



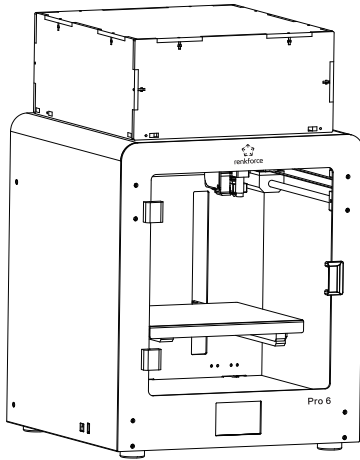
renkforce

User Manual

3D Printer Pro 6

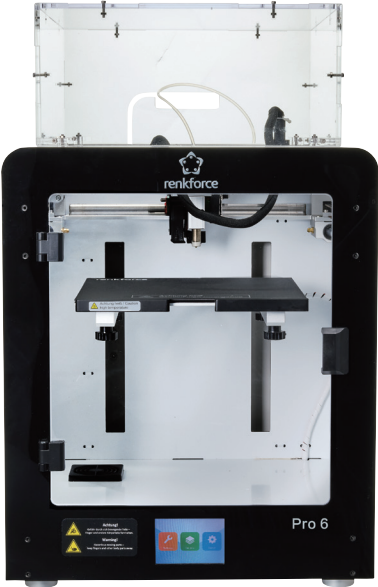
Easy solution of 3D model creation

Item No. 2356116



☆ Please read the User Manual before using this product.

Professional, Intelligent, Multi-function













Pro 6

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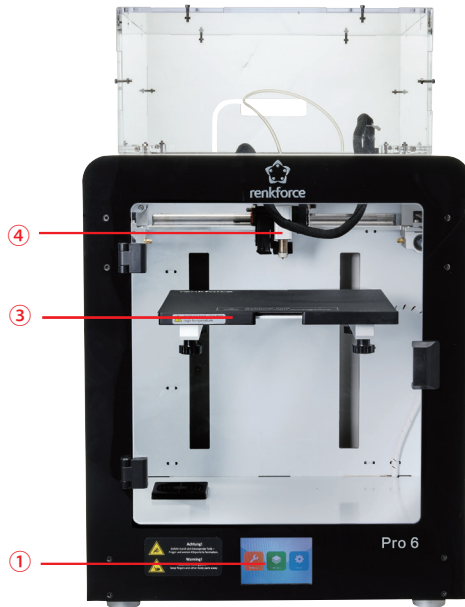
a. Accessories list

1.1 Accessories list

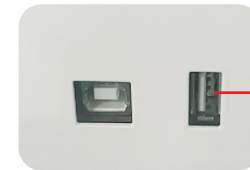
Picture	Name	Qty.	Unit
	Power cable	1	pcs
	4GB USB Flash disk	1	pcs
	Magnetic mate	1	pcs
	Full Metal Build platform	1	pcs
	Z sensor calibration tool	1	pcs
	Ejector rod-1.8*150 mm	1	pcs
	Hex wrench-6.0 mm	1	pcs
	Allen Driver within 1.5/2/2.5/3 mm dia.	4	pcs
	Filament spool holder	1	pcs
	Small needle 0.3*75 mm	2	pcs
	Filament tube	1	pcs
	Tweezer	1	pcs
	USB cable	1	pcs
	Side cutter	1	pcs
	Housing (Top cover and front door)	1	pcs

b. Product introduction

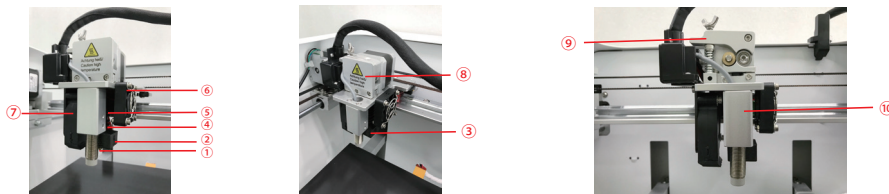
2.1 Appearance introduction



- ① Touch Screen
- ② USB Slot
- ③ Build Platform
- ④ Inductive sensor of auto-leveling
- ⑤ Mainboard Cooling Fan
- ⑥ Power socket and switch



2.2 Introduction of extruder



- ① Nozzle ② Heat block ③ Heater and NTC ④ Heat break throat ⑤ Heatsink
⑥ Extruder fan ⑦ Object fan ⑧ Cover of extruder ⑨ The leverage ⑩ Inductive sensor of auto-leveling

2.3 Introduction of Build Platform



- ① Build Platform ② Magnetic mate ③ Leveling Thumb Screw (4pcs) ④ Heating Panel

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

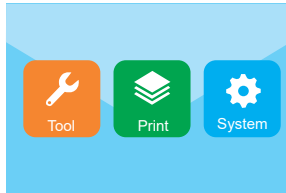
2.4 Technology Specification

Operating voltage:	100 - 240 V/AC, 50/60 Hz
Power consumption:	max.320 W
Fuse:	F10AL, 250 V
Production process:	Fused filament fabrication (FFF)
Model size (W*H*D):	max. 200*200*200 mm
Printing layer resolution:	0.05-0.3 mm
Print speed:	20-100 mm/s
Print format:	GOODE
Nozzle (φ):	0.2 mm/0.4 mm/0.6 mm/0.8 mm;0.2 mm/0.6 mm/0.8 mm is optional, not come with the device.
Filament (φ):	1.75 mm
Suitable filament material:	PLA, ABS, PETG, TPU, Wood, HIPS, ePA (Nylon), ePA-CF(20 %Carbon Fiber), Bronze, Copper, Steel, Pearl, Aluminium
Extruding temperature:	+160 to +260 °C
Heat bed temperature:	+40 to +120 °C
Interfaces:	USB disk or USB cable
System requirements:	Windows 7 or later, Mac OS 10.6.8 or later
Slicing software:	Cura
Operating conditions:	+15 to +35 °C, 30 – 90 % relative humidity (non-condensing)
Storage conditions:	+15 to +35 °C,30 – 90 % relative humidity (non-condensing)
Dimension (W*H*D):	412*396*505 mm
Weight:	30.4kq

c. Preparation before printing

3.1 Menu preview

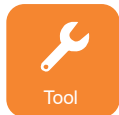
System/Tool/Print



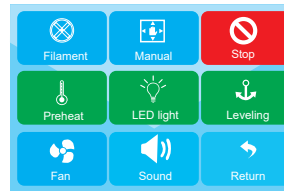
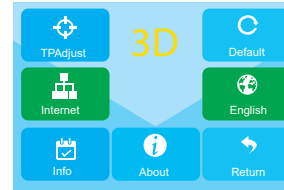
- The touch screen is on when the power supply is connected and turn on the device.
- You can touch the screen for operation.
- Don't touch the screen with the sharp object.



