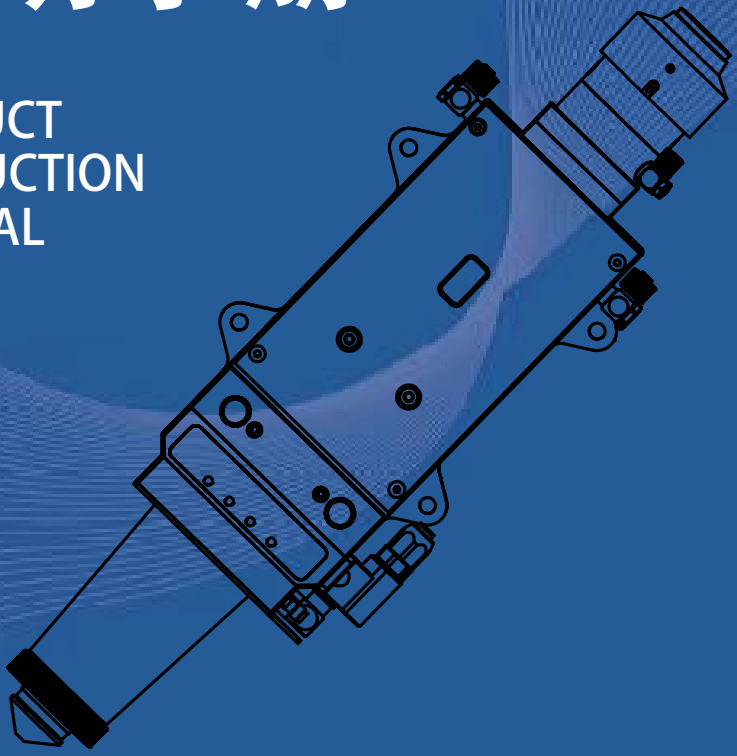
Consultation Hotline:
400-836-8816

产品使用说明手册

PRODUCT INSTRUCTION MANUAL



NC65
Fiber Auto-Focus Cutting Head V1.0

Shenzhen Worthing Technology Co., Ltd.
www.wsxlaser.com

Manual Revision History

Serial Number	Modification Time	Version

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10.Middle Protective Lens Drawer
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12.Drive Control Cable Aviation Plug Interface
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14.Side Blow Interface
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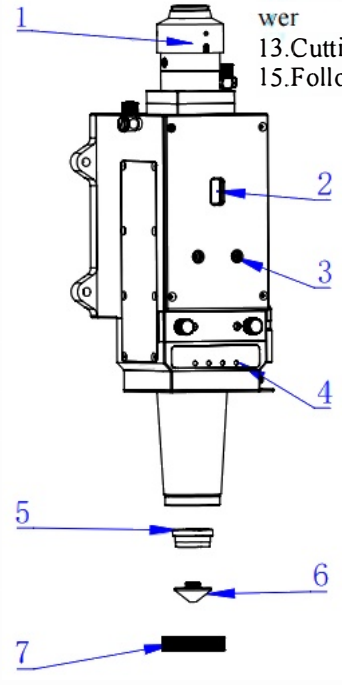
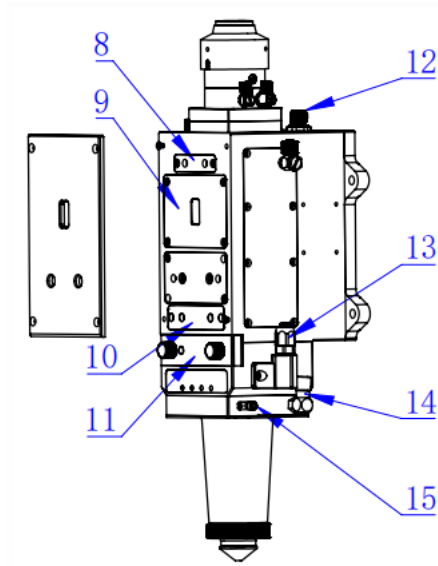




Note:

To avoid damage during storage and transportation, please observe the following:

1.The cutting head should be stored within the permissible temperature and humidity range.

2.Personnel should implement appropriate measures to prevent vibrations or impacts to the cutting head.

3.The cutting head should not be stored in or near magnetic fields (e.g., permanent magnets or strong alternating magnetic fields).

