



INDUSTRY IS SKILLED EXCELLENCE

LASER SOLDERING EXPERT

自动激光焊锡应用专家

浙江紫宸激光智能装备有限公司

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Zhejiang Vi Laser Intelligent Equipment Co., LTD.



**EXPERT**  
Application of  
laser soldering

**SINCERE COOPERATION**

**CREATING EXCELLENT QUALITY**

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## COMPANY PROFILE

Zhejiang Vi Laser Intelligent Equipment Co., Ltd. was established in April 2014 in Shenzhen, the forefront of China's reform and opening-up. As a national high-tech enterprise with proprietary core technologies, it has been recognized as a Sci-Tech Innovative SME and gradually evolving into a specialized, sophisticated, and cutting-edge "Little Giant" enterprise. Through years of market cultivation, the company has now become a leading brand in the laser soldering segment.

The factory covers an area of 7,800 square meters, and has 111 patent certificates, including 16 invention patents and 45 utility patents, is one of the most domestic laser soldering patent research and development enterprises. Our products also solve the problem that traditional welding methods cannot be realized during the manufacturing process of microelectronic products.

They are sold to major companies around the world, such as: US Jabil and TTI; France Valeo ; Japan Nidec and Panasonic; and China's leading enterprise: MIDEA, GREE, Hikvision, BYD, CETC as well as Taiwan Unimicro ,etc.

Our main products are laser welding equipment, laser marking equipment, precision laser cutting equipment, precision laser drilling equipment, and automation equipment. It is used for various consumer electronics products, appliance industry such as washing machine and air conditioner refrigerator, automotive electronics products, electrical circuit boards, semiconductor packaging devices, optical communication devices, motor core components, precision medical devices and other industries.

### SPECIALIST IN AUTOMATIC LASER SOLDERING



2014

When The Company Was Founded

7800

Enterprise Production Base

111

Laser Technical Patents

300

Annual Equipment Output

## TECHNICAL TEAM

Our technical team has over 5 years of highly skilled technical personnel in the application of laser automated welding technology; A sales team with over 10 years of marketing experience in the laser industry; Experienced optical process experts are available to assist in solving laser processing technology challenges and improving product competitiveness; There is also technical support from national key scientific research institutions such as Changguang Institute.

The current total number of employees in the company is 91, with a technical team of 55 people, accounting for 60%, and strong research and development capabilities

Experienced laser industry technical talent team

## QUALITY POLICY

Vi Laser has been committed to the application of precision laser soldering for 11 years, with 111 domestic patents, including 16 invention patents, 45 utility patents, and 50 computer software copyrights. It is one of the most domestic laser soldering patent research and development enterprises.



## SERVICE COMMITMENT

The company adhere to the policy "customer-centric" and provides your company with complete pre-sales and after-sales services such as installation, commissioning, training and maintenance.

Equipment Support: one year warranty and lifetime maintenance; 9001 Quality Management.

Company Guarantee: Free technical consultation, software upgrade and other services.



## Solder Ball Laser Welding Series



Model number	VIL-LWMB-CS2
Laser power	50-100W (optional)
Laser wavelength	1064nm
Cooling method	Full air cooling
Spray ball diameter	50um~200um
Motion control	PC+ motion control card
Positioning method	CCD positioning
Repetition precision	±3um
Number of stations	2 stations
Welding range	200*200mm
Ball planting efficiency	≥3 balls/S
Nozzle counterpoint	Automatic calibration
Power supply	AC220V 50Hz
Usage Environment	22-30°C 20-70% (non-condensating)
Weight	1200Kg
Overall dimensions	1035(L)*1245(W)*1680(H)mm



Model number	VIL-LWB-CS2
Laser power	100-200W (optional)
Laser wavelength	1064nm
Cooling method	Full air cooling
Spray ball diameter	200um~760um
Motion control	PC+ motion control card
Positioning method	CCD positioning
Repetition precision	±5um
Number of stations	2 stations
Welding range	200*200mm
Ball planting efficiency	≥3 balls/S
Nozzle counterpoint	Automatic calibration
Power supply	AC220V 50Hz
Usage Environment	22-30°C 20-70% (non-condensating)
Weight	1150Kg
Overall dimensions	1050(L)*1380(W)*1700(H)mm

