LRW410 Manual V5.0

Product Description

maven
LASER

Catalog

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Chapter 1: Overview

1.1 Product parameters

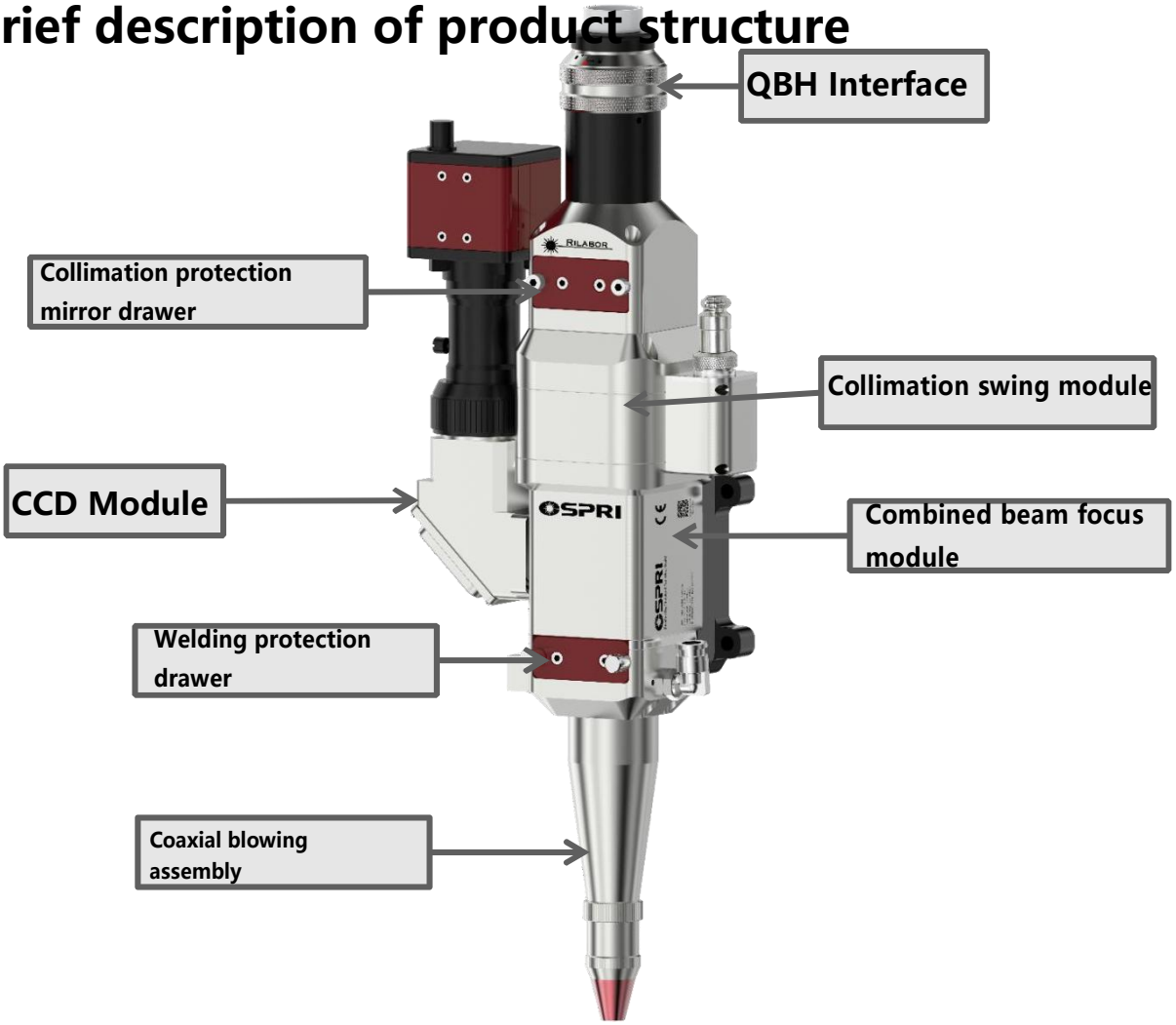
Name	Single pendulum welding head
Model	LRW410
Interface Type	QBH
Applicable wavelength	1080±10nm
Power Rating	≤2KW
Focused focus	150mm/200mm/250mm/300mm
Collimated focal length	100mm
Blowing method	Coaxial blowing/Side shaft blowing
Nozzle Model	Φ8/φ6
Protective lenses	D30T5
Auxiliary air pressure	≤1Mpa
Weight	3.24KG

1.1 Notes

① 1.The need to ensure standard reliable grounding before supplying power
② 2.When the laser output head is connected to the welding head, check the output head carefully to prevent the presence of dust and other pollutants, which may cause the fiber and welding head to burn
③ 3.When replacing the protective lens, pay attention to the site environment (e.g. turn off the fan) and make sure it is ready to be replaced before
④ 4.LRW410 welding head is prohibited to work without water
⑤ 5.Prohibit hot-plug operation
⑥ 6.If you have any concerns, please contact the first time to communicate

Chapter 2: Structural Features

2.1 Brief description of product structure



Introduction of each main module:

①QBH interface: realize the connection between fiber QBH and welding head and locking

②Collimation protection drawer: Extending the life of collimation protection lenses

③Collimation swing module: focus parallel light into a point, and can control the swing trajectory

④ CCD module: auxiliary welding demonstration role or increase the detection system interface reserved role;

