Operation Instruction

Model:A6

Contents

INTRODUCTION

A6 FDM 3D printer can print CAD 3D printer model to real . A6 uses Acrylic to build its frame while it uses linear bearings , belts and threaded rods to build X , Y , Z axis . It enables A6 to print steadily with no vibration .

Note:

1. All statement included in this Instructions have been checked carefully , if any typographical errors or misunderstanding , we have the final interpretation .

2. No noification if any update .

A. Security Considerations

⊘ Danger

During Operation , the maximum temeprature of nozzle can be 260 ℃ while hotbed can be 100 ℃ . For your safety , during printing or cooling down , do not touch the nozzle , hotbed and models under printing . Power works at 110V/220V 50HZ AC and supply ground needed . Do not use other power supply , or it may cause components damage , fire or electric shock . And we take no responsibility for this .

⚠ Warning

We suggest wering protective goggles when removing auxiliary support materials .

Some filaments will emit slight irritant gases , so we suggest to use 3D printer in a ventilated environment .
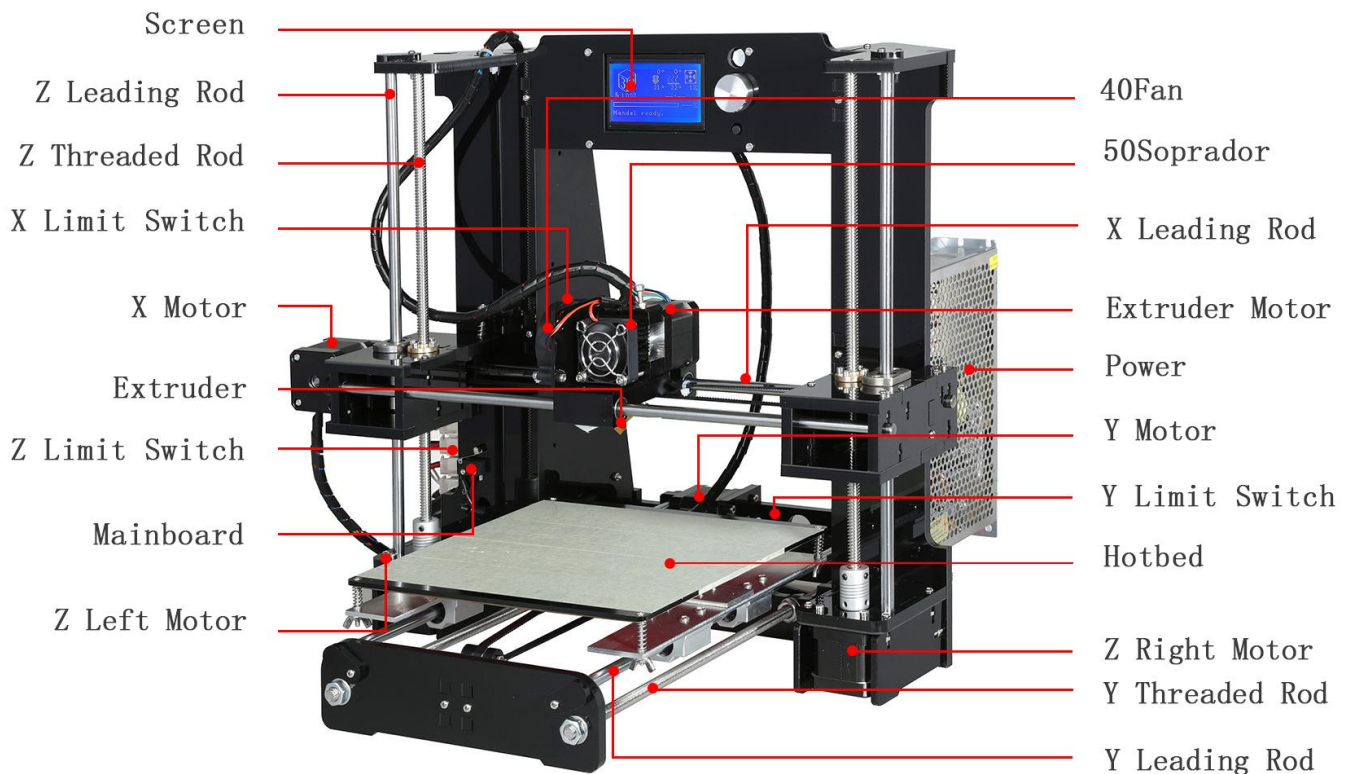
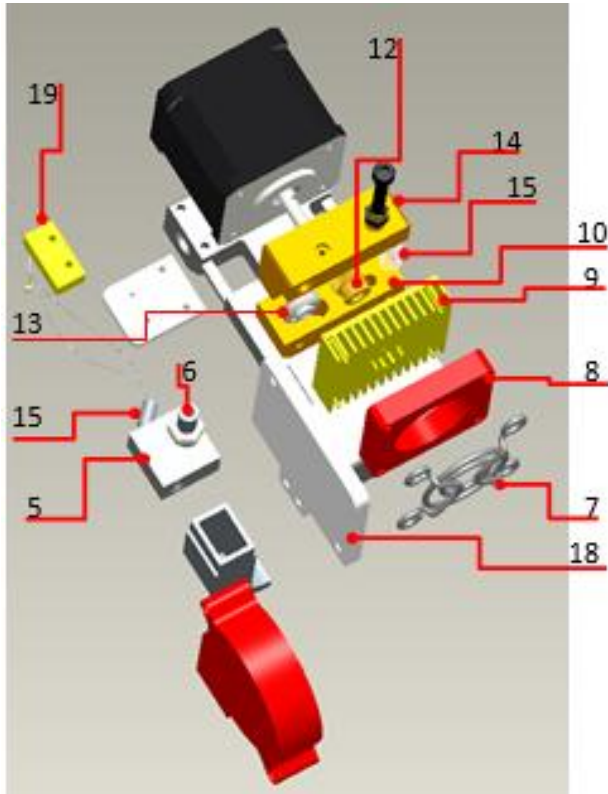Note: ABS filament will emit a bit toxic gases when it melts .

B. Product Details

1.Specifications

Model：A6	Nozzle diameter： 0.4mm
Layer thickness：0.1-0.3mm	Machine size： 480*400*400mm
Printing speed：10-120mm/s	Machine weight：7.6KG
X Y axis position accuracy：0.012mm	Packing size：450*446*215mm
Z axis position accuracy：0.004m	Gross weight：9.5KG
Printing material：ABS,PLA	Build size：220*220*240mm
Material tendency：PLA	LCD screen：12864 LCD
Filament diameter ：1.75mm	Offline printing：SD CARD
Software language：Multi-Language	File format：STL、G-Code、OBJ
Function of support：automatically	OS：windows(linux、mac)
Software： Cura	Working condition：10-30℃，Humidity 20-50%

2.Machine parts

Screen
Z Leading Rod
Z Threaded Rod
X Limit Switch
X Motor
Extruder
Z Limit Switch
Mainboard
Z Left Motor

40Fan
50Soprador
X Leading Rod
Extruder Motor
Power
Y Motor
Y Limit Switch
Hotbed
Z Right Motor
Y Threaded Rod
Y Leading Rod

3.Exploded drawing

NO	Part Name	Quantity
1	Extruder Motor	1
2	Blower	1
3	Wind Mouth	1
4	Nozzle(0.4mm)	1
5	Heating Block	1
6	Throat	1
7	Fan Cover	1
8	Fan	1
9	Heat Sink	1
10	Extruder Seat	1
11	Bend Parts	1
12	Brass Wheel	1
13	U-Bearing	1
14	Briquetting	1
15	Spring	1
16	Heating Pipe	1
17	Limited Switch Seat	1
18	Blower Seat	1
19	Limited Switch	1
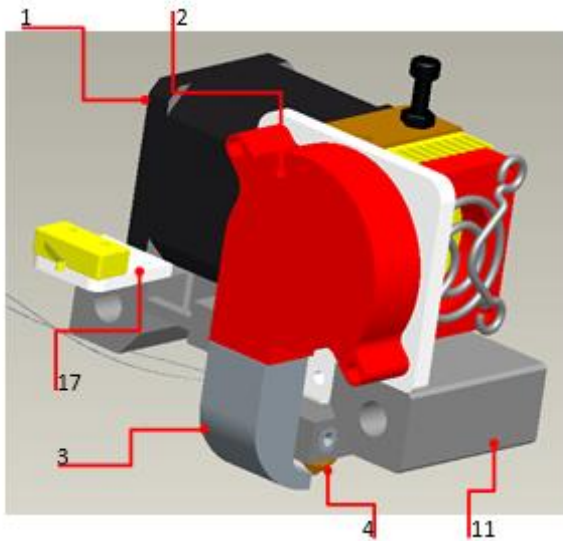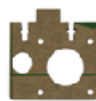
4.Tool List

Item	Picture	Name	QTY	Check	Item	Picture	Name	QTY	Check
1-1		Main support plate	1		2-1		Mainboard	1	
1-2		Side support plate	2		2-2		12864 LCD Screen	1	
1-3		Back plate	1		2-3		Hot bed fixed aluminum plate	1	
1-4		Front plate	1		2-4		220mm*220mm*3mm Hot bed	1	
1-5		Filament support plate	2		2-5		Plastic nippers	1	
1-6		Filament support plate connecting plate	1		2-6		5mm*160mm Screwdriver	1	

Item	Picture	Name	QTY	Check	Item	Picture	Name	QTY	Check
1-7		Mainboard baffle	1		2-7		Three parts below in this bag	1	
2-23		Guide rod 418mm 2pcs Guide rod 380mm 2pcs Guide rod 340mm 2pcs	6		2-7-1		Wire 70CM	1	
2-24		T type lead screw M8*318mm 2pcs Threaded rod M8*400mm 2pcs Threaded rod M8*150mm 1pcs	5		2-7-2		Z axis Limit switch A 20CM Y axis Limit switch B 70CM X axis Limit switch C 90CM	3	
2-25		Screw bag include below screws			2-7-3		Pillar washer M3*7 4pcs Pillar washer M3*15 4pcs	8	
2-25-1		M3*18 screw 44 pcs			2-8		Three parts below in this bag	1	
2-25-2		M3 Nut 58 pcs	1		2-8-1		3mm*130mm Screwdriver	1	
2-25-3		M8 Nut 18 pcs M8 Spacer 12 pcs	1		2-8-2		Hex wrench M1.5 Hex wrench M2 Hex wrench M2.5 Hex wrench M3	4	

Item	Picture	Name	QTY	Check	Item	Picture	Name	QTY	Check
2-25-4		M4*8 screw 16 pieces M4*14 screw 4 pieces	1		2-8-3		Open spanner	1	
2-25-5		M3*30 screw 12 pieces	1		2-9		5015 Air blower	1	
2-25-6		M3*12 screw 19 pieces	1		2-10		Power line of hot bed	1	
2-25-7		M2*12 screw 6 pieces M3wing nut 4 pieces Spring 4 pieces	1		2-11		Five parts below in this bag	1	
2-25-8		M3*6 screw 2 pieces M3*10 screw 2 pieces M3*25 screw 2 pieces	1		2-11-1		Y axis belt fixation clamp	2	
3-1		Left Z axis nut support	1		2-11-2		Guide rod back up plate	8	
3-2		Right Z axis nut support	1		2-11-3		Y axis Limit switch fixed plate	1	

Item	Picture	Name	QTY	Check	Item	Picture	Name	QTY	Check
3-3		Extruder	1		2-11-4		Y axis motor support	1	
3-4		X axis motor	1		2-11-5		X axis Limit switch fixed plate	1	
3-5		Y axis motor	1		2-12		Z axis motor support Plate	4	
3-6		Z axis motor	2		2-13		Screen baffle plate	1	
3-7		1.6M Belt	1		2-14		5015 Air blower fixed plate	1	
3-8		1.5M USB wire	1		2-15		Z axis motor fixed plate	2	
3-9		Four parts below in this bag	1		2-16		Support plate lock plate	2	

Item	Picture	Name	QTY	Check	Item	Picture	Name	QTY	Check
3-9-1		4.5M Winding pipe	1		2-17		Y axis motor fixed plate	1	
3-9-2		Belting	10		2-18		Y axis belt bearing support	1	
3-9-3		R clip	3		2-19		Wind mouth	1	
3-9-4		Locating piece	2		2-20		1.5M Power line	1	
3-10		Linear bearing	4		2-21		16GB TF card and card reader	1	
3-11		Power Supply	1		2-22		X Motor line 40CM Y Motor line 40CM Left Z Motor line 40CM Right Z Motor line 90CM Extruder Motor line 90CM	5	

C. Cura Software

1.Installation of Cura14.07

a: Where can I find the software?

1) SD card with shipment; 2) download from Internet;

b: Installation process

1) From SD card with shipment

Insert SD card and open the file

1.1 File location in the TF card

1)Insert SD card , open the file

名称 ▲	修改日期	类型	大小	
Installation Instruction	2016/7/7 星期四 …	文件夹		
Print Model STL	2016/6/22 星期三 …	文件夹		
Software	2016/7/7 星期四 …	文件夹		
Test file GCODE	2016/6/22 星期三 …	文件夹		
Tool List&other pictures	2016/7/7 星期四 …	文件夹		

名称 ▲	修改日期	类型	大小	
CH340G Drive	2016/7/7 星期四 …	文件夹		
Cura 14.07	2016/7/7 星期四 …	文件夹		
RepetierHost_1_0_5	2016/7/7 星期四 …	文件夹		

名称 ▲	修改日期	类型	大小	
Cura download link.txt	2016/7/1 星期五 …	文本文档	1 KB	
Cura_14.07.exe	2015/8/11 星期二 …	应用程序	18,377 KB	

2) Download from Internet

Official Website：https://ultimaker.com/en/cura-software/list

Choose corresponding software to download

WINDOWS

Version: 2.1.2 32 bit	Release date: 6/7/16
Version: 2.1.2 64 bit	Release date: 6/7/16
Version: 15.04.6	Release date: 6/7/16
Version: 15.04.5	Release date: 3/17/16
Version: 15.04.4	Release date: 1/5/16
Version: 15.04.03	Release date: 11/4/15
Version: 15.04.2	Release date: 7/28/15
Version: 15.04	Release date: 4/15/15
Version: 15.02.1	Release date: 2/19/15
Version: 15.01	Release date: 1/30/15
Version: 14.12	Release date: 12/15/14
Version: 14.09	Release date: 9/19/14
Version: 14.07	Release date: 7/3/14
Version: 14.06	Release date: 6/16/14
Version: 14.03	Release date: 3/17/14
Version: 14.01	Release date: 1/10/14
Version: 13.12	Release date: 12/23/13
Version: 13.11	Release date: 11/22/13
Version: 13.10	Release date: 10/18/13
Version: 13.06.4	Release date: 6/26/13
Version: 13.04	Release date: 4/26/13
Version: 13.03	Release date: 3/8/13
Version: 12.12	Release date: 12/24/12
Version: 12.11	Release date: 11/12/12
Version: 12.10	Release date: 11/8/12

b.Software Installation Process

C Cura 14.07 Setup

Installing
Please wait while Cura 14.07 is being installed.

Extract: timer_query.py

Show details

Please wait for installation

Nullsoft Install System v2.46

< Back   Next >   Cancel

Device Driver Installation Wizard

Welcome to the Device Driver Installation Wizard!

This wizard helps you install the software drivers that some computers devices need in order to work.

1.Click Next

To continue, click Next.

< 上一步 (B)   下一步 (N) >   取消

Device Driver Installation Wizard

Completing the Device Driver Installation Wizard

The drivers were successfully installed on this computer.

You can now connect your device to this computer. If your device came with instructions, please read them first.

1.Installation Success

Driver Name	Status
✔ Arduino LLC (www.ardui...	Ready to use

2.Click to finish   完成   取消

Installation Complete
Setup was completed successfully.

Installation complete

Completed

Show details

Click Next

Nullsoft Install System v2.46

< Back   Next >   Cancel

Cura 14.07 Setup

Completing the Cura 14.07 Setup Wizard

Cura 14.07 has been installed on your computer.

Click Finish to close this wizard.

☑ Start Cura 14.07

1.Choose to run Cura

2. Click to finish

< Back   Finish   Cancel

Configuration Wizard

First time run wizard

Welcome, and thanks for trying Cura!

This wizard will help you in setting up Cura for your machine.

Click Next

< Back   Next >   Cancel

Configuration Wizard

Other machine information

The following pre-defined machine profiles are available

Note that these profiles are not guaranteed to give good results,
or work at all. Extra tweaks might be required.
If you find issues with the predefined profiles,
or want an extra profile.
Please report it at the github issue tracker.

- ○ BFB
- ○ DeltaBot
- ○ MakerBotReplicator
- ○ Mendel
- ○ Prusa Mendel i3
- ○ punchtec Connect XL
- ⦿ Custom...   ⬅ 1.Choose to customize

2.Click Next

< Back   Next >   Cancel

Configuration Wizard

Custom RepRap information

RepRap机器几乎都不一样，所以你需要设置你自己的参数。
请在运行机器之前检查这些默认参数
如果你想要添加一个默认的机器参数配置，
请在github上提交

你需要手动安装Marlin或者Sprinter固件

机器名称	A6
机器宽度 (mm)	220
机器深度 (mm)	220
机器高度 (mm)	230
喷嘴大小 (mm)	0.4
热床	☑
0,0,0为打印初始中心(RoStock)	☐

This is A6 parameter

You can customize name here.

We default these data .
You can fill in according to actual condition

Choose this option

DO NOT choose this option !!!

