

DANA F20 Series Laser Marking Machine User Manual



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1. Product Overview

This series of ultraviolet laser marking machines mainly adopts JPT ultraviolet laser, High-performance galvanometer scanning system and Dana self-developed control software. They feature high speed, stable performance, good laser mode, long service life, continuous operation up to 25,000 hours, high electro-optical conversion efficiency and low power consumption. The system is easy to operate and flexible to change. It has a full Chinese interface and is compatible with files output by various software such as AUTOCAD, CORELDRAW, PHOTOSHOP and CAXA. It can perform marking of barcodes, QR codes, graphics and text, and supports file formats such as PLT, PCX, DXF and BMP. It can directly use SHX and TTF font libraries. The system can automatically encode and mark serial numbers, batch numbers, dates, etc.

1.1. Hardware Working Environment

Working Environment	
Protection Degree	≥IP54
Cooling	Air Cooling
Operating Temperature	-5-45 degrees Celsius
Operating Humidity	80% RH, Non-Condensing.
Power Supply	220V, 0.6KVA

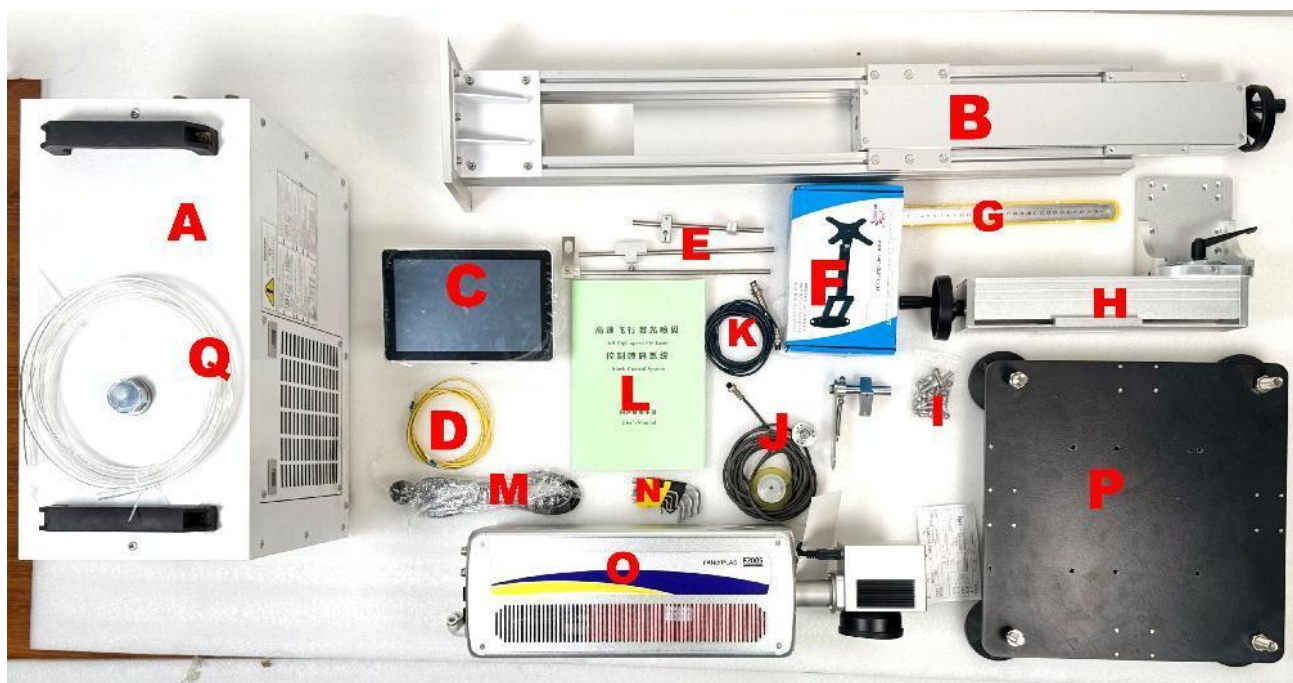
1.2. System Technical Parameters

UV Laser Marking Machine Specification	
Laser-type	UV Laser Wavelength:355nm, 25000hrs continuous working time
Laser Power Class	3W/5W/10W/15W/20W/25W
Focal Length	188mm(Standard)
Maximum line marking speed	10000mm/S
Marking Parameters	
Marking Field	110mm*110mm; Max:550*550mm
Marking lines	Set any line numbers within the valid marking range
Minimum Line Width	0.02mm
Character Height	0.2-70mm
Typeface	Single line, Dot matrix, True Type
Marking Content	Text, Graphics, Barcode, Two-dimensional code, Dynamic serial number, real-time clock, TXT file, RS232 Communication data,etc..

