



INTE LASER

SINCE 2013



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致力于激光应用新智造

COMMITTED TO NEW LASER
APPLICATION FOR INTELLIGENT MANUFACTURING



INSPIRE THE FUTURE ERA OF LASER

激未来时代之光

用技术，赋能千行百业！

EMPOWER INDUSTRIES WITH ADVANCED TECHNOLOGY

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关于韵腾 About INTE

2013 韵腾激光，是一家激光应用技术驱动型企业，致力于激光应用新智造，提供前沿的加工技术、激光器及光学系统、激光应用专用设备、技术支持与服务等激光微纳加工应用解决方案，为用户创造价值。

INTE Laser has been a technology-driven laser application company since 2013. INTE Laser specializes in laser applications and automatic manufacturing, providing cutting-edge processing technology, manufacturing optimization, specialized laser application machines, as well as technical support and services to help our customers build extra creative value.



深圳总部



惠州子公司



苏州分公司



平台技术型公司 Platform Technology Company

韵腾是一家以自主研发激光发生器、光学器件、设备应用工艺与技术、自动化系统集成成的四维一体装备制造技术型企业。

INTE Laser is a technology-oriented enterprise that specializes in the independent research and development of laser generators, optical devices, equipment application processes and technologies, and the integration of automation systems. It is a four-dimensional integrated equipment manufacturing company.



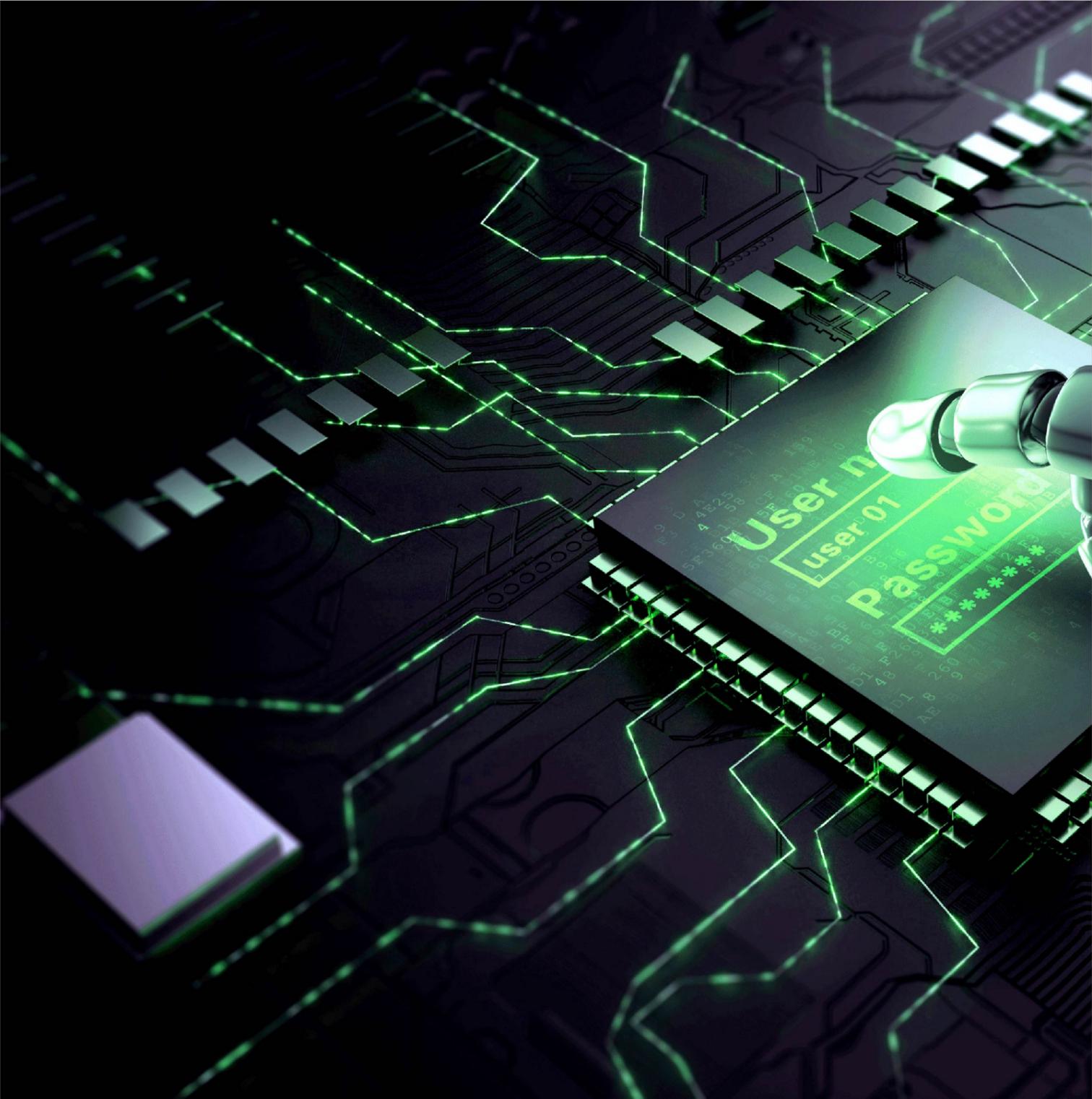
技术深度赋能 Technology Empowerment

提供创新的：加工技术、加工工艺，激光器及光学系统、应用设备、技术支持与服务等激光微纳加工应用解决方案。We provide innovative solutions for laser micromachining applications, including processing technology, processing techniques, laser sources and optical systems, application equipment, technical support, and services.

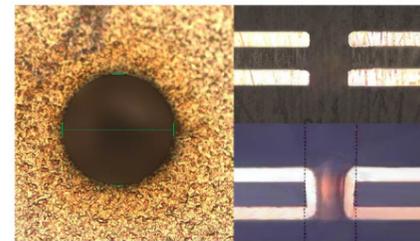


聚焦行业，用价值立世 Focus on the industry, establish oneself with values.

为线路板、消费电子、半导体、玻璃行业、新能源动力电池、太阳能等行业客户创造价值。Create value for clients in industries such as printed circuit boards, consumer electronics, semiconductors, glass, new energy power batteries, and solar energy.

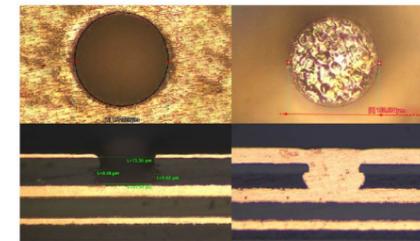


电子电路产品线
ELECTRONIC CIRCUIT PRODUCT LINE



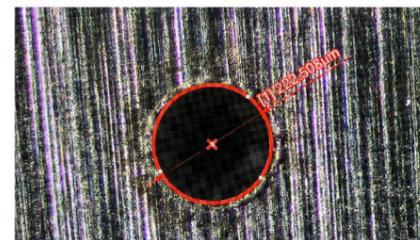
UV双头激光钻孔 UV Dual-Head Laser Drilling

FPC激光钻孔 FPC Laser Drilling



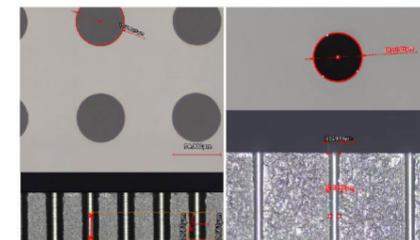
UV+CO₂激光钻孔 UV+CO₂ Laser Drilling

PCB激光钻孔 PCB Laser Drilling



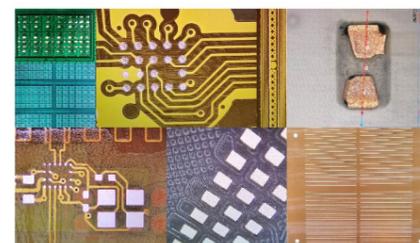
铝片激光钻孔

Aluminum Sheet Laser Drilling



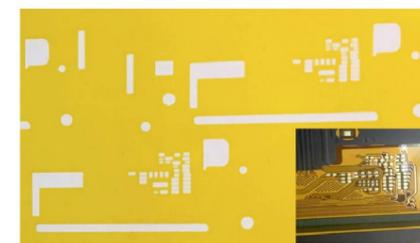
TGV玻璃诱导激光蚀刻

TGV Glass Inductive Etching



PCB/FPC开窗

PCB/FPC Window cutting



覆盖膜切割 Cover Film Cutting



FPC切割、软硬结合板开盖

FPC Cutting, Opening of Flexible-Rigid Hybrid Board

PCB和PCBA分板

PCB and PCBA Depanelization



激光打标 Laser Marking

(FPC PCB FPCA PCBA)

双头卷对卷 (卷对片) 激光钻孔设备

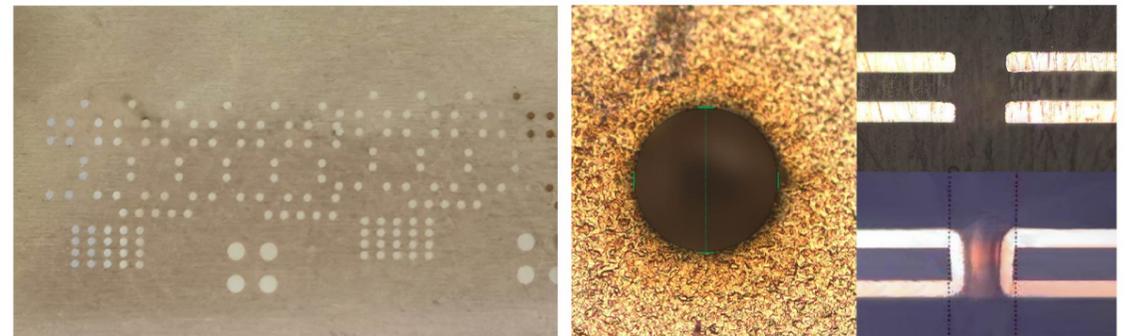
Dual-Head Coil-to-Sheet (Coil-to-Coil) Laser Drilling Machine



