

FIBER LASER WELDER
1080 NM
USER MANUAL



Safety Warning:

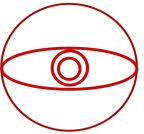


Do not leave your machine unattended.

Avoid using materials made of carbon or that contain carbon components.



Have a fume extractor ready to catch any fumes or vapors that may be created during the welding process



Do not store the laser machine or its accessories near eye level. Never stare directly into the laser when running a project. Always wear the provided safety goggles.



Inspect your machine before each use. Do not use if the machine or its accessories are damaged in any way.

Always maintain a clean work area.

Looking for financing or eager to buy, contact Sales:



M-F 8AM-5PM PST
sales@fslaser.com
 702-802-3101

Need help, visit us at our [Help Center](#) or contact Support:



M-F 8AM-5PM PST
support@fslaser.com
 702-802-3103

Specifications:

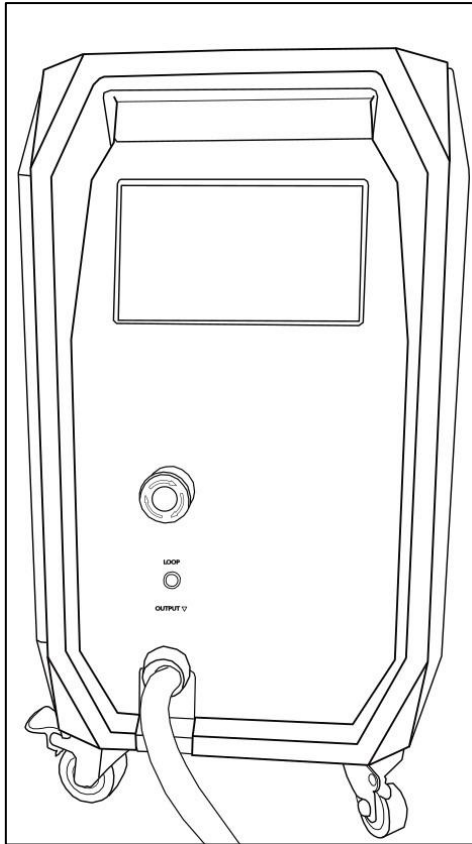
	Test Conditions (if applicable)	Minimum	Average	Maximum
Operating Voltage		200V AC	220V AC	240V AC
Input Power	100 % Output			4.5 KW
Operating Ambient Temperature		10 °C		40 °C
Operating Ambient Relative Humidity		10 %		85 %
Laser Cooling Method	Air Cooled			
Tip Cooling Method	Nitrogen and Argon gas cooled			
Storage Temperature		-10 °C		60 °C
Dimensions	667 X 276 X 542 mm			
Weight	< 38 kg			

Optic Specifications:

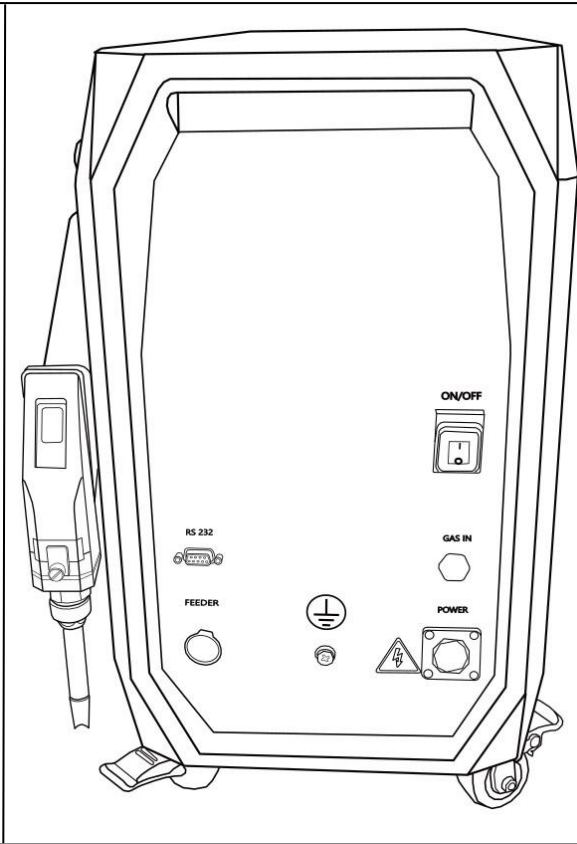
	Test Conditions (if applicable)	Minimum	Average	Maximum
Operation Mode	CW / Shooting / Pulse			
Polarization	Random			
Output Power	100 % Output		1200 W	
Tuning Range of Output Power	100 % Output	10 %		100 %
Emission Wavelength	100 % Output	1070 nm	1080 nm	1090 nm
Spectrum Width	100 % Output			
Power Instability	100 % Output	± 1		± 2
M2	20 μm output	1.2		1.6
ON/OFF Switch Time			50 μs	100 μs
Feeding Fiber Cable	Core size is 20 μm	Length is 5.6 m.	Bending Radius is 175 mm.	
Output form	QCS integrated with the tip			
Continuous Light Output	120s, then stop for 6s			

