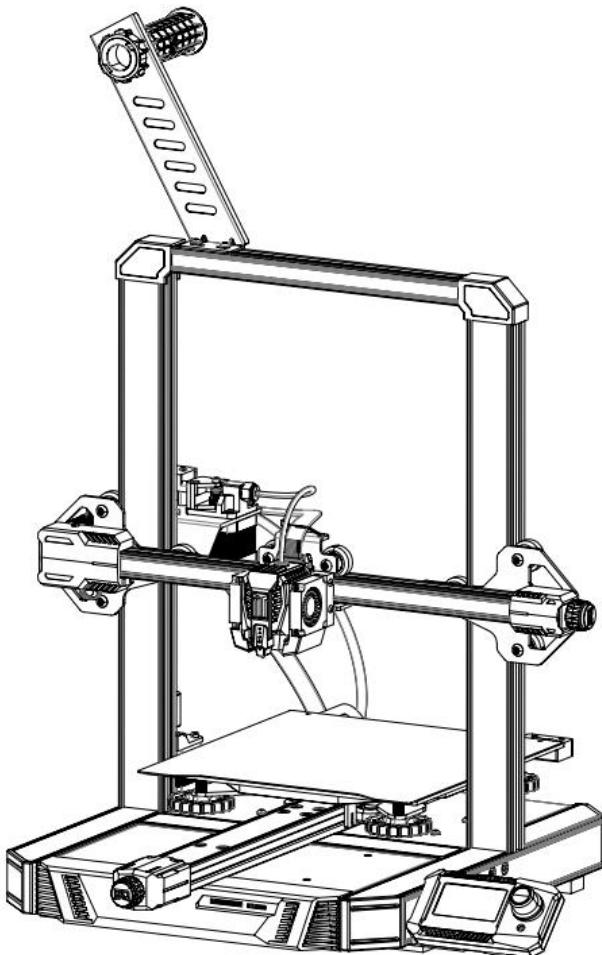


BIQU HURAKAN

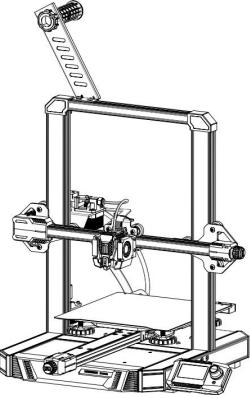
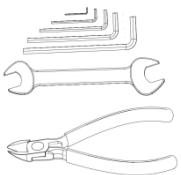
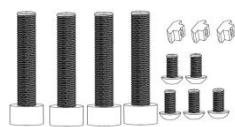
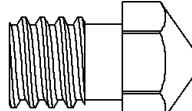
User Manual v1.1



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1. Packing List

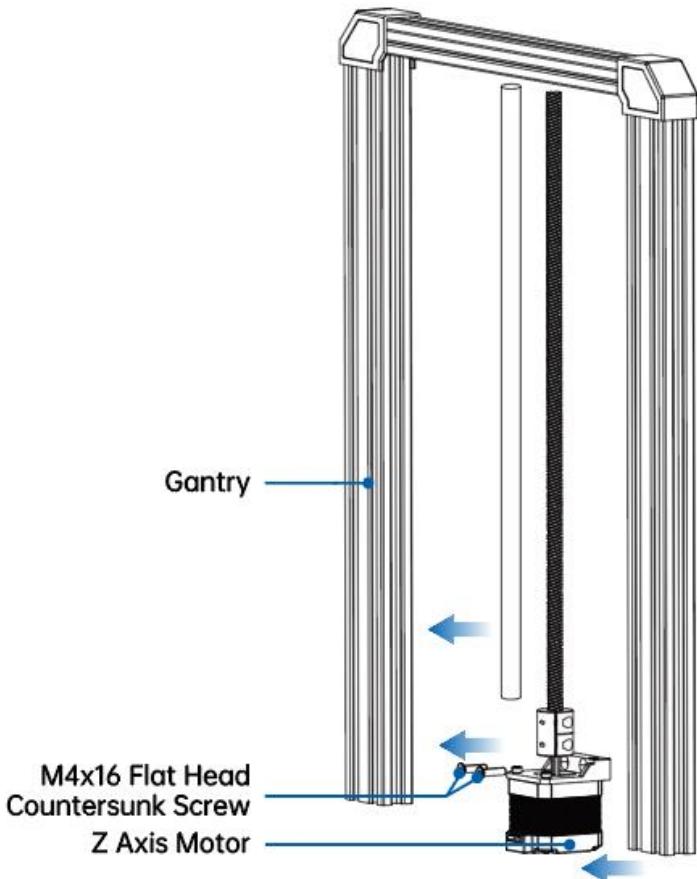
		
BIQU-Hurakan	Tools (1set)	Screw Accessories (1set)
		
Power Cord (1pc)	Filament for Test (50g)	Zip Ties (10pcs)

2. Specifications

Specifications	
3D Printer Name	BIQU-Hurakan
Build Volume	220 x 220 x 270 mm
Printhead	1pc
Layer Thickness	0.1 - 0.3 mm
Nozzle Diameter	Standard 0.4 mm
Printing Accuracy	±0.05 mm
Filament	PLA/ABS/PETG...(Any material with print temp lower than 260°C, including flexible filament with 95A stiffness.)
File Format	G-code
Firmware	Klipper
Printing Method	USB Drive / LAN Controlled
Slicing Software Supported	Cura / Repetier-Host / Simplify 3D...
Rated Voltage	100 - 120V / 200 - 240V 50 / 60 HZ
Output Voltage	24V
Rated Power	280W
Heated Bed Power	100W/240W
Maximum Temperature of Heated Bed	100°C
Maximum Temperature of Nozzle	260°C
Default Speed Limit (Firmware)	180 mm/s
Suggested Printing Speed	120 mm/s
Filament Runout Detection	Standard Feature

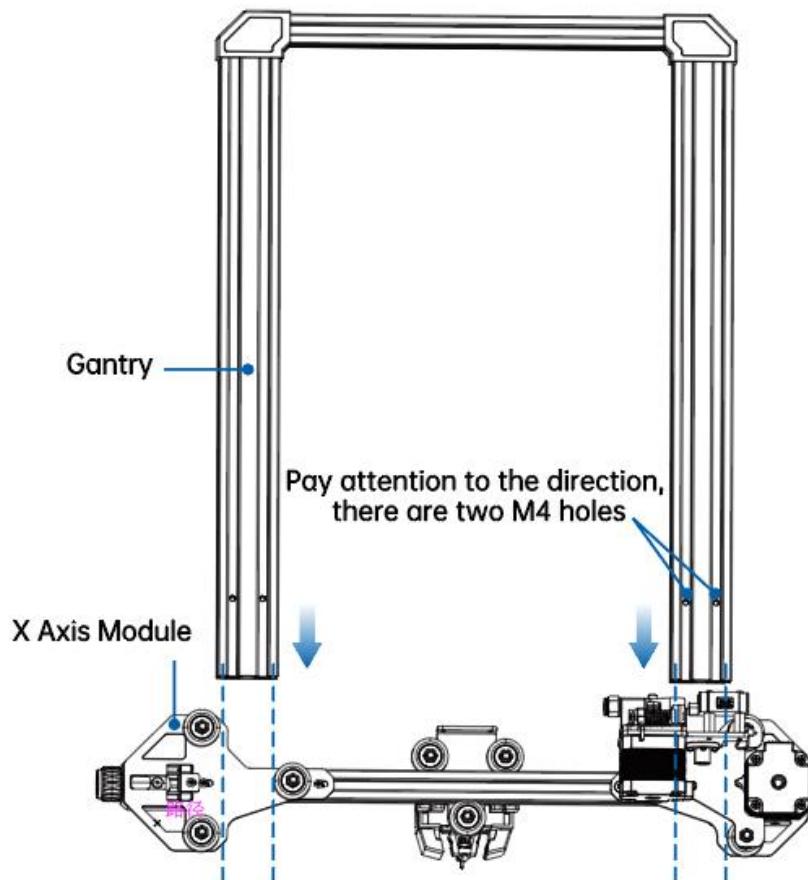
3. Assembly

Step 1: Remove the Z Axis Motor from the Gantry

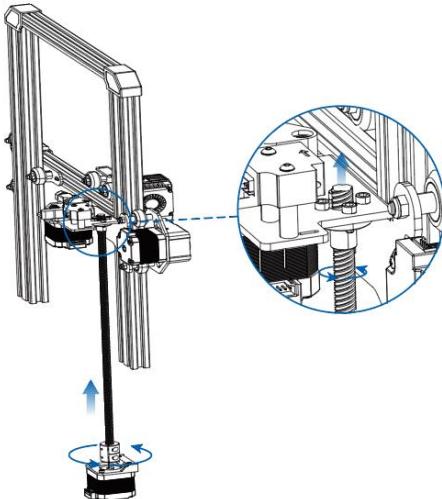


Take out the Z axis motor from the gantry by removing the two M4x16 screws, and then remove the lead screw cover.

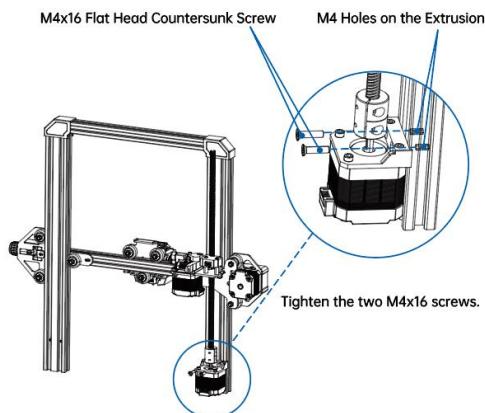
Step 2: Assemble the X Axis Module and Gantry



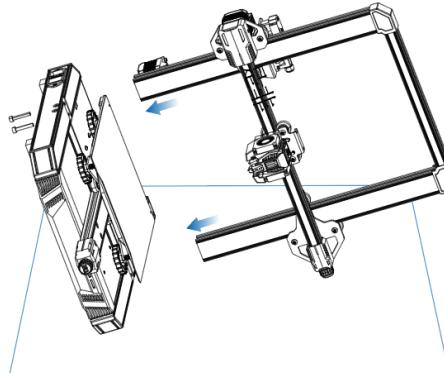
Step 3: Install the Z Axis Motor Back to the Gantry



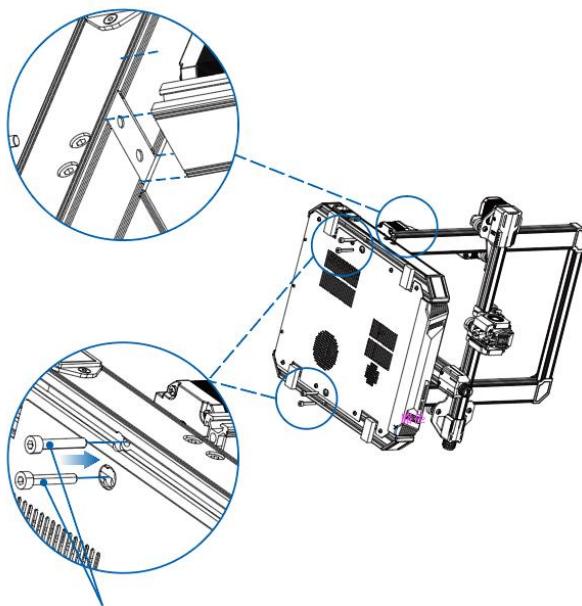
Insert the lead screw into the nut, and rotate the coupling to push the lead screw upward until the Z axis motor fixing holes are aligned with the M4 holes on the gantry.



Step 4: Mount the Gantry on the Machine Base

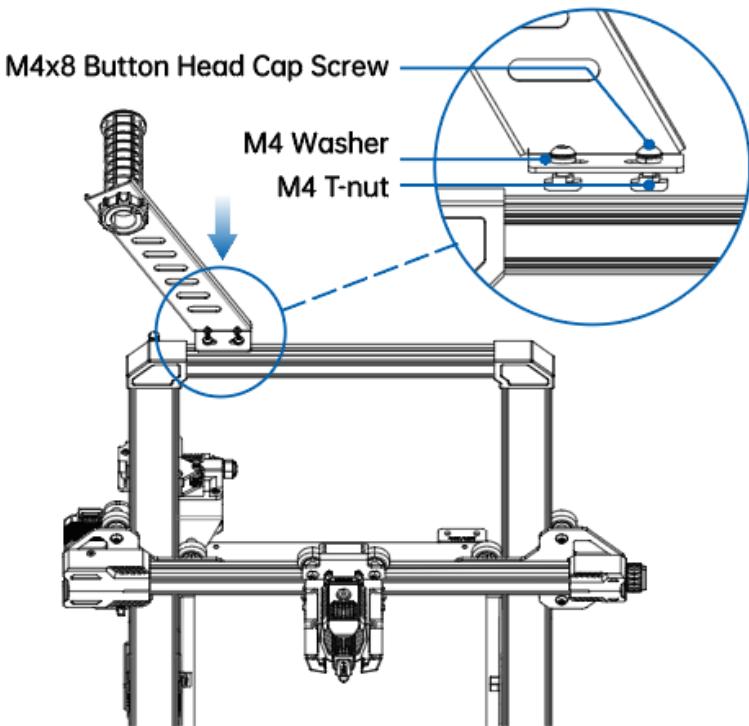


Tilt the machine base for an easy installation of the gantry. Place the gantry in its mounting slot, and tighten the screws.



