GF501 SERIES (4kW)

5-Axis 3D Laser Cutting Head - User Manual

Document History

Edit date	Version	Topic, revision, action taken

Disclaimer

Safety Instructions

Prevent Electric Shock

Guard against Danger

Laser Caution

Prevent Waterway Corrosion

Noise Prevention

Storage and Transportation

2. Sign and Description

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3. Start-up Preparation

3.1 Power Supply

Caution: Only drives listed can be applied to meet different voltage requirements of motors.

3.2

3.5 Water Cooling

Caution: To avoid reducing the mechanical performance and damage to the cutting head parts (such as frameless motors), please note the following aspects:

3.5.1 Technical Data

3.5.2 Dew

3.5.3 Anti-rust

3.5.4 Water Contamination

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3.6 Water Leakage

3.7 Clean Gas (Protective Gas)

Caution: Gas must be filtered and dried without contaminated liquid and mechanical particles, meeting the requirements of Class 3 in ISO 8573-1:20 2010:

Particle size : <5µm/<<5mg/m³; Water/Pressure dewpoint: ≤ -20 C; Oil: <<1mg/m³.

3.8 AO Mirror Gas

3.9 Brake Gas

3.12 Checklist before Power on

4. Technical Data

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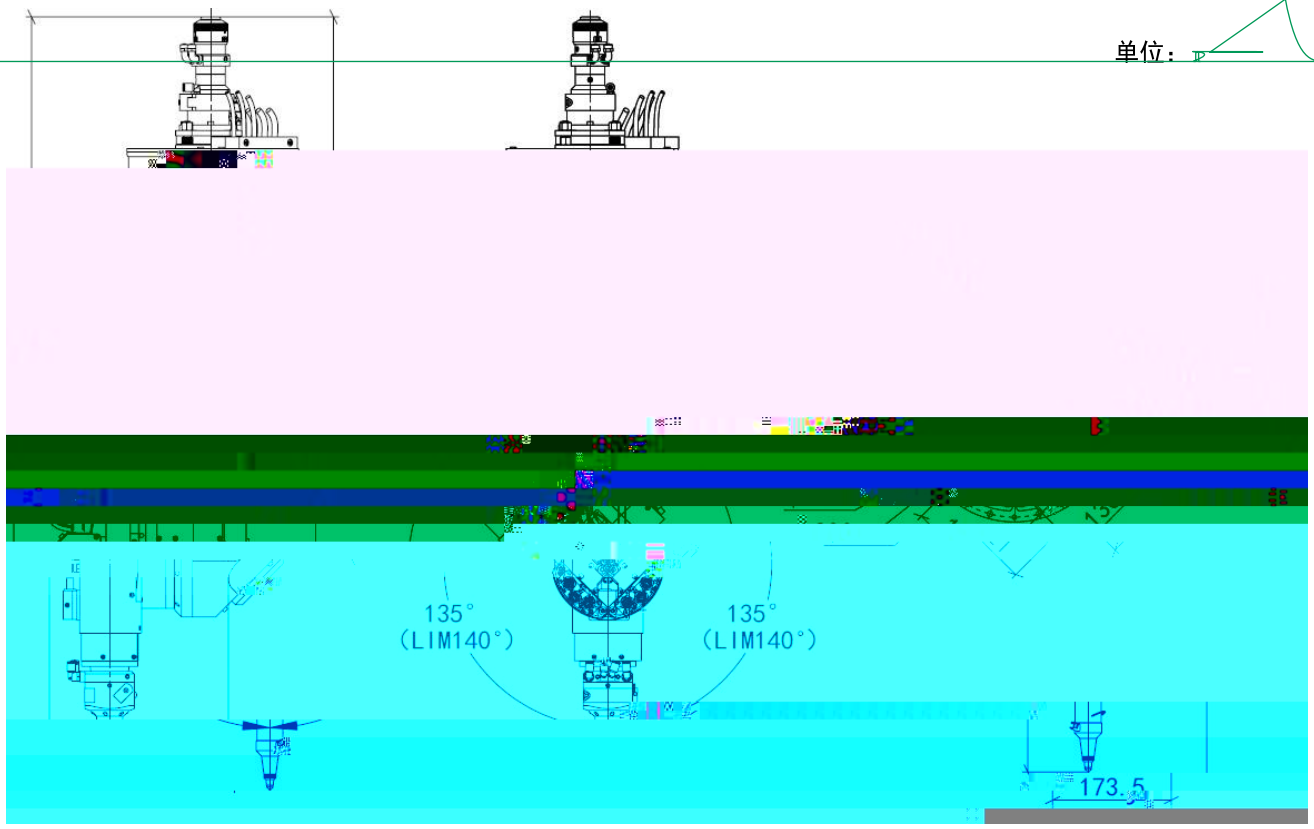

