Operation Manual

Laser Machine

SIRIUS

texi

Security Considerations

- **Before operating the equipment, it is strongly recommended that the users should read this specification and follow the operation manual strictly and NOBODY is allowed to start up the machine EXCEPT THE PROFESSIONALS.**
- **This equipment adopts four kind of laser device (Strong laser radiation), the radiation may cause the following accident: 1) Fire the tinder surroundings. 2) While processing, some other radiation and toxic, harmful gases may appear depend on the material. Direct laser radiation can do harm to human body. Therefore, fire-fighting equipment must be prepared around where the machine stands. It is strictly forbidden to put flammable, explosive articles around the table and equipment, while keeping the good ventilation, non-professional personnel is allowed near the equipment.**
- **Manufacturing objects and emissions should accord with local laws and regulations.**
- **Laser processing may cause risks, users should carefully consider whether processed object is suitable for laser operation or not.**
- **High voltage or other potential danger may be inside the laser equipment, we insist you assemble it under the guidance of factory professionals.**
- **When the equipment powered on, it should be attended and not left without man watching. POWER OFF THE EQUIPMENT BEFORE YOU LEAVE.**
- **When laser equipment is processing, it's forbidden to open any end cover.**
- **Before the machine is powered on, it should be earthed as well as the relevant accessories.**
- **It is strictly prohibited to placed any irrelevant total reflection or diffuse reflection object near the equipment, prevent the laser reflection from doing harm to the body or flammable items.**
- **When the operation is in process, the operator must watch the status of the equipment at any moment, if abnormal condition occurs, the power supply of the machine should be cut off immediately and corresponding measures should be taken in time.**
- **The surrounding environment should be dry, without pollution, no vibration, no strong electric, strong magnetic interference and influence. Working temperature 5-40 ℃, humidity 5-95% (non condensate).**
- **This laser cutter enegraver should be far away from the electrical-sensitive equipment, for it may produce electromagnetic interference.**
- **Working voltage: AC220V, 50HZ. When the voltage is not stable or does not match the machine, it is strictly prohibited to boot the equipment.**

***For any loss of improper Operation or violation against the items above, we are not responsible for it.**

Catalog

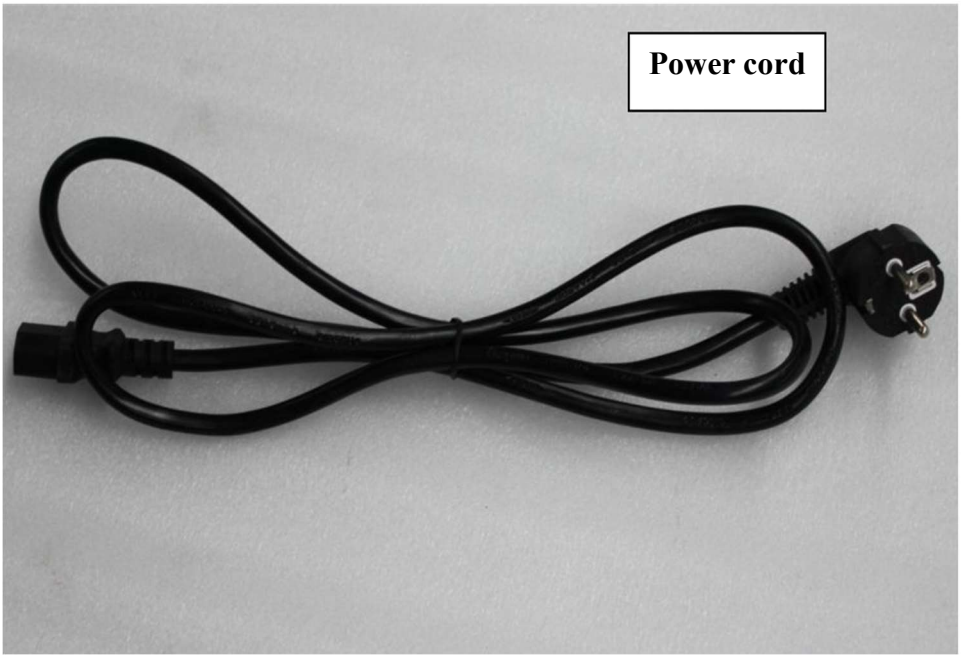
Appearance of the machine and accessories:

The whole appearance

Pic 1-1

The whole appearance

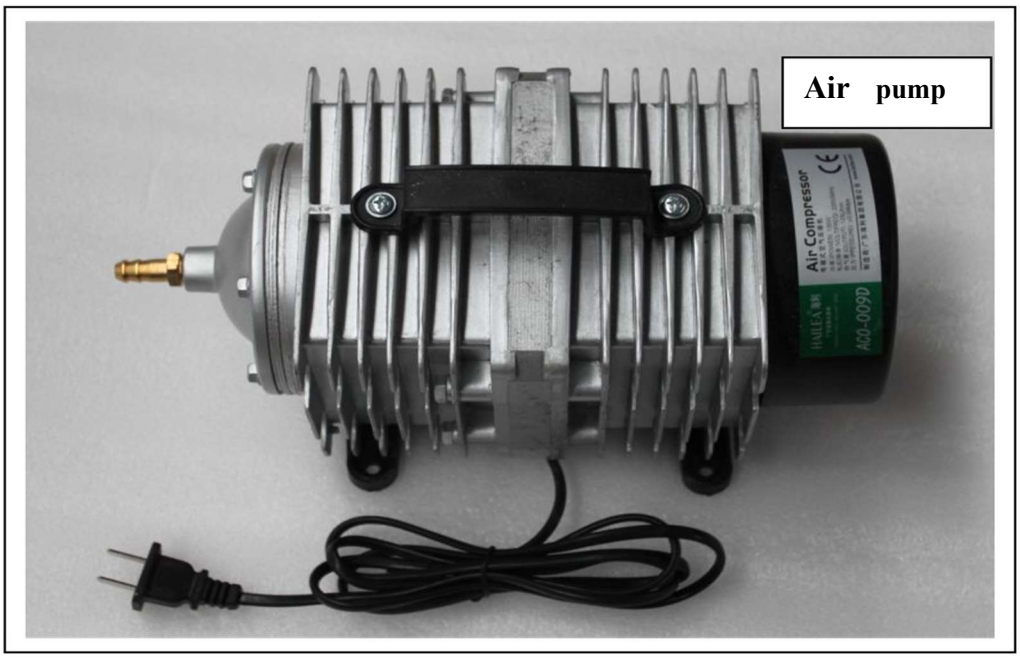
Pic 1-2


Power cord

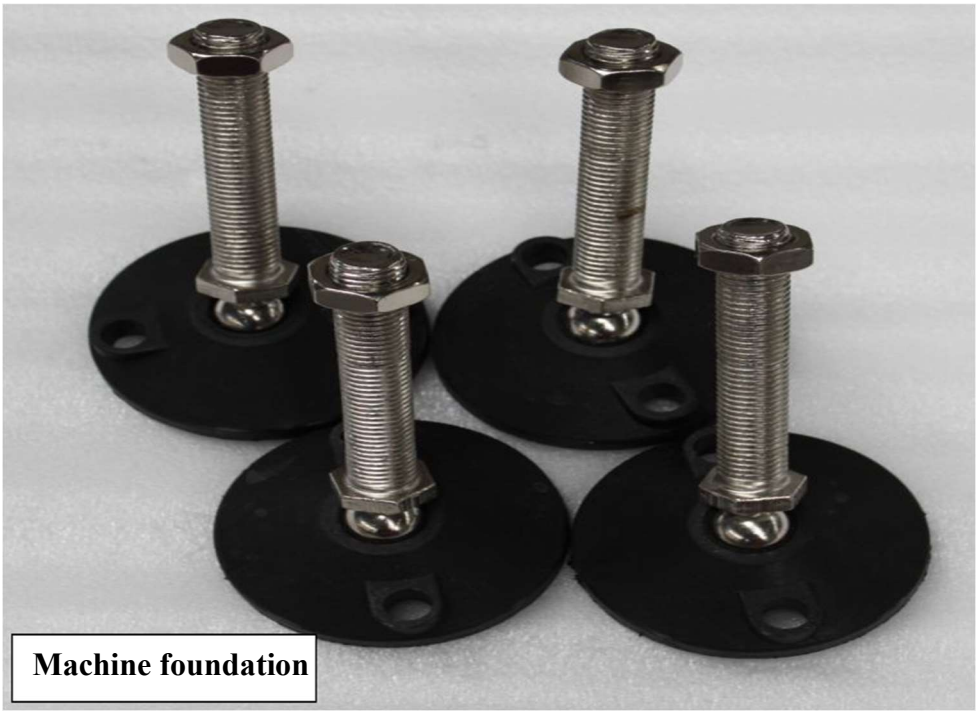
Pic 1-3


CW-5200
INDUSTRIAL CHILLER
S&A
Connection of the whole machine and the accessories