Marking Angle	Any Angle, adjustable in 3 dimensions
Monitor	Industrial Touchscreen
Operating Language	Chinese, English and other Languages

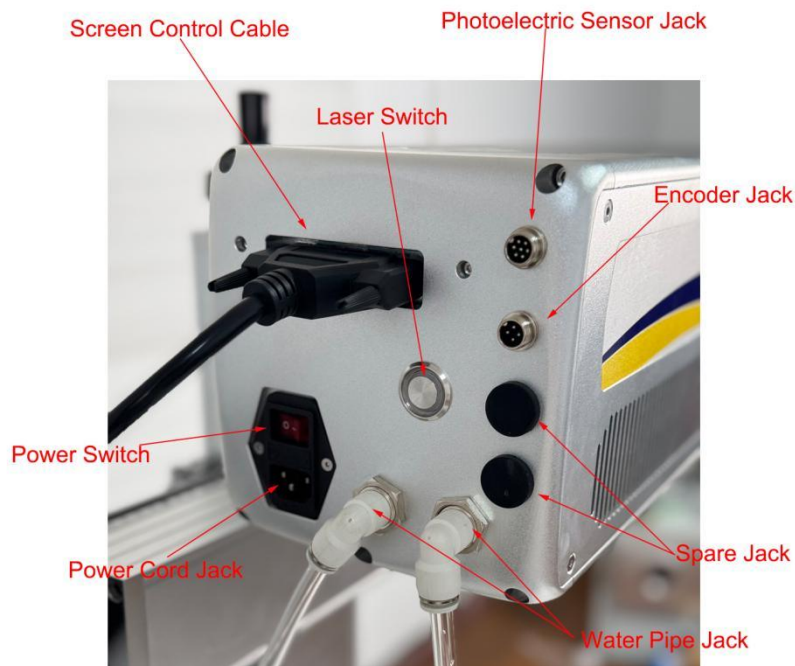
2. Hardware Introduction

2.1. Parts List

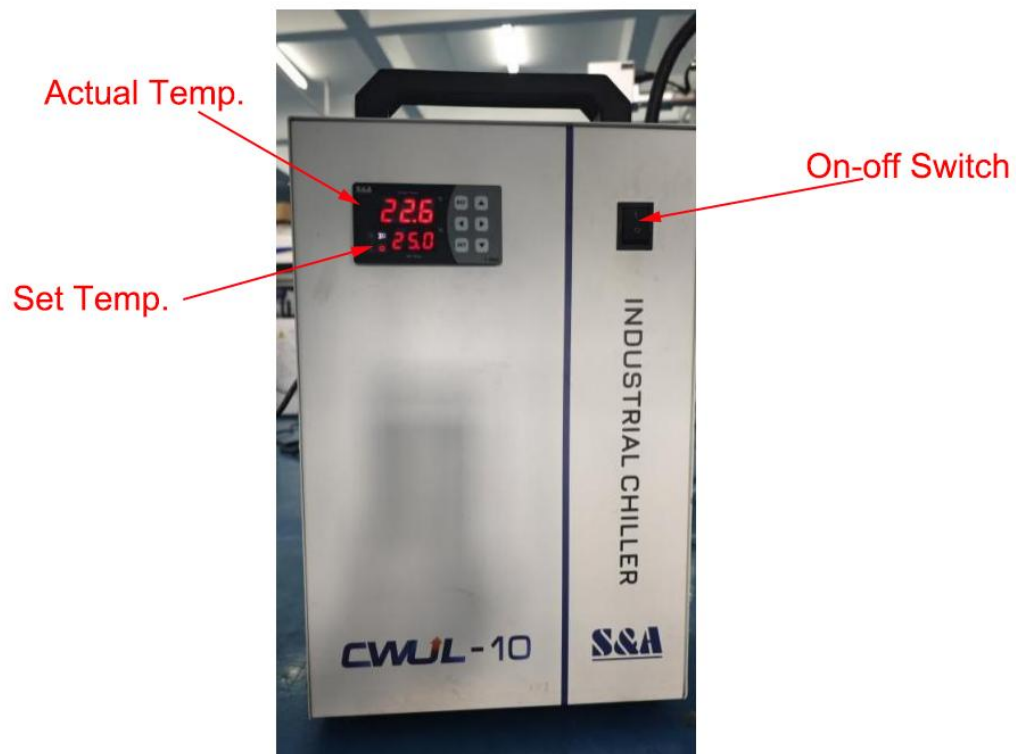


- | | | | |
|--------------------------|-------------------|---------------------|-------------------------|
| A: Chiller | B: Lifting Column | C: Touch Screen | D: Earth Wire |
| E: Photoelectric Bracket | F: Screen Bracket | G: Ruler | |
| H: Cross Arm | I: Ruler | J: Encoder Assembly | K: Photoelectric Sensor |
| L: Operation Instruction | M: Power Cord | N: Hex Key Tool | |
| O: Optical Path | P: Base | Q: Chiller hose | |

