- We reserve the right to change the design in order to improve the quality or expand the application or comply to manufacturing workmanship.
- We will not bear any responsibility for losses and accidents caused by wrong operation or improper handling of our products.
- Dismantling of product will lose all warranty claims excluding the normal replacement of worn parts and components required for maintenance or commissioning operations.
- Unauthorized modification of products or use of non-original spare parts will directly lead to the invalidation of warranty and liability exemption.
- It is recommended to only use the spare parts provided by us or submit them to us or the designated professional team for gprofessional team cio Ű ŧ % ; sↃ ,

-  Parts of the laser head such as nozzle, sensor, sensor interface and attached fasteners may not be fully protected by the ground wire due to function fault. These parts may have low voltage. When installing electrical equipment, please pay attention to taking anti electric shock measures for relevant personnel.
-  Note that the equipment shall be grounded as specified.

- Never put your hands or other body under the laser head.
- Repair and maintenance work can only be carried out after the power is turned off.
- Do not exceed the specified maximum pressure.
- It must be ensured that the laser head is in normal condition at all times.
- All fasteners such as bolts and nuts must be tightened.

- Avoid direct laser radiation or scattering to the skin.
- Do not stare at the laser beam even when wearing optical equipment.
- Use special laser protective eyeglasses that meet the requirements of safety standards IEC 60825-1.

- In order to avoid corrosion, use the specified coolant and comply with relevant requirements and specified maintenance intervals.

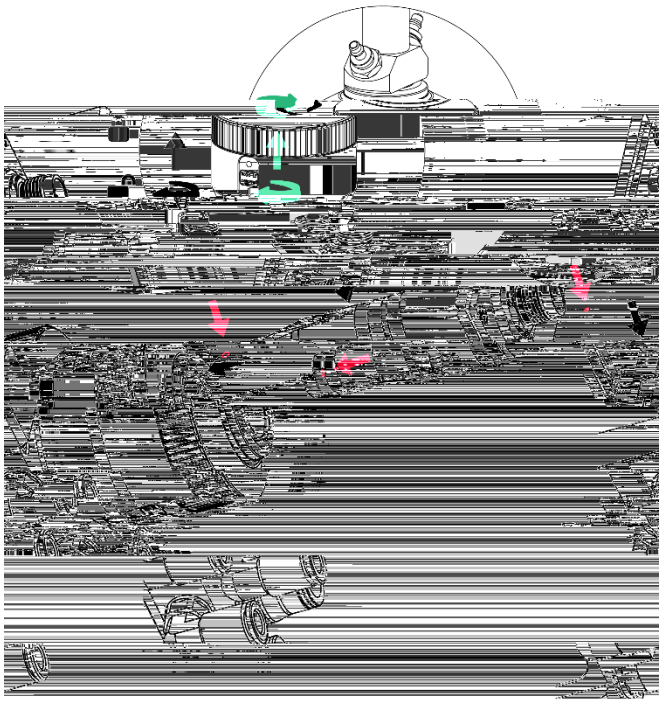
- The corresponding measures shall be specified or explained and observed in order to prevent personnel from being harmed by noise when the cutting air pressure is high.

- Observe the storage temperature range allowed by the technical data.
- Take reasonable measures to prevent fire, vibration or impact.
- Do not store in or near the magnetic field.

No. 1	Cooling water (6)	No. 3	Cutting gas (10)
No. 2	Cooling water (6)	No. 4	Preamplifier interface (SMA)