1.2 Technical Parameters

Basic Parameters	
Cutting Head Model	NC65
Applicable Power	≤6KW
Laser Wavelength	1070±30mm
Fiber Interface Type	QBH/G5，etc.
Collimation Focal Length	D37*F100mm
Focusing Focal Length	D37*F150mm/D37*F200
Focus Adjustment Range	±40
Alignment Adjustment Range	±1.5
Cutting Gas Interface	φ10（optionalφ12），maximum2.5MPa
Operating Temperature	3℃~+55℃
Storage Temperature	-20℃~+55℃
Weight	5.35Kg

2. Cutting Head Installation

2.1 Preparation

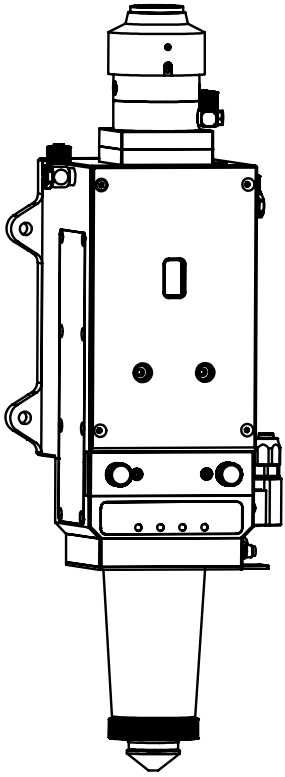
To prevent dust or dirt from entering the cutting head, the following installation procedures should be followed:

Preparation before operation requires the following conditions:

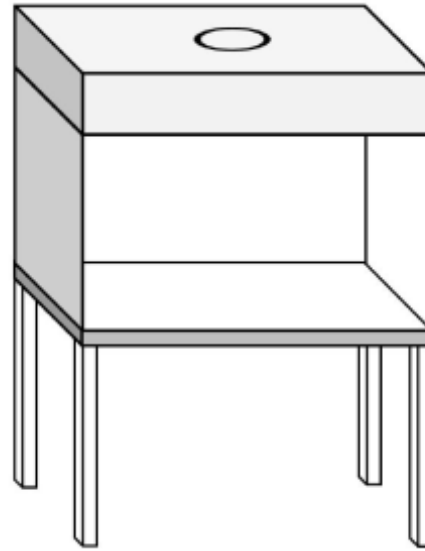
A. Cutting Head

B. Clean Workbench (Workbench Type: Vertical Purification; Cleanliness Level: ISO Class 5 or Class 100; Average Airflow Speed: ≥0.4 m/s)

C. Cleaning Kit: High-intensity flashlight, anhydrous ethanol (or IPA), lint-free cleaning swabs, lint-free cloth, and compressed air dusting can (or air blower).



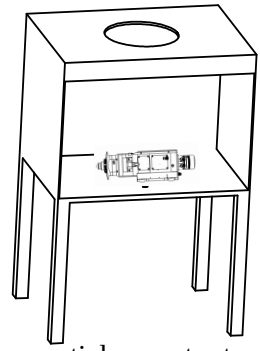
Cutting Head



Clean Workbench

2.2 Specific Operation Procedure

3.2.1 Installing the Fiber Interface



1.Preparation of the Clean Workbench

Prepare and start the clean workbench.

Clean Workbench Type:Vertical Laminar Flow;

Cleanliness Level: ISO 5, Class 100;

Average Air Speed: ≥0.4m/s

Preparation:

A. Check that the equipment is clean and qualified (use a particle counter to c heck clea nliness) and ensure that the FFU purification unit is within its vali dity period (measure the average air speed in the work area. If the air speed c annot reach 0.3m/s, the FFU purification unit must be replaced).

B. Check that all switches are operating normally and that the fan is running pr operly.

C.Do not place unnecessary items in the clean work area to ensure that the clea n air flow is not disturbed.

D.For newly installed or long-unused clean workbenches, use a lint-free cloth a nd anhydrous ethanol to clean before use.

Starting Up:

A.Connect the power supply and pull the glass sliding door of the clean workbench to the lowest position (leaving a gap of about 10cm);

B.Start the fan and purify for about 20 minutes before normal operation.

C.After normal operation, turn on the lighting power supply of the clean workbench.

Special Instructions:

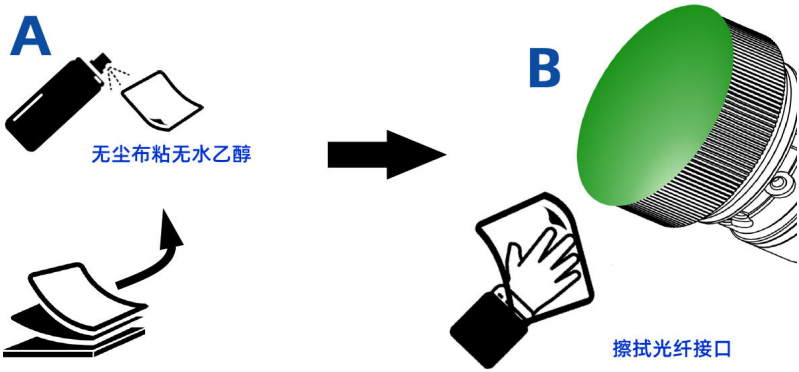
A.Only trained professionals are allowed to operate.

