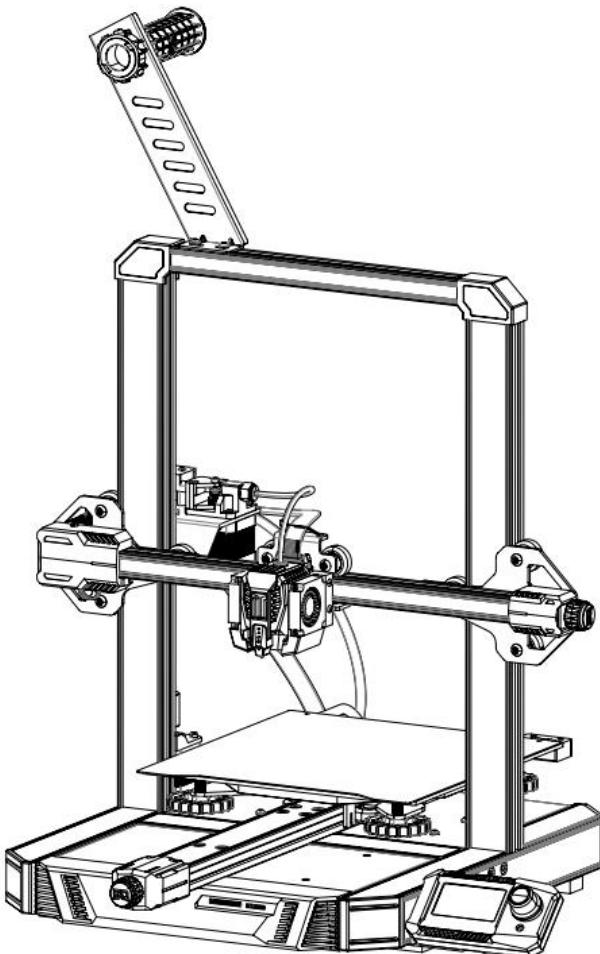


BIQU HURAKAN

User Manual v1.2

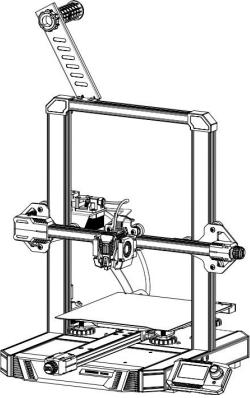
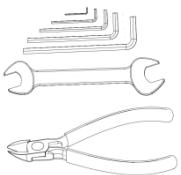
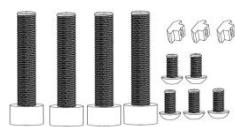
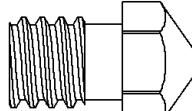


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1. Packing List

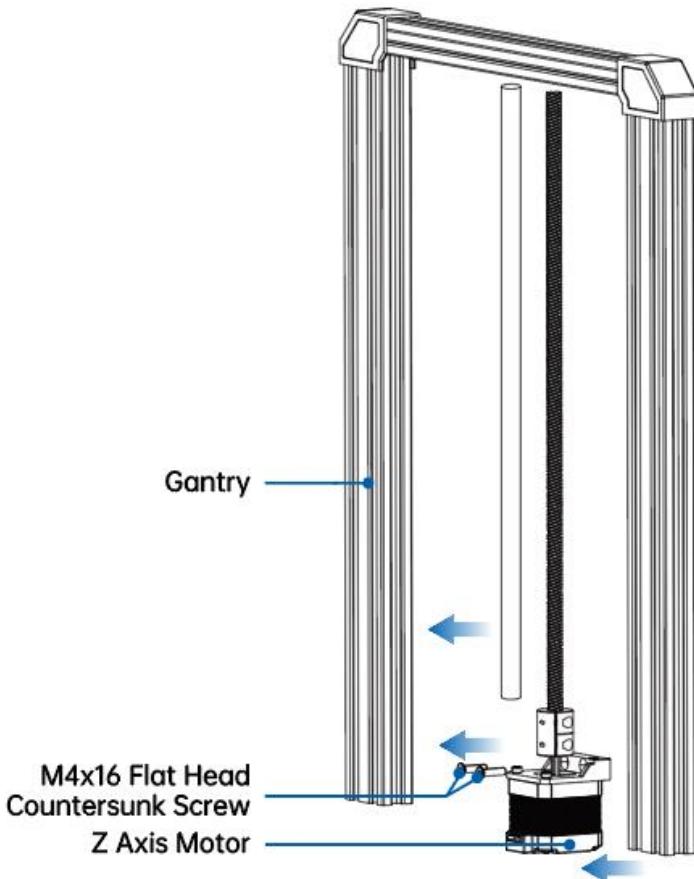
		
BIQU-Hurakan	Tools (1set)	Screw Accessories (1set)
		
Power Cord (1pc)	Filament for Test (50g)	Zip Ties (10pcs)

2. Specifications

Specifications	
3D Printer Name	BIQU-Hurakan
Build Volume	235 x 235 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

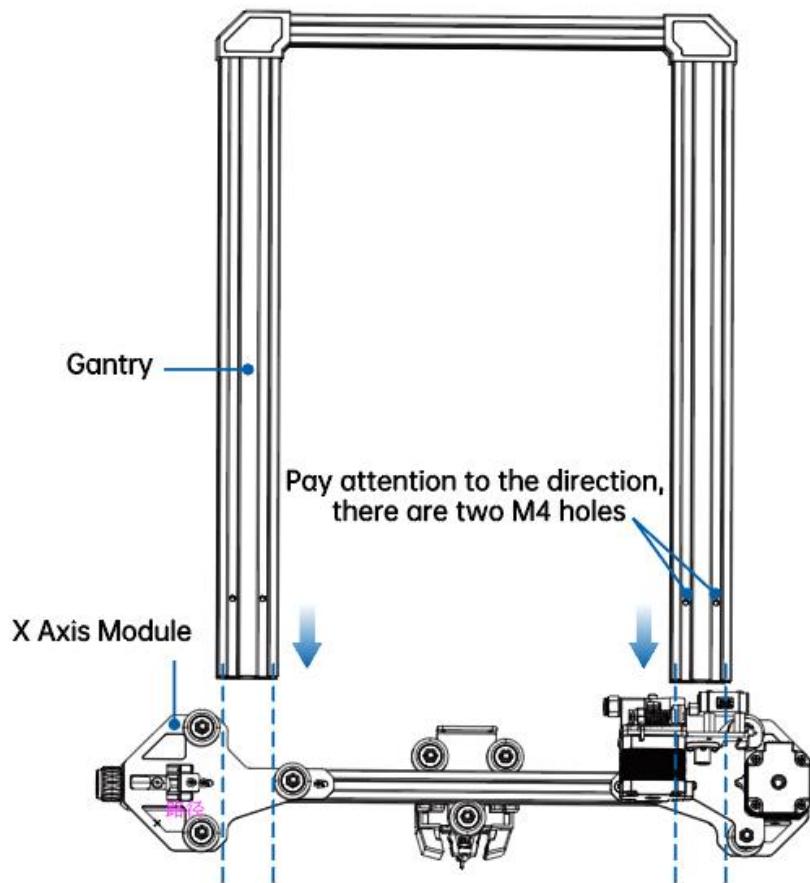
3. Assembly

Step 1: Remove the Z Axis Motor from the Gantry

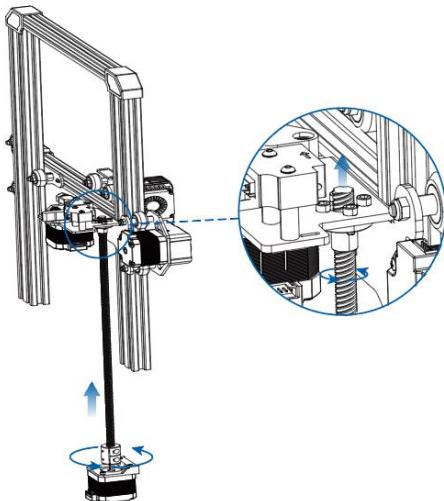


Take out the Z axis motor from the gantry by removing the two M4x16 screws, and then remove the lead screw cover.

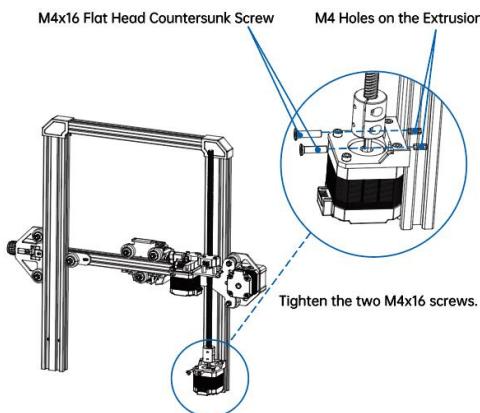
Step 2: Assemble the X Axis Module and Gantry



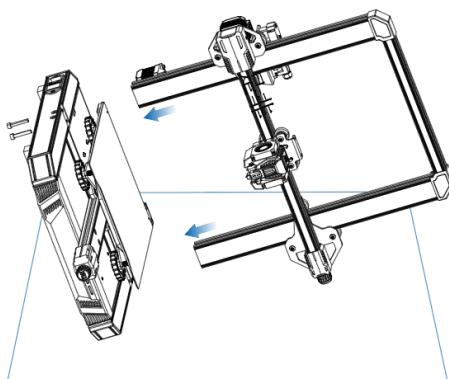
Step 3: Install the Z Axis Motor Back to the Gantry



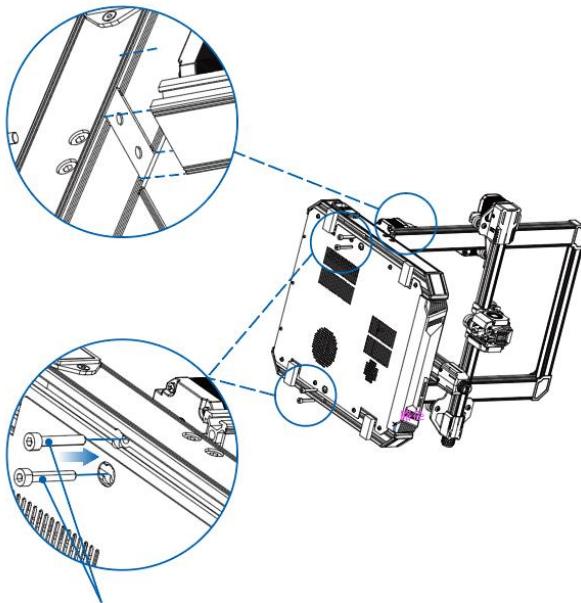
Insert the lead screw into the nut, and rotate the coupling to push the lead screw upward until the Z axis motor fixing holes are aligned with the M4 holes on the gantry.



Step 4: Mount the Gantry on the Machine Base

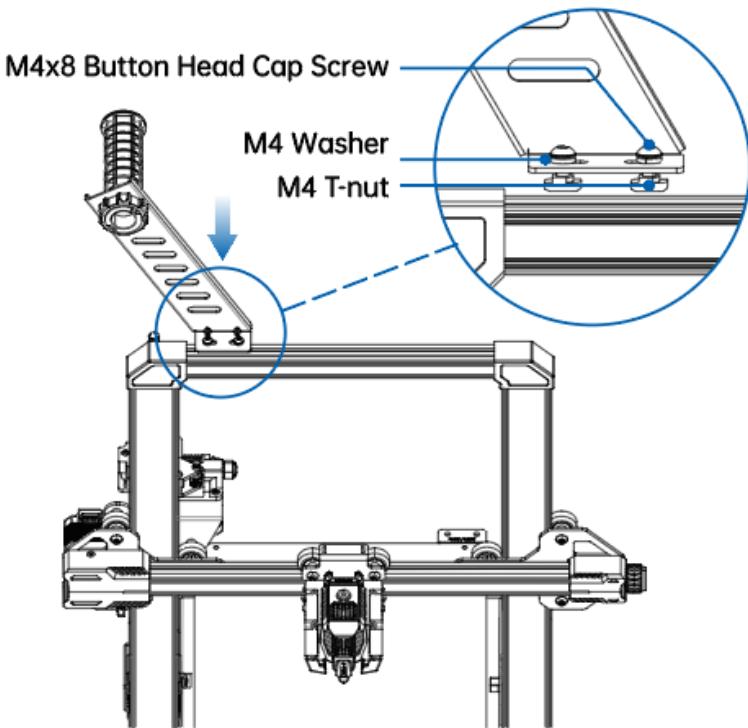


Tilt the machine base for an easy installation of the gantry. Place the gantry in its mounting slot, and tighten the screws.



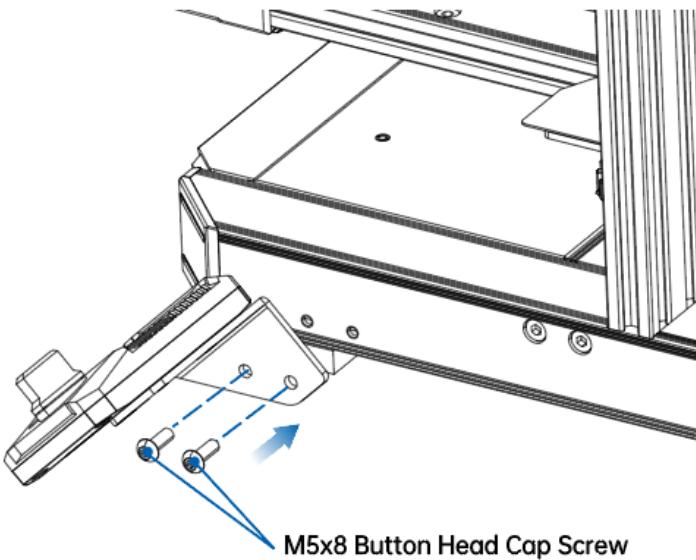
M5x40 Socket Head Cap Screw

Step 5: Install the Filament Bracket

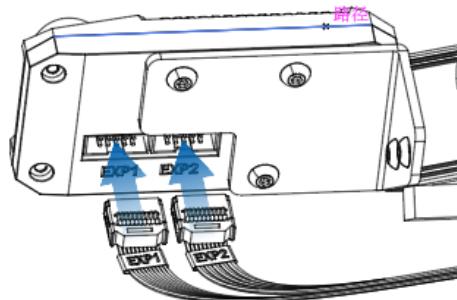


Loosen the T-nut slightly, place the filament bracket in the top slot, and then tighten the screw with a screwdriver. The T-nut will rotate slightly during the tightening process to become stuck in the aluminum extrusion slot to fix the filament bracket.

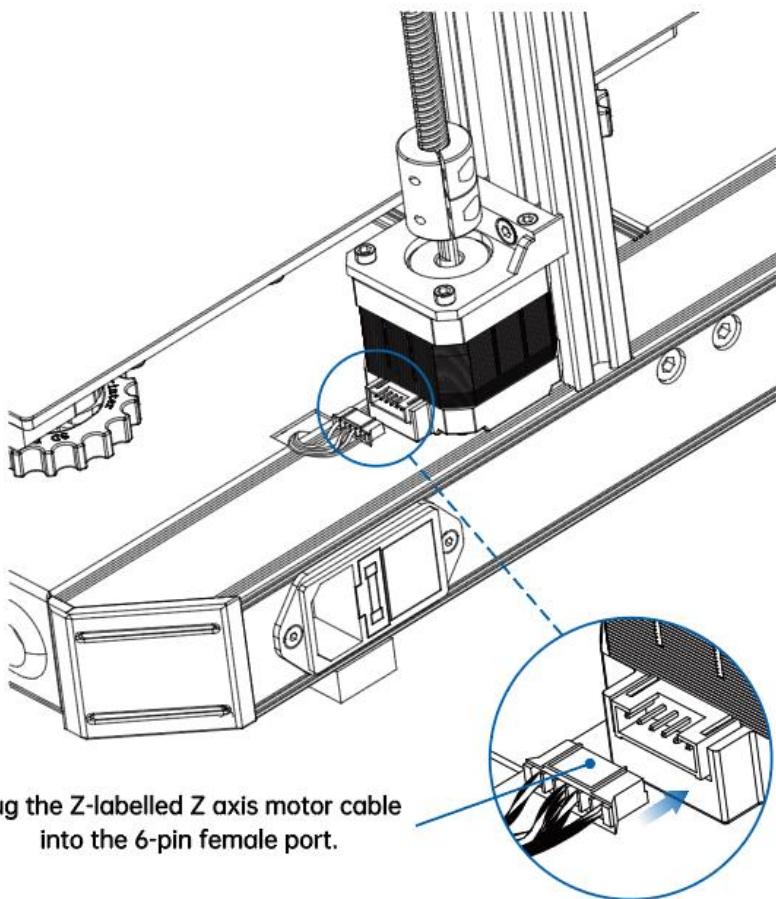
Step 6: Install the Screen



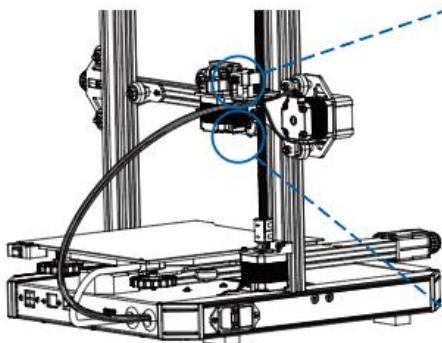
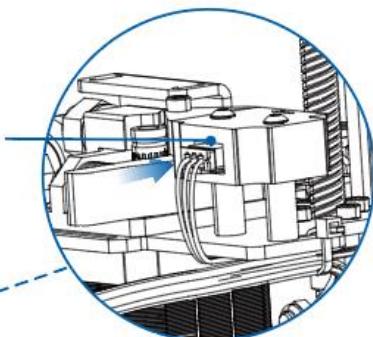
Plug the screen cable into the corresponding port.



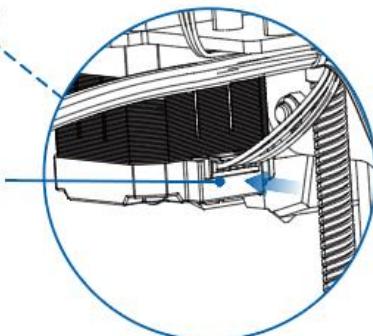
Step 7: Wiring

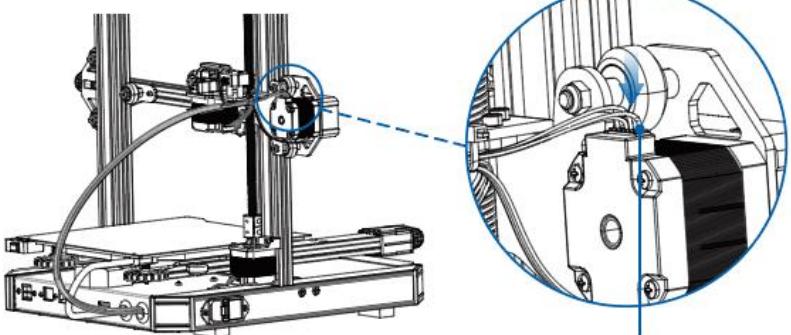


Plug the E-labelled filament runout detection module cable into the 3-pin female port.

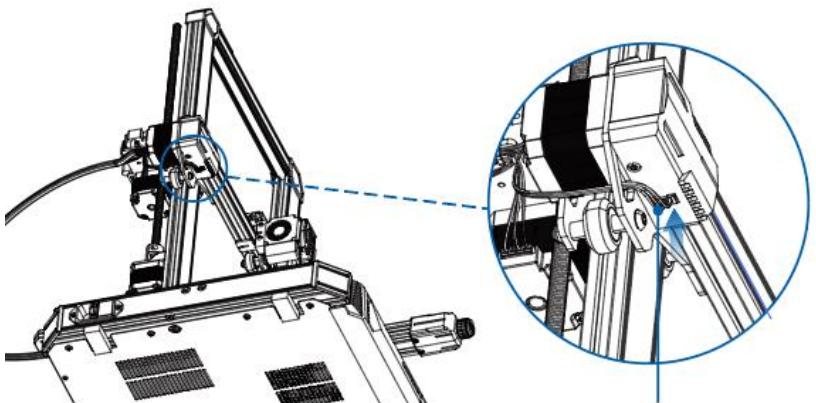


Plug the E-labelled extruder motor cable into the 6-pin female port.

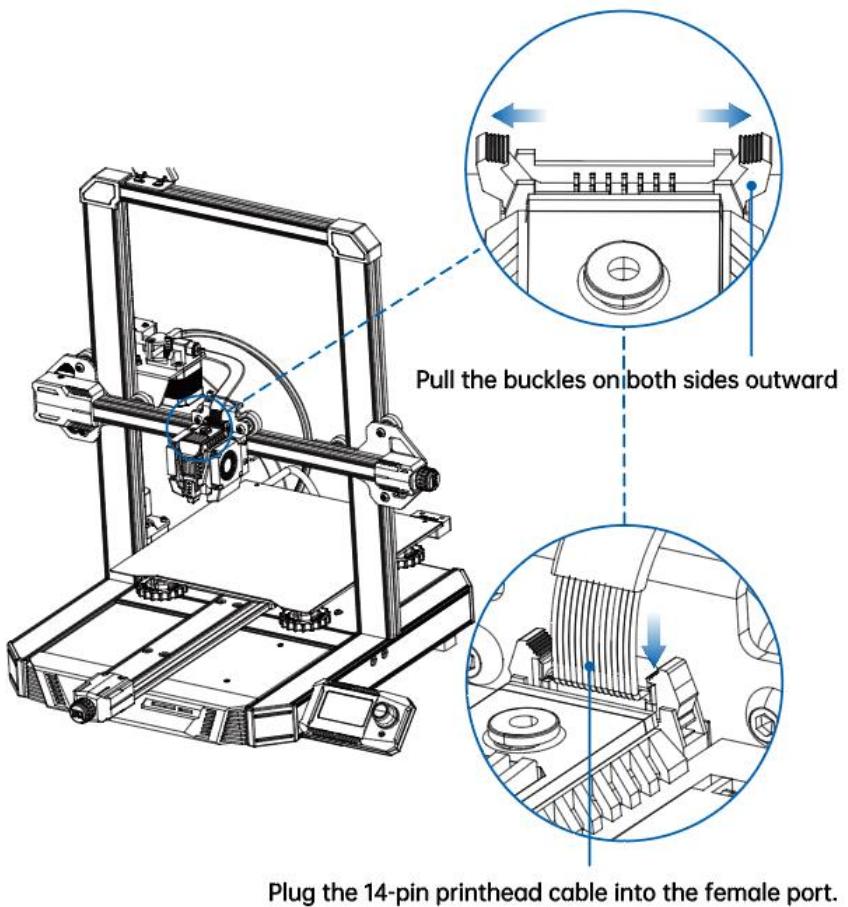




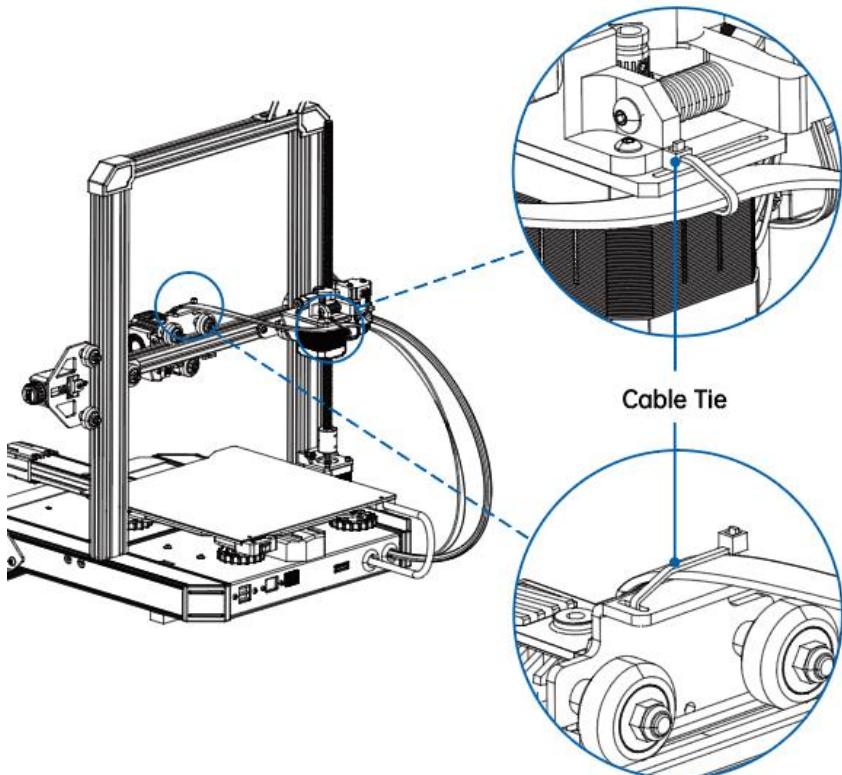
Plug the X-labelled X axis motor cable
into the 6-pin female port.



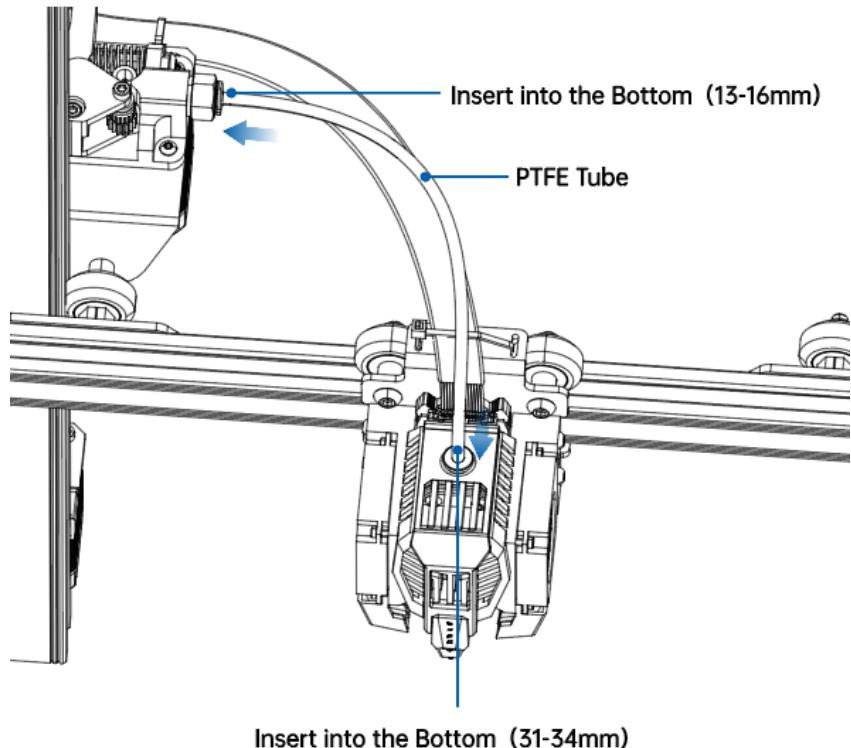
Plug the X-labelled X axis limit switch
cable into the 3-pin female port.



Organize the cables with the cable tie



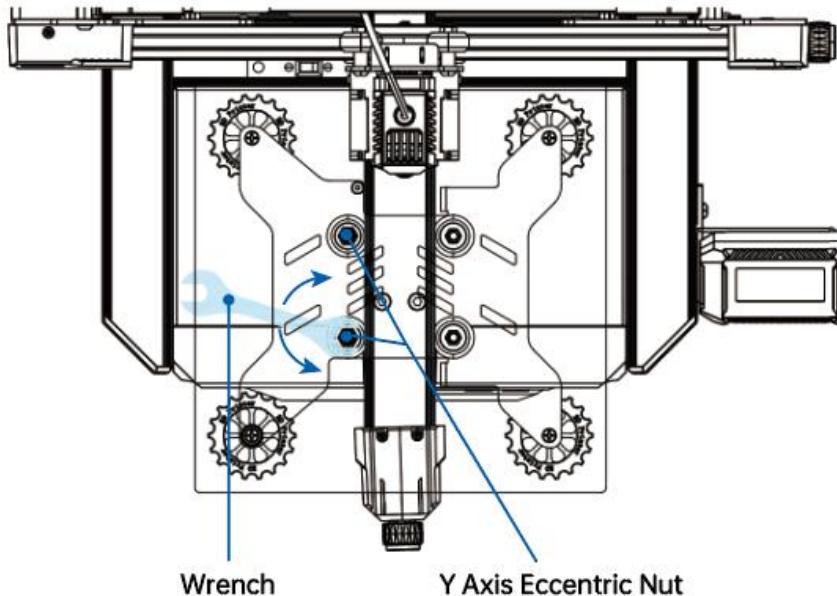
Step 8: Install the PTFE Tube

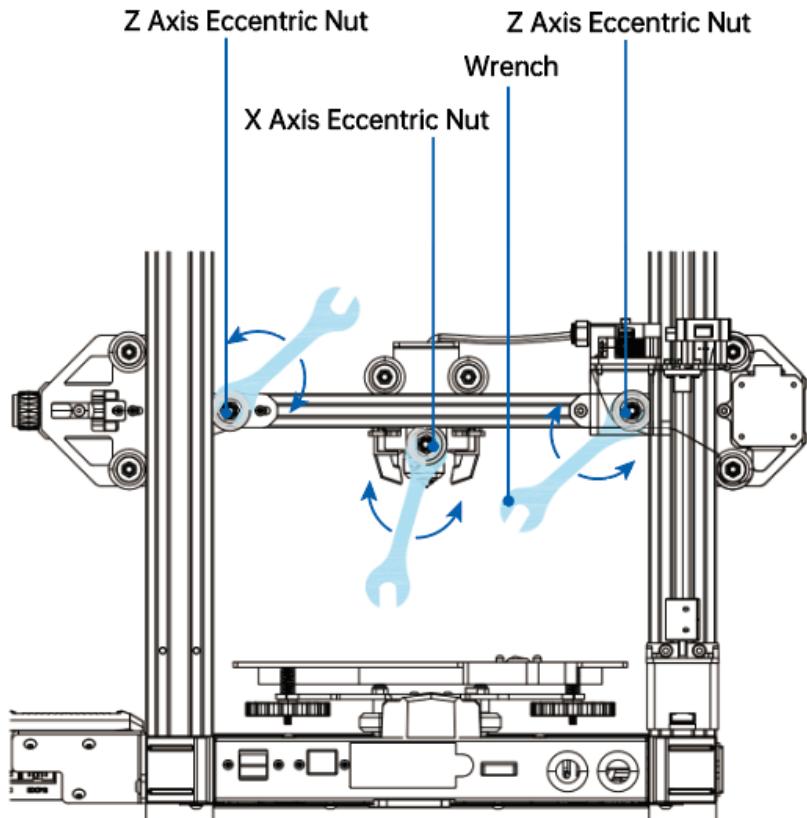


4. Tuning

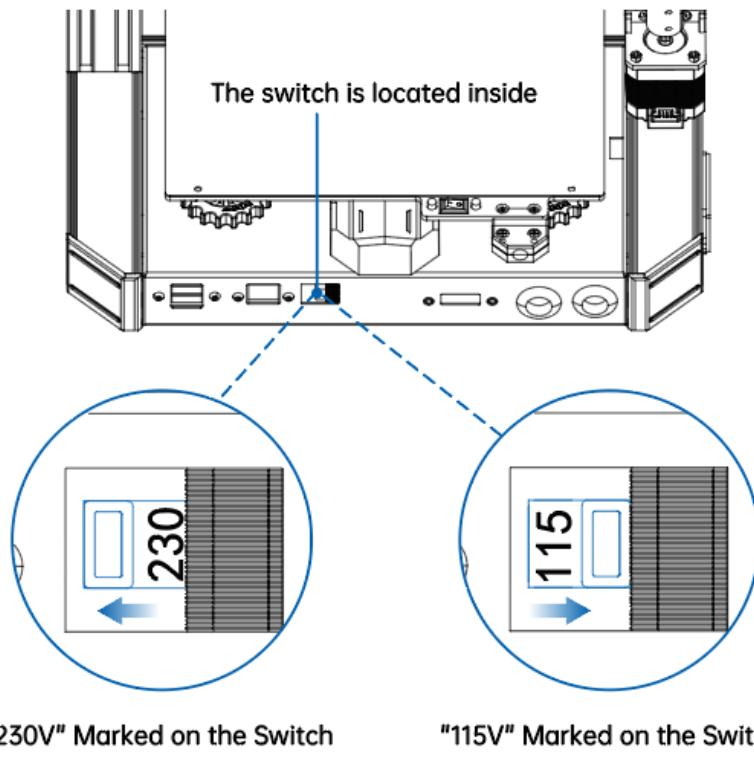
4.1 Adjust the Eccentric Nut

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.



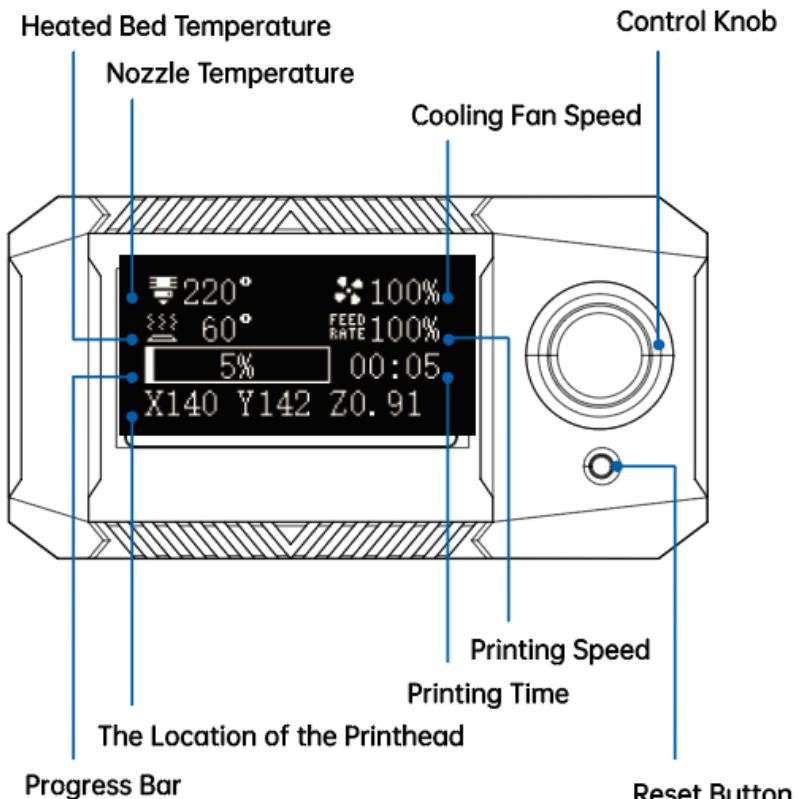


4.2 Check Household Voltage



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.

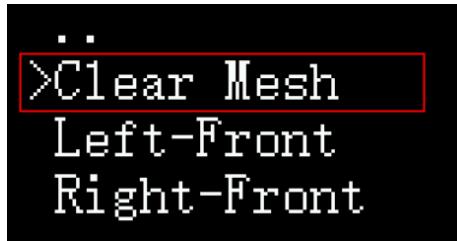
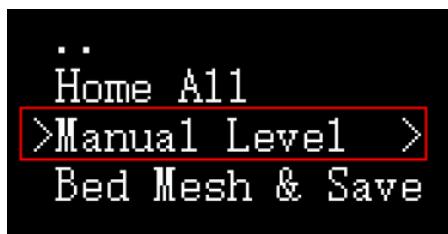
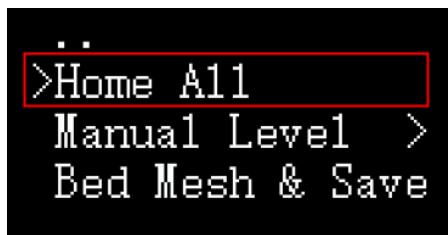
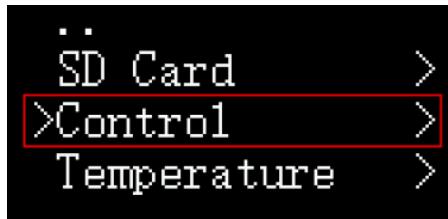
Reset Button: Reset button for the motherboard control system.

4.4 Platform Leveling

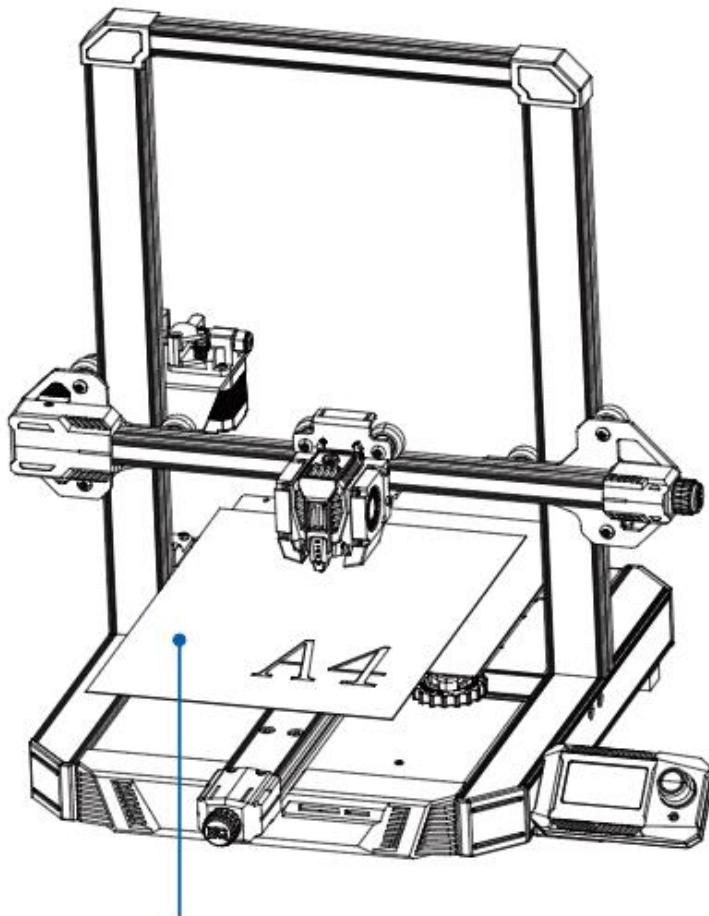
After the assembly of the BIQU-Hurakan is completed, a platform leveling is required.

Tram the print bed with the following procedure:

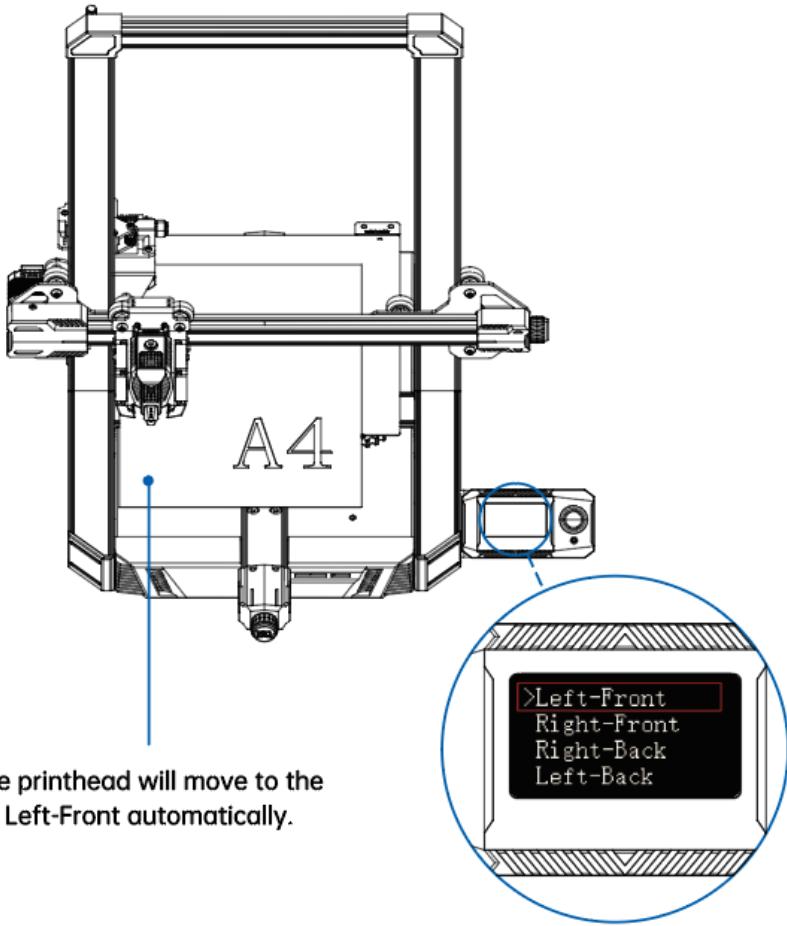
Control → Home All → Manual Level → Clear Mesh



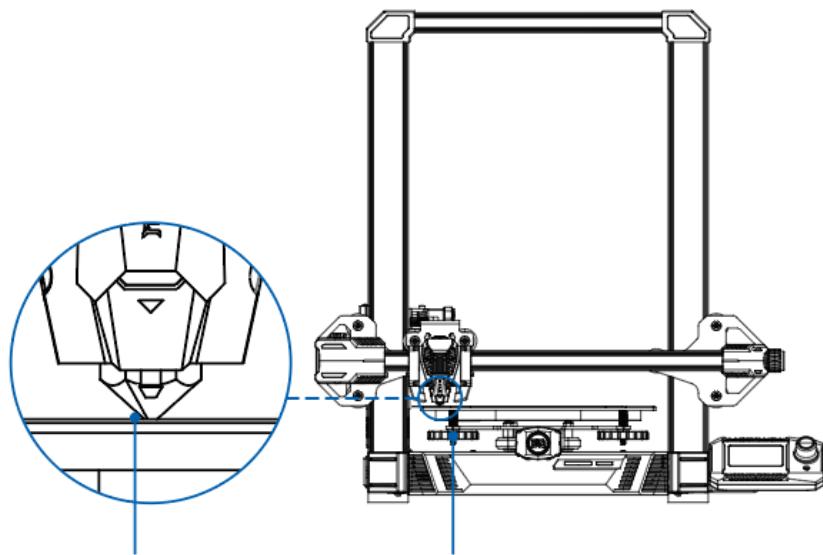
After Clear Mesh, we can start manual leveling, select Left-Front to make the printhead move to the corresponding position, and place a piece of 0.1 mm thick A4 paper between the nozzle and heated bed.



Place a paper within 0.2mm



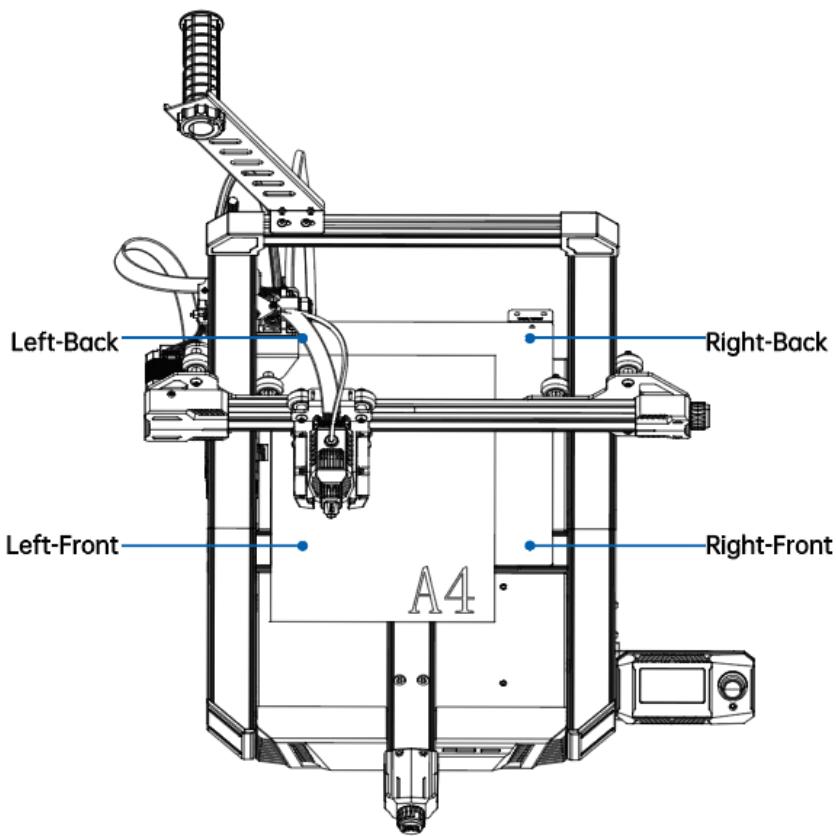
The printhead will move to the
Left-Front automatically.



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.

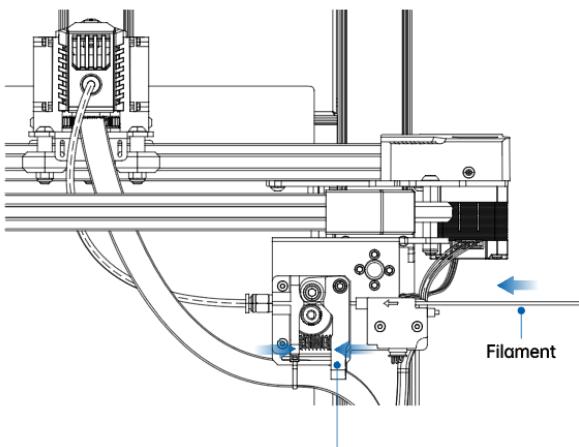
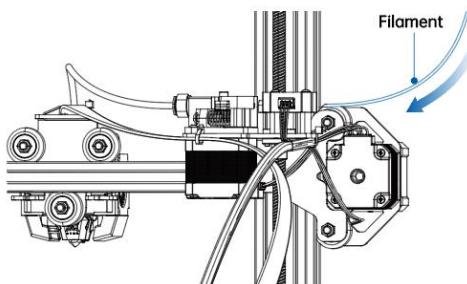
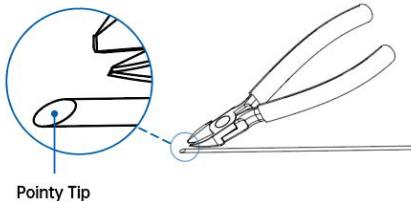
When the thumbscrew is turned clockwise, the bed will rise,
and counterclockwise, the bed will descend.



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

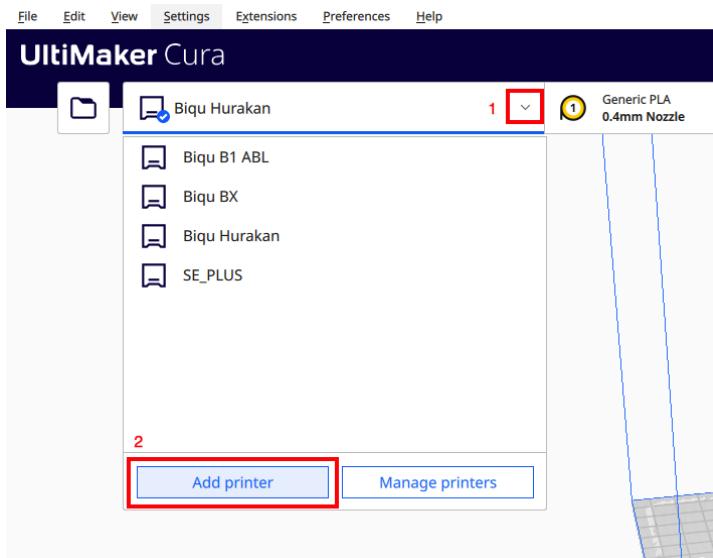
Link: <https://ultimaker.com/software/ultimaker-cura>

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



5.2 Cura Slicer Setting

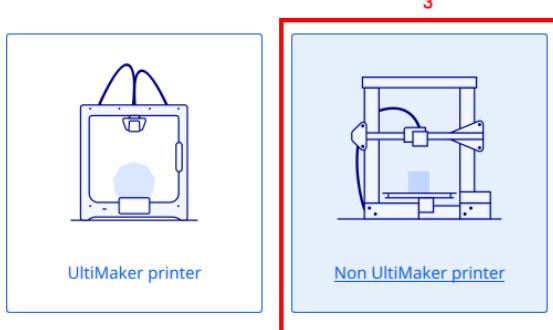
Setup the slicer according to the following steps:



Add printer

In order to start using Cura you will need to configure a printer.

What printer would you like to setup?



Add printer

This screenshot shows the 'Add a networked printer' section of the interface. It includes a dropdown menu, a message indicating no printers were found, and several action buttons. A red box highlights the 'Add a non-networked printer' button, which is labeled with a red number '4' below it.

Add a non-networked printer

- > BeamUp
- > Beeverycreative
- > BFB
- > BIBO
- > **Biqu**
 - Biqu B1
 - Biqu B1 ABL
 - Biqu BX
 - Biqu Hurakan 5
- > Blocks
- > BLV
- >

Biqu Hurakan

Manufacturer: Biqu
Profile author: Luke Harrison
Printer name: Biqu Hurakan

[Add UltiMaker printer via Digital Factory](#)

Add 6

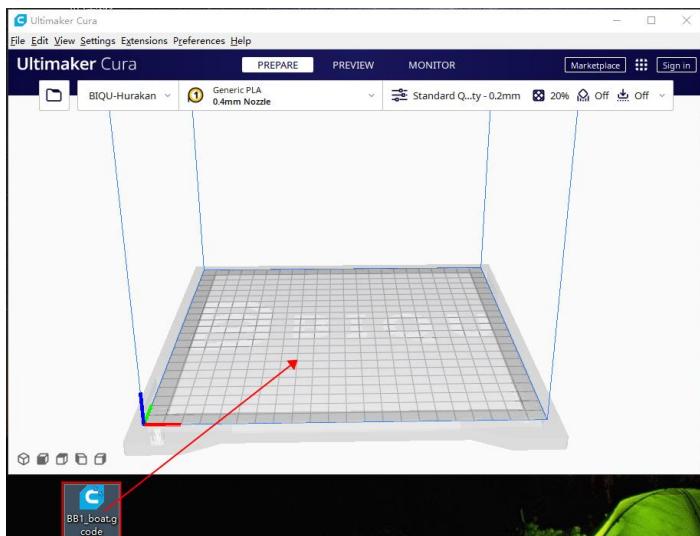
Machine Settings

Biqu Hurakan #3

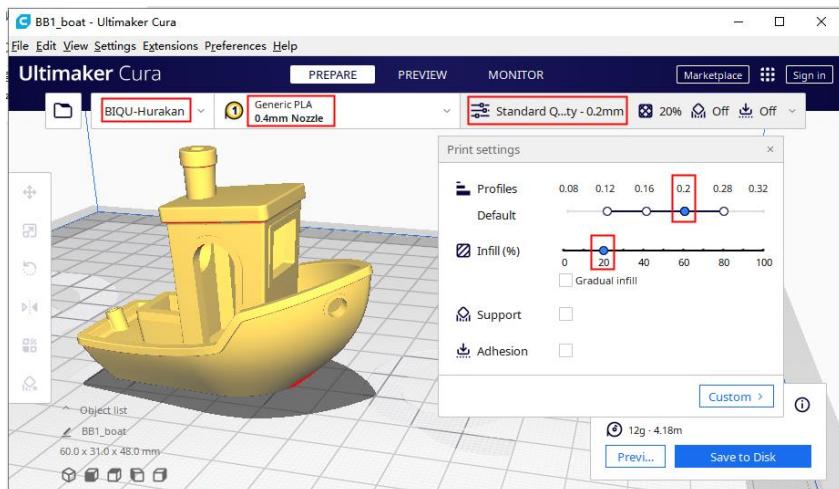
Printer		Extruder 1	
Printer Settings		Printhead Settings	
X (Width)	235.0 mm	X min	-31 mm
Y (Depth)	235.0 mm	Y min	-35.5 mm
Z (Height)	270.0 mm	X max	31 mm
Build plate shape	Rectangular	Y max	25.5 mm
Origin at center	<input type="checkbox"/>	Gantry Height	35.0 mm
Heated bed	<input checked="" type="checkbox"/>	Number of Extruders	1
Heated build volume	<input type="checkbox"/>	Apply Extruder offsets to GCode	<input checked="" type="checkbox"/>
G-code flavor	Marlin		
Start G-code		End G-code	
;BIQU Hurakan start code. Much complex. Very wow. Klipper!		;BIQU Hurakan end code. More complex. Such wow. Klipper!	
START DONTBED TEMP=190;extruder1 bed temperature 190°C		END DONTBED	

Next 7

5.3 Cura Slicing

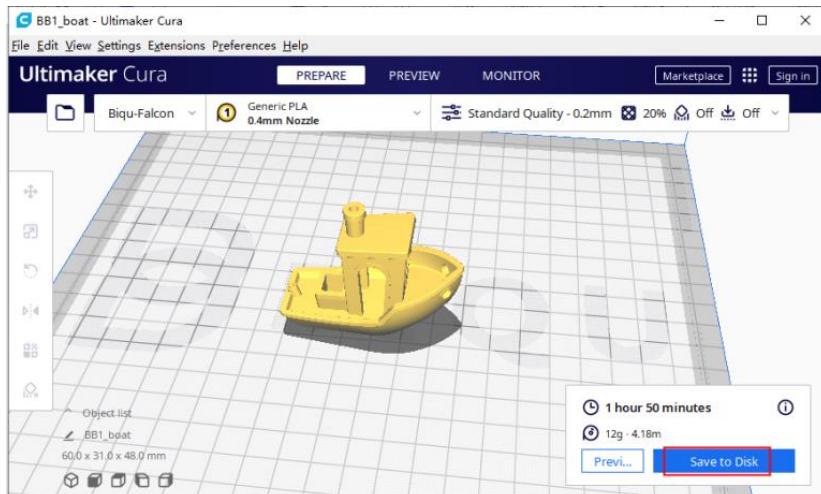
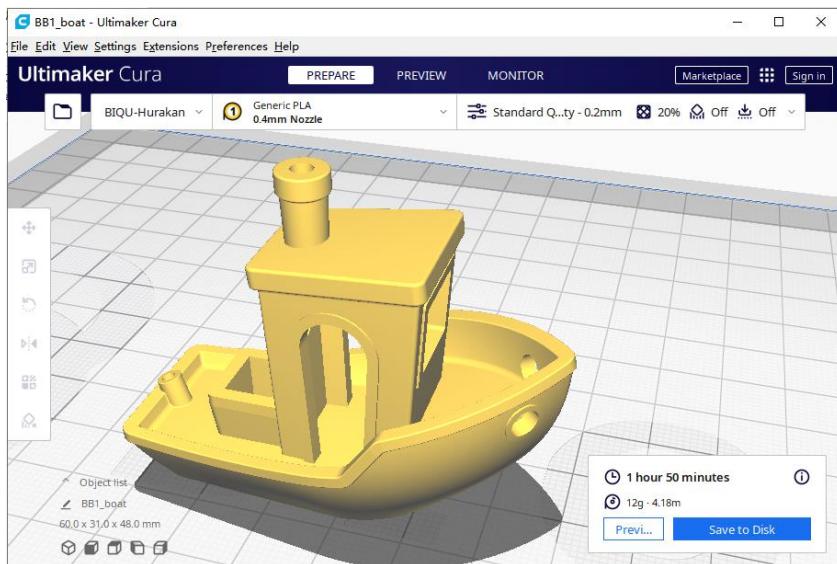


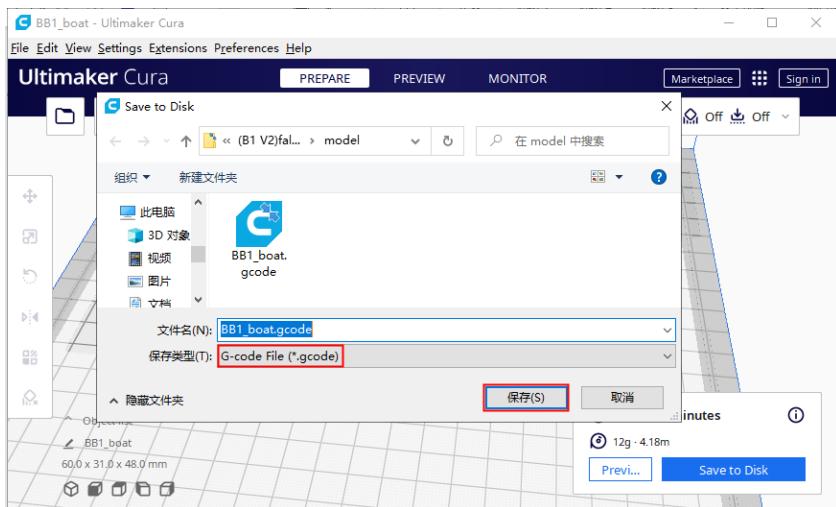
Drag and drop the model file you want to print into Cura:



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.

BOOT (M:)

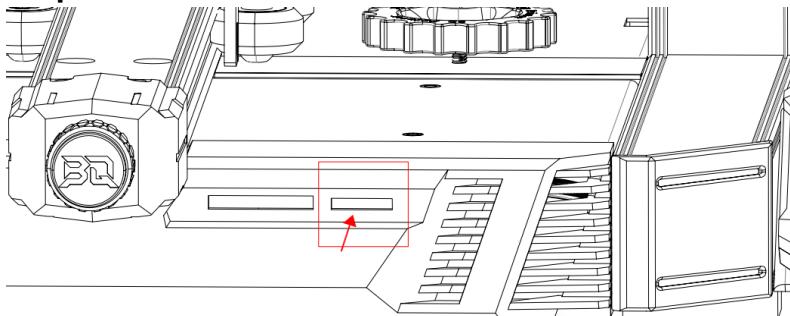
名称	修改日期	类型	大小
dtb	2023/7/12 3:29	文件夹	
dtb-5.16.17-sun50iw9	2023/7/12 3:29	文件夹	
gcode	2023/7/12 3:26	文件夹	
scripts	2023/7/12 3:27	文件夹	

Transfer the gcode into the gcode folder:

> U 盘 (I:) > gcode



Step 2

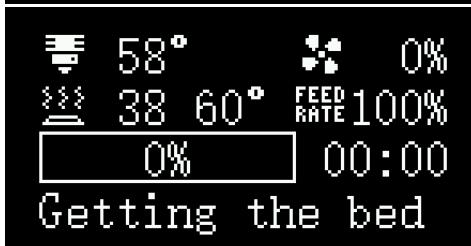
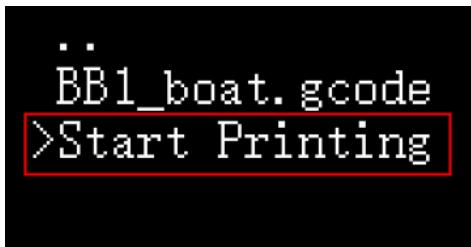
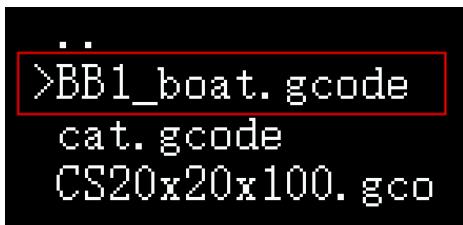
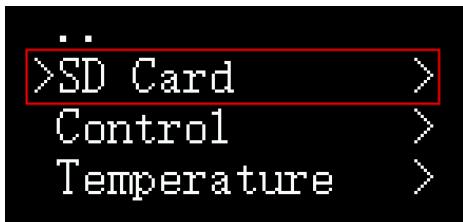


Insert the microSD and power the printer on again.

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:

BOOT (M:) >				
名称	修改日期	类型	大小	
Image	2023/7/12 3:07	文件	20,643 KB	
initrd.img-5.16.17-sun50iw9	2023/7/12 3:41	17-SUN50IW9 ...	9,038 KB	
system.cfg	2023/7/12 3:26	CFG 文件	2 KB	
System.map-5.16.17-sun50iw9	2023/7/12 3:07	17-SUN50IW9 ...	4,243 KB	

Set up the WiFi ssid and password:



```
M: > system.cfg
21 ######
22 # wifi name
23 WIFI_SSID='WIFI name'
24 # wifi password
25 WIFI_PASSWD='WIFI password'
```

WIFI_SSID="WIFI name"

WIFI_PASSWD="WIFI password"

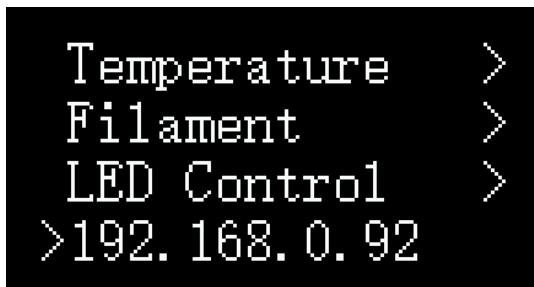
Save the file.

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

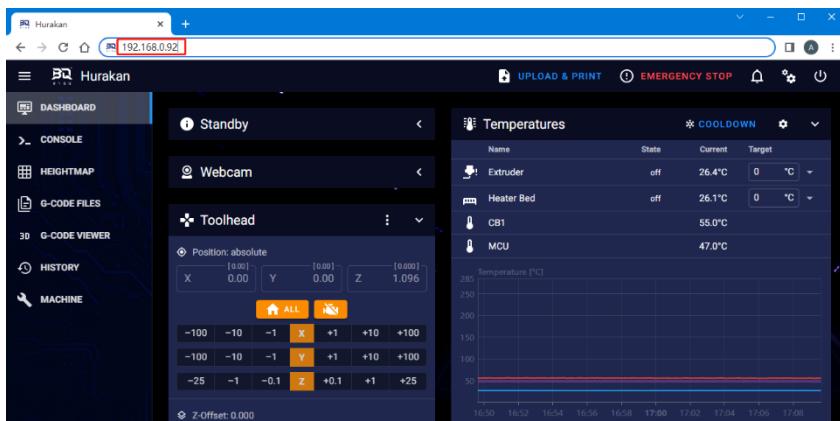
Step 2

Insert the microSD card back and power on the machine.

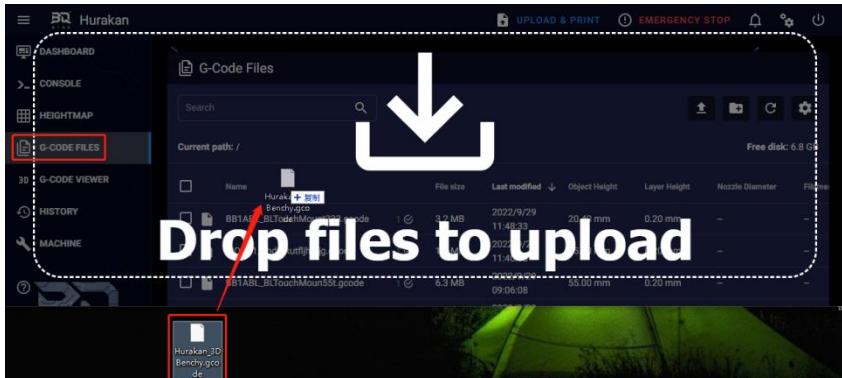
Click the rotary knob and scroll to the bottom to check the IP address:



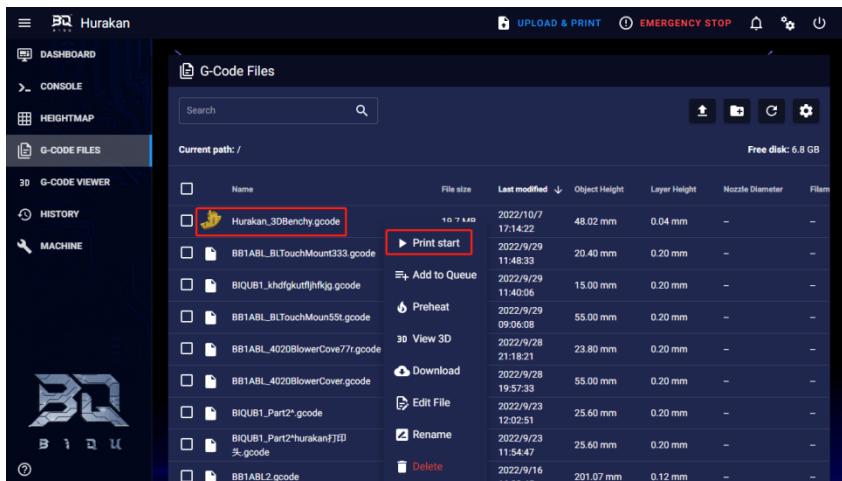
Enter the IP address in your browser: 192.168.0.92:

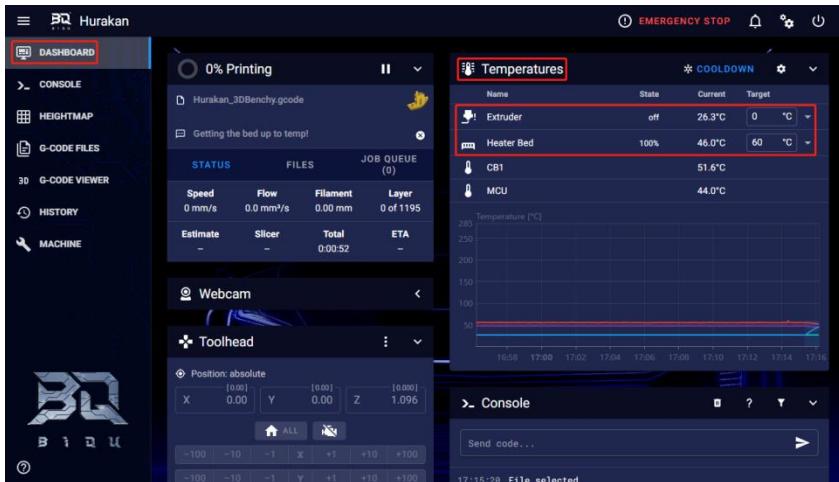


Upload the gcode file:



Select the file and click print start:

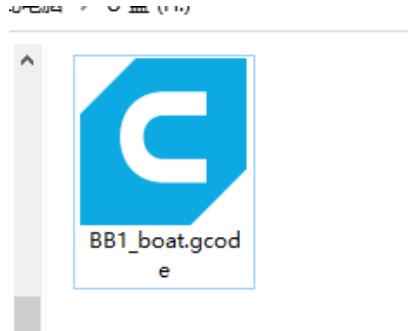




The print will start after the components reached the printing temperature.

6.3 Print via a USB Drive

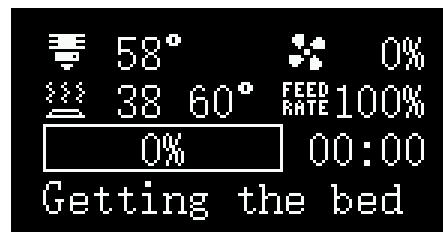
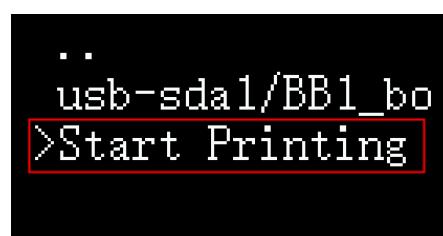
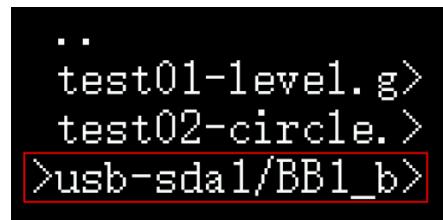
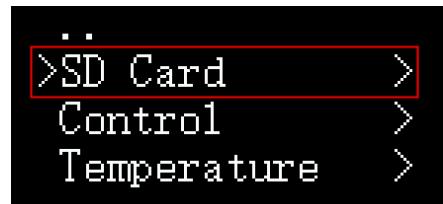
Transfer the gcode file into the USB Drive folder:



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

```
Filament      >
>Setup        >
LED Control   >
192.168.1.109
```

```
Save config
Restart       >
PID tuning    >
>Calibration >
```

```
..
>Start probing
Move Z: 0.00
Test Z        >
```

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

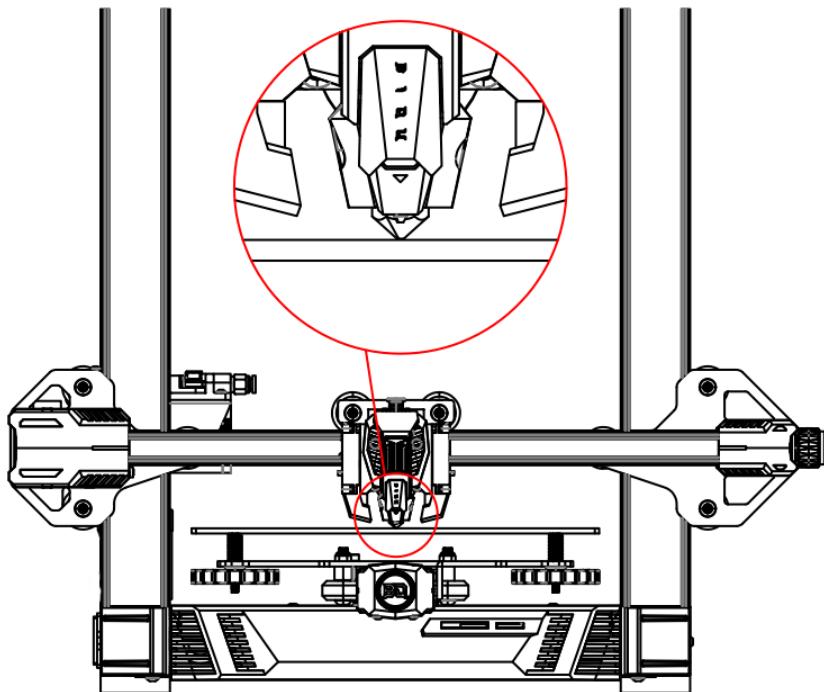
Make sure the distance between the bed and the nozzle is between 0 and 0.1mm.

```
..  
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.

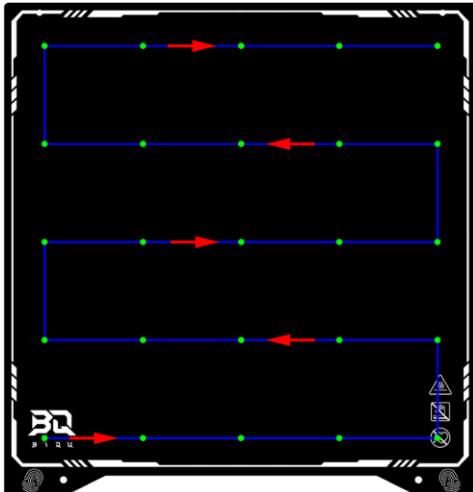
7.2 Auto Leveling

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

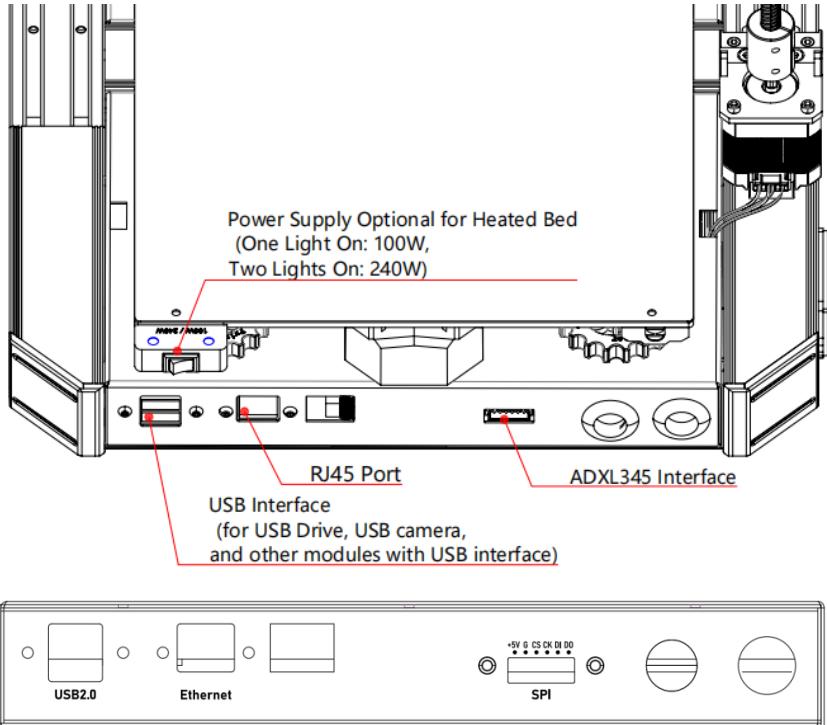
MACHINE

Help

Miscellaneous

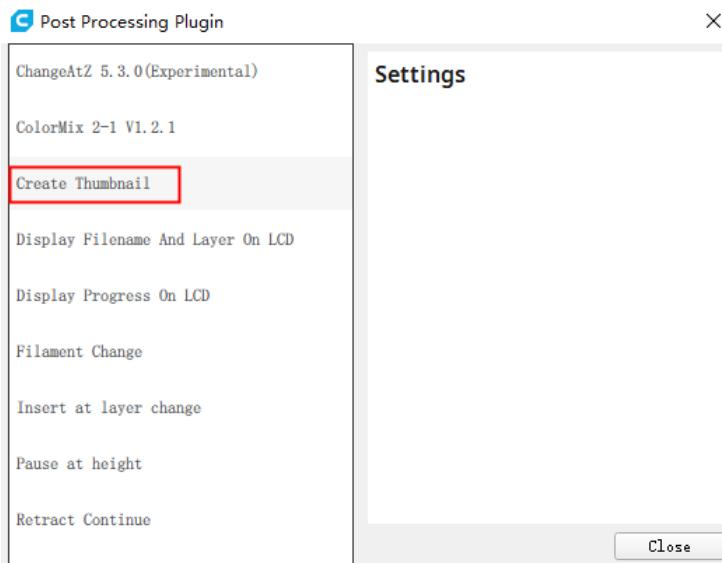
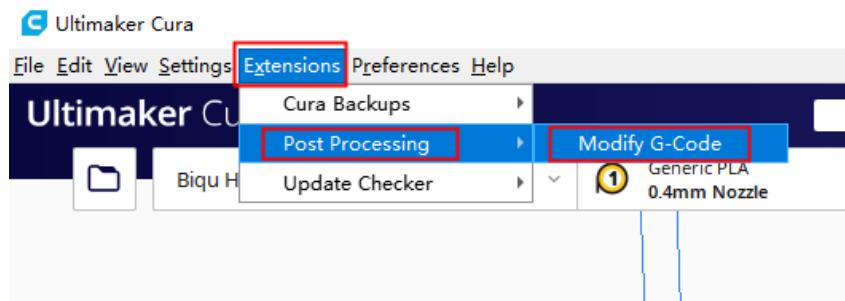
- Fan 0 %
- Beeper 0 %
- Probe Enable
- Case Fan 0 %
- Nozzle Cooling Fan 0 %
- Extruder Filament Sensor Empty

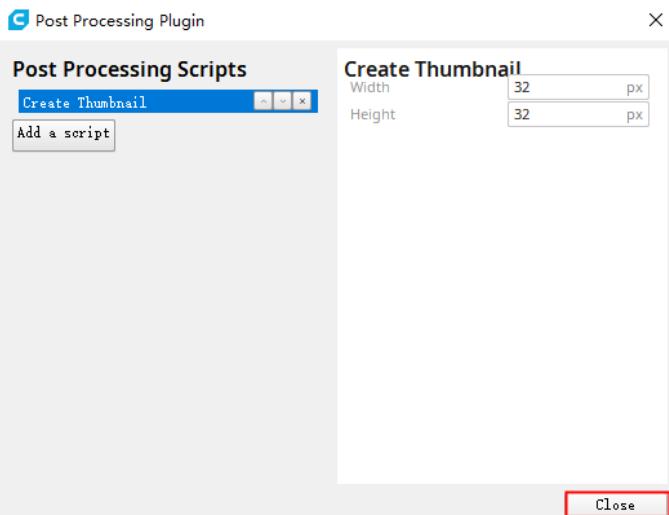
7.4 For Expansion Module



7.5 Display Model Thumbnail

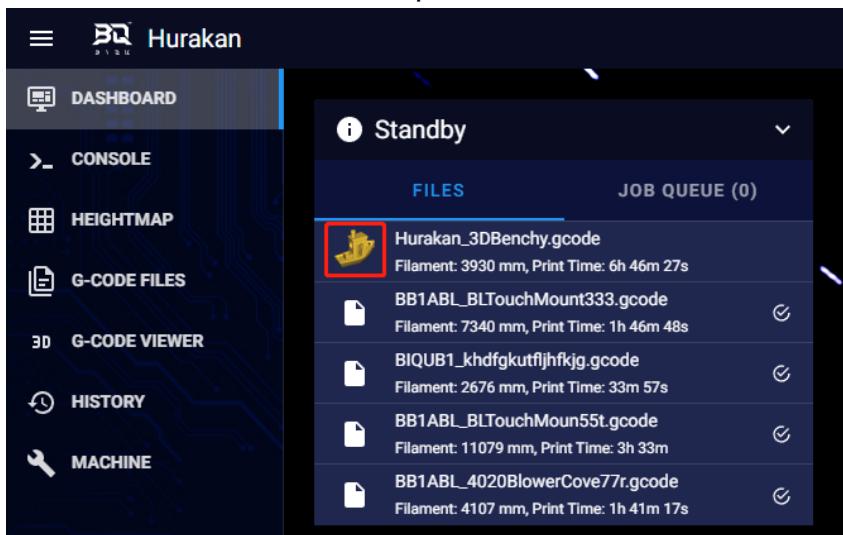
Open CURA, then Extensions---Post Processing---Modify G-Code---Create Thumbnail





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

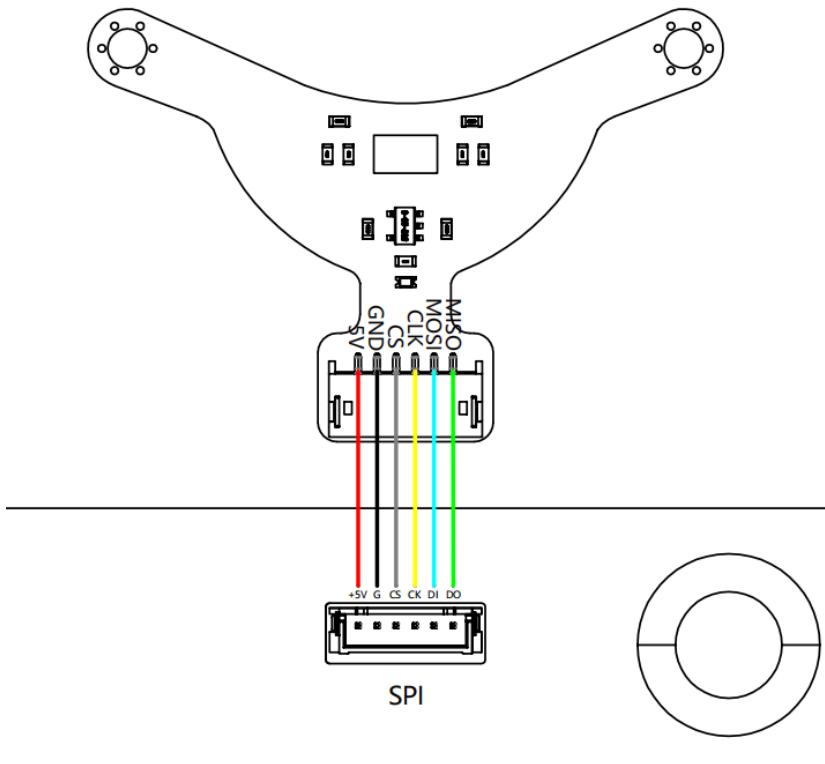
Then use Cura to slice and upload to the web.



7.6 ADXL345 Input Shaping Calibration

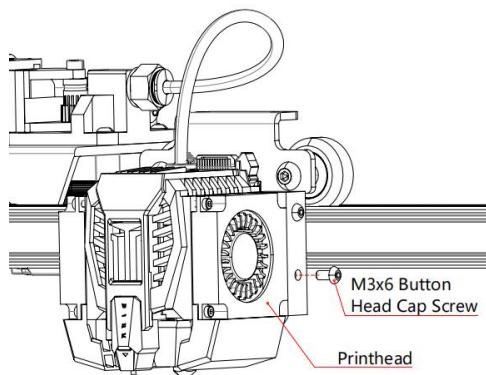
Before performing any input shaping measurements please ensure that your belts are tightened and that you do not already have any input shapers active in your printer config.

Diagram:

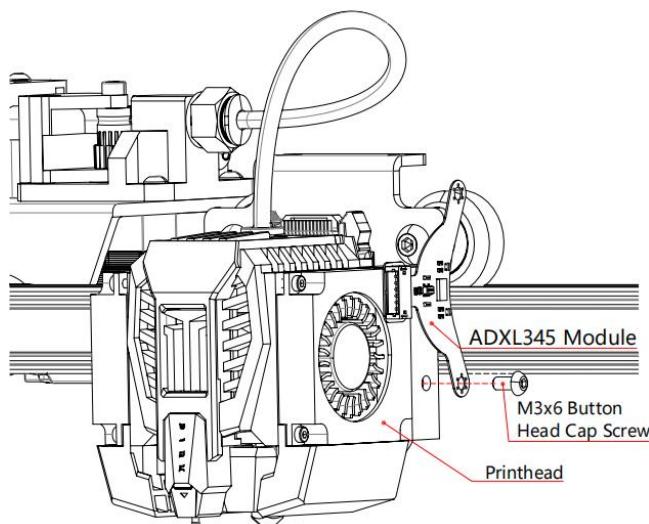


7.6.1 Install on X Axis Printhead

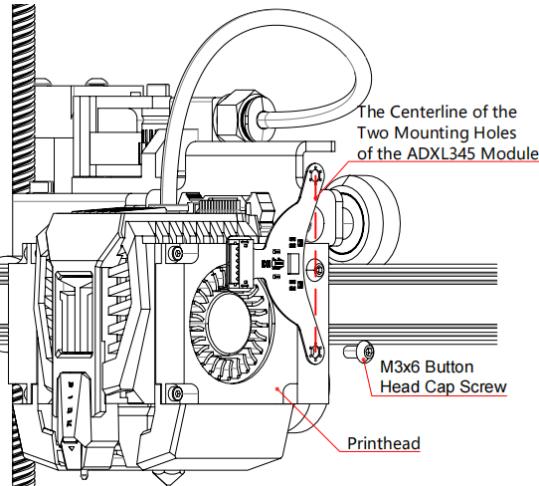
Loosen the M3x6 screw securing the lower right corner of the printhead.



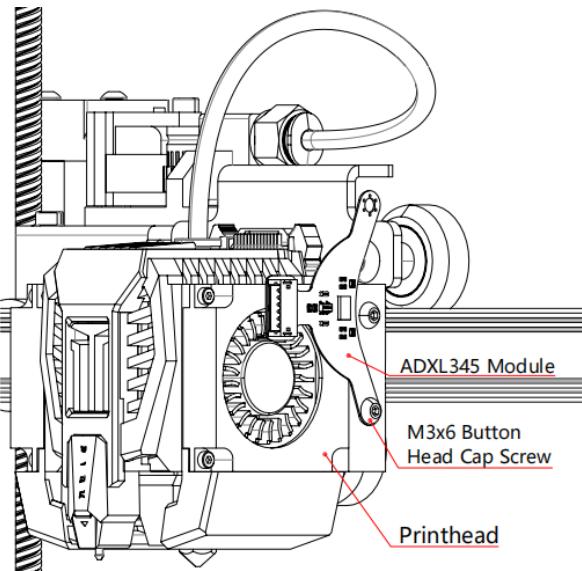
Install the ADXL345 module to the printhead with the M3x6 screw by fixing its lower mounting hole to the hole where the screw was removed. The M3 x 6 screw should not be tightened yet.



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

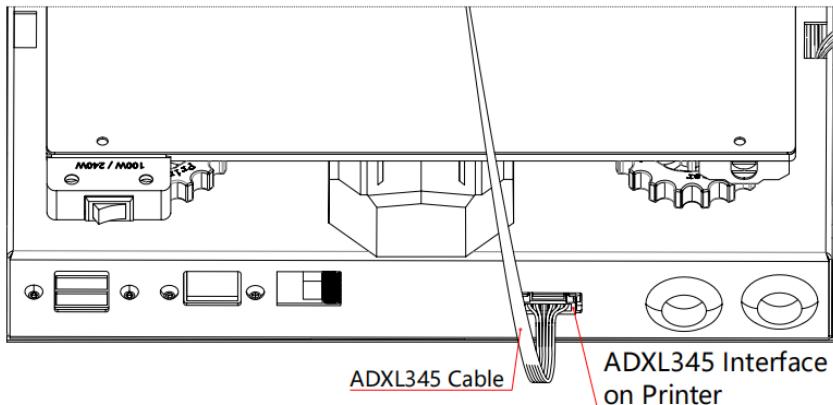
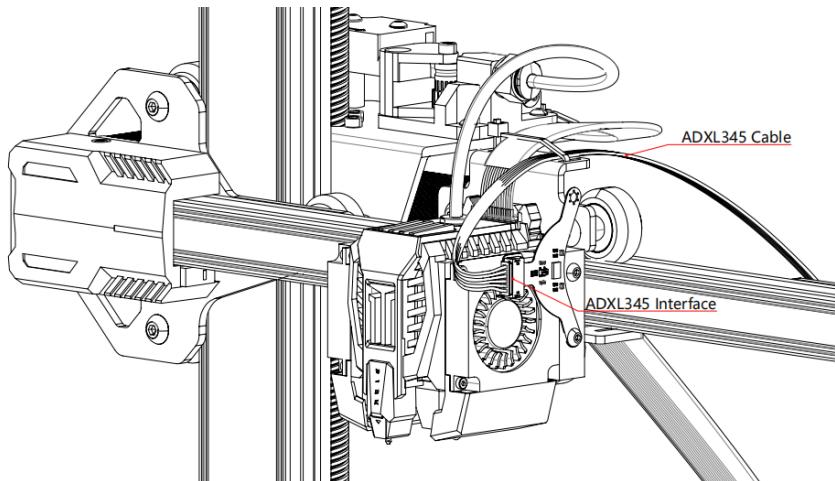


Adjust the position and tighten the M3x6 screw.



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.

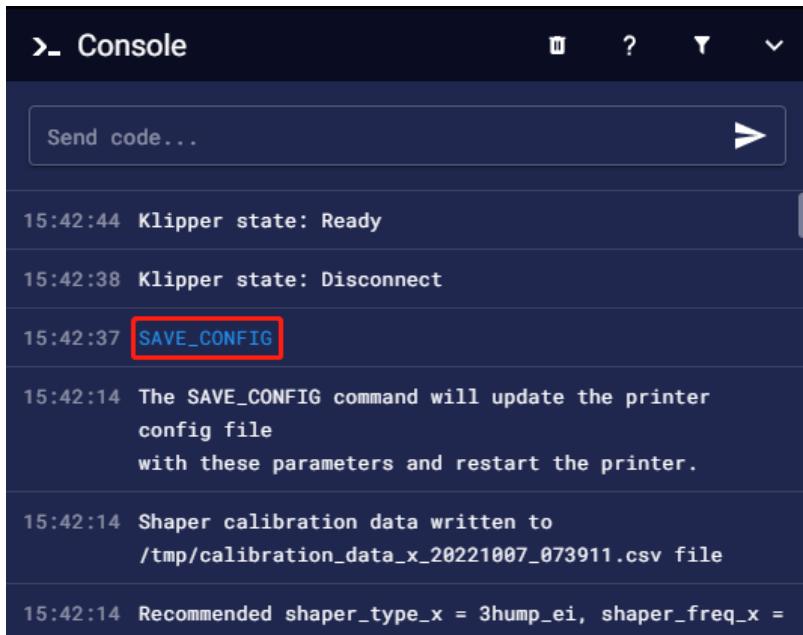
Enter the X axis calibration command at the command line:

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... ➤

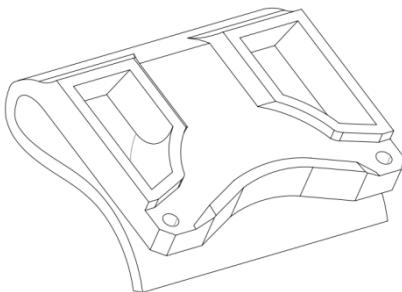
15:42:44 Klipper state: Ready
15:42:38 Klipper state: Disconnect
15:42:37 SAVE_CONFIG
15:42:14 The SAVE_CONFIG command will update the printer config file with these parameters and restart the printer.
15:42:14 Shaper calibration data written to /tmp/calibration_data_x_20221007_073911.csv file
15:42:14 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)

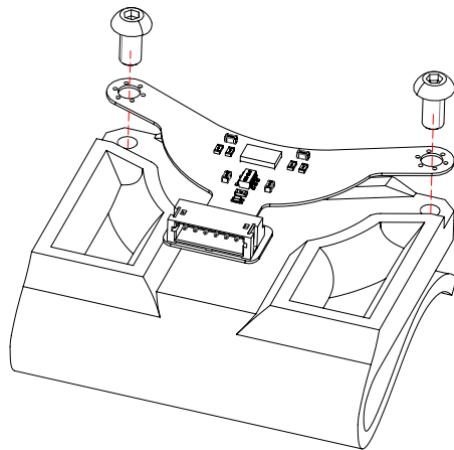
A printed part and two M3x5 screws should be prepared first, and the printed part download link is as follows:

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



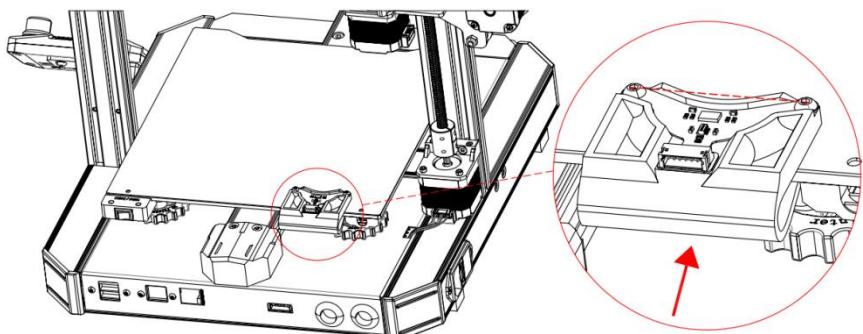
Heated Bed ADXL345 Holder

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



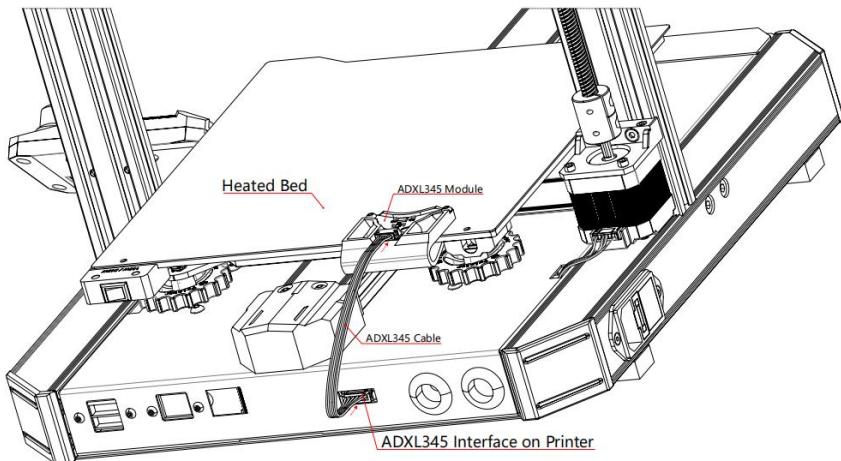
Attach the Heated Bed ADXL345 Holder to the heated bed's left rear corner.

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. Restore SD Image

It may happen that the SD card becomes corrupted through handling it during machine operation. If this happens, you have the choice to restore back to a mainline klipper image or to restore to the BIQU Hurakan branch which offers some of the features shown in this manual.

To restore to the mainline (not hurakan) klipper image, follow the steps below:

- 1.) Download the latest CB1 minimal image from:
<https://github.com/bigtreeTech/CB1/releases>
- 2.) Use the raspberry pi imaging tool
(<https://www.raspberrypi.com/software/>) to write the image to your SD card (this will involve erasing the card).
 - a. Note that you will need to scroll down and select “Use custom” and then point the tool to the CB1 image.
- 3.) Follow the steps mentioned earlier in this manual to connect the CB1 to your WiFi or ethernet network so that you can gain SSH access.
- 4.) Once the CB1 is on the WiFi network, you will not be able to see the IP on the LCD since it is not the BTT klipper branch. To find the IP of the printer we suggest using a tool such as “Advanced IP scanner” on windows or “Angry IP scanner” on mac. These tools will display a list of IP addresses that can be seen on your network which the CB1 would be a part of. Alternately, each CB1 is configured to be

accessible on BTT-CB1.local so you can simply ping that address and the IP of the Hurakan should be displayed in the results.

- 5.) Once you have the IP address of the Hurakan, you will need to SSH into it. You can use the SSH command line on linux or macos or PuTTY on windows. The default username and password are both “biqu”.
- 6.) Once you are connected via SSH, install and run KIAUH using the instructions provided here: <https://github.com/th33xitus/kiauh>
- 7.) Use KIAUH to install klipper, moonraker and mainsail.
 - a. Note: Use python 3 and only install one instance of klipper.
 - b. Do not install the mainsail macros when it asks.
- 8.) Install the linux MCU following the steps at this link. Stop when you reach the “Remaining configuration” section.
https://www.klipper3d.org/RPi_microcontroller.html#install-the-rc-script
- 9.) Grab the latest Hurakan configs from: <https://github.com/bigtreeTech/BIQU-Hurakan/tree/main/firmware/klipper-config>. Note that you may find it easy to use a tool like downgit to download these files together (<https://minhaskamal.github.io/DownGit/#/home>).
- 10.) Drag the relevant configs into your config folder (found under the machine tab in the webUI) using

the mainsail web interface (now accessible via a browser on BTT-CB1.local). You will need to manually create a directory named “Hurakan” within the root config directory since mainsail will not allow you to drag and drop a directory into the root. Note that there is no need to copy all of the config files. The following are the default ones:

- a. printer.cfg
- b. moonraker.conf
- c. print_area_bed_mesh.cfg
- d. Hurakan/Adxl.cfg
- e. Hurakan/Hurakan.cfg
- f. Hurakan/Display.cfg
- g. Hurakan/Macros.cfg
- h. Hurakan/Manta_M4P.cfg
- i. Hurakan/Probe.cfg
- j. Hurakan/Steppers.cfg
- k. Hurakan/TMC2209.cfg

- 11.) Return to the mainsail dashboard and restart the firmware and the host.
- 12.) At this point, your machine may be ready to use. If Klipper is reporting an error the continue with the next steps.
- 13.) It may be the case that the latest version of klipper requires an update to the code on the motherboard processor. Follow the steps below to update this code:
 - a. SSH into the hurakan using the same method you used earlier and then issue the following commands:

- b. `cd ~/klipper/`
- c. `make menuconfig`
- d. Press escape after configuring the menu as shown below and then press 'Y' to save.

```
(Top)

[*] Enable extra low-level configuration options
    Micro-controller Architecture (STMicroelectronics STM32)  --->
    Processor model (STM32G0B1)  --->
    Bootloader offset (8KiB bootloader)  --->
    Clock Reference (8 MHz crystal)  --->
    Communication interface (USB (on PA11/PA12))  --->
    USB ids  --->
() GPIO pins to set at micro-controller startup
```

- e. `make`
- f. `ls /dev/serial/by-id/*`
- g. Take note of the device that is reported and copy the string. It should look something like:
`/dev/serial/by-id/usb-Klipper_stm32g0b1xx_1`
`A004F000D50415833323520-if00`
- h. `sudo service klipper stop`
- i. `make flash`
`FLASH_DEVICE=/dev/serial/by-id/usb-1`
`a86_USB2.0-Serial-if00-port0`
- j. Replace the highlighted portion above with the string that you copied earlier. Ignore the dfu-util error that may occur.
- k. `sudo service klipper start`
- l. Copy the same string that you used above into the printer.cfg file under the "[mcu]" heading using the mainsail webUI.

```
[mcu]
serial: /dev/serial/by-id/usb-Klipper_stm32g0b1xx_1A004F000D50415833323520-if00
```

To restore to the BIQU Hurakan specific (not mainline) klipper image, follow the steps below:

1.) First follow steps 1.) to 6.) above but do not run KIAUH after installing it.

2.) Enter the KIAUH folder by typing:

a. `cd kiauh`

3.) Edit the klipper repo file so that it matches the image below by typing:

a. `sudo nano klipper_repos.txt.example`

```
GNU nano 5.4
# This file acts as an example file.
#
# 1) Make a copy of this file and rename it to 'klipper_repos.txt'
# 2) Add your custom Klipper repository to the bottom of that copy
# 3) Save the file
#
# Back in KIAUH you can now go into -> [Settings] and use action '2' to set a different Klipper repository
#
# Make sure to always separate the repository and the branch with a ','.
# <repository>,<branch> -> https://github.com/Klipper3d/klipper,master
# If you omit a branch, it will always default to 'master'
#
# You are allowed to omit the 'https://github.com/' part of the repository URL
# Down below are now a few examples of what is considered as valid:
https://github.com/bigtreeTech/klipper_hurakan
```

4.) Rename the repos file by typing:

a. `sudo mv klipper_repos.txt.example klipper_repos.txt`

5.) Now run KIAUH by typing:

a. `~/kiauh/kiauh.sh`

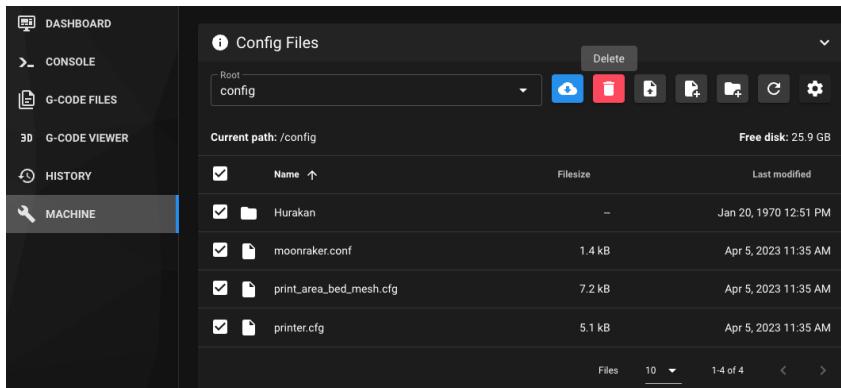
6.) Set a custom klipper repository by:

- Pressing 6 to access the settings menu.
- Pressing 1 to set a custom klipper repository.
- Pressing 0 to select the BIQU hurakan repo.

7.) Return back to the main menu and install klipper, moonraker and mainsail. Note:

- Note: Use python 3 and only install one instance of klipper.

- b. Do not install the mainsail macros when it asks.
- 8.) Install the linux MCU following the steps at this link.
Stop when you reach the “Remaining configuration” section.
- https://www.klipper3d.org/RPi_microcontroller.html#install-the-rc-script
- 9.) Grab the latest Hurakan configs from:
<https://github.com/bigtreeTech/BIQU-Hurakan/tree/main/firmware/klipper-config>. Note that you may find it easy to use a tool like downgit to download these files together (<https://minhaskamal.github.io/DownGit/#/home>).
- 10.) Erase any existing config files that may exist within the klipper config directory by using the mainsail webUI as shown below. If some files appear to refuse to erase then hit the file refresh button (circular arrow) and try again until they disappear.



- 11.) Drag the relevant configs into your config folder (found under the machine tab in the webUI) using

the mainsail web interface (now accessible via a browser on BTT-CB1.local). You will need to manually create a directory named “Hurakan” within the root config directory since mainsail will not allow you to drag and drop a directory into the root. Note that there is no need to copy all of the config files.

The following are the default ones:

- a. printer.cfg
- b. moonraker.conf
- c. print_area_bed_mesh.cfg
- d. Hurakan/Adxl.cfg
- e. Hurakan/Hurakan.cfg
- f. Hurakan/Display.cfg
- g. Hurakan/Macros.cfg
- h. Hurakan/Manta_M4P.cfg
- i. Hurakan/Probe.cfg
- j. Hurakan/Steppers.cfg
- k. Hurakan/TMC2209.cfg

- 12.) Return to the mainsail dashboard and restart the firmware and the host (CB1).
- 13.) Ensure that your MCU is running the latest version of klipper by following the steps below:
 - a. SSH into the hurakan using the same method you used earlier and then issue the following commands:
 - b. `cd ~/klipper/`
 - c. `make menuconfig`
 - d. Press escape after configuring the menu as shown below and then press ‘Y’ to save.

```
(Top)
[*] Hurakan default motherboard (Manta M4P) config
--> Enable extra low-level configuration options
    Micro-controller Architecture (STMicroelectronics STM32) --->
    Processor model (STM32G0B1) --->
    Bootloader offset (8KiB bootloader) --->
    Clock Reference (8 MHz crystal) --->
    Communication interface (USB (on PA11/PA12)) --->
    USB ids --->
() GPIO pins to set at micro-controller startup
```

- e. make
- f. ls /dev/serial/by-id/*
- g. Take note of the device that is reported and copy the string. It should look something like:
`/dev/serial/by-id/usb-Klipper_stm32g0b1xx_hurakan-if00`
- h. sudo service klipper stop
- i. make flash
`FLASH_DEVICE=/dev/serial/by-id/usb-1a86_USB2.0-Serial-if00-port0`
- j. Replace the highlighted portion above with the string that you copied earlier. Ignore the dfu-util error that may occur.
- k. sudo service klipper start
- l. Copy the same string that you used above into the printer.cfg file under the “[mcu]” heading using the mainsail webUI.

```
#####
[mcu]
serial: /dev/serial/by-id/usb-Klipper_stm32g0b1xx_1A004F000D50415833323520-if00
```

14.) Finally, install the BIQU mainsail theme by following the instructions here:

- a. <https://github.com/bigtreeTech/btt-mainsail-theme>

9. FAQ

Question 1	Layer Shifting
Answer 1	<p>Printing too fast. Try to lower the speed that you are printing at or the acceleration.</p> <p>There may be a loose belt or pulley, so please tighten it.</p> <p>Stepper motor is losing steps. Insufficient current setting and insufficient torque output of the motor. You can edit the config file to increase motor current but be careful not to increase it too much and cause overheating.</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 liquify, 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
------------	----------------------------------

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 cooling fans are up to speed and position.

	The top surface isn't thick enough. Increase the top layer thickness in the setting.
--	---

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	The extruder makes an abnormal sound of "Ka Ka Ka" during printing:
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 great, 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 temperature of the filament is too low. Try to increase it incrementally.</p> <p>The torque of the feeding part needs to be adjusted. This can be done by increasing extruder current but watch for motor</p>

	overheating.
--	--------------

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.
	Filament is of poor quality.

Question 9	Stringing
Answer 9	Try increasing the retraction distance by 0.5mm 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 iteratively 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 by arranging the models.

10. 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.