Diagrams:

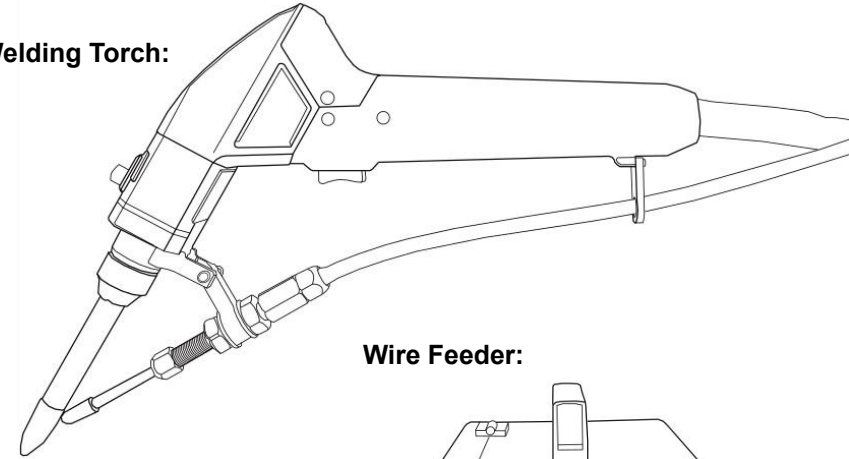
Main Unit (Front):



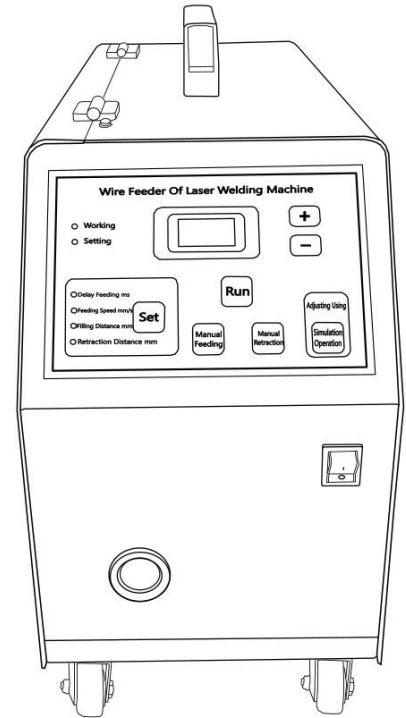
Main Unit (Back):



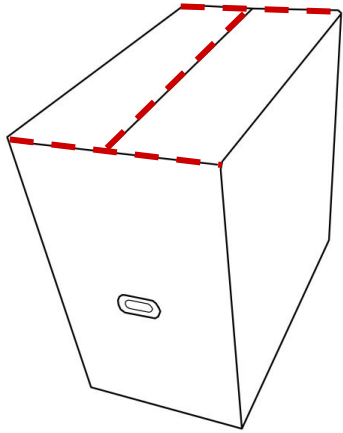
Welding Torch:



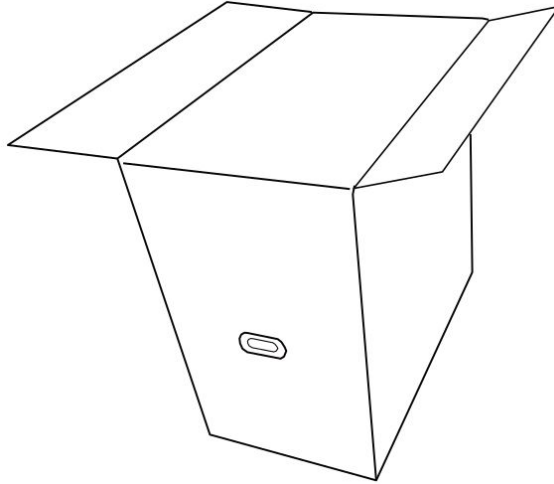
Wire Feeder:



Unboxing & Assembly:



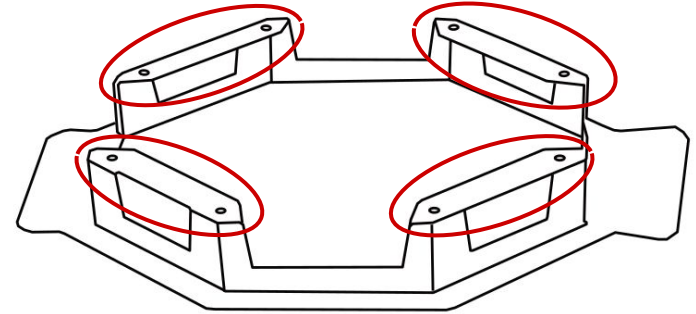
1. Cut open the 1st box.



