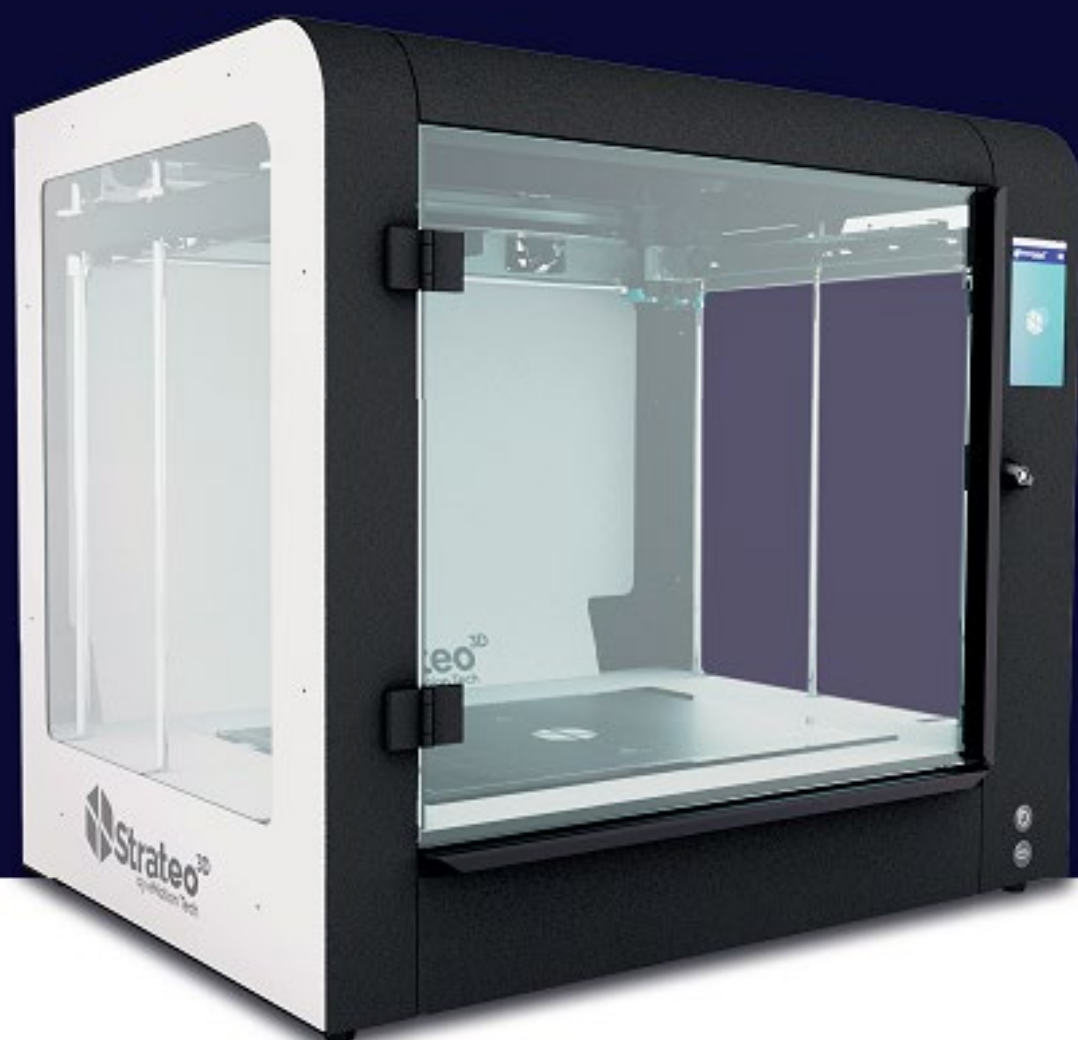




# MANUEL D'UTILISATION

«NOTICE ORIGINALE»



- Imprimante Strateo3D
- Logiciel stratocontrol3D associé



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## ABOUT THE STRATEO3D

Strateo3D is the first professional machine developed and marketed by the French 3D printers manufacturer eMotion Tech.

Designed and assembled in France, this machine is characterized by its large volume, its performances, its connectivity, and its reliability.

At an equal volume, print your prototypes 3 to 4 times faster than with 3D printers working on other technologies.

## COMPONENTS OF THE STRATEO3D SYSTEM

- The Strateo3D printer
- Air filtration system
- Two hotends printing tool (from 0.4 to 1.2mm nozzles)
- 1000w heatbed
- StratoControl3D software

## MAIN FEATURES OF THE PRINTER

<b>Dimensions</b>	<b>Hight 850mm, Width 950mm, Depth 720mm</b>
<b>Printing volume</b>	600 * 420 * 500 mm (126 liters)
<b>Polymer types</b>	Every 1,75mm nonproprietary polymer available
<b>Extrusion</b>	2 extruders, bi-material, bi-colour
<b>Nozzles diameter</b>	0.4, 0.6, 0.8, 1.0, 1.2mm
<b>Extrusion temperature</b>	Up to 285°C (Higher temperature on request)
<b>Heatbed</b>	Up to 120°C
<b>Chamber temperature</b>	60°C thermo regulated
<b>XY robot accuracy (mm)</b>	±5µm
<b>Z robot accuracy (mm)</b>	±3µm
<b>Calibrations</b>	Semi-automatic
<b>Filtration</b>	HEPA and active carbon
<b>Software</b>	Stratocontrol3D developed by the eMotion Tech company: <ul style="list-style-type: none"> <li>- Web interface remotely accessible</li> <li>- Machine interface</li> </ul>
<b>Connectivity</b>	USB, WIFI, ETHERNET
<b>Computing power</b>	Integrated Intel Core i5 processor
<b>Weight</b>	100kg
<b>Layer thickness</b>	0,1mm to 1mm
<b>Printing surface</b>	Glass + coating
<b>Control screen</b>	Capacitive 7" touchscreen, resolution 1024*600
<b>Remote monitoring</b>	Video remote monitoring via StratoControl3D
<b>Safety</b>	Chamber locked by key
<b>Supported OS</b>	Mac OS, Windows, Linux, Android, iOS, and any system that integrates a browser
<b>Noise level</b>	Max 54 dB SPL
<b>Use temperature</b>	Between 15 and 25°C

## ABOUT THIS USER'S GUIDE

This user's guide is nothing but a guide that will help you in any step related to the use, as well as the maintenance operations of your machine.

This guide is written in order to describe all the operations and components available on the machine.

You will find all the necessary information regarding the Strateo3D, its equipment and its integrated interface StratoControl.

All information and pictures contained in this guide are the exclusive property of the eMotion Tech company and may be updated on a later version.

## REVISION LOG

<b>Version number</b>	<b>Date</b>	<b>Comment</b>
<b>001</b>	01/05/2019	Initial document
<b>002</b>	18/02/2020	Reform of the organization – Added information regarding the touchscreen and the use process.

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## 1. Introduction

### a. General information

CE conformity declaration



The image shows a CE conformity declaration for a 3D printer. At the top center is the eMotion Tech logo, which consists of a stylized cube icon above the text 'eMotion Tech'. Below the logo, the text 'DÉCLARATION DE CONFORMITÉ COMMUNAUTÉ EUROPÉENNE' is prominently displayed. The declaration is structured into two columns. The left column lists the manufacturer's details and product information, while the right column provides the specific product name and applicable regulatory standards. A central paragraph states the manufacturer's declaration of conformity with European directives. Below this, the names and titles of three signatories are listed, each accompanied by a handwritten signature. At the bottom, the company's website, contact information, and the date of the declaration are provided.

**eMotion Tech**

**CE** DÉCLARATION DE CONFORMITÉ  
COMMUNAUTÉ EUROPÉENNE

Le fabricant : **eMotion Tech**  
Adresse du fabricant : **185, avenue des Etats-Unis  
31200 Toulouse**

Modèle & marque du produit : **Strateo3D**  
Type d'équipement : **Imprimante 3D**  
Conformité aux réglementations: **Basse tension : 2014/35/UE,  
2006/95/CE  
EMC : 2014/30/UE  
RoHS : 2011/65/UE**

**Le fabricant eMotion Tech déclare que le produit décrit ci-dessus est conforme aux dispositions réglementaires définies par les directives européennes énoncées plus haut.**

Nom et fonctions respectives des signataires et responsables légaux:

**Liguori Franck**  
Directeur commercial

**Peres Guilhem**  
Directeur financier

**Flye Hugo**  
Directeur technique

**Strateo**  
by eMotion Tech

**www.eMotion-Tech.com** Fabricant d'imprimantes 3D pour l'industrie, l'enseignement et les particuliers. **24/06/2019**

185, avenue des Etats-Unis, 31200 Toulouse - France  
+33 (0)5 82 95 26 62 / contact@emotion-tech.com  
Siret 751 371 964 000 30 - APE 2896Z - N°CEE FR 28 751 371 964



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Model and version of your machine

On the back of your machine, you will find the manufacturer's plate with the serial number of the machine and various legal and tracking mentions.



Use this information to identify your printer when contacting the customer support.

Body nomenclature



- 1: Control screen
- 2: Connected bi-extrusion tool
- 3: Heating/cooling device of the thermo regulated chamber
- 4: Heatbed / printing surface
- 5: Spools drawer
- 6: USB slot
- 7: Power button
- 8: Front door handle
- 9: Safety lock
- 10: Upper hood

- 11: Thermo regulated chamber incoming air ventilation
- 12: Air filtration
- 13: Thermo regulated chamber extraction air ventilation
- 14: Electric / electronic rack ventilation
- 15: Electric / Electronic rack
- 16: Power supply socket and fuse holder
- 17: Ethernet slot
- 18: USB slot (accessories only)



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## Tool nomenclature

### *Tool*

Strateo3D has been designed in order to host various additive manufacturing tools with various nozzle types.

Its electronic is provided with an internal memory that houses its identification and the memorization of the calibrations previously set. We advise you to get various tools, with the various hotends already mounted, adapted to the materials and layer thickness want.

NB: The hotends provided with your standard tool are equipped, except for specific requests, with 0.6mm nozzles.

### *Thermo regulated chamber*

Strateo3D is also provided with a homogeneous chamber heating device that allows the printing of specific technical materials such as ABS or HIPS and that also enhances the robustness and the adhesion of the printed layers.

