

Laser pipe cutting machine installation process

Installing a laser pipe cutting machine is a professional and meticulous task. Correct installation is fundamental to ensuring the equipment's precision, stability, and lifespan. The core principles of laser pipe cutting machine installation are: safety first, standardized operation, precise alignment, and successful commissioning. The entire process revolves around four core aspects: "mechanical fixing → electrical connection → pipe connection → system debugging," ensuring stable equipment operation and precise cutting.

Pre-installation Preparation (Laying the foundation to avoid rework later)

- 1. Site Preparation:** Confirm that the installation area is flat, dry, and well-ventilated, with sufficient space for equipment operation (including feeding and discharging channels). It should be located away from high-temperature, humid, and dusty environments. The grounding resistance must meet requirements ($\leq 4\Omega$) to avoid electromagnetic interference.
- 2. Equipment and Accessory Inspection:** Verify that the laser tube cutting machine main unit, laser, chiller, CNC system, fixtures, conduits, and other accessories are complete, undamaged, and intact. Confirm that all equipment models are compatible (e.g., laser power is compatible with the machine tool, chiller parameters are compatible with the laser).
- 3. Tool and Personnel Preparation:** Prepare screwdrivers, wire strippers, wrenches, cable ties, multimeters, etc.; arrange for professional operators and electricians to cooperate, strictly adhering to the power and water shut-off operating procedures throughout the process.

Installation Process

1. Check the installation accessories

Accessories required for installing a laser pipe cutting machine.



water cooler. / Laser cutting head



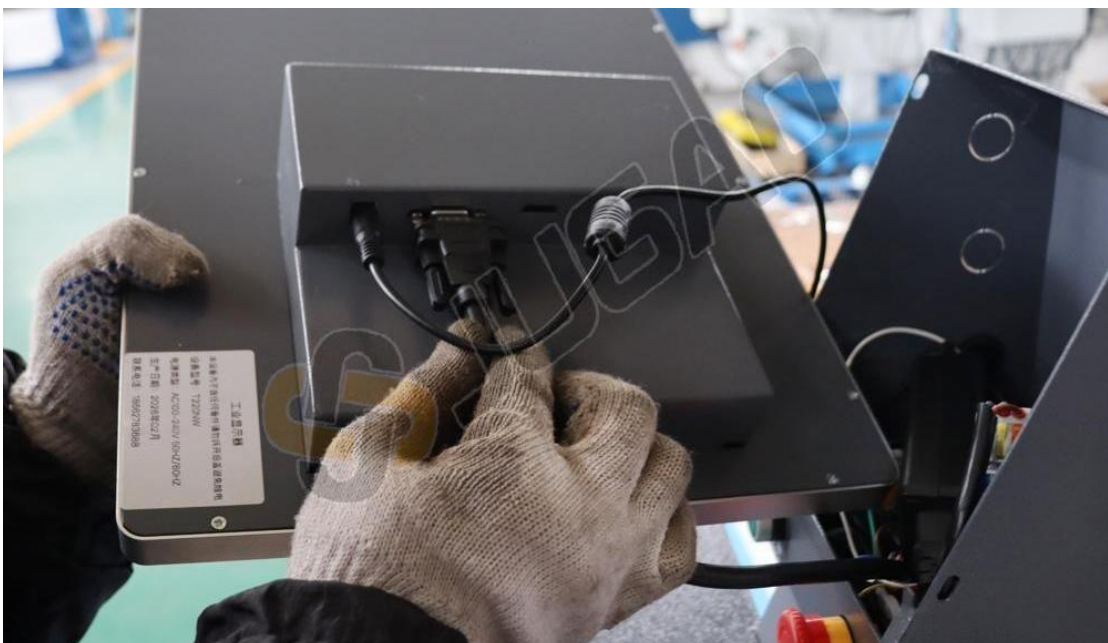
Laser emitter

All accessories are included in JUGAO's packing list.

2. Installation Steps

1) Install the monitor.

Video Cable: Connect one end to the monitor's HDMI/DP/VGA port, and the other end to the corresponding interface on the laser machine control system host. Insert firmly and tighten the securing cable.



Power Cable: Connect to the monitor's power adapter, then plug it into an internal or external socket.



