

HIGH-TEMPERATURE SERIES

3D PRINTER

MAGIC-HT-L

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.



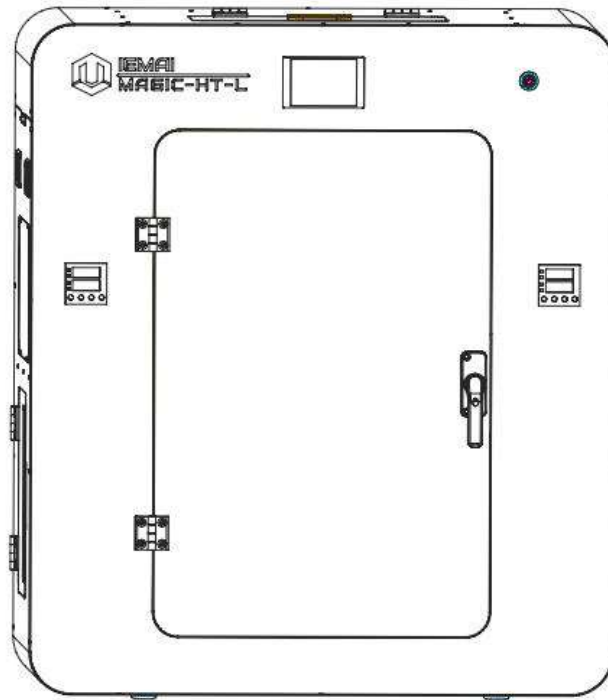
www.iemai3d.com/index.php/download/

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1 . Overview

1.1 Machine Overview



IEMAI high-performance 3D printer MAGIC-HT-L is a 3D printing device based on the principle of fused filament deposition (FFF) technology, with a printing temperature of up to 450°C, a hot bed temperature of 150°C, and a chamber temperature of 90°C. It supports most polymer 3D printing materials on the market, including PEEK, PEKK, PPSU, PEI 1010/ 9085 and other high-performance materials, nylon, PC, ABS, PETG, ASA, TPU and other engineering materials, PLA class of general-purpose materials, as well as composite reinforcement materials of the above materials (carbon fiber, glass fiber, flame retardant, anti-static, etc.).

MAGIC-H- L is equipped with dual print heads that can support the printing of support materials, including water-soluble material PVA, limonene-soluble material HIPS, easy-peel support material and high-temperature resistant support material. Our modular design, such as the printhead and the platform, can be disassembled easily, 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 $\geq 1200 \times 1300 \times 1200$ mm (L*W*H)。

Installation Power Requirements : 200~250 V, 50~60 Hz, 2500w, Electric cable 1.5 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 450°C, its heating is strictly prohibited to touch



The maximum temperature of the printing platform of this equipment can reach 150 °C, its heating is strictly prohibited to touch



The maximum temperature of the chamber of this equipment can reach 90°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



3D Printing Solutions For High Performance Materials



MAGIC-HT-L

Build Volume: 310×310×480 mm

Printing Temperature: Up to 450°C

Hot Bed Temperature: Up to 150°C

Chamber Temperature: Up to 90°C

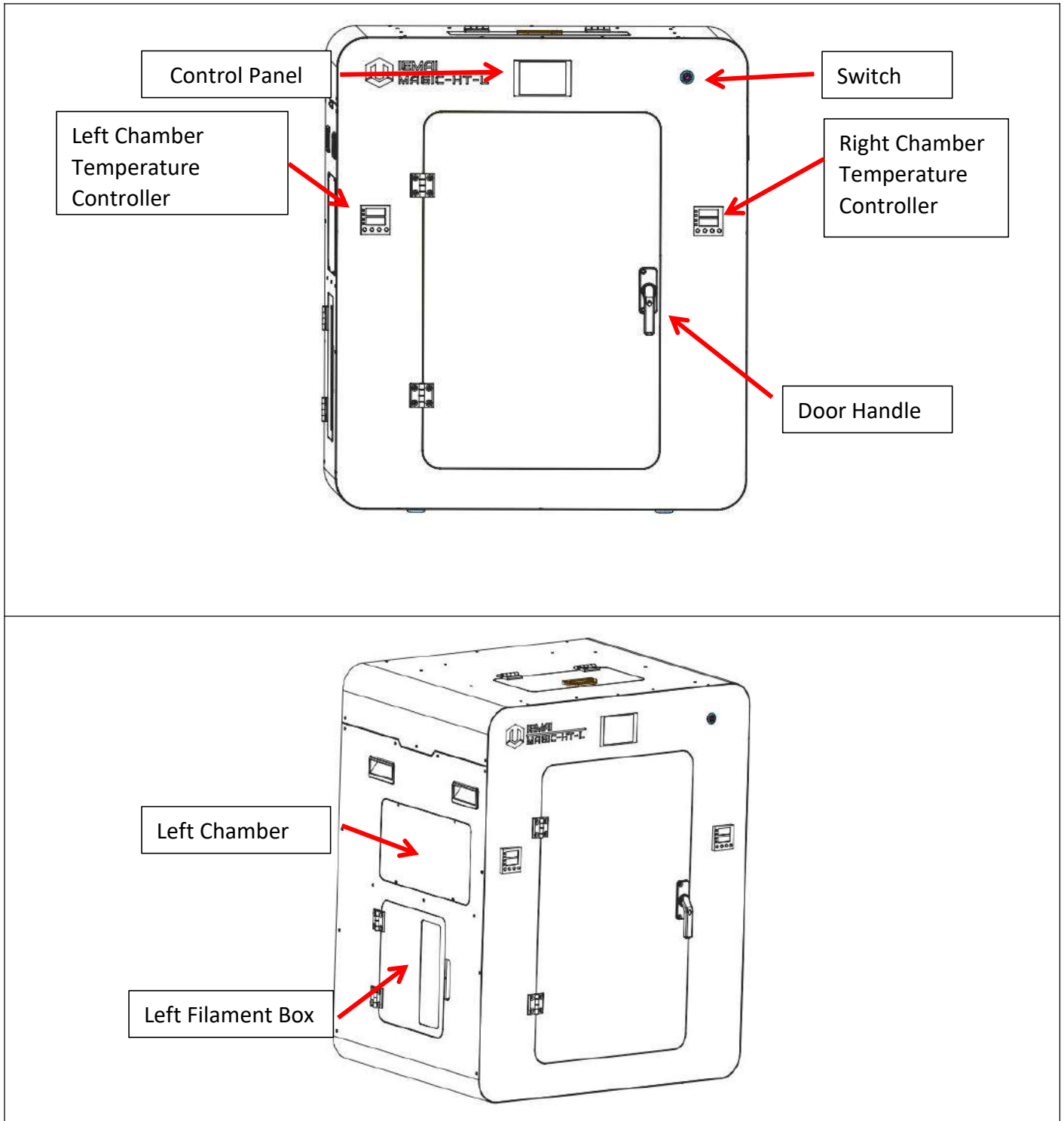
Extrusion System: Dual Extruder

Majority of the Materials on Market: 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...