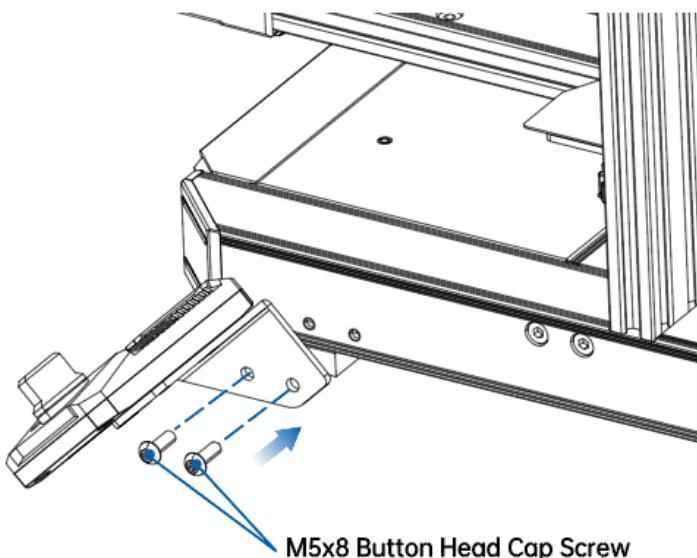
M5x40 Socket Head Cap Screw

Step 5: Install the Filament Bracket

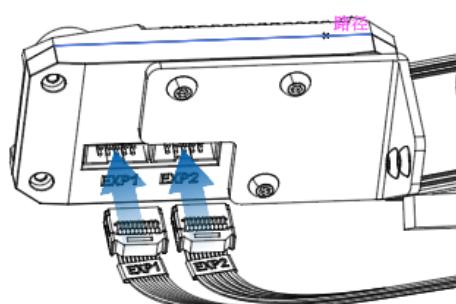


Loosen the T-nut slightly, place the filament bracket in the top slot, and then tighten the screw with a screwdriver. The T-nut will rotate slightly during the tightening process to become stuck in the aluminum extrusion slot to fix the filament bracket.

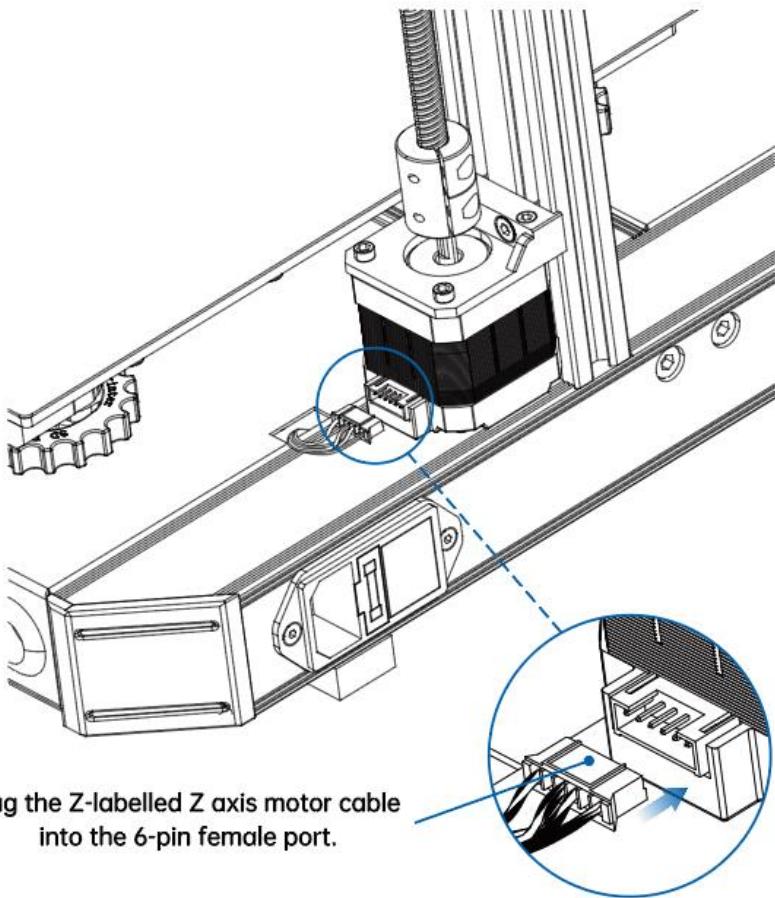
Step 6: Install the Screen



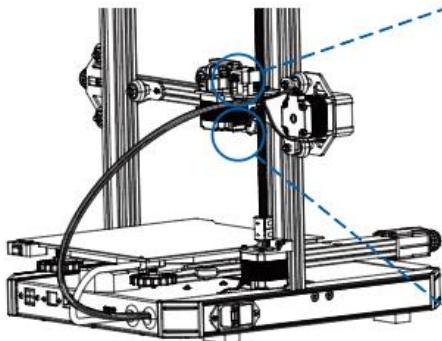
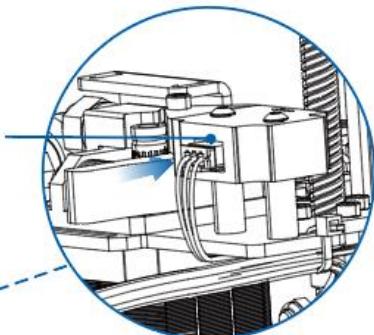
Plug the screen cable into the corresponding port.



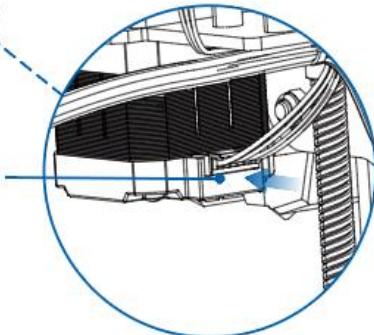
Step 7: Wiring

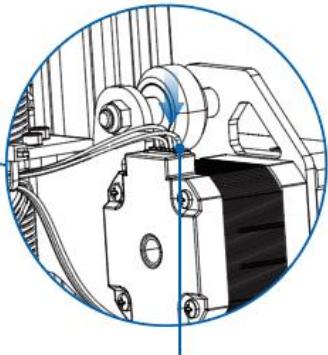
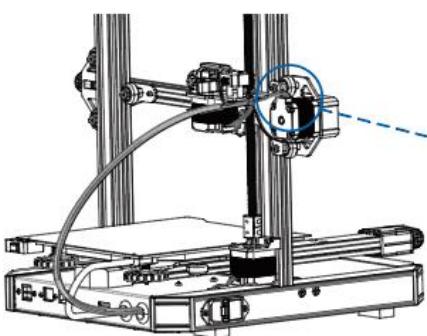


Plug the E-labelled filament runout detection module cable into the 3-pin female port.

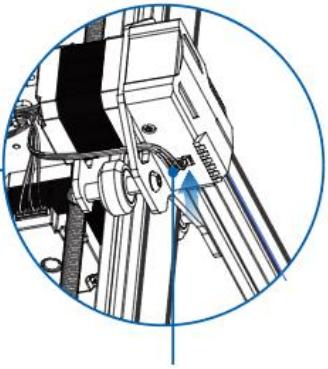
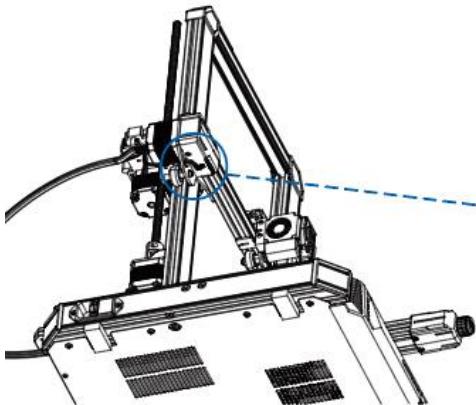


Plug the E-labelled extruder motor cable into the 6-pin female port.

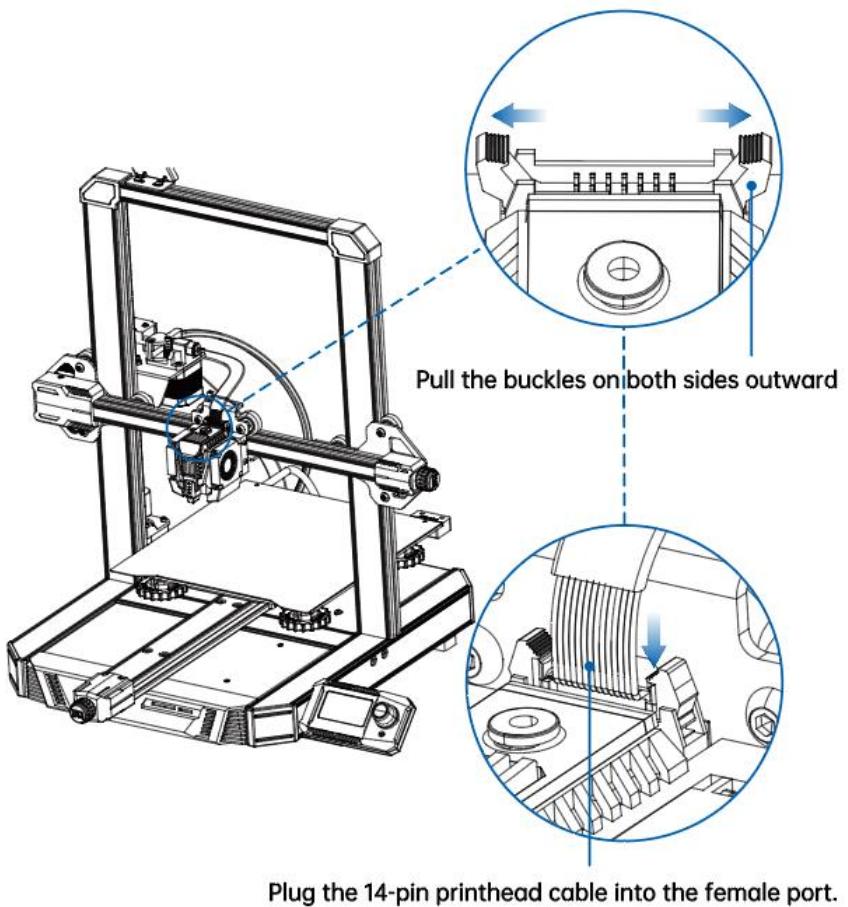




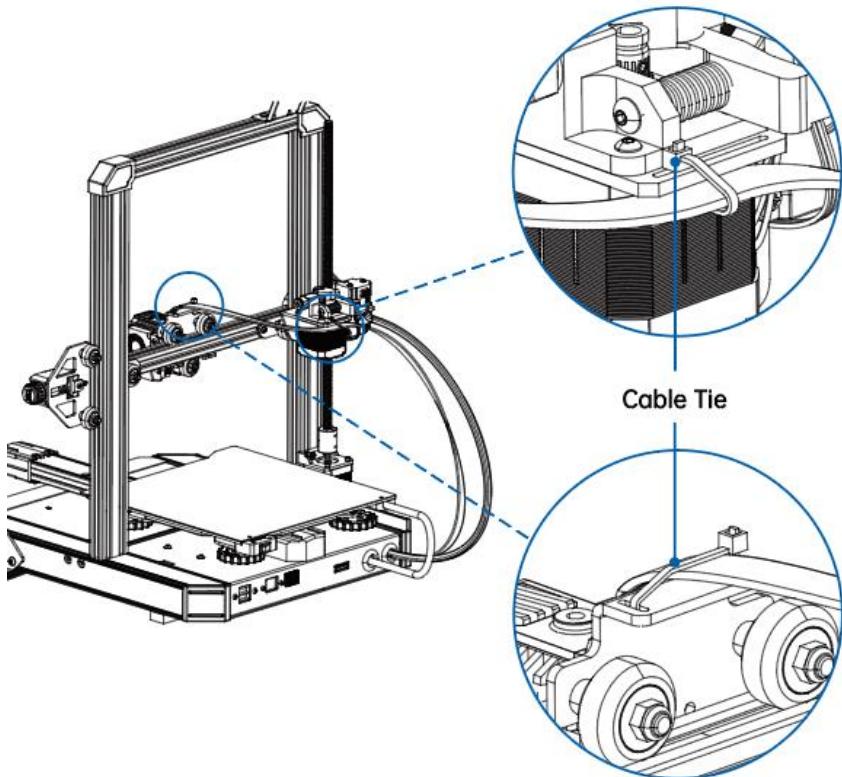
Plug the X-labelled X axis motor cable into the 6-pin female port.



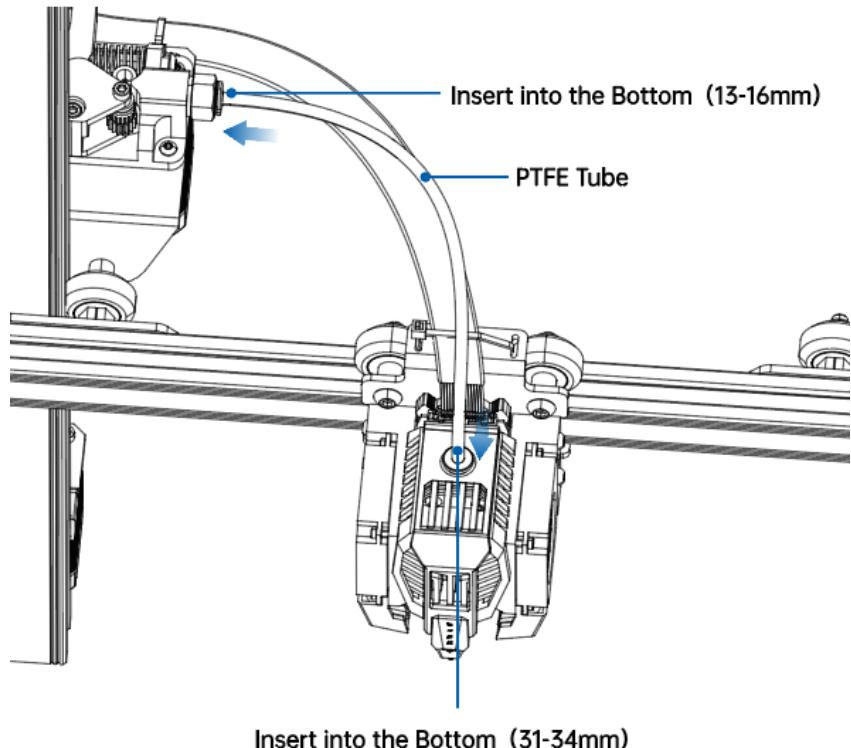
Plug the X-labelled X axis limit switch cable into the 3-pin female port.



