JINAN ZHANCHENG AUTOMACHINE EUIPMENT CO., LTD
ROOM 607, BUILDING 7, RONGSHENG TIMES INTERNATIONAL, NO. 9 BEIYUAN STREET, LICHENG DISTRICT, JINAN CITY, SHANDONG PROVINCE

USER'S MANUAL

MODEL: ZCGX-DTW1

TABLE OF CONTENTS

SAFETY

INTRODUCTION

READ THIS CHAPTER ON SAFETY AND THE SECTIONS OF VENDOR COMPONENTS MANUALS ON SAFETY BEFORE BEGINNING TO OPERATE THE LASER MARKER. DO NOT BECOME COMPLACENT ABOUT SAFETY OR COMPLETELY DEPENDENT ON SAFETY DEVICES.

PRECAUTIONS RULES

1.USE LASER IN CONTROLLED AREA, AND ADD WARNINGS.
2.KEEP THE WORKING AREA DRY AND CLEAN, AND DO NOT PUT ANYTHING IN THE LASER PATH THAT MAY CAUSE REFLECTION.
3.WHEN THE MACHINE IS OPERATING OR DEBUGGING LIGHT PATH, MAKE SURE TO PAY ENOUGH ATTENTION NOT TO LET ANYONE AND ANY BODY PARTS GET INTO THE TRANSFER AREA OF LIGHT PATH.
4.THE POWER SUPPLY VOLTAGE: VOLTAGE FLUCTUATIONS WILL LEAD TO UNSTABLE EQUIPMENT, HIGH VOLTAGE POWER SUPPLY CAN CAUSE PERMANENT DAMAGE TO THE DEVICE. TO AVOID THE DAMAGE OF EQUIPMENT AND THE ELECTRIC CIRCUIT CAUSED BY VOLTAGE FLUCTUATION, AND TO ENSURE THE STABILITY OF THE MACHINE, WE SUGGEST USERS TO INSTALL A VOLTAGE STABILIZER AT LEAST 5000W.
CUT OFF THE POWER SUPPLY IMMEDIATELY IF THE MACHINE MALFUNCTIONS OR IN CASE OF FIRE.
5.DO NOT USE LASER MACHINE IF THE RELATIVE HUMIDITY OF WORKING ENVIRONMENT IS MORE THAN 80%, OTHERWISE MACHINE LIFETIME WILL BE AFFECTED OR ELECTRONIC CIRCUIT MIGHT BE DAMAGED.
6.DO NOT USE LASER MACHINE WHILE THERE IS LIGHTNING OR ADVERSE WEATHER CONDITIONS.

SUPERVISORS

It is very important that a safe and appropriate working environment is provided for this laser machine and in compliance with applicable federal and local industry standards.

It is imperative that programmers, machine operators and maintenance personnel be trained adequately in the use and care of the equipment. These employees should receive the proper instruction in order to have a complete understanding of the operation of this machine before beginning to program, operate or service it.

Careful programming and debugging of new programs is essential for successful operation of this machine. Use proper switch to stop machine motion for operator removal of parts or scrap.

Never allow operators to place any part of their body into the machine while the machine is active. Insure that all personnel understand the function, switch button and foot peddle.

Do not place any irrelevant reflection object close to the working area of laser machine, which may cause fire or injury by laser reflection.

MAINTENANCE PERSONNEL

Only qualified personnel should make repairs on this equipment. Use caution and follow procedures in this manual when working on the machine. Be sure to observe the following guidelines:

1.Before performing maintenance or repair, turn the power OFF and follow lock out/tag out (zero energy shutdown) procedures. Also, follow any lock out/tag out procedures applicable to your specific plant requirements.
2.Wear safety glasses and other personal protective equipment as required by applicable federal, local industry, and plant safety program standards.
3.Wear proper clothing. Do not wear watches, rings, jewelry, or loose-fitting clothes.
4.Read and review the manual carefully.
5.Be familiar with the operation of the machine.

