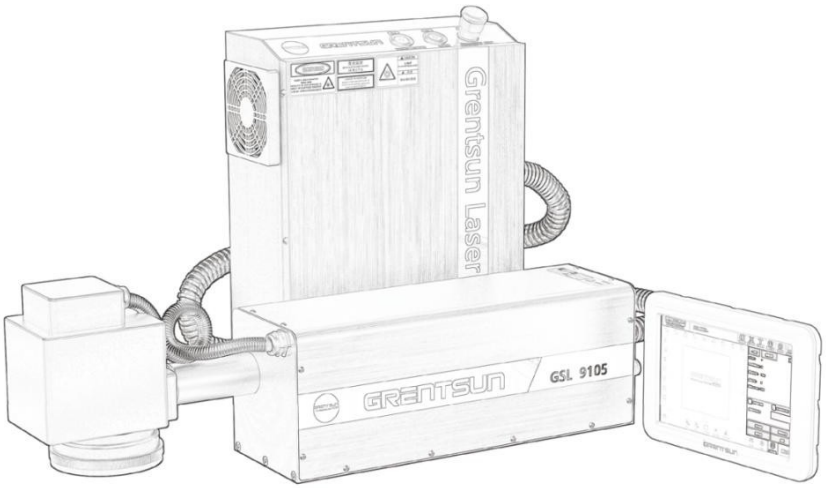

Grentsun® GSL9000 Series

Instructions of UV laser coding machine

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Preface

- Before using the product, please read the instruction carefully and be familiar with the contents of it. This instruction provides you with the product safety , installation steps, operation process, maintenance and after-sales service information, to ensure that you can use the product correctly and protect your own rights and interests.

- To ensure the safety of individuals and products and ensure the best performance of the products, please follow the safety instructions in this manual.

- If the product has any quality problems, please contact us in time. Our company shall not assume any responsibility for product damage or human body injury caused by self- disassembly and maintenance.

- The damage to the machine caused by not following this instruction manual is not covered by our company's warranty. Our company does not assume any responsibility for personal injury caused by not following this instruction manual.

- If you have any questions beyond the instructions in this manual, please contact us.

- Wuhan Grentsun Industrial System Co., Ltd. may update the instructions due to software or hardware upgrades, and all updates will be included in the new version of the manual without notice.

- The contents contained in the instructions are protected by the copyright law. Without the permission of Wuhan Grentsun Industrial System Co., Ltd., no organization or individual shall copy or store them in the database or retrieval system by any means or form.

For safety reasons is strictly prohibited to modify or change the laser machine, if the user in the graded laser device, changed the laser device power data and printing speed or its original function, so the work of the change personnel or department must be responsible for the laser device to grading and calibration. The correcting personnel or department shall immediately replace the manufacturer's position

1. Safety instructions

Thank you for choosing Wuhan Grentsun Industrial System Co., Ltd. This instruction manual provides you with important information on safety, operation, maintenance, and other aspects. Please read the instructions carefully before using the product. Carefully read the instructions marked with "Warning" and "Attention," and observe the following precautions and warnings, as well as other information in the instructions, to ensure safe operation and maintain the product in optimal condition.

	It means that if the correct operation is not followed, it may lead to serious personal injury or even endanger the life
	Failure to follow the correct operation may result in personal injury or damage to the product.

1.1. Optical safety

Laser radiation can cause damage to the eyes and skin. Such damage can result not only from direct exposure to laser radiation but also from the scattering and reflection of machining pieces or packing materials. The extent of the damage is influenced by the duration of exposure, the energy of the laser, and its wavelength. Given the potential risks associated with laser radiation, laser units and their installations are categorized into seven distinct laser protection classes.

Grade	Explanation
1	Considered safe based on current medical knowledge. Under no condition is the eye subjected to hazardous optical radiation. Or although the product contains a harmful laser, but is placed in the corresponding sealed product, no harmful radiation can escape from the sealing device.
1M	Large-diameter or high-divergence beams. There is no harm in normal use, and if optics are used to reduce the cross section of the laser beam, exposure to this radiation can be harmful to the eye.
2	Low power, visible laser (400-700nm), belongs to the low risk laser. A short exposure time of less than 0.25s is not dangerous to the eye. Normally, the natural aversion response of the human eye will protect the human eye. Only when you deliberately stare at it for a long time will it cause eye damage.
2M	Small power, laser radiation in the visible spectral range of 400nm to 700nm, large diameter, or high divergence beam. Exposure to this radiation for less than 0.25 seconds is harmless to the eye and safe for the eye. If exposure to this radiation is used to reduce the cross section of the laser beam or during continuous gaze, it is harmful to the eye.
3R	The wavelength range from 302.5nm to 10600nm is harmful to the eye.
3B	Laser radiation is harmful to the eye and, in some cases, to the skin
4	Laser radiation is very dangerous for the eyes and also very dangerous for the skin. The stray radiation can also be very dangerous. Laser radiation can cause fires and explosions.

1.2. Laser safety level of the product

The output wavelength of this product is 355nm (invisible light), and the average output power is more than 5W. Class IV laser not only causes great harm to the eyes, but also burns the skin. Its reflected and scattered light may also cause harm to human body. Therefore, please wear laser goggles.

WARNING	When the machine is running, do not expose your eyes or any part of your body to the laser path, and do not look directly at the laser lens when the machine is powered on.

1.2.1. Product safety identification

Laser safety warning

anti electric shock warning

grounding sign

Note: Please confirm whether it is grounded before powering on. Do not use it without grounding

WARNING	1. Not reliable grounding may cause electric shock accident! 2. Unreliable grounding will reduce the anti-interference ability, thus affecting the stable operation of the machine and electrostatic damage!

1.2.2. Optical safety

If there is dust on the lens , it may cause the lens to burn out when the laser is working. Do not use the laser when the lens protection cover is not opened, otherwise the lens will be damaged.

⚠ WARNING	Do not use the laser when the lens protection cover is not opened, otherwise the lens will be damaged.

1.3. Safety instructions for laser operation

1. Never open the shell of the laser marking machine under any circumstances
2. For grade 4 laser products, identification plates should be placed near the operation area of the laser marking machine
3. Scattered light and reflected light are also harmful, should avoid the output of the laser beam
4. Wear a laser goggles during static marking, stay away from the laser beam in flying marking mode, or wear a laser goggles
5. One principle must be followed: the optical path cannot be at the same height as the human eye
6. Do not put the body under the laser beam to avoid danger.
7. There must be no flammable or explosive items in the working environment.
8. When the laser machine is running, the operator cannot leave to prevent fire.
9. If there is an emergency during the operation process, press the emergency stop switch and then notify the technician

2. Product brief introduction

Grentsun® GSL 9000 series UV laser marking machine, coding unit, control unit, operation unit is produced by Wuhan Grentsun Industrial System Co., Ltd. (hereinafter referred to as Grentsun). GSL 9000 Series UV laser coding machine is developed and designed for the use of laser radiation in the fully automatic marking of packaging materials and products.

GSL9000 Series UV laser coding machine can only be operated by specially trained personnel familiar with and comply with the specifications in this manual.

2.1. Manufacturer and customer service

Wuhan Grentsun Industrial System Co., Ltd.

Building 5, Huiqiang Science and Technology Park, No.1, Tianyang Road, Huangpi Airport Economic Development Zone, Wuhan city

Email: info@grentsun.com

Website: www.grentsun.com www.laser-code.com

2.2. Shipping list

Item	No.	Unit
GSL9000 serial laser coding machine	1	set
GSL9000 serial touch screen	1	pc
GSL9000 serial standard bracket	1	set
water chiller(only for water cooling machine)	1	set
Screw pack	1	pc
Alarm lamp（optional）	1	pc
Certificate of Conformity	1	pc
Warranty Card	1	pc
QC	1	pc
User’s manual	1	pc
Making software manual and other accessories	1	set

2.3. Product warranty

The warranty period of this product is 12 months from the date when the buyer signs for the goods (otherwise agreed in the contract). Product maintenance must be performed by our company's professionals, and no one is allowed to disassemble or repair the product without permission. The following situations will cause the product to be out of warranty or not covered by the warranty.

·Disassemble, modify or repair the product without authorization.

·Damage to products due to improper handling, operation or cleaning.

·Damage due to exceeding the laser power threshold.

·The product warranty label is torn or damaged, or clearly disassembled.

·Over the warranty period.

2.4. Transportation, handling, and storage

2.4.1. Transportation and handling

Shut off the laser system and disconnect the power supply before transportation

·Please ensure that the connection cable between the control unit and the marking unit is not excessively bent, excessive bending will cause the cable break and damage;

·Do not pull the connecting cable between the control unit and the marking unit or handle the scanning head to carry the laser marking machine, otherwise the cable will fall off or break.

