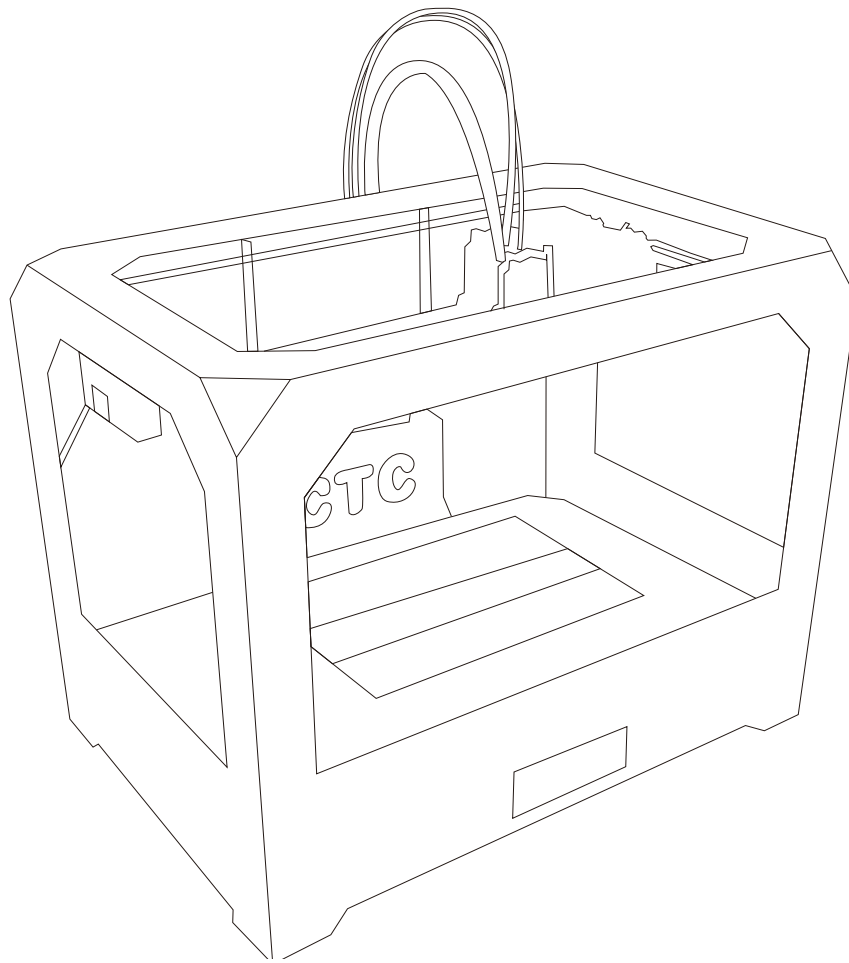


CTC Desktop 3D Printer Manual

FDM Series



Company Name: CTC Co., Ltd.

Website : www.ctcprint.com

Catalogue

1.Instructions.....	3
1.1 Introduction	3
1.2 Precautions	3
1.2.1 Safety Precautions	3
1.2.2 Contact	3
1.3 Accessories List	3
2. Product Category.....	4
2.1 Product Overview.....	4
2.2 Appearance	4
2.3 Product Specifications	5
2.3.1 Parameters.....	5
2.3.2 recommended environment	6
3.Operating Instructions	6
3.1 Unpacking and preparation before printing.....	6
3.1 Computer preparations.....	9
3.1.1 Install the Replicatorg driver software.....	9
3.2.2 Software Description	12
3.2.3 Install the driver software of Makerware	18
3.3 The instructions of the key of LCD screen	28
4. Take out model	33
5.2tighten the belt.....	34
5.3 maintenance of the optical axis and the screw rod.....	35
6 .Troubleshooting	36
7. Common Problems and Solutions	36
8. Warranty and License Agreement affirms	37

1.Instructions

1.1 Introduction

This Instructions consist of the product overview, operating instructions, printing test model, maintenance and troubleshooting. Please read it carefully and operate the 3d printer according to the brochure.

1.2 Precautions

Since different area have different voltage, please make sure how much is your voltage (110v and 230v generally)

After using this product over a period of time ,it is necessary to maintain it .Proper maintenance can often extend the life of the printer

1.2.1 Safety Precautions

It is not suggested that using other brands of printing-supplies . To get the best results of 3D printing, please use the supplies of our company . The maintenance and repair caused by using other supplies ,are not included in the Company's warranty

Touch is prohibited when the printer is working or the moment after finishing the printing since the temperature is quite high in the model, the head ,the printing platform or the other parts of the printer .

1.2.2 Contact

If you need after-sales service, you can directly add our business group, which number is 102304634. SD Card User's Guide: the information on using and troubleshooting the 3D printer is available in our enclosed instructions. Online technical support is also provided by adding our group(102304634).

You can also add Sina microblog of our company so as to have a better understand of the update of new technology as well as the upgrade of software in our company. Besides , random rewards would be got by adding our microblog .The luckiest one would get one Tablet PC. Enter into the Sina microblog then search 西通 3D 打印未来.The more attention and forwarding, the more opportunities you will get the prize .

1.3 Accessories List

No	Material name	Quantity	Unit
1	3D printer	1	set
2	Power line	1	stick
3	USB Data Cable	1	stick

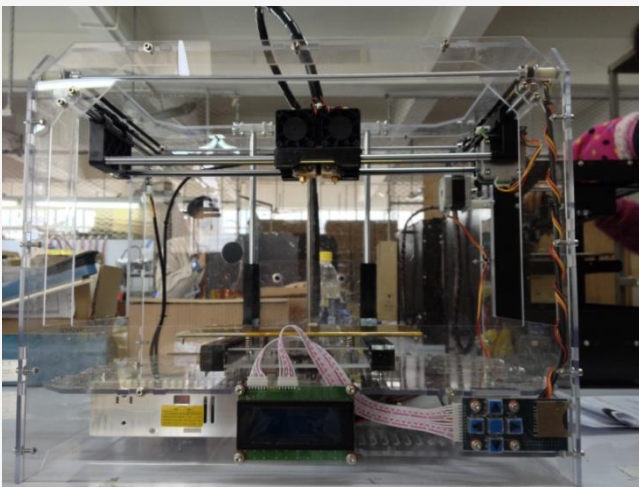
4	Kit	1	set
5	SD card	1	single
6	Printing Supplies	1	reel
7	Hanging material column	2	strip

2. Product Category

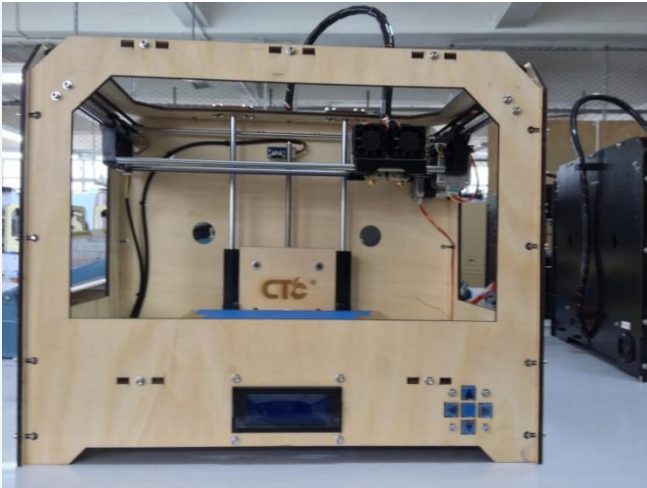
2.1 Product Overview

CTC 3D printer is a rapid prototyping device based on the fuse deposition manufacturing process (FDM), which prints by connecting to the computer via USB cable online or SD card offline and just an ordinary computer can finish printing. A STL 3D file format can complete a variety of print job of complex three-dimensional solid model. The device is easy to operate, so even if you have never used 3D printer, CTC 3D printer is also a good choice for your to finish types of printing of 3D models.

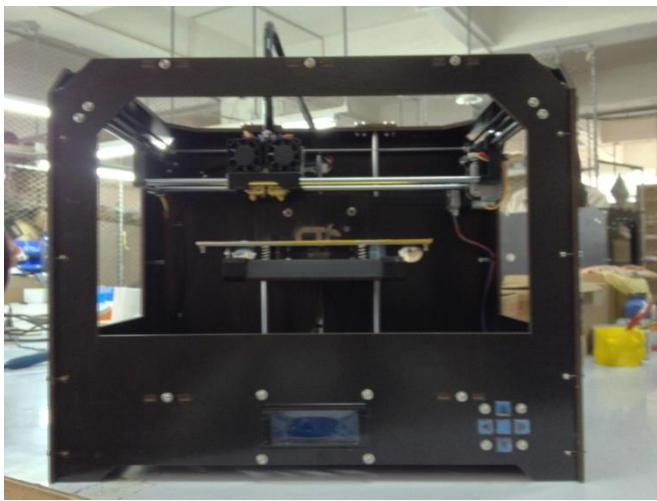
2.2 Appearance



Third generation



First generation



Second generation

2.3 Product Specifications

2.3.1 Parameters

The total volume of printers : 320*467*381mm

Package Size : 565*430*535mm

Weight (with packaging) : 13.5KG

Build Size : 225*145*150mm

Power : 210V

Build platform's temperature: about 110 (proper winter heating and summer cooling)

Extrusion nozzle flow: about 24cc / h

Supported operating systems: Windows XP Windows7 / 8 (32 bits / 64)

Software: ReplicatorG or CTC Chinese version (compatible on MakerWare software)

Print materials: ABS, PLA

Material properties: 3D printing special ABS and PLA (exclusive qualities recipe)

Layer accuracy: 0.1mm-0.5mm

Positioning accuracy: XY axis 0.011mm

Filament diameter: Z axis 0.0025mm

Nozzle diameter: 0.4mm

Motion axis speed: 30mm/s_100mm/s

Recommended head movement speed : 35-40 mm / s

Input file types: stl, gcode

2.3.2 recommended environment

Operating environment: clean install in a well ventilated area. Temperature: 15 ° C to 35 ° C.
Humidity: 20-80% (non-condensing).

Storage environment: Temperature: 0 ° C to 40 ° C Humidity: 10-80% (non-condensing).
The presence :non-corrosive gases and cleaning place

3.Operating Instructions

3.1 Unpacking and preparation before printing

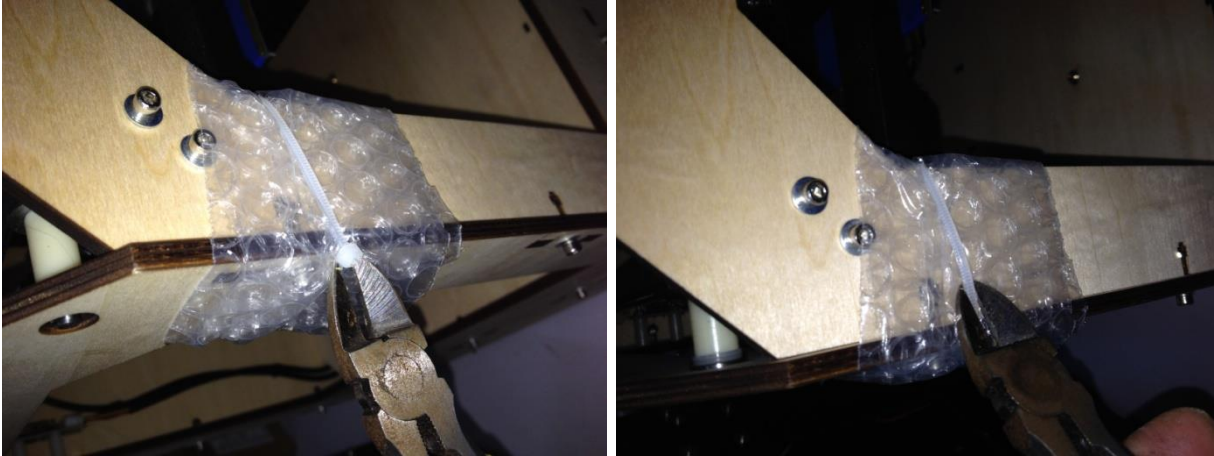
(1) Check whether there are some scratches and other defects on the appearance of 3D



printers outside the box bumps

Check whether there are some deformations caused by squeezing or rupture in the corners of the box.

(2) Open the box and remove the printer then cut the nozzle and fix tie (tied to the front left side of the Z-axis X-axis Y-axis).



Cut fixed print head straps with water-nose pliers.

(3) Open the foam of the surface of print head (Note: Try not to use the face of knife so as to prevent the print head was hanged up) Mount the print head to a bracket on the X-axis, installation direction as shown ,then tighten the two screws.