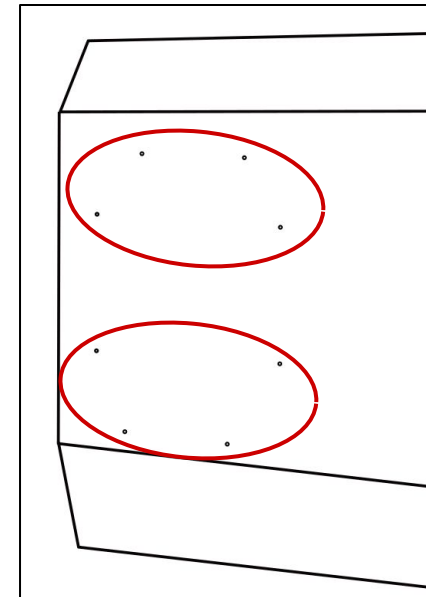
2. Open the box and carefully remove the items.



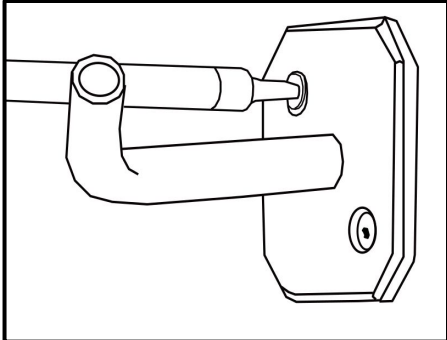
3. The following accessories should be included with the main unit.



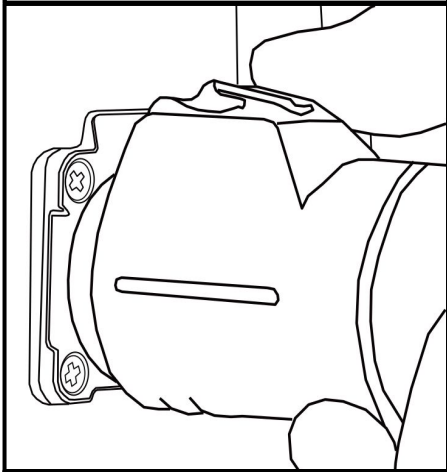
4. Locate the Cable Rack. Align the holes in the cable rack to the ones on the left side of the machine.



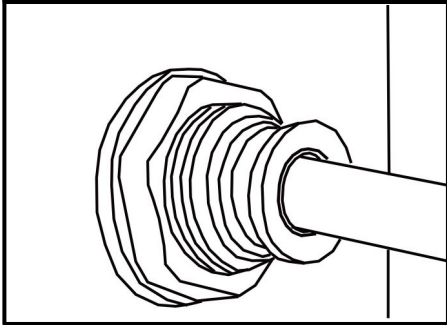
5. Use the provided screwdriver and screws to mount the cable rack onto the machine.



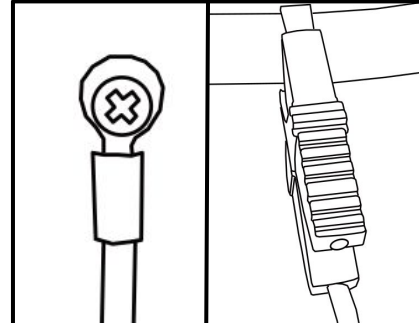
6. Locate the welding head rack and install it onto the left side of the machine.



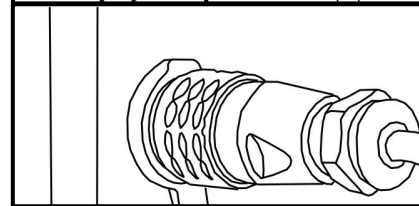
7. Connect the power cable to the machine's power outlet. Connect the other end into a power outlet.



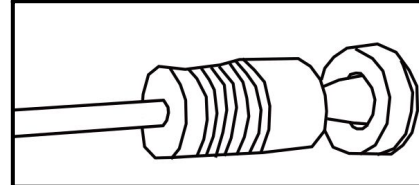
8. Connect the air tube to the gas inlet.



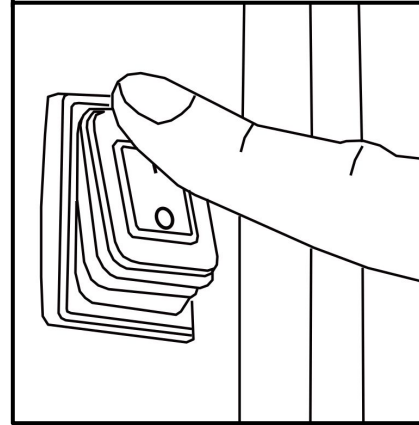
9. Connect the grounding wire to the back of the machine and connect the other end directly to ground.