1.Click to finish

< Back   **Finish**   Cancel
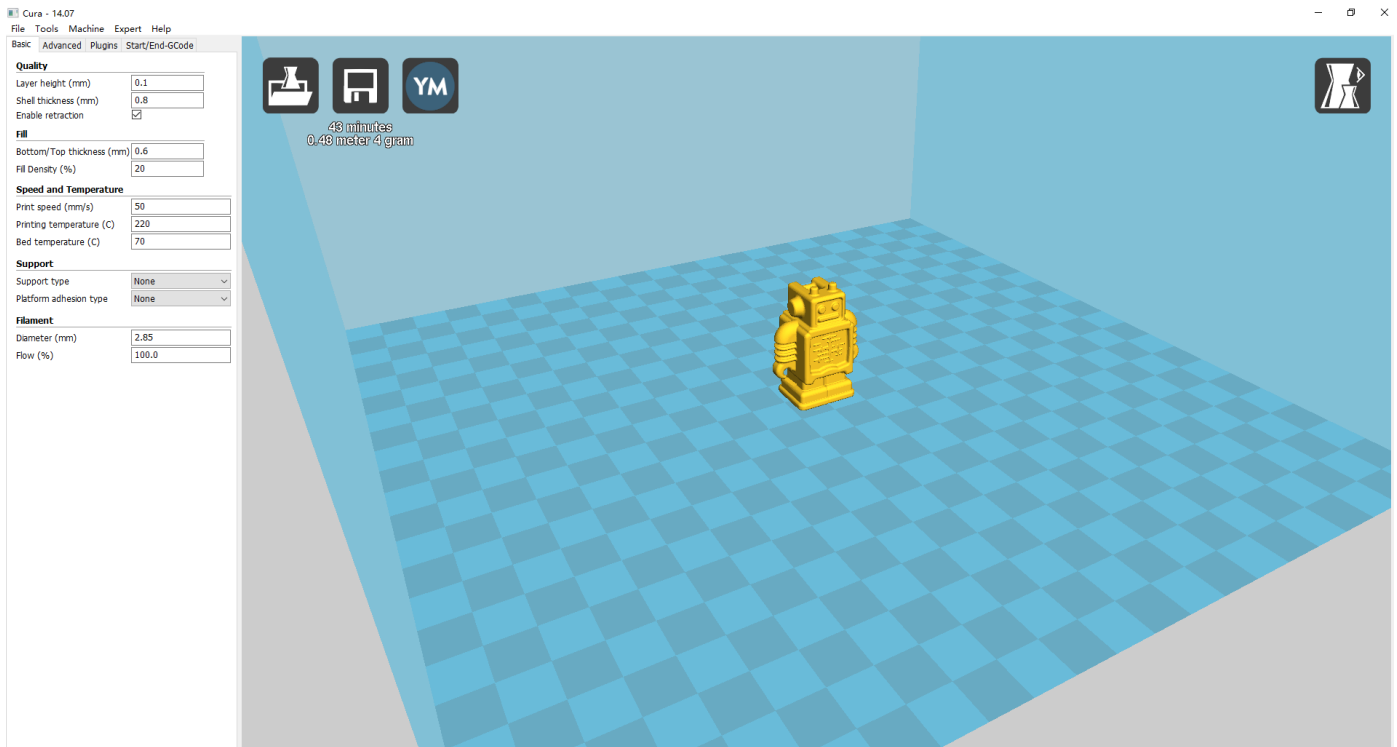
Now you have finished the installation. Next , enter Cura .

2. Cura Setting

2.1 Clear platform

Delete the dog. Two ways for you :

1.Move mouse to dog ,right click, click "delete object".

2.Left click "File" , choose "Clear platform".

Switch to full settings
for parameter setting
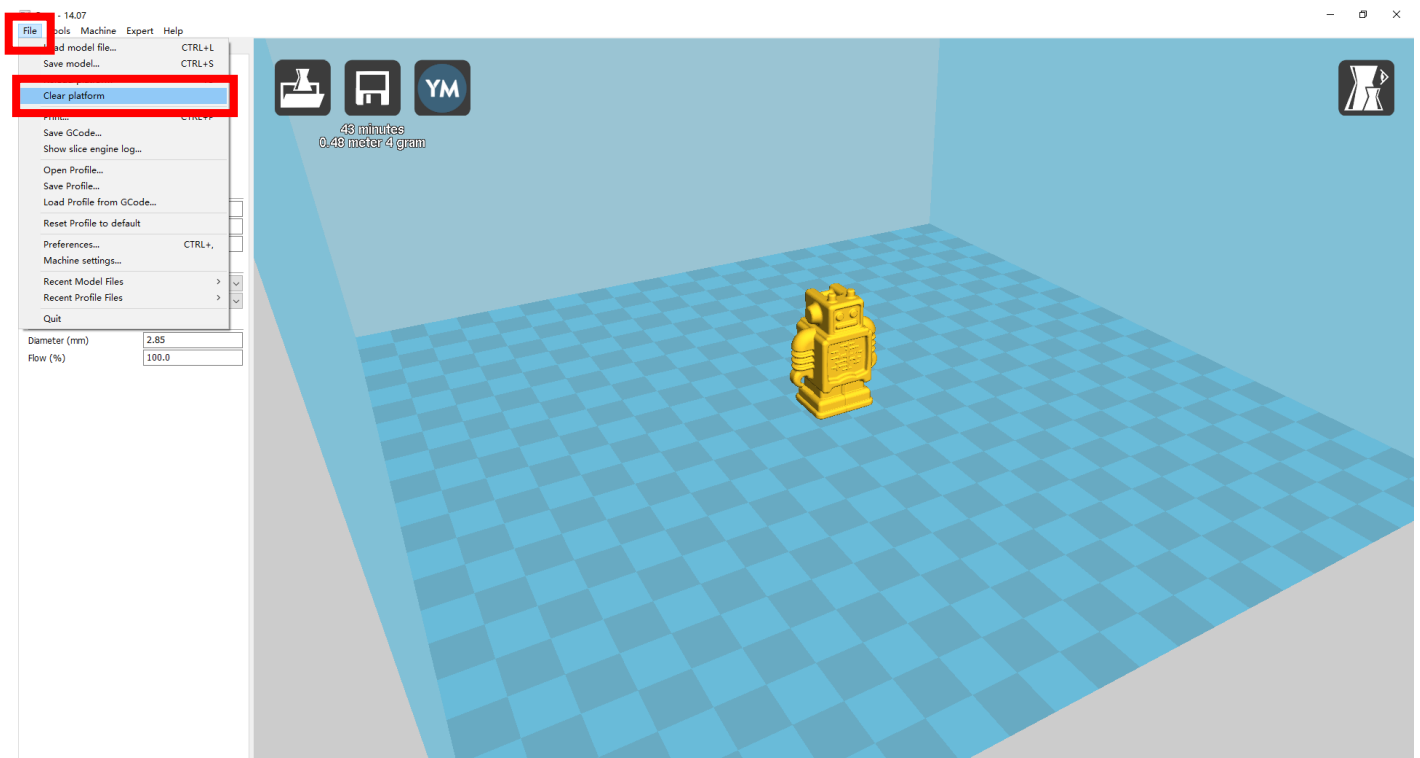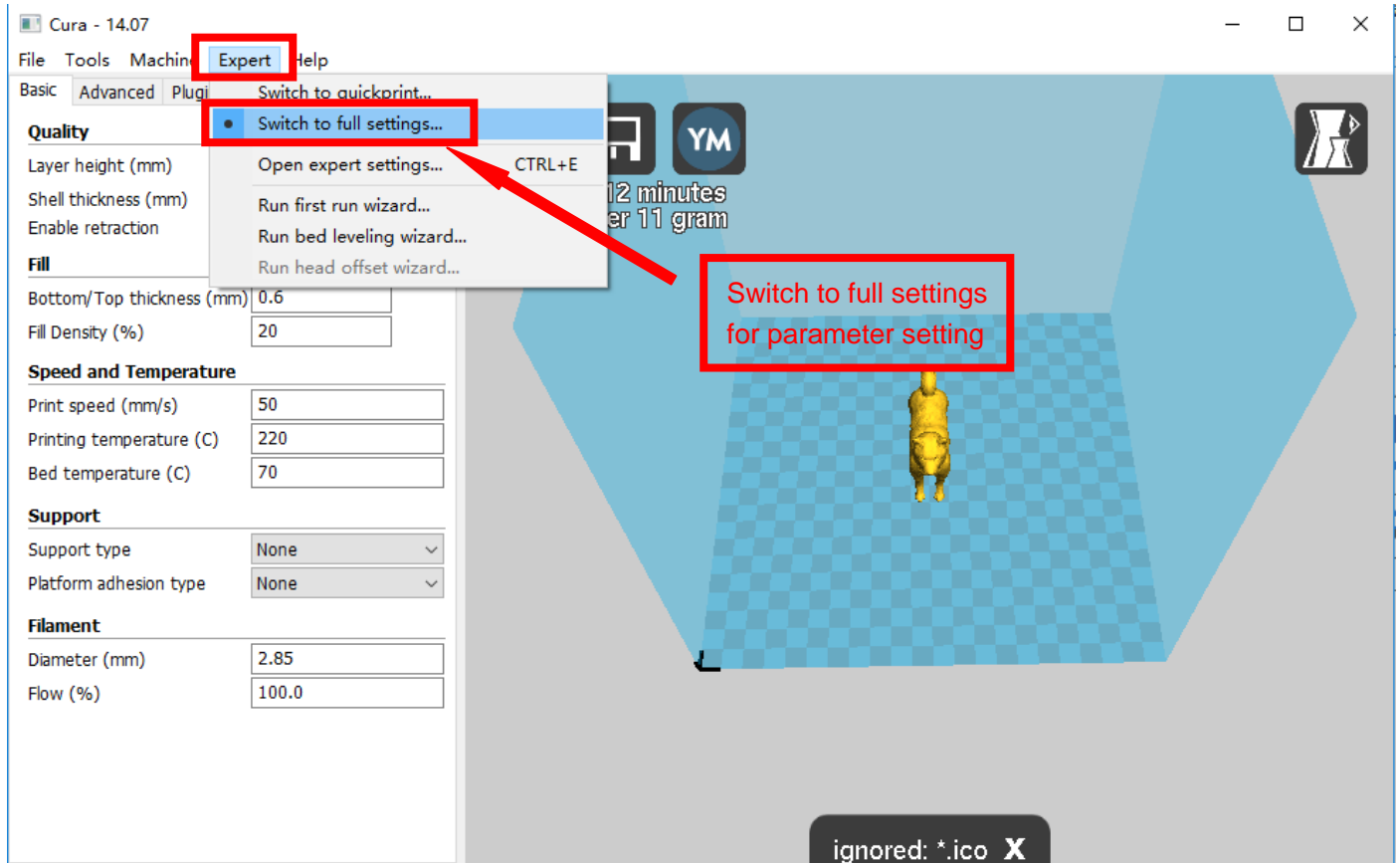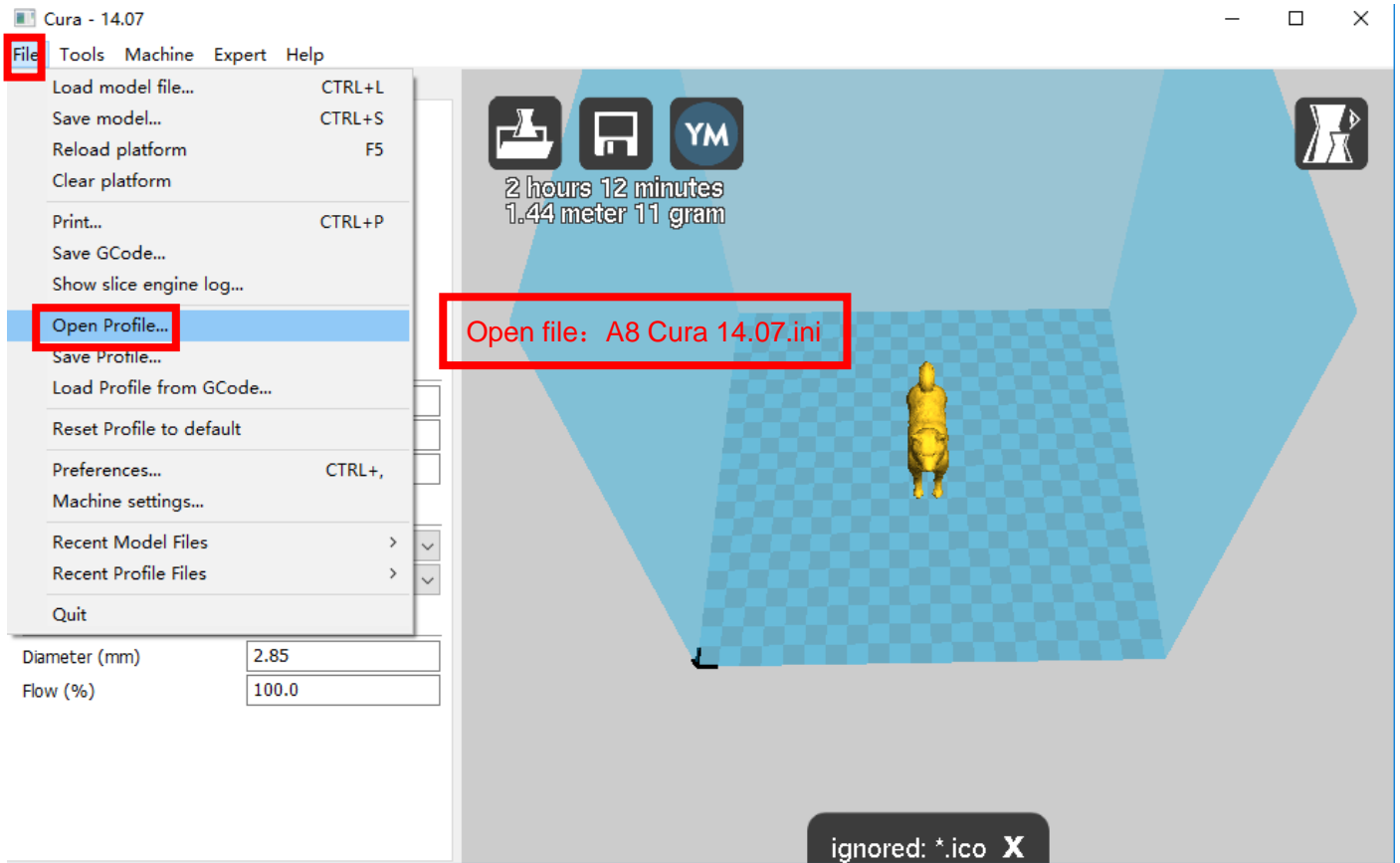
Position of configuration file: Computer/SD card)/ configuration file for cura-14.07