This device can reach a temperature of 60°C and can be activated manually thanks to the control touchscreen of the machine but can also be activated automatically if your slicing settings include its start-up.

### *Particles filter*

Strateo3D integrates a filtration device dedicated to purifying the air from particles emitted during the extrusion of some materials.

### *Spool drawer*

Your Strateo3D is provided with a drawer that can host simultaneously up to 2 spools (1,75mm diam) of 3kg each.

The right spool will be extruded by the right extruder (R), the left spool will be extruded by the left extruder (L) of your tool.

This drawer is also provided with end-of-filament sensors dedicated to safeguard your production if a spool runs out of filament, as well as a cooling system that contributes to keeping your material's features unaltered.

### *Heatbed*

Depending on the extruded material, the adhesion to the printing surface can be different and the use of a heated bed can be necessary, particularly for ABS or materials with high retraction.

Strateo3D is provided with a 1000W heating power glass bed that can reach up to 120°C during your printings.

### *Touchscreen*

The Human-Machine Interface (HMI) on the control touchscreen only accepts \*.gcode files.

Strateo3D is provided with a 7 inches capacitive LCD touchscreen that allows the user to control the printer. From the interface, you can reach the various screens to select the file you want to print, control the tasks being printed, change materials or tools, proceed to calibrations, and configure the settings of the printer and the maintenance options. The touchscreen visually displays the functioning state of the printer as well as the warning information.

### *Electronic rack*

All of the electric and electronic components of the Strateo3D are located in a rack that can be separated from the machine in case of force majeure, in order to perform a modular maintenance of this element.

### *StratoControl3D*

StratoControl3D is developed by the eMotion Tech company:

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- Desktop version: remotely accessible via an internet browser, this software enables multi-user management, real-time monitoring of printing in progress, as well as the conversion of the STL files into \*. gcode files. It also allows the administrator to manage the projects waiting in the queue before printing.
- Touchscreen version: this software enables to proceed, directly from the touchscreen, to all maintenance and setting operations, as well as starting prints via the USB slot.  
StratoControl3D is installed on the hard disk of the printer during the production process and can be updated each time a new version is available (see section « Software update »).

### 3DPrintShield

In order to ensure the production of your parts, and ensure a high success rate, Strateo3D offers the following reliability technologies called PrintShield3D:

- Recovery in case of error or power failure
- End-of-filament detection and automatic pause
- Temperature and electronic self-diagnosis

#### b. General precautions

Important security information – security symbols and meanings

Strateo3D is composed of a variety of equipment located in various areas, some of these may present a risk of electrocution or burns if the instructions are not followed.

So, in order to prevent any risk of this kind, and according to the current safety standard (NF EN ISO 7010), these areas are identifiable thanks to matching warning stickers on it.

Two types of stickers are present on the Strateo3D. The first ones are called « preventive » stickers, they aim to prevent potential danger. With a yellow-orange colour, they are more visible than the blue ones, which aim is more informative.

Nevertheless, the non-respect of an « informative » sticker can damage one or more parts of your machine.

- Hot surface: a hot surface is reachable near this signal or behind the panel. Avoid any contact. The hot may cause severe burns. The access are reserved for maintenance and shall only be opened by a certified service or a maintenance staff.



access  
surfaces  
panels  
only be  
qualified

- Electricity: High-voltage current is reachable near this signal or behind the access panel. High voltage may cause severe burns or even death. The access panels are reserved to maintenance and shall only be opened by a certified service or a qualified maintenance staff.

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Meaning of the indicators and various states of the machine

Strateo3D is equipped with a control touchscreen on which are displayed important information related to the machine, as well as its various states. The four possible states of the machine are represented by a chromatic variation of the background on the main screen.

Each chromatic variation has its own meaning which is similar to the ones usually used on most of the industrial machine-tools, and which description is here below:

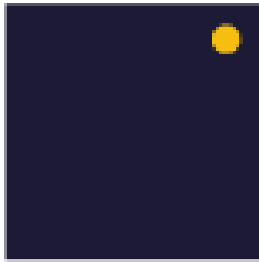


The buttons relative to specific areas and equipment also benefit from indicators dedicated to informing about the state in which the area or equipment is.

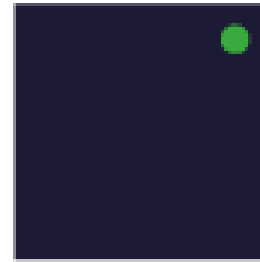
Those buttons use the same colour code than the background in order to represent the global state of the machine, as shown below:

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**ATTENTION**  
(opérations) à effectuer)



**PRÊTE**  
(prête à imprimer)



### c. Good practices and warnings

The 3D printing technology (FFM) used by the Strateo3D implies the heating of various moving elements and of various areas of the machine at relatively high temperatures.

It is appropriate to remind some indications and general warnings.

Strateo3D is dedicated to an indoor use, in a dry and ventilated room, and away from any gaseous or liquid spill. Furthermore, this machine has been designed to work on continuous production rates, thus, its use is possible 24h a day.

Nevertheless, the additive manufacturing solutions imply the combination of various technologies and factors. Also, due to its large size and its features, Strateo3D can be considered as a real machine-tool which total weight is beyond 100kg. As a consequence, any potential malfunctioning of the machine and/or printing may cause relatively severe material damages.

- It is important to install your machine on a support that can endure such a weight, and in an appropriate area, secured and dedicated to this purpose. Take a look at the installation precautions contained in the guide to get more information about it, or feel free to contact your local supplier.
  - We advise not to put anything inside or on the machine in order to prevent any clutter that could affect its functioning.
  - It is advised to use isopropyl alcohol to properly clean the glass bed or the 3DBedFix coating.
  - Be careful not to use solvent to clean your Strateo3D.
  - Do not obstruct any of the vents located at the back of Strateo3D to avoid any overheating.
  - Keep the printing chamber closed while the machine is functioning or during any moving of the tool.
  - Never introduce a part of the human body inside the Strateo3D during its functioning and/or during any move of the mobile parts, to avoid any risk of burn and/or severe injury.
  - Wait until the heated parts (hotends, heatbed and chamber heating device) reach room temperature before touching and/or handling them.
  - Any unmounting and/or modification of your Strateo3D, except for usual maintenance acts described in this notice, are at your own risk. Any unmounted or modified part will be considered as out of the manufacturer's warranty, unless there is an express agreement on its part.
  - Please, never leave the first printing layers unattended. In case of a wrong nozzle height calibration, warping generally occurs during the first printing layers. Unattended, a warped printed

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part could seriously damage your Strateo3D causing various inconveniences and crashes with the printing block.

- Only use the provided power supply cable dedicated to this use to connect your Strateo3D to the electricity grid.
- Never insert other filaments than those made of polymers dedicated to 3D printing and dedicated to the FFM technology.

We guarantee the proper working of this machine with filaments made for 3D printing from the eMotion Tech brand. However, Strateo3D can print with third-party filaments dedicated to 3D printing and mostly made of extruded polymers with a constant diameter of 1,75mm. In the case of the use of third-party filaments, the eMotion Tech company shall not be held responsible for a wrong functioning of your machine.

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## 2. Printing preparation.

You have just received your Strateo3D, this 3D printer is a professional machine-tool for which it is necessary to remind hereafter some safety information and installation precautions.

### a. Unboxing

In order to optimize and secure the shipment, your machine has been circled on a Europe pallet and then protected by extensions to avoid any lateral shocks.

We advise you to keep these elements in case you have to return the printer to our technical service.

First of all, you have to take off the extensions from the top, making sure not to touch the sides of the machine to prevent any scratch.

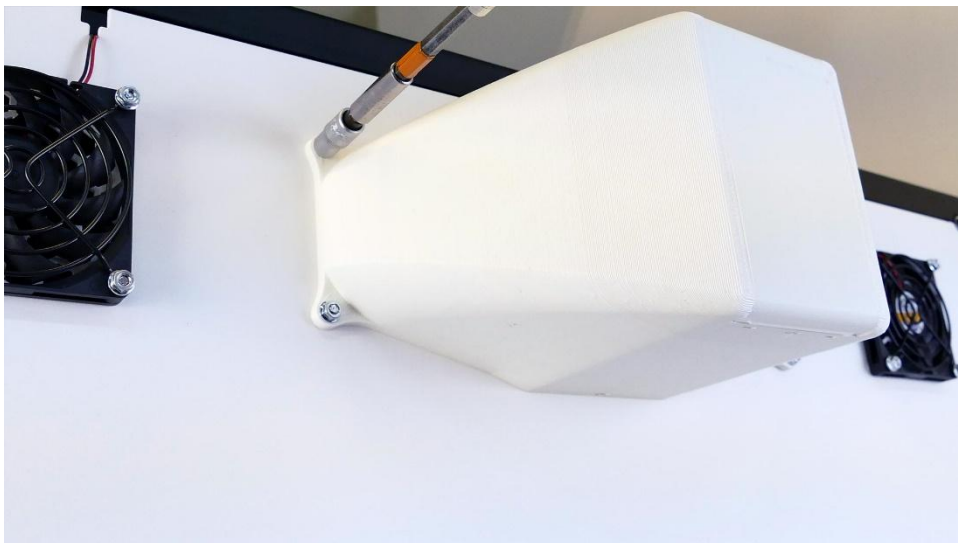
Strateo3D has to be installed on a support that can support over 100kg, and is between 80 to 85cm high to ensure the user can handle the machine while standing in front of it.

It is advised to use appropriate lifting equipment in order to lift the machine on its definitive support. Moreover, **its handling must imperatively be done from the four feet of the machine.**

### b. Commissioning

#### Filter assembly

In order to reduce congestion, the particles filter, located at the back of your machine, has been removed before shipment. Thus, you have to implement it during the first installation of the machine.



**NB :** Never turn the machine on before you proceed to this step.

You can easily implement the particle filter thanks to the four M4 base nuts provided for this purpose.

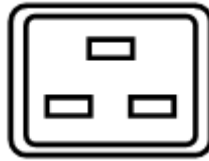
Caution: slightly tighten the screws in order to avoid any damage on the plastic part.

Then, you have to power the device thanks to the cord and the plug provided for this purpose.

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## Tensioning

Once the machine is installed, you can plug the power supply cord provided for this purpose on the slot located at the back of the machine. Be cautious to use the 16 amperes original C19 type as pictured on the drawing below:



Once this operation is done, you can plug the machine to the electric grid on a classic 220V power outlet.