⚠ ATTENTION	Failure to follow the correct operation may cause personal injury or damage to the product.

2.4.2. Storage

- Place the laser system in a horizontal position and prevent dust and moisture;
- Do not expose the laser system or its components to direct sunlight:
- Operation and storage of laser marking systems:
- Storage temperature: 0°C~ + 45°C Humidity: 10% -90%, non-condensing

3. Product description

3.1. Product introduction

GSL9000 series UV laser marking machine is a high-performance laser marking system developed by Grenstun professional team based on many years of experience in development, production and service.

The UV laser marking machine consists of a printing unit, a control unit and an operating unit. Grentsun uses the latest version of the control unit, which is a highly integrated industrial computer system, mainly used for inputting and editing marking information for lasers and galvanometers, and for fast and precise control.

3.1.1. Structure of chassisure

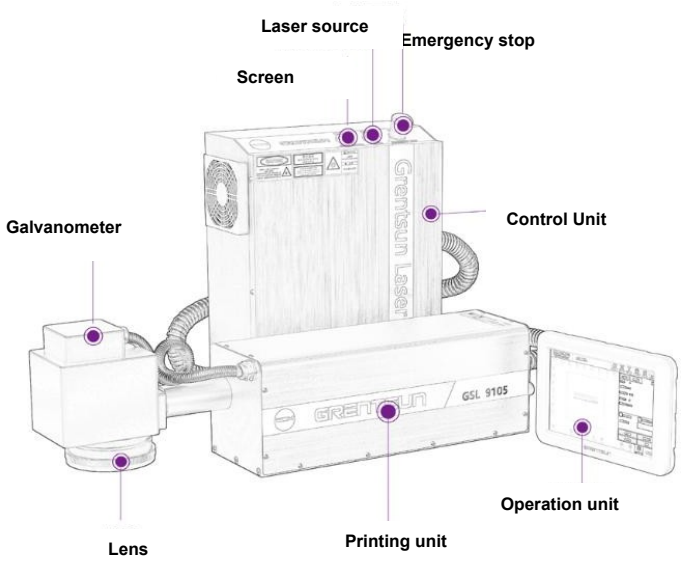


Figure 3-1 Description of the chassis structure

3.1.2. Description of the product label

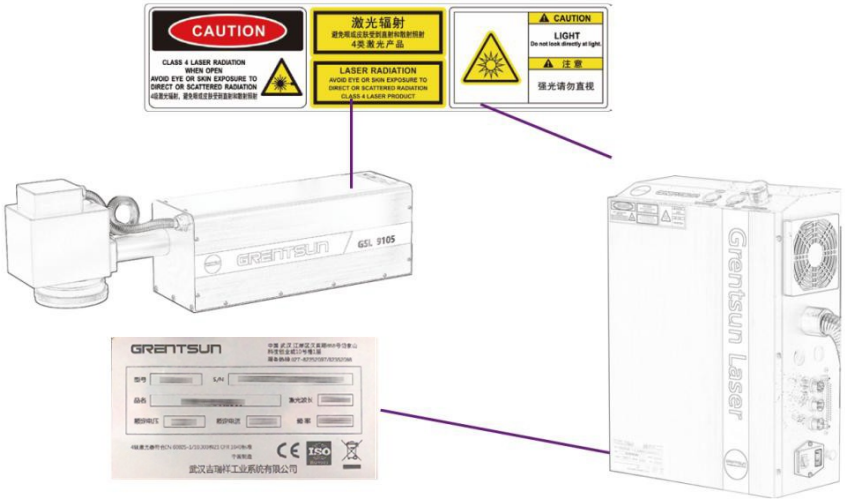


Figure 3-2 Description of the product label

3.2. Printing unit

The printing unit is the part that generates laser and deflects the beam to the surface of the marked product through a two-dimensional scanning system. It contains a UV laser, a laser galvanometer, and a lens.

3.2.1. Galvanometer

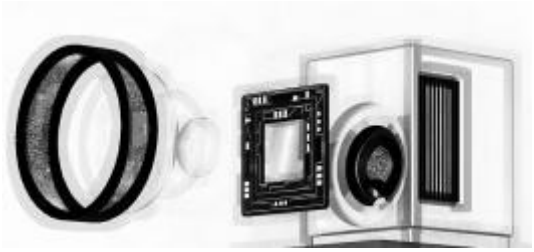


Figure 3-3 Galvanometer

The galvanometer is connected to the controller and is not removable. The galvanometer contains a 2 D scanning system and a field focusing lens. The beam is deflected by a 2 D scanning system and focused to the working surface by a flat-field lens with appropriate focal length.

⚠ ATTENTION	• Avoid touching the lens with the skin because the fingerprint contain corrosive substances that can damage the coating on the optical lens surface.

	• The lens of the laser machine shall avoid smoke, dust, water, oil, scratches and touch, and remain clean at all times

3.2.2. Marking unit

The working distance is the distance from the bottom surface of the laser head to the marking surface of the product. There is a black sticker on the bottom of the chassis indicating the working distance of the laser printer, as shown below.

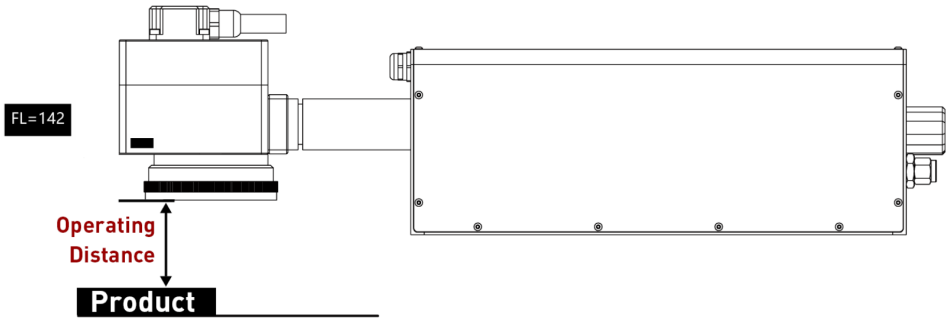


Figure 3-4 Description of the working distance

3.2.3. Setting of laser scope direction

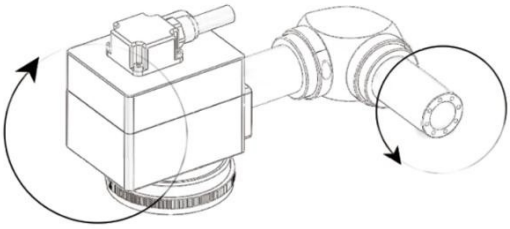


Figure 3-5 Description of the marking unit rotation

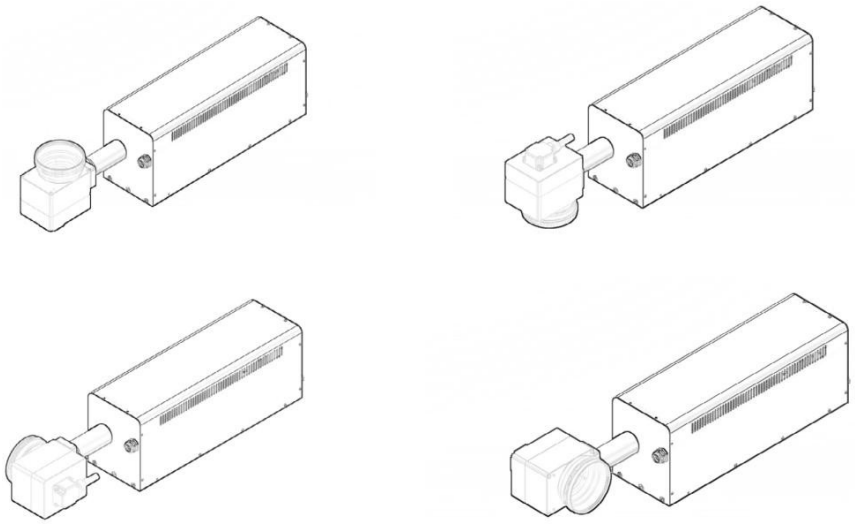


Figure 3-6 Schematic diagram of lens direction (no rotating arm)

