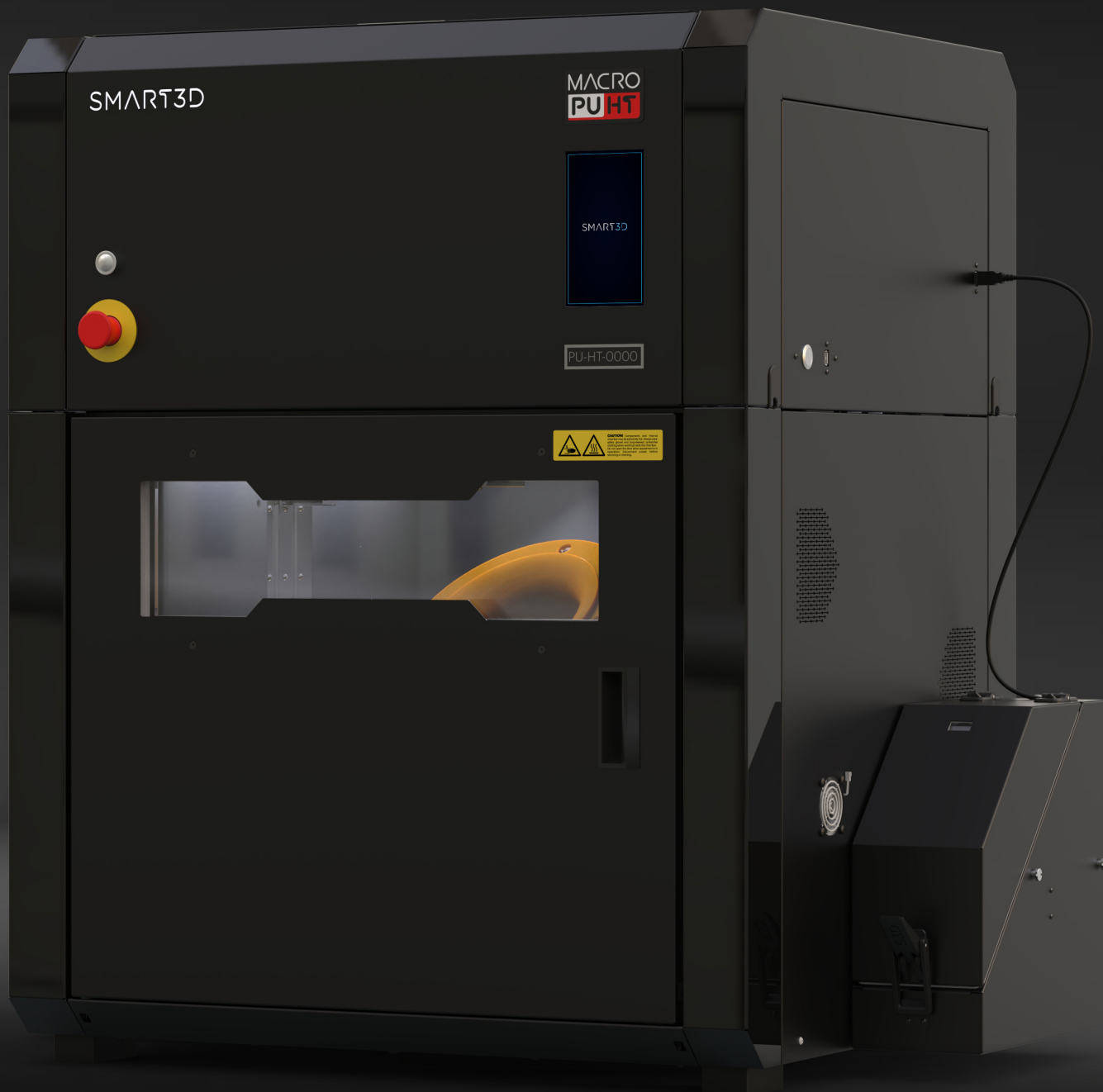


SMART3D



Macro Printer User manual

Copyright

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FCC Compliance

The equipment referred to in this guide has been tested and found to comply with the limits for a Class A device pursuant to part 15 of the FCC rules. These limits provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. Smart3D printing systems generate, use and can radiate radio-frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

DISCLAIMER: Smart3D is not responsible for radio or TV interference caused by unauthorized modification to this equipment. Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.



Equipment Recycling in the European Union

this symbol indicates that when the last user wishes to discard a product, it must be sent to appropriate facilities for recovery and recycling. For information about proper disposal, check your purchase contract, or contact the supplier of the equipment.

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Using This Guide

This user guide provides instructions for installing, operating and maintaining Macro PU and Macro PU HT printing systems. It explains how to use features, and provides practical examples to guide you as you use the system. The text and figures in this guide are based on the Macro PU 3D printer, depending on software version you may observe some differences.

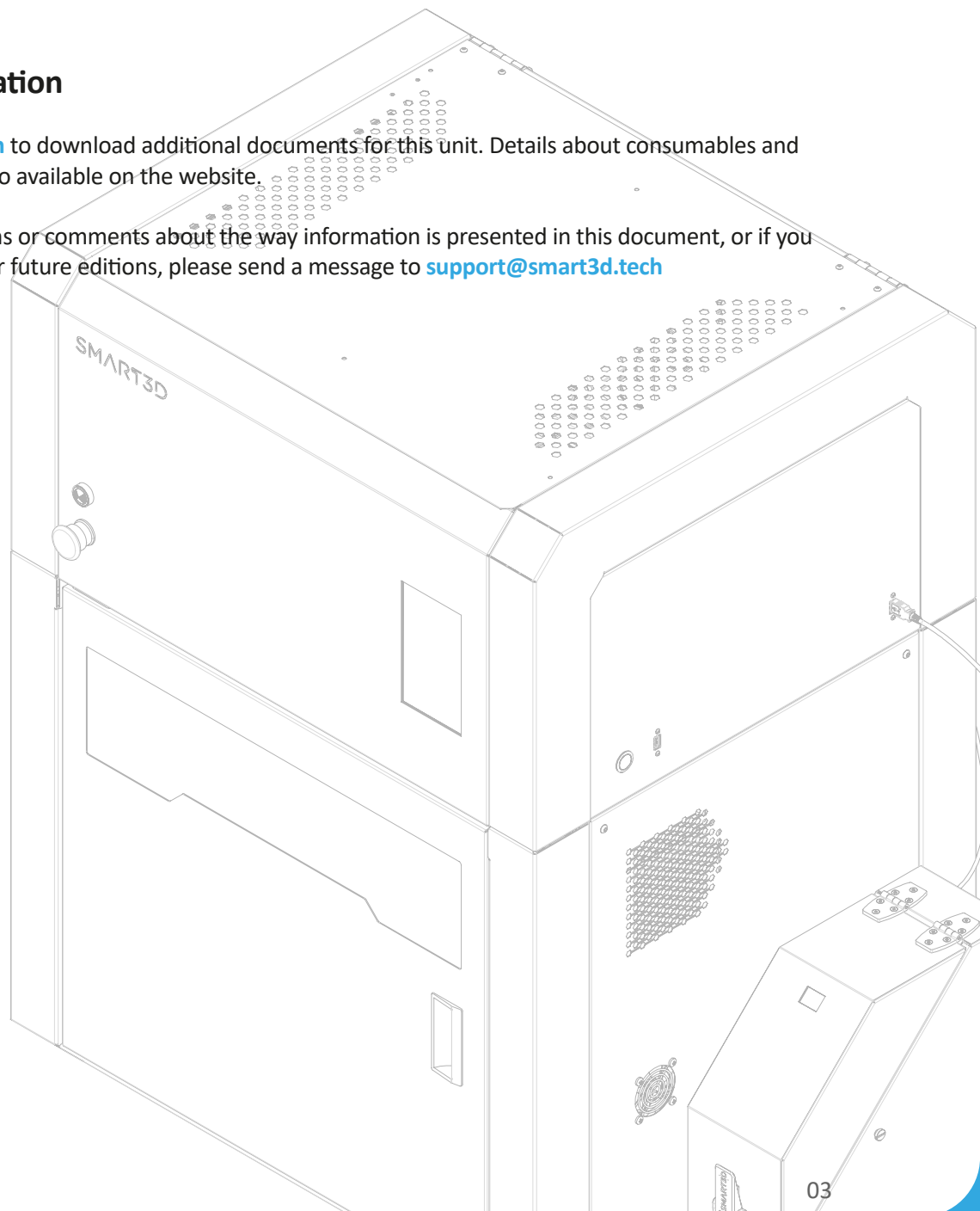
This guide assumes that:

- All the hardware, software, and network components of your Macro PU system are installed, configured, and operating correctly (Installation was performed by a Smart3D-certified installer).
- Operator has a basic knowledge on how to use a browser and has access to modify his Local Area Network (LAN) configuration.

For More Information

Visit www.smart3d.tech to download additional documents for this unit. Details about consumables and support contacts are also available on the website.

If you have any questions or comments about the way information is presented in this document, or if you have any suggestions for future editions, please send a message to support@smart3d.tech



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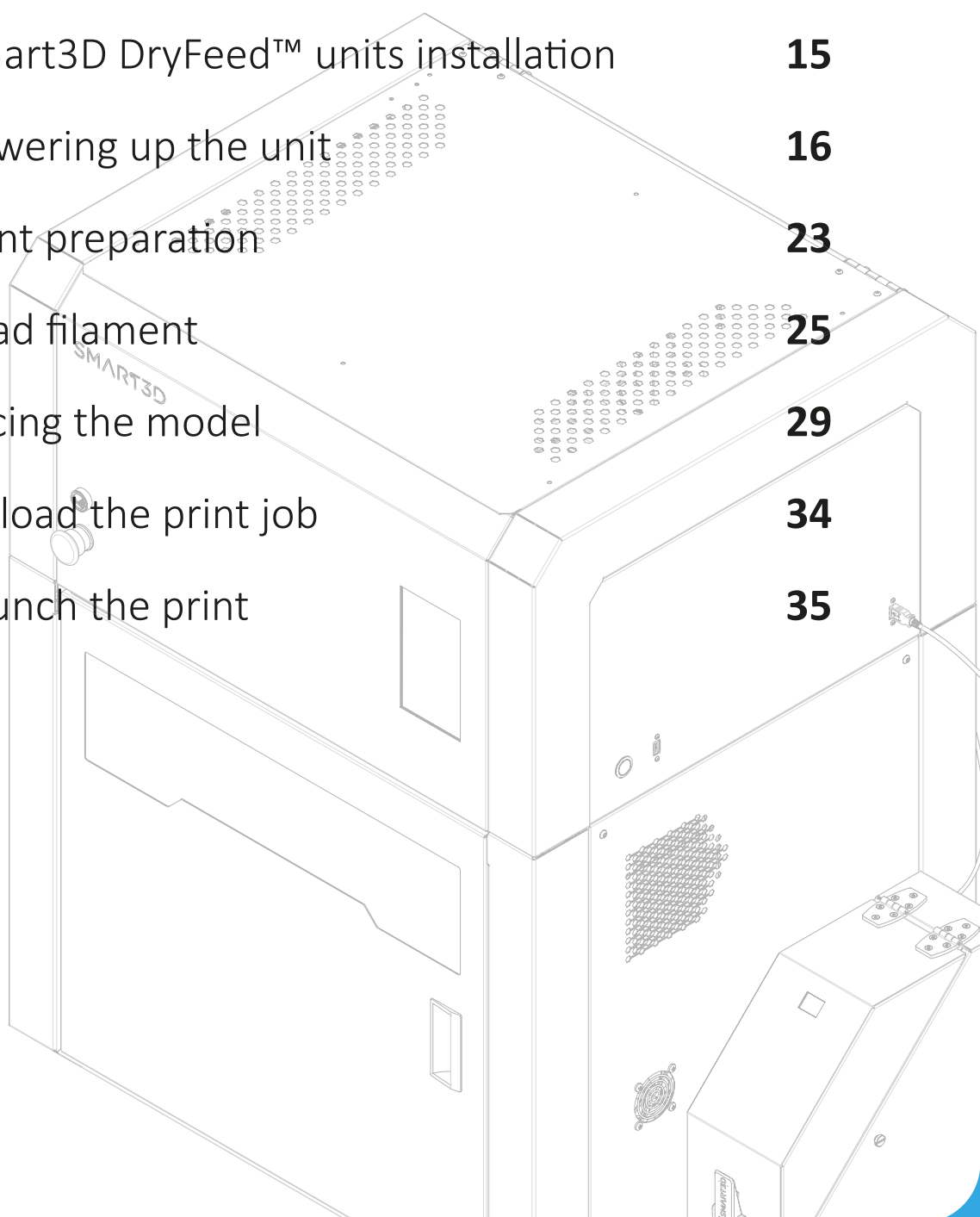
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Thank you for choosing this Smart3D product. Please take a few minutes to read these instructions. This will help to prevent damage to the unit.

Symbols used in these Instructions

Important warnings are identified using the symbols listed below. It is absolutely necessary to pay close attention to these warnings. Failure to follow the indications given could lead to electrical shocks, serious injury, burns, fire or damage to the unit.

 **Danger!** Failure to comply could lead to injury from electrical shock and risk of death.

 **Attention!** Failure to comply could lead to injury or damage to the unit.

 **Please note:** This symbol highlights advice and important information for the user.

Problems and Repairs

For any repairs, always consult the Technical Service Centers authorized by the manufacturing company. Always request original replacement parts. Repairs performed by unqualified personnel can be dangerous and void the warranty.

Symbols Used in the Unit

The unit is specially designed to be safe and reliable. However, there will be times when you must access areas of the unit where potentially high voltages, hot temperatures, and/or moving mechanical components could cause severe injury.

Thus, labels are added to different parts of the unit to warn the user.



Hot Area

The hot area sign indicates the presence of high temperatures. These areas can easily reach temperatures above 100 °C and caution is required.



High Voltage

The high voltage sign indicates the presence of high voltages. Always stay away from any exposed electrical circuitry. It is recommended to remove any jewelry when working around these areas.



Crushed Hand

The crushed hand sign indicates that a hazard exists where you could get your hand crushed between two objects. One or more objects move in the area you are working on.



Ground

The ground label is used to identify any terminal which is intended for connection to an external conductor, for protection against electric shock in case of a fault or the terminal of a protective earth (ground) electrode.



Emergency Stop

The emergency stop switch is located on the front left surface of the unit. This button is a safety mechanism used to stop the unit in an emergency.

