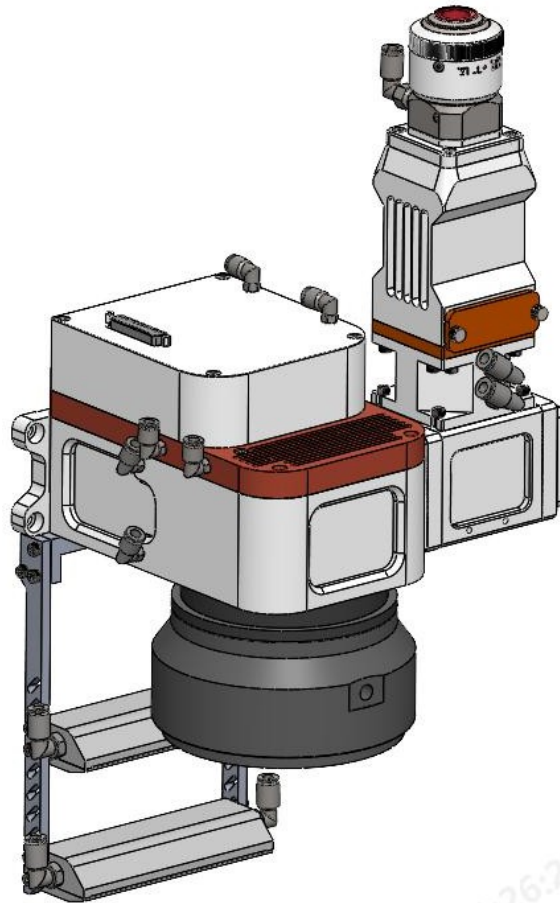




# HC60-B Single Pendulum Scanning Welding Head instruction manual



**Wuhan Xinghong Optoelectronic Technology Co.**

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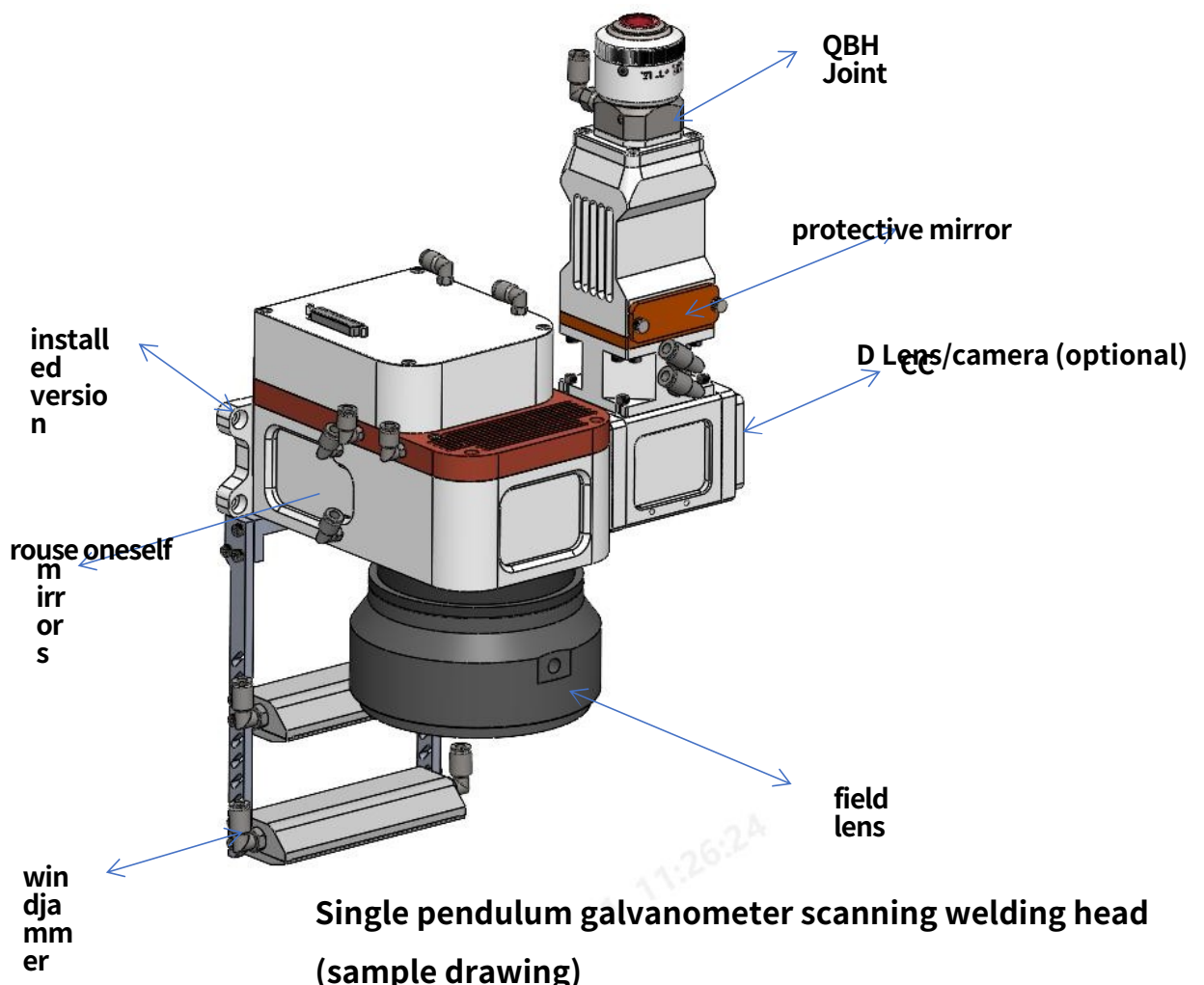
**Please be sure to read the product manual in detail before installing, commissioning and using the product.**

