

OMNI^{3D}

OMNI^{PRO}

USER MANUAL



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Legal information

The basis for operating the printer is to read the following instructions. Failure to understand these operating instructions may result in printer damage or reduced print quality.

The printer must be installed by an Authorized Omni3D Service Center.

However, the methods of moving, using, storing, and disposing of the printer may be beyond the control of an Authorized Service Center. Therefore, Omni3D will not be liable for any damages or costs resulting from performing these tasks yourself.

Application of the Omni PRO printer

Omni3D 3D printers operate using additive technology (gradual application of layers of molten filament).

The precision and speed of 3D printing offered by the Omni PRO printer make it an ideal device for making prototype models, small-scale production, and the production of small and large finished products.

The 3D printer manufacturer allows the use of filaments from various manufacturers. It also recommends filaments from its own range, for which it provides profiles (prepared by Omni3D 3D printing technologists), guaranteeing the creation of high-quality prints.

Reservation



Note! The manufacturer reserves the right to change the printer's design. and make appropriate changes to the technical documentation without prior notice to the customer in order to update the printer in line with technological developments. Therefore, the information contained in this document and all other documents or support systems linked to this documentation are subject to change. These changes may result in changes to the warranty terms for some printer components.



Note! No part of this user manual may be reproduced, transmitted, stored in a retrieval system, or translated into another language in any form or by any means (mechanical, electronic, photocopying, recording, or otherwise) without the express written consent of Omni3D Sp. z o.o.

1. Entry

The following document provides safety and operating information for the Omni PRO printer device.

Before starting work, carefully read all information and follow the instructions in this document. Following the recommendations and warnings contained in this manual will ensure high-quality 3D prints and minimize potential risks. Ensure that all personnel operating the machine have access to this manual.

1.1 Purpose of the printer

A 3D print (a three-dimensional model) is created by extruding material through a hot nozzle and moving the printhead modules along the X and Y axes, creating a single layer of the model. Subsequent layers are stacked on top of each other on a platform surface that moves along the Z axis.

The Omni PRO printer is equipped with two printhead modules designed to apply 1.75 mm diameter filaments. Its enclosed and well-insulated design ensures a constant temperature in the chamber during printing. The printer platform, the surface on which the print is created, is equipped with an auto-leveling function, ensuring consistent layer thickness across the entire build surface.

The printer's design guarantees stability during the printing process. The front door and top cover allow for easy access to the printer's interior (e.g., the build platform and extruder modules) and facilitate the inspection of the printed object. The printer performs many processes automatically based on pre-prepared procedures stored in the control system's memory. At the same time, it allows for manual control of head movements via the LCD touchscreen and a remote panel in a web browser.

The Omni PRO printer provides the technical capability to produce high-precision 3D prints, i.e., $\pm 0.12\%$ of the linear length dimensions, meaning the printed model retains the parameters from the previously prepared G-code file (with precision dependent on appropriate model scaling prior to printing to compensate for material shrinkage, model geometry, and layer height). The manufacturer does not guarantee that individually configured printing process parameter settings will always guarantee excellent print quality, regardless of the type of material used. Achieving satisfactory prints requires the operator's knowledge and experience, as well as the use of appropriate filament quality and print profiles adapted to it.

The printer is designed for continuous operation without operator supervision. To monitor the printing process, a camera is installed in the printer, allowing remote viewing of the printer's operation.

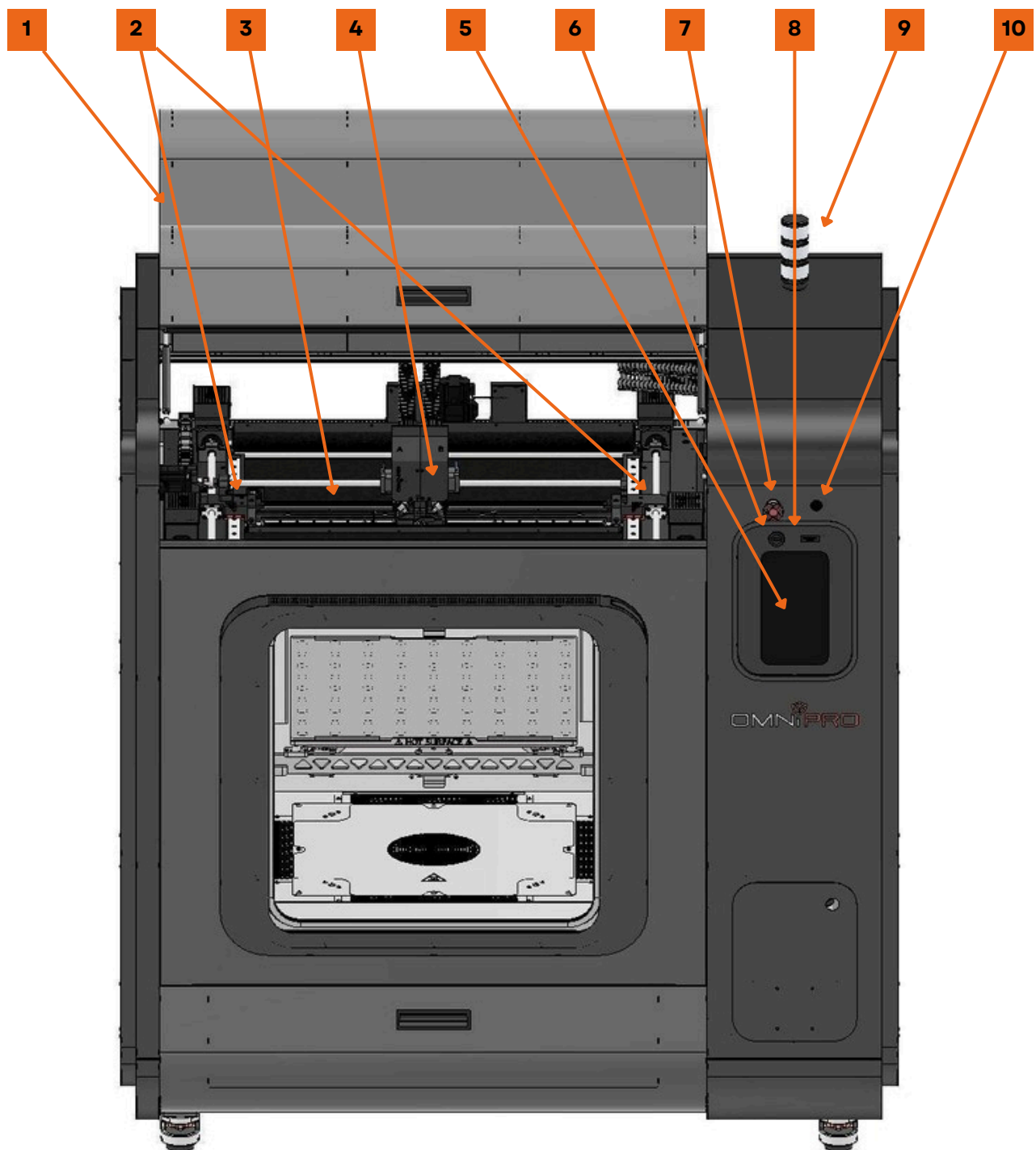


Figure 1. Front of Omni PRO

- | | |
|----------------------------|-----------------------------|
| 1. Top covers | 6. Port USB |
| 2. Y-axis modules | 7. Emergency stop button |
| 3. X-axis module | 8. SD, microSD and USB slot |
| 4. Extruder | 9. Signal Tower |
| 5. LCD touchscreen display | 10. On/Off switch |

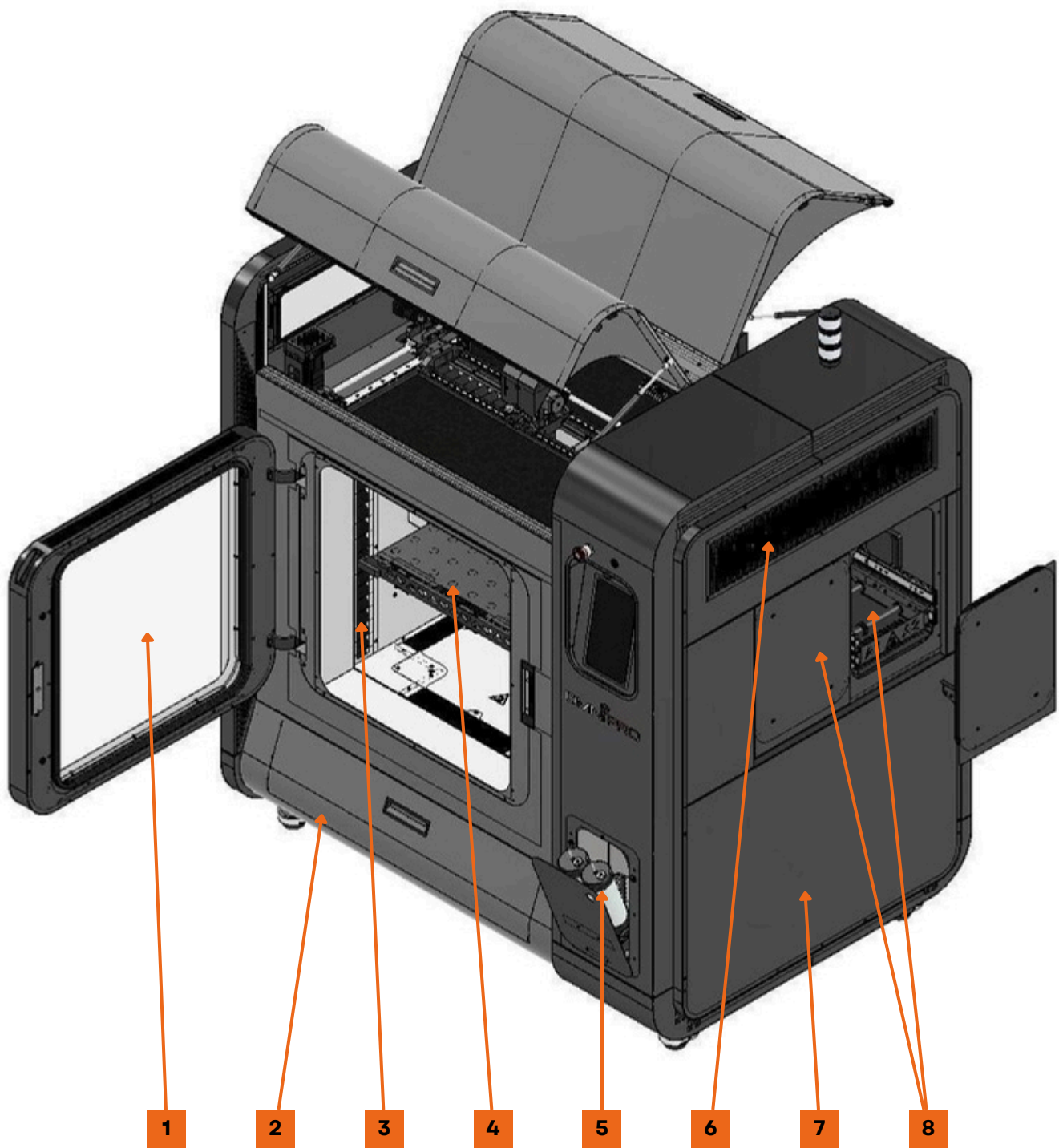


Figure 2. Omni PRO right side

- | | |
|-----------------------------------|-----------------------------|
| 1. Entrance door | 5. Coolant tanks with pumps |
| 2. Drawer | 6. Air filter |
| 3. Z-axis module on the left side | 7. Electronic chamber |
| 4. Heated platform | 8. Filament dryers |

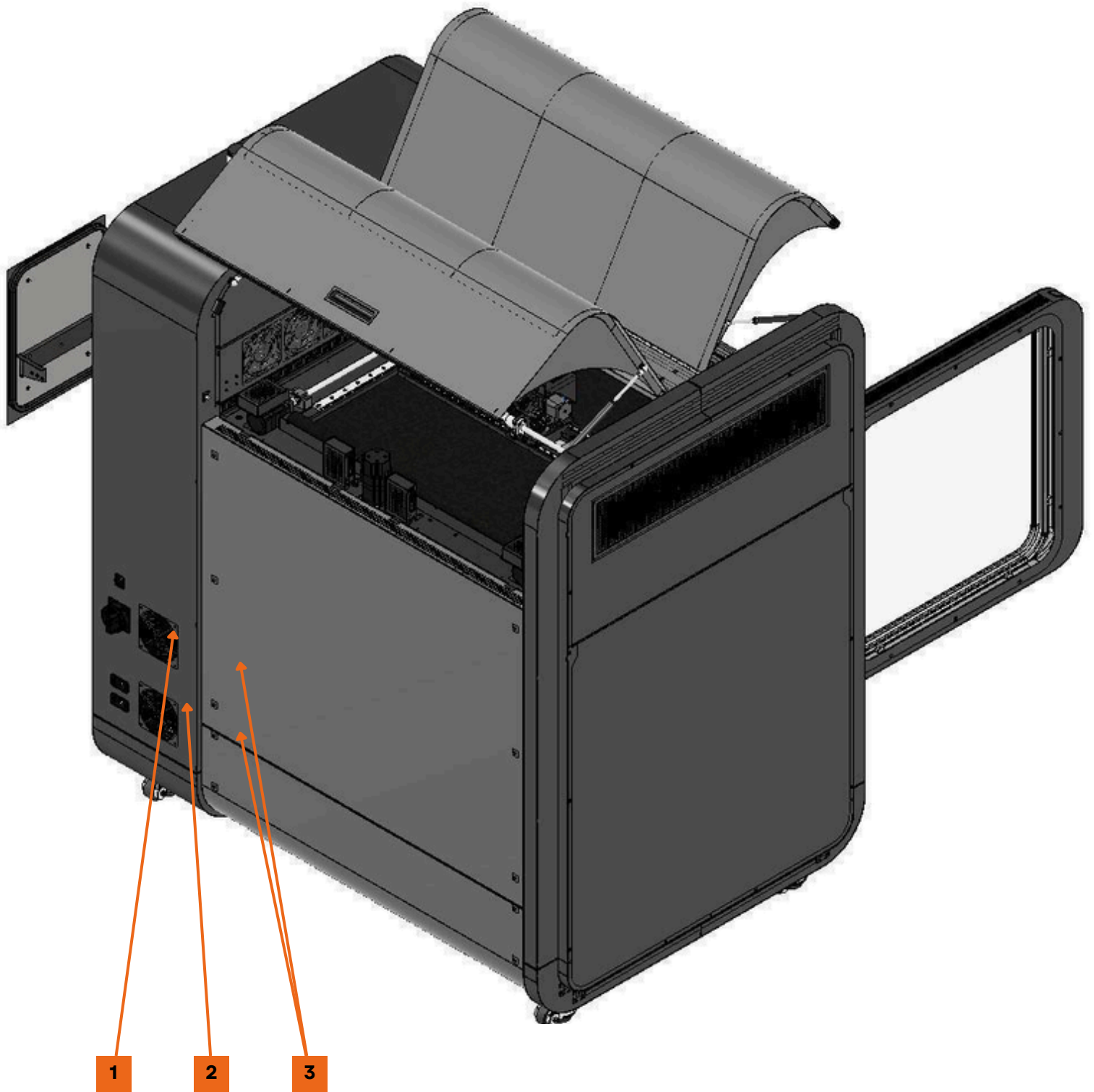


Figure 3. Back of the Omni PRO

- 1. Main power switch
- 2. Electrical sockets
- 3. Electronics fan filters

1.2 Technical data

Table 1. OmniPro Printer Specifications

Compilation volume X Y Z	530x530x530 mm
External dimensions (doors open)	Dimensions: 1827x1782x1988 mm
Extruder	direct, geared, liquid-cooled
Filament	1,75 mm
Filament spool	4 spools of 3 kg each
Automatic spool change	yes, 4 spools in filament containers
Number of heads	2
Head system	double (one trolley), lifting heads
Hot end temperature	500 °C
Mounting platform temperature	180 °C
Printing chamber temperature	140 °C
Filament chamber temperature	80 °C
Supported material	All materials offered: from PLA to PEEK (see table 2 on page 11)
Nozzle diameter	od 0,2 mm do 1,2 mm
X-axis	ball screw and linear bearing, one module
Y-axis	ball screw and linear bearing, two modules
Z axis	ball screw and linear bearing, three modules
Work platform	Fully automatic leveling, magnetically connected spring steel plate, various coating options
Head cooling	water
Print cooling	air
Connection	Wi-Fi, USB, SD, LAN
NFC	Yes
Camera	Yes
Urine	230 V, 3,6 kW

2. Filaments supported by Omni PRO

This printer can work with a wide variety of materials! The filaments listed below have been tested by Omni3D and have been pre-built with ready-made profiles. The material selection is regularly expanded as Omni3D continually develops print profiles for additional materials. For a current list of supported materials, visit:

<https://www.omni3d.com/3d-printing/filaments/>

Filament name	Filament Manufacturer	Polymer type	Head temp.	Bed temp.	Chamber temp.	Adhesive	Break away support	Soluble support
PLA-36	-	PLA	215	60	-	Dimafix, Asnare	-	PVA-20
PET-G-32	Omni3D	PET-G	240	90	50	Dimafix, Asnare	HIPS-20	-
PET-G Carbon	Silence	PET-G	240	90	50	Dimafix, Asnare	HIPS-20	-
PET-G ESD	3DXTech	PET-G	240	90	50	Dimafix, Asnare	HIPS-20	-
PCTG	Fiberlogy	PCTG	240	80	50	Dimafix, Asnare	HIPS-20	-
TPU-93A	Omni3D	TPU	220	40	-	Dimafix, Asnare	HIPS-20	PVA-20
ABS-42	Omni3D	ABS	250	100	70	Dimafix, Asnare	HIPS-20	ODS-20
ABS FC	Philoalpha	ABS	250	100	70	Dimafix, Asnare	HIPS-20	ODS-20
ABS ESD	Silence	ABS	250	100	70	Dimafix, Asnare	HIPS-20	ODS-20
ABS EN45545	Omni3D	ABS	250	100	70	Dimafix, Asnare	HIPS-20	ODS-20
Ultrafuse® ABS Fusion+	BASF	ABS	250	100	70	Dimafix, Asnare	HIPS-20	ODS-20
ACT-39	Omni3D	WORK	250	100	70	Dimafix, Asnare	HIPS-20	ODS-20
PA-12	Omni3D	PA	250	-	70	PVP, Asnare	-	ODS-20
PA-6/66 HD	Omni3D	PA	250	-	70	PVP, Asnare	-	ODS-20
CF PA-12	Omni3D	PA	250	-	70	PVP, Asnare	-	ODS-20
CF15-PA12	Filament	PA	250	-	70	PVP, Asnare	-	ODS-20
GF15-PA12	Fiberlogy	PA	250	-	70	PVP, Asnare	-	ODS-20
GF20-PA6/66 FR LS	Covestro	PA	250	-	70	PVP, Asnare	-	ODS-20
XSTRAND™ GF30-PA6	Owens Corning	PA	250	-	70	PVP, Asnare	-	ODS-20
PC-60	Omni3D	PC	290	120	70-100	Asnare, Dimafix, Magigoo PC	-	-
PC-ABS-47	Omni3D	PC-ABS	290	120	70-90	Dimafix, Asnare	HIPS-20	-
Alphatheic	Philoalpha	PPS	330	120	70-110	Dimafix, Asnare	-	-
GF-PPS	Treed	PPS	330	120	70-111	Dimafix, Asnare	-	-
Iglidur I180-PF	would make	PC-PTFE	250	100	70	Dimafix, Asnare	HIPS-20	-
PP	Fiberlogy	PP	220	-	-	PP Tape	-	-
HIPS-20	Omni3D	HIPS	200	100	70	Dimafix, Asnare	-	-
ODS-20	Omni3D	ODS	240	100	70	Dimafix, Asnare	-	-
PEKK-A	Silence	FAT	340	130	70-140	Dimafix, Asnare, Ultra Polymer Adhesive	-	ODS-20

Table 2. Filaments supported by Omni PRO

3. Security and Compliance

3.1 Warning pictograms displayed on the printer



Figure 4. Warning pictograms on the printer

3.2 General requirements

To ensure the safety of persons staying near the printer, its accessories and the printer's safety elements, the user must strictly respect the following general safety rules:

1. The printer may only be operated if it is in good technical condition.
2. All covers must be in place and closed when the printer is operating. Operation with any covers open or removed is prohibited.
3. The printer must be properly installed and the safety components checked periodically.

4. The printer may only be used within the range specified by its operating parameters.
5. The printer may only be operated by trained personnel.
6. Persons under the influence of alcohol or other intoxicating substances (drugs, strong medications) that reduce the ability to react must not operate or maintain the printer.
7. All protective installations provided by the manufacturer must be correctly installed and fully functional, unless this is not indicated when carrying out maintenance work.
8. No changes may be made to the printer's construction.
9. The connection conditions, performance data and conditions of use of the printer in accordance with its intended purpose must not be changed.
10. Maintenance and periodic inspection of the printer, as scheduled, are mandatory and should be performed by qualified personnel. Scheduled service is a condition of warranty validity.
11. Integrated safety systems ensure safe use of the printer only when the printer is used as intended.
12. Internal guidelines and controls must be used to ensure that the workplace environment complies with the requirements of the 3D printer room.

3.3 Requirements for a room intended for industrial 3D printers

In order for a given room to function as a prototyping room or a room for using 3D printers (Printroom), and at the same time to accommodate people operating the printers, it should meet several conditions, such as:

1. Floor – even and level. Easy to clean and dust. Tiles recommended.
2. Proper ventilation.

This can be forced ventilation – general or individual. Air can be extracted from the room globally, using air intakes placed near the ceiling and near the floor. Local air intake is also acceptable, using flexible pipes connected to intakes installed near the printer's ventilation openings. Natural, convective room ventilation is not recommended.

1. As an alternative to point 2, filter the air from inside the printer. This method of filtering the air in the room occurs in a closed circuit:

- A filter installed individually on each printer. This filter has a cartridge that provides pre-filtering and additional HEPA and CARBON filters.
- A filtration station with adjustable capacity, adapted to the number of printers used. Air is extracted point-by-point via flexible tubes connected to brackets mounted near the printer's ventilation openings. The filtration station includes cartridges that provide pre-filtering, as well as additional HEPA and CARBON filters.