Note: Only loose nuts of a corner at a time to adjust its angle.

5.1.2 Levelling Method:

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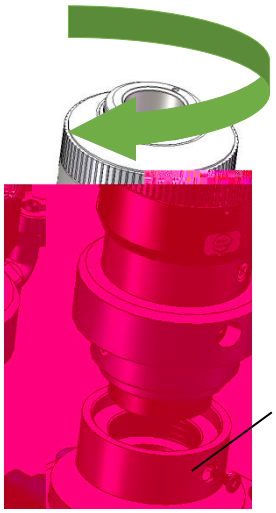
5.2 QBH Interface

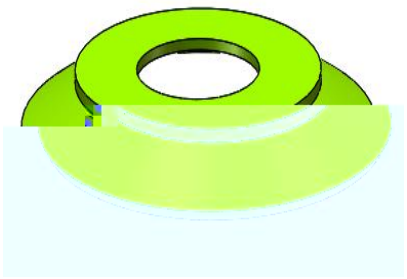
5.2.1 Removal and Installation of QBH Interface



5.2.2 Connection of Laser

WARNING: The optical components must be dust free and all dusts must be cleaned before use. The fiber shall be horizontally inserted into fiber interface to prevent dust from entering the interface and falling on the surface of the lens. Upper limit in the fiber before fixing the laser head.

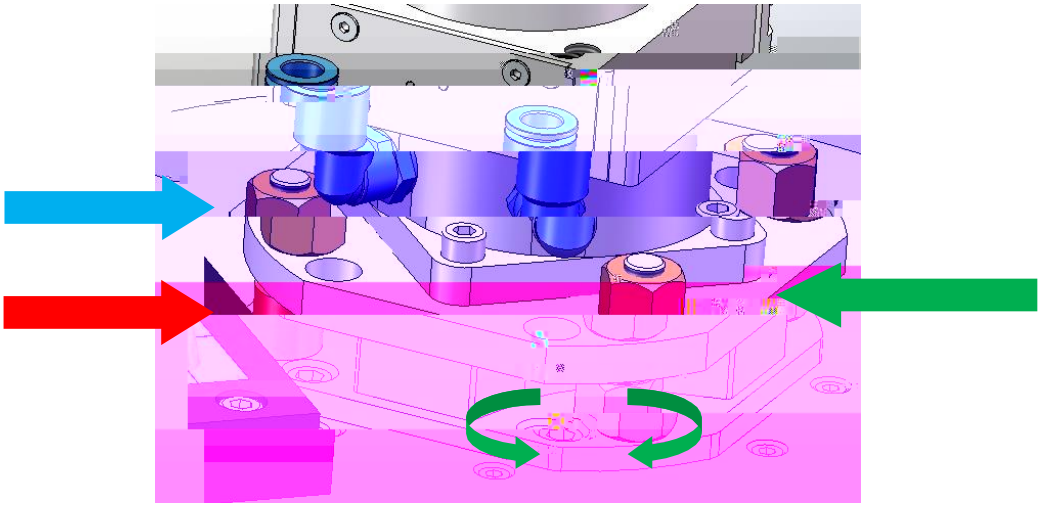
Cover fiber interface with a white plastic dustproof cover when not using it to ensure a clean environment.