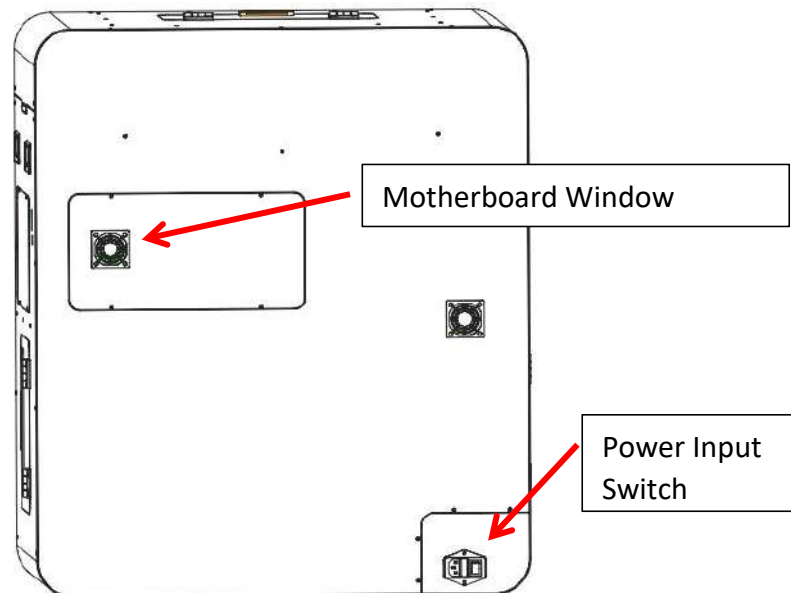
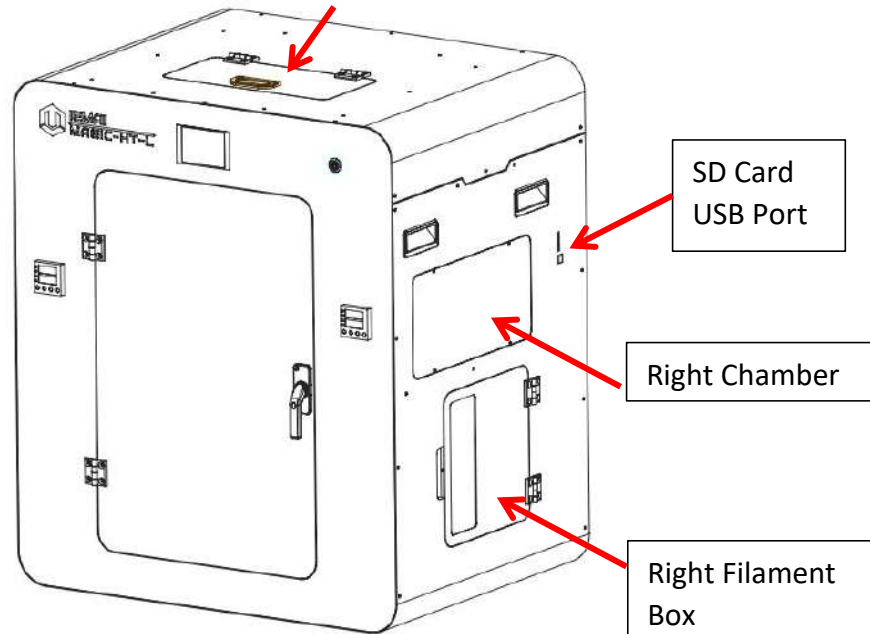
Item	MAGIC-HT-L
Printing Size (L × B × H)	310×310×480 mm
Machine Size (L × B × H)	702×542×790 mm
Packing Size (L × B × H)	762×622×950 mm
Net Weight	76 KG
Gross Weight	102 KG
Power	100~250 V, 50~60 Hz 2500 W

Common	Principle: Fused Filament Fabrication Extrusion System: Dual Extruder Filament Diameter: 1.75 mm Position Resolution: X/Y: 12.5 μ m Z: 1.25 μ m Printing Speed: 0 - 150 mm/s Printing Platform: Carbon Fiber Plate, Quick Detachable Print Bed Temperature: 150°C Heated Bed Materials: Silicon Printing Platform Auto Calibration: Not 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) Extruder Temperature: 450 °C Left Nozzle, 275 °C Right Nozzle Connection Control: Wi-Fi, LAN, SD Card Suggest Operating Environment: 15-30°C, relatively humidity 10-90%, No Moisture Condensation Storage Temperature: -25 - 55 °C, relatively humidity 10-90%, No Moisture Condensation Technology Certification: CE, RoHS Air Filter: Activated Carbon Filters (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 Dual Extruder Modularization Camera Monitoring (Choosable)

2.2 Device Layout



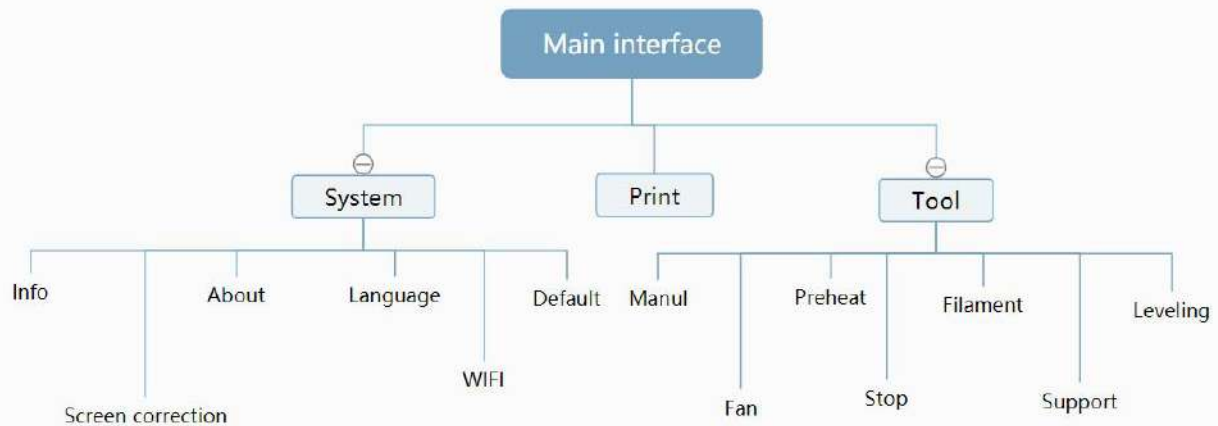
Top Window





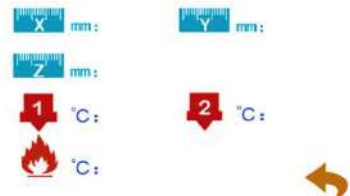
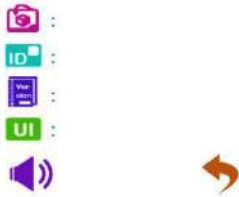

