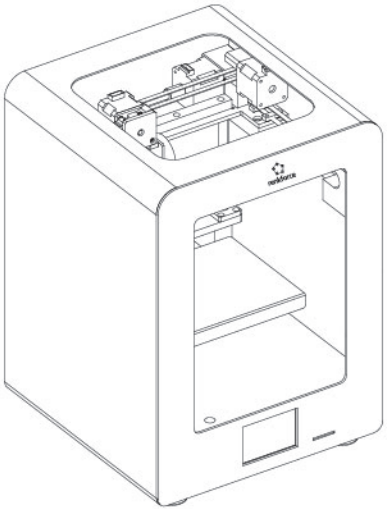
renkforce

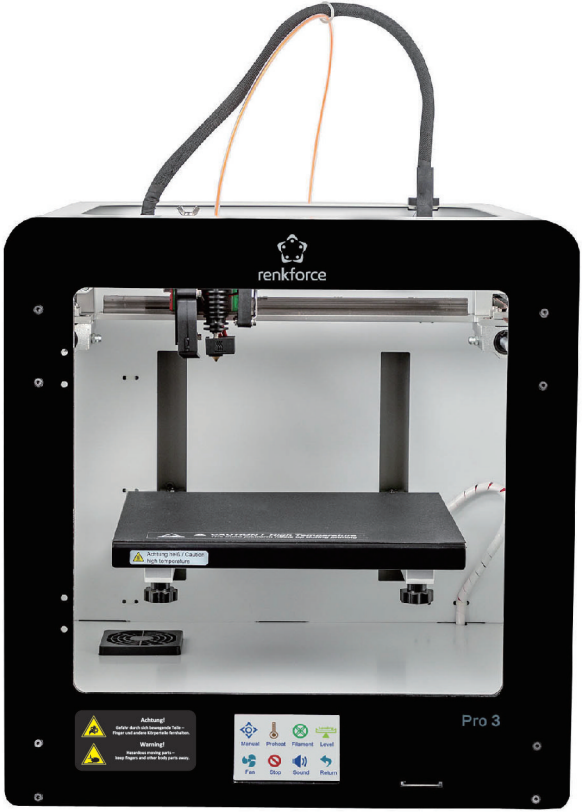
User Manual



3D Printer Pro 3

Easy solution of 3D model creation

☆Please read the User Manual before using this product.



Pro 3

Catalog

a、Important Information

1.1 Caution

① During the printing or the printing has just finished, the highest temperature of nozzle has reached to 260℃, and the highest temperature of build platform has reached to 100℃， to ensure your safety, don't touch the 3D finished prints/ nozzle / build print bed during printing or cooling process.

② Pls use the original power wire we supply to prevent any damage to electrical parts.

1.2 Filament

Renkforce printers can be used with a wide range of filaments. However, for the best print results we recommend you use the filament renkforce supplys or the one with good quality, in case that the filament of poor quality makes the extruder clogging and damages the extruder & motor.

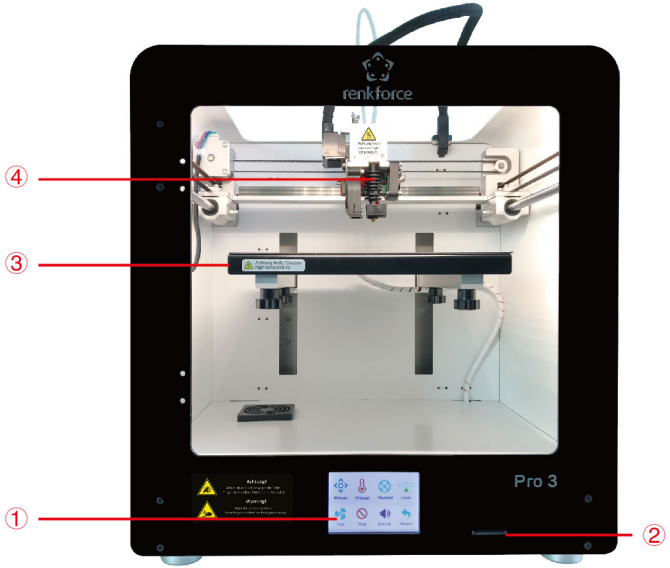
1.3 Ambient requirements

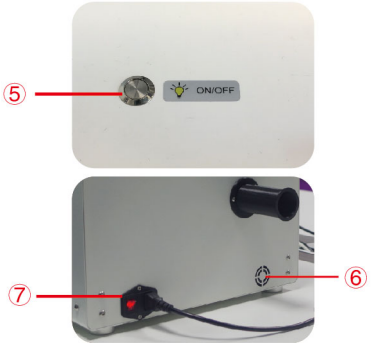
The 3D printers can work normally with the temperature between +15℃ and +45℃, and with the ambient humidity between 30% and 90%. The printing quality will be lowered when the ambient temperature & humidity is out of the range. Pls keep the filament under well seal when it is opened and unused for a long time. The filament will absorb the moisture and dust when it is exposed to the air for a long time, which will affect the print quality.

b、Product introduction

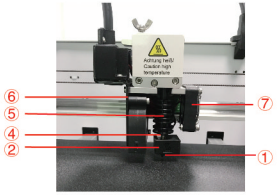
2.1 Appearance introduction

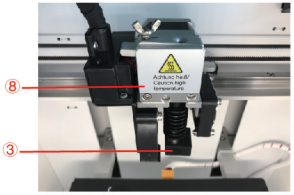
①Touch Screen
②SD Card slot
③Print bed
④The extruder
⑤Lighting Switch
⑥Mainboard Cooling Fan
⑦Power socket and switch

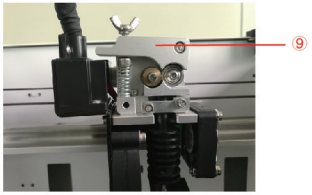




2.2 Introduction of extruder

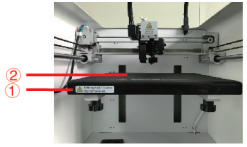


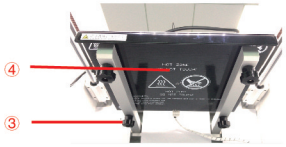


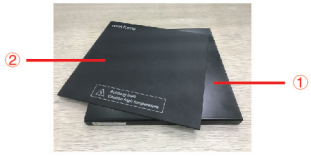


① Nozzle ② Heat block ③Heater and NTC ④ Filament tube ⑤ Heatsink
⑥ Object fan ⑦ Extruder fan ⑧ Cover of extruder ⑨ The leverage

2.3 Introduction of Build Platform



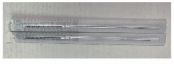




① Print bed ② Magnetic mate ③ Leveling Thumb Screw (4pcs) ④ Heating Panel

PS: Printbed can be removed and taken out, which is also separated with print surface.

2.4 Accessories list

Picture	Name	Qty.	Unit
	Power cable	1	pcs
	SD Card (contains User Manual & Slicing software)	1	pcs
	Magnetic mate	1	pcs
	Full Metal Build platform	1	pcs
	Ejector Rod 1.8*150mm	1	pcs
	Hex wrench within 6mm dia.	1	pcs
	Allen Driver within 1.5/2//2.5/3mm dia.	4	pcs
	Spool holder	1	pcs
	Small needle 0.3*75mm	2	pcs
	Tweezer	1	pcs
	Side cutter	1	pcs
	Filament	1	pcs

PS：The pictures are for reference only, and the actual distribution is the standard.