2. No dust or dirt.

The presence of dust particles in the air has a detrimental effect on printer performance. Filament is produced in the form of a plastic "wire" wound on a plastic spool.

As the filament wears out, the spool rotates and rubs against the plastic hanger and metal walls of the filament chamber, creating electrical charges. These charges accumulate on the filament wound on the spool, attracting dust and dirt particles. The dust and dirt covering the filament are then drawn along with the filament into the extruder and then to the print head. The filament melts in the print head and exits the print head through the nozzle. These dust and dirt particles don't melt and accumulate in the nozzle, gradually clogging it.

3. Sound-absorbing screens. The printer generates sounds during operation.

with audible frequencies and sound pressure levels of 50-70 dB, which means they do not cause hearing damage, but are bothersome to people working nearby. To eliminate this nuisance, we recommend:

- use of sound-absorbing screens around the printer,
- Isolating the printer maintenance room. This can be a small room from which the user can visually inspect the printers through a window. Staying in the printer room is limited to the time necessary for maintenance.

4. Electrical installation.

It should be capable of connecting the target number of printers. Assume that a printer requires two electrical outlets with a current capacity of 16A. Each outlet must be equipped with a grounding pin that works with a central differential circuit breaker (RCD) that serves one workstation – meaning two power outlets.

5. Room temperature and humidity.

The ambient temperature should be between 15 and 35°C. High humidity is unfavorable due to the filament's strong absorption of water from the air. Moisture content in the filament leads to uncontrolled filament flow from the nozzle. In this case, the factor causing pressure buildup within the hot nozzle is the expanding water vapor from the moisture absorbed by the filament. Normal room humidity is between 40 and 60%. Aim for the lowest possible humidity. If this cannot be achieved for the entire room, individual filament dryers can be used for each printer.

6. Firefighting equipment.

It is necessary because the printer head reaches high temperatures.

In extreme cases (temperature stabilization system failure), it may cause the filament to ignite. Due to safety measures, this is highly unlikely, but it cannot be completely ruled out. Fire extinguishers should be suitable for extinguishing electrical equipment.

3.4 General requirements

3.4.1 General requirements

3.4.1.1 Movement of extruder modules along the X and Y axes and mechanically connected elements

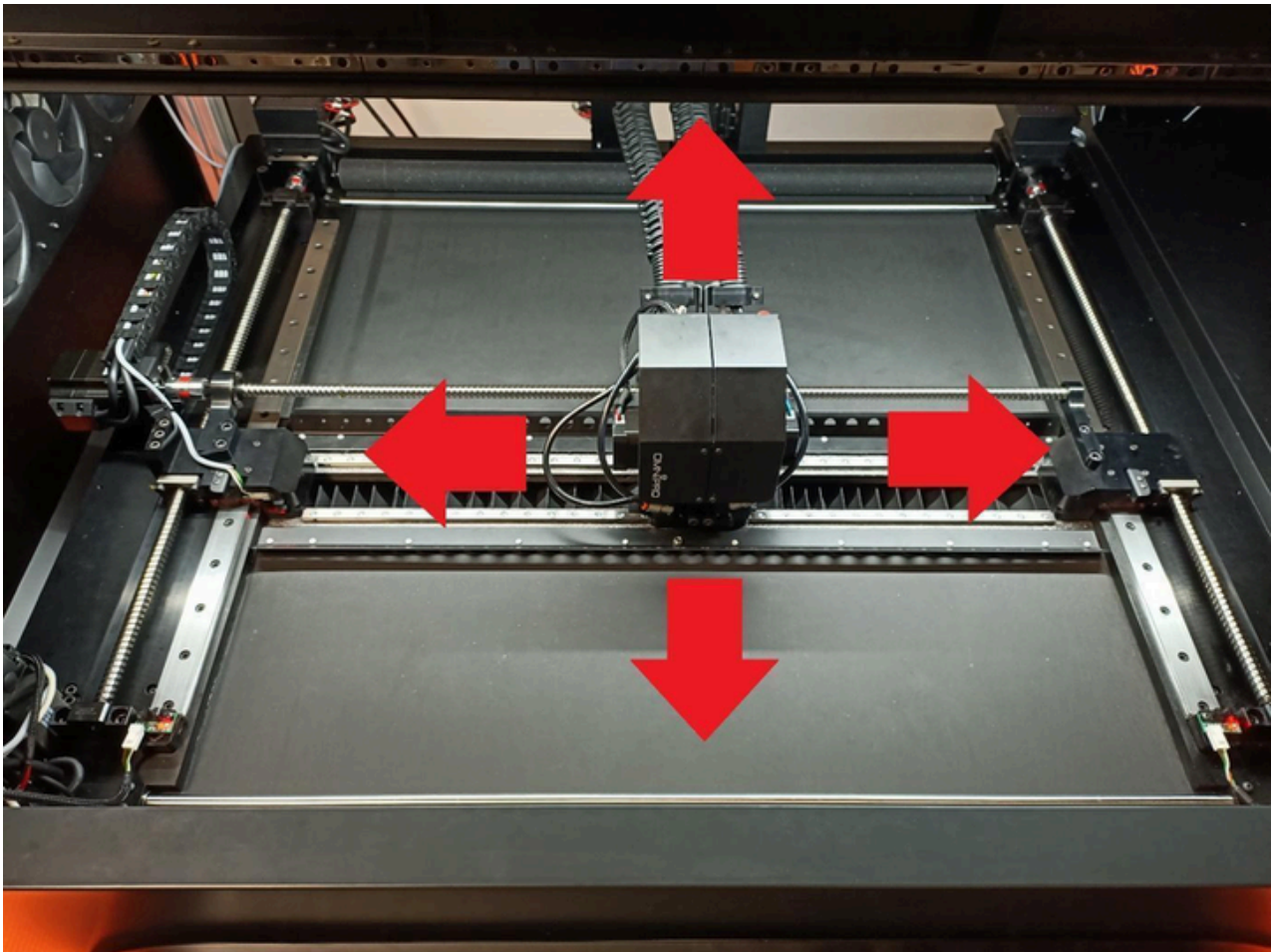


Figure 5. Directional movement of extruder modules

3.4.1.2 Movement of extruder modules along the X and Y axes and mechanically connected elements

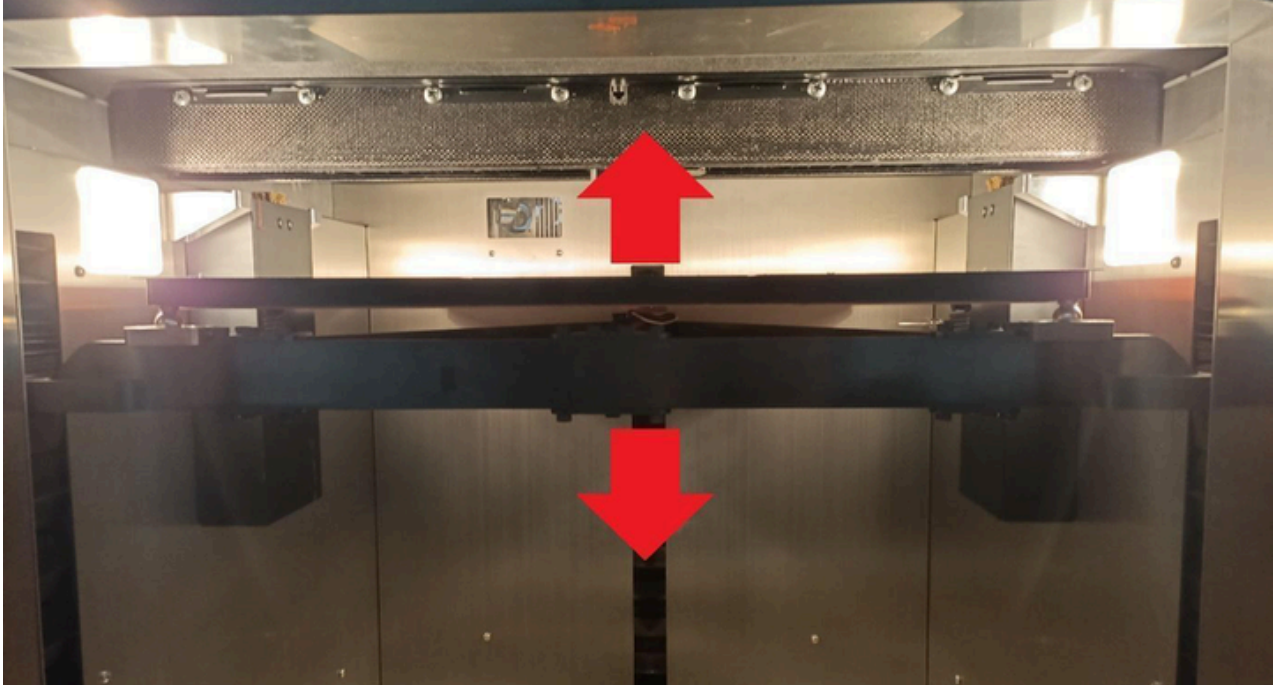


Figure 6. Platform movement direction

3.4.1.3 Rotational movement of fans



Figure 7. Rotational movement of the fans

3.4.2 Thermal hazards

3.4.2.1 Hot surface - risk of burns

Name	Temperature - in °C
Head	200-500
Platform	200
Chamber and internal components	140
Komora filament	80
Filament chamber heater	150

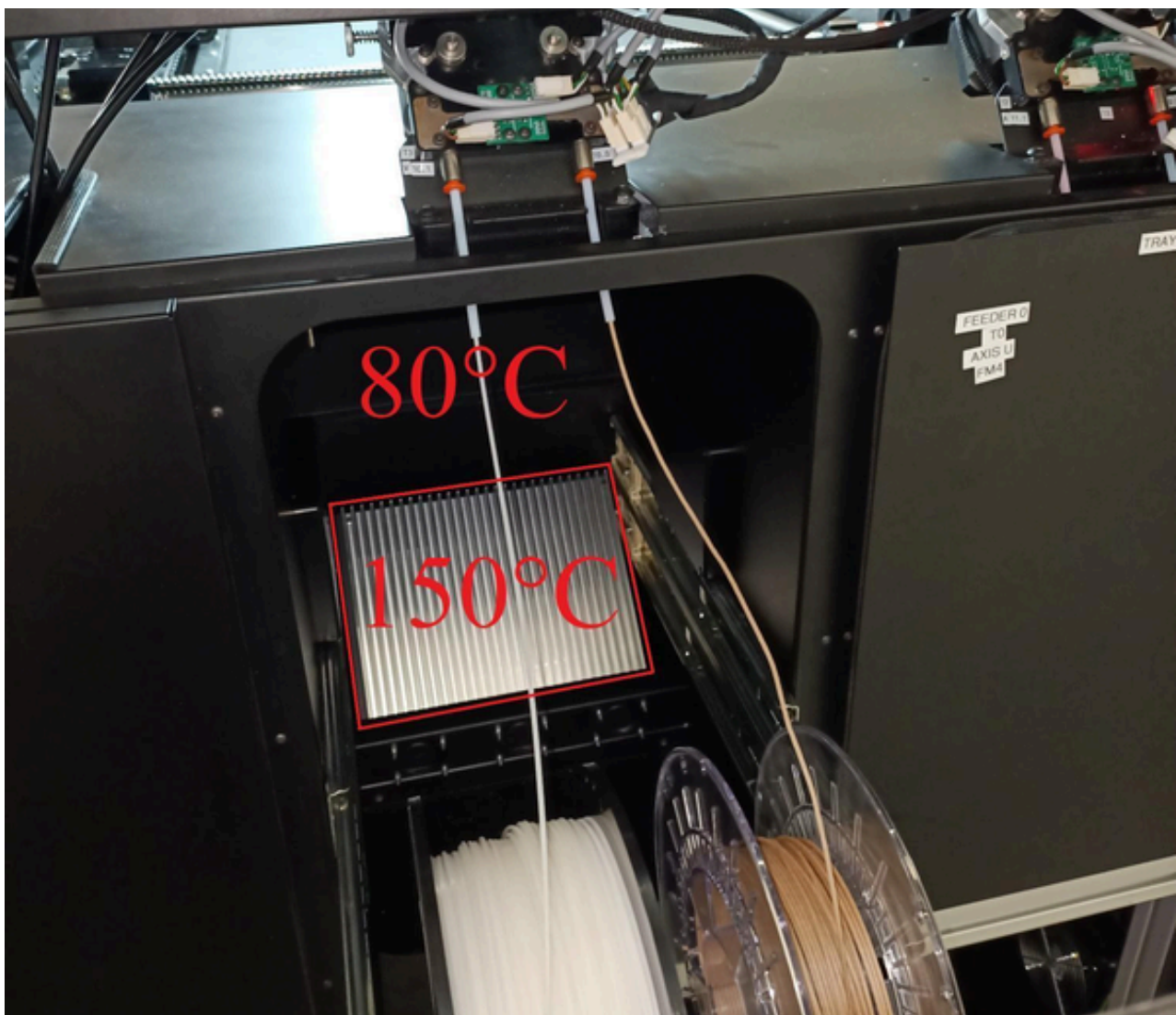


Figure 8. Thermal hazards (filament chamber)

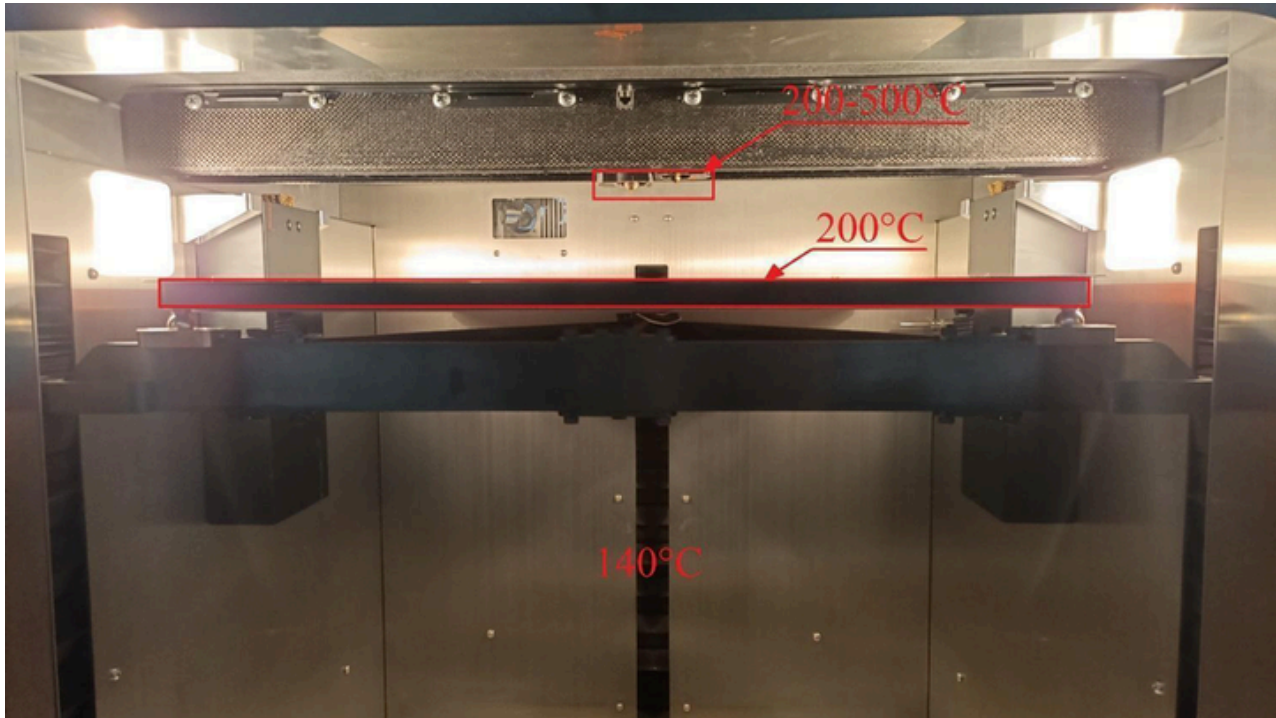


Figure 9. Thermal hazards (nozzle, printing chamber)

3.4.3 Risk of electric shock

3.4.3.1 Risk of electric shock due to direct and indirect contact with live parts operating at dangerous voltages.

3.4.3.2 Danger of electric shock due to direct or indirect contact with components operating under dangerous voltage, as a result of liquid leakage from the cooling extruder modules.

3.4.4 Noise

The A-weighted sound pressure level at the workstation does not exceed 70 dB.

3.5 Protective measures

3.5.1 Shields

3.5.1.1 Fixed guards

The printer's work area is covered with permanent guards. These guards prevent access to hazardous areas during printer operation.

Access to the fans has been covered with local permanent covers, protecting against access to dangerous areas during printer operation.

It is prohibited to remove covers while the printer is operating or to work with removed covers.

3.5.1.2 Locking Guards - Front and Upper Doors

Access to the printer's build chambers and extruder is secured by a locked door. The door is locked when the printer is operating. It is prohibited to disassemble the door, open the door while the printer is operating, or work with the door removed.



Note! Opening any hatch to the build chamber is only permitted during a pause. Opening any hatch causes a rapid drop in temperature inside the chamber, which may result in deformation of the printed object.

3.5.1.2 Movable filament chamber cover

The filament chamber has a door to protect the filament from contamination. There is no access to the build chamber through the filament chamber.

3.5.2 Emergency stop device

The printer is equipped with an emergency stop device (red button on a yellow background) located on the right side of the printer. Pressing the emergency stop button stops the printer's drives and cuts power to the heaters, preventing printer operation. The emergency stop function overrides other controls. Before restarting the printer, ensure that starting the printer will not create a hazardous situation. Restarting the printer requires unlocking the mechanical lock on the emergency stop button and pressing the start button.

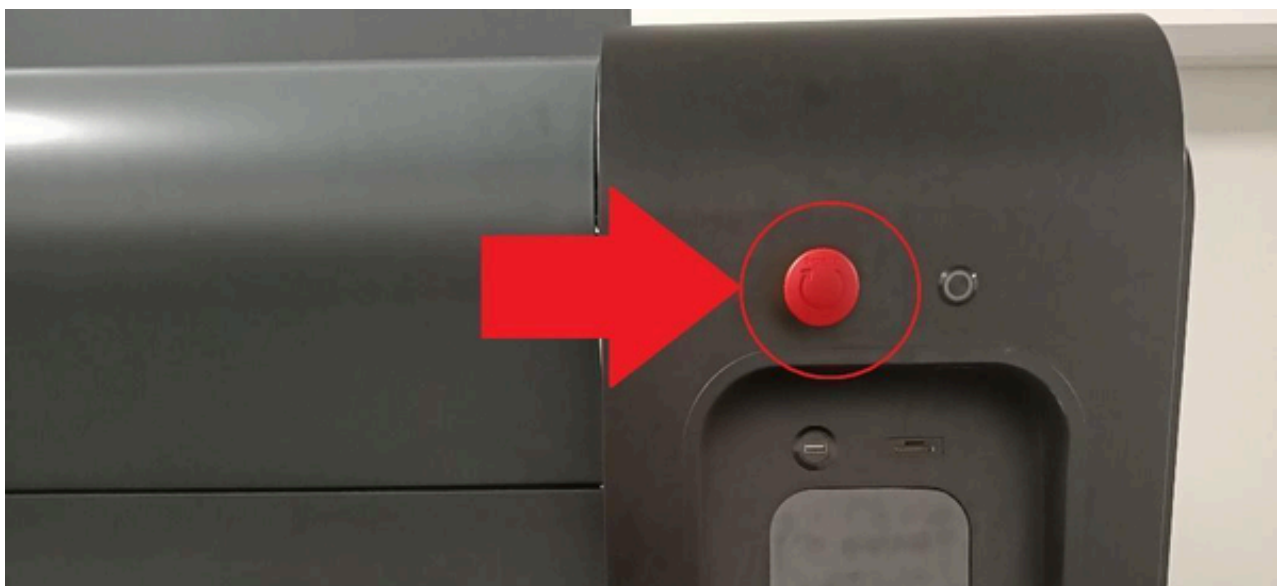


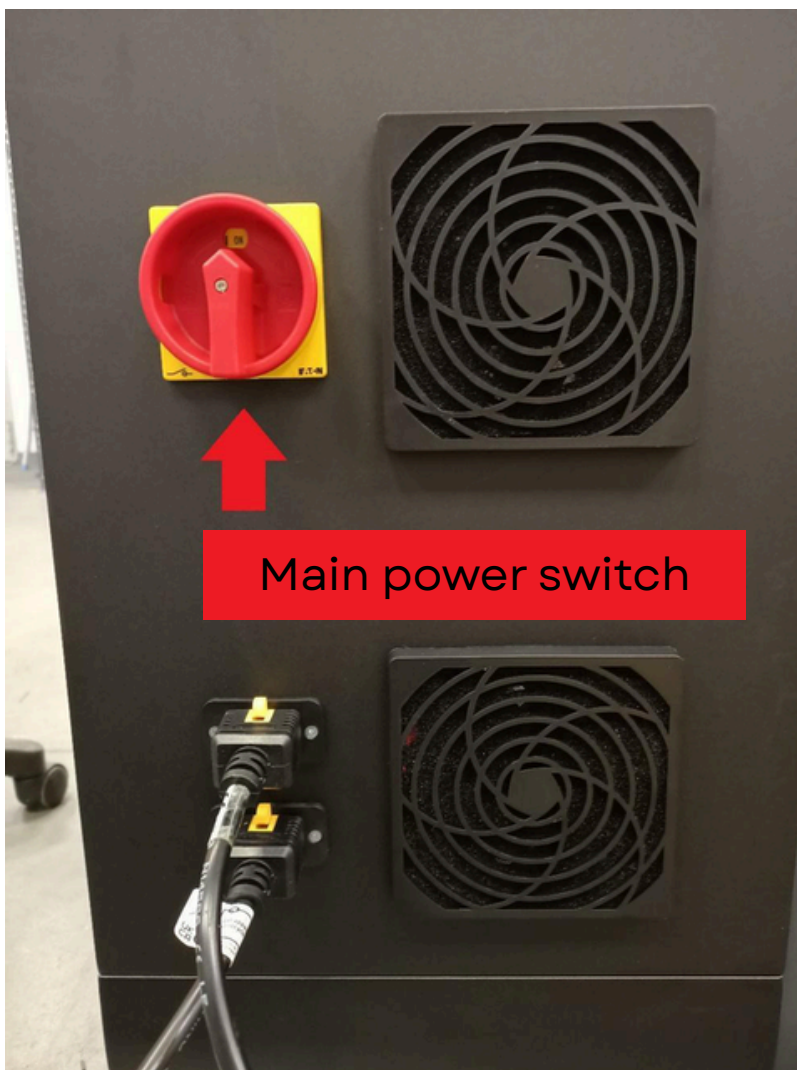
Figure 10. Emergency stop button



Note! Pressing the emergency stop button does not disconnect power to the control cabinet. Before performing any intervention in the electronics, it is necessary to disconnect the power supply by disconnecting the two power cables.