2.3 Interactive Interface

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



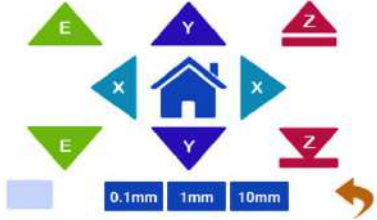
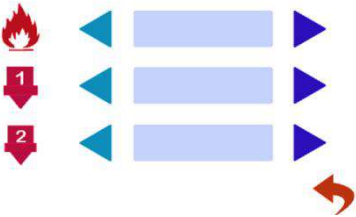

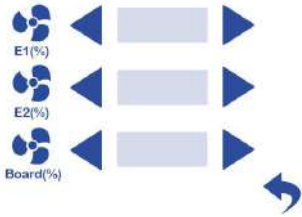
Logic diagram of interactive interface








2.3.1 System Interface

<p>Figure 1: Main interface</p>  <p>Click "System" to go to Figure 2</p>	<p>Figure 2: System interface</p>  <ol style="list-style-type: none"> 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 	<p>Figure 3: Info interface</p>  <ol style="list-style-type: none"> 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
<p>Figure 4: About interface</p>  <p>This interface allows you to view the name, ID, system version, UI version, and Power On/Off sounds</p>	<p>Figure 5: WiFi Setup Interface</p>  <p>This interface allows you to view information about Wi-Fi</p>	

2.3.2 Tool interface





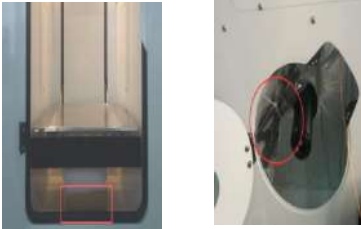
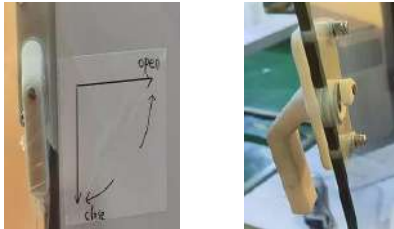
<p>Figure 1: Main interface</p>  <p>Click "Tool" to go to Figure 2</p>	<p>Figure 2: Tool Interface</p>  <ol style="list-style-type: none"> 1. Click "Manual" to go to Figure 3 2. Click "Preheat" to go to Figure 4 3. Click "Filament" to go to Figure 5 4. Click "Level" to perform automatic leveling 5. Click "Fan" to go to Figure 6 6. Click "Stop" to stop all execution commands 7. Click "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"> 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



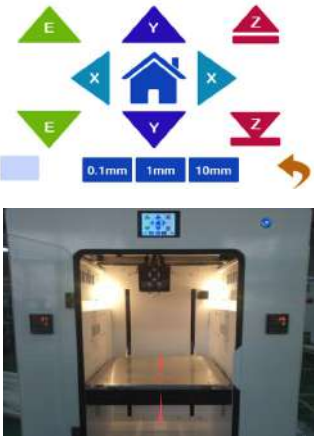

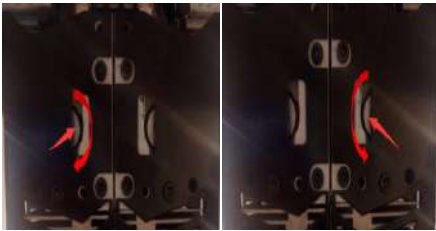
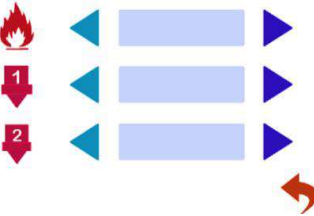
<p>Figure 1: Main Interface</p>  <p>Click "Print" to go to Figure 2</p>	<p>Figure 2: File Interface</p>  <p>Check Specify G-code file to print or delete the file</p>	<p>Figure 3: Print Interface</p>  <ol style="list-style-type: none"> 1. This interface is the main interface in print You can view thumbnails 2.Hot bed, Nozzle Temperature and chamber temperature 3.Elapsed time, Time remaining 、 Current speed 4.File name, Print Progress Bar 4.You can control pause (resume) and stop printing 5.Press "  " to reset during the printing process
<p>Figure 4 : Print Setting Interface</p>  <ol style="list-style-type: none"> 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 Unboxing for The First Time

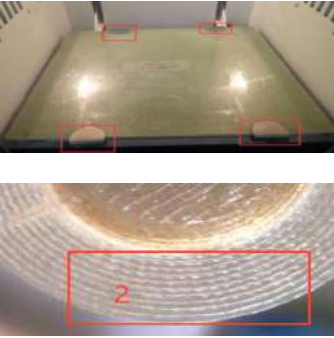
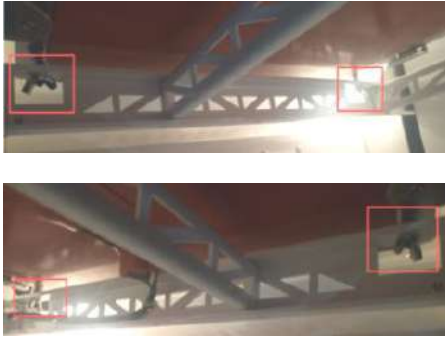
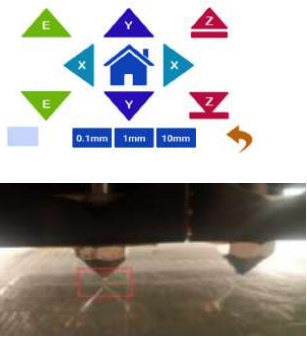

