

HIGH-TEMPERATURE SERIES

3D PRINTER

MAGIC-HT-PRO

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.



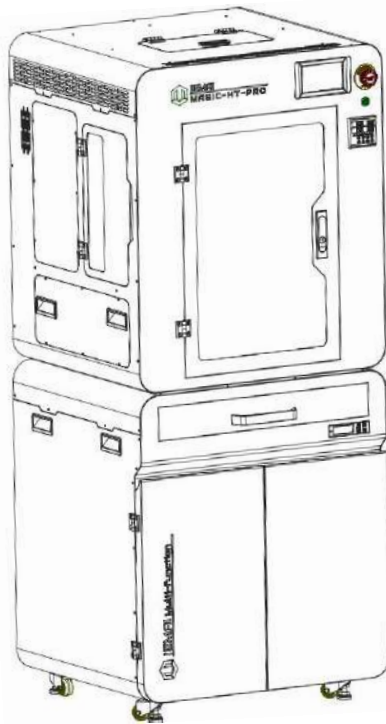
www.iemai3d.com/index.php/download/

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1. Overview

1.1 Printer Overview



IEMAI High-Performance 3D printer MAGIC-HT-PRO is a 3D Printer based on the principle of Fused Filament Fabrication (FFF) technology , has a print temperature up to 500 °C , Hot bed temperature of 200 °C, and a chamber temperature of 120 °C, Supports most of the polymer 3D printing materials on the market , include PEEK 、 PEKK 、 PPSU 、 PEI 1010/9085 and other high-performance materials nylon、 PC、 ABS、 PETG、 ASA、 TPU and other engineering materials, common material of the PLA class, And composite reinforcement materials of the above materials (carbon fiber, glass fiber, flame retardant, ESD, etc.).

MAGIC-HT-PRO is equipped with a dual print head that lifts independently and 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 $\geq 1200 \times 1400 \times 2000$ mm (L*W*H)。

Installation Power Requirements : 200~250 V, 50~60 Hz, 3050w, Electric cable 2.5 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 120°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



Build Volume : 310×310×410 mm

Printing Temperature : Up to 500°C

Hot Bed Temperature: : Up to 200°C

Chamber Temperature : Up to 120°C

Extrusion System : Individual Lifting Liquid Cooling Dual Extruder

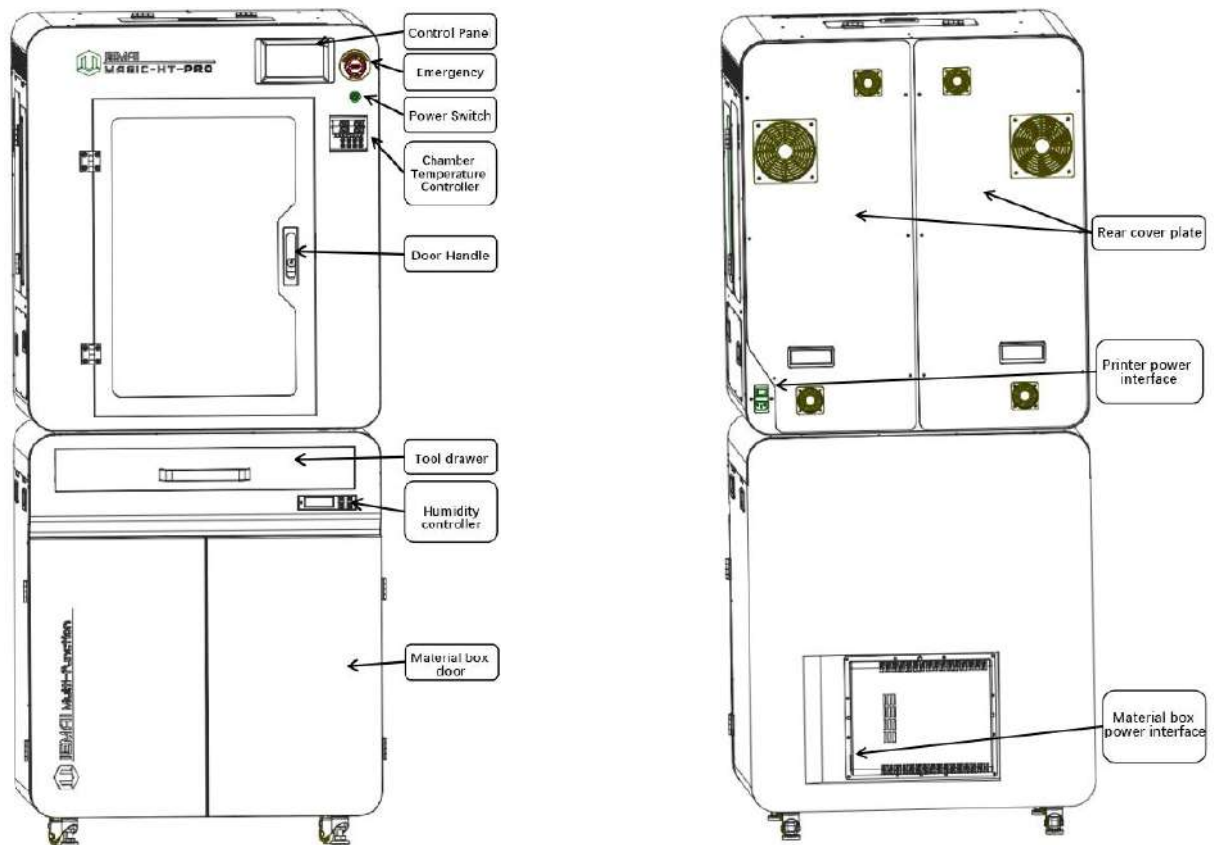
Majority of the Materials on Market : PEEK, CF-PEEK, PEKK, CF-PEKK, PEI 1010/9085, PPSU, PC, CF-PC, PA, CF-PA, GF-PA, ASA, ABS, CF-ABS, PETG, HIPS, TPU, PLA, CF-PLA, PVA...