B.If operators do not follow safety work regulations, it may pose a danger to pe rsonnel or property.

C..To ensure the normal operation of the laser device in the working environme nt and the safety of operators, relevant operating specifications and instructions must be followed and implemented.

2.3 Clean the Fiber Optic Connector of the Cutting Head

Wipe the fiber optic connector of the cutting head with a lint-free cloth dampened with anhydrous ethanol.



2.4 Check the Laser Fiber End Face

Remove the protective cap from the laser fiber and use a bright flashlight to inspect the end face of the fiber for contamination. If it is clean, the fiber can be inser

ted directly. If it is dirty, clean it with a cotton swab dipped in anhydrous ethanol o

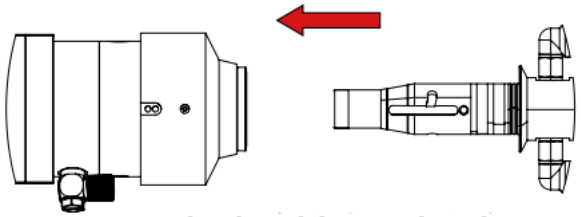
r IPA.

2.5 Remove Protective Film/Cap

Remove the special protective cap/plug from the fiber optic connector on the cutting head.

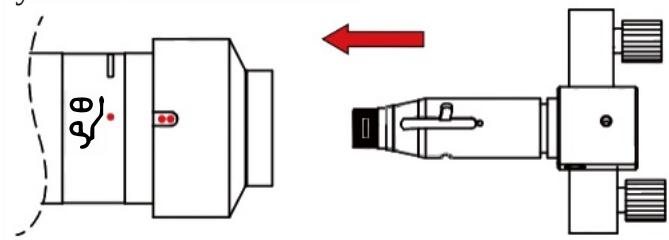
2.6 Fiber Optic Connector Connection

(1) Place the fiber rod and fiber connector in a horizontal position.
(2) Clean the fiber rod and fiber connector with a lint-free cloth and anhydrous ethanol.

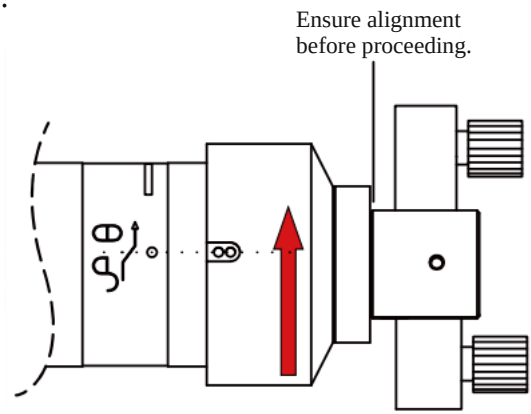


Ensure that the red dots are aligned in a straight line.

(3) Gently insert the fiber rod into the fiber connector.

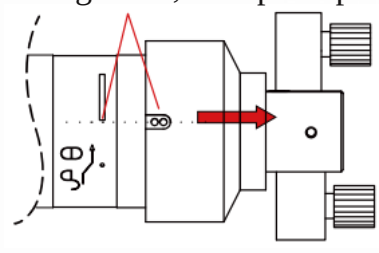


(4)Once the fiber rod is fully inserted, rotate the red mark on the rotating sleeve in the direction of the arrow until it aligns within the white marking line.



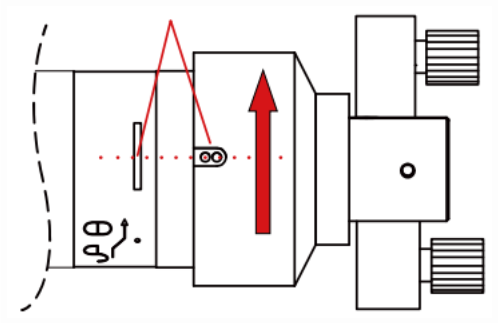
(5)Pull up the Rotating Sleeve as Shown

Align first, then pull up.



(6)Rotate gently in the direction shown, applying moderate force. Typically, you will feel a locking sensation (using thumb and forefinger).

It is acceptable to align or go slightly past the center, but once in position, avoid further twisting.

