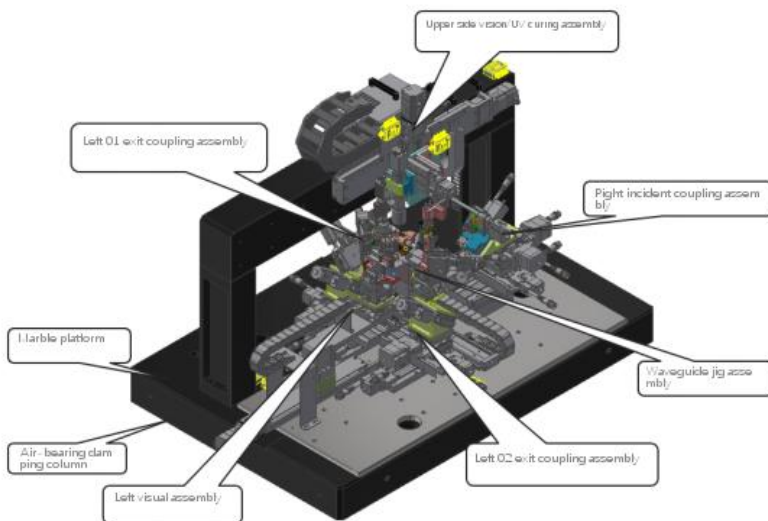


## Y Waveguide Automatic Coupling Platform

Y waveguide automatic coupling machine is used for coupling and packaging planar Y-waveguide chip, Lens and pigtails.

The equipment has the functions of automatic identification of materials, automatic identification of positions, automatic coupling of materials, automatic dispensing in the coupling area, automatic UV curing and so on. The operator only needs to clamp the Y waveguide chip and pigtail. The automatic coupling equipment achieves the characteristics of high efficiency, high consistency and high yield by replacing manual coupling and packaging with automation. For conventional Y waveguides, the coupling efficiency can be controlled at 20-25min/pcs.



### 1) The Coupling Platform consists of below.

- It adopts a globally mature and high-precision mechanical platform.
- The basic framework includes an active air-flotation optical platform.
- The platform is made of marble.
- System computer.
- Preset button operation through computer operation or equipment

console.

- Installation and unloading of materials can be done manually.
- Laser safety level 4.

## 2) Coupling modules 1/2/3 are six-axis alignment systems

Using mature international first-level brand supplier products, combined with our engineers' understanding and iteration of process steps, we optimized some spare parts and accessories and independently developed a motion control system for the equipment.

- Itinerary (X/Y/Z/ $\theta_x$ / $\theta_y$ / $\theta_z$ ): 100mm/100mm/4mm/12°/20°/16°.
- Resolution(X/Y/Z/ $\theta_x$ / $\theta_y$ / $\theta_z$ ):  
0.03 $\mu$ m/0.03 $\mu$ m/0.03 $\mu$ m/0.0001°/0.0001°/0.0001°.
- The 6-dimensional space repeat positioning accuracy of each set of components is  $\leq \pm 0.2\mu$ m.

## 3) Planar Waveguide Carrying Platform

Waveguide fixture components, using mature international first-class big brand supplier products, combined with our engineers' concept and iteration of process steps, and optimized the spare parts.

- 2-axis manual angle axis, itinerary 12°/16°, resolution 0.0001°/0.0001°.
- 2-axis linear automatic axis composition, itinerary 100mm/100mm , resolution 0.03 $\mu$ m/0.03 $\mu$ m.
- Repeatable positioning accuracy is less than  $\pm 0.3\mu$ m.

## 4) Vision Component Module

- Left vision component: camera pixels 5 million, lens 2x multiple.
- Top vision component: camera pixels 5 million, lens 1x multiple, with periscope lens.

## 5) UV-curing component module

- UV wavelength 365nm (Or optional according to user requirement, such as 365/385/405 nm).
- Maximum power  $\geq 1500\text{mW}/\text{cm}^2$ .

- 4 UV Lamps.

## 6) Pressure sensing system

It adopts a high-precision pressure sensing feedback system with a pressure range of 0~10N and a minimum resolution of 0.5N, and carries out closed-loop control with a multi-dimensional modulation system.

## 7) Stereo Microscope Module Outside the System

During the early development process, it need to check the materials, process control and adjustment for each step. Therefore, in the early stage of using the equipment, a stereo microscope module with a field of view that can cover the product can be set up outside the overall equipment. After the process is stable in the later stage, it can be optional or not.

## 8) Extinction ratio alignment process for planar waveguide devices

Because the equipment is equipped with three groups of six-axis adjustment devices, it has the basis of extinction ratio alignment. It is necessary to decide which extinction ratio test instrument or customize instrument to choose, for the customer's provided raw materials. If the polarization extinction ratio of the material in the later stage has a large axial angle error, the axial adjustable range of the multi-dimensional adjustment device can be renegotiated.

Built-in instruments in the system:

1. Single-Channel extinction ratio tester
  - Operating wavelength: 1260nm~1640nm
  - Power measurement range: -40~+10 dBm
2. Extinction ratio measurement range
  - 0~50dB (-5~+10dBm)
  - 0~45dB (-10~-5dBm)
  - 0~35dB (-20~-10dBm)
  - 0~25dB (-30~-20dBm)
3. Low polarization SLED broadband light source
  - Center wavelength 1550±10nm
  - FWHM Spectral width > 40nm

- Output optical power > 2mW
- Single Mode Fiber
- FC/APC connector
- Red light indicates a light source

#### 4. Dual-channel high-speed optical power meter

- 2 Channels
- Wavelength range 800~1700nm
- Power measurement range +15~-60dBm
- With analog output
- No synchronous triggering
- Standard calibration wavelength

### 9) Software

### 10) Equipment Operation and Installation Environment Requirements

- 230 VAC 50Hz, 16 A.
- Minimal compressed air 6 bar, oil-free, 8 mm flexible catheter.
- Ethernet, minimum 100 Mbit/s, RJ45 interface.
- Occupies area 2m×1.8m, excludes human-computer interaction terminals.
- Net Weight: Around 800kg.
- Clean room class 1000 (ISO6)

### 11) Consumable Spare Parts

- For vulnerable and consumable parts, we provide a full set of drawings.
- Consumable part list will be provided upon shipment.

### 12) Packaging & Shipping

- Standard Export Wooden Box Packing.
- EXW Factory Shipping Terms.

\*\*\*Remark: CSRayzer reserves the final right of interpretation for any design changes.