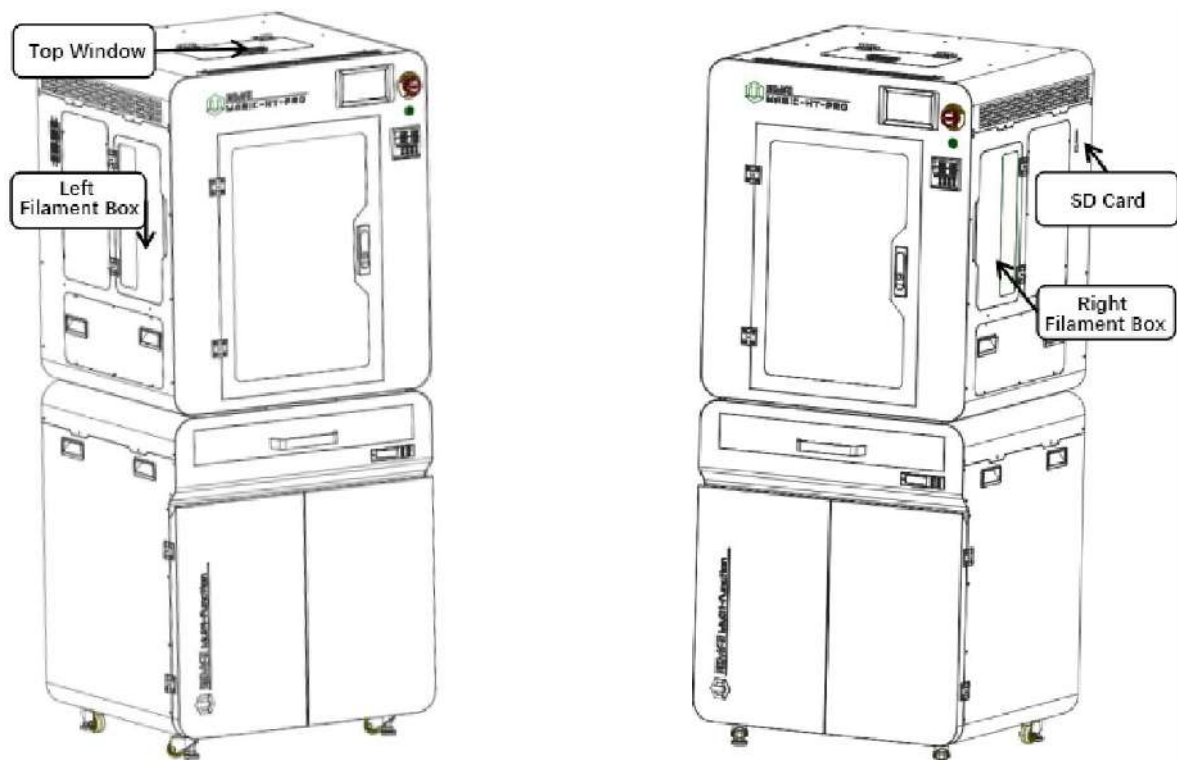
MAGIC-HT-PRO

| | | | |
|------------------------------|--|----------|----------------------------------|
| Item | MAGIC-HT-PRO | | |
| Printing Size (L × B × H) | 310×310×410 mm | | |
| Machine Size (L × B × H) | Machine Size: 702×625×800 mm | | Total Dimension: 702×625×1605 mm |
| | Pedestal Size: 702×625×805 mm | | |
| Packing Size (L × B × H) | Machine: 780×690×980 mm | | Pedestal: 780×690×980 mm |
| Weight | Printer | Pedestal | Total Weight |
| Net Weight | 122 KG | 77 KG | 199 KG |
| Gross Weight | 150 KG | 105 KG | 255 KG |
| Power | 200~250 V (Normal) , 50~60 Hz 3000W 100~130 V (Transformer Needed) ,50~60 Hz 3000W (Printer) | | Total Power 3050W |
| | 100~250 V, 50~60 Hz (Normal) 50W 100~130 V (Transformer Needed) 50W (Pedestal) | | |

| | |
|----------|---|
| Common | Principle: Fused Filament Fabrication Extrusion System: Individual Lifting Liquid Cooling 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, Slot Quick Detachable Print Bed Temperature: 200°C Heated Bed Materials: 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) Extruder Temperature: 500 °C 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 Individual Lifting Liquid Cooling Dual Extruder Moisture-Proof Cabinet Camera Monitoring (Choosable) |