You **must wear safety glasses** when operating the laser equipment. The choice of safety glasses should be based on the wavelength of the laser emitted by the laser equipment. If the device is a laser tunable or Raman product, it will emit lasers outside the normal output wavelength range of the device's laser, and the protection needs to be tailored to this phenomenon. Laser safety glasses should be able to shield the laser equipment issued by the entire wavelength range of the laser as the standard selection.

# Chapter 1 Product introduction and display

## 1. Products



"HC60-B Single Pendulum Scanning Welding Head is a self-developed dual-axis pendulum welding head, which consists of a "platform oscillating welding head", a scanning field mirror and an "X-Z laser welding control system". "The welding head consists of a QBH collimation module, a vibrating mirror assembly, a field mirror module and a CCD monitoring module (optional).



## 2. Product Parameters

<b>maximum power</b>	6000W
<b>incident spot</b>	30mm
<b>monitoring range</b>	F210-F420
<b>Scanning range</b>	255mmX255mm
<b>positioning speed</b>	4m/s
<b>scanning angle</b>	$\pm 25^{\circ}$
<b>Operating Temperature</b>	$25 \pm 10^{\circ}$
<b>collimating lens</b>	D37X7
<b>weights</b>	8KG

### 3. Accessory Showcase

 A 3D CAD model of a robotic welding head assembly, featuring a white main body, a red horizontal band, and a vertical torch-like component.	weld head
 A rectangular metal power supply unit with a perforated front panel and two yellow circular indicators.	Positive and negative 15V power supply
 A coiled black cable with a white connector at one end and a blue connector at the other.	Control line (standard control line for marking machines)

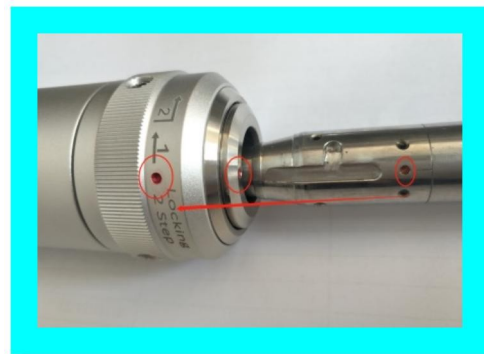
#### 4. Special attention: plugging and unplugging optical fiber 5 steps

**Note: The laser head needs to be placed horizontally when inserting the fiber; ensure that the fiber is inserted horizontally.**

