs, dust and kernel.
- » High accuracy exterior cutting, especially suitable for cutting of small arc.
- » One step cutting for complex materials with different thickness.
- » Non-contact machining without thermal deformation.
- » Linear motor driven of platform with high speed and steady feeding.
- » Imported power measuring system. It can detect laser power at arbitrary time to ensure quality.
- » Low thermal effect on workpiece without laminate. Low defective rate.
- » Positioning holes are preserved on platform, which makes it easy to fix PCB and processing. Vacuum absorb platform without any fixtures.
- » One time machining of different shape, decrease delivery period.
- » Imported image positioning technology for high accuracy machining.

#### Application field

Flexible circuit board cutting/ ultra-thin metal cutting, cover film cutting; Laser drilling, LTCC drilling, etc.Patch PCB molding. COB cutting; GBA/Connecting Fingers repair/Permeability gold eliminate/Repair welding plate.SD card cutting.



Model	TH-UV500A	TH-UV**A		
Laser source	UV			
Laser power	8w~20w opti	onal		
Wavelength	355nm			
Galvanometer single processing range	50x50mm (Telecen	tric Lens)		
Processing positioning method	Automatically use CCD positioning system for automatic positioning pattern adjustment processing			
Comprehensive positioning accuracy	±10um			
Repetition accuracy	±2um			
Linear motor platform path	500x500mm	500x500mm		
Processing platform format	480mmx350mm	480mmx350mm		
Electricity demand	Three-phase 380V/5	0HZ/3.5KW		
Air pressure	0.5-0.8MPa			
Environmental requirements	20° C ± 3° C			
Dimension	2060x1860x1590mm			
Total weight	2500kg			

## **Picosecond UV Laser Cutting Machine**

#### Features

- » The equipment adopts ultra-short pulse ultraviolet picosecond laser, which has the advantages of high processing efficiency, small heat-affected zone, no need for subsequent auxiliary processing, etc., and can achieve "cold" processing technology.
- » The equipment adopts the marble platform. X/Y system adopts the linear motor drive system to ensure the accuracy and stability of the platform's high-speed operation.
- » Equipped with high-pixel CCD automatic alignment function to ensure product cutting alignment accuracy.
- » Equipped with high-precision galvanometers to ensure product processing accuracy and corner process effects. The repetition accuracy can reach 1.5um.

#### Application field

Used in the mobile phone industry, communications, consumer electronics, semiconductors, scientific research, biomedical and other fields. For example, laser precision cutting, drilling and etching of non-metallic composite materials such as flexible OLED screen, LCP, PI film, FPC, nano-gold, polarizer, and FPC cover film.



Model	TH-500C	TH-UV500B			
Laser source	UV				
Laser power	8w~20w op	otional			
Wavelength	355nı	m			
Galvanometer single processing range	50x50mm (Telec	entric Lens)			
Processing positioning method	Automatically use CCD positioning system for automatic positioning a pattern adjustment processing				
Comprehensive positioning accuracy	±10um				
Repetition accuracy	±2ur	n			
Linear motor platform path	500x500mm	420x420mm			
Processing platform format	480mmx350mm	480mmx350mm			
Electricity demand	Three-phase 380\	//50HZ/3.5KW			
Air pressure	0.5-0.8MPa				
Environmental requirements	20° C ± 3° C				
Dimension	2060x1860x1590mm	1040x1280x1700mm			
Total weight	2500kg 750kg				

# Marking industry series equipment

**BETTER TIANHONG BETTER LASER** 

## **Fiber Laser Marking Machine**

#### Features

- » Equipped with IPG, SPI, Raycus laser source with 100,000 hours working time on average. With reflection and isolation protection function and high peak power.
- » Compact design, suitable for continuous assembly line work. High working frequency, thus increasing the marking speed effectively.
- » PC controlled, friendly interface and easy operation. Adopt general software to input pattern documents, easy input and powerful.
- » Single mode output. Superior beam quality.

