

## High-power Fiber Lasers with Shutter



带光闸高功率光纤激光器

### Advantages of shutter technology:

1. Single-way coupler, 2-way and 4-way time sharing fiber to fiber switch
2. Coupling efficiency  $\geq 96\%$
3. Short switching time,  $< 45\text{ms}$
4. Fast fiber fuse protection
5. Equipped with safe mechanical, electrical, control and monitoring systems
6. The beam switching device is reliable and can achieve hundreds of thousands of continuous switching

Application field: automotive welding

### Security:

- Comply with ISO 13849-1 international safety standard
- Safety Relays
- Double loop
- Surge protection
- AC voltage detection
- Water flow detection
- Leak detection



## New Welding Tool Intelligent manufacturing of power battery

## Adjustable Beam Profile High-power Fiber Lasers

### RFL-ABP technical advantages:

- Full fiber structure, stable and reliable
- The optical module is independently coupled into the core and ring core of the output fiber
- Adjusted indecently the core or ring core power, millisecond switching between different modes
- With waveform editing function

Application field: Lithium battery industry

- Electronic Component
- Car manufacturer

### Advantages of circular spot processing:

1. Adjusted independently power of center spot and ring spot
2. Spatter-free welding
3. Stable weld formation and good consistency
4. Larger and stable molten, smaller temperature gradient



ABP环形光斑示意图

## Fiber Delivered Direct Diode Blue Lasers



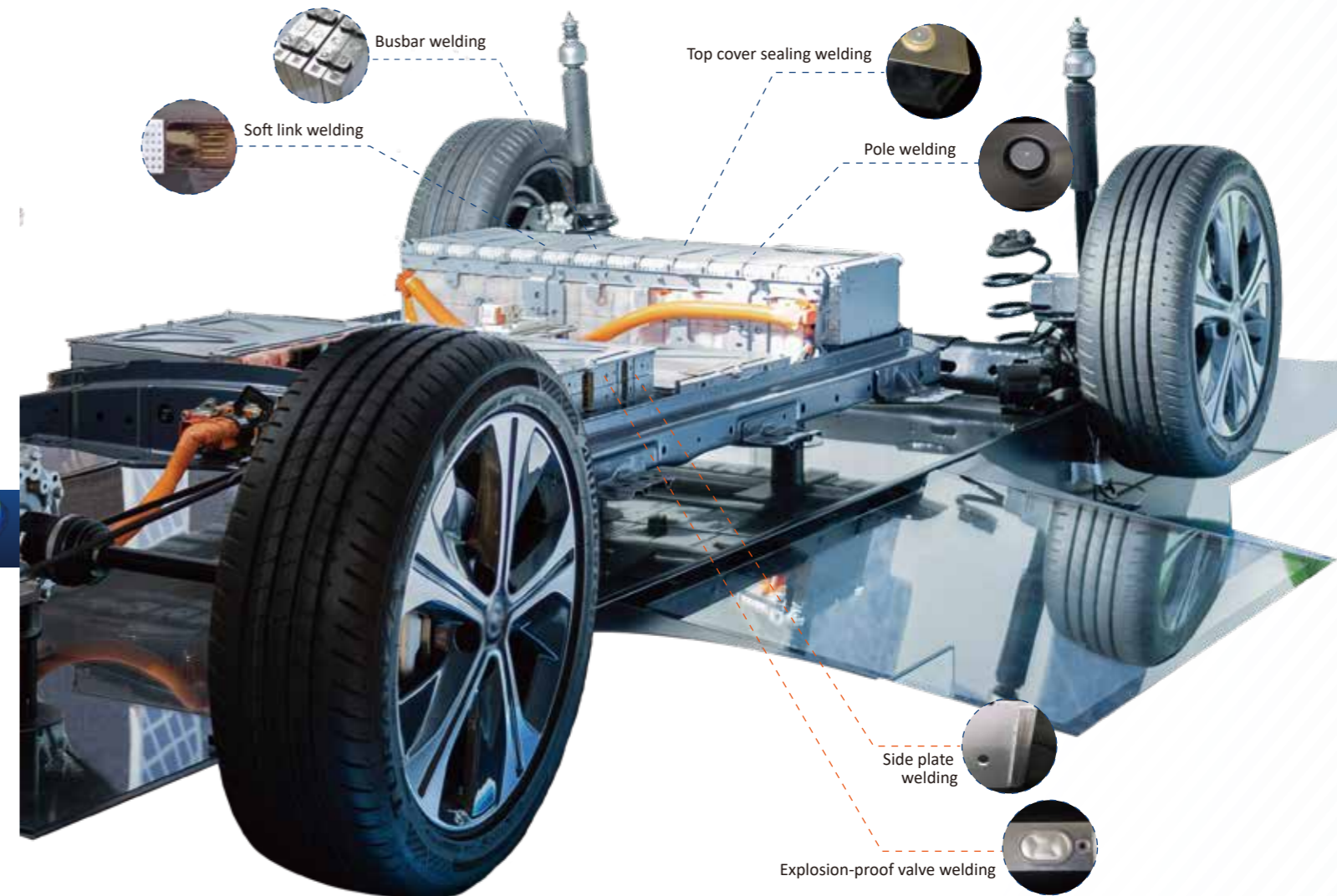
Raycus newly launched Fiber Delivered Direct Diode Blue Laser is mainly aimed at the welding applications of common high-reflective materials, especially gold, silver, copper and other non-ferrous metals. The absorption rate of welding with blue laser is higher, which is about 10 times that of infrared band. Therefore, blue light only needs lower power in the same application to ensure the same efficiency and cleanliness.