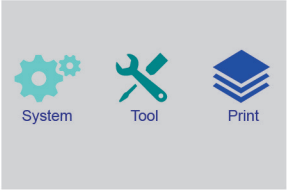
2.5 Technology Specification

Operating voltage:	100 – 240 V/AC, 50/60 Hz
Power consumption:	max.320 W
Fuse:	F10AL, 250V
Production process:	Fused filament fabrication (FFF)
Model size (W*H*D):	max. 200*200*150 mm
Printing layer resolution:	0.05–0.3mm
Print speed:	20 – 300 mm/s
Print format:	GCODE
Nozzle (ϕ):	0.2mm/0.4mm/0.6mm/0.8mm; 0.2mm/0.6mm/0.8mm is optional, not come with the device.
Filament (ϕ):	1.75mm
Suitable filament material:	PLA, ABS, PETG, TPU, Wood, HIPS, ePA (Nylon), ePA–CF(20%Carbon Fiber),
Extruding temperature:	Bronze, Copper, Steel, Pearl, Aluminium +160 to +260℃
Heat bed temperature:	+40 to +100℃
Interfaces:	SD card
System requirements:	Windows 7 or later, Mac OS 10.6.8 or later
Slicing software:	Cura
Operating conditions:	+15 to +35℃, 30 – 90% relative humidity (non–condensing)
Storage conditions:	+15 to +35℃, 30 – 90% relative humidity (non–condensing)
Dimension (W*H*D):	395*400*425 mm
Weight:	21.5kg

C) Preparation before printing

3.1 Menu preview

System/Tool/Print



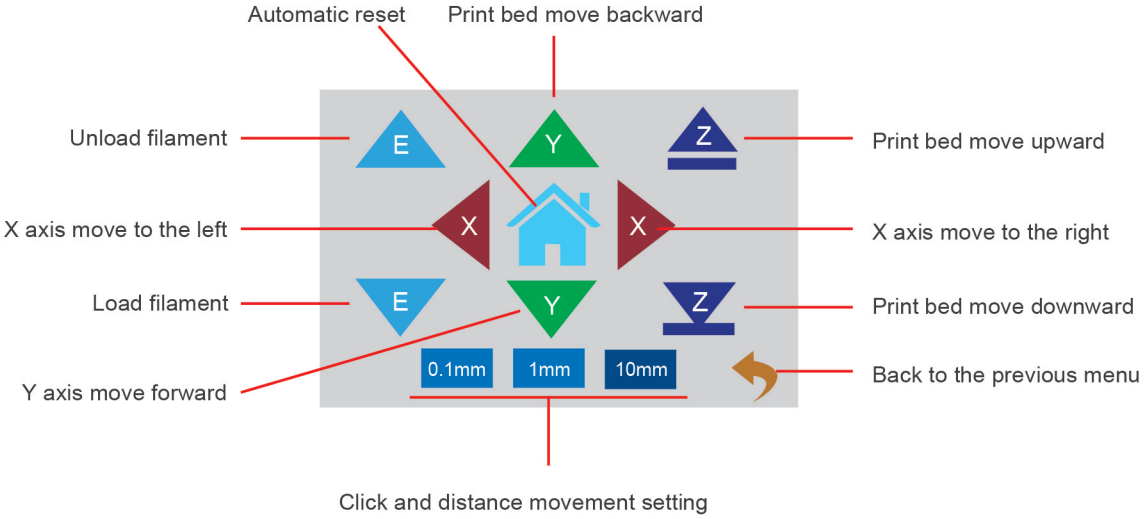
-The touch screen is on when the power supply is connected and turn on the device.
-You can touch the screen for operation.
-Don't touch the screen with the sharp object.

The user can check the printing status, equipment information, factory settings, the screen calibration by touching system icon.

The user can perform manually control, preheating, filament perform manually control, leveling, air volume adjustment, emergency stop by touching tool icon.

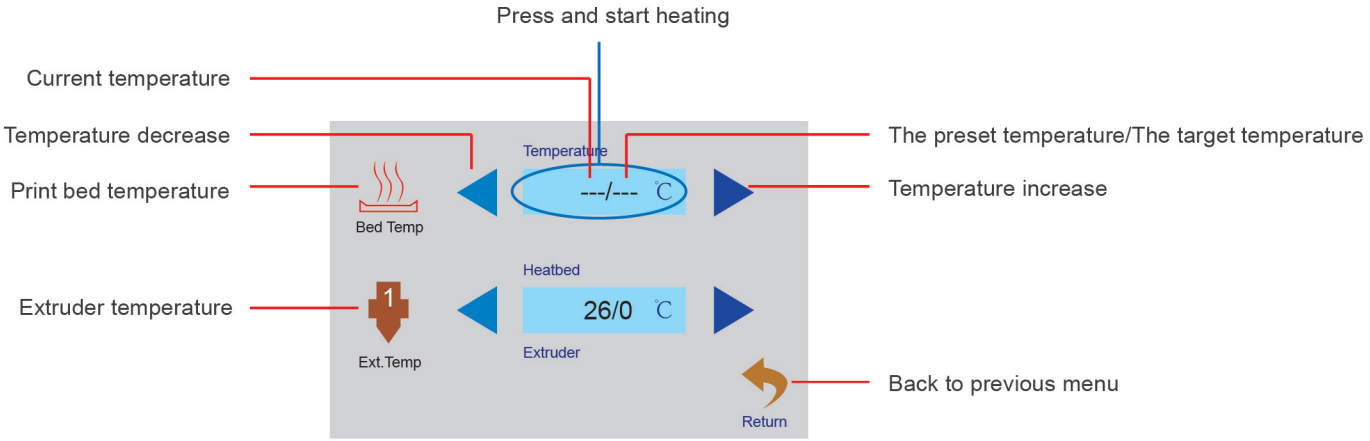
Tool/Manual interface

The user can manually reset or perform the print bed and extruder position.

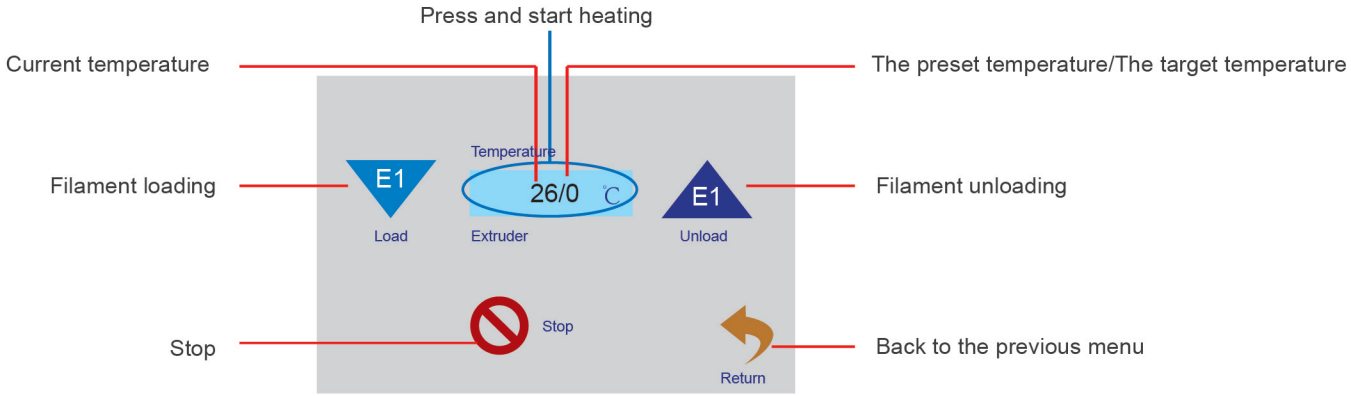


Tool/Preheating interface

The user can control the temperature of extruder and print bed by touching preheat icon.