## Solder Ball Laser Welding Series



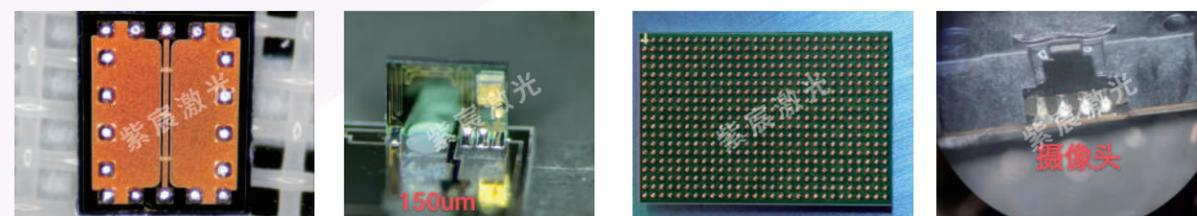
Model number	VIL-LWLB-CS2
Laser power	200-300W (optional)
Laser wavelength	1064nm
Cooling method	Full air cooling
Spray ball diameter	800um~2000um
Motion control	PC+special control software
Positioning method	CCD positioning
Repetition precision	±30um
Number of stations	2 stations
Welding range	200*200mm
Ball planting efficiency	≈3balls/S
Nozzle counterpoint	Auto correction
Power supply	AC220V 50Hz
Usage Environment	22-30°C 20-70% (non-condensating)
Weight	550kg
Overall dimensions	1000(L)*850(W)*1800(H)mm

### ▶ EQUIPMENT FEATURES

- High precision, automatic visual positioning, welding position accuracy up to ±3um;
- High efficiency, double station design, save manual loading and unloading time, efficiency increase more than 35%;
- Good effect, laser soldering effect is uniform;
- Micro processing, the minimum diameter of the tin ball can be 50um;
- Function rich, tin ball diameter 50um~2000um optional;
- Wide applicability, suitable for all kinds of plane, three-dimensional shaped products precision welding.

### ▶ APPLICATION

It can be used for wafer, BGA chip ball planting, optical communication device packaging, sensor device packaging, MEMS, HDD (HGA, HSA), mobile phone camera module and other high precision device welding.



## Solder Wire Laser Welding Series



Model No.	VIL-LWW-CTS2-100
Laser power	100W (150W optional)
Laser wavelength	975nm
Cooling method	Air cooling
Tin wire specifications	0.5-2.0mm
Motion control	IPC+PLC
Positioning accuracy	±0.04mm
Motion accuracy	±0.02mm
Number of stations	Double stations
Welding range	200*200mm (single position)
Welding efficiency	About 1s/solder joint
Weld monitoring	Coaxial monitoring
Power source	AC220V 50Hz 15A
Usage Environment	20-30°C 20-80% (non-condensating)
Weight	500Kg
External dimensions	1400(L)*1150(W)*1850(H)mm

### ► EQUIPMENT FEATURES

- Double station design, high efficiency;
- Affordable, high performance-price ratio;
- CCD, laser, indicating light three point coaxial, avoid complex debugging;
- Special welding software, simple operation, powerful function;
- Industrial computer uses i5-6 generation;
- Visual automatic positioning, high motion accuracy, suitable for high precision welding;
- Small laser beam instead of soldering iron head, can also be operated in narrow space.

### ► APPLICATION

The equipment has stable performance, small size and low power consumption. Widely used: optical communication module and device, 3C electronics, PCB circuit board, camera module.



## Solder Paste Laser Welding series



Model No.	VG811R
Laser power	100W (optional)
Laser wavelength	915nm
Cooling method	Full air cooling
Spot tin precision	Volume ±10%
Motion control	PC+ motion control card
Positioning accuracy	±0.04 mm
Motion accuracy	±0.02 mm
Number of stations	4 stations
Welding range	120*100mm (single station)
Welding efficiency	About 0.5s/ solder joint
Weld monitoring	Coaxial monitoring
Power source	AC220V 50Hz
Usage Environment	22-30°C 20-70% (non-condensating)
Weight	500Kg
External dimensions	About 1100(L)*1000(W)*1800(H)mm

### ► EQUIPMENT FEATURES

- 4 stations, the efficiency is improved by more than 20%;
- Rich function, flexible combination;
- Special welding software, simple operation, powerful function;
- Installation of dust purification system to ensure the cleanliness of the working environment;
- Visual automatic positioning, high motion accuracy, suitable for small precision parts solder;
- Accurate temperature control function, temperature control ±5°C, prevent burns;
- Expandable point tin/post-weld detection, to achieve bad detection after welding.

### ► APPLICATION

Widely used in: optical communication modules and devices, mobile phone communication, 3C electronics, PCB circuit boards, camera modules, etc.