(Picture1)



(Picture2)

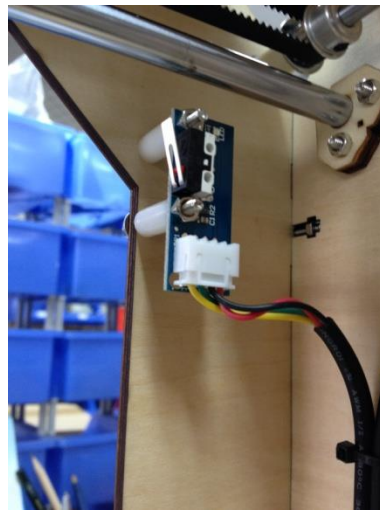
(4)Take out the hanging tube and then install it in the hole of the hanging tube at the back of the printer, load the printing supplies into the hanging tube, then pull printing supplies, insert one of a printing supplies section into the round role of the print head (Note: insert in the left when use the left print head while insert in the right then use the right one)



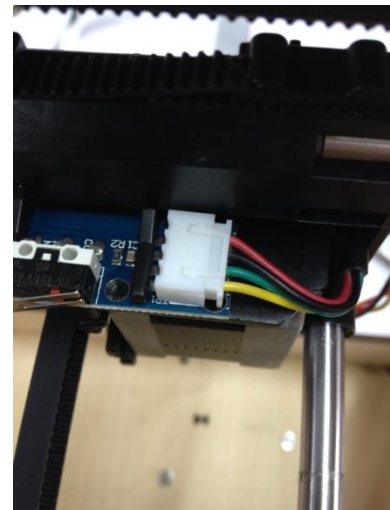
(5) Check whether the Limit switch cable of the printer losing or falling off the surface.



(Z-axis limit)



(Y-axis limit)



(X-axis limit)

(6) Check whether the voltage match to the printer's (110 or 220, judged by the power at the bottom of the printer)

(7) Take out the SD card , read printer driver inside the SD card, then install the driver.

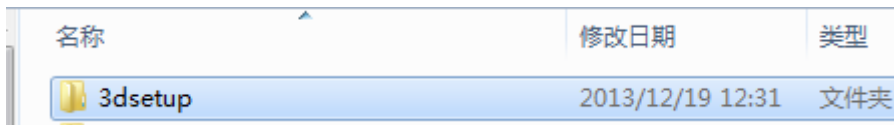
(8) Turn on the printer and manipulate the control panel so that the Z axis went to the top of the printer, check whether the distance of printer nozzle and print platform meets the criteria (optimal distance test method: Put a piece of A4 paper in printing platform surface, control panel so that it went to the top of the Z-axis, then pull A4 paper. The printing paper can be pulled out with a little effort so that the paper will not be scratched) Note: the blue paper of the surface of the platform cannot be torn, otherwise it will affect the printing quality.

(9) Prepare for files of STL format ,open the file through the software already installed in the printer .Then adjust the parameters and you can start printing

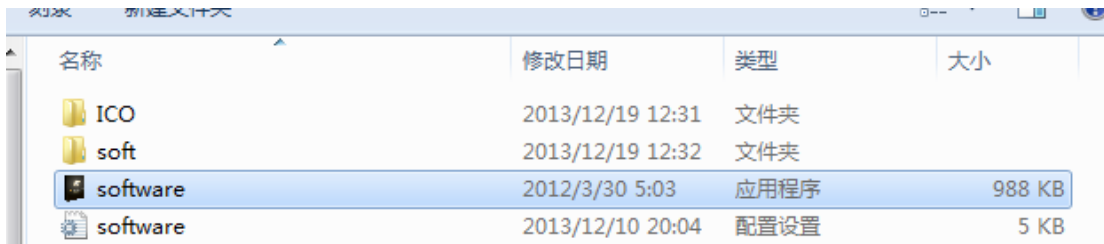
3.1 Computer preparations

3.1.1 Install the Replicatorg driver software

(1) take out SD card and read printer driver inside it . Looking for the 3dsetup folder



(2) Open the 3dsetup folder and then search for the file of software



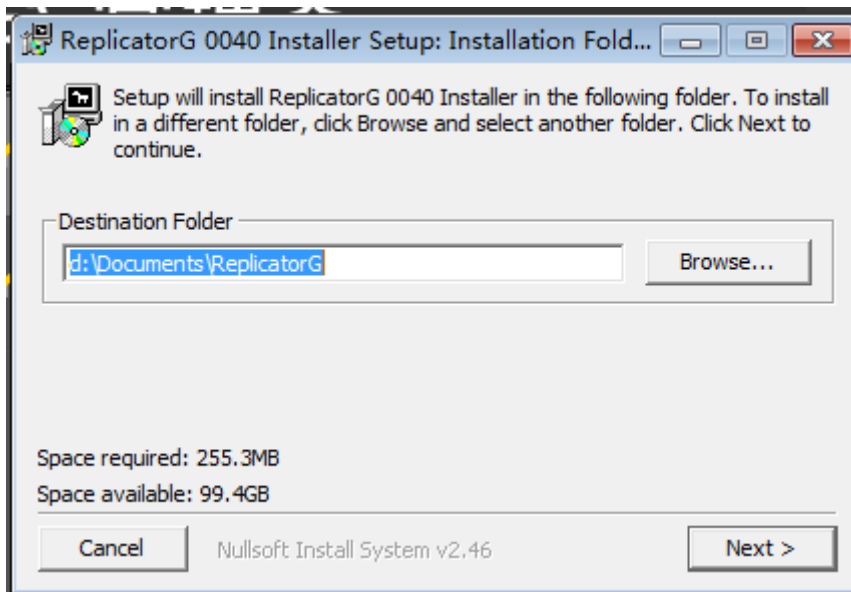
(3) open the file of software by Right-clicking then enter into the software installation manager



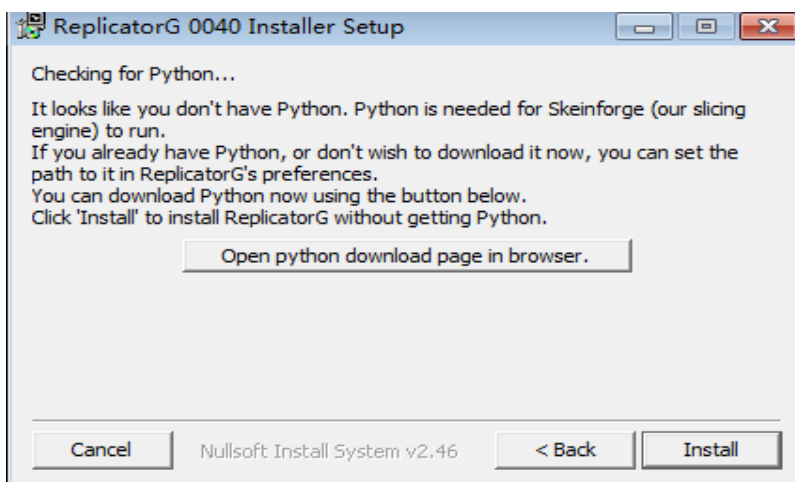
(4) Click Replicatorg software installation (both English and Chinese is available to install depending on your preferences)



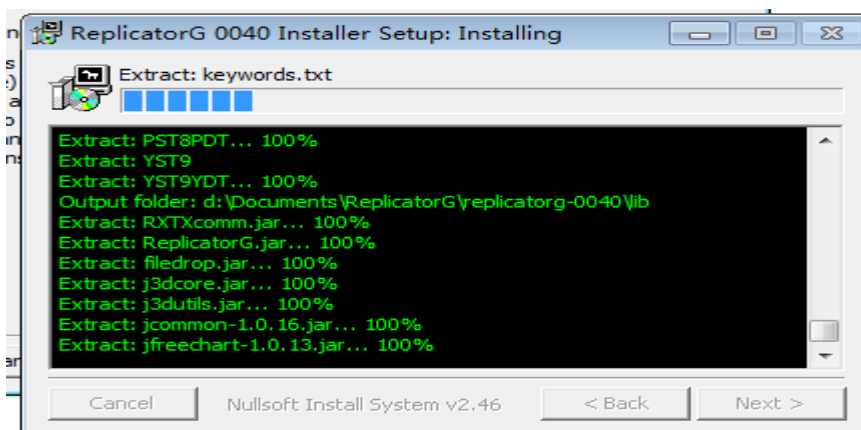
(5) Click “ automatic installation” in ReplicatorG software .When a icon be shown then click the “Next ”button.



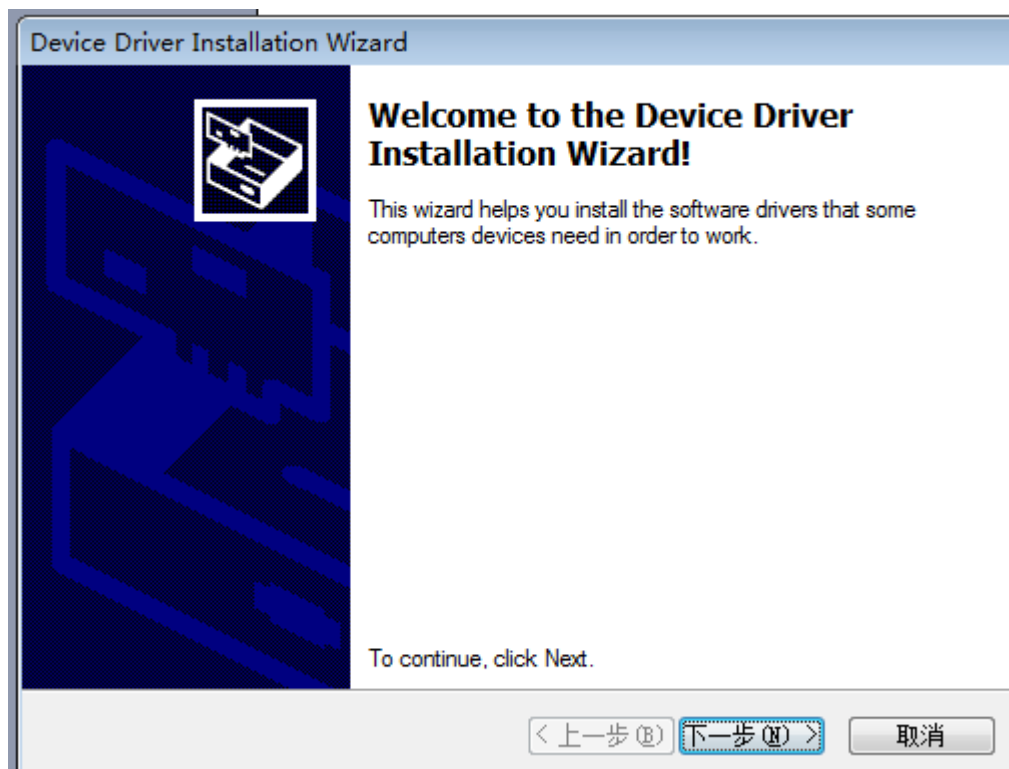
(6) Another icon will be shown after click the “Next” button ,then click the “install” button.



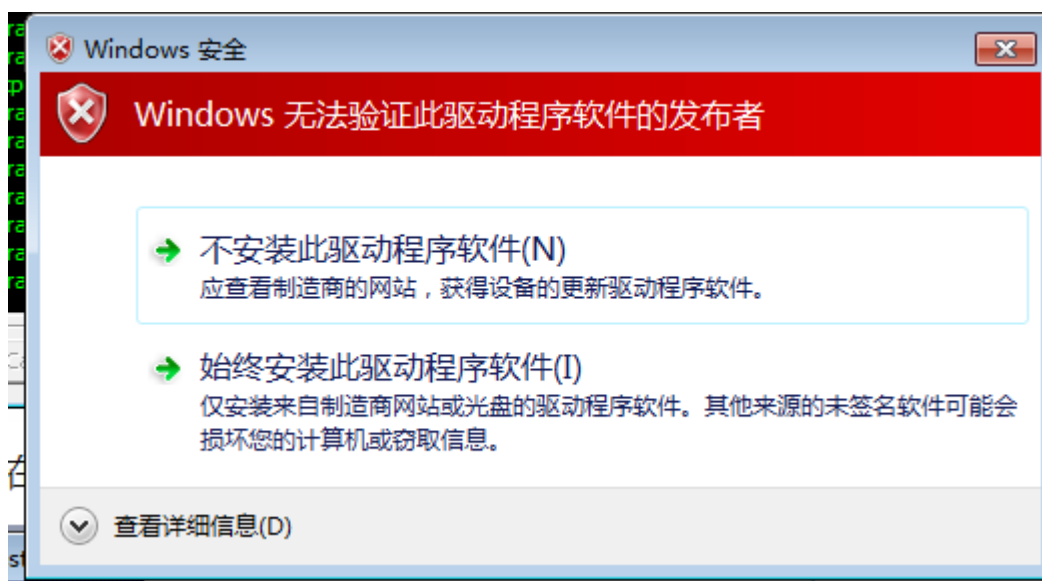
(7) A window will jump out after the install button, please wait a minute at this time.



