



# Sinterit STUDIO 2019

## USER MANUAL



Read the instruction manual before starting the device





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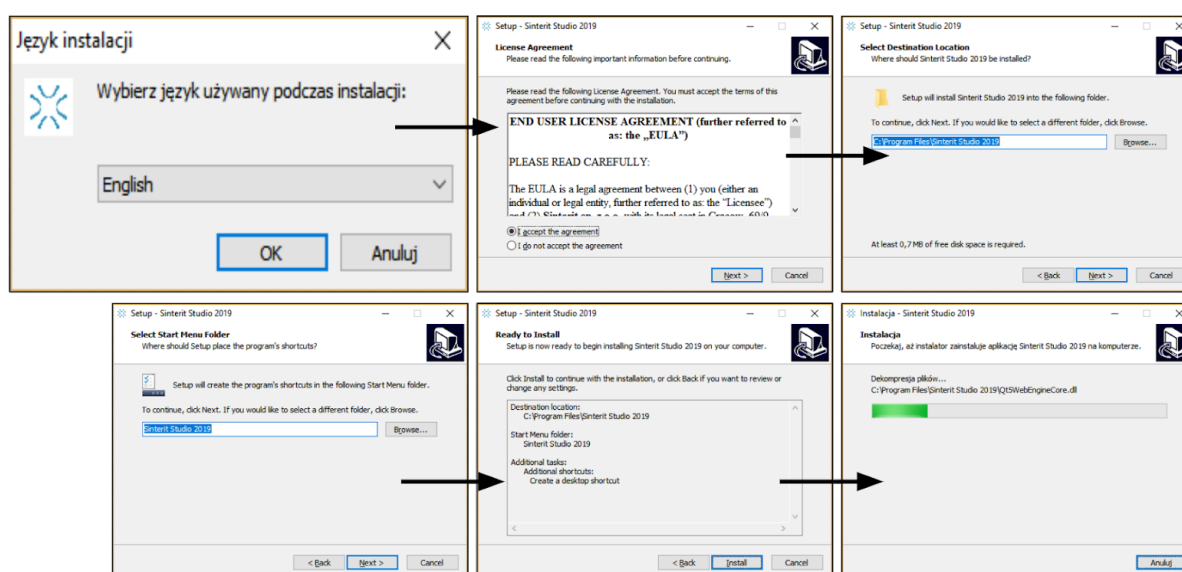
# 1. Sinterit STUDIO 2019 software - installation



## Technical requirements to install Sinterit STUDIO 2019:

64-bit processor, Windows 7 or higher, Minimum 1 GB of disk space, Minimum 2 GB of RAM, Graphics adapter compatible with OpenGL 3.0 or higher.

1. Connect the USB flash drive included in the set to the computer USB port.
2. Locate the Sinterit Studio folder.
3. Open SinteritStudioSetup.exe.
4. Select the language for the installation.
5. Act accordingly to the messages on the installation screen.
6. After the installation, the software is ready to be used.



Installing Sinterit STUDIO 2019.



## IMPORTANT!

Be sure to carefully read the license agreements and accept them.

# 2. Overview of tabs in Sinterit STUDIO 2019

The program consists of five basic tabs.

- **PRESET** (setting printing parameters, e.g. powder type, layer height);
- **MODELS** (arranging models in the PRINT BED visualization);
- **SLICE** (slicing models into layers and saving the file for printing);



- **PREVIEW** (previewing layers before printing);
- **PRINTERS** (previewing the state of printers connected by Wi-Fi).

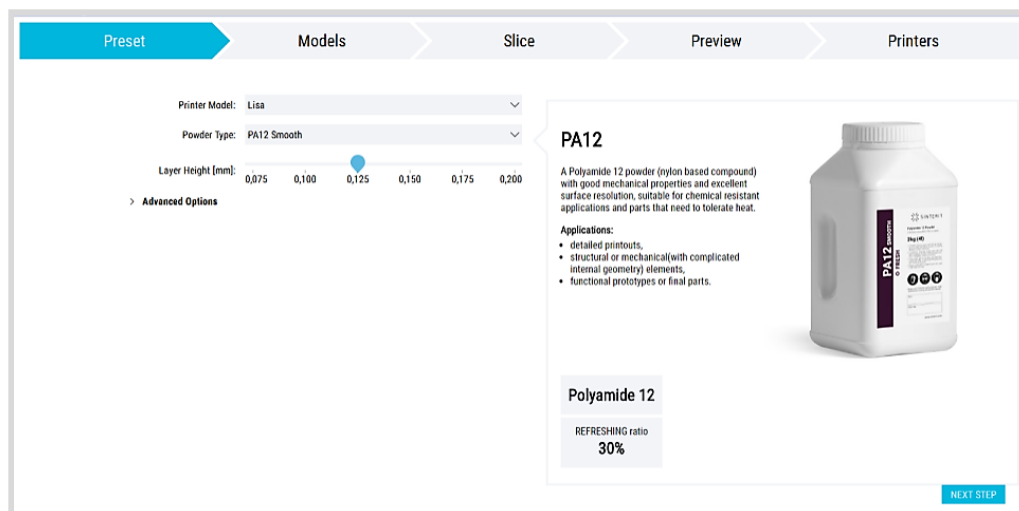


Fig. 1. View of the main panel.

At the top of the panel, you will find tabs for working on a project: FILE, EDIT, HELP.

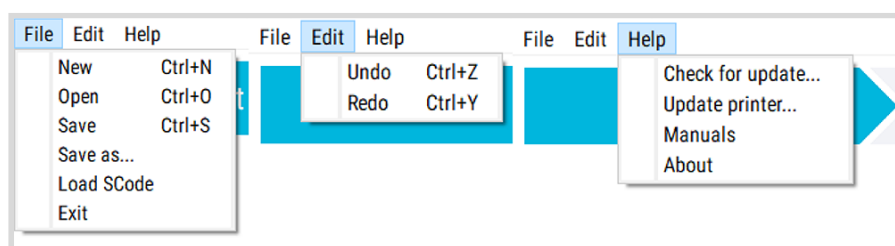


Fig. 2. View of top tabs with all the available features.

- **FILE** – allows opening a new file (**New**), open an already saved file (**Open**), save (**Save**, **Save As...**) a project in the \*.sspf or \*.sspfz format. or open a \*.scode (**Load SCode**) file for printing. Use the **Exit** button to quit.
- **EDIT** – allows undoing changes (**Undo**) or restore the state before undo (**Redo**).
- **HELP** – help tab in which you can:
  - ✓ check for and download the latest updates of Sinterit STUDIO (**Check for update...**);
  - ✓ update your Sinterit LISA printer firmware (**Update Printer...**);
  - ✓ view manuals (**Manuals**);
  - ✓ check the license (**About**).



File types in Sinterit Studio:

- **\*.sspf** - the basic project format in Sinterit STUDIO, it doesn't contain models files;
- **\*.sspfz** - a \*.sspf file compressed together with models used in the project. It is useful for transferring the project to an external device or sending it online;
- **\*.scode** - a sliced file, ready to print with LISA or LISA PRO;
- **\*.stl, \*.fbx, \*.dxf, \*.dae, \*.obj, \*.3ds, \*.3mf** - file formats supported by Sinterit STUDIO.

## A. Preset tab

- **PRINTER MODEL** - choosing your printer model. After choosing your printer type, available materials will show up.

Example:

PA11 Onyx is available only if you choose LISA PRO, but PA12 Smooth is available for both LISA and LISA PRO printers.

- **POWDER TYPE**: allows selecting the type of printing powder. When you select the appropriate type of powder, dedicated printing parameters appear in the remaining tabs. The number of available materials depends on your software version (see Chapter 6).

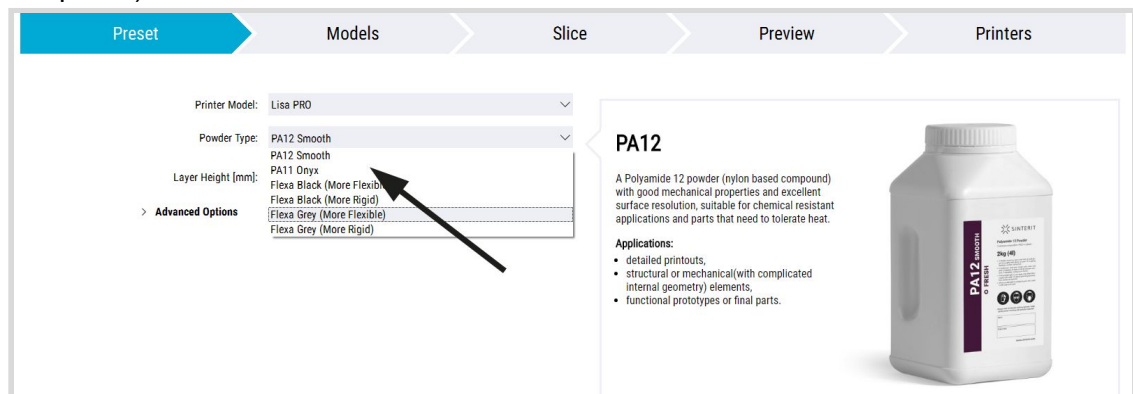
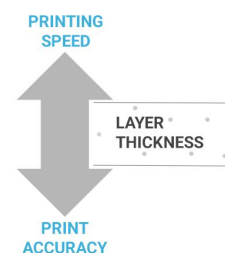


Fig. 3. Changing the type of powder.

- **LAYER HEIGHT**: parameter for selecting the height of the layer. It is selected according to powder type. The layer can be made thinner/thicker, however this involves changing the time and accuracy of the print.

Example:

Increasing the layer height from 0.100 to 0.125 [mm] reduces printing time but, at the same time, decreases the accuracy of the printed object.



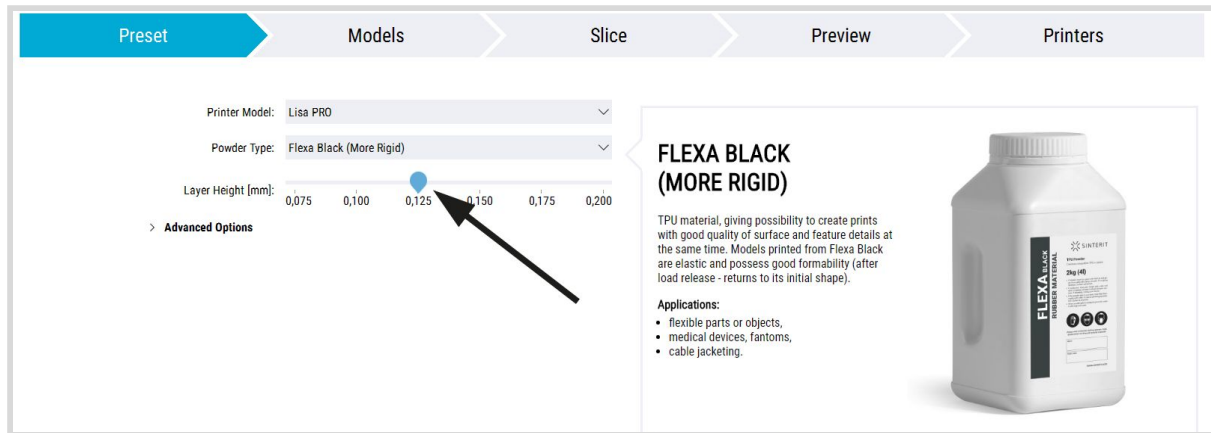


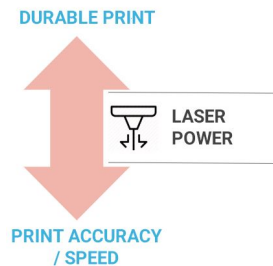
Fig. 4. Changing the layer height parameter.

**ADVANCED OPTIONS:** additional settings that allow a deeper customization of the printing process.

- **LASER POWER RATIO:** parameter for changing laser power. Laser power can be increased or reduced to achieve desired print durability.

**Example:**

1.0 is the standard power for a specific powder type (100%). Increasing the power (e.g. to 1.3) enables to achieve greater durability of the printed object but also reduces precision (“spilling” of melted powder, lack of detail) and in some cases (TPU, more rigid) the printing speed.



- **PRINT SURFACE TEMPERATURE OFFSET:** changing this parameter is recommended only after careful examination of the powder’s properties. It enables to re-calibrate parameters (lower / increase the temperature inside). We recommend experimenting only with very small values +/- 0.5°C or +/- 1.0°C, not higher.

**Example:**

If the print is overheated and difficult to remove, the temperature must be lowered.  
If the print has insufficient adhesion or its edges are curled, the temperature must be increased.



**CAUTION!**

Even though each machine is calibrated, it is recommended to load a short printing test to check the setting of parameters in Sinterit STUDIO and Sinterit LISA, especially when the device is launched for the first time.

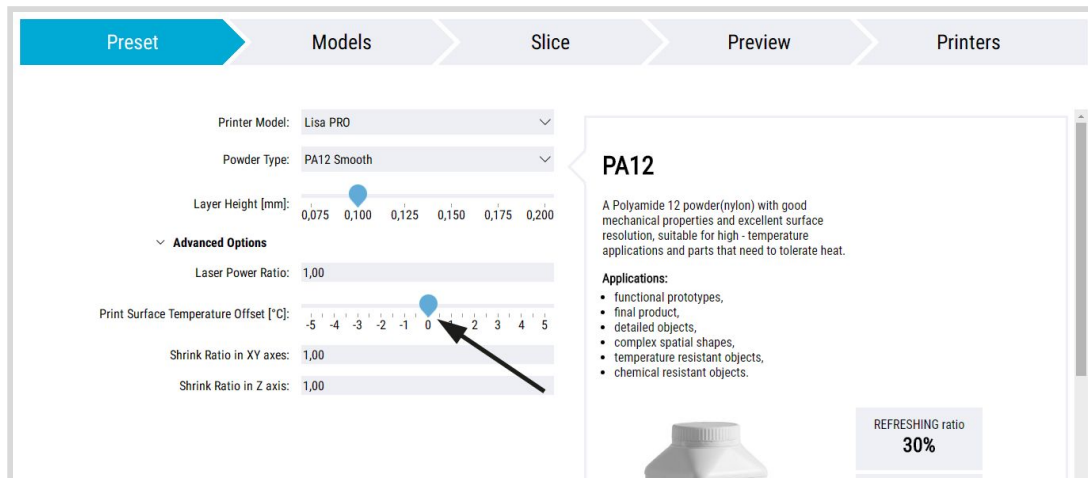


Fig. 5. Changing the temperature parameter.

