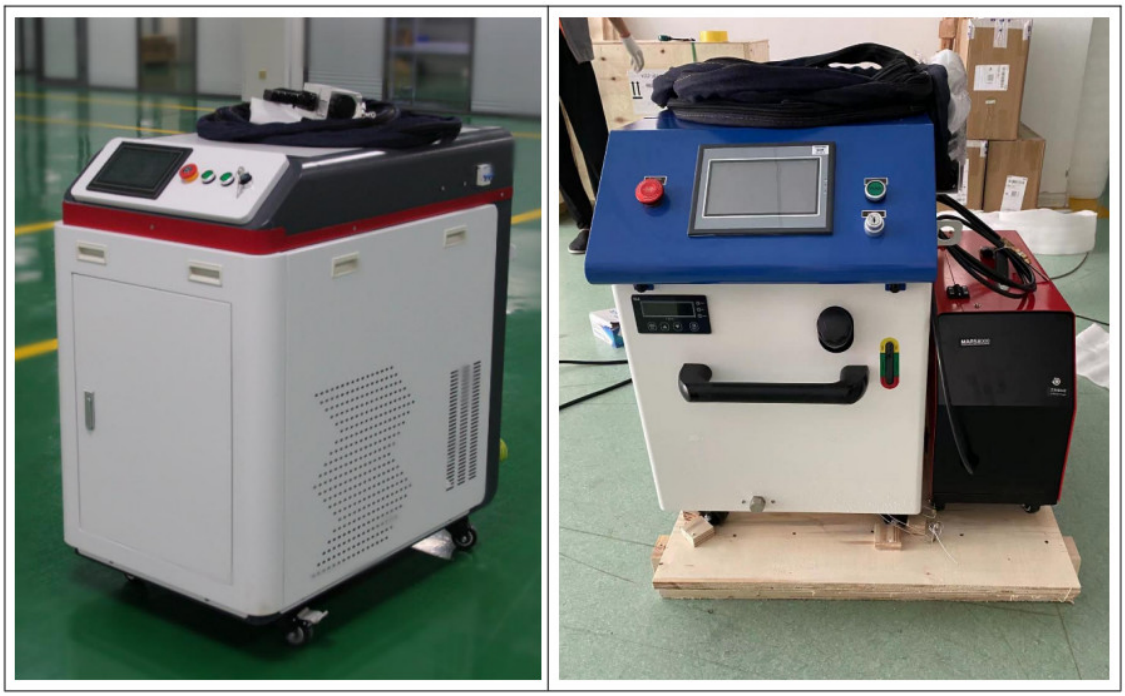
STYLECNC LCW1000(1000W) Handheld 3 in 1 Laser Machine User Manual

Handheld 3 in 1 Laser Machine
User Manual



Thank you for choosing STYLECNC brand handheld 3 in 1 laser machine!
Please read this instruction carefully before using it!

Contents

Overview

Note: All of the photos in this manual except special version, just for reference.
Main specs:
Model No.: LCW1000(1000W), LCW1500(1500W),LCW2000(2000W),LCW3000(3000W)
The laser type: Continuous
Fiber Wires length: standard 10m, customized 15m.
Working voltage: LCW1000/LCW1500 with 220V/2P, LCW2000/LCW3000 with 380V/3P (Raycus, JPT) or as your order.
Electronic consumption: LCW1000: 6KW, LCW1500: 8KW, LCW2000: 10KW, LCW3000: 12KW
Laser Class: Class IV, it will harm skin when shot and harm eyes after long time sight direct.

⚠ Safety Instructions

1.1 General Safety Instructions
Fiber laser cleaners specially designed to reduce accidental exposure to hazardous radiation.
To ensure safe operation and the optical performance of the product, follow the tips and warnings below.
WARNING: When using this laser equipment, be sure to connect the safety ground wire.
Note: Before powering on the laser equipment, please make sure that the input is 220V or 380V AC. Wrong voltage input may cause damage to the equipment.

1.2 Laser type:
The laser used in this equipment belongs to class 4 laser. Improper use will cause harm to the human body. The user should take protective measures according to the requirements of this manual.
The laser used in this equipment is an invisible laser with a laser wavelength of 1080nm, avoid direct exposure of eyes or skin to laser radiation.
Do not try to open the device, any maintenance and service can only be done by technicians authorized by our company or with guidance by STYLECNC service man.
1.3 The hazards of Laser:
The laser output is invisible infrared light, which can cause third-degree burns even if it is out of focus. The beam output by the device contains both visible and invisible radiation. Harmful to human eyes. Do not look directly into the laser beam.
1.4 Explosion and fire:
The fiber laser cleaning machine is not suitable for use in flammable and explosive occasions. Do not use it in the presence of volatile solvents such as alcohol, gas, oil, etc.
1.5 Electrical Safety:
Do not disassemble the equipment at will, as there is high pressure inside, which may cause harm to the human body. In case of malfunction, only professional technicians can open the machine.
1.6 Workplace Marking and Labeling:
In the installation and use workshop of the fiber laser cleaning machine, the words “beware of laser” should be prominently displayed in a conspicuous position.

WARNING

If the operation not in accordance with the instructions may result in serious personal injury or even death. Therefore, the operation and maintenance of this equipment must be carried out on the premise of thorough familiarity with all safety requirements and operating procedures.