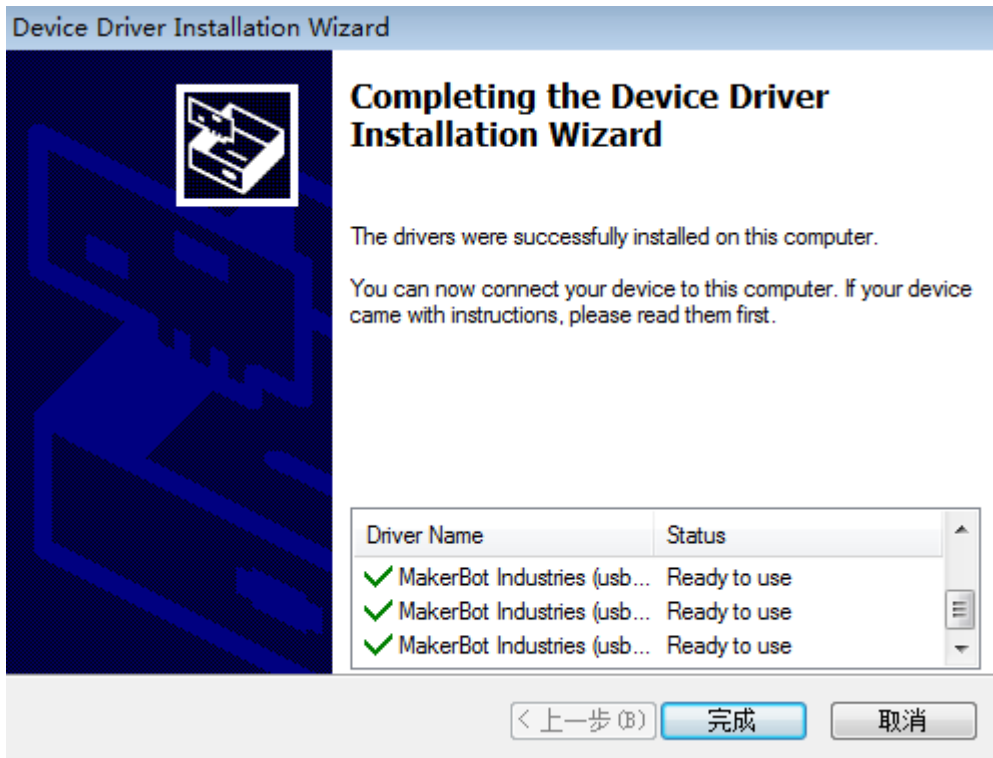
(8) After clicking the Install button ,there is a dialog box, then click the next button.



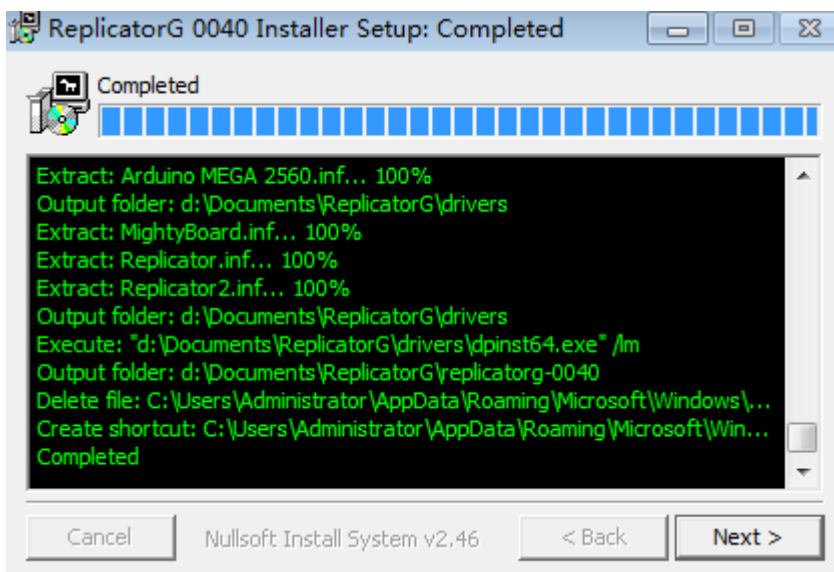
(9) After clicking, the computer will appear five Prompts . Please click "Install this driver software anyway."



(10) After Clicking "Install this driver software" button five times, the installation procedure is completed basically,while a dialog box will pop up . Please check carefully if all the programs are installed. (check method: examine the bar of Driver Nane , if all things are matching that means the software is installed successfully, if there are X number or! number that means installation is unsuccessfully.Finally , click "Finish."

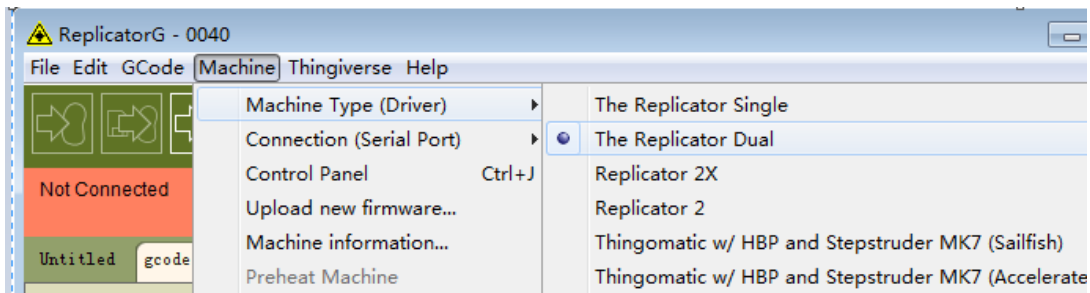


(11) Click the Finish button, then the "Next" button in the main page begin to lit. Left-click the "Next" button, then the Replicatorg printing software installation was completed.

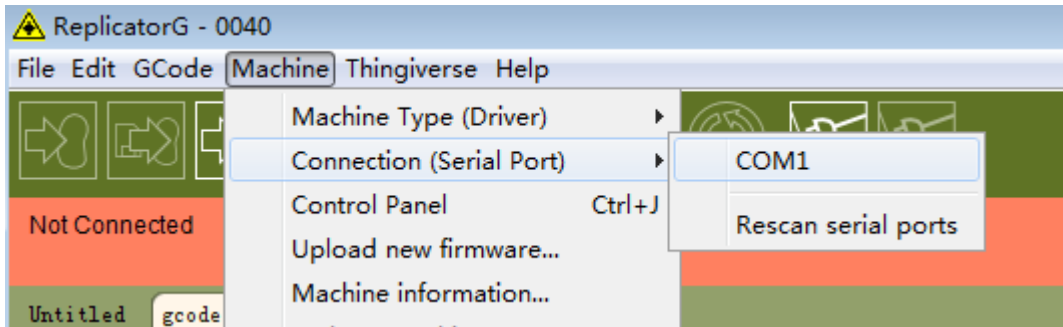


3.2.2 Software Description

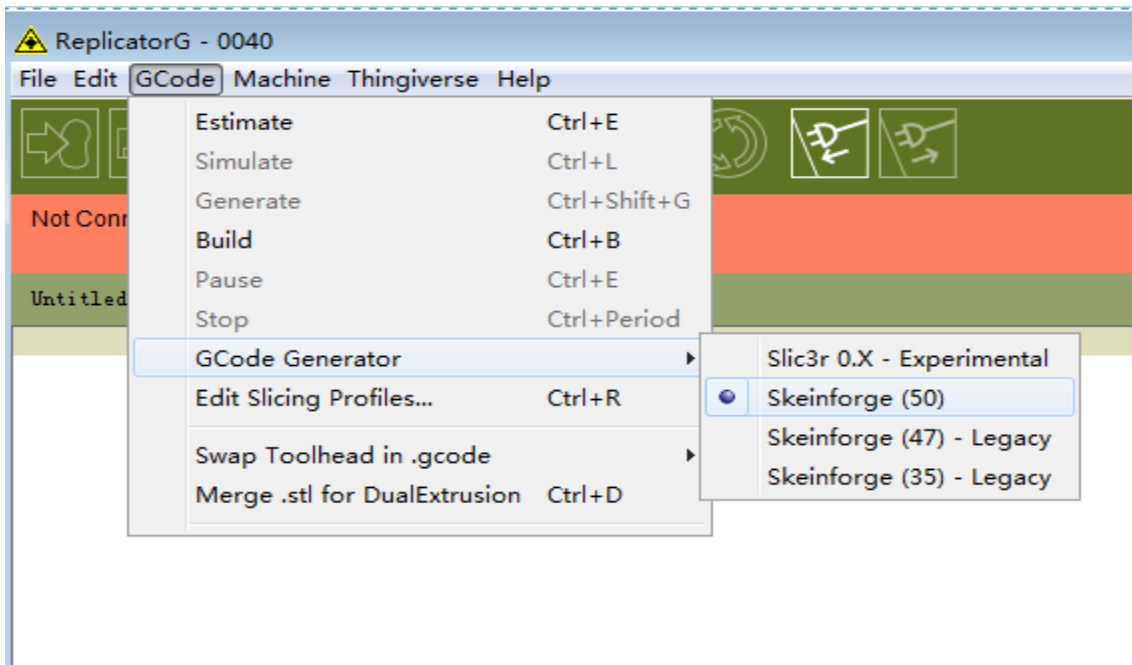
(1) Connect the machine to the electricity supply., then connect USB and open replicator, (Choose The Replicator Dual machine for the first double nozzles and the Replicator Single for the first single nozzle)



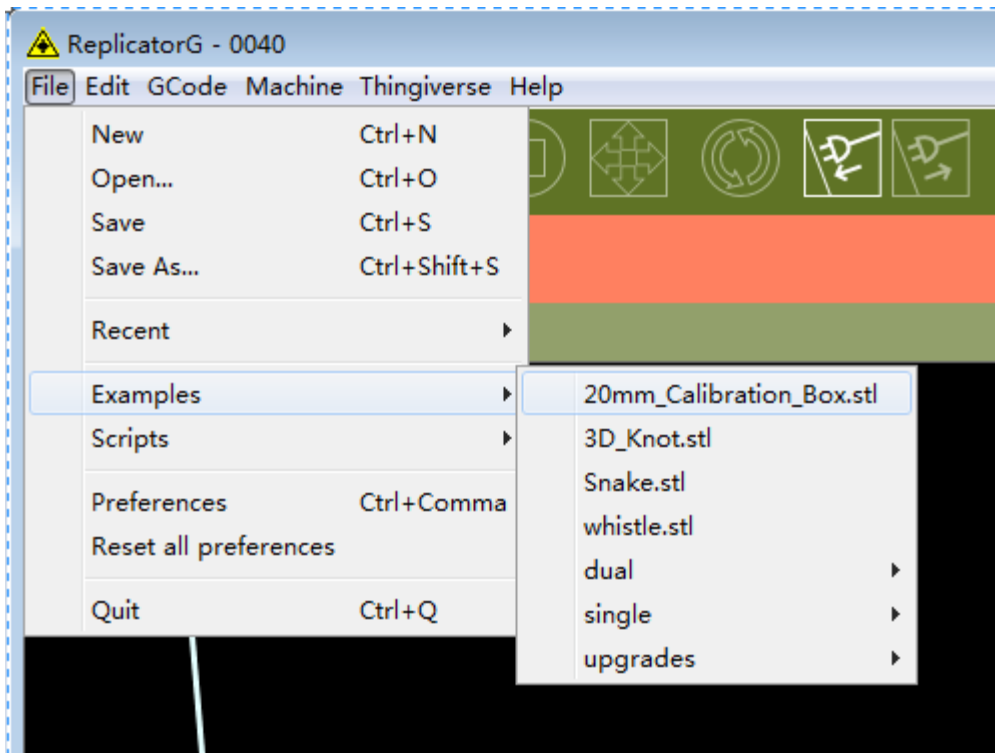
(2) Next is to choose the correct serial port (Please note the machine's serial number is often not com1)



