LK4 Instruction Manual

Longer

Catalog

Safety Precautions

1) The temperature of the nozzle parts can reach 250 °C during the operation of the machine. To ensure your safety, it is forbidden to touch the model and nozzle directly with your hand while the printer is printing or cooling.

2) During the operation of the machine, it is forbidden to reach into the machine to prevent pinching.

3) The working voltage is 110~220V AC voltage 50HZ AC. The three-pin socket must be grounded. Do not use other power sources to avoid damage to components or fire, electric shock and other accidents.

Note: Before powering on, please check whether the input voltage value of the switching power supply meets the voltage standard of the country or region.

4) When the machine is working continuously for ≥ 96 hours, it should be stopped for 1-3 hours.

Consumables

The consumables are not used after unpacking or for a long period of time after the print model is completed. The consumables should be taken out of the printer and sealed to prevent the consumables from being exposed to the air for a long time, causing moisture and affecting the print quality. At the same time, when the consumables are removed

The front end of the consumable should be fixed on the tray to avoid consumables and affect the next print.

To use this printer, it is recommended to use the supplies provided by the company. At present, the quality of consumables sold in the retail market is uneven, and printing is prone to breakage.

Staggering and clogging the printer nozzle, etc., and irreversible damage to the heating components of the nozzle, the extrusion motor and the extrusion gear. The company will not guarantee the printer due to the use of consumables other than our company.

Environmental requirements

Temperature requirement: 10°C~30°C, humidity requirement: 20%~50%, this 3D printer can work normally within this range; beyond this range, this 3D printer will unable to achieve the best print results.

A. Product information

(1) Model parameter

model	LK4	Machine size	402*382*655mm
frame	Classic aluminum frame	Machine weight	7.8KG
Molding	FDM (hot melt production)	Package dimensions	507*467*190mm
Number of nozzles	1	Consumable color	Multi-color optional
Molding size	220*220*250mm	Power requirement	Output 24V
Layer thickness	0.1-0.4mm	operating system	Windows,Linux,MAC
Memory card offline printing	Support TF card	Interface language	English
LCD screen	YES	Environmental requirements	Temperature 10-30 °C Humidity 20-50%
printing speed	Not more than 120mm/s	Nozzle temperature	Room temperature to 250 ° C
Nozzle diameter	0.4mm	Hot bed	3mm thick integrated heating aluminum plate, forming platform
Slicing software	Cura,repetier-host	Support consumables	PLA, ABS, wood, copper consumables
file format	STL,G-Code,OBJ	Consumable diameter	1.75mm

(2) Packing List

PACKING LIST
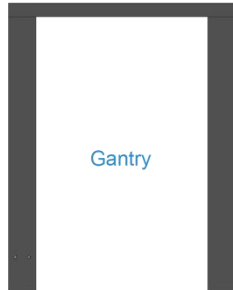
Gantry
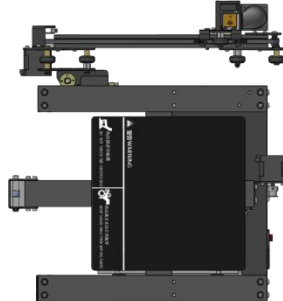
X-axis beam and frame base

Touch screen

Scraper

Touch screen back cover

Z-axis motor and coupler

Filament holder

Z-axis limited switch

Test filament

TF card

Card reader

Power cable

Wrench

Allen wrench

Screw rod
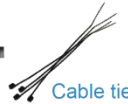
Cable tie

M5*20

M4*16

M5*6

! POWER SWITCH !

230V   115V

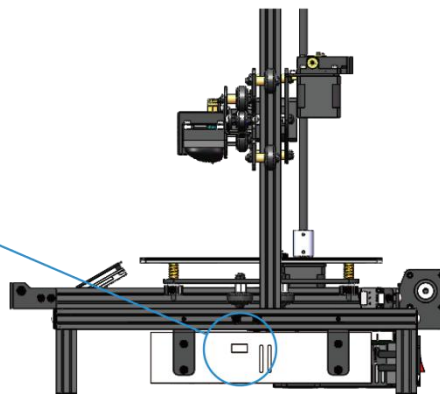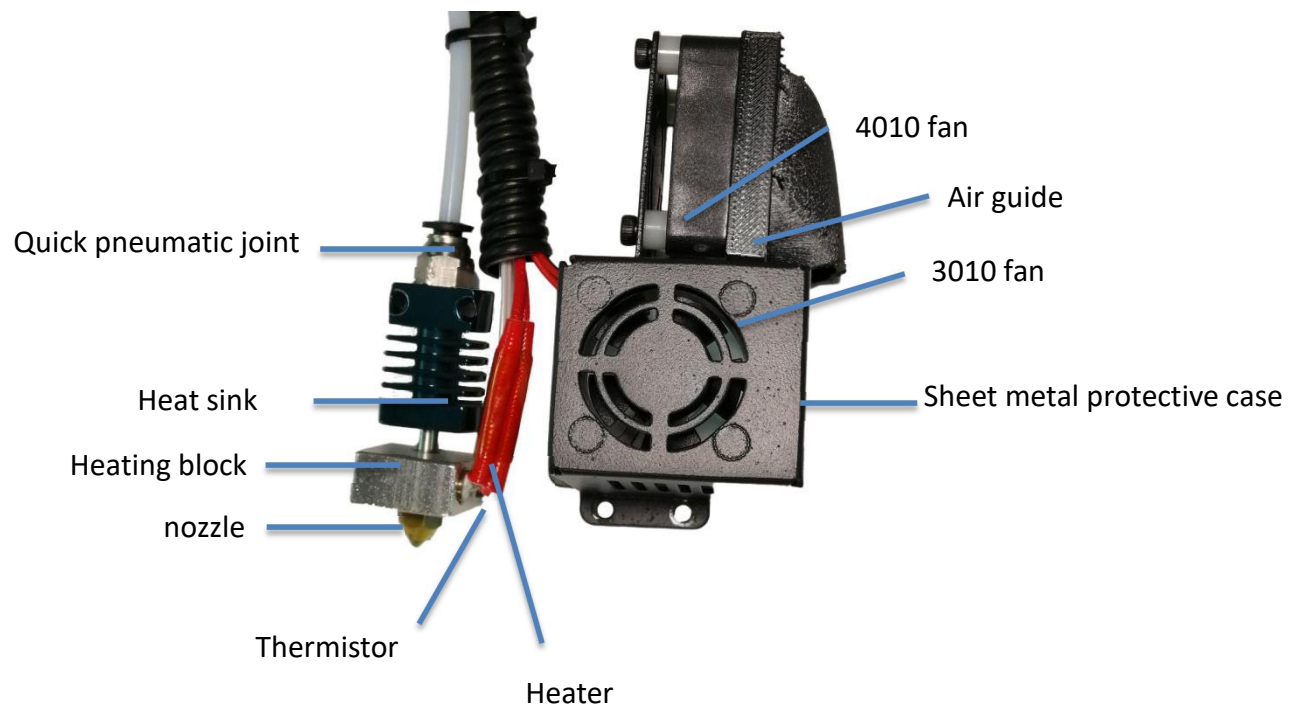115/230V is selected by switch Before power on please check Input voltage avoiding damage.