Installation

Before Installation:

1. Check the machine nameplate and tool box, whether it is right as your order, take care of the voltage required.

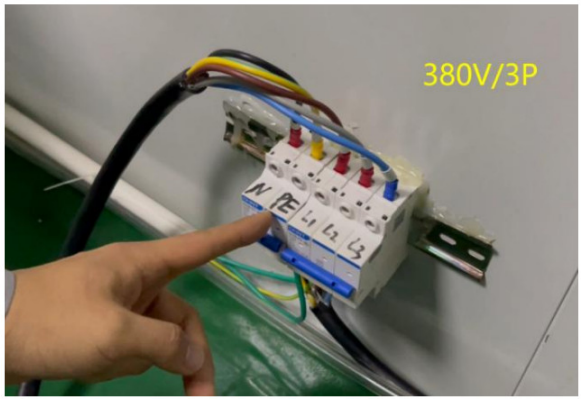
2. Prepare the right electronic, compressed air gas (Clean and dry,30-50PSI/ 0.2-0.3Mpa), air gas pipe.
3. Open the front door to check water chiller,laser source status, take off the laser head,check whether it is completely, if protective lens with dirt, clean by lens wipes.

Installing:

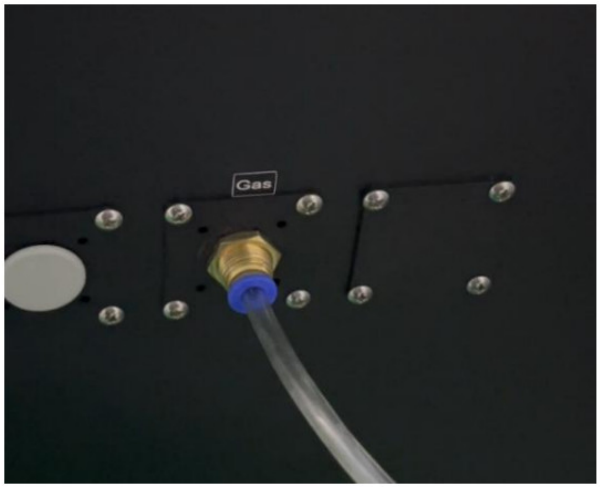
1. Connect to break switch directly:

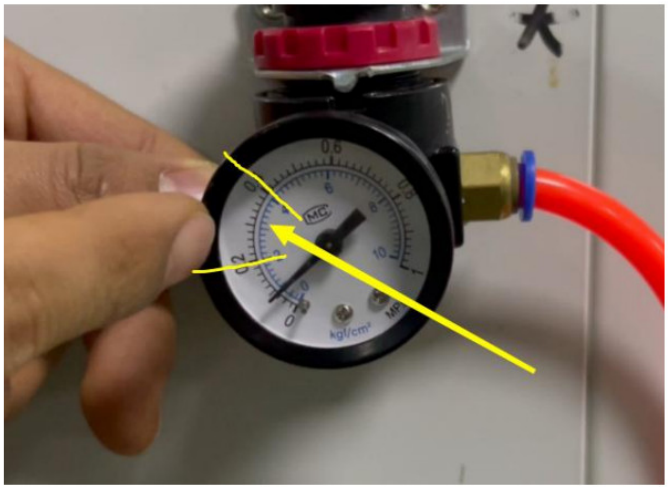
(L-N: 220V, PE: ground wire)

(L1-L2-L3: 380V L1-N: 220V PE: Ground wire)



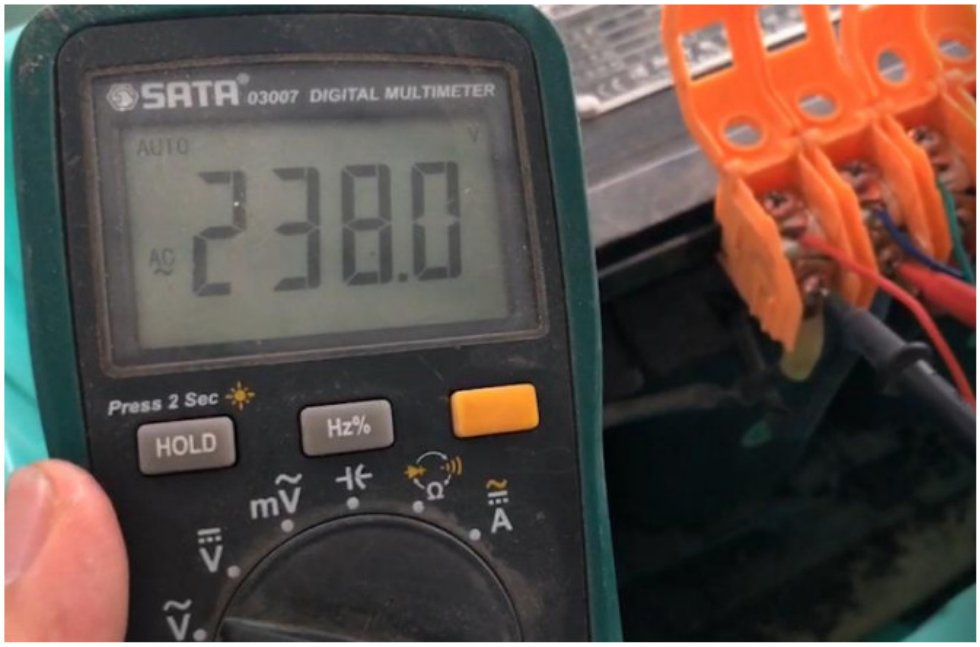
2. Connect to compressed air, about 0.2-0.3MPa 30-50PSI) . Please keep the gas clean and dry.
   When welding, nitrogen or argon can be connected to the Gas hole





3. Connect the auto feeding device by the connector:

If you have a multimeter. Please measure whether the voltage you input to the machine is correct.