10. Connect the 5 pin Cable to the Wire Feeder.

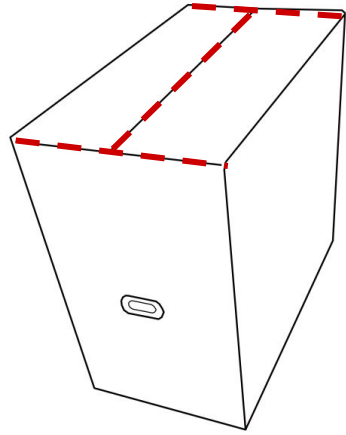


11. Connect the remaining cable to the Loop outlet. Connect the other end onto the welding table.

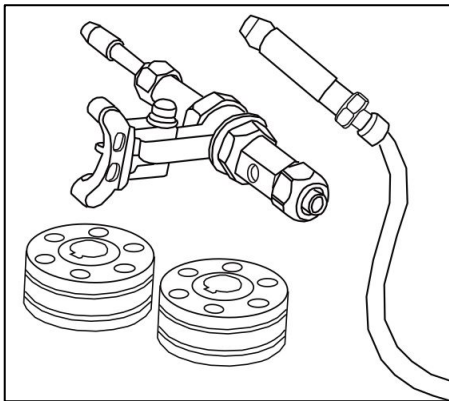


12. Turn on the machine..

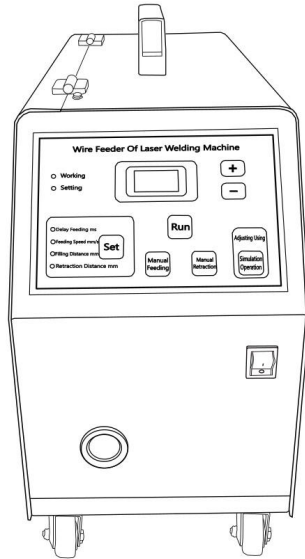
Connecting Wire Feeder:



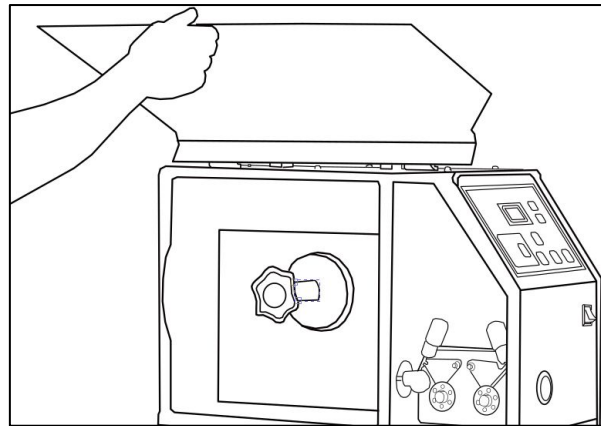
1. Cut open the 2nd box.



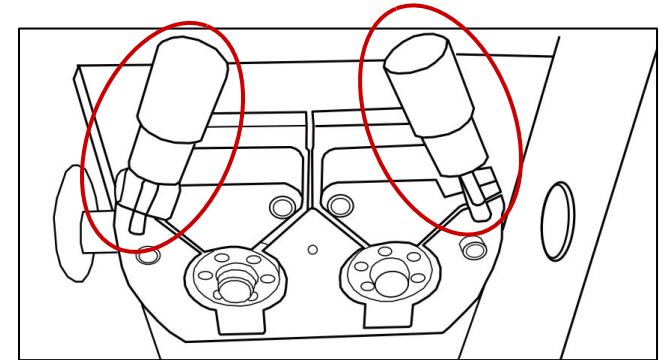
2. Remove the following accessories.



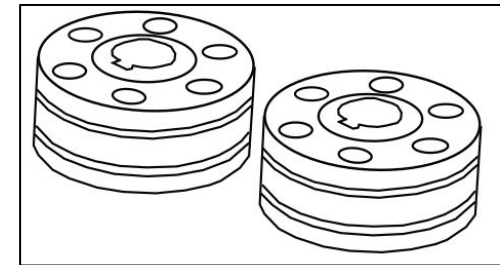
3. Remove the Wire Feeder from box.



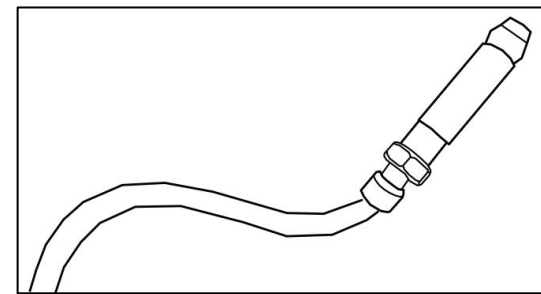
4. Turn on Machine and open the Side Panel.



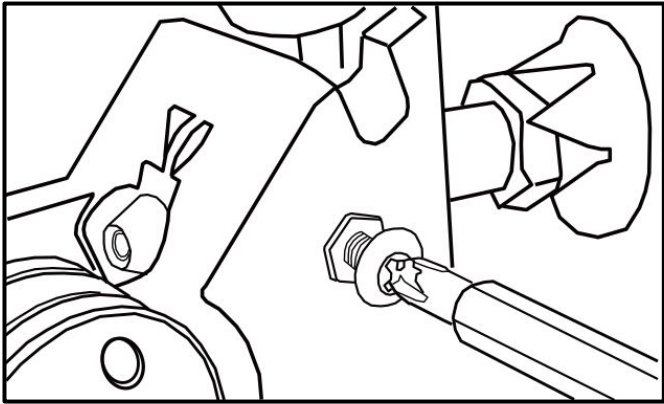
5. Pull the red levels down to remove the Wire Feed Rollers.



