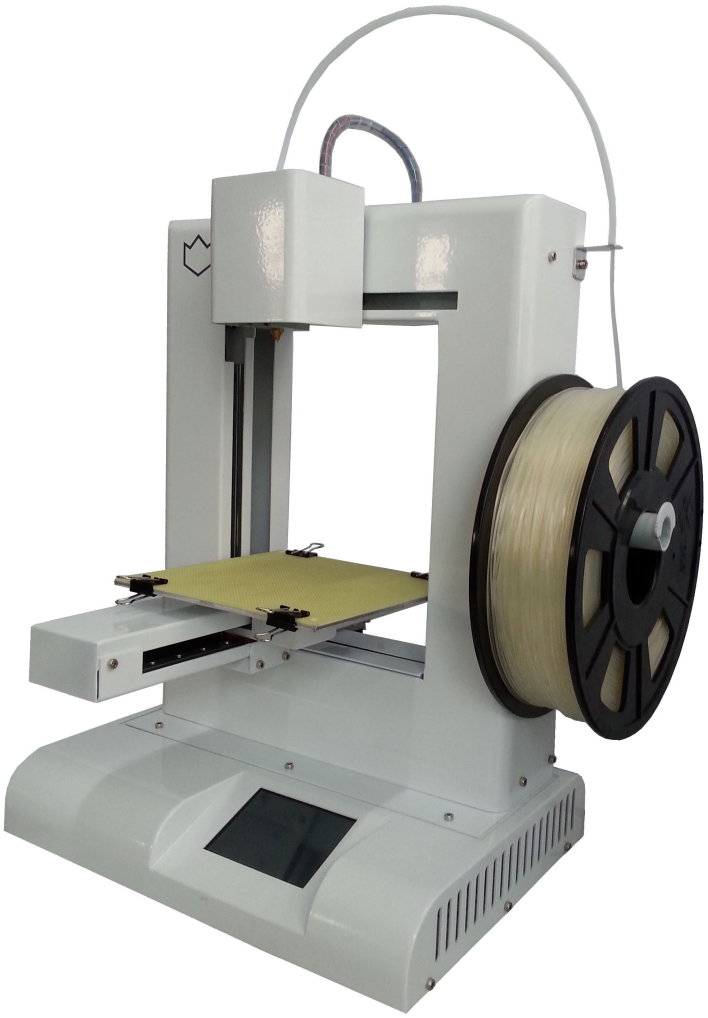
3D Printer IdeaWerk User Manual



Update time: 20131213

Contents

1. Unpack and checking

1.1 Check the Machine

1) Open the packing carton box, unwrap the EPE covering, remove the machine and accessories from the box.

2) Overall observe the machine to make sure there is no serious damage. If any problem, please contact with the after sale service staff in time.

(Pic 1.1-01)

1.2 Check the Accessories

All of the following accessories are consisted in the box together with the machine.

Shovel

Carve knife

Cut pliers

Tweezers

Allen wrench

Clips

Power adapter and power cord

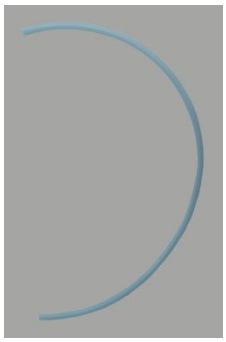
USB Cable

Build plate

Acupuncture Needles

Nylon cable ties

Gloves



Teflon tube filament guide

spool holder

(Pic 1.1-04)

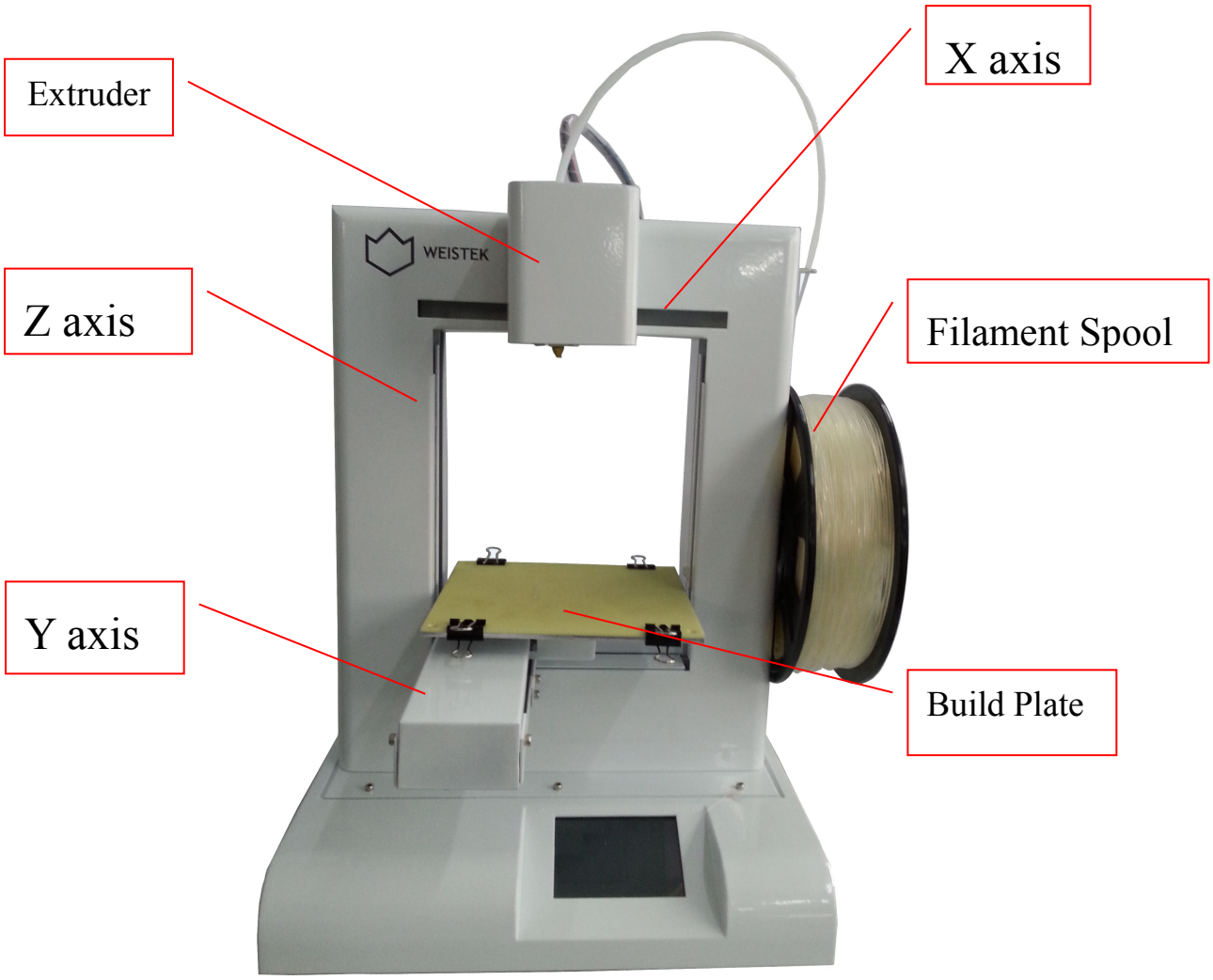
2. Brief Introduction

2.1 Precautions and Safety

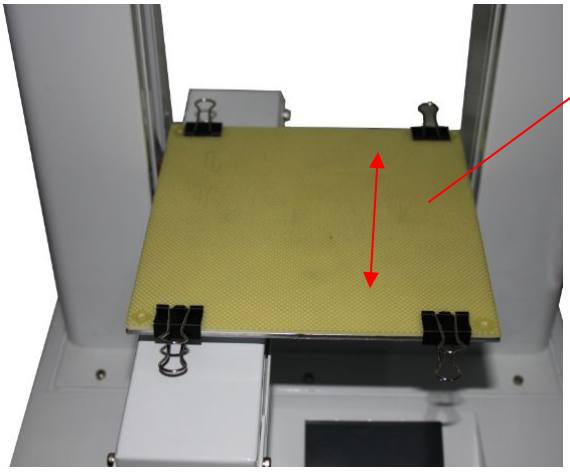
- Place the machine in dry environment when operating.
- To avoid blocking the nozzle, do not heat up the extruder before feeding the material

- Machine should be away from fire or water.
- Use the machine in a ventilated environment, so that to avoid smelling.
- Do not touch or remove the power cord or data line when operating.
- Never touch the extruder or build bed by any parts of your body or anything which is easy on fire when machine is operating,for they are very hot to harm your skin or cause fire.
- Gloves are required when removing the printed part to avoid harm ofcutting, scratching or burning.

2.2 Appearance and Structure

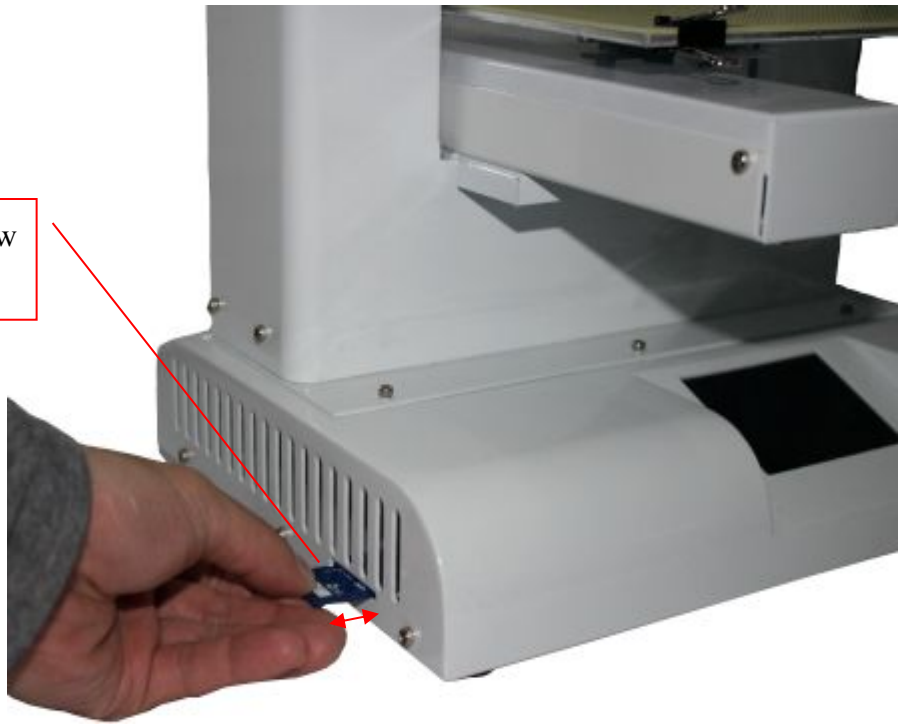


（Pic 2.2-01）



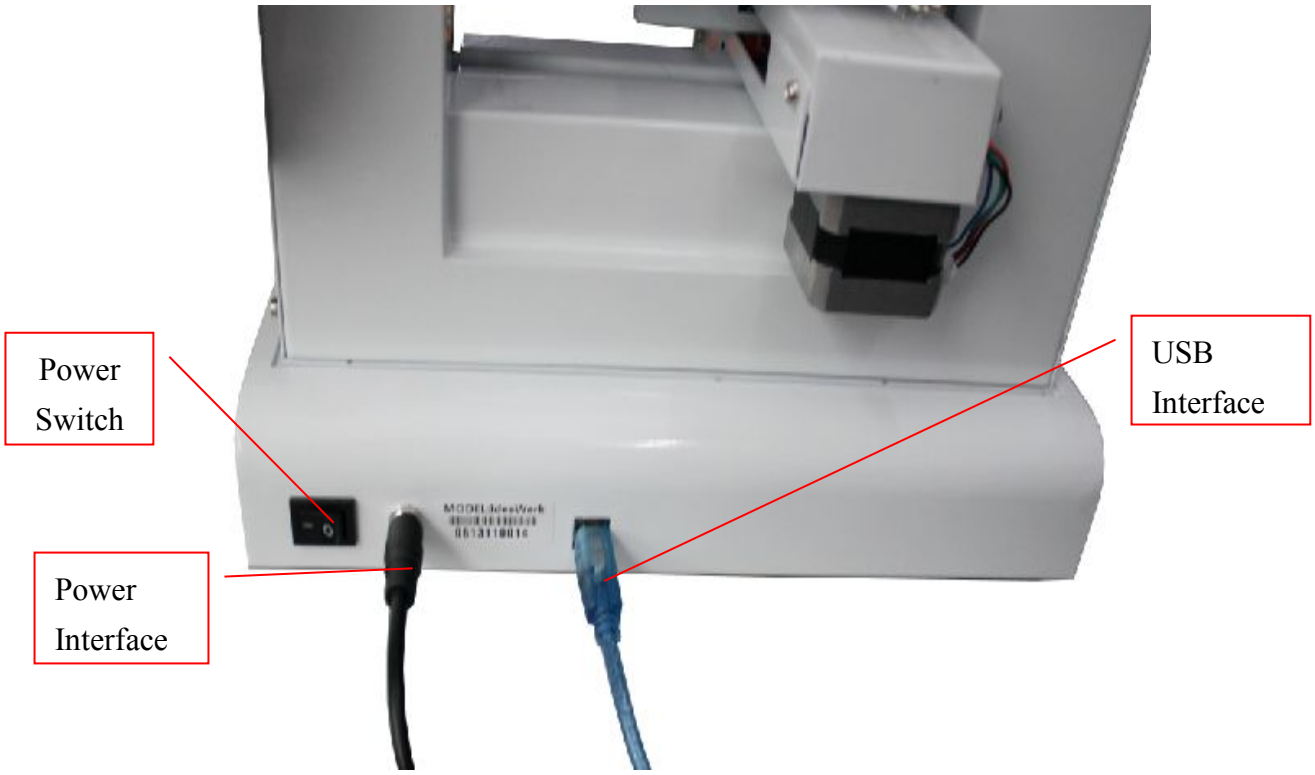
Note: the direction of the clip must be parallel to the X axis

