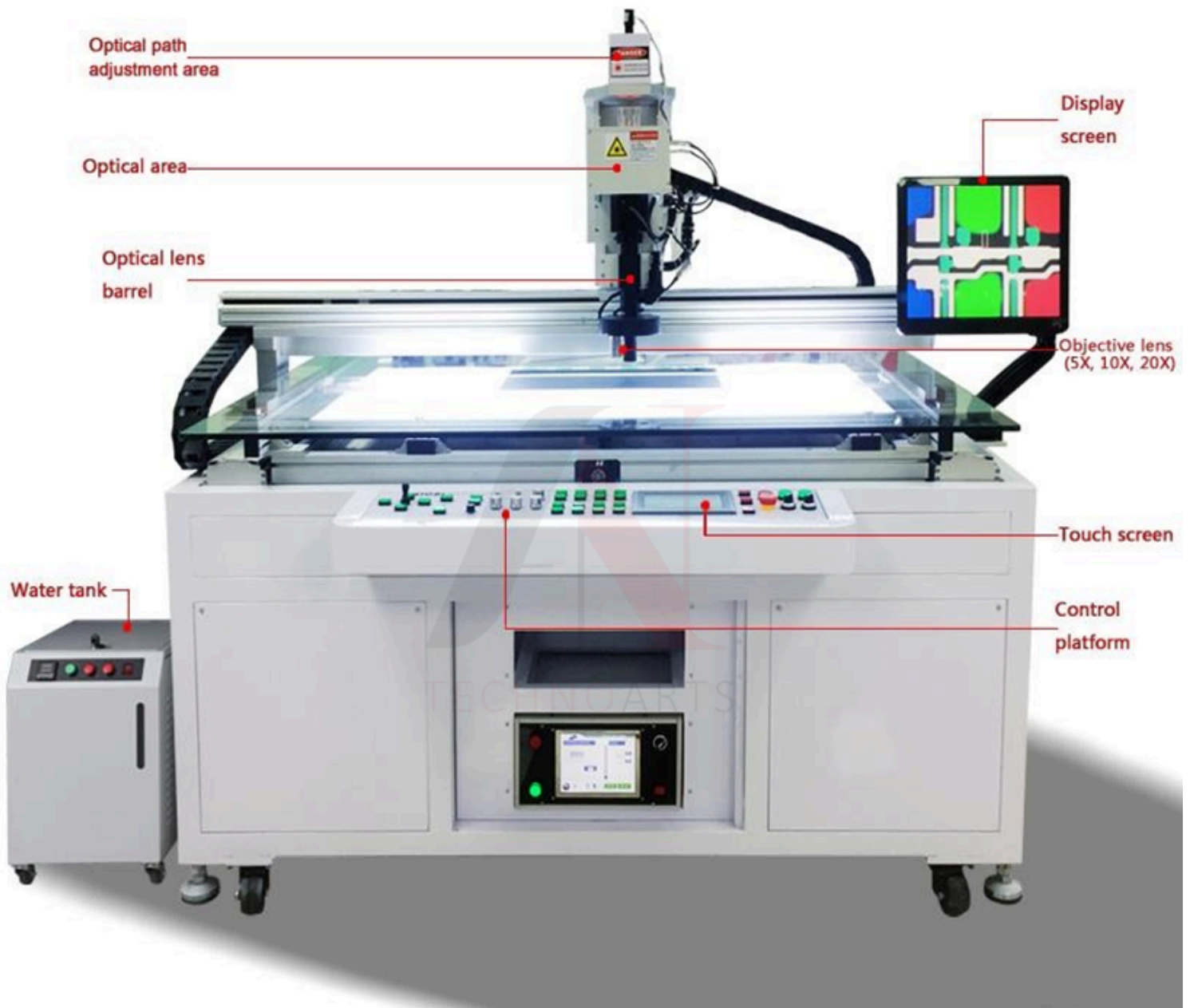




WEICAI LCD/LED Laser Machine

CR-512D, 5 Mhz

Laser repair machine Specifications



Equipment model: **CR-512D** Equipment Introduction

This scheme is laser patching system designed for TFT-LCD panel. The device is equipped with Weicai self-developed control system (including Laser head and Laser Controller), advanced beam transmission system, achieve fine and tiny spots , to ensure accurate cutting at the micro level, provide accurate power control wavelengths; using equipped with laser processing dedicated optical lens, image observation objective lens, servo drive electronic control system, customize suspension pneumatic shock system, precision steel frame base and other components constitute. The system includes Nd-YAG, laser head of pulsed solid state laser , consisting of watercooled power supply and control electronics main unit. The laser mainly produces 1064nm nearinfrared light. However, it have mechanism for tuning the KTP crystal and the filter wheel through angle to generate and select additional harmonics of 532 nm (green) and 355 nm (UV). This device can against short-circuit line cutting processing on a specific material layer of workpiece, the workpieces are taken by manual mode.

