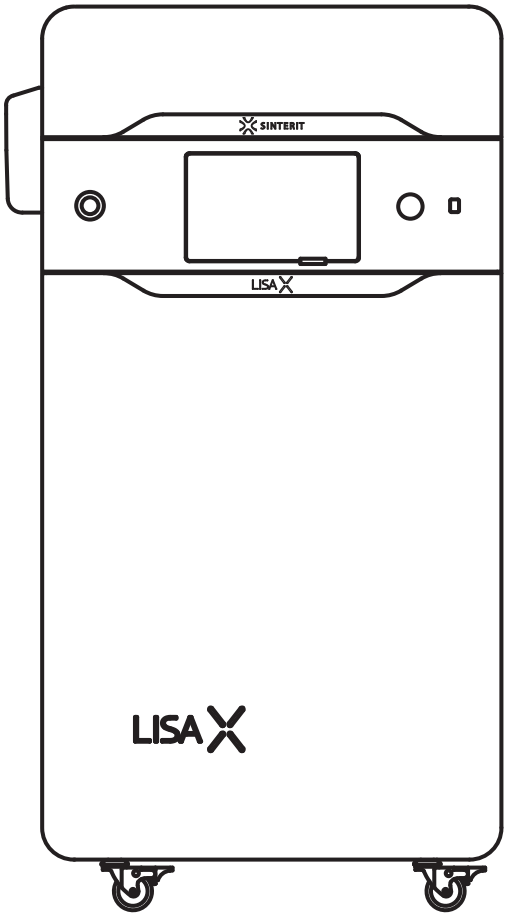
SINTERIT



Sinterit LISA X

SLS 3D PRINTER REV. E

Short user manual

Please read the manual before using the product.
For the most up-to-date manual,
visit our website: www.sinterit.com/support/

Version 05/2024/EN

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1. GENERAL INFORMATION

1.1 Intended use

The short manual provides only a basic overview of the device and its general use. It will guide you throughout the entire printing process. To learn more about specific features of your printer and read the latest version of the user manuals, please visit our website www.sinterit.com/support/.

Sinterit disclaims any liability resulting from the lack of knowledge provided in the full manual.

1.2 Technical support

If you have any questions or concerns, please contact our After-Sales department.
- **www:** sinterit.com/support/contact-support/
- **e-mail:** support@sinterit.com
- **phone:** +48 570 702 886 or +48 570 967 860
- **headquarters address:** Sinterit sp. z o.o., ul. Nad Drwina 10-B3, 30-741 Krakow, Poland

For a list of distributors and technical support in each country, please visit our website www.sinterit.com

IMPORTANT!
To facilitate the assistance process, please have the information ready:
- the type of machine,
- serial number (from the safety plate),
- printer firmware version (⚙ **SETTINGS** → **SYSTEM INFO**).

1.3 Marking text conventions used in the document and on the machine

Listed below are the descriptions of symbols used on the device. They constitute a warning or convey the information to protect the user, other individuals, or surrounding objects and ensure the correct and safe use of the device.

WARNING!
An inevitably dangerous situation which can result in serious injury or even death. Initiation, or omission, of a specific procedure as well as inattention, can cause severe physical injury to the user.

ATTENTION!
Initiation, or omission, of a specific procedure, can cause physical damage to the equipment or the user.

WARNING!
Risk of electric shock which can be fatal or cause severe burns. An inevitably dangerous situation, which can result in serious injury or even death, if not mitigated. Before working with any equipment, you should be aware of the dangers associated with the flow of electric current, and become familiar with the standard procedures to prevent accidents.

WARNING!
IR laser radiation. Looking directly into the laser beam can cause blindness and skin burns. The laser emits infrared radiation (infrared, IR), which is invisible to humans. Avoid eye or skin exposure to direct or scattered radiation. Do not stare into the beam or view with optical instruments.

ATTENTION!
Beware of moving parts which can crush hands.

	WARNING! Risk of fire and explosion! Avoid fire! Powder dust is flammable.
	WARNING! Risk of a potentially explosive atmosphere.
   	ATTENTION! It is necessary to wear adequate protective clothing, eyewear, face mask, and gloves. Mandatory when working with powder.
	ATTENTION! It is necessary to wear antistatic clothes and shoes. Mandatory action when working with powder.
	IMPORTANT! Information essential to correctly perform a specific task.
	IMPORTANT! You must read the instructions before taking action.

1.4 Printer overview

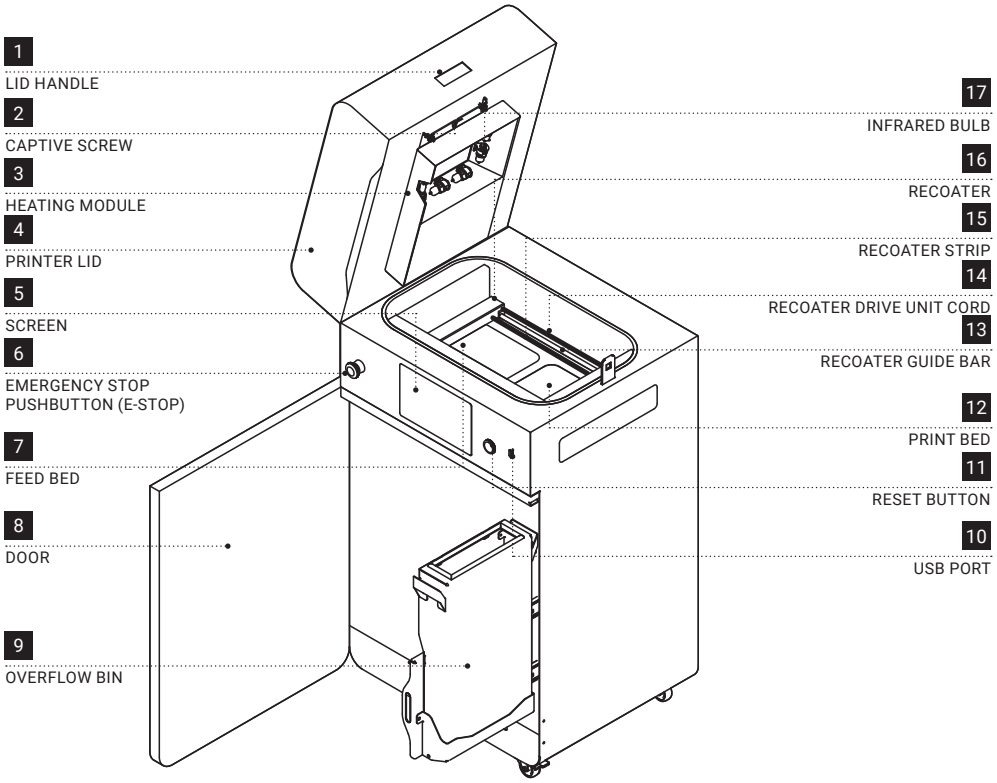


Fig. 1.1 Front view of the printer, heating module and Overflow bin.

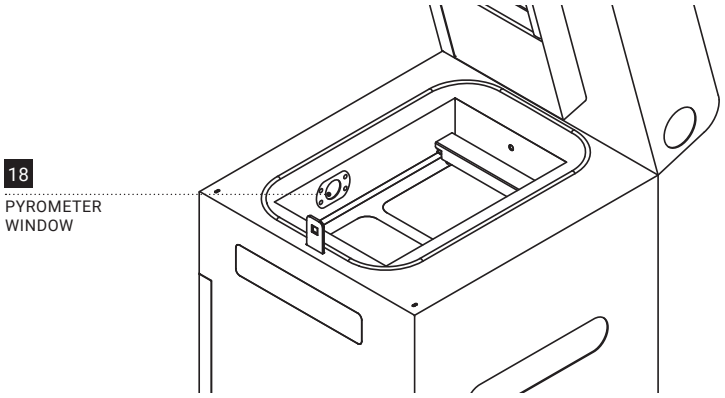


Fig. 1.2 View of the pyrometer window.

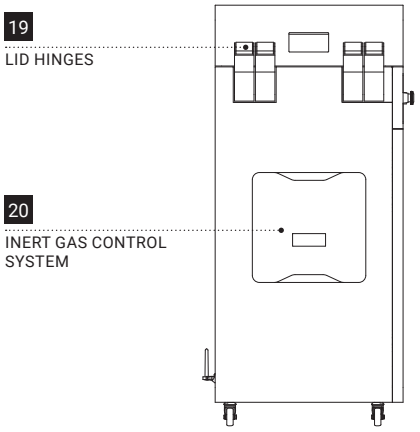


Fig. 1.3 View of the left side of the printer.

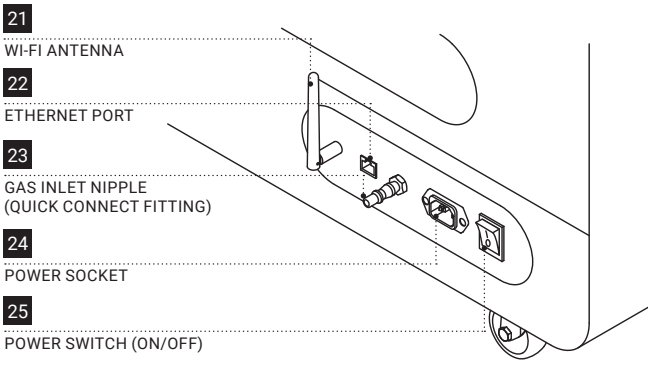


Fig. 1.4 View of the back of the printer.

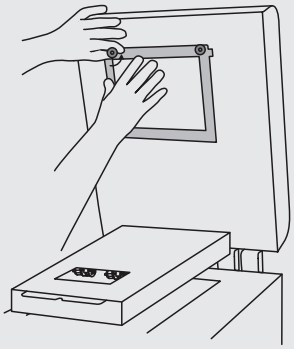
2. PREPARING TO PRINT

2.1 General information

WARNING!
- The Sinterit set of devices, including the Lisa X 3D Printer, is not intended for use in an explosive atmosphere.
- The possibility of an explosive atmosphere is anticipated inside the device.
- The device is not protected against the risk of explosion from sources other than its own.
- Polyamide powder is flammable and can create an explosive atmosphere together with air!

ATTENTION!
While preparing the printer for use, it is necessary to read and acknowledge any messages on the screen. Disregarding or skipping any crucial steps of the process can negatively impact the quality of printouts or damage the printer.

IMPORTANT!
- While preparing the printer for use, ensure the Overflow bin has been emptied.
- While preparing the printer, always ensure the Laser Protective Glass is installed and clean. **Attempting to print without the glass in place or while it is dirty will damage the printer!**



IMPORTANT!
Check the tension of the Recoater Strip. If it is bent, it should be straightened out.
- Using a 2mm allen key, gently loosen the Recoater strip fixing screws.
- Align the strip and tighten the screws back.

2.2 Starting the printer

1. Connect the printer to a power source (fig. 2.1). Power socket is located on the back of the printer.
2. Flip the power button on the back of the printer to the **I** position.

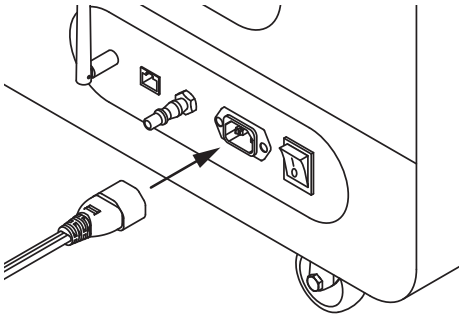


Fig. 2.1 Connecting the power cord to the power socket.

3. Make sure that the **E-STOP** button is released. If not, turn it clockwise as much as possible and release it. (fig. 2.2).
4. After a few seconds, the main menu should appear on the printer screen.

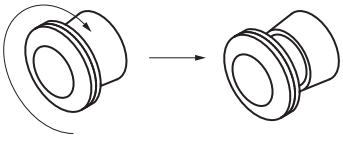


Fig. 2.2 Releasing the **E-STOP** button.

2.3 Choosing the file

IMPORTANT!
In order to print, you will need a file prepared in Sinterit Studio, which you can download from our website www.sinterit.com/software.

IMPORTANT!
- If any part of the printer requires maintenance or replacement, a corresponding message will appear on the screen.
- It is always possible to go back to the main menu on the screen without interrupting the printing process.

1. Select ▶ **PRINTING** from the main menu and press ⊕ **ADD NEW PRINT JOB**.
2. Choose the new file **(USB** or **UPLOADED** from Sinterit Studio**)** or recently used file **(RECENT)**.
3. The following screen displays some basic information about the processed file (**PRINT JOB**) as well as the current status of the printer (**PRINTER STATUS**). Press ▶ next to the component timer for more information. If at this point you want to choose another file to print, press **CHANGE PRINT JOB**.
4. Press **DONE**.

2.4 Filling the print chamber with powder

IMPORTANT!
Remember to close the printer door. Moving parts are blocked when the printer door is open.

1. Slide the **UNLOCK LID** button to release the electrolock and allow the print chamber to be opened. Remember, you only have 10 seconds to open it before the lock activates again.
2. Push on the lid and pull it up using the lid handle (fig. 2.3).

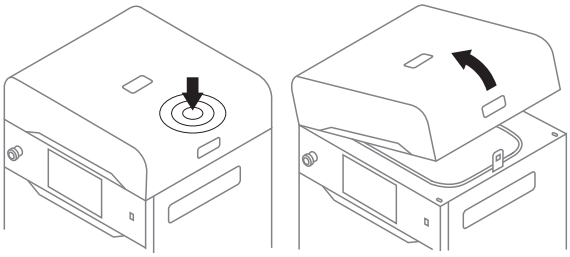


Fig. 2.3 Lifting the printer lid.

3. Make sure the print chamber is free of any unwanted items that may interfere with moving the Recoater.
4. Press **POSITION BEDS** to begin the positioning process of the Beds (fig. 2.4).
5. Fill the Feed Bed with the desired powder. You may use the powder funnel provided in the Dedicated Powder Tools (fig. 2.5). Press **DONE**.

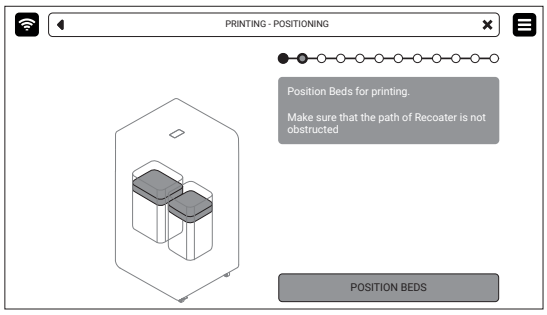


Fig. 2.4 **POSITIONING BEDS** screen.

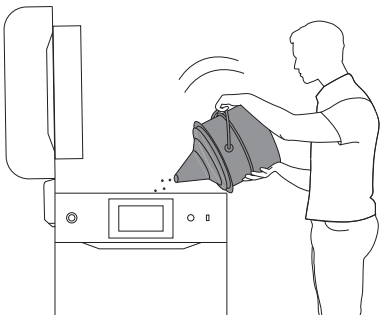


Fig. 2.5 Filling the print chamber with powder using a funnel.

IMPORTANT!
- Add a little more powder than fits in the Feed Bed.
- The information on which powder to use has been displayed on the printer screen as well as in the Sinterit Studio software end report.

6. Compress the powder using the powder trowel (provided in the Dedicated Powder Tools). This will release any residual air accumulated in the Feed Bed. Press **DONE**.

2.5 Preparing the print chamber

ATTENTION!
Risk of crushing hands!
- The moving Recoater can cause hand injuries.
- Be careful not to crush your hands when closing the printer lid.

ATTENTION!
Printing from flexible materials.
- Each time before printing with flexible materials, the printer will ask you to first perform the Laser Protective Glass maintenance (as outlined in Chapter 12.3 in the full user manual). In this case, follow the instructions on the screen. Tick the **MAINTENANCE DONE** checkbox and press **DONE** button. This will start the printing process.
- If the Laser Protective Glass is dirty or missing, attempting to print will damage the printer. **Only use ethanol or 99.9% pure isopropanol for cleaning the optics!**

1. Remove the powder remaining under the guide bars. You may use the brushes and spatulas provided in the Dedicated Powder Tools. Press **DONE**.
2. Press **START LEVELING** to begin levelling the powder surface.

IMPORTANT!
During the powder levelling process, you can scrape the excess powder from under the guides with a plastic spatula, for example from the Dedicated Powder Tools set.

3. Wait until the Recoater completes the process. If you are not satisfied with the levelling you can repeat the process by pressing **REPEAT LEVELING**. Afterwards, press **DONE**.
4. Remove powder from the guide bars. Use a brush or a cotton cloth. Press **DONE**.
5. Delicately wipe the pyrometer window with a wipe soaked in ethanol-based or 99.9% purity isopropyl cleaning solution. You may also use cleaning wipes provided in Dedicated Powder Tools.
6. Wipe the pyrometer window again with a dry cotton cloth, to remove any alcohol residue. Press **DONE**.
7. Make sure no miscellaneous items (i.e. spatulas) remain in the print chamber, then close the lid. Press **DONE**.

IMPORTANT!
- If the printout requires it, connect the source of inert gas to the inlet nipple.
- Press the **CHECK PRESSURE** button to verify the inert gas control system.
- If the inert gas control system is incorrectly connected, a proper message will appear.

2.6 Final steps before printing

ATTENTION!
If anything during the printer operation concerns you, press the **E-STOP** button and contact our After-sales team: support@sinterit.com.

1. Press the **RESET** button on the printer, to activate the security system.
2. Press **START PRINT**. Before printing, an automatic component check will be performed.
3. You can stop the process at any time, just press **ABORT PRINTING**.

3. REMOVING AND CLEANING THE PRINTOUT

1. When removing the printout is possible, the **REMOVE PRINTOUT** button will be displayed. Press it.
2. The screen may display a message about the maintenance time of the components. For more information see the full user manual, chapter 13. If the message hasn't appeared, it means that no components require any maintenance. Press **GOT IT**.
3. Press **UNLOCK LID** on the screen to release the electrolock and allow the printer to be opened. Remember, you only have 10 seconds to open it before the lock activates again.
4. Push on the lid and pull it up using the handle (fig. 3.1).

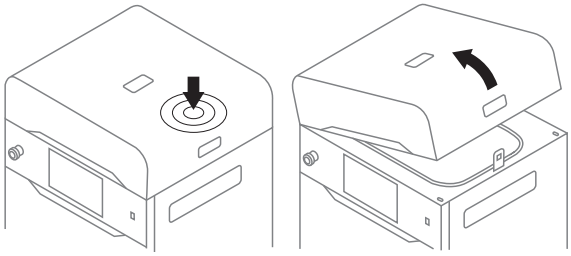


Fig. 3.1 Lifting the printer lid.

5. Make sure no miscellaneous items remain in the print chamber and press **POSITION BEDS**.
6. Place the folded IO BOX inside the print chamber. Ensure its elements are arranged like in the picture (fig. 3.2).

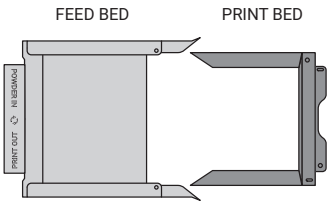


Fig. 3.2 The proper arrangement of the IO BOX.

ATTENTION!
While placing the IO BOX in the chamber, make sure you do not accidentally damage its components.

7. Unfold the IO BOX elements as much as possible. Inside the IO BOX, you should see a covered Feed Bed and an uncovered Print Bed.
8. Press **REMOVE PRINTOUT** on the screen and wait until the content of the Print Bed (the cake) is ejected.
9. Close the IO BOX (fig. 3.3).

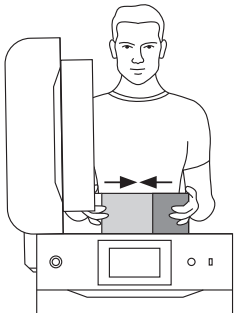


Fig. 3.3 Closing the IO BOX.

10. Carry the IO BOX and its contents onto the foldable tray ❶ or to the Multi PHS worktop ❷ (fig. 3.4).
11. Press **DONE** on the screen.
12. Clean the printout of unsintered powder. You may use the accessories provided in Dedicated Powder Tools.

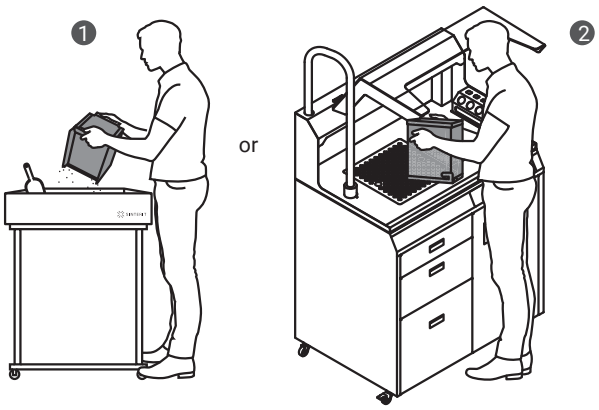


Fig. 3.4 Moving the IO BOX to the foldable tray 1 or to the Multi PHS worktop 2 to clean the printout.

4. CLEANING THE PRINTER

WARNING!
Danger of powder electrification!
- The vacuum cleaner used to collect the powder must be suitable for handling combustible dust.
- Sinterit recommends the ATEX/Intertek Vacuum Cleaner available in the offer.

ATTENTION!
The SLS powders are hygroscopic. The print chamber and the Overflow bin are not 100% airtight. Leaving the powder inside of the printer may cause it to become wet and lose its intended properties.

IMPORTANT!
- Cleaning the printer is recommended immediately after each printing.
- If you do not want to clean the printer immediately after pulling the printout, you can do this later. On the main menu screen, press the **MAINTENANCE** button and then **CLEAN THE PRINTER** button.

4.1 Cleaning the print chamber

1. Press **CLEAN THE PRINTER** on the screen to start cleaning the printer.
2. Make sure no tools remain in the print chamber. Press **POSITION BEDS** to begin the positioning process of the Beds.
3. For cleaning the printer Sinterit recommends dedicated solutions: the Multi PHS or ATEX/Intertek Vacuum Cleaner with Separator.
4. Whether you are using the Multi PHS or an ATEX/Intertek Vacuum Cleaner with the Powder Separator, a message about cleaning the print chamber will appear on the screen.
5. Collect the remaining powder and press **DONE** on the screen (fig. 4.1)

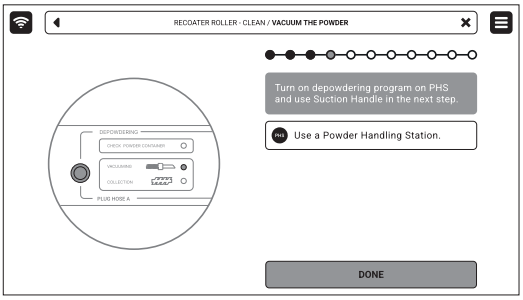
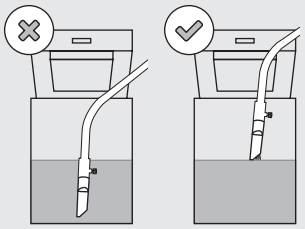


Fig. 4.1 Turn on the depowdering program on the Multi PHS.

6. Press the arrow buttons to move the Recoater and collect the remaining powder underneath.
7. Once the print chamber is clean, press **DONE**.

IMPORTANT!
Keep the suction hose inlet just above the powder surface.



4.2 Cleaning the Overflow bin

ATTENTION!
Attempting to slide the Overflow bin back into the printer without unlocking the security system may damage the drawers mechanisms.

IMPORTANT!
Make sure the Overflow bin is oriented correctly once you put it back. Pay attention to the markings on the bin.

1. Press **UNLOCK DOOR** on the screen and open the door.
2. Press **UNLOCK OVERFLOW** on the screen. Remember, you only have 10 seconds to remove it before the lock activates again.
3. Slide out the Overflow bin (fig. 4.2).
4. Take the Overflow bin from its drawer and transfer its contents onto the Multi PHS worktop or into the Metal container.
5. Put the Overflow bin back in its drawer.

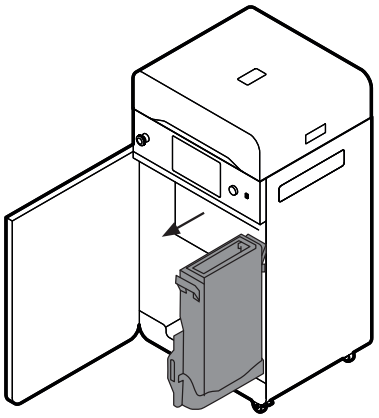
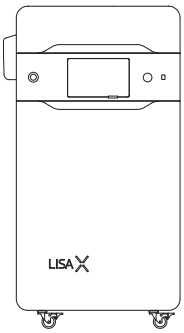


Fig. 4.2 Sliding out the Overflow bin.

6. Press the **UNLOCK OVERFLOW** button to release the lock and slide the drawer back into the printer.
7. Close the printer door and press **DONE**.
8. If you want to know how much fresh powder you need to add to the used powder press **SHOW REFRESH INFO**. If you wish to instead do that another time, press **SKIP**.



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