加工优势 Advantages

- 双头双卷料 (片料) 同时加工, 效率提升1倍;
- 可实现卷对卷, 卷对片, 片对片自动化加工;
- 自带工艺优化, 免去等离子处理, 直接镀铜工艺;
- 配置高直线电机系统, 高精度CCD, 实现大范围无缝拼接, 高精度加工;
- 配置专业激光器、振镜、场镜, 保证稳定加工品质;
- 软件自主研发, 支持各种定制化生产功能;
- 专业吸附废料系统及激光防护系统, 保持良好工作环境。
- Dual-head dual-coil (sheet) simultaneous processing, doubling efficiency;
- Achieves automated processing for coil-to-coil, coil-to-sheet, and sheet-to-sheet;
- Comes with process optimization, eliminating the need for plasma treatment, and utilizing direct copper plating technology;
- Equipped with a high-precision linear motor system, high-precision CCD, enabling seamless large-scale stitching, and high-precision processing;
- Configured with professional lasers, galvanometers, and field mirrors to ensure stable processing quality;
- Independently developed software that supports various customized production functions;
- Professional waste material suction system and laser protection system to maintain a good working environment.

样品展示 Sample Display



技术参数 Technical Parameters

激光类型 Laser type	纳秒紫外、皮秒紫外、皮秒绿光 Nanosecond UV, Picosecond UV, Picosecond green laser
加工幅面 Processing area	550mm×650mm (可定制) (customized)
设备尺寸 Machine size	4600mm×1620mm×1800mm (含上下卷料设备) (Equipment with Upper and Lower Coil Material)
设备精度 Machine processing accuracy	±0.02mm
整机功率 Electric power loading	4KW
设备重量 Machine weight	2000KG
环境要求 Environment requirements Temperature/Humidity	湿度: 30% ~ 60%无结露 温度: 22°C±2

UV+CO₂激光钻孔设备

UV+CO₂ Laser Drilling Machine



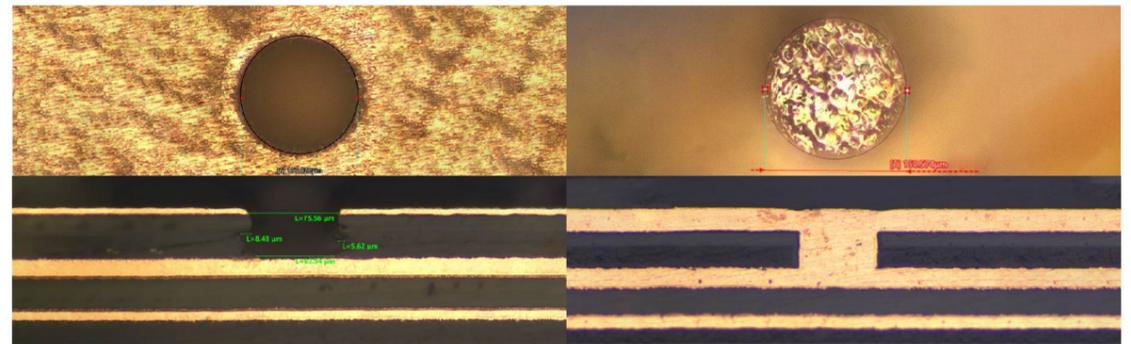
加工优势

Advantages

- 前处理无需黑化/棕化，无悬铜；后处理无需电浆，品质更好，更环保；
- 结合超快激光技术，突破单 CO₂ 钻孔尺寸极限；
- 高精密机械设计，高精度定位识别，可实现分区高精度加工；
- 配备专门为微盲孔，通孔加工的高速扫描振镜以及控制系统；
- Pre-treatment requires no blackening/browning, with no overhanging copper; post-treatment eliminates the need for plasma, resulting in superior quality and enhanced environmental friendliness;
- Combined with ultrafast laser technology, it breaks through the size limitations of single CO₂ drilling;
- High-precision mechanical design and accurate positioning recognition enable high-precision zonal processing;
- Equipped with high-speed scanning galvanometers and a control system specifically designed for micro blind and through-hole processing.

样品展示

Sample Display



技术参数

Technical Parameters

激光类型 Laser type	纳秒紫外、皮秒紫外、CO ₂ 激光器 Nanosecond UV, Picosecond UV, CO ₂ laser
加工幅面 Processing area	550mm×650mm (可定制) (customized)
设备尺寸 Machine size	2100mm×2300mm×1900mm
设备精度 Machine processing accuracy	±0.02mm
整机功率 Electric power loading	6.6KW
设备重量 Machine weight	3000KG
环境要求 Environment requirements Temperature/Humidity	湿度: 30% ~ 60%无结露 温度: 22°C±2

双头铝片激光钻孔设备

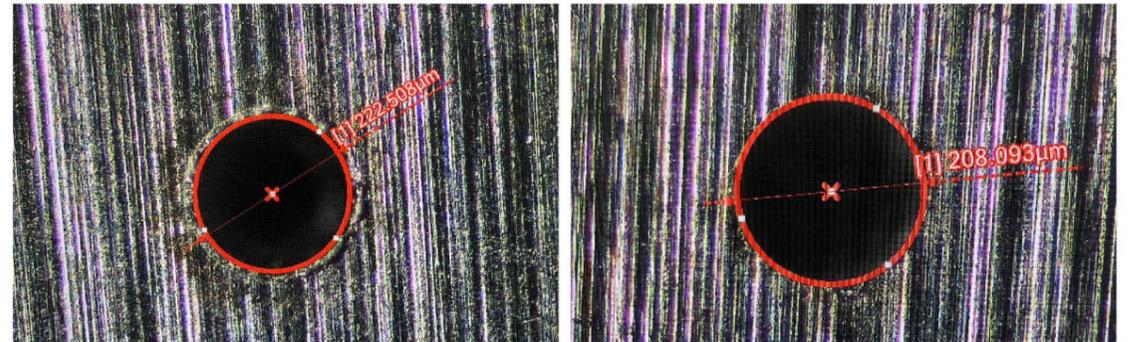
Dual-head Aluminum Sheet Laser Drilling Machine



加工优势 Advantages

- 比机械钻孔效率高5倍，提升加工效率，降低加工时间;
- 没有披锋，不需要打磨，减少铝屑带来的品质不良;
- 激光器使命5年以上，没有钻嘴等耗材，节省加工;
- 其他:设备软件可以自动调整涨缩。
- Compared to mechanical drilling, efficiency is three times faster, improving processing efficiency and reducing processing time;
- no burrs, no sanding required, reducing poor quality due to aluminum shavings;
- Laser's lifespan is over 5 years, no consumables such as drill nozzles, saving processing costs;
- Equipment software can automatically adjust expansion and contraction.

样品展示 Sample Display



技术参数 Technical Parameters

激光类型 Laser type	纳秒红外 Nanosecond Red
加工幅面 Processing area	900mm×1000mm (可定制) (customized)
设备尺寸 Machine size	2600mm×1850mm×1850mm (含收料盒) (Including debris dump box)
设备精度 Machine processing accuracy	±0.02mm
整机功率 Electric power loading	8KW
设备重量 Machine weight	5000KG
环境要求 Environment requirements Temperature/Humidity	湿度: 30% ~ 60%无结露 温度: 22°C±2

双头卷对片 (卷对卷) 覆盖膜激光切割设备

Dual-Head Roll-to-Sheet (Roll-to-Roll) Coating Film Laser Cutting machine



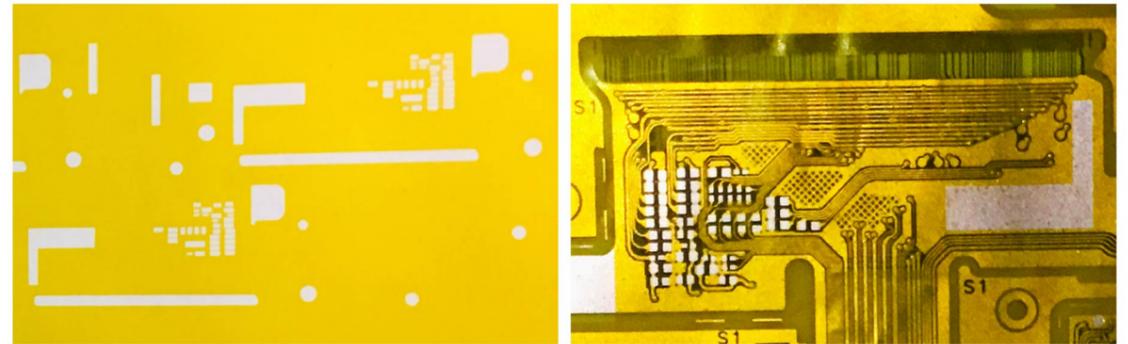
加工优势

Advantages

- 激光切割代替覆盖膜冲模 + 防焊回填工艺;
- 自动进料、切割、自动计数和更换料号、自动裁切、收料等;
- 高品质, 边缘整齐无毛刺发黑, 50um 以上密集线路无微短;
- 内置功率自动量测优化系统, 可以保证加工时的功率稳定。
- Laser cutting replaces traditional overlayer punch die and solder mask backfill process;
- Automatic feeding, cutting, counting and automatic part numbers replacement, trimming and product collection, etc;
- High cutting quality, neat edges without burrs and blackening, no shortness of line spacing over 50um;
- The built-in power automatic measurement and optimization ensures power stability during processing.