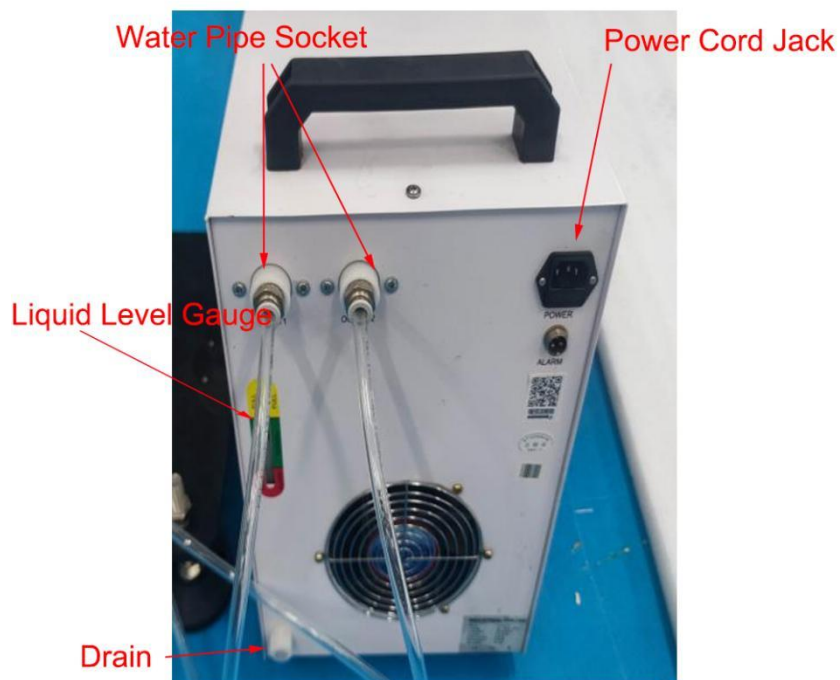
2.2. Equipment Diagram



The Back Of The Optical Path



Front Of The Chiller



Back Of The Chiller

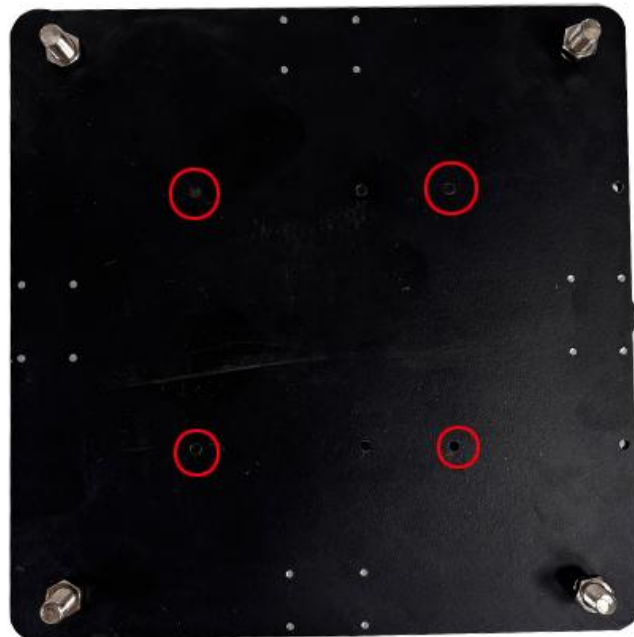
2.3. Installation Flowchart

2.3.1. Install The Lifting Column

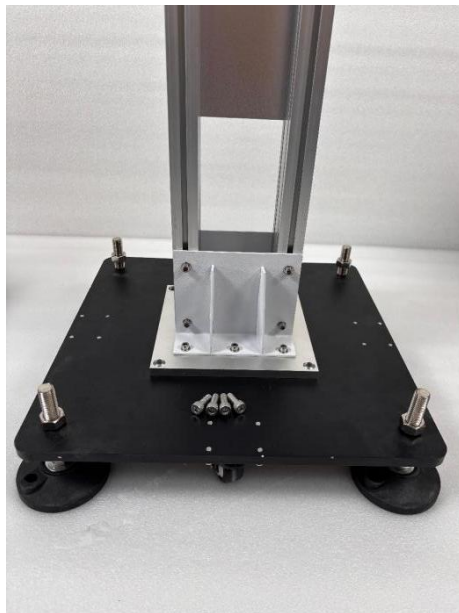
Fetch the base plate and the lifting column, find the corresponding four screws, align the four holes on the lifting column base plate with the four holes on the base, and tighten the screws, as shown in the following figure:



Lifting Column



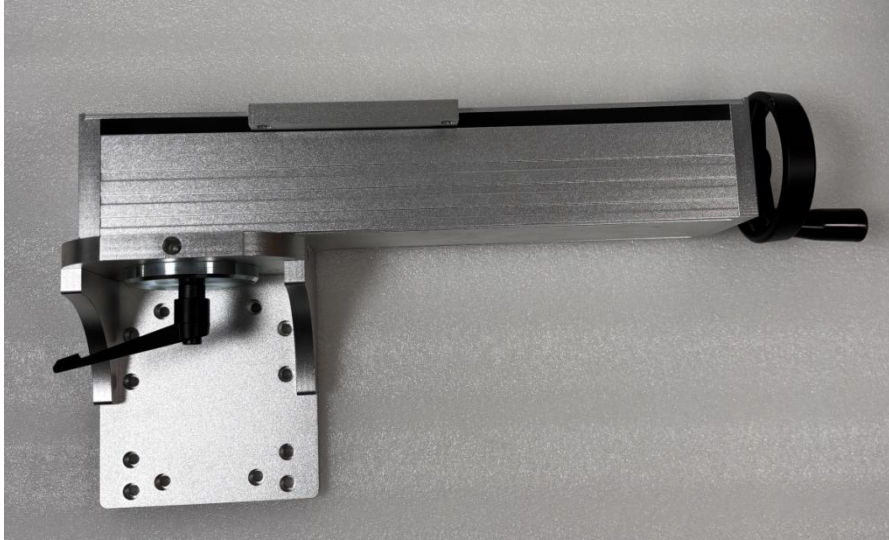
Base



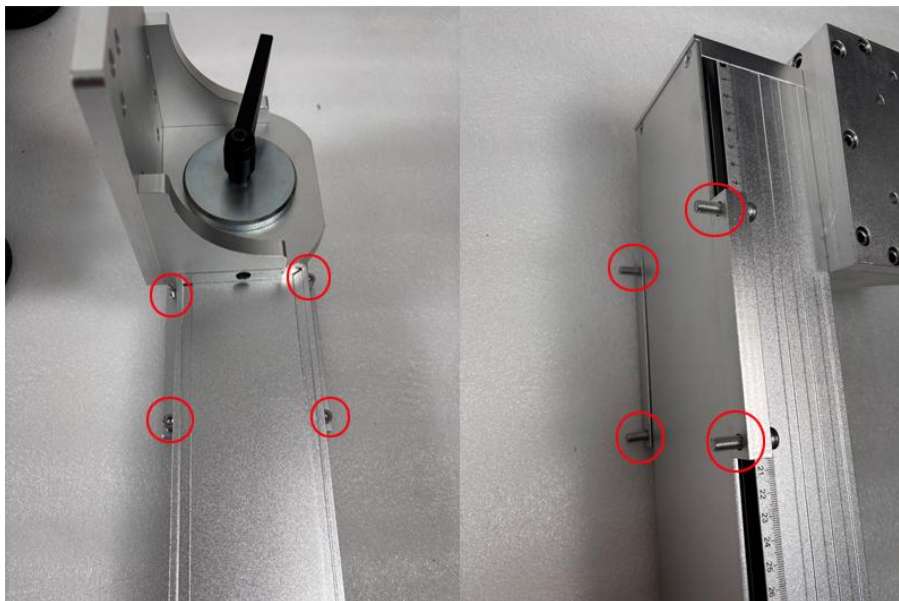
The Lifting Columns Have Been Installed

2.3.2. Install The Cross Arm

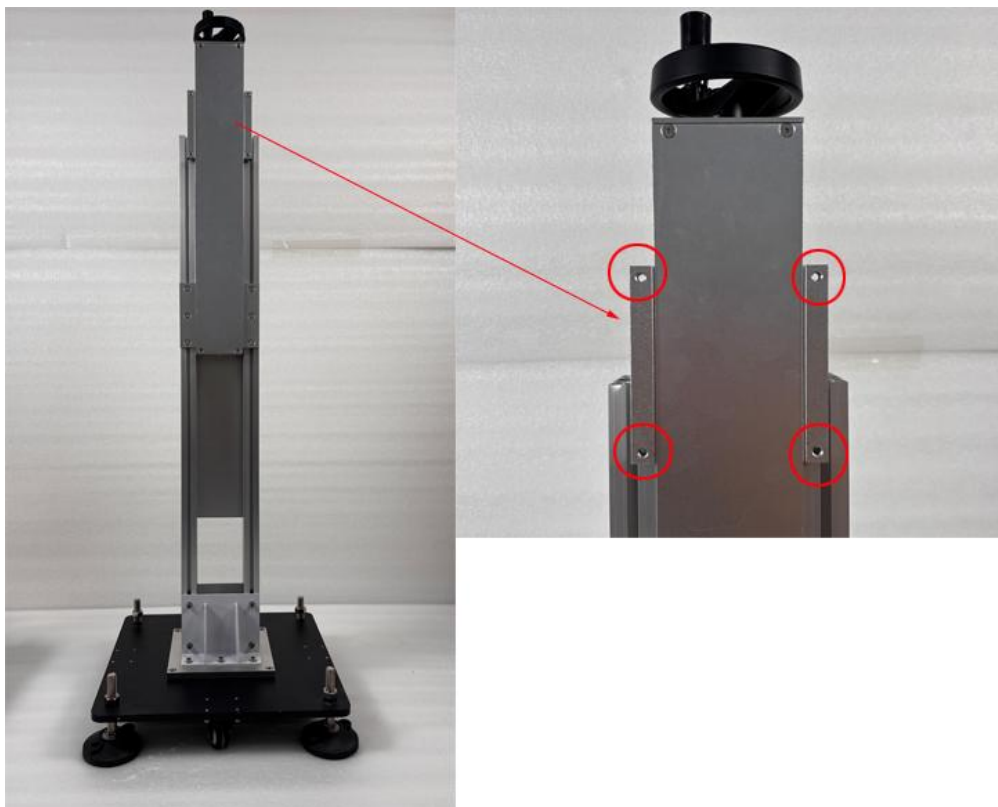
Fix the cross arm to the lifting column. Fetch the corresponding four screws, pass them through the fixing position of the cross arm, and fix the cross arm to the lifting column, as shown in the following figure:



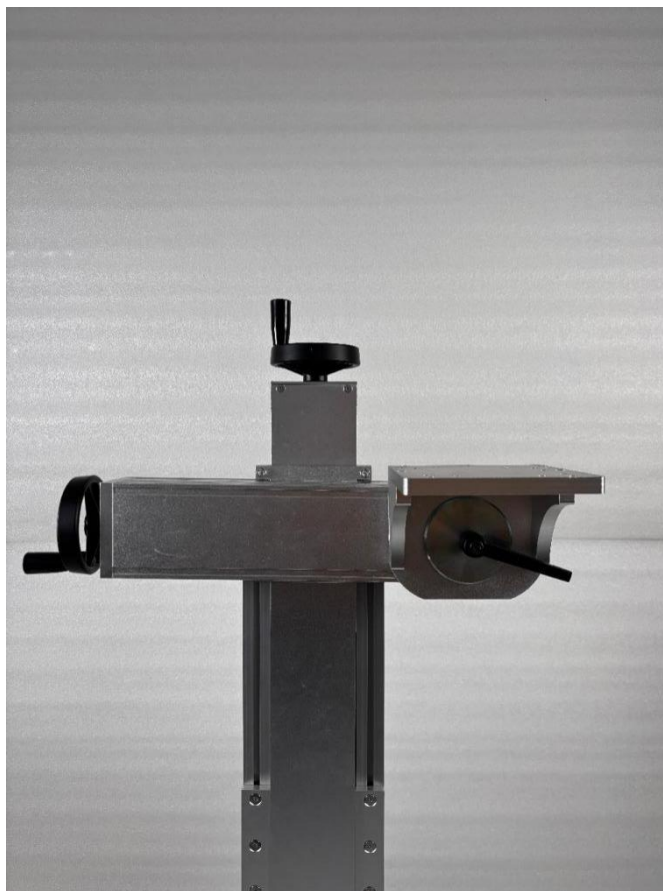
Cross Arm



Screw Fixing Position Of The Cross-Arm



The Installation Position Of The Screws For Fixing The Cross Arm On The Lifting Column



Install The Cross Arm On The Lifting Column, The Cross Arm Installation Is Completed

2.3.3. Install The Optical Path

Fix the optical path to the cross arm. Place the optical path on the cross arm, insert the corresponding four screws, and tighten to fix them.