USB Cable: Connect to the keyboard/mouse/touchscreen by plugging it into the host's USB port.

Cable Management: Use cable ties to secure the video cable, power cable, and USB cable along the cantilever/stand, avoiding compression, bending, and proximity to the laser's high-voltage lines. Allow for some slack in cable management.



Securing the Monitor to the Stand

Align the VESA holes on the back of the monitor with the holes on the stand's mounting plate. Tighten evenly with M4 screws (standard included), avoiding overtightening any screw.



Gently shake the monitor to ensure it is secure and not tilted.

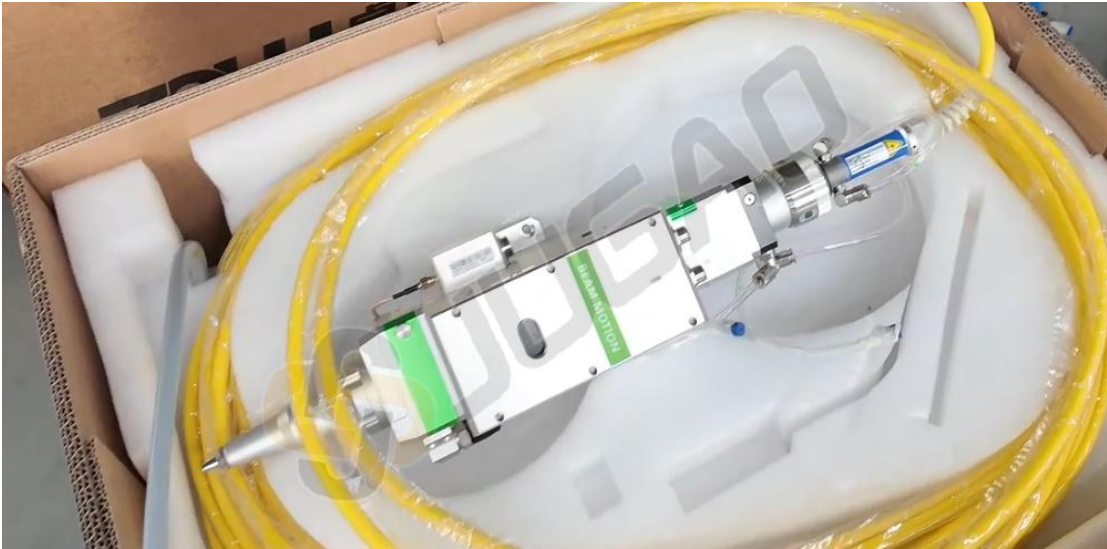
2) Secure the Main Unit



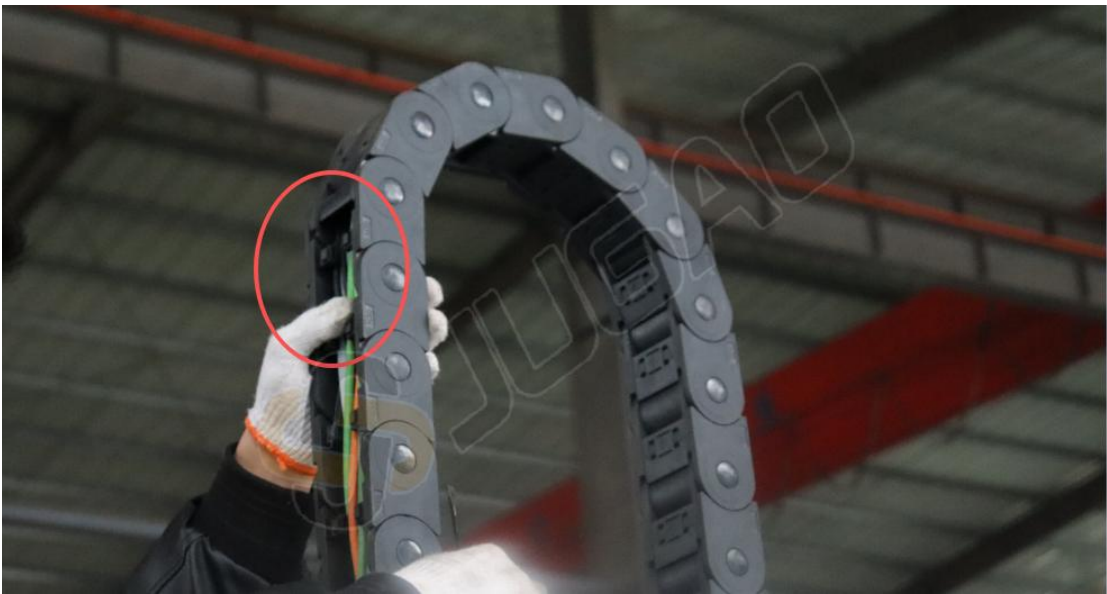
The remote control receiver → we also need to plug it into the computer's USB port.