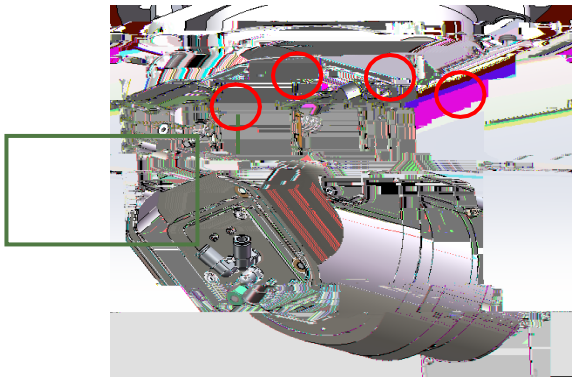


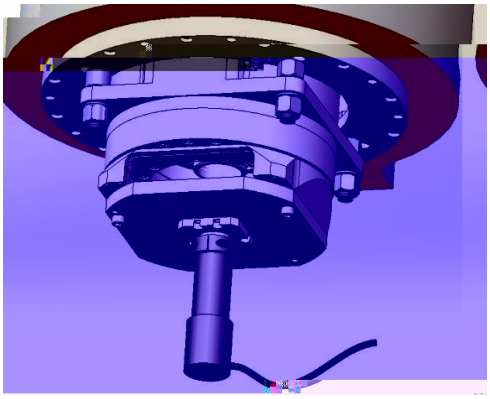
5.3 Optics System Adjustment

Note: Adjust optical path in a clean environment.

5.3.1 Collimation Module Adjustment

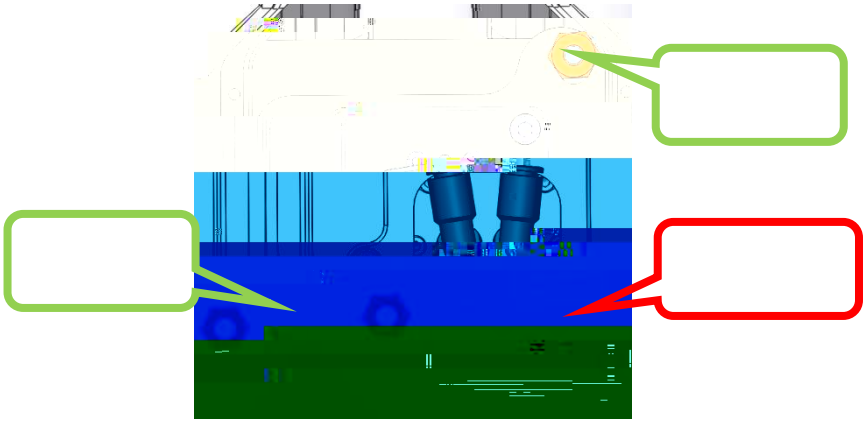




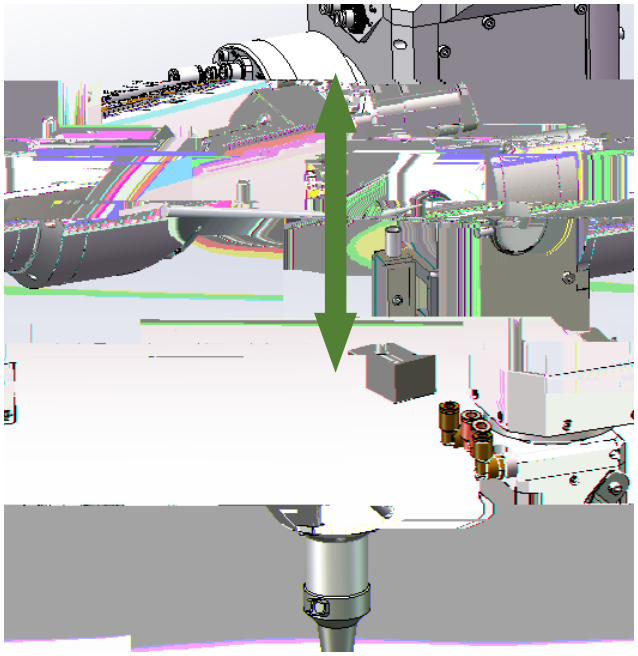


5.3.2 AO Mirror Adjustment

Caution: This operation requires lens tools and should be started after collimation leveling.