Mainly used in the welding of gold, silver, copper and other non-ferrous metals, and can be used in the welding of new energy batteries, 3C and alloy welding and other fields.

**Optics:** High beam quality, high absorptivity of non-ferrous metals, and high stability.

**Electricity:** Equipped with an easy-to-operate host computer, which can be connected to the laser through the RS232/network port, which is convenient for the user to interact with the laser. The external control AD mode directly operates the laser to emit light, which is easy to integrate into the user's industrial control system. Comes with a variety of detection functions to ensure the stable operation of the laser.

**Structure:** The main structure of the chassis is made of high-strength carbon steel, which is stable and reliable, and the reasonable waterway layout is stable and heat dissipation. A total of 4 handles are equipped on the front and rear for convenient and safe transportation.



## Wuhan Raycus Fiber Laser Technologies Co.,Ltd.

Tel: +86 (027) 8700 1978

Fax: +86-27-81338810

Mail: sales@raycuslaser.com

Web: en.raycuslaser.com

Add: No.999GaoXin Avenue, Eastlake Hi-Tech Development Zone, Wuhan, Hubei, P.R.China

## ■ Single Module CW Fiber Lasers



RFL-C2000X

Explosion-proof valve welding Pole welding  
Injection hole welding Top cover sealing welding

The third-generation single-module CW fiber laser developed by Raycus covers products between 300W and 3000W. The new generation of lasers has the advantages of high electro-optical conversion efficiency, good beam quality, high energy density, wide modulation frequency, high reliability, long life, and maintenance-free operation. At the same time, an optimized second-generation optical fiber transmission system is introduced to ensure a more stable welding effect in the welding of high-reflection materials.

### Applications: :

Lithium battery-related cutting, welding, drilling, and medical device processing have obvious advantages over other lasers of the same type in the market.



Top cover sealing welding



Pole welding



Explosion-proof valve welding

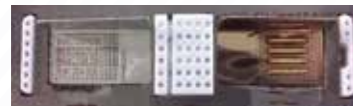
### Features:

- High electro-optical conversion rate
- Wide modulation frequency range
- Maintenance-free operation
- Output fiber length can be customized
- Resistance to high reaction

## ■ Multi- module CW Fiber Lasers



侧板焊接



软连接焊接



汇流排焊接

Side plate welding Soft link welding Busbar welding



RFL-C6000X

### Features:

- High electro-optical conversion efficiency
- Output fiber length can be customized
- Output optical cable: QBH/QD
- Maintenance-free operation
- Wide modulation frequency range
- Small size, easy to install

The Multi-module CW Fiber Laser developed by Raycus covers products between 3000W and 30000W. It has high electro-optical conversion efficiency, good beam quality, high energy density, wide modulation frequency, high reliability, long life, and maintenance-free operation. Etc. It can be widely used in welding, precision cutting, cladding, surface treatment, 3D printing and other fields. Its optical fiber output characteristics make it easier to integrate with robots into flexible manufacturing equipment to meet the needs of three-dimensional processing.

## ■ MOPA Fiber Lasers



RFL-P100M

Tab cutting

The MOPA Pulsed Fiber Laser launched by Raycus has high average power (20-200W), high peak power ( $\leq 15\text{kW}$ ), multiple pulse widths of 2-500ns, and adjustable repetition frequency of 1-2000kHz. The first pulse is available, continuous mode is selectable, and pulse width can be modified online. It is an ideal choice for industrial applications such as solar photovoltaic field, thin film cutting, thin sheet material cutting, welding, material surface cleaning, fine marking, and material deepening.

## ■ Q-Switched Pulsed Fiber Lasers



RFL-P100Q

Battery Surface Marking

The 20-100W Q-switched Pulsed Fiber Laser is an industrial-grade marking and micro-processing laser developed by Raycus Laser. This series of pulsed lasers have the characteristics of high peak power, high single pulse energy, and optional spot diameter. It can be widely used in the fields of marking, precision processing, graphic engraving, etc. of non-metallic materials such as gold, silver, copper, aluminum with high anti-reflection characteristics, and non-high anti-reflection material stainless steel. Compared with traditional lasers, its marking application process is lower in cost and more stable in performance.

## ■ Fiber Delivered Direct Diode Lasers



RFL-A1000D

## ■ High-power Pulsed Fiber Lasers



RFL-P200S

Liquid injection hole laser cleaning Busbars Laser cleaning

Raycus launched a new series of High-power Pulsed Fiber Laser products, which have the characteristics of high average power (200-2000W), high single pulse energy, square or round homogenized spot output, and convenient use and maintenance. It is an ideal choice for industrial applications such as new energy intelligent manufacturing, mold surface treatment, automobile manufacturing, shipbuilding, petrochemical, and rubber tire manufacturing.

## ■ QCW Fiber Lasers



RFL-QCW150/1500

Battery electrode strip spot welding Safety helmet spot welding

The QCW Fiber Laser developed by Raycus covers 75W to 300W, with higher electro-optical conversion efficiency, better beam quality, and lower maintenance costs. It is an ideal substitute for the existing lamp pumped YAG laser. Because of the diversified compatibility of this series of products, most YAG systems can use this product with a simple modification. It is an ideal choice for spot welding, seam welding and drilling and other industrial applications that require long pulse width and high peak power.

Optical fiber and semiconductor laser hybrid welding

The Mid-power Fiber Delivered Direct Diode Fiber Laser developed by Raycus is mainly used in the semiconductor-fiber composite welding of the top cover in the new energy industry. Compared with single-fiber laser welding, hybrid welding has the advantages of beautiful appearance of the weld, good internal quality of the weld, and high welding speed.