It is advised to plug the machine directly on the wall outlet, without using a multi-socket or at least, limiting the number of equipment plugged on the same power supply point. From the moment your machine is properly plugged, it is tensioned.

NB : The general power supply of the Strateo3D is also provided with a 16A fuse in order to prevent any overcurrent that could damage your electric system.

## Switching on

To switch on your Strateo3D, just push the « ON » button at the front of the machine.



## Switching off

To switch off your Strateo3D, just push the same button, a brief pressure will switch your machine off.

**CAUTION:** a long pressure on the extinction button will immediately power down the machine, and could damage the memories (SSD and ROM) of your machine.



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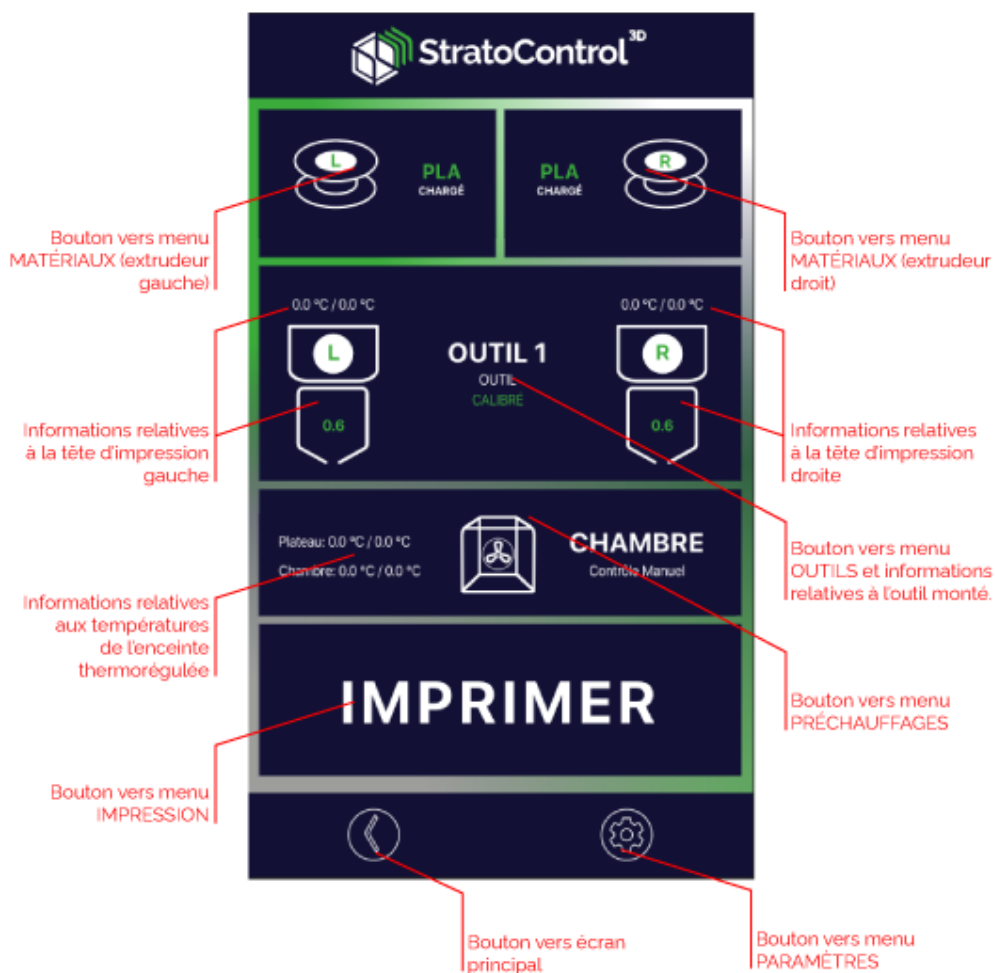
### 3. Preparing the machine to print

#### a. Home screen / Human-Machine Interface

The touchscreen is easy to use and enables the following actions:

- Reach the charge/withdraw functions and material settings.
- Check the state of the printer.
- Check the state of the materials / nozzles (type charged / set diameters) and to change materials / nozzles depending on your needs.
  - Check the progress of the printing (name of the printing job, information regarding the materials used, estimated printing time, etc...).
- Reach the settings information and modify the default settings of the printer.
- Reach the preheating functions

Overview of the main screen of the StratoControl interface when the machine is ready to print.

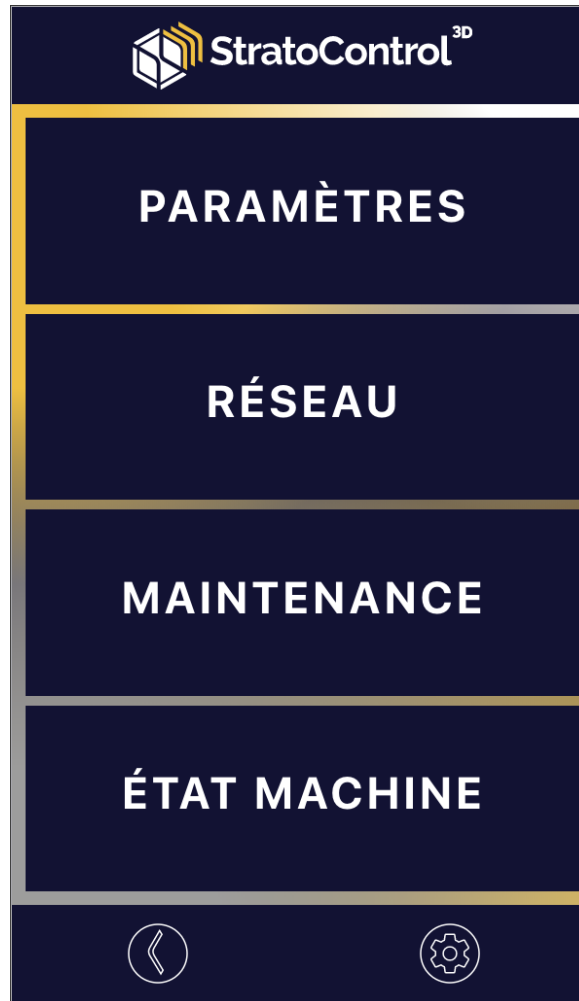


NB : The meaning of the background colours depends on the state of the machine (see page Meaning of the indicators and various states of the machine)

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b. Settings

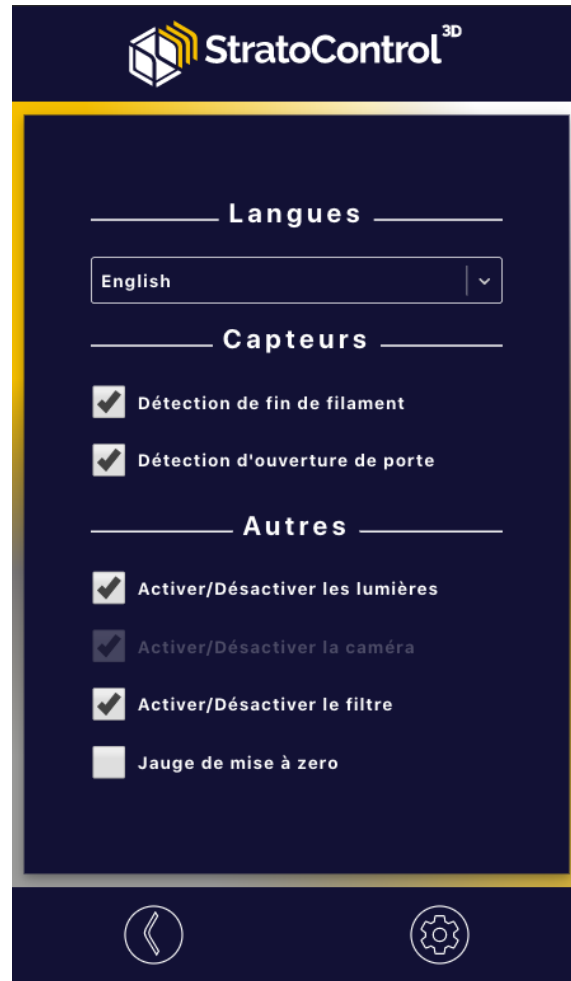
The « Settings » button (gear wheel) located in the bottom right hand corner of the home screen opens the following window:



From the « Settings » screen, you can access the various setting screens of your Strateo3D.

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“Settings” screen :

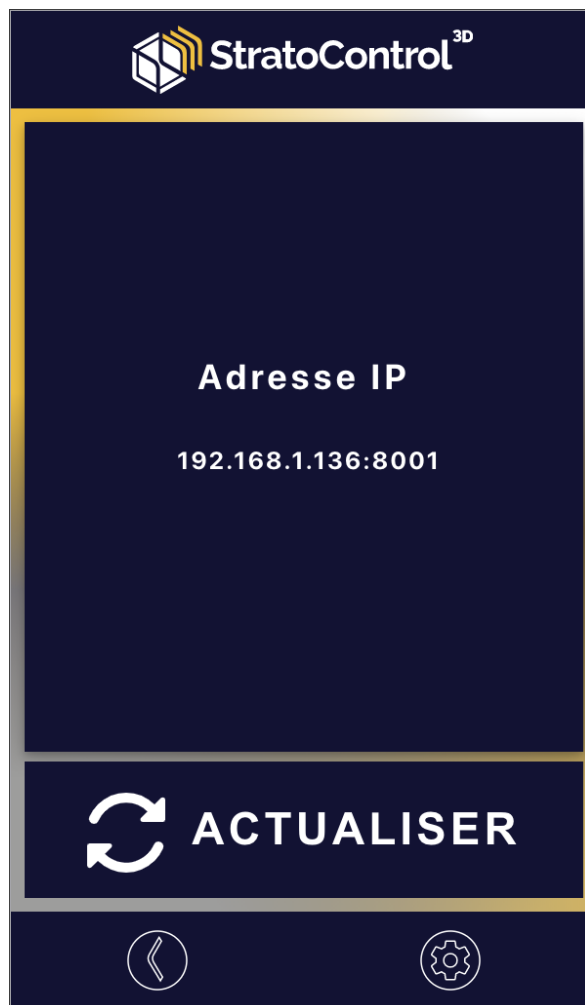


From the « Settings » screen, you can switch on/ off the various features of the machine and chose the language used on the interface.