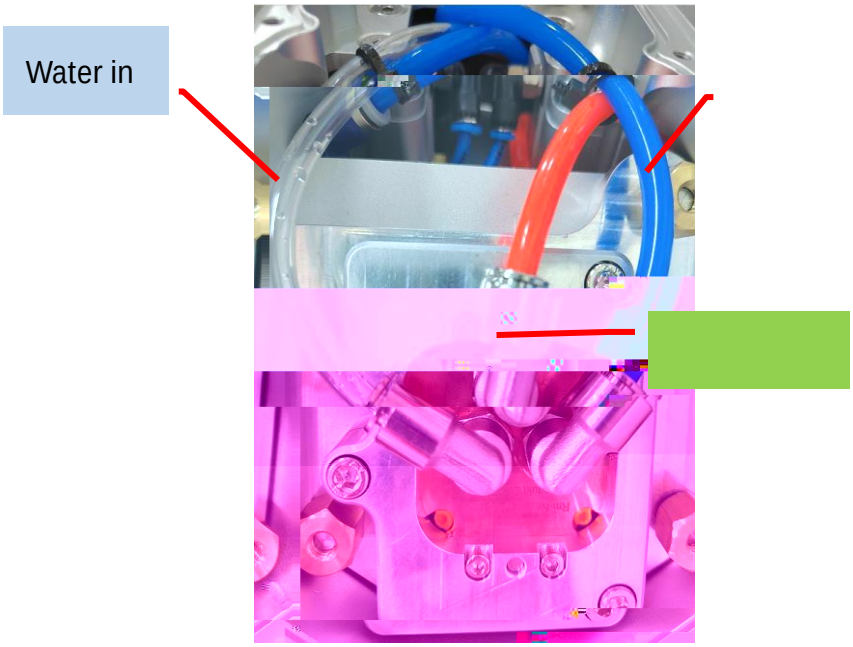
5.5 A-



6.2 Anti-collision Mechanism

6.3 Gas and Water Interface

6.3.1 External Gas and Water Interface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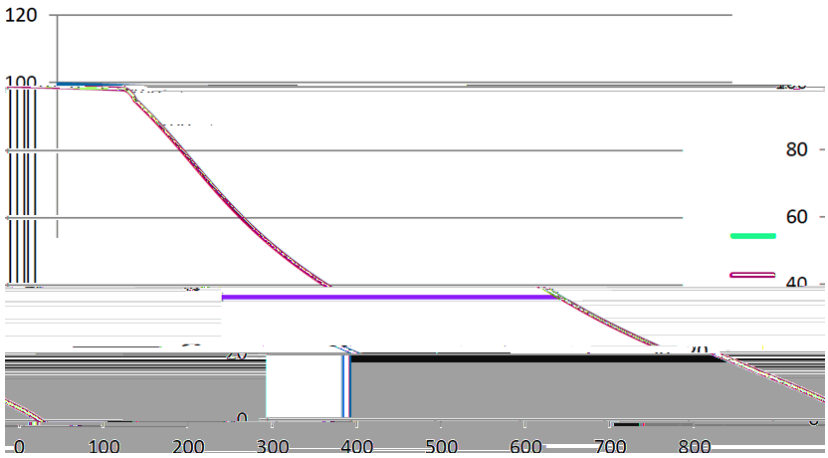
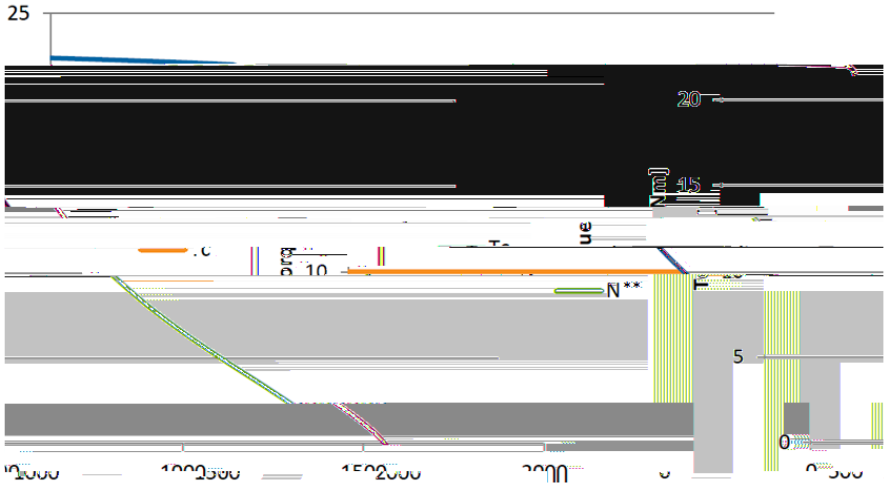
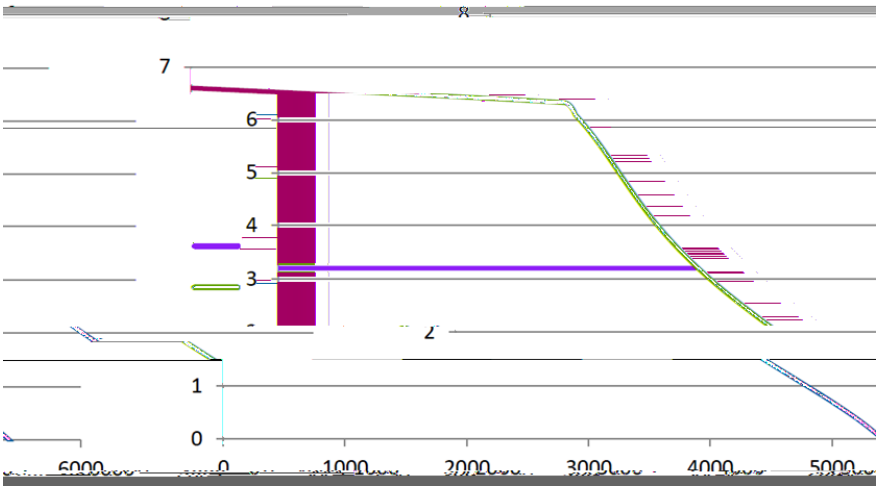