3) Install the cutting head



Remove all the black caps here.(small screwdriver)



Mechanical Installation of the Cutting Head (Z-Axis Fixing)

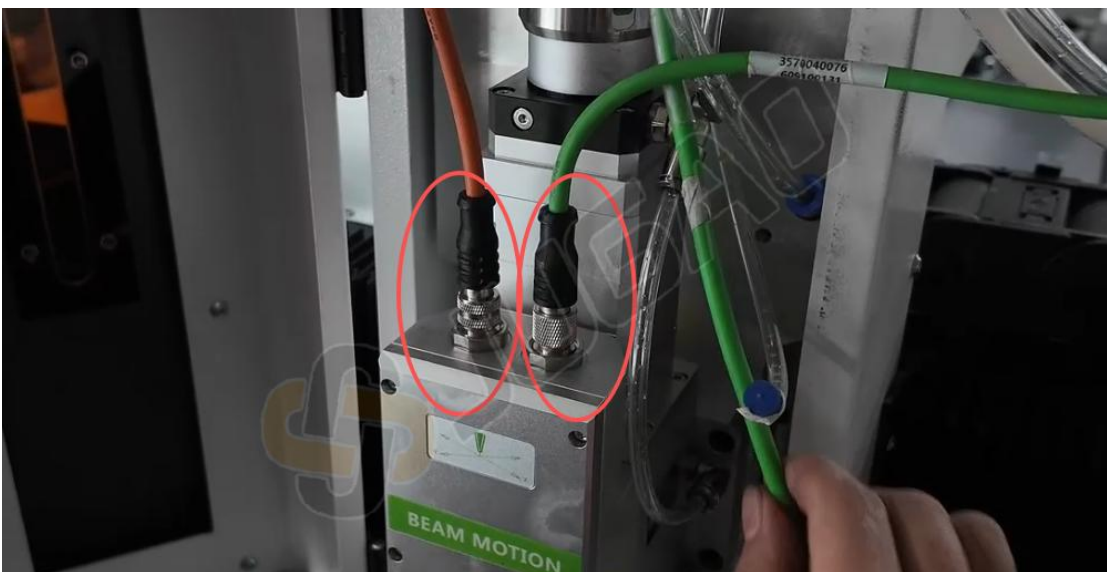
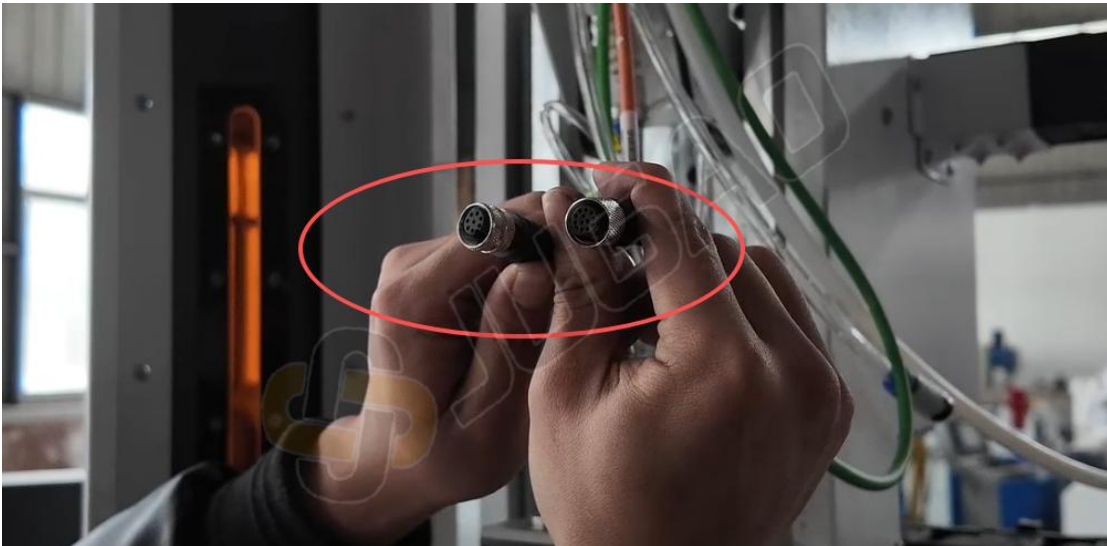
Smoothly hoist the cutting head to the Z-axis mounting position on the machine tool, aligning it with the mounting holes and locating pins. Tighten the M6–M8 bolts diagonally and evenly, ensuring there is no looseness or tilting.





