



The User Manual of PJII 3D Printer

Please read this user manual carefully before using this product.

Overview

Thank you for using the 3D printing products of Panjing 3D Technology Co., Ltd.

The design concept of PJII 3D Printer is elegance and versatility. Even if you have never used 3D printer, you are able to create your favorite model easily only with a touch screen.

The product line uses internationally leading FDM technology with ABS, PLA and other thermoplastic plastic materials in order to perfectly reveal 3D design. The principle of the printer is to melt by high temperature and extrude printing material, then rapidly solidify it after modeling to make sure the printed model is strong and durable. The product line is widely used in education, mechanical design, household, art creation and other fields.

Important Notice

Operating Temperature of Nozzle

100°C ~ 230°C

Best Ambient Temperature

18°C ~ 40°C

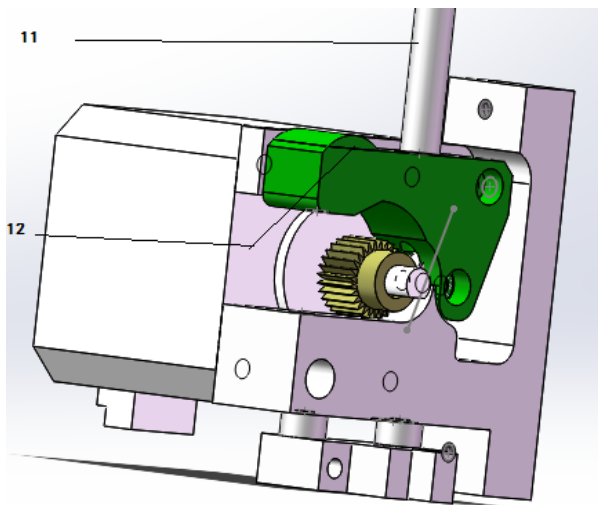
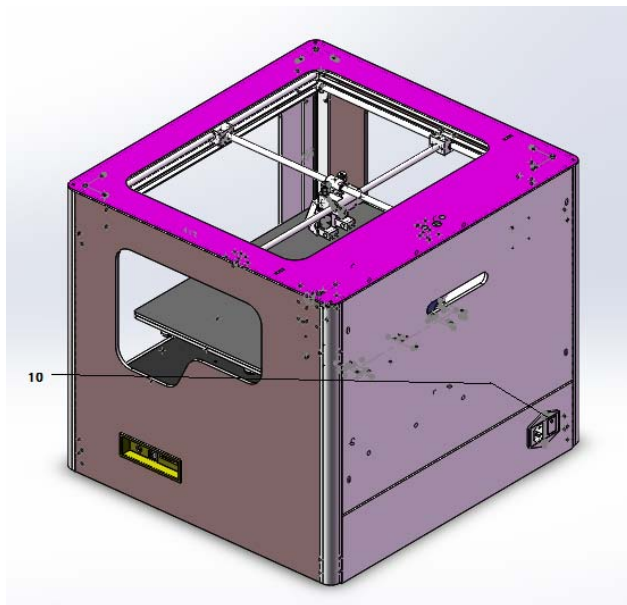
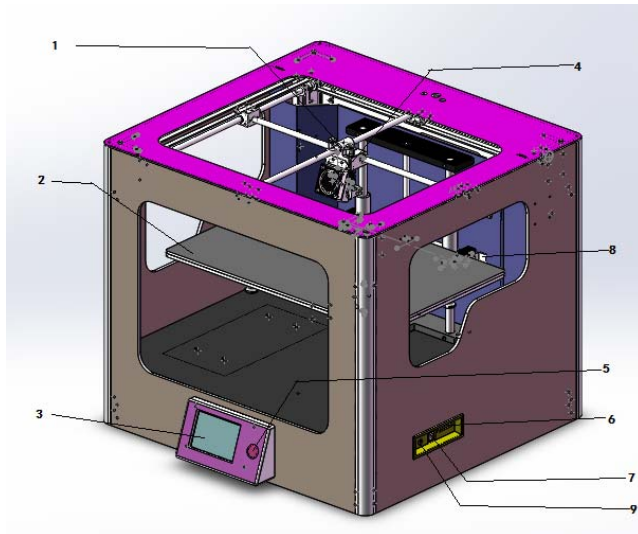


Electric Hazard Sign: It warns you to avoid the possibility of electric shock injury.



High Temperature Sign: It warns you not to touch hot equipment components.

PJII Printer Body



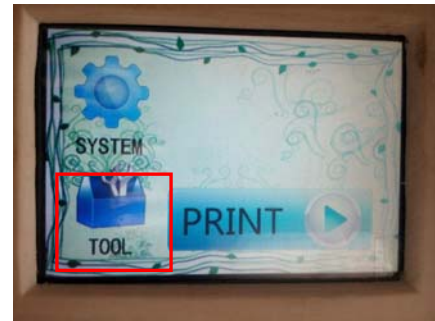
- 1. Left Nozzle
- 2. Printing Plate
- 3. Display Screen
- 4. Right Nozzle
- 5. Power On/Off Button
- 6. SD Card
- 7. USB Interface
- 8. Filament Spool Mounting Hole
- 9. Power Adapter Hole
- 10. Power Interface
- 11. The Filament Feeding Hole
- 12. Filament Feeding Press Block

Printer Platform Leveling

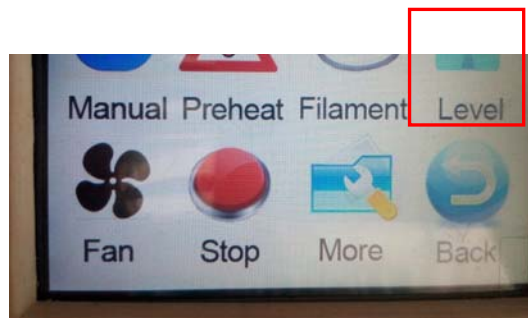
1. Plug in the power cord and turn on the power switch. Then press and hold Power On button for 3 seconds till starting up.