#### **Application field**

Widely applied in the marking of plastic button and electronic components, chips, coding of paper and food package. Especially suitable for high precision and fine marking, such as watches, mold industry and bitmap marking. Also applies to remove the oxide layer of aluminum-magnesium alloy.



Model	TH-FLMS20	TH-FLMS30	TH-FLMS50	TH-FLMS100	TH-FLMS200	TH-FLMSMP20	TH-FLMSMP30	TH-FLMSMP60
Wavelength		1064nm						
Laser source	Fiber laser MOPA laser							
Laser power	20w	30w	50w	100w	200w	20w	30w	50w
Cooling way				Air co	oling			
Marking range				100x100m	m optional			
Repetition accuracy				±0.0	03mm			
Min. Line width		0.045mm						
Single point energy		1.5mj						
Beam quality		≤ 1.2 ≤ 1.3 ≤ 1					≤ 1.5	
Pulse width		100ns 2-350ns						
Pulse repetition frequency	20-200kHz 1-4000KHZ							
Engraving speed	≤ 7000mm/s							
Protection class				IP	54			

### **UV Laser Marking Machine**

#### **Features**

- » UV laser marker is equipped with diode end-pump as laser source. It boasts high conversion rate between laser and electricity. Output wavelength is 355nm. Laser power can be selected. Specialized in marking and precision drilling of special materials in industrial processing.
- » Adopt advanced hardware control technology and intelligent software; low energy consumption and easy to maintain; high precision marking quality and stability.
- » PC controlled, friendly interface and easy operation; Adopt general software to input pattern documents, easy input and powerful.
- » Ultra-thin light spot matches electronic precision machining.

#### **Application field**

Suitable for marking on glass surface, polymer material and tiny hole processing. Widely applicable to marking on packing materials of food, drilling tiny hole (hole diameter < 10um). Flexible PCB,LCD,TFT marking and slicing. Thin film removal of metallic and non-metallic materials. Silicon wafer tiny hole and blind hole processing.



Model	TH-UVLMS3	TH-UVLMS5	TH-UVLMS8	TH-UVLMS10	TH-UVLMS15		
Wavelength			355nm		•		
Laser power	3w@50KHz	5w@50KHz	8w@50KHz	10w@50KHz	15w@50KHz		
Engraving range		100	X 100mm (option	al)			
Min. character			0.15mm				
Engraving speed	≤ 7000mm/s						
Repetition accuracy		±0.003mm					
Min. line width		0.01mm (Depending on material) @ F=160 mm					
Beam quality			≤ 1.3				
Pulse repetition frequency	30-150kHz	100 uj	267 uj	250 uj	> 300 uj		
Power consumption	1000w	1000w	2500w	3000w	3000w		
Cooling way	Air cooling/water cooling	Air cooling/water cooling	Water cooling	Water cooling	Water cooling		

## **CO<sub>2</sub> Laser Marking Machine**

#### **Features**

- » Adopt far-infrared ray laser. Adopt imported CO2 RF laser or domestic laser with better laser mode, longer working life and higher reliability. Suitable for long time industrial working.
- » CO2 laser source with low price and easy maintenance.
- » PC controlled, friendly interface and easy operation. Adopt general software to input pattern documents, easy input and powerful.
- » Key components are sourced from America and Germany.
- » High speed galvo scanning system, suitable for mass production.

#### Application field

It's suitable for marking or engraving on nonmetallic materials, such as PMMA (arylic), organic glass, bamboo and wood, resin,plastics, rubber,paper,cloth,leather, home appliance, IC, etc.