Connecting the Drive Cable

Install the follow-up sensor/capacitor head, securing it firmly and ensuring the sensing surface is coaxial with the nozzle.



Connecting the High-Pressure Air Hose



Connecting Water Pipe Connector

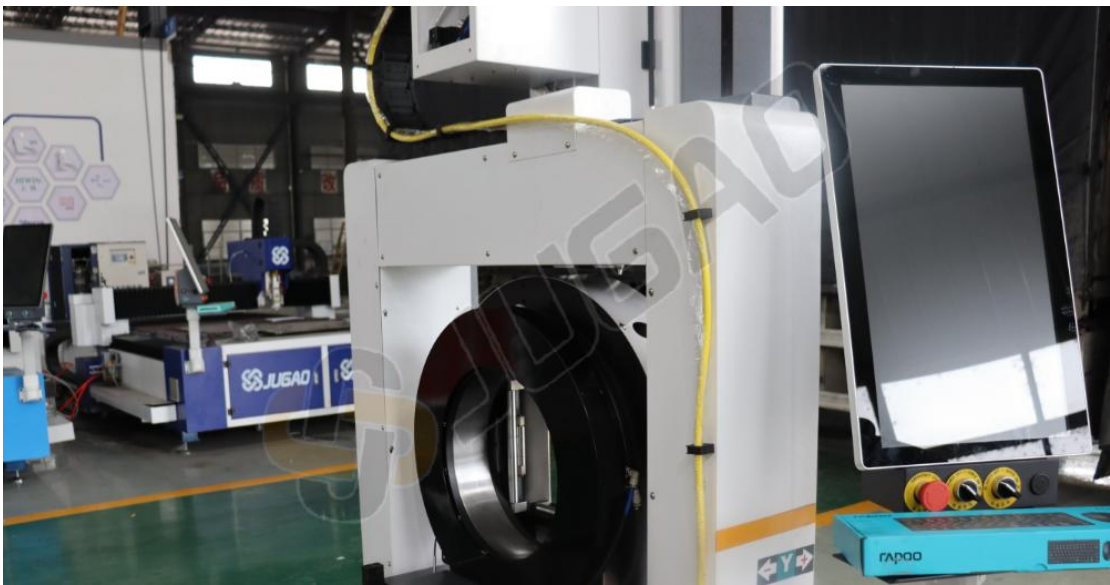


After installation, tidy up the fiber optic cables, water pipes, and other wiring assemblies, and replace the covers.





Place the fiber optic cable into the slot.



