

HIGH-TEMPERATURE SERIES

3D PRINTER

MAGIC-HT-MAX

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.



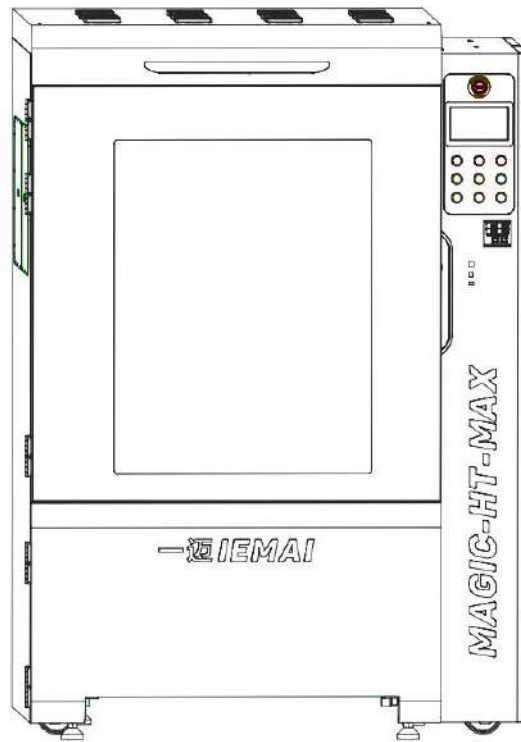
www.iemai3d.com/index.php/download/

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1. Overview

1.1 Printer Overview



IEMAI high-performance material 3D printer, the Magic-HT-MAX, is a 3D printing equipment based on the principle of fused filament fabrication (FFF) technology. It has a printing temperature of up to 500C°, a hot bed temperature of 200C°, and a chamber temperature of 150C°, which supports most polymer 3D printing materials in the market, including PEEK, PEKK, PPSU, PEI 1010/9085 and other high performance materials, nylon, PC, ABS, PETG, ASA, TPU, PLA and other general engineering materials, and composite reinforcement materials of the above materials (carbon fiber, glass fiber, flame retardant, anti-static, etc.).

The MAGIC-HT-MAX comes with individual lifting dual print head that supports the printing of support materials, including water-soluble PVA, limonene soluble HIPS, easy remove support materials and high temperature resistant support materials. We use a modular design, for example, the print head and the platform can be quickly disassembled, thus creating conditions for easy maintenance.

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 $\geq 2010 \times 2300 \times 2700$ mm (L*W*H)。

Installation Power Requirements : 200~250 V, 50~60 Hz, 6500w, Electric cable 6 m² or more.

Operating Environment: 15-30°C, 10-85% Relative Humidity, non-condensation

Storage Environment: 25-55°C, 10-85% 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 500 °C, its heating is strictly prohibited to touch



The maximum temperature of the printing platform of this equipment can reach 200°C, its heating is strictly prohibited to touch



The maximum temperature of the chamber of this equipment can reach 150°C, and it is strictly forbidden to touch it when it is heated.



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



MAGIC-HT-MAX

Printing Temperature:500°C

Hotbed Temperature:200°C

Chamber Temperature:150°C

Filament Case Temperature:65°C

Printing Size:500×500×700 mm

Liquid Cooling, Individual Lifting Dual Nozzle Modularization

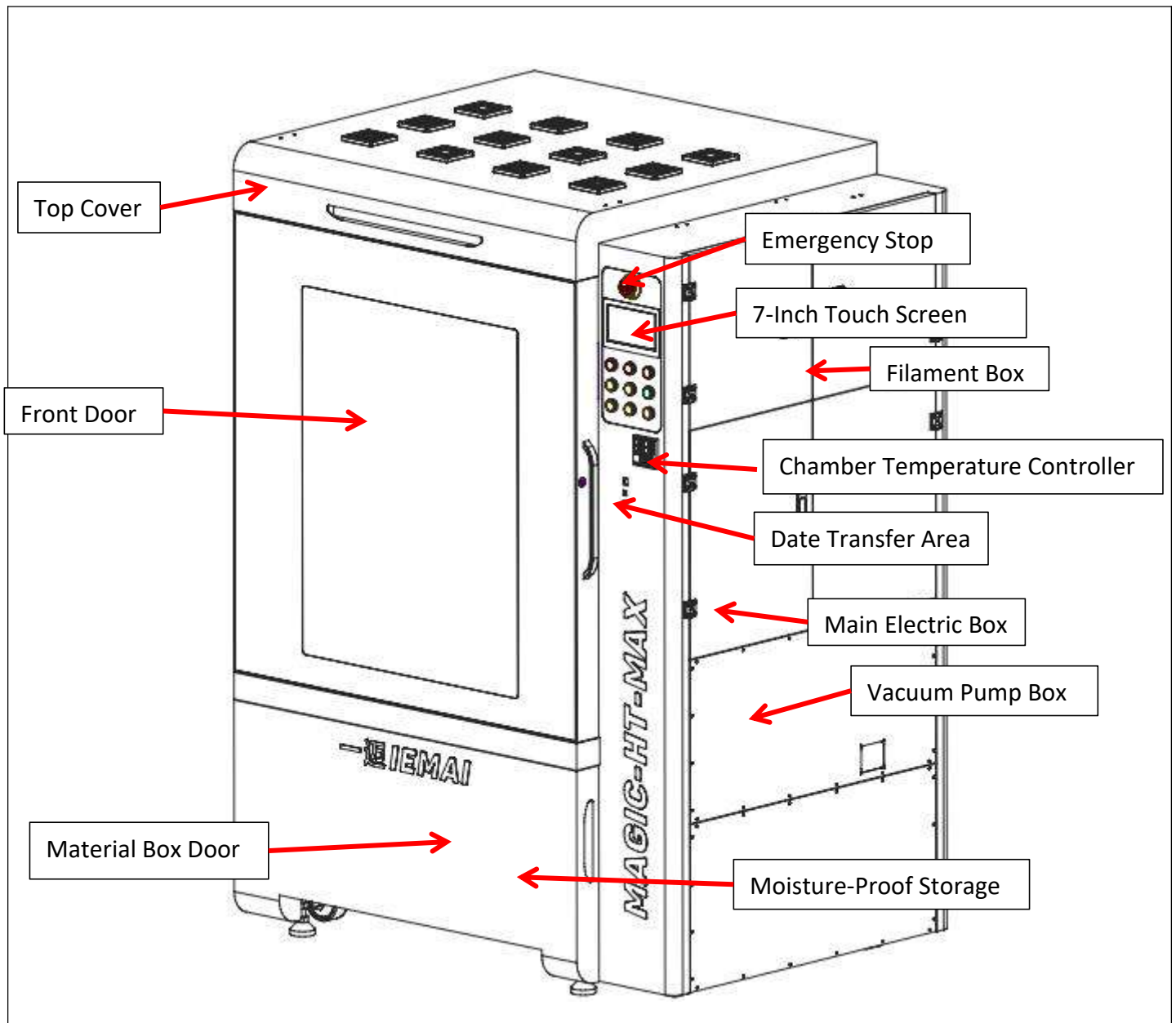
Power Failure Recovery, Filament Absent Warning, Wi-Fi Control