Organize the cables with the cable tie



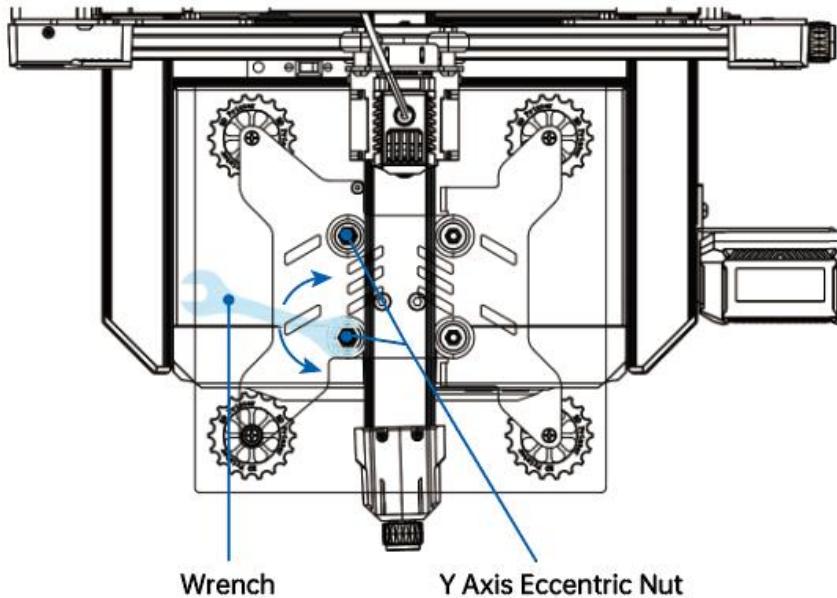
Step 8: Install the PTFE Tube

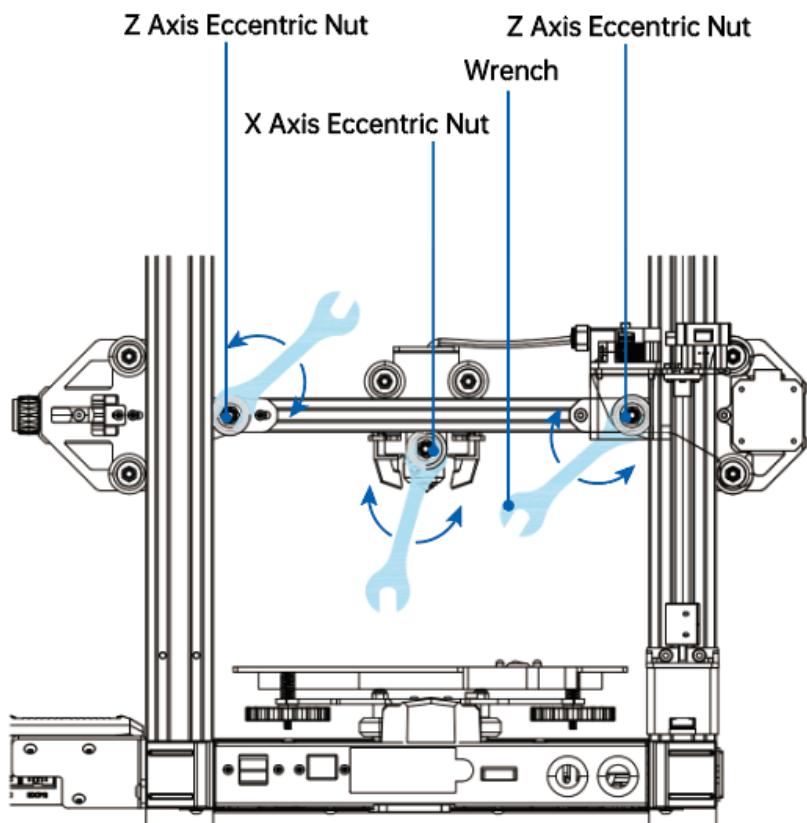


4. Tuning

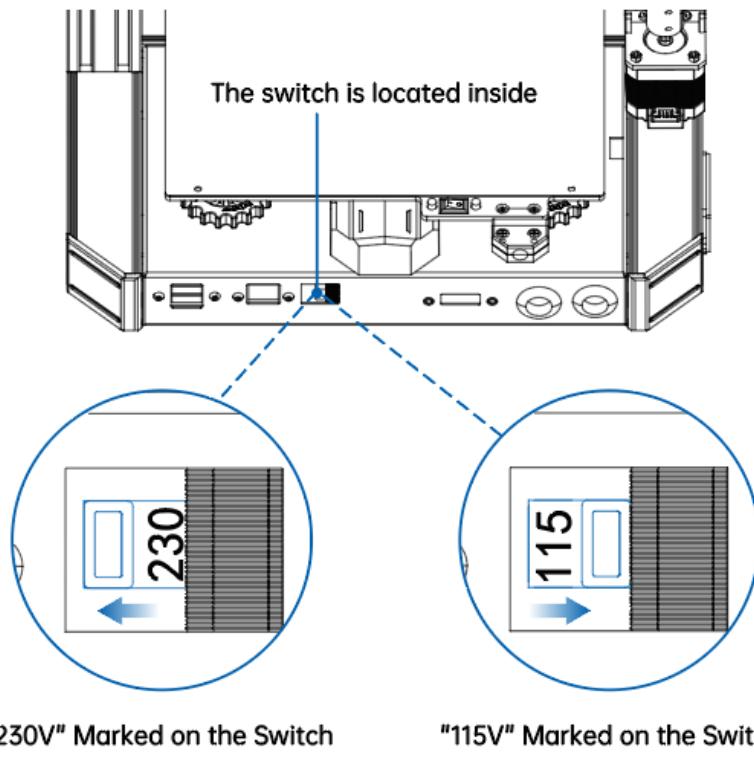
4.1 Adjust the Eccentric Nut

If it is found that the machine is too tight or too loose (there is a shaking phenomenon) during the movement, you can adjust its tightness by adjusting the eccentric nuts of X, Y, and Z with a wrench.





4.2 Check Household Voltage

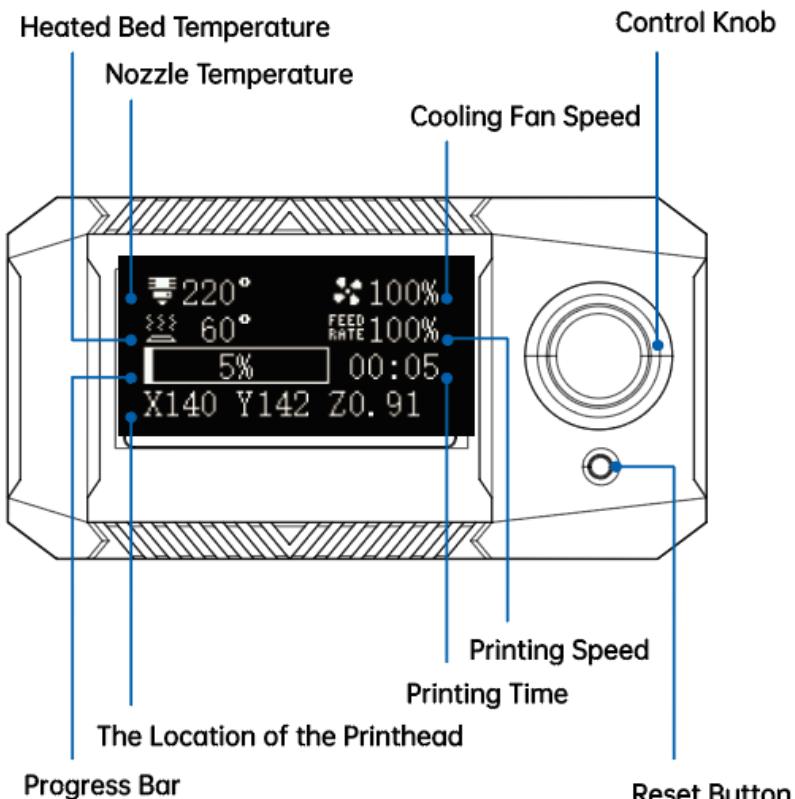


"230V" Marked on the Switch
For 200-240V House Voltage

"115V" Marked on the Switch
For 100-120V House Voltage

Before powering the machine on, select the right voltage by using a screwdriver to toggle the switch to the right(115V)/left(230V) position.

4.3 Screen Introduction



Control Knob: Enter and exit the control interface, up and down selection.

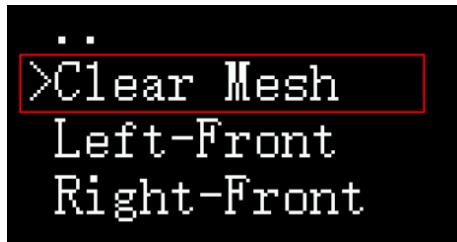
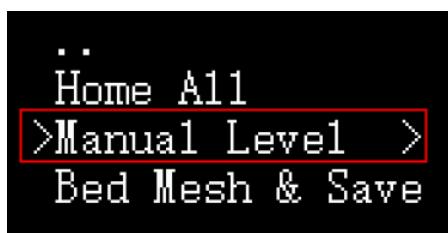
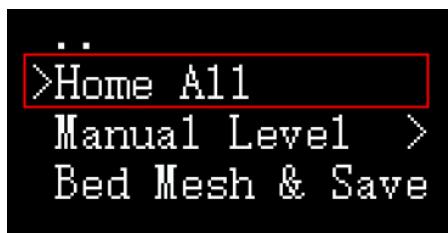
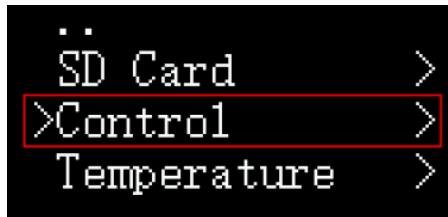
Reset Button: Reset button for the motherboard control system.

4.4 Platform Leveling

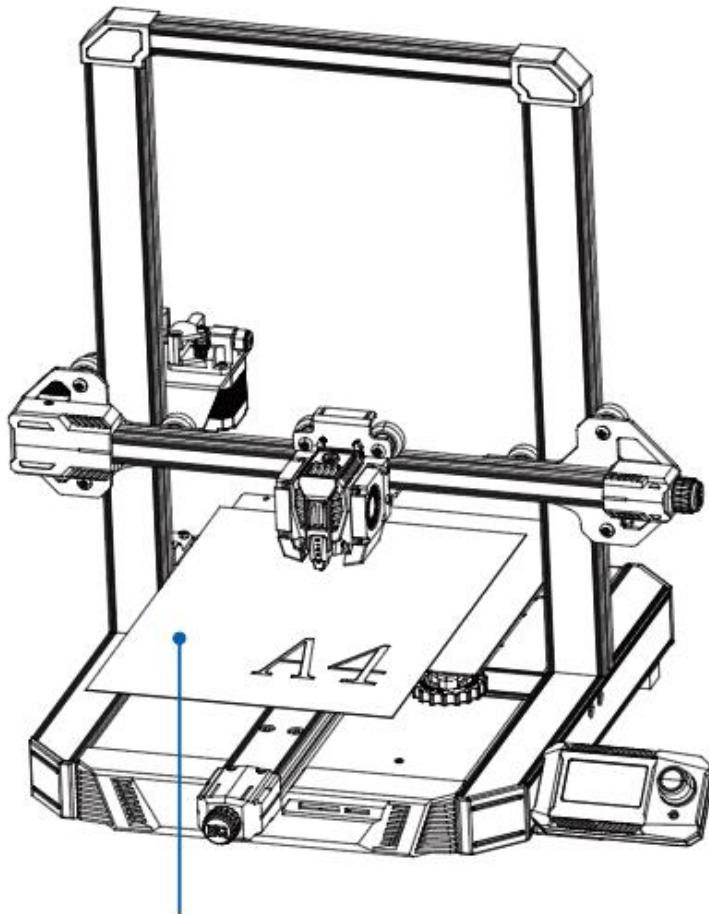
After the assembly of the BIQU-Hurakan is completed, a platform leveling is required.

