

# Advanced Display Manufacturing Solutions

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Hymson Website



Hymson Laser Official Account



## About Hymson

Hymson Laser Technology Group Co., Ltd. (referred to as “Hymson”) was established in 2008 and went public on the STAR Market in 2020 with the stock code 688559. The company has always adhered to the cutting-edge demands of laser technology applications and has developed laser and automation equipment for various sectors, including consumer electronics, power batteries, energy storage batteries, photovoltaic cells, sheet metal processing, and new display technologies. It also provides integrated smart manufacturing solutions for leading customers in these fields. In addition, the company has actively expanded into emerging sectors such as medical lasers and plastic welding, strengthening its industry leadership and core competitiveness.

The company’s headquarters is located in Shenzhen, with four major production bases in Shenzhen, Jiangmen, Changzhou, and Chengdu, covering the South China, East China, and Southwest regions. It has also established multiple subsidiaries in regions including Europe, North America, the Middle East, and Asia-Pacific, accelerating its global expansion.

“Chasing the light, guiding the future,” Hymson is committed to becoming a global leader in laser and automation technology innovation. We will always uphold our mission of “changing the world’s equipment landscape and advancing human intelligent manufacturing,” focusing on frontier technologies, supporting industrial transformation, and joining hands with global customers to embrace the future of intelligent manufacturing.



## Mini LED Fully Automatic Laser Removal Equipment

This equipment is applied in the manufacturing process of Mini LED panels, undertaking tasks like removing defective LED beads, conducting repairs on them, and eliminating adhesives.

### Equipment Feature

- It is used for removing the adhesive material after the Mini LED module is sealed and for dressing the solder pad after the crystallization of each process segment. It is compatible with products of different thicknesses and sizes
- With micron - level light spots, it can efficiently remove Mini LED packaging glue of all sizes without damaging adjacent chips and pads. The self - developed chip removal system creates a clean repair environment, significantly boosting the repair yield

### Industry Application



### Product Parameters

| Machine model number     | HR-WPUC13                     |                              |                  |                    |                                   |
|--------------------------|-------------------------------|------------------------------|------------------|--------------------|-----------------------------------|
| Processing Type          | Laser removal                 |                              | Optical System   | Laser Device       | Picosecond laser                  |
| Positional accuracy      |                               |                              |                  | ±3μm               | Digital galvanometer              |
| Visual System            | Industrial Camera             | 500 million pixels           | Other Parameters | Controlling System | Motion Control Card               |
|                          | Lens & Light Source           | High Performance             |                  | Power Supply       | 220V/50Hz                         |
| Straight Marble Platform | Maximum Stroke                | X Axis 450mm<br>Y Axis 710mm |                  | Compressed Air     | 0.6MPa                            |
|                          | Repeatability Accuracy        | ±1.5μm                       |                  | Temperature        | 22±2°C                            |
|                          | Position Accuracy             | ±3μm                         |                  | Humidity           | 40%-60%,<br>Non-condensing        |
|                          | Speed                         | ≤500mm/s                     |                  | Equipment Size     | 1324mm(L)*1574mm(W)*<br>2137mm(H) |
|                          | Z Axis Repeatability Accuracy | ±1.5μm                       |                  | Equipment Weight   | 2500Kg                            |
|                          | Z Axis Position Accuracy      | ±3μm                         |                  |                    |                                   |



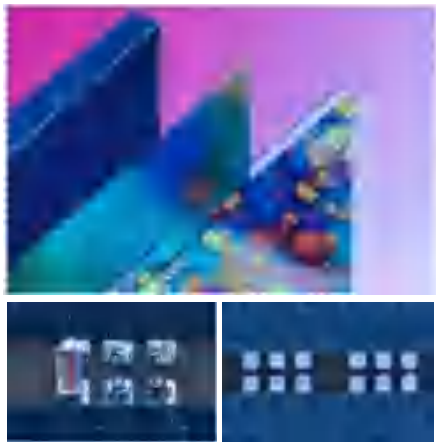
## Mini LED Mechanical Chip Removal Equipment

This equipment is used in the repair process of Mini LED chips, the damaged chip is removed, and the subsequent re-solidification, repair and welding is performed.