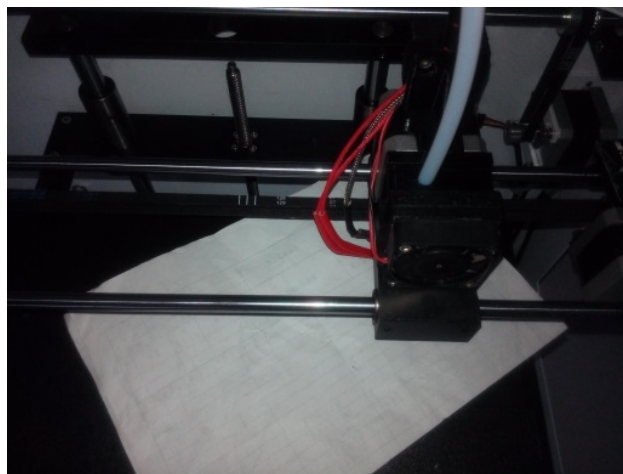


2. Click **Tools** option on the display screen.



3. Select and click the **Leveling** option on the display screen, and click **NEXT**. Wait till the printing nozzle stops, then manually adjust the screw which is closest to the nozzle until the distance between all locations of the platform and the nozzle is the thickness of one piece of A4 printing paper. After the proper adjustment, click **NEXT** to wait till the printing nozzle stops, and continue to adjusting it. After adjusting four corners in turn, the platform leveling is complete. (If the nozzle is too close to the platform, the filament feeding is likely to be affected. If the distance is too far, it easily causes that the filament feeding cannot stick to the platform)



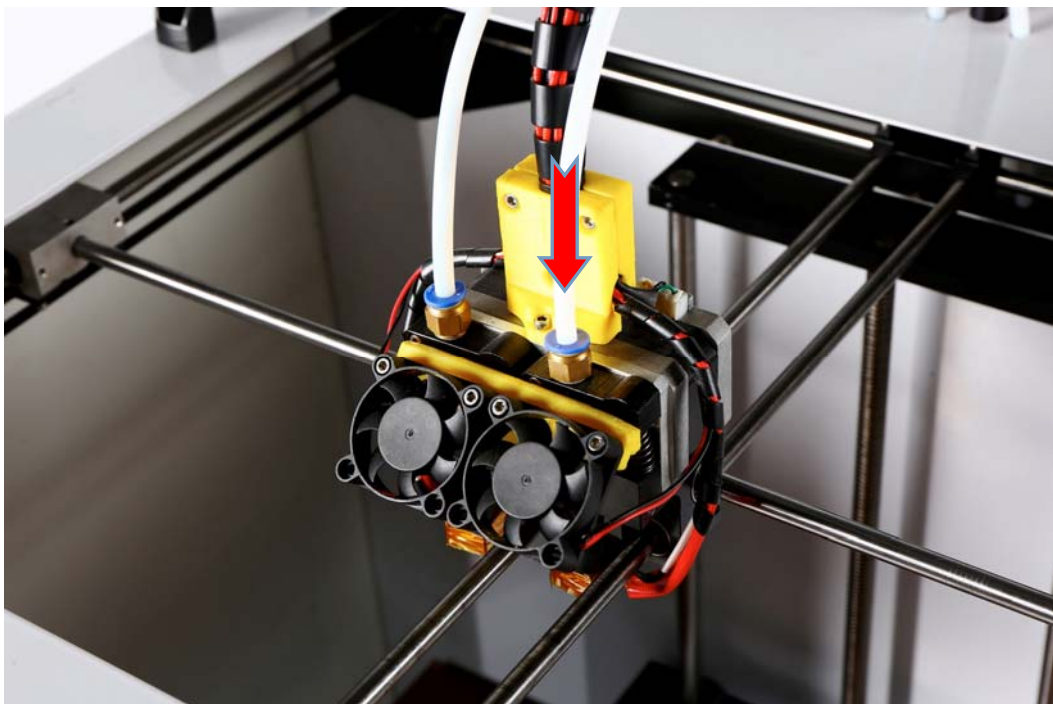


The Installation and Replacement of Filament

Please properly install the Accessory—Filament spool Axis, and correctly install the Filament Spool on the Filament Spool Axis. (Pay attention to the direction of filaments, and please be sure not to install it backwards! Also please make sure there is no knot or lag in the filament.)



Pull out the filament from the filament spool, and cut out a bevel gap at the top, then lead the end of the filament to the motor in accordance with the direction of arrow in the following Figure. Press down the Filament Feeding Press Block, and introduce the filament into the extruder.



Preheating 1. After startup, click **Tools** option on the display screen.



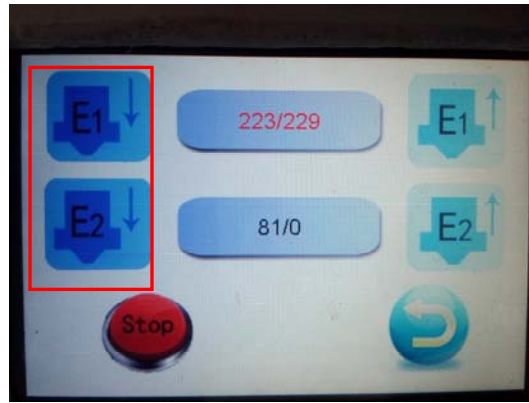
2. Select and click **Filament**.



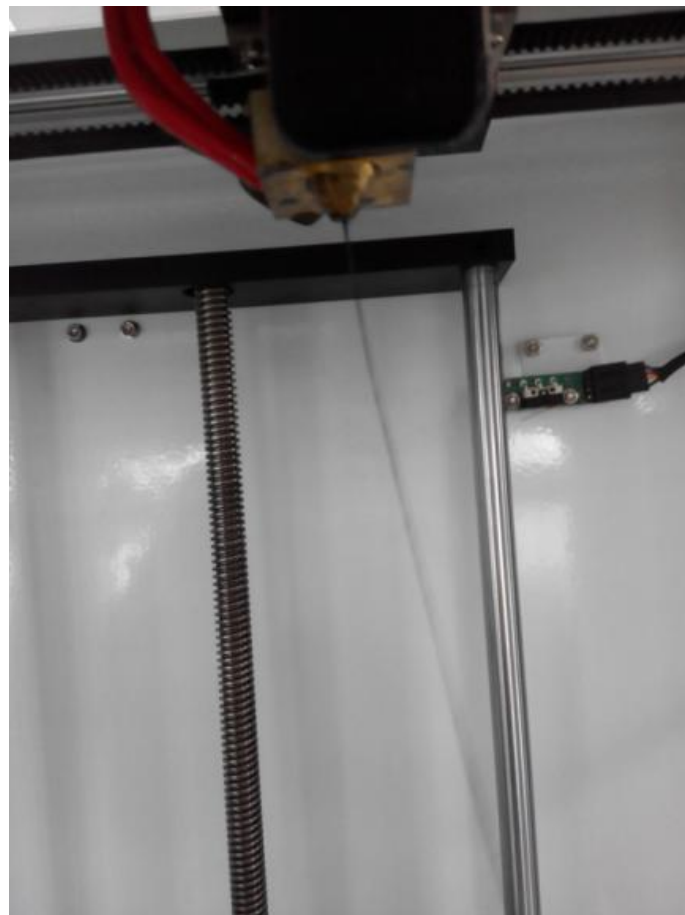
3. Select Install Filament Nozzle, click the Temperature Display, which indicates it starts heating when it turns red.