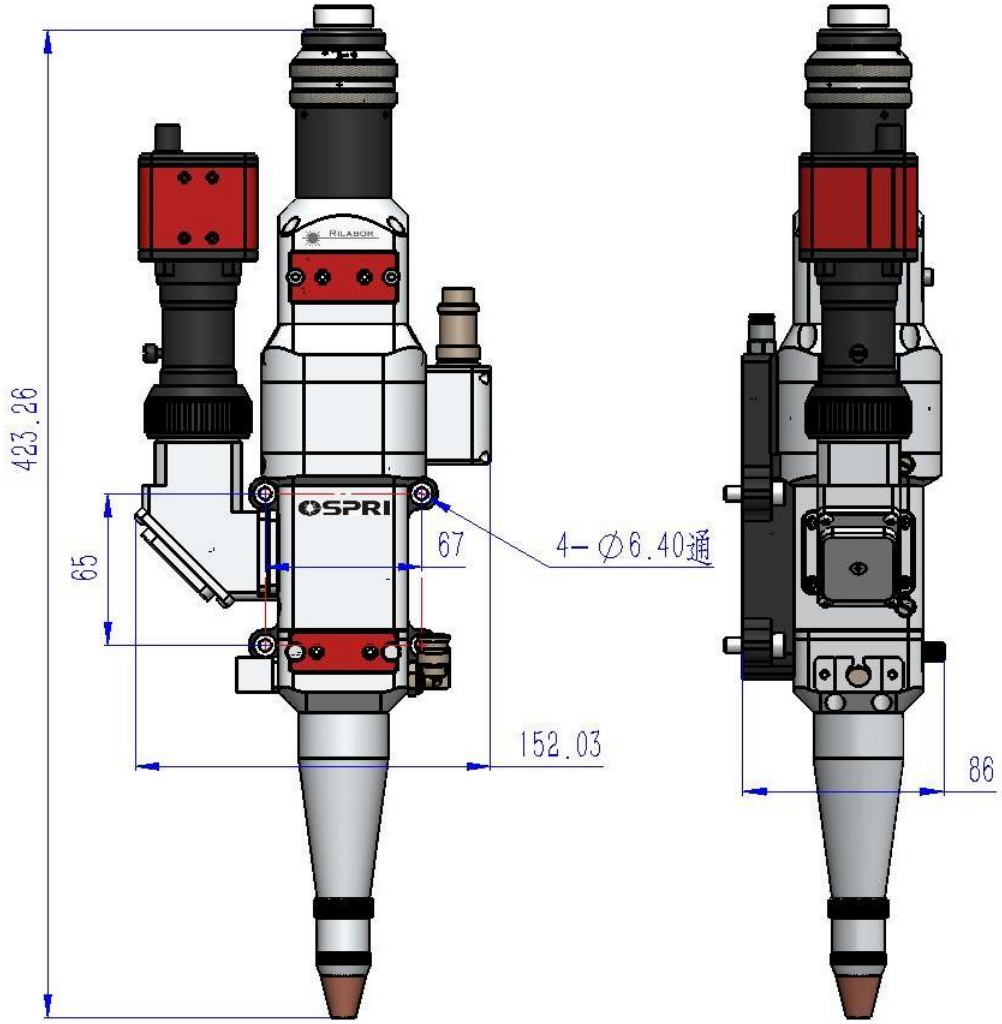
⑤Combined beam focusing module: auxiliary CCD imaging and the role of focusing parallel light

⑥Welding protection drawer: further prevent and protect dust etc. from entering the focusing lens

⑦Coaxial blowing component: When laser welding, it plays a role in destroying the ionized layer on the surface of the workpiece, isolating the workpiece from the air to prevent the workpiece from being oxidized, destroying the electronic layer, making the welding more stable

Chapter 3: Product Installation

3.1 Schematic sketch of LRW410 dimensions

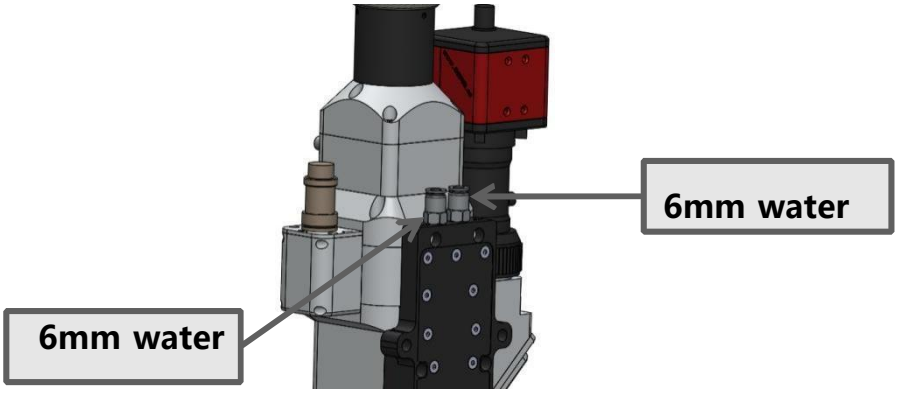


Schematic diagram of the main dimensions of the welding head (Collimation 100 / Focus F200)