### Equipment Feature

- Coaxial visual positioning system for high-precision positioning of chip placement
- Accurately detects pad height, enabling repair of residual solder on the pad without pad damage
- Offers flexible selection of laser or mechanical die ejection
- Compatible with pre-film and post-film repair processes

### Industry Application



### Product Parameters

| Machine model number     | HR-PCRP11                     |                              |                  |                    |                                   |  |
|--------------------------|-------------------------------|------------------------------|------------------|--------------------|-----------------------------------|--|
| Processing Type          | Chip Removal                  |                              |                  |                    |                                   |  |
| Positional accuracy      | ±3μm                          |                              | Optical System   | Laser Device       | No laser                          |  |
| Visual System            | Industrial Camera             | 500 million pixels           |                  | Controlling System | Motion Control Card               |  |
|                          | Lens & Light Source           | High Performance             |                  | Power Supply       | 220V/50Hz                         |  |
| Straight Marble Platform | Maximum Stroke                | X Axis 450mm<br>Y Axis 600mm | Other Parameters | Compressed Air     | 0.5-0.7MPa                        |  |
|                          | Repeatability Accuracy        | ±1.5μm                       |                  | Temperature        | 22±4°C                            |  |
|                          | Position Accuracy             | ±3μm                         |                  | Humidity           | 20%-60%,<br>Non-condensing        |  |
|                          | Speed                         | ≤500mm/s                     |                  | Equipment Size     | 1700mm(L)*1400mm(W)*<br>2200mm(H) |  |
|                          | Z Axis Repeatability Accuracy | ±3μm                         |                  | Equipment Weight   | 2300Kg                            |  |
|                          | Z Axis Position Accuracy      | 20μm                         |                  |                    |                                   |  |

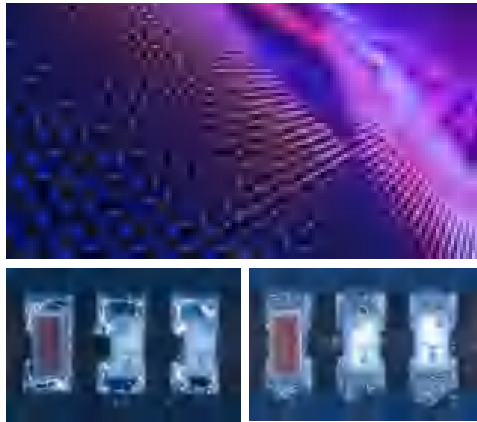
## Mini LED Laser Soldering Repairing Equipment

This equipment is utilized in the Mini LED process rework to rebond repaired chips.

### Equipment Feature

- Coaxial visual positioning system, high-precision positioning chip position, real-time monitoring of product status and effect in the process of welding repair
- Real-time monitoring of welding temperature, closed-loop temperature control, to ensure welding quality. AOI system is optional to confirm the success rate of welding
- The zoom laser system can be used, proportionally scaling to accommodate different chip sizes

### Industry Application



### Product Parameters

| Machine model number     | HR-PCRA12                     |                              |                  |                    |                                   |  |
|--------------------------|-------------------------------|------------------------------|------------------|--------------------|-----------------------------------|--|
| Processing Type          | Laser welding repair          |                              |                  |                    |                                   |  |
| Positional accuracy      | ±3μm                          |                              | Optical System   | Laser Device       | Infrared Fiber Laser              |  |
| Visual System            | Industrial Camera             | 2000 million pixels          |                  | Controlling System | Motion Control Card               |  |
|                          | Lens & Light Source           | High Performance             |                  | Power Supply       | 220V/50Hz                         |  |
| Straight Marble Platform | Maximum Stroke                | X Axis 450mm<br>Y Axis 600mm | Other Parameters | Compressed Air     | 0.5-0.7MPa                        |  |
|                          | Repeatability Accuracy        | ±1μm                         |                  | Temperature        | 22±4°C                            |  |
|                          | Position Accuracy             | ±3μm                         |                  | Humidity           | 20%-60%,<br>Non-condensing        |  |
|                          | Speed                         | ≤500mm/s                     |                  | Equipment Size     | 1384mm(L)*1674mm(W)*<br>1902mm(H) |  |
|                          | Z Axis Repeatability Accuracy | ±1μm                         |                  | Equipment Weight   | 2300Kg                            |  |
|                          | Z Axis Position Accuracy      | ±3μm                         |                  |                    |                                   |  |