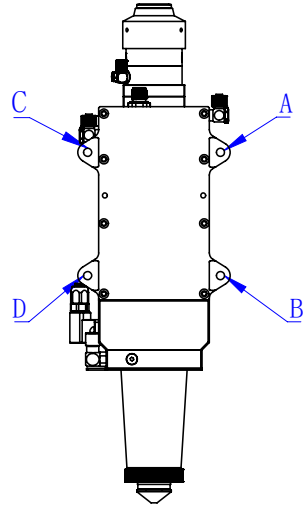


Caution! Do not apply excessive force as it may damage the precision mechanism!

To prevent dust or contaminants from entering the fiber optic connector, clean the fiber rod first. Ensure the laser head is in a horizontal position before inserting the fiber connector.

2.7 Mounting the Cutting Head on the Z-Axis of the Cutting Machine

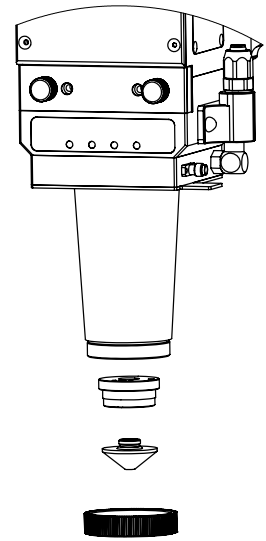
Attach the cutting head to the machine’ s Z-axis rear panel using the four screws (A, B, C, D). Ensure the cutting head is securely locked and does not wobble after i nstallation.



2.8 Install the Ceramic Ring and Nozzle

Install the ceramic ring and secure it, then install the nozzle.

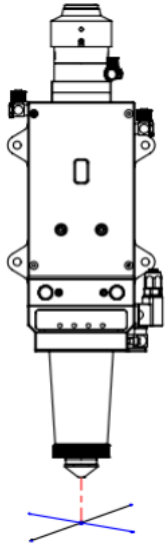
Tighten the nozzle onto the ceramic ring by hand, and use a wrench to tighten the ceramic locking ring.

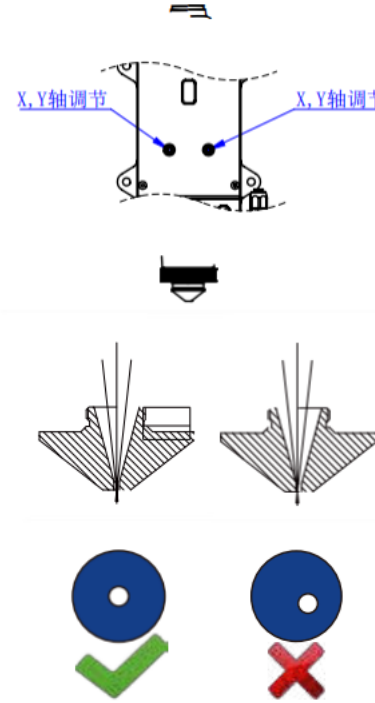


3.Usage and Maintenance of the Cutting Head

3.1 Coaxial Adjustment

1.Use an Allen key to adjust the X/Y levelingscrews l and 2, aligning the beam so that it passes through the center of the nozzle.
2.The beam passing through the center ofthe nozzle ensures the best cutting performance.
3.If the beam does not pass through the center ofthe nozzle, it may result in no emission or poor cutting performance.





Beam Passing Through the Center of the Nozzle(Correct)

Beam Not Passing Through the Center ofthe Nozzle (Incorrect)

Method to Check ifthe Beam Passes Through the Center of the Nozzle:

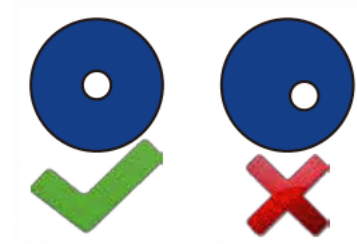
1. Stick a piece of transparent tapeacross the nozzle opening (use a new or undeformed nozzle);
2.Adjust the laser power to approximately 50W(eg, for a 500W laser, set the spot power to 10%)3. Emit light for 1-2 seconds, then remove the tape
4.Place the tape under a bright light to inspect if the circular print from the nozzle and the laserpenetration point on the tape are concentric.
5.Ifthey are concentric, the adjustment is satisfactory; ifnot.continue to adjust until satisfactory.