## Solder Paste Laser Welding series



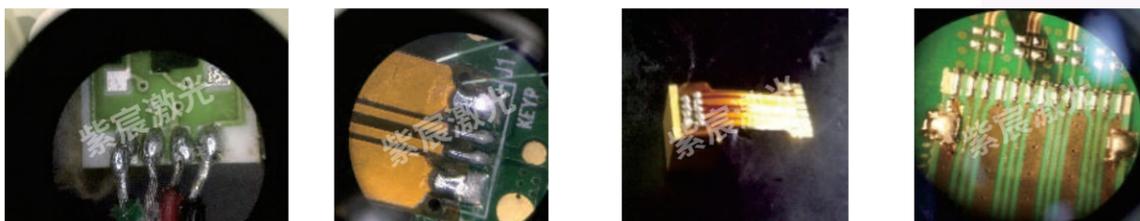
Model No.	VG1601
Laser power	100W (optional)
Laser wavelength	915nm
Cooling method	Full air cooling
Spot tin precision	Volume $\pm 10\%$
Motion control	PC+ motion control card
Positioning method	CCD positioning
Motion accuracy	$\pm 0.02$ mm
Number of stations	2 stations
Welding range	200*200mm (single station)
Welding efficiency	About 0.5s/point
Weld monitoring	Coaxial monitoring
Power source	AC220V 50Hz
Usage Environment	22-30°C 20-70% (non-condensating)
Weight	450Kg
External dimensions	About 1100(L)*1000(W)*1800(H)mm

### EQUIPMENT FEATURES

- High precision point tin control, good consistency;
- Special welding software, simple operation, powerful function;
- Point tin height measurement, prevent bad point tin and damage to the needle tip;
- Accurate temperature control function to prevent burns;
- Reciprocating, high efficiency, yield is higher than ordinary automatic soldering machine;
- Expandable post-solder testing function, strong compatibility.

### APPLICATION

The device has stable performance, small size and low power consumption. Widely used in: optical communication modules and devices, patch components, inductance, capacitance and resistance, connectors, mobile phone communication, PCB circuit board, etc.



## Solder Paste Laser Welding series



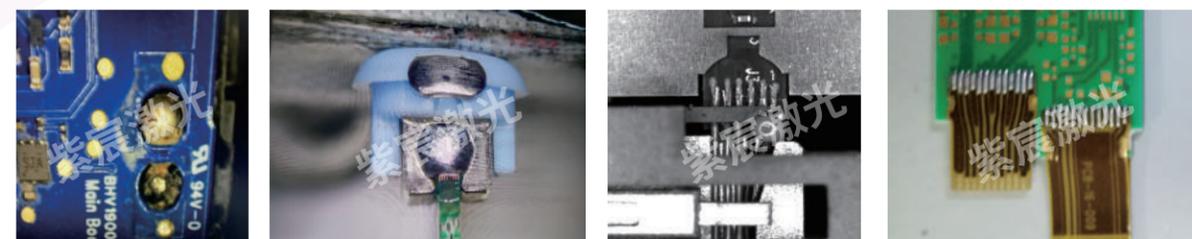
Model No.	VG820RT
Laser power	50-500W (optional)
Laser wavelength	976nm
Cooling method	Fully air/water cooled
Spot tin precision	Volume $\pm 10\%$
Motion control	PC+ motion control card
Positioning accuracy	$\pm 0.04$ mm
Motion accuracy	$\pm 0.02$ mm
Number of stations	6 stations
Welding range	120*100mm (single station)
Welding efficiency	About 0.5s/point
Weld monitoring	Coaxial monitoring
Power source	AC220V 50Hz
Usage Environment	22-30°C 20-70% (non-condensating)
Weight	650Kg
Overall dimensions	About 1400(L)*1200(W)*1860(H)mm

### EQUIPMENT FEATURES

- Spot size adjustable, suitable for small precision parts solder;
- Processing program setting is simple, Chinese interface, easy to operate;
- Laser, CCD, temperature measurement three point coaxial, avoid complex debugging;
- 6 workstation design, the efficiency is increased by more than 40%;
- Real-time temperature control feedback, accurate temperature control  $\pm 5^\circ\text{C}$ , eliminate burns;
- AOI after welding detection, to achieve the detection of tin spot and welding defects.

### APPLICATION

Widely used in: optical communication module and device, lithium battery control board, 3C electronics, PCB and FPC circuit board, camera module, etc.