2.2 Device Layout

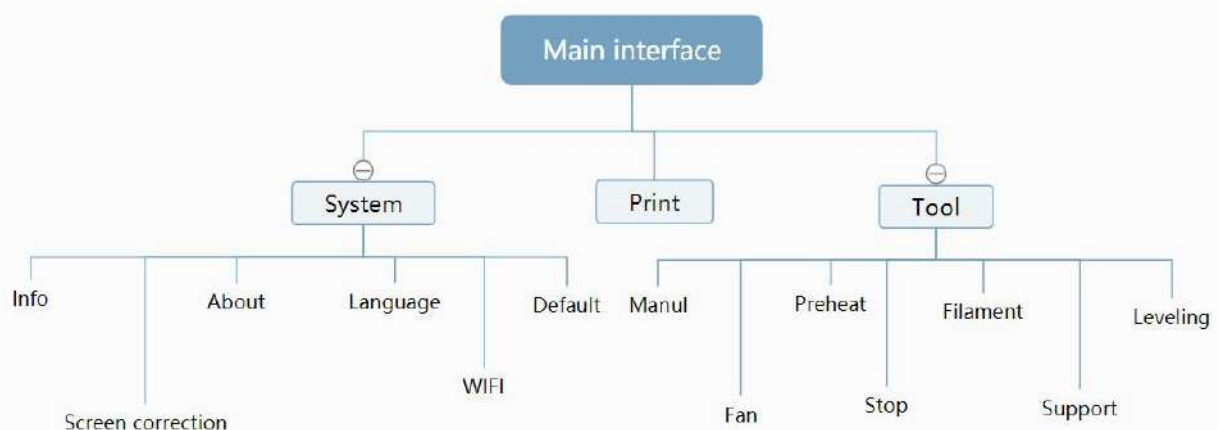






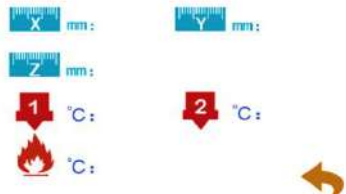


2.3 Interactive Interface

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



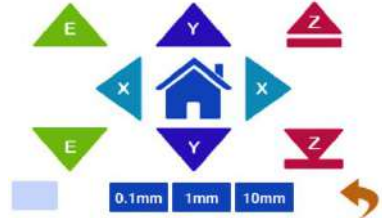
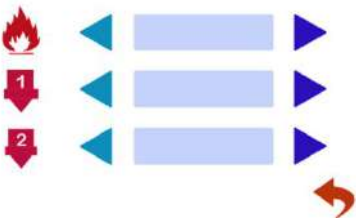

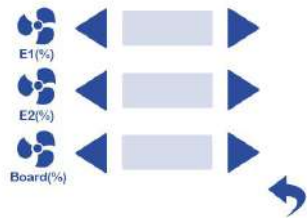
Logic diagram of interactive interface






2.3.1 System Interface

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| <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"> 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 "E2" 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

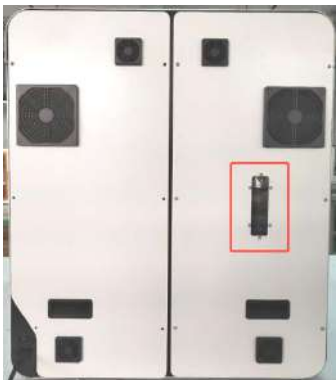

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| <p>Figure 1: Main Interface</p>  <p>Click "Print" to go to Figure 2</p> | <p>Figure 2: File Interface</p>  <p>Check Specify G-code file to print or delete the file</p> | <p>Figure 3: Print Interface</p>  <ol style="list-style-type: none"> 1. This 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



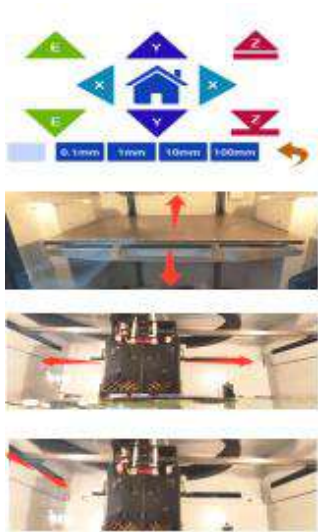


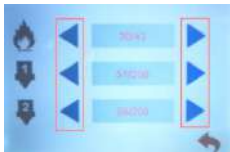
3.1 Unboxing for The First Time

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| <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. Press the button below the door handle and the handle pops up to open the door panel. If the machine is locked by a key, the key is required to open it. | <p>Step 5</p>  <ol style="list-style-type: none"> 1. The cable is placed on the left side of the filament box Please remove and connect it to the power supply at the back of the device | <p>Step 6</p>  <ol style="list-style-type: none"> 1. XY Axis is shipped with a zip tie for protection please cut it off before first use. |

3.2 Check the Refrigerant



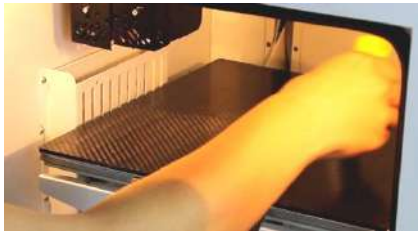
| 02 Check the Refrigerant | | |
|---|---|--|
| <p>Step 1</p>  <p>Shown In the Figure</p> <ol style="list-style-type: none"> 1. The refrigerant can be viewed in the window behind the device | <p>Step 2</p>  <ol style="list-style-type: none"> 1. During shutdown, the height of the normal refrigerant level should be located between 3.5-6.5 cm, i.e. between the two red lines as shown in the figure. If the level is not at the right position, refer to the maintenance procedure for adding refrigerant. | |