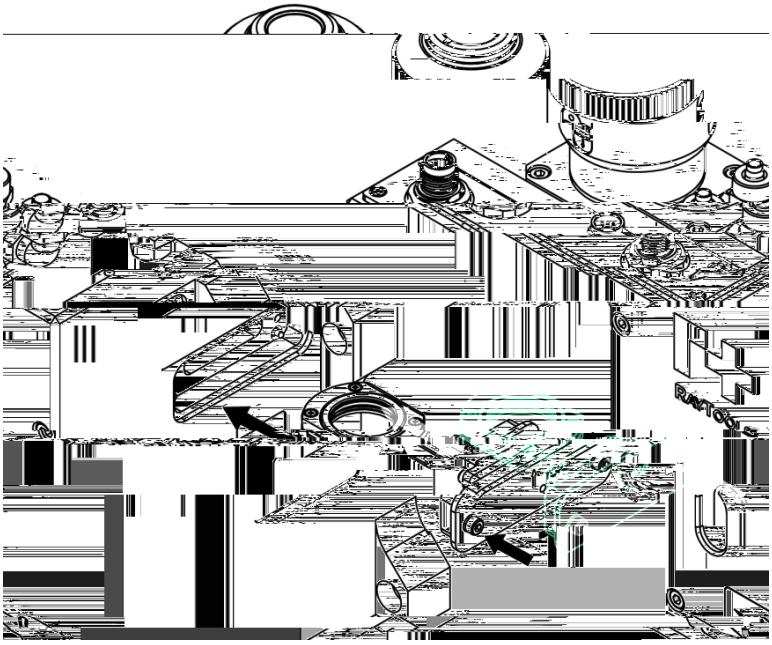
2 Mechanical Installation

The optical components must be dust free and all dust must be cleaned before use. The fiber shall be horizontally inserted into the 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.



- Align the red point at the end of the QBH interface to the red point of the handwheel.
- Remove QBH dustproof cover.
- Align the red mark of fiber end to the red mark on QBH and insert the fiber straightly to the bottom of the QBH interface.
- Turn the QBH handwheel clockwise. It is in place when you hear the "Da" voice, then pull the handwheel up and turn clockwise to end.

Maintenance or repair shall be only implemented at dust free workstation.



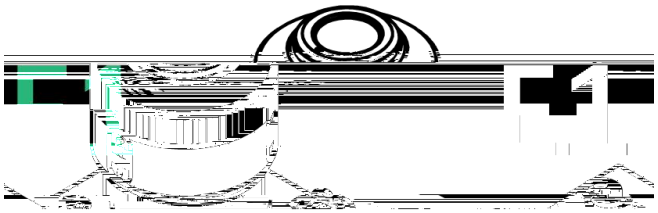
- Loose bolts (item 1), and the drawer of glass holder will pop up automatically. Pull out the glass holder until the glass can be seen completely.
- Check if there is any contamination on the glass and blow off the dust on cover glass with clean air if it's needed till the glass surface is clean.

The cover glass shall be replaced if it cannot be cleaned or damage happens.

The impurity in cutting gas such as hydrocarbon and steam will damage the lens and cause cutting power fluctuation as well as inconsistencies between the sections of the work piece. The table below is the recommended cutting gas specification. The higher the purity of the gas, the better the quality of the cutting section.

		( )	( )
Oxygen	99.5%	<5 ppm	<1 ppm
Nitrogen	99.95%	<5 ppm	<1 ppm

3 Connection and Commissioning



Connect the encoder cable to the interface E1(12-pin) and the control cable to the interface E2(8-pin). Reserve a proper length to fix the cable into the cable groove inside the machine.

Connect the 8-pin control cable and 12-pin encoder cable to the drive interfaces according to instructions on the cable sleeves.

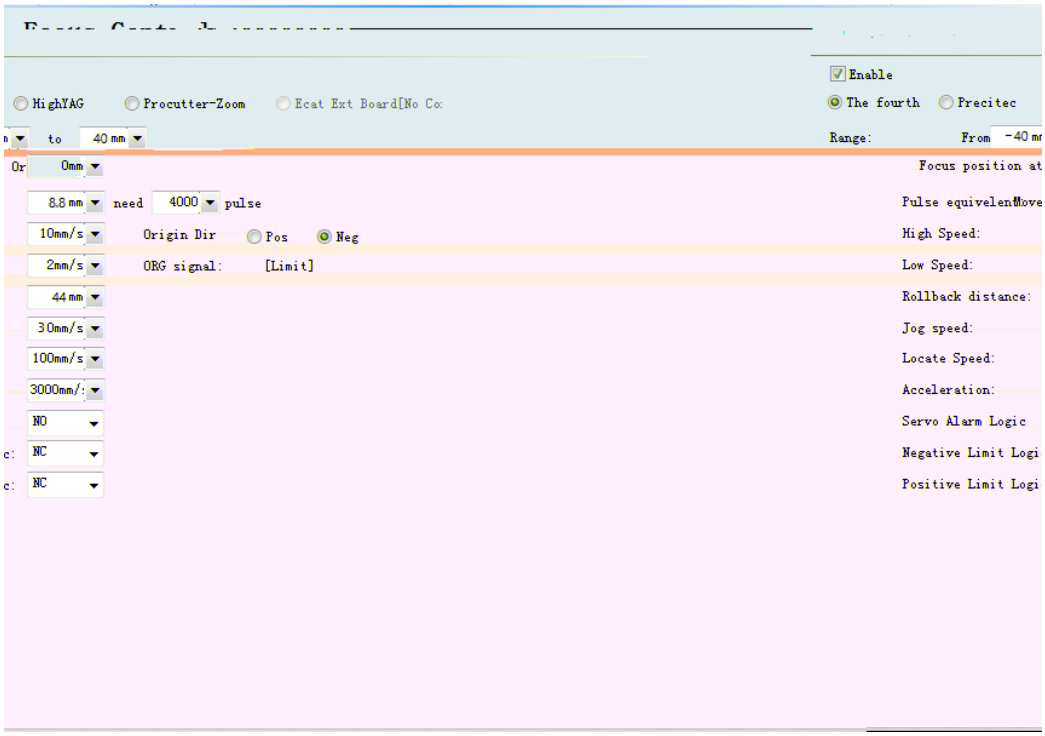
The limit sensor is NPN-NC (only output NPN signals when not actuated). Please install a relay if necessary.

