

ARCBRO®

Stinger SERIES

CNC Plate Cutting Machine install Manual



Operator Manual

ARCBRO | Revision 2 | English

Date of issue: August, 2020

Unique Solution

WWW.ARCBRO.COM

Technical Support

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Wish you enjoy a wonderful CNC cutting travel.

ARCBRO CNC Technical Support & Solutions

7x24 Hours

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by arcbro / August 7, 2015

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- ❖ This User's Manual is only available for **Stinger** CNC Plate Cutting Machine.
- ❖ Ensure that the operator has read and understood this User's Manual before any operation on **Stinger** CNC Plate Cutting Machine.
- ❖ There may be few differences between the pictures in this User's Manual and the machine you received.
- ❖ Never hesitate to contact us for on-line technical service when you have any questions or you need help, and it's our pleasure to be there for help.

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Technical Parameters

| Type | Stinger 1313 | Stinger 1325 | Stinger 1530 |
|-------------------------|--------------------------------------------------------------|--------------|--------------|
| Effective cutting range | 1300x1300mm | 1300x2500mm | 1500x3000mm |
| Actual machine size | 1950x1850 | 1950x3020mm | 2190x3520 |
| Input power supply | 1 phase, 110V, 220V, 50Hz/60Hz | | |
| Input capacity | 460W | | |
| Cutting model | Plasma cutting | | |
| Max travel speed | 8000mm/min | | |
| Drive motor | Smart servo motor | | |
| CNC SYSTEM | | | |
| Display | 7" color LCD screen | | |
| CPU | Industrial ARM9 chip | | |
| Internal library | 24 kinds of shapes | | |
| External format | TXT or NC format | | |
| Language | English, Spanish, Russian, French, Japanese, Czech, Slovenia | | |
| PLASMA CUTTING MODE | | | |
| Max cutting speed | 6000mm/min | | |
| Max cutting thickness | Depends on plasma power source | | |
| Plasma power source | Support up to 125A (not include in standard package) | | |
| THC | Arc voltage Auto Torch Height Controller | | |
| Accuracy | ±0.3mm | | |

Notes

Note 1: Propane cutting nozzles are included in standard package. Acetylene nuzzles can be ordered.

Note 2: Specific torch assembly must be ordered for Gasoline project.

Note 3: Nesting software standard Wizard is included in standard package.

Note 4: The machine must be grounded reliably when it is working. (Connect the plate and the earth)

Note 5: Clean dust regularly to keep the rail and rack clean for smooth movement.

Note 6: Avoid damage for the LED display screen of CNC system.

Note 7: Equipment use environment:

Ambient temperature: -10°C — $+50^{\circ}\text{C}$

Environment humidity: 90 % RH below

Storage temperature: -20°C — $+65^{\circ}\text{C}$

Sea level elevation: An altitude of 1000 m below

Safety


1. Information for your safety

The operator must read and understand the contents of this user's manual before any operation on **Stinger**

Never hesitate to contact us for assistance when you have any questions or you need help, and you can reduce the amount of time your troubles take and solve your problem efficiently.

Note: Each of the following descriptions must be verified before any operation on **Stinger**.

- 1. The operator should wear face shield, welding gloves, caps, membrane filter dust mask and sound insulation earmuff. It is strictly forbidden to observe directly or approach to the plasma arc with exposed skin.



Precautions for safe use & machine working properly, Please must obey the following rules:
(A) Do not move the equipment body during working;
(B) Without permission, Do not open the equipment cover;
(C) Read the directions carefully before using the equipment.



CAUTION



ROLLING
Keep clear

-2. The operator can't load external program in internal storage of the machine in case of the virus. Only the special software recognized by ARCBRO can be applied.

-3. During cutting period, when the floating voltage is too high, the operator should check the ground connection, neutral



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connection and insulation of the torch handle. Then isolate the workbench from the ground, Or install no-load open-circuit relay in the electrical control system.

-4. The cutting operator and assistant must wear labor protection articles by regulation and take safety measures to prevent electric shock, high-altitude falling, gas poisoning, fire or any other accidents.

-5. The site should build rain-proof, damp-proof and sun-proof machine shed, and install corresponding fire equipment. The machine should keep away from flammable and combustible materials.

-6. As the operation and maintenance has potential dangerous, operator should be careful in case getting injured. It's forbidden to wear loosen cloths or cotton ropes in case being entangled by the machine.

-7. The high voltage of plasma CNC cutter is fatal, so operator should install the machine step by step as the manufacturer stipulate.

-8. Only trained personnel can be allowed to operate the equipment. Any maintenance should obey the user's manual and before that the power should be cut off. Only experience technician is allowed to change assemblies.

1. Stinger Description

1.1. What is Stinger?

Stinger is a bench structure automatic CNC cutter, specially designed for various plate cutting with the following specialties.

1. Fast assembling and easy plate loading mechanical design;
2. Split structure: gantry frame and water table can be ordered separately.
3. Adaptable THC and water table design for different thickness cutting needs.
4. Quick-react computer numerical control;
5. Advanced technology assures high precise & stably fast cutting performance.
6. High efficiency CNC system for both time and money;

With the help of our nesting software, various fast auto nesting, high accurate drawing, or any shape profiling can be achieved efficiently by **Stinger**.

1.2. Application

Stinger is an ideal CNC Plate Cutting Machine widely used in industry field, such as shipbuilding industry, metallurgic industry, petrochemical industry and water resources & electric power. It can cut various metal plates in seconds, for instance: carbon steel (flame cutting), stainless steel, copper and aluminum (plasma cutting).

1.3. Programming and Nesting

Using ARCBRO plate nesting software, you can edit and do the nesting process for your pattern designed by CAD, then generate a G-code cutting file in txt format. This txt cutting file can be recognized and carried out by our CNC system when you import it by a USB drive. Now, running **Stinger**, you can achieve accurate profiling of this pattern automatically.

2. Packing List

2.1. Introduction

Stinger is packed carefully in one wooden boxes. All equipment in the boxes are protected fully to avoid any damages during transportation.

The boxes have to be carried with care always and with the top cover up during handling and transportation.

2.2. Packing List

Open the top cover of the boxes. And remove all the screws fixing the cover to the box body.