Essential Safety Requirements

Only use the Smart3D Macro PU 3D Printer according to the instructions in this manual. These instructions do not cover every possible condition and situation that could occur. Common sense and prudence must always be followed during installation, operation and use of any electrical unit. This unit was built for industrial use and must not be used for other purposes. Technical training is required to operate the unit.

⚠ Attention! When using electrical units, basic safety precautions should always be followed, including the following:

- The unit should only be operated by persons trained by Smart3D certified partners.
- The unit is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of professional experience and knowledge.
- This product is not designed to be moved after installation. But, if necessary, never move or drag the unit by pulling the power cord. Make sure the cord is not caught, crushed, lying on the edge of the unit, or in contact with hot surfaces.
- Do not set any objects on the unit.
- All persons operating or maintaining the unit should know the location of first aid and emergency equipment and how to use it. Never block access to this equipment.
- Several parts of the unit remain extremely hot even after it has stopped operating. As a precaution, always wear gloves when accessing the unit.

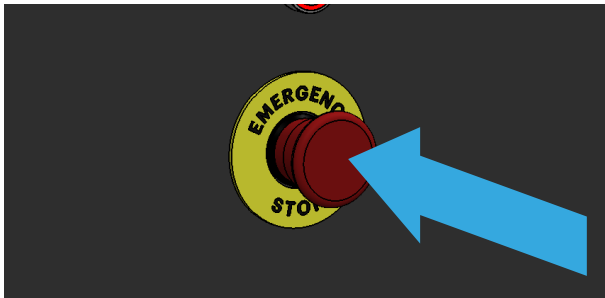
⚡ Danger! Since the unit uses electricity, the following safety instructions must be followed:

- Modifying or changing the characteristics of the unit in any way is dangerous.
- **For any repairs, always consult the Technical Service Centers authorized by the manufacturing company.**
- Service operations should be performed only by qualified personnel who have been instructed in relevant safety precautions.
- The unit must be installed according to national laws governing electrical systems.
- **It is recommended that the unit is connected to an independent electrical circuit, with adequate thermal protection.**
- The chassis of the unit is grounded, to prevent electrical shock.
- The power outlet must be properly grounded, in accordance with the local electric code, in order to provide this protection. Connect the Macro PU's power plug only to a receptacle with grounding connectors. Have the electrical system checked by a qualified electrician.
- Avoid using extension cords.
- Periodically check the power cable. If the power cable is damaged, it must be replaced by the manufacturer or the manufacturer's Customer Services in order to avoid all risk.
- Use a three-prong outlet. Do not change the unit token for a two-pin one. Do not use adapters, since it may avoid effective grounding protection and cause injuries.
- Before any cleaning or maintenance operation, always unplug from the mains. Unplug the unit by pulling from the plug and never from the power cord.
- Do not pull on the electrical cord to move the unit.
- Do not install the unit in areas where the air may contain gas, oil or sulphur or near heat sources.
- Never use or place this unit outdoors.
- The use of accessories not included by the manufacturer may result in a risk of fire, electric shock, or personal injury.

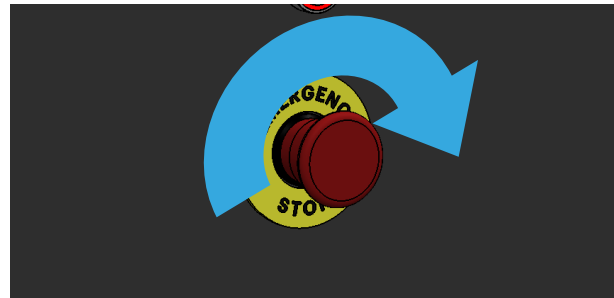
How to Use the E-Stop

The E-Stop button consists of 2 different states:

- i Please note:** The emergency stop switch (E-Stop button) is a critical system component that protects the safety of both operators and machinery in a variety of emergency shut down situations.

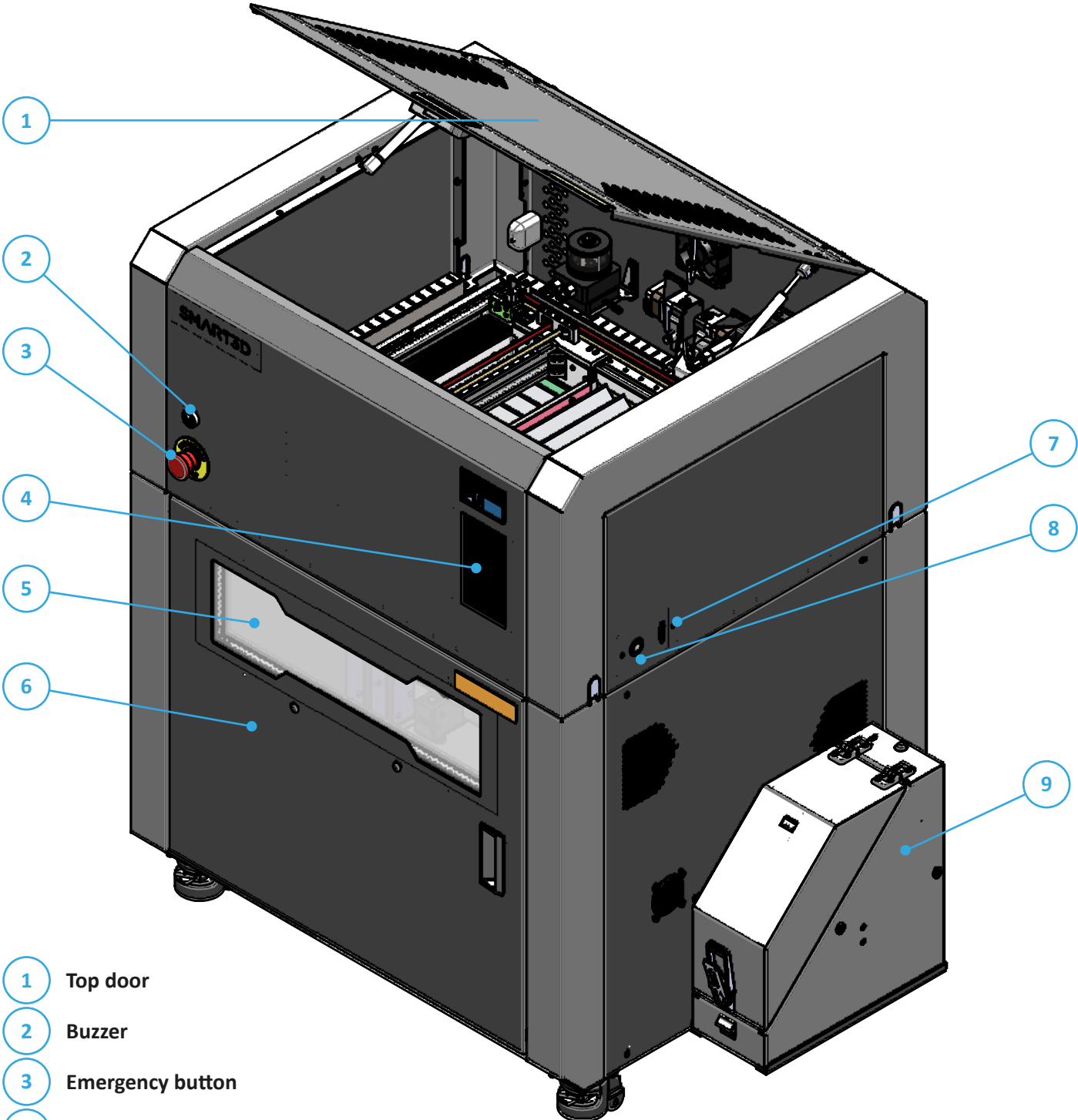


Active state: When the button is pressed, the unit will stop printing immediately. In this state, the emergency button will remain activated until manually released.



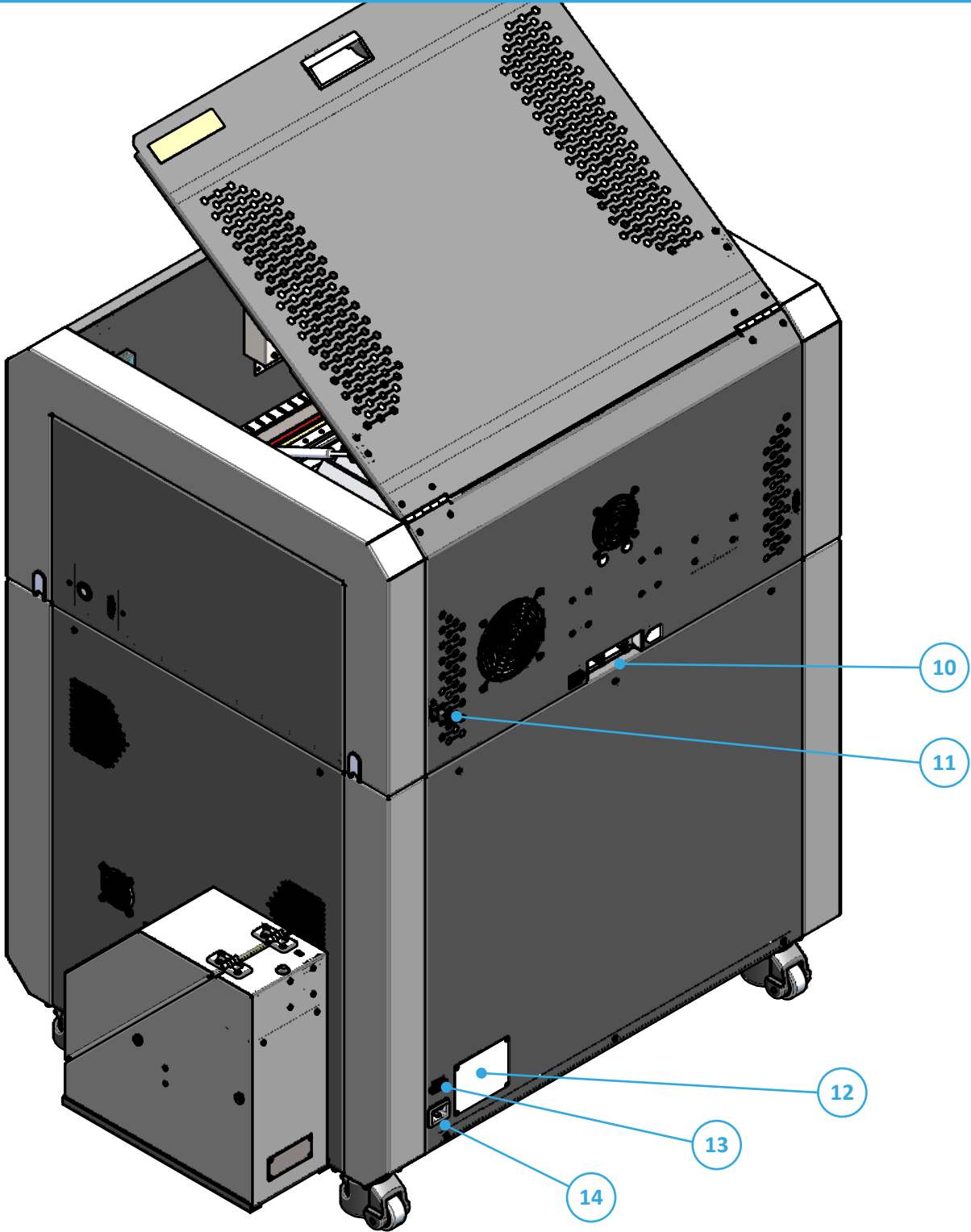
Inactive state: In this state, the unit will work as expected. To deactivate the emergency button, it is necessary to turn it clockwise until the button releases itself so to resume printing.

SYSTEM DESCRIPTION



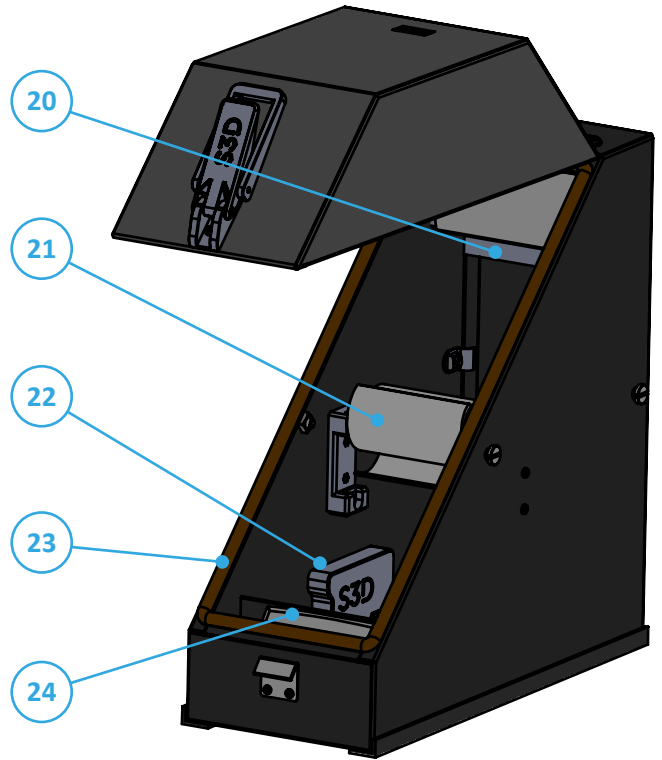
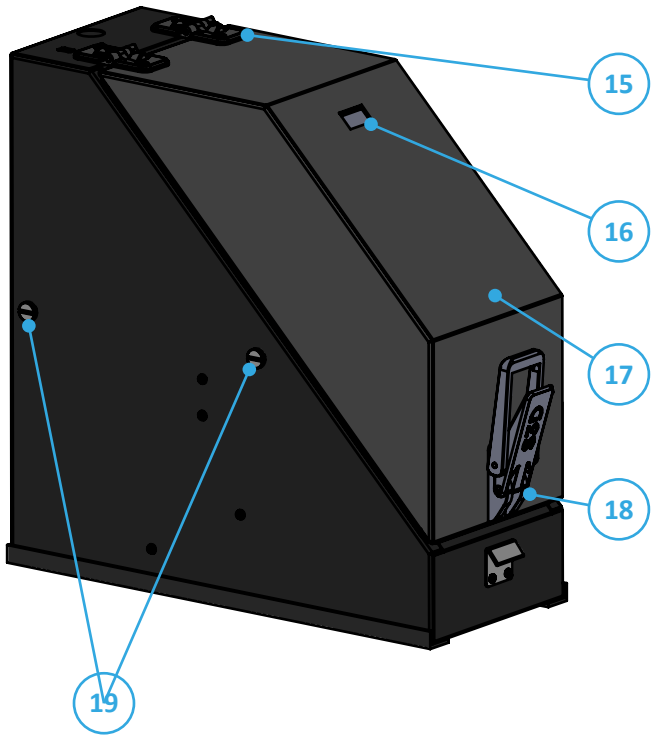
- 1 Top door
- 2 Buzzer
- 3 Emergency button
- 4 Touchscreen
- 5 Door window
- 6 Door
- 7 Front USB port
- 8 Power button
- 9 Smart3D DryFeed™ Unit (2 in total)