## Solder Tin Ring Laser Welding Series



Model No.	VH200
Laser power	20-300W(optional)
Laser wavelength	915/976nm
Cooling method	Air cooled
Solder supply	Solder wire diameter: 0.5~1.0mm
Cutting	Length tolerance < 0.05mm.
Motion control	Multi-axis Synchronization + PC/PLC
Positioning method	CCD positioning
Repetition precision	± 0.02 mm
Welding range	200*200mm
Welding efficiency	0.8S-2S/point
Power source	AC220V 50Hz
Usage Environment	18-30 ° C; 30%-70% (non-condensable)
Weight	1400Kg
Overall dimensions	About 2700(L)*1500(W)*1800(H)mm

### ► EQUIPMENT FEATURES

- Ultra-High Precision and Micro-Welding Capability: Minimum spot diameter of 0.3mm, capable of welding solder joints with a diameter of 0.5mm.
- Exceptional Heat-Affected Zone Control: Localized heating minimizes the heat-affected zone, with rapid temperature rise reducing thermal impact on surrounding components.
- Automation and Flexible Production: Modular design enables seamless integration into automated production lines, supporting 24-hour continuous operation.

### ► APPLICATION

The VH200 Laser Solder Ring Welding Machine is a high-end automated system that integrates laser solder melting, automatic solder ring cutting, and precision positioning. It can be used in 3C electronics, intelligent manufacturing, optical communication, automotive electronics industry and other pin products, such as connector, power connector, pin type capacitor, etc.



## Laser Marking Equipment For PCB Industry



PCB/FPCB Two-dimensional Code Laser Marking Machine



### ► EQUIPMENT FEATURES

- Laser marking of copper-clad and finished boards for PCB and FPCB industries;
- Automatic feeding. Support automatic turning;
- Can be connected to servers, MES, ERP and other systems;
- Real-time automatic scanning code and rating;
- Numbers, text, bar code and other automatic positioning, automatic coding.

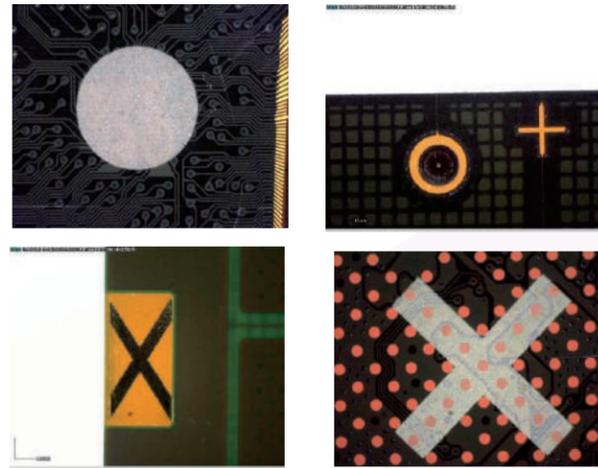
Name	Parameters
Supports maximum product sizes	Maximum board size 650*750mm; Customizable size
Laser type and power	UV, Green, Fiber, CO2 laser optional;
Automatic feeding machine	Equipped with, optional, adsorption type automatic feeding and unloading; Automatic anti-falling board
Automatic flipping machine	Available, optional; Automatic anti - drop board
Laser marking accuracy	< ±0.1mm
Automatic positioning	10 megapixel HD camera automatic positioning
Markable content	QR codes; Letters, numbers, words
Automatic number hopping	The content of bar code and two-dimensional code can be automatically adjusted according to the set rules
Automatically scan code rating	Available, optional

## Laser Marking Equipment For PCB Industry



IC Carrier Board Laser Marking Machine

All kinds of defects of IC carrier board (strip) are automatically detected and marked by laser. The laser marking has high precision and high identification.



### EQUIPMENT FEATURES

- Used in IC carrier industry; Used for laser marking of defects on IC carrier board (strip);
- The minimum size of QR code is 1mm\*1mm, the minimum size of text is 0.5mm\*0.5mm;
- Automatic loading and unloading, automatic paper dismantling, automatic paper padding;
- It can connect to MES/ERP and other data systems to automatically obtain and compare the position information of the previous process defects, and the results can be automatically uploaded to realize intelligent control.