3.2 Replace the ceramic rings and nozzles

Power Supply

Cooling Gas

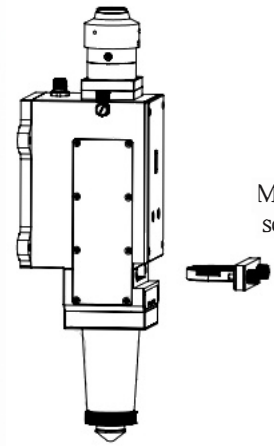
Cutting Gas



Calibration Center

Please recognize the WSX brand

3.3 Replacement of the Lower Protective Lens



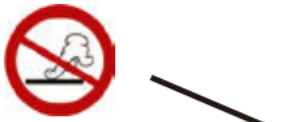
Method of Disassembly:Loosen the locking screw, then remove the drawer

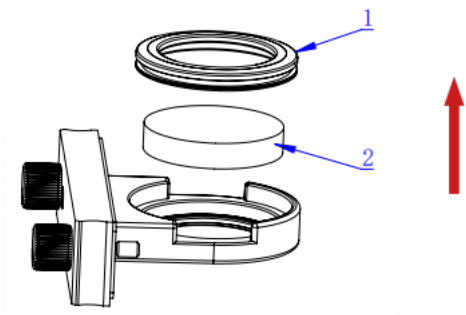
Power Supply

Cooling Gas

Cutting Gas

Caution Against Dust:Wear anti-dust gloves and finger cots when replacing the lens, and perform the operation in a clean environment. (When changing the lens on site, you can use masking tape to seal the window to prevent dust from entering inside and causing contamination.)

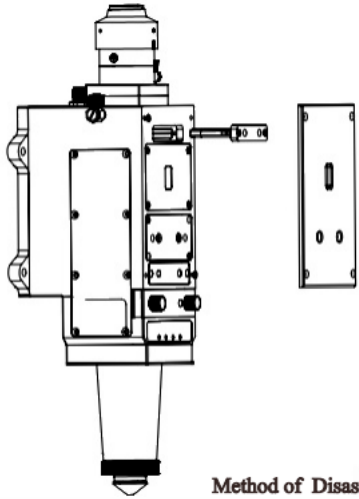




1.Pressing Cover 2.Protective Lens(D30x5)

Method of Disassembly: Pull the pressing cover upwards following the arrow. Do not use wrenches or pliers,as they may damage the parts.

3.4 Replacement of the Collimation Protective Lens



Beware of drops

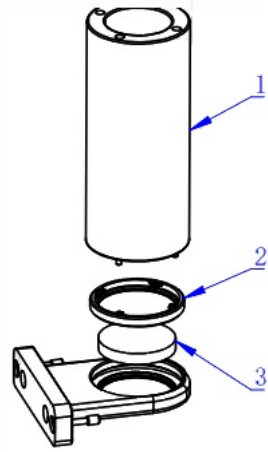
Power supply

冷却气体

Cutting Gas

Method of Disassembly:
Open the cover, withdraw the drawer horizontally, and remove the pressing cover

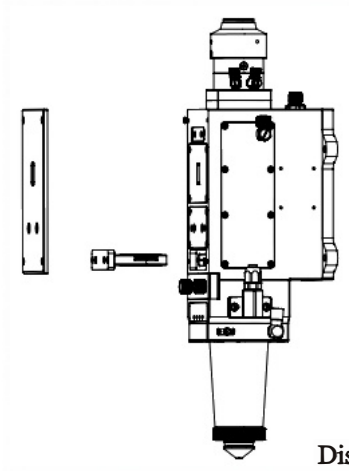
Caution Dust: Wear anti-dust gloves and finger cots when replacing the lens, and perform the operation in a clean environment.
(When changing the lens on site, you can use masking tape to seal the window to prevent dust from entering inside and causing contamination.)



1.Fikture Disassembly and Assembly 2.Pressing Cover 3.Protective Lens (D25.4x4)

Disassembly Method: Remove the pressing cover(1) and then take out the protective lens (2). Avoid using wrenches, pliers, or other tools to prevent damaging the parts.

3.5 Replacement of the Middle Protective Lens



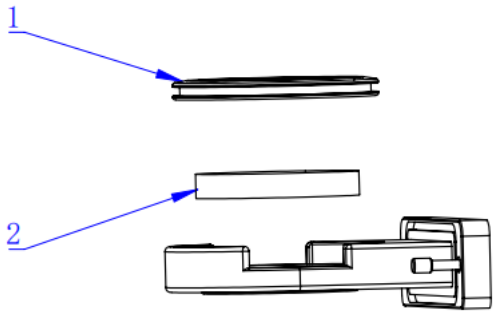
Operation to be Performed on a Dust-Free Workbench

Power Supply

Cooling Gas

Cutting Gas

Disassembly Method:
Remove the cover plate, then loosen the anti-loosening screws on the dust cover, and pull out the protective le ns drawer horizontally.