- **SHRINK XY AXES, SHRINK Z AXES:** Shrinkage ratio of the material in X and Y or Z axes. The model will be expanded along the width of the print bed so that after the shrinkage it will have the expected size. Allowed range 0.9-1.1

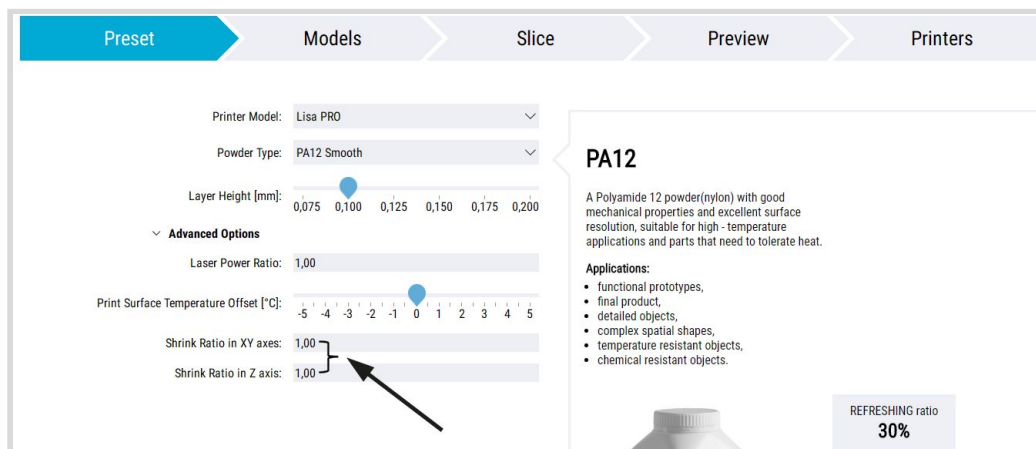


Fig. 6. Changing the shrink ratio XY and Z axes parameter.

**NEXT STEP:** a button that switches you to a next tab.



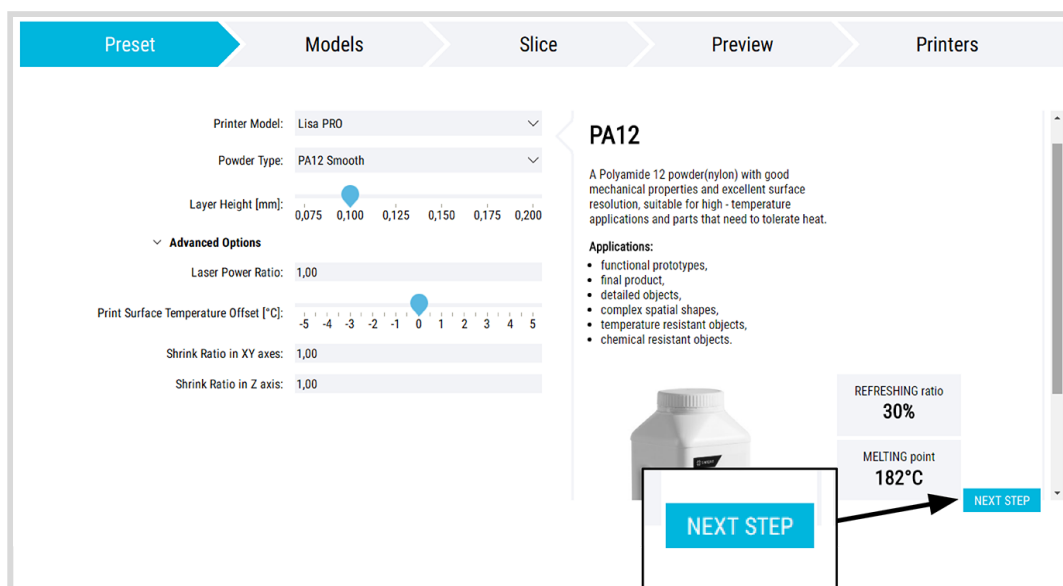


Fig. 7. Next step button.

## B. Models tab

This tab contains a visualization of the PRINT BED. The view is divided into areas, where 1 square is 1 cm<sup>2</sup>.

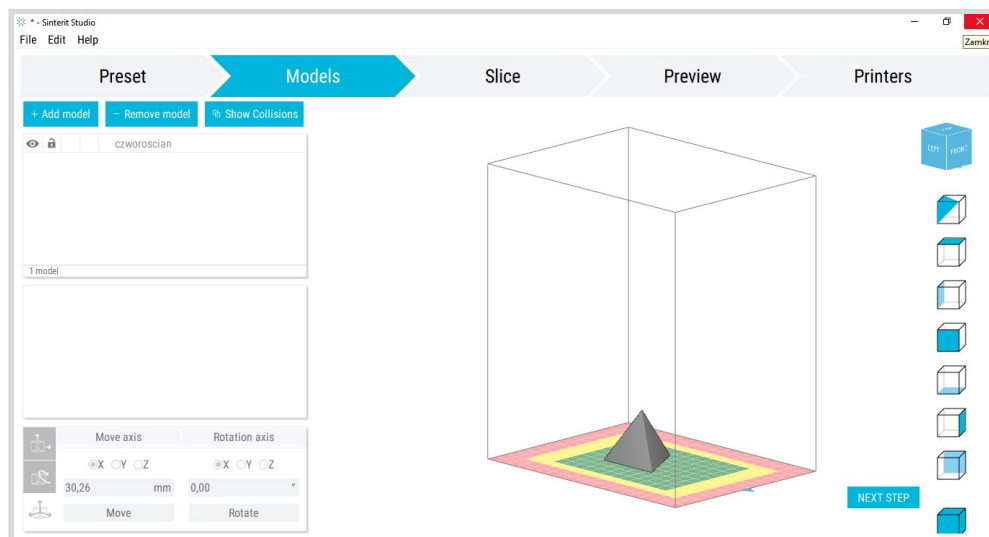


Fig. 8. View of the Models tab.

**For polyamide powders (PA11, PA12)** there are 3 main areas available:

- green: proper printing area. Models of highest and most durable quality.
- yellow: acceptable printing area. Single, small elements may stick out there, however they may damage/warp the print.



- red: protection area of prints. Arranging prints is not recommended (elements may become deformed and destroy the entire print).

For **FLEXA and TPE materials** there are 2 main areas (green and red) and small yellow area at the front of PRINT BED:

- green: proper printing area. Models of highest and most durable quality.
- red: protection area of prints. Arranging prints is not recommended (prints may become deformed and destroy the entire print).
- yellow: acceptable printing area. Single, small elements may stick out there, however they may damage/warp the print.

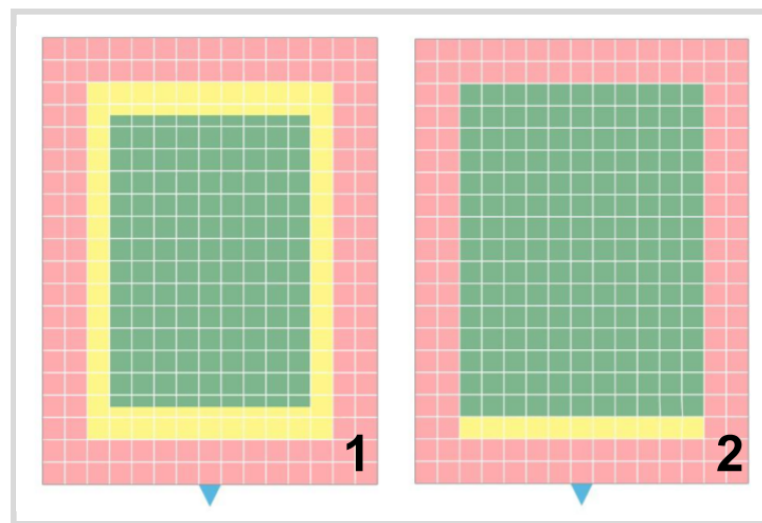


Fig. 9. View of the work area for PA12 SMOOTH (1) and FLEXA BLACK (2).

## a. Features in the models tab

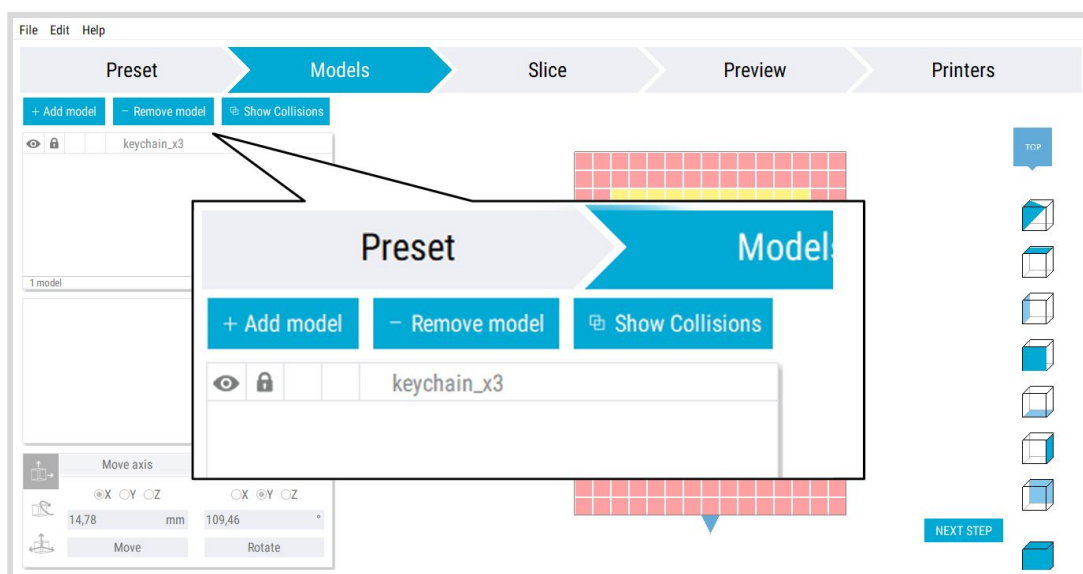












Fig. 10. Enlarged view of features in the Models tab.

- **ADD NEW MODEL:** allows adding models for printing (supported file formats are: \*.stl, \*.fbx, \*.dxf, \*.dae, \*.obj, \*.3ds, \*.3mf);
- **REMOVE MODEL:** allows removing a single model (the feature is also available after hitting Delete on the keyboard).
- **SHOW COLLISIONS** - by clicking on this button you can check the arrangement of models in the PRINT BED. It checks if models:
  - are positioned in the green field - yellow warning sign 
  - are positioned in the PRINT BED - red warning sign 
  - do not interfere with each other - red warning sign 

After loading the model, there are two icons visible on the left side: a padlock and an eye.

- open eye (  ) - the model is visible in the PRINT BED;
- empty eye symbol (  ) - only the model's outline is visible;
- strikethrough eye (  ) - the model is invisible, but still present in the PRINT BED. It is useful especially when there is many models in the PRINT BED or the arrangement is notably complicated;
- open padlock (  ) - the object can be moved and rotated;
- closed padlock (  ) - the model is locked and cannot be moved or rotated. To change the status/visibility of the model, click the icon until its desired status shows up.

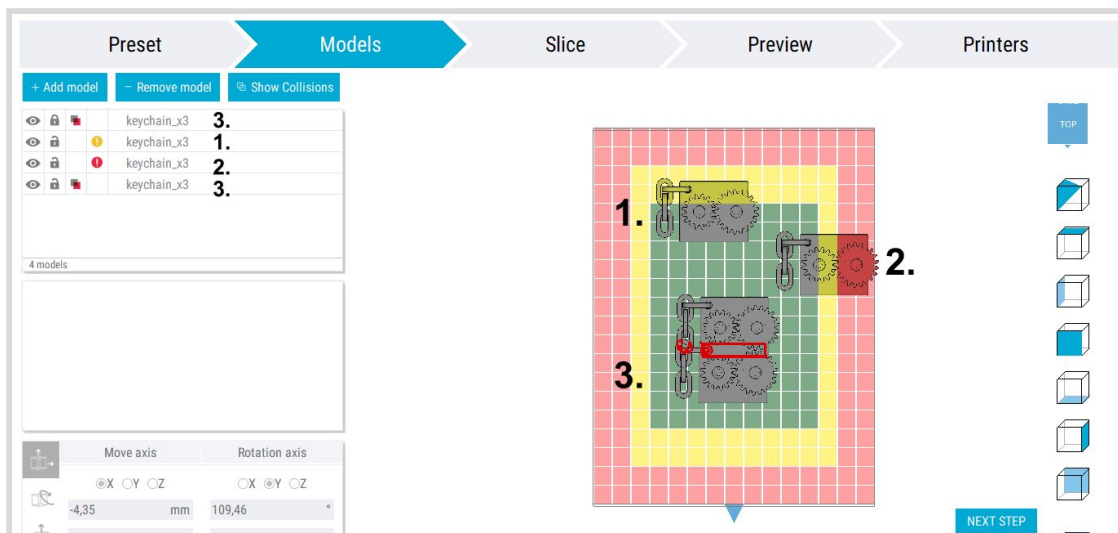




Fig. 11. Check Collisions button with an example of its use. It allows detecting errors which are invisible to the human eye.