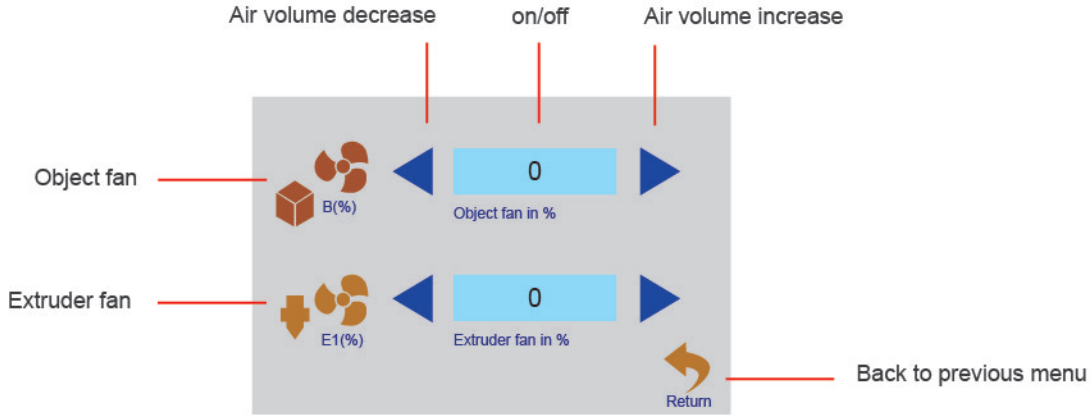


Tool/Filament loading/Unloading



Tool/Air fan

The user can control on/off also cooling fan air volume of the extruder fan and object fan.



Tool/Levelling

The user can calibrate the print bed by the menu of level.

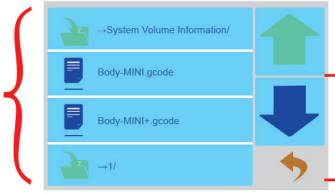
Refer to 3.2 for detailed instructions.

The user can click emergency stop icon to turn off all motors in case of emergency.

Printing menu

Select the file to start printing.

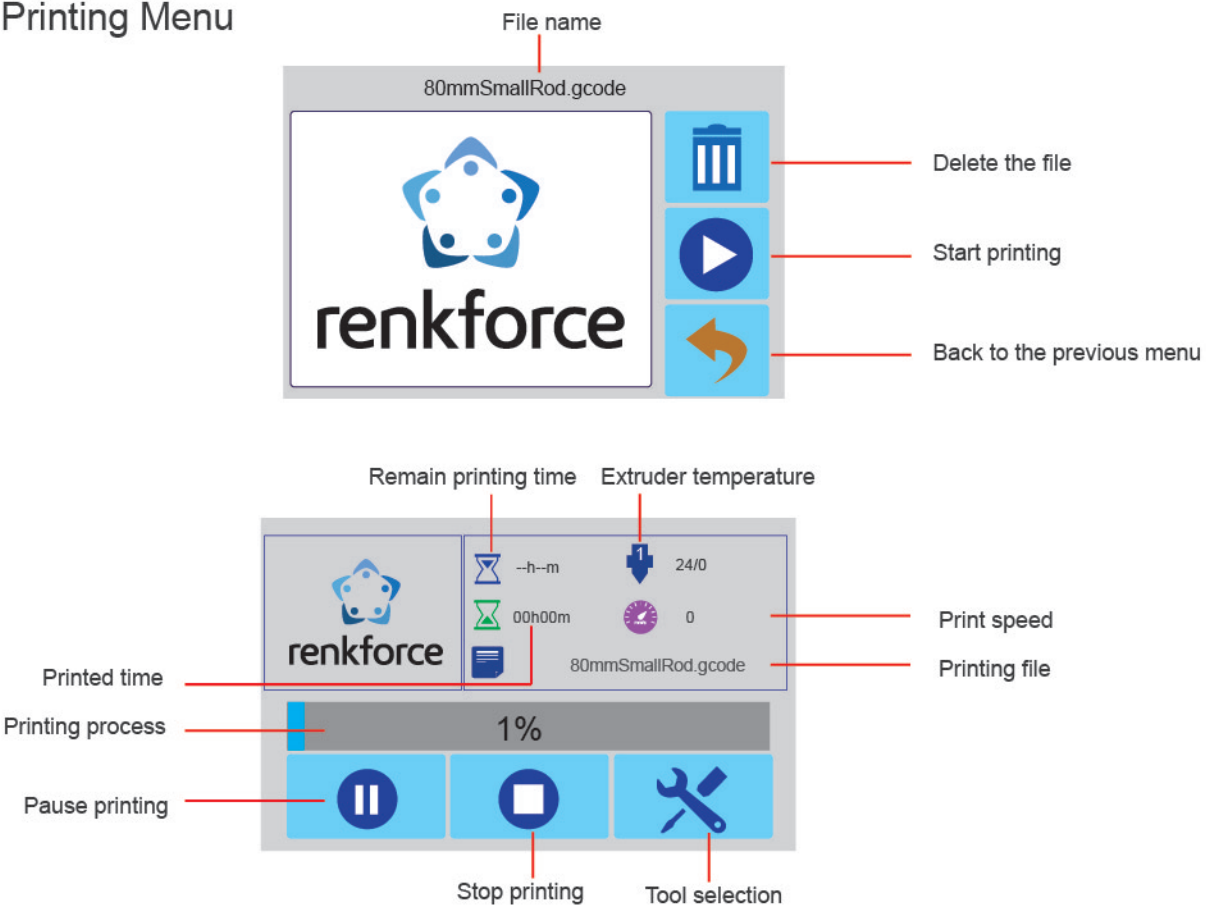
Select the file to access to printing interface



Page up and down

Back to the previous menu

Printing Menu



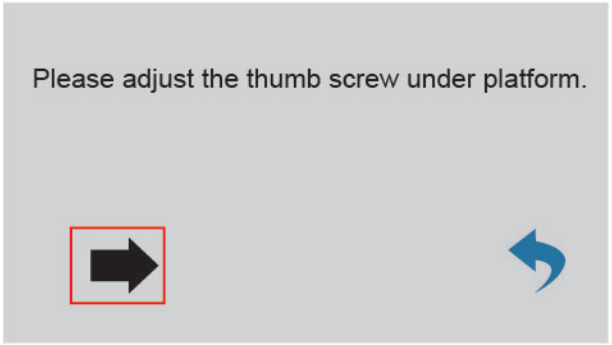
The user can adjust the print parameter by the tool menu.