4.1 Test the QBH connector and fiber optic plug for dirt and wipe it clean with alcohol and cotton swabs (cotton paper).



4.2 QBH Homing "Two Point One" Alignment Insertion



4.4 Secondary locking clockwise 4.5 Fiber optic protective jacket, fully protected





**Note: The laser head needs to be placed horizontally when inserting the fiber; ensure that the fiber is inserted horizontally.**

## 5. Special Note: Plugging and unplugging fiber optic steps (new QBH connector)

5.1 Test the QBH connector and fiber optic plug for dirt and promptly wipe them clean with alcohol and cotton swabs (cotton paper);



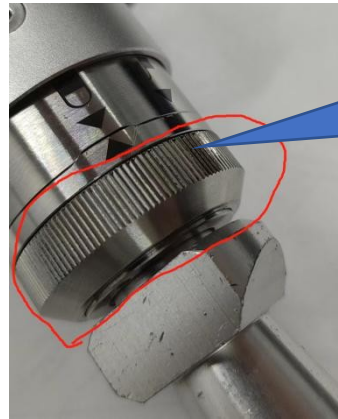
5.2 The QBH is in the unlocked state (arrow pointing to the unlocked mark) and the red dot of the fiber optic plug is inserted into place against the red dot on the QBH end face;



5.2 Turn the locking ring on the QBH connector clockwise until the QBH is locked (arrow pointing to the locking ring) and then tighten the locking ring.



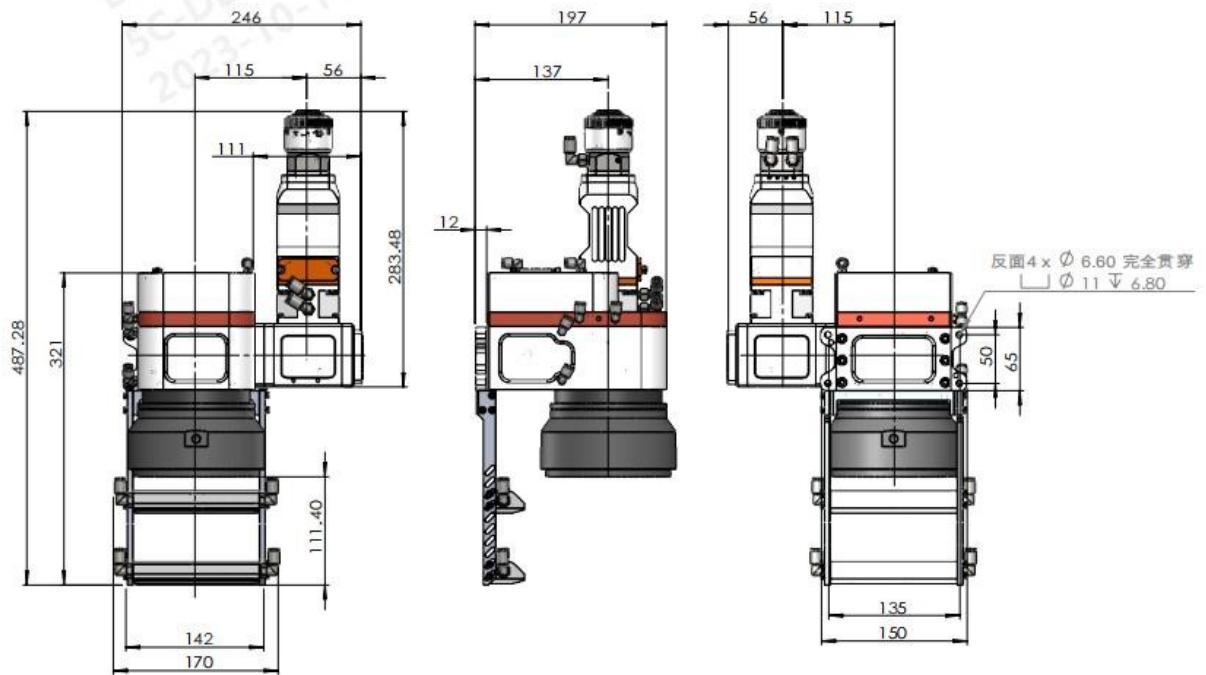
Rotate the unit clockwise until the QBH is in the locked position (Arrow