## b. Features and properties of a model

After the model is loaded, detailed information concerning its properties is displayed in the left part of the window:

- the number of selected models (**Selected models**),
- information about the model (**Details**),
- position in the PRINT BED (**Position**),
- angular arrangement of the model in the work area (**Rotation**),
- scale (**Scale**),
- models dimensions in mm (**Dimensions**).

Selected models	
1	

Details	
Path	C:/Users/Komputer/Downlo...
Faces	31 854

Position	
X	71,93 mm
Y	94,70 mm
Z	0,29 mm

Rotation	
Pitch (X)	0,00 °
Yaw (Y)	0,00 °
Roll (Z)	0,00 °

Scale	
X	100,00 %
Y	100,00 %
Z	100,00 %

Dimensions	
X	52,21 mm
Y	32,45 mm
Z	28,60 mm

Move axis	
<input checked="" type="radio"/> X <input type="radio"/> Y <input type="radio"/> Z	<input type="radio"/> X <input checked="" type="radio"/> Y <input type="radio"/> Z
-4,35 mm	109,46 °
Move	Rotate

Move axis	
<input checked="" type="radio"/> X <input type="radio"/> Y <input type="radio"/> Z	<input type="radio"/> X <input checked="" type="radio"/> Y <input type="radio"/> Z
-4,35 mm	109,46 °
Move	Rotate

Fig. 12. Enlarged view of the properties of a loaded model.

**Details** - in this tab you can find the file path to the model (**Path**) and the model's complication level described as **Faces** (the number of triangles that the model is built of).

**Position** – this parameter changes the position of the model in the PRINT BED. Values can be entered manually for each plane (X, Y, Z).

**Rotation** – this parameter changes the rotation in selected axis. Values can be entered manually for each axis (Pitch, Yaw, Roll) or after moving the mouse pointer over the selected plane (after switching to Rotation Axis). This feature is particularly useful for angular arrangement of models: 90°, 45°, 135°, etc.

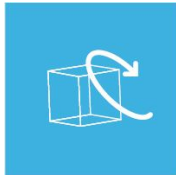
**Scale** – this parameter changes the size of the model and is expressed as a percentage. Sizes can be changed individually for each axis (X, Y, Z).

**Dimensions** - the parameter showing model's dimensions in mm. It depends on the scale. There is no possibility of manually changing the dimensions with this parameter.

Each of these information can be edited to achieve the best fit of the printed model.



**MOVE AXIS / ROTATION AXIS:** panel dedicated for moving or rotating the model.



**ROTATION AXIS** – rotating the model in three axes. After hitting the button in the bottom-left side of the screen, XYZ axes manipulators are displayed. To change the model's position or arrangement, click the desired axis and input the right value (confirm with the ROTATE button) or click the axis in the model and move it manually.

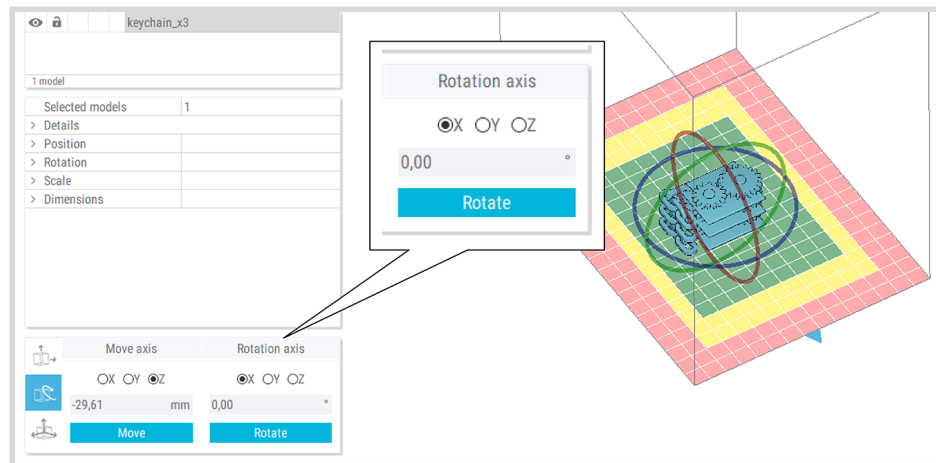
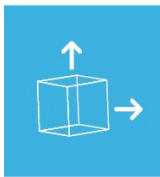


Fig. 13. Rotate Model feature and view of rotation axes in the model.



**MOVE AXIS** - moving the model in three dimensions. Click the button in the bottom left part of the screen to reveal XYZ axes manipulators. By default, the left mouse button should be used, after moving the mouse pointer over the displayed axis. You can also input the desired value and accept it with MOVE button.

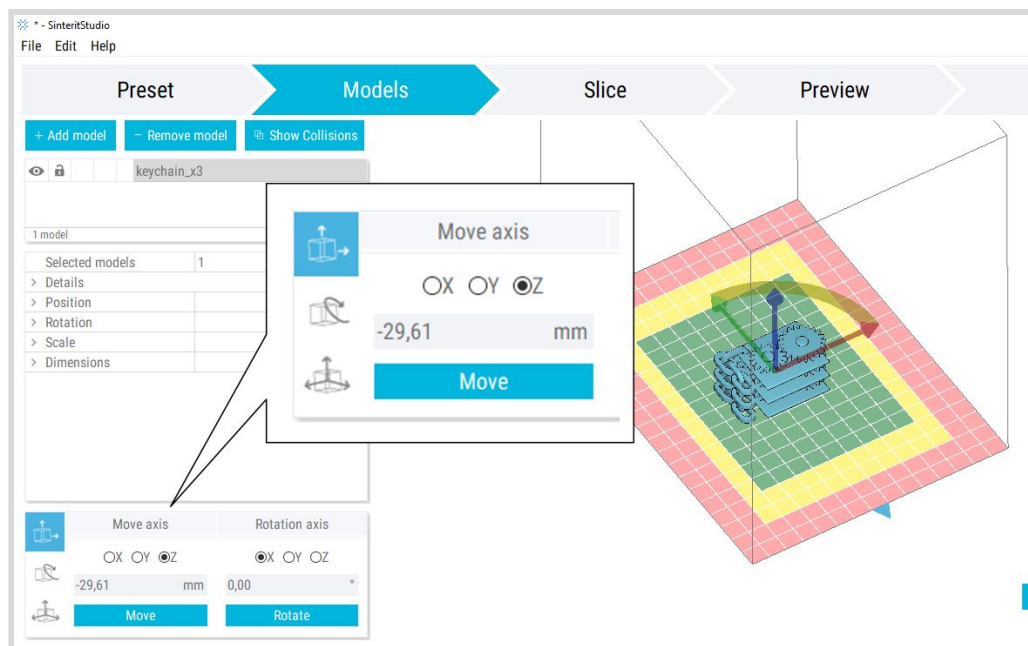


Fig. 14. Move Model feature and view of planes in the model.



**GLOBAL / LOCAL COORDINATE SYSTEM** - to facilitate arranging models in Sinterit Studio 2019, you can switch between global and local (for a given model) coordinate system.

### c. Model context menu

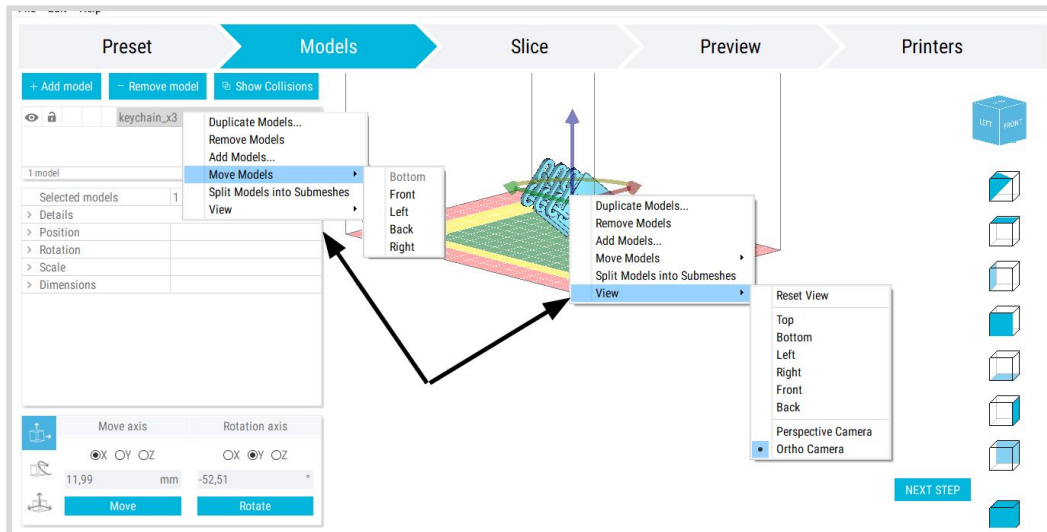


Fig. 15. Right-click context menu of the model.

Right-clicking a model (or name of a model) shows the context menu in which you can:

- copy a model i.e. duplicate n-times in each grid (**Duplicate Model**);  
NOTE: In the Duplicate Model menu the entered number is the number of models after the duplication. So if you leave “1”, the model won’t be duplicated.
- delete a model (**Remove Model**);
- add a model (**Add Models**);
- move it to the bottom or to the bounds of the PRINT BED’s green zone (**Move Models: Bottom, Front, Left, Back, Right**);
- Split to the model to single parts or a group of models into single elements (**Split Models into Submeshes**);
- change the PRINT BED view to models located inside (**View: Top, Bottom, Left, Right, Front, Back**). You can also change the view (**Perspective Camera/ Ortho Camera**). You can also use icons in the bottom left side of the screen.

**PERSPECTIVE CAMERA** - three-dimensional camera view, best for previewing the whole printing bed arrangement. By default, the camera is rotated using the right mouse button.

**ORTHO CAMERA** - orthogonal projection of the model on the plane (two-dimensional view in the work area). It is useful for accurately arranging objects in the working area. Particularly recommended with Z axis (top view). By default, the right mouse button.

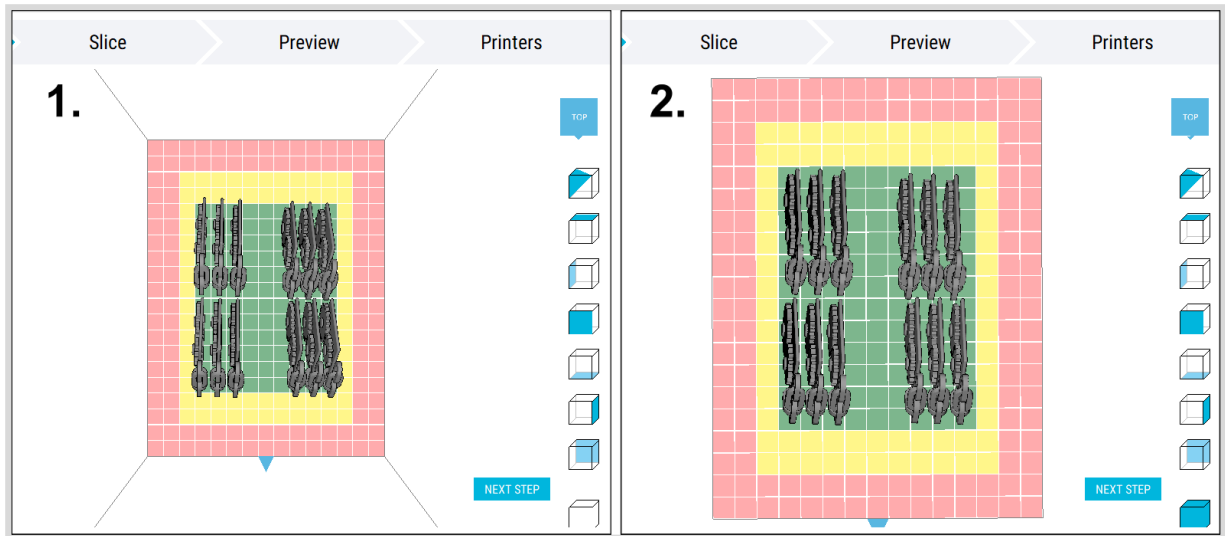


Fig. 16. Comparison of the Perspective Camera (1) and Ortho Camera (2) views in the Z axis.

## C. Slice tab

This tab prepares the model for final printing. Using the SLICE button allows saving the file (with the \*.Scode extension); afterwards, the model is “sliced” into layers. Depending on the size of the file, this may take several minutes.

When the process is complete, information required for preparing the Sinterit LISA printer for printing appear in the dialog box. You should read them carefully.

While the project file is being saved, if Generate report option is marked, a report in \*.txt is saved along with the scode file (we recommend printing it).

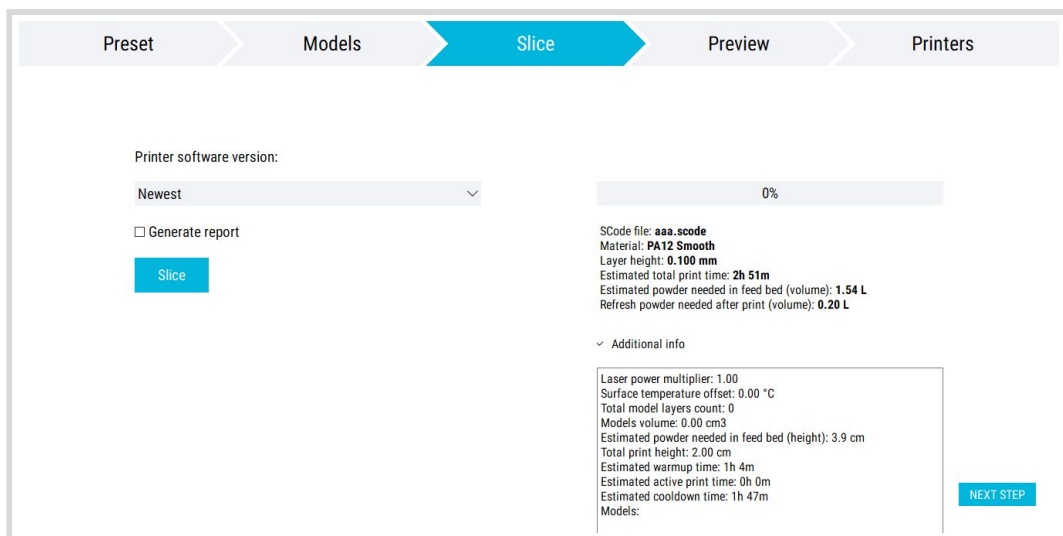


Fig.17. The SLICE tab before “slicing”.



