

Large Scale 3D Printer

YM-NT-1000

Operating Instructions

* Please read this manual carefully before starting to operate.

Warning

This device is a Class A product. Use in a general indoor environment may cause radio interference and therefore requires the user to take appropriate protective measures.

The contents of this operating instructions may be updated periodically. Scan the QR code or visit the link below to get the latest version.



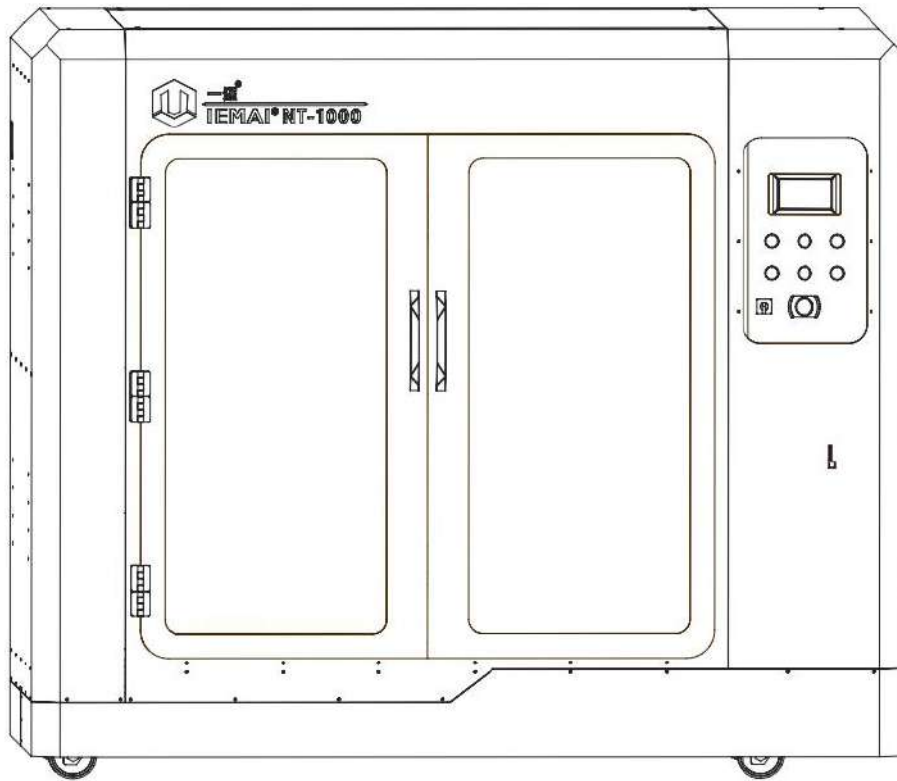
www.iemai3d.com/index.php/download/

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1 . Overview

1.1 Machine Overview



IEMAI's Large Scale 3D printer YM-NT-1000 printing device based on the principle of fused filament deposition (FFF) technology, with a printing temperature of up to 275 printing temperature, a hot bed temperature of 120 C°, It supports most polymer 3D printing materials on the market, including ASA, ABS, PC, PA, CF-ABS, PETG, HIPS, TPU, PLA, CF-PLA, PVA.

YM-NT-1000 Print Head can adopt Dual Print Heads (1.75mm Filament) or Single Print Head (2.85/3.0mm filament) , these print heads are modular and can be quickly replaced by the user. In addition, YM-NT-1000 also adopts vacuum adsorption platform, which is convenient for users to disassemble the model quickly.

When you use dual print heads, it can support using support materials, including water-soluble material PVA, limonene soluble material HIPS, and when you use separate high flow print heads, you can use large layer thickness fast printing mode.

1.2 Precautions

First of all, thank you for choosing IEMAI 3D Printer !

This device is a Professional equipment, please read this manual carefully before starting to use, this manual contains important information about the installation, operation, maintenance, and common problems of the 3D printer, the company is not responsible for all losses caused by violation of the cautions and operating procedures given in this manual.

Consumables: Please use the filament provided by our company or the third-party filament of official authorized brand or choose the high-quality filament provided by other regular filament manufacturers, and users should be responsible for the loss caused by using low-quality filament. Please keep the consumables sealed and moisture-proof if not in use for a long time; please bake and dry them in advance before using them again.

Software: Please use a 64-bit system with Windows 7 or above to run the software, more than 4G of RAM and more than 1G of GPU, please use a computer with a higher configuration if possible.

Installation Site Requirements: Installation Site $\geq 2500 \times 2200 \times 1650$ mm (L*W*H).

Installation Power Requirements : 200~250 V, 50~60 Hz, 6200w, Electric cable 4 m² or more.

Operating Environment: 15-30°C, 10-90% Relative Humidity, non-condensation

Storage Environment: 25-55°C, 10-90% Relative Humidity, non-condensation

1.3 Safety

The device has a specialized motion structure, control system and electrical control parts, users need to pay careful attention to the safety label when using it to prevent burns, pinching, electric shock, or other safety problems.



The maximum temperature of the print head of this equipment can reach 275° C, its heating is strictly prohibited to touch



The maximum temperature of the printing platform of this equipment can reach 120 °C, its heating is strictly prohibited to touch



Ensure that the power supply grounding terminal is well grounded to prevent the printer from not working properly or posing a risk of electric shock



Do not disassemble the case without permission, be careful of electric shock



When the printer is working, it is forbidden to move in the printing area to prevent collision, belt turning in, etc.

2. Detailed Parameter

2.1. Specification



YM-NT-1000

Build Volume : 1000×1000×1000 mm

Printing Temperature : Up to 275°C

Hot Bed Temperature: : Up to 120°C

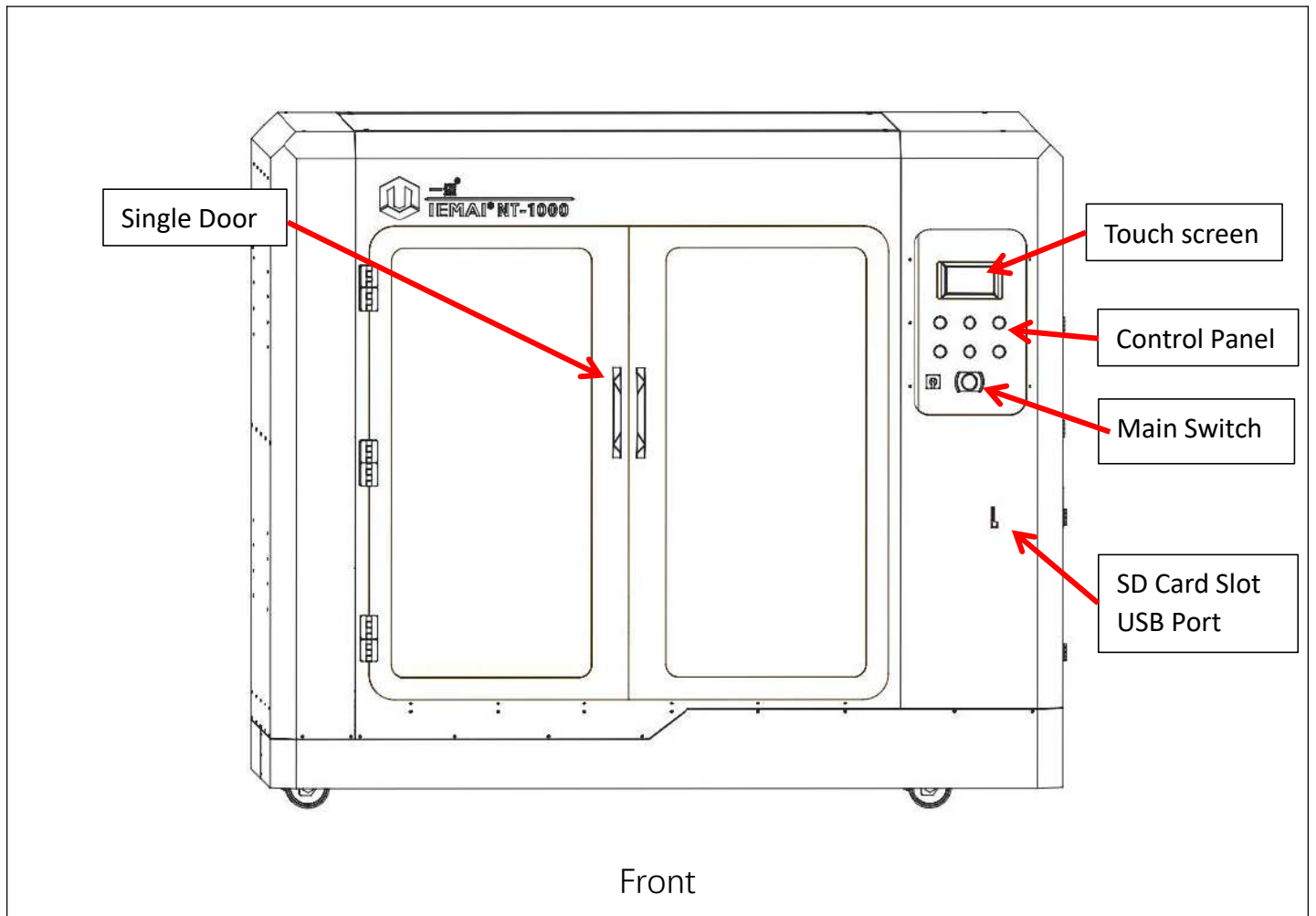
**Extrusion System : Dual Extruder For 1.75 Filament Or
Single Extruder For 2.85/3.0mm Filament**

**Majority of the Materials on Market : ASA, ABS, CF-ABS,
PETG, HIPS, TPU, PLA, CF-PLA, PVA...**

Item	YM-NT-1000
Printing Size (L × B × H)	1000×1000×1000 mm
Machine Size (L × B × H)	1890×1450×1600 mm
Packing Size (L × B × H)	2050×1545×1790 mm
Net Weight	700KG
Gross Weight	780KG
Power	200~250 V, 50~60 Hz 6200 W

Common	<p>Principle: Fused Filament Fabrication</p> <p>Extrusion System: Dual Extruder For 1.75 mm Filament Or Single Extruder For 2.85/3.0mm (Choosable)</p> <p>Filament Diameter: 1.75 mm, 2.85/3.0mm (Choosable)</p> <p>Position Resolution: X/Y: 8.56 μm Z: 1.56 μm</p> <p>Printing Speed: 0 - 150 mm/s</p> <p>Printing Platform: Vacuum Absorption Platform</p> <p>Print Bed Temperature: 120°C</p> <p>Heated Bed Materials: Silicon</p> <p>Printing Platform Auto Calibration: Support</p> <p>Power Failure Recovery: Support</p> <p>Supporting Materials: ASA, ABS, CF-ABS, PETG, HIPS, TPU, PLA, CF-PLA, PVA...</p> <p>Layer Thickness: 0.1 – 0.6 mm</p> <p>Nozzle Diameter: 0.8 mm (Default), 0.4 mm, 0.6 mm, 1.0 mm 2.0 mm (Choosable)</p> <p>Extruder Temperature: 275 °C</p> <p>Connection Control: Wi-Fi, LAN, SD Card</p> <p>Suggest Operating Environment: 15-30°C, relatively humidity 10-90%, No Moisture Condensation</p> <p>Storage Temperature: -25 - 55 °C, relatively humidity 10-90%, No Moisture Condensation</p> <p>Technology Certification: CE, RoHS</p> <p>Air Filter: Activated Carbon Filters (Choosable)</p>
Software	<p>Supplied Software: IEMAI 3D EXPERT, Cura, Simplify3D</p> <p>Operating System: Windows 64 Bit</p> <p>File Type: STL, OBJ, 3MF</p> <p>Output: GCODE</p>
Features	<p>Power Failure Recovery</p> <p>Filament Absent Warning</p> <p>Auto-Shut Down System</p> <p>WIFI Control</p> <p>Dual Or Single Extruder Modularization</p> <p>Vacuum Absorption plate</p> <p>Camera Monitoring (Choosable)</p>

2.2 Device Layout

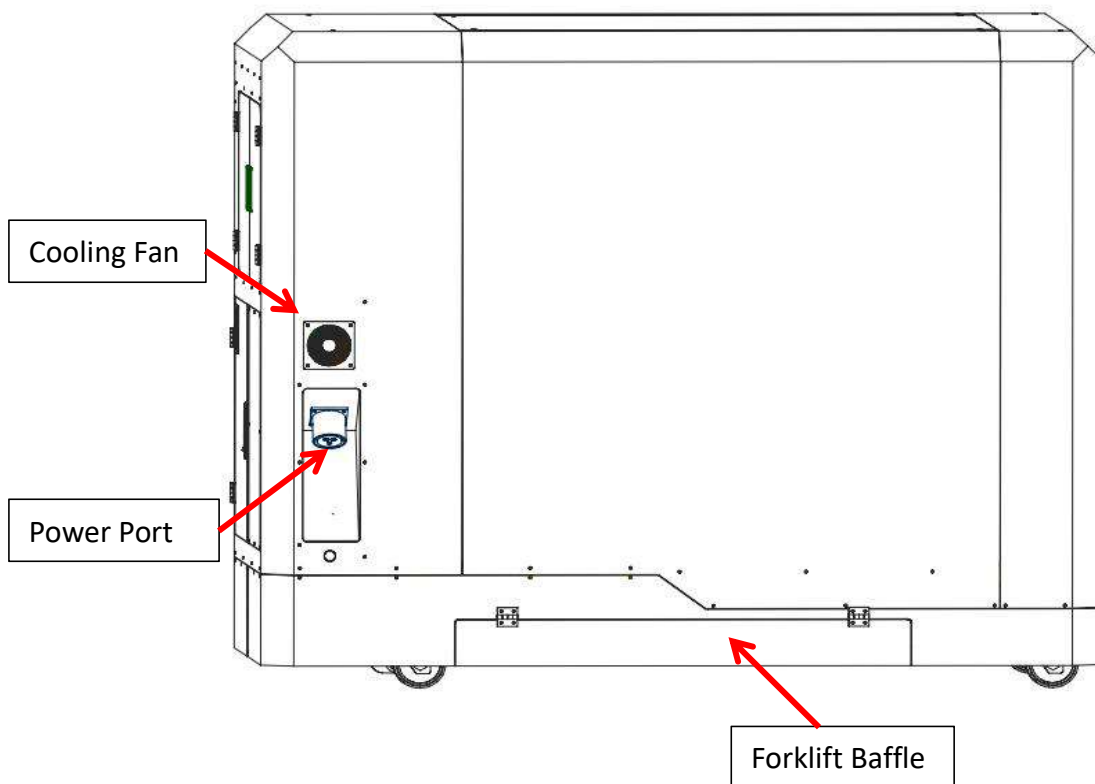




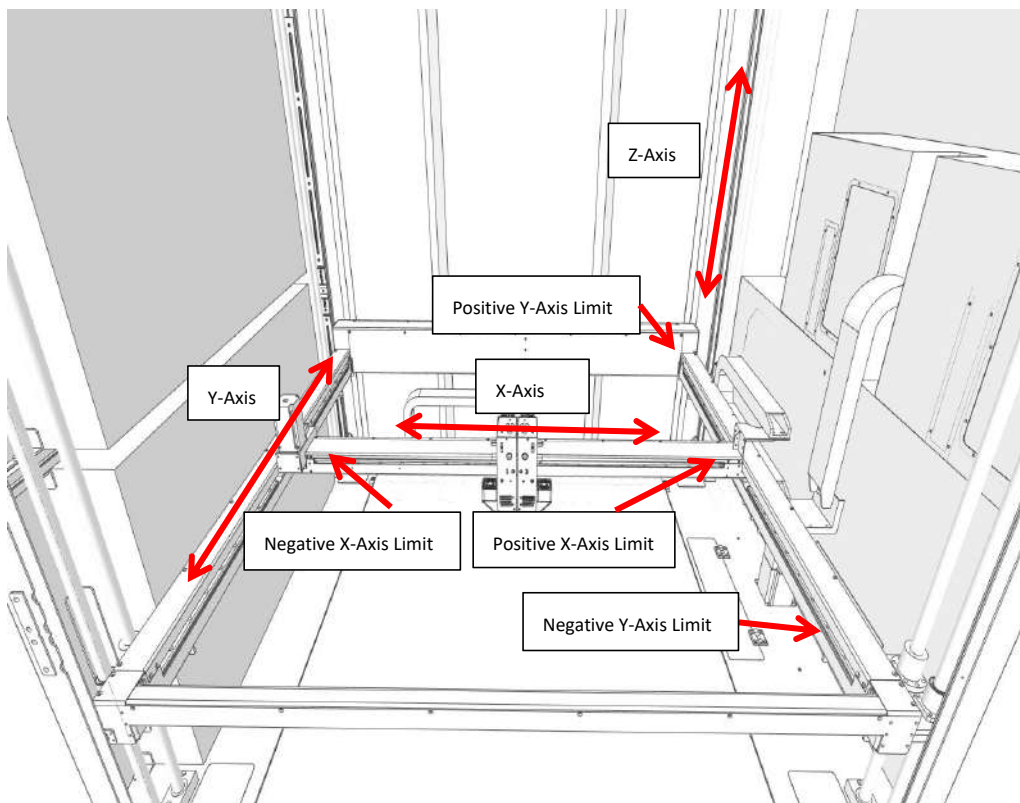
Control Panel



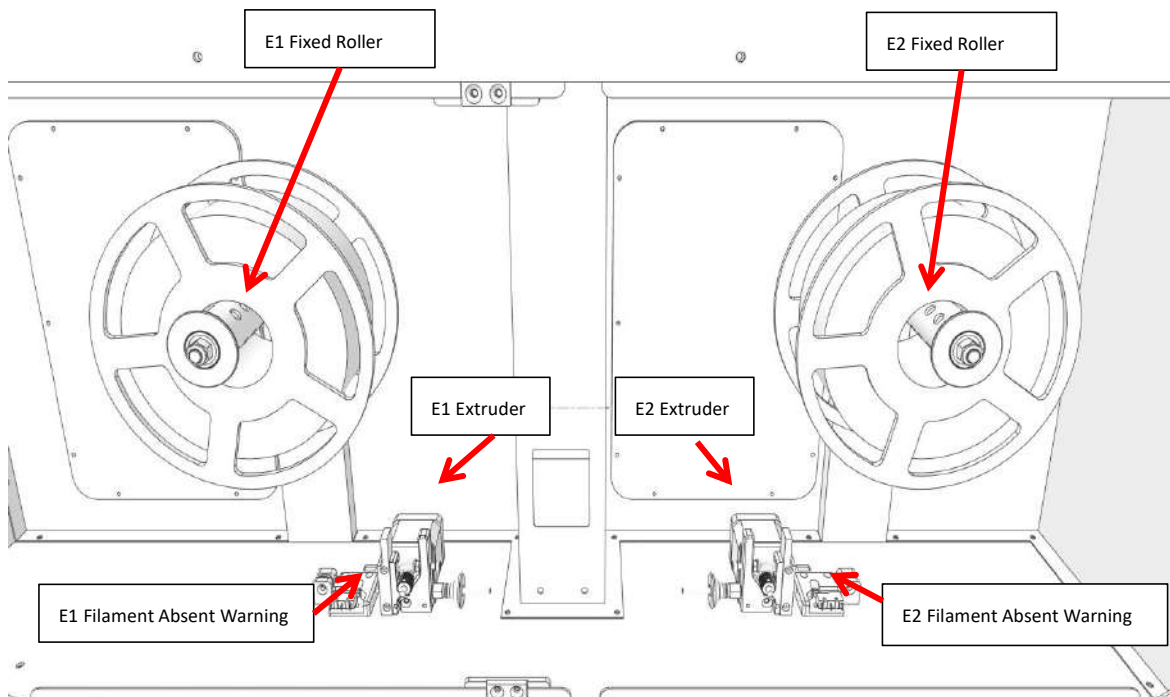
SD Card Slot and USB Connection



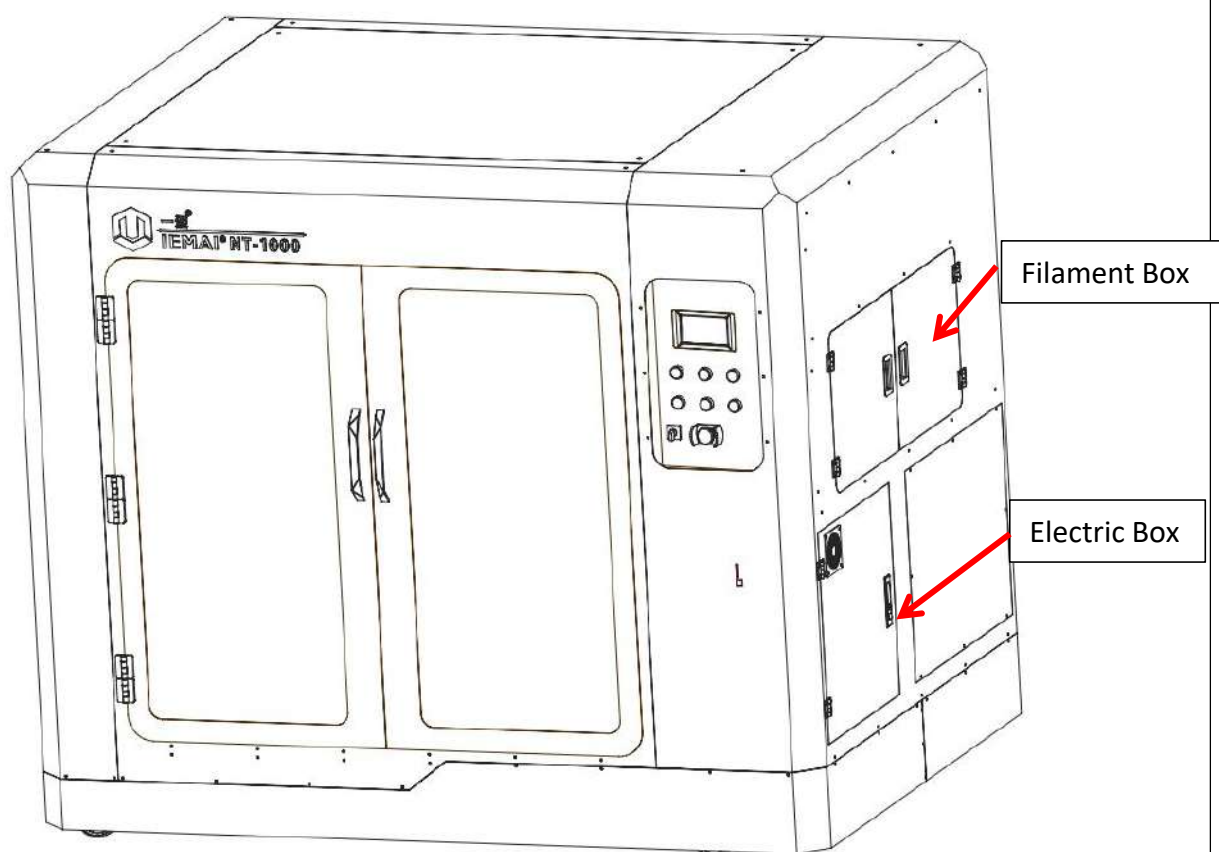
Back



Printer (Internal)



Filament Box (Internal)

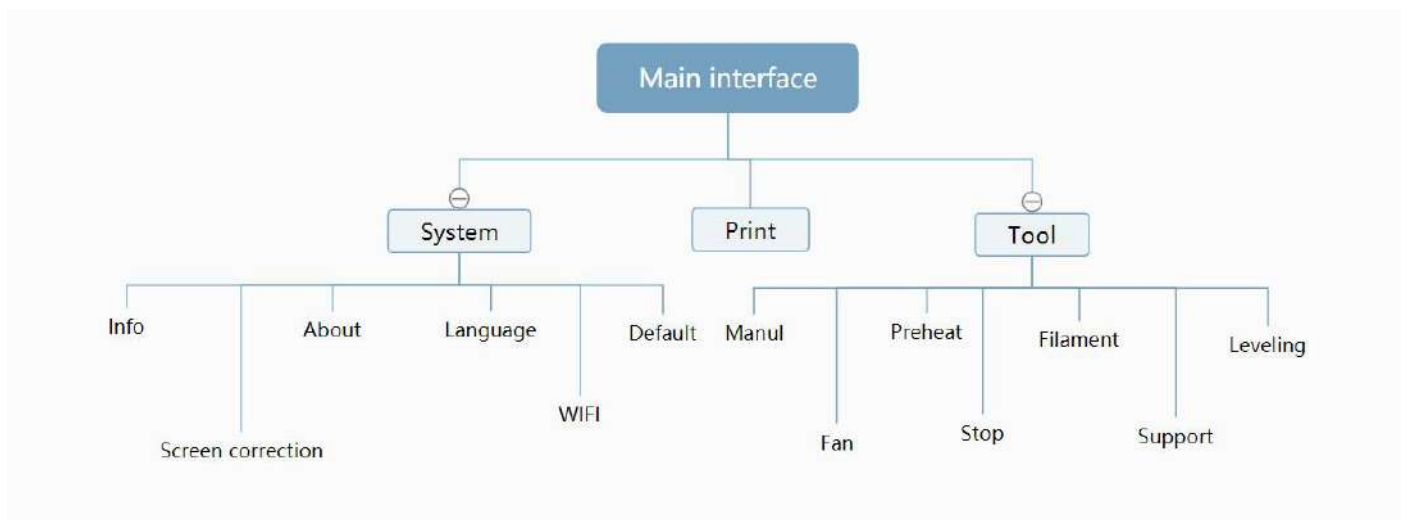


Side

2.3 Interactive Interface

The interactive Interface of this device adopts a 5-inch Color Touch Screen (Resistive), please read the following instructions carefully before first use

Logic diagram of interactive interface



2.3.1 System Interface

Figure 1: Main interface



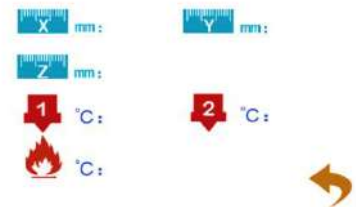
Click "System" to go to Figure 2

Figure 2: System interface



1. Click "Info" to go to Figure 3
2. Click "About" to go to Figure 4
3. Click "English" to switch to other Language
4. Click "Default" to restore the original factory settings
5. Tap TPAAdjustment to correct the touch offset
6. Click "WIFI" to go to Figure 5

Figure 3: Info interface



1. This interface allows you to view the current coordinates of the XYZ axis
2. The current temperature of the left nozzle, and right nozzle, and hot bed

Figure 4: About interface






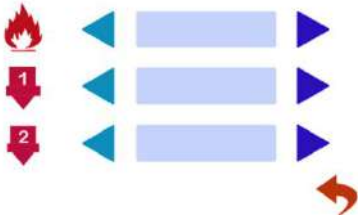
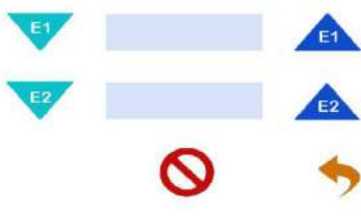
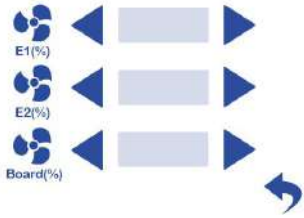
This interface allows you to view the name, ID, system version, UI version, and Power On/Off sounds

Figure 5: WiFi Setup Interface



This interface allows you to view information about Wi-Fi

2.3.2 Tool interface

<p>Figure 1: Main interface</p>  <p>Click "Tool" to go to Figure 2</p>	<p>Figure 2: Tool Interface</p>  <ol style="list-style-type: none"> Click "Manual" to go to Figure 3 Click "Preheat" to go to Figure 4 Click "Filament" to go to Figure 5 Click "Level" to perform automatic leveling Click "Fan" to go to Figure 6 Click "Stop" to stop all execution commands Click "Support" to view the after-sales contact information 	<p>Figure 3 : Manual</p>  <p>Here can do the following</p> <ol style="list-style-type: none"> Select the moving unit of 0.1-10mm Controls the XYZ axis for unit movement Click "Home" to go back to the original point Select E1 or E2 for unit extrusion
<p>Figure 4: Pre-Heat interface</p>  <ol style="list-style-type: none"> This interface allows you to set the preheat temperature of the hot bed, left nozzle and Right nozzle 	<p>Figure 5: Filament interface</p>  <ol style="list-style-type: none"> Loading material "E1" Unload material "E1" E1- Left Nozzle, E2-Right Nozzle "Stop" Stop Loading Command 	<p>Figure 6: Fan Interface</p>  <ol style="list-style-type: none"> This interface allows you to set the nozzle cooling fan E1, nozzle cooling fan E2 and the fan rate of the motherboard fan

2.3.3 Print Interface

Figure 1: Main Interface



Click "Print" to go to Figure 2

Figure 2: File Interface



Check Specify G-code file to print or delete the file

Figure 3: Print Interface




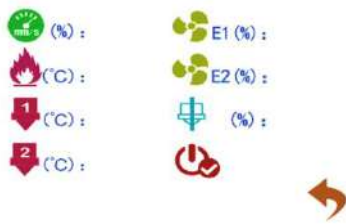
1. This interface is the main interface in print You can view thumbnails
2. Hot bed, Nozzle Temperature of 1 and 2
3. Elapsed time, Time remaining 、 Current speed
4. File name, Print Progress Bar, and more
5. You can control pause (resume) and stop printing
6. Press "  " to reset during the printing process

Figure 4 : Print Setting Interface



1. This interface can be adjusted during the printing process
2. Print Speed Ratio, Printing Temperature of Hot Bed, Nozzle
3. Fan Rate of Nozzle Fan E1 and Nozzle Fan E2
4. Extrusion flow
5. As well as setting power off after printing



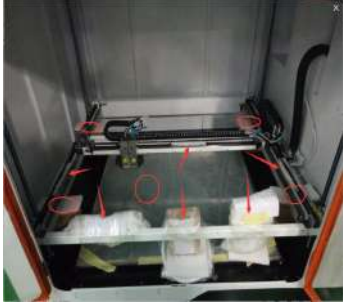
Figure 5: Emergency Stop



1. For emergencies, the air switch tripped X, Y, Z, E axis motor and hot bed high-power equipment power supply shut down the machine to stop the movement, you need to turn on and then turn the air switch on the electrical box to restore the power supply of high-power equipment.

3.Device Usage

3.1 Unboxing for The First Time

Step 1	Step 2	Step 3
 <ol style="list-style-type: none"> 1. Check if the packaging is complete 2. If there is a damage, please feedback by taking photos in time 3. If serious damage, please refuse to receive 	 <ol style="list-style-type: none"> 1. The equipment is tightly packed and protected 2. Please be patient in removing the package 3. If you need to use tools, such as knives, scissors 4. Please be cautioned to avoid scratching the device 	 <ol style="list-style-type: none"> 1. Check The Door Glass, Whether the Control Panel is Segmentation 2. Remove the starter kit from the printer

Step 4



1. Cut the tie on the XY axis to release
2. There are four paper boxes pressed under the Z axis
3. The equipment can be removed by rising the Z-axis after power is applied

Step 5



1. After removing all packaging
2. The equipment is shown in the picture

Step 6



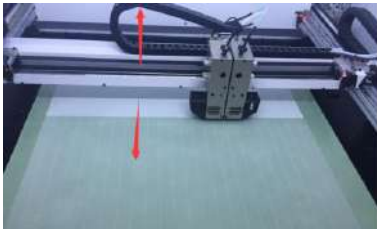
Toolbox Items
Subject to delivery

3.2 Power Installation

<p>Step 1</p>  <p>(Steps 1 to 3 connect the machine)</p> <ol style="list-style-type: none"> 1. Open the A end of the power cord to the position in the middle as shown 	<p>Step 2</p>  <ol style="list-style-type: none"> 1. Align the A positioning point with the B positioning point on the machine and insert it to complete the power connection. 	<p>Step 3</p>  <ol style="list-style-type: none"> 1. Insert A to the bottom, make sure it is in tight contact
<p>Step 4</p>  <ol style="list-style-type: none"> 1. (Step four to step six to connect the main switch) to get the power cord B, find the positioning point 	<p>Step 5</p>  <ol style="list-style-type: none"> 1. Open the cover of the installed matching power A connector (do not insert your hand or other metal objects into the connector) 	<p>Step 6</p>  <ol style="list-style-type: none"> 1. The positioning point is facing the A positioning hole, insert the common connector of the power cord
<p>Step 7</p>  <ol style="list-style-type: none"> 1. Click the main power switch. Power indicator lights up 	<p>Step 8</p>  <ol style="list-style-type: none"> 1. The screen lights up normally. Then the device is successfully powered on 	<p>Step 9</p>  <ol style="list-style-type: none"> 1. Press the internal light switch Internal lights will on
<p>Note: 1. Please operate carefully in the process of connecting electricity, to prevent electric shock.</p> <p>2. Please use self-contained power cord, so as not to cause electric shock and fire and other adverse consequences.</p>		

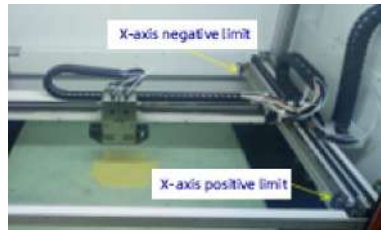
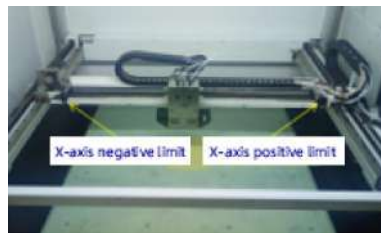
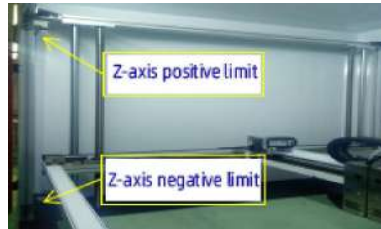
3.3 Hardware Checking

Step 1



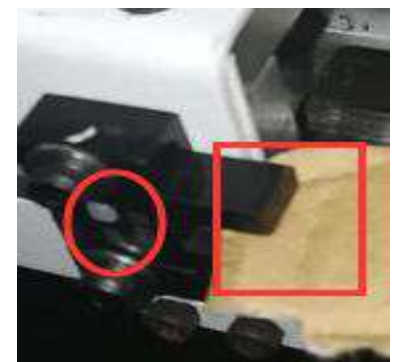
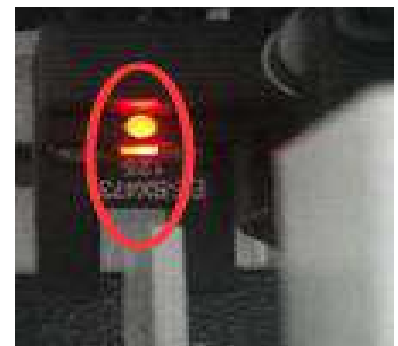
1. Manually control the XYZ axis movement through the touch screen
2. Observe whether the normal movement as shown

Step 2



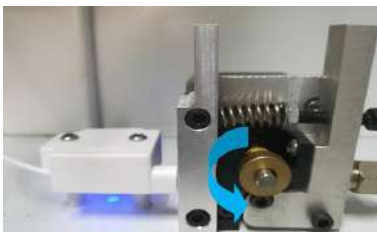
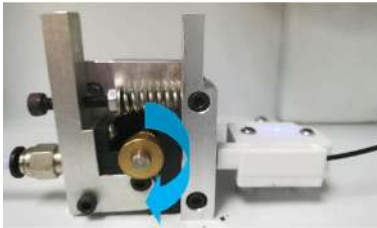
1. Find the positive and negative limits of XYZ axis respectively

Step 3



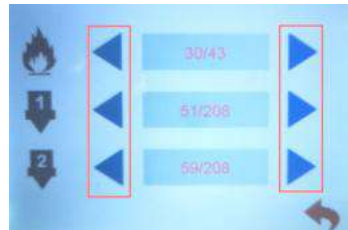
1. Place a sheet in the Z-axis negative limit slot to make the limit red light go out.
2. Moving the Z-axis upward and hearing a beep and no movement of the Z-axis indicates that the Z-positive limit switch is normal.
3. Remove the sheet

Step 4



1. Control E1 and E2 extrusion by touch screen
2. Observe whether the left and right nozzle gears rotate as shown

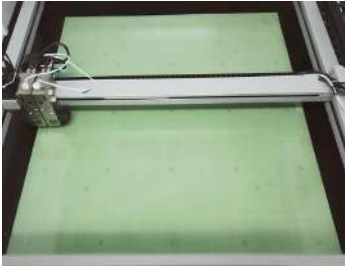


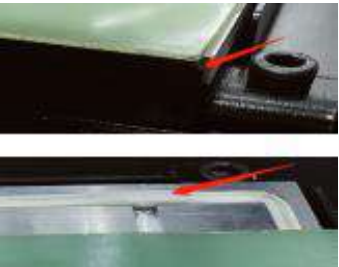
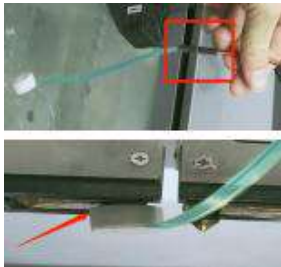

Step 5



1. Access to the preheat function and temperature setting of the hot bed, left nozzle and right nozzle can be done through the touch screen.
2. Where the right-side temperature represents the setting temperature
3. The temperature on the left side represents the actual temperature
4. First preheating recommended hot bed temperature: $50^{\circ}\text{C} \pm 2^{\circ}\text{C}$
5. Print Head 1 and 2: $210^{\circ}\text{C} \pm 2^{\circ}\text{C}$
6. Please be careful of high temperature and cautious operation

4. Print Operation

4.1 Installation of The Printing Platform and Auto-Calibration

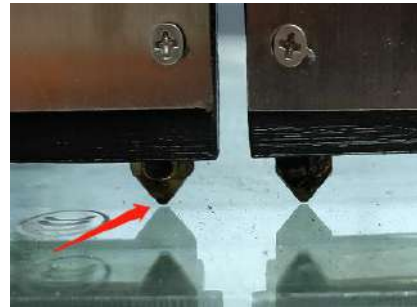
<p>Step 1</p>  <ol style="list-style-type: none"> 1. After opening the machine, check whether the base plate is relatively flat (refer to 6.4 Base plate leveling) 2. The machine does not need to be adjusted again if it has not undergone large movements and shaking 	<p>Step 2</p>  <ol style="list-style-type: none"> 1. The front of the platform is pushed in against the upper base plate 2. Make the platform fit perfectly with the base plate all around 3. Pay attention to the sealing strip around 	<p>Step 3</p>  <ol style="list-style-type: none"> 1. Insert the air hose into the connector at the back of the machine and connect the other end to the vacuum pump. Turn on the vacuum pump to make the platform plate absorb on the bottom plate
<p>Step 4</p>  <ol style="list-style-type: none"> 1. If the platform keeps failing to suction, check whether there is debris between the platform and the bottom plate. Or the surrounding baffle plate topped up the platform plate or the seal was topped up and other problems 	<p>Step 5</p>  <ol style="list-style-type: none"> 1. Find the leveling aid (as shown in the picture) 2. and connect to the interface reserved on the print head 3. (Connection does not matter positive or negative) 4. Install the foam onto the nozzle as shown 5. Wrap the nozzle as much as possible and parallel at the bottom 	<p>Step 6</p>  <ol style="list-style-type: none"> 1. Turn the limit control knob to "2". 2. Note: The knob must be in the "1" position in the non-leveling state.

Step 7



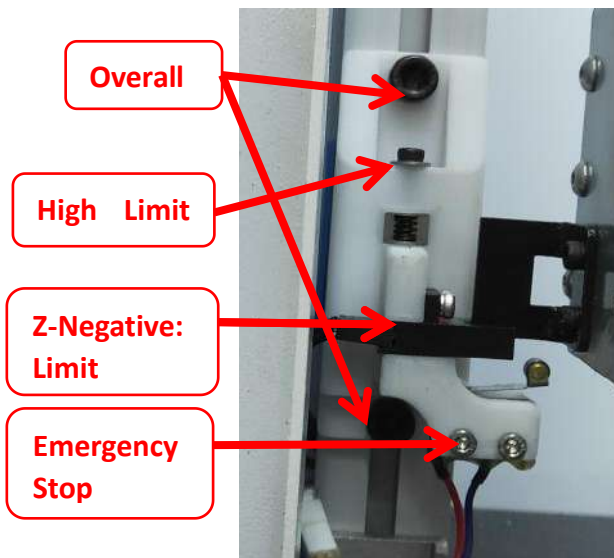
1. Click on leveling
2. Wait for the machine to automatically find the 49 test points and finish testing
3. Remove the automatic leveling aid and turn the knob back to "1".

Step 8



1. Control Z-axis descent by using different strokes
2. Make the nozzle 0.1mm away from the platform

Step 9



1. Use the integrated adjustment screw and the limit height fine adjustment screw together
2. Enable the Z negative limit just trigger, and start the print test

(Please see the detailed steps in the use of video)






Step 10




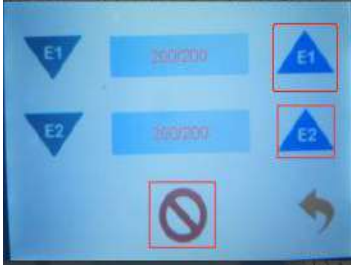
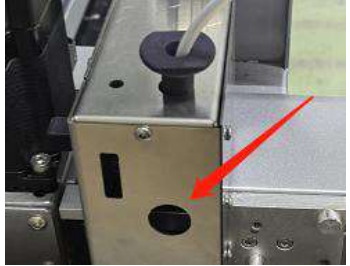

1. When a power failure trip occurs during use.
2. Disconnect the connector of the emergency stop trigger device
3. Open the electrical box and close the gate of leakage protection

4.2 Load/Unload Filament

4.2.1 Load Filament

<p>Step 1</p>  <ol style="list-style-type: none"> 1. Straighten the filament, cut the filament to the tip 	<p>Step 2</p>  <ol style="list-style-type: none"> 1. Hang the filament into the filament box 2. and press the extrusion clamp on the end 3. Keep feeding the filament until it cannot be fed 	<p>Step 3</p>  <ol style="list-style-type: none"> 1. Observe that the filament reaches the front print head
<p>Step 4</p>  <ol style="list-style-type: none"> 1. If the material is stuck in the middle of the pipe, the connector at the right side of the X-axis can be taken out and fed in sections. 	<p>Step 5</p>  <ol style="list-style-type: none"> 1. After the filament is delivered to the print head 2. Preheat temperature is applied 3. Click the downward extrusion button 4. Wait for the material to flow out of the nozzle 5. Click to stop extrusion 	

4.2.2 Unload Filament

<p>Step 1</p>  <ol style="list-style-type: none"> 1. Preheat temperature is performed 2. click the down extrusion 3. Refer to step 10 for preheating temperature of different filament. 	<p>Step 2</p>  <ol style="list-style-type: none"> 1. After about 10cm out of the filament 2. Click the exit button 	<p>Step 3</p>  <ol style="list-style-type: none"> 1. Waiting for the front extrusion to withdraw from the consumables
<p>Step 4</p>  <ol style="list-style-type: none"> 1. Press the extrusion clamp at the far end and pull out all consumables to complete the unloading. 		

Step 10: Recommendation Temperature of Commonly Used Filament for Nozzle

Common Engineering Plastic	Reinforced Composites
PLA : 220C°	PLA Composite Carbon Fiber : 220C°
ABS : 240C°	CF-ABS : 260C°
PETG : 220-240C°	CF-PLA : 220C°
PVA : 230C°	
HIPS : 240C°	
PA : 260C°	
PC : 260C°	
TPU : 230C°	

Note: The temperature of the print head rises during the loading process, be careful of burns

4.3 Start Printing

Step 1



1. In the IEMAI slicing software Save the code to the SD card

Please refer to the software tutorial for detailed slicing methods

Step 2



1. Insert the SD card into the card slot on the right side of the device and select the file to be printed

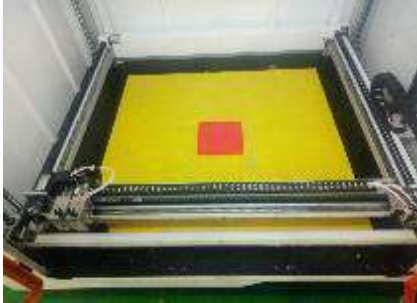
Step 3



2. Click “” ready to start printing

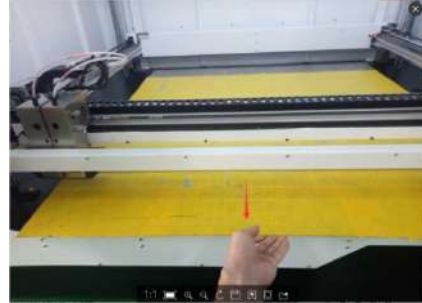
4.4 Model Removal

Step 1



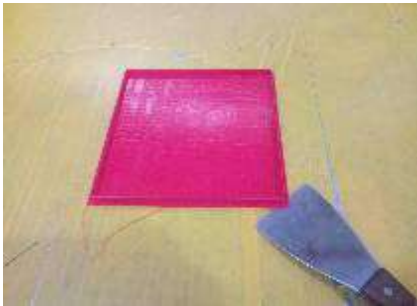
1. Print the completed model as shown in the figure

Step 2



1. Close the vacuum suction button and lift up the outer end of the print base plate to slowly pull out the base plate

Step 3





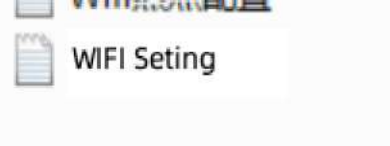

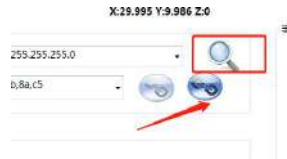




1. Use the spatula to press firmly against the platform and gently from the corners
2. Insert the spatula into the bottom of the model and cock the spatula

Step 4





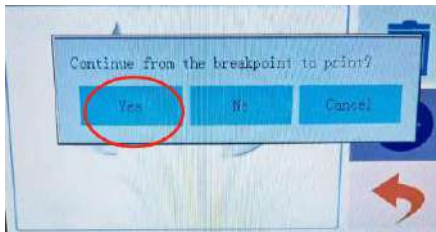
1. If the model is too large to shovel down on one side
2. Start over from the other three corners until the model is shoveled down

4.5 PC-based WIFI LAN Control

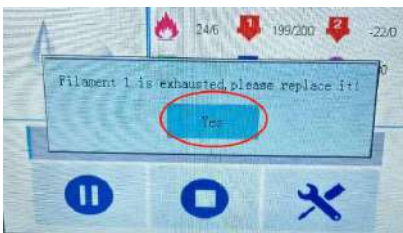
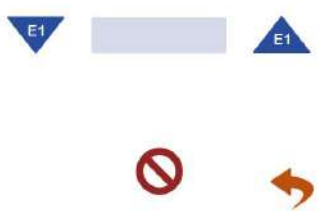

<p>Step 1</p>  <p>ChiTu HB V1.10(1).zip</p> <ol style="list-style-type: none"> 1. Installation of CHITU HB/PRO software 	<p>Step 2</p>  <ol style="list-style-type: none"> 1. Enter the software interface 2. Enter the name and password of the WIFI in the lower right corner 3. and generate a configuration file 	<p>Step 3</p>  <ol style="list-style-type: none"> 1. Copy the generated file to the SD card 2. and put it on the machine to print once
<p>Step 4</p>  <ol style="list-style-type: none"> 1. Copy the generated file to the SD card 2. and put it on the machine to print once 3. 0.0.0.0 means not connected successfully 	<p>Step 5</p>  <ol style="list-style-type: none"> 1. Enter the software and click Scan 2. Automatically reads machines in the network and connects them 	<p>Step 6</p>  <ol style="list-style-type: none"> 1. Green status indicates successful connection
<p>Step 7</p>  <ol style="list-style-type: none"> 1. Preheat and movement operation available 	<p>Step 8</p>  <ol style="list-style-type: none"> 1. Select local file to upload 	<p>Step 9</p>  <ol style="list-style-type: none"> 1. Just select the file to print

5. Function Introduction

5.1 Power Failure Recovery

Step 1	Step 2	Step 3
 <ol style="list-style-type: none"> 1. If the machine suddenly powers off during the printing process 	 <ol style="list-style-type: none"> 1. Turn the power back on 2. Find the document that was previously printing 3. Display in red font, select print 	 <ol style="list-style-type: none"> 1. Select "Yes" in this screen 2. And completes the power failure renewal
<p>Attention : Make sure the Z-axis of the printer has not moved after power failure, otherwise it will not be able to continue printing after the last breakpoint.</p>		

5.2 Filament Absent Warning

Step 1	Step 2	Step 3
 <ol style="list-style-type: none"> 1. If the printer runs out of material during printing 2. Please select "Yes" in this screen to change the material 	 <ol style="list-style-type: none"> 1. Unloading materials "E1" 2. Loading materials "E1" 3. E1 for the left nozzle, E2 for the right nozzle 4. Unload the existing material first and then load the new material 	 <ol style="list-style-type: none"> 1. Click "▶", the printer continues the previous print
<p>Attention : This operation processes cannot exit the print interface, and X, Y, Z axis cannot be moved</p>		

6. Maintenance and Care

The YM-NT-750 is a high compact 3D printing machine, so it requires higher requirements for maintenance.

6.1 Maintenance of Linear Guide and Ball Screw

YM-NT-750 has four ball screws, four rods and three linear guides for transmission, which need to be maintained and lubricated to extend the service life.

(1) The ball screw belongs to the high precision construction must maintain lubrication, generally once a month to replace the lubricant

(2) Pay attention to the cleanliness of the environment, to prevent dust and impurities from entering

(3) To prevent the impact of the ball screw, resulting in the deformation of the screw affect the fluidity and use




Guide rail and rod:

Need to replace the lubricant regularly

Prevent the ash into the internal



6.2 Dust Removal from Fans

<p>Step 1: Check the dust condition of the dust cover and fan blades of the electrical case fan;</p> <p>Timely cleaning of the dust of the cooling fan helps to improve the working environment of the motherboard and prevent the drive from overheating and out-of-step phenomenon.</p>	
<p>Step 2: Remove the dust cover.</p> <p>Insert the four corners of the dust cover from the dust cover to gently remove the dust cover.</p>	
<p>Step 3: Clear the dust on the dust cover and fan.</p> <p>Use the air gun to remove the dust on the sponge inside the dust cover and blow the dust on the fan (pay attention to the fan when blowing the pressure cannot be too large, so as not to damage the fan).</p>	

6.3 Nozzle Maintenance

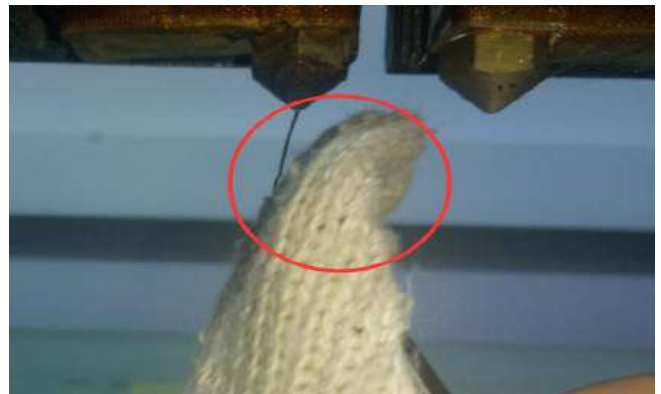
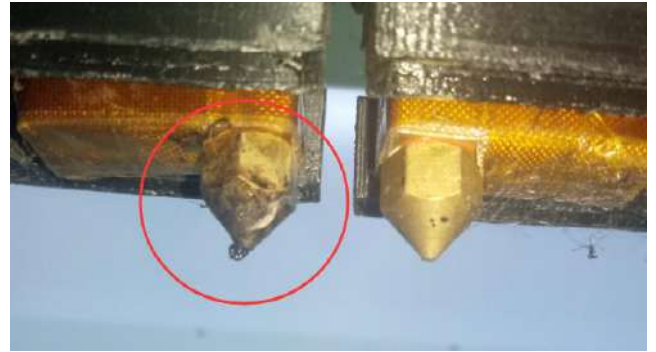
Nozzle cleaning:

In the printing process there will be excess filament residue melted on the nozzle for the print item impact so need to be cleaned.

Step 1: Heat up the nozzle (the last printing temperature shall prevail).

Step 2: Use tweezers to hold a soft fiber cloth or some other high temperature resistant soft goods wipe clean (prohibit the use of sandpaper blades and other sharp with corrosive tools items grinding cleaning).

Note: the nozzle high temperature, operation attention to burns;



replacement: (high-temperature print head to perform the second and fourth steps)

Step 1: general temperature print head will be nozzle for warming (about 150 C°).

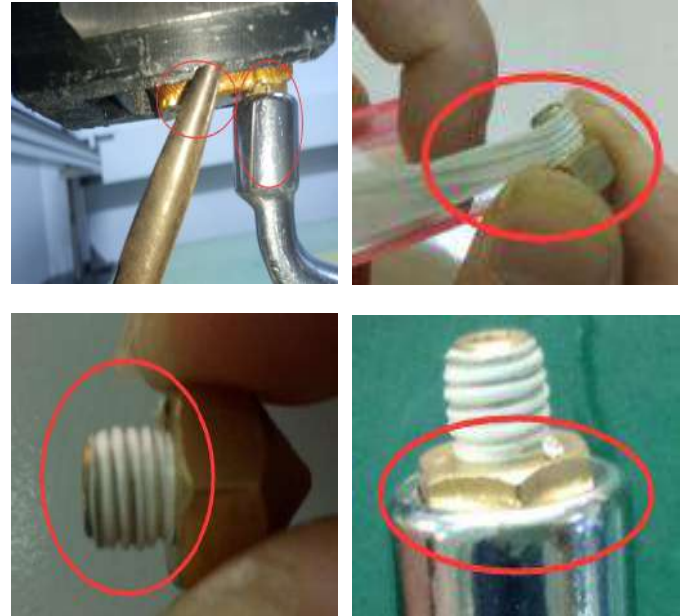
Step 2: Remove the quick release head, use pliers to hold the heating block, in the use of a socket to remove the nozzle counterclockwise

Step 3: take out the new nozzle using raw material tape clockwise around the threaded part of the nozzle about 7 turns and press out the threads.




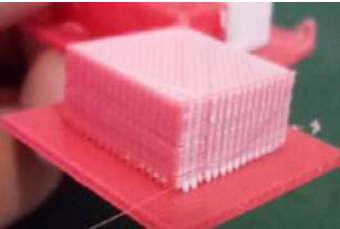

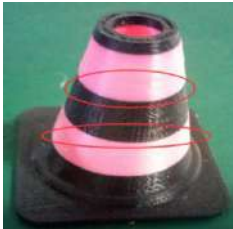
Step 4: Use the pliers, sleeve to re-install the nozzle into the print head

Note: the entire operation of the nozzle has been in a high-temperature state be careful of high-temperature hot hands recommended to wear protective gloves

Nozzle replacement requires timely re-adjustment of the nozzle and print platform spacing (please refer to the bottom plate leveling - steps 9, 10, 11, 12 for details)



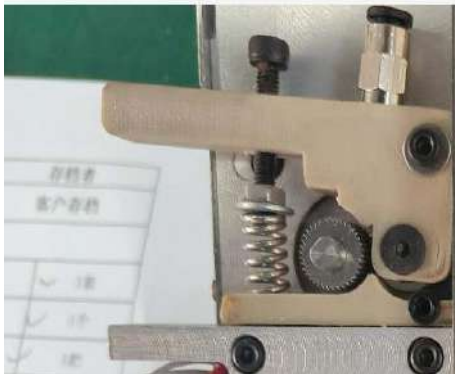
6.4 Dual Print Head Nozzle Spacing Adjustment Method

<p>Step 1</p>  <ol style="list-style-type: none"> 1. Print a two-color miniature Adding the paint tower White left nozzle Red right nozzle 	<p>Step 2</p>  <ol style="list-style-type: none"> 1. Get printed as shown in the figure 2. Take the left printhead as standard 3. X-axis direction red (right printhead) 4. need to move to the X-axis negative direction to match 5. then increase the X-axis spacing (positive value) 6. Y-axis direction red (right printhead) 7. Need to move to the positive direction of the Y-axis 8. Decrease the Y-axis spacing (negative)) 	<p>Step 3</p>  <ol style="list-style-type: none"> 1. Open the slicing software 2. Adjust the parameters in the print head settings 3. Make up the difference according to the gap produced by printing 4. Difference between the right printhead and the left printhead
<p>Step 4</p>  <ol style="list-style-type: none"> 1. Print the two-color miniature again 2. According to the printing effect to the left nozzle as the standard 3. With gap to increase the data 4. With overlap to reduce the data 	<p>Step 5</p>  <ol style="list-style-type: none"> 1. When you get a tight two-color fit between models 2. Stop changing data 	<p>Step 6</p>  <ol style="list-style-type: none"> 1. Print another two-color large model of a cylinder 2. Check the effect of spacing adjustment

6.5 Print Head Disassembly and Maintenance

6.5.1 Print head disassembly method and fan cleaning

Step 1



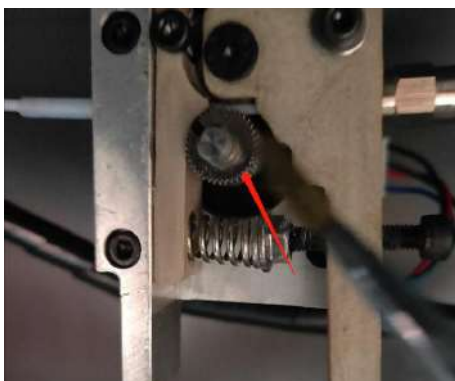
Disassembling the print head

Step 2



Clean the extruded tooth surface with a brush

Step 3



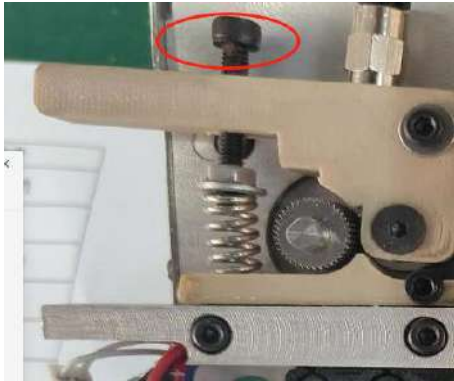
Simultaneous extrusion tooth cleaning at the end

Step 4



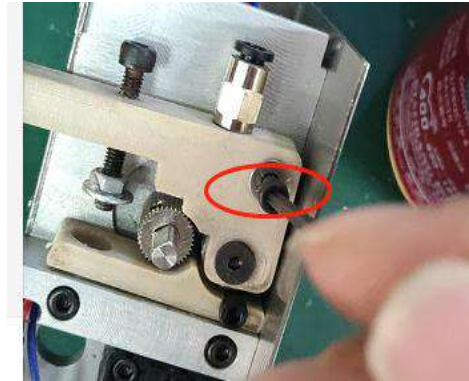
Cleaning with a brush

Step 5



1. If the tooth surface is severely worn replace the extruded tooth. First loosen the screws as shown
2. Take out the spring

Step 6



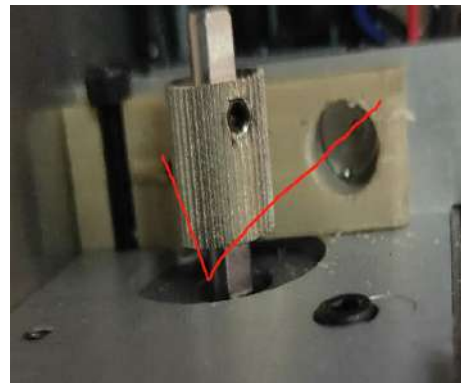
1. Unscrew the screws as shown
2. Remove the clip

Step 7



1. Remove the old extruded gear by loosening the top wire of the extruded gear

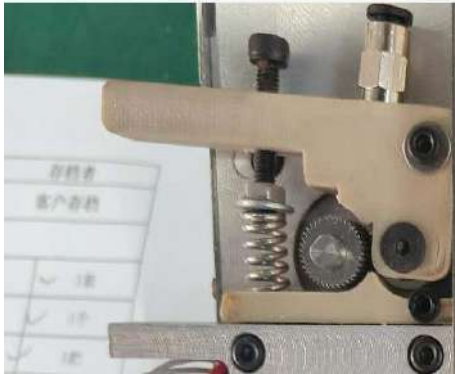
Step 8



1. Move the extrusion tooth back and forth to the concave arc of the gear, with the lowest point and the centerline of the feed hollow on the same vertical line and fix the extrusion tooth.

6.5.2 Extrusion Gear Cleaning and Replacement Method

Step 1



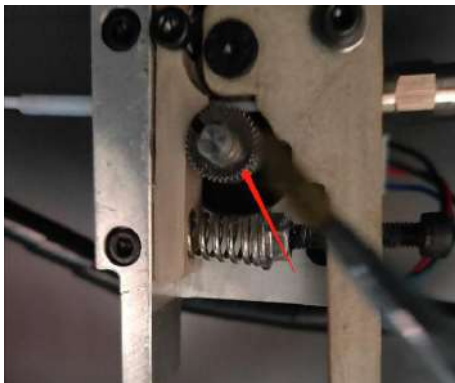
Disassembling the print head

Step 2



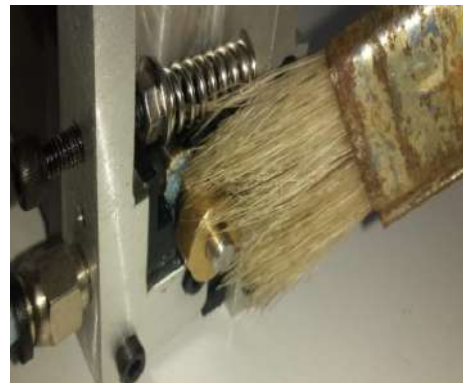
Clean the extruded tooth surface with a brush

Step 3



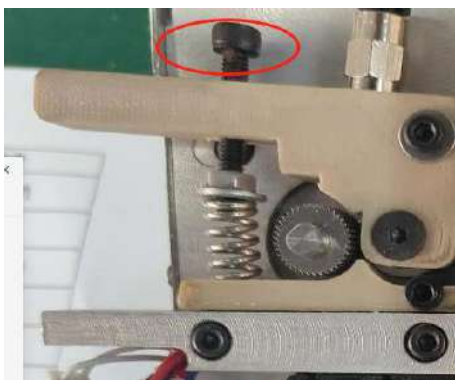
Simultaneous extrusion tooth cleaning at the end

Step 4



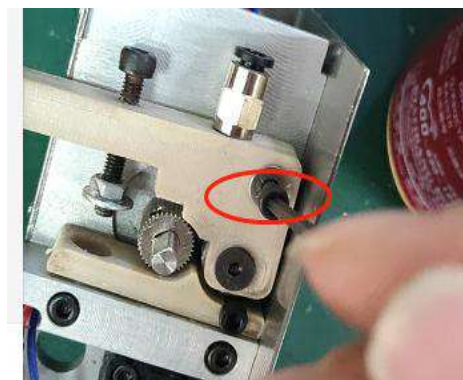
Cleaning with a brush

Step 5



If the tooth surface is severely worn replace the extruded tooth. First loosen the screws as shown
Take out the spring

Step 6



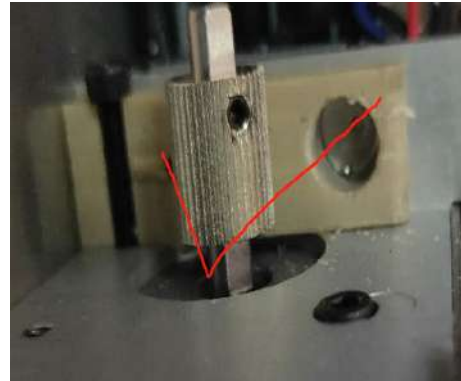
Unscrew the screws as shown
Remove the clip

Step 7



Remove the old extruded gear by loosening the top wire of the extruded gear

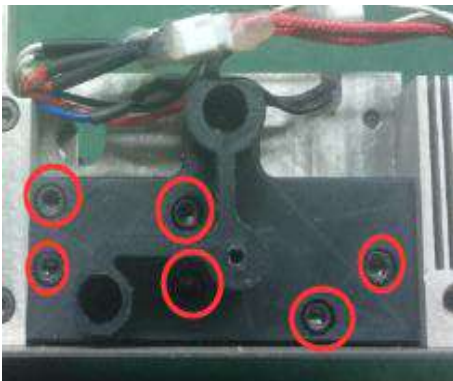
Step 8



1. Move the extrusion tooth back and forth to the concave arc of the gear, with the lowest point and the centerline of the feed hollow on the same vertical line and fix the extrusion tooth.

6.5.3 M3 Teflon tube replacement method

Step 1



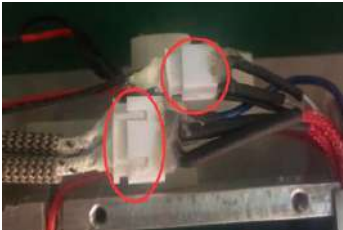
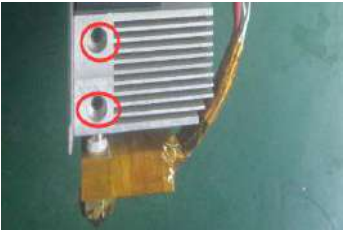




Unscrew the screws as shown in the figure

Step 2


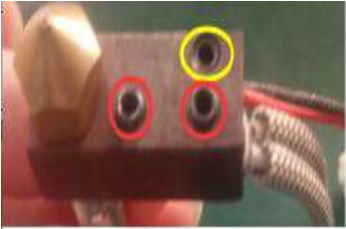






Remove and replace the same length of M3 Teflon tube

6.5.4 M4 Teflon tube replacement method

<p>Step 1</p>  <ol style="list-style-type: none"> 1. Disconnect the heating block 4P power cable and 2P thermistor wire 	<p>Step 2</p>  <ol style="list-style-type: none"> 1. Loosen the two top wires and pull out the heating block and throat. 	<p>Step 3</p>  <ol style="list-style-type: none"> 1. Unscrew the throat counterclockwise and clean the inside of the heating block threads of residue.
<p>Step 4</p>  <ol style="list-style-type: none"> 1. Remove the old Teflon tube and insert a new tube into the throat (a Phillips screwdriver can be used to round the Teflon tube steps at the top port to facilitate feeding) 	<p>Step 5</p>  <ol style="list-style-type: none"> 1. Plug the Teflon tube to the top and then use to cut flat along the port. 	<p>Step 6</p>  <ol style="list-style-type: none"> 1. Use raw material tape to wrap the threads clockwise 4 times and compress the protruding threads to reassemble to the heating block.

6.5.5 Thermistor and heating rod replacement method

<p>Step 1</p>  <ol style="list-style-type: none"> 1. Removal of insulation tape from the surface of the heating block 	<p>Step 2</p>  <ol style="list-style-type: none"> 1. Loosen the 3 screws as shown 2. Take off the thermistor or heating rod 	<p>Step 3</p>  <ol style="list-style-type: none"> 1. Take out the new replacement parts and reassemble them
<p>Step 4</p>  <ol style="list-style-type: none"> 1. Thermistors are protected by M3 Teflon tubes 2. Plugged into the hole using the top wire slightly flattened Teflon tube can be 3. (Too much force may damage the thermistor) 	<p>Step 5</p>  <ol style="list-style-type: none"> 1. First from the front using high-temperature tape wrapped 3 turns 2. Then wrap the heating block from the side for two turns 	<p>Step 6</p>  <ol style="list-style-type: none"> 1. Use tape to wrap the thermistor and heating rod wires 2. Wrap them side by side

7. Common Problems and Their Solutions

Only a few common problems are listed, for more questions please contact the technician directly.

7.1 Movement

Problem	Solution
Problem 1: When extruding, the extrusion gear shake.	Increase the print head temperature or determine if the head is clogged or needs to be reloaded with material.
Problem 2: One or two of the X, Y, Z and E axes cannot be moved, and an alarm sound appears when you click to move	Check if the limit switch is pressed
Problem 3: Opposite direction of motion	<p>Open the firmware and change the control code</p> <p>1 or -1</p> <pre> ;The following is the direction control of stepping motor. I1 and I-1 are in ;the opposite direction. Therefore, if the motor direction is wrong, either ;change the wiring or change the direction parameters M3002 I-1 ;X stepper motor direction, I1 Or I-1 M3003 I-1 ;Y stepper motor direction M3004 I1 ;Z stepper motor direction M3005 I-1 ;E1 stepper motor direction M3005 I-1 E2 ;E2 stepper motor direction </pre>
Problem 4: the machine movement "touch" sound, power off and shut down, and again the machine does not respond to power on	<p>Refer 4.1.2 Printing with Auto-Calibration Section</p> <p>8</p>

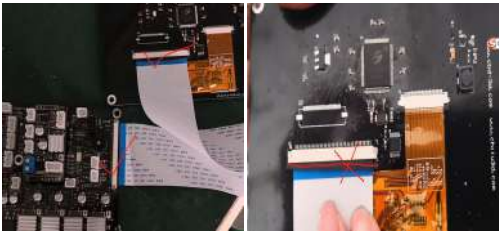

7.2 Temperature

Problem	Solution
<p>Problem one: click on the heating, the temperature does not change, a few seconds later prompted the heating power is insufficient, check the heating head temperature rise</p> <p>Attention: temperature measurement careful of high temperature hot hands</p>	<p>Whether the print head is installed, or whether the wire is connected</p>

7.3 Print

Problem	Solution
1. Prompt 1 or 2 no material, cannot be printed properly	Add filament at the filament break detection, if it still indicates no filament, replace the filament break detection limiter
2. Print appears to be detached from the bottom and is carried away	<p>1. to determine the platform to be able to print the material, adjust the platform and nozzle gap when the zero point is small (for details, see the bottom plate leveling - steps 9, 10, 11, 12)</p> <p>2., the first layer of the printing speed is too fast.</p> <p>3. it is important to adjust the temperature of the flat hot bed and the setting parameters of the fan cooling</p> <p>4. and platform coating or media related, may have damage to the coating or media</p>
3. Double-headed printing does not work well together	According to the maintenance - nozzle spacing adjustment spacing
4. Not extruded at the beginning of printing	<p>1, The nozzle is too close to the platform, there is no space for the silk, adjust the nut at the bottom of the platform can be solved.</p> <p>2, The feed gear cannot drive the gum silk normal out of the silk, you need to check this part, motor gear powder, if more, please clean together.</p> <p>3, Nozzle blockage, it is recommended that the use of a fine needle inserted into the nozzle solved the problem of head blockage.</p>

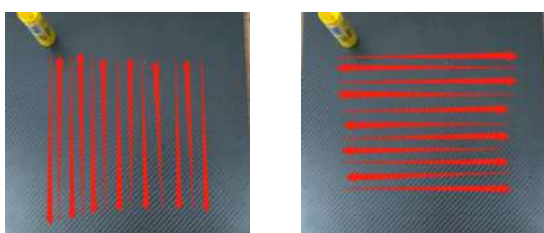
	<p>4, Consumables in the print head at the expansion, the consumables will be removed, the expansion will be cut off.</p>
5. There are obvious gaps between the rubber	<ol style="list-style-type: none"> 1. whether the parameters for setting the diameter of consumables in the software are consistent with the actual ones used. 2. It is possible to increase the extrusion times (the amount of glue output) appropriately.
6. The top layer has gaps or small holes	<ol style="list-style-type: none"> 1. The number of layers of the top layer is set too small 2. The fill rate is set too low, the fill is equivalent to the internal support of the model, fill too little, the top layer will fall down the silk
7. Filaments are grinded	<ol style="list-style-type: none"> 1. Inappropriate setting of the pumping back parameters, which may be too fast, or the pumping back length is too large. 2. Appropriate increase in the setting temperature of the printhead to increase the fluidity of the consumables. 3, Printing speed is too fast. <p>Check whether the printhead is clogged.</p>
8. Features that are too small cannot be printed	<ol style="list-style-type: none"> 1. Redesign the model with a feature width at least larger than the diameter of the nozzle. 2, If the model cannot be modified, it may be necessary to replace the nozzle diameter of a smaller nozzle. 3, Changing the nozzle diameter in the slicing software, so that the printer prints a smaller feature than its own nozzle diameter
9. Wrapping	<ol style="list-style-type: none"> 1. The temperature setting of the printing platform should be appropriate, different materials correspond to different setting temperatures. 2. The cooling effect of the external environment can cause premature detachment of the rubber filament from the platform, such as printing ABS is not suitable for room temperature is too low. 3. In the first layer of the model to increase the skirt or pad layer, can prevent the model warp
	<ol style="list-style-type: none"> 1. Reducing the thickness of the printed layer.

<p>10. The print quality of the overhanging part is too poor</p>	<p>2. Increase the support density</p> <p>3. There should be a certain gap between the support and the model in the vertical direction, too large will affect the surface quality of the support after removal, too small will make it difficult to remove the support.</p>
<p>11. Layer to layer misalignment</p>	<p>1. printing speed is too fast; you can properly reduce the speed.</p> <p>2. mechanical or electronic problems.</p> <p>(1) mechanical: belt or top wire is loose, need to do regular maintenance checks on the machine.</p> <p>(2) electronic: possible motor or motor line problems.</p>
<p>12. Filament Stringing</p>	<p>1. An appropriate increase in the length of the pumping back and pumping back speed parameters.</p> <p>2. When printing, the printhead moves back and forth in the process, because the printhead is in a heated state, the glue wire will still continue to melt out. Appropriately reduce temperature of the nozzle, can slow down the flow of supplies after melting.</p>
<p>13. Weak filling</p>	<p>1. The possibility of changing different filling patterns to make the model more robust.</p> <p>2. The printing speed can be reduced appropriately</p> <p>3. The amount of filled out glue can be increased appropriately</p>
<p>14. Printer monitor cannot be controlled cause</p>	<p>1. The problem of the cable. Platoon line as far as possible to insert the bottom of the slot, do not tilt poor. The display and the motherboard of the cable slot of the clasp card good.</p>  <p>2, SD problems, ① the use of SD memory can not exceed 8G ② TF card is not allowed to access the card holder, as a standard SD use</p> 

8. Appendix A

How to use the platform glue stick

1. Before printing on the printing platform to apply solid glue evenly twice, as shown in the figure can be based on the size of the print model vertical and vertical coating of the corresponding area.



Attention: The temperature of the carbon fiber board when applied cannot exceed 50C°, otherwise the high temperature will quickly melt the glue stick resulting in uneven thickness of the applied glue.

2. will be carbon fiber board, put into the machine heating hot bed 80 C° baking 3 minutes, so that the water in the glue evaporated to reach the maximum paste strength.

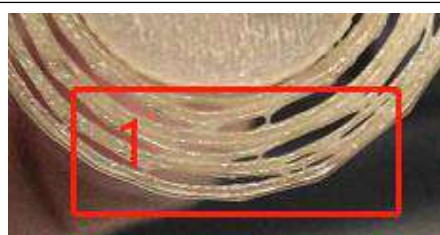
3. After using for a long time, when the residual glue on the platform is too much, you can take off the carbon fiber board and rinse it with clean water and re-glue it.

Attention: It is recommended to use the side skirt attachment type for printing model with carbon fiber board, to avoid the model printing warpage and other bad flat production.

When printing the model, it is recommended to observe the printing situation well before leaving the printer. Observe the forming effect of the skirt to determine whether the height of the nozzle and platform is appropriate.

As in the case of Figure 1.

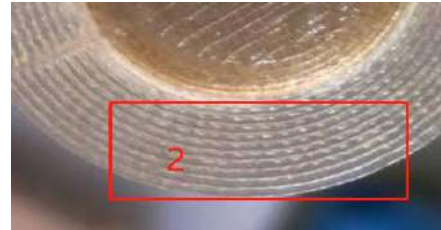
The skirt line is loose and independent, and separated by one root. This means that the nozzle



is a little far from the platform, you can increase the automatic leveling compensation parameters to make the nozzle and platform closer to the distance

As in the case of Figure 2.

The skirt lines are connected and fused into one plane. This means that the distance between the nozzle and the platform is more appropriate, and such a skirt effectively increases the contact surface between the model and the platform, increasing the adhesion force.



Attention: If the nozzle is too close to the platform, there is no gap between the platform and the nozzle, it will lead to nozzle extrusion without supplies, so printing with a good observation of the skirt can be very good to help us improve the success rate of printing.