The **Stinger** transportation boxes contain:

- ▶ This accessory is standard configuration, if your machine is customized, the accessories are according to the order requirements.
- ▶ The bolts of the machine are fixed to the machine.

Standard configuration

Stinger Standard Package



1. Stinger machine-1Set



2. Manual-1Pcs



3. USB disk and Nesting Software-1pcs



4. Pneumatic hold-1Set



5. Air pressure gauge-1Pcs



6. Locating ring-1Pcs



7. Plasma hold-1 Set



8. Self-priming pump-1Pcs



9. Water valve-1Pcs



10. Raw material belt-1Pcs

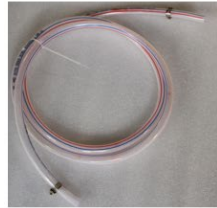


11. Wrench-1Pcs

Stinger Standard Package



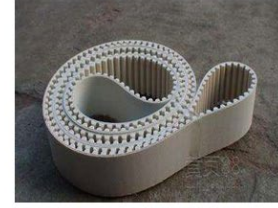
12. Self-priming pump accessories-5Pcs



13. Water pipe-1pcs and Hose Clamp-2pcs



14. Ruler-1Pcs



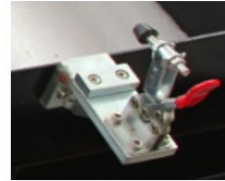
15. Y-axis Synchronous belt-2pcs



16. X-axis Synchronous belt-1pcs



17. Pickup magnet-1pcs



18. Quick Fixture and install plate-3 set



19. Hex wrench -1set

Standard configuration

▶ Packing List:

Stinger Standard Package

| No. | Name | No. | Name | No. | Name |
|-----|-------------------------------------|-----|------------------------|-----|---------------------------------------|
| 1 | Stinger machine-1Set | 2 | Manual-1Pcs | 3 | USB disk and Nesting Software-1pcs |
| 4 | Pneumatic hold-1Set | 5 | Barometer-1Pcs | 6 | Locating ring-1Pcs |
| 7 | Plasma hold-1 Set | 8 | Self-priming pump-1Pcs | 9 | Water valve-1Pcs |
| 10 | Raw material belt-1Pcs | 11 | Wrench-1Pcs | 12 | Self-priming pump accessories-5Pcs |
| 13 | Water pipe-1pcs and Hose Clamp-2pcs | 14 | Ruler-1Pcs | 15 | Y-axis Synchronous belt-2pcs |
| 16 | X-axis Synchronous belt-1pcs | 17 | Pickup magnet-1pcs | 18 | Quick Fixture and install plate-3 set |
| 19 | Hex wrench -1set | 20 | | 21 | |

Standard configuration

3. Installation

3.1 Mechanical Assemble Steps

This part describe how to install **Stinger** 1.5x3m portable CNC cutting machine step by step.

Please assemble according to below steps carefully. Any questions or help needed, please do not hesitate to contact ARCBRO after sale service engineer, we will provide help as soon as possible.



- ▶ The installer needs to prepare: electric drill, spirit level, forklift. Two installation mechanical engineers are needed for faster installation.

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- ◀ In order to install the machine faster, please read the installation steps carefully before installation, it will save installation time.

3.2 Basic assemble steps:

- ◆ Step 1: Assemble the legs of the Gantry Frame.
- ◆ Step 2: Assemble the legs of the Water Table.
- ◆ Step 3: Assemble each Side Board onto the frame leg.
- ◆ Step 4: Install longitudinal drag chain trough.
- ◆ Step 5: Connect the machine Base to the Ground.
- ◆ Step 6: Air pressure gauge part assemble.
- ◆ Step 7: Plasma cutting part assemble.
- ◆ Step 8: Pneumatic cutting part installation.
- ◆ Step 9: Flame cutting part installation.

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Step: Unpack the equipment box and remove all items

Remove all the screws which are fixed the box, check and confirm all the spare parts be inside and well, and then move all the parts out safely.



Stinger Standard Package

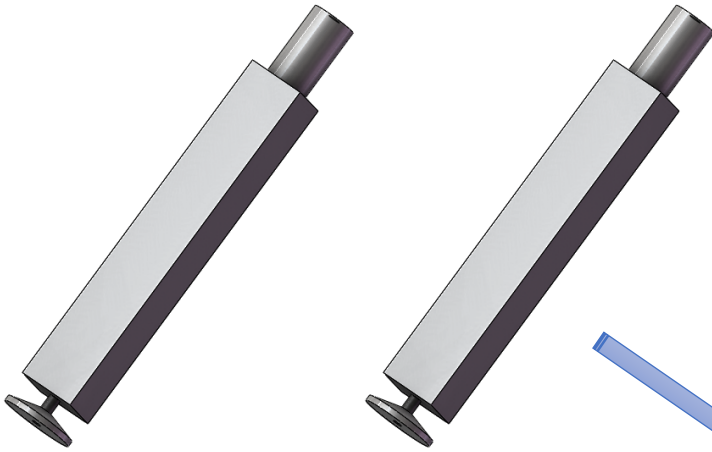
| No. | Name | No. | Name | No. | Name |
|-----|-------------------------------------|-----|------------------------|-----|---------------------------------------|
| 1 | Stinger machine-1Set | 2 | Manual-1Pcs | 3 | USB disk and Nesting Software-1pcs |
| 4 | Pneumatic hold-1Set | 5 | Barometer-1Pcs | 6 | Locating ring-1Pcs |
| 7 | Plasma hold-1 Set | 8 | Self-priming pump-1Pcs | 9 | Water valve-1Pcs |
| 10 | Raw material belt-1Pcs | 11 | Wrench-1Pcs | 12 | Self-priming pump accessories-5Pcs |
| 13 | Water pipe-1pcs and Hose Clamp-2pcs | 14 | Ruler-1Pcs | 15 | Y-axis Synchronous belt-2pcs |
| 16 | X-axis Synchronous belt-1 pcs | 17 | Pickup magnet-1pcs | 18 | Quick Fixture and install plate-3 set |
| 19 | Hex wrench -1set | 20 | | 21 | |

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Step 1: Assemble the legs of the Gantry Frame

Note: Install the machine carefully step by step as the following instructions:

The gantry frame assembly:



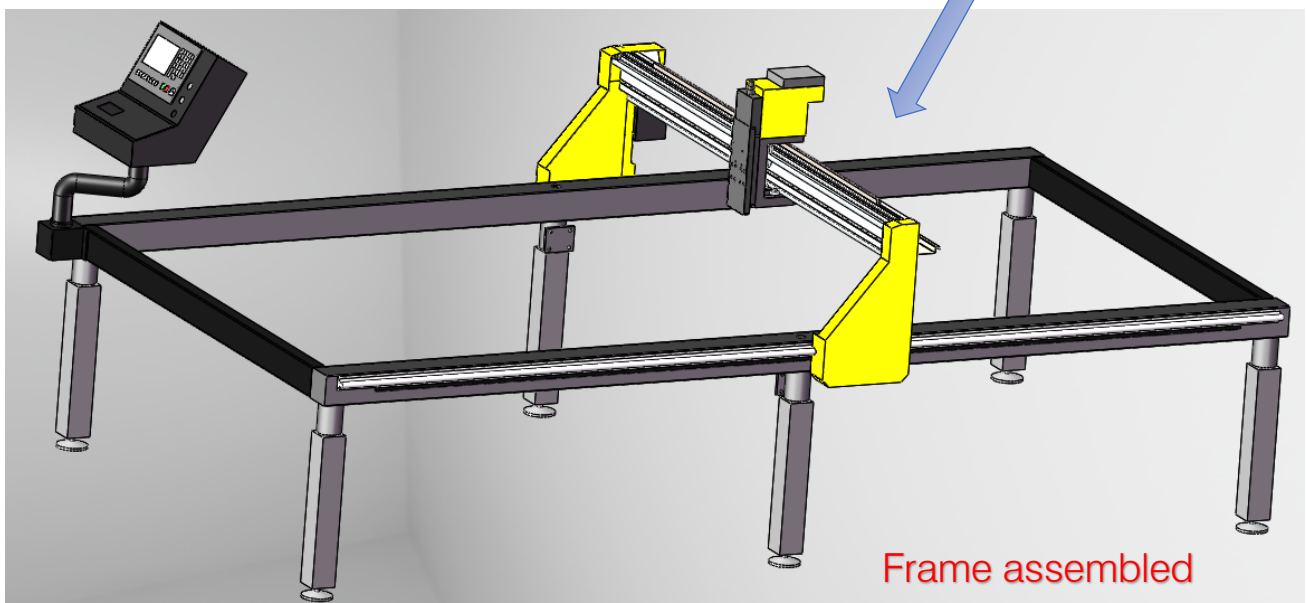
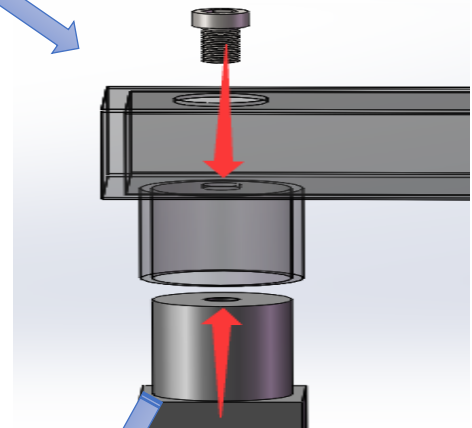
Assemble Step:

1. Lift the whole body from the opposite of the drag chain by Forklift(Mind the drag chain and cables).
2. Insert the leg into the frame.

Assemble Step:

3. Connect and fix all legs onto the Gantry Frame by top screw(M16).

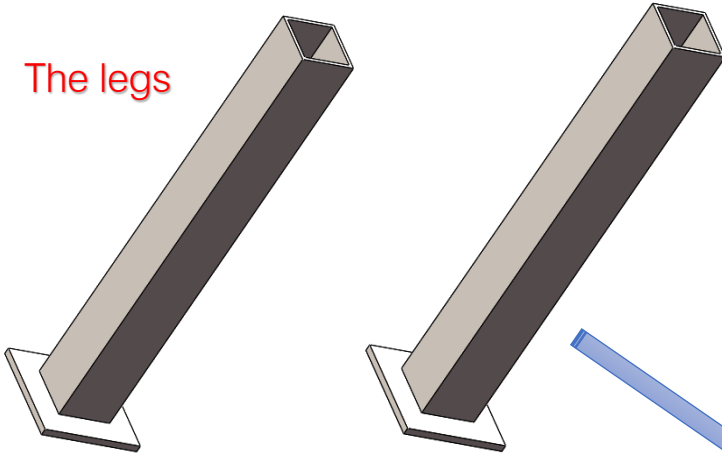
Note: Hold the M16 screw firmly before you enter it into the small frame leg hole.



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Step 2: Assemble the legs of the Water Table.

The legs



Assemble Step:

1. Lift the whole water table by Forklift.
2. Loosen the bolts on the legs of the water table.
3. Insert the leg into the water table

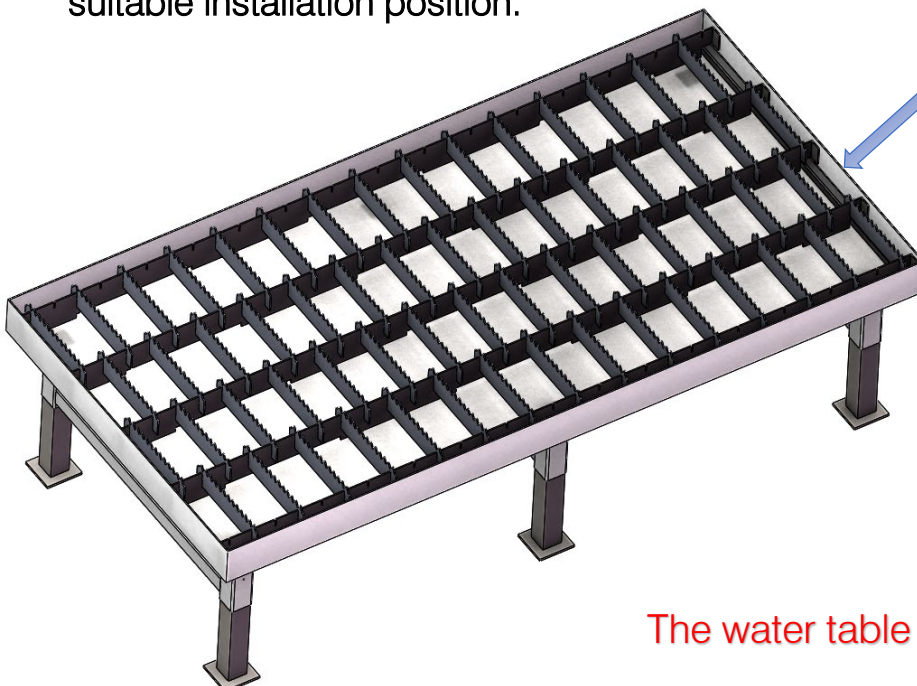
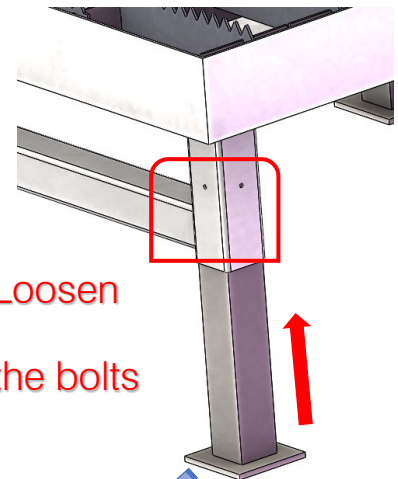
Assemble Step:

4. Connect and fix all legs onto the Water Table (each leg fixed by 2 bolts).

Note: Insert the leg to the top and fix the bolt.

NOTE:

Use a forklift, Put the water table to a suitable installation position.

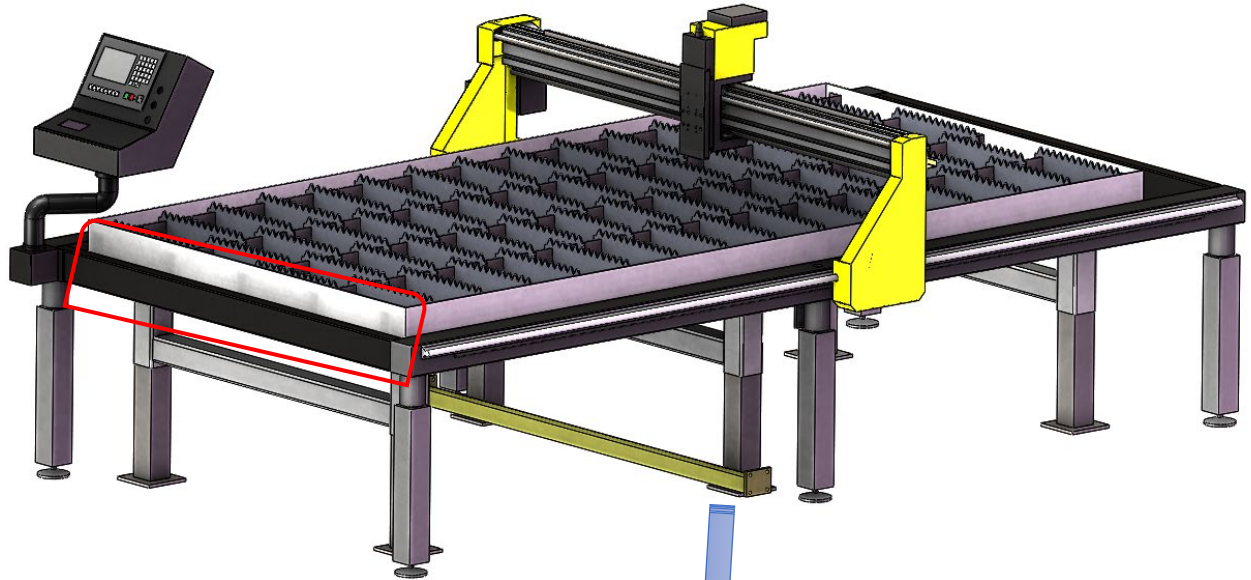


The water table assembled

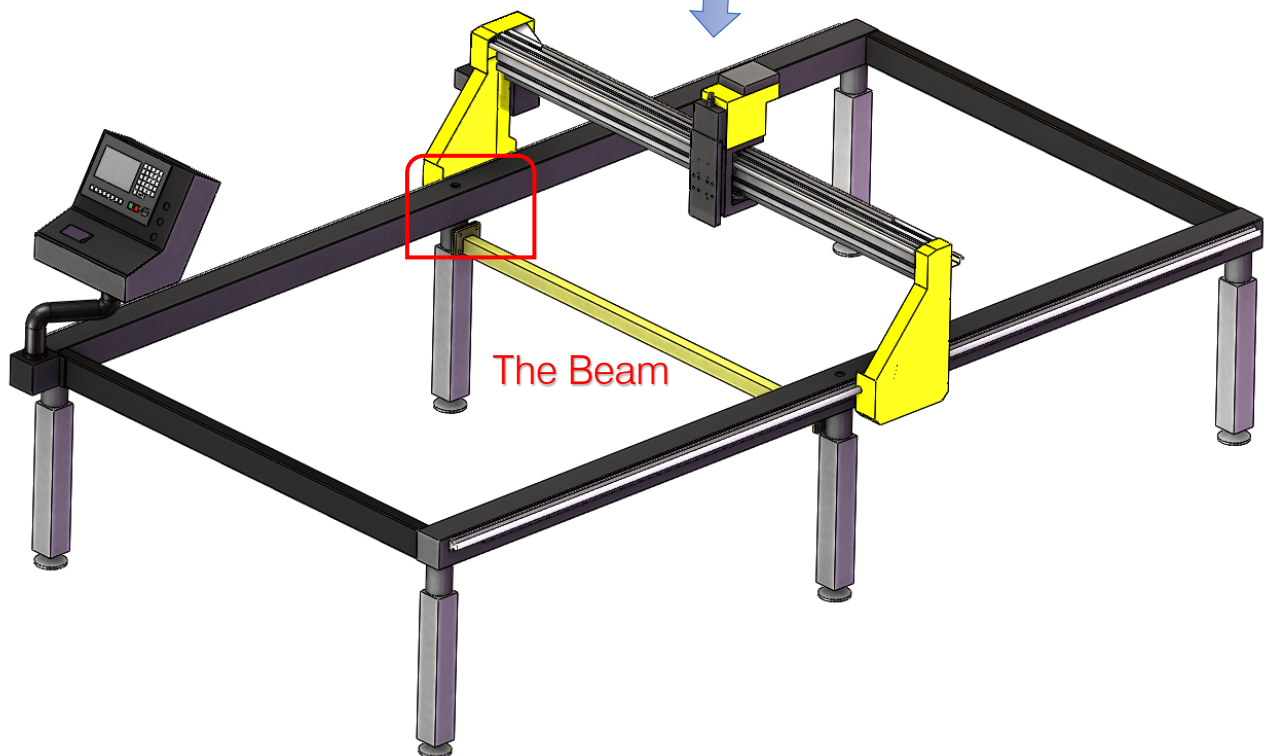
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Use a forklift, Combine the frame and the water table together.