样品展示

Sample Display



技术参数

Technical Parameters

激光类型 Laser type	纳秒紫外、皮秒紫外、皮秒绿光 Nanosecond UV, Picosecond UV, Picosecond green laser
加工幅面 Processing area	2×250mm×500mm (可定制) (customized) 超大加工台面尺寸: 520mm*2200mm
设备尺寸 Machine size	2350mm×1450mm×2500mm (含收料盒) (Including debris dump box)
设备精度 Machine processing accuracy	±0.02mm
整机功率 Electric power loading	3KW
设备重量 Machine weight	2000KG
环境要求 Environment requirements Temperature/Humidity	湿度: 30% ~ 60%无结露 温度: 22°C±2

单/双平台激光切割开槽设备

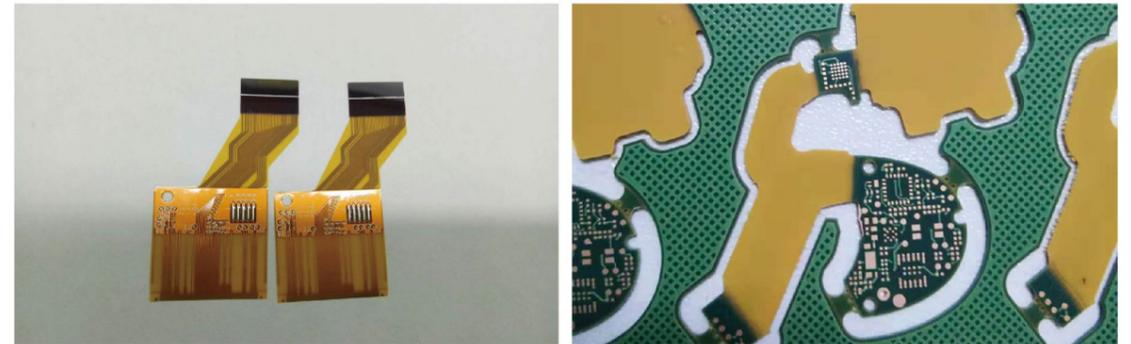
Single Platform/Dual Platform Laser Slotting Machine



加工优势 Advantages

- 双平台交互式加工，提升加工效率；
- 可实现设定任意标靶点及巡边切割功能，自动涨缩补偿，实现高精度加工；
- 可选上下料方式，自动放板或人工放板。
- Dual-platform interactive processing to improve the efficiency ;
- Can realize arbitrary fiducials setting and automatic target finding, automatic expansion compensation for high process precision;
- Optional automatic loading and unloading method.

样品展示 Sample Display



技术参数 Technical Parameters

激光类型 Laser type	纳秒紫外、皮秒紫外、皮秒绿光、纳秒绿光 Nanosecond UV, Picosecond UV, Picosecond green laser Nanosecond green
加工幅面 Processing area	单平台Single Platform: 550mmx650mm 双平台Dual Platform: 250mmx500mm (可定制) (customized)
设备尺寸 Machine size	1700mmx1650mmx1850mm (以实物为准) (Prevail in kind)
设备精度 Machine processing accuracy	±0.02mm
整机功率 Electric power loading	2.5KW
设备重量 Machine weight	2000KG
环境要求 Environment requirements Temperature/Humidity	湿度: 30% ~ 60%无结露 温度: 22°C±2

全自动激光切割摆盘设备

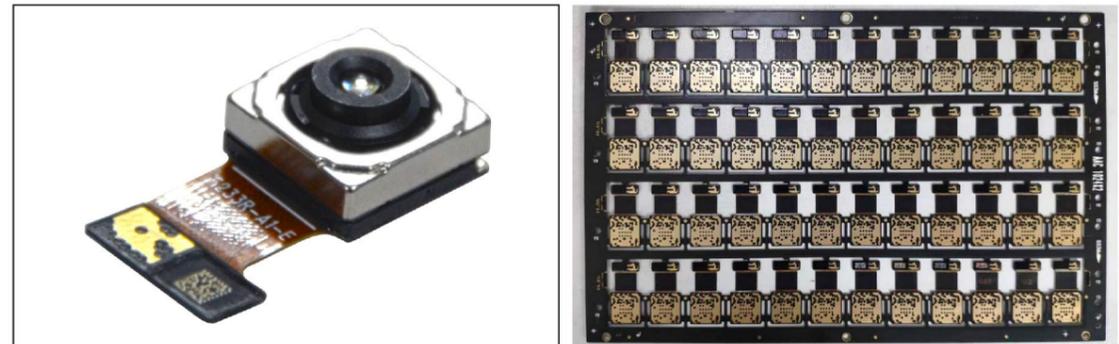
Fully Automatic Laser Cutting and Panel Machine



加工优势 Advantages

- 软件界面简洁，操作简单，一键导入生产图档；
- 无接触式加工，专用治具配合，对产品器件无应力影响；
- 加工过程中实时烟尘处理，保证产品洁净度；
- 适合软板、硬板、软硬结合板任意形状精密切割，
- 加工区域全封闭，保证加工过程的安全防护；
- 定制化MES端口，收集产品数据，追溯产品信息；
- 设备精度高，生产效率高，UPH:7k/h，切割精度 $\leq \pm 30\mu\text{m}$ ；加工厚度 $\leq 3\text{mm}$ ；
- Simple software interface, easy to operate, with one-click import of production drawings.
- Contactless processing with dedicated fixtures ensures no stress impact on product components.
- Real-time smoke and dust handling during processing to ensure product cleanliness.
- Suitable for precision cutting of flexible boards, rigid boards, and flexible-rigid combination boards of any shape.
- The processing area is fully enclosed, ensuring safety protection during the processing.
- Customized MES ports for collecting product data and tracing product information.
- High precision, high production efficiency, UPH: 7k/h, cutting accuracy $\leq \pm 30\mu\text{m}$; processing thickness $\leq 3\text{mm}$.
- Achieves one-stop automated assembly line service.

样品展示 Sample Display



技术参数 Technical Parameters

激光类型 Laser type	纳秒紫外、纳秒绿光 Nanosecond UV/Nanosecond green
加工幅面 Processing area	350mmx350mm (可定制) (customized)
设备尺寸 Machine size	1300mmx1800mmx1800mm (以实物为准) (Prevail in kind)
设备精度 Machine processing accuracy	$\pm 0.02\text{mm}$
整机功率 Electric power loading	3.5KW
设备重量 Machine weight	1500KG
环境要求 Environment requirements Temperature/Humidity	湿度: 30% ~ 60%无结露 温度: $22^\circ\text{C} \pm 2$

全自动激光打标设备

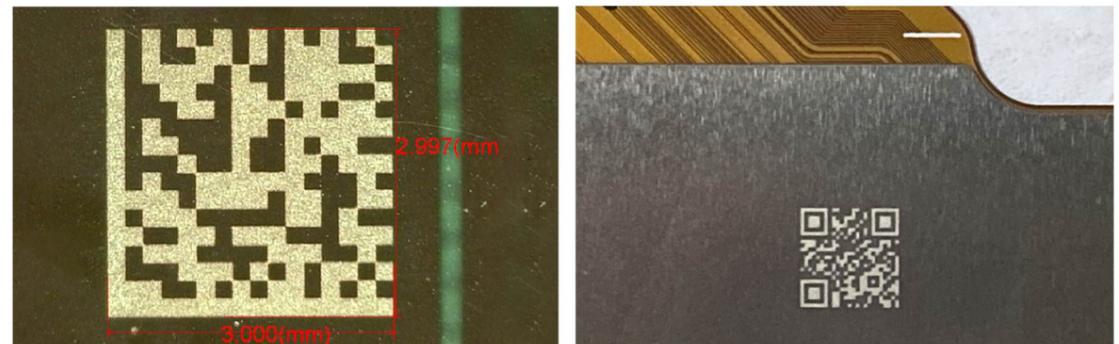
Fully Automatic Laser Marking Machine



加工优势 Advantages

- 可实现超精细正、背面标刻;
- 光束质量稳定, 速度快, 精度高;
- 双平台作业, 全自动上下料, 提升效率;
- 自动检测、自动防反识别、一键抽检等功能。
- Suitable for fine marking on front and back;
- High beam quality, fast processing speed and high position accuracy;
- Dual platform system, automatic loading and unloading;
- Automatic fault detection, automatic pattern recognition, one click sampling, etc.