（suggestion :keep this file copy to your computer）
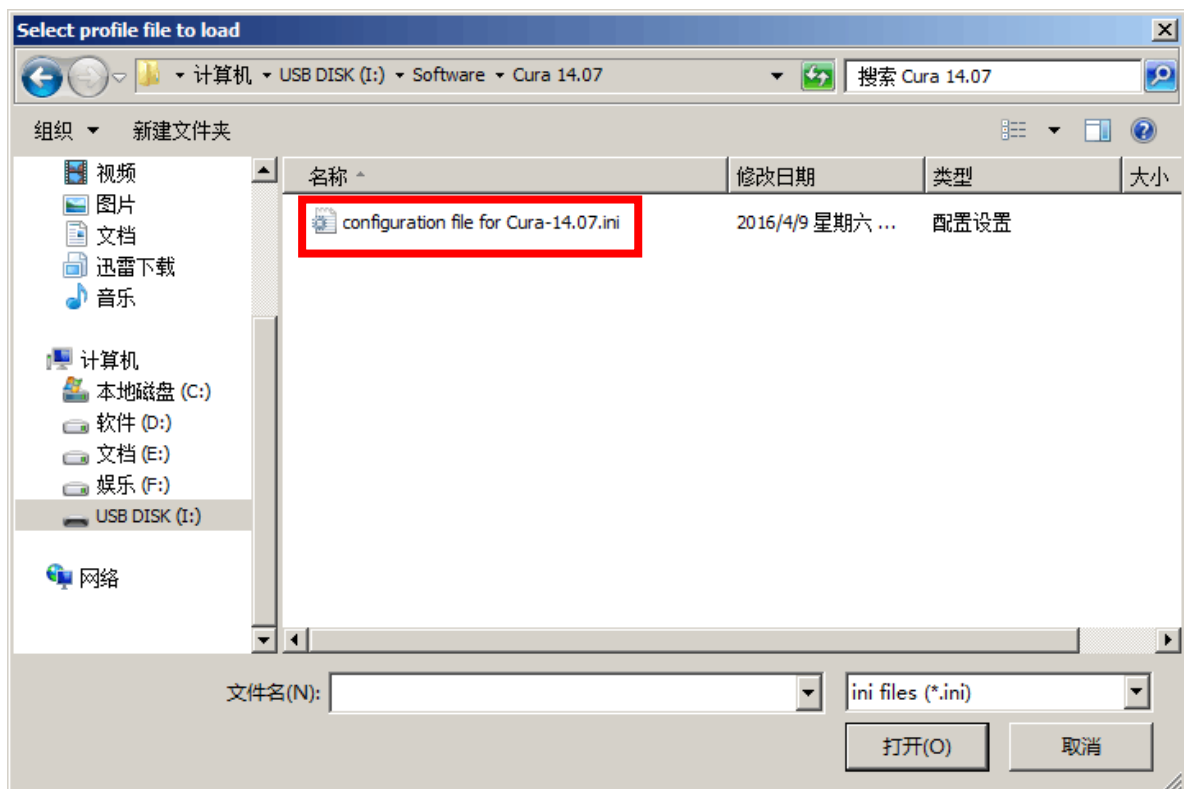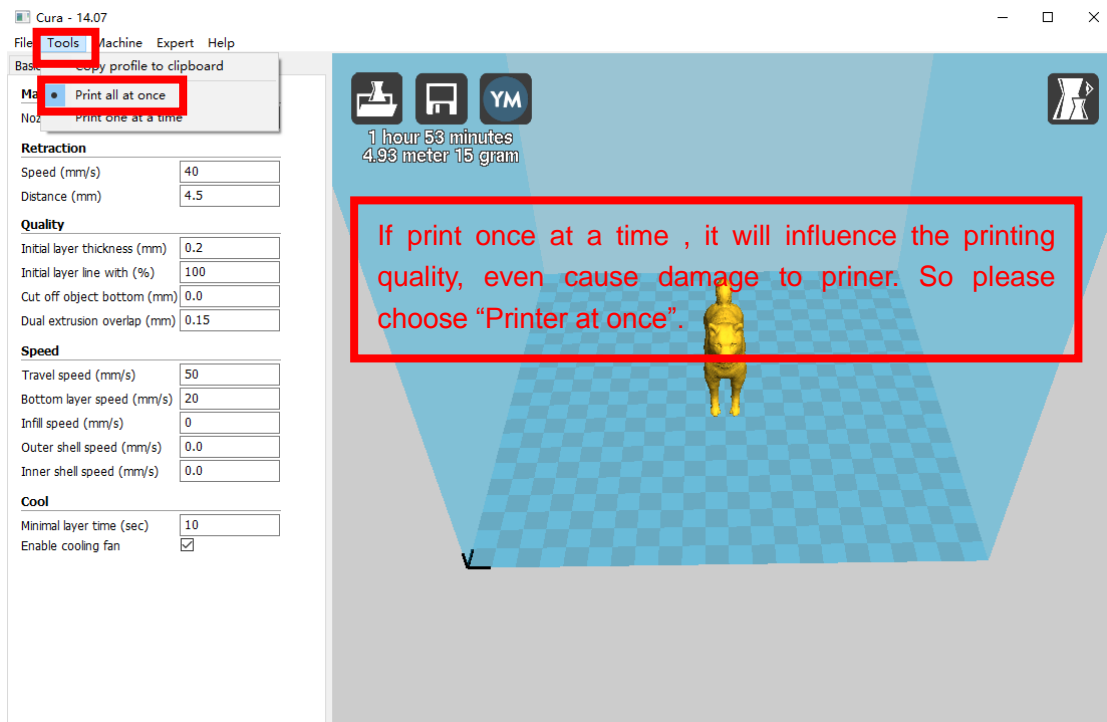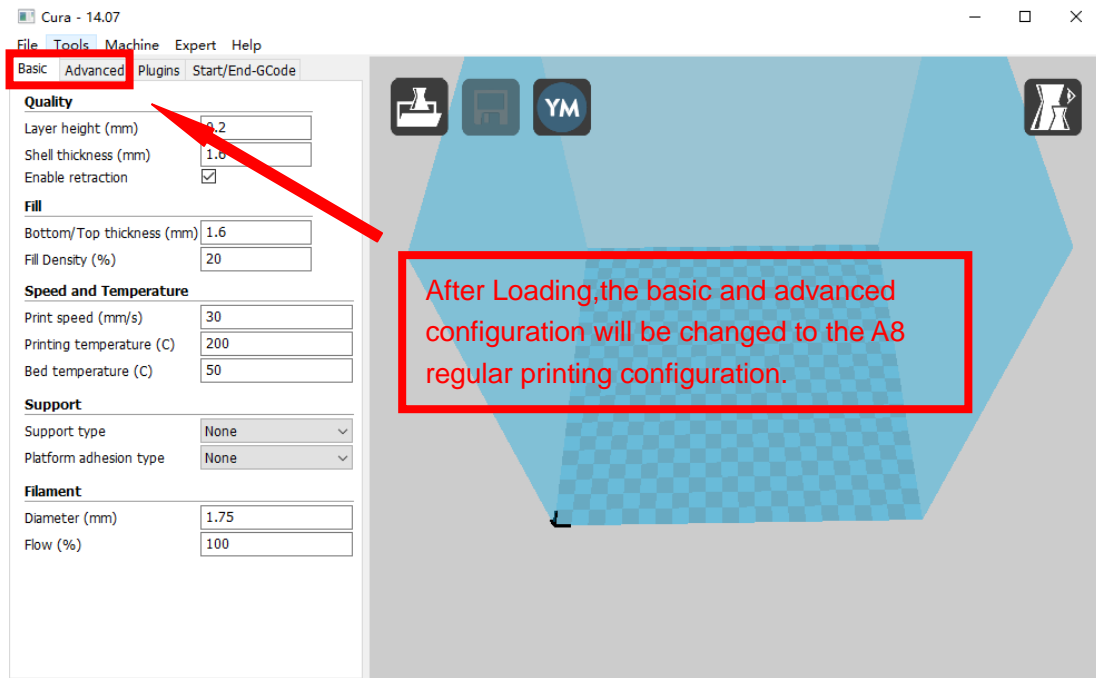
After Loading, the basic and advanced configuration will be changed to the A8 regular printing configuration.

1 hour 53 minutes
4.93 meter 15 gram

If print once at a time , it will influence the printing quality, even cause damage to priner. So please choose "Printer at once".

2.3 Layer height settings
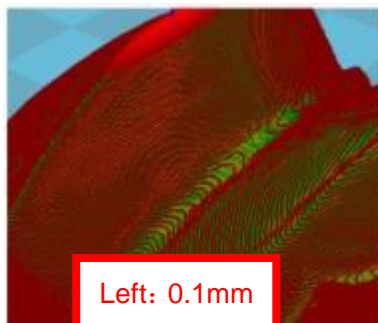
Left：0.1mm Layer height
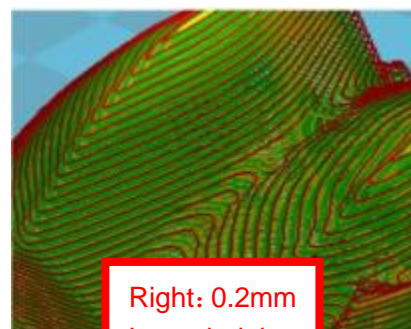
Right：0.2mm Layer height

Layer height setting

Cura - 14.07

File Tools Machine Expert Help

Basic | Advanced | Plugins | Start/End-GCode

Quality

Layer height (mm)	0.2
Shell thickness (mm)	1.6
Enable retraction	☑

Fill

Bottom/Top thickness (mm)	1.6
Fill Density (%)	20

Speed and Temperature

Print speed (mm/s)	30
Printing temperature (C)	200
Bed temperature (C)	50

Support

Support type	None
Platform adhesion type	None

Filament

Diameter (mm)	1.75
Flow (%)	100
Printing temperature (C)	200
Bed temperature (C)	50

Support

Support type	None
Platform adhesion type	None

Filament

Diameter (mm)	1.75
Flow (%)	100

Shell thickness setting
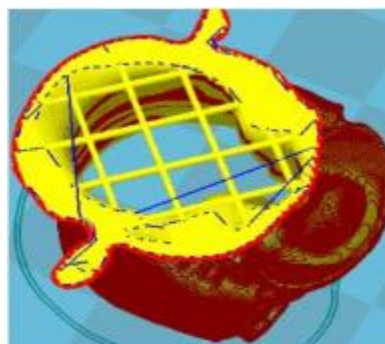
0.8mm

1.2mm

2mm

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Cura - 14.07

File Tools Machine Expert Help

| Basic | Advanced | Plugins | Start/End-GCode |

Quality

Layer height (mm)	0.2
Shell thickness (mm)	1.2
Enable retraction	☑

Fill

| Bottom/Top thickness (mm) | 1.2 |
| Fill Density (%) | 20 |

Speed and Temperature

Print speed (mm/s)	30
Printing temperature (C)	200
Bed temperature (C)	50

Support

| Support type | None |
| Platform adhesion type | None |

Filament

| Diameter (mm) | 1.75 |
| Flow (%) | 100 |

Cura - 14.07

File Tools Machine Expert Help

| Basic | Advanced | Plugins | Start/End-GCode |

Quality

Layer height (mm)	0.2
Shell thickness (mm)	1.2
Enable retraction	☑

Fill

| Bottom/Top thickness (mm) | 1.2 |
| Fill Density (%) | 20 |

Speed and Temperature

Print speed (mm/s)	30
Printing temperature (C)	200
Bed temperature (C)	50

Support

| Support type | None |
| Platform adhesion type | None |

Filament

| Diameter (mm) | 1.75 |
| Flow (%) | 100 |

The
the le
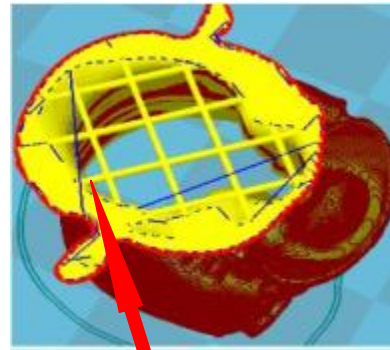
Enab

Enable retraction to avoid filaments leakage when nozzles move in empty area
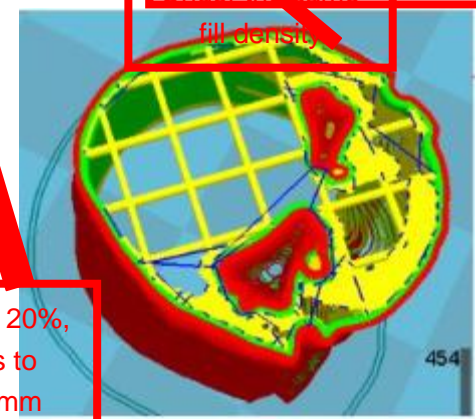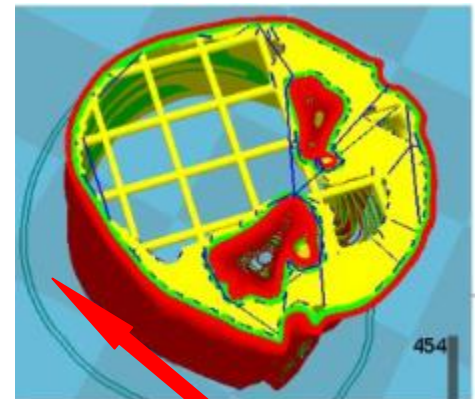
Bottom/Top thickness
Under the same
fill density

When fill density is less than 20%, it's easy for 0.6mm thickness to cause hollow on the top. 1.2mm normally won't have this issue.

Bottom/Top thickness

24

Bottom/Top   thickness

Cura - 14.07

File Tools Machine Expert Help

Basic | Advanced | Plugins | Start/End-GCode

Quality
Layer height (mm)   0.2
Shell thickness (mm)   1.2
Enable retraction   ☑

Fill
Bottom/Top thickness (mm) 1.2
Fill Density (%)   20

Speed and Temperature
Print speed (mm/s)   30
Printing temperature (C) 200
Bed temperature (C)   50

Support
Support type   None
Platform adhesion type   None

Filament
Diameter (mm)   1.75
Flow (%)   100

Fill Density
Setting

20%

50%
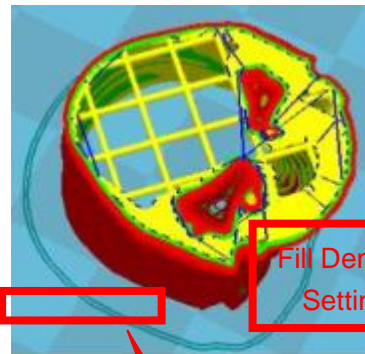
90%
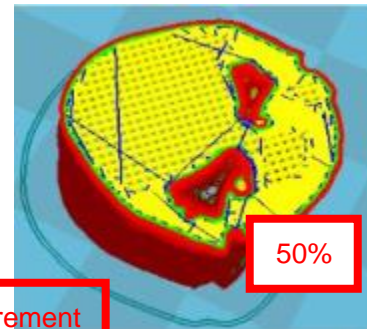
Fill Density: If strength requirement
is not so high , set 10% is ok.
Please improve fill density when
strength requirement gets higher.
Printing time will go up as well.

Cura - 14.07

File Tools Machine Expert Help

Basic | Advanced | Plugins | Start/End-GCode

Quality
Layer height (mm)   0.2
Shell thickness (mm)   1.2
Enable retraction   ☑

Fill
Bottom/Top thickness (mm) 1.2
Fill Density (%)   20

Speed and Temperature
Print speed (mm/s)   30
Printing temperature (C) 200
Bed temperature (C)   50

Support
Support type   None
Platform adhesion type   None

Filament
Diameter (mm)   1.75
Flow (%)   100

Printing Speed set

This is default speed. If other se
it prints more accurately while th
takes more time.
High printing speed takes less ti
print accurately , making the mo
Normally 40-60 print speed is su

Pringting Tempe

PLA filament temperature setting: nozzle:

ABS filament temperature setting: nozzle

Cura - 14.07

File Tools Machine Expert Help

Basic Advanced Plugins Start/End-GCode

Quality

Layer height (mm)	0.2
Shell thickness (mm)	1.2
Enable retraction	☑

Fill

Bottom/Top thickness (mm)	1.2
Fill Density (%)	20

Speed and Temperature

Print speed (mm/s)	30
Printing temperature (C)	200
Bed temperature (C)	50

Support

Support type	None
Platform adhesion type	

None
Touching buildplate
Everywhere

Filament

Diameter (mm)	1.75
Flow (%)	100
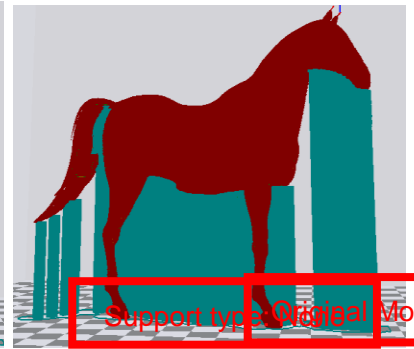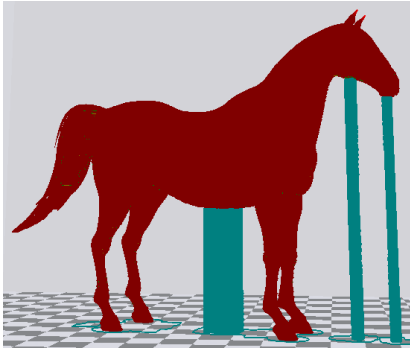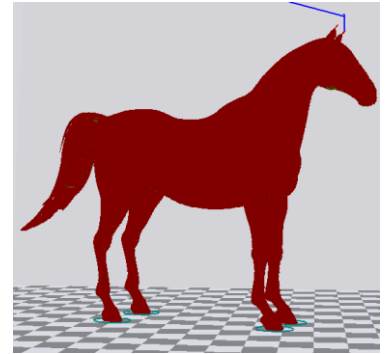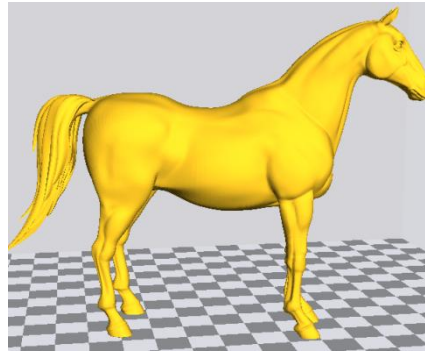
Support type: Original Model

Attention: Normally we add support to complex model or model with vacant parts. It may have influence on the surface if you choose everywhere. You'd better circle around the model and try to avoid unnecessary support.

Support type setting

Support type: Touching

Support type: Everywhere
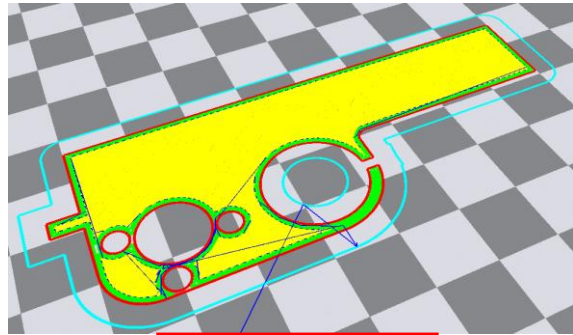
None: no support
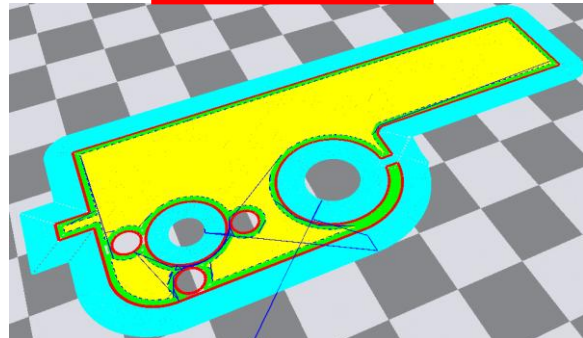
Brim:Touch with the adge
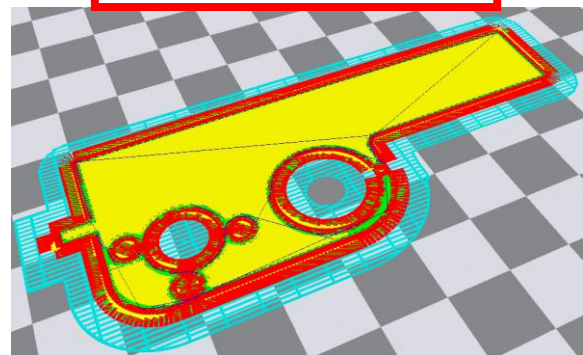
Raft: Totally touch with the bottom

Cura - 14.07

File   Tools   Machine   Expert   Help

Basic | Advanced | Plugins | Start/End-GCode

Quality

Layer height (mm)	0.2
Shell thickness (mm)	1.2
Enable retraction	☑

Support setting

Fill

Bottom/Top thickness (mm)	1.2
Fill Density (%)	20

Speed and Temperature

Print speed (mm/s)	30
Printing temperature (C)	200
Bed temperature (C)	50

Support

Support type	None
Platform adhesion type	None

None
Brim
Raft

Filament

Diameter (mm)	
Flow (%)	100

Cura - 14.07

File Tools Machine Expert Help

Basic | Advanced | Plugins | Start/End-GCode

Quality

Layer height (mm)	0.2
Shell thickness (mm)	1.6
Enable retraction	☑

Fill

Bottom/Top thickness (mm)	1.6
Fill Density (%)	20

Speed and Temperature

Print speed (mm/s)	30
Printing temperature (C)	200
Bed temperature (C)	50

Support

Support type	None
Platform adhesion type	None

Filament

Diameter (mm)	1.75
Flow (%)	100

Attention: A6 use 1.75mm filament

Attention:

Flow is proportion of filament，we suggest to use 100
Increasing flow & decrease diameter has the similar effect
Model surface gets many bumps when flow is too big;model frame gets flimsy if flow is too small.