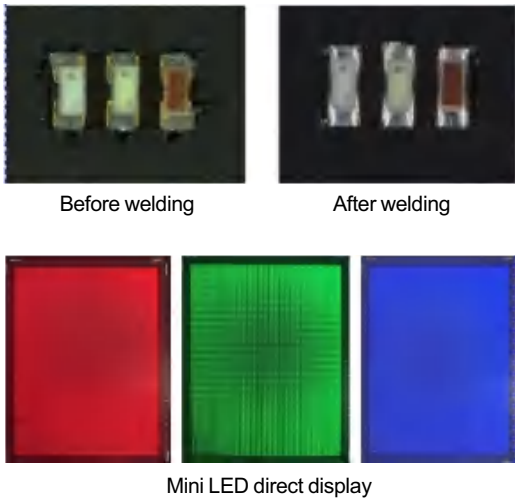
## Mini LED Mass Welding Equipment

This equipment is specialized for high volume chip soldering in the Mini LED module manufacturing process.

### Equipment Feature

- Highly efficient LED chip mass bonding with a yield rate of 99.99% or higher
- Large area, high-speed bonding, leading the industry in production efficiency
- Closed-loop temperature control ensures bonding temperature stability

### Industry Application



### Product Parameters

|                          |                               |                              |                            |                               |                                   |
|--------------------------|-------------------------------|------------------------------|----------------------------|-------------------------------|-----------------------------------|
| Machine model number     | HR-WCRW11                     |                              |                            |                               |                                   |
| Processing Type          | Laser Soldering               |                              | Temperature Control System | Measurement And Control Range | 80-400°C                          |
| Positional accuracy      | ±20μm                         |                              | Optical System             | Laser Device                  | Infrared Laser                    |
| Visual System            | Industrial Camera             | 500 million pixels           |                            | Controlling System            | Motion Control Card               |
|                          | Lens & Light Source           | High Performance             |                            | Power Supply                  | 220V/50Hz                         |
| Straight Marble Platform | Maximum Stroke                | X Axis 600mm<br>Y Axis 500mm | Other Parameters           | Compressed Air                | 0.5-0.7MPa                        |
|                          | Repeatability Accuracy        | ±8μm                         |                            | Temperature                   | 22±4°C                            |
|                          | Position Accuracy             | ±13μm                        |                            | Humidity                      | 20%-60%, Non-condensing           |
|                          | Speed                         | ≤800mm/s                     |                            | Equipment Size                | 1680mm(L)*1840mm(W)*<br>2030mm(H) |
|                          | Z Axis Repeatability Accuracy | ±10μm                        |                            | Equipment Weight              | 2000Kg                            |
|                          | Z Axis Position Accuracy      | 20μm                         |                            |                               |                                   |