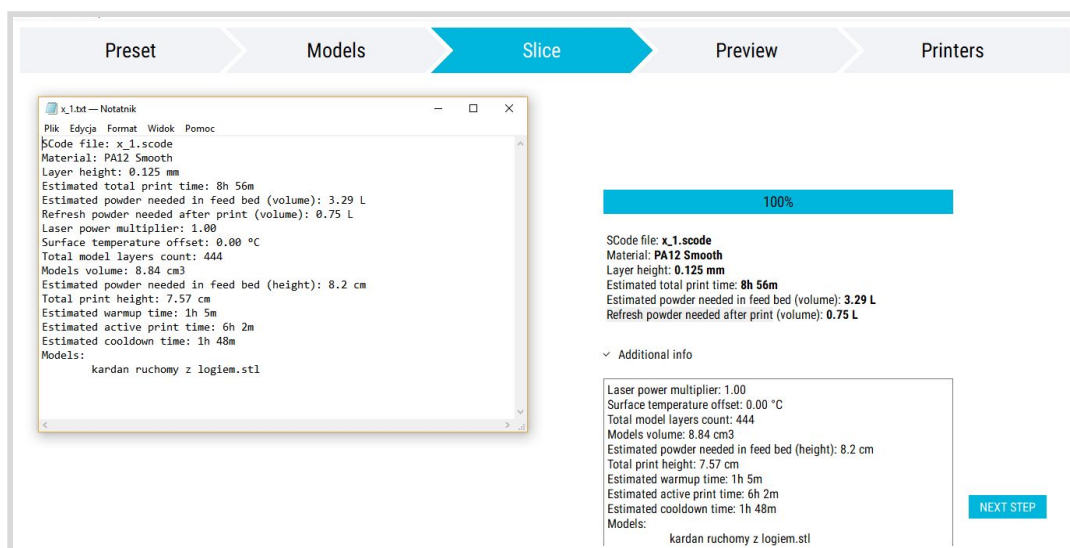


Fig.18. A report displayed after the slicing process along with other relevant information for further work with Sinterit LISA printer.



### IMPORTANT!

Information displayed after the “slicing” process of the model necessary for further work with the Sinterit LISA printer.





Basic information:

- file name (**SCode file**),
- used powder type (**Material**),
- layer height (**Layer height**),
- estimated total printing time (**Estimated total print time**),
- estimated amount of powder needed in the FEED BED - volume in L (**Estimated powder needed in FEED BED**),
- amount of FRESH POWDER which needs to be added after printing to PRINT READY POWDER - volume in L (**Refresh powder needed after print**),

Additional information:

- laser power (**Laser power multiplier**),
- temperature change (**Surface temperature offset**),
- number of layers in the model (**Total model layers count**),
- model capacity in cm<sup>3</sup> (**Model's volume**),
- estimated amount of powder needed in the FEED BED - height in cm (**Estimated powder needed in FEED BED**),
- total height of the print in cm (**Total print height**),
- estimated warm-up time (**Estimated warmup time**),
- estimated active printing time (**Estimated active print time**),
- estimated cooling time (**Estimated cooldown time**),
- numbers and names of sliced models contained in the project (**Models**).

## D. Preview tab

This tab allows previewing individual layers of the model after the “slicing” stage. This enables careful inspection of the sliced model and detection of potential mistakes which are not visible at the stage of preparing the file.

In this tab you can check individual layers of the “sliced” model in **2D or 3D view (1)**. You can choose the desired layer manually by clicking “<” or “>” near the **Layer** icon (2) or by using the slider (3). It is also possible to view the printing process of individual layers in a movie-like way (**Preview** icon) in a desired playback speed (4).

You can also check a different \*.scode file using the **Load from file** feature (5).

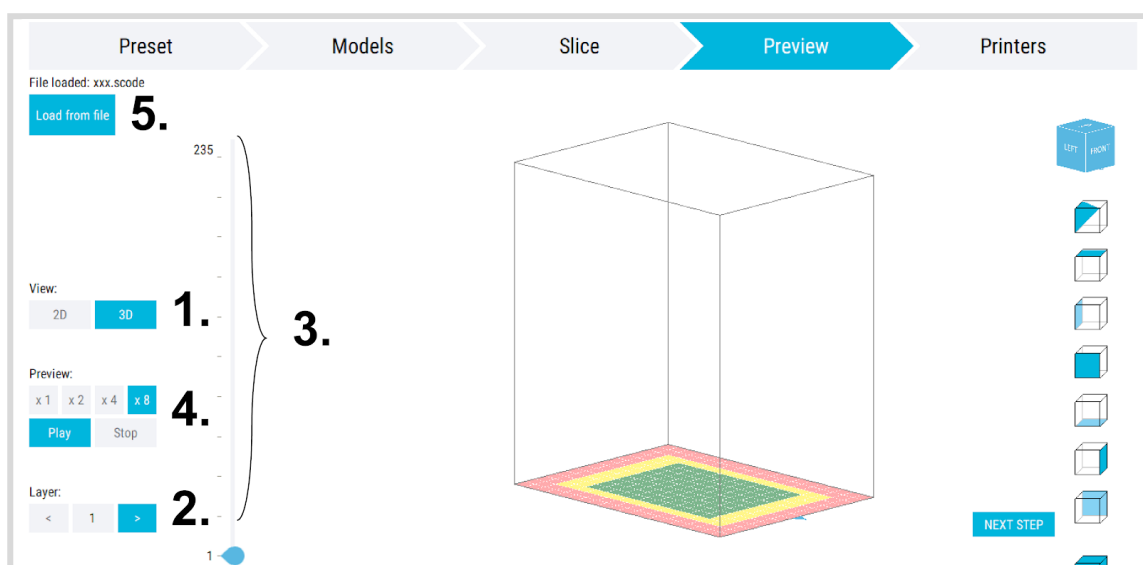


Fig. 19. Preview tab and view of the available features

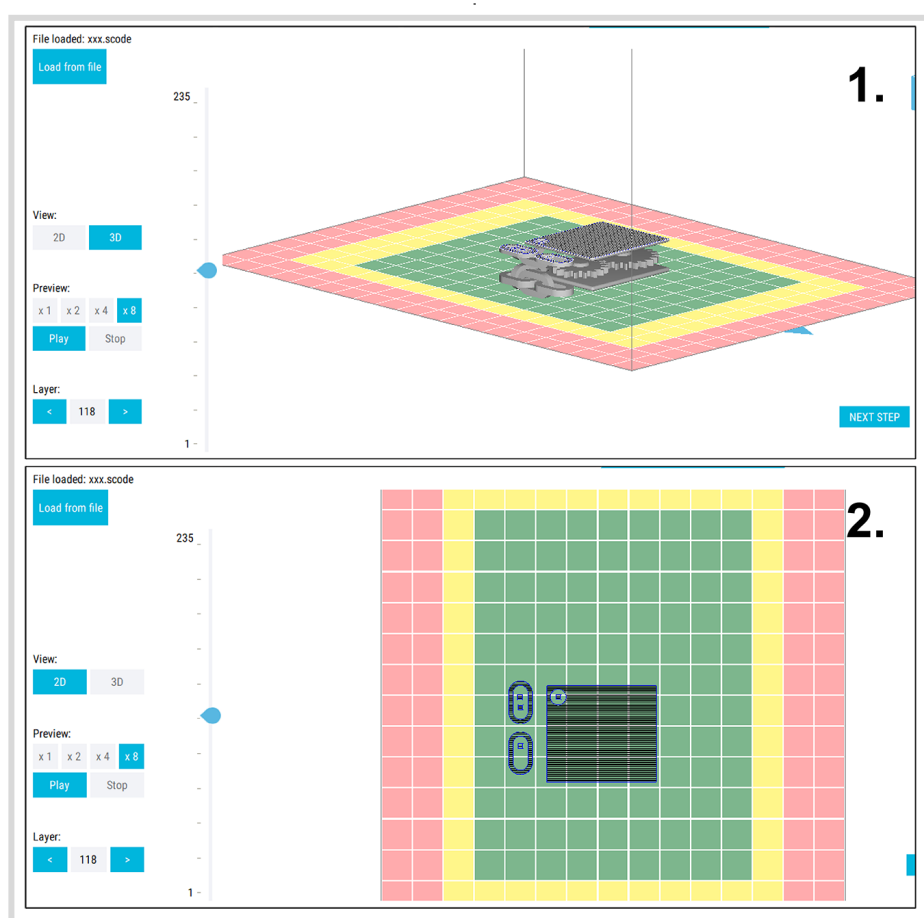


Fig. 20. View of the 118th layer of the model in 3D (1) and 2D (2) view.



## E. Printers tab

The Printers tab is used for checking the printing status and temperature inside Sinterit LISA printers (1) connected via Wi-Fi (the instruction how to connect a printer to Wi-Fi network can be found in the Sinterit LISA manual). The model of the connected printer is shown by an icon located in the left part of the program window (2). It is particularly helpful when the printer is located in a different room/building.

**Send File** - this tab optimizes work in a simple way and allows loading another file into the printer (3).

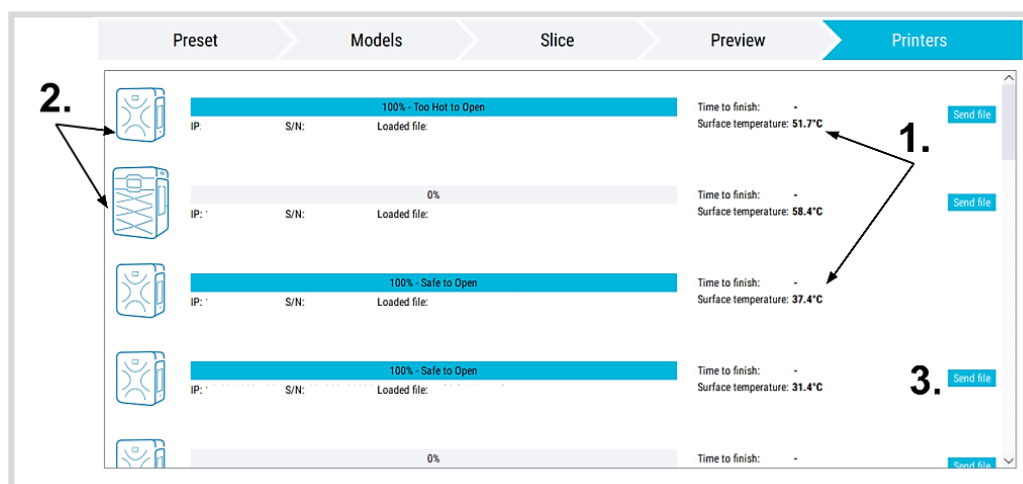


Fig. 21. Printers tab and printing status of printers connected via Wi-Fi.

## 3. Positioning the print

The first rule in arranging a print in the laser sintering technology is to make the cross-section of a solid model as small as possible which guarantees the best quality-to-durability ratio. In large cross-section surfaces there is an accumulation of heat inside the print, which may lead to internal stress of the material and result in the print edges curling up or down, especially in prints with right angles.

Sinterit STUDIO has several tools to facilitate the arrangement of models. In the Models tab, you can manipulate model settings by pan, rotate and scale. Try to keep the models always within the green rectangle shown in the view, this will allow you to get a properly sintered 3D print.

The tips below concern printing from PA12 SMOOTH and PA11 ONYX material. While using FLEXA or TPE powders, these rules are still valid, but have not such a significant impact on the printouts.

### A. Flat surfaces

In flat and thin surfaces, a lot of internal strain and shrinking occurs. **Do not lay your models flat!** The heat accumulating in the layers may cause deformation of your model.



The best solution for this kind of models is print them rotated by 45 degrees in every axis. This will help to minimise the cross-section of the surface and released heat, which results in a good print.

**EXCEPTION:**

Flat surfaces of up to 12 cm<sup>2</sup> or consisting of only one layer (e. g. a booklet page).

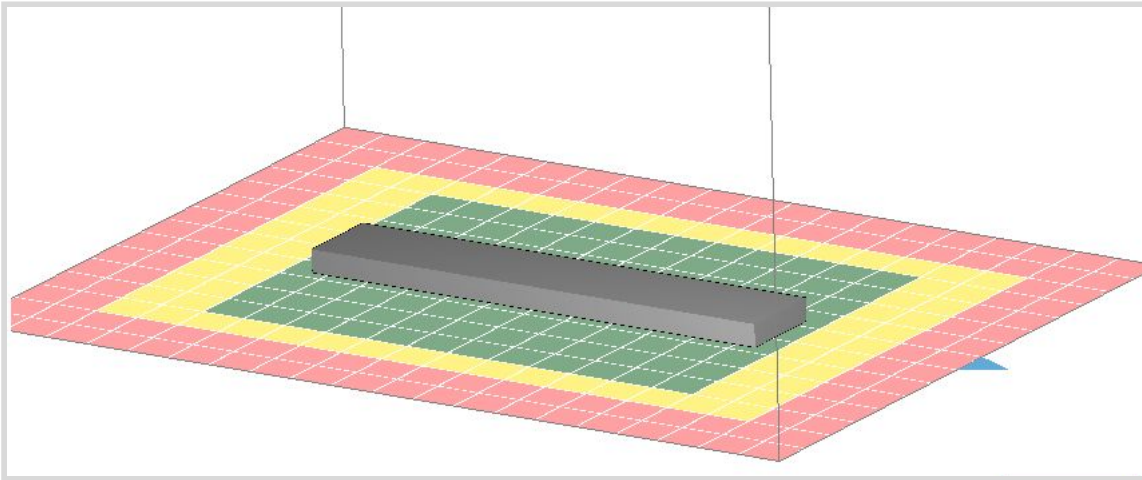


Fig. 22. **Incorrect** arrangement of a flat model. In both cases, accumulation of heat may occur.

