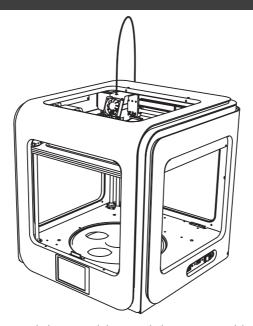


# **CoLiBo**™ Cubic **3D Printer**

# **USER MANUAL**



\* Carefully and thoroughly read this manual before using View us at www.colido.com











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## **USER MANUAL**



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# **Chapter 1 Introduction**



This User Manual is designed to start your journey with CoLiDo Desktop 3D Printer in the right direction.

In Chapter 1~5, you can learn the basic knowledge of CoLiDo Desktop 3D Printer, how to unbox safely, how to setup correctly. In Chapter 6~7, you can learn how to calibrate the platform, how to print, how to maintain and how to troubleshoot.

Welcome you to the world of CoLiDo Desktop 3D Printer.

Following this manual will help you fully understand the Printer and make amazing products.

# **Chapter 2 Safety and Compliance**



In this manual, Safety Alert Symbol will be marked in the start of safety message. The Safety Alert Symbol means potential safety hazards which will possibly harm you or others and cause product or property loss.

# Safety Alert Symbol



WARNING: HOT SURFACE, DO NOT TOUCH
Desktop 3D Printer has high temperature when working.
Make sure the Desktop 3D Printer cool down before touching inside.



WARNING: HAZARDOUS MOVING PARTS, KEEP FINGERS AND OTHER BODY PARTS AWAY

The moving parts of Desktop 3D Printer will possibly cause harm. Do not touch the Desktop 3D Printer inside when the printer is working.



CAUTION: Be careful when using Print-Rite unapproved material, which may damage Printer and impact print quality.



CAUTION: Disconnect power plug from power socket during emergency.



CAUTION: Power socket must be located near the Printer and within reach.



CAUTION: Place Desktop 3D Printer in well-ventilated area as it will melt plastic and emit plastic odor when printing.

# **Chapter 2 Safety and Compliance**



## Interference of Radio and Electromagnetism

The Printer has been tested and certified to comply with the restriction of FCC Part 15, which is related to Class B digital facility.

The restriction is designed to provide reasonable protection against harmful interference in residential area when install the Printer. The Printer will generate, apply and radiate Radio Frequency Energy. If the Printer is not installed and used in accordance with the manual, it may cause harmful interference to radio communications. However, there is no warranty to the interference if the Printer is installed in a special environment. If the Printer does cause harmful interference to the receiver of radio or television, which can be determined by turning on and turning off the Printer, the user is suggested to adopt below one or more methods to eliminate the interference:

- 1. Change the orientation and location of the receiving antenna.
- 2. Increase the distance between the Printer and the receiving device.
- 3. Connect the Printer and the receiving device separately with two power sockets in different power supply circuit.
- 4. Get help from the dealer of the Printer or an experienced radio/ TV technician.



# **Chapter 3 Specification**



## **Printing**

Print Technology: Fused Deposition

Modeling

Construction Dimension: 200\*200\*195mm

Layer Resolution Setting: 0.05~0.4mm

Positional Accuracy: XY: 0.011mm

Z: 0.0025mm

Filament: PLA/TPU

Filament Diameter: 1.75mm Nozzle Diameter: 0.4mm

## Mechanical

Frame: Steel

Platform: Aluminum+ Platform Sticker

XYZ Bearing: Steel Stepper Motors: 1.8° step angle,

1/16 micro-stepping

## **Electrical**

Storage Temperature: 0 °C ~ 32 °C [32 °F~ 90 °F]

Operating Temperature: 15 °C ~ 32 °C [60 °F~ 90 °F]

Power: 96 W

Input Voltage: DC 24V 50/60HZ

## **Dimension**

Printer Size: 321\*329\*388MM

Package Size: 420\*412\*517MM

Net Weight: 9 KG Gross Weight: 12KG

## Software

Software package: REPETIER-HOST

File Type: .STL, .GCO,. OBJ

Operating System: WINDOWS 7 or above, MAC OS

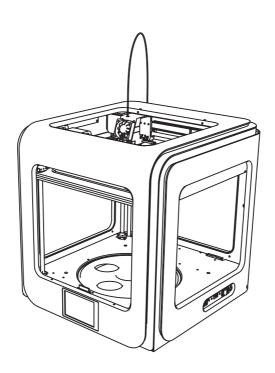
Connection: USB Flash Drive

# **Chapter 4 Print Principle**



CoLiDo Desktop 3D Printer makes solid, three-dimensional objects by melting PRINT-RITE PLA filament.

The designed 3D files are converted into CoLiDo command through computer software "Repetier-Host" and sent to the CoLiDo printer via USB flash drive Cable. Then, the printer will heat up and melt PRINT-RITE PLA/ABS filament and push it out from the nozzle to make a solid object layer by layer. This method is called Fused Deposition Modeling or FDM.



# Chapter 5 Set up CoLiDo Printer



Before setting up CoLiDo Printer, please note that the Printer has been inspected and packed carefully at the manufacturing facility.

Hope you can take more time to unpack carefully and set it up.

# 5.1 Unpack CoLiDo Printer



CAUTION: Do not forcely tear anything when unpack and setup CoLiDo Printer. It may damage the Printer.

- Place the printer package box on a dry and flat surface when opening.
- 2 Take out all accessories inside the Printer box.
  Please refer to the Accessory Checklist at next page.

NOTE: In case there are any missing accessory, kindly email the Printer serial number, name and qty of missed accessory to support@colido.com

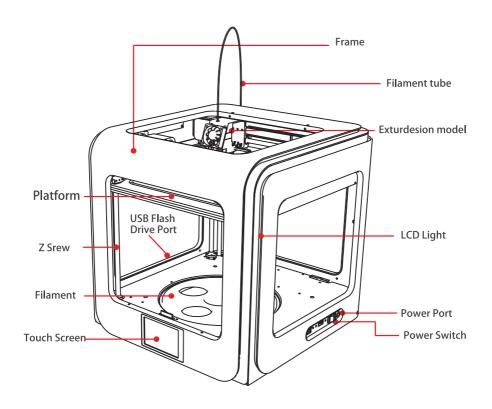
# **5.2 Accessory Checklist**



PLA Filament 250g	
Spool Holder 1PC	
Printing Chamber Cover 1PC	
Power Cable 1PC	
Adapter 1PC	
SD card 1PC	
Tweezers 1PC	
Scissors Pliers 1PC	
Wrecnch 1PC	3
Utility knife 1PC	
Putty knife 1PC	
Tools 1 Set	
Test Sheet 1PC	







# 5.4 Take out CoLiDo printer from the Packaging box PRINT-RITE

5.4.1 Carefully lift up the printer when taking it out of the box. Place the Printer on flat ground and carefully remove the package foam and bag of the Printer as shown on picture.





NOTE: Do not pull or twist the cable at any time.

5.4.2 Remove the tape used scissors pliers then take out printing chamber cover inside the printer.



NOTE: Please keep the packing material in good shape. It will be re-used in the future to avoid unnecessary damage during transportation.

# 5.4 Take out CoLiDo printer from the Packaging box PRINT-RITE

5.4.3 Connect Power Cable to the Printer。

Plug-in the power cable to AC power source.



NOTE: Make sure printer switch is at "O" position.

5.4.4 Power on the printer by switching to "I" position as shown.

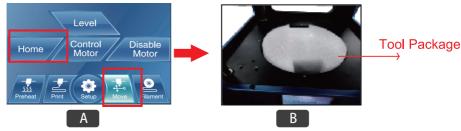


CAUTION: Only use the Power Cable included in the package.

Power Supply Socket should be near to the Printer, such
the power can be disconnected easily in case of emergency.

5.4.5 Touch the screen "Move" to go to "Move" sub-menu (Fig A).

Touch "Home", the printer head will go to HOME position, also the platform will be lifted up to remove the tool (Fig B).



5.4.6 Find the USB flash drive from the toolkit.Properly insert the

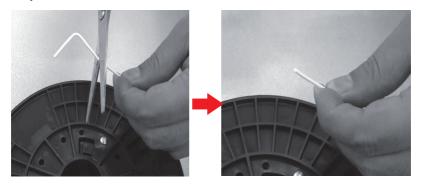
SD card in USB Port.



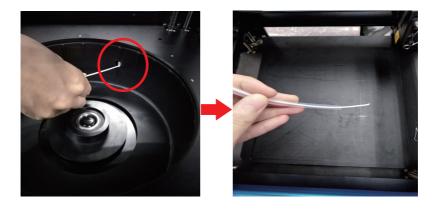
5.5.1 Take out filament from the box and remove the vacuum bag.



5.5.2 Gently pull the filament and cut the filament tip flat using scissor for easy installation.



5.5.3 Insert filament into the Filament tube (see below picture) until it comes out from the other end of the tube.



## 5.5 Install Filament

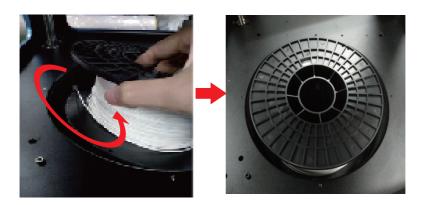


5.5.4 Insert the filament into the hole located on the top of Printer Head.

It is better to make the filament more straight and insert it until reach the end of the nozzle.



5.5.5 Intall filament aiming at the bump the inside of the printer.





# Initial display of LCD Panel



## 6.1 Nozzle & Filament Test

6.1.1 Touch the screen to go to the main menu and you can see five submenus (Fig A)





6.1.2 Touch the screen "Filament" to go to "Filament" sub-menu (Fig B).

Touch "Load" (Fig B).waiting for the nozzle heat up as picture(Fig C).





6.1.3 Once the nozzle actual temperature reaches the setting temperature, the filament will auto load into the nozzle and flow out from the nozzle. Check the melted filament flow condition base on below instruction.

## 6.2 Calibrate Platform



Good condition:

The melted filament flow out smoothly and continuously from the nozzle.





No Good condition:

The melted filament do not flow out smoothly and continuously from the nozzle. **Note:** If the filament flowing is in No Good condition, check the following.

- a. Nozzle Temperature must be the equal the set temperature and according to the filament material melting temperature.
- b.Filament Insertion on the receiving port correctly .If problem still occur kindly email support@colido.com

## 6.2 Calibrate Mode

6.2.1 Touch "Move" to go to "Move" submenu. (Fig A)





6.2.2 Touch "Calibrate Platform", the printer head will go to HOME position, also the platform will be lifted up (Fig C).







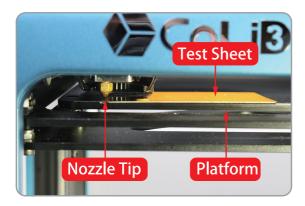


6.2.3 Touch "NEXT", the printer head will go to the 1st locatio Point 1 (Fig D).





- 6.2.4 Start to calibrate the table and nozzle.
- 6.2.5 Use the test sheet to check the gap between the nozzle tip and the platform. (Fig E)



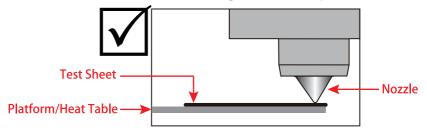
Ε

## 6.2 Calibrate Platform



#### 6.2.6 Calibration Standard Condition:

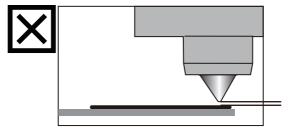
The paper must be lay down flat in the platform, and the test sheet must be touching the nozzle tip.



Note: If the calibration standard condition is not met, platform level must be adjusted.

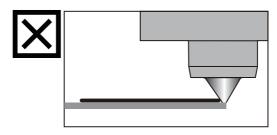
Condition 1: There is a gap between the nozzle tip and the test sheet.

Adjustment 1: Rotate the adjusting knob under the platform clockwise until the test sheet just touch the nozzle tip as standard condition.



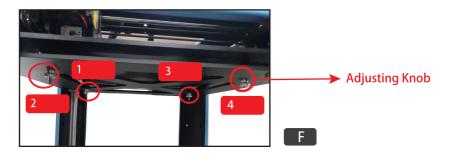
Condition 2: The test sheet is over the nozzle tip.

Adjustment 2: Rotate the adjusting knob under the platform counterclockwise until the test sheet can just touch the nozzle tip as standard condition.





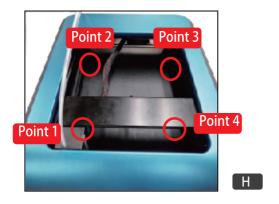
The adjusting knob location as picture F (total 4PCS).



6.2.7 After rotate the adjusting knob to meet the Calibration Standard Condition, Touch "Next Step" (Fig G) to go to next point to calibrate.



6.2.8 Follow 5.7.4.1 procedure to calibrate point 2,3 and 4 as picture H.

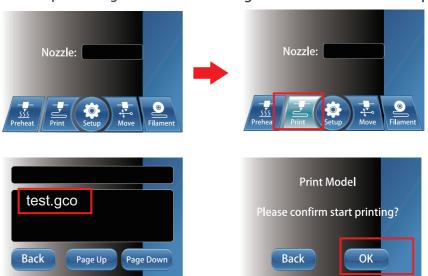






6.3.1 Touch the screen to go to the main menu and you can see five submenus.

Touch "print" to go to select the test.gco file to touch "OK" to print.



6.3.2 Once the nozzle temperature reach the setting temperature, the heating is done and the printer start to print.

Finish printing the test file, the nozzle will start to cooldown.



NOTE: The printer just can read the G-code (GCO). You can print .GCO file with USB flash drive directly.

Otherwise, you can convert .STL file to .GCO file using software REPETIER-HOST, then save the GCO in USB flash driver to print directly .

## 6.3 Print test with USB flash drive



6.3.3 Finish printing the test file, the LCD Display will show as picture .

The nozzle will start to cooldown.





- 6.3.4 Print menu
- 6.3.4.1 "Print" is to select the print file from USB Flash Drive to print as fig A,fig B.





Touch the print file that you want to print (.GCO file and touch "OK" to start to print the file .Once the nozzle temperature reach the setting temperature, the printer start to print as fig C,fig D.





## 6.3 Print test with USB flash driver



#### 6.3.4.2 Pause Printing Feature:

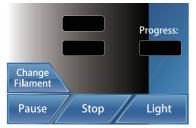
- 1. Touch screen to select "Pause";
- 2. Touch screen to select "Resume" to resume print.





### 6.3.4.3 Stop Printing Feature:

- 1. Touch screen to select "Stop Print";
- 2. Once stop, the printer head will go to home postion. the nozzle temperature will cooldown.





#### 6.3.4.4 Adjust Printing settings Feature:

During printing, touch to select "Nozzle". You can adjust the setting temperature, print speed and nozzle fan.

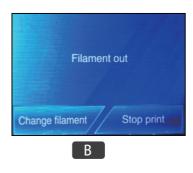
# 6.4 Filament detector and Recovery system



#### 6.4.1 Filament detector

When filament used up or broken, the printer will stop print and sreen disply will shown as Fig. A. Please prepare new filament and select "OK" (As Fig. B). Please refer chapter 5.5 to intall new filament.





#### 6.4.2 Recovery system

When meet power failure:

Situation 1: If need to continue print after power failure, After reconnect power, touch select "OK".

Situation 2: If need to re-print object, select "Back".







"Filament" has two submenus: (as picture a)

Load Filament Unload Filament

a

6.5.1 Select "Load Filament" and "Next Step", proceed auto load filament as below picture b~e.



touch "Load" and heating up the nozzle temperature to the setting temperature.





Once the nozzle temperature reachs the setting temperature, loading the filament.





The filament will be auto loaded into the nozzle and flow out from the nozzle. Refer to 5.6, check the filament flowing condition. After checked, touch "ok" to stop flowing.

d

## 6.5 Filament Menu



6.5.2 Select "Unload" as fig f, proceed auto unload filament as fig g~k..



Heating up the nozzle temperature to the setting temperature.





Once the nozzle temperature reachs the setting temperature.

The filament will be auto unloaded from the nozzle.





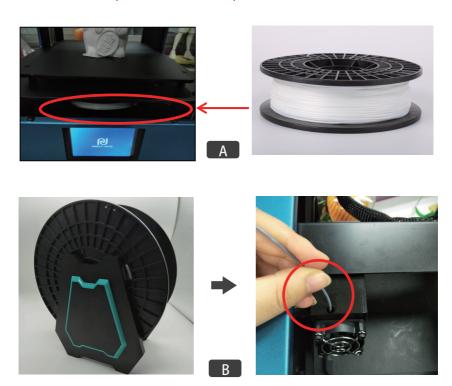
h

Filament unload finish, touch "OK". Remove the filament from the printer head easily.

# 6.5 Filament Menu



**NOTE:** When you change the filament , if the internal tray cannot be removed as picture A. You can use the spool holder as below picture B~C.





C



## Set Up Menu



There are 5 submenus under "set up" as below picture I~5:

- 1、Filament Detection → When filament used up or broken, the printer will stop print Please prepare new filament and select "Resume print" (Refer to 6.4)
- 2. INFO  $\rightarrow$  to refer to the printer basic information.
- 3、 Z Measure→Measuring Z-axis height.
- 4、 Touch Caliration→Touch screen display calibration.
- 5、Language→ Currently it can select "Simplified Chinese" and "English" .

## Preheat Menu



There are 2 submenus under "Preheat" as below picture I~2:

- 1. Preheat →Heating the temperature of t the nozzle to set up temperature.
- 2. Cooling → Cool down the temperature of t the nozzle to room temperature.

## 6.7 Move Menu

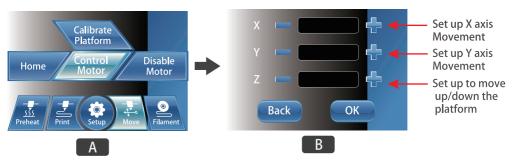




There are 4 submenus under "Move Menu" as below picture 1~4:

- 1、Calibrate Platform→ Printer calibrmation and test (Refer to 6.2).
- 2、 Home→Printer Head will go to initial home position.
- 3. Control Motor→Move up/down the platform in Z direction, It can be set 0~195mm. The printer head can move left and right.
- 4. Disable Motor→Unlock X/Y/Z motors, can move the position of the platform and the printer head manually.

#### 6.7.1 Control Motor menu



Setting method: touch the screen to go to submenu, through "+" or "-" to set the value, touch "OK" to confirm as picture A $\sim$ B.

## Chapter 7 Install and set up REPETIER-HOST to print



If you want to print files from computer, you need install REPETIER-HOST. Computer Operation System: WINDOWS 7 or above, MAC OS



REPETIER-HOST is a software which is used to slice the 3D models (.GCO or .STL) and command CoLiDo Printer to print.

## 7.1 Install REPETIER-HOST (WINDOWS)

Find "setupColido-RepetierHost\_2\_0\_1 .exe" in USB Flash Driver, double click to start.

Select Setup Languange to use during the installation.

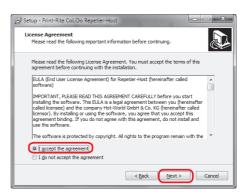
NOTE: For the actual version of the software, please refer the version in the USB flash drive.



2 Start to install. (You will be asked "Do you want to allow the following program to make changes to this computer?", please click "Yes" to continue installation.



Click "Next"

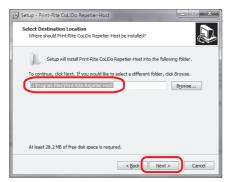


Click "I accept the agreement" Click "Next"

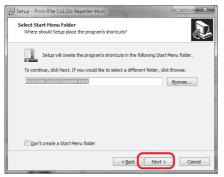
# 7.1 Install REPETIERHOST (Cont.)



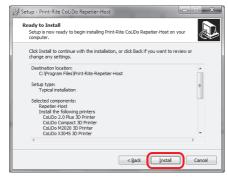
Select a destination to save the software and select the components should be installed, then click "Next" and "Install".



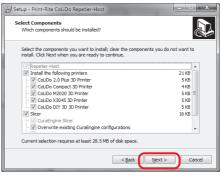
Click "Next"



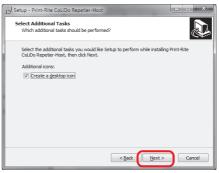
Click "Next"



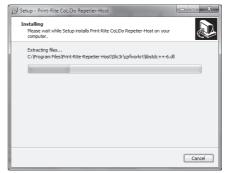
Click "Install"



Click "Next"



Click "Create a desktop icon" Click "Next"



if antivirus message appear, please allow the operation timely.

## 7.1 Install REPETIER-HOST (Cont.)



Click "Install Arduino driver", "Install FTDI serial driver" and "Launch Print-Rite CoLiDo Repetier-Host" and then click "Finish".



Click "Finish"

**5** Install Arduino drivers.



Device Driver Installation Wizard

The drivers are now installing...

Please wat while the drivers install. This may take some time to complete.

Click "Next"



Click "Finish"

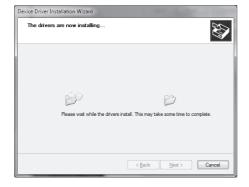
## 7.1 Install REPETIER-HOST (Cont.)



6 Install FTDI Drivers.



Click "Extract"



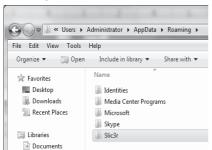


Click "Next"



Click "Finish"

Find the configure folder "Slic3r"in USB flash driver, copy it to the computer path: "C:\Users\\*\*\*\*\*\*(User Name)\AppData\Roaming"as below to replace the original "Slic3r"..

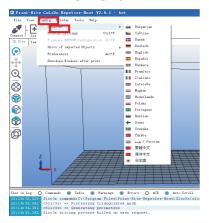


NOTE: "AppData" folder maybe will be hided in the computer. Please click "show hidden files, flolders, and drivers" in "Folder Options".

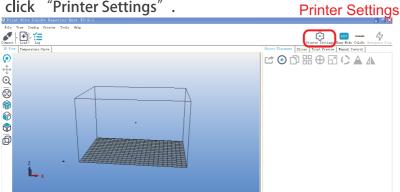
# 7.2 REPETIER-HOST Setup



- 1 double click 2 , to go into "Repetier Host" software.
- Select language you want in the software, "Config" "Language".



**3** click "Printer Settings".

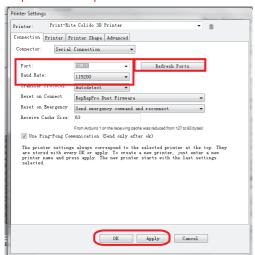






Printer Settings as below picture, Baud rate: 115200. Click "Refresh the port" and then select the latest correct COMx.

**NOTE:** COMx depend on different computer or different 3D printer you are using. Different 3D printer has different COMx. COM1 cannot be selected as it is the desk computer default port.



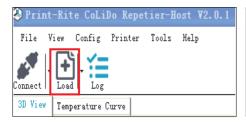
**5** Left click "Printer Shape" and set parameter as below picture. After filled, click "Apply" and "OK".

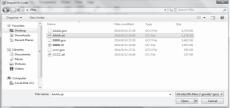






**6** Click "Load", select the print file that you want to print the .stl fomat and click "Open".



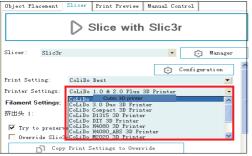


Select the print effect that you want to print, select PLA filament that you are using. Then click "Slice with Slic3r" to generate G-code.



Step1: Select "Slic3r"

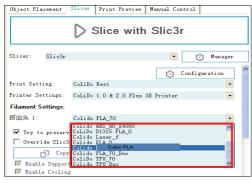
Step 2: Select the effect that you want to print CoLiDo Cubic Best - For small object CoLiDo Cubic standard - For big object CoLiDo Cubic support - For the model adding support



Step 3: Select printer type "CoLiDo Cubic 3D Printer" you are using.

# 7.3 Print with Repetier-Host (Cont.)





Step 4: Select Extruder base on the PLA filament you are using

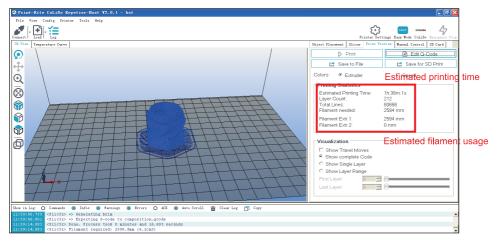
CoLiDo Cubic PLA

- For PLA Filament with platform temp 0°C



Step 5: Click "Slice with Slic3r" to slice the file to generate g-code

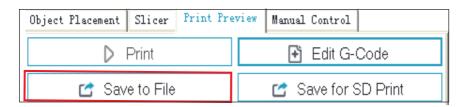
After slice, you can see the estimated printing time and filament usage. Also, you can see the printed shape of the object in the "3D View".







Click "Save to file".



10 Through the USB flash driver to print as picture A~ C(refer to 6.3.4)

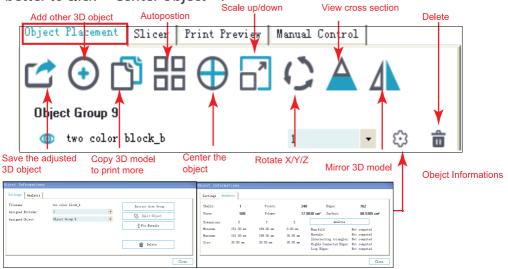




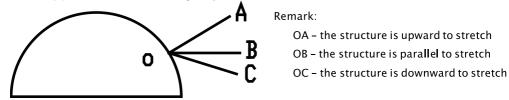
# 7.4 Repetier-Host Basic 3D Printing



1. 3D object can be adjusted such as scale down/up X/Y/Z, rotate X/Y/Z, copy, mirror, autoposition and split before slice. After adjusting the object, It is better to click "Center Object".



2. For 3D printing layer by layer base on FDM process, we suggest printing the model with OA structure. If printing the model with OB or OC structure (Call Overhang Printing), the parallel or downward layer will fall down on the model or on the platform due to no supporter to the layer. So, you need add supporter for overhang object.



3. The 3D model must be closed surface or line to print base on FDM process. If below message appeares, it is better to repair the object before printing. Recommend repaire website: https://netfabb.azurewebsites.net.

The object is not manifold. This essentially means, that it is not watertight. This normally causes problems during slicing, resulting in unwanted results. We strongly advice to repair the file. One free repair service is: https://netfabb.azurewebsites.net



# 7.5 Repetier-Host Advanced 3D Printing

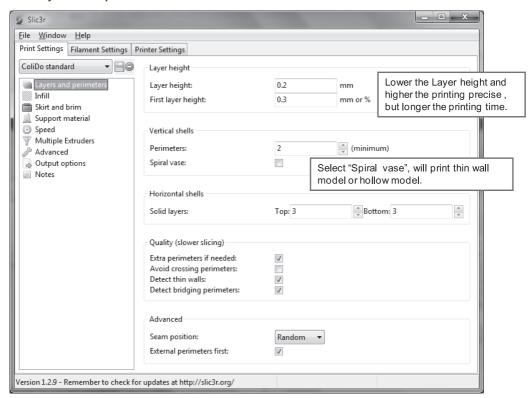
### 7.5.1 Slic3r settings

For printing setting, you can click "Configuration" to review or have your customized "Print/Filament/Printer Settings" in Slic3r for advanced user.



### 7.5.1.1 Print Settings (For example "CoLiDo standard")

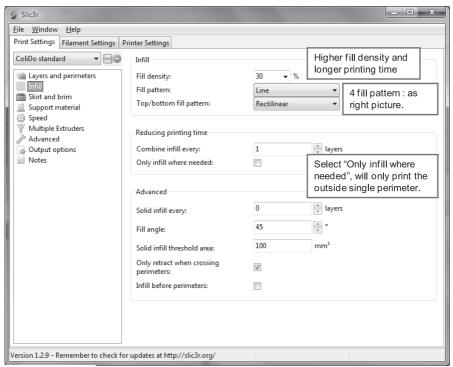
#### a. Layers and perimeters



# 7.5 Repetier-Host Advanced 3D Printing



#### b. Infill







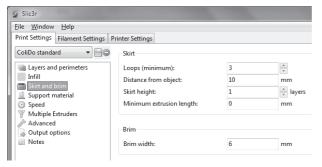
Rectilinear

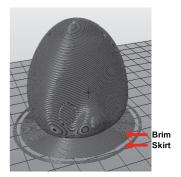




Honeycomb

c. Skirt and brim

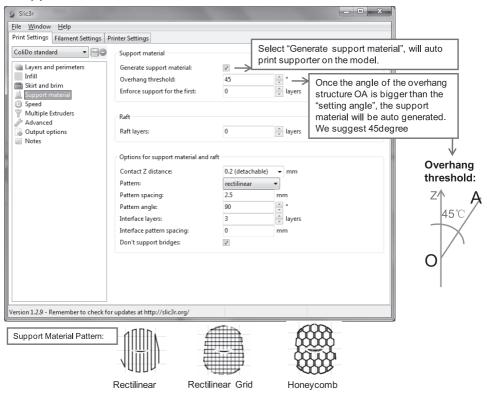




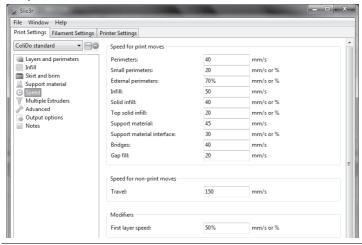




### d. Support Material



#### e. Speed

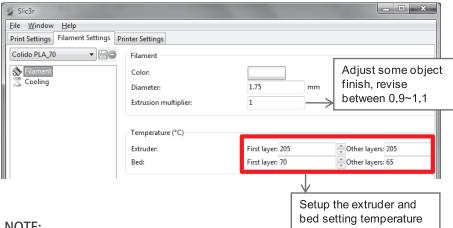




# 7.5 Repetier-Host Advanced 3D Printing

## 7.5.1.2 Filament Settings (For example "CoLiDo PLA\_70")

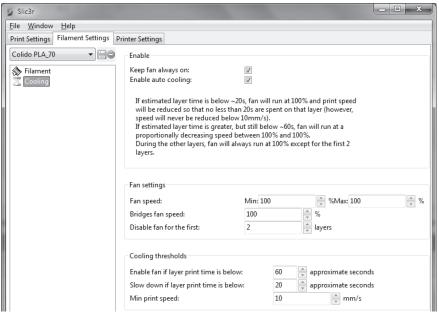
#### a. Filament



#### NOTE:

To revise the temperature, need click the up/donw narrow instead of revise the number directly.

### b. Cooling

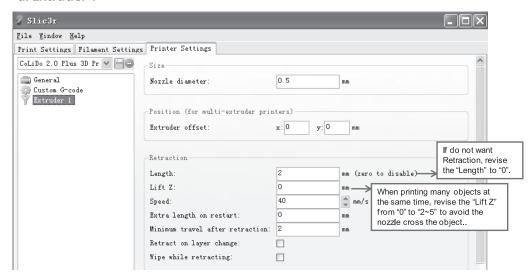




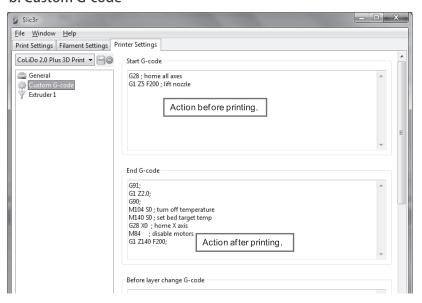


## 7.5.1.3 Printer Settings

#### a. Extruder 1



#### b. Custom G-code

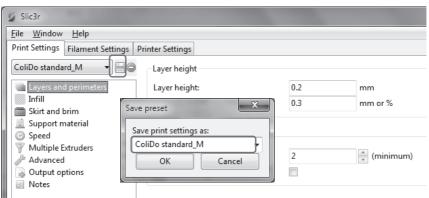


# 7.5 Repetier-Host Advanced 3D Printing



### 7.5.1.4 Save the settings

If you want to save the revised settings, click "Save" and have customized name. Then you can select customized name/settings when you slice.



#### 7.5.2 Other Skills

a. Design supporter on the 3D model to aviod overhang structure (the supporter can be easily removed.)





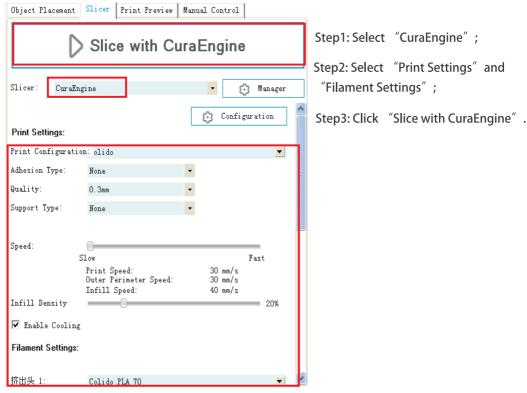
- b. When printing the hollowed-out object, it is better to lower the nozzle temperature by  $5\sim10$  degrees to avoid silky threads.
- c. If the object is bigger than the printer printing area, it is better to divide the object in several parts to print, then assemble together.
   If the object is smaller, it will easy moving on the platform and offset, it is better to copy printing several objects at one time.
- d. The printing environment has minor impact on the filament sticking condition. If cold printing environment, it is better to increase the nozzle temperature  $5\sim10^{\circ}\text{C}$  and vice versa.

# 7.5 Repetier-Host Advanced 3D Printing

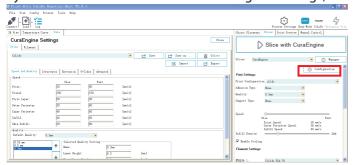


## 7.5.3 CuraEngine

It is another slicer software to convert 3D model to g-code.



If you want to view or customize CuraEngine settings, cilck "Configuration".



If you need more assistance, kindly please contact with us: Email: support@colido.com