6.Practice preventative maintenance. Inspect the equipment regularly for any additional preventative maintenance.
7.Never remove, jumper out or bypass a safety device to permit machine production.
8.Never place yourself in a hazardous situation to observe a problem and ask someone else to operate the machine. This could be a very dangerous and life threatening situation.

OPERATOR

This equipment has been designed with operator safety in mind (when used under normal operating conditions). The user must always be alert to the possibility of dangerous situations. Always exercise care and caution. Report any minor problems immediately, so that they can be corrected before becoming major difficulties. Only qualified personnel should make repairs on the machine.

1. Be familiar with the machine. Read this manual carefully.
2.Be conscious of the functions of pushbuttons and other controls. Use the controls properly.
3.Never operate the equipment unless it is in good working order.
4.Wear safety glasses and other personal protective equipment as required by applicable federal, local industry and plant safety program standards.
5.Wear proper clothing. Do not wear watches, rings, jewelry or loose-fitting clothes.
6.Never reach into the machine while it is active. Use the pushdown button to stop machine motion. Never use the machine DWELL time code for parts removal or other operator intervention activities that puts the operator in a hazardous position.
7.Recognize and avoid unsafe operating conditions.
8.Maintain a clean work area. Avoid accidents by keeping work areas clean and neat without any object may cause reflection or diffusion.
9.Never leave the machine in an unsafe condition.
10.Never leave a machine running unattended.
11.Report any unsafe conditions, personal injury or machine problems immediately to your appropriate supervisor(s) and safety manager(s).

MAINTENANCE

1.The top cover plate must be covered during working, in case of the laser deviating and personal injury.
2.Do not start up laser machine if power line voltage is unstable unless a voltage regulator is applied.
3.For fiber optic equipment, operator should clean the filter screen of the fan regularly.
4.Avoid over-long working hours of machine, especially when the ampere meter is on the maximum number.
5.Cut off the power immediately If malfunction or outbreak of fire.
6.Do not operation in wet environment.
7.Do not operation in explosive environment. Keep working area clean and dry.
8.Clean lens regularly.

Operators of laser machine need to clean the lens regularly. Dust accumulated on the lens affects the light reflection and absorb heat, which may cause the lens to crack.

A. Wipe lens with soft material like cotton;
B. Wipe the lens gently, do not scratch the surface or the film above it;
C. Alcohol may be applied to wipe the lens, make sure there is no moisture on the lens before turning on the machine.

SPECIFICATIONS

Laser Wavelength: 1064nm

Laser Power: 20W Raycus /30W Raycus/50W Raycus

Modulation Frequency: 20KHz-80KHz

Scanning Speed: ≤7000mm/s

Repeatability Precision: 0.001mm

Engraving Range: Changes with different lens

Marking Depth: 0.01- 0.2 mm (Depends on material)

Marking Line Width: 0.01-0.2 mm (Depends on material)