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



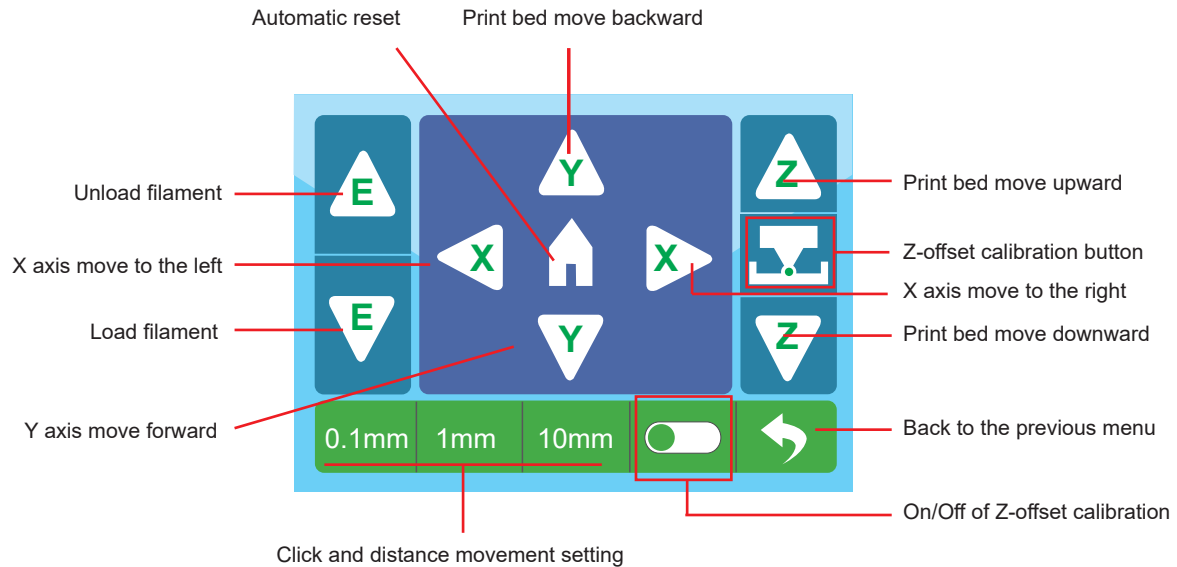
The user can perform manually control, preheating, consumable loading/unloading, levelling, air volume adjustment, emergency stopping, sound on/off by touching tool icon.



Tool/Manual interface



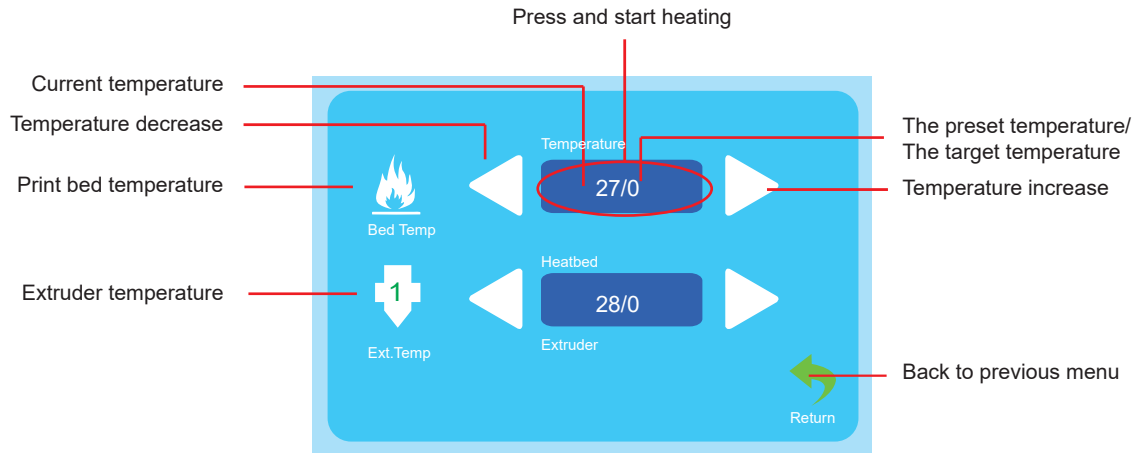
The user can manually reset or perform the print bed and extruder position.



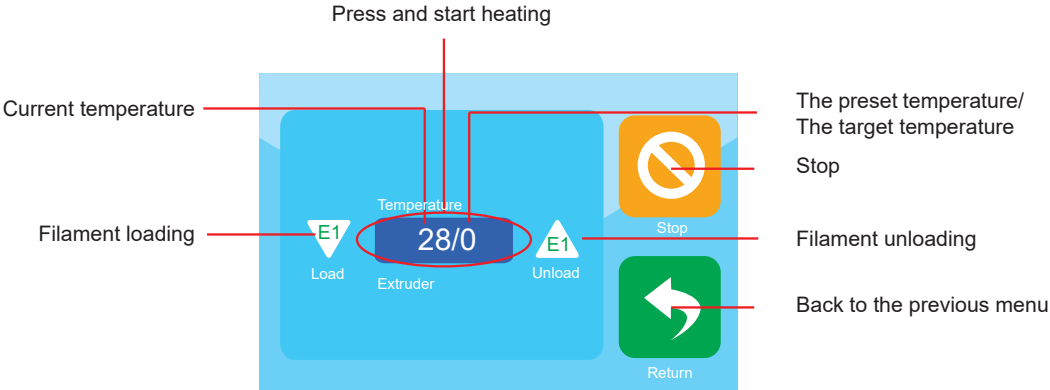
Tool/Preheating interface



The user can control the temperature of extruder and build platform by touching preheat icon.



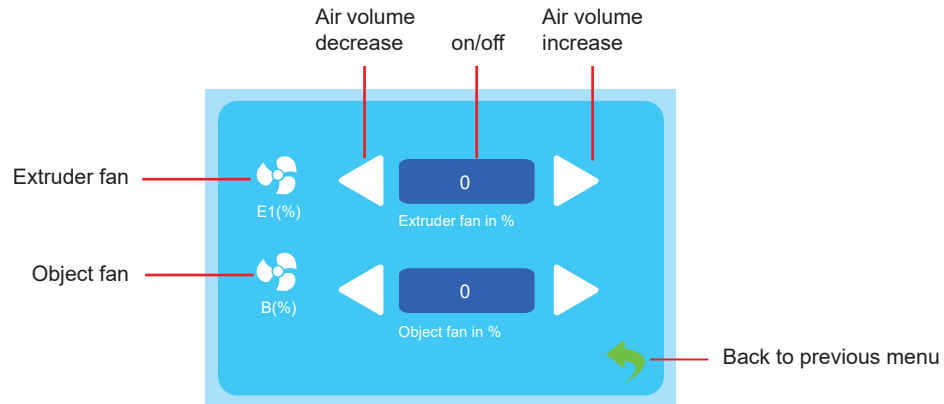
Tool/Filament loading/Unloading



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 build platform by the menu of level. Refer to 3.2 for detailed instructions.



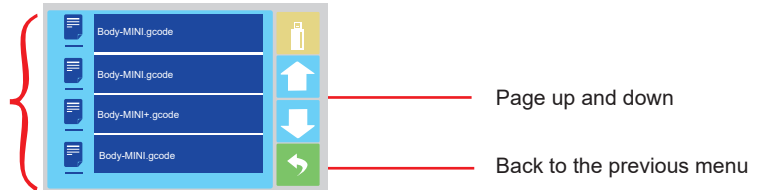
The user can click emergency stop icon to turn off all motors in case of emergency.

Printing menu



Select the file to start printing.

Select the file to access to print interface



Print Menu

The screenshot shows a 3D printer's print menu interface. It features a central panel with the 'renkforce' logo and a progress bar at 16%. To the right of the progress bar is a 'Stop printing' button. Below the progress bar are indicators for 'Nozzle temperature' (191/190) and 'Build platform temperature' (51/50). To the right of these are 'Print speed' (100mm/s) and a 'Pause printing' button. At the bottom of the central panel are 'Printed time' (04h07m) and 'Remain print time' (03h06m). Below the central panel is a file icon and the name 'K1-07-11.gcode'. To the right of the central panel are three more buttons: 'Print speed', 'Pause printing', and 'Printer parameter adjustment'.