SYSTEM DESCRIPTION

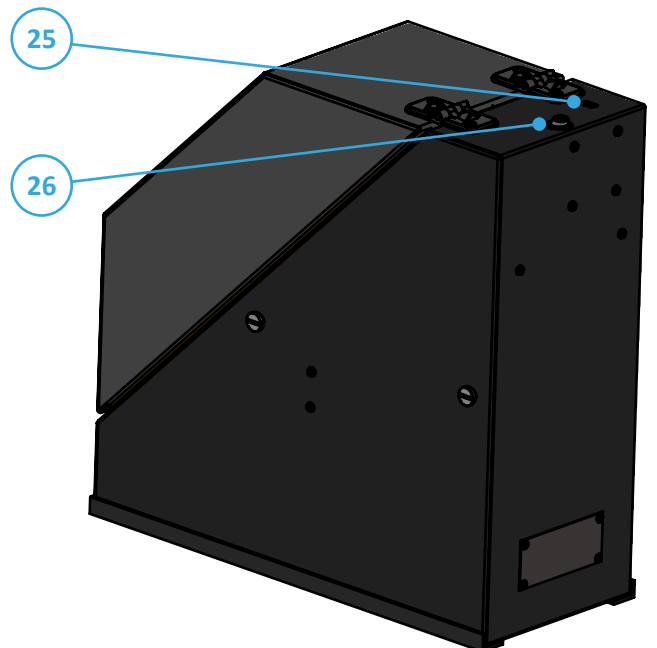


- 10 Bowden connector (2 in total)
- 11 Rear USB port (for DryFeed™, one on each side)
- 12 Model Identification tag with Serial Number
- 13 Ethernet port
- 14 Power supply plug

SYSTEM DESCRIPTION



- 15 Hinges
- 16 Screen
- 17 Top
- 18 Lock
- 19 Support pin
- 20 Filament entry
- 21 Spool adapter
- 22 RFID reader
- 23 Rubber seal
- 24 Silica reservoir
- 25 Bowden connector
- 26 USB port Type B

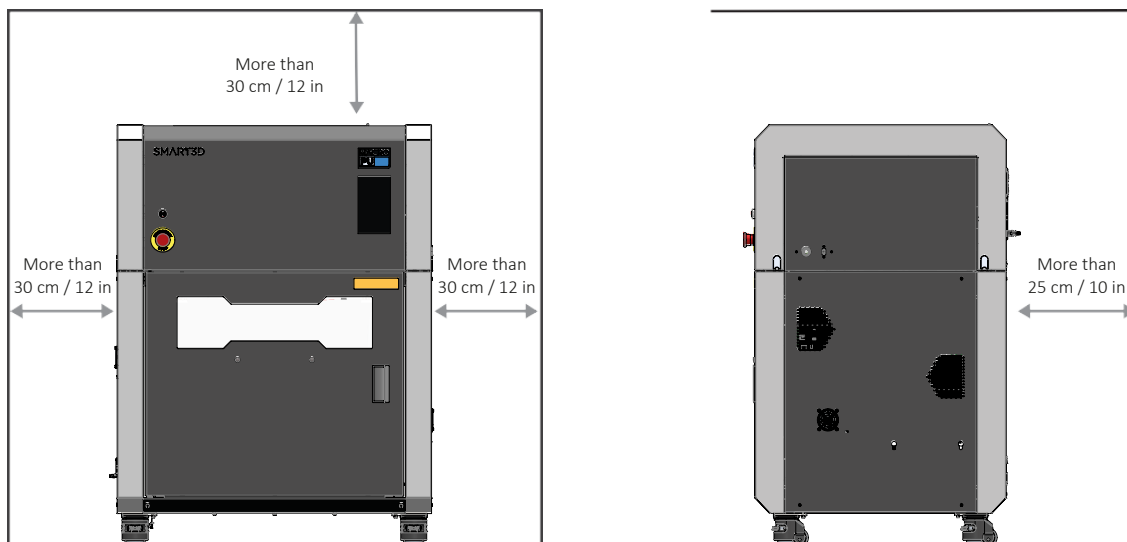


Unit Installation

- The Macro 3D printer is for indoor use only.
- Installation and removal of the unit should only be done by qualified service personnel.
- The electric outlet should be easily accessible, near the unit.
- Never connect the power plug to an outlet that does not have a ground (earth) wire, and never disconnect the ground. Doing so might expose the operator to serious danger from electric shock.

Work Environment

- Air quality conditions with excessive solid particles (conductive or non-conductive) may result in system damage.
- Air quality conditions in which airborne oils are allowed to accumulate on or within the unit can damage the plastic components.
- Do not install the unit where flammable gas or corrosive gas is generated.
- Do not install the unit where ambient temperature exceeds 30 °C (86 °F).
- Do not install the unit where the ambient temperature fluctuates widely.
It is recommended to use the unit above 21 °C (70 °F). Otherwise, the chamber heating process may be delayed.
- **Place the unit on a firm, level surface.**
- Leave at least a 30 cm (12 in) clearance around the sides of the unit and 25 cm (10 in) between the back of the unit and the wall, allowing adequate air circulation. Keep the following clearance around the Macro 3D printer.



After installation, take measures to prevent the unit from falling in case of an earthquake, high impacts, etc. as it could lead to personal injury.

Electrical Connection

- ⚠ Attention!** The Macro is specified to be used at either 220V or 110V. You can check the voltage of your unit on the plate on the back of the unit. If you have a higher tension, a stabilizer should be used. Also be sure that the wall plug consumption supports the voltage consumption of the unit.

Before plugging into the mains, check the following:

- The mains voltage is the same as that indicated on the plate on the back of the unit.
- The socket and electrical line are sized to support the load required.
- The socket is the proper type for the plug, otherwise, replace the socket.
- The socket is connected to an efficient earthing system. The manufacturer is not responsible in the event of noncompliance with these injury prevention standards.

Power Cord

- Use only a power cord that is safety-certified to connect the unit (and the UPS unit) to the electric outlet.
- To connect the power cable:

STEP 1. Connect the female end of the power cord directly into the socket located on the back of the unit.

STEP 2. Connect the male end of the supplied power cord (US or Euro) directly into a grounded electrical outlet.

- Do not use the power cord if it is bundled or tangled. If used in this manner, it can overheat and may cause a fire.
- Do not process, bend, wring, or stretch the power cord forcibly. Fire or electrical shock may result.
- Do not put the power cord under or through an object to prevent fire or electric shocks.
- Do not run the power cord next to the heating equipment. When the power cord is damaged, turn off the power key immediately, then turn off the circuit breaker and the main power. Contact customer service.

Door and Top Door

The power supplied to the chamber heater, heat-blocks and the motion motors is turned off when either the door or the top door is opened.

⚠ Attention! For safety reasons, the unit door and top door must be kept closed when operating the unit. Do not open the front door or the top door during the printing process since, for security, the unit will stop printing.

⚠ Danger! Do not override the interlock switch. Doing so could result in serious personal injury. If the interlock switch does not function correctly, do not use the unit, and contact your service provider



Always use the provided safety gloves when removing a print job.

Below you will find all the information necessary for operating your Smart3D Macro PU.

Cooling System

The unit is supplied without coolant in the Water Pump System. The coolant liquid is supplied in 2 bottles. One bottle will be used to charge the system during installation, while the second bottle will be used for future refills.

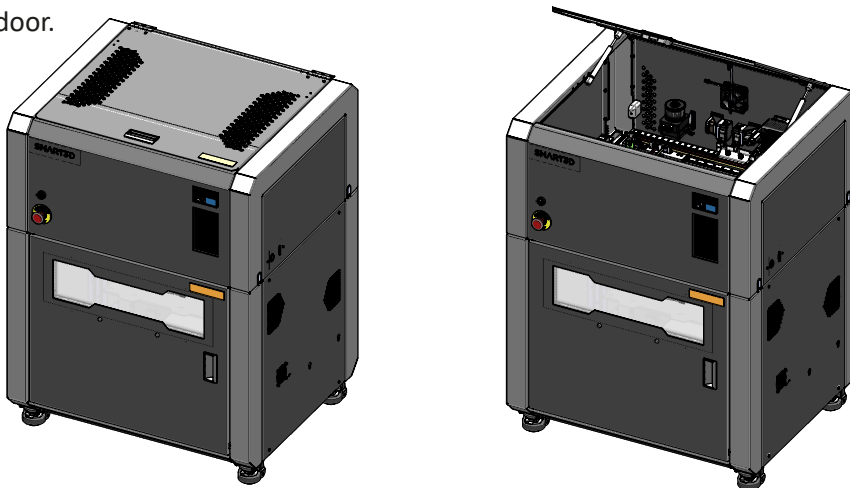
⚠ Attention! Never turn on the Macro PU without coolant. This could damage the coolant pump.



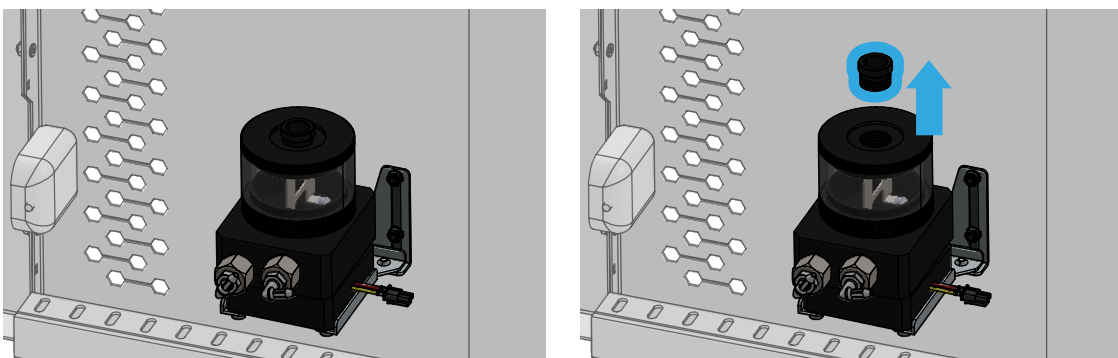
Always wear gloves when maintaining the cooling system.

1. Make sure the Macro PU is off. This is important to allow the system to correctly load the coolant.

2. Open the top door.



3. Carefully remove the upper small cap from the reservoir.



4. Fill 3/4 of the reservoir with the Smart3D liquid coolant, using the funnel included in the toolkit. Be careful not to spill the coolant inside the Macro PU

⚠ Attention! The Smart3D liquid coolant includes a small amount of additional chemicals to address biological growth and corrosion. If the coolant comes in contact with skin, wash the affected area immediately and thoroughly with soap and cool water, then remove contaminated clothing.

BASIC CHECKS

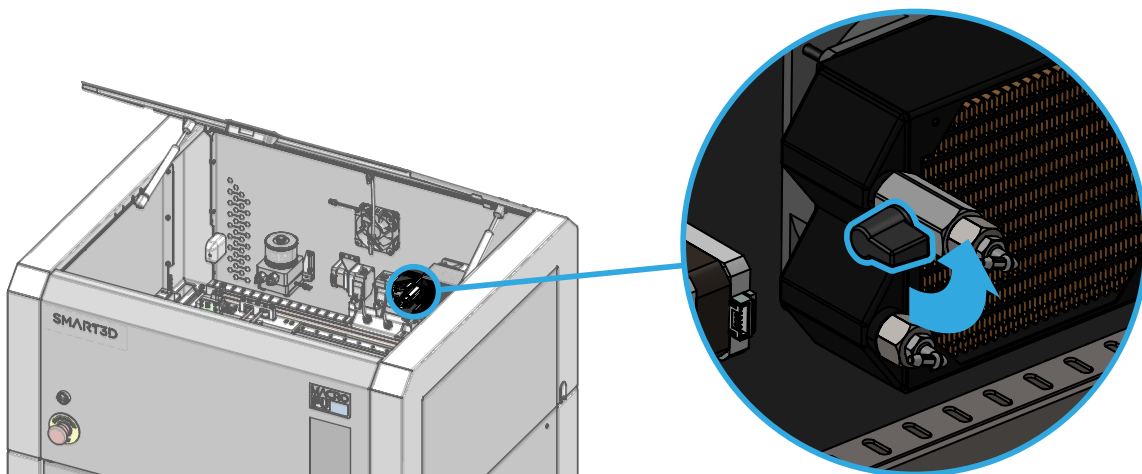
⚠ WARNING: This product can expose you to chemicals including Ethylene glycol (ingested) which is known to the State of California to cause birth defects or other reproductive harm.

www.P65Warnings.ca.gov

ALWAYS USE THIS PRODUCT IN A WELL-VENTILATED AREA.

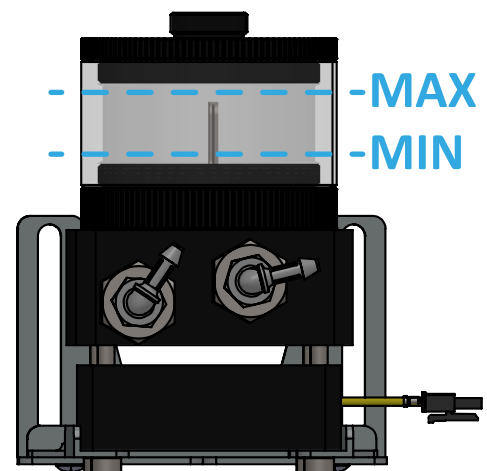
i Please note: It is important to add only Smart3D-approved coolants when filling your system. Regular tap water, bottled drinking water, and "purified" water will eventually develop organic growth (and possibly corrosion). This is bad for temperatures, can be messy to clean up, and could potentially cause hardware damage.

5. Open the cooling system stopcock by turning it a quarter turn clockwise



6. Once the reservoir is loaded, turn on the machine. The system will begin to purge the remaining air in the system and the user will see that the level drops. You will need to add more liquid to reach the MAX level. Repeat this operation until the max level is stabilized. After this procedure, put the small cap back on, but do not close it all the way. The unit should be left running without printing for about 30 minutes to finish the air purge. Once completed, close the reservoir permanently.

i Please note: The reservoir level must be checked periodically and if necessary, refilled to the max level.