Pic 1-4



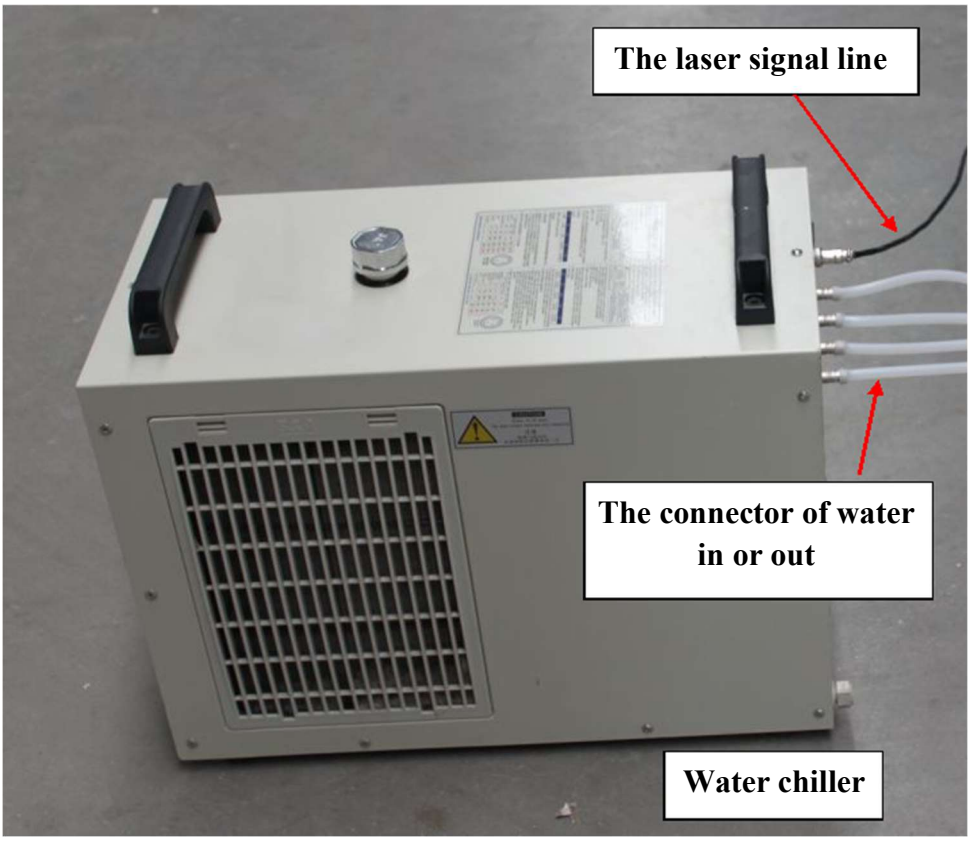
Pic 1-5



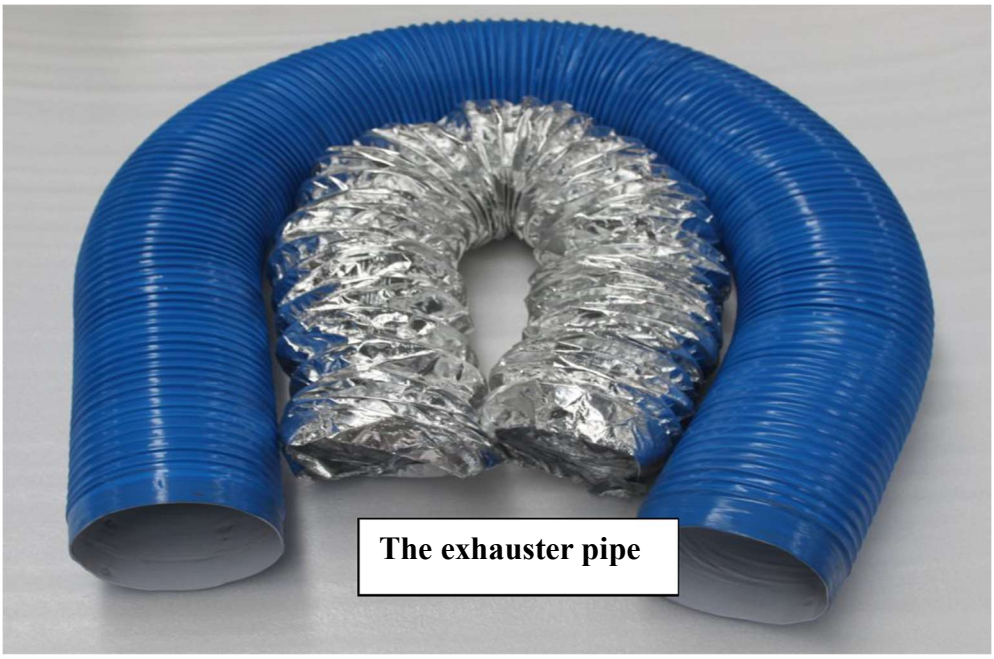
Pic 1-6


The blower pipe clamp

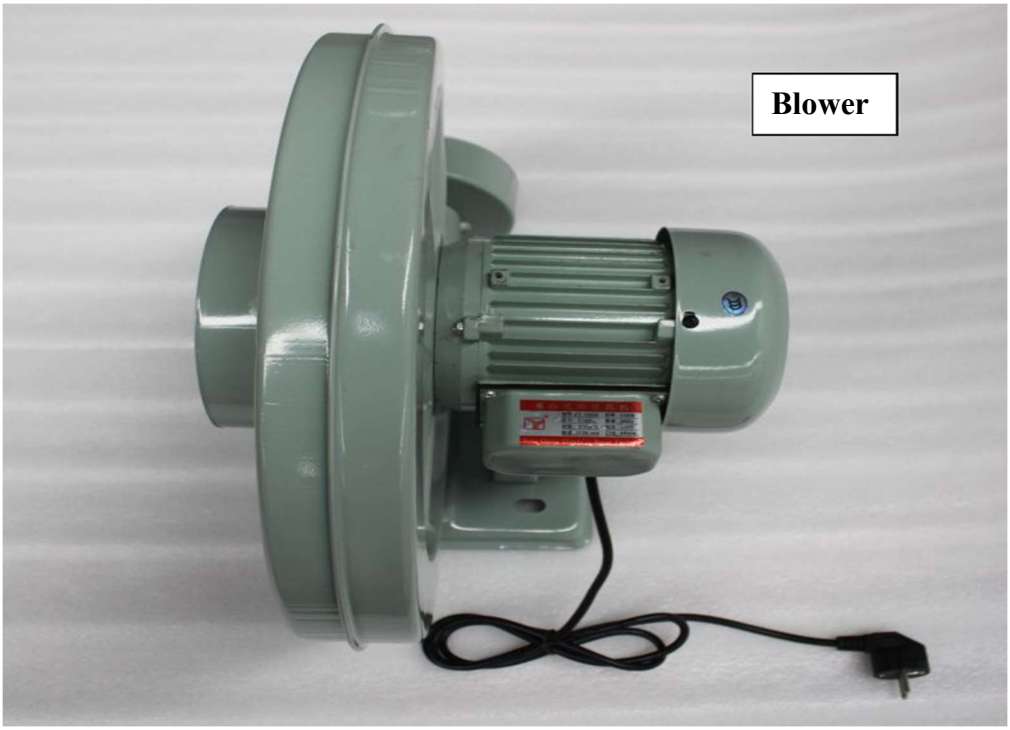
Pic 1-7


The laser signal line
The connector of water in or out
Water chiller

Pic 1-8



Pic 1-9



Pic 1-10

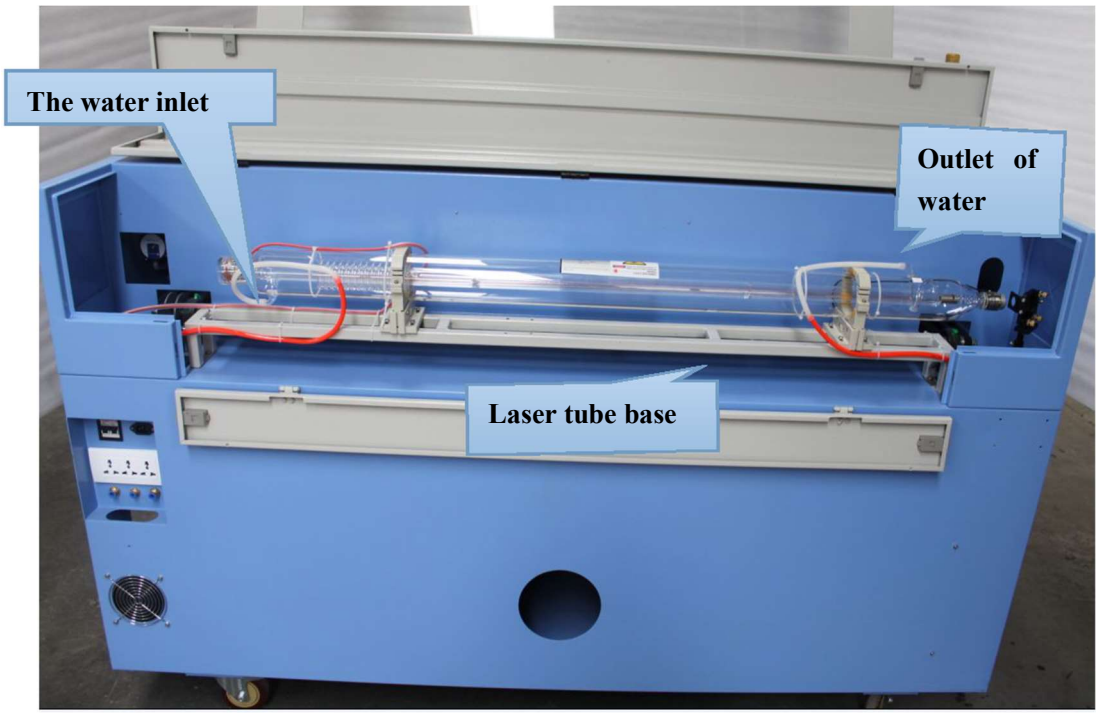
Pic 1-11

Pic 1-13

Laser tube installation：

Please notice when customers is in the installation of the laser tube

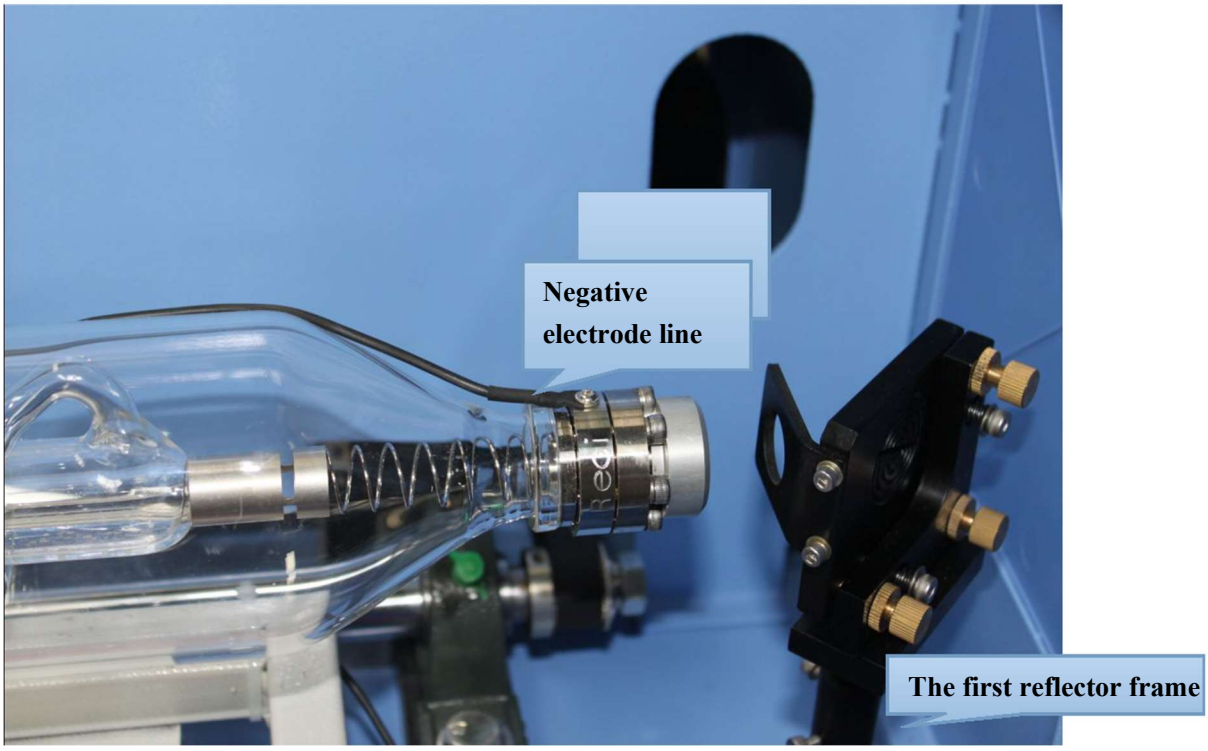
A In the positive and negative pole connected to the situation of optical laser tube, the anode is the light side, the electrode is the laser tube with spiral side as shown in Figure 1-14 (laser tube high pressure cap), such as wrong would lead to the laser tube damage