（Pic 2.2-02）



Please note how to insert SD card

（Pic 2.2-03）



（Pic 2.2-04）

2.3 Technical Specifications

Dimensions: 298mm × 221mm × 403mm

Printing Dimensions: 150mm × 150mm × 140mm

Layer Thickness: 0.18~0.3mm

Speed: 30 – 150cm^3/h

Net Weight: 7.5kg

Material: PLA

Materials Printing Temperature: PLA 220 - 230°C

Power: INPUT:100-240V ~, 50/60Hz,2.6A-3.0A

OUTPUT:12V---10A

Maximum Operating Power: 150W

Input Format: STL/X3G/GCODE

Operating Systems: Windows XP/Vista/Win7/Win8

Operating Software: ReplicatorG/Weistek Way

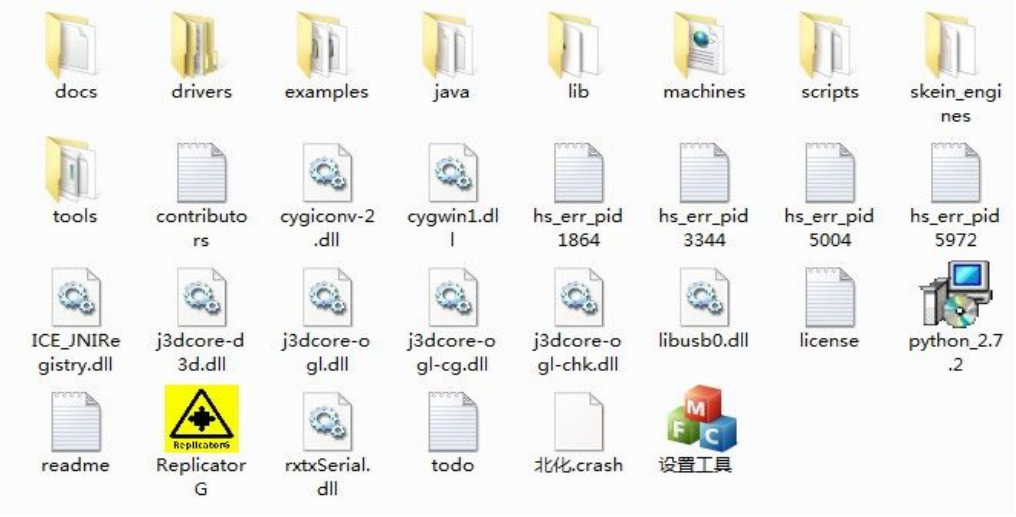
Environment Temperature: 5℃～35℃

Relative Humidity: 10%～40%

3. Software Installation

3.1 Software Installation

1) Copy the software from the disc before connecting the machine with your computer. Decompress the file.

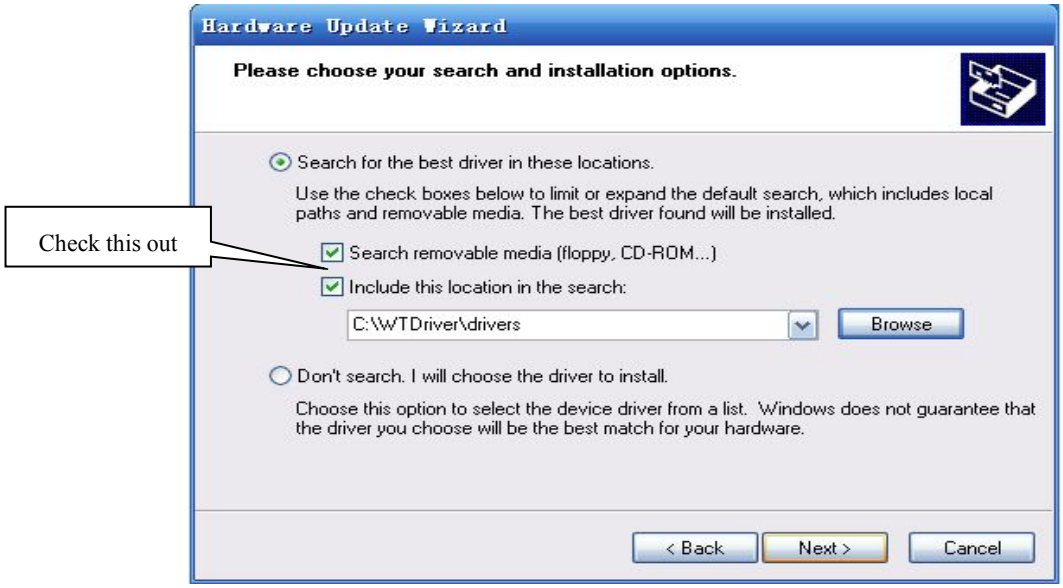


（Pic3.1-01）

2) Refer to the power and USB interfaces in the picture 3.1-02. Choosing “install from a list or specific location (advanced)(S)” when the following interface pops up after finishing connecting USB cable. Then, click “next” to continue.

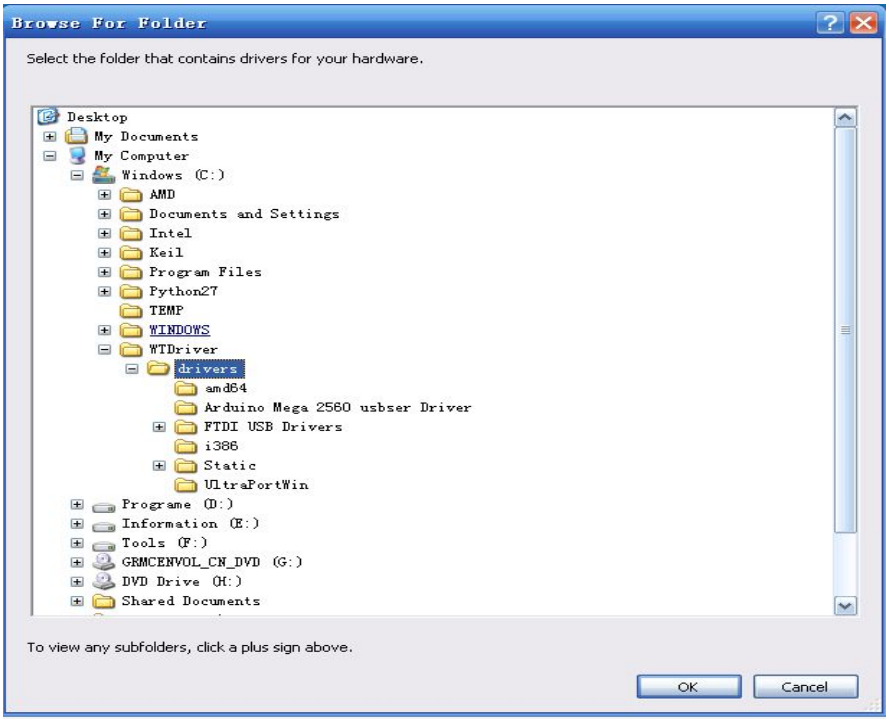
（Pic 3.1-02）

3>Select“Include this location in the search” in the below pop-up window, then clicking “Browse”



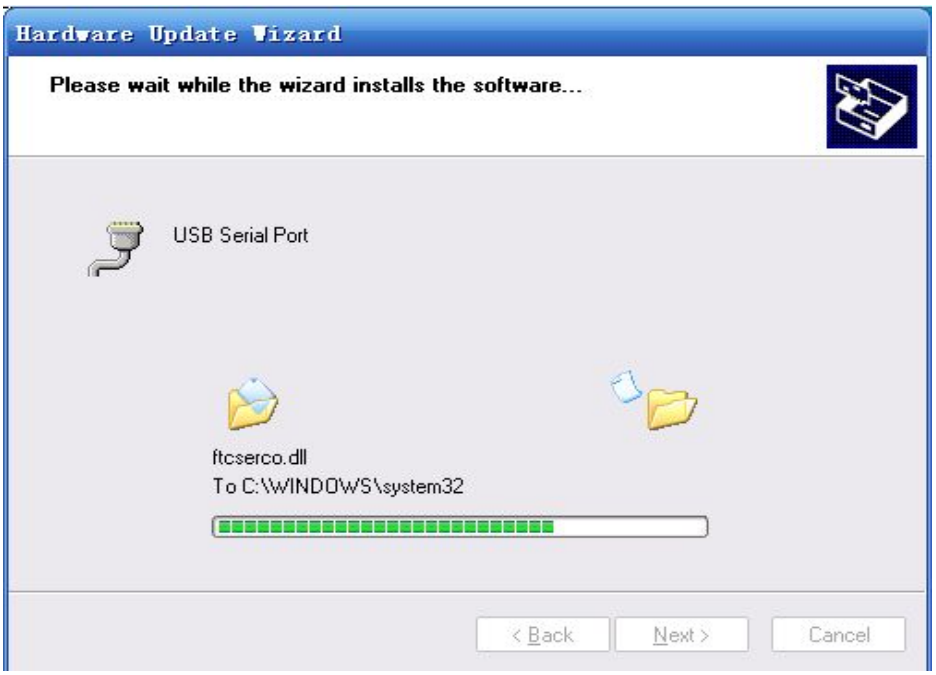
（Pic 3.1-03）

4> Select a folder for *WAY* in the pop-up window Browse For Folder, and find "drivers" folder, then clicking [OK]. Then, click [Next] in the window of Hardware Update Wizard.



（Pic 3.1-04）

5> Click [next] when the following interface pops up.



（Pic 3.1-05）

6>waiting till the below window pops up, then clicking [Finish]. Until now a serials of ports were installed successfully

（Pic 3.1-06）

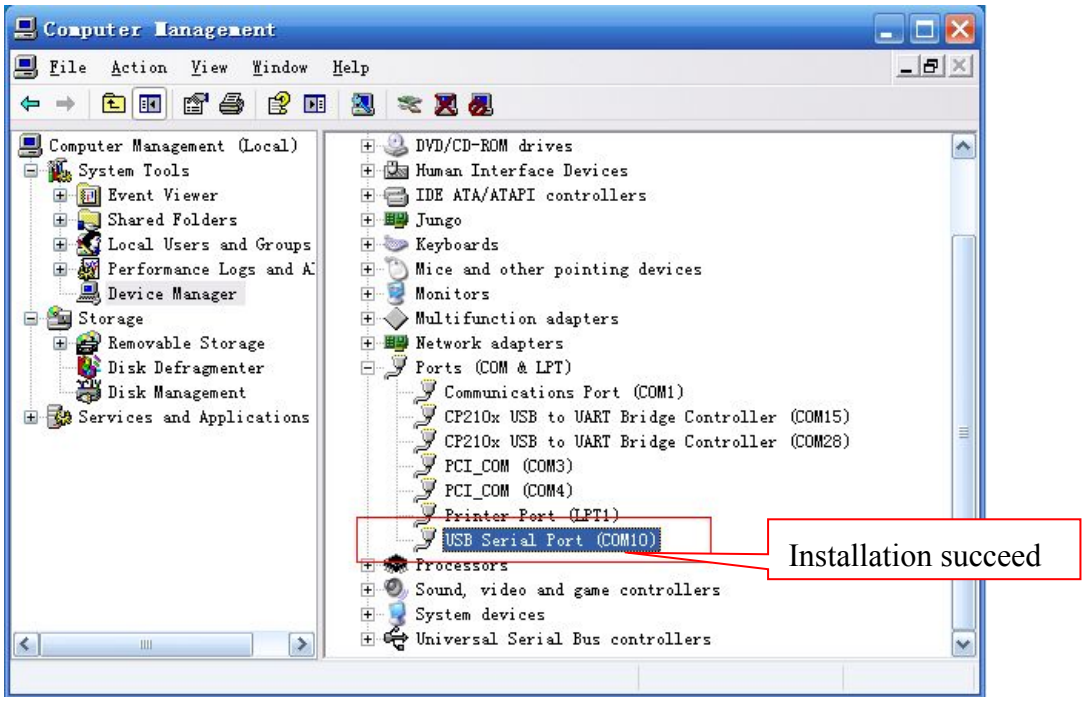
3.2 Port Confirmation

After finishing drives installation, please use the below methods to confirm whether it is successful or not

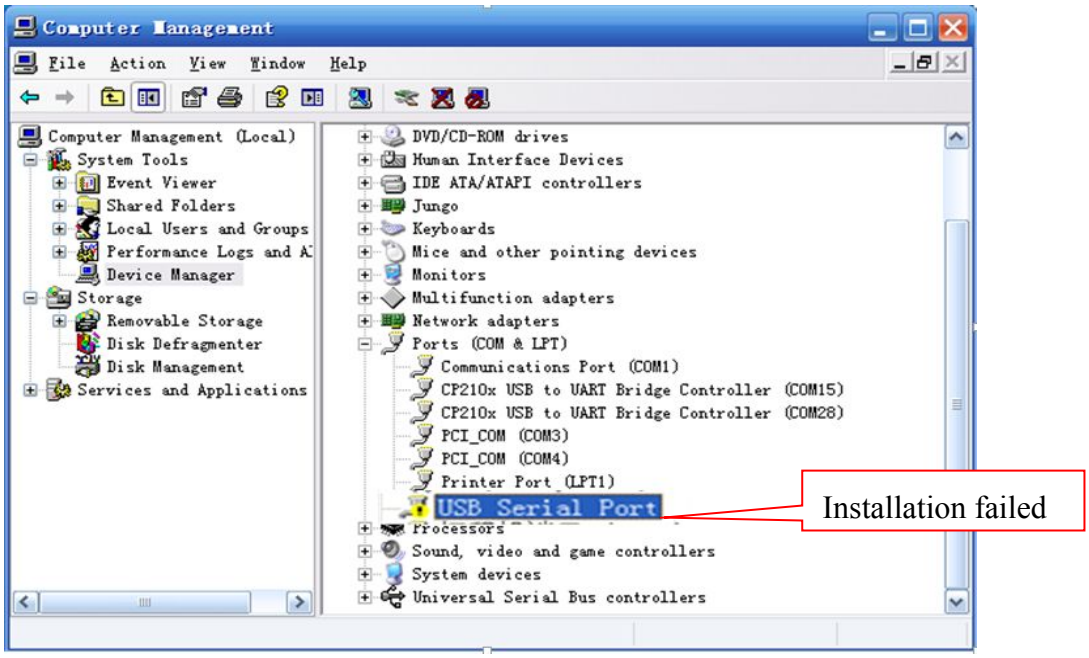
1> right click「Computer」, choose「Manage」, and then choose「Device Manager」

（Pic 3.2-01）

2> Select ”Port(COM&LPT)”in the below pop-up window,. If no *?* or *!* ahead of”USB Serial Port”shows the USB Serial Port Drive is installed successfully.