Max. speed of C-axis<<Max. speed of motor



Max. speed of A-axis<<Max. speed of motor

7.3 H-axis Motor Datasheet



Max. speed of A-axis<<Max. speed of motor

7.4 Encoder Data

7.6 Connection of Electrical Interface and Cable

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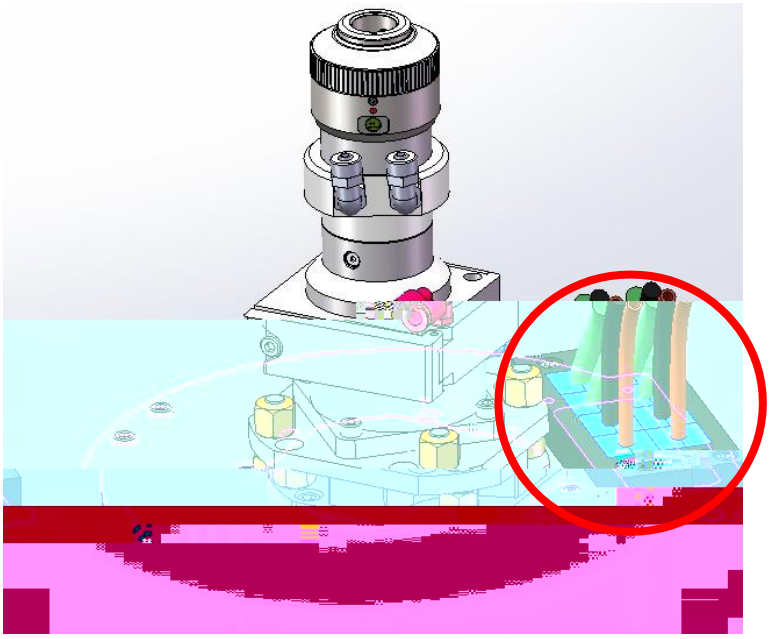