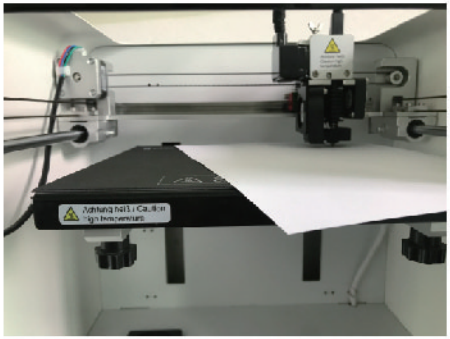
3.2 The calibration of print bed

The print bed has been calibrated and well levelled out of the factory, but some deviation will be occurred during transportation, so it is better that the user can do the print bed levelling before printing.

Remark: It is the must to preheat the build platform before doing the leveling, or the expansion of the magnetic mate after heating up will have the great impact on the leveling results and the print results.

1. Put one A4 paper between the nozzle and build platform, enter the level icon under the tool menu, and click the arrow (as show below), the build platform will move upward while the print head move to the right behind the front of the BuildMat.

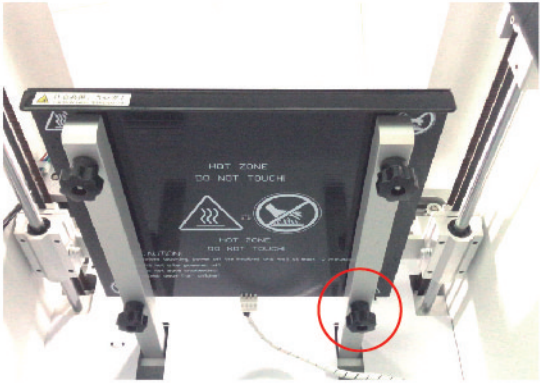


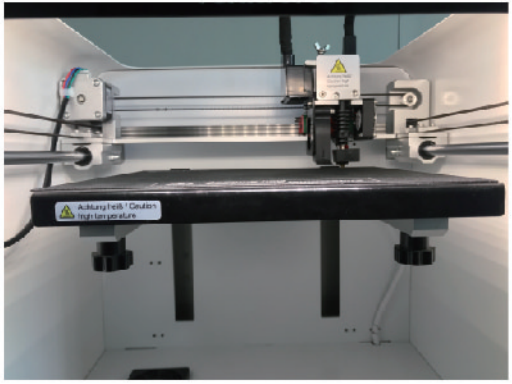


2. Calibration button

☆Slide the paper back and forth between the nozzle and magnetic mate, if the paper can be slided easily between the nozzle and magnetic mate, you can anticlockwise rotate the thumb screw until there is a slight resistance.

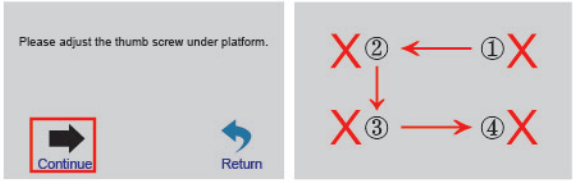
☆If the paper can't be moved, you can clockwise rotate the thumb screw until there is a slight resistance.





Caution: Don't let the build platform move upward so high, or it will damage the build platform or the print head.

3. Click next step(as shown to the right), the print head move to the left behind the front of the magnetic mate, do it as 2nd step.
4. Click next step(as shown to the right), the print head move to the left front of the magnetic mate, do it as 2nd step.
5. Click next step(as shown to the right), the print head move to the right front of the magnetic mate, do it as 2nd step.
6. After you finish the 4 steps, the build platform calibration is done.

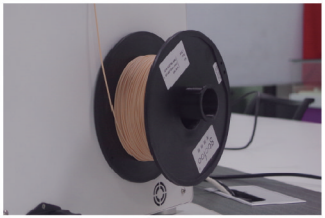
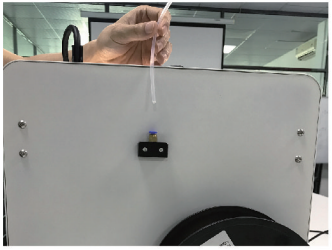
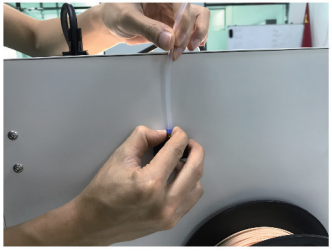
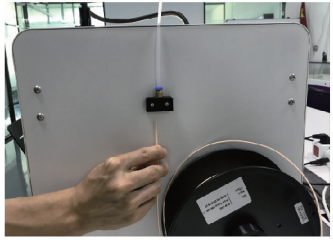


PS: If you can't print smoothly or the prints looks not so good, maybe the build platform isn't well levelled, it is better you do the calibration of build platform again.

3.3 Filament loading/unloading

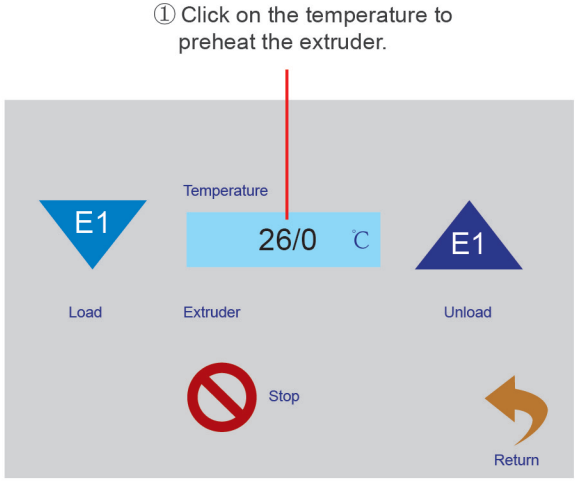
3.3.1 Installation of the spool holder and the filament tube.



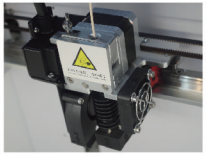

3.3.2 Filament loading of the extruder

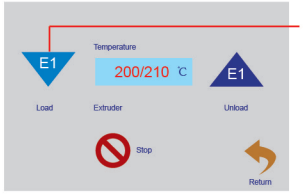
1.Enter tool menu and click filament icon.



2. Cut the filament with an angle, and load it into the feed inlet of extruder, which will feed automatically.

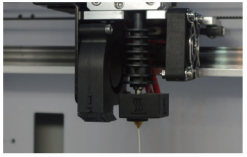


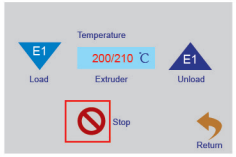




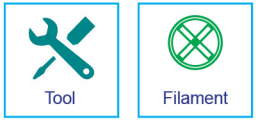
② When it comes to preset temperature, click E1, the user can load the filament into feed inlet, which will feed automatically.

