

SAFETY INSTRUCTION

For everyone who will be engaged in operation and maintenance supervision, It is recommended to read though this manual before any operations, so as to permit optimum operation of this machine. Hold this manual carefully so that you can use it next time.

Be sure to wear safety devices during the cutting application to avoid the damage from the spark, slag splash, heat, thermal radiation, odor, fume, noise, light, arc, electromagnetic radiation. Also be caution that explosion or fire accident might occur from gas leakage or misoperation.

- Improper operation not only might damage the equipment but be harmful to human body from electric shock or burn.
 - Proper operation prolongs the machine service life and improves the cutting quality
 - Disqualified person mustn't dismantle the machine without the guide of appointed technicians.
 - Following precaution must be followed except the above stated.
- 1) Fire protections such as fire extinguisher, sand, fire hydrant etc must be provided on the site
 - 2) All operators should be trained before the taking the job.
 - 3) Must follow the handling precautions of pressure vessels such as fuel-cylinder, oxygen cylinder.
 - 4) There mustn't be any flammable articles on site.
 - 5) Good ventilation should be available on site
 - 6) Keep away from the ignition spot to avoid any possible damage

1. General

This CNC cutting machine is integrated with a powerful NC system to be used in non-ferrous or ferrous metal cutting application. It can be used for flame or Plasma cutting at high efficiency.

1.1. Main features

The machine can not only be used for flame cutting or plasma cutting like the Gantry cnc cutting machine but can be moved freely as the portable semi-automatic gas cutting machine.

*The NC nesting program for the machine is very simple to learn. The operator can program of simple graph but also can automatically program of complicated graph by using the Software attached with the machine. The interactive software automatically transform the graph into data of G code for the machine application.

* File transfers though USB port.

* Easy operation: Can be selected for manual cutting or automatic cutting

5.7" High solution LCD screen, Easy to use by static and dynamic graph display

* The Machine is built with automatic ignition unit. Automatic height lifter is optionally selected at customer's request.

1.2. Widely application

The machine is widely used in automobile, shipbuilding, Petrochemical, Pressure vessel,

Engineering etc.

1.3. Configuration

The machine is consists of Main unit, Lengthways rail. Cross feed unit. Torch-lift unit. Torch assembly. gas manifold system and electric system.

2. Set up of the machine

2. 1. General

Place the machine on the flat surface and keep it from the rain and dust

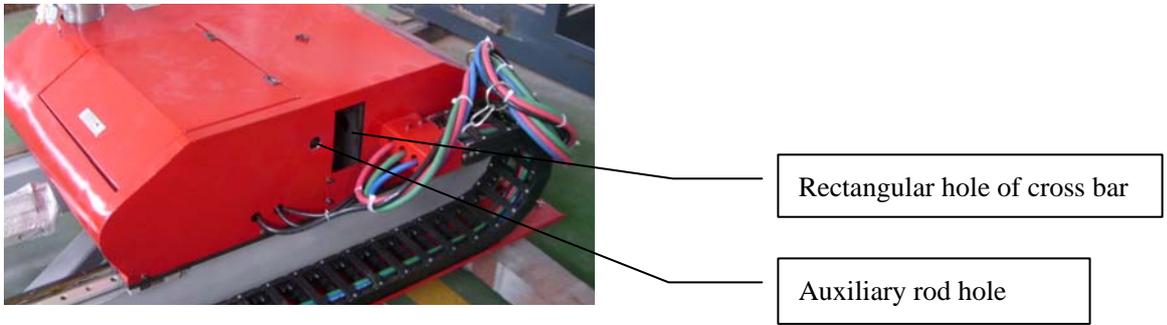
2. 2. Machine installation

2.2.1 User should check the packing list first for the assembly of the machine upon the receipt of the machine.

2.2.2 Take the machine parts outside and place them on ground flatly.

2.2.3 Cross bar unit assembly

Push lightly the cross bar and auxiliary rod into the installation hole as illustrated below. And make sure the rack on the cross bar engages well with the gear inside the main unit.