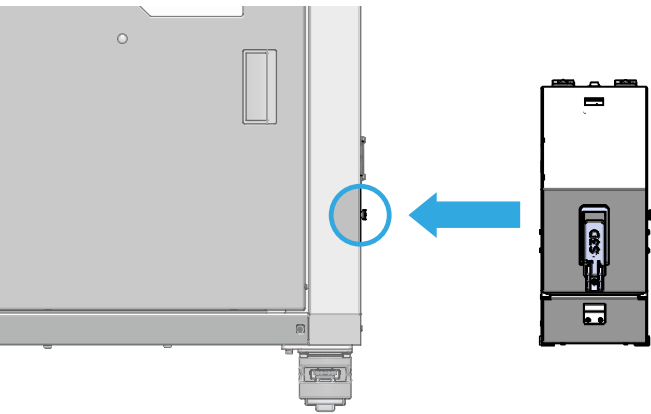
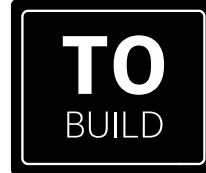
HOW TO START A PRINT

STEP 1. Smart3D DryFeed™ units installation

⚠ Attention! The DryFeed™ units must be connected before turning on the unit.

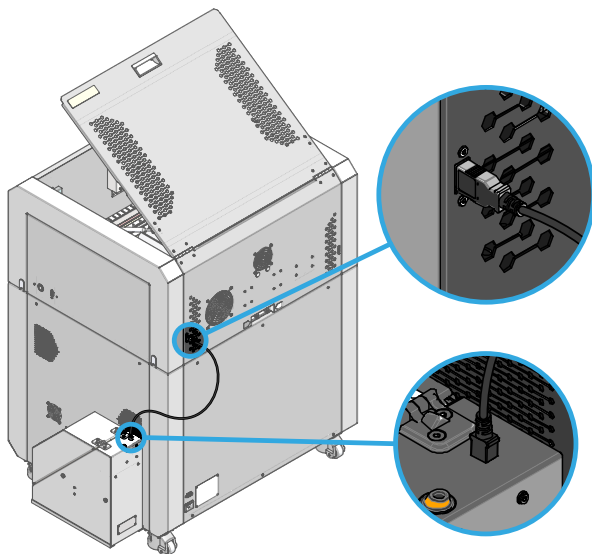
The DryFeed™ units are a key component, to keep filament dry and protected from dust.

Inside the DryFeed™ you will see that each one has an identifying label.



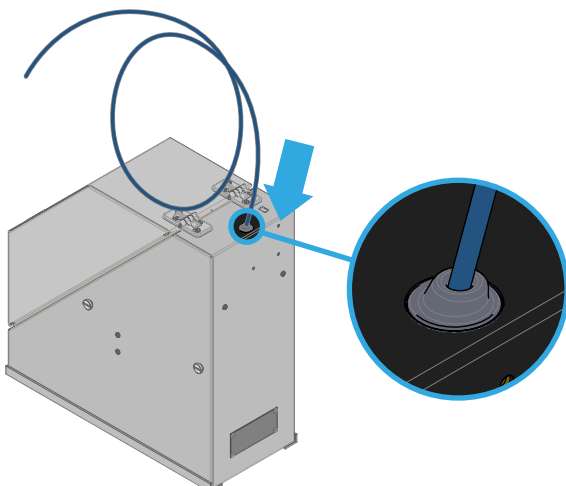
1. Place the DryFeed™ **T0** on the right side and **T1** on the left side of the unit.

Connect the DryFeed™ to the Macro PU by hanging the support pins into the Macro PU locking holes located on each side panel of the Macro PU.



2. Connect the USB cable into the DryFeed™ USB port and then, into the Macro PU USB Port, located on the back.

DryFeed™ features a RFID reader to display onscreen the type of **filament**, **quantity**, **color** and **status** of the filament sensor.



3. To connect the Bowden tube, insert one of the ends into the DryFeed™ Bowden bushing. The other end will be left loose.

i Please note: We encourage you to always use the latest version of firmware available. Latest versions contain the newest features and bug fixes

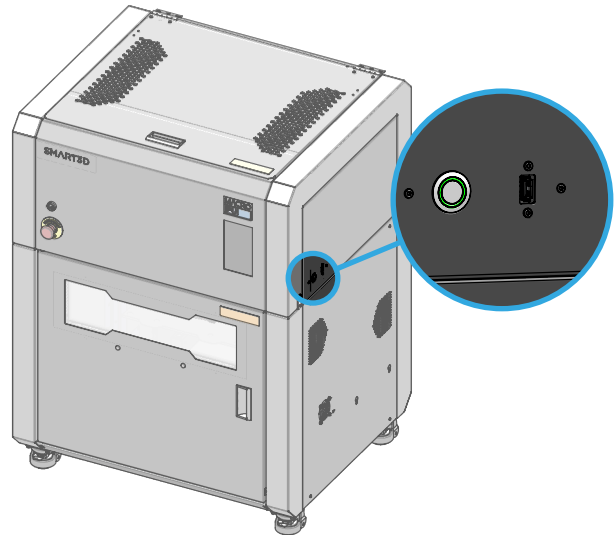
HOW TO START A PRINT

STEP 2. Powering the unit

- ⚠ Attention!** Do not attempt to operate the unit before being trained by a Smart3D Customer Support representative. Observe all safety warnings and follow the safety guidelines described above.
- ⚠ Attention!** Never turn on the Macro PU without coolant. This could damage the coolant pump.

To power on the unit:

- Make sure the power plug [#14] is correctly connected.
- Press the power button [#9] on the top-right side of the unit. The button will light up.
- Wait for the software interface to initialize.
- i Please note:** Do not turn off the unit immediately after completing a print. A warning alarm will sound, and a Status Idle message will appear onscreen, when the unit is ready to be turned off. If the unit has been heated manually, wait until the heat-blocks cool down below 200 °C and the unit's chamber temperature is below 50 °C.
- ⚠ Attention!** It is important to follow this process. An unexpected shutdown at high temperatures with the motors on can potentially harm some components.



User Interface

- i Please note:** This section of the manual is only for general reference. Instructions on how and why to change any settings are covered in the software manual available only to advanced users (certified training provided).
- ⚠ Attention! DISCLAIMER:** We do not recommend that you use any of the features or modify any settings on the unit's interface, without prior official training with the Smart3D Technical team. Please note that the use of settings not expressly mentioned in this user manual without previous official training may result in voided warranty and cause damage to the unit not covered by the warranty.

All monitoring and controlling of the unit is performed from this interface.

The main menu is located the bottom of the screen and includes the following functions:



- Control
- Job
- Files
- Settings

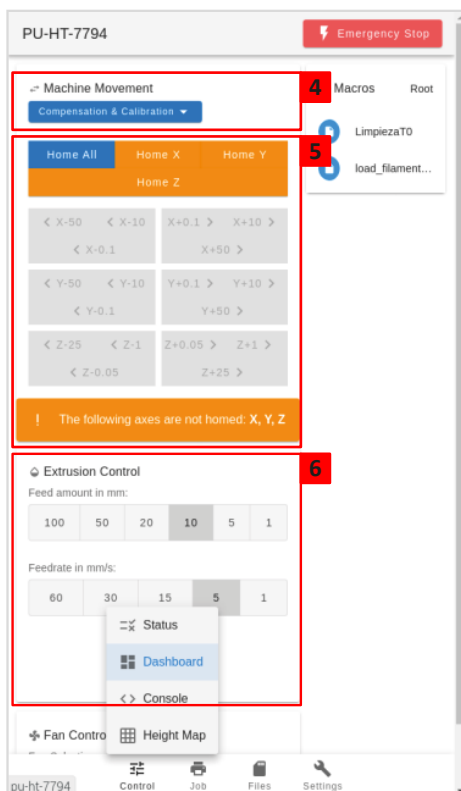
By selecting each function in the bottom menu, a vertical drop-up submenu will appear.

HOW TO START A PRINT



Control > Status

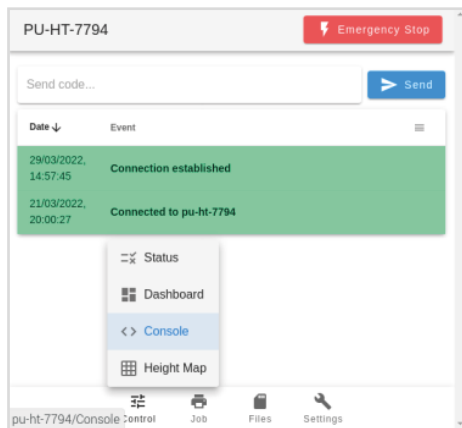
1. In the top bar of all the screens you will find the name of the unit and the emergency button on the right.
2. **Status** - Axis and Extruder positions, Speeds, VIN, Microcontroller temperature, and Z-Probe reading.
3. **Tools + Extra** - Control of heaters, chamber and tools.



Control > Dashboard

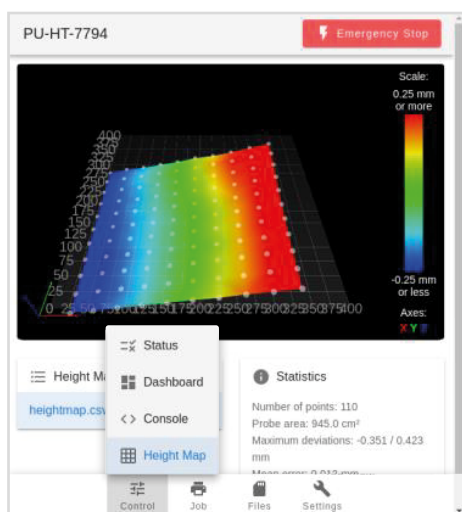
4. **Machine Movement - Compensation & Calibration**
This calibration process adjusts the bed by generating and probing a grid of points for bed compensation.
5. **Home and Axes Movement** - In this section there are buttons to control **Home all** axes, at the same time or individually and to manually control the movement of individual axes.
6. **Extrusion Control** - It allows manual extrusion or retraction of the currently active tool.

HOW TO START A PRINT



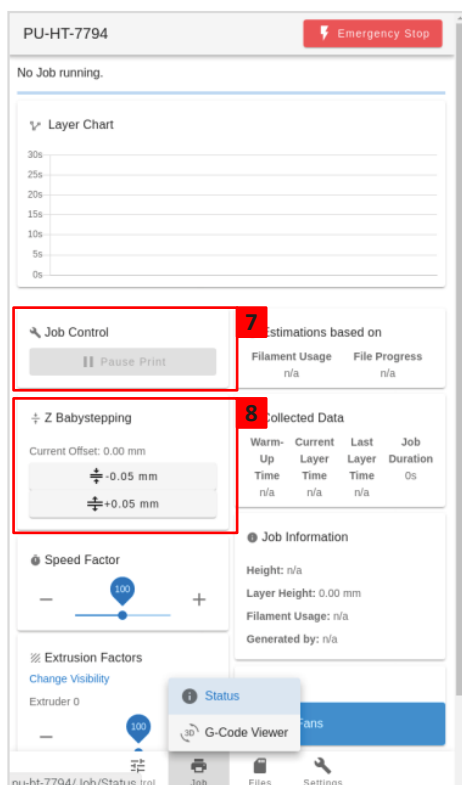
Control > Console

The console provides a way to manually send G-Code commands to the unit and displays a log from the system messages.



Control > Height Map

The Height Map screen displays the bed mesh compensation results. The view shows the statistics of the bed mesh and some display controls.



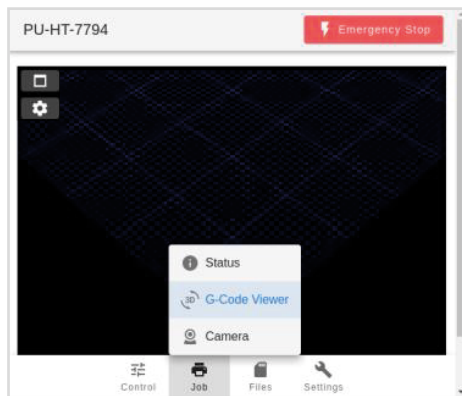
Jobs > Status

Screen for monitoring the progress of the current job. Once a print has started it displays information about the file being printed, layer times, and estimates for the print time remaining. It also allows for fan, extrusion ratio, and print speeds to be adjusted in real-time.

7. Job Control - This palette allows the print to be paused, resumed or canceled.

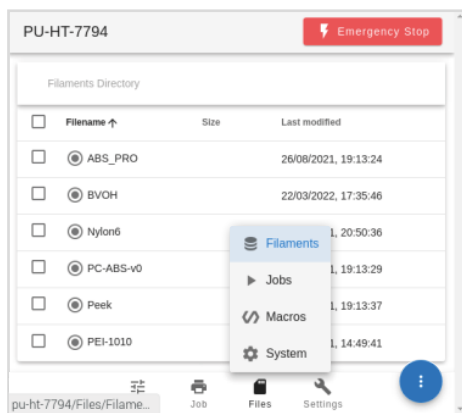
8. Z Babystepping - This allows for the Z-axis to be lowered or raised by small steps. This allows for small corrections to be made, usually to get the first layer perfect.

HOW TO START A PRINT



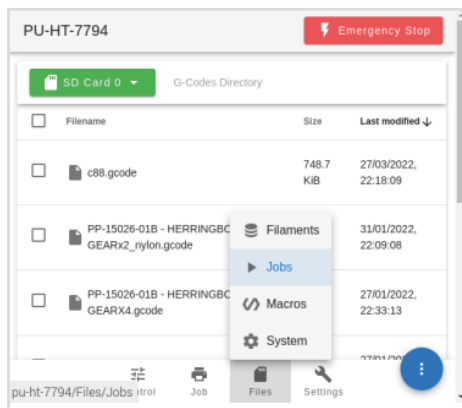
Jobs > G-Code Viewer

This displays the G-Code file.



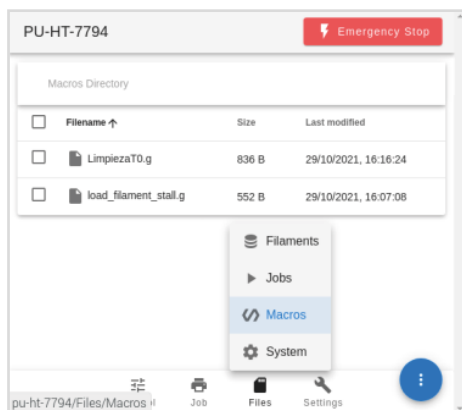
Files > Filaments

The filaments page allows for the configuration of filament types and their associated load and unload macros.