- End of filament detection: will pause during printing if there is no more material.
- Open door detection: will pause during printing if the door or the upper hood are opened.
- Switch on/off the light: will switch the lights on or off on the Strateo3d.
- Switch on/off the camera: will enable the remote monitoring system.
- Switch on/off the filter: will enable the air filtration.
- Zero-setter: will enable choosing Z calibration mode. When this option is activated, the height calibration is made thanks to a digital zero-setter (see page Calibration using a zero-setter)

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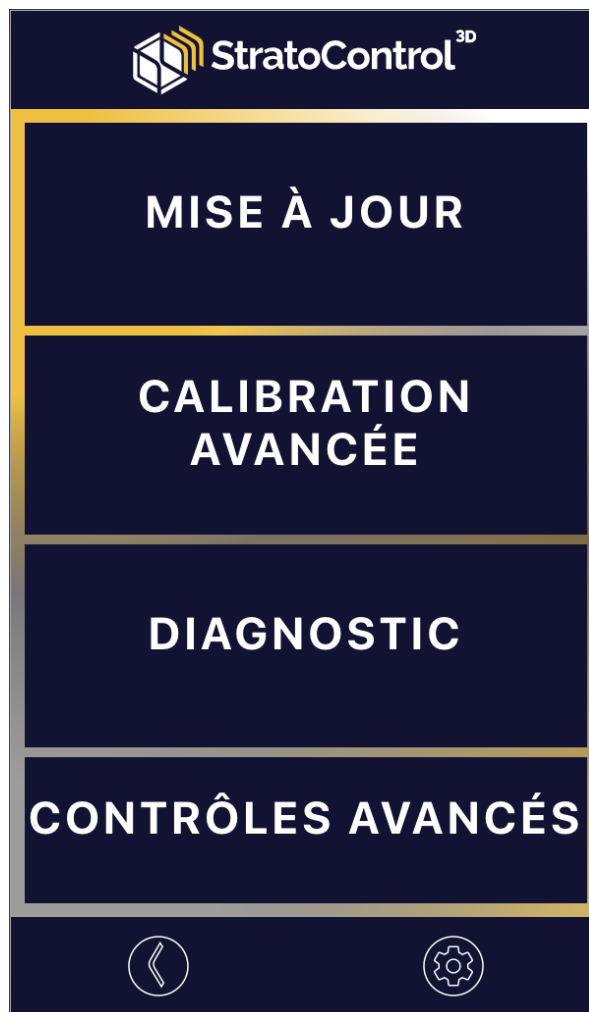
“Network” screen



From the “Network” screen, you can see the IP address of the printer, enter it in your browser to access the remote version of StratoControl3D.

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“Maintenance” screen



From the “Maintenance” screen, the person in charge of the maintenance of the machine will access all the necessary features.

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“Update” screen



From the “Update” screen, you can see the current version of StratoControl3D, select an update file (.us3d), and start an update.

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“Advanced calibration” screen



From the “Advanced calibration” screen, you can change the calibration values as you wish, such as:

- The PID (Proportional–Integral–Derivative controller) of each extrusion system for a specific temperature.
- The Z offset value calculated during the nozzle calibration (a high positive value will bring the nozzle closer to the bed)
- The value of the zero-setter height, which is used during a Z calibration using a zero-setter.
- The value of the X or Y spacing, calculated during spacing calibration.



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“Diagnosis” screen



From the “Diagnosis” screen, you can check the state of the various sensors of the Strateo3D.

A long pressure on the “Self-Diagnosis” button will start a deep diagnosis process of the input and output of the motherboard, which result could be requested by an after-sales service technician.

NB: you will have to restart your Strateo3D after a self-diagnosis or the machine could have an unpredictable behaviour.

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“Advanced controls” screen



The “Advanced controls” screen is locked by a password. The use of this screen could be dangerous if not controlled. The password to unlock this screen is 945\* by default.

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Once the password is entered, you will access the advanced control screen of the tool. You can, from this screen, perform various homing actions and various moves of the tool.

- Homing of the three axes X, Y, Z.
- Individual homing of the axes X, Y, Z.
- Change of the registered values on the sliders of the various axes X, Y, Z. (CAUTION: danger of machine breakage if you overpass the size of the machine)
- Activate/Deactivate the tool.
- Activate/Deactivate the motors.

A tap on the “Thermometer” symbol switches the screen to the « Temperatures advanced control » screen.

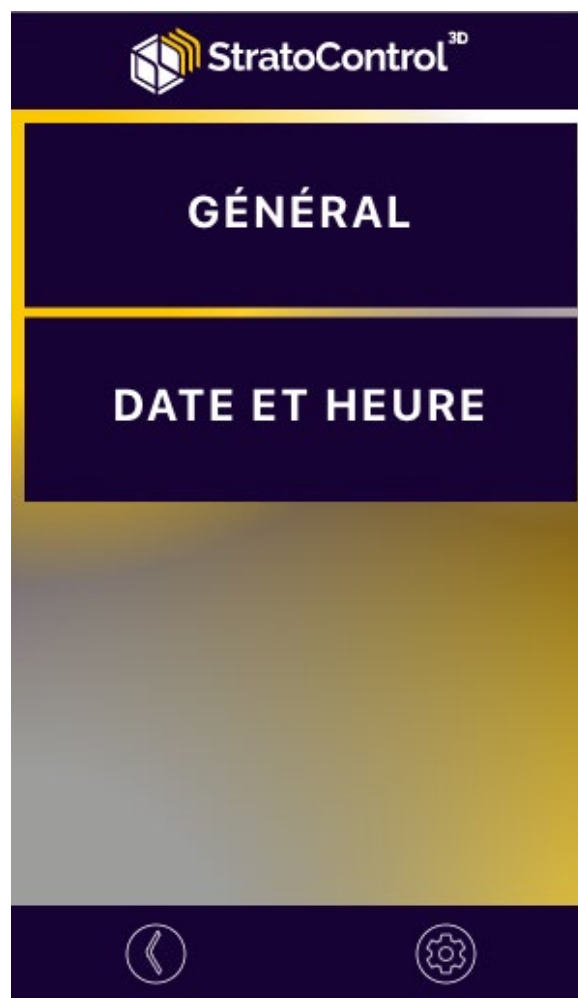
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From the “Temperatures advanced control” screen, you can activate /deactivate dynamically the motors in extraction or insertion mode, the two hotends heating, the bed heating, and the chamber heating.

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“Machine state” screen



From the “Machine state” screen, you can access the general settings and the date and time settings of the Strateo3D.

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“General” screen



From the “General” screen, you can see the elapsed time since the last power up of the Strateo3D, the software version of the tool, and the software version of the motherboard.

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“Date and time ” screen



From the “Date and time” screen, you can see the time set on the Strateo3d, change it in a synchronized way if the Strateo3D is connected to the Internet, or manually thanks to the data entry form.



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### c. Thermal control of the chamber

On the « Home » screen, the button related to the temperature enables the access to the machine preheating options.



Various options are available depending on the type of material and it enables the appropriate preheating as soon as the machine is switched on, and as soon as the machine is switched off and cooled down.

- High temperature preheating: Chamber 60°C - Bed 100°C
- Average temperature preheating: Chamber 35°C – Bed 70°C
- Low temperature preheating: Chamber: no data – Bed 50°C
- Cooling: activate the fans to cool down the chamber after a high temperature printing (a slow cooling will minimize the retraction effects and the delamination of the printed parts)
- Switch off: switches off all heating systems.

This preheating is necessary before any calibration.

### d. Bed calibration

Strateo3d is equipped with a cast ceramic glass bed that has very few heat distortion.

Nevertheless, it is advised to perform a probing topography to bring a relative correction to this flatness. Indeed, if the whole bed map is not totally parallel to the hotend moving map, some printing defects may appear, such as detachment of printed material or layers excessively pressed.

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From the “Calibration” screen, accessible from the home screen, select « BED » (note that the yellow dot in the top right corner of the cell indicates that the calibration has not been done yet).

Follow the instructions step by step on the screen and at the end of the process one out of the two following screens will appear.



In the first case, you can proceed to the next step in the “Calibration” screen. The yellow dot of the cell will have become green.

In the second case, proceed to the calibration again or refer to the «SUPPORT» section of the guide.

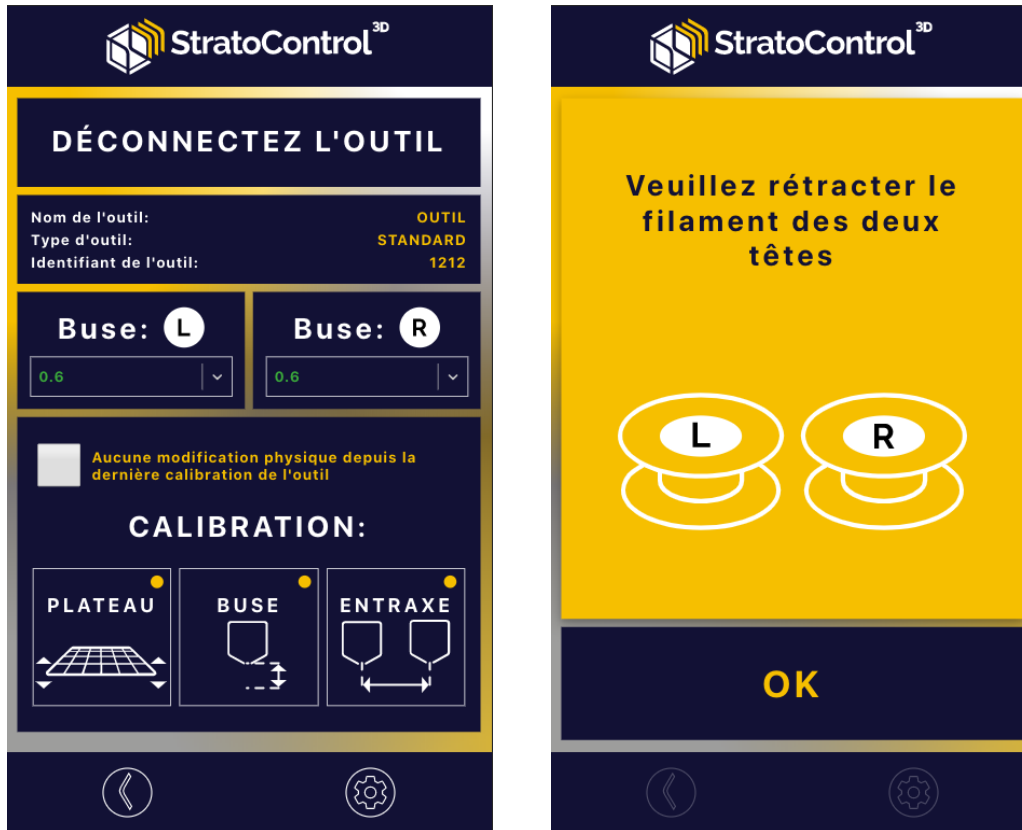
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e. Height calibration (zero setter)

The height setting of your printer enables the determination of the original position of the nozzle regarding the bed, as well as the height levels of the two hotends.