Tram the print bed with the following procedure:

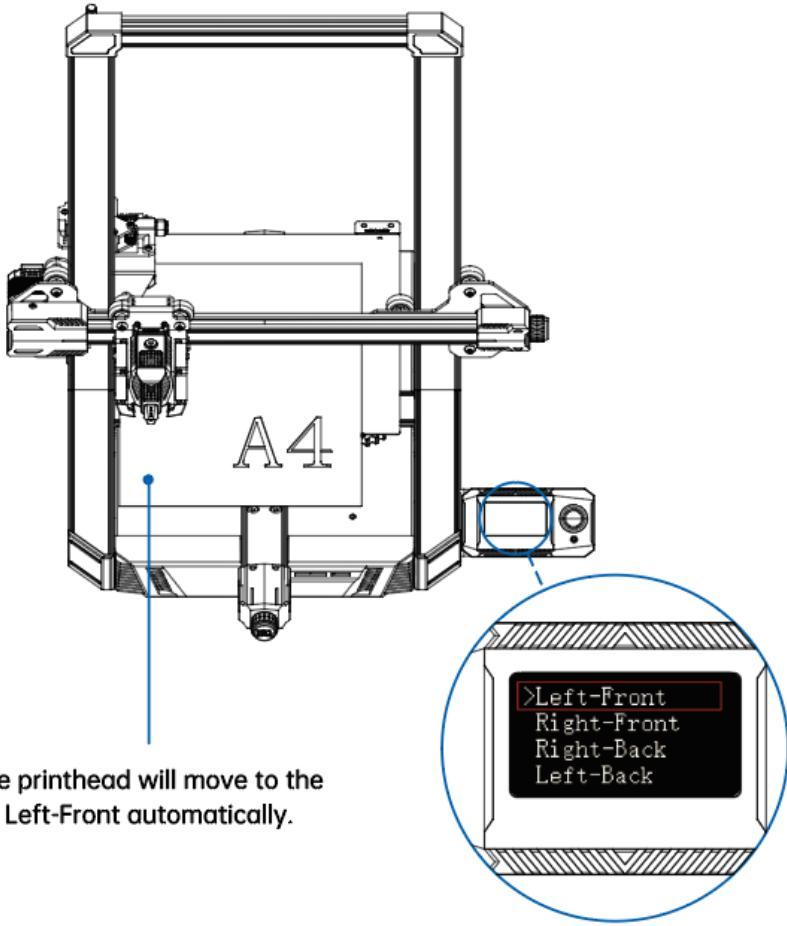
Control → Home All → Manual Level → Clear Mesh



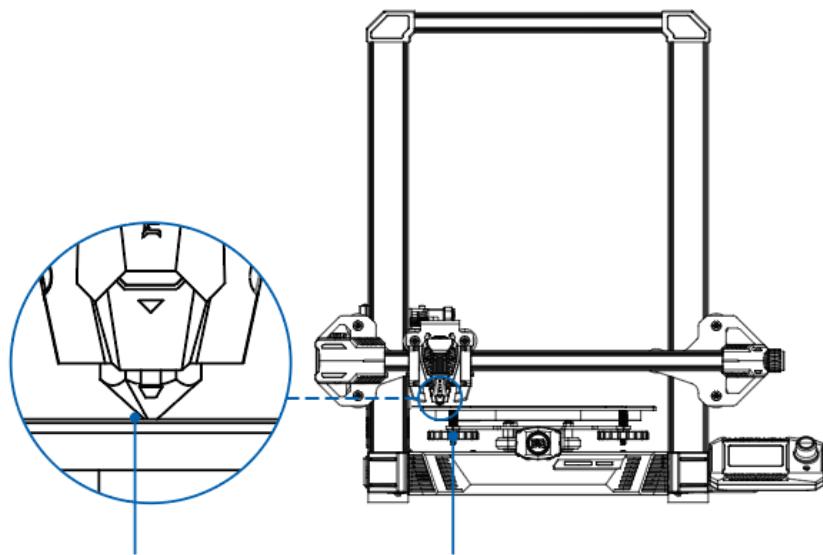
After Clear Mesh, we can start manual leveling, select Left-Front to make the printhead move to the corresponding position, and place a piece of 0.1 mm thick A4 paper between the nozzle and heated bed.



Place a paper within 0.2mm



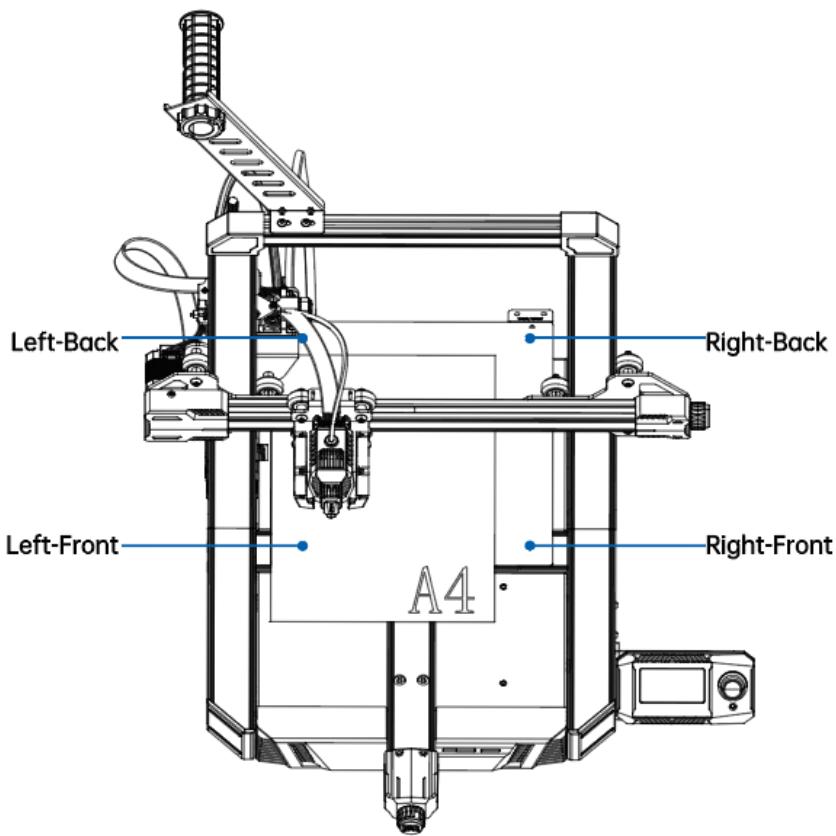
The printhead will move to the
Left-Front automatically.



Distance between the paper
and the nozzle: 0mm

Make sure that the distance between the
paper and the nozzle is 0mm by manually
adjusting the thumbscrew.

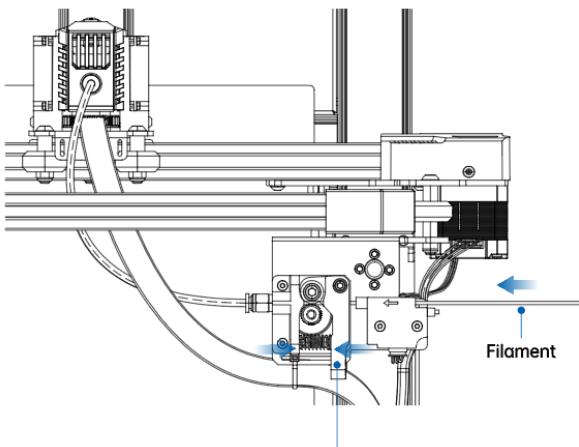
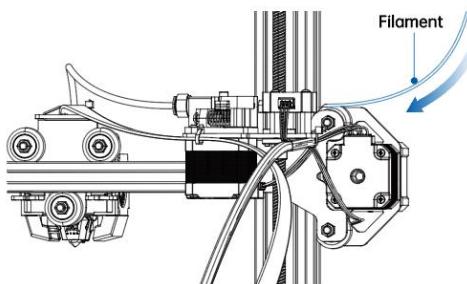
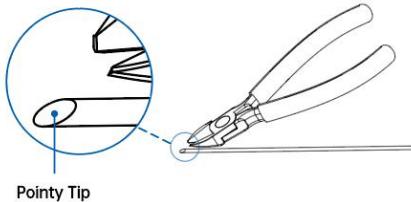
When the thumbscrew is turned clockwise, the bed will rise,
and counterclockwise, the bed will descend.



Similarly, move the printhead to Right-Front/Right-Back/Left-Back, and adjust the thumbscrew to level the platform.

4.5 Insert Filament

Make the filament tip pointy with diagonal pliers for an easy filament installation.



Hold the extruder handle while inserting the filament

4.6 Tuning of Nozzle Height

Enter the secondary interface during printing:

Tune—Offset Z:0.000

Adjust according to the height of the nozzle. When the nozzle is too high from the bed, Z is adjusted to a negative number, and when the nozzle is too low or presses to the bed, Z is adjusted to a positive number.



Offset: The right height of the nozzle:

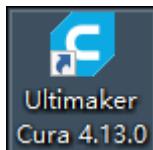
			A right distance between the nozzle and the bed: the filament sticks sufficiently well to the bed.
			The nozzle is too high from the bed: filament curls and does not lay around the nozzle, and not stick sufficiently well to the bed.
			The nozzle is too close to the bed: The nozzle or bed may be damaged.

5. Printing Preparation

5.1 Cura Installation

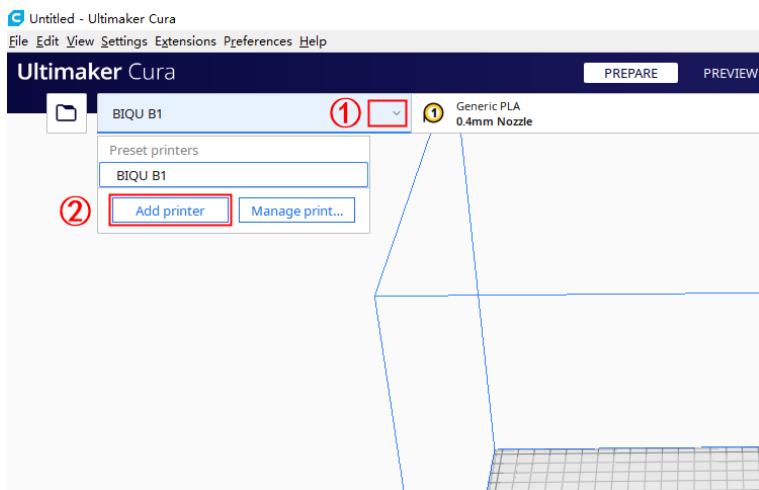
Link: <https://ultimaker.com/software/ultimaker-cura>

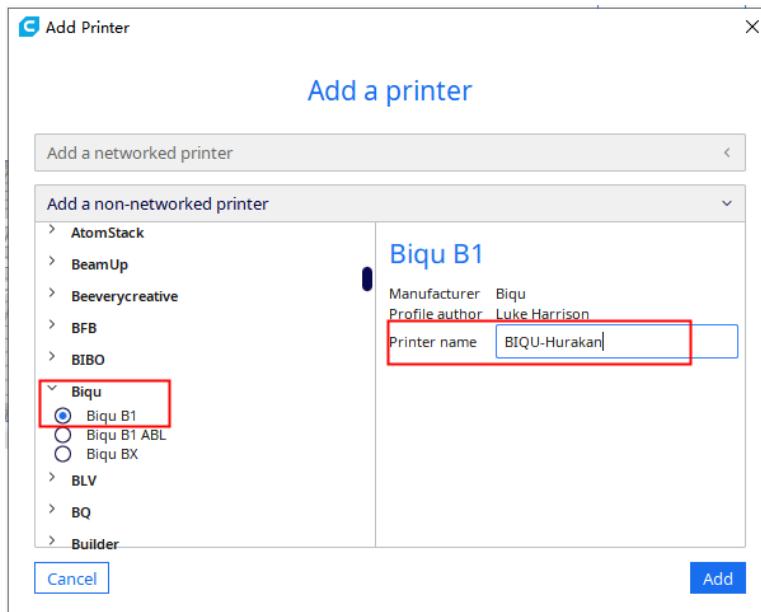
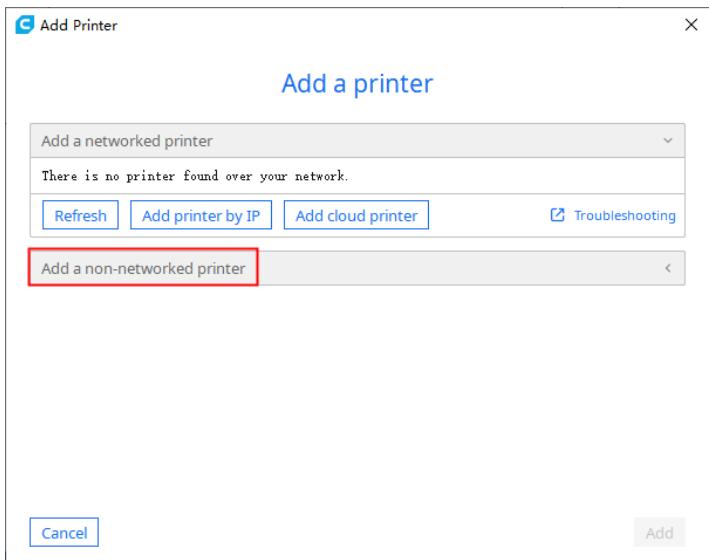
Download, install and open the latest version of Ultimaker Cura:



5.2 Cura Slicer Setting

Setup the slicer according to the following steps:





Add Printer

Machine Settings

BIQU-Hurakan

Printer	Extruder 1
Printer Settings	
X (Width) Y (Depth) Z (Height) Build plate shape Origin at center Heated bed Heated build volume G-code flavor	220.0 mm 220 mm 270.0 mm Rectangular <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> Marlin
Printhead Settings	
X min Y min X max Y max Gantry Height Number of Extruders Apply Extruder offsets to GCode	-33 mm -23 mm 33 mm 35 mm 27.5 mm 1 <input checked="" type="checkbox"/>
Start G-code	
; E	
End G-code	
; BIQ!	
Next	