Files > Jobs

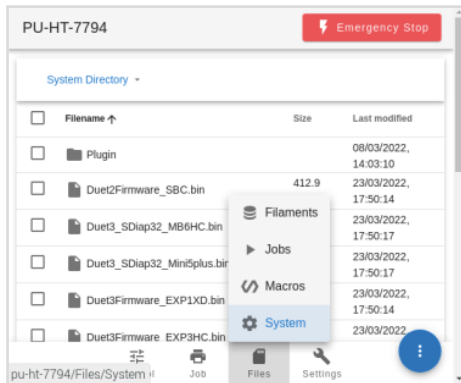
The **Jobs** page will display the files available on the SD card for printing. It also shows the size of the files and the upload date.



Files > Macros

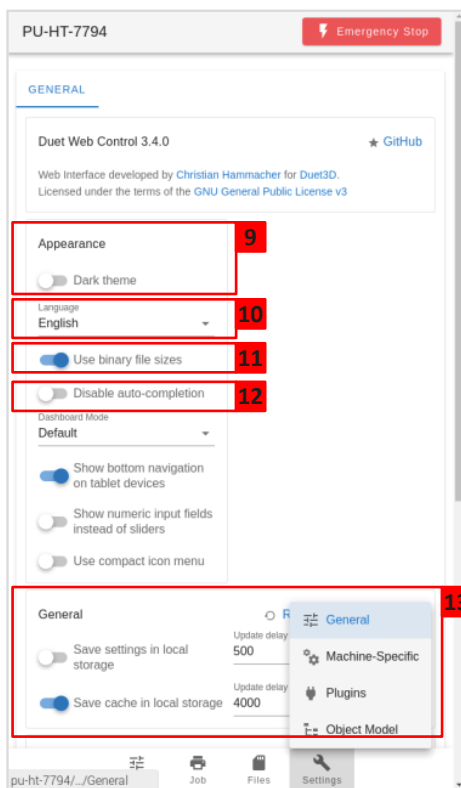
Macros - These files should not be modified, edited, or deleted unless a Smart3D technical representative suggests so.

HOW TO START A PRINT



Files > System

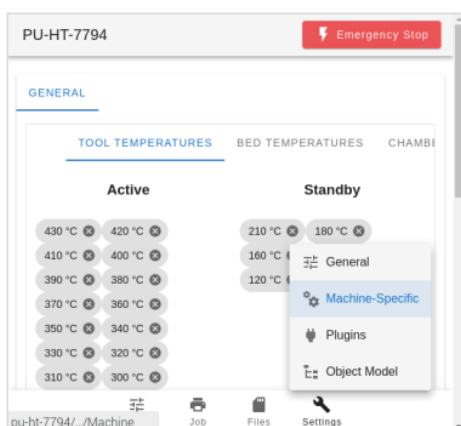
List of system configuration files. These files should not be modified, edited, or deleted unless a Smart3D technical representative suggests so.



Settings > General

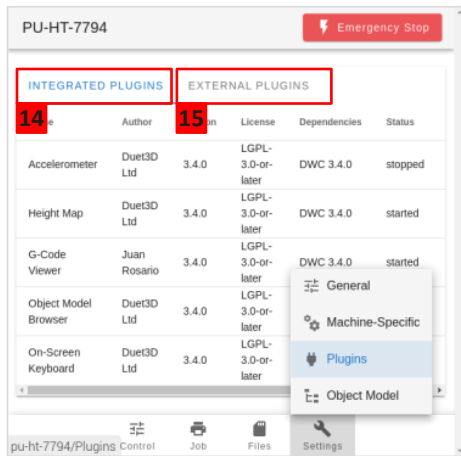
General - This screen displays appearance and interface settings such as:

9. **Appearance** - Switches dark theme on/off.
 10. **Language** - Display language can be changed from here.
 11. **Use binary File sizes** - This should not be modified.
 12. **Disable auto-completion** - To enable or disable auto-completion of command lines when using the console.
- Notifications** - It control the display of pop-up notifications.
- Default notification timeout** - Controls how long a pop-up will be displayed. After this time, the pop-up will close automatically.
13. **General** - Should not be modified unless requested by a Smart3D Technician or certified representative.



Settings > Machine-Specific

This screen displays settings for the machine, and how the Mainboard Web Control interacts with it. It includes **babystepping**, increment/decrement in mm, and **feed rate** in mm/min for all axes. These features should not be modified, edited, or deleted unless a Smart3D technical representative suggests so.



Settings > Plugins

14. **Integrated Plugins** - This screen displays the plugins installed on the machine. These should not be activated or deleted unless suggested by a Smart3D technical representative.
15. **External Plugins** - Here you can find the plugin to activate the WiFi.

How to Connect to Network

In order to use the unit interface on any computer, the Macro PU must be connected to a WiFi network or be connected to the network with an Ethernet cable.

How to Connect to WiFi

First, a keyboard must be plugged into the USB port next to the power button.

Then go to **Control > Console**. In the command bar, write the following code:

M587 S"WiFi name" P"Password"

"WiFi name" = "Network name"
 "Password" = "Network password"



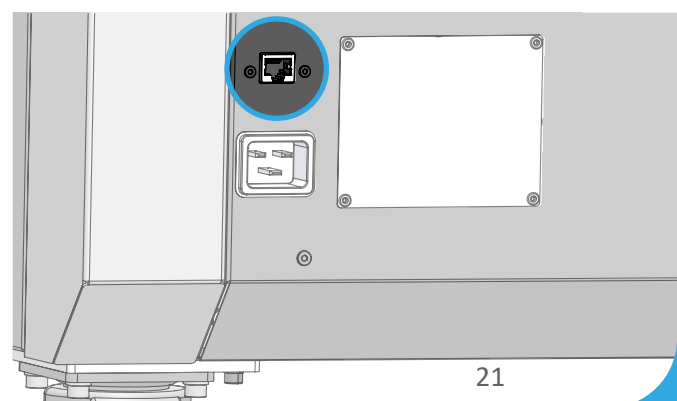
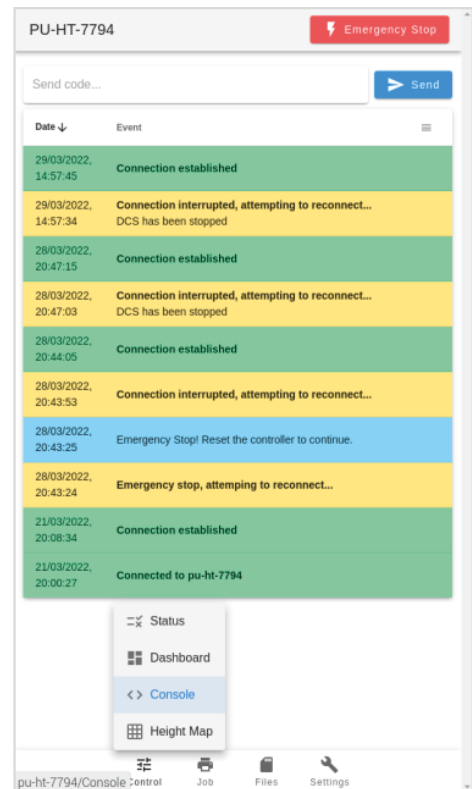
Do not forget to write the WiFi name and the Password between quotes ""

i Please note: If an error occurs, it may be due to a problem with your internet connection. Reset the router, verify that the unit is within range, and check that your WiFi connection is 2.4G and NOT 5G.

How to Connect Using an Ethernet Cable

You can also use the Ethernet cable to connect the unit to the internet. The Ethernet port is just above the unit's power socket

Connect one end of the cable here, and the other to the router.

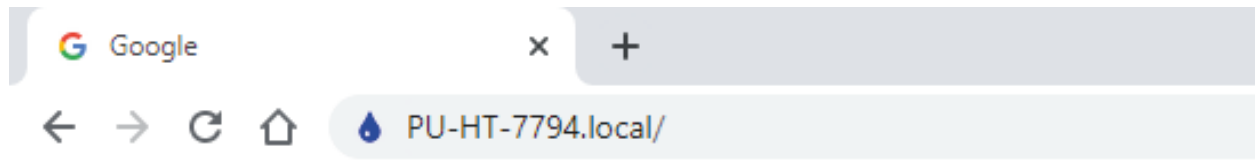


HOW TO START A PRINT

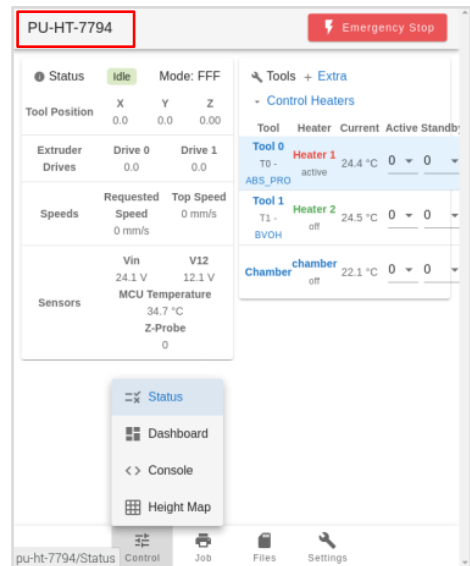
Interface Unit Connection

To operate the Macro PU from your computer or smartphone, please open a web browser, such as Chrome, and type the following link in the navigation bar:

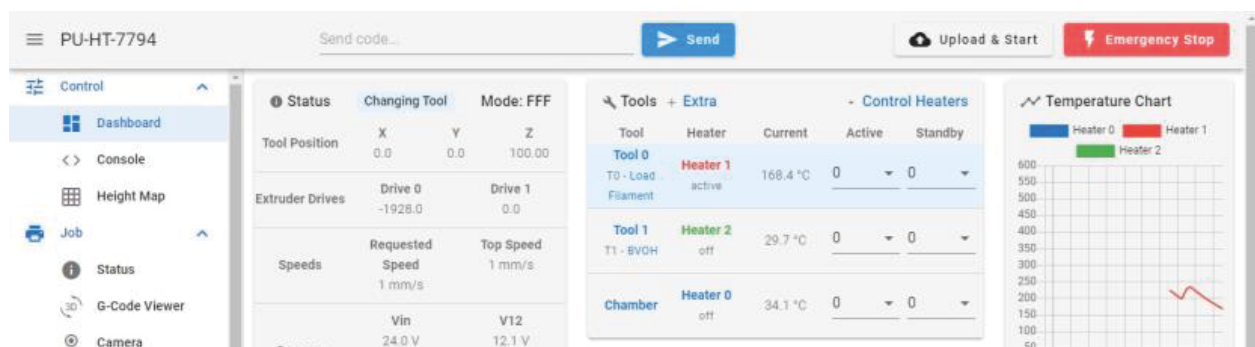
[PU-\[LT or HT\]-\[Unit Serial Number\].local/](#)



The unit serial number is included on the model identification tag located on the rear panel of the unit next to the power socket and on the Macro PU touchscreen.



Once you have opened the address link, you will access the command screen of the Macro PU via your computer.



A label with the serial number of the unit is included inside the accessory kit, you can paste where most suitable.

-7794-

Step 3: Print preparation

Print Bed Cleaning and Preparation

You must clean the print bed properly after every print. It is important to keep the bed clean and without any irregularities to prevent issues with the next print, and, to make sure it is aligned relative to the platform.

During use the print bed may get scratched. You can prolong its serviceability by cleaning it with isopropyl alcohol (using a clean cloth).



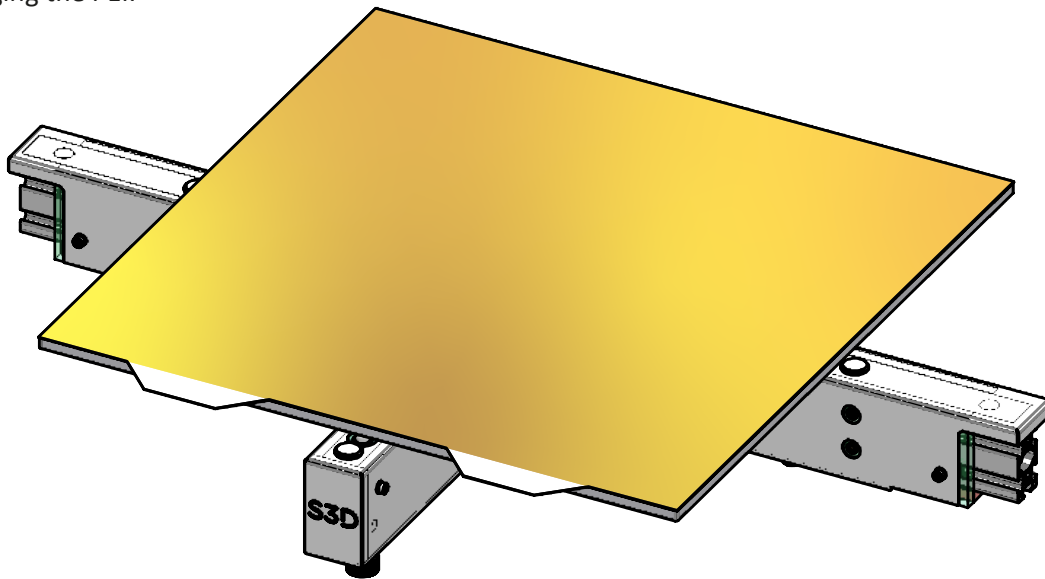
How to Clean the Macro PU PEI Print Bed

i *Please note: If the printer has recently finished printing, use the corresponding protective gear to avoid possible burns.*

Remove the PEI sheet from the bed.

If a print was recently made, please remove it by flexing the PEI sheet.

If print residue remains on the print bed, use the scraper included in the tool kit. Clean carefully to avoid damaging the PEI.



Dampen a microfiber cloth with clean water and use it to clean the PEI sheet. Use abundant water if necessary. Then use isopropyl alcohol to do a final cleaning of the PEI sheet. Acetone can be used to remove leftovers or grease that cannot be cleaned with alcohol.



