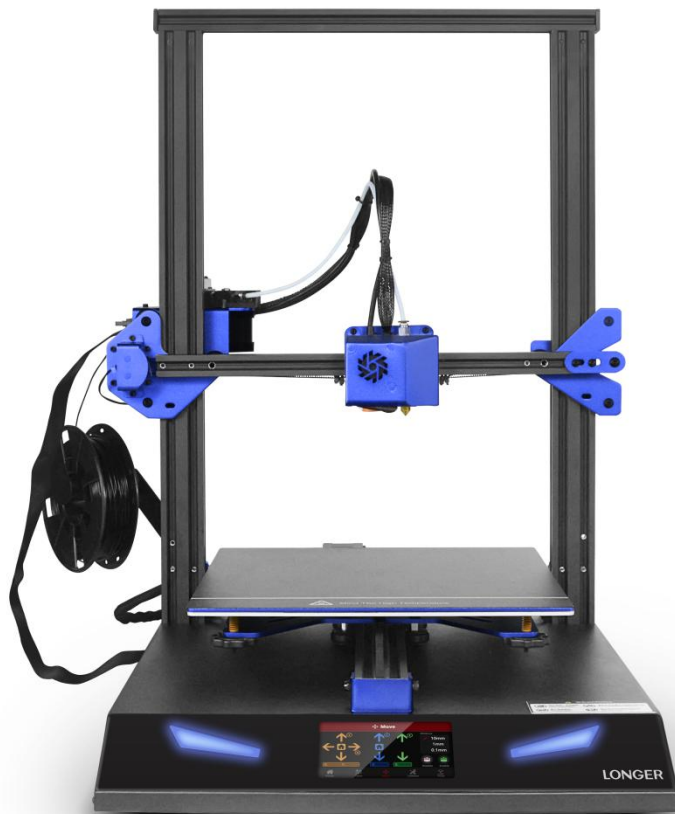


LK1 Pro instructions

LONGER



catalog

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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 national or local voltage standards.

- 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 extremely prone to breakage.

Stitching 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 requirements: 10 ° C ~ 40 ° C, humidity requirements: 20% ~ 50%, within this range, the 3D printer can work normally; beyond this range, this 3D printer will

Unable to achieve the best print results.

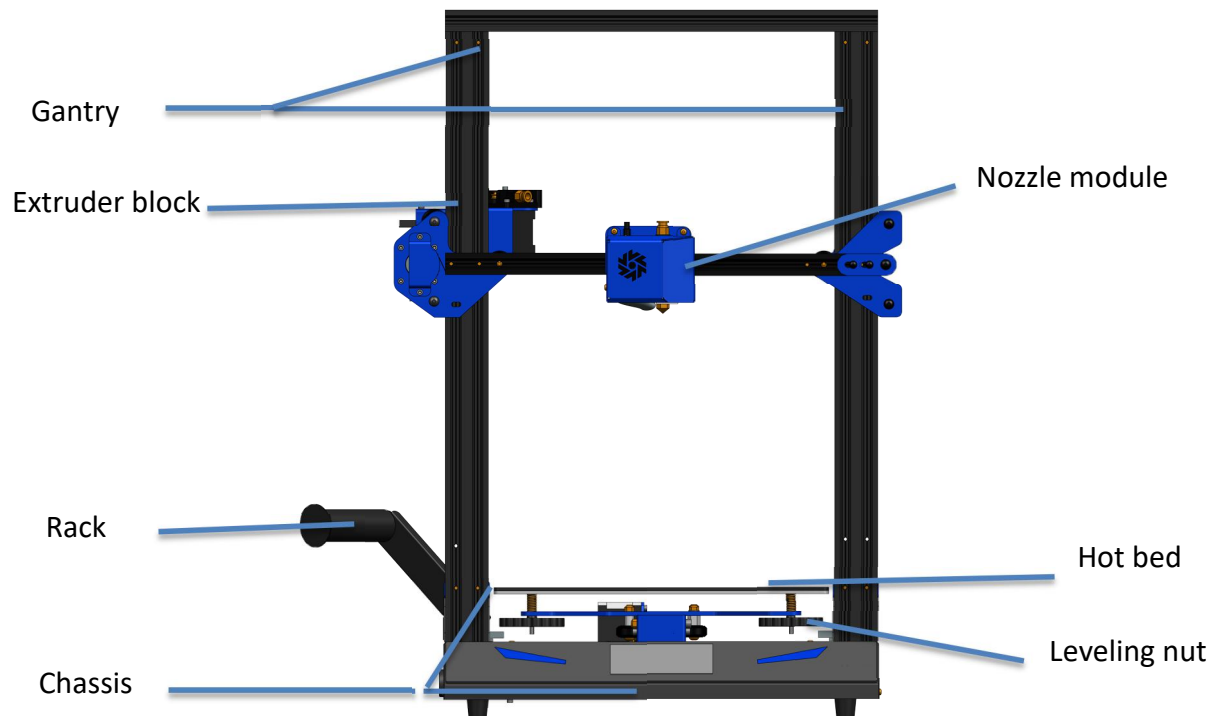
A. Product information

model	LK1 pro	Machine size	645*403*656mm
frame	Classic aluminum frame	Machine weight	12.8KG
Molding	FDM (hot melt production)	Package dimensions	742*532*312mm
Number of nozzles	1	packaging Weight	16.8KG
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
Slicing software	Cura, repetier-host	Support consumables	PLA, ABS, wood, copper consumables
file format	STL, G-Code, OBJ	Consumable diameter	1.75mm
Consumable color	Multi-color optional		

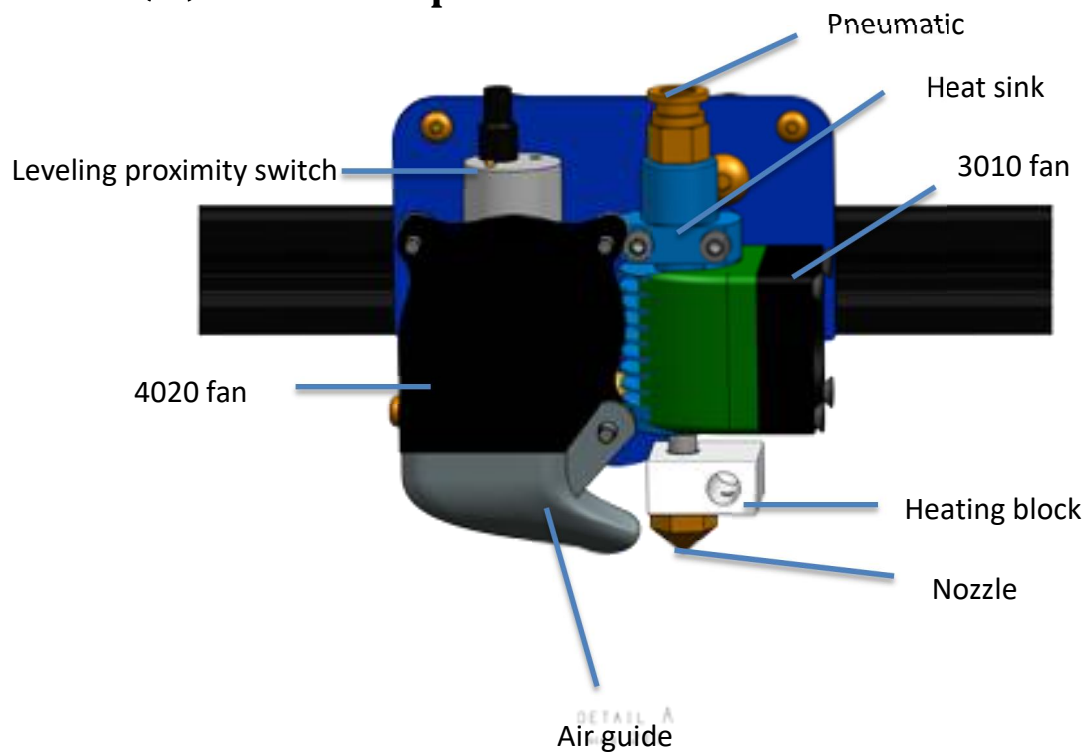
包装箱内物料(Tool box material)		
1	料架(rack)	
2	扎带(cable ties)	
3	耗材 (Filament)	
4	小铲子(trowel)	
5	尖嘴剪钳(Pointed nose shear forceps)	
6	扳手包(Wrench bag)	
7	一字螺丝刀(slotted screwdriver)	
8	读卡器(Card reader)和 SD 卡(SD card)	
9	开口扳手 (Open wrench)	
10	电源线(Power cord)	
11	数据线(data wire)	
12	针(needle)	
13	辅助调平板 (Auxiliary adjustment)	
14	M5*16	
15	M5*20	

16	龙门架 (Gantry)	
17	机箱 (Chassis)	