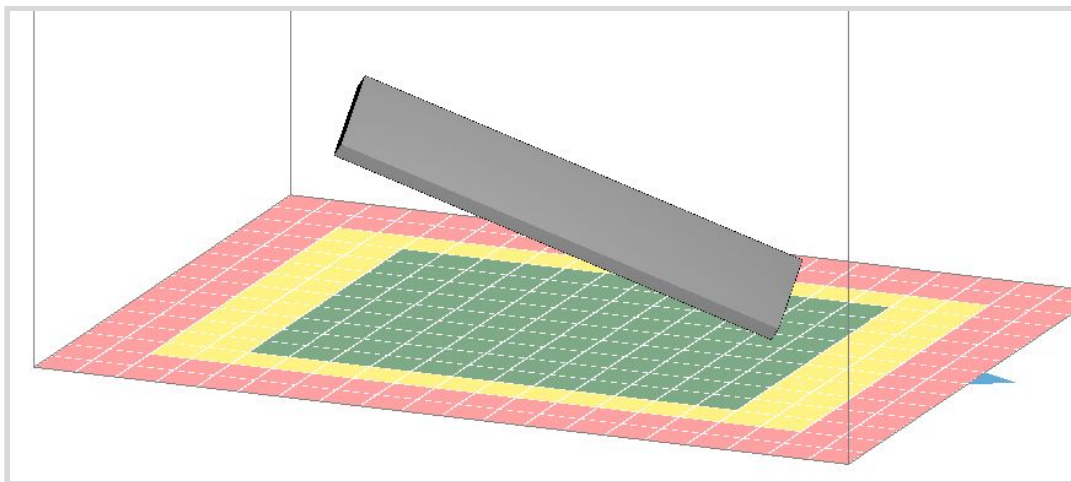


Fig. 23. **Correct** arrangement of a flat model.

## B. Solid blocks and boxes

The main rule in arranging a printing of a dense model, as in the flat surfaces case, is to make the cross-section area as small as possible. In solid blocks and boxes, there is a significant accumulation of heat inside the block volume and local internal stress, which may deform the final product. The bending or curving of the block usually occurs at the corners.



## a. Solid blocks

Solid blocks, both those with right angles (rectangular cuboids) and those with acute angles (pyramids, other polygons), must be positioned in such a way that no side of the block is parallel or perpendicular to the PRINT BEDs walls. It is recommended to turn the model in three axes, in the 15 to 85 degree range (45 degrees for each axis is optimal). Arranging the models at an angle diminishes the heat accumulation in the next layers.

With blocks with irregular angles or rounded surfaces, the rule of the smallest section surface possible also applies.

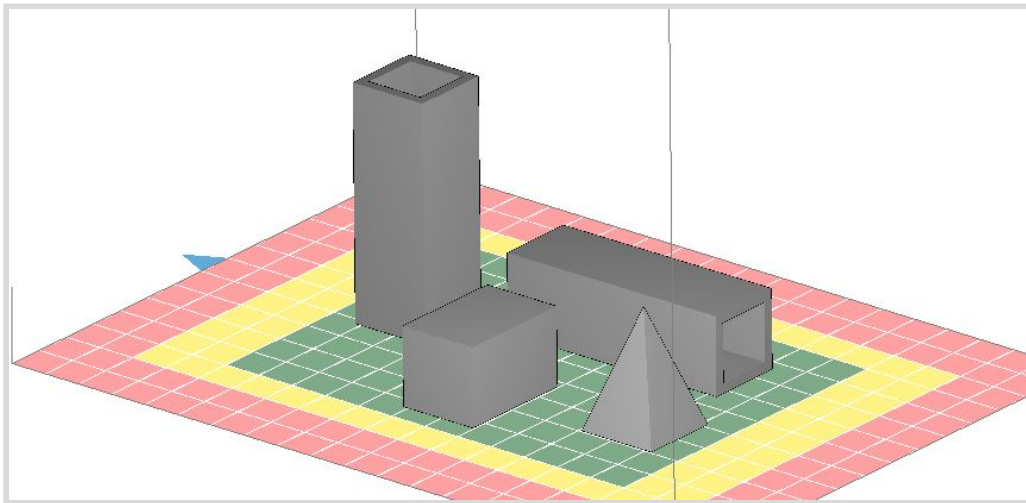


Fig. 24. **Incorrect** arrangement of solid blocks with flat sides.

No side of the sample models is parallel or perpendicular to the PRINT BED surface and the section surface at the base is very small, which decreases heat accumulation and diminishes the risk of print deformation.

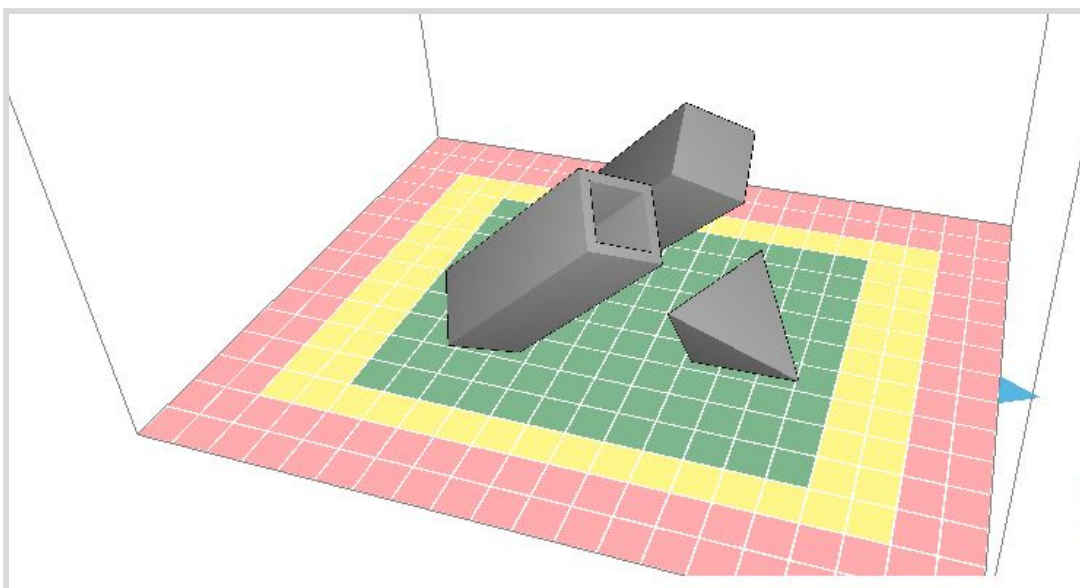


Fig. 25. **Recommended** arrangement of models.



## b. Boxes

The arrangement recommendation for boxes and closed blocks is the same as for solid blocks. Additionally, be sure not to put such models, especially boxes, upside down and/or cover them with a lid if they come with a one. Even if the model's sides are thin, the heat accumulated within the box may deform the print.

It is recommended to arrange such models in three axes and bottom down. The free space can be used for another model.

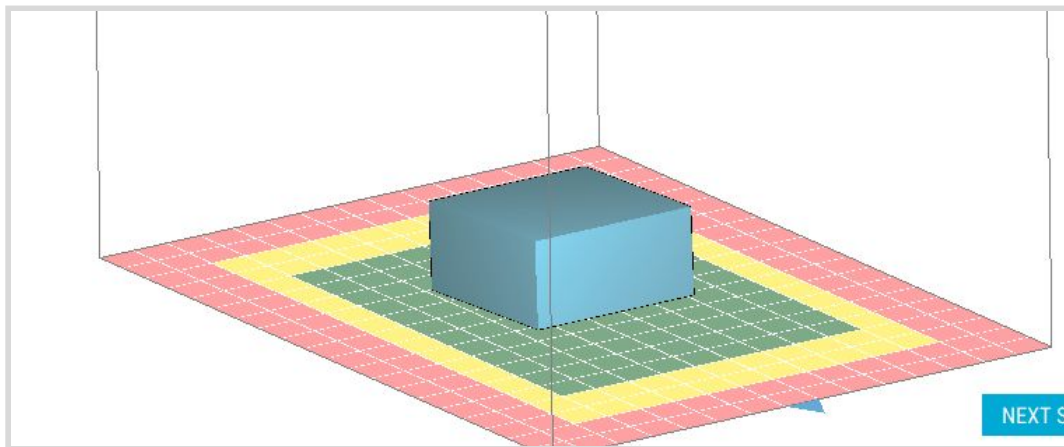


Fig. 26. **Incorrect** arrangement of box models.

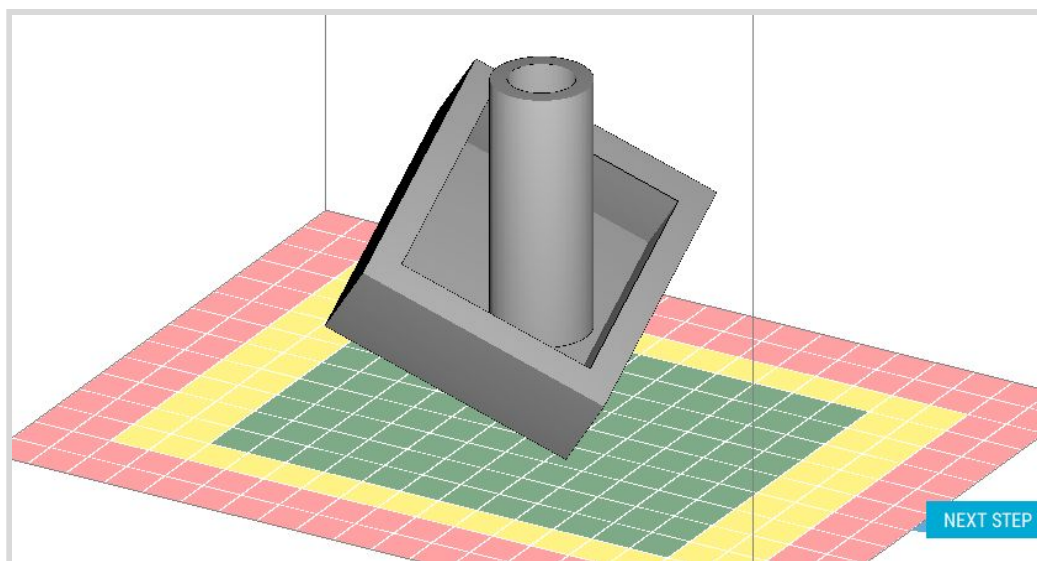


Fig. 27. **Correct** arrangement of boxes and an example of using the space inside.





## C. Spheres, cylinders, pipe cylinders and other rounded objects

Given their exterior finish (i.e. the layers in the Z axis being on display), it is recommended to print cylinders and pipe cylinders arranged vertically. If the model is too large and does not fit on the PRINT BED, it should be tilted by 15 to 85 degrees.

If the models also have additional details (insets or other protruding elements) that need to be as durable as the main block, arrange them in such a way to ensure the smallest section surface possible. The more layers they have, the stronger and surer their connection with the main block will be.

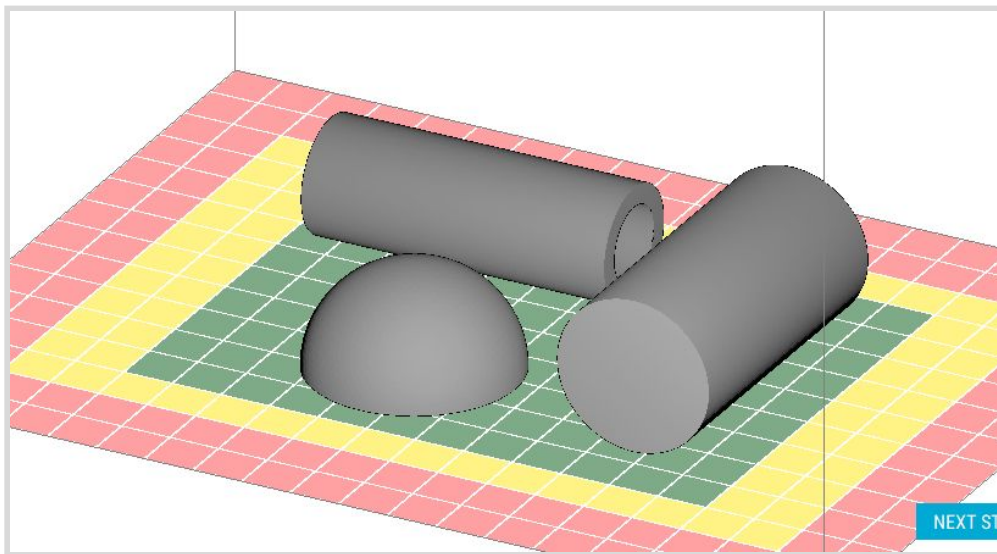


Fig. 28. Given their exterior finish, **it is not recommended** to arrange rounded, cylindrical objects as pictured above.