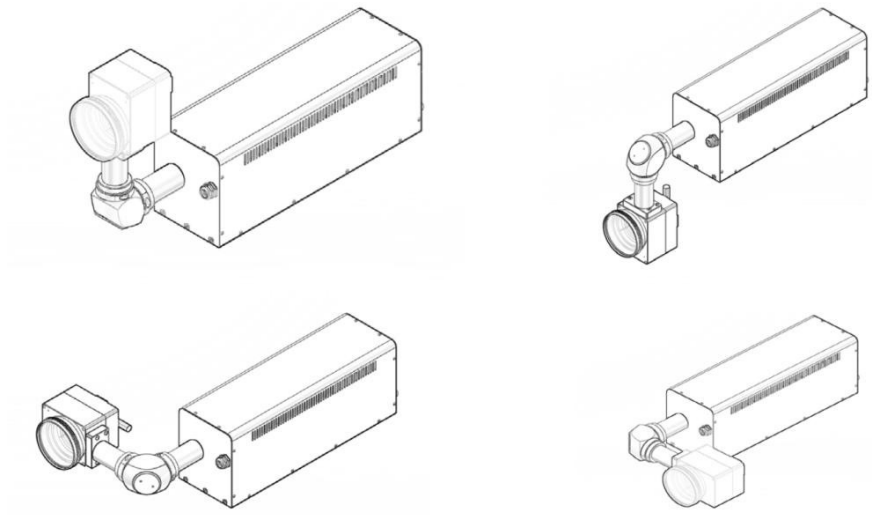


Figure 3-7 Diagram of 720 degree direction (beam adaptor)

3.3. Control unit

3.3.1. Description of chassis function and interface

Grentsun control unit is a highly integrated industrial control computer that includes all the functions required for the production line, including encoders, photoelectric sensors, monitors, and more. The control unit is connected to the operation unit through a DB25 cable, which is independently packaged, and can be quickly connected and used, so as to achieve higher stability.

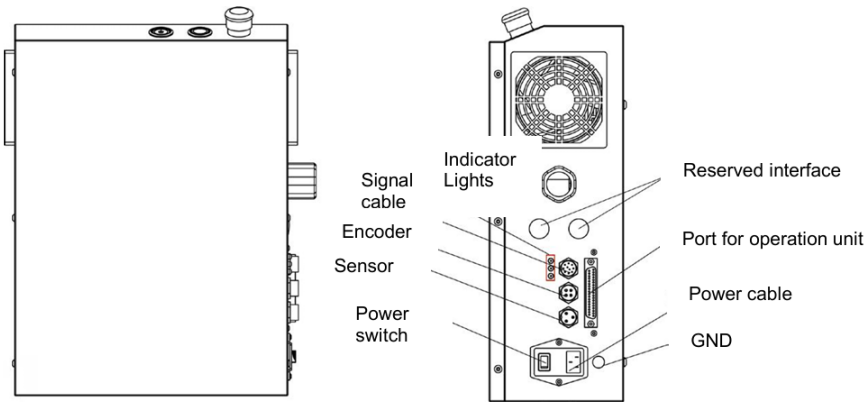


Figure 3-8 Description of the controller panel

WARNING	To avoid potentially fatal electric shock and system damage, ensure that the control unit is not connected to AC mains power when connecting components.
ATTENTION	Ensure that this operating manual and safety instructions are carefully read and understood prior to installation and operation.

3.3.2. Switch and push button

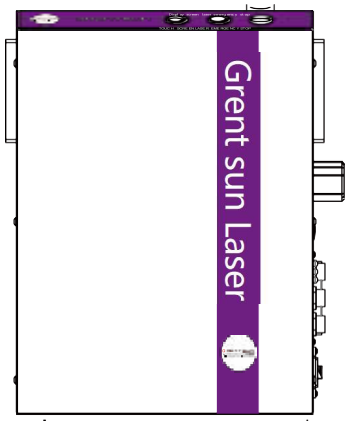


Figure 3-9

Laser Indicator (Blue Light): Lights up when the laser is on, turns off when the laser is off.

Power Indicator (Green Light): Lights up when the power is on, turns off when the power is off.

3.3.3. Emergency switch

The GSL3000 series laser marking machine is equipped with a red rotary emergency stop switch. In an emergency, rotate clockwise to activate the emergency stop until you feel significant resistance. This indicates that the power has been cut off or the machine has entered an emergency stop state.

Before restarting the device, you must rotate counterclockwise to release the emergency stop button, then follow the correct sequence to press the power and laser buttons.

⚠ ATTENTION	In non-emergency cases, it is strictly prohibited to rotate the knob emergency switch, so as not to affect the normal operation of the product and reduce its reliability.

3.3.4. Power supply requirements

The Grentsun laser marking machine requires a 220V AC power supply. The main power is connected to the control unit's power port via a 3-meter main cable. The control unit includes a fuse to protect the system. In case of power overload, the main fuse will blow, and the system will shut down.

⚠ ATTENTION	To avoid potential fatal electric shock hazards and system damage, please ensure that the control unit is not connected to the AC power supply when replacing the fuse. Also, make sure the product has proper grounding protection to prevent damage.

3.4. operating unit

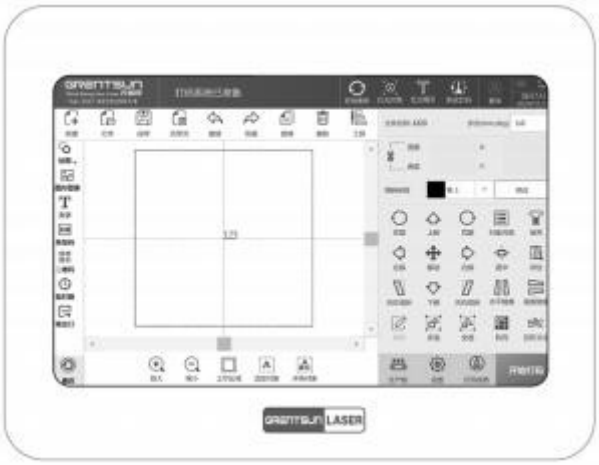


Figure 3-10 Display screen

⚠ ATTENTION	Do not use sharp hard objects to operate the touch screen. This can damage the screen and affect touch sensitivity, and may fail the warranty due to improper use.

3.5. Interface definition

3.5.1. Monocular interface

The photoelectric sensor interface (GX16-3 pin connector) only supports NPN output type. The pin definitions are as follows:

Pin	Function	Description
pin1	IF_12-24V	Power output, directly connected to the power input of PL14 Pin1.
pin2	TRIGGER	Photoelectric sensor signal input.
pin3	GND	Ground

3.5.2. Photoelectric sensor interface （GX16-4 pin connector)

The photoelectric sensor interface （GX16-4 pin connector) only supports NPN output type.

The pin definitions are as follows:

Pin	Function	Description
pin1	IF_12-24V	Power output, directly connected to the power input of PL14_Pin1.
pin2	EnCo_SA	NPN-type encoder A-phase input.
pin3	EnCo_SB	NPN-type encoder B-phase input.
pin4	GND	Ground

3.5.3. Expansion Port (GX16-10 Pin Connector)

Pin	Function	Description
pin1	IF_12-24V	Power output, connect directly with PL14_Pin1 power supply
pin2	CTL_I00	Control input/output port 0, can be configured through the software as input/output, with corresponding functions. When configured as an output, it provides a collector open (NPN type) output with a maximum of 500mA. When configured as an input, it functions as an NPN type input.
pin3	CTL_I01	Control input/output port 1, can be configured through the software as input/output, with corresponding functions. When configured as an output, it provides a collector open (NPN type) output with a maximum of

		500mA. When configured as an input, it functions as an NPN type input.
pin4	CTL_I02	Control input/output port 2, can be configured through the software as input/output, with corresponding functions. When configured as an output, it provides a collector open (NPN type) output with a maximum of 500mA. When configured as an input, it functions as an NPN type input.
pin5	CTL_I03	Control input/output port 3, can be configured through the software as input/output, with corresponding functions. When configured as an output, it provides a collector open (NPN type) output with a maximum of 500mA. When configured as an input, it functions as an NPN type input.
pin6	CTL_I04	Control input/output port 4, can be configured through the software as input/output, with corresponding functions. When configured as an output, it provides a collector open (NPN type) output with a maximum of 500mA. When configured as an input, it functions as an NPN type input.
pin7	GND	Ground
pin8	RS232_TX	RS232 Serial output
pin9	RS232_RX	RS232 Serial input
pin10	GND	Ground