3.3 Hardware Check


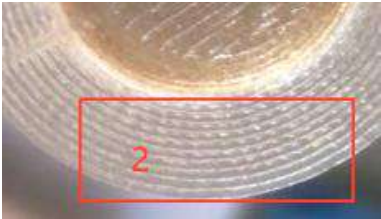


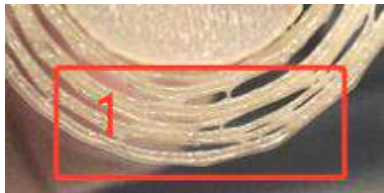
| | | |
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| <p>Step 1</p>  <p>1.Connect the Power of Printer and Pedestal as shown in figure</p> | <p>Step 2</p>  <p>2.Under normal condition, all lights of the device are lit as shown in figure</p> | <p>Step 3</p>  <p>3.Manually make XYZ axis move through screen to observe if it moves normally as shown in figure</p> |
| <p>Step 4</p>   <p>1. Control the E1 and E2 extrusion via the touch screen to see if the left and right nozzle gears rotate as shown in the figure</p> | <p>Step 5</p>  <p>1.Through pre-heat via the screen</p> <p>2.The temperature can be set for the hot bed, left nozzle, and right nozzle</p> <p>3.The temperature on the right represents the set temperature</p> <p>4.The temperature on the left represents the actual temperature</p> <p>5.The recommended hot bed temp for the first warm-up : $50C^{\circ} \pm 2C^{\circ}$</p> <p>6.Left/Right Nozzle temp : $210C^{\circ} \pm 2C^{\circ}$</p> | |

4. Print Operation

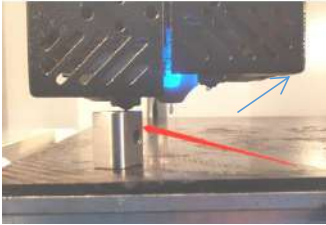
4.1 Use of The Printing Platform

| Step 1 | Step 2 | Step 3 |
|---|--|--|
|  <ol style="list-style-type: none"> 1. When you receive the device, the platform is installed, if you want to disassemble it, please hold the front wrench, and pull it forward to install it, then align the snap position and push it inward. |  <ol style="list-style-type: none"> 1. As shown in the picture for the platform of the nine positioning screws will build the platform positioning slot aligned with the positioning screws to push inward can be successfully installed |  <ol style="list-style-type: none"> 1. Find the platform glue in the kit, and after the platform cools down, apply three layers to the area to be printed: horizontal, vertical and diagonal to warm up. |

4.2 How to Calibrate

| | | |
|--|--|---|
| <p>Step 1</p>   <ol style="list-style-type: none"> Initial leveling of the platform before shipment, if the first layer is printed successfully at the first printing, subsequent leveling steps may not be performed | <p>Step 2</p>  <ol style="list-style-type: none"> When printing the nozzle is found to be distant or close to the platform, but the overall flatness of the platform has not changed, that is, the nozzle is equal to the height of the four corners of the platform, please click the screen in the automatic leveling, wait for the completion of the 49 points of height detection error, and then print test | <p>Step 3</p>   <ol style="list-style-type: none"> When printing the nozzle is found to be distant or close to the platform, but the overall flatness of the platform has not changed, that is, the nozzle is equal to the height of the four corners of the platform, please click the screen in the automatic leveling, wait for the completion of the 49 points of height detection error, and then print test. Print the compensation parameter file once after modification and burn it to the machine |
|--|--|---|


Step 4



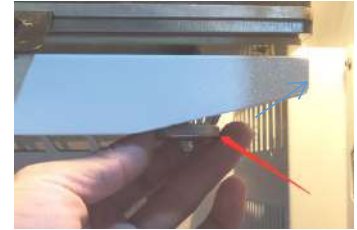
1. If the four corners of the platform from the height of the nozzle has a large gap, you need to adjust the leveling nut to complete the foundation leveling, as shown in the figure using a fixed height object, respectively, for the four corners of the platform to measure the height

Step 5






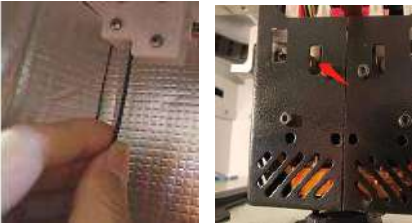
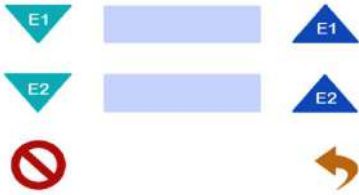
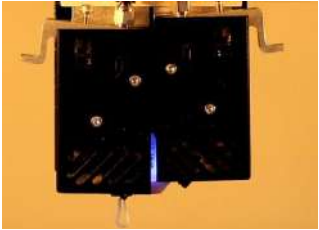

1. When you can't push the nozzle manually
2. You can click “  ” unlock the motor
3. Push the nozzle to the four corners of the platform to measure the height


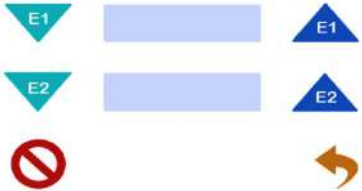

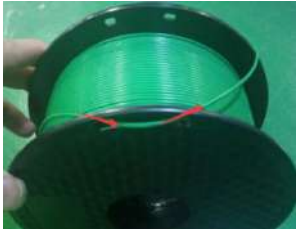
Step 6







1. Leveling by the nuts under the four corners of the platform, when the base height of the four corners is approximately the same
2. Automatic leveling can compensate for certain errors
3. Ready for printing

4.3 Load/Unload Filament

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|--|---|---|
| <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 | <p>Step 3</p>  <ol style="list-style-type: none"> 1. Cut the material to the tip |
| <p>Step 4</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 5</p>  <ol style="list-style-type: none"> 1. Click to load materials “ E1 ” 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 |