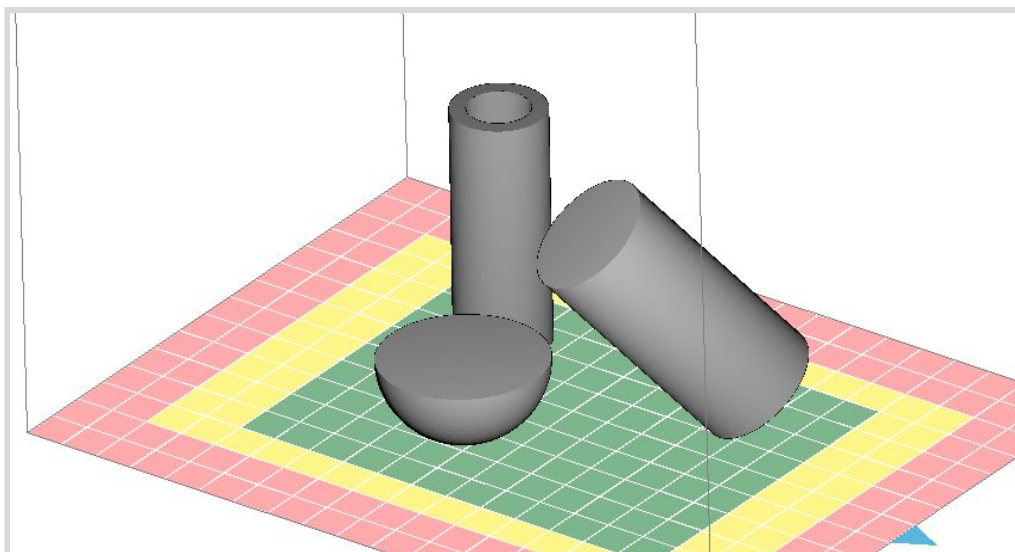


Fig. 29. The **recommended** arrangement of spheres and other rounded models.  
This guarantees the best surface finish and durability of the model.



## D. Sharp details vs. smooth edges

If the model has some details, please orient the detailed surface upward. The detailed surface will be sharp, while the bottom surface will be smoother.

### a. Sharp details

If one of the surfaces contains detailed features and you want them well-visible, the model should be put in such a way that the detail is facing up. It is essential to keep the cross-section area is as small as possible – this will make the print stronger and more durable against mechanical damage.



#### **IMPORTANT!**

Flat models with sharp details should be arranged at 45 degrees at each axis, with the detail facing up.

This angle will allow both correct printing of the flat surface and a defined and strong detail.

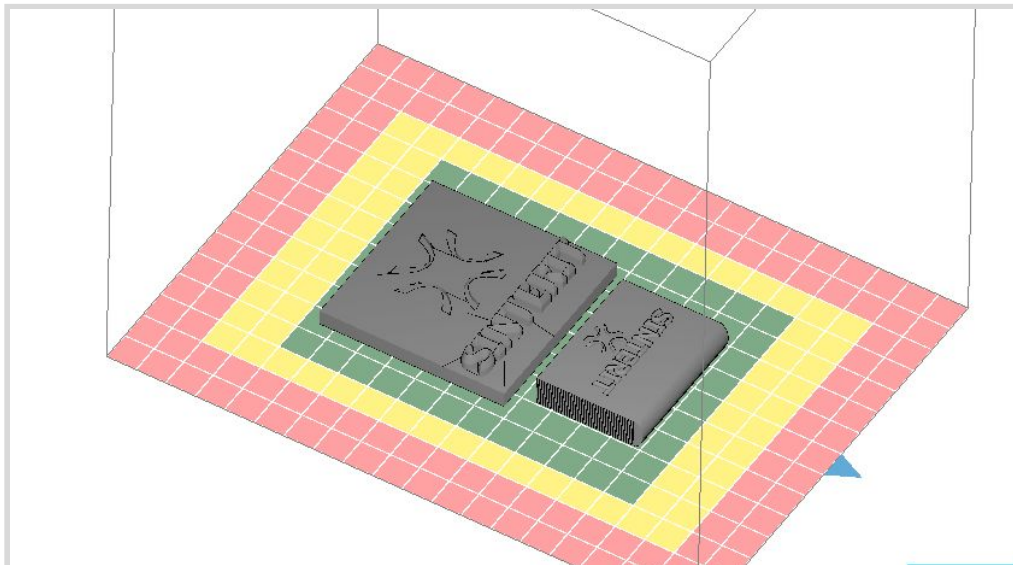


Fig. 30. Defined details, such as inscriptions, should be arranged to face up.

### b. Smooth details

If you want to have the details smooth, not so sharp, the model should be arranged with the detail facing down.



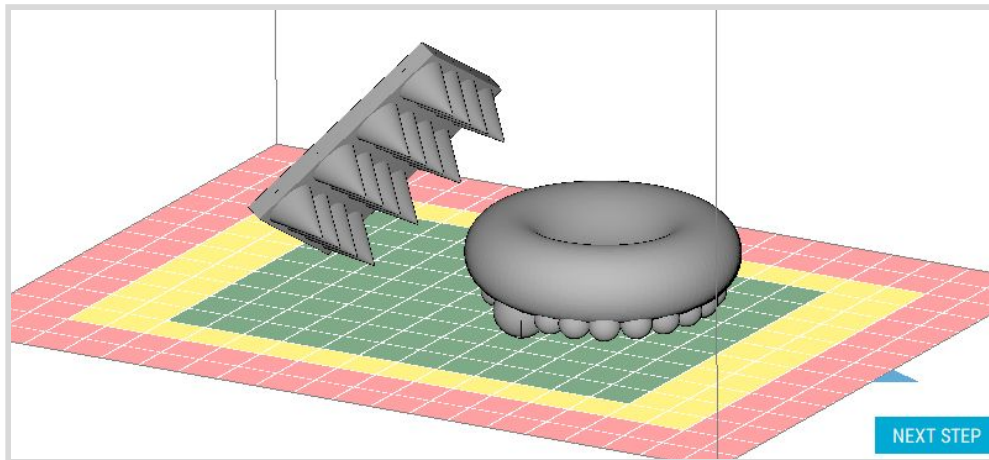


Fig. 31. Arrange the fine, rounded detail to face down.

## E. Openings and holes

If possible, any openings in the model should be laid flat (axes X and Y) and facing up. Arranging them vertically may result in the opening shape change e.g. from round to oval and/or not retaining the intended size after printing.

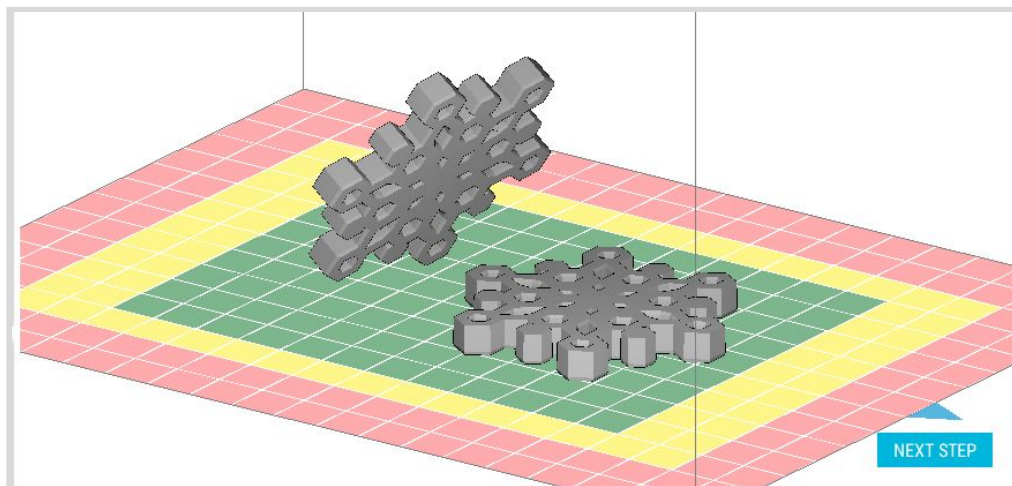


Fig. 32. Correct and acceptable arrangement of models with openings.

In case there is no other way (the model is too big or the flat surfaces bend), the model with openings should be arranged at an angle in all three axes. Please be aware, that the round shapes may be distorted then.

## F. Movable parts

If the model contains movable parts, please position it perpendicular/parallel to the printing chamber. This way, the joints will be the most accurate and if designed properly, the model should be movable.

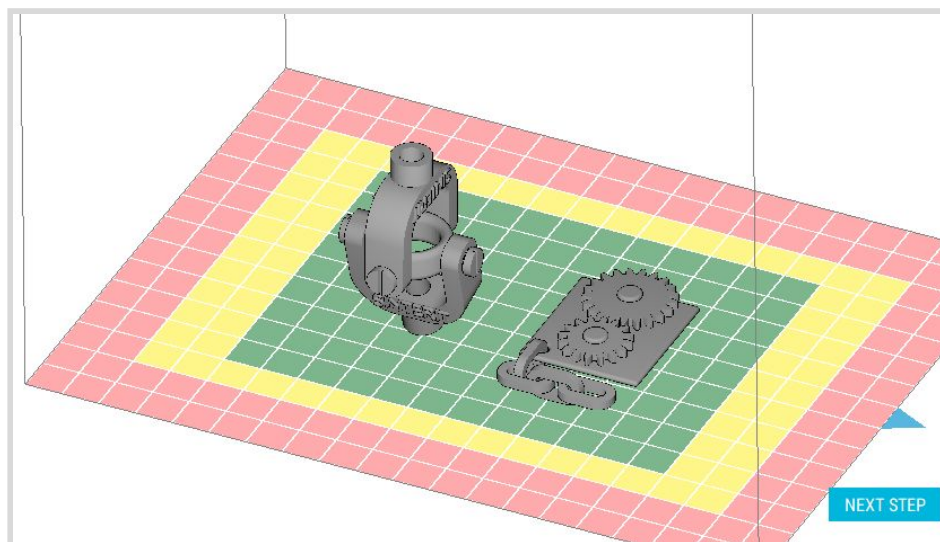


Fig. 33. This arrangement should provide movable model

When the movable model is rotated, the joints would not be so accurate. This may make e.g. the revolving joint immovable.

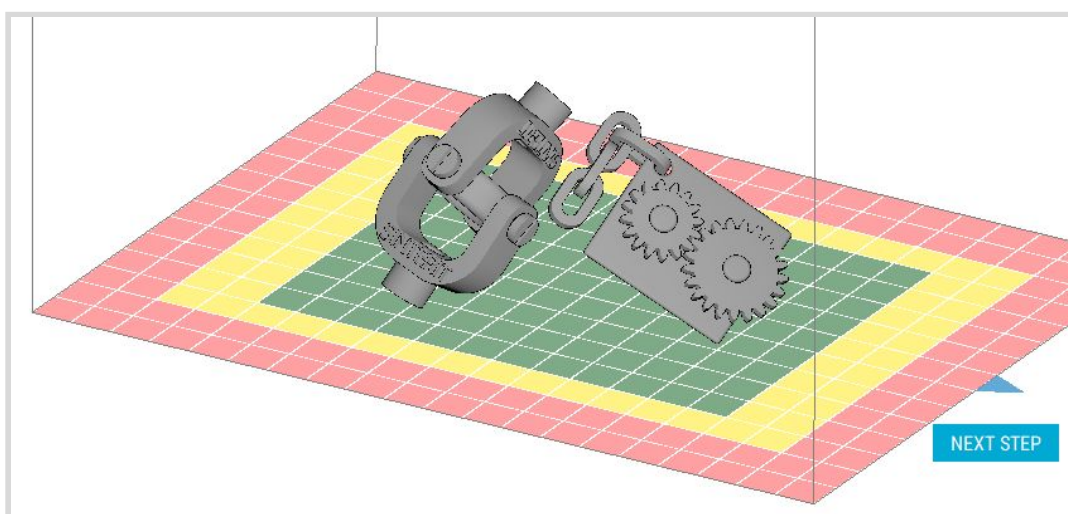


Fig. 34. **Incorrect** arrangement, which may cause sticking of moving parts to surfaces.

## G. Filling the build chamber

If you want to completely fill the printer work space, the first thing is to follow the instructions from the previous sections depending on the models used. However, it should be noticed that the number of models and their volume in the chamber, significantly influence the time of the print.

It is recommended, as in other cases, to arrange the models inside the green rectangle in Sinterit STUDIO.

To fill the available space by placing more models vertically in the build chamber, keep the minimum distance between them 1 mm so that the printouts do not stick. To minimize idle movements, prints should be arranged at most 4 mm of each other.