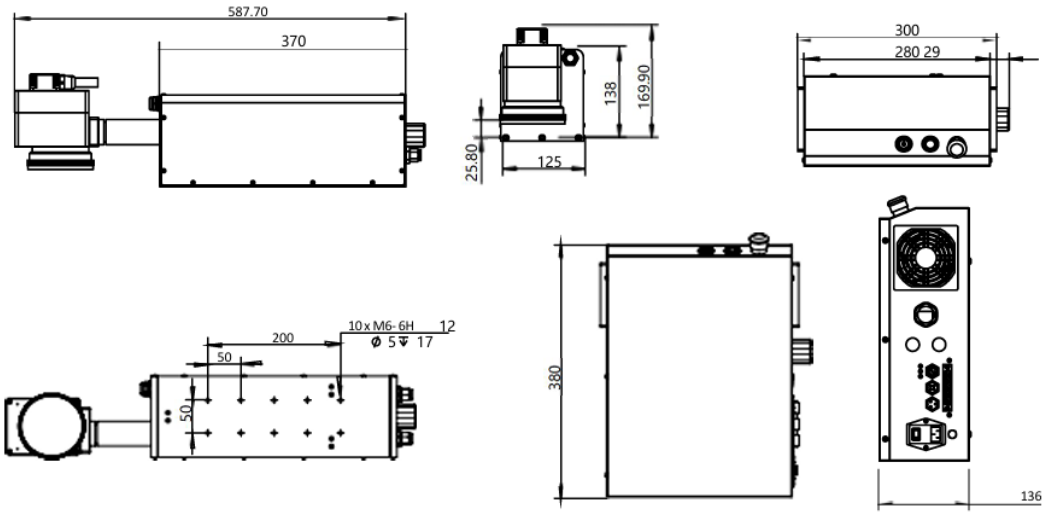
3.6. Technical parameters

3.6.1. Technical Parameters

model	GSL-9105	GSL-9110	GSL-9115	GSL-9120
Maximum optical power	5W	10W	15W	20W
laser wave length	355nm			
cooling-down method	Water / Air	Hydro cooling		
Scaling speed	Maximum speed of 12000 mm/s (depending on application and configuration)			
location mode	Standard with double red light focus, print area preview			
Print range (multiple optional)	110x110mm, 175x175mm, 200x200mm... (more optional on demand)			
Output adjustable range	10%-100%			
rated voltage	220v~50/60HZ			
rated current	The product nameplate shall prevail			
Print content	Text, complex graphics, one-dimensional code, QR code, serial number, date, TXT file, RS232 (TCP / IP) communication data, etc			
document format	BMP/DXF/HPGL/JPEG/PLT			
levels of protection	IP54 (IP65 Optional)			

Drag material	Food and beverage: PET bottles and labels, paper labels and films, glass, flexible packaging, coated cartons and finished bags, cardboard and coated cartons, paper cups, wood Medicine: Sterile packaging, blisters, PP containers, paper labels and films, glass, printed paper and cartons Cosmetics and daily chemicals: printed carton, plastic packaging (PET, PVC, PP, BOPP), aluminum-plastic film packaging Industry, electronics and automotive: PVC tubes, rubber, wood, coated cartons, glass, cardboard, paper labels and films, flexible packaging, coated cartons

3.6.2. Product Dimensions



Unit: mm

Figure 3-11 Grentsun®GSL9000 (5W) Series Laser Marking Machine marking unit Chassis Dimensions

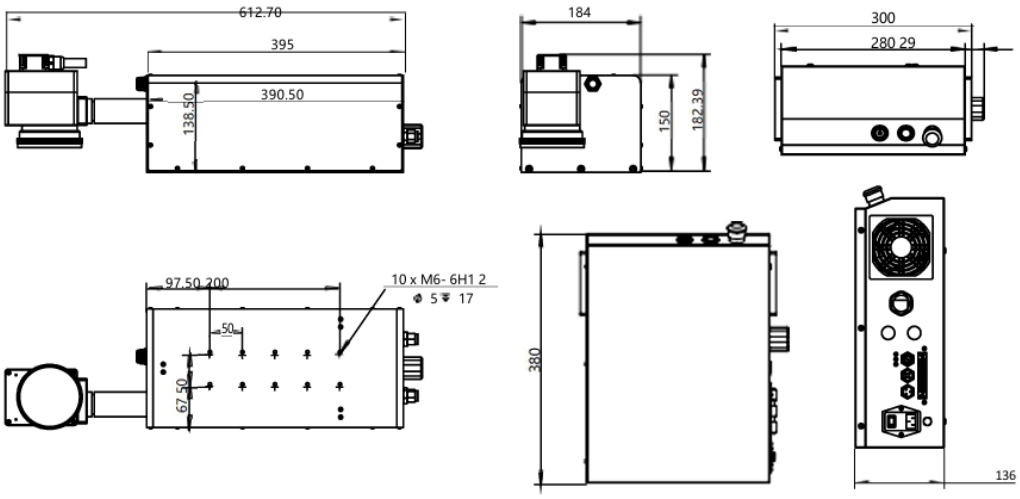


Figure 3-12 Grentsun®GSL9000 (10w) series laser jet printer chassis size

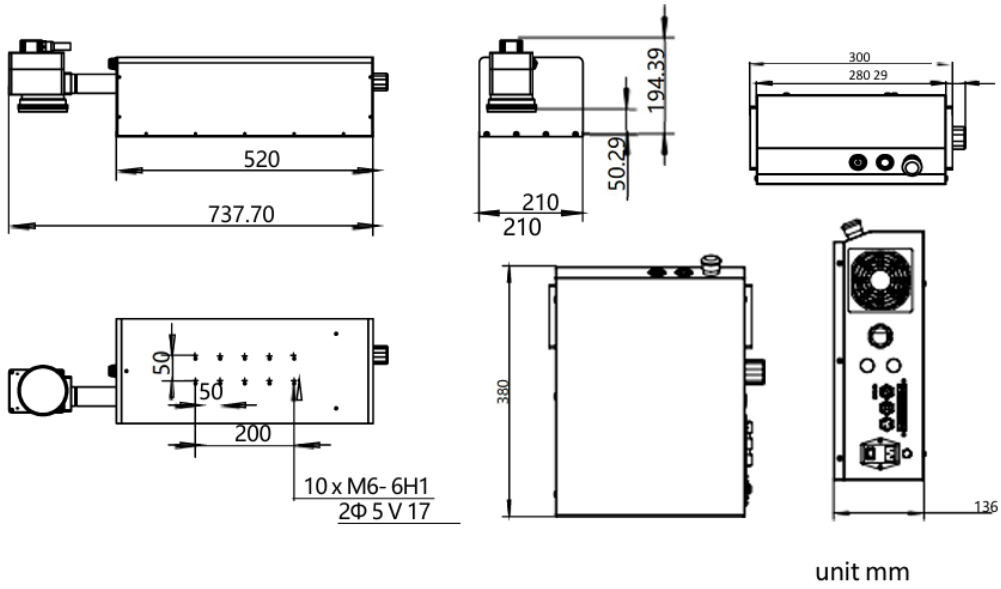


Figure 3-13 Size of Grentsun®GSL9000 (15-20w) Series Laser Marking Machine marking unit Chassis Dimensions

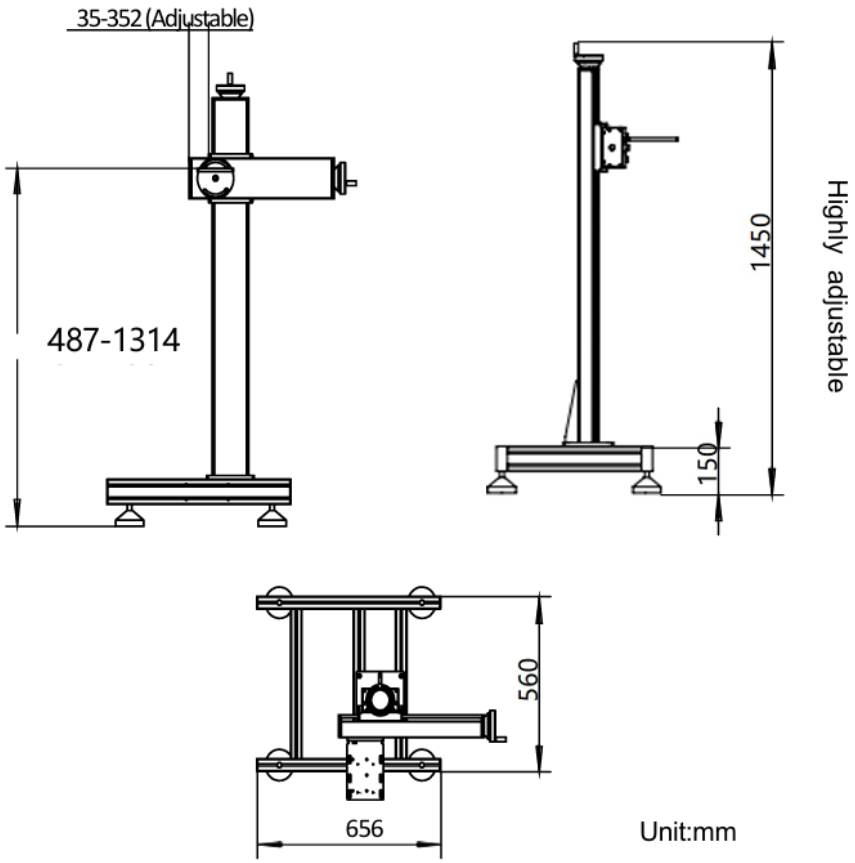


Figure 3-14 Standard stent dimensions diagram

4. Installation instructions

4.1. unpacking inspection

When unpacking, check whether the outer packaging is damaged, deformed or water-stained. If any abnormal situation occurs, please contact GRENTSUN staff and delivery personnel as soon as possible. Carefully check whether the model and configuration of the product received are completely consistent with the contract. If there are any missing accessories or other problems, contact the supplier immediately. Protect the laser system and all components from dust and moisture before use.