Name	Parameter sheet
Supports maximum product sizes	Support the maximum board size of 140*300mm; Customizable size
Laser type and power	Green light Green; 10W
Automatic loading and unloading machine	Equipped with adsorbent automatic loading and unloading; Automatic anti - drop board
Automatic flipping machine	Equipped with automatic anti-dropping board
Automatic defect detection	Equipped with automatic detection of HD cameras
Laser marking accuracy	< ±0.1mm
Automatic positioning	Automatic positioning of the HD camera
Markable content	Various dot, square, cross graphics. A variety of bar codes, two-dimensional codes; Letters, numbers, words
Bar codes automatically skip numbers	The content of bar code and QR code can be automatically adjusted according to the set rules
Automatic networking	Can automatically connect to servers, MES, ERP and other network systems

## Automated Customized Equipment

Model number	Non standard customization
Laser power	100-500W (optional)
Laser wavelength	915nm
Welding method	Laser tin wire
Tin wire	0.8-2.0 mm (optional)
specifications	ICP+PLC
Motion control	Three axis robotic arm+automatic detection
Processing method	Assembly line operation
Welding monitoring	CCD coaxial monitoring
Power source	AC220V 50Hz



Motor Stator PCB Welding Detection Integrated Machine

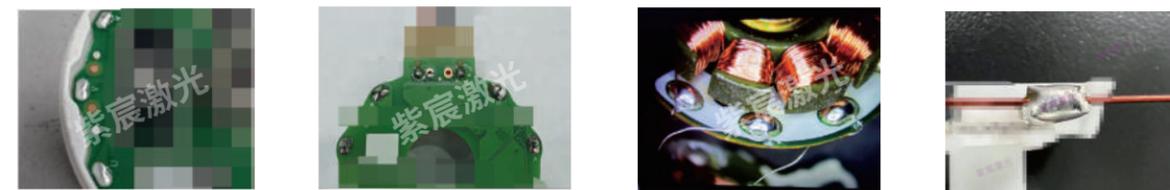
### EQUIPMENT INTRODUCTION

This equipment is an automated laser welding equipment designed for the motor industry, consisting of intelligent robotic arms, high-precision wire feeding mechanisms, assembly lines, laser soldering systems, CCD visual positioning, detection systems, etc. It has high welding accuracy and fast efficiency.

### EQUIPMENT FEATURES

- High soldering efficiency, suitable for mass production with multiple solder joints;
- High degree of automation, CCD imaging for real-time observation of processing conditions;
- The processing program is simple and easy to operate;
- Paired with intelligent robotic arms, high welding accuracy;
- Excellent welding effect, full solder joints, and good consistency;
- Integrated welding and testing, ensuring product yield.

### CASE



## Automated Customized Equipment



Power Capacitor Laser Welding Machine

Model number	Non standard customization
Laser power	500W (optional)
Laser wavelength	915nm
Welding method	Laser tin wire
Tin wire	0.8-2.0 mm (optional)
specifications	ICP+PLC
Motion control	Double sided automatic flip welding+AOI detection
Processing method	Assembly line operation
Welding monitoring	CCD coaxial monitoring
Power source	AC220V 50Hz

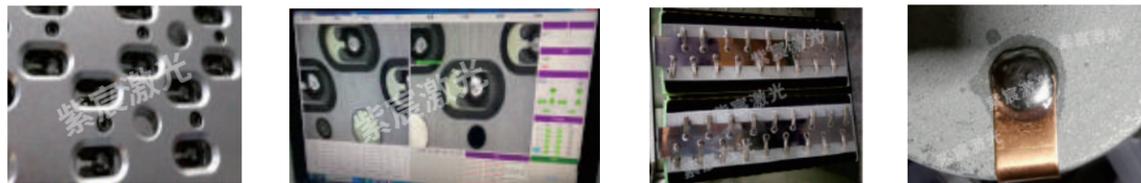
### ▶ EQUIPMENT INTRODUCTION

This device adopts a dual side interactive feeding workstation design, consisting of an automatic laser soldering system, double-sided soldering fixture automatic flipping, CCD camera positioning, temperature control, post weld detection and other functions. It is mainly used for welding between capacitor cores and copper bars, electronic wires, copper foil strips, and metal films.

### ▶ EQUIPMENT FEATURES

- Interactive feeding between the front and back sides allows for batch welding of multiple special capacitor products at once;
- This product needs to be welded on both sides, and the equipment is equipped with an automatic flipping control mechanism;
- CCD visual alignment+solder joint detection: CCD takes photos before welding to capture the position of the solder pad, and CCD detects the quality of the solder joints after welding;
- Accurate digital temperature control function ensures that the solder joint temperature is within the set welding temperature range, preventing damage to the solder pad and components caused by excessive temperature.