Caution! Pressing the emergency stop button does not prevent access to hot printer components. Any contact with hot components poses a risk of burns.



Power is completely cut off only when the main power switch is turned off. The main power switch is located on the rear of the printer, above the power sockets.

Figure 11. Main power switch

3.5.3 Electrical equipment

The printer's electrical and control equipment is located in a separate space. Live components are insulated or shielded to prevent access through direct contact. Conductive components are connected with shock-proof insulation. The electrical equipment area is protected by a fixed cover with an appropriate warning pictogram.

3.6 Disconnecting the power source

To disconnect the power source, press the latch on the connector and pull it out of the socket.

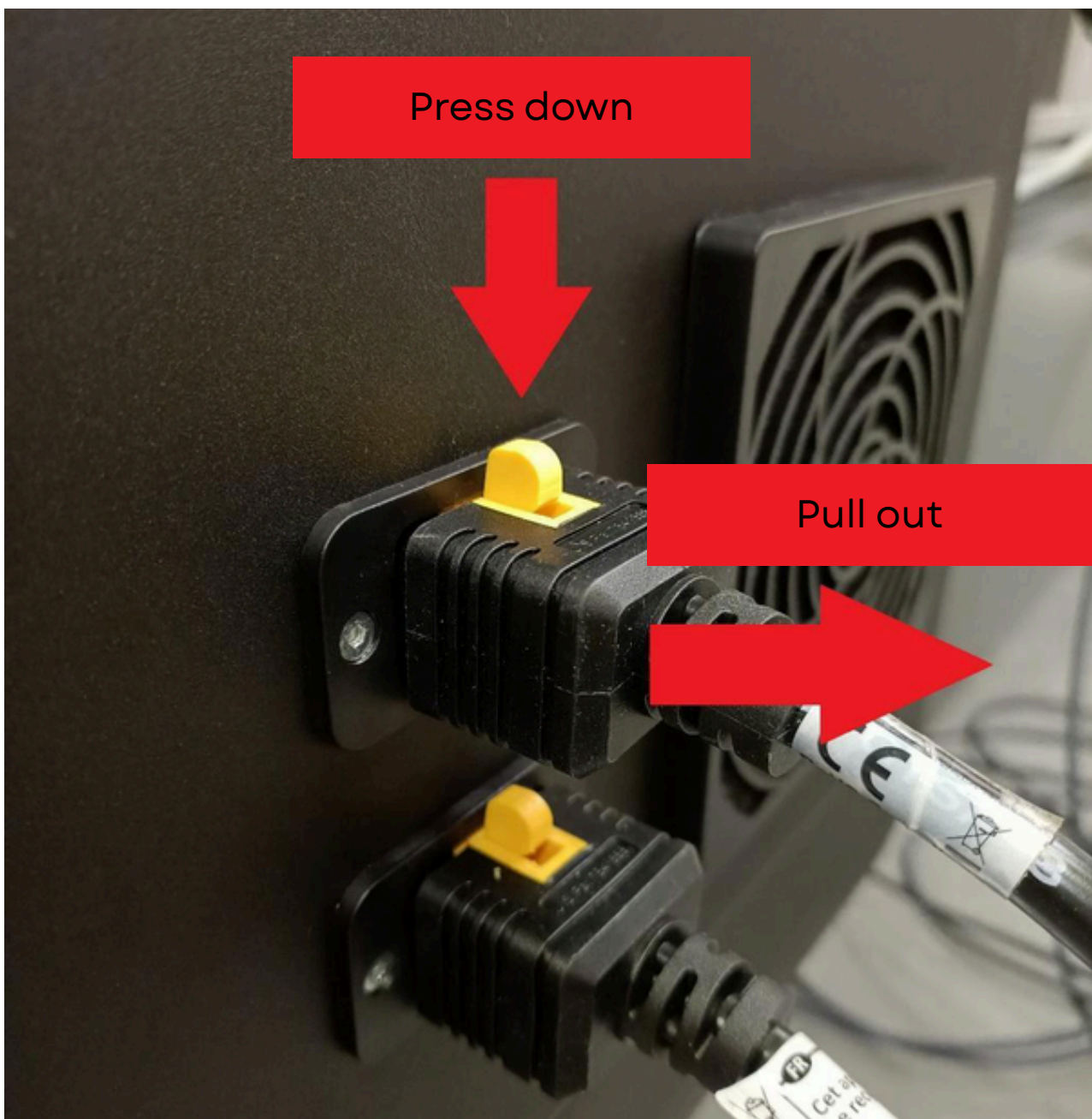


Figure 12. Power sockets

3.7 Emergency measures

In the event of an emergency, error or other failure:

1. Stop the printer by pressing the emergency stop button;
2. Secure the danger zone so that no one can enter it or get into it unknowingly;
3. Alert appropriate personnel immediately;
4. In the event of a fire, disconnect the power cords and follow the rules specified in fire safety regulations;
5. Remove the printer from service and clearly mark it with information signs. Secure the printer to prevent it from being turned on if it is not working, is damaged, or is being repaired;
6. If a printer failure occurs that poses a risk to the environment, clear and visible warning and alarm signals must be used;
7. Disconnect power at the main switch. In case of fire, disconnect power cords from wall outlets.
8. Report every accident at work to your supervisor.

3.8 Decommissioning and disposal

Unplug the printer and secure it to prevent it from being turned on. Clearly indicate when the printer is no longer in service and is not allowed to be used. Dispose of the printer in accordance with applicable regulations.

3.9 Personal protective equipment

1. Wear safety glasses – there is a risk of uncontrolled breakage of the glass surface of the work platform due to sudden cooling.
2. Protective gloves should be worn – high temperature of the build platform, extruder modules and increased temperature inside the build chamber.

3.10 Required Operator Qualifications

Independent operation of the printer requires the operator to:

1. Employer's authorization to operate the printer;
2. Read the printer's user manual;
3. Completion of on-the-job training on printer operation and occupational health and safety training.

3.11 Safety requirements during maintenance and repair

Before beginning any work, disconnect the printer's power supply by unplugging the two power cords. Locate the power cords so that unauthorized personnel cannot connect them to the printer. Maintenance and repair work should only be performed by qualified personnel.

1. During maintenance and repair work, the printer must be disconnected and isolated from all power sources and protected against accidental reconnection, e.g. by disconnecting and securing the power cables.
2. For maintenance work, only use devices and tools intended for this purpose.
3. The user of the printer is responsible for ensuring that only replacement parts supplied by the manufacturer or manufactured to its specifications are used for maintenance or repair work.
4. The maintenance or repair area must be properly secured by placing visible signage.
5. Only electrically insulated tools should be used.
Cleaning with flammable agents is prohibited. Take precautions to protect against toxic
6. fumes from cleaning fluids.
7. Cleanliness and care must be maintained during maintenance and repair work.
8. Before restarting the printer after repairs or a long period of inactivity, check the printer's safety features.
9. During maintenance or cleaning, protect bearings, moving parts and electrical components from moisture.
10. The personnel operating the printer must be informed in good time of the intention to carry out inspection, maintenance and service work.

3.12 Residual risk

The use of technical protective measures does not prevent access to hot surfaces. Activating the emergency stop function or cutting off the power supply by disconnecting the power cords does not reduce the risk of burns resulting from direct contact with hot surfaces. Hazardous areas are marked with pictograms and indicated in section 3.3.2 of the printer's User Manual – Thermal Hazards. Note that other metal parts, not directly heated, located inside the work chamber may have elevated temperatures. Prolonged direct contact with these elements may result in burns.

4. Installation

4.1 Installing the printer

After removing the printer from the pallet, it must be transported to its destination, which should meet the conditions specified in chapter 3.3 Requirements for a room intended for industrial 3D printers.

Once the printer is in its final position, it should be leveled using the adjustable feet, using the X and Y linear bearing rails of the printer's structure as a reference surface. This adjustment should ensure not only geometric leveling but, above all, equal load on each of the four feet.

The next step is to remove the shipping protection from the printer's interior. To do this, open the printer's front door and remove the protection from the X, Y, and Z axes and the print bed.

The tool drawer (under the printing chamber) contains a set of tools necessary to operate the printer.

Once the printer axis and print bed are free, you can begin connecting it to power. The power cables are located in the filament compartment.

4.2 Reinstalling the printer

It is recommended that the printer be installed each time by the Manufacturer or an Authorized Service Provider, which will always be confirmed by a Service Report on the installation, under pain of loss of warranty rights.

It is permissible to change the printer's installation location outside the Authorized Service Center.

However, in such a case, the customer is liable for any faults, breakdowns, printer malfunctions, personal injury or loss of life resulting from electric shock, also during the warranty period.

In the event of installation by a qualified electrician, written confirmation of this will be required.

5. User Interface

The Omni PRO printer is controlled via an LCD touchscreen. After powering on, the printer will display the main screen. It may take approximately 2 minutes for the printer to boot up.

5.1 Interface

The interface consists of 3 main parts:

- **progress bar** - the printer name and current printer status are displayed,
- **main window** - the currently selected tab is displayed,
- **main menu** - located at the bottom, allows you to navigate between tabs.

To navigate between tabs, use the buttons at the bottom of the screen. The menu includes the following tabs:

5.1.1 Status

In this tab we can read basic information about the current status of the printer, the status of the current job, the temperatures inside the printer, the status of the door and the current access level.

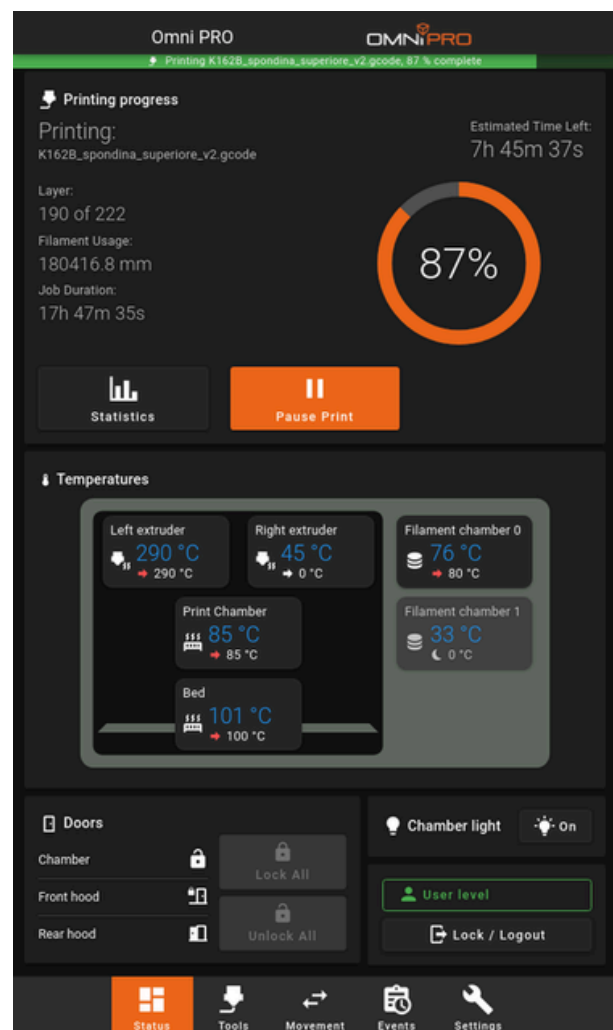


Figure 13. Status menu

5.1.1.1 Statistics

Press Statistics to view job statistics dialog. The window shows a Filament flow graph for the last 10 minutes and a layer time graph for the last 30 layers (only during a print job).

To close the statistics window, press the close button in the upper right corner.



Figure 14. Print Statistics dialog

5.1.1.2 Staring, pausing, and canceling a print

1. When the printer is idle, press the Print from file button to open the file list.
2. Select the volume where the target gcode file is located using the buttons at the top of the window.
3. When viewing a list of files, you can scroll up and down the list. To access a subdirectory, tap the directory name.
4. Tap the name of the selected gcode file and confirm your selection by pressing Yes to start the printing process.
5. If you want to remove external storage such as a memory card or USB drive, we recommend pressing Safely remove before removing to avoid data loss.
6. To pause the print process, press the Pause print button. The printer will complete the current movement and then pause the print process.
7. To resume printing after pausing, press Resume print. The printer will continue printing. Note that pausing printing for an extended period of time may affect print quality.

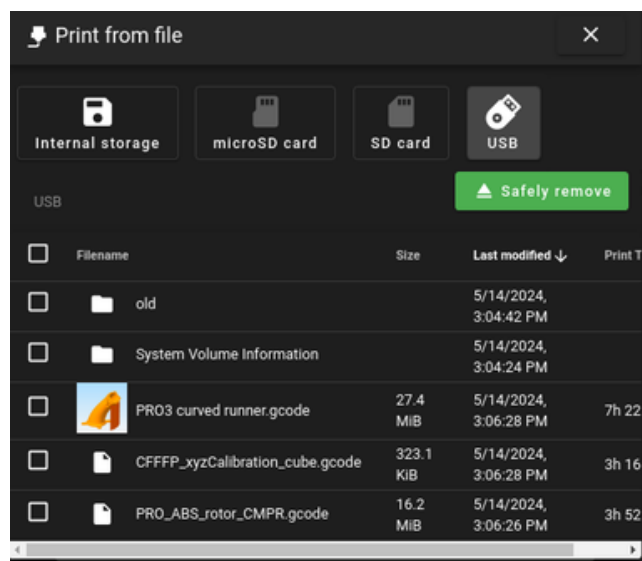


Figure 15. List of G codes from

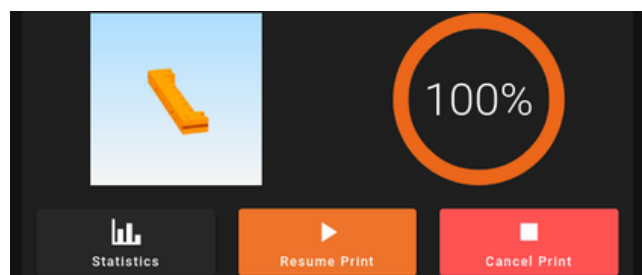


Figure 16. Cancel and resume icons

8. To cancel the printing process, first pause the printing (see step 6), wait for the printer to finish pausing, and then press the Cancel Print button. The printing process will be canceled. If you want to reprint the same file, press the Print Again button after printing is complete or the user cancels. Be sure to properly prepare the print surface before starting a new print process.

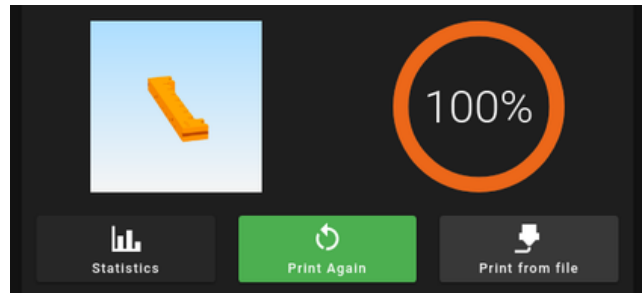


Figure 17. Reprint icon

5.1.1.3 Temperature control

Refer to Basic Temperature Control Tools subsection.

5.1.1.4 Door control

The printer has 3 doors: the print chamber door providing access to the print chamber, the upper front door and the rear door providing access to the space above the print chamber, e.g. the carriage, axis drives and cooling fans.

The door panel contains door status information and buttons for controlling the door locks. Each door status is explained in the table below:

Door	Symbol	Meaning
Printing chamber		The chamber is unlocked
		The chamber has been closed and is waiting for the door to be closed
		The chamber is closed
Printing chamber		The door is open
		The door is closed
		The door is closed and locked

Table 3. Pictograms

The door automatically locks when a print job starts or resumes and unlocks when a print job is paused, completed or canceled.

1. The lock and unlock buttons are active with Expert access level or higher.
2. Press the Lock all button to lock all doors.
While the printer is printing, press the Unlock Hood button to unlock the top door. The hood locks will release after a few seconds, and you will hear a clicking sound. You can then open the door. If the door does not open within approximately 5 seconds, it will lock again.
3. When the printer is not printing, press the Unlock all button to unlock all closed doors.

5.1.1.5 Chamber lighting control

The chamber light section allows you to turn the chamber light on and off. Press the On button to turn the light on. To turn the light off, press the Off button.

5.1.1.6 Defining the access level

The current access level is visible in the panel with a green frame above the Lock/Logout button.

5.1.1.7 Locking the screen

Press the Lock/Logout button to lock the screen.

5.1.2 Tools

The Tools tab contains information about temperatures and the filament management system. From this tab, you can control temperatures and manage filaments.

5.1.2.1 Basic temperature control

Using the temperature panel, you can control the temperature of the extruders, bed, printing chamber and filament chambers.

Using the temperature panel, you can control the temperature of the extruders, bed, printing chamber and filament chambers.

Precise temperature control of the extruders, bed and chamber is possible from the Expert level or higher.

Select the tool you want to set the temperature for. After clicking, the following window will appear:

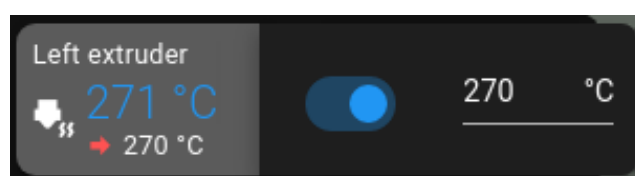


Figure 19. Temperature control

1. To turn the heater on or off, use the slider switch on the left side of the open dialog box.
2. To set the heater temperature, tap the temperature value, Then use the virtual keyboard at the bottom of the screen to enter a new setpoint.
3. Press Enter when finished. For extruder heaters, if the heater is not turned on, you must manually turn it on to begin heating. For other heaters, the heater will turn on automatically.

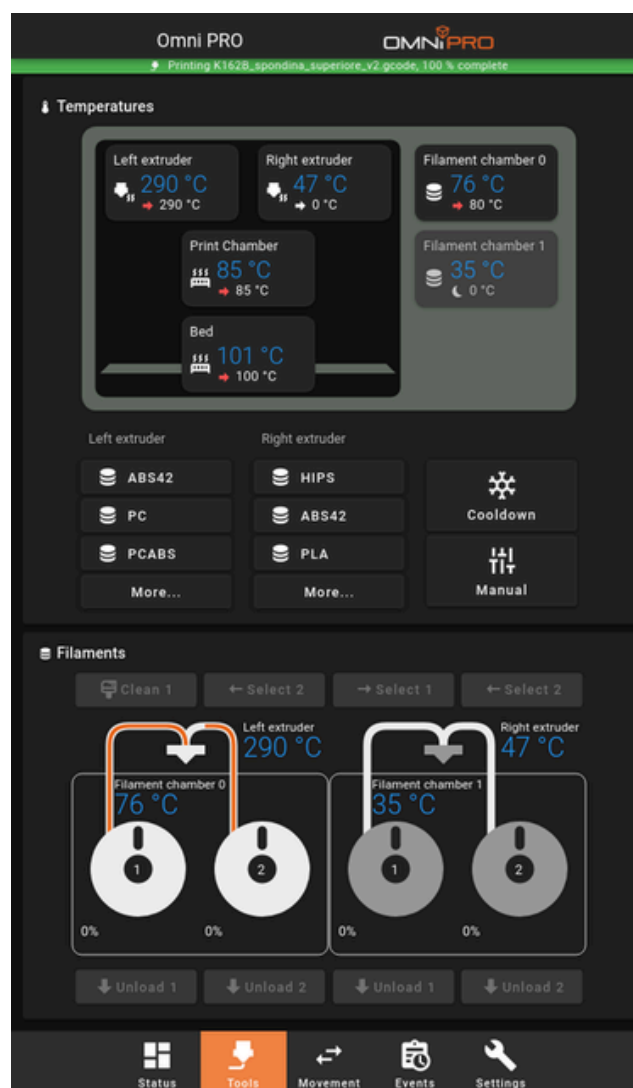


Figure 18. Tools menu

4. The control dialog box automatically hides when you press any other button or leave any empty space outside the dialog box.

5.1.2.2 Advanced temperature control

1. Press the Manual button to display the temperature settings dialog.
2. To turn the heater on or off, use the slide switch.
3. To set the heater temperature, tap the temperature value field. Then use the virtual keyboard at the bottom of the screen to enter a new setpoint. Press Enter when finished. For extruder heaters, if the heater is not turned on, you must manually turn it on to begin heating. For other heaters, the heater will turn on automatically.
4. To close the window, press the close button in the upper right corner.

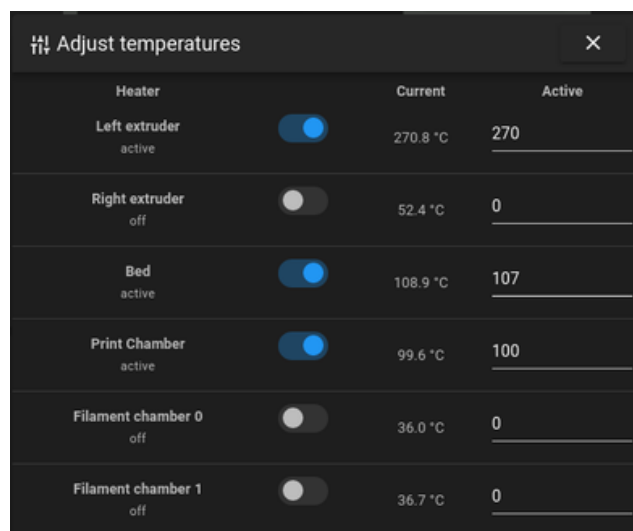


Figure 20. Advanced temperature control

5.1.2.3 Printer cooling

If you want to turn off all heaters, press the Cooldown button. All heaters will be turned off and set to 0.