Model	TH-CO2LMS10	TH-CO2LMS30	TH-CO2LMS50	TH-CO2LMS60	TH-CO2LMS100	
Wavelength			10.6um			
Laser power	10w	30w	55w	60w	100w	
Engraving range		10	0x100mm (optiona	()		
Engraving line speed			≤ 7000mm/s			
Min. line width		0.1mm (depending on material)				
Min. character		0.5mm (depending on material)				
Repetition accuracy		±0.005mm				
Protection class		IP54				
Cooling way		Air cooling Water cooling				
Voltage	Two-phase AC 220V					
Best use environment		Temperature: 15°C -30°C Humidity: 45%-75%				

## PCB Automatic Double Sided Laser Marking System

#### Features

- » High intelligence, high production efficiency, high precision, strong system stability, automatic scanning and error alarm function, high protection level, fully meet the requirements of environmental protection.
- » High speed digital mirror, high performance CO2 laser, fast speed, precision accuracy, stable performance, can work for 24 hours in a continuous period.
- » With PLC controller, I/O signal transmission can be carried out with the customer's machine.
- » Support MES system.



#### CO2 PCB MARKING SYSTEM

Model	TH-PCB-M10
Laser source	CO <sub>2</sub>
Max. laser power	10W
Marking speed	≤ 7000mm/s
Repetition marking accuracy	±0.01mm
Max. Engraving range	100mm*100mm (field lens optional)
Min. Line width	0.1mm
Applicable PCB Specifications	Min: 50mm*50mm, Max: 510mm*460mm
Applicable PCB Thickness	0.8mm-5mm
PCB weight	≤ 0.4kg
QR code engraving range	1.5mm*1.5mm-10mm*10mm
QR code engraving characters	1.5*1.5mm/15; 2*2mm/25; 3*3mm/50; 5*5mm/100
Yield	100%
X/Y axis movement speed	300mm/s



### FIBER OPTIC PCB MARKING SYSTEM

Model	TH-PCB-M20	TH-PCB-M30		
Laser source	FIBER			
Max. laser power	20W	30W		
Marking speed	≤ 7000mm/s			
Repetition marking accuracy	±0.01mm			
Max. Engraving range	100mm*100mm (field lens optional)			
Min. Line width	0.1mm			
Applicable PCB Specifications	Min: 50mm*50mm, Max: 510mm*460mm			
Applicable PCB Thickness	0.8mm-5mm			
PCB weight	≤ 0.4kg			
QR code engraving range	1.5mm*1.5mm-10mm*10mm			
QR code engraving characters	1.5*1.5mm/15; 2*2mm/25; 3*3mm/50; 5*5mm/100			
Yield	100%			
X/Y axis movement speed	300mm/s			



### **UV PCB MARKING SYSTEM**

Model	TH-PCB-M3	TH-PCB-M5		
Laser source	UV			
Max. laser power	3W	5W		
Marking speed	≤ 7000mm/s			
Repetition marking accuracy	±0.01mm			
Max. Engraving range	100mm*100mm (field lens optional)			
Min. Line width	0.1mm			
Applicable PCB Specifications	Min: 50mm*50mm, Max: 510mm*460mm			
Applicable PCB Thickness	0.8mm-5mm			
PCB weight	≤ 0.4kg			
QR code engraving range	1.5mm*1.5mm-10mm*10mm			
QR code engraving characters	1.5*1.5mm/15; 2*2mm/25; 3*3mm/50; 5*5mm/100			
Yield	100%			
X/Y axis movement speed	300mm/s			



### **GREEN PCB MARKING SYSTEM**

Model	TH-PCB-M6		
Laser source	GREEN LIGHT		
Max. laser power	6W		
Marking speed	≤ 7000mm/s		
Repetition marking accuracy	±0.01mm		
Max. Engraving range	100mm*100mm (field lens optional)		
Min. Line width	0.1mm		
Applicable PCB Specifications	Min: 50mm*50mm, Max: 510mm*460mm		
Applicable PCB Thickness	0.8mm-5mm		
PCB weight	≤ 0.4kg		
QR code engraving range	1.5mm*1.5mm-10mm*10mm		
QR code engraving characters	1.5*1.5mm/15; 2*2mm/25; 3*3mm/50; 5*5mm/100		
Yield	100%		
X/Y axis movement speed	300mm/s		



### Fly Laser Marking Machine

#### **Features**

- » The equipment adopts imported maintenance-free CO2 gas laser, fiber laser, ultraviolet laser, and is equipped with a special galvanometer which is suitable for laser coding of various packaging and production lines.
- » By using different lasers to realize the coding and marking of different materials, instead of ink coding of the date, batch number and text on various products.
- » Compared with it, it has the advantages of durability, high anti-counterfeiting, no pollution, no consumables, low cost, simple and convenient operation, etc. It is suitable for mass production.
- » PC controlled, friendly interface and easy operation; Adopt general software to input pattern documents, easy input and powerful.