4. Wait for 1-2 minutes till the temperature of nozzle reaches the preset temperature. Click Install Filament **Feeding** option.



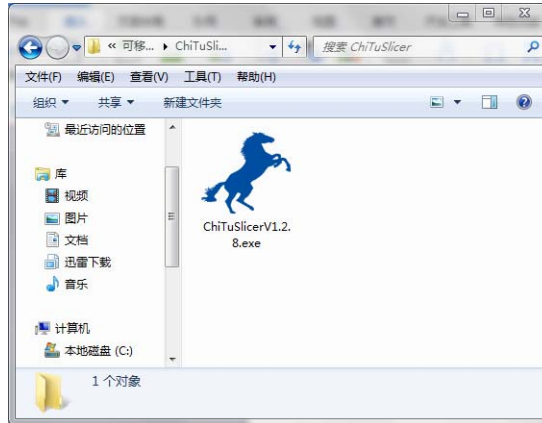
5. Clicking on STOP when the filament is extruded out of the nozzle.



Note: If there are filaments in other colors being extruded at the beginning of filament feeding, they are the remaining filaments inside the nozzle during the factory test. It belongs to the normal condition.

Installation of ChiTuSlicer Software

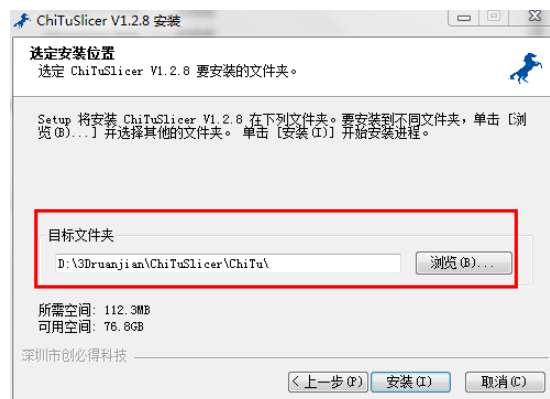
I Open the installation file of ChiTuSlicer in SD card, and click Install.



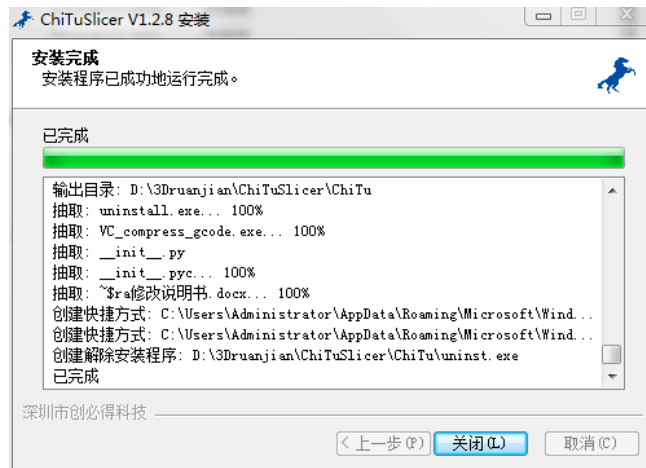
II Enter the software installation interface and click Next.



III Select the installation location, and click on Install.



IV After the software installation is finished, click on Close.



Basic introduction of ChiTuSlicer software

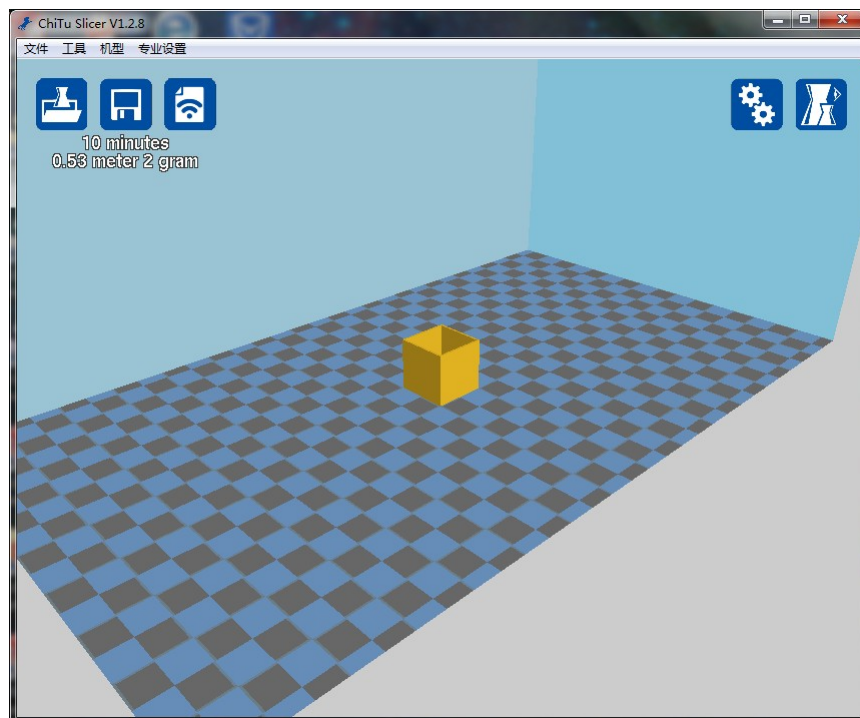
Open the Choose Machine Model option of ChiTuSlicer software to select the model settings. Set up the parameters according to the corresponding machine model data in the machine model parameter file in SD. (This step is not needed when WiFi online)



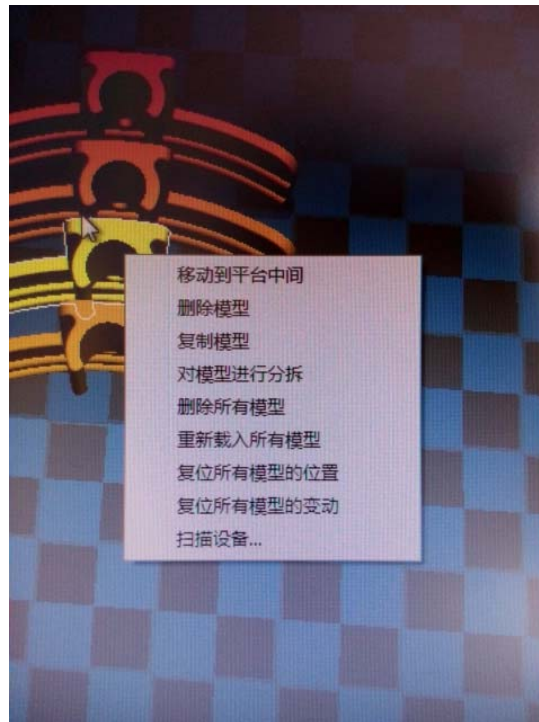


Click and open File icon.