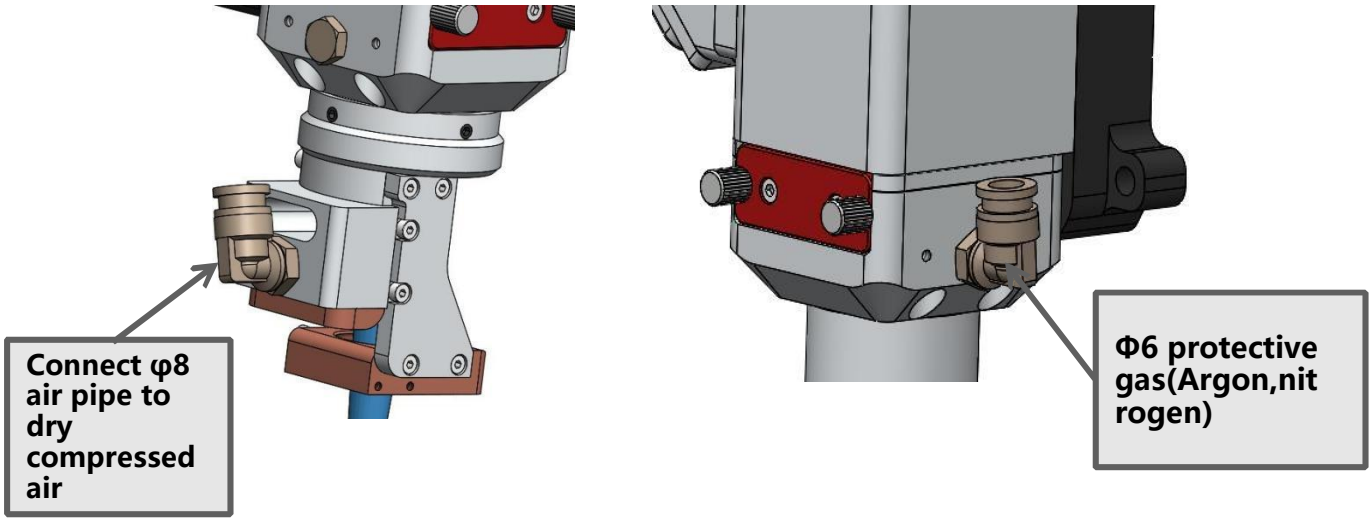
3.2 Water and gas lines

Cooling piping

1. Connected with Φ6 water pipe, regardless of direction, one in and one out, as shown below



2. Connect Φ8 compressed air or protect other protective gases, as shown below

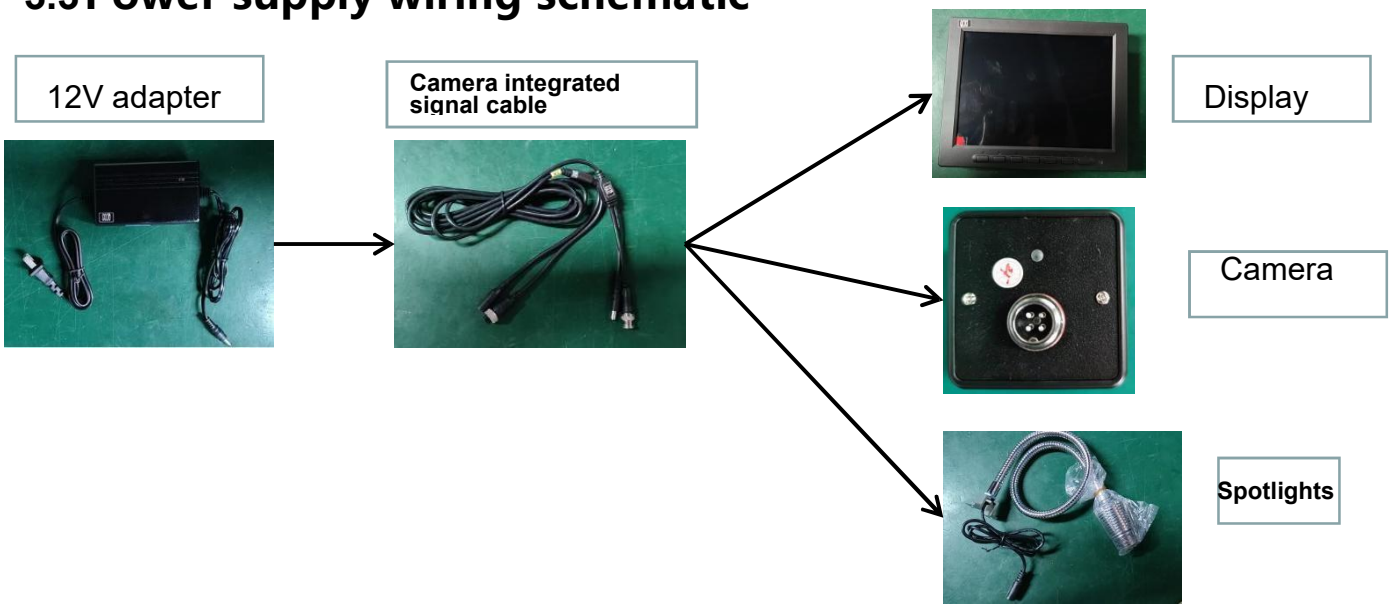


Welding head water system design, 1 inlet and 1 outlet cooling piping

Recommended: Input port access to 6mm gas pipe for protective gas output to protect the welded wood and extend the service life of the protective lens, input flow rate <30L/MIN.

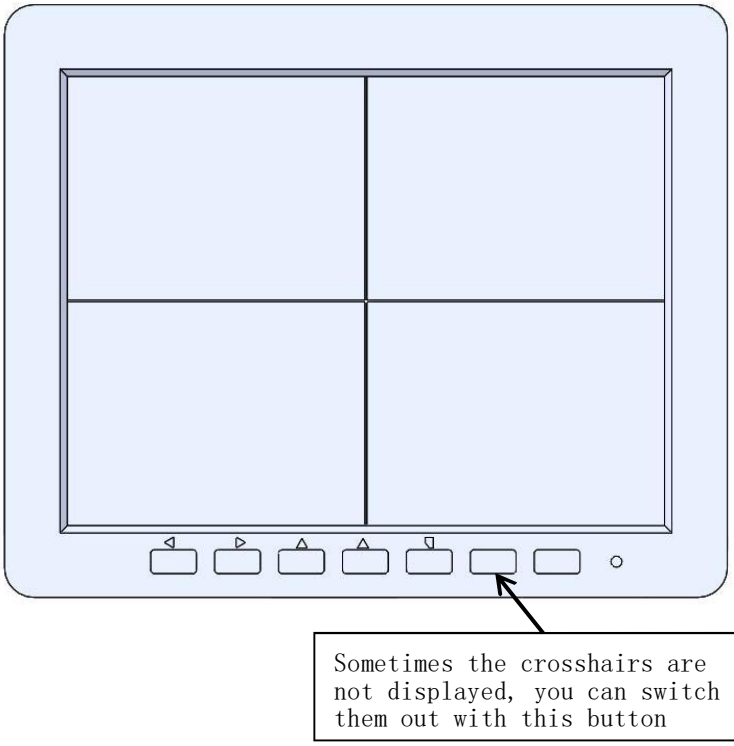
Conventional use of gases: argon, nitrogen and other inert gases