Pic 1-14

B Installation of the laser tube should be lightly not encountered any place, put the laser tube on the laer tube base steady and Tighten the relevant screws.

C Laser tube outlet should be from the first reflector to a distance of at least 3-5CM as shown in Figure 1-15.

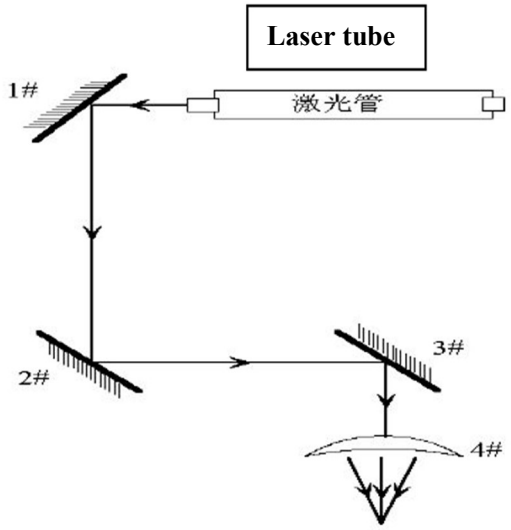


Pic 1-15

D Water work, in order to prevent the laser tube having the bubble phenomenon, take the way that make the water from low to higher as shown in Figure 1-2 (cathode in anode out, low into higher refers to the inlet and outlet of the laser tube).