#### Application field

Suitable for marking of various non-metallic materials such as paper, glass, plastic, leather, wood, etc. It is especially suitable for industries such as food and beverage, cosmetics, medicine, cigarettes, electronic components and other large-scale assembly line production.



Model	TH-CO2LMS30	TH-CO2LMS60	TH-UVLMS50W	TH-UVLMS100W	TH-FLMS50W	TH-FLMS51W	
Laser source	Imported	CO2 laser	U	UV		Fiber	
Laser power	30w/50w/60w/100w						
Marking method	Vector / Lattice (5x7/6x12/7x14/8x16/12x24) method						
Marking range	50x50mm, 75x75mm, 110x110mm (optional)						
Focus depth	Varies with the size of the field lens						
Information output method	Text String Mode						
Text	Any line within the marking range (adjustable)						
Flying marking speed	Steady state value ≤ 130m/min						
Character height	Adjustable (unit: mm)						
Font	Support SHX single-line fonts and have the company's customized laser marking fonts						
Marking options	Fully automatic serial number, batch number and real-time clock, automatic production date						

### Nameplate Automatic Laser Marking Machine

#### Features

- » High durability, high anti-counterfeiting, no pollution, no consumables, low cost, simple and convenient operation, etc. Suitable for mass production.
- » PC controlled, friendly interface and easy operation; Adopt general software to input pattern documents, easy input and powerful.
- » IPG, SPI, Raycus and other brands of fiber lasers are used, with reflection isolation protection function, high output peak power, and an average trouble-free working time of 100,000 hours.
- » Single-mode output, precise spot.



### **Application field**

The equipment is aimed at marking metal nameplates, with compact structure, high reliability, powerful software functions, flexible operation, and close to the production itself. Professionally used in batch and streamlined nameplate marking.



Model	TH-MP-FLMS-20	TH-MP-FLMS-50	TH-MP-FLMS-100	
Laser source	Imported IPG fiber laser			
Wavelength		1064nm		
Positioning method	Fixture shape positioning	Fixture shape positioning	Fixture shape positioning	
Auto focus method	Side sensor positioning / ranging sensor positioning	Ranging sensor positioning	Ranging sensor positioning	
Processing nameplate stations number	Single station	Multi-station	Multi-station	
Laser power	20W	50W	100W	
Unloading method	Single-station receiving and unloading	Multi-station receiving and unloading	Multi-station receiving and unloading	
Electricity requirements	220V/ single-phase 50HZ/20A			
Dimension	1020x750x1900mm	1300x900x1600mm	2400x1050x1800mm	
Special function	-	-	Grind and remove metal chips	

### Laser Wire/Cable Stripping Machine

#### Features

- » Double light path design, simultaneous working on diagonal, efficient and practical;
- » Table belt synchronous transit, linked with laser power and stripping speed, ensuring high speed;
- » Software control, adjustable speed, which is with good stripping effect;
- » Designed for the electronic cable industry, it has compact structure, high reliability, powerful software functions, flexible operation, and is close to the production itself.
- » The equipment can be customized according to the actual needs of customers to achieve special purpose and improve efficiency.

### Application field

CO2 laser wire stripping machine can strip non-metallic outer layer and insulating inner layer. Fiber laser wire stripping machine can strip metal shields.