Product Application

Mainly used to cut and trim micron-sized parts of silicon-based semiconductor circuits, in particular, passivation layers (silicon oxide/nitride) and metal interconnects (usually aluminum). Can against the target material adjust laser pulse energy and wavelength.

Equipment Use

Precision cutting of semiconductor circuits, is to repair semiconductor failures , analysis and in optical micromachining applications excellent tools for increasing productivity . Can significantly increase the of IC design engineers and fault analysis personnel productivity , provides valuable tools for rapid removal of passivated materials and cutting circuits . The system can greatly improve the quality of production by quickly repairing defects and re-moving short circuits. On LCD screen repair industry accounted for the high-end repair technology, the most high-end technology of LCD screen repair , LCD screen repair industry in addition to the COF loose welding ect. (This error can be repaired with a bonding machine) others such as ITO break, short line, bright line, half-line, dotted line , a multi-line laser machine can be used to repair. Laser machine with high efficiency, fixed rate, low cost (the same fault in the laser machine does not need replacement parts, (and do not affect the repair rate), in large-scale production factory & after sale and service company are widely used , as the main equipment for repairing screen .

Equipment Function

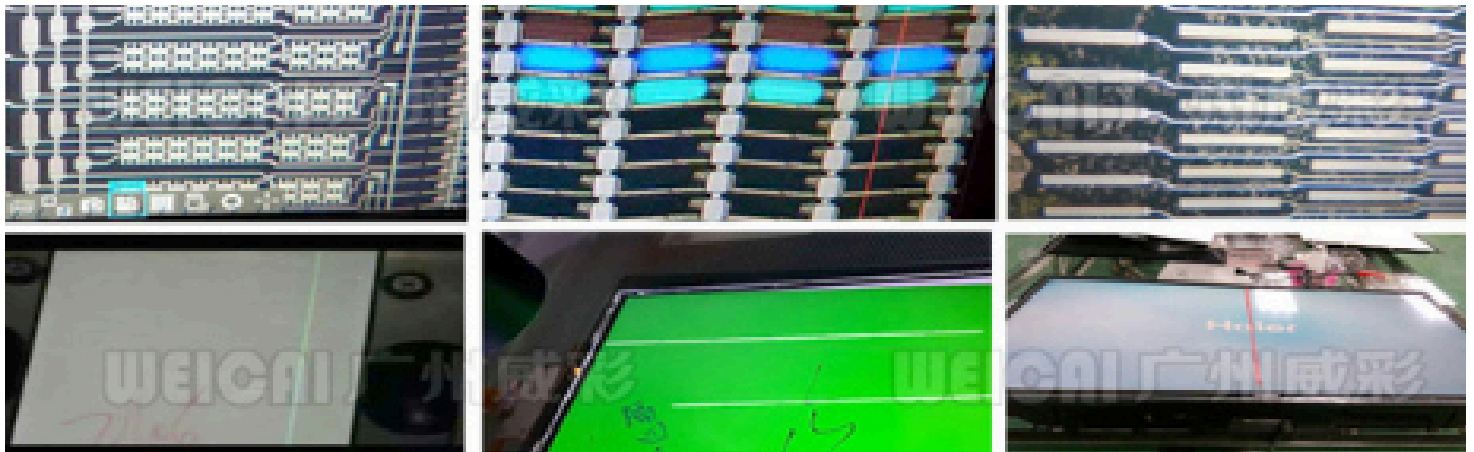
The device is using laser (good monochromatic, good coherence, good direction) & (high brightness) characteristics, under various kinds of optics effect, focused into high-energy laser, use different wavelengths (1064nm, 532nm) repairing Short Circuit Defects in TFT-LCD/OLED Processes, to improve the yield rate.

Field of Application

Suitable for LCD panel manufacturers, Panel bonding foundry, Well-known brand manufacturers after sales, Professional LCD repair market, Professional maintenance companies and home appliance repair users.