NOTE: Put the front end of the water table close to the front end of the frame.



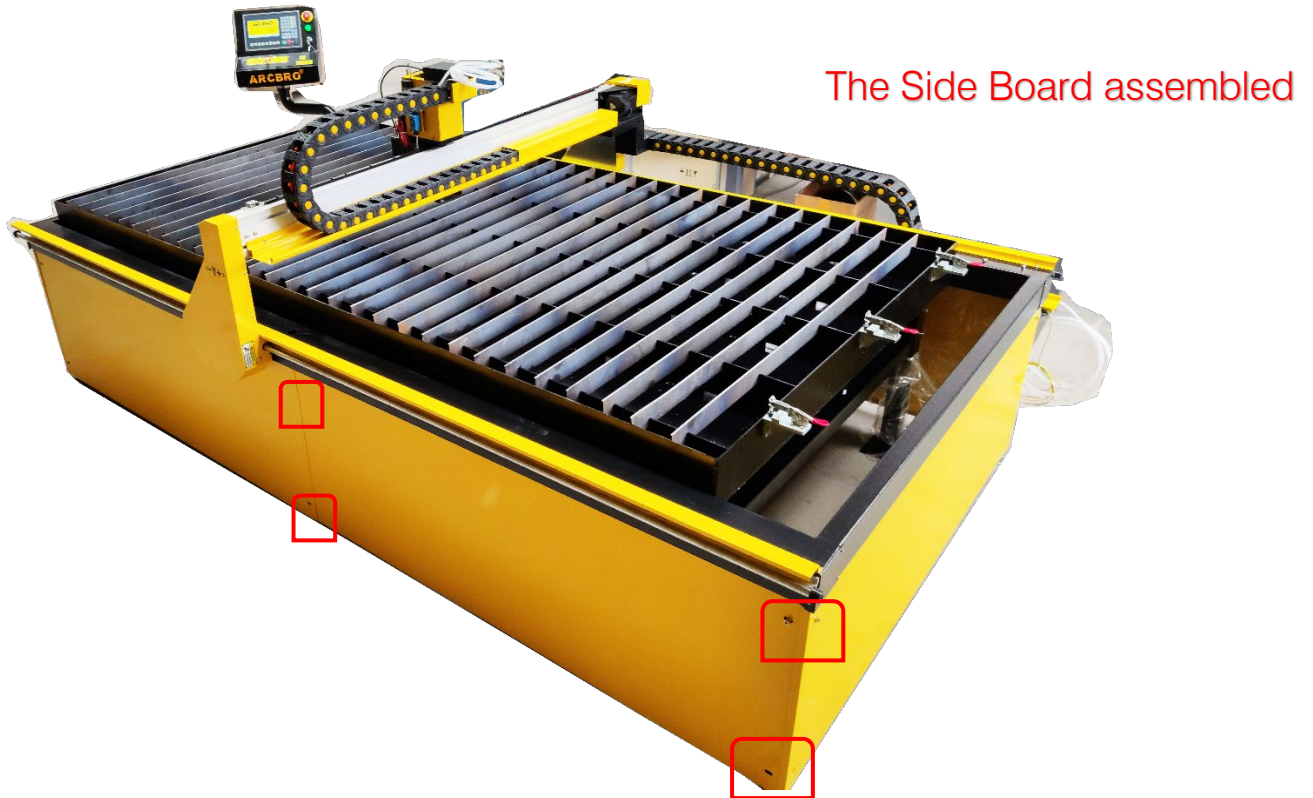
Assemble 【Beam】 fixed by 8 bolts.



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Step 3: Assemble each Side Board onto the frame leg

Fix each Side Board onto the frame leg by screws.



Step 4: Install longitudinal drag chain trough.

Fix each drag chain trough onto the frame leg by screws;-- 3 support frames.



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Step 5: Connect the machine Base to the Ground.

In order to ensure the smooth operation of the machine, the machine needs to be fixed to the ground.

Fix all the screws (Fix Bolt) to the Expansion Bolt tightly.

Adjust the [Level Bolts] according to the measurement of Level Gauge, to make sure:

a- the Water Table level;

b- the 2 track on same horizontal level [The level precision request: $\pm 1\text{mm}$]



The fixed to the ground.

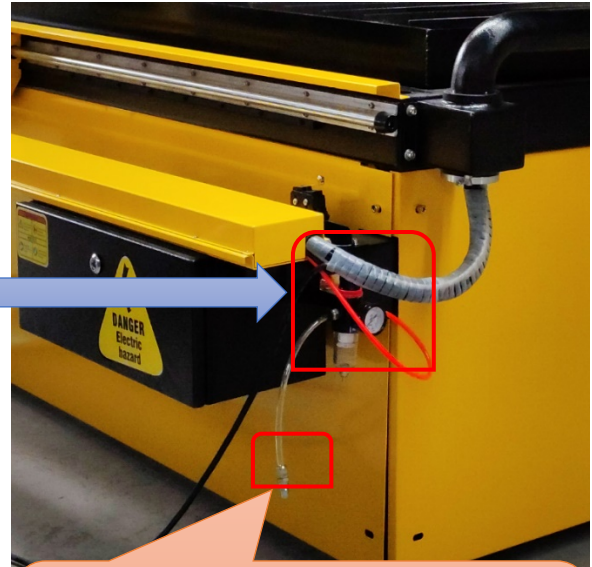
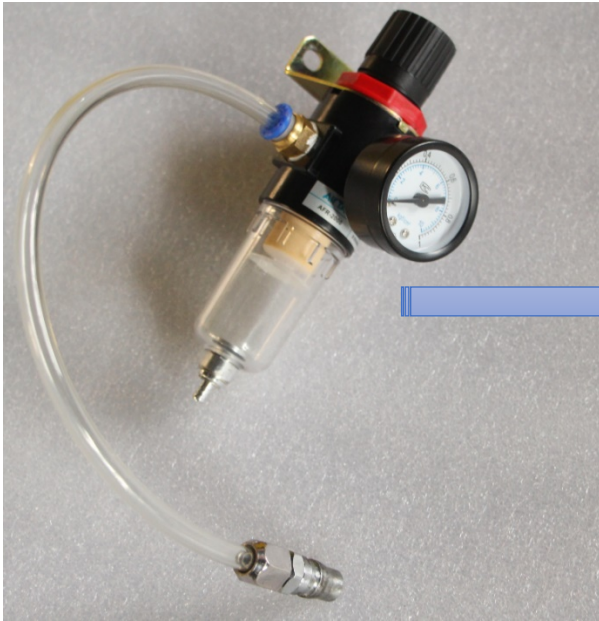
Fix Bolt