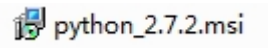
（Pic 3.2-02）



（Pic 3.2-03）

3.3 Python installation

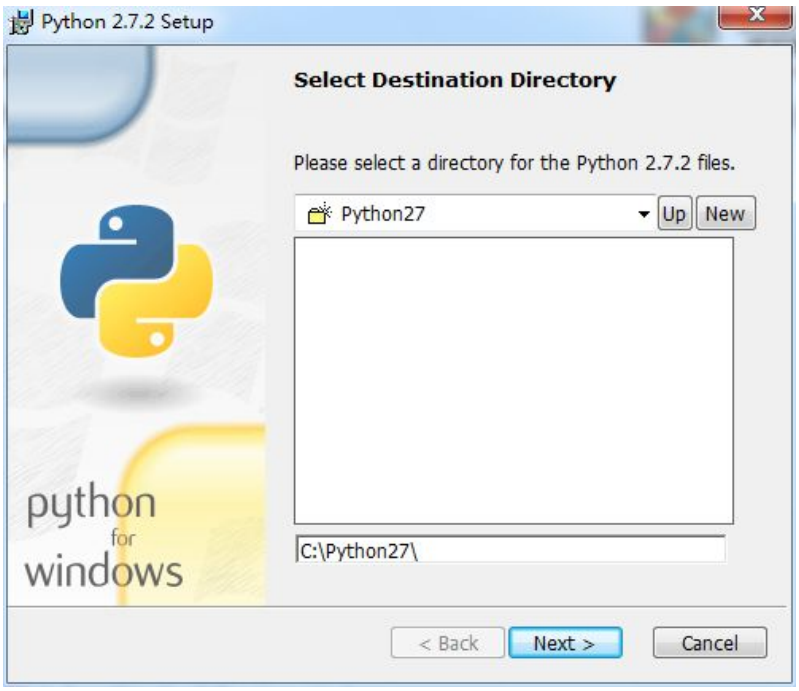
Install Python software after finishing driver installation. The installation steps are as following:

1>Double-click software 

, click [next] in the following windows.

(Pic 3.3-01)

2> Disk C is the default destination. Don't change anything, just click [next] as following:

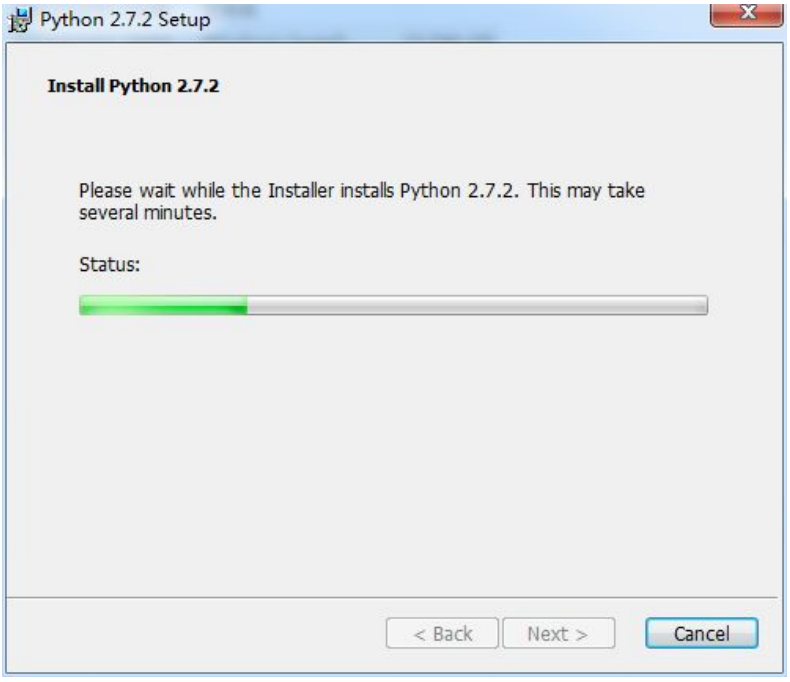


（图 3.3-02）

3> Click [next] in the following windows.

（Pic 3.3-03）

4> Click [finish] to complete Python installation.



（Pic 3.3-04）

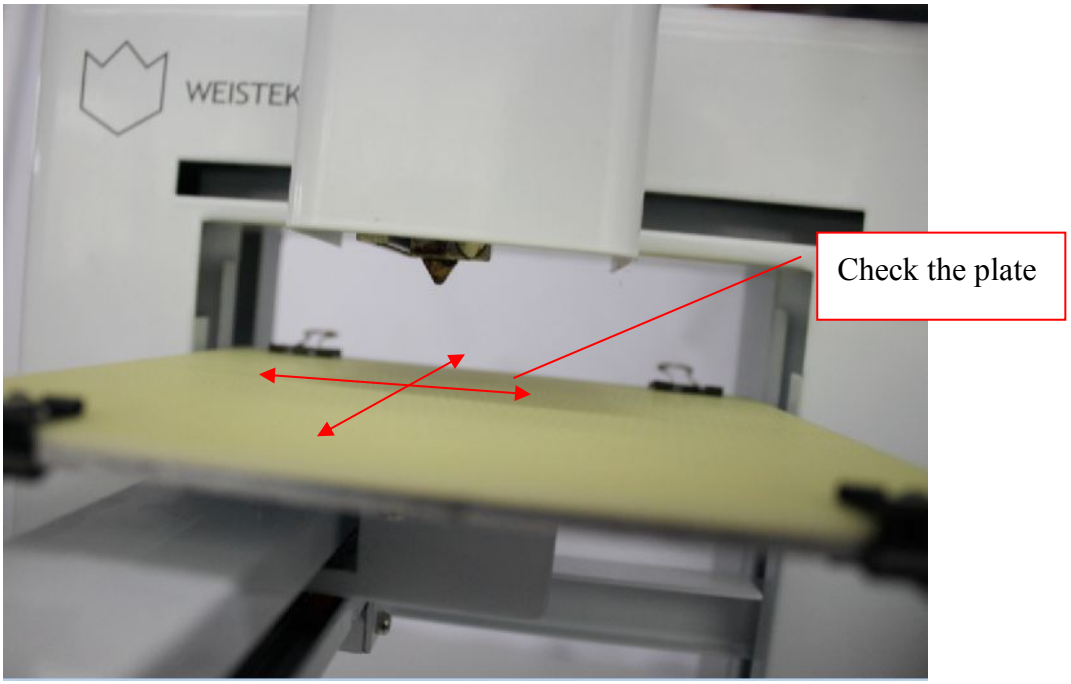
（Pic 3.3-05）

4. Preparations before printing

Before start to print the SD card should insert in the 3D printer, or software will not able to connect the printer.

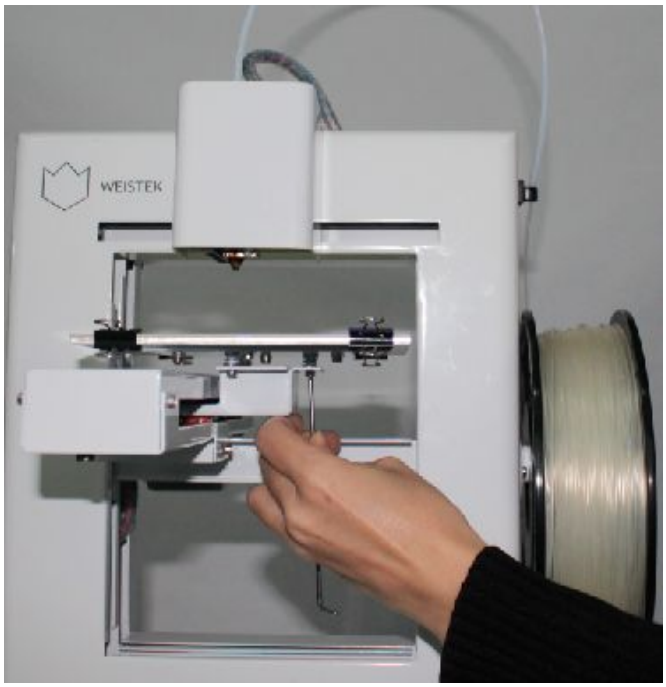
4.1 Check the build plate

The plate should be checked before printing. Make sure the plate to be flat and level.



(Pic 4.1-01)

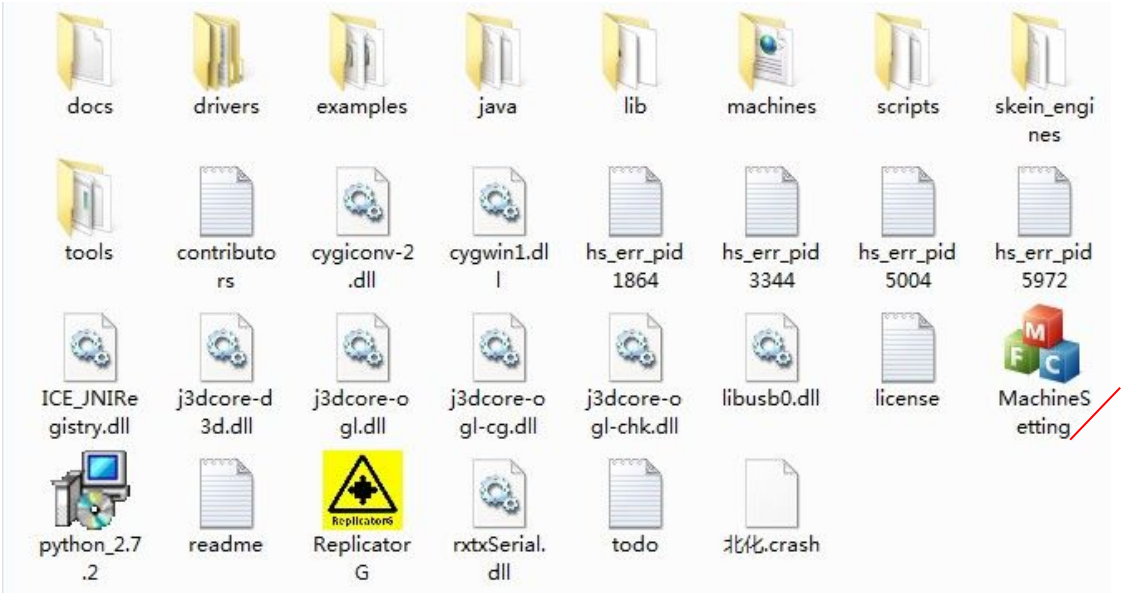
Use the wrench to adjust the height of each part of the plate.



(Pic 4.1-02)

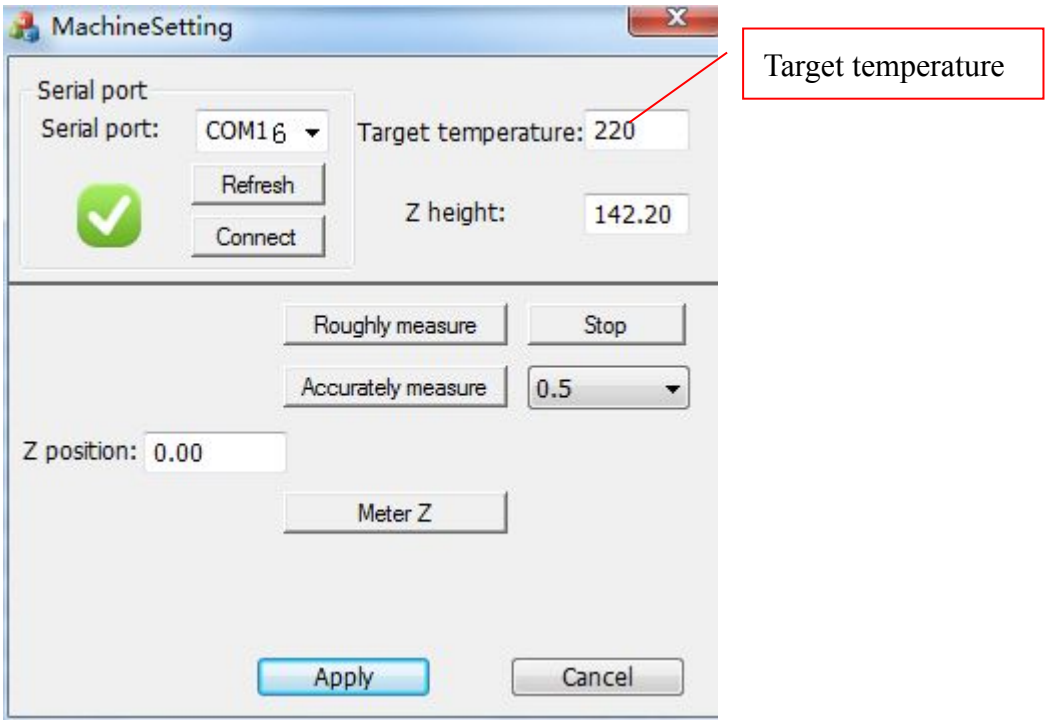
4.2 Select temperture

4.2.1 Open the tool showed below.



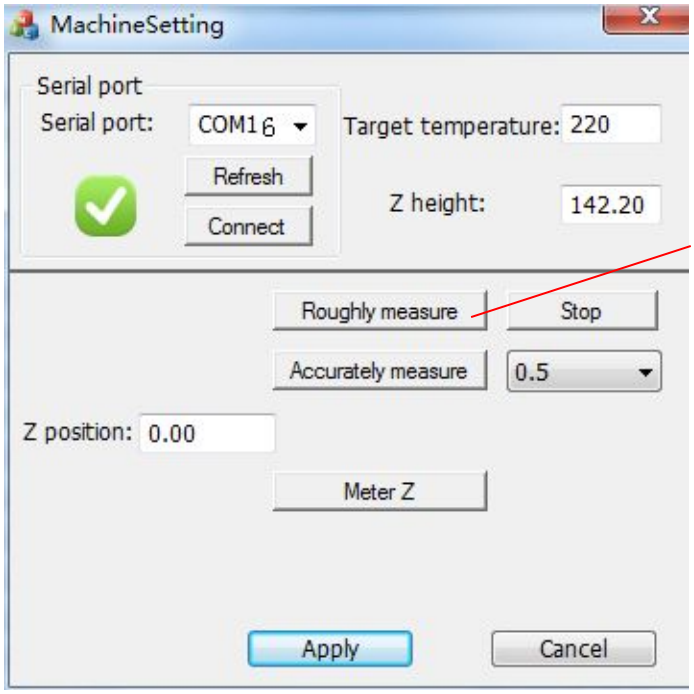
(Pic 4.2-01)

4.2.2 How to select temperature: Extruder target temperature, 220~230ºC.

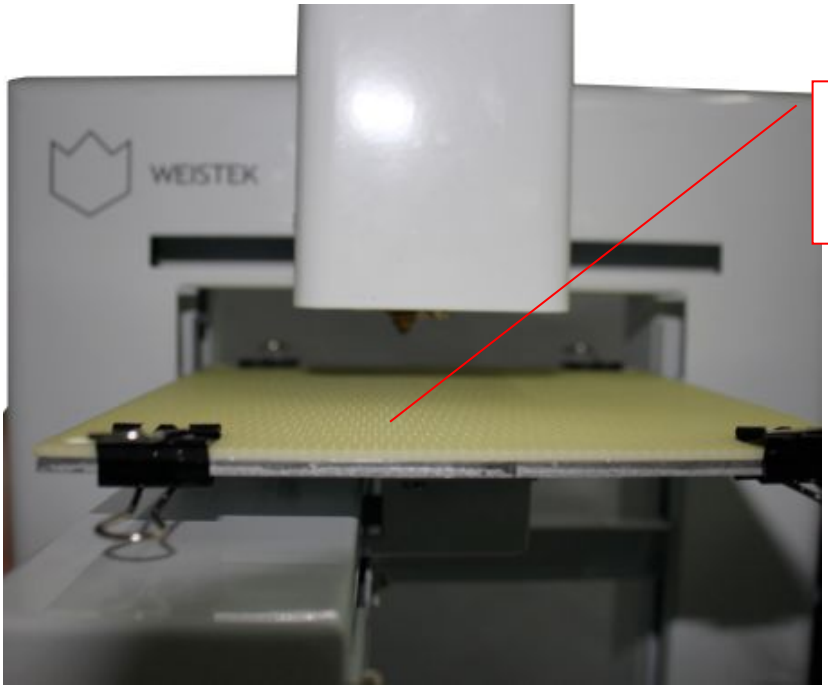


(Pic 4.2-02)

4.3.2 Click [Roughly measure], the platform will measure the height of Z axis automatically and stop when moving close to extruder.（as pic 4.3-02，pic 4.3-03）

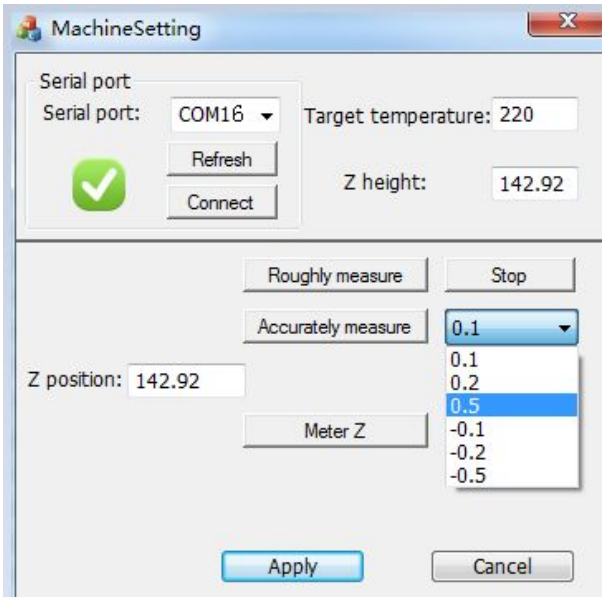


（Pic 4.3-02）

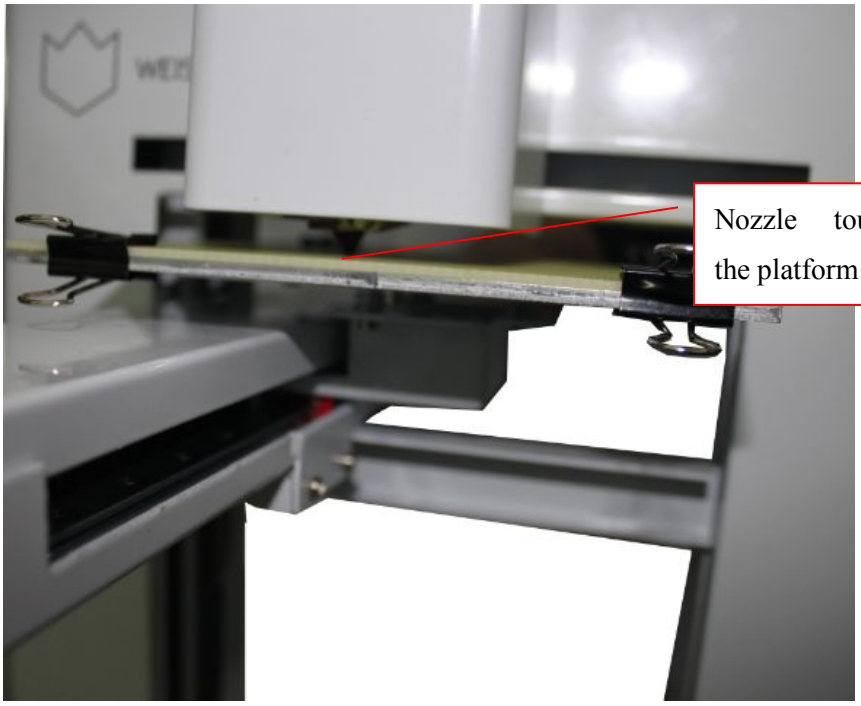


（Pic 4.3-03）

4.3.3 Select a number 0.5 in the drop-down list and click [Accuracy measure]. The nozzle will take corresponding movement with one click till it touches the platform. （as pic 4.3-04，pic 4.3-05）

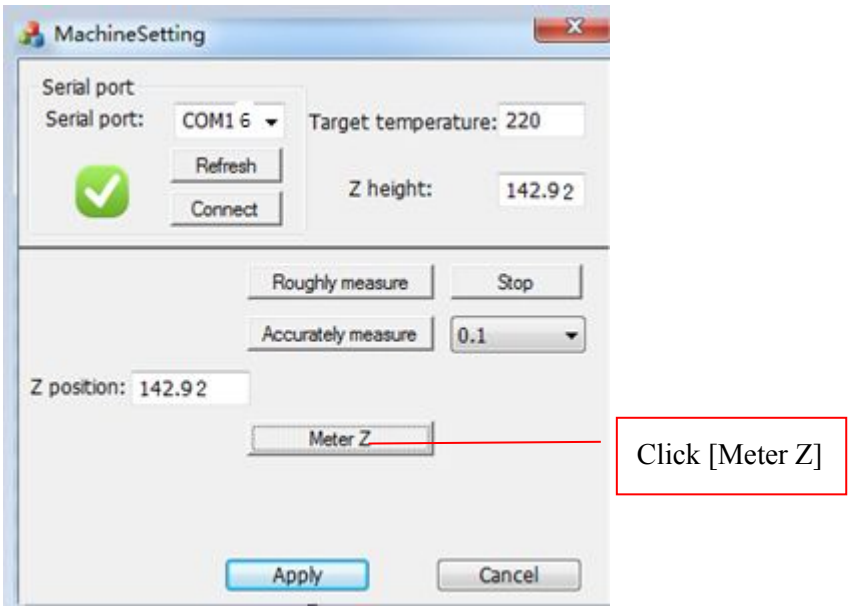


（Pic 4.3-04）



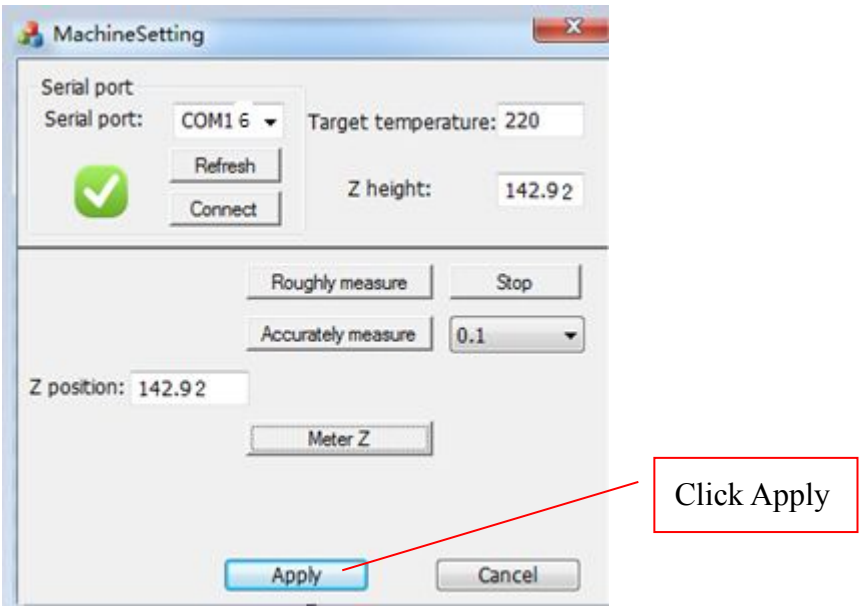
（Pic 4.3-05）

4.3.4 Click [Meter Z], platform will measure printing height automatically. Different machine gets different printing height as pic 4.3-06. Click [Stop] for platform stop and [Cancel] for reset. The printing height of this machine is 141.72mm. The same machine only measure once before printing except for related temperature parameter changes.



（Pic 4.3-06）

4.3.5 Click [Apply] to complete printing height measure as pic4.3-07.



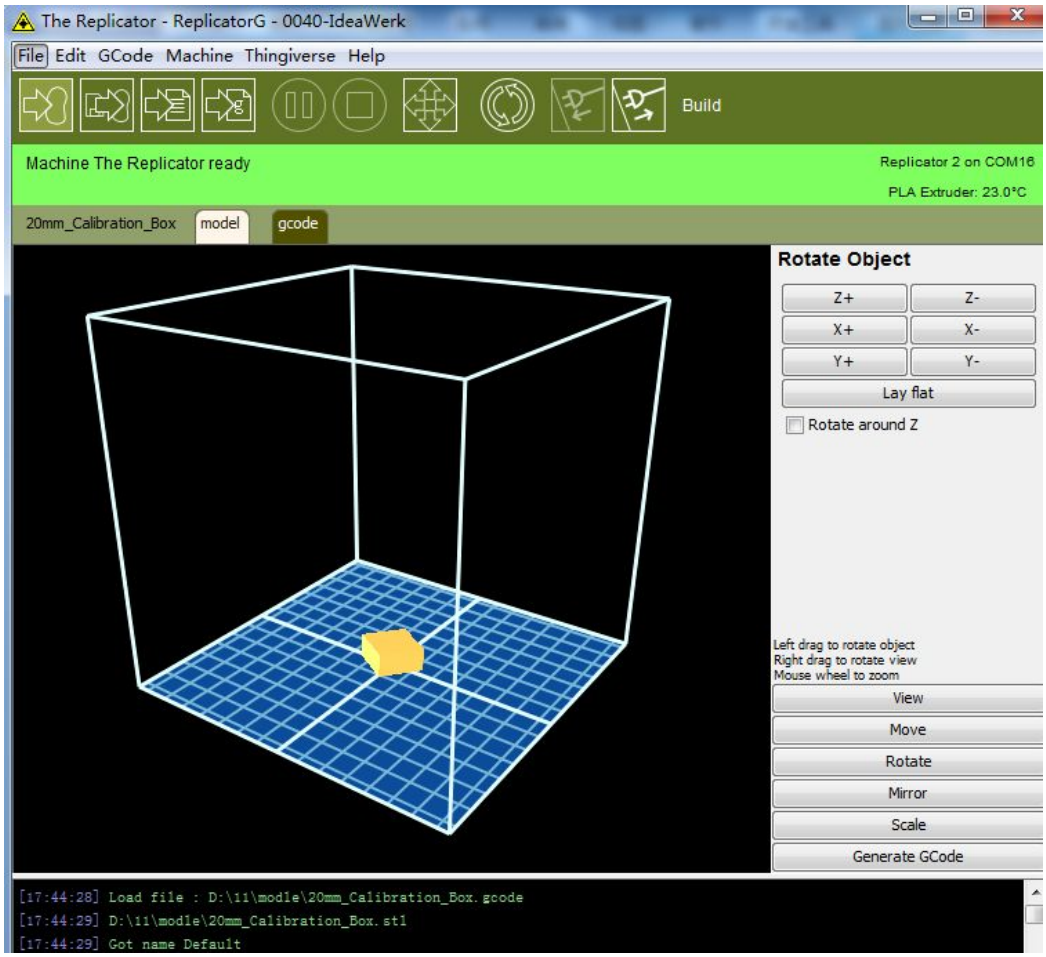
（Pic 4.3-07）

5. Introduction of main functions

5.1 Introduction of main functions

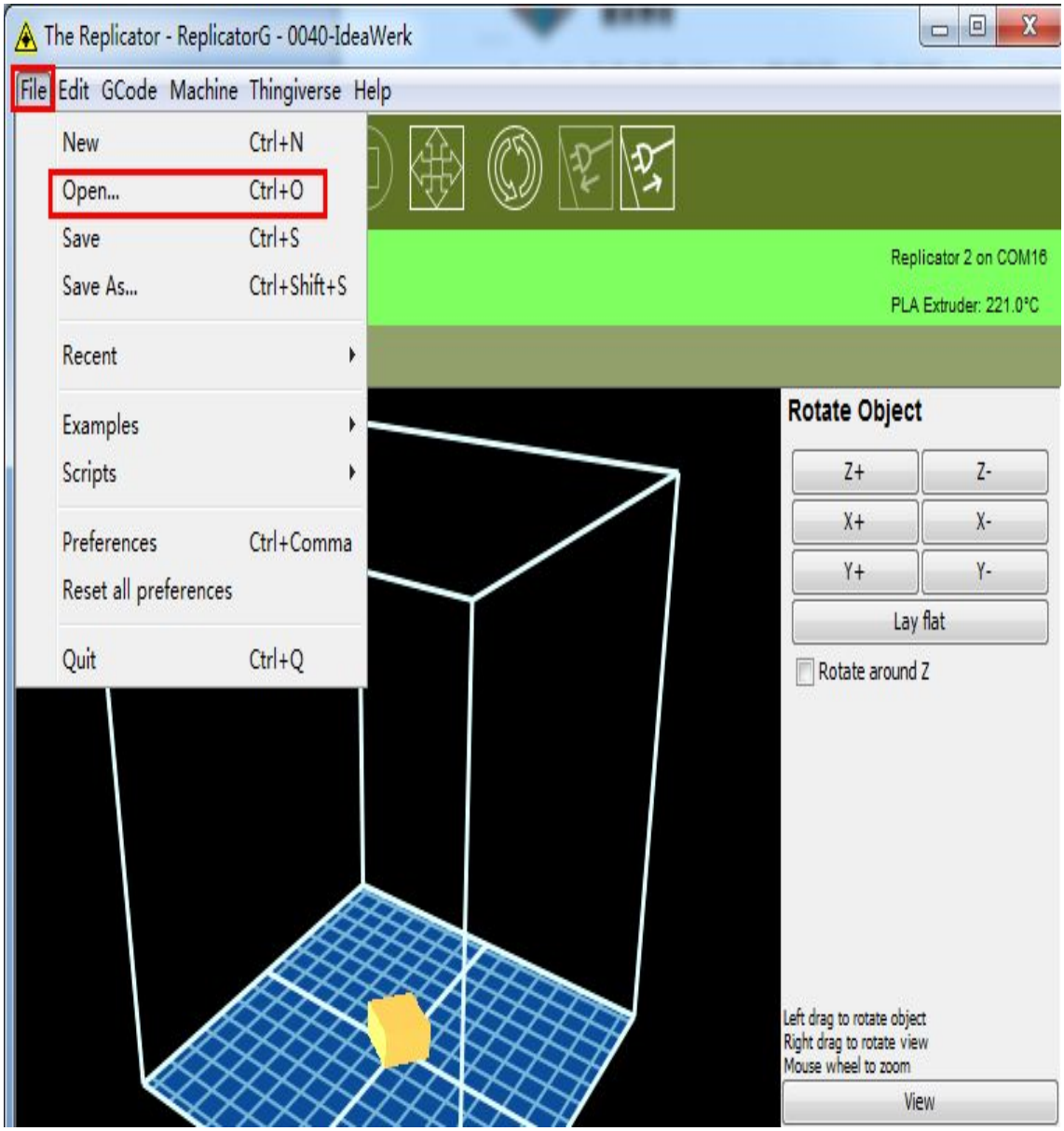
5.1.1 Software interface

Six main function bottoms: File, Edit, GCode, Machine, Thingiverse, Help



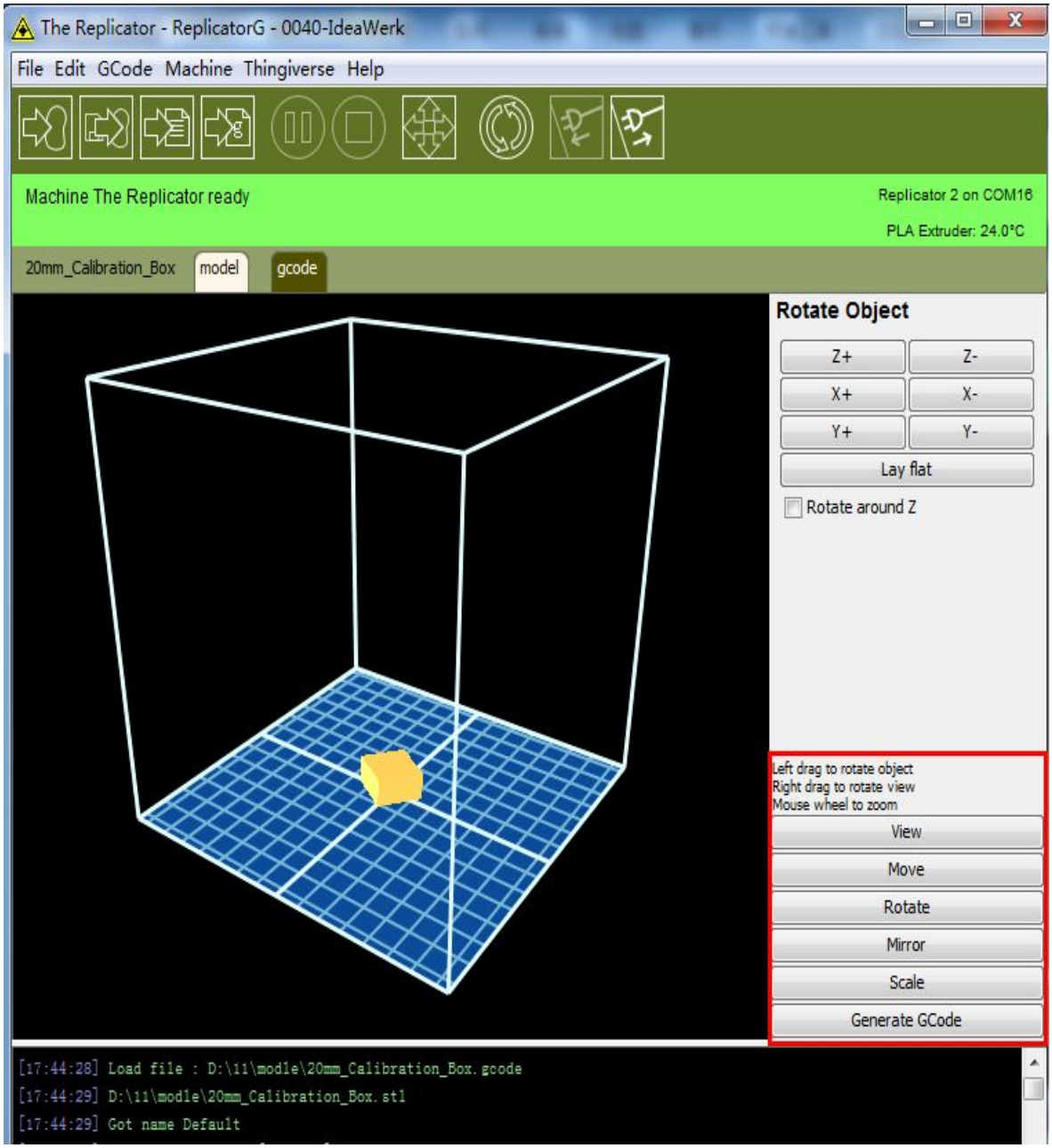
(Pic 5.1-01)

5.1.2 Click「file」, choose「Open」to open an STL file of the model. The model will show up on the center of the interface.



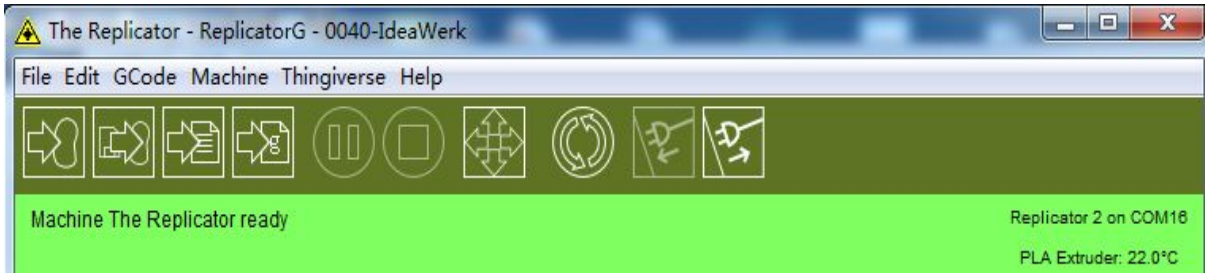
(Pic 5.1-02)

5.1.3 If your model does not show correctly on the virtual plate, use the bottoms on the right side of the interface to edit the model.



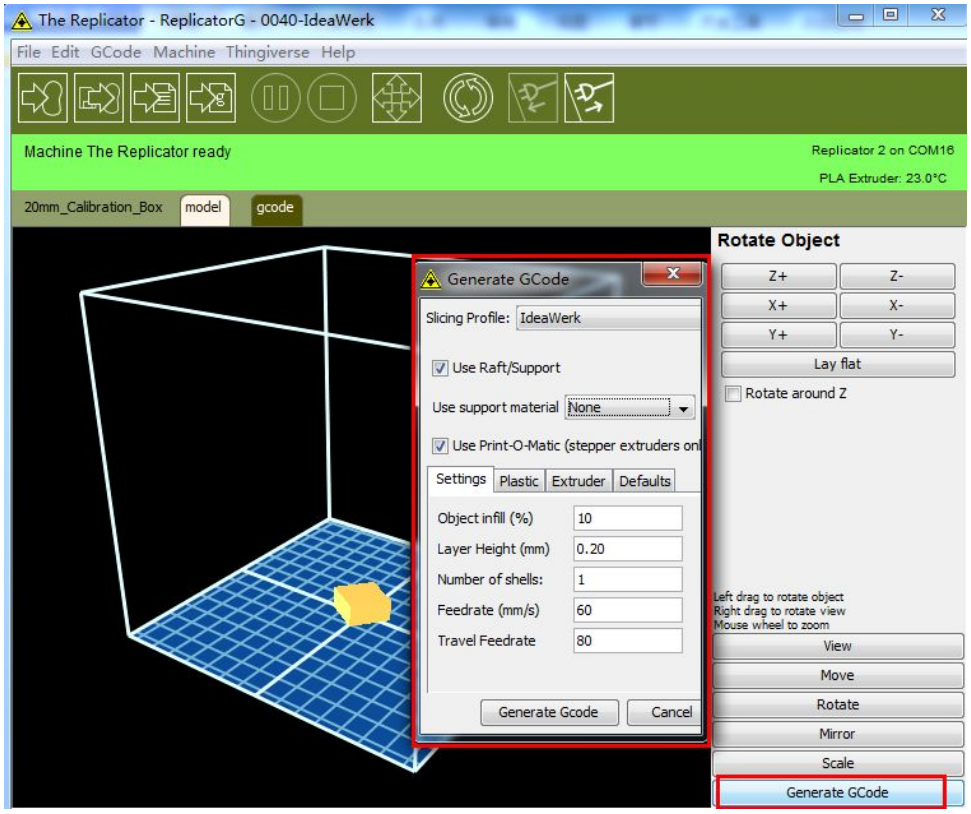
(Pic 5.1-03)

5.1.4 When the interface turns green and shows like the picture below, that means the software has connected to the right serial port.



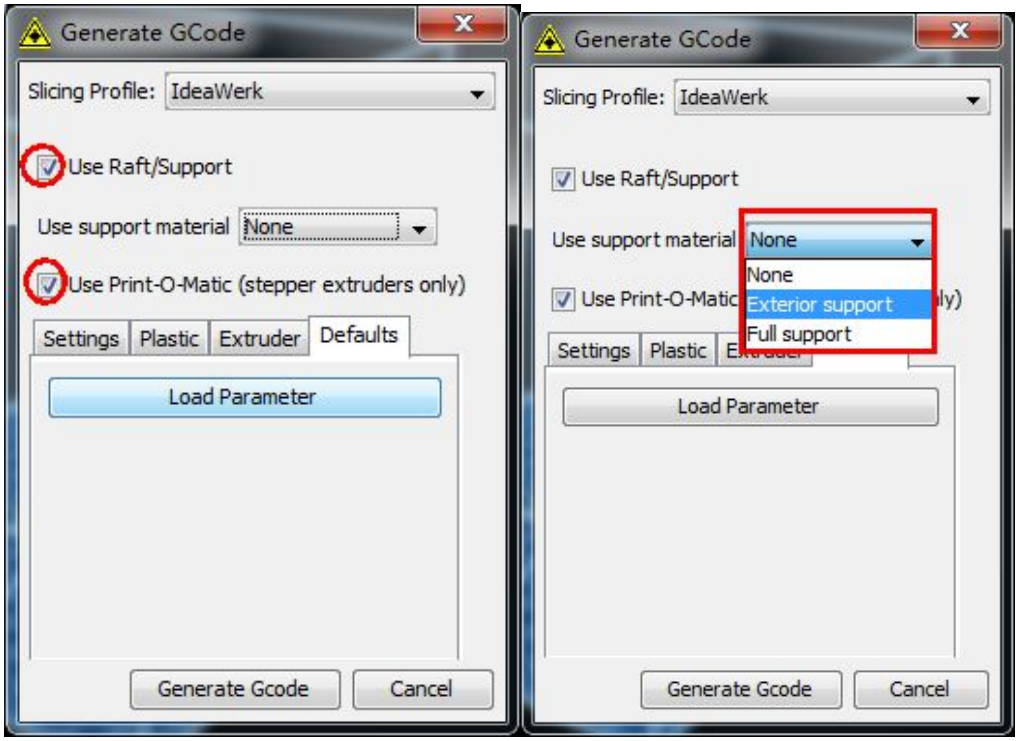
(Pic 5.1-04)

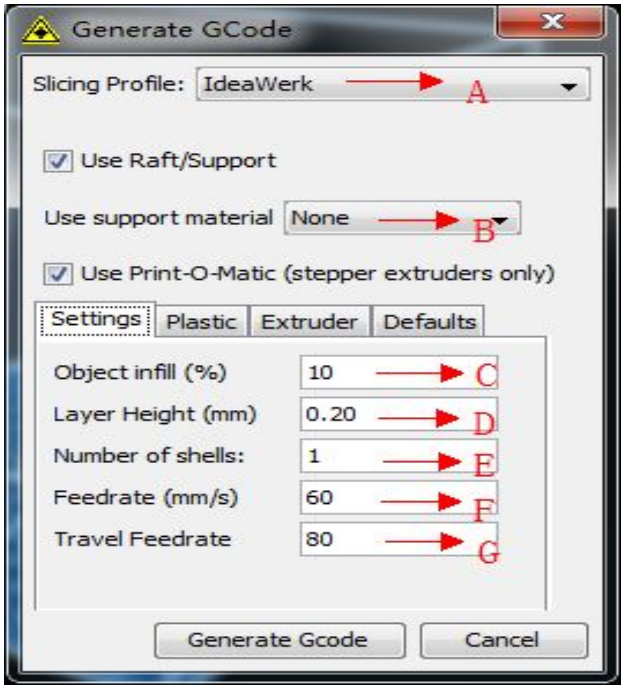
5.1.5 After editing the model, click「Generate Gcode」. Wait a few minutes till the Gcode is finished.



(Pic 5.1-05)

5.1.6 Please operate some more times to get skills of printing.





(Pic 5.1-06)

Setting Parameters Description

A: Choose slicing profile: IdeaWerk。

B: If your model contains vacant part, you need to select support.

None: None support

Exterior support: select to generate GCode with exterior support

Full support: select to generate GCode with full support

C: Infill percentage. If you want to print the model as a complete solid one, best selection will be 95%. As your wish, you can select smaller percentage to save time and material.

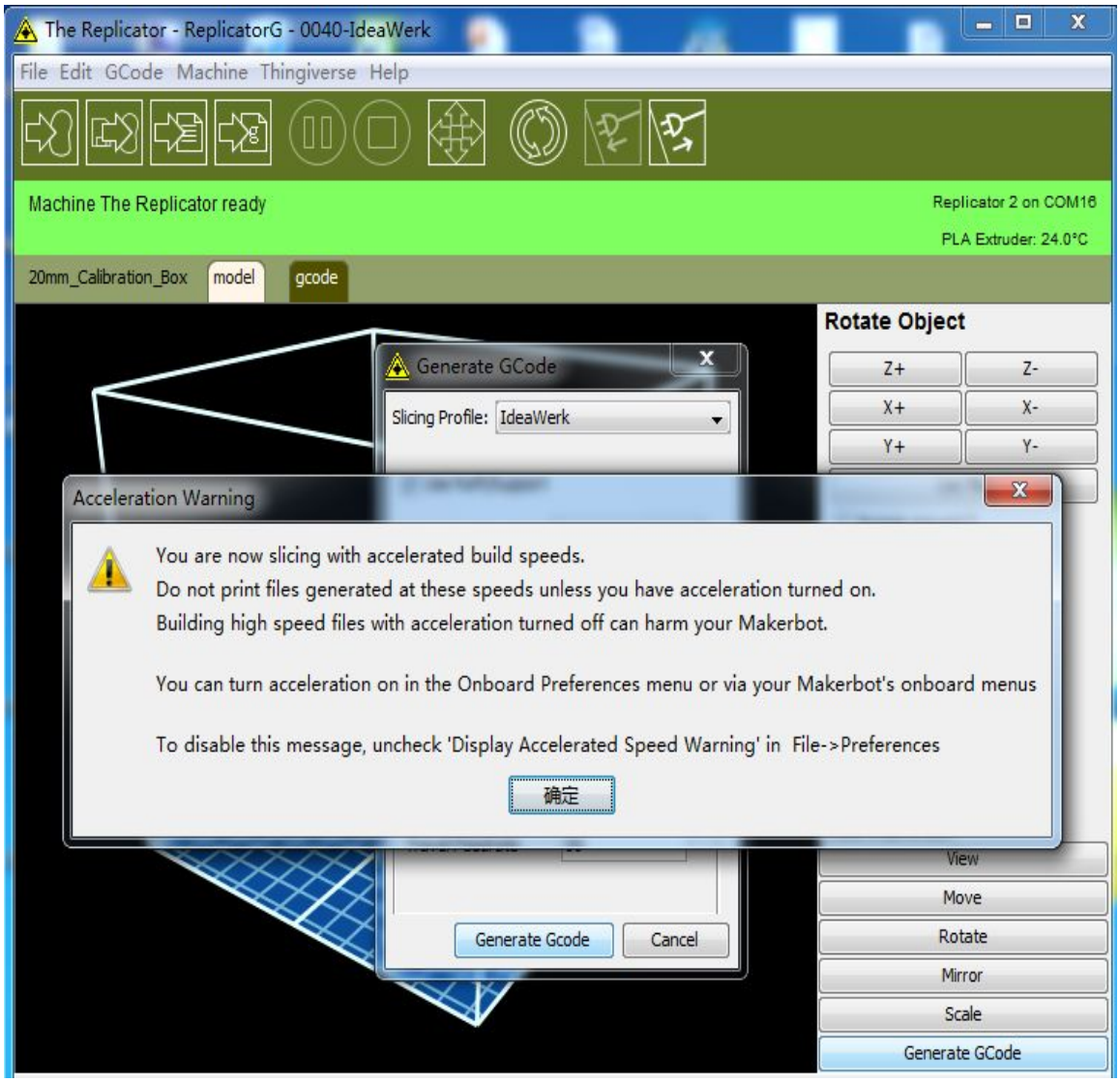
D: Layer Height should be 0.15mm-0.3mm. It decides smoothness of model surface and printing speed. Thinner layer makes the surface smoother, and estimated time will be longer.

E: Number of shells should be ≥1. Usually between 1 and 3.

F: Feed rate should be 30-80mm/s. Best selection is 60mm/s.

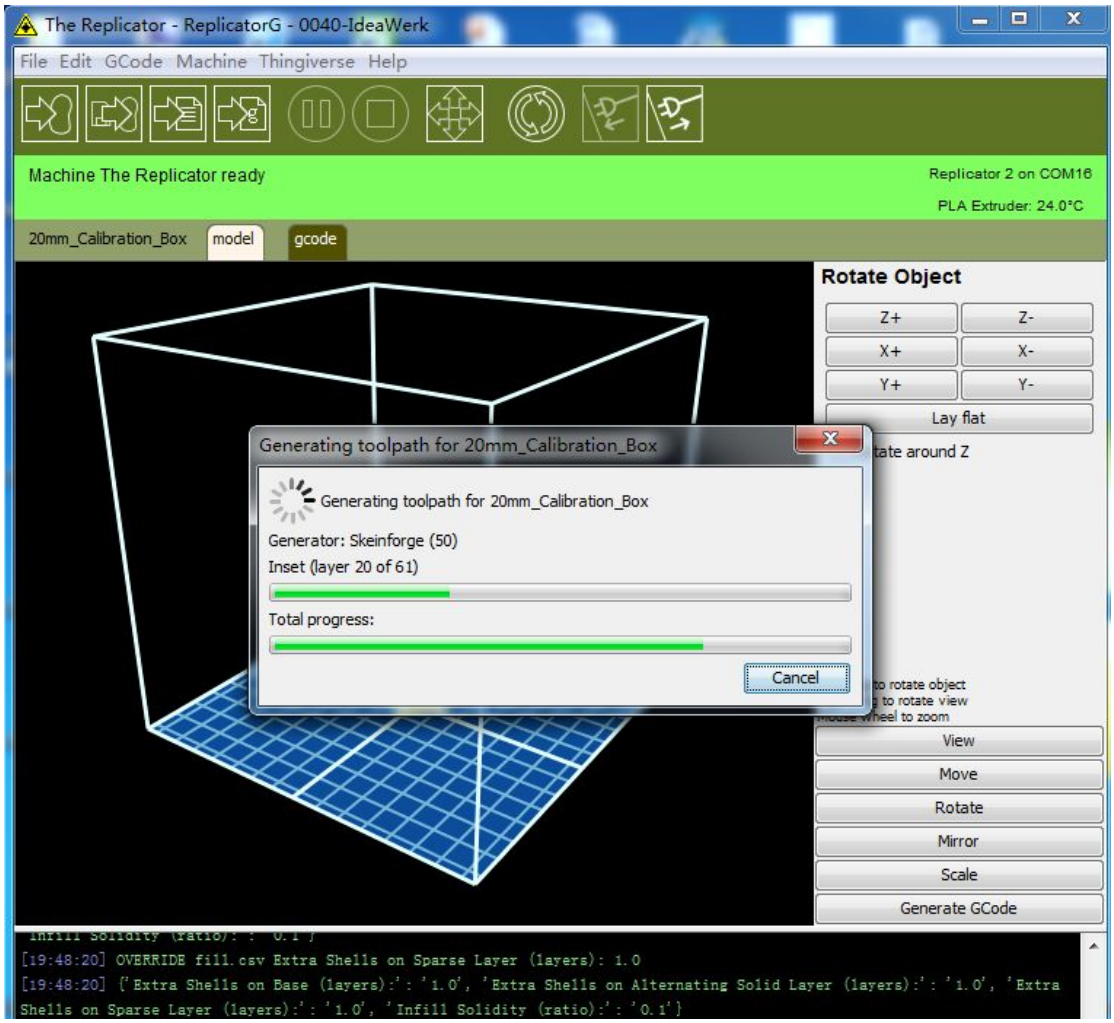
G: Travel feed rate should be 60-150mm/s. Best selection is 80mm/s.

5.1.7 Confirm the settings and generate Gcode. Click「OK」to continue.



(Pic 4.1-09)

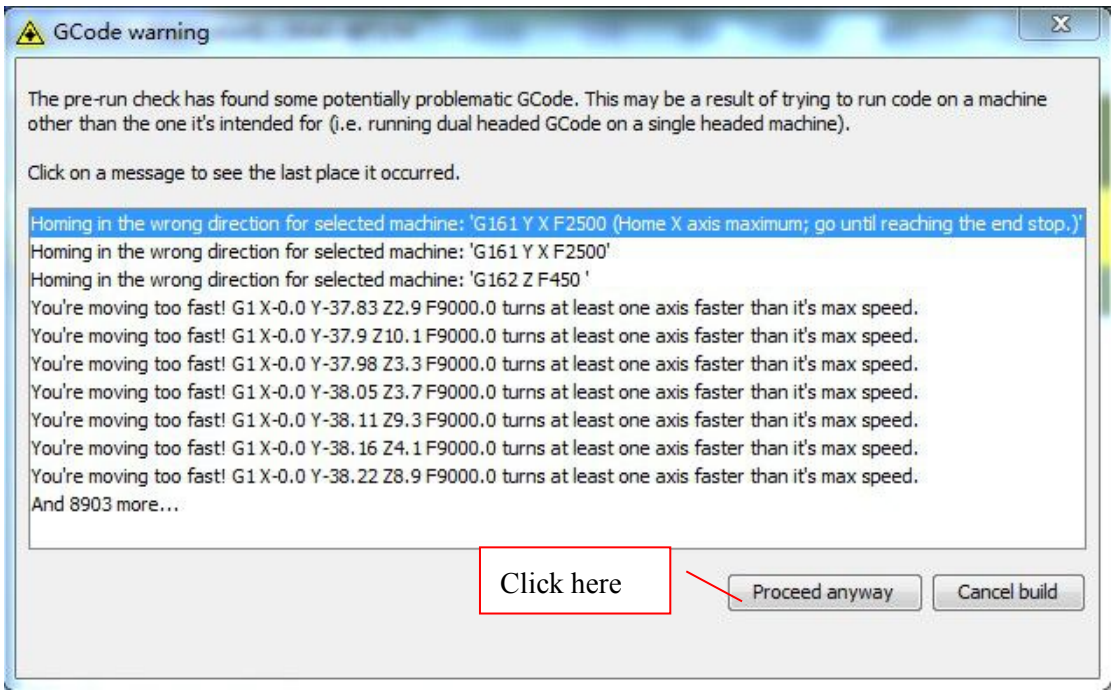
5.1.8 Wait several minutes till generation finished.



(Pic 5.1-10)

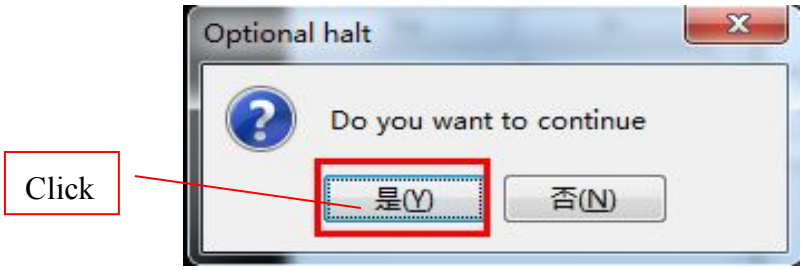
5.1.9 Click  to start building. Click「Proceed anyway」to continue.

(Pic 5.1-12)



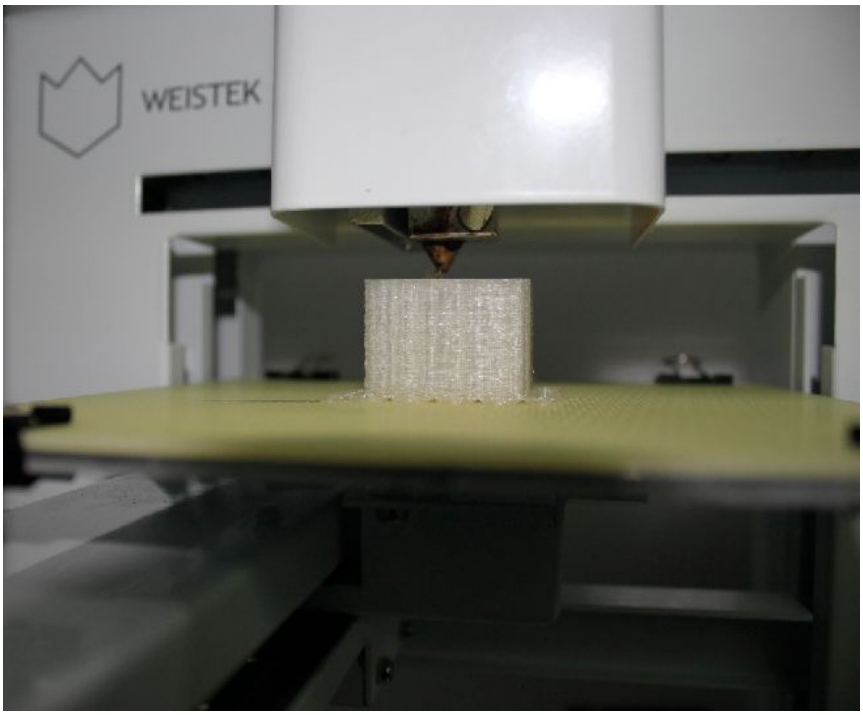
(Pic 5.1-13)

5.1.10 Click「Yes」to continue.



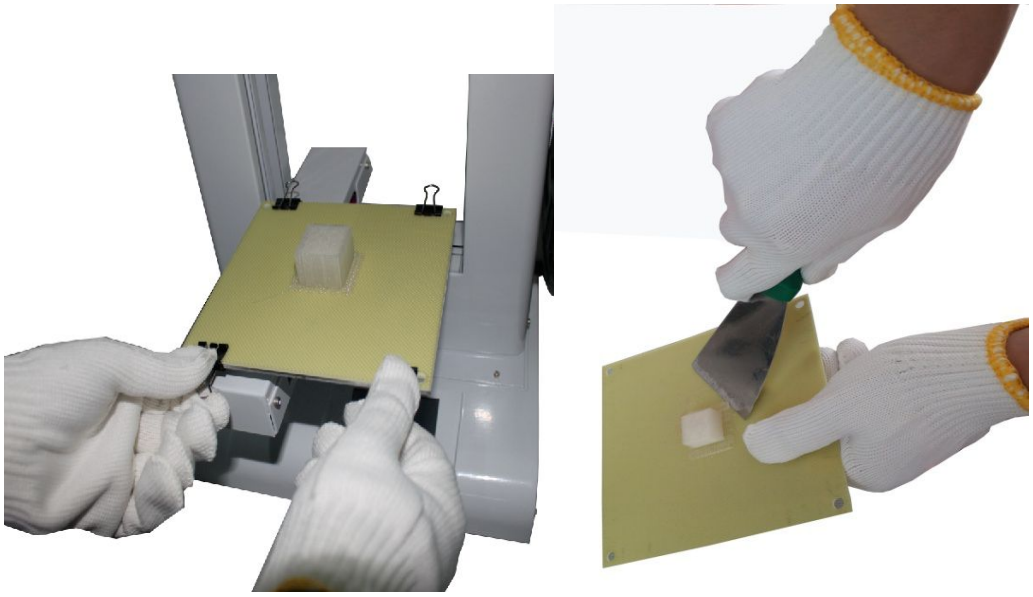
(Pic 5.1-14)

5.1.11 Model is printing.



(Pic 5.1-15)

5.1.12 Remove the model from the plate with the shovel. Please remember to wear your gloves.

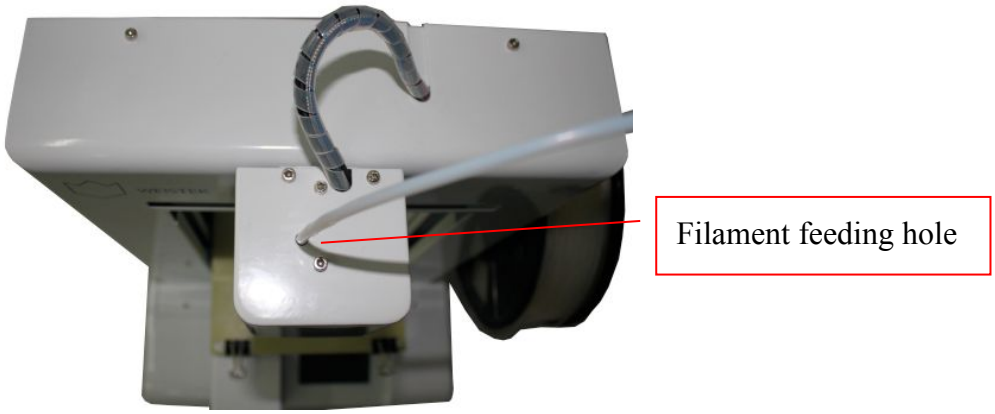


(Pic 5.1-16)

6. Forward and reverse the filament

6.1 How to feed material

6.1.1 To avoid material stuck inside the extruder, please make sure the filament is fed through the center of the hole.

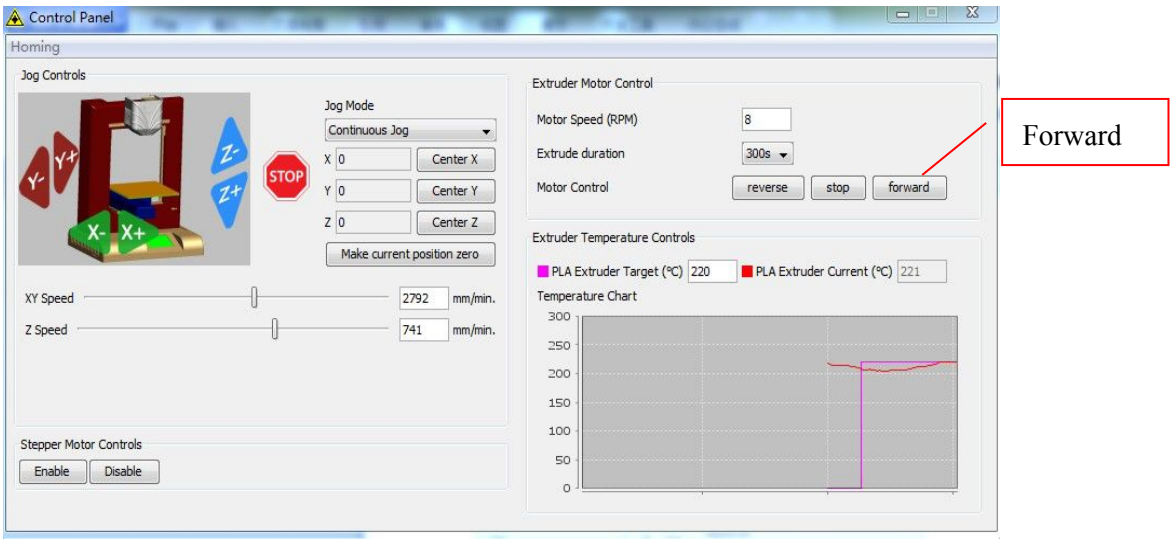


（Pic 6.1-01）

6.1.2 First step, put the filament free end through the holder guide, and feed the filament through the guiding tube. Second, push the free end into the extruder feeding hole.

6.1.3 Select Extruder Target Temperature at 220ºC. Heat up extruder. After heating up, click 「Forward」until the material string comes out from the nozzle. Click「Stop」when finish this step.

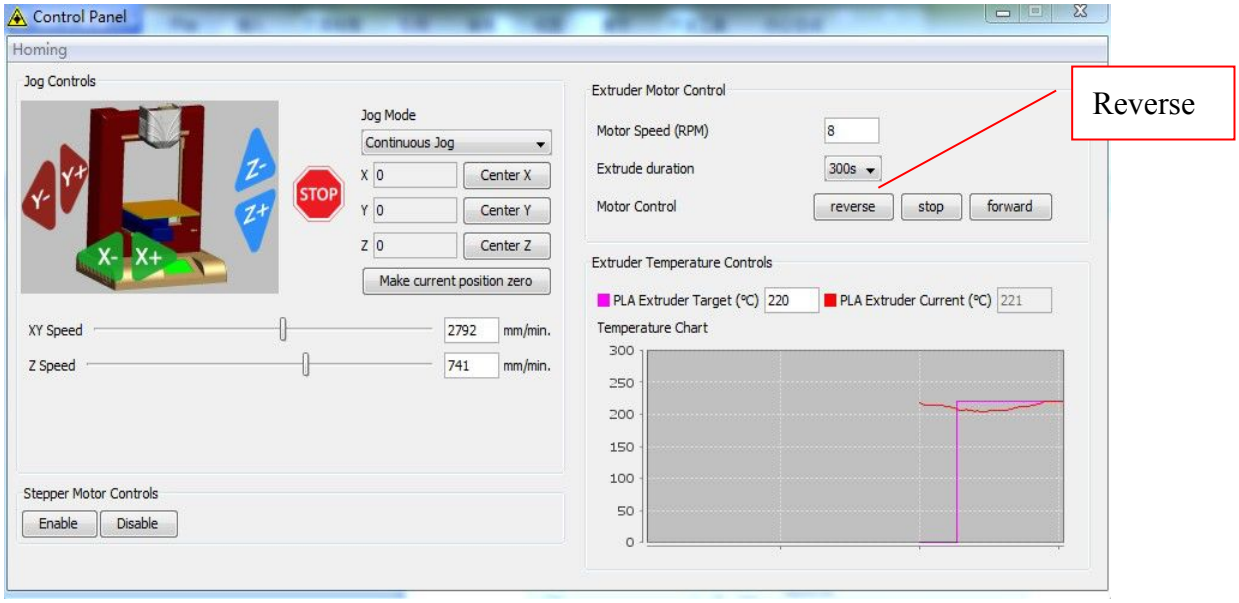
(Pic 6.1-02)



(Pic 6.1-03)

6.2 How to reverse material

To reverse material, the extruder should be heated up first. Then click 「Reverse」until the filament is totally reversed from the extruder. Click 「Stop」 to finish this step.



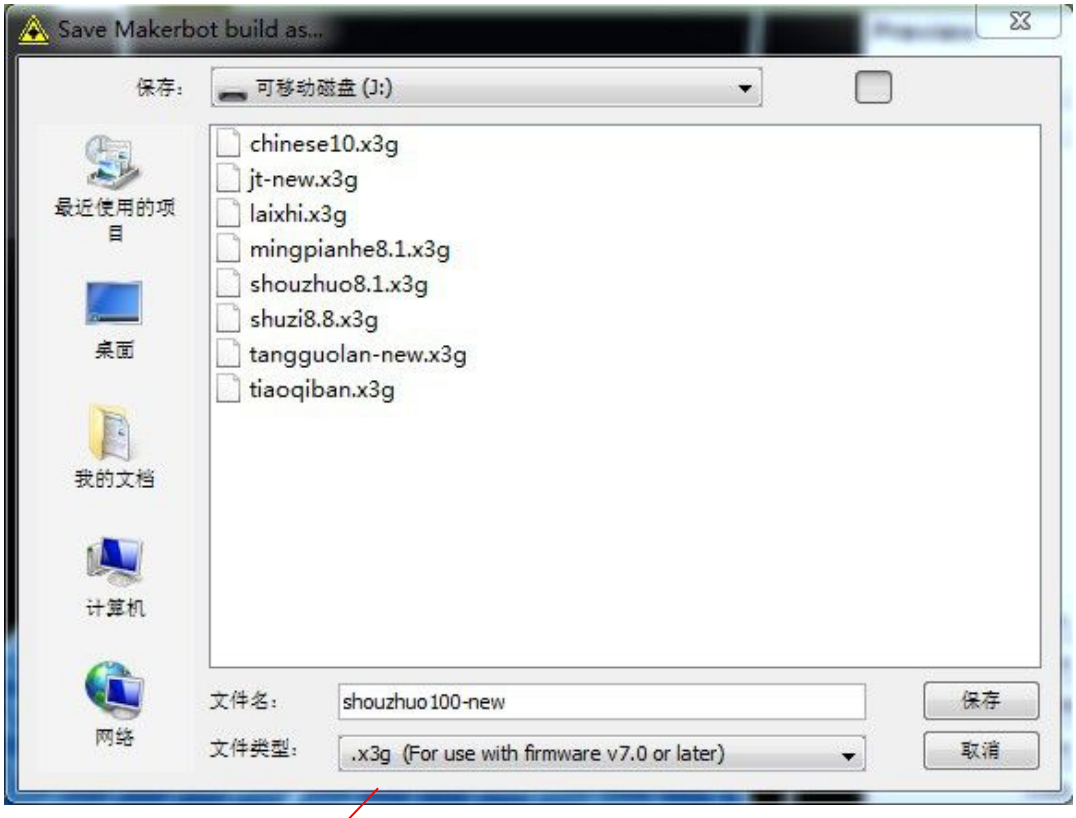
(Pic 6.2-04)

7. Build from SD card and control

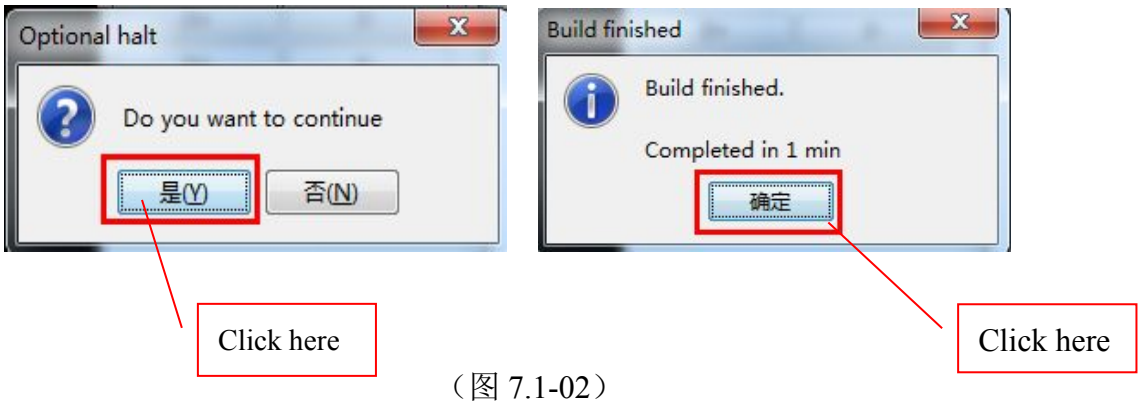
7.1 Build from SD card

After generating Gcode of the model, click bottom  to create an .x3g file. Save the .x3g file in your SD card.

One thing to notice is that the name of the .x3g file should be made up from English or Arabic number.



(Pic 7.1-01)

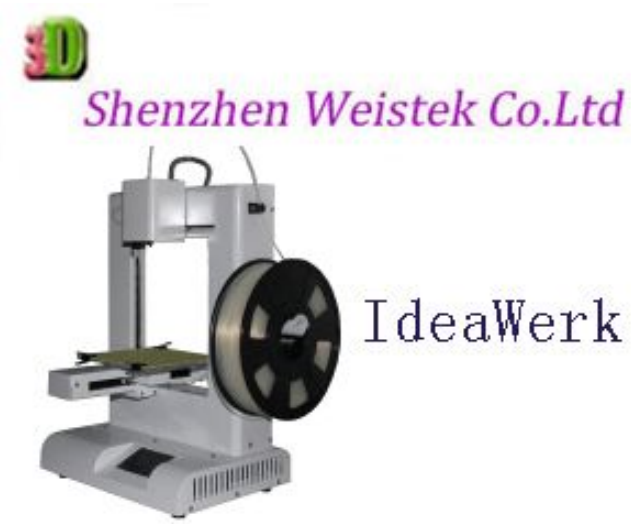


（图 7.1-02）

7.2 Operation on control screen

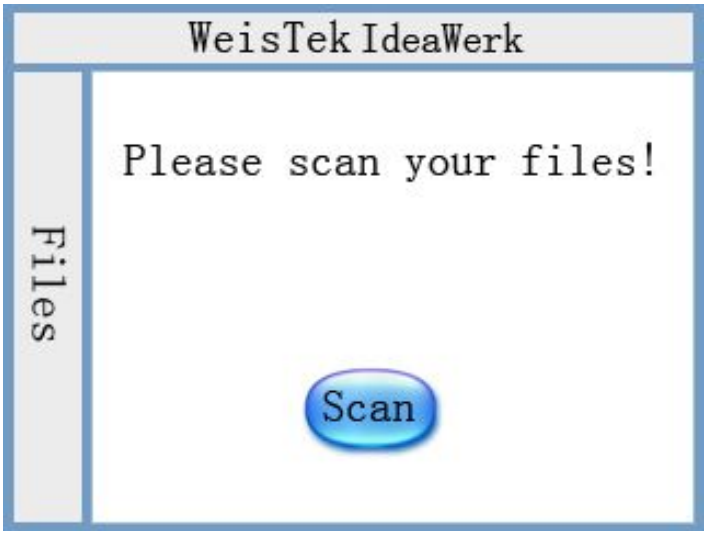
Control should be done on the screen when building from SD card.

7.2.1 Click anywhere on the screen to start operating.



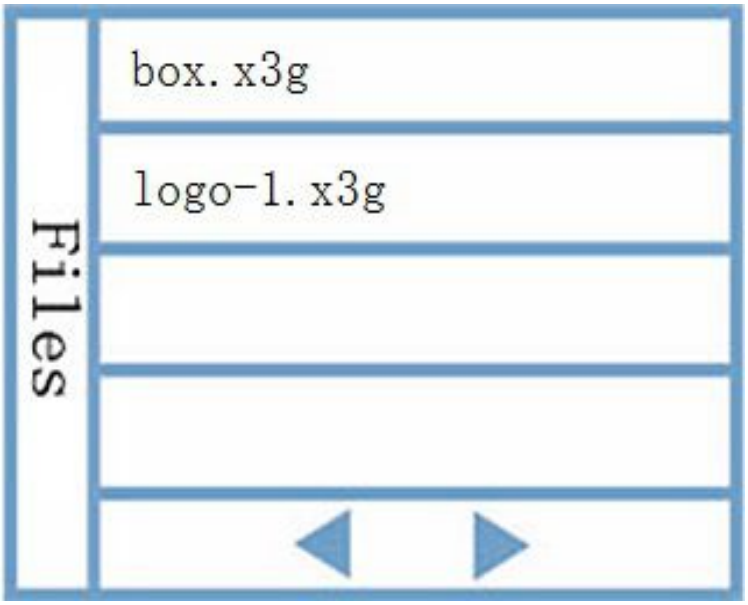
（Pic 7.1-02）

7.2.2 Scan the file as the guide shows.



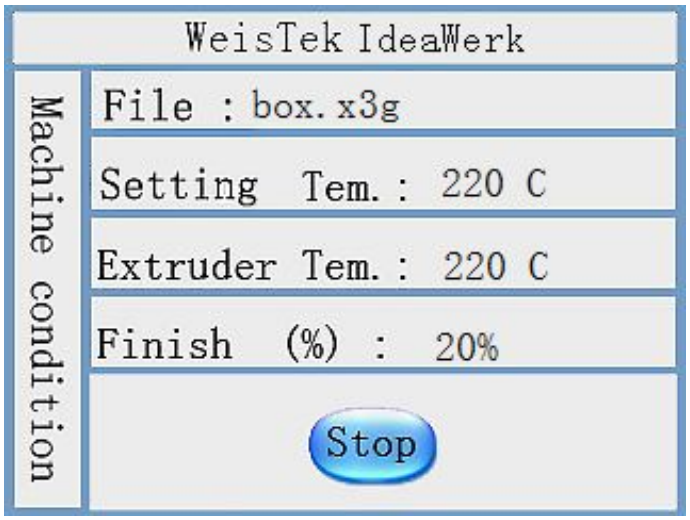
（Pic 7.1-02）

7.2.3 Click on the name of the file to start building.



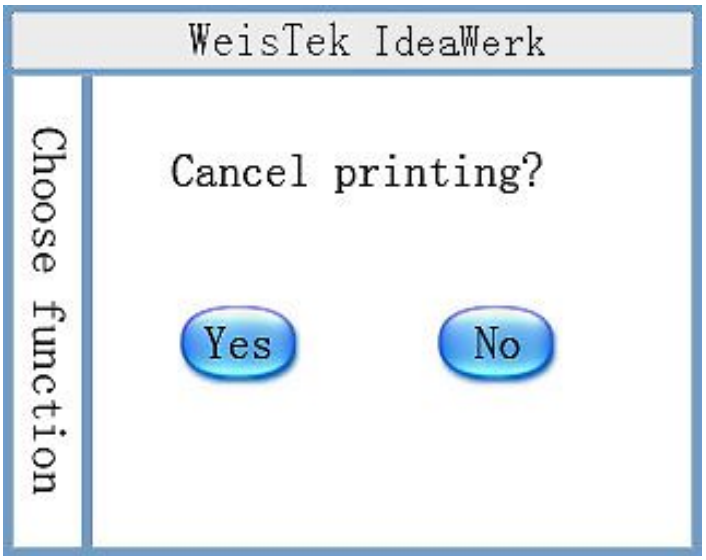
(Pic 7.1-03)

7.2.4 The picture (Pic 7.1-04) shows the condition of the machine when building. Click Light to switch on the light inside the machine box, in order to observe the printing process more clearly.



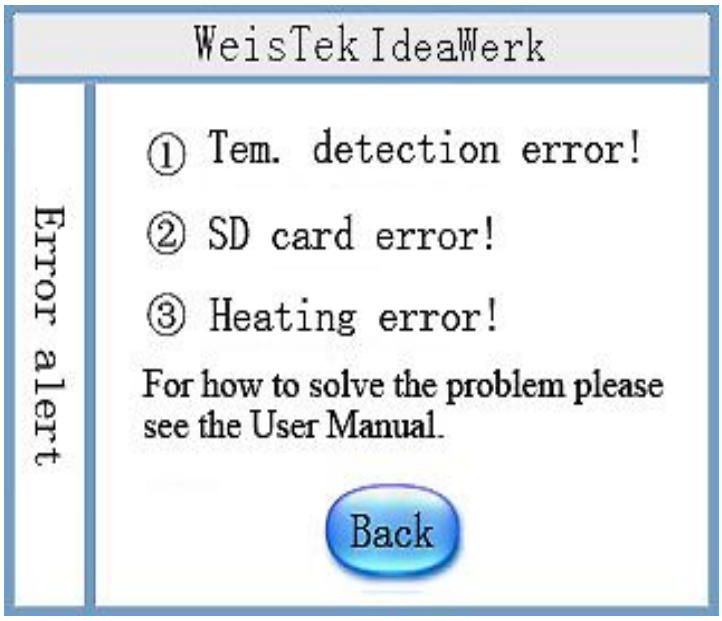
(Pic 7.1-04)

7.2.5 Click Stop to end the process of building if needed.



(Pic 7.1-05)

7.2.6 Error alert shows up if anything wrong when building.



(Pic 7.1-06)

8. How to fix common problem

8.1 Resolution of filament feeding unsmooth

What is unsmooth: During printing, the extruder can't extrude filament or extrude intermittently, at this situation,

1: Check the extruder temperature if is too low or not , increase5-10℃each time to see if the problem is solved or not. See Pic9-1

2: check the gear of the extruder, if there are a lot of filament waste pellet, just clean it and then print again to see if situation get better or not.

(Pic 8.1-01)

8.2 Resolution of nozzle blocking

If the extruder is still not able to work, then you have to check if the nozzle of the extruder is blocked or not. This is always due to wrong operation of machine and use wrong filament or wrong operation of joining the filament.

Solutions:

1) Heat the extruder temperature to appropriate temperature (ABS:235°C/ PLA:200°C).

   Click Reverse, if needed, at the same time have to pull back the filament with hand (some time the filament was bite a breach by the gear, the gear can't touch the filament, need to pull the filament to the gear so the reverse will work)

2） Change a new filament, the temperature of extruder can be selected a little high(around 250°C).

3）Then Start to extrude, use needle (in the accessory bag) insert into the hole of nozzle, dredge up and down, at the same time, press the filament which is extruding. Keep doing this until the filament comes out from the nozzle.

(Pic 8.2-01)

Acknowledgements

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