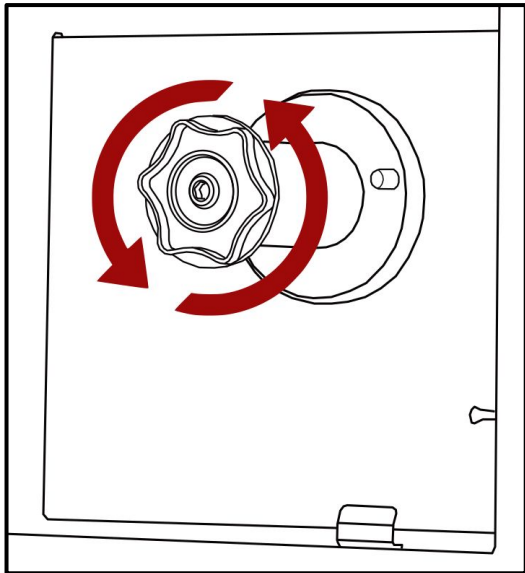
6. The number on the wire rollers correspond to the wires diameter and therefore must be placed together. Once the rollers are placed, move the levels back to their original positions



7. Install the Feeding wire into the Feeding port from the front of the machine.



8. Run the Feeding Wire through the wire assembly (see above), then secure in place using a screwdriver.



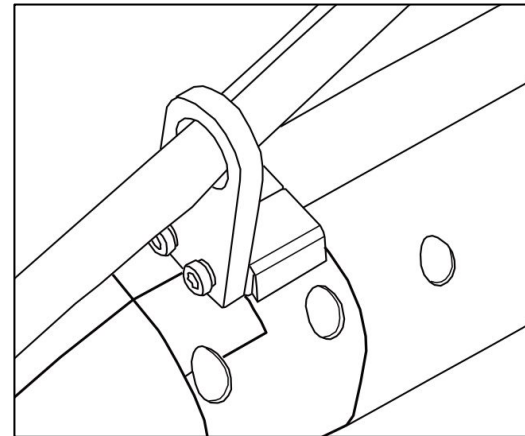
9. Remove the wire retaining wheel by turning the wheel counterclockwise. Insert the wire spool, then replace the wheel.

10. Lower red levers to the down position.

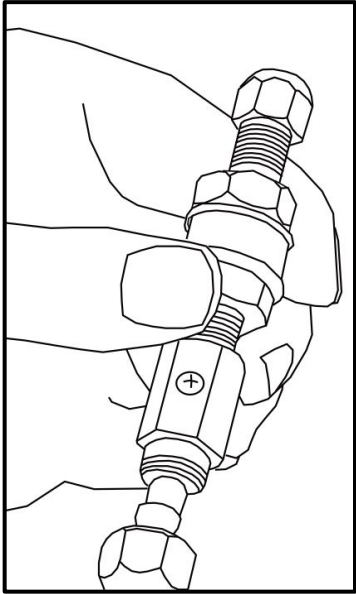


11. Run the wire through the silver wire guide and through the assembly. The wire should be inside the Feeder (as seen above).

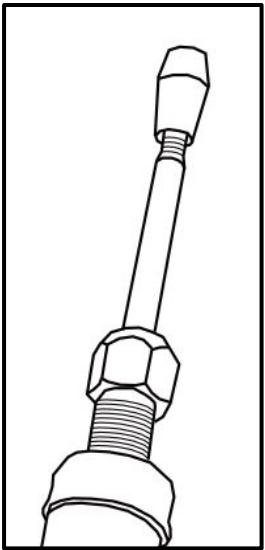
12. Go to the control panel and select the “**Manual Feeding**” option.



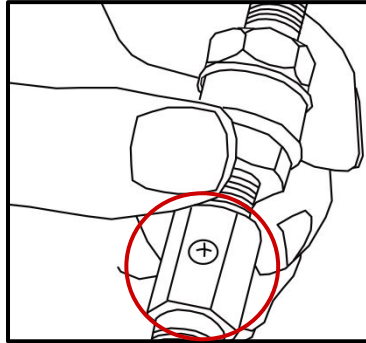
13. Install the wire onto the welding head.



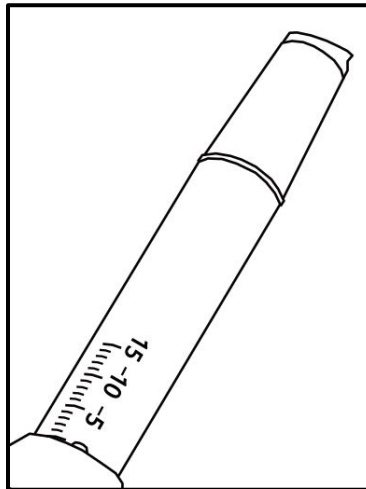
14. Thread the nozzle assembly in place.