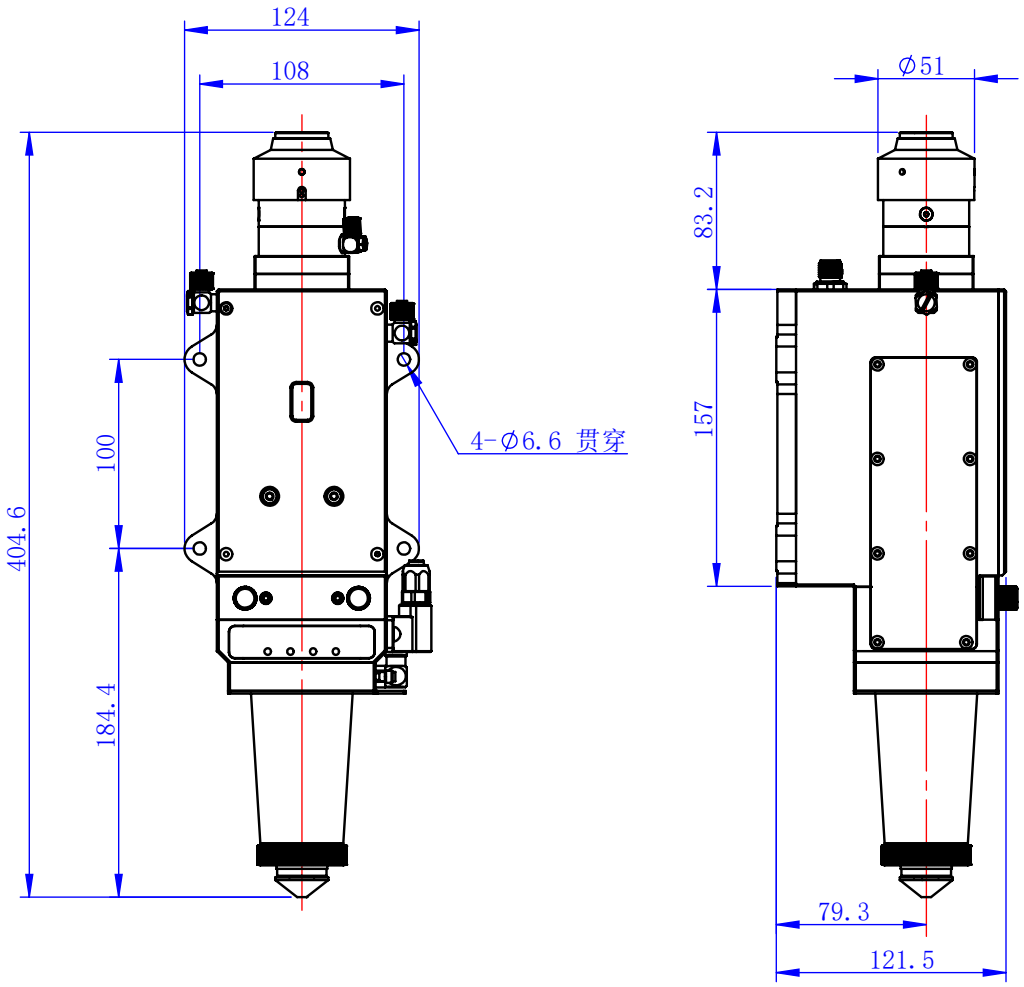


1. Pressure Cap 2. Protective Lens (D34x5)

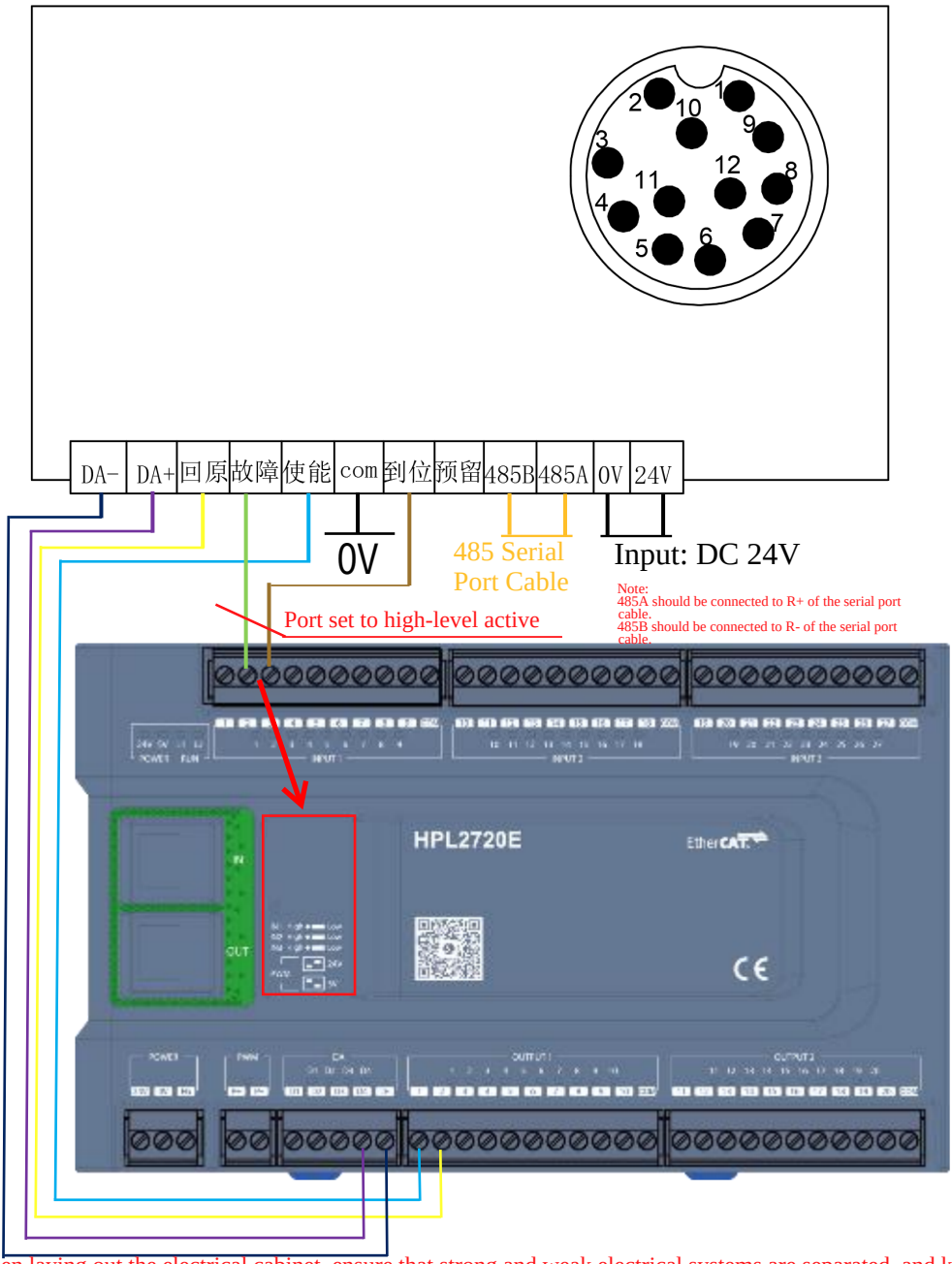
Disassembly Method: Pull the pressure cap (1) straight up vertically, and then pull the lens upwards according to the arrow. Do not use tools such as wrenches or pliers, as this may damage the components.

4. Cutting Head Installation Dimensions:

The following dimensions are for the NC65 (F100xF200) installation.