Optical Path



**The Optical Path
Installation Is Completed**



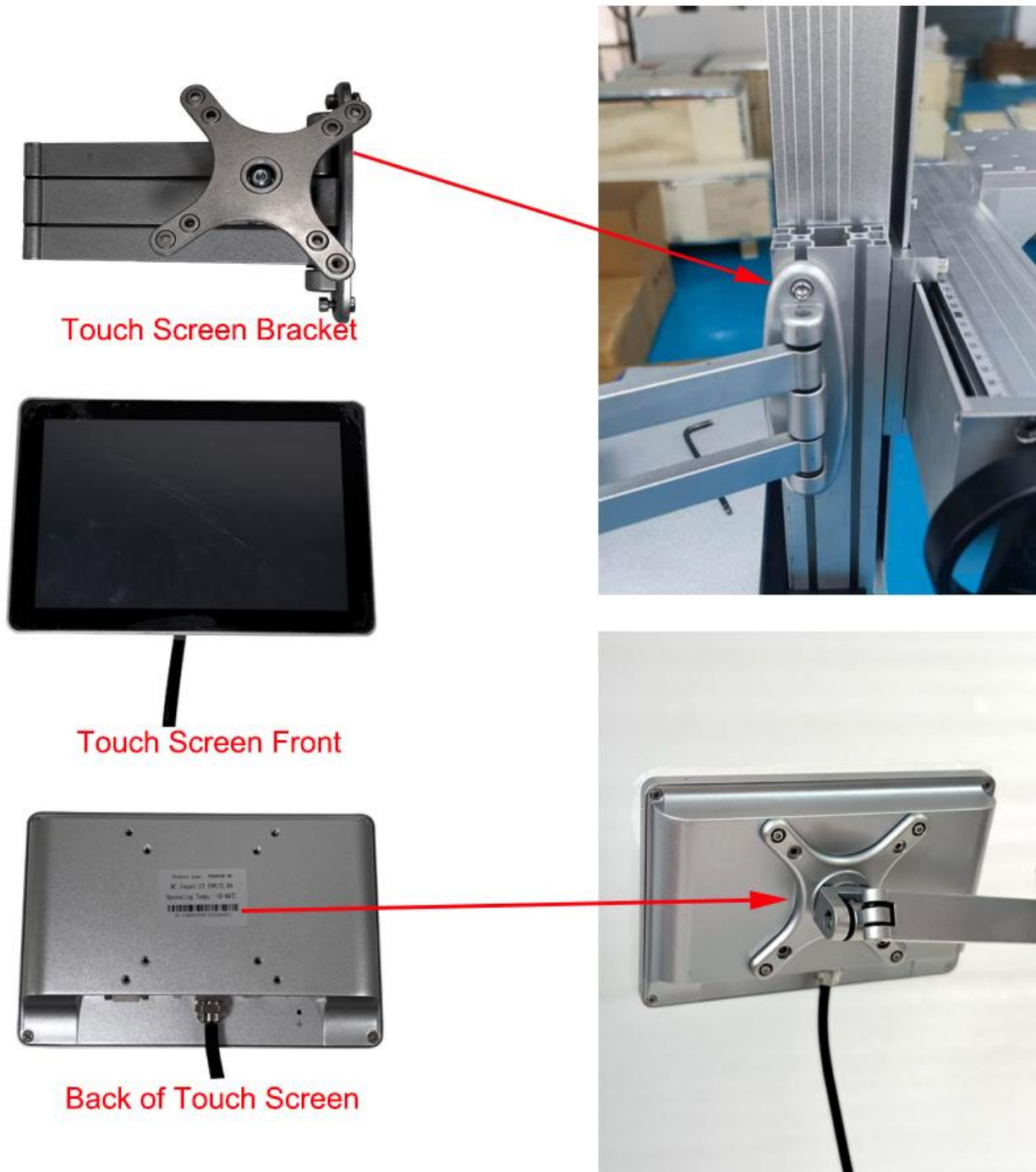
Bottom Of Optical Path



The Optical Path Installation Is Completed

2.3.4. Install The Touchscreen Bracket And The Touchscreen

Fetch the touchscreen bracket, insert it into the slot on the left top of the lifting column, slide it to the appropriate position and then tighten the screws to fix it on the lifting column. Then take out the four corresponding screws to fix the touchscreen on touchscreen bracket. As shown in the following figure:



The Touchscreen Stand And Touchscreen Installation Are Completed

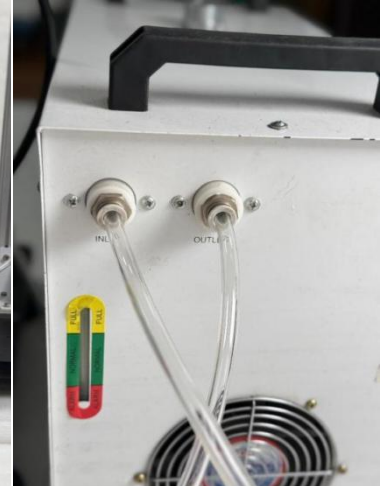
2.3.5. Connect The Chiller

Take out two transparent hoses and connect them respectively to the side of the optical path and the back of the chiller. Just insert them directly. As shown in the following figure:

(Inject distilled water or purified water through the water inlet until the liquid level indicator reaches the green position.)



Transparent Hose



Front And Back Of The Chiller



Back Of The Optical Path



The Chiller Installation Is Complete

2.3.6. Install The Encoder

(The encoder needs to rotate along with the production line)

Fix the bracket on the production line, then insert the encoder wire into the small hole of the bracket ① and fix it with three screws. After it is fixed, install the encoder wheel and tighten the two top screws on the encoder wheel to fix it. As shown in the following figure:



Small Bracket And Encoder



Install Directly On The Production Line

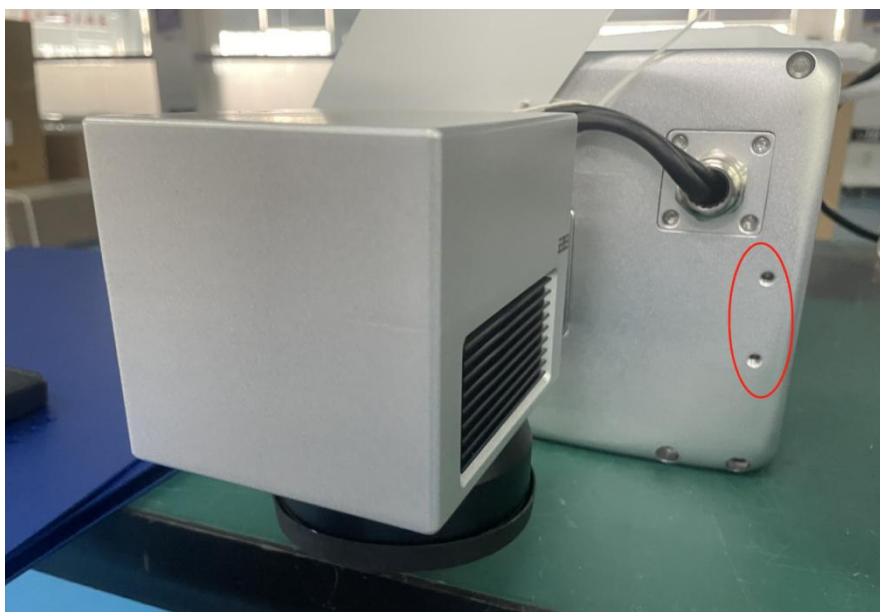
2.3.7. Install The Photoelectric Sensor

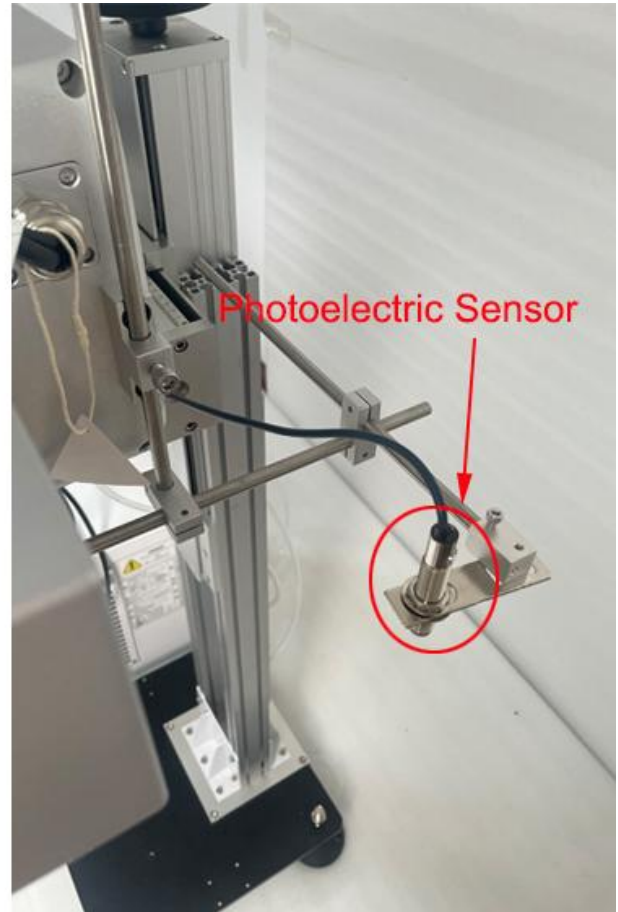
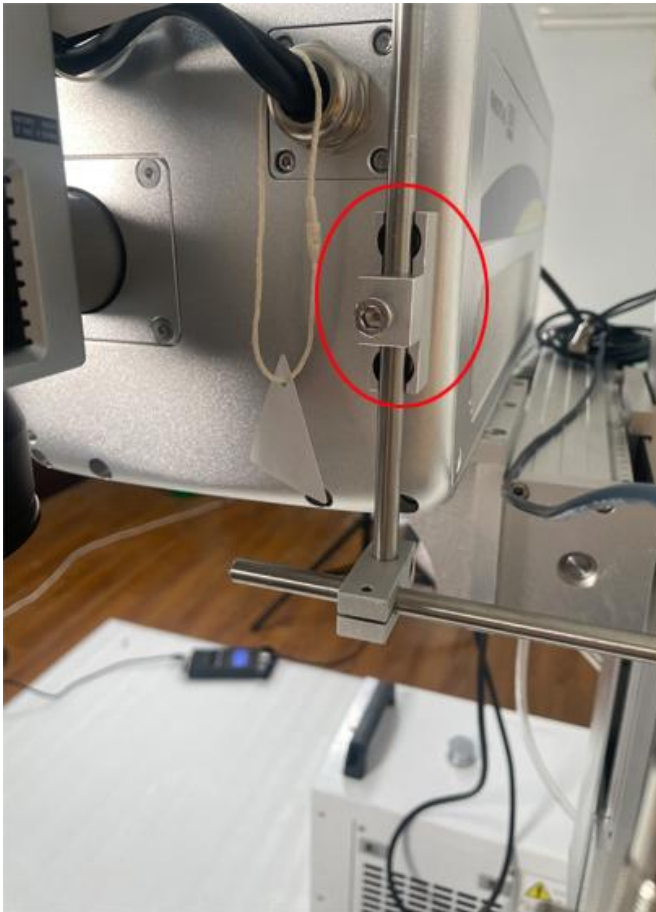
(Along the direction of the production line, the product is sensed first and then marked)

First, fix one of the long bracket on the side of the optical path (the galvanometer side). Then, pass the short bracket through the long bracket, adjust short bracket's position, and fix it. Pass the other long bracket through the short bracket and fix it. Loosen the screw below the photoelectric sensor and fix photoelectric sensor on the last long bracket. Adjustments can also be made according to the actual situation. As shown in the following figure:



Photoelectric Sensor And Bracket

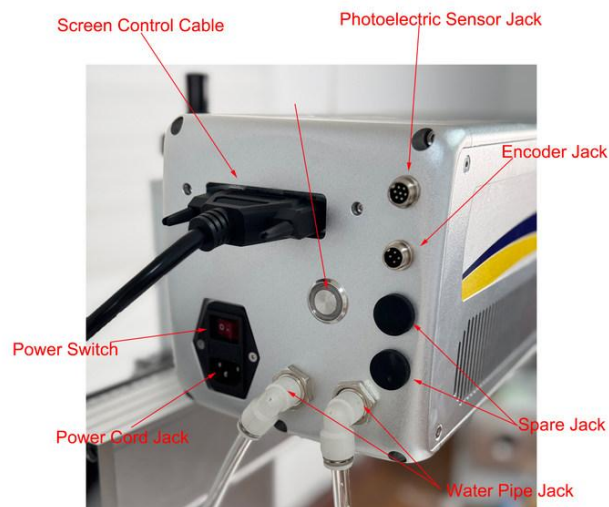




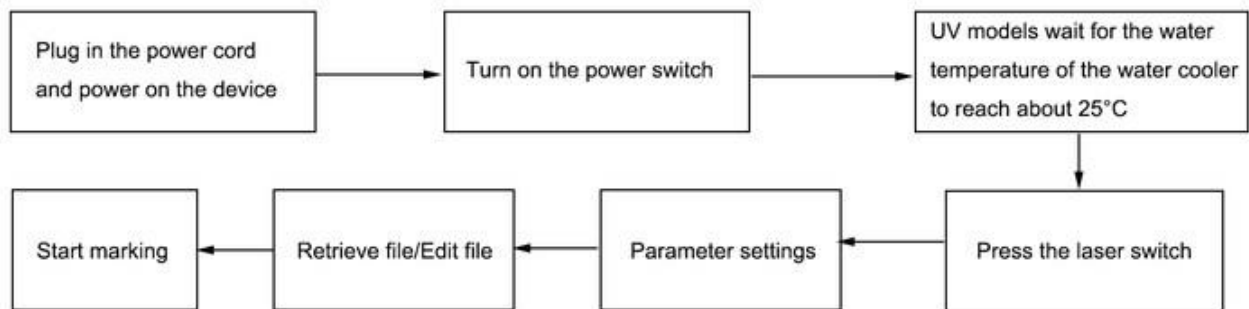
The Photoelectric Sensor And Its Bracket Have Been Installed

2.3.8. Connect The Cable

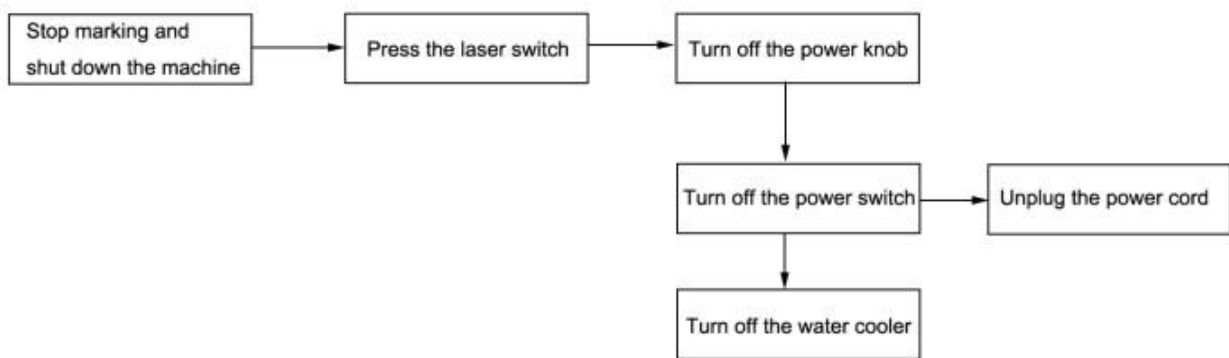
Connect the power cord, touch screen connection cable, photoelectric sensor, encoder, power on and installation completed.



2.4. The Boot Process



2.5. The Shutdown Process



Note: Please strictly follow the above process. If the UV machine is not in operation for a long time, it needs to be powered on once a week and it should be marked for more than 4 hours once. The focal length is adjusted by controlling the lifting hand wheel of the lifting column. Move the handle on the optical path to adjust the handle on the cross arm. The lifting hand wheel rises clockwise and descends counterclockwise. The front and rear hand wheel moves forward clockwise and backward counterclockwise.

3. Equipment Maintenance Instructions

3.1. The Galvanometer part

1. The field lens should be wiped every two days (depending on the on-site environment. If too much dust accumulates on the field lens, it will lead to poor marking effect) with a cotton ball or cotton swab dipped in alcohol. When wiping, do it in one direction, either clockwise or counterclockwise.
2. The galvanometer structure is made of aluminum alloy for better heat dissipation. The temperature of the galvanometer will rise when the equipment works for a long time. To ensure heat dissipation, keep the surface of the galvanometer clean as much as possible.

3.2. The Chassis Part

Principle: There are air intake holes on the exterior of the chassis. Dust in the air will be carried into the interior of the chassis along with the air. Dust usually has corrosive properties and can corrode the circuit system. Therefore, it is necessary to clean the interior of the case regularly.

Method: It is generally recommended to clean it approximately every three months (depending on the on-site environment). Remove the cover plate of the chassis and use high-pressure air or a high-power blower to thoroughly blow and clean the interior of the chassis when the equipment is powered off. Pay attention to cleaning the intake holes and ensure that the blown air does not contain water.

3.3. The Appearance Part

When the power is off, the exterior of the equipment can be wiped with a damp cloth. After wiping, it must be dried completely before being powered on and operated.

Note: When the equipment is running, avoid directly pouring water onto the chassis.

3.4. The Security Part

Avoid direct contact of laser with skin, eyes, etc.

Regularly check if the ground wire is in good contact.

Do not disassemble or assemble the machine while it is powered on.

3.5. Ultraviolet Laser Part

For chiller, it is recommended to change the water regularly, once every quarter.

Note: Try to add water with fewer impurities, such as distilled water. In winter, if the room temperature is below zero, it is recommended to add antifreeze. The ratio of antifreeze to water should be 1:2.

4. Equipment Warranty Card

Product model		Date of Manufacture	
Machine Model		Laser Model	
Control Board Number		Galvanometer Number	
User Name			
User Address			
Contact Number		Postal Code	
Purchase Date			
Maintenance Record	Maintenance Date	Maintenance Record	Maintenance Personnel