▲ Use the wrench to toggle the switch to the RIGHT local voltage Before powered on.
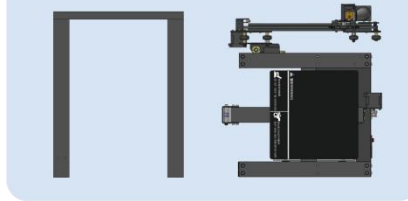Please check the RIGHT voltage to avoid to burn down printer.

(3) Nozzle module exploded view

Quick pneumatic joint

Heat sink

Heating block

nozzle

Thermistor

Heater

4010 fan

Air guide

3010 fan

Sheet metal protective case

(4) Machine assembly

INSTALLATION STEPS

1 Preparation:
Gantry, X-axis beam and frame base
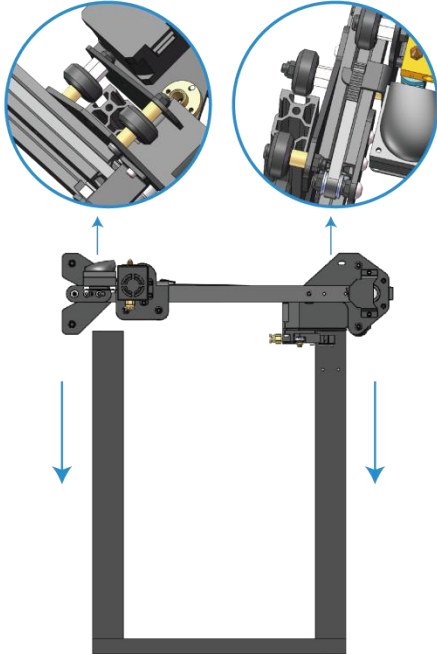
◄ Follow the direction of arrow and put the gantry frame through the X-axis beam carefully. Note: during installation, Do not to tear the cables. After assembling, the cables should be put behind.

FINISHED
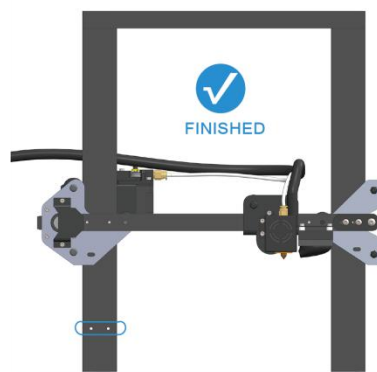
▲ Note: the frame with holes is on the left

2 Preparation:
Coupler, motors and screws

2XM4*16

Install the motor ►

FINISHED

3 Preparation: Screw rod

◀ Assembly screw rod
(By rotating the screw rod).

Do not overtighten these two screws.
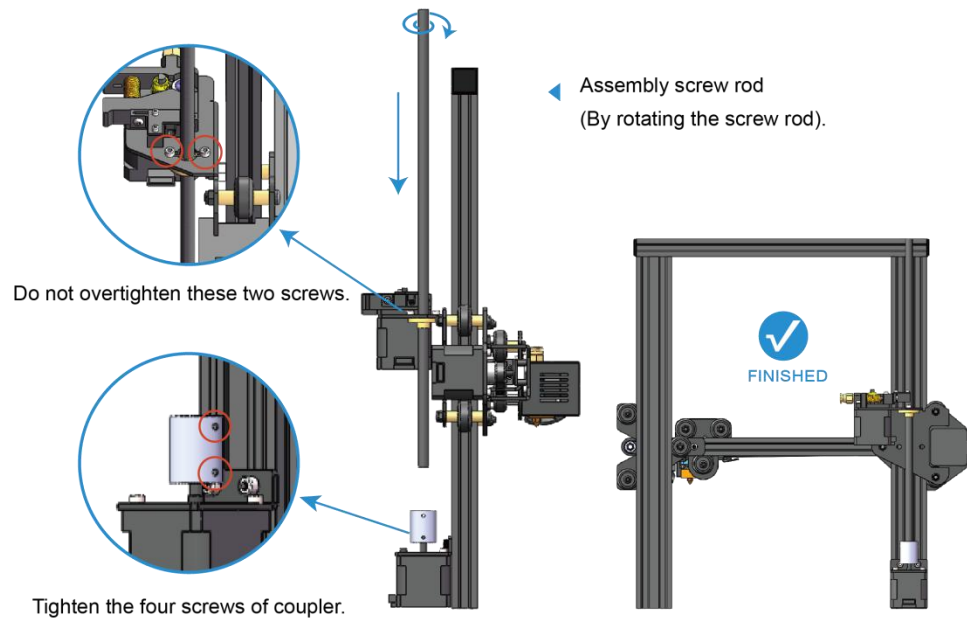
FINISHED

Tighten the four screws of coupler.