Dia 2.2.3

2.2.4 Hose connection

Connect 2pcs oxygen hose in blue/green and 1 pc red Fuel gas hose to the solenoid connections on cross bar. Make sure the no leakage on the connection. Also connect 2pcs oxygen hose and 1 pc fuel hose from the bottom to the manifold on the end of hose trough

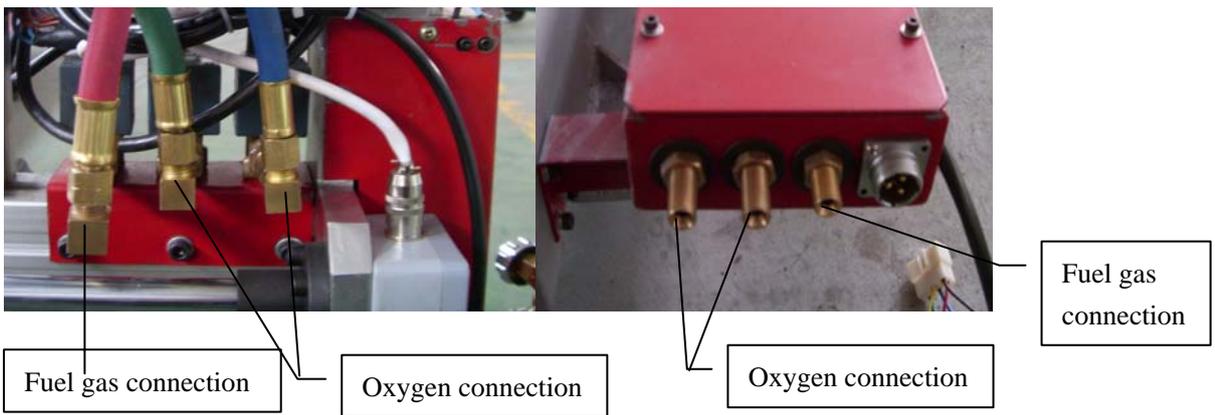


Diagram 2.2.4

a. The hoses used to make the connection between are made especially for this purpose.

(1) Hoses are built to withstand high internal the regulators and the torch pressures.

(2) They are strong, nonporous, light, and flexible to permit easy manipulation of the torch.

(3) The rubber used in the manufacture of hose is chemically treated to remove free sulfur to avoid possible spontaneous combustion.

(4) The hose is not impaired by prolonged exposure to light.

CAUTION

Hose should never be used for one gas if it was previously used for another.

b. Hose identification and composition.

(1) In North America, the oxygen hose is green and the acetylene hose is red. In Europe, blue is used for oxygen and orange for acetylene. Black is sometimes also used for oxygen.

(2) The hose is a rubber tube with braided or wrapped cotton or rayon reinforcements and a rubber covering. For heavy duty welding and cutting operations, requiring 1/4-to 1/2-in. internal diameter hose, three to five plies of braided or wrapped reinforcements are used. One ply is used in the 1/8-to 3/16-in. hose for light torches.

c. Hoses are provided with connections at each end so that they may be connected to their respective regulator outlet and torch inlet connections. To prevent a dangerous interchange of acetylene and oxygen hoses, all threaded fittings used for the acetylene hook up are left hand, and all threaded fittings for the oxygen hook up are right hand. Notches are also placed on acetylene fittings to prevent a mixup.

2.2.5 Cable connection

Insert the cable plugs of system control box into the sockets on the lift unit of control box.;

Insert the plugs on cross bar into the sockets which are bounded together with hoses;

Insert the metal plug into the power source socket



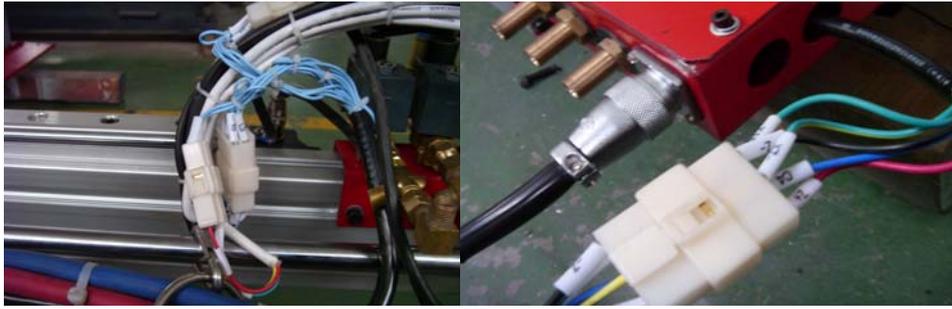


图 2.2.5

2. 2. 6 Correction of torch location

Torch might incline due to the transportation or other disturbs. And needs to be corrected to make sure it is vertical against the cutting table.

2. 2. 7. Leakage check

Check the hose by coating suds onto each joints to check if any leakage due to crack , fatigue, loose joints etc.