4. Turn on the total power supply.

5. Pour pure water into water chiller from inlet port, until it get to green area, about 12L.

Turn on the water cooler, confirm the indicator light are on, let the water cooler circulate for 5-10 minutes, and check whether the water level is still in the green area. If the water level does not reach In the green area, please add pure more water to the green area (as shown in the picture below), check and confirm there is no water leakage, after the water temperature reaches above 22°C,then it can be proceed to the next step,or can't.

Note:

If too cold, the antifreeze is necessary.

6. Then turn on buttons 1→2→3→ 4 in order. Don’t disorder.

7. Turn on laser source:(General,there are 4 brands laser source, JPT, Raycus,RECI and Max)

Raycus laser source: After turn on all button, it is ready to work.
Max laser source: After turn on all button, it is ready to work.
RECI laser source: Turn key to “ON”,then click “START” button, it is ready to work.

JPT laser source: Turn key to “ROBOT”,The POWER and RUN light on, wait about 20s the POWER light become green,then click “START” button. Now machine is ready to work.

Usages

Notice. No matter which mode is used.
Before pressing the switch on the cleaning gun head, be sure to confirm that there is a red line or a red dot at the nozzle position. Only then can the laser switch be pressed.
When using a laser, compressed air or nitrogen must be connected to the machine.
After the laser weakens, the laser needs to be stopped immediately. Check the protective lenses.
If there is any burn on the protective lens, it needs to be replaced with a new lens.
If it is not replaced, the focusing lens will be damaged after the protective lens is burned out with black smoke.
Cause all lenses in the cleaning gun to be burned out.
It with 2 modes,laser cleaning and laser welding(cutting), ensure to install right lens mode for different functions.

1. after the first boot. Please check what is displayed on the screen. Like this, it is welding mode.

If need wires welding, turn the “WireSwitch” on, if not, just turn “LaserEn” on, then turn “Guidelaser”on.It will start to laser cutting or welding.

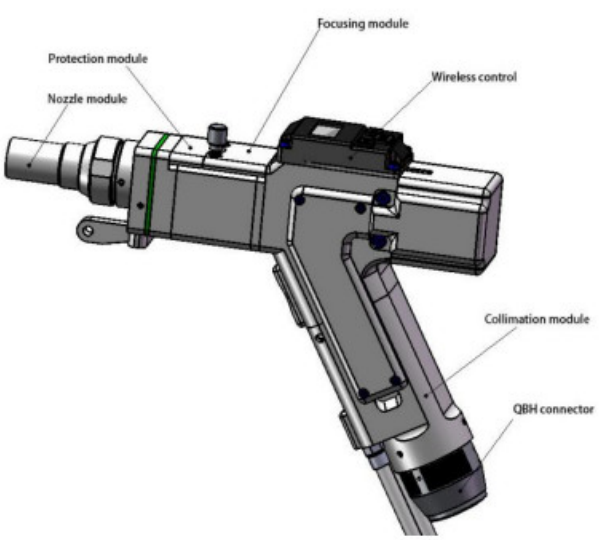
2. When need to use laser cleaning function, switch steps:

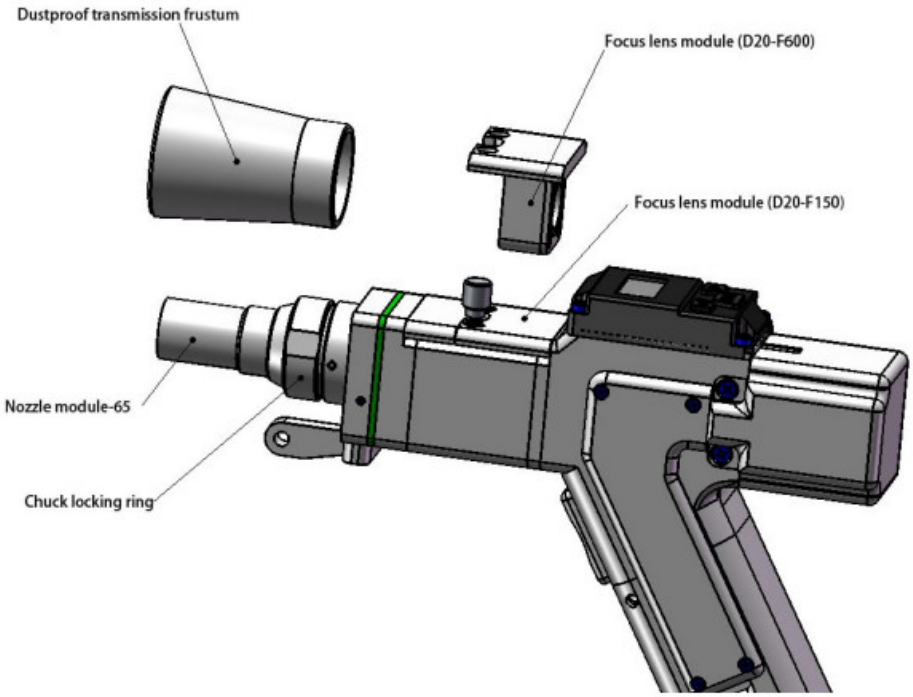
   Switching to cleaning mode

   Replace with cleaning parts:

   Replace the nozzle module and chuck locking ring with a dustproof light transmission frustum.