3. When the filament melts and comes out smoothly from the nozzle, click stop icon.



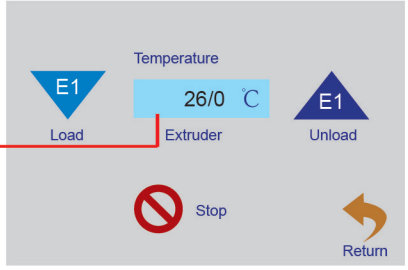


3.3.3 Filament unloading of the extruder

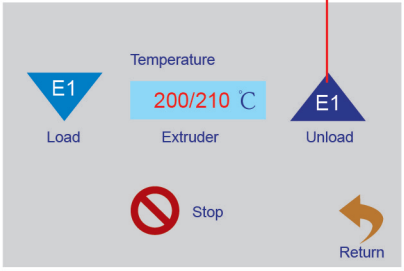


Enter tool menu and click filament icon

① Click on the temperature to preheat the print head

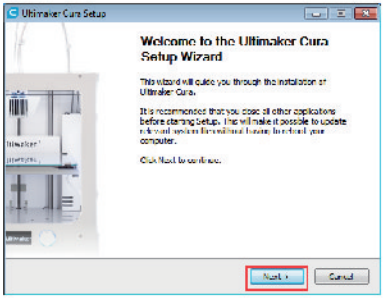


② When it comes to the preset temperature, click E1, the feed motor begins to unload automatically, and the user can take out the filament.

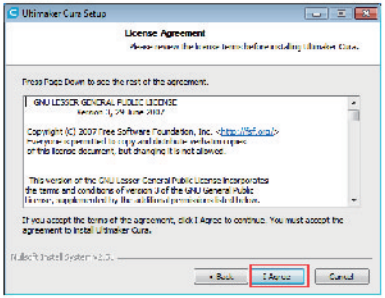


3.4 Print from“Cura“software

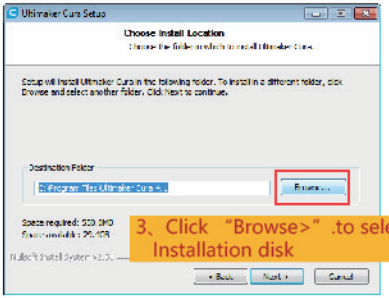
3.4.1 a) Setup of the Software-Windows®



1、Click “Next >”.

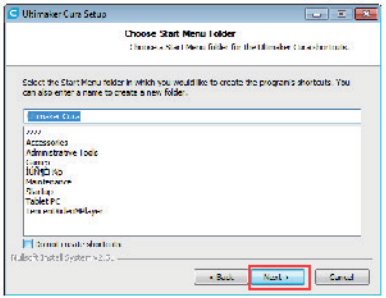


2、Click” I accept”

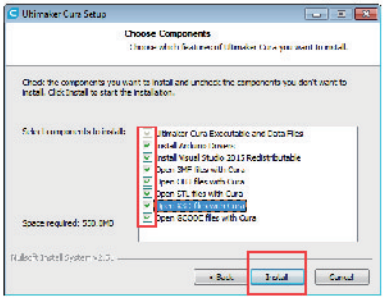


3、Click “Browse>” .to select the Installation disk

4、Click “Next >”.



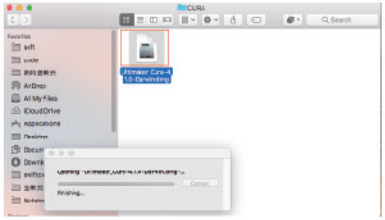
5、Click “Next >”.



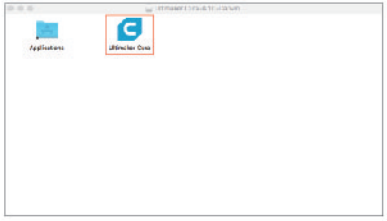
6、Click “install >”.

7、Click “finish >”.

b) Setup of the Software-Mac



1. Doucle click the icon.

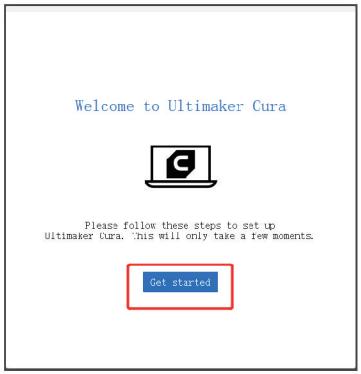


2. Doucle click the icon.

3. Software processing.

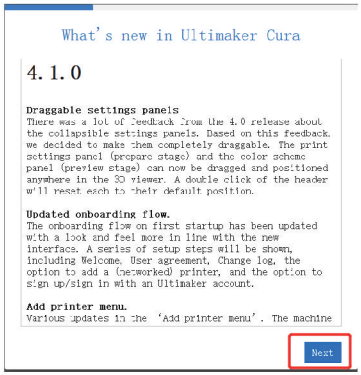
3.4.2 Start software- Windows® & Mac

After installation, the“Configuration Wizard“,which will guide you through the set up process of the 3D printer, appears

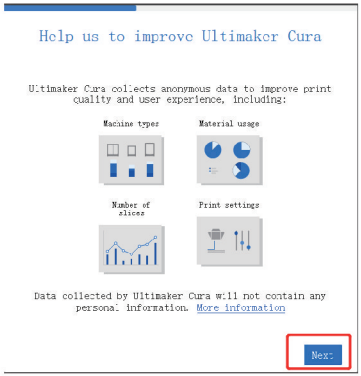


1、Click “Get started”.

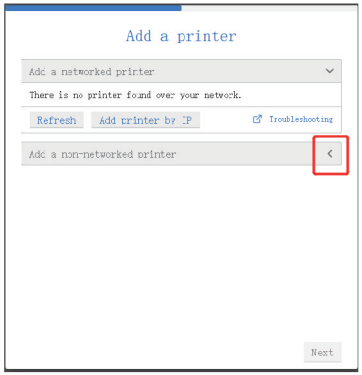
2、Click “Agree”.



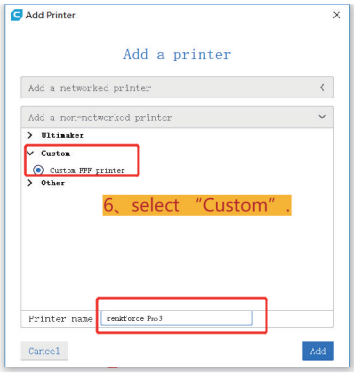
3、Click “Next”.



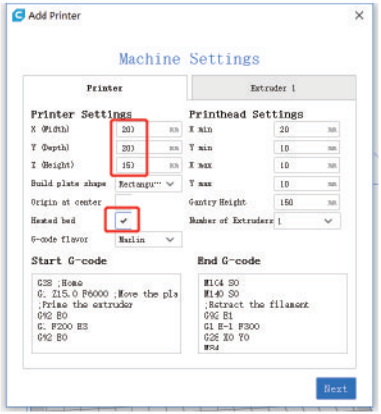
4、Click “Next”.

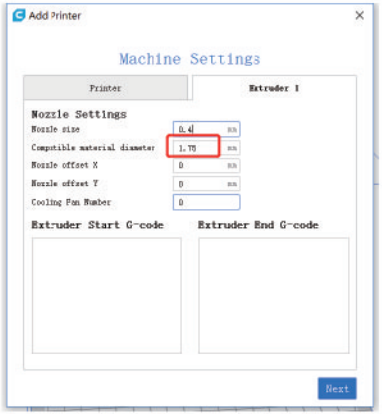


5、Click “ ‹ ”.