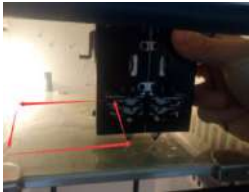
<p>Step 1</p>  <ol style="list-style-type: none"> 1. Check if the packaging is complete 2. If there is a damage, please feedback by taking photos in time 3. If serious damage, please refuse to receive 	<p>Step 2</p>  <ol style="list-style-type: none"> 1. The equipment is tightly packed and protected 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 	<p>Step 3</p>  <ol style="list-style-type: none"> 1. Check The Door Glass, Whether the Control Panel is Segmentation 2. Notice the starter kit and material package are placed under the platform 3. Please connect the power to start the equipment and then move up the platform to take out
<p>Step 4</p>  <ol style="list-style-type: none"> 1. XY axis is fixed and protected by ties when it is shipped 2. Please cut it off when using it for the first timePlease cut it off when using it for the first time 	<p>Step 5</p>  <ol style="list-style-type: none"> 1. Remove the power cord from the left material box 2. Cut the XY axis fixing strap with scissors 3. The tool kit under the Z axis needs to start the machine 4. Lift up the Z-axis and take it out 	<p>Step 6</p>  <ol style="list-style-type: none"> 1. Remove the door handle from the tool kit 2. Install the door handle as shown in the figure

3.2 Hardware Check


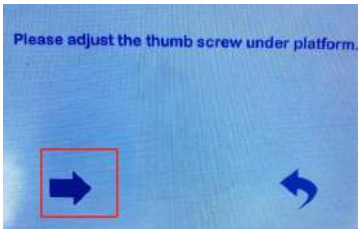

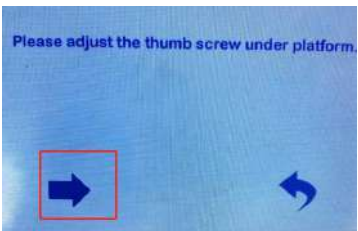

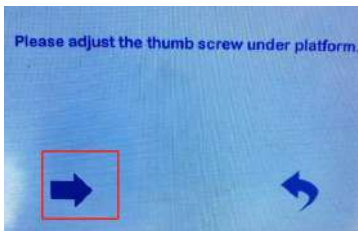
<p>Step 1</p>  <p>As shown in the diagram</p> <ol style="list-style-type: none"> 1. Connect the device power to the bench power 	<p>Step 2</p>  <ol style="list-style-type: none"> 1. Under normal condition, all lights of the device are lit as shown in the figure 	<p>Step 3</p>  <ol style="list-style-type: none"> 1. Click Manual 2. Set the unit to 10mm 3. Click the Z-axis up and down respectively
<p>Step 4</p>  <ol style="list-style-type: none"> 1. Set the unit to 10mm 2. Manually control the XYZ axis movement through the touch screen 3. Observe if it moves normally as shown 	<p>Step 5</p>  <ol style="list-style-type: none"> 1. Set movement unit 10mm 2. Control E1 and E2 extrusion by touch screen 3. Observe the left and right print head gear extrusion teeth to see if they are turning clockwise and counterclockwise 	<p>Step 6</p>  <ol style="list-style-type: none"> 1. Through pre-heat via touchscreen 2. The temperature can be set for the hot bed, left nozzle, and right nozzle 3. The temperature on the right represents the set temperature 4. The temperature on the left represents the actual temperature 5. The recommended hot bed temp for the first warm-up : $50^{\circ}\text{C} \pm 2^{\circ}\text{C}$ 6. Left and Right Nozzle temp : $210^{\circ}\text{C} \pm 2^{\circ}\text{C}$ 7. Please be careful of high temperatures and handle with caution

4. Print Operation









4.1 Use of The Printing Platform

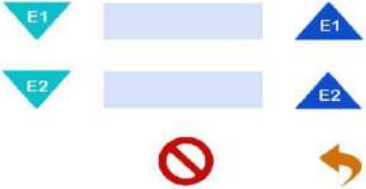
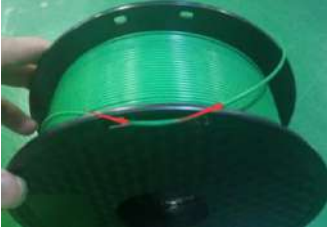
<p>Step 1</p>  <ol style="list-style-type: none"> 1.The picture shows 4 fixing clips for fixing the building platform 2.Platform is initially leveled before shipment 3.If nozzle is at the right distance from platform when it first returns to zero, A4 paper distance. 4.If first layer is printed successfully, subsequent leveling steps will not be necessary. 	<p>Step 2</p>  <ol style="list-style-type: none"> 1.If the first time to return to zero 2.The nozzle is found to be close to or remote from the platform 3.By adjusting the four butterfly nuts below the platform to build the platform initially level. 	<p>Step 3</p>  <ol style="list-style-type: none"> 1.Manually control the Z axis to make the platform rise, when the nozzle and platform spacing is 0.3-0.5mm, stop rising 2.Double-headed nozzle and platform spacing should be the same, if the spacing is not consistent 3.Please refer to step 6.5 for nozzle height adjustment
<p>Step 4</p>  <ol style="list-style-type: none"> 1.Turn the top screw clockwise 2.The top wire moves upward and touches the limit stop 3.When you hear the machine "drop" beep 4.It means the limit is working, stop the rotation 	<p>Step 5</p>  <ol style="list-style-type: none"> 1.Move the print head by pushing it with your hand 2.So that the print head does not touch the platform on all sides 3.and leave a gap of 0.3-0.5 mm 4.Ensure that the nozzle is at the same distance from the front and rear of the platform 	

4.2 How to Calibrate

<p>Step 1</p>  <ol style="list-style-type: none"> 1. After completing the basic leveling in step 4.1 2. You need to click Leveling 	<p>Step 2</p>  <ol style="list-style-type: none"> 1. Click on the arrow 	<p>Step 3</p>  <ol style="list-style-type: none"> 1. The system automatically moves to the last point. 2. After stopping the movement 3. Use the stopper to adjust the distance between the platform and the nozzle to 0.1mm by rotating the butterfly nut at the bottom of the platform.
<p>Step 4</p>  <ol style="list-style-type: none"> 1. Click on the arrow 	<p>Step 5</p>  <ol style="list-style-type: none"> 1. The system automatically moves to the next point 2. Refer to "Step 3" for operation 	<p>Step 6</p>  <ol style="list-style-type: none"> 1. Click the arrow to complete the leveling of the remaining 3 points in turn. (When the first leveling distance is too large, it is recommended to perform second leveling operations)