   Replace the focus lens module (D20-F150) with the focus lens module (D20-F600)





Enable the cleaning mode on the touch screen

Click the red button “Switch to cleaning mode” on the upper right of the welding interface.

Enter the password “5000” in the pop up window.

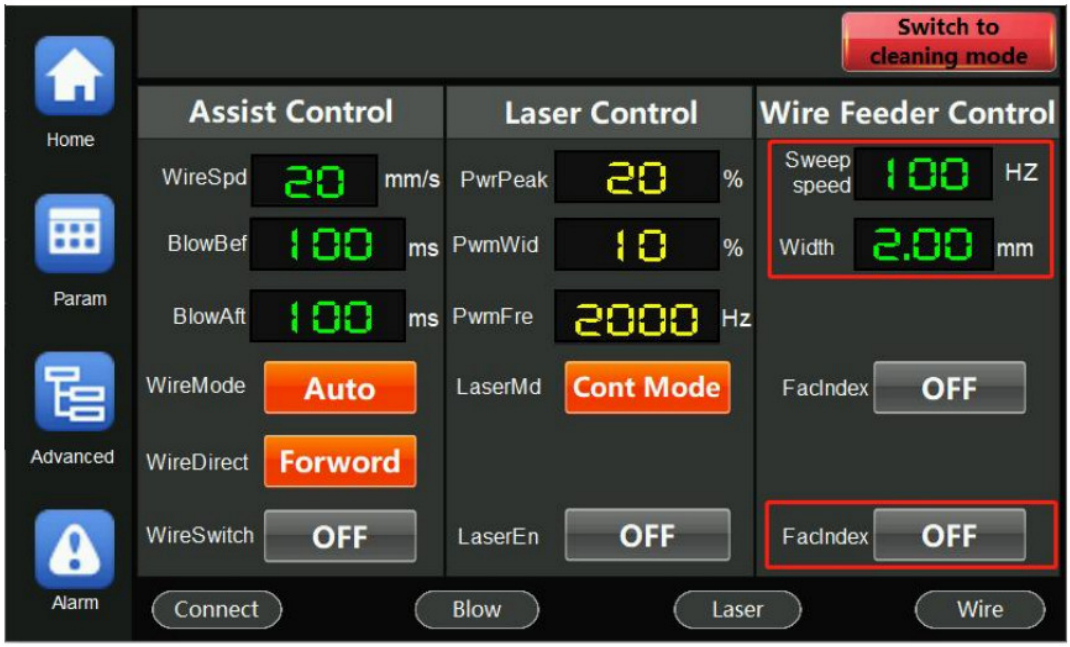
Enter the cleaning interface.

After switching to the cleaning mode, the light can be emitted only when the ground wire clamp is clamped on the wire feeding assembly.

3. Click “switch to welding mode” in the upper right corner of the cleaning interface to switch to the welding interface.

Manual for adjusting the spot size of the handheld laser welding head

Set “Sweep speed”. The larger the parameter setting, the faster the spot swing frequency.
Set “Width”. The larger the parameter setting, the greater the swing amplitude of the spot.
Turn on the “Fadndex”. the light spot swings according to the ” Sweep speed” and “Width”. Turn off the light spot enable and the spot stops swinging.



The meaning of each buttons:

Wire speed	For adjusting the feed of welding wire
Blow Before 100ms	With 100 milliseconds between firing the laser, the gas will be turned on.
Blow After 100ms	100ms after the welding laser is turned off, turn off the gas
Wire Mode	Switching from manual to auto
Wire Direction	Drum rotation direction
Wire Switch	Whether wire feeding is required when welding. Need to be off. Don't need to be ON
Power Peak	Laser usage power ratio. 100% strongest. 5% minimum
Power Width	The duty cycle is the ratio of the power-on time to the total time in a pulse period, that is, the ratio of the light-emitting time to the cycle time in a pulse period. If it is hard to understand. You can test, at the same power, 100% duty cycle and 10% duty cycle change Usually set to 100%
Power Fre	Continuous laser. Frequency doesn't work.
Laser Mode	Switching between laser models. No adjustment required
Laser En	Laser enabled. laser switch
Sweep Speed	The speed of the laser lens pendulum
Width	Width of welding position
Fac Index	Display switch with red line or red frame
Fac Index	red dot display switch
Connect	Power signal indicator
Blow	Gas signal indicator
Laser	Laser Signal indicator
Wire	Wire feed signal indicator

Turn off machine

1. First turn off laser source in the opposite direction, then turn "Guidelaser"off, turn "LaserEn" off, turn the "WireSwitch" off.