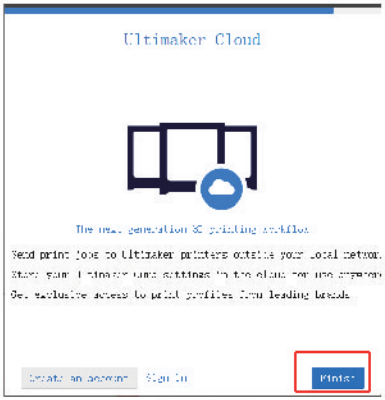


7、Fill in the printer name “renkforce Pro 3 ”.





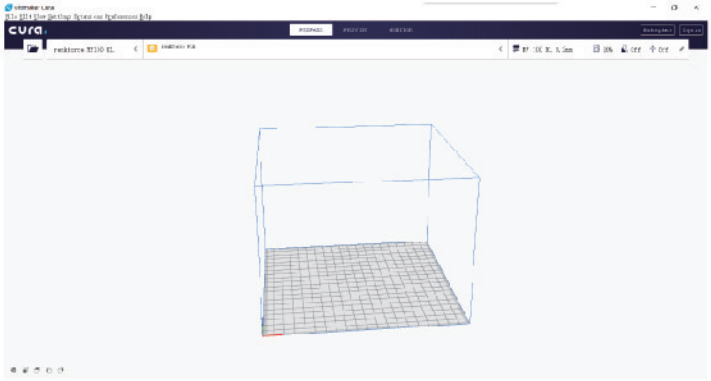
8、Input parameters as shown



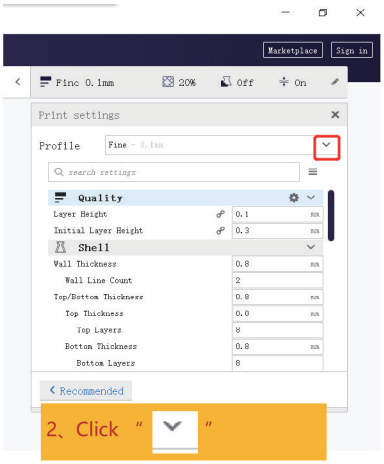
9、Finish

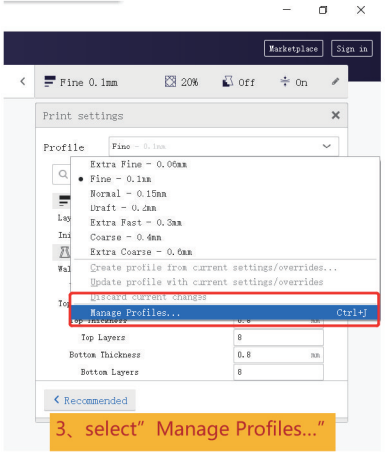
3.4.3 Software setting- Windows® & Mac

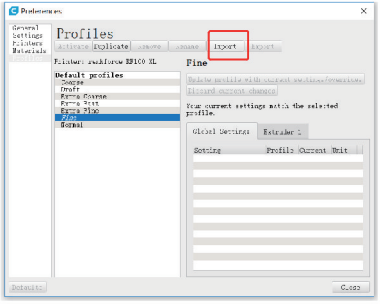
After starting the software, import related parameters of the printer

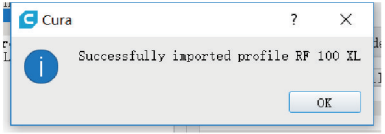


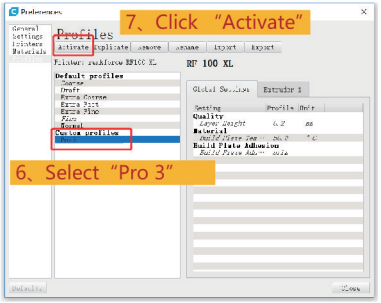

Marketplace
Sign in
Fine 0.1mm
20%
Off
On
1、Click " " .


Marketplace
Sign in
Fine 0.1mm
20%
Off
On
Print settings
Profile
Quality
Layer Height
Initial Layer Height
Shell
Wall Thickness
Wall Line Count
Top/Bottom Thickness
Top Thickness
Top Layers
Bottom Thickness
Bottom Layers
Recommended
2、Click " "


Marketplace
Sign in
Fine 0.1mm
20%
Off
On
Print settings
Profile
Extra Fine - 0.06mm
Fine - 0.1mm
Normal - 0.15mm
Draft - 0.2mm
Extra Fast - 0.3mm
Coarse - 0.4mm
Extra Coarse - 0.6mm
Create profile from current settings/overrides...
Update profile with current settings/overrides
Discard current changes
Manage Profiles... Ctrl+j
Top Layers
Bottom Thickness
Bottom Layers
Recommended
3、select" Manage Profiles..."

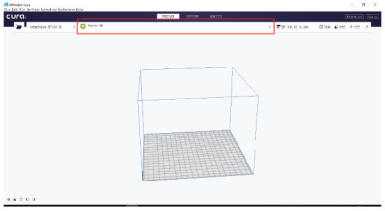

Profiles
Import
Fine
Default profiles
Global Settings
Extruder 1
4、Click " Import"
select Pro 3 .curaprofile
this file in SD card


Cura
Successfully imported profile RF 100 XL
OK
5、Click "OK"


7、Click "Activate"
Profiles
RF 100 XL
Default profiles
Custom profiles
Global Settings
Extruder 1
6、Select "Pro 3"

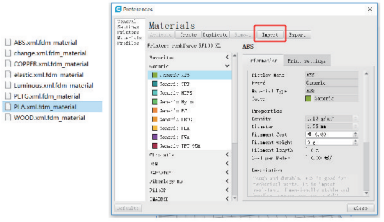
3.4.4 Material configuration file – Windows®

In order to ease the process of setting parameters for different materials (Wood/Elastic/Copper/PLA), you can load pre-configured material configuration files from the SD card.

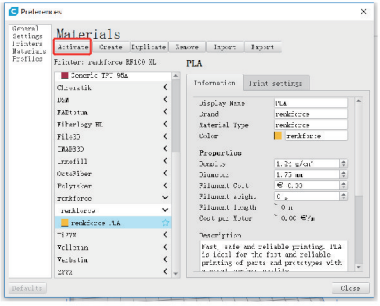


1、Click" < "

2、select " Manage Materials..."