4) Laser connected to chiller



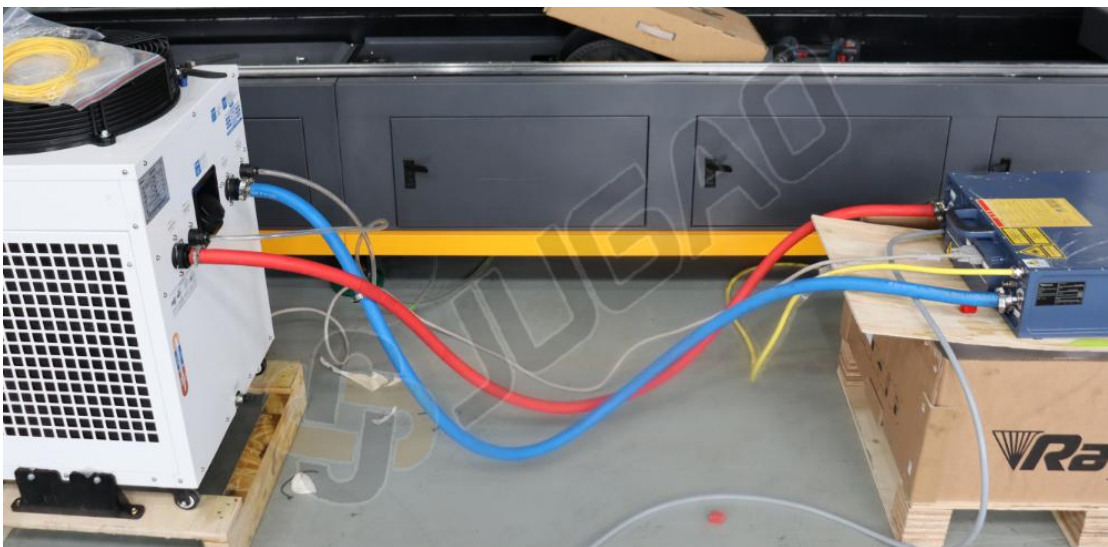


Water from chiller → water from laser; water from laser → water from chiller

Connect the return water pipe



Connect the laser data control cable(Inside the electrical box)



5) Connecting air pressure pipes

The white translucent pipe is the high pressure pipe.