4.3 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>  <ol style="list-style-type: none"> 1. Straighten the material 2. Cut the material to the tip 	<p>Step 3</p>  <ol style="list-style-type: none"> 1. Load the material through the break test port 2. Manually feed it to the gears
<p>Step 4</p>  <ol style="list-style-type: none"> 1. Click to load material “ ” 2. E1  the left nozzle, E2 for the right nozzle 	<p>Step 5</p>  <ol style="list-style-type: none"> 1. Till the nozzle appears fine filament 2. Click “  ” Stop loading command 	<p>Step 6</p>  <ol style="list-style-type: none"> 1. When unloading materials 2. Pull material in advance by hand 3. and apply a certain amount of tension

<p>Step 7</p>  <ol style="list-style-type: none"> 1. Click to uninstall material “ E1 ” 2. E1 for the left nozzle, E2 for the right nozzle 	<p>Step 8</p>  <ol style="list-style-type: none"> 1. After the material exits the gear 2. Manually ripping it out 3. And fix the threads 4. Do a good moisture preservation 	
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Step 9: Recommended preheating nozzle temperature for commonly used materials		
<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>Common 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>

4.4 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



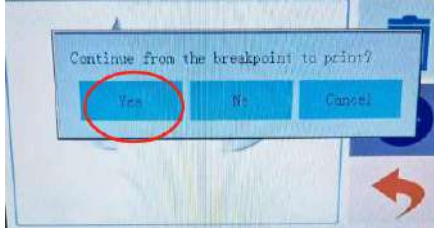
Step 3



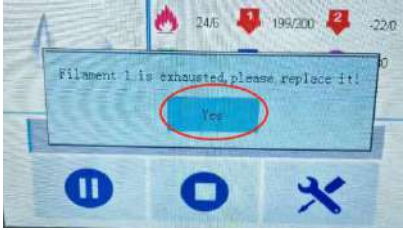
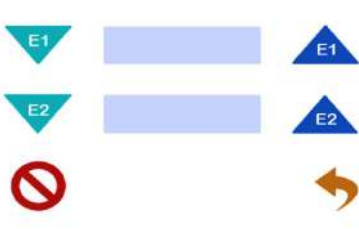

1. Click “” ready to start
printing

5. Function Introduction

5.1 Power Failure Recovery

Step 1	Step 2	Step 3
 <ol style="list-style-type: none"> If the machine suddenly powers off during the printing process 	 <ol style="list-style-type: none"> Turn the power back on Find the file you want to printing Display in red font, select print 	 <ol style="list-style-type: none"> Select "Yes" in this screen 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"> If the printer runs out of material during printing Please select "Yes" in this screen to change the material 	 <ol style="list-style-type: none"> Unloading materials " E1 " Loading materials " E1 " E1 for left, E2 for right. Unload the existing material first and then load the new material 	 <ol style="list-style-type: none"> 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 Temperature Setting of The Constant Temperature Chamber

Step 1



1. Schematic diagram of the chamber temperature controller

Step 2



1. Long press the temperature setting key to enter the setting interface

Step 3



1. Press and hold the set button unit this position number begins to jump

Step 4



1. Set the target temperature with the transposition key, increase/decrease key

Step 5





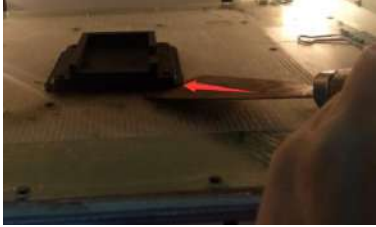


1. Press Set button to return

Step 6



1. As shown in the figure output control indicator 1 lights up and the temperature rises



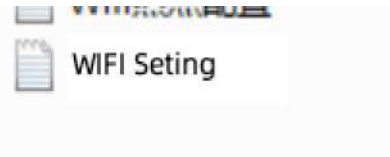


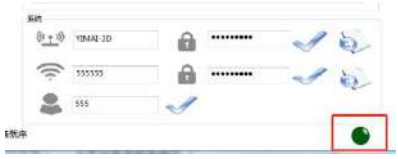



5.3 Model Removal

<p>Step 1</p>  <ol style="list-style-type: none"> 1. Printed model on the build platform 	<p>Step 2</p>  <ol style="list-style-type: none"> 1. Use a scraper from the lower left corner of the model to insert between the model and the build platform to separate the model from the build platform 	<p>Step 3</p>  <ol style="list-style-type: none"> 1. Use a scraper from the lower right corner of the model to insert between the model and the build platform to separate the model from the build platform
<p>Step 4</p>  <ol style="list-style-type: none"> 1. For the completed model the base raft needs to be removed, using the correct slicing parameters the model and raft body can be easily separated as a whole by hand 	<p>Step 5</p>  <ol style="list-style-type: none"> 1. The finished model and the separated raft are finally obtained 	
<p>Attention : For large models that are not suitable for dismantling inside the machine, the building platform can be taken out and dismantled outside.</p>		

5.5 PEEK Material Printing Precautions

Material/Parameter	Print Temperature	Platform Temperature	Chamber Temperature
peek	440	100	90
	<p>Attention:</p> <ol style="list-style-type: none"> 1. PEEK can only use high-temperature head printing 2.Pre-heat before printing, should first heat the thermostat chamber and hot bed, the print head should not be heated for a long-time, long-time heating is easy to form carbonization lead to print head clogging (clogging treatment see common problems and their solutions - PEEK printing) 3. Before printing the material should first use 120 C° baking 5H 4. printing when the cooling fan off 		