样品展示 Sample Display



技术参数 Technical Parameters

激光类型 Laser type	纳秒紫外 Nanosecond UV
加工幅面 Processing area	(可定制) (customized)
设备尺寸 Machine size	1008mmx1700mmx1900mm (以实物为准) (Prevail in kind)
设备精度 Machine processing accuracy	±0.02mm
整机功率 Electric power loading	2KW
设备重量 Machine weight	2000KG
环境要求 Environment requirements Temperature/Humidity	湿度: 30% ~ 60%无结露 温度: 22°C±2

全自动 SO 卡激光切割设备

Automatic Laser SO card cutting machine



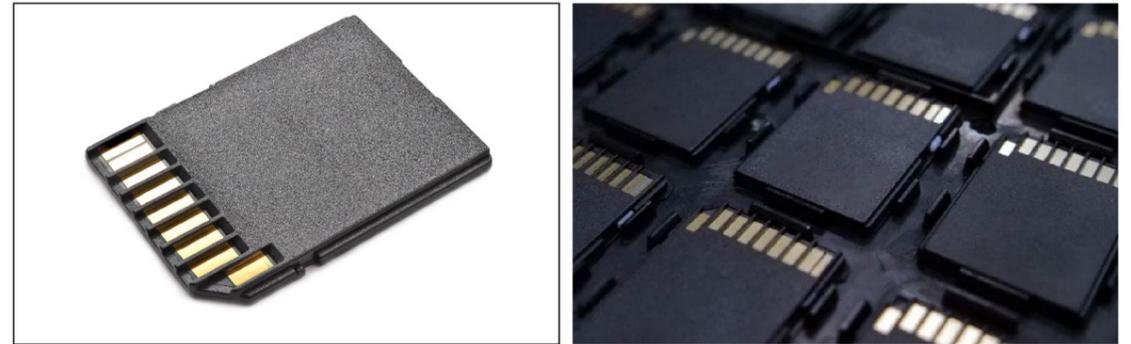
加工优势

Advantages

- 双光路系统同步作业，切割效率高，加工精度更精准；
- 精密型设备，占地空间小，性能稳定，功耗低；
- 可实现产品自动上料，检测，切割，下料等功能；
- 智能 CCD 视觉系统，光束质量好，产品断面效果好。
- Dual optical path system adopted with high cutting efficiency and high accuracy;
- Precision equipment, small footprint, stable performance, low power consumption;
- Automatic product feeding, detection and cutting;
- Intelligent CCD vision system, good beam quality and good product cutting surface.

样品展示

Sample Display



技术参数

Technical Parameters

激光类型 Laser type	纳秒绿光 Nanosecond green laser
加工幅面 Processing area	250mmx100mm (可定制) (customized)
设备尺寸 Machine size	2040mmx1400mmx1700mm (以实物为准) (Prevail in kind)
设备精度 Machine processing accuracy	±0.02mm
整机功率 Electric power loading	1.5KW
设备重量 Machine weight	2500KG
环境要求 Environment requirements Temperature/Humidity	湿度: 30% ~ 60%无结露 温度: 22°C±2

FPC开窗设备

FPC Window Cutting Equipment



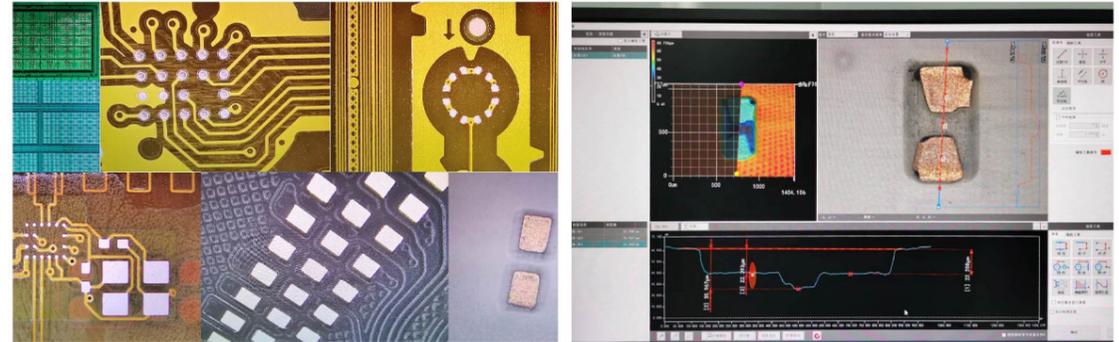
加工优势

Advantages

- 提升加工效率,良率可以做百分百;
- 可以改善传统工艺的溢胶缺陷;
- 开窗精度高, 可以避免出现传统制程的焊盘偏位问题;
- 最小可以做0.15mm的焊盘。
- Improved processing efficiency with the potential for achieving a 100% yield rate;
- Can enhance the issues of excess adhesive in traditional processes;
- High window accuracy, which can prevent the problem of pad misalignment in conventional procedures;
- Can achieve a minimum pad size of 0.15mm.

样品展示

Sample Display



技术参数

Technical Parameters

激光类型 Laser type	皮秒紫外、纳秒紫外 Picosecond UV/Nanosecond UV
加工幅面 Processing area	500mmx680mm (可定制) (customized)
设备尺寸 Machine size	1700mm×1650mm×1850mm (以实物为准) (Prevail in kind)
设备精度 Machine processing accuracy	±0.02mm
整机功率 Electric power loading	3.5KW
设备重量 Machine weight	1700KG
环境要求 Environment requirements Temperature/Humidity	湿度: 30% ~ 60%无结露 温度: 22°C±2

全自动激光分板设备

Fully Automatic laser splitting Machine



加工优势 Advantages

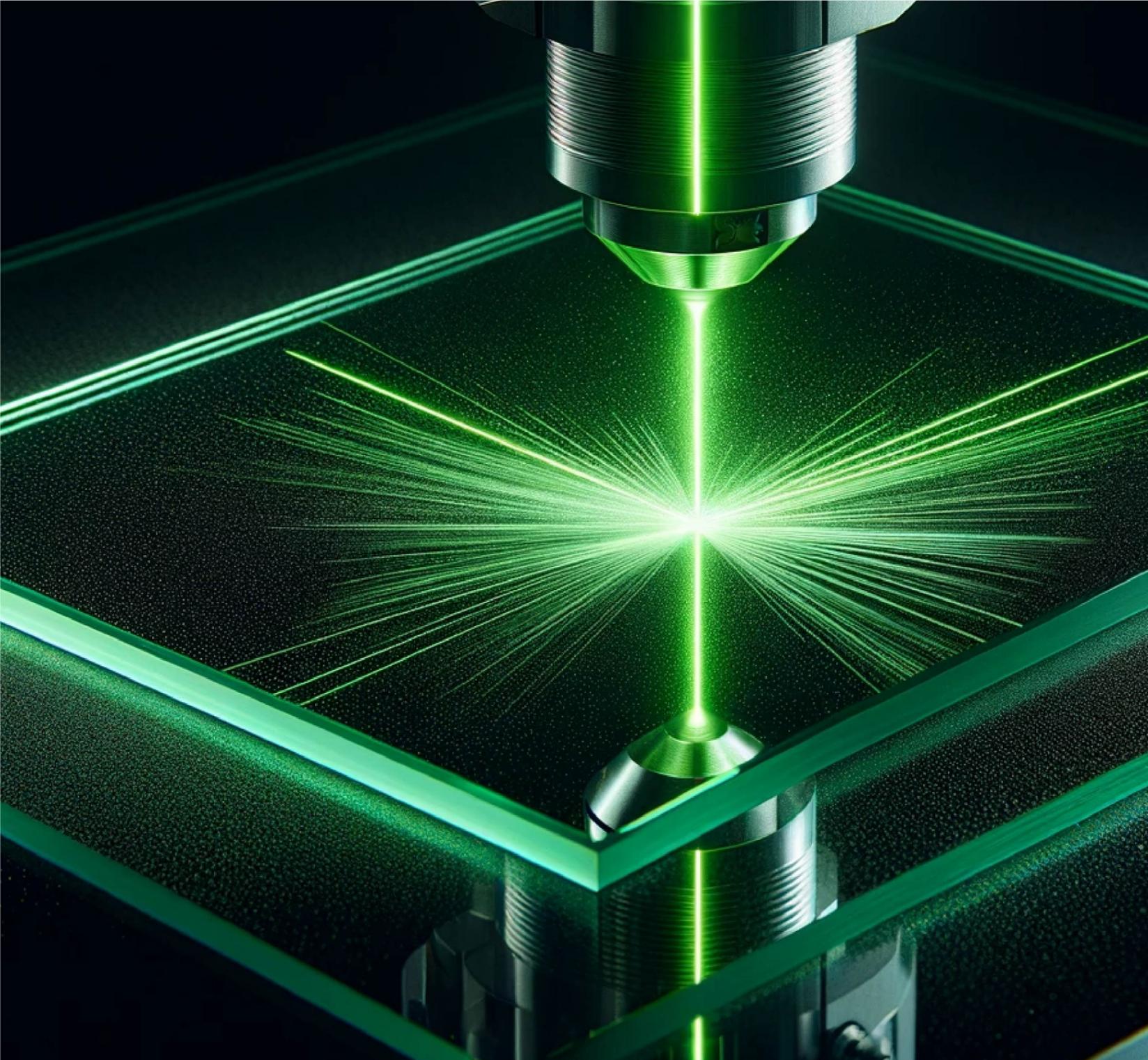
- 操作简单CAD图档一键导入;
- 可实现自动化连线一站式服务;
- 设备切割精度高,无应力接触,无耗材,无粉尘,异型产品随意切割;
- 定制化MES端接口,追溯到每个产品;
- 切割精度 $\pm 0.03\text{mm}$ 。
- Easy operation with one-click import of CAD drawings;
- Capable of achieving automated inline connection for a one-stop service;
- The equipment offers high cutting precision, stress-free contact, no consumables, no dust, and the ability to cut various shapes of products;
- Customized MES interface for product traceability down to each individual item;
- Cutting precision up to 0.03mm.