   JPT laser source: Turn off "START" button and turn the key to "OFF ".

   RECI laser source: Turn off "START "and then switch key to "OFF".

   Raycus laser source: The laser source no need click any buttons.

   Max laser source: The laser source no need click any buttons.

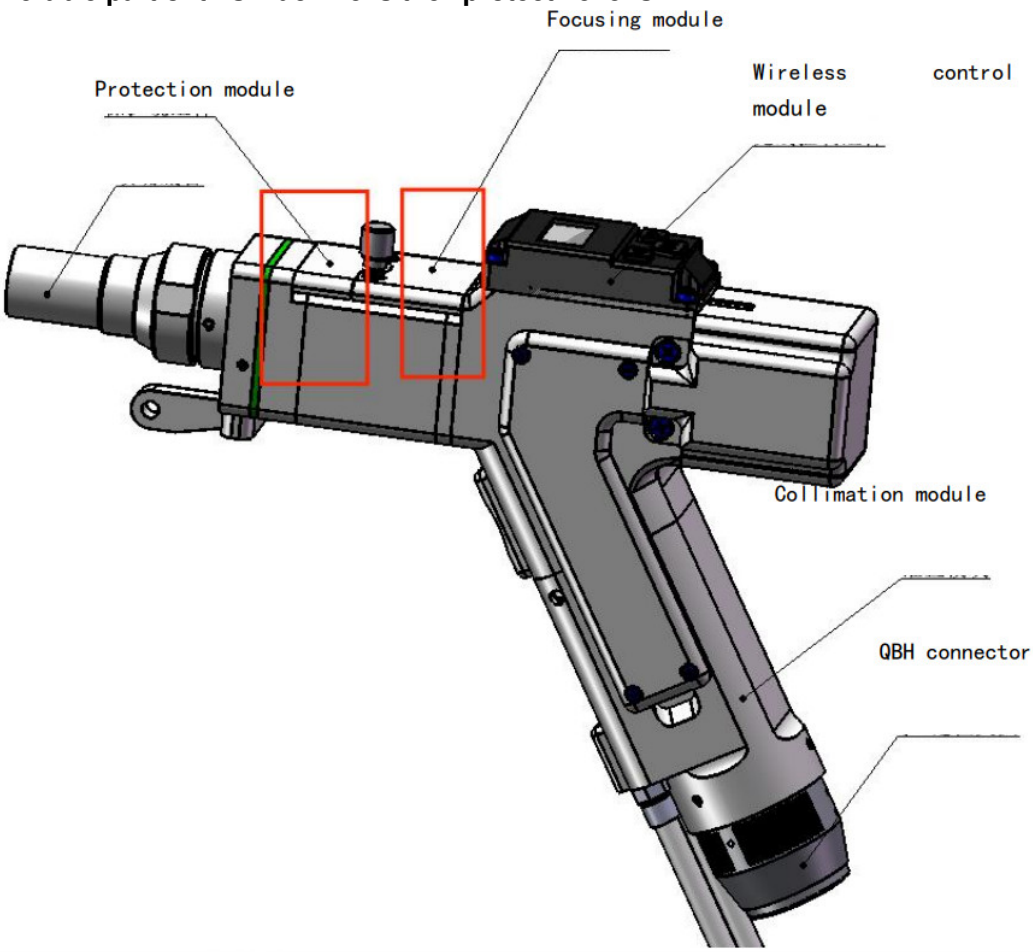
2. Then turn off buttons 4→3→2→1 in order.Don't disorder.