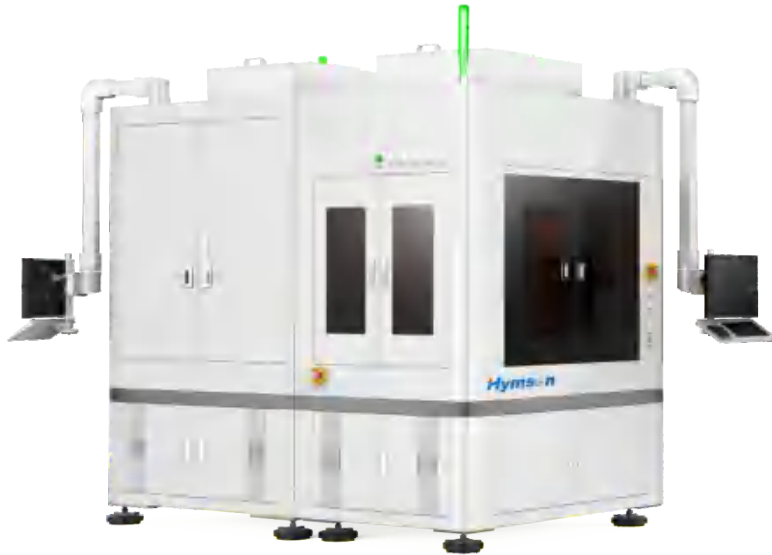
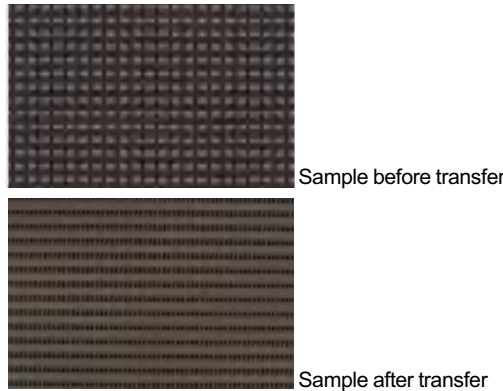
## Micro LED Laser Mass Transfer Equipment

This equipment is applied to Micro LED mass transfer and repair processes, and it can achieve selective transfer of RGB chips of any size and pitch. It is also used for single chip transfer and defect repair in the repair process.

### Equipment Feature

- Modular design, separation of loading & unloading mechanism and transfer module
- Automated wafer replacement using a robotic arm, with an overall equipment accuracy of ±1 μm
- Laser control system, High quality optical system, the spot uniformity ≥95%

### Industry Application



### Product Parameters

|                          |                                        |                                   |                  |                    |                                   |
|--------------------------|----------------------------------------|-----------------------------------|------------------|--------------------|-----------------------------------|
| Machine model number     | HR-WPUR22                              |                                   |                  |                    |                                   |
| Processing Type          | Laser Mass transfer of Micro Led chips |                                   |                  |                    |                                   |
| Positional accuracy      | ±1μm                                   |                                   |                  |                    |                                   |
| Optical System           | Laser Device                           | UV Solid-state Laser              | Other Parameters | Controlling System | ACS Control                       |
|                          | Industrial Camera                      | 1200W Million pixels              |                  | Power Supply       | 220V/50Hz                         |
|                          | Facula                                 | Rectangle                         |                  | Compressed Air     | >70kpa                            |
| Straight Marble Platform | Maximum Stroke                         | X1/X2 Axis 400mm;<br>Y Axis 450mm |                  | Temperature        | 24±2°C                            |
|                          | Repeatability Accuracy                 | ±0.75μm                           |                  | Humidity           | <60%; Non-condensing              |
|                          | Position Accuracy                      | ±1μm                              |                  | Equipment Size     | 2250mm(L)*1850mm(W)*<br>2450mm(H) |
|                          | Speed                                  | ≤500mm/s                          |                  | Equipment Weight   | 3800kg                            |
|                          | Z Axis Repeatability Accuracy          | ±1μm                              |                  |                    |                                   |
|                          | Z Axis Position Accuracy               | ±1.5μm                            |                  |                    |                                   |



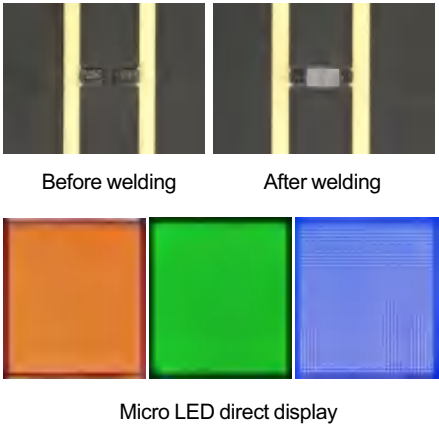
## Micro LED Mass Welding Equipment

This equipment is used for the large volume bonding equipment of chips in the Micro LED module manufacturing process.