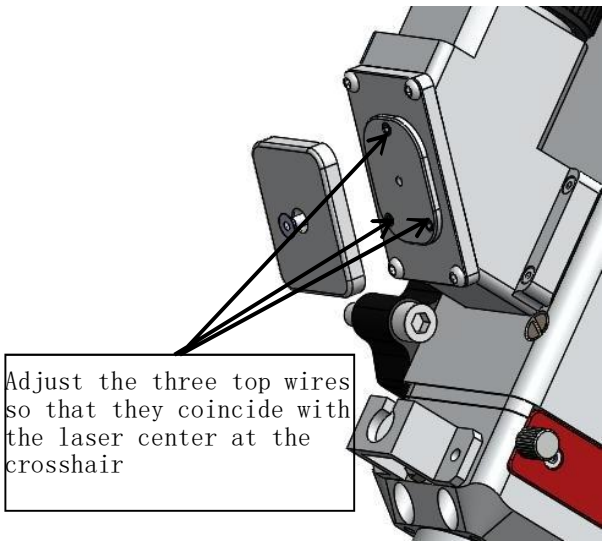
3.3 Power supply wiring schematic



3.4 The alignment adjustment is shown below

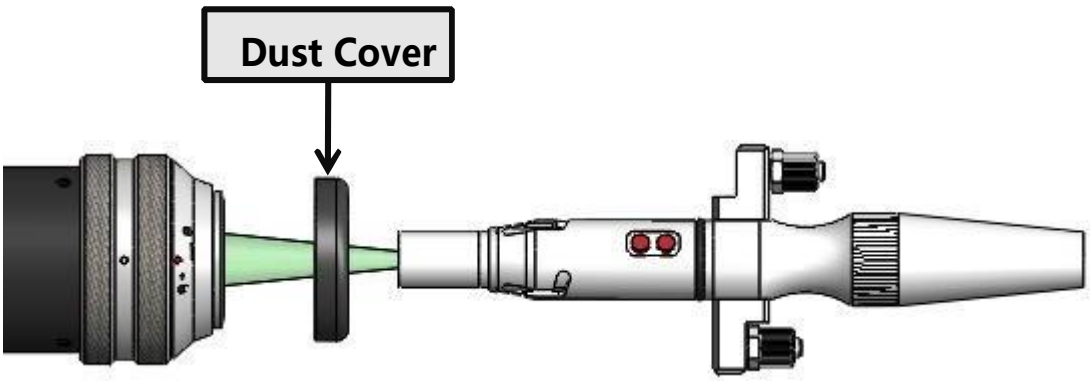
To achieve good welding and teaching results, the laser beam must coincide with the screen crosshairs and be centered by the CCD assembly when it deviates from the center of the screen crosshairs. If the laser is not centered where you want it to be, the laser beam must be re-centered on the screen crosshairs (left, right, up and down on the display).



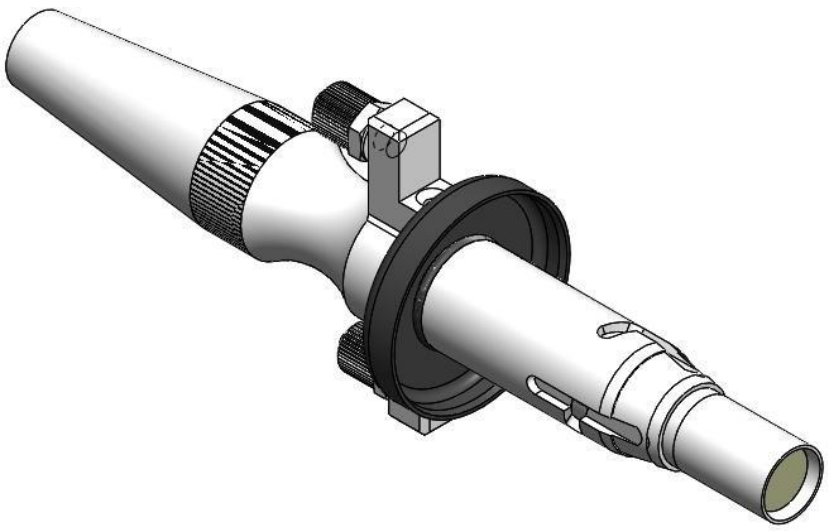


3.5 QBH fiber laser head installation

①Place the handheld welding head flat on the operating table and remove the electrostatic paste as shown below