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Step 6: Air pressure gauge part assemble.

- 1. Connect and fix Air pressure gauge onto the Gantry Frame by top screw(M6).
- 2. Connect the air pressure tube to the air compressor.



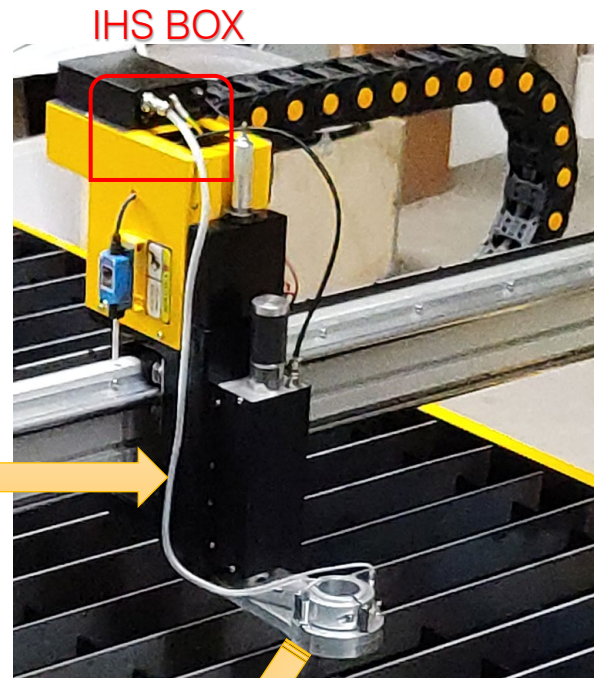
Connect the air pressure tube to the air compressor.

- ⚠ Note: The machine must be connected to an air compressor before cutting.

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Step 7: Plasma cutting part assemble.

1. Load the plasma torch to the holder.
2. Connected the plug to the IHS box.



IHS wire Connection:

Connect the IHS wire to the shield of the plasma torch.



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Wire connection:

Connect the all cables accordingly:

- Power Supply cable,
- Ground wire to cutting plate,
- ARC START cable to plug of the plasma power source,
- DIV ARC +/- cable to Original Arc Voltage ports inside of the plasma power source.

Note: Ref. your plasma power source handbook for recommended Torch Height for different thickness.

◀ For detailed wiring solution, please refer to www.arcbro.com/troubleshooting

Step 8: Pneumatic cutting part installation.

Parameter Set for Thin Sheet Cut.- Pneumatic selection button on the panel.



Assemble Step:

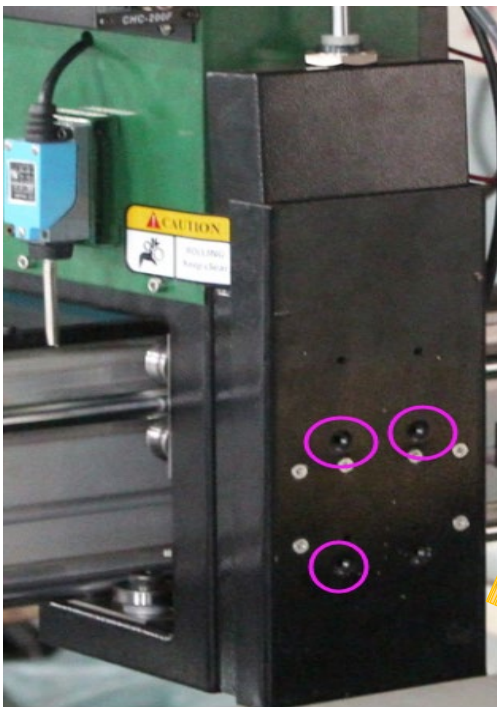
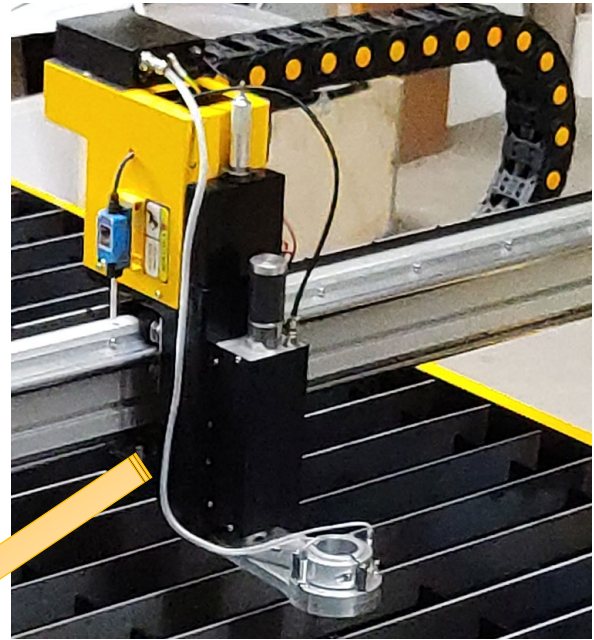
- 1- Connect the **air compressor** to the Pneumatic TCH connector; The pressure can be 0.3- 0.5 kpa.
- 2- Mount the Pneumatic THC Lifter to replace plasma THC Lifter and keep the red IHS wire's tip away from any conductive stuff.
- 3- Mount the torch and load the water cooling tip with the hose.
- 4- Connect the water pump to supply water to the water cooling tip. And use hose clamps.
- 5- Wire connection.