### ▶ CASE



## Automated Customized Equipment



PCB And Wire Laser Soldering Machine

### ▶ EQUIPMENT INTRODUCTION

This laser soldering machine is an online operation equipment consisting of a high-precision X, Y, Z mobile positioning system, an automatic tin feeding and breaking system, a robotic laser soldering system, a CCD visual positioning system, a product conveying fixture positioning system, a fixture reflux circulation system, a real-time welding monitoring and control system, a temperature control feedback control system, and a wire sequence detection system. It is mainly used for soldering between circuit boards and wire harnesses.

### ▶ EQUIPMENT FEATURES

- High soldering efficiency, suitable for mass production with multiple solder joints;
- High degree of automation, CCD real-time observation of processing conditions;
- The processing program is simple and easy to operate;
- Paired with intelligent robotic arms, high welding accuracy;
- Excellent welding effect, full solder joints, and good consistency;
- Integrated welding and testing, ensuring product yield.



## Automated Customized Equipment



### ▶ EQUIPMENT INTRODUCTION

By using automatic robots to match laser welding systems, coupled with temperature feedback systems and CCD coaxial welding monitoring, high efficiency, precision, stability, and high-quality production can be achieved; At the same time, it can achieve automated access to traditional production lines and achieve a production volume of several to ten skilled workers.

### ▶ EQUIPMENT FEATURES

- High yield, effectively reducing production costs, high stability, and high reliability;
- High quality, high yield production, with a yield rate greater than 99%;
- Customized according to customer needs, easy to operate, and convenient to cooperate with automatic production lines;
- Using visual positioning welding devices;
- The machining program is simple to set and easy to operate;
- CCD imaging dynamic monitoring, observing the processing process;

### ▶ APPLICATION

Mainly used for soldering PCB boards, soldering circuit board wires, and soldering pin components.



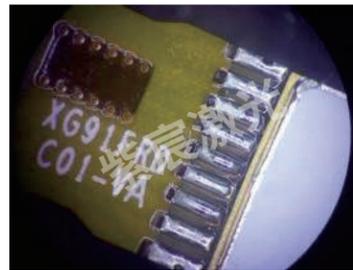
## Customer groups



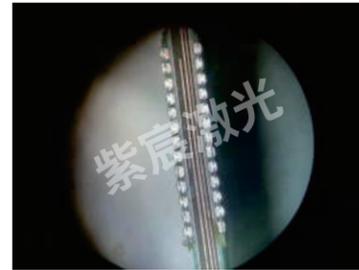
# Case presentation ▶ Communication Industry ▶