Open the designated STL file; after we choose the designated file, our chosen file model will display on the right side of software;



Click on the model, Remove Model and other options will display.



Right-click on the model, then three icons will appear at the left corner.

Select “Rotate” to rotate the model;

Select “Scale”, the model can be scaled;

Select “Mirror” to mirror the model;



ChiTuSlicer software offers a variety of advanced observation methods. These methods are hidden in the button at the upper-right corner. Press this button, you can see an View mode menu.



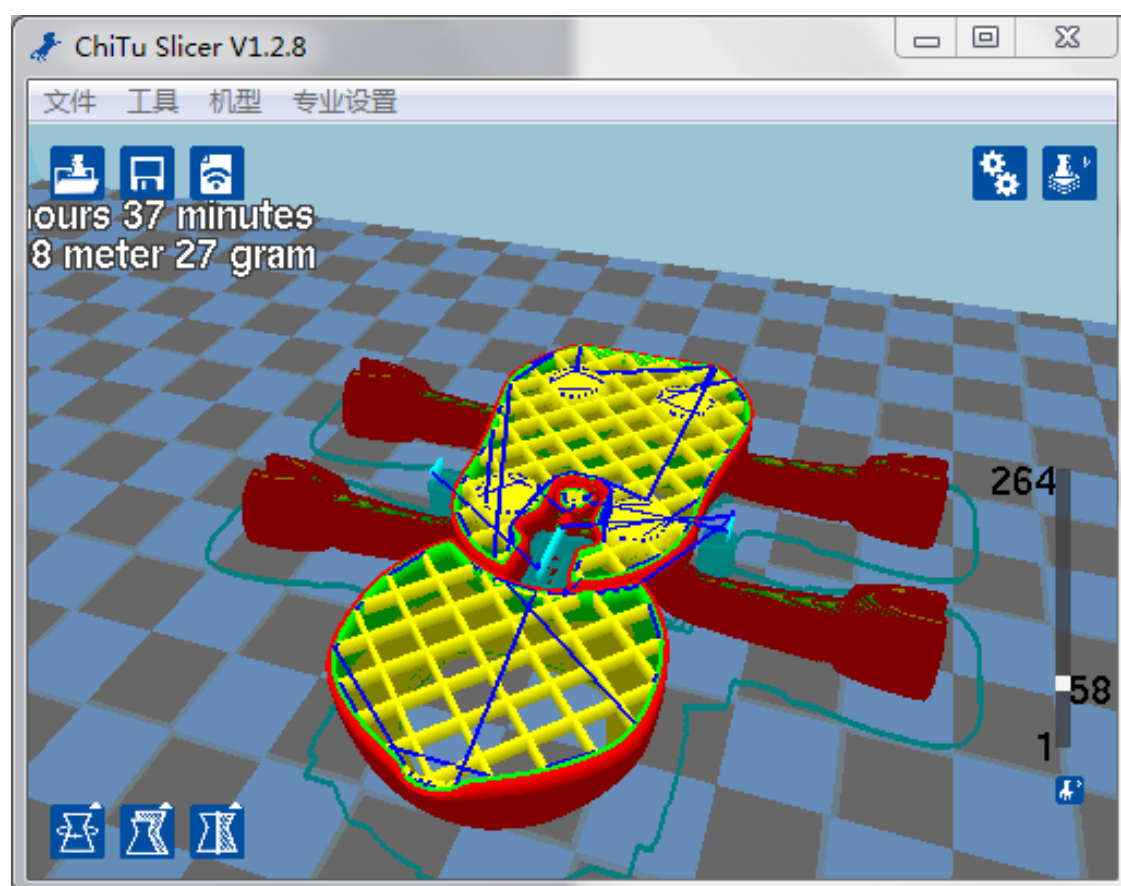
Currently, we are using the default Normal mode. You can also select Overhang mode, Transparent mode, X-Ray mode, and Layers mode.

Under the Overhang mode, the overhanging parts of 3D model will be shown in red. In this manner, users can be allowed to easily observe the problematic parts of the 3D printing model. If necessary, these problems can be solved before printing.

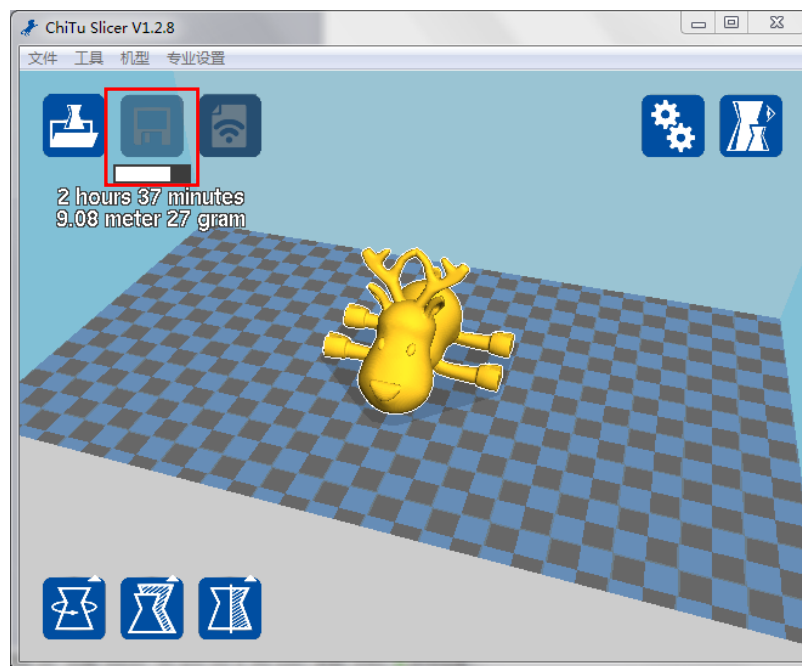
Under the Transparent mode, we can not only observe the front of the model, but also observe the opposite of model as well as the internal structure. In particular, internal structure plays a crucial part in 3D printing. Therefore, please be sure to properly observe it before printing. For our model, as you can see, there is no any special configuration inside.