4 Preparation:
Screws

4XM5*20

FINISHED

BACK

FRONT

▲ Install the gantry onto the base.
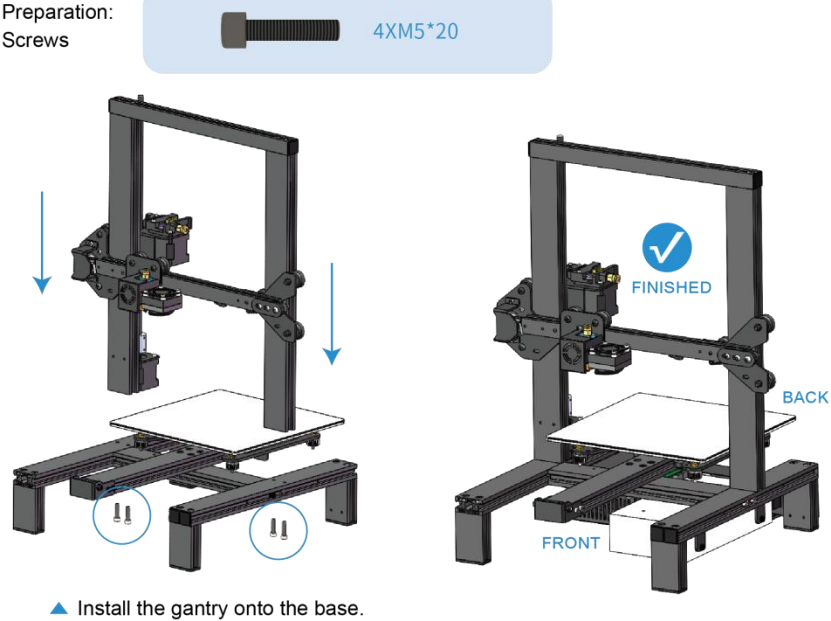
5 Preparation: Limited switch and filament holder
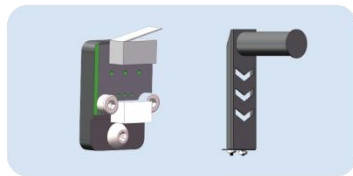
Install the filament holder onto the printer' top beam.

FINISHED
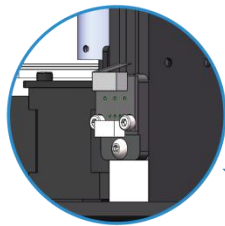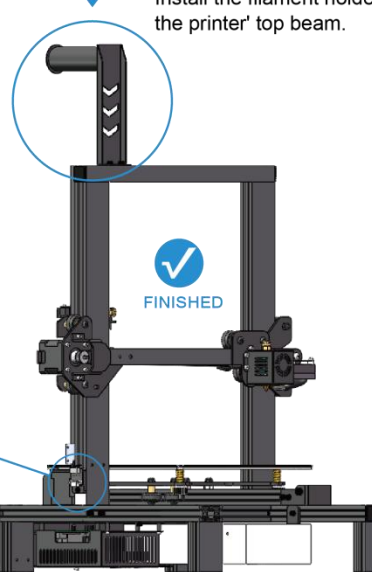
Install the z-axis limit switch. The installation height is flush with the upper edge of the white label.

6 Preparation:
Touch screen, touch screen back cover, Screws
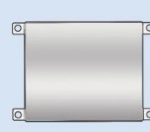
2XM5*6
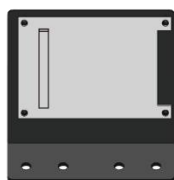
Remove the fixing screws

Installing the touch screen back cover

FINISHED
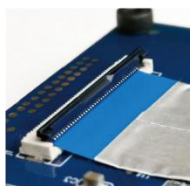
Open the screen's buckle and insert the cable
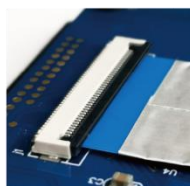
Buckle screen's buckle
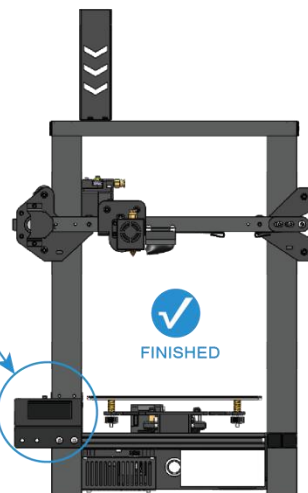
Mount the touch screen to the left on base.

7 Connect:

Number of cables / label	Two wires	Four wires	The picture below shows 2-wire cable and 4-wire cable
E	7	8	
X	10	9	
Y	12	11	
Z	14	13	

* Please reference the printer description and cable terminals with orange rubber letters to connect the cables.

* The numbers from 7 to 14 in the table above correspond to the serial numbers in the "PRINTER INTRODUCTION" section.

PRINTER INTRODUCTION
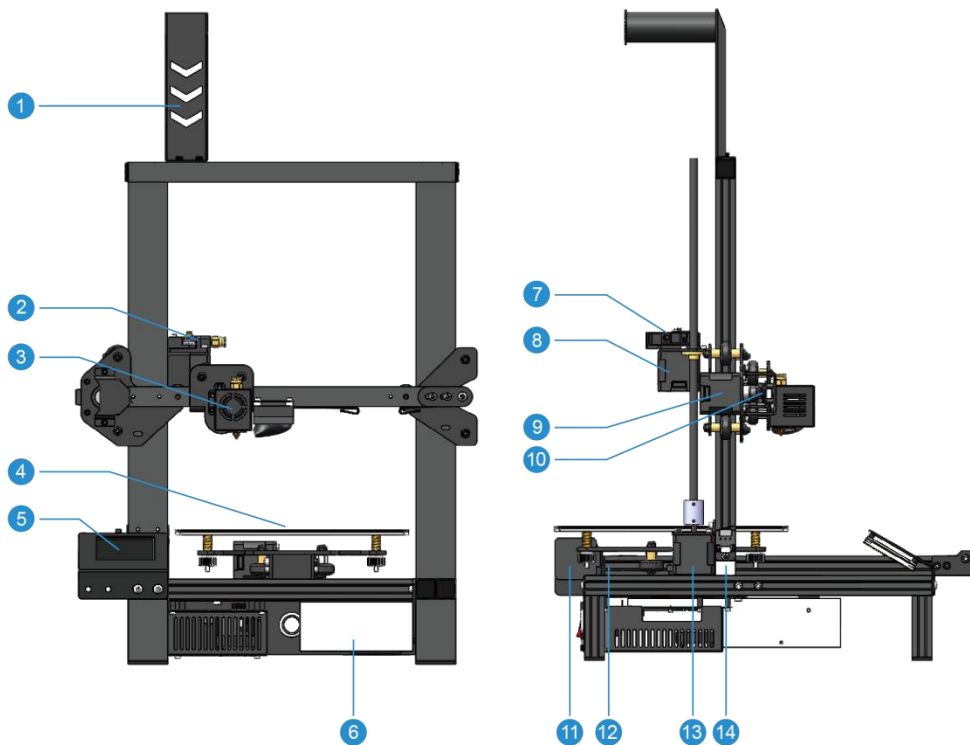
1 Filament holder	5 Touch screen	9 X-axis motor	13 Z-axis motor
2 Extruder	6 Power supply	10 X-axis limited switch	14 Z-axis limited switch
3 Hot end	7 E filament detector	11 Y-axis motor	
4 Hot bed	8 E extrusion motor	12 Y-axis limited switch	