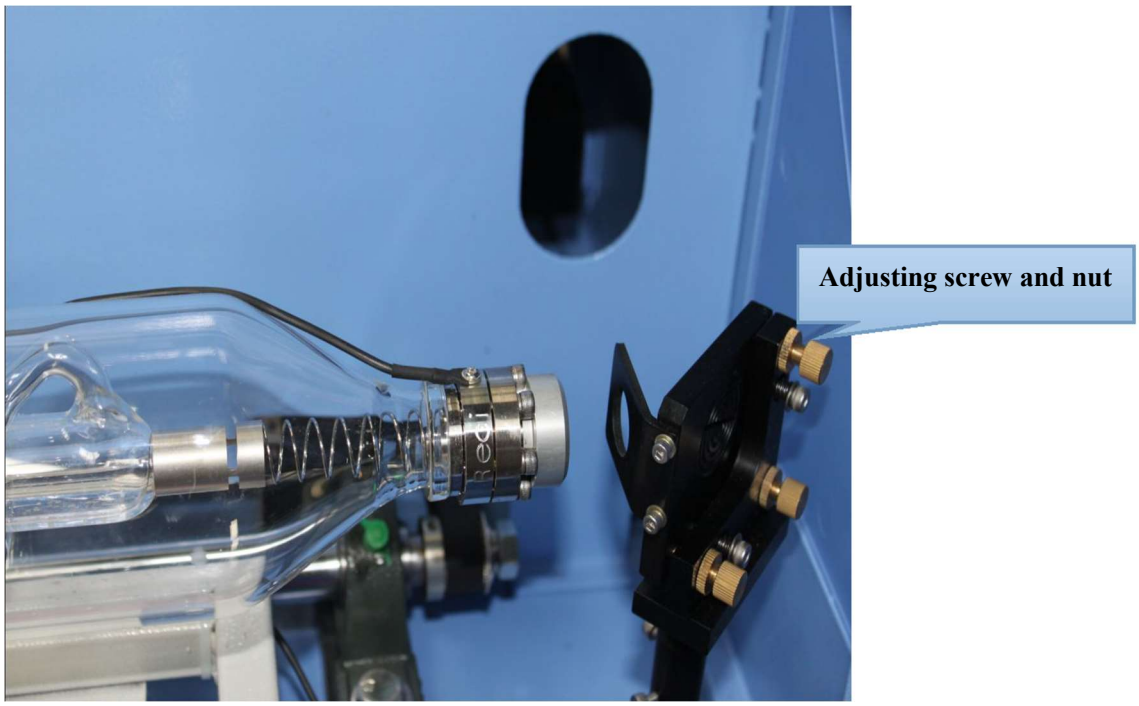
Laser tube installation and adjusting optical path:

Engraving machine in the process of using ,a variety of reasons may occur light path offset, resulting in no light or optical phenomenon is not correct, please refer to the following methods optical path adjustment:



Pic 1-16

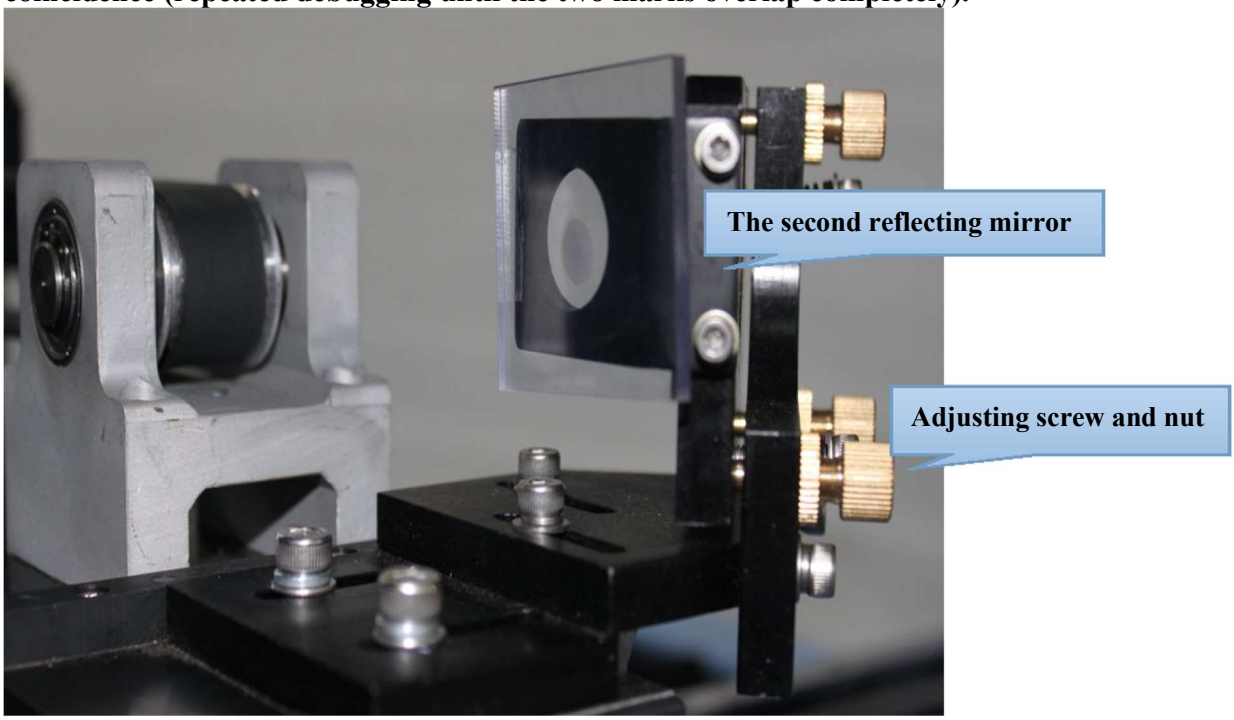
The first step: make sure the light from the laser tube can be launched in the first Reflector center. (light spot should be complete)