Printing process 16%

Nozzle temperature 191/190

Build platform temperature 51/50

Print speed 100mm/s

Printed time 04h07m

Remain print time 03h06m

renkforce

K1-07-11.gcode

Stop printing

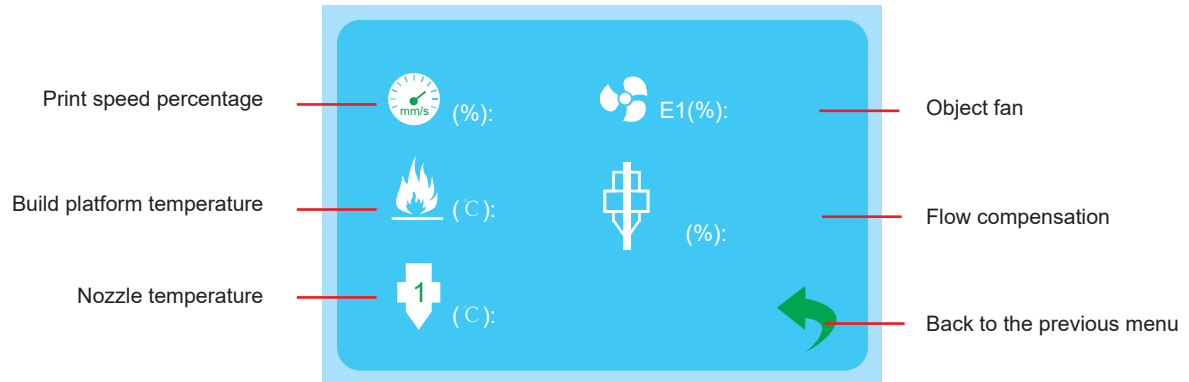
Print speed

Pause printing

Printer parameter adjustment



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



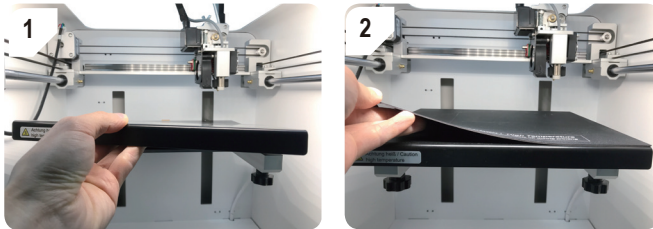
3.2 The calibration of build platform

★ Don't adjust 4 screws under the print bed unless necessary, and it is must to following 3.2.3 when we adjust 4 screws, or there is the damage to the extruder.

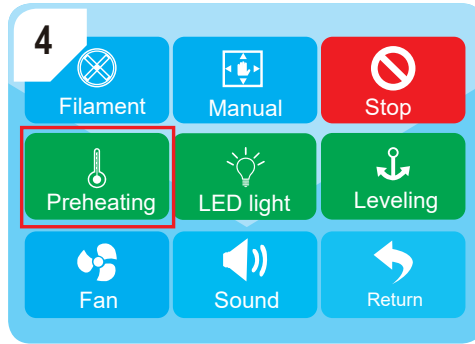
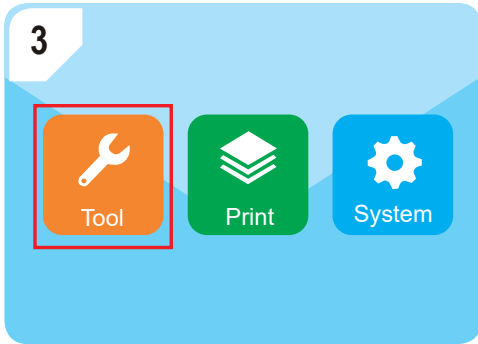
3.2.1 The build platform has been calibrated and well levelled out of the factory, but some deviation will be occurred during transportation, so it is better that the user can do the build platform levelling before printing.



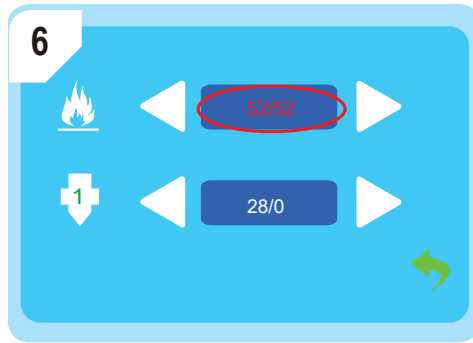
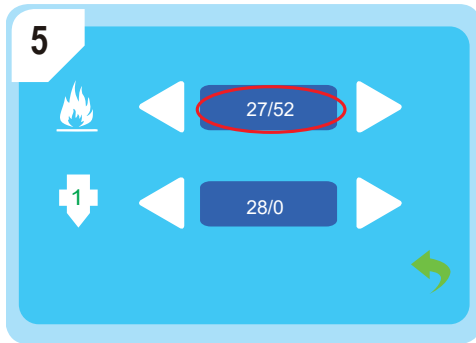
Remark: It is the must to preheat the build platform before doing the leveling, or the expansion of the magnetic mate after heating up will have the great impact on the leveling results and the print results.



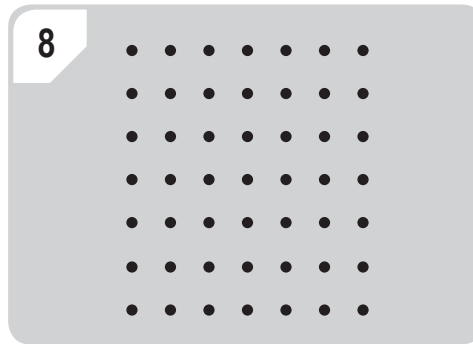
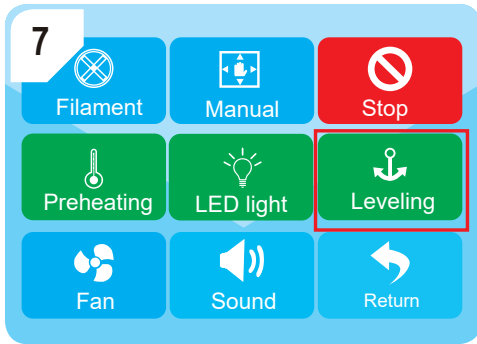
★ Make sure the metal plate and the magnet mat have been put inside before leveling.



Enter into "Tool"->"Preheating"



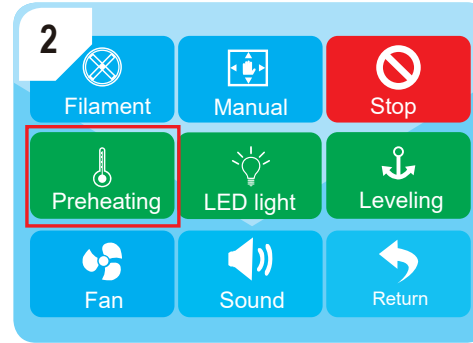
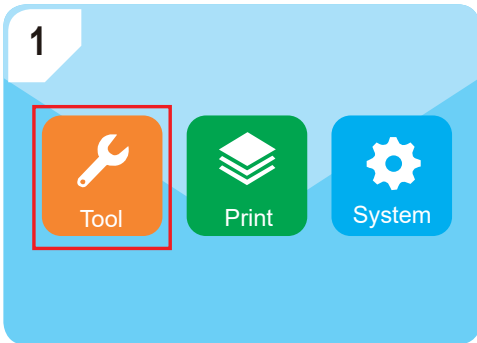
Wait until the temperature of the print bed is up to the pre-set value, in this case it is 52 °C.