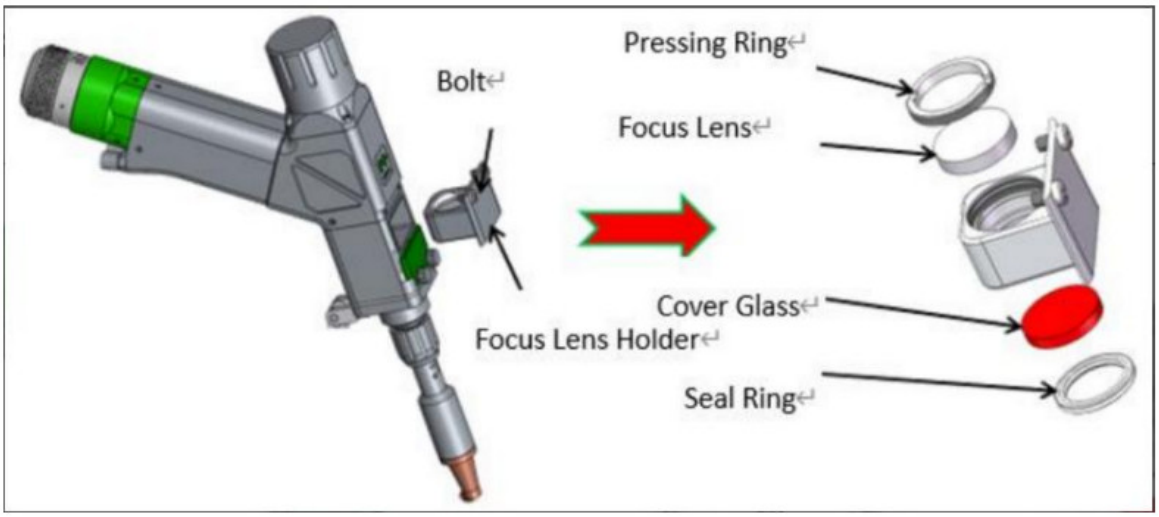
3. Turn off the total power supply,

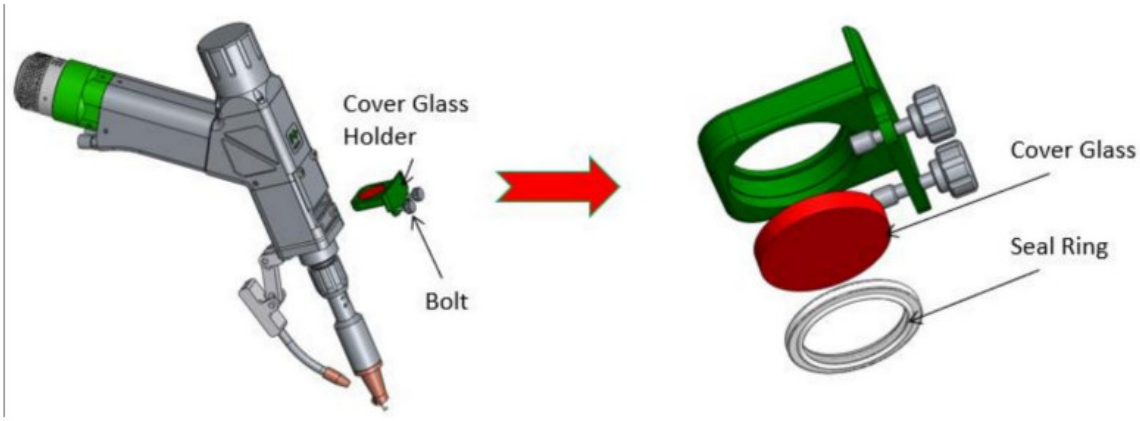
4. After all the power is turned off, finally confirm whether there are dust particles on the lens of the cleaning head. You can wipe the lens with a lens cleaning wipe, and cover the lens cap if there are no dust particles.

During use, if any error occurs.
Please check what the error message is. Take a picture and give it back to our engineer.

The most vulnerable part of this machine is the “protective lens”







Maintenance

Laser head maintenance:
When the welding head is used, a layer of black ash is attached to the copper nozzle. This is the spark sputtering after the metal is heated, and then attaches to the nozzle. There is also some dust in the air. After use, wipe the nozzle gently with a clean cloth. Then, clean the dust on the welding head; in a relatively clean environment, pull out the drawer and check whether the protective lens is clean. When the welding head is not in use, plug the copper nozzle with tape or a rubber cap to prevent dust from entering the lens. If you unplug the fiber connector, immediately block the hole of the fiber input connector (QBH) with a dust cap to prevent dust from entering the fiber connector.

Lens maintenance:
The entire process must be completed in a clean place, and dust-proof gloves or finger cots must be worn when removing and installing the lenses.
There is a protective lens at the front of the welding head to protect the focusing lens. When impurities or foreign matters are attached to the protective lens, the lens will be damaged. Therefore, the lens needs to be maintained regularly. It is recommended to check it before each use. Please refer to Figure 9 for lens structure.

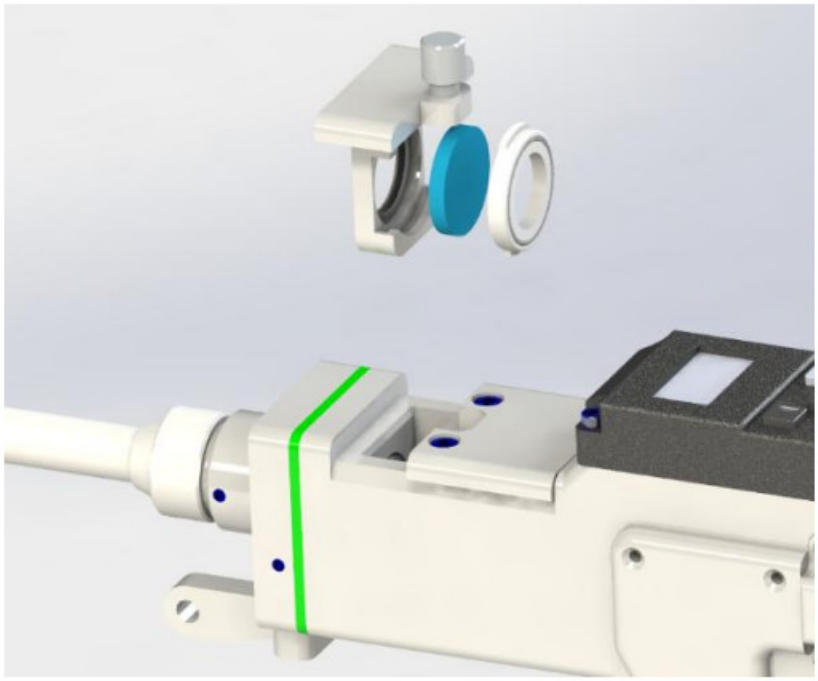


Figure 9

■ **Lens cleaning tools:**
Dust-proof gloves or finger cots, polyester cotton swabs, absolute ethanol, rubber air blower (clean compressed air), etc.