Model	TH-CO2LPS30/60/100	TH-FLPS20/30/50	
Laser source	CO <sub>2</sub> Fiber		
Laser power	30/60/100w	50/100w	
Input power	1200W		
Wavelength	10.6um	1064nm	
Laser energy adjustment	10 ~	100%	
Positioning accuracy	$\pm 0.01$ mm		

### **Cylindrical Laser Marking Machine**

#### Features

- » Suitable for marking of continuous characters and logos on large angle work piece.
- » It can mark the character and logo 360 degree rotary.
- » Symmetrically marking, no distortion of projection.
- » Min.resolving capability of angle:360°/8000
- » Max. Load: 40KG

### **Application field**

This equipment is designed for the medical industry and is used for the marking of precise angles, graduations, lead or stainless steel round surfaces.



Model	TH-Y2-FLMS
Laser power	20w/30w/50w/60w
Wavelength	1064nm
Clamping method	Three-jaw chuck
Drive mode	Servo motor +screw
Positioning accuracy	±0.05mm
Repetition accuracy	±0.01mm
Electricity requirement	220V/ single-phase 50A/20A
Processing range	100x100mm (optional)
Dimension	1500x600x1600mm

### **Bearing Laser Marking Machine**

#### Features

- » Double cylinder, plane transmission positioning system synthesis.
- » Designed for high volume bearing marking.
- » Can be marked on the various specifications of bearing end face.
- » Effectively improve work efficiency and save manpower.

### Application field

The equipment is designed for the mechanical bearing industry, with compact structure, high reliability, powerful software functions, flexible operation, and close to the production itself. It can be marked on a variety of bearing end face of different sizes to meet different needs.



Model	TH-ZC-FLMS	
Laser power	20W/30W/50W	
Marking range	175x175mm (optional)	
Marking method	Single-sided / double-sided marking	
Bearing outside diameter range	20-150mm (can be customized)	
Positioning method	Side V-type IR Positioning / Both Side V-type Positioning Grip Positioning	
Transmission method	Pipeline method / V-clamp positioning movement method on both sides	
Marking position	One-sided arc marking at one or more places	
Electricity requirement	220V/ single-phase 50HZ/20A	
Dimension	Can be customized	

### **Laser Cleaning Machine**

#### Features

- » Portable and movable, no need to disassemble and carry.
- » Precise cleaning, light output width can be set.
- » Non-contact cleaning, almost no damage to the substrate surface.
- » No chemical cleaning solution, safe and environmentally friendly.

### Application field

The equipment is used in the mold industry, automobile manufacturing, shipbuilding, food processing, sewage treatment, rubber tires, petrochemical and other industries. Can be used for metal surface rust removal; surface paint removal and paint removal; surface oil, stain, dirt cleaning; surface coating, coating removal; welding surface/spray surface pretreatment; stone statue surface dust and attachment removal; rubber mold residue cleaning etc.



Model	TH-LC-100D-A	TH-LC-200D-A	TH-LC-300D-A	TH-LC-500D-A
Laser power	100w	200w	300w	500w
Laser type		Fiber	Laser	
Wavelength	1064nm			
Cooling method	Air cooling/ water cooling			
Water temperature	18-25℃			
Cabinet dimension	575x400x500mm	610x500x700mm	640x540x730mm	850x830x960mm
Machine weight (include water tank)	39.5kg	52kg	54kg	120kg
Power consumption	800W	1400W	1600W	1800W
Focus depth	3 m m	5mm	10mm	15mm
Scanning width	2-50mm			
Auxiliary gas	Compressed air / nitrogen			
Air pressure	0.5-0.8Mpa			
Optional configuration	Hand-held			
Working environment temperature	5-40°C			

### Mini Laser Marking Machine

### Features

- » Flexible and lightweight, suitable for daily home, office and other marking needs.
- » Easy to operate, connect a personal computer to export graphic data to achieve instant marking.
- » The whole machine is small in size, light in weight and easy to move.

### Application field

It is mainly used for the marking of metal signs, as well as the laser coding of color paper and other products, to meet the needs of daily creative design.