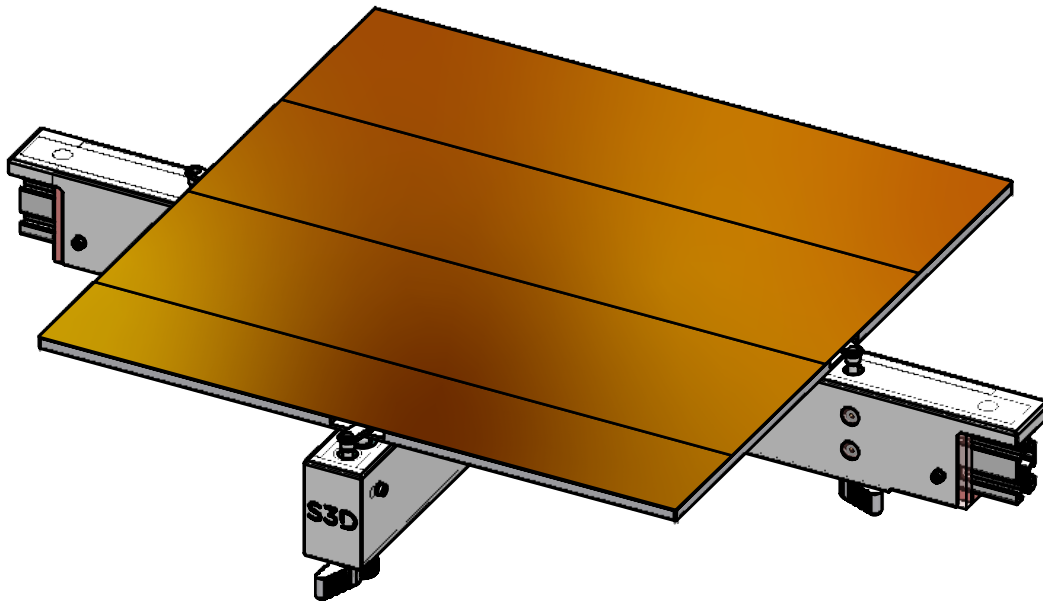
How to Clean the Macro PU HT Kapton Print Bed

! *Attention: If the unit has recently finished printing, use the corresponding protective gear to avoid possible burns.*

i *Please note: The estimated useful life of the Kapton Print Bed at temperatures above 150 degrees is 100 hours. Once this number of hours has been reached the Kapton tape must be replaced.*

To remove a printed part from the print bed, use the scraper included in the tool kit. Use the scraper carefully to avoid damaging the Kapton tape.

HOW TO START A PRINT



Dampen a microfiber cloth with clean water and use it to clean the build plate. Then, use Isopropyl alcohol to do a final clean of the Kapton sheet. Acetone can be used to remove leftovers or grease that cannot be cleaned with alcohol.

If necessary, the bed can be removed to clean it more comfortably. Just turn the three clamps that hold it and remove the print bed.

In case the Kapton tape gets damaged, it can be easily replaced.

Applying Adhesive

For best use, apply a thin coat of adhesive onto the print bed. For an alternative adhesive, please refer to the Smart3D helpdesk.

1. Make sure the print bed is cold and clean.
2. Apply a thin coat of adhesive onto the printing area. Be sure to not overload the plate, as this will be counterproductive.
3. Wait a few seconds until the adhesive is dry.

Clean the Nozzle

It is very important to clean the nozzle thoroughly before starting to print to avoid any irregularities in your printing.

To do this, heat up the hotend. Once it is hot, remove all possible dirt using a brush provided in the toolkit.

HOW TO START A PRINT

Step 4: Loading filament

⚠ Attention: Change hotend when changing material filament. For abrasive filaments, such as PEEK CF, you will need to use Smart3D abrasive kit with a special hotend for abrasive filaments.

i Please note: To obtain a good quality print, it is important that the filament is dry. Remember that the presence of moisture will affect the completion and quality of your parts. We only recommend drying materials with the Smart3D Multimaterial Dryer that integrates our Hybrid Drying Technology™. For more information visit www.smart3d.tech/smart3d/dryers/

1. Open the Smart3D DryFeed™.
2. Insert the Spool Adapter into the Filament Spool (pushing the piece from the right to the left).
3. Place the Filament Spool with the Spool Adapter into the Spool Holder adding a little of pressure until it clicks into place. The adapter has a small slot that should be on the right side of the spool.

i Please note: Always put a silica bag inside each DryFeed™.

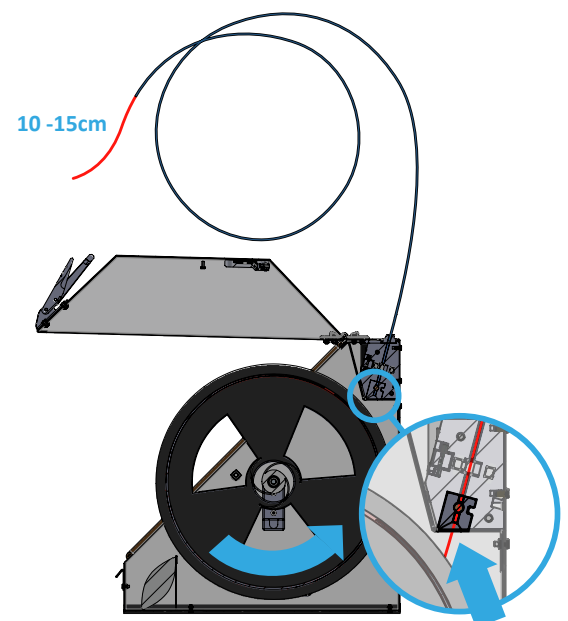
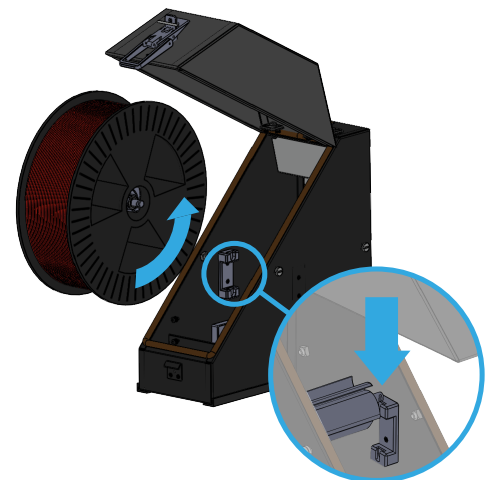
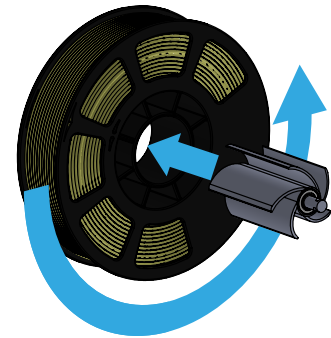
4. Be sure to place the filament in the correct orientation (with the tip of the filament coming from the bottom). Place filaments of 1Kg or below in the bottom groove, and filaments of 2Kg in the upper one.

i Please note: the filament must unspool as in the image.

5. Insert the filament through the Smart3D DryFeed™ hole.
6. Push the filament until it comes out about 10 - 15 cm (4 - 6") from the Bowden Tube.

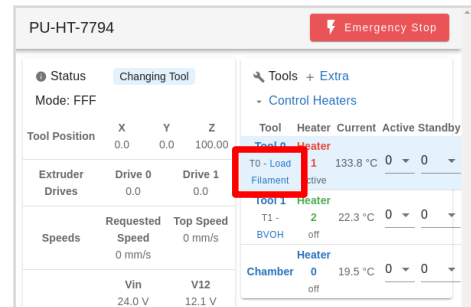
If the filament doesn't enter easily through the DryFeed™ hole, it's probable that the Bowden Tube is bent, or it's not correctly connected.

7. Close the Smart3D DryFeed™ and secure the latch.

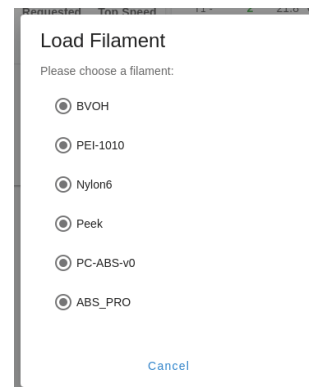


HOW TO START A PRINT

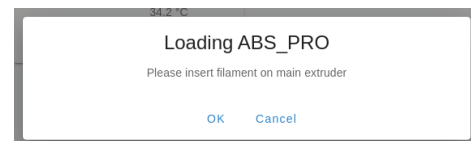
8. In the **Control - Status** screen press the **T0** or **T1** button on the **Tool** section, (depending on where you are going to load the filament), and press the **Load Filament** button.



The following pop-up will appear.
Select the filament you are going to load from the list.



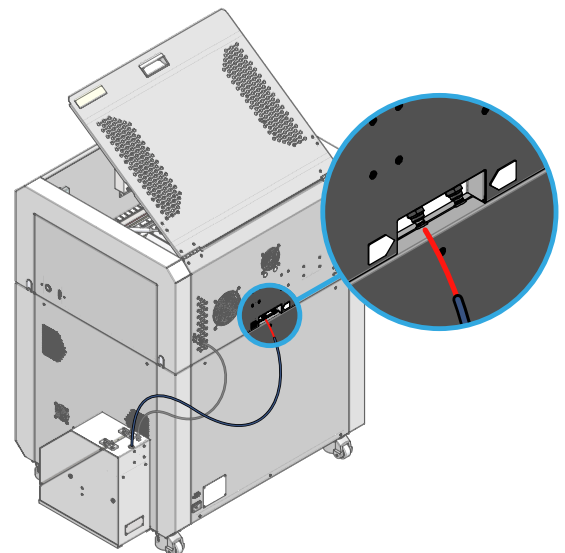
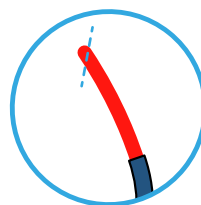
9. The following pop-up will appear:



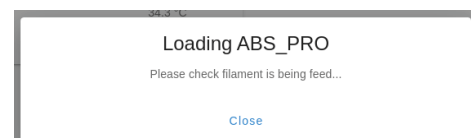
MACRO PU Place the tip of the filament in the push-in connecton at the back of the Macro PU until you feel resistance (which means it has reached the extruder). Then press **OK**.

MACRO PU HT In the case of the Macro PU HT you will have to push the filament until it reaches the extruders in the printhead.

- i Please note:** It is recommended to cut the filament tip at a 45-degree angle using the cutting plier provided in the toolkit.



10. Feed the filament slowly at first. Check if the filament is feeding by touching it at the back of the Macro PU, you should feel the filament moving. If not, push the filament a little further until you feel that you have reached the extruder.



HOW TO START A PRINT

11. The hotend will start to heat up.

12. Once it has reached the correct temperature, the machine will start to extrude the filament. You will observe it flowing from the nozzle.

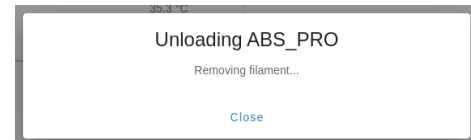
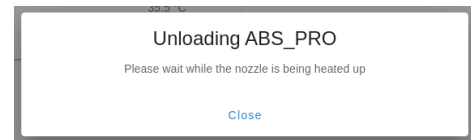
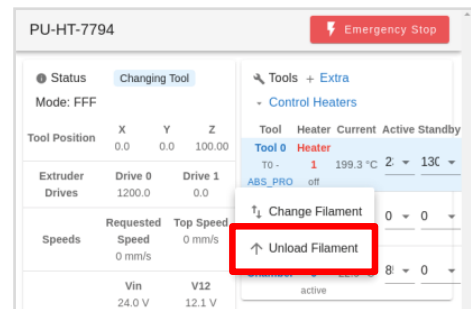
i Please note: The Bowden Tube does not have to enter the push-in connection, but only touch it.

Unloading Filament

1. In the **Control - Status** screen press the T0 or T1 button on the Tool section, depending where you are going to load the filament, and press the **Unload Filament** button.

The next pop-up will appear

2. Once it has reached the correct temperature, the extruder will retract the filament. The following pop-up will appear as the filament is being removed.

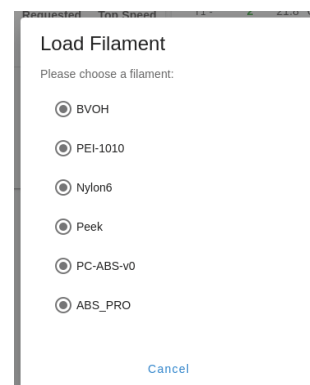
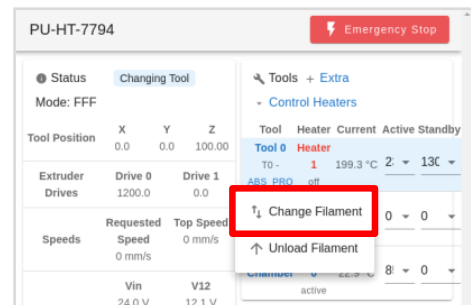


Change Filament

i Please note: The hotend must be changed every time you change material, otherwise, it may cause clogs in the nozzle and damage the printhead.

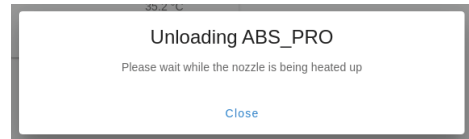
1. Press the **T0** or **T1** button in the **Tool** section, depending which filament you are changing, and press the **Change Filament** button.

2. Choose the material you are going to load from the pop-up drop-down list.



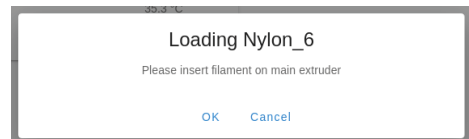
HOW TO START A PRINT

3. The nozzle will start to heat up. Wait until it finishes.



4. Once it has reached the correct temperature, the extruder will retract the filament. Open the DryFeed™ cover and manually pull the filament from the Bowden Tube. Grab the tip of the filament and fasten it on the spool in a way to prevent it from unwinding.

