



VOLUMIC
IMPRIMANTES 3D

USER MANUAL

STREAM MK3/SC2/SH65 SERIES

ORIGINAL INSTRUCTIONS v1.3 – April 2022



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DISCLAIMER

Please carefully read and understand the contents of this installation and user manual. Failure to read this manual may result in personal injury, substandard results, or damage to your equipment. Make sure that anyone who uses the 3D printer knows and understands the contents of the manual in order to take full advantage of your VOLUMIC.

The conditions or methods used in the installation, handling, storage, use or destruction of the device are beyond our control and knowledge. Accordingly, we cannot be held liable for any loss, injury, damage or expense arising out of or in connection with the installation, handling, storage, use or disposal of the product. The information in this document was obtained from sources believed to be reliable. However, the information is provided without any warranty, express or implied, as to its accuracy.

Intended use of VOLUMIC 3D printers

Volumic 3D printers are designed and manufactured for modeling objects by molten wire deposition using technical thermoplastics or not, in a professional environment. Precision, reliability and speed make VOLUMIC 3D printers the ideal machines for printing design models, functional or non-functional prototypes, the production of small to medium series and custom and industrial tooling.

VOLUMIC 3D printers have excellent print quality and have a whole range of different materials to print to meet as many needs as possible. However, the user remains responsible for the qualification and validation of the application of the printed object for its intended use, in particular for applications in fields with strict regulations such as medical devices and aeronautics. It is a free platform in terms of materials, but we still recommend the use of VOLUMIC materials in order to best exploit the capabilities of your 3D printer.

INTRODUCTION

You have just acquired a VOLUMIC 3D printer and we thank you for it.

This manual contains chapters on the installation and use of your VOLUMIC 3D printer. It also contains important information and instructions for safety, installation and use. Please read all information carefully and follow the instructions and guidelines in this manual to ensure high quality prints and avoid possible accidents and injuries.

Make sure anyone using the 3D printer has access to this manual. We do our best to make this manual as accurate and complete as possible. This information is believed to be correct but does not claim to be exhaustive, and should only be used as a guide. If you notice any errors or omissions, please let us know so that we can take action. This will allow us to improve our documentation and our service.

For any questions regarding your 3D printer, you can also visit our website at the following address: <https://support.printer-3d-volumic.com>

You will find the FAQs, drivers, software, utilities and printing profiles essential for the proper functioning of your machine.

You can also reach the after-sales service by e-mail at the address sav@volumic3d.com or by phone at +33(0)9 500 27 400 (non-surcharged number)



TERMS OF USE AND IMPORTANT SAFETY INSTRUCTIONS

General Safety Information

VOLUMIC 3D printers generate high temperatures and have hot moving parts that can cause injury. Never touch the inside of the printer while it is in operation and wear proper protection, such as safety gloves. Always control the printer using the front touch screen and the front STOP button. Allow your 3D printer to cool for at least 5 minutes before touching the interior parts wearing safety gloves.

Do not make any modifications, configuration changes, electrical, electronic or mechanical adjustments unless authorized by the manufacturer.



VOLUMIC 3D printers must be used indoors, in a dry place and away from any liquid or gaseous projection. Be sure to ventilate the room in question as much as possible and do not subject your printer to strong drafts.



The recommended ambient operating temperature is a minimum of 10°C and a maximum of 25°C. Avoid leaving your printer heating up for more than 15 minutes without it printing, especially when a filament is loaded in order to avoid nozzle blockages.



The VOLUMICS have been designed to operate 24 hours a day and can therefore print non-stop without supervision. However, an unforeseen malfunction of the machine or the print can still cause significant damage to the machine and even to the environment. So be sure to put your printer in a suitable place, avoiding as many risks as possible, and provide safety devices adapted to your installation.

Do not deposit anything on your printer outside or inside it, keep it clean and regularly clean all deposits and other waste generated by printing. Do not use alcohol or solvent based cleaners to clean your machine.

Do not cover your printer during operation as this will greatly increase the risk of overheating. If necessary, use only the appropriate Volumic cover and never disconnect the ventilation from it during a print.

During operation, keep the protective door closed and keep children away. Never let children use the 3D printer without strict adult supervision.

For your safety, never insert a limb inside the printer during operation, otherwise serious burns/injury may result. Wait at least 5 minutes after stopping heating of the extruder and/or the printing bed before touching it. Wear safety gloves for all manipulations inside the printer as well as for the printing plate. At the end of a print, wait for the print bed and/or the extruder to cool down to a maximum temperature of 35°C before opening the door and removing the printed object or handling the 3D printer .

VOLUMIC 3D printers are not intended for use by people with reduced mental and/or physical capacities, lack of experience and knowledge, except under supervision or after having received instructions relating to the use of the product. a person responsible for their safety.



Caution: there is a potential risk of mechanical pinching. VOLUMIC 3D printers contain moving parts and systems. During operation, keep your limbs outside of the enclosure as there is a risk of pinching which could cause injury. Always use safety gloves when working inside the printer and make sure the systems are not moving. With or without a cover installed, never access the inside of the machine from above while it is in operation as you risk injuring yourself.



Warning: there is a potential risk of burns, the print head can reach temperatures of up to 400°C depending on the model, and the heating plate up to 150°C. Do not touch these two items with bare hands. Always allow the printer to cool for 30 minutes before carrying out maintenance or modifications. Wear safety gloves for all work on the heating elements.

Health and security

Always unplug the printer before carrying out maintenance or modifications.

VOLUMIC 3D printers are designed to be compatible with the vast majority of materials on the market. Materials are normally safe to print if each manufacturer's recommended temperatures and settings are applied. We still recommend printing all materials in a well ventilated and filtered area if you are not using the filter hood (optional).

In view of the very broad material compatibility of VOLUMIC printers, it is up to you to check the compatibility and the risk of toxic substance releases of the materials used via the safety data sheets and the recommendations of the manufacturer of these materials. For more information, consult the SDS (safety data sheet) of each specific material to know the risks.

Some materials can release VOCs (volatile organic compounds) when printed in VOLUMIC 3D printers. It can cause headaches, fatigue, dizziness, confusion, nausea, malaise, difficulty concentrating and a feeling of intoxication. The use of a filtration hood (optional) is strongly recommended in these cases. For more information, consult the SDS (safety data sheet) of these materials. Other materials may release toxic substances when printed. Consult the manufacturer's literature and recommendations for safe use of these materials.

The installation of the filtration hood (optional) is recommended for printing certain materials that may release harmful substances. We recommend the systematic use of the filtration hood in order to avoid any risk of release of harmful substances depending on the materials used. If you do not use a filtration hood, a ventilation and filtration system suitable for your environment must be installed near the 3D printer. Refer to the manufacturer's recommendations to identify the risks of each material.

Connect your printer to the electrical network with the supplied cable on a suitable socket, without fault or trace of excessive wear, avoiding as much as possible to combine with other sockets. Any disassembly and/or modification of your 3D printer is at your own risk. Any disassembled or modified part (excluding consumables) will no longer be subject to a manufacturer's warranty, except with the express agreement of the latter.

Be sure to remove any object from the bed and in the printer before printing, otherwise it may cause collisions with the extruder, which can totally disrupt your machine, or even damage it.

Place your printer on a sturdy, stable surface. The vibrations emitted by the printer in operation can overcome an unsuitable support and cause the machine to fall, causing serious damage to it and to the environment, injuring people nearby, and greatly increasing fire risks.



GETTING STARTED

UNPACKING:

Gently unpack your VOLUMIC without turning it over, removing the protective foam so that you can take it out of its box using the handles located on the sides of it, and place it on a solid and stable surface that can support weight (more than 40Kg for the MK3 and SC2, more than 70Kg for the SH65).

Allow a minimum space of L70xD55xH75 cm for the dimensions of the MK3/SC, and L100xD70xH90 cm for the SH65.

Remove all tape and interior protective foam blocking the extruder and build plate. Move them manually to make sure that nothing is blocking their movements. These must be completely free and without a hitch, only the resistance of the motors must be felt.

Attention : never start your printer with the bed or the extruder blocked as this could cause damage to your machine.

Make sure that any accessories and/or protection inside your printer have been removed before connecting.

All of our printers are tested before shipment and are backed by a two-year manufacturer's warranty. However, in the event of a return for after-sales service or maintenance, it is important to keep the original packaging and the protective foam of your VOLUMIC in order to ensure its transport in the best possible conditions. The packing procedure for a return in the best conditions is detailed in the chapter "Packing instructions for your printer". A return without original packaging as well as all its protections engages your responsibility, and any damage or breakage during transport cannot be taken under guarantee.

THE START :

Connect your VOLUMIC printer to the mains with the supplied power cord. If you want to use it with a computer, connect it to it with the supplied USB cable. Autonomous mode without connection to a computer is however strongly recommended to keep stable results especially for long prints.

Turn on your VOLUMIC printer using the switch on the rear panel. The printer will be detected and installed (if connected to a computer). After initialization, the display of your printer indicates, among other things, the temperature of the print head (nozzle) and of the heated bed.

The blue backlit front button allows you to stop all commands in progress, whether it is a printing started, a heating instruction, manual movements or any other functions started. It acts as a general STOP. Pressing and holding this button for more than 3 seconds will cause the printer to restart completely.

VOLUMIC 3D printers are equipped with safety devices detecting the opening of the front doors in order to stop the movements of the machine. **WARNING:** This feature is not activated by default, it is up to you to turn it on (via the "MENU->Configuration->Detections->Door protection" to ON, then save) in order to use the machine safely.



WARNING: if activated, detection of the opening of the front doors does not cut off the heating in progress. Always wear safety gloves for any manual intervention inside the printer enclosure to avoid any mechanical pinching or burning by the print head or the heating plate.



We draw your attention to the fact that the bonnet is not equipped with an opening detection system, the same if the bonnet is not present. Never access the inside of the enclosure of the machine from above during operation, as there is a risk of mechanical pinching and/or burns.

VOLUMIC printers are equipped with security features for access to configuration parameters. By default, access to the machine configuration menu is not password protected. We recommend that you register a password as soon as the printer is installed in order to restrict access to advanced settings (via MENU->Configuration->Security).

SOFTWARE TO INSTALL:

Connect the supplied SD card to your computer (using the supplied SD reader if your computer is not equipped with one), if it does not start on its own, open the corresponding reader and double-click on "Setup Stream Series.x.exe", then follow the on-screen instructions. The installation of your printer drivers and software will follow one another, follow the instructions on the screen for each installation.

Caution, for installation on workstations without administration rights, contact your IT administrator.

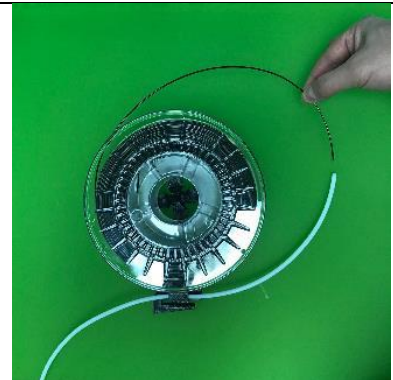
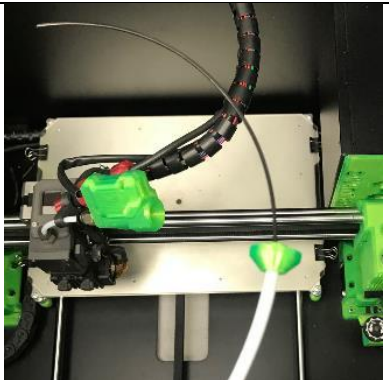
You will also find the installation pack on the website in the "Support -> Software" section, as well as all available documentation and instructions, firmware updates and printing profiles for different software.

<https://support.printer-3d-volumic.com>



MOUNT THE CENTRAL FEED

The VOLUMICs are delivered with a central reel, mount this on the top panel at the rear of the machine, clipping it to the frame. The reel is delivered with a set of guide tubes. This is not mandatory for operation but is strongly recommended to improve the general quality of your prints. To use, insert the short tube into the pilot hole at the bottom of the left bearing of the reel, sticking out to the rear. The long tube forward.

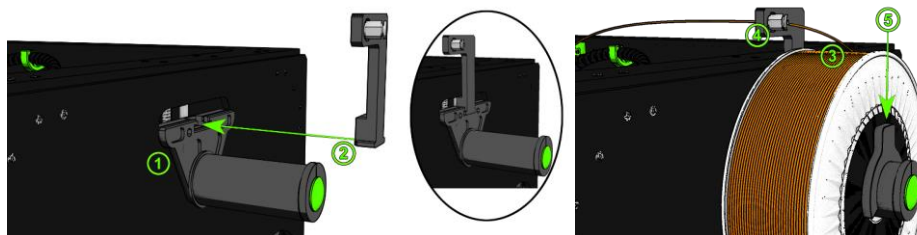
		
The reel and the guide tubes.	The tubes mounted. Insert them fully into the holes to avoid blocking the filament in its path.	The tube runs backwards.
		
Insert the spool unwinding backwards to feed the filament into the short tube.	Run the filament all the way through the tubes. If it blocks at the junction, push the tubes all the way in.	Put the stopper on the outlet of the long tube.
		
The backstop comes against the filament sensor once the filament is loaded.	The complete reel mounted on the printer.	



MOUNT THE SIDE REEL (OPTION)

If you have purchased a side reel or a filter hood that includes this one, proceed as follows:

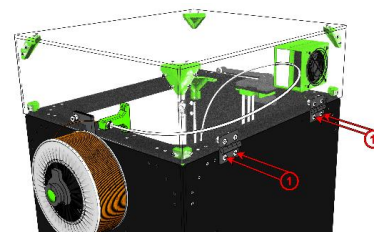
1. Place the reel in the opening of the right handle.
2. Insert the filament guide/reel blocker.
3. Put your spool, output forward for use without cover (backward with cover).
4. Pass your filament through the guide.
5. Insert the spool clamp to prevent the spool from moving.



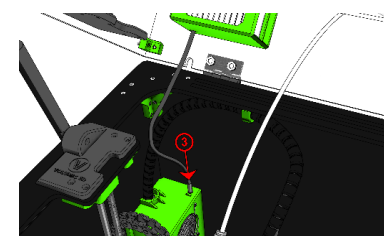
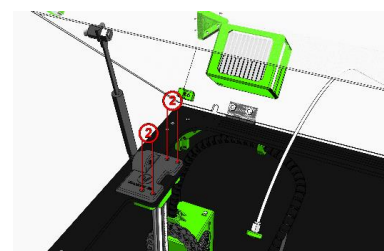
MOUNT THE HOOD (OPTION)

We recommend the systematic use of the filtration hood in order to prevent any risk of rejection of harmful substances depending on the materials used. If no filtration hood is used, be sure to ventilate your environment and install adequate ventilation and filtration systems.

If you have purchased a hood with filtration, proceed as follows.



1. Place the hood on the machine, hinges at the back.
2. Screw the hinges to the frame with the 4 screws provided and a 4mm ALLEN key.
3. **MK3/SC2:** unscrew the 2 screws of the left bearing above the machine with a 2mm ALLEN key.
SH65: Put the right and left cylinder supports in position on the holes of the frame, insert the M3x12 screws provided (2 on each side) and tighten.
4. Put the cylinder support in position and insert the 2 screws provided (longer, M3x20).
5. Screw the support on the left bearing with the 2 screws using a 2mm ALLEN key.
6. Insert the filter unit's power connector into the connector provided on the electronic unit of your VOLUMIC (on the left on MK3/SC2, in the center at the bottom on SH65).



7. Your hood is ready to use!



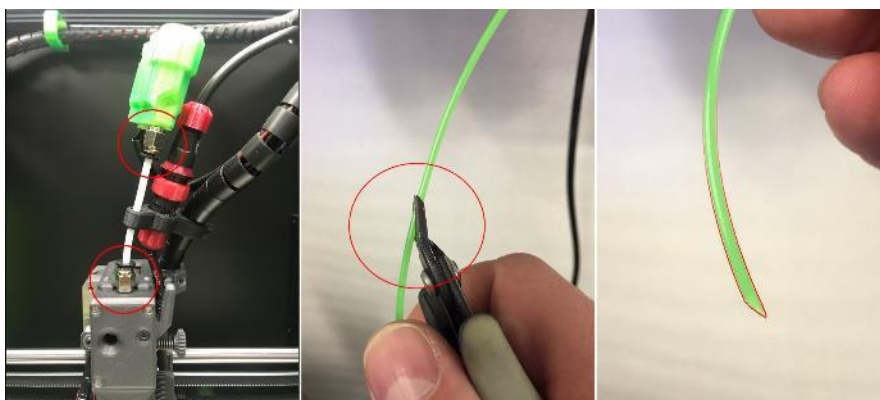
CAUTION: Volumic 3D printers are not designed to work with a cover without air circulation. Make sure that the filtration power supply is always connected. Never leave the machine printing with a cover without filtration connected. If your filtration no longer works or if you don't want to plug it in, leave the cover open. In this case, refer to the recommendations of the manufacturer of the material used to assess the risks of printing it without a filtration system.