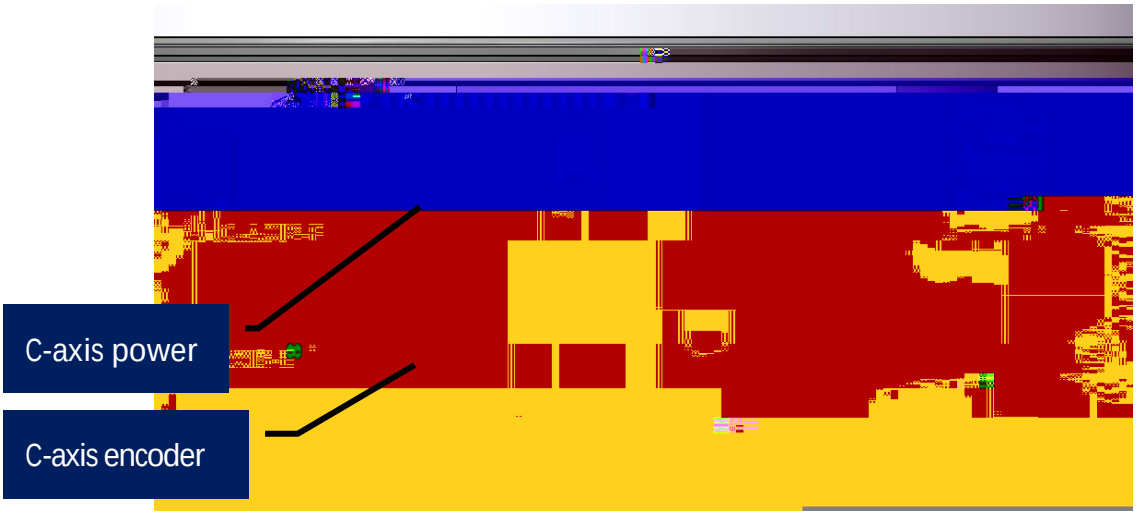

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8. Troubleshooting

9. Maintenance

9.1 Maintenance List

9.2 Cleaning Lens

9.2.1 Tools

9.2.2 Cleaning Instruction

9.3 Removal and Installation of Collimation Module