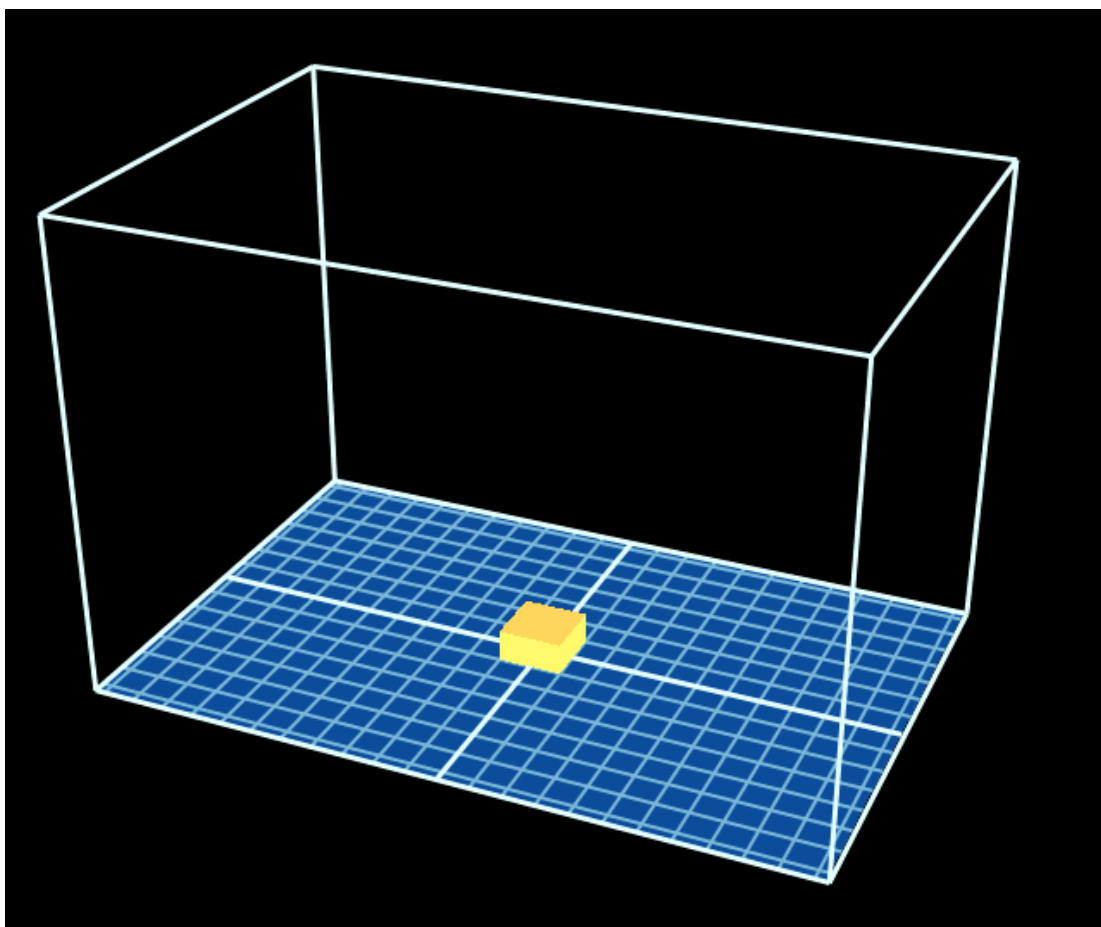
(3) Click online



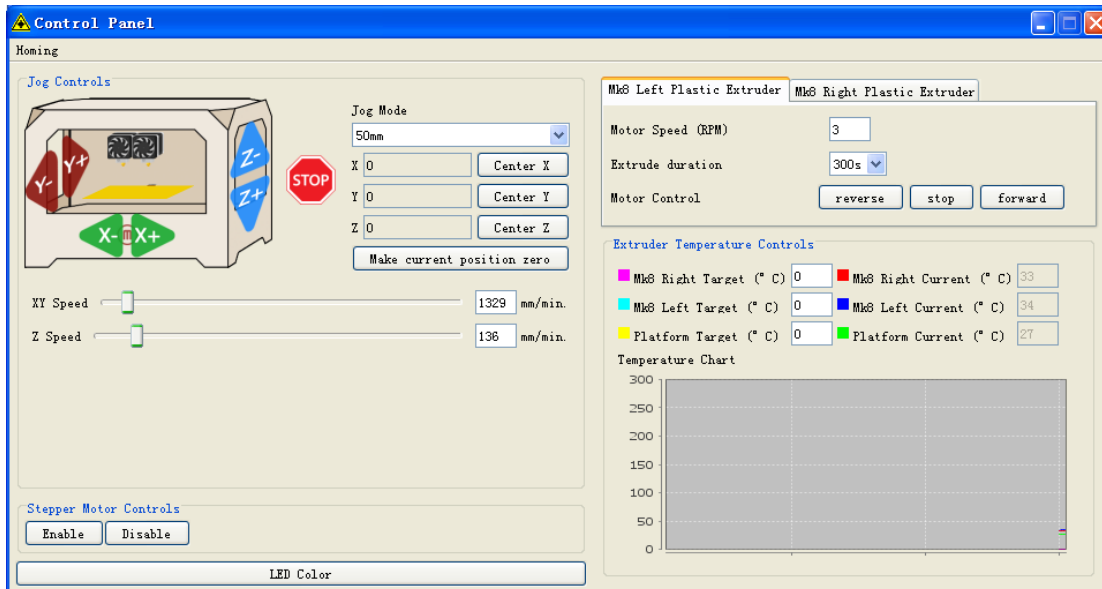
(4) And then select the file you want to print:



Then there will be the design of the file:



(5) Open the Control Panel 

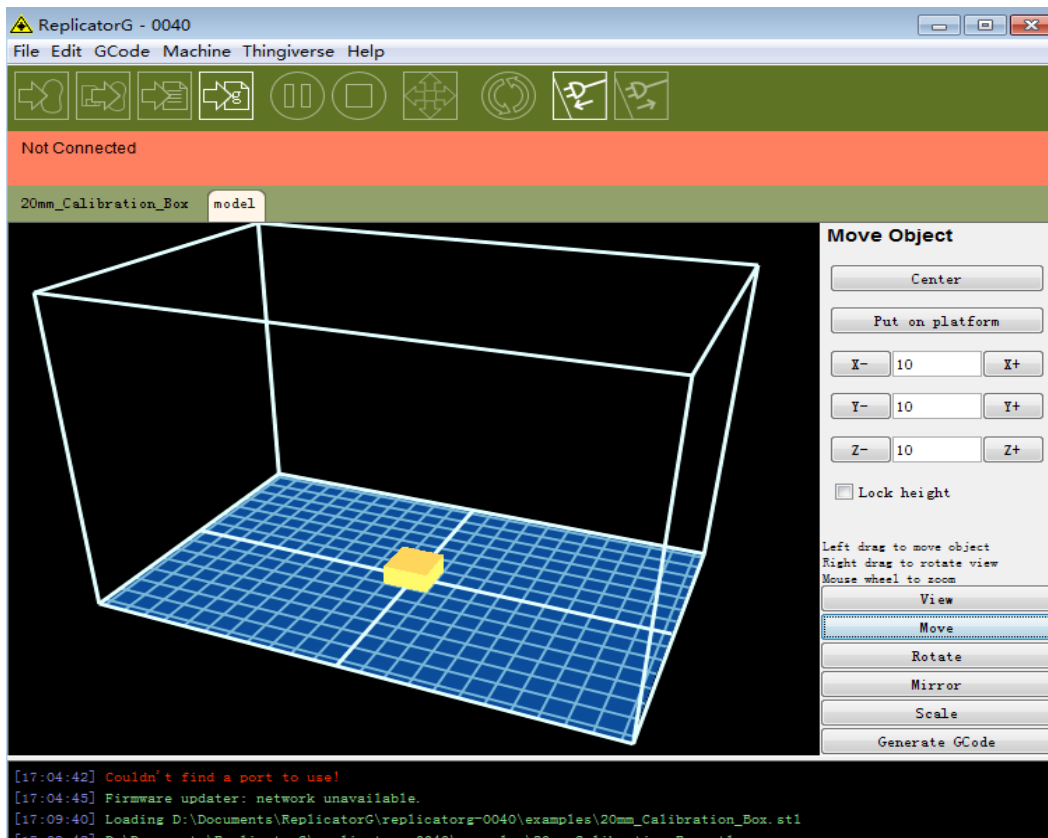


Set the nozzle temperature : set enter key in the box of Target Temperature

Due to different temperature conductivity of different machines, there are a relatively large differences between the temperature. It would be best to try out the wire from 215 degrees,. The temperature rises rapidly, reaching 190 degrees, indicating the large heating allowance, otherwise the small heating allowance. If there is some trouble in the process of wire, the temperature may not be enough. If the wire has bubbling noises, that means the temperature is high. From low to high, set a suitable temperature according to the actual situation. If you click the “reverse”, Extrusion head motor will reverse, the almost completely used materials will be sent back. Shear new material flatly,stuff it into the hole .After that, click stop, then click forward. Extrusion head motor is transferred, it is needed to insert a little tight so that the material is bitten, then send the nozzle until the spinning. Please note, it won't continue to down to the bottom of the surface until the temperature arrive at a predetermined value when we print.

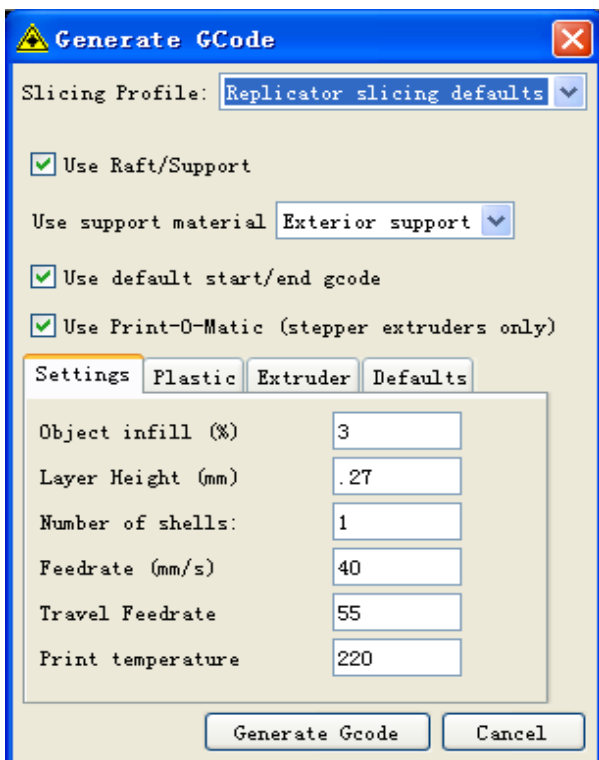
How to start printing:

Move the figure to the appropriate location, click on the button below



Selection:

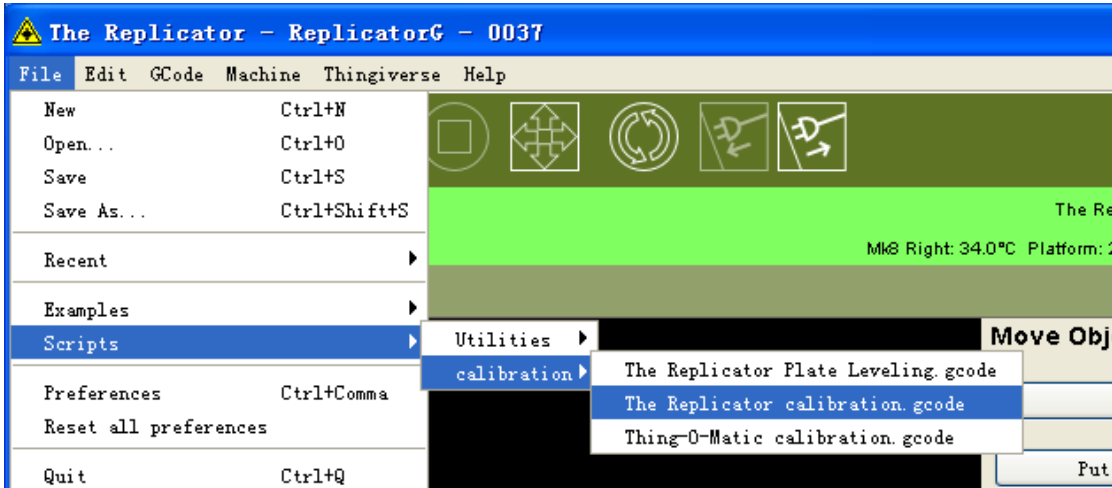
Please note that the above options, click Generate Gcode then Gcode is generated . After generating gcode, move the print head to the home position



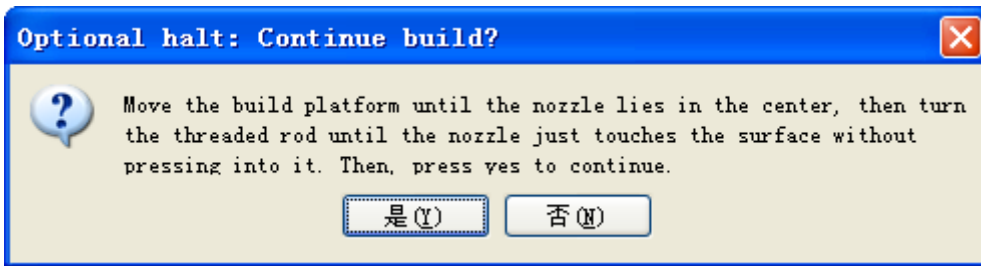
You can modify Feedrate (mm / s) to 20, Travel Feedrate 20 to have a higher accuracy printing.

How to calibrate (normally do not need calibration):

Move the nozzle to the place just stick to the platform through the control panel



Tips after running:




Click OK, then the machine will calibrate the procedure automatically.