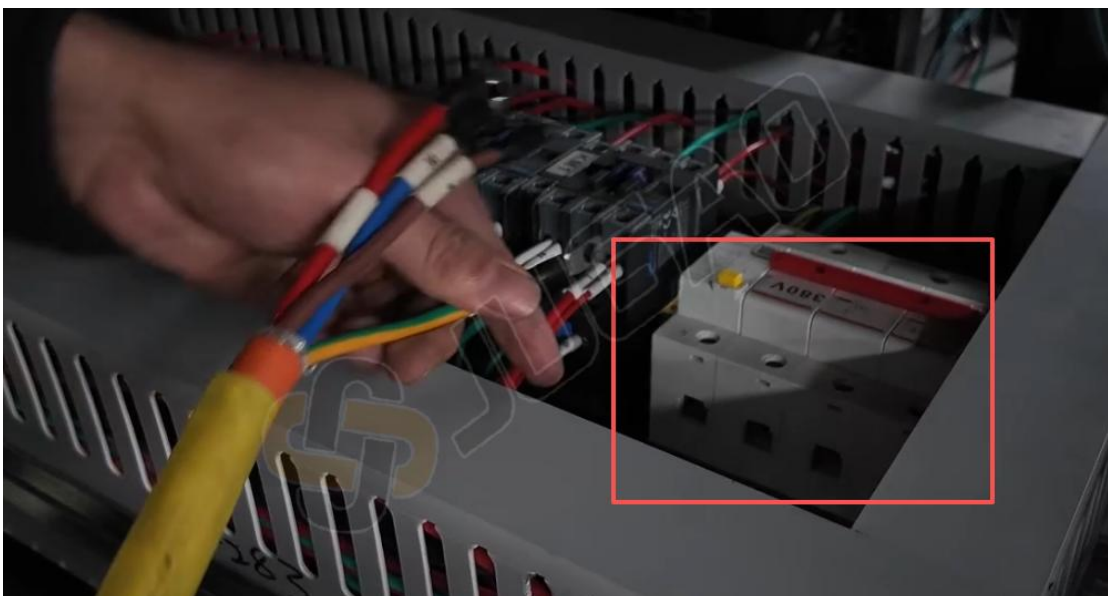


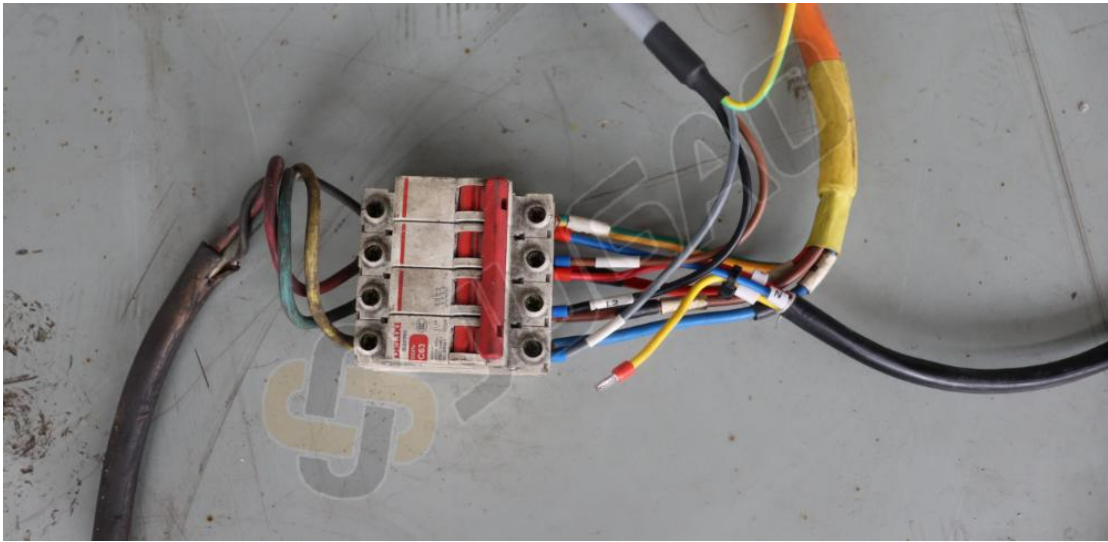
We plug it into the air outlet of the air compressor.



6) Connect the power supply

Connect the machine, chiller, laser, and air compressor to the power supply.





Before the air compressor is powered on. We first need to see if the machine has a voltage of 380V or 220V. Secure the cable with screws and connect the power supply. (The air compressor does not need to go through a regulated power supply. The air compressor is directly connected to the power supply.)



7) Add purified water to the chiller



Fill the water tank with the same amount of water as indicated by the water capacity indicator. Preferably distilled water



You can also observe the level gauge. We need to get into the standards zone.



8) Powering On

Power-on Sequence: First, turn on the chiller. After the water temperature stabilizes at 20-25°C and there are no alarms, turn on the laser and main unit power supplies, and finally start the CNC system. Turn on the power to the chiller here.



The power supply of the water cooler is turned on here.

Presstartto open.



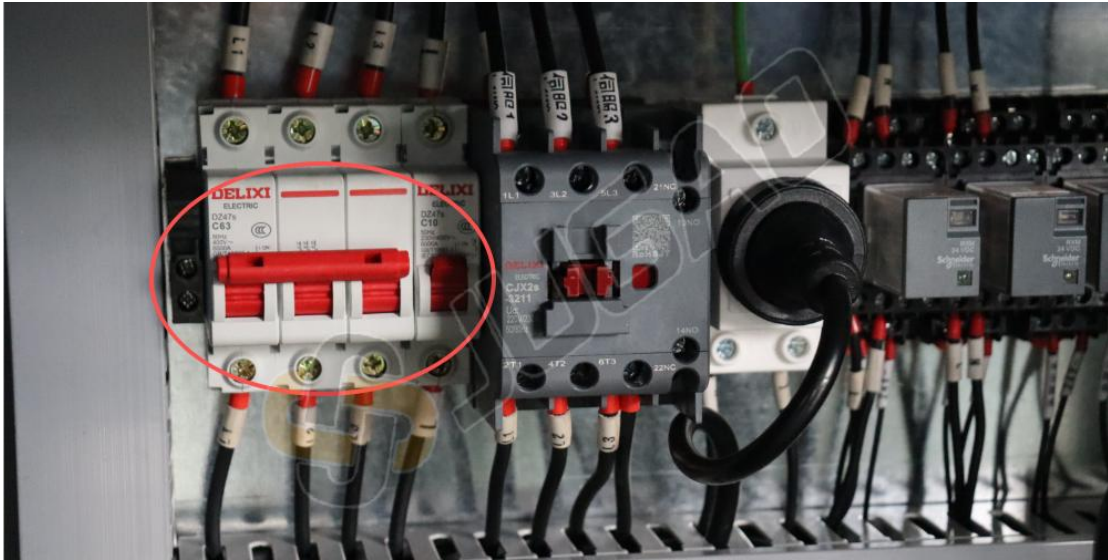
Turn on the air compressor



Also, there is a drain valve like this below the air compressor; we need to discharge pollutants daily. You need to drain all this water before closing this valve.