■ **Lens cleaning method and matters needing attention:**

1. Wear finger cots on the thumb and index finger of the left hand;
2. Spray ethanol on the polyester cotton swab;
3. Gently pinch the side edge of the lens with the thumb and index finger of the left hand. (Note that the finger cot cannot touch the surface of the lens to avoid leaving traces);
4. With the lens facing both eyes, hold the polyester cotton swab in your right hand, gently wipe the lens from bottom to top or from left to right in a single direction (do not wipe back and forth to avoid secondary pollution of the lens), and use rubber air blower (clean compressed air) blows the surface of the lens. Both sides should be cleaned. After cleaning, reconfirm that there are no residues of the following: detergent, floating dust, foreign matter, and impurities.

■ **Disassembly and assembly of the lower protective lens:**
Protective lens is a consumable part and needs to be replaced after damaged.

1. As shown in Figure 10, loosen the locking screws, pinch both sides of the drawer-type lens holder and slowly pull out the protective lens drawer;
2. Rotate the protective lens cover 90° to remove the protective lens cover; take it out from above Lens;
3. Clean the lens, protective lens drawer and sealing ring. If the sealing ring is damaged, replace it with a new one;
4. Install the cleaned (or replaced) lens (regardless of the front and back) to the protective lens in the drawer;
5. Reinstall the protective lens cover;
6. Reinsert the protective lens holder back into the welding head, and tighten the locking screw.

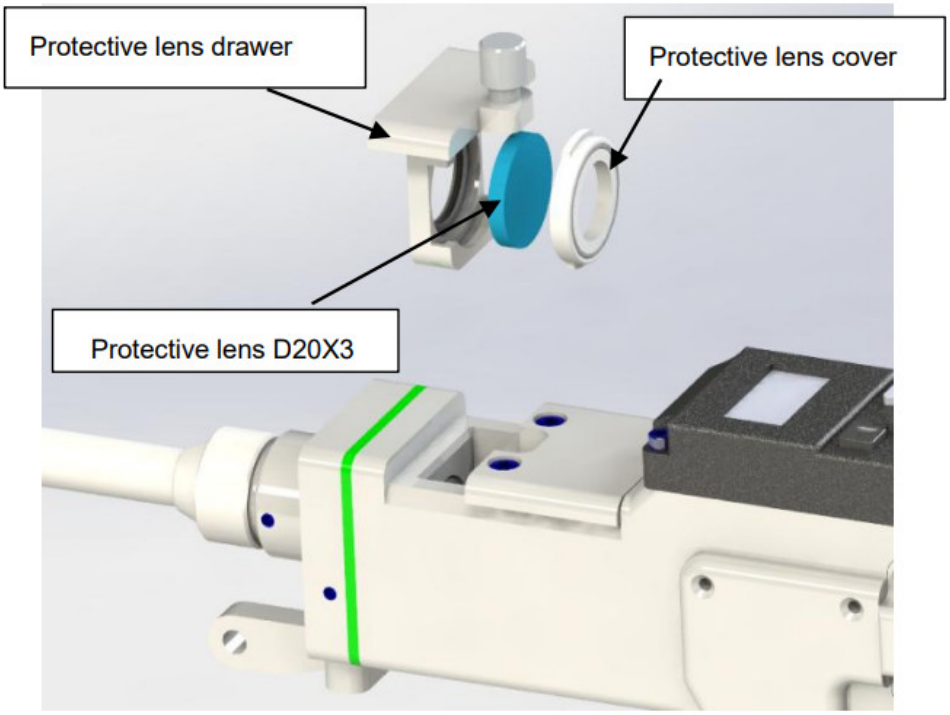
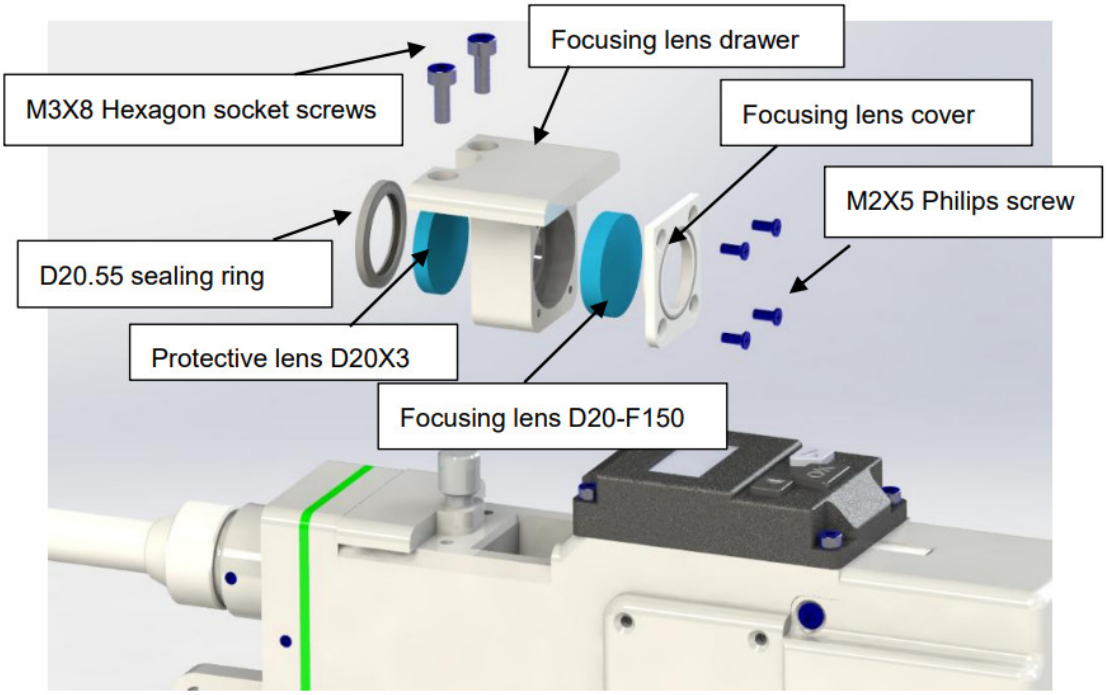