LEVELING

▼ Please click on the touch screen "More"-> "Leveling", starting from the icon in the lower left corner, click the icons counterclockwise in turn. After each click on the icon, wait for the nozzle to move to the corresponding position and adjust the leveling nut. Try to keep the nozzle and the platform at a proper distance.
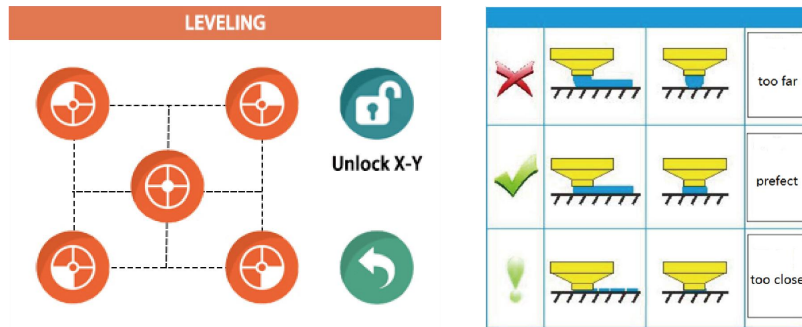
▼ The distance between the nozzle and the platform is controlled to the height of 0.1-0.2mm, about the thickness of A4 paper.

(Put on a A4 paper, feel the slight friction when you pull the paper)

0.1-0.2mm
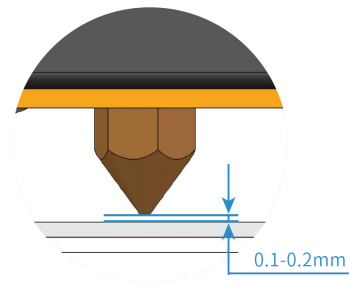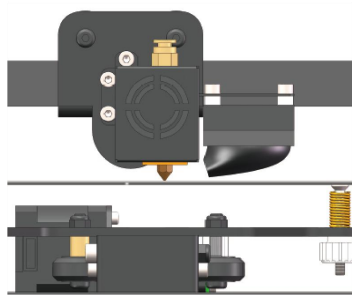
B. Machine operation

（1）Machine control

- LK4
  - Move Head
    - ±X.±Y.±Z（move）
    - X.Y.Z（home）
    - Motor unlock
    - Moving distance adjustment
    - Return
  - Files
    - Start printing
    - Page flip
    - Return
    - Print interface
      - Pause printing
      - Parameter
        - Nozzle temperature
        - printing speed
        - Discharge flow
        - distance
        - Hotbed temperature
        - speed of fan
        - more
        - return
      - Stop printing
  - Extrude
    - Nozzle temperature
    - Hotbed temperature
    - Slow in and out
    - Automatic feeding and discharging
    - Adjustment distance
    - stop
  - Leveling
    - Top left
    - Bottom left
    - Top right
    - Bottom
    - Unlock the X.Y motor
    - Return

More

Click on the file to enter

Refresh

Return

Save

Page flip

Recovery

Power failure recovery

（2）Main interface

Controls the movement of the X, Y, and Z coordinates, whether the motor is locked, the moving distance of the nozzle, and the amount of ejection.

Open the print file and print interface.

Controls the temperature of the nozzle and the heating platform, and controls the entry or exit of the material.

HOME

Move Head

Files

Extrude

Leveling

Recovery

More

Auxiliary leveling function, which can be automatically moved to the corresponding position for easy leveling.

Power failure recovery

More parameter adjustment

C. Installation and use of Changlang 3D slicing software

(1) Software installation

名称	修改日期	类型	大小
LONGER 3D Slicer	2019/11/29 17:38	Windows Install...	32,785 KB

> Double-click the LONGER 3D Slicer to enter the installation guide page
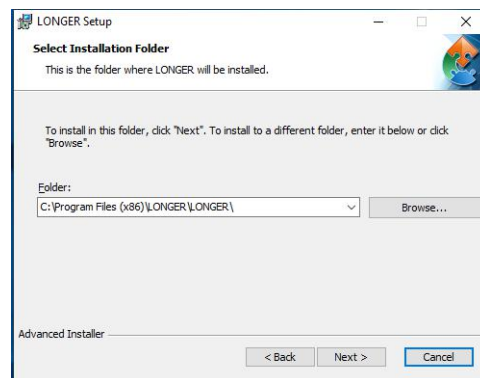
> Click to enter the next step, select the default C drive for installation, otherwise the software will not open normally
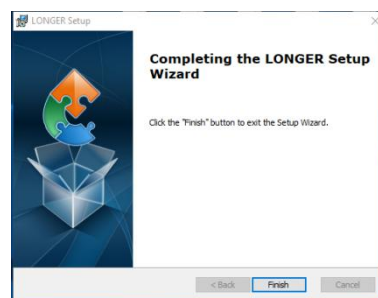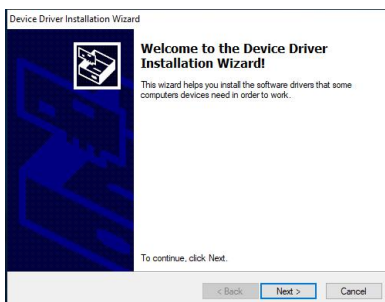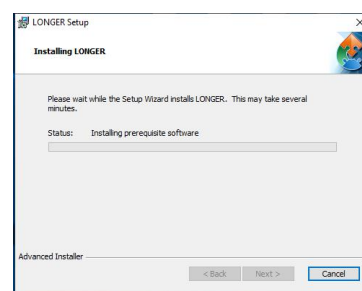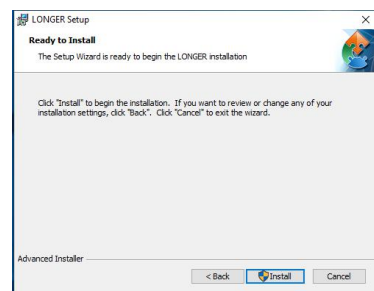
> Follow the software installation guide reminder and click Next to complete the installation.