Then turn on the power of the machine

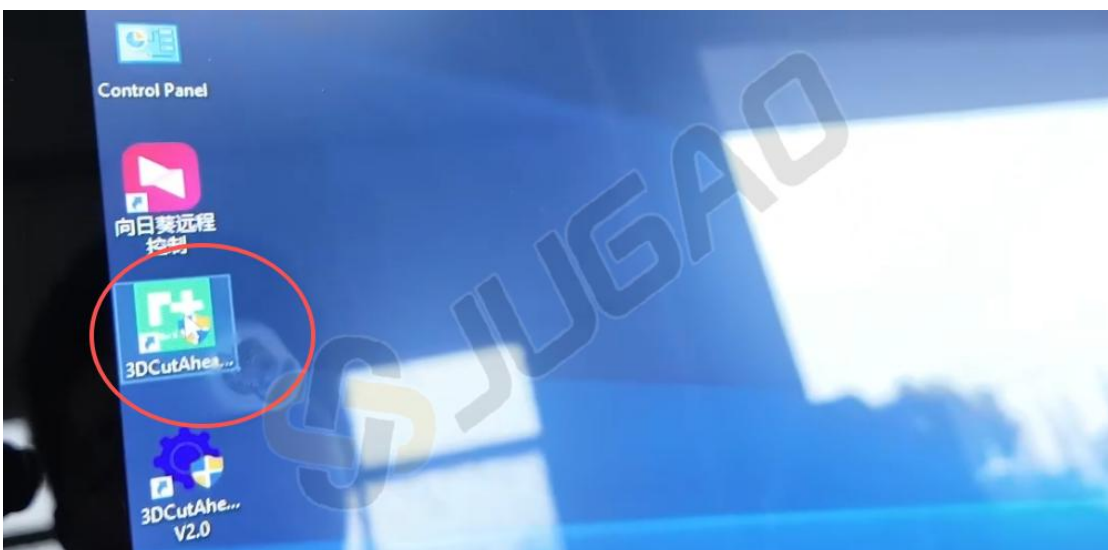


9) Turn on your computer and open the cutting software.