样品展示 Sample Display



技术参数 Technical Parameters

激光类型 Laser type	纳秒紫外、纳秒绿光 Nanosecond UV/Nanosecond green
加工幅面 Processing area	350mmx350mm (可定制) (customized)
设备尺寸 Machine size	1300mmx1800mmx1800mm (以实物为准) (Prevail in kind)
设备精度 Machine processing accuracy	$\pm 0.02\text{mm}$
整机功率 Electric power loading	3.5KW
设备重量 Machine weight	1500KG
环境要求 Environment requirements Temperature/Humidity	湿度: 30% ~ 60%无结露 温度: $22^{\circ}\text{C}\pm 2$



车载挡风玻璃
Automotive windshield
车载后视镜玻璃
Automotive rearview mirror glass
车载玻璃
Automotive glass



UTG玻璃/面板玻璃
UTG glass (Ultra Thin Glass)
OLED屏、智能穿戴
OLED screen/Smart wearables
摄像头窗口片
Camera lens window piece



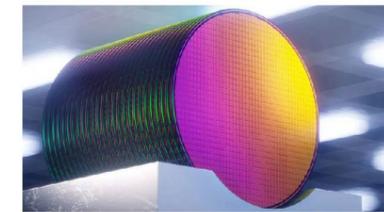
光学玻璃、家用玻璃
Optical glass/Household glass
灯饰玻璃、医疗玻璃
Decorative glass/Medical glass
安防玻璃
Security glass



Micro LED TGV玻璃
Micro LED TGV glass



太阳能玻璃板
Solar glass panel



晶圆、晶圆LOW-K层、
Wafer/Low-k Dielectric Layer on Wafers
QFN/BGA/LGA封装
QFN(Quad Flat No-Lead)Package/

玻璃已然是一种重要的产业材料，在汽车、医疗、电子产品等行业的应用日益广泛。目前，各行各业对于玻璃加工的要求越来越精细化、精密化，传统的加工已逐渐不能满足生产的要求，韵腾激光作为拥有前沿先进的激光加工应用技术，其替代了传统工艺，高效缩减加工作业流程，大幅提高产品质量与生产效率，真正为用户创造价值。

Glass is becoming an important industrial material, and is widely used in automotive, medical, electronics and other industries. At present, the requirements for glass processing are becoming more and more precise and sophisticated, and traditional processing methods are gradually unable to meet the production requirements. As a leading laser processing application company in China, Inte Laser has different laser processing models that replaced traditional processes and have high performance like reducing cost and labor, improving product quality and production efficiency, and we are truly creating values for our customers.

H·B·M·P
硬脆材料产品线
HARD AND BRITTLE MATERIAL PRODUCT LINE

大幅面玻璃切割设备

Large format glass Laser Cutting Machine



加工优势 Advantages

- 采选超快激光，可实现不同厚度的玻璃切割与异形切割；
- 智能 CCD 视觉系统，切割精度高，速度快，崩边小；
- 易操作的工控软件平台，大幅提升加工效率和质量。
- Ultra-fast laser system is used, can achieve different thickness cutting and special-shaped cutting of glass;
- High resolution CCD vision system is adopted for intelligent recognition for high cutting accuracy, fast speed, small edge collapse;
- Easy to operate industrial control software platform, greatly improve the processing efficiency and quality.

样品展示 Sample Display



技术参数 Technical Parameters

激光类型 Laser type	皮秒红外 Picosecond Infrared
加工幅面 Processing area	1250mmx950mm (可定制) (customized)
设备尺寸 Machine size	3500mmx2850mmx1900mm (以实物为准) (Prevail in kind)
设备精度 Machine processing accuracy	±0.02mm
整机功率 Electric power loading	10KW
设备重量 Machine weight	7000KG
环境要求 Environment requirements Temperature/Humidity	湿度: 30% ~ 60%无结露 温度: 22°C±2

高精密玻璃钻孔设备

High precision glass Laser Drilling Machine



加工优势 Advantages

- 非接触式加工，对材料损伤小，钻孔精度高；
- 高速钻孔，崩边小、效率高；
- CCD 拍照定位，精准可控。
- Non-contact processing, less material damage and high drilling accuracy;
- High drilling speed, small edge collapse and high efficiency;
- CCD camera positioning, precision controlled.

样品展示 Sample Display

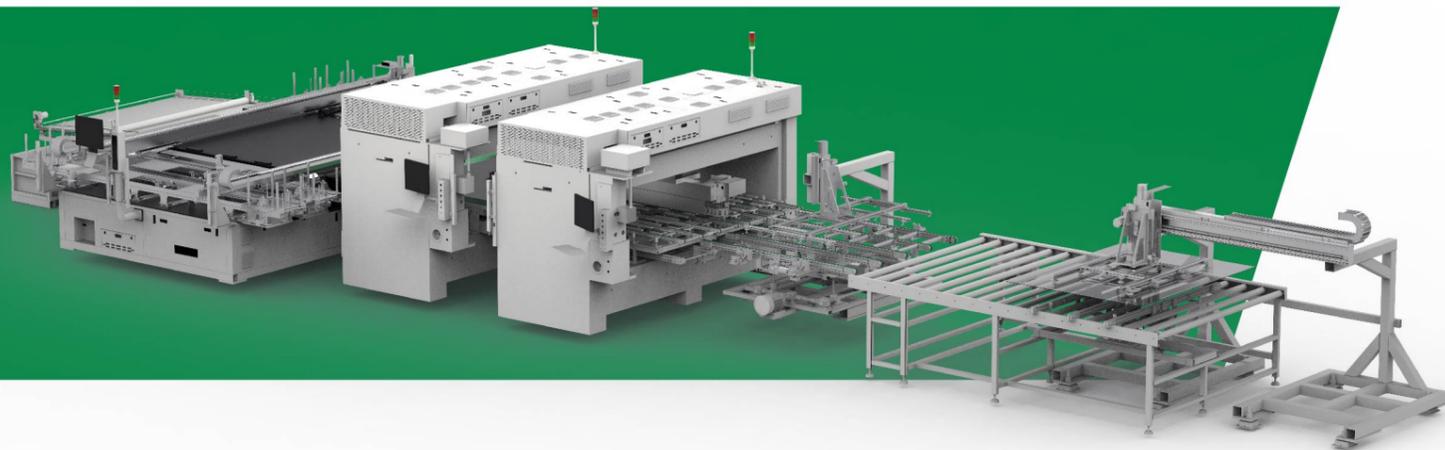


技术参数 Technical Parameters

激光类型 Laser type	纳秒红外/纳秒绿光 Nanosecond infrared/Nanosecond green laser
加工幅面 Processing area	650mmx550mm (可定制) (customized)
设备尺寸 Machine size	1800mmx1600mmx1850mm (以实物为准) (Prevail in kind)
设备精度 Machine processing accuracy	±0.02mm
整机功率 Electric power loading	4.5KW
设备重量 Machine weight	1400KG
环境要求 Environment requirements Temperature/Humidity	湿度: 30% ~ 60%无结露 温度: 22°C±2

全自动大幅面玻璃切割裂片设备

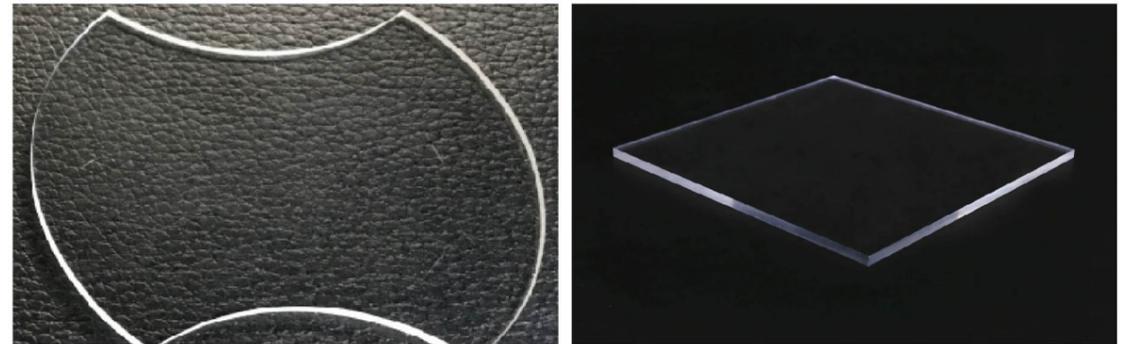
Fully Automated Large-Format Glass Cutting and Splitting Equipment



加工优势 Advantages

- 采用超快激光，可实现不同厚度的玻璃切割与异形切割；
- 智能CCD视觉系统，切割精度高，速度快，崩边小；
- 易操作的工控软件平台，大幅面提升加工效率和质量；
- 加工范围大，最大加工范围为1900x1500mm；
- 自动上料、收料及自动收集废料。
- Utilizing ultrafast laser technology, it can achieve glass cutting of different thicknesses and intricate shapes.
- Intelligent CCD visual system ensures high cutting accuracy, speed, and minimal chipping.
- User-friendly industrial control software platform significantly enhances processing efficiency and quality.
- Wide processing range, with a maximum processing area of 1900x1500mm.
- Automatic loading, unloading, and waste material collection.