(2) **Model selection**
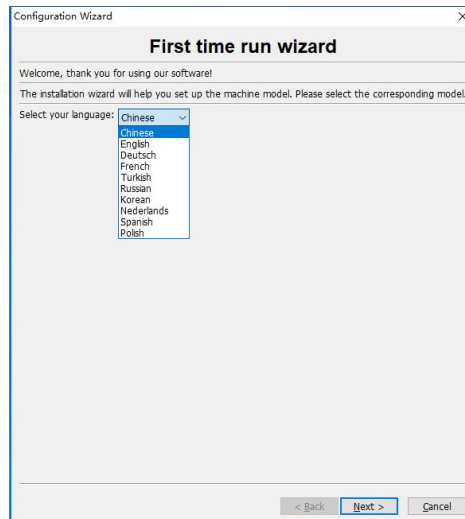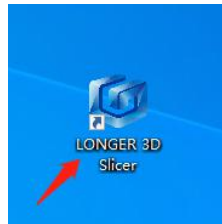
Open the software and choose the language you want
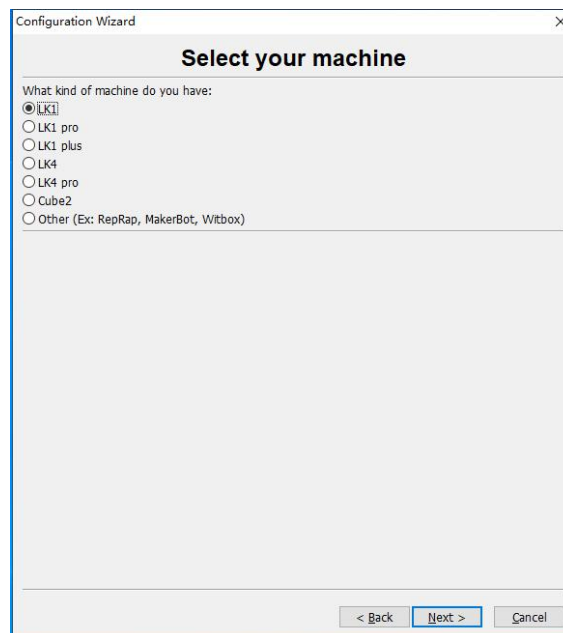
According to the model of the machine purchased, select the corresponding model. Incorrect selection will cause the machine parameters to be incorrect and the printer will not work properly. If it is a machine of another brand, you can also choose other models for related settings or use it.

(3) Software usage introduction
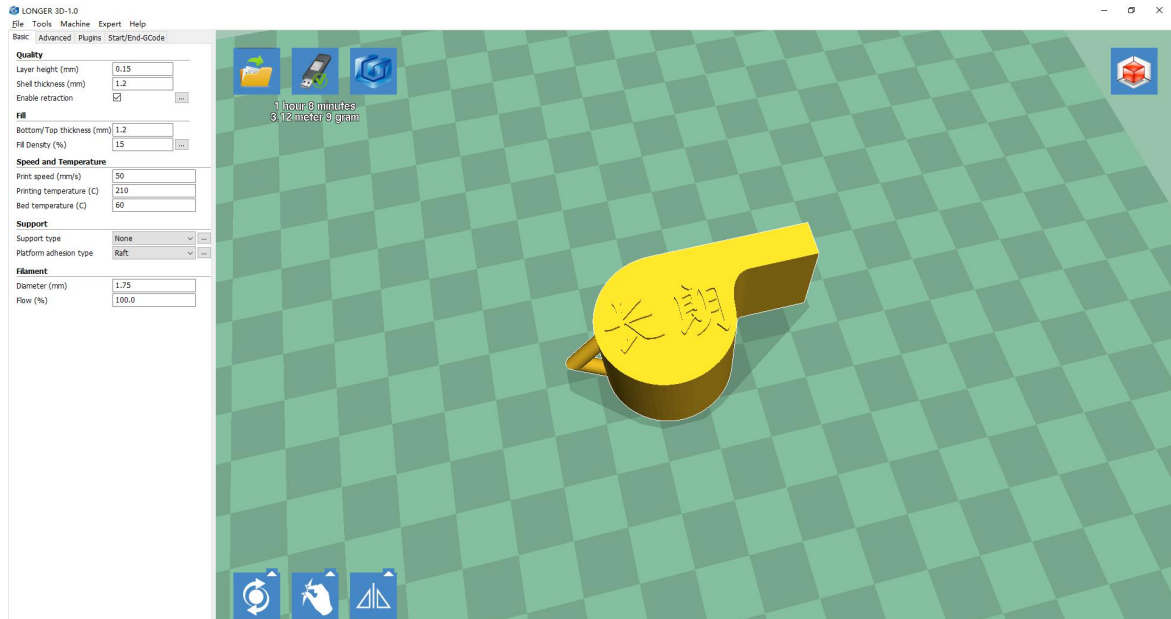
3D printer supports gcode format files, so you need to import the STL format model into Changlang 3D slicing software for slicing operation. To print a fine model, you need to have a deep understanding of the slicing software that controls the print path. Print out the various models you want, and set each parameter of the machine to the parameter bar to pop up the corresponding explanation.

(4) Detailed software parameters

Layer thickness: 0.1 ~ 0.4mm, high accuracy of 0.1mm, long printing time, generally 0.2mm, low accuracy of 0.4mm, short printing time.

Wall thickness: set to 0.4mm is very thin, generally set to 1.2 high, it will be firm, and printing time will increase.

Turn on rollback: The purpose of thread withdrawal is to prevent the silk from leaking out when printing quickly, otherwise it will affect the appearance.

Bottom / Top Thickness: To make the top print more perfect, the bottom is flat.

Fill density: If the intensity is not very high, 20% is fine; if the intensity is high, increase it, and the printing time will increase.

Printing speed: Generally set between 30-100, the higher the speed, the lower the accuracy.

Printing temperature: depending on the material, it is generally 190 ~ 210 degrees.

Support types: divided into semi-supported and full-supported. Models that have suspensions relative to the structure usually require additional support, but the surface will be relatively unsightly after removing the support.

Adhesion platform: "None" adds nothing; the "bottom edge" edge increases the bottom area; the "bottom mesh" base makes the model adhere more firmly. In order to make the model stick to the base better, add a base plate or edge. It is best to add a base and edge to the model with a small base area.

Diameter: 1.75mm Flow: 100%

Nozzle aperture: 0.4mm.

Retraction speed: the speed of retraction when printing the model.

Retracted length: The length of the material withdrawn, generally 4.5 ~ 8mm.

Initial layer thickness: Print the thickness of the first layer, which is the default.

Initial layer line width: 100% will be thicker and denser, just default.

Bottom Cut: The length of the bottom cut of the model.

Two extrusion overlaps: 0.15mm. By default.

**Idling speed**: The moving speed of the nozzle when it does not squeeze consumables.

Bottom speed: The speed of printing the first layer. The slower speed is that the model is better attached to the bottom surface.

Filling speed / top / bottom speed / shell speed / inner wall speed: The default is 0, which is the same as the printing speed.

Minimum print time for each layer: The default is sufficient.