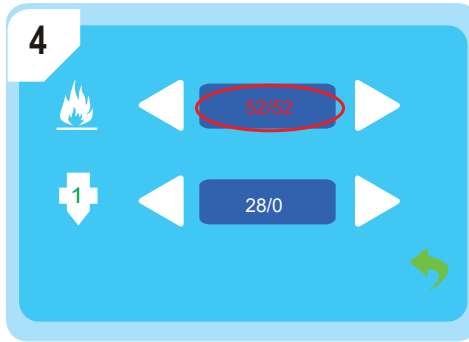
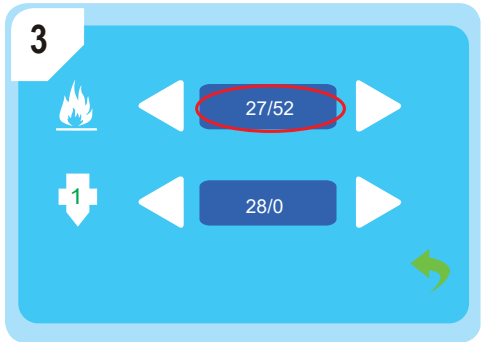
Enter into "Tool"--"Leveling" to run the auto-leveling and finish the steps.

★ If we can't get good print results, we can do the Z-offset calibration as 3.2.2.

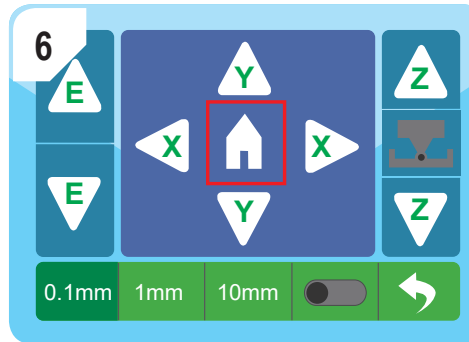
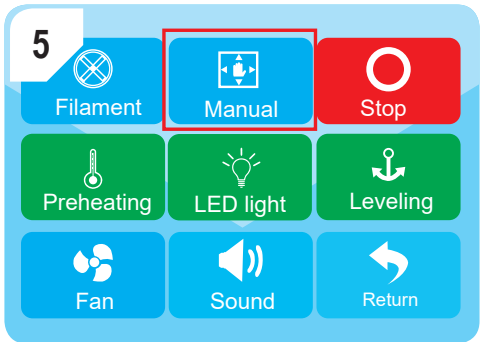
3.2.2 Z-offset Calibration



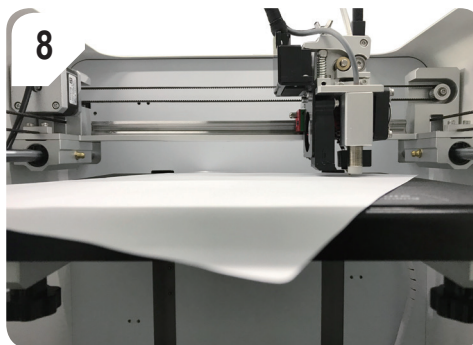
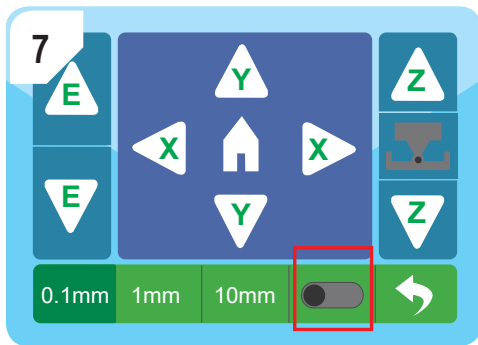
Enter into "Tool"--"Preheating"



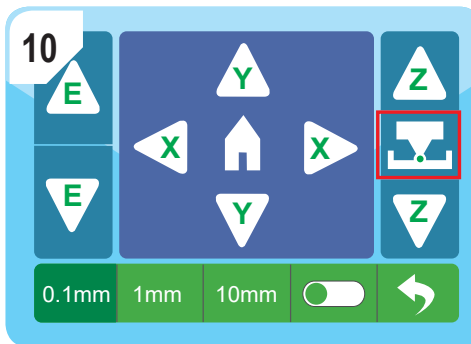
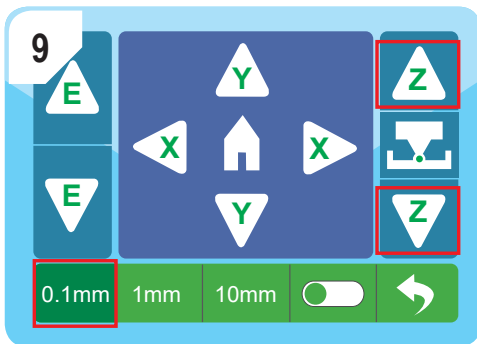
Wait until the temperature of the print bed is up to the pre-set value, in this case it is 52 °C.






Enter into "Manual" and press "Home" icon, when the extruder will move to the zero position.



Turn on Z-offset calibration function and put one A4 paper between the nozzle and the print bed.

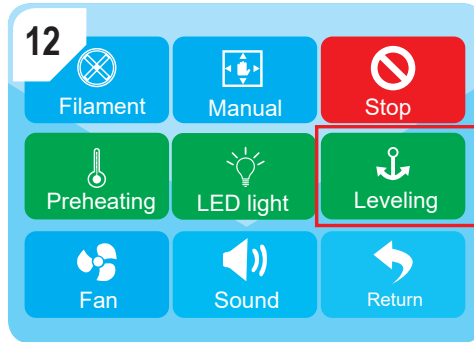


★ Make sure we do the Z-offset calibration under the distance setting of 0.1 mm to avoid any damage on the extruder.

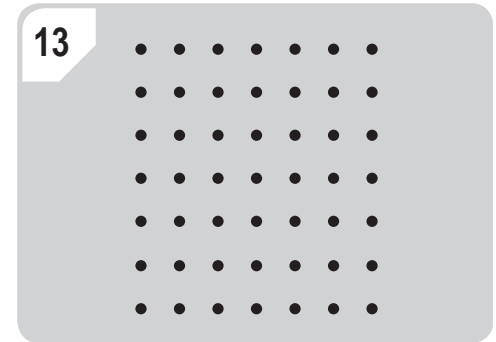
Slide the paper back and forth with   icon until there is slight resistance between the nozzle and the print bed, then press  icon to finish the calibration.



Press "confirm".

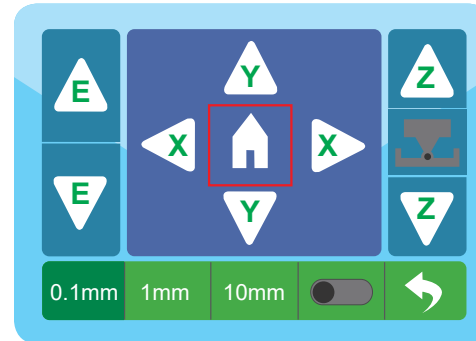


Enter into "Tool"--"Leveling" to do the auto-leveling and finish Z-offset calibration.