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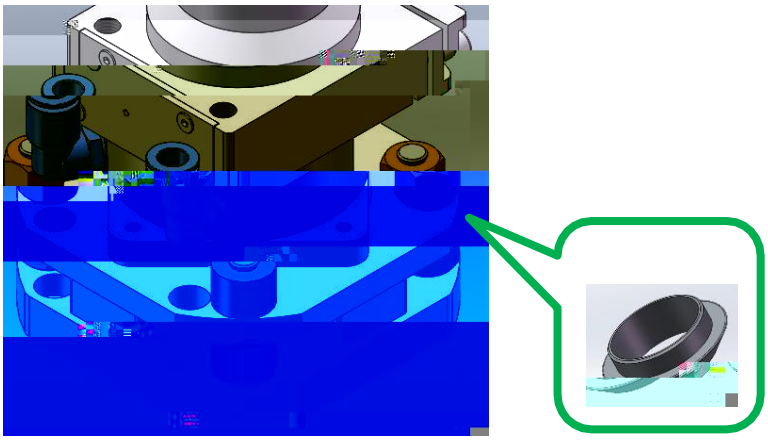
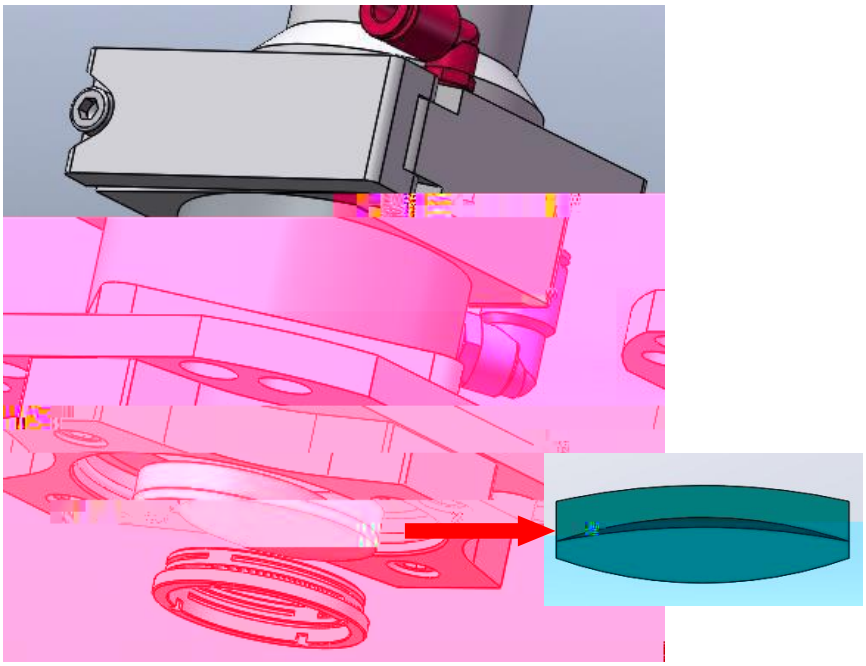
Warning: when moving the fiber

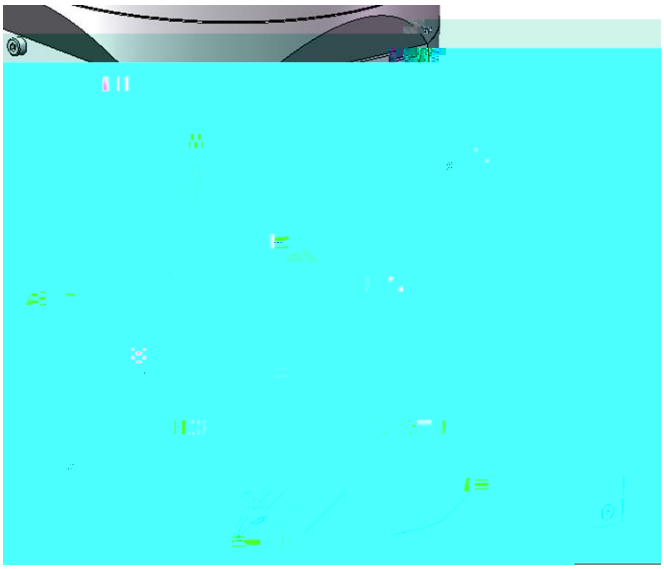
9.3.1 Removal and Installation of Collimation Lens