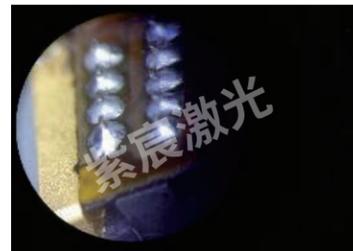
10G optical module OSA and FPC



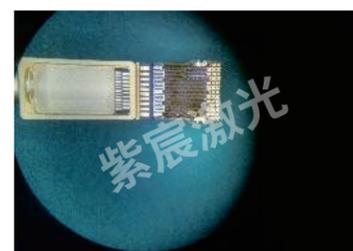
Optical communication high-speed module



Cutting effect of optical communication module



25G optical module BOX and PCBA



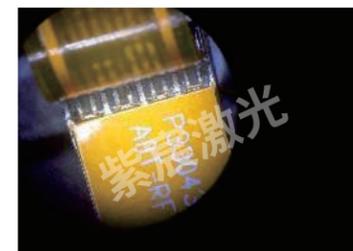
40G optical module BOX and PCBA



40G optical module FPC and PCBA Pulling Effect



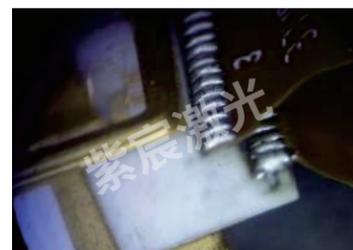
100G optical module BOX and FPC



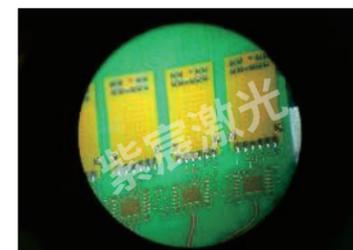
100G optical module BOX and FPC



400G optical module FPC and PCB



100G optical module BOX and FPC



100G optical module PCBA and FPC

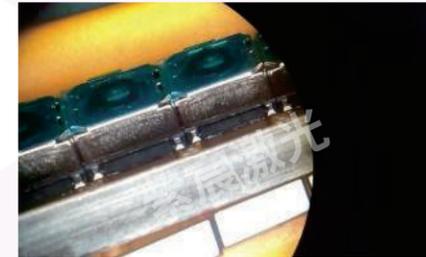


200G optical module BOX

MICROSCOPIC VIEW OF CUSTOMER SAMPLES

MICROSCOPIC VIEW OF CUSTOMER SAMPLES

# Digital Electronics Industry ▶



Mobile camera CCM



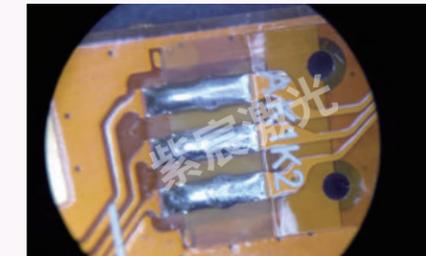
Mobile LCD soft board



Smart wristband



Camera components



Touch screen FPC soft board



Phone side buttons



Camera module



Game controller

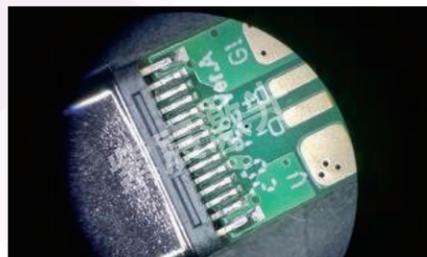


Electric horn microphone

# Case presentation ▶

## Electrical connector industry ▶

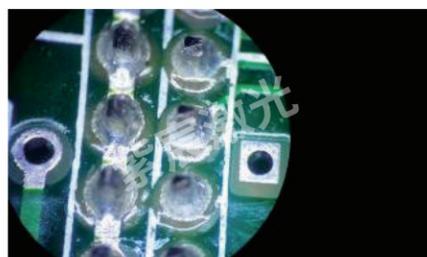
## Electric motor industry ▶



type-c connector



FPC connector



LED circuit board



5G connector



Copper pipe joint



HIMD connector



Automotive electronic connectors



Ethernet port connector

MICROSCOPIC VIEW OF CUSTOMER SAMPLES

MICROSCOPIC VIEW OF CUSTOMER SAMPLES



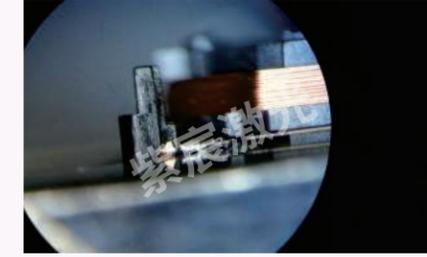
Fan motor stator



Coil winding



Motor control board



VCM motor coil



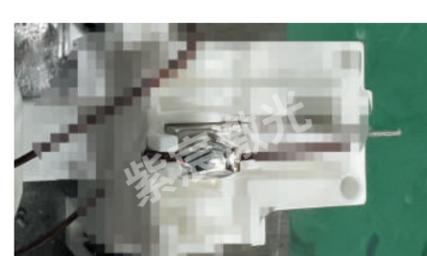