样品展示 Sample Display



技术参数 Technical Parameters

激光类型 Laser type	皮秒红外 Picosecond Infrared
加工幅面 Processing area	1900mmx1500mm (可定制) (customized)
设备尺寸 Machine size	15000mmx5000mmx2100mm (以实物为准) (Prevail in kind)
设备精度 Machine processing accuracy	±0.02mm
整机功率 Electric power loading	50KW
设备重量 Machine weight	20000KG
环境要求 Environment requirements Temperature/Humidity	湿度: 30% ~ 60%无结露 温度: 22°C±2

TGV玻璃诱导蚀刻设备

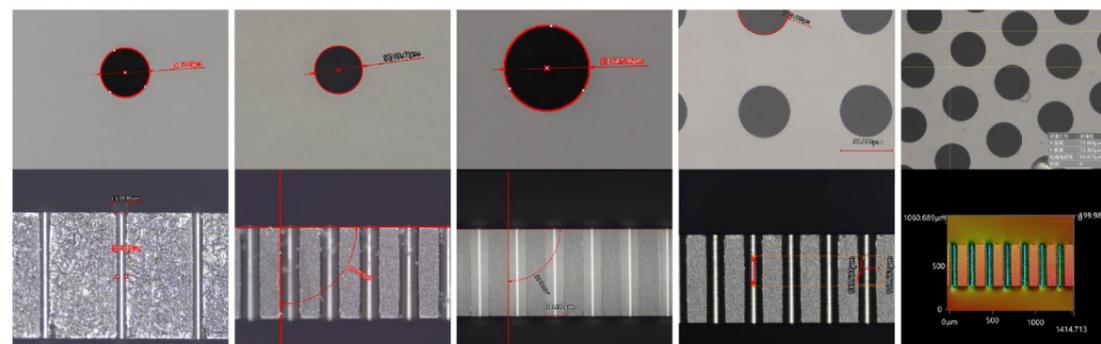
TGV GlassInductive Etching Machine



加工优势 Advantages

- 采选超快飞秒激光器，可实现不同厚度的TGV玻璃蚀刻诱导孔及异形诱导图形的制备；
 - 智能CCD视觉系统，加工精度高，速度快，孔圆度高，锥度小，深径比大，孔良率高；
 - 易操作的工控软件平台，可实现巨量图形快速读取，加工功能定制化；
 - 采用新型运动控制系统，大幅提升加工效率和质量。
- By selecting ultrafast femtosecond laser, it is possible to achieve the preparation of induced holes and irregular induced patterns on TGV glass of different thicknesses through etching.
 - Equipped with an intelligent CCD vision system, it ensures high processing accuracy, fast processing speed, high circularity of holes, small taper angle, high aspect ratio, and high yield of holes.
 - The user-friendly industrial control software platform enables rapid retrieval of large quantities of graphics and customization of processing functions.
 - Adopting a new type of motion control system significantly improves processing efficiency and quality.

样品展示 Sample Display



技术参数 Technical Parameters

激光类型 Laser type	飞秒红外 Femtosecond Infrared
加工幅面 Processing area	700mmx700mm (可定制) (customized)
设备尺寸 Machine size	2000mmx1800mmx1900mm (以实物为准) (Prevail in kind)
设备精度 Machine processing accuracy	±0.001mm
整机功率 Electric power loading	6KW
设备重量 Machine weight	4500KG
环境要求 Environment requirements Temperature/Humidity	湿度: 30% ~ 60%无结露 温度: 22°C±2

UTG玻璃切割设备

UTG Glass Laser Cutting Machine



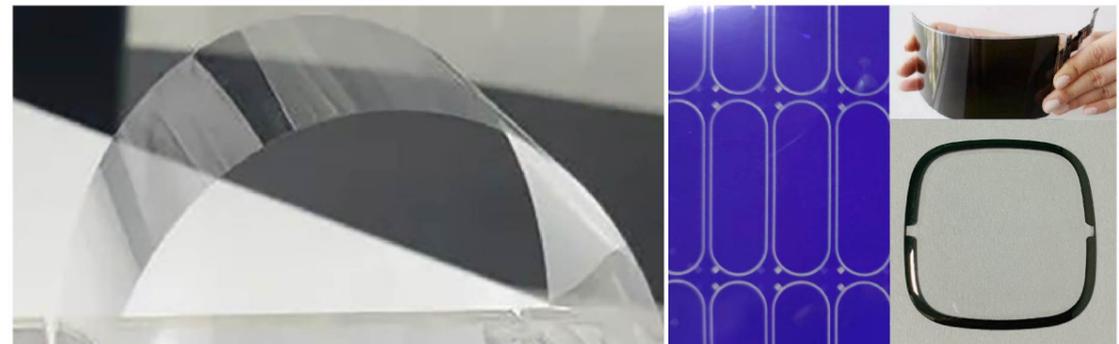
加工优势

Advantages

- 高精度、高性能、稳定量产;
- 实现 UTG 超薄柔性玻璃切割;
- 采用超快激光器，速度快，切割效果好;
- 采用精密模组，运动位置更精确，定位更精准。
- High precision with stable mass production;
- Enable ultra thin UTG glass cutting;
- Ultrafast laser for high processing speed and good quality;
- Using precision positioning modules for high position accuracy and fast CNC movement.

样品展示

Sample Display



技术参数

Technical Parameters

激光类型 Laser type	超快激光 Ultrafast laser
加工幅面 Processing area	400mmx400mm (可定制) (customized)
设备尺寸 Machine size	1800mmx1700mmx1900mm (以实物为准) (Prevail in kind)
设备精度 Machine processing accuracy	±0.02mm
整机功率 Electric power loading	3KW
设备重量 Machine weight	2500KG
环境要求 Environment requirements Temperature/Humidity	湿度: 30% ~ 60%无结露 温度: 22°C±2

全自动晶圆打标设备

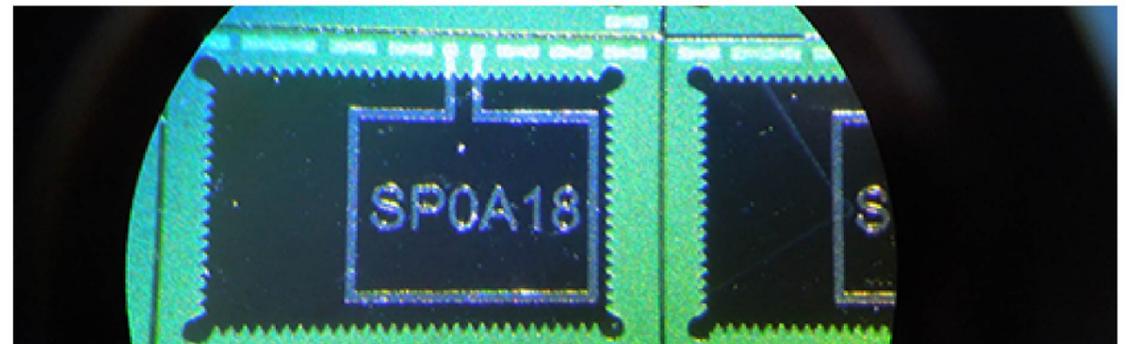
Fully Automatic Laser Wafer Marking Machine



加工优势 Advantages

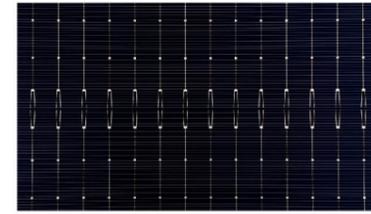
- 可实现超精细正、背面标刻;
- 光束质量稳定, 速度快, 精度高;
- 双平台作业, 全自动上下料, 提升效率;
- 自动检测、自动防反识别、一键抽检等功能。
- Suitable for fine marking on front and back;
- High beam quality, fast processing speed and high position accuracy;
- Dual platform system, automatic loading and unloading;
- Automatic fault detection, automatic pattern recognition, -one click sampling, etc.

样品展示 Sample Display



技术参数 Technical Parameters

激光类型 Laser type	纳秒紫外 Nanosecond UV
加工幅面 Processing area	(可定制) (customized)
设备尺寸 Machine size	1008mmx1700mmx1900mm (以实物为准) (Prevail in kind)
设备精度 Machine processing accuracy	±0.02mm
整机功率 Electric power loading	2KW
设备重量 Machine weight	2000KG
环境要求 Environment requirements Temperature/Humidity	湿度: 30% ~ 60%无结露 温度: 22°C±2



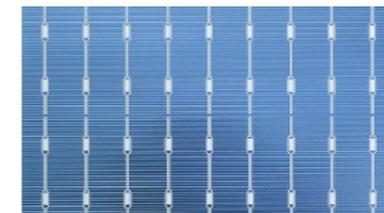
激光调制接触改善
Laser-modulated contact improvement



光伏：激光蚀刻
Photovoltaic: Laser Etching Machine



光伏：激光掺杂
Photovoltaic: Laser Doping



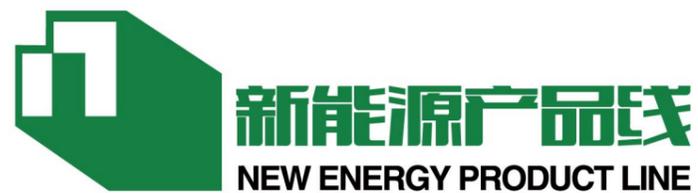
光伏：激光开膜
Photovoltaics: Laser Film Opening



方形铝壳/圆柱锂电池
Square Aluminum Casing/Cylindrical Lithium Battery
整线解决方案
Integrated Assembly Solution



电池包精密结构件
Battery Pack Precision Structural Components
激光焊接解决方案
Laser Welding Solution



太阳能光伏行业作为新能源产业的重要行业领域之一，在国家对新能源产业重视与日俱长的大环境下，其行业持续出现了需求的增长，同时，也迎来了激光应用在太阳能光伏行业的加工技术更迭。

In new energy industry, solar photovoltaic industry continues growing as the requirements of clean and green energy. Inte Laser is involved in this field with our laser processing technology for the industry innovation.