Next is the X-Ray mode. Similar to Transparent mode, X-Ray mode can also be used for viewing the internal structure. The difference is that under the X-Ray mode, the structure of the object's surface is ignored. Although you cannot see the surface of 3D object, the internal structure can be appeared more clearly, which is easy for viewing.

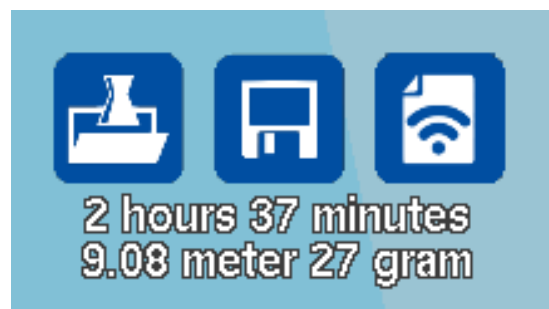
Finally, the Layers mode is rather important. Layers model is actually closest to the formal 3D printing process. Under this mode, we can display the entire 3D model by layer. Through the right side of the slider, you can observe each layer separately.




In the Figure above, we are observing the condition of the 58th floor. As shown in Figure, the outermost part in red represents the shell of model. The following green part remains one section of the shell, but it is not directly exposed. The middle part in yellow is filling, which is used to constitute the central part of solid object. Armed with this information, 3D printing plan of each layer which is planned out after the Cura slicing can be understood more properly and intuitively. If the problem occurs, it can be easily positioned and solved.



After the model is loaded, 3D image of loaded model can be seen immediately in the main window. Meanwhile, at the location marked with a red box at the upper-left corner of the window, you can see a progress bar is on the move. Soon, when the progress bar reaches 100%, time, length, and gram can be displayed and the save button (Save Gcode) becomes available. As shown in Figure:

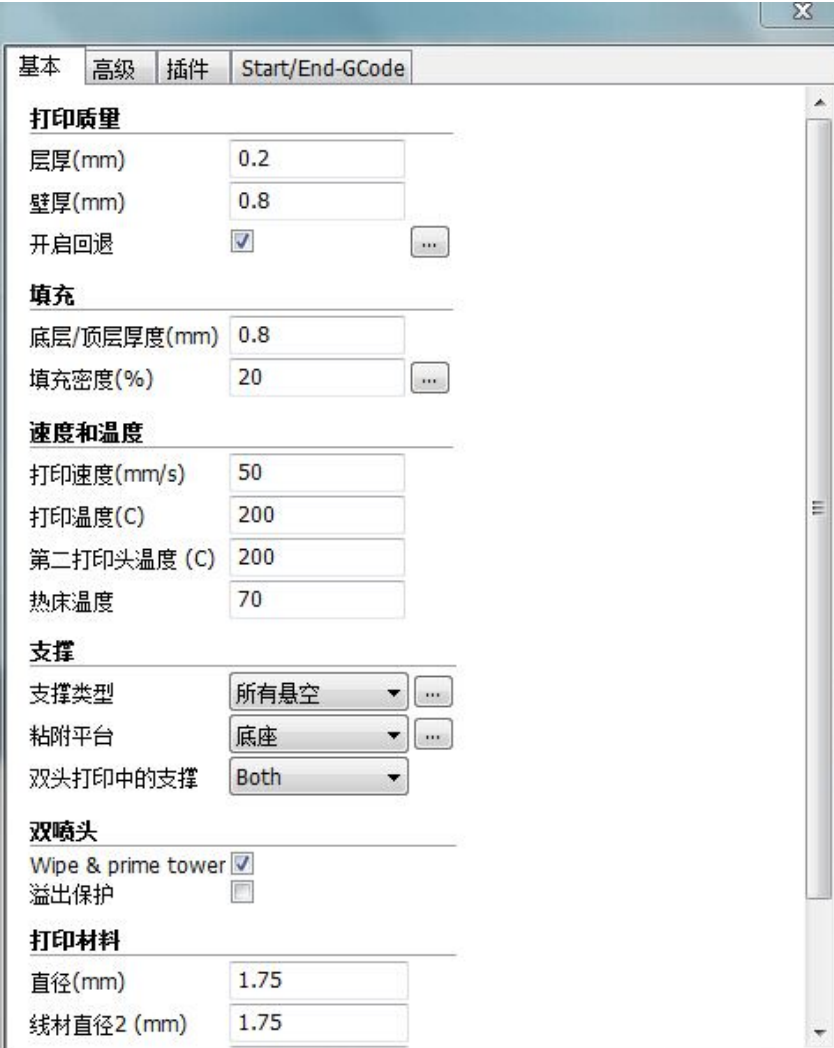


The fast advancing process of the progress bar just now is the working process of ChiTuSlicer software slicer. When the slicer operating is finished, 3D printing time (2 hours and 37 minutes), required length of the plastic filament (9.08 meter) and gram (27g) are all calculated. Also, we can use the Save Gcode button  to save the slicing result as the gcode file. **Save it in your SD card, then insert the SD card into the printer. And the printer can print this model.**

When you need to adjust the printing parameters, you can click on Setting button



at the upper-right corner, then a Print Setting window will pop up.



The screenshot shows the 'Print Setting' window with the following sections and values:

Section	Parameter	Value
打印质量	层厚(mm)	0.2
	壁厚(mm)	0.8
	开启回退	<input checked="" type="checkbox"/>
填充	底层/顶层厚度(mm)	0.8
	填充密度(%)	20
速度和温度	打印速度(mm/s)	50
	打印温度(C)	200
	第二打印头温度(C)	200
	热床温度	70
支撑	支撑类型	所有悬空
	粘附平台	底座
	双头打印中的支撑	Both
双喷头	Wipe & prime tower	<input checked="" type="checkbox"/>
	溢出保护	<input type="checkbox"/>
打印材料	直径(mm)	1.75
	线材直径2 (mm)	1.75

Printing quality

Slice thickness indicates the height of each layer. This setting affects printing speed most directly. It is obviously that the smaller the slice thickness is, the longer the printing time is, and relatively good printing accuracy can be obtained. **Wall thickness** is thickness of the plastic casing generated around it by a solid 3D model in the 3D printing process. Of course, except for the casing part, all parts are filled with latticed plastic grids. Wall thickness to a large extent influences the solidity of 3D printing models. **Open Fallback** means whether to draw back the filament at two printing intervals to prevent excessive filaments to be extruded at the intervals, or else it may lead to wiredrawing and affecting printing quality.