5. Insert the new filament in the extruder and press **OK**.



6. Follow the **Loading Filament** instructions from step 7.

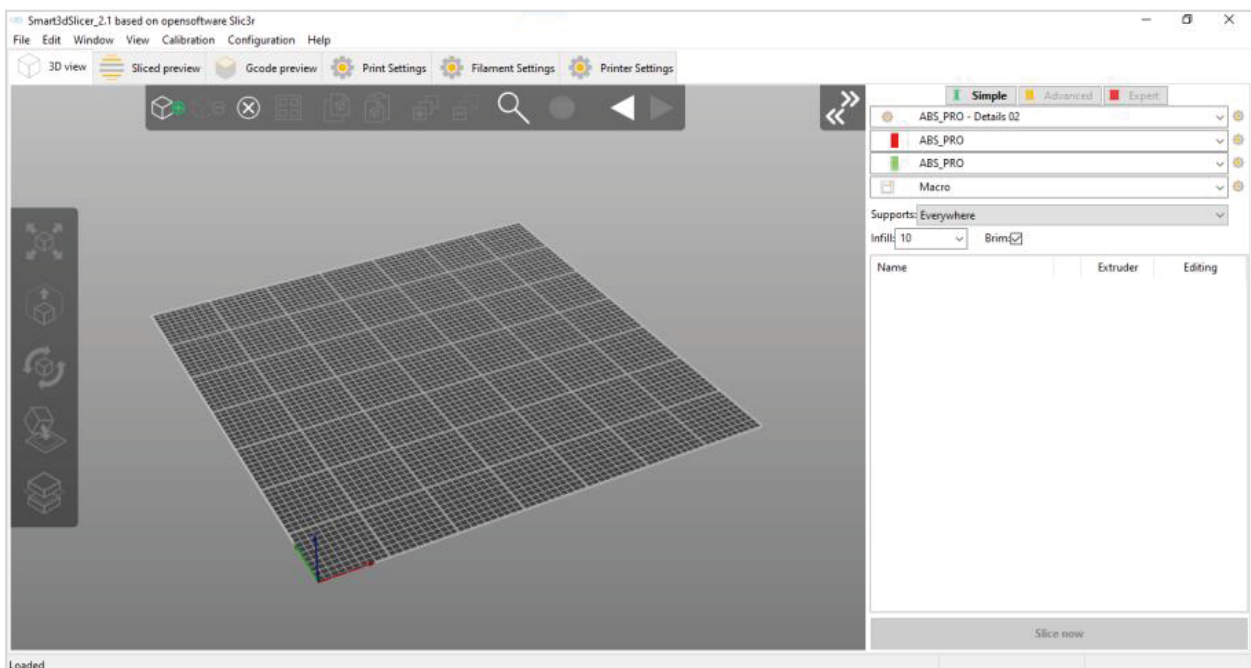
HOW TO START A PRINT

Step 5: Slicing the model

- i** *Please note:* Make sure you have the latest version of the Smart3d slicer installed. You can find instructions on how to install the Smart3D Slicer at smart3d.tech/download_files/Smart3D_slicer.zip

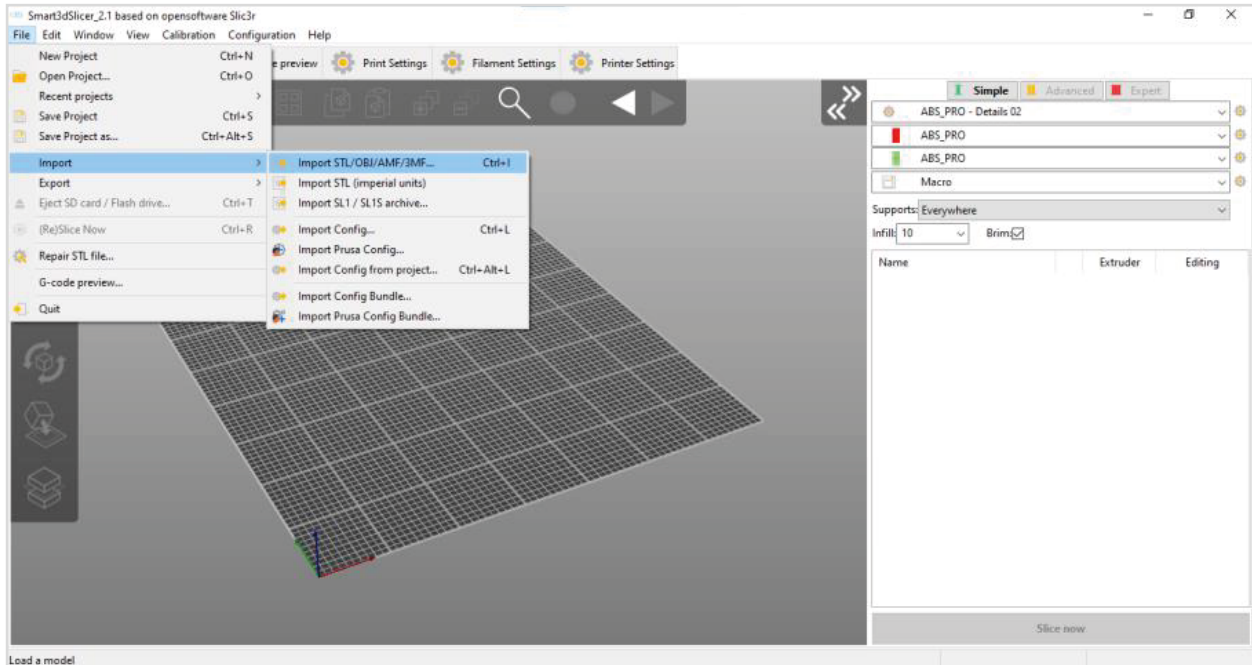


1. Open the Smart3D Slicer.



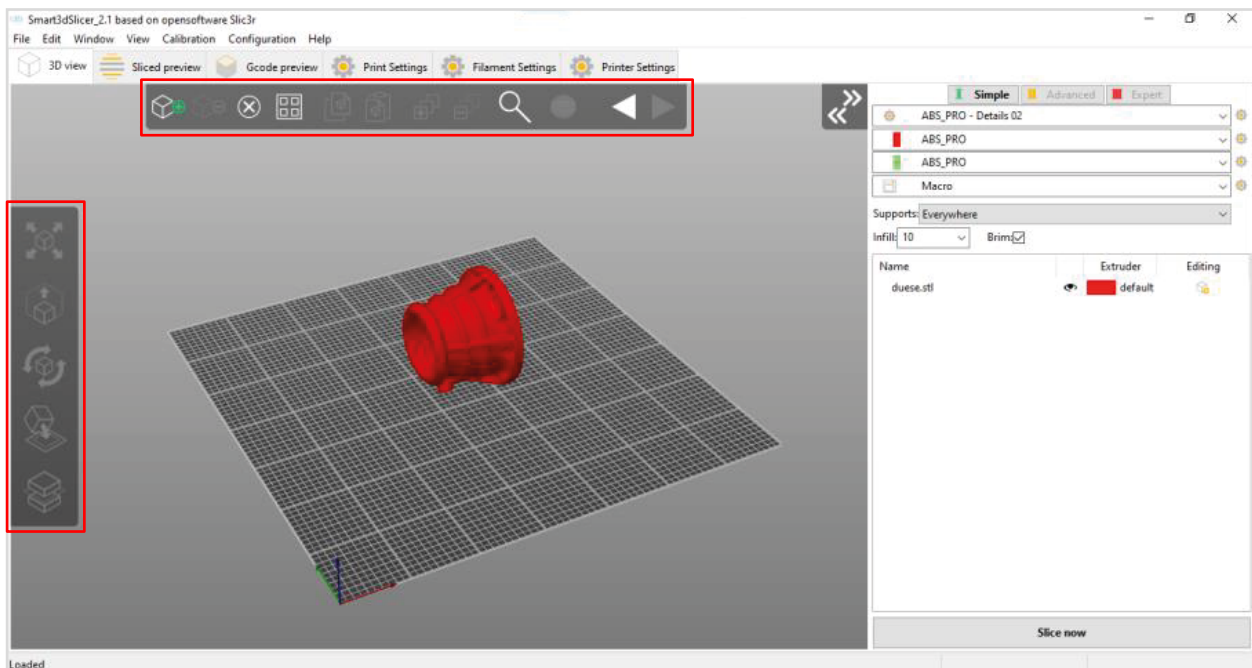
HOW TO START A PRINT

2. To open a file to print go to **File, Import, Import STL/OBJ/AMF/3MF** or drag the file from the folder onto the slicer plate.



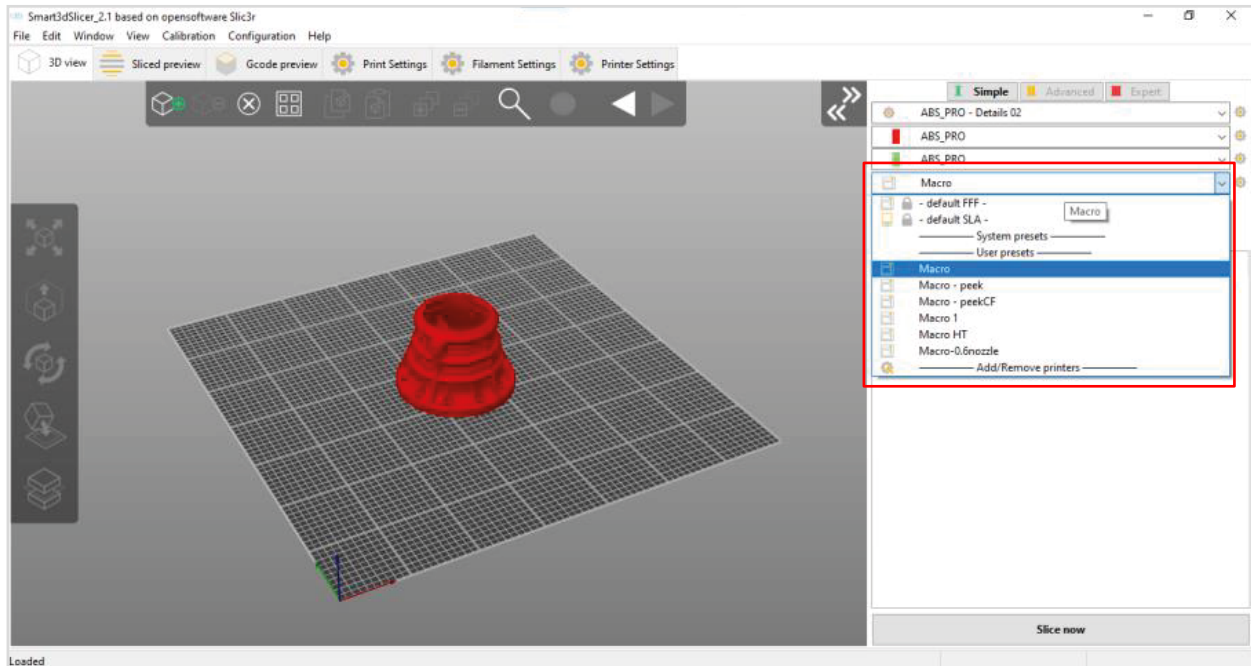
3. Once the part is loaded it will be visualized on the buildplate and you will be able to move and orient it as you prefer.

The options to modify the part are located on the vertical menu (**move, scale, rotate, place on face and cut**), and on the upper menu (**adding and delete**).

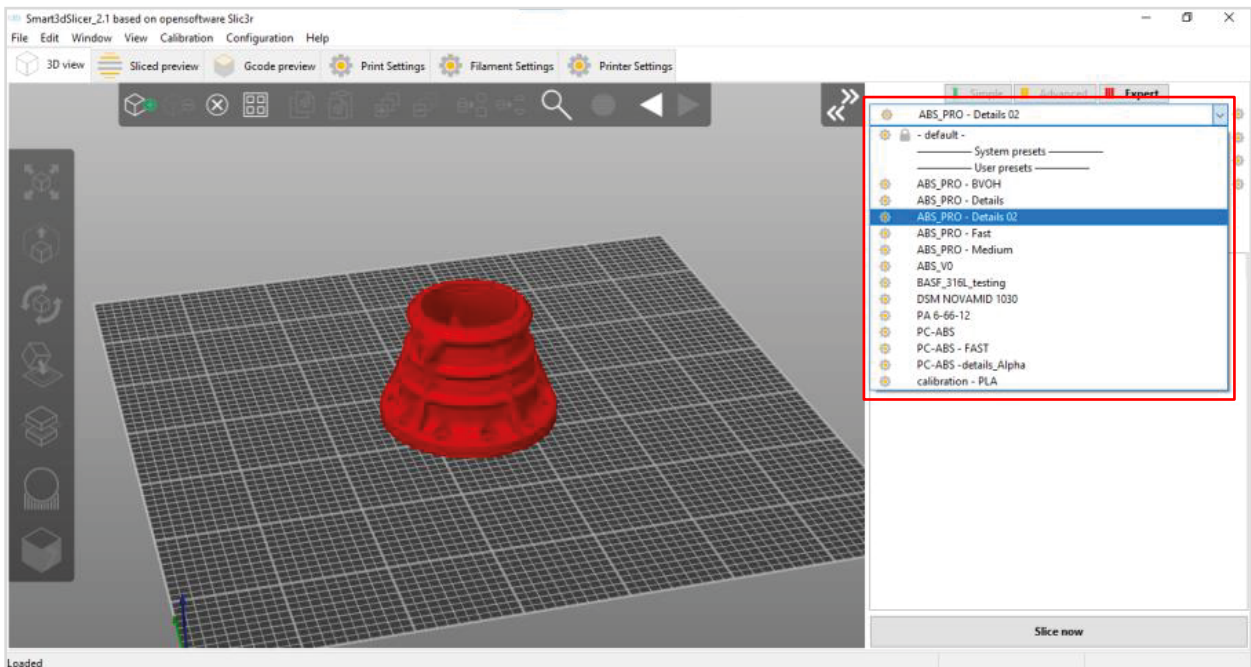


HOW TO START A PRINT

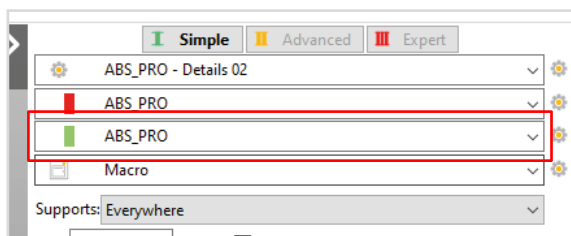
4. Select the unit to be used: it can be **Macro PU** or **Macro PU HT**.