5.6 PC-based WIFI LAN Control

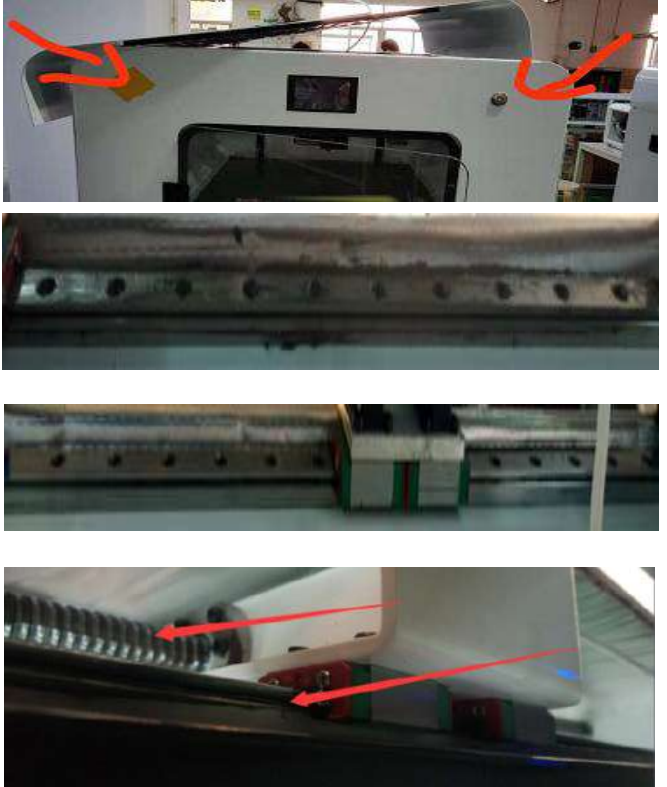

<p>Step 1</p>  <p>ChiTu HB V1.10(1).zip</p> <ol style="list-style-type: none"> 1. Installation of CHITU HB/PRO software 	<p>Step 2</p>  <ol style="list-style-type: none"> 1. Enter the software interface 2. Enter the name and password of the WIFI in the lower right corner 3. and generate a configuration 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

6. Maintenance and Care

This equipment belongs to the high-temperature equipment, interior use environment temperature is high , do not replace regular parts by yourself to avoid machine failure. Do not replace regular parts by yourself to avoid machine failure.

6.1 Maintenance of Linear Guide and Ball Screw

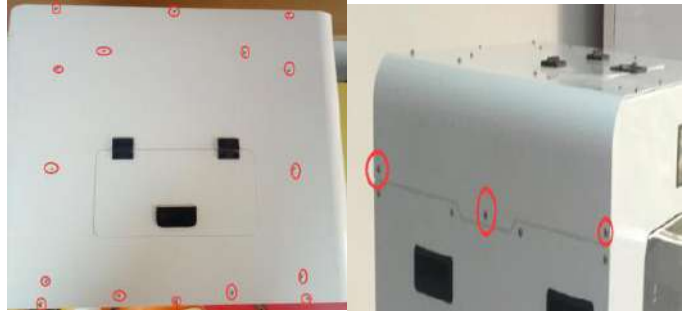
Ball screw and linear guide are the guarantee to keep secure operation, and the correct maintenance can effectively increase the service life of the machine.

<p>First step: Use a towel or rag to remove the original lubricant from the linear guides and ball screws.</p>	
<p>Second step : Add grease, apply the right amount of grease in the V-groove on both sides of the guide, and evenly apply on the fillet of the ball screw.</p>	

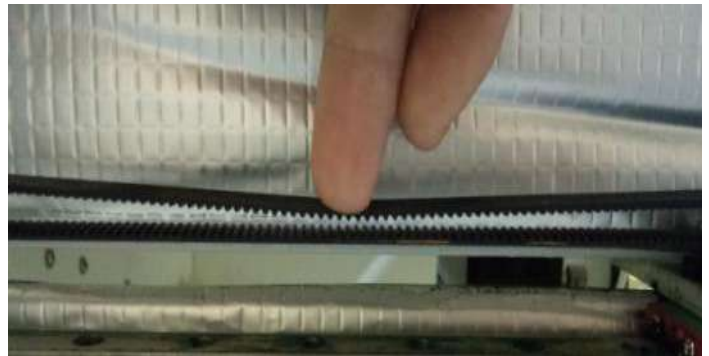
6.2 Adjustment of Belt Looseness

The belt may loosen after a long period of time leading to a decline in print quality, so it is recommended that it be adjusted every six months.

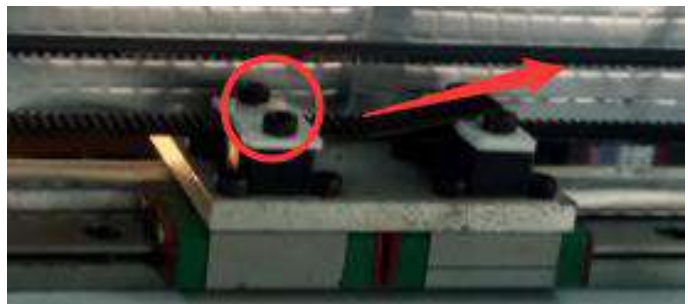
First step: open the top cover, as shown on the top 16 screws and 3 screws on both sides to remove and take off the top cover






Step 2: Check the belt tightness, finger lightly press the belt, belt deformation of more than 2mm, almost and the lower belt contact when the belt needs to be tensioned.



Step 3: Loosen the two screws holding down the belt, tighten the screws after pulling the belt tight



6.3 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>Removing the dust cover.</p> <p>Insert four corners of the dust cover from the dust cover to gently key out the dust cover.</p>	
<p>Step Three.</p> <p>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 clean the dust on the fan (blow the fan, pay attention to the pressure cannot be too large, so as not to blow bad fan)。</p>	

6.4 Nozzle Maintenance

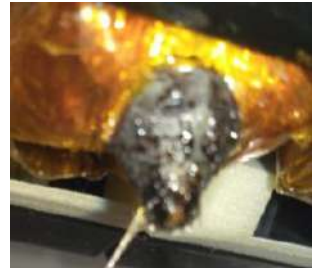
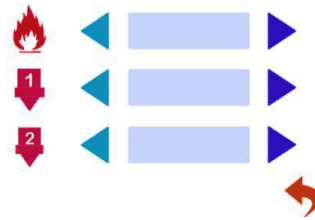
Nozzle cleaning:

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;



Nozzle replacement :

Normal temperature nozzles need to be replaced as follows, high temperature nozzles refer to peek use blockage treatment

Step 1: remove the print head with reference to the disassembly and maintenance of the print head.

step two: the heating block using a duckbill pliers clamp and use a 10mm socket to turn counterclockwise to remove the nozzle.

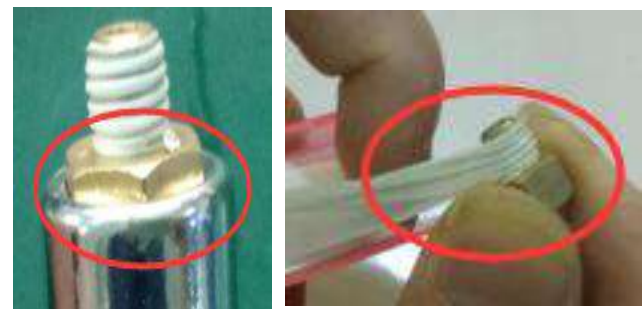
(If you cannot turn the heating to 150 C° and then remove)

Step 3: take out the new nozzle using raw material tape clockwise around the threaded part of the nozzle 7 turns and will be pressed out of the thread.