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Pneumatic THC Lifter to replace Plasma THC Lifter 【PLATEN】

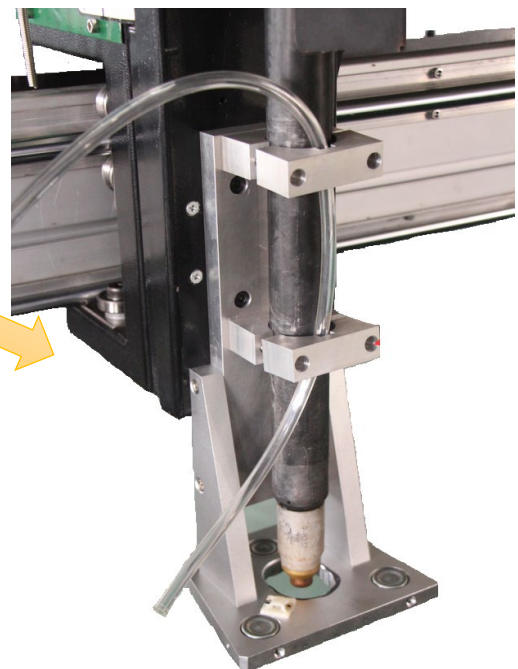
Assemble Step:

- 1-- Remove the anti-collision input cable.
- 2-- Remove the lifter motor control cable.
- 3-- Remove the cover of the lifter, and then remove the lifter.
- 4-- Keep the red IHS wire's tip away from any conductive stuff.



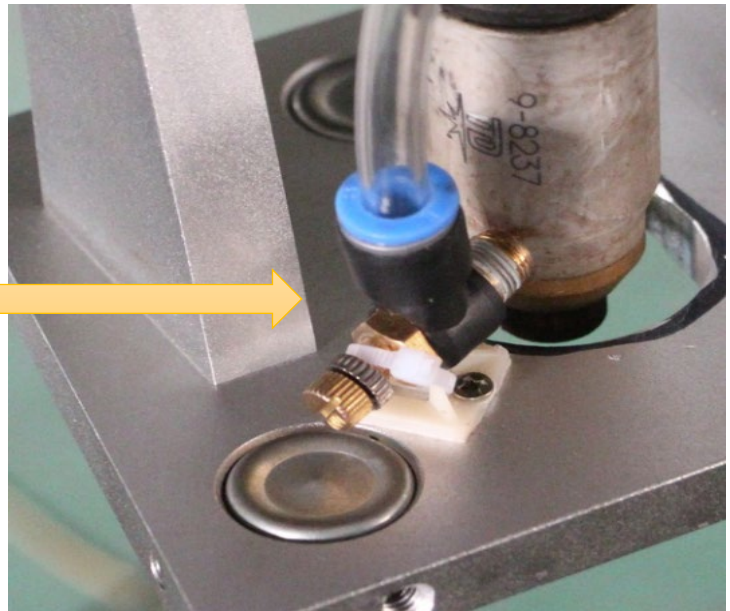
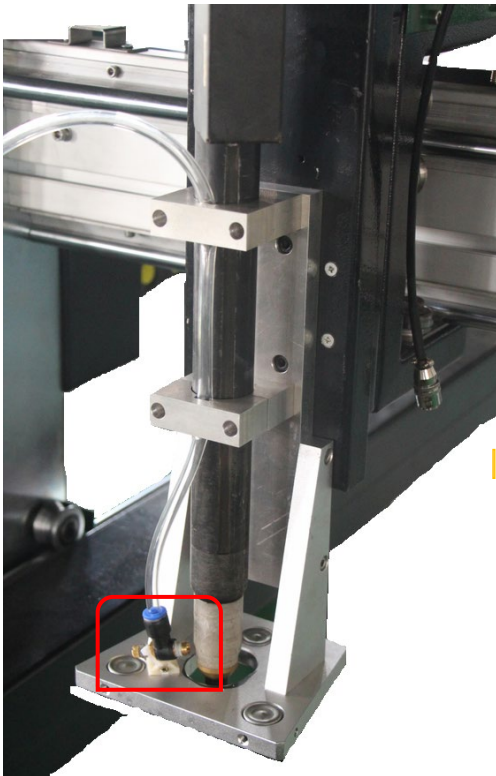
Assemble Step:

- 5-- Install the pneumatic holder by screws.
- 6-- Install the plasma torch and adjust the height of the torch, height range 0.5-1mm



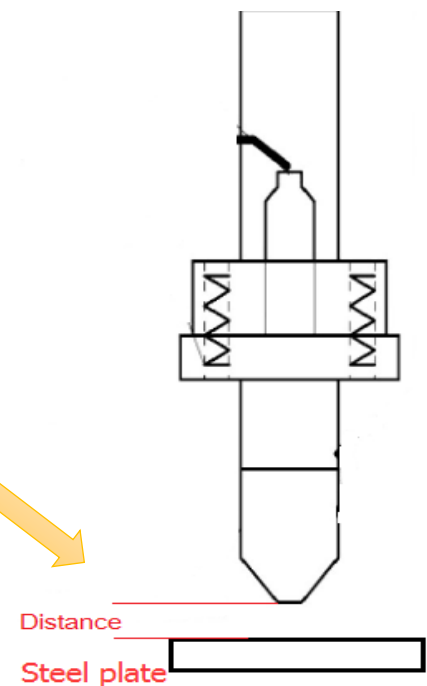
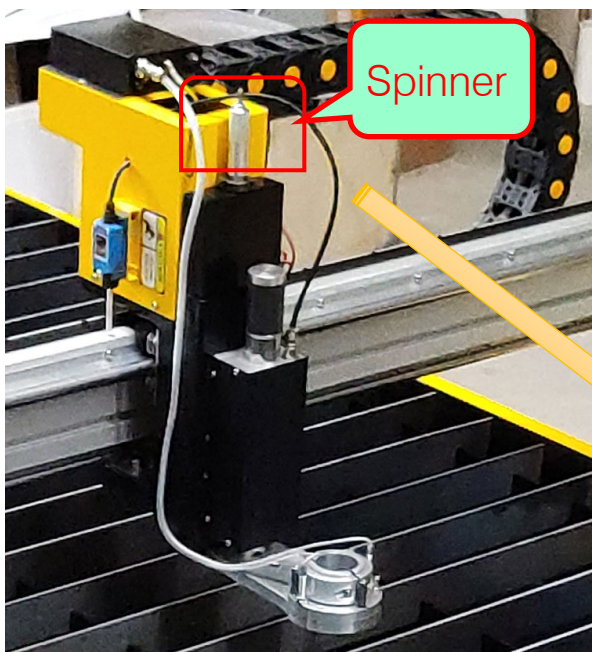
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7--Install the water pipe and nozzle to ensure that the nozzle is aligned with the plasma cap.