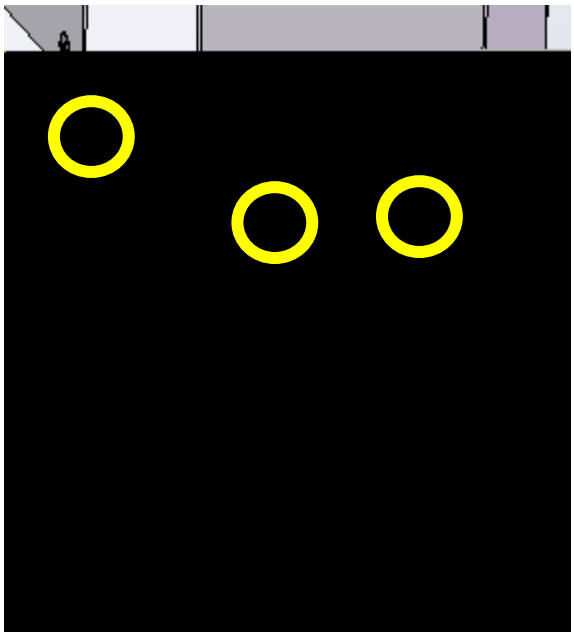
9.3.2 Removal and Installation of Top Cover Glass

9.4 Removal and Installation of AO Mirror

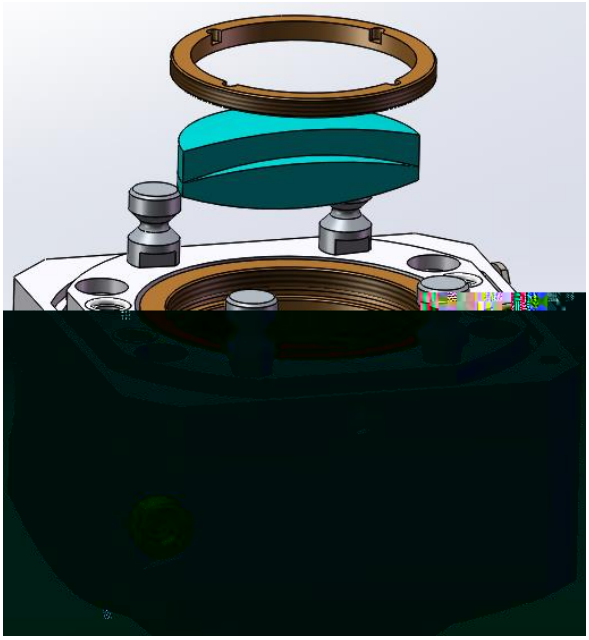


After replacing/cleaning AO mirror, please check if water pipes are properly connected and if there is water leakage.

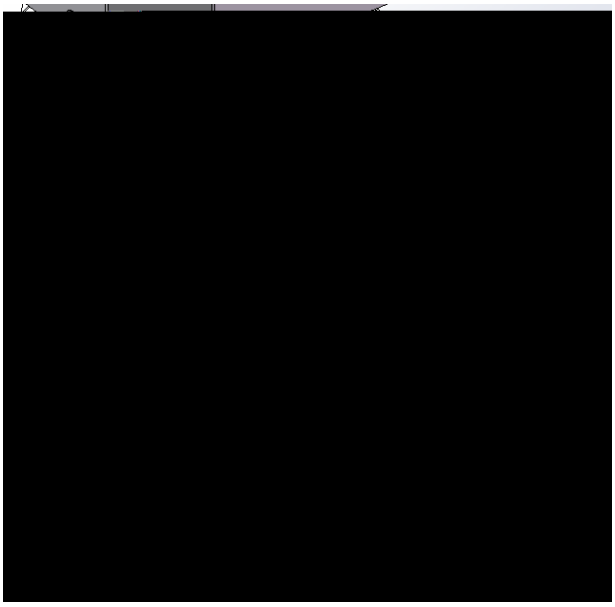
9.6 Removal and Installation of Focus Module



9.6.1 Removal and Installation of Focus Lens



9.6.2 Removal and Installation of Bottom Cover Glass



Note: It is forbidden to use nails or hard objects to directly remove the elastic seal ring above the cover glass, which will seriously cause damage to the elastic seal ring, air leakage or even damage to the cover glass, focus and collimation lens.

Keep seal ring properly as any small scratch will cause air leakage and affect the cutting effect.