Click OK, and then disconnect , reconnect and the correction is completed.

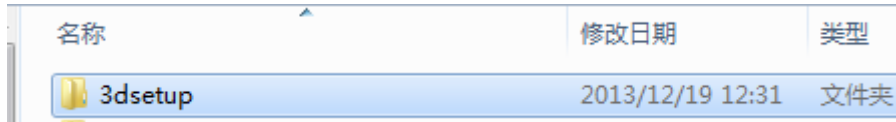
Generate gcode print:

Click , then the machine will start printing.

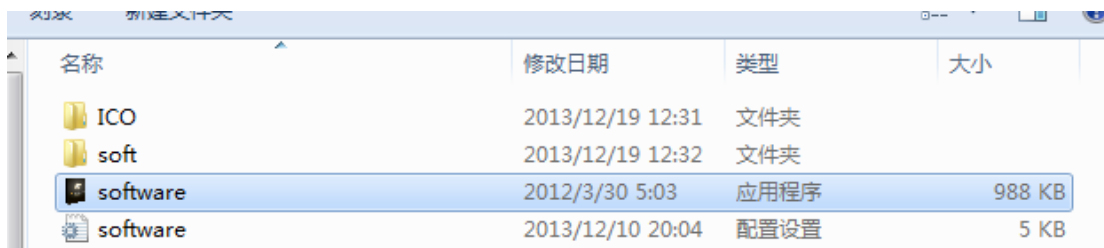
Please note, it won't continue to down to the bottom of the surface at the place of 10mm until the temperature arrive at a predetermined value when we print.

3.2.3 Install the driver software of Makerware

(1) take out SD card and read the printer driver inside it , looking for the folder of 3dsetup



(2) Open 3dsetup folder and look for the file of software



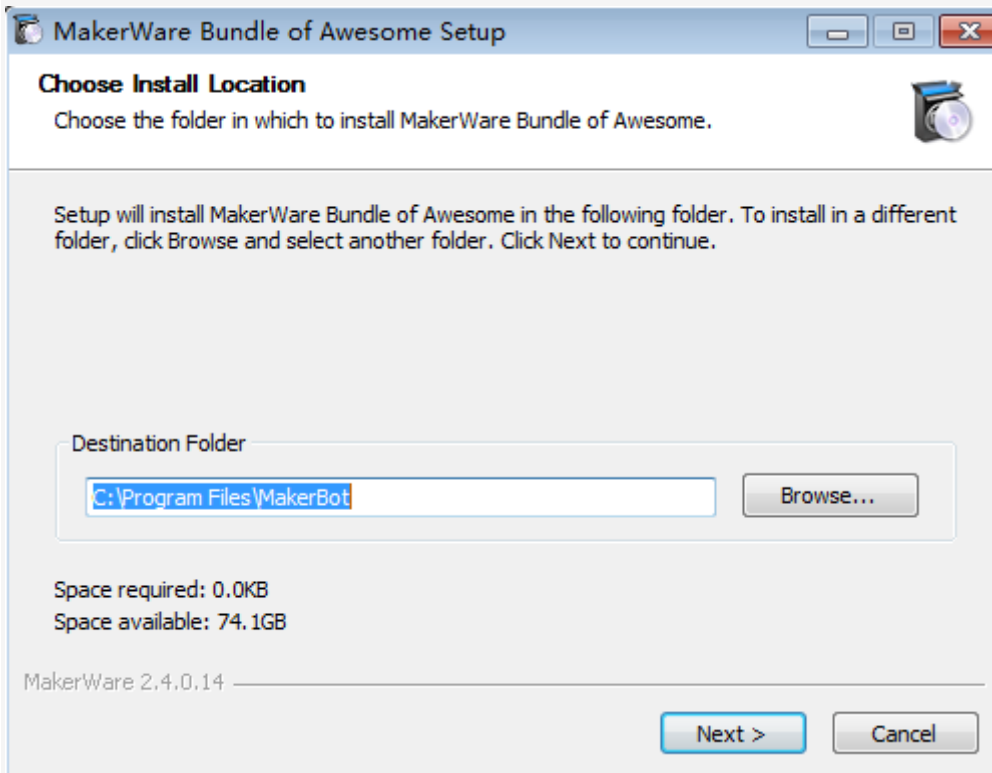
(3) Right-click the file of the software and then enter into the software installation manager



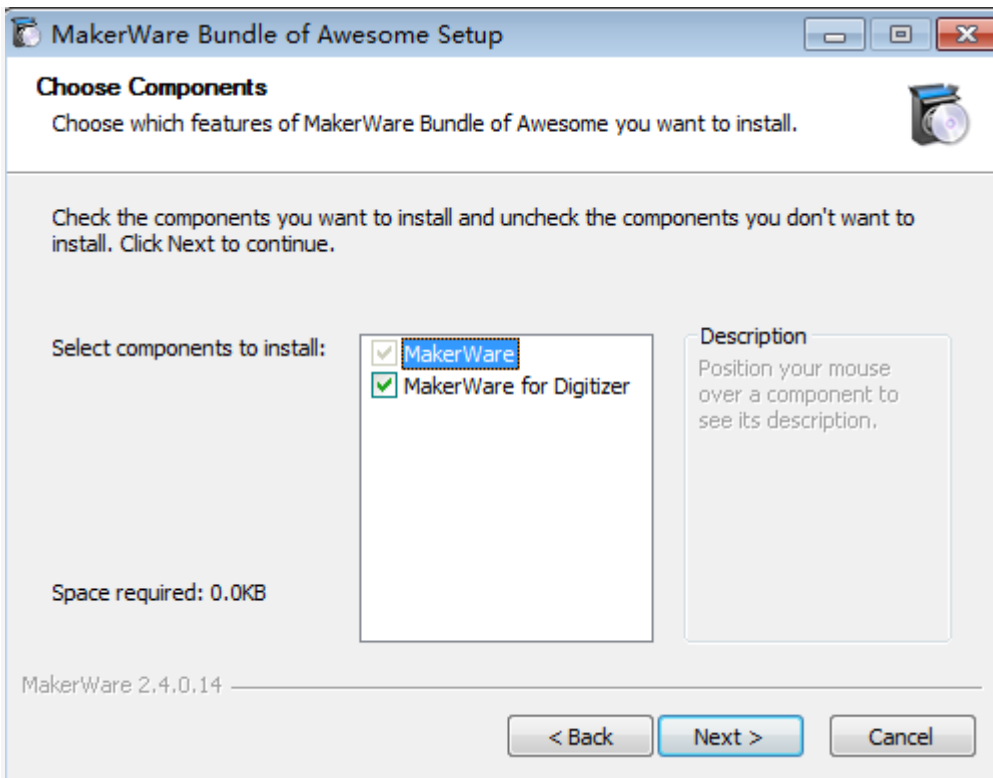
(4) Click “ Makerware ”.There will be software-driven system that match to different computer. To find suitable printer drivers that correspond to your own computer system. Then click automatic installation



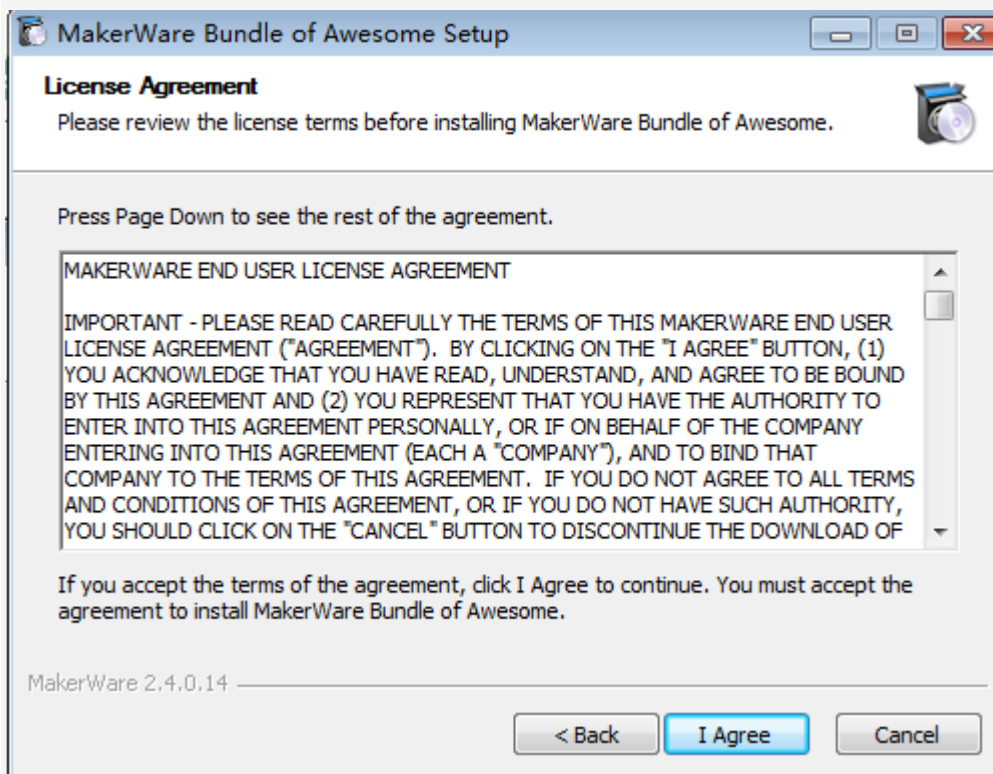
(5) Click automatic installation of the Makerware software. After a icon appears , then click "Next" button.



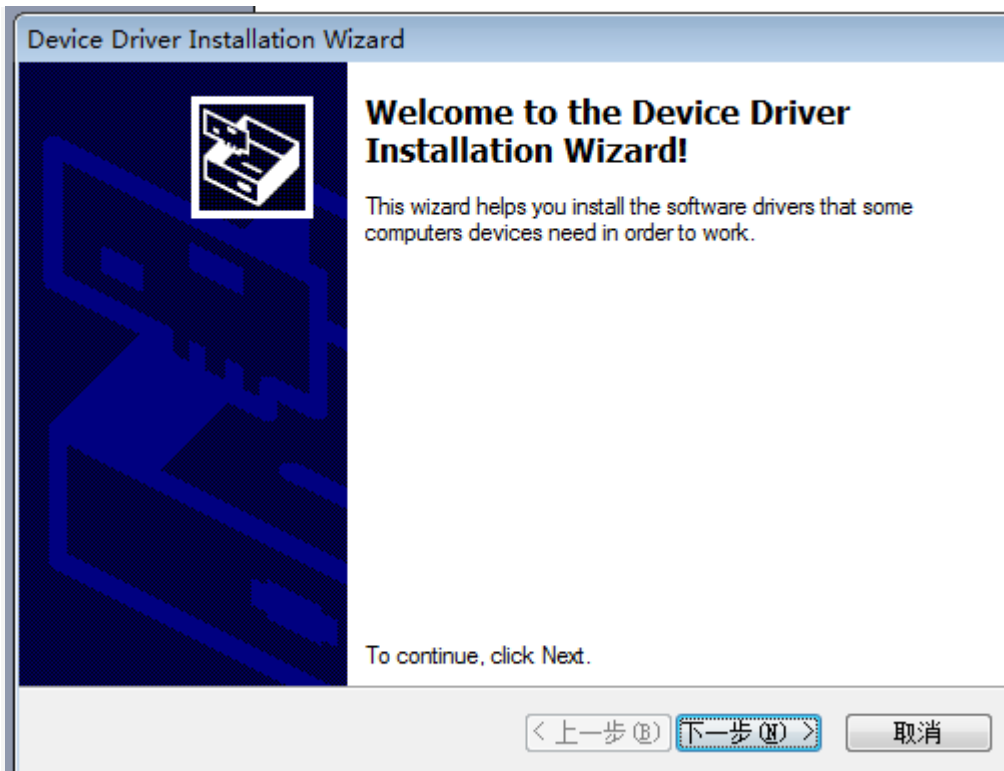
(6) And then click "Next" button



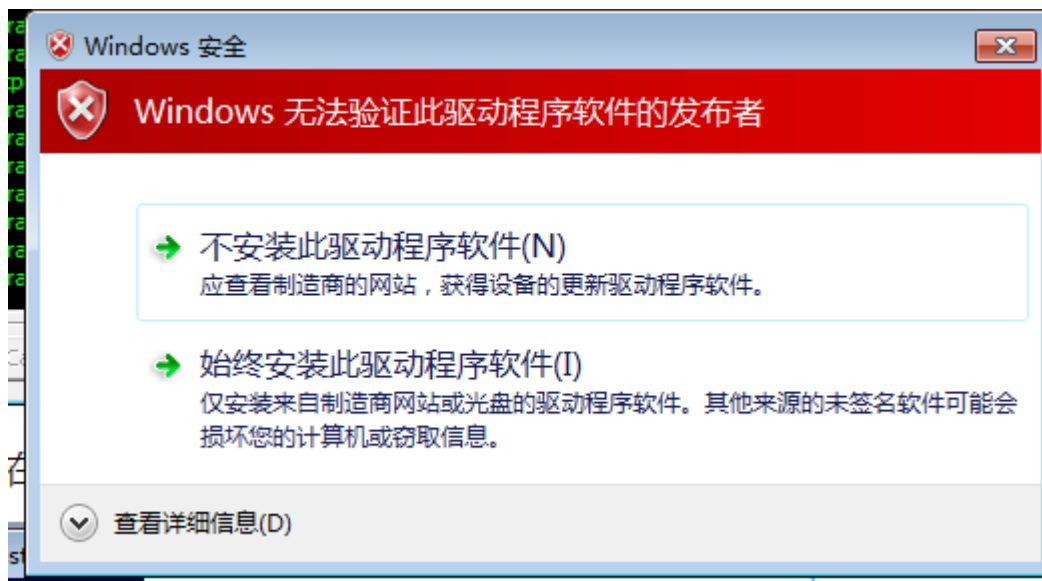
(7) Then click the “I Agree” button.