The wiring must be done when the power is off. Operate the power-on testing after the wiring is checked.

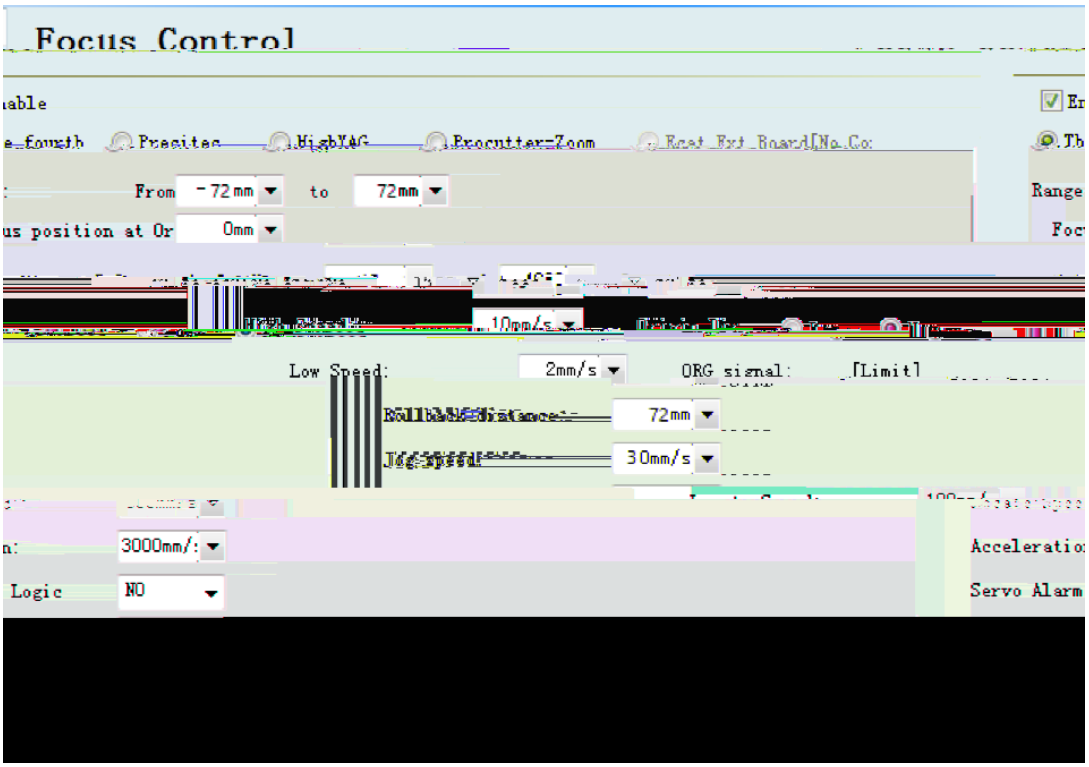
Open the setting interface and set the parameters according actual needs as shown in below figures.

(Optical configuration: 100:300

Optical configuration:



Optical configuration:



The connections and settings may differ from one CNC control system to another. Once the setting is modified, the corresponding wiring method may need to be changed.

· Start the app and complete the connection according to the instruction.

· Complete setting manually bases on actual needs.

