UV 3D Printer

BSM-DP 1000

Instruction Manual

V2.0

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Chengdu Besmile Biotechnology Co., Ltd.

www.bsmdental.com

Welcome

Thank you for purchasing the BSM-DP 1000 3D Printer from Besmile.

This User Manual is designed to aid BSM-DP 1000 users in the assembly and use of their new printer and to help in getting started with 3D Printing.

Even if you are familiar with 3D printing technology, we still recommend that you read through this user manual, as there is a lot of important information about the BSM-DP 1000 for you to get a better 3D printing experience.

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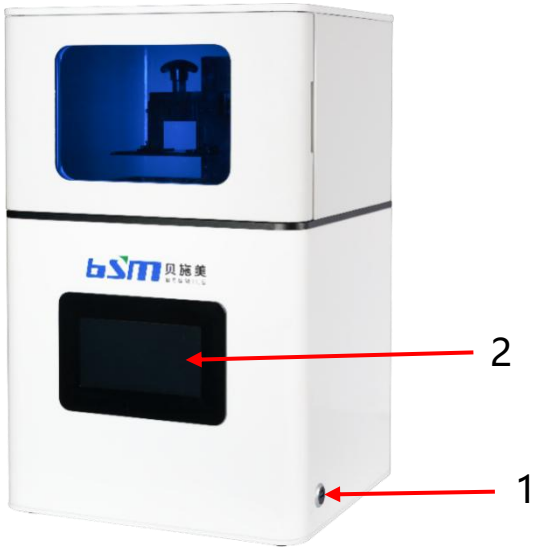
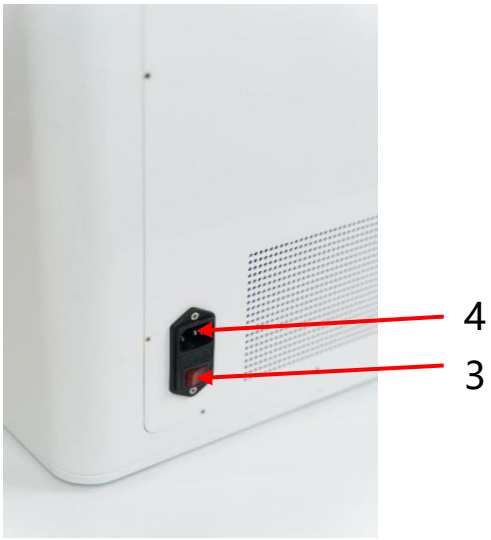
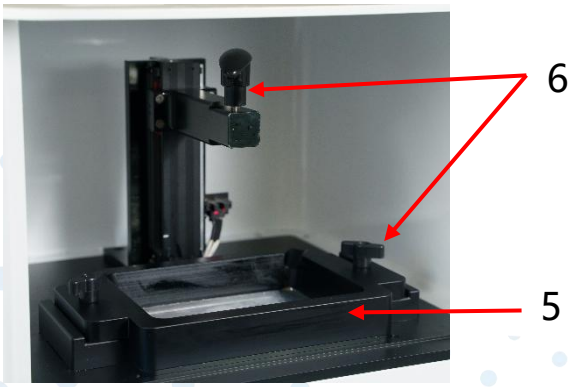
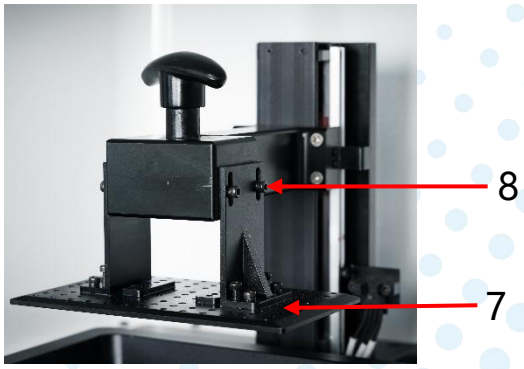
1: Product overview

BSM-DP 1000 is specially developed for implant and fixed prosthetics applications. It adopts industrial-grade DLP technology with extremely high molding accuracy and efficiency, which is suitable for users who have high requirements for improving the precision and efficiency of product details.









1：USB port；
2:control panel；
3：Switch；
4: Socket;
5: Resin vat component；
6: T handle screw；
7: Building plate；
8: Leveling screw；

2： Basic specifications

Model	DP1000
X&Y-Axis resolution	75μm
Z-axis accuracy	5μm
Forming size	144*81mm
Layer thickness	0.05~0.1mm
Printing speed	25~30mm/h
File format	.STL、.OBJ
connection	USB
Slicing software	CHITUBOX
Consumables	dental resin model, surgical guides, gums
Dimensions	380*350*630mm
Weight	30kg
Power rating	500W
Language	Chinese, English，Japanese,French,Korean, German,Russian,Portuguese, Italian,Spanish and Turkish

3： Packing list

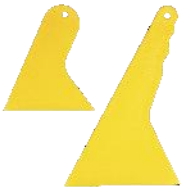
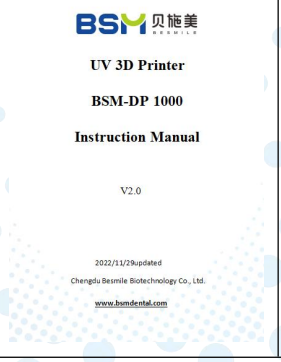
①

BSM-DP 1000

②

Building plate

Tools：

Name	Picture	Quantity	Name	Picture	Quantity
USB		1	Metal scraper		1
Plastic scraper		2	FEP flim		10
Cleanroom wipe		2	Filter funnel		2
Allen wrench		1	Cross screw driver		1
Power cord		1	User manual		1

4： Precautions

1: Room temperature for equipment installation and use: 20-30 ℃, humidity ≤ 60%。

2: Avoid direct sunlight and UV light.

3: To ensure the smooth operation of the printer, it needs to be placed on a stable and horizontal desktop.

4: Resin is a consumable with slight smell. Protective gloves and other PPE for proper protection are needed when using printers in a well-ventilated area.

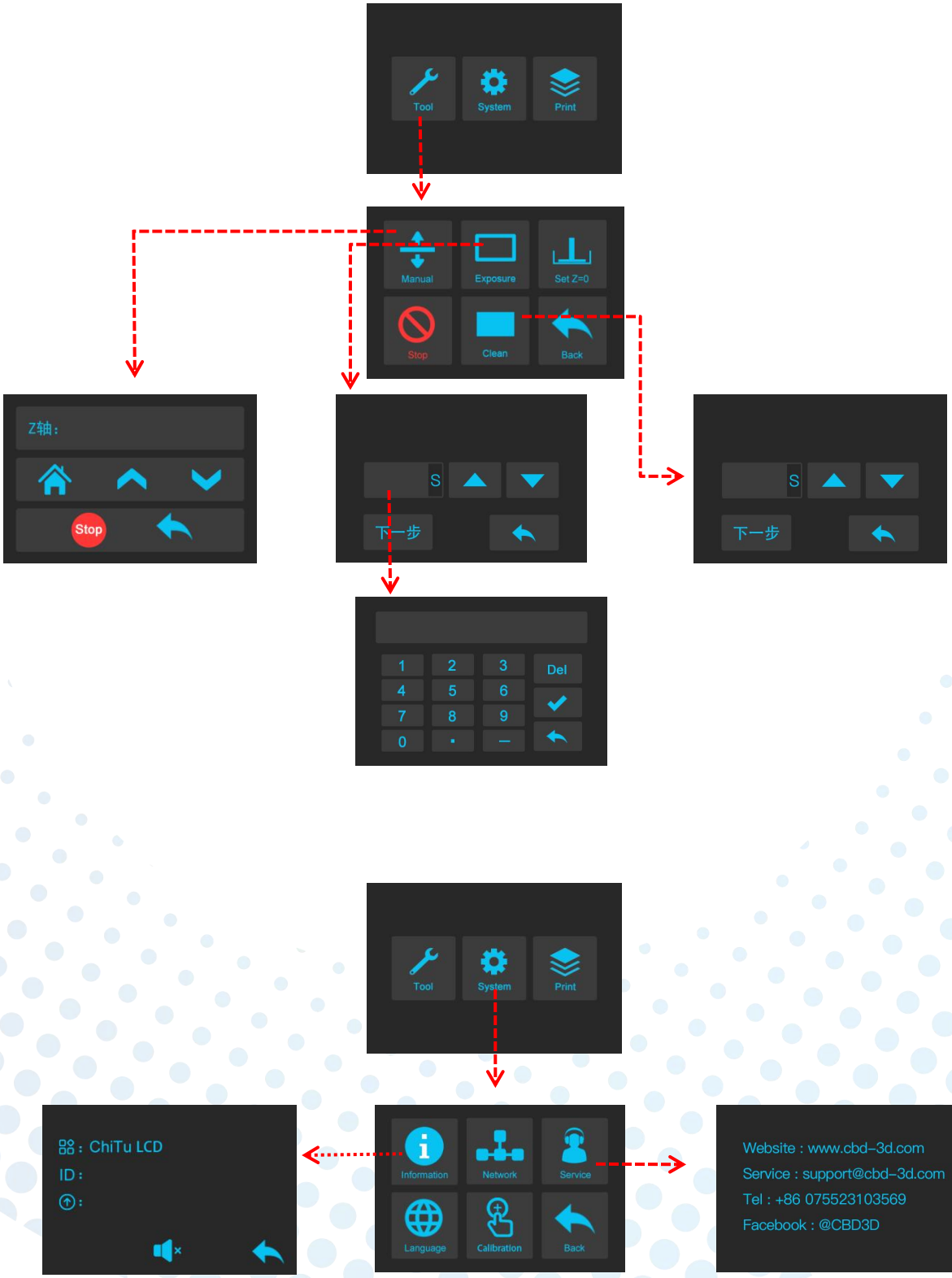
5: To ensure high precision, the building plate needs to be leveled every 15 days. Also the FEP film needs to be replaced if keeping working more than 15 consecutively days.

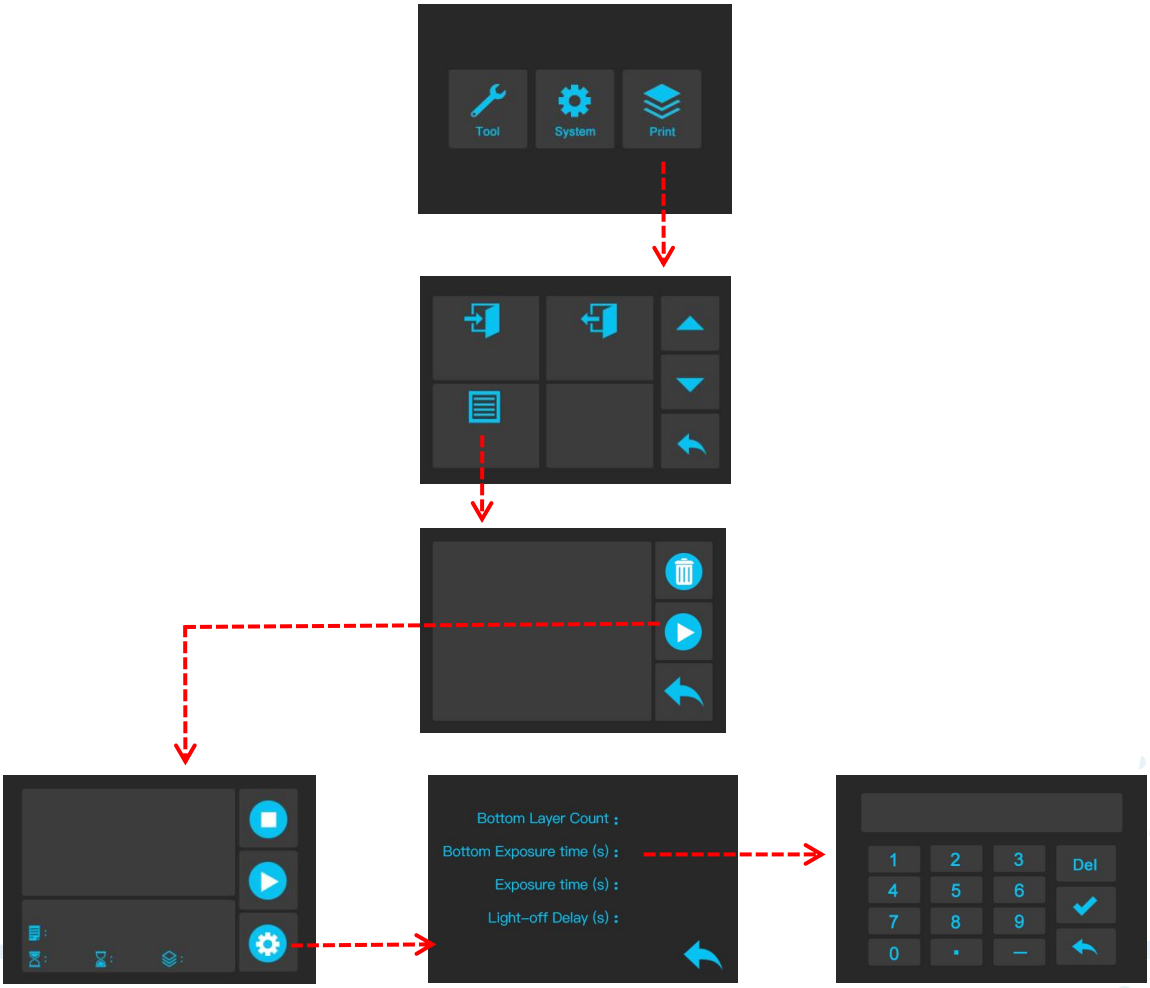
5： Operation interface

1：Button

Icon	Name	Effect
	Back	Back to the previous page
	Start	Start/Continue to print a project
	Delete	Delete a project
	Stop	Stop the printing process of the current model
	Pause	Pause the printing process of the current model
	Setting	Skip to the settings page
	Previous page/ Increase numerical value	In the file list, click to view the list file on the previous page In parameter setting, click to increase a parameter value of one unit
	Next page/ Decrease numerical value	In the file list, click to view the list file on the next page In parameter setting, click to decrease a parameter value of one unit
	USB file	Indicate that the current file list is read from USB
	Local file	Indicate that the current file list is read from local storage
	Confirm	Confirm and save the entered value
	Turn on warning tone	Indicate that the current system warning tone has been turned on
	Turn off warning tone	Indicate that the current system warning tone has been turned off
	Plate moving up	After clicking, the plate will move up (away from the vat) by one unit according to the set step value
	Plate moving down	After clicking, the plate will move down (close to the vat) by one unit according to the set step value
	Plate reset	After clicking, the plate will move to the preset height

2：Introduction of control panel




Tool
System
Print
Bottom Layer Count :
Bottom Exposure time (s) :
Exposure time (s) :
Light-off Delay (s) :
1
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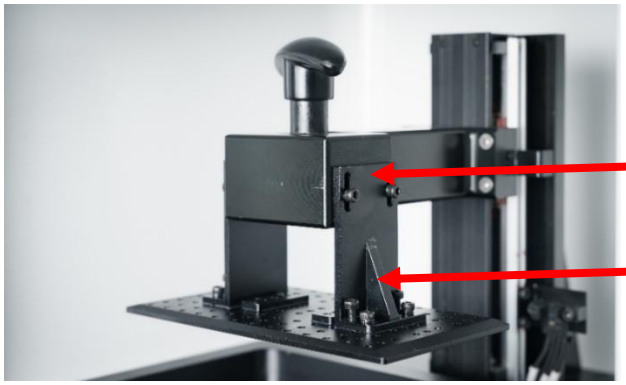
6： Installation

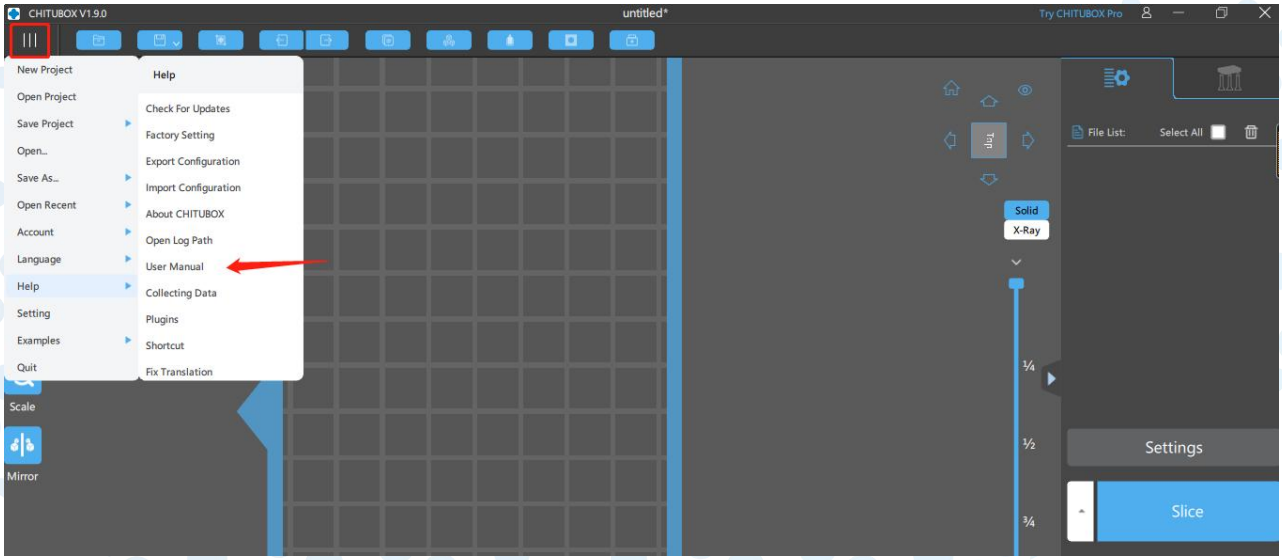
- Take out the printer and accessories in the packing box
- Tighten the T handle screw of the building plate

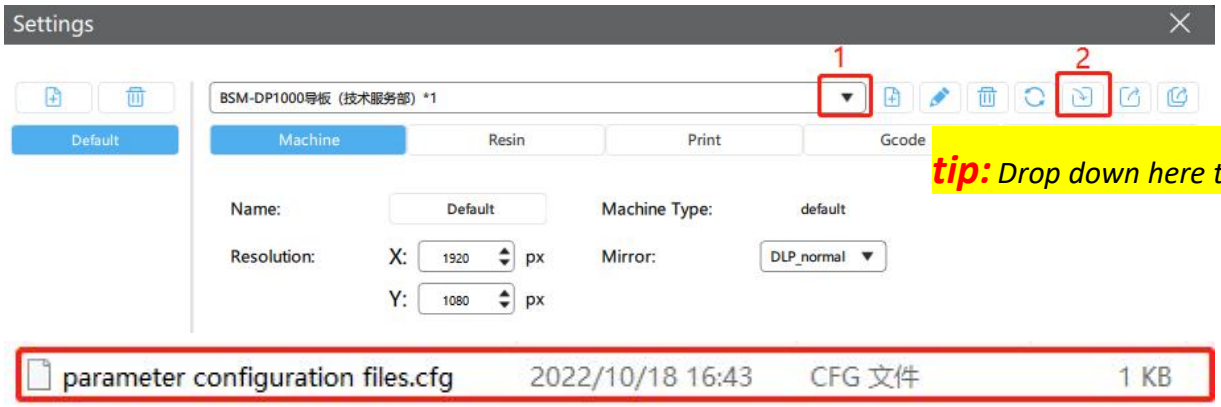


7： First printing

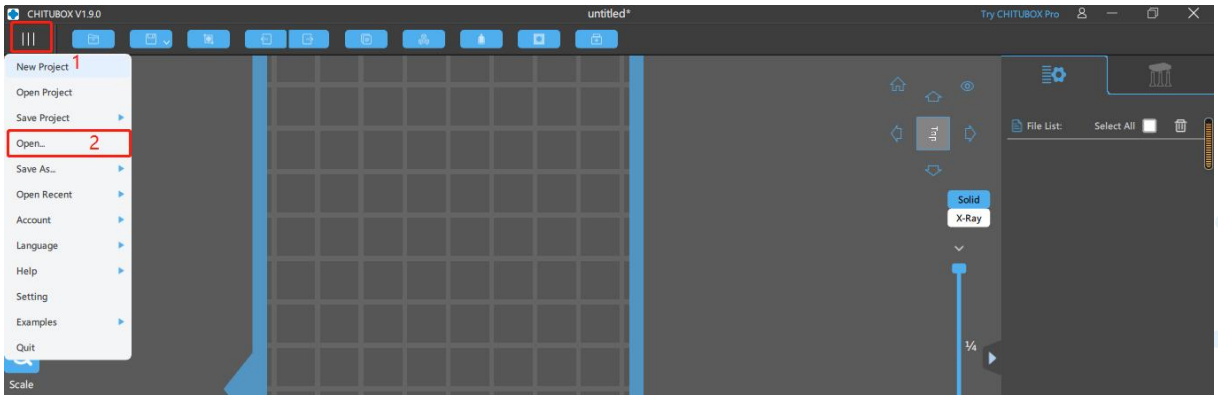
1: Connect the power cord of the BSM-DP 1000 , insert the USB on the computer, and install the slicing software (CHITUBOX64Install_V1.9.0. exe).

2：After the installation, open the software (if update warning, please ignore it), click No.1 “Settings” and No.2 “Import profile” in turn, find parameter configuration files in USB and select the file in the settings according to different printing materials.





3： Return to main screen, open the file by clicking No.1 to select No.2“Open File”, choose the file to be printed, import it into the slicing software.



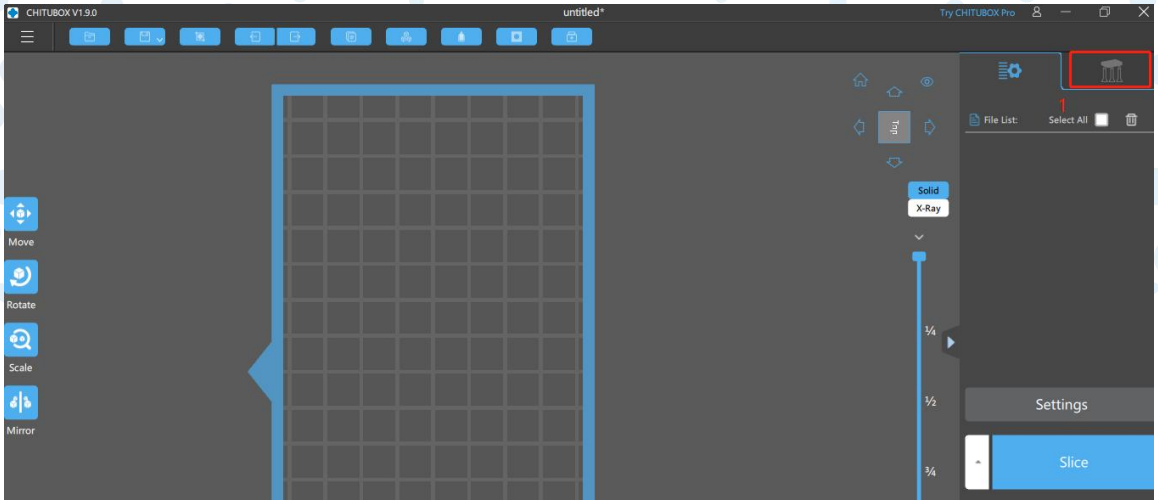
4：Support setting.

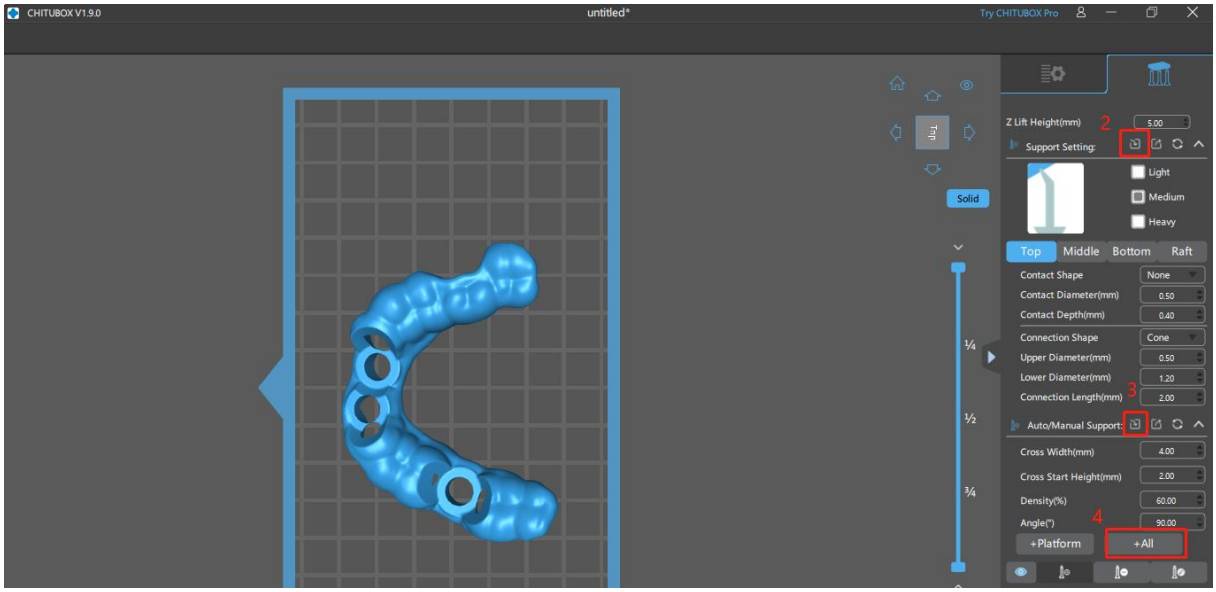
Click No.1 to enter the process of support settings.

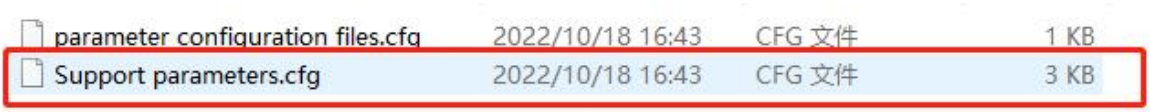
Click No.2 to import parameters, select the proper support setting parameters.

Click No.3 to import parameters automatically or manually to finish setting,

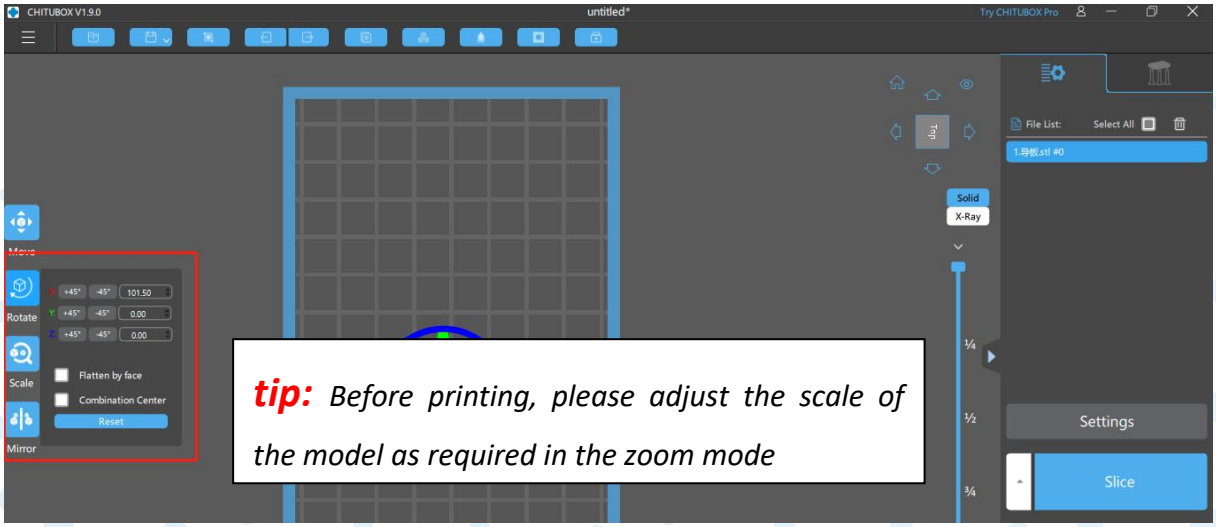
Click No.4 to add supports at once. (Supports are only added when the surgical guides and models do not have a flat contact area)







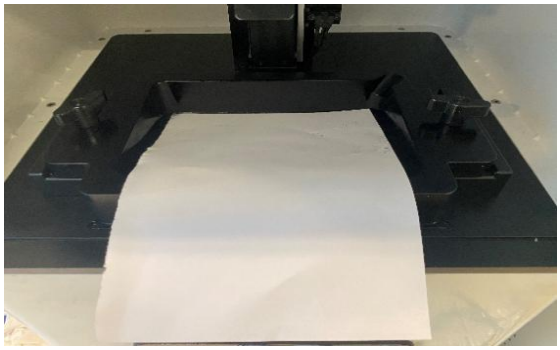
tip: *For more software information, please refer to:* ☰ *→Help → User Manual, or visit the website: https://manual.chitubox.com/zh/user-manual-basic/introduction*

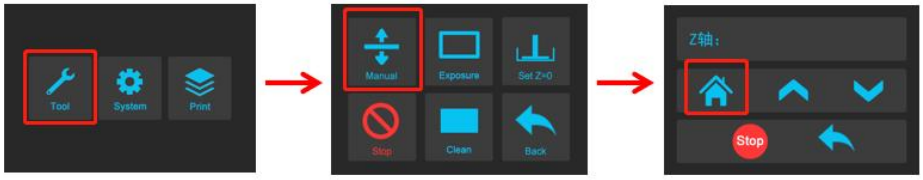


5：After slicing, remove USB with slicing data and insert it into BSM-DP1000.

6：Please follow the steps below to confirm the bed leveling.

① Take half of an A4 paper (folding the long side and cut it in half), place it on the resin vat as shown in below, and click icons below in turn;

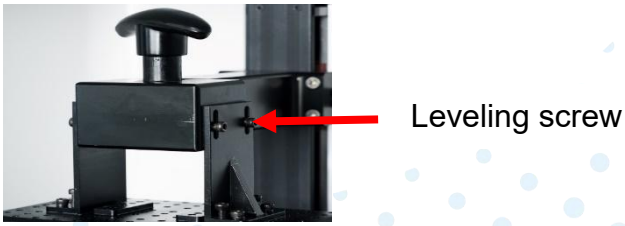




② After the building plate touches the FEP film, pull the A4 paper. If it can be pulled out with resistance, then bed leveling is confirmed.

③ If it can be easily pulled out or can not be pulled out, then the following steps need to be done.

Ⅰ: Loosen four leveling screws with an allen wrench

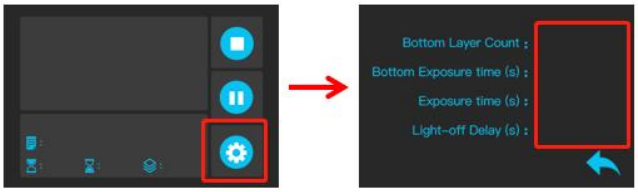


Ⅱ：Press and hold the building plate to make it closely fit with the A4 paper, lock the leveling screws in turn and pull the A4 paper. If it can be pulled out with resistance, , then bed leveling is confirmed.

Ⅲ：Return to the main page.

7：Click the following icons in turn, select “print”, and start printing.

8：If you need to modify the parameters, click the following icons to change in this page.



9：After printing, loosen the T handle screw, remove the building plate components, use a metal scraper to shovel the model along the surface of the building plate, and clean the building plate(If you need to replace the materials, use denatured or isopropyl alcohol to clean the building plate components. if not, just use a scraper to clean the plate surface).

8. Key notes when using the resin vat

1：Before pouring the resin, please confirm the surface of the resin vat glass is clean without foreign bodies left such as dust and stains. If not, please clean it ,otherwise the final results will be affected.

2：When adding resin, please slowly pour in along the edge of the vat. Continuing to add it depends on the size of models.

3： If resin left in the vat, please do as follows before printing to avoid precipitation of long-term placement:

- Clean the resin vat and set time for 2S.

- Remove the solidified objects at the bottom by using a plastic scraper.
- Scrape back and forth at the bottom of the vat by using a plastic scraper to stir the resin well.

4: If residues are left in the bottom of the vat or in the resin, be sure to use the filter funnel along with our machine for filtration. It is strictly prohibited to directly use sharp tools for poking or clamping, which protects FEP films from damaging.

Tip*: *If the model is not printed on the building plate, please pour out all the resin in the vat into the filter funnel and continue to use the resin after removing residues. During the cleaning process, if the FEP film is damaged or folded, please replace it immediately. Otherwise the printing results will be affected.

5: When cleaning the resin vat, please pad a clean and flat piece of paper or the similar material under it to avoid pollution and glass scratching.

6: After printing or before changing different types of resin, clean the vat with denatured or isopropyl alcohol.

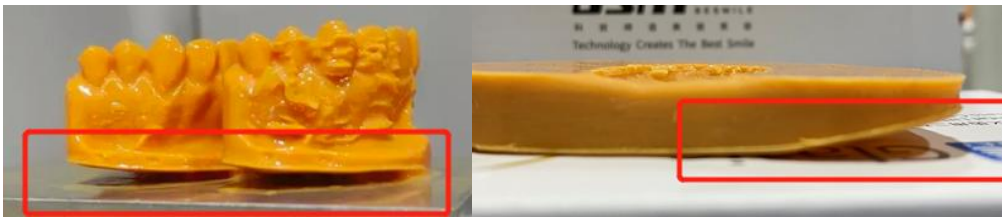
9. Trouble shooting

1: The model is separated from the building plate (the bottom layer of the model is not solidified on the surface but in the bottom of the vat).

Solutions:

- Check whether the building plate is leveled.
- Reduce the pull-up speed.
- Increase the exposure time for the bottom layer (8-10 times the normal layer).
- Replace the FEP film.

2： Models with warping



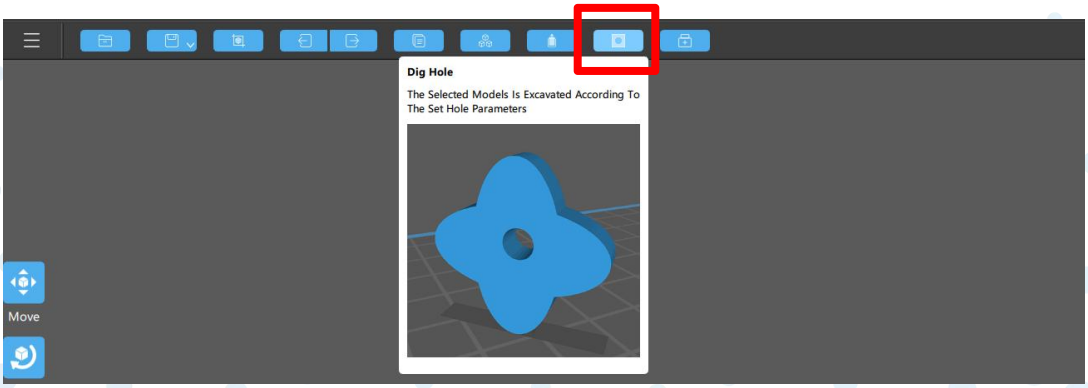
Solutions:

- Clean the building plate.
- Adjust the building plate to ensure bed leveling.
- Sand the panel of the building plate to make it rougher. (Sandpaper is recommended and be sure to sand it in one direction.)

3： Model faults

Solutions:

- Click “Dig Hole”on CHITUBOX to add holes to reduce pressure.



- Increase exposure time.
- Adjust the building plate.
- Filter the resin in the vat and clean it before continuing printing.
- Replace the FEP film.

4：Supports missing or breaking

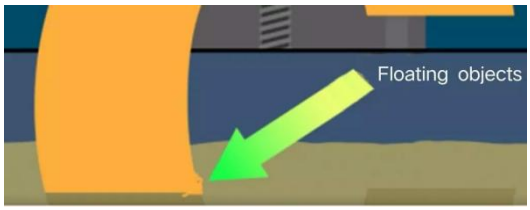
（Supports in normal）

（Supports missing or breaking）

Solutions:

- Increase the density of supports. (Try to make it reasonable, not too high. Otherwise, surface features of the 3D models are not clear.)
- Increase the diameter of supports, adjust relevant values such as contact depth and the diameter of supports' top. (increase or decrease 0.2 mm each time)
- Reduce the printing speed.

5: Floating objects



Solutions:

- Increase exposure time.
- Reduce the pull-up speed after solidification.
- Make layers thicker.

6：Fail to print well and unexpected results can be seen

Solutions:

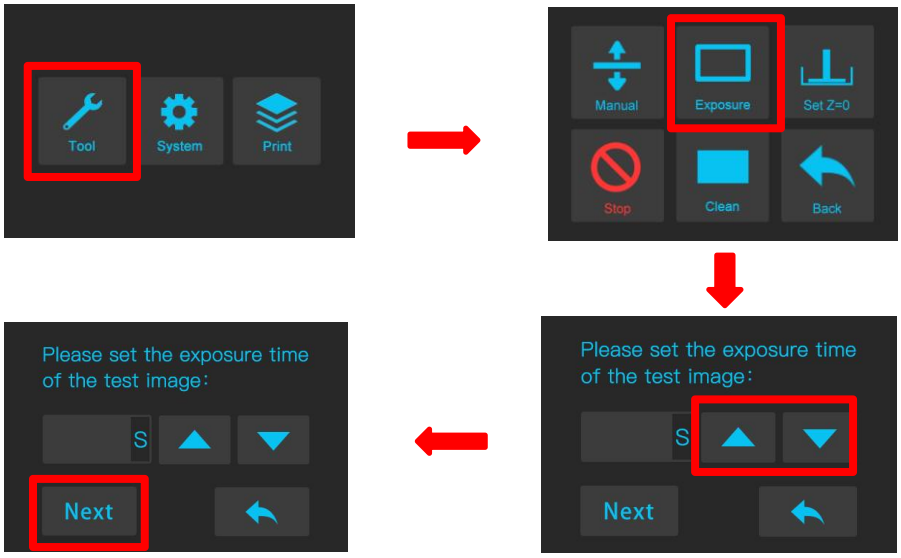
- After removing the building plate and resin vat, place a piece of A4 paper on the dustproof glass of the UV light engine, and click the following buttons:

①"Tool"

②"Exposure"

③“Set the time to 3-5 seconds” (avoid watching the light directly for a long time)

④“Next”



- Then see whether the rectangle is abnormal (Figure 1). If so, restart it after power off. If not works well after restarting, the UV light engine should be replaced. please contact the local distributor for service.

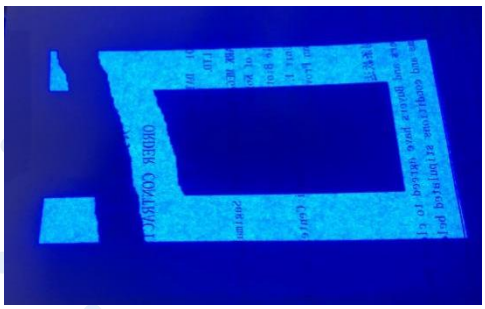


Figure 1：abnormal exposure

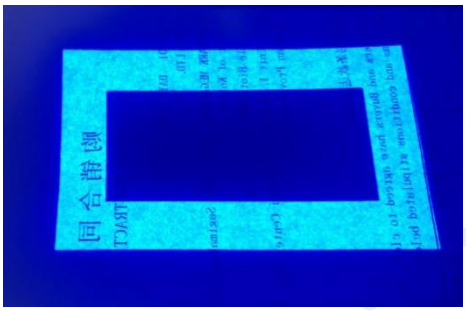


Figure 2：normal exposure

- See if there is dust on the dustproof glass. If so, wipe it with cleanroom wipes. If there is leaking resin dripping to the glass surface, please use a gauze with denatured alcohol to clean it immediately. After that, clean it again with wipes. If it is still not working, please take the glass off and wash it. Then dry the surface and clean it with our wipes.
- Check the lens. If there is dust on it, please take the glass off and wipe it.

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