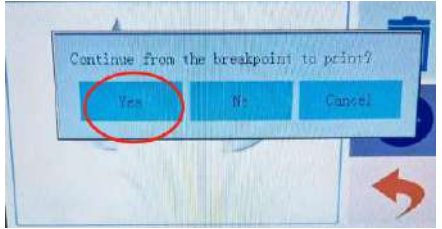
| | | |
|---|--|--|
| <p>Step 7</p>  <ol style="list-style-type: none"> 1. When unloading materials 2. Pull material in advance by hand and apply a certain amount of tension | <p>Step 8</p>  <ol style="list-style-type: none"> 1. Click to uninstall material “” 2. E1 for the left nozzle, E2 for the right nozzle | <p>Step 9</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 |
| <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>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

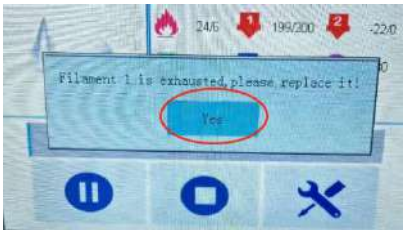


| Step 1 | Step 2 | Step 3 |
|---|---|---|
|  <ol style="list-style-type: none"> In the IEMAI slicing software Save the code to the SD card <p>Please refer to the software tutorial for detailed slicing methods</p> |  <ol style="list-style-type: none"> Insert the SD card into the card slot on the right side of the device and select the file to be printed |  <ol style="list-style-type: none"> Click “” ready to start printing |

5. Function Introduction

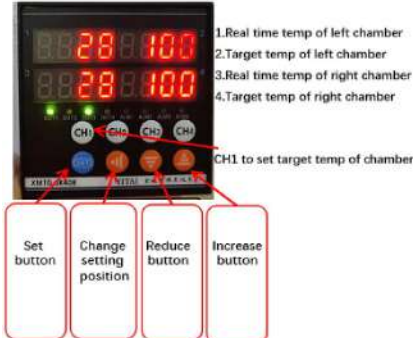




5.1 Power Failure Recovery

| 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> | | |

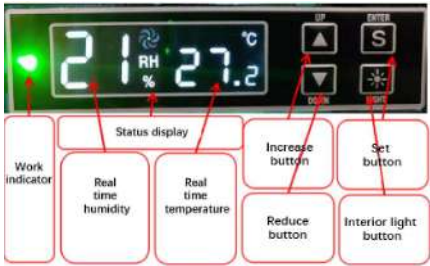






5.2 Filament Absent Warning

| 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> | | |



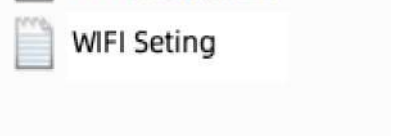




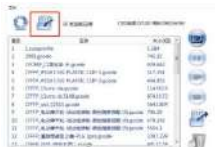

5.3 Temperature Setting of The Constant Temperature Chamber

| | | |
|---|---|--|
| <p>Step 1</p>  <ol style="list-style-type: none"> 1. Schematic diagram of the chamber temperature controller | <p>Step 2</p>  <ol style="list-style-type: none"> 1. Long press the temperature setting key to enter the setting interface | <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 |
|  <ol style="list-style-type: none"> 1. Press and hold the set button 2. When the target temperature window number stops jumping 3. Release the button |  <ol style="list-style-type: none"> 1. The left-side of the number is the real-time temperature 2. The right-side numbers are the target temperature 3. The top is the left chamber temperature 4. The bottom is the right chamber temperature | |

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 |

5.5 PC-based WIFI LAN control

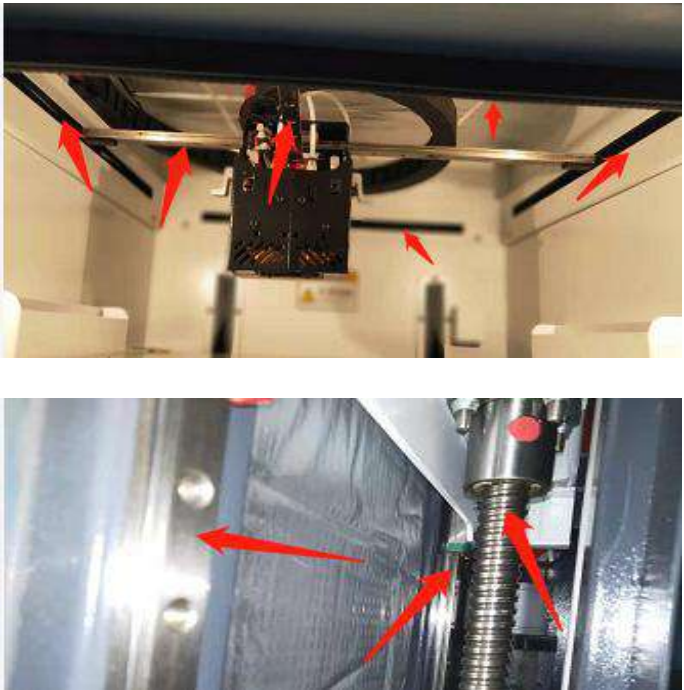

| | | |
|--|---|---|
| <p>Step 1</p>  <p>ChiTu HB V1.10(1).zip</p> <ol style="list-style-type: none"> 1. Installation of CHITU HB/PRO software | <p>Step 2</p>  <ol style="list-style-type: none"> 1. Enter the software interface 2. Enter the name and password of the WIFI in the lower right corner 3. and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

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.</p> <p>Use a towel or rag to remove the original lubricant from the linear guides and ball screws.</p> <p>X and Y axes have a total of 6 guideways using the guideways cross structure.</p> <p>Z-axis direction has 2 guideways and 1 ball screw.</p> |  |
| <p>Second step.</p> <p>Add grease and apply an appropriate amount of grease in the V-groove on both sides of the guide.</p> <p>Apply evenly 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.