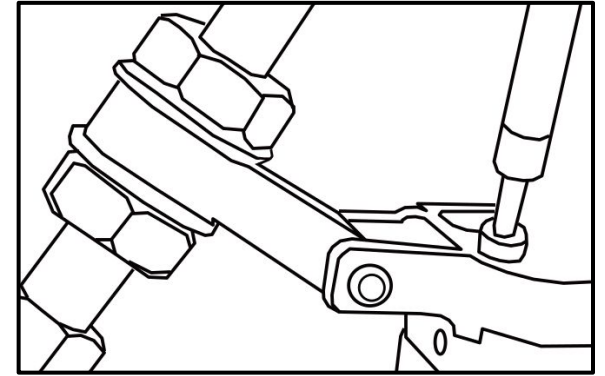
15. Install the wire feeding tube and nozzle.



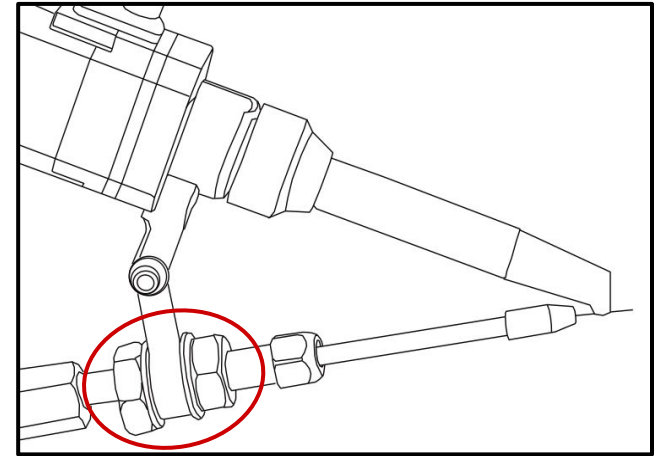
16. Secure the assembly in place using the screw.



17. Adjust the welding tube so that its on zero. Then attach nozzle in place.



18. Adjust the wire feed holder to be centered.

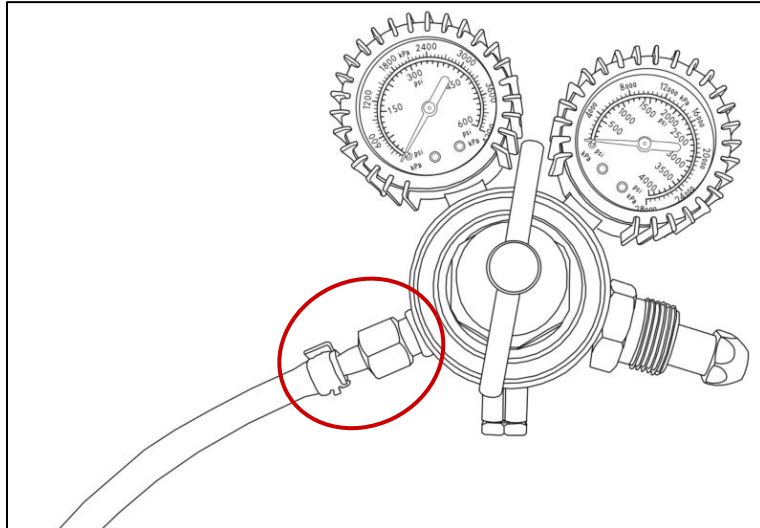


19. Adjust the height of the wire using the bolts.

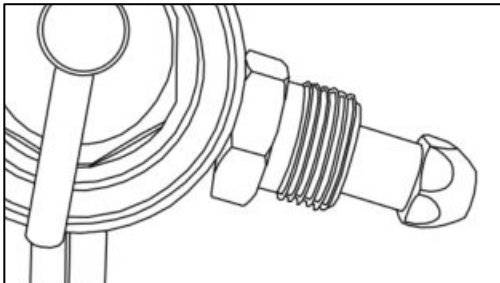
20. Secure the angel of the wire in place using the screw above.

Connecting Gas:

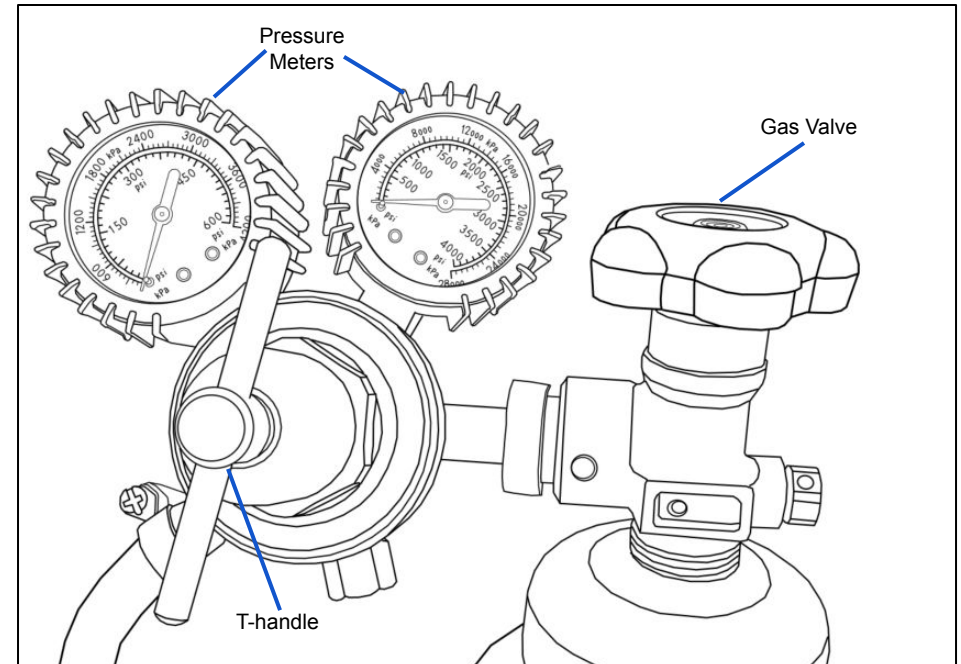
Before turning on the Laser Welder your machine should be connected to the gas and set at the appropriate PSI. We recommend Nitrogen gas for this machine.



1. Connect the gas tube to the gas regulator as shown above. Secure it in place using cable clips or something similar.



2. Place the nozzle into the gas tank and screw it in place using the washer.



3. Prepare the gas tanks by twisting the gas valve open.

4. Use the regulators T-handle to set the gas pressure to 30 PSI (or 200 kPa).

Interface:



When the Laser Welder turns on, the following screen appears.

This screen is called the **Streamline mode**.

In **Streamline mode**, the feeder can be enable and disabled. Similarly, the laser can be started by selecting the large white button, a warning will appear before turning on the machine.

In order to access the full menu, select the **Home** icon located on the left side of the touchscreen.



Home Menu:

Feed Enable- Makes the Wire Feeder usable

Laser Enable- Enable to laser to be fire using the trigger

Gas Inspection- The air of the machine can be feed into the machine for testing

There are three submenus that can be selected. The selected object will be highlighted in blue.

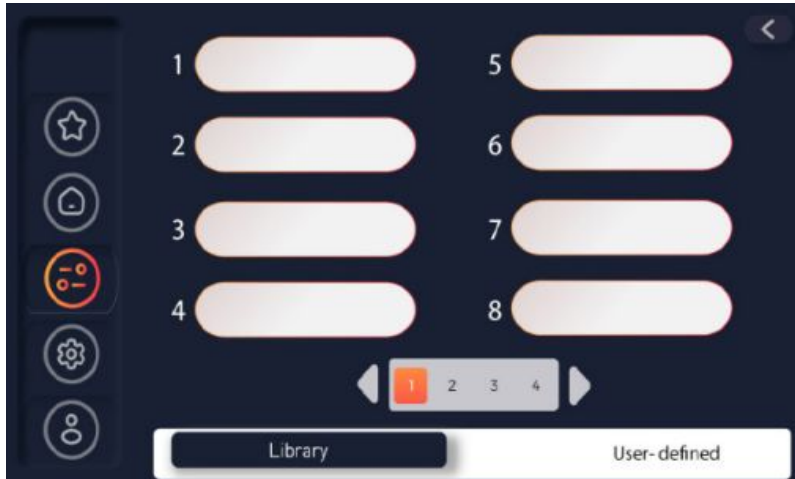
Submenu:

State- Get a full view of machines functions. All states should be gray normally, a red coloring indicated an issue.

Warning- Shows a list of all warning alarms, making it simple to diagnose any aroused issue

Detailed- Adjust the machines settings here

Interface:



Parameters Menu:

The parameters menu is divided into two sections: the Library and the User-defined menu.

In this section, one can save and load parameter settings for different materials.



Settings Menu:

The settings menu gives information about the laser settings and machine settings.



Information Menu:

The information menu gives information about the machine.

Machine Recommendations:

Gas:

Compressed Nitrogen gas is used with this machine (30PSI recommended). Alternatively Argon can be used.

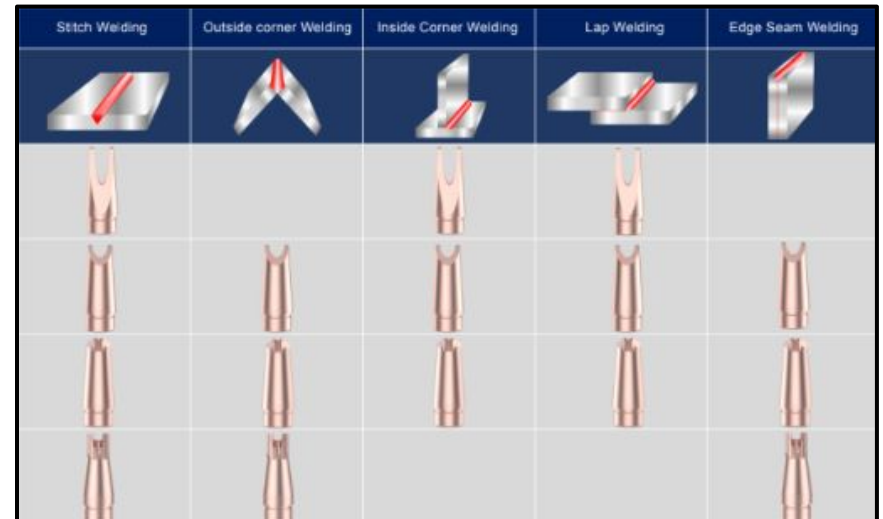
Welding Wire:

The wire usually used on this machine is the .03 inch steel or aluminum wire.