⚠ ATTENTION	The laser marking system can only be installed and operated by authorized and specially trained personnel.

4.2. Cooling system

4.2.1. Air cooling system

Grentsun® GSL9000 series UV laser coding system 3W and 5W have air cooling options. The internal cooling system is designed to provide sufficient cooling air to dissipate heat for the coding system. Ensure that the cooling air can be freely inhaled and blown out, and that there is sufficient air exchange at the installation site for effective heat dissipation.

⚠ ATTENTION	Keep the inlet and outlet clean and remove ash and dust regularly, otherwise it will affect the working efficiency of the laser, and even damage the system due to poor heat dissipation .

4.2.2. Water cooling system

Grentsun® GSL 9000 series UV laser coding machine 5W, 10W, 15W with water cooling. Built-in water pipes are required for cooling dissipation. To provide enough coolant to the laser, Grentsun will supply a laser chiller and ship it along

with the laser system. The water cooling system uses 8mm ID and 10mm OD water tubing to connect the laser head to a water chiller. The water temperature must be set between 15°C and 30°C (typically 25°C) and the water flow rate needs to be >5 lpm.

⚠ ATTENTION	Laser chiller should use pure water and be replaced at least once a month, otherwise it will affect the working efficiency of the laser, and even damage the laser.

4.2.3. Note for using the chiller

1.Working Conditions

- Recommended operating temperature: 5 to 45℃
- Recommended operating humidity: ≤80%R

2.Water quality requirements

- Pure water, distilled water, ionic water, high purity water and other softening water
- (Oily liquids, liquids containing solid particles, liquids that are corrosive to metals, etc. are prohibited.)
- The suggested ratio of antifreeze fluid: 30% ethylene glycol

3.Power supply voltage

- Power supply voltage allows fluctuation is less than ± 10%, frequency fluctuation is less than ± 1Hz, and far away from the electromagnetic interference source, If necessary, it should be matched with a voltage stabilizer and frequency converter.

4.2.4. Chiller transport and installation

1.Transportation safety

- Sideways and inverted transportation is prohibited

- Liquid transportation is prohibited

2. Installation instructions

- Placement: Keep the air outlet (fan) at least 50cm away from obstacles; keep the air inlet (dust screen) at least 30cm away from obstacles
- Placement environment: Do not install in harsh environments such as dust, conductive dust (carbon powder, metal powder), humidity, high temperature, direct sunlight, etc.
- Waterway environment: ensure that the waterway pipeline is clean and free of impurities, so as to avoid impurities entering the waterway caused by blockage or pump failure
- Electrical connection: use the standard power cord, cable, and ensure that the line connection is stable
- Initial startup: When the chiller is started for the first time or after changing the water, there may be bubbles in the pipes, causing occasional flow alarms. Please drain the pipes

4.2.5. Chiller machine maintenance

1. Regular dust removal

- Regularly remove the dust filter to clean and use the compression air gun to blow away the condenser dust (at least one week, the dust filter shall not be missing for a long time)

2. Ensure water quality

- Clean the filter element regularly and replace the cooling water (at least 15 to 30 days)
- Do not use antifreeze for a long time. Replace it with purified water or distilled water when the temperature is above 0℃.

3. Notes for shutdown

- If the chiller has not been started for a long time, the water pump may have difficulty starting when it is restarted. Please try to turn the water pump motor impeller before starting it
- When the ambient temperature is below 0℃ and the chiller has been shut down for a long time, please drain cooling water and blow the pipe moisture clean with a compressed air gun to prevent freezing cracking