This calibration step can be made in two different ways whether you have, or not, a zero-setter.

The Z height setting is not necessary before each printing, however, it is compulsory during the commissioning of the machine or after important adjustments such as a tool-changing or a hotend replacement.



Standard calibration

From the "Calibration" screen, select the "Nozzle" button. If you have not removed the filaments, a warning message will be displayed until it is done.

Follow the instructions to determine the distance between the nozzle and the bed. The "Calibration" screen enables the adjustment of the height of the nozzle.

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Calibration using a zero-setter (option)



In the settings of the machine, activate the «zero-setter».

Take the zero-setter and place it as shown on the screen, thanks to the calibration wedge.

Follow the steps described, then register the calibration when the screen displays 0.00.

#### f. Materials

The information described in this section will help you through the loading material process. Do not forget to check the state of the machine on the touchscreen during the various necessary steps.

From the home screen, you can select the left or right nozzle to access the charging/discharging material menu. Select the nozzle for which you want to add material, then, in the drop-down menu, select the material you want to charge, then the « EXTRUDE » and « WITHDRAW » buttons will be activated and usable.

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Then, push the “Extrude” button, the nozzle will start heating up to the temperature adapted to the selected material. Insert the filament in the drawer and push it until it reaches the entry of the extruder, which will then drag the filament as soon as the target temperature is reached.

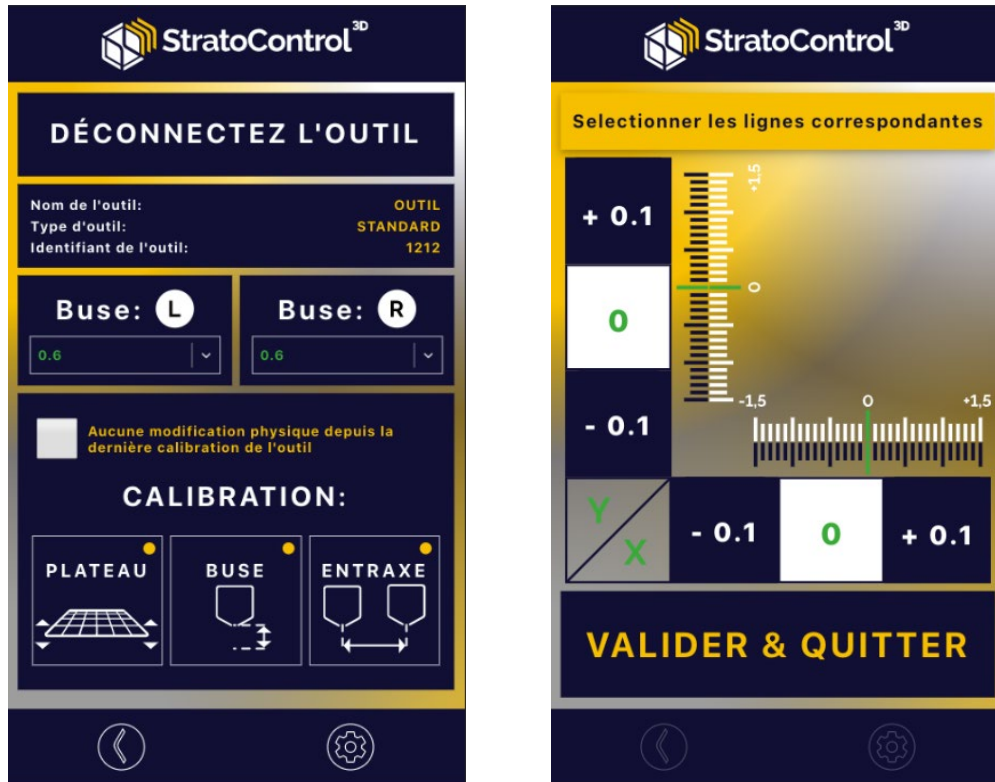
The same process must be done for the second nozzle, or if you want to change filament, via the « WITHDRAW »button.

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#### g. XY Calibration

The spacing values correspond to the distance between the nozzles on the X and Y axis. Accurate values ensure the exact location of the tool movements and material placement. Inaccurate values may cause production issues, such as support material encrusted in the printed part, or parts incorrectly maintained.

The spacing calibration implies the printing of a calibration file therefore must be done with filament charged in the two extruders, as well as an empty and clean bed.



The calibration of the XY spacing takes the form of an assistant that guides you through the necessary steps.

Select "Spacing" in the "Calibration" menu.

Follow the normal precautions shown, then print the calibration file by pushing the « PROCEED » button.

When the printing is done, the control screen displays "Select the matching lines", open the front door of your Strateo3D to get a better look, then spot the matching lines on the bed. Then, register the values corresponding to the best alignment for each axis (X and Y) by pushing as many times as necessary on the « +0.1 » and « -0.1 » buttons, on the control screen.

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#### h. Printing



You have three ways to start printing with the Strateo3D.

- “Reprint” to start printing the last printed file.
- “Print from the projects list” which collects g-codes stored in the machine from the StratoControl3D desktop version.
- “Print from USB stick” which collects g-codes stored on a USB stick if one is plugged in one of the two USB slots of the Strateo3D.

## 4. Printing guide

### a. Choice of the nozzles

The Strateo3D tool is available in 5 nozzle diameters:

- 0.4mm
- 0.6mm
- 0.8mm
- 1.0mm
- 1.2mm

The choice of the nozzle’s diameter can be determined by the following points:

Recommendation of the nozzle’s diameter depending on the details size and on the part to print:



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		Detail size (mm)						Part dimension (mm)					
		<0.4	0.4 to 0.6	0.6 to 0.8	0.8 to 1.0	1.0 to 1.2	>1.2	<5	5 to 60	60 to 120	120 to 180	180 to 240	>240
Ø	0.4*		X	X	X	X	X		X	X	X	X	X
n	0.6			X	X	X	X			X	X	X	X
o	0.8				X	X	X				X	X	X
zz	1.0					X	X					X	X
le	1.2						X						X

Note: This table is indicative. It cannot guarantee the best nozzle choice for a specific use.  
 \* In the case of a charged filament use (carbon fibre, glass fibre...) the 0.4mm nozzle diameter should be prohibited.

Impact of the nozzle diameter variation on performance:

	Printing time	Part strength	Part details	Part surface quality	Ease of supports removal
Ø nozzle ↗	↘	↗	↘	↘	↘
Ø nozzle ↘	↗	↘	↗	↗	↗

Material of the nozzle according to the kind of printing material:

Nozzle material	Technical specification	Materials
Brass	Non-abrasive materials up to 285°C	PLA, ABS, TPU-98A
Hardened steel	<b>Abrasive</b> or charged materials	PA6-GF30
Nickel plated copper	Non-abrasive materials <b>above 285°C</b>	PEKK
Hardened steel, nickel plated, WS2 anti-friction coating	<b>All materials, all temperatures</b>	All materials

## b. Preheating

**Before printing, the machine must imperatively be preheated.**

**Printing on a non-preheated machine can gravely damage some parts of the machine.**

To do so, select the preheating adapted to the polymer you want to print (see chapter “Thermal control of the chamber”) and wait 45 minutes.

Once the machine is heated, proceed to the calibrations, if it has not been done yet.

**Important: calibrations are adapted to only one type of preheating.**

Example #1:

My machine has just ended a PLA printing (low temperature preheating preliminarily used) and I want to print with ABS (high temperature preheating needed).

Once the preparation operations are done (see Chapter “Preparation to printing”), I have to make an ABS preheating and wait 45 minutes for the machine to be heated.

I can then proceed to the machine calibrations before printing.

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Example #2:

My machine has just finished a PLA printing (low temperature preheating preliminarily used) and I want to print with TPU-98A (low temperature needed).

Once the preparation operations are done (see Chapter "Preparation to printing"), I have to make a PLA preheating and wait 45 minutes for the chamber to be heated.

I do not have to proceed to the machine calibrations and can print directly.

### c. Preparation to printing

Cleaning of the printing surface

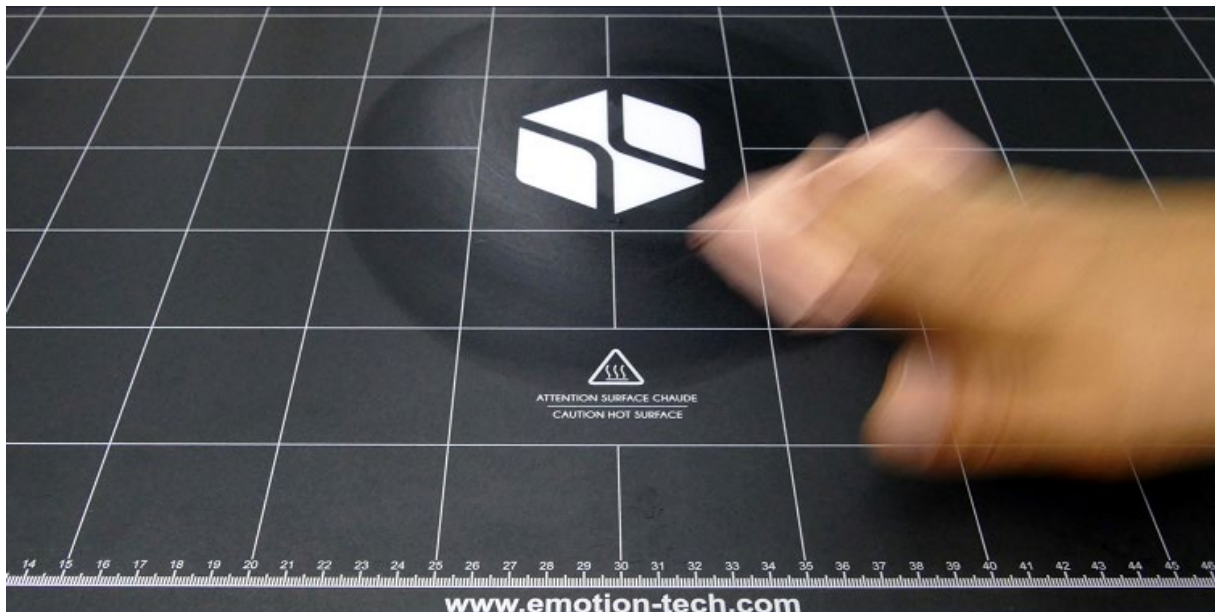
After each print:

- Remove the parts from the bed (without any effort on a cold glass bed)
- Remove the printing residues thanks to a spatula.
- Clean with water to remove the adhesion promoter.