Model	OLM-20	
Wavelength	1064nm	
Laser	Totally enclosed (double-clad) fiber pulsed laser	
Power	20w	
Cooling way	Air cooling	
Output power	≥ 20w	
Marking range	100x100mm optional	
Positioning accuracy	±0.03μm	
Min. Line width	0.045mm (depending on material) @ F=160 mm	
Single point energy	1mj	
Beam quality	≤ 1.2	
Pulse width	≤ 100ns	
Pulse repetition frequency	20-200kHz	
Engraving speed	≤ 7000mm/s	
Degree of protection	IP54	

## Five Axis 3D Marking System (LDS)

### Features

» Using the control system to control the movement of the laser according to the trajectory of the electronic circuit, put the laser on the injection-molded three-dimensional plastic device, and activate the material with the laser in a short time because The laser separates (laser activation) the metallographic compounds in the dopant-containing plastic. The exposed metal atoms after laser activation are used as the seed layer of the electroless plating process. During the electroless plating process, a metal layer (surface metallization) with a thickness of 5-10 microns can be grown in the activated area to realize the formation of three-dimensional circuits of the material.

### Application field

Widely used in mobile communications, IoT projects, automotive IoT components, Industry 4.0, and medical industries



Model	TH-FLCS30	TH-FLCS50	TH-FLCS100
Laser average output power	30W	50W	100W
Wavelength	1064nm		
Pulse width	2-350ns		
Laser repetition frequency	1KHz-4000KHz		
Engraving range	100mm×100mm×40mm、300×300×200 (optional)		
Engraving line speed	≤ 7000mm/s		
Min. width	0.015mm		
Repetition accuracy	≤ 0.005mm		
XYZ motion module accuracy	±0.01mm		
Power consumption	1500W		
Electrical requirement	220V±22V / 50Hz/ 10A		
Dimension	1150mm×1360mm×2000mm		
Weight	750Kg		

## **Laser Resistor Trimming System**

#### Features

- » High trimming accuracy and high repetition accuracy.
- » High stability and reliability, can work for a long time.
- » Automatic loading and unloading can be customized, automatic coding, automatic trimming and automatic verification.

### Application field

Mainly applied for circuit micro adjustment of thick/ thin electronic board. Widely used for thick film hybrid intergrated circuits, electronic components, auto circuit, sensor, military scientific research, chips resistor, etc.



Model	TH-FLCS20
Processing method	Galvanometer processing
Platform moving travel	400mm
Laser source	Pulse laser 1064mm
Trimming accuracy	±1%
Laser output max. power	20w
Focus method	Manual adjustment
Platform positioning accuracy	±0.05mm
Processing positioning method	CCD
Operation environment	+15°C ~-30°C
Dimension	1000x700x1500mm

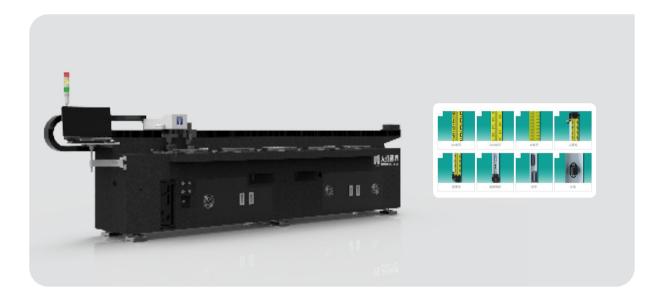
## **Invar Laser Processing System**

### Features

- » Customized standard of bar code layout.
- » Marking, measuring and checking.

### **Application field**

Leveling/Rulers, such as Zeiss, Topcon, etc.



Model	TH-IV3000
Scale length	2m/3m
Marking accuracy	±5um/3000mm
Marking time	1H/piece(3m)
Positioning method	CCD
Detection accuracy	±10um/3000mm
Half tolerance	700kg

# ENTERPRISE HONOR



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Huaxing Award Best Innovation



China Outstanding Progressive Laser Enterprise Award

Comply with ISO9001:2015 quality system standard

We try to meet the performance inspection index

Organizing surveys on customer satisfaction annually, accepting and dealing with customer's opinion and advice

Supply machine spare parts regularly

Service response within 24 hours

Providing free training, and give free maintenance service in-door

Aim at let customers satisfied







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