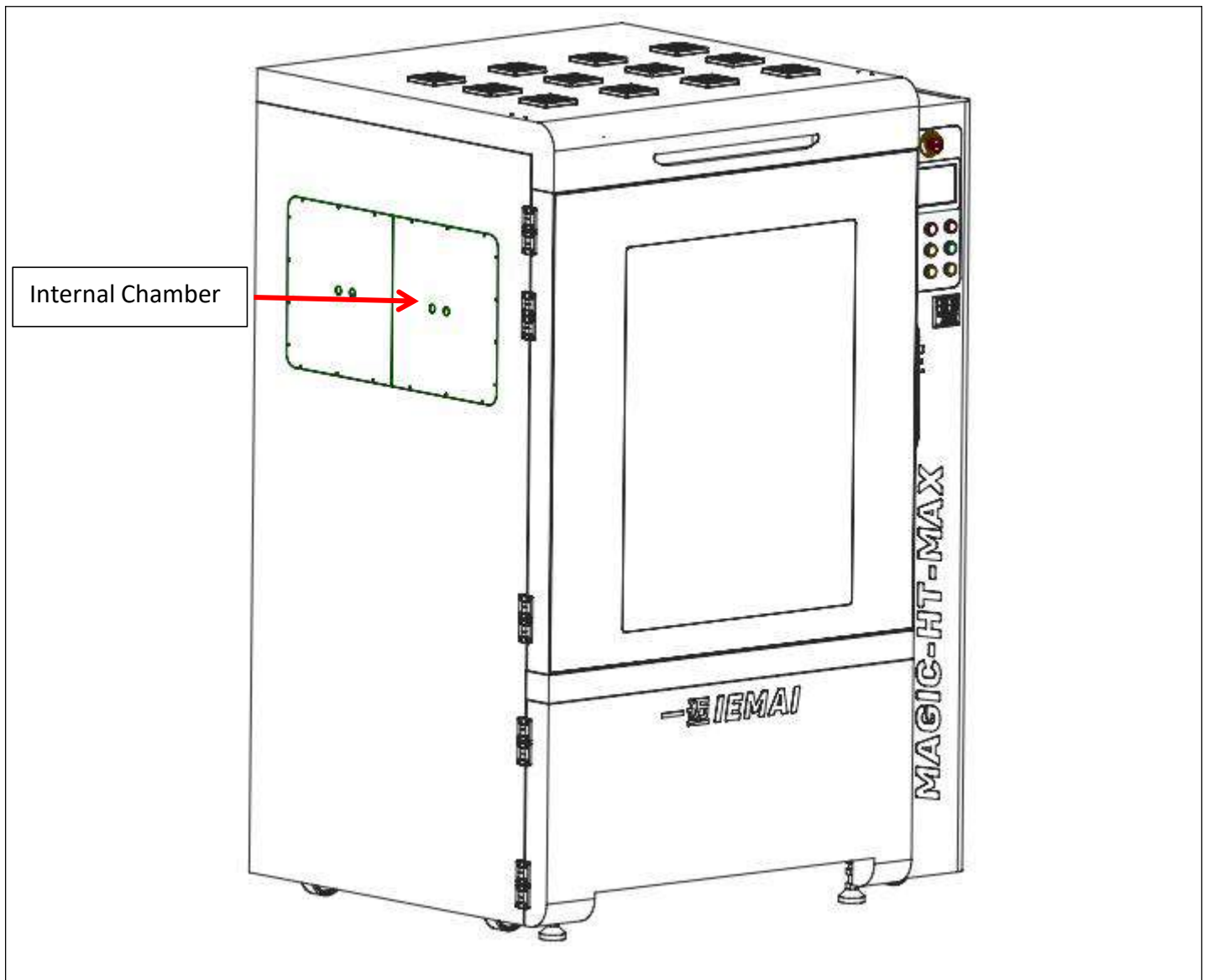
Vacuum Adsorption, Platform Automatic Leveling, Automatic Cleaning Nozzle

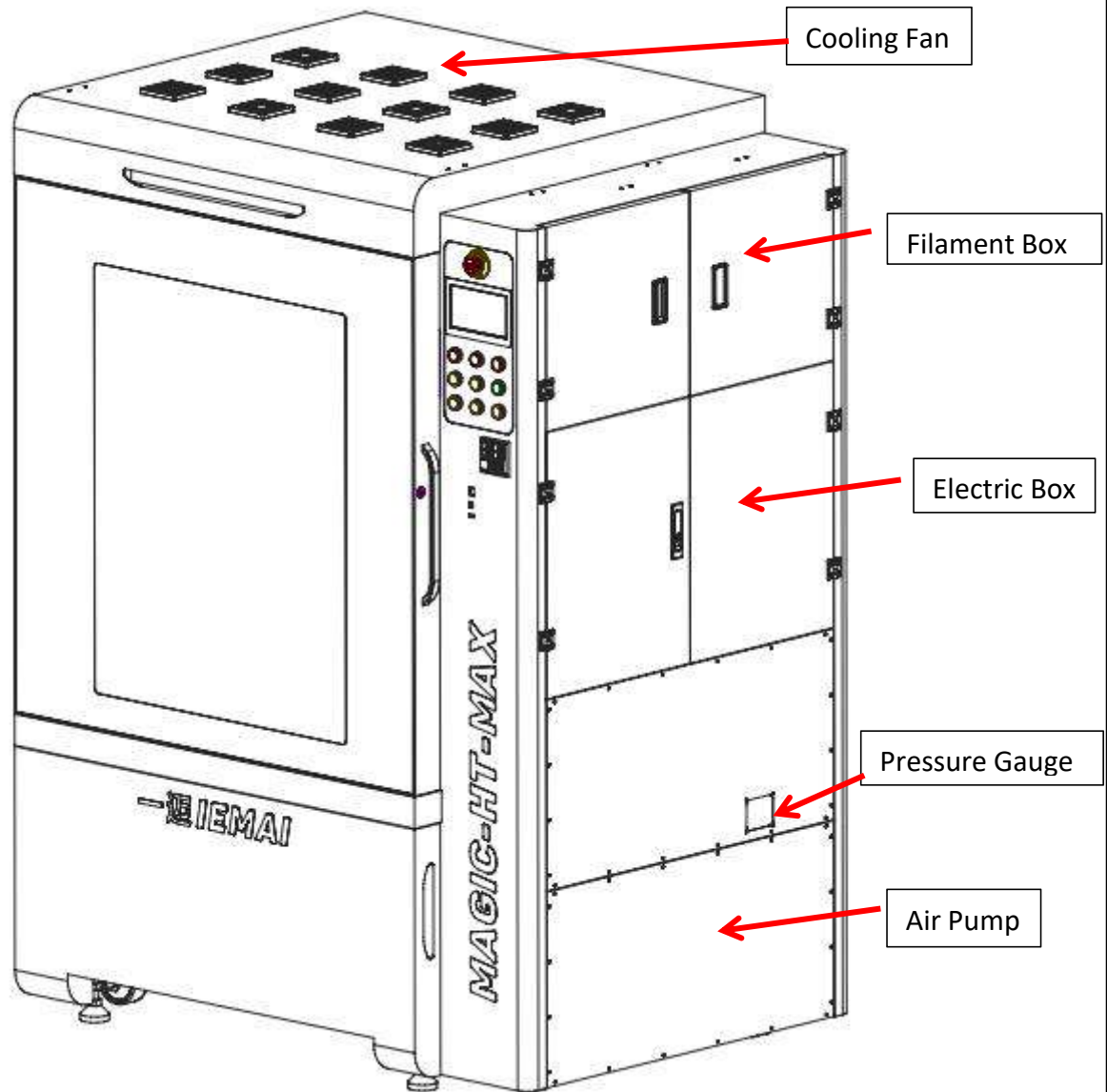
Item	MAGIC-HT-MAX
Printing Size (L × W × H)	500×500×700 mm
Machine Size (L × W × H)	1080×1380×1950 mm
Packing Size (L × W × H)	1300×1600×2300 mm
Net Weight	750KG
Gross Weight	850KG
Power	200~250 V, 50~60 Hz 6500W