5.1.2.4 Presets

With presets, you can define custom settings for commonly used materials and quickly access them. Each preset can adjust the tool temperature, bed temperature, print chamber temperature, and filament chamber temperature.

Presets can be managed from the Presets panel in the Settings tab.

To apply a preset, you can use the button assigned to the preset for the left or right extruder. You can also apply an unassigned preset by pressing the More... button and then pressing the Select button.

The main goal of material preset is to pre-heat the machine for given process. We advise **not to put** the extruder temperature. The machine will heat up a extruder when it needs to. Heating the extruder with filament idling inside can lead to heatbreak clogs.

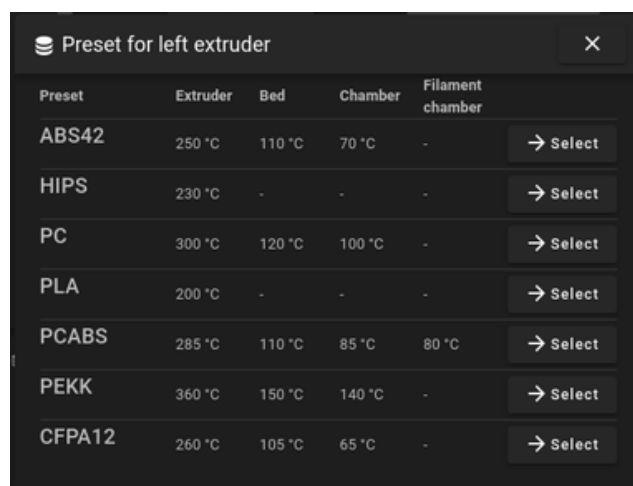


Figure 21. Material presets

5.1.2.5 Filament management

The Filaments panel shows the current status of the filament management system.

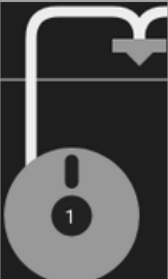
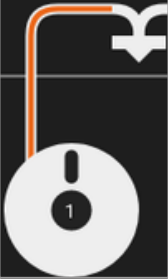
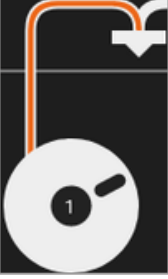
Symbol	Meaning
	The spool is not loaded
	Spool is loaded but not selected for printing
	The spool is loaded and selected for printing

Table 4. Spool Status Icons

Rotating spool means the machine is currently executing a procedure related to filament management.

Please note the messages that the printer will display during execution of these procedures. They are meant to inform user about the status and outcome of procedure.

5.1.2.6 Filament system overview

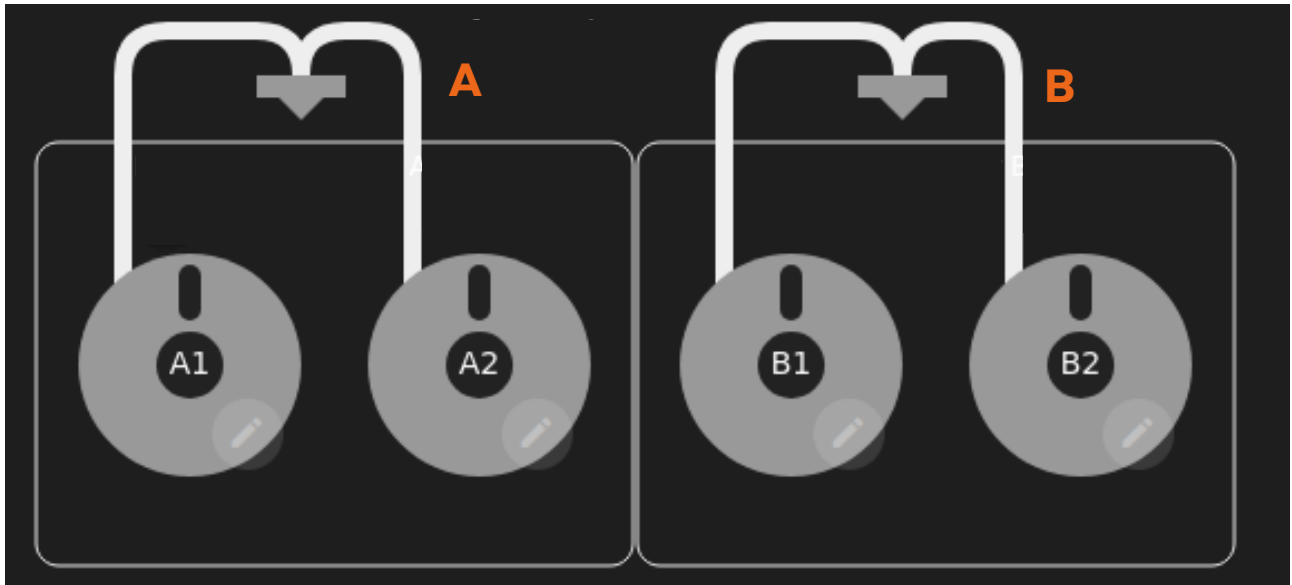


Figure 22. Filament system interconnections

Figure 22 shows the interconnections between the feeders and extruders. The marks on the drawers and extrude covers corresponds to the marks A1 A2 B1 and B2 on figure 22. Figure 23 shows the meeting point of two filaments.

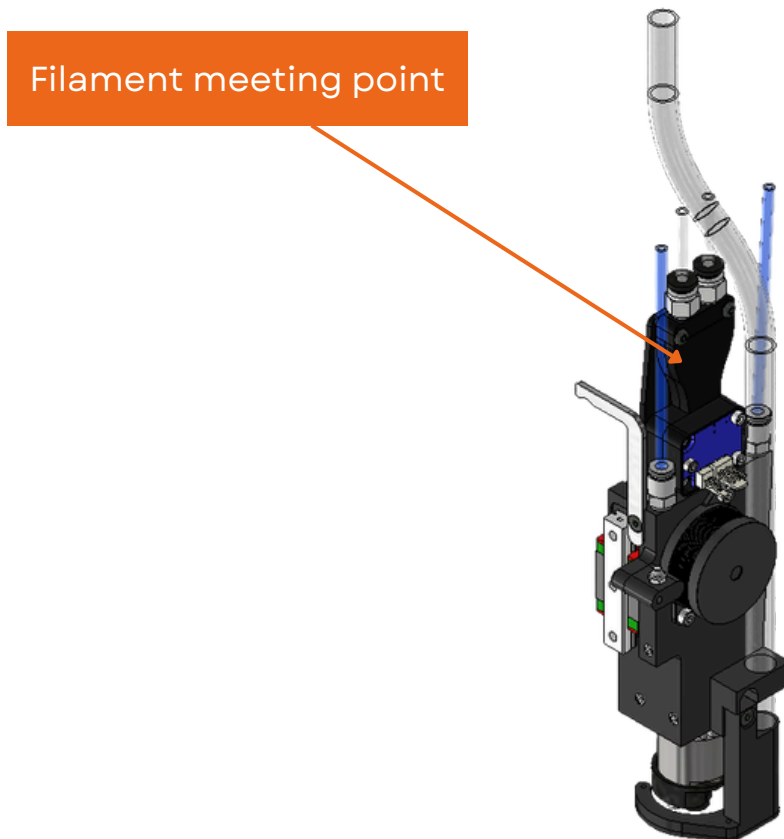


Figure 23. Filament meeting point

5.1.2.7 Filament loading

Before loading the material into the machine, Cut the end of filament at 45 degrees using pliers, and straighten the end. Lastly, insert the filament into a tube leading to filament feeder.



Figure 24. Filament prepared for loading.

To load the material into the machine, select the “Load” button for corresponding slot, and push the filament slightly until the motor grabs it.

After machine finishes the loading process, its important to set the material type by selecting the pencil icon on the spool symbol

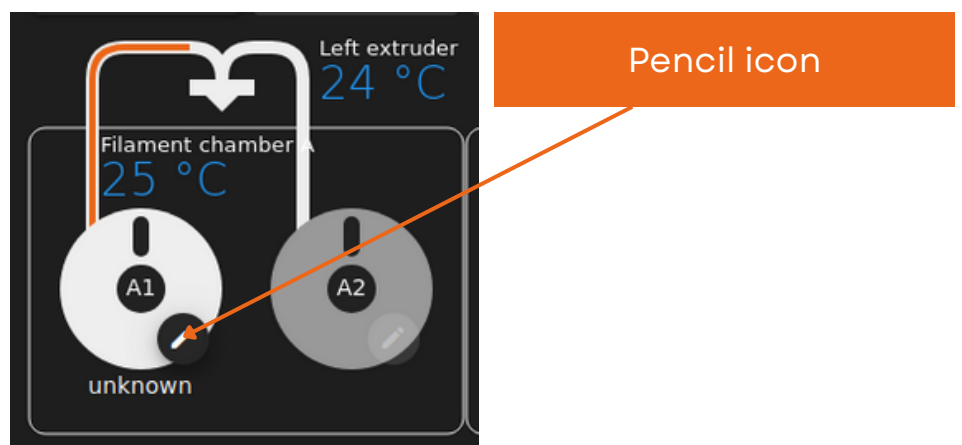


Figure 25. Selecting the material type and color.

5.1.2.8 Selecting the filament

“Selecting” (or priming) is the process of pushing the filament from the meeting point into the nozzle. To do that, click on “Select” button for corresponding filament. The process of loading is described below:

- Machine will home XY axes if not homed already
- Machine will move towards the filament bin
- Hotend will heat up to a proper temperature, according to selected material type.
- The feeder will start pushing the filament until it reaches the flow sensor.
- After reaching the sensor, the extruder will grab the filament and guide it through the hotend assembly at reduced speed.
- Confirm the positive outcome by observing if the filament extrudes through nozzle.

It is also advised to observe the movement of filament in the filament dryer. If the filament is stuck and can't go through the extruder, or the extrusion doesn't happen, refer to troubleshooting section.

5.1.2.9 Unloading the filament

Unloading will extract the filament from machine feeder system. Select “Unload” button and wait for the procedure to be over. After successful unloading, you should be able to extract spool from the drawer.

5.1.2.10 Cleaning the nozzle

Primed nozzle can be cleaned by the machine. Select “Clean” and wait for the machine to finish cleaning process

5.1.3 Movement

This tab controls mechanical processes within the printer, such as carriage position control, extrusion control, and active printhead selection. It also provides access to calibration and maintenance procedures and advanced print settings.

5.1.3.1 Moving the carriage in the X and Y axes

To move the cart in the X and Y axes, use the interactive XY panel by touching it at the target position.

To use the XY interactive panel, the printer must be idle and the X and Y axes must be homed.

5.1.3.2 Moving the table in the Z axis

To move the table, use the Z- or Z+ buttons to move the table up or down the selected distance.

If the Z axis is not homed, the table can only be lowered. To move the table up or down, all XYZ axes must be homed.

5.1.3.3 Homing the axes

To home the X and Y axes, press the Home XY button.

Press Home All to home the X, Y, and Z axes. Please note that the Z axis home procedure must be performed with a clean bed and nozzle. The left nozzle will heat up during the procedure, so the procedure may take longer.

5.1.3.4 Selecting the current extruder

Press the Left extruder or Right extruder button to select a specific extruder. Changing the extruder activates the head lift mechanism.

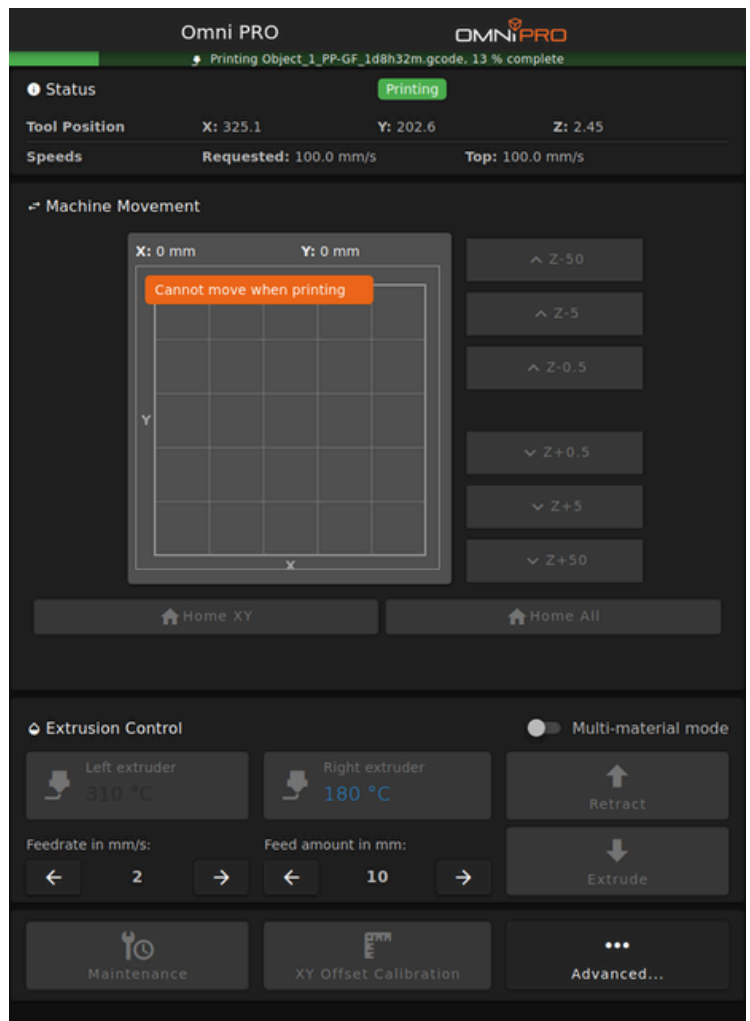


Figure 26. Movement menu

5.1.3.5 Material extrusion and retraction

1. Select the appropriate amount of material (in millimeters) and speed (in millimeters per second) using the arrow buttons.
2. Press Extrude to extrude material from the head.
3. Press Retract to withdraw the material.

NOTE: Extrude and retract is only available for the preheated head.

5.1.3.6 Multit-material Mode button

This slider changes the mode of the machine to Multi-material. Refer to “Operational mode” chapter to learn more about modes on OMNI PRO machine.

5.1.3.7 Maintenance procedures

1. Press the Maintenance button to open the list of maintenance procedures.

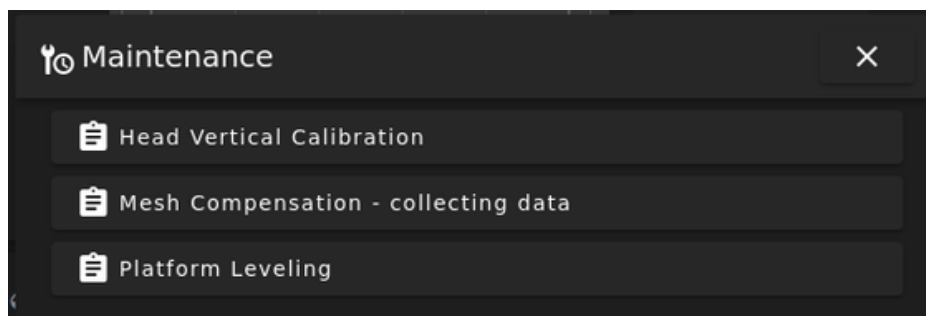


Figure 27. Maintenance menu

2. Select the procedure to be performed by pressing the appropriate button.
3. Follow the on-screen instructions. Some steps require user interaction. Once completed, press OK to continue the procedure.
4. If you want to cancel the procedure, press Cancel.
5. Once the procedure is complete, press Close to exit.

Some procedures (especially those requiring movement) cannot be canceled while in progress. For these steps, the Cancel button does not appear. If you need to stop the procedure, wait until the step is complete. If there is a risk of injury or damage, use the emergency stop button.

5.1.3.8 XY Offset Calibration

XY Offset Calibration menu allows user to establish correct offset in X and Y axes of B nozzle in relation to A nozzle. This is very important when printing with both nozzles. The whole procedure is described in chapter **7.5 XY offset calibration**.

5.1.3.9 Advanced print settings

To access advanced print job settings, press the Advanced... button to open the window.

The window contains the following controls:

- **Z Babystepping (Z-axis microstepping)** – This feature allows you to increase or decrease the distance between the nozzle and the build plate. This can be helpful when applying the first layer. Reduce the value if the material isn't sticking to the build plate. Increase the value if the nozzle scratches the build plate or if the layer is too thin or discontinuous.

Note! properly calibrated machine should not need the use of baby stepping. Refer to Z offset calibration section to set the proper offset of the nozzles.

- **Print Start Procedures** - Select which procedures will be performed by default before each print job:
 - **Mesh** - Perform mesh calibration. This procedure with leveling will yield the best first layer results and should be used before every print
 - **HVC** - Perform head vert. calibration. Should be performed every time when using two extruders, or when printing with only B extruder. Can be skipped if printing with A extruder only
 - **Leveling** - Perform platform leveling. Should be performed with mesh calibration for best results.
 - **Home Z** - Probe Z axis right before the print starts. Useful only in few cases, mostly when printing smaller parts on the center of the build plate.

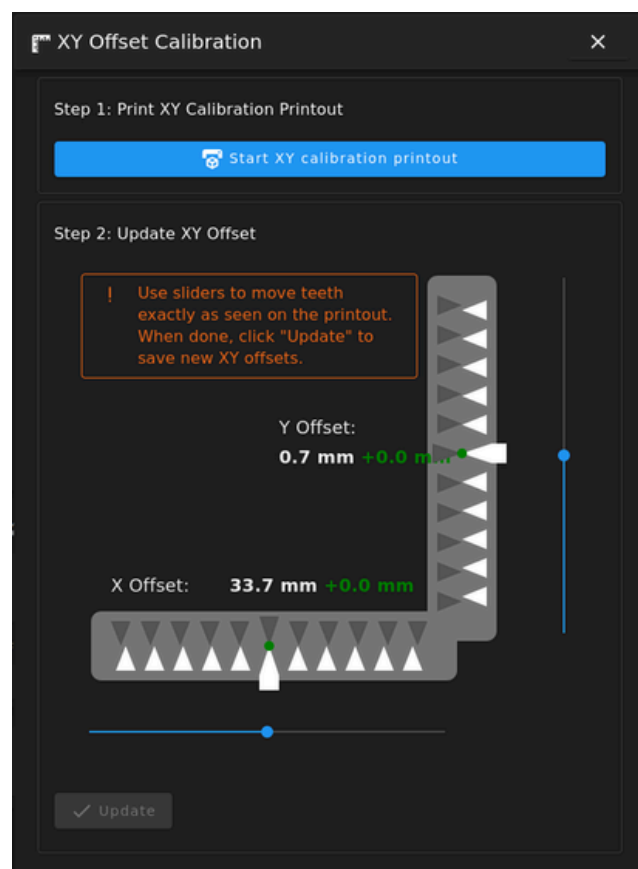


Figure 28. XY Offset Calibration dialog

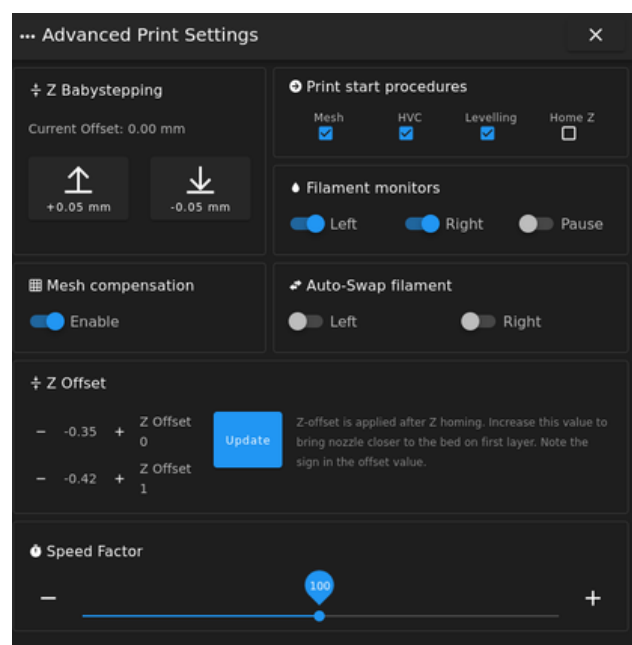


Figure 29. Advanced dialog

- **Filament monitors** - This panel enables or disables the filament flow sensors. The “pause” slider will make the machine pause current print job if the sensor reports incorrect flow.
- **Auto-swap filament** - Enables automatic filament swapping for the left or right extruder. This can be used for long prints; when the current filament runs out, the second filament spool is selected and the print job continues. This feature requires both spools to be loaded and contain the same material. More information can be found in “Modes” section
- **Z offset** - This panel allows for adjusting the Z offset value for each nozzle. Refer to “Calibration” section for more informations
- **Speed factor** - allows you to adjust the actual print speed as a percentage of the original speed defined in the gcode file. To restore the original speed factor, press Reset.
Note! Print quality may vary. Speed should be made in the slicer.

5.1.4 Events

In the Events tab, you can access a log of all events that have occurred since the printer was turned on.

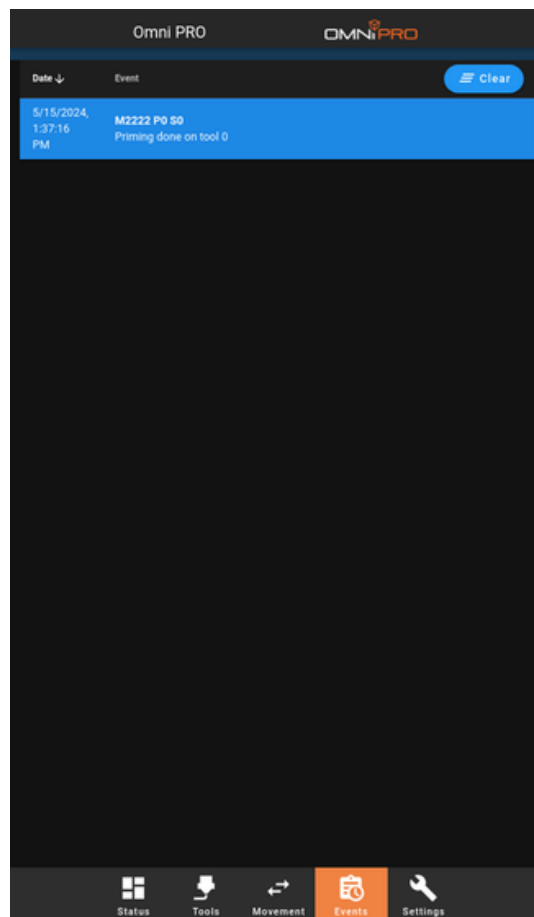


Figure 30. Events menu

The table below describes the 4 types of events:

Event type	Color	Meaning
Success	Green	The task was completed successfully.
Information	Blue	There is some information that may be useful, such as the result of a procedure, information about the completion of a task, or the cancellation of a task.
Warning	Orange	A problem has occurred, but it does not require any user action at this time, e.g., it is not a supported instruction.
Error	Red	A problem has occurred that prevents the printer from printing, such as an illegal action being performed or a procedure not being completed correctly.