### Equipment Feature

- Efficient LED chip massive welding, yield up to 99.99% or more
- Large area high-speed welding, compatible with larger substrate size, leading industry production efficiency
- Closed loop temperature control, to ensure the stability of bonding temperature
- High precision alignment leveling system, with leading vision algorithm, to ensure the high reliability of welding process

### Industry Application



### Product Parameters

|                          |                               |                              |                            |                               |                               |
|--------------------------|-------------------------------|------------------------------|----------------------------|-------------------------------|-------------------------------|
| Machine model number     | HR-CCRW13                     |                              |                            |                               |                               |
| Processing Type          | Laser Soldering               |                              | Temperature Control System | Measurement And Control Range | 80-400℃                       |
| Positional accuracy      | ±2μm                          |                              | Optical System             | Laser Device                  | Infrared Laser                |
| Visual System            | Industrial Camera             | 1200 million pixels          | Controlling System         | Motion Control Card           |                               |
|                          | Lens & Light Source           | High Performance             |                            | Power Supply                  | 220V/50Hz                     |
| Straight Marble Platform | Maximum Stroke                | X Axis 600mm<br>Y Axis 500mm | Other Parameters           | Compressed Air                | 0.5-0.7MPa                    |
|                          | Repeatability Accuracy        | ±1μm                         |                            | Temperature                   | 22±4℃                         |
|                          | Position Accuracy             | ±2μm                         |                            | Humidity                      | 20%-60%, Non-condensing       |
|                          | Speed                         | ≤600mm/s                     |                            | Equipment Size                | 3200mm(L)*2000mm(W)*2500mm(H) |
|                          | Z Axis Repeatability Accuracy | ±1μm                         |                            | Equipment Weight              | 6600Kg                        |
|                          | Z Axis Position Accuracy      | ±1.5μm                       |                            |                               |                               |

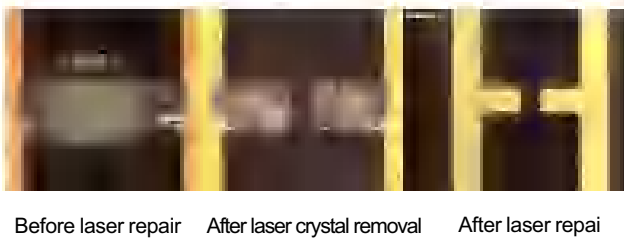
## Micro LED Intelligent Versatile Laser Removal Equipment

This equipment is used for Micro LED packaging adhesive and chip removal for defects generated after the process, so as to facilitate the smooth progress of subsequent manufacturing processes such as welding of subsequent chips. The machine has reached the industry-leading level.

### Equipment Feature

- Being used for Micro LED chip removal, welding and leveling compatible with different sizes of chips and substrates, leveling accuracy up to sub-micron level
- The chip glue of Micro LED as small as 5μm is removed by matching micron light spots, without damaging adjacent chips, pads and other layers
- Through the self-developed AI integration system, the repair location can be automatically identified to avoid the repair failure caused by misjudgment and ensure product safety