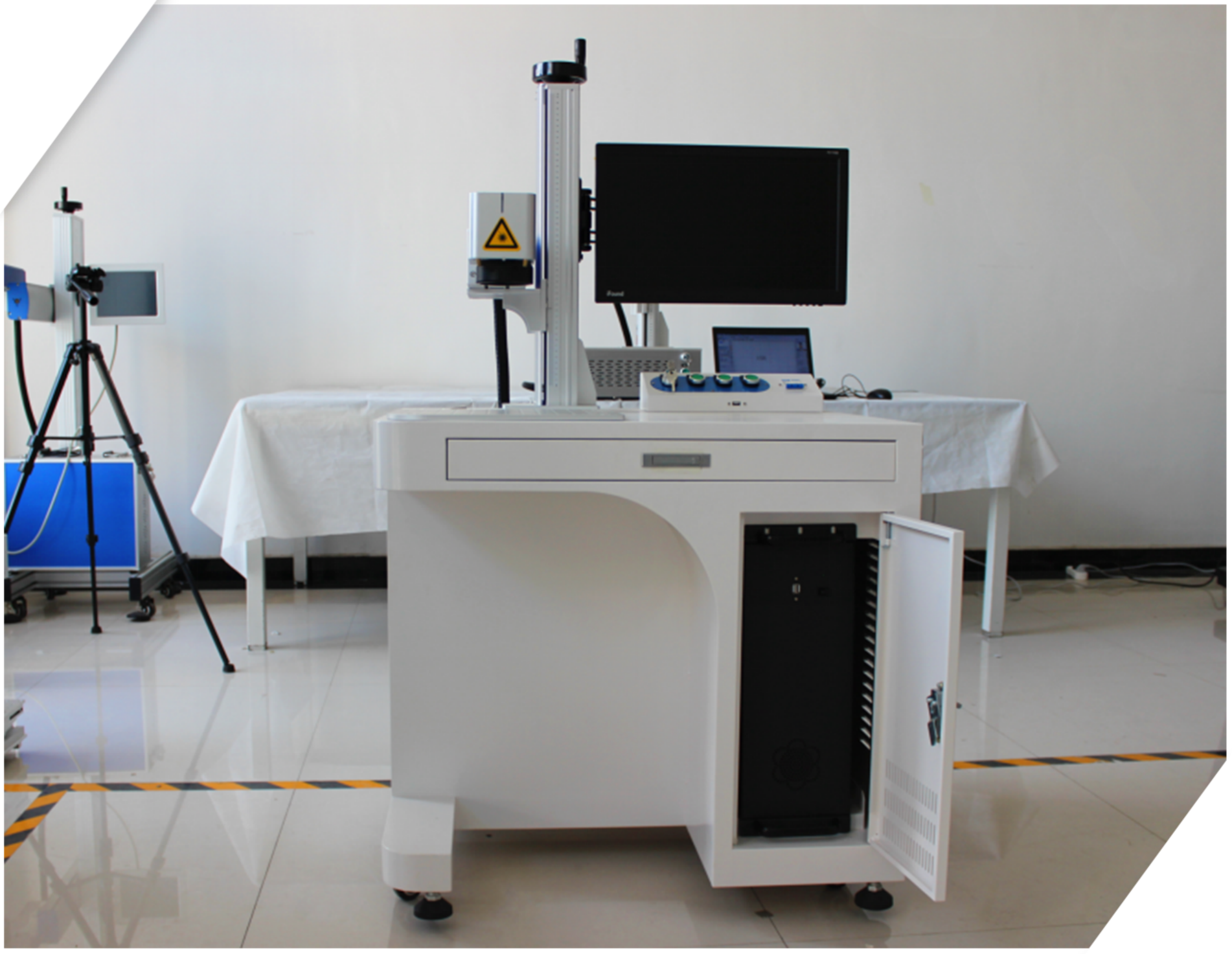
Power Supply: AC220V ±10%, 50 Hz (machines with 110V to 220V transformer can apply to 110V power supply directly)

Safety: over current protection, over-temperature protection, over-voltage protection

Continuous Working Hours > 16 Hours

MACHINE STRUCTURE

This optical fiber laser marking machine set incudes the control cabinet, optical fiber laser, marking head, working table, computer and other attachment parts.



A. Fiber Laser (Raycus 30W):

B. Control section:

Front panel of control cabinet:

C. Emergency Button:

D. Scanner Power Button: To control laser scanner and red spot;

E. Scanner & Red spot: To turn on/off laser power supply.

F. USB Connection:

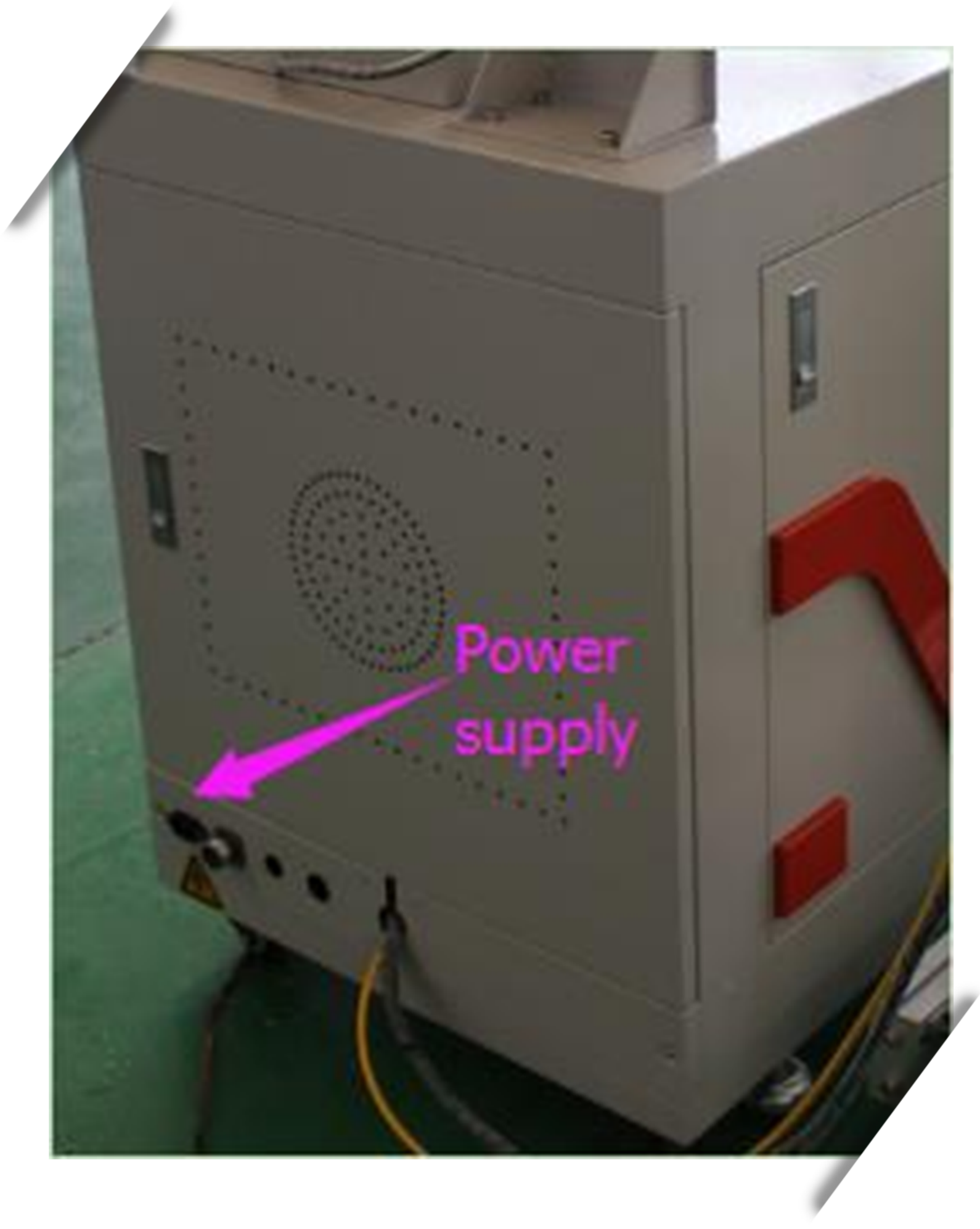
USB line, connect the control cabinet and computer, as in the above pictures.

INSTALLATION

1.Temperature Requirement: Indoor 10℃~35℃ (50~95 ℉).

2.Power Requirement: Need 220volt 20amp power single-phase ac power supply. The main power cord of this laser marker is installed in an air switch for protection, it is strictly prohibited to use triangle plugs.

3.Customers who use their own main power supply must secure ground wire.