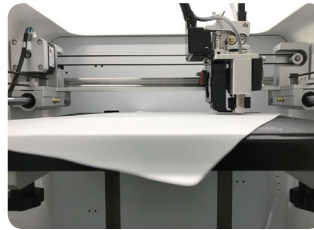
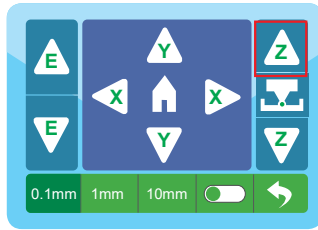
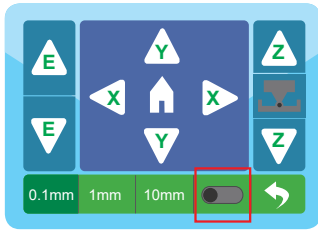
3.2.3 If there is big deviation on the print bed leveling, it is the must to follow 3.2.3 to do manual leveling at first.

a) Enter into "Tool"--"Manual" and press "Home" icon, when the extruder will move to the zero position.

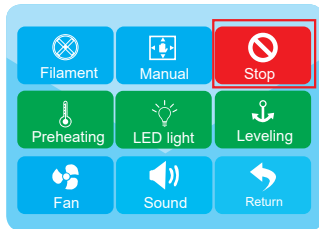


b) Turn on Z-offset button, and put one A4 paper between the nozzle and the print bed, lift up the print bed by

pressing  icon until there is slight resistance.



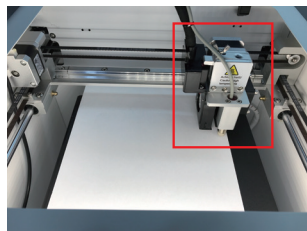
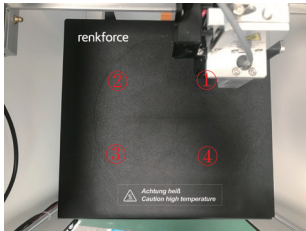
c) Press emergency stop icon.



d) Move the extruder in 4 points as pictures manually, and make sure we have finished the manual leveling in each points as below:

☆ If the paper can be slid easily, you can anticlockwise rotate the thumb screw until there is slight resistance.

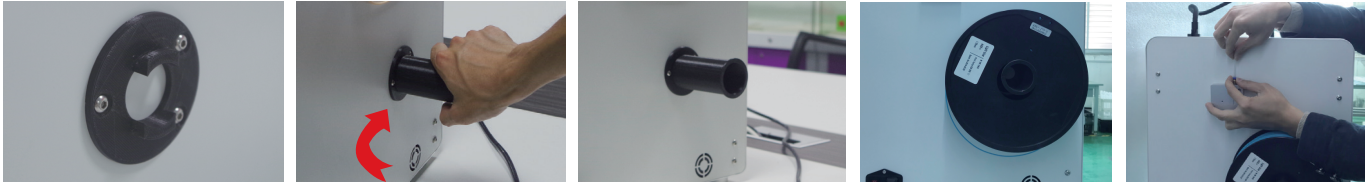
☆ If the paper can't be slid, you can clockwise rotate the thumb screw until there is slight resistance.



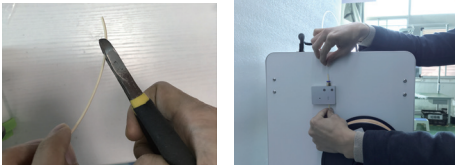
e) Once we have finished a.b.c.d 4steps, we have to repeat the 3.2.2 to do Z-offset calibration, after that you can do the auto-leveling and start printing.

3.3 Consumable loading/unloading

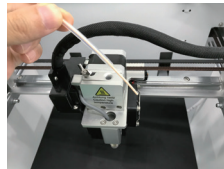
3.3.1 Installation of the spool holder and the filament tube.



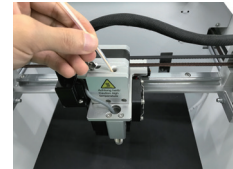
2. ① Cut the filament with an angle and keep it straight, with which the filament can go smooth though the filament run out sensor.



② Insert the filament into the tube until approximately 5 cm is visible at the extruder end.



③ Slide the filament forward gently until the filament is slowly fed into the extruder automatically.



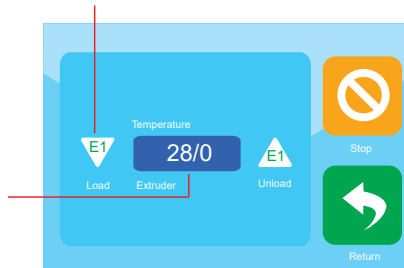
3.3.2 Consumable loading of the extruder



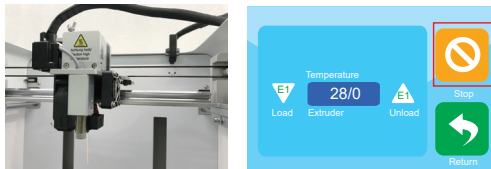
1. Enter tool menu and click filament icon.

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

① Click on the temperature to preheat the extruder.



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

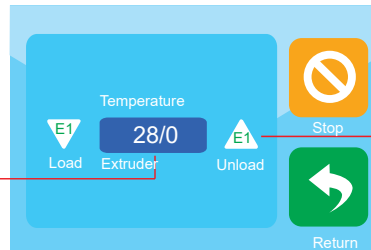


3.3.3 Consumable unloading of the extruder



Enter tool menu and click filament icon

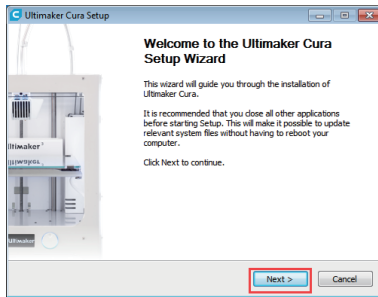
① Click on the temperature to preheat the print head



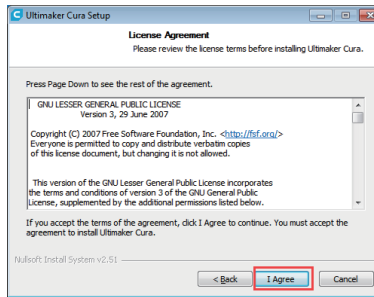
② When it comes to the preset temperature, click E1, the feed motor begins to unload automatically, and the user can take out the filament.

3.4 Generation of printing files

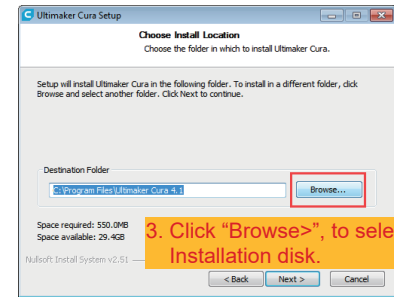
3.4.1 a) Setup of the Software-Windows®



1. Click "Next >" .

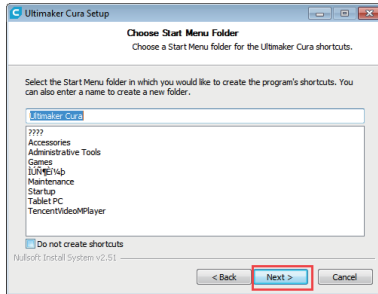


2. Click "I accept" .

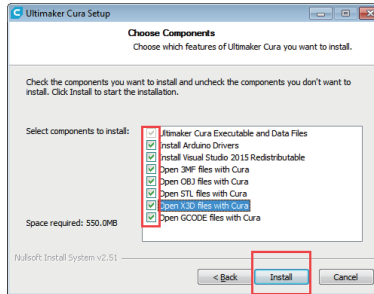


3. Click "Browse>", to select the Installation disk.

4. Click "Next >" .



5. Click "Next >" .

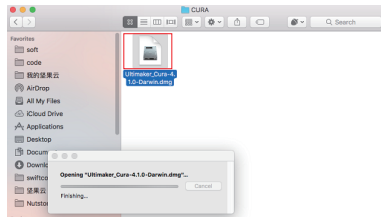


6. Click "Install >" .

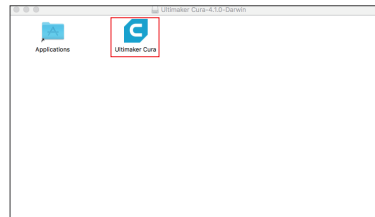


7. Click "finish >" .

b) Setup of the Software-Mac



1. Double click the icon.



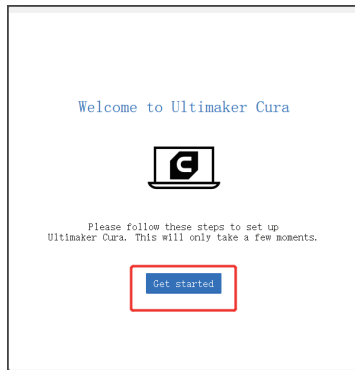
2. Double click the icon.