Air conditioning motor



Motor coil



Air conditioning motor PCB board



Air conditioning motor aluminum baseline

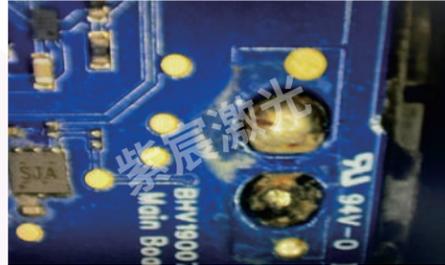
# Case presentation

## Consumer electronics industry

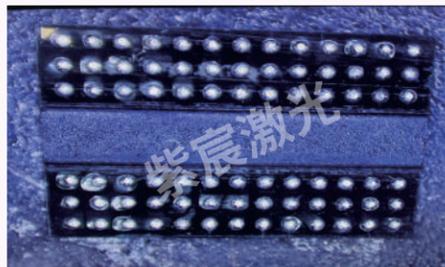
## The automotive industry



PCBA electrical connection board



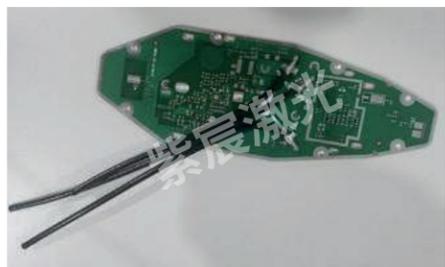
Electronic cigarette control board



Chip planting ball



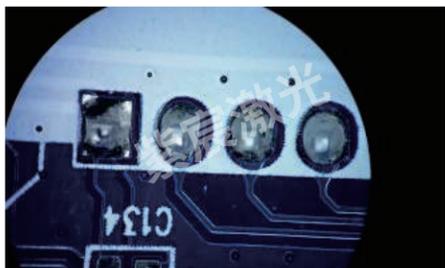
PCB connector



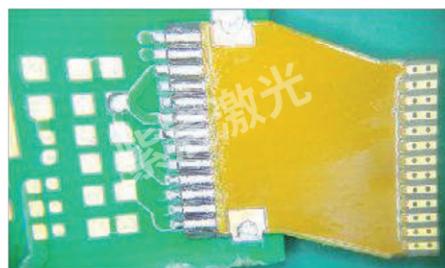
Compartmentalized antenna



Game controller



Through-hole component



PCB and FPC

MICROSCOPIC VIEW OF CUSTOMER SAMPLES

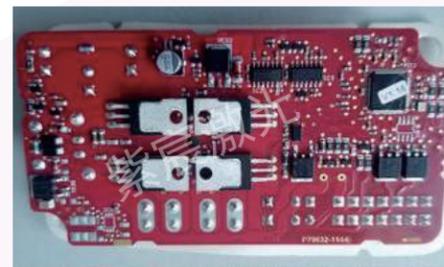
MICROSCOPIC VIEW OF CUSTOMER SAMPLES



Automotive lithium batteries



Reverse radar



Automotive electronic MOSFET



Automotive sensors



Rain sensor



IGBT module



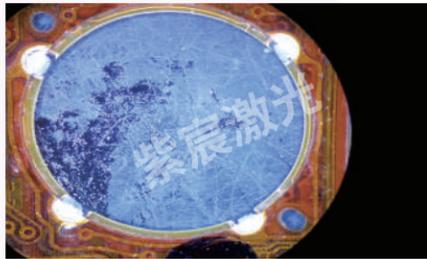
Lithium battery FPC



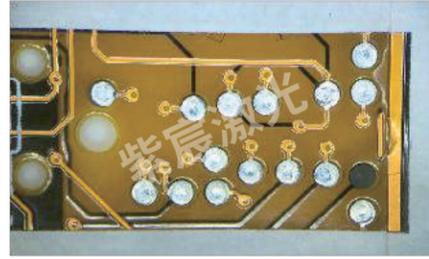
Battery module PACK

# Case presentation

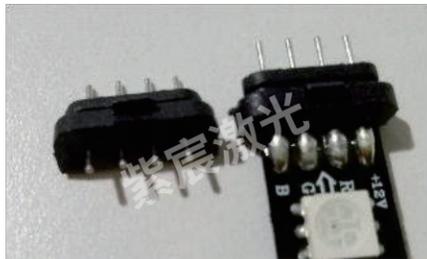
## Other Industries



VCM made of FPC material



FPC flexible soft board



LED light strip



PCB control board buttons



Glass diode



Power battery



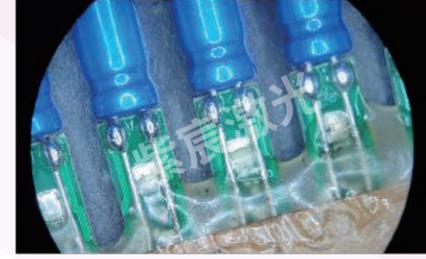
Special capacitors



SMT capacitor

MICROSCOPIC VIEW OF CUSTOMER SAMPLES

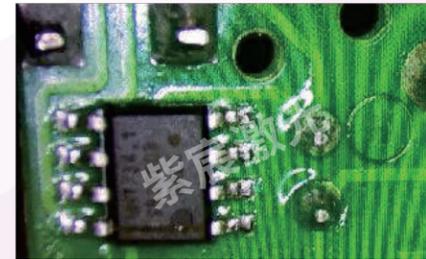
MICROSCOPIC VIEW OF CUSTOMER SAMPLES



Needle type capacitor



Through-hole circuit board



IC chips, pin connectors



Chip resistor



Medical devices



Power capacitors



Circuit boards and electronic wires



Wire harness