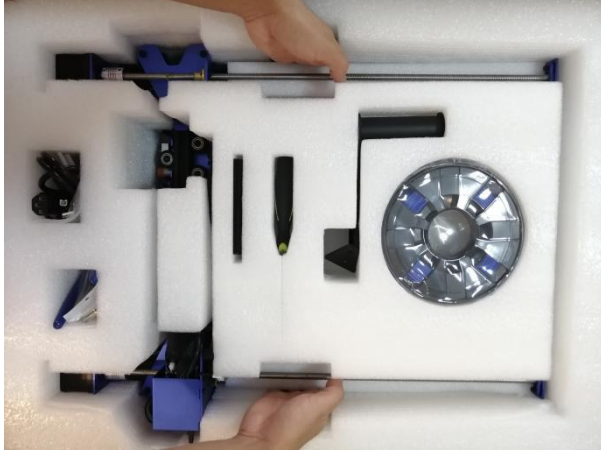
(2) Machine introduction



(3) Nozzle exploded view

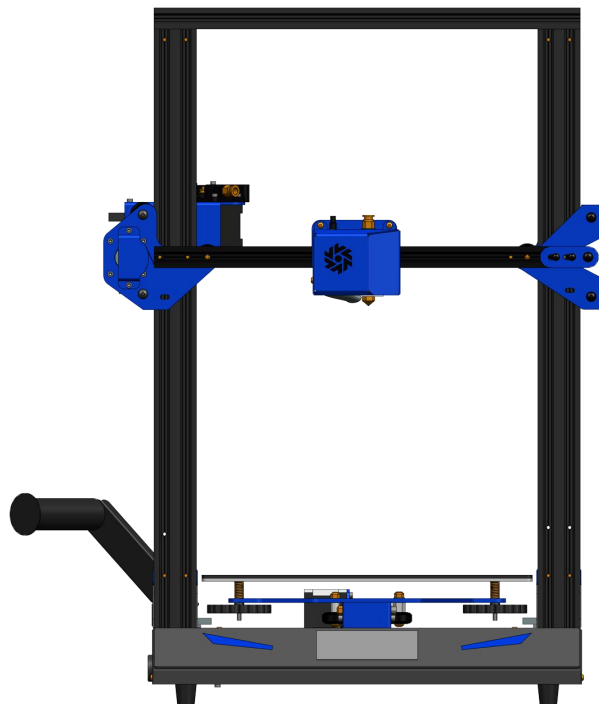


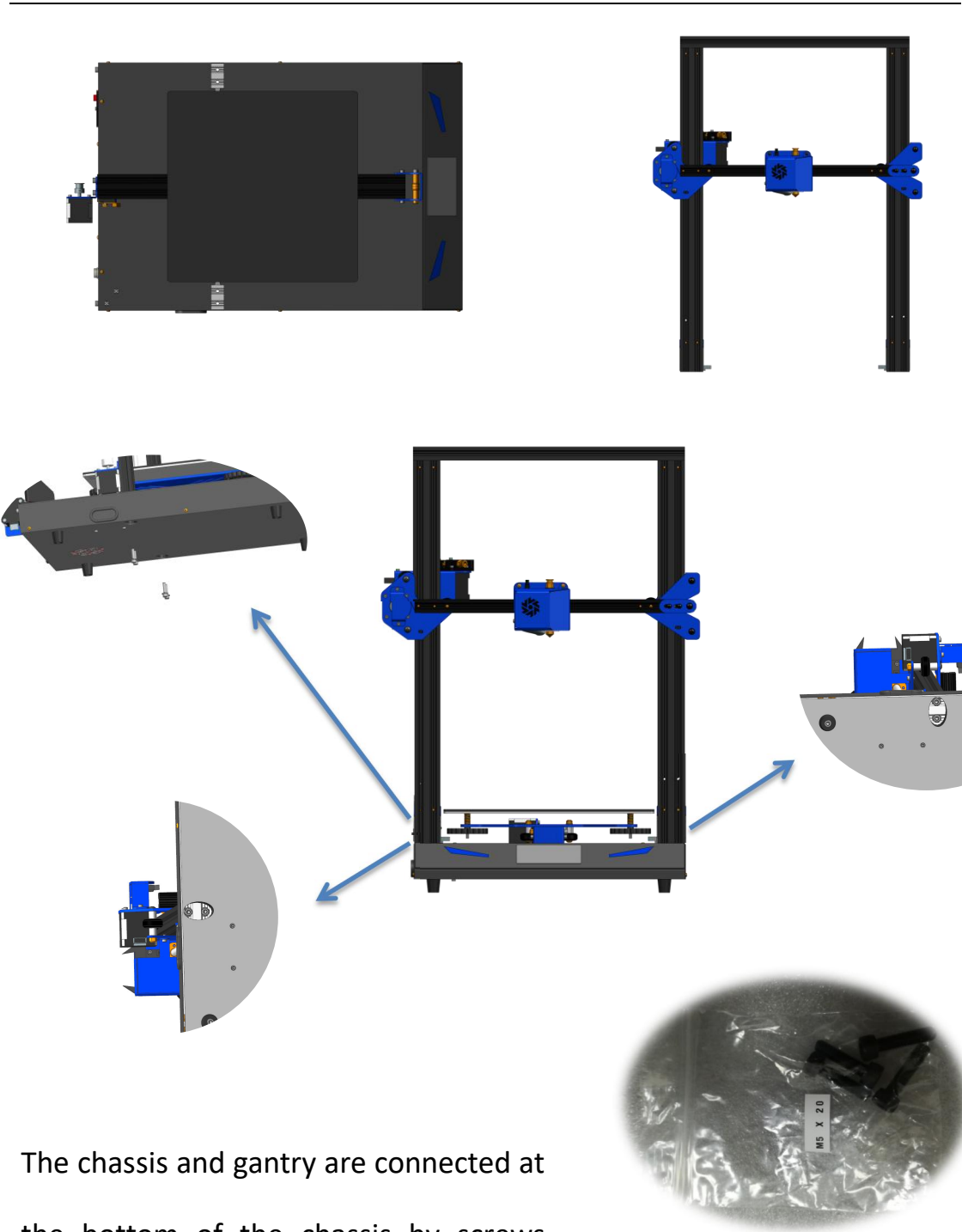
(4) Pneumatic connector



Upper packaging

Underpack

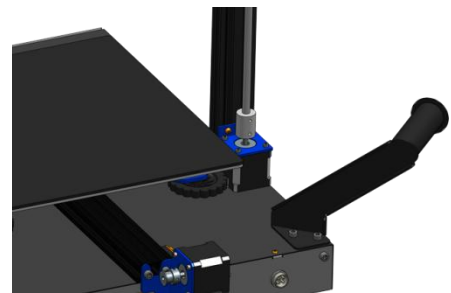




The chassis and gantry are connected at the bottom of the chassis by screws M5*20.

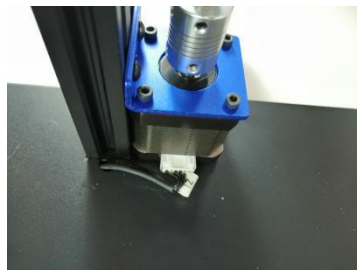
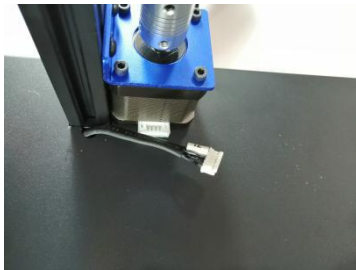
M5*20

(5) Rack mounting



Use M5*16 screws

(6) wiring

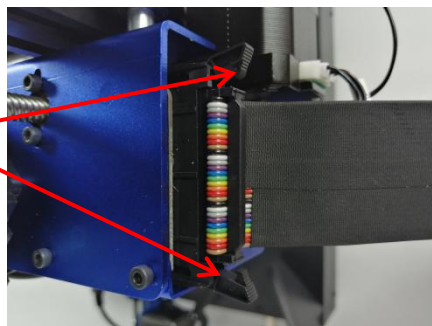


Wiring of the z motor on the left and right sides of the machine

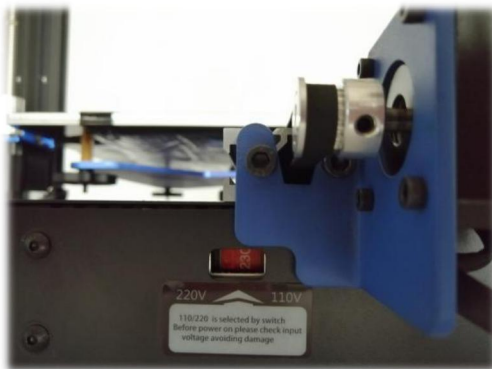


Wiring of the machine adapter board

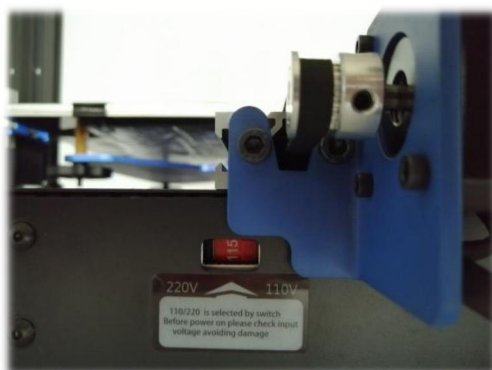
Force the red arrow to point
Button to open the
adapter plate



(7) Power supply voltage regulation

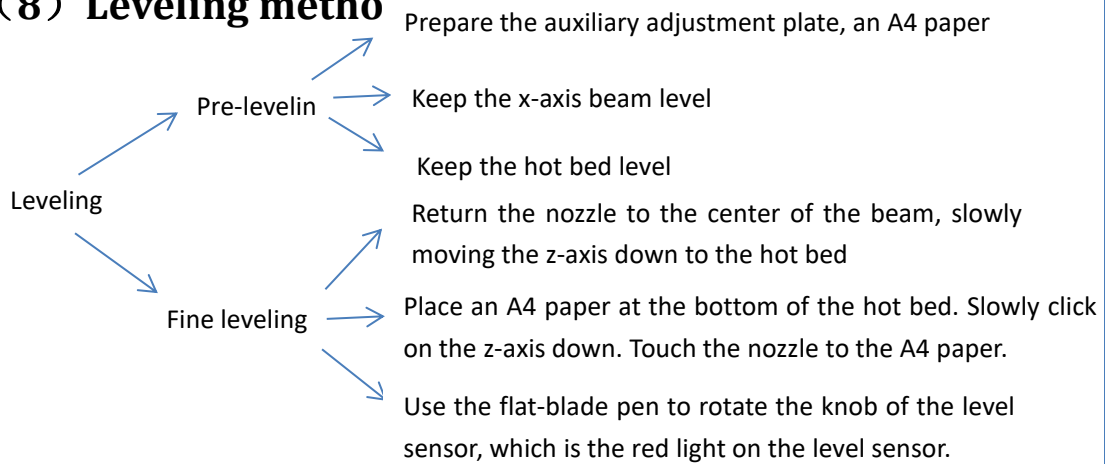


If the access voltage is 220V, please adjust the power supply in the control box to 220V, please be sure to confirm before powering on. Otherwise it will burn the power



If the access voltage is 110V, please adjust the power supply in the control box to 110V, please be sure to confirm before powering on. Otherwise it will burn the power

(8) Leveling metho



Waiting for the machine to automatically level

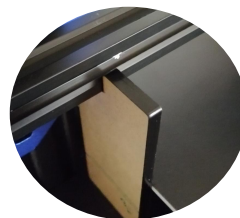
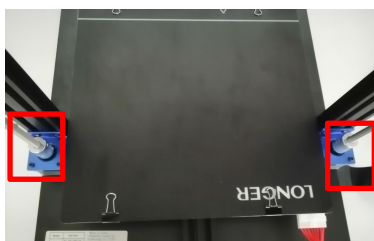
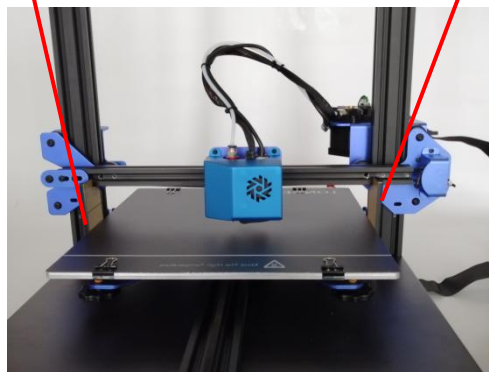
1) Pre-levelin

A.You need to prepare the auxiliary adjustment plate, an A4 paper

Purpose: Keep the x-axis beam at a relative level



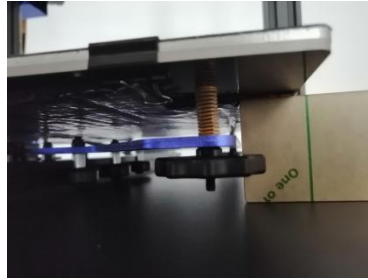
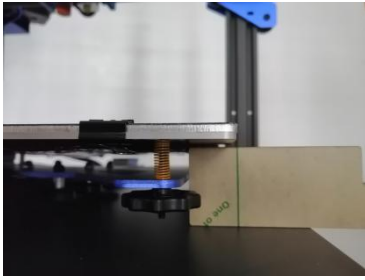
Auxiliary adjustment
105mm long and 45mm wide



4. If the side of the beam is too high, **you can adjust the beam to the horizontal level by rotating the z-axis coupling on that side.**

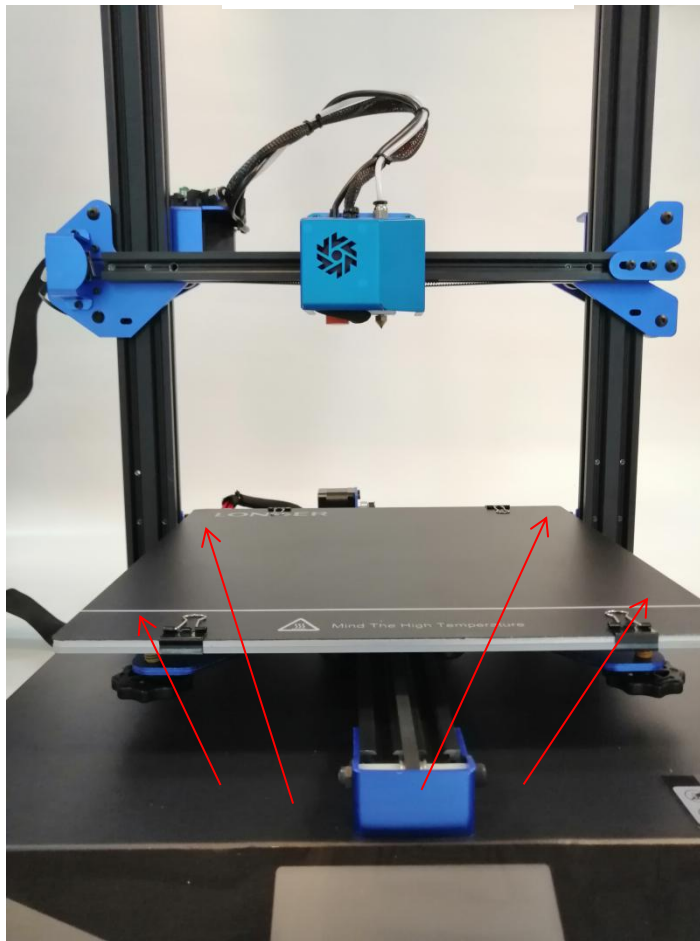
3. Make the X-axis beam horizontal, and assist the adjustment plate to contact the x-axis beam:

The auxiliary adjustment plate can feel the pressure on the movement on both sides, but it can move easily



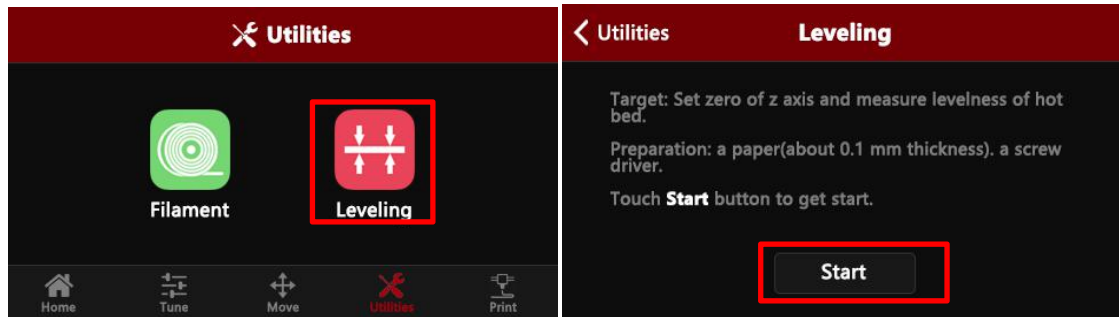
Use the auxiliary adjustment plate to snap between the hot bed and the bottom sheet metal.

By adjusting the bottom leveling nut, the auxiliary adjustment plate can feel the pressure on both sides of the movement, but it can be easily moved.

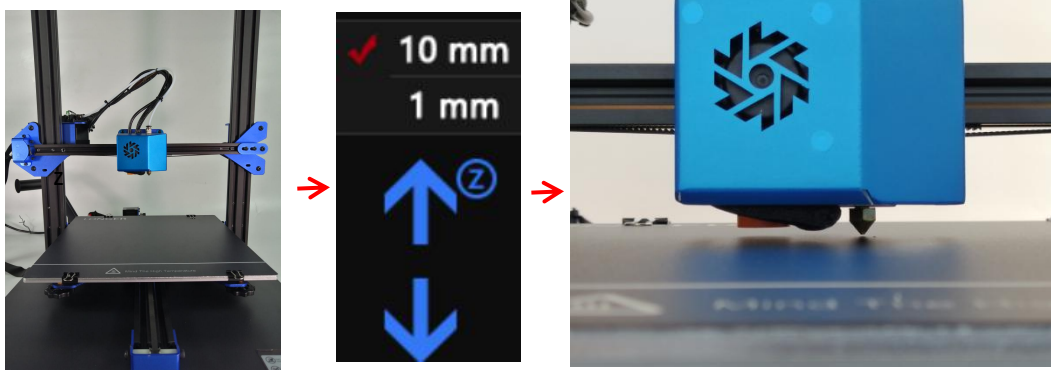
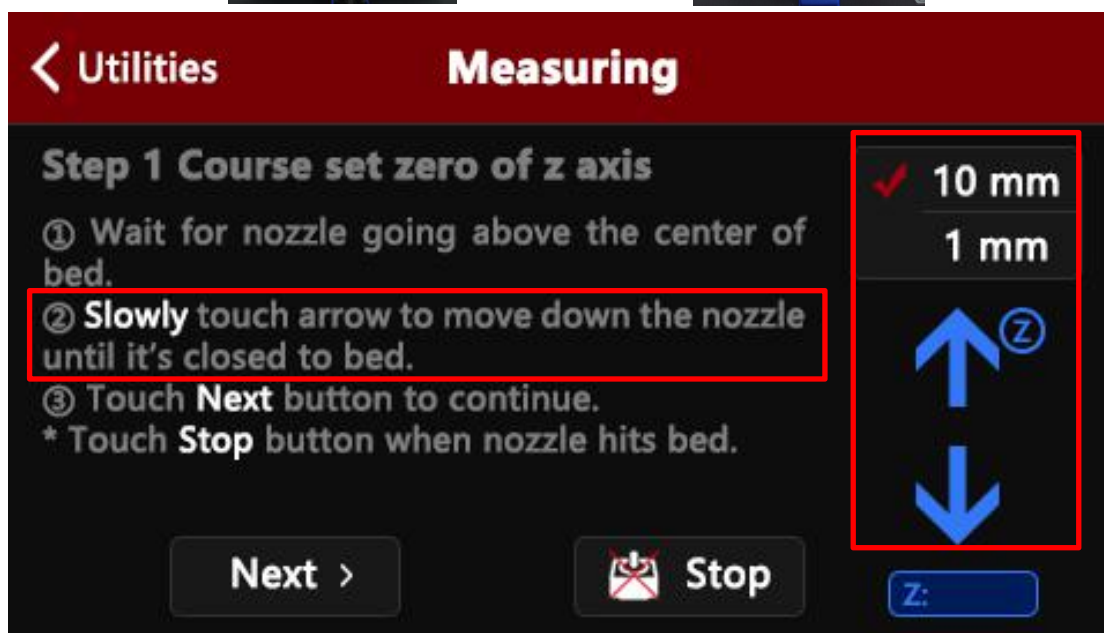
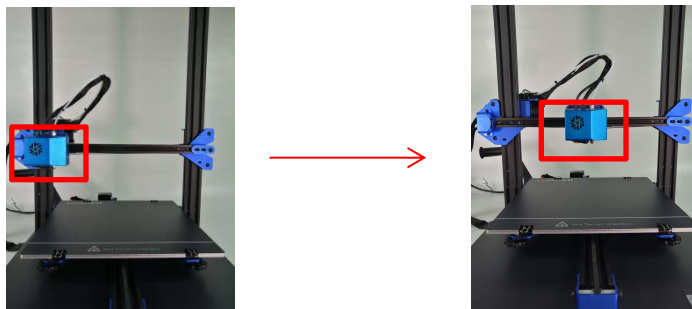


Four corners need to be adjusted in the previous step

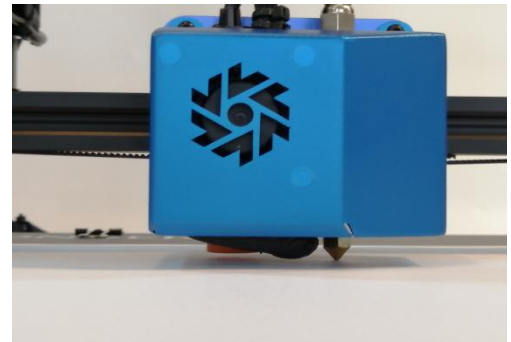
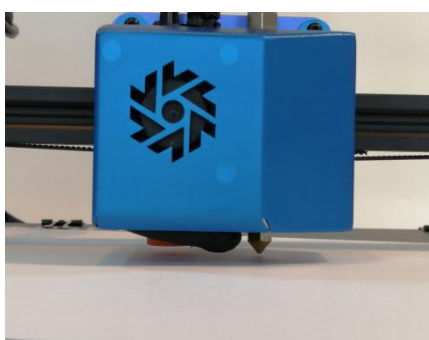
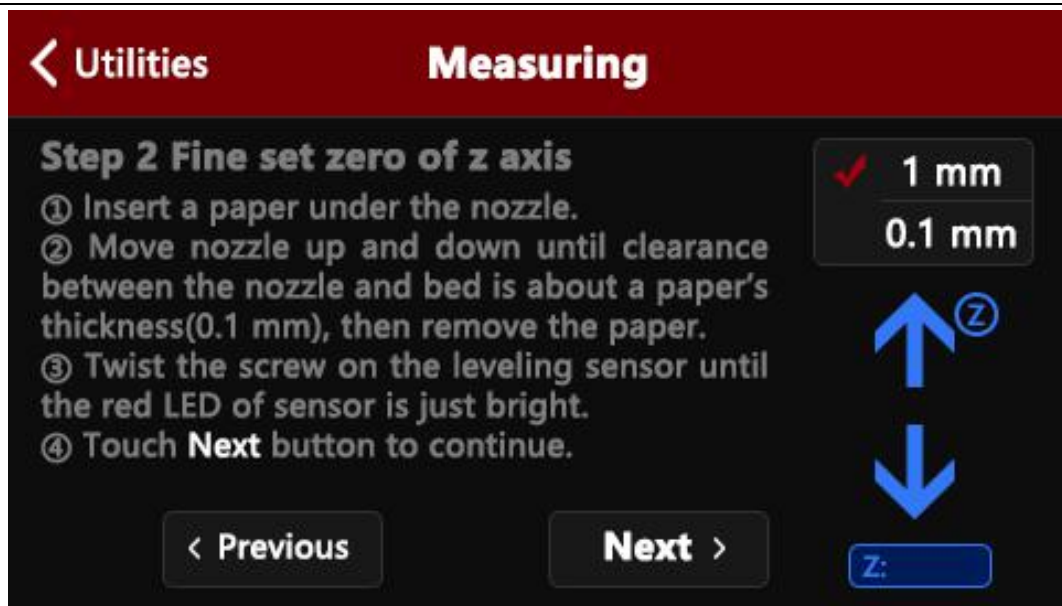
2) Fine leveling



Click "Start": X-axis and Y-axis auto-regression center



The distance between the nozzle and the heating plate is about 1mm



- 1) .Use a flat-blade screwdriver to turn the screw of the proximity switch to close the red light of the proximity switch. (If the light is off, skip this step).
- 2) Rotate the screw of the proximity switch slowly and adjust it until the proximity switch is just bright (can be adjusted multiple times).
- 3) Use your finger to slightly press the center position of the printing platform. The proximity switch indicator light is off and sensitive, which means the adjustment is completed.

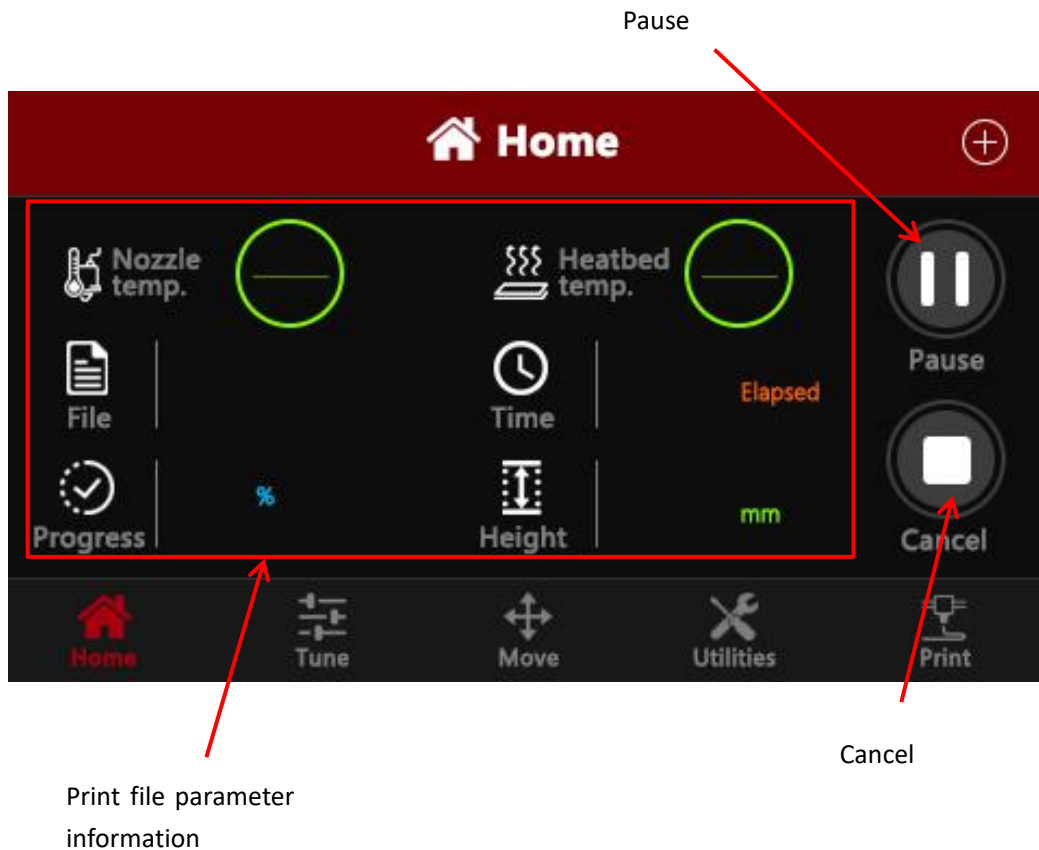
B. Machine operation

(1) Machine control interface description

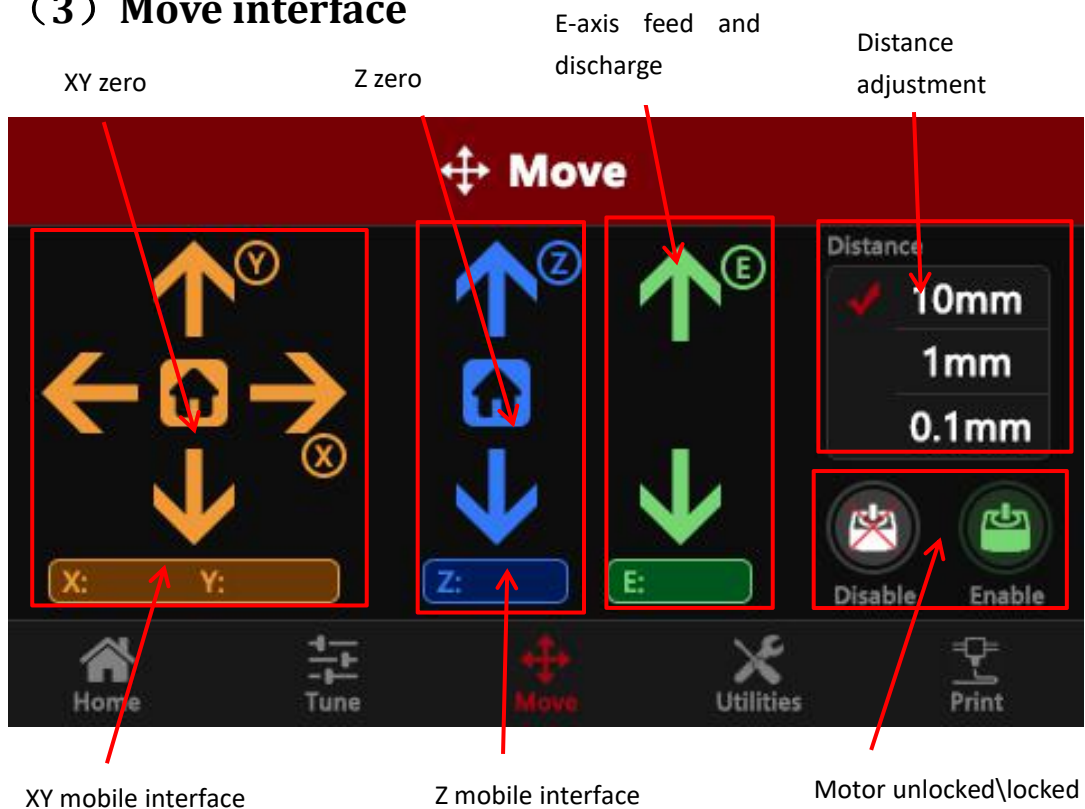
Primary interface	Secondary interface	Explain	
HOME	Nozzle temp	Display nozzle temperature	
	Heatbed temp	Display the temperature of the hot bed	
	File	The name of the file	
	Time	Print time	
	Progress	Print process	
	Height	Print height	
	Pause	time out	
	Cancel	End	
Move	X,Y	X, Y left and right movement and zeroing	
	Z	Z axis movement	
	E	In and out of consumables	
	Distance	Moving distance	
	Disable	Unlock the motor	
	Enable	Locking motor	
Tune	Nozzle temperature	Increase\lower	Nozzle temperature control
		Cool	Temperature back to 0 ° C
		step (°C)	Temperature control step size
	Heatbed temperature	Increase\lower	Hot bed temperature control
		Cool	Temperature back to 0 ° C
		step (°C)	Temperature control step size
	Fan speed	Increase\lower	Fan speed control
		stop fan	The fan stops rotating
		step	Step speed of the fan speed
	Feed rate	Increase\lower	Print speed magnification
		Restore	Restore default (100%)
		step	Print speed step size
	Nozzle flow rate	Increase\lower	Nozzle flow control

		Restore	Restore default (100%)
		step	Nozzle flow step size
	LEDs	Open \close	LEDs light control
Utilities	Filament	Nozzle temp	Nozzle temperature display
		Heatbed temp	Hot bed temperature display
		Filament type	PLA\ABS
		Cool	Nozzle\ Heatbed
		Filament change	Feeding/returning length control
		Load\Unload	Feeding/returning control
	Leveling	Start	Automatic leveling control
		Measuring	
Print	TF 卡	Select print file	
	open	Start printing	

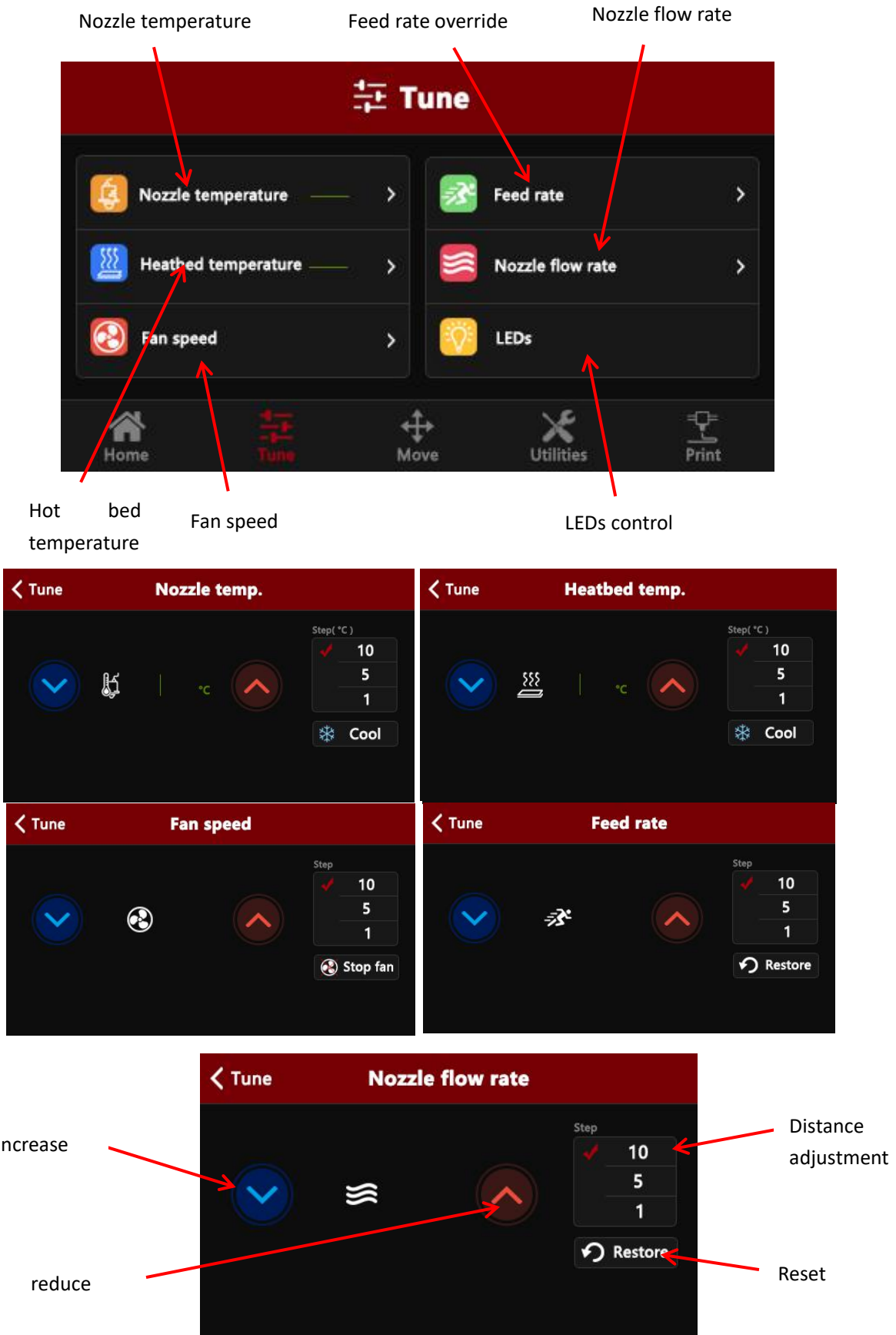
(2) HOME interface



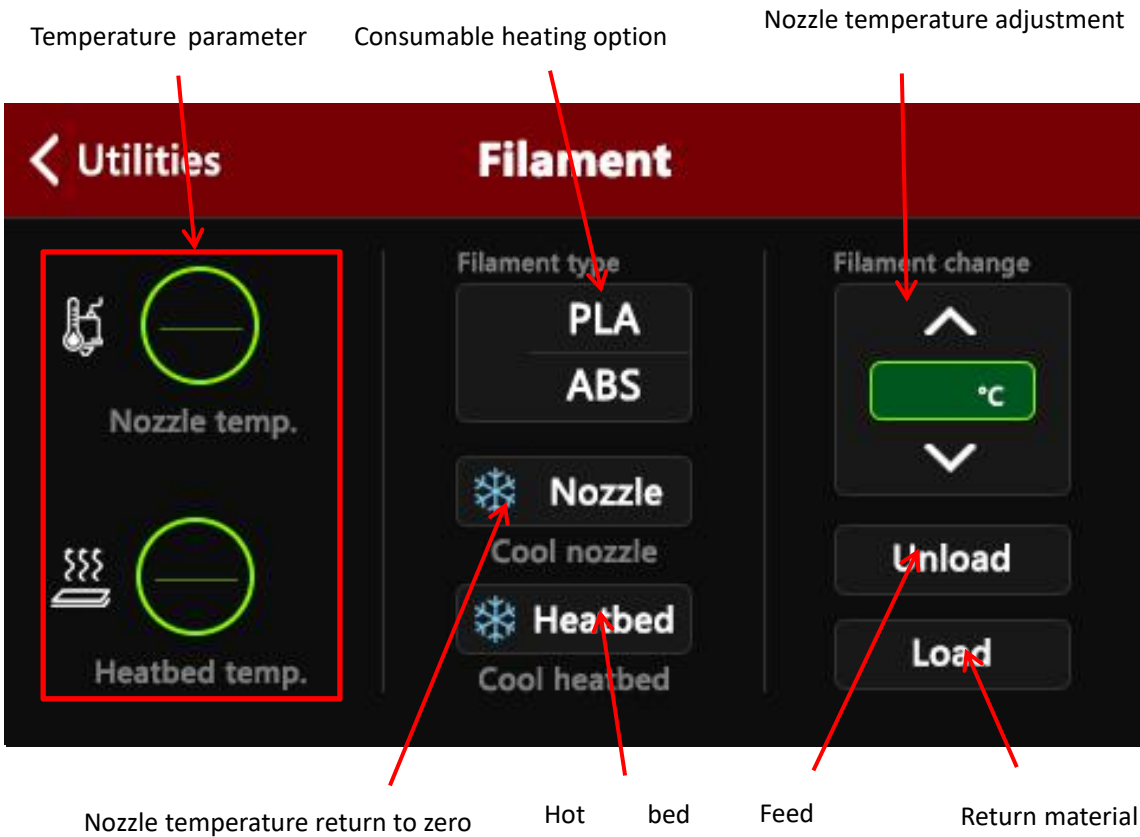
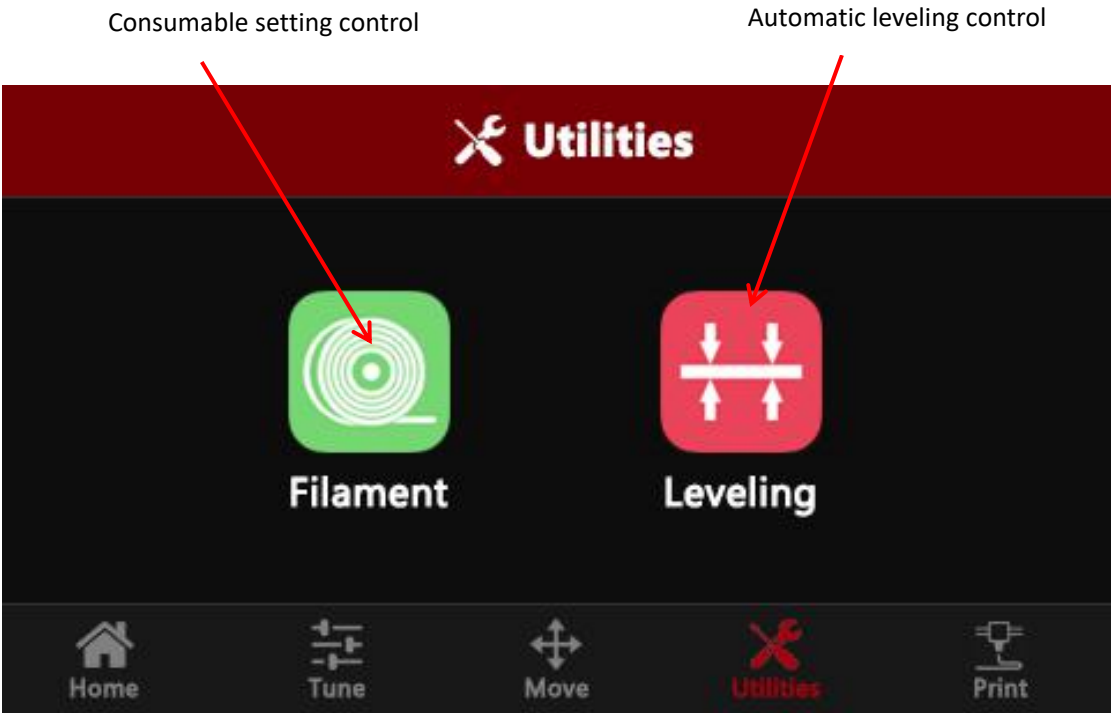
(3) Move interface



(4) Tune interface

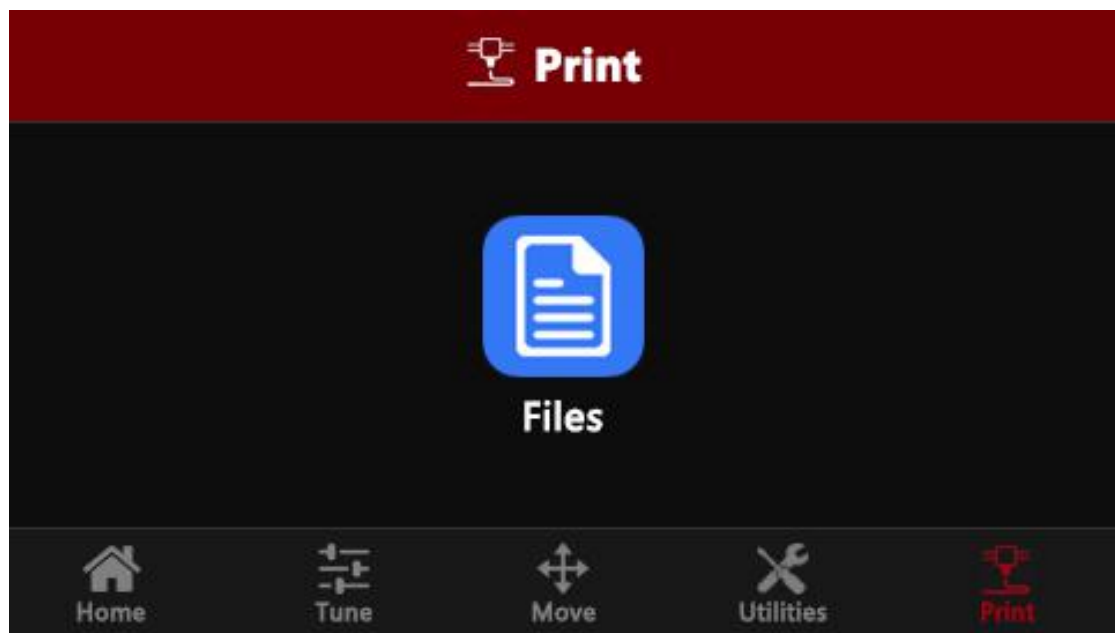


(5) Utilities interface

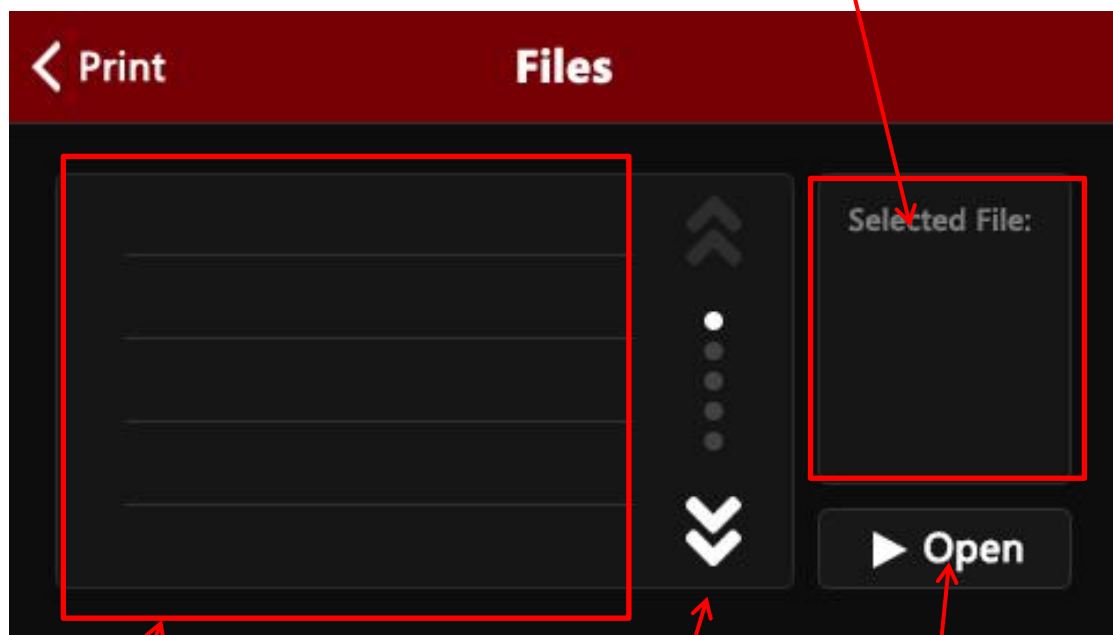


Note: The detailed description of the automatic leveling is in Part 8 of A.

(6) Print interface



Select the display of the file



File selection and
display

scroll

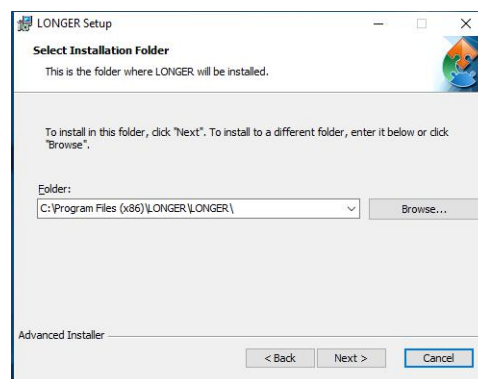
Start

C. Installation and use of Changlang 3D slicing software

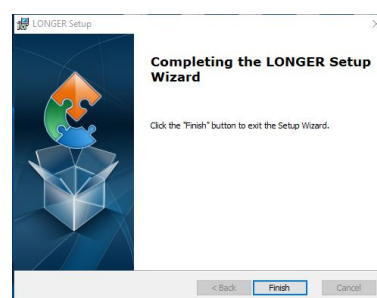
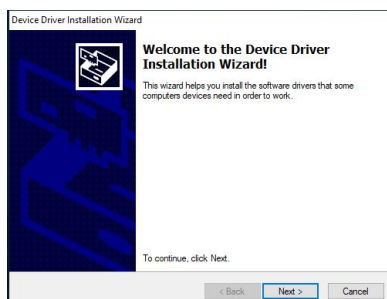
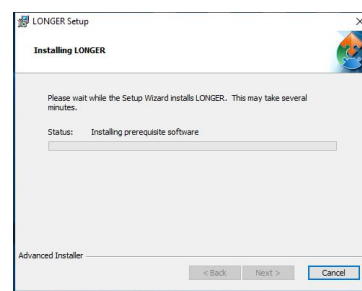
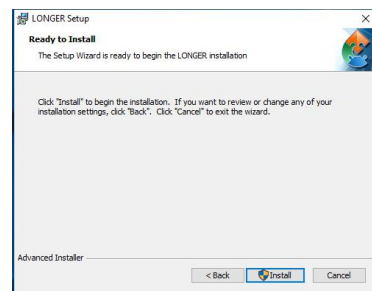
(1) Software installation

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

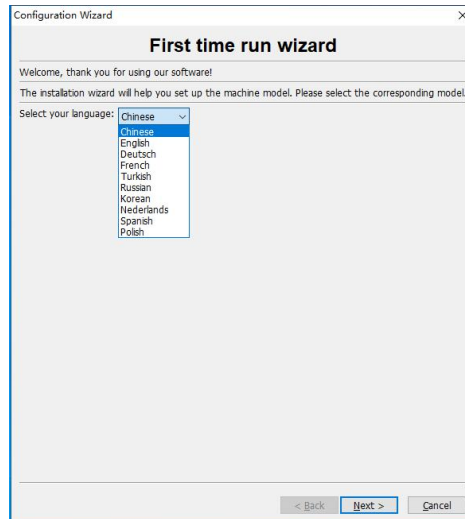
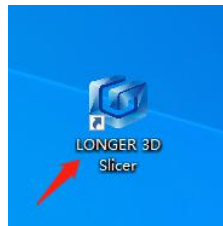


Click to enter the next step, **select the default C drive for installation, otherwise the software will not open normally**

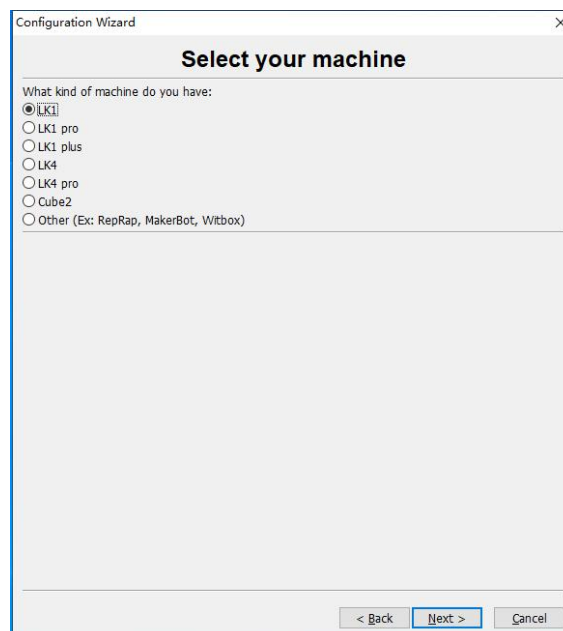


Follow the software installation guide reminder and click Next to complete the installation.

(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.

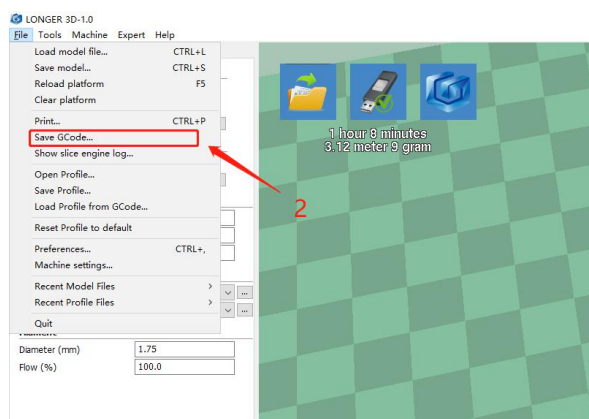
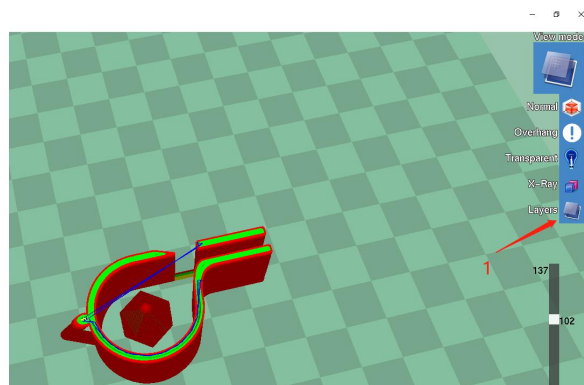
Bottom speed: The speed of printing the first layer. The slower speed is that the model is better attached to the bottom surface.

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.

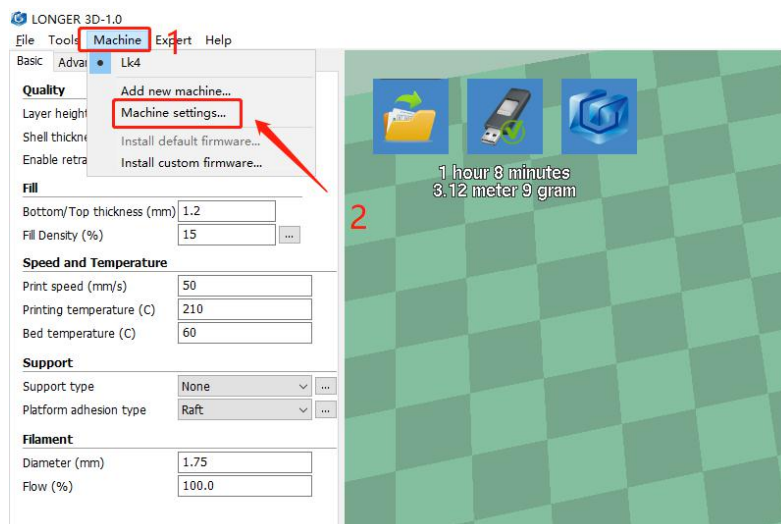
TF card offline printing is a very stable and mature printing method, and it does not occupy the computer. It is recommended to choose offline printing as much as possible. If you need to know more about the printer, you can print online according to the following steps.

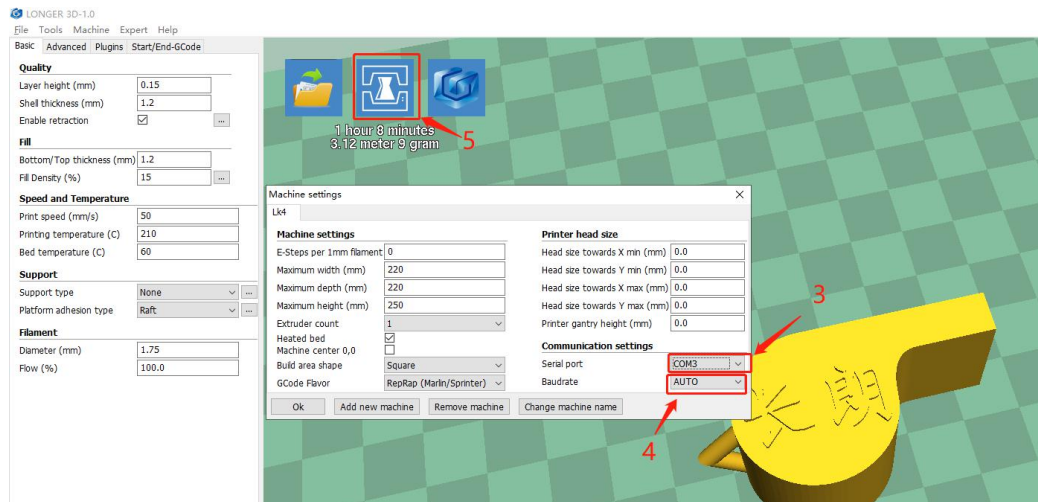
(1) Printer connection



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.

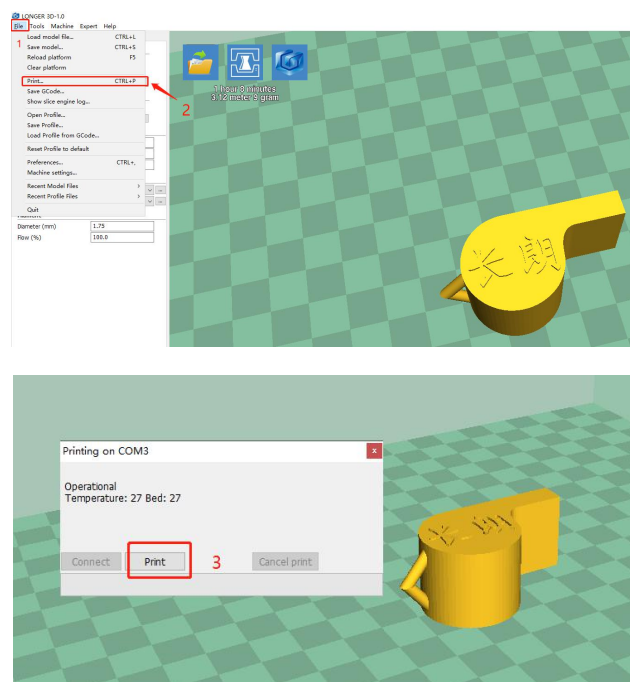
(2) Software settings





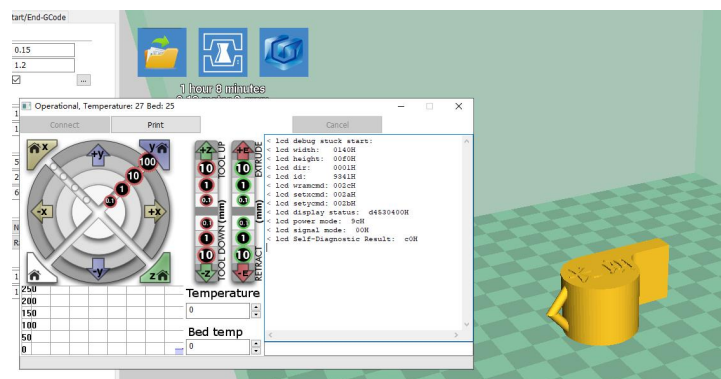
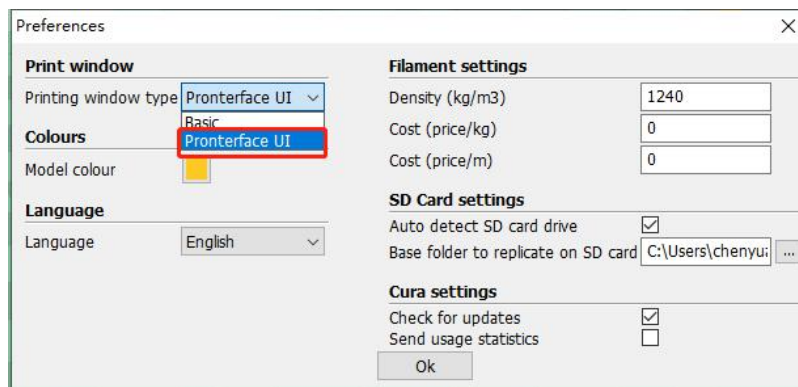
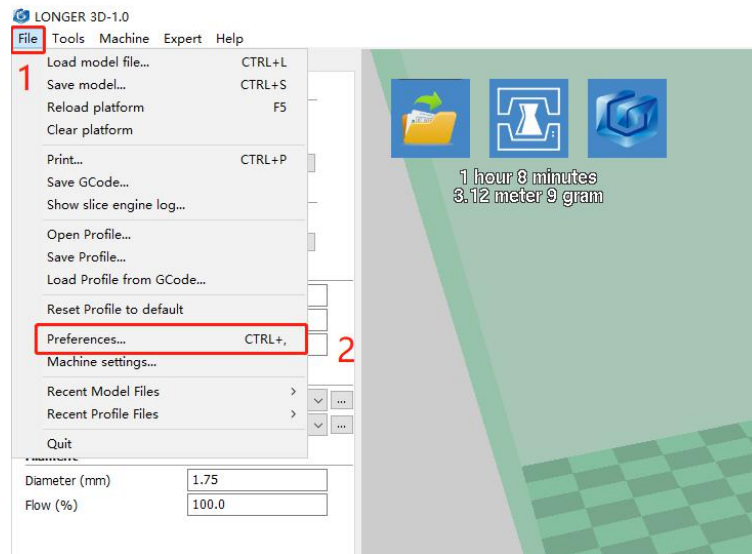
Open the Changlang 3D slicing software. The first step is to turn on the model. The second step is to open the model settings. The third step is to select the serial port number displayed by each computer. Generally, the larger serial port is selected. Normally select "AUTO" for the special rate. If 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.

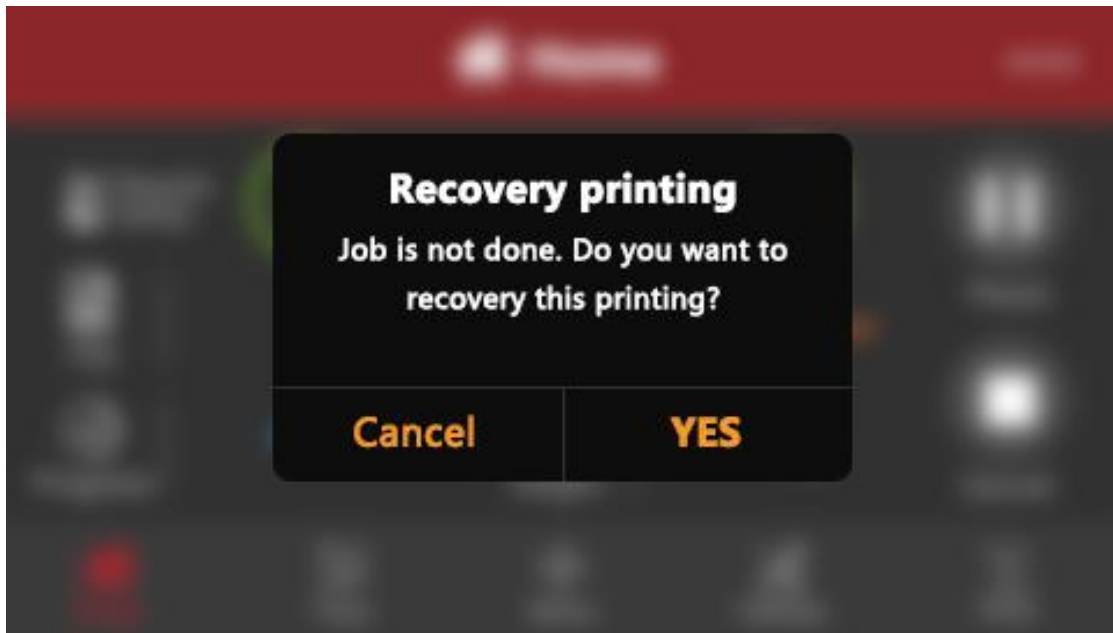
(4) Professional settings



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.

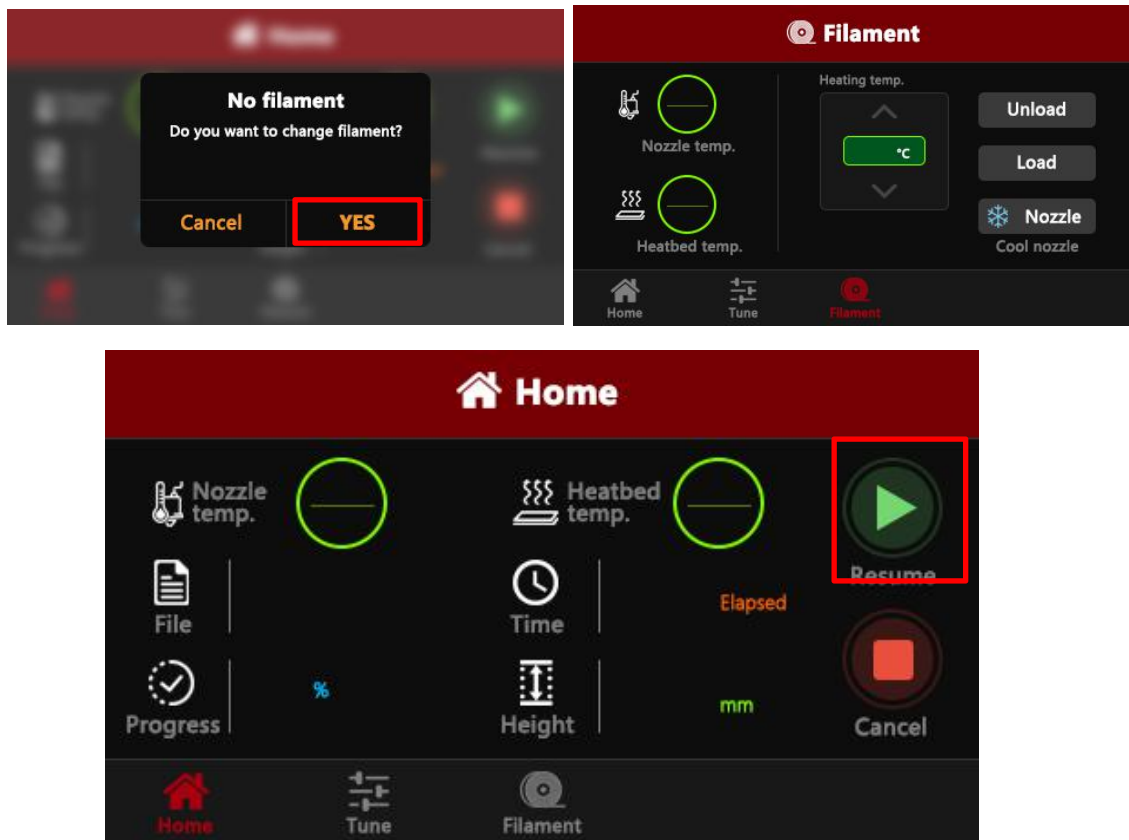
E. Description of power failure and break detection function