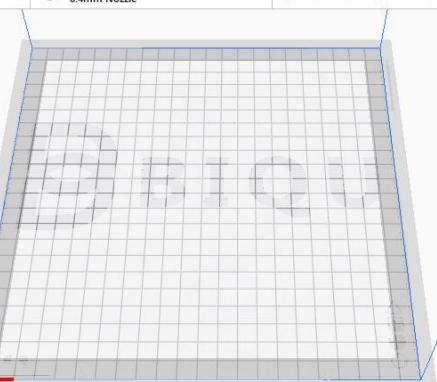
Untitled - Ultimaker Cura

File Edit View Settings Preferences Help

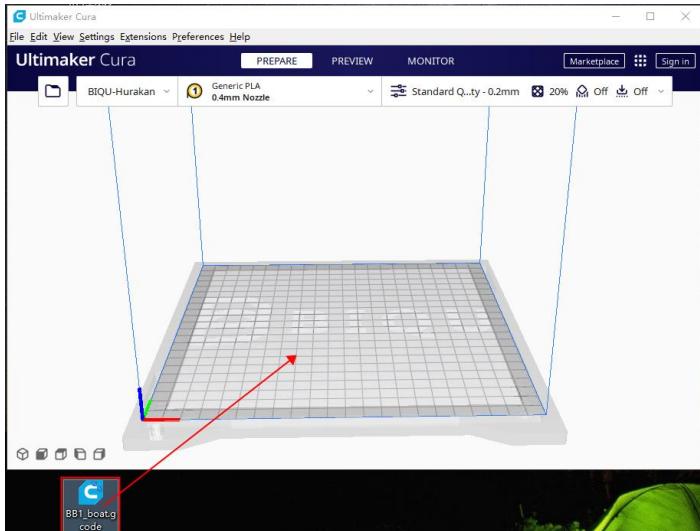
Ultimaker Cura

PREPARE PREVIEW MONITOR Marketplace Sign in

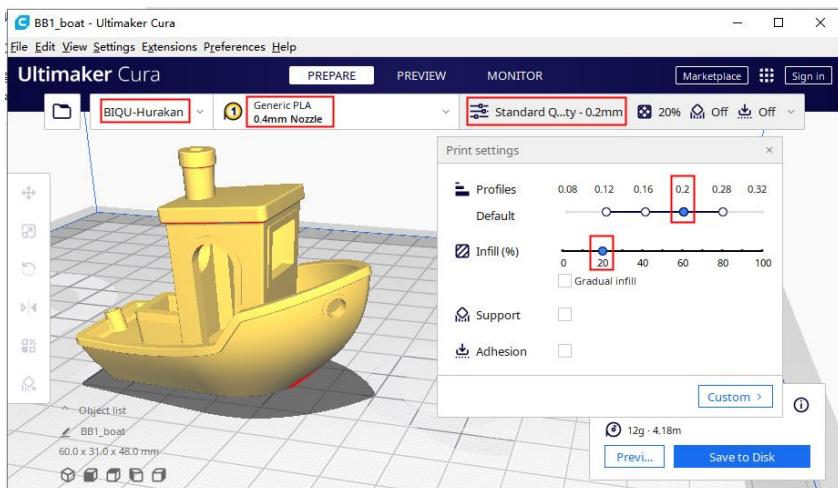
BIQU-Hurakan Generic PLA 0.4mm Nozzle Standard Quality - 0.2mm 20% On Off



5.3 Cura Slicing

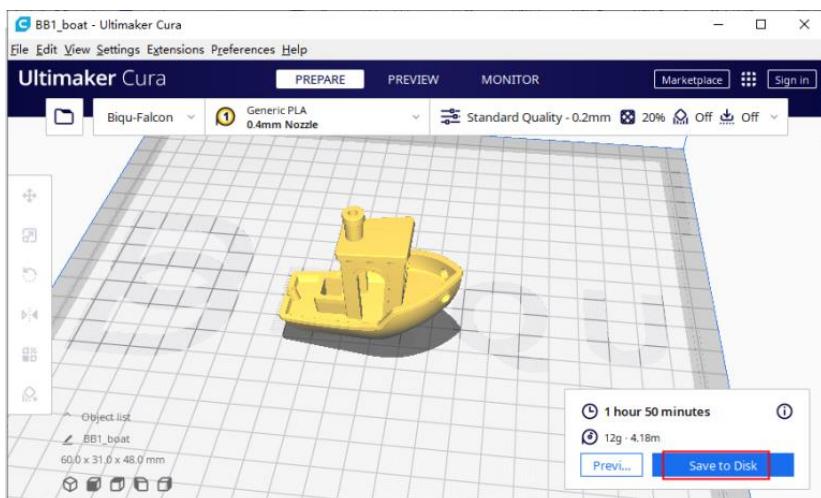
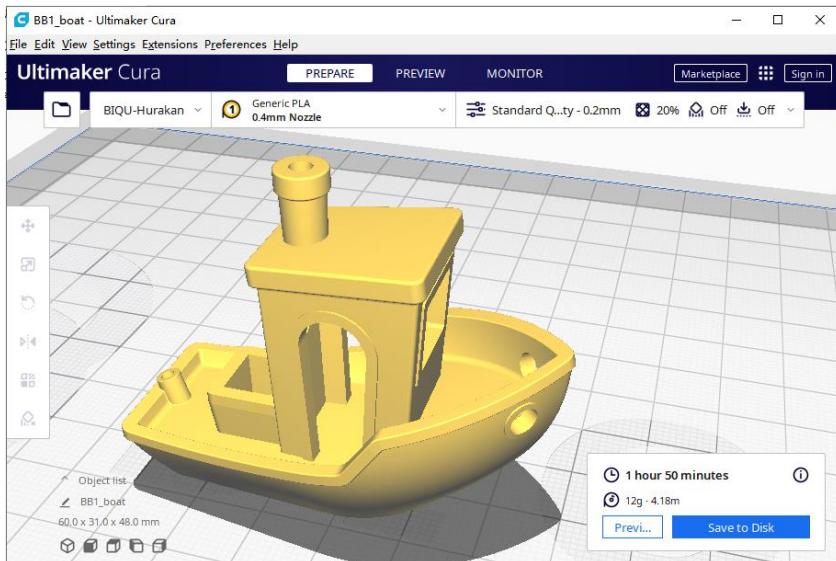


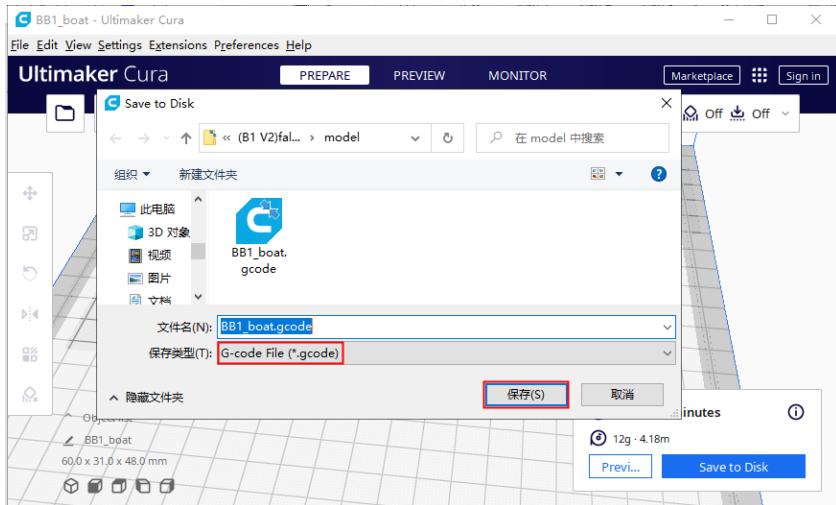
Drag and drop the model file you want to print into Cura:



In the printer that you have set up, slice the model using the

stock settings (or import your own settings if you are an advanced user), click slice and save it to your desired folder.





6. Printing

Note:

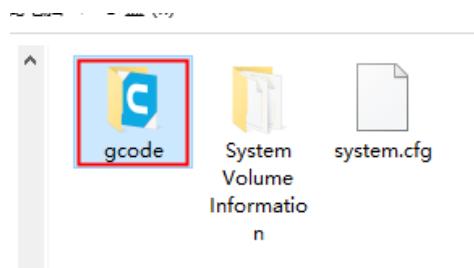
DO NOT remove the microSD card when the machine is powered on because the firmware is stored on the microSD card. If you remove the microSD card, the following can and will happen:

1. The machine will freeze immediately.
2. The installed OS on the microSD can be damaged and will need to be reflashed.
3. MicroSD can be damaged and you will need a brand new high quality microSD card.

6.1 Print via a MicroSD Card

Step 1

Power down the printer, then remove the micro SD card, transfer the gcode file into the microSD card folder, insert the microSD card back, power the printer on again and select your file to print.

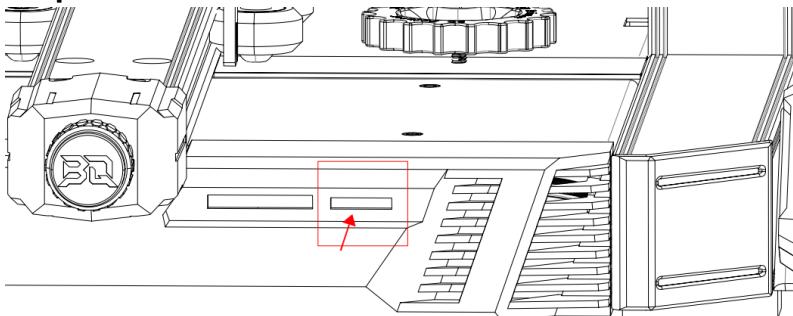


Transfer the gcode into the gcode folder:

> U 盘 (I:) > gcode



Step 2

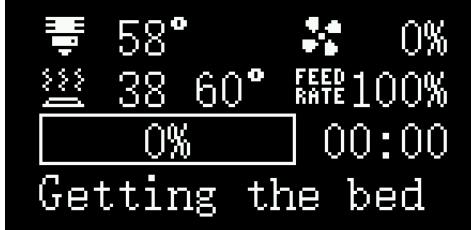
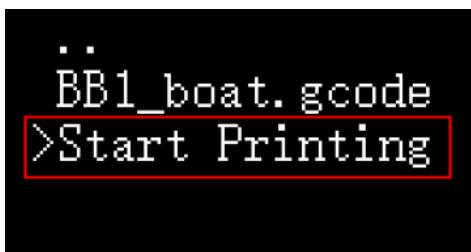
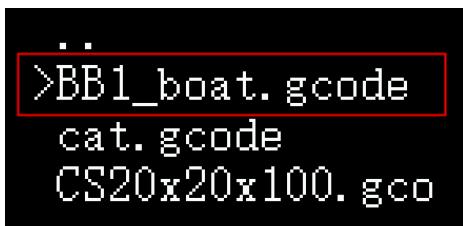


Insert the microSD and power the printer on again.

Step 3

Select the gcode file to print:

SD Card—BB1_boat.gcode—Start Printing



The nozzle and the heated bed start to warm up, and when the temperature reaches the preset temperature, the

machine starts printing.

After the print is finished, the nozzle and heated bed will cool down and you can remove the print.

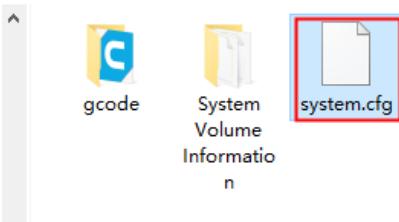
6.2 Print via WiFi

Control the printer using a web interface by connecting to the corresponding IP address.

Step 1

Set the WIFI ssid and password. (**Note:** your control device and the printer need to be connected to the same WiFi).

Make sure the machine is powered down, remove the microSD card and modify the system.cfg file in your computer with the Windows default notepad:



Set up the WiFi ssid and password:

A screenshot of a Windows Notepad window. The title bar says 'system.cfg - Notepad'. The menu bar includes File, Edit, Format, View, Help. The main content area contains the following text:

```
check_interval=30
router_ip=8.8.8.8

wlan=wlan0

WIFI_SSID="biqu-m"
WIFI_PASSWORD="biqu2020"
```

WIFI_SSID="WIFI name"

WIFI_PASSWD="WIFI password"

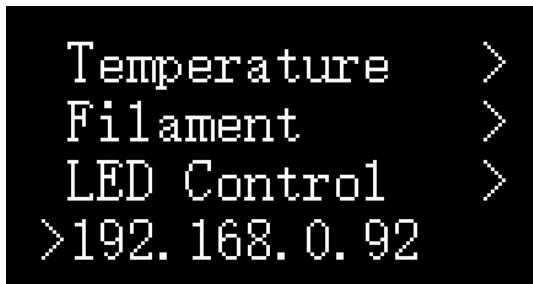
Save the file.

