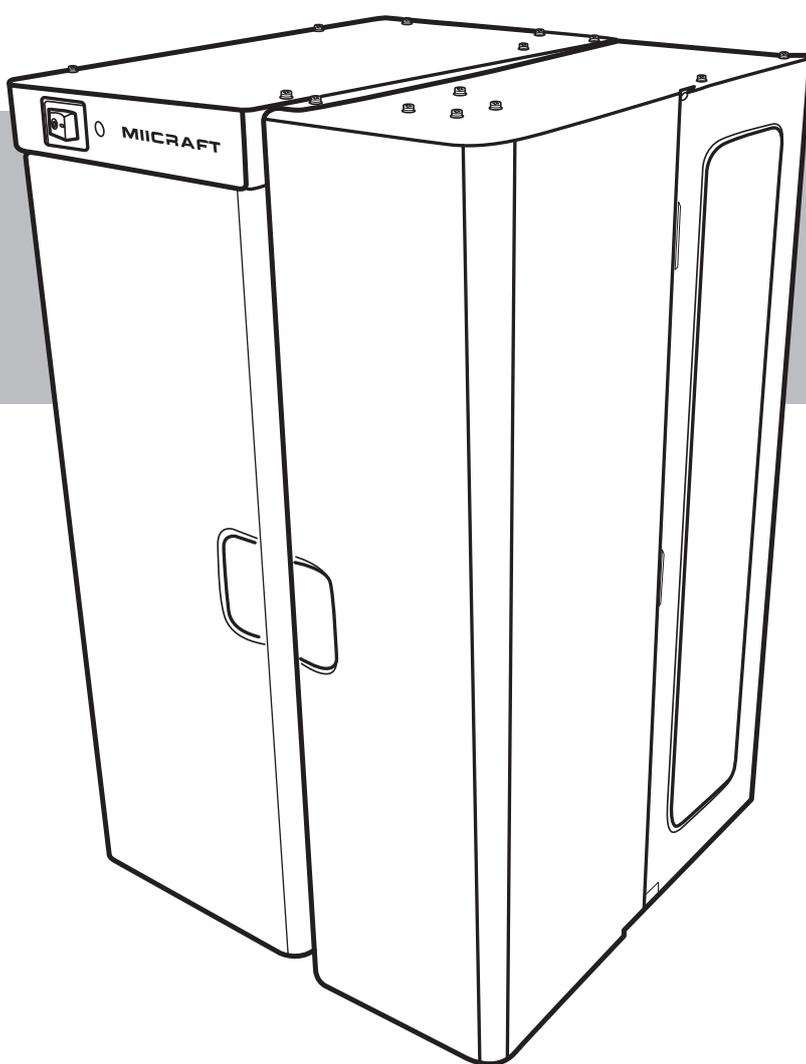


MIICRAFT

MiiCraft+ 3D Printer User's Manual



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.

COMPLIANCE

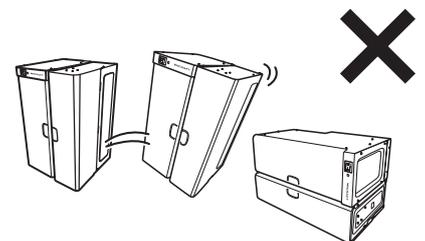
This equipment conforms with International Electric Committee (IEC) 60950-1 and meets the requirements of the applicable EC directives.



Safety Precautions

Please read through the following **Safety Precautions** before you start using your printer.

- Use only the power adapter and accessories provided by the manufacturer.
- Before plugging the power adapter into an electrical outlet, verify the local power rating conforms with the specified voltage and frequency.
- This printer needs a grounded, 1-phase electrical power source with a service rating of 100-240 VAC~50/60 Hz, 2A (maximum).
- Make sure power and communication cables are well managed to prevent from tripping.
- Only use resins supplied by MiiCraft manufacturer. Use of other unauthorized resins may cause printing failure.
- Do not expose the resin tank to direct light source because the resin will solidify under UV light.
- Chemical substances like resin may cause skin irritation, please read the guidelines in Material Safety Data Sheet (MSDS) of the resin supplied by manufacturer. It is recommended to wear gloves when necessary.
- When moving the printer for a long distance, be sure to withdraw the remaining resin in reaction tank and clean the tank in advance to prevent from resin overflow. (refer to page 31)
- Keep doors closed during printing or curing to prevent UV leakage.
- UV light may cause injury of eyes, do not stare into the printer directly when it is in operation. It is recommended to wear UV protective glasses during operating the printer.
- Place the device on a level surface and keep the printer in an upright position at all times.



- When moving the printer, always have at least one hand to support the bottom part of the printer.
- Do not store the printer in extreme hot and cold temperatures.
- Do not disassemble or repair the device yourself. Doing so may cause device malfunction or danger.
- Dispose the used UV lamp properly according to local regulations.

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INTRODUCTION

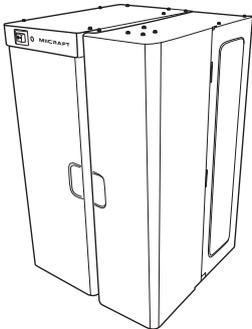
Congratulations on purchasing MiiCraft+ 3D printer. This MiiCraft+ printer has been specifically designed to enable users to become more creative and more productive. The technology utilized on this printer is SLA (Stereo Lithography Apparatus) by using DLP projector.

Features

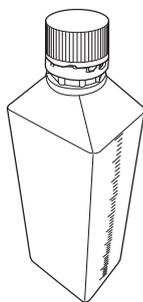
- A compact stereolithography (SLA/DLP) 3D printer
- Available as an all-in-one unit, combining 3D printer, post-curing device and auto-feeding mechanism
- Sturdy and robust mechanical design
- Highly accurate
- Reliable printing
- Automatic resin supply system
- Portable

Package Contents

Carefully unpack your package and make sure that you have the following items.



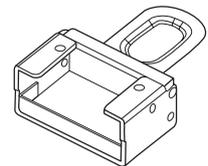
3D printer



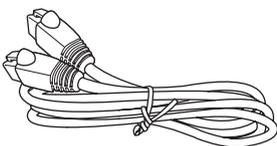
Resin cartridge



Tube holder



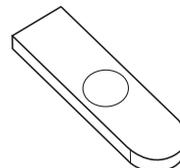
Picker (2 pcs)



RJ-45 cable



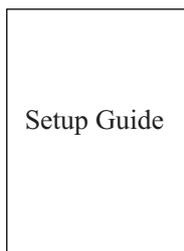
Film module (6 pcs)



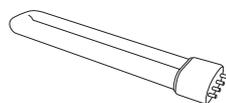
Paper scraper



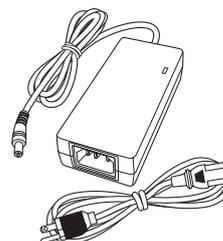
Mini sucker



Setup Guide

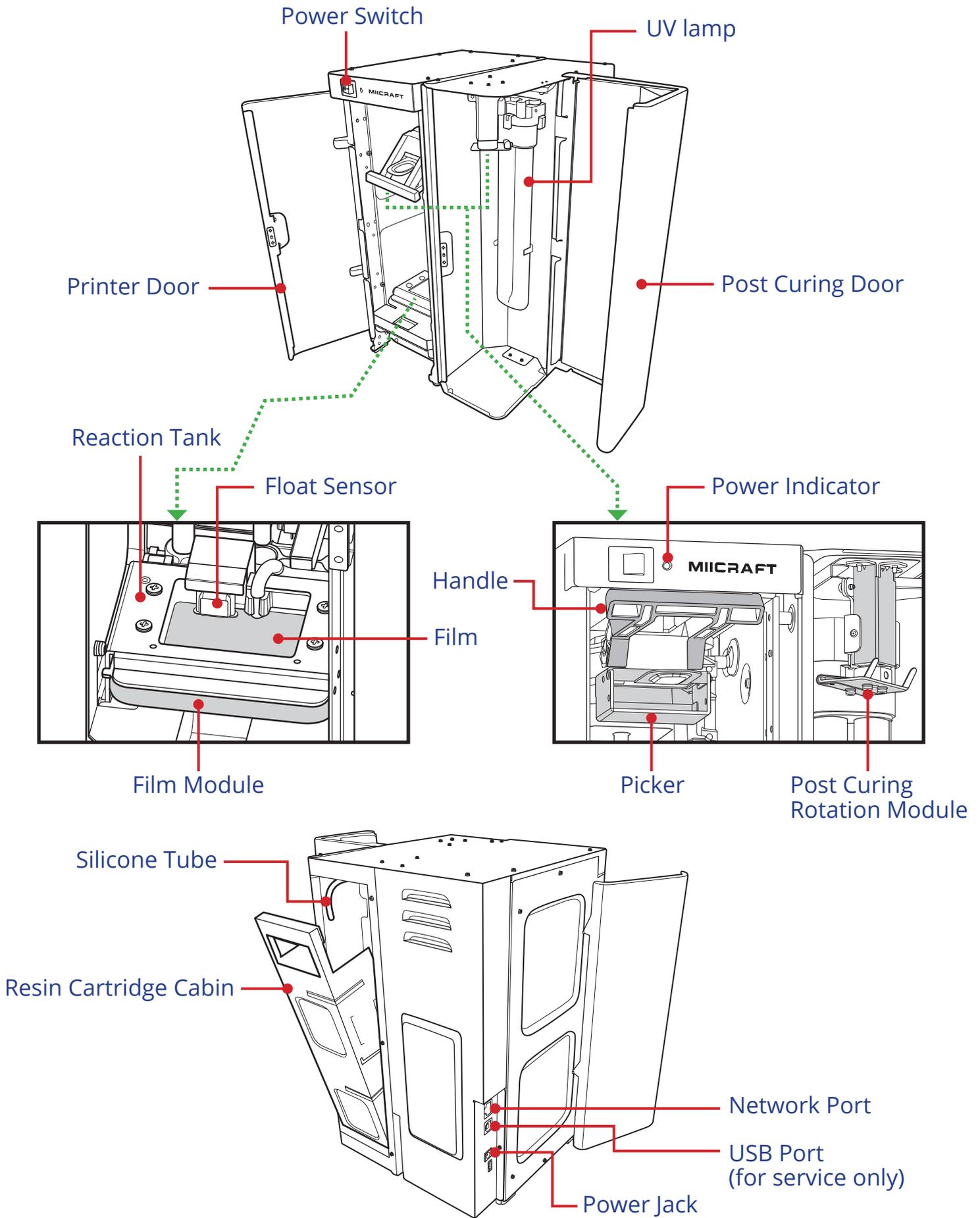


UV lamp



Power adapter & cord

Product Overview



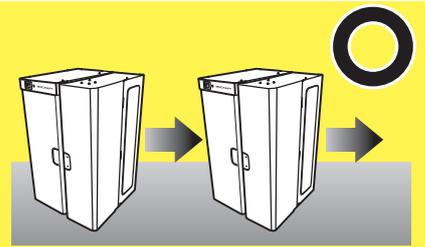
SETTING UP YOUR 3D PRINTER

This section provides detailed instructions for setting up your printer.



IMPORTANT!

Place your printer on a level surface and keep your printer in an upright position at all times.



Installing the Picker

It is important to make sure the picker is properly installed into the holder before you start printing.

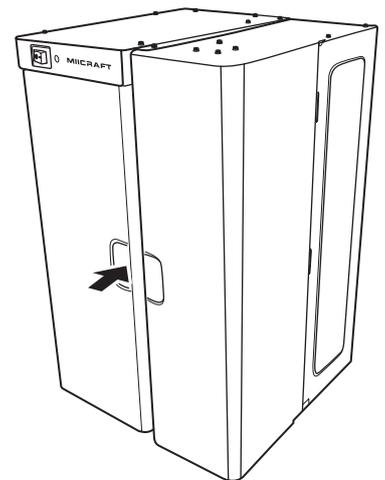


Note:

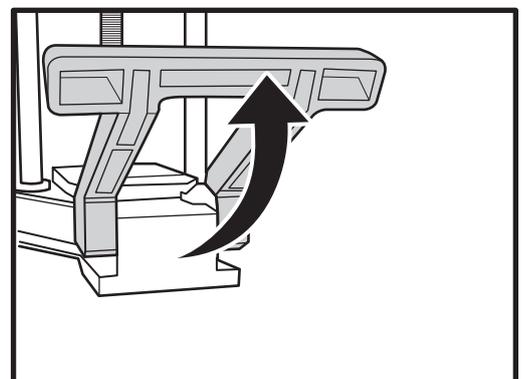
- *Before installing the picker, make sure the surface of the picker is clean. (refer to "Cleaning the Picker" on page 33.)*

To install the picker, perform the following:

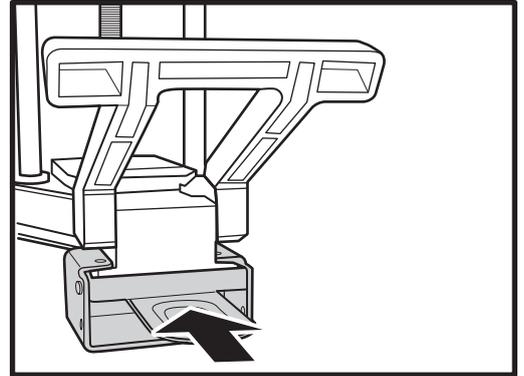
1 Open the printer door.



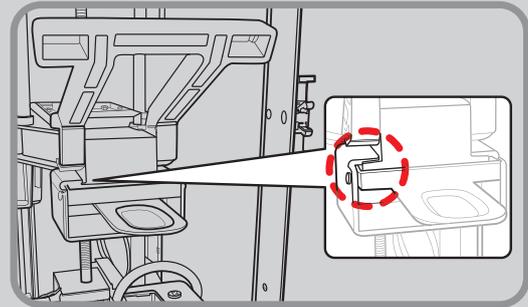
2 Lift the handle.



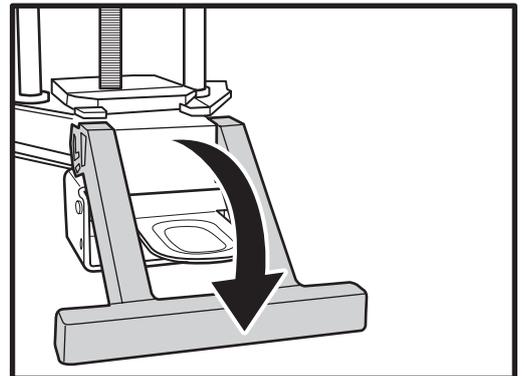
- 3** Install the picker into the holder as shown in the illustration.



Make sure the picker is properly seated before pulling the handle down.



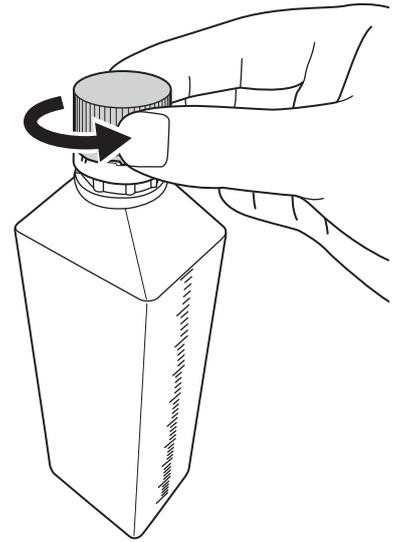
- 4** Pull the handle down to secure the picker position into place.



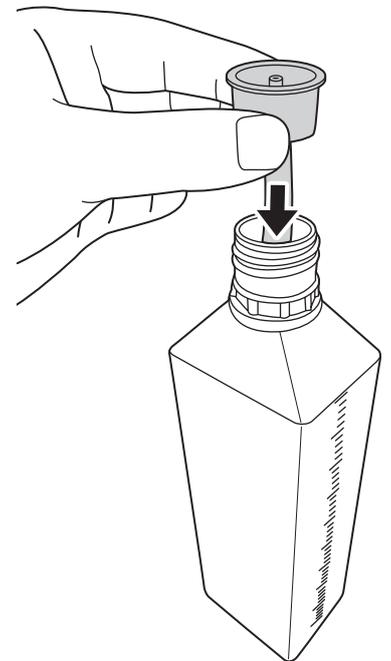
Installing the Resin Cartridge

To install the resin cartridge, perform the following:

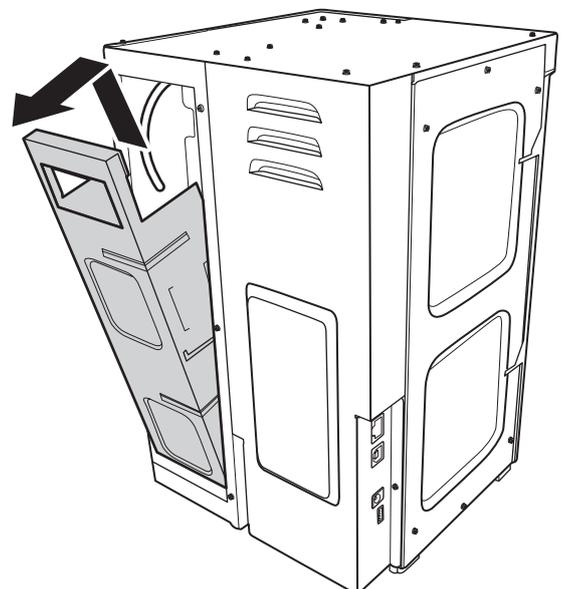
1 Remove the cap of the resin cartridge.



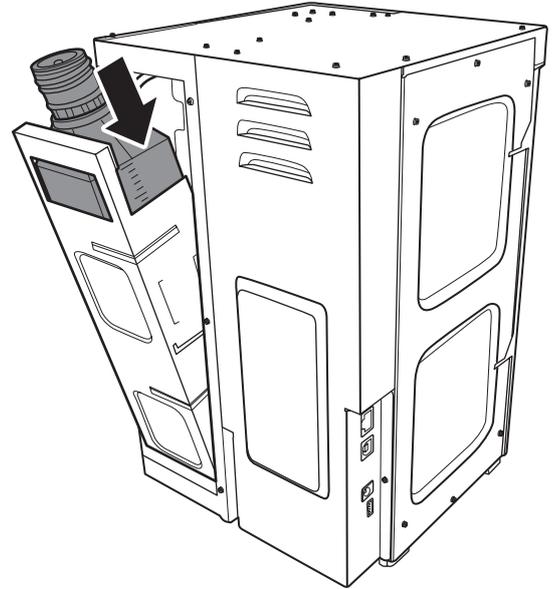
2 Insert the tube holder into the resin cartridge.



3 Open the resin cartridge cabin.

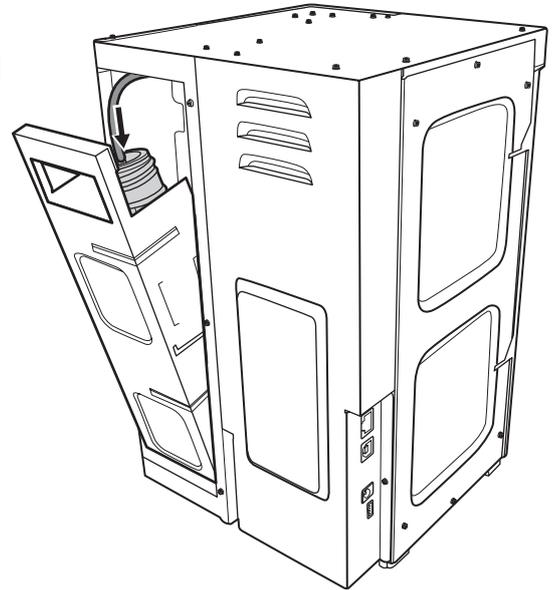


4 Place the resin cartridge into its cabin.



5 Insert the silicone tube into the tube holder.
Make sure the silicone tube is securely attached to the tube holder.

6 Close the resin cartridge cabin.

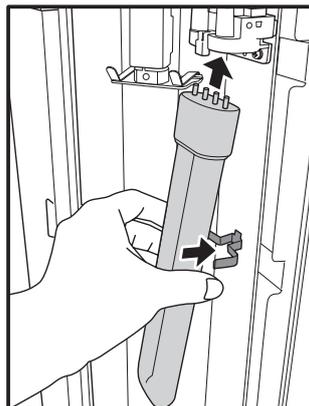


Installing the UV Lamp in the Curing Room

To install the UV lamp, perform the following:

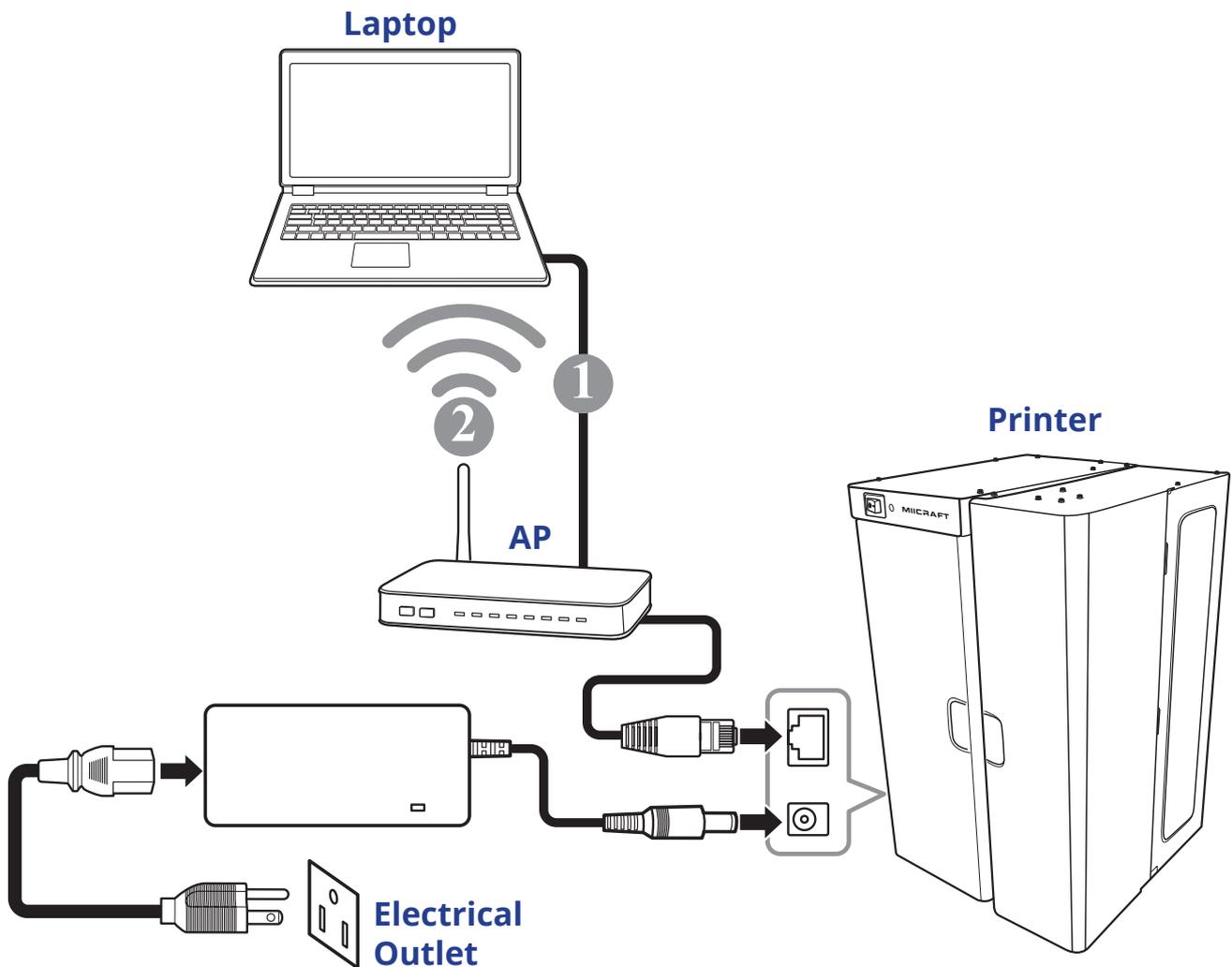
1 Open the post curing door.

2 Install the UV lamp into the lamp holder until it snaps into place.



Connecting to the Power Adapter and RJ-45 Cable

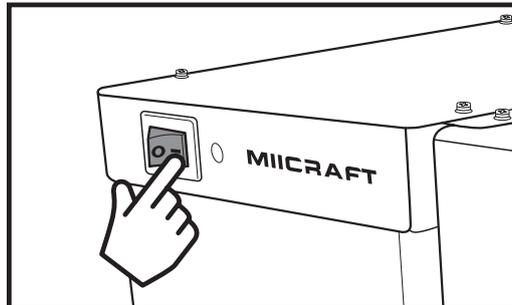
- 1 Connect the power cord and adapter to your device, and then plug it into an electrical outlet.
- 2 Connect your printer to an AP (access point) using a RJ-45 cable.
- 3 Connect your laptop to the AP either:
 - ✓ using a RJ-45 cable (**1**).
 - ✓ via Wi-Fi network (**2**).



OPERATING YOUR 3D PRINTER

Power On

To turn your printer on, set the **Power** switch to the **ON** position.



The system starts warming up and the *Power indicator* lights purple. Wait a few minutes. When the *Power indicator* turns blue, this indicates the printer is ready to use.

About the Power Indicator

Color	Behavior	Printer Status
Purple	Solid	System warms up
Blue	Solid	Standby mode
	Blinking	<ul style="list-style-type: none">• Preparing for printing• Printing in progress
Red	Solid	Error

Installing MiiCraft+ Searcher Software

With **MiiCraft+ Searcher** software, you can find IP address of available MiiCraft+ in your LAN (Local Area Network).

Download Software

System Requirements

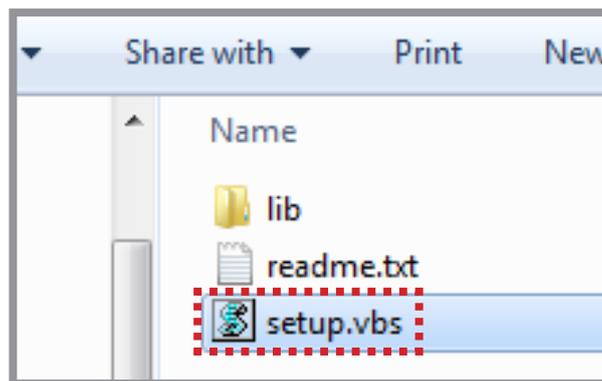
- Windows OS: Windows 7 and Windows 8
- Browser: Google Chrome or Firefox

1 Download the **MiiCraft+ Searcher** software at <http://www.miicraft.com/support/>.

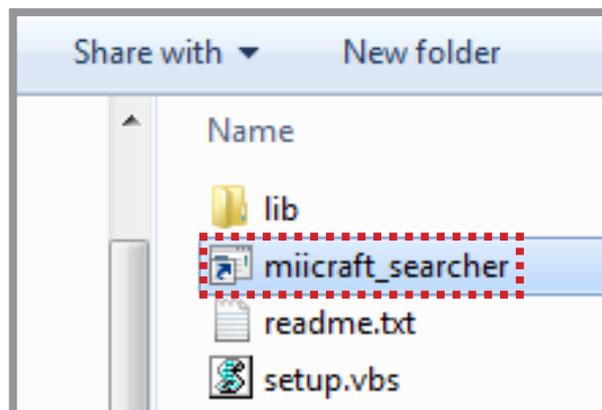
2 Unzip the file and save the software on your computer.

Establish Connection

1 Use **setup.vbs** to create the link (**MiiCraft+ Searcher** shortcut).

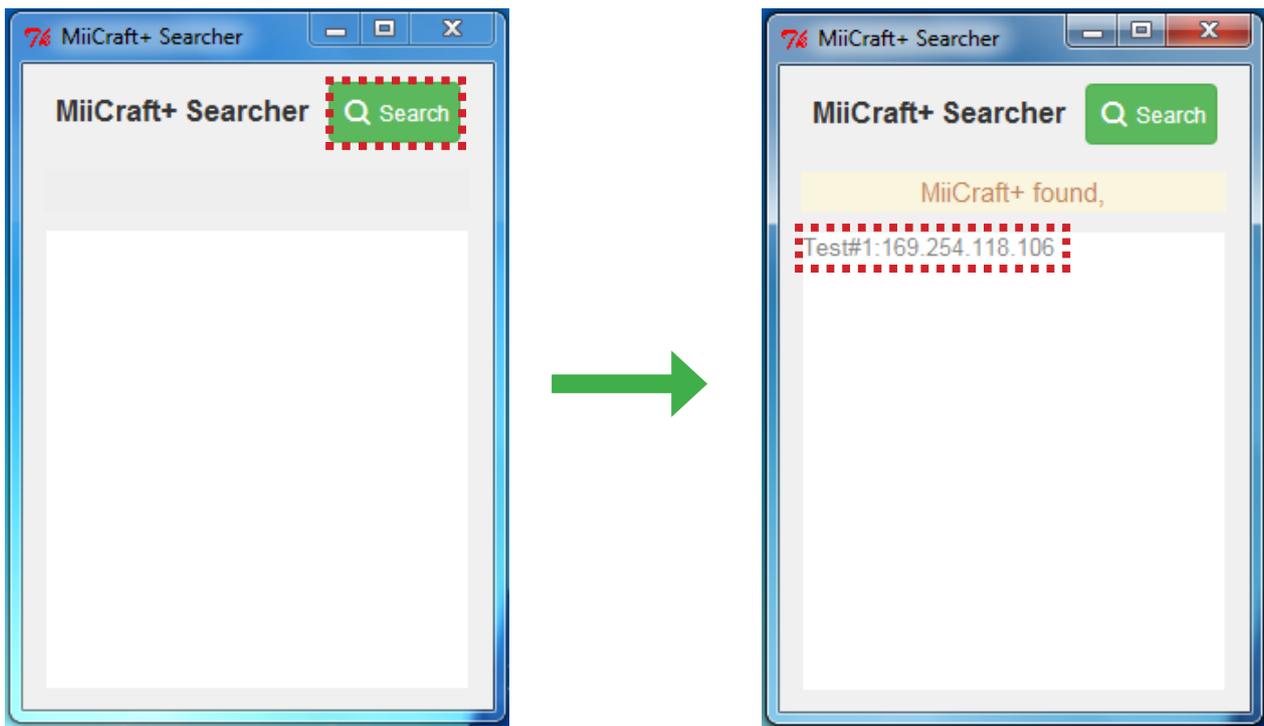


2 Double-click "**miicraft_searcher.lnk**" (**MiiCraft+ Searcher** shortcut) to launch to program.

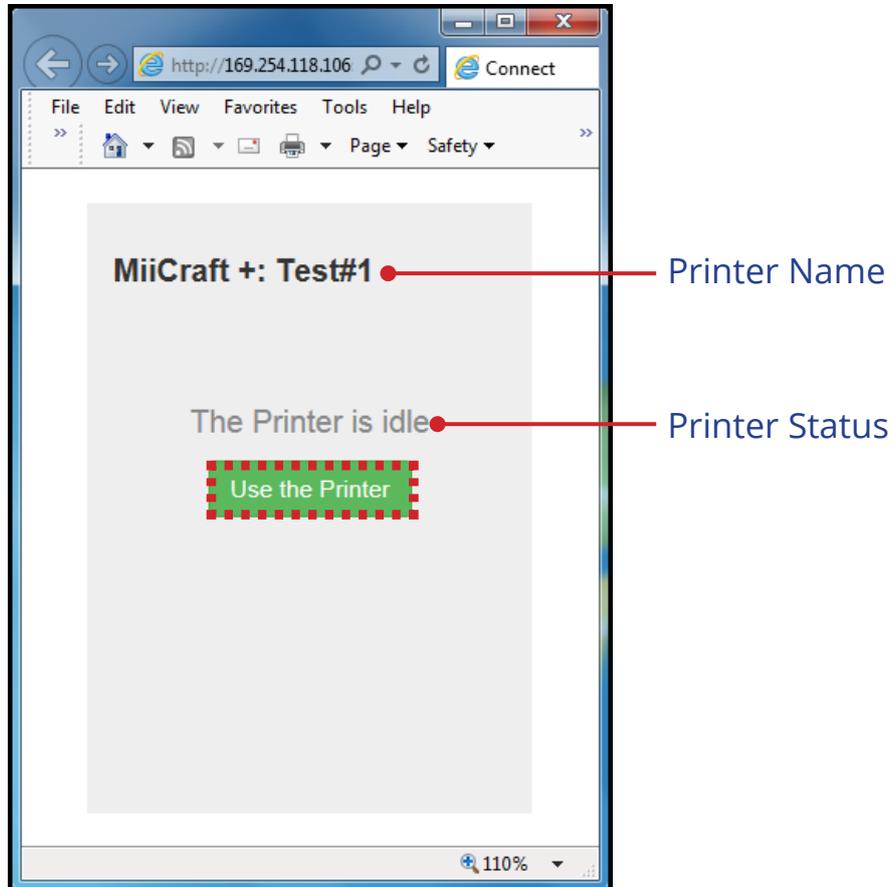


3 The main screen appears. Then click **Search** to search your printer.

4 Click the desired printer to connect.



5 The web browser opens and click **Use the Printer** to enter the *Printer Control* main page.

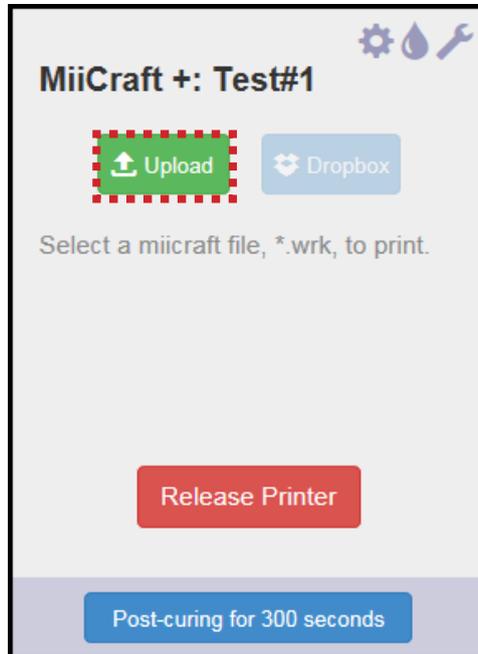


Printing

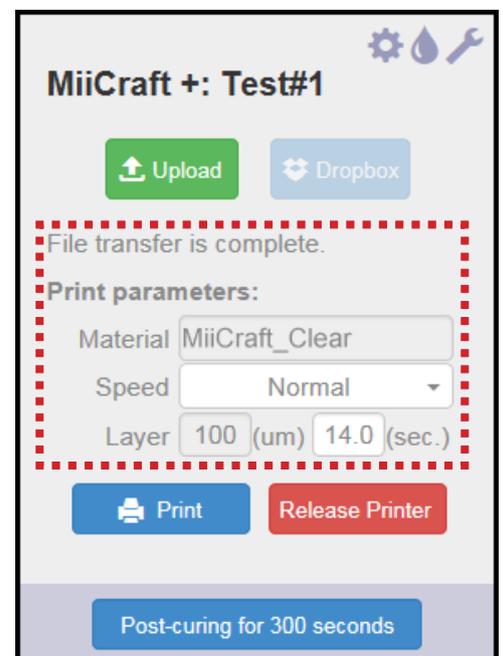
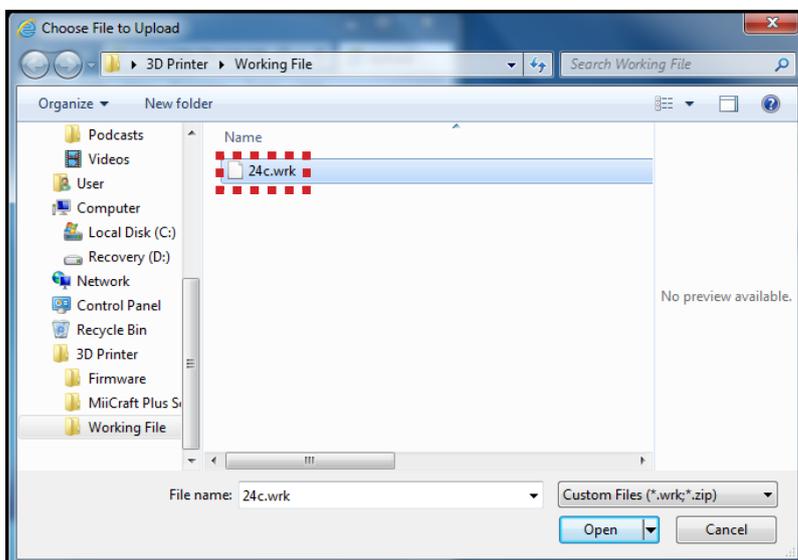
Upload Image File

To print a 3D model, perform the following:

1 Click **Upload**.



2 Select an object slicing file (*.slc generated by MiiUtility^{Remark1} or *.zip transferred from MiiCraft Suite^{Remark2}). The print parameters screen appears when the file transfer is complete.



Note:

- *Remark1 - MiiUtility is a bundled software that comes with MiiCraft+. This software enables object arrangement, generates the support structure, and generates slice file; with an output file format name *.slc. (For more information*

about this software, please refer to “MiiUtility User guide” on www.miicraft.com/support/).

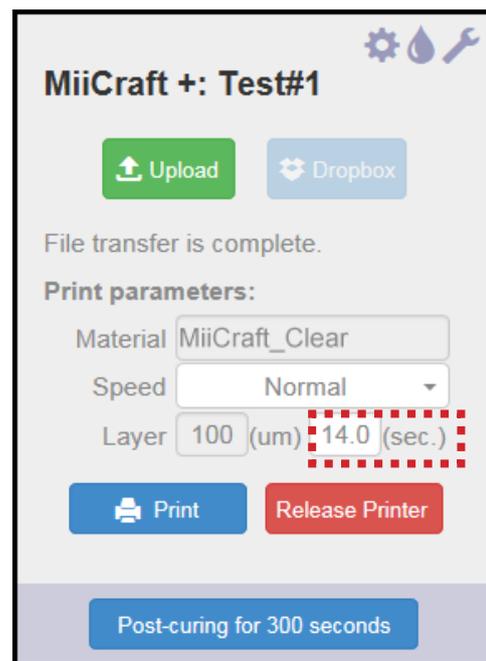
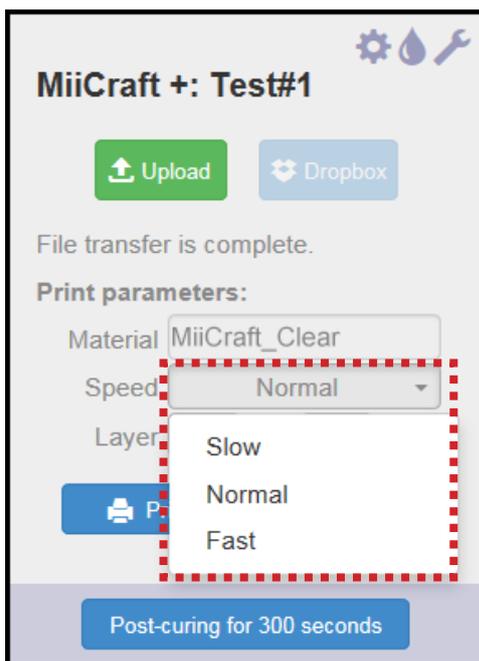
- **Remark2-** MiiCraft Suite is the bundled software that comes with MiiCraft. This software enables .slc file converted into an accessible format (* .zip) for MiiCraft+ using a **Transfer** program. (For details, please visit www.miicraft.com/support/)

Configure Printing Settings

Before printing, you can configure several printing settings.

On the **Print parameters** section, do the following:

- **Material:** Display the resin type.
- **Speed:** Select the desired printing speed.
- **Layer:** Display the specified layer thickness to be printed per predefined time. You can change the curing time setting here.

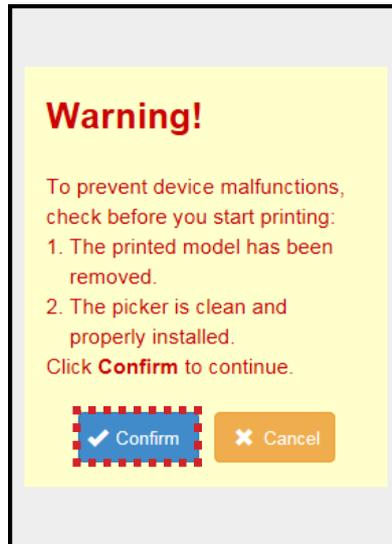


Note:

- By default, the number of layer to be printed is defined when creating the slicing file.
 - ✓ The data shown on the **Layer** option is fixed value of a multiple of 5. For example, if the original thickness value is 101, then it will be automatically converted to 100.

Start Printing

On the **Print parameters** section, click **Print**. A warning message appears on the screen.



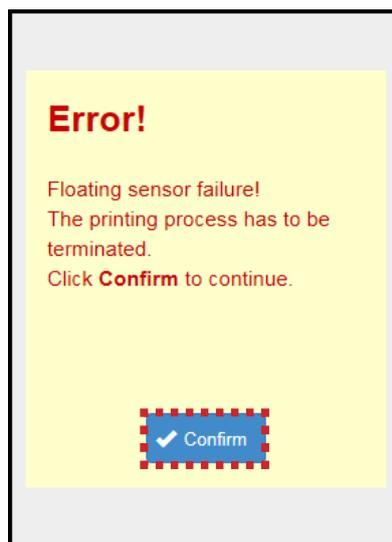
Click **Confirm** to proceed with printing process.

The system will start pumping in the resin into the reaction tank and begin printing once it is filled.

⚠ CAUTION

Once the tank is filled with resin, do not expose it to direct sunlight. UV radiation in sunlight may cause the resin solidified.

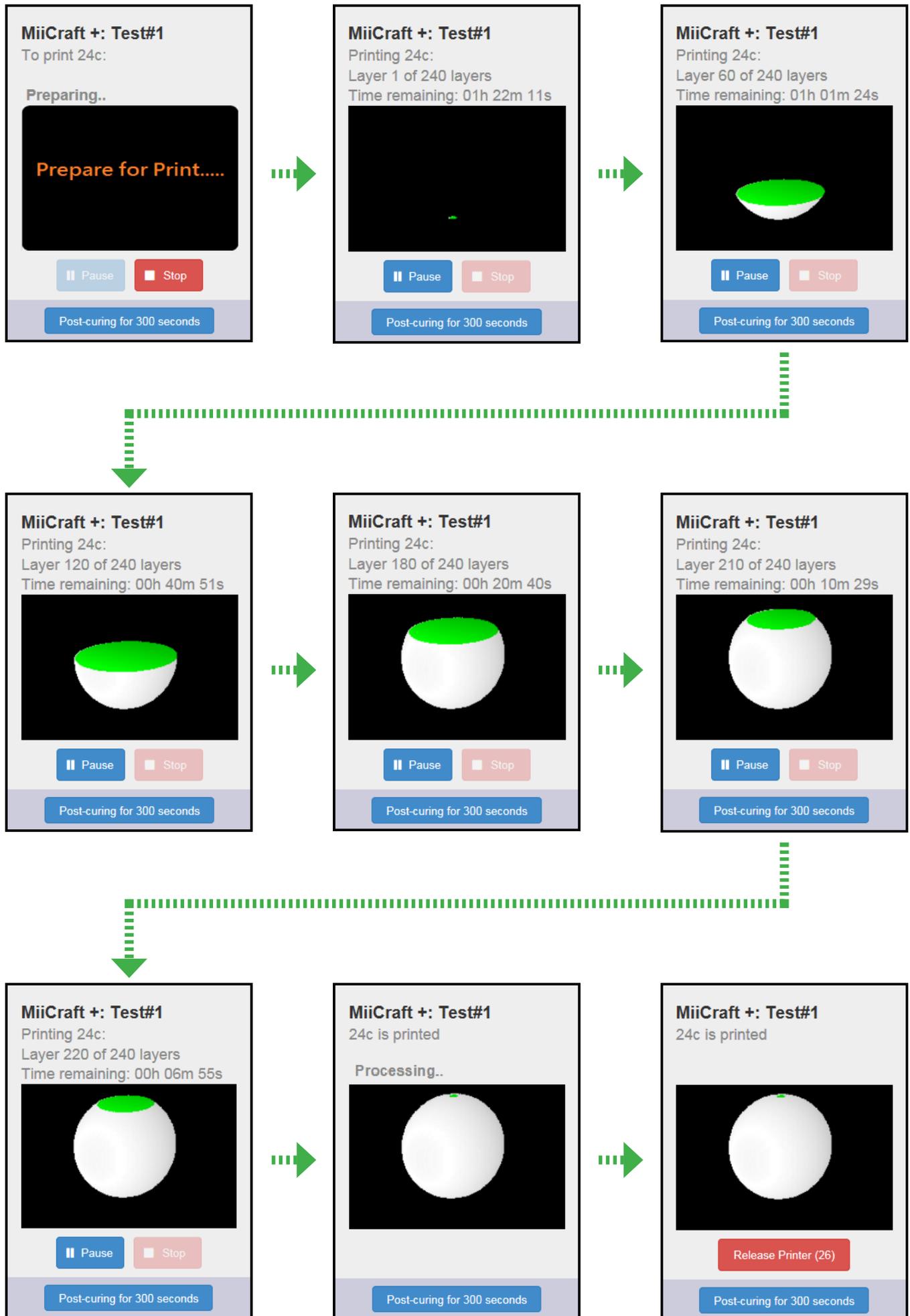
If below error message appears on the screen, this indicates the floating sensor is dirty.



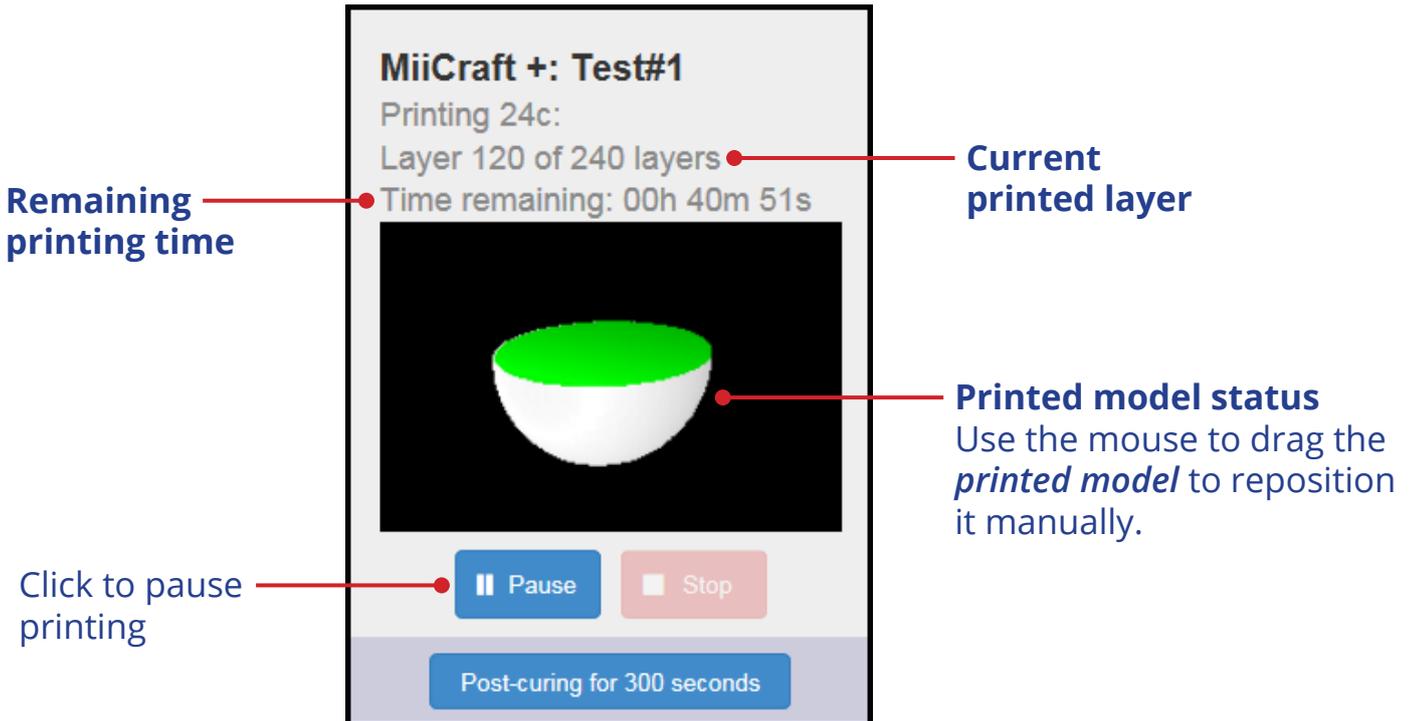
Click **Confirm** to stop printing. Clean the sensor first and then restart printing.

Use a soft cloth dipped in alcohol to clean the floating sensor. If the problem persists, please contact your dealer. We highly recommend you to clean the floating sensor once a week.

An example of printing process:

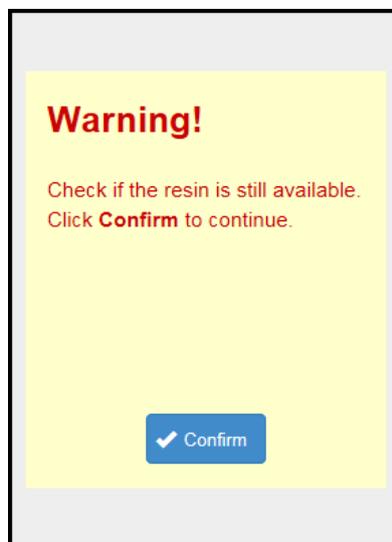


Printing Panel Overview



During printing, the system will check if there is enough resin after it completed printing on each layer.

When the system detects inadequate resin, a warning message appears on the screen.



Do the following:

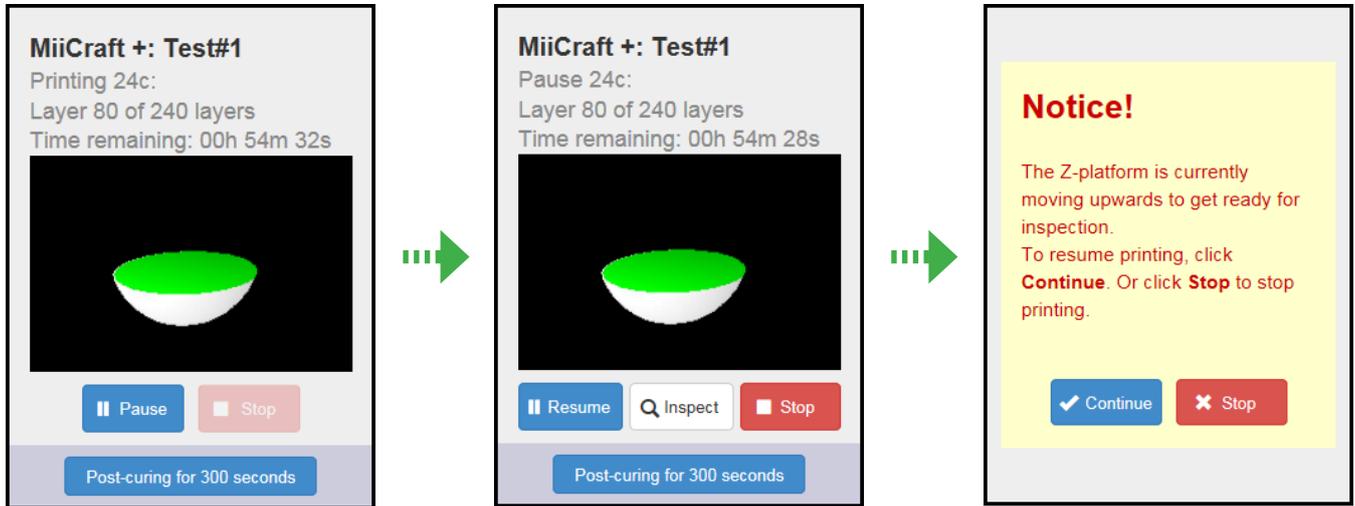
- ✓ Check the remaining resin inside the cartridge, **or**
- ✓ Change the resin cartridge if necessary.

Then click **Confirm** to continue printing.

Model Inspection

You can check the printed 3D model at anytime.

1 Click **Pause** to pause the printing process. Then click **Inspect**. A warning message appears on the screen.



2 Open the printer door.

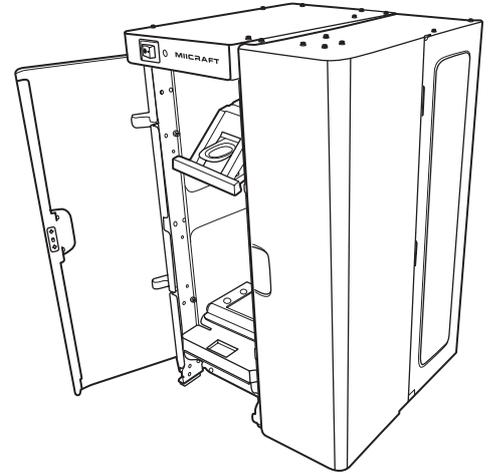
The Z-platform will automatically move upwards and stop.

3 When your inspection is complete, click **Continue** to resume printing. Otherwise, click **Stop** to stop printing.

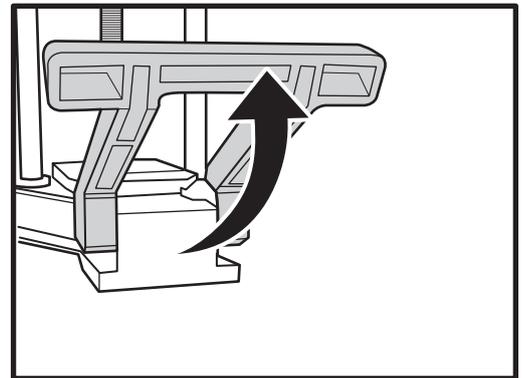
Removing and Cleaning the Picker with Printed Model

Once printing is complete, remove the picker carefully and then clean the picker with printed model.

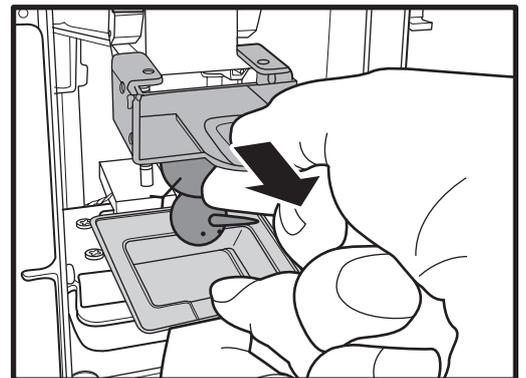
1 Open the printer door.



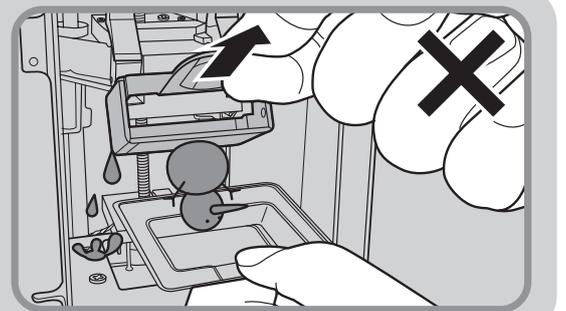
2 Lift the handle.



3 Remove the picker from the holder as shown in the illustration.



Carefully pull out the picker to avoid dripping leftover resin onto the printer hardware. Place the resin dripping box underneath to prevent pollution.



4 Pull the handle down and close the printer door.

5 Clean the excess resin on the printed model following the procedure below:

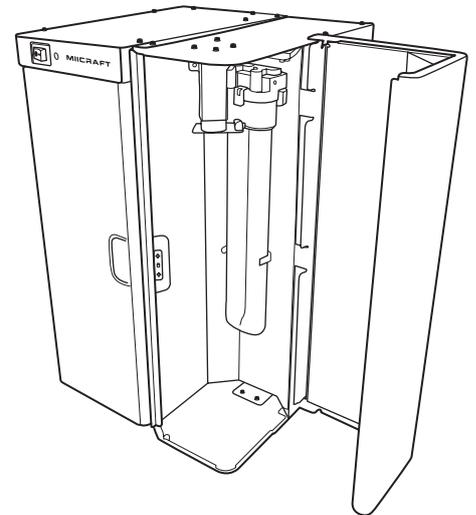
- Cleaning: Soak the printing part in alcohol for 5 minutes.
- Blowing: Gently blow away any residual resin and alcohol that may be left on the printed model using the air gun.

Curing

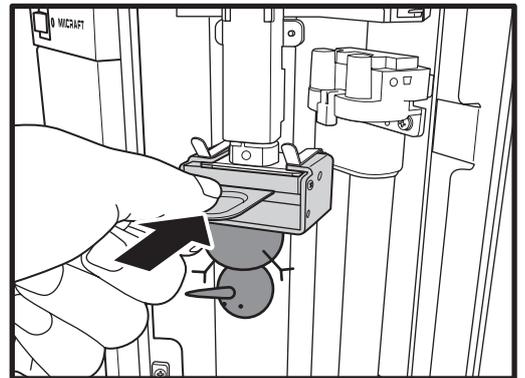
Install the Picker with Printed Model into the Curing Room

After cleaning the printed model, install it into the post curing rotation module.

1 Open the post curing door.

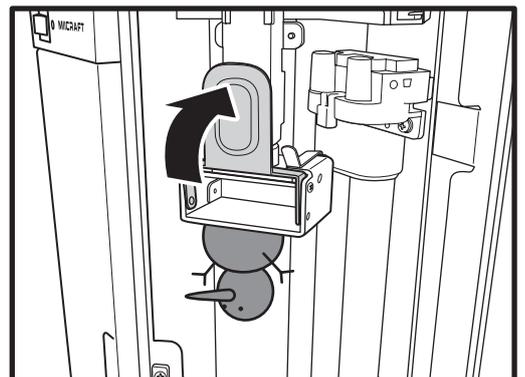


2 Install the picker into the post curing rotation module as shown in the illustration.



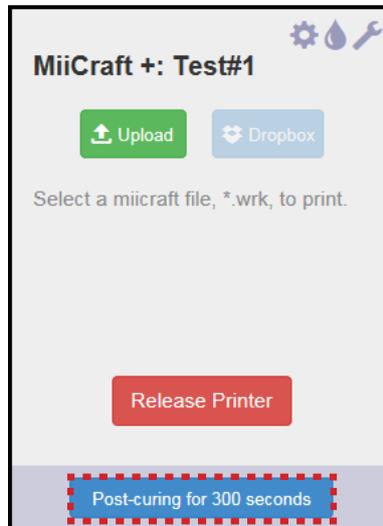
3 Flip the picker handle upwards to secure the picker position into place.

4 Close the post curing door.

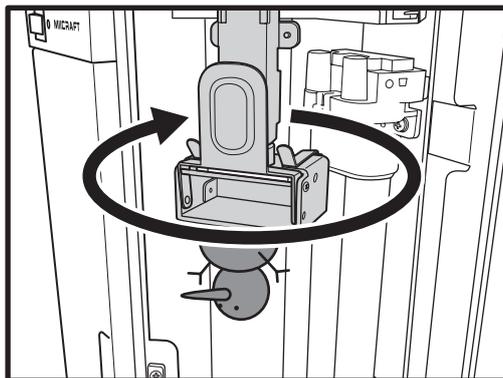


Start Post Curing

1 On the *Printer Control* page, click **Post-curing for 300 seconds**.

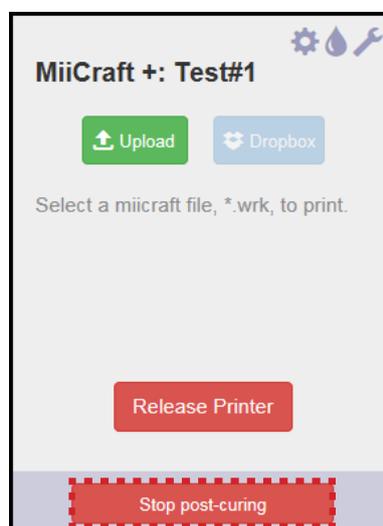


2 The post curing starts and the UV lamp will automatically turn on.



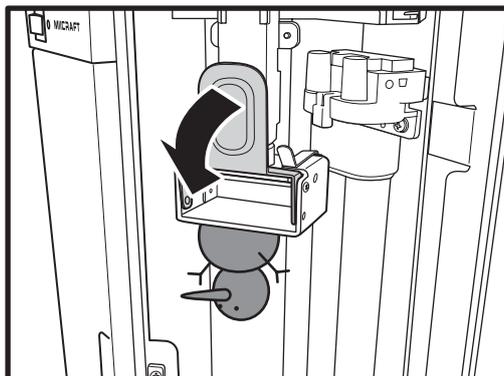
Note:

- You can check the post curing progress at any time. However, the UV lamp will automatically turn off every time you open the post curing door.
- To stop the post curing process, click **Stop post-curing**.

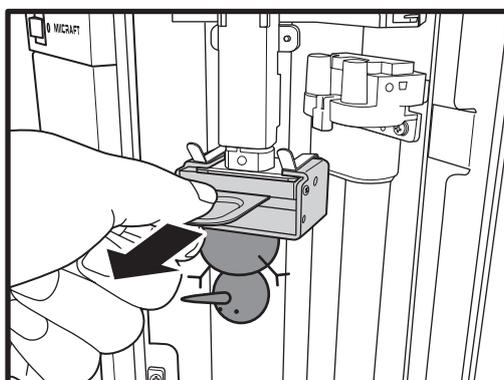


Remove the Printed Model

- 1 Open the post curing door.
- 2 Pull the picker handle down.



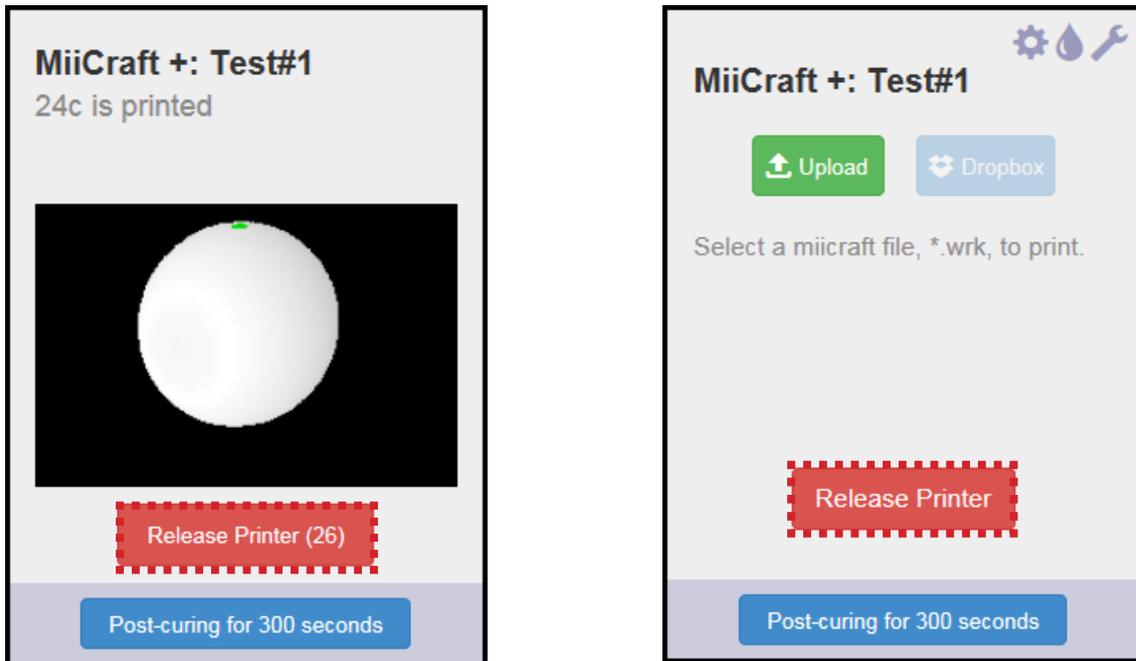
- 3 Remove the picker from the rotation module as shown in the illustration.



- 4 Carefully remove the printed model from the picker.
Then clean the picker. See "Cleaning the Picker" on page 33.

Release Printer

After you finished printing or you no longer want to use the printer, click **Release Printer** to allow other users to use the printer.



The system will automatically release the printer when:

- the printer is left idle for 15 minutes.
- the printer has completed the **“Clean Process”**. See **“Clean Process”** on page 28.

Advanced Settings

Rename Printer

You can customize your 3D printer name.

- 1 On the *Printer Control* page, click .
- 2 On the **Printer Name** option, enter the new label for your printer.



Note:

- *The printer serial number and light engine serial number are also displayed on the Setup page.*

The screenshot shows the 'Setup' page with a yellow background. At the top right is a 'Back' button. The 'Printer Name' field is highlighted with a red dashed border and contains 'Test#1'. Below it are 'Serial Number' (LF871A3840F) and 'LE S/N' (140827AT00077). There are input fields for 'Proxy', 'User Name', and 'Password'. At the bottom, the 'Firmware Version' is 1.0.00190, and there is a blue 'Upgrade Firmware' button.

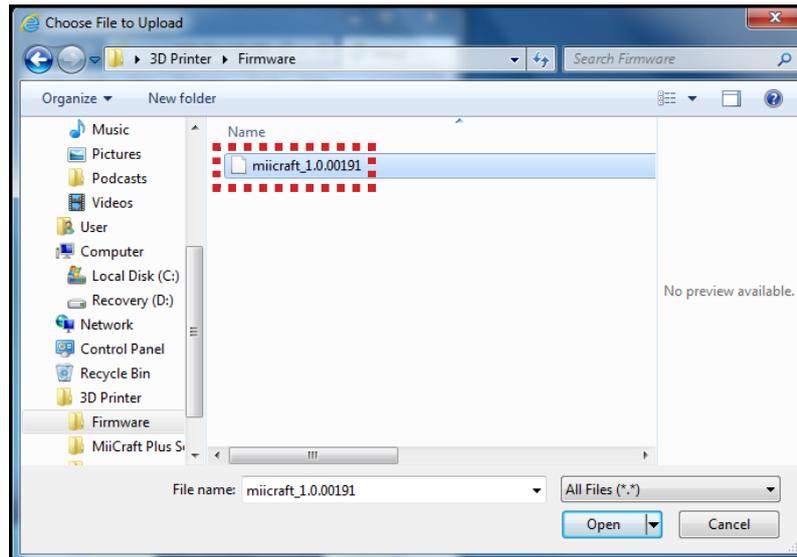
Upgrade Firmware

Before upgrading the firmware, verify if the latest firmware version is newer than the one your printer is currently running.

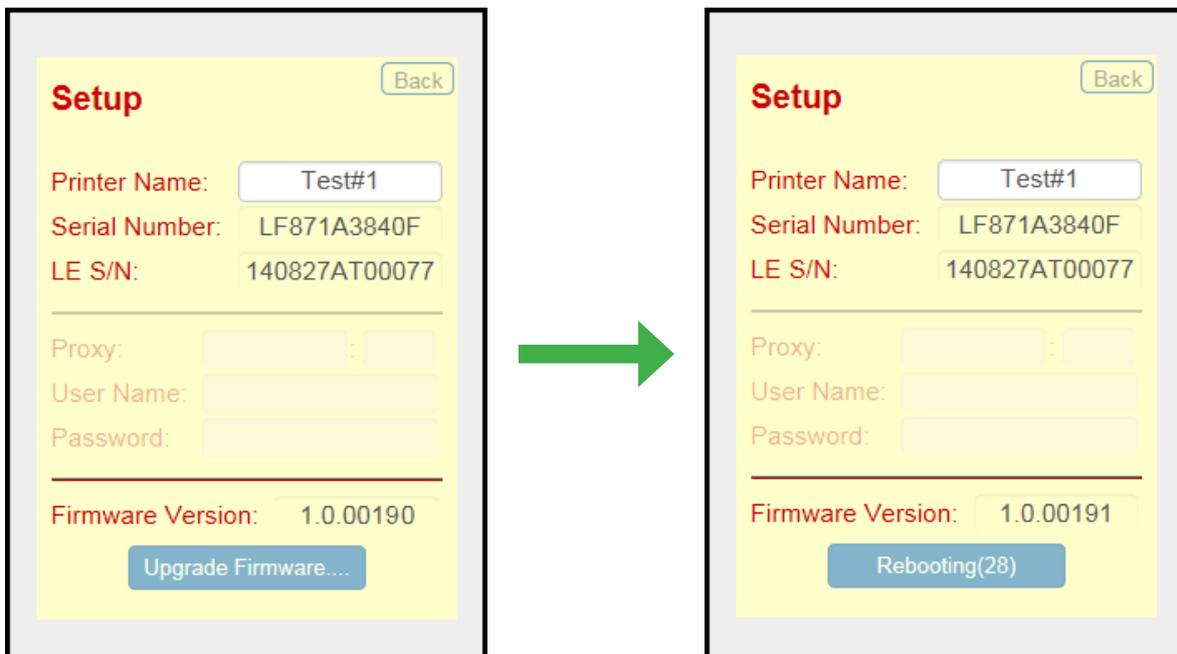
- 1 Download the latest firmware at <http://www.miicraft.com/support/>.
- 2 Save the firmware file on your computer.
- 3 On the *Printer Control* page, click .
- 4 Click **Upgrade Firmware**.

This screenshot is identical to the one above, but the 'Upgrade Firmware' button at the bottom is highlighted with a red dashed border.

5 Select the latest firmware.



6 Wait until the upgrade process is complete. Once the firmware upgrade process is complete, the system automatically reboots.



Note:

- If the system hangs and the Power indicator lights red after the **Rebooting** countdown ends, you have to manually reboot the system.
- Do not interrupt the firmware upgrade process. Any interruptions during the firmware upgrade process may cause your printer to malfunction.

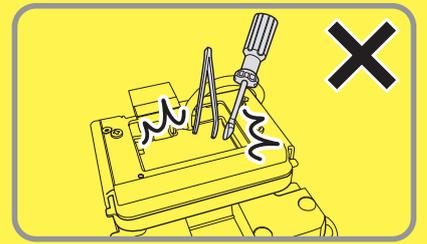
Clean Process

If there is residue from a previous print job stuck on the film, you have to perform “**Clean Process**” before you start cleaning the reaction tank using the cleaning tools.



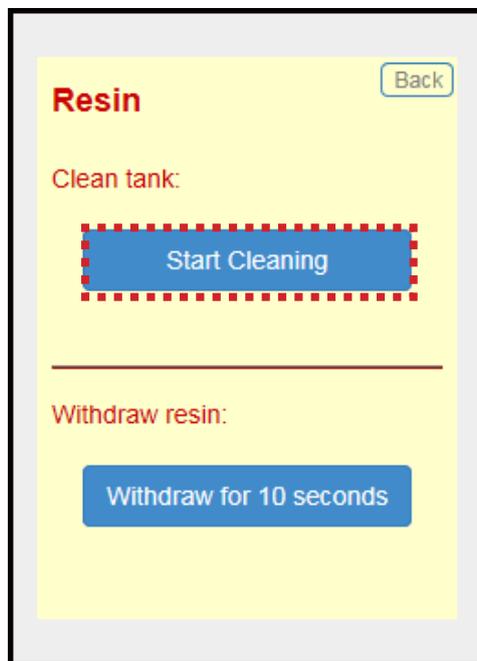
IMPORTANT!

Do not touch the film with your fingernails or other sharp objects.

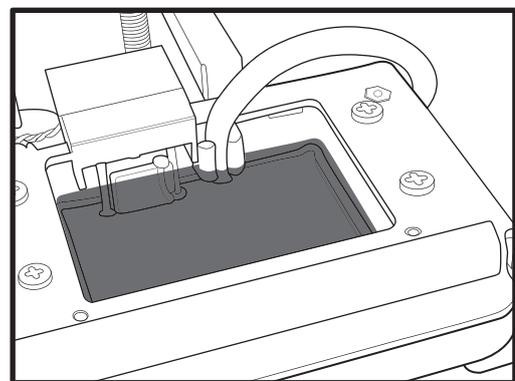
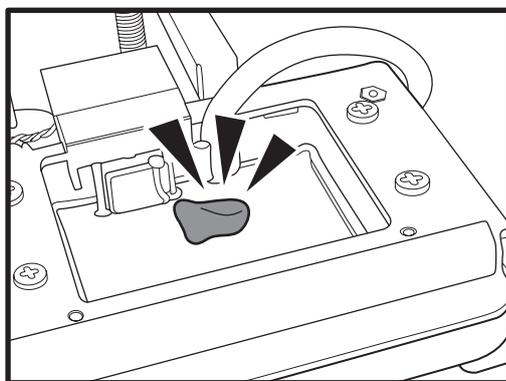


1 On the *Printer Control* page, click .

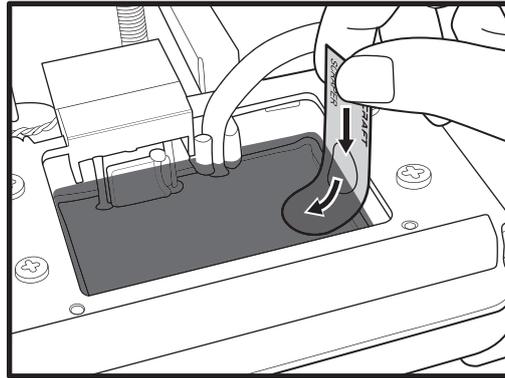
2 Click **Start Cleaning**.



3 Once the process is complete, the residue will be transformed into a ‘solid layer’ as shown in the illustration.

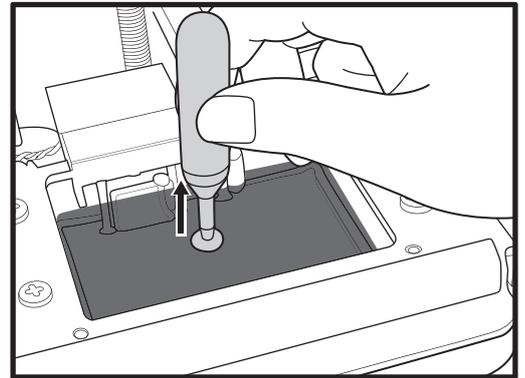


- 4 Using the paper scraper, scoop up one side of the layer as shown in the illustration.



Then carefully lift to remove it from the tank.

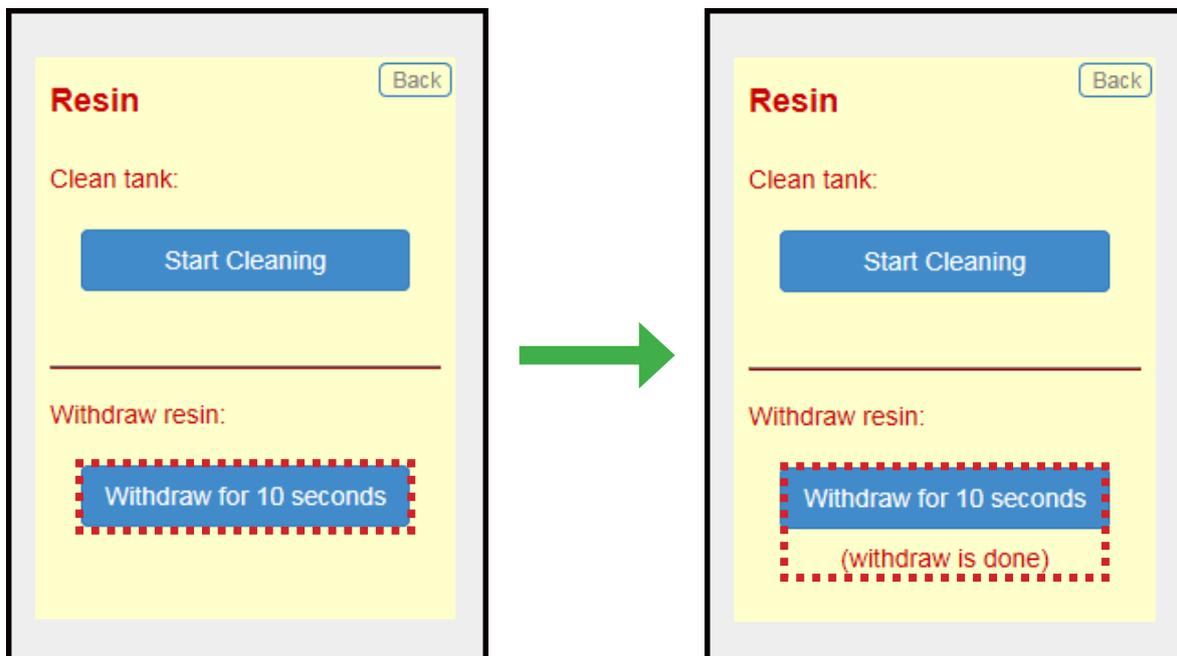
- 5 If the residue pieces still remain, remove them by using the mini sucker.



Withdraw Resin

Before cleaning the reaction tank or if you wish to build the model using a different resin, you have to withdraw the remaining resin in the reaction tank.

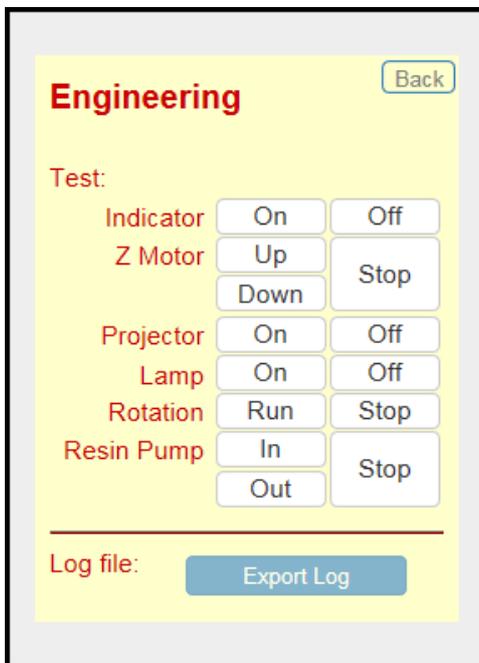
On the **Printer Control** software, click  > **Withdraw for 10 seconds**. The system will automatically pump out the excess resin for 10 seconds. Repeat the same procedure if necessary.



Engineering Mode

For debugging purpose, you can use this utility to test a specific module if it is working normally.

On the **Printer Control** software, click  to access the Engineering mode page.



Test Module	Action Item	Verifying Correct Module Behavior
Indicator	On	The Power indicator lights purple.
	Off	The Power indicator turns off.
Z Motor	Up	The Z-platform moves upwards.
	Down	The Z-platform moves downwards.
	Stop	The movement stops.
Projector	On	The projector turns on.
	Off	The projector turns off.
Lamp	On	The UV lamp turns on.
	Off	The UV lamp turns off.
Rotation	Run	The post curing rotation module starts rotating.
	Stop	The post curing rotation stops.
Resin Pump	In	The systems starts pumping in the resin. This action only activates when the resin level in the reaction tank is low.
	Out	The systems starts pumping out the resin. This action only activates when the resin level in the reaction tank is high.
	Stop	The current activity is stopped.

MAINTENANCE

Routine Maintenance

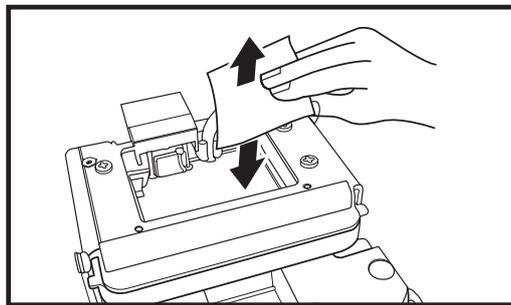
Before performing routine maintenance, make sure the printing is complete or properly stopped.

Cleaning the Reaction Tank

1 Withdraw the excess resin for 5 times. See “Withdraw Resin” on page 29.

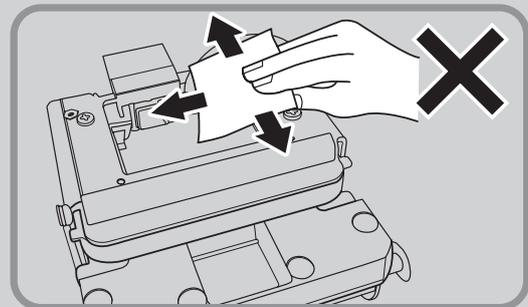
2 Clean the resin residues using a tissue paper.

Place a tissue paper in the tank and leave it for 5 minutes to absorb the excess resin.



Repeat the same procedure for several times.

Do not rub or apply excessive pressure to avoid damaging the film.

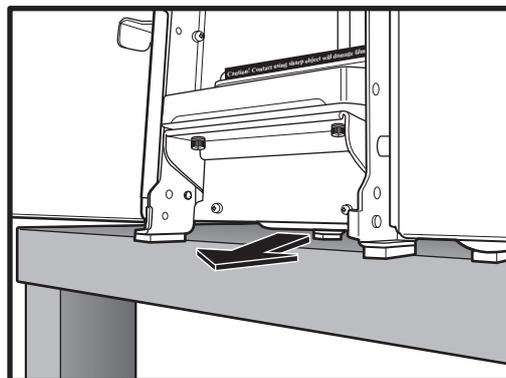


Replacing the Film Module

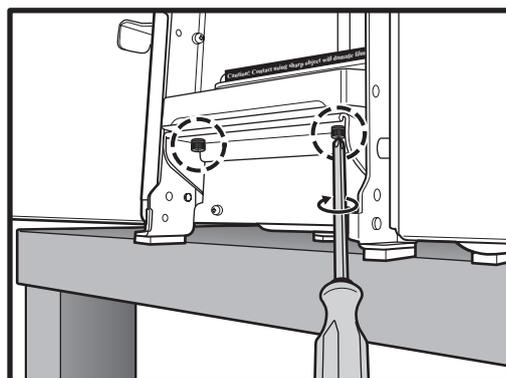
If you notice the 3D printed model is not fully built as its original design, you need to replace the film module immediately. We highly recommended to replace the film module once every month.

Before replacing the film module, be sure to clean the reaction tank (see “Cleaning the Reaction Tank” on page 31) first to prevent the glass underneath from getting contaminated.

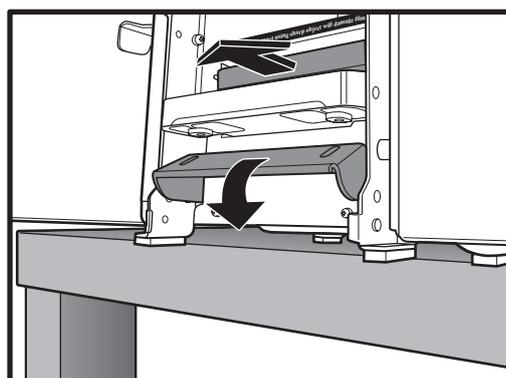
- 1 Place the printer on the edge of the level surface so that you have fully accessed to the two (2) screws on the bottom to the handle.



- 2 Using a Philips screwdriver, remove the 2 screws.



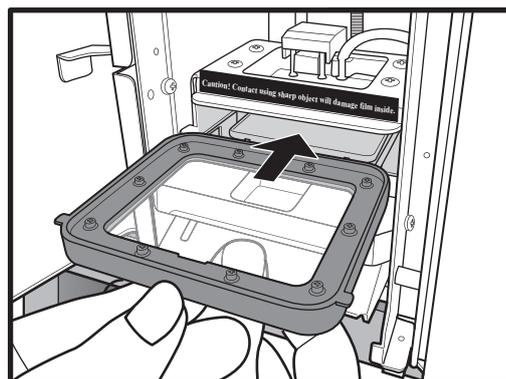
- 3 Push the handle down and remove the film module.



- 4 Install a new film module into its slot until it is fully seated.

- 5 Lift the handle.

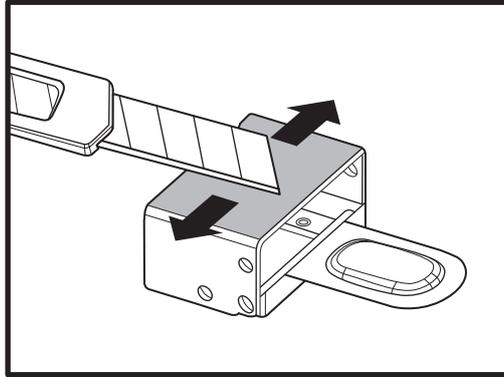
- 6 Affix the 2 screws to secure the film module with the handle.



Cleaning the Picker

All printed models need to be removed from the picker prior to printing the next model.

You can use a knife or similar object to scrape away the excess printed model on the picker.



If any greasy residue persists, use a soft cloth dipped in alcohol to rub the surface until the grease is removed.

Periodic Maintenance

Before performing periodic maintenance, make sure the printer is properly turned off and unplug the power cord from the electrical outlet.

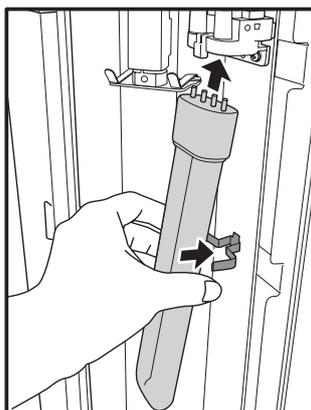
Replacing the UV Lamp

When the UV lamp fails, please replace a UV lamp. For a replacement UV lamp, please contact your dealer.

⚠ CAUTION

UV lamps contain small amounts of mercury, so do not crush or break the bulb.

- 1 Open the post curing door.
- 2 Pull the UV lamp out of the lamp holder.
- 3 Install the new UV lamp into the lamp holder until it snaps into place.



Note:

- Dispose the used lamp properly according to local regulations.

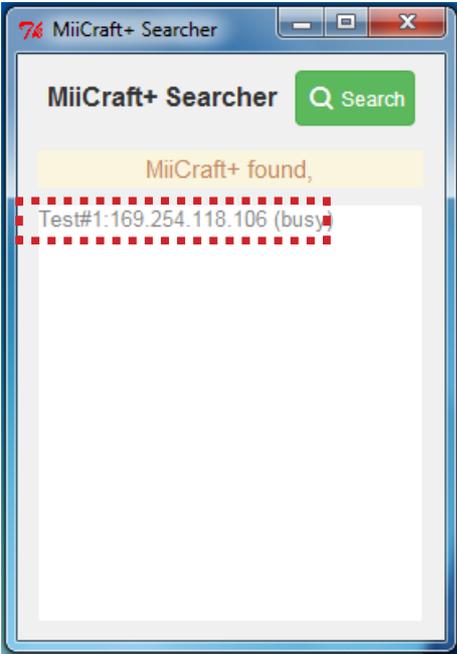
Replacing the Resin

- 1 Clean the reaction tank. See “Cleaning the Reaction Tank” on page 31.
- 2 Remove the silicone tube from the tube holder.
- 3 Then setup new resin. See “Installing the Resin Cartridge” on page 9.

APPENDIX

Troubleshooting

The following table contains a list of common problems you might encounter when operating your printer. If you need further assistance, contact your dealer.

Problem	Possible Solutions
<p>Cannot connect the printer.</p>	<p>Check if the RJ-45 cable is properly connected.</p> <p>If below messages appear on the screen, these indicate the printer is used by another user.</p> <div style="display: flex; align-items: center; justify-content: center;">  →  </div> <p>Wait until the printer is available. See “Release Printer” on page 25.</p>
<p>The system does not automatically reboot after the firmware upgrade process is complete.</p>	<p>The system hangs. Set the Power switch to the OFF position, then set it again to ON position to manually reboot the system.</p>
<p>The printed model seems incomplete.</p>	<p>Change the film module.</p>

Specifications

Category	Item	Specifications
Printing Area	X/Y Resolution	450ppi (56 microns)
	Z axis (layer thickness)	5 microns as one step from 5~200 microns 30/50/100 microns with MiiCraft Resin
	Speed	3cm / hour (Z@100 microns)
		2cm / hour (Z@50 microns)
	Build Size	43mm x 27mm x 180mm
	Material	MiiCraft Cream Resin (Z min. = 30 microns)
		MiiCart Blue Resin (Z min. = 30 microns)
		MiiCraft Clear Resin (Z min. = 50 microns)
*3rd party resin verified by MiiCraft		
Post Curing Area	Power of Light	18W UVA Lamp
Software	Feature	MiiCraft Builder powered by Materialise: <ul style="list-style-type: none"> • Support generation • Model slicing • Auto repairing during model import process • Printing Parameter setting
		MiiCraft Printer Control Software: <ul style="list-style-type: none"> • Network Print (Browser) • Printing Status Monitoring
	Input File type	STL
	Operating System	Windows 7, Windows 8
System Properties	Printer Size	20.8cm (L) x 20.5cm (W) x 33.5cm (H)
	Printer Weight	8.5kg
	Interface	RJ-45
	Power input	100-240V, 50/60 Hz, 2.0A
Operating Environment	Temperature	15-25°C
	Humidity	40%-60% RH

**Specifications is subject to change without prior notice.*

Should you have any additional questions, please feel free to email us at sales@miicraft.com