LOAD FILAMENT

AUTOMATIC MODE :

Always wear safety gloves for this type of operation to avoid any risk of burns during handling. Insert a filament (cut at an angle) into the detector, the printer beeps when it is detected and starts automatic loading. Push this one up to training so that it gets caught up in it. The heating cycle starts to reach the loading temperature, then the machine will load the filament. If you did not have time to bring the filament to the insertion drive, push it again when the printer beeps or the loading sound and it starts, she will train him then. Once loaded and the drive stopped, stop the heating using the "CANCEL/STOP" button or the button on the front of the printer in order to cool the extruder.



NB: The filament may get stuck at the entrance of the extruder, in this case, hold the tube straight with one hand and push the filament with the other hand. In order to avoid this phenomenon as much as possible, we advise you to always cut the end of your filament on the bias.

MANUAL MODE :

- 1) On the welcome screen, click on "Load filament". As the nozzle heats up to loading temperature, insert a slant cut filament through the designated hole in the filament sensor and push it until it reaches the drive wheel.
- 2) Once the extruder is at temperature, the printer emits 3 successive beeps or a sound and the drive wheel is automatically triggered. While it rotates, push the filament so that it engages in the drive wheel and is loaded into the print nozzle. Towards the end of loading, check that your material is coming out of the nozzle correctly before the wheel stops. Once the procedure is complete, remove the extruded material with precision pliers. If the material has not come out, restart the "Load wire" function.
- 3) **Stop the heating** using the "CANCEL/STOP" button or the button on the front of the printer to cool the extruder.



NB: it is strongly recommended to pass cleaning filament between two prints having a very different printing temperature in order to avoid carbonization which could clog the printing nozzle. For example, when you switch from PLA to ABS, the PLA residues remaining in the print head may carbonize during the printing of ABS, and if these residues come off their walls, they may clog the nozzle. A cleaning filament (which is actually more of a purge filament) will eliminate as much residue as possible in order to avoid this phenomenon as much as possible (see the PURGE ULTRA filament).



Always wear safety gloves for filament loading/unloading operations and all other operations requiring heating of the head or the plate, in order to avoid any risk of burns or cuts during handling.



EJECT THE FILAMENT

- 1) On the welcome screen, click on "Eject filament". Wait for the nozzle to heat up and automatically eject the filament after emitting 3 successive beeps. **Always wear safety gloves for this type of operation to avoid any risk of burns during handling.**
- 2) **Wait** during the ejection procedure. Once the drive wheel has stopped, fully press the filament ejection button to release the pressure and take out your filament with your other hand.



Warning : it is important to release the filament compressor by pressing the ejection button to remove the wire, in order to prevent pieces from remaining in the print head and clogging it. Press the pusher with one hand and carefully remove the filament with the other.

- 3) **Stop the heating** on your printer by pressing the "CANCEL/STOP" button or the button on the front panel.



IMPORTANT GETTING STARTED NOTES



Gen3 heads are fitted as standard with a protective silicone sock to prevent deposits from clumping on the nozzle and the heating block, and to extend the life of these elements. However, this sock **MUST NOT** be used when printing ultra-technical high temperature materials. The **maximum operating temperature of the latter being 300°C**. Please remove this if using temperatures above 300°C otherwise the sock will melt.



The VOLUMIC print heads, and in particular the nozzles and the thermal barriers, are elements subjected to very strong constraints continuously during printing, and can wear out more or less quickly depending on your use. Take into account that these elements are consumables, and must be maintained and/or changed regularly in order to have reliable operation and quality prints. The classic signs of a tired nozzle and/or thermal barrier are recurrent filament blockages during printing. It is generally advisable to acquire a second print head in order to change it quickly in the event of wear detected, and not to immobilize your printer.



The MK3/SC/SH65 build plates use a new magnetic system to hold the ceramic plate in place without the need for clamps or other devices. To remove this, **wear safety gloves**, and use the shoulder on the sides of the board (front for the SH65). Lift it firmly with both hands to unstick the tray. Be careful, the tray will come off suddenly, hold the shoulders well. To put it back in place, position the rear edge of the plate with the angles of the heating platform, holding it by the sides, then go down to stick it. **Always use safety gloves when handling the tray to avoid any injuries or cuts.**

The printing plates are consumables, their surfaces can wear more or less quickly depending on the temperatures and the materials used. A platter degrading too quickly may mean that your calibration (zero point) is too low, generating far too much adhesion with the material, and damaging the surface of the platter as it cools (tearing off material by expansion).



Avoid leaving the first hour of a print unattended. Object detachment due to incorrect nozzle height adjustment often occurs within the 1st hour of printing. Unattended, a loose object can seriously damage your printer by causing multiple collisions. In addition, it will continue to extrude material which may damage the entire extruder and/or the head.

COMPRESSOR ADJUSTMENT

The filament compressor (with the pusher, see image above) is adjustable in pressure force in order to be able to adapt to all kinds of filaments.



The standard setting for classic filaments such as PLA, PETG, ABS etc. is 2 turns. This mark means compressor fully screwed in then unscrewed by 2 turns.

For hoses, for example, it is generally advisable to be adjusted to about seven turns, or even eight (therefore fully tightened, then unscrewed by seven/eight turns). A tighter adjustment on hoses considerably increases the risk of clogging.

Conversely, for very hard loads, it is possible to have to tighten the compressor to 1 turn, or even less.

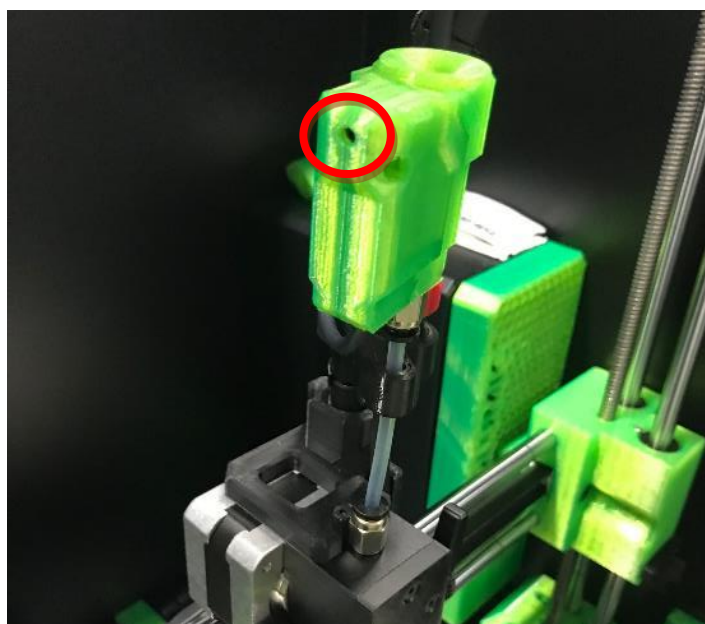


Do not neglect this setting as it can result in filament jams or slippage that will cause your prints to fail.

FILAMENT DETECTOR ADJUSTMENT

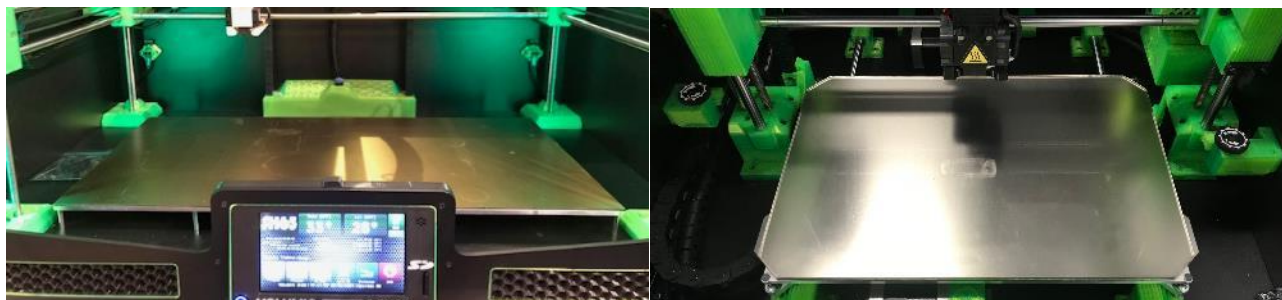
The filament detector is adjustable in sensitivity, which will allow you to adapt it to your needs. Hoses for example can stretch a bit during fast movements, and the sensor can drop below the detection threshold, which will pause your print.

To adjust the sensitivity of the detector, use the adjustment screw on the side (Allen 2.5mm), at the top of it (see photo below). Screwing clockwise will make the detector less sensitive, anti-clockwise will make it more sensitive. The adjustment of the screw is quite sensitive and is done by quarter turns.





TRAY PREPARATION



The VOLUMIC are equipped with a magnetic ceramic hob. **To remove it, wear safety gloves because the edges can be/become quite sharp** and be sure to mount the head a minimum of 50mm from the platter. Grasp the 2 metal tabs on each side of the plate (at the front for the SH65), then gradually pull upwards until it comes off (all at once) and remove it from the machine. To replace it, first place the rear part, aligned with the heating plate, then fold down the front part. **Always handle the tray with safety gloves to avoid any risk of cuts.**

In order to achieve a good print, your plate must be correctly calibrated and coated with the appropriate lacquer or film for your printing material in order to have good adhesion for the printed material, otherwise it will peel off and your print will be missed. . VOLUMIC recommends the use of lacquer for 3D printers such as PrintAfix, 3DLAC or Dimafix. It is strongly recommended to put a layer before each print to avoid any detachment which would cause your print to fail, but could also damage or disrupt the machine.

Adhesive tapes such as "3M 2090" and "Kapton" (or polyimide) can also be used in certain cases (make sure of compatibility with the printed material), but the use of lacquer is much more effective and less constraining. 'use. Some materials will require specific coatings in order to be printed correctly, refer to the advice of the supplier/manufacturer for this.

Be sure to keep a bed in good condition to get the best possible results from your prints. For adhesive tapes, do not hesitate to change them as soon as they have marks, cuts, holes or any other defect that may affect the quality and the printing surface. Avoid touching them as much as possible so as not to make them greasy, which could affect the adhesion of the parts during a print.



Attention :never spray hairspray inside your printer. Spraying it indoors will gradually deposit a layer of lacquer on movement components such as axles and bearings and cause them to age prematurely and your printer in general. Remove the tray and spray it outside of the machine.



Prepare your tray with “3DLAC/DimaFix” type lacquer

Peel off the magnetic ceramic hob by pulling the metal tabs on both sides. Always use safety gloves to handle the tray. Do not shake the hairspray bottle, it will be less effective. Lay the tray flat on a protected surface (such as a newspaper) or hold it up with one hand. Spray the entire surface of the tray from about 20cm away, 1 pass is enough. Put your plate back in place, properly aligned with the heating plate.



3DLAC and DimaFix type lacquers should not be shaken unlike PrintAfix.

Prepare your tray with “PrintAfix” type lacquer

Peel off the magnetic ceramic hob by pulling the metal tabs on both sides. Always use safety gloves to handle the tray. Shake the PrintAfix bottle vigorously for several seconds. If the sprayed lacquer comes out as a liquid, the PrintAfix has not been shaken enough. Lay the tray flat on a protected surface (such as a newspaper) or hold it up with one hand. Spray the entire surface of the tray from about 15cm away, one pass is enough. Put your plate back in place, properly aligned with the heating plate.



The PrintAfix must be shaken vigorously before spraying for 5 to 10 seconds continuously, otherwise it will come out in a liquid state and not in a droplet.

TAKE OFF YOUR OBJECT

Once printing is complete, wait for the bed temperature to drop to 35° minimum. If you use lacquer, it will lose more and more of its adhesion below this temperature, and your object should peel off quite easily if your zero point is perfectly set, or even peel off on its own. Never try to unstick your object inside the printer. Systematically remove the plate and carry out the manipulation outside the machine in order to avoid disturbing the calibration of the machine, or even damaging the linear guides which will make your machine less precise.

Depending on your zero point height setting, the printed part may stick well. If it resists, NEVER FORCE EXCESSIVELY to take off a part, otherwise you risk breaking the glass-ceramic plate and injuring yourself at the same time. Proceed as follows:

- Remove the printer tray.
- Put the tray flat on a stable support, do not hold it in the air.
- Using a spatula, slide on the tray to insert it under the object.
- This should come off completely as soon as the spatula lifts it.

If the object is too difficult to peel off with the spatula, do not force it, otherwise you risk damaging or breaking the object, risking breaking the tray and risking injury. Pass the tray under water, letting a trickle of cold water run at the base of the object for a few minutes and repeat the operation.



PLATE CALIBRATION

VOLUMIC 3D printers are delivered calibrated and ready to use. However, the calibration must be redone once the machine is installed because it generally moves during the successive transport of the printer. It is also useful to check the calibration of the bed and the print head from time to time in order to maintain optimum performance and avoid printing problems (especially during the first layer which is very important for a print of quality and without risk).

A good adjustment is therefore essential for trouble-free and quality printing. On the STREAM MK3 and SC2, the Z axis is driven by 2 motors, and on the SH65 by 4 motors, it is therefore imperative that they are synchronized and calibrated at the same height in order to have an impression perfectly parallel to the plate. Calibration therefore consists of making the axes parallel to the platter, and not just setting a zero point in height.

Principle of calibration

VOLUMIC 3D printers have a semi-automatic calibration which takes place as follows:

- **Phase 1:** adjust the right/left parallelism of the X axis with respect to the plate
- **Stage 2:** adjust the front/rear parallelism of the head in relation to the plate
- **Phase 3:** adjust the zero point of the head (in height) which will be refined later on the first impressions and using the "Z adjustment" function of the first layer.

The most important thing to remember on phases 1 & 2 is that the height itself does not matter here, the important thing is that on the 4 adjustment points, the height is the same, and therefore the feel with the adjustment paper is identical, regardless of the way he touches. A "very light" touch will however be more precise than a "hard" touch because it will allow you to really feel the difference. We therefore advise you to do your phase 1 & 2 calibration by touching the paper as lightly as possible.

Stage 3 as for it (point number 5 in the center of the plate) consists in defining the zero point in height, which will define by the same the adhesion of your material to the plate, and not at all the parallelism like the first 4 points of adjustments. Do not confuse these 2 types of settings which have a very different purpose. Doing a calibration is above all to adjust the parallelism of the axes/head/platter. If you just want to readjust your pitch zero point, you can do it manually at the center of the platter by using the "Home Z" command, without redoing a whole calibration, and by modifying all the wheels in the same way.

Calibration

To **start** complete calibration, go to the printer menu and launch the semi-automatic "Calibration" procedure, then **follow the instructions carefully** displayed on the screen. **Wear safety gloves to avoid any risk of cuts when handling the tray.**

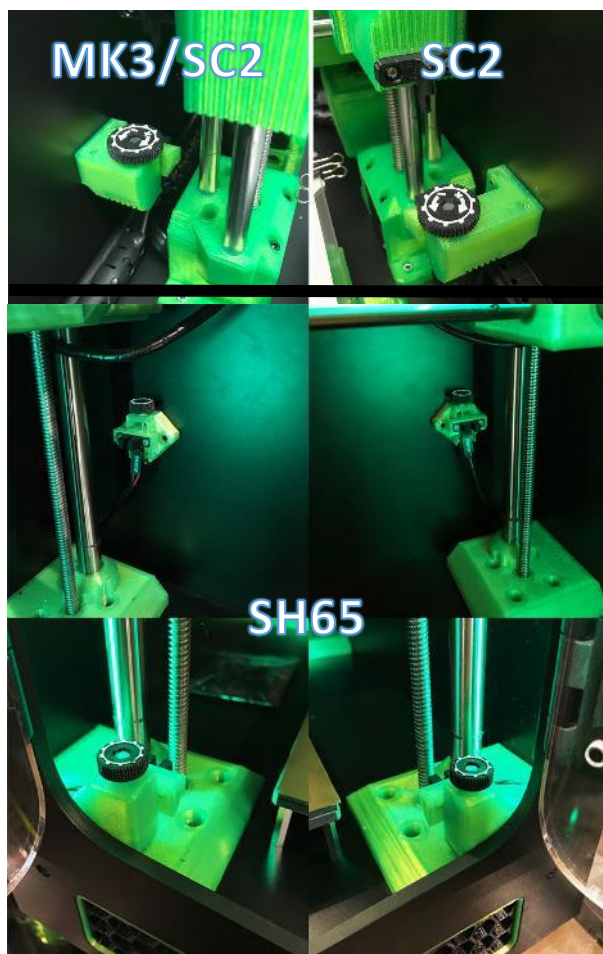
On MK3, the left adjustment is made via the adjustment wheel, and digitally via the screen for the right side (simple optical endstop system). Front/rear settings using the dials on the plate.