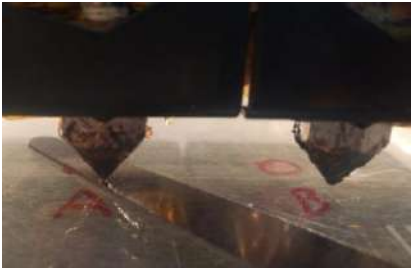

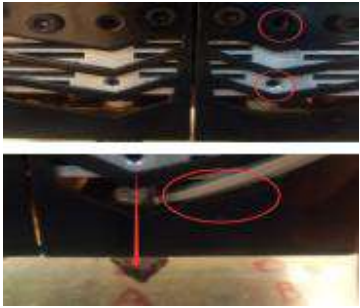

Step 4: use duckbill pliers, sleeve to re-install the nozzle into the print head.

Nozzle replacement requires timely readjustment of nozzle and print platform pitch.




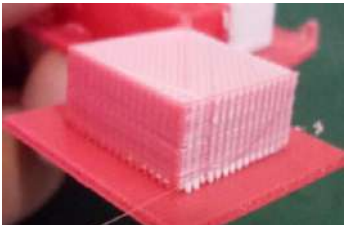


((For details, please refer to **Printing - Installing Print Platforms and Leveling**)



6.5 Equal Height Adjustment for Dual Print Heads

<p style="text-align: center;">Sep 1</p>  <ol style="list-style-type: none"> 1. Use a piece of gauge in a fixed position to make the nozzle 1 (left) and the platform spacing is just enough for it to pass 	<p style="text-align: center;">Step 2</p>  <ol style="list-style-type: none"> 1. Push the nozzle 2 (right) to the left just to stay in the position of the previous test left nozzle using the same piece of gauge through the nozzle and platform between
<p style="text-align: center;">Step 3</p>  <ol style="list-style-type: none"> 1. If it passes easily and there is a certain amount of margin, then relax the two top wires as shown and press down on the nozzle. 2. Make the height of the platform to the thickness of the stopper and tighten the top wire 	<p style="text-align: center;">Step 4</p>  <ol style="list-style-type: none"> 1. If it cannot pass, then loosen the screw as shown and push up the nozzle 2. so that the distance between it and the platform is just the thickness of the stopper 3. If the No. 2 nozzle cannot be moved up 4. Then the No. 1 nozzle down to the same height as the No. 2 nozzle
<p>Attention: When adjusting the nozzle height, the same height at the same point on the platform is the best state, the right head can be slightly higher than the left head 0.05mm</p> <p>After adjusting the nozzle needs to be fine-tuned to the negative limit of the Z axis, has made the nozzle and the platform distance in 0.5-0.1mm</p>	

6.6 Dual Print Head 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 the X-axis negative direction to match then increase the X-axis spacing (positive value) 4. Y-axis direction red (right printhead) need to move to the positive direction of the Y-axis, 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 5</p>  <ol style="list-style-type: none"> 1. Print another two-color large model of a cylinder 2. Check the effect of spacing adjustment

6.7 Print Head Disassembly and Maintenance

Attention: Please disassemble and install the print head with the power off

The equipment is a dual Quick Detachable Print Head, if the print head needs to be replaced during use, the steps are as follows.

Step 1: Check whether there are supplies in the print head if there are supplies first remove the supplies (refer to Printing - Loading and Unloading Supplies for details).

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

Step 3: Pull out the print head, press the pneumatic interface black rubber to pull out the feed tube, complete the removal.

To replace the print head, proceed as follows:

Step 1: Install the print head in the original position, tighten the front two screws so that the print head is closely connected to the base, and then tighten the side screws.

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



Attention: Please disassemble and install the print head while the power is off

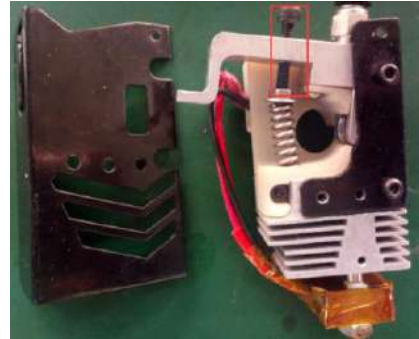
6.8 Steps to Disassemble The Nozzle

Step 1



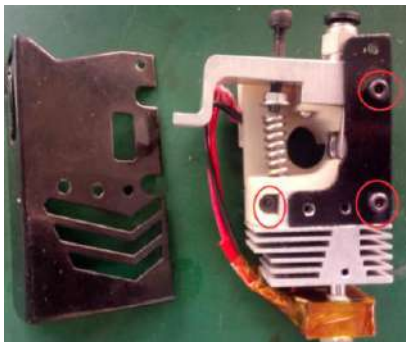
1. Unscrew the 2 screws as shown

Step 2



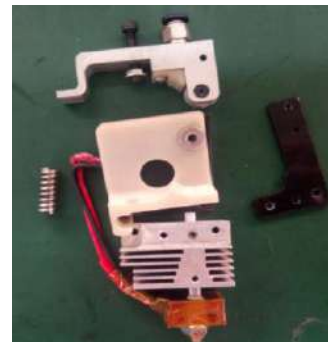
1. Loosen the top spring screw

Step 3



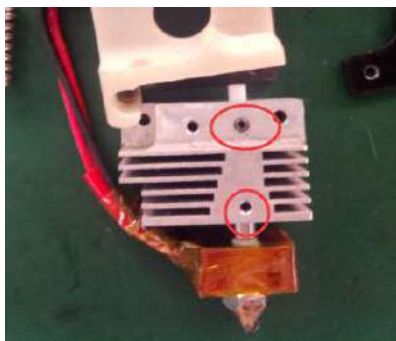
1. Loosen the top spring screw

Step 4



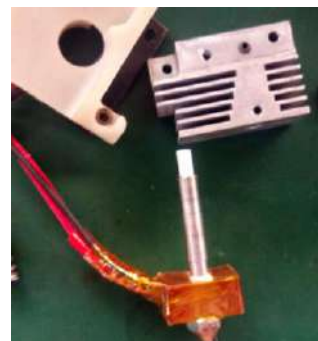
1. Disassembly as shown in the figure

Step 5



1. Loosen the screws as shown

Step 6



1. Print head disassembly completed

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	Open firmware and change 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>