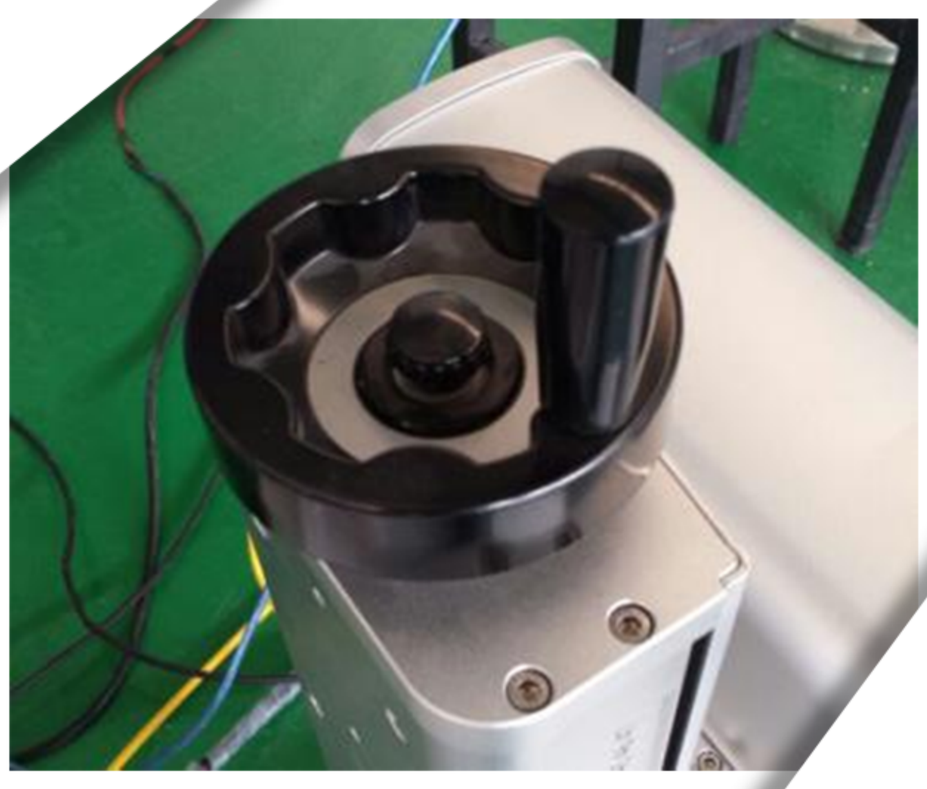


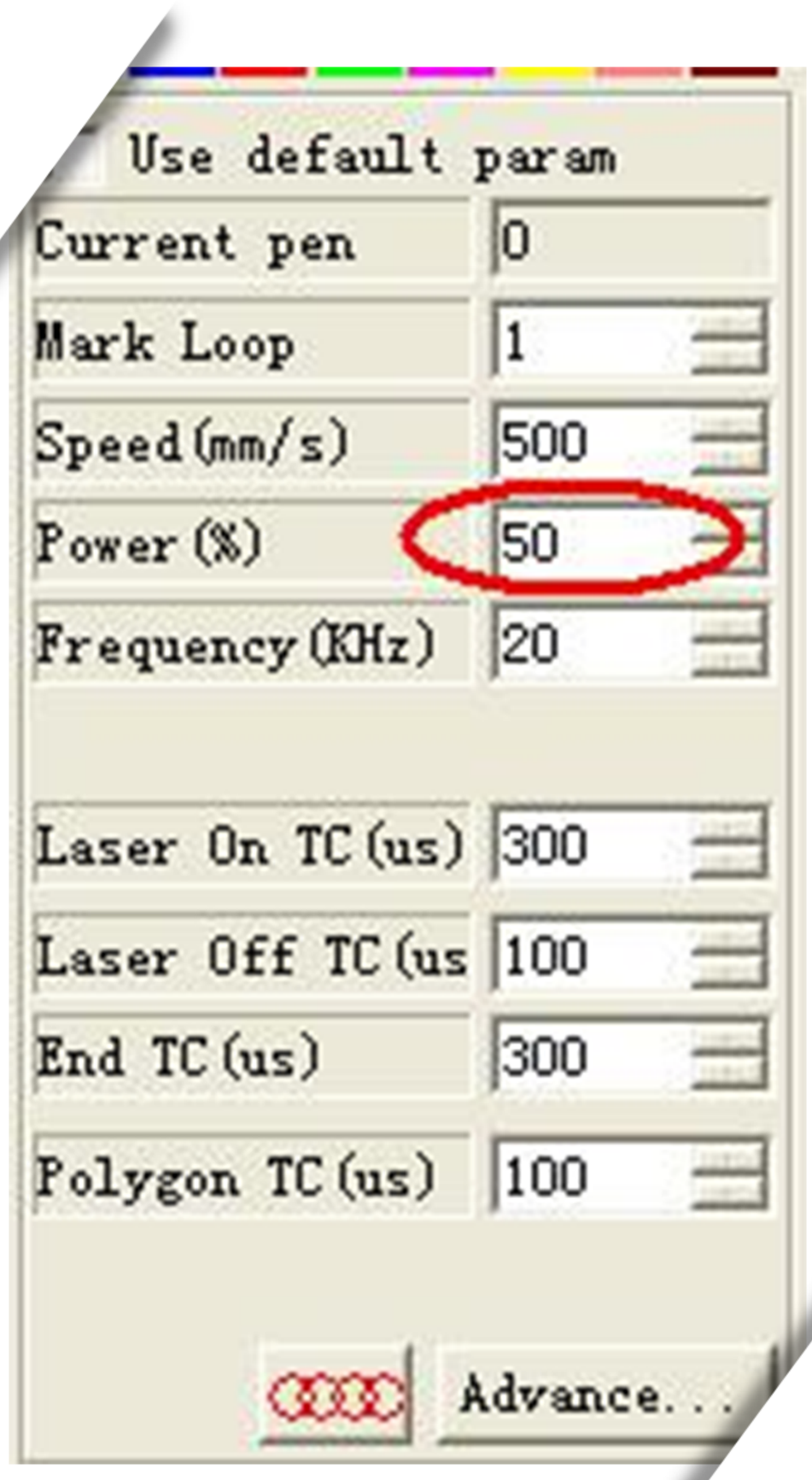
OPERATIONS

STARTING UP

- Turn on air breaker switch;
- Turn on computer, open the software, and then input the design which you want to mark;
- Turn on laser (and Rotary switch);
- Turn on scanner & Red spot switch;
- Adjust laser output percent;

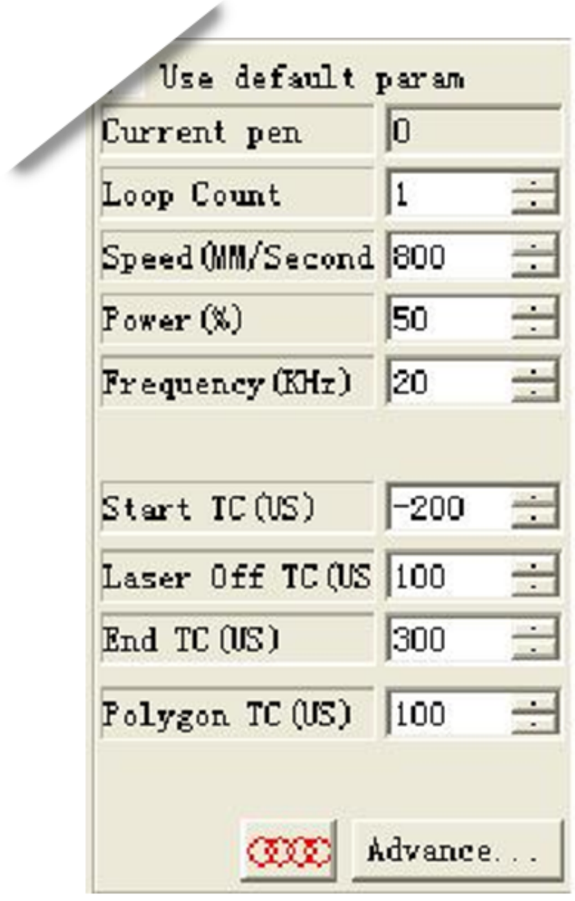
  ***[Start the computer first, and then start the laser power.]** Adjust the laser power according to your need. Do not keep the laser marking machine working for long time under full power mode.
  *Adjust current
  *Adjust the frequency to the range 20-80 KHZ (generally to 20 KHZ).
- Adjust the focal length for marking with turning handle.