Before each print:

- Remove the grease from the bed with isopropyl alcohol.
- Apply the adhesion promoter (if needed).

**CAUTION: never use acetone** to remove the grease from the bed, this will damage the bed and its heating element, the painting of the machine...



Adhesion promoter

To guarantee the optimal adhesion of your printed part on the bed, you can use an adhesion promoter. The removal of the printed part will be done without any effort once the glass bed has cooled down to room temperature.

Type of adhesion promoter depending on the printed material:

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Material	Adhesion promoter
PLA	3D LAC
PET-G	3D LAC
ABS	DimaFix
ASA-X	DimaFix
TPU-98A	3D LAC

How to use 3D LAC:

1. Remove any grease from the printing surface.
2. Spray the 3D LAC on a cloth then apply the cloth on the printing surface.  
Repeat until the whole printing surface is covered.

How to use DimaFix :

1. Remove any grease from the printing surface.
2. Check if the bed temperature is <50°C.
3. Shake the product.
4. Apply the product directly on the printing surface.
5. Heat the bed up to >85°C.
6. After printing, the printed parts will be removable when the temperature reaches <65°C.

d. [During a printing \(stop pause z-offset\)](#)

[Pause the printing](#)

The "Pause" button on the work-in-progress page becomes clickable during a printing. The printer can be paused automatically or manually thanks to this button:

- An automatic pause occurs, for example, when a spool runs out of filament, if an anomaly is detected, etc...
- A manual pause occurs when pressing the « Pause » button.

When the printer is paused:

1. The machine state changes (see [Page Meaning of the indicators and various states of the machine](#)). The tool is homed. The information bar displays « Pause ».

If the machine is automatically paused, because of an empty spool, the screen shows which spool is empty. Confirm the message, remove the empty spool, charge the new filament and then resume printing.

2. To resume a printing, push the « Resume » button. The heads will be heated again and printing will resume as soon as the target temperatures are reached.

Note: The printer does not proceed to printing instantly, please wait a moment.

[Stop the printing](#)

At any moment, you can stop the printing from the machine.

## 5. Maintenance

a. [Disassemble / assemble the electronic rack](#)

Disassembly of the electronic rack:

1. Switch off the machine.

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2. Unplug the machine from the wall outlet.
3. Unscrew the 6 rounded head screws that lock the maintenance hatch located on the right side of the machine.



4. Open the maintenance hatch thanks to, for example, an “L” Allen key.



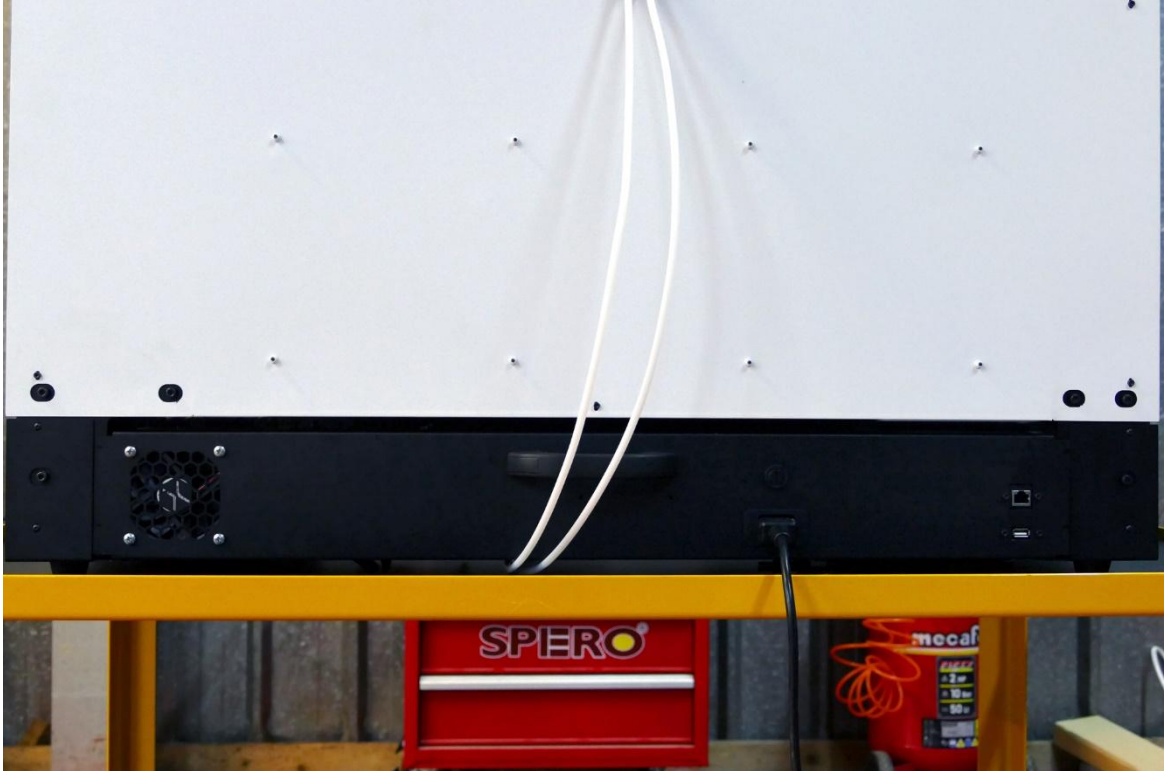
5. Disconnect all the connectors of the rack.  
All in all:
  - 1 Opaque white connector
  - 1 Translucent white connector
  - 4 Black connectors
  - 2 Green connectors

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- 4 USB slot
- 1 HDMI slot
- 1 Screw connector (directive machine only)
- 6. At the back of the machine, unscrew the 2 x 2 screws of the rack (be careful not to lose the tooth lock washers).
- 7. Extract the rack from the machine thanks to the handle.

Assembly of the electronic rack:

- 1. Put aside the cables on the side of the machine.
- 2. Insert the electronic rack, the handle must be upwards, as shown below:



- 3. Tighten the 2 x 2 cylindrical hexagonal screws together with their tooth lock washers (those washers are essential to guarantee a safe well-functioning of the machine).
- 4. Plug the connectors to the electronic rack in the following order:
  - 1. Translucent white connector
  - 2. Black connector 2x2 pins
  - 3. Black connector 2x3 pins
  - 4. Black connector 2x4 pins
  - 5. Black connector 2x5 pins
  - 6. Green connector 2 pins
  - 7. Green connector 6 pins
  - 8. Opaque white connector
  - 9. HDMI connector
  - 10. 4x USB connectors
- 5. Close the maintenance hatch and lock it thanks to the 6 rounded head screws.

#### b. Disassemble / assemble the bed

Disassembly of the bed:

- 1. Switch off and **unplug** the machine (risk of electric shock).



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2. Unscrew the 6 rounded head screws that lock the maintenance hatch located on the right side of the machine.



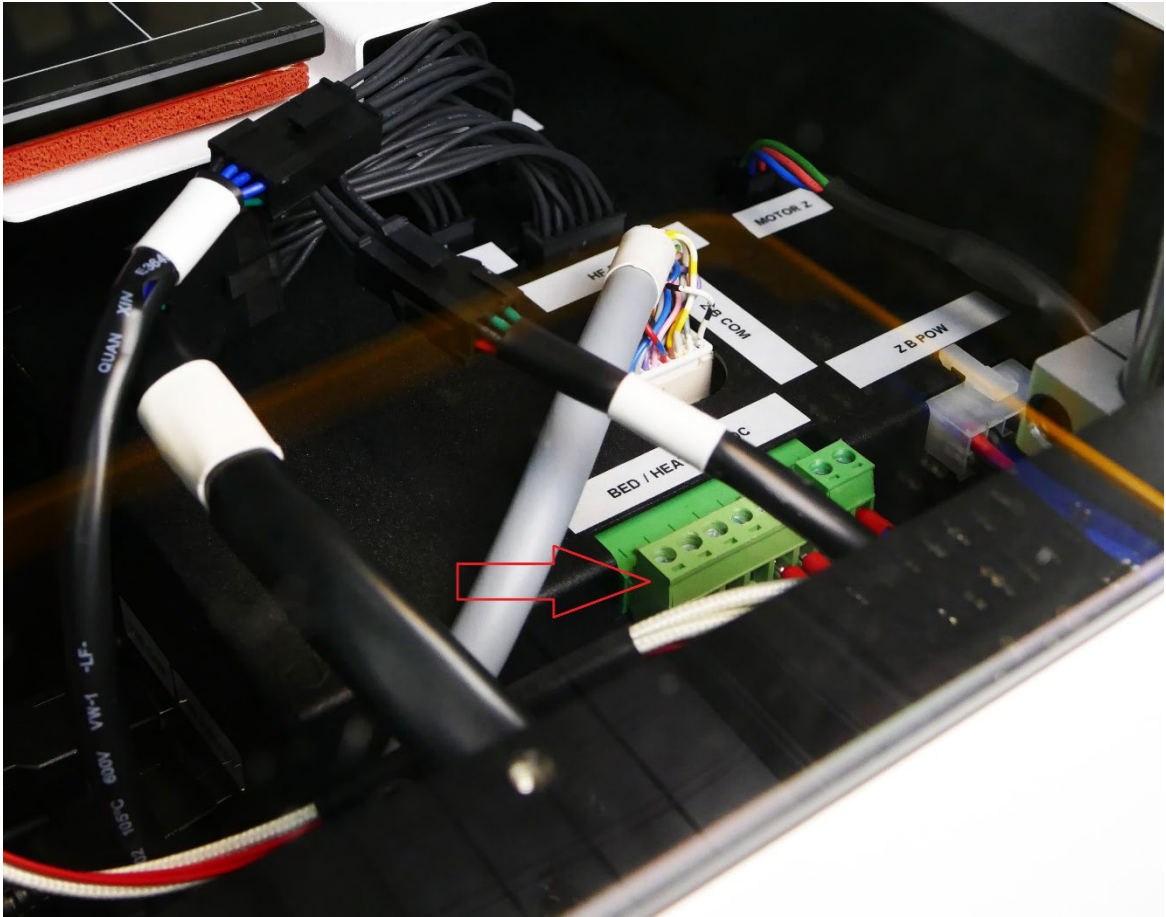
3. Open the maintenance hatch thanks to, for example, an “L” Allen key.