Equipment major development projects

NO.	Project name	QTY	Remarks
1	Laser system	1	RUICONG(WEICAI)
2	Optical System	1	MITUTOYO
3	Server System	1	Mitsubishi (HG-KN43J-S100)
4	Touch unit	1	Samkoon(SK-070HE)
5	Control System	1	Mitsubishi PLC (FX3U-80WT/ES-A)



Overall device description

<p>Function Description</p>	<p>The mechanism of laser repair machine adopts suspension air pressing system,overcoming environmental vibration problems,it can solve the vibration problem during high-rate analysis,Optical system adopts MITUTOYO optical module,the laser system adopts the RUICONG water-cooled laser system developed by Wei Cai,accurate laser accuracy and results,design perfect models for the users,make the operation more convenient and faster.</p>
<p>Main Constituent Unit</p>	<p>The laser machine mainly includes: RUICONG water-cooled laser system, MITUTOYO metallographic microscopic optical system, domestic image observation objective lens, processing optical objective lens,Mitsubishi servo drive system, Mitsubishi PLC program control system, Samkoon dual-core touch screen, DIGITAL COLOR CCD Camera, precision steel structure base .</p>
<p>Optical Path Module</p>	<p>Optical system ² MITUTOYO OPTICS ² VMU Optical System ² 5X Bright field objective lens ² 10X Light and dark field type ² 20X Laser processing type ² 12V 100W Surface light source ² LED bottom light source</p>
<p>Electronic Control Module</p>	<p>Computer system PC DDR2 2G INTEL CPU PC POWER HD: 128G Screen: 21.5 inches Advanced multimedia Keyboard / mouse working system:Windows 7 Expansion slot: USB2.0</p>
<p>Rack module</p>	<p>² Sheet metal steel structure ² Precision manufacturing ² Optical glass inspection platform ² Precision screw ² Surface and bottom light source system ² X、 Y、 Z-axis electric three-stage adjustable speed: Coarse, finetuning, fine-tuning.</p>

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Device parameters

Dimensions : 2003mm × 1650mm × 1860mm(According to the actual design).

Equipment weight : 1050KG

Laser system : RUICONG(WEICAI)

Laser Type : Semiconductor laser ND-YAG

Cooling method : water-cooled

Laser power : 0.5–2mJ/Pulse

Frequency of vibration: 1 ~ 5 Hz/ second

Peak power : 1MW

Processing method : Dotted, marking

Optional wavelength : 1064nm/532 nm

The estimated maximum output power for each laser pulse is:
532nm/2mJ/5ns.

Note :

These are the worst case energy for safe calculations. Actual energy level is adjustable, usually less than half of it.

General project

- Applicable LCD panel size up to 65 inches
- Dot (3um X 3um) , Line(长 50um X 3um) , Block(50um X 50um)
- Electronic light gate red light
- Working power 220V , 30A
- No fuse protection circuit breaker protection
- Working temperature 20 °C ~ 30 °C+ / - 5 °C
- Working environment relative humidity 65 ± 5 % RH

Optical imaging System

The laser head is encapsulated in a protective housing ,to prevent beyond Class 1 limits radiation,in addition to the output beam. Microscope as beam delivery system(through the objective lens to surface of semiconductor chip), align the target and check it before and after laser application. Using several Mitutoyo M Plan Apo and NIR long working distance objective lens, for laser cutting applications.

Objective lens: Observation/laser processing dedicated type

Objective lens switching system : 4-hole/ Electric switchable type (linear)

Precision objective lens group: 5X ,10X ,20X

5X Observation (standard)

10X Laser processing (standard)

20X Laser processing (standard)

Processing Platform and Driving System

Working Platform Size : 1260 mm X 1200 mm

Platform Material : Precision lapping optical glass platform

Platform Base : Precision sheet metal base

XY Axis Effective Stroke : 1260 mm X 1000mm

XY Axis Driver Form : Servo motor system with confidential screw

XY Axis Minimum Resolution : 1um/pulse

Reproducibility is less than or equal to 5 um

Z axis maximum stroke : 100mm

Z axis driver form : Servo motor system with confidential screw

Z axis minimum resolution : 0.1um/pulse

Based on the actual design configuration

Auto focus system

Focus type: manual focus

Shock absorber system

Form of shock absorber : Design suspended pneumatic shock absorber, can guarantee and greatly reduce the vibration from ground conduction .

Natural frequency (vertical/horizontal) : 2~2.3 Hz

(Equipment demand floor shock proof rating) : B level)

Operating mode

Software function

(1) Laser macro mode operation function.

Provides Point / Line two laser processing modes, one-time quick fix after teaching.

(2) Laser manual operation firing function.

(3) Up and down light source manual adjustment.