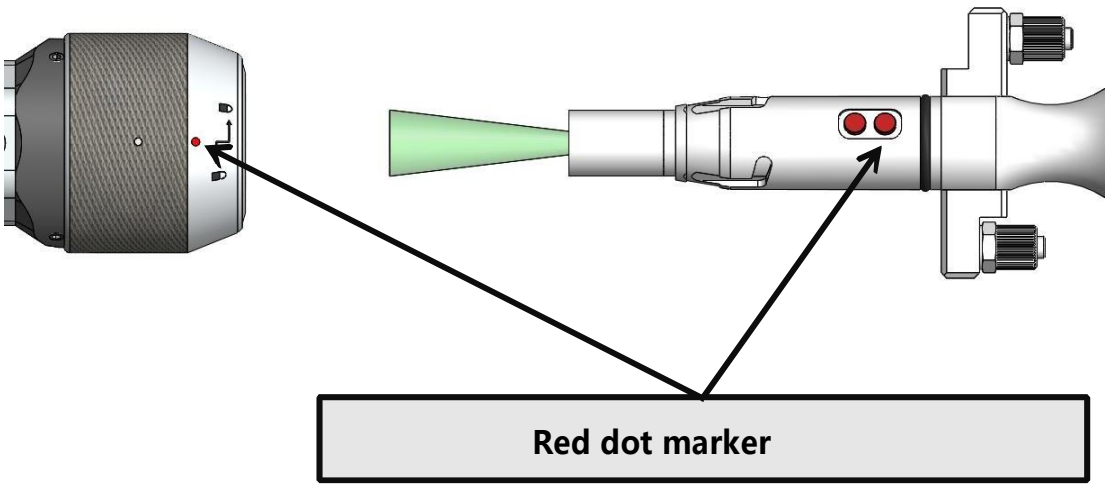
②Put the dust sleeve inside the small white box in the accessory into the fiber optic head. As shown in the picture below



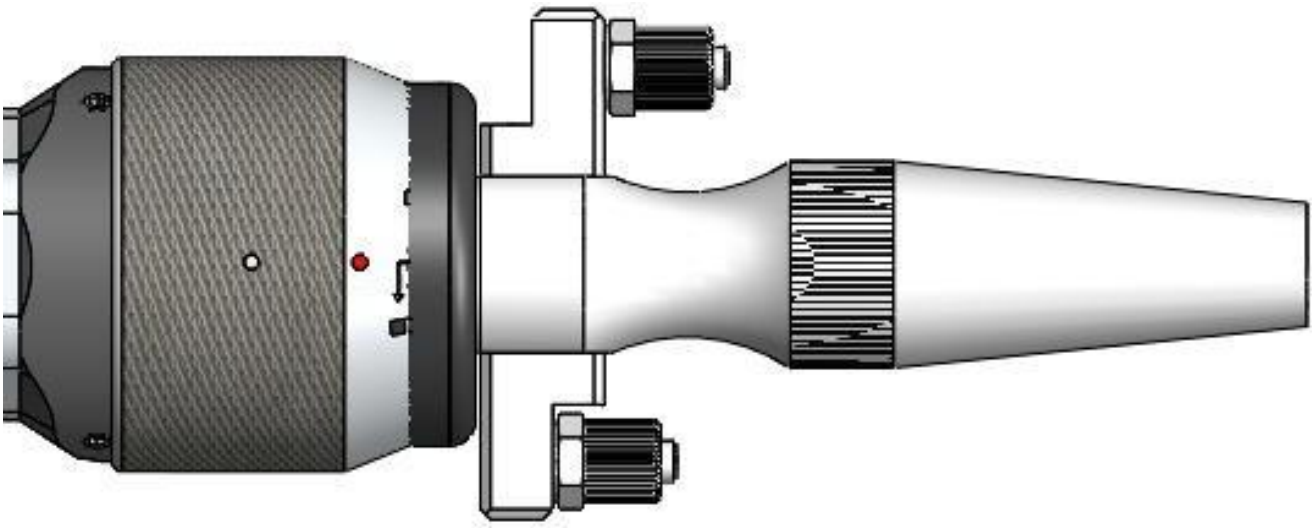
Note: If the laser head was originally assembled with dust pads, the installation can be selected according to the actual situation is whether to install the dust cover.

③Screw the QBH connector to the open state: turn counterclockwise to the limit position (you can feel the "thump"), pay attention to turn in place can be, do not vigorously screw, otherwise it may damage the internal structure of the QBH.

④Align the red dot on the fiber optic head with the red dot on the QBH connector and slowly insert the fiber optic head into the QBH connector, as shown in the figure below:



⑤Screw the QBH connector to the locking state: turn clockwise to the limit position (you can feel the "thump"), lift up the rotating nut, and turn the nut clockwise again until the fiber optic head is tightened. (Be careful to turn it into place, do not twist it strongly, otherwise it may damage the QBH internal structure)



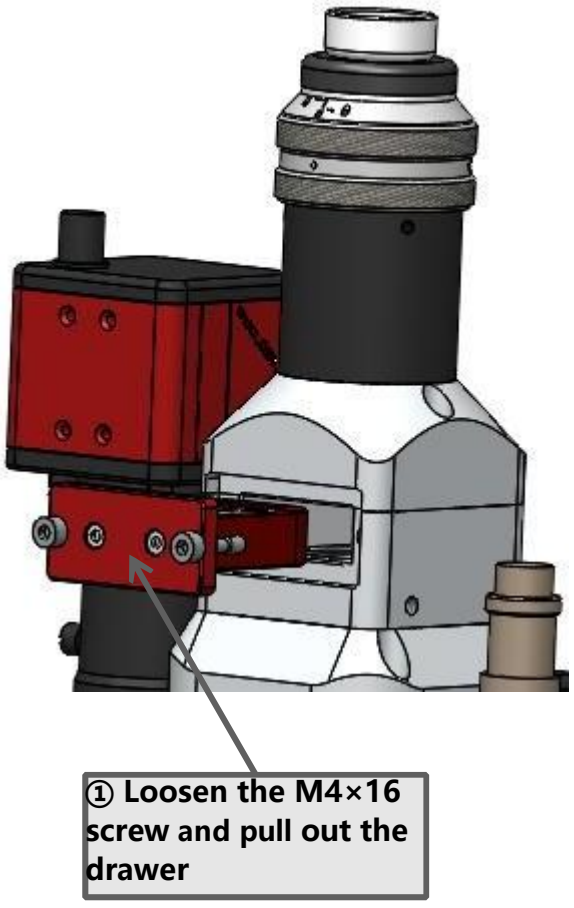
Note: After inserting the optical fiber, you can wrap a few turns with the beauty tape