On SC2, the left and right adjustment are made via each respective knob (double optical endstop system). Front/rear settings using the dials on the plate.

On SH65, each angle has its own adjustment by autonomous knob (quadruple optical endstop system).

Once this procedure has been completed, the right/left and front/rear parallelism is set and the height adjustment normally has a correct starting point.

If you wish to refine your general zero point after a calibration, simply turn the 2 left and right adjustment knobs in the same way (a knob mark is equivalent to 0.05mm, clockwise to mount the head, anti-clockwise for the descend).



After calibration, you have a basic zero point setting, but that doesn't mean it's perfect. It may be slightly too high or too low as this is up to you during calibration. You may also want to deliberately set it a bit high (in order to reduce adhesion to the bed for very sticky materials for example), or on the contrary set it a little low in order to increase adhesion for difficult materials.

It is therefore important to subsequently refine your general zero point setting according to your needs. Examine the appearance of the first layer when you run the first print. This will show you the status of your adjustment, refer to the table below to assess your general height:

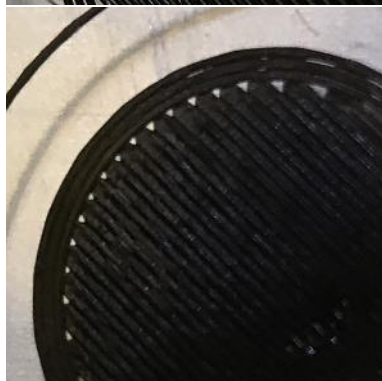


Your zero point is way too high.

The deposited filament does not touch each other and does not form a solid surface.

Result :

- The adhesion will be extremely low and the object has a very high chance of peeling off during printing, endangering the integrity of the machine.
- The surface finish against the bed will be of poor quality in the event that the print succeeds, and warping may appear.



Your zero point is a little too high.

Gaps are visible at the connection of the fill and the outlines.

Result :

- Adhesion will be weaker than normal.
- The surface finish against the plate will be a little less good (the small spaces will be visible as well as the lines of the threads).



Your zero point is perfect.

"Channels" are barely visible and the surface is well filled.

Result :

- Adhesion will be good.
- The surface finish against the board will be very smooth.



Your zero point is a bit too low.

"Channels" are clearly visible and are present to the touch.

Result :

- The adhesion will be very strong.
- The material that forms the channels can be dragged/ripped onto the upper layer(s) and create defects or balls of burnt material.
- The bottom of the object will be deformed (elephant's foot).
- The dimensionality on Z is likely to be greatly impacted.



Your zero point is way too low.

The layer becomes transparent, even invisible. The wire deposited is wide and overflows everywhere, the extruder "jumps".

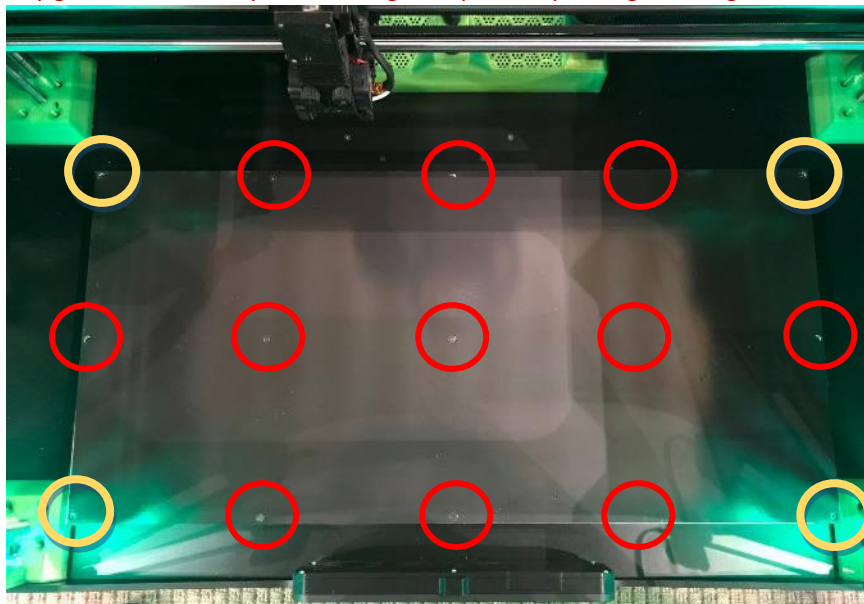
Result :

- The adhesion will be extremely strong (risk of breaking the ceramic hob when you try to remove the object)
- The bottom of the object will be deformed (elephant's foot).
- The dimensionality on Z will not be respected.
- The drive may jump or even slip (impossible to extrusion) and cause the print to fail.



CORRECTION OF PLATTER FLATNESS ON SH65

On the SH65, in view of the dimensions of the printing plate, it can have flatness imperfections more easily. Correction screws are therefore present in various places of it in order to be able to manually correct the flatness. The 4 screws of each angle are fixed and aligned (in yellow below), and all the others can vary up to 1mm below the level of the angle screws in order to compensate for any bumps or deformations (in red below). below). Use a screwdriver or a 2mm Allen key to correct the desired areas. Do not lose sight that these adjustment screws are very sensitive, one turn is equivalent to 0.5mm, so for corrections of the order of a tenth, less than a quarter turn must be made. **Wear safety gloves to avoid any risk of being cut by the tray during handling.**



Z COMPENSATION FUNCTION

In order to correct and refine your setting more easily, the VOLUMICS have a "Z height compensation" function on the first layer. This is accessible from the printer's home screen (during the printing of the first layer only) via the "Adjust Z" button. With this function you can in real time raise or lower the position of the head within a certain limit (apply an offset to it in a way), which allows you to instantly correct the zero point without having to stop, readjust and restart the print. However, this setting is only valid for this print, and this "offset" will be reset to zero at the end of the print.

On the other hand, the correction value that you are going to adjust will give you a good clue to definitively modify your adjustment with the "Trimer" after printing. For example, if you need to add 0.20mm with the Z compensation function (the adjustment Trimer having a modification value of 0.5mm per revolution), you will know to turn the Trimer clockwise (to mount the head) by about a third of a turn in order to have the same final setting.



(*) The logo displayed on the screenshots may vary, but the content remains the same on all models.



PRINTING IN STAND-ALONE MODE (SD card)

Printing in stand-alone mode, i.e. via your printer's internal SD card reader (without connecting to your computer) is recommended.

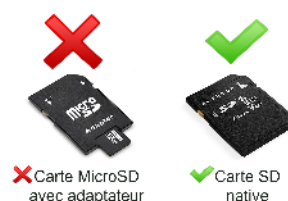


Computers often have a tendency to restart for various reasons and/or cut and suspend USB ports, which leads to a stoppage of printing and loss of work already done (printing cannot be resumed). In order to have a stable and safe printing, we recommend the stand-alone mode by SD card.

We recommend that you prepare your print using your slicing software and save the file (.gcode) on your computer, then copy it to the SD card which will allow you to start printing directly from the screen your printer once the card is inserted into it. (If your computer is not equipped with an SD card reader, use the one supplied with the printer or transfer the file by network if your printer is connected by Ethernet). Plus, standalone mode will give you a lot more information and functionality than printing via USB.



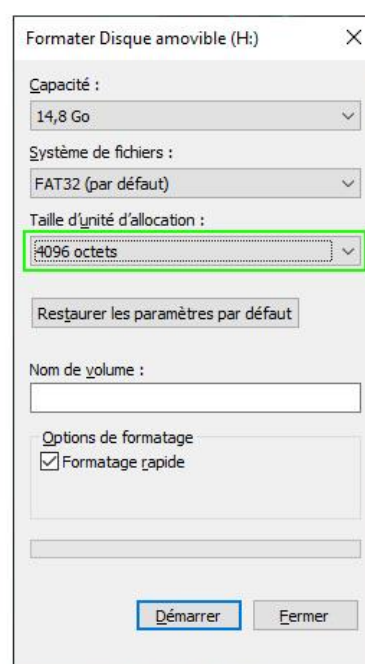
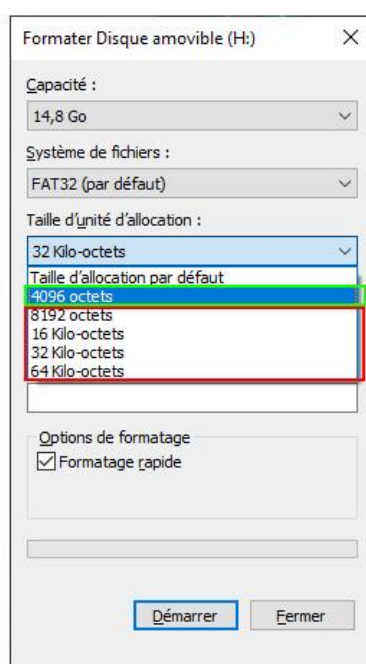
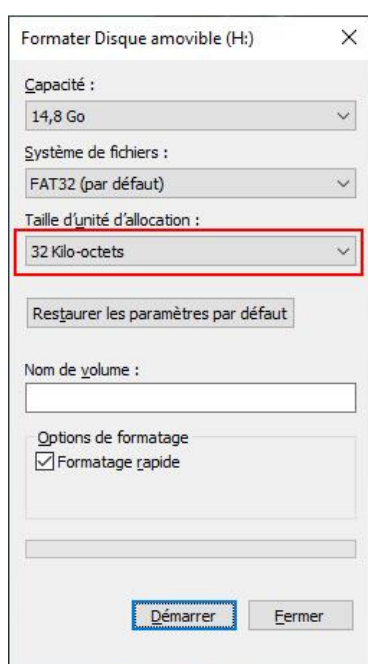
IMPORTANT NOTE: Do not use a MicroSD card with an SD adapter, these adapters tend to make false contacts very quickly and may cause your prints to fail. Only use native SD cards without an adapter.



SD CARD FORMAT

The SD card supplied with your printer is preformatted for proper operation. If you need to reformat it or change the SD card, make sure of the following points:

- The SD card must be a maximum of 32GB, SD or SDHC type, SDXC are not compatible. The ideal format is a 16GB class 10 card.
- The card must be formatted in FAT32 with allocation units (sectors) of 4096 bytes (see photos below). This is very important to maintain good reading stability on the card. If you encounter regular file reading errors during printing, check the format of the card as indicated above, and do not hesitate to change it with a new one.**
- Do not use a MicroSD to SD adapter, these can generate a lot of false contact due to machine vibrations and cause your prints to fail.





ETHERNET SERVER

The STREAM MK3, SC2 and SH65 are also equipped with an Ethernet server in order to be able to take control of the machine via the network. In order to use it, connect your VOLUMIC to your Ethernet network and make sure that it has an activated and configured DHCP server, your VOLUMIC printer is configured in DHCP by default.

Once the cable is connected, go to the printer menu->Configuration->Peripherals and activate the "Ethernet Interface" option. The machine will save the configuration then restart to establish the connection. Once the connection is established, the IP address of the machine will be displayed on the home page. If no IP address is displayed, the connection could not be established. Check your Ethernet cable, connections, and DHCP network configuration.

If you have problems with the machine starting up on the network connection stage, you can turn it off and on again by holding down the button on the front panel, in order to skip the network connection, and be able to check your settings. Once the connection is established, you can connect directly to the printer via its IP address through an Internet browser.

VOLUMIC
3D Printer Webserver
Contrôle machine | Fichiers | Reporting & stats | Paramètres

Controle machine : OK

Buse [OFF] 22°
Lit [OFF] 23°

Régler sur 0° OK

CHARGER FIL EJECT FIL MONTER TÊTE

ANNULER / STOP

VITESSE:100% VENTIL:0% FLUX:100%

Régler sur 100% OK Régler sur 0% OK Régler sur 100% OK

HOME X HOME Y HOME Z

MONTEREZ de 10mm MONTER Z de 25mm MONTER Z de 50mm

EXTRUDER 10mm EXTRUDER 100mm RETRACTER 50mm

ETALONNAGE LIT PID TÊTE PID LIT

Statut :	STREAM30 USC Prête.
Dernier fichier :	Aucun
N° de couche :	-
Hauteur :	0.00mm
Temps passé :	0:00.00
Temps restant :	--:--:--
Filament :	Présent
Protection :	OK
T° chambre :	OK
Anti-OD :	OK

Déconnexion

STREAM30 USC
Firmware v2.6.3

(*) The logo displayed on the screenshots may vary, but the content remains the same on all models.



SIMPLIFY3D ACTIVATION PROCEDURE

In order to use/activate a Simplify3D license, the activation procedure is as follows:

Send an email to info@volumic3d.com containing the email address you wish to use for your Simplify3D license as well as the license number indicated on your license document present in the box of the machine.

Once your request has been processed, you will receive an email (probably in English) from orders@simplify3d.com entitled "Your Simplify3D Software Purchase".

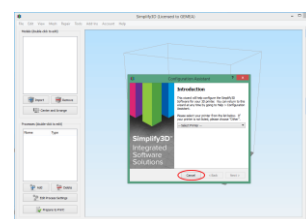
This prompts you to verify your account on the site www.simplify3d.com. Click on the "Verify Account" button and let yourself be guided to create your online account which serves as identification for your license. If you do not receive this email, remember to check your spam folder.

Once your account has been created, You can install the complete Volumic software package available on the SD card delivered with your printer or on the Volumic website in the "Support – Software" section. This pack will install all the supplied software including Simplify3D fully preconfigured for your 3D printer.

MANUAL INSTALLATION OF SIMPLIFY3D AND USE

If you want to install only Simplify3D manually without going through the Volumic installation, follow these steps, otherwise use the installation package provided which will configure your computer automatically (recommended).

- 1) Identify yourself on the site www.simplify3d.com in the "Account" tab with the same identifiers created when registering the license. On your account page, go to the "Download" section via the left menu
- 2) In the "Download" section, choose your operating system and click the "Download Software Installer" button. Save it to the location of your choice.
- 3) Once the software is downloaded, launch the installation of it and let yourself be guided. At the end of the installation, do not launch the software yet.
- 4) Go to the Volumic 3D site in the support section at the following address: <http://www.volumic3d.com/support> and download the print profiles for simplify3D named "Simplify3D Profiles for STREAM v..." corresponding to your model.
- 5) Open the downloaded archive and copy the files to a location of your choice so that you can use them later.
- 6) On Windows PC only, you will find in the archive a file named "VOLUMIC3D Simplify3D configuration.reg" which contains the recommended keyboard and display configuration for Simplify3D. Double-click on it, then accept the confirmation request to write the data to the registry.
- 7) Now launch the Simplify3D software installed earlier. At the first launch, this one will open the configuration wizard. Exit this wizard by clicking the "Cancel/Annuler" button.



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8) Click on the "File/Fichier" menu, then "Import FFF profile/Importer un profil FFF".

9) In the dialog box, go to the location where you saved the files contained in the previously downloaded archive and choose the model corresponding to your printer.

10) A confirmation that the profile has been successfully added will be displayed. Then add a new "Process/Procédé" (i.e. a configuration of print settings) via the "Add/Ajouter" button in the process block at the bottom left.

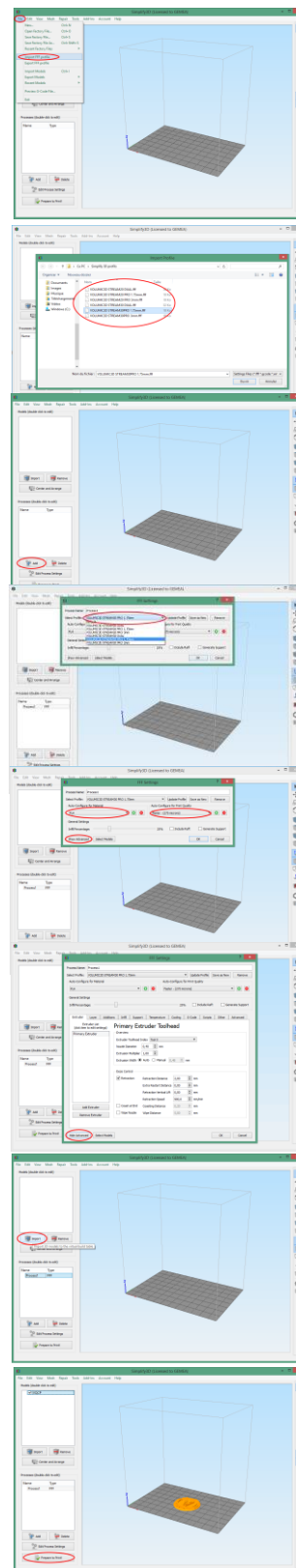
11) The settings configuration dialog will open. Select the profile of your 3D printer from the top drop-down menu. The software is now configured for your 3D printer.