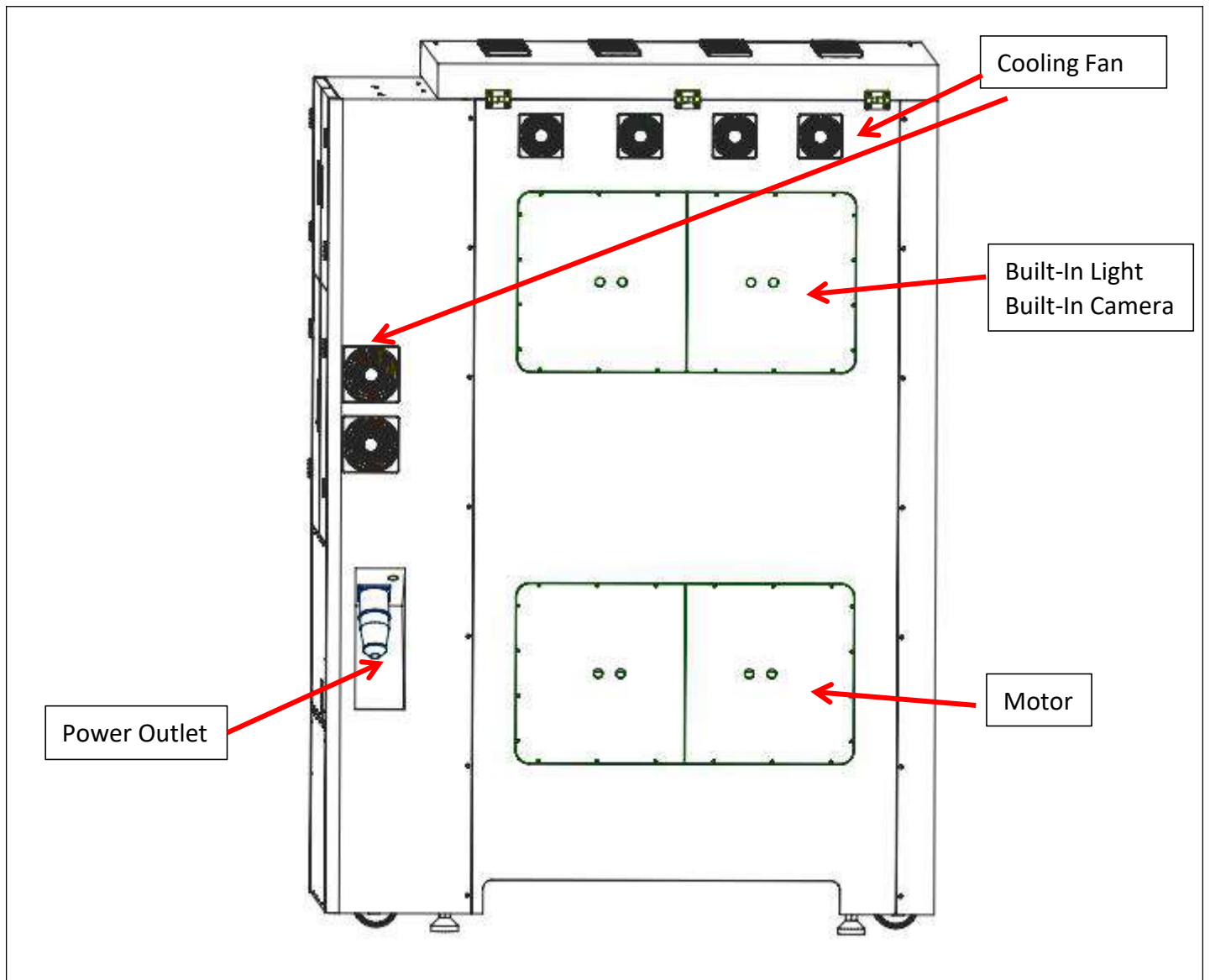
Common	Principle: Fused Filament Fabrication(FFF) Extrusion System: Individual Lifting Liquid Cooling Dual Extruder Filament Diameter: 1.75 mm Position Resolution: X/Y: 2.5 μ m Z: 0.78 μ m Printing Speed: 0 – 150 mm/s Printing Platform: Carbon Fiber Plate Or Polymer Membrane, Vacuum Absorption Print Bed Temperature: Up to 200°C Heated Bed Material: Silicon Printing Platform Auto Calibration: Support Power Failure Recovery: Support Supporting Materials: PEEK, CF-PEEK, PEKK, CF-PEKK, PEI 1010/9085, PPSU, PC, CF-PC, PA, CF-PA, GF-PA, ASA, ABS, CF-ABS, PETG HIPS, TPU, PLA, CF-PLA, PVA... Layer Thickness: 0.05 – 0.3 mm Nozzle Diameter: 0.4 mm (Default), 0.6 mm, 0.8 mm, 1.0 mm (Choosable) Data Transmission: WIFI, SD Card Suggest Operating Environment: 15-30 °C, Relative Humidity 10-90 %, No Moisture Condensation Storage Temperature: 25-55 °C, Relative Humidity 10-90 %, No Moisture Condensation Technology Certification: CE, RoHS Air Filter: Activated Carbon Filter (Choosable)
Software	Supplied Software: IEMAI 3D EXPERT, Cura, Simplify3D Operating System: Windows 64 Bit File Type: STL, OBJ, 3MF Output: GCODE
Features	Power Failure Recovery Filament Absent Warning Auto-Shut Down System Liquid Cooling System Camera Monitoring(Choosable) Auto Leveling Vacuum Adsorption Platform Nozzle Auoto-Cleaning

2.2 Device Layout





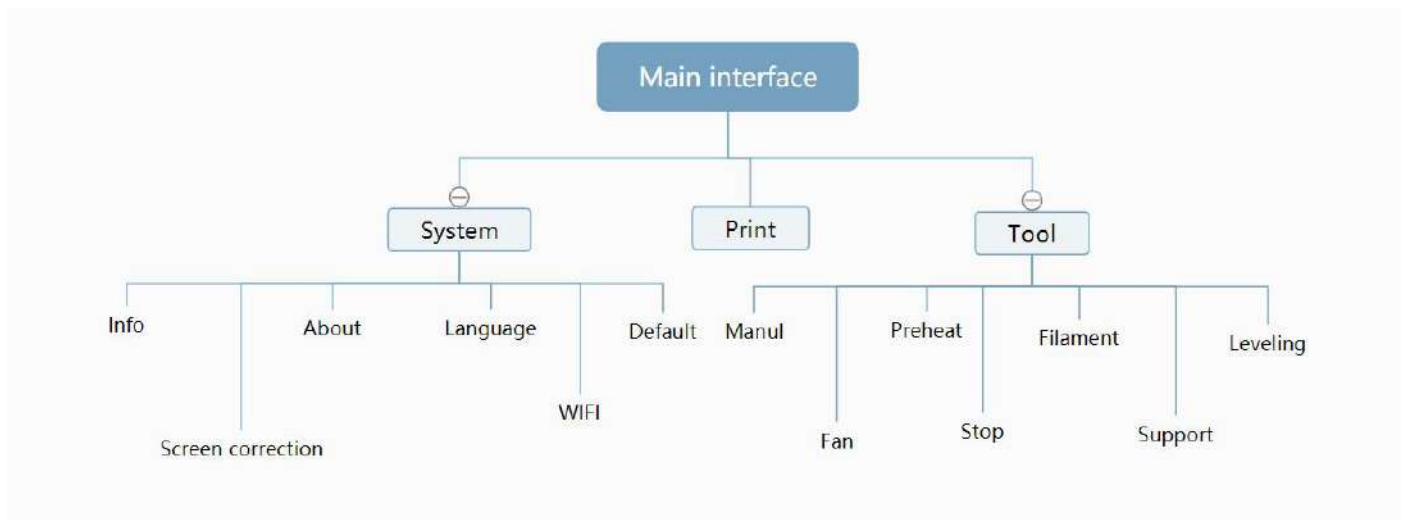




2.3 Interactive Interface

The interactive interface of the device adopts a 7-inch Chinese-English color touch screen (resistive). Please read the following interface 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



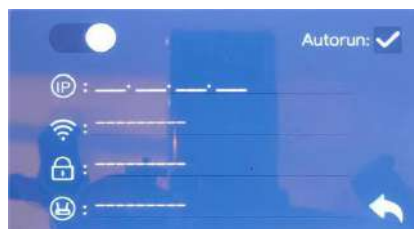
1. This interface allows you to view the current coordinates of the XYZ axis
2. The current temperature of the left nozzle, and right nozzle, and hot bed

Figure 4: About interface





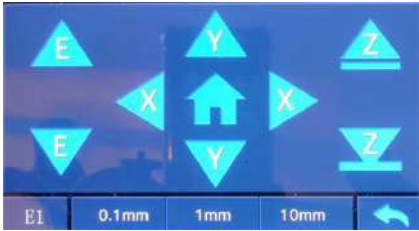


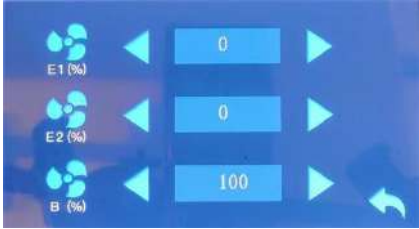
This interface allows you to view the name, ID, system version, UI version, and Power On/Off sounds

Figure 5: WiFi Setup Interface



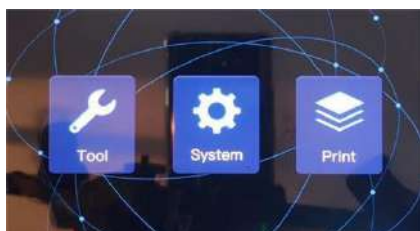
This interface allows you to view information about Wi-Fi

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"> 1. Click "Manual" to go to Figure 3 2. Click "Preheat" to go to Figure 4 3. Click "Filament" to go to Figure 5 4. Click "Level" to perform automatic leveling 5. Click "Fan" to go to Figure 6 6. Click "Stop" to stop all execution commands 7. Click "More" 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"> 1. Select the moving unit of 0.1-10mm 2. Controls the XYZ axis for unit movement 3. Click "Home" to go back to the original point" 4. Select E1 or E2 for unit extrusion
<p>Figure 4: Pre-Heat interface</p>  <ol style="list-style-type: none"> 1. 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"> 1. Loading material "E1" 2. Unload material "E1" 3. E1- Left Nozzle, E2-Right Nozzle 4. "Stop" Stop Loading Command 	<p>Figure 6: Fan Interface</p>  <ol style="list-style-type: none"> 1. This interface allows you to set the nozzle cooling fan E1, nozzle cooling fan E2 and the fan rate of the motherboard fan

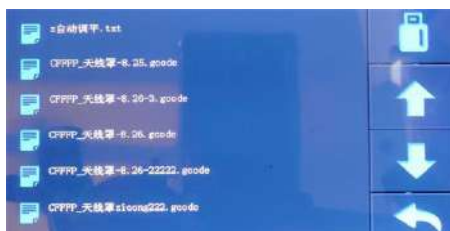
2.3.3 Print Interface

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




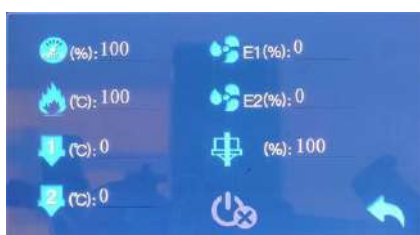
1. This interface is the main interface in print You can view thumbnails
2. Hot bed, Nozzle Temperature and chamber temperature
3. Elapsed time, Time remaining、Current speed
4. File name, Print Progress Bar
5. You can control pause (resume) and stop printing
6. Press " " to Figure 4

Figure 4 : Print Setting Interface



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

3. Device Usage

3.1 Unpacking

Step 1



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

Step 2



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

Step 3



Check whether the door glass and control panel are in good condition

Step 4



Note: The starter kit and material pack are placed in the material box on the right

3.2 Check Equipment Motion

<p>Step 1</p>  <p>Use 6mm² cable to connect AC220V single-phase power socket</p>	<p>Step 2</p>  <p>Plug in the power connector at the rear of the machine to the main power supply</p>	<p>Step 3</p>  <p>It is shown in Figure 3</p>
<p>Step 4</p>     <ol style="list-style-type: none"> 1. The XYZ axis movement is controlled manually by touch screen 2. Observe whether the figure moves normally 	<p>Step 5</p>    <ol style="list-style-type: none"> 1. Control E1 and E2 extrusion through the touch screen 2. Check whether the gears of the left and right sprinklers rotate clockwise 	<p>Step 6</p>  <ol style="list-style-type: none"> 1. Preheat through touch screen 2. It can set the temperature of hot bed, left nozzle and right nozzle 3. The temperature on the right represents the set temperature, and the temperature on the left represents the actual temperature 4. Recommended hot bed temperature for first preheating: 50 ° C ± 2 ° C 5. Left and right nozzle temperature: 210C°±2C° <p>Please be careful with high temperature and operate with caution</p>

4. Print Operation

4.1 Install Print Platform And Leveling

Step 1



Install sealing strips

Step 2



Install carbon fiber plate

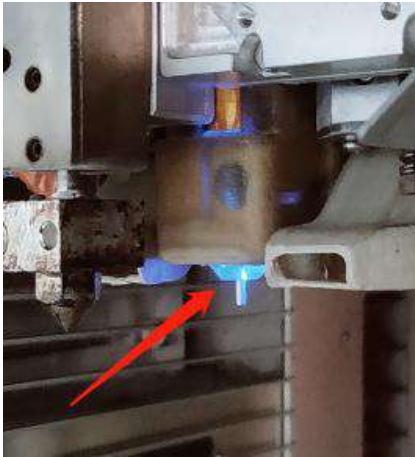
Step 3



Turn on the vacuum suction switch

4.1.1 Use Auto Leveling To Print

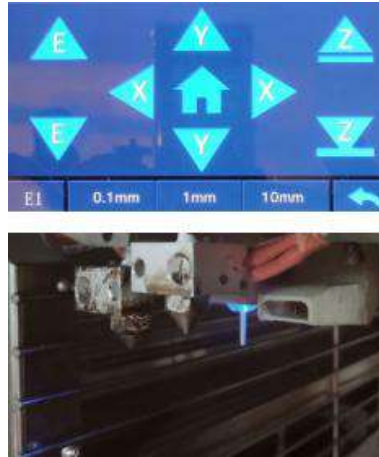
Step 1



When starting the machine, observe whether the automatic leveling self-test passes. If it does not pass, it must not be reset to zero, otherwise there is a risk that the platform will hit the nozzle, resulting in machine failure.

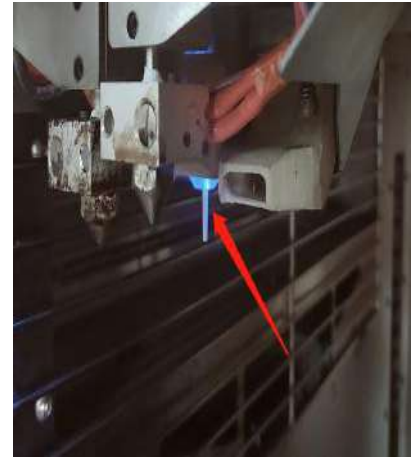
(During the self-test, the self-test will be performed twice. If there is no action, manually pull out the probe and start the self-test again)

Step 2



After passing the self-test, click return to zero

Step 3



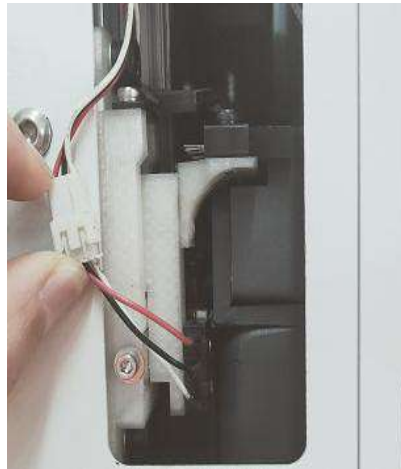
The X-axis (transverse) Y-axis (vertical) is zeroed in turn, , and finally the Z-axis is raised and zeroed

Step 4



1. Wait for return to zero
2. Click level to use auto leveling.
3. Wait for the machine to automatically find 49 points to build, then printing platform will start printing

Step 5



1. To prevent the platform from hitting the nozzle, it is necessary to set the position of the emergency stop limiter.
2. When the platform rises too high so that the platform squeezes into the nozzle, the emergency stop limiter is triggered to disconnect the machine power and stop the machine

Step 6

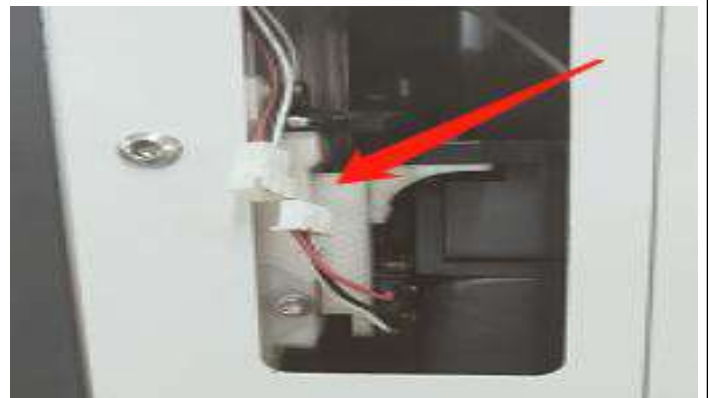


The mode setting is as follows:

1. After returning to zero, use a working range of 0.1mm to control the upward movement of the Z-axis, and observe that the nozzle stops moving when it touches the platform
2. Disconnect the plug of the emergency stop limiter and test the black and white interfaces using a multimeter. Adjust the multimeter to the buzzer setting, at this time, there will be a sound. As shown in the figure, the two test pens touch the metal parts of the white and black wires respectively. Adjust the limiter up and down through the fine-tuning screw and the fixing screw to make the buzzer sound
3. After starting the machine, lower the Z-axis and plug in the limiter

For the first use, when the platform rises to touch the nozzle, if you hear a "bang" sound and the machine is powered off, which indicates that the emergency stop limit is triggered. Need to unplug the limit connector and open the right electric box cover, find the leakage protector and press the gray button, switch up to start the machine. After starting, drop the Z-axis and connect the connector of the emergency stop limiter. Adjust the height of the emergency stop limiter according to the situation

If the limiter is triggered in advance, resulting in a shutdown, you can adjust the limiter up a bit according to step 6



4.1.2 Use Mechanical and electronic limit to Print

Step 1



The use of traditional mechanical leveling

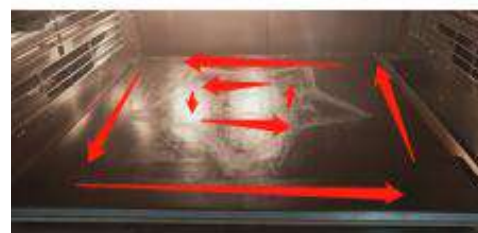
1. Turn off the automatic leveling function of the system, which requires burning the firmware code, please contact the sales staff
2. Connect Z-limit cable (must be used with firmware changes)

Step 2






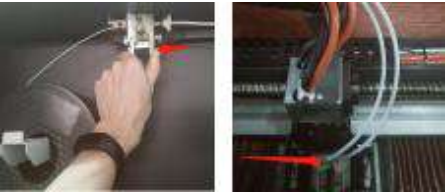
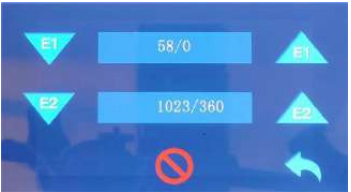



1. Using the working range of 0.1mm and 10mm, so that the printing platform is just a fixed height from the nozzle
2. The print head is manually controlled to move to various positions on the platform


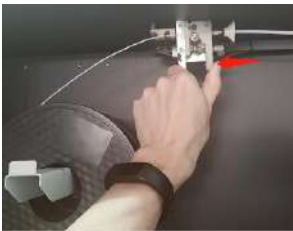
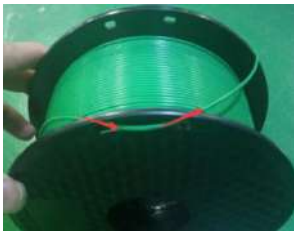
Step 3



The height of the platform is adjusted point by point in a clockwise way. The adjusting screw can be turned clockwise to reduce the height of the platform until the height error of each point is less than 0.15mm

4.2 Load/Unload Filament




<p>Step 1</p>  <ol style="list-style-type: none"> 1. Print temperature according to the material to be loaded 2. Preheat 3. Refer to Step 10 for the preheating temperature of different materials 	<p>Step 2</p>  <p>Straighten the material</p>	<p>Step 3</p>  <p>Cut the material to the tip</p>
<p>Step 4</p>  <p>When loading the material, press the distal extrusion clip and insert the material until the material can not go in</p>	<p>Step 5</p>  <ol style="list-style-type: none"> 1. Click “” to load materials 2. E1 for the left nozzle, E2 for the right nozzle 	<p>Step 6</p>  <ol style="list-style-type: none"> 1. Till the nozzle appears fine filament 2. Click ‘’ Stop loading and unloading command

<p>Step 5</p>  <p>1. Click "E1" to unload materials</p> <p>2. E1 for the left nozzle, E2 for the right nozzle</p>	<p>Step 8</p>  <p>When unloading materials, press the distal extrusion clamp after the proximal extruder exits the filament, then quickly pull out the consumables</p>	<p>Step 9</p>  <p>After the material is out of the gear, pull it out manually, and fix the thread, keep it well against moisture</p>
<p>Step10: Recommended preheating nozzle temperature for commonly used materials</p>		
<p>Special Engineering Plastics</p> <p>PEEK : 430C°</p> <p>PEKK : 430C°</p> <p>PEI 1010 : 360C°</p> <p>PEI 9085 : 360C°</p> <p>PPSU : 360C°</p> <p>PPS : 300C°</p>	<p>Reinforced Composites Material</p> <p>CF-PEEK/GF-PEEK : 450C°</p> <p>CF-PEKK/ESD-PEKK : 430C°</p> <p>GF-PA/CF-PA : 300C°</p> <p>CF-PC/PC-FR/PC-ABS : 270C°</p> <p>CF-ABS : 260C°</p> <p>ESD-PETG : 260C°</p> <p>CF-PLA : 220C°</p>	<p>General Engineering Materials</p> <p>PA : 260C°</p> <p>PC : 260C°</p> <p>ABS : 240C°</p> <p>PETG : 230C°</p> <p>PLA : 200C°</p> <p>TPU : 230C°</p>

4.3 Start Printing

Step 1	Step 2	Step 3
 <p>In the IEMAI slicing software, the code will be saved to the SD card, please see the software tutorial for detailed slicing methods</p>	 <p>Insert the USB into the USB port and select the slice file</p>	 <p>Click “” ready to start printing</p>

4.4 Disassembly Model

Step 1	Step 2	Step 3
 <p>the finished model on the printing platform</p>	 <p>Turn off the vacuum adsorption switch</p>	 <p>After taking down the platform, carefully shovel the model from all sides slowly</p>



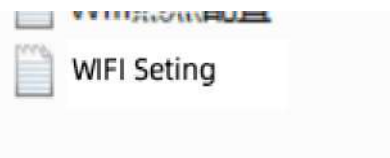

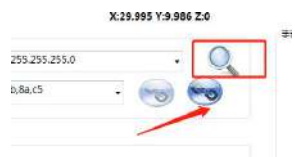




4.5 PEEK Material Printing Precautions

Materials/Parameters	Printing Temp	Platform Temp	Chamber Temp	Z-axis support spacing
peek	400	100	90-120	0.15-0.2

Note:


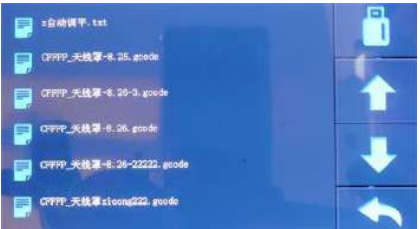
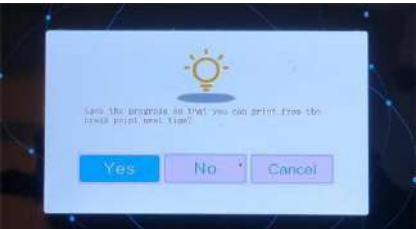
1. Peek can only be printed with high temperature head. Brim is recommended for attachment mode
2. When heating before printing, the constant temperature chamber and hot bed should be heated first. The printing head should not be heated for a long time. It is easy to form carbonization and lead to the blockage of the printing head ([see common problems and solutions for the blockage treatment - PEEK printing](#)).
3. PEEK should be baked at 120C° for 5H before printing
4. The cooling fan is turned off when printing

4.6 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
 <p>If the machine suddenly powers off during the printing process</p>	 <ol style="list-style-type: none"> 1. Turn the power back on 2. Find the file you want to printing 3. Select it to print 	 <p>On this screen, select Yes to complete the power failure recovery</p>
<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>		

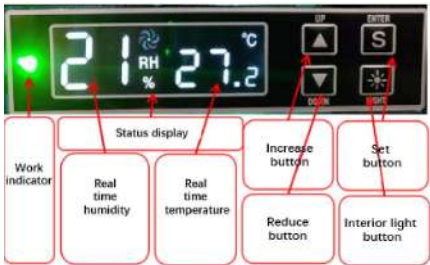






5.2 Filament Absent Warning

Step 1	Step 2	Step 3
 <p>If the printer runs out of material during printing, please select "Yes" in this screen to load material</p>	 <ol style="list-style-type: none"> 1. Unloading materials "E1" 2. Loading materials "E1" 3. E1 for left, E2 for right. 4. Unload the existing material first and then load 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>		

5.3 Chamber Temperature Setting

<p>Step 1</p>  <p>Schematic diagram of the chamber temperature controller</p>	<p>Step 2</p>  <p>Long press the temperature setting key to enter the setting interface</p>	<p>Step 3</p>  <ol style="list-style-type: none"> 1. Through transposition keys, increase/decrease keys 2. Set target temperature 3. This is the left and right temperature setting at the same time
<p>Step 4</p>  <ol style="list-style-type: none"> 1. Press and hold the set button 2. When the target temperature window number stops jumping <p>Release the button</p>	<p>Step 5</p>  <p>Output control indicators OUT1 and OUT3 are on, and the temperature rises</p>	

5.4 Moisture Proof Cabinet Setting

<p>Step 1</p>  <ol style="list-style-type: none"> 1. Pedestal humidity controller diagram 	<p>Step 2</p>  <ol style="list-style-type: none"> 1. Click Settings 2. Enter the settings screen 3. Target humidity value jump 	<p>Step 3</p>  <ol style="list-style-type: none"> 1. Use the increase/decrease keys 2. Set the specified target humidity 3. Recommended setting is a minimum of 10% RH
<p>Step 4</p>  <ol style="list-style-type: none"> 1. Click on the settings to return to the status display screen 	<p>Step 5</p>  <ol style="list-style-type: none"> 1. Fan rotation indicates that the device is working 	<p>Step 6</p>  <ol style="list-style-type: none"> 1. Status during long operation 2. The display will be in a sleep state 3. Can use  start-up display

6. Maintenance and Care

This equipment belongs to high temperature equipment, the internal use environment temperature is high, do not replace the conventional parts to avoid machine failure. Please deal with the problem under the guidance of professionals.

6.1 Maintenance of Linear Guide and Ball Screw

Ball screw and linear guide are the guarantee to keep secure operation, and the correct maintenance can effectively increase the service life of the machine. It is recommended to add lubricating oil once every half month if it is used for a long time,

First Step : Open top cover



Second step:

1. Add grease and apply an appropriate amount of grease in the V-groove on both sides of the guide.
2. Apply evenly on the fillet of the ball screw.



6.2 Dust Removal from Electrical Box Fans

<p>Step one.</p> <p>Check the dust condition of the dust cover and fan blades of the electrical box fan.</p> <p>Timely cleaning 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 two:</p> <p>Remove the dust cover. Insert and gently pull out the dust cover from the four corners of the dust cover</p>	
<p>Step three:</p> <p>Remove dust from the dust cover and fans. Use an air gun to remove the dust from the sponge in the dust cover, and blow clean the fan (note that the pressure should not be too high when blowing the fan, so as not to damage the fan. You can limit the rotation of the fan).</p>	

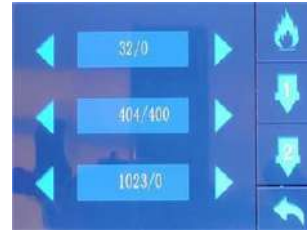
6.3 Nozzle Maintenance

(1) Cleaning: In the printing process, there will be excess filament residue melted on the nozzle, which will affect the printed items, so it needs to be cleaned.

Step 1: Heat up the nozzle (subject to the last printing temperature)

Step 2: Use tweezers to hold soft fiber cloth or some other high temperature resistant soft items to wipe clean (do not use sandpaper blades and other sharp and corrosive tools to polish and clean)

Note: the nozzle is high temperature, and the operation should be careful of scalding;



(2) Replacement :(perform the second and fourth steps for high temperature printing head)

Step 1: Normal temperature print head will heat up the nozzle (**about 150C°**).

Step 2: Remove the quick detachable head, hold the heating block with pliers, and remove the nozzle counterclockwise with sleeve

Step 3: Take out a new nozzle and wrap the thread part of the nozzle about 7 turns clockwise with the raw material belt and press the thread out;

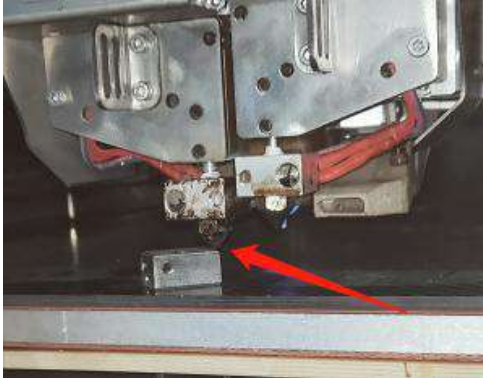
Step 4: Reinstall the nozzle into the print head using duck bill pliers and sleeve

Note: The nozzle is always under high temperature during the whole operation. It is recommended to wear protective gloves



6.4 Height Adjustment for Dual Nozzle

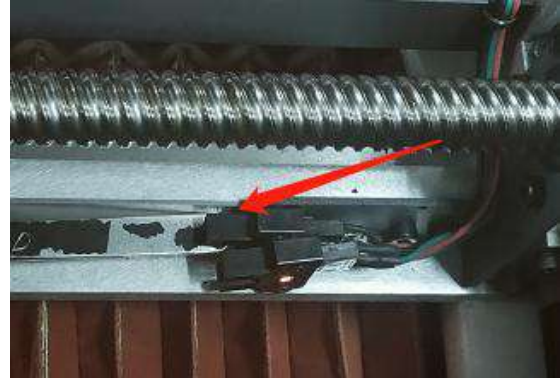
Step 1



At a fixed position

1. Move the Z-axis so that the print head is at the height of an auxiliary block with the platform
2. Keep the Z-axis height fixed until adjustment is complete

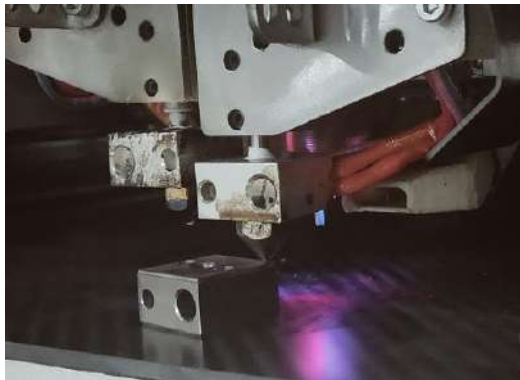
Step 2



Open the cover

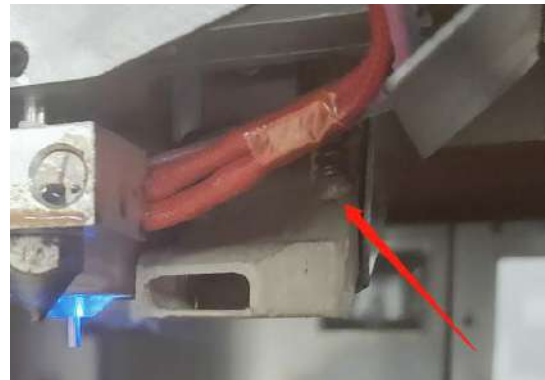
- Use an opaque sheet to shade the inner sensor
- Print head switch to print head # 2

Step 3



Move the X-axis (left negative limit) by 20mm
Head 2 is just stay in the position where head 1 was tested previously




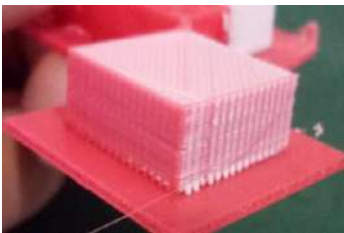

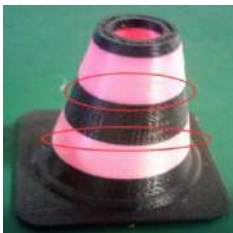
Step 3



Turn the adjusting screw above the left nozzle clockwise to raise No. 2 head
By adjusting the No.1 head and the platform at the same height

Note: When adjusting the nozzle height, the same point on the platform at the same height is the best condition, the right head can be slightly higher than the left head 0.05mm

6.5 Dual Nozzle Spacing Adjustment Method

<p>Step 1</p>  <ol style="list-style-type: none"> 1. Print a two-color miniature 2. Adding the paint tower 3. White left nozzle 4. 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) need to move to X-axis negative direction to match then increase X-axis spacing (positive value) 4. Y-axis direction red (right printhead) need to move to the positive direction of the Y-axis, decrease 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

6.6 Print Head Disassembly

The equipment is double quick detachable print head, the left head is equipped with a high temperature and a low temperature dual print head, the right head is also a low temperature and a high temperature two printing heads. If the print head needs to be replaced during use. The steps are as follows:

Step 1: Check whether there are filaments in the print head. If there are filaments, discharge them first (refer to Printing - Loading and Unloading materials for details), and pull out the feed pipe

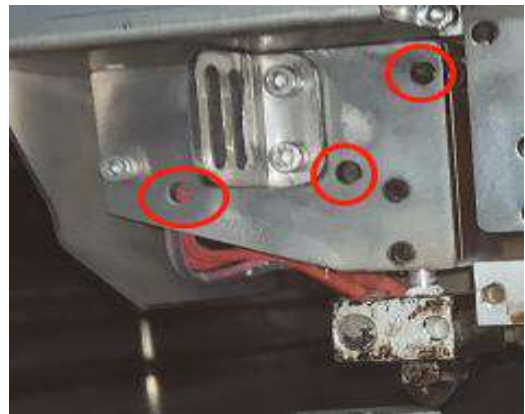
Step 2: Turn off the power and loosen the three screws as shown in the picture

Step 3: Pull out the print head to complete the removal

To replace a new print head, the procedure is as follows:

Step 1: Load the removed print head into the original position and tighten the three removed screws as shown in the figure

Step 2: Check the installation effect. Open the tool -- preheat. If the display temperature is "1023", it indicates that the print head is not installed correctly or the print head is damaged



Note: Please remove and install the printing head with the power off

7. Common Problems and Their Solutions

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	Open the firmware and change the control code 1 or -1 <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: When the machine is running, the power is off with a "bump" sound, and the machine does not respond when it is turned on again	Refer to 4.1.2 Use Automatic leveling to print 8th





7.2 Temperature

Problem	Solution
Problem 1: Click heating, the temperature does not change, a few seconds later prompted the heating power is insufficient, check the heating head temperature rise Note: Be careful when measuring temperature	Reinstall the print head
Problem 2: Temperature display "1023"	Print head is not properly installed

7.3 Print

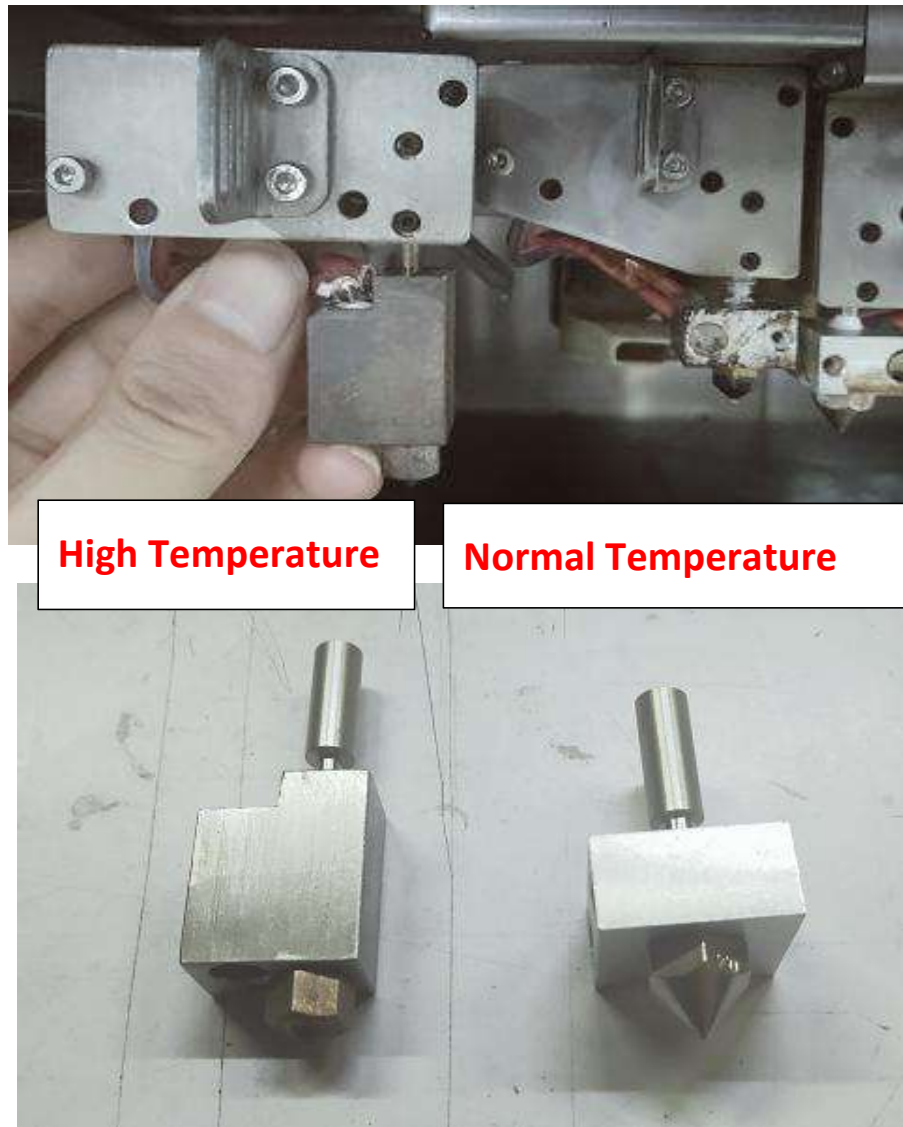
Problem	Solution
Problem 1: Prompt #1 or #2 no material, cannot print properly	Add material at the filament-warning test
Problem 2: The print appears to be detached from the bottom and is carried away	After determining that the platform is able to print that material, adjust the platform and nozzle gap when the zero point is small (see Printing - Installing the Build Platform and Leveling for more information)
Problem 3: Dual head printing does not work well together	Refer to the maintenance - nozzle spacing adjustment

7.4 Clean Up Carbon Blockage

Problem	Solution
<p>After printing for some time, it was found that some black material was extruded and there was no filaments</p>	<p>Treatment method 1:</p> <p>Heat the nozzle until the material inside melts, insert a needle with the same aperture size as the nozzle (a 0.4mm needle is provided) into the nozzle, click and extrude downward, and slowly pull out the needle. Filament will out of the nozzle with the needle. If the blockage is serious, it is recommended to clear with a drill</p>  <p>Treatment method 2:</p> <ol style="list-style-type: none"> 1. Remove the printing head according to the printing head disassembly and maintenance   <ol style="list-style-type: none"> 2. Loosen the screws as shown in the figure, and remove the pipe, heater block, and nozzle  <ol style="list-style-type: none"> 3. Use 1.95mm drill bit (complimentary) to drill out the material inside the pipe and nozzle. Note that the flow pass with 0.4mm aperture and 1mm length at the front of the nozzle does not need to be cleaned, and do not drill inside to avoid damaging the nozzle

Appendix A :

The difference between high and low temperature of the print head



Note:

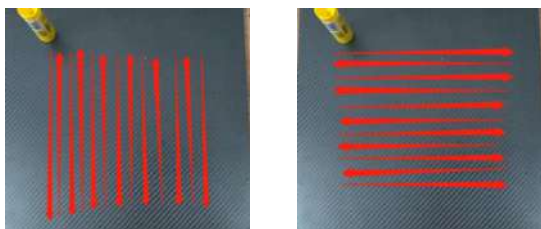
High temperature nozzle is suitable for printing materials with temperature over 300 C°

Normal temperature nozzle is suitable for printing materials with temperatures below 300 C° and is not interchangeable

Appendix B :

How To Use Platform Glue Stick

1. Apply solid glue uniformly to the printing platform for the first time before printing. As shown in the figure, apply the corresponding area vertically or vertically according to the size of the printing model.



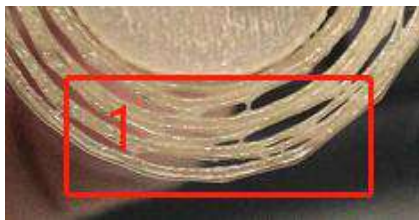
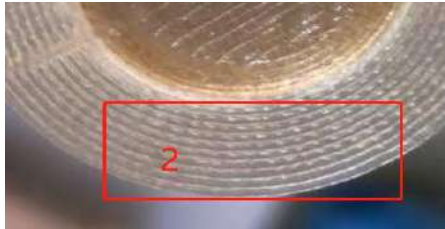
Note: The temperature of the carbon fiber plate should not exceed 50C°, otherwise the high temperature will melt the glue stick quickly and lead to uneven thickness of the glue.

2. After a long time of use, if there is too much glue left on the platform, the carbon fiber plate can be removed and rinsed with water before re-gluing.

Note: It is recommended to use the attachment type of side skirt to avoid warping of model.

When printing the model, it is recommended to observe the printing condition before leaving the printer.

Observe the molding effect of the side skirt to determine whether the height between the nozzle and the platform is appropriate

<p>As in the case of Figure 1.</p> <p>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</p>	
<p>As in the case of Figure 2.</p> <p>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.</p>	

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.