2. 3 Oxygen or Gas supply

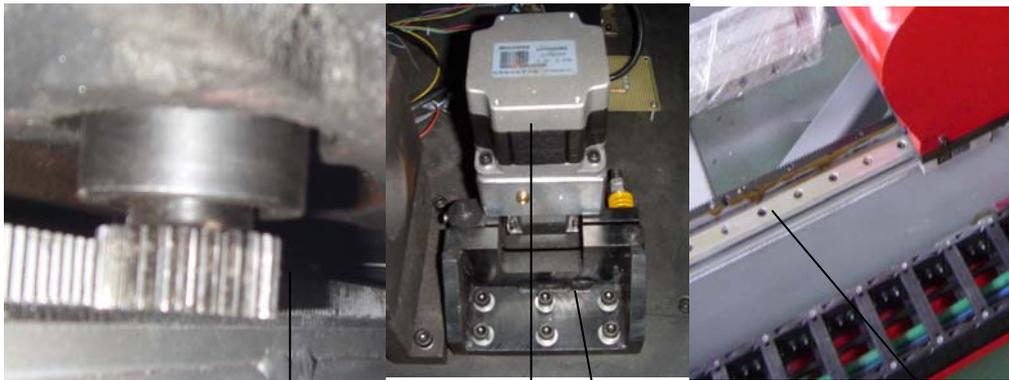
Select the hose for the oxygen and fuel gas supply according to your local standards, the standard is 8mm. Make the hose shortest as possible to minimize the pressure drop, all the gas source (Cylinder) should keep away from the fire (10m distance away). The flashback arrestor should be used to make sure safety and 200-mesh filter to make sure the gas clean from damaging the solenoid valves and cutting unit.

3. Mechanical parts general

3. 1 Drive system

The drive system consist of below components:

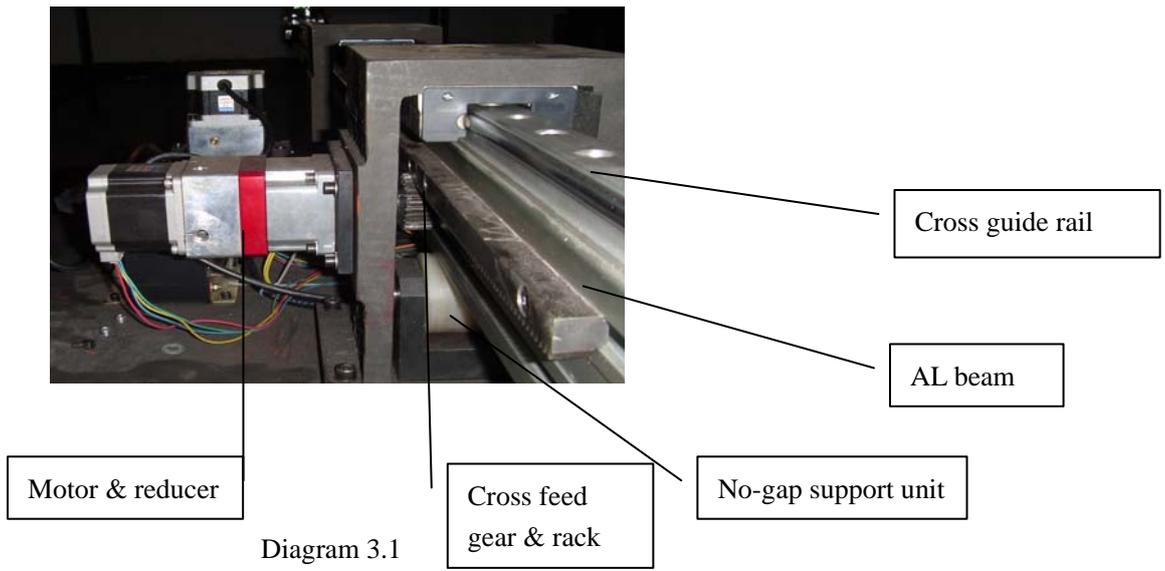
3.1.1 Lengthways drive system: Consists of motor & reducer, gap clearance offset unit. Lengthways guide rail. Lengthways gear and rack



Lengthways gear & rack Motor and reducer Gas clearance offset unit Lengthways guide rail

图 3。 1。 1

3. 1. 2 Cross drive system consists of: Motor & reducer, Cross feed gear & rack, Cross bar unit (Cross guide rail+ Al beam), No-gap support unit



3. 2 Cutting station (For flame cutting)

Cutting station consists of cutting torch, gas valves, Auto ignition unit, hoses, flashback arrestor.