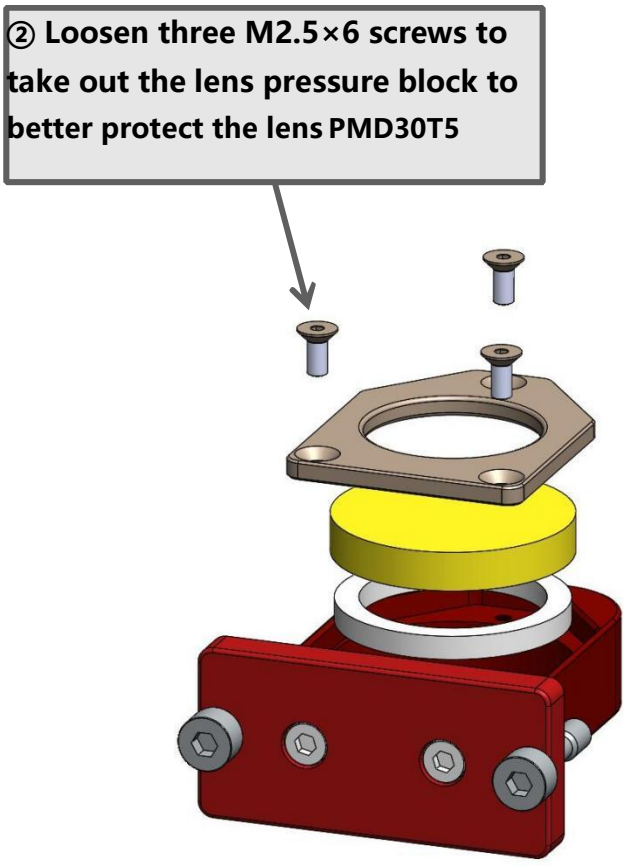
Chapter 4: Maintenance

4.1 Maintenance and replacement of protective mirrors

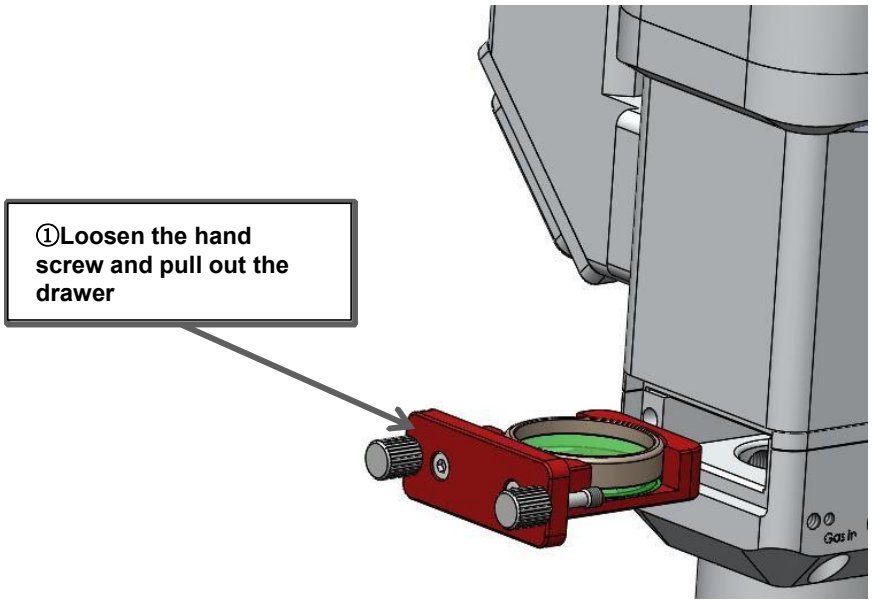
When the welding effect is bad, but the welding protection lens is normal, and there is a burn spot with the optics, generally the collimation protection lens or focus protection lens is contaminated, then you need to check whether the lens has a burn spot. Before checking, you need to use a dust-free cloth dipped in alcohol to wipe the exterior clean

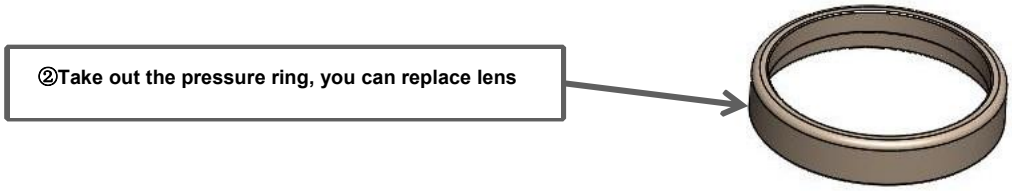
4.1.1 Collimation protection lens disassembly and assembly, disassembly and assembly method as shown in the figure below