### Industry Application



### Product Parameters

|                          |                               |                               |                  |                     |                               |
|--------------------------|-------------------------------|-------------------------------|------------------|---------------------|-------------------------------|
| Machine model number     | HR-PFLT21                     |                               |                  |                     |                               |
| Processing Type          | Laser Stripping               |                               |                  |                     |                               |
| Positional accuracy      | ±1μm                          |                               |                  |                     |                               |
| Optical System           | Laser Device                  | Femtosecond laser             | Visual System    | Industrial Camera   | 2000 Million pixels           |
|                          | Scan Head                     | High Performance              |                  | Lens & Light Source | High Performance              |
| Straight Marble Platform | Maximum Stroke                | X Axis 450mm<br>Y Axis 1050mm | Other Parameters | Controlling System  | Motion Control Card           |
|                          | Repeatability Accuracy        | ±0.75μm                       |                  | Power Supply        | 220V/50Hz                     |
|                          | Position Accuracy             | ±1μm                          |                  | Compressed Air      | 0.6MPa                        |
|                          | Speed                         | ≤500mm/s                      |                  | Temperature         | 22±2℃                         |
|                          | Z Axis Repeatability Accuracy | ±0.75μm                       |                  | Humidity            | 40%-60% Non-condensing        |
|                          | Z Axis Position Accuracy      | ±1μm                          |                  | Equipment Size      | 1500mm(L)*1900mm(W)*2137mm(H) |
|                          |                               |                               |                  | Equipment Weight    | 3000kg                        |



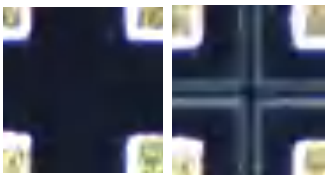
## Composite Film Laser Cutting Equipment

The application scenario of this equipment can be applied to the cutting of film, fluid, FPC, and PCB.

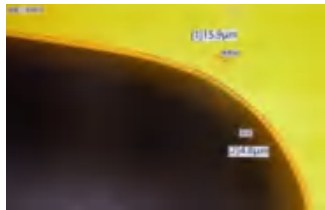
### Equipment Feature

- High cutting precision
- Cutting dimensional accuracy  $\leq \pm 5\mu\text{m}$
- Cutting taper  $< 5\mu\text{m}$
- Cutting edge thermal impact  $< 10\mu\text{m}$
- No cutting edges, chipping, hanging corners
- Model can be selected: semi-automatic/fully automatic
- High cutting efficiency

### Industry Application



Film cutting



FPC flexible board cutting



### Product Parameters

| Machine model number     | HR-CCRW13                     |                              |                  |                    |                                                                                         |
|--------------------------|-------------------------------|------------------------------|------------------|--------------------|-----------------------------------------------------------------------------------------|
| Processing Type          | Film/Colloid/FPC/PCB          |                              |                  |                    |                                                                                         |
| Positional accuracy      | 3 $\mu\text{m}$               |                              | Optical System   | Laser Device       | Picosecond laser                                                                        |
| Visual System            | Industrial Camera             | 2000 million pixels          |                  | Controlling System | Motion Control Card                                                                     |
|                          | Lens & Light Source           | High Performance             |                  | Power Supply       | 220V/50Hz                                                                               |
| Straight Marble Platform | Maximum Stroke                | X Axis 300mm<br>Y Axis 450mm | Other Parameters | Compressed Air     | 0.5-0.7MPa                                                                              |
|                          | Repeatability Accuracy        | $\pm 1.5\mu\text{m}$         |                  | Temperature        | 22 $\pm 4^{\circ}\text{C}$                                                              |
|                          | Position Accuracy             | $\pm 2.0\mu\text{m}$         |                  | Humidity           | 20%-60%, Non-condensing                                                                 |
|                          | Speed                         | $\leq 500\text{mm/s}$        |                  | Equipment Size     | 2000mm(L)*2350mm(W)*2100mm(H)<br>(Excluding EFU, auxiliary equipment, indicator lights) |
|                          | Z Axis Repeatability Accuracy | $\pm 1.5\mu\text{m}$         |                  | Equipment Weight   | 2000Kg                                                                                  |
|                          | Z Axis Position Accuracy      | $\pm 3\mu\text{m}$           |                  |                    |                                                                                         |