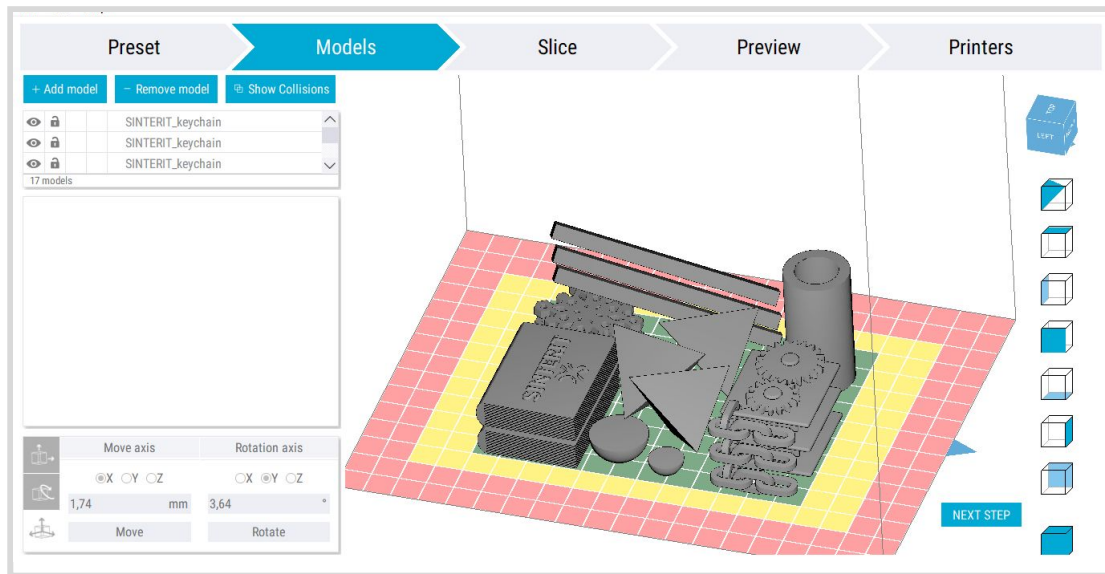


Fig. 35 . **Correct and acceptable** vertical arrangement of models

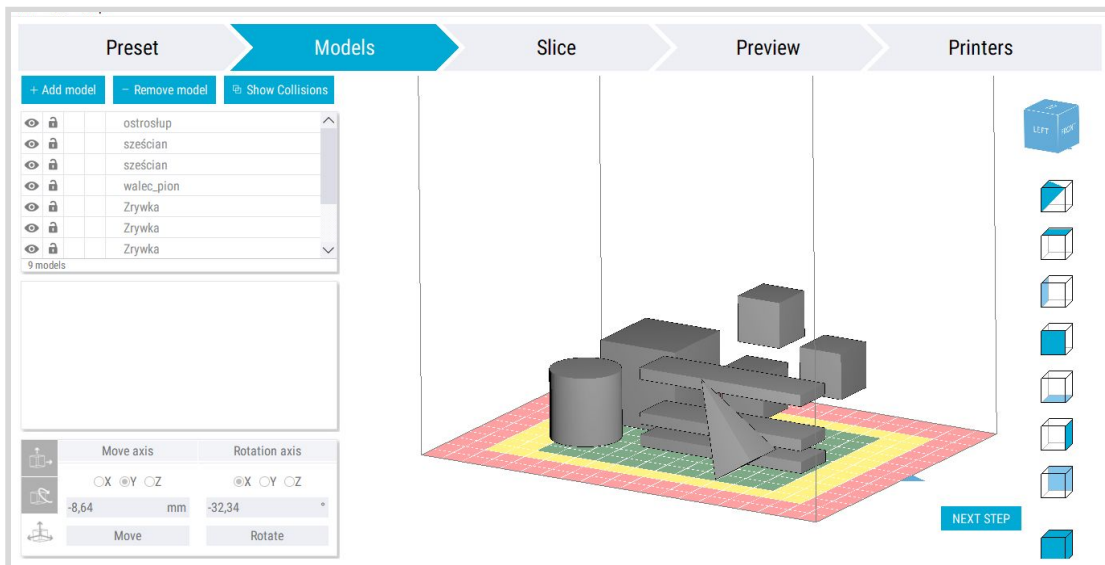


Fig. 36. **Incorrect** arrangement.

### TIP

After the models are arranged, remember to always check if the objects don't collide with each other by using the **CHECK COLLISIONS** button.

## H. Final remarks

- Decide which surface is a priority for you. If you care most about the exterior finish, arrange your prints upside down – this will hide the layers from display (Z-stepping).



- When arranging your prints, optimise the arrangement to follow as many of the above principles as possible.
- You may want to skip some of the tips to reduce the printing time or increase the printing capacity, but this may be associated with lower quality.
- If you have any doubts and queries about the arrangement of your print, contact Sinterit technical support.

## 4. Preparing files for printing in Sinterit Studio

### A. Preparing a new .sspf project

1. To create a new project, select FILE // NEW.
2. Select the type of printer and powder in the PRESET tab. You can change the printing settings or leave the default settings for the appropriate type of powder (recommended).
3. Go to the MODELS tab // ADD MODEL // tab and select files (file formats supported: \*.stl, \*.fbx, \*.dxf, \*.dae, \*.obj, \*.3ds, \*.3mf)

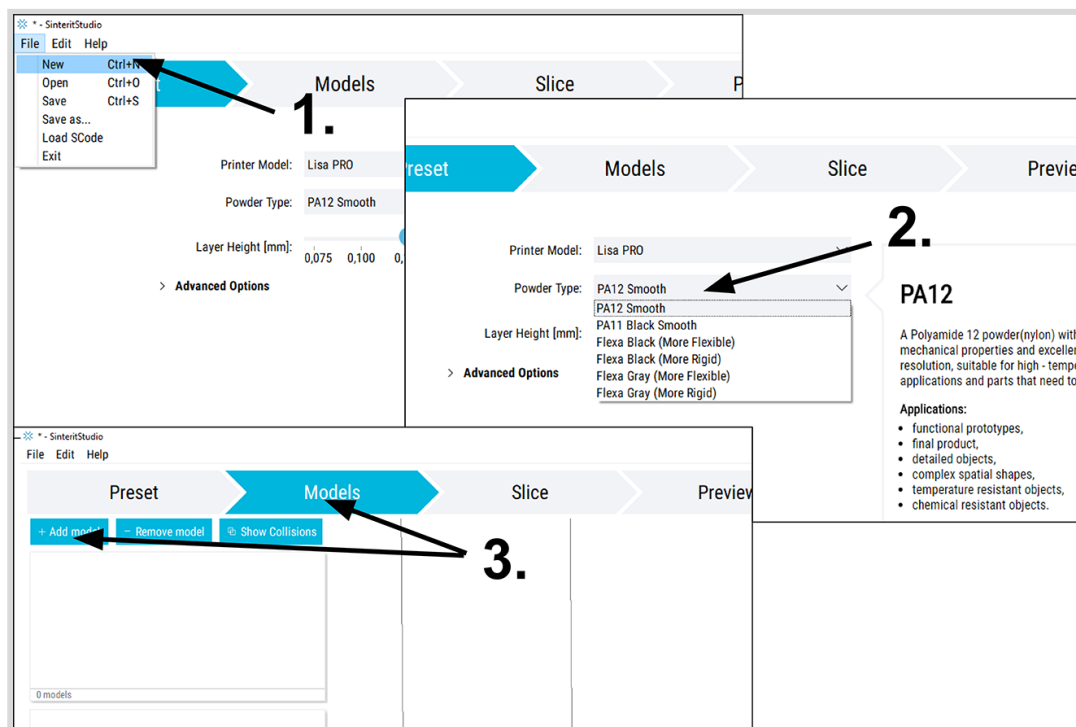


Fig. 37. The steps in creating a new project.

4. In the MODELS tab, prepare selected models for printing, according to instruction for arranging prints (especially in case of PA12 SMOOTH and PA11 ONYX).

You can for example:

- add or remove models (**ADD MODEL / REMOVE MODEL**);





- move and arrange models in three dimensions (**MOVE MODEL** or **POSITION**);
- rotate models in three axes (**ROTATE MODEL** or **ROTATION**);
- change the size of the model in each dimension (**SCALE**);
- check if models overlap each other or extend beyond the green area (**SHOW COLLISIONS**);
- duplicate the model n-times in the PRINT BED (**DUPLICATE MODEL**).

All the features described above are available on the left side of the MODELS tab or after moving the mouse cursor over the model/model name and clicking the right mouse button. A detailed explanation of each feature is provided in Chapter 1, in the MODELS tab.

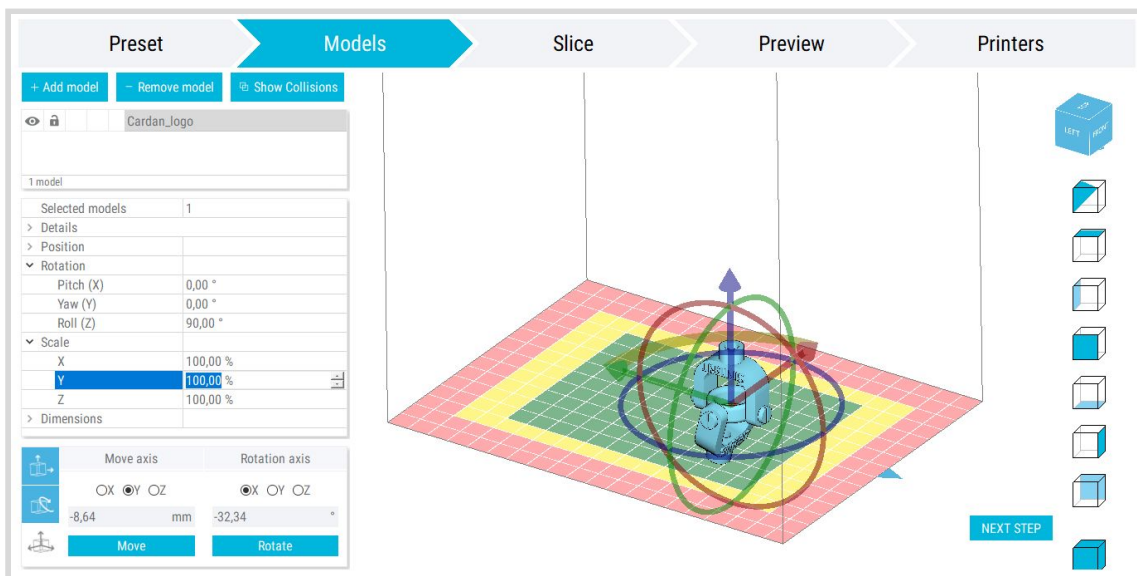


Fig. 38. Preparing models for “slicing” in the Models tab.

5. To save a project (to work on it later or “slice” it), click: FILE // SAVE AS... // project name \*.spsf or \*.spsfz.
6. Make sure all models are arranged properly in the PRINT BED for printing and go to the SLICE tab.
7. If you want to save all the parameters of the sliced model in a text file, choose GENERATE REPORT. All the information will be saved in a \*.txt file with the same name that the \*.scode file.
8. Click on the SLICE button to save the file with the \*.scode extension (it is recommended to first save the file on your local disk and then copy it to a USB flash drive), and wait for the program to prepare the file. This may take several minutes.



Fig. 39. Model slicing in progress.

9. When the process is complete, the “SLICING FINISHED” message will appear
10. Click OK to finish. The model is sliced into layers.
11. All information related to project, such as printing duration, required amount of PRINT READY POWDER before printing (**Estimated powder needed in FEED BED**) and amount of FRESH POWDER which needs to be added after printing (**Refresh powder needed after print**), appear in the dialog box.
12. If you have more than one printer, we recommend printing the \*.txt file containing information required for printing to facilitate your workflow (if GENERATE REPORT has been checked).

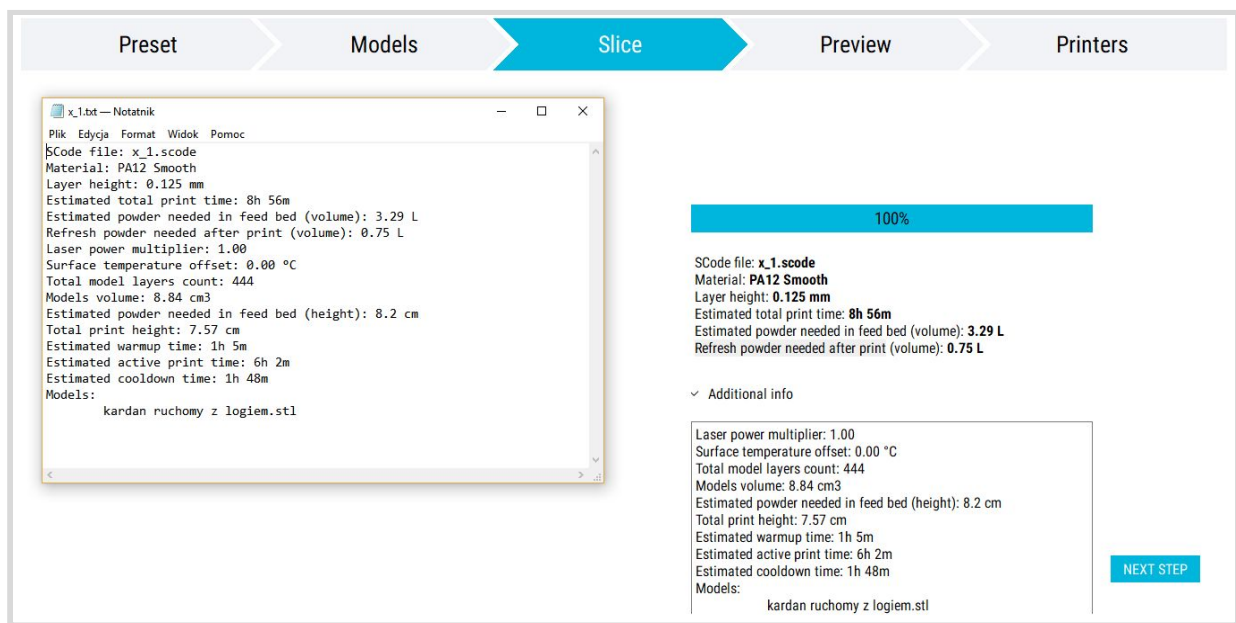


Fig. 40. Completed slicing process of the model along with other relevant information for further work with Sinterit LISA printer.

13. In the PREVIEW tab you can preview the print layer by layer and check for possible errors.

You can choose between 2D and 3D view to review the project layer by layer using the slider (1) or clicking < or > in the bottom left part of the screen (2).



The project can be also reviewed roughly using PLAY/STOP buttons with adjustable playback speed (3).

Layers of a previously saved \*.scode file can be viewed in the PREVIEW tab. To do it, click PREVIEW//LOAD FROM FILE// and choose the desired \*.scode file (4).