Step 1:

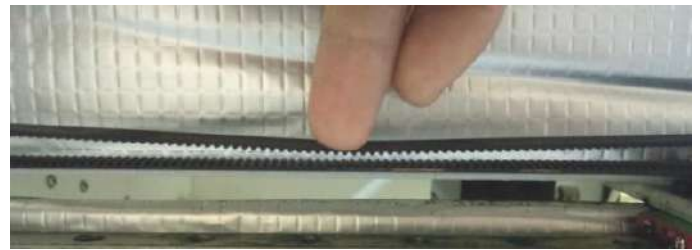
Open the top cover, as shown in the figure all the screws at the top and both sides of the screws out and take off the top cover.



Step 2:

Check the tightness of the belt by lightly pressing the belt with fingers.

The belt deformation is more than 2mm, the belt needs to be tensioned when the upper belt is almost in contact with the lower belt.

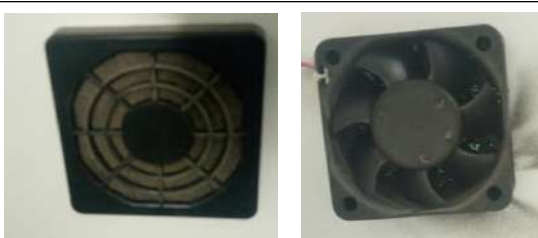




Step 3:

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 the 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

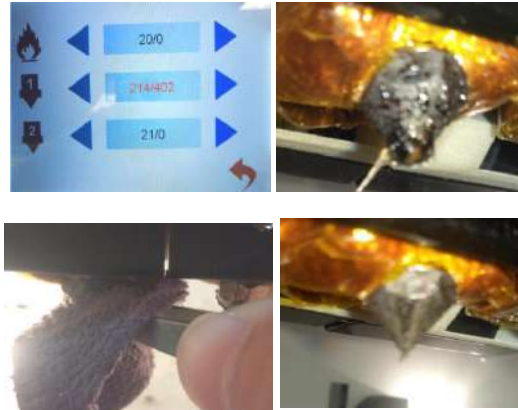
Nozzle cleaning:

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.

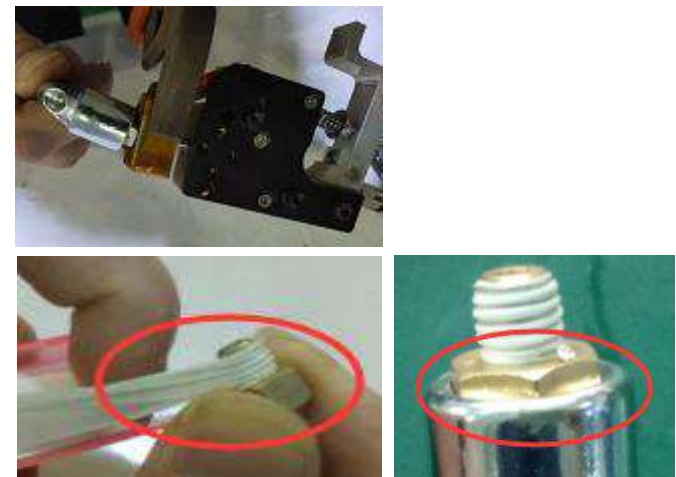
(If you cannot turn the heating to 150 C° and then remove)

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.

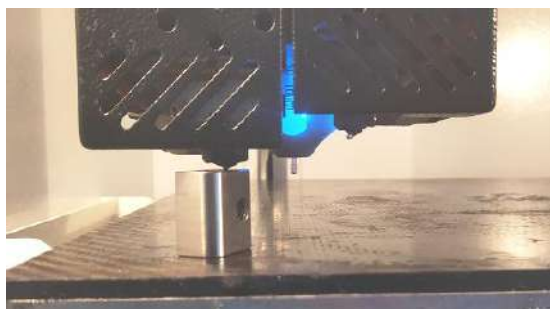
Nozzle replacement requires timely readjustment of the nozzle and print platform pitch.

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



6.5 Equal Height Adjustment for Dual Print Heads

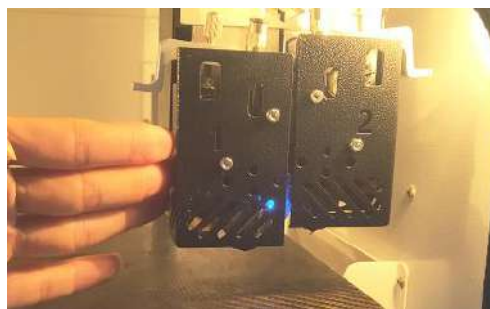
Step 1



At a fixed position

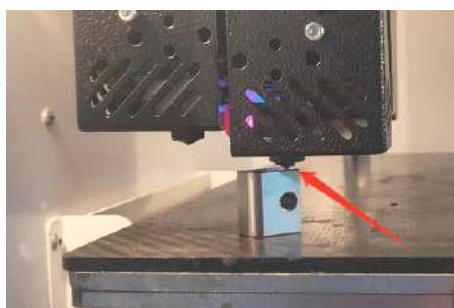
1. Move the Z-axis so that the print head is at the height of an auxiliary block with the platform
2. Keep the Z-axis height fixed until adjustment is complete