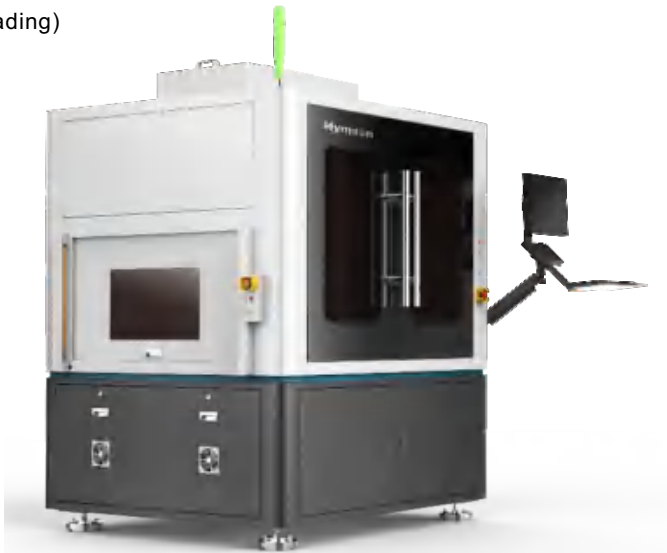
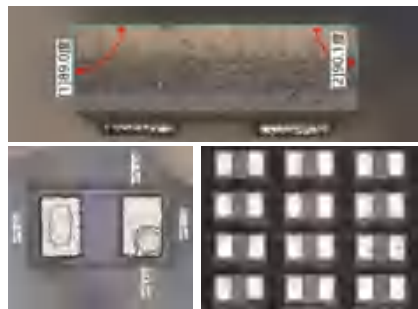
## Brittle Material Cutting Equipment

The application scenario of this equipment can be applied to cutting brittle materials such as sapphire; LED chip invisible cutting.

### Equipment Feature

- The laser spot is less than  $2\mu\text{m}$ , the working distance is 10.48mm, the chip cutting path width is  $4\mu\text{m} \sim 10\mu\text{m}$ , and the heat affected zone is less than  $2\mu\text{m}$
- The chip electrical conductivity yield is greater than 98%, single crystal rate is greater than 99%(single crystal spacing expansion deviation value can be as small as  $10\mu\text{m}$ )
- The cutting verticality is less than  $2^{\circ}$ , the minimum size can be cut 0204, the cutting thickness is  $50 \sim 170\mu\text{m}$
- Simplex double suction cups (simultaneously loading and unloading)
- The model can be selected: semi-automatic/fully automatic
- High cutting efficiency

### Industry Application



### Product Parameters

| Machine model number     | HR-WFLC13                     |                              |                  |                    |                                                                                         |
|--------------------------|-------------------------------|------------------------------|------------------|--------------------|-----------------------------------------------------------------------------------------|
| Processing Type          | Glass/wafer/chip cutting      |                              |                  |                    |                                                                                         |
| Positional accuracy      | 3 $\mu\text{m}$               |                              | Optical System   | Laser Device       | Picosecond laser                                                                        |
| Visual System            | Industrial Camera             | 2000 million pixels          |                  | Controlling System | Motion Control Card                                                                     |
|                          | Lens & Light Source           | High Performance             |                  | Power Supply       | 220V/50Hz                                                                               |
| Straight Marble Platform | Maximum Stroke                | X Axis 300mm<br>Y Axis 450mm | Other Parameters | Compressed Air     | 0.5-0.7MPa                                                                              |
|                          | Repeatability Accuracy        | $\pm 0.75\mu\text{m}$        |                  | Temperature        | 22 $\pm 4^{\circ}\text{C}$                                                              |
|                          | Position Accuracy             | $\pm 1.5\mu\text{m}$         |                  | Humidity           | 20%-60%, Non-condensing                                                                 |
|                          | Speed                         | $\leq 1000\text{mm/s}$       |                  | Equipment Size     | 2000mm(L)*2350mm(W)*2100mm(H)<br>(Excluding EFU, auxiliary equipment, indicator lights) |
|                          | Z Axis Repeatability Accuracy | $\pm 1.5\mu\text{m}$         |                  | Equipment Weight   | 2000Kg                                                                                  |
|                          | Z Axis Position Accuracy      | $\pm 3\mu\text{m}$           |                  |                    |                                                                                         |