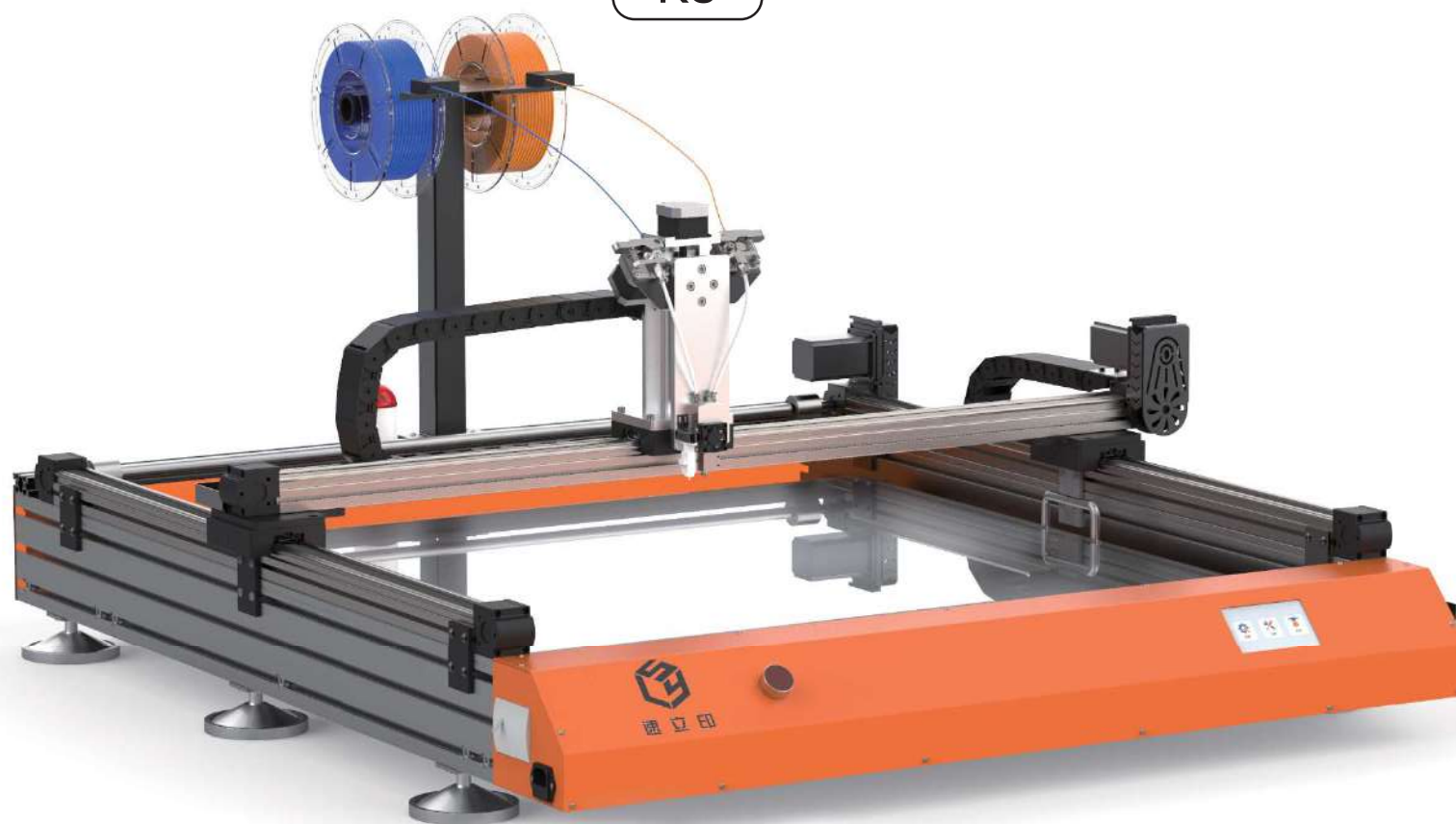




# AdWords 3D Printer User Manual

K8



V1.0

# Preface

Dear users,

Thank you for choosing and using our SoLiyin Product. For your convenience, please read the Manual carefully before use and follow the instructions of the Manual strictly.

Our team is always ready to provide you with premium services. For any problems you encounter during use, please follow the instructions, visit our official website [www.sly3d.com](http://www.sly3d.com), and contact us.

For better experience with our product, you may also access the knowledge on equipment operation in following ways:

1. Instructions attached to the product: You may find related instructions and videos in the memory card.
2. Our official website: visit our website at [www.sly3d.com](http://www.sly3d.com), to find the relevant information about software and hardware, contact information, equipment operation, maintenance, etc.

## Notice for Use

1. Never operate the machine using the method that is not described in the Manual to avoid accidental personal injury and property damage arising therefrom;
2. Never place the machine near flammables and explosives or high heat sources, but in a ventilated, cool and dust-less condition;
3. Never place the printer in a vibrating or other unstable condition. The printing quality will be affected should the machine be shaken;
4. Use the consumables recommended by the manufacturer to avoid blockage of the extruder and damage to the machine;
5. Never use other alternative power cords during installation. Please use the power cord attached. The power plug needs to be connected to a grounded triplex socket;
6. Never touch the nozzle and hot bed when the printer is working to prevent burns and personal injuries from high temperature;
7. Never wear gloves or entanglement when operating the machine to prevent physical injuries or damages by movable parts squeezing or cutting body parts of a user;
8. After printing, clean up the consumables on the nozzle using tools by utilizing the residual heat of the nozzle. Never touch the nozzle directly with your hands during cleaning to prevent burns;
9. Perform regular maintenance. Clean the printer body with a dry cloth when the power is cut off to wipe away dust, bonded printing materials, and the foreign materials on the guide rail;
10. Children under the age of 10 are not allowed to operate this machine without personnel supervision to avoid bodily injury;
11. Since the machine is provided with the safety protection mechanism, do not move the nozzle and printing platform mechanism quickly by hands when it is turned on, otherwise the machine will automatically power off for protection;
12. Users should abide by the national and local laws and regulations where the product and equipment are and the professional ethics. It is strictly prohib-

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# A

## Software

### 1.0 Software Installation

1. PC configuration requirements: window7 system (64 bits or above); RAM: 8G, software: SoLiYin; version: 1.4.41 (the latest version is subject to the instruction attached to the machine, long-term free update. [Disable anti-virus software when running. It is recommended to use an idle computer!](#)
2. Install by clicking the Software Installation package (SoLeYinInstall 1.4.41), click OK → Installation Interface → Next Step → I accept (license agreement) → Install (Disc C is defaulted for the installation disk path). For other disks, it is required to change the path.

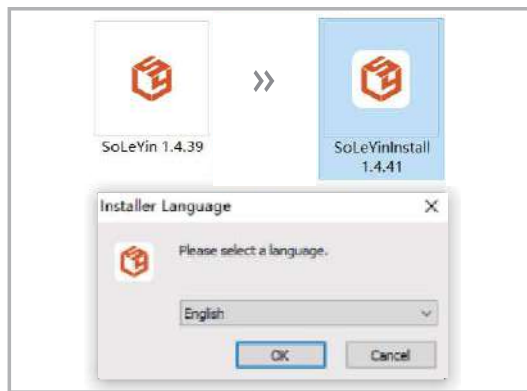


Figure 1



Figure 2

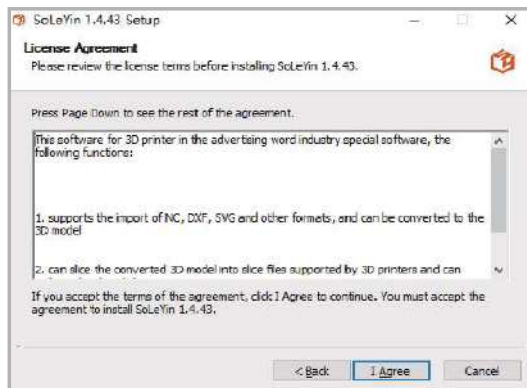


Figure 3

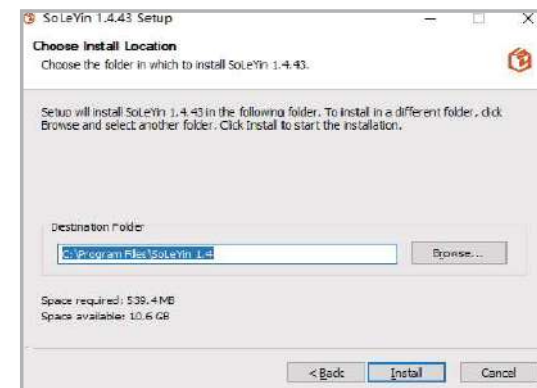
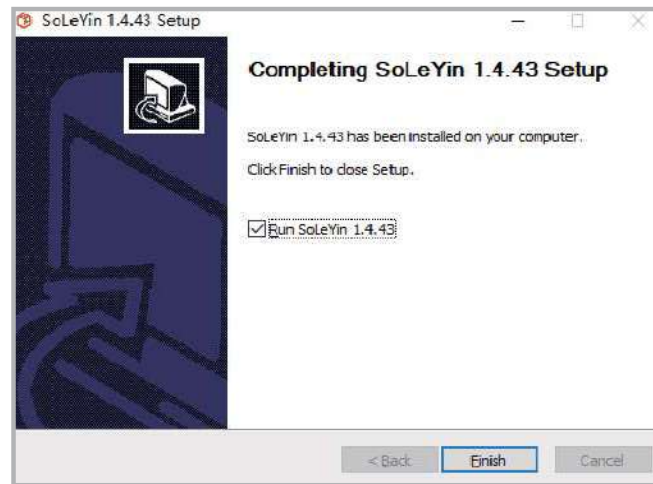
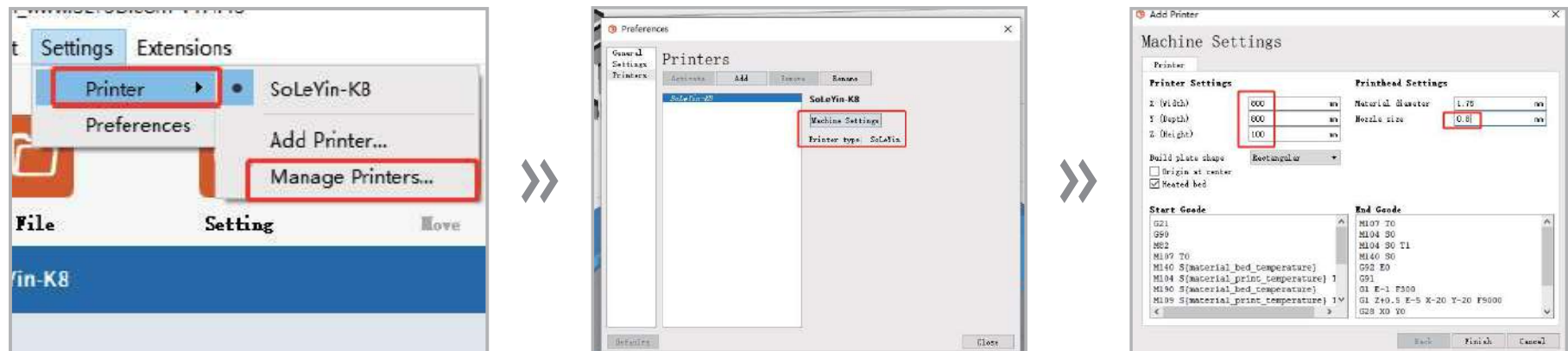


Figure 4

3. Wait for the installation, and click Finish after it is installed successfully.

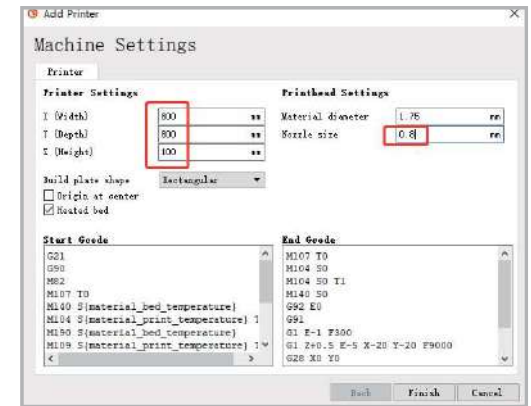
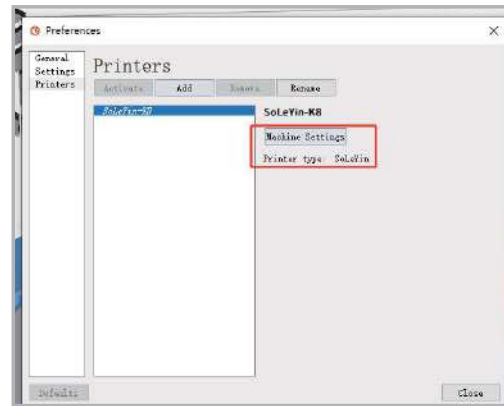
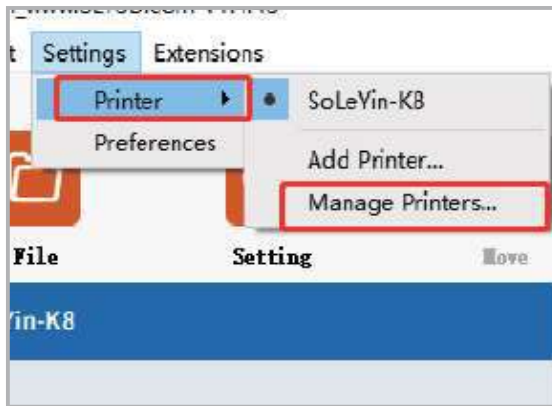


4. Open SoLiYin software, and open tool → select language → access the folder → SoLiYin configuration file → open software with the view mode window popped up.



5. Add printer

Open Settings → Add Printer → Parameter Settings. Input data according to the working area of the printer, adjust the width, depth and height data, keeping other parameters unchanged. The machine data of SoLiYin K8 is 800x800x100mm. Below is for SoLiYin K8 as an example.



## 1.1 File production

File production: Format supported: STL, CDR, ARTCUT. We usually use CDR software for drawing. The way of producing files using CDR is described below.

1. For drawing with CDR software, you need to input text → select font → font size → convolution → set the outline width to a thin line, like the Chinese character “速” shown in Figure 1–10 below.
2. Export file → format as SVG file → uncheck the selected item, as shown in Figure 1–11 below;
3. Export settings, export precision 1:1, and export check curve of the text style, as shown in Figure 1–12 below;

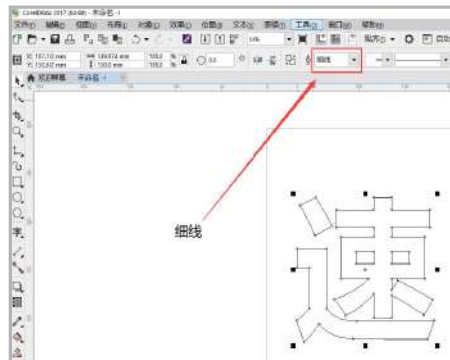


Figure1–10

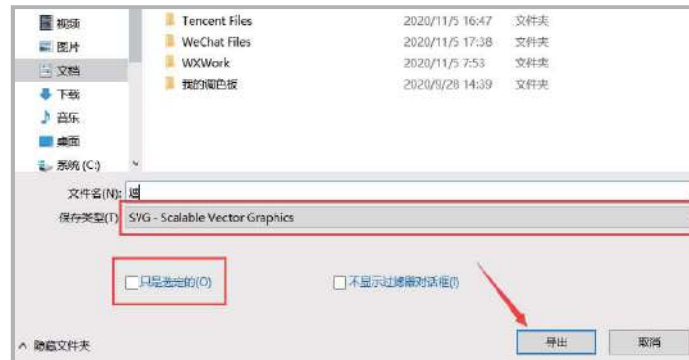


Figure1–11



Figure1–12



Open file: open the [soliyin1.4.41] we installed in the previous section, and click [open] to find our saved SVG file.



## 1.2 Basic settings

“Settings” is the most commonly used setting, which determines the fineness of the model we print, driving path, printing temperature, driving speed and so on. The options in the settings will be introduced below. Figure 1–20 shows the basic settings.

Open Settings → User–defined, most of which are common data. Some parts have already been set that don’t need to be changed. [If you are not clear, put the mouse in the data box, and an explanation will pop out on the right.](#) Options and adjusting data parameters are described below.

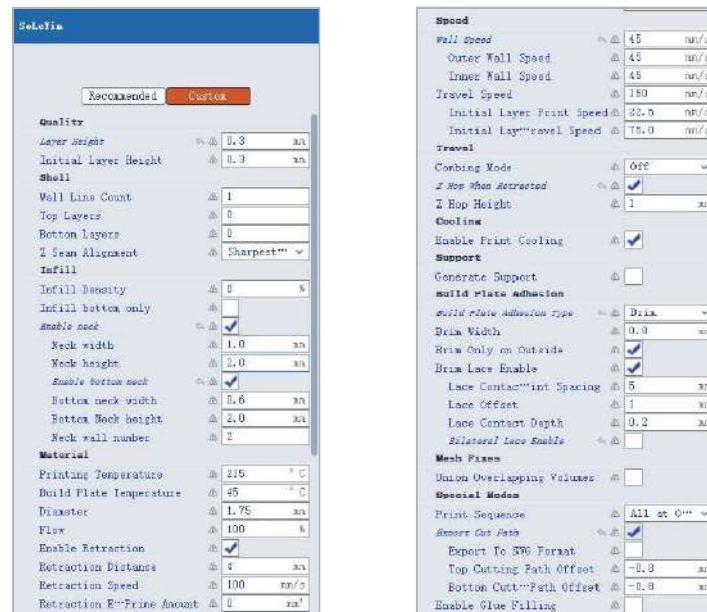


Figure1–20

1. Layer height: the height of a single layer for printing, as shown in Figure 1–21, the smaller the layer height, the more the printing time, but the finer the printing quality. On the contrary, the greater the layer height, the less the printing time, but the poorer the printing quality; it is recommended to set the printing shell layer height below half of the nozzle diameter.
2. Starting layer height: the height of the first layer, which is generally set as 0.3mm (using 0.6 nozzle).

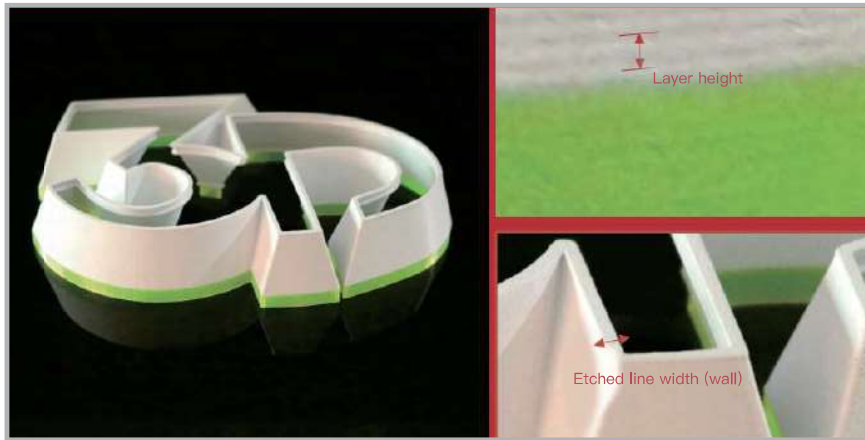


Figure1–21

### 3. Etched line width

The etched line width is the wall thickness, as shown in Figure 1–21. Typing shell is generally between 0.6 and 1.2. The smaller the value is, the thinner the wall thickness is, whereas the greater the value is, the thicker the wall thickness is. [In general, a normal 0.5 thick layer can be filled with the 1.2mm.](#)

### 4. Etched line width (wall)

Under normal circumstances, the same value as the etched line width is sufficient.

### 5. Etched line width of starting layer

Print the product of the etched line widths of the first layer, and improve the [adhesion](#) with the hot bed (i.e. glass platform). [Generally, it is defaulted as 100%.](#)

### 6. Number of wall etched lines

The number of walls is set as an integer when calculated according to the wall thickness. For example: if the single wall is not thick enough, it can be set as double walls by filling in 2.

### 7. Z–Seam alignment

It is the starting point of the printing path in each layer (Z–seam: the interface for printing wire rods). Z–seam alignment: a Z–seam is formed after each layer of interface is aligned and stacked. (See Figure 1–22)

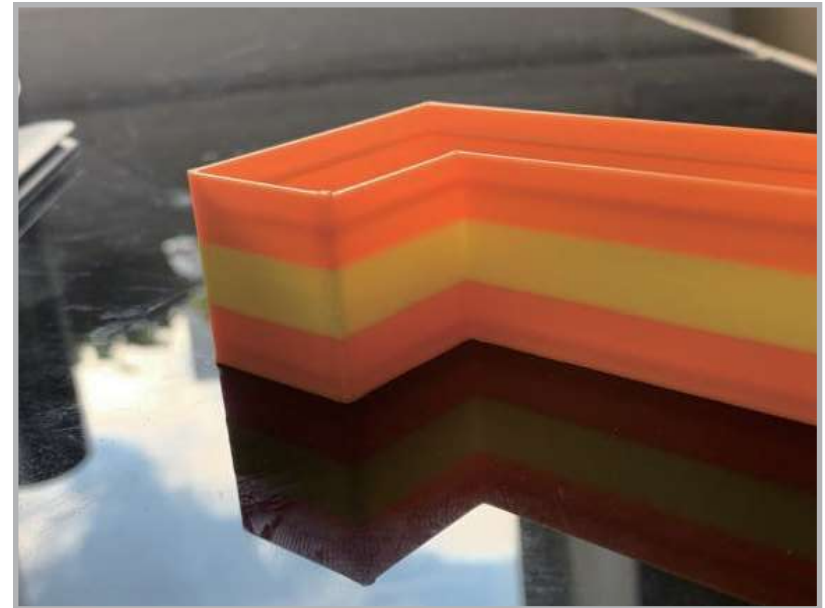


Figure1–22

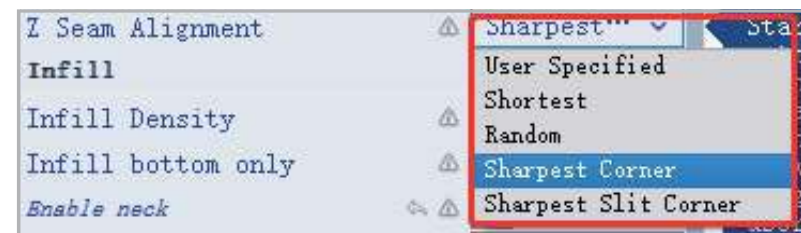


Figure1–23



There're five options in [Z-seam alignment]: (1) User specified; (2) Shortest; (3) Random; (4) Sharpest corner; (5) Sharp corner and strip path. The most commonly used ones are (1) and (5), and others may be modified as required (Figure 1–23).

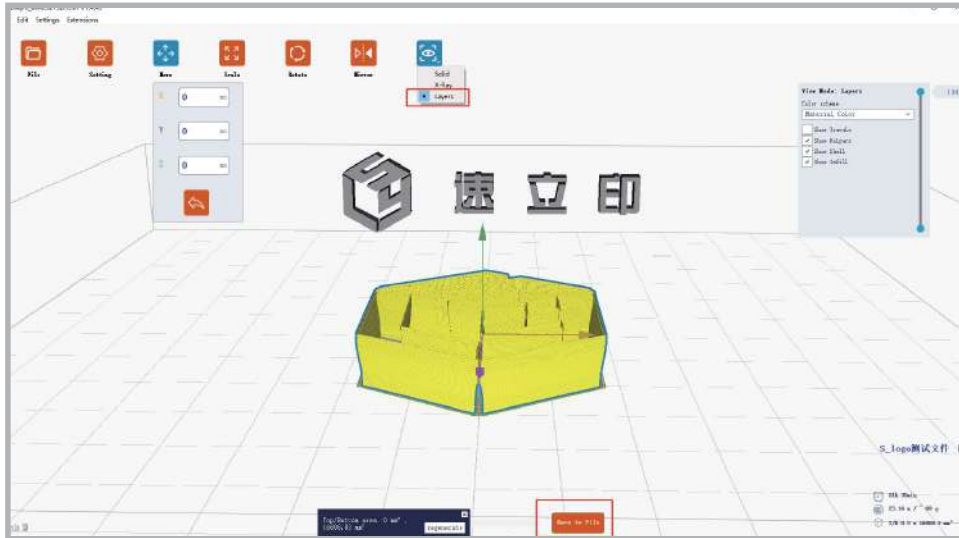


Figure1–24

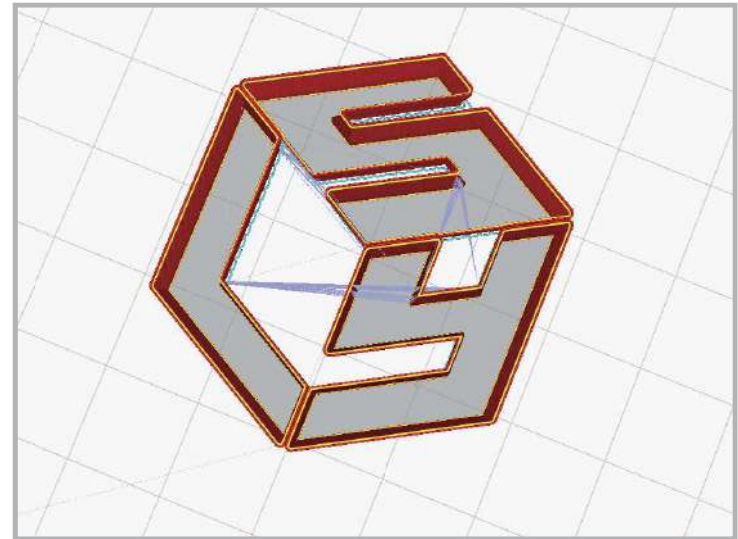


Figure1–25

How to switch Z seam alignment and view the print path?

After importing files → switch options. For example: select [User Specified] → [Prepare] as shown in Figure 1–24 → icon in upper right corner → [Layer] → display (Figure 1–25).

Select the material color in the [color scheme], and the print path could be seen.

[User Specified] Specify the starting point of a user-defined printing path. Take SoLiYin-K8 as an example. Its glass platform is 800mmx800mm, so the Z-seam X is usually set as 400mm (as shown in Figure 1-26), which is also its center point. [Generally, this option is available for words with arc \(more than one\) or circle.](#)

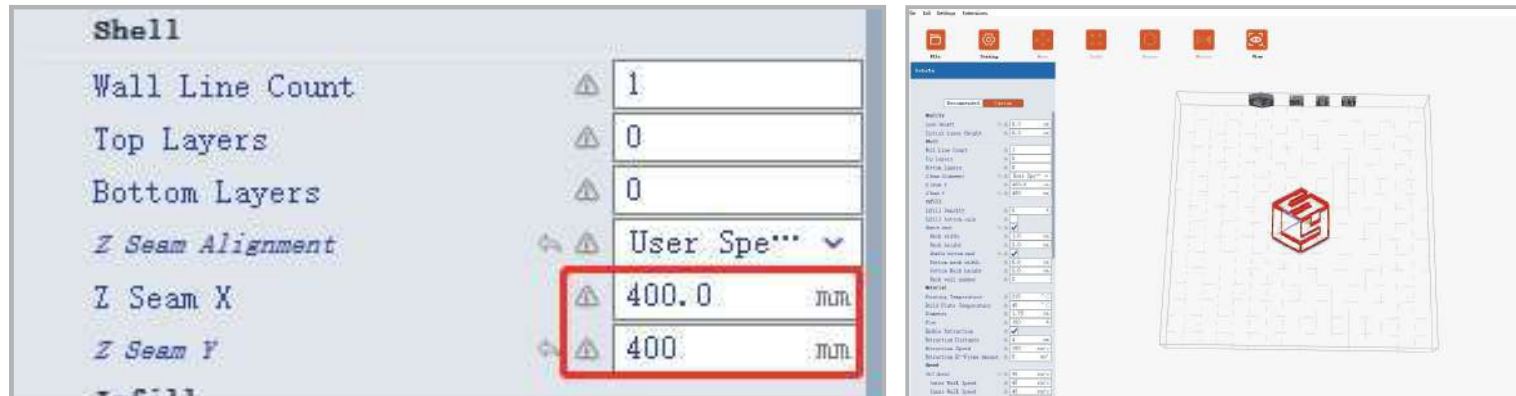


Figure1-26

[Sharp Corner & Strip Path] Printing from the sharp corners of the printed material will strip the printing path, which will reduce the occurrence of wire drawing and could intelligently select the best route, which is our most commonly used Z-seam alignment (Figure 1-27).

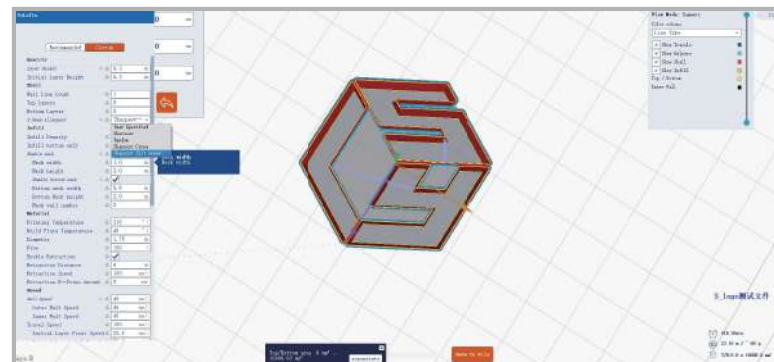


Figure1-27

Brief introduction to the other three options (not commonly used)

Shortest: when the printing path is the shortest, printing is relatively fast, but the precision is relatively low;

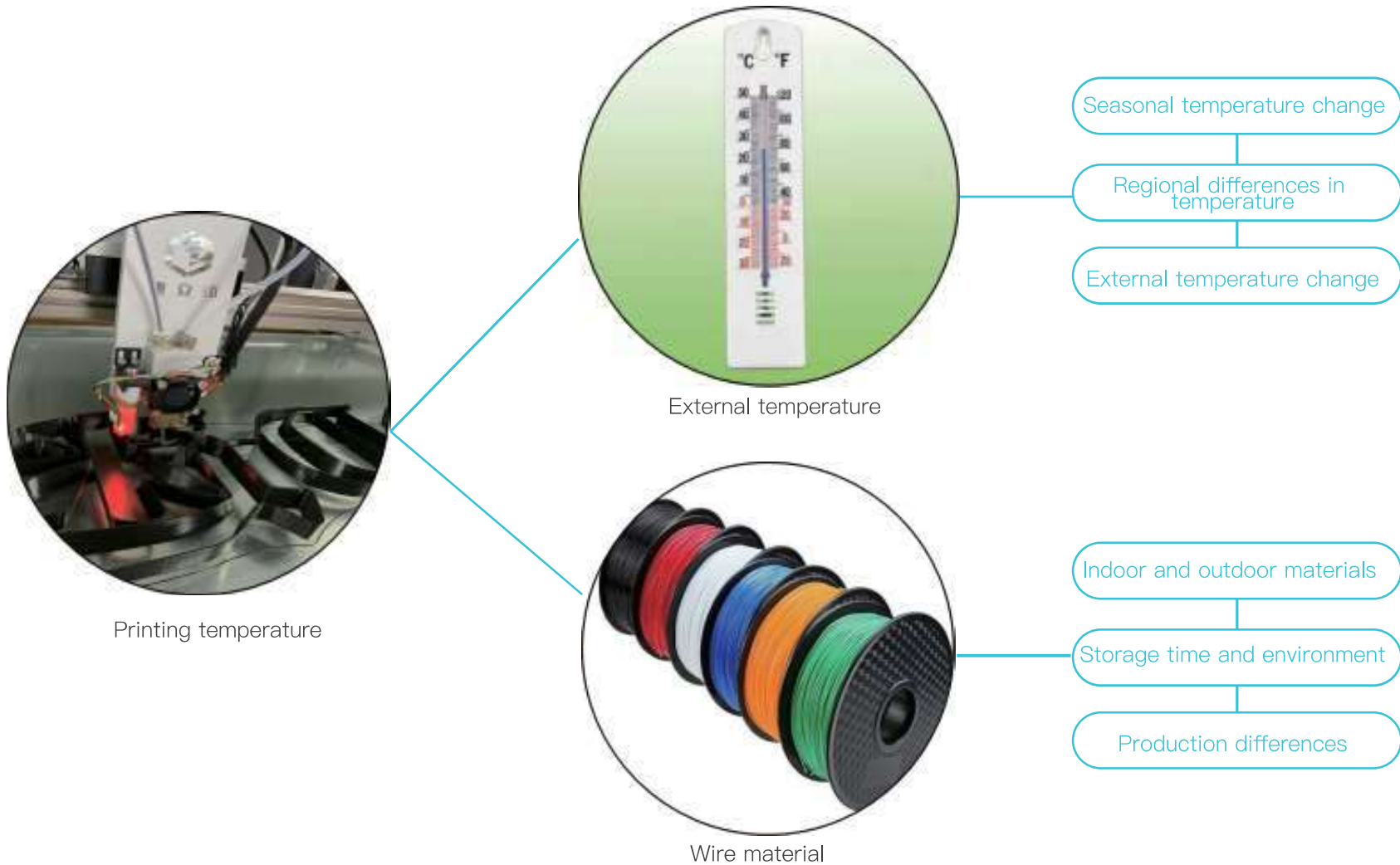
Random: the starting point of the path is printed randomly, so the of the starting point is not obviously imprecise;

Sharp corner: start printing from the sharpest corner of the printed material.

## 8. Printing temperature

Printing temperature is determined by the wire material and the external temperature. The indoor materials for wire rods printing is generally set between 200–240°C, and the outdoor printing material between 250–280°C. It is worth noting that when the external temperature is higher, the printing temperature will be lower; when the external temperature is lower, the printing temperature will be higher.

Other factors that affect the printing temperature may include: the wire production deviation, storage time, environmental storage, and constant changes in external temperature.



#### 9. Printing platform temperature (hot bed temperature)

The temperature of the printing platform affects the adhesion of the starting layer, and the strong adhesion can make the printed materials more firmly bonded with the platform. It is the same as the printing temperature, generally between 45–65 °C.

#### 10. Drawback

After typing a word, the printer will jump to another word. When it needs to jump, the wire in the nozzle should be recycled a little (also called draw back). In this way, it will not produce too much wire drawing. It is generally checked by default.

#### 11. Drawback distance

The length of wire material is ranged from 0.1 to 10 in the process of nozzle wire drawing back, which is [generally set to 4](#).

#### 12. Drawback speed

The speed of wire drawing during the drawing movement period is also the speed of wire filling. The speed range is 1–200, and generally the printing character shell is set about [80–100](#).

#### 13. Additional loading quantity for drawing back

The printing materials may sometimes overflow in the empty discharge process. The loading quantity can be replenished here. Generally, it could be set directly to 2.

#### 14. Speed (wall)

Namely the printing speed of the printer, and the range is between 1~150/s. The factors that determine the printing speed are the type and size of the printed material. We mainly take printing shell as an example to print straight-edge characters and beveled edge words, as 15cm straight-edge characters shown in the figure below. On the right is a 15 cm beveled edge words. The printing speed of straight-edge characters can be set at about [30mm/s](#), and that of beveled edge words can be set at about [30mm/s](#).



#### [Printing speed: determine the time to finish printing](#)

Shell type: beveled edge words are printed more slowly to ensure precision because of the offset of the shell. Material size: it takes time for the printing material to get solidified, and as the printing range increases, the time also increases.

#### 15. Empty discharge speed

Empty discharge: when the materials are not discharged, the nozzle will move empty. Empty discharge speed: the moving speed during empty discharge, which is generally set at 200 mm/s.

#### 16. Printing speed of start layer

The printing speed of the starting layer determines the adhesion between the starting layer and the printing platform. [It is suggested to slow down the printing speed of the starting layer](#) to facilitate the fixation of the printed materials, which is generally set at [20 mm/s](#).

#### 17. Z lifts on axis return

When being checked, a gap will be formed between the printing platform and the nozzle whenever the axis returning operation is completed, which can prevent the nozzle from colliding with the printed materials. Figure 1–28 shows the inner hole shell with nozzle impact displacement. Lifting can reduce the print damage rate, but the relative time will also increase. It is recommended to lift when there are more inner holes, and the lifting is also related to printing. When the sharp corner strip path is selected, the wire drawing is relatively reduced, and you can choose to lift or not. Other paths need lifting, and the lifting value is generally set at about 0.8mm, as shown in Figure 1–29.

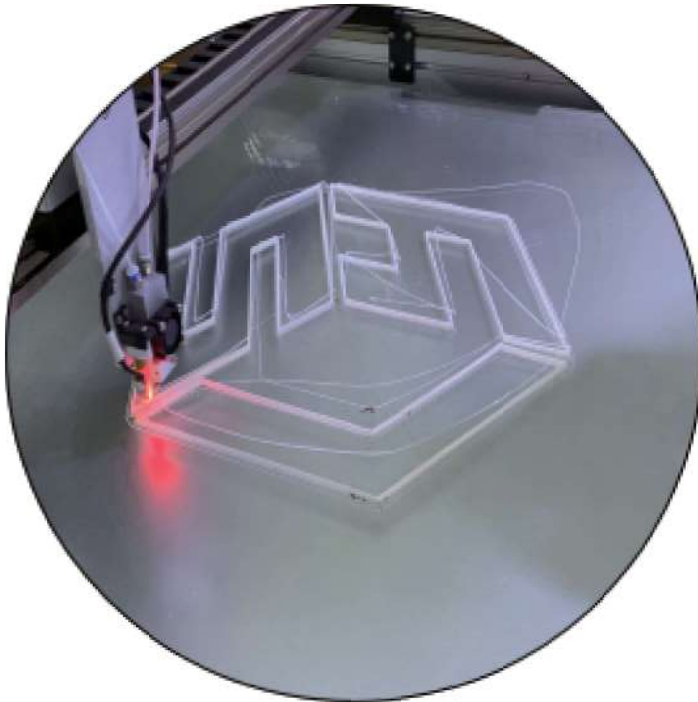
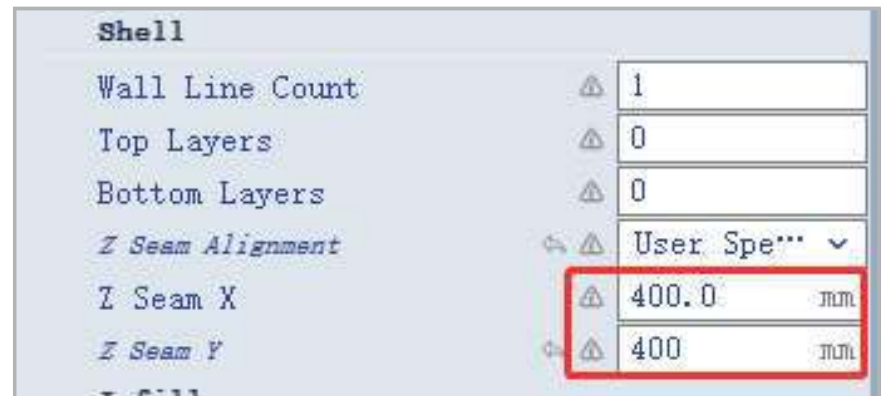


Figure1–28



### 1.3 Step settings

## 1. Enabling step

Make a force step to enable a typeface to be clipped into an acrylic board. Take the model with the straight edge Chinese character “LOGO” with a height of 20mm as an example. Import the model as shown in Figure 1-30 by following steps: Import file → Settings → Step settings → Check enabling step.

## 2. Step width

The step width is generally set between 0.6mm and 2mm, and the value is usually set in advance, which can be changed according to users' own needs (as shown in Figure 1-31).

### 3. Step height

The distance between the step and the top (the thickness of the board) – our board is a three centimeter board in this case – is set to 2mm as the height. If we set a step, we are now ready to generate a preview (as shown in Figure 1–32).

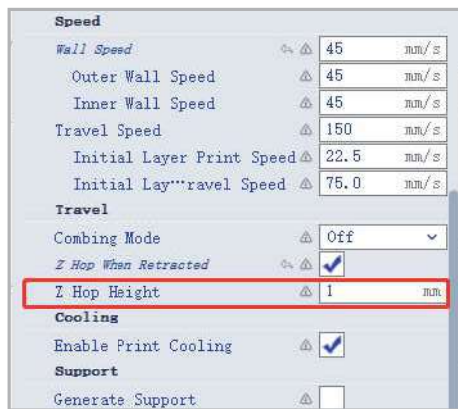


Figure1-30

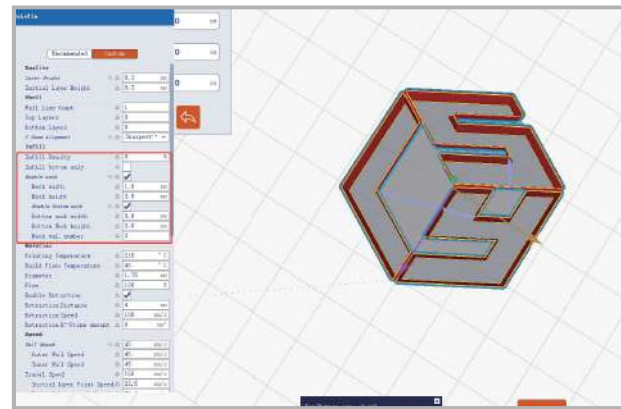


Figure 1-31

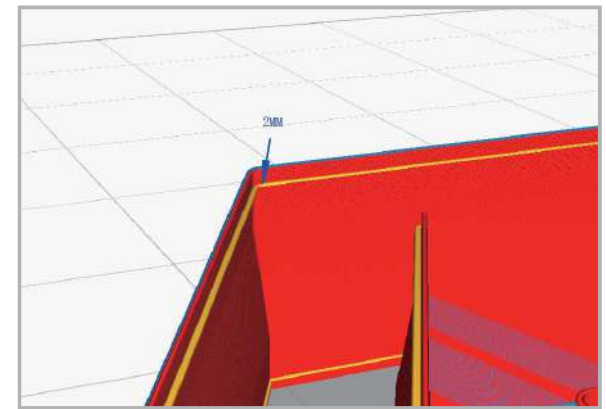


Figure 1-32

#### 4. Bottom enabling step

We can check it if the bottom also needs steps. We can set two steps in the shell, which herein refers to the ones at the bottom.

### 5. Bottom step height

The distance from the bottom to the step is generally set to the thickness of the acrylic board we clip in, as shown in Figure 1-33.



#### 6. Fill/step speed

It refers to the speed of printing steps. Since the steps are mostly semi-suspended, the speed here cannot be too fast to ensure stability, which is generally at 25–35mm/s.

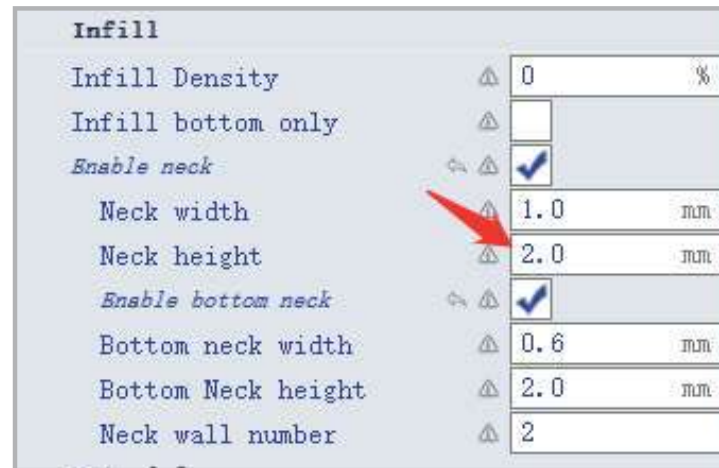


Figure1–33

#### 7. Step use

Steps can be set to one, two, or a negative. If we want to make edge words or characters, we can [set the step height to 0](#) and [the step width to 3](#), as shown in Figure 1–34.

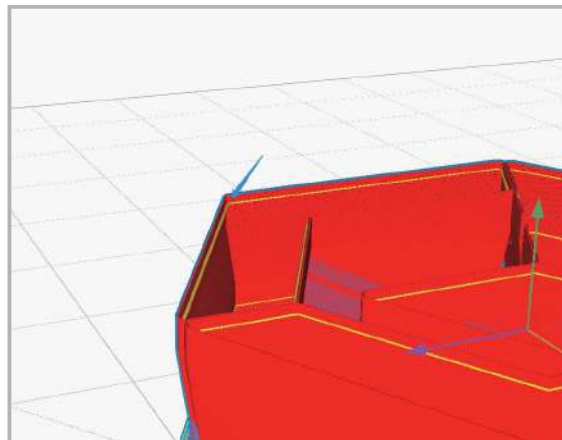


Figure1–34

## 1.4 Bottom shell grid settings

### 1. Number of top layers

The number of top layers refers to the number of top grid layers, which is generally not set (defaulted to 0).

### 2. Number of bottom layers

The number of bottom layers refers to the number of bottom shell layers. The more layers there are, the thicker the bottom shell grid is. The effect is shown in Figure 1–40 when the number of bottom layers is set to 3.

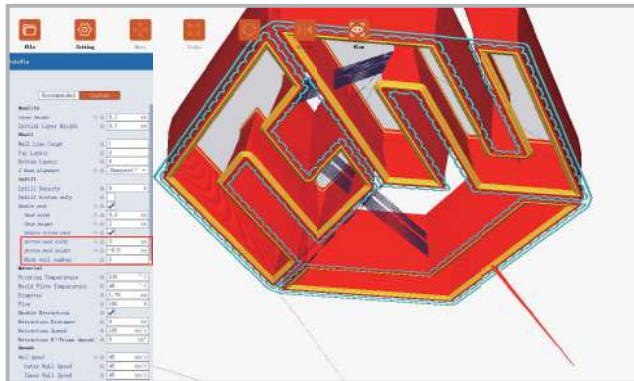


Figure1–42

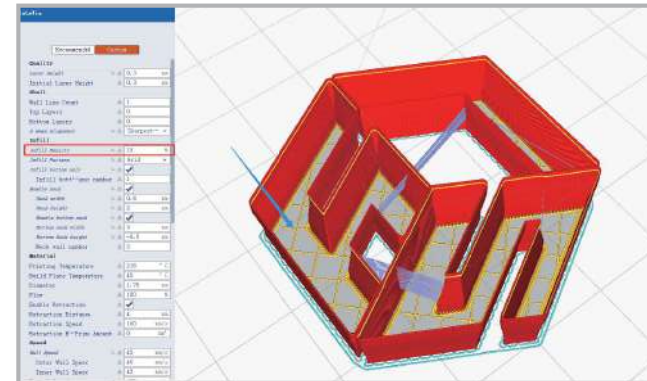


Figure1–43

### 3. Light leakage sealing

It is not required to check. This may be needed when making the Mini Character , and will be introduced in the following chapters.

### 4. Ignore non-underfill

Check it together with [remove inner circles] when making outlet holes, and the outlet holes will not be covered in this way, as shown in Figure 1–41.

### 5. Filling density

The filling density of the bottom shell grid printing is calculated in percentage. As long as the filling density value is entered, the filling pattern will pop up. Figure 1–42 shows a comparison between 10% and 90% of the pattern grid.

### 6. Filling pattern

The type of bottom shell grid. The software is designed with 13 types of patterns, as shown in Figure 3–3.

### 7. Fill the bottom layer only

If this option is checked, the fill pattern will be filled at the bottom height, otherwise the height of the whole shell will be filled. Generally, this option needs to be checked when making a bottom shell grid.

## 8. Number of underfilled layers

The option will pop up when fill layer only is checked. The number of bottom layers may also determine the filling height. The value is between 1 and 100. When the value is 100, the filling is as high as the shell.

## 9. Attachment types of the printing platform

Three types of attachments are available, including single skirt, side skirt and raft, which have a great effect in anti-warping (Figure 1-45).

- Side skirt: also known as anti-warping fancy border, which could adjust parameters such as fancy border type, inside/outside, times, spacing, offset depth, single/double fancy border according to requirements (Figure 1-44).
- Single skirt: Enclose the bottom with a single line.

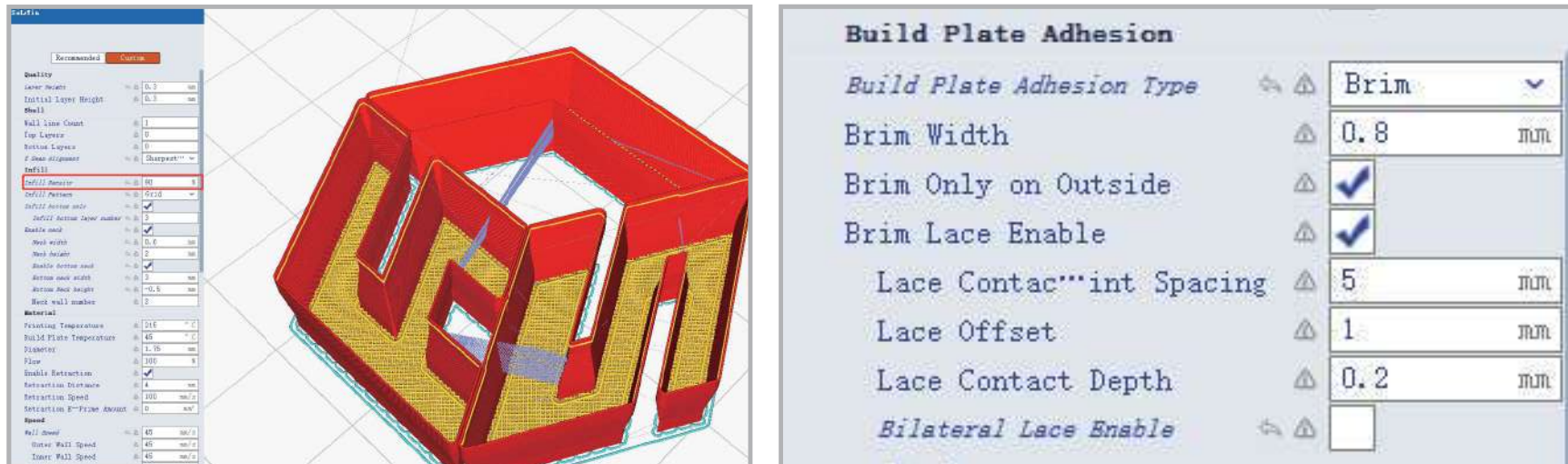


Figure1-44

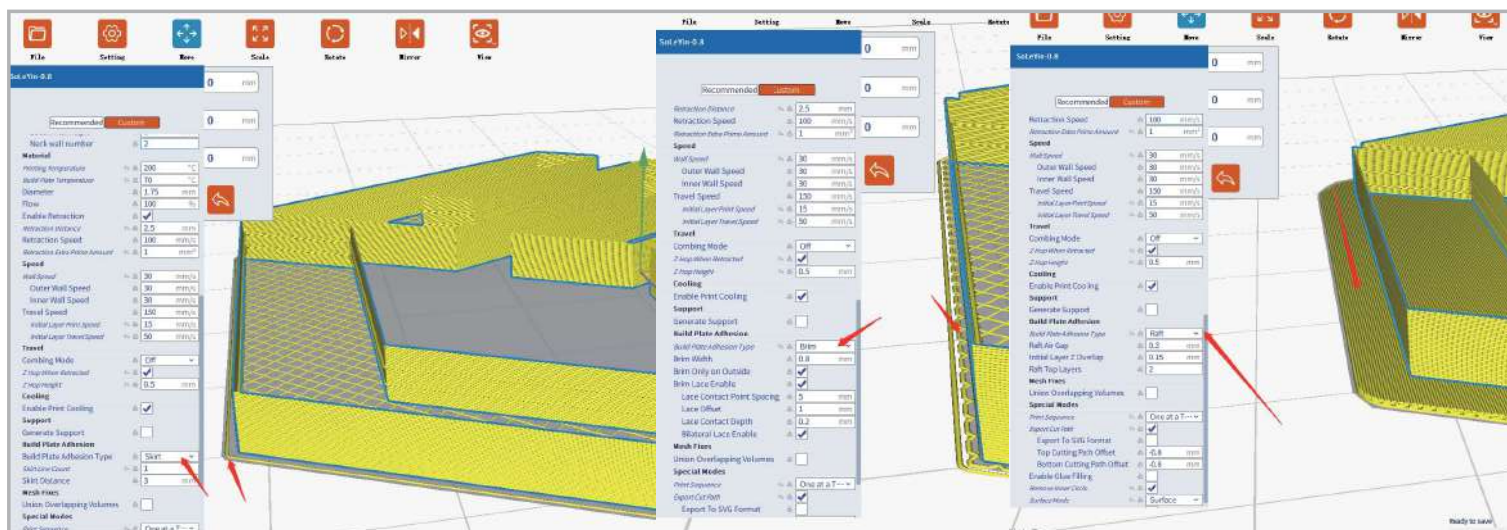


Figure 1-45

10. Remove the inner ellipse

Check this option and refer to Point 4 [ignore those that are not underfills] when making advertising words and luminous words for the reservation of outlet holes.

## 1.5 Color change settings

Enable color switching: change the color of the shell when printing, and check it when changing the color.

Enable the feed/return for color changes: refers to the settings when changing the color of the printing wire.

1. Color changes move or not

During wire color changes, in order to make the process smoothly, the nozzle will move away and spit out some new materials before changing the color, so as to avoid the newly discharged material affecting the printed matter (generally need to be checked).

## 2. Smart move

When it is checked, the machine will change the color and move it away automatically. This may typically not be checked. If the smart move is checked, the following options will pop up, and the moving distance between axis-X and axis-Y is generally set to 4mm.



Figure 1-50



Does the speed slow down during color changes? (Check this option for a special situation, generally ignored)

1. Slow the speed down to: percentage, percentage by which the original speed is reduced.
2. Resume the speed when extruding E: that is to say the original printing speed can be stored when new materials are extruded.

#### Material feeding and return the material during color changes

You need to feed new materials and return the old ones when changing colors, just setting it to the default without any changes (Figure 1–51)

1. The length of the return materials is generally set to about [75mm](#).
2. The speed of the return materials is generally set to about [60mm/s](#).
3. The length of the feeding materials is generally set to about [78.8mm](#).
4. The speed of the feeding material is generally set to about [60mm/s](#).

#### Color changing layer settings

Color changing settings: Up to 5 layers can be changed, and 3 layers will be introduced here only, rest neglected. The key to changing colors lies in the choice of the nozzle and the height settings. We take the Chinese character “icon” with a character height of 30mm as an example and add middle color of 10mm into the character shell, as shown in Figure 1–52.

##### 1. Start layer

Check the start layer (the first layer of printing), the first layer has no choice of height but the choice of extrusion, so we choose extrusion 1.

##### 2. Color changing layer 1

Check color changing layer 1, setting the height of Z to 10mm, which is the height from the start layer to the color changing layer (Figure 1–52), and we choose extrusion 2 here.

##### 3. Starting layer 2

Check the starting layer 2, setting the height of Z to 20mm, which is the height from the starting layer to color changing layer 2 (Figure 1–52), we choose extrusion 1.

[Note: the height of Z is set as required.](#)

Figure1–52

Figure1–51

## 1.6 Bottom panel export settings

Bottom panel exporting: export the panel or bottom plate files; then directly cut them out with an engraving machine, fitting the panel with the character shell.

1. Export cutting path: check the export cutting path, then you can export the bottom panel and adjustment parameters.
2. Export to SVG format: two types of format can be exported generally (Figure 1–61).
  - (1) When unchecked, the exported file can be in the dxf format, and printing file in the gxc format, which can be directly supplied to the engraving machine.
  - (2) When checked, the exported file can be in the svg format, and printing file in the gcx format. The svg format can be imported and edited twice.



Figure1–60



Figure1–61

The setting of the size of the ground panel and the ground surface is shown as Figure 1–62.

1. The top cutting path offset: the size of the top panel, the positive value of which will enable the panel to expand outward, zero value to equal, and negative value to shrink. If the value is greater than  $\pm 100$ , export will be disabled. If you want to fit the top panel with the character shell completely, the inward offset will equal to the etched line width.
2. The bottom cutting path offset: the bottom panel follows the same principle with the top panel.

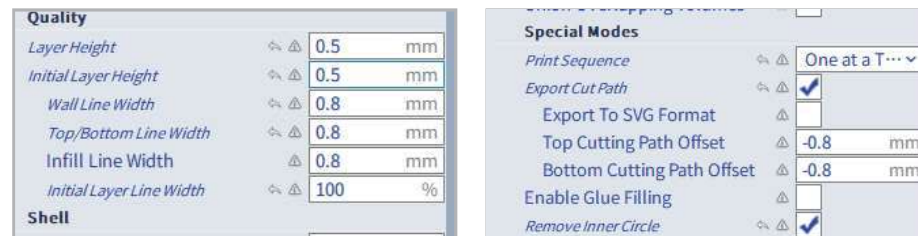


Figure1–62



## 1.7 Special settings

Printing sequence: Printing sequence refers to the way of printing multiple models and two generation modes, as shown in the case of “LOGO” and “icon” in Figure 1–70;

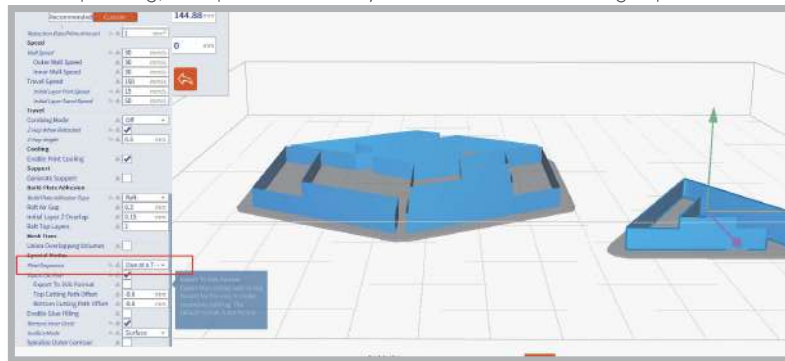
### 1. Queuing for printing

Print one by one, print one model and then the next. Check “to break the font shell” in the exporting software when printing multiple words. Or the system will take it as a whole model and disable queueing for printing.

### 2. Simultaneous printing

Print multiple models at the same time, that is to say printing layer by layer.

Queue printing, and produce one by one as shown in the right picture.



Print at the same time.

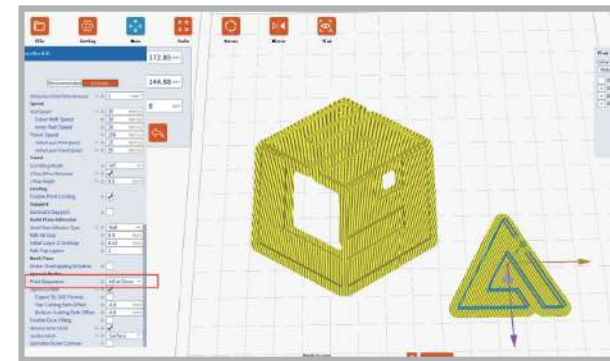


Figure1–70

Enable glue filling: used for automatic glue filling of luminous words, including glue filling quantity, speed and method (ignoring it).

Surface mode: check “enable” when printing the Mini Character , which help seal the light leak of the Mini Character .

Spiral printing outline: for non-marking shell, checking is very practical when printing only single or multiple strokes. For example, (Figure 1–71) a circle and a box take no effects

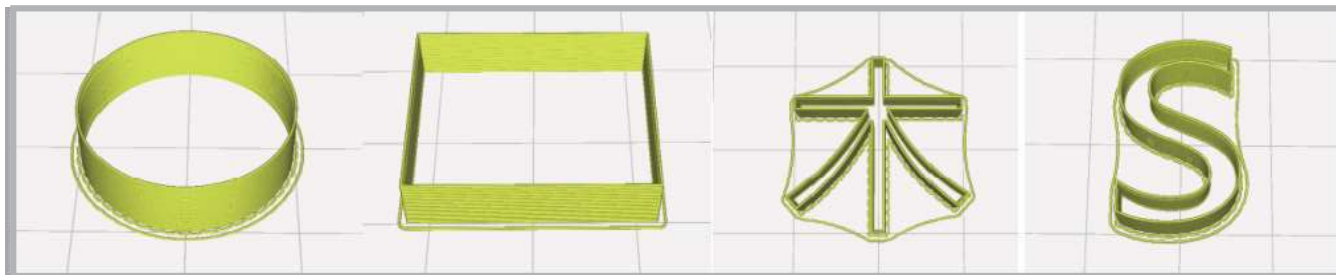


Figure1–71

if the side skirt in multiple strokes is checked, but it will clear the setting of some steps and grids instead.

## 1.8 All settings

The collection of all settings of the software. The settings introduced above are available in the all settings. Now, some settings that are not involved will be introduced.

### Material

1. **Diameter:** The diameter of the printing material. The diameter of the material we generally use for printing is 1.75mm, while other diameters will not be introduced.

2. **Flow rate:** print the extrusion quantity, which is calculated in percentage terms here, the extrusion quantity multiplied by this value returns the flow rate of extrusion. Speed.

1. **Speed (outer wall):** In the printed models, some are double or multiple layers. Here refers to the speed of printing the outermost wall, which can be slowed down to improve the skin quality, but when we print the font shell generally, the speed of printing inner wall can equal to that of outer one.

2. **Speed (inner wall):** Improve the speed of printing the inner wall would reduce the printing time. But when the printing speed gap between the inner and outer walls is large, its quality will be negatively affected.

### Combing mode

When combing is initiated, it means to keep the nozzle in the printed area when materials are not discharged, making it less necessary to draw back wire rods and saves materials. If combing is closed, the material will be drawn back. It is also possible to avoid combing/bottom skin area only in the filling things ([generally we can close it by default](#)).

### Cooling

The printing cooling fan will be enabled when the printing cooling is turned on. The fan can improve the printing quality on the layers with short layer time and bridge/overhanging ([usually, it is checked by default](#)).

### Generate support

Some models have less contact surface with the platform or are suspended, which is vulnerable to collapse. At this time, we need to generate support to protect the model.

#### 1. Support placement

There are two modes, one is to support the printing platform, where the support

will be produced from the platform; the other is full support, which will also be produced from the printing model.

2. **Support vertical angle:** when the angle is 0, it will be fully supported; but when the angle is 90, support will not be produced from the printing model. The comparing picture shows the differences among 1–80 and 80 degree and 10 degree.

3. **Support pattern:** The support pattern includes six types, which are line, grid, triangle, concentric, concentric 3D, and zigzag.

### Joint coverage volume

There is a grid formed geometry inside the font, and multiple parts are printed as one part, which may cause the inner hole to disappear.

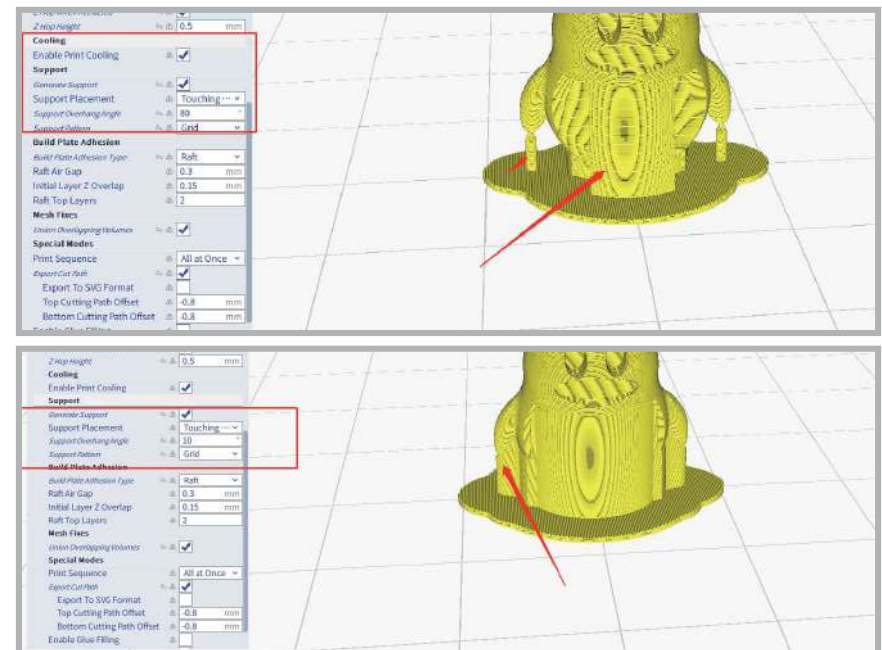
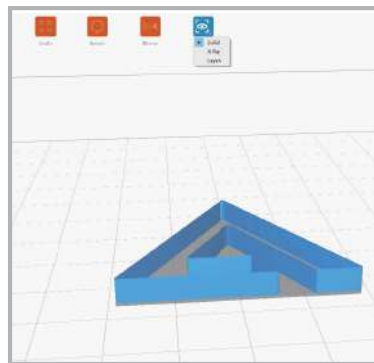


Figure1–80

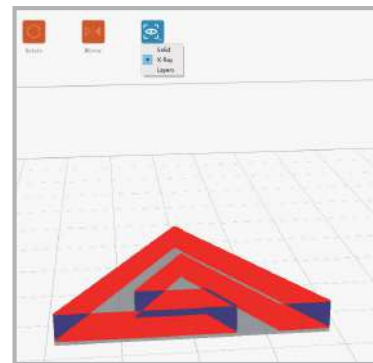
## B Tools 2.0 View

The soft tool of Speed Printing is arranged above the software, including Move/Zoom/Rotate/Mirror/View.

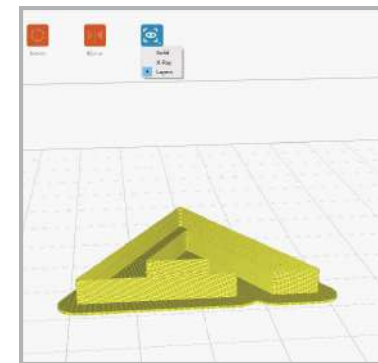
1. View: It is the way of viewing, including physical object, x-ray and layer. We usually set it to real objects by default, and x-ray will be used when viewing internal structures, which is rarely used. Use layers to display when preparing for preview after saving the file, as shown in Figure 2-01.



Physical object



x-ray



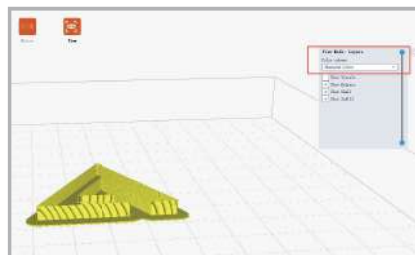
Layer

Figure2-01

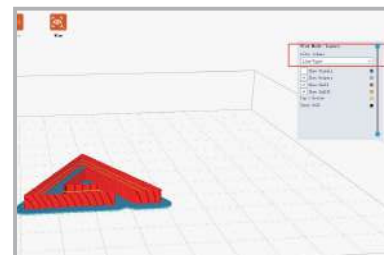
When using a layer to preview the file, a View Layer Selection mode will appear, and the right progress bar [can be rolled up and down](#) to see a preview of the shell's production process. The color scheme has two selecting areas, one for material color and the other for line type, as shown in Figure 2-02.

Four display options:

1. Display walking path: wire printing routing path (blue line).
2. Display assistant: lace skirt board, etc.
3. Shell: the font itself.
4. Display filling: girds, steps and other displays.

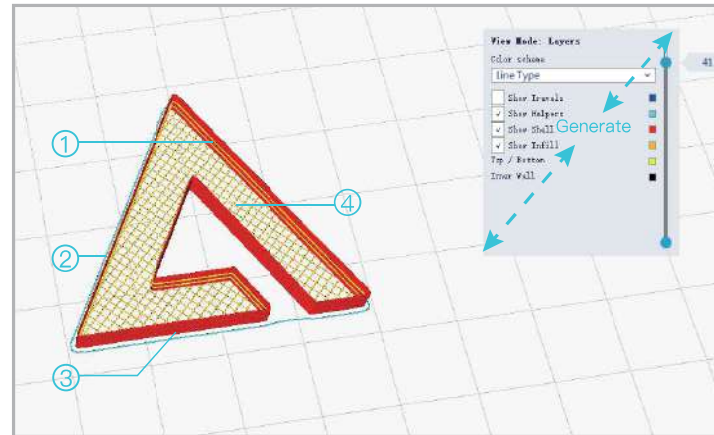


Wire Material



Line Type (showing all details, such as steps, etc.)

Figure2-02



1.Walking path 2.Single skirt lace 3.Word shell 4.Word shell bottom

## 2.1 Move/Zoom/Rotate

### 1. Move

It is used to move the position of the model and the position of X/Y/Z. [Note: The position of the Z axis cannot be suspended and the platform must be aligned, or it will not be printed.](#) Therefore, the position of Z axis is set to 0, and the value will also automatically return to 0 when changing the Z axis. As shown in Figure 1 below, we pull the direction arrow and enter a value to change the position by left clicking the mouse.

### 2. Zoom

You may change the size and height of the model. There are two selection areas, including the zoom position which are generally not checked, and proportional scaling. When checked, other data will changed accordingly if one date changes; when unchecked, only data in an aspect will change only. It is often used to adjust the size and height of the shell finally. You can pull the axis or enter the value or percentage, just restore the original size to 100%, as shown in Figure 2 below.

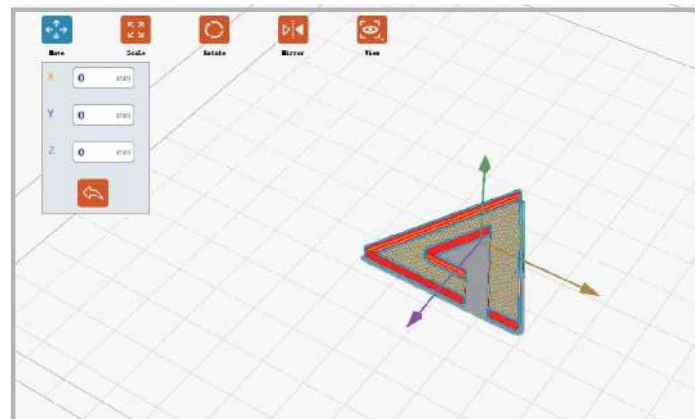


Figure1

## 1. Rotate

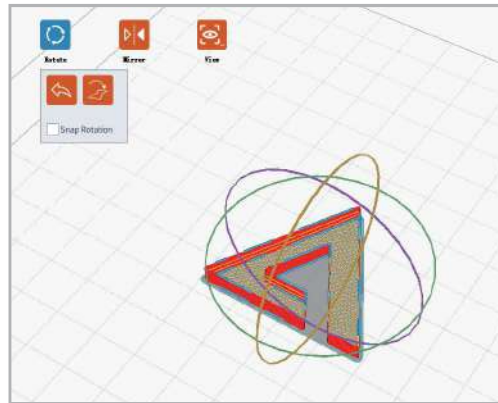
Check “Rotate Alignment” when rotating two models at the same time so that the relative position of the two models will not change after rotation. The two models may overlap with each other if not checked. Rotation is often used when viewing the model and changing the printing surface as shown in the figure below.



Restore the original ground and contact the platform in parallel



Choose the nearest ground in parallel contact with the platform



## 2.1 Mirror

Mirror: AN object like is a mirror, and we often use mirror when making mini-characters and special fonts.

- The proper use of mirror mainly depends on which side is used as the front side. When we usually choose the printing bottom side as the glue surface or the card surface, the bottom side is the front side.

For example: Figure 2–20 is the mini-character “icon” with the height of 30mm, if we use its bottom side as the front side, we can click the left and right arrow to change from the bottom side to the front side by mirroring.

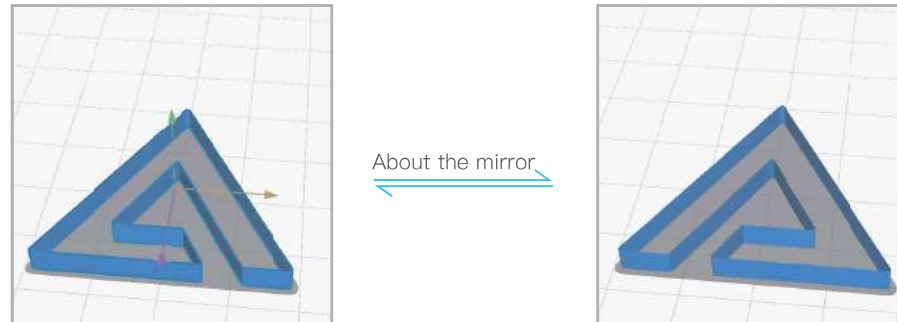
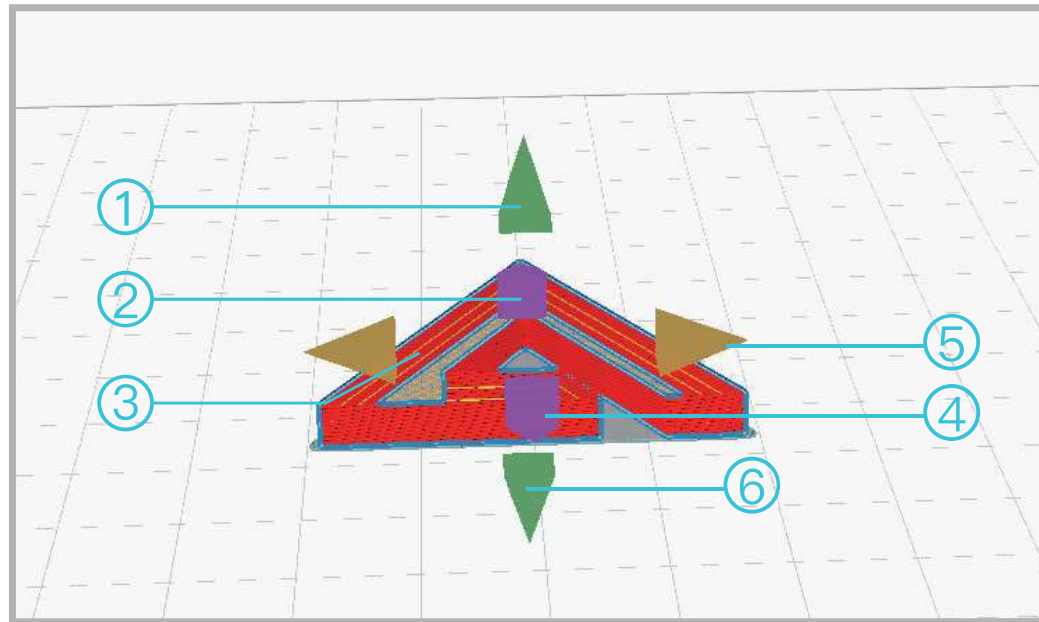


Figure2–20

- How to use mirroring, mirroring is relative to a produced mirroring. As shown in Figure 2–21, there are six direction buttons on the model whe



1.Up mirroring 2.Bottom mirroring 3.Left mirroring 4.Top mirroring 5.Right mirroring 6.The mirror

Figure2–21

## 2.2 Real–time data

Real–time data: It is shown in the lower right corner of the software operation interface, including the file name, printing time, wire consumption, top and bottom area, as shown in Figure 2–30;

- The file name can be edited at any time by clicking, but the printing time and wire consumption will be 0 before preparing for slicing, and the top and bottom areas will be displayed in real time in the model and it will be displayed as 0 if there is no area, as shown in figure 2–30. When you check the top surface or bottom surface to calculate the glue strip, top and bottom surface will appear, but it is not that of the real model but the area to be filled with glue.



- For example: Type the Chinese character “icon”, real-time data will pop up when clicking preparing, as shown in figure 2–31. The printing time is 8 minutes and the wire consumption is 1.93 meters about 5 grams. The top/bottom area is 0 because we don't set and strip the top and bottom sides strip (the striping of the top and bottom sides will be mentioned in the following context).

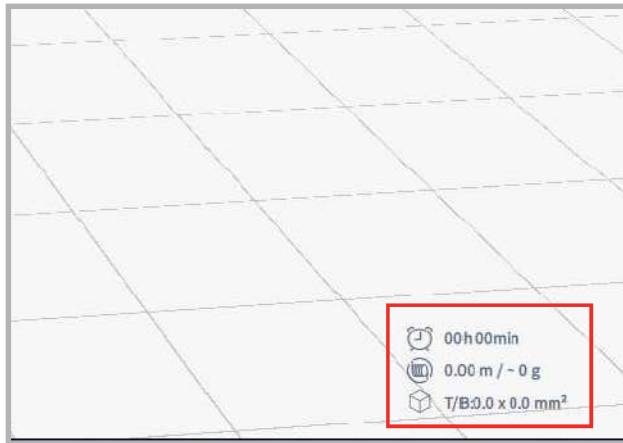


Figure2–30

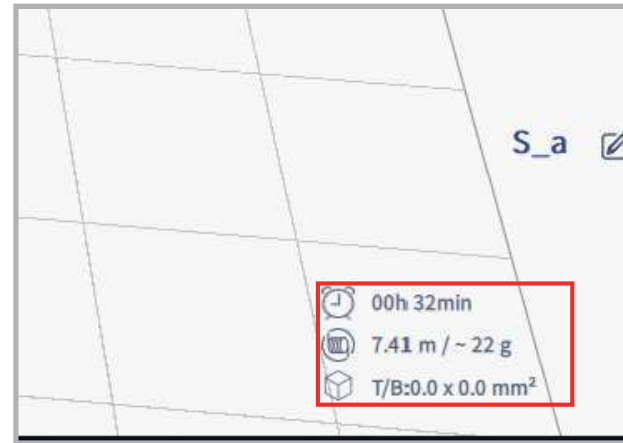


Figure2–31

## C

## Process

## 3.0 Parameter setting of straight-edge characters

1. Open the slice software SoLeYin, click [File], and import the file in SVG format (as shown in Figure 3-01).
2. Pop up the conversion path option, select “straight line” for the slope curve, input the font height according to your needs, and click OK (as shown in Figure 3-02).



Figure3-01

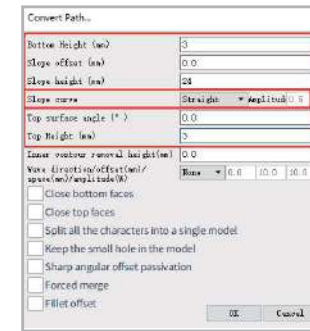


Figure3-02

3. Save to a file, which is for printing, with the defaulted format of gcx. Select the file location and click OK to save.
4. If you want to preview the printing process in advance, you can click the layer, select the material color as the color scheme, check the displayed options according to your needs, and then drag the right sliding axis to preview the printing process, as shown in Figure 3-04;

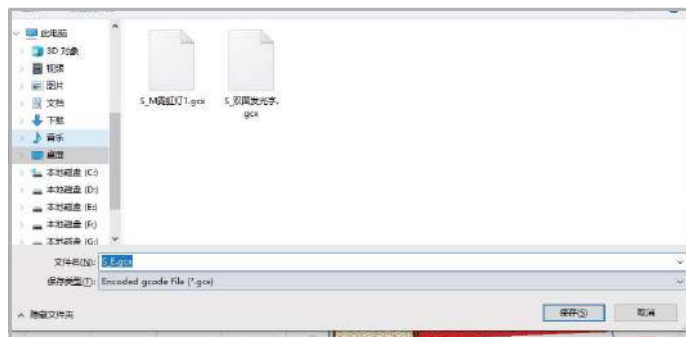


Figure3-03

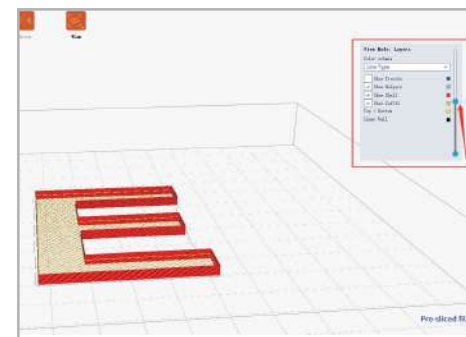


Figure3-04

### 3.1 Parameter setting of Mini Character

A Mini Character is a pattern that is not uniform in sizes from top to bottom. We usually use the smaller side as a luminous character, as shown in Figure 3–10. In order to distinguish between them, we divide them into the obverse side and the reverse side;

- The mini-character that is large on the bottom and small on the top is called the obverse-printed Mini Character during printing.
- The mini-character that is small on the bottom and large on the top is called the reverse-printed Mini Character during printing.

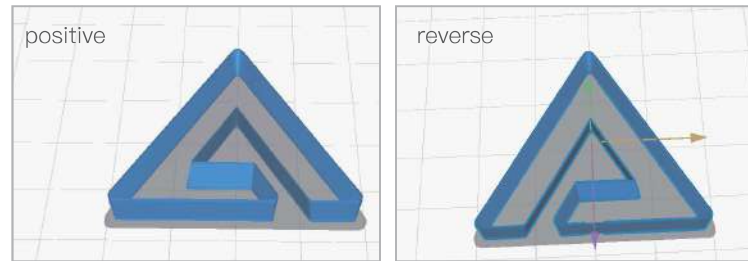
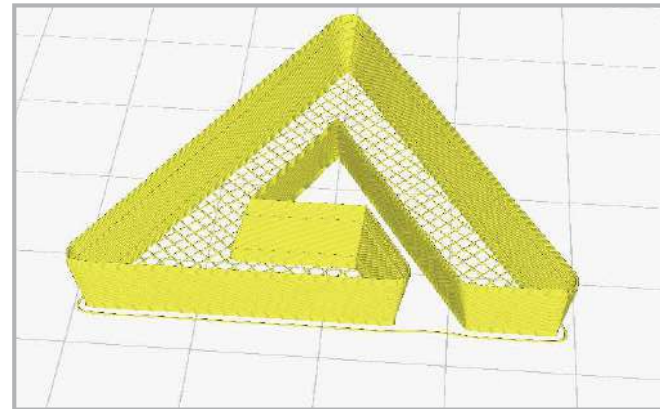
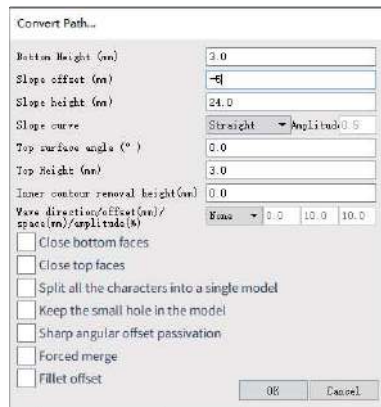


Figure3–10

#### 1. Conversion path option settings

- Bottom height: No setting requirements. To show the effect, it is assumed to be set to 3mm (Figure 3–11).
- Slope offset: + A positive number means the word shell shrinks inward,– a negative number means the word shell expands outward, and 0 means straight edge, here we set it to –5.
- Slope height: pay attention that it is not the total height of the font, but the offset height. The total height of the font is equal to offset height + top straight side height + bottom straight side height, here we set it to 30mm.
- Top height: in the reverse-printed Mini Character , the value is generally set, we set it to 5mm.



## 2. Reverse print Mini Character mirrors

Because the front side of the reversed mini-character is up, we need to mirror it left and right, otherwise the character's shape will be reversed, while the obverse-printed Mini Character does not need to be mirrored. Select the character shell, click mirror, and click the right arrow to complete mirroring (as shown in Figure 3-13).

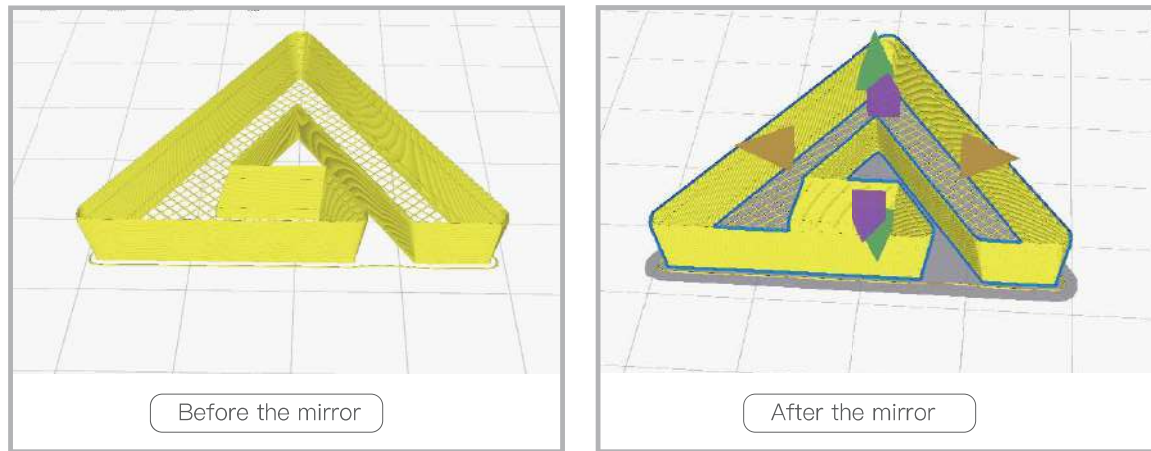


Figure3-13

## 3. Mini-character leak sealing

During production a “mini” character, some inner holes Mini Character are not sealed, and light leak will occur after installation of the lamp. Regardless obverse-printed Mini Character or reverse-printed Mini Character , we need to seal the light leakage. There are two ways to seal the light leakage:

Method 1: surface mode 1: surface mode

- Scroll down the mouse to the special mode and click the surface mode. Generally, when making mini-characters, the surface mode should be started to seal the light leakage.

Method 2: Seal the light leak at the bottom

Click the bottom shell grid, input the bottom layer number to 1, and check the light leak sealing appeared below.

#### 4. Mini Character chamfer

The mini-character chamfer is a very commonly used glyph in mini-characters, which means that the right-angle chamfer becomes rounded, which is smoother.

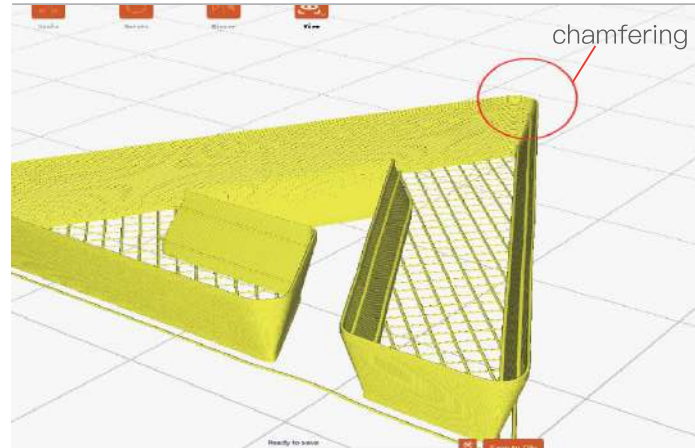


Figure3-17

- When changing the path, check the Mini Character chamfer (as shown in Figure 3-18), and the corners will become rounded.
- Since the corners of some characters cannot be cut (as shown in Figure 3-19), check the forced merge when converting the path to eliminate them.

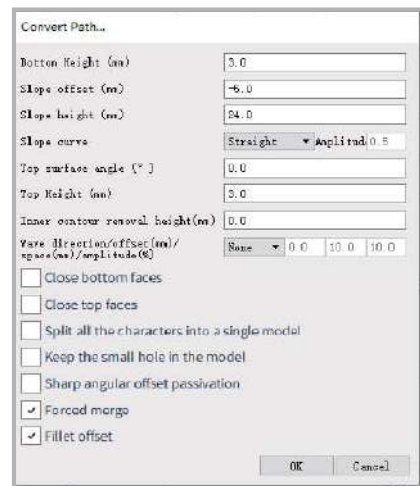


Figure3-18

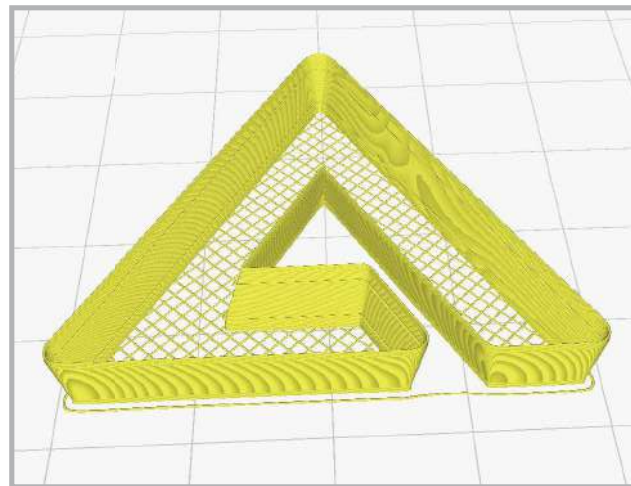


Figure3-19

### 3.2 Parameter setting of special shaped characters

Parameter setting of special-shaped characters: The edge of the font has special shapes, with many shapes available. . The methods of making special-shaped characters are introduced below, as shown in Figure 3–20;

#### Conversion path settings

- Character pattern: click the slope curve;
  - Bottom height: Set according to direct demand (or not set);
  - Slope offset: generally select the slope offset for Mini Character , which can be set according to requirements;
  - Slope height: it refers to the height of the pattern curve (shape) here. It is assumed to be set to 20mm;
  - Slope curve: in addition to the straight line (the height of a straight line is a straight-edged character), there are 5 shapes, which can be selected according to your needs.
- Range: it refers to the shape's angle of the pattern. The larger the angle is, the greater the shape changes. The smaller the shape is, the smaller the shape changes,

Note:that when the range is large, some shapes cannot be generated, at this time we have to reduce or change the modelling

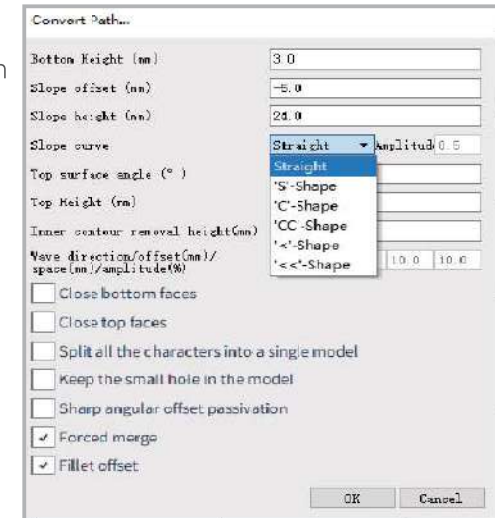


图3–20

Top height: you may set (or not set) according to needs. Five modellings of special-shaped characters:



Figure3–20



### 3.3 User-defined character shell

#### User-defined character shell (developable pattern)

In addition to the types of shells introduced above, you can also open the new shells you want in the user-defined option. Below, we will introduce the functions in user-defined shells.

- Bottom height: to set the height of the bottom straight-edge.
- Slope offset: change of top and bottom sizes. A positive number means shrinking in, and a negative one expanding out.
- Slope curve: change of shell edge, selection of edge shape, adjustment of range changes.
- Top surface angle: the inclination of the top surface, the change on the character shell surface. If the shell height is 10, the landscape character angle is 30, as shown in Figure 3-31.
- Top height: The height of the top straight edge.
- Inner contour removal height: adjustment of the height of inner hole stroke in the model. If the shell height is 30, and the character's center will be removed by 20, the effect is shown in Figure 3-32;
- Wave direction: You can choose the wave changes on the x-axis or the y-axis or adjust the peak value of the wave.



### 3.4 Landscape character parameters settings

The landscape character is a kind of font with different height, which looks very three-dimensional, as shown in Figure 3-40. The production method and precautions are introduced below.

1. Import a file → select a user-defined shell, and adjust the angle of the landscape character.

2. Notes: For the influence of positive and negative angles, if the negative angle is too large, the shell will hang in many places and the printing will collapse. Figure 3-41 is a positive and negative comparison chart, and also note that the height should not be too large.

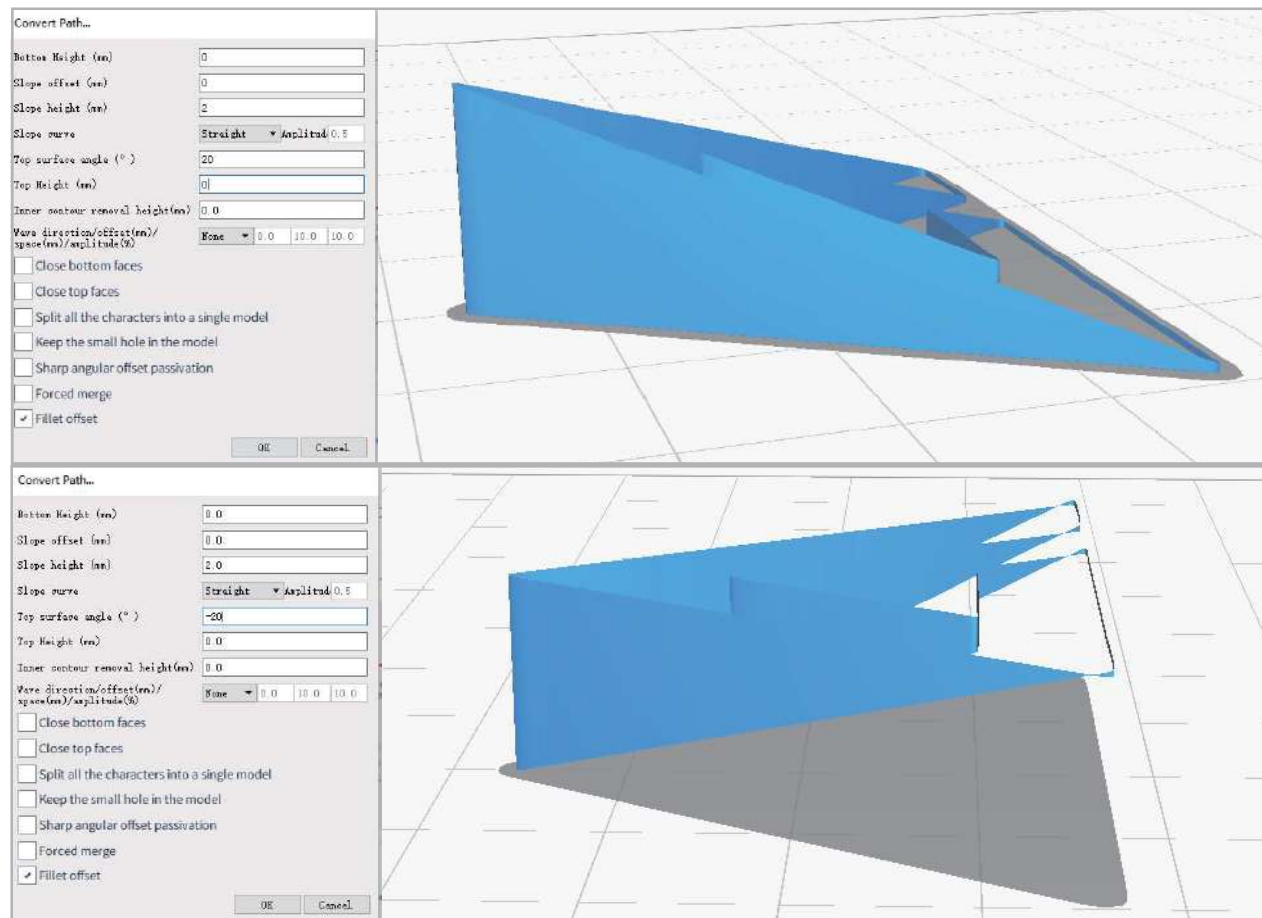


Figure3-40

### 3.5 Inner hole stroke reduction

The stroke reduction in the hole is adjusted in the user-defined shell, check the [inner contour removal height], that is, adjust the height of the inner hole (Figure 3-50).

Benefits of lowering the inner hole:

1. Reduce the height of the inner hole stroke, reduce printing time, and speed up the completion process.
2. Reduce the consumption of wire rods, and minimize the costs.
3. The engraving-free bottom plate hole reduces the engraving time.
4. Reduce the chances of inner hole dropping during printing.

Way to produce:

For example, we make the straight-edged character “强” with a shell height of 30mm, and the inner hole is removed by 20mm.

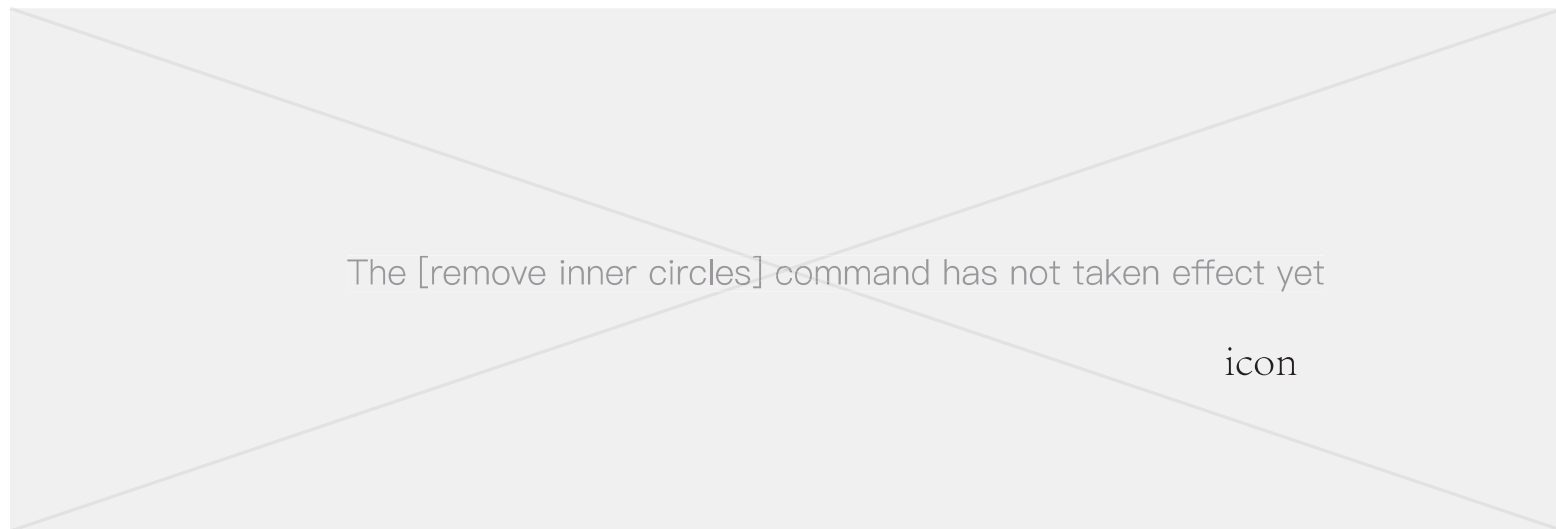
1. Scroll down to the shell, input the bottom layer number to 2 or more, the larger the inner hole diameter is, the more layers can close the light leak.
2. Check “ignore bottom filling” and complete. Click Prepare to open the preview to see the effect, as shown in Figure 3-51;



### 3.6 Outlet hole setting of bottom shell

When producing characters, characters of which the shell bottom plate is to be sealed frequently appears. For easy power cord outgoing, an outlet hole can be reserved in the print shell.

1. Draw a circle of the desired size in the CDR software and add it inside the font. As shown in Figure 3–60, it is added in the center of the character “icon”.
2. Open the SoLiYin slicing software and export the file. Take the straight-edge character (20mm high) as an example.
3. Open the bottom shell grid, first close the bottom, and the number of layers at the bottom should be more than 3, then check [Ignore non-bottom filling], and finally check [Remove inner circles], as shown in Figure 3–61.
4. The effect is shown in Figure 3–62, and the bottom plate outlet hole will be produced. Note that if the outlet



Figure

### 3.7 Automatic glue calculation

SoLiYin is provided with the automatic glue calculation. When making super characters, we often need to fill the closed panel with glues. The automatic glue calculation function developed by the SoLiYin software can solve the tedious glue calculation problem. The following is an introduction:

1. Take the straight-edged character “icon” with the character height of 20mm as an example, import the software → select the straight-edged character → input the character height.
2. Bottom glue calculation strip, the glue filling can be done from top and at the bottom. Here is the bottom filling, so check the bottom glue calculation strip, otherwise, check the top glue calculation. Just check to break up the shell, as shown in Figure 3–70;
3. When printing multiple characters, you need to fill the glue separately, so you need to check the shell to break up. Among the characters with independent strokes, the model needs to be strip in order to calculate the amount of glue;
4. Click the base area to display the real-time glue data, of which the weight is the glue quantity. Click the graphs one by one to get the drawn glue quantity, as shown in Figure 3–71.



Figure

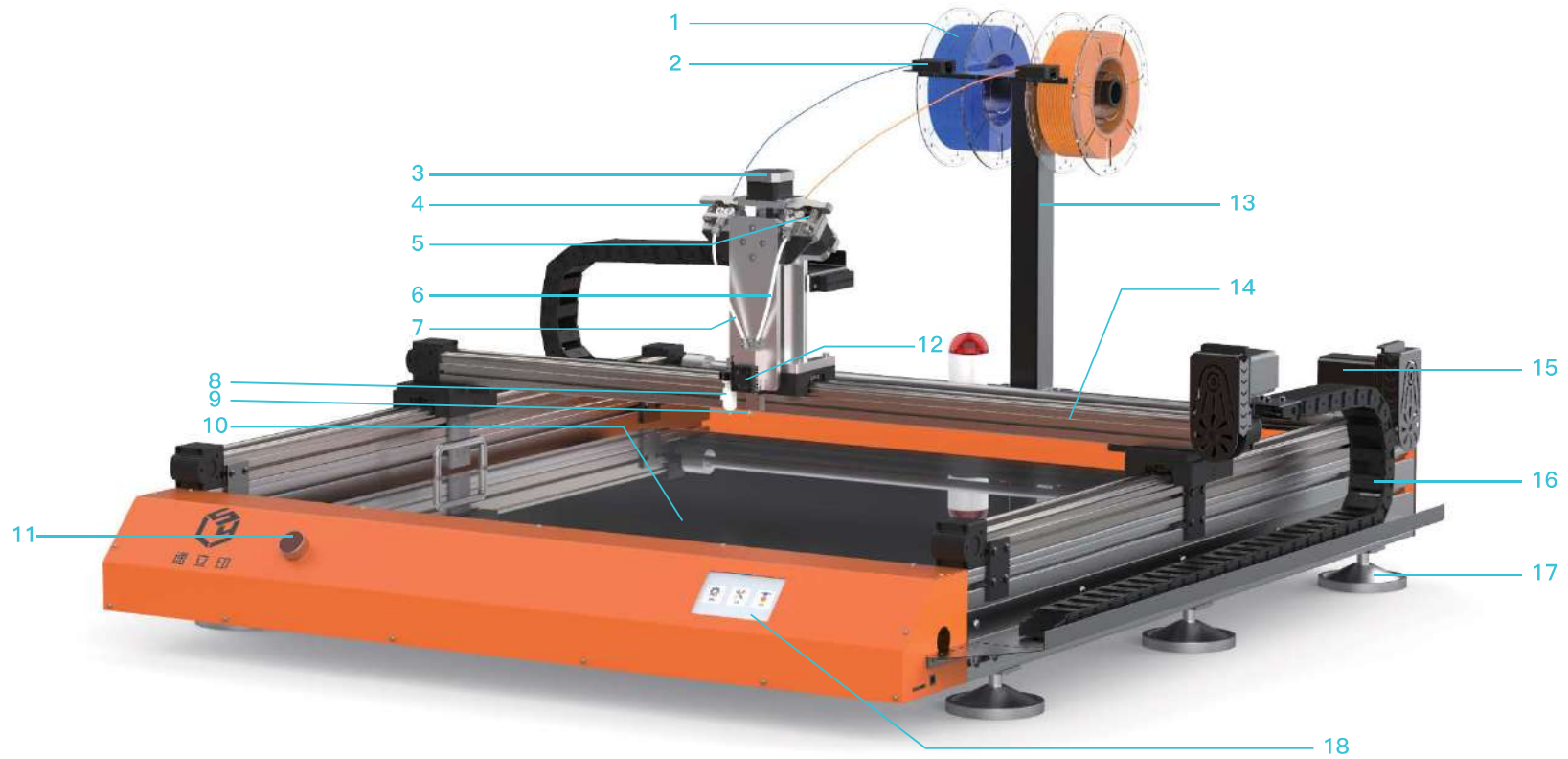


# D

## Machine

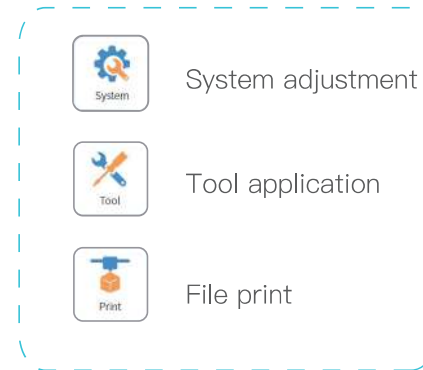
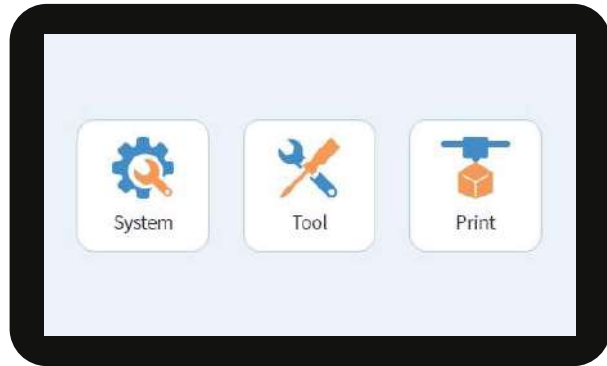
### 4.0 Introduction to machine parts

Parts description: 1. The main parts of printer will be introduced below by taking the SoLeYin K8 as an example, which is the best seller.



1 Wire rods	4 Extruder 2 (L)	7 Extrusion 2 conduit	10 Work platform	13 Wire support	16 Motion precise rail
2 Fracture detection	5 Extruder 2 (R)	8 Bltuch	11 Power switch	14 X motion axis	17 Support metal
3 Z-axis motor	6 Extrusion 1 conduit	9 Nozzle	12 Fan	15 Electric motor	18 Screen

## 2. Screen

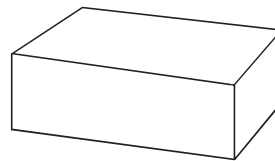


## 4.1 Attached accessories package

List of major parts



1 Main machine x 1



2 Tool package x 1



3 Wire x 2

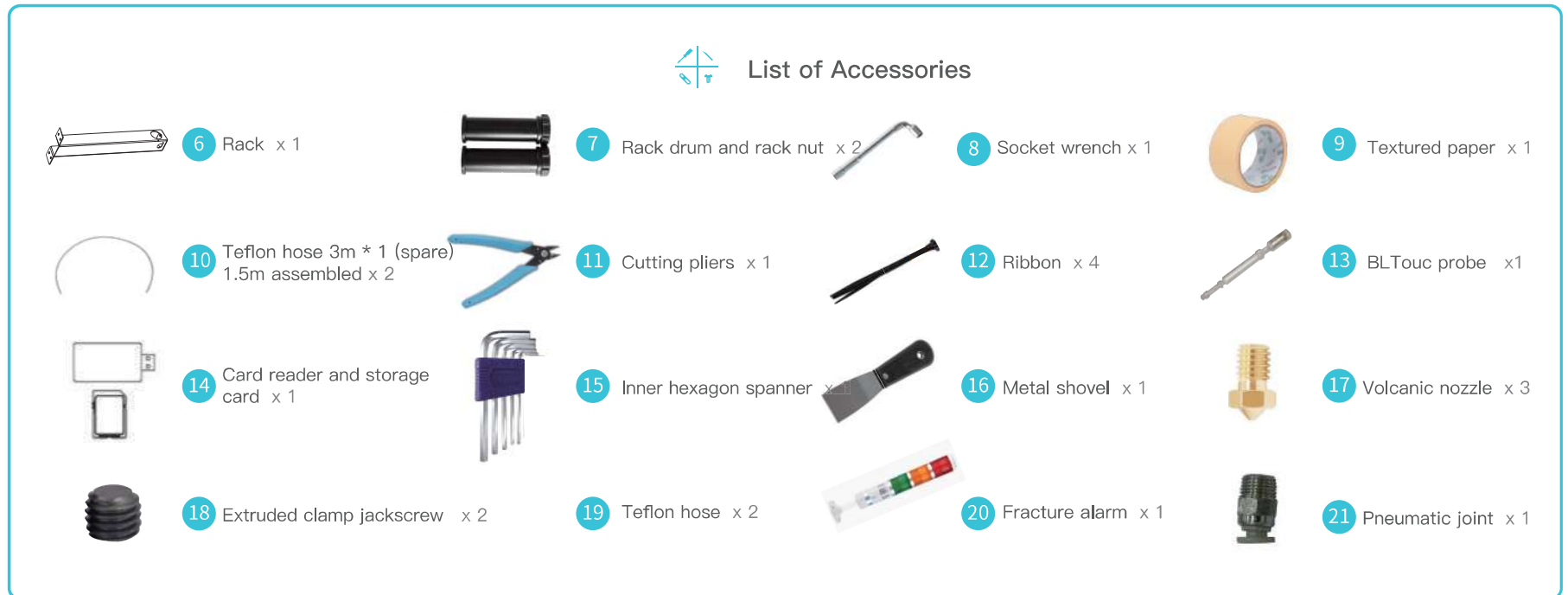


4 Platform layer x 1



5 GB power cord x 1

## List of major parts



\*Note: The above accessories are only for reference. Real objects shall prevail.

## 4.2 Machine operation instructions

### 1. Power connection inspection

A: Turn on the power switch.  
(Pressing upward means opening)



Figure1-1

B: Tightly plug in the interface.  
(Loosing may lead to power connection)



Figure1-2

C: Power cord  
(Power cord is connected to the power supply)



Figure1-3

## 2. Wire assembling

First, mount the required wires onto the wire support. Then, thread the wires through the fracture inductor. A lit inductor indicates that the successful passing. Thread the wires out of Teflon hose through extruder, and thread the Teflon hose into the wire support, as shown in Figure. 2. As shown in figure below, the left wire is the main wire, wire 3 will be firstly used when only monochrome is involved.

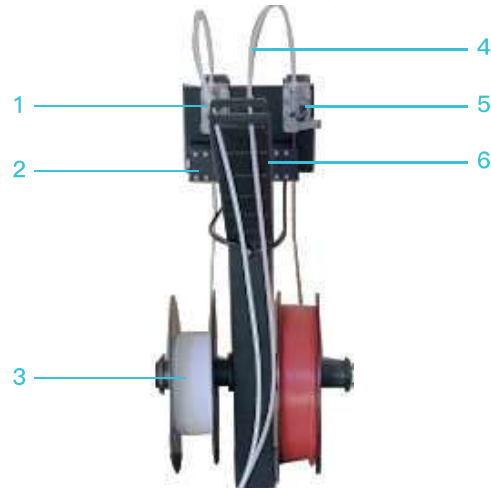


Figure2

- 1 Extruder 1 (L)
- 2 Fracture detection
- 3 Wire
- 4 Teflon hos
- 5 Extruder 2 (R)
- 6 Wire support

### 3. Wire connection

Press the extrusion clamp handle to lead the wire rod directly to the nozzle by passing through the extruder and Teflon hose. As it was shown in figure 3, if it is not smooth to assemble the wire rod, a part of the wire head can be straightened for easy threading of the extruder.

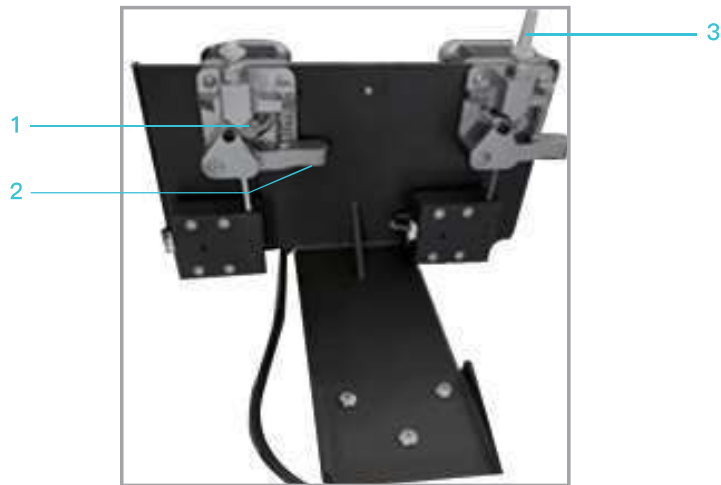


Figure3

1 Gear 2 Extrusion clamp 3 Teflon tube

### 4. Leveling glass platform

①Place the glass on the platform; measure the four angles with a ruler. In case of greater deviation of the four angles, twist the high-head screw aside to the approximate difference (0.1–0.5 mm) and use the Bltuch for automatic leveling.



Figure4



- ② Start the machine and click the tool option to select the emergency stop so that the nozzle and the motion shaft can move. In other cases, forced movement will lead to dislocation. You can choose the automatic restoration to zero in the manual.
- ③ Click the auto restoration and stop when the z-axis restores to zero.

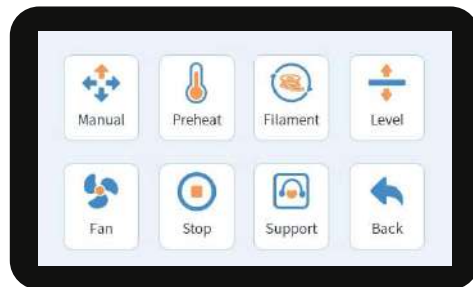


Figure5

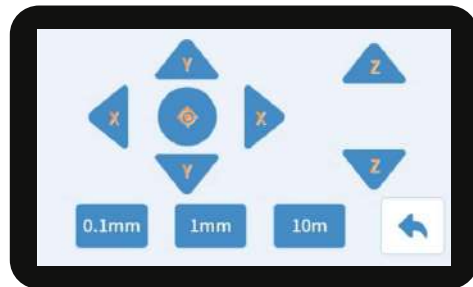
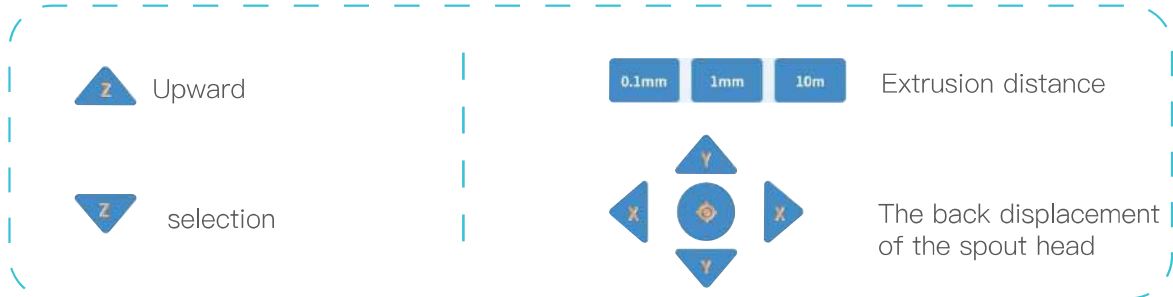


Figure6



- ④ Manually adjust the high-head screws, mainly to keep the difference of both sides of the glass more than 0.5 mm; before using, use a ruler to measure the four corners. If the difference is not



Adjust from the four corners of the platform, as shown in the Figure 6. Finally, test the height of the middle platform and the nozzle. Remember to tightly lock the adjusting wheel for the high-head nut.

## 5. Leveling nozzle and platform (already been set before delivery)

Generally, do not adjust the position of the nozzle because it has been set at factory. But if there are data errors caused by the different thickness of the replaced glass or accidental factors such as collision, it will be necessary to adjust the lowest position and platform of the nozzle.

Ways to adjust

- ① Click emergency stop first
- ② Place the glass platform and adjust it to the minimum position.
- ③ Automatic leveling can be applied when the height difference of the four angles measured with a ruler is between 0.1 and 0.5 mm. If the difference is more than 0.5 mm, the high head screw leveling mechanism will be twisted to make the nozzle contact the glass.
- ④ Open manual interface → return to the starting point → auto leveling → return to the starting point → open system (read status) → record state Z-axis value, print observation → modify Z value (use axis compensation modification), modify back to the starting point → print model

Z-axis compensation: After leveling printing, if it is found that the Z-axis cannot be stuck, click the Z-axis compensation to adjust the value to higher value (for example: adjust 4 to 4.2 ); if it is found that Z-axis grinds glass, click the Z-axis compensation. (e.g.: adjust 4 to 3.8). Z-axis compensation: Z=0 means Z-axis record

## 5. Leveling nozzle and platform (already been set before delivery)

Generally, we should use the ground glue, and use glass nano-coated glue on the glass platform. You can take the whole glass platform and shell for direct glue solidification. Figure 7 shows the application of glues in one direction. An application lasts up to two to three days.

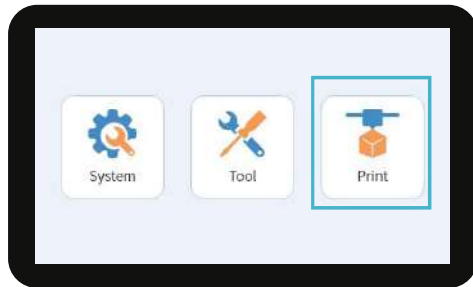
If gluing is not used or the indirect gluing is used, use a textured paper to stick the ground surface as shown in Figure 7.



Figure7

## 7. File print

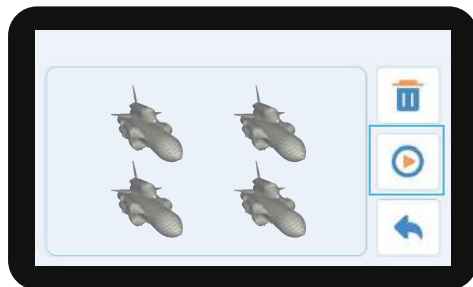
Insert u disk, click print, find print file, click start print icon, as shown in the following procedure:



1. Print



2. Select the Print File



3. Click  to print



4. Preheat the print panel after entering and start printing



File names should be Latin letters or numbers, instead of Chinese characters or other special symbols.



Tips: Please refer to video courses on relevant data processing, character shell production and print data output.

Introductions to print panel and printing adjustment options panel

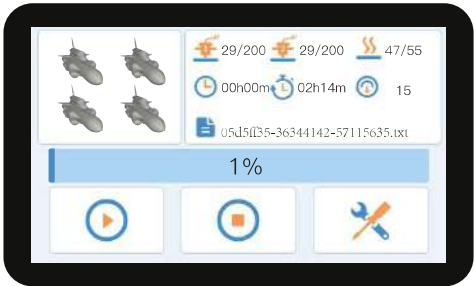


Figure1

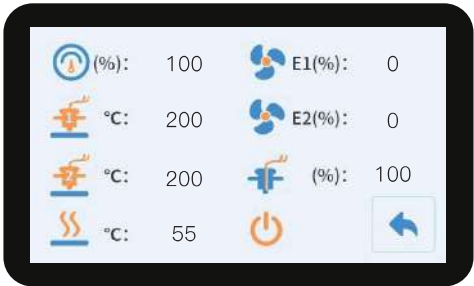
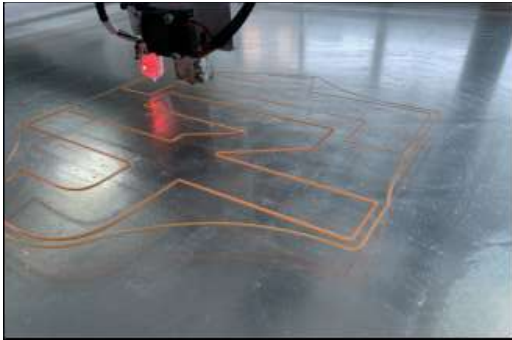


Figure2

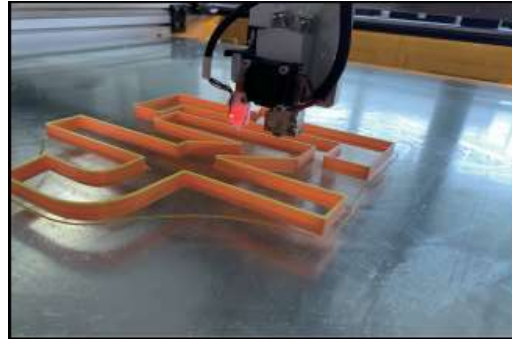
	Model Preview		Time consumed		Reprinting		Fan (1) size
	No. 2 nozzle real-time temperature and printing		Time consumed		Stop printing		Fan (2) size
	Platform temperature		File name		Printing progress		Extrusion volume

\*Note: The interface is for reference only and the actual UI shall prevail.

### 4.3 Printing process



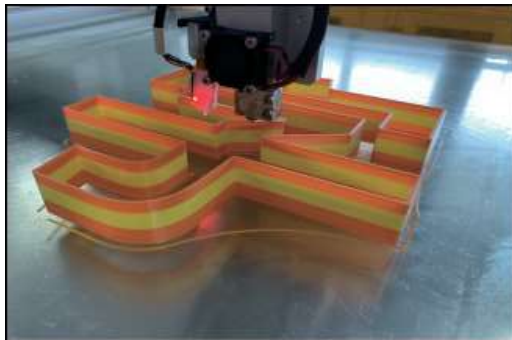
1. First layer printing



2. Print layer by layer



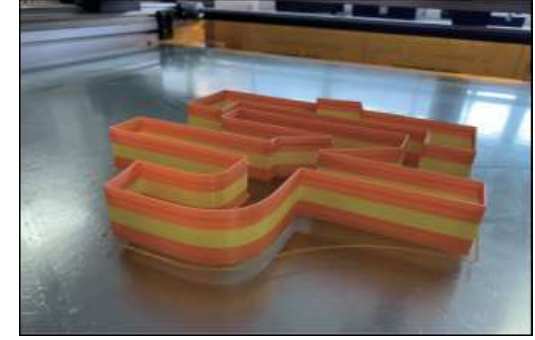
3. Start changing colors



4. Second-layer color changing



5. Print completed



6. Finished product display



The actual product may be different from the picture according to the model. Shenzhen Sly 3D Technology Co., Ltd. reserves the right of final interpretation.



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