Step 2



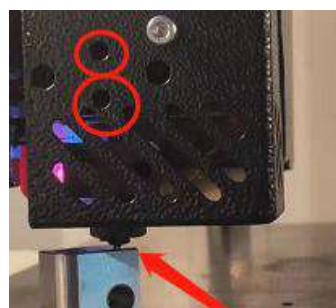
1. Push the print head to the far right
2. Touch the control switch to switch the print head and return

Step 3



1. Move the nozzle to the left so that the right nozzle just above the position
2. where the left nozzle was previously tested
3. Place the auxiliary block between the nozzle and the platform
4. If the distance is not suitable, proceed to the next step

Step 4

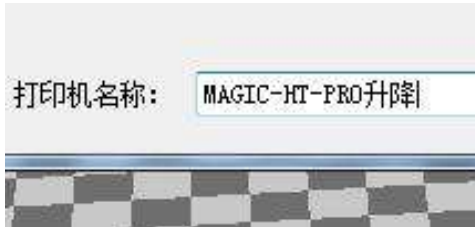


1. Use a 1.5mm hexagon socket to loosen the top wire in the circle as shown.
2. Make the nozzle and heating block throat can be moved up and down
3. Push the nozzle up and down so that it is the right distance from the platform

Attention: When adjusting the nozzle height, the same height at the same point on the platform is the best state

6.6 Dual Print Head Auto-Switching Setting Method

Step 1



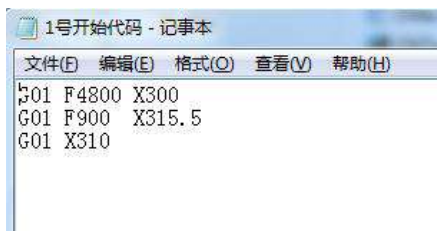
1. Create a new model with dual head switching on the slicing software
2. This model is only used for dual-head printing
3. This setting is not necessary for single-head printing

Step 2



1. After setting the corresponding model size and other parameters
2. Enter the extrusion head 1 (left nozzle) parameter position

Step 3



1. Find the TXT file with the name Start Code #1 in the random SD card

Step 4



1. Copy the contents of the file and paste it into the start code box

Step 5



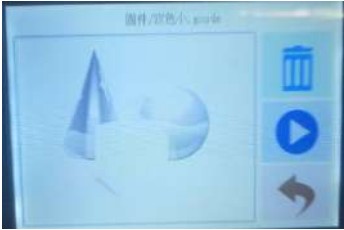
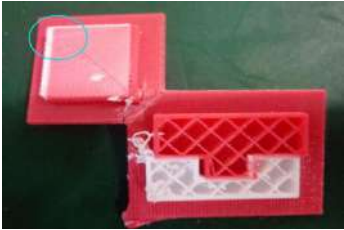

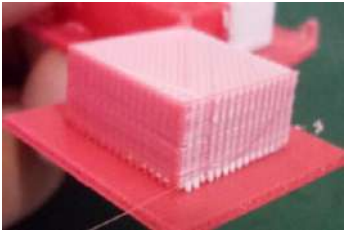


1. Find the TXT file with the name Start Code #2 in the SD card

Step 6



1. Copy the contents of the file and paste it into the start code box
2. Complete the dual-head switch setting

6.7 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 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 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 |

6.8 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).

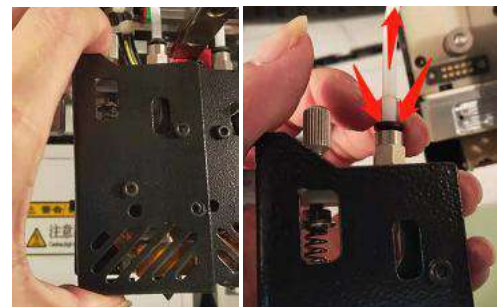
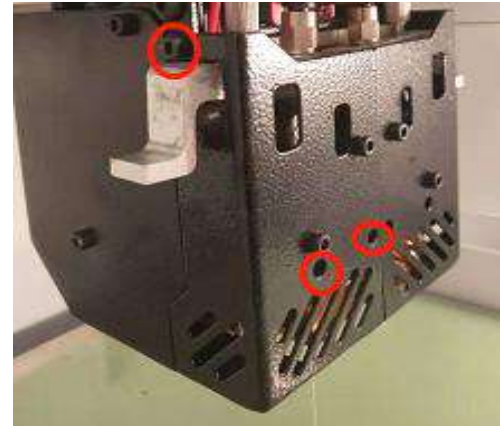
Step 2: Turn off the power and loosen the three screws as shown in the figure.

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.



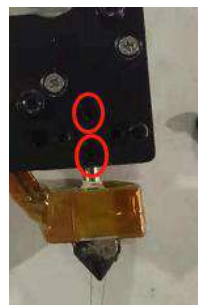
Steps to disassemble the nozzle



Unscrew the 2 screws



Unscrew the 2 screws



Loosen the 2 Screw



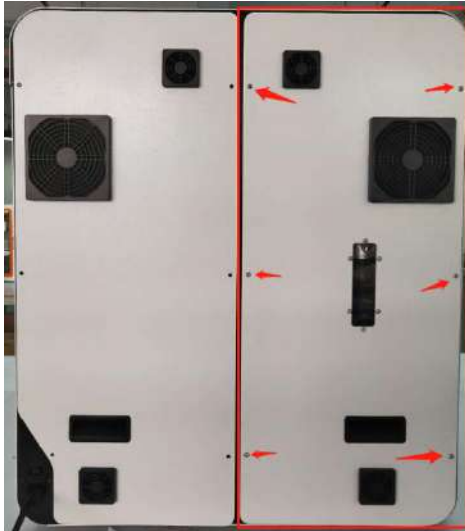
Unscrew the 2 screws



Disassembly complete

6.9 Coolant Addition

Step 1



Unscrew the six screws as shown to remove the side of the rear cover plate

Step 2



Unscrew the nut by turning counterclockwise

Step 3



Using a funnel for coolant addition

Step 4



Make the coolant level is located between 3.5-6.5cm that is, between two red lines, screw on screw cap.