Table 5. Event types

5.1.5 Settings

The Settings tab allows you to read and edit all printer settings.

The card is divided into five sections:

- **Overview** - contains basic information about the printer,
- **General** - provides general settings,
- **Presets** - provides management of temperature settings,
- **Network** - provides editing of network objects,
- **System** - Provides system information and allows an optional factory reset.

All settings sections, except Overview, are only visible to Expert access level or higher.

5.1.5.1 General Settings

In the “General” section you can edit the following settings:

- **Use binary file sizes** - file sizes are displayed in 1024 (IEC) instead of 1000 (SI),
- **Language** - change the interface language,
- **Do not close error messages automatically** - If this option is enabled, the user must close the message window when an error occurs.
- **Default notification timeout** - defines how long identical notifications will be ignored after the first notification.

To change your PIN:

1. Select the access level whose PIN you want to change. By default, the currently active level is selected. You can change the PIN for the current access level and lower levels.
2. Enter the current PIN for this user only.
3. Enter a new PIN and confirm it by entering it again.
4. Press the Update PIN button to apply the changes.

You can also set the idle time after which the interface will automatically lock in the In case of inactivity lock screen after field. Select Never to prevent the screen from locking.

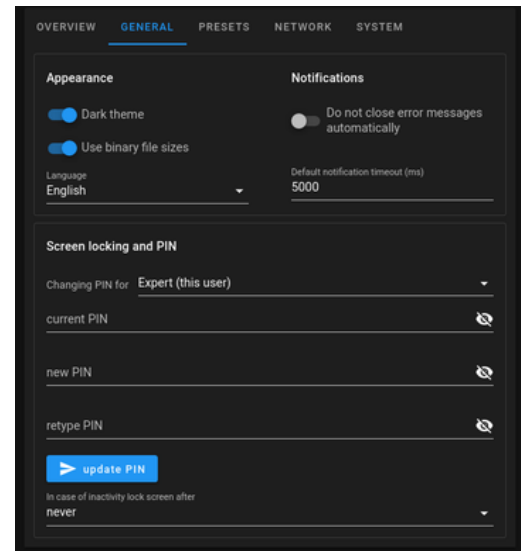
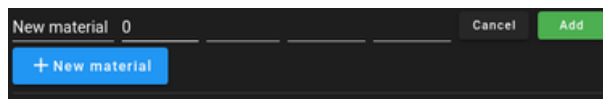


Figure 31. General Settings Menu

5.1.5.2 Preset Management

Select Presets in the panel to manage temperature settings.

1. Click New Material to add a new material. Enter a new material name. Then set the temperatures for each column. The Extruder field is required. The remaining fields are optional.



2. To save a new material, press Add next to the new row. The new preset will be saved. To cancel adding a new material, press Cancel.
3. To edit an existing material, press Edit on the row occupied by the material you want to edit. You can change any temperature value or delete an existing temperature by pressing the X button next to the temperature value.



4. To delete an existing material, press Delete in the row occupied by the material you want to delete. Confirm your selection by pressing Yes in the pop-up that appears.
5. You can assign frequently used presets to buttons in the Tools panel via the Extruder presets panel. Press Add... below the extruder name to display a list of all presets. Select the preset you want to assign, then press the button . To delete a job, press the button . Note that deleting an assignment does not delete the assigned preset.

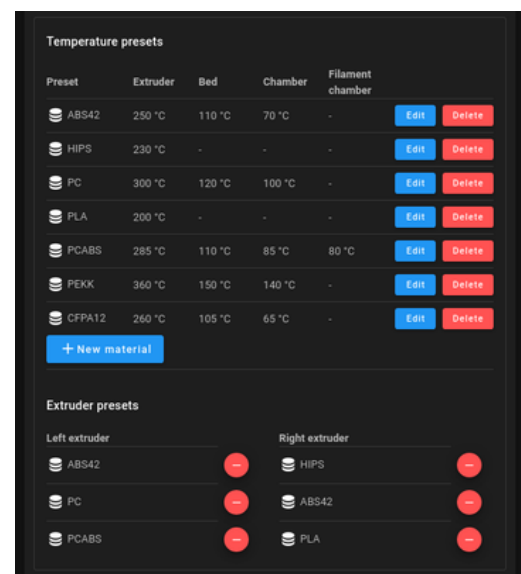


Figure 32. Presets Menu

5.1.5.3 Network settings

To manage your network connection, go to the Network panel in the Settings tab.

1. Select your network connection type by pressing Ethernet or Wi-Fi.
2. In Wi-Fi mode only, enter the SSID and password of the Wi-Fi network you want to connect to.
3. Select the IP address assignment type for your network by pressing DHCP or Static IP.
4. For Static IP mode only, enter the IP address you want to assign to the printer, followed by the subnet mask and default gateway according to your network's default settings.
5. Once you're sure all the values are correct, press the Apply settings button to save your settings and connect to the network. This may take a while.
6. To undo all changes, press Cancel.

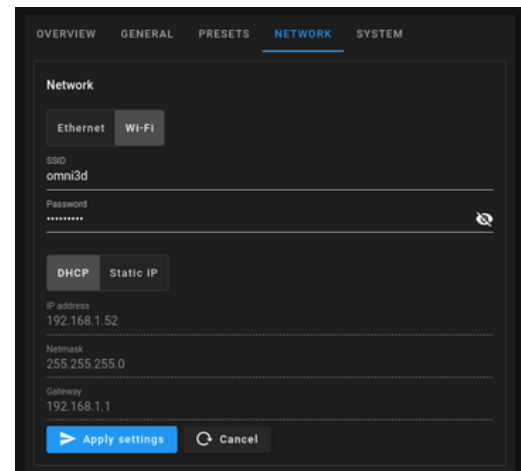


Figure 33. Network settings

5.1.5.4 Restore default settings

You can restore your device's default settings in the System panel. To restore the settings, click the Revert to factory settings button and confirm your selection by clicking Yes. Once the restore operation is complete, all settings will be restored to factory defaults.

5.1.6 Lock screen

Pressing the Lock/Logout button on the Status panel locks the interface. When the screen is locked, you must select your access level and enter the correct PIN to access the system. You can also change the current access level from this screen.

The interface may lock up if inactive. You can adjust the timeout or disable this feature in the Settings - General panel.

To unlock the screen or change the access level:

1. Select the access level you want to log in to from the list. By default, the current level will be selected.
2. Enter your PIN using the numeric keypad.
3. Once you have entered the correct code, you will be taken to the Status panel after entering the last digit of the code.

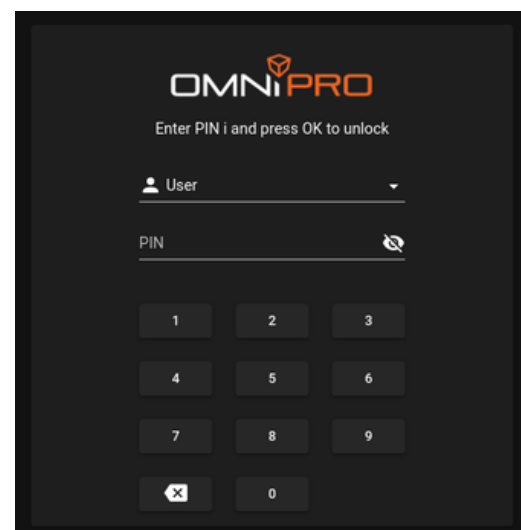


Figure 34. Lock screen

5.1.7 Cooling tab

Cooling tab is used to create a cooling curve that the machine will follow after the print job ends. It can help when printing with warping materials, by gradually reducing overall bed and chamber temperatures. The instructions on how to use cooling tab, can be viewed by selecting help icon on machines front panel.

6. Operation Modes

The OMNI PRO machine operate in two distinct modes: Auto-swap mode and Multit-material mode. The user can change the mode using slider button as described in [5.1.3.6](#). The Differences and advantages of each mode are described below

6.1 Auto-swap mode

The Auto-swap mode is a primary operational mode for OMNI PRO machine. As the name suggest, this mode is meant to be used with the same material type loaded on both A and B slots, in order to automatically continue printing when one of the slots runs out of filament. Below is a example on how to set up a machine and OrcaSlicer for a print in Auto-swap mode.

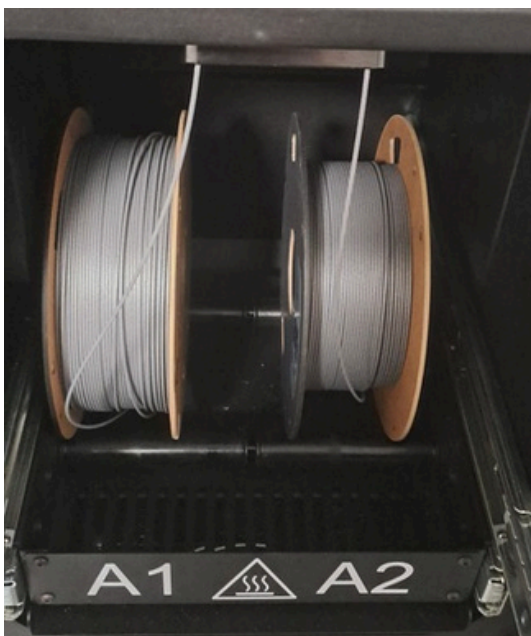


Figure 35. Materials loaded into a machine in Auto-swap mode.

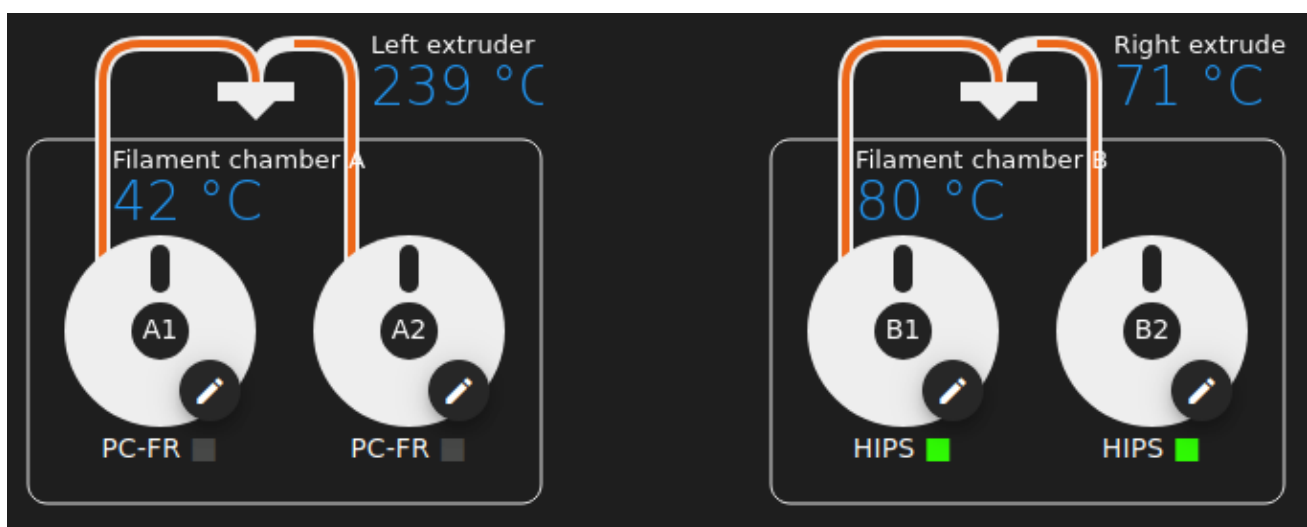


Figure 36. Materials setup in machine filament management panel.

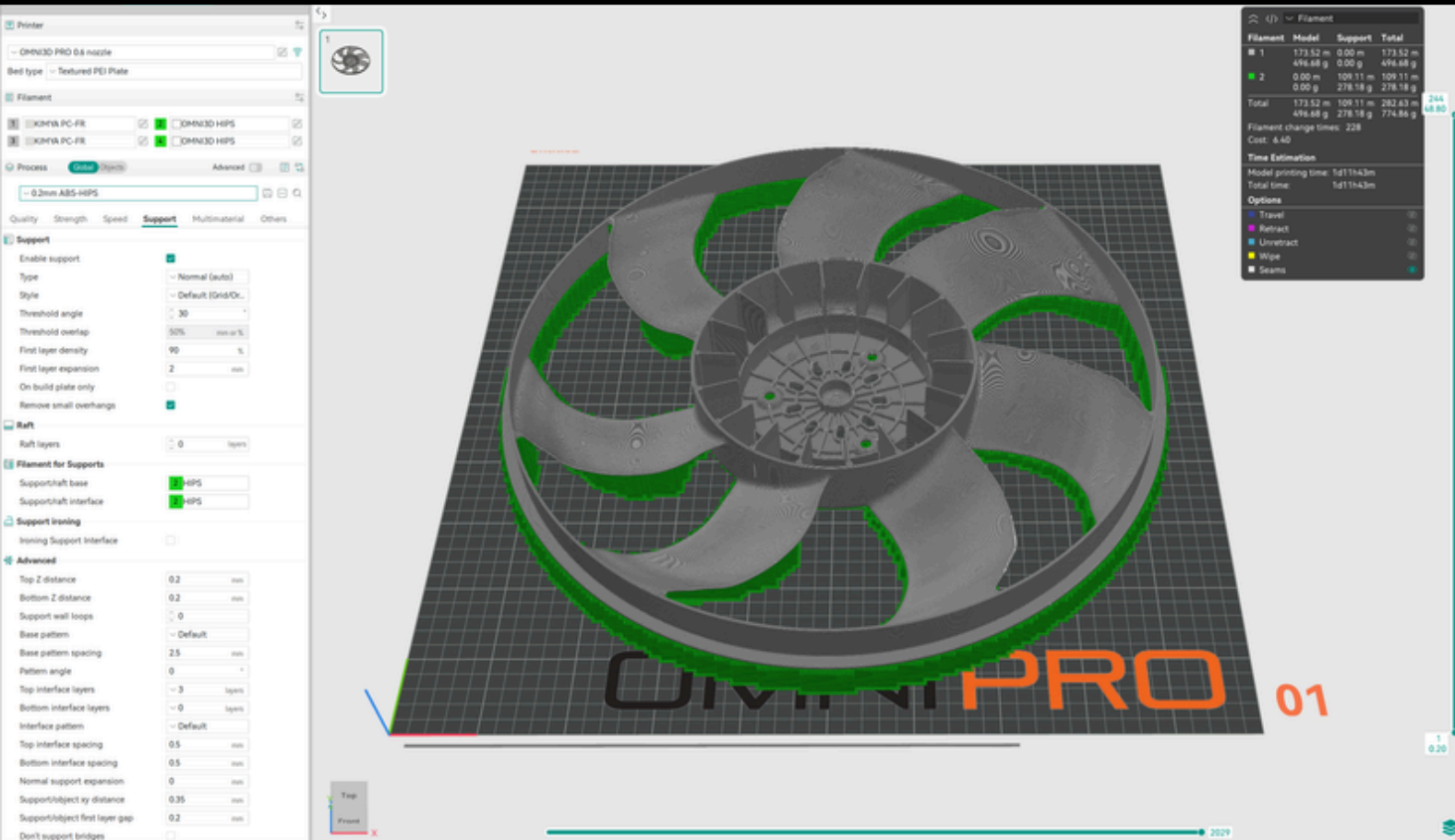


Figure 37. OrcaSlicer setup for Auto-swap mode print..

6.1.1 Primary slot in Auto-swap mode

As described in **6.1** the machine in Auto-swap mode will start the print with first slot (material spool) and finish with the second if the previous slot runs out of filament. The user can choose which slot should be used at the start of the print for each extruder. For example:

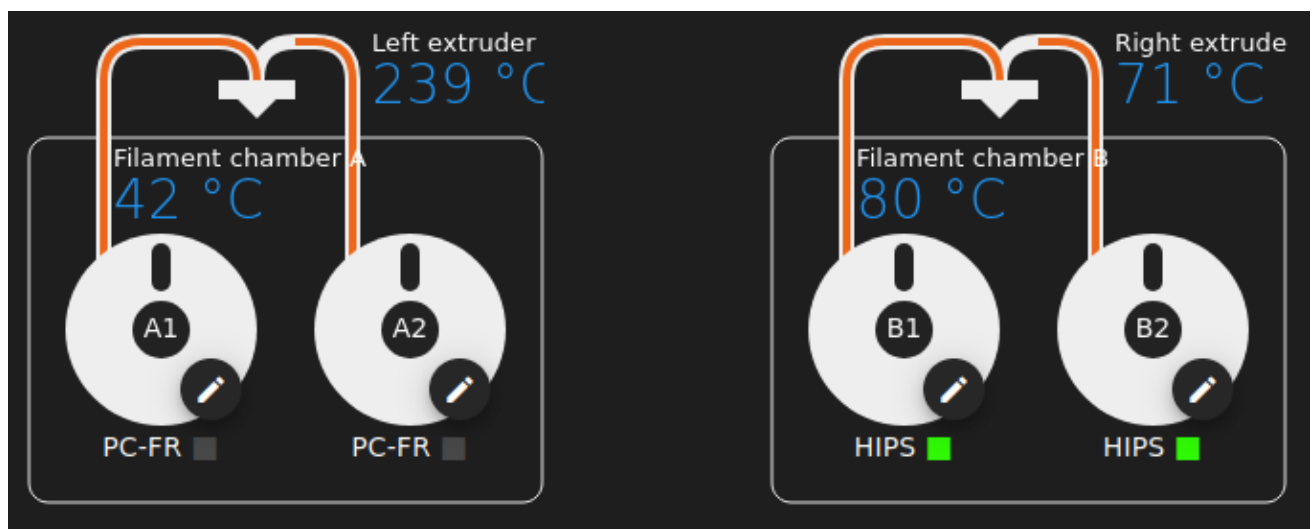


Figure 38. Auto-swap setup with A1 and B1 as primary, A2 and B2 as secondary

As shown on *Figure 38*, the machine will start a print job with A1 and B1 slots, and use A2 and B2 when previous slots runs out of filament. The A1 and B1 will be treated as primary **because they are selected at the moment the print starts**. Now consider this case:

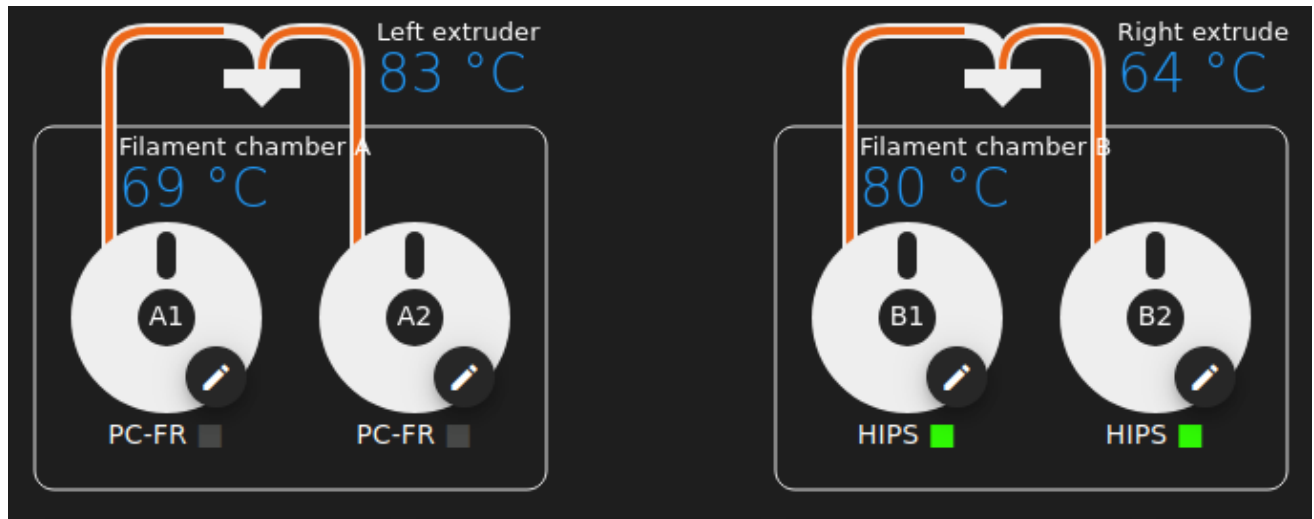


Figure 39. Auto-swap setup with A2 and B2 as primary, A1 and B1 as secondary

In this case, the A2 and B2 will be treated as primary, and the machine **will start the print job with these slots**, if they run out, the A1 and B1 will finish the print. In this case, you will see a following message on the screen shortly after starting a print job

Date ↓	Event
11/6/2025, 10:19:29 AM	Drives switched

Figure 40. Drives switched message

This message means that on one of the extruders (A or B), the second slot (A2 or B2) was chosen as preferred for a print start.