Turn on fan cooling: Turn on the nozzle cooling fan.

(5) Export gcode format for printing
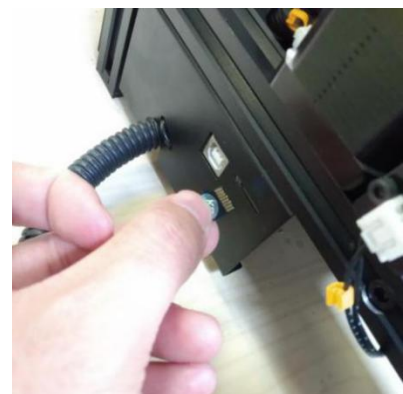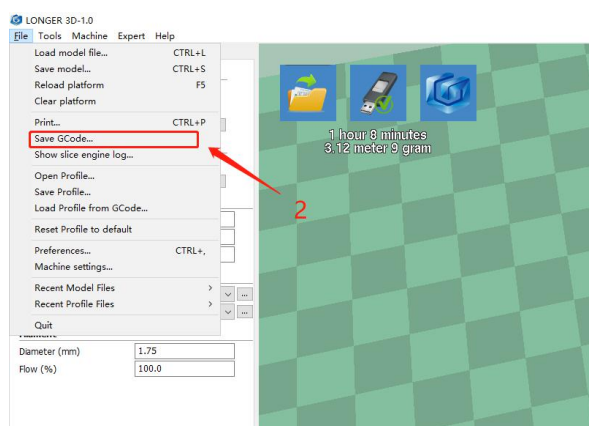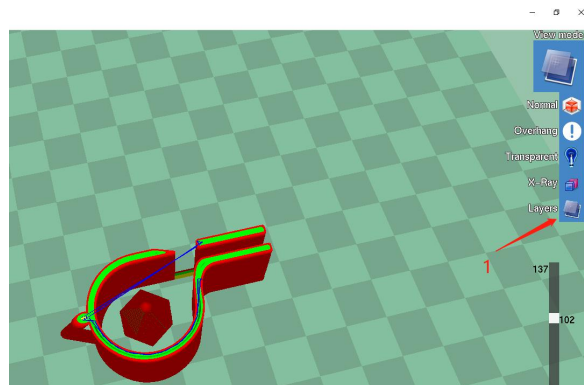
> After setting the parameters such as whether to add support according to different models, first adjust the model preview mode into a layer preview format to see if there are broken surfaces and path errors. After checking that it is correct, import the gcode file into the TF card, and then insert the printer Card slot.

D. Instructions for printing online

Changlang 3D printers support online printing operations, but because the computer sends instructions continuously for a long time, there are many different settings on the personal computer (some computers will set the energy-saving mode or the screen mode, etc.) and the computer will freeze if it runs. The interruption fails, and online printing is generally not recommended.

TF card offline printing is a very stable and mature printing method, and it does not occupy the computer. It is recommended to choose offline printing as much as possible. If you need to know more about the printer, you can print online according to the following steps.

(1) Printer connection

Prepare a data cable with one end connected to the printer serial port and one end to the computer USB port. Plug in the power cord and turn on the switch.

(2) Software settings
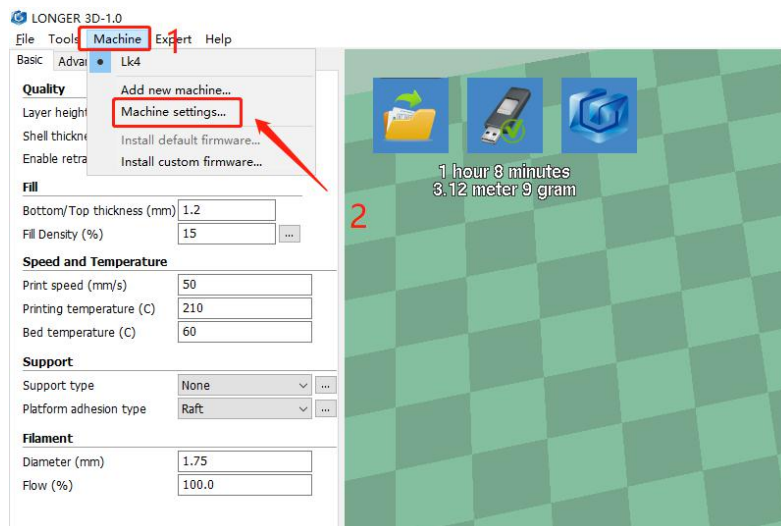
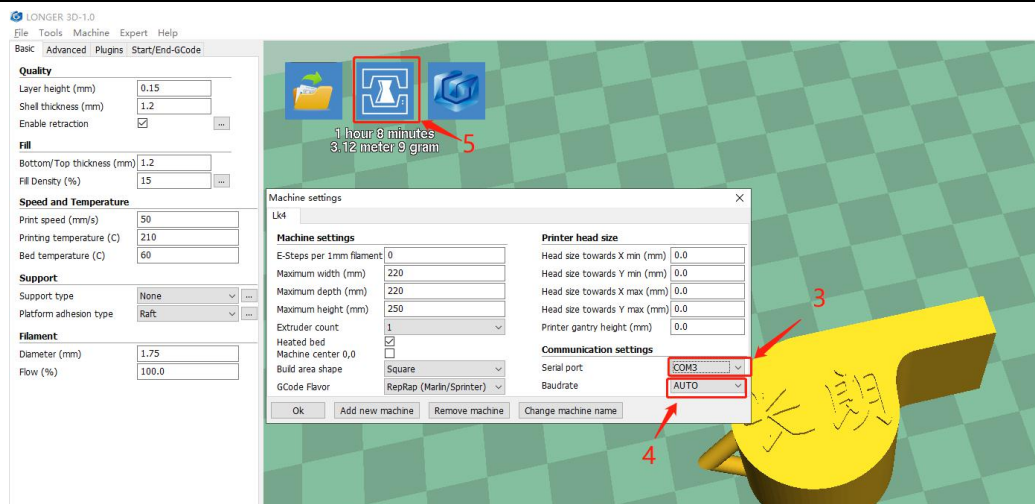Open the Changlang 3D slicing software. The first step is to turn on the model. The second step is to open the model settings. The third step is to select the serial port number displayed by each computer. Generally, the larger serial port is selected. Normally select "AUTO" for the special rate. If you still cannot connect normally, select 115200. After the port is selected correctly in step 5, the original U disk icon will change to a printer icon. At this time, the printer is connected。