5. Select the printing profile to use.

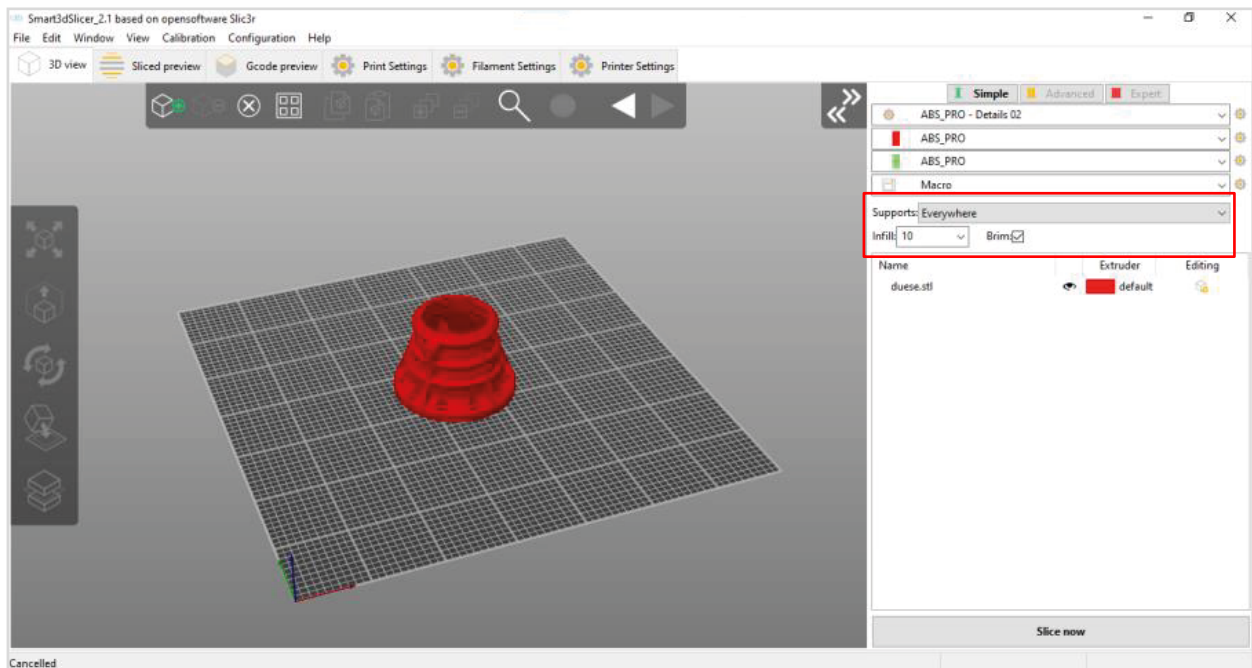


If you are going to use only one material, make sure to select the same material in this section.

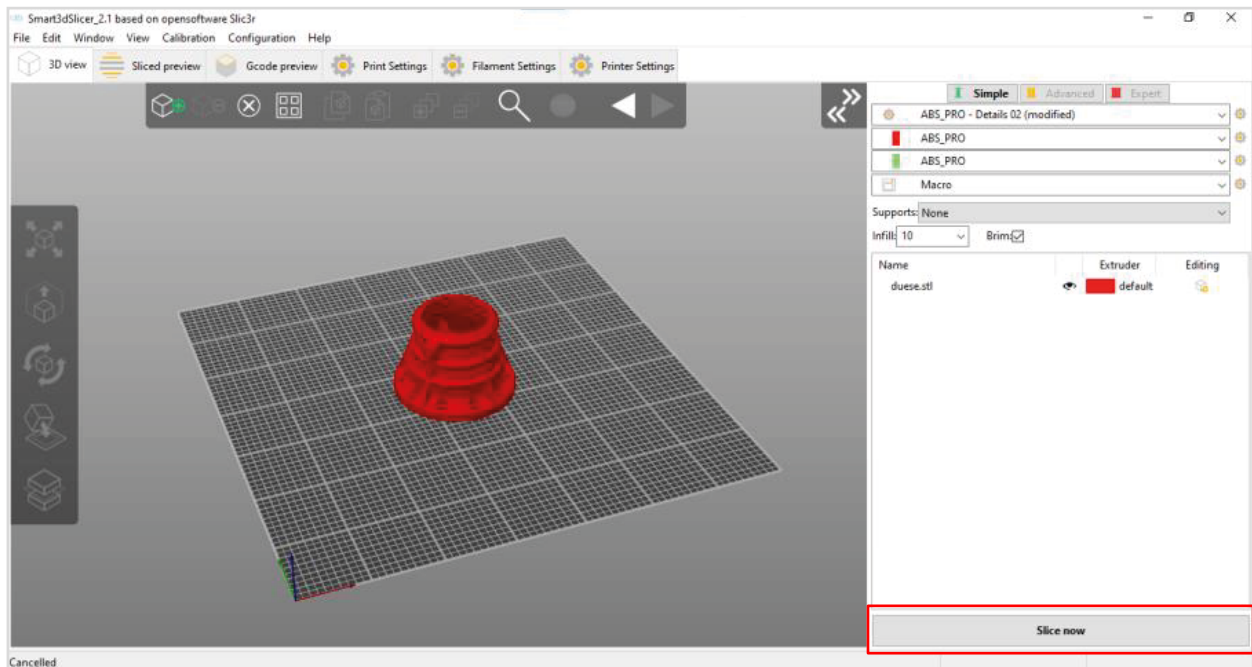


HOW TO START A PRINT

6. On the right side of the slicer screen, you will find three (3) main configurations: **Support**, **Infill** and **Brim**.



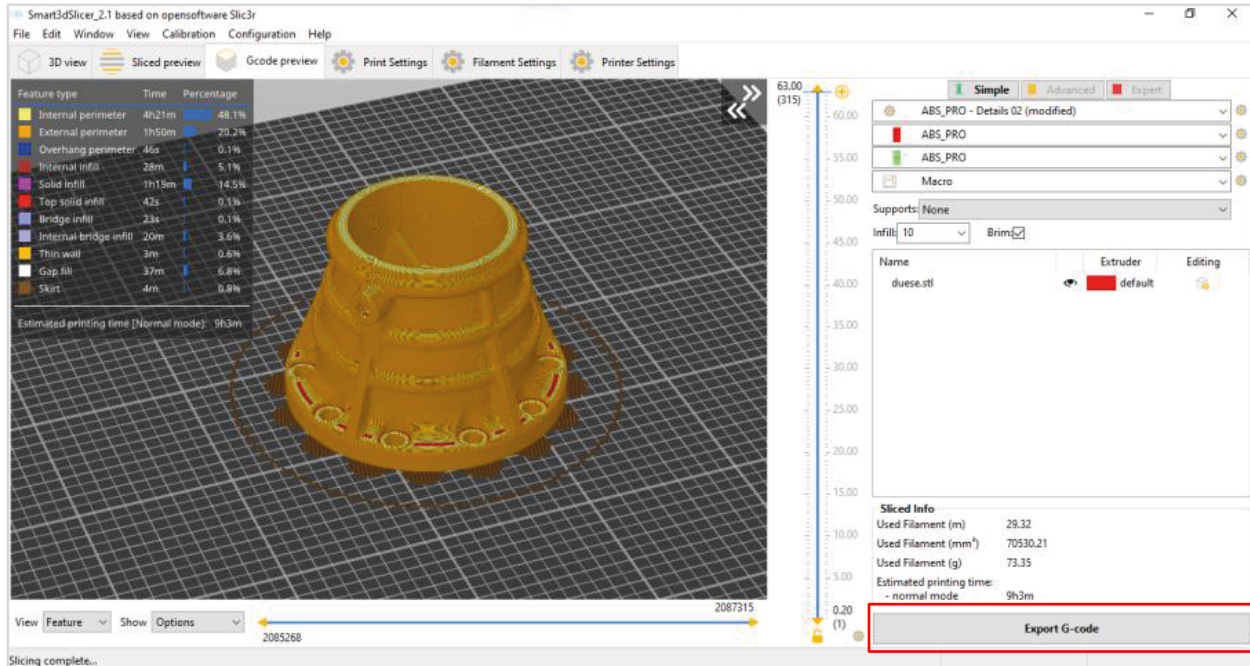
7. Once you have finished setting up your model, you are ready to slice. Click on the **Slice now** button in the bottom right corner of the slicer and wait a few seconds.



HOW TO START A PRINT

- From here you can monitor the printing time, the remaining amount of filament and print layers.

Once you have finished click on the **Export G-Code** button located where the **Slice Now** button used to be and select where you want to save your G-Code. You will receive a notification once the G-Code is ready. You are going to load this G-Code into your 3D printer.



HOW TO START A PRINT

Step 6: Upload the print job

The **Jobs** section located in **Files** menu allows G-Code files to be run, simulated, uploaded, downloaded, edited, renamed, deleted, and organized. A summary of the print time and other information is shown.

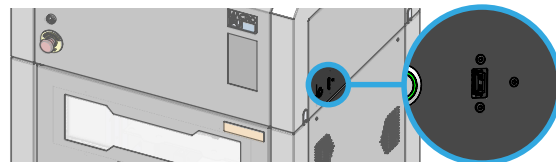
i Please note: It is recommended to perform this procedure using the web interface.

It is possible to upload a G-code in several different ways.

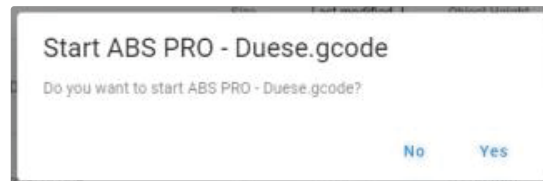


Using the Macro Screen

G-Code files can be uploaded by inserting a USB into the USB port next to the power button, click on the **SD Card** button, search and select the desired file.



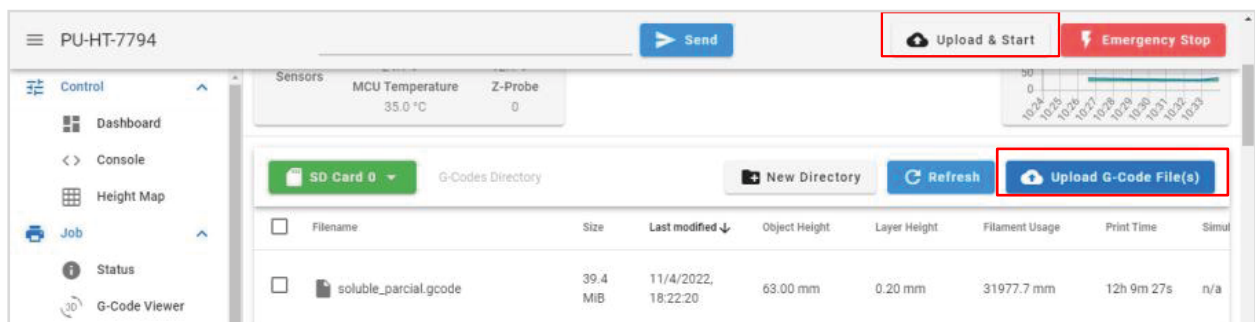
To start printing, just click on the G-code you want, a pop-up will appear, press **YES** to start printing.



File upload is not recommended during a print, to prevent interference while reading the SD card for an ongoing print, or possibly corrupting the uploaded file.

A blue notification pop-up displays the upload progress.

Using the Web Interface



G-Code files can be uploaded by clicking the **Upload G-Code File(s)** button and browsing for them on your computer. The file you have selected will appear in this section

You can also use the **Upload and Start** button in the header bar to quickly upload and start a print. Click this button, search for the file, and it will start automatically.

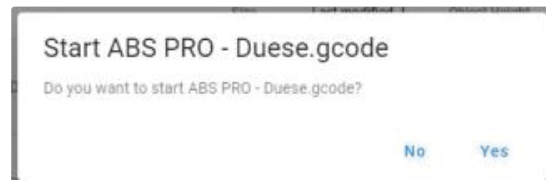
HOW TO START A PRINT

Step 7: Launch the print

⚠ Attention! It is important to keep the top door closed when the chamber is heated or preheated, otherwise, you may cause damage to components of the unit's active cooling system.

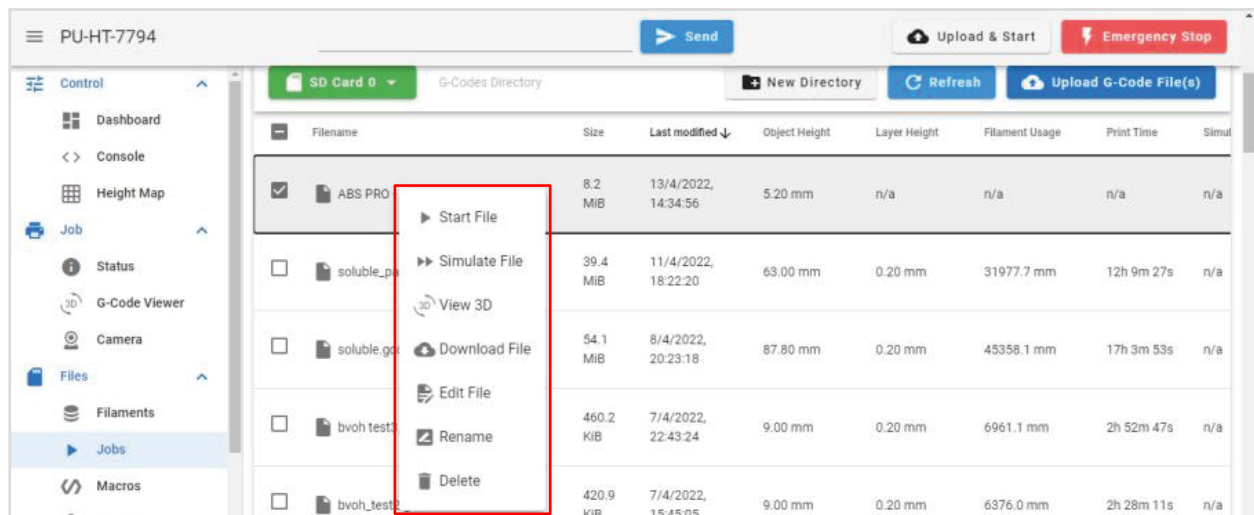
Before starting a file, remember to put the corresponding adhesive on the print bed.

Clicking on a G-Code file in the file list will open a pop-up dialogue box to run the selected G-Code file.



Right-clicking on the file will open a menu with options to **start the file, simulate, download, edit, rename** or **delete** the file.

Selecting **Start File** from the right-click menu runs the file immediately; it does not prompt before starting.



Calibration

The Calibration process takes place every time a new print file is sent to be 3D printed. This process will ensure a perfect first layer, which will drastically reduce the chance of a failed 3D print. To achieve this, the printhead will run an automated probing sequence that will measure several points on the build plate to generate a digital representation, which later will be used as a digital guide by the unit itself to know at what height it should be printed.

Manual Calibration

For the automatic calibration feature to work, the print bed should be aligned as parallel as possible to the X-axis. The Macro PU is shipped with an already calibrated print bed, so it is not necessary to run a manual calibration unless a Smart3D Technician or certified representative requests it. If that's the case, the manual calibration process will be provided by them.