4.3. Installation of laser coding machine

4.3.1. Bracket installation

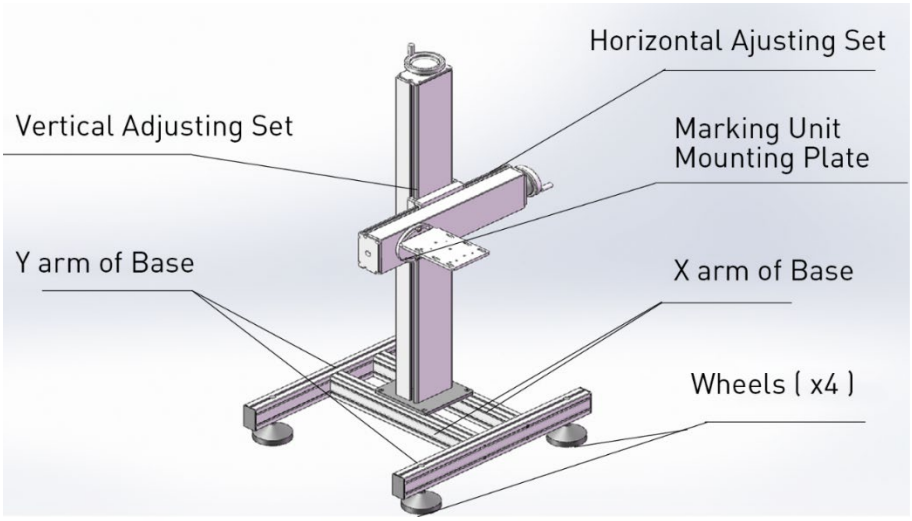


Figure 4-1 Standard stand schematic diagram

Figure 4-2 Screw and nut

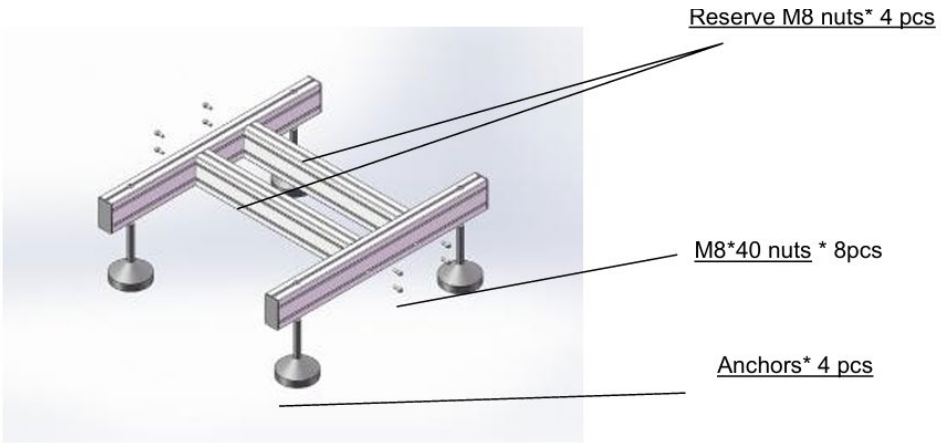


Figure 4-3 Base Installation

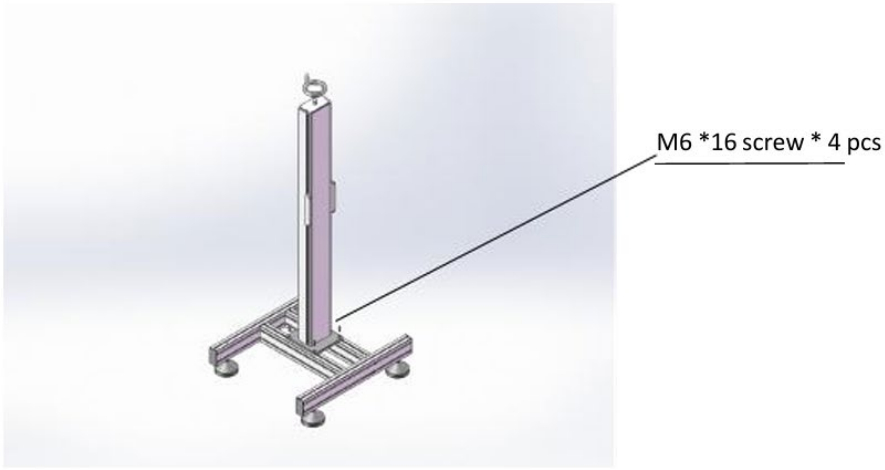


Figure 4-4 Column installation

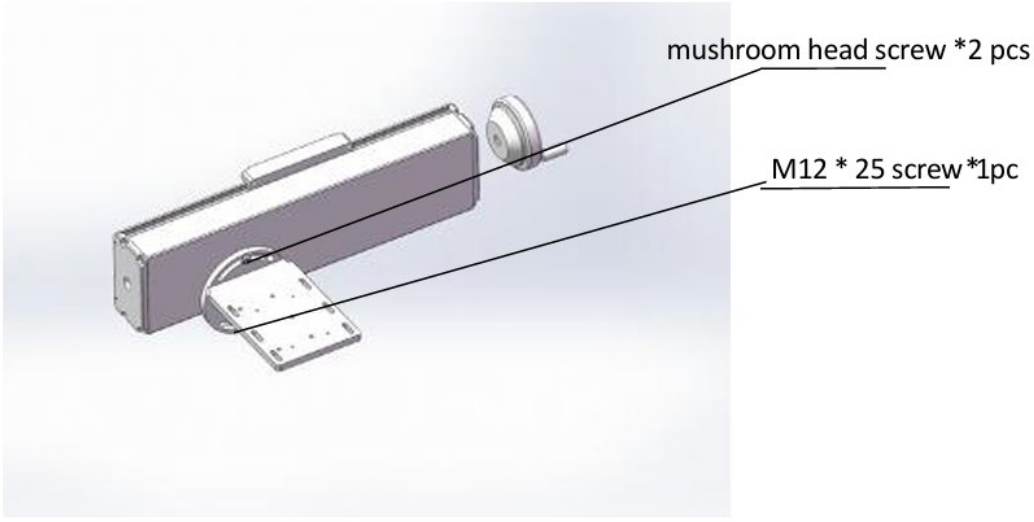


Figure 4-5 Installation of the optical path support frame

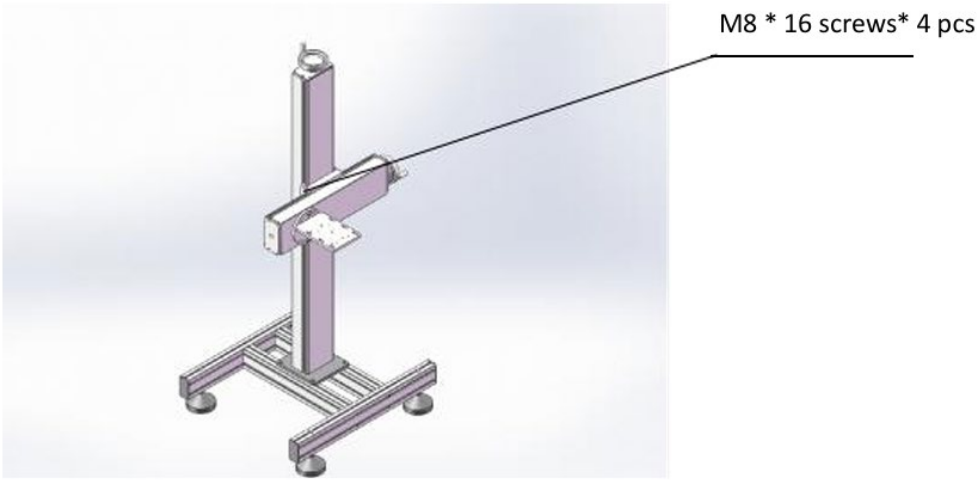


Figure 4-6 Cross-arm fixation

4.3.2. Marking unit, control unit, operation unit installation

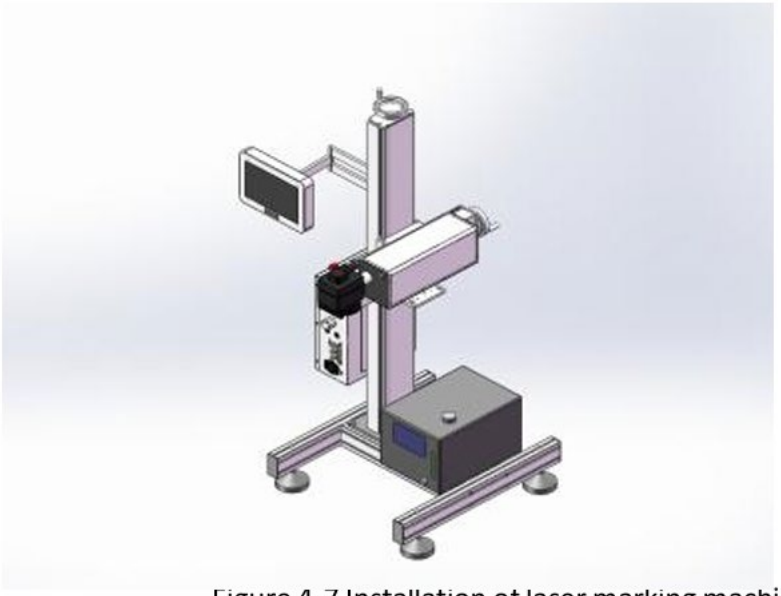


Figure 4-7 Installation of laser marking machine

Figure 4-8 Install the required screw nut

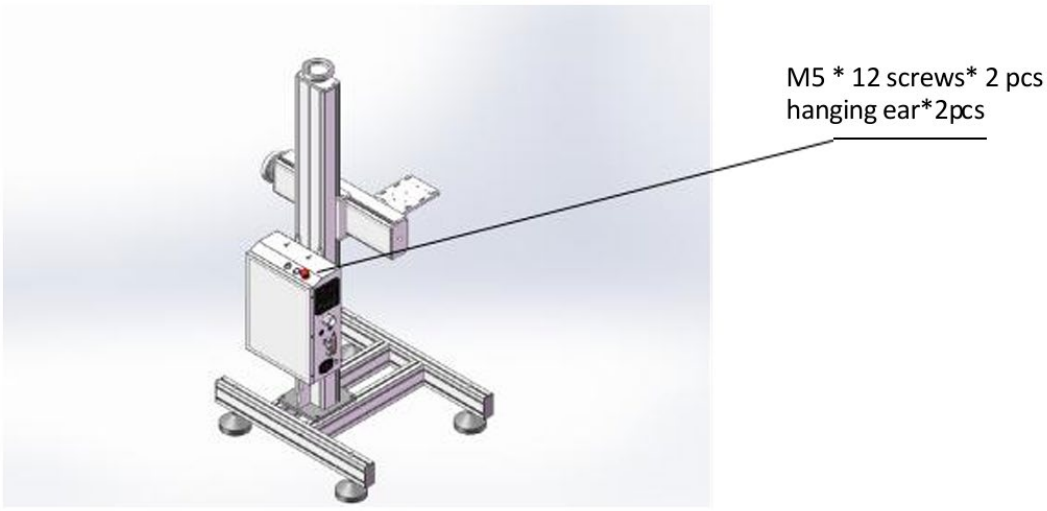


Figure 4-9 Chassis installation

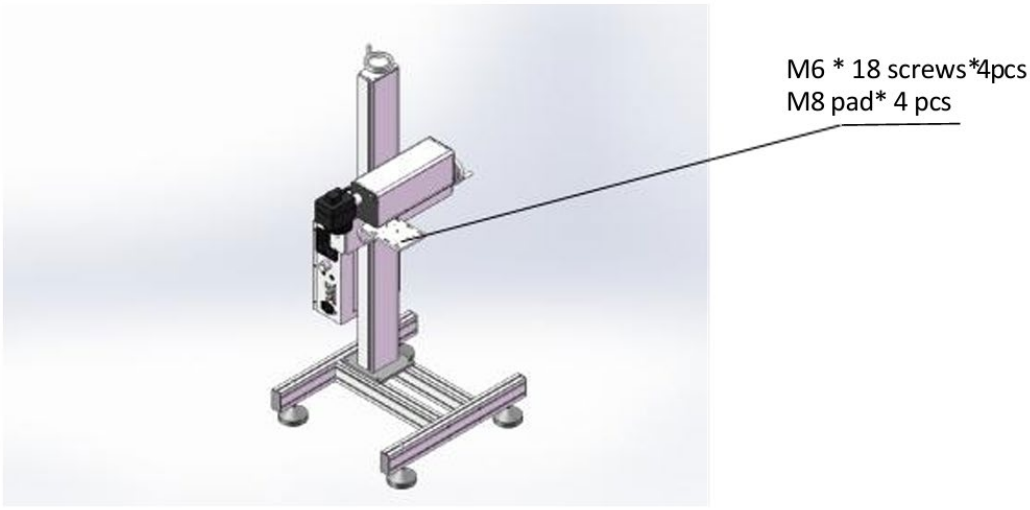


Figure 4-10 laser path installation

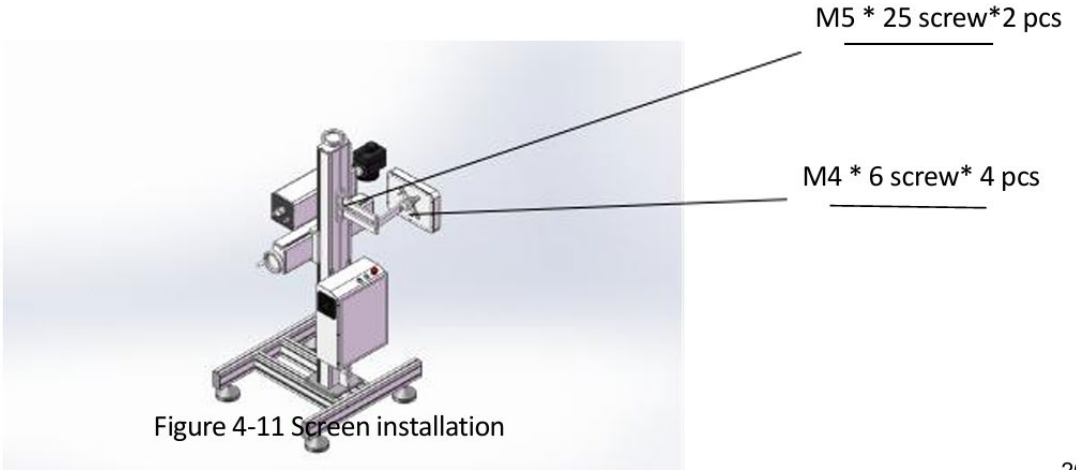


Figure 4-11 Screen installation

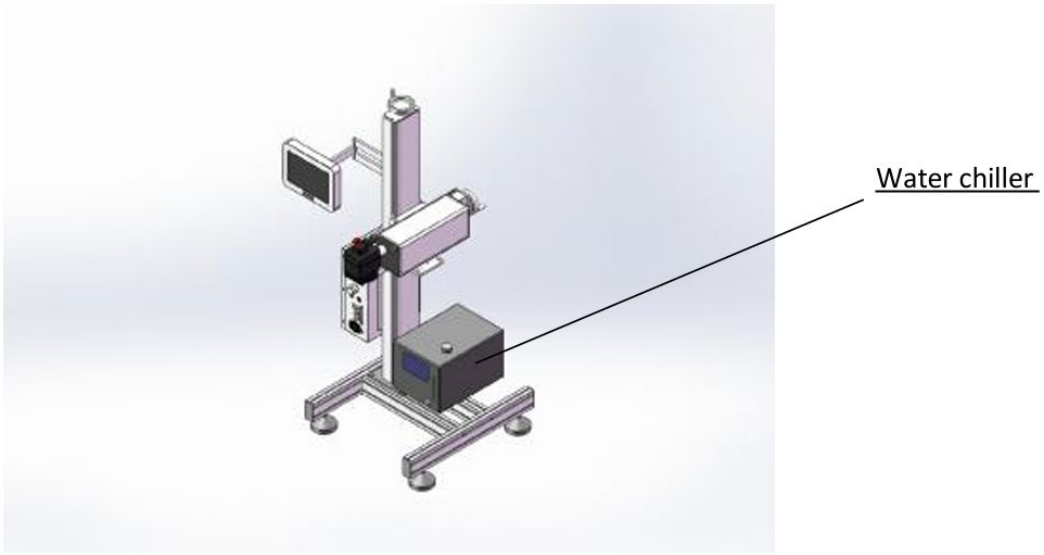


Fig. 4-12 Installation of water chiller