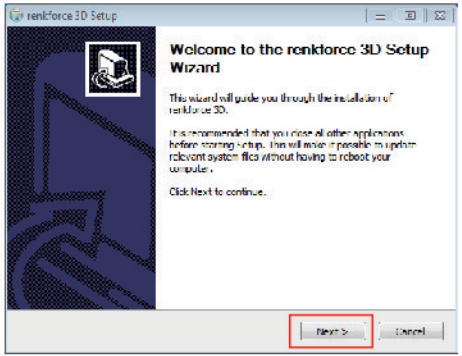


3.Click "Import" select the file in SD card (Select a filament configuration file for the filament used by you in the selection window and confirm your selection)

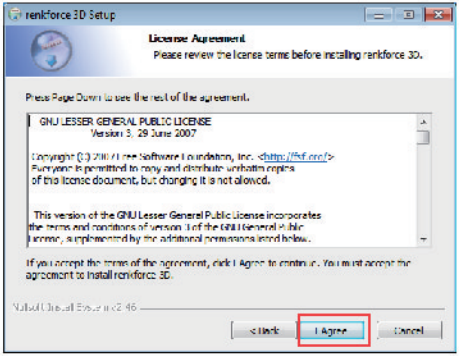


4、Click "Activate"

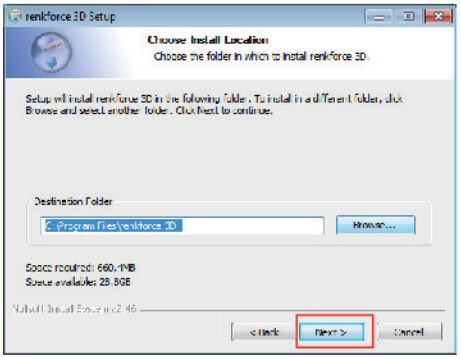
3.5 Print from“renkforce 3D setup”



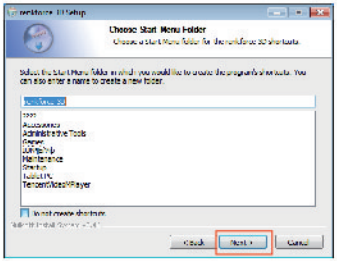
1、Click “Next >”.



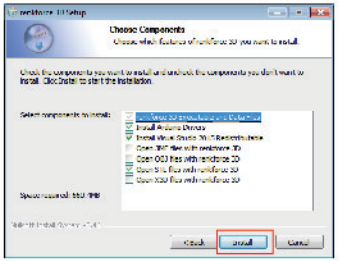
2、Click “I Agree”.



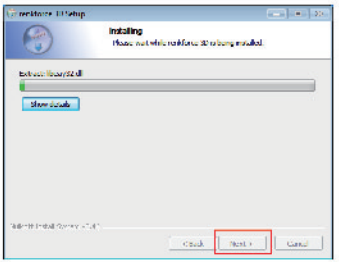
3、Click “Next >”.



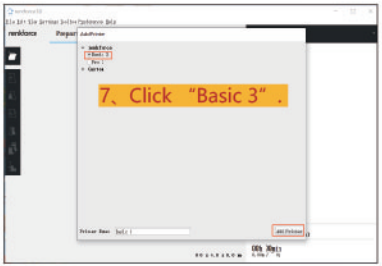
4、Click “Next >”.



5、Click “Install”.



6、Click “Next >”.



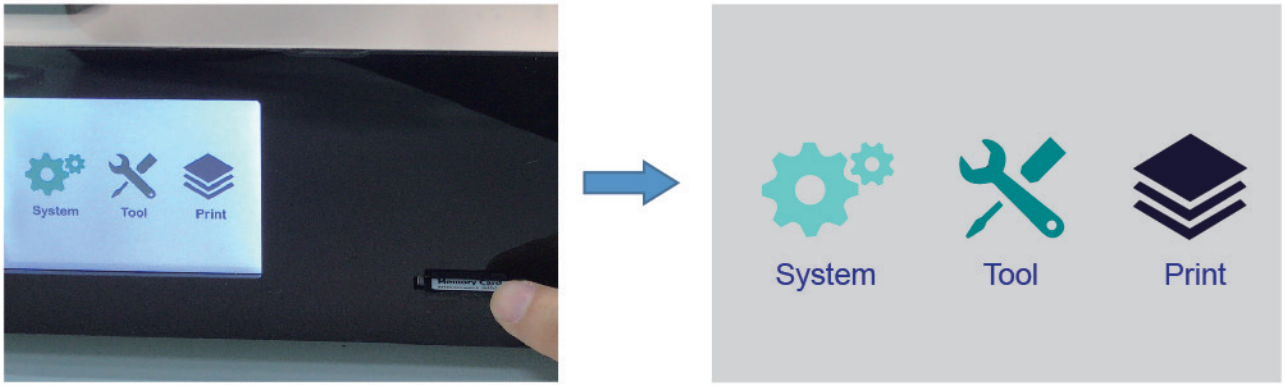
7、Click “Basic 3”.

8、Click “Add Printer”.

d、Print 3D model

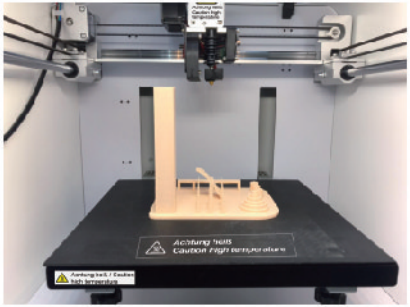
4.1 Printing

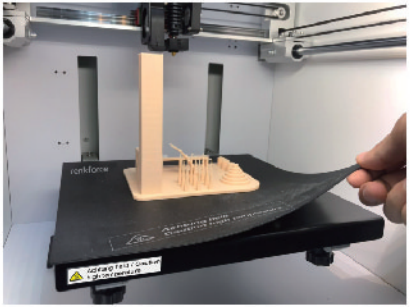
1. Save the ".gcode" files in SD card
2. Insert SD card into printers and select the files to print
3. The printers will print 3D model automatically, it will give you voice alarm when the printing has finished and enter "standby" mode.



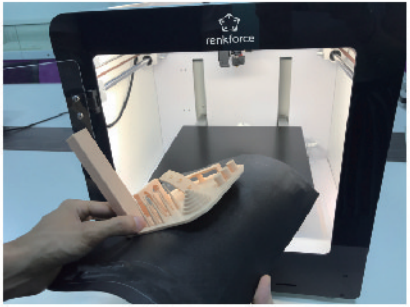
4.2 Removal of the finished prints

1. When the printing is finished, the user can take out the magnetic mate as the build platform cools.





2. Remove the finished prints from the magnetic mate by hand, no any tools needed.Now the user finish the printing and get what they want.



Cleaning and maintenance

Never use aggressive detergents, rubbing alcohol or other chemical solutions, as these could damage the casing or even impair the functioning of the product.

Never submerge the product in water.

Danger of burns! Do not touch the hot nozzle directly with bare hands.

a) Clean the device

• Use a dry, soft cloth or brush to clean the outside of the 3D printer.

b) Clean the nozzle

Cleaning of the outside of the nozzle

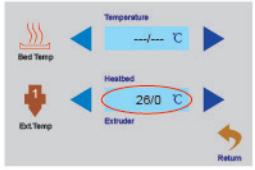
• Use a dry, soft cloth or similar to carefully wipe off the nozzle after each print; if there is still some residue left in the nozzle, pour some anhydrous alcohol over the cloth to wipe off the residue.

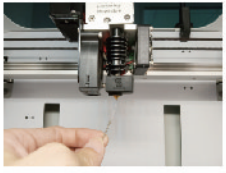
⟶ The nozzle still has to be hot for this. If this is not the case, heat up the extruder nozzle first.

Cleaning of the inside of the nozzle

• Heat up the nozzle then load and unload filament repeatedly until the filament flow is as expected.