(3) Online printing
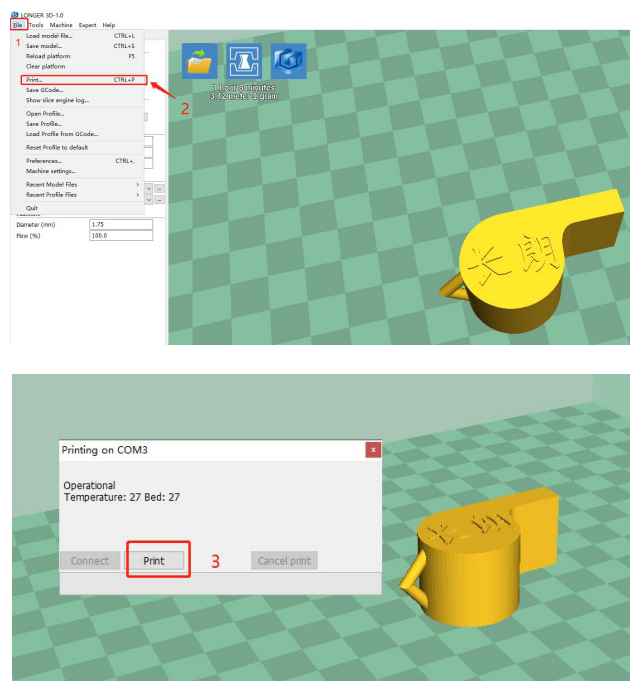
After slicing the model to be printed, open the file in the first step and directly select the print in the second step. If the printer is connected at this time, the print status bar will pop up. If there is no connection, the save gcode code will pop up. In the third step, click print. At that time, the temperature of the hot bed and the temperature of the print head will rise to the set temperature, and then printing will start。

(4) Professional settings
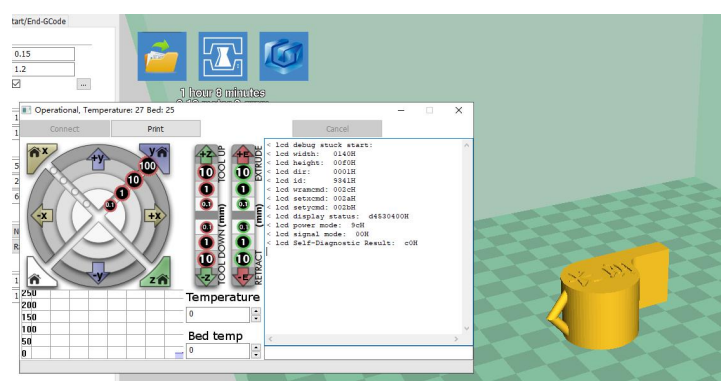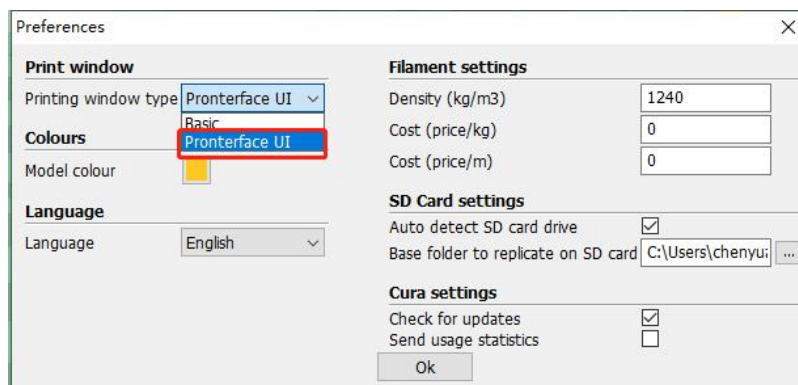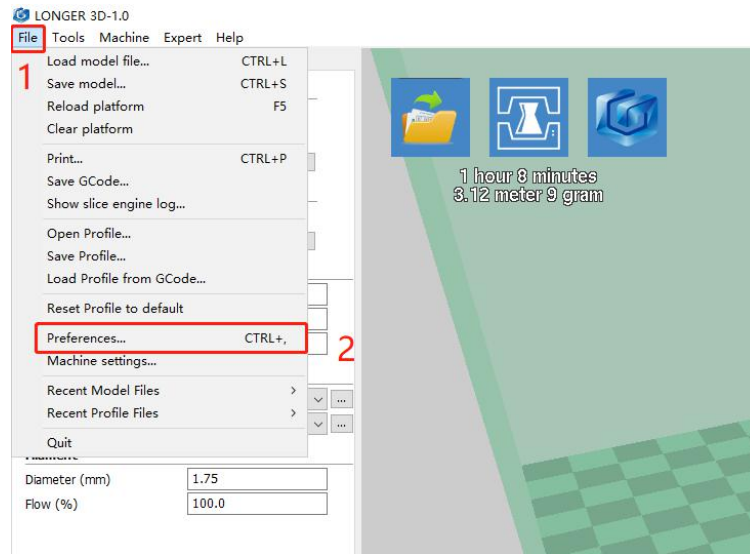
> If you want to print a more professional page online, you can set it by the following steps. Select file in the first step, select parameter settings in the second step, and change the print window settings in the third step to professional. Then start printing the page online and it will become a professional page, you can send G codes, you can control the movement of each axis. If non-professionals use it with caution, it is generally not recommended.

E. Resume printing and filament run-out detection function

（1）Power outage recovery

When printing for a period of time and the height of the print exceeds 0.5mm, the power-off icon will be displayed. At this time, the power is turned back on, and the icon can be clicked. After waiting for the temperature to rise, normal printing can be resumed.
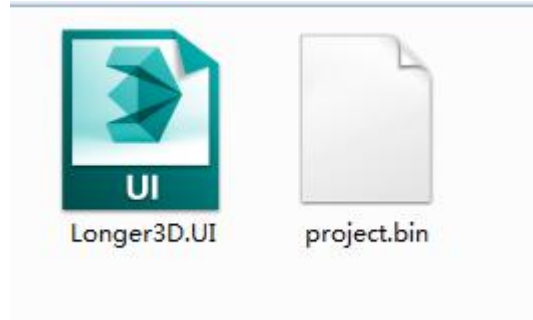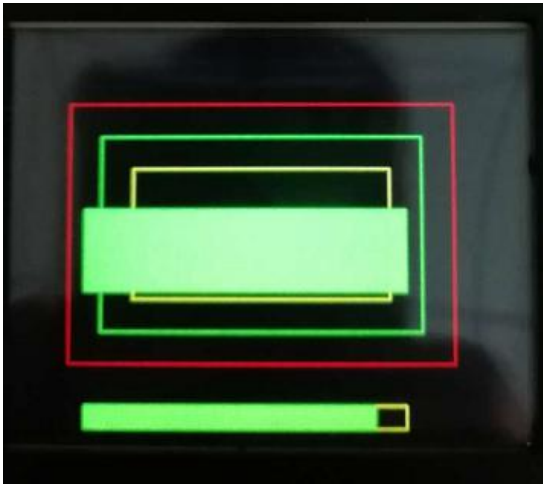
（2）Filament run-out detection

At this point, pull the Teflon tube out of the extruder end,

remove the material, refill the consumables to the nozzle, and

F.   FAQ manual

Question1: How to update the firmware?