Figure 10

■ Disassembly and assembly of the upper protective lens and focusing lens:

1. As shown in Figure 11, loosen two M3X8 Hexagon socket screws, pinch both sides of the drawer-type lens holder and slowly pull out the focusing lens drawer;
2. Remove focusing lens: use a small cross screw to loosen four M2X5 Phillips screws, remove the focusing lens cover; take out the focusing lens D20-F150
3. Remove the protective lens: carefully remove the D20.55 sealing ring, and take out the protective lens D20X3.
4. Install the cleaned (or replaced) lens into the focus lens drawer
5. Reinstall the focusing lens cover and D20.55 sealing ring.
6. Reinsert the focusing lens drawer back into the welding head, and tighten the locking screw.

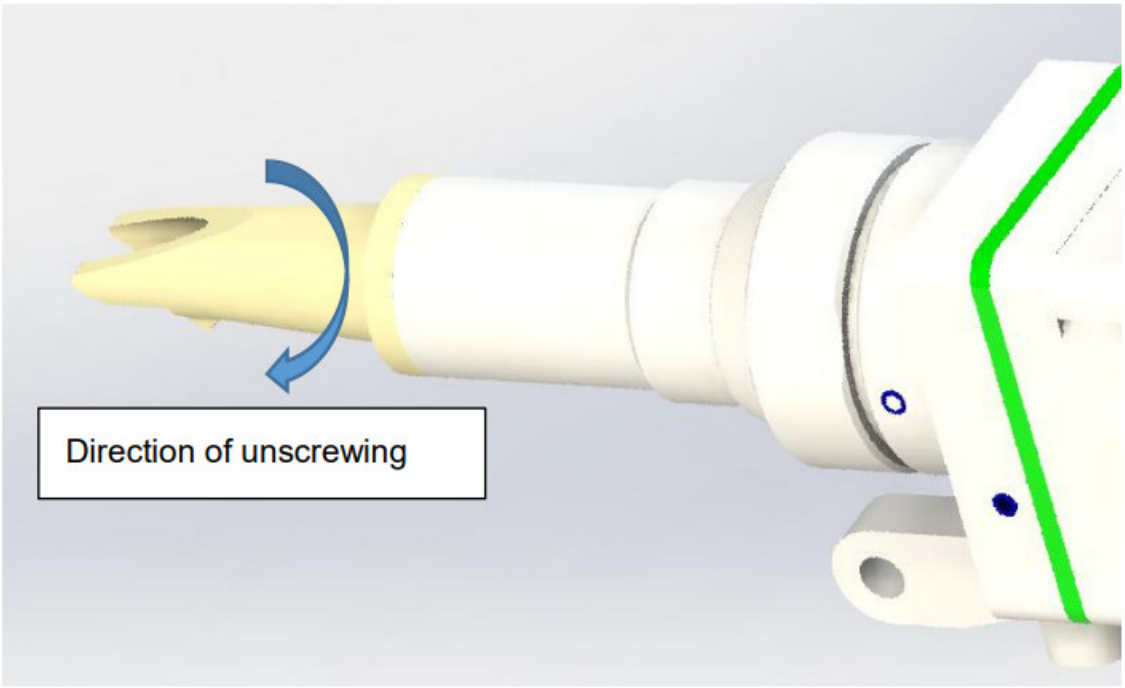


Copper nozzle maintenance:

In the process of laser welding, the nozzle will touch the welding pieces and rub against the metal parts. Nozzle is consumable accessory and needs to be replaced after a period of use. The nozzle equipped is a combination nozzle, which is composed of a stainless steel bottom tube and a copper nozzle. The copper nozzle has different styles and can be used in different scenarios. The corresponding copper nozzle is required to use different thickness of welding wire.

■ Replace nozzle:

1. Before replacement, the laser enable should be turned off, and the welding head should be facing in front with no one ahead;
2. Unscrew the copper nozzle counterclockwise;
3. Replace with a new nozzle.



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Documents / Resources

	STYLECNC LCW1000(1000W) Handheld 3 in 1 Laser Machine [pdf] User Manual LCW1000 1000W Handheld 3 in 1 Laser Machine, LCW1000 1000W, Handheld 3 in 1 Laser Machine, 3 in 1 Laser Machine, Laser Machine

References

- The World's #1 CNC Machine Manufacturer In China | STYLECNC
- User Manual