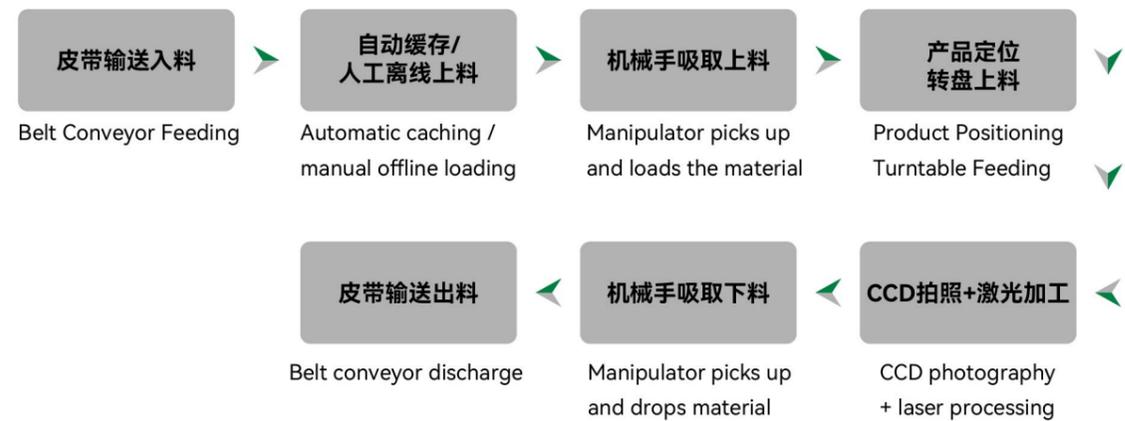
激光调制接触改善设备(LMCI)

Laser-modulated contact improvement(LMCI)



加工优势 Advantages

- 兼容连线自动生产或离线全自动生产模式;
- 加工采用双激光器, 转盘式生产, 生产效率高;
- 产品定位矫正采用电机控制, 可在控制界面设置参数, 方便调节;
- 激光加工平台采用大理石结构设计, 稳定可靠;
- 大光斑设计, 搭配高速、高精度的扫描系统, 确保激光区完全覆盖栅线
- 偏压源选择恒压大电流输出, 支持远程监控和设置多组电压工艺
- Compatible with online automatic production or offline fully automatic production modes.
- Processing adopts dual lasers, carousel production, achieving high production efficiency.
- Product positioning correction utilizes motor control, allowing parameter setting on the control interface for convenient adjustment.
- The laser processing platform employs a marble structure design, ensuring stability and reliability.
- Designed with a large spot size, paired with a high speed, high precision scanning system, ensuring complete coverage of the laser area.
- The bias power source selects constant voltage output with high current, supporting remote monitoring and setting of multiple voltage processes.



技术参数 Technical Parameters

激光类型 Laser type	红外激光/绿光激光 Infrared Laser/Green Laser
加工幅面 Processing area	180mmx180mm——230mmx230mm (可定制) (customized)
设备尺寸 Machine size	2900mmx1350mmx2100mm (以实物为准) (Prevail in kind)
设备性能 Machine characteristic	加工精度Machining precision≤0.02mm, 转换效率提升Conversion efficiency > 0.3%
整机功率 Electric power loading	12KW
设备碎片率 Machine fragmentation rate	尺寸size182mm, ≤0.02%; 尺寸size210mm, ≤0.03%;
环境要求 Environment requirements Temperature/Humidity	湿度: 30% ~ 60%无结露 温度: 22°C±2

全自动激光蚀刻设备

Fully automatic laser etching Machine



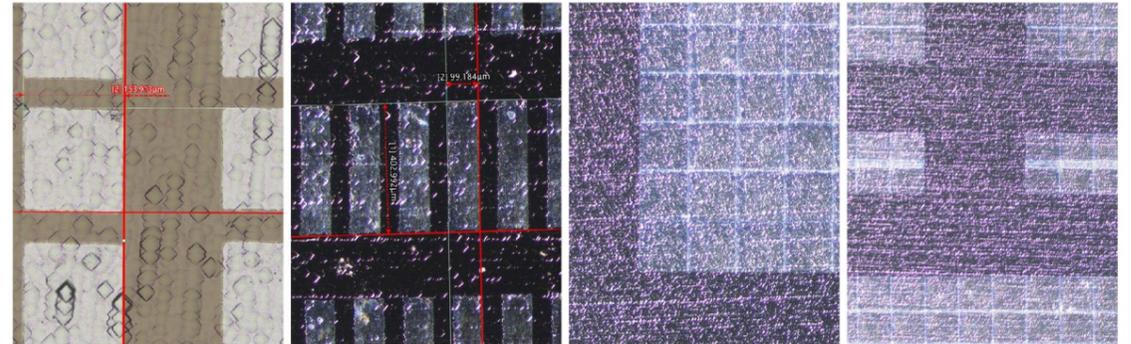
加工优势

Advantages

- 1.超窄脉宽激光+定制光束整形器件，满足多种膜层的大光斑蚀刻需求
- 2.搭配高精度定位系统+自研算法，保证P/N区分区精准
- 3.激光脉冲闭环调控，精细化控制激光图形
- 4.可选手动/AGV自动上下料
- Ultra-narrow pulse-width laser combined with customized beam shaping devices meets the large spot etching needs of various film layers.
- Equipped with high-precision positioning system and self-developed algorithms to ensure accurate discrimination of P/N regions.
- Laser pulse closed-loop control for fine-tuning of laser graphics.
- Optional manual/AGV automatic loading and unloading.

样品展示

Sample Display



技术参数

Technical Parameters

激光类型 Laser type	超快绿光/紫外 Ultrafast Green Laser/Ultraviolet laser
加工幅面 Processing area	180mmx180mm—230mmx230mm (可定制) (customized)
设备尺寸 Machine size	4500mmx1300mmx2200mm (以实物为准) (Prevail in kind)
光斑尺寸 Spot size	标配250μm方形 (可定制) (customized) Standard configuration: 250μm square
扫描速度 Scanning speed	≤60000mm/s
加工精度 Processing accuracy	≤±15μm@182mm
环境要求 Environment requirements Temperature/Humidity	湿度: 30% ~ 60%无结露 温度: 22°C±2

无损切割设备

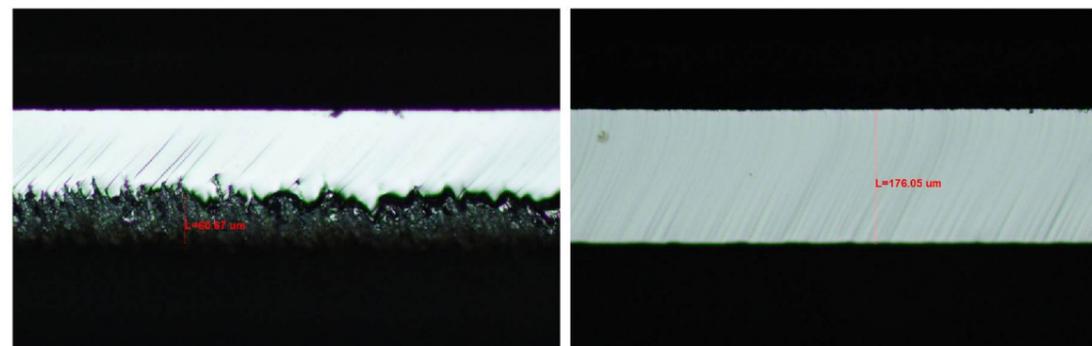
Non-destructive cutting equipment



加工优势 Advantages

- 采用激光热应力诱导裂片，裂片过程材料无损耗，电池保持原有机械强度；
- 裂片所需引导槽深度浅，长度短，槽宽窄，热影响小，最小限度影响电池效率；
- 标配1分2设计，定制化分片需求更换裂片激光头工装即可；
- 可选手动/AGV自动上下料。
- The process employs laser-induced thermal stress for dicing, ensuring a lossless material separation while maintaining the original mechanical strength of the battery;
- The required guiding grooves for dicing are shallow in depth, short in length, and narrow in width, resulting in minimal thermal impact and the least possible effect on battery efficiency;
- The standard configuration features a 1-to-2 design, with the flexibility to meet customized dicing requirements by simply replacing the dicing laser head fixture;
- Options for manual or AGV automated loading and unloading are available.