8--Install the plasma torch and adjust the height of the torch, height range 0.5-1mm(Switch into manual mode, Press **【CUTOXY】** , the torch goes down, adjust the torch height, tighten the holding bolt , fix the plasma torch).

9- Adjust the pneumatic holder, if the platen press the plate too tight, adjusted the height of pneumatic holder

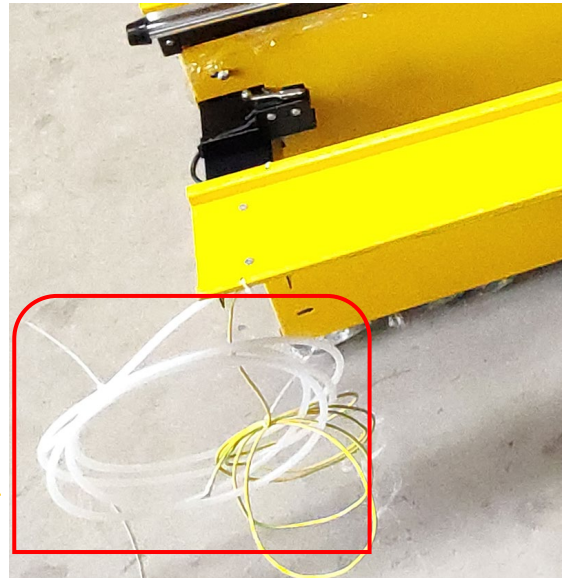


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Connect the water pump to supply water to the water cooling tip. And use hose clamps.

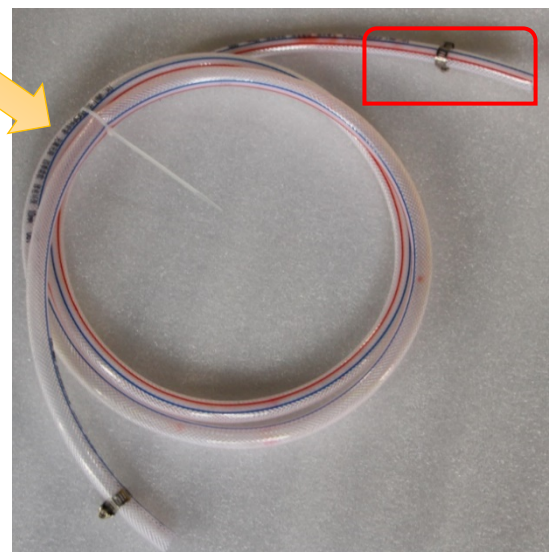
Assemble Step:

- 1-- Install the water pump accessories to the water pump.
- 2-- Connect the water pipe to water pump water.



Assemble Step:

- 3--Connect the water pump to supply water. Use hose clamps.
- 4-- When cutting, please supply power to the water pump.



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Wire connection:

Connect the all cables accordingly:

- Power Supply cable,
- Ground wire to cutting plate,
- ARC START cable to plug of the plasma power source,
- Feedback cable to plug of the plasma power source.

Note: Ref. your plasma power source handbook for recommended Torch Height for different thickness.

◀ For detailed wiring solution, please refer to www.arcbro.com/troubleshooting

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Step 9: Flame cutting part installation.

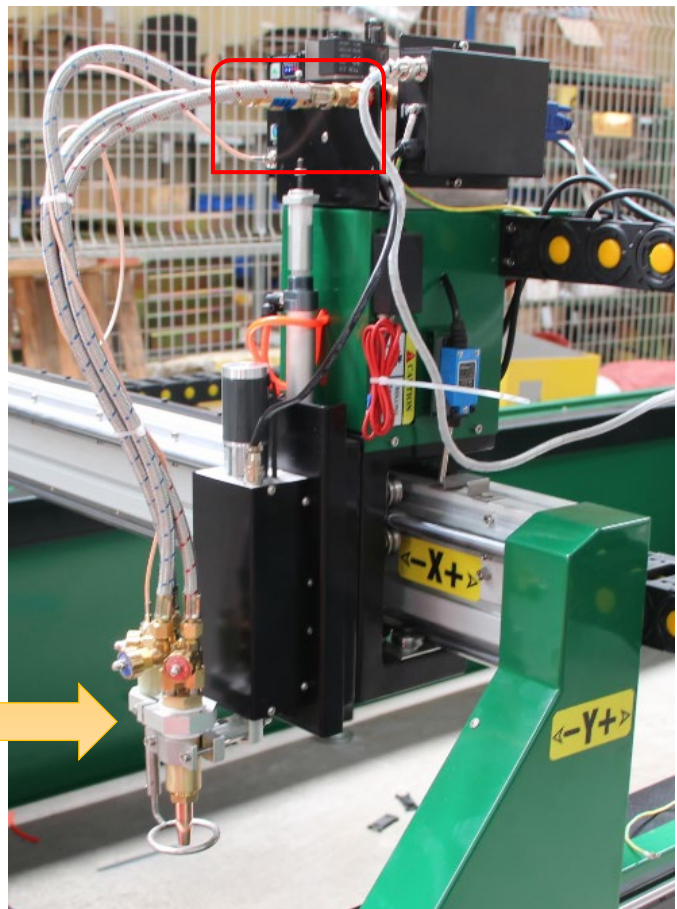
The standard configuration not flame auto.

Stinger--Recommended not to configure flame cutting.

1--Mount Flame THC hold.

2--Connect the oxygen pipe and gas pipe.

3--Capacitor signal connected to flame THC.



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4--Connect the oxygen pipe and gas pipe to the oxygen tank and gas tank.