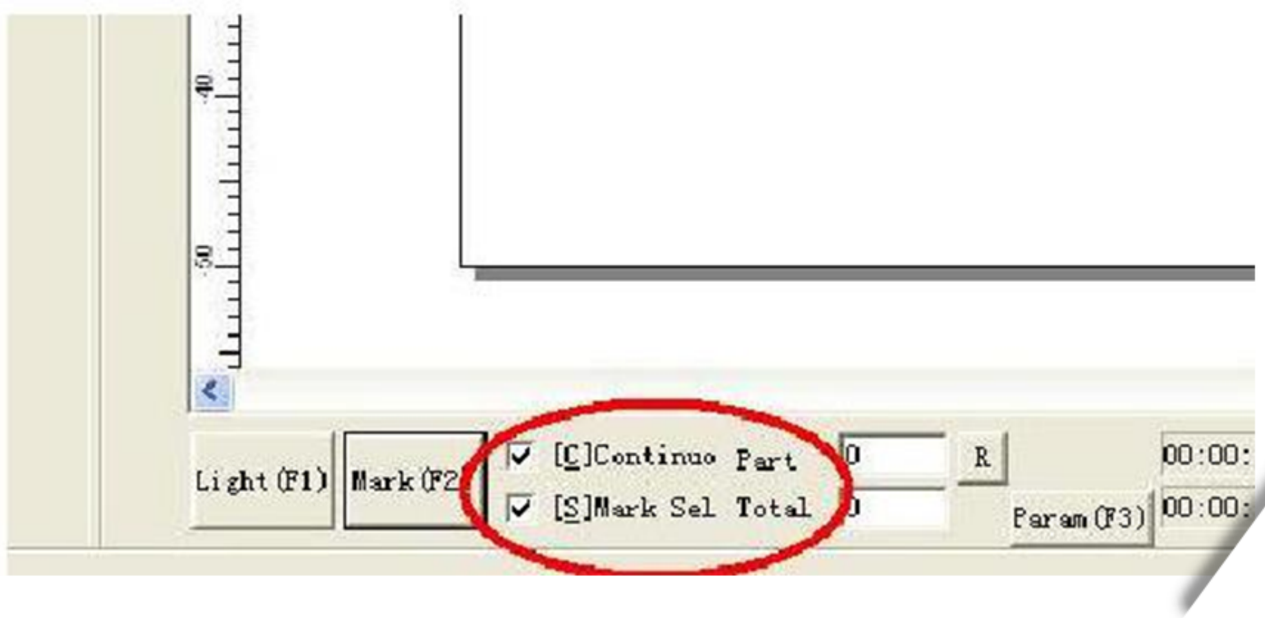




***Tips on finding the right focus length of the laser:**

A.For example, set “output power: 50 or 60W”, speed “1000mm/s”, then put your
material plate on worktable. Open “laser power” and “scanner power”, place the material plate at proper position. In software, choose ” continue” and ” mark sel”, then





B. Turn the black handle to adjust the focal length. When you find the brightest light, then you will find the best focal length.
C. Only for machines with red light indicator, when 2 dots come together, the machine is at the best focal length, which we call focal point.
D. Best focal length do not always lead to the best marking result, because marking result is also decided by material. Eg., To make black marks on a piece of stainless steel, operator needs to adjust the distance above best focal length 5-8mm, set speed at” 100mm/s” power at” 80%-85%”. (left picture above) (1 inch=25.4mm) 110*110mm, focal length: 212mm(from the material surface to the bottom of the galvo head edge) For Marking colors as required, the focal length should be around 200mm. (right picture above)

SHUTTING DOWN

- Turn off laser scanner switch;
- Turn off laser power switch;
- Close the software;
- Shut down computer;
- Turn off main breaker switch;

*Turn off laser power supply first, wait at least 20 seconds, and then shut off the air switch.