Cura - 14.07

File Tools Machine Expert Help

Basic | Advanced | Plugins | Start/End-GCode

Machine

Nozzle size (mm)   0.4   ← We suggest not to change it , A6 default 0.4mm

Retraction

Speed (mm/s)   40   ← We suggest not to change it ,
Distance (mm)   4.5   or use the date in the picture

Quality

Initial layer thickness (mm)   0.2   ← We suggest 0.2mm to avoid initial layer tilt,0.3mm is more easy to seperate from the platform.
Initial layer line with (%)   100   ← Initial layer line proportion
Cut off object bottom (mm)   0.0
Dual extrusion overlap (mm)   0.15

Speed

Travel speed (mm/s)   50
Bottom layer speed (mm/s)   20
Infill speed (mm/s)   0   ← "0" means using default speed
Outer shell speed (mm/s)   0.0
Inner shell speed (mm/s)   0.0

Cool

Minimal layer time (sec)   10   ← Min printing time for each layer. When the time is less than 10 , it prints slower. It's better to decrease time when printing thin and long models.
Enable cooling fan   ☑   ← We suggest not choose this when printing ABS.

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Cura - 14.07

File Tools Machine Expert Help

Basic Advanced **Plugins** Start/End-GCode

Plugins: [?]

Pause at height
Tweak At Z 3.1.2

Attention:Normally this option cannot be changed , if changed ,it's at your peril.

[V]

Enabled plugins

Open plugin location

Attention:Normally this option cannot be changed , if changed , it's at your peril.

Starting

Ending

3.Expert Setting

Cura - 14.07

File Tools Machine Expert Help

Basic Advanced Plugins **Start/End-GCode**

start.gcode
end.gcode

```
;Sliced at: {day} {date} {time}
;Basic settings: Layer height: {layer_heig
;Print time: {print_time}
;Filament used: {filament_amount}m {filame
;Filament cost: {filament_cost}
;M190 S{print_bed_temperature} ;Uncomment
;M109 S{print_temperature} ;Uncomment to a
G21            ;metric values
G90            ;absolute positioning
M107           ;start with the fan off
G28 X0 Y0  ;move X/Y to min endstops
G28 Z0     ;move Z to min endstops
G1 Z15.0 F{travel_speed} ;move the platfor
G92 E0                   ;zero the extrude
G1 F200 E3               ;extrude 3mm of fe
G92 E0                   ;zero the extrude
G1 F{travel_speed}
;Put printing message on LCD screen
M117 Printing...
```

Expert config ✕

Retraction

Minimum travel (mm)	1.5	1
Enable combing	☑	2
Minimal extrusion before retracting (mm)	0.02	3
Z hop when retracting (mm)	0.0	4

Skirt

Line count	1
Start distance (mm)	3.0
Minimal length (mm)	150.0

Cool

Fan full on at height (mm)	0.5
Fan speed min (%)	30
Fan speed max (%)	100
Minimum speed (mm/s)	10
Cool head lift	☐

Infill

Solid infill top	☑
Solid infill bottom	☑
Infill overlap (%)	15

Support

Structure type	Lines ⌄
Overhang angle for support (deg)	60
Fill amount (%)	10
Distance X/Y (mm)	0.7
Distance Z (mm)	0.15

Black Magic

Spiralize the outer contour	☐
Only follow mesh surface	☐

Brim

Brim line amount	4

Raft

Extra margin (mm)	5
Line spacing (mm)	3
Base thickness (mm)	0.3
Base line width (mm)	1
Interface thickness (mm)	0.27
Interface line width (mm)	0.4
Airgap	0.22
Surface layers	2

Fix horrible

Combine everything (Type-A)	☑
Combine everything (Type-B)	☐
Keep open faces	☐
Extensive stitching	☐

[Ok]

1. The minimum length before retraction . Used to avoid frequent retraction. No need to change.
2. Enable Combing: Digital for surface quality , the nozzle will try not to go through surface , that's why Cura is better than Slic3r.
3. Minimum extrusion length , to avoid frequent extrusion.
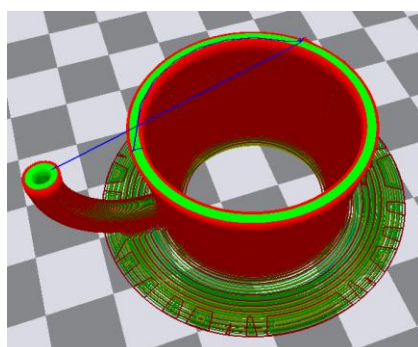
Printing route with Combing

Go aside of the surface
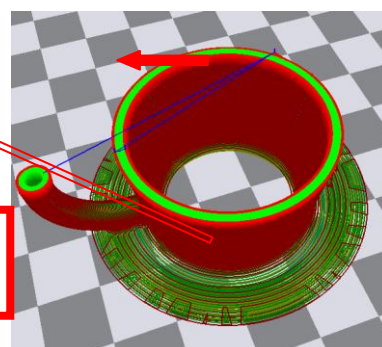
Printing route without Combing

Go through the surface

Expert config

Retraction

Minimum travel (mm)	1.5
Enable combing	☑
Minimal extrusion before retracting (mm)	0.02
Z hop when retracting (mm)	0.0

Skirt

Line count	1
Start distance (mm)	3.0
Minimal length (mm)	150.0

Cool

Fan full on at height (mm)	0.5
Fan speed min (%)	30
Fan speed max (%)	100
Minimum speed (mm/s)	10
Cool head lift	☐

Infill

Solid infill top	☑
Solid infill bottom	☑
Infill overlap (%)	15

Support

Structure type	Lines
Overhang angle for support (deg)	60
Fill amount (%)	10
Distance X/Y (mm)	0.7
Distance Z (mm)	0.15

Black Magic

Spiralize the outer contour	☐
Only follow mesh surface	☐

Brim

Brim line amount	4

Raft

Extra margin (mm)	5
Line spacing (mm)	3
Base thickness (mm)	0.3
Base line width (mm)	1
Interface thickness (mm)	0.27
Interface line width (mm)	0.4
Airgap	0.22
Surface layers	2

Fix horrible

Combine everything (Type-A)	☑
Combine everything (Type-B)	☐
Keep open faces	☐
Extensive stitching	☐

Ok

Skirt is to avoid extruder unfilled before printing , and it appears only when platform attachment type is None. Normally "1" is ok . Change it to "0" when your model reaches the maximum size , or the printing size will be too big.
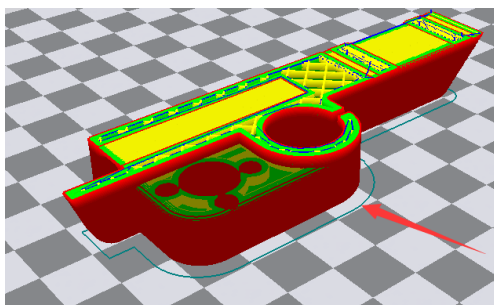
Peripheral line quantity: 1
Start distance: 3
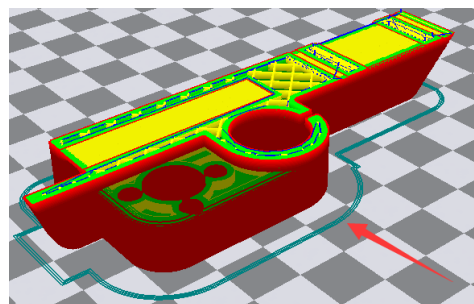
Peripheral line quantity: 1
Start distance: 3

Expert config   ✕

Retraction

Minimum travel (mm)	1.5
Enable combing	☑
Minimal extrusion before retracting (mm)	0.02
Z hop when retracting (mm)	0.0

Skirt

Line count	1
Start distance (mm)	3.0
Minimal length (mm)	150.0

Cool

Fan full on at height (mm)	0.5
Fan speed min (%)	30
Fan speed max (%)	100
Minimum speed (mm/s)	10
Cool head lift	☐

Infill

Solid infill top	☑
Solid infill bottom	☑
Infill overlap (%)	15

Support

Structure type	Lines ⌄
Overhang angle for support (deg)	60
Fill amount (%)	10
Distance X/Y (mm)	0.7
Distance Z (mm)	0.15

Black Magic

Spiralize the outer contour	☐
Only follow mesh surface	☐

Brim

Brim line amount	4

Raft

Extra margin (mm)	5
Line spacing (mm)	3
Base thickness (mm)	0.3
Base line width (mm)	1
Interface thickness (mm)	0.27
Interface line width (mm)	0.4
Airgap	0.22
Surface layers	2

Fix horrible

Combine everything (Type-A)	☑
Combine everything (Type-B)	☐
Keep open faces	☐
Extensive stitching	☐

Ok

1. To ensure the attachment of model to platform , fan won't start at the beginning.

2-4. Fan speed min & max : If they are not equal , the soft ware will choose a suitable speed during them.

5. Condition to choose cool head lift : When it's printing with the minimum speed but still cannot reach the minimum time , you need to choose cool head lift . But it may cause filament leak.

Expert config ✕

Retraction

Minimum travel (mm)	1.5
Enable combing	☑
Minimal extrusion before retracting (mm)	0.02
Z hop when retracting (mm)	0.0

Skirt

Line count	1
Start distance (mm)	3.0
Minimal length (mm)	150.0

Cool

Fan full on at height (mm)	0.5
Fan speed min (%)	30
Fan speed max (%)	100
Minimum speed (mm/s)	10
Cool head lift	☐

Infill

Solid infill top	☑
Solid infill bottom	☑
Infill overlap (%)	15

Support

Structure type	Lines ⌄
Overhang angle for support (deg)	60
Fill amount (%)	10
Distance X/Y (mm)	0.7
Distance Z (mm)	0.15

Black Magic

Spiralize the outer contour	☐
Only follow mesh surface	☐

Brim

Brim line amount	4

Raft

Extra margin (mm)	5
Line spacing (mm)	3
Base thickness (mm)	0.3
Base line width (mm)	1
Interface thickness (mm)	0.27
Interface line width (mm)	0.4
Airgap	0.22
Surface layers	2

Fix horrible

Combine everything (Type-A)	☑
Combine everything (Type-B)	☐
Keep open faces	☐
Extensive stitching	☐

Ok

No solid infill top

With solid infill top
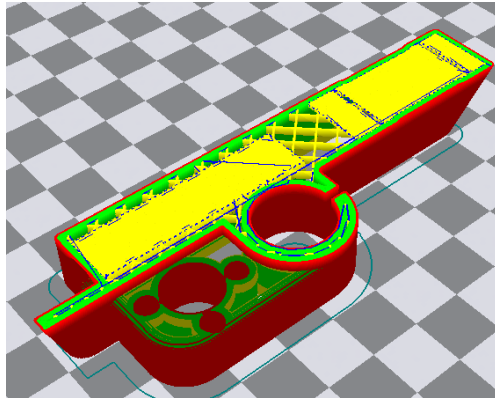
No solid infill bottom

With solid infill bottom

Infill coverlap: 20
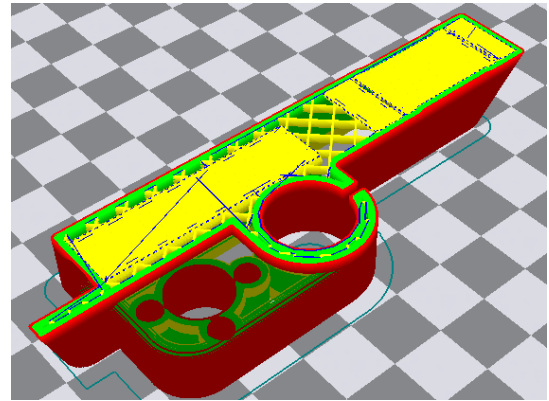
Infill coverlap: 40

Expert config

Retraction
Minimum travel (mm)	1.5
Enable combing	☑
Minimal extrusion before retracting (mm)	0.02
Z hop when retracting (mm)	0.0

Skirt
Line count	1
Start distance (mm)	3.0
Minimal length (mm)	150.0

Cool
Fan full on at height (mm)	0.5
Fan speed min (%)	30
Fan speed max (%)	100
Minimum speed (mm/s)	10
Cool head lift	☐

Infill
Solid infill top	☑
Solid infill bottom	☑
Infill overlap (%)	15

Support
Structure type	Lines
Overhang angle for support (deg)	60
Fill amount (%)	10
Distance X/Y (mm)	0.7
Distance Z (mm)	0.15

Black Magic
Spiralize the outer contour	☐
Only follow mesh surface	☐

Brim
Brim line amount	4

Raft
Extra margin (mm)	5
Line spacing (mm)	3
Base thickness (mm)	0.3
Base line width (mm)	1
Interface thickness (mm)	0.27
Interface line width (mm)	0.4
Airgap	0.22
Surface layers	2

Fix horrible
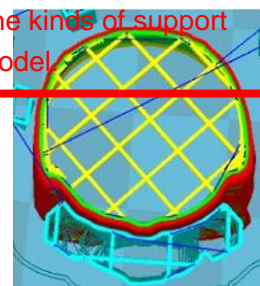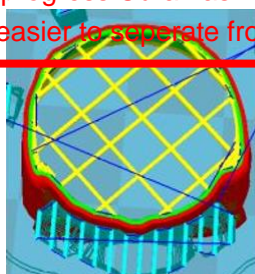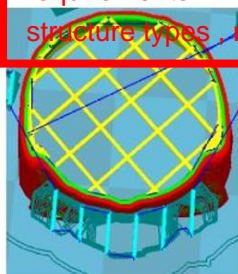|	
Combine everything (Type-A)	☑
Combine everything (Type-B)	☐
Keep open faces	☐
Extensive stitching	☐

Ok

Structure types:lines
Infill covertap: 15
Distance X/Y: 0.7

Structure types:lines
Infill covertap: 30
Distance X/Y: 0.7

Structure types:grids
Infill covertap: 15
Distance X/Y: 0.7

These above are examples , you can set these options according to actual requirements. The biggest progress Cura has made is the kinds of support structure types , making it easier to seperate from the model.

Expert config ✕

Retraction

Minimum travel (mm)	1.5
Enable combing	☑
Minimal extrusion before retracting (mm)	0.02
Z hop when retracting (mm)	0.0

Skirt

Line count	1
Start distance (mm)	3.0
Minimal length (mm)	150.0

Cool

Fan full on at height (mm)	0.5
Fan speed min (%)	30
Fan speed max (%)	100
Minimum speed (mm/s)	10
Cool head lift	☐

Infill

Solid infill top	☑
Solid infill bottom	☑
Infill overlap (%)	15

Support

Structure type	Lines ∨
Overhang angle for support (deg)	60
Fill amount (%)	10
Distance X/Y (mm)	0.7
Distance Z (mm)	0.15

Black Magic

Spiralize the outer contour	☐
Only follow mesh surface	☐

Brim

Brim line amount	4

Raft

Extra margin (mm)	5
Line spacing (mm)	3
Base thickness (mm)	0.3
Base line width (mm)	1
Interface thickness (mm)	0.27
Interface line width (mm)	0.4
Airgap	0.22
Surface layers	2

Fix horrible

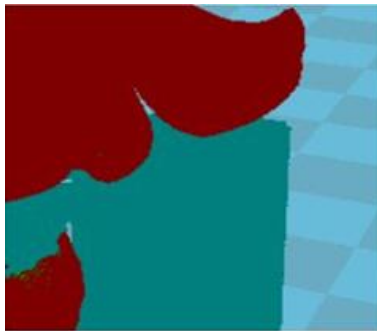|	
Combine everything (Type-A)	☑
Combine everything (Type-B)	☐
Keep open faces	☐
Extensive stitching	☐

Ok

It's difficult to seperate if the distance between support and the supported place is too close; The surface will be influenced if the distance is too far.
Different angle will generate different support , you can try the examples we provide above which will have different effect.

60°   45°   30°

40

Expert config   ✕

Retraction

Minimum travel (mm)	1.5
Enable combing	☑
Minimal extrusion before retracting (mm)	0.02
Z hop when retracting (mm)	0.0

Skirt

Line count	1
Start distance (mm)	3.0
Minimal length (mm)	150.0

Cool

Fan full on at height (mm)	0.5
Fan speed min (%)	30
Fan speed max (%)	100
Minimum speed (mm/s)	10
Cool head lift	☐

Infill

Solid infill top	☑
Solid infill bottom	☑
Infill overlap (%)	15

Support

Structure type	Lines ⌄
Overhang angle for support (deg)	60
Fill amount (%)	10
Distance X/Y (mm)	0.7
Distance Z (mm)	0.15

Black Magic

Spiralize the outer contour	☐
Only follow mesh surface	☐

Brim

Brim line amount	4

Raft

Extra margin (mm)	5
Line spacing (mm)	3
Base thickness (mm)	0.3
Base line width (mm)	1
Interface thickness (mm)	0.27
Interface line width (mm)	0.4
Airgap	0.22
Surface layers	2

Fix horrible

Combine everything (Type-A)	☑
Combine everything (Type-B)	☐
Keep open faces	☐
Extensive stitching	☐

Ok

When choosing "Spiralize the outer contour" : Z axis rises while X,Y axis moves , and only a hollow bottom and a single layer of

When choosing "Only follow mesh surface" : The nozzle prints along the surface.

Attention: The software defaults not open the option above , you'd better not turn it

Expert config ✕

Retraction

Minimum travel (mm)	1.5
Enable combing	☑
Minimal extrusion before retracting (mm)	0.02
Z hop when retracting (mm)	0.0

Skirt

Line count	1
Start distance (mm)	3.0
Minimal length (mm)	150.0

Cool

Fan full on at height (mm)	0.5
Fan speed min (%)	30
Fan speed max (%)	100
Minimum speed (mm/s)	10
Cool head lift	☐

Infill

Solid infill top	☑
Solid infill bottom	☑
Infill overlap (%)	15

Support

Structure type	Lines ⌄
Overhang angle for support (deg)	60
Fill amount (%)	10
Distance X/Y (mm)	0.7
Distance Z (mm)	0.15

Black Magic

Spiralize the outer contour	☐
Only follow mesh surface	☐

Brim

Brim line amount	4

Raft

Extra margin (mm)	5
Line spacing (mm)	3
Base thickness (mm)	0.3
Base line width (mm)	1
Interface thickness (mm)	0.27
Interface line width (mm)	0.4
Airgap	0.22
Surface layers	2

Fix horrible

Combine everything (Type-A)	☑
Combine everything (Type-B)	☐
Keep open faces	☐
Extensive stitching	☐

Ok

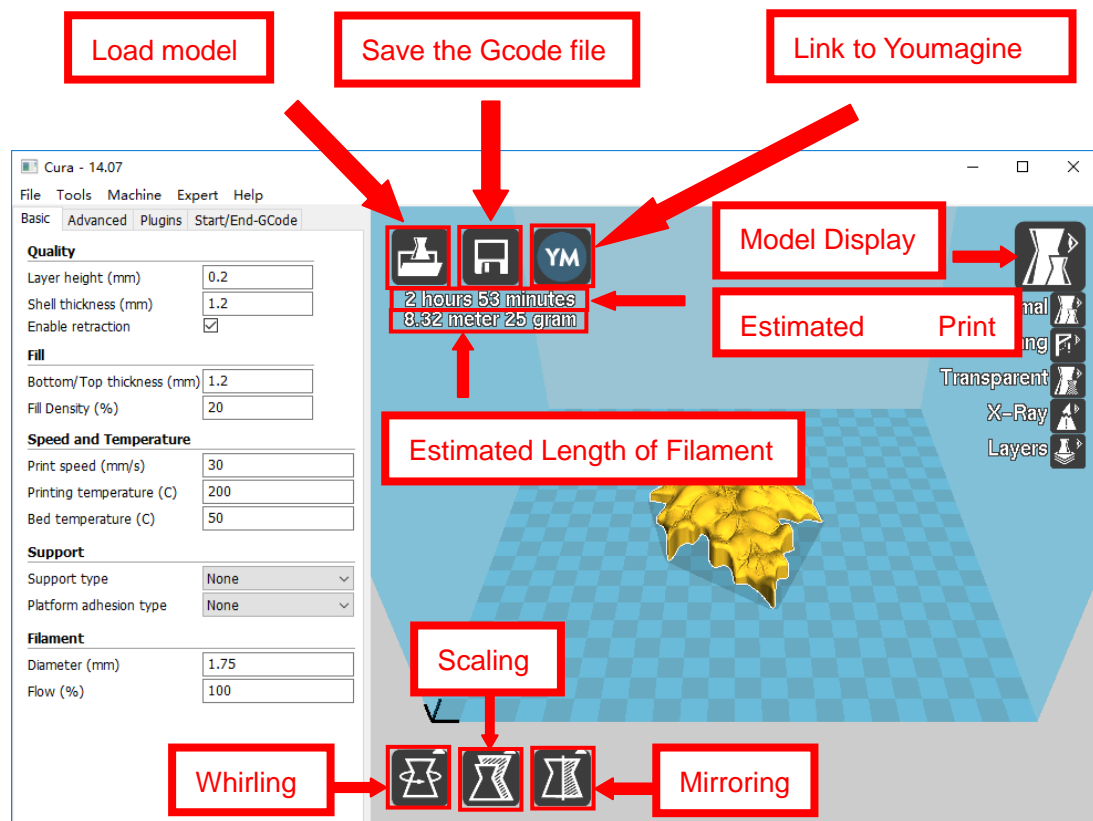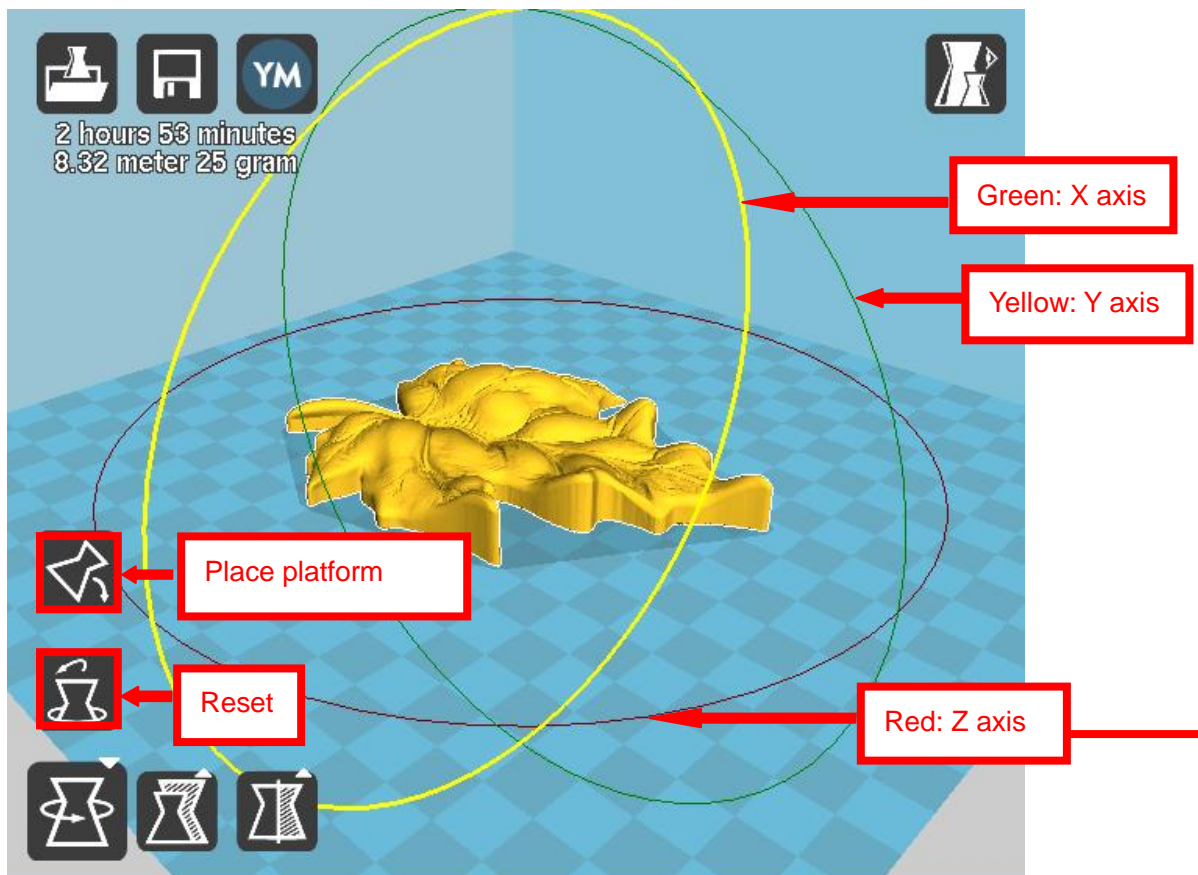Guidance to use Brim if needed: Expert → Expert Settings → Support → Support Types → Birm.
The images above are only for reference , please set the parameter according to actual requirement.

Expert config ✕

Retraction

Minimum travel (mm)	1.5
Enable combing	☑
Minimal extrusion before retracting (mm)	0.02
Z hop when retracting (mm)	0.0

Skirt

Line count	1
Start distance (mm)	3.0
Minimal length (mm)	150.0

Cool

Fan full on at height (mm)	0.5
Fan speed min (%)	30
Fan speed max (%)	100
Minimum speed (mm/s)	10
Cool head lift	☐

Infill

Solid infill top	☑
Solid infill bottom	☑
Infill overlap (%)	15

Support

Structure type	Lines ⌄
Overhang angle for support (deg)	60
Fill amount (%)	10
Distance X/Y (mm)	0.7
Distance Z (mm)	0.15

Black Magic

Spiralize the outer contour	☐
Only follow mesh surface	☐

Brim

Brim line amount	4

Raft

Extra margin (mm)	5
Line spacing (mm)	3
Base thickness (mm)	0.3
Base line width (mm)	1
Interface thickness (mm)	0.27
Interface line width (mm)	0.4
Airgap	0.22
Surface layers	2

Fix horrible

Combine everything (Type-A)	☑
Combine everything (Type-B)	☐
Keep open faces	☐
Extensive stitching	☐

Ok

Load model

Save the Gcode file

Link to Youmagine

Model Display

Estimated   Print

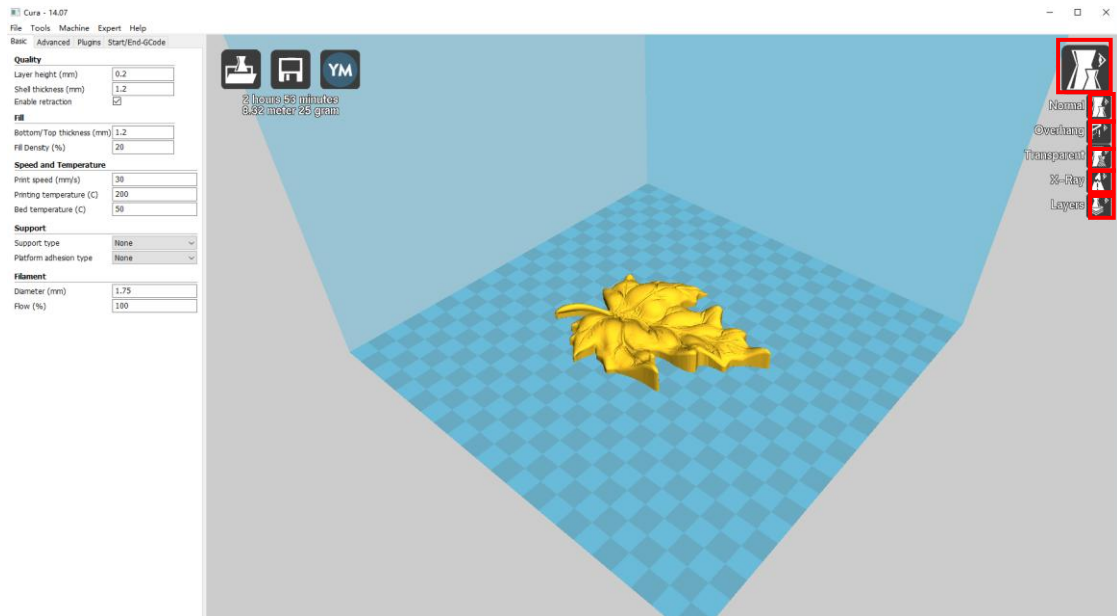Estimated Length of Filament

Scaling

Whirling

Mirroring

Left click the model and you will see the icon of "whirling, scaling, mirroring.
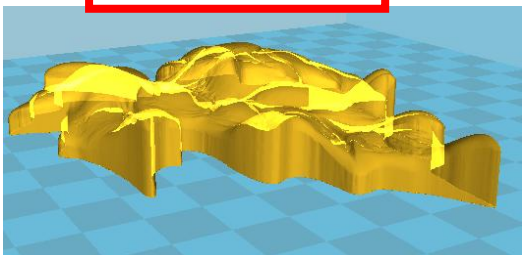
Left click to select model and move → move model.

Slide mouse wheel → scaling.

Right click to select model and move → whirling.

Shift + right click platform and move → move platform

2 hours 53 minutes
8.32 meter 25 gram

Green: X axis

Yellow: Y axis

Place platform

Reset

Red: Z axis

Z axis mirroring
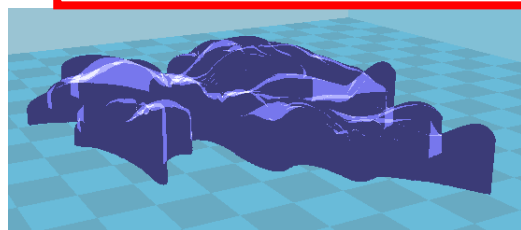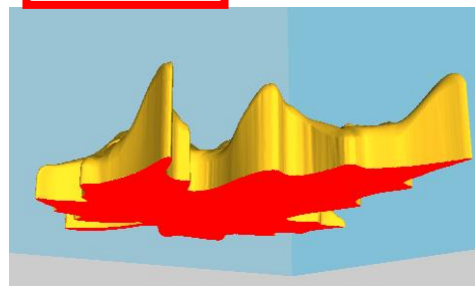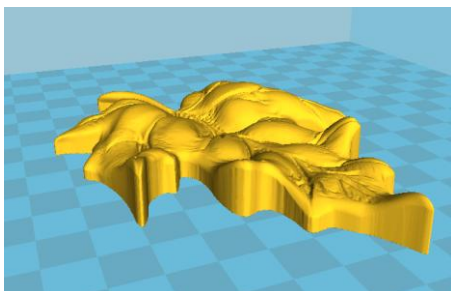
Y axis mirroring

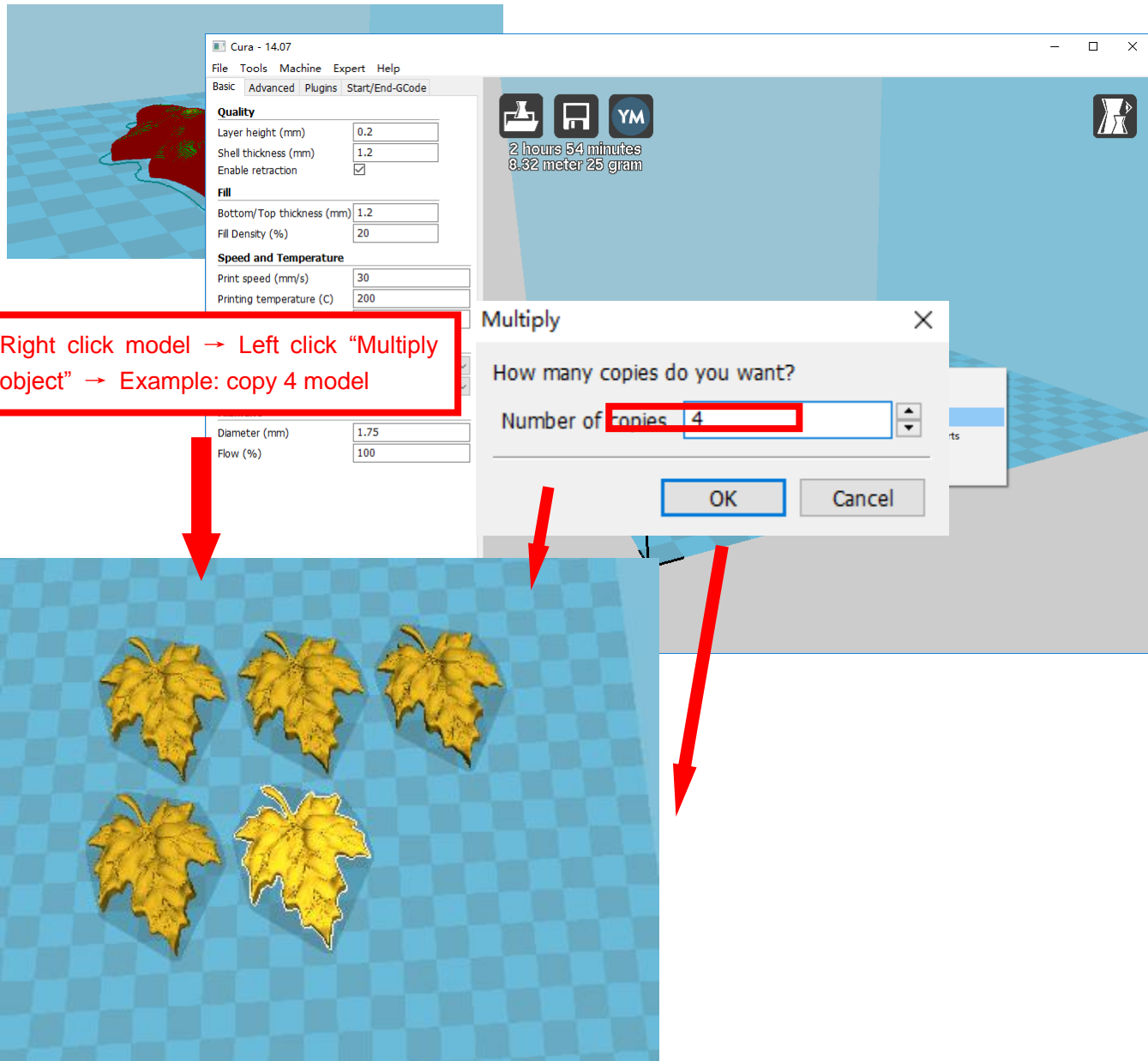X axis mirroring
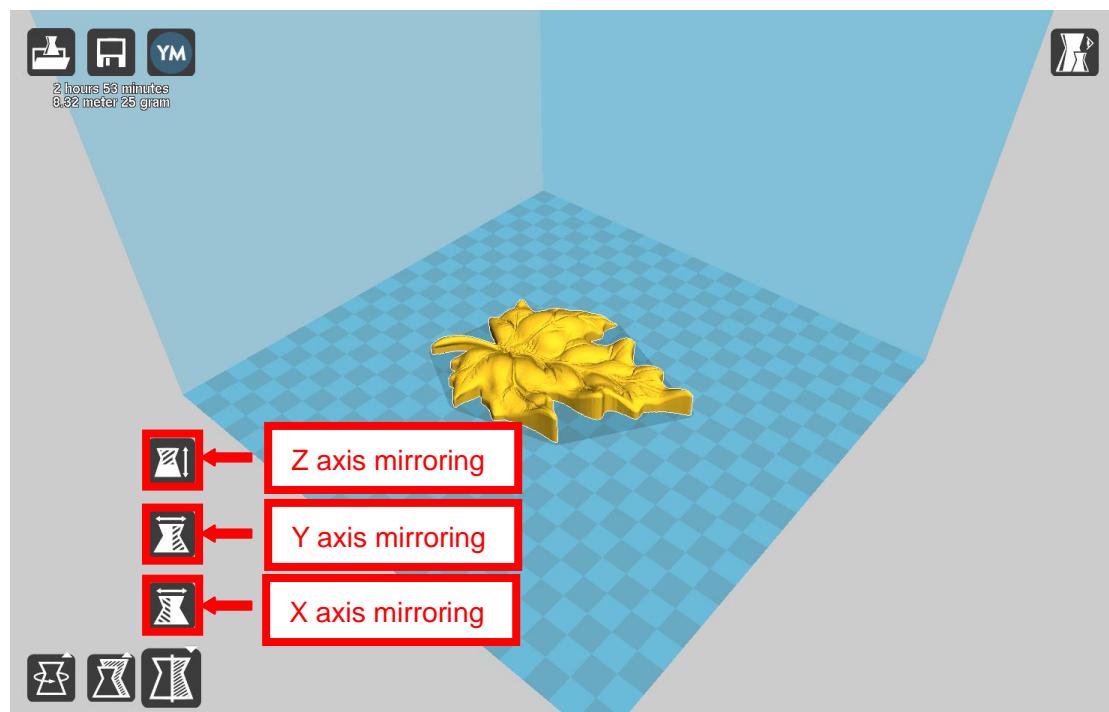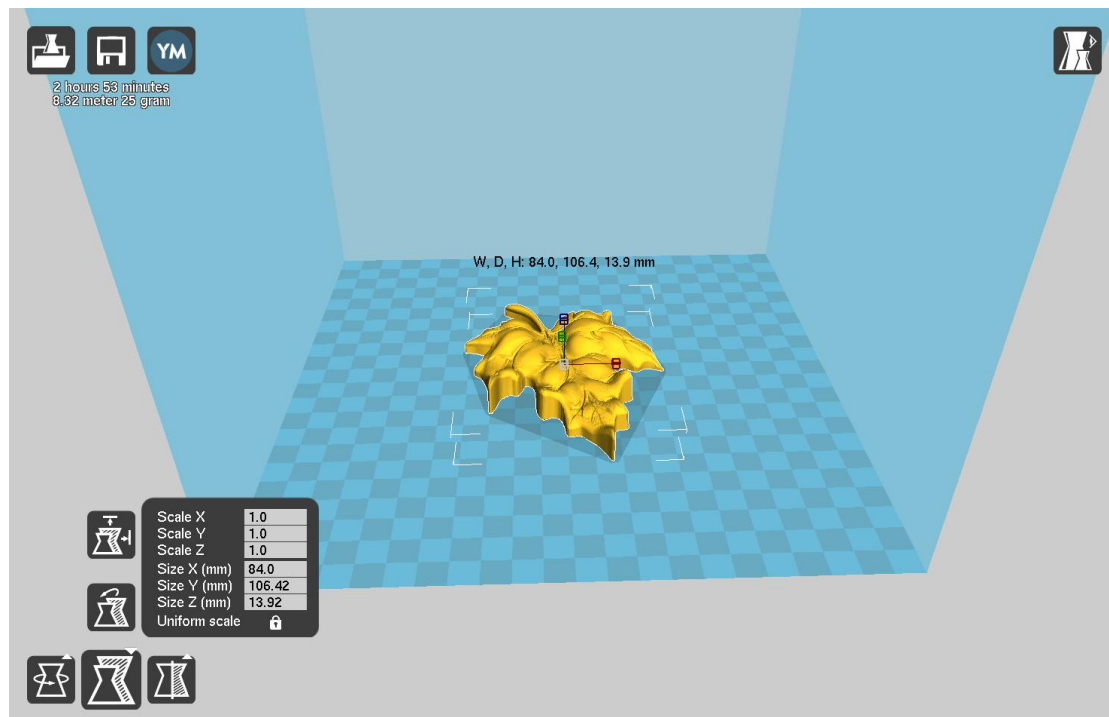
Normal: Most used.
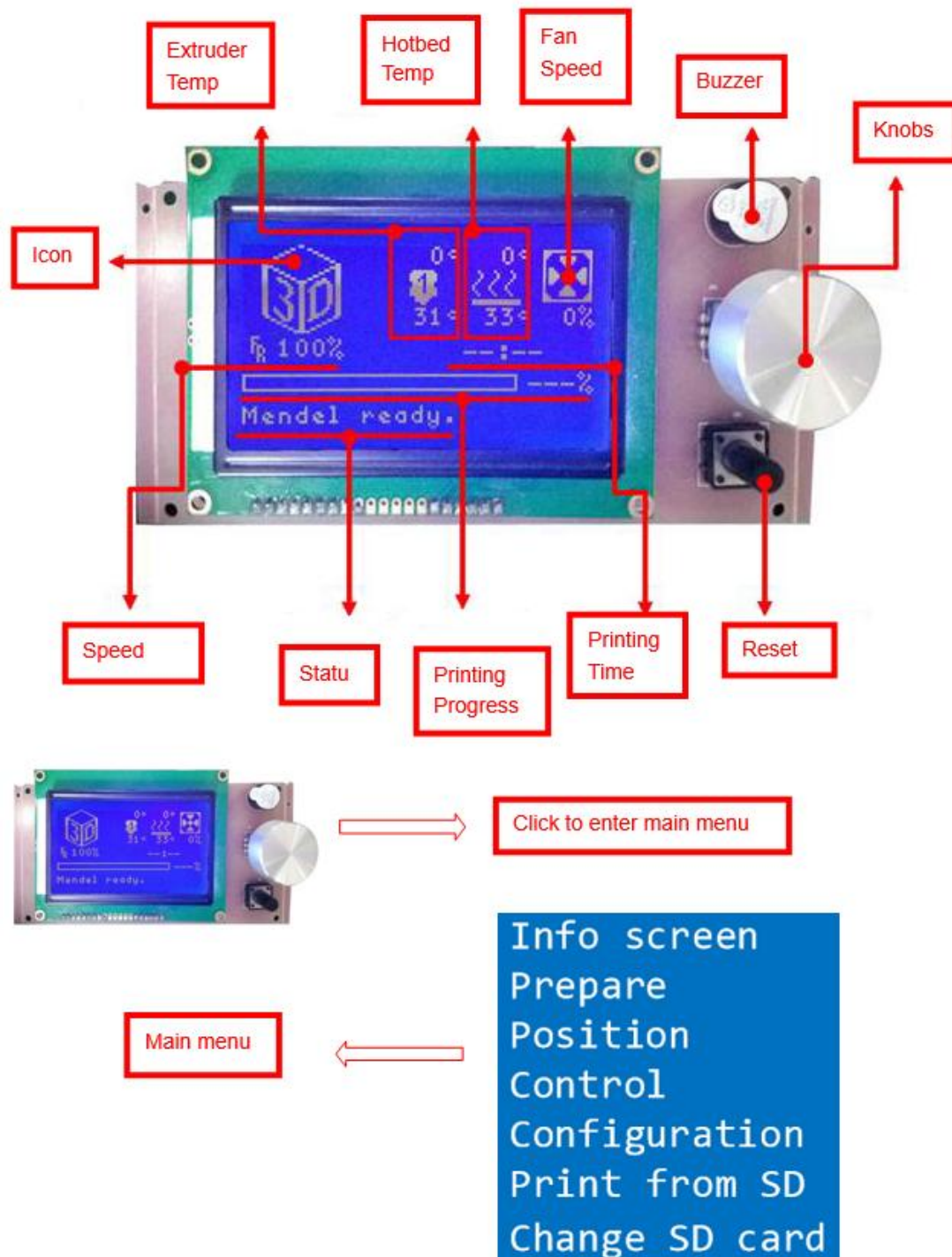

Overhang: Used to see the vacant part.

Transparent

48

Layers:Used to simulate the effect of each layer and the path.

Right click model → Left click "Multiply object" → Example: copy 4 model

Cura - 14.07

File Tools Machine Expert Help

Basic Advanced Plugins Start/End-GCode

Quality

Layer height (mm)	0.2
Shell thickness (mm)	1.2
Enable retraction	☑

Fill

| Bottom/Top thickness (mm) | 1.2 |
| Fill Density (%) | 20 |

Speed and Temperature

| Print speed (mm/s) | 30 |
| Printing temperature (C) | 200 |

| Diameter (mm) | 1.75 |
| Flow (%) | 100 |

2 hours 54 minutes
8.32 meter 25 gram

Multiply   ✕

How many copies do you want?

Number of copies   4

OK   Cancel

D. Printing Operation

1.Display Introduction

Info screen
Prepare
Position
Control
Configuration

⟹

Main
Preheat PLA
Preheat ABS

Info screen
Prepare
Position
Control
Configuration

⟹

Main
Move axis
Auto home

Position
Move 10mm
Move 1mm
Move 0.1mm

Move 10mm/click <- - -

Move 1 mm/click <- - -

Move 0.1mm/click <- - -

Info screen
Prepare
Position
Control
Configuration

→

Main

Disable stepper

Cooldown

Nozzle: 0

Bed: 0

Fan speed:0

Flow:100

Info screen
Prepare
Position
Control
Configuration

→

Main

Temperature

Motion

Store memory

Load memory

Restore failsafe

Change Banned !

Configuration
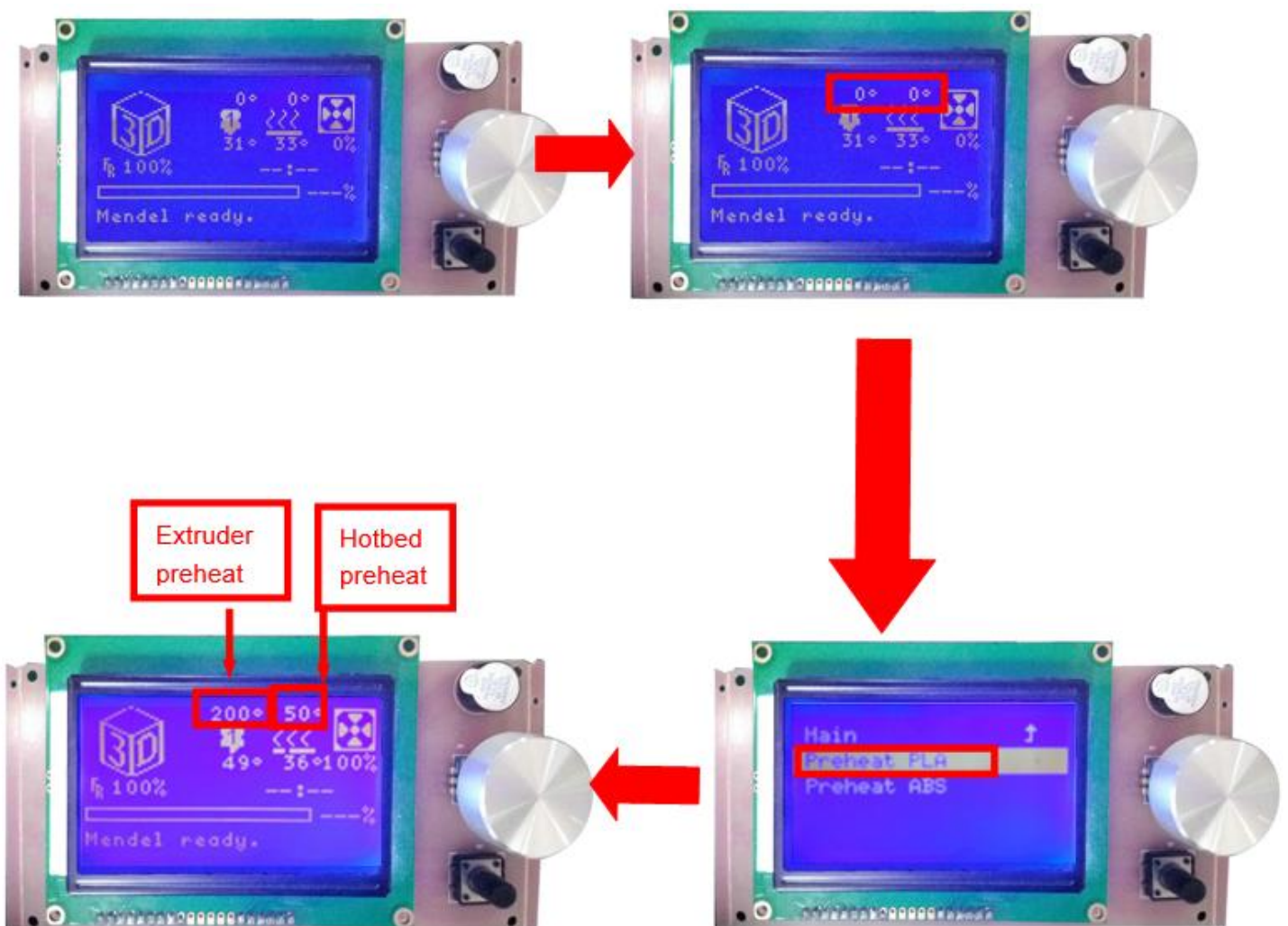No SD card
Init.SD card
Version

52

2.Filament Feeding

2.1 Set Preheat

Attention: Before filament installation, we need to preheat. Use PLA as example .

Press Knobs → Prepare → Preheat PAL → Start preheating

Extruder preheat   Hotbed preheat

Attention: Please choose "Preheat ABS" if you want to print with ABS

2.2   Filament Installation

Attention: only when extruder temp reaches 200℃ can we put filament in the printer.

Confirm Extruder Temp has reached 190℃ → 1 roll PLA → Stroke the filament head straight → Press extruder screw.Meanwhile ,hold the white wind mouth → Meanwhile, stick filament into the extruder quickly until filament goes out from the nozzle → Filament installation succeed

① Attention: confirm the specification & type of filament

Specification & type

1.75MM PLA 3D FILAMENT
Item No: A10979 White
NATURAL-1.0KG(N.W)
Print Temp：200-230℃
Lot：160606

Recommended printing temp

Attention: For A6 printer we use 1.75mm filament

② Attention: Install filament only when temp reaches 190℃

③ Stroke the filament head straight → Press extruder screw.Meanwhile ,hold the white wind mouth → Meanwhile, install filament into the extruder quickly until filament liquid goes out from the nozzle

200° 50°
196° 50°100%
FR 100%
printer ready.

Press extruder screw, hold on wind mouth. Stick filament in quickly until filament goes out from extruder.
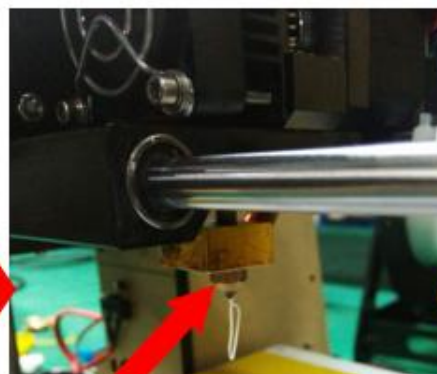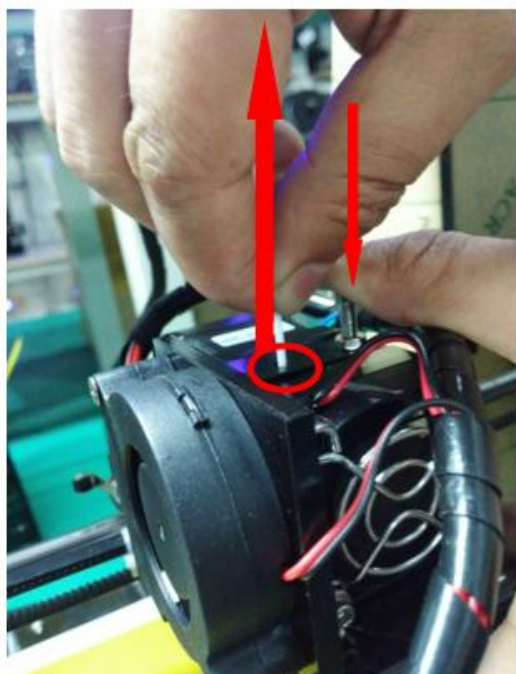
Attention:High temp!!

If the shape of output filament is average , means installation is good.

Filament installation succeed

2.3 Pull out filament

When Change filament/Long-term not in use of printer , you need to pull out filament.

Use PLA as example
1. Preheat extruder to 190°C
2. Press extruder screw, hold wind mouth. Meanwhile, stick filament down for a few length, then pull out with average speed.
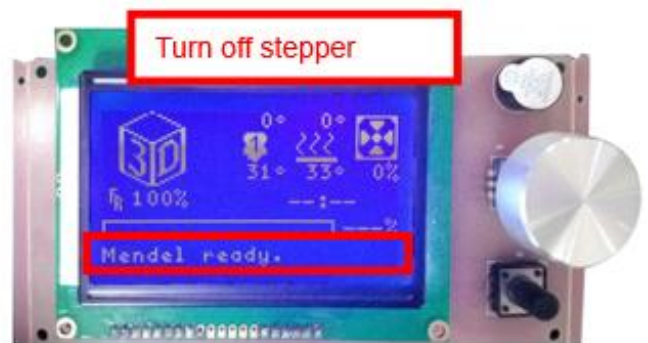
Precautions:
1. Do not stick down for long length in order to avoid failure of pulling out. Replace filament timely.
2. Please confirm you have preheated the extruder to 190°C. Do not pull out before 190°C , or it will cause irreparable damage.
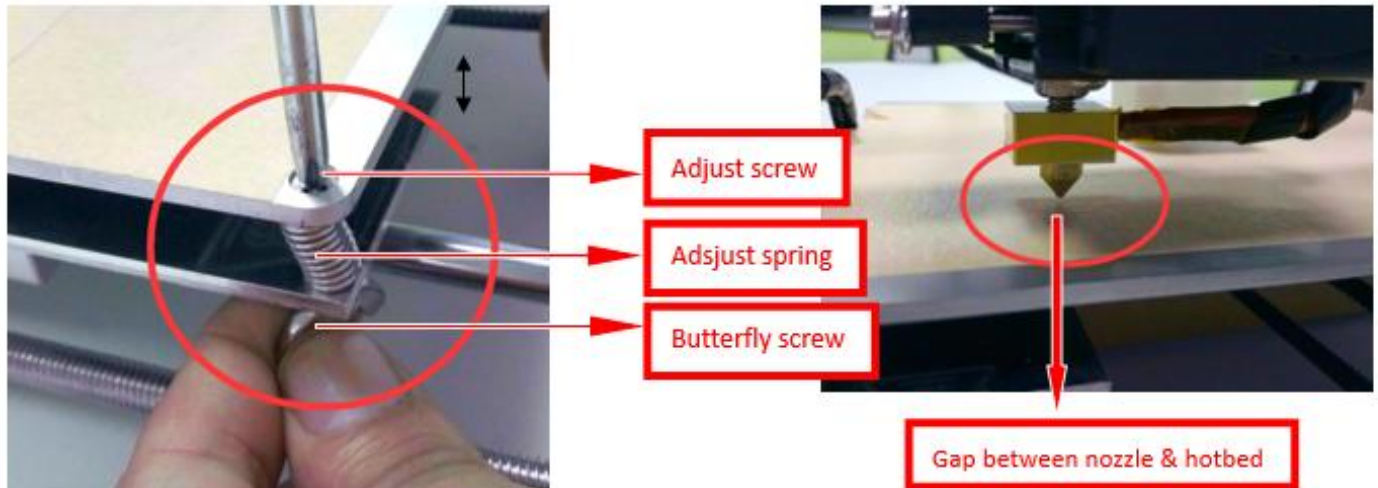
3.Platform Adjustment

1. Choose "Position" → "Auto home" , printer will move to limited switch until it stops.


Turn off stepper

2. Turn off stepper motor: based on step 1 , enter "Quick settings" → "Disable stepper"

3. Please manually move nozzle to platform and check the gap between nozzle and platform.

Adjust screw

Adsjust spring

Butterfly screw

Gap between nozzle & hotbed

4. When the gap is more than 2mm, you need to adjust the height of Z limited switch.
Example: When the gap is 12mm , you need to adjust limited switch down by 10mm.The rest 2mm can adjust by spring on the hotbed.
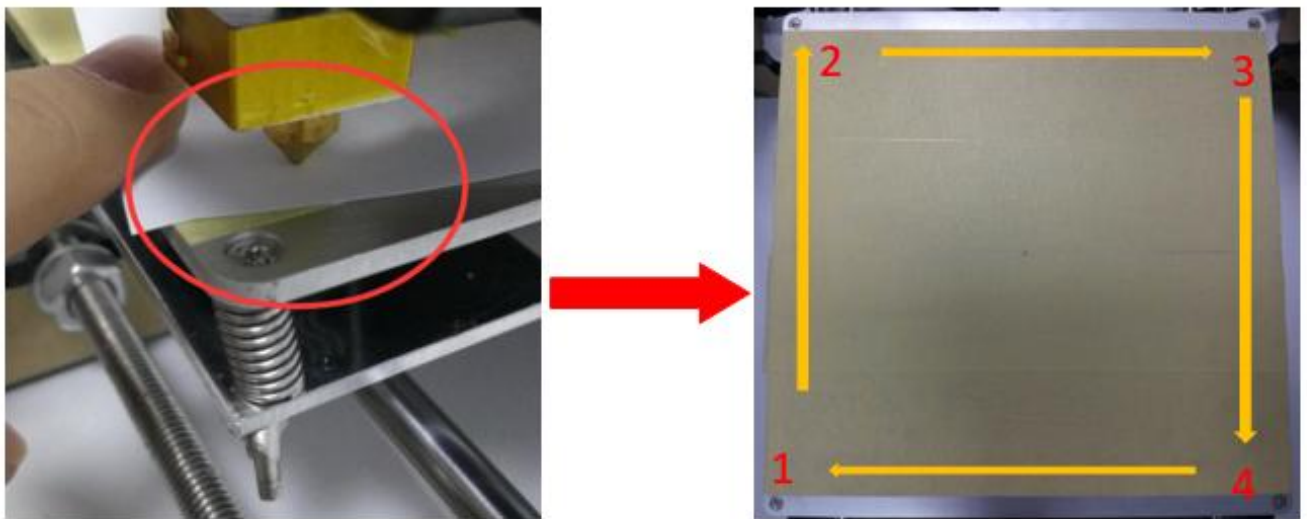
After adjustment of springs, reset printer and close stepper motor to test. Use A4 paper to test the gap.
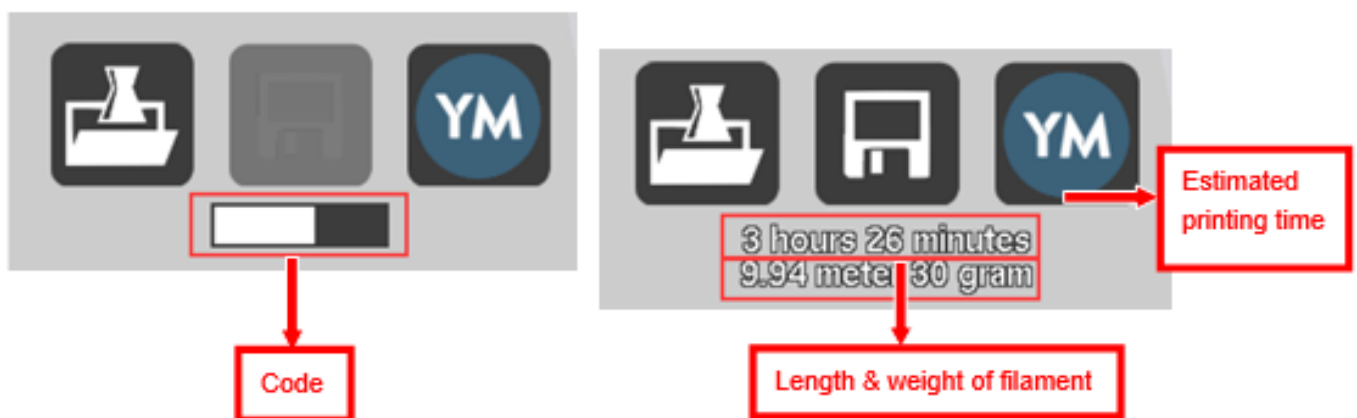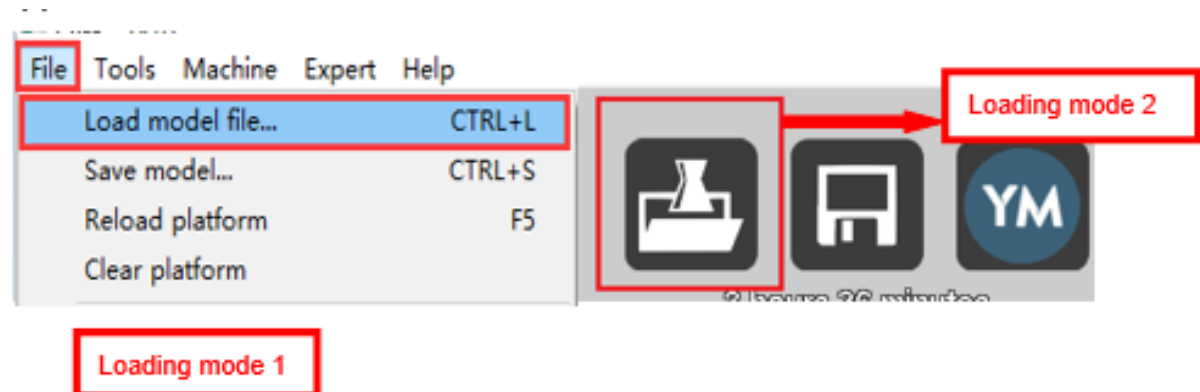Tips: When you are familiar with the printer with time going by, we can adjust while it's printing. It's because the printing speed is slow at the beginning so that there's enough time for adjustment. Meanwhile, the printing effect will be better.
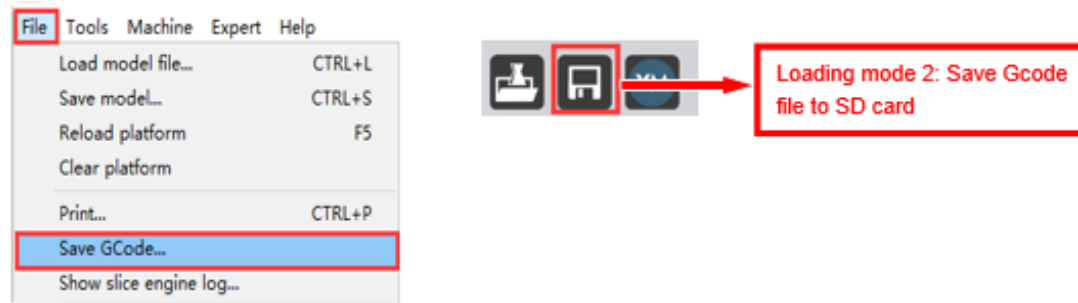
4.Printing

1) SD Card Offline Printing
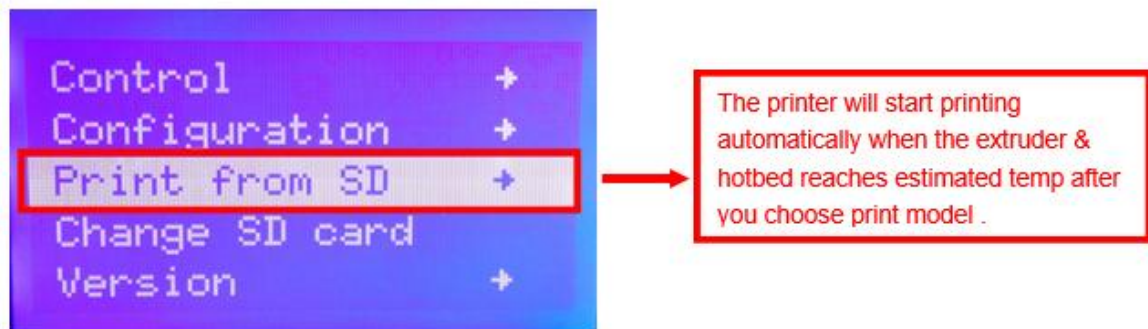
a. Loading mode

Cura supports STL file & G-code file.

b. Code Saving

Copy file to SD card . Then connect SD card to printer, click reset. Picture below shows the location of print file , there are 2 methods to find print file.

The printer will start printing automatically when the extruder & hotbed reaches estimated temp after you choose print model .
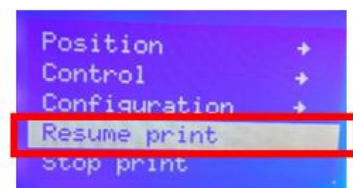
c. Introduction of Stop print , Pause print , Continue Print:
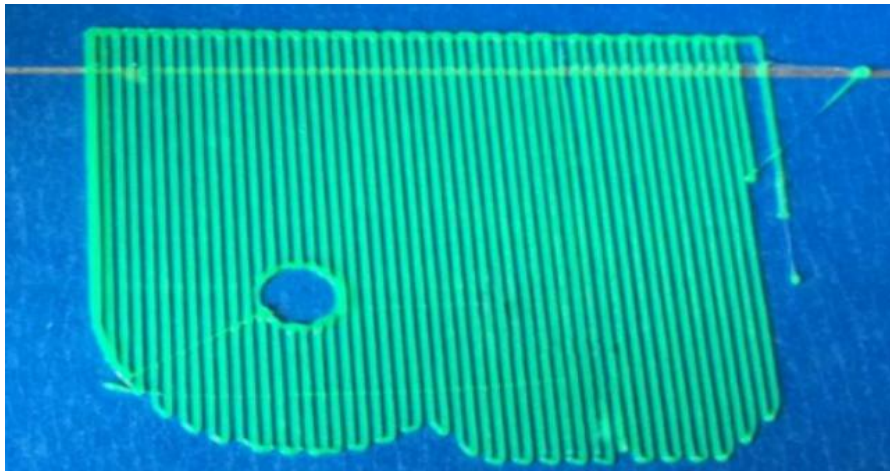Only when the printer is printing can we use Stop print, Pause print, Continue Print.
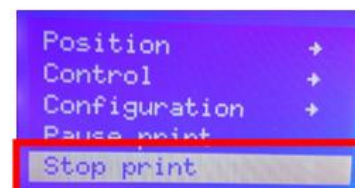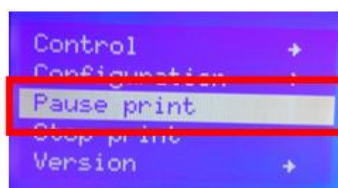
Attention:Please use the function according to your requirment .

## d.Judgment of the gap between nozzle and platform.

1. Too big gap: The printed model is uneven, curled with gap. It means the gap is too big for filament to reach the platform, making the printing effect so bad.

2. Too close gap: The printed model edge has irregular projections. It means the gap is too close to print normally. Sometimes it even cannot output filament
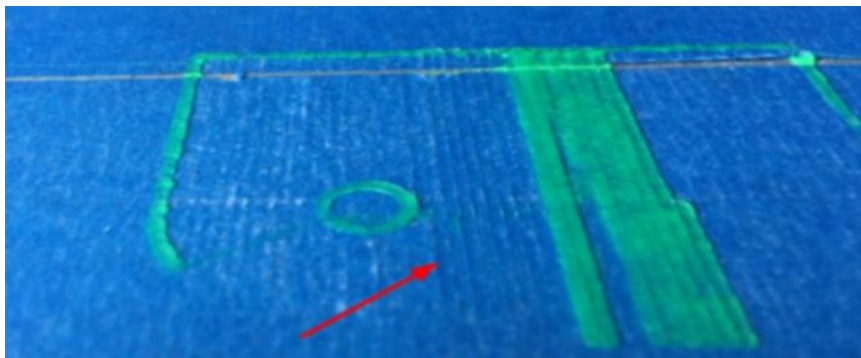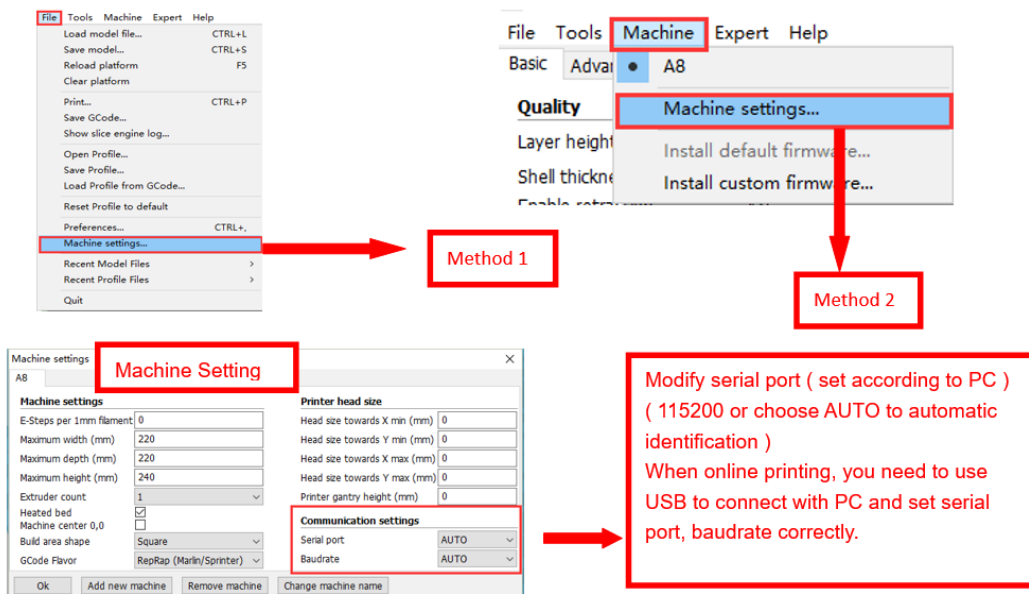

3. Appropriate distance: Printed model flat with no gap, no glitches. It means the distance is appropriate to print
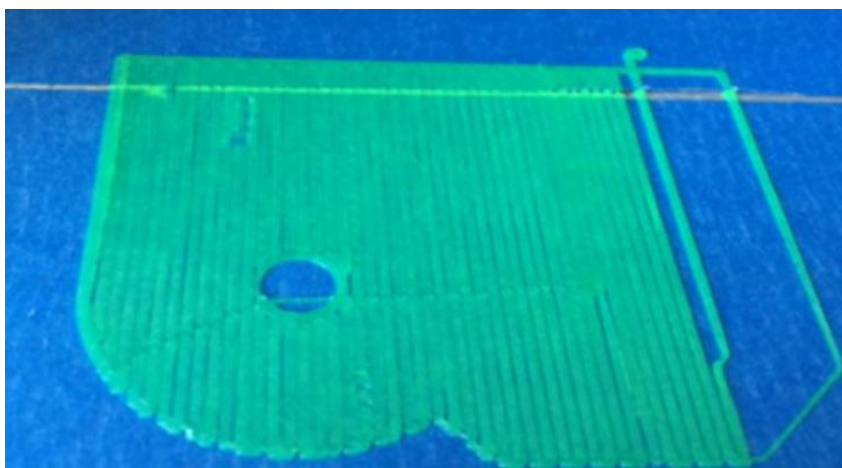
Wait to print complete after gap adjustment.

2) USB Online Printing

a. Machine settings (Use USB to connect to PC)

File Tools Machine Expert Help
Basic Adva   ● A8

Quality

Layer heigh
Shell thickn

Machine settings...

Install default firmwa re...
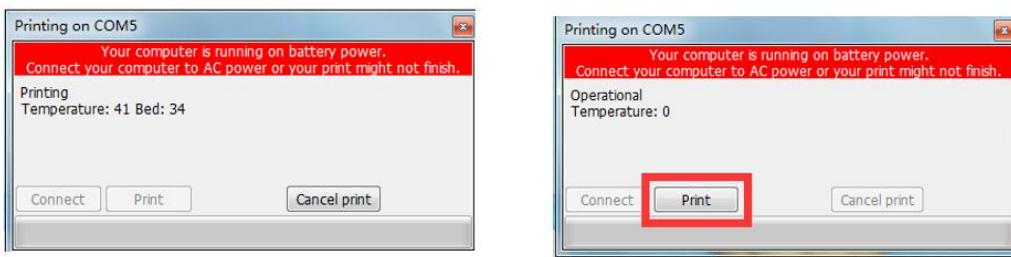Install custom firmw re...

Method 1

Method 2

Machine Setting

Modify serial port (set according to PC)
(115200 or choose AUTO to automatic
identification)
When online printing, you need to use
USB to connect with PC and set serial
port, baudrate correctly.

b. Online Pringting

Import print model, click this icon. (Icon avaliable only when it's online)

Printing on COM5
Your computer is running on battery power.
Connect your computer to AC power or your print might not finish.
Printing
Temperature: 41 Bed: 34

Connect   Print   Cancel print

Printing on COM5
Your computer is running on battery power.
Connect your computer to AC power or your print might not finish.
Operational
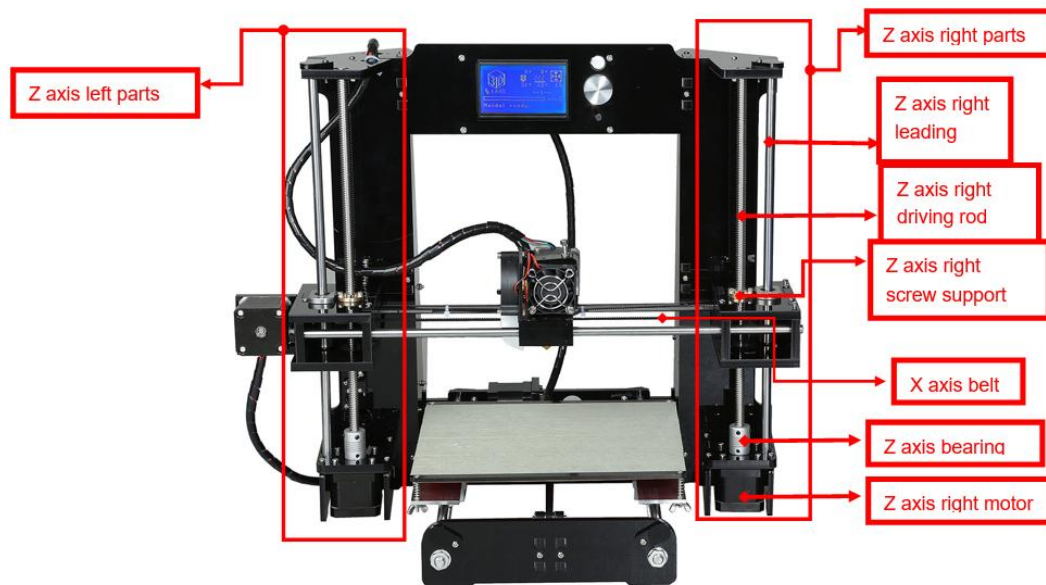Temperature: 0

Connect   Print   Cancel print

The printer will start printing automatically when the
extruder & hotbed reaches estimated temp after
you choose print model. You can also modify temp
in this interface.

E. **FAQ**

1. Z Axis Ajustment
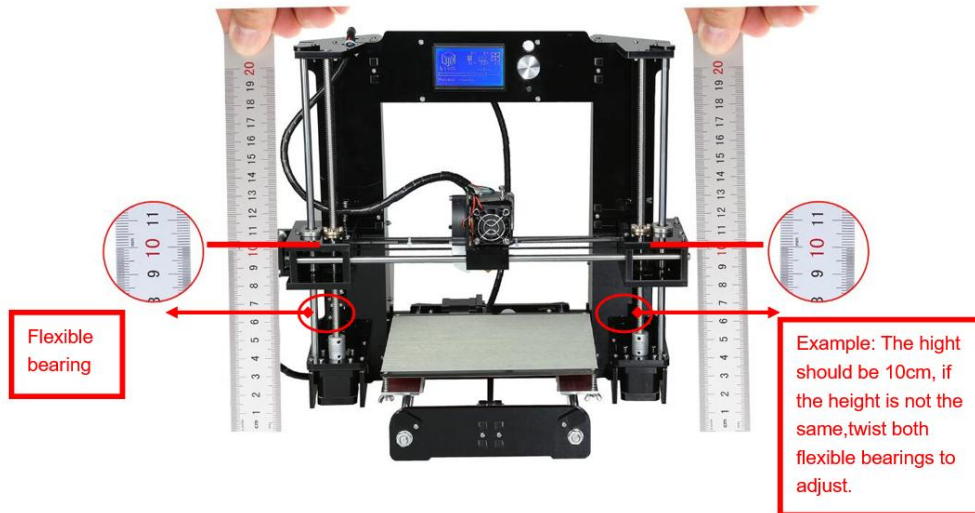
During installation, we need to test moving parts:

1.

Use right Z axis for reference as shown above.
Reasons for Z axis's not smooth movement:
1. The height of both Z axis screw support is apprently different.
2. Large deviation of leading rod and motor rod'sconcentricity.
3. X belt is too tight.

Preparation: Before Z axis moving adjustment, please confirm the height of both Z aixs screw support is the same. (Keep the same height of two white parts)
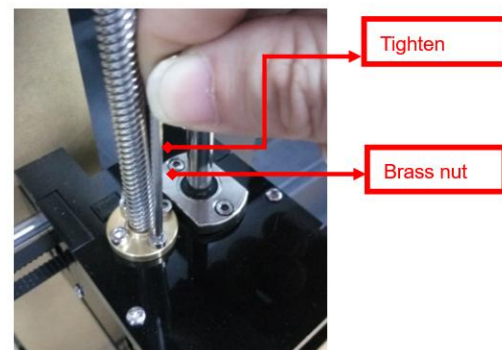
Flexible bearing

Example: The hight should be 10cm, if the height is not the same, twist both flexible bearings to adjust.

2. Ajust concentricity

1. Click to adjust Z axis to move (Position → Z pos.Fast → +/-). If it cannot move smoothly, you need to adjust the unsmooth side's screw support. Try to keep them at the same height.
2. We can also tight/loose the Z motor screw according to requirments. This is to correct the deviation in the first time installation. Please take steps as follows to lock screws,

Tighten
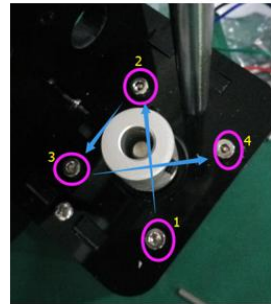
Brass nut

Tighten

Brass nut
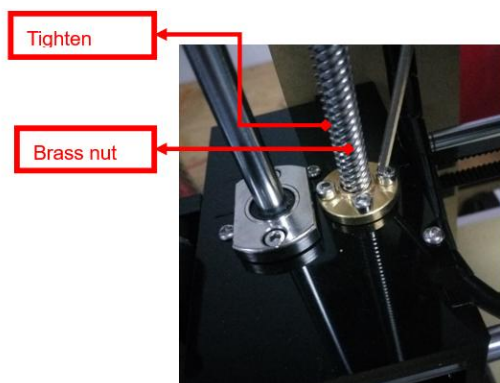
Z axis left screw support   Z axis right screw support
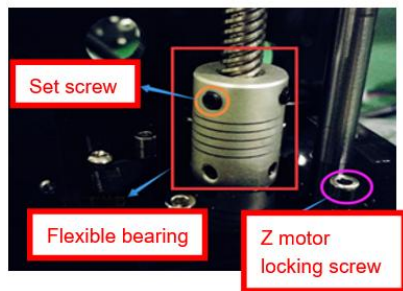
Z motor & Flexible bearing

Z motor screw locking sequence

1. Nozzle blocking

Tips: We have removed fan to show obviously. Please cosider movement according
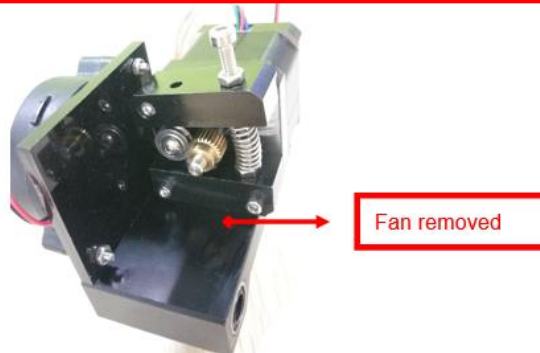
A. Only a little filament left in the nozzle and difficult to take out:

Leave filament out of spout

Operation

Choose Preheat (PLA as example) and wait temp to rise.

```
Info Screen      ⬍
Prepare          →
Position         →
Control          →
Configuration    →
```

```
Main             ⬍
Preheat PLA
Preheat ABS
```

Extruder screw

Extruder briquetting
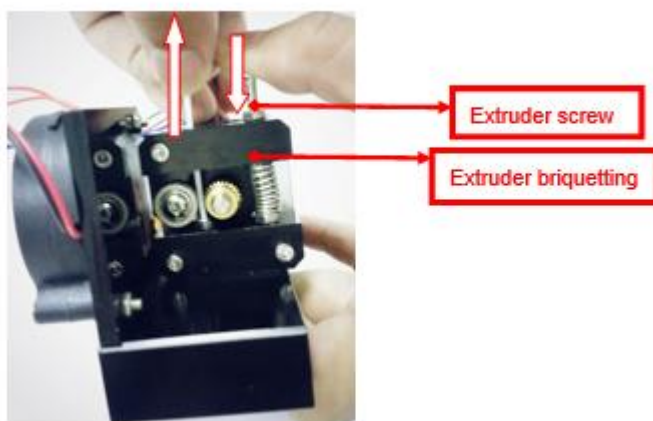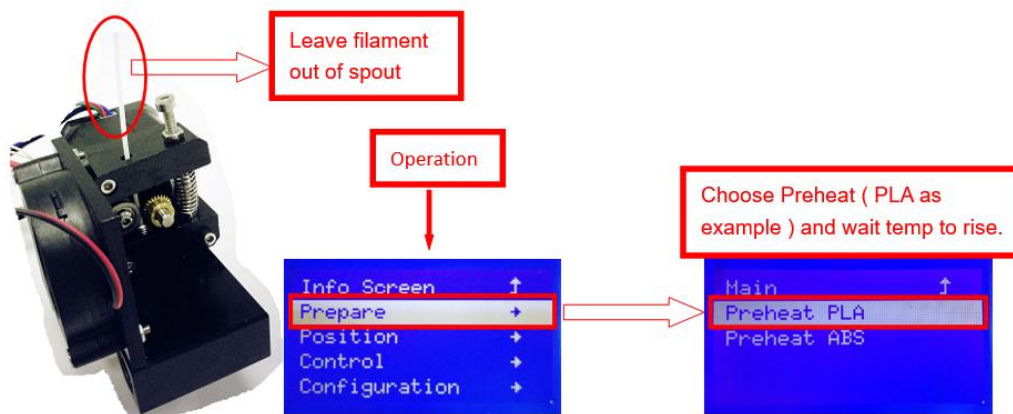
B. Filament full filled in spout

Leave filament in the spout

Press 1 , then press 2 , stick filament into spout

Allen wrench

Use the minimum allen wrench or some filament (1.75mm), press aligned with the remnant filament until filament comes out through nozzle.
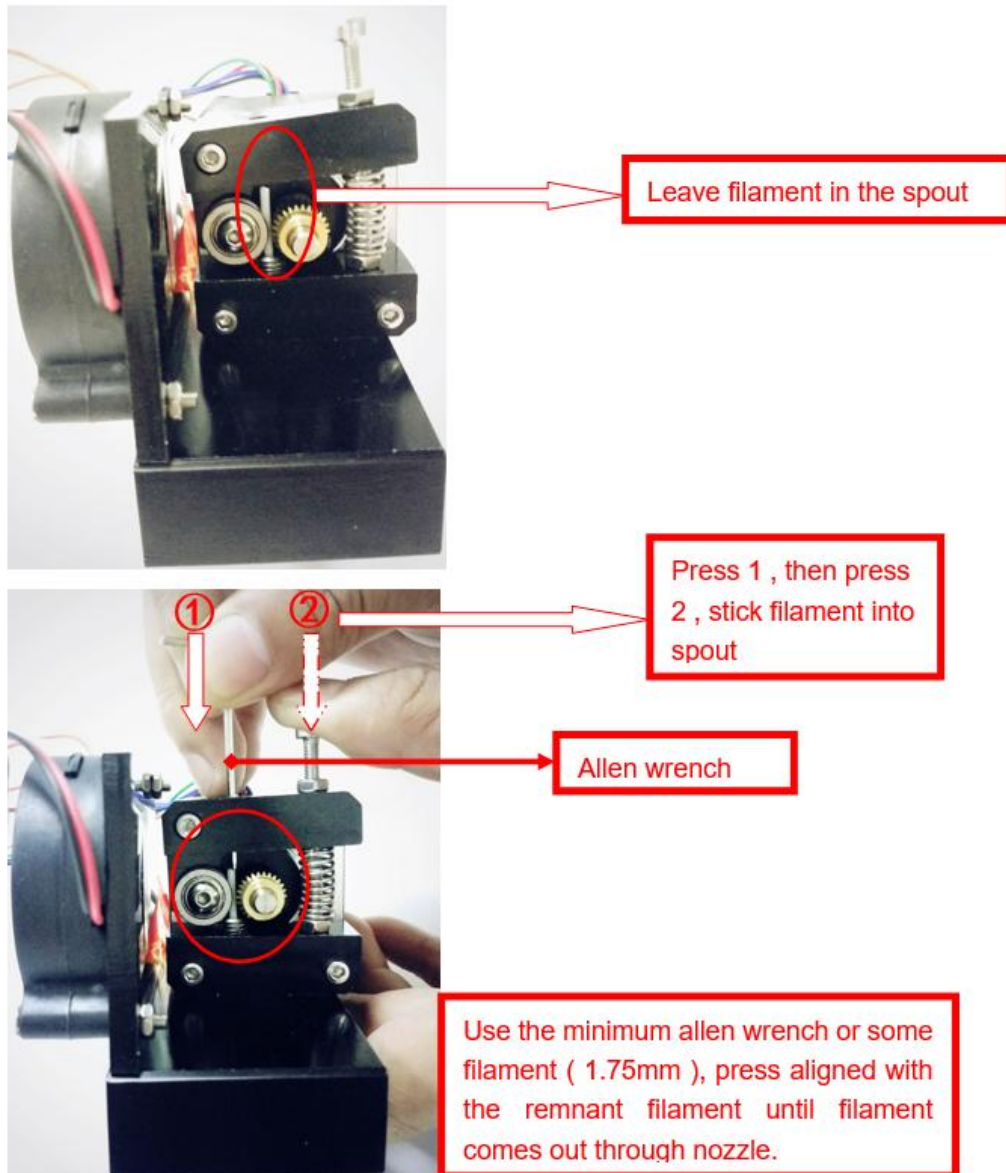
3.FAQ

No.	Symptom	Reason	Method
1	Print model dislocation	Synchronous wheel/belt loose.	Tighten set screws or fasten belt
2	Glitch with the print model	Too high temp or slicing problem.	Extruder temp is too high and retracting speed & distanse is too small
3	Foamy print model	Low temp or not smooth filament entering.	Rise extruder temp or check if brass nut and bearing is good. Replace a nozzle if methods above can't solve the problem.
4	Printer model is warped	Hotbed level isn't well adjusted.	Adjust hotbed
5	Unavaliable G-code tramsformation	Wrong setting/wrong save path	Choose right machine type and change the right path
6	Software installation failed	Different OS	Reset OS
7	Unusual temp	Broken temp sensor	Change a new one

Ⅵ. Maintenance

Important maintenance tips:

1. maintenance of X,Y,Z axis: Add some lubricants on the rods to reduce friction when the machine works noisy and a little bit shake.

2. Please refer to the USER MANUAL before printing, do preparation of hot bed adjustment first.

3. When finished printing, the filament should keep sealing, avoid moisture.

4. Preheat the extruder at the beginning of 2 nd time printing, let extruder auto-push filament for a while.

5. Machine should do some regular maintenance, drop some lubricating oil on thread rod, polished rod and bearings to avoid fatigue wear.

6. Do not let the fan and air-condition blow to the hot bed when printing.

7. Keep the working condition at "Temp:10-30℃，Humidity:20-70%".

Ⅶ. Maintenance Service Provision

1. This product executes regulations of "Product Warranty Card".

2. Please contact supplier or customer service if the product have any problems . Do not repair it by yourself, otherwise you need to bear all the consequences.