(1) Power failure



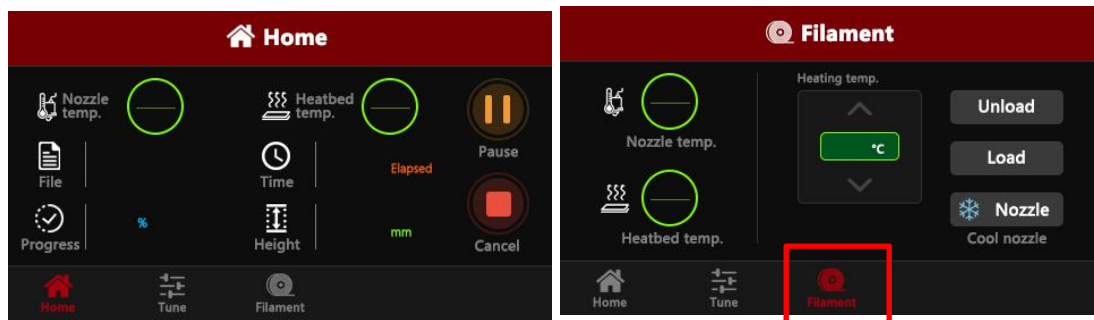
When printing, the power is suddenly turned off. If the height of the printed model exceeds 0.1mm, the icon will be displayed when the power is turned on. Only the icon will be displayed once. After waiting for the temperature to rise, normal printing can be resumed

(2) Broken material detection



At this point, pull the Teflon tube out of the extruder end, take out the material, refill the consumables to the nozzle, click YES, after replacing the material, click Utilities, and finally click Print to start, the model will print.

(3) Replace consumables during printing



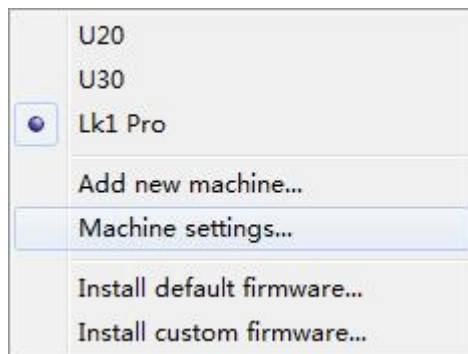
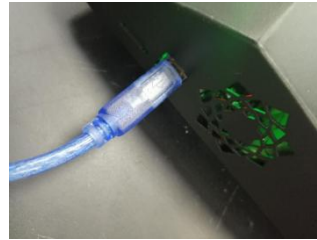
If you want to change consumables at any time of printing, this feature is worth having.

Note: The interface of the Filament will appear after the heating is completed.

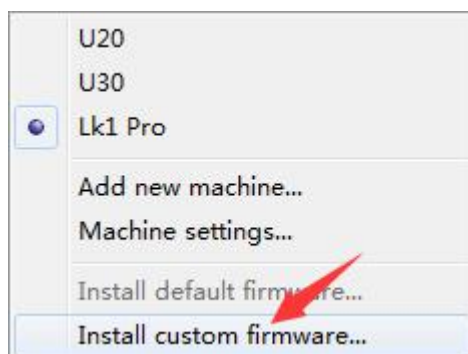
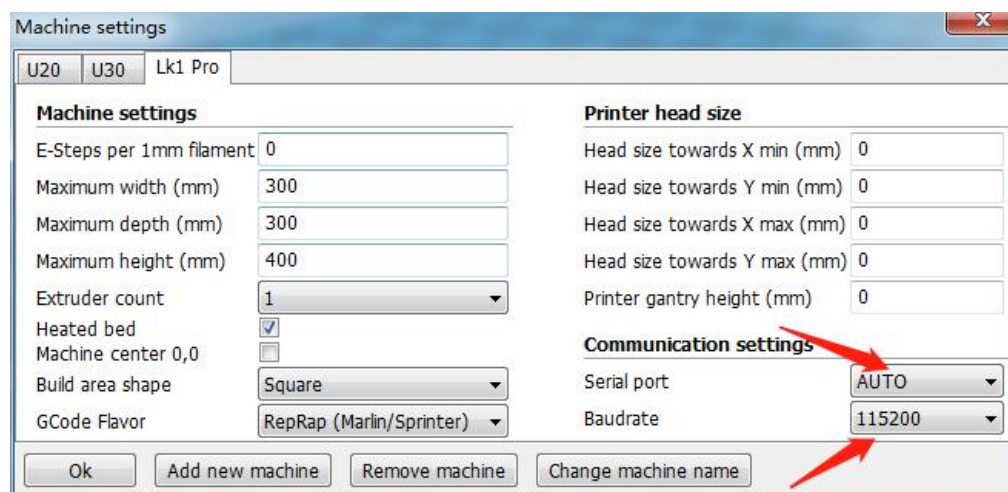
F. Machine Usage FAQ Guide

Question 1: How to update the firmware?

1. Connect the data cable to your computer and printer and open the cura15.04.3 version.

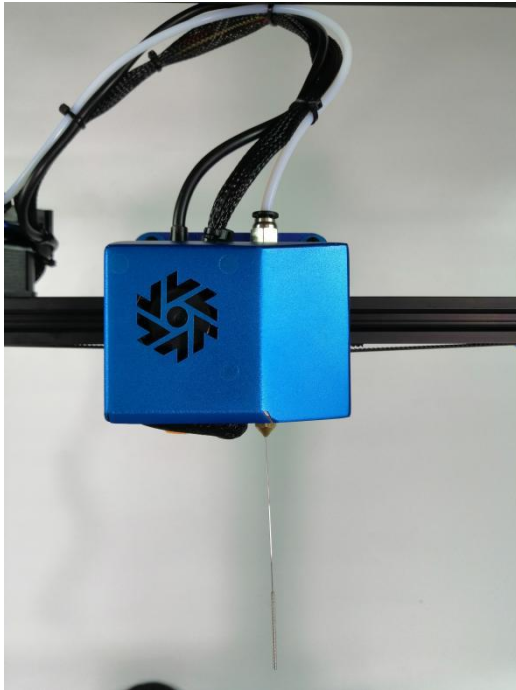


2. Click cura's machine setting, click baudrate, set to 115200.
3. Click on Install custom firmware in cura
4. Select the file Marlin1.1.9 LGT02.
5. Wait for the machine to update the



名称	修改日期	类型	大小
Marlin1.1.9 LGT02.hex	2019/3/28 19:57	HEX 文件	289 KB

Question 2: What should I do if the machine does not discharge?



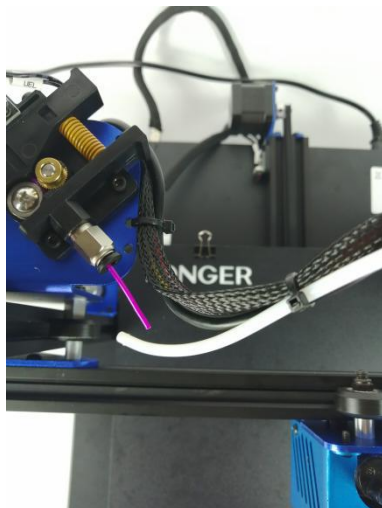
1. After the machine nozzle is heated, the consumables are normally fed into the feeding mechanism by hand, and then passed through the Teflon tube to enter the nozzle.

2. When it is found that the gear of the feeding mechanism emits a "beep" sound, it can be checked to see if 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 under the copper nozzle and rotate while inserting.

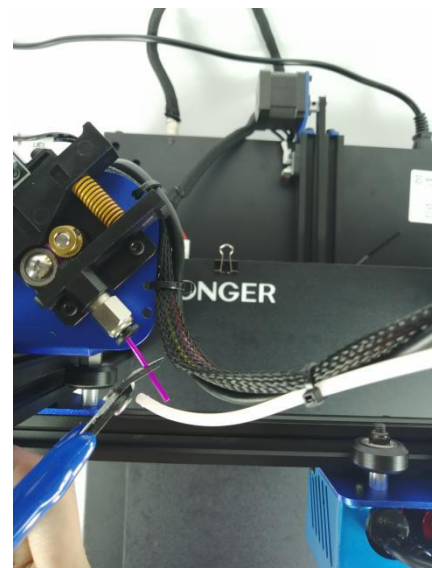
4. Under normal circumstances, this needle can be used to open the copper nozzle, so that the feed is smooth. The reason for this blocking is generally that there are

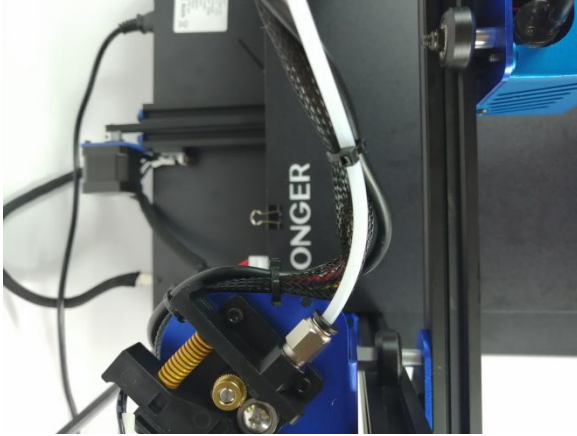
Question 3: What should I do if the machine does not retreat when the material is returned?



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.

1. Before returning the material, please heat the nozzle first, 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.





3. Because the end of the consumable in the nozzle will be deformed by heat, if the end deformed consumables are directly pulled out, it may get stuck to the pneumatic joint or the limit switch that damages the broken material detection (the limit switch for the broken material detection is single)

Question 4: What can I do if I can't power off?

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:

After the machine is heated, the spit is normal, but when the first time of printing, the silk falls on the platform and curls, and then after printing a few layers, what should I do if I leave the platform?

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 that the model is in good contact with 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.