(**Note:** No setup is required if the printer is using a wired network)

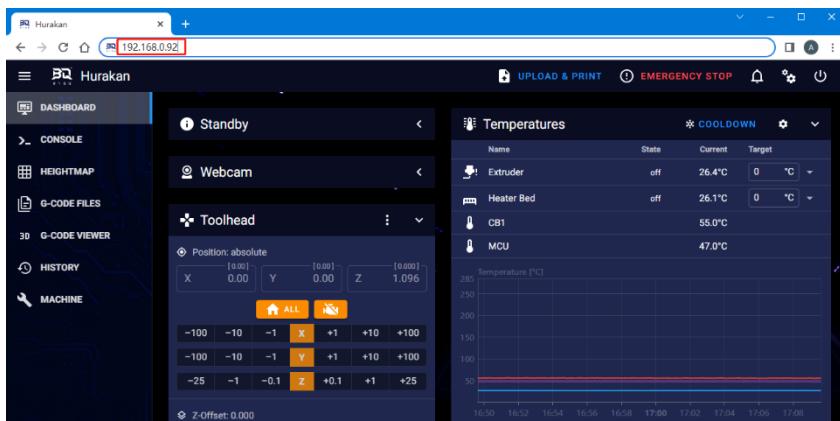
Step 2

Insert the microSD card back and power on the machine.

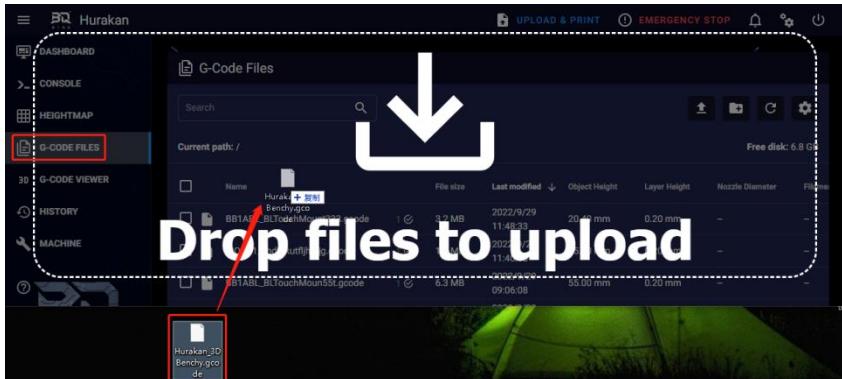
Click the rotary knob and scroll to the bottom to check the IP address:



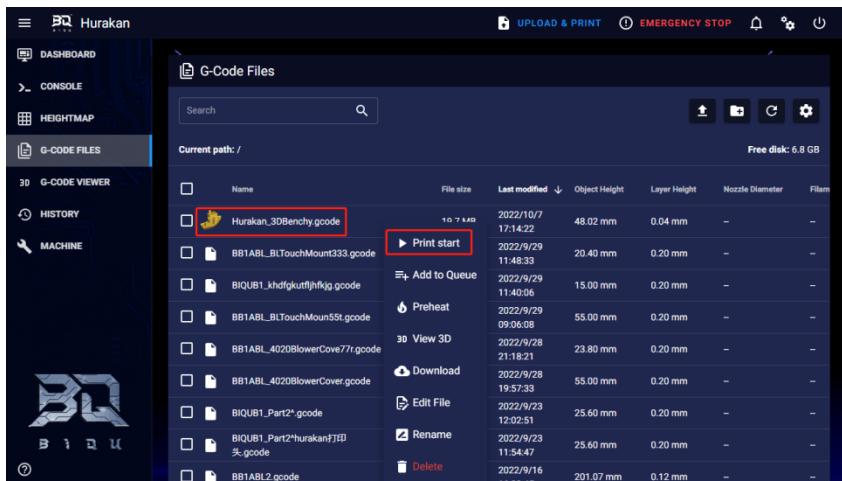
Enter the IP address in your browser: 192.168.0.92:

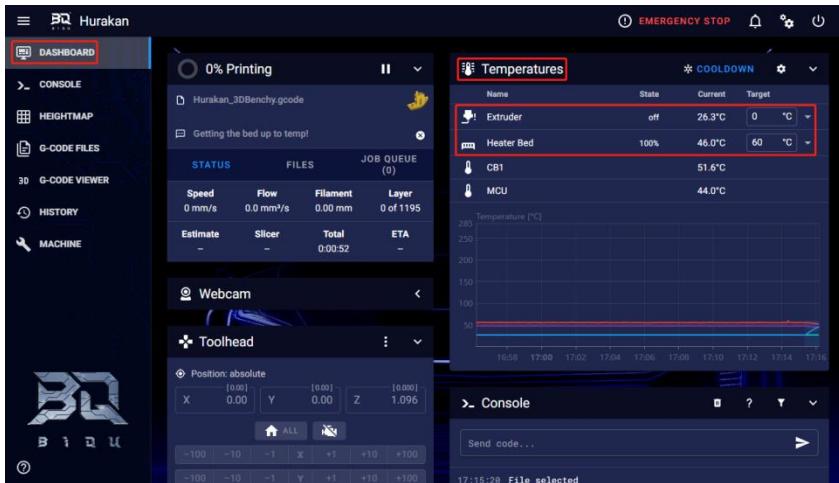


Upload the gcode file:



Select the file and click print start:

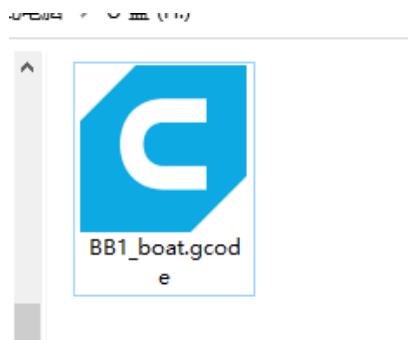




The print will start after the components reached the printing temperature.

6.3 Print via a USB Drive

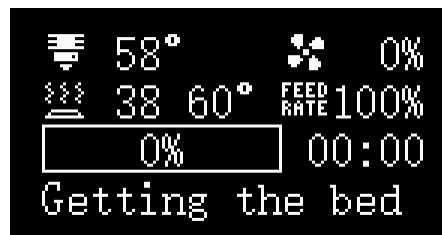
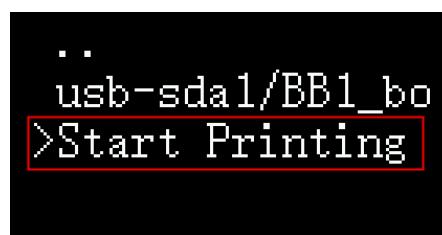
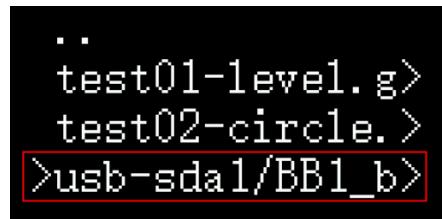
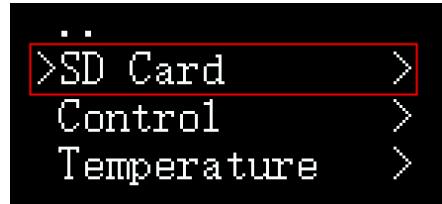
Transfer the gcode file into the USB Drive folder:



Plug the USB drive into the corresponding port of the printer.

Select the gcode file.

SD Card——usb-sda1/BB1_boat.gcode——Start Printing



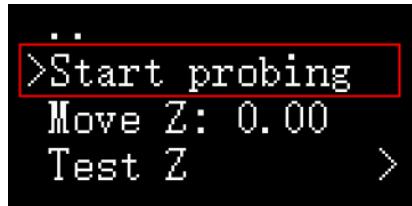
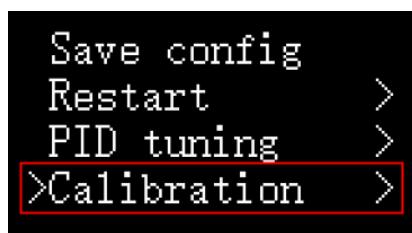
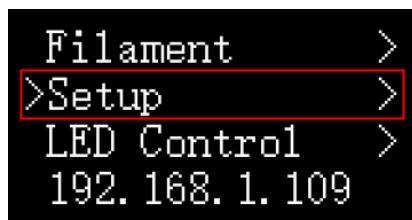
The print will start after the components reached the printing temperature.

7. Other Function

7.1 MicroProbe Calibration

If you find the MicroProbe factory offset is incorrect, or you have rewritten the system, the steps for calibration are as follows:

Setup—Calibration—Start Probing—Move Z(adjust the distance between the nozzle and bed: $\pm 1\text{mm}$)—Test Z(adjust the distance between the nozzle and bed: -0.1mm to $+0.1\text{mm}$)—Accept & Save



```
..  
Start probing  
Move Z: 7.60  
Test Z >
```

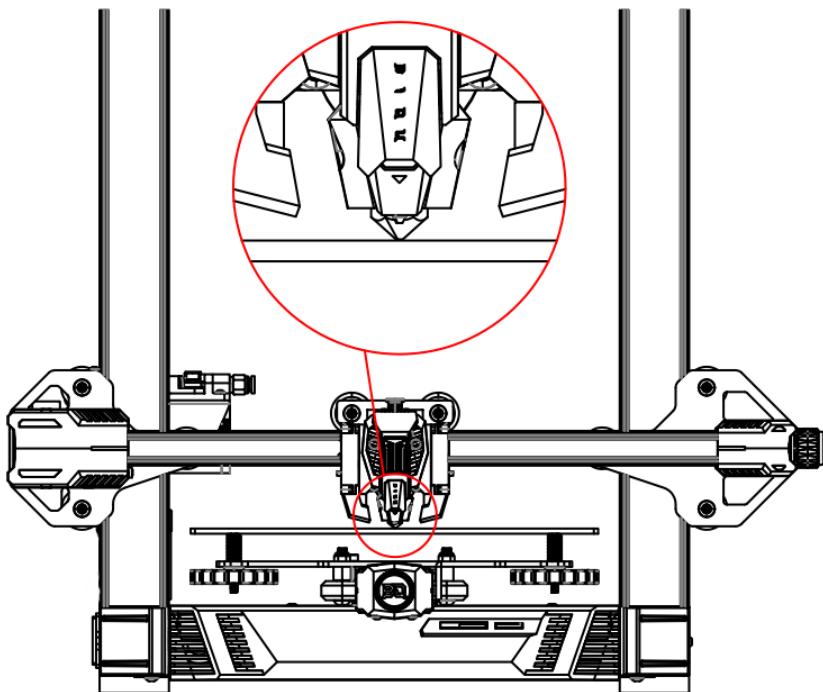
Make sure the distance between the bed and the nozzle is between 0 and 0.1mm.

```
..  
Start probing  
Move Z: 0.60  
Test Z >
```

```
..  
Start probing  
Move Z: 0.60  
Test Z >
```

```
Test Z -0.01  
Test Z 0.01  
Test Z 0.05  
Test Z 0.1
```

If **Move Z** cannot be adjusted, you can adjust **Test Z** for more precise fine-tuning.



Make sure the distance between the bed and the nozzle is between 0 and 0.1mm.

```
>..  
Test Z -0.1  
Test Z -0.05  
Test Z -0.01
```

Back to the previous interface.

```
Start probing
Move Z: 0.60
Test Z      >
>Accept & Save
```

Accept & Save, then we can start auto leveling.

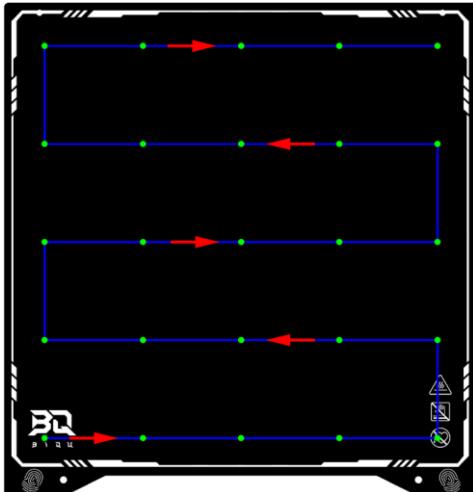
7.2 Auto Leveling

Control——Bed Mesh&Save

```
..
SD Card      >
>Control      >
Temperature   >

..
Home All
Manual Level >
>Bed Mesh & Save
```

The following figure is the running track of the printhead during auto leveling:



Wait for the finish, the printer will automatically save the config, and return to the main interface.