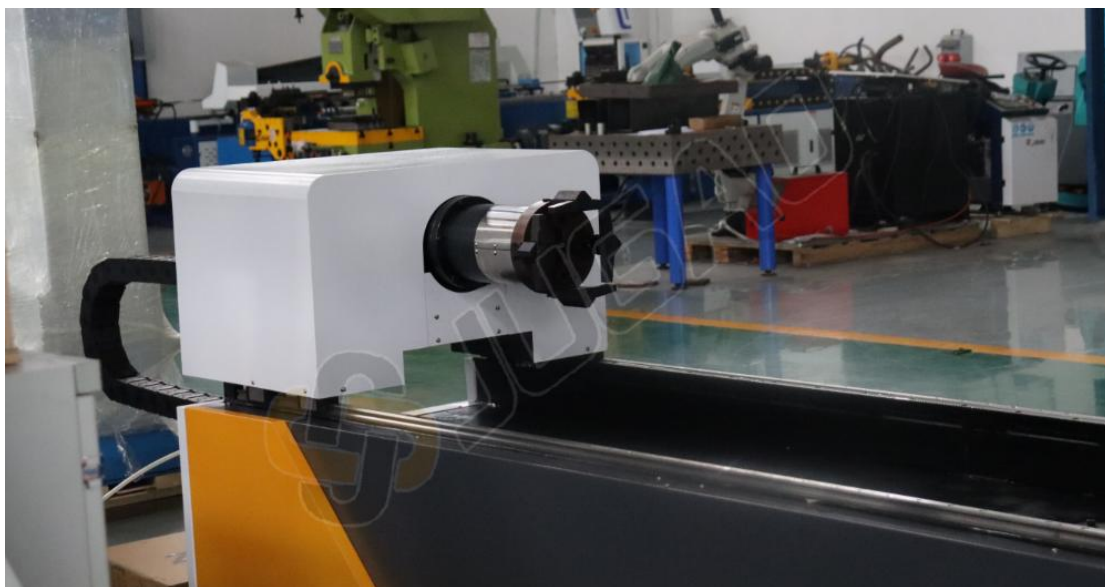
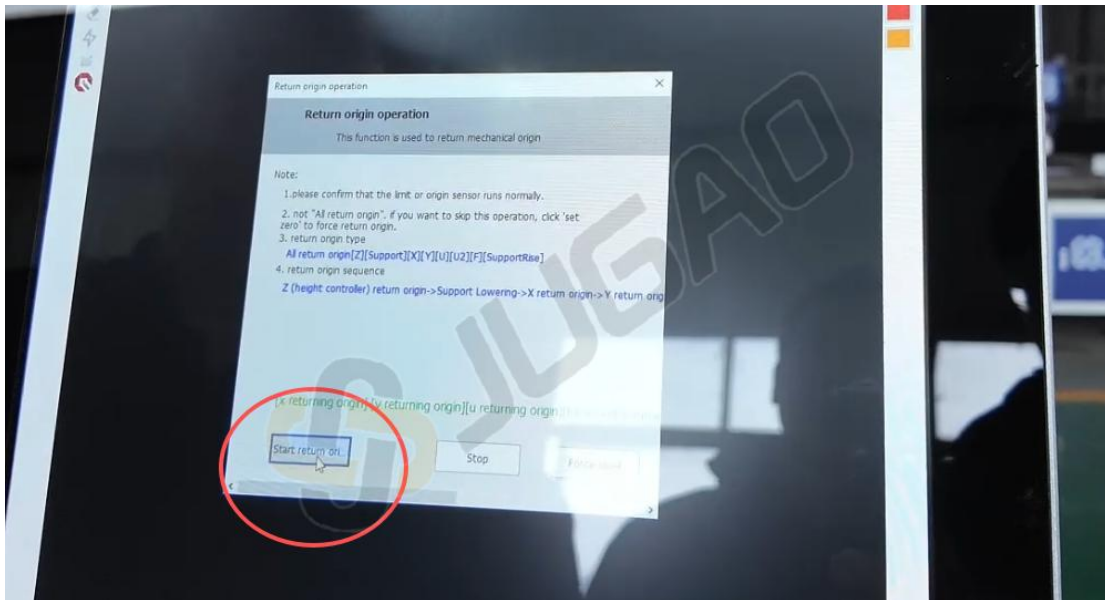
Turn on this button to control the computer.



The computer is on. This is our cutting software.



After opening the software, you will be prompted to return to the starting point. Click "Return to Starting Point". The machine will then work normally.



Conclusion

Summary of Core Installation Points

1. Key Prohibitions: Electrical wiring must not be reversed or omitted; water cooling pipes must not be reversed to avoid overheating and damage to the laser; improper grounding can lead to system interference and motherboard burnout.
2. Core Objectives: Ensure secure mechanical mounting, safe electrical connections, unobstructed and leak-free piping, and successful system commissioning to guarantee stable and precise pipe cutting operations.
3. Compatibility: Installation requires adjustments to wiring and optical path parameters based on the equipment model (e.g., fiber laser pipe cutter) and control system (e.g., Baichu, Weihong), ensuring the installation meets equipment requirements.

This installation manual details the entire operation process of the laser tube cutting machine, including unpacking and inspection, hardware assembly, electrical connections, and software configuration. Please strictly follow each step, as precise installation is the solid foundation for stable operation and optimal cutting performance.

Installation is not the end, but the starting point for meticulous debugging and production. Before starting production, it is strongly recommended that you patiently complete the optical path calibration, focus position setting, and process parameter optimization according to the instructions in the "Post-Installation Debugging and Trial Cutting" section to ensure the equipment achieves the expected processing accuracy and efficiency.

Always remember that operational safety comes first. In subsequent daily use, please regularly check the optical path system and cooling system, and establish a comprehensive maintenance system. Only by combining standardized installation, correct operation, and meticulous maintenance can you maximize the service life of the equipment, ensure operator safety, and create lasting and stable value for you. For any questions, please contact the Jugo CNC Machine Tool technical team.