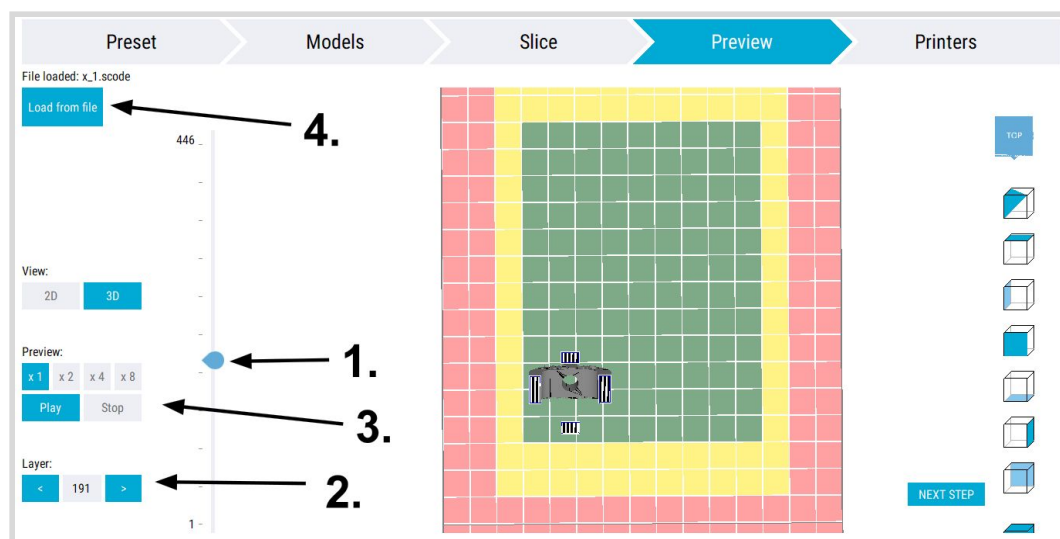


Fig. 41. Checking the slicing project in the PREVIEW tab.

14. If everything is right in the project, you can switch to the next tab called PRINTERS and send the file to the printer (**SEND FILE**) if it's connected to the same Wi-Fi network that your computer is. If it's not, copy the file to a USB flash drive, transfer it to the Sinterit LISA or Sinterit LISA PRO printer, and follow the instructions on the printer's screen.

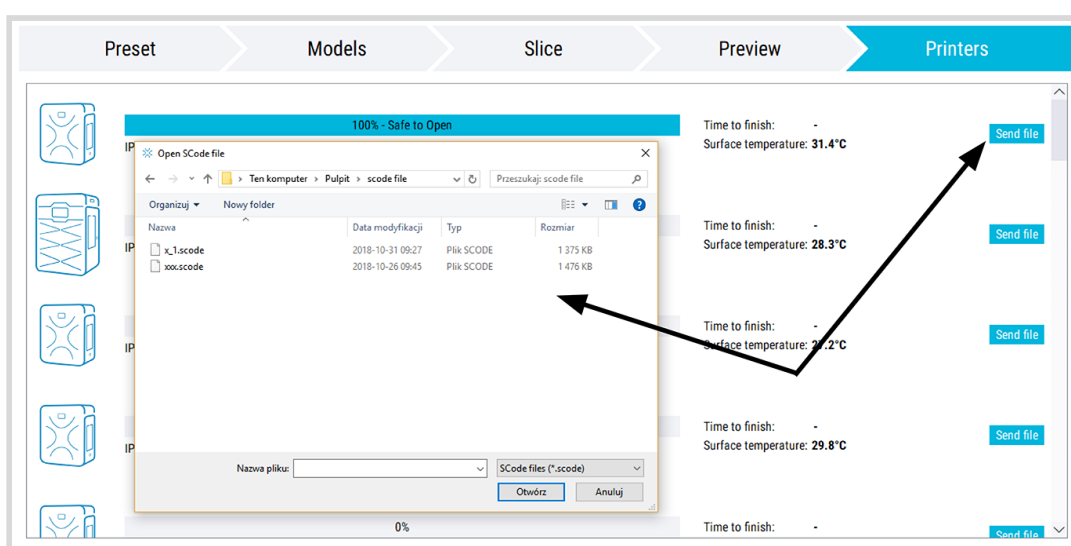


Fig. 42. Sending a file to the printer by a Wi-Fi network.



## B. Working on a saved .sspf file

1. To open an existing project, select: FILE // OPEN // \*.sspf file type.
2. Once loaded, a project can be modified and/or sliced like a new project.



### REMEMBER!

If you need to copy or send an existing project with \*.sspf extension to another data medium/computer, you will also need models source files for this project (\*.stl, \*.obj or other files supported by Sinterit STUDIO).

Otherwise it will not be possible to load the project correctly on a different computer.

This rule does not apply to files with the \*.sspfz and \*.SCode extension.

## 5. Duplicating models

If you need to print many of models at one time, a very useful feature is DUPLICATE MODELS . It allows duplicating the selected model at the specified amount of times in three axes (XYZ).

1. Load the desired model to the PRINT BED visualization (MODELS tab // ADD MODEL).
2. Arrange the model according to the instruction (especially in case of PA12 SMOOTH or PA11 ONYX) and position it as closely as possible to the left corner of the green field. You can do it by using MOVE MODELS/LEFT available in the context menu (right-click).
3. Make sure it does not extend beyond the green area (SHOW COLLISIONS)
4. Using the right mouse button, click on the model to activate the context menu and select the DUPLICATE MODELS feature.

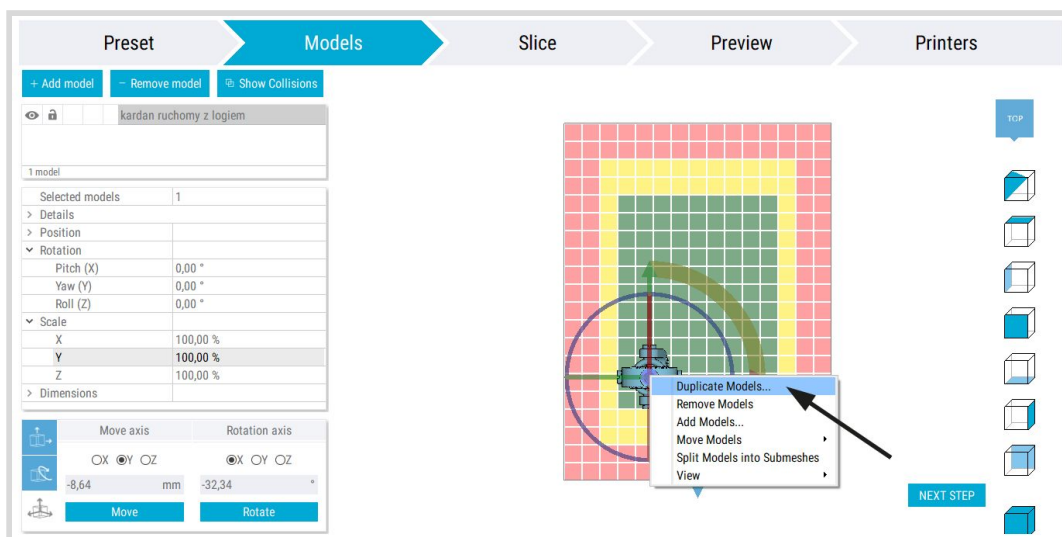


Fig.43. Activating the DUPLICATE MODELS feature.





- When you click on the feature, a table appears in which you can enter the number of prints (COUNT), their total dimensions (DIMENSIONS) in each axis and the gap between them (GAP). You can check all setting using the PREVIEW button.

	Count:	Gap [mm]:	Dimensions [mm]:
X	1	3	35,78
Y	1	3	35,78
Z	1	3	55,56

OK Cancel Preview

Fig. 44. DUPLICATE MODELS table.



#### REMEMBER!

Default gap between the models is 3 mm. In case of large or tightly filled objects, the gap between models should be at least 5 mm.

- When all parameters are entered, a grid of duplicated models is created. Each of them can be individually adjusted or removed to optimize the filling of the PRINT BED.

## 6. Updating the Sinterit LISA printers using Sinterit STUDIO

It is possible to update Sinterit LISA and LISA PRO internal software so that it works with the latest available Sinterit STUDIO 2019 software. First, we recommend that you check whether a new version is available (HELP // CHECK FOR UPDATES).

To update the printer:

- Go to the HELP // UPDATE PRINTER tab.
- Choose the printer model to update.
- Insert a USB flash drive into your computer's USB port and then click CREATE UPDATE USB DRIVE. The process may take several minutes.
- After the files are copied, a message appears to safely remove the USB flash drive, insert it into the USB port on the printer, and follow the instructions on the screen.

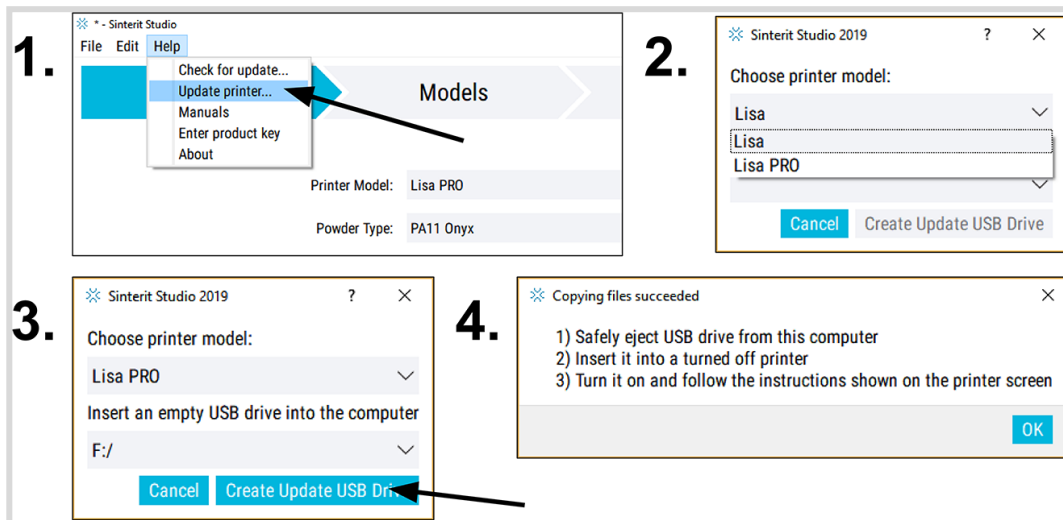


Fig. 45. Downloading updates for Sinterit Lisa.



### IMPORTANT!

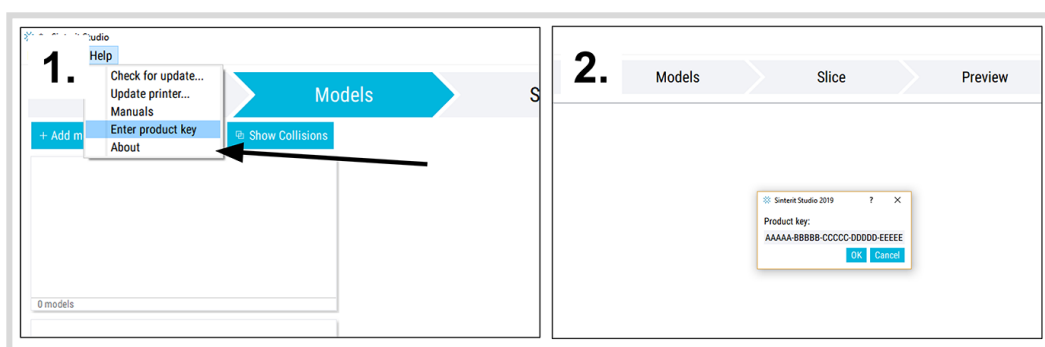
If you have any doubts and queries contact Sinterit technical support  
[contact@sinterit.com](mailto:contact@sinterit.com) or phone: **+48 570 967 860**

## 7. Unlocking advanced versions

### For the owners of Profiles/Open/Advanced versions

Advanced software versions let you work with printer's open parameters (if tested powders fulfill printer's requirements).

1. In the menu, click **Help // Enter product key**
2. Enter your individual product key provided by Sinterit
3. After successfully entering your product key, you'll be able to use new software features. It will be possible to work with 3rd party powders that meet your printer's hardware requirements.



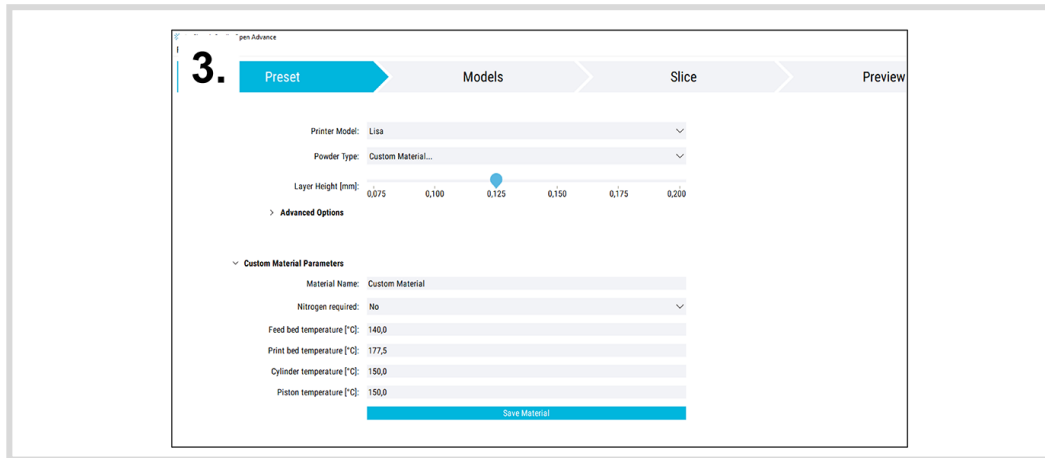


Fig. 46.Unlock open parameters.

## 8. Hardware requirements

Technical requirements for Sinterit Studio 2019

- 64-bit processor
- Windows 7 or higher,
- Minimum 1 GB of disk space,
- Minimum 2 GB of RAM,
- Graphics adapter compatible with OpenGL 3.0 or higher.

## 9. General legal information

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