7.3 ON/OFF of the Filament Runout Sensor

DASHBOARD

CONSOLE

HEIGHTMAP

G-CODE FILES

G-CODE VIEWER

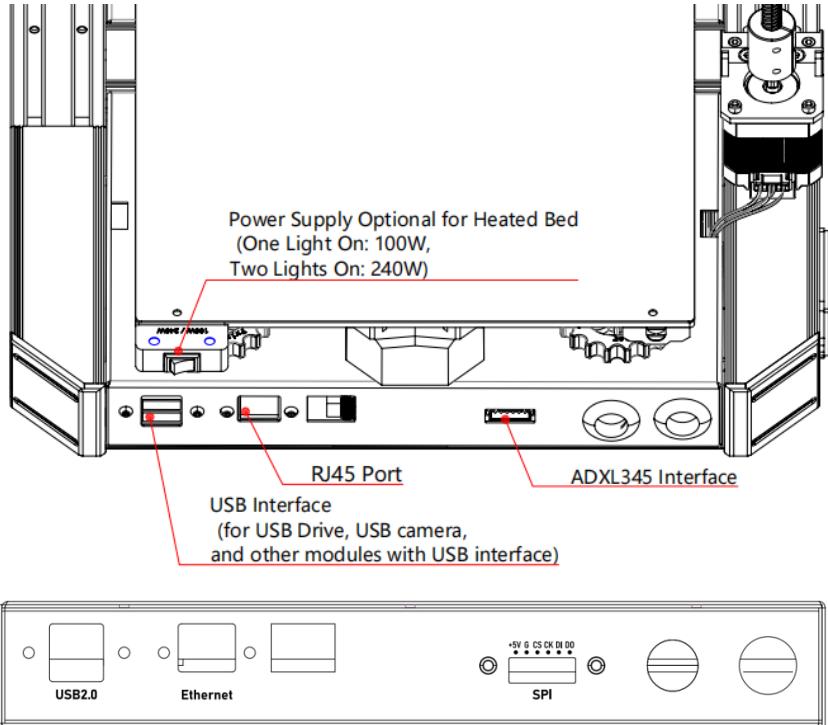
HISTORY

MACHINE

Miscellaneous

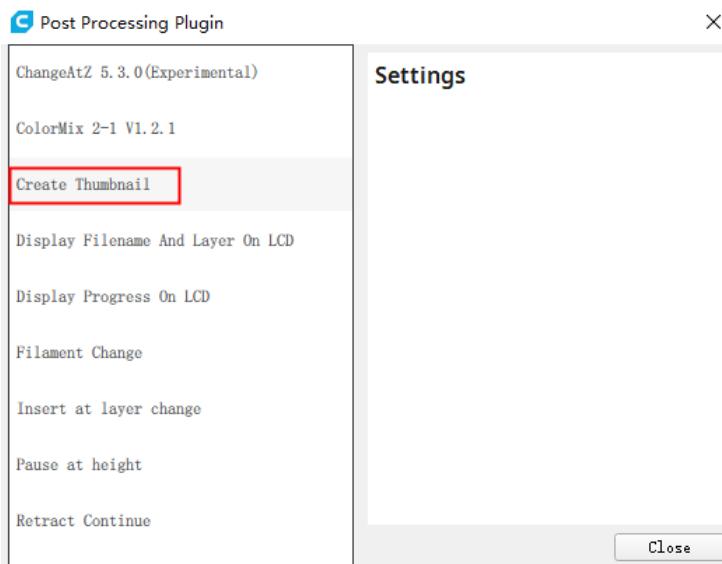
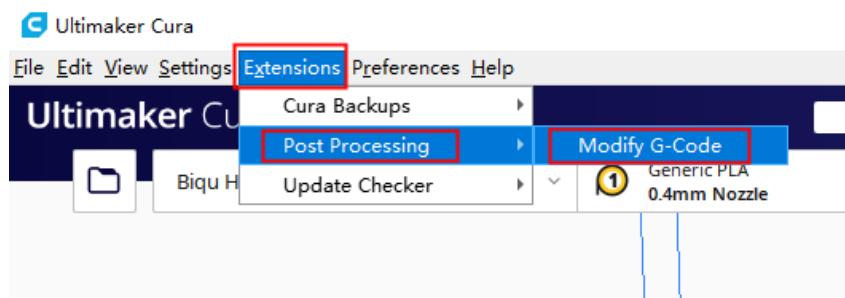
Fan	0 %
Beeper	0 %
Probe Enable	<input checked="" type="checkbox"/>
Case Fan	0 %
Nozzle Cooling Fan	0 %
Extruder Filament Sensor	Empty <input checked="" type="checkbox"/>

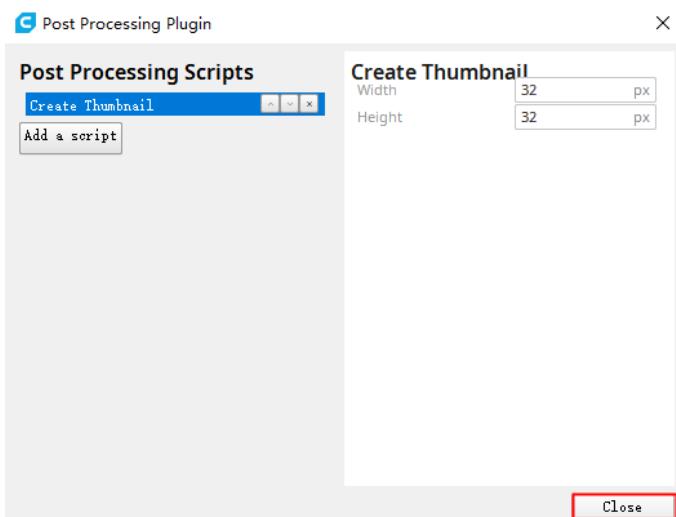
7.4 For Expansion Module



7.5 Display Model Thumbnail

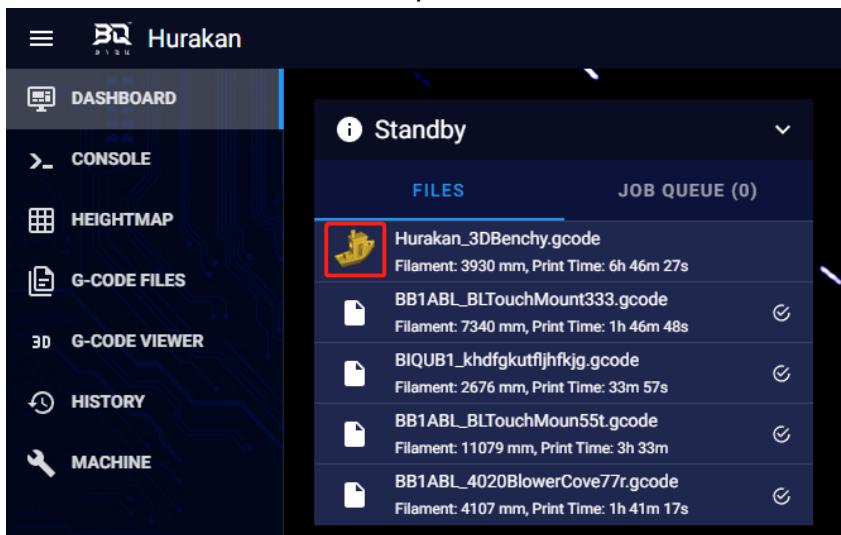
Open CURA, then Extensions---Post Processing---Modify G-Code---Create Thumbnail





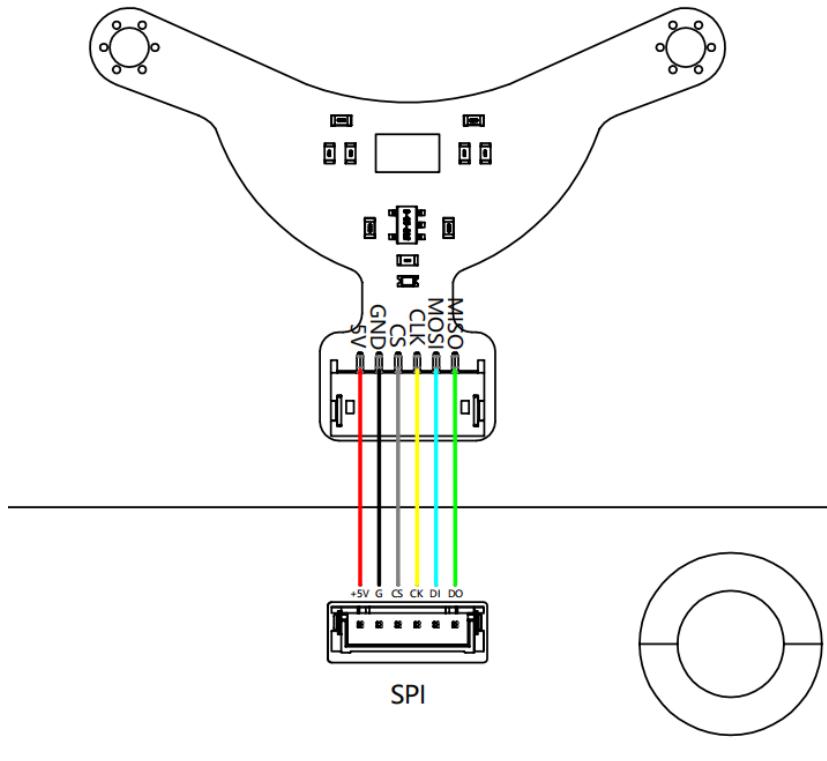
The default resolution of CURA is 32*32 (you can adjust it according to the display effect).

Then use Cura to slice and upload to the web.



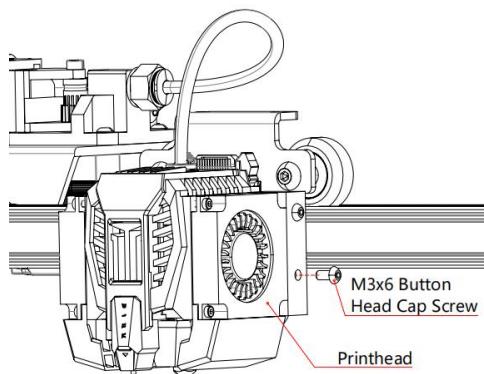
7.6 ADXL345 Input Shaping Calibration

Diagram:

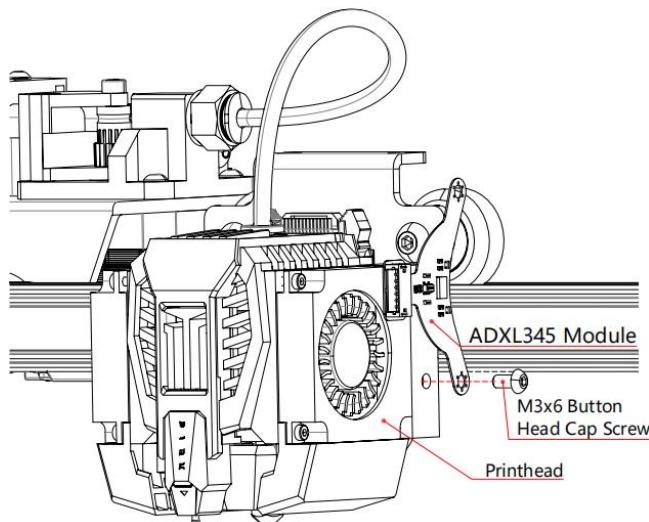


7.6.1 Install on X Axis Printhead

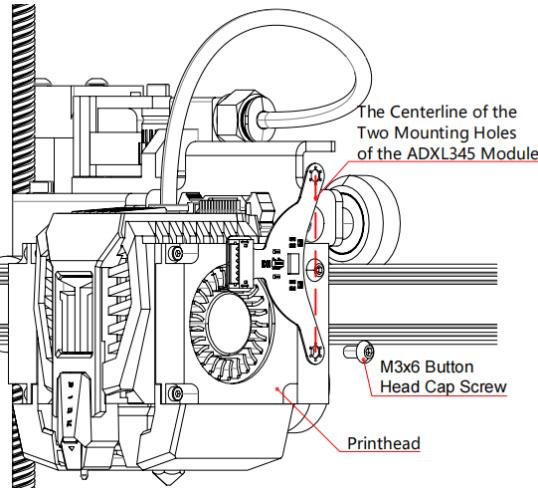
Loosen the M3x6 screw securing the lower right corner of the printhead.



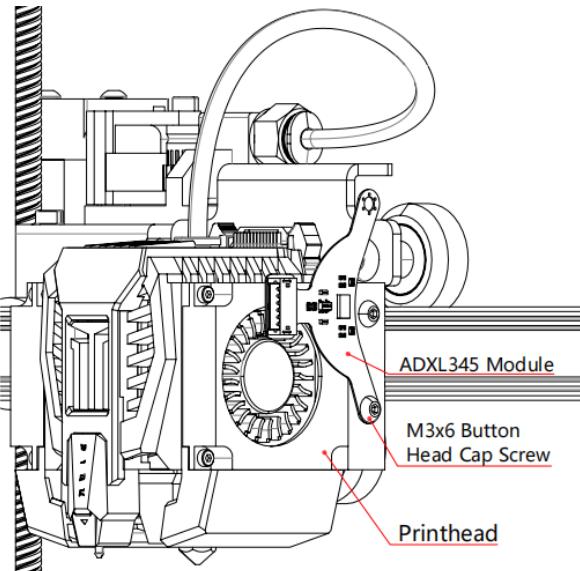
Install the ADXL345 module to the printhead with the M3x6 screw by fixing its lower mounting hole to the hole where the screw was removed. The M3 x 6 screw should not be tightened yet.



Note: the centerline of the two mounting holes of the ADXL345 module should be perpendicular to the heated bed.

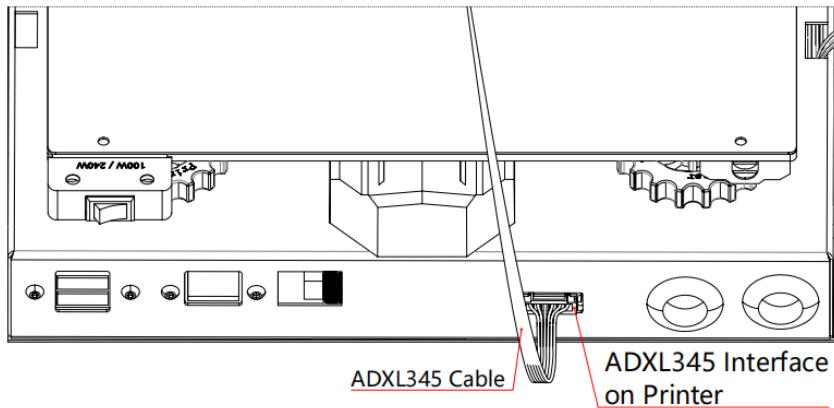
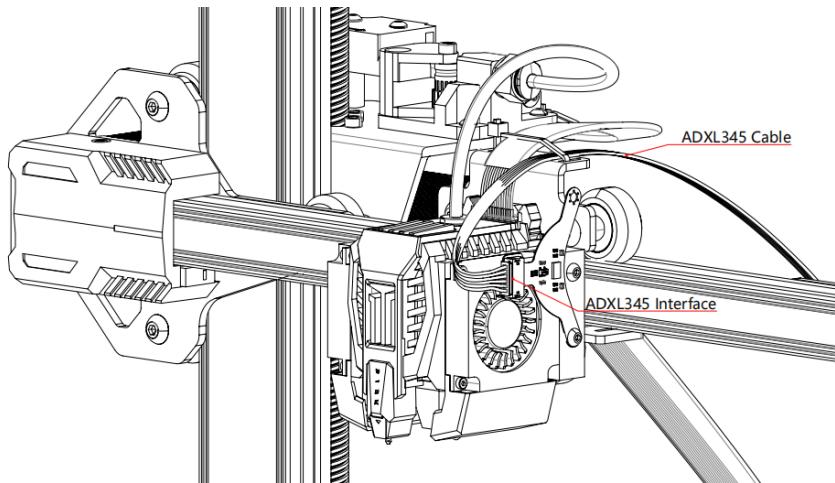


Adjust the position and tighten the M3x6 screw.



Wiring

Connect the ADXL345 Module to the printer with the ADXL345 Cable.



7.6.2 X Axis Calibration

Reference:

https://www.klipper3d.org/Measuring_Resonances.html)

Note: The printer needs to be Home before calibration.

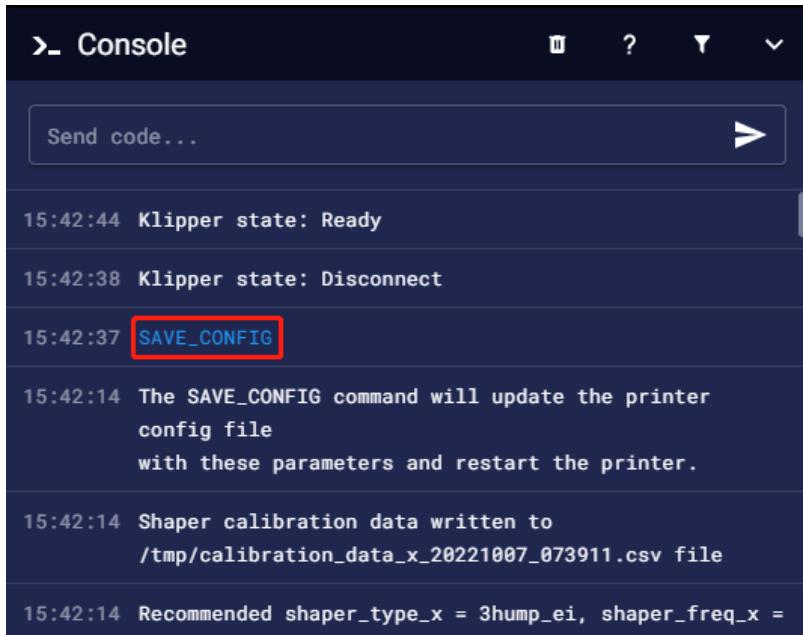
Enter the X axis calibration command at the command line:

SHAPER_CALIBRATE AXIS=X

```
>_ Console
SHAPER_CALIBRATE AXIS=X >
15:38:16 G28
```

```
>_ Console
> >
15:39:12 Testing frequency 9 Hz
15:39:12 Testing frequency 8 Hz
15:39:12 Testing frequency 7 Hz
15:39:12 Testing frequency 6 Hz
15:39:12 Testing frequency 5 Hz
15:39:11 SHAPER_CALIBRATE AXIS=X
15:38:16 G28
```

Note: the ADXL345 module will vibrate in the X axis at this time. Please observe to ensure that the vibration is not too strong. (The test can be terminated in case of emergency). After calibration, enter the save code: SAVE_CONFIG



```
>_ Console

Send code... ➤

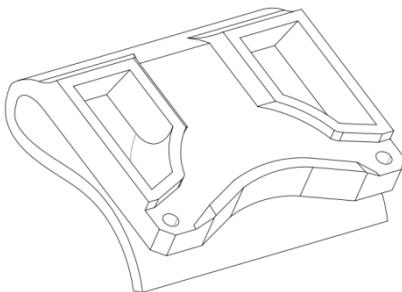
15:42:44 Klipper state: Ready
15:42:38 Klipper state: Disconnect
15:42:37 SAVE_CONFIG
15:42:14 The SAVE_CONFIG command will update the printer config file with these parameters and restart the printer.
15:42:14 Shaper calibration data written to /tmp/calibration_data_x_20221007_073911.csv file
15:42:14 Recommended shaper_type_x = 3hump_ei, shaper_freq_x =
```

Then power off the printer and remove the ADXL345 module.

7.6.3 Install on Heated Bed (Y Axis)

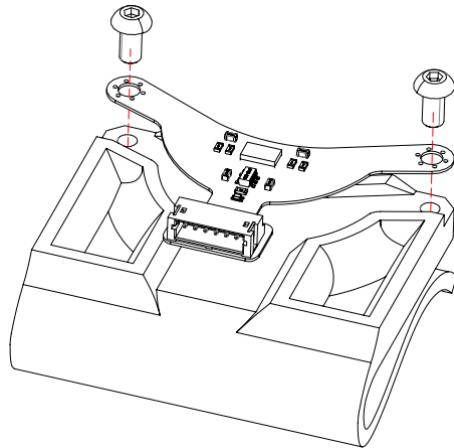
A printed part and two M3x5 screws should be prepared first, and the printed part download link is as follows:

<https://github.com/bigtreeTech/BIQU-Hurakan>



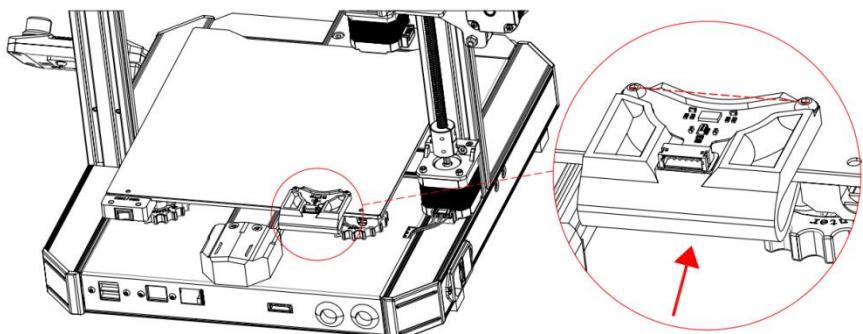
Heated Bed ADXL345 Holder

Mount the ADXL345 module on the Heated Bed ADXL345 Holder with the M3x5 screws prepared before.



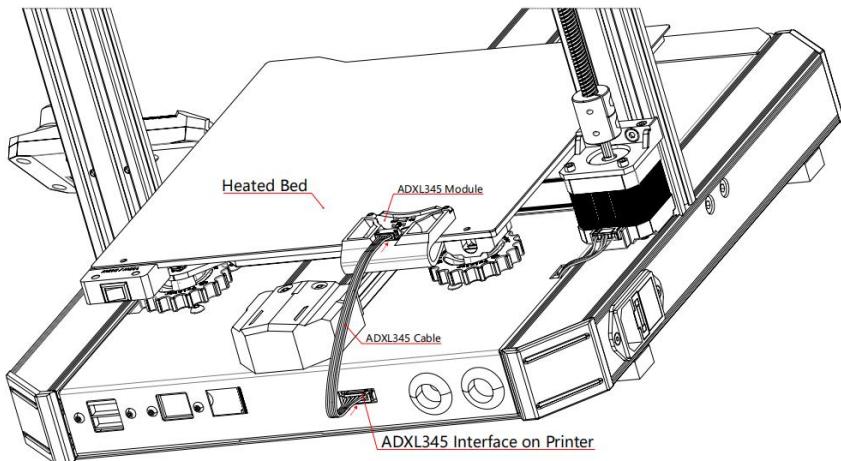
Attach the Heated Bed ADXL345 Holder to the heated bed's left rear corner.

Note: please note that the centerline of the two mountings holes in the ADXL345 module should be perpendicular to the Y axis.



Wiring:

Connect the machine and ADXL345 module with the ADXL345 cable.



7.6.4 Y Axis Calibration

Note: The printer needs to be Home before calibration.

Enter the Y axis calibration command at the command line:

SHAPER_CALIBRATE AXIS=Y

```
>_ Console
SHAPER_CALIBRATE AXIS=Y >
15:44:17 G28
```

```
>_ Console
| >
15:44:49 Testing frequency 9 Hz
15:44:49 Testing frequency 8 Hz
15:44:49 Testing frequency 7 Hz
15:44:49 Testing frequency 6 Hz
15:44:49 Testing frequency 5 Hz
15:44:49 Disabled [input_shaper] for resonance testing
15:44:47 SHAPER_CALIBRATE AXIS=Y
15:44:17 G28
```

Note: the ADXL345 module will vibrate in the Y axis at this time. Please observe to ensure that the vibration is not too strong.

After calibration, enter the save code: SAVE_CONFIG

The screenshot shows a Klipper console interface. At the top, it says "Console". Below that is a text input field with "Send code..." and a send button with a right-pointing arrow. The main area displays the following log entries:

```
15:48:05 Klipper state: Ready
15:47:59 Klipper state: Disconnect
15:47:58 SAVE_CONFIG
15:47:51 The SAVE_CONFIG command will update the printer config file with these parameters and restart the printer.
15:47:51 Shaper calibration data written to /tmp/calibration_data_y_20221007_074448.csv file
15:47:51 Recommended shaper_type_y = 2hump_ei, shaper_freq_y =
```

Finally, turn off the printer, remove the ADXL345 module, and restart the printer. The ADXL345 Input Shaping Calibration was done.

8. FAQ

Question 1	Layer Shifting
Answer 1	<p>Printing too fast. Recommended speed: 60~80 mm/s.</p> <p>There may be a loose belt or pulley, so please tighten it.</p> <p>Synchronous motor loses steps. Insufficient current setting and insufficient torque output of the motor. The static reference power supply of the stepper motor can be adjusted appropriately to adjust the output current.</p> <p>Overheating of the motor, motor driver or power supply indirectly will affect the movement of the printhead.</p>

Question 2	Filament Oozing from Nozzle
Answer 2	A loose nozzle. Firstly, heat the nozzle, wait for the filament to liquefy, wipe off the outflowing filament, and finally use pliers to tighten the nozzle. Note: Do not touch the hot nozzle directly with your hands.

Question 3	Filament is a Bit Hard to Insert
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Answer 3	<p>Straighten the curled filament by hand, and use the pliers to make the filament tip pointy.</p> <p>The filament drive gear is too tight, adjust it to make an appropriate tightness.</p> <p>There is residue in the heat break. Please preheat it to 230°C, then push and squeeze out the residue.</p>
-----------------	---

Question 4	Warping
	The distance between the nozzle and the bed is too far, adjust the distance.
	The cooling of the nozzle outlet is insufficient, please make sure that the part cooling fan is working properly.
	Provide a closed environment to keep the temperature stable.
	Give yourself enough time to adjust the temperature by slowing down the printing speed.
	Increase the filament extrusion amount of the bottom layer.
	Add Brim support.

Question 5	Pits and Hollows in the Top Layer
Answer 5	Insufficient cooling. Make sure the part

	<p>cooling fans are up to speed and position.</p> <p>The top surface isn't thick enough. Increase the top layer thickness in the setting.</p>
--	---

Question 6	Crack
Answer 6	<p>Insufficient supply. Check the machine to make sure there are no loose parts.</p> <p>The diameter of the filament changes, resulting in insufficient supply.</p> <p>Make sure the machine is running smoothly, some lubricant may be applied.</p>
Question 7	<p>The extruder makes an abnormal sound of "Ka Ka Ka" during printing:</p>
Answer 7	<p>It may be that the nozzle is blocked, use a needle to unclog it.</p> <p>The quality of the filament is not high, you can try another filament.</p> <p>The temperature of the printhead is too high, and the filament is carbonized into small black particles. Turn down the printing temperature a bit.</p> <p>The torque of the feeding part needs to be adjusted.</p>

Question 8	The extruded filaments look uneven/

	have different thicknesses:
Answer 8	Check if the filament is jammed or tangled.
	Check whether the nozzle is blocked.
	Wrong settings on the layer height or on the filament width.
	Filaments are of poor quality.

Question 9	Stringing
Answer 9	Try increasing the retraction distance by 1mm and test again to see if the performance improves.
	Check the retraction speed. Retraction works best between 20 and 100 mm/s. In order to set the most ideal value, it is necessary to set different speeds through experiments to observe whether the stringing phenomenon is reduced.
	Adjust the extruder temperature. Try decreasing your extruder temperature by 5°C each time to get the best value.
	Reduce the floating movement distance. That is to say, when printing multiple models, the distance between models can be shortened appropriately.

9. Cautions

1. Do not touch the nozzle and the heated bed when the printer is working to avoid burns.
2. Do not touch the spring steel plate when the printer is working to avoid burns.
3. Do not place the printer in a place with great vibrations, which will affect the quality of the prints.
4. Do not put your hand into the printer when it is working to avoid being pinched.
5. Using the machine for more than 100 hours at a time can damage the parts of the machine due to overheating.
6. Minors should not use this printer without any adult supervision.
7. Keep the machine away from flammable items, please place it in a ventilated, less dusty, cool place.
8. Please follow the instructions in the user manual to use this product. The risk caused by any unauthorized disassembly or modification shall be borne by the customer.