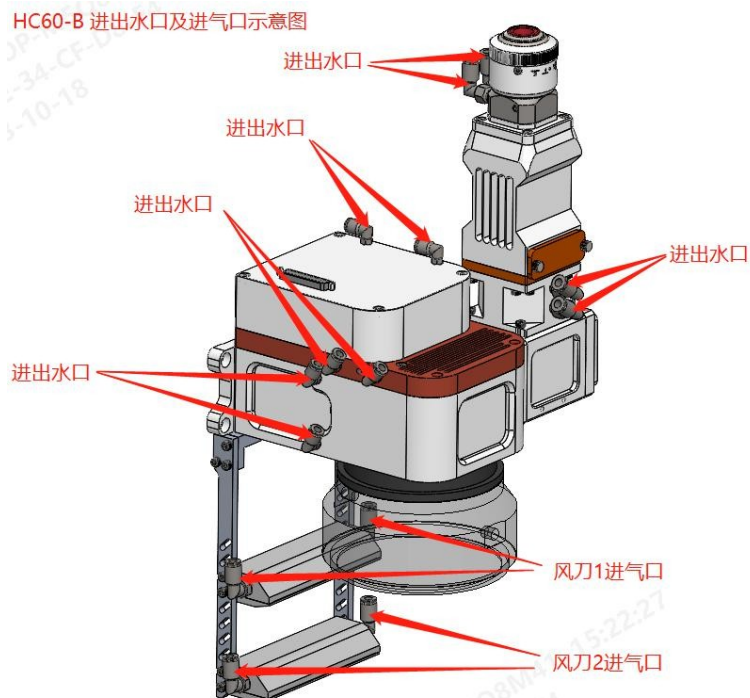
Torque locking ring

# Chapter 2 Product features, and general operation

## 1. Welding head mounting dimensions



## 2. Schematic diagram of water inlet and outlet and air inlet of air circuit



### **3. defocus adjustment**

Adjust the laser power to about 150W, the laser beam brightness is the strongest, the "snort" sound is the largest, and when you hear the popping sound, that is, the focal point is located exactly on the surface of the workpiece, which is zero defocus.

Negative defocusing, you can get a greater depth of fusion, the internal power density of the material is higher than the surface, easy to form a stronger melting, vaporization, so that the light energy to the material deeper transfer. Therefore, in practice, when the requirements of a greater depth of fusion, the use of negative defocus; welding thin materials, it is appropriate to use positive defocus.

### **4. Replacement of cleaning protection sheet (ignored without protection mirror)**

IMPORTANT: When cleaning and replacing the tabs, you will need the following: 1.

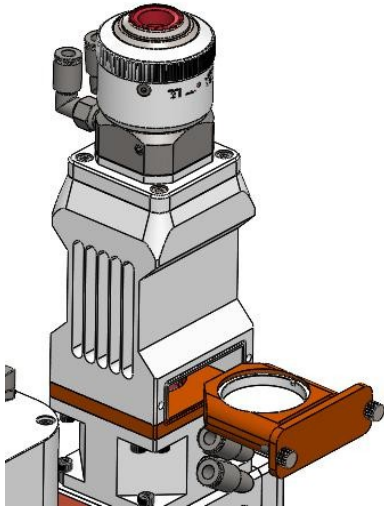
Powder-free rubber gloves or finger cots,  
lint-free cleaning wipes and cotton swabs. 2.

3. Isopropyl alcohol (optical grade, anhydrous), acetone (optical grade, anhydrous), ethanol

5. Compressed air (oil-free, water-free)

6. Light source

## Collimating protective mirror drawer (threaded compression ring)



**★Note:**

★ Do not repeat back and forth, use a lint-free cotton cloth or swab to wipe the protective lens piece.

★ Do not touch the light transmitting surface of the protective lenses with your fingers.

★ Do not blow directly on the surface of the protective lens with your mouth, as this may bring in new dirt.

★ Do not touch the tip of the cleaning swab with your fingers.