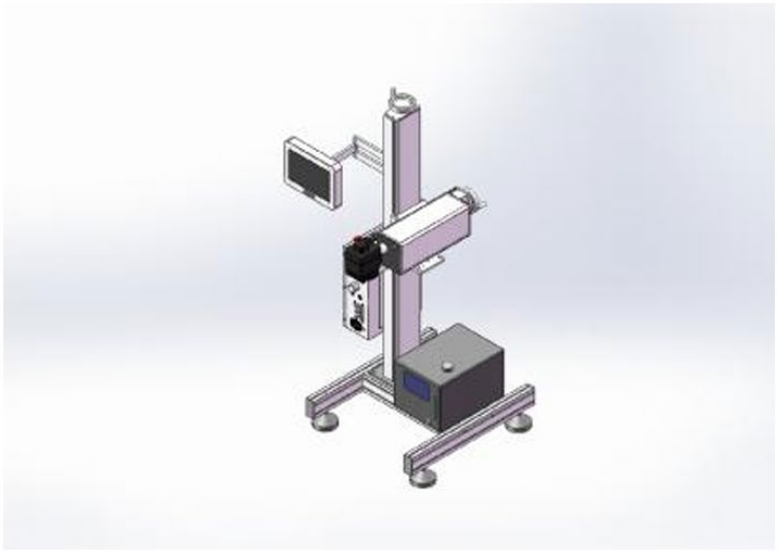


Figure 4-13 Final assembly

Kindly reminder:

For Figure 4-3, do not tighten the M8*40 screws too much in the early stage. Tighten them after the printer is installed on the production line and the relative position between the marked product and the laser path is determined.

Figure 4-5 Tighten the mushroom head after determining the orientation position of the laser path .

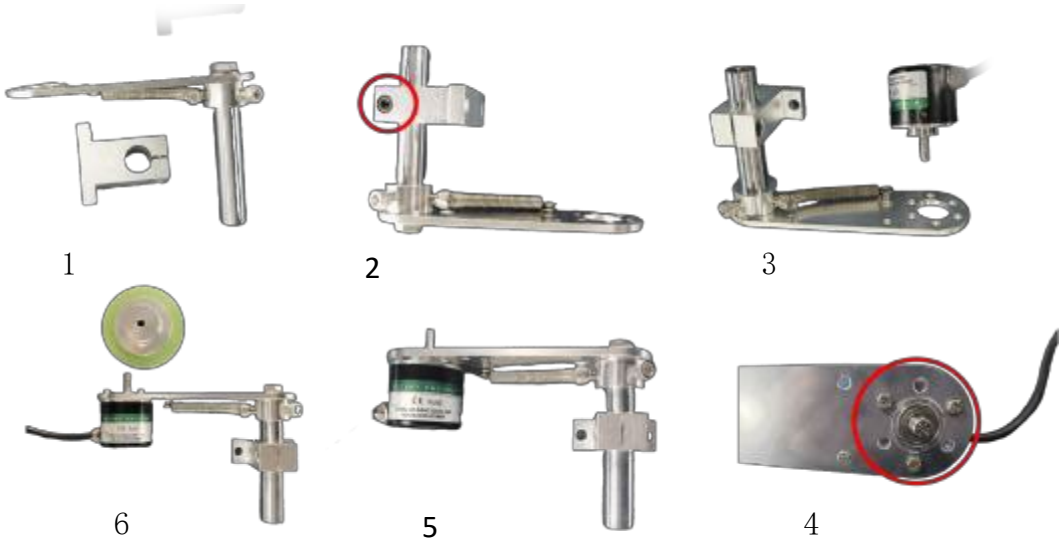
The cross arm bracket and the optical path bracket are equipped with a retractable joystick to adjust the focal length and the galvanometer light output position for future product changes.

4.3.3. Installation of the encoder

The encoder monitors the position and state of the laser beam in real time through the built-in sensor and signal processing unit. When a signal requiring synchronization is detected, the encoder adjusts the emission time and position of the laser beam to ensure that each marking is completed in the desired position.