7.2 Temperature



Problem	Solution
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 Attention: temperature measurement careful of high temperature hot hands	Whether the print head is installed, or whether the wire is connected
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	According to the maintenance - nozzle spacing adjustment spacing
Problem 4: Use of automatic unload filament, but stuck between extrusion gear and extrusion clamp	Remove the extrusion clamp and cut off the deformed front end of the material

7.4 Clean Up Carbon Blockage

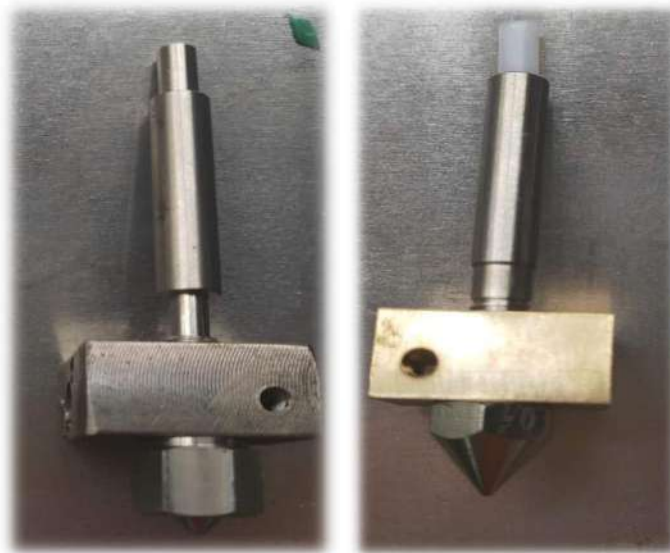
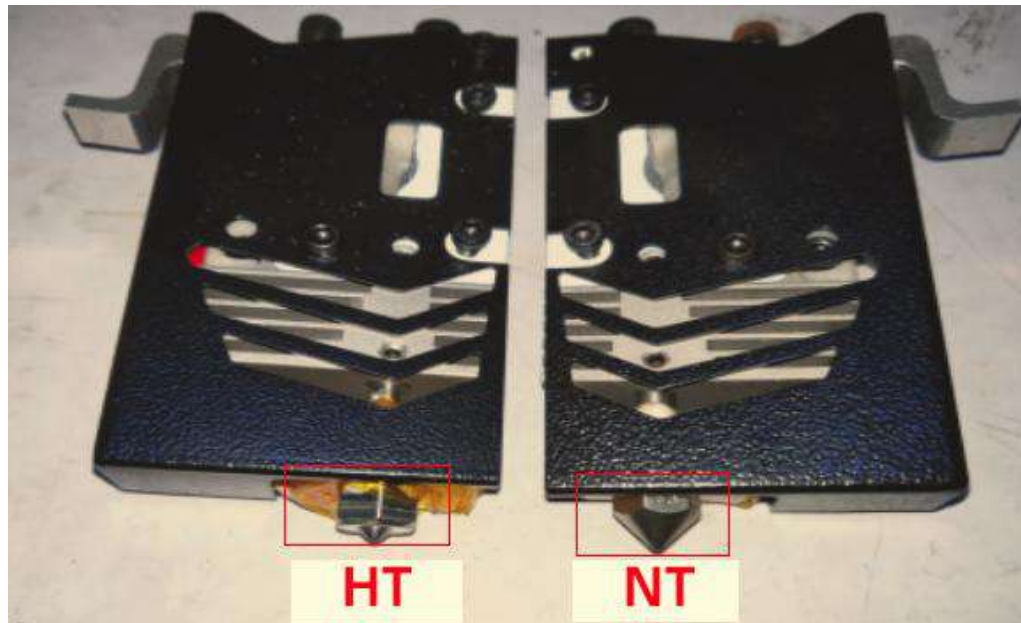
Problem	Solution
Problem 1: Print again after a pause in printing cannot be extruded	<p>Pull out the feed tube above the print head</p> <p>Remove the filaments and cut off the expanded filaments s at the front end and reload them.</p> <p>Causes: The distance of the pumping back is too long, the material is inside the throat, and the time between printing is heated, which causes the</p>

	material to expand and jam the filaments.
<p>Problem 2: After printing for a period of time, some black material is extruded and no longer comes out of the silk</p>	<p>Treatment I.</p> <p>Use nozzle corresponding size of the needle to unclog nozzle and extrude again will be internal</p>  <p>Treatment II:</p> <p>Step 1: Refer to the print head disassembly and maintenance, after removing the print head</p> <p>Step 2: Use a 2mm drill bit to drill out the material inside the throat and nozzle, turn into a depth of 14.5mm (0.4mm runner in the front of the nozzle)</p>  <p>Step 3: Empty the inner throat and restore the quick release head to use again.</p>

8. Appendix :

Appendix A

The difference between high and low temperature of the print head

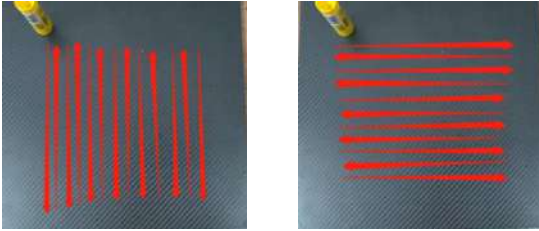


External differentiation can be seen nozzle style, hexagonal nut style for high-temperature nozzles, into a cone type for the general temperature nozzle.

Appendix B

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.



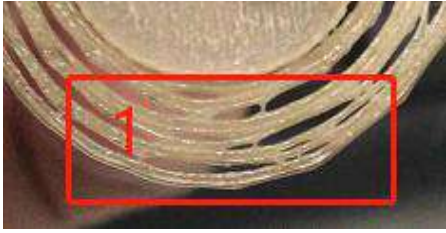
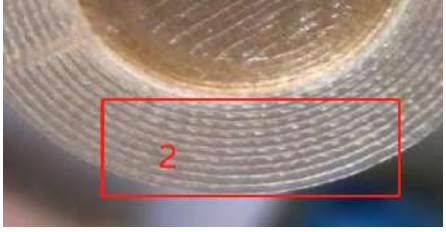
Attention: The temperature of the carbon fiber board when applied cannot exceed 50 C°, otherwise the high temperature will quickly melt the glue stick resulting in uneven thickness of the applied glue.

2. Bake the carbon fiber board into the machine heating hot bed 80C° for 3 minutes to make the water in the glue evaporate and 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.

<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.