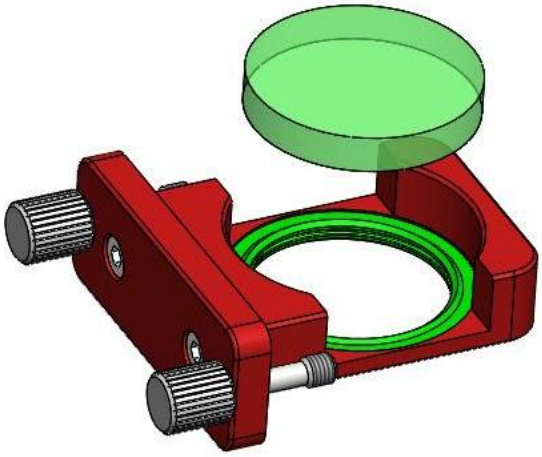




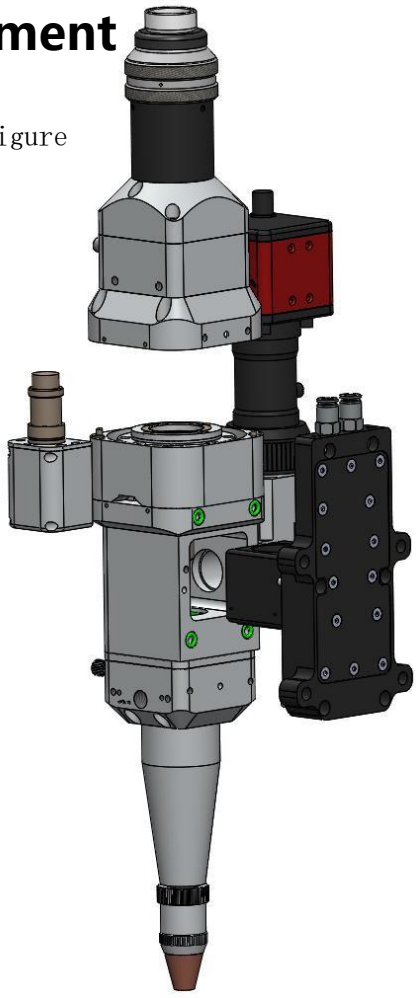
4.1.2 Collimation protection lens disassembly and assembly, disassembly and assembly method is shown in the following figure







4.2 Collimator maintenance and replacement



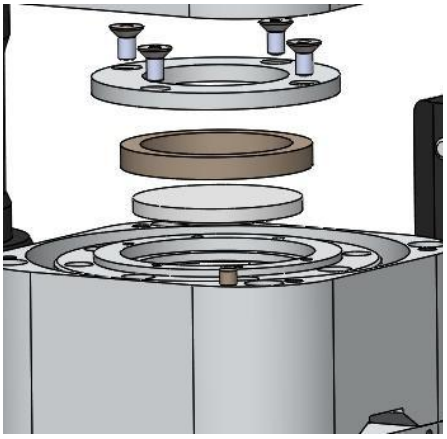
4.2.1 Collimator disassembly and assembly, as shown in the figure

①Remove the M4 screw and remove the hinge mirror assembly

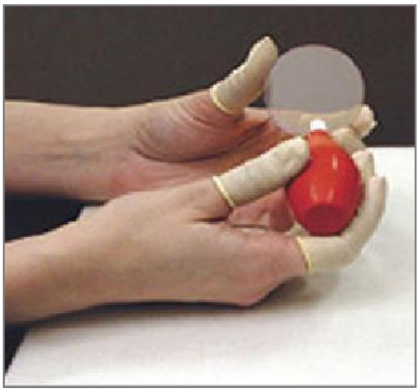
②Remove the M2.5 screw and remove the air plug assembly;

③Remove the M4 screws and remove the QBH module

④In turn, remove the M2.5 screws, remove the pressure ring, waveform spring pad can be replaced collimation lens, the installation needs to pay attention to the direction of the collimation mirror, can not be installed in reverse



4.2.2 Collimator cleaning



①Tools used: dust-free wipe swab, isopropyl alcohol, filled with dry and pure compressed air。

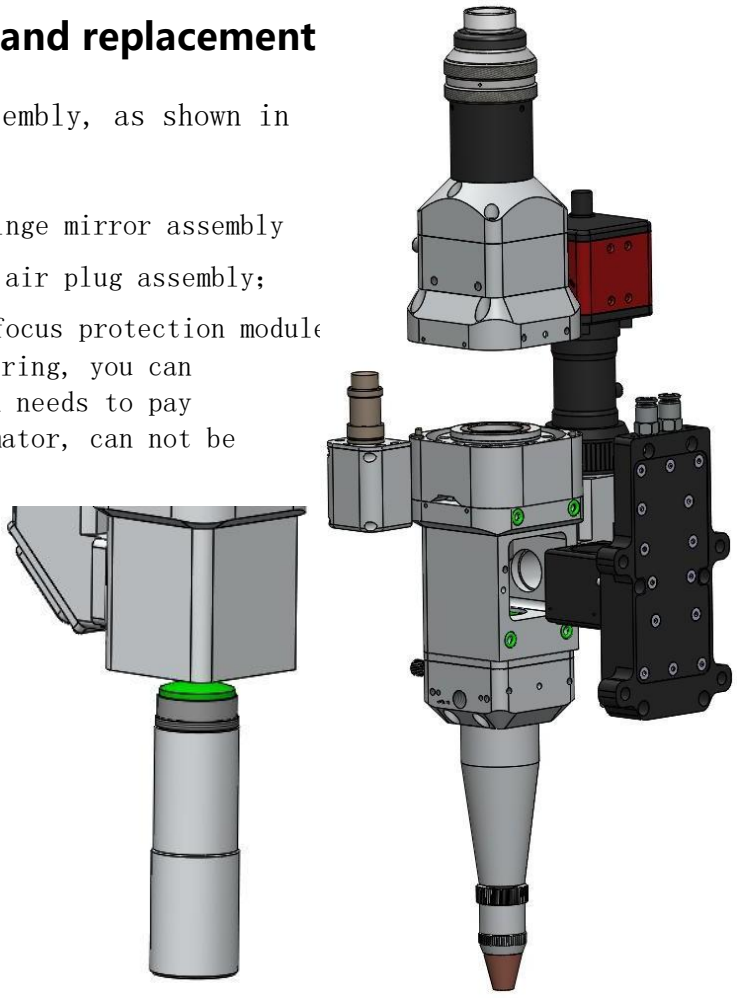
②Spray isopropyl alcohol onto a dust-free wipe swab

③Left thumb and index finger gently pinch the side edge of the lens

④With a dust-free swab in your right hand, gently wipe the front and back of the lens from bottom to top or from left to right, in a single direction, and blow the surface of the lens with filled dry and pure compressed air to confirm that there is no foreign matter on the surface of the lens after cleaning。