In the bar of the quality, two options, both slice thickness and wall thickness, are closely related to the diameter of extruder of 3D printer. The wall thickness should be set as the multiple of diameter of extruder, while slice thickness cannot be higher than 80% of diameter of extruder. If your settings do not meet it, the software will set the input box in yellow to prompt the user. If you find any problem in the diameter setting of the extruder, you can jump to the bar of the Machine Model at the bottom of window to set the nozzle diameter and come back.

Filling

The bottom/top thickness is similar to the wall thickness, so it is recommended that this value shall be close to that of wall thickness, and shall be the multiple of slice thickness. **Filling density** refers to the density of latticed plastic filler inside the solid 3D model. This value is independent of the appearance, the smaller the value is, the more materials and printing time it saves. But the strength will be affected to some extent. Generally speaking, 20% filling density is also enough.

Speed and Temperature

The printing speed refers to the amount of the plastic filament extruded per second. Under general settings, this value can be set between 50~60 mm. Because the heating speed of extruder is limited, the amount of plastic filament which can be melted per second is limited. When the slice thickness is set higher, only relatively small value can be selected to meet the limit of total extrusion amount of extruder. When your settings do not meet the software requirements, the edit box will turn yellow to remind users that there are problems to be solved. In the following, three settings related to temperature are relatively simple. **Printing temperature** is set according to the filament temperature of first nozzle. **The temperature of second nozzle** is set according to the operating temperature of second filament. **The heated platform temperature** is rather easier to set up, it can be set at 50 degrees to have the printed PLA firmly adhered to the platform. It can be set at 110 degrees when printing ABS to lessen the warped edges of model.

Support

Firstly, as for the **support types**, there are choices among no support, extending to the platform support and all overhanging support. Extending to platform support is the type of support which is **only set to the model part that adheres to the platform**. All overhanging support refers to establishing support for suspended parts inside the model. **Adhesion platform** means whether to strengthen the adhesion feature between model and printing platform, and the choice No refers to printing 3D model directly on the printing platform. If you want to solve the problem of warped edges, you may try to select the edge, which will print the hat brim around at the first layer to allow the 3D model to be stuck more firmly with platform. Also, removal is relatively easy when the printing is complete. If it still does not work, you can select the base, which will print a high seat under the 3D model. It can guarantee that the 3D model is firmly stuck to the heated platform, but it is not so easy to remove. In terms of Dual-Nozzle Printing Support, user can select among Both, First Nozzle and Second Nozzle. For the directly stripped support, any nozzle is appropriate, so Both can be selected. If one kind material is rather expensive, you can choose another material to print support (this will lead to more switching among nozzles). When you print support with the water-soluble material, you should choose the Second Nozzle (Left Nozzle).

Support · Edge and Base

Even if they are added, they will not be displayed in general 3D view. If you want to see results, you need to switch to Layer mode.

Dual nozzles

Wipe and Prime Tower refers to printing a salvage erasing tower at the mean time of Double-Nozzle printing (it is printed upon the switches of nozzles at each layer of model, erasing the salvage of another nozzle before the current nozzle starts printing). Overflow protection is to print a thin wall outside the model. This thin wall can erase some unwanted leakage during the dual-nozzle printing.

Filaments

For the bar of Supplies, the diameter of Supplies should be assigned, it should be changed to 1.75 according to the diameter of printer supplies. For the bar of Flow, the percentage of the amount of extruded plastic to the default value can be set. If the printer is already in a good correction, it is OK to fill it with 100%.

Machine Model

Nozzle Diameter can be set according to the actual size of the nozzle.

Next, we enter the Advanced Slice Setting page.

回退	回退速度(mm/s)	回退长度(mm)	双喷头切换回退量 (mm)
	50	3	16.5

打印质量	初始层厚 (mm)	初始层线宽(%)	底层切除(mm)	两次挤出重叠(mm)
	0.3	100	0.0	0.15

速度	移动速度 (mm/s)	底层速度 (mm/s)	填充速度 (mm/s)	顶层/底层速度 (mm/s)	外壳速度 (mm/s)	内壁速度 (mm/s)
	80	20	0.0	0.0	0.0	0.0

冷却	每层最小打印时间(sec)	开启风扇冷却
	5	<input checked="" type="checkbox"/>

Fallback

It can set speed and distance of fallback to reduce wiredrawing of printing model and enhance the smoothness of surface of printing model. Double nozzles switching fallback is to control the leakage in double-nozzle printing.

Printing quality

It has something to do with the bar of printing quality in the Basic Settings, but generally it does not need to be modified. The initial slice thickness can be set as the slice height. The reason of separating it out is that actually in special cases slice height can be set at a very small value (such as 0.05mm). However, if the first layer is set in the same way, it cannot be stuck to the hotbed properly. For this reason, the initial slice thickness can be assigned individually. The filament width of initial slice is also related to the adhesion between 3D printing object and the hotbed. In some cases, it can be assigned a value higher than 100% to strengthen the adhesion degree. Base removal is used for some 3D objects in the irregular shapes. If there are limited connection points between the bottom of object and the hotbed, they will be unable to stick with each other. Then this value can be set at a value higher than 0. In this manner, the 3D objects will be cut from the bottom, so it can be stuck to the hotbed more firmly. Finally, Double Extruding and Overlapping is only valid for double-nozzle 3D printer. If there is a little overlap of the content extruded by two

nozzles, better results can be obtained. It is usually appropriate that these maintain the default values.

Speed is used to specify the operating speed of printer at various stages of 3D printing.

Refrigeration is used to control parameters of the cooling fan. It is rarely seen that these two bars need to be modified, so it is appropriate to maintain the default value.

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SD Model Printing

Please make sure that the SD card is inserted into the side slot, and turn on the power switch to energize the equipment. The SD card we offer to you as the standard equipment includes the test model. You can also add GCode model files which is sliced by software by yourself and print it in the SD card.

Click on Print on the interface, and select the GCode file of the model which is expected to be printed from SD card, then it starts printing automatically after the temperature rises to required level.