Example:

Smart inspection data setting	Remark	Setting value
Bottom cover glass-Temp	Alarm threshold 45	45

4 Beam Alignment and Zero Focus Correction

Lens alignment of the laser cutting head can be finished by adjusting the focus lens, X-Y direction. The X/Y adjusting knob is located above the bottom cover glass as shown above. Adjusting the 2 knobs until the beam is located in the middle of the nozzle. Make sure the laser beam output from the center of the nozzle. The tape dotting method as below is commonly used:

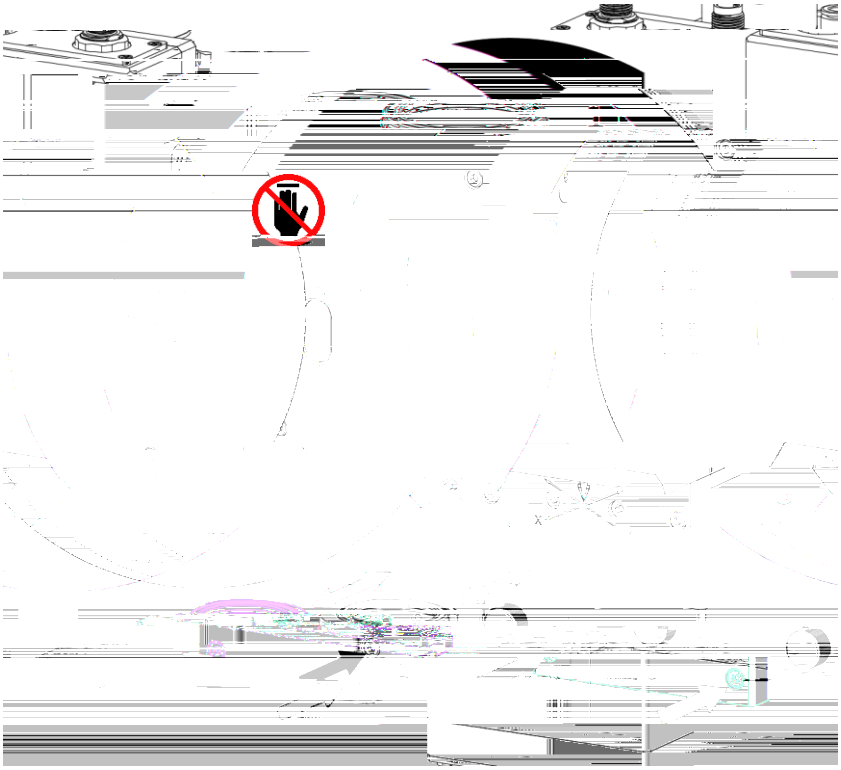
1. Fix the cutting head with a big size nozzle (tip size shall be larger than beam size) or adjust to nearly zero focus.

The whole process needs to be completed in a dust free room. Wear dust-proof gloves or fingertips when removing or installing the lenses.

The cover glass is wearing part which needs to be replaced once it is damaged.

1. As shown above, loose the 2 bolts to pull out the cover glass holder by pinching 2 edges of drawer type holder.
2. Seal the mounting openings with textured tape immediately.
3. Remove the pressing ring (1) and cover glass (2) after wearing finger-cots.
4. Clean the cover glass holder and seal ring (3). The elastic seal ring (3) should be replaced if damaged.
5. Install the cleaned or new cover glass (regardless of the front or back surface) into the cover glass holder.
6. Install the pressing ring.
7. Insert the cover glass holder back

The cover glass is wearing part which needs to be replaced once it is damaged.



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5. Install the cleaned or new cover glass (regardless of the front or back surface) into the cover glass holder.
6. Install the pressing ring.
7. Insert the cover glass holder back into the laser head and tighten the bolts.

Consumables

Name	Technical Data	Material Code
Fiber Interface	QBH	211FIA3003
Lens 100:200	Biconvex spherical lens F100-D37	3250010322
	Meniscus spherical lens F100-D37	3250010323
	Biconvex spherical lens F190.5-D37	3250010433
	Meniscus spherical lens F220-D37	3250010420
Lens 100:300	Biconvex spherical lens F100A-D37	3250010280
	Meniscus spherical lens F100B-D37	3250010281

Name	Technical Data	Material Code
Encoder Cable	20m	3570040059
	30m	3570040070
Power Cable	15m	3570030145
	20m	3570030146
	30m	3570030147
FSCUT Position Loop-Leadshine Control Cable	2m	ELNAB102M00045