NOTE: These combinations are also allowed:

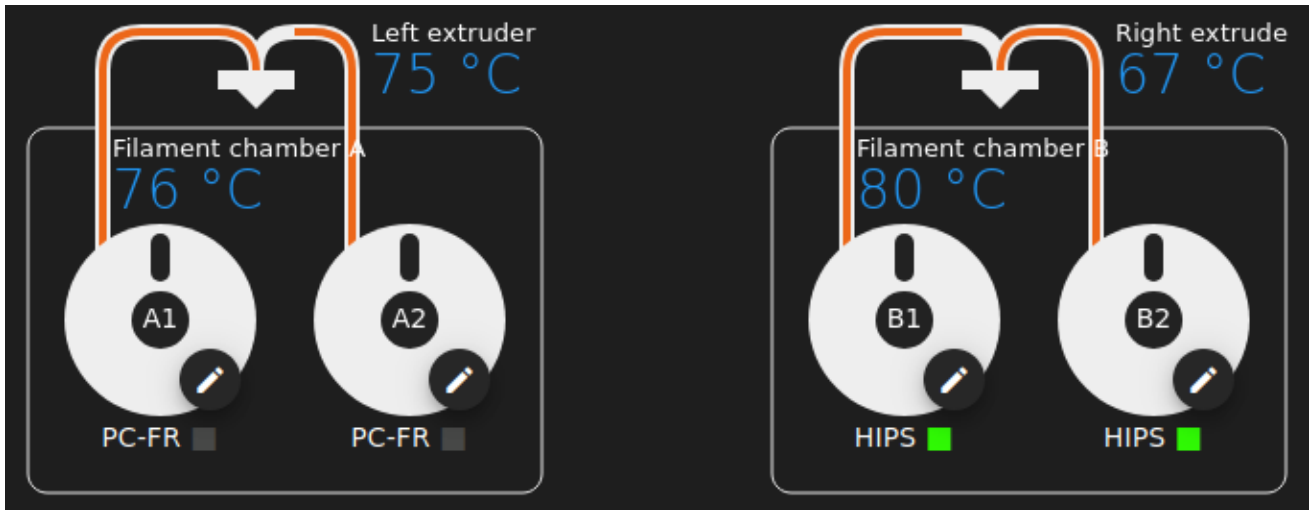


Figure 41. A1 and B2 as primary, A2 and B1 as secondary

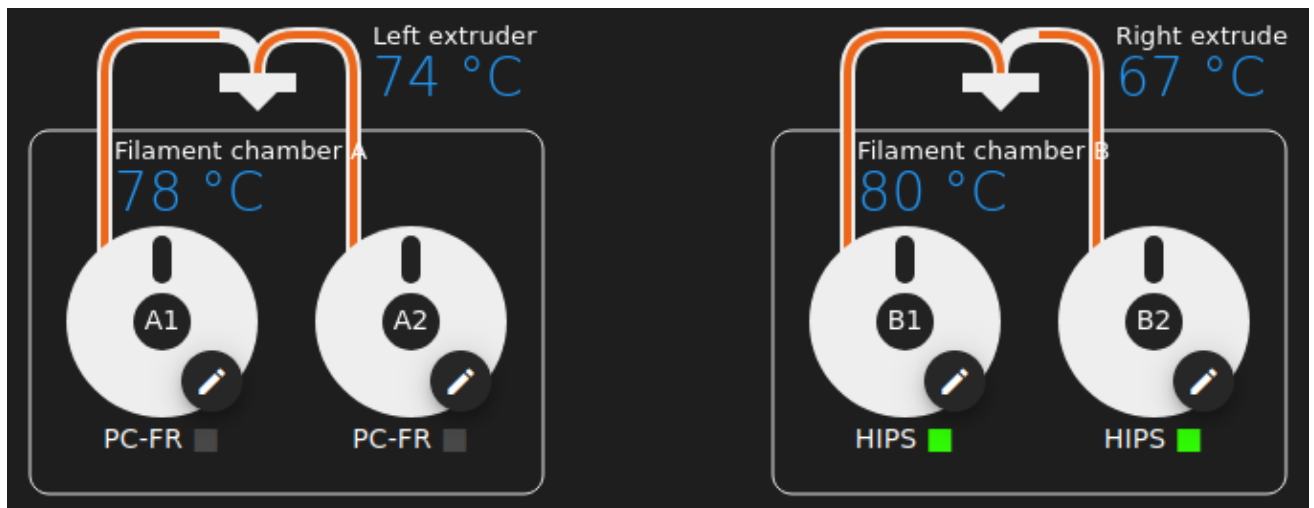


Figure 42. A2 and B1 as primary, A1 and B2 as secondary

6.2 Multi-material mode

The Multi-material mode treats all four slots as independent extruders, that's why the view changes when the mode is being switched to four tools.

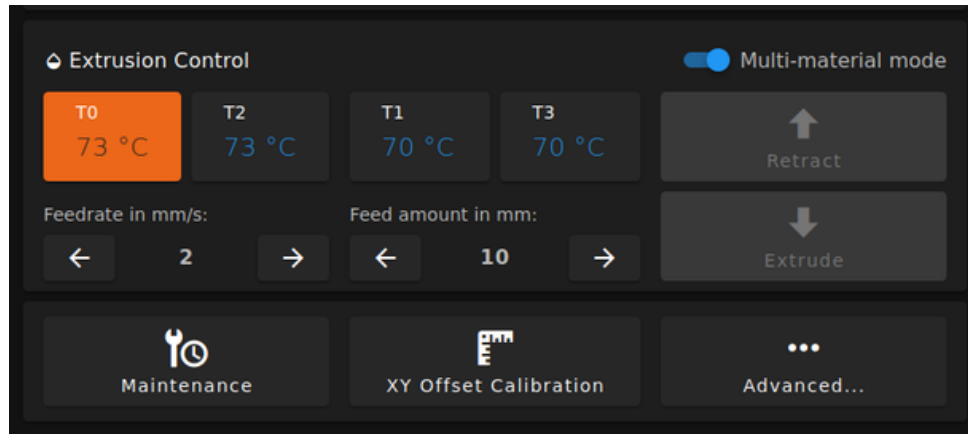


Figure 43. Extrusion control panel with Multi-material mode enabled.

In this mode, it's possible to execute print jobs with **more than two materials** at the same time. This means the extruder will switch filaments during tool changes if commanded by the gcode.

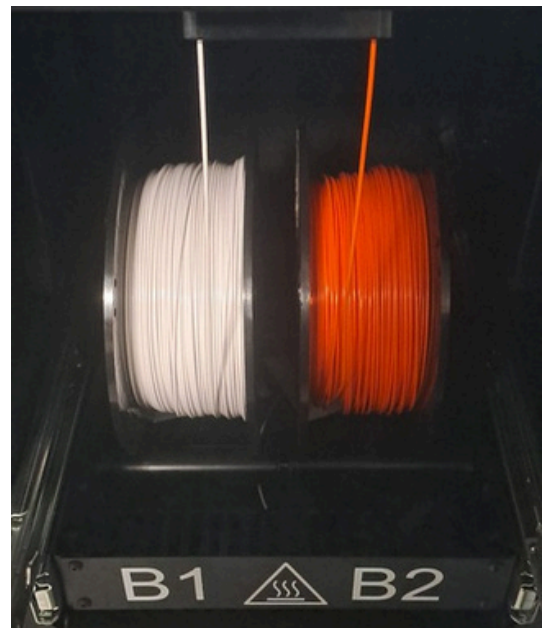
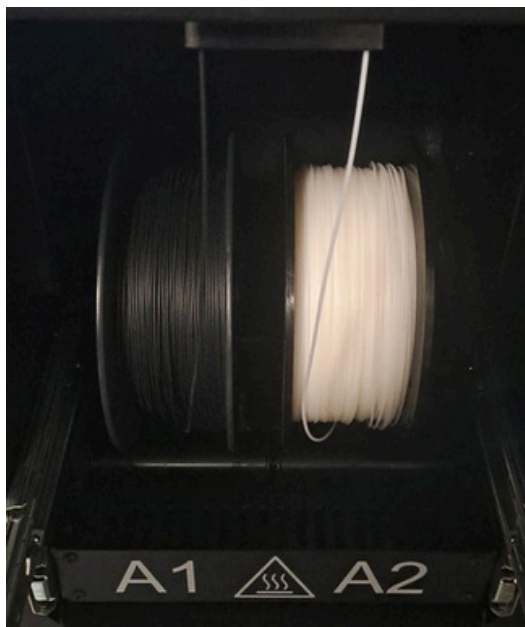


Figure 44. Material loaded into a machine in Multi-material mode.

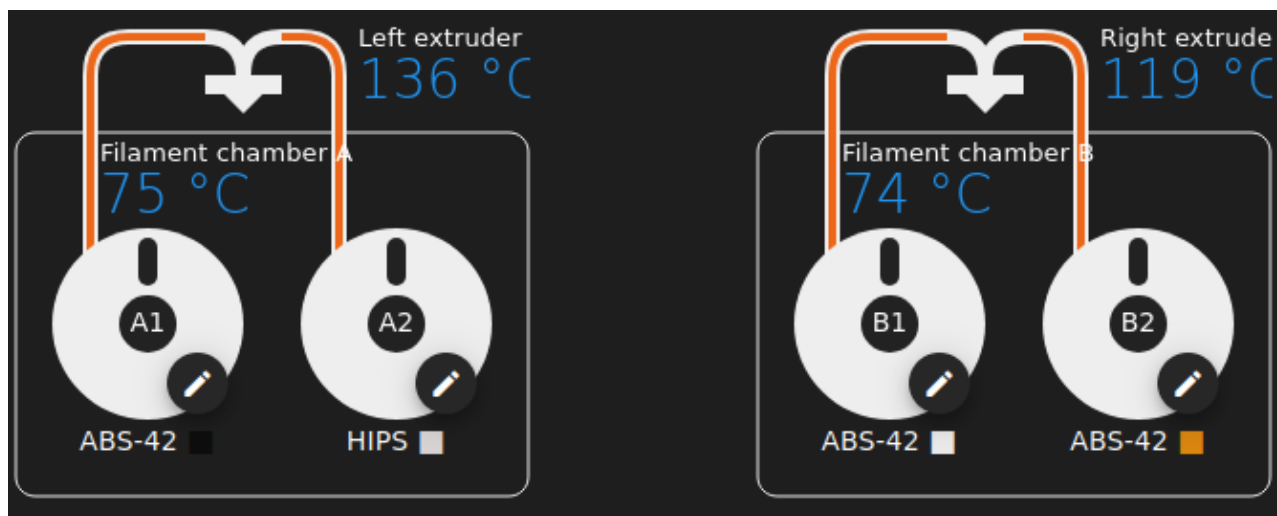


Figure 45. Materials setup in machines Filament Management panel.

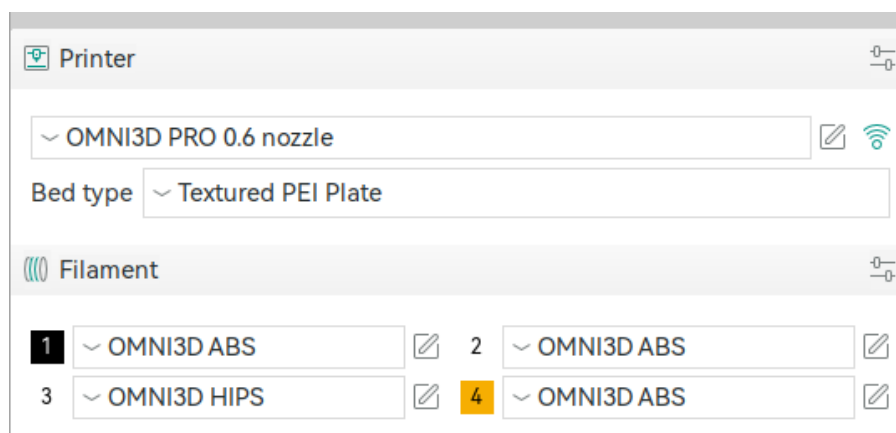


Figure 46. Materials setup in OrcaSlicer.

Note the relation between extruder number (A1 A2 B1 B2) and assigned filament in OrcaSlicers Filament Tab.

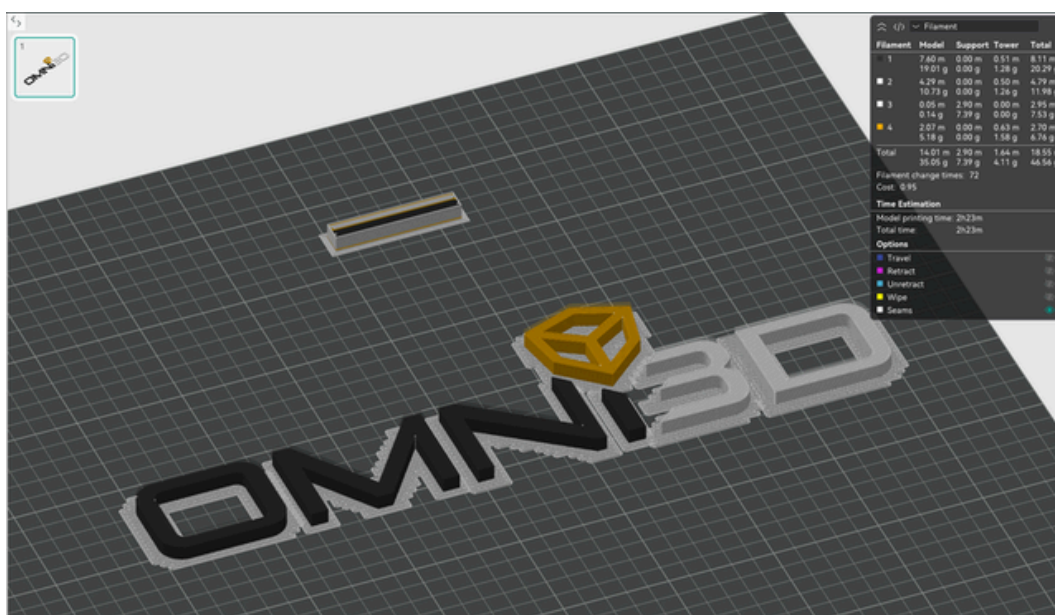


Figure 47. OMNI3D Logo sliced with four different materials.

7. Calibration

Calibration is one of the most important steps to perform, in order to extract the most performance from OMNI PRO machine.

7.1 Platform leveling

Platform leveling is a automatic procedure that will level the build plate in relation to XY axes by touching it with nozzle at each pivot point. This procedure can be done from “Maintenance” sub menu in “Movement” tab, or can be done before every print job by check the “leveling” box in “Print start procedures”. Check chapter **5.1.3.9** to learn on how to use Print start procedures panel.

7.2 Mesh calibration

Mesh calibration is automatic procedure, that measures the flatness of the build plate, and adjust the Z height in real-time during printing. his procedure can be done from “Maintenance” sub menu in “Movement” tab, or can be done before every print job by check the “mesh” box in “Print start procedures”. The result of this calibration can be seen in OWC using a Height Map plugin as shown on figure 48.

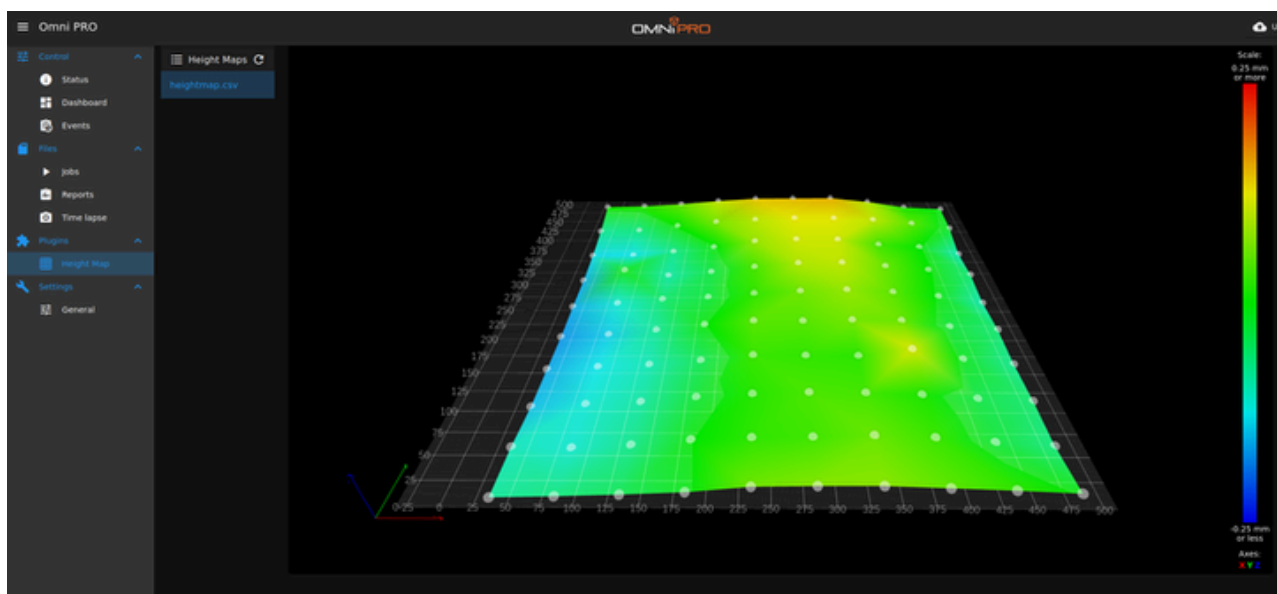


Figure 48. Result of a mesh calibration.

7.3 HVC

HVC stands for Head Vertical Calibration. It aims to measure the vertical offset between A and B nozzles, so the machine know by how much it needs to lift the build plate to be able to print with B extruder. This procedure is also automatic, and can be done from “Maintenance” sub menu or can be done before every print job by check the “hvc” box in “Print start procedures”. Note that this calibration is only useful if printing with B nozzle. It is not needed for printing with only A nozzle. The result of a HVC calibration can be checked in machine system files, by examining the *startup-z-offset.g* file. The value of around 4mm is correct.

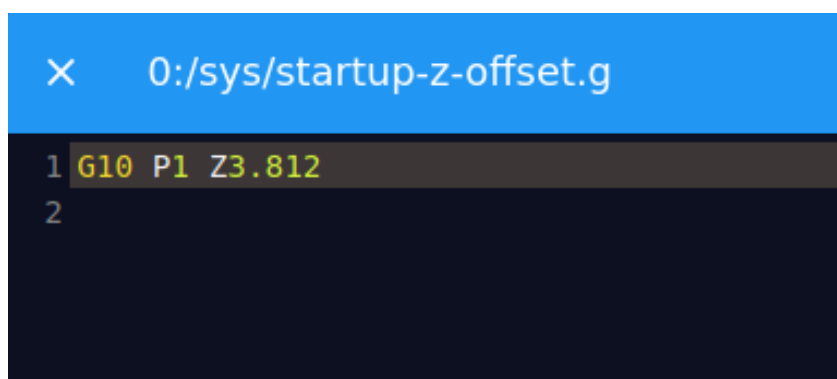


Figure 49. Content of startup-z-offset.g file

7.4 Home Z

The Home Z procedure will home the Z axis right before starting a print job. It can be only selected as Print start procedure. It is meant to be used as the only calibration procedure before a print job. Its useful when printing small models that are located on the center of the bed.

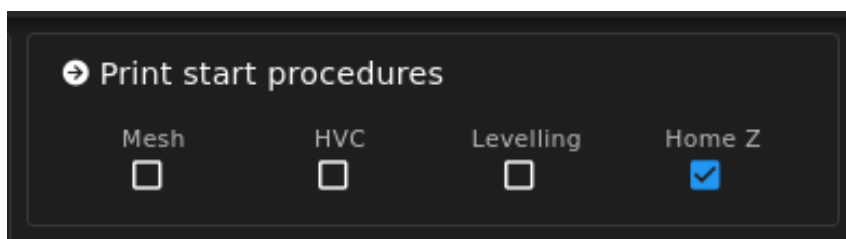


Figure 50. Correct usage of Home Z calibration.

Warning! do not use Home Z in a combination with mesh. This will throw off a mesh calibration as Home Z establishes new Z=0 position.

7.5 XY offset calibration

To calibrate the position of the nozzles relative to each other in the X and Y axes, a special calibration print is required.

Before calibrating, load materials into both extruders (ABS or HIPS are recommended. For easier readings, we recommend using different material colors for each extruder).

1. Make sure your printer is properly calibrated. If you're unsure, perform a printhead vertical calibration and platform leveling.
2. Press the XY offset calibration button to open the dialog box.
3. Press Start XY calibration printout, then select the appropriate nozzle diameter installed for both printheads. The print will begin. The print job takes up to 10 minutes (without preheating).
4. Remove the printout.
5. Use the sliders to move the teeth on the screen exactly as they appear on the printout. A dot moving between the teeth on the screen should indicate where the teeth made of the two materials touch.
6. If the offset settings for both axes are at 0.0 mm, the printer is calibrated correctly. You can close the window using the button in the upper right corner.
7. If the offset setting for one or more axis is not 0.0 mm, press the Update button. The offsets will be updated according to the print readings.
8. It is recommended to reprint the calibration printout to confirm that the new settings are correct. To restart the print job, press Yes in the dialog box. Once the job is complete, proceed to step 5.

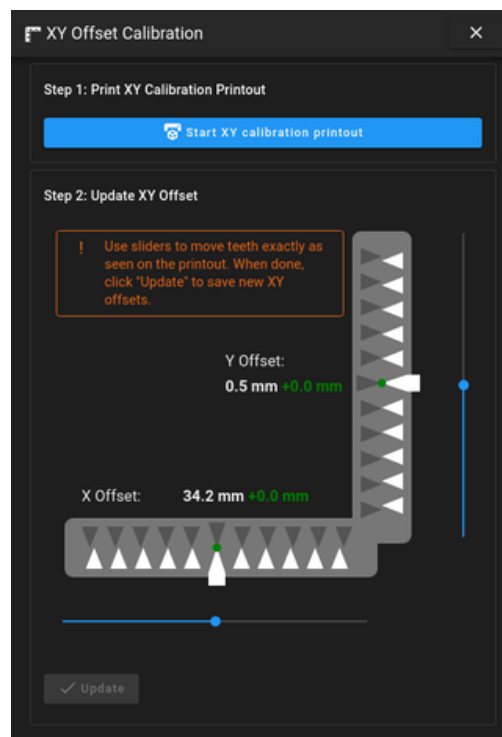


Figure 51. X and Y axis offsets

7.6 Z offset calibration

Z Offset is a distance in mm from tip of the nozzle to the point of Z axis sensor trigger. In other words, it means “by how much the printer needs to lift the nozzle for the sensor to detect the movement”. Calibrating the Z offset is crucial for getting accurate initial layer height.