Welding supplies can generally be purchased locally or online [here](#).

Nozzles:

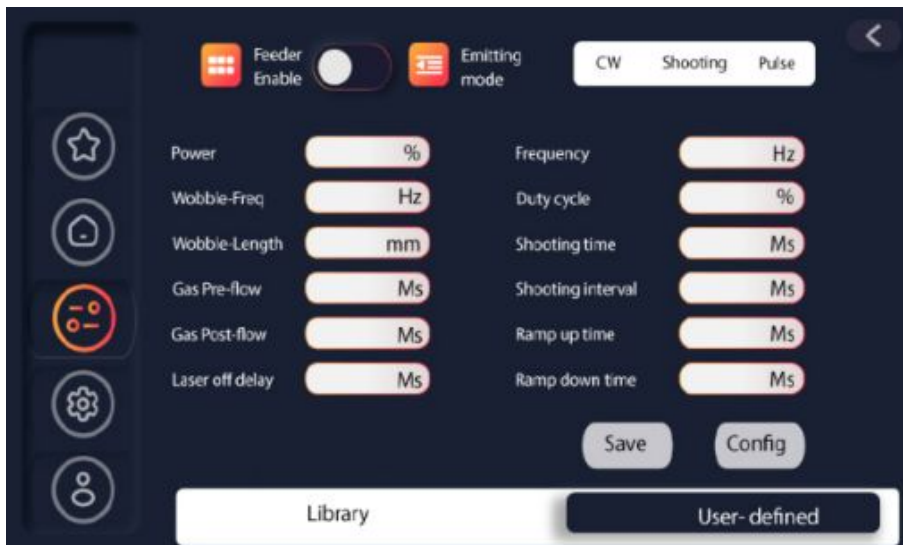
The nozzles used will depend on the type of welding method you are trying to perform. The following chart will show you the nozzles that work with each welding method.



Preparing and Uploading New Settings:

The Parameters menu has a list of prepared material settings. By selecting a material a new window will open that will show the set parameters for this setting.

In order to use this setting you must first select a parameter to load the editing screen (as shown below). Change any setting you desire and then select the configuration option on the bottom right. The following parameters will sent to the main interface for welding. If you wish to keep these parameter then select the save button. Forgetting to use the save button will cause the parameters to be lost.

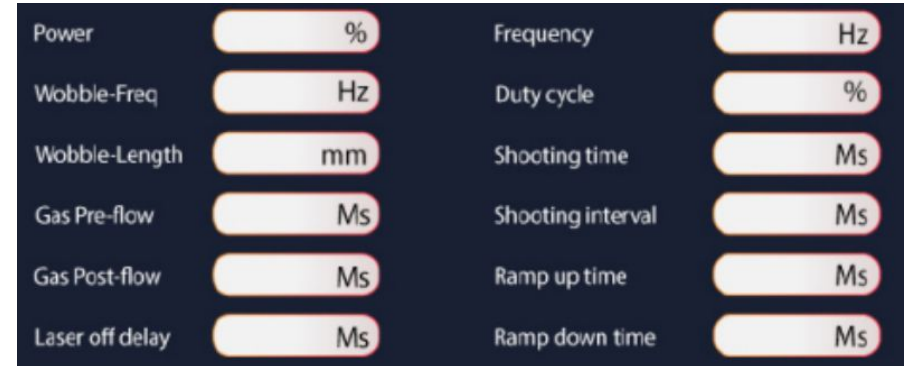


The Fiber Laser Welder can be run in three welding types:

Continuous Wave (CW) - a continuous laser beam suitable for deep penetration

Shooting - also called spot welding, used to join two pieces of metal together

Pulse - another form of spot welding, the laser is fired as powerful bursts



Laser Parameters:

Power - Power is dependent of the machines wattage and is therefore percent based

Frequency - controls the rate at which the laser fires

Wobble- Frequency - A pattern that can be used when firing the laser. The higher the frequency, the longer it takes to engrave an area

Wobble-Length - the length of wobble pattern

Shooting Time - usable only when shooting is selected, controls the time the laser will fire

Shooting Interval - controls the amount of time between firing

Gas Flow - Controls the flow of gas before and after firing

Ramp Time - the time needed for the laser to charge up and loss charge

Laser Off Delay - the amount of time before the laser turns off

If you're having an issue, visit our [Help Center](#). We provide comprehensive videos, and useful resources for troubleshooting to help you get the most out of your investment in our products