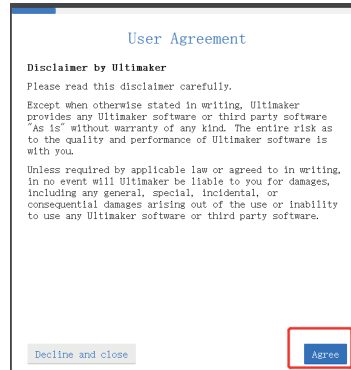
3. Software processing.

3.4.2 Start software- Windows® & Mac

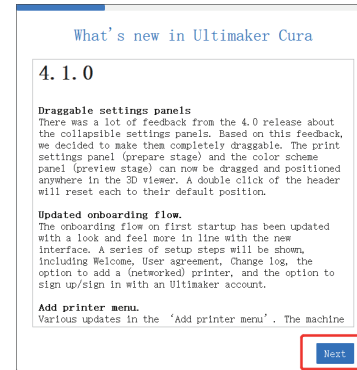
After installation, the “Configuration Wizard”, which will guide you through the set up process of the 3D printer, appears



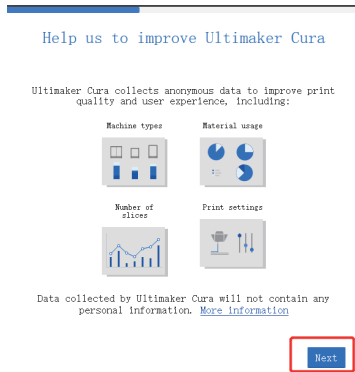
1. Click “Get started”.



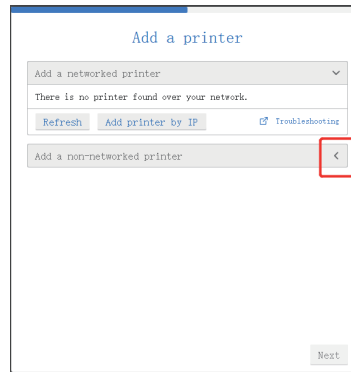
2. Click “Agree”.



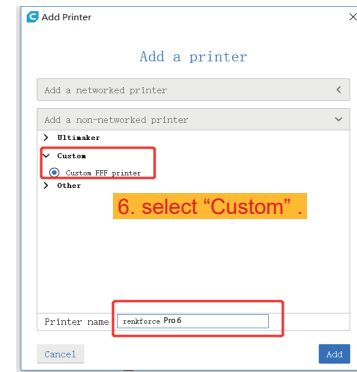
3. Click “Next”.



4. Click “Next”.



5. Click “Next”.



7. Fill in the printer name “renforce Pro 6”.

Add Printer

Machine Settings

Printer | Extruder 1

Printer Settings		Printhead Settings	
X (Width)	200 mm	X min	20 mm
Y (Depth)	200 mm	Y min	10 mm
Z (Height)	200 mm	Y max	10 mm
Build plate shape	Rectangle	Y max	10 mm
Origin at center	<input type="checkbox"/>	Gantry Height	150 mm
Heated bed	<input checked="" type="checkbox"/>	Number of Extruders 1	
G-code flavor	Marlin		

Start G-code

```
G28 ;Home
G1 Z15.0 F6000 ;Move the pla
;Prime the extruder
G92 E0
G1 F200 E3
G92 E0
```

End G-code

```
M104 S0
M140 S0
;Retract the filament
G92 E1
G1 E-1 F300
G28 X0 Y0
M84
```

Next

8. Input parameters as shown.

Add Printer

Machine Settings

Printer | Extruder 1

Nozzle Settings

Nozzle size: 0.4 mm

Compatible material diameter: 1.75 mm

Nozzle offset X: 0 mm

Nozzle offset Y: 0 mm

Cooling Fan Number: 0

Extruder Start G-code | **Extruder End G-code**

Next

9. Finish.

Ultimaker Cloud

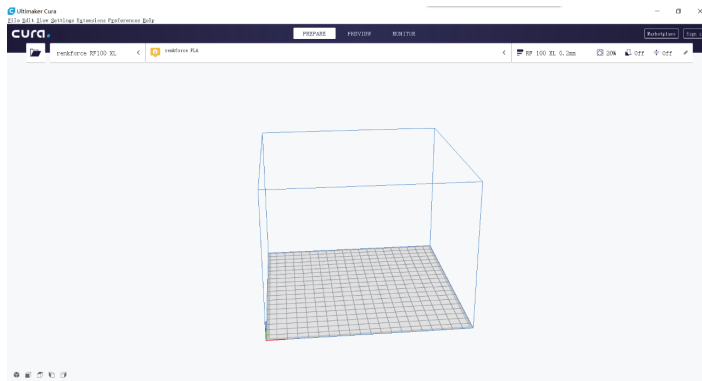
The next generation 3D printing workflow

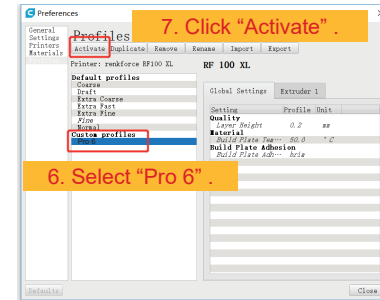
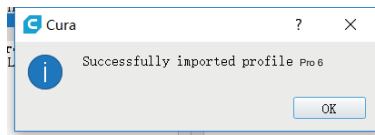
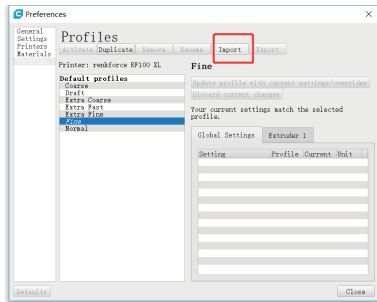
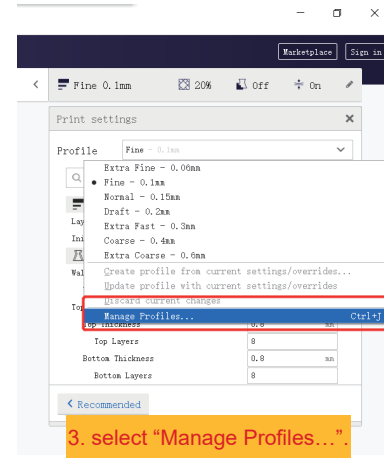
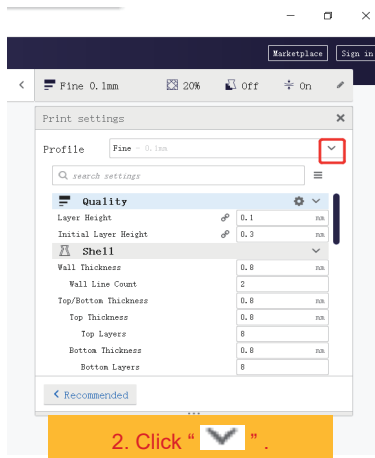
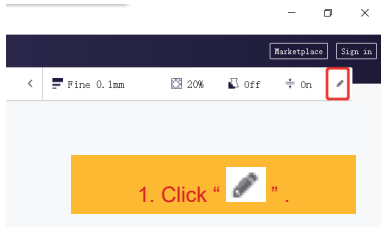
Send print jobs to Ultimaker printers outside your local network
Store your Ultimaker Cura settings in the cloud for use anywhere
Get exclusive access to print profiles from leading brands

Create an account | Sign in | **Finish**

3.4.3 Software setting- Windows® & Mac

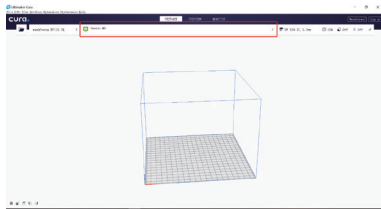
After starting the software, import related parameters of the printer



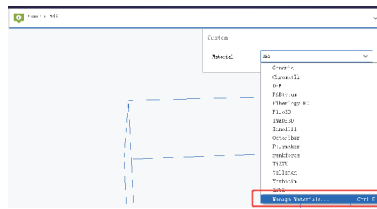


3.4.4 Load configuration file - Windows®

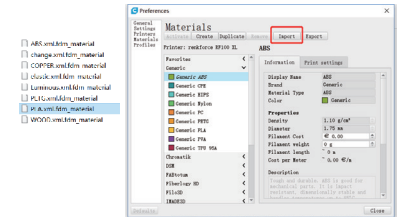
In order to ease the process of setting parameters for different materials (Wood/Elastic/Copper/PLA), you can load pre-configured material configuration files from the USB flash disk.



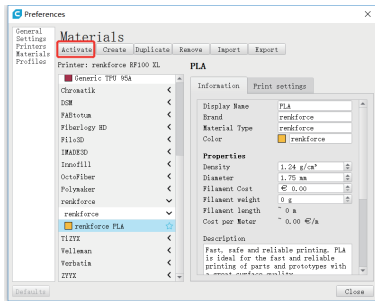
1. Click “<”.



2. select “Manage Materials...”.

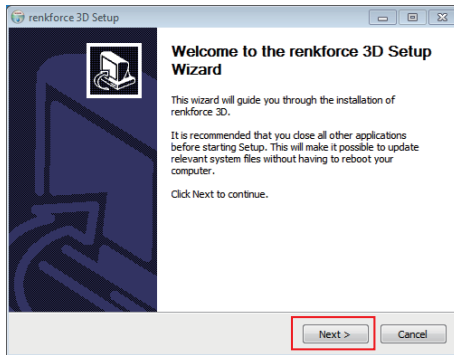


3. Click “Import” select the file in USB flash disk (Select a filament configuration file for the filament used by you in the selection window and confirm your selection).

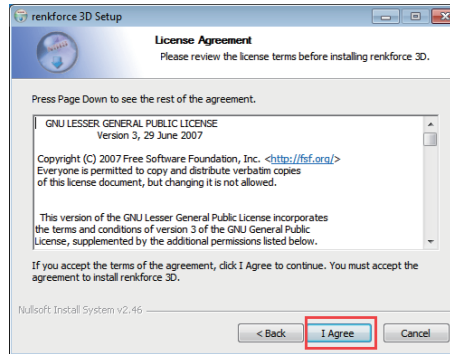


4. Click “Activate”.

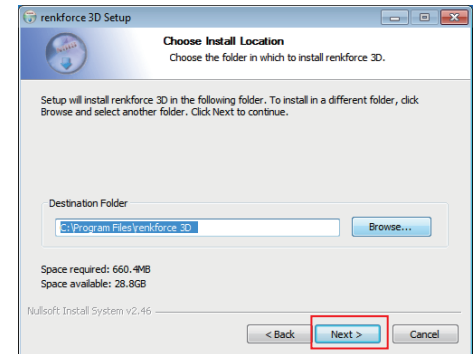
3.5 Print from “renkforce 3D setup”



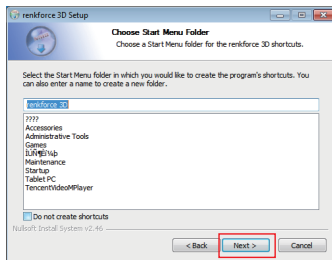
1. Click “Next >”.



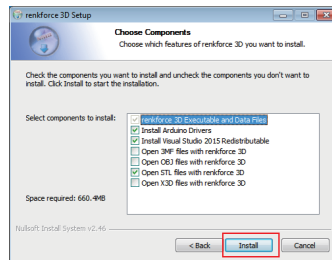
2. Click “I Agree”.



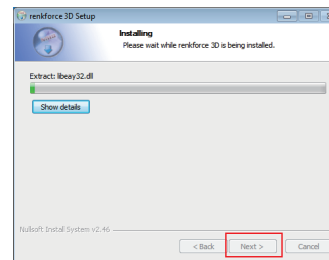
3. Click “Next >”.



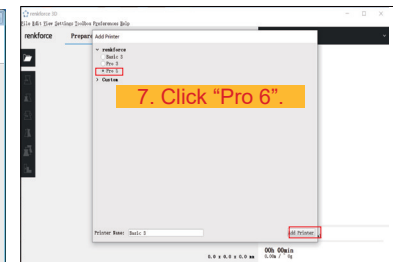
4. Click “Next >”.



5. Click “Install”.



6. Click “Next >”.

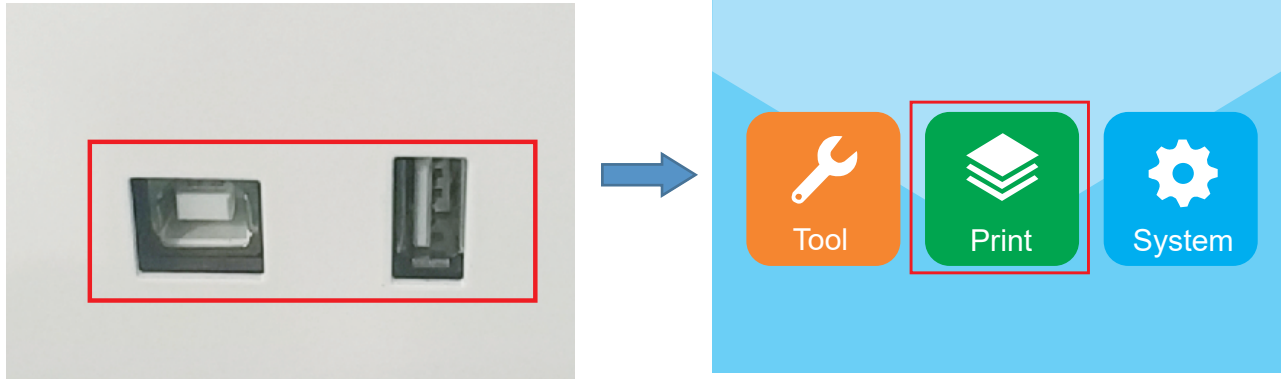


8. Click “Add Printer”.

d. Print 3D model

4.1 Printing

1. Save the “.gcode” files in USB Flash disk.
2. Insert USB Flash disk 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.

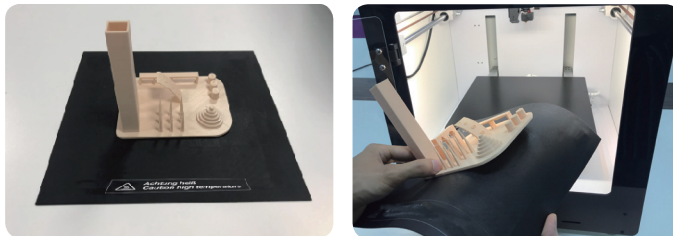


4.2 Removal of the finished prints

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

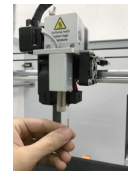
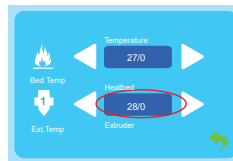
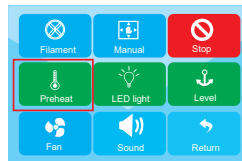
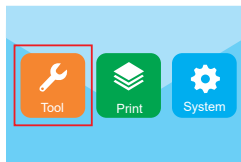
- Use a dry, soft cloth or similar to carefully wipe off the nozzle after each print; if there is still some residue left in the nozzle, pour some anhydrous alcohol over the cloth to wipe off the residue.

→ 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

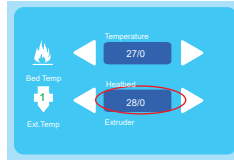
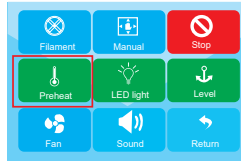
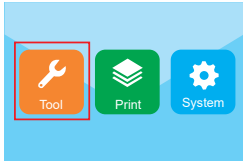
- Heat up the nozzle then load and unload filament repeatedly until the filament flow is as expected.

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.

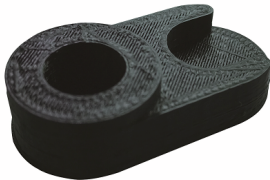


d) Clean the magnet mate

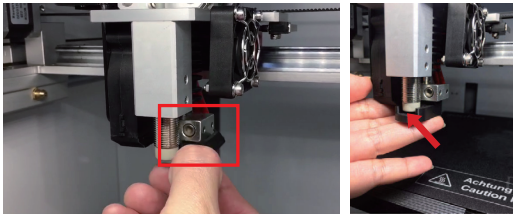
Scrape off the residue on the magnet mate with a knife gently.

e) Inductive sensor (Z sensor) calibration

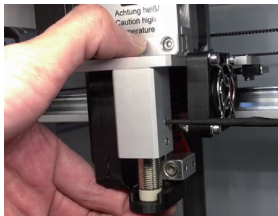
- The height between Z sensor and nozzle will be changed when we have replaced the nozzle or the hotend kit, which has a great effect on the auto-leveling results, so we have to do the Z sensor calibration with the tool in the bag as picture below, or the nozzle will come against the print bed and results in the damage on the extruder and the print bed.



- Take off the silicon cover of the extruder and put the tool under the Z sensor and the nozzle.



- Loosen 2 screws of the Z sensor on the right to make sure the Z sensor can be pull up and down. Then calibrate the height between the Z sensor and nozzle with the tool until both of their lower surface are in close contact with the upper surface of the tool, when we can press the sensor wire to fix it and fasten 2screws of the Z sensor to finish the calibration.

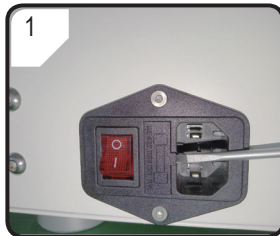


f) Replace fuse

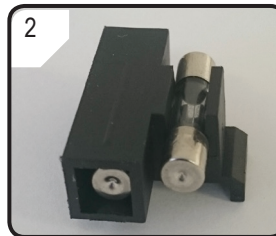


Turn off the printer and unplug the power cable before replacing the fuse and let the printer cool down. Never repair fuses or bridge the fuse holder.

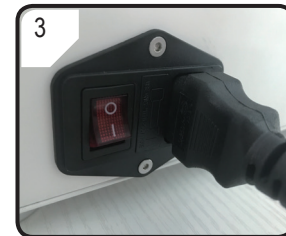
- Switch the power switch into the off position O and disconnect the printer from the mains supply.
- One spare fuse is stored in the fuse compartment between the power supply socket and power switch.
- For further fuses, ensure that you only use fuses of the specified type and rated current (see “Technical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

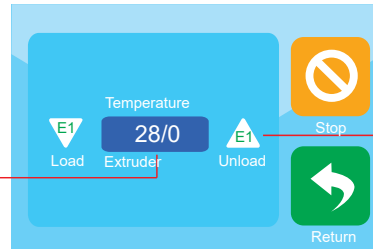
g) Unload filament

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 “3.3 Consumable loading/unloading” on page 23, then unload the PLA filament. The PLA filament removes possible residue left behind by the wood or metal filament.

h) 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 “f) Replace fuse” on page 37.
USB Flash disk can't be read by the 3D printer	Remove the USB flash disk and insert it again.
	Switch the 3D printer off and on again.
	Replace another USB flash disk
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 inside of the extruder” on page 36).
	Check whether the nozzle is clogged. Clean the nozzle (for details refer to chapter “b. Clean the nozzle” on page 35).

Problem	Possible Solution
Printings stops during the process.	Wrong data of ".gcode" files.
	Poor connect between USB flash disk and 3D printer.
The printed object does not adhere to the print 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 36.
	Print speed may be too high. Reduce speed.
	The nozzle is too far from the print bed. Follow chapter "3.2.2 Z-offset Calibration" on page 18 to do the calibration and leveling.
The printed object cannot be removed from the print bed.	Add the raft to the print object in the slicing software.
	Wait until the printed object and magnet mate has cooled down.
The nozzle keeps coming against the print bed badly.	Tip up the object with a knife gently, and remove it with your hands. Then increase the distance between nozzle and print bed. (for details refer to chapter "3.2.2 Z-offset Calibration" on page 18 to do the calibration and leveling).
The nozzle keeps coming against the print bed badly.	The height between Z sensor and nozzle might have been changed. Calibrate Z sensor (for details refer to chapter "e) Inductive sensor (Z sensor) calibration" on page 36).
In one printed object, some parts does not adhere to the print bed, but some others cannot be removed from the print bed.	There might has been great deviation on the print bed, do the manual leveling (for details refer to chapter "3.2.3" on page 21).
LCD display shows undecipherable content or remains blank.	Restart the 3D printer, if the problem still can't be solved, you can loosen 4 pcs screws of the screen a little bit.
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.

Problem	Possible Solution
Nozzle is clogged.	Clean the inside of the nozzle, for details refer to “b. Clean the nozzle” on page 35 .
	Clean the extruder,for details refer to “c) Clean the inside of the extruder” on page 36.
	Replace the extruder unit (available under item no. 2269337).
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. 2269464 & 2269465).
“Temp sensor error or not enough power” is shown on the display.	Thermistor and heater are malfunctioning and cannot detect the extruder temperature correctly Replace the thermistor and heater (available under item no. 2269464 & 2269465).
Touch screen is without any function and 3D printer does not work.	Switch off the 3D printer. Loosen 4 pcs screws of the LCD screen cover a little bit and see whether the problem is solved.

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.

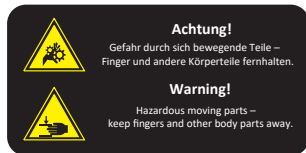
Caution illustration



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.

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