(8) After clicking the “I Agree” button, there will be a dialogue box, please click Next

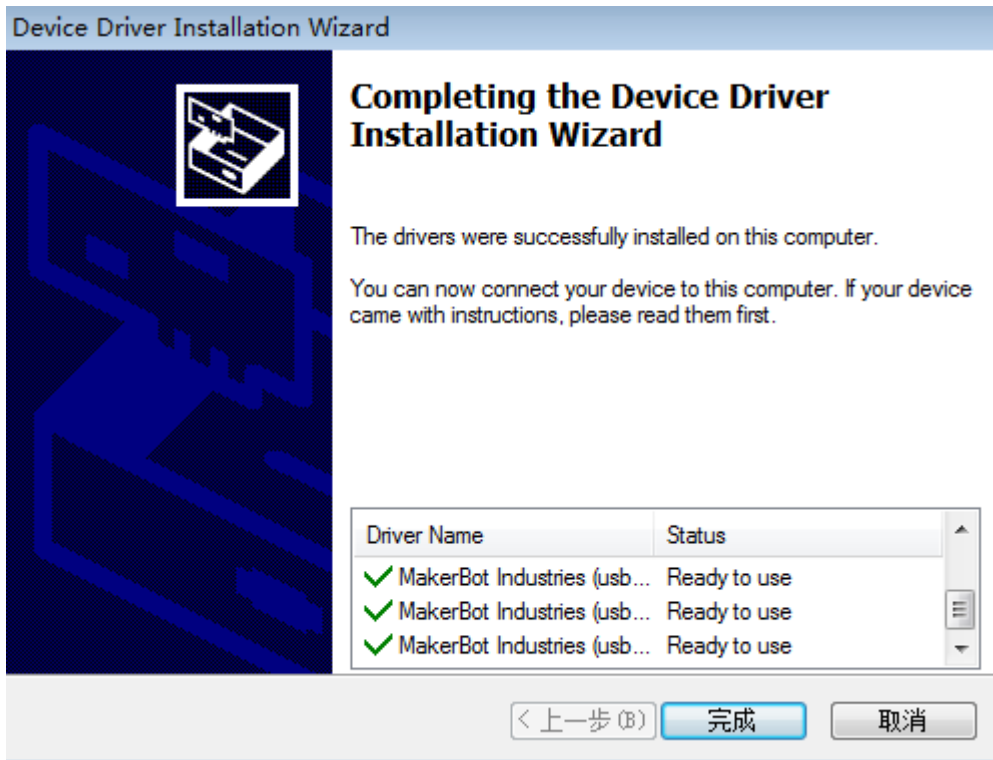


(9) After clicking, the computer will appear five Prompts . Please click "Install this driver software anyway."

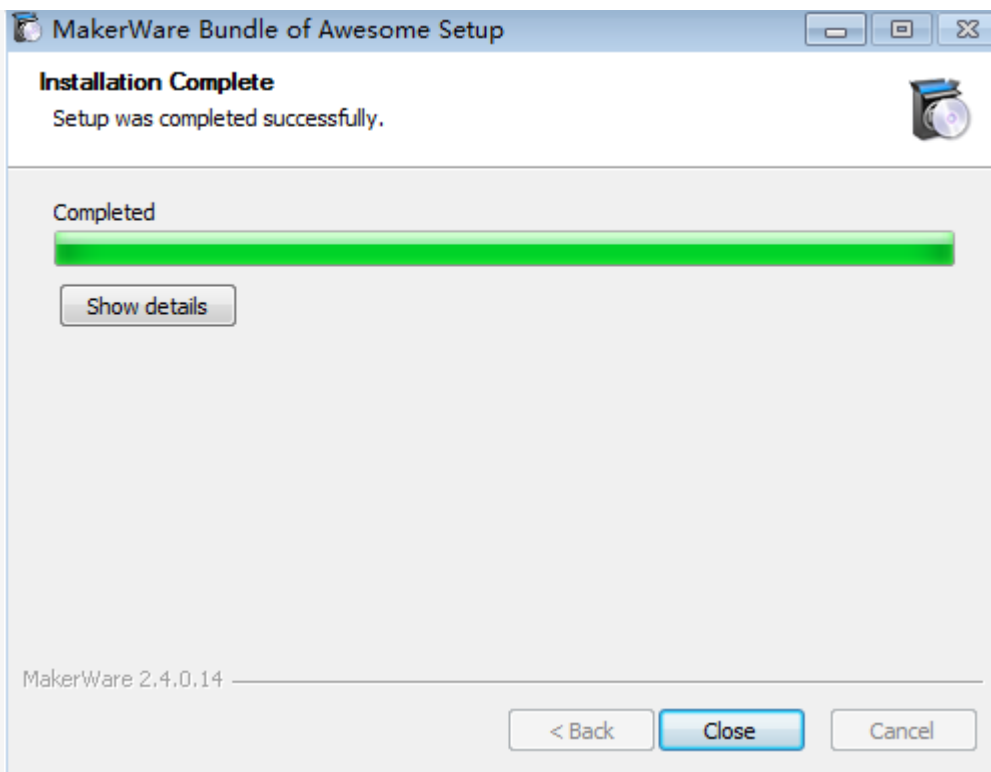


(10) After Clicking "Install this driver software" button five times, the installation procedure is completed basically,while a dialog box will pop up . Please check carefully if all the programs are installed. (check method: examine the bar of Driver Nane , if all things are matching that means the software is installed successfully, if

there are X number or! number that means installation is unsuccessfully.Finally , click "Finish."

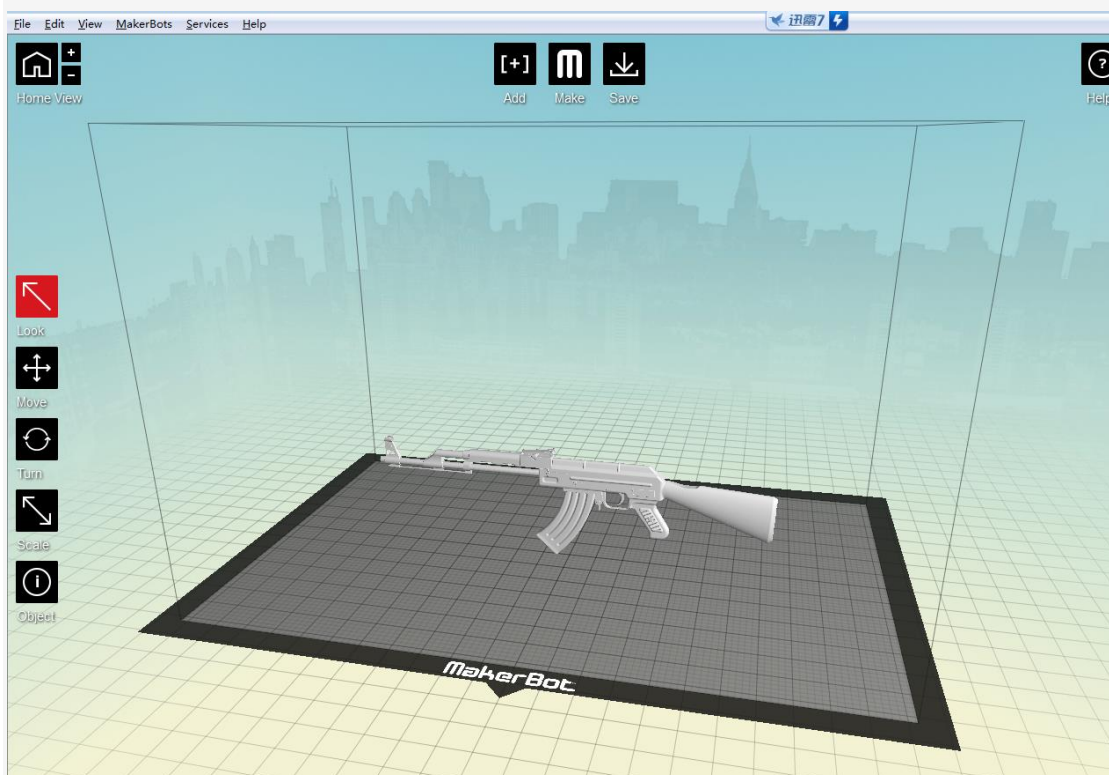


(11) Click the Finish button, then the "Close" button in the main page begins to lit. Left-click the "Close" button, then the Makerware printing software installation was completed.

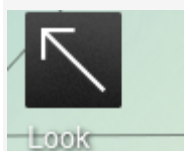


3.2.4 Software Description

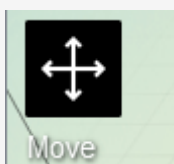
(1) Makerware software function interface.



(2) Function keys Description:



Viewer Tool



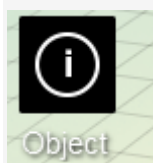
Placed Tool of File Location



Rotary tool



Adjustment tool of File Ratio



object tool



Adding tool

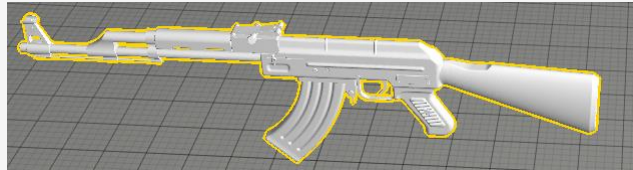


File slicing generation tool



Save tool

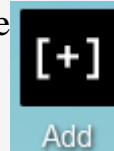
◦ (Note: Before all tools are used , left-click the file until the outline color is changed Examples are as follows and the picture 2 is the correct one.



Picture I (opened but not click the Select button)

Picture2 (opened and clicked the Select button)

(3) When the slice generates into parameters , use

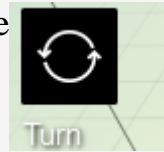


tool and open a STL file, then

use

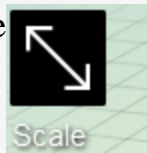


tool and place the file onto the level panel.



tool to adjust it to the

best angle for printing. When the file exceeds the maximum printing size and can not be placed , you can use



tool to reduce or enlarge proportionally. After finishing the

above operation , please use



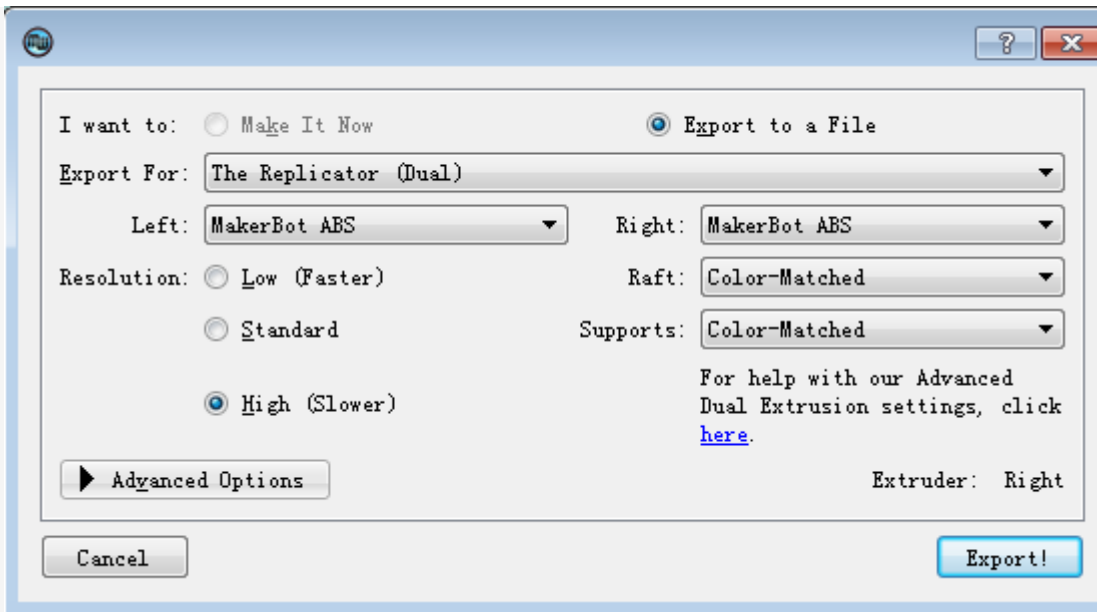
tool to decide which print head you want to use , the

left one or the right one . After that , click the

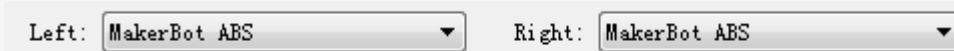


tool and detailed parameters will

show. Reference Photo :



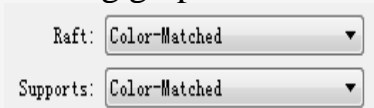
In this interface you must select the printer model of "The Replicator (Dual)".in the option of "Export for "then , select Left or Right according to your materials.



The tool "Raft" is used to render on the material-bearing printer before you print.

Raft:

Supports tool is used for adding support materials automatically by the software of the floating graphic so as to make sure to finish the printing successfully.

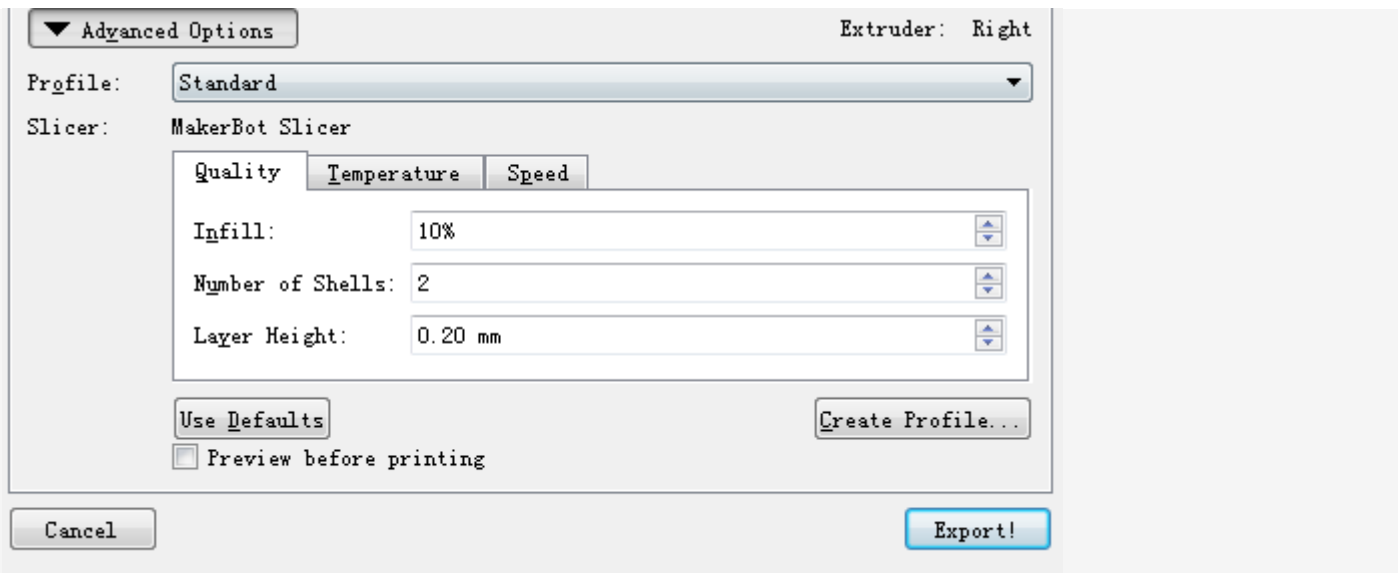


Resolution: There are three options in the resolution tool.You can select different printing precisions according to your requirement.:

Low (Faster) coarse
 Standard standard
 High (Slower) high

Officially recommended the standard print

Click Advanced options to set the parameter.



Profile: There are also three options : low, standard, high. Make a selection according to your requirement. Officially recommended the standard print

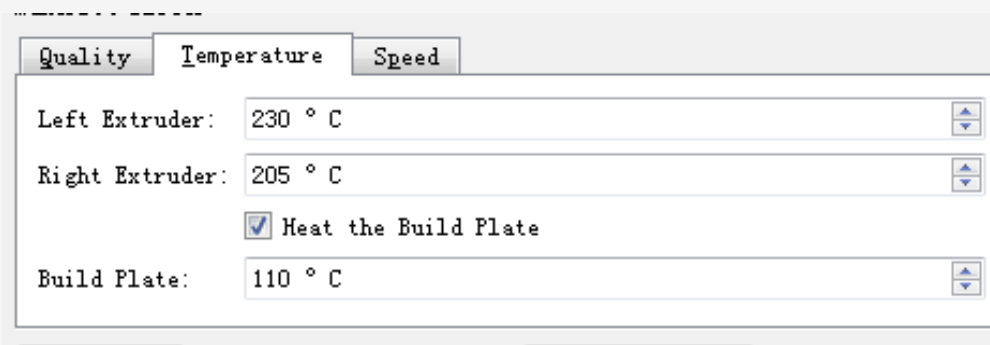
There are three options in the **Slicer:** they are **Quality**, **Temperature** and **Speed**

Quality quality is the detailed precision parameters **Infill:** is the fill rate

Number of Shells: is the thickness **Layer Height:** is the accuracy

Every data can be adjusted according to your requirements. Parameters Officially suggested are as follow

Temperature the temperature

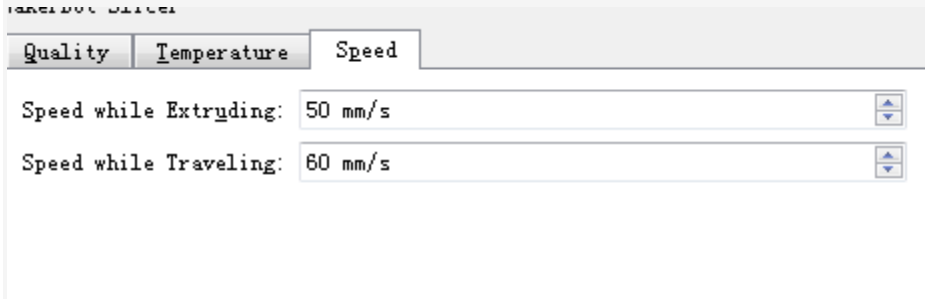


Left Extruder: Left nozzle **Right Extruder:** Right nozzle **Build Plate:** Build plate , select different temperatures as your materials .

Officially recommended : materials of ABS nozzle's temperature : 220-230 degree floor's temperature : 110degree

materials of PLA nozzle's temperature : 205-210 degree floor's temperature : 40-60degree

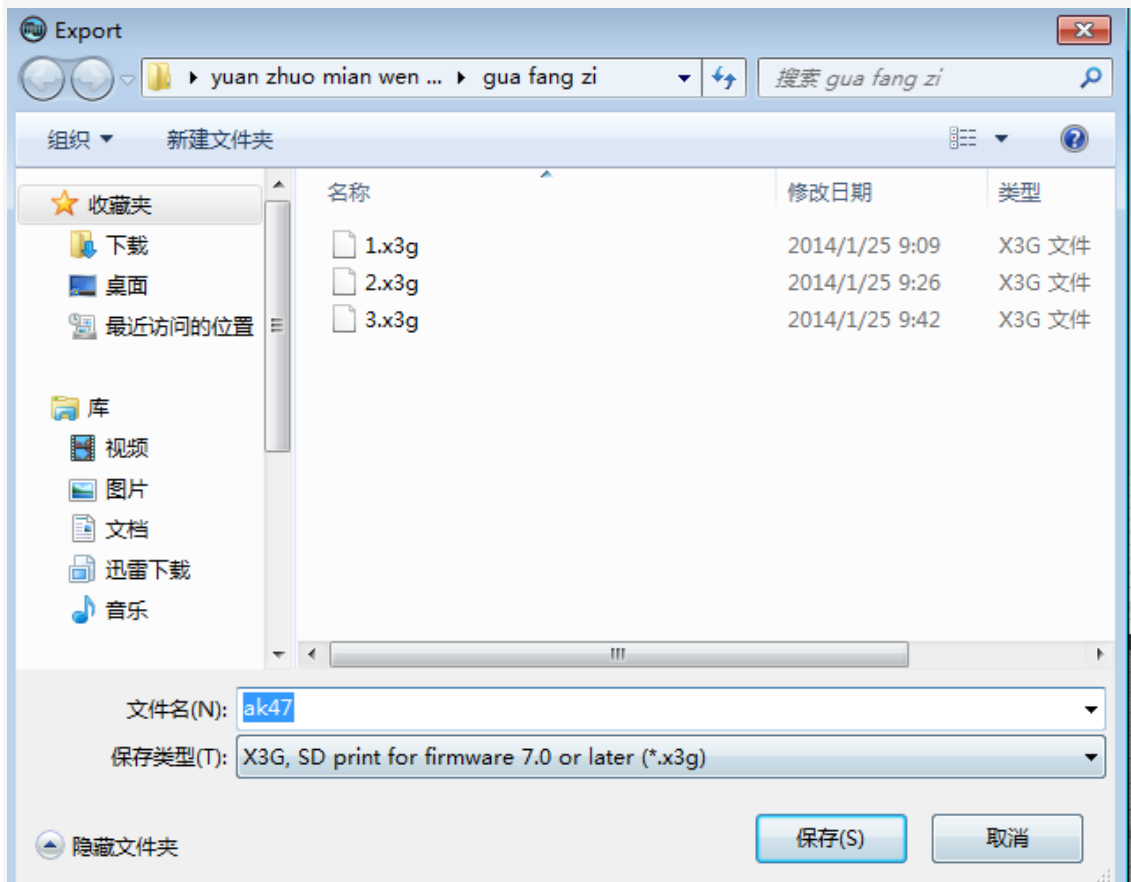
Speed recommended that the maximum speed would not exceed 80



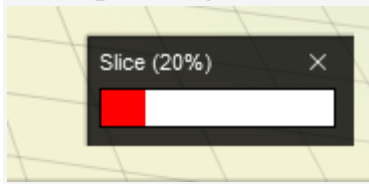
Officially recommended speed: ABS up:30-35 down:40-45

PLA up:50-55 down:55-60

After setting all above, please click **Export!** when a dialog box of path selection pop up, please choose a address to save the file.



After pressing the save bottom, a progress bar will show at the lower right of the software



When the progress bar disappears, you can copy the file generated

into the X3hG format with SD card in the place of saving the file. And then you can insert it into the printer and start printing.

3.3 The instructions of the key of LCD screen

"▲": For moving the cursor; "▶": for moving the cursor to the right; "▼": for cursor down; "◀": for moving the cursor to the left and returning to the previous menu; "M" (middle button): for the item's confirmation, selection and setting

Menu Item Description

Menu Options	Function	Explanation
Build from SD	SD Card Print	Select the files of s3g or x3g to print from SD card
Preheat	Preheat	Start preheating
Utilities	Tool	Enter the submenu aids
Monitor Mode	Monitor Mode	Enter into the control interface and monitor the temperature of the nozzle and the bottom
Change Filament	Change Filament	Replace Silk material according to the screen prompts
Lever Build Plate	Lever Build Plate	Level the print platform according to the screen prompts
Home Axes	Return to origin	Make the nozzle to the origin of X, Y, Z axis
Jog mode	Jog mode	Jog control X, Y, Z axis motor
Run Startup Script	Run Startup Script	Run your first boot wizard
Enable Steppers	Enable Steppers	Enable / disable all motor
Blink LEDs	Blink LEDs	LED switch (not used)
Exit menu	Exit menu	Return to main menu
Info and Settings	Info and Settings	Enter the parameter setting menu
Bot Statistics	Bot Statistics	View equipment uptime statistics
General Settings	General Settings	General parameter settings
Preheat Settings	Preheat Settings	Preheat parameter settings
Version Number	Version Number	View the version number
Restore Default	Restore Default	Restore the factory default

			parameter settings
	Exit menu	Exit menu	Return to main menu

Main menu

Connected to electricity , the main menu will show <http://translate.google.cn/>, just like the picture 1.By ▲ "and" ▼ "key to move to move the cursor, then press the "M"key to enter the selected item.

Picture 1 Main menu



Print with SD card

Select "Build from SD" and then enter into the SD card file to skim (see picture 2).By "▲" and "▼" key to move the cursor, press the "M" button to select the file you want to print and start printing.

Picture 2 SD card file selection



Select "Preheat" and start an operation of pre-heating (Picture 3), By "▲" and "▼" key to move the cursor to select the nozzle or floor, press "M" button to turn on / off the warm-up operation, and finally move the cursor to "Start Preheat!", Click the "M" button,and the machine starts warming .

Picture 3 Preheat



Submenu of the accessibility tools

Select the "Utilities" and then enter into the submenu of the accessibility tools (picture 4, picture 5), use "▲" and "▼" keys to move cursor and to select the tool item, Press "M" key to confirm the selection.

Picture4 the first submenu of the accessibility tools



Picture5 the second submenu of the accessibility tools

Monitor Mode

Select the "Monitor Mode" and then enter the monitoring interface (Figure 6), monitor the current temperature of the nozzle and the platform

Picture 6 the monitoring interface



Silk material replacement

Select "Change Filament" to replace silk material, exit the material of nozzle according to the prompts on the screen, and then insert the new silk material.

Printing platform adjustment

Select "Lever Build Plate" to level the print platform and then follow the prompts on the screen.

Return to origin

Select "Home Axes" to control the nozzle so as to return the position of mechanical origin

Jog mode

Select "Jog mode" to enter the jog control interface (Figure 7), use the "◀" and "▶" button to select X, Y, Z axis as well as "▲" and "▼" keys to control the front and rear direction of movement of the selected axis

The interface of the Jog mode



Run Startup Strip

Select the "Run Startup Strip" the printer will operate the wizard the first time you turn on it.

Enable Steppers

Select "Enable Steppers", it will enable three axis motor

Parameters and settings submenu

Select "Info and Settings" and then enter into the sub-menu (Figure 8), use the "▲" and "▼" keys to move the cursor so as to select tool item, press "M" button to confirm the selection.

Figure 8 parameters and settings submenu



Device Information

Select "Bot Statistics" to enter into the device information screen (Figure 9), check the total length of the printing as well as the last printing.

Figure 9 Device information screen



General parameter settings

Select "General Settings" to enter the general parameters setting interface (Figure 10). Use the "▲" and "▼" keys to move the cursor to select the parameters, press the "M" key to modify the parameters.

Figure 10 Conventional parameter setting interface



Preheat parameter settings

Select "Preheat Settings" and then enter into the interface of parameter settings (Figure 11), use the "▲" and "▼" keys to move the cursor to select the parameters, press the "M" key to modify the parameters.

11 The interface of preheat parameter setting



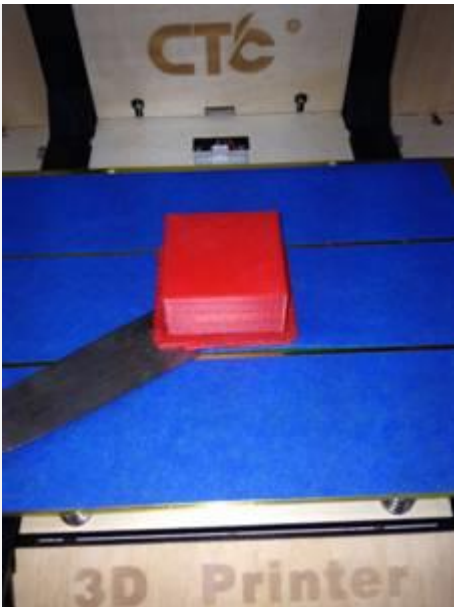
The version number

Select "Version Number", then you can view the version number of the operation of the software

Restore Default Settings

Select "Restore Default", you can restore the factory parameter settings

4. Take out model



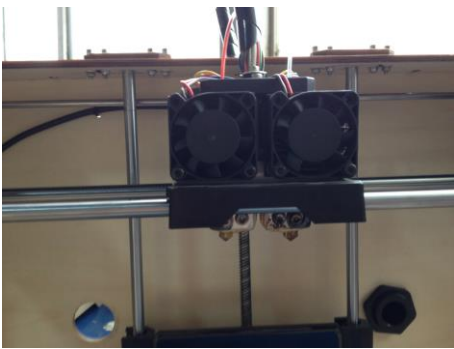
Use the rasp to gently tilt the bottom of the object, so that the printed article can slowly leave the heating platform. Try not to move it with your hand

5. Maintain

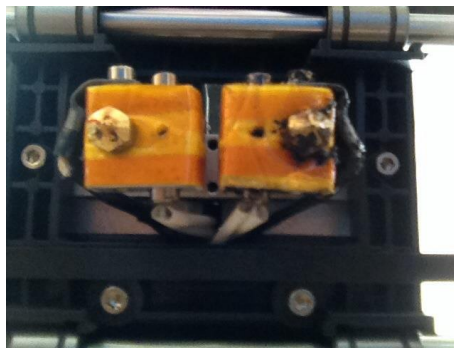
5.1 clean the print head

The print head has to be cleaned after the printer is used for a period of time, the

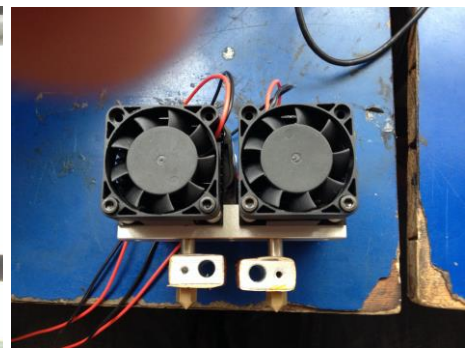
appearance of the print head as shown in Figure 1, in the bottom of the print head you can see two white screws, at both ends of the print head, as shown in Figure 2, the two screws can be taken down after taking out from the print head, as shown in figure 3. After removing the two black within six angle 2.5 screws which are in the front of the print head and below the fan, please move away the fan and heat sink, as shown in Figure 4. Removing the fan and the radiating surface and the motor you can see a piece of aluminum strip, as shown in Figure 5. The stepping motor is also removed after the fan is lifted down, and on the above of it is the glue extruding gear of the print head, as shown in Figure 6. disassembling and cleaning extruding gear, after cleaning the plastic in the tooth of glue extruding gear and it can be installed to use.



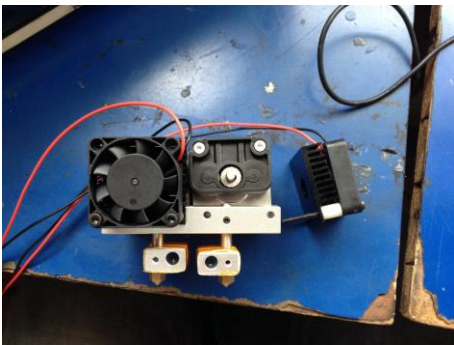
(Figure1)



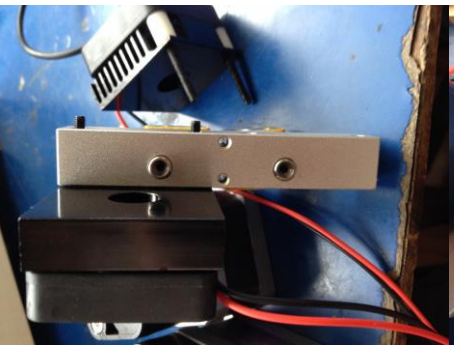
(Figure2)



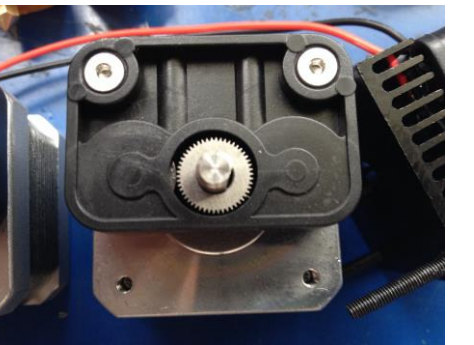
(Figure3)



(Figure 4)



(Figure 5)



(Figure 6)

5.2tighten the belt

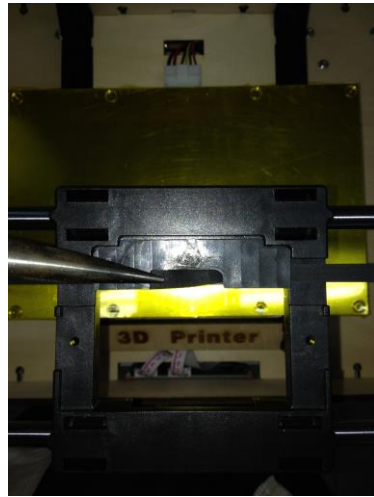
Attention : 1. tight belt need to make the belt silk contact with the pulley dovetail.

2. the left and right force of Y axis pulley needs to be consistent.

3. X axis and Y axis must form into a right angle.



(Y-axis on the right belt)



(X-axis belt)



(Y-axis on the left belt)

5.3 maintenance of the optical axis and the screw rod

Using much better lubricant, spread the lubricant on the above of XYZ bearing steel, coated measurement should not be too much, just a little on the surface to make lubricant oiling. Figure (2345)



(Figure 1)



(Figure 2)



(Figure 3)



(Figure 4)



(Figure 5)

6 .Troubleshooting

- 6.1 Printing offset, or offset after the screw fastening, please check the printer pulleys, pulley to see whether they are staying in a parallel line.
- 6.2 Temperature is displayed 0-1024 improperly, please check the thermocouple connection. If the connection is normal, you need to replace the thermocouple.
- 6.3 If the Temperature is displayed NA, you need to check the thermocouple connection. If the connection is normal, you need to replace the thermocouple.
- 6.4 X-axis move is not normal and there is chattering. It is to illustrate X-axis motor line has problems and it needs to replace the X-axis motor cable.
- 6.5 LCD blue screen does not display; the boot suddenly restart, the motor does not stop after touching limit switch. Please check the sensor cable. If sensor cable is connected properly, the sensor cable may has a problem.
- 6.6 Fan does not run, to make sure the temperature is above 50 degrees and place your hands to dial to see whether it can run. If it still do not run, please reconnect the interface with a screwdriver under examination, or use battery test. If the problem do exists, please replace the fan.
- 6.7 Motor does not run. Replacing the motor driver board.

7. Common Problems and Solutions

- 7.1 Kasi - wire is too thick - split nozzle
- 7.2 skid - Silk meticulous - minus some silk material
- 7.3 blocking the nozzle - heating pipe plug wire - heating element apart, heated to 220, silk material removed with tweezers
- 7.4 temperature anomalies - thermocouple is damaged - replace the thermocouple
- 7.5 Print dislocation - screw loose - Check the screws and tighten the screws
- 7.6 Print sample Alice - floor height is too high - floor height adjustment
- 7.7It cannot be turned into G code – not choose the number of sprinklers and models the storage path is wrong - select and change it.

- 7.8 sticky silk material is above the nozzle - support material is pulled by nozzle - re-set parameters
- 7.9 no wire - the model in question - after repairing the model code and reset the parameters the code numbers
- 7.10 driver or software could not install - system configuration problem - reinstall the system
- 7.11 print sample does not stick platform - too much distance between the nozzle and the platform – readjust the platform
- 7.12 blue tape is difficult to take down - Platform heating and when it is heated into are 20-degrees or 30 degrees , you can take down completely.

8. Warranty and License Agreement affirms

Quality Assurance:

CTC has committed to you behind each product. CTC has strict processing standards and assembly parts inspection process to ensure that every product is qualified high-quality products.

After-sales warranty

- 1 After receiving the product within 7 days due to product quality problem , we will bear the return shipping for you free replacement or repair.
- 2 Receiving the goods within 7-30 days, we will help you free replacement or repair, repair freight should be born half because of quality problems
- 3 From 30 to 90 days of receipt of the goods, we will help you free replacement or repair, but please bear the return shipping cost because of the quality problems.
- 4.90 days after the issue of all products, you can be provided for free advice. If you need replace the accessories, you need to pay it and the return shipping cost

Returns Policy

1. Returns basic conditions: (1) to ensure that the product packaging, product accessories, manuals and keep the original products and it does not affect the secondary sales. Just missing one, you cannot accept returns of service, such as a replacement, the pro-retention gifts, such as return, please return the gifts together.
2. Replace the products with quality problems. After receiving the product, please carefully review the integrity of the product. If you find any quality problems, please take a photo within 5 days and get in touch with us.
3. We will not provide you the return service for the following conditions: (1) You have met the requirements of the returned goods when you receive the goods packaging, accessories, manuals, etc. Missing one cannot be provided for return. (2) After purchasing goods and it has obvious stains, or vandalism could not provide return. (3) The scope of the gift does not engaged in after-sales service. (4) If a non-West-brand consumables, or supplies using PLA nozzle sum game lead product, not

covered by warranty. (5) The products will be issued an invoice cannot be returned, only quality replacement.

4 .Care the product: the end (1) After the printing job has been done, you should try emptying nozzle and residual printing supplies extruder to avoid the next print nozzles will sum game, which is a basic 3D printer maintenance. Note: If you use other manufacturers and distribution of supplies caused by the nozzle sum game, will no longer be within the scope of the warranty. (2) Rail can be added the preservative lubricant each month. (3) Do not print directly in the printing process or ending the printer's conductor assembly by using metal objects.