12) You will find in the drop-down menus below the choice of materials, printing qualities as well as the "Show Advanced" button to display all the advanced printing parameters.

13) You can switch back to "Simple" mode with the "Hide advanced" button.

14) You can now import your objects to be printed via the "Import" button in the "Models" block at the top left.

15) Double-click on the "Process" created earlier to modify your print settings, then click on the "Prepare to Print" button to start the conversion.



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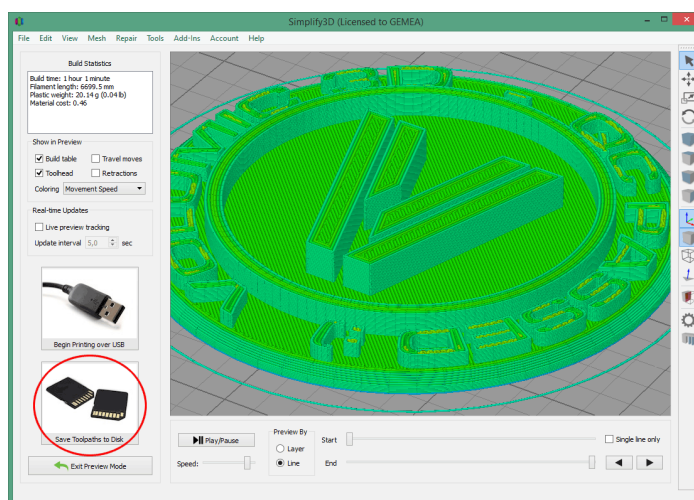


16) When the conversion is complete, the print program will appear.

Save your printing program on your SD card via the "Save ToolPaths to Disk" button.

Eject this via your icon "safely remove device" in order to be sure that your operating system has finished writing all the data.

Remove SD card **without ejecting it may corrupt your files** and will result in prints that do not end or stop in the middle. **This manipulation is therefore very important.**



Note: If parts of the object are missing or the object is not faithful to the original, it is very often due to problems with the meshes on the latter (overlapping or crossed faces, multiple segments, etc.). Correct your 3D model and try again.



IMPORTANT: Avoid using special characters (accents, punctuation marks, etc.) in the name of your file to save it on your SD card. This may in some cases prevent the file from being read on the printer.



NOTE: Always go through the "Safely Remove Hardware" (or Eject) icon to remove your SD card to avoid any loss of data not yet written to your card (backup may be delayed by Windows) which will result in the stop printing while the object is not finished.

INTERNET ACCESS FOR SIMPLIFY3D (Required)

Simplify3D requires an online authentication at each launch to verify your user license. Without Internet access, Simplify3D will not be usable. If your network does not allow Internet access or filters requests, contact your network administrator to authorize the following access from your workstation:

- Domain cloud.simplify3d.com in HTTP and HTTPS (port 80 and 443)
- Domain api.simplify3d.com in HTTP and HTTPS (port 80 and 443)
- Domain wyday.com in HTTP and HTTPS (port 80 and 443)

Queries will be executed **only when the software is launched**, once it is launched, the connection can be cut. No personal data or other data apart from connection identifiers are transmitted.

If you have problems connecting to your account, make sure that these network addresses and ports are accessible from your computer, for example by using tools such as "telnet" or "tracert" on Windows.



PRINTER MENU

VOLUMIC 3D printers are equipped with a color LCD touch screen to allow control and autonomous printing. The touch function allows you to navigate and select/launch the functions to be performed.

HOME SCREEN AND BRANCHES:



content remains the same on all models.

(*) The logo displayed on the screenshots may vary, but the



On the home screen you will find general printer information such as, at the top, the nozzle(s) and bed temperatures, which you can click on to manually change the temperatures. The temperatures indicated in small [in square brackets] are the targets to be reached. The orange color indicates that the heating is in progress, the white stabilization.

You will find at the bottom the system message line as well as the date and time of the system in order to date the impressions in the statistics. The name of the file being printed or of the last file printed is displayed above the main buttons, and you can click on it to relaunch this same file.

Under the MENU icon, you will be able to display or not all the details of the various functions or protections in which you will find information on the printing such as the current number of layers, the current height and the times of impressions, as well as the state of the thermal protections of the machine, of the filament detector, of the endstops and of the network.

The "Filament loading" and "Filament ejection" buttons will allow you to start the heating/loading cycle and automatic filament ejection. The "CANCEL/STOP" button will end any current and future movement or heating, whether during or outside of a print. The "SD card file" button will allow you to access the files on your SD card in order to launch a print, and the "MENU" button to enter the sub-menu containing all the functions of the printer.

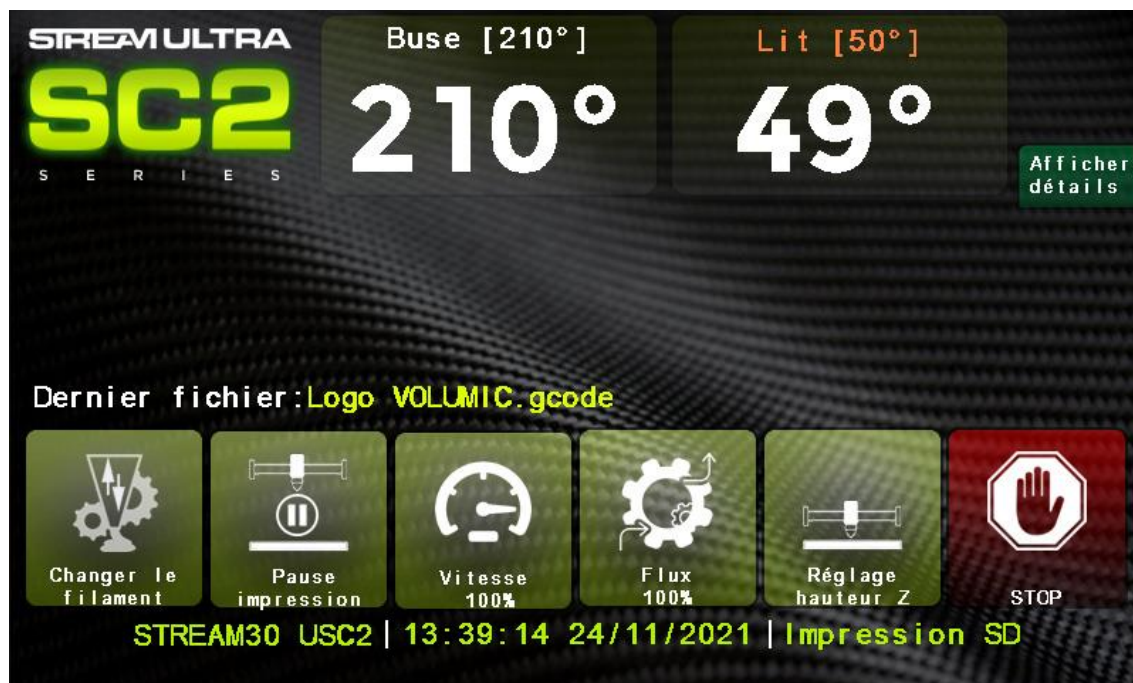
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WELCOME SCREEN DURING SD PRINTING:

During printing, the home screen is noticeably different in terms of the buttons.



(*) The logo displayed on the screenshots may vary, but the content remains the same on all models.

The "Filament loading" button has been replaced by the "Filament change" button, which allows you to change filament during printing to make multi-colors, for example (which can be automated with the M600 command).

The "Filament ejection" button becomes "Pause printing" which allows printing to be paused (the machine must however remain powered on and warmed up. The pause must empty the buffer of instructions already loaded in memory and therefore does not start immediately after pressing the button).

The "HEAD UP" button becomes the print speed multiplier. Handle this parameter with care. Incorrect values will cause your prints to fail.

The "SD CARD" button becomes the material flow setting. Play on this parameter to adjust the flow if the dimensions of your objects are not respected. If for example you get larger objects of 0.1 or 0.2mm, or even more, it probably means that the flux is too high. Lower it in 2% increments.

The "Calibration" button becomes the object ventilation adjustment and "Z adjustment" during the first layer.

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MENU SCREEN:



(*) The logo displayed on the screenshots may vary, but the content remains the same on all models.

“HOME Z”

Launches the resetting of the Z axis origin point. Be careful, make sure you have no object on the board before launching this function to avoid any collisions.

“HOME X/Y”

Launches the resetting of the origin point of the X and Y axes. Caution, make sure you have no object on the board before launching this function to avoid any collisions.

“MOUNT Z 10mm”

Raise the Z axis by 10mm. If the Z axis does not have its origin point defined, you will be prompted to start it or skip this step. Warning: if the origin point (Home Z) is not defined, the machine will not know at what height it is, and can therefore make movements that will create collisions.

“MOUNT Z 50mm”

Mounts the Z axis by 50mm. If the Z axis does not have its origin point defined, you will be prompted to start it or skip this step. Warning: if the origin point (Home Z) is not defined, the machine will not know at what height it is, and can therefore make movements that will create collisions.

“MANUAL MOVEMENTS”

Opens the screen to manually move the axes by selecting different distances. The movements will be executed over the chosen distance without holding down the button. We therefore recommend that you wear safety gloves for all manual movement manipulations in order to avoid any risk of mechanical pinching if you access the interior of the enclosure.

“EXTRUDER 10mm”

Launches a 10mm extrusion of filament. If the head is not hot, this function will ask you to start the heating or to abort (the extrusion is blocked below 165°C for the safety of the extruder. If you want to unblock this limit or change it, see Gcode M302 command).



"EXTRUDER 100mm"

Extrude 100mm of filament. If the head is not hot, this function will ask you to start the heating or to abort (the extrusion is blocked below 165°C for the safety of the extruder. If you want to unblock this limit or change it , refer to the Gcode M302 command and the corresponding parameter screen).

"RETRACT 50mm"

Launches a retraction of 50mm of filament. If the head is not hot, this function will ask you to start the heating or to abort (the extrusion is blocked below 165°C for the safety of the extruder. If you want to unblock this limit or change it , refer to the Gcode M302 command and the corresponding parameter screen).

"HEAD UNBLOCKING"

Starts the automatic printhead unclogging attempt procedure. Use this feature if your printhead is clogged at the thermal barrier due to, for example, a long filament jam that created a clog. Follow the on-screen instructions to complete this one. If this function does not overcome the problem, try to restart this function several times, otherwise a change or disassembly of the head may be necessary.

"FILAMENT RELEASE"

Starts the attempt to automatically unblock the filament in the extruder. Use this function if after ejecting your filament, it does not eject and remains stuck in the extruder. This can happen when a filament sits still in the heating head for a long time, which will tend to "stick" it to the conduit.

"BED CALIBRATION"

Starts the semi-automatic print bed calibration procedure (see calibration chapter). Carefully follow the on-screen instructions to make the calibration as accurate as possible. Bed calibration is extremely important in order to have quality and reliable prints.

"HEATED CALIBRATION"

Initiates the calibration procedure for the printhead and bed heater (PID) process. The PID must be recalculated for any change on the print head, or even for a change of environment, in order to keep the best possible performance of the head and reduce the risk of extrusion blockages. This procedure is fully automatic and no intervention on your part is required. Launch this procedure after any change of component of the head or of the head itself. A head temperature that constantly varies and/or fails to stabilize is a sign of poor PID tuning. Bed warming calibration may be necessary when changing beds or having difficulty stabilizing at a specific temperature.

"FOAM/EMB POSITION"

Initiates the positioning of the head to be placed on the immobilization foam of the original packaging, in order to transport the machine safely.

"SYSTEM INFO"

Find here the statistics of machine operating times and overall filament consumption, as well as version and serial number information.

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"SETUP"

Opens the screen of the various system function configuration pages:



(*) The logo displayed on the screenshots may vary, but the content remains the same on all models.

"Backup"

Stores settings in internal memory and will remain after restart or power failure.

"Factory Settings"

Restores all the default parameters of all the sections as well as the PIDs that will have to be redone (heater calibration). These will be restored to memory but will not be saved. Use the "Save" button to permanently save them in memory.

" OKAY "

Returns to the main menu.



CONFIGURATION – Detections

Settings page for the various detection and automation functions:



(*) The logo displayed on the screenshots may vary, but the content remains the same on all models.

- **Door protection:** Enables/disables door opening detection during a print. If this option is enabled, the machine will pause printing when the door is opened.
- **Front Stop:** Activates/deactivates the STOP function (identical to the STOP button on the screen) on the front button of the machine. If this function is deactivated, the button will systematically restart the machine if pressed. If activated, the front button will stop all current and future actions, and holding it down for more than 3 seconds will restart the machine.
- **AutoStart file:** Activates/deactivates the proposal to launch the last file written on the SD card when inserting it.
- **Venti. Auto hood:** Activates/deactivates the automatic management of the hood fan if one is installed. If the function is disabled, the hood fan will have a fixed speed defined in the "Temperatures" configuration.
- **Double Endstop Z:** Available on SC2 only, activates/deactivates calibration with the 2 right and left endstops/wheels. If disabled, the right wheel will be ignored and calibration on that side will be done via the menu (ULTRA/MK3 mode).



SETUP - Interface

Settings page for the different ergonomic functions:



(*) The logo displayed on the screenshots may vary, but the content remains the same on all models.

- **Calibration help:** Enables/disables the display of recommendations at the start of the bed calibration.
- **Stats. To SD:** Enables/disables the writing of print statistics to the SD card.
- **Sound (beeper):** Enables/disables button notification sounds.
- **5 Point Calibration:** Enables/disables the 5th point in the center of the pan on the bed calibration.



SETUP – Lighting

Settings page for the different ergonomic functions:



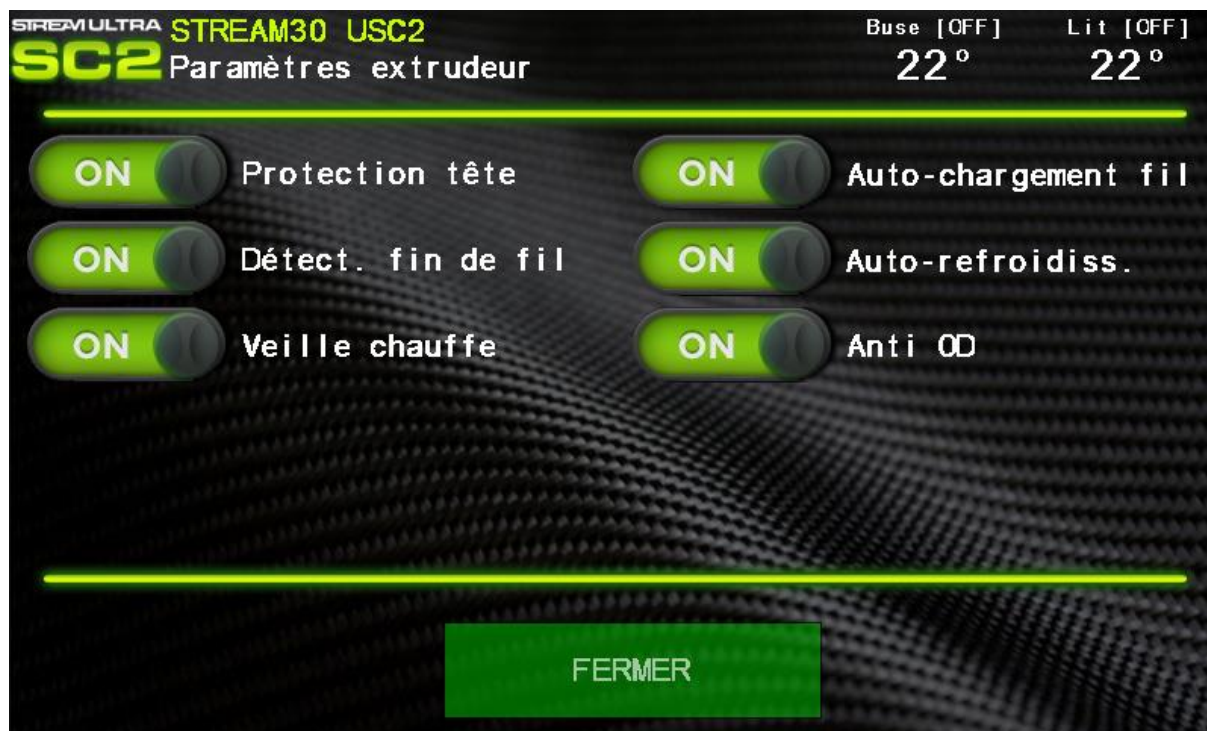
(*) The logo displayed on the screenshots may vary, but the content remains the same on all models.

- **Screensaver:** Enables/disables the screensaver for energy saving and against LCD marking.
- **Light Alerts:** Enable/disable Printer lighting colors change to notify a status.
- **Screen Brightness:** Adjusts the overall screen brightness from 1 to 100%.
- **Screen saver delay:** Sets the screen saver activation time when the machine is idle. The watch goes as follows:
 - At standby time, the screen displays the standby page and the lighting flashes slowly
 - At the x2 delay, the screen displays the moving Volumic logo and completely turns off the lighting
 - At delay x3 the brightness of the LCD screen is divided by 5
 - At delay x4 the brightness of the LCD screen is divided by 9
 - At delay x5 the brightness of the LCD screen is divided by 12
 - At delay x6 the brightness of the LCD screen is divided by 20
- **Idle LED Color:** Sets the color of the illumination when the machine is not printing.
- **Printing LED Color:** Sets the color of the lighting when the machine is printing.
- **Finished Job LED Color:** Sets the color of the light when the machine has finished printing.



SETUP – Extruder

Settings page for the different ergonomic functions:



(*) The logo displayed on the screenshots may vary, but the content remains the same on all models.

- **Head protection:** Activates/deactivates the thermal protection of the head. The limit temperature is calculated according to the current head temperature to detect abnormal overheating of the head, and shut down the system in this case, for example if the extruder fan fails.
- **Detect. Wire end:** Activates/deactivates the end of filament detection of the extruder.
- **Standby heating:** Activates/deactivates the standby function of the extruder temperature in case of long inactivity. The time for this standby is defined in the “temperatures” configuration. Once this delay is reached when the machine is paused or waiting for a filament change, the temperature will be reduced by half. As soon as an action is done, the machine will heat up the extruder before continuing the program.
- **Wire auto-loading:** Activates/deactivates the heating and the automatic loading of the filament when an insertion is detected by the extruder.
- **Self-cooling. :** Enables/disables the accelerated head cooling system by activating the blower when the heater is off.
- **Anti OD. :** Available on SC2 and SH65 only, activates/deactivates the material ball formation detection system on the head in order to avoid major damage in the event of a failed print.



CONFIGURATION - Temperatures

Temperature management settings page:



(*) The logo displayed on the screenshots may vary, but the content remains the same on all models.

- **Nozzle temp compensation:** Sets the number of degrees to automatically add to print program temperatures to compensate for other nozzle types without changing print profiles, for example with a hardened steel nozzle which requires approximately 15-20°C warmer than a copper/nickel nozzle for the same result.
- **Temp. Filament loading:** Defines in °C the automatic loading temperature of the filament. The default value is 220°C.
- **Wire loading speed:** Defines in mm/min (millimeter/minute) the automatic filament loading speed. The default is 130mm per minute.
- **Hood fan speed:** Sets the speed in percentage of the hood fan if installed. If the "Fan. Auto cover" is activated in the "Configuration – Detections" menu, the setting chosen by the machine will be displayed here, any modification will have no effect in this case.
- **Extruder heating standby time:** Sets the delay before the extruder puts the heater on standby when waiting for the user.
- **Minimum extrusion temperature:** Sets the minimum temperature where extrusion will be possible, below this, the extruder will not activate the motor to avoid "cold extrusions".
- **Head PID:** display of the "PID" values of the head calculated by the "Heating calibration -> Head" function.
- **PID reads:** display of the "PID" values of the heated bed calculated by the "Heater calibration -> Bed" function.



CONFIGURATION – Movements

Opens the movement values configuration screen.

Attention: these values should only be modified with real knowledge of the facts. Incorrect values can cause major malfunctions of your printer, and even damage it irreparably.

Here you will find the maximum speed settings for each axis, as well as the acceleration and step settings per millimeter.

CONFIGURATION – Motors

Motor Direction and Enable Signal Parameter Page:



(*) The logo displayed on the screenshots may vary, but the content remains the same on all models.

- **“Axis” direction (E1 being the Extruder):** Defines the direction of movement of an axis. If it goes in the wrong direction (following a change of motor reference for example), invert the corresponding value here.
- **“Axis” activation (E being Extruder):** Defines the motor driver activation signal. This can be useful if you change the type of motor driver.



SETUP – Security

Use this page to set or remove a system password.

If a password is set, this will be requested for all configuration pages. It will also lock the home screen of the machine during a print so that no one can change any settings.



Note the button “Cancel/STOP” however remains active (also on the front panel) for security reasons.

For delete an existing password, go to this page after entering it to open the configuration, delete and leave the field empty then validate.



Remember your password and store it in a safe place. If you lose it, the machine will be blocked and you will have to contact Volumic support for a backup procedure.

STREAM ULTRA

STREAM30 USC2

SC2

Paramètres sécurité

Buse [OFF]

Lit [OFF]

22°

22°

Entrez votre mot de passe administrateur

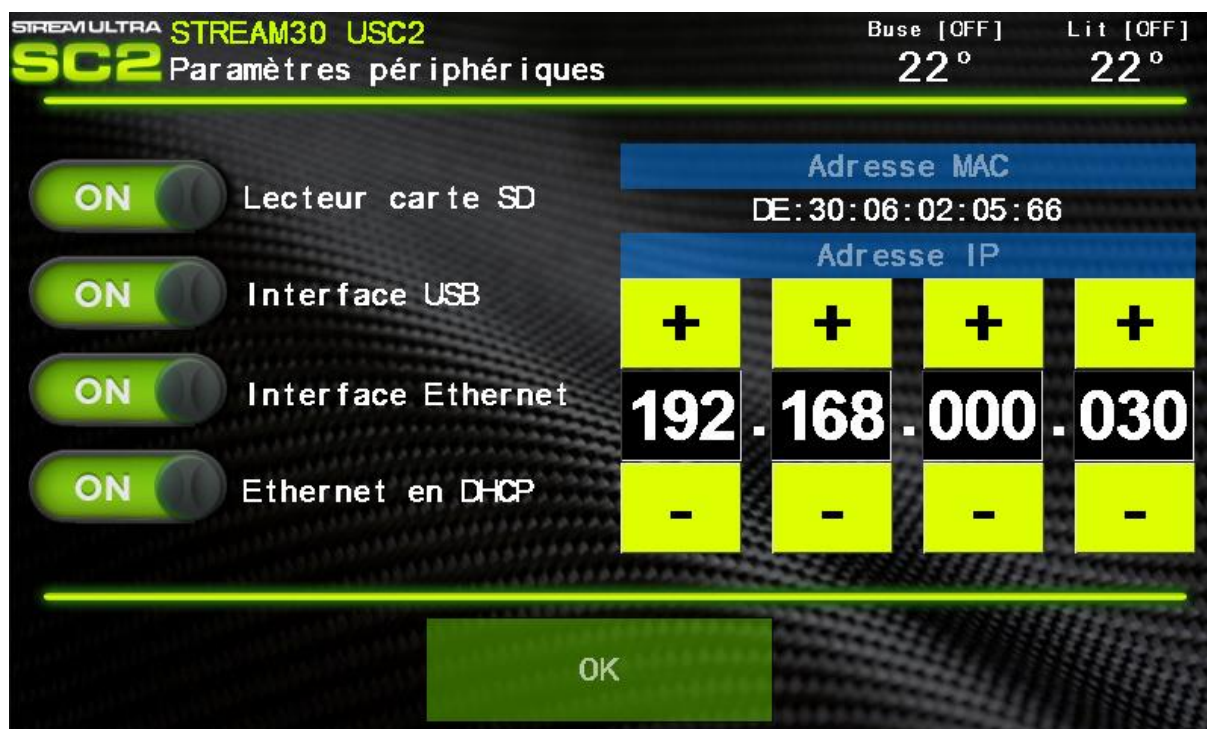
1	2	3	4	5	6	7	8	9	0
A	Z	E	R	T	Y	U	I	O	P
Q	S	D	F	G	H	J	K	L	M
W	X	C	V	B	N	?	_	-	!
Back					Fermer	VALIDER			

(*) The logo displayed on the screenshots may vary, but the content remains the same on all models.



CONFIGURATION – Peripherals

Parameter page for the various input/output peripherals:



(*) The logo displayed on the screenshots may vary, but the content remains the same on all models.

- **SD card reader:** Enables/disables the SD card reader and prohibits printing from an SD card.
- **USB interface:** Enables/disables the USB interface and prohibits USB control.
- **Ethernet interface:** Enables/disables Ethernet interface and web server. By activating this option, the machine will restart to activate and attempt to connect to your network (in DHCP by default).
- **Ethernet in DHCP:** Enables/disables connection in DHCP mode on the network. If you want to put a fixed IP, disable the DHCP here.
- **Mac:** Displays your printer's MAC address.
- **IP:** Displays your printer's IP address. Change here the IP address you want if you connect without DHCP.



ERROR CODES

The error screen has numbers called “error codes” to help diagnose a problem. Below are the existing codes:

10	The extruder overheat protection temperature has been reached and the machine has shut down. This can be caused by the extruder front fan malfunctioning or being blocked by material. Check the ventilation of the head so that it cools properly.
11	The temperature of head 1 has reached its minimum. This may mean that your head is simply unplugged and the temperature detection is no longer done. If your head is plugged in correctly and you still get this error code, the head temperature sensor may be damaged or faulty. Try changing the head to fix the problem.
12	The temperature of head 1 has reached its maximum and the machine has cut off the heating for safety. Try printing with a bit lower temperature to have more leeway.
15	The minimum bed temperature has been reached. This may mean that the bed temperature sensor or wiring is damaged or faulty.
16	The maximum safe bed temperature has been reached. If the problem persists, contact VOLUMIC support (support@volumic3d.com).
17	A heating error on the head has occurred. If the problem persists, try changing the printhead.
18	A heating control error has occurred. If the problem persists, try changing the printhead.
19	A loss of heat has been detected on the head. If the problem persists, try changing the printhead.
20	An error reading or accessing a file on the SD card has occurred. Try changing the SD card or formatting it if the problem persists.
21	Overheating inside the machine. Ventilate the enclosure and if you have a cover, open it to ventilate.
22	Anti-OD overheating detection to protect the head. Check that no material has accumulated around/behind the head.
23	A stopper sensor error has been detected. If the problem persists, contact VOLUMIC support (support@volumic3d.com).
25	An SD card read error has occurred. Try cleaning/blowing the card reader, cleaning the SD card contacts or changing the SD card if the problem persists.

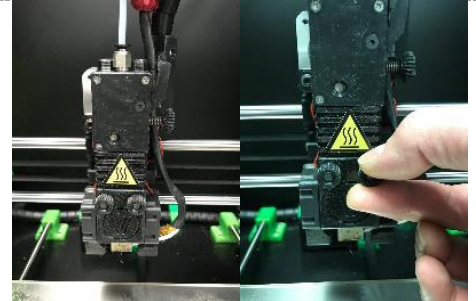


HEAD CHANGE PROCEDURE

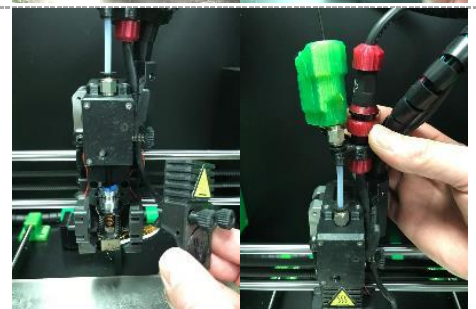


Caution: this operation involves the risk of burns in the event of carelessness or incorrect handling. Wearing safety gloves is recommended for all manipulations of the head or the plate.

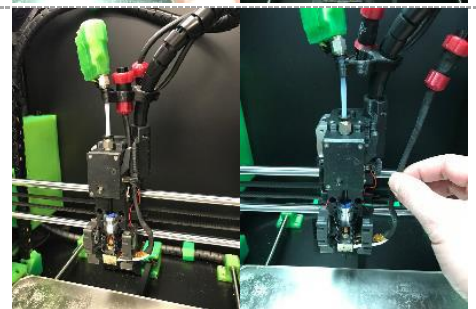
- 1) Unscrew the head cover using its two front knobs.



- 2) Release the head cover and unscrew the head connector.

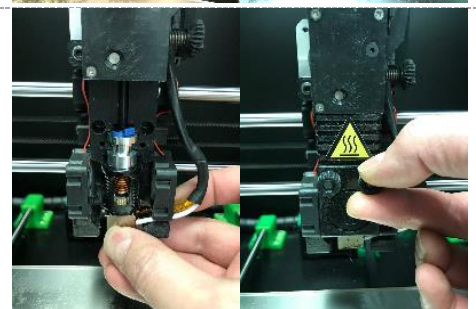


- 3) Remove the head cable from its guides, then remove the head from its housing.



- 4) Put your new head in its housing, the cables coming out from the right, between the cooling duct and the fan, then put the head cover back in place and tighten the 2 knobs fully.

Note: the sock is not mandatory, but will keep your unit/head cleaner over time. However, the sock should never be used above 300°C. Remove it if printing above 290°C.



- 5) Pass the cable from the head through its guides all the way to the top, then retighten the connector fully. Once everything is reassembled, start a calibration of the head heater via MENU->HEATING CALIBRATION->HEAD 1.





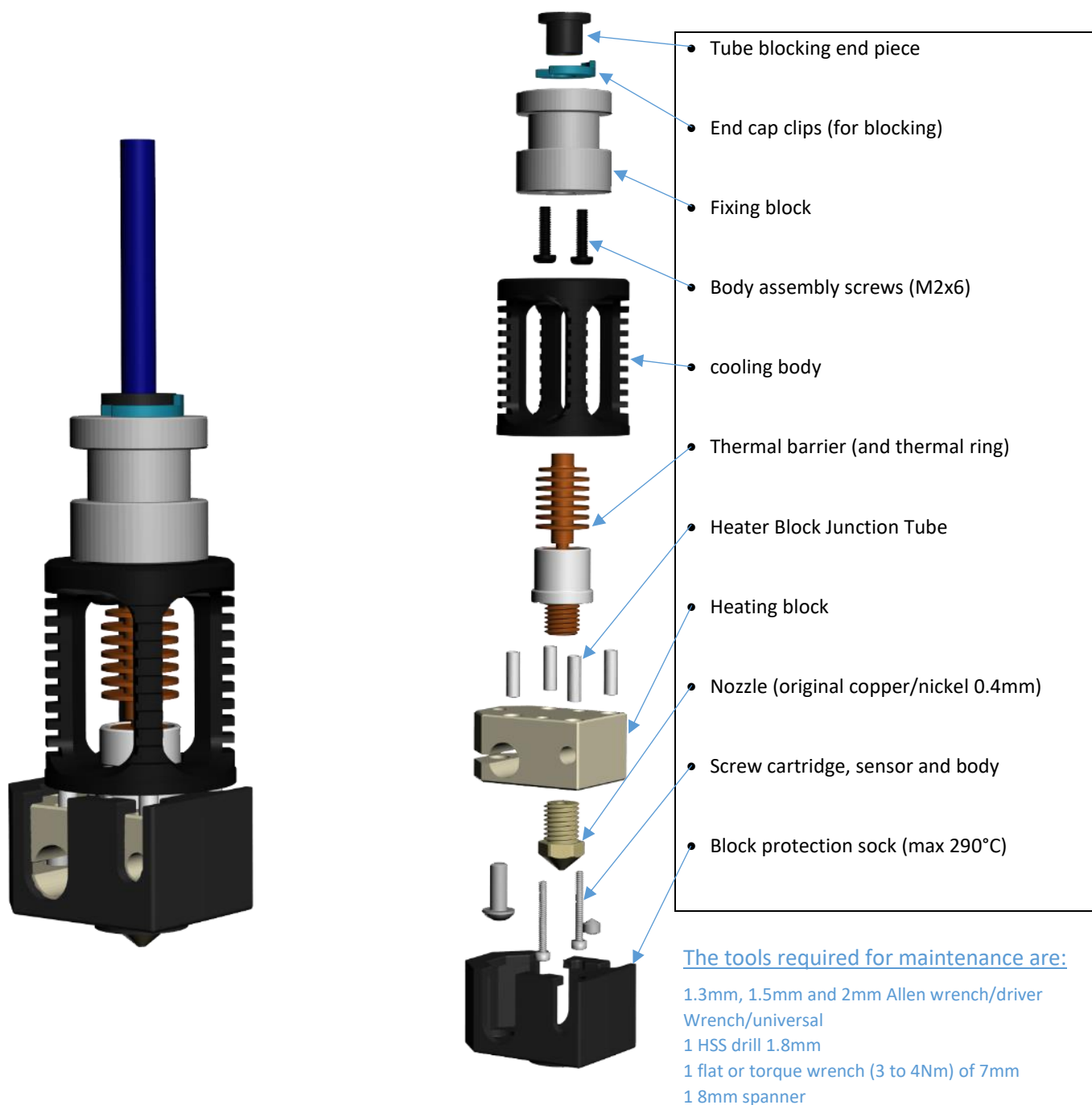
HEAD MAINTENANCE PROCEDURE

You will find below the complete procedure for dismantling and changing the nozzle or other components on an MK3/SC2/SH65 (Gen3) head. Be sure to scrupulously follow all the steps in this manual so as not to compromise the smooth operation and quality of the prints from your Volumic 3D printer.



Caution: this operation involves the risk of burns in the event of carelessness or incorrect handling. Wearing safety gloves is recommended for all manipulations of the head or the plate. The execution of this procedure remains at your own risk, be very careful.

Complete Gen3 head (without cable) Elements and parts of the Gen3 head:

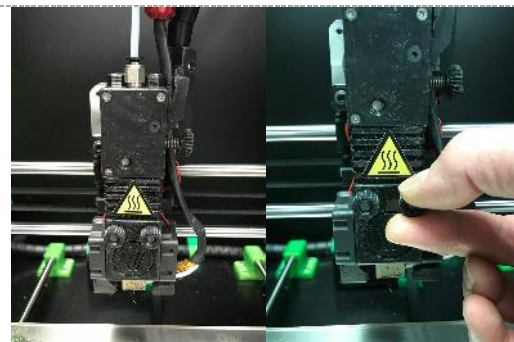




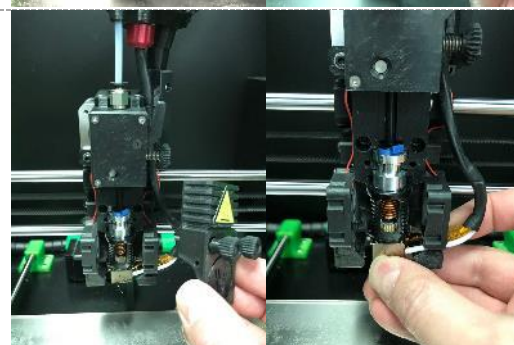
NOZZLE CHANGE

Before disassembling your print head to change the nozzle, it is strongly recommended to purge the head with "Purge ULTRA" in order to avoid carbonization of the material remaining in the ducts during the heating phase for tightening. Do one or two loads of filament with ULTRA purge to remove any residue, eject it and let the head cool. **Wear safety gloves to avoid any risk of burns.**

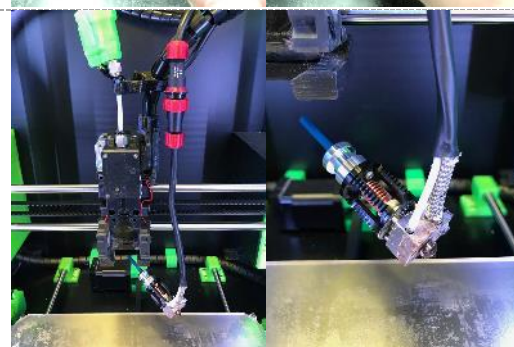
- 1) Unscrew the head cover using its two front knobs.



- 2) Release the head cover and take the head out of its housing.



- 3) If the head has a protective sock, remove it. This is imperative otherwise it will melt. Position the head so that it hangs freely on its cable without touching anything.



- 4) Heat the head via the printer menu to 360°C (290°C on MK3).



Be careful not to touch the heating block henceforth on pain of serious burns.



User Manual

Stream MK3/SC2/SH65 series



- 5) Once at temperature, hold the heating block with an adjustable spanner/power strip on the sides opposite the cable exit. Only hold your head by the heating block. All the other elements are too fragile to withstand the clamping forces.

CAUTION: Do not leave the head in heat once it has reached temperature. Execute the next step without waiting. The head is not cooled, parts may be damaged if you leave it in heat, even for a few minutes.



- 6) Unscrew the nozzle (hot) with a 7mm wrench. Try to carry out steps 5 & 6 as quickly as possible so that the adjustable spanner/multi-socket does not cool the heating body too much. Stop the heating immediately after having completely unscrewed the nozzle so that the whole head does not continue to heat.



- 7) Screw the new nozzle onto the block (Caution, do not touch the head with bare hands, it is still very hot) until contact is made.



- 8) Return the head to 360°C (290°C on MK3).



Be careful not to touch the heater block and the head in general under penalty of serious burns.



- 9) Once at temperature, hold the heating block with a spanner/multi-grip by the sides opposite the cable, and tighten the nozzle using a 7mm spanner (torque if possible). The tightening torque must be between 3 and 4Nm (the force of 2 fingers). Be sure to do this operation as quickly as possible in order to cool the heating block with the keys as much as possible during the operation. The more the tightening is carried out at high temperature, the more effective and tight it will be.

Note: If you reassemble a nozzle that has already been used, it is possible that the material still present in this element will char at this temperature. We advise you to systematically use Purge ULTRA before any disassembly to avoid this kind of inconvenience.

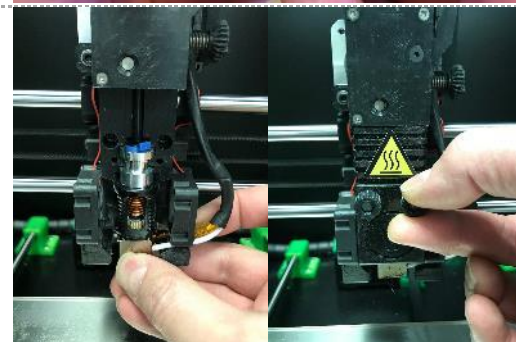




- 10) Turn off the heat and let the head cool. If you have a heater block protective sock, put it back on when you've cooled your head.



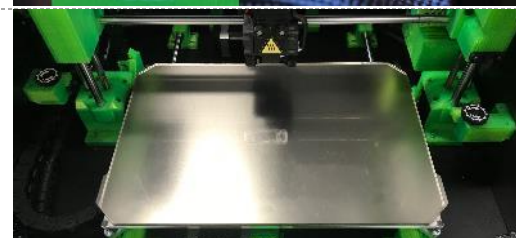
- 11) Put the head back in its housing, the cables coming out from the right, between the cooling duct and the fan, then put the head cover back in place and tighten the 2 knobs fully.



- 12) Once everything is reassembled and tightened, launch a heater calibration from the menu. For any modification on a head or a change of element, this function must be launched before any printing in order to precisely adjust the algorithm (PID) of heating which changes for each component and each head.



- 13) When complete, perform a bed calibration to realign your head to bed as the dimensionality has changed on reassembly.

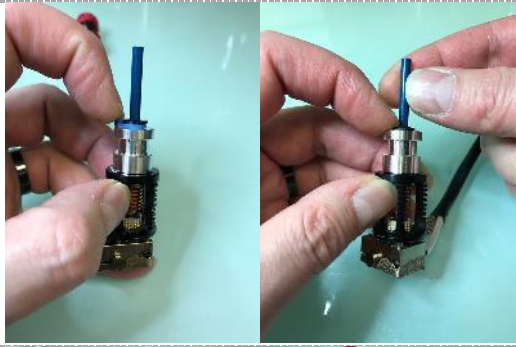
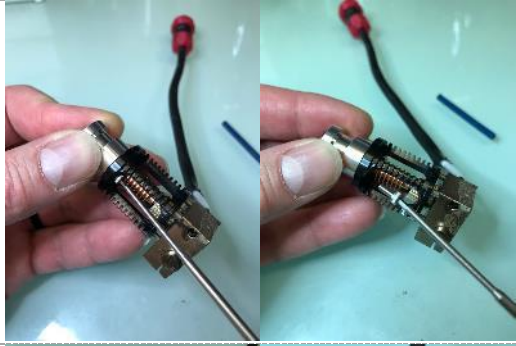
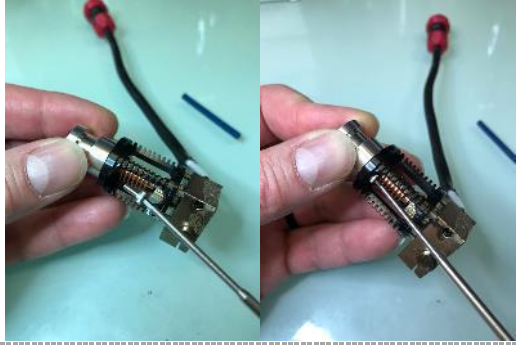


The nozzle change procedure is complete.



REMOVAL OF THE FIXING BLOCK

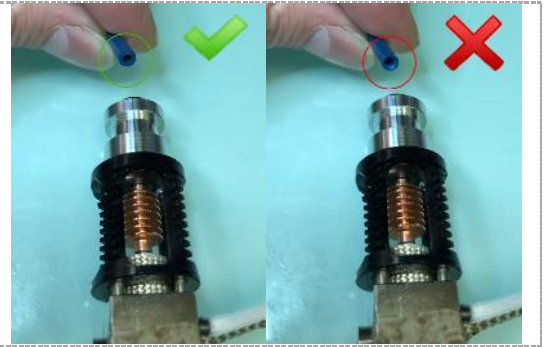
If you have a head that seems clogged, check the junction between the cooling block and the fixing block (where the PTFE tube stops) before completely disassembling it. It is possible that a piece of material is clogged here, and that the head itself is not in question.

1) After disassembling the head, remove the clip from the filament guide tube (Capricorn XS, dark blue) and push the tip in with a finger, at the same time removing the tube from its housing.	
2) Use a 1.5mm Allen key or screwdriver to unscrew the 2 clamping screws of the fixing block.	
3) Once the clamp block is removed, check and clean the filament hole entrance (shown in red in the image) for any obstructions.	
4) If necessary, unclog the duct using a 1.8mm HSS drill (supplied) by hand. Do not use power tools as you may damage the polished copper conduit walls. Never use a drill bit above 1.8mm as this will irreparably damage your thermal barrier.	
5) Once unblocked, reassemble the fixing block with a key or a 1.5mm Allen screwdriver, tightening moderately.	

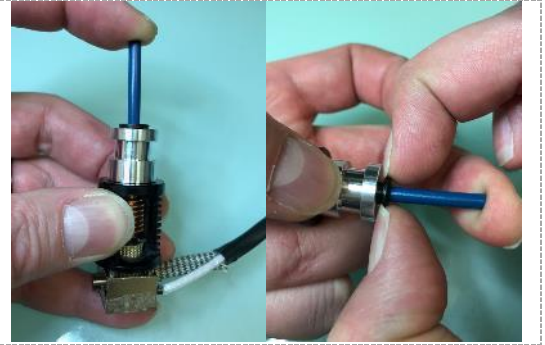


- 6) Put the Capricorn XS PTFE tube back into the mounting block.

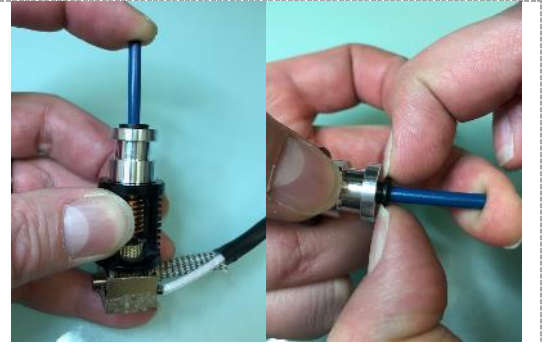
ATTENTION to the direction, the tube must be inserted on the flat side, and not chamfered. The chamfer is on the outside to receive the filament.



- 7) Insert the tube fully, and keeping it well pressed with one finger, raise the locking tip with the other hand.



- 8) Continue to hold the tube with a finger, and insert the locking clip under the tip to completely immobilize the tube. Once reassembled, the tube should have no play.



The binding disassembly procedure is complete.

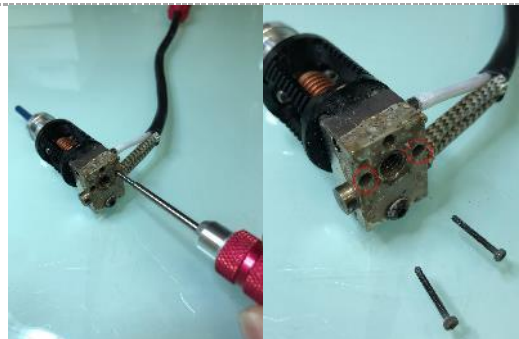


THERMAL BARRIER/COMPONENT DISASSEMBLY

To dismantle the Gen3 thermal barrier (or the other elements), follow the procedure "Changing the nozzle" up to step 6. The nozzle must be dismantled before starting this procedure.

- 1) Once the nozzle has been removed, unscrew the 2 clamping screws of the heating block below it using a wrench or a 1.3mm Allen screwdriver.

Be careful, these screws are very thin (M1.5) and therefore quite fragile. Use tools that are in good condition or risk damaging the head of the screw and making it very difficult to disassemble.



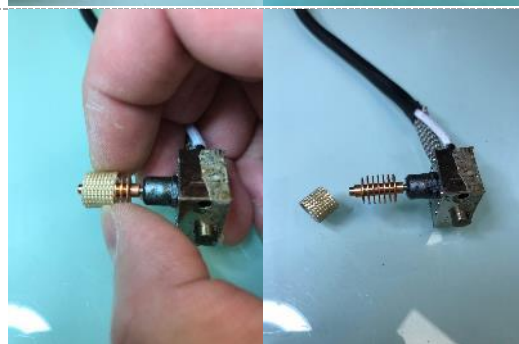
- 2) Gently release the heating block from the cooling body. The small connection tubes can remain on the heating block like here or on the cooling body, it does not matter.



- 3) Remove the 4 small junction tubes by hand, pliers could damage them.



- 4) Remove the thermal protection (fiberglass or ceramic depending on the version) from the barrier. This one can be a little tight but still passes by bringing it up and turning slightly.



- 5) Hold the heating block with a spanner/multi-grip by the sides opposite the cables, and unlock the thermal barrier at its base with an 8mm spanner. Unscrew it completely by hand to remove it.

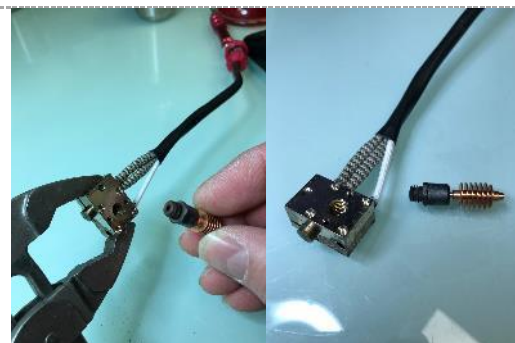


User Manual

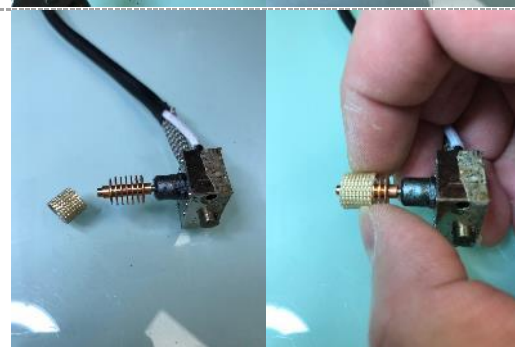
Stream MK3/SC2/SH65 series



- 6) Once the thermal barrier is removed, you can reassemble the new one. Tighten it fully by hand, then tighten without forcing it with the 8mm open-end wrench. It is useless here to tighten hard, the sealing being done between the nozzle and the barrier and not here. In addition, the thermal barrier being made of copper, it is quite soft and will be damaged very quickly if you force too much.



- 7) Raise the heat shield from the barrier to the base of the heater block.



- 8) Insert the 4 junction tubes on the heating block, fully pushed in (by hand).



- 9) Position the heatsink to align the screw holes with those in the heater block (1), then carefully insert the heatsink/thermal barrier into the heatsink until it meets the joints.

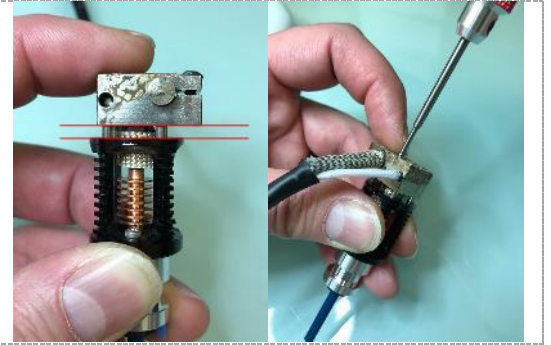


- 10) Position the 4 junctions well in front of the holes of the cooling body and insert them. Be very gentle with this step and make sure to line up the top of the thermal barrier with the hole in the cooling body. If it is not correctly in front, when the screws are tightened, the barrier will be deformed and will be unusable.





- 11) Once everything is correctly positioned and fully inserted, always keep a finger on the heating block so that the assembly does not move. Check that the heater block is well aligned with the cooling body, then insert the 2 M1.5 screws and screw them gradually in turn. Do not completely tighten one screw then the other, this could deform your thermal barrier.



- 12) Tighten the screws barely more than contact (0.5Nm max). No need to tighten hard, you risk damaging the screw heads and threads. You can now reassemble your nozzle, and your Gen3 head is ready.



The thermal barrier change procedure is complete.



USING DIFFERENT TYPES OF NOZZLES

Volumic offers several types of nozzles for different uses and applications. Here are the main types of nozzles offered and their characteristics/differences:

Brass nozzle

The brass nozzle is a very good quality/price compromise for conventional needs but does not withstand high temperatures. Brass has good thermal characteristics and will give quality prints at low temperatures (300°C max). Brass having a low cost and being "soft", the nozzles of this type are easy to machine and therefore inexpensive, but wear relatively quickly in the case of even very little abrasive material. By being used only with non-abrasive materials (eg PLA, PETG, etc.), a brass nozzle will generally have a lifespan of several hundred hours. On the other hand, used with a fiber loaded material, it can become unusable in less than a kilo of printed material. On the Gen3 head range, these are only available in very small sizes (< 0.4mm) because other types are limited.

+ **Thermal performance**

+ **The price**

- **Resistance**

The Copper/Nickel nozzle

The Nickel Plated Copper nozzle is the "Performance" nozzle that comes standard on Gen3 heads. Copper having very good thermal characteristics, it will give very good impressions at any temperature, and will be able to support larger flows of materials. Its hard nickel coating also gives it increased resistance and therefore a much longer life. Its increased resistance will also be able to withstand occasional impressions of lightly loaded materials. The Must of nozzles for unloaded.

+++ **Thermal performance**

++ **Resistance**

- **The price**

The stainless steel nozzle

The stainless steel nozzle can be used for the occasional printing of abrasive materials, but is especially recommended for the printing of "standard" materials and objects, for example for food, medical applications etc... which will require this type of material to have a minimum of "contamination". On the other hand, the materials used for STAINLESS STEEL, including steel, have much worse thermal performance than copper or brass, which will require printing at a higher temperature in order to have the same result. A print with an INOX nozzle whose layers delaminate more easily than normal shows a print temperature that is too low. The delta generally observed is about 10 to 15° more than a Copper/Nickel nozzle.

++ **Resistance**

+ **Use in healthcare/standard sectors**

- **Thermal performance**

The hardened steel nozzle

The hardest of all for continuous printing of charged and abrasive materials. Excellent resistance, but even less good thermal performance than stainless steel, which means pushing printing temperatures, generally 15 to 25° higher.

+++ **Resistance**

-- **Thermal performance**

- **The price**



Different diameters are also available for all types of nozzles in order to adapt to all needs. On the other hand, not all materials support all diameters, and particularly on small nozzles. It should be noted that it is strongly discouraged to use nozzles less than 0.4/0.5mm in diameter for filled materials, the filler fibers will have a strong tendency to systematically clog the nozzle on small diameters. The 0.4mm nozzle fitted as standard is a very good compromise between quality, finesse and printing time. Smaller nozzles will increase print time, but will allow you to print objects with finer walls and details, i.e. your nozzle size defines the smallest printable dot/detail. Large diameter nozzles will speed up prints, but will reduce sharp angles and printable detail. This can also significantly increase the solidity of the objects.

The nozzle diameters offered depending on the type range from 0.1mm to 0.8mm. Visit the Volumic website to find out about the different models offered.

If you change nozzle diameter, you will need to change your slicing settings in your software to match:

- **For Simplify3D**: open your process window, and in the "Extruder" tab (in advanced mode), modify the diameter with the "Nozzle diameter" value to match that of your mounted nozzle.



Remember that in the case of INOX or Steel nozzles, you will have to increase the temperature significantly to obtain good results, otherwise the material will not adhere to the lower layer, or your objects will be fragile and will delaminate easily.

In order to make this easier and avoid modifying all the printing profiles with different temperatures for each type of nozzle, you can use the nozzle temperature compensation function on your Volumic. To do this, go to the printer menu, then to the "CFG. MISCELLANEOUS", then click on "Nozzle temp° compensation". Here you can set the temperature offset, i.e. how many degrees will be systematically added to the temperature provided by the Gcode program.

Example : If you have a hardened steel nozzle, about twenty degrees more are necessary compared to a brass nozzle. You can therefore set the compensation temperature to 20°, which will automatically add this temperature to your printing program. For a 210° print program, the machine will automatically add these 20° and print at 230°.



FIRMWARE UPDATE

New updates are regularly available on the website to fix listed bugs, improve performance and add features to your Volumic 3D printer.

To update your **VOLUMIC**, two firmwares are required, one for the print engine and the other for the graphics engine.

It is therefore very **important that both are updated** otherwise your printer will not be functional. **You will need a Micro-SD card (not included) to update the graphics.**

To perform the update, follow these steps:

Visit the site **SUPPORT VOLUMIC** in the section "**Firmware & Updates**" to the following address : <http://support.printer-3d-volumic.com>.

Download the Firmware update file for your printer model.

WARNING: Be sure to choose the file that corresponds to your machine. A bad file can cause major malfunctions.

The files present in the archive are:

- Engine firmware file (Core): **file extension ".bin"**
- Graphic firmware file (Gfx): **file extension ".tft"**
- Update Utility for Windows: **VoluFlash.exe**
- Update Documentation

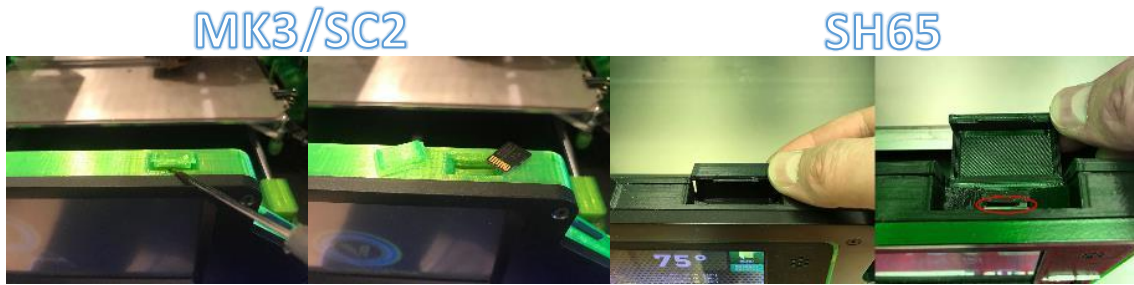
On a PC/Windows operating system (XP to Windows 10+), decompress the downloaded files on the desktop (using Windows or Winzip for example).

Once the files have been decompressed, you are ready to start the update, which takes place in two stages.



1) "GFX" UPDATE:

- A. Copy the graphic screen update file (with the ".tft" extension) onto a Micro-SD card (32GB max), at the root of the card, i.e. at the highest of the tree, not in a folder.
- B. Remove the update Micro-SD reader cap on the top of the screen using a small flat screwdriver and turn off the machine.



- C. Insert the Micro-SD card into the GFX update reader, printed side of the card facing back.
- D. Turn on the machine, the screen will detect the Micro-SD card and start the update. **Note: If the update does not start or a card/file error is displayed, it is possible that the Micro-SD card is not compatible. Try another Micro-SD card, if possible from another brand and not too high capacity.**
- E. Once the update is complete, remove the Micro-SD card, then turn off the machine. Now you need to do the "Core" update.

NOTE: The "GFX" update is also possible directly via the standard print SD card, but is much longer and less stable. If you want to update this way, copy the "GFX" (.tft) file to the SD card, rename it "VS30MK3.tft" for a STREAM MK3, "VS30SC2.tft" for a STREAM SC2 and "SH65.tft" for an SH65. Insert it into the reader, turn off the machine and then turn it back on. The printer will detect the file at the root of the card and offer to install it.



2) CORE UPDATE:

- A.** Connect the printer via USB to a Windows computer (10+ recommended) via the USB-B connector at the back of your printer.
- B.** Make sure you disable any anti-virus or anti-spyware which could block the update. If you encounter problems during the update, it is very likely that protection prevents this.
- C.** Turn on the printer and run the update utility "**VoluFlash.exe**", then click "Next".
- D.** Choose the COM port corresponding to your printer from the drop-down list and click "Next".

Note: the "COM15" port on the illustration below is given as an example, the number of your COM port may vary, choose the one corresponding to your printer)

Note 2: make sure that the chosen port corresponds to your printer, Bluetooth accessories for example also create COM ports and will appear in the list.



- E.** Then choose the downloaded "Core" firmware file (file extension ".bin") and click "Next".

- F.** Click on "Flasher" to start the update. The procedure is completed in one to two minutes and your printer will automatically restart with the new Firmware.

NOTE: If your update fails, make sure any anti-virus or anti-malware (or other monitoring software) is disabled while performing this update. Do not turn off or unplug your printer during the update process.

- G.** When the update is complete, unplug the USB cable from the printer, the update is now complete.





GOOD PRACTICES – TIPS AND TRICKS

Here you will find a list of good practices and tips to follow in order to get the most out of your equipment.

Coils/materials:

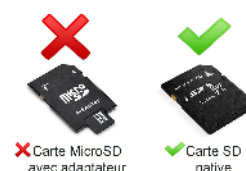
- Store all your coils in the driest place possible, protected from UV rays (in a cupboard for example), if possible in a zip bag, keeping the small bag of anti-humidity salt usually delivered with it inside. A filament that has absorbed moisture will become more and more temperamental in printing, and cause random blockages during the process. The humidity contained in the filament will evaporate by heating gradually in the thermal barrier, which will cause it to swell and “tighten” in the conduit. A material that has received a lot of UV is likely to become more and more brittle, and pose more and more problems when printing.
- Never leave the filament loose. As soon as you eject it, hold it then pass it immediately through one of the holes in a flange of the reel in order to immobilize it. A loose filament risks going over and under the winding and creating knots which will block your printing while using it.
- Consume an open spool quickly to avoid degradation as much as possible and get the best possible results.

Machinery:

- Regularly check the front fans of the extruder. These are vital in order to have quality prints, to see prints at all... Blow them with a can of pressurized air in order to evacuate as much dust as possible which could reduce their effectiveness on the head. Head cooling is the most crucial point of a 3D printer, do not underestimate it.
- Avoid leaving waste material in your printer which could get caught in the linear guides, bearings or belts and reduce the precision of your machine, or even cause breakage or premature wear.
- Perform a bed calibration (more for safety) each time the machine is moved. This one will only take you a few minutes and will ensure reliable and hassle-free printing.
- Never spray adhesion lacquer inside your machine. Take out your glass-ceramic tray and apply your hairspray outside the machine. The lacquers applied inside the machine will cause it to age prematurely, in particular all the bearings and guides, which will result in a loss of quality and precision in your prints.
- Regularly clean the filament drive pulley of your extruder to limit slippage, especially after a blockage, because the drive pulley can become “stuffed” with materials and lose grip.
- Clean your glass-ceramic printing bed regularly, in order to maintain an optimal printed surface on the underside of objects.
- As soon as signs of repetitive blockages or loss of flow begin to appear, consider changing your nozzle and your thermal barrier. We advise you to systematically change these 2 elements simultaneously to avoid redundant problems. Ideally, we strongly advise you to have a complete spare head which will allow you in the event of a problem to change it immediately without immobilizing the machine for maintenance / repair and taking the time to repair the first one. or send it back as a maintenance package.
- If you're having issues with ribs on your prints (either smaller or larger than the model), it's usually due to material shrinkage in a lot of cases. You can initially increase or decrease the material flow to compensate for this. Change the extrusion multiplier in 2% increments to compensate for shrinkage as close as possible (Extrusion multiplier on Simplify3D), without flat surfaces becoming rough (too much flux in this case). You can also change the number of steps per millimeter via the MENU->CONFIGURATION->MOVEMENTS->STEP PER MM X or Y in order to adjust your dimensionality at best.



- If you experience systematic shifts on your prints, it may mean that your belts are too tight. Indeed, a belt that is too tight, especially on the Y axis, will cause this kind of problem. If progressive offsets occur on your print, check that the pulleys of the axis concerned are well aligned and tight so that they cannot slip on the motor axis.
- If when loading your Simplify3D scene (.factory) you get the message "Parsing the XML file failed..." it means that the STL objects that you import into Simplify3D contain special characters (accents, symbols or any other character that is not a single letter or number). Don't use any characters other than numbers and single letters, including in process names, and the problem will go away.
- The impression of the flexible is very different from other materials, because indeed, if too much stress / pressure, the filament will deform very easily and jam in the training. In order to print flex correctly, make sure of the following:
 - Compressor pressure should be very low. Screw the knob of the compressor fully in, then unscrew it 7 to 8 turns.
 - The speed must be adapted to the hose. Be sure to select the speed modes for the hose (Selection on the right of the process), and do not hesitate to lower the speed further if you have jams. Some hoses require going below 15mm/s to print properly.
 - Thoroughly clean the head with PURGE Ultra to remove any residue. The hose will not accept residue from other materials passing through during printing and may clog. Ideally, a head dedicated to the hose remains the most effective. Nozzles below 0.4mm will make printing even more finicky, so it's not recommended for hoses.
 - Add 5-10°C more to the nozzle temperature if you still have too much jam.
 - Do not use PTFE guide (like the one on the cover for example), the hose must be on a central reel with the most direct path to the extruder without any tubes.
- The fact of printing ultra-technical materials at high temperature subjects the machine to very strong constraints. It must therefore be regularly maintained:
 - Retightening of the screws of the bearings and chassis angles to about 1.2Nm fairly regularly (plastics work a lot at high temperatures).
 - Re-tightening the extruder screws (maintains and motor) and the belt locks.
 - Tightening of all motors on the bearings.
 - Lubricate the axles with PTFE liquid oil (high temperatures will cause the oil to dry out much faster).
- On the equipment of the room where you install the printer, use if possible a suitable room respecting the safety rules in force and a fire protection system at least. Regarding the particles rejected, it depends a lot on the materials used. For example, if you only print PLA or PETG, a VMC is not a necessity (it will always be a plus, but printing PLA/PETG 24 hours a day will not generate more than 3 to 4ppb of VOC and less than 400ppm of CO2). On the other hand, materials such as ABS, ASA or ultra-technical materials (PC, PEKK, PEI etc.) will reject many more fine particles and a VMC should be installed.
- Do not use a MicroSD card with an SD adapter, these adapters tend to make bad contacts very quickly and risk causing your prints to fail. Only use native SD cards without an adapter.





MAINTENANCE

Here you will find the checks and maintenance points to perform regularly in order to maintain optimum performance and print quality:

The head

The nozzle and thermal barrier are consumables and are under constant strain and can wear out quite quickly. For example, with an unfilled material such as simple PLA, a nozzle (brass or copper) and its thermal barrier have a lifespan of approximately 600 to 900 hours. With a carbon charge on the same nozzle, less than 50 hours... Hardened steel nozzles are therefore imperative for the charges. It is therefore essential to maintain and change these elements regularly in order to maintain optimum performance. Pay attention to the positioning and tightening of these elements, which must be very precise. Also remember to change the PTFE guide tubes from time to time. Also note that changing the nozzle and the thermal barrier can be done separately, but we highly recommend changing them together to avoid redundant issues. In any case, we advise to acquire a new spare head in order to be able to change it quickly in the event of a problem without immobilizing the machine, and to take the time to repair the other one.

The extruder

For maximum performance and to avoid skidding and jamming, the main points to check regularly are the condition of the drive pulley, that it is still well sharpened, the teeth clean and free of jams. The tightening of the extruder motor screws (and the extruder in general) so that nothing comes loose. The condition of the compressor (no cracks or deformation). Also check the head fans. These must turn perfectly without the slightest cut or micro-cut. A poorly cooled head will certainly cause filament blockages.

belts

Check the tension of the belts from time to time. It is not easy to find the ideal tension for the belts, but here are some elements which will allow you to better refine your adjustments. Excessive belt tension will tend to force the motor, and therefore cause more and more lags during prints. Conversely, a belt that is not tight enough will generate more and more "Ghosting" on your printout, or even distort the circles into ovals. The perfect setting therefore remains a belt that is as tight as possible without creating any shifts.

The mecanic

To keep a maximum quality as well as a very good precision, the screws and bolts are an important point of surveillance. Indeed, in view of the many constant vibrations caused by the prints as well as a fairly hot environment, the materials tend to work and the screws to loosen. Retightening all the machine's bearing screws every 1000 to 2000 hours of printing will help you maintain the best print quality. Retighten all the screws of the Z bearings in particular (on the top and bottom of the machine), the tightening of the motors and the belt pulleys, and if necessary the roller bearings under the heated bed. The ideal tightening torque for all retaining and structural screws being approximately 1 to 1.2Nm.



The material

When an open spool is not used, the filament gradually picks up moisture and can become increasingly difficult to print within a few weeks. Many materials are also quite sensitive to UV rays which will make them more and more brittle and problematic. The most common symptoms: under-extrusions, thread breakage and untimely clogging. The print quality will also suffer (rougher surface, bubbles...). Store your reels away from light, in a rather dry, cool place (-25°C) and in a closed bag with anti-humidity tablets. Monitoring the humidity level may be necessary depending on your environment, but in any case, an open coil must be consumed as soon as possible to reduce the risk of problems.

Cleaning

Regularly clean your machines and remove any waste that may accumulate inside. These are quite dangerous for the belts and bearings if they were to get caught in them. Also blow the inlets of the fans to evacuate the accumulated dust (motors, electronic box, power supply), and of course, clean / blow regularly the drive of the extruder to prevent it from accumulating too much dust and waste which will reduce the grip on the filament. Never spray lacquer inside the machine, it will stick in particular to the axes and will quickly deteriorate the ball bearings of the linear movements, and clog the cooling fans which will do their job less and less.

Lubrication

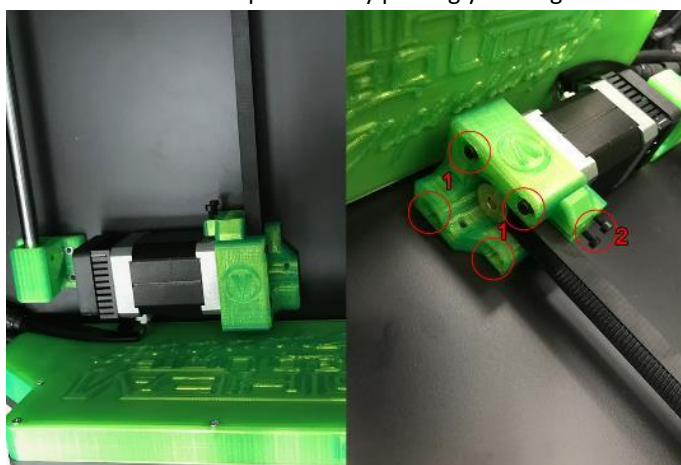
Lubricating the pins and bushings is advisable from time to time when you feel the pins become a little "dry" to the touch. Grease the axles along their entire lengths, spreading the grease over the entire surface, then move the axle in question several times so that the ball bearings collect grease and become lubricated inside. Use PTFE liquid grease and avoid standard mechanical grease which will tend to dry out and become sticky, which will decrease the performance of your machine and may even cause malfunctions.

BELT TENSION ADJUSTMENT

Warning: a belt that is too tight can lead to offsets on the axis in question during printing, premature wear of the belt and of the ball bearings. If you regularly experience lags in printing, loosen the belt of the axis concerned little by little to see if the problem persists.

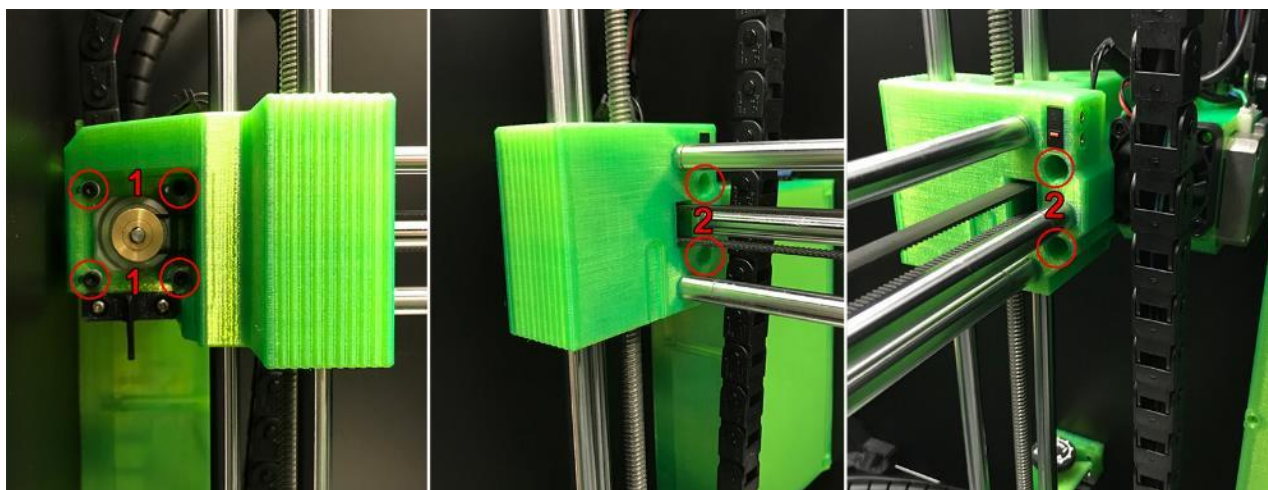
MK3 and SC2: Adjusting the tension of the Y-belt (platter)

Adjusting the tension of the Y-belt of the platen is done via two tension screws located behind the front Y-motor of your printer (see photo below). Loosen the 4 side screws of the front Y motor (1) using a 2.5mm Allen key (just 2 turns are enough), then screw in to tighten or unscrew to loosen the adjustment screws behind the motor (2). Once the correct tension has been obtained, firmly tighten the 4 side screws of the motor (1). A correctly tensioned belt must be quite rigid, but must still be able to be "pressed" by putting your finger on it.



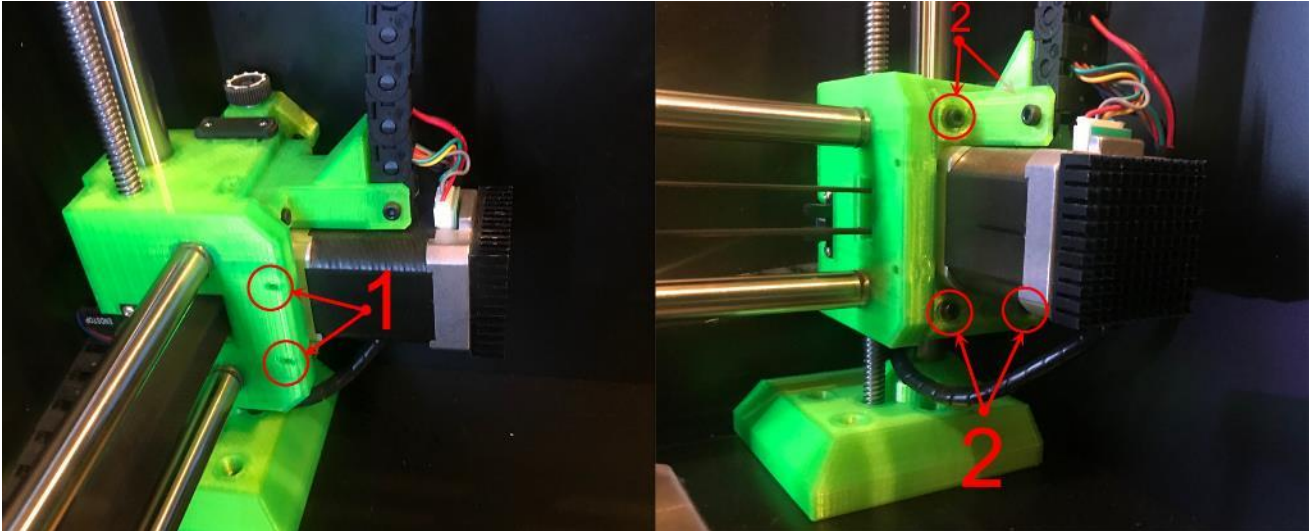
MK3 and SC2: Adjusting the tension of the X-belt (extruder)

Adjusting the tension of the X (extruder) belt is done via the X motor located on the left bearing of the X block. Loosen the 4 screws of the motor (1) using a 2.5mm Allen key, just 1 or 2 turns is enough, then tighten the belt by screwing or loosen it by unscrewing the tension screws at the rear of the motor bearing (2). Once the correct tension has been reached, retighten the 4 motor screws (1).



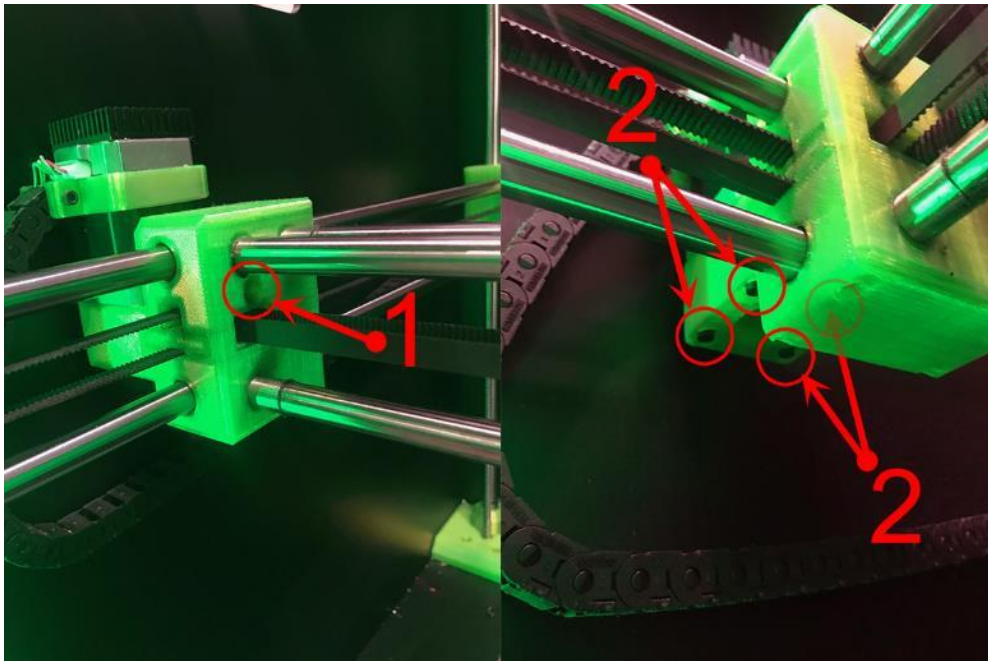
SH65: Y-belt tension adjustment (depth):

The adjustment of the tension of the Y belts is done via two tension screws on each side, located at the base in front of the Y motor on each respective side (1). Loosen the 4 screws of the Y motor support (2) to be adjusted using a 2.5mm Allen key (just 2 turns are enough), then screw to tighten or unscrew to loosen the adjustment screws in front of the motor (1). Once the correct tension has been obtained, firmly tighten the 4 motor support screws (2).



SH65: Belt tension adjustment X (width):

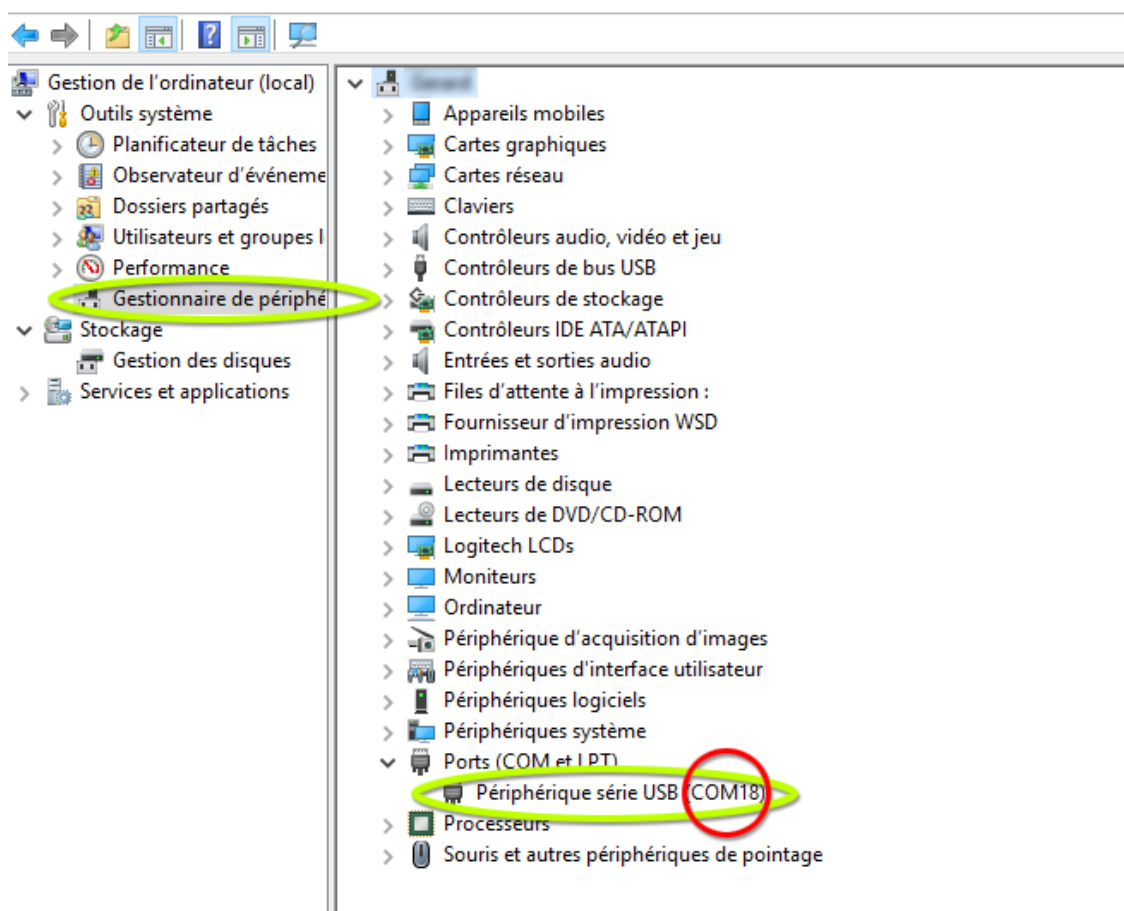
Adjustment of the X-belt tension is done via the X-motor located on the left bearing. Loosen the 4 screws of the motor below (2) using a 2.5mm Allen key, just 1 or 2 turns is enough, then tension the belt by screwing (or loosening by unscrewing) the tension screw on the right side of the motor bearing (1). Once the correct tension has been reached, tighten the 4 motor screws (2).





COM PORT SETUP

- 1) In order to be able to use your VOLUMIC printer with a computer if it is not detected automatically, you must identify the COM port on which the system has installed it. To do this, after connecting your printer via USB and turning it on, right-click on the "My Computer" or "Computer" icon, then choose "Manage" and click on the "Manager" branch. You can also press the WINDOWS+R key, and in the Run box, type the instruction "mmc devmgmt.msc" to open Device Manager.
- 2) In Device Manager, look for the "Ports (COM and LPT)" branch. As you unfold it, look for the line labeled "USB Serial Device (COMx)". At the end of the line is indicated the COM port on which your printer was installed (COM followed by a number).
- 3) Remember this port or write it down in order to configure it later in the printing software (the number indicated on the screenshot below is not necessarily the same on your installation).



- 4) Now launch the relevant printer software that needs to be configured and enter the COM port configuration you found in the steps above.



PRINTER SETTINGS

VOLUMIC 3D printers are compatible with almost all 3D printing software.

Below you will find the basic settings to connect your machine to the software of your choice if the software offered by Volumic does not suit you and you want to use other ones.

MK3 machine parameters:

- Connection: COM PORT (serial)
- COM port speed: 250000 baud
- Direction of origin X, Y and Z: Minimum
- Print area width: 300mm
- Print area depth: 200mm
- Print area height: 310mm
- Number of extruder: 1
- Original nozzle size: 0.4mm
- Filament size: 1.75mm
- Maximum layer thickness nozzle 0.4mm: 0.3mm
- Minimum layer thickness nozzle 0.4mm: 0.01mm
- Maximum heating bed temperature: 100°C
- Maximum print nozzle temperature: 300°C

SC2 machine parameters:

- Connection: COM PORT (serial)
- COM port speed: 250000 baud
- Direction of origin X, Y and Z: Minimum
- Print area width: 300mm
- Print area depth: 200mm
- Print area height: 310mm
- Number of extruder: 1
- Original nozzle size: 0.4mm
- Filament size: 1.75mm
- Maximum layer thickness nozzle 0.4mm: 0.3mm
- Minimum layer thickness nozzle 0.4mm: 0.01mm
- Maximum heating bed temperature: 150°C
- Maximum print nozzle temperature: 420°C

SH65 machine parameters:

- Connection: COM PORT (serial)
- COM port speed: 250000 baud
- Direction of origin X, Y and Z: Minimum
- Print area width: 650mm
- Print area depth: 300mm
- Print area height: 300mm
- Number of extruder: 1
- Original nozzle size: 0.4mm
- Filament size: 1.75mm
- Maximum layer thickness nozzle 0.4mm: 0.3mm
- Minimum layer thickness nozzle 0