样品展示 Sample Display



技术参数 Technical Parameters

激光类型 Laser type	紫外激光/绿光激光+红外激光 UV / Green Laser + Infrared Laser
加工幅面 Processing area	180mmx180mm—230mmx230mm (可定制) (customized)
设备尺寸 Machine size	2400mmx1320mmx2500mm (以实物为准) (Prevail in kind)
设备精度 Machine processing accuracy	±0.02mm
整机功率 Electric power loading	3KW
设备重量 Machine weight	40000KG
环境要求 Environment requirements Temperature/Humidity	湿度: 30% ~ 60%无结露 温度: 22°C±2

激光打码设备

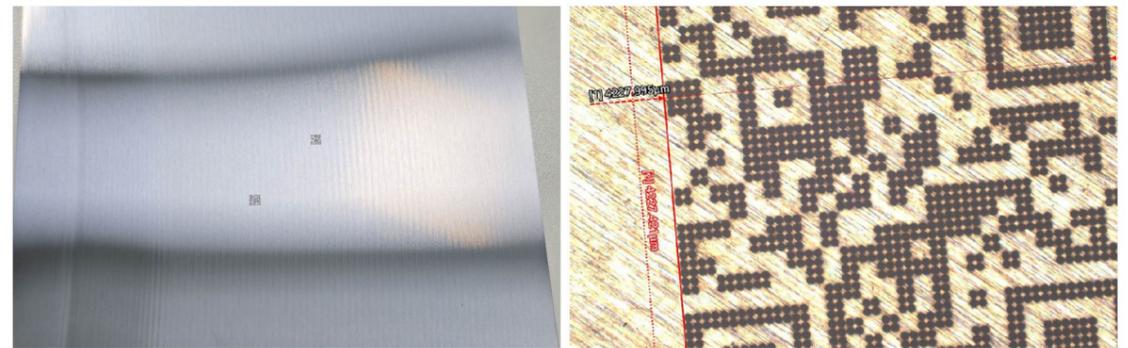
Laser Marking Machine



加工优势 Advantages

- 具备完整的条形码/二维码规则库，可随时、轻松修改打标规则；
- 成熟加工工艺，兼顾识别通过率与硅片损伤，电池成品EL码区无发黑；
- 上下料双检测系统，助力生产高品质电池片；
- 可选手动/AGV自动上下料。
- Equipped with a comprehensive barcode/QR code rule library, allowing for easy and timely modification of marking rules;
- Mature processing technology that balances recognition pass rates with silicon wafer integrity, ensuring no darkening in the EL code area of finished battery cells;
- Dual loading and unloading detection systems to support the production of high-quality battery cells;
- Options for manual or AGV automated loading and unloading are available.

样品展示 Sample Display



技术参数 Technical Parameters

激光类型 Laser type	紫外激光/红外激光 UV/ Infrared Laser
加工幅面 Processing area	180mmx180mm—230mmx230mm (可定制) (customized)
设备尺寸 Machine size	2400mmx1320mmx2500mm (以实物为准) (Prevail in kind)
设备精度 Machine processing accuracy	±0.02mm
整机功率 Electric power loading	3KW
设备重量 Machine weight	40000KG
环境要求 Environment requirements Temperature/Humidity	湿度: 30% ~ 60%无结露 温度: 22°C±2

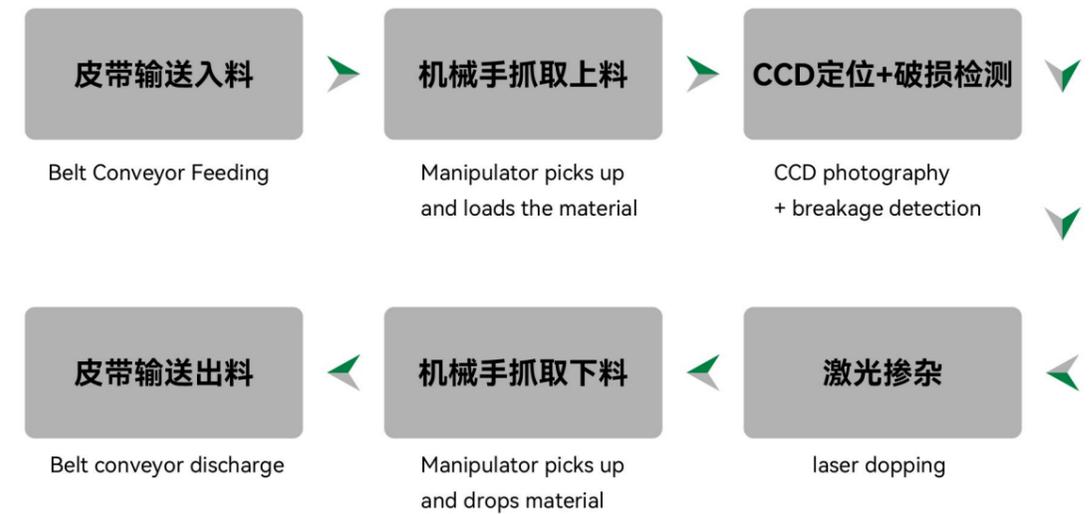
全自动激光掺杂/开膜设备

Fully automatic laser doping/film opening Machine



加工优势 Advantages

- 调整了激光脉冲的空间和时间分布，对绒面损伤更低;
- 更精细的激光功率控制方法，细致优化掺杂效果;
- 高速高精度的扫描系统，帮助栅线进行完美套印;
- 上下料双检测系统，助力生产高品质电池片;
- 可选手动/AGV自动上下料。
- Adjusted spatial and temporal distribution of laser pulses for lower damage to the surface;
- Finer laser power control methods for meticulously optimized doping effects;
- High-speed and high-precision scanning system for precise alignment of gridlines;
- Dual detection system for loading and unloading, enhancing the production of high-quality battery cells;
- Optional manual or AGV automated loading and unloading.



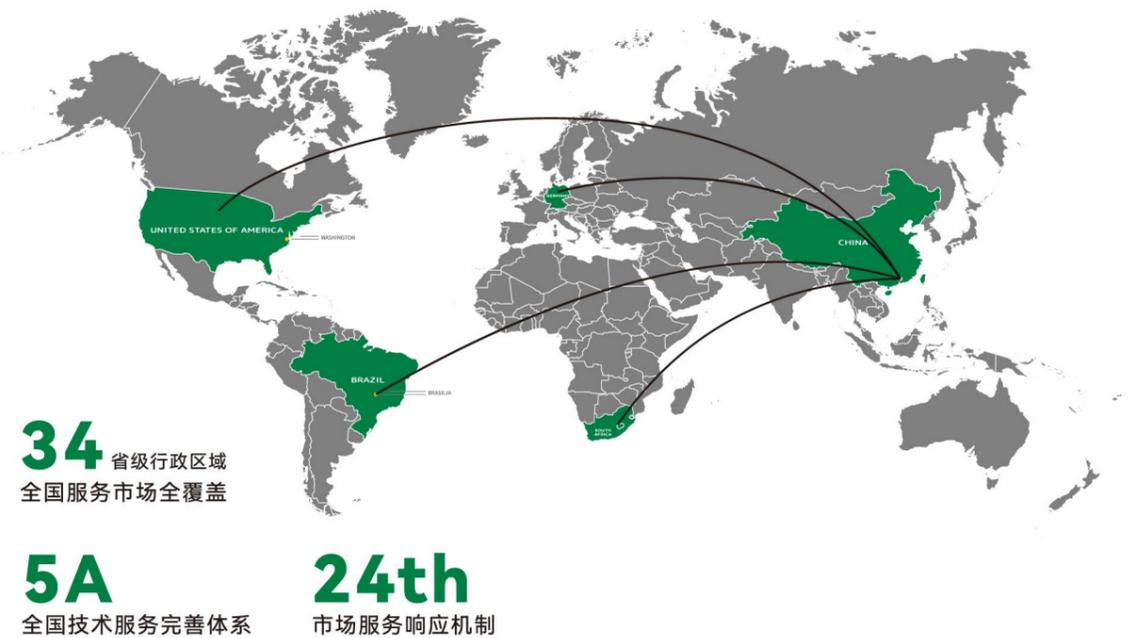
技术参数 Technical Parameters

激光类型 Laser type	紫外激光/绿光激光/红外激光 Ultraviolet Laser/Green Laser/Infrared Laser
加工幅面 Processing area	180mmx180mm—230mmx230mm (可定制) (customized)
设备尺寸 Machine size	5200mmx2740mmx2200mm (以实物为准) (Prevail in kind)
设备精度 Machine processing accuracy	≤0.02mm
整机功率 Electric power loading	3KW
设备重量 Machine weight	4000KG
环境要求 Environment requirements Temperature/Humidity	湿度: 30% ~ 60%无结露 温度: 22°C±2

创新研发 Innovative R&D

公司从2013年成立至今，规模逐步扩大，其中研发人员占比达41%以上，且均为激光行业的资深工程师和专家。

Since its establishment in 2013, the company has gradually expanded its scale. Among them, research and development personnel account for more than 41%, all of whom are senior engineers and experts in the laser industry.



企业荣誉 Company Honors

公司已注册韵腾激光商标，申请多项专利，发明专利38项，实用新型专利80项，软件著作权11项，外观设计3项，多项发明专利、实用新型和软件著作权正在申报过程中.....

The company has registered the INTE Laser trademark, applied for multiple patents, including 38 invention patents, 80 utility model patents, 11 software copyrights, and 3 design patents. Several invention patents, utility model patents, and software copyrights are currently in the application process...



企业专利 Company Patent



行业部分合作客户 排名不分先后 Partial Cooperative Clients