Wireless WIFI Connection

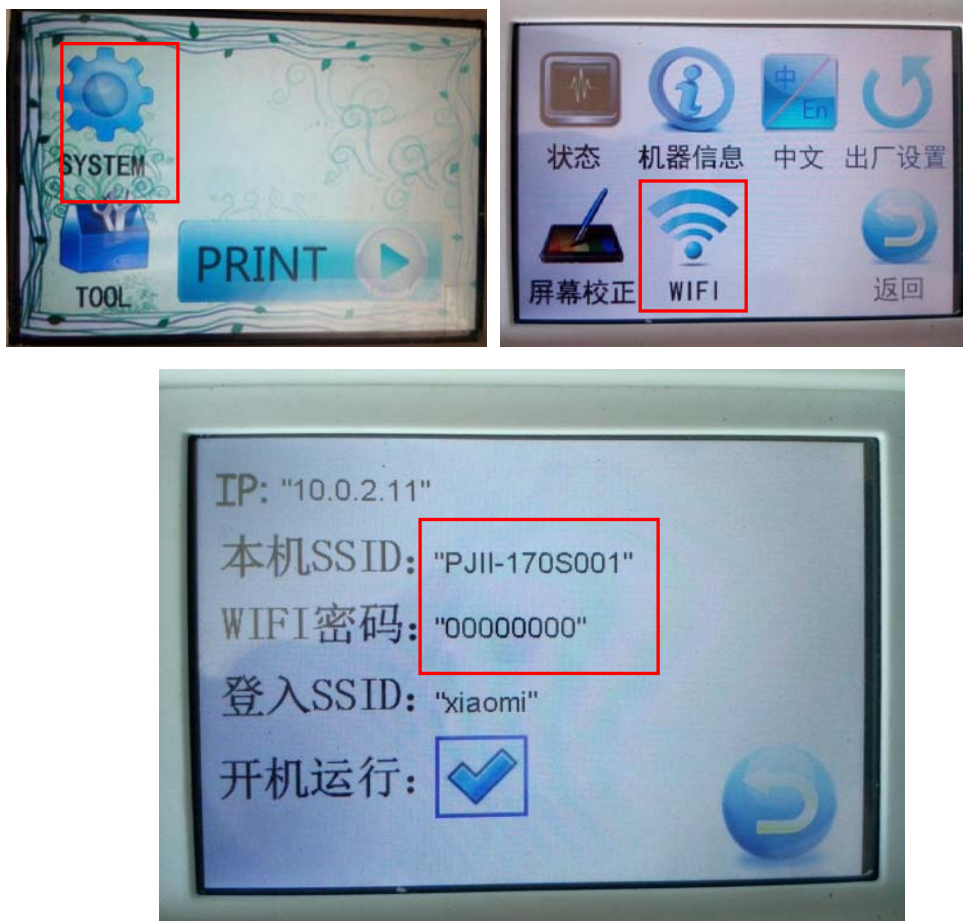
WiFi connection computer need to have the wireless network adapter capability, and it should be online with the printer via the wireless router. The printer and computer must be connected to the same wireless router.

(SD card must be inserted into the printer at the time of WiFi connection)

Wireless WIFI connection method 1: The direct connection to hotspot, one-to-one

Attention: For direct connection to hotspot, the computer is unable to connect to the Internet.

1. Turn on the printer's power switch, start the printer to enter the standby mode. Click on System option on the touch-screen, then go to the next screen and click on the WIFI option. Check the name and password of WiFi of the machine.



2. On the computer, select the name of the printer's WiFi and connect.



3. Open the ChiTuSlicer software. It indicates the successful connection if the name and IP address of the printer are displayed at the upper-right corner of the software.

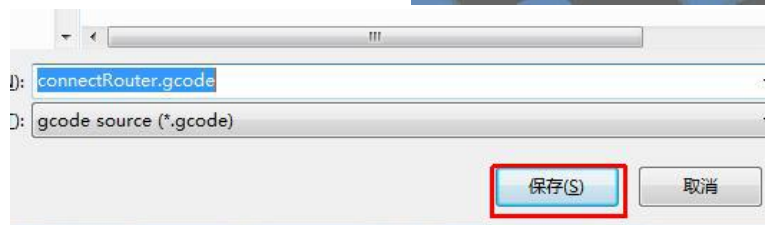


(If you do not see the printer icon, it indicates that it does not connected to the printer. Please check whether the wireless network of computer is properly connected to the printer. Follow the steps above once again.)

Wireless WIFI connection 2: The connection via the wireless router (one computer connects multiple printers)

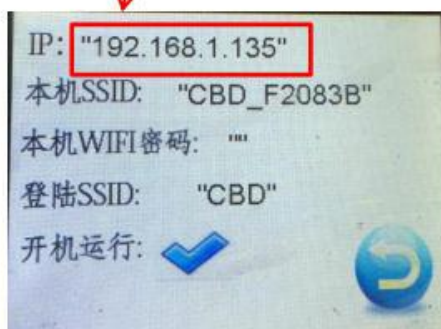
1. Open the ChiTuSlicer software on your computer. After loading a model, right-click the WIFI icon. Select Connect router, and click.

2. Enter the hotspot and password of the access router, click on Configure and Save.



3. Put the just resulting gcode in SD card, plug the motherboard and start printing, check it after it is completed.

确认模块已经连入路由器并且具有局域网IP
(0.0.0.0表示路由器连接没有成功)



4. Restart the ChiTuSlicer software, you can see the scanned device, select the device.



After loading STL model file which needs to be printed, properly adjust the printing parameters and select Send File option and left-click on it to send the file, or right-click it, and finish sending Gcode, then print directly. (Attention: SD card with enough space must be inserted into the printer when WiFi online printing)



WIFI FAQs:

Put the freshly generated gcode into SD card, insert the motherboard and print, after it is complete, check whether IP is displayed in the machine WiFi option. Please make sure that the WiFi module is properly inserted into the motherboard. (If IP is displayed in the bar of SSID, it indicates that the WiFi module is properly inserted)

Make sure that the device is in the coverage of the router signal. At the location of device, a mobile phone is at least be able to scan the router signal.

Repeatedly examine the hotspot and password of the router. A large proportion of people cannot properly connect because of the error of hotspot and password

After-sales Service Guarantee

“Quality Assurance”: The strict processing standards of accessories and assembly testing procedures of 3D printers of Panjing 3D Technology Co., Ltd. ensure that each product is a qualified product with superior quality.

“After-sales Service Guarantee”: within 7 days since the receipt of the product, Chaojie Enterprise freely provides the 7-day unconditional return and exchange services.

“After-sales Service Guidance”: after the receipt of the machine, please read the operating instructions carefully so as to avoid false operation, which would damage the machine and take up your valuable time. Since you buy products from Chaojie Enterprise, you become our important members of the company. If you have any questions, you can contact us by telephone, QQ, Wangwang, mail or any other means. We will provide you with free lifelong consulting services.