Pic 1-17

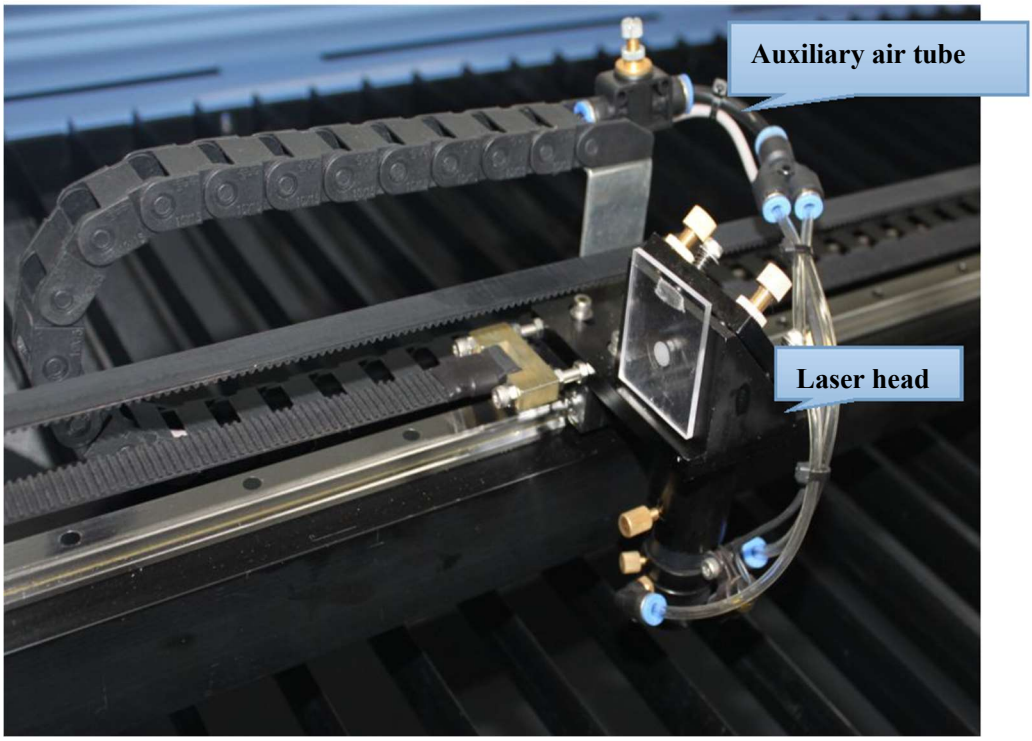
The second step: when you adjust the second reflector ,stick on light block on it (can make objects), move the beam to the position most close to the first frame , press the pulse button (point click),

marking the mark (Attention: please use the non metal sheet metal shielding to prevent the laser radiation hurt , test spot about the location , and then adjusted). Gradually move the beam to the farthest from the first reflector position, then press the pulse, make a mark. If the two markers do not coincide, adjust the copper screws on the first reflector , so that the two laser spot center mark coincidence (repeated debugging until the two marks overlap completely).

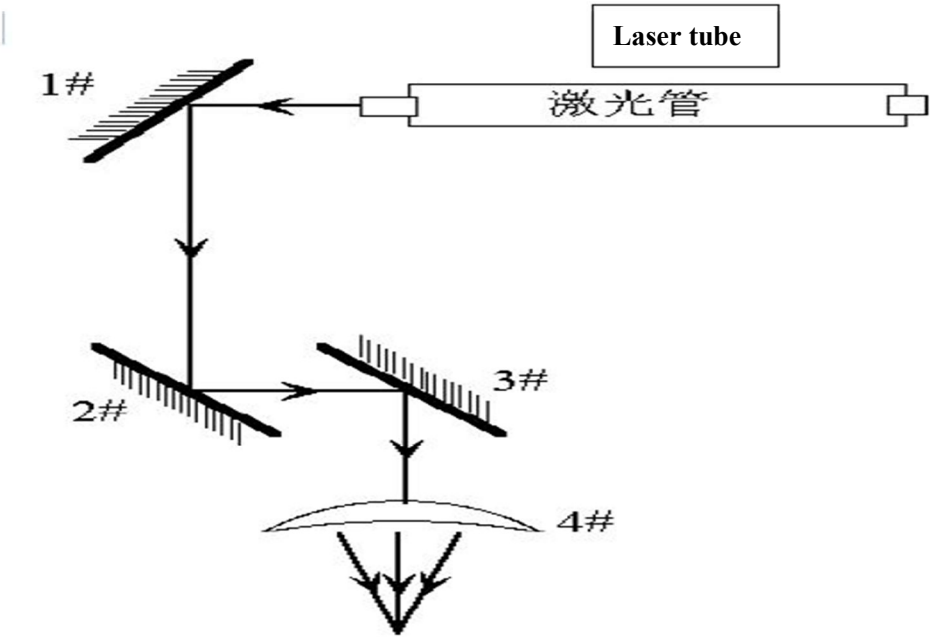


Pic 1-18

The third step: adjust the third reflector and attached to the light block(The laser head) on it,move the laser head to the position that nearest the second reflector. Put the pulse button . Make sure far beam and the dipped beam overlap completely,and the light spot should be in the light hole center of the laser head.(The laser head cut out object in the middle of the machine (watch the verticality)