1. Home the machine
2. Cancel any currently active mesh compensation with **M561**, and delete mesh with **G29 S2**
3. Select **T0**, and move the nozzle over the bed. Its best to do it at the center of the bed
4. Jog the nozzle down until it is just touching the bed or just gripping a sheet of paper. If the firmware doesn't let you jog it down far enough, send **M564 S0** to disable axis limits.
5. Once you have the nozzle touching the bed, send command **G92 Z0** to tell the firmware that the head is at Z=0
6. Jog the head up by 5 to 10mm
7. Send command **G30 S-1**. The bed will rise until the probe triggers and the Z height at which the probe stopped will be reported in the console. If you are using a nozzle-contact Z probe, the trigger height will be slightly negative. For any other type of Z probe where the probe triggers before the nozzle contacts the bed, it will be positive.
8. Apply new offset in **Movement → Advanced → Z offset**
9. Restart the machine to apply new offset

Fine tuning the trigger height

After the procedure above is done, you can fine tune your G31 Z value to get a good first layer. During a test print, watch the first layer go down and adjust the Z position using the baby stepping function. If you have to move the nozzle closer to the bed, increase the G31 Z value by the amount of baby stepping used. If you have to move the nozzle farther away from the bed, decrease the G31 Z value by the amount of baby stepping used.

7.7 Calibration tips

Here is a couple of tips from developers on printer calibration:

- High temperature will throw off calibration - That's why the machine will always wait for the bed and chamber temperature set points to be achieved, before doing the calibration.
- Use mesh and leveling before every print in order to get the best possible first layer quality.
- Perform hvc only when using B extruder in a print job
- Use “Print start procedures” to perform calibrations right before print job starts. This ensures the best calibration outcome.
- Skip calibration entirely if you are restarting a print to save some time.

8 Print preparation

In this chapter, we will go through preparing the machine for a print job

8.1 Slicing

Slicing is the most important part of preparing a print job. In this manual we will focus only on setting up the printer, so the slicing part will be cut short. The OMNI PRO machine support OrcaSlicer as its slicing engine.

After importing and setting correct model orientation, the user have to select two main settings:

1. Machine configuration - We provide configuration for 0.4mm, 0.6mm, and 0.8mm nozzle diameters. User needs to select the machine configuration according to what nozzle is intended to be used on print job.

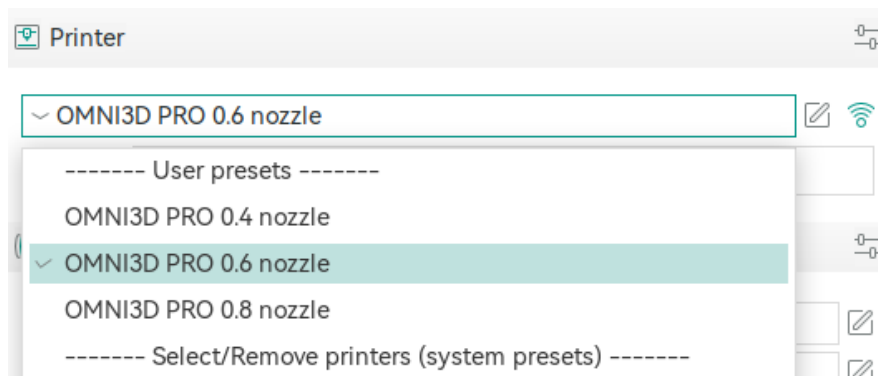


Figure 52. Machine configuration selection window in OrcaSlicer

2. Material selection - We provide a list of supported materials. The user needs to assign a correct material to slot in a machine depending on operational mode. Check out chapter **6. Operation modes** to correctly assign a filament to machine slot.

8.2 Uploading GCode to machine

There are several ways to upload GCode file to machine memory:

- Export gcode to external memory (USB drive or SD card) and put the external memory into the machine. From “Status” tab, select “Print from file”, choose correct memory location and select GCode file you wish to print.
- Upload the GCode to machine internal memory using OrcaSlicer network plugin. In OrcaSlicer select a following icon:



Figure 53. OrcaSlicer network plugin icon

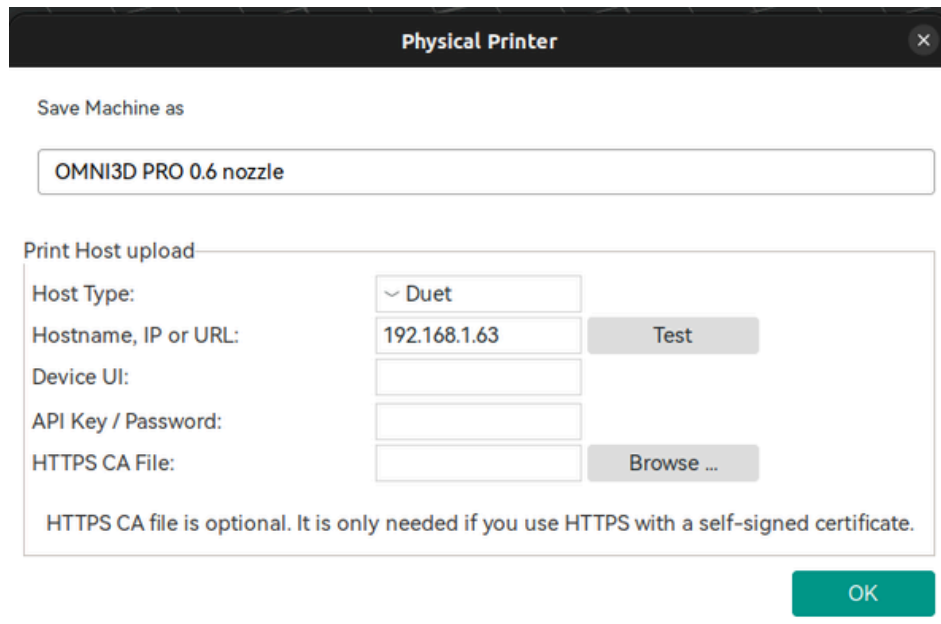


Figure 54. OrcaSlicer network plugin menu

In the Network plugin menu, put the IP address of your machine into a designated field and confirm with “OK”.

Now select “Print” from top right corner. the following window will pop up:

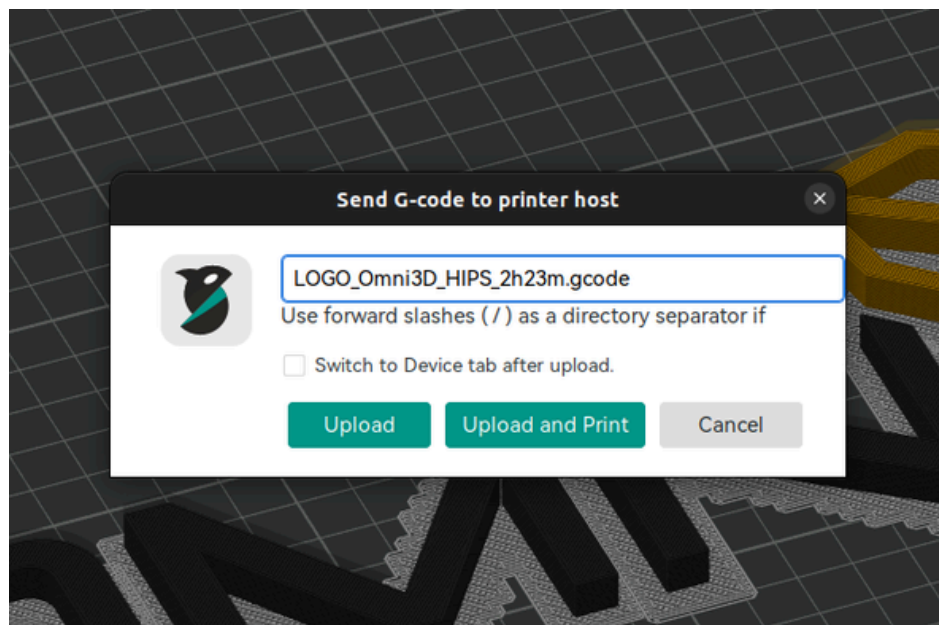


Figure 55. OrcaSlicer Upload window

Now you can choose if you want to only upload the GCode to machine memory, or you can select “Upload and Print”, and the OrcaSlicer will automatically start the print after uploading.

Warning! Select “Upload and Print” only if you know your machine is ready to print

8.3 Loading the filament into the machine

Refer to chapter **5.1.2.6 Filament loading** for detailed instructions

8.4 Selecting Calibration procedures

Refer to chapter **7. Calibration** for detailed instructions

8.5 Preparing build plate

It is important to clean the buildplate before starting a printjob. Remove any filament leftovers from the plate. Use izopropyl alcohol and paper towel, or dishwashing liquid to degrease the surface. You can rinse the plate with water.

8.6 Checklist

Below is a simple checklist of steps to perform before starting a print.

- ☐ Upload the file to the machine using available options
- ☐ Load the correct materials
- ☐ Select calibration procedures
- ☐ Clean the build plate
- ☐ Start the print

9. Printer maintenance

Regular maintenance is required to keep your printer ready to print and produce high-quality prints. The following section explains the most important aspects of proper device maintenance.

9.1 Updating the printer software

The printer's software is constantly being developed. Each new software version enhances its performance and makes the printer more reliable. Therefore, for optimal performance, it is recommended to regularly update the software. There are two ways of performing software update:

9.1.1 Offline Update

Software can be updated without connecting the machine to the internet. The steps are as follows:

1. Download a .opks file
2. Put it on the USB drive, sd card or upload it to machine memory from OWC
3. Login as Admin. Go to Settings → General → System update.
4. Select **Check for updates** button. The machine will read the provided .opks file and perform an update.
5. Wait around 10 minutes for updates to complete.

9.1.2 Online Update

The machine allows user to download and install updates directly from our servers.

1. Ensure the machine have a connection to the internet
2. Select **Online update**
3. Select which updates you want to perform
4. Wait around 10 minutes for updates to finish

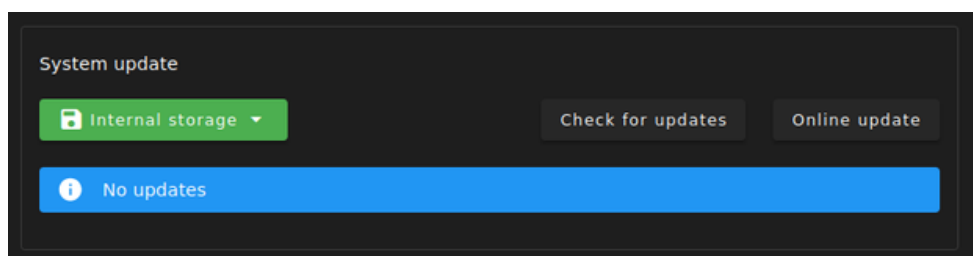


Figure 56. System update panel

9.2 Filament storage

In order for the filament to maintain its proper properties, it is important to remember to store it properly.

It's generally recommended to store filaments in a cool, dry place. Humidity in the air has a particularly negative effect on some filaments, so in such cases, it's recommended to heat or dry them. Omni3D filaments are hermetically sealed, so a cool place is sufficient for storage. However, if they have been opened and partially used, it's recommended to use a special filament dryer before reusing them.

9.3 Maintenance Schedule

9.3.1 User Maintenance

The values of working time and printing time can be read on the LCD display in Settings › Information tab

Working time [h]*	Print time [h]*	Maintenance and service activities
100	100	Cleaning fan filters, checking and topping up coolant
	200	Cleaning the build platform Cleaning the inside of the printer
	300	Lubrication of the X and Y axis carriages
500		Replacing carbon/HEPA filters
1000		Checking the build chamber fans Checking the printer fans Cleaning the X and Y lead screws Checking the tightening of the lead screw mounting screws and nuts

Table 6. User Maintenance Schedule

9.3.2 Maintenance performed by an authorized service center:

These activities are also subject to payment during the warranty period.

Failure to perform these activities within the warranty period is considered to void the warranty.

Working time [h]*	Print time [h]*	Maintenance and service activities
	2000	X, Y axis cleaning, electronics chamber cleaning, nozzle replacement, extruder belt replacement, servo replacement, extruder cable replacement, X motor cable replacement, extruder carriage lubrication, filter replacement (if necessary),
	4000	Replacement of the chamber heater fan motor, replacement of the X and Y-axis clutches, maintenance 2000 h
	6000	Replacing Bowden tubes, cleaning brush replacement + 2000 h maintenance
	8000	Maintenance 4000 h + maintenance 2000 h
10 000	10 000	Coolant replacement, cooling pipe replacement, Pump replacement, Z-axis lead screw lubrication, all fans replacement, Z-axis clutch replacement + 2000 h maintenance
30 000		Replacing the 24V power supply

Table 7 Authorized Service Maintenance Schedule

* The values of working time and printing time can be read on the LCD display in Settings › Information tab

First and subsequent services:

1. 2000 h
2. 4000 h + 2000 h
3. 6000 h + 2000 h
4. 8000 h = 2000 h + 4000 h
5. 10000 h
6. 12000 h = 2000 h + 10000 h
7. Itp.

9.3.3 Consumables not covered by warranty

Consumables are subject to natural wear and tear, so their warranty is limited and defined separately for each item. Primary consumables:

- | | |
|--|--|
| 1. Print heads | 7. Print cooling blowers |
| 2. Bowden tubes | 8. Extruder linear bearings |
| 3. Extruder cable set, platforms and X-axis endstops | 9. Servo |
| 4. Fans (mechanical damage) | 10. X and Y axis clutches |
| 5. Extruder pressure arm springs | 11. Build platform |
| 6. Carbon/HEPA filter | 12. Front door hinge (mechanical damage) |

9.3.4 Every 100 h:

9.3.4.1 Cleaning the filters

The photos below show the filters and fans, which require cleaning every 100 hours of printer operation. To clean the filters/fans, remove the cover and then blow the filters/fans out with compressed air.

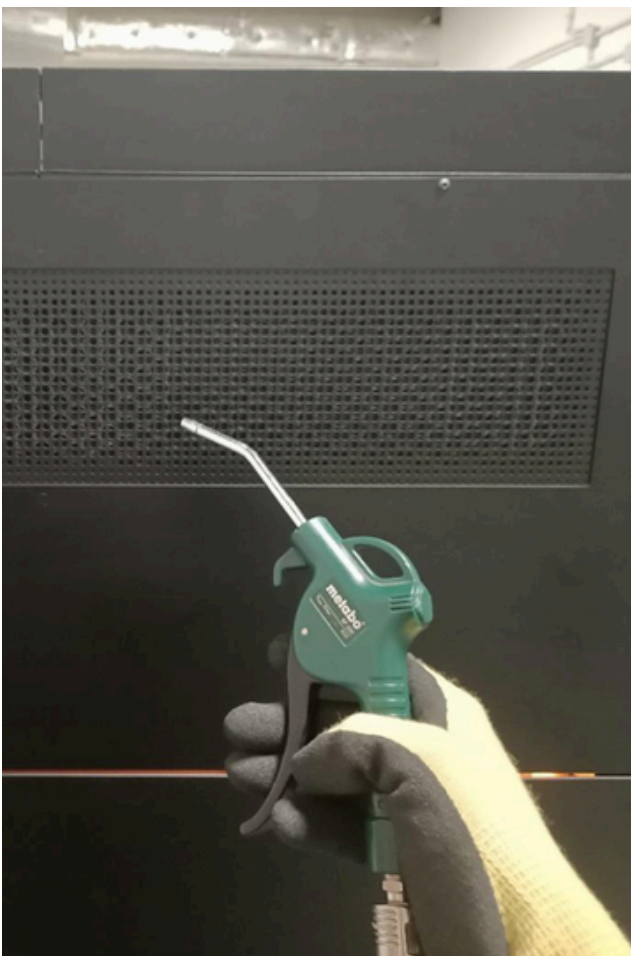


Figure 57. Radiator fan filters

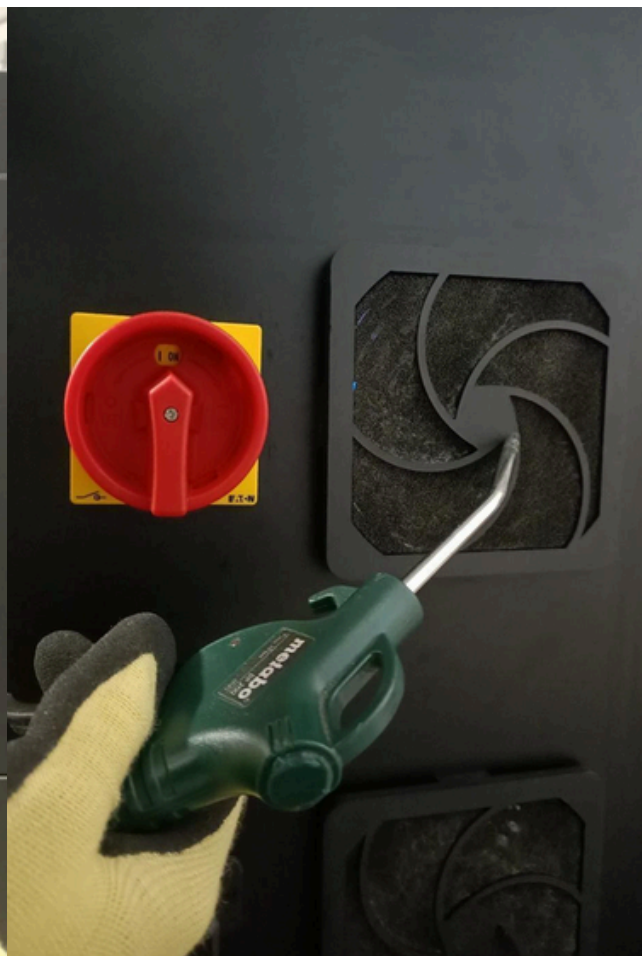


Figure 58. Electronic fan filters

9.3.4.2 Refilling the coolant

To access the tank, open the hatch. Then, unscrew the caps on both tanks and fill them with distilled water only.



Figure 59. Coolant reservoir location



Figure 60. Opening the coolant tanks



Figure 61. Filling the coolant tanks with distilled water

9.3.5 Every 200 h:

9.3.5.1 Cleaning the build platform

For cleaning, the build plate must be removed. The printing surface is held in place with magnets. To remove it, pry up the corners.

The easiest way to clean the build platform is under running water or with a sponge and water. After thoroughly cleaning the build platform, reassemble it as before disassembly.

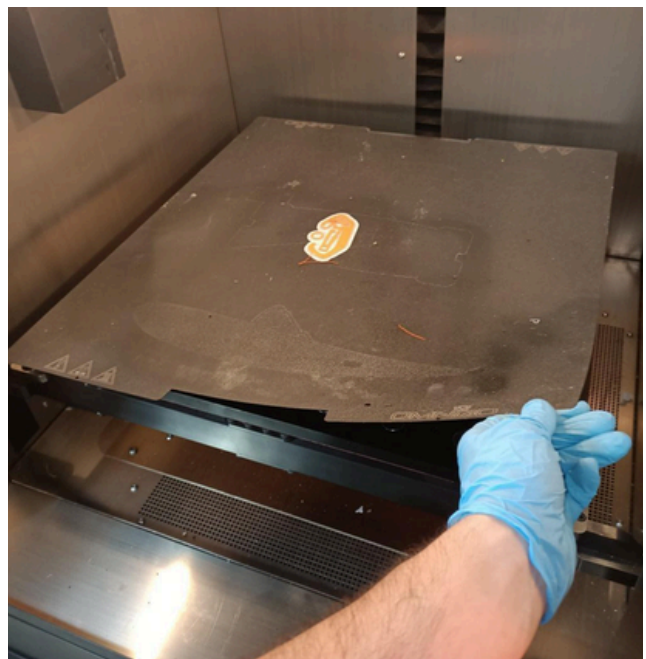


Figure 62. Removing the build plate

9.3.5.2 Emptying the trash

To remove the container, lift it upwards. It is held in place by a magnet.



Figure 63. Removing the container

9.3.6 Every 300 h:

9.3.6.1 Axle lubrication

The carriages are lubricated directly in the printer's build chamber. Before lubricating, prepare a grease gun with the grease recommended by Omni3D.



Figure 64. GN-80M grease gun and tip

Next, install a grease gun with a grease nozzle, place it on the fitting, and begin filling the carriage with grease. Do this slowly until excess grease begins to escape through the sealing lips. After lubrication, remove any excess grease from the carriage.

To lubricate the X-axis, open the rear cover of the extruder chamber.

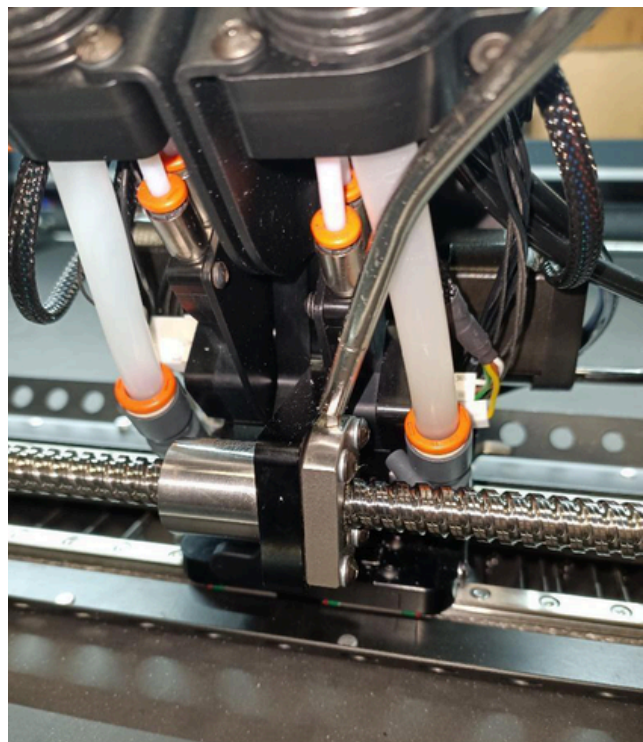


Figure 65. Lubricating the X-axis lead screw

The Y-axis modules are accessible through the front door of the extrusion chamber.