4. Remove the maintenance hatch located on the left side of the machine the same way.

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5. Unplug the 6 pins green connector.



6. Slide your fingers under the bed (the white metal sheet has 2 holes under the back of the bed).
7. Pull the magnetised bed to remove it.

Assembly of the bed:

1. Place the bed on the 3 magnets (cable outlet on the right side).
2. Be sure that the machine is **unplugged** (risk of electric shock).
3. Plug the 6 pins green connector on the electronic rack
4. Close and lock the left and right maintenance hatches thanks to the 2 x 6 rounded head screws.

### c. Uncorking of the tool

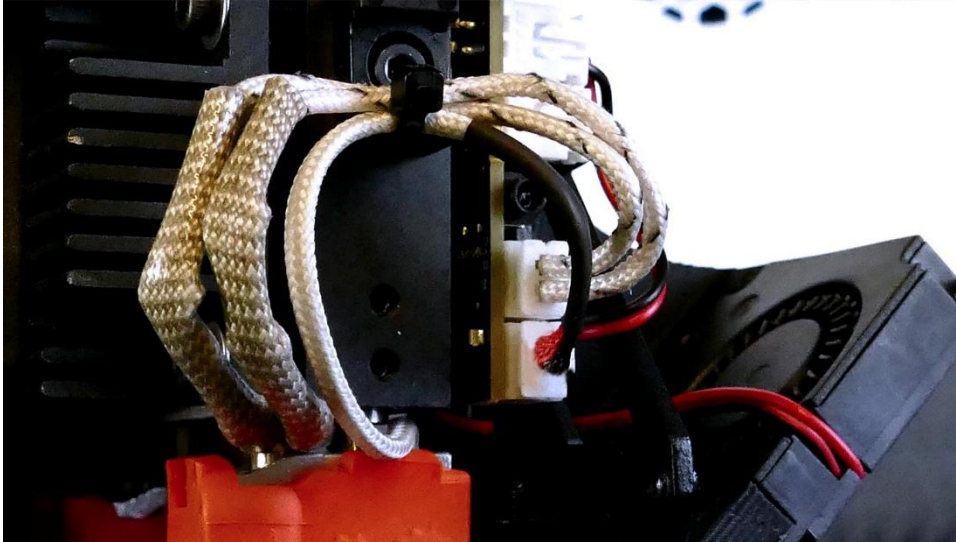
Uncorking the tool implies to disassemble / reassemble the hotends. Once this operation is done, you will have to proceed to the nozzle calibration.

Disassembly of the hotend:

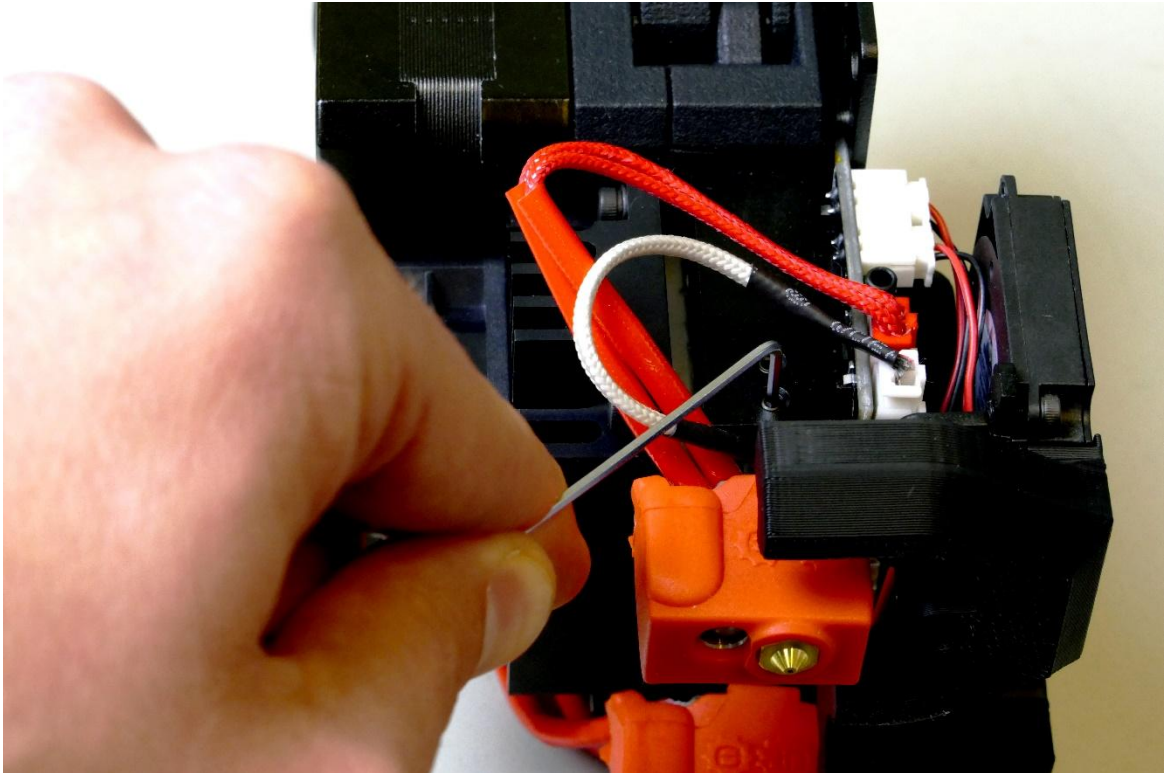
1. Be sure that the hotend temperature is  $<60^{\circ}\text{C}$  and that the filaments are removed from the hotends.
2. Disconnect the tool following the steps described on the screen.

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3. Cut the zip-tie to release the cables and disconnect the heater cartridge and the thermocouple from the electronic board of the tool.



4. Unscrew the 2 pressure screws on the side of the tool.



5. Remove the hotend.  
Caution: a white tube can fall during this operation: keep it aside until you reassemble the hotend.

#### Cleaning of the tool:

1. Remove the polymer that comes out of the hotend thanks to tweezers or needle-nose pliers.
2. Remove the polymer stuck into the tool thanks to a needle-nose plier.

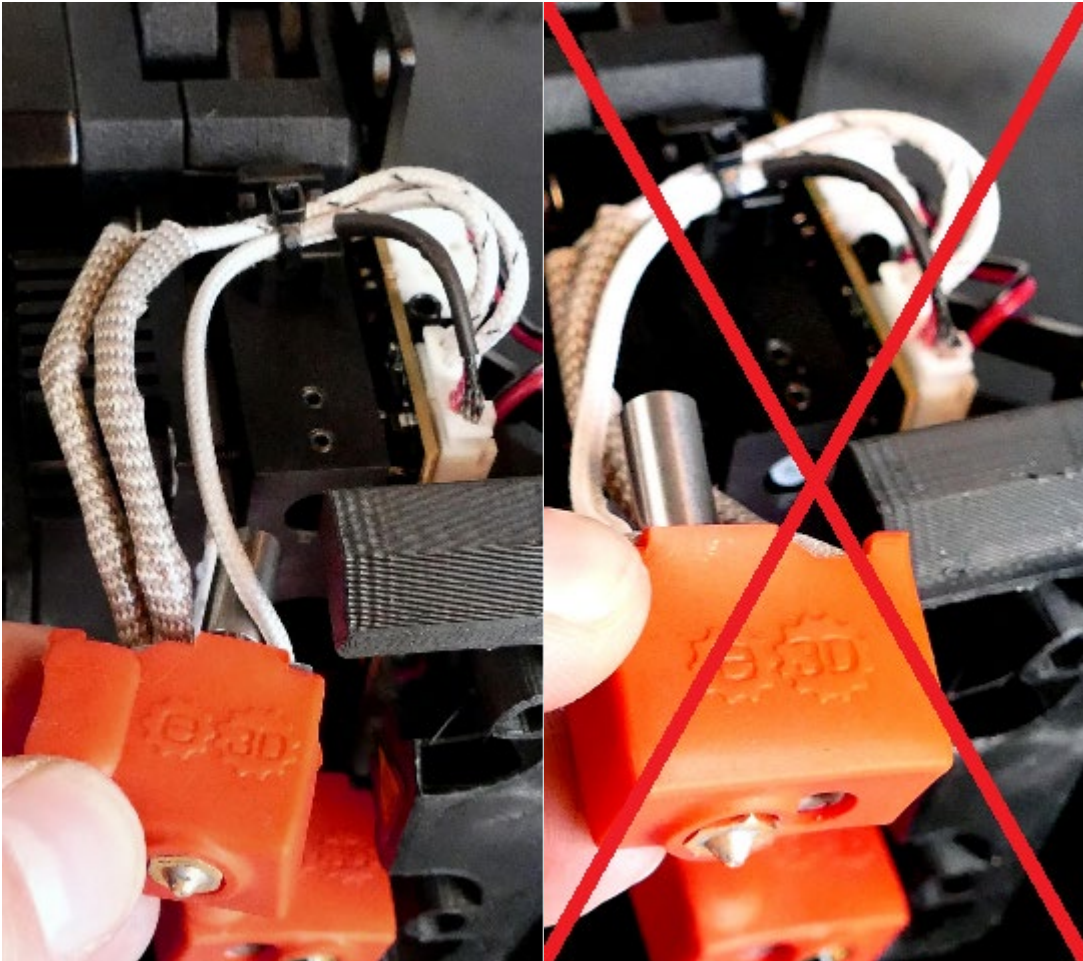
#### Reassembly of the hotend:

1. Be sure that the white tube is placed back inside the tool.

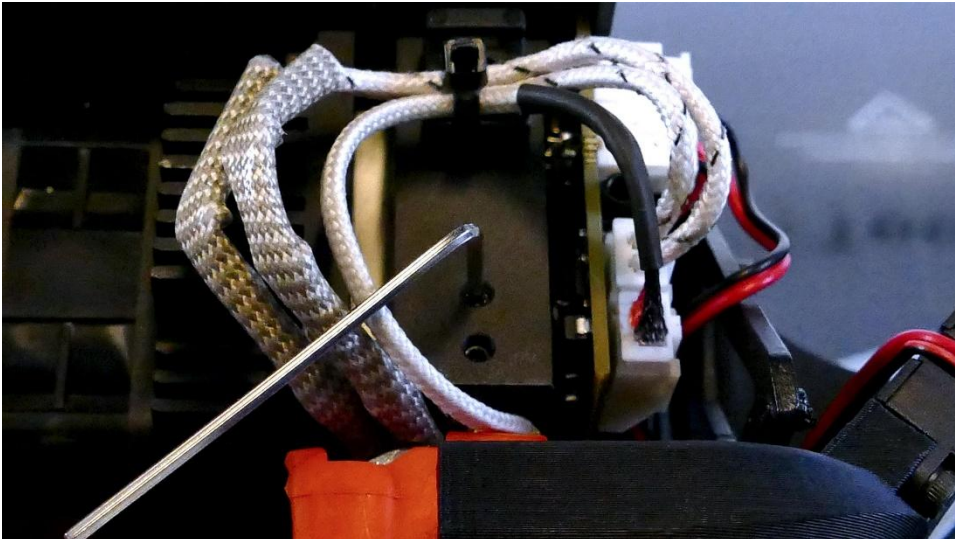


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2. Place the hotend inside the tool.



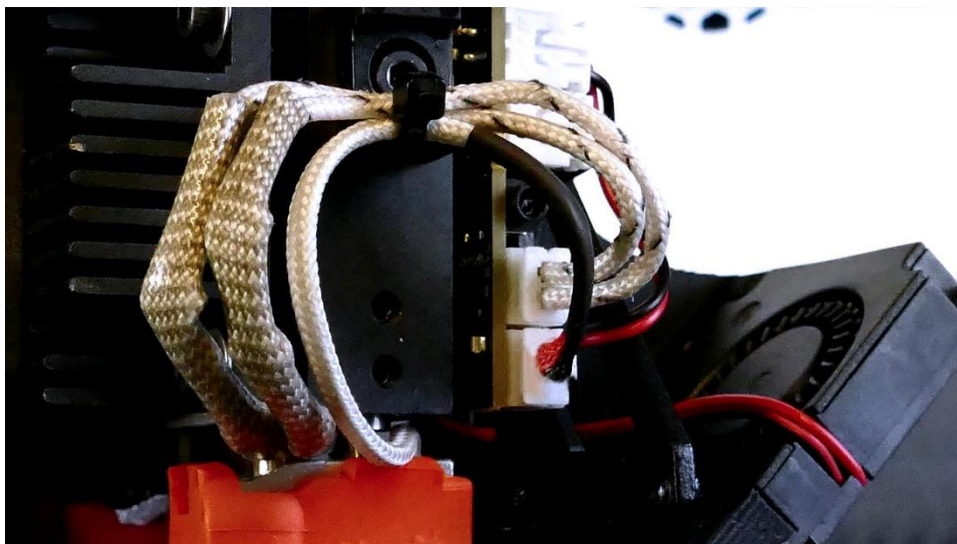
3. Tighten the two pressure screws on the side of the tool to lock the hotend.



4. Plug the connector of the thermocouple (single thin wires) in the lower connector of the electronic board.

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5. Plug the connector of the heater cartridge (double thicker wires) in the upper connector of the electronic board.

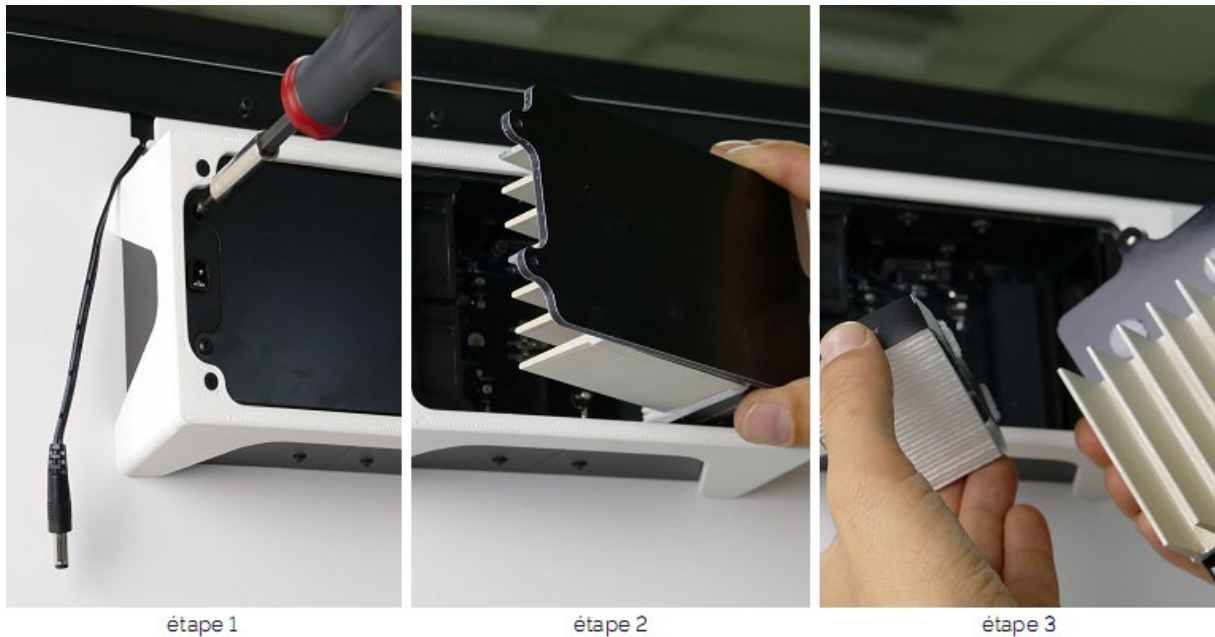


#### d. Change the filter

If you frequently use materials labelled as polluting such as ABS, you are frequently using the included filtration system of your machine. Thus, to keep this system efficient, it is advised to regularly replace the various filters of the system.

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### 1<sup>st</sup> generation filter (black case):



The wear state of the filters is represented by the extinction of the LEDs inside of the machine.

- When the first LED from the top is off, it is advised to replace the HEPA filter, after 1300 hours of printing.
- When the second LED is off, it is advised to replace the HEPA filter once more, after another 1300 hours of printing, hence a total of 2600 hours of printing.
- When the third LED is off, it is necessary to replace the HEPA filter and the photocatalytic filter, after 3900 hours of printing.

Furthermore, it is possible to replace those filters without disassembling the filtration device.

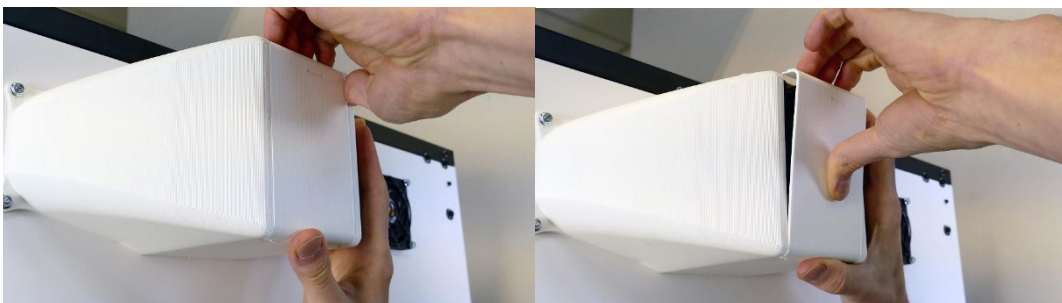
Use a 2mm hexagonal key, unscrew the 3 screws located on the back side of the filtering block, proceed to the appropriate replacement, press the « Reset » button located on the electronic board then tighten the screws to lock the plate.

### 2<sup>nd</sup> generation filter (white case):

After 3 to 6 month of use (depending on the intensity use of the machine), the filter must be replaced.

To do so:

1. Switch off the machine
2. Remove the white hood



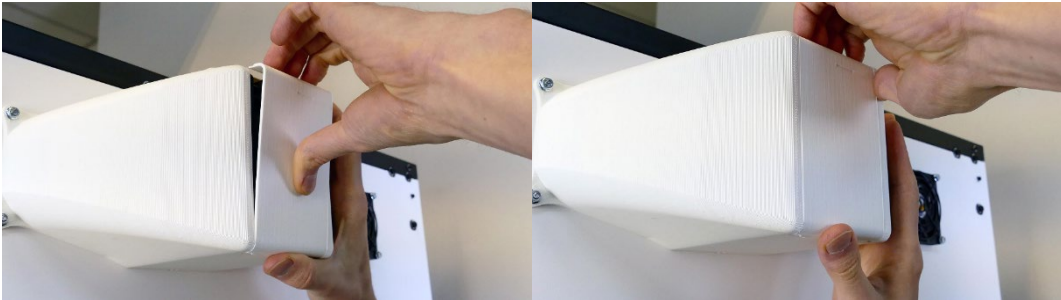


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3. Remove the worn filter



4. Insert a new filter, the white side against the fan
5. Assemble the white hood as shown below:



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e. Software update



The software update of the machine is available from the « Settings » screen (gear wheel) -> “Maintenance” -> “Update”.

To start the update, you have to:

- Get a USB stick with the .st3d update file.
- Plug this USB stick in one of the USB slots of the Strateo3D.
- Select the file from the list of updates.
- Click on the update.
- Restart your Strateo3D, then, leave the update process start.
- Once your Strateo3D is restarted, it is advised to restart it one more time.

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