1. Copy these two files to the SD card

Longer3D.UI   project.bin

2. Then restart the machine and wait for the machine progress bar to complete before the firmware is refreshed.
3. Then the user needs to delete the two files in the SD card to be used normally, otherwise the firmware will be refreshed every time the phone is turned on

## Question 2:What if the filament does not discharge from the machine?
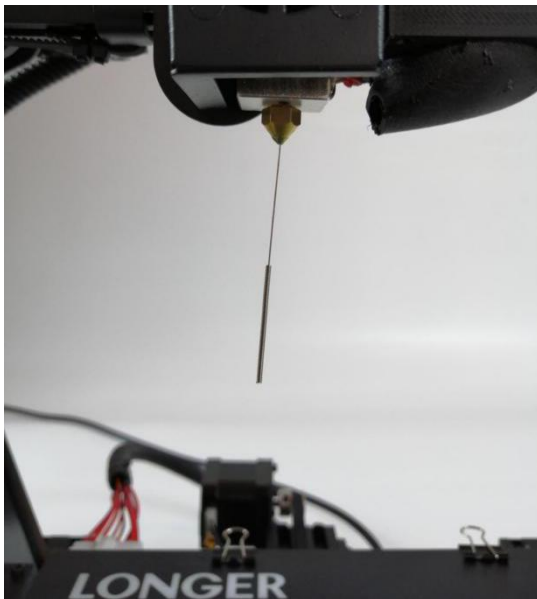
1. After the machine nozzle is heated, the consumables are normally fed into the feeding mechanism by hand, and then passed through the Teflon tube to enter the nozzle.

2. When it is found that the gear of the feeding mechanism emits a "beep" sound, it can first check whether the consumables are wound, causing the extrusion mechanism to pull the material.

3 If this is not the reason, raise the machine nozzle and use the 0.4mm needle in the toolbox to insert it from below the copper nozzle and rotate while inserting.

4. Under normal circumstances, this needle can be used to open the copper nozzle, so that the feed is smooth. The reason for this blocking is generally that there are impurities in the consumables, which leads to plugging.

Question 3: When the machine returns the filament, it can't be returned. What should I do when stuck in the pneumatic joint?

1. Before returning the material, please heat the nozzle first, and then withdraw the consumables as soon as possible. If you can't pump it, you can re-feed the material with the advanced material, and melt the extruded block formed at the end of the consumable in the nozzle.

2. When withdrawing the consumables, before the end of the consumables reaches the pneumatic joint, we will usually pull the Teflon directly from the Teflon and cut the end of the consumables.
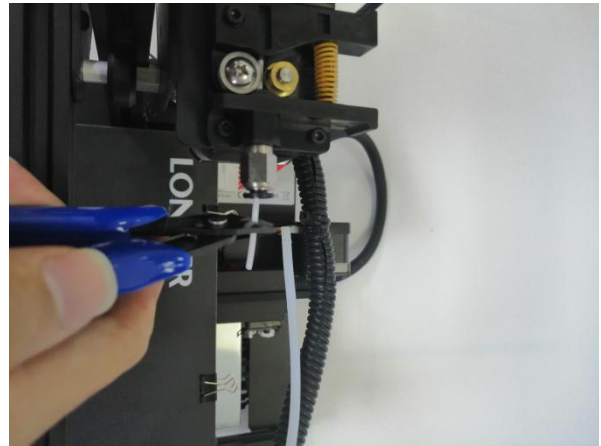
3. Because the end of the consumables in the nozzle will be deformed by heat, if the end deformed consumables are directly pulled out, it may be stuck to the pneumatic joint or the limit switch for damage detection. (The limit switch for the broken material detection is single. Towards).

Question 4: What should I do if I cannot resume printing after power shutdown?

If the power is suddenly turned off when the part is first printed, the machine will not save the print data. Unless the height of the print exceeds 0.5mm, the power failure will be supported. If the height is less than 0.5mm, it is recommended to reprint directly.

Question 5: When the machine is leveling, the nozzle moves to the left, it can be leveled normally. When the nozzle moves to the right, it is found that the distance between the nozzle and the heated bed are very far or very close. If the spring is adjusted to the extreme position, it still cannot be leveled. What should I do?

If this happens, the X-axis beam is generally loose. At this time, the hex socket on the right side of the machine can be adjusted with a wrench to adjust the tightness.
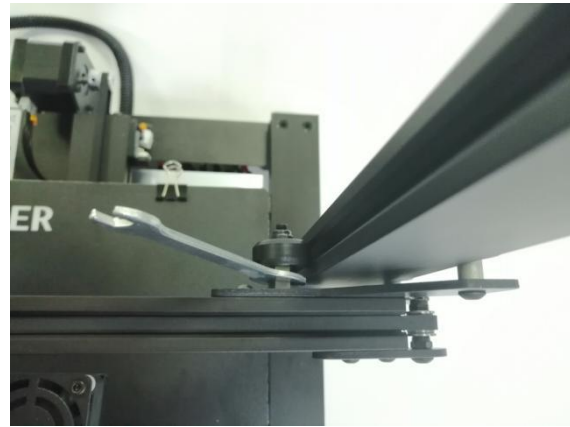
Question 6:

After the machine heats up, the filament is discharged normally. However, when the printing is performed for the first time, the curling occurs on the platform. After printing several layers, the filaments get out of the platform. What can I do

1. After the user gets the 3D printer, if the leveling is found to be curled on the first layer of silk, it feels like it is gently falling on the platform. It can be judged that the leveling is not adjusted, and the nozzle is too high from the hot bed. ,

2. At this point we need to re-level, the quality of the leveling can largely determine the success rate of the part printing.

3. In addition, in order to ensure good contact between the model and the platform, we can set the larger plane of the model face down when slicing, and can also be set in the slicing software to add Raft to the model, which can make the model stick to the platform. Firm.