⑤The cleaned collimator must be installed in the collimator holder and inserted into the cutting head as soon as possible

4.3 Focusing mirror maintenance and replacement



4.2.1 Collimator disassembly and assembly, as shown in the figure

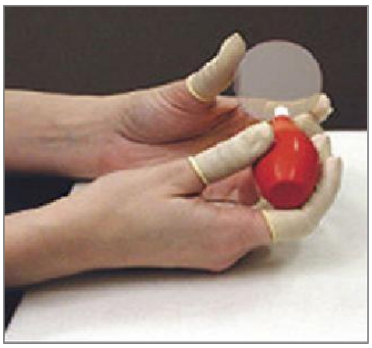
① Remove the M4 screw and remove the hinge mirror assembly

② Remove the M2.5 screw and remove the air plug assembly;

③ Remove the M4 screws and remove the focus protection module

④ Mirror wrench to remove the pressure ring, you can replace the focus lens, the installation needs to pay attention to the direction of the collimator, can not be installed backwards。

4.2.2 Focusing mirror cleaning



①Tools used: dust-free wipe swab, isopropyl alcohol, filled dry and pure compressed air.

②Spray isopropyl alcohol onto a dust-free wipe swab.

③The thumb and index finger of the left hand gently pinch the side edge of the lens.

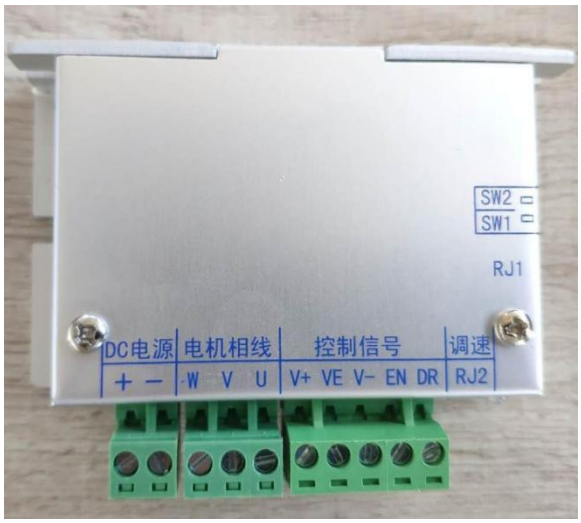
④With a dust-free swab in the right hand, gently wipe the front and back of the lens from bottom to top or from left to right, in a single direction, and blow the surface of the lens with filled dry and pure compressed air to confirm that the cleaned surface of the lens is free of any foreign matter.

⑤The cleaned focusing lens must be installed into the collimator and inserted into the cutting head as soon as possible.

Chapter 5: Electrical Wiring

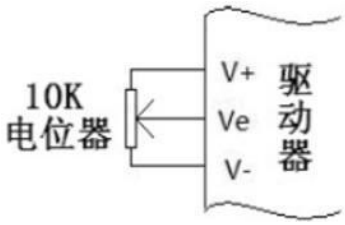
5.1 Electrical Wiring

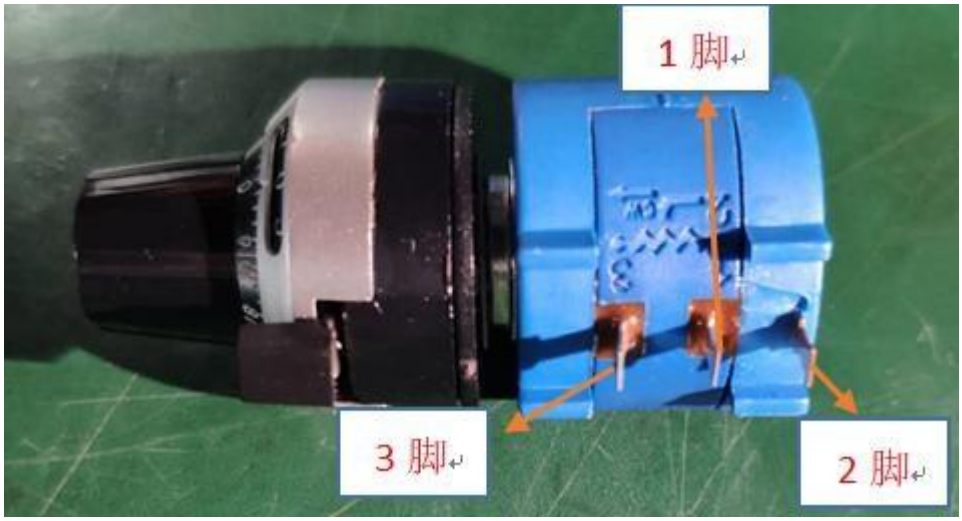
1. DC power supply: DC power input,
   DC+ connects to 24V
   DC- connects to 0V DC- connect to 0V
2. Motor phase line: W, V, U connected to the corresponding line mark W, V, U on the motor air line leading from the motor
3. Control signals
   V+:external potentiometer speed regulation positive
   VE:external potentiometer speed regulation signal
   V-:external potentiometer speed regulation reference ground



External speed control: When using external speed control, you must ensure that the switching dial is OFF

External 10K potentiometer speed control, you need to connect the potentiometer to the V+, VE, V- interface of the driver; by rotating the potentiometer to adjust the motor rotation (VE connected to the middle leg of the potentiometer), wiring schematic as shown in the figure on the right.





Pin 1 is connected to V+ of the driver, pin 2 is connected to VE of the driver, pin 3 is connected to V- of the driver

5.2 Notes

1. Prohibit hot-plugging aviation interface
2. LRW410 welding head is forbidden to work in Working without water
3. Abnormalities occur in time to stop and check