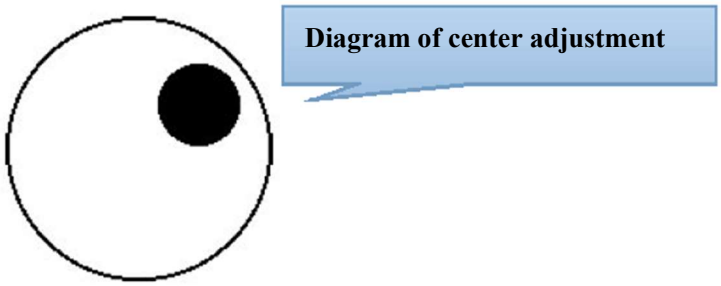


Pic 1-19



Pic 1-20

The fourth step: if the laser does not fall within the light hole center, such as deviation: to raise or lower the light pipe. And deviation: only second reflector inwards or outwards adjustment. (such as adjusting the laser tube or a reflector position need to redo the second step and the third step, the spot completely Coincidence)



Pic 1-21

Attention please : The above work, the operator must be trained professionally before operation

Production equipment maintenance

Equipment's routine maintenance is reduce the wear to make the equipment always in a basic work with good technology condition. The basic requirements of routine maintenance are: Operator use the equipment should strictly follow the rules,always observe the working condition of the equipment,the device should be kept intact,accessories should kept tidy,complete the safety equipment,wiring,and plumbing should intact; individual parts of equipment should always wipe, kept free of grease, no oil, kept in flexible operation.

First, boot the equipment

Check whether the power ,electrical control switches and the knobs are safe and reliably; whether the location of each control mechanism, transmission parts, stop dog, limit switch position is normal; each operation is well lubricated sliding parts, oil cup, hole, oil lines, etc.whether fuel is sufficient ; check whether the oil cup, oil level and oil filters are clean. After confirming all normal can start commission. At startup and commissioning, you should check whether the work situation of all parts have the abnormal phenomena and sound.

Second,release the water and clean the water tank.(recommended clean and replacement the circulating water once a week)

Note: Before the machine work must ensure that the laser tube is filled with circulating water.

Circulating water quality and temperature directly affect the life of laser tube, it is recommended to use pure water, and controlled the water temperature below 35℃. If more than 35℃ need to replace the circulating water or add ice cubes to the water to reduce the temperature.

Clean water tank: First turn off the power, unplug the water saliva pipe, allowing water of laser tube to automatically flow into the tank, open the tank, remove the pump, clean the pump. Clean the tank , replace circulating water, reverts back the pump to the tank, connect the pump pipe insert inlet, collated the joints. The pump is powered separately and run for 2-3 minutes (make the laser tube filled with circulating water).

Third,the use of fan.

Use the fan for a long time will make the internal fan accumulate a lot of solid dust. Make the fan have a lot of noise. And it not conducive to the exhaust and remove sapor.When the fan suction insufficient and exhaust poor, first turn off the power,discover the air out/in from the duct, remove the dust inside of the fan, then upside down the fan, move the fan blade until clean , then install the fan. And according to dosage clean it regular.

Fourth, cleaning lens

It's recommended that clean before work and must be operate at the machine in the off state.

Clean focus lens:take the focus lens off from mirror bracket,bens the lent cleaning paper,wet it with professional cleaning fluid or ethanol,gently wipe the lens surface of the lens with a damp paper

repeated several times until the mirror clean.

Note:

① gently wipe the lens and should not damage the surface coating;

② wiping process should gently to prevent falls;

③ Please be sure that the convex upward at install the lens

Fifth, clean rail (recommended cleaned once every two weeks,operations when shut down) Rail, linear shaft as one of the core components of the device, due to the different pieces of processed material and some special materials will generate a lot of dust and corrosive fumes during processing, has a great influence on the accuracy and the life of the equipment, in order to ensure the machine;s normal steady work and ensure quality of processed products, must in accordance with regulations regularly routine maintenance the rails, linear axis.

Note: Clean the rails please prepare - dry cotton and lube

First, ensure that the machine in the case of power failure, move the laser head to the far right (or left), wipe clean with a dry cloth until shiny (kerosene can help you clean it up), and then use lube (can use sewing machine oil, do not use engine oil), slowly push the laser head around a few times, so that oil can be evenly distributed

Sixth ,fastening screws and coupling

Equipment in use for some time, you should test the connection, avoid connecting screws and coupling come loose, which affect the smooth of mechanical movement, so you should observe whether the transmission components of the machine there have abnormal noise or anomalies at working, found the problem should promptly rugged and maintenance. At the same time the device should use certain tools individually sturdy screws. The first test should be after use the equipment one month and take the text once every three months.

Seventh, laser tube cleaning

1,Pay attention to protect the laser output window to avoid the generated smoke sputtered to the output window surface at work process (including the debugging optical path process), prevent the outer surface of the output window to polluted, leading to power down, can use cotton or silk dip ethanol gently wipe the outer surface of the output window;

2, Pay attention to clean the dust grease on the laser tube, to avoid the accumulation of dust in the vicinity of high-voltage electrode that resulting in high-voltage ignition. Laser tube should be regularly cleaned at outage.

Eighth,maters need attention of daily operate.

(1) Strictly in accordance with procedures using the machine. Can't appear illegal operation.

(2) Do not place the tool, measure gauge, clamp, cutting tools, workpieces, raw materials ,etc.on the machine. Ensure that activities guide surface and rail junction surface without chips, dust, no oil, rust and other phenomena.

(3) At the equipment revolving,must have a professional operator, rigorous off-site, unattended and so on.

(4) After equipment have errors, the power should bu probably cut off,you should contact with the professional repairman, rigorous appear boot secondary damaged phenomenon .

(5)When the machine stops working,you should clean the machine comprehensively. The equipment work areas hold be clean and tiny no oil or waste on the ground; equipment accessories should be complete, properly, clean.

