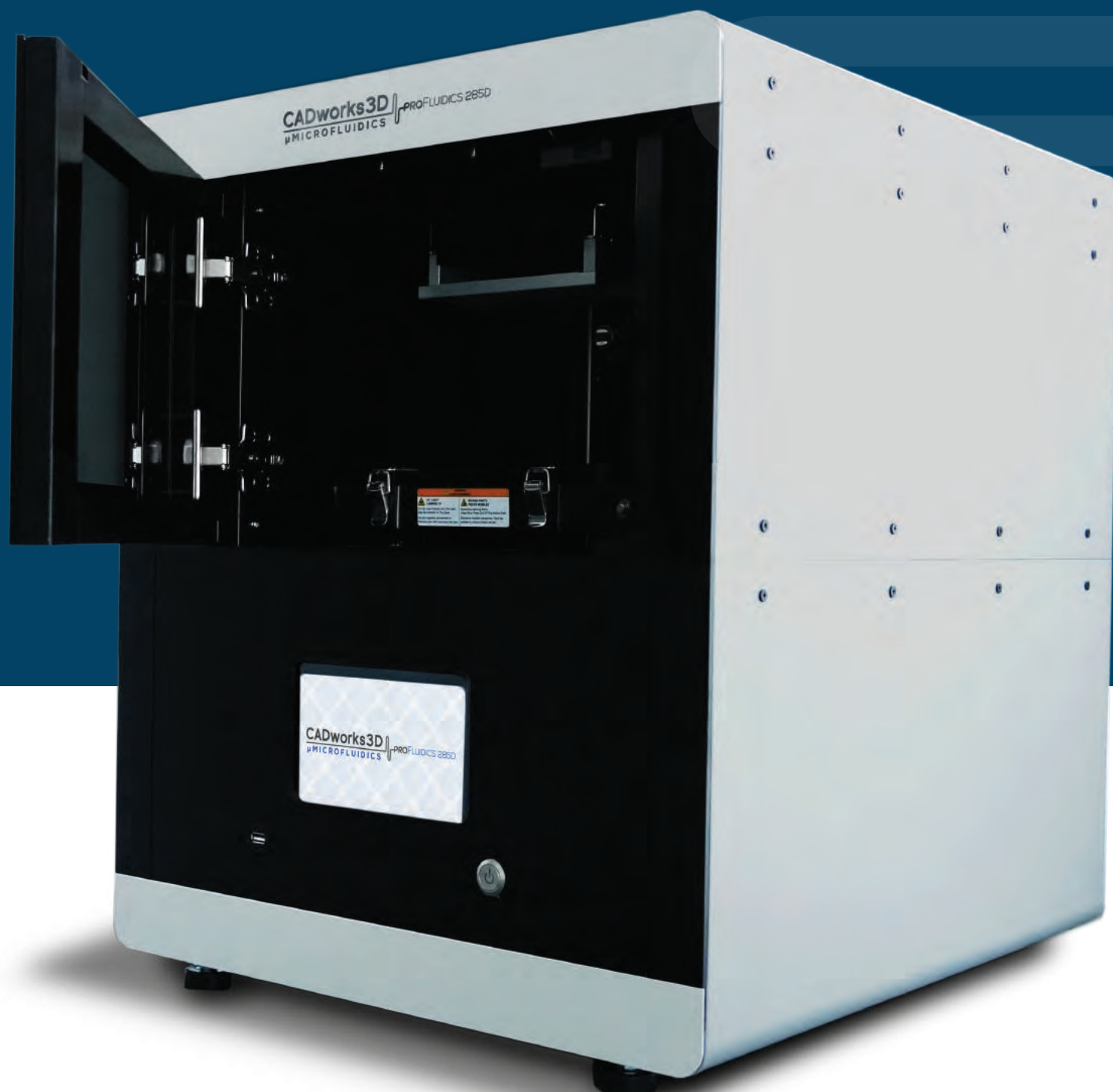


PROFLUIDICS 285D
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PROFLUIDICS 285D

CADworks3D | PROFLUIDICS 285D
μMICROFLUIDICS

USER MANUAL

Getting Started with the ProFluidics 285D:
A Step-by-Step User Guide



In dex

1	Product Information	Pg.3
1.1	Instructions for Use	Pg.3
1.2	Regulatory Statements	Pg.3
1.3	Safety Precautions	Pg.4
1.4	General Information	Pg.5
1.5	Package Contents	Pg.5
1.6	Product Overview	Pg.6
2	Set up your 3D printer - Hardware	Pg.7
2.1	Unpack	Pg.7
2.2	Connect Computer	Pg.7
2.3	Power Button Control	Pg.8
2.4	Install Buildplate	Pg.9
2.5	Fill Resin Tank	Pg.9
2.6	Consumable Parts and Spare Parts related to resin tank	Pg.10
2.7	How to replace Teflon film module	Pg.10
3	Operate your 3D printer -Software	
4	After Print	Pg.11
4.1	Remove Model	Pg.11
4.2	Clean Buildplate	Pg.11
4.3	Clean Resin Tank	Pg.11
	Appendix 1. Specifications	Pg.11
		Pg.12

Product Information

1.1 Instructions for Use

Please read through the following Instructions before you start using your printer.

- (1) Ensure that the glass under tank is positioned flat at the corners point, to not damage the printer while in use.
- (2) Ensure no residuals are inside the tank and the glass is well setup before printing.
- (3) Avoid printing at center point with a single object or small parts repeatedly, it may damage the tank.



1.2 Regulatory Statements FCC NOTICE

This equipment has been tested and found to comply with the limits for a class "A" digital device, pursuant to Part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their expense.

Safety Certification

This equipment has been tested and compliance to safety requirement.



1.3 Safety Precautions

Please read through the following Instructions before you start using your printer.

- (1) Use only manufacturer-provided power adapter and accessories.
- (2) Verify local power rating matches specified voltage and frequency before plugging in.
- (3) Printer requires grounded, 1-phase electrical source.
- (4) Manage power and communication cables to prevent tripping.
- (5) Only use reliable manufacturer-supplied resins.
- (6) Protect resin tank from direct light to avoid solidification.
- (7) Follow resin MSDS for safety and wear gloves if necessary.
- (8) Clean resin tank before moving printer to prevent overflow.
- (9) Keep door closed during printing and curing to avoid UV leakage.
- (10) Do not stare at the printer during operation; wear UV protective glasses.
- (11) Keep printer on level surface and upright at all times.
- (12) Avoid storing in extreme temperatures.
- (13) Do not disassemble or repair the device.
- (14) Keep hands away from buildplate during operation.
- (15) Emergency shut down: Press and hold Power Button for 3 sec.
- (16) Install by qualified personnel with 3D printer and electrical code knowledge.



1.4 General Information

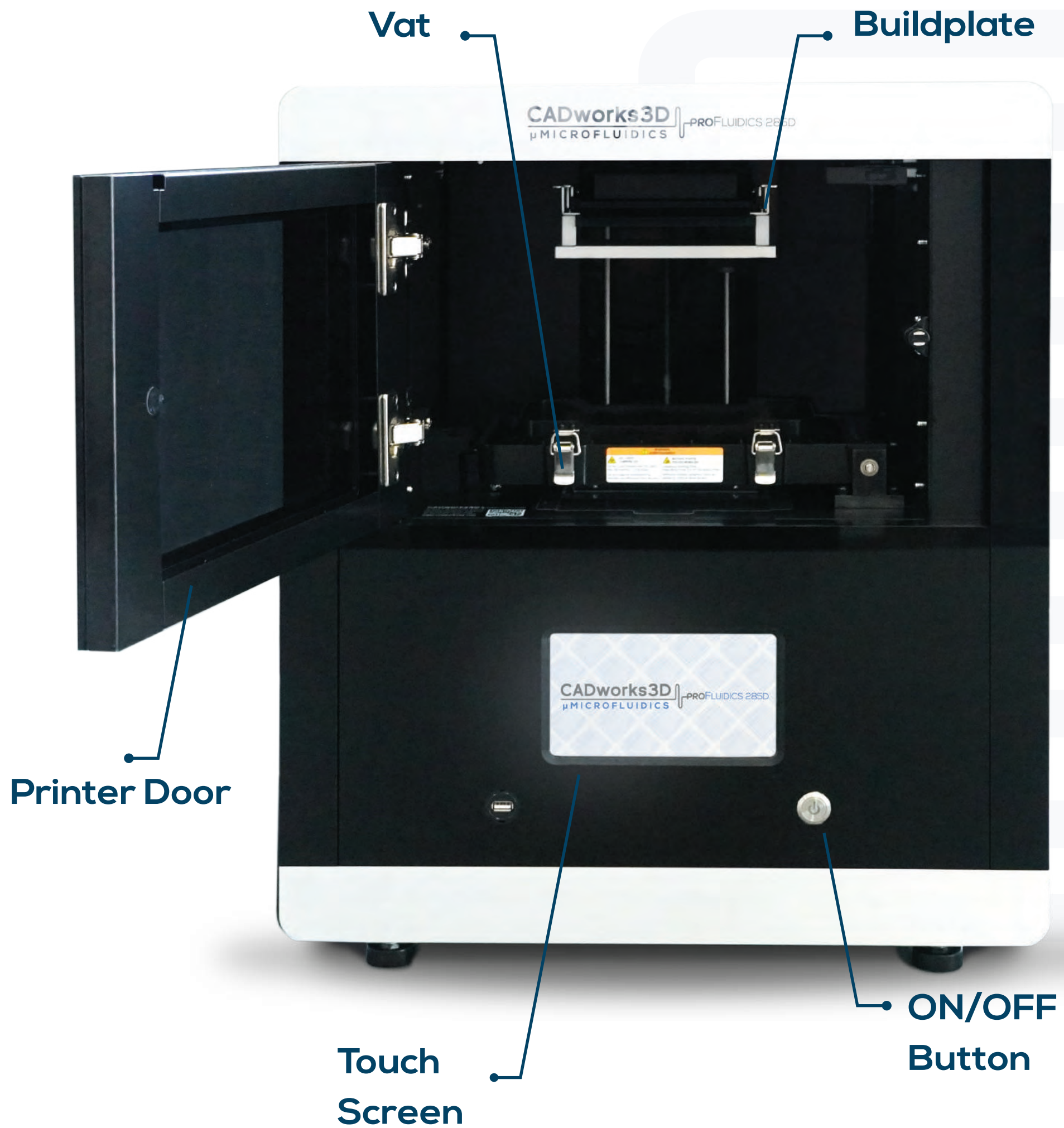
Product Name	ProFluidics 285D
Power Input	100~240V AC, 50Hz/60Hz
Adapter	19.5V DC / 6.15A 19.5V DC / 6.7A
Package Size and Weight	80 x 80 x 93 cm / 76 kg
Operating Temperature	10° to 30°
Humidity (RH)	40% to 60% -printer should be kept in dry conditions
Storage of Printing Material	Store the materials at ambient temperature from 15° to 28° and do not exposure to the light, otherwise resin may solidify
Printer Dimension W x D x H	50 x 57 x 59 cm

1.5 Package Contents

Upon receipt, kindly inspect the package for any signs of transportation-related damage. Please verify the contents to ensure the presence of both the printer and accessory box.



1.6 Product Overview



Hardware Setup

2.1 Unpack

(1)
 Remove the top cardboard



(2)
 Remove the EPE surround the inner box



(3)
 Remove the side cardboard



(4)
 Remove the inner box



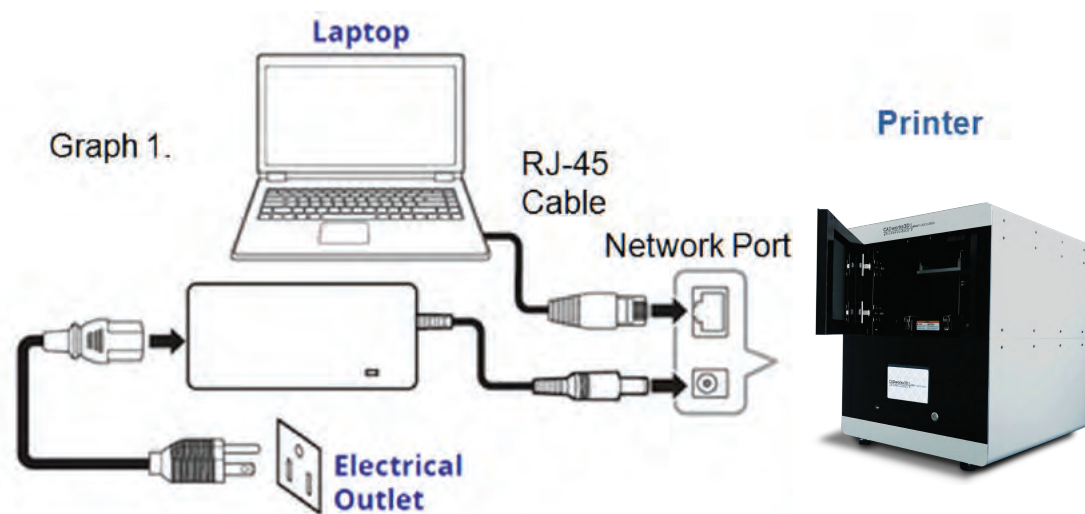
WARNING Printer net weighs at least 56 kilogram. Please be careful, and use proper lifting techniques to avoid injury.

2.2 Connecting to the Power adapter and Cable

(1) Connect power cord and adapter to device, then plug into electrical outlet.

(2) Connect printer to laptop via:


- RJ-45 cable (1 min initiation)
- Local area network (seconds initiation)
- IP sharer (seconds initiation)



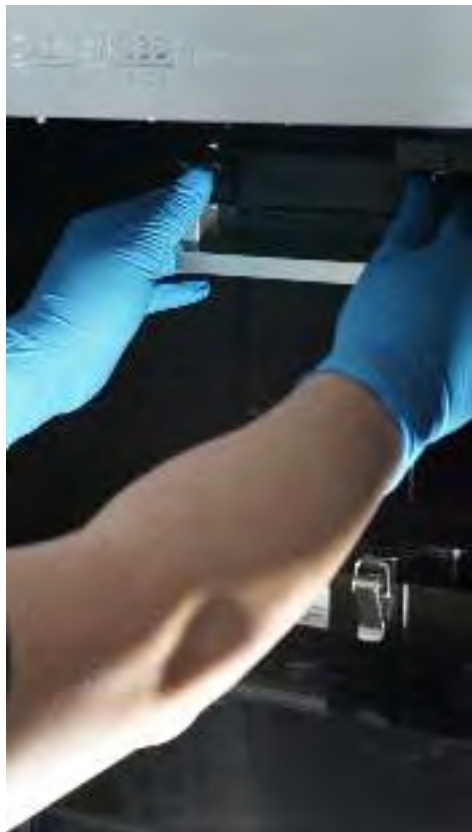
2.3 Power Button Control

- (1) **Power On:** Press Power Button to display starting up message, followed by menu.
- (2) **Power Off:** Press Power Button to confirm shut down message and proceed with shut down.
- (3) **Emergency Shut Down:** Press and hold Power Button for 3 seconds.
- (4) **Power Button Indicator Signal.**

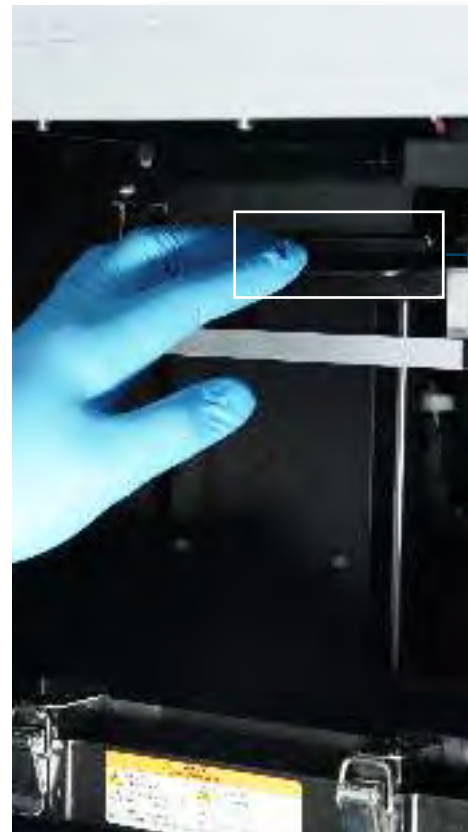
	Solid	Standby Mode
	Blinking	Starting up or printing in progress

	Solid	Error
---	-------	-------

2.4 Install Buildplate



Carry both ends of the buildplate and install it into the machine



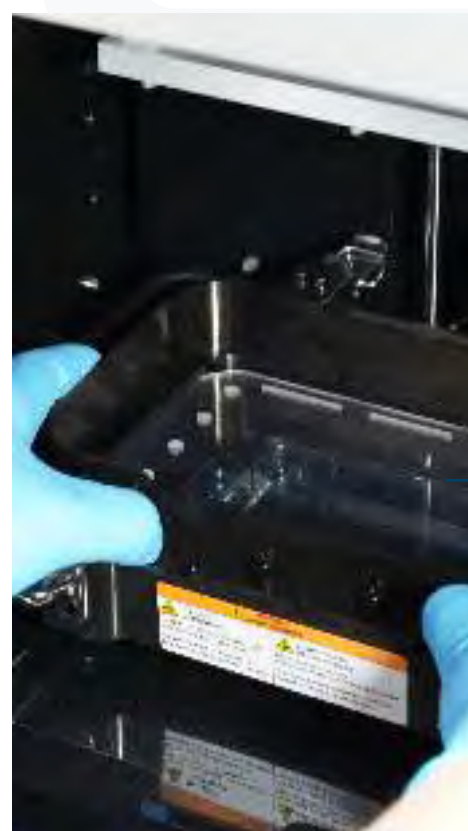
Handle

Push down the handle to lock the Buildplate

2.5 Fill resin tank



Unlock the Resin tank from four corners

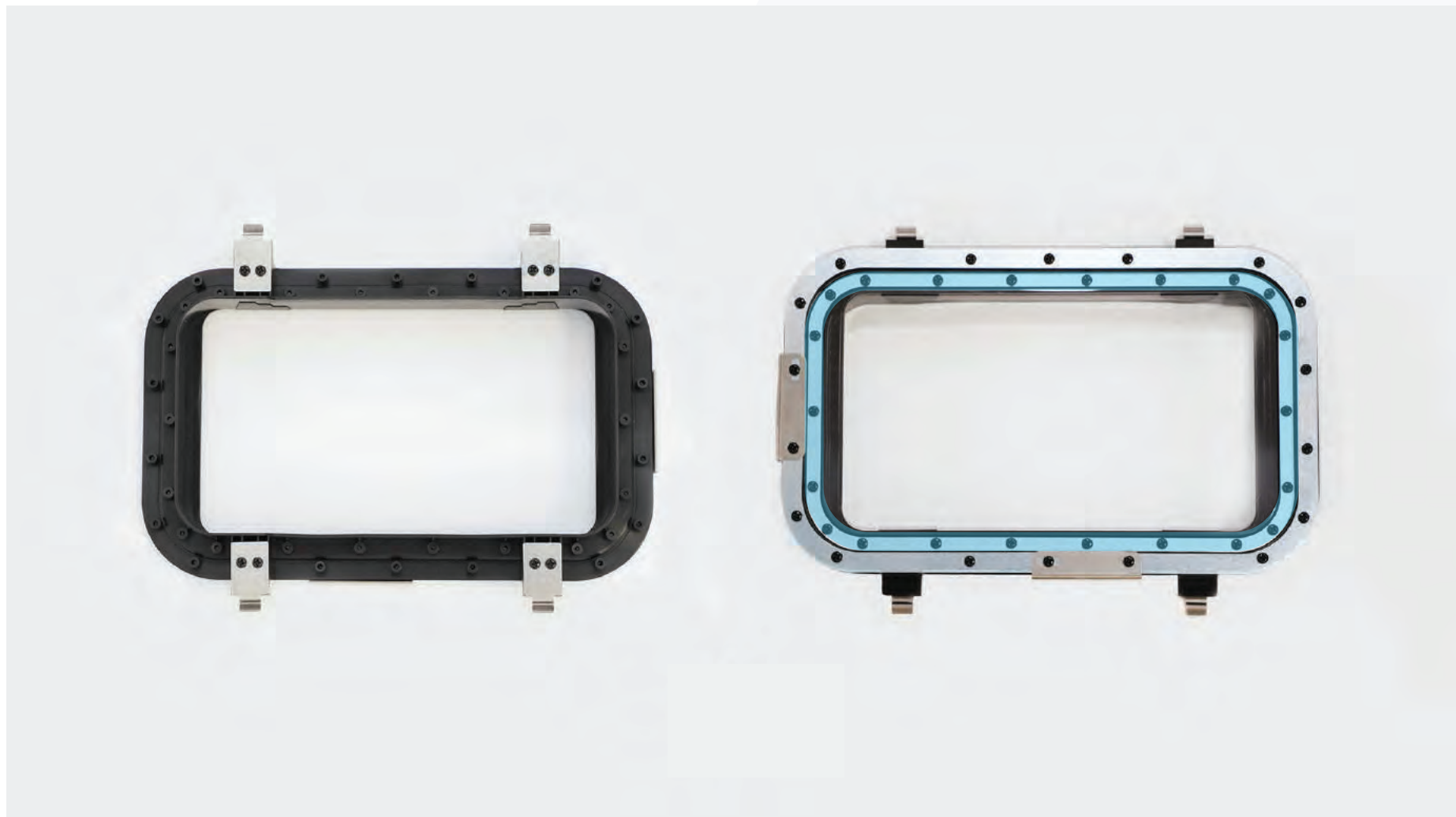


Pour Resins

Pick up the resin tank and pour resins in it

- When installing the tank, the side with sheet metal should be towards printer
- Remember to lock four corners of resin tank after installing it.

2.6 Consumable and Spare Components related to the Resin Tank.



2.7 Guide to Replacing Teflon Film Module for Prime Series

- (1) Flip Teflon module over.
- (2) Unscrew 16 screws (as indicated in the Teflon module back view picture in the light blue area).
- (3) Remove the old Teflon film module and replace with the new one.
- (4) Temporarily mount 16 screws without tightening.
- (5) Tighten all 16 screws.

Operation – Software

Please refer to Utility User Manual, all-in-one software for CADworks3D μMicrofluidic printers.

After Print

4.1 Removing the Model

- (1) Lift the handle
- (2) Remove the picker and the printed model
- (3) Clean the printed model using an air gun and ethanol
- (4) Perform post-curing (additional post-curing unit required).
- (5) Carefully remove the printed model from the picker, using a putty knife if necessary

Note: Avoid exposing the resin tank to direct light as it will solidify under UV light. Cover the resin tank with a tray to prevent solidification.

4.2 Cleaning the Buildplate

- (1) Use a putty knife or similar object to remove any excess printed material from the picker.
- (2) If there is any greasy residue, clean it with a soft cloth dipped in alcohol.

4.3 Cleaning the Resin Tank

- (1) Pour out the resin.
- (2) Pour ethanol into the tank and let it soak for a while.
- (3) Wipe the bottom of the tank with a tissue or lens tissue.
- (4) For further instructions on cleaning the tank, refer to the Utility User Manual.

Notifications:

- (1) Do not turn off the power during curing.
- (2) Do not interrupt the firmware upgrade process as it may cause your printer to malfunction.
- (3) Regularly update the firmware for a better user experience.
- (4) Before printing, ensure that both the buildplate and tank are clean to maintain printing quality.

Appendix 1. Specifications

Item	ProFluidics 285D
Build Area	110x62x120 mm
Native XY Pixel	40 μm
Dynamic Pixel	28.5 μm
Wavelength	385/405 nm
Z-Layer Resolution	5-500 μm
Printer Size & Weight	50X57X59 cm / 56 KG
Projector	4 Million Pixels

START UP GUIDE

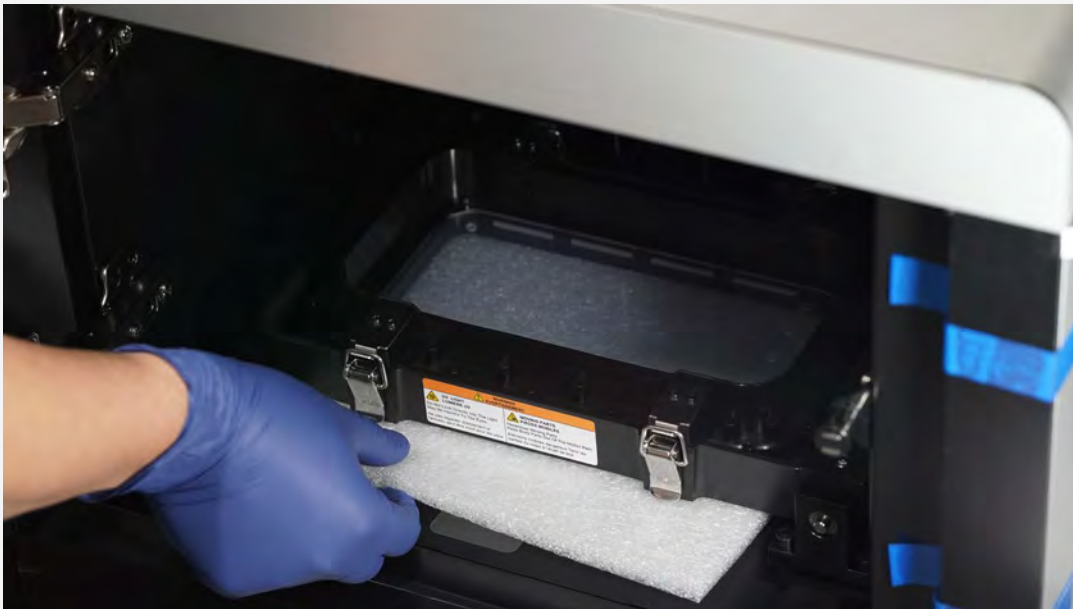


Opening the Printer



Push and release the door panel to open the printer.

Opening the Printer



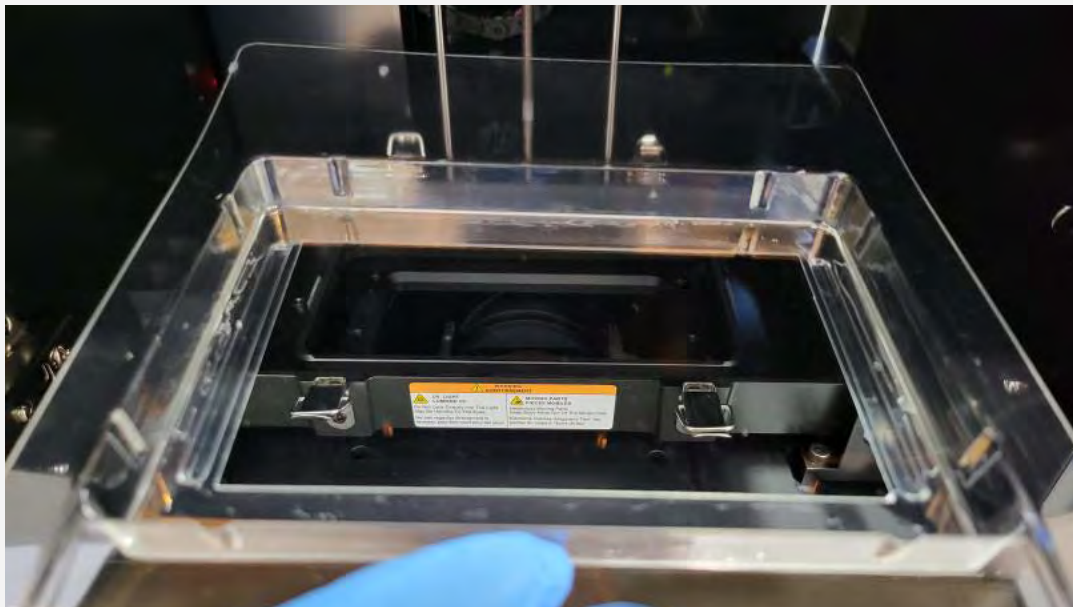
REMOVE THE PROTECTIVE FOAM

When open, there may be a protective foam left in the machine for shipping purposes. This should be removed prior to turning on the machine and printing.

Opening the Printer



Under the foam there is a plastic component. This is the Catch Tray (highlighted in blue). **Do not remove it.**



This is a more complete view of the Catch Tray.

Opening the Printer

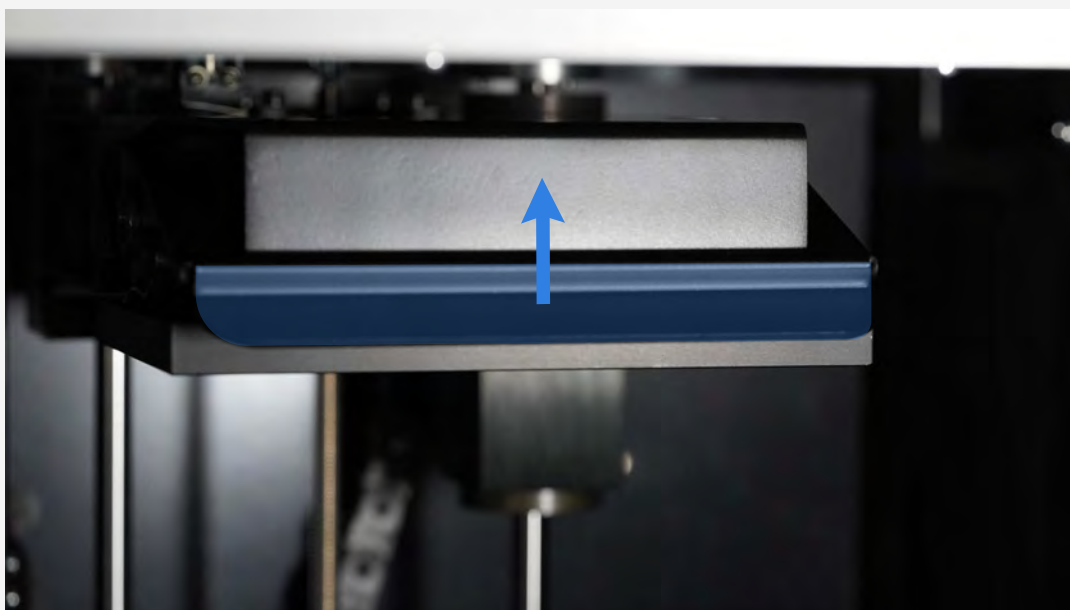


Press the power button to turn on the printer. Give it some time to run its start up sequence before printing (approx. 3 minutes).

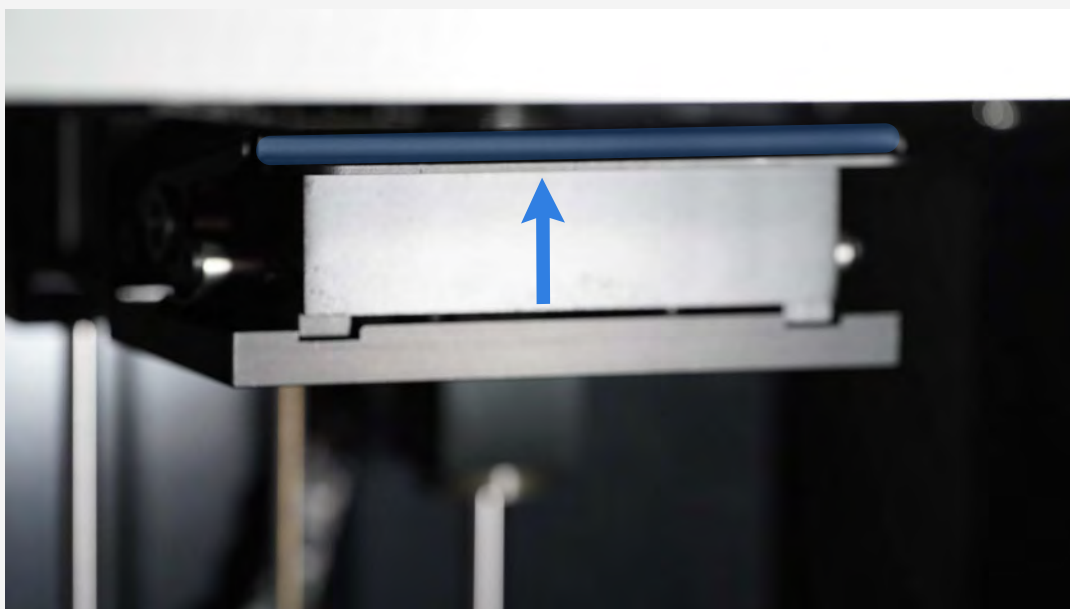


To turn off the printer, click the power button once and a pop-up will appear on the touchscreen with the option to turn off the 3D printer.

Installing the Buildplate

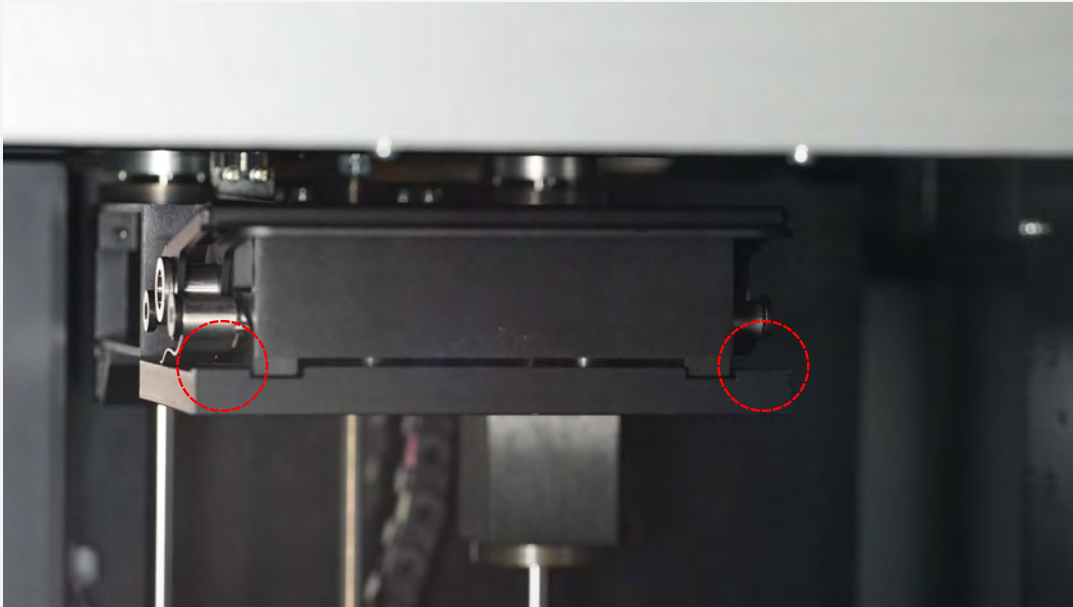


The Buildplate will be in the locked position if the latch is pointing downwards.



Push the latch up to unlock.

Installing the Buildplate

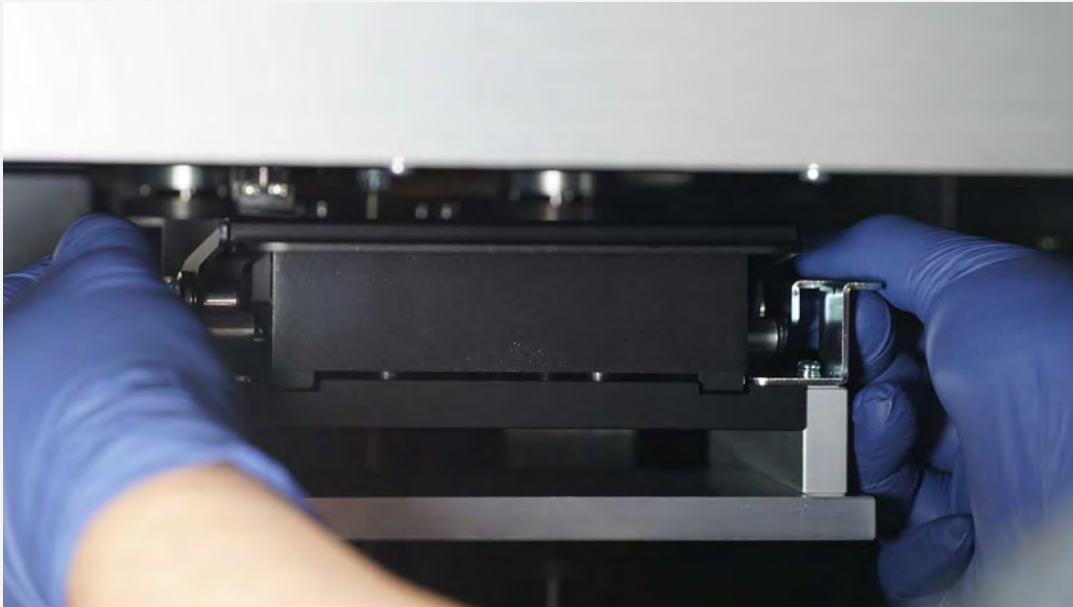


There will be a slight gap where you can insert the Buildplate.

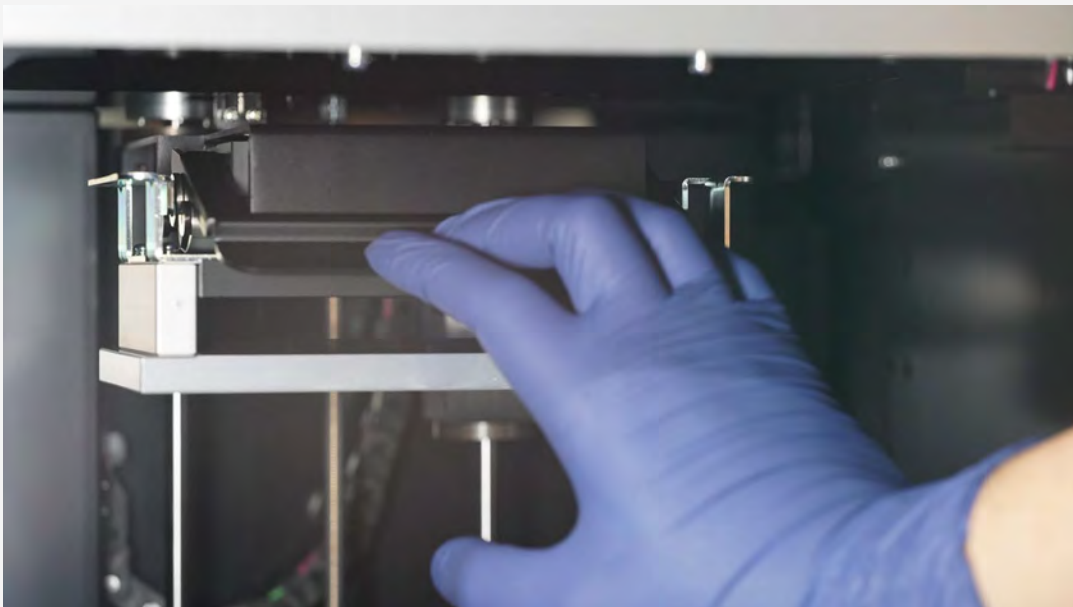


Slide the metal Buildplate tabs into the build assembly.

Installing the Buildplate

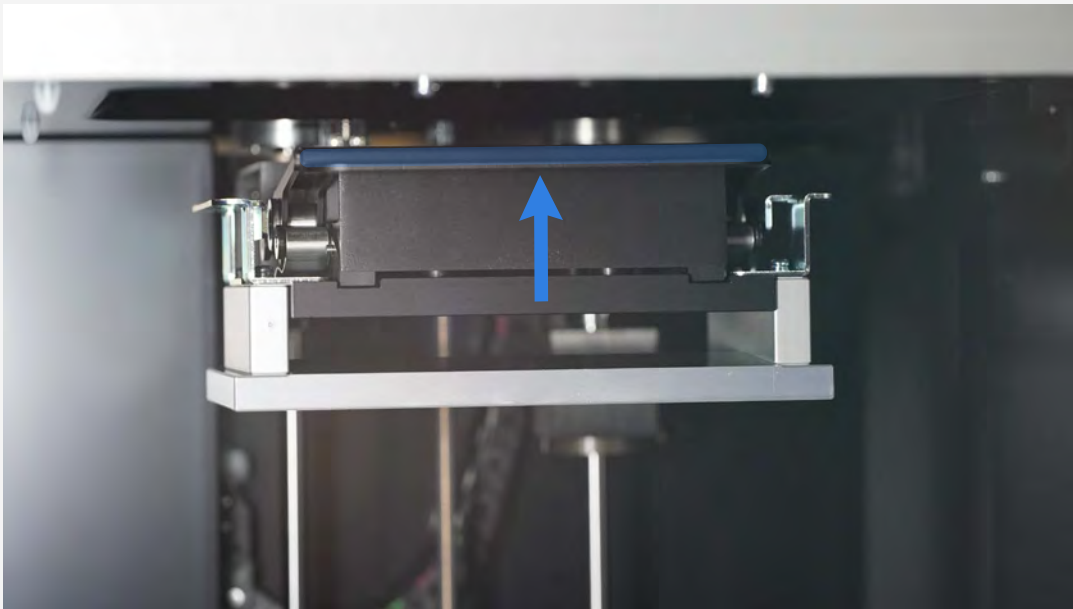


Slide the Buildplate all the way to the back until it is flush. The Buildplate will slightly drop once it's in place.

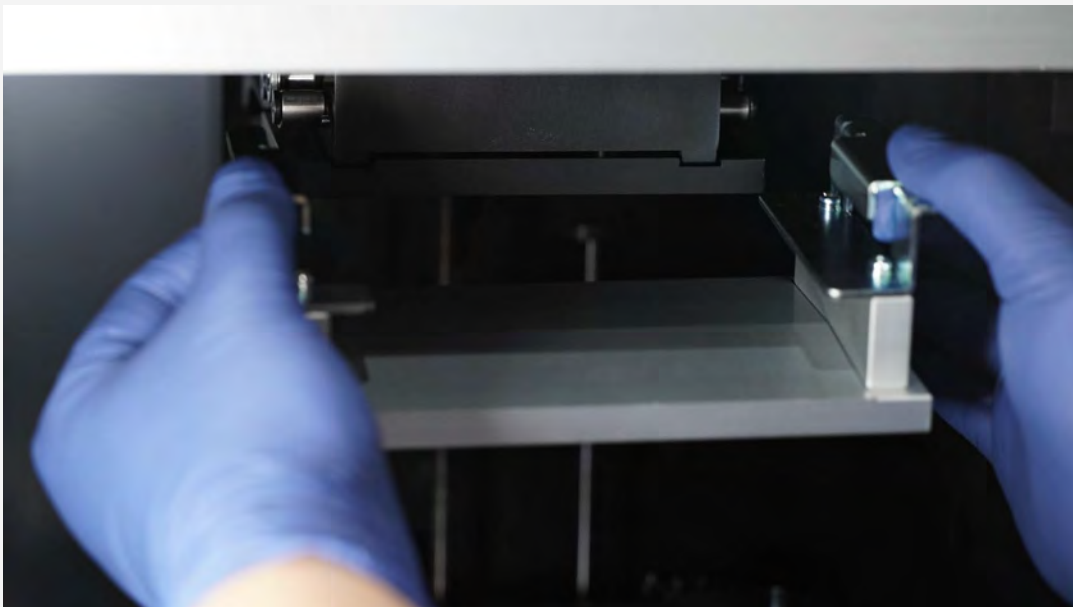


Make sure the Buildplate is firmly in place and push the latch down to secure it.

Removing the Buildplate

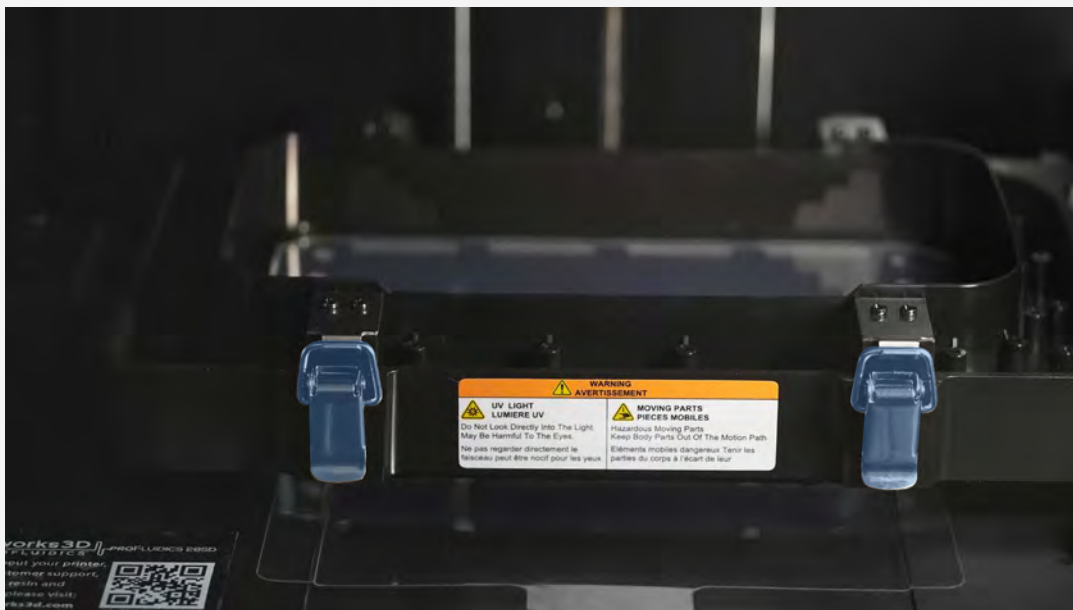


Make sure the latch is pointing upwards.



Grab the Buildplate from the top of its metal handles. Lift it slightly and slide the Buildplate out.

Removing the VAT

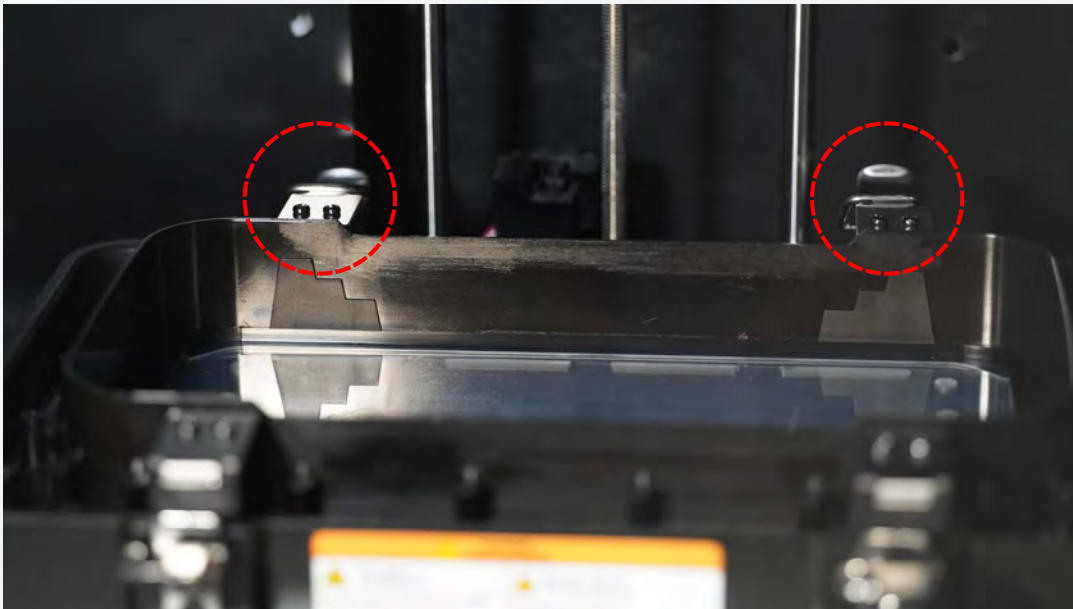


To remove the VAT, start by unclipping the front clips.

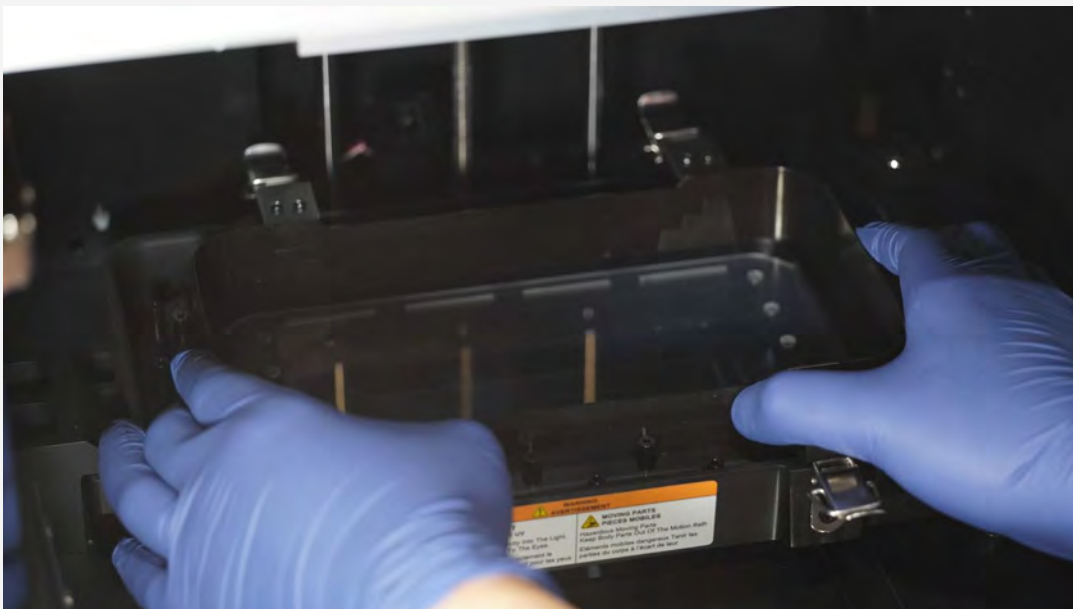


It should look like this when properly unclipped.

Removing the VAT



Do the same for the clips at the back. The clips are identical front and back.



Use both hands to securely hold the side of the VAT's plastic rim and lift upwards.

Removing the VAT



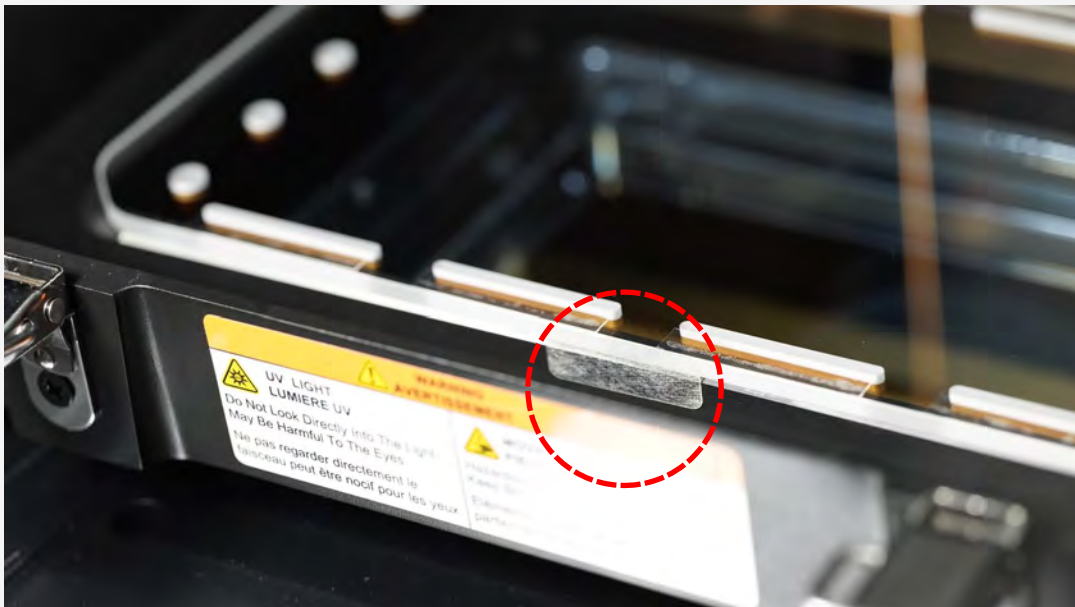
If there is any lint or dust on the film, you can use compressed air to remove it.

Over time the film inside the VAT will become foggy and will need to be replaced.

Removing the Retainer Glass / UV Glass



Occasionally the Retainer Glass (highlighted in blue) will need to be inspected and cleaned.



A reusable adhesive tape on the front and back holds it in place. Partially peel this or remove it completely to lift the Retainer Glass out. Place the tape back on.

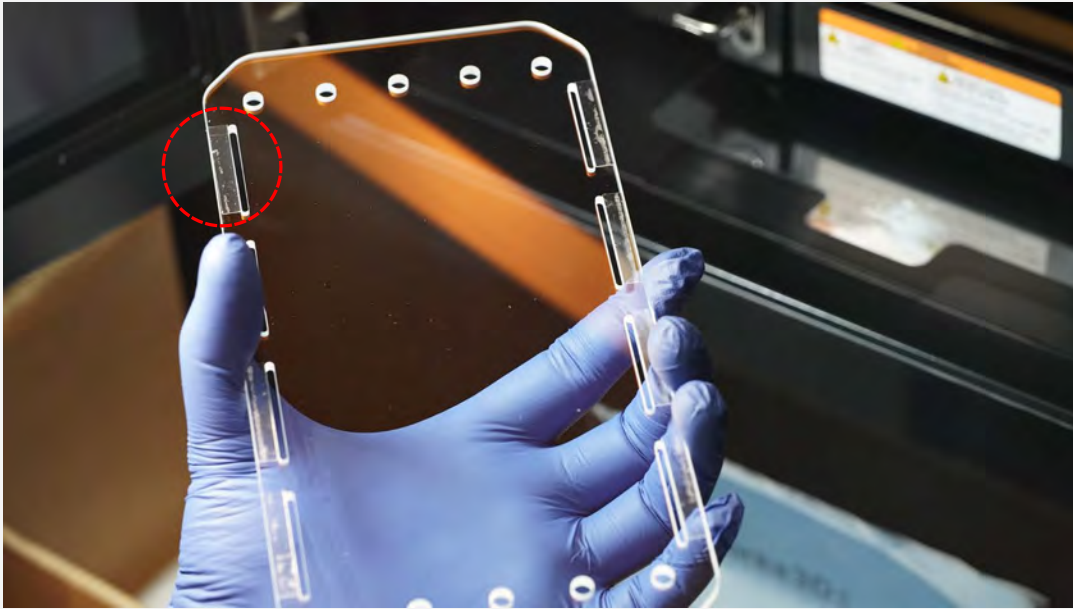
Cleaning the Retainer Glass / UV Glass



Hold the Retainer Glass from the edges. To thoroughly inspect it for imperfections, hold it close to a bright light so you can see the lights reflection.

If you see smudges, wash the Retainer Glass using hot water and liquid soap. Alternatively, use an optical cleaner for lens and glasses. Dry the Retainer Glass using a clean microfiber cloth or compressed air.

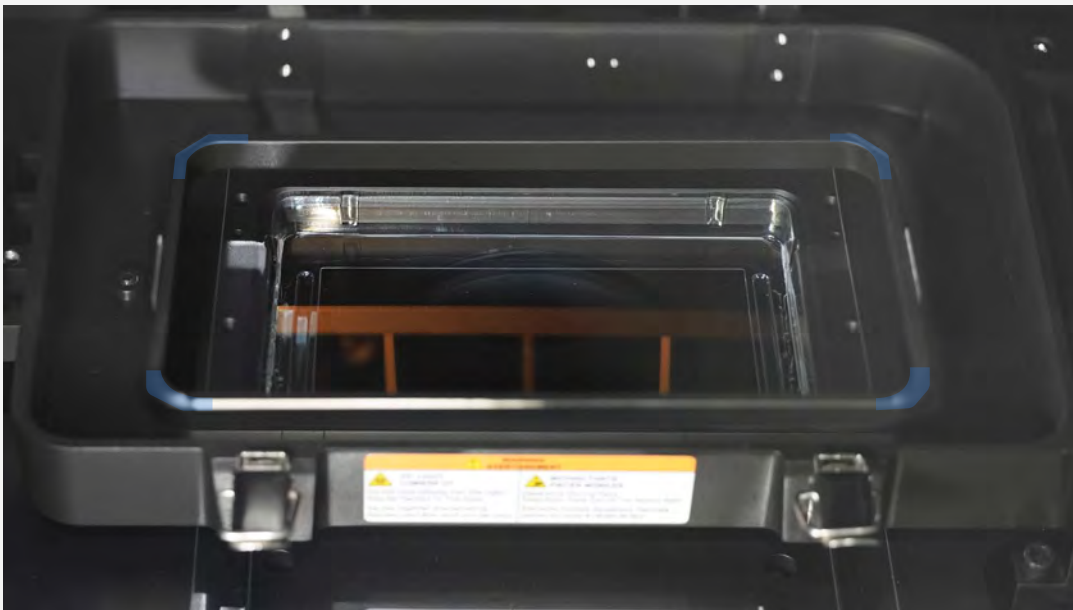
Placing the Retainer Glass / UV Glass



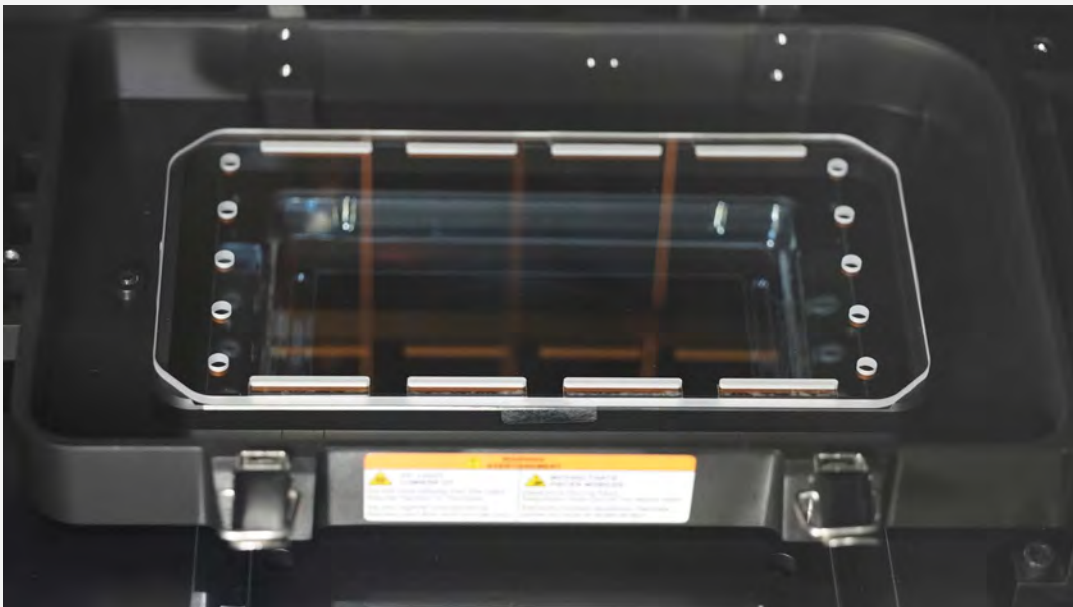
Along the long sides of the the Retainer Glass there are 8 release tapes.

When placing the Retainer Glass back into the 3D printer, ensure the side with release tape is facing up.

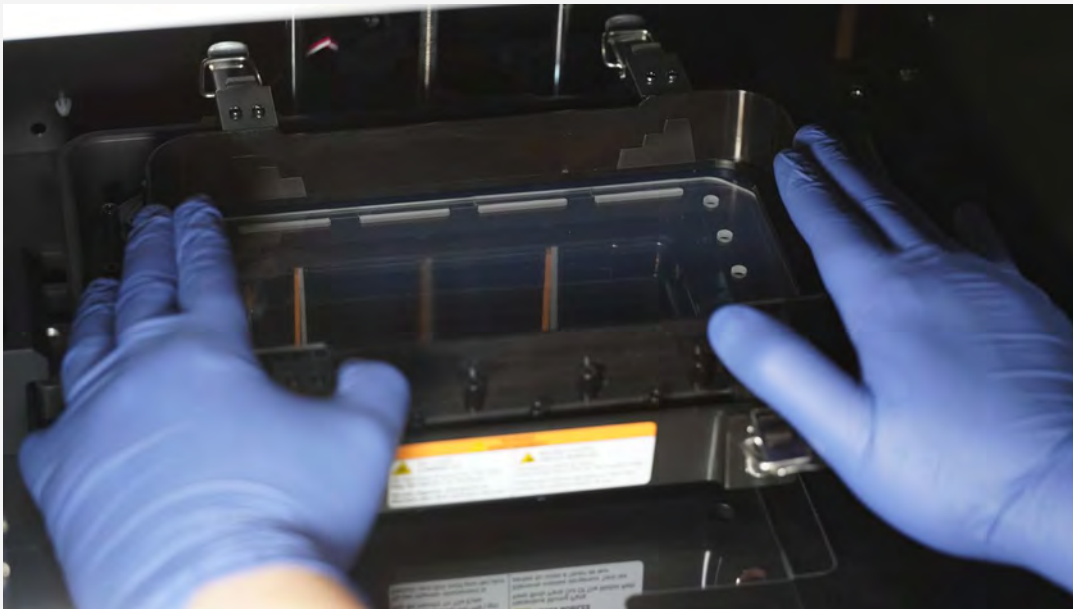
Placing the Retainer Glass / UV Glass



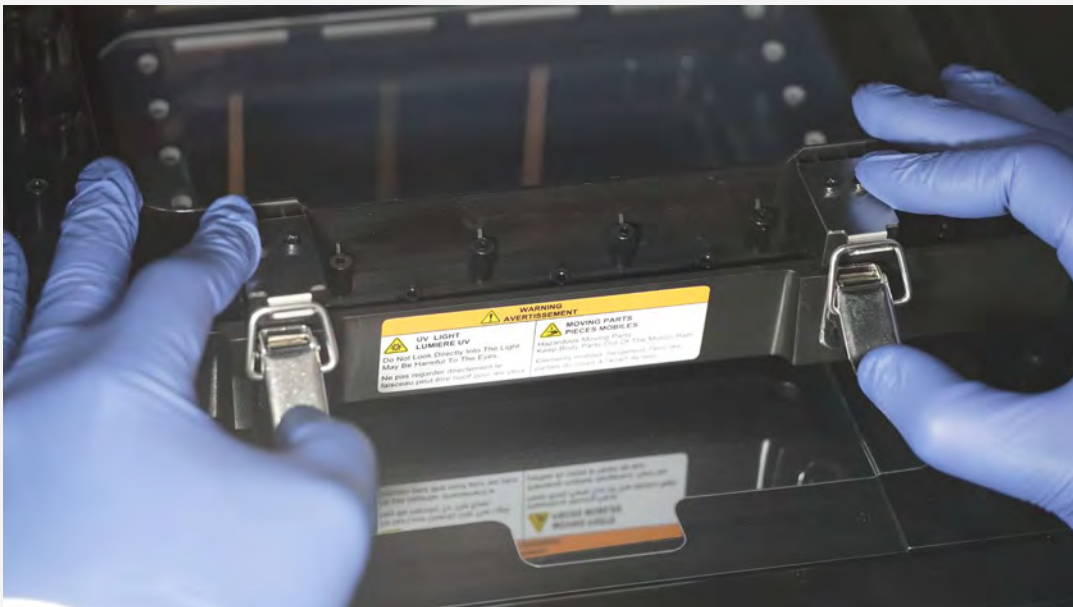
Place the Retainer Glass between the four placement corners.



Installing the VAT

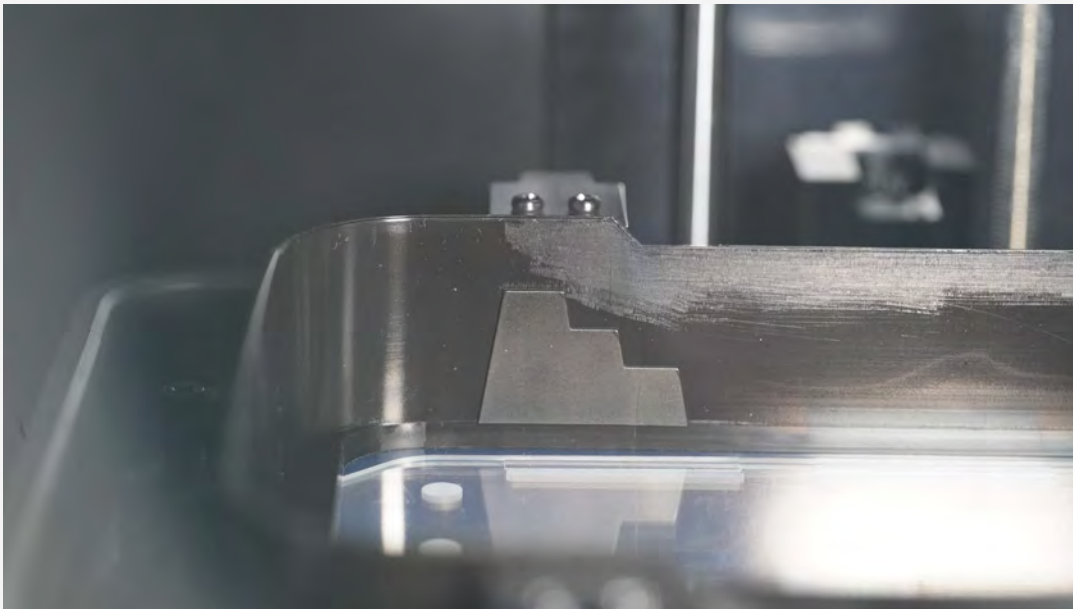


Firmly push down using both hands at the same time.

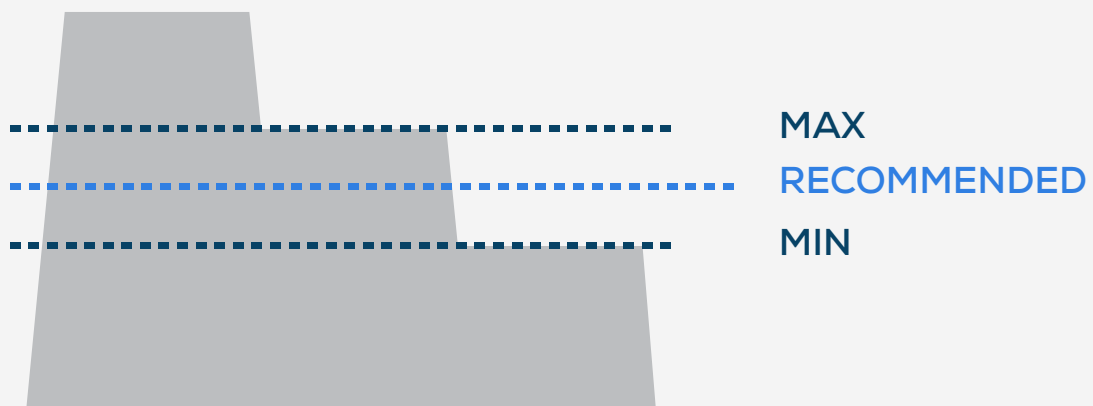


Secure the clips on the front and back.

Adding Material



There is a level indicator on all four corners of the VAT.



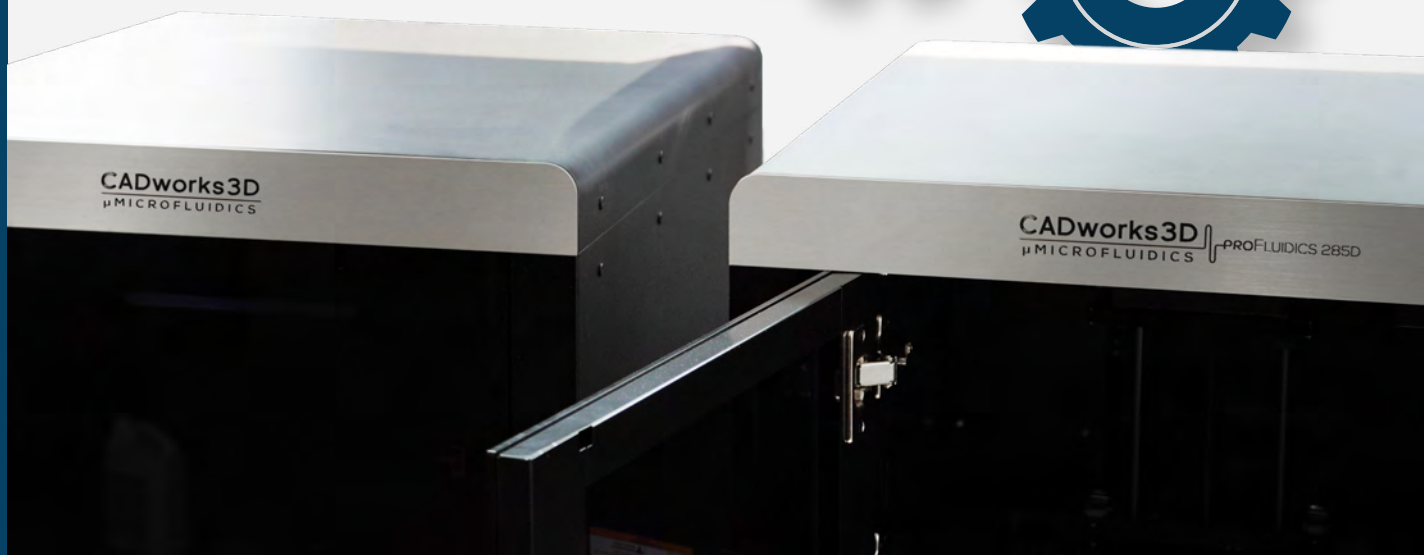
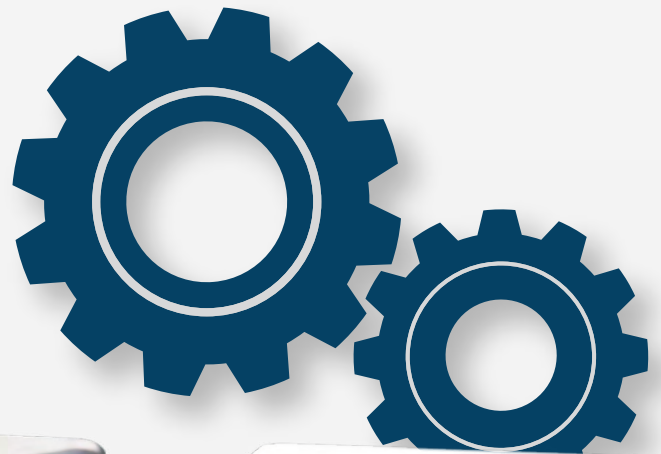
The maximum amount of resin should not exceed the middle step. A sufficient amount of resin is required to avoid any issues.



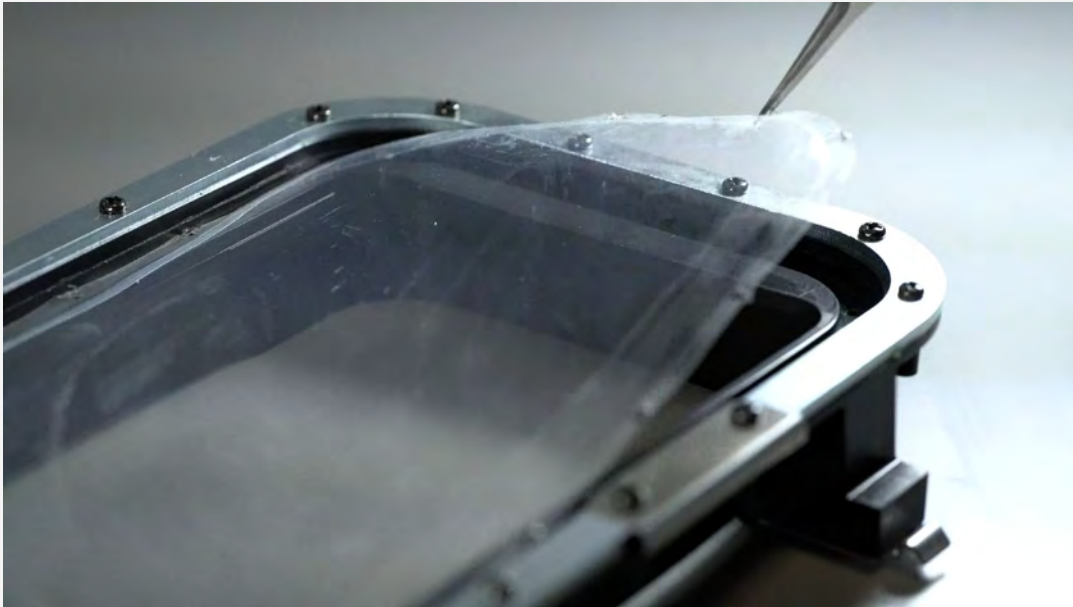
**THANK
YOU!**

CLEANING AND PRECAUTIONS

GUIDE



The FEP Replacement Film



WEAR AND TEAR OVER TIME

With every use, the Replacement Film attached to the bottom of the VAT will slowly become worn out and lose its optical transparency. This will result in failed prints.



VIDEO INSTRUCTIONS TO REPLACE FILM

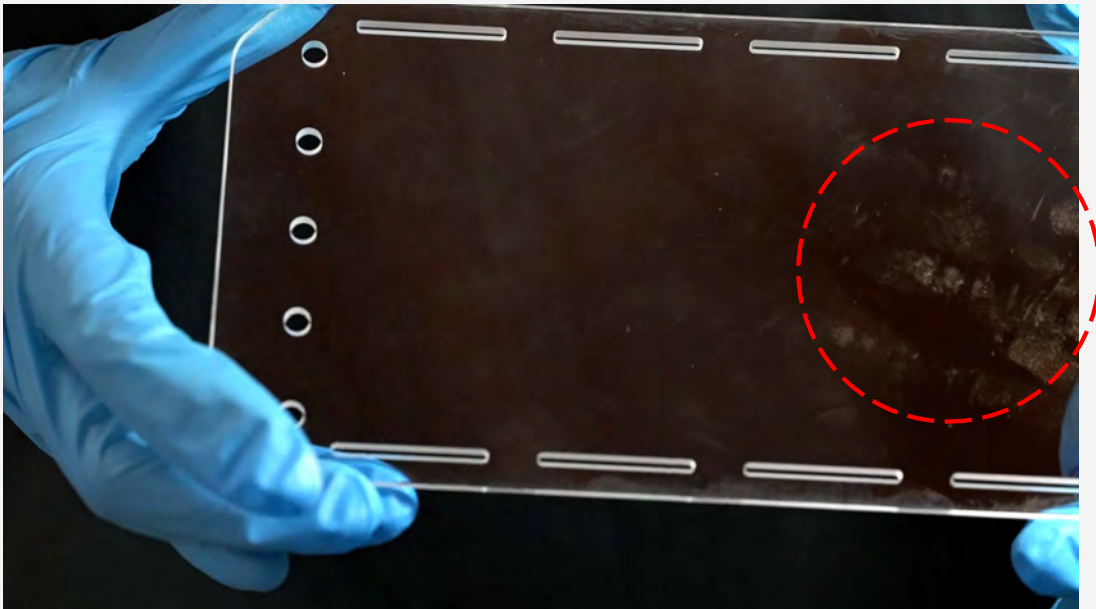
PR VAT V2

https://www.youtube.com/watch?v=HHxScDYh-y8&ab_channel=Cadworks3D

M/H SERIES

<https://www.youtube.com/watch?v=z099Qb-its0>

The Retainer Glass / UV Glass



MAKE SURE THE RETAINER GLASS IS CLEAN AND SMUDGE-FREE

Over time the Retainer Glass (found underneath the VAT) will become greasy and smudged. This is the most common reason for failed prints.

Ensure the Retainer Glass is optically transparent and clean. It helps to reflect light onto the Retainer Glass to thoroughly examine it.

The Retainer Glass / UV Glass

Cleaning Instructions

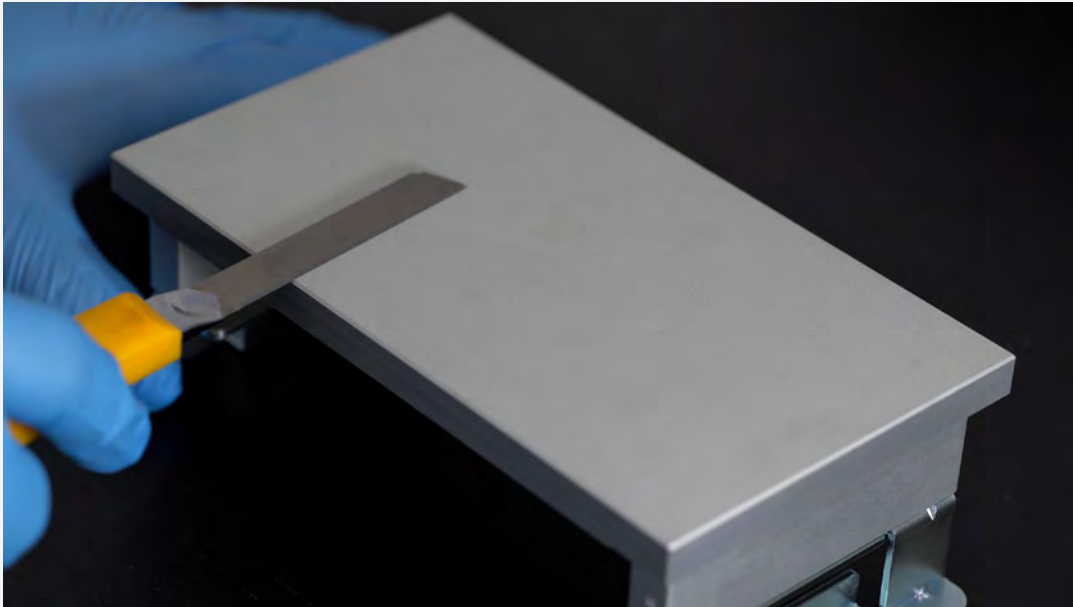
Wearing gloves, apply liquid dish soap to the Retainer Glass and rinse with warm water. Dry the Retainer Glass with an air compressor or a microfiber cloth. Do not use any rough materials as this can damage the glass.



VIDEO INSTRUCTIONS

https://youtu.be/NrLQYJ9yfxk?si=H-5ul_TYWZE3ubdC

The Buildplate



MAKE SURE THE BUILDPLATE IS SMOOTH AND CLEAN

Make sure nothing is stuck or leftover on the Buildplate. Leaving remnants from previous prints can cause damage to the Replacement Film in the VAT.

The Buildplate

Cleaning Instructions

To eliminate any contaminations, fibers or excess resin from the Buildplate, use a utility knife, squeegee or plastic card. You can use paper towels or Kimwipes to dry the Buildplate, but note it may leave fibers on the Buildplate that will transfer into the resin.



Over time, your resin will become contaminated with fibers and particles. You will need to filter your resin once in a while.



VIDEO INSTRUCTIONS

<https://youtu.be/WvQNIV1XNpE?si=GxFhFE6P9OGG8k2O>

Filtering Resin



AVOID CONTAMINATIONS AND KEEP YOUR PRINTS CLEAN

To maintain clean prints, you need to filter your resin every once in a while. Doing so will remove any particles or remnants.

Leaving remnants in your resin may cause future prints to fail.

Filtering Resin

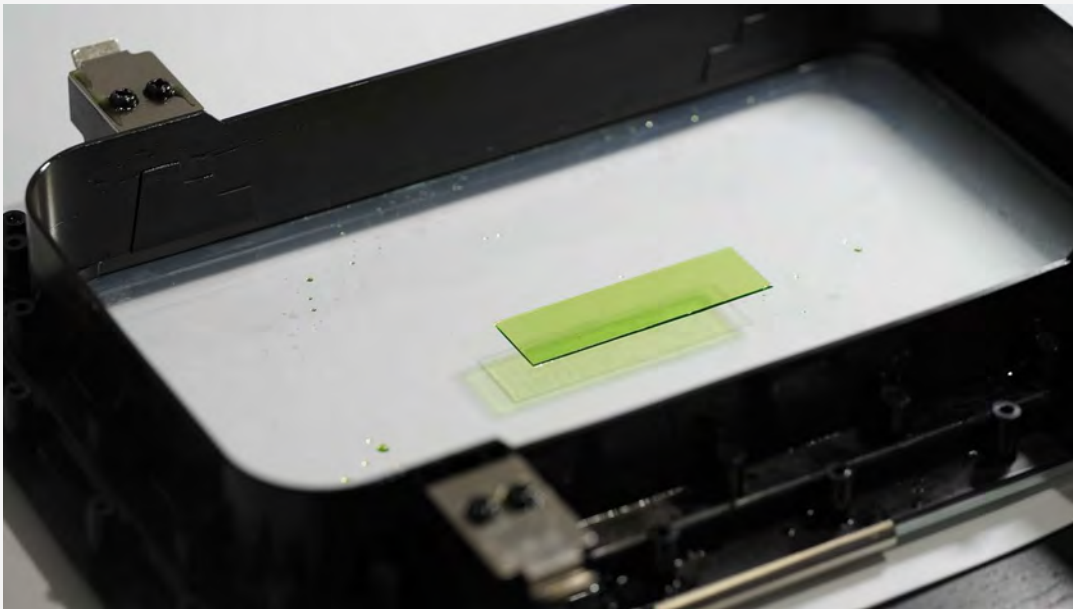


Prepare a fine 190 μ m paint filter and a large cup.



Remove the VAT from the printer and pour the resin from the VAT into the filter and cup.

Removing Failed Prints



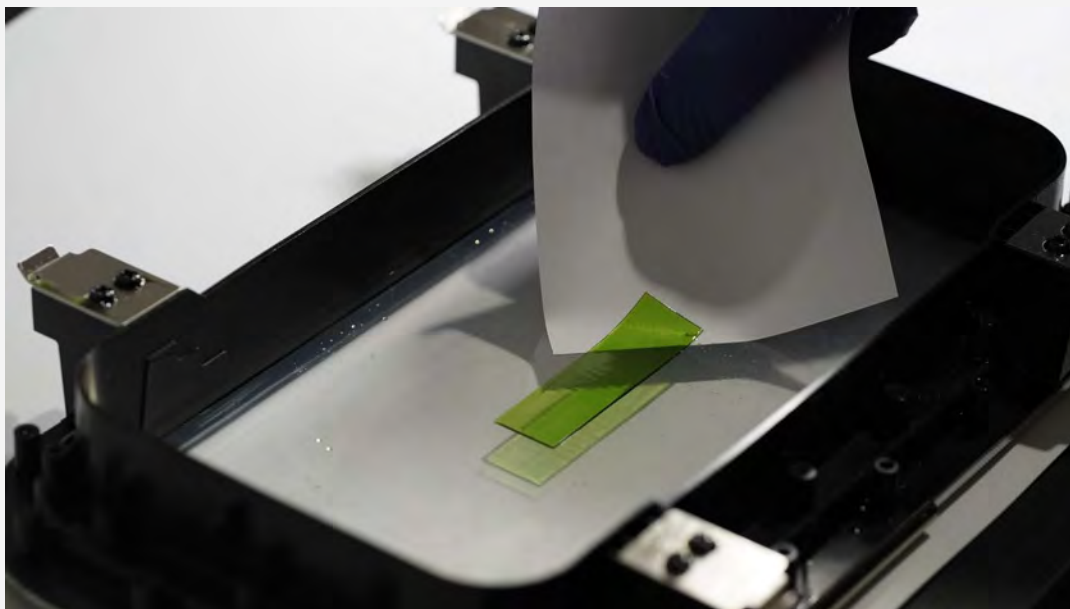
PRINTING WITHOUT REMOVING PREVIOUS FAILED PRINTS CAN DAMAGE YOUR PRINTER

In some scenarios failed prints can stick to the Replacement Film inside the VAT. An obvious indicator would be when the print is finished and there is nothing on the Buildplate.

You may not notice the failure in the VAT immediately. In such cases, you will need to remove the resin from the VAT and filter it as shown on page 7.

Removing Failed Prints

Method 1



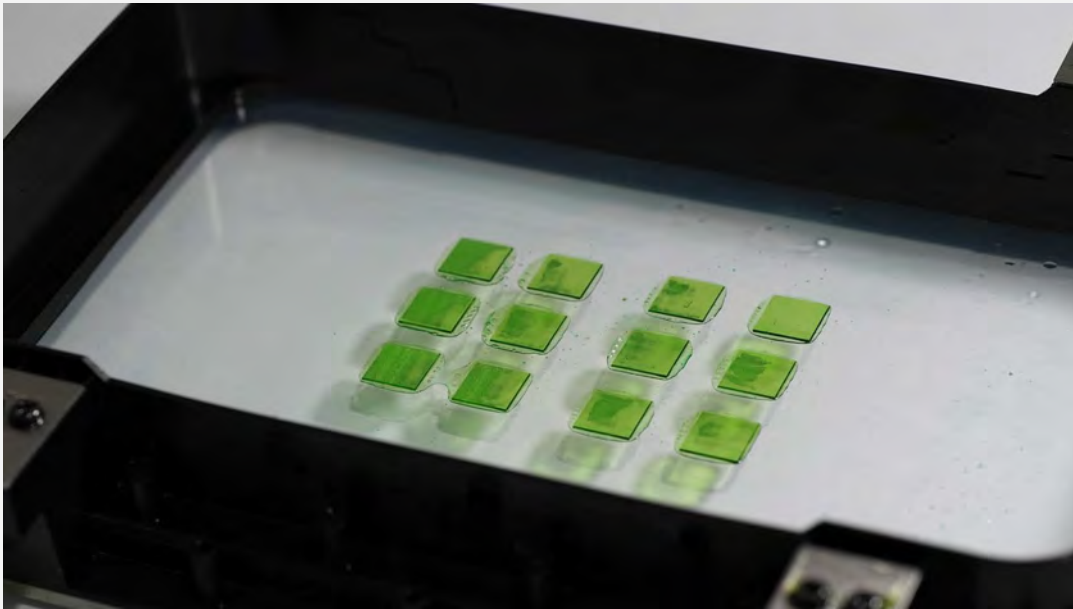
Removing the resin will reveal the print. Place the VAT on a clean surface. We use a 8.5" x 11" piece of paper.

Take a small piece of paper, such as the corner of a 8.5" x 11" paper, and wearing gloves slide the paper under the print and lift. You can also use the 'flexcard' provided in the accessory box.



Removing Failed Prints

Method 2: Clean Tank Feature



The shape of the failures are based on the outline of your device. If you have a number of devices or something circular it may be difficult to remove. In such cases you can use an in-built feature in your 3D printer called **Clean Tank**.

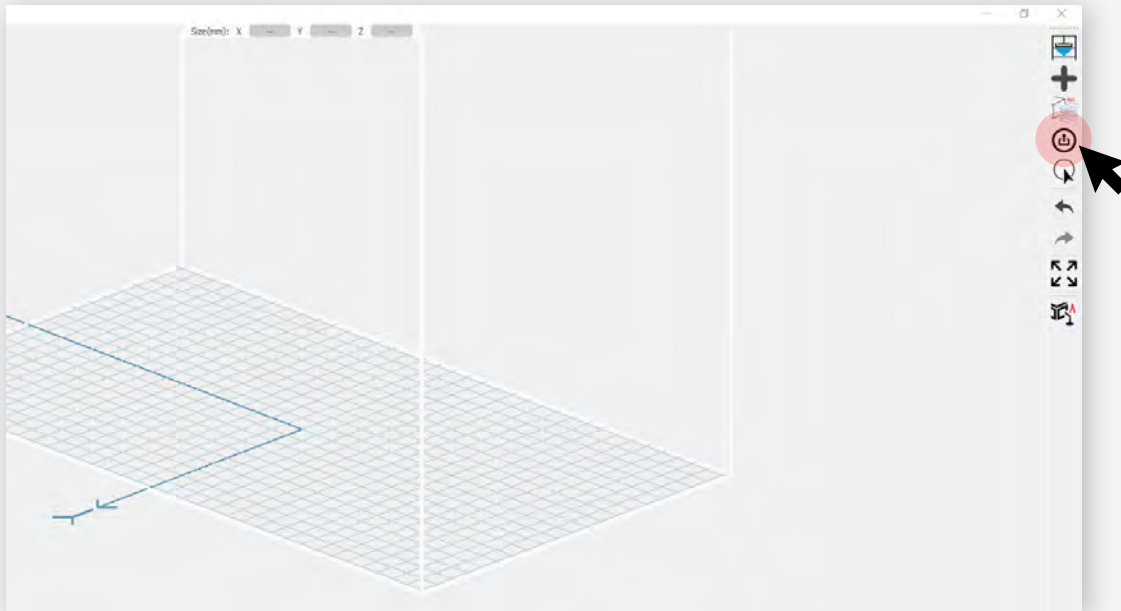
There are two ways to access this feature: either through **Utility.exe** or the **printer touchscreen**.



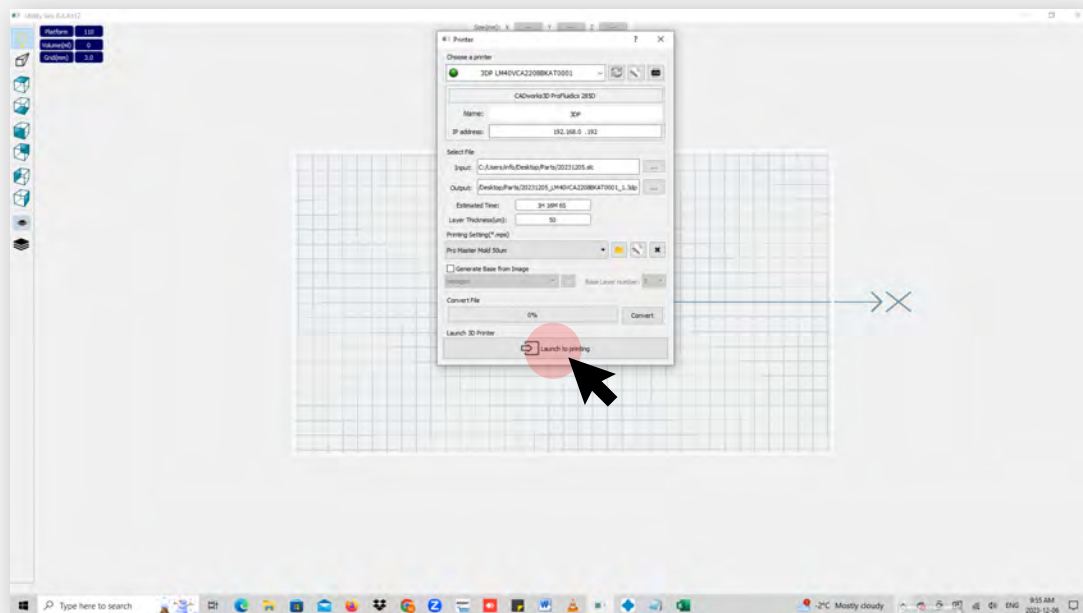
**MAKE SURE THERE IS ENOUGH LIQUID RESIN
IN THE VAT BEFORE STARTING THIS FEATURE**


Removing Failed Prints

Via Utility.exe



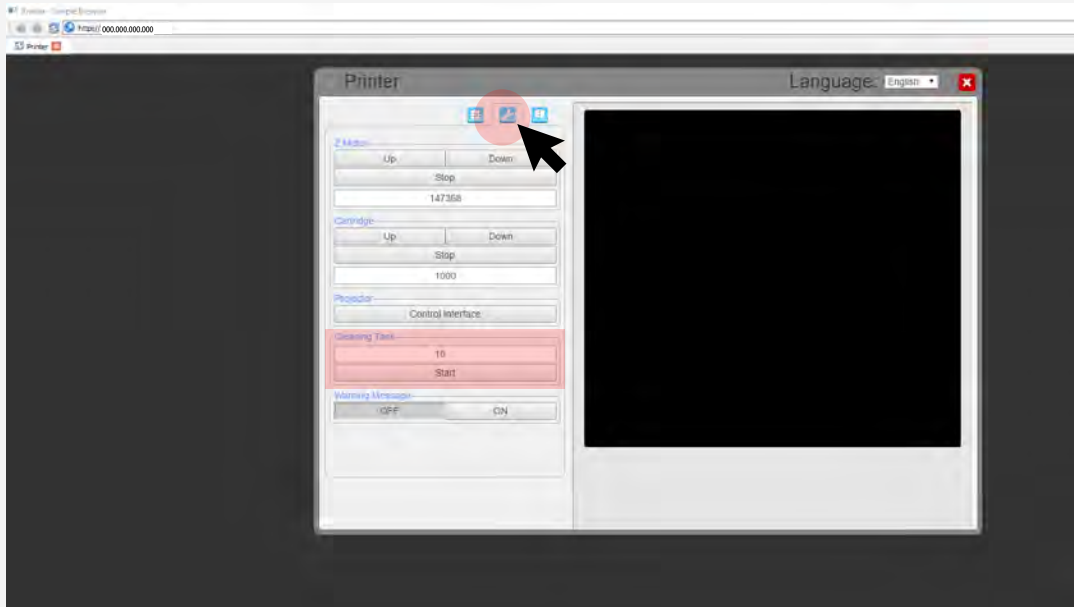
Click the **Printer** button  on the right-side toolbar.




Click the **Launch to printing** button . You do not have to change any other settings.

Removing Failed Prints

Via Utility.exe



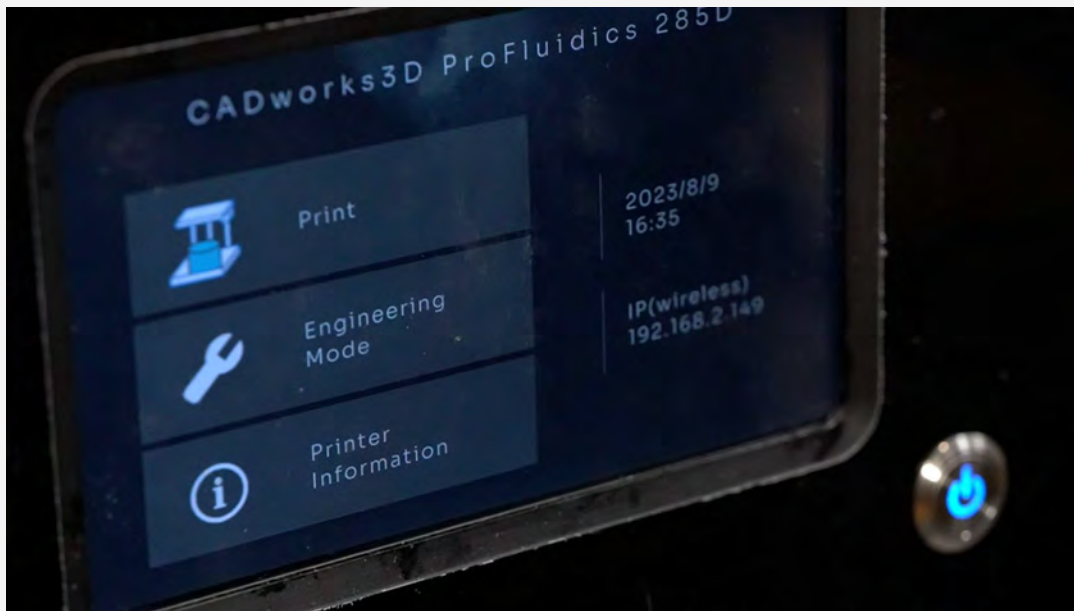
A new window will appear. Clicking on the **Engineering Mode** button  will switch to a different tab.

In this tab, look for the **Cleaning Tank** section. The number (in seconds) you should input is the base curing for the resin being used.

For example, we use 40 seconds for the Master Mold resin and 25 seconds for the Clear Microfluidic resin. If you are unsure, 30 seconds is a safe number.

Removing Failed Prints

Via Printer Touchscreen



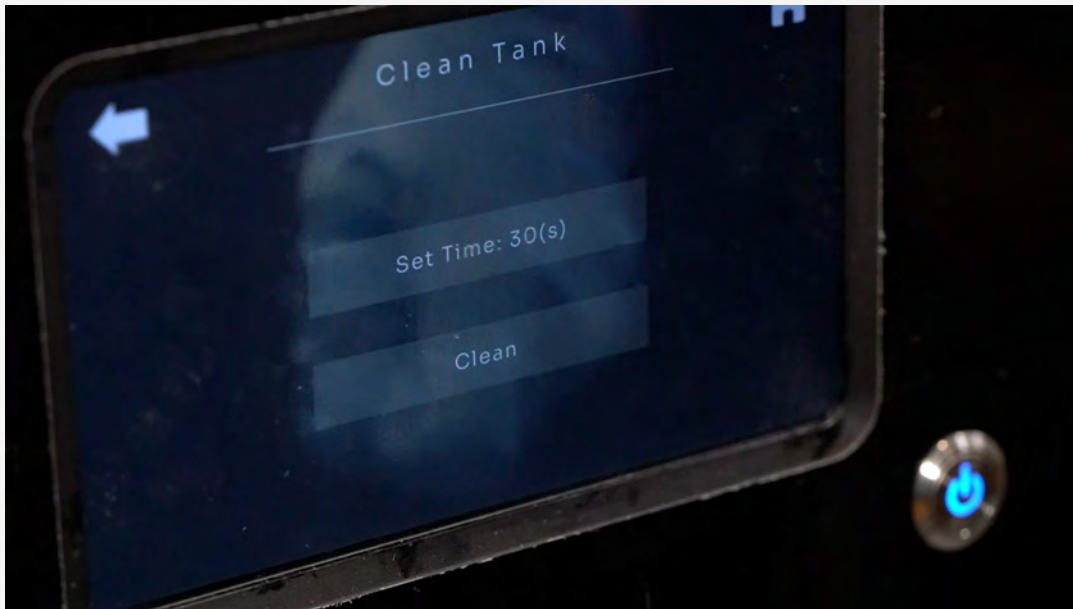
You can also access the clean tank feature directly on the printer's touchscreen. Go to **Engineering Mode**.



Then press the **Clean Tank** button.

Removing Failed Prints

Via Printer Touchscreen



MAKE SURE THERE IS ENOUGH LIQUID RESIN IN THE VAT

Under **Set Time**, the number (in seconds) you should input is the base curing for the resin being used.

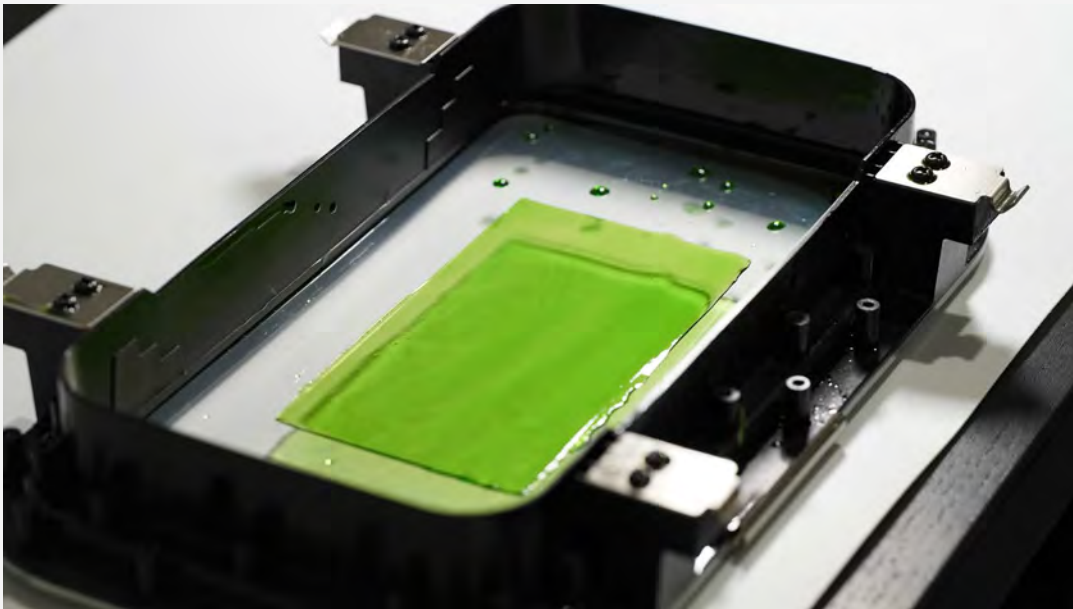
See page 12 for the recommended input for the Master Mold and Clear Microfluidic resins.



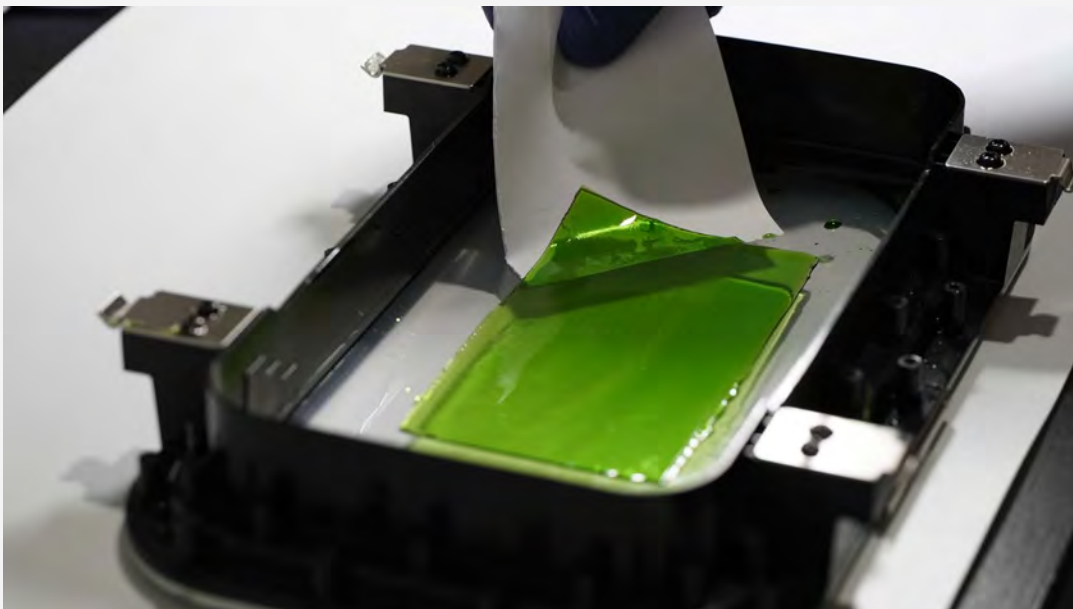
VIDEO INSTRUCTIONS

<https://youtu.be/3YcolIt5818?si=aigzz9uX89RG1Z0X>

Removing Failed Prints



Both methods will polymerize the resin covering the entire build area. Any failed prints will fuse together.



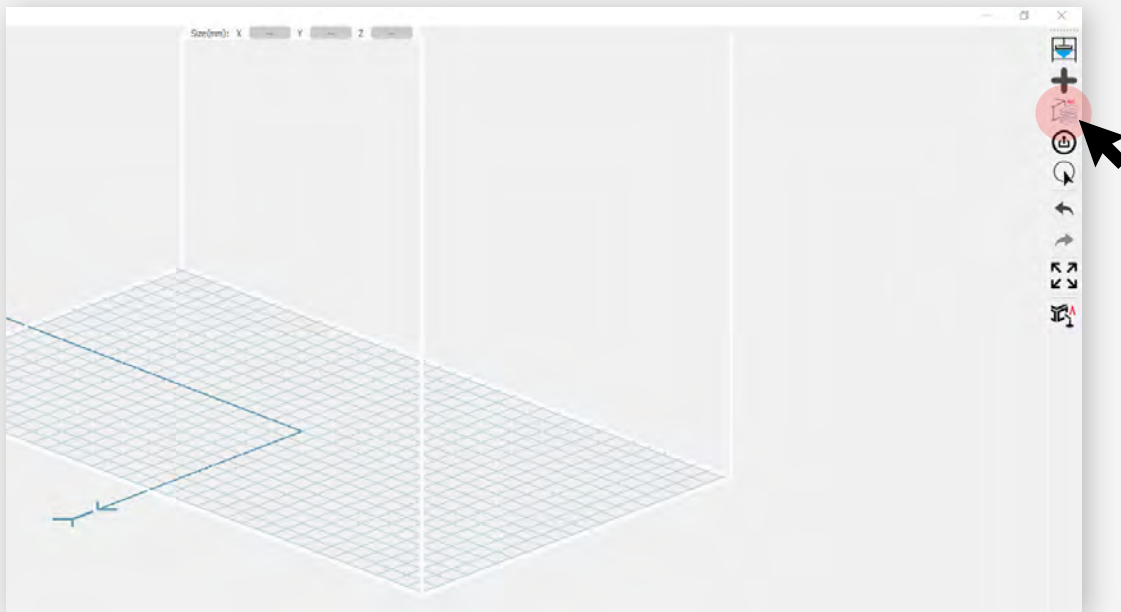
Remove the cured resin as shown before.



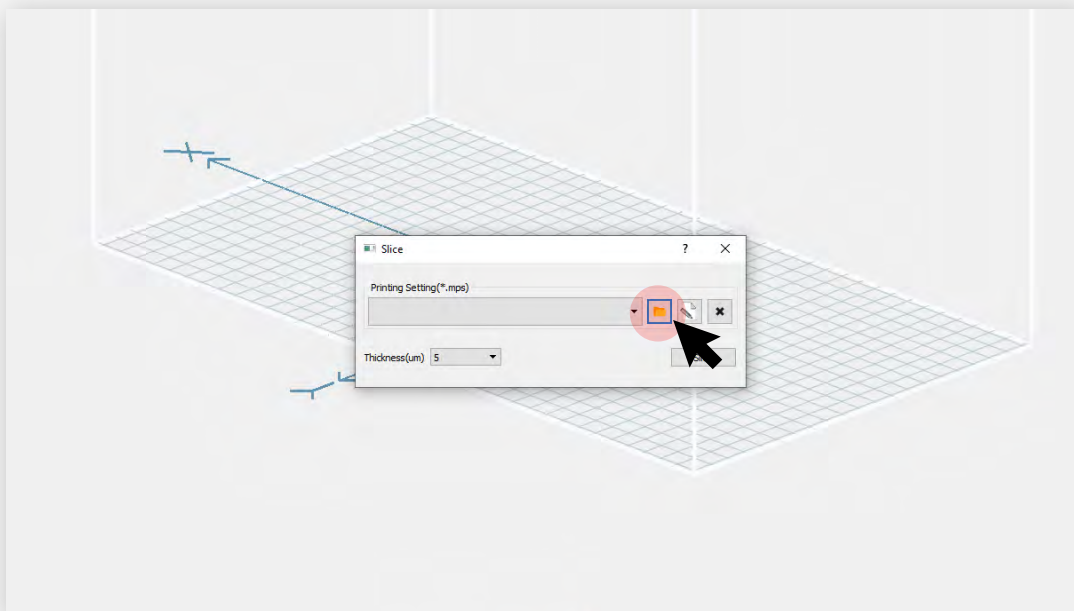
HOW TO ADD PRINTING PROFILES


GUIDE

How to add Printing / Resin Profiles

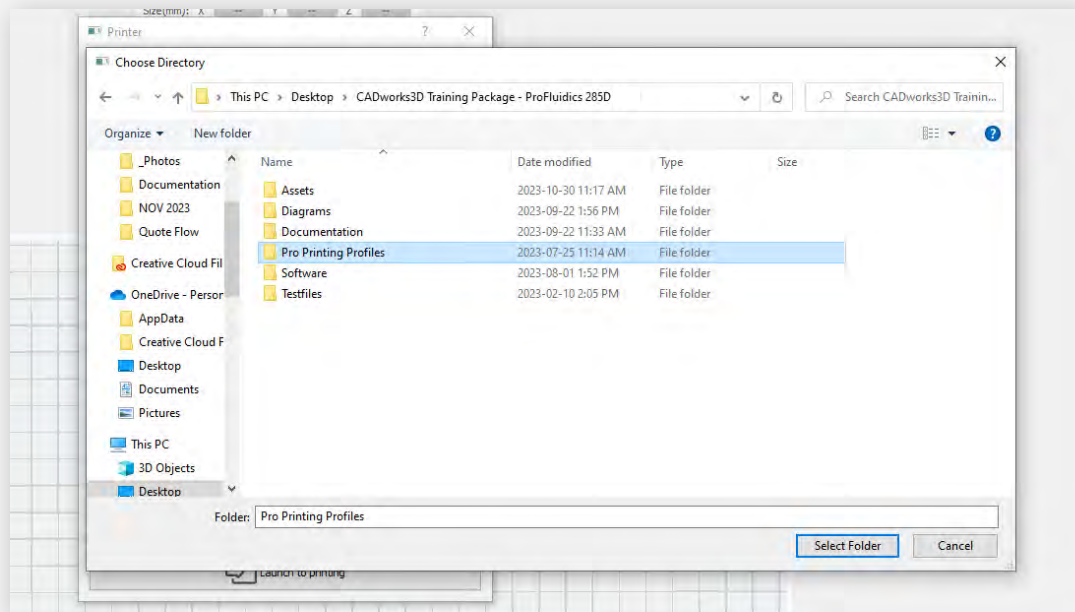


Click the **Slice** button  on the right-side toolbar.



A new window will pop up. Click on the **yellow folder** button. 

How to add Printing / Resin Profiles



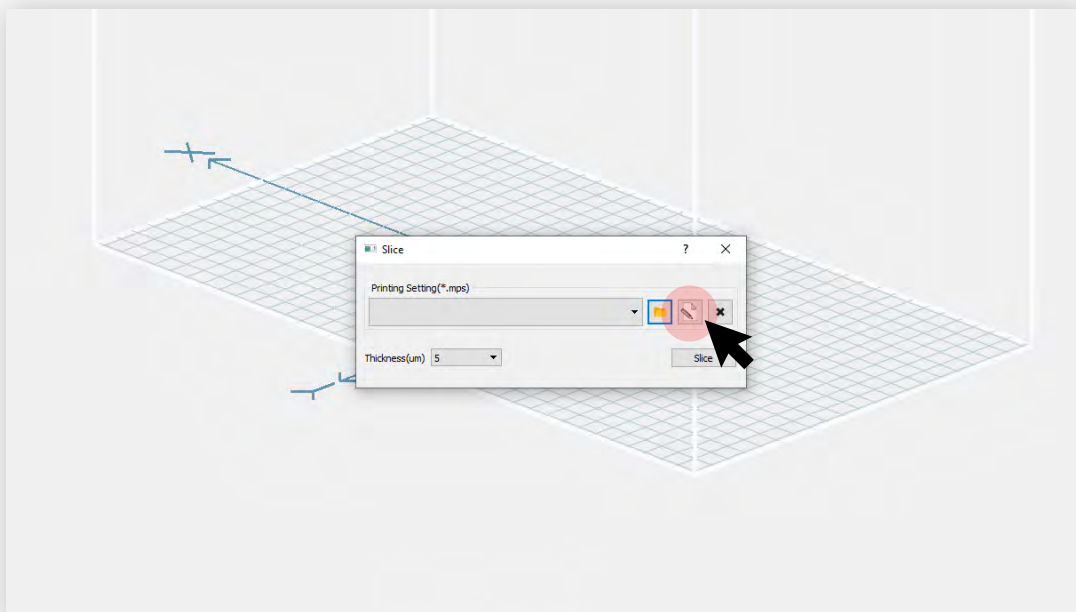
Find your CADworks3D Training Package and select the **Pro Printing Profiles** folder.


If you do not have a designated folder for your profiles, make sure to create one. You can then move the printing profiles (these will be in an .mps format file) to the newly created folder.

Alternative Method

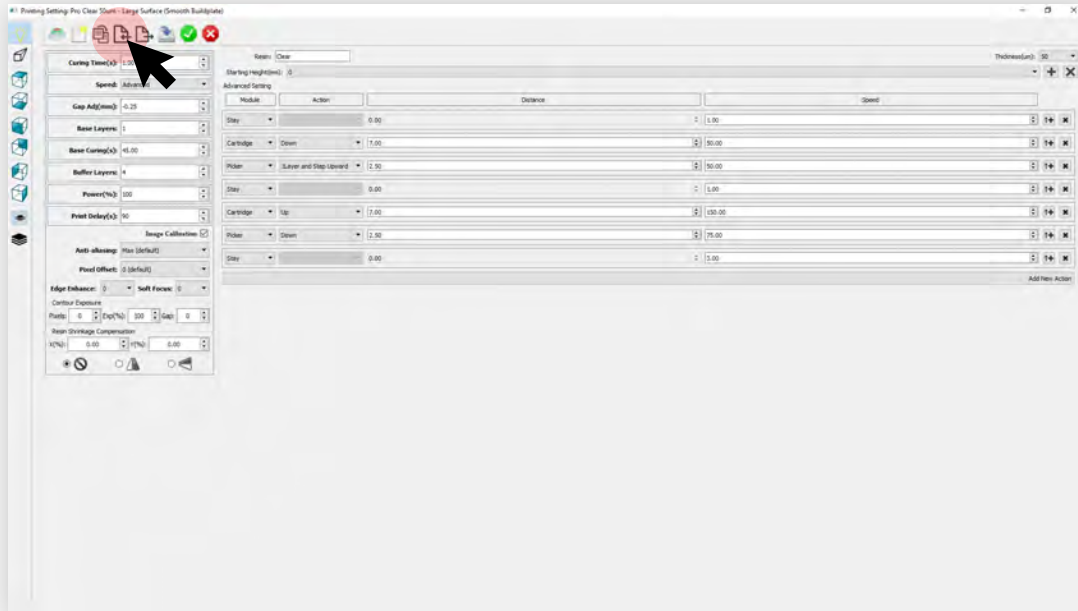


ENSURE YOU HAVE PREVIOUSLY CREATED A FOLDER FOR ALL YOUR PRINTING PROFILES

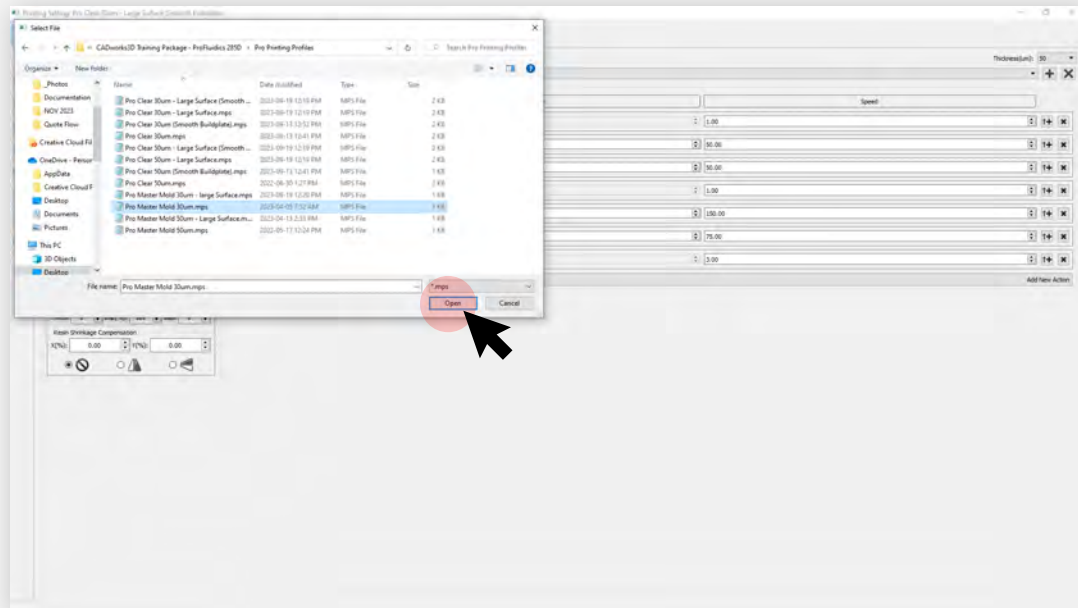


Click on the **Edit Printing Setting File** button 
A new window will pop up.

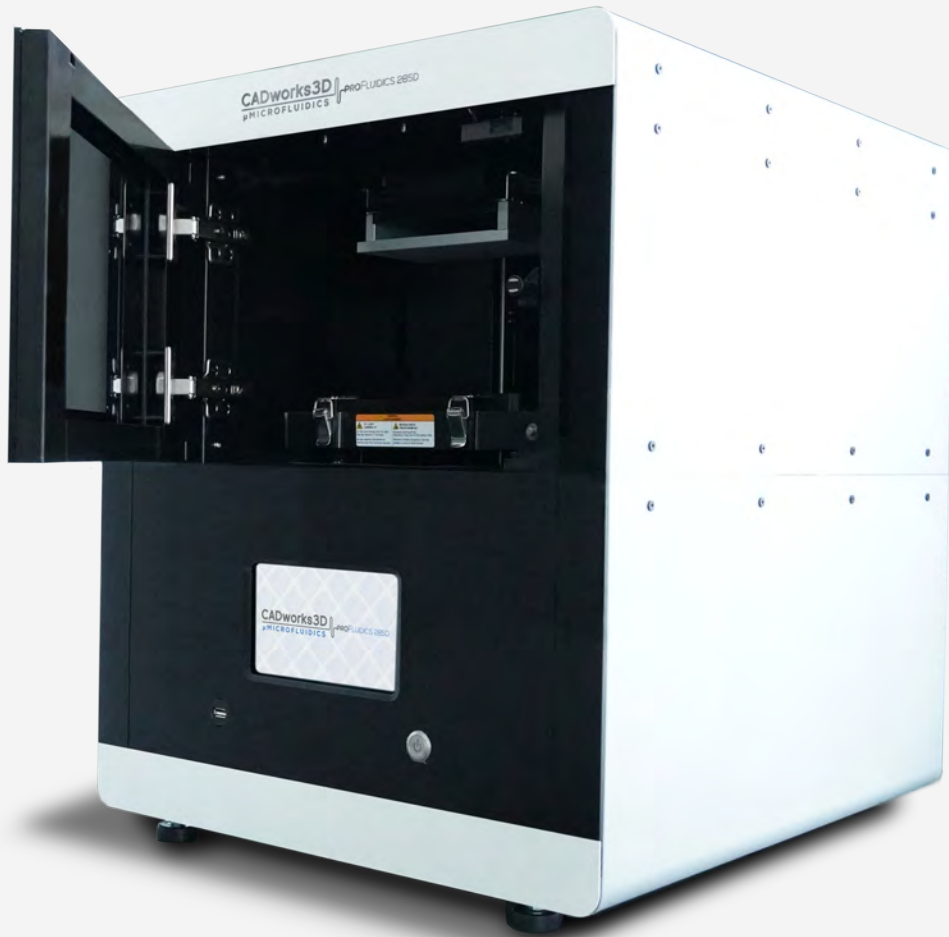
Alternative Method



Click on the **import printing setting file** button. 



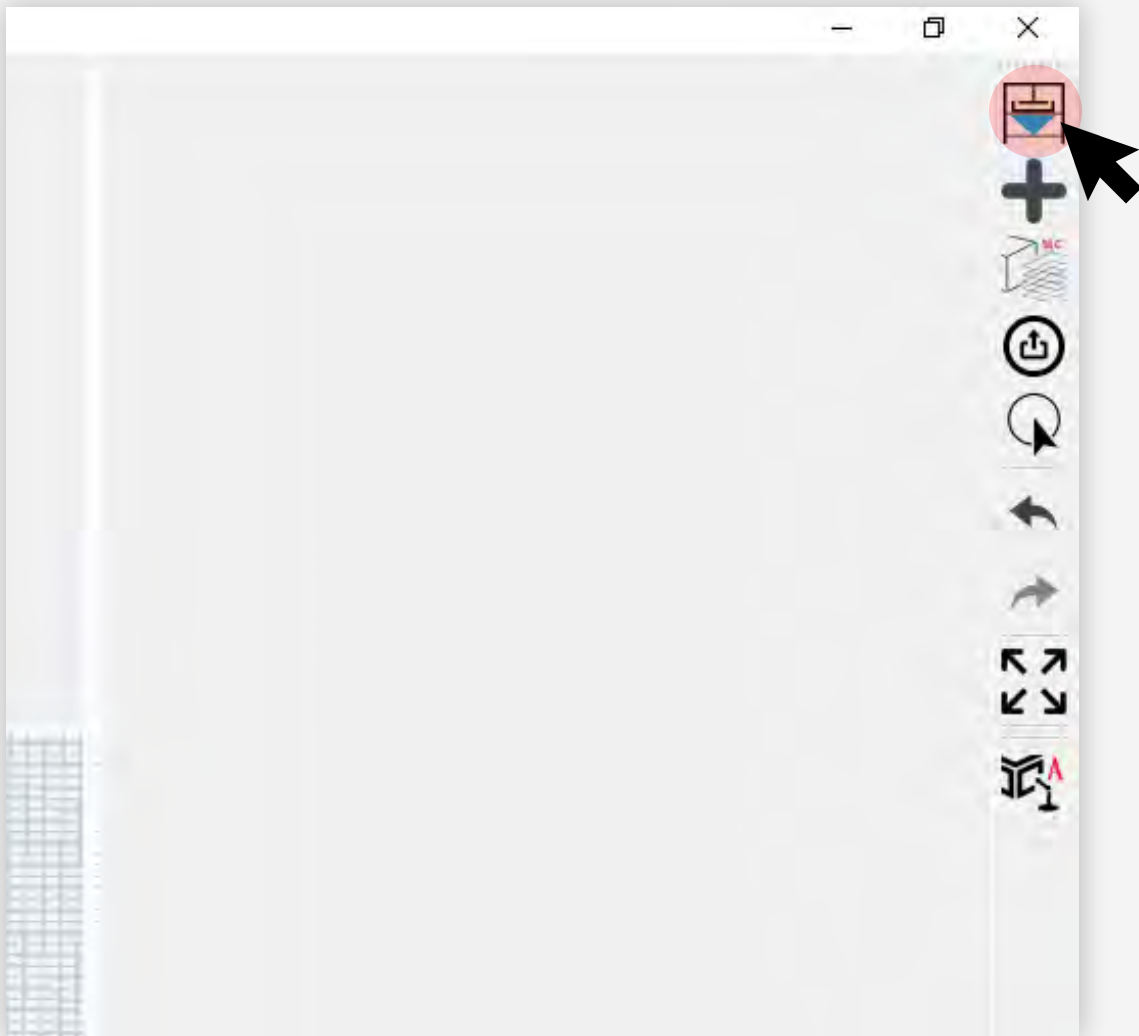
Select a **.mps** file and click **open**. The printing setting will now be saved into the folder. Note that you can only import settings one at a time with this method.



HOW TO LAUNCH A PRINT

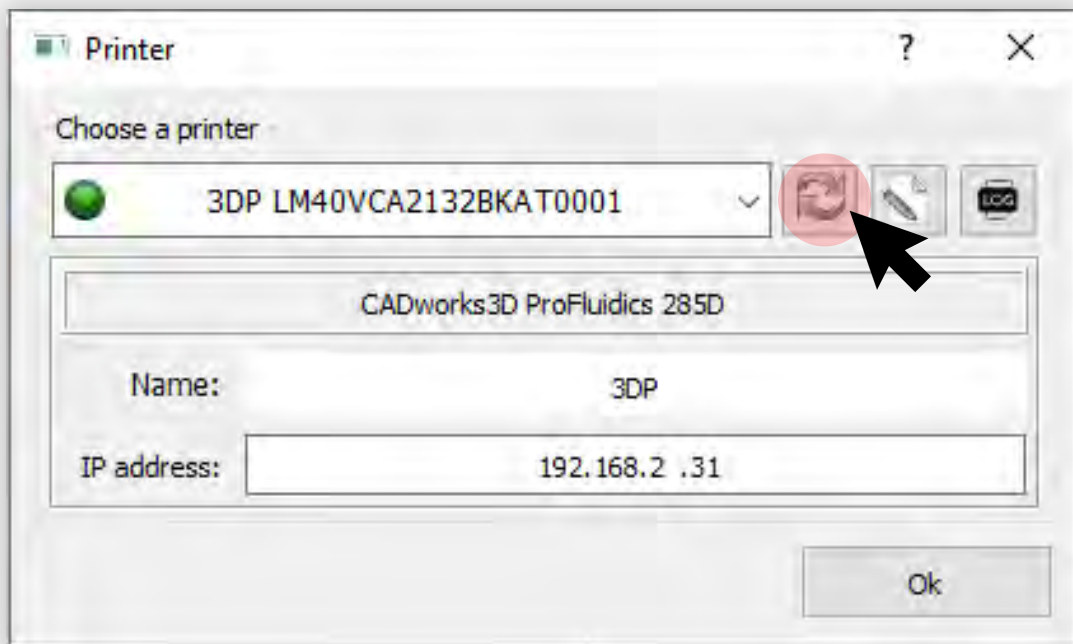
GUIDE

Choose your Printer



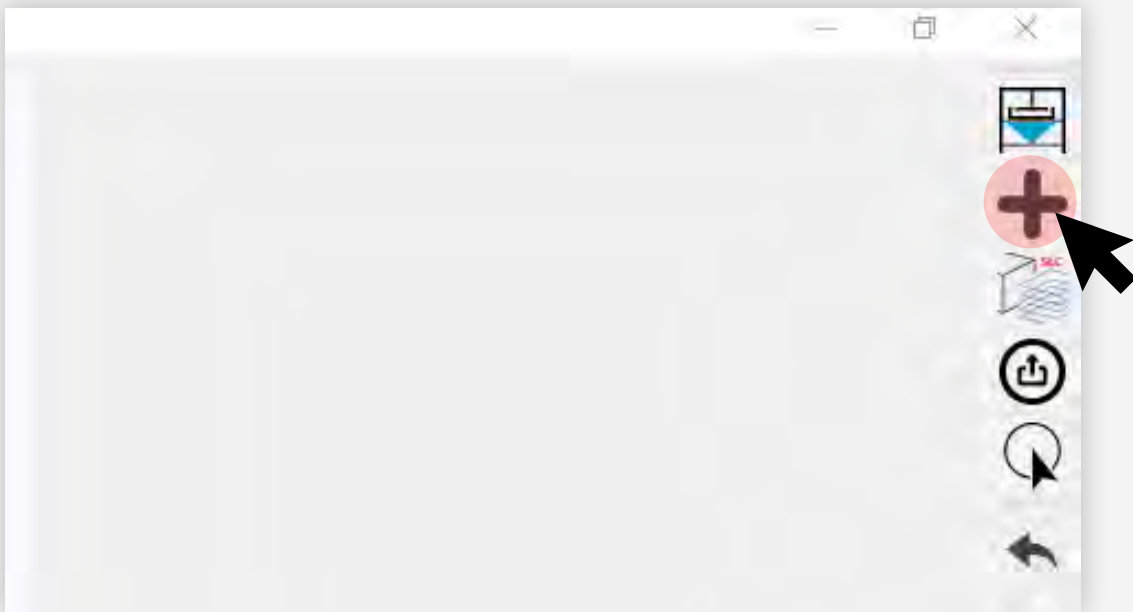
Click the **Choose Printer** button on the toolbar on the right.

Choose your Printer

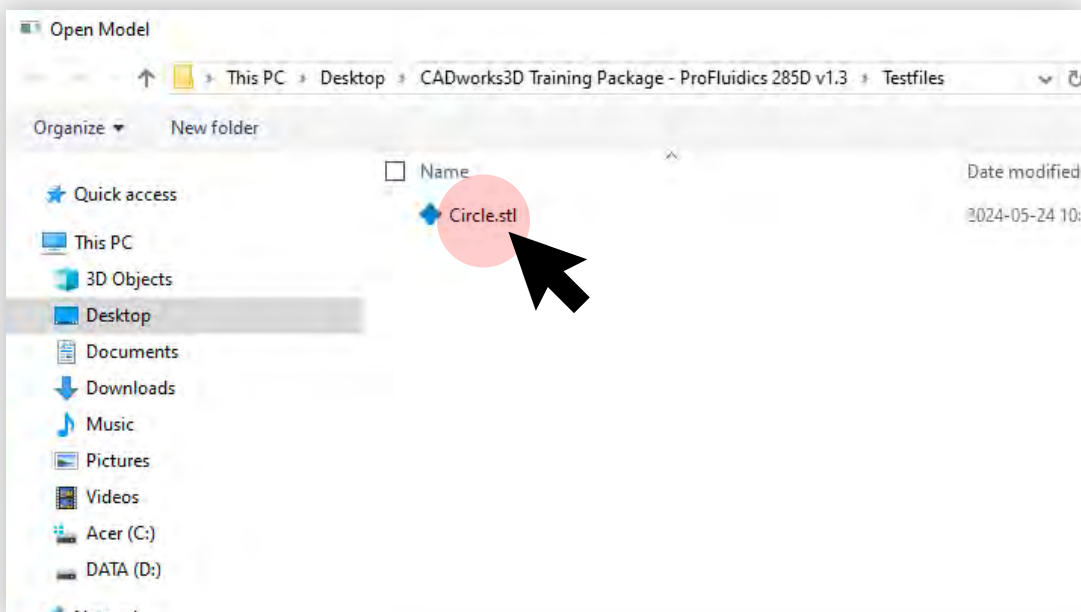


First click the **Refresh** button. If your printer does not show up, type in the IP manually from the touchscreen.

Choose your STL File

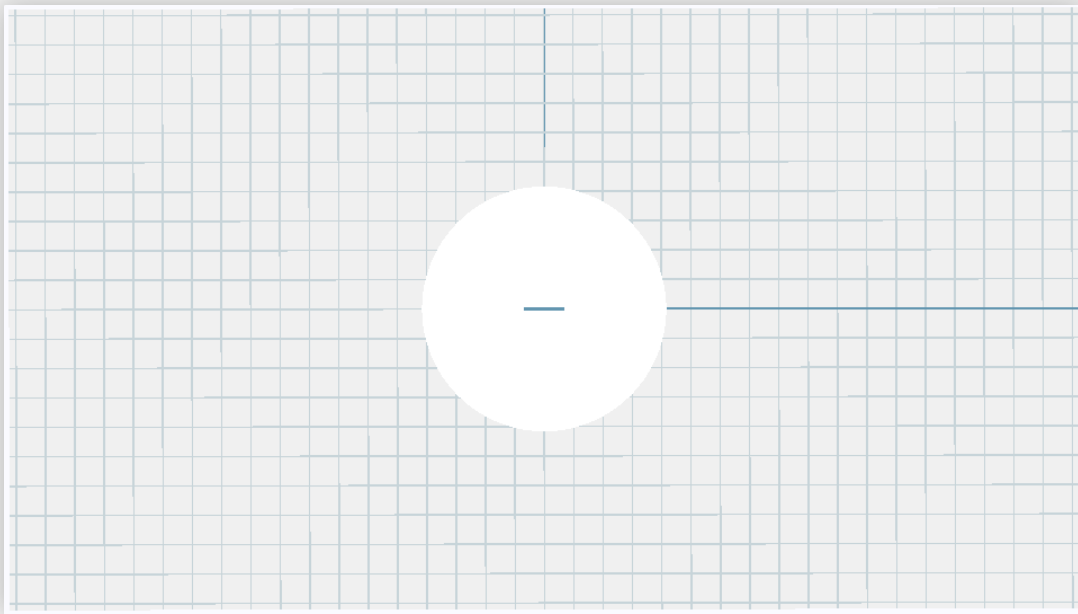


Click the **Plus** button to import a STL into the software.



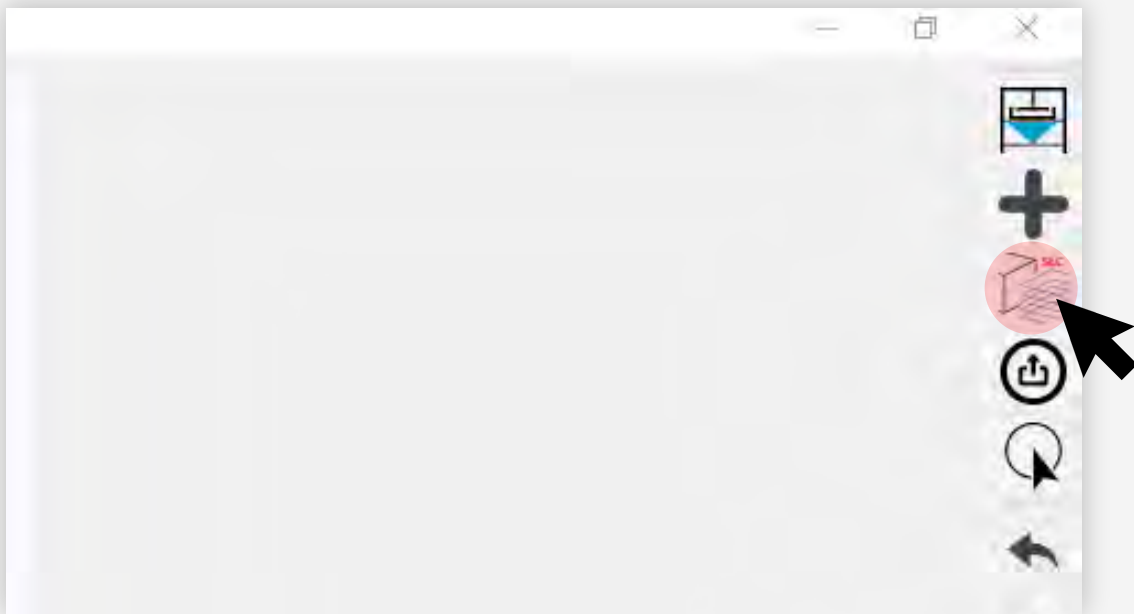
Find the relevant **STL File**. Double click it or highlight it and click **Open**.

Choose your STL File



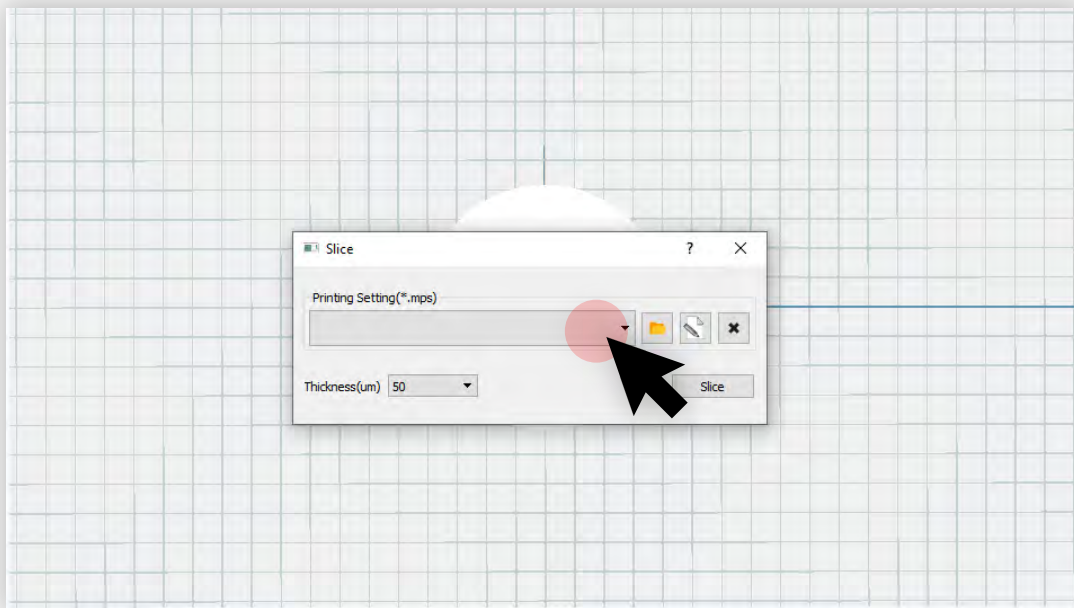
The STL should appear on the printing platform.

Slice the File

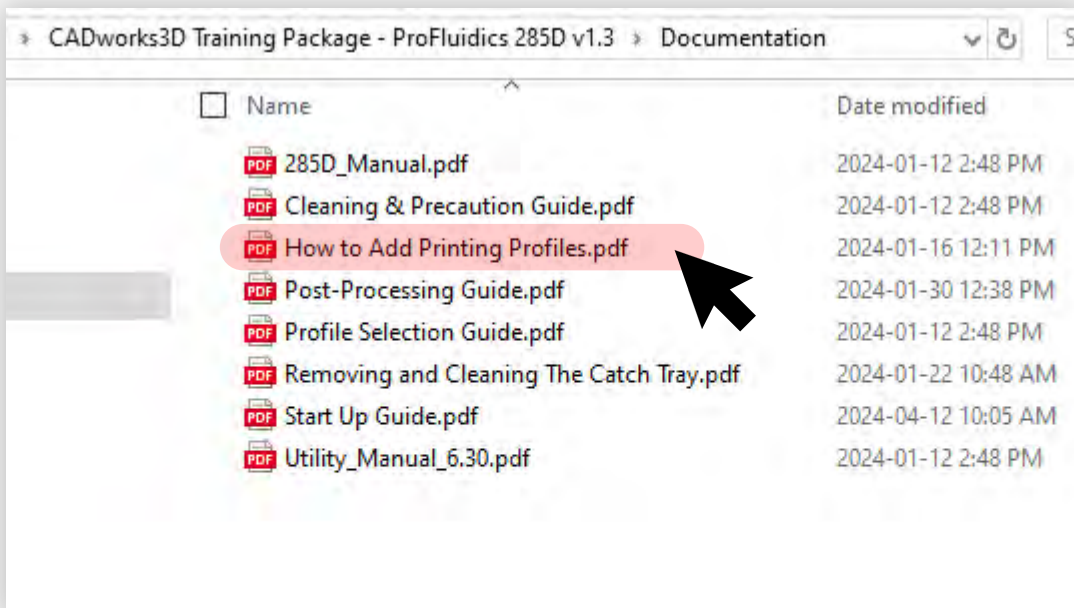


Click on the **Slicing** button.

Slice the File

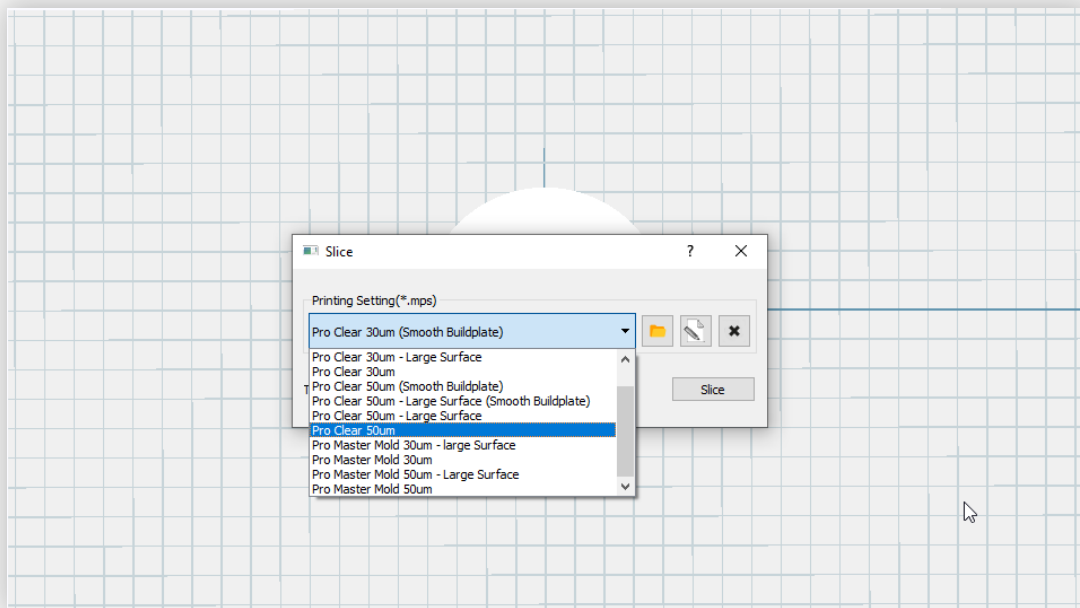


Pick the relevant profile. If you do not see any profiles, you need to import them.

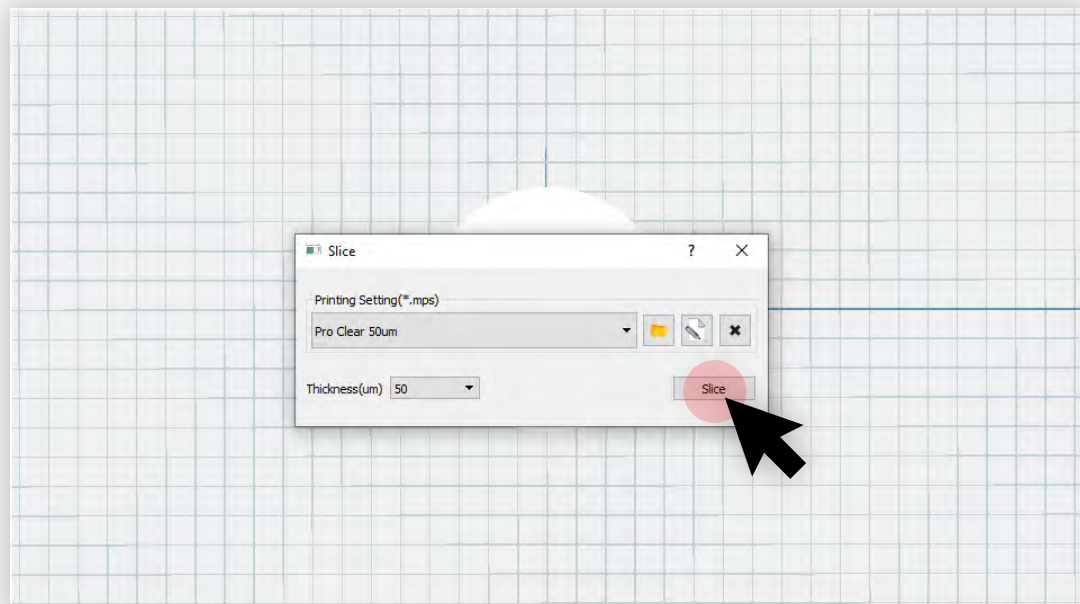


To do this, refer to the document called **How to Add Printing Profiles**.

Slice the File

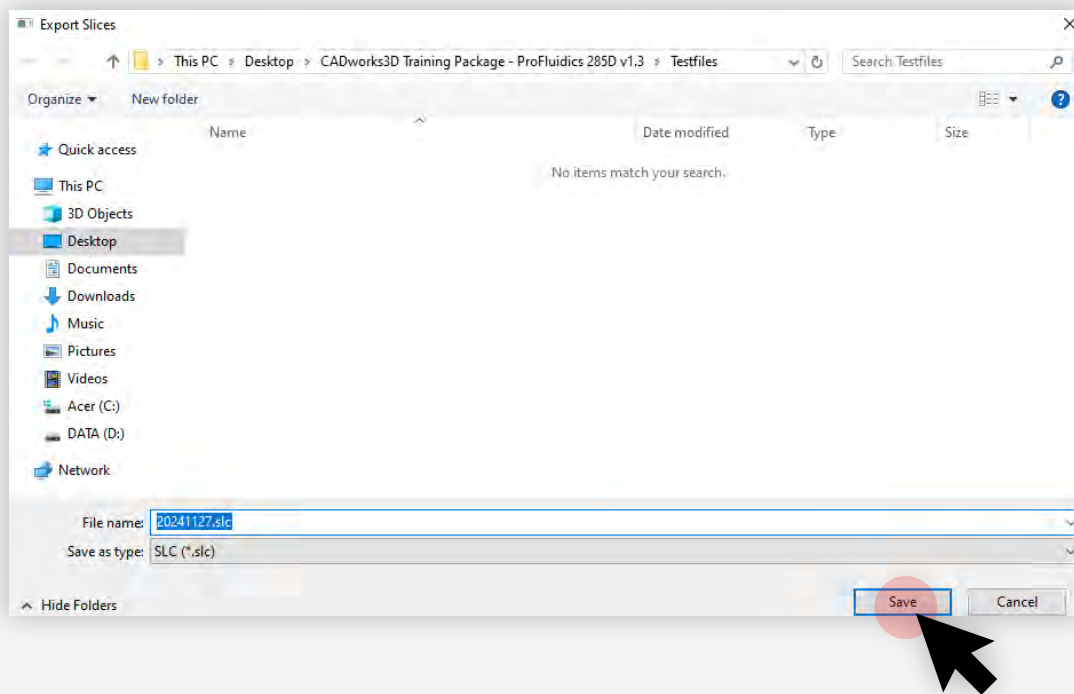


You will see this list if the profiles were added correctly. Choose any profile that says 30 μ m or 50 μ m.



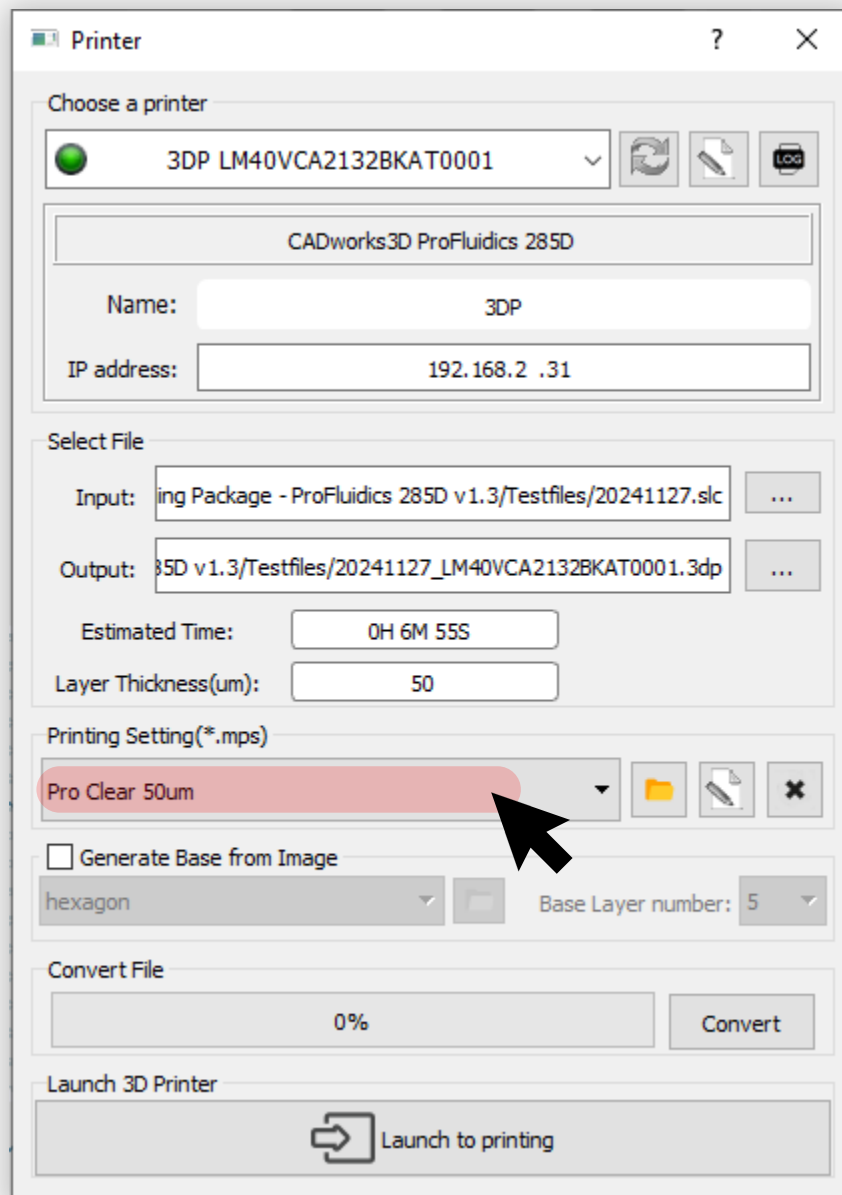
In this example we choose the **Pro Clear 50 μ m**. Now click the **Slice** button.

Slice the File



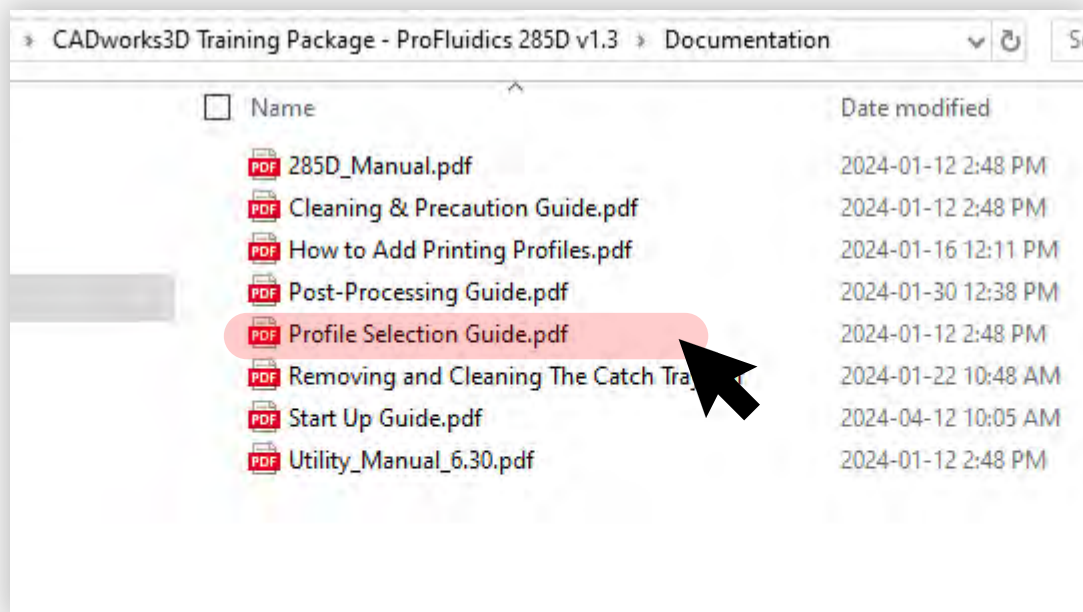
Rename the sliced file (slc) or keep it as today's date. Click **Save**.

Convert the File



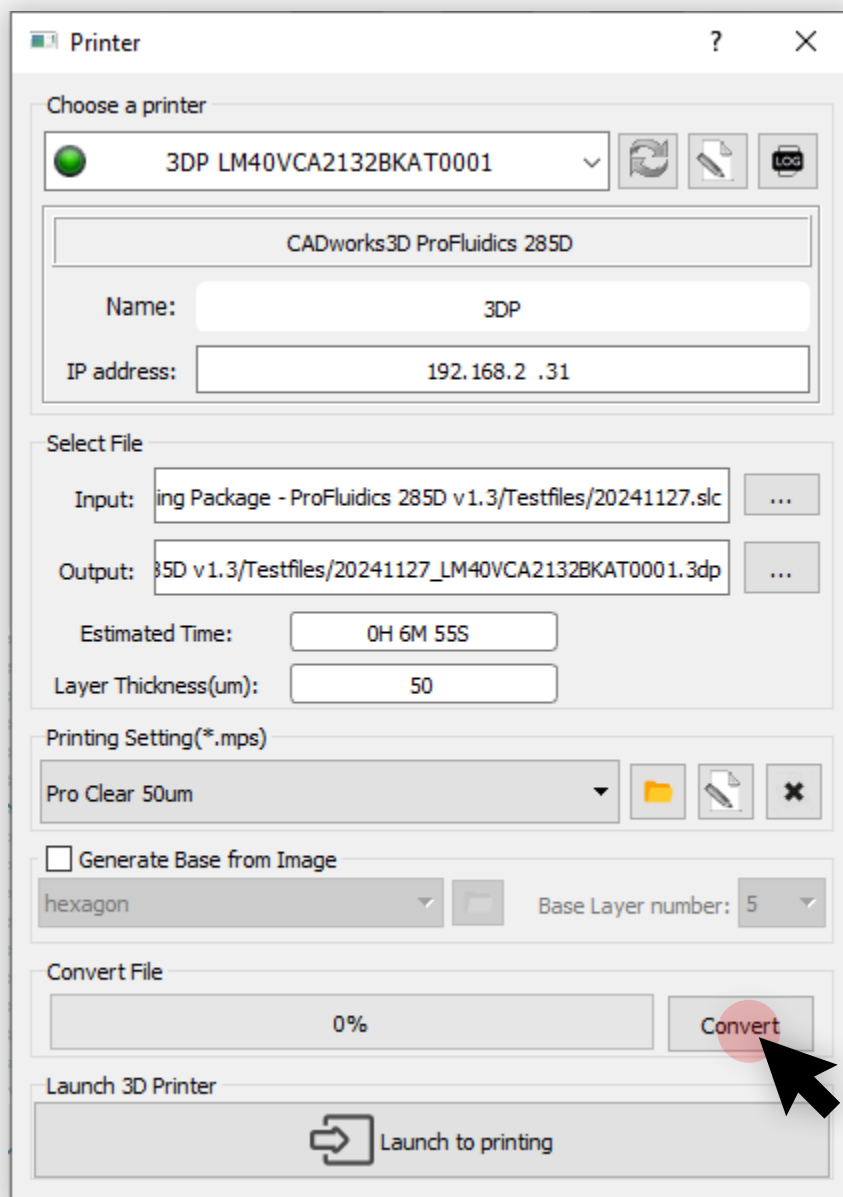
After slicing the file, you will see this popup. Choose the correct profile. Again, for this example we choose the **Pro Clear 50µm**.

Convert the File



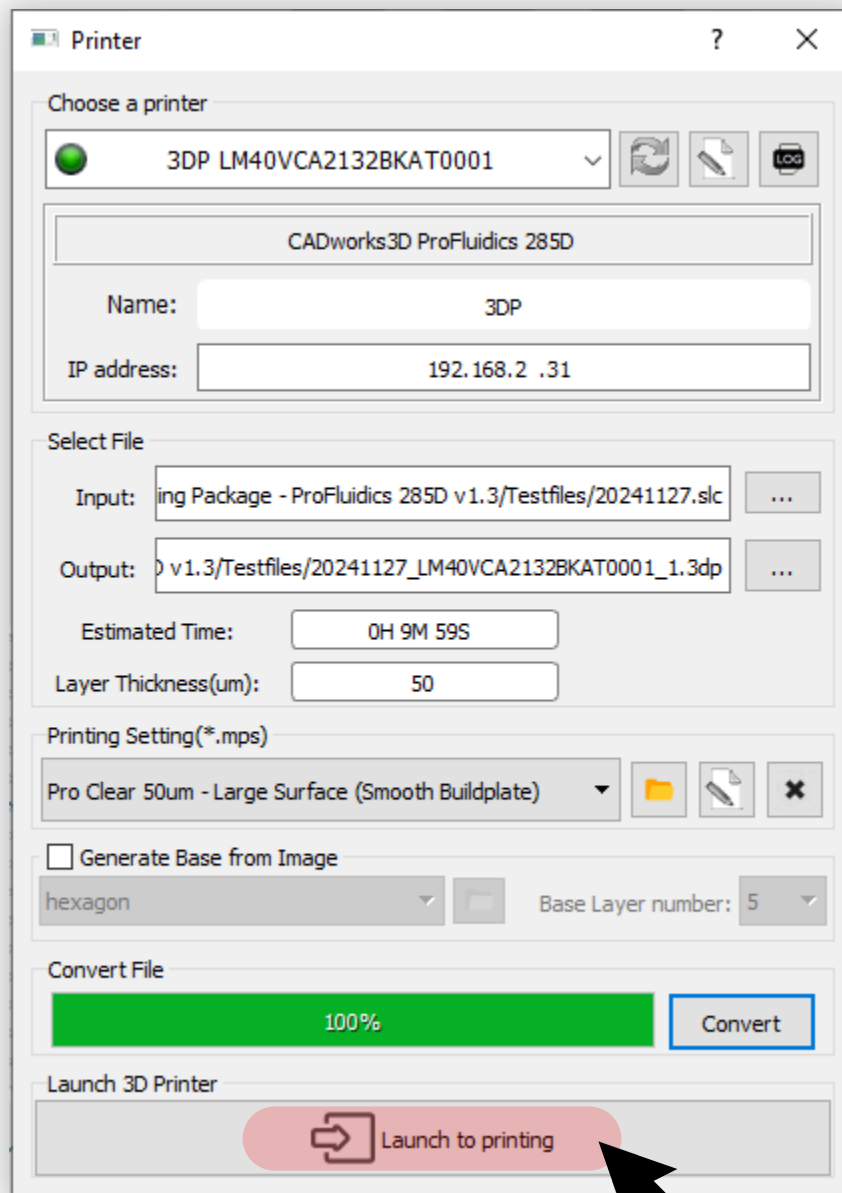
If you are unsure which profile you should choose, refer to the document called **Profile Selection Guide**.

Convert the File



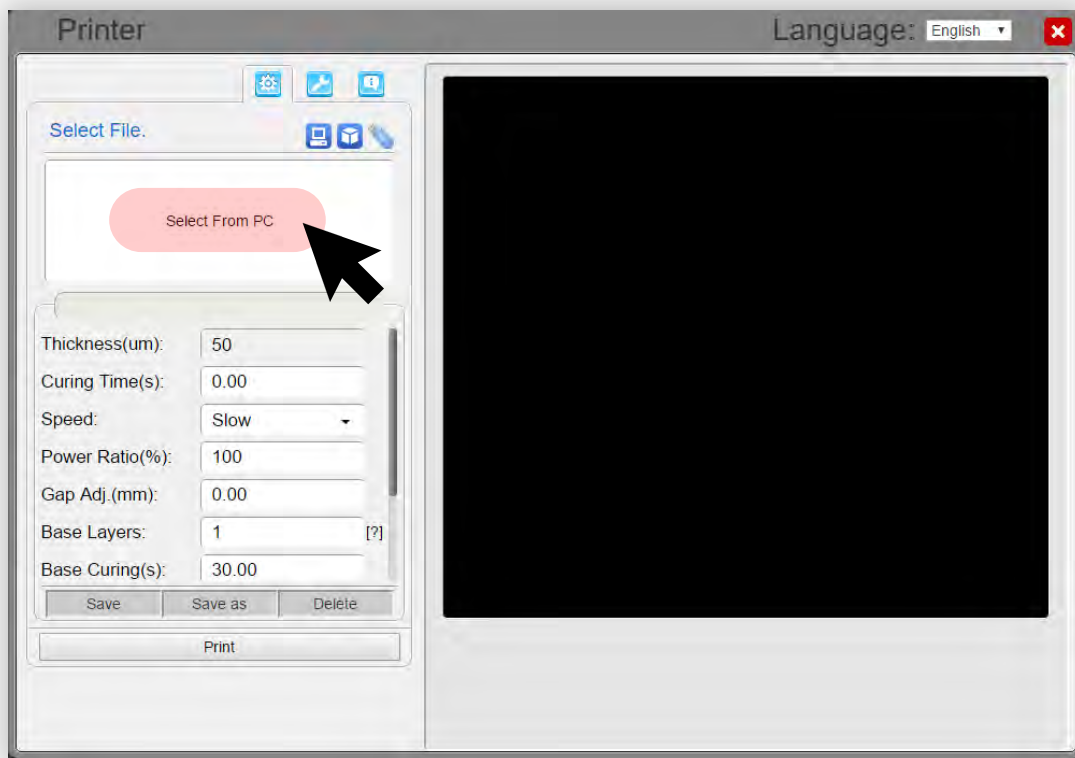
After choosing the correct profile click the **Convert** button. Remember to choose the correct profile for your print as it might not be the same as this example.

Convert the File



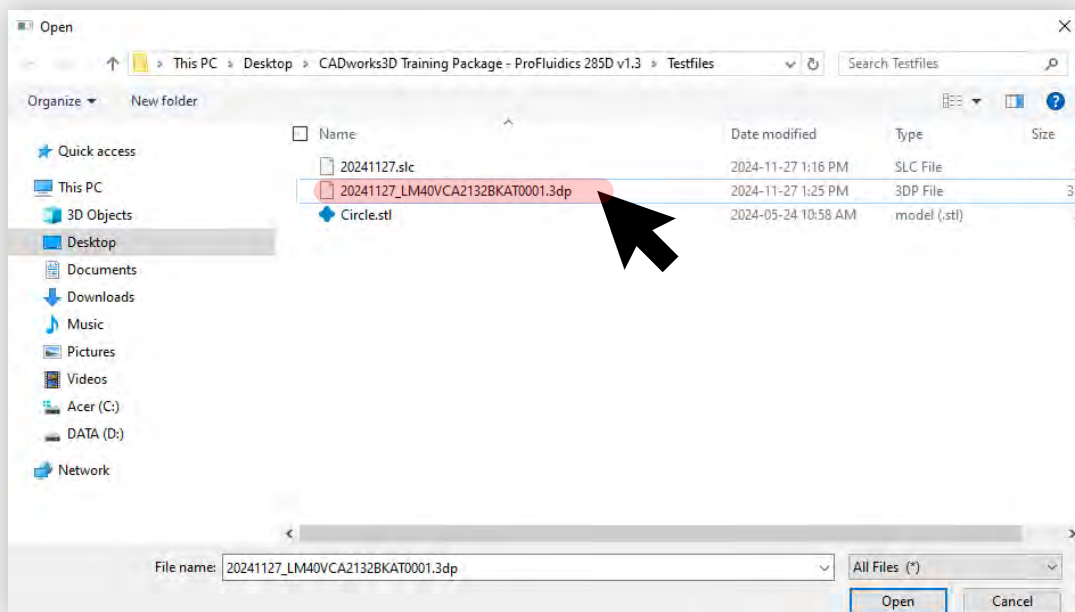
The **Convert File** bar will turn green. After this you can click the **Launch to Printing** button.

Launch to Printing



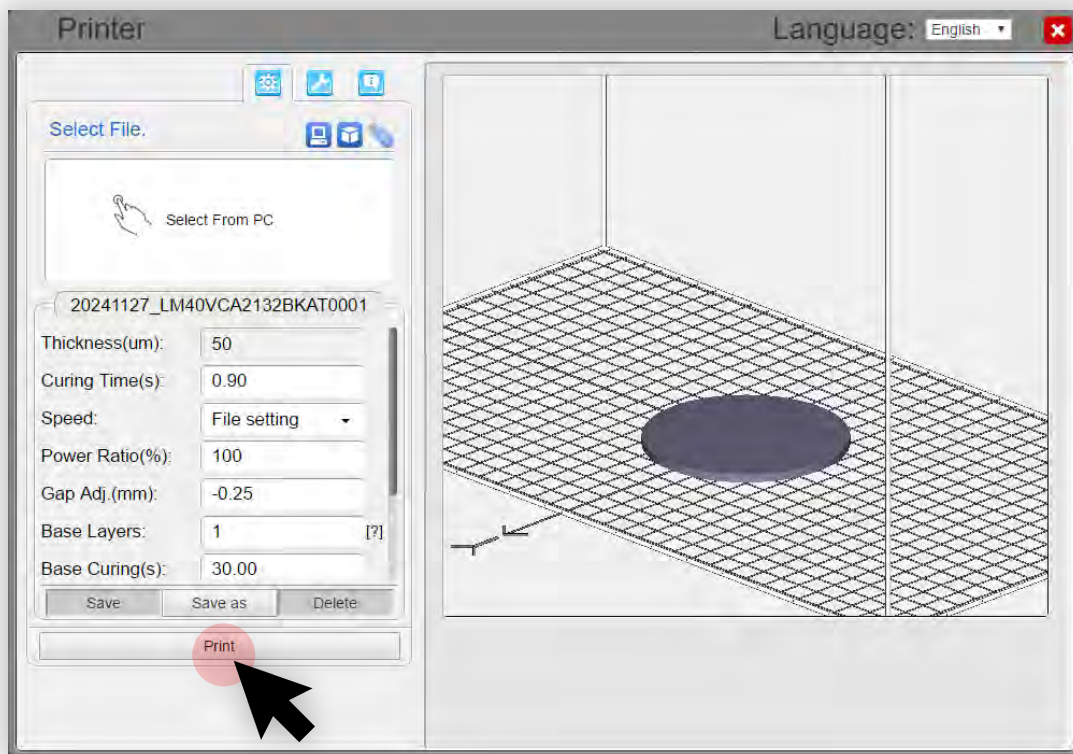
Click on **Select From PC**.

Launch to Printing



Select the converted file. This is the file with the **.3dp** extension.

Launch to Printing



Click the **Print** button.

Important Note: the image you see on the right will sometimes not show up correctly or show visual glitches. This will have no affect on your printing.



CADworks3D
MICROFLUIDICS

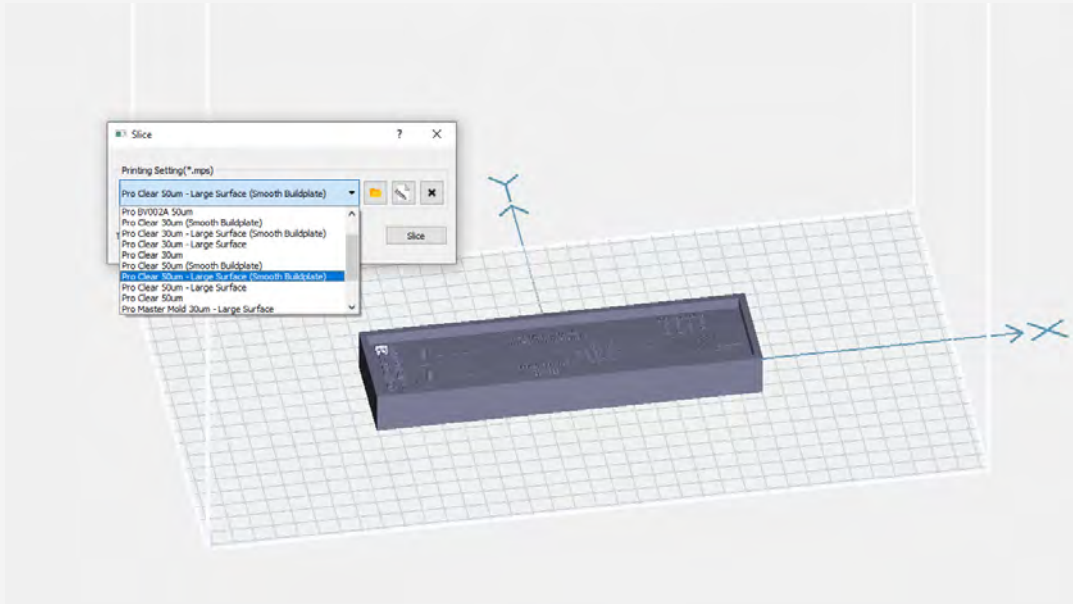


PROFILE SELECTION

GUIDE

Your Guide to Making the Correct Profile

How to choose the Correct Profile



Once you have successfully sliced your file. You have to choose the correct printing profile.

It all comes down to a process of elimination. You need to answer the following questions. Some of the questions below may not be applicable.

If you do not see the profiles mentioned below, please refer to the “How to add Printing Profiles” document.

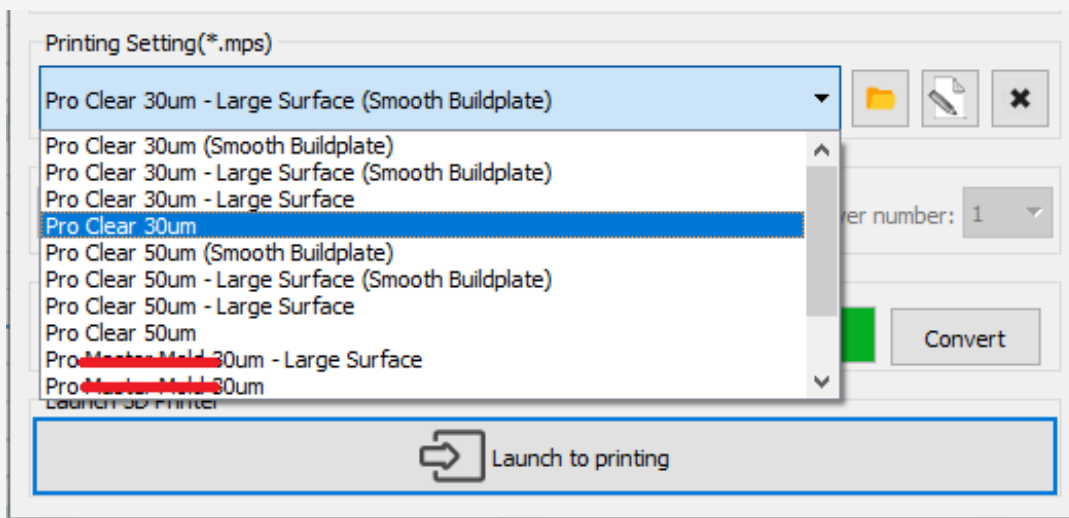
What resin are you printing with?

Answer

The two main options would be the Clear Microfluidic Resin or the Master Mold for PDMS Device Resin.

Your choice will eliminate many other options.

For example, choosing **Clear** will eliminate all options related to Master Mold



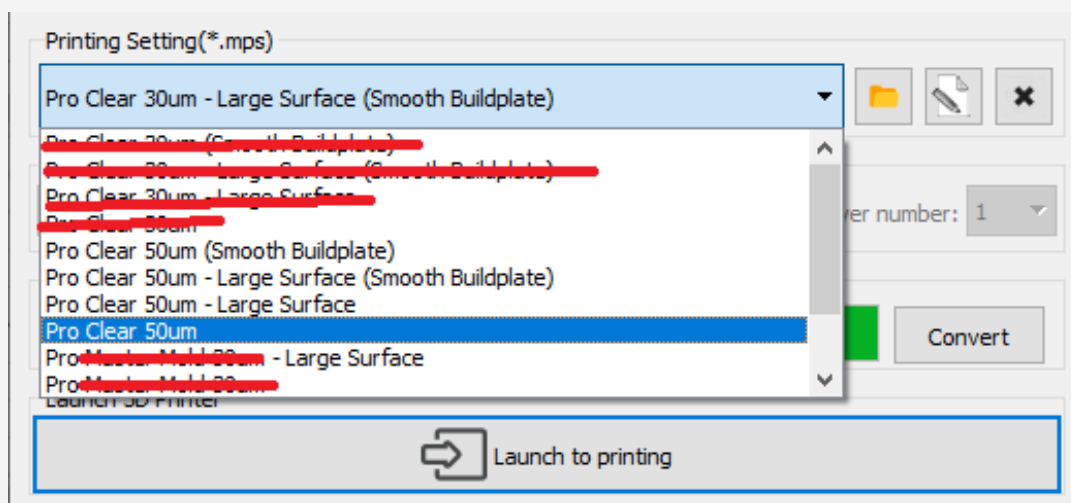
What layer thickness did you choose when you sliced your file?

Answer

When you sliced your file from earlier, you would have chosen either 30um or 50um.

This choice will eliminate half the options.

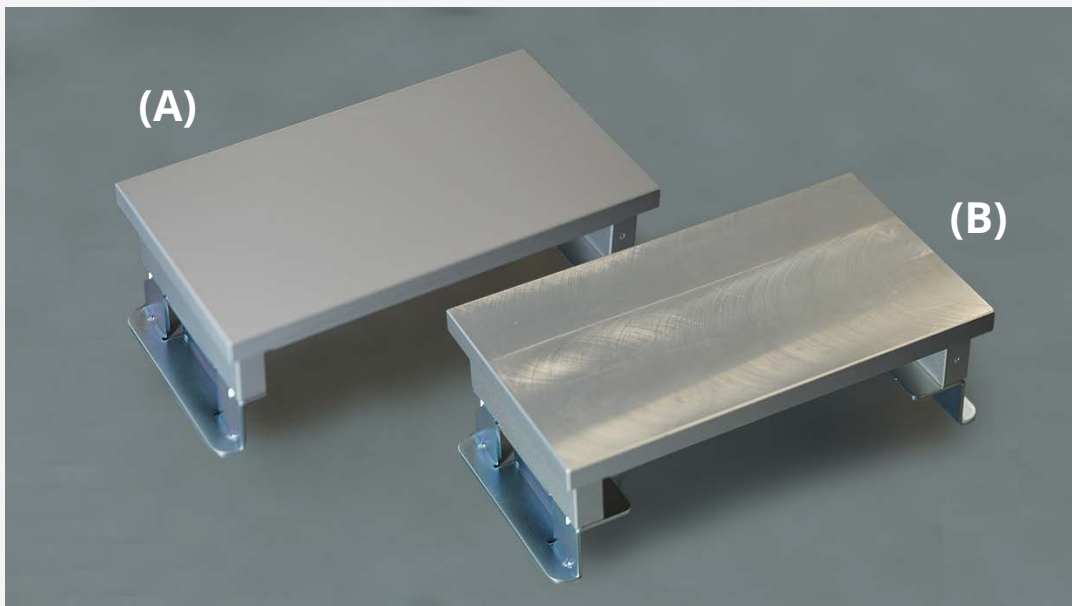
For example, selecting **50um** will get rid of all the options for 30um



What buildplate are you using?

Answer

If you have not purchased a Smooth Buildplate, please skip to question 4 to find the correct profile.



(A) Rough Buildplate - Standard with all printers.
It has a sandblasted/pebble finish.

(B) Smooth Buildplate - Optional purchase.
It has a high polish finish and a reflective surfaces.

For example, if you are using a **Smooth Buildplate**, your last two options will either be “Clear 50um (Smooth Buildplate)” or Clear 50um - Large Surface (Smooth Buildplate)”.

Is your device(s) dense or takes up a large amount of space?

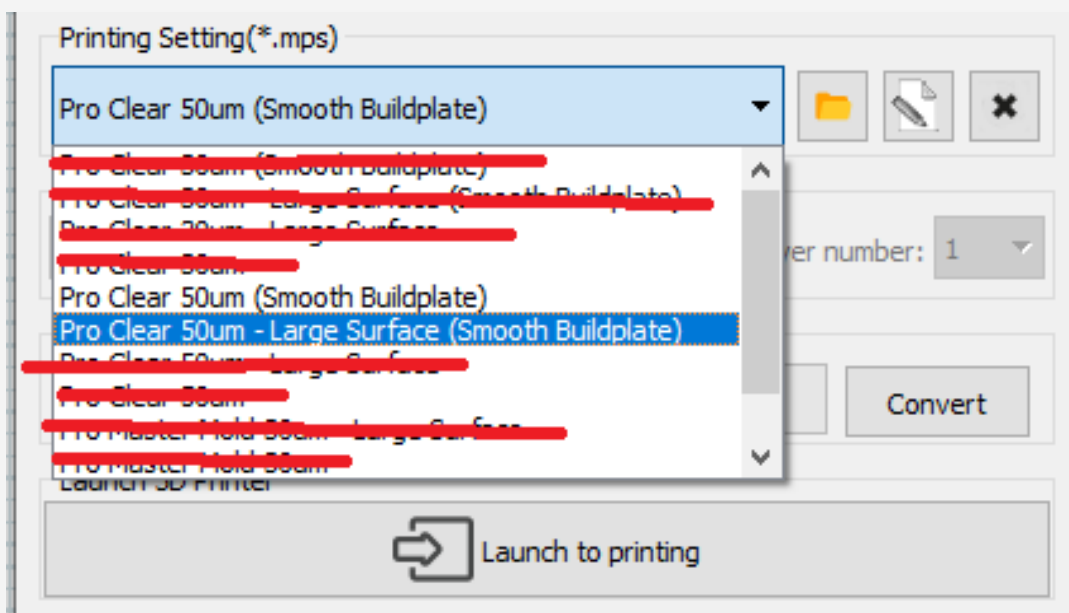
Answer

(A) If your device(s) are small

Choose the profile that *does not have* Large Surface in its name. In this case “Clear 50um (Smooth Buildplate)”.

(B) If your device(s) are large or dense - see Page 6 for a visual example

Choose the profile that *has* Large Surface in its name. So “Clear 50um – Large Surface (Smooth Buildplate)”.



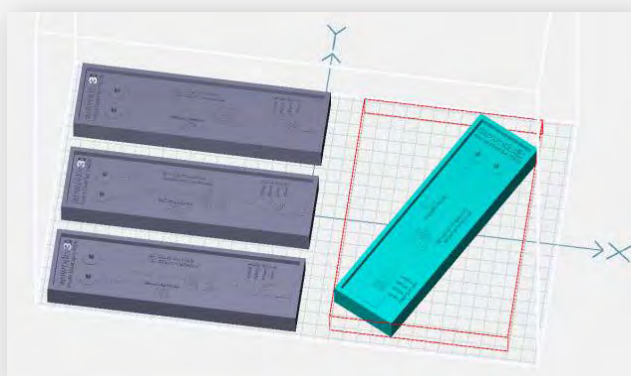
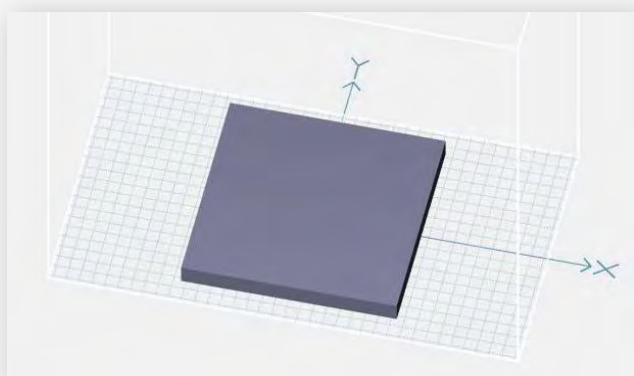
Is your device(s) dense or takes up a large amount of space?

Profiles that include “Large Surface” will print at much slower time to give the resin enough time to pool back into position.

If you are unsure whether to pick “Large Surface” or not, there is no downside to choosing this profile besides a longer printing time.

Characteristic of Large Surfaces

This is typically something that takes up more than 50% of the build area. It can be one large device or multiple smaller devices.



Now you can convert the file.



REMOVING & CLEANING THE CATCH TRAY

GUIDE

Removing the Catch Tray

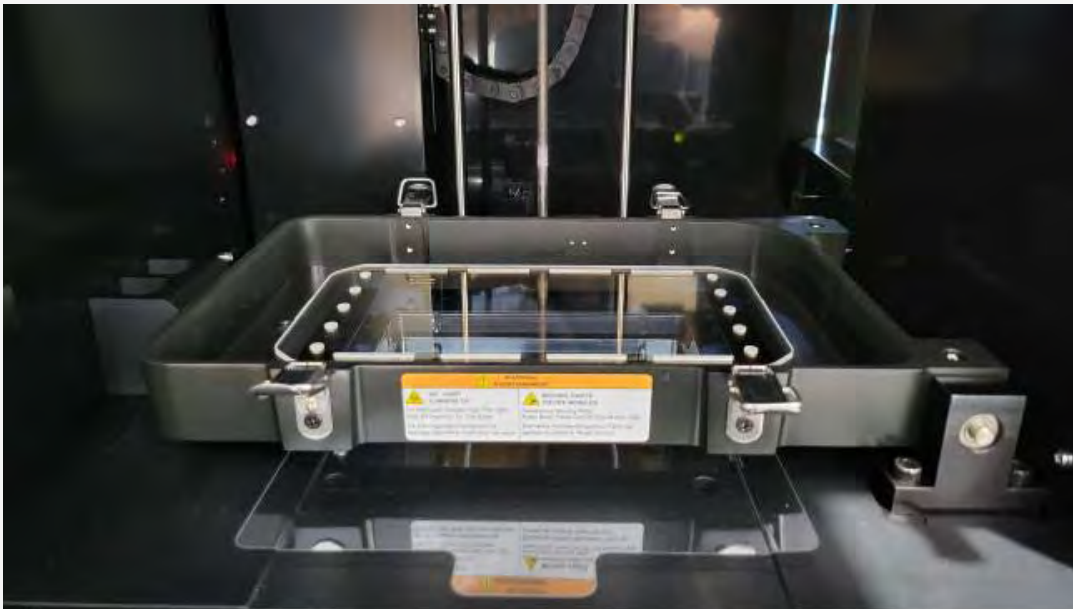


The Catch Tray should be the last component to inspect if you are experiencing any issues with print quality. Unless you know you spilled resin inside the Catch Tray, we would advise you to check the VAT and Retainer Glass / UV Glass first.



A CLEAN CATCH TRAY IS VERY IMPORTANT AS IT IS THE FIRST COMPONENT THAT LIGHT IS TRANSMITTED THROUGH

Removing the Catch Tray

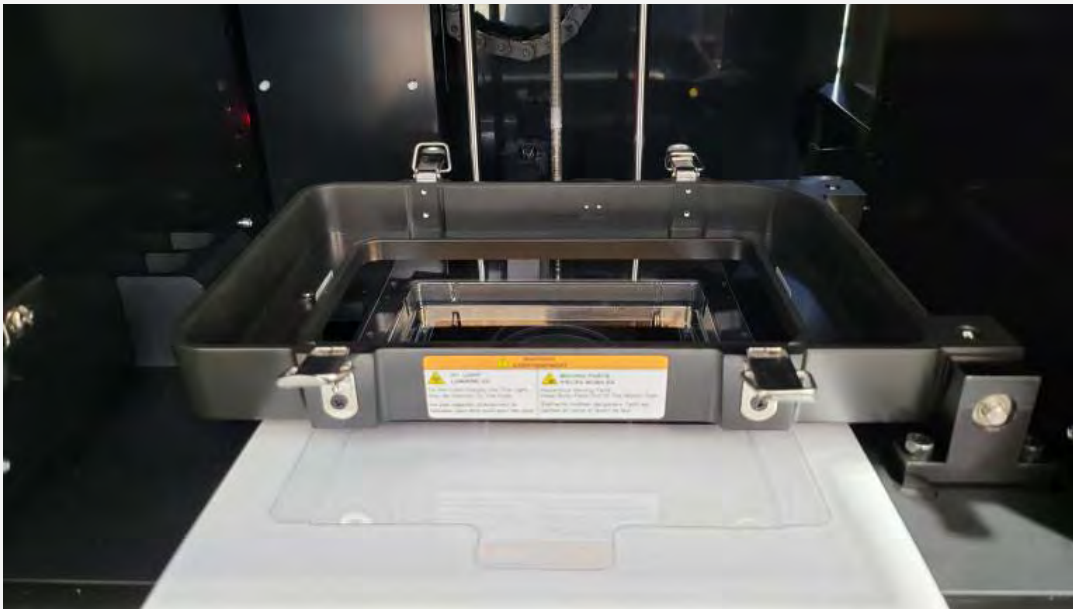


Remove the Buildplate and VAT from the printer.



Remove the Retainer Glass / UV Glass. Note there is a reusable adhesive tape on two sides of the glass to hold it in place. Partially peel or remove it completely to lift the glass out.

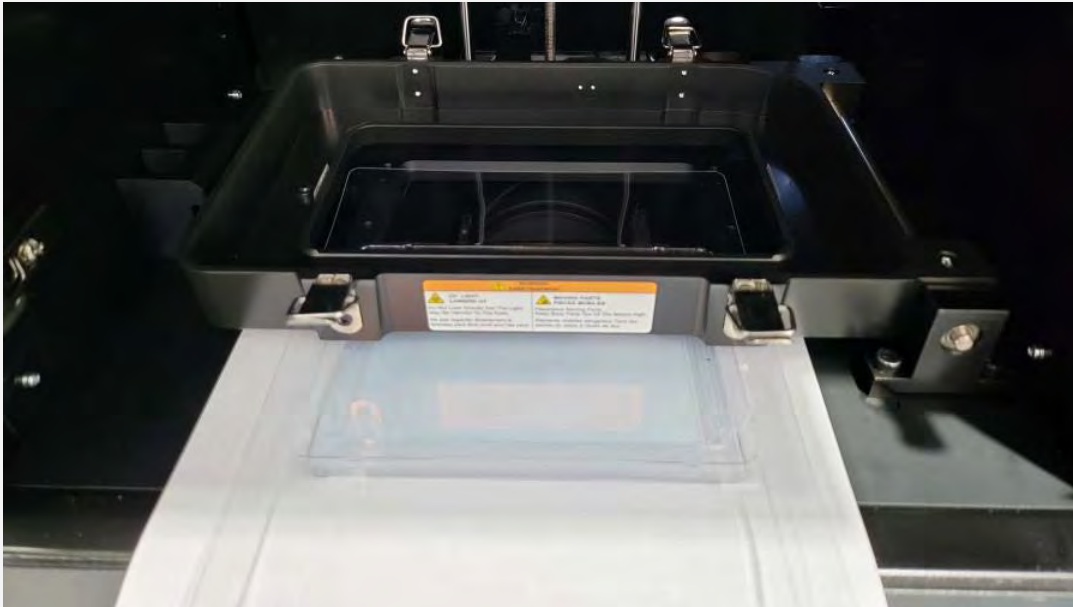
Removing the Catch Tray



Place a piece of paper (US letter or A4) underneath the first half of the Catch Tray.

This will allow you to slide out the Catch Tray onto the piece of paper and avoid making contact with any other surface. You want to avoid the Catch Tray's window from touching any dirty surfaces.

Removing the Catch Tray

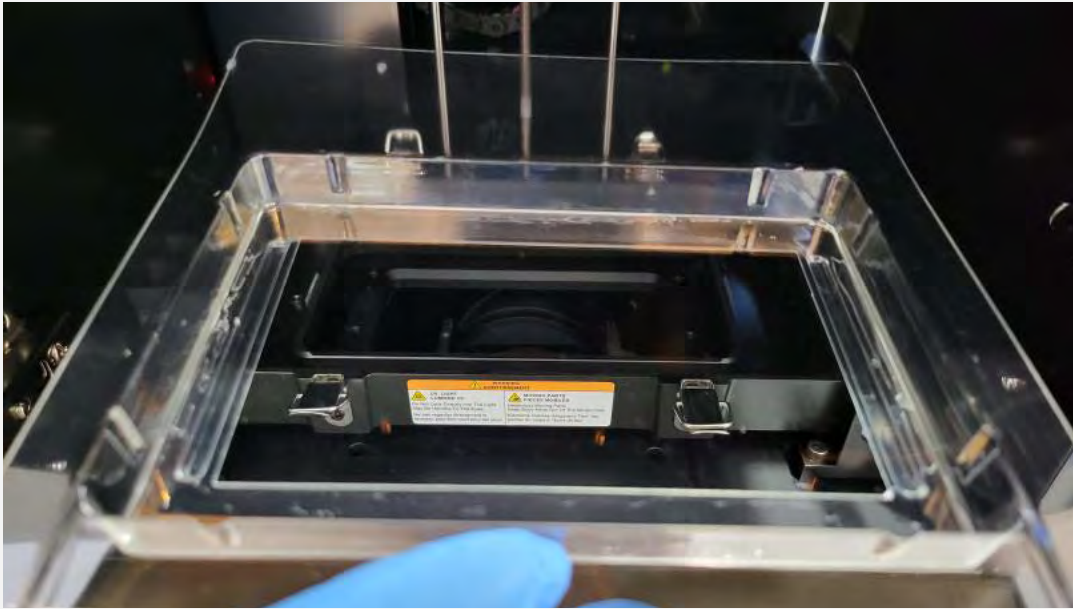


Slide and lift the Catch Tray onto the piece of paper.



At this point, the end of the Catch Tray should be onto the piece of paper.

Cleaning the Catch Tray



The Catch Tray should be optically transparent.

A bit of dust/particles shouldn't affect print quality but it is recommended to use compressed air to clear the glass window (highlighted in blue). Do not wipe the window down unless necessary as this can cause smudges.

Depending on your environment your Catch Tray should be fairly clean. However, a large amount of dust can collect on this window. You may need to clear any particles every few months to a year with compressed air.

Cleaning Resin Spills



THIS STEP IS ONLY NECESSARY IF RESIN HAS BEEN SPILLED ON THE WINDOW

As shown previously, the Catch Tray's window has to be optically transparent. If anything is obscuring the window of the Catch Tray, it has to be cleaned immediately.

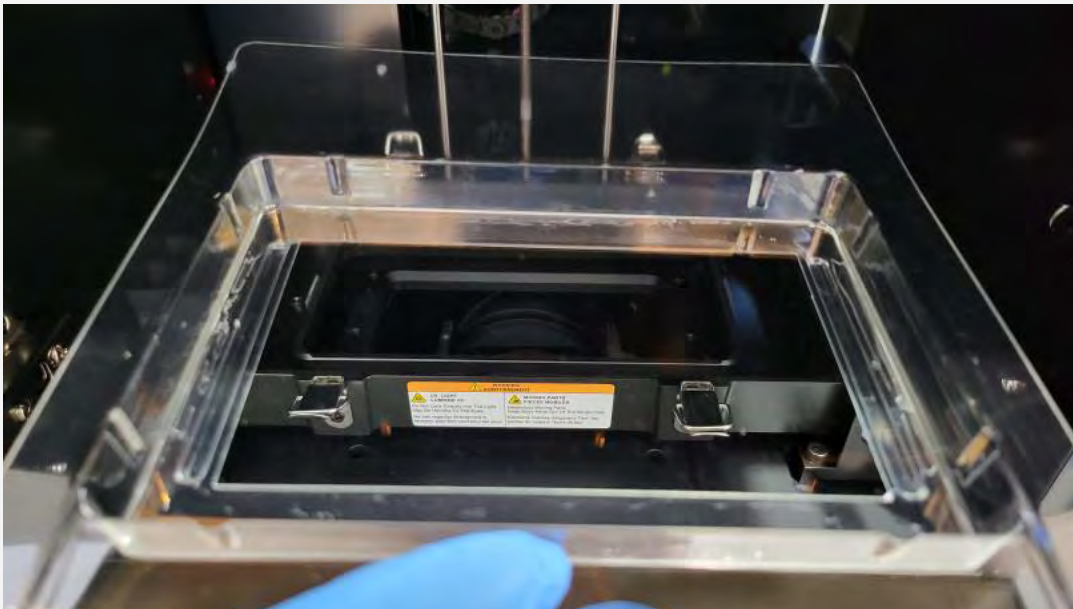
Items Needed

The first thing you will need is a **Microfiber Cloth**. Do not use regular paper towels as this can cause damage to the window. You will also need an **Optical or Glass Cleaner**. Any generic brand should work.

You can also use **Isopropyl Alcohol (IPA)**, but it may leave streaks, so multiple attempts may be required.



Cleaning Resin Spills



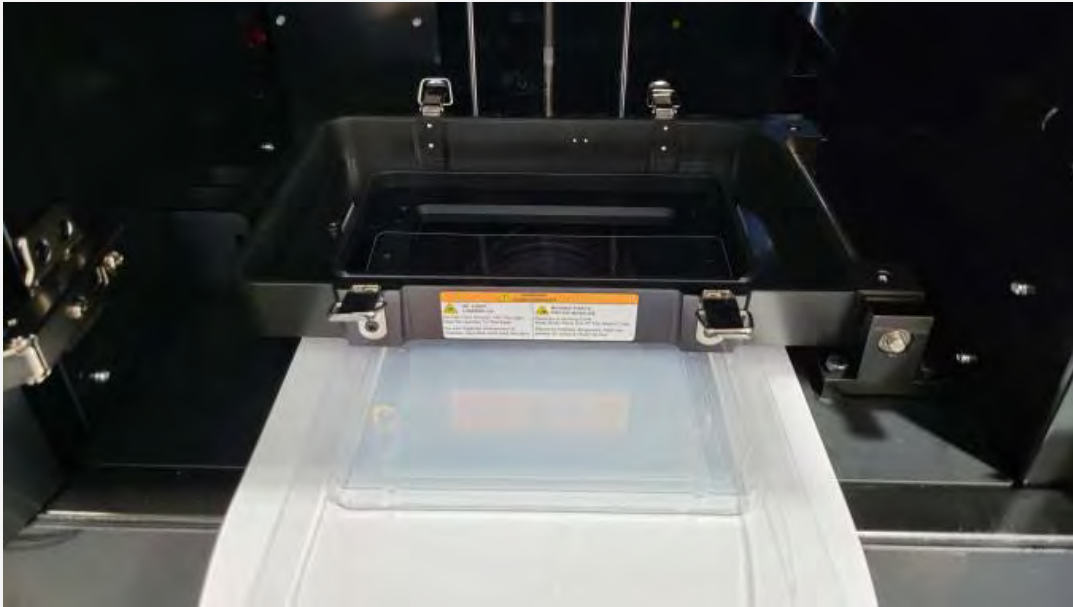
Cleaning Instructions

Wipe away any excess resin from the window. Using the microfiber cloth and optical cleaner, wipe the window in one direction using a single fluid motion.

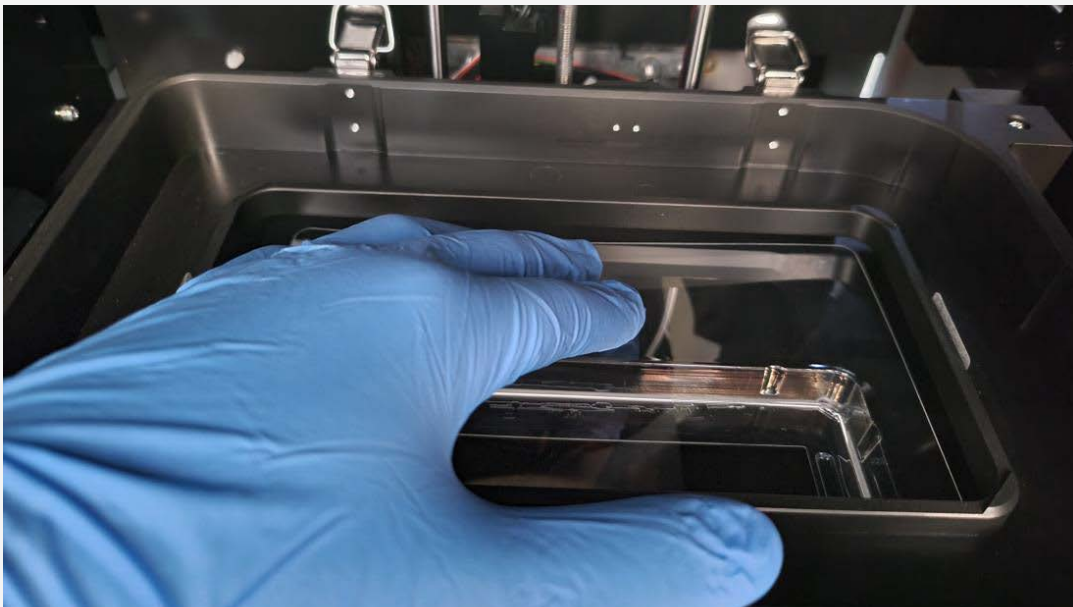
Repeat this until the window is in a similar state as the image above.



Reinserting the Catch Tray

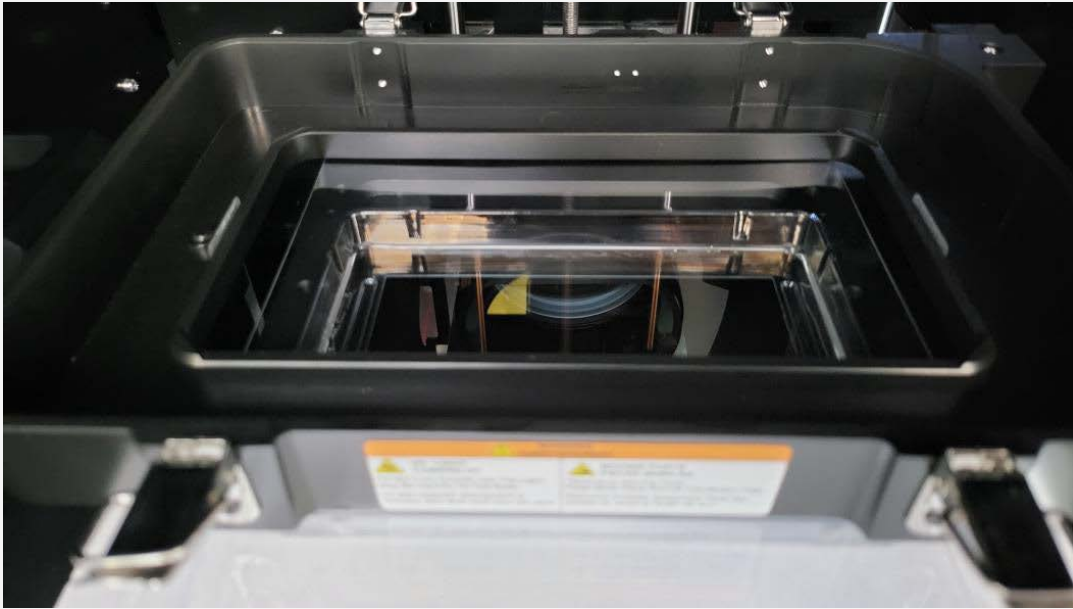


To reinsert, once again place a piece of paper under the cartridge with the Catch Tray on sitting on top.



You should be able to slide the Catch Tray back in but it will stop against a wall. Use your free hand to push it down slightly so it can fully slide to the back

Reinserting the Catch Tray



The Catch Tray should now be set back into place. The photo above can be used as reference. Remove the piece of paper.

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PROFLUIDICS 285D
PROFLUIDICS 285D
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PROFLUIDICS 285D

USER MANUAL

Utility V6.3.0 and Touchscreen Panel



In dex

1	System requirement	Pg.2
2	Open Utility and Connect to printer	Pg.3-4
3	Import file	Pg.5
4	Hot key	Pg.6
5	Semi-Auto mode	Pg.7
6	Duplicate and resize model	Pg.8-11
7	Generate Nameplate	Pg.12
8	Auto arrangement	Pg.13
9	Auto support	Pg.14
10	Model arrangement	Pg.15-22
11	Build supports	Pg.23-29
12	Build support – View mode	Pg.30-32
13	Tool bar	Pg.33-38
14	Printer setting	Pg.39-52
15	Engineering mode (computer)	Pg.53-55
16	Printing record and update firmware	Pg.56
17	Print via touch screen panel	Pg.57-64

S system requirements

Minimum PC requirements for using Utility: If your device falls short, installation is still possible but may result in a subpar experience.

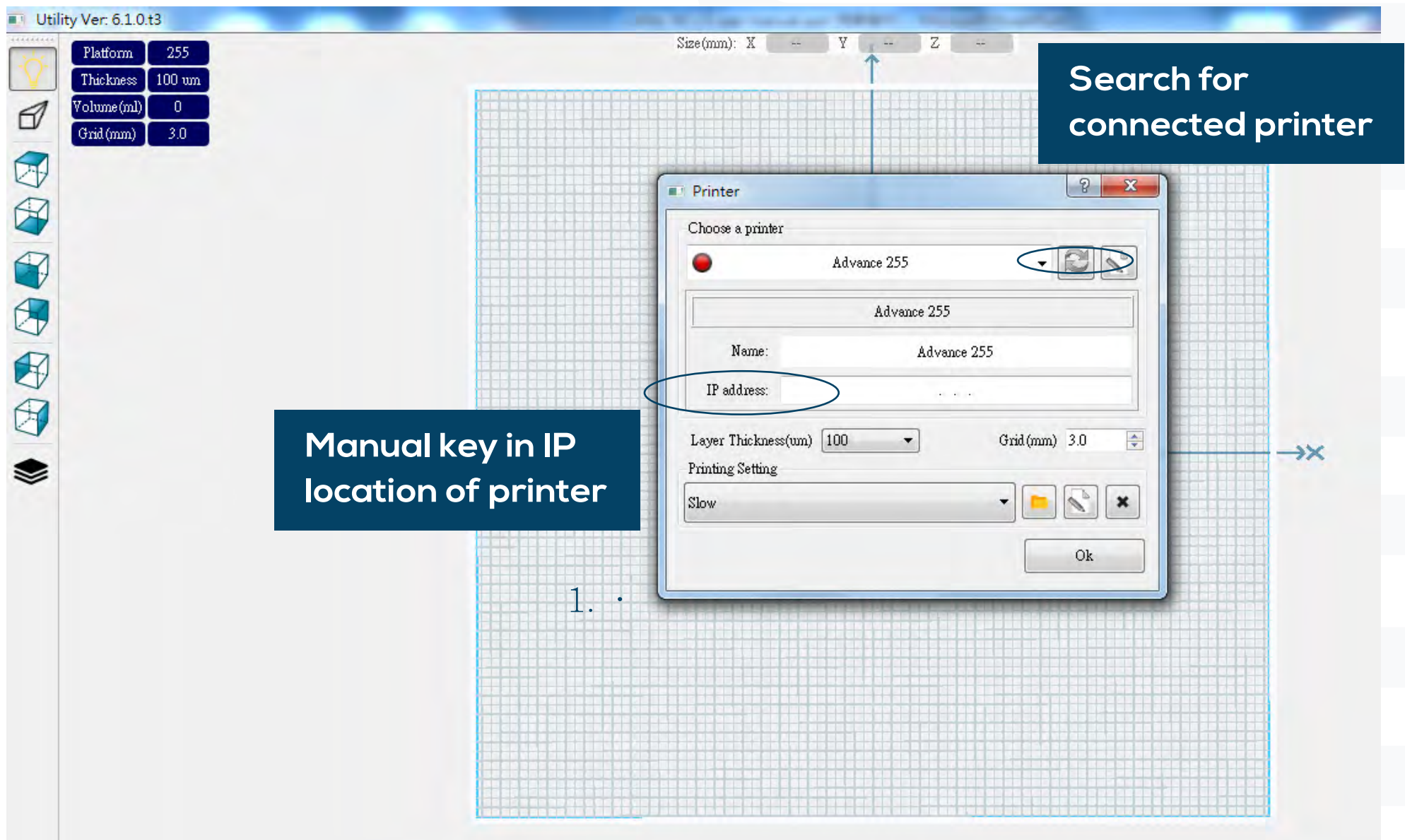
Operating system:	Windows 10
CPU:	Intel Core i7 or above
RAM:	8 GB or above
Hard drive space:	250 GB SSD or above
Graphic cards:	Dedicated Graphics 2GB or above ; Support Open GL 3.3 or above
Browser:	Use Google Chrome only
Wifi Dongle:	Advance Series/ Profession Series / Prime Series / Hyper Series suggest to use with D-Link DWA-127 Wireless Networking Adapter. Ultra Series suggest to use with EW-7811Un Other brand and model of wireless network adapter may not compatible to our printer

Open Utility and Connect printer

Unzip the installation file, and click Utility.exe

Utility.exe

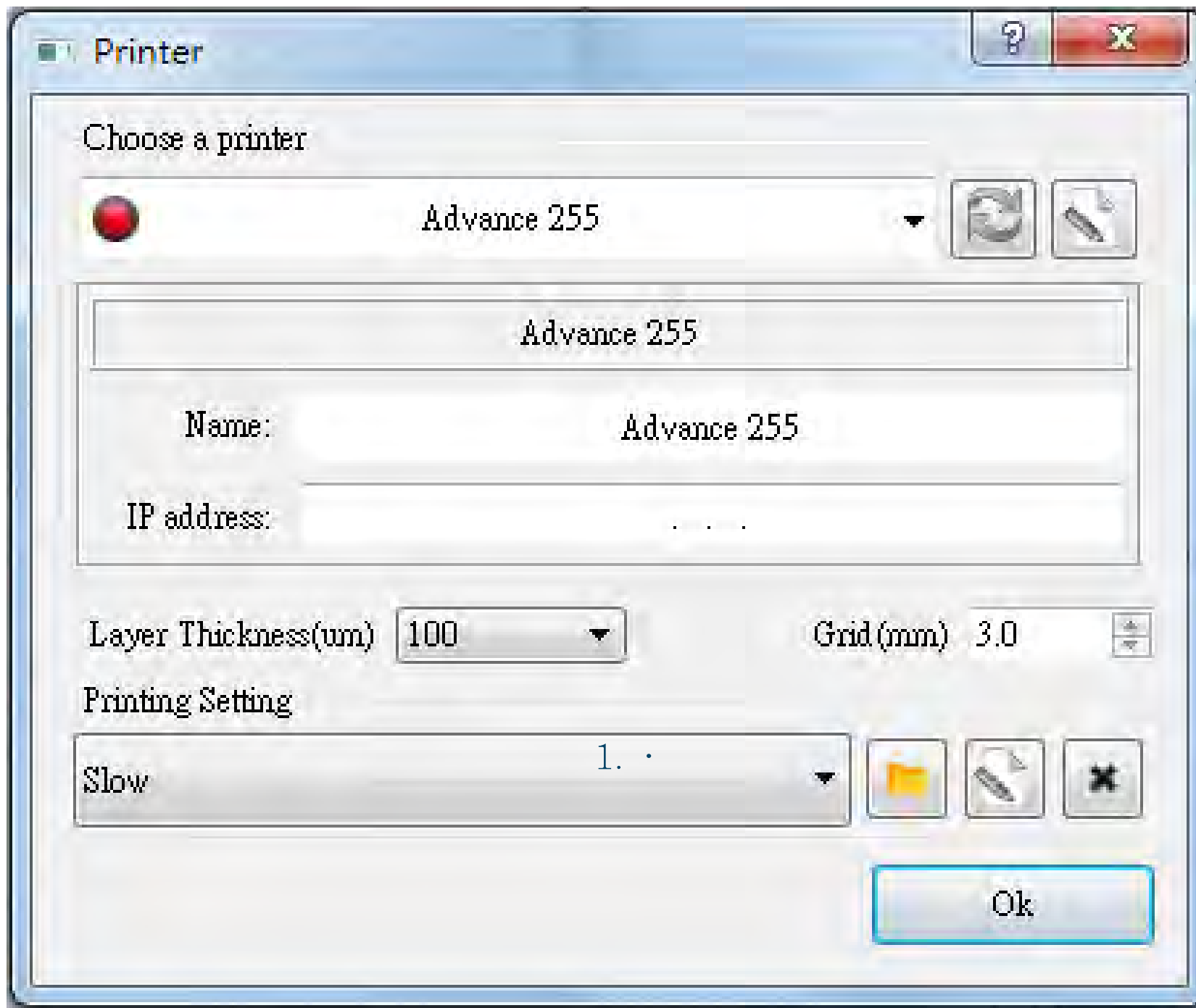
Need to connect to printer first, otherwise cannot use Utility



To connect your printer to a laptop:

- Use an RJ-45 cable for a basic connection (1 minute).
- Connect both devices to a local area network (a few seconds).
- Utilize an IP sharer for quick connectivity (a few seconds).
- Insert a WIFI dongle into the printer's USB port, enable WIFI in engineering mode, and connect to the network specified on the printer (a few seconds).

Choose a Printer



- Choose the desired printer and select the appropriate building platform size.
- Adjust the Z layer thickness and set the grid size of the building platform.
- Ensure to input the printer information each time you utilize this panel.

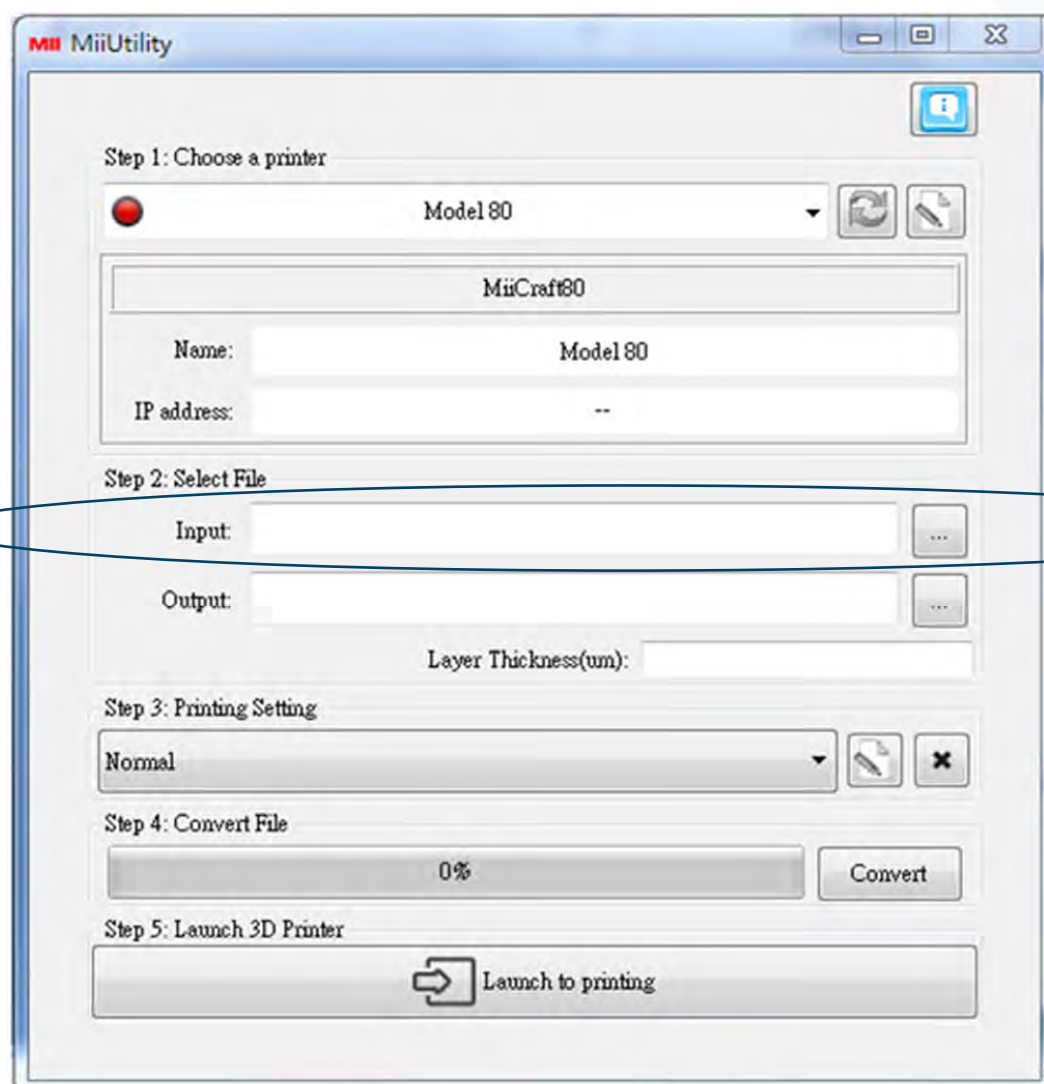
Printer Information

Platform	255
Thickness	100 um
Volume (ml)	0
Grid (mm)	3.0



Import STL Files

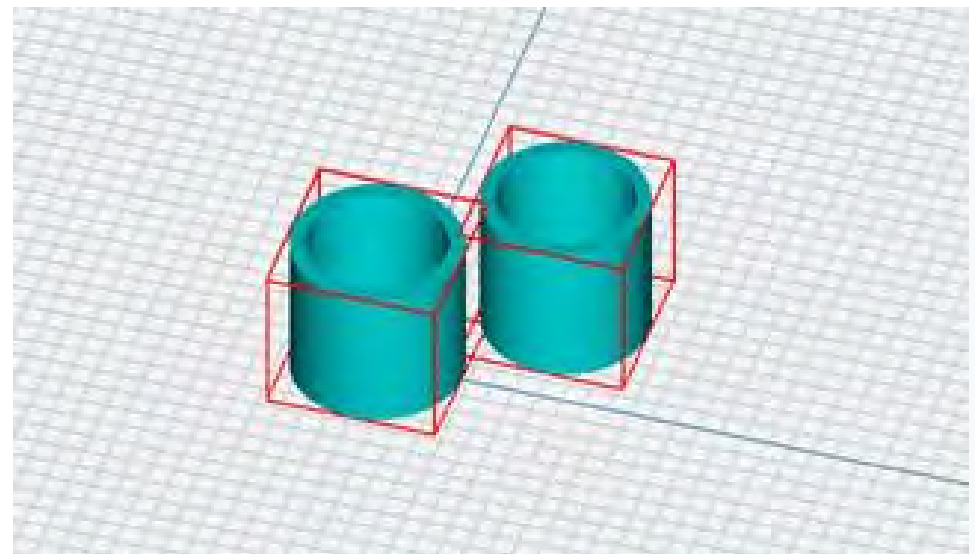
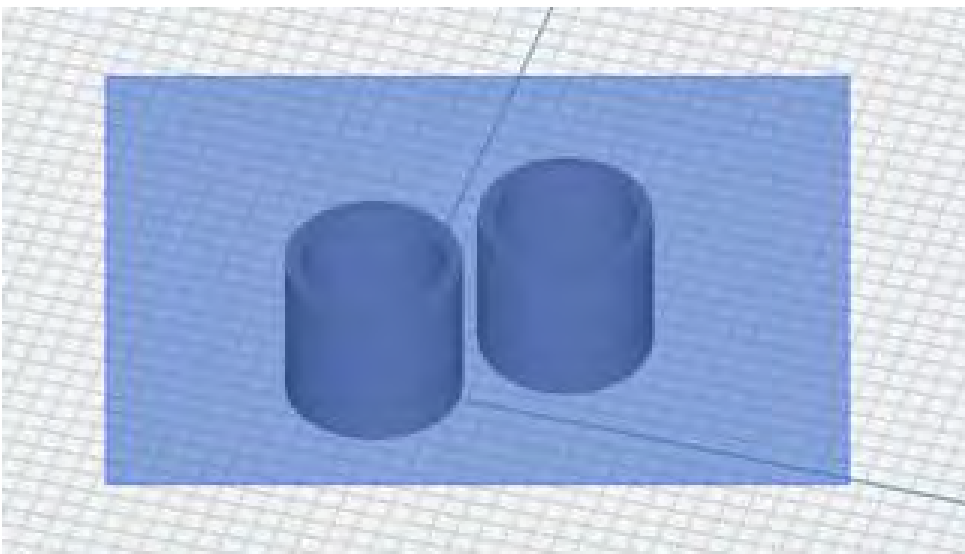
There are two methods to import .stl files into Utility:

1. Utilize the toolbar and click on the icon located on the right side, which resembles a picture.
2. Simply drag and drop the .stl file from its folder directly into Utility.



Hot Key

- Right Mouse Button –Rotate platform
- Middle Mouse Scroll -Zooms in and out making the view of the build area larger or smaller
- Middle Mouse Button -Move platform
- Alt+E = Move model 
- Alt+R = Rotate model 
- Ctrl + D = Duplicate object
- Ctrl + mouse click = Multi select the object
- Ctrl + mouse click + drag = Move multiple object
- Mouse click + drag area = Box selection



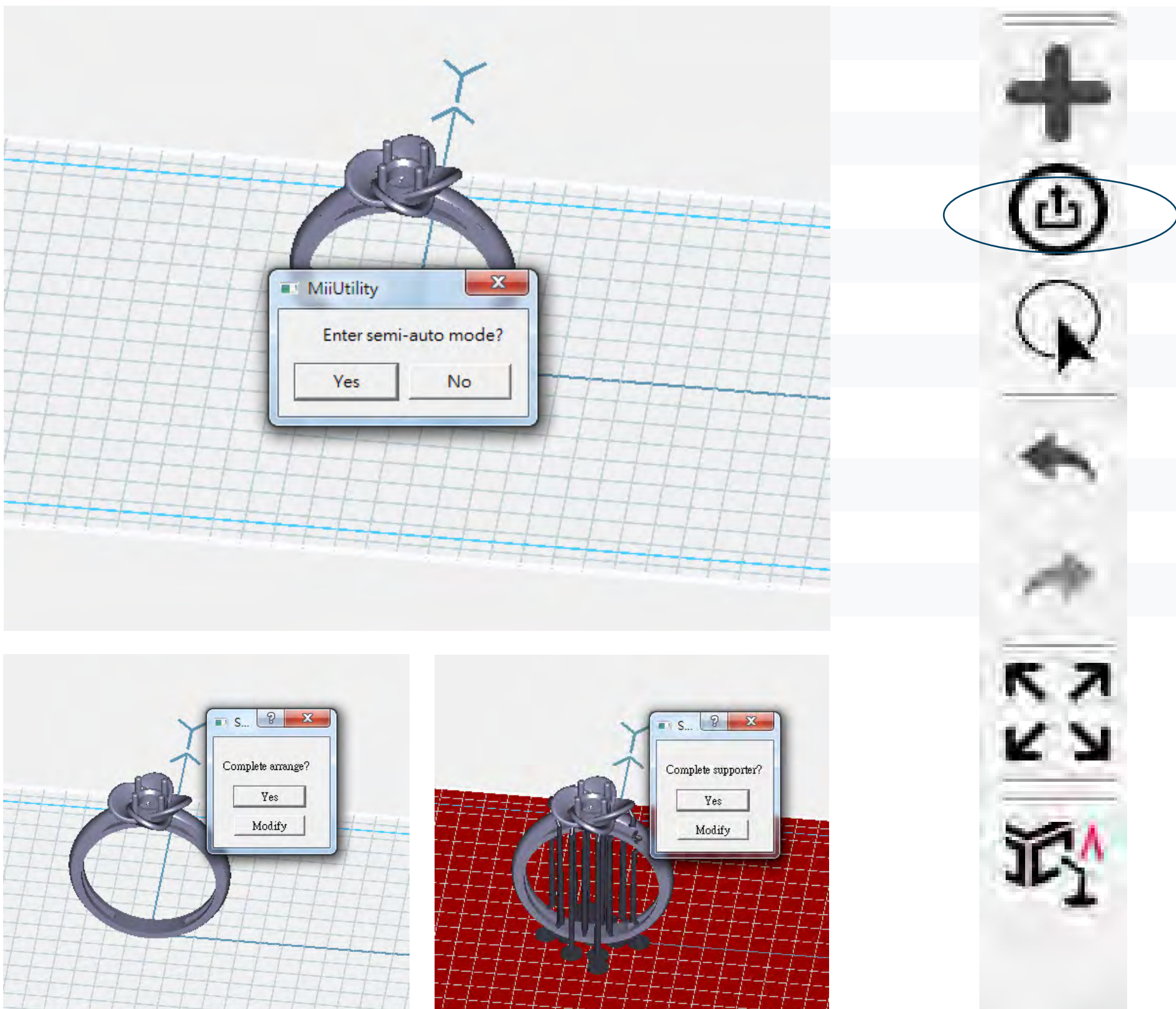
Semi Auto Mode

Import the model into the Utility.

Click on the "Printer" option in the toolbar.

Activate the Semi-auto mode.

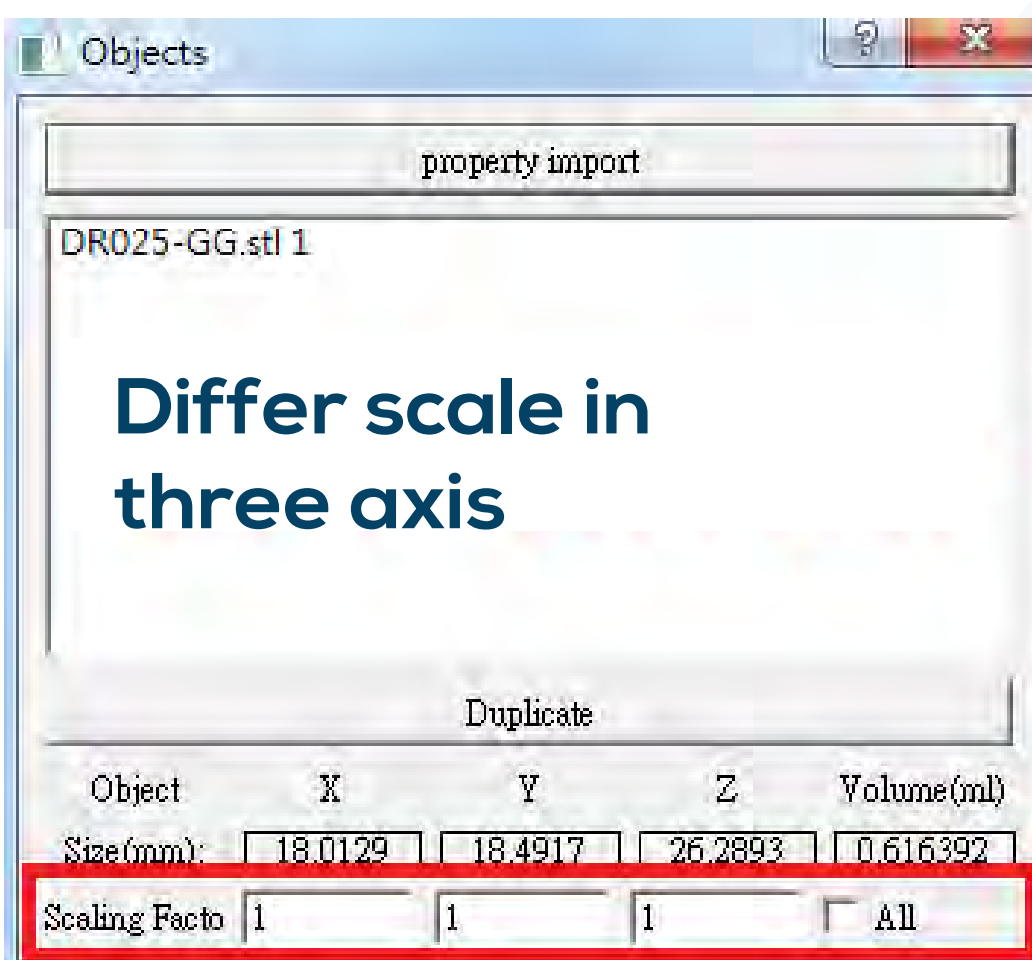
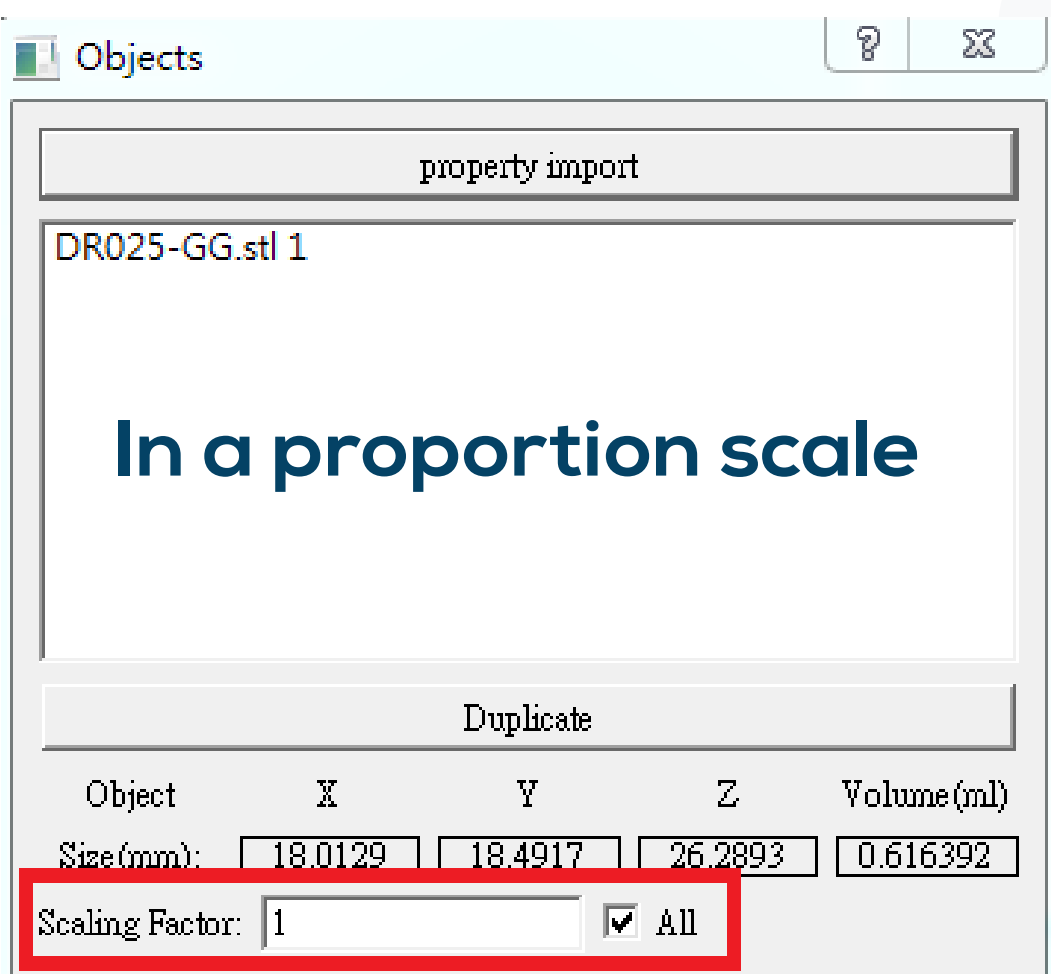
Proceed by clicking "Yes" for Auto arrangement and Auto support. Then, initiate the slicing process by clicking on the "Convert" button.



Duplicate and Resize Model

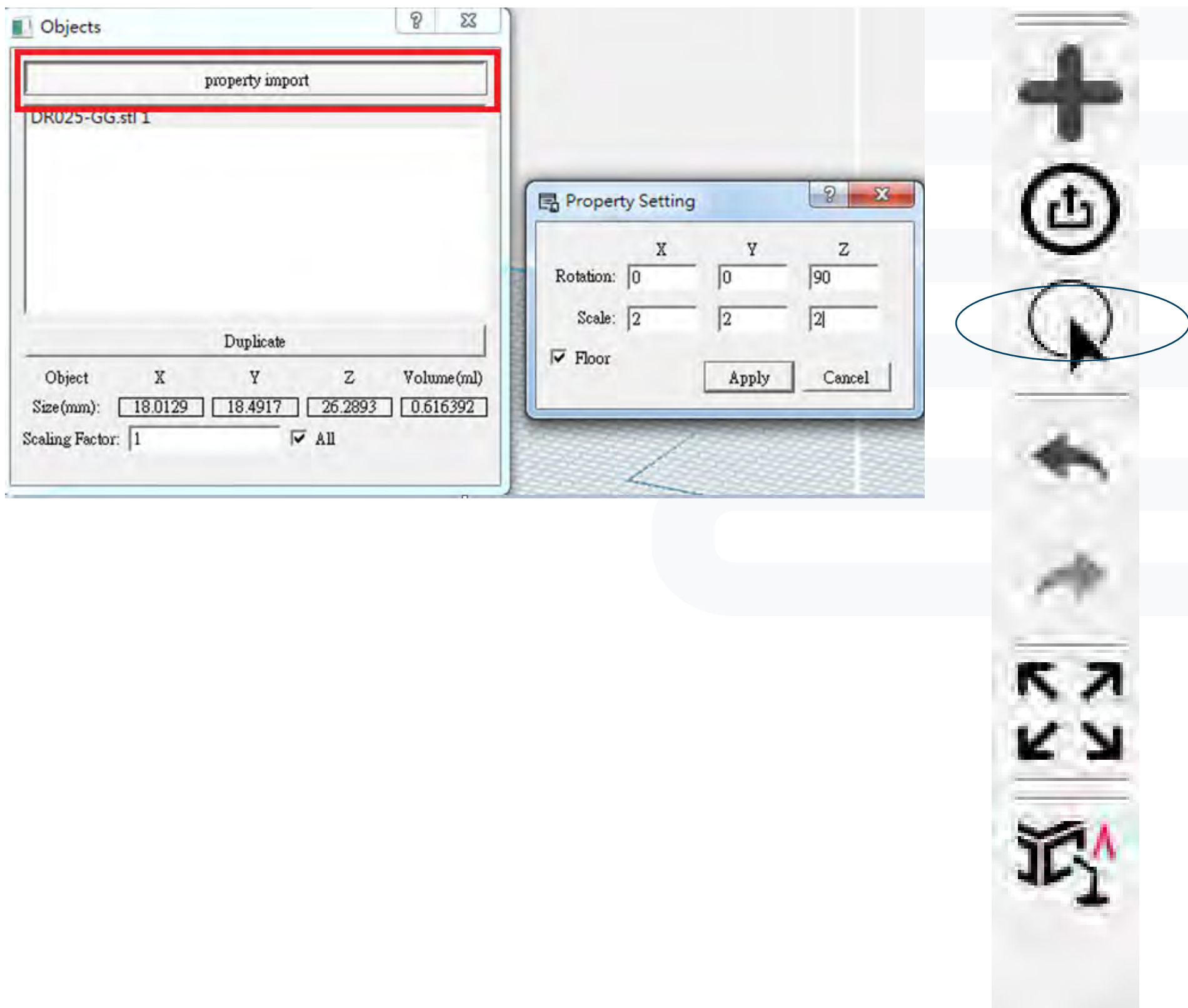
Locate the toolbar and click on the icon positioned on the right, represented by a picture. Note: When the file name is highlighted, it indicates that the model has been selected, and the instructions are now active.

Choose the "all" option to apply proportional scaling for amplifying or minimizing the model.



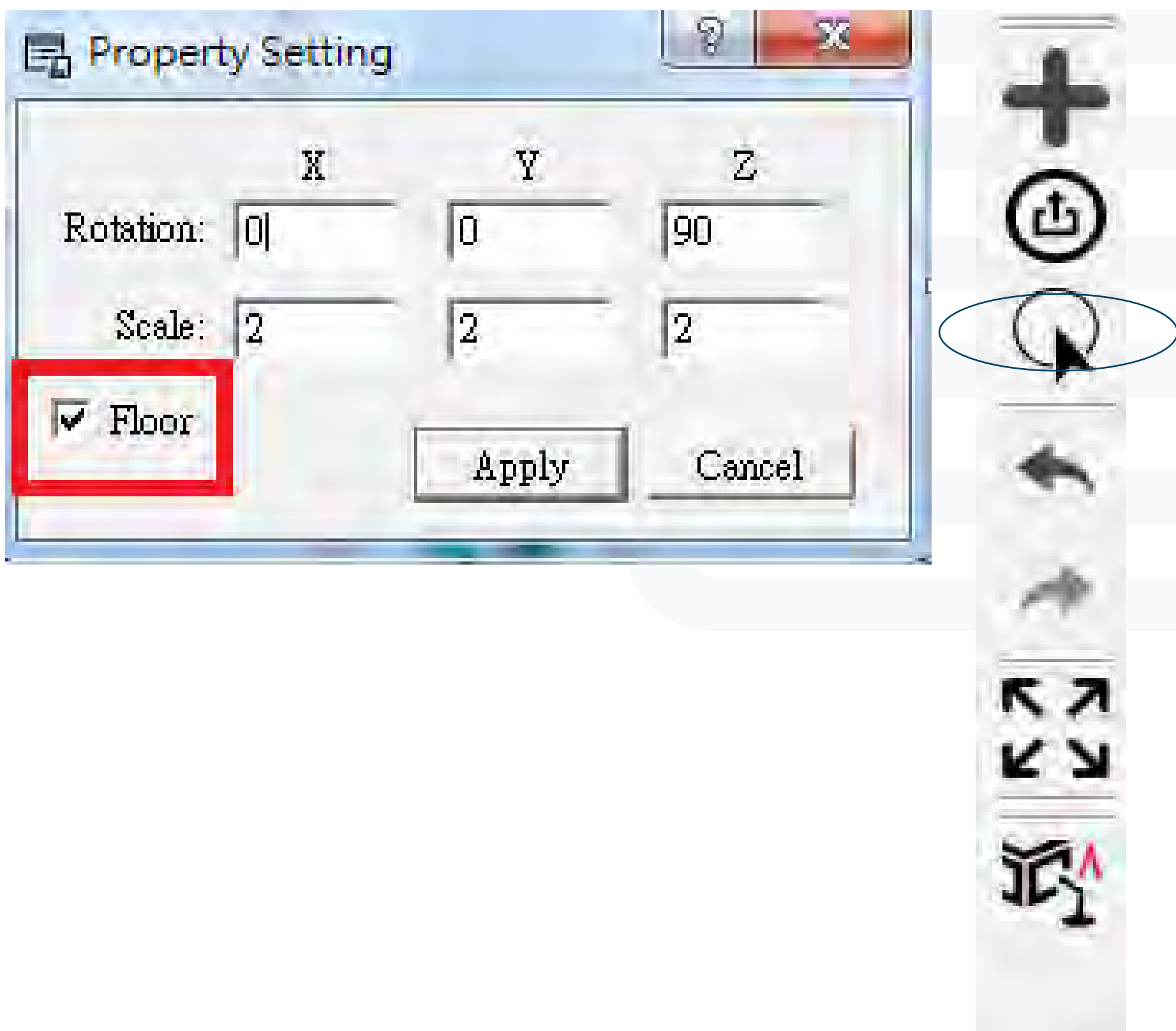
Duplicate and Resize Model

- Property import, the setting will apply to every model import later
EX: Property import setting Z axis rotate 90 degree, X,Y,Z amplify 2 times, so the model import later will all follow this setting



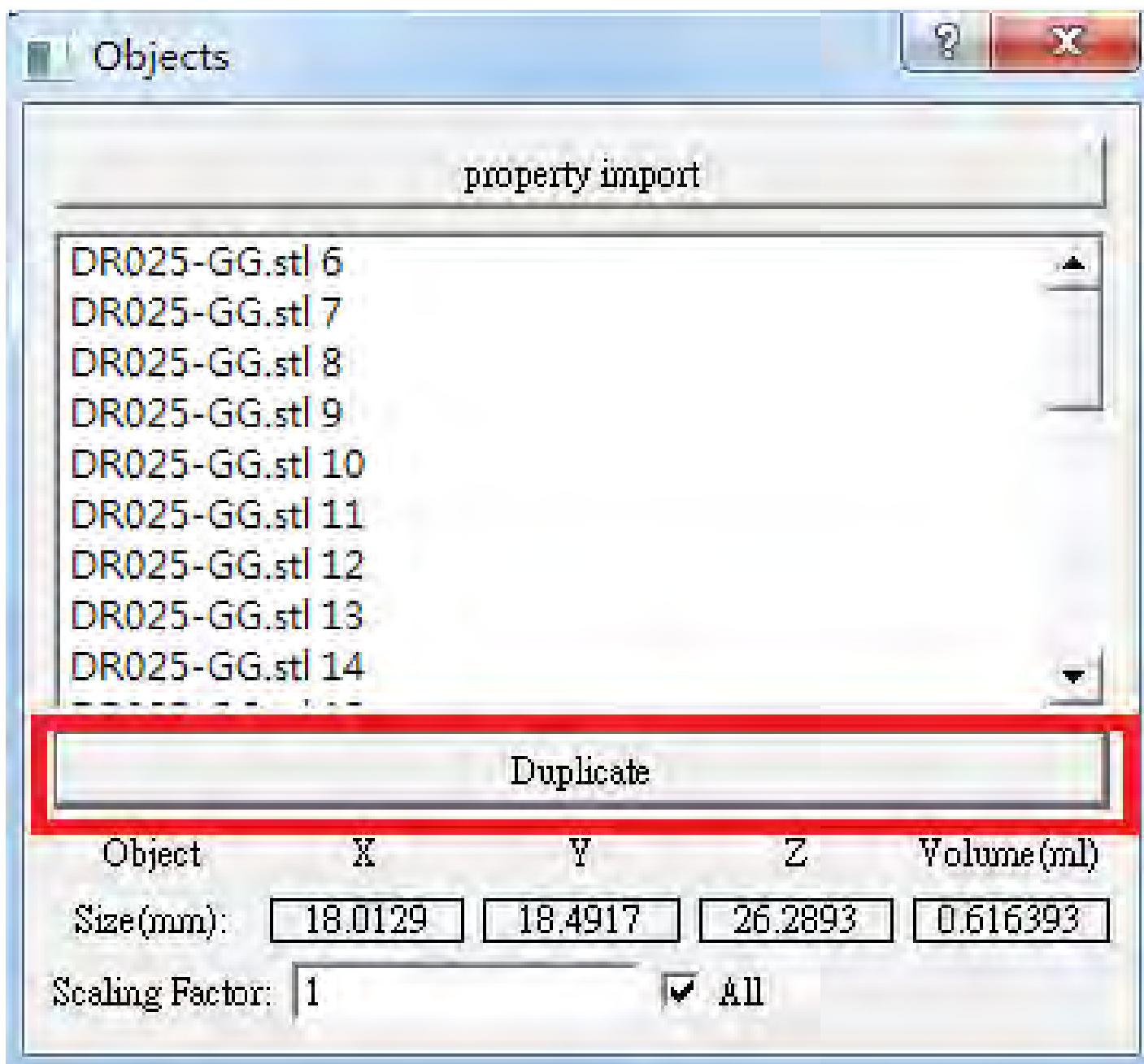
Duplicate and Resize Model

- Property import, select "Floor" to let model import with Z coordinate zero



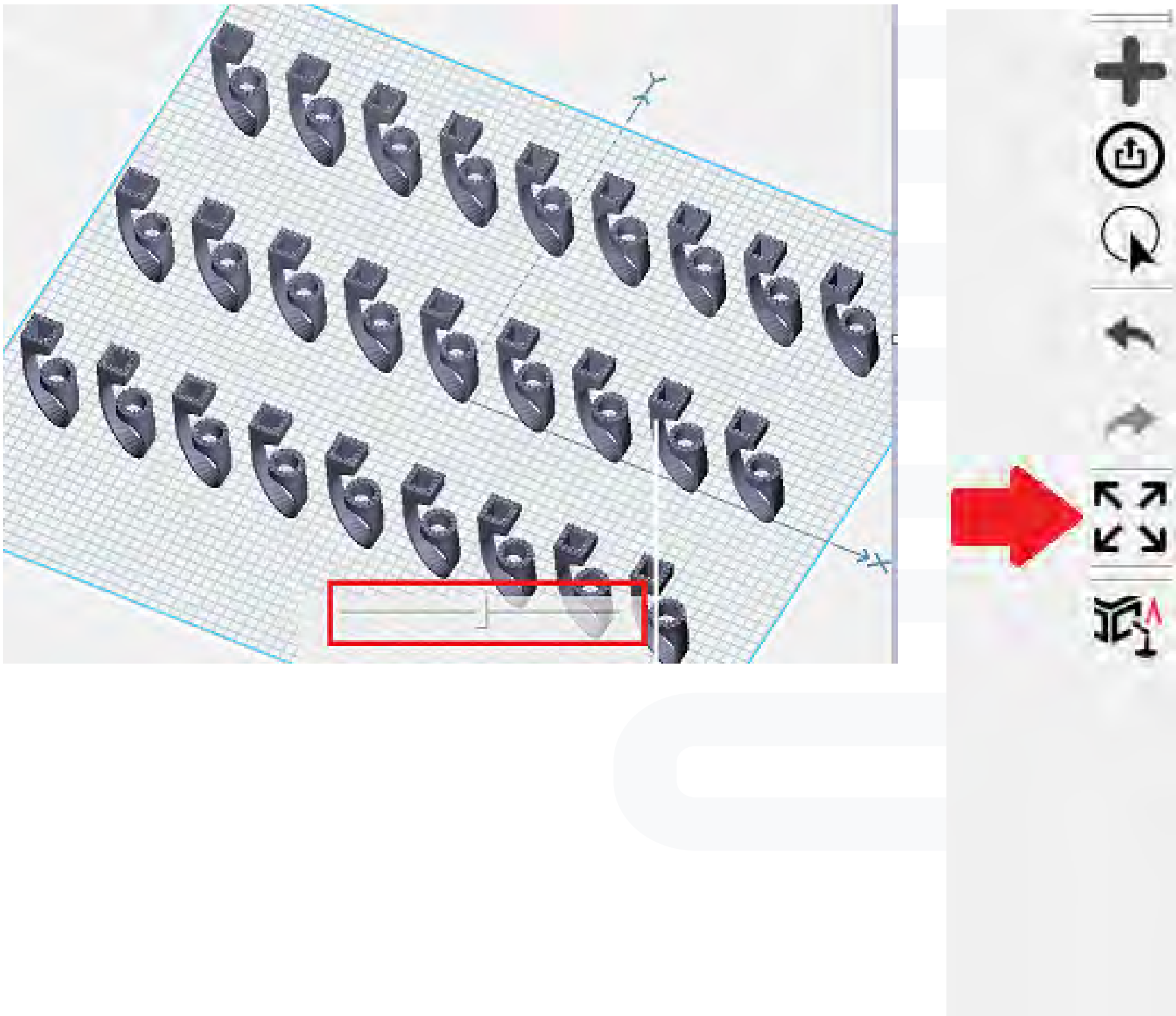
Duplicate and Resize Model

4. Duplicate selected model



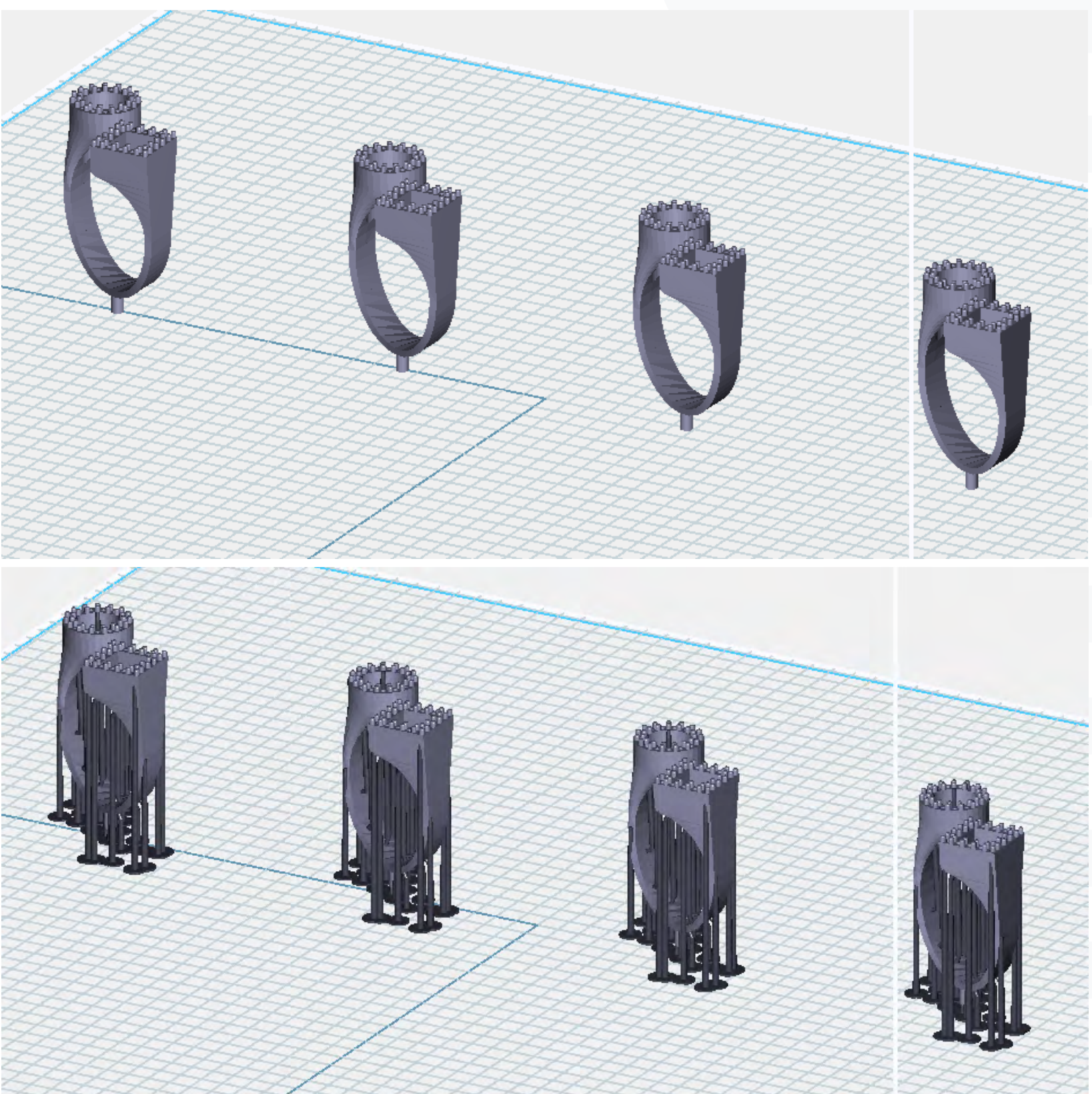
Auto arrangement

In the toolbar, look for the icon on the right side that resembles a picture. This icon allows for multiple model auto arrangement. You can adjust the spacing between models using the horizontal scroll bar.



Auto support

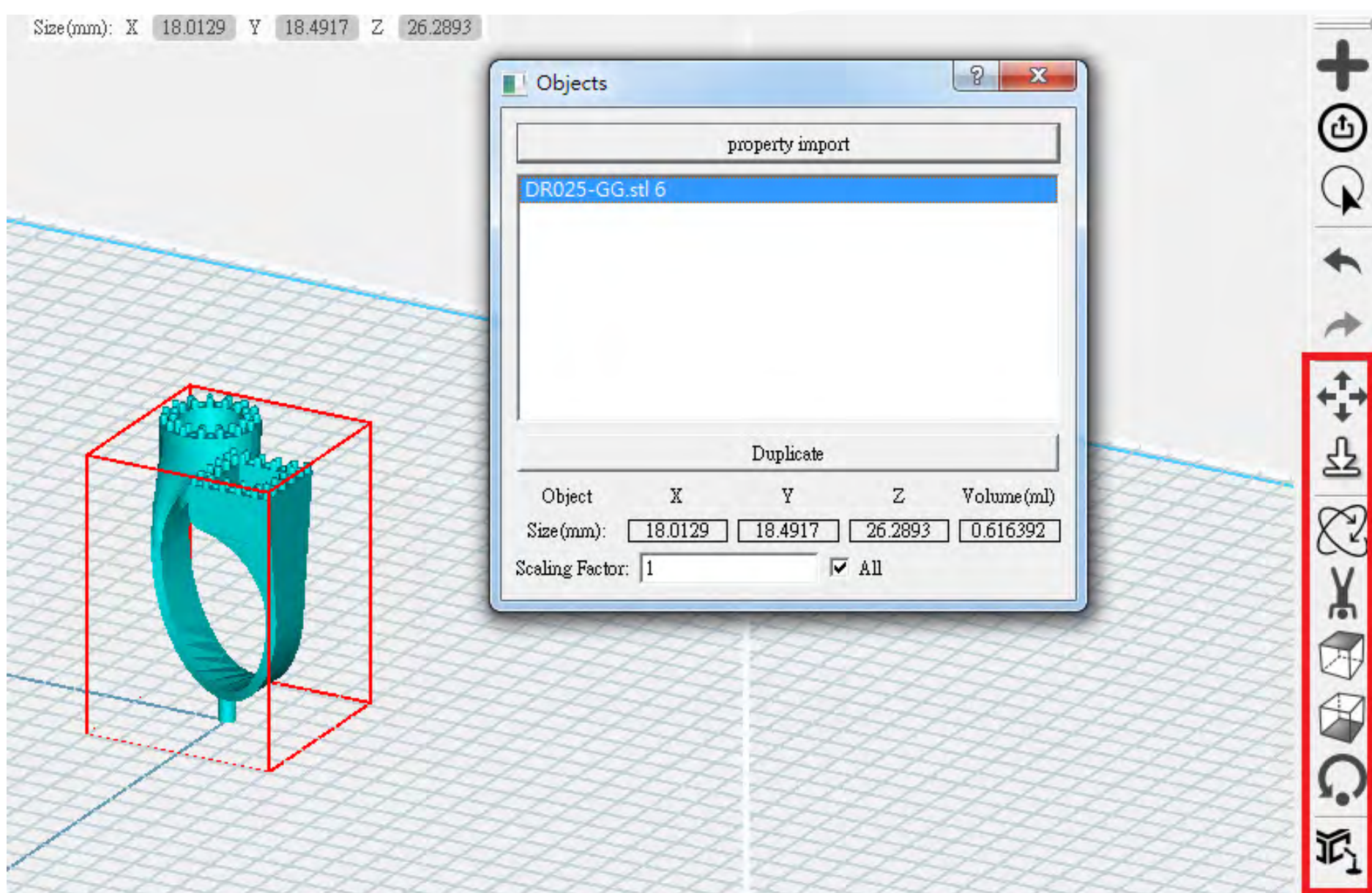
Tool bar, as picture on the right.
Build auto support for every model.



Model arrangement

Highlight/select a specific model, and additional settings will appear in the toolbar (as indicated by the red box below).

In this section, you can customize the arrangement of the selected model. You can also create custom supports for the model.

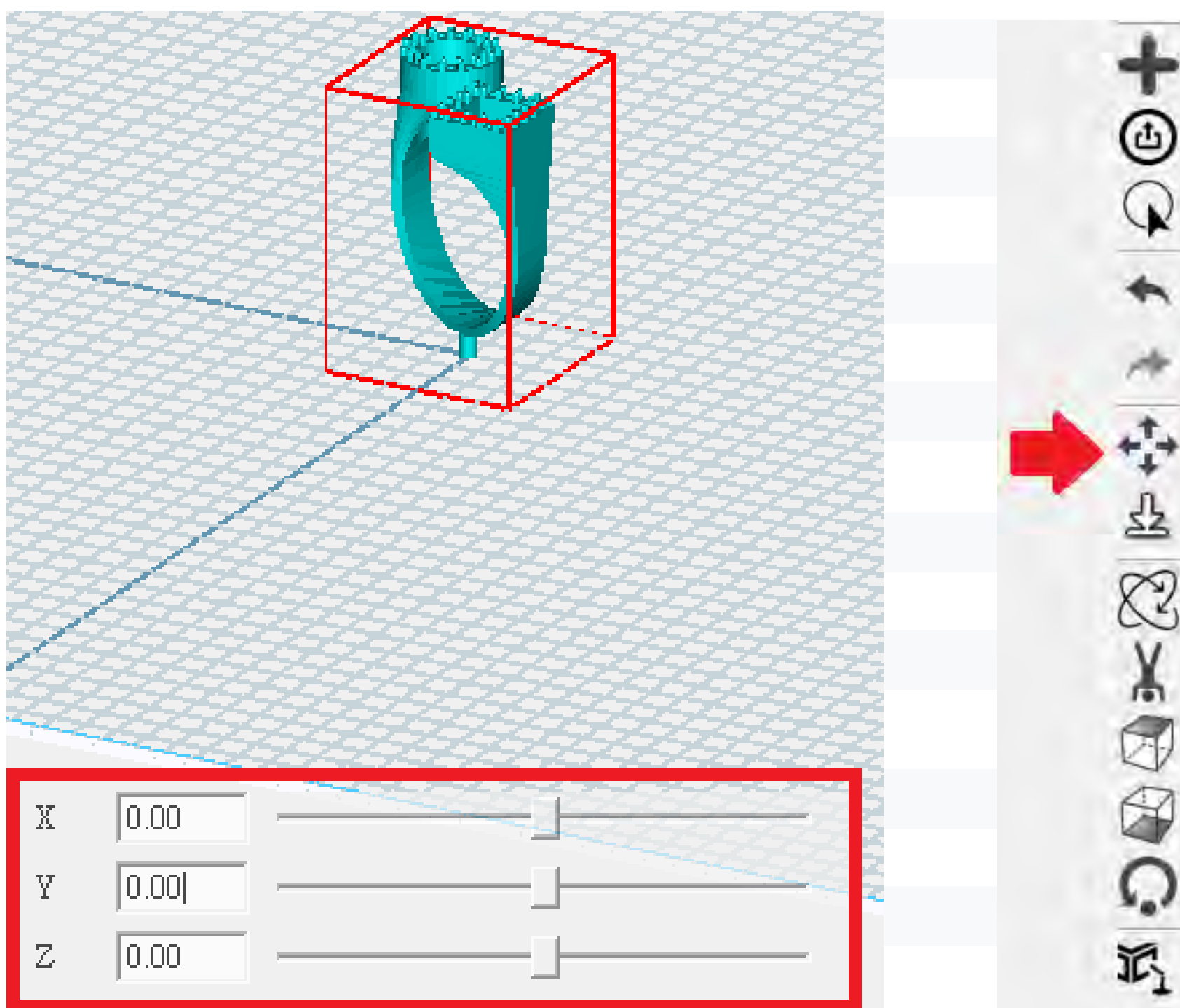


Model arrangement

Choose a model and click on the toolbar.

You can then drag and move the model.

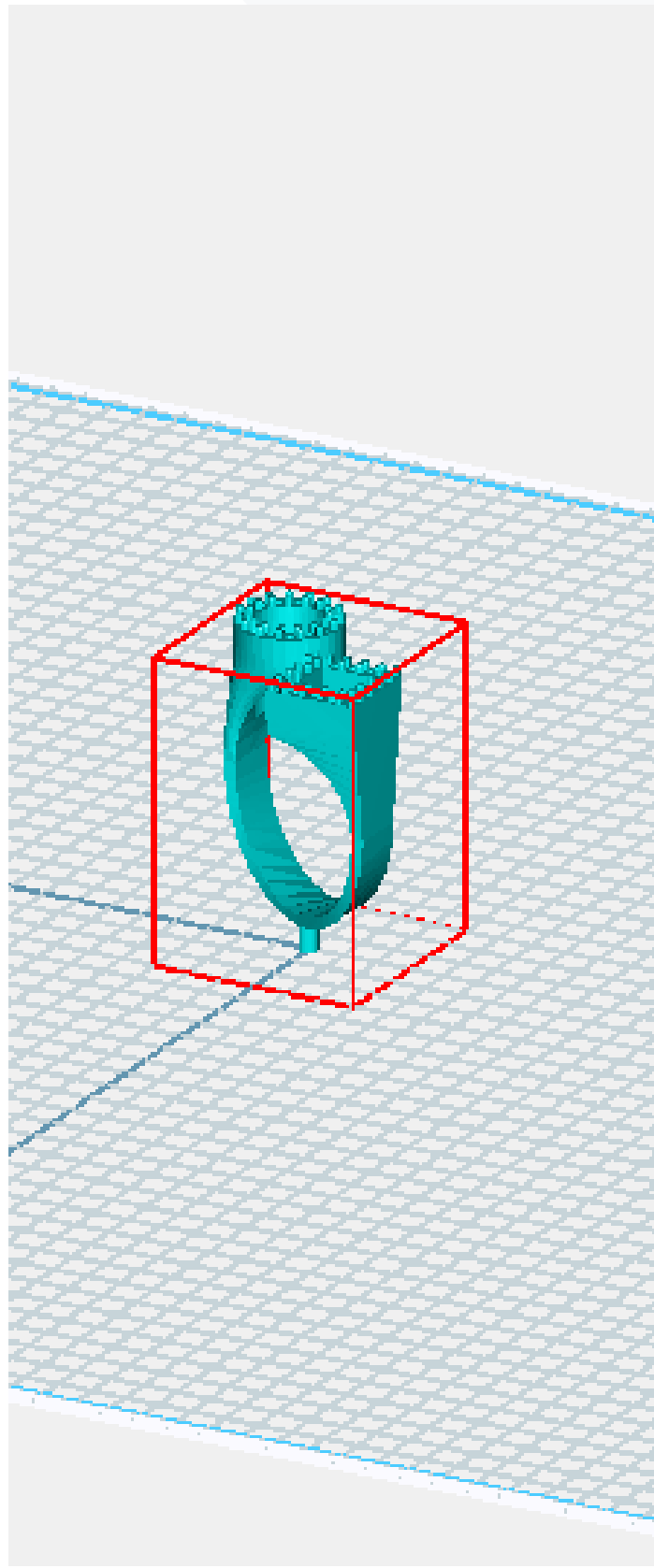
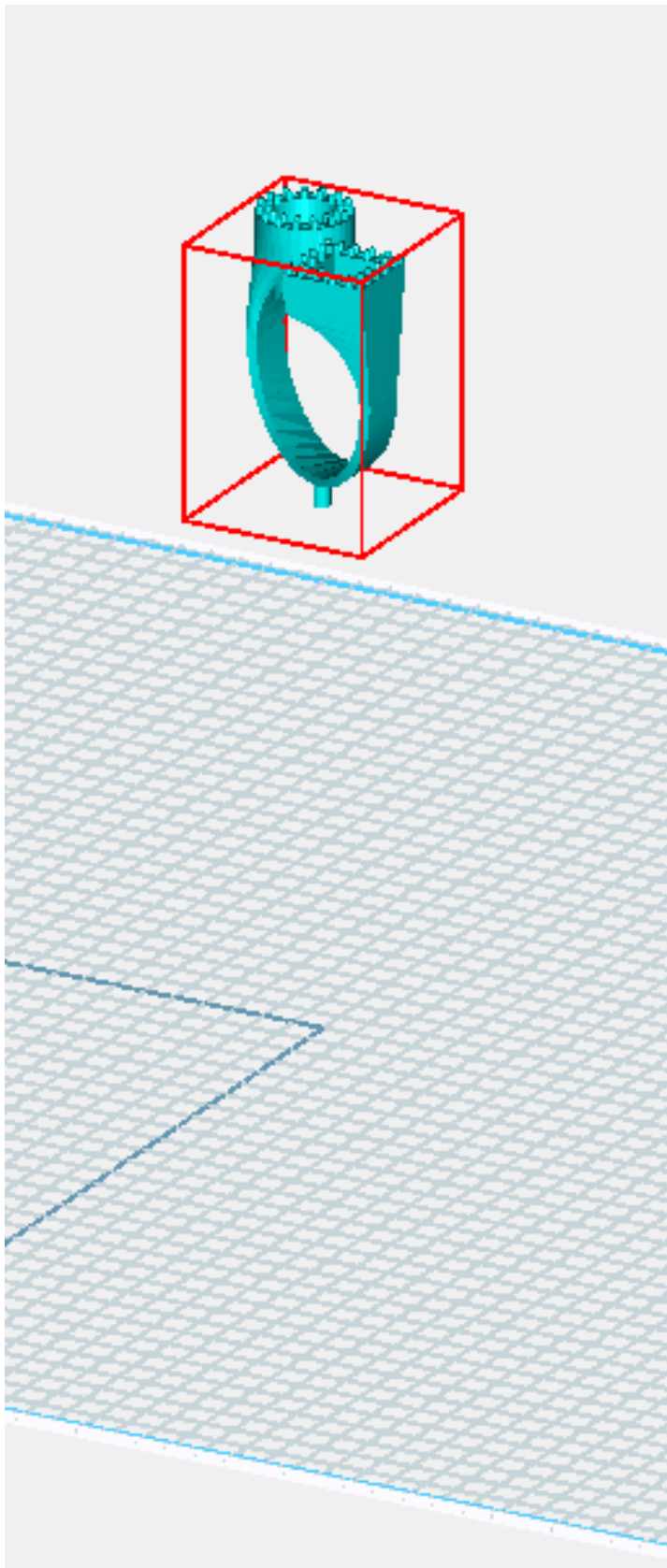
Alternatively, you can set the X, Y, and Z coordinates for precise positioning.



Model arrangement

Select model, and click on tool bar

Put model down to floor

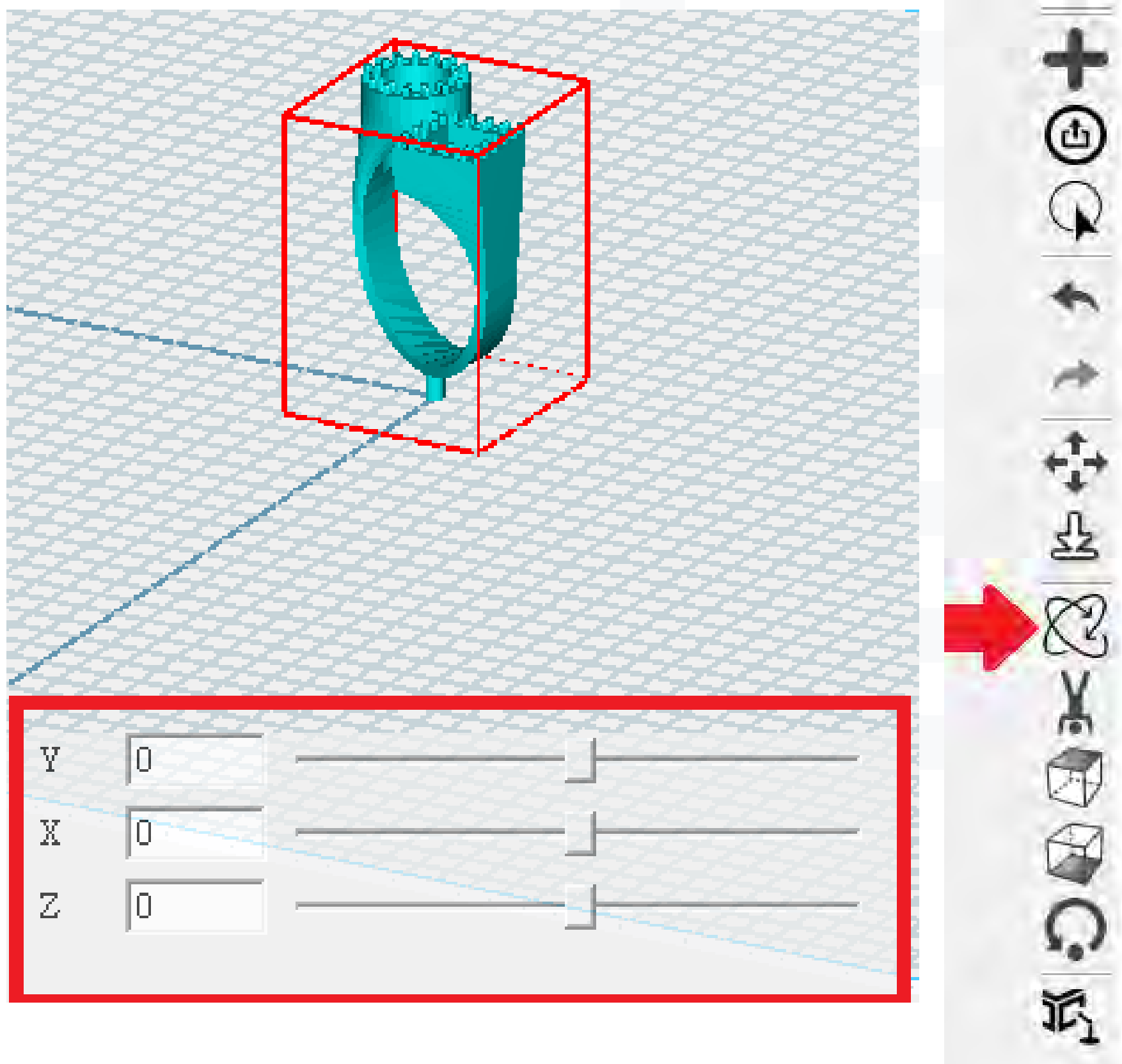


Model arrangement

Select a model and click on the toolbar.

Adjust the rotation degree for the X, Y, and Z axes.

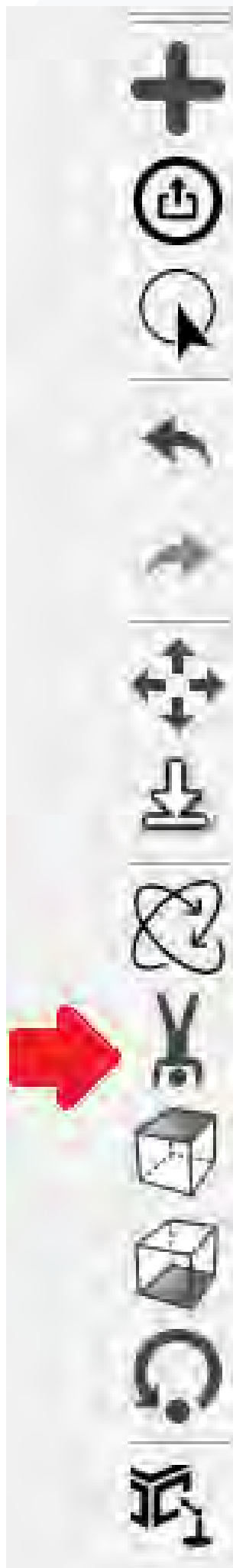
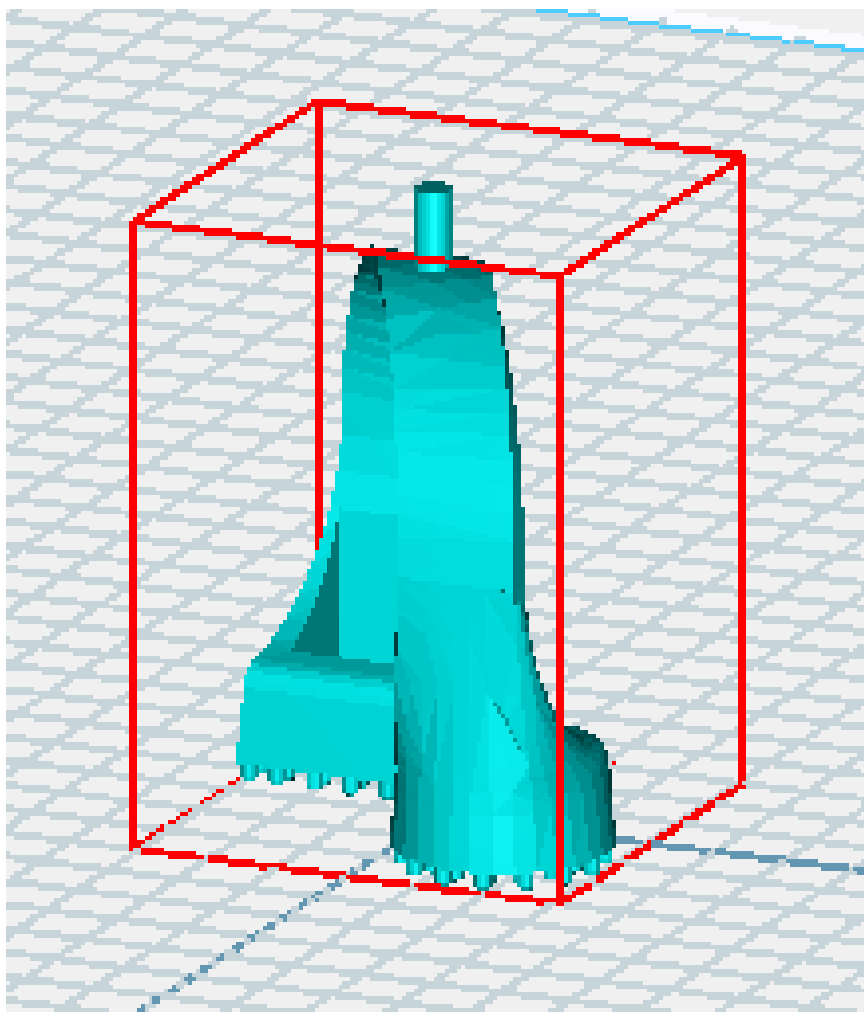
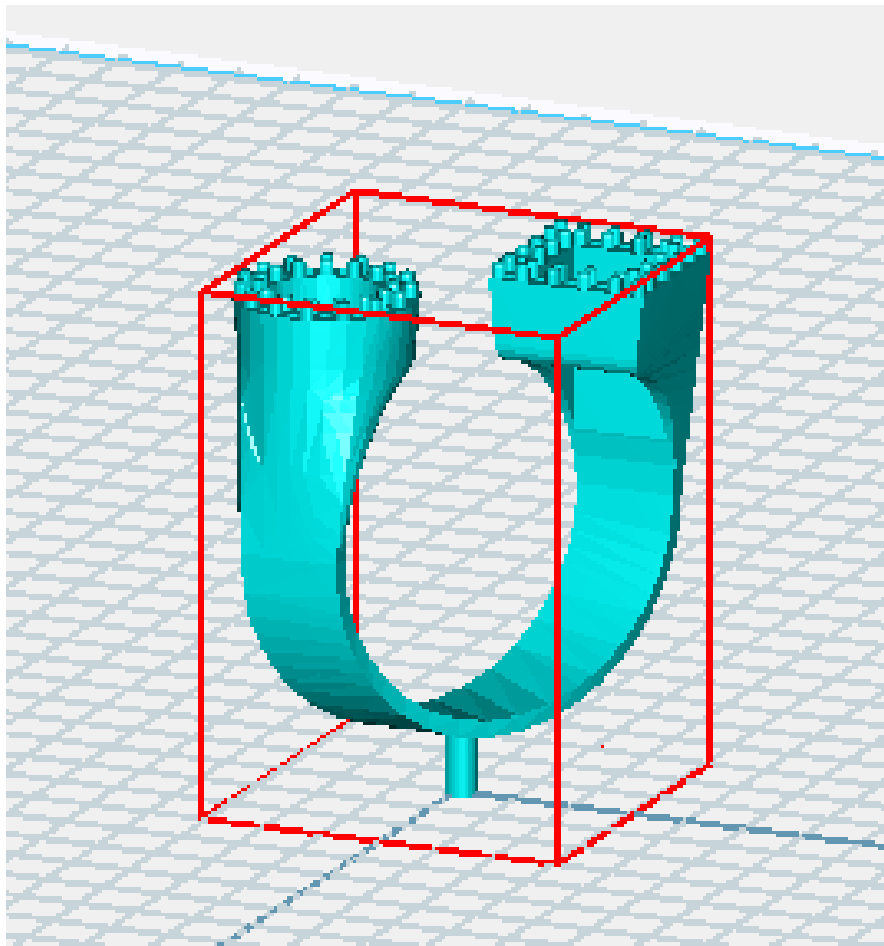
Alternatively, you can use the horizontal scroll bar to make rotational changes.



Model arrangement

Select a model and click on the toolbar.

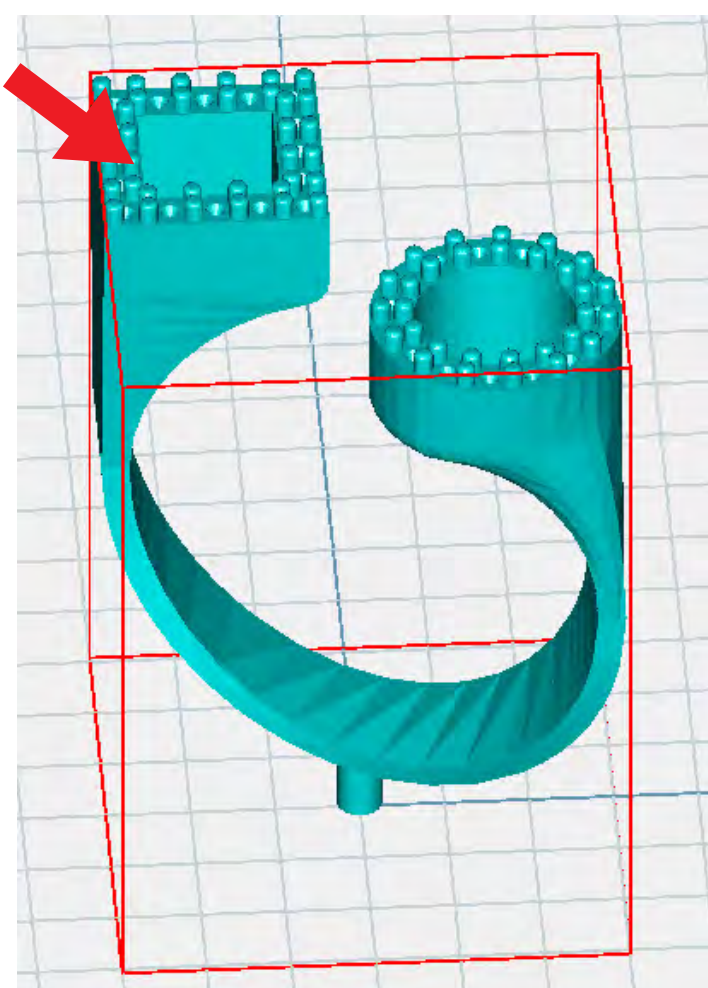
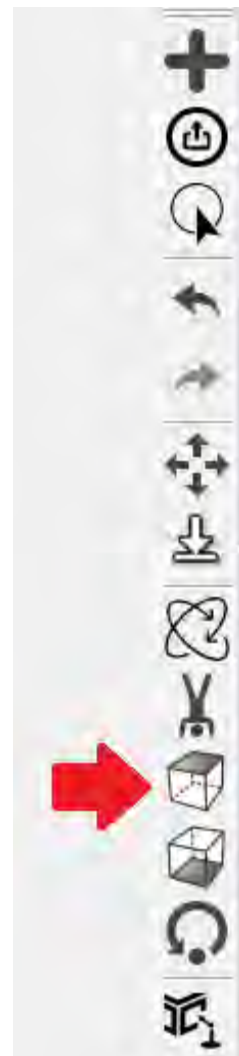
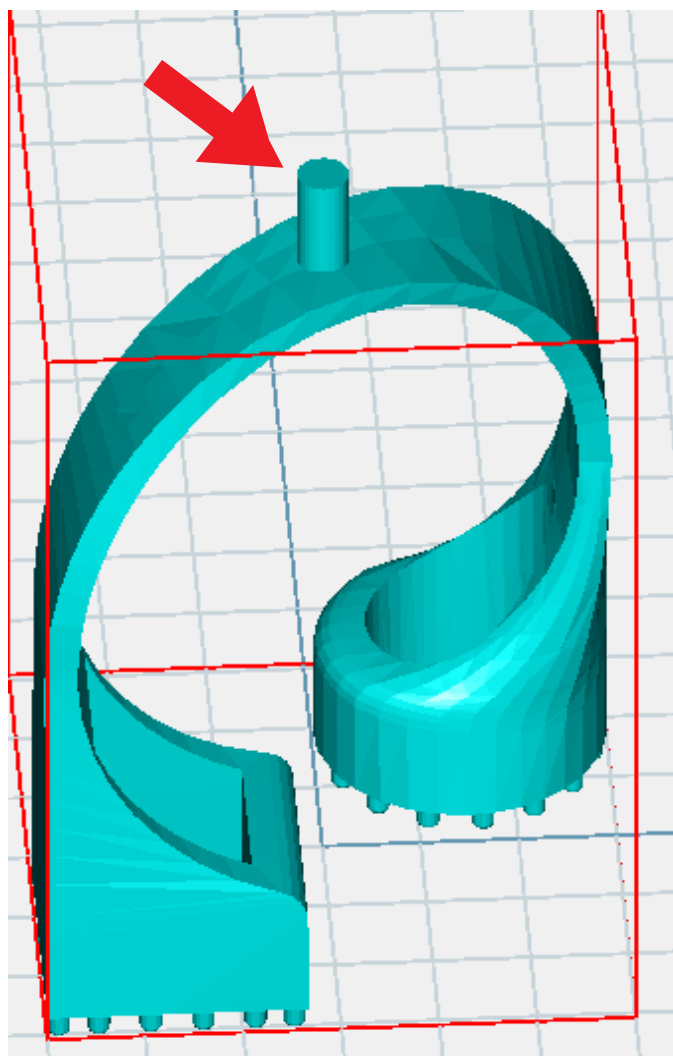
Choose the option to flip the model upside down.



Model arrangement

Select a model and click on the toolbar.

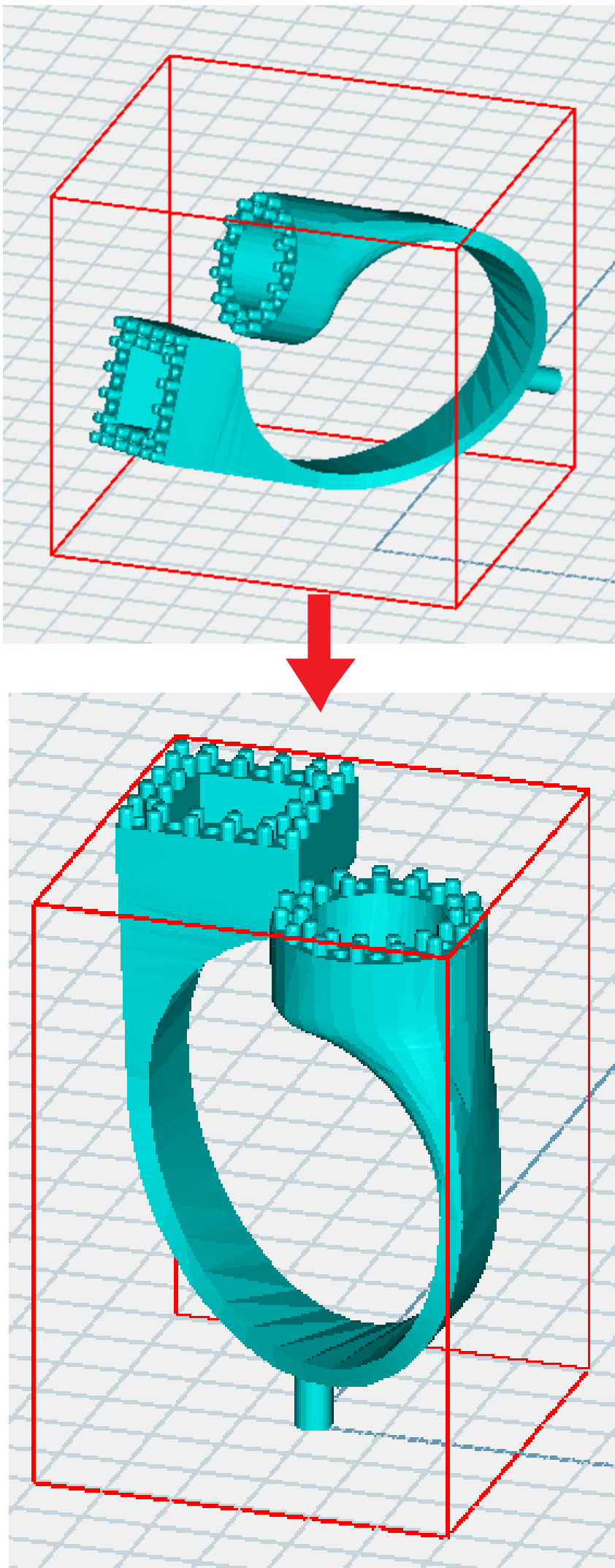
Click on a specific side to position it face up, vice versa.



Model arrangement

Select a model and click on the toolbar.

Click on a specific side to position it back to default rotation.

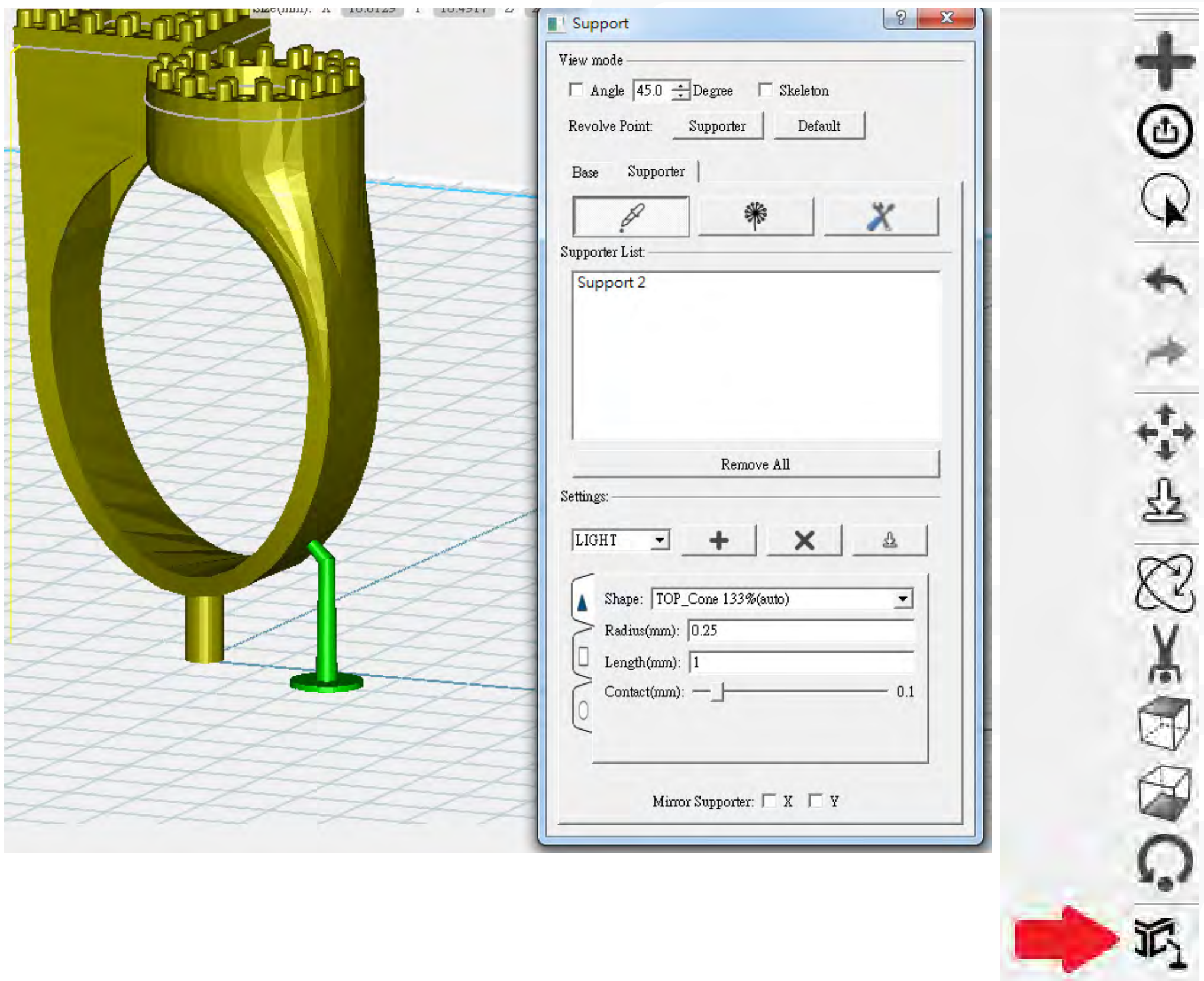


Model arrangement

Highlight/select a specific model, and additional settings will appear in the toolbar (as indicated by the red box below).

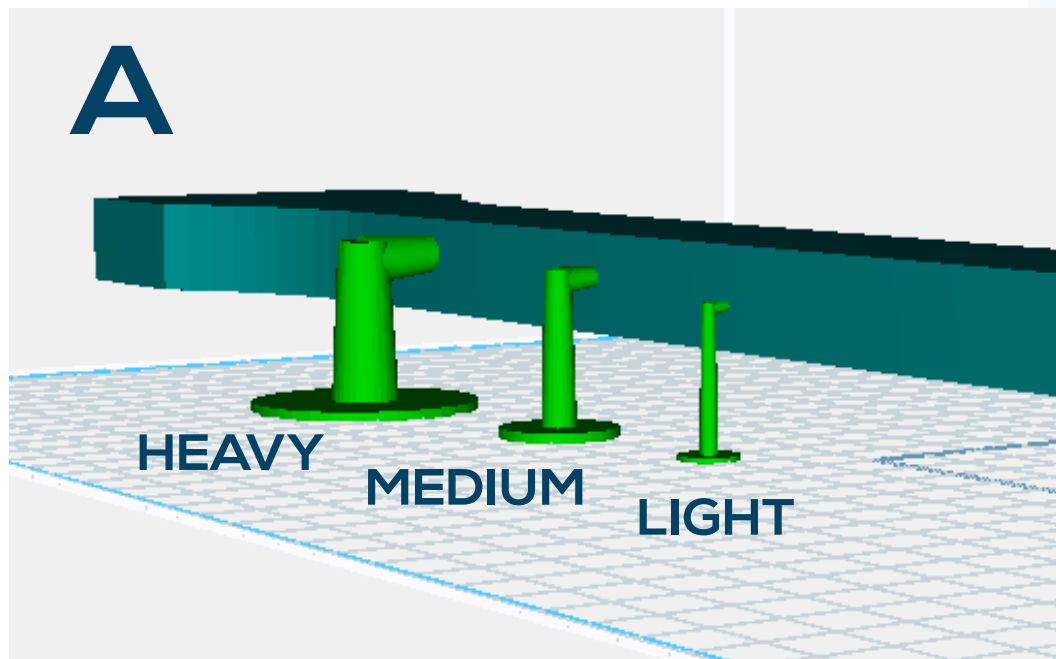
In this section, you can create personalized supports for the model.

To add support, simply click on the desired location where you'd like to add it.



Build Supports

3 kinds of basic support setting can be selected by user preference



B : Add Support Setting

C: Delete Support Setting

D: Download Support Setting

Settings:

A

LIGHT

B

+

C

X

D



Shape: TOP_Cone 133%(auto)

Radius(mm): 0.25

Length(mm): 1

Contact(mm): 0.1

Mirror Supporter: X Y

Build Supports

A : Top support shape

B : Top support radius

C : Top support thickness

D : Top support and model contact

Top
Middle
Bottom

Settings:

LIGHT

Shape: TOP_Cone 133%(auto)

Radius(mm): 0.25

Length(mm): 1

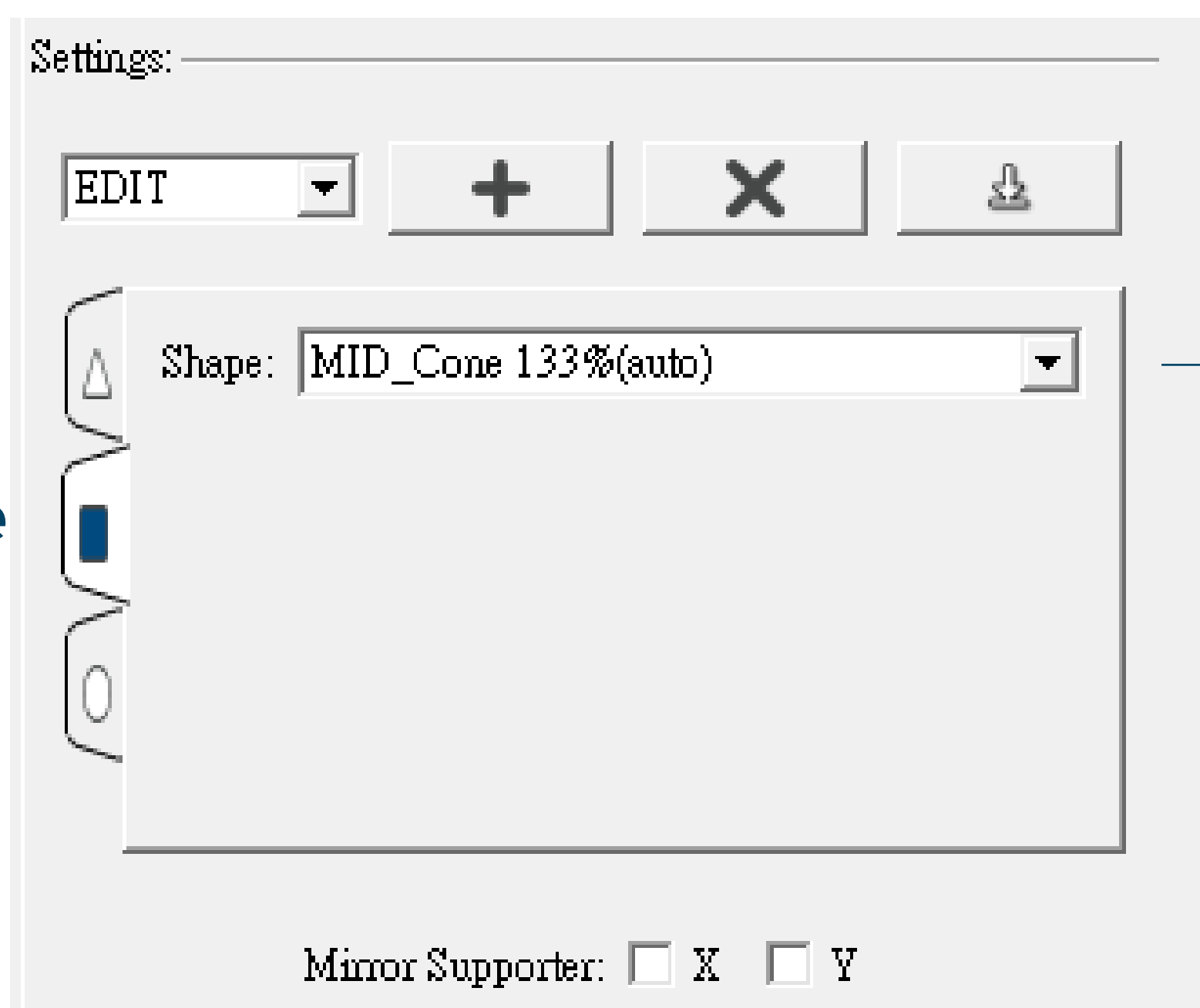
Contact(mm): 0.1

Mirror Supporter: X Y

Build Supports

A : Middle support shape

Middle



Build Supports

A : Bottom support shape

B : Bottom support radius

C : Bottom support thickness

Bottom

Settings:

EDIT

Shape:

Radius(mm):

Thickness(mm):

Mirror Supporter: X Y

Build Supports

Mirror Supporter

Build symmetrical supports according to X axis or Y axis

Settings:

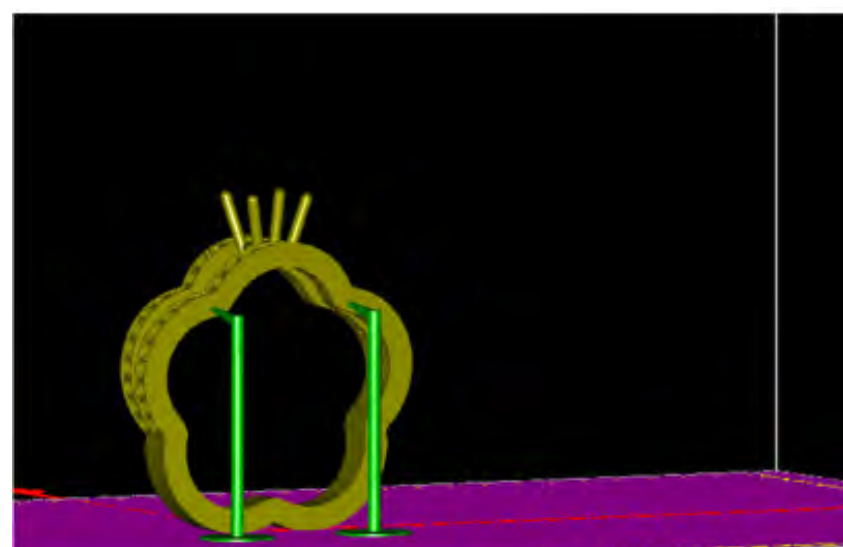
EDIT

Shape:

Radius(mm):

Thickness(mm):

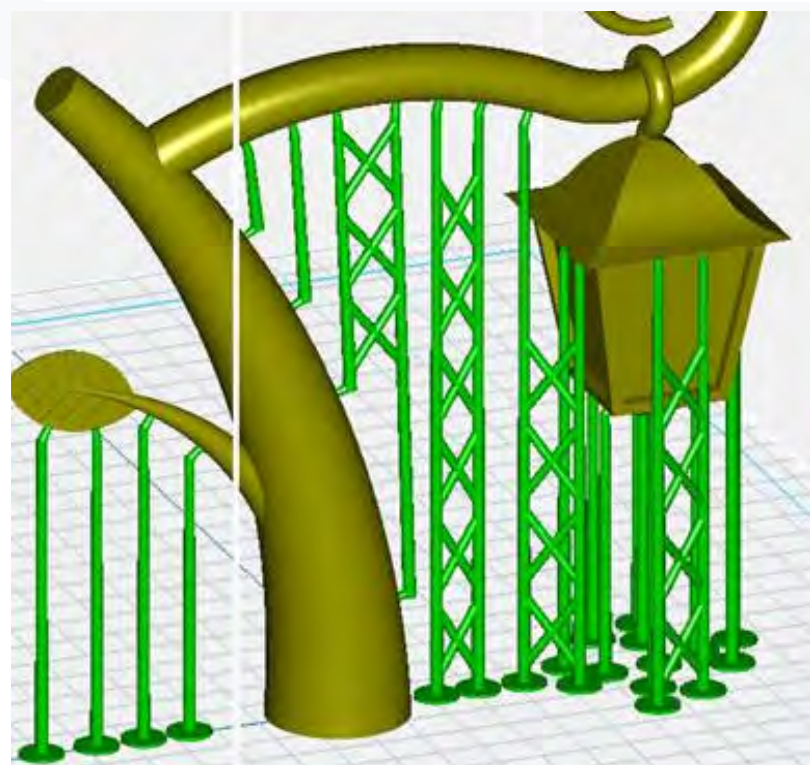
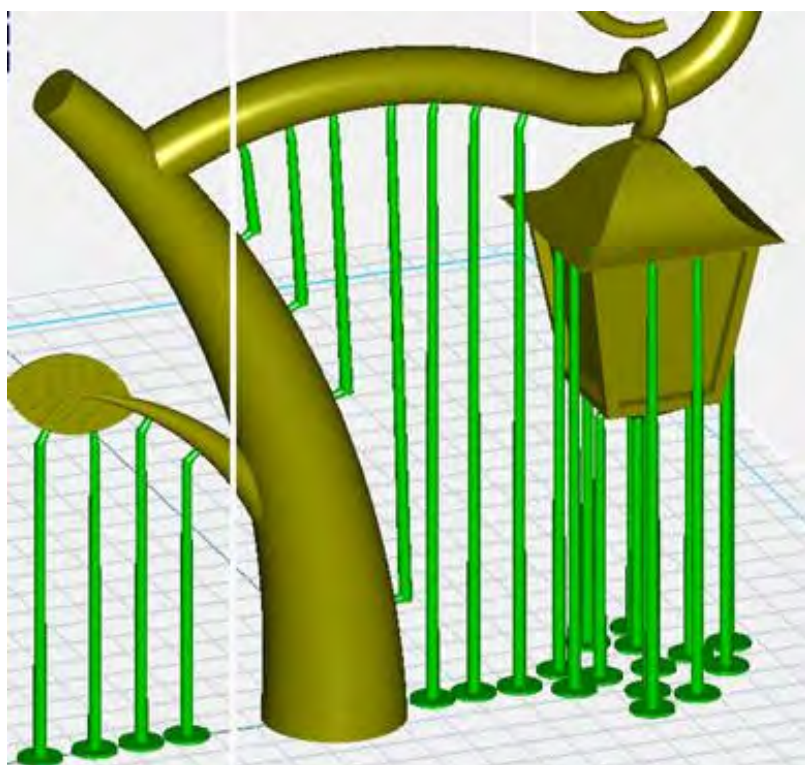
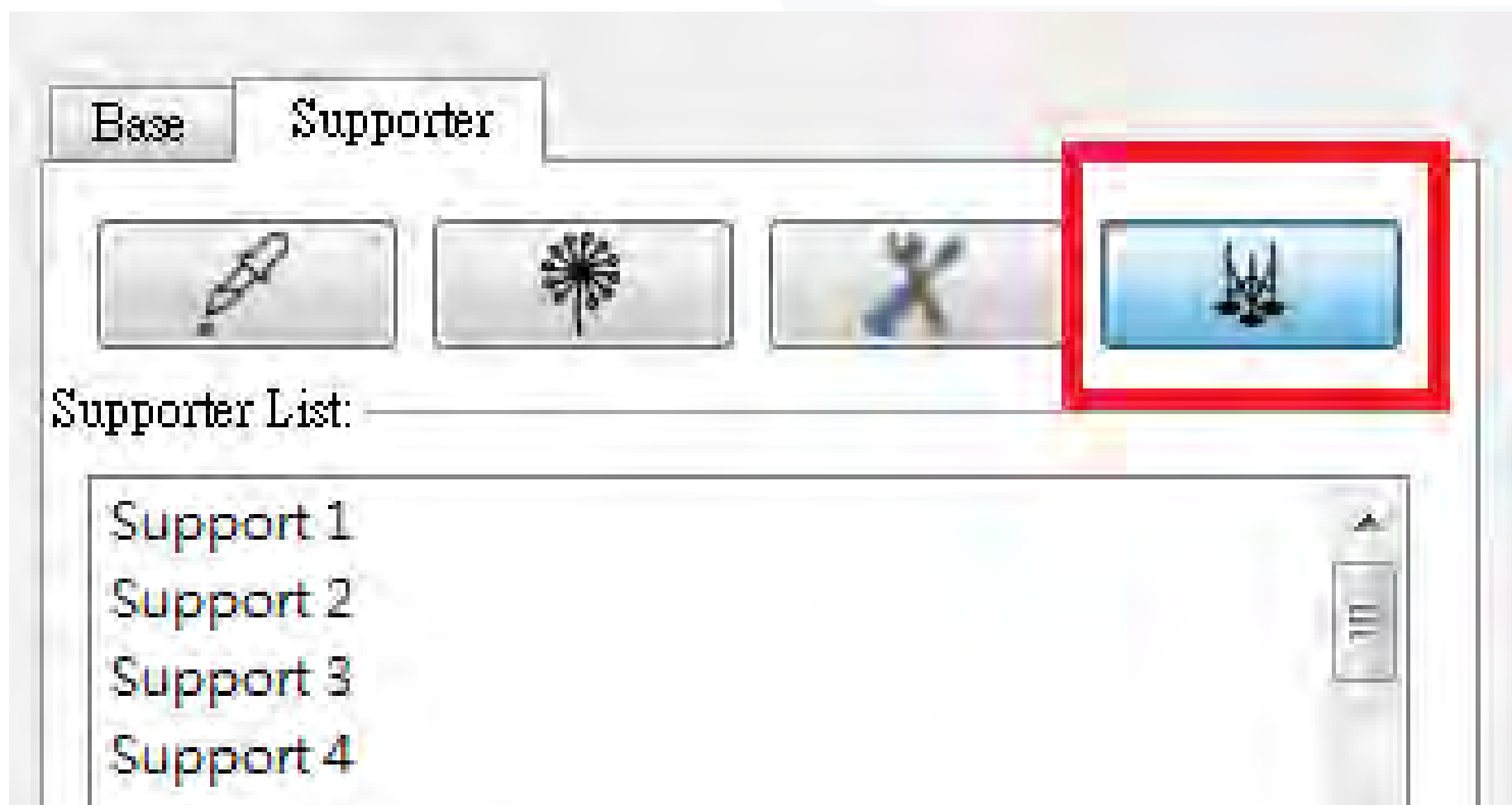
Mirror Supporter: X Y



Build Supports

X type Supporter

- Begin by adding a minimum of two supports to the model.
- Enable the cross structure function by clicking on it.
- Select two supports that you want to have a cross structure between.
- To cancel the cross structure, click on the same two supports again.



Build Base

Base available or not

Base type

Base size

Base thickness

Base Supporter

Base:

BASE_Rectangular

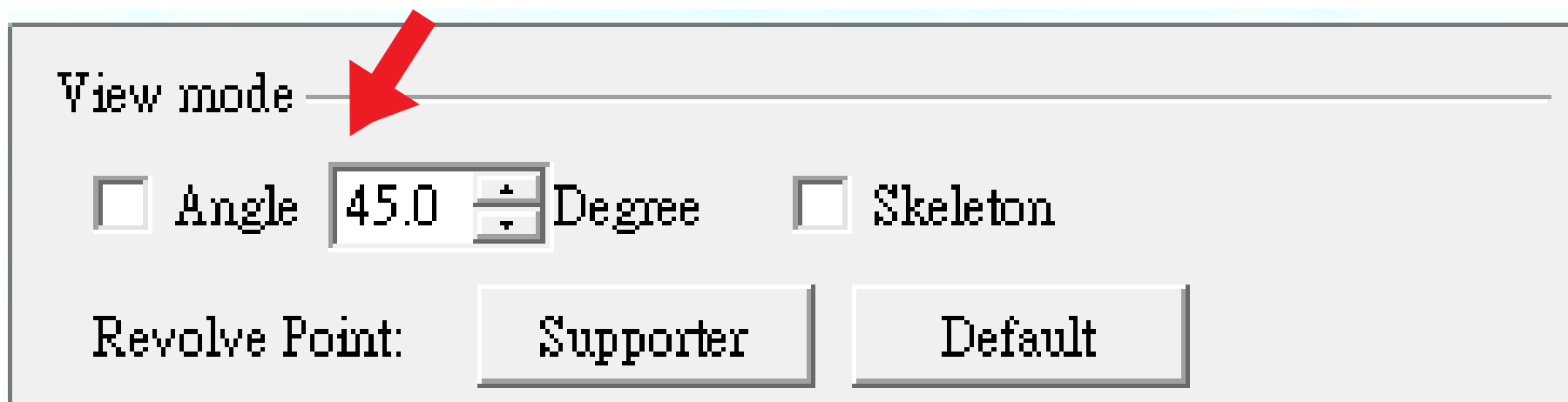
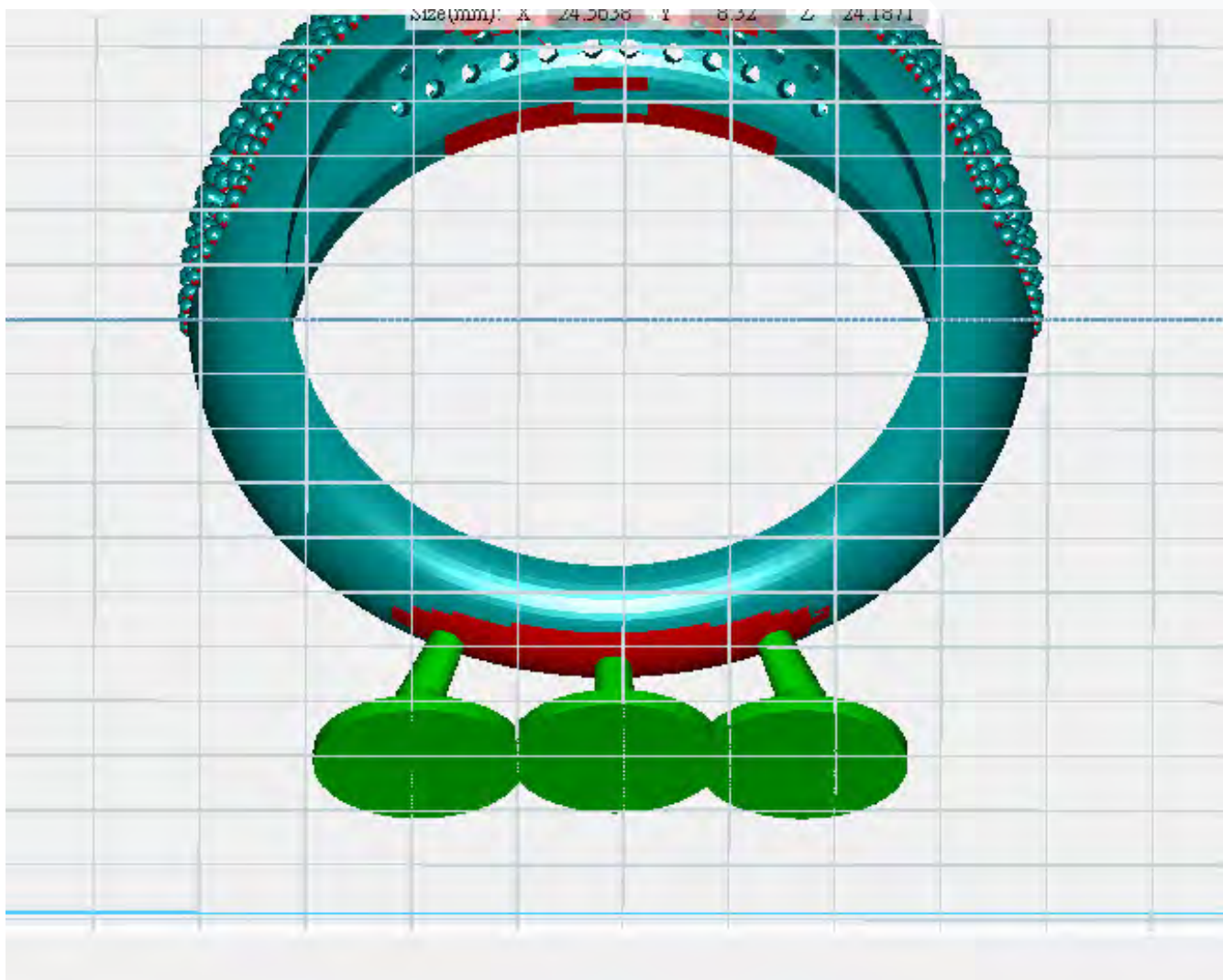
Object Size: 100%

Thickness(mm): 0.5

Build Support - View Mode

The Angle Indicator feature assists in identifying the bevel angle of the object's surface.

- If the angle is below a certain threshold, it will appear red in the preview.
- The red areas indicate flat regions that may be unsupported or unsupported areas where additional supports need to be built.



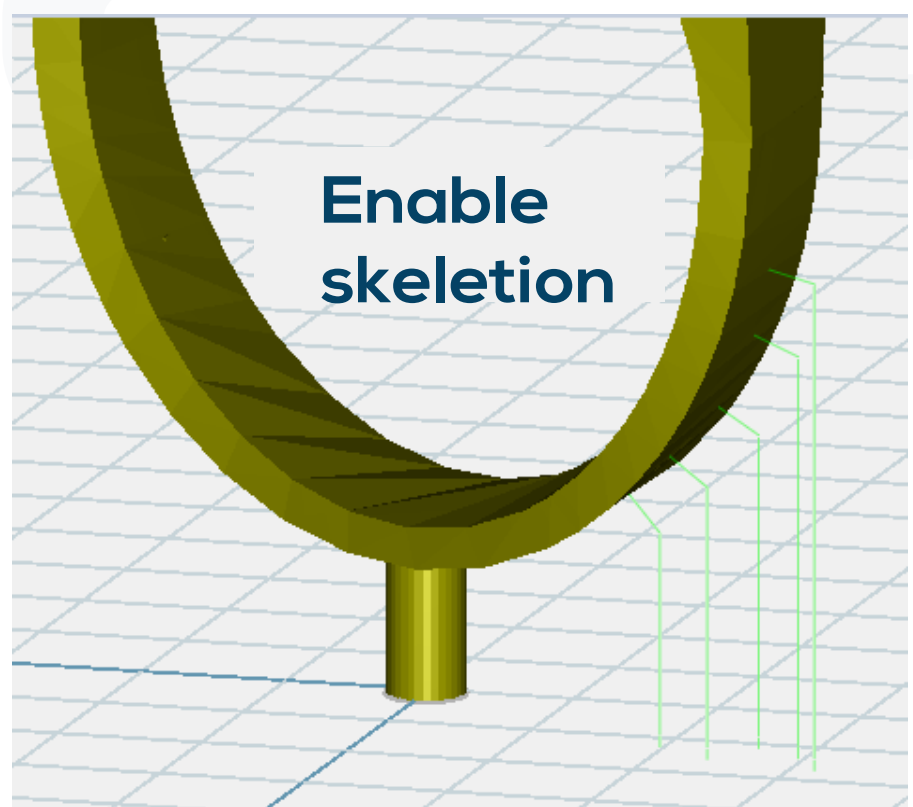
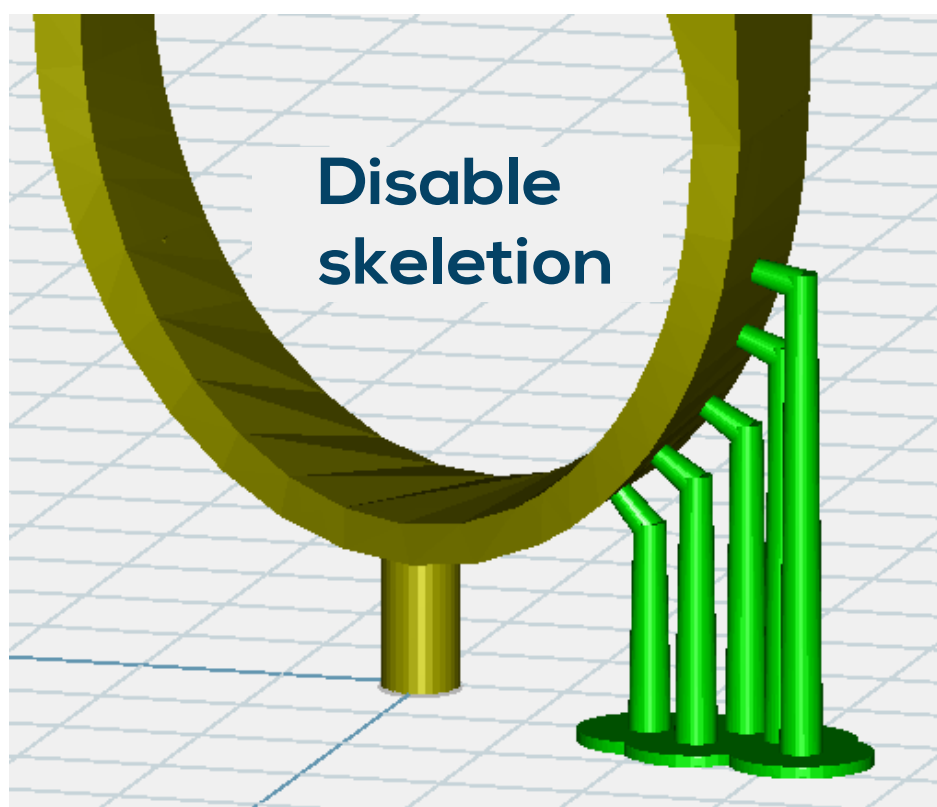
Build Support - View Mode



View mode

Angle 45.0 Degree Skeleton **Show Support in line**

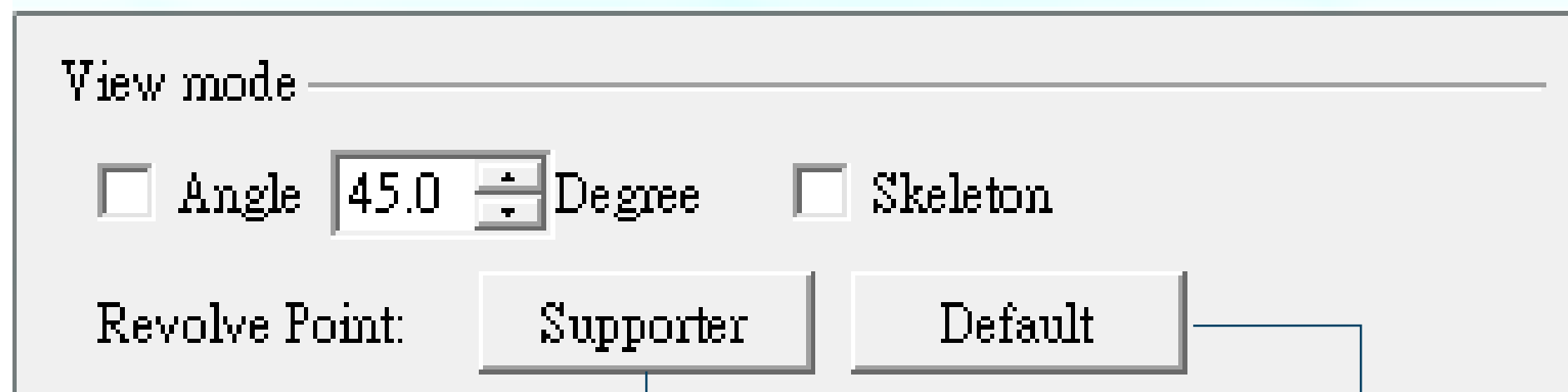
Revolve Point:



Build Support - View Mode

To view the 360-degree position of a support:

- Choose a support.
- Click on the "Revolve point: supporter" option.
- Utilize the fixed support as the center for rotation.
- Observe the support from various angles to see its position from all sides.



Default (Use platform as view rotation center)

Tool Bar



Create new file

Open layout

Save layout

Export as. stl

Options (General setting)

Surface polishing view

Perspective view

The .mil file format is an editable format used in Utility. It allows you to save your working status, including the platform, layout, and supporter functions, at any point in time. You can save your progress as a .mil file and later reopen it to continue editing.

Tool Bar



Overlook

Look up

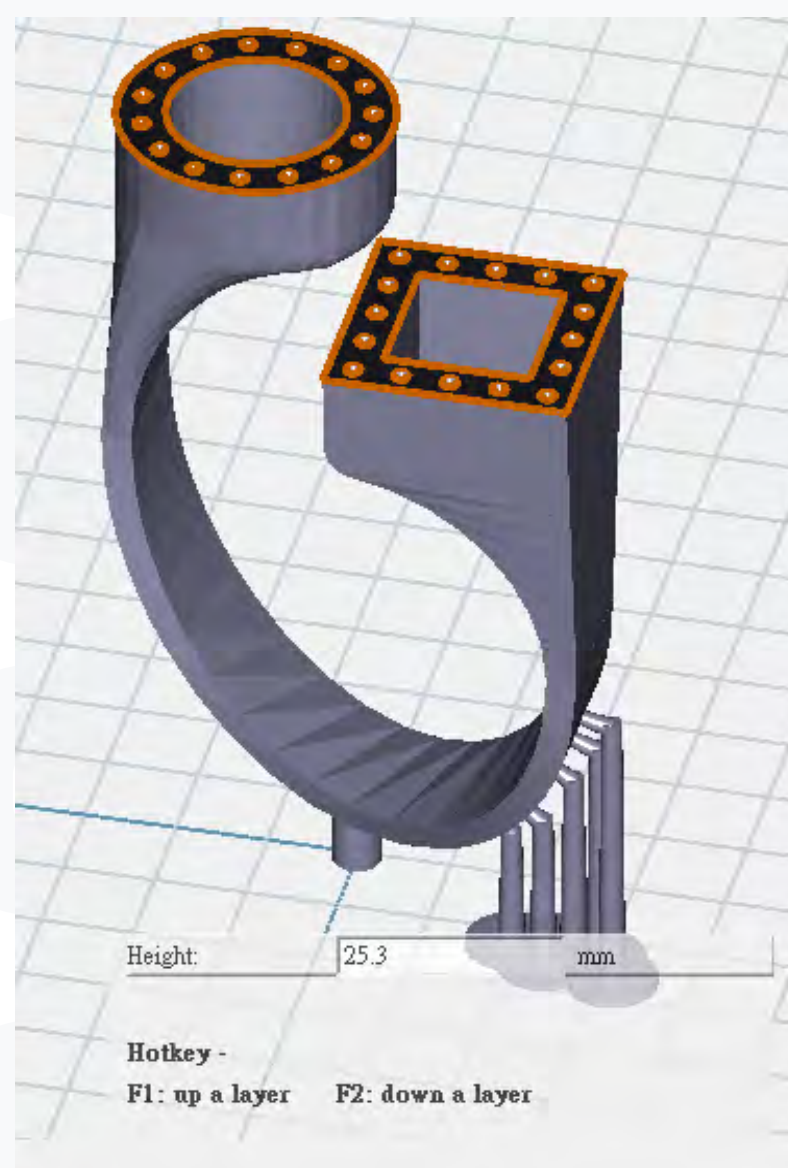
Front view

Back view

Left side

Right side

Slice view

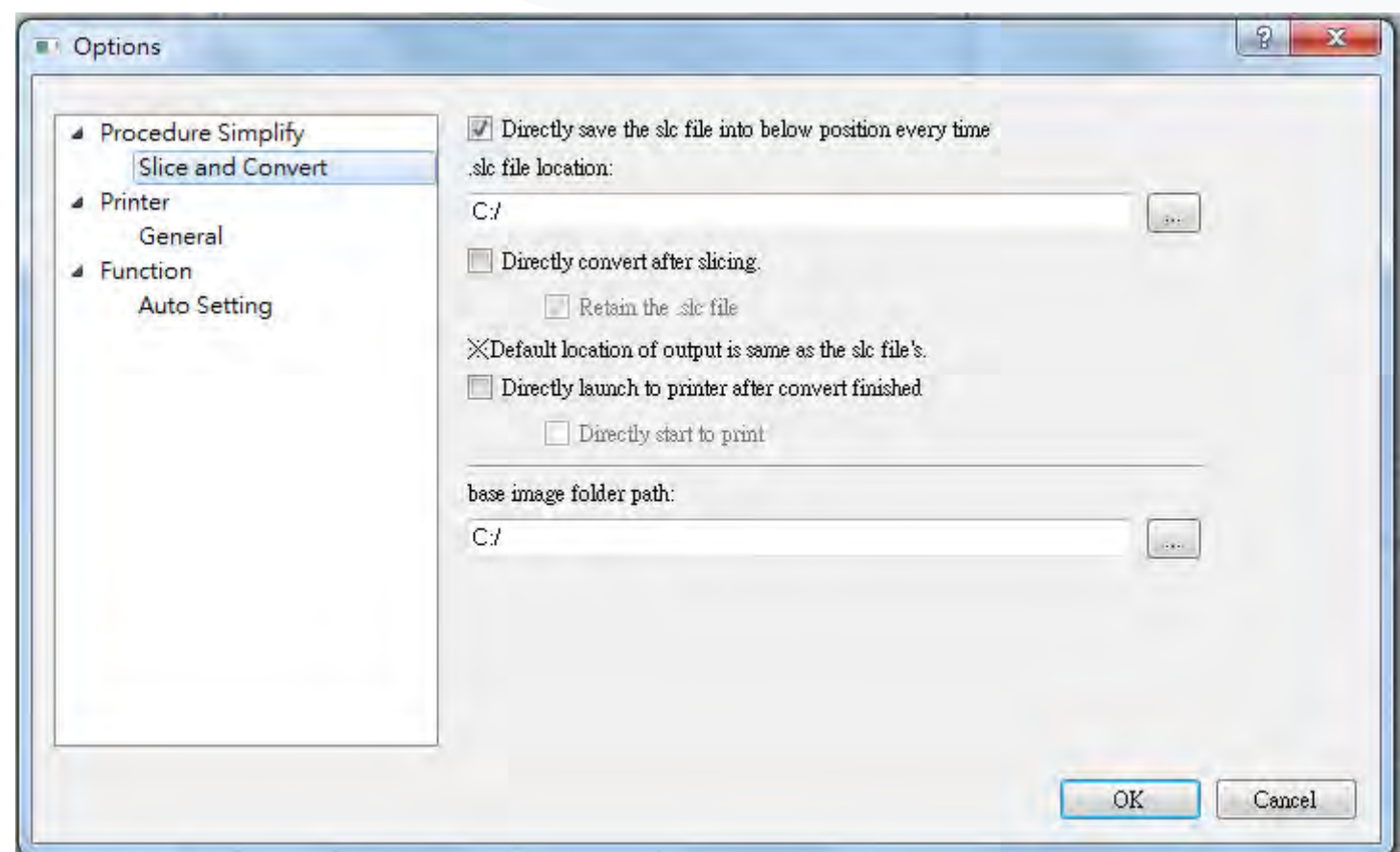


In the Slice view, you can preview each layer of the model without exporting it as a .slc file just yet. □

Tool Bar



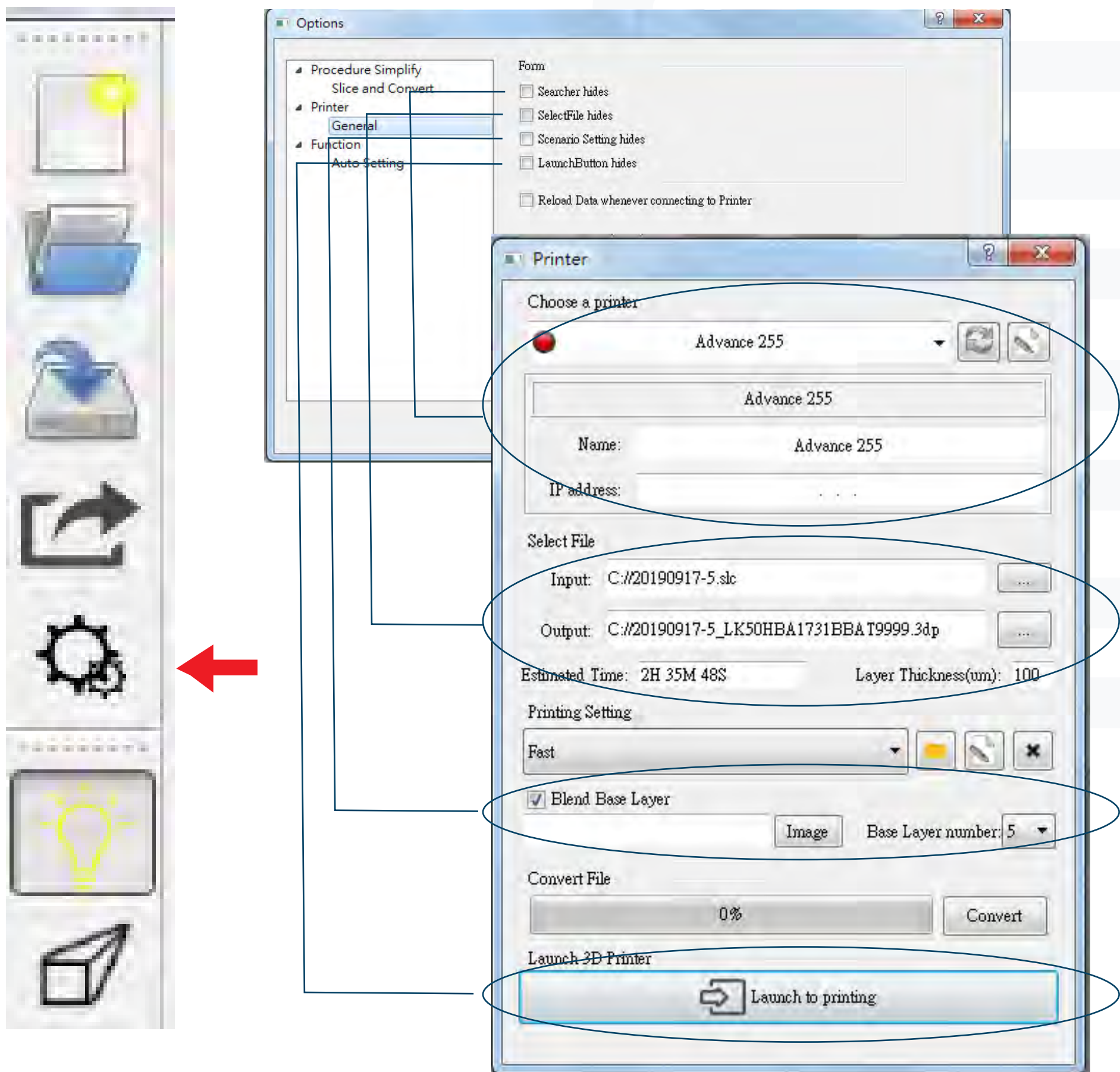
The Procedure Simplify feature allows you to configure settings to skip certain procedures and avoid frequent inquiry alerts.



Tool Bar - Option setting

Printer panel setting: Customize the visibility of certain function panels by hiding them.

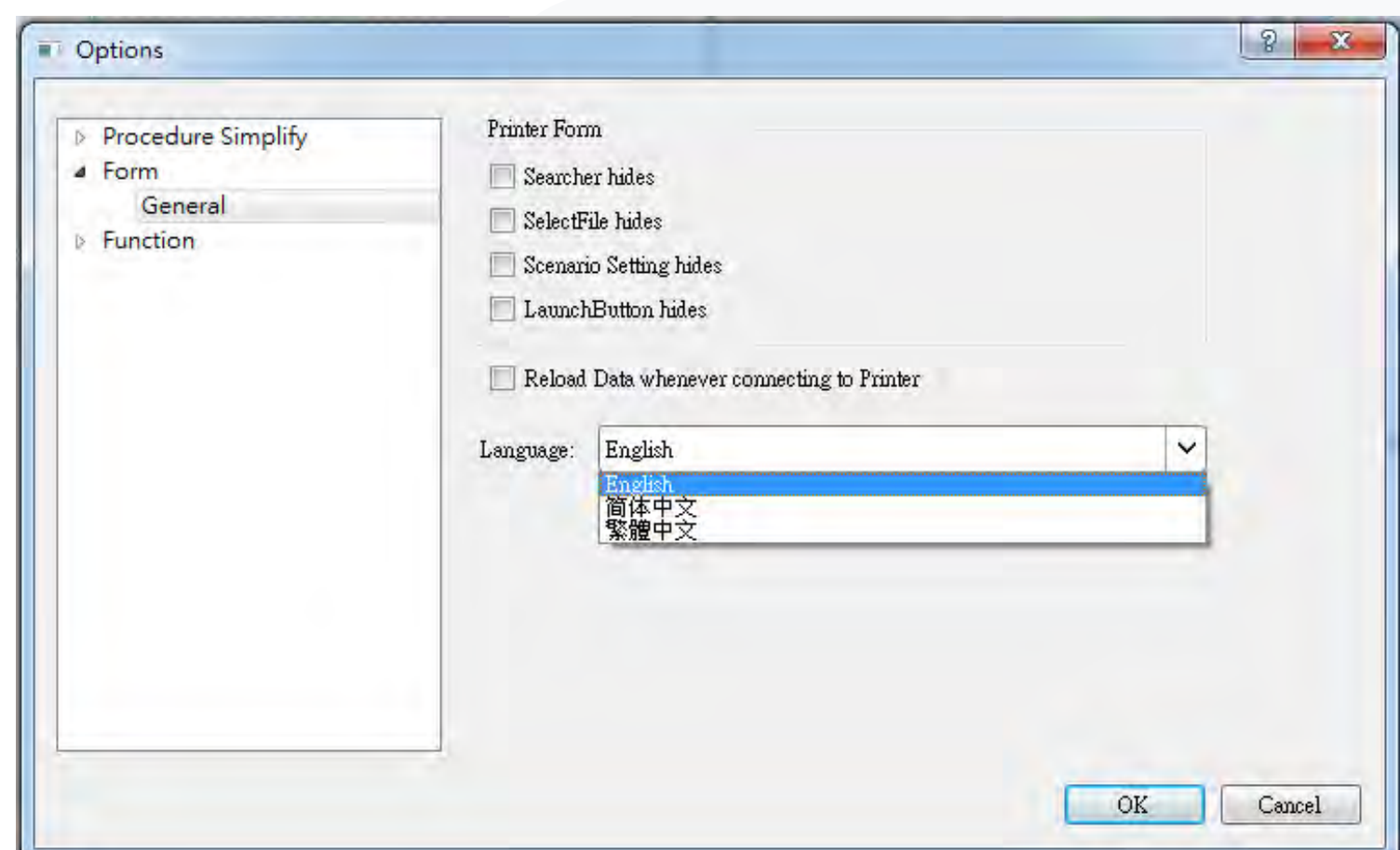
Enable the option to reload data, specifically the Printer calibration data, whenever connecting to the printer.



Tool Bar - Option setting

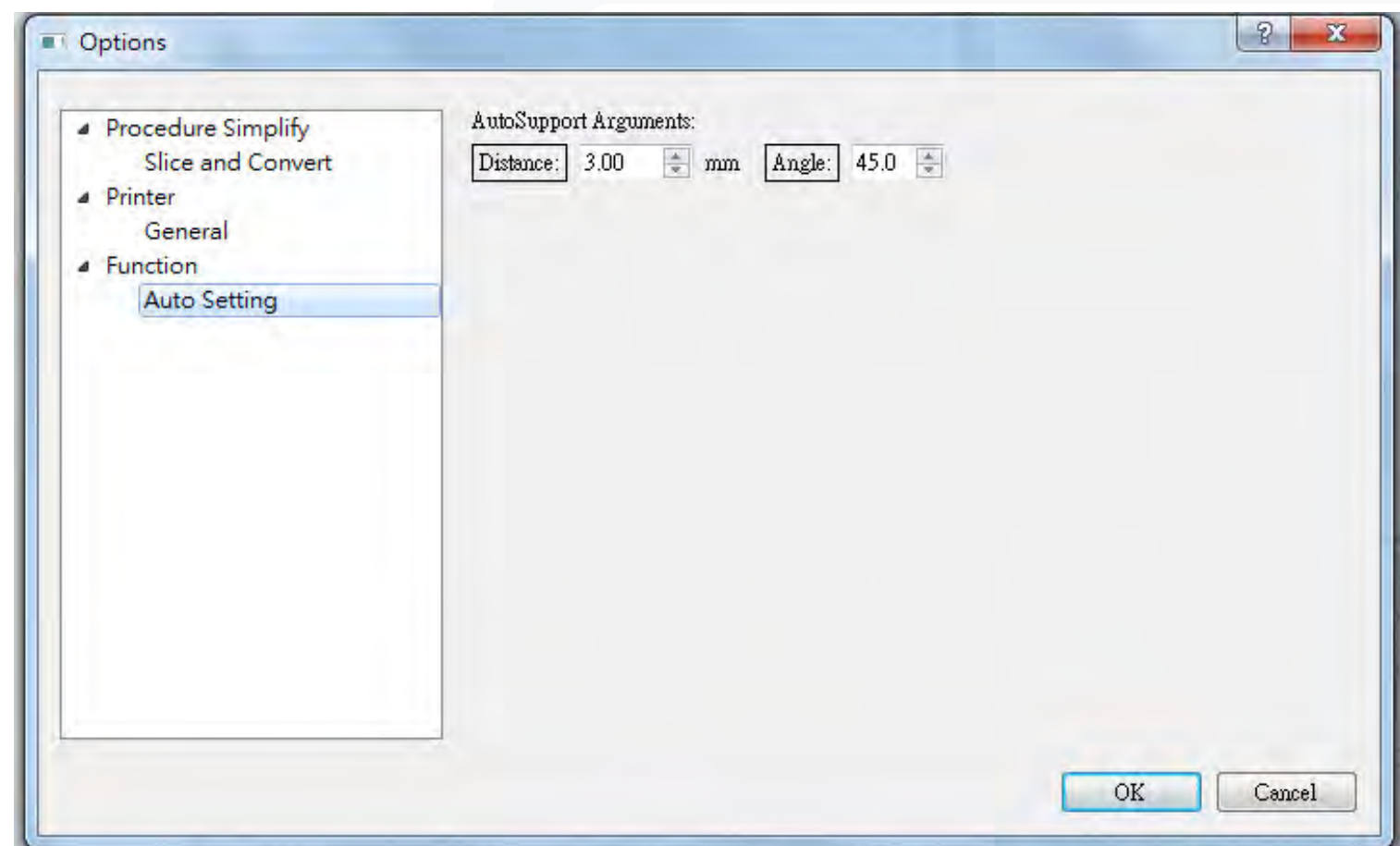
User interface language:

English, Traditional Chinese, Simplified Chinese

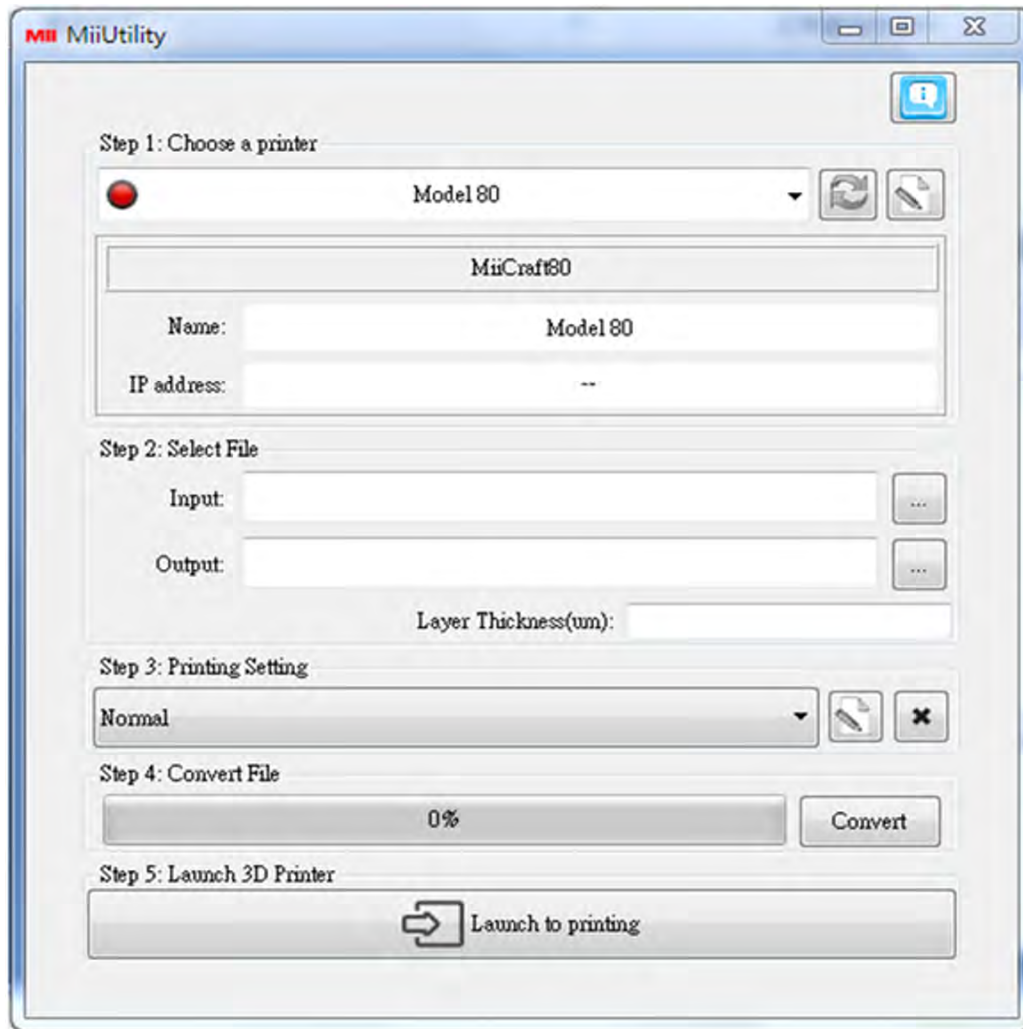


Tool Bar - Option setting

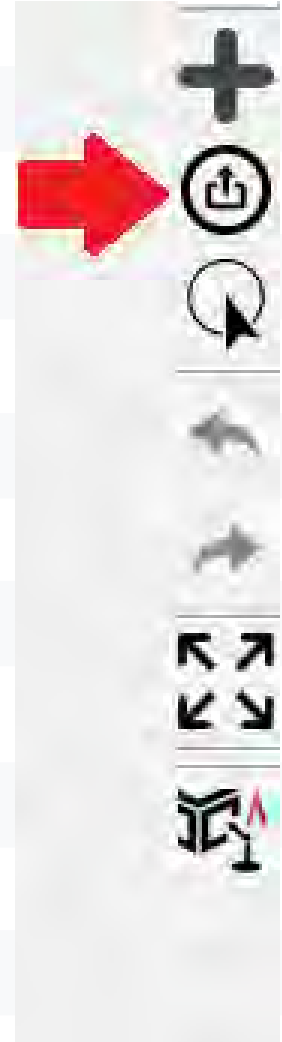
Distance: Adjust the distance between supports and the density of supports.
Angle: Automatically generate supports for areas on the model surface that are below a certain angle.



Printer Setting





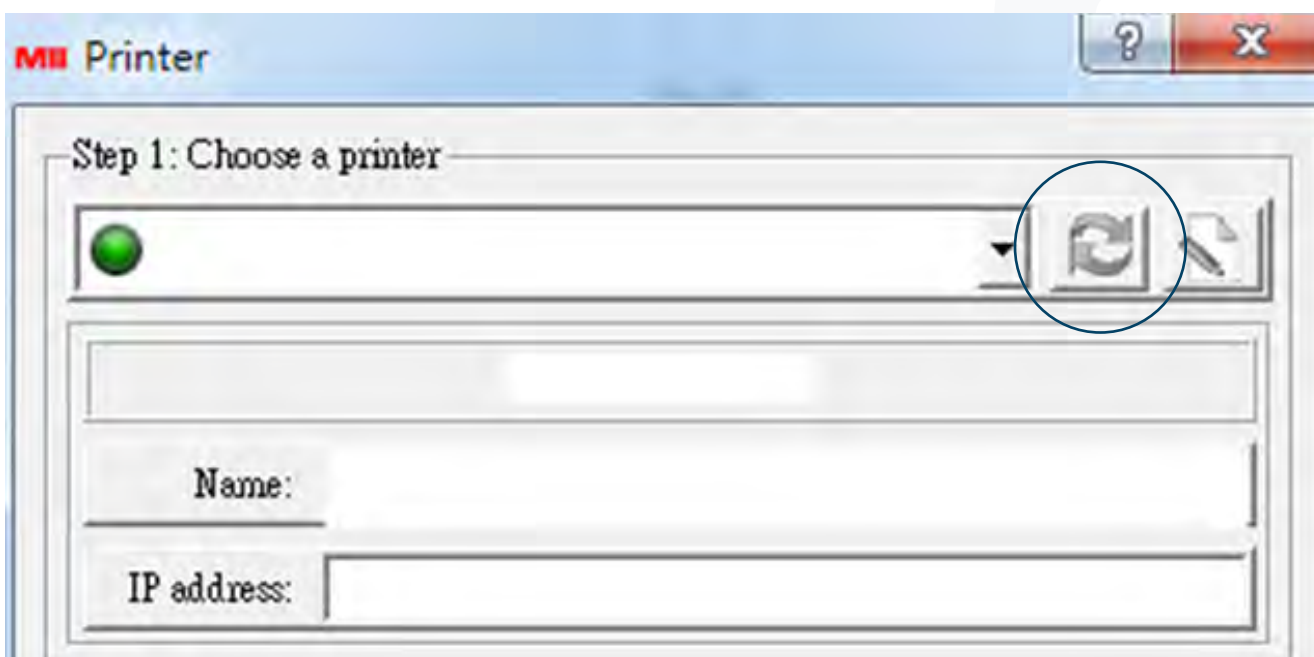
- Step 1: Choose printer
- Step 2: Select file
Input: .SLC
- Step 3: Set printing parameter
- Step 4: Convert file
Output: .mii
- Step 5: Launch to MiiController




Step 01

Scan online printer

-  Online printer
-  Offline printer

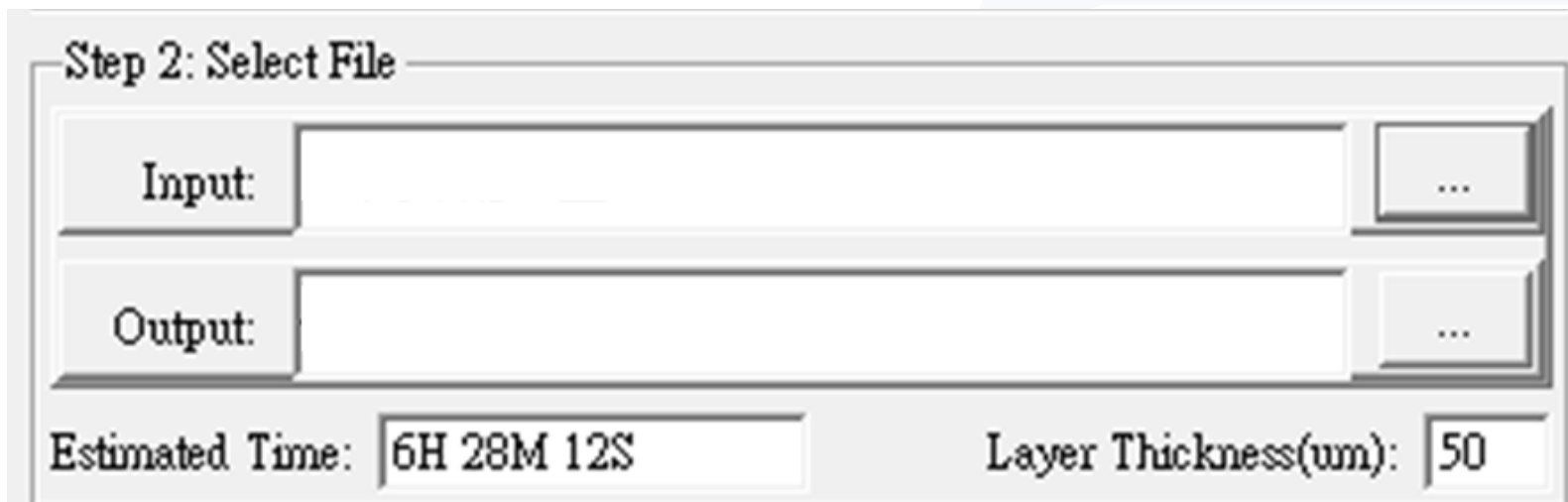


 Trouble shooting[⌘]

If unable to connect computer and printer, please check computer's proxy setting, it has to be close.⌘

Printer Setting

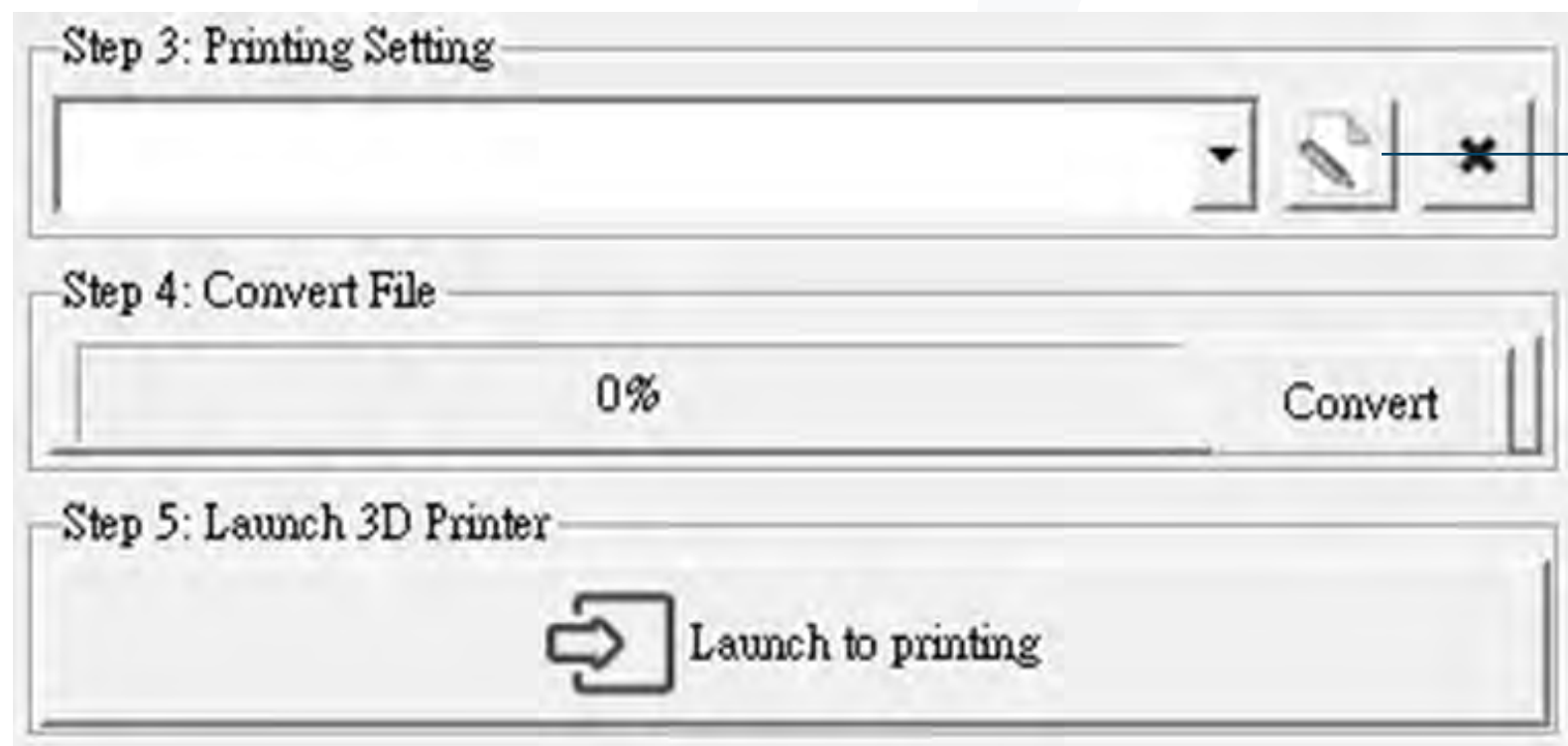
Step 02



Default user edit .slc file

Output .3dp file

Estimated printing time



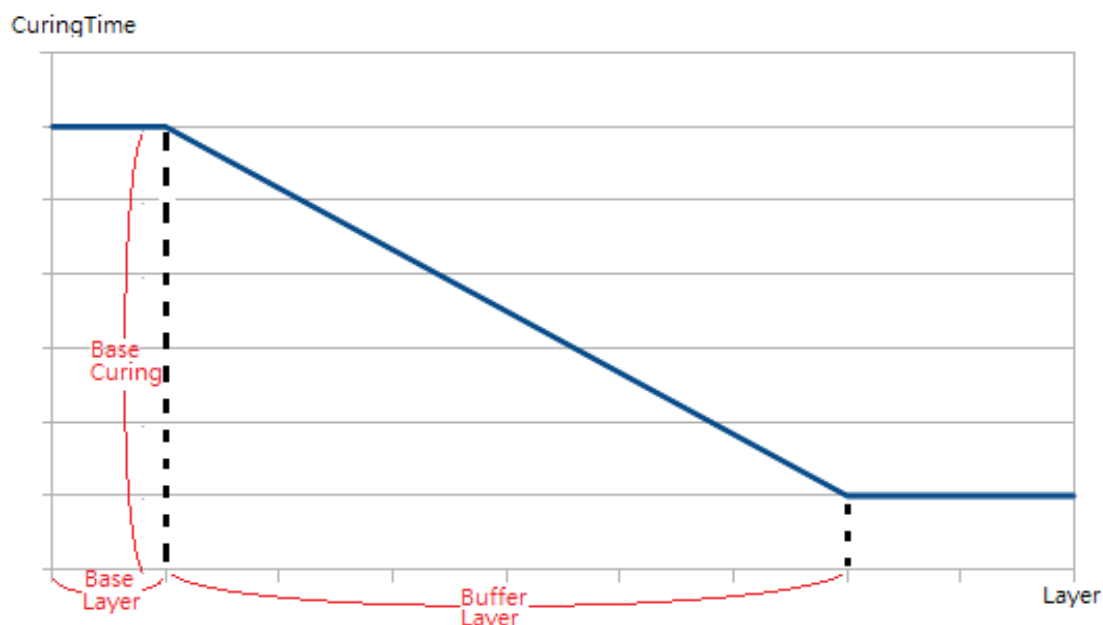
1) Select .mps file

2) Edit .mps file
(printing parameter)

Printer Setting



Curing Time(s): 2.00	The amount of time for UV curing(seconds) per layer
Speed: Normal	Slow, Normal and Fast, means different peeling speed. Recoater mode including recoater back and forth. Also user can select "advanced" to set user defined peeling mode
Gap Adj(mm): 0.00	Adjust thickness of the first layer
Base Layers: 1	Define number of base layers
Base Curing(s): 5.00	Curing time for base layers
Buffer Layers: 3	Set the Number of buffer layers
Power(%): 100	At 100% is the existing brightness of light engine. User can adjust the power in response to different resin character
Print Delay(s): 1	For first layer, picker stay for at least 1 sec. then cure
Image Calibration: <input checked="" type="checkbox"/>	Make image calibration for this printer
Anti-aliasing: Max (default)	
Image Pixel Offset: 0 (default)	
Overlap(%): 50	
Edge Enhance: 0	
Blur: 0	



Printer Setting

	Ultra series	Advance series	Profession series
Image Calibration	●	●	●
Anti-aliasing	●		●
Pixel offset	●		●
Edge enhance		●	●
Overlap (%)		●	
Blur		●	
Contour exposure		●	●
Resin Shrinkage compensation	●	●	●
Flip image	●	●	●



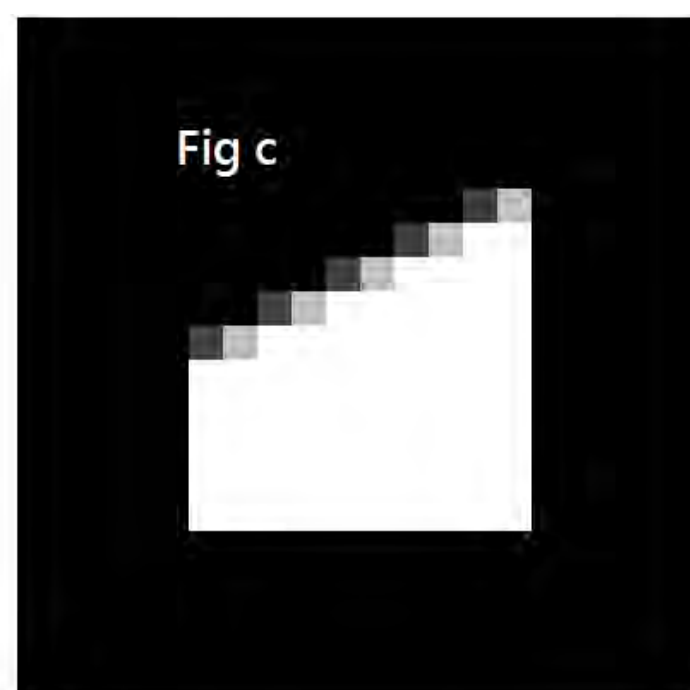
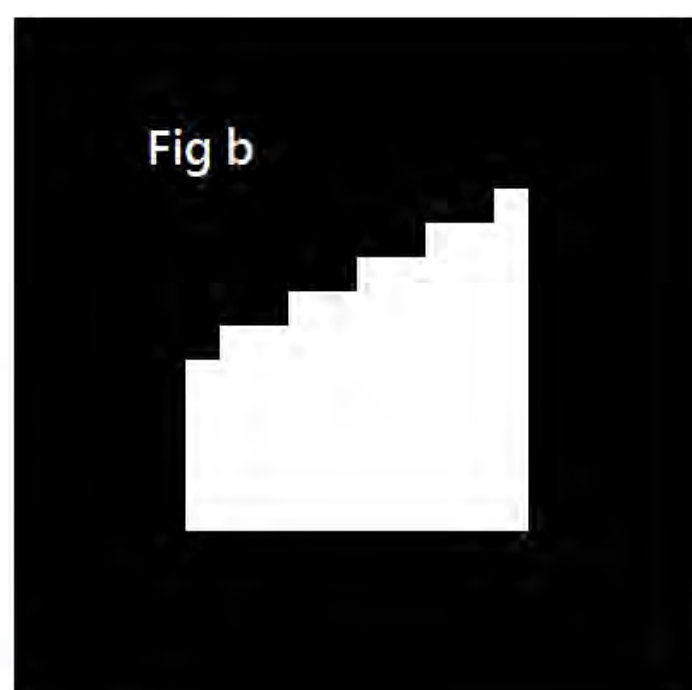
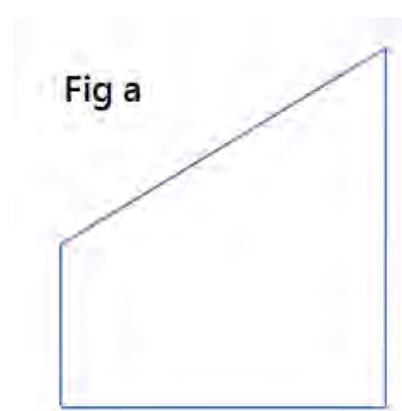
Active

Printer Setting

Anti-aliasing:	Max (default) ▼		
Image Pixel Offset:	0 (default) ▼		
Overlap (%):	50 ▲▼	Edge Enhance:	0 ▼
		Blur:	0 ▼

None Anti-aliasing

Max Anti-aliasing



Anti-aliasing:	Max (default) ▼		
Image Pixel Offset:	0 (default) ▼		
Overlap (%):	50 ▲▼	Edge Enhance:	0 ▼
		Blur:	0 ▼

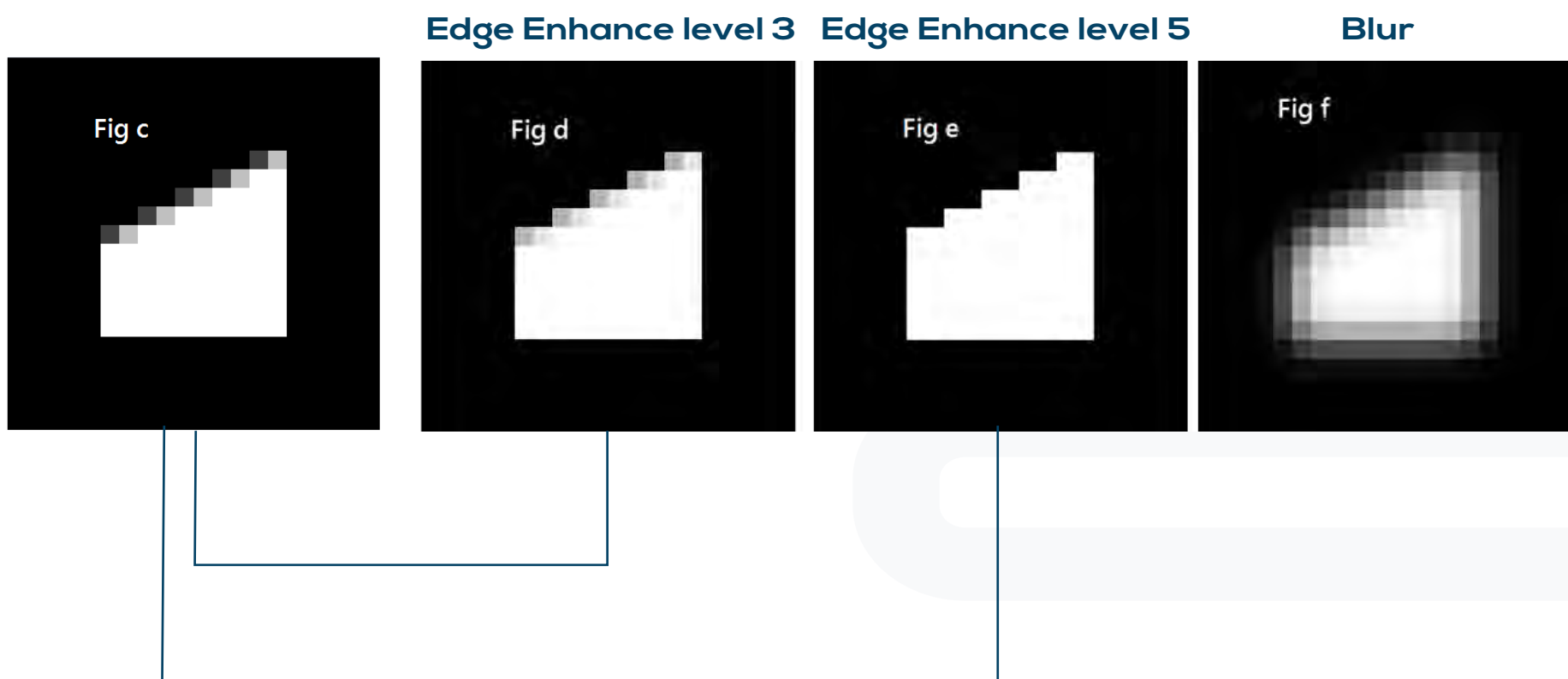
The Pixel Offset feature allows for slight adjustments to the edge pixels:

A value of -2 will erode the edge by 1 pixel.

A value of 2 will add 1 pixel to the edge.

Printer Setting

Anti-aliasing:	Max (default)	▼
Image Pixel Offset:	0 (default)	▼
Overlap (%):	50	▲ ▼
Edge Enhance:	0	▼
Blur:	0	▼

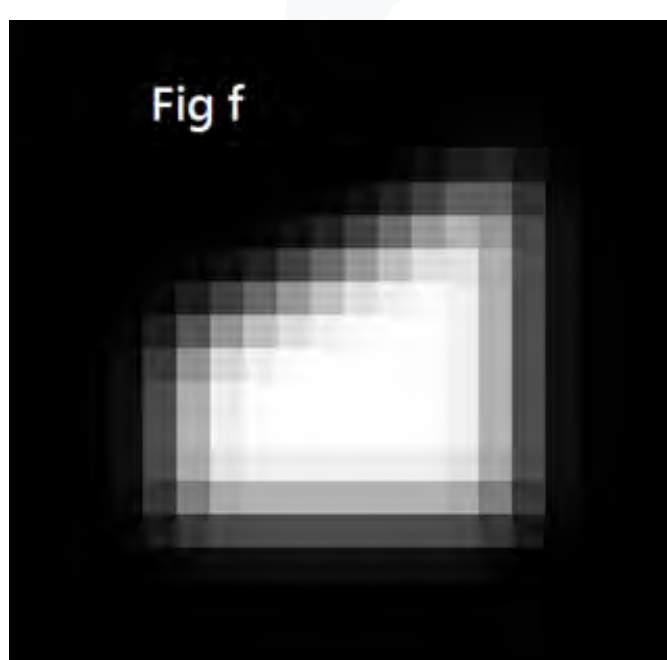
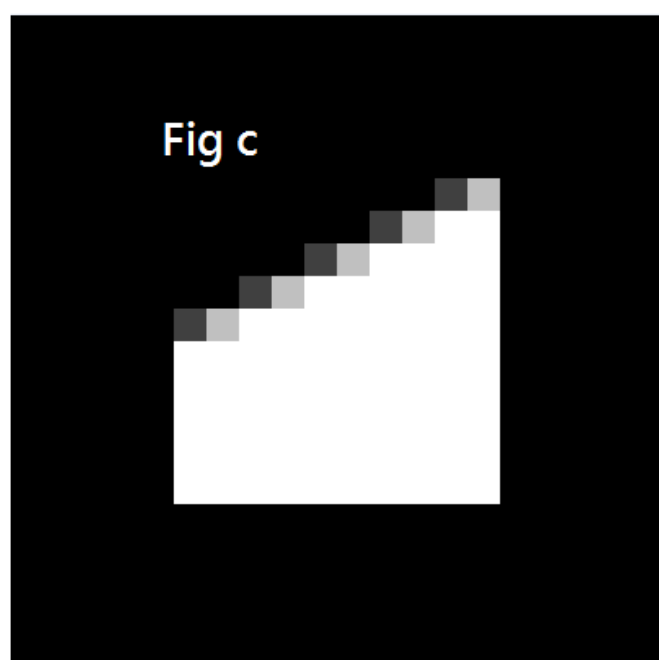


Printer Setting

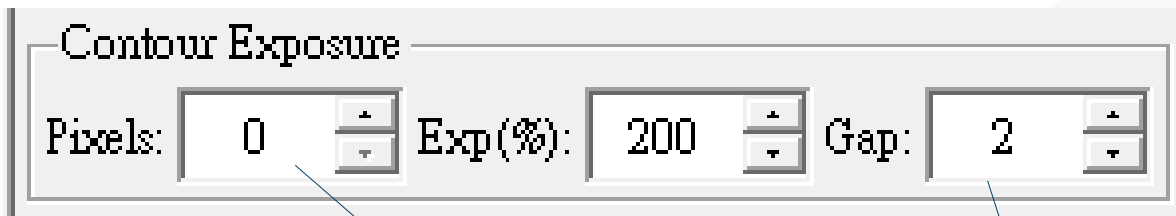
Only apply to Advance series

Anti-aliasing:	Max (default)	▼
Image Pixel Offset:	0 (default)	▼
Overlap(%):	50	▲ ▼
Edge Enhance:	0	▼
Blur:	0	▼

Blur



Printer Setting

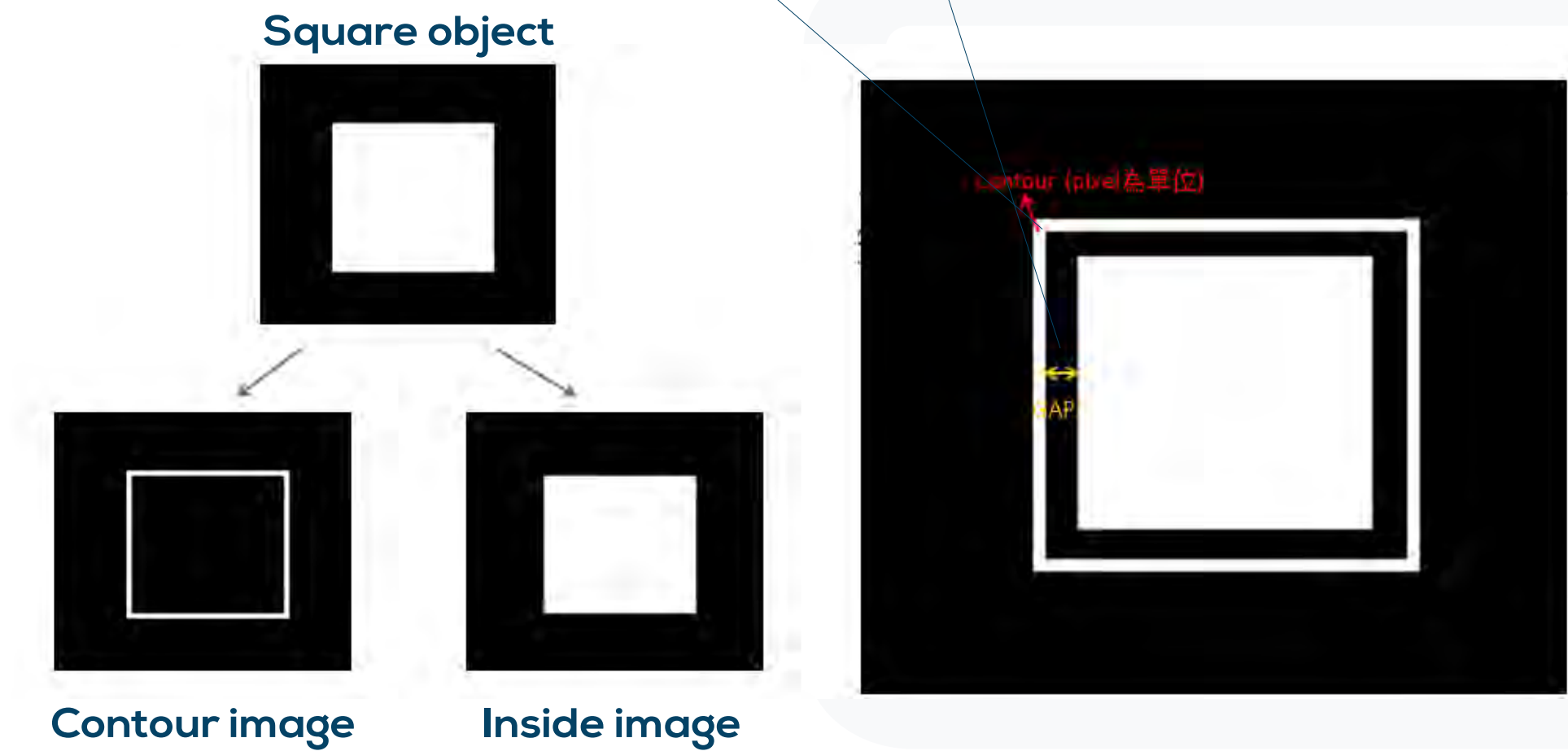


Pixels : Contour pixel

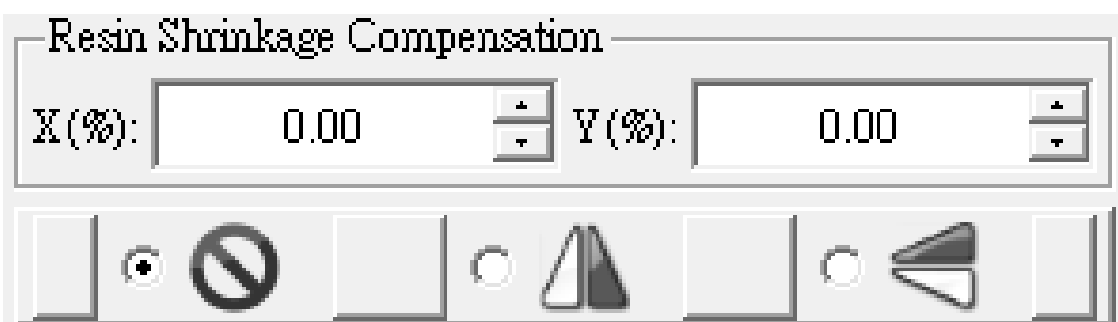
Exp (%) : Contour exposure time

The percentage is compare to curing time

(Inside image exposure time is same as curing time)



If user set contour pixel, one image will become 2 image, contour and inside

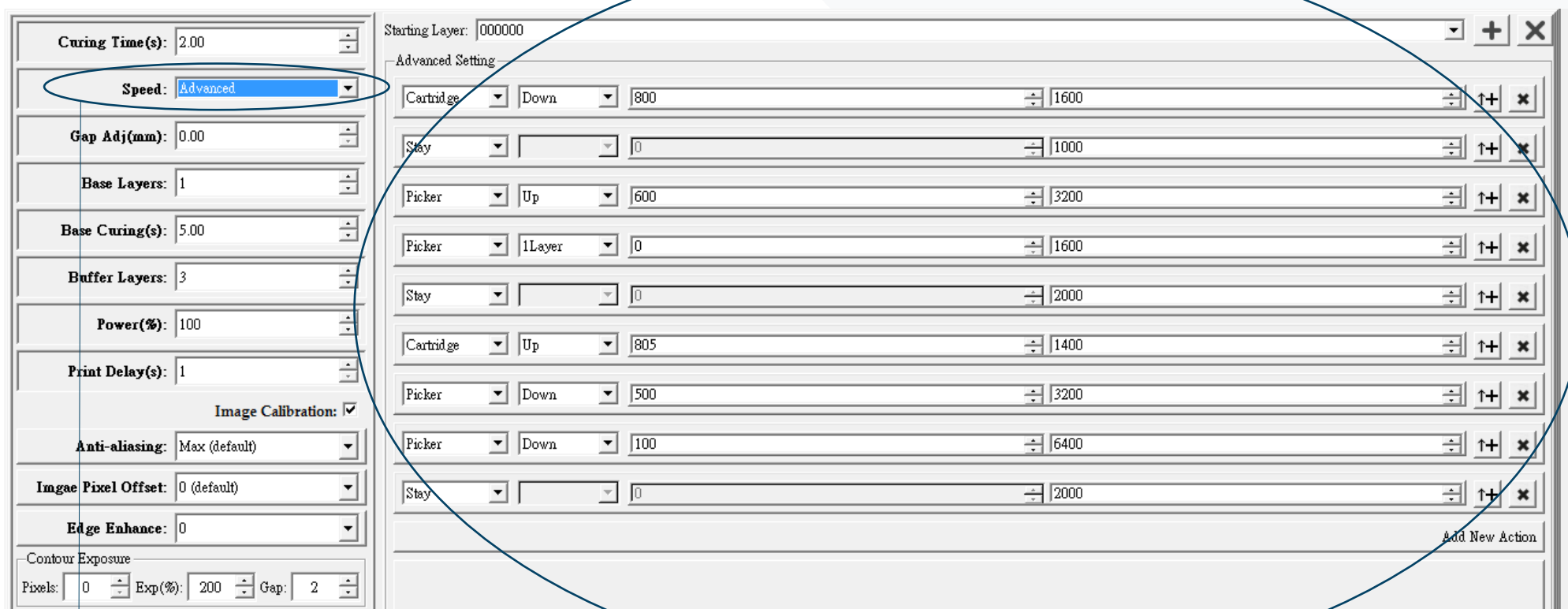


+0% to 9.9% → Enlarge an image

-0% to -9.9% → Shrink an image

Flip image by X axis or Y axis

Printer Setting - Advance setting



Speed : select Advance

Enable Function: Customize peeling mode

Printer Setting - Advance setting

The advanced settings provide the advantage of choosing the peeling mode:

Tilt mode: Adjusts the up-and-down movement of the cartridge (tank) to enable peeling of larger areas.

Direct mode: Focuses on the picker's movement while keeping the cartridge stationary, allowing for faster peeling.

Sweep: Controls the movement of the recoater.

These advanced settings can be applied starting from the specified starting layer.

Items Movement Step (25um/step) Half Step period (micro second)

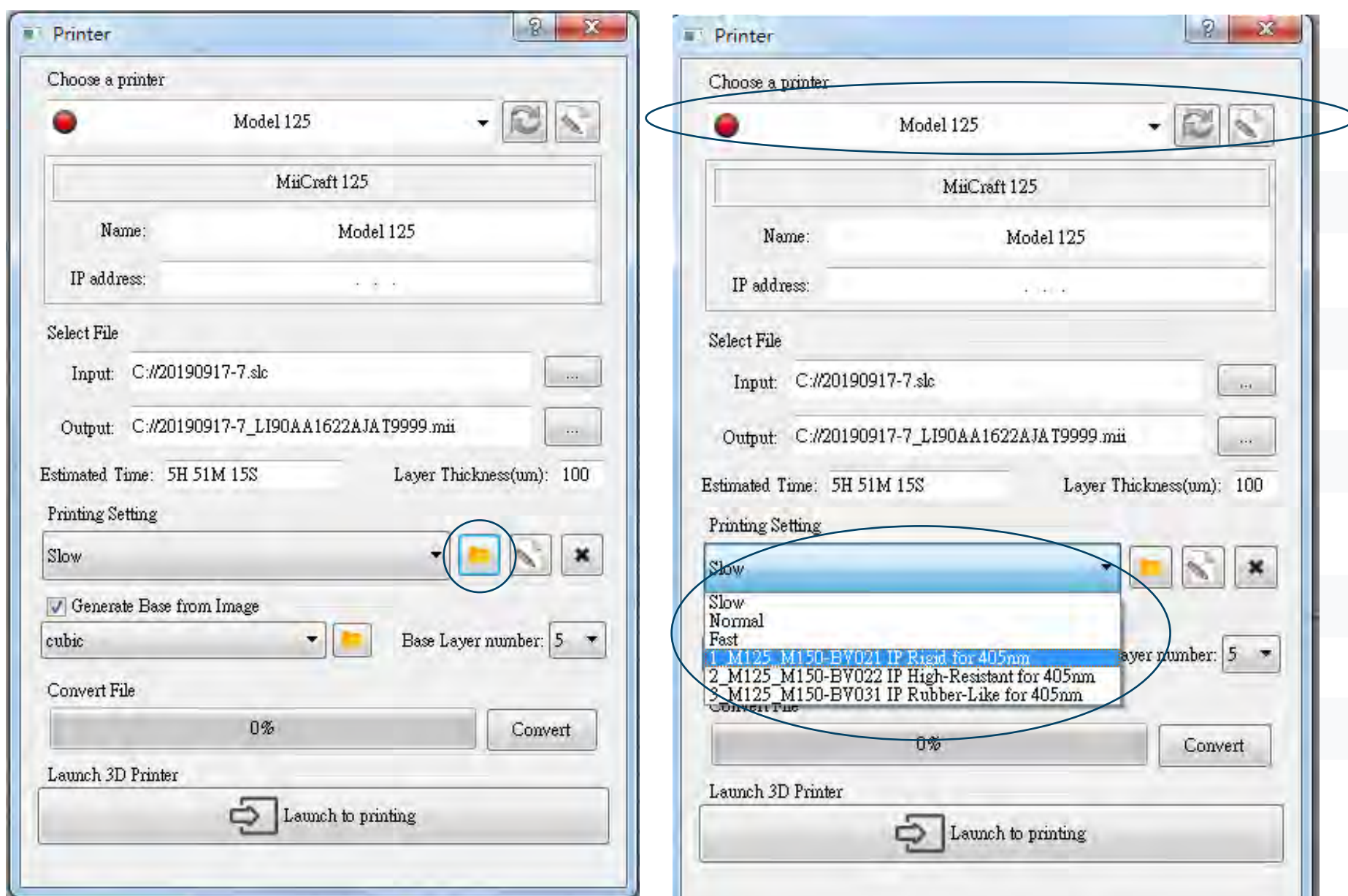
Items	Movement	Step (25um/step)	Half Step period (micro second)
Starting Layer: 000000			
Advanced Setting			
Cartridge	Down	800	1600
Stay		0	1000
Picker	Up	600	3200
Picker	1Layer	0	1600
Stay		0	2000
Cartridge	Up	805	1400
Picker	Down	500	3200
Picker	Down	100	6400
Stay		0	2000
Add New Action			

.mps file user management

To assign a user management file (.mps):

The printer selection will determine the .mps files available to you. For example, if you choose the MiiCraft Profession Printer, you can only select .mps files specifically designed for the MiiCraft Profession Printer.

Place the desired .mps files into the user-assigned folder. Once placed in this folder, the .mps files will appear in the printing setting list, as shown in the picture.



Generate Base from Image

In Step 3: Printing setting:

Choose the image shape for the base:

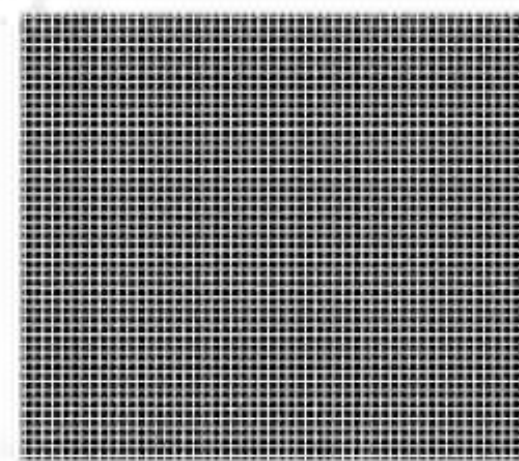
Cubic

Diamond

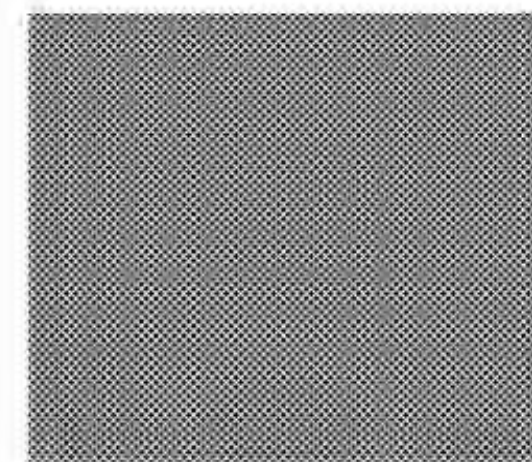
Hexagon

Or use a custom DIY image as the base.

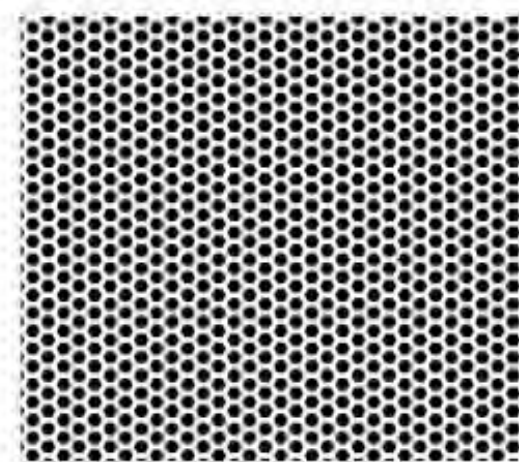
Adjust the thickness of the base layer for the selected image shape.



cubic.png

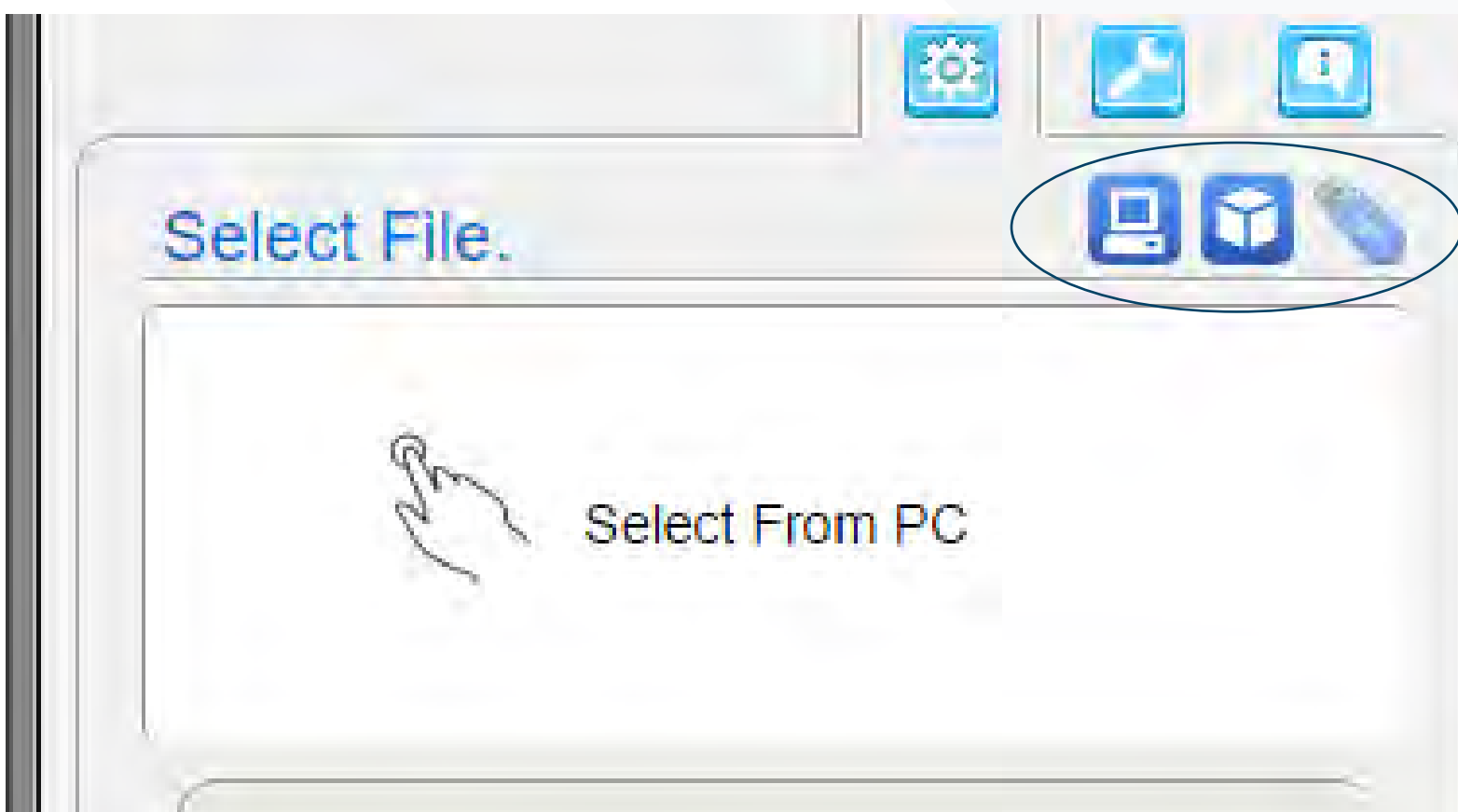


diamond.png



hexagon.png

Printer via computer



To select a .3dp file for printing:

Choose one of the following options:

Select the file from your computer.

File size limit: 500MB.

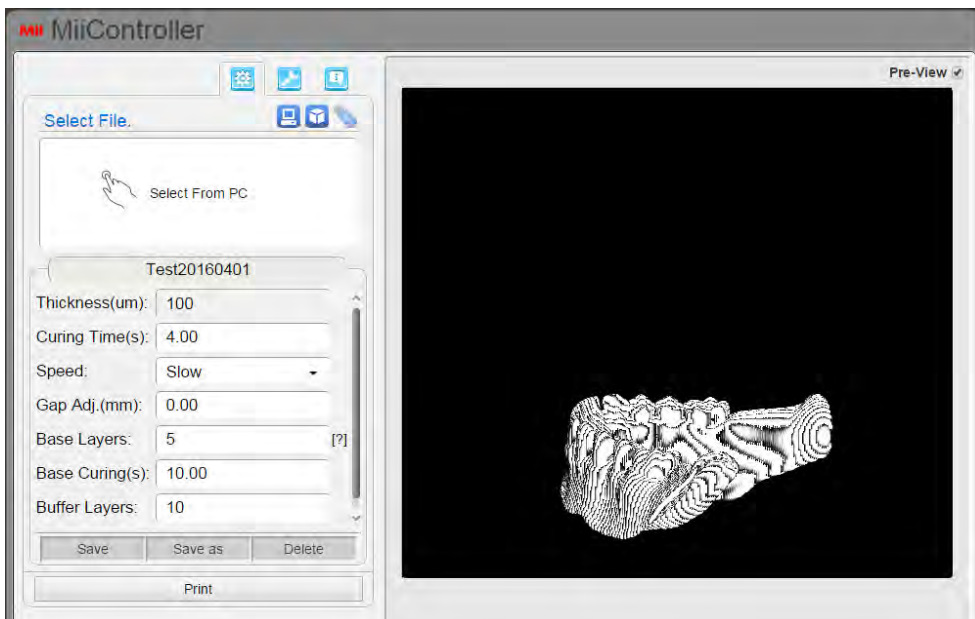
Access the file saved in the printer.

Insert a USB drive into the printer and select the file from it.

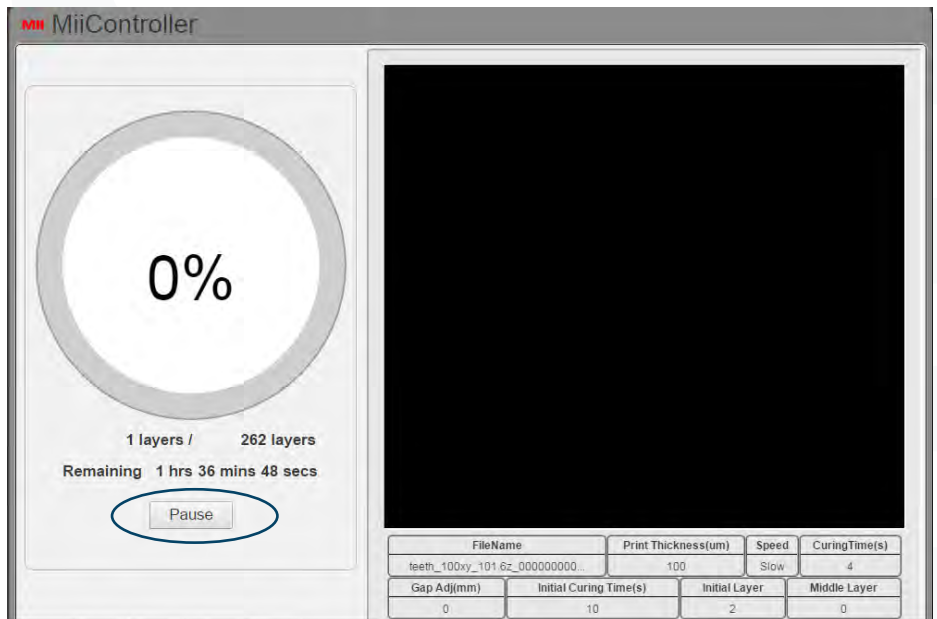
File size limit: 1GB.

Printer via computer

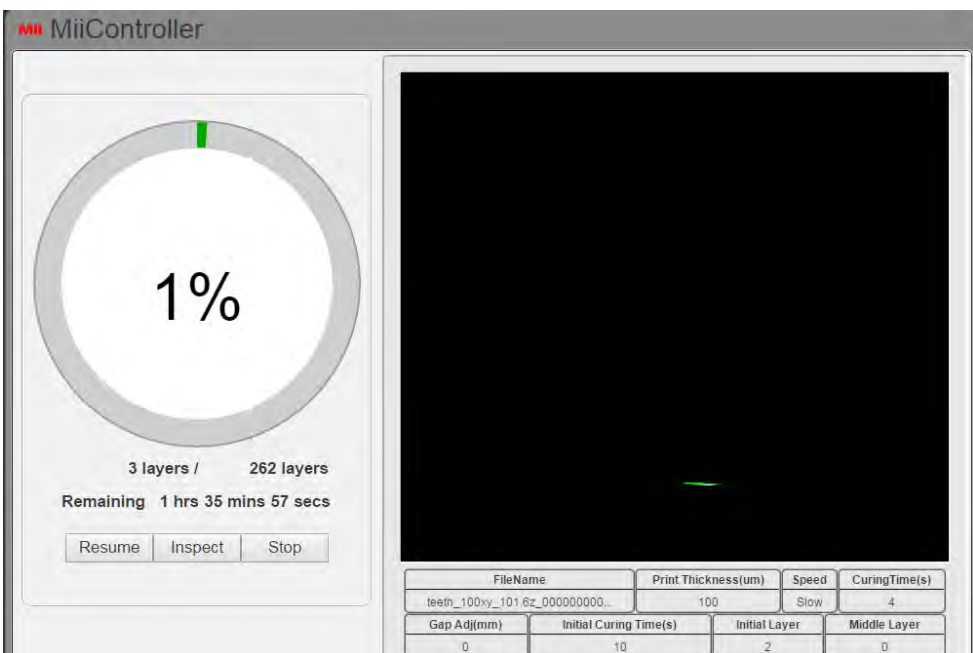
1



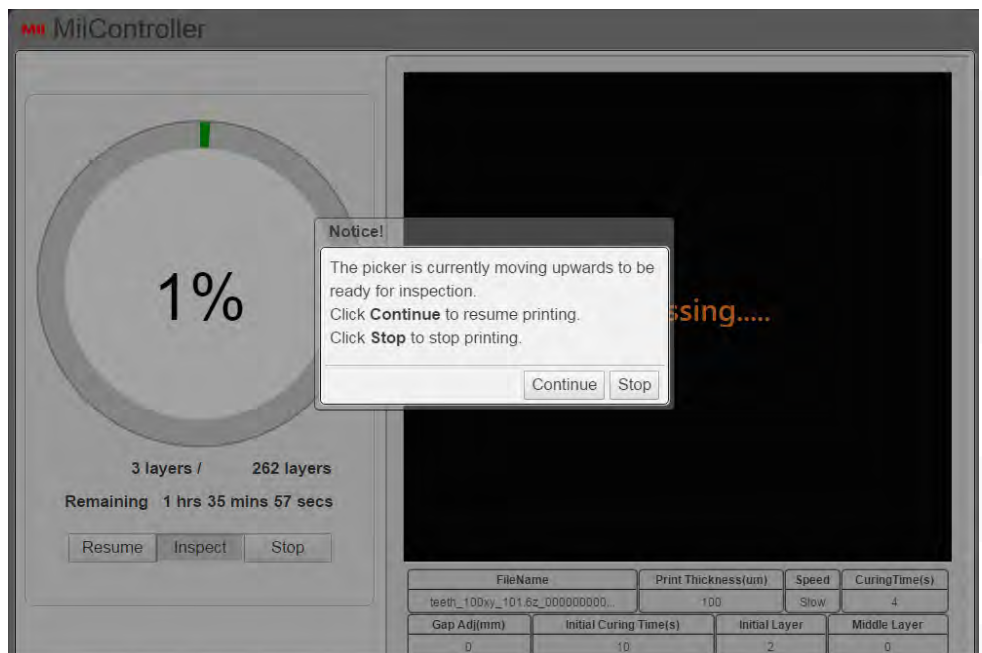
2



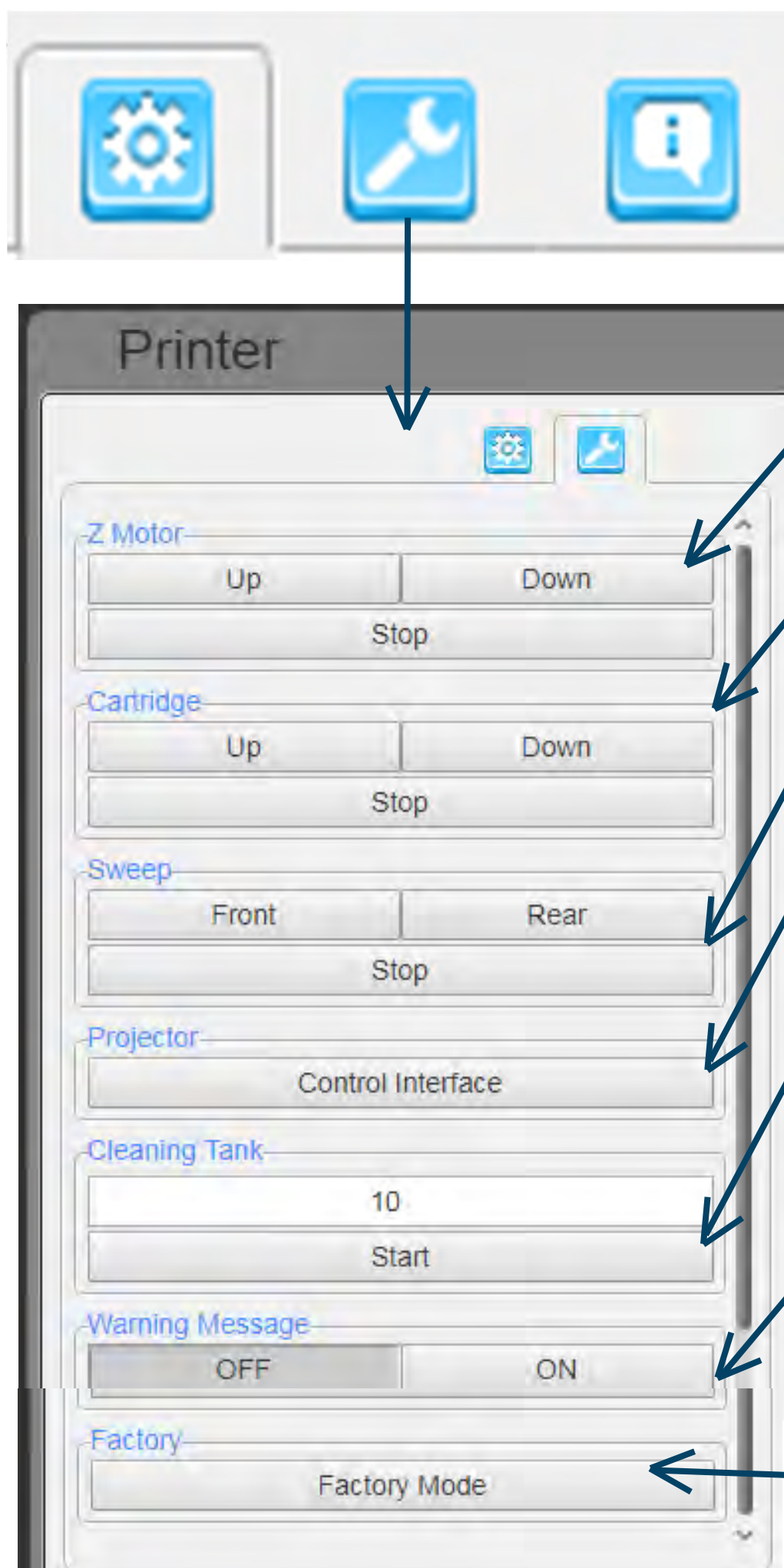
3



4



Engineering mode (Computer)



Control Z-platform
(Build platform)

Control recoater blade

Control teflon module

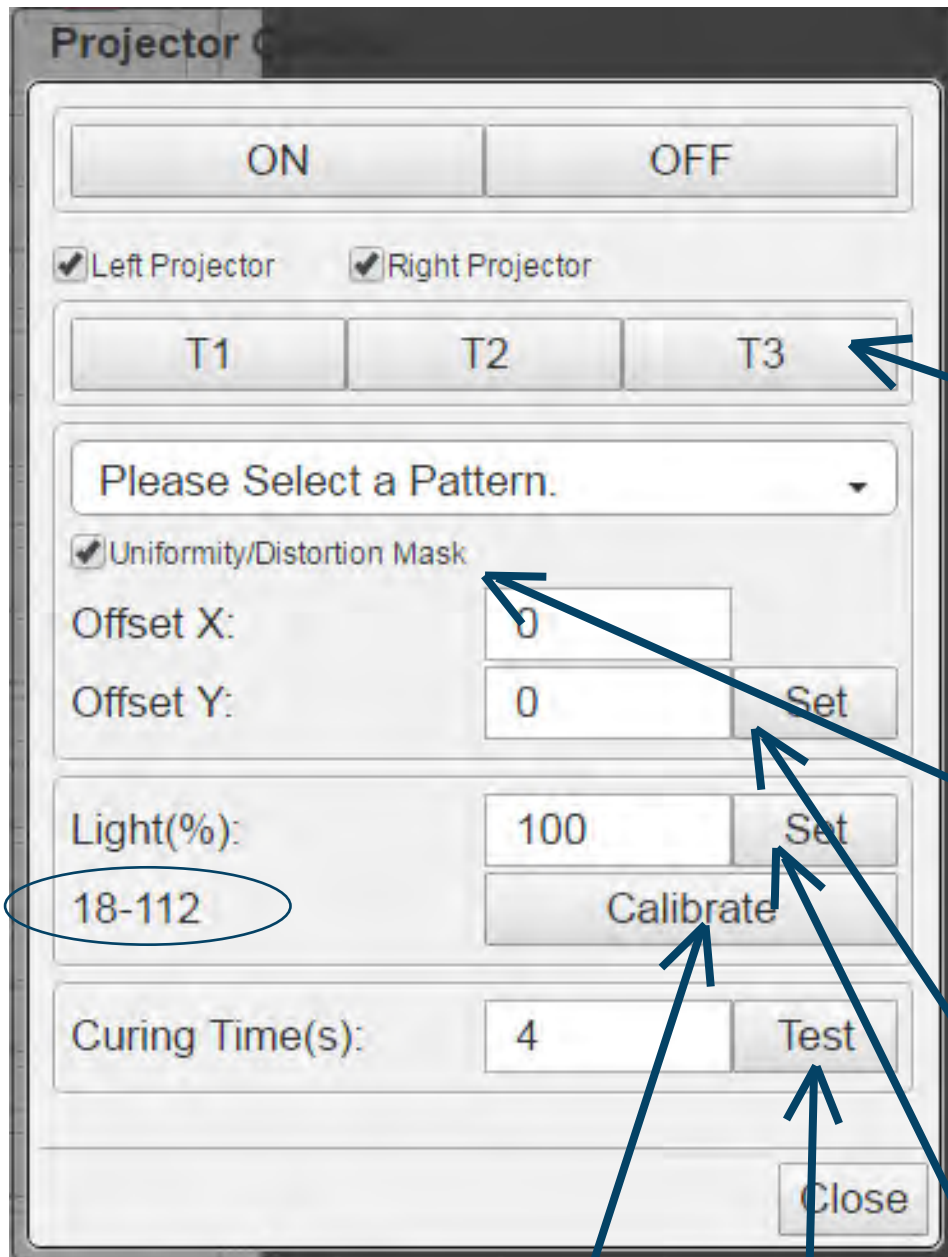
Introduce in the
next page

Project a complete
patter, the residual
will be transformed
into a solid layer

On/off of warning
message shows
before print

Key in password to use
Factory mode
(For distributor use)

Engineering mode (Computer)



← For the Advance series machine, choose either the left or right projector to control.

← T1/T2/T3 options allow you to use the test pattern inside the projector or select a pattern from the menu.

← Tick the option to apply printer calibration, which suggests a suitable range.

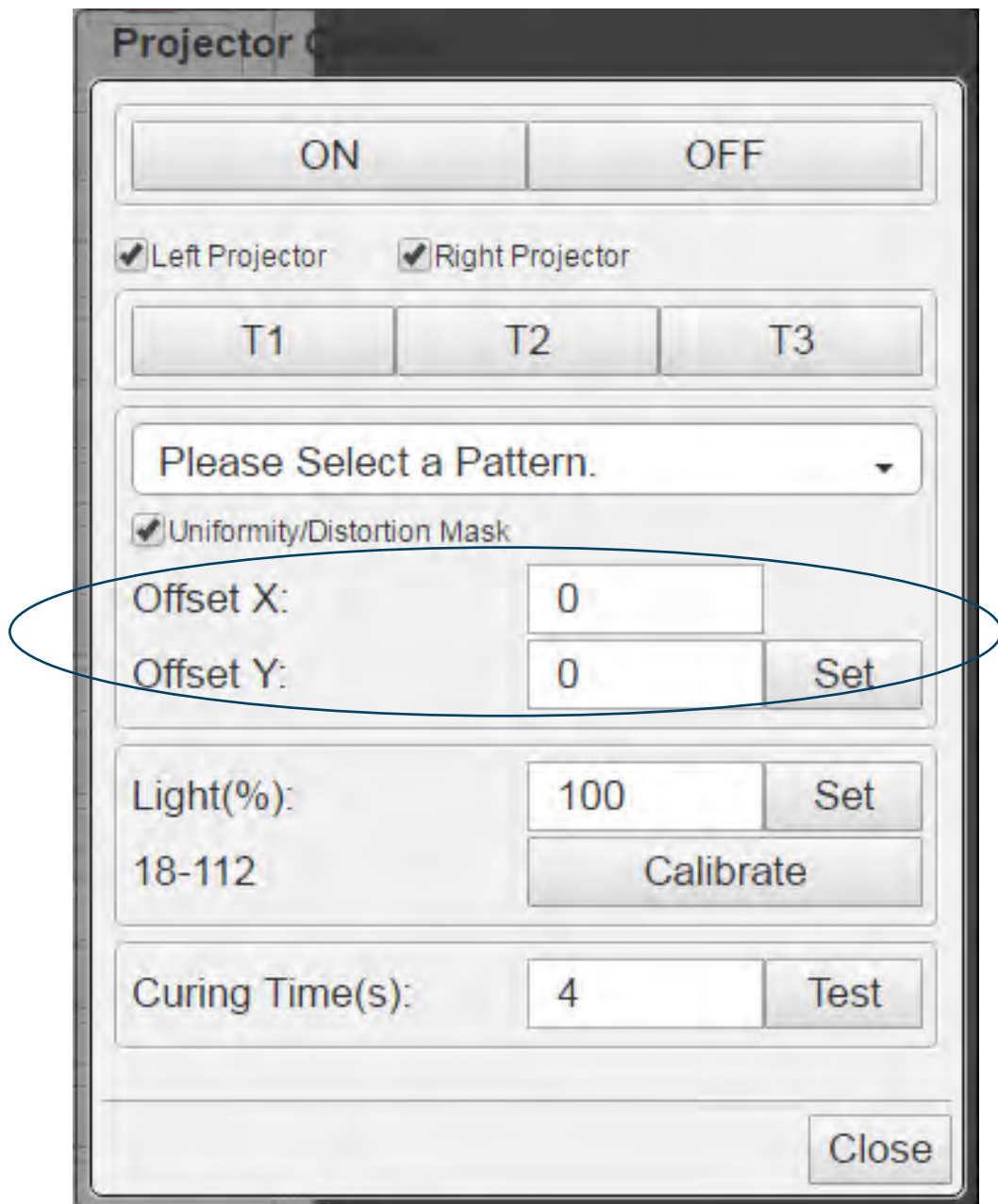
← Fix the left projector and adjust the right projector along the X or Y axis.

← Calibrate: Resets the brightness settings to default.

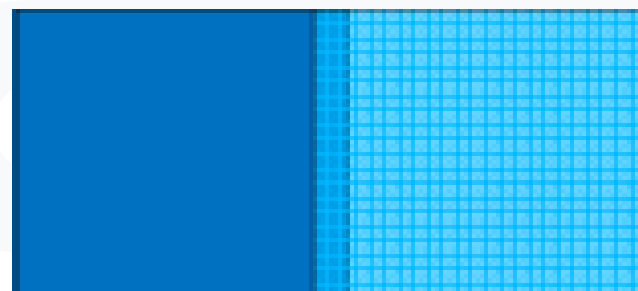
← Curing Time(s): Allows you to test print curing time.

← Light(%): The brightness of the light engine can be adjusted within the suggested range, with 100% representing the existing brightness.

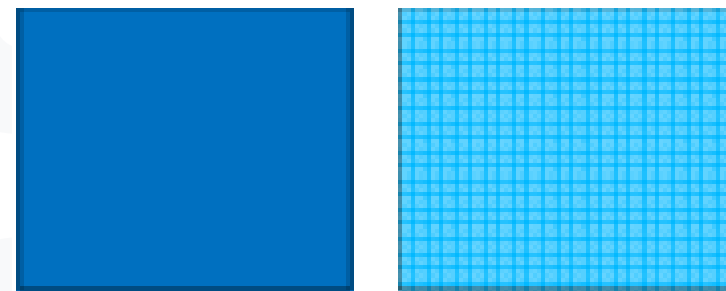
Engineering mode (Computer)



Fix the left projector image, and move right projector image through X axis.



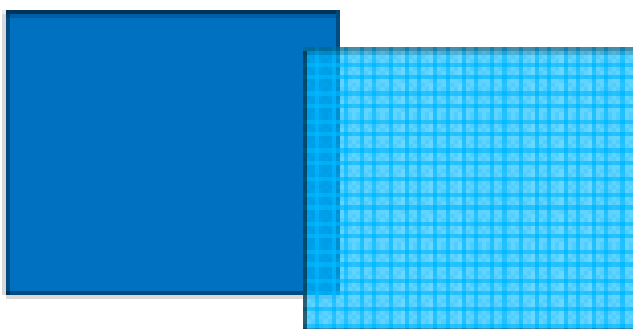
Offset X : -9



Offset X : 9

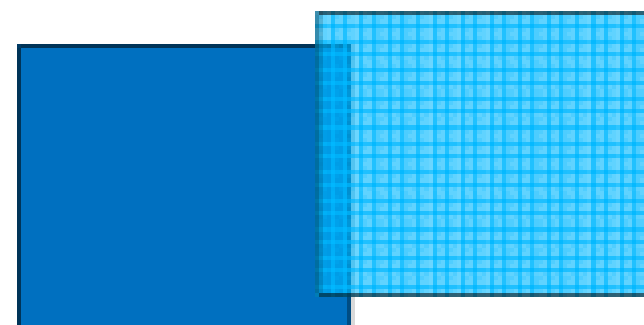
Fix the left projector image, and move right projector image through Y axis

Printer back side



Printer door side
Offset X : -9

Printer back side



Printer door side
Offset X : 9

Printing record & Update firmware

Printer

Interval: 2019/04/18 ~ 2019/05/18 Reload

Total Printed Layers : 101997
Total Printed Time : 288h-29m-45s

Printer.

Advance 205

Name: Test#1
SN: LK50HAA1800BAAT0001
FW: 2.0.3.t17

Upgrade FW

Search interval

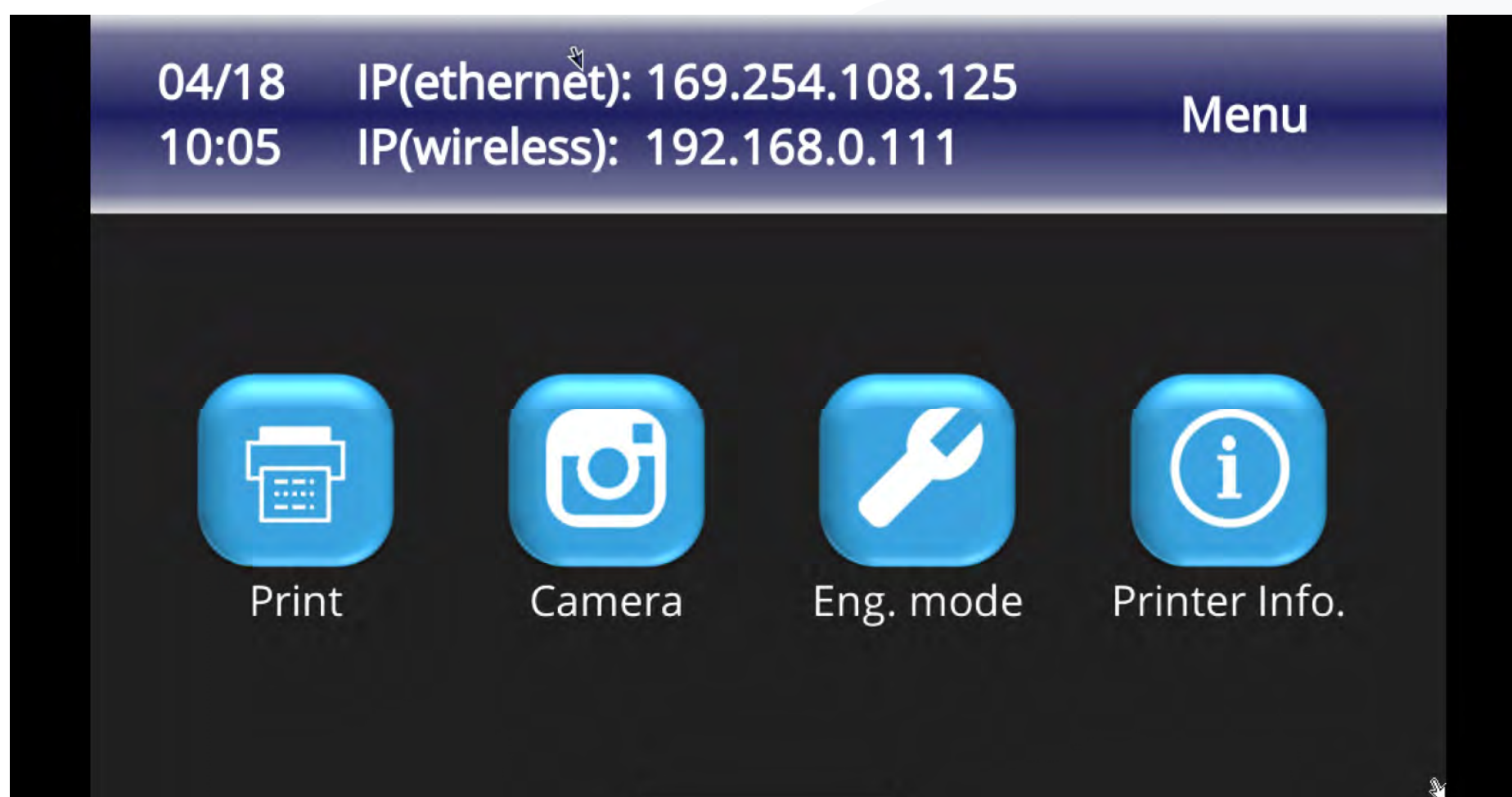
File Name	Print Thickness(um)	Curing Time(s)	
DUAL_RUNIN	50	1.50	
Gap Adj.(mm)	Base Curing Time(s)	Base Layers	Buffer Layers
0.000	5.00	1	3
Speed	Print Delay(s)	Start Time	Power Ratio
file	1	2019/05/17 19:55:10	1.00(L:810,R:761)
End Time		Total Layer	
2019/05/18 05:19:38		3788	

File Name	Print Thickness(um)	Curing Time(s)	
DUAL_RUNIN	50	1.50	
Gap Adj.(mm)	Base Curing Time(s)	Base Layers	Buffer Layers
0.000	5.00	1	3
Speed	Print Delay(s)	Start Time	Power Ratio
file	1	2019/05/17 09:17:02	1.00(L:810,R:767)
Stop Time		Total Layer	
2019/05/17 17:37:22		3392(3788)	

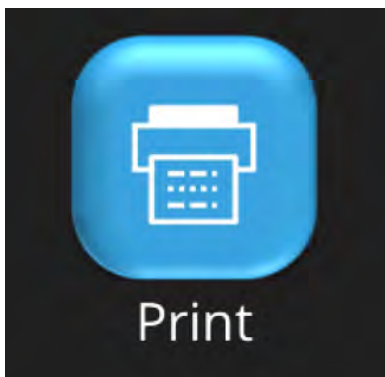
Record

Upload the latest Firmware package to upgrade printer firmware

Printer via touch panel



Printer via touch panel

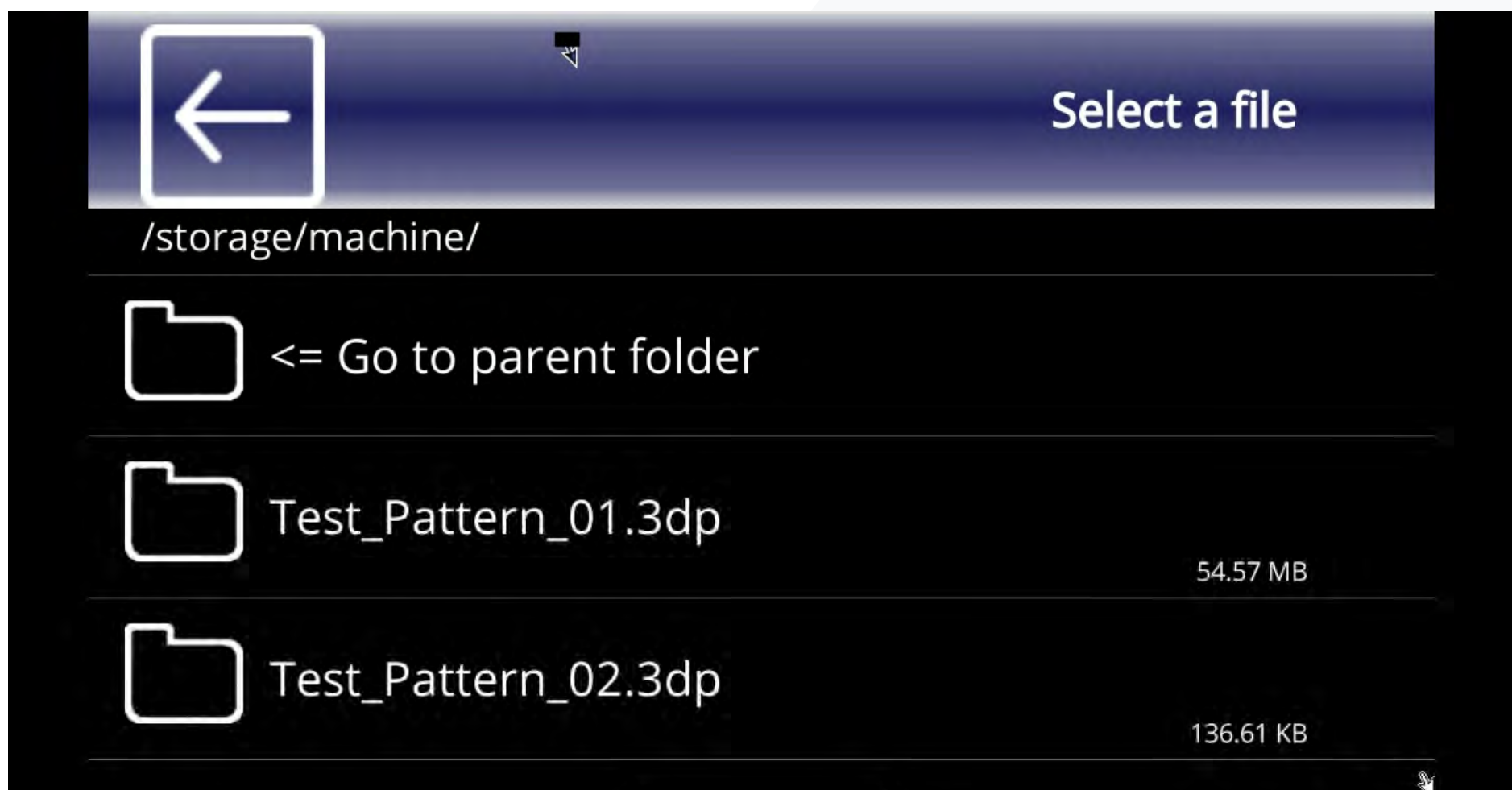


Choose a .3DP file from either:

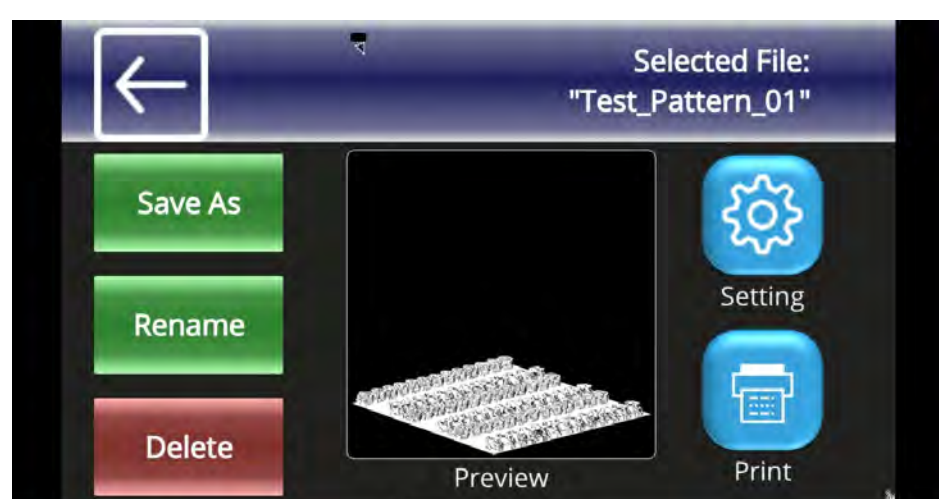
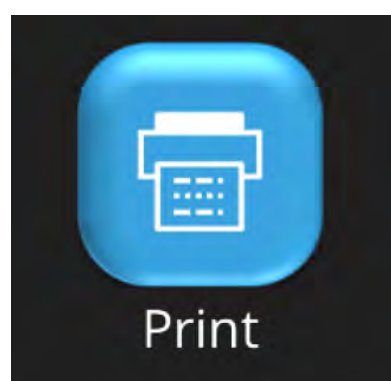
1. The machine (file saved in the printer), or
2. A USB drive (inserted into the printer).

File input size limitations:

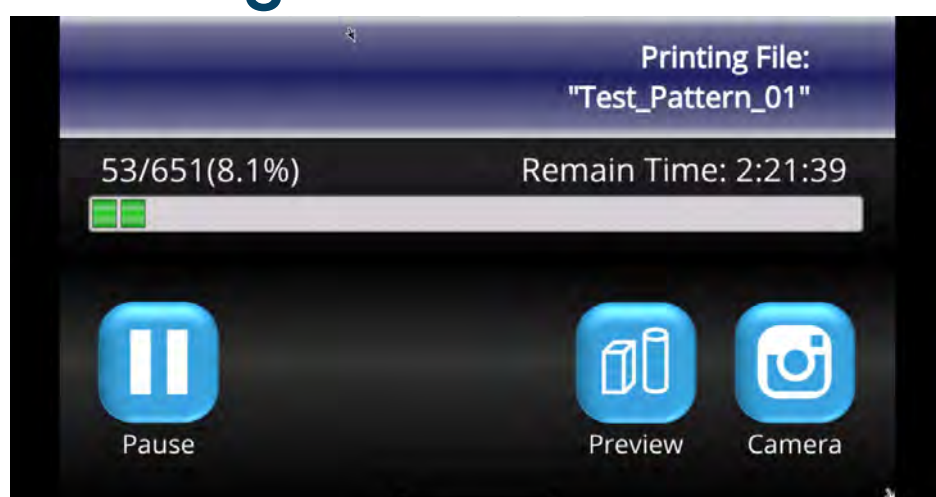
1. Uploading from the computer has a file limit of 500MB.
2. Uploading from a USB drive has a file limit of 1GB.



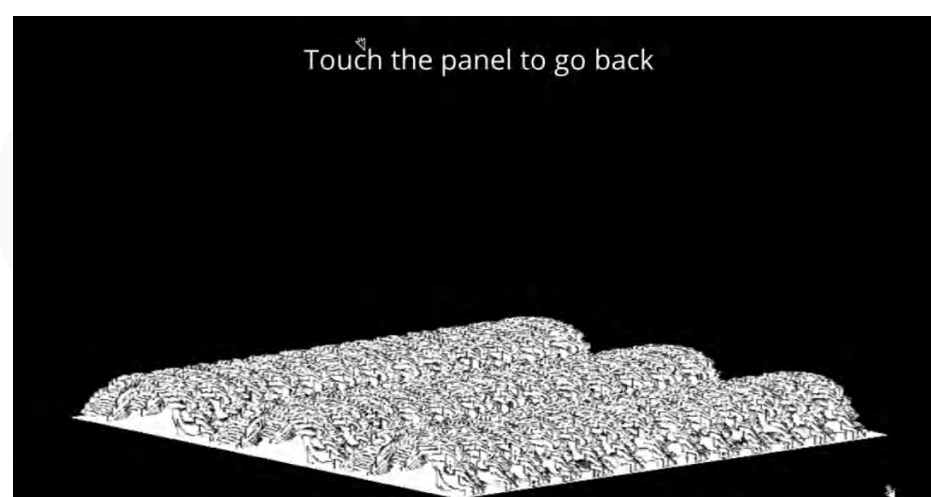
Printer via touch panel



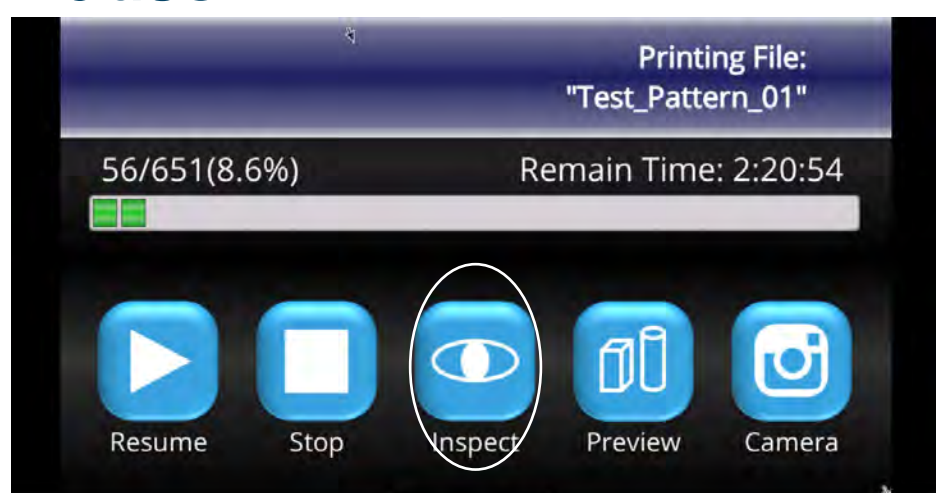
Printing



Preview

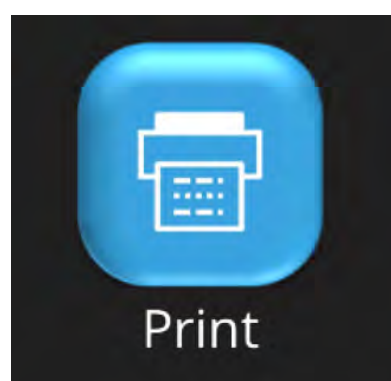


Pause



Let build platform
moving upwards for
inspect

Touch screen panel



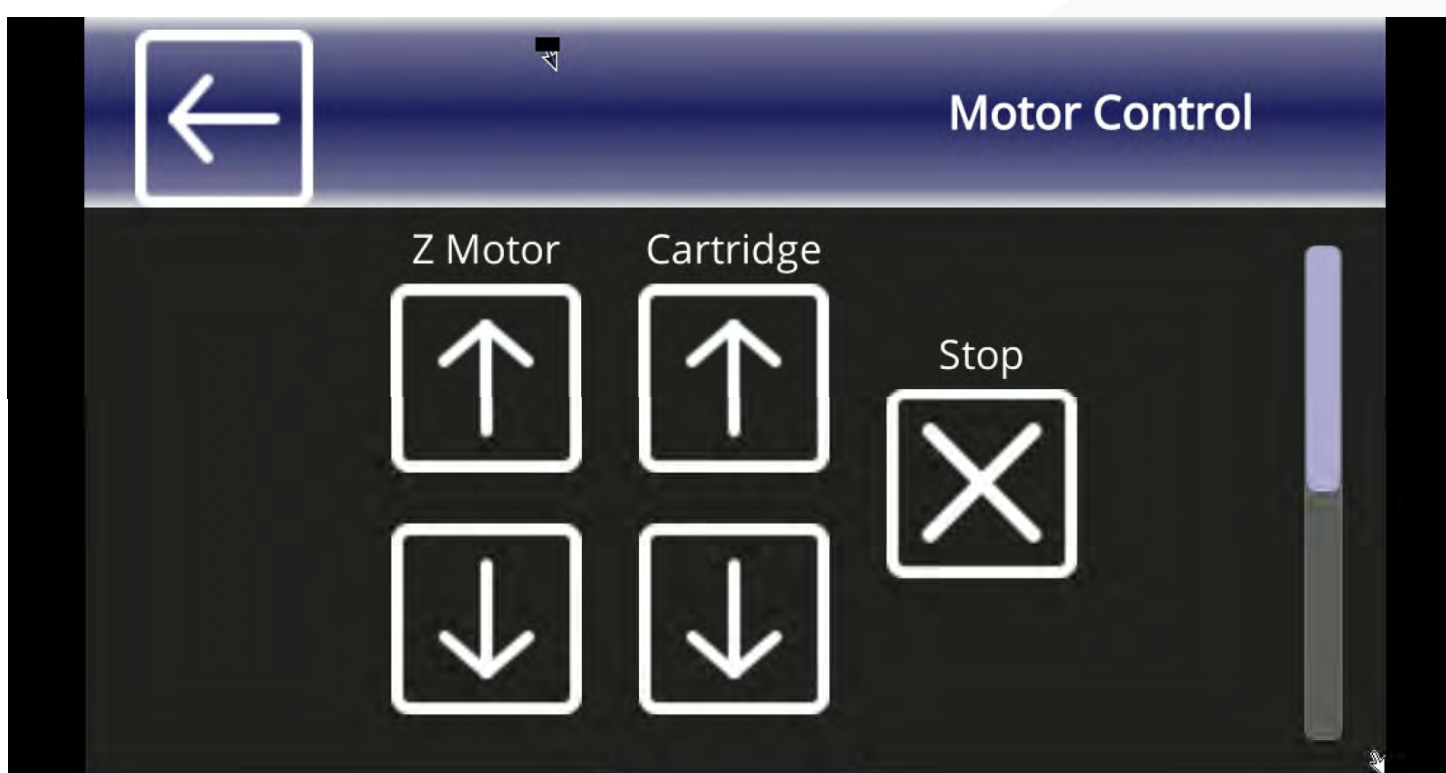
Upload the latest
Firmware package
to upgrade printer
firmware



Printing record

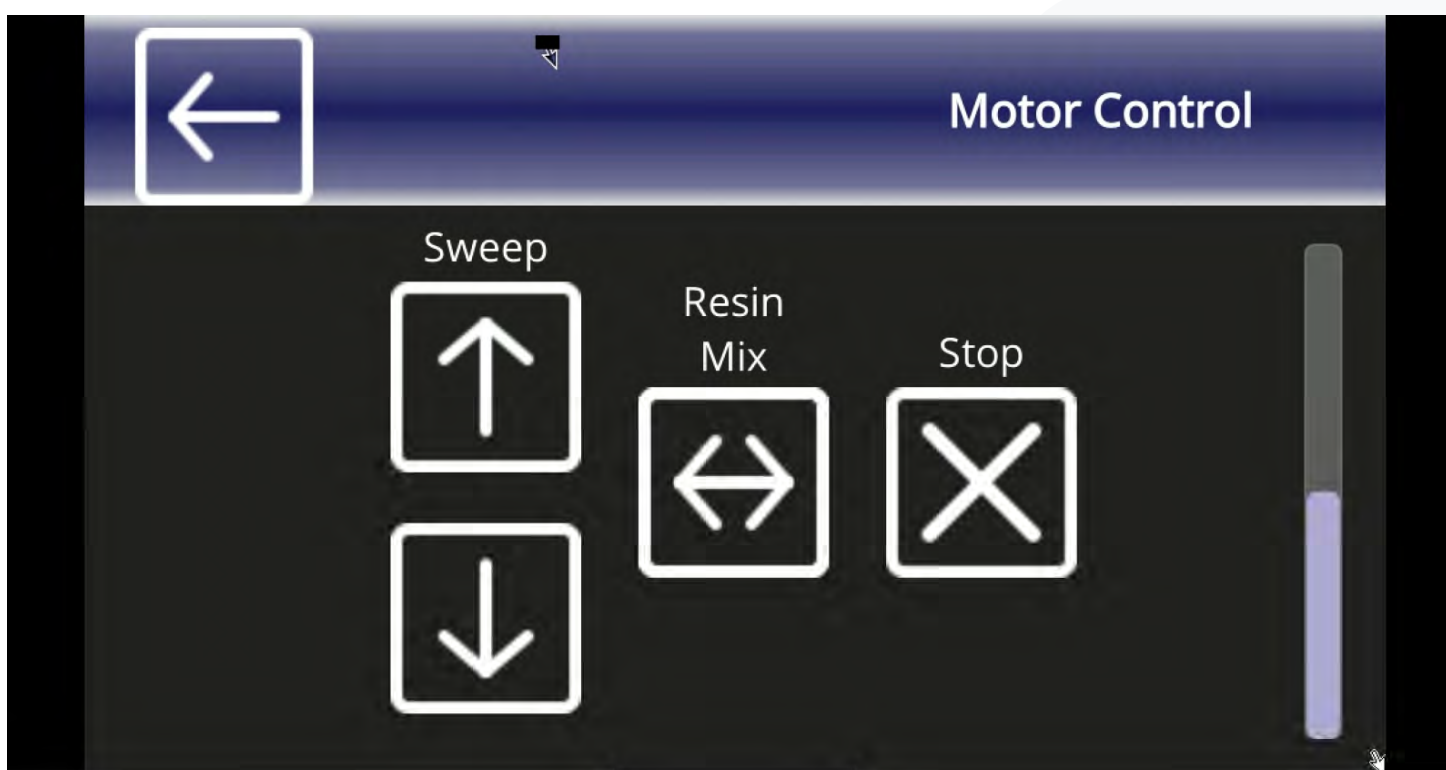
Search WiFi
Printer connect to Wifi

Touch screen panel



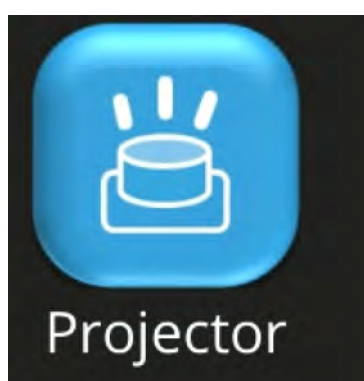
Control Z-platform (Build platform)

Control teflon module



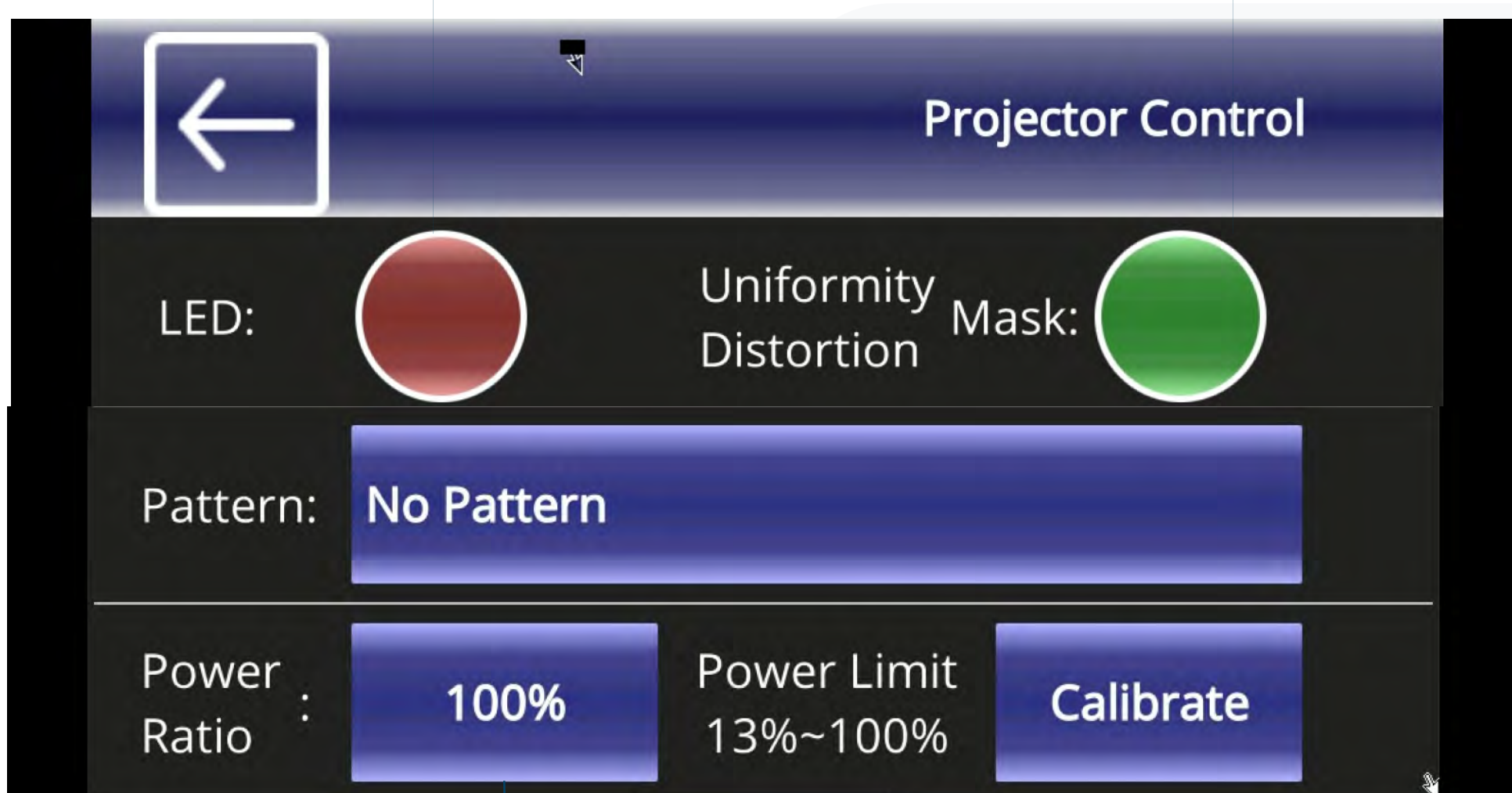
Control recoater blade

Touch screen panel



Select a pattern to project

Tick this option to apply printer calibration function

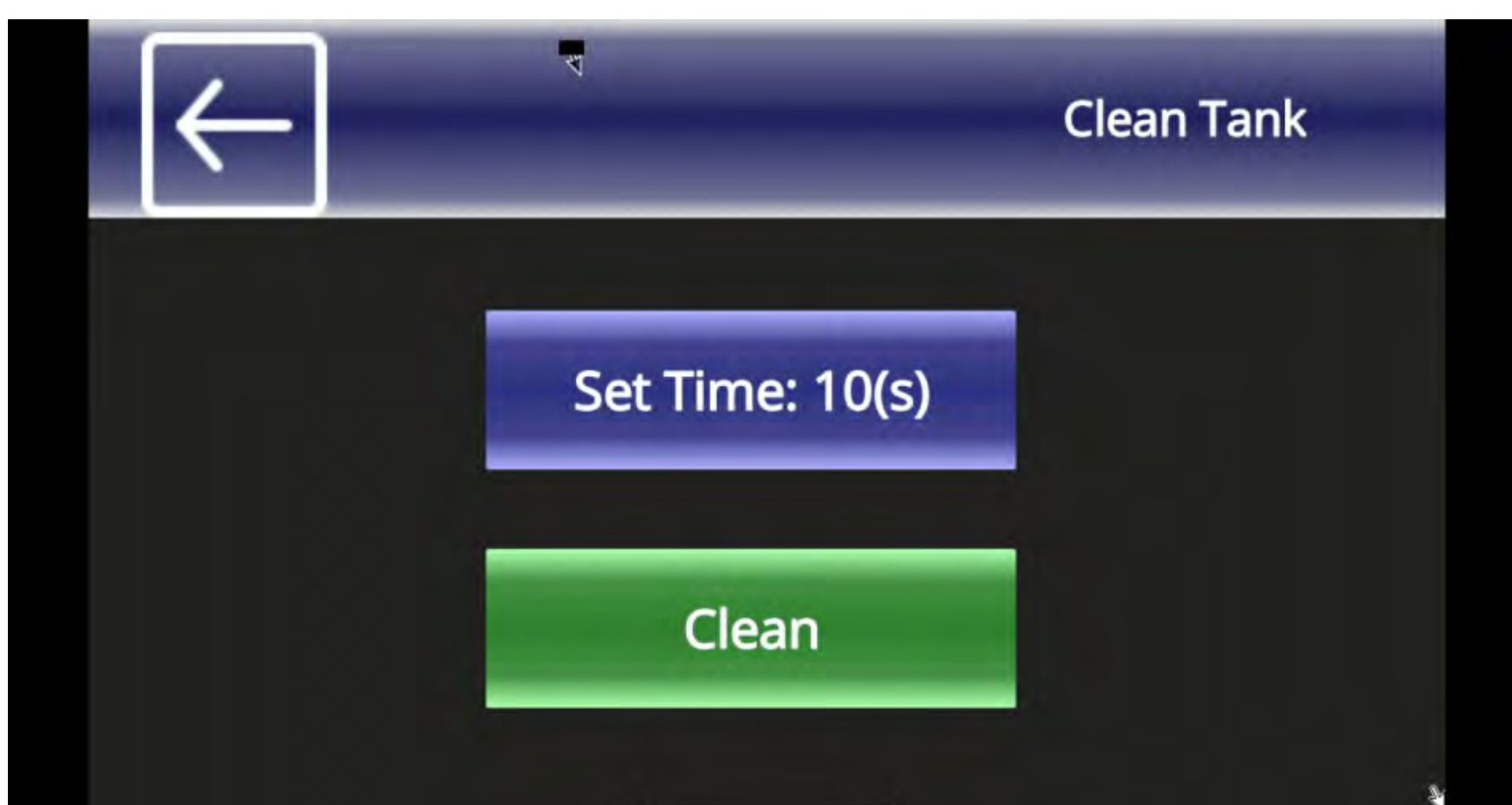


Select a pattern to project

Light(%): At 100% is the existing brightness of light engine. The suggest range is base on the printer's condition, user can only set the % within the suggest range

Reset to default setting of brightness

Touch screen panel



After a printing failure, it is essential to clean any residual material that may be stuck on the Teflon module before starting another printing job. Here are two methods to clean the residual material:

1. Utilize the "Clean tank" function on the touch panel. This function projects a complete pattern that transforms the residual material into a solid layer.
2. Use a scrape tool to gently lift and remove one side of the solid layer from the Teflon module, taking care to avoid damaging the module.

Touch screen panel