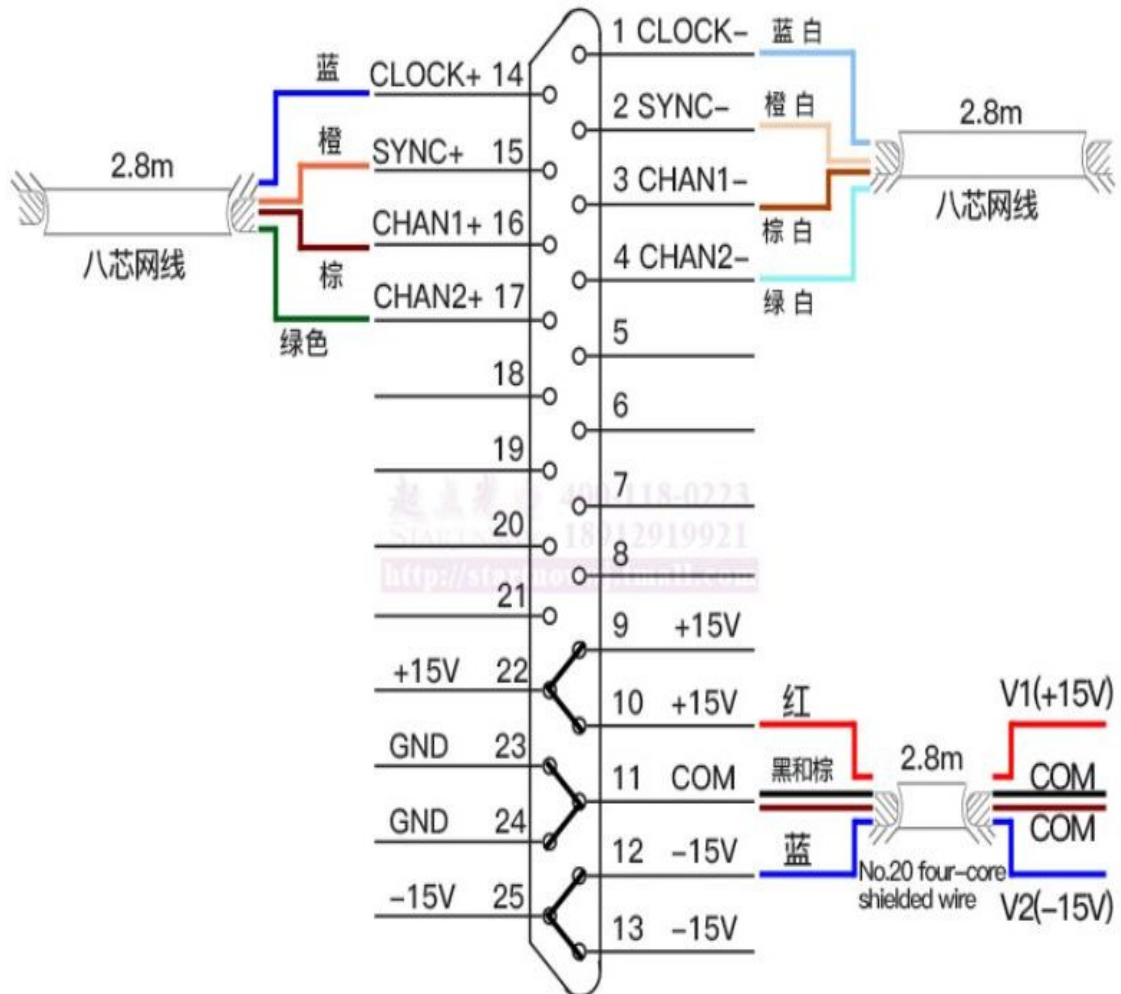
★ Do not forget to clean the protective mirror drawer when putting it back together.

★ When using compressed air, please do not blow dirt directly from the front, but use the side blowing method to avoid dirt sneaking into the surface.

★ It is specifically stated that powder-free gloves or finger cots must be worn when cleaning the product. It is now expressly stated that if the product is damaged due to improper handling or use of incorrect cleaning procedures or chemical usage, damage due to such causes is not covered by the warranty.

5. The control interface is based on the customer's adopted galvanometer control software.

Note: Welding head and control card communication using the standard marking machine control line with wiring definition





# Revised record.

dates	revision	software version
20231018	first edition	V1.0
Wuhan Xinghong Optoelectronic Technology Co.		