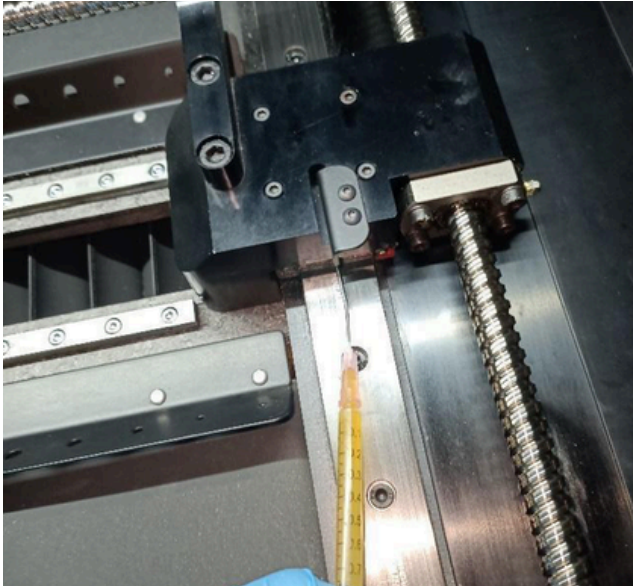


Figure 66. Lubrication of the linear motion bearing (right Y)

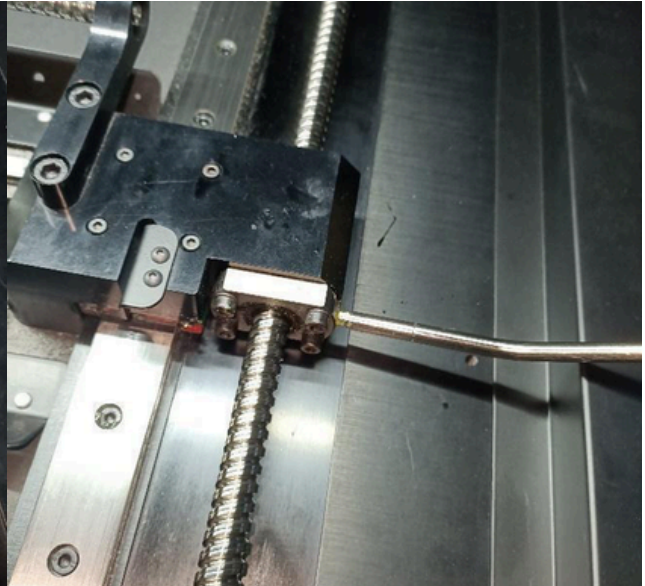


Figure 67. Lubricating the Lead Screw (Right Y)

9.3.7 Every 500 h:

9.3.7.1 Replacing the CARBON/HEPA filters

You can order a filter to purify the air exhausted from the build chamber of your printer. The filter attaches to the fans located on the left side of the printer.

9.3.8 Every 1000 h:

9.3.8.1 Fan control

A fan check involves visually inspecting each fan to ensure they are operating properly. If you notice irregular operation or if the fans are not spinning at all, you should contact an Authorized Service Center for replacement. It's also important to note that some fans don't run continuously and are controlled by software within the printer's electronics. Therefore, it's essential to confirm whether a specific fan is faulty. This task can also be referred to an Authorized Service Center.

The chamber heater fan is controlled by activating the chamber heating

in the printer, and then check that the fan is rotating evenly. The fan can be seen through the circular perforation in the center.



Figure 68. Chamber heater cover

Electronics fans

Each printer has four fans located on the bottom and rear cover plates. These fans run continuously. To check the condition of the fans, observe their rotation and/or feel their airflow with your hand. If airflow is imperceptible or inconsistent, contact an Authorized Service Center for replacement.

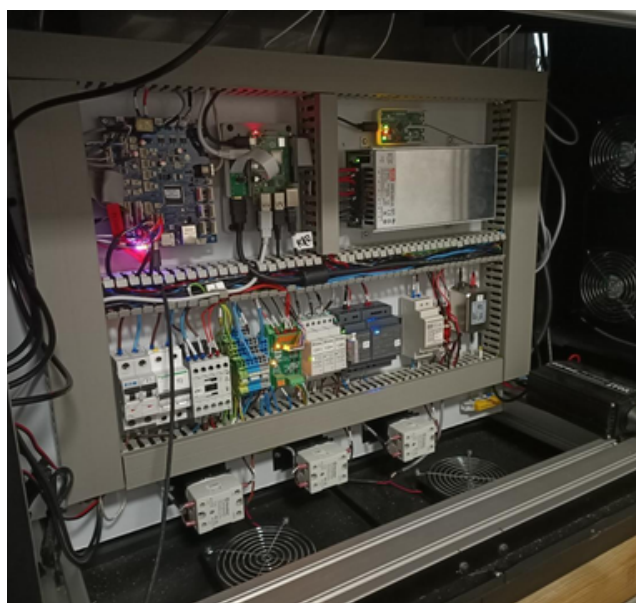


Figure 69. Electronics fans

Cooling blowers for filament changer controllers

Two fans are located behind the printer's rear cover. If you notice irregular operation or the fan is not spinning, contact an Authorized Service Center for replacement.

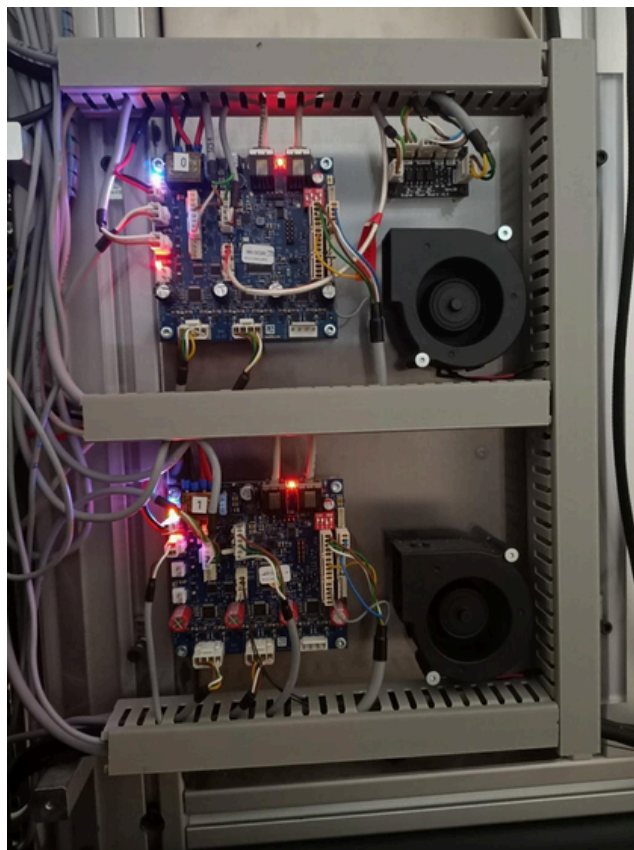


Figure 70. Electronics fans

Camera fan

The camera fan, like fans in electronic devices, is located behind the rear cover of the printer.

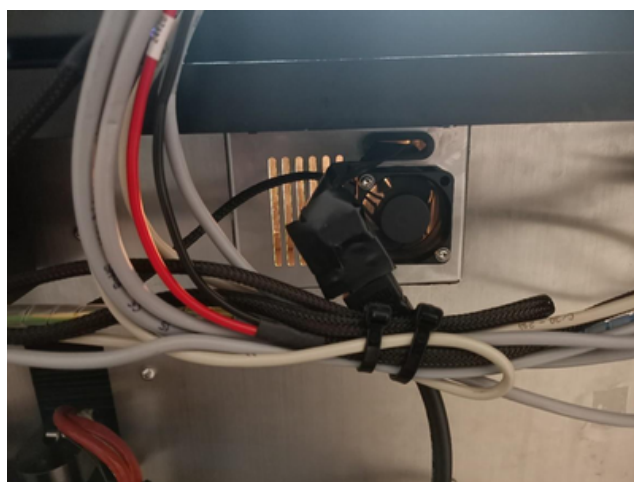


Figure 71. Camera fan

Fans and turbines cooling prints

In the extruder chamber, above the printing chamber, there are five fans on the left and five on the right. Two of them blow air directly through the liquid coolers. Additionally, there are two turbines on the right, each above the filament changer.

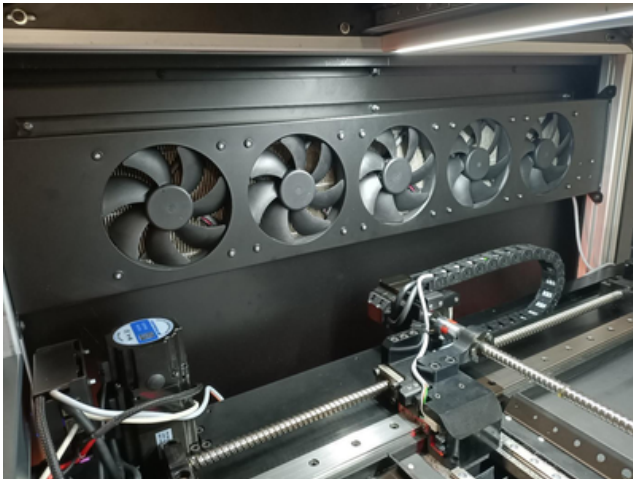


Figure 72. Ventilation fans

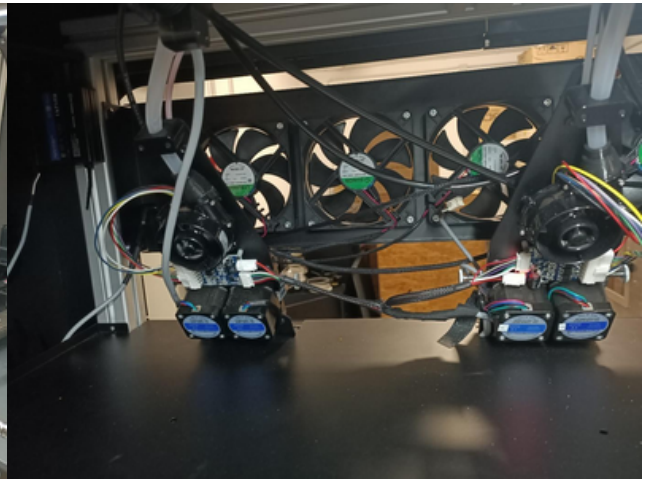


Figure 73. Ventilation fans and turbines

9.3.8.2 Cleaning the lead screws

Lead screws should be cleaned with plastic brushes. Steel brushes should not be used.

Brake cleaner, white spirit or acetone can be used to clean the lead screws.

The lead screw should always be clean. It should be silver, as shown in the photo. Otherwise, the nut and bolt will wear prematurely. If they are very dirty, the printer will begin to "lose steps."

9.3.9 Replacing the nozzle

To replace the nozzle, first make sure the nozzle is clean enough to insert a wrench. Next, remove the heat shield and then unscrew the nozzle. Reassembly is performed in reverse order.

Note: wear protective gloves!

Be sure to tighten the nozzle at 400 degrees C using a dedicated torque wrench. Please note that the nozzle will only be properly secured with this torque wrench if the threads are clean.



Figure 74. Cleaning the nozzle

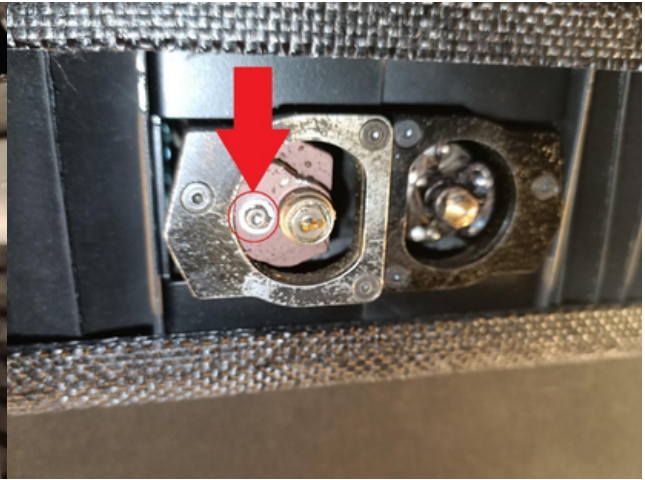


Figure 75. Removing the nozzle heat shield

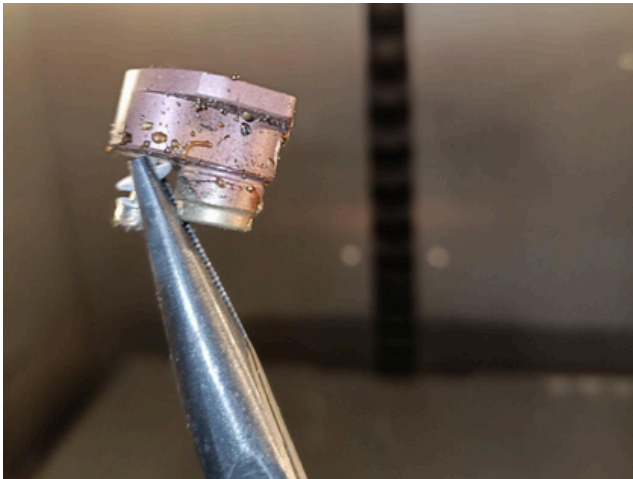


Figure 76. Heat shield removed

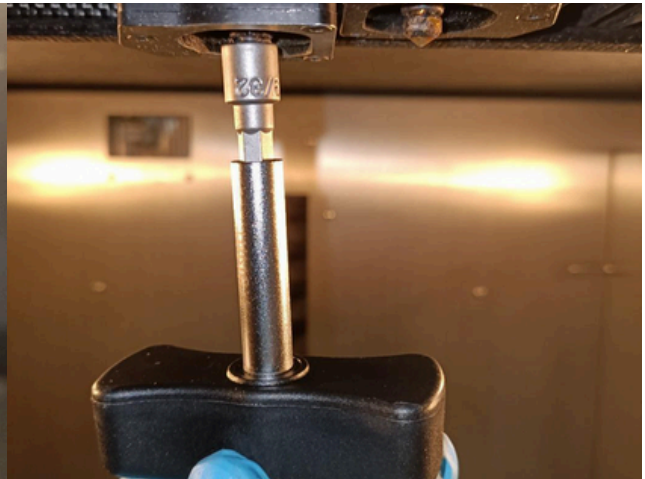


Figure 77. Unfastening/fastening the nozzle

9.3.10 Replacing the printhead

To remove the printhead, first unlock the extruders. One latch is located at the front and the other at the rear.

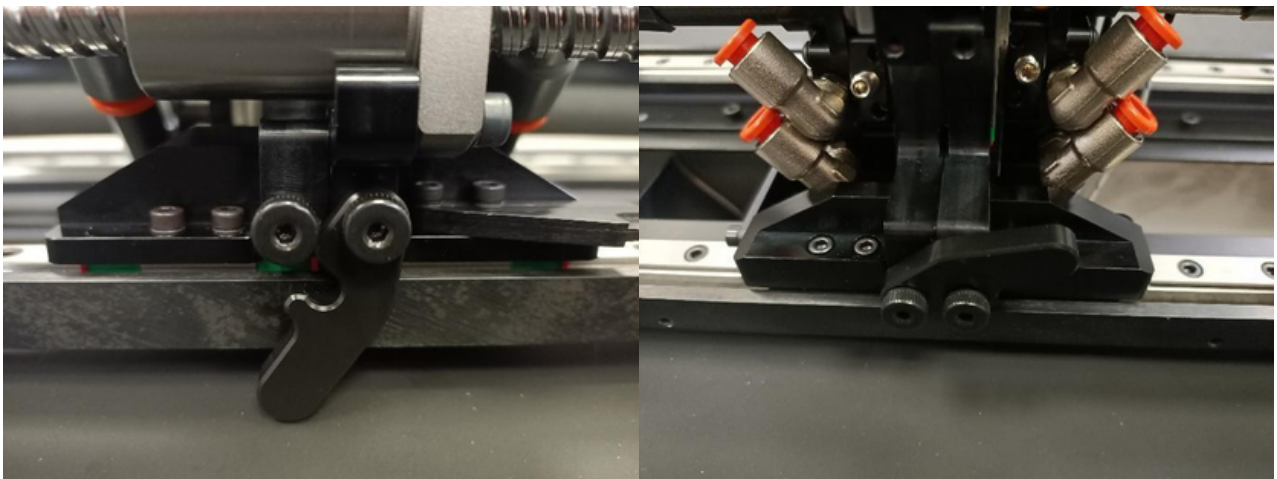


Figure 78. Rear and front extruder latch

Then separate the extruders and remove the screws securing the print head.

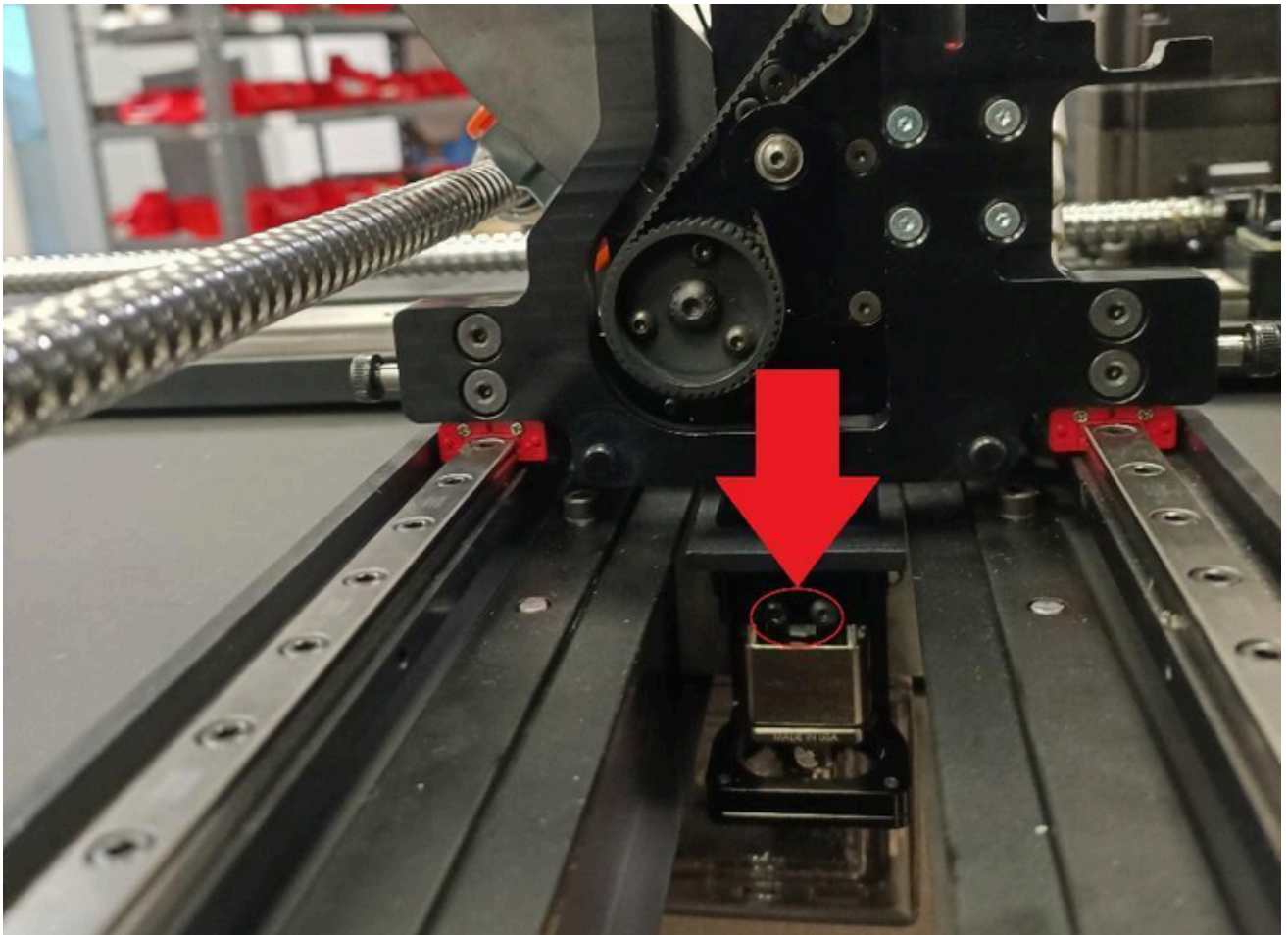


Figure 79. Printhead mounting screws

The print head will come out like this:

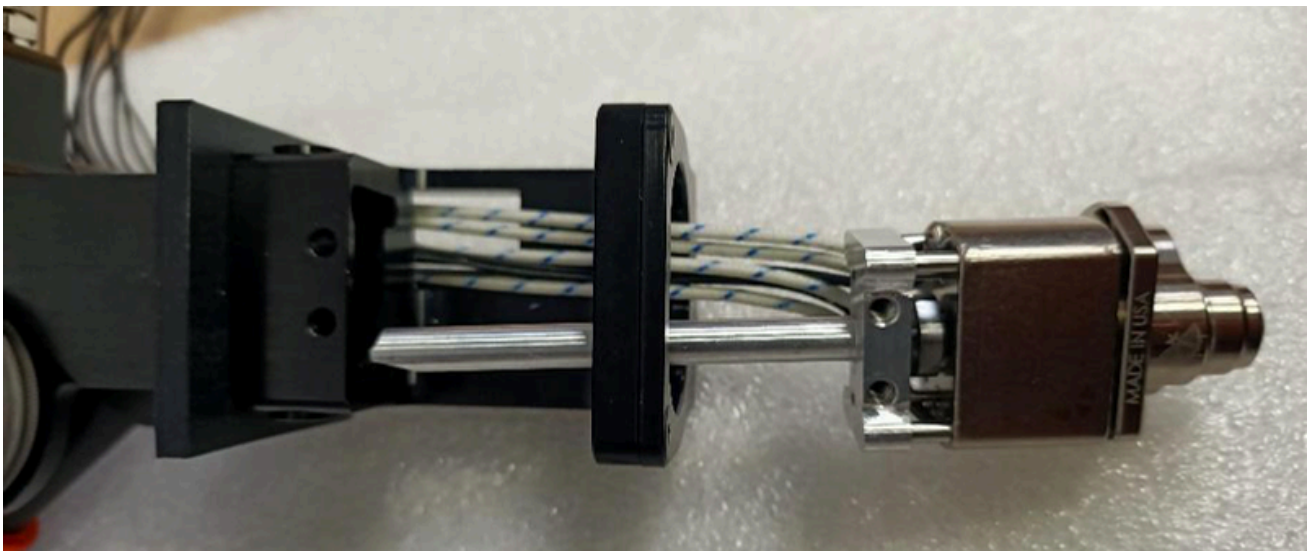


Figure 80. Printhead removed



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