(4) Imaging parameter setting function.

a. Brightness setting

b. Contrast setting

c. Saturation setting

(5) Operating language selection

a. Chinese

b. English

Common Equipment

Power supply 3 phase / AC 220 V \pm 10%, 30A Power connector M6 terminal

Ground wire JIS grade 1, above 8mm²

Use environment

Temperature 20-26 C

Humidity 30-70% (No dew drop is allowed)

Clean level Class 10,000

Warranty Period

12 months warranty service after acceptance (excluding consumption of spare parts)
The following circumstances will not be covered by our

Warranty :

- ◆ Improper use (including unauthorized removal or modification of the product)
 - ◆ Transfer after shipment (Our company will have people to follow up and have obligation to inform) ,drop or damage during transferring .
 - ◆ Caused by the objective environment, such as natural disasters, fires, etc.
- Consumables (fuses, etc.)

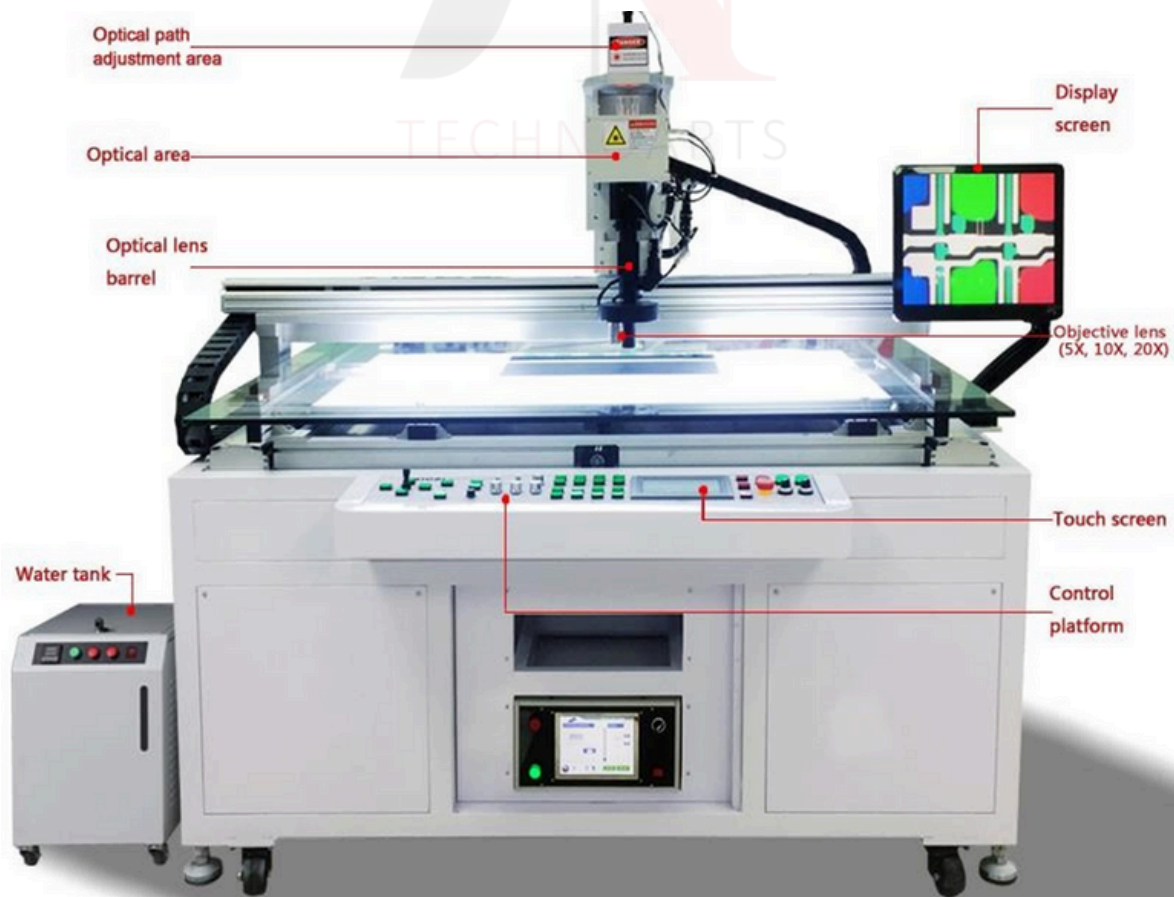
Training places

One device can provide 4 technicians to participate in training learning for free. combining theory with practice, let on-site technician quickly master basic operating rules of the machine, LCD panel troubleshooting methods and basic maintenance skills.

Training time

Valid within one year

Note: Different models equipments will have relative changes in the control system and laser system parameters ,the specific scheme can be noted in customization process.



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