“Quality Assurance”: within 30 days since the receipt of the product, for the problems raised by non-arbitrary damage, we will bear the return freight charges and offer you the replacement or maintenance; within 30-90 days, for the problems raised by non-arbitrary damage, we provide you with maintenance and the replacement of accessories, the freight charge of sending for maintenance is borne by you; within 90-360 days, for the problems raised by non- arbitrary damage, we provide you with maintenance and the replacement of accessories, the return freight charges are borne by you; within one to two years, we still will provide maintenance consulting service, the return freight charges and the expenses of replacement of accessories are borne by you, you can also purchase accessories on our website and replace them on your own!

“Return and Exchange Guidance”:

I Basic Requirements for Return and Exchange.

Please guarantee the integrity of product packaging, product accessories and guarantee card. There are no man-made damages or obvious and non-removable stains on the appearance. There is no man-made modification towards the machine structure and the motherboard firmware.

Either of the above conditions is missing, you will not be able to enjoy the Return and Exchange services provided by our company.

The nozzle blockage or damage caused by 3D materials which are not produced by Panjing 3D Technology Co., Ltd. is not covered by the warranty.

II The Return and Exchange caused by Quality Problems

After the receipt of the product, please carefully check if the product is in good condition. If any quality problem occurs, please contact us promptly within the after-sale period stipulated by our company, so that we can address the problem for you in time.

III The following cases are not qualified to enjoy the free exchange activities provided by our company:

- (1) In excess of the valid period of 30 days.
- (2) The malfunction or damage caused by inappropriate operation, maintenance and storage which results from not following the contents of the User Manual.
- (3) Without the permission of the maintenance agency authenticated by Panjing 3D Technology Co., Ltd., the customer address the problem on his own, which results in the machine malfunction or damage.
- (4) The machine nameplate is missing or illegible.
- (5) The machine number is altered without permission.
- (6) The malfunction or damage caused by extremely hostile ambient environment.

(7) The malfunction or damage caused by force majeure. Such as a fire or earthquake.

Warm Tips

(I) Please do not touch the printing head since its temperature is too high.

(II) Please use the dedicated supplies of our company, the application of other supplies will cause nozzles to be easily blocked. (The problem caused by using other supplies is not covered by the warranty)

(III) Do not drop Z axis too low when you adjust XYZ axis, which causes the motor to contact with the board, this will create noise when printing and even affect printing.

(IV) When you remove the printing model, you should be careful to use the shovel. Also, you can heat the heating plate, and it is easier to take it out.

(V) Precautions for operation of the machine:

a) Pay attention to the power connection, you must plug the power connector in the printer accurately. If you have difficulty in plugging it in, you should check the direction of connector. Do not plug in reversely by brute force.

b) You should manually move nozzles on all side before turning on the switch to prevent external foreign matters to block XYZ Axis feeding mechanism.

c) After a period of using, the leveling is needed afresh. Upon the receipt of the machine, in terms of the leveling for the first time, you should tighten the leveling screws under the plate to the closest level in order to avoid moving nozzle to scratch the plate and damage the nozzle during the leveling.

d) During printing, if the machine produces strange noise, please switch off the power supply, and check if there are foreign matters in the kinematic mechanism. If you have any question, please contact us.

e) The disassembly of fan, heatsink, feeding mechanism and nozzle feeding motor is relatively simple, so customers are free to operate. But customers need to note that disassembly must be carried out when the power is off. For the remaining parts, if

there are no proper tools, please do not disassemble it without permission; if you really need the disassembly, please contact us.

f) After a period of operation (a month later), you need to apply lubricating grease on the motion section.

(VI) Precautions for printing materials:

a) During printing, please ensure that the supplies is able to rotate smoothly. The smaller the resistance is, the better.

b) It would be best not to open the supplies before use. For the opened supplies that would not be put in use for a long time, you had better store it without light and air. Whether opened or unopened, supplies should be stored under the environment which avoids direct sunlight, and keeps away from dust and moisture.

c) For the storage of opened supplies, you should pay attention to fixing head of supplies to prevent loose supplies to tie knots during printing.

(VII) Precautions for the use of other accessories:

a) The machine packing box, plastic foam and other internal parts that you have received should be preserved properly.

b) The hexagon wrench coming with the machine should be properly stored after use.

(VIII) The replacement strategies of fuse and nozzle.

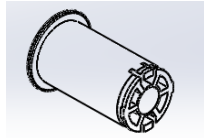
a) Fuse. Firstly, three-hole power cord should be pulled down, and the device which holds the fuse should be removed, and then the fuse should be removed and be installed according to the original pattern.

b) Firstly, loosen the nut next to the printing head, remove the heating rod and thermocouple, and then use the hexagon socket loosen the nut above the printing head, down. Then, pull out the print head downward (due to thermal expansion and contraction principle, considerable force is required to pull it down). Finally, reload a new printing head in accordance with the original manner.

Accessory List



Model Shovel



Filament Coil



SD Card



Power Cord



USB Data Wire

Contact:

Tell: 0579-89280897;

Email: zj@panjing3d.com

Address: No. 33, Xita Road 3, Yongkang City, Jinhua

Municipality, Zhejiang Province

Parameter Table:

Printer Model	PJII-180	PJII-540
Number of Nozzles	2	2
Basis Technology	FDM	FDM
Display Screen	3.5 inches touch screen	3.5 inches touch screen
Print Dimensions	270*180*180mm	380*270*500mm
Print Slice Thickness	0.05-0.3mm	0.05-0.3mm
Axial Positioning Precision	XY Axis 0.011mm Z Axis 0.0016mm	XY Axis 0.011mm Z Axis 0.0016mm
Nozzle Diameter	0.4mm	0.4mm
Slicing Software	ChiTuSlicer	ChiTuSlicer
Supporting 3D	STL OBJ	STL OBJ

Model Format		
Operating System	WINDOWS7-8	WINDOWS7-8
Printer External Dimensions	500*450*470mm	590*510*780mm
Net Weight	24kg	50kg
Input Voltage and Power	100-240V 50~60HZ 300W	100-240V 50~60HZ 300W

Federal Communications Commission (FCC) Statement

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Warning: Changes or modifications made to this device not expressly approved by Zhejiang Panjing Three Dimensional Technology Co., Ltd may void the FCC authorization to operate this device.

Note: The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. Such modifications could void the user's authority to operate the equipment.

RF exposure statement:

The transmitter must not be colocated or operated in conjunction with any other antenna or transmitter. This equipment complies with the FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20cm between the radiator and any part of your body.

This device complies with Industry Canada licence exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

The distance between user and products should be no less than 20cm
la distance entre l'utilisateur et les produits devraient être au moins 20 cm