6.10 Use And Maintenance Of Desiccant

Tear off the yellow paper on the upper surface before use, and the moisture-absorbing agent absorbs the moisture in the consumables box through the small hole above.

When the desiccant appears orange, it means the desiccant is relatively dry and gradually changes to green after absorbing water.

When the desiccant appears green, open the desiccant box and put it inside the machine and bake it at 90C° using the constant temperature chamber until the water of the desiccant evaporates and appears orange again, then it can be used again.



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 | <p>Open the firmware and change the control code 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> |


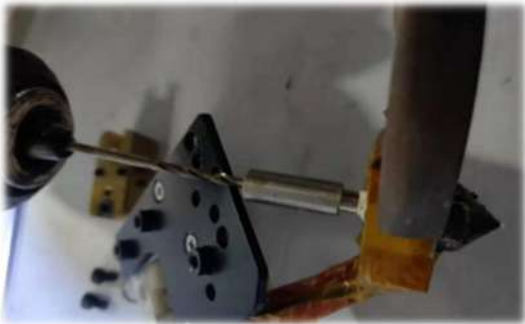
7.2 Temperature

| 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> | 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 |  <p>Remove the extrusion clamp and cut off the deformed front end of the material</p> |

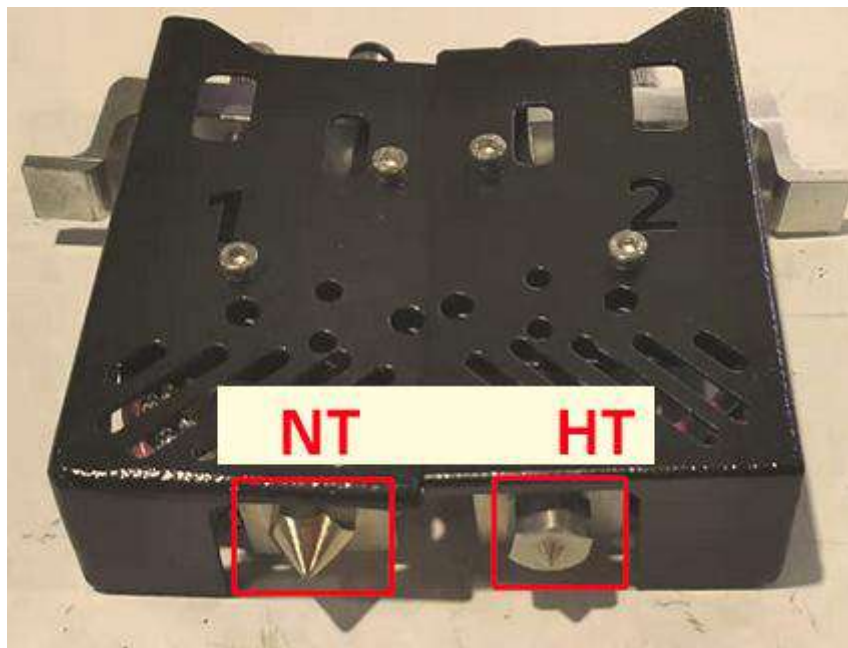
7.4 Clean Up Carbon Blockage

| Problem | Solution |
|--|---|
| <p>Problem 1: Print again after a pause in printing cannot be extruded</p> | <p>Pull out the feed tube above the print head</p> <p>Remove the filaments and cut off the expanded filaments 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 material to expand and jam the filaments.</p> |
| <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 the nozzle corresponding size of the needle to unclog the 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

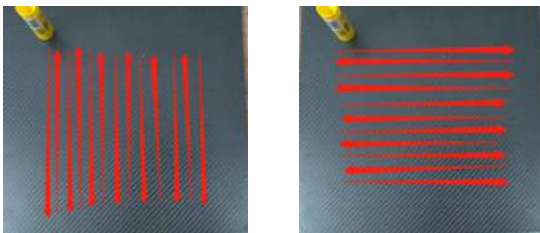


External differentiation can be seen nozzle style, hexagonal nut style for high-temperature nozzles, into a cone type for the general temperature nozzle.

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.



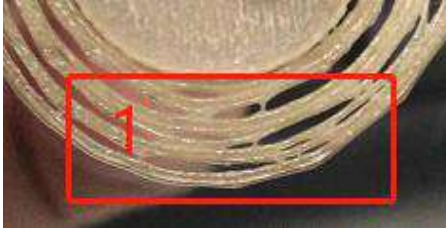
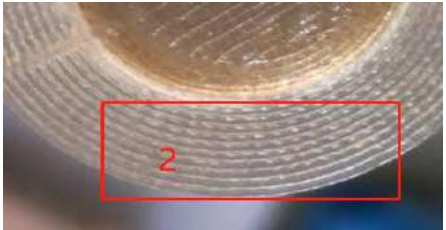
Attention: The temperature of the carbon fiber board when applied cannot exceed 50 C° , otherwise the high temperature will quickly melt the glue stick resulting in uneven thickness of the applied glue.

2. 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.

| | |
|---|---|
| <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.