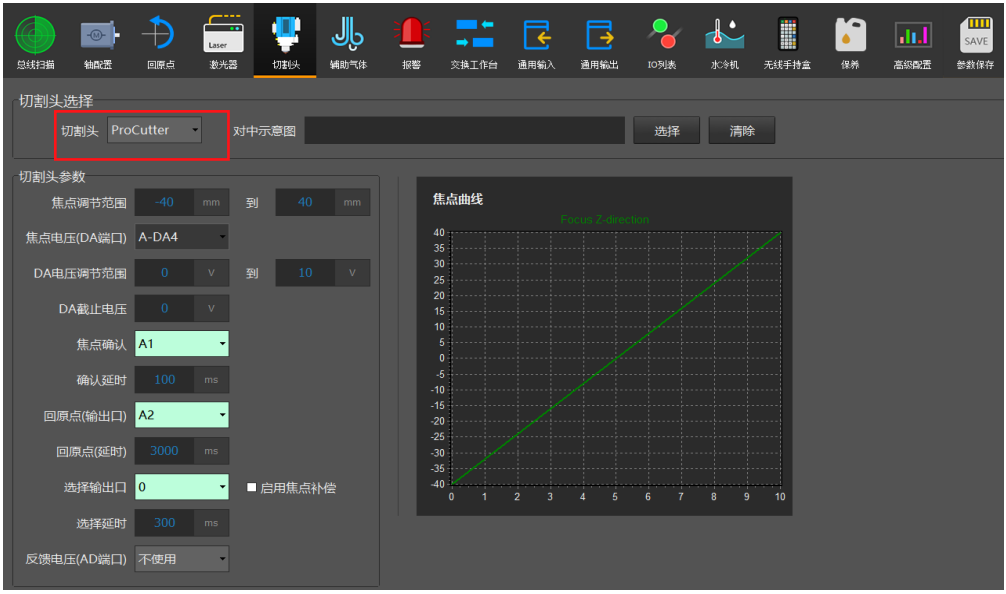


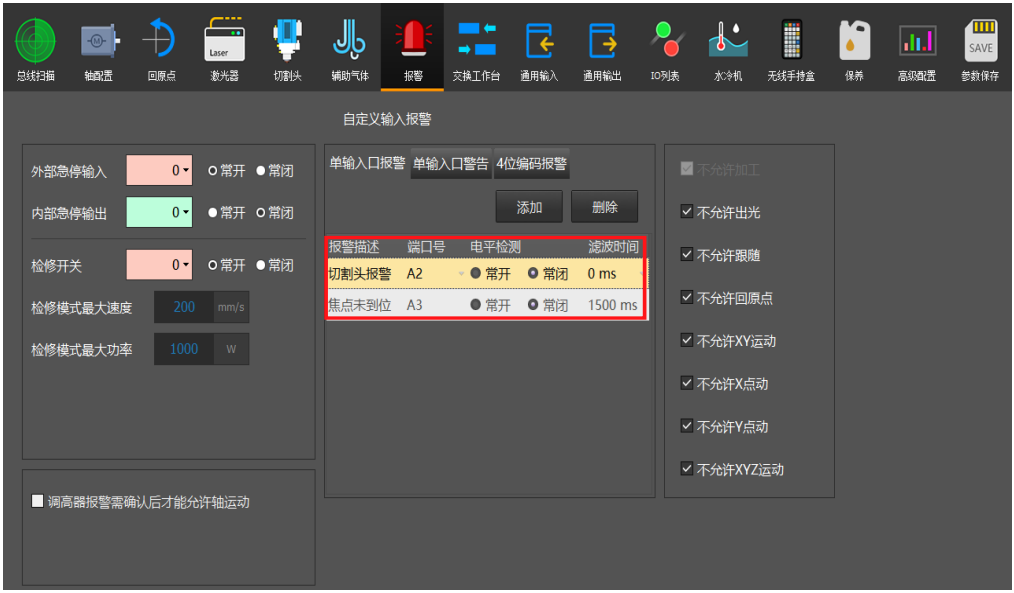
5. Electrical Wiring Diagram:



When laying out the electrical cabinet, ensure that strong and weak electrical systems are separated, and keep them away from high-power interference devices to ensure good grounding of the equipment.

6. Parameter Configuration Description





7. Monitoring Instructions:

7.1 Connecting Devices

(1) Open the upper-level software and select the corresponding serial port number.

(2) After clicking the “ Connect” button, it will change to “ Disconnect” . If the connection fails, a prompt box will pop up.

7.2 Modifying Thresholds: Click the “ Threshold Settings” button next to the corresponding sensor. Enter the password “ 666666” to access the modification window. The warning threshold must be higher than the alarm threshold.

7.3 Log: In the event of an alarm, the logs can be viewed in the log window.

7.4 Indicator Light Description:

(1) When LED1 and LED2 are lit green, the temperature is normal; if lit red, there is a temperature alarm (check if the real-time temperature value is normal and reset the threshold).

(2)When LED3 is lit green, the air pressure is normal; if lit red, the air pressure is too low (increase air pressure).

(3) When LED4 is lit green, the motor starts normally; if lit red, the motor calibration is incomplete (wait for calibration to complete).

		Normal	Warning	Alarm
LED 1	Protective Lens	Green Light	Yellow Light	Red Light
	Humidity	Green Light	NA	Red Light Flashing (1 second)
LED 2				
	Focus	Green Light	Yellow Light Flashing (1 second)	Red Light Flashing (1 second)
LED 3	Cutting Air Pressure	Green Light	NA	Red Light
	Chamber Pressure	Green Light	NA	Red Light Flashing (1 second)
LED 4	Ready (Built-in Motor Version)	Green Light	NA	Red Light
Note: Priority of light status: Red Light - Yellow Light - Green Light. If the same light is monitored by two sensors, the status displayed will be from the upper sensor (e.g., if LED1 triggers an alarm from both sensors simultaneously, it will display as Red Light. Only when the alarm is cleared will the Red Light start flashing).				

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