In order to ensure the normal operation of the equipment to extend the service life of the equipment operator, routine maintenance, each shift before the end of the work, the holiday and festival before the holiday time should maintain the machine in accordance with the regular maintenance to the continuous operation equipment cannot Shutdown maintenance. Complete maintenance rules specified in the work content and requirements.

Common problems of laser cutting engraving system

No.	phenomenon	Analysis method	Treatment method
1	Boot but machine is not start	1.Check whether the machine electricity is ok 2.check the main parameters is correct	1.check the electrical wires again 2.set up the parameters refer by software instructions
2	Working without laser	1.Check wether the optical path skewing 2.Line problem	1.Adjust the light path 2.Judgment with plug the rays into the power of the signal terminal
3	The laser on and off at work	1.Check whether the water cycle is ok 2.whether the supply voltage is stabilize	1.Clean the water tank and water pump,clear the pipe 2.Add voltage stabilize to power supply
4	The online data can't be disposed	1.whether the communication cable is connected 2.whether the software USB is installed	1.Shutdown and reconnect the cable 2.Reinstall the software and USB drive
5	Processing size does not consistent with software set	1.Install the software 2.Adjust action	1.install the original software to recover original parameters 2.sized the working area and trim size .calculate refer to software
6	The control panel no light	1.Line is loose	Check whether the connecting line is loose from main board to panel
7	Boot reset is limited	There is problem of limit switch and signal	Check parameter of software and limit switch setting
8	Carving dislocation	1Electrostatic interference 2.Drive parts is loose	1.Reconnect ground wire two meters below ground 2.Check if the gear top silk and strap is loose

Warranty clause

Thank you for purchasing our laser machine.We have to announce to you that if you operate don't according to specified items in "operating manual" ,we don't warranty the damage of the machine.

<u>One. The content and deadline of the warranty</u>

1 Warranty contents

If the laser engraving machine you have buy generate quantity problem due to the material or manufacturing below the mark, our company will warranty refer to terms of the warranty period given.

2 Warranty deadline

Since the whole year from the date of purchase, (particular parts guarantee period please see the attached sheet)

<u>Two. Some unsuitable issues of warranty.</u>

1. beyond the warranty period or can't provide the machine warranty card.

2.can be considered that the phenomenon has no effect on performance,just is sensuousness (eg: sound, vibration, static electricity, etc.)

2. the use of losses and long aging (such as: painting, spray, plating, plastic parts

3. naturally fade cracking, etc.).

4. Failure to perform the obligation according to the contract.

5. Unused high-quality hardware provided by our company to and purchase hardware by self.

6. Damage from dust,chemicals and other similar factors.

7. Damage caused by the non-specified maintenance department of our company's dismantled repair.

8. Damage caused by force majeure such as natural disasters,fire,theft,etc..

Parts Warranty			
Parts name	Warranty period（month）	Parts name	Warranty period（month）
Laser power supply	12	Water-cooling	12
Switching power supply	12	Air pump	12
Control	12	Strap	3
Driving	12	Water pump	3
Motor	12	Mirror	3
WM	12	Focus lens	3
Circuit	12	Sliding block	3

Slider way	**12**	**Limit switch**	**3**
Other electric appliance's parts	**12**	**Laser tube**	**General 3**

(Note: non-damaged quantity reasons, we don't warranty）

Cutting parameter values

Description: cutting speed and material details may vary, this form is only for reference.

The order of the data in the table: optimum range of cutting speed,optimum power range below optimum cutting speed,the maximum cutting speed rage without considering the effect of cutting.

Unit: mm/s

Cutting power / Speed / material	60	W2	W4	W6
Acrylic 3mm	6-10 70%-90% 20-25	10-15 50%-80% 50-55	10-15 40%-80% 55-60	10-15 30%-80% 60-70
Acrylic 5mm	6-8 60%-80%	8-15 60%-90%	8-15 70%-90%	8-15 60%-90%
	8-10	15-20	20-25	25-30
Acrylic 10mm	2 60%-85% 3-4	3-5 60%-85% 6-8	4-6 70%-90% 6-9	5-8 70%-90% 10
Acrylic 30mm		0.4-0.6 80%-95% 0.7-0.9	0.4-0.8 80%-95% 0.8-1.0	0.6-1.0 80%-95% 0.8-1.2
Plywood 5mm	10-20 60%-90%	40-60 60%-85%	50-70 65%-85%	50-80 50%-90%
Plywood 12mm		Not recommended	5-8 70%-95%	8-12 30%-90%
(medium/low ）MDF 6mm		6-10 60%-85%	8-15 50%-95%	15-20 50%-90%
(medium/low ）MDF 15mm		Not recommended	2-3 80%-90%	3-4 80%-90%
Sponge 2cm	Not recommended	50-60 75%-85%	60-80 75%-85%	80-100 70%-90%
Leather	400-600 20%-90%	400-600 20%-90%	400-600 20%-90%	400-600 20%-90%
Non-woven	400-600 20%-90%	400-600 20%-90%	400-600 20%-90%	400-600 20%-90%
Cloth （single)	400-600 20%-90%	400-600 20%-90%	400-600 20%-90%	400-600 20%-90%
Thin carpet	400-600 20%-90%	400-600 20%-90%	400-600 20%-90%	400-600 20%-90%
Sponge cloth	400-600 20%-90%	400-600 20%-90%	400-600 20%-90%	400-600 20%-90%

CE DECLARATION OF CONFORMITY

Distributor:
Strima Sp. z o.o.
Swadzim, st. Poznańska 54
62-080 Tarnowo Podgórne, Polska

We declare, that the following product:

Laser machine
TEXI SIRIUS
(SF1390-I)

which this declaration relates, complies with the following directives:
Low voltage directive 2014/35/EU
Harmonized norm used: EN 60825-1:2014

Dealer: