

# 3D BIQU® PRINTER Magician Manual



Shenzhen BigTree Technology Co.,Ltd

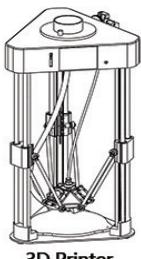


# Content

1. Unpacking.....	1
2. Component Description.....	2
3. Hardware Installation.....	3
4. Software Application.....	5
(1) Software Installation.....	5
(2) Slicing Operation.....	7
Appendix.....	8
5. Automatic Leveling.....	16
6. Platform Handling.....	19
7. First Printing.....	20
8. Replacing Filament.....	22
9. Problem Analysis(FAQ).....	24

# 1. Unpacking

When receiving the machine, please check the randomly presented items for better printing experience.



3D Printer



PLA filament



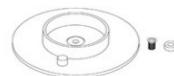
Magician manual



Power adapter



Card reader&SD card



Filament holder



Spatula



USB cable



Film pressure sensor



PVA glue stick



Throat&Nozzle



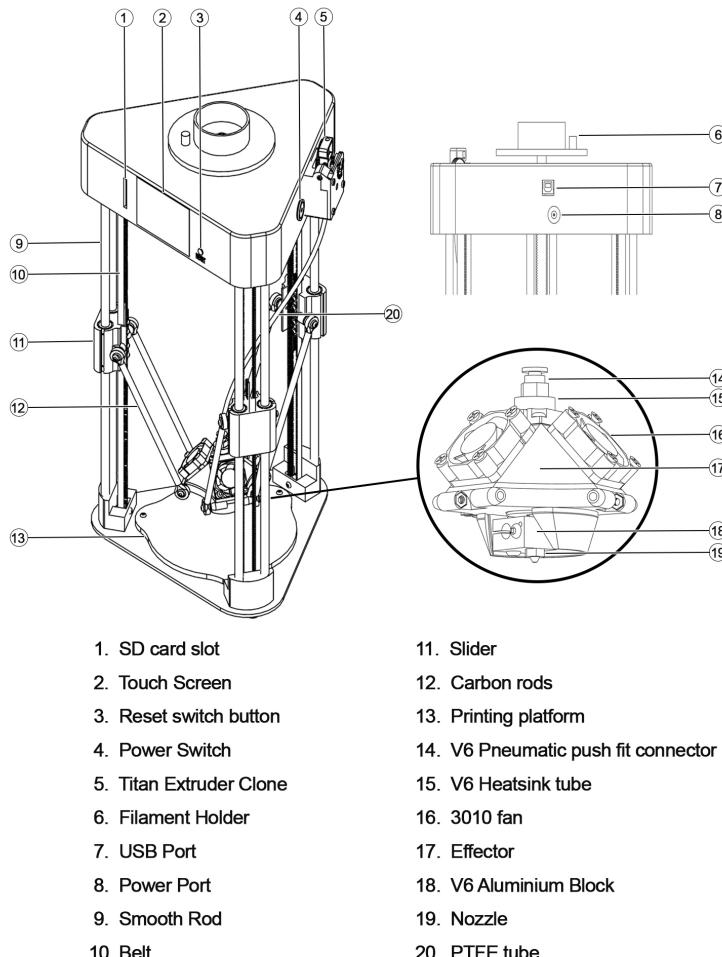
Allen wrench



After-sale service card

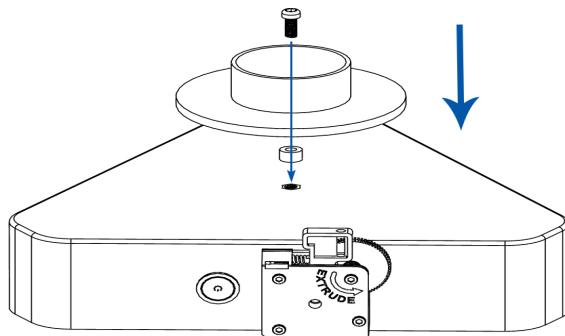
## 2. Component Description

User can get the relevant accessories informations from the below photo to know the basic components of 3D Printer.

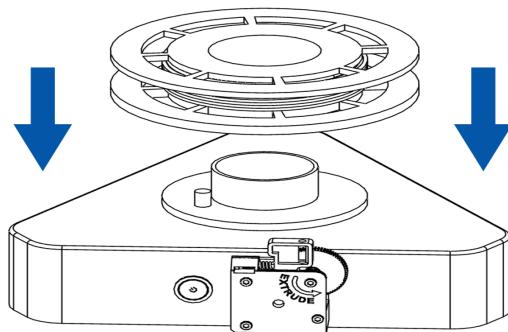


### 3. Hardware Installation

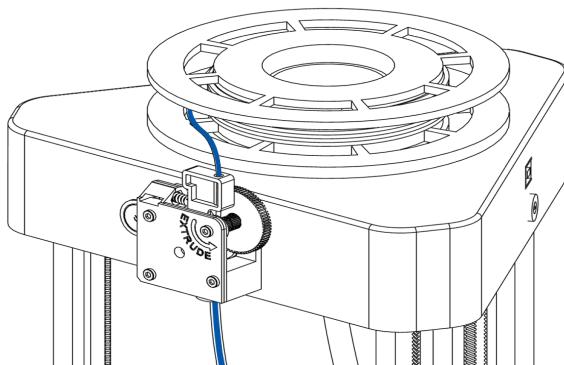
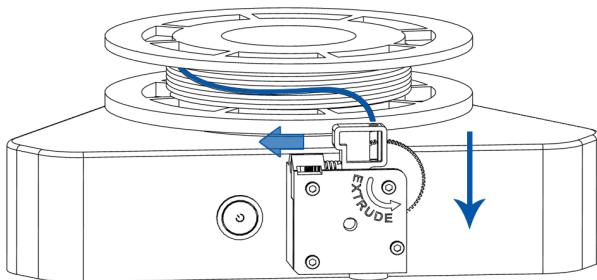
The printer is strictly tested before delivery for maintaining the regular printing operation. You can enjoy 3D printing for the first time after installing the filament and complete Auto leveling.



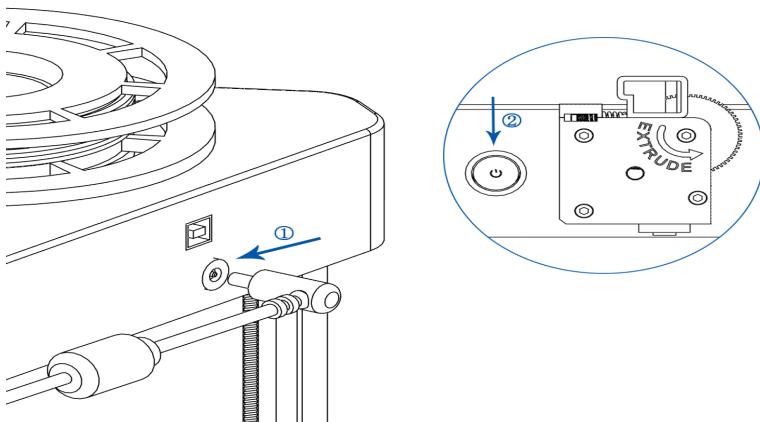
- ① Please fix the filament holder at the top of printer.



- ② Please put the filament directly on the holder.



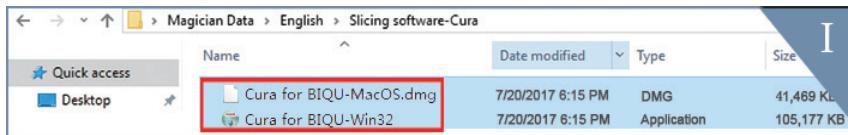
③ After that, insert the filament into the extruder.



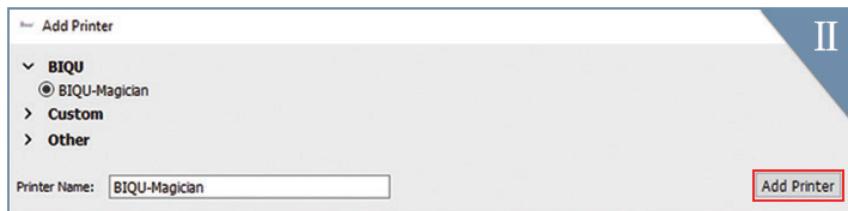
④ Finally, insert the power plug and press the power switch.

## 4. Software Application

### (1) Software Installation



First locate the slicing software, the file is stored in the randomly presented SD card, the specific storage path is shown as below: Magician Data\English\Slicing software-Cura. Then, double click the file, go on by default and select installation.



After the installation, open Cura and a window will pop up. Just click "Add Printer" at the lower right corner and the machine settings of BIQU-Magician will be completed.

**Print Setup** Recommended  

Search...

**Quality**

Layer Height	0.15	mm
Initial Layer Height	0.3	mm

**Shell**

Wall Thickness	1.2	mm
Top/Bottom Thickness	1.2	mm

**Infill**

Infill Density	20	%
Infill Pattern	Lines	<input type="button" value="▼"/>

**Material**

Printing Temperature	200	°C
Diameter	1.75	mm
Flow	100	%
Enable Retraction	<input checked="" type="checkbox"/>	
Retraction Distance	8	mm
Retraction Speed	60	mm/s

**Support**

Generate Support	<input checked="" type="checkbox"/>	
Support Placement	Everywhere	<input type="button" value="▼"/>

**Build Plate Adhesion**

Build Plate Adhesion Type	Skirt	<input type="button" value="▼"/>
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**Dual Extrusion**

**Special Modes**

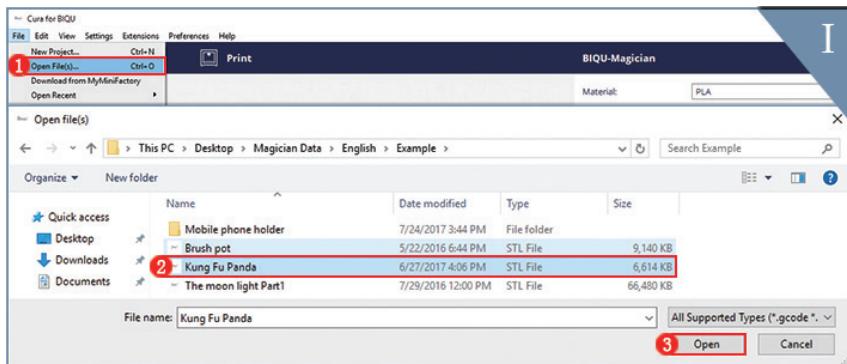
Print Sequence	All at Once	<input type="button" value="▼"/>
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**Please load a 3d model**

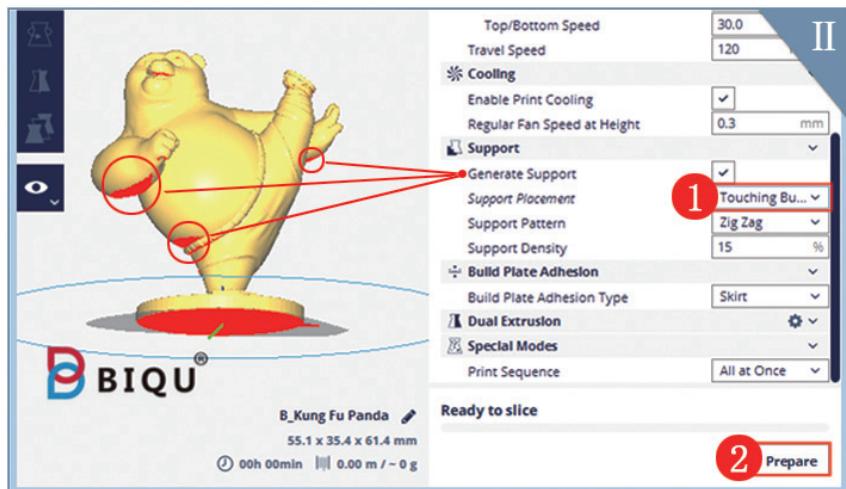
The above figure is the default printing configuration diagram of BIQU-Magician. You may view, use and modify on basic of actual conditions.

## (2) Slicing Operation

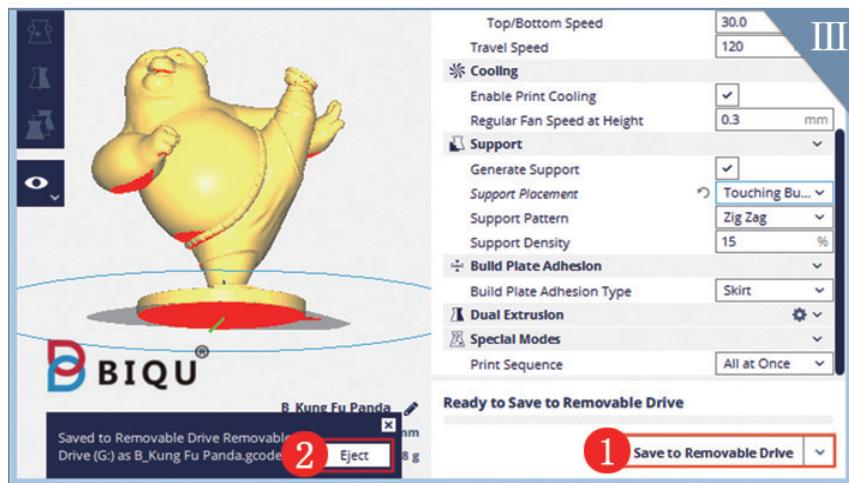
When the installation is completed, you can import a model to attempt processing and slicing, and generate a printable Gcode file.



Find out the model file and open it.



The red zone above the model reminds you to add support. Generate support, select "Touching Build Plate" in Support Placement, and then click "Prepare" to start slicing.



After slicing, insert the SD card and click to save.

# Appendix

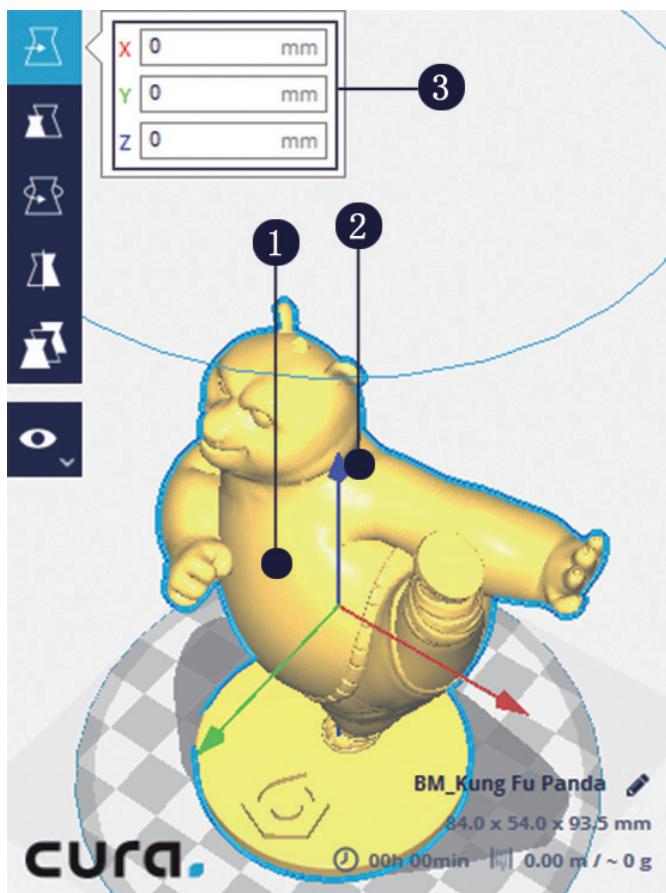
## Model Processing

There is a line of toolbars at the upper left corner in the view zone, and they only be used when a model is selected.

## Moving Tool

Click a model and three axial arrows will occur<sup>(2)</sup>.

- Get the mouse to stay over a certain point of the module, and then long press the left mouth button to move the module<sup>(1)</sup> by drag-pull.
- Press and hold one axial arrow of XYZ to move the model only along one axis<sup>(2)</sup>.
- You may directly enter values to realize accurate movement of the model<sup>(3)</sup>.



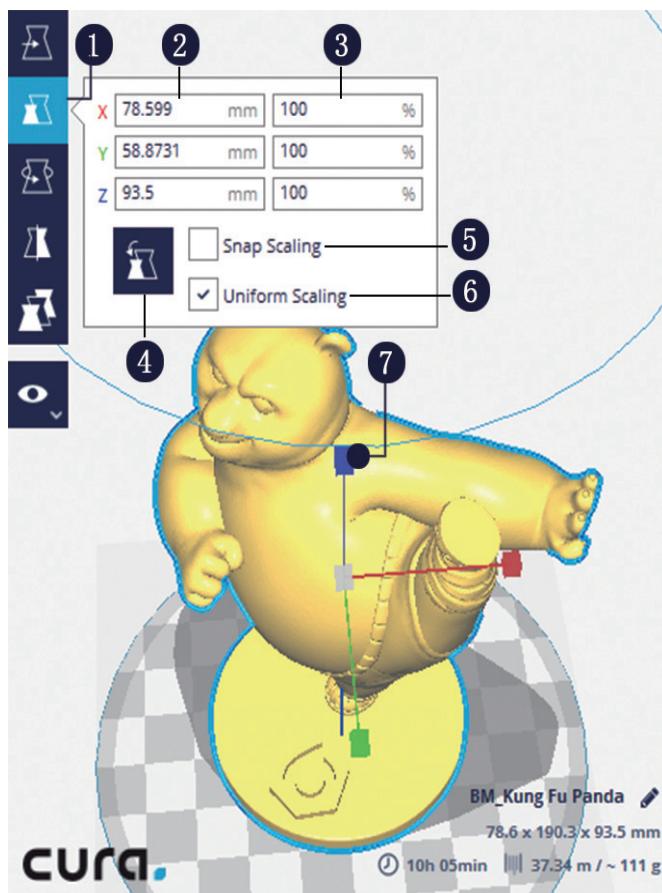
## Zooming Tool

If the model dimensions are too large or too small, we can choose to zoom out or zoom in the model.

First select the model and then click the Scale icon (1):

- The model may be zoomed out/in along three different axes by pulling the ends (7).
- You may set the model X, Y and Z axis dimensions (2).
- You may set the zooming out/in ratio of the X, Y and Z axes (3).

- Reset to the original dimensions (4).
- Check Snap Scaling for fixed amount zooming-out/in (5).
- Check Uniform Scaling to zoom out/in X, Y or Z axis independently (6).

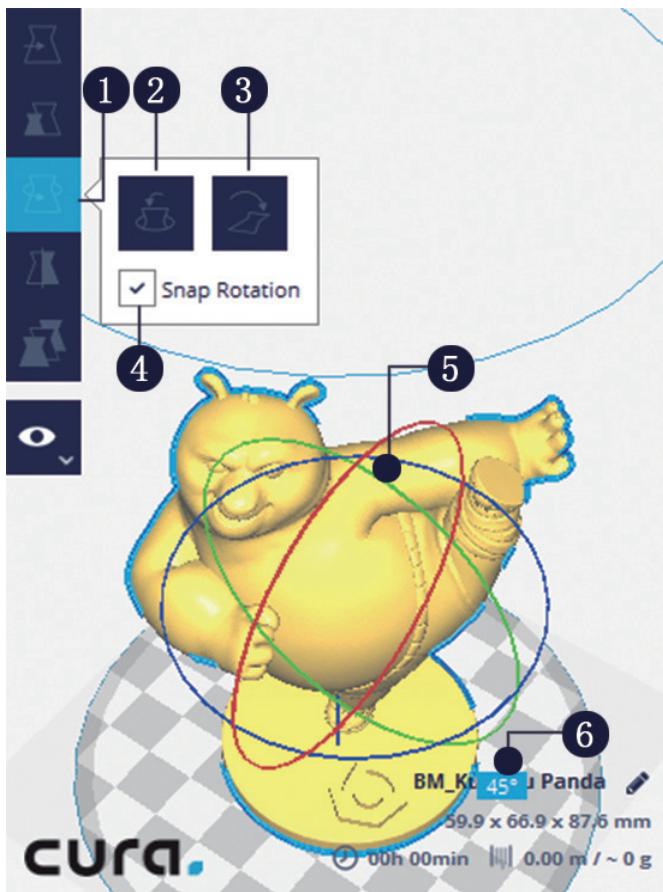


## Rotating Tool

Lay the largest plane of the model horizontally on the platform to ensure smooth printing to a greater extent.

Select the rotating tool (1) and a circular ring (5) will occur along each of the three model axes; the rotation modes are as follows:

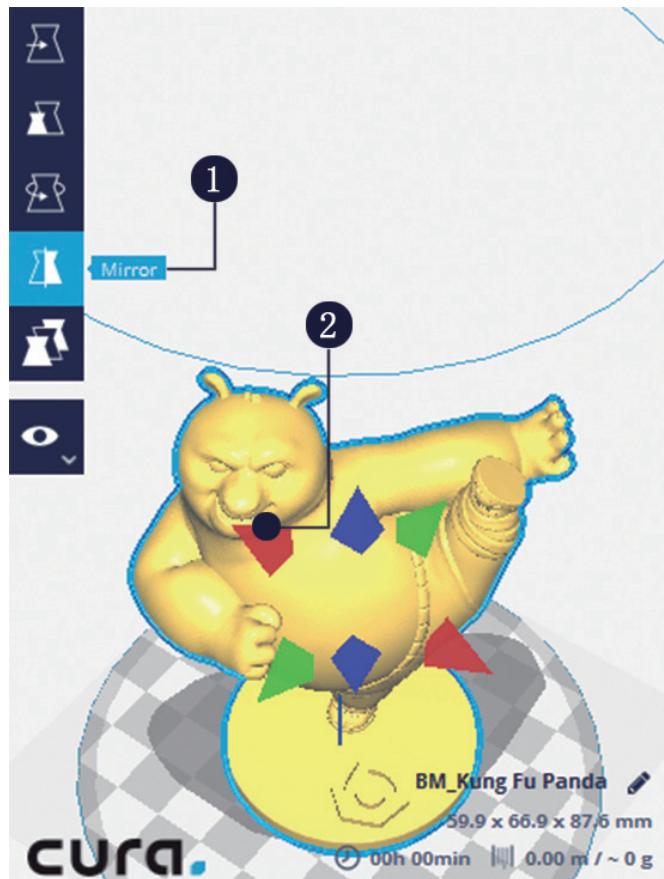
- Drag the ring of one axis to rotate the model (5) and the angle size (6) will be displayed in rotation.
- Recover the model and cancel rotation (2)
- Lay the model horizontally on the platform (3).
- Un-checking Snap Rotation will cancel the fixed amount rotation (4).



## Mirroring Tool

Use the mirroring tool to mirror the model (1); when the model is clicked, two triangle ends will occur on each axis.

- Click one of the triangle ends to decide the mirroring direction.

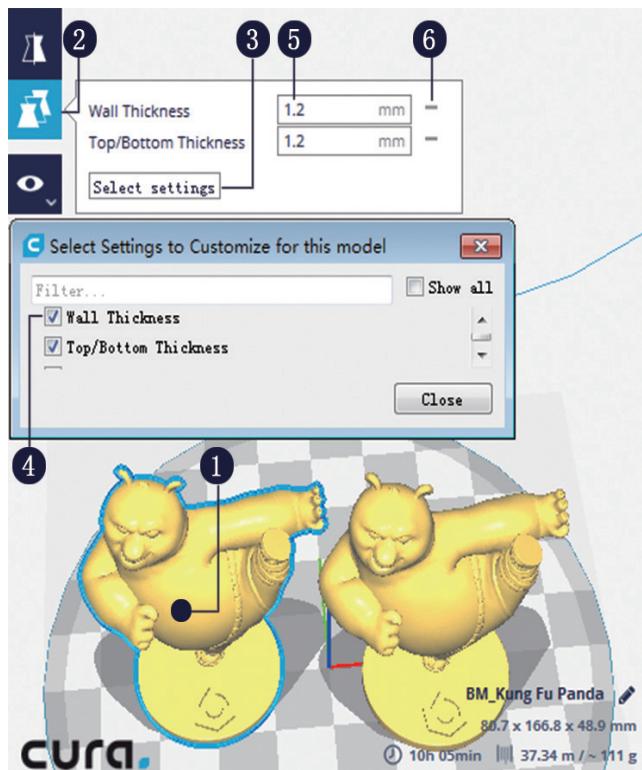


## Per Model Setting

This function will enable you to customize printing settings for a single model.

First select the model for which printing conditions will be customized (1), and then click Per Modle Settings tool (2);

- Click Select Settings (3) to enter the Per Object Setting Selection interface;
- Check the required settings (4);
- Change the set values (5);
- Press “-” (6) to remove settings.

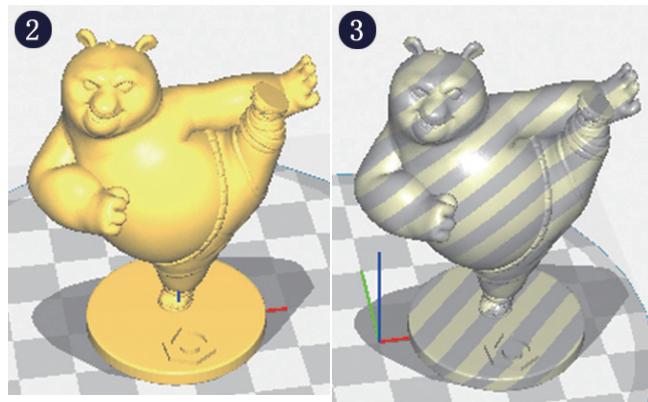
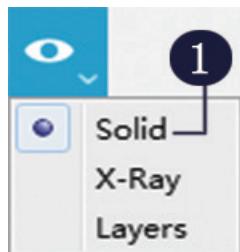


## View Selection

### **Solid view mode**

You may view if the model archive is completely read.

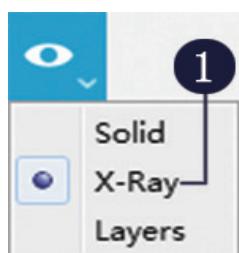
1. Solid view mode
2. Yellow model represents correctness
3. Grey model represents error.



### **X-Ray Mode**

X-ray mode assists in determining whether the model has any broken plane and the red zone is where printing problem may occur.

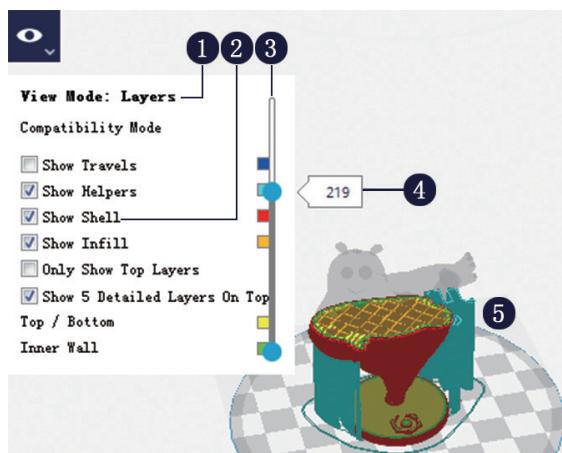
1. X-Ray view mode.
2. 3D viewer.



## Layering Mode

In the layers mode, use the left sliding block to view every layer after slicing so as to inspect if there is any problem after model slicing.

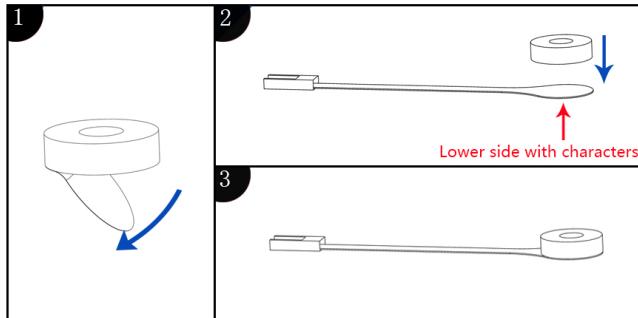
1. Hierarchical view mode
2. Layer display/hide
3. Layer number adjusting slider
4. Layer number



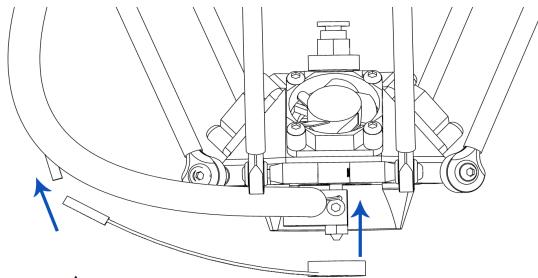
## 5. Automatic Leveling

Before printing, the machine should be leveled.

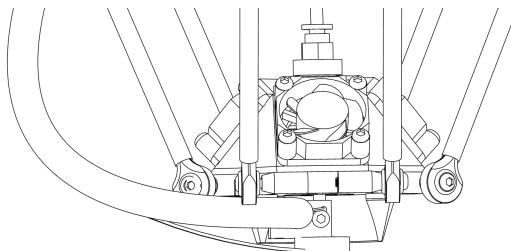
The machine has completed the leveling by default!



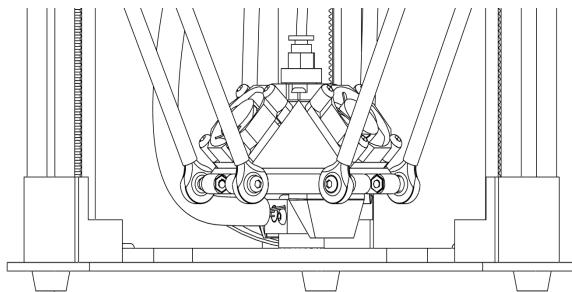
You are required to paste EVA cotton on the film pressure sensor for its normal use.



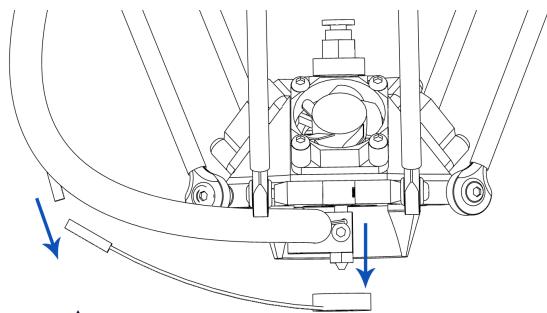
**⚠ WARNING:** Do not allow the film pressure sensor to contact objects above 50 °C !



Then, connect the wire of film pressrue sensor and put it on the nozzle.

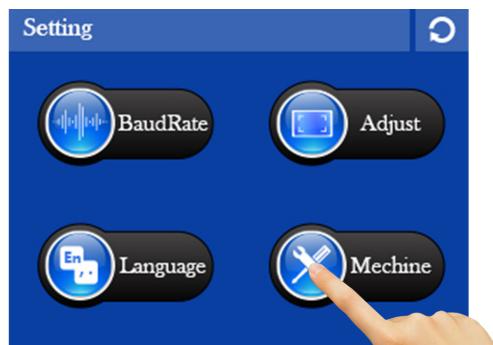


After that, directly click "Leveling" on the touch screen and the automatic leveling of the printer will start.



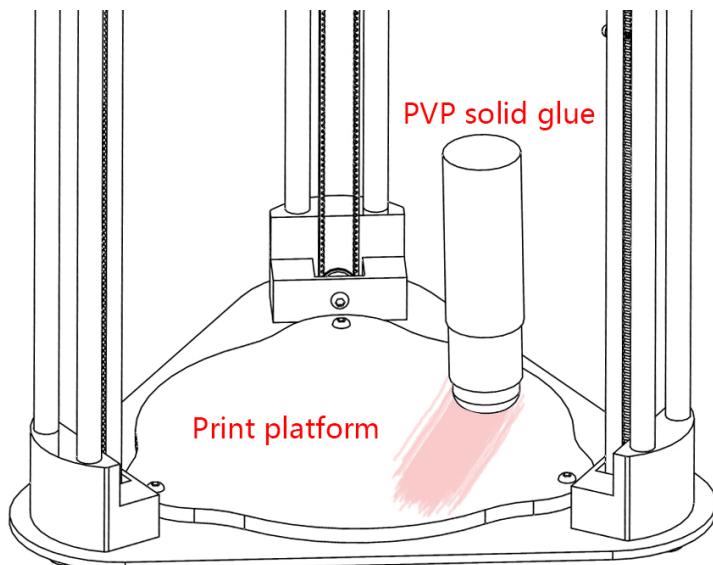
When automatic leveling is completed, be sure to take down the film pressure sensor.

★ Tips (important): During the printing, if the first layer is too high or too low, please cool the nozzle and modify the Z-offset parameter. Please do leveling operation again after modifying the parameter!!!

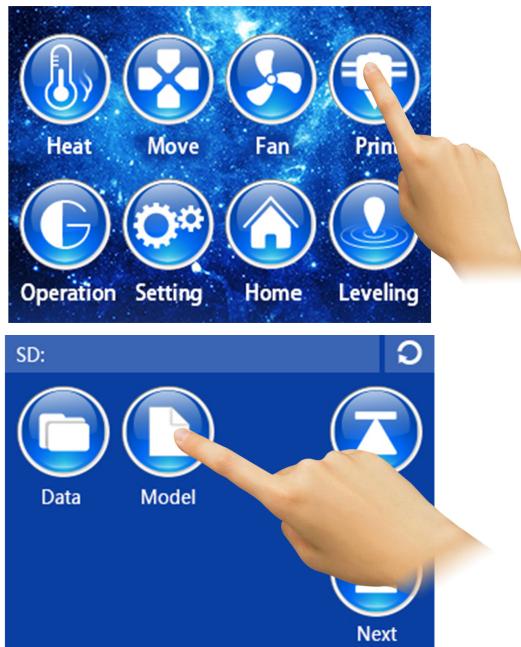


## 6. Platform Handling

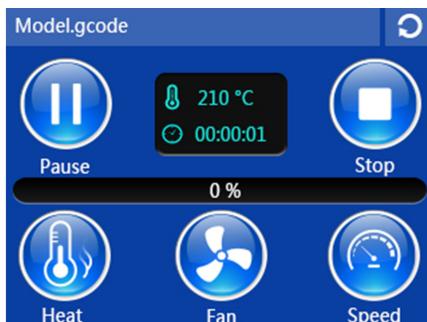
Automatic leveling aims to ensure smooth printing of the first layer but may not prevent edge warping. Therefore, it is recommended that the printing platform should be coated with a layer of PVP solid gum so as to control edge warping.



## 7. First Printing



- 1) Follow the previous tutorial to complete the model slicing and store the model in the SD card, then insert the SD card into the touch screen. Click "Print" on the touch screen and select a file for printing.



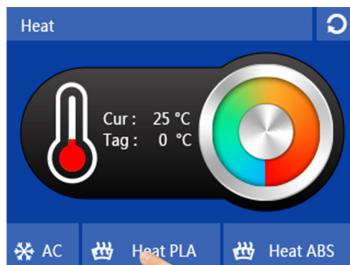
- 2) By clicking the file, the printer will start to be heated and after that, printing will start automatically.

**Confirm before printing :**

- (1) The printer has been laid on a steady horizontal plane.
- (2) Model slicing has been correctly completed and printable Gcode file has been generated.
- (3) The printer has been automatically leveled.
- (4) Filament has been correctly installed without being knotted or stuck.
- (5) The printing platform is clean and tidy.

## 8. Replacing Filament

When replacing the filament, please do not pull out the cooled filament brutally, otherwise the nozzle may get blocked. Refer to the following instructions for more information:



On the main interface, click "Heat" and "Heat PLA", wait for the nozzle temperature rise.





When the temperature reaches the target value, return to the main interface, click "Move", "E-Axis" and "+" to enable the extrusion of a section of filament from the extruder.



Next, click "50mm" and "100mm/s" and continuously "--" to enable the extruder to quickly retract the filament. Finally, re-load the new filament.

## 9. Problem Analysis(FAQ)

Question 1	Dislocation of Printing Model
Answer 1	Too quick printing speed. Please control the speed at 30-60mm/s.
	Loose synchronous belt/wheel. Please retighten.
	Out-of-step stepping motor, inadequately large set current of motor and insufficient output torque of motor. Properly adjust the static reference voltage of the stepping motor to adjust the output current.
	Overheat. Overheat of motor, motor driver or power supply may indirectly affect the nozzle movement.

Question 2	Filament Outflow (side leakage)
Answer 2	Un-tightened printing head. First heat the printing head, then wait till the filament is liquidated, wipe out outflow liquid, and finally tighten the printing head with pinchers. Take care not to directly touch the high temperature printing head with hand.

Question 3	Very Difficult Insertion of Wire Material
Answer 3	Straight the curved wire by hand and use a pair of cutting nippers to make the wire into a corner cut shape.
	Too tightened extruder screw. Loose it to a proper pressure.
	Residual material in the tube. Please pre-heat to 230°C and then extrude the residual material by hand.

Question 4	Edge Warping of Printed Object
Answer 4	The nozzle is too far from the platform. Adjust the Z-axis offse to ffirmware. #define Z_PROBE_OFFSET {0, 0, 0, 0} and alter the third value. (If the third value is positive, the larger the value is, the farther the nozzle will be from the platform; if it is negative, the smaller the value is, the nearer the nozzle will be to the platform.)
	Insufficient cooling of nozzle outlet. Please ensure timely and normal working of fan.
	Provide an enclosed environment. Keep temperature stable.
	Reduce the printing speed. Reserve sufficient time for adjusting the temperature.
	Widen the first-layer wire, i.e. increasing the extruding amount at the bottom layer.
	Add Brim skirt support.
	Use glue 502/ PVP solid glue.

Question 5	Heave or Pores at the Top Surface of Printing Model
Answer 5	No proper cooling. Please ensure the normal operation of fan.
	Insufficient thickness of top surface. In printing setting, increase the thickness of top layer.

Question 6	Clearance or Fissure in the Model
Answer 6	Insufficient feeding. Please inspect the machine to make sure no part is loose.
	Diameter change of 3D printing material has led to insufficient feeding.
	Make sure the machine runs smoothly. Lubricating oil may be added.

Question 7	Abnormal Noise of Extruder in Printing
Answer 7	Blockage of extruder head. Use an acupunctural needle or similar tool to get it through.
	Not good printing material. Change another material for a try.
	Too high printing head temperature made the material carbonized into black particles. Reduce the printing temperature.
	The torque of feeding part should be adjusted.
Question 8	Extruded wires seem unsMOOTH or fluctuating in size
Answer 8	Inspect if the wire is blocked or twisted.
	If the extruder head is blocked.
	Abnormal layer height setting or wrong width setting of extruded wire .
	Poor filament quality .
Question 9	Wire drawing phenomenon. Residual fine plastic wires in the nonprinting zone of printed object
Answer 9	Set the retraction distance. Try by 1mm increase each time and observe if there is any improvement.
	Control the retraction speed. Good retraction effect generally occurs in the scope of 20-100mm/s. The most ideal value should be determined by test and see if the wire drawing amount can be reduced.
	Adjust the nozzle temperature. Try to reduce the nozzle temperature by 5 degrees each time in testing.
	Reduce the suspended movement distance. In printing several models, the distance between models may be properly shortened.

Question 10	Computer fails to identify the mainboard.
Answer 10	The computer should install a USB chip-related driver.

## Caution

- 1.Coz the Printer is sort of mechanical precision machine,  
Pls often keep Good and Protective Maintenance.
- 2.We strongly suggest the user use the default factory  
settings for firmware and software as well.
- 3.After complete Auto Leveling. Pls remember to remove  
the Film pressure sensor before you start to print.It's very  
important.Otherwise the Film pressure sensor will easily  
get burned or damaged.



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