Figure 4-14 Installation of the encoder

Note: Tighten the screw for the red mark position in the figure



Note: So tighten the screw for the red mark position in the figure

7 8

Figure 4-17 Installation of the encoder

The Encoder installation is complete

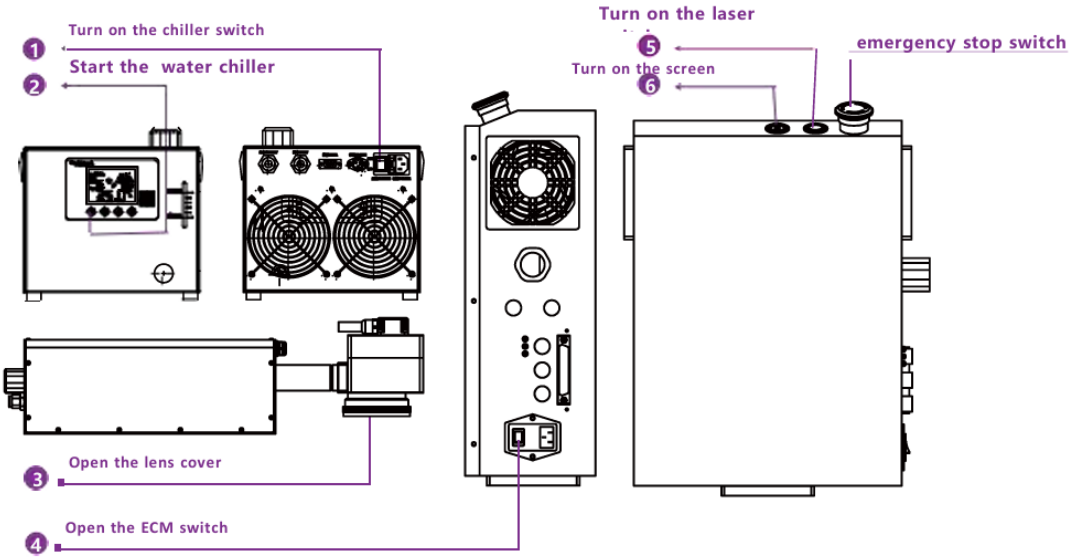
4.3.4. Install the photoelectric sensor

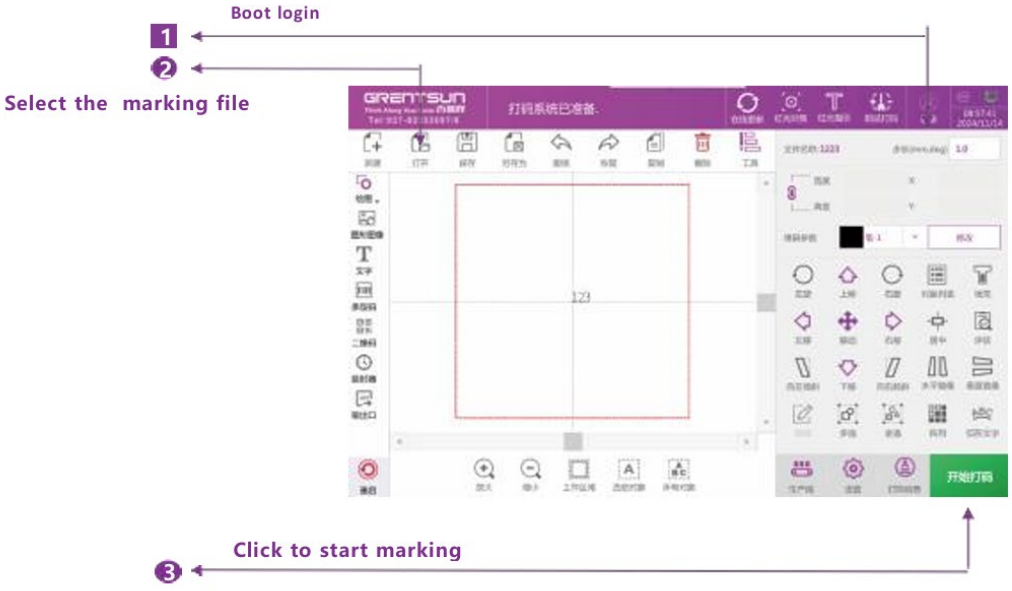
The working principle of photoelectric sensor is based on photoelectric sensor technology. When the laser beam hits the surface of the work piece, the reflected light is captured by the sensor receiver.By measuring the intensity and position of the reflected light, the sensor can determine the deviation between the actual position of the workpiece and the expected position, thereby adjusting the position of the laser beam to ensure the accuracy of the marking.

Figure 4-18 photoelectric sensor installation

5. Product use

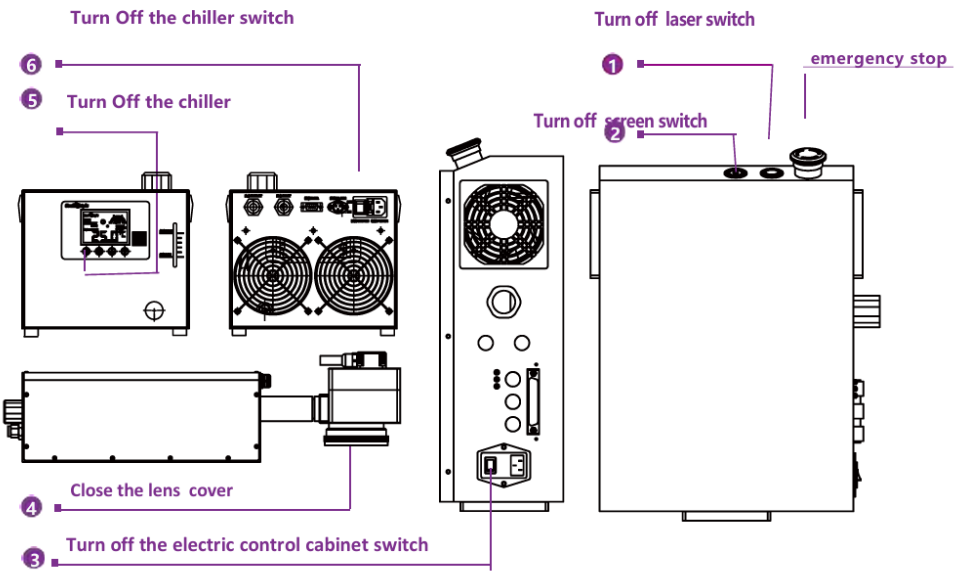
5.1. Product startup steps





Note: The laser should be turned on after the chiller temperature stabilizes to about 25℃. Otherwise, the laser will not emit light and make a beeping sound. At this time, turn off the laser power supply and turn it on again after the chiller temperature stabilizes to recover. In addition, the laser will emit light about 40 seconds after the laser switch is turned on.

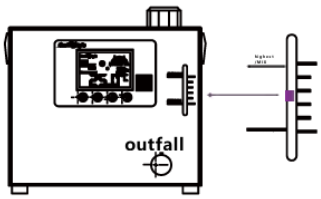
5.2. Product shutdown steps



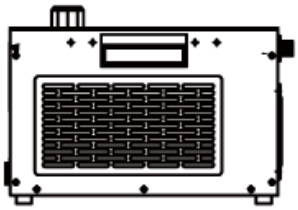
6. Maintenance and protection of laser coding machine

Regularly check whether the power cord, ground wire and interface are intact, and whether the outer surface is damaged. If the interface or external surface is damaged, please replace it in time and ensure reliable grounding to avoid causing damage to the human body or the product;

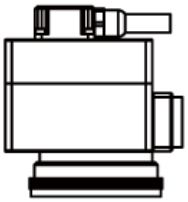
⚠ ATTENTION	Please use the original factory accessories. Our company shall not be liable for personal injury or product damage caused by using parts other than the original parts.



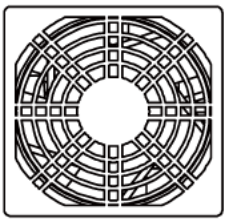
Do not use antifreeze for a long time Change back to pure water in seasons above 0℃



Both sides filter cleaning
(at least once every 15 to 30 days)

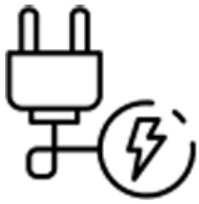


Wipe with a lint-free cloth and 95% alcohol or above in one direction



Regularly clean the dust and debris on the cooling fan to avoid laser machine failure caused by overheating. (At least once a week, keep the dust filter on)

Use a clean cloth to wipe the shell and all parts of the printer regularly to ensure that the surface of the printer is clean and tidy



Regularly check the power cord of the laser machine to see if the power cord is firmly connected and whether it is loose or damaged. To avoid equipment failure caused by poor contact

7. Fault analysis and troubleshooting

Due to the use or other reasons, the laser marking machine may fail, in order to you can timely judge and eliminate some simple faults, we listed the prone to failure phenomenon and the solution to the problem, for reference only. Please check and troubleshoot according to the table first.

If the problem persists, please contact us or your local office. When you need to report the fault condition to our company, please be sure to record and inform the product model number and serial number on the nameplate.

Item number	fault	fault cause	Troubleshooting
1	Press the power button without response	The power cord is not connected	Reinsert the power connector
2	Marking effect becomes weaker	The lens is not cleaned for a long time, resulting in a decrease in the laser transmittance	Clean lens
		Laser failure results in a power attenuation	Contact the engineer
3	The marking line is not uniform	The machining is not in the focal plane	Keep the workpiece in the focal plane
4	Mark the text, graphics, some clear, some are not clear	The workpiece surface and the lens are not parallel	Leveling the workpiece marking surface
5	The laser machine does not emit laser light	Check whether the water chiller is turned on	The water chiller should be turned on first and the temperature should be from 22° C to 28° C. Set temperature25°C
6	The water chiller does not cool down	Whether to replace the pure water within half a month, check whether the heat sink has dust	The water must be replaced once every half a month, and the heat sink should be cleaned up.

Adjust the power parameters according to the dark and light marks reflected on different colored materials.