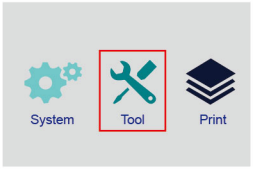
If the nozzle continues not to extrude enough material after this procedure,unload filament and use the small needle to clean the nozzle. Push up the small needle through the nozzle then push up and down repeatedly until the nozzle is clean and no any impurity inside any more.

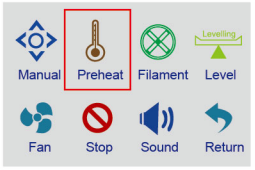


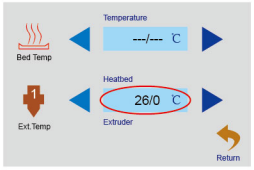


c) Clean the inside of the extruder

Heat up the nozzle to the preset temperature, press the filament leverage, and push down the ejector rod through the heatsink then pull up and down repeatedly until the heatsink & metaltube is clean and the impurity comes out.







d) Clean the magnet mate

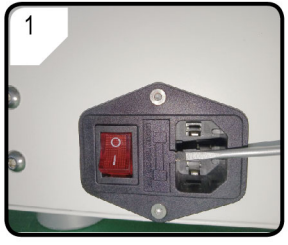
Scrape off the residue on the magnet mate with a knife gently. →

e) Replace fuse

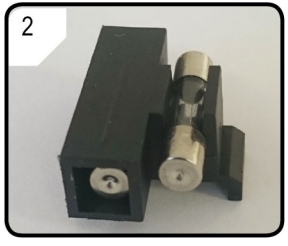
Turn off the printer and unplug the power cable before replacing the fuse and let the printer cool down.

Never repair fuses or bridge the fuse holder.

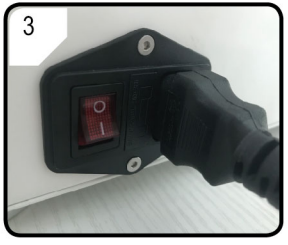
- Switch the power switch into the off position O and disconnect the printer from the mains supply.
- One spare fuse is stored in the fuse compartment between the power supply socket and power switch.
- For further fuses, ensure that you only use fuses of the specified type and rated current (see “Technical Data”) as replacement.



• Use a suitable screwdriver to open the fuse holder out of the fuse compartment carefully.



• Remove the defective fuse and replace it with a new fuse.
• Carefully push the fuse holder with the new fuse back into the fuse compartment.

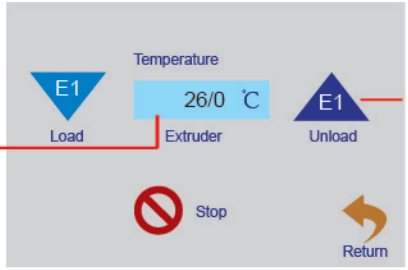


• Reconnect the device to the mains voltage and take it into operation.

f) Unload filament

- Ensure the nozzle temperature reaches 170 °C or above.

Enter tool menu and click filament icon



① Click on the temperature to preheat the print head

② When it comes to the preset temperature, click E1, the feed motor begins to unload automatically, and the user can take out the filament.

→ If the filament material is either wood or metal, cut it and replace it with PLA filament first as described in section“d) Change / Replace filament“ on page 24, then unload the PLA filament. The PLA filament removes possible residue left behind by the wood or metal filament.

g) Store the 3D printer

- Unload the filament.
- Move the power switch into the off position O and disconnect the printer from the mains voltage. Let the printer cool down to room temperature.
- Clean the printer if you are not going to use it for an extended period of time.
- Store it in a dry, dust-free location out of the reach of children.

Troubleshooting

Problem	Possible Solution
The 3D printer does not work after switching on. The display remain dark.	Check the connection of the mains line.
	Check the mains socket. Is it properly supplied with current?
	Check the mains fuse(for details refer to chapter e)Replace fuse on page 29.
SD card can't be read by the 3D printer	Remove the SD card and insert it again.
	Switch the 3D printer off and on again.
	Replace another SD card
The printing object has defects.	Check the nozzle temperature settings. It must match the filament material and print object. Experiment with the temperature settings.
	Only start printing when the nozzle has reached temperature.
	Keep a reasonable distance between the print bed and nozzle, not too close not too far away.
	Remove any excessive filament on nozzle before each print.
The filament supply breaks off or there is not enough filament material supplied.	Check the filament spool. It must turn easily.
	Check whether the filament is trapped somewhere on its way from spool to extruder.
	Check whether the filament is properly inserted through the filament tube.
	Check whether the temperature of the nozzle is too low for filament material used.
	Check whether the extruder is clogged. Clean the extruder (for details refer to chapter c) "Clean the extruder" on page 29.
	Check whether the nozzle is clogged. Clean the nozzle(for details refer to chapter “b) Clean the nozzle“ on page28).

Problem	Possible Solution
Printings stops during the process.	Wrong data of ".gcode" files.
	Poor connect between SD card and 3D printer.
The printed object does not adhere to the build bed.	Nozzle temperature is too low. Increase nozzle temperature.
	There are residues on the print bed that prevent adhesion of the object. Clean the print bed (for details refer to chapter d) “Clean the magnet mate” on page 29).
	Print speed may be too high. Reduce speed.
	The nozzle is too far from the print bed, calibrate the print bed again.
	Add the raft to the print object.
The printed object cannot be removed from the build bed.	Wait until the printed object and magnet mate has cooled down.
	Tip up the object with a knife gently, and remove it with your hands. Then increase the distance between build bed and nozzle. Refer to chapter 3.2 “The calibration of print bed” on page 14.
LCD display shows undecipherable content or remains blank.	Restart the 3D printer.
Nozzle cools down unexpectedly.	Select < Preheat > to reheat the nozzle and have further action within following 5 minutes for example load/ unload filament, printing etc.
Moving path of nozzle is blocked.	Always remove any excessive filament on nozzle before each print.
Nozzle is clogged.	Clean the inside of the nozzle, for details refer to “b) Clean the nozzle“ on page 28.
	Clean the extruder,for details refer to "c) Clean the inside of the extruder" on page 29.
	Replace the extruder unit (available under item no. 2269325).

Problem	Possible Solution
Extruder takes wrong direction during printing.	Check whether the filament spool moves smoothly on its holder.
Filament becomes stuck during unloading.	Load and unload filament.
The extruder does not heat up or does not stop heating.	Restart the 3D printer. Select < Preheat > and wait for 2 minutes, and check whether any changing on the temperature.
	Thermistor and heater are malfunctioning. Replace the thermistor and heater (available under item no. 2269451 & 2269452).
"Temp sensor error or not enough power" is shown on the display, touch screen is without any function and 3D printer does not work.	Switch off the 3D printer. Loosen 4pcs screws of the LCD screen cover a little bit and see whether the problem is solved.
	Thermistor and heater are malfunctioning and cannot detect the extruder temperature correctly Replace the thermistor and heater (available under item no. 2269451 & 2269452).

Disposal

Electronic devices are recyclable waste and must not be placed in household waste. At the end of its service life, dispose of the product according to the relevant statutory regulations.

Don't touch the heat bed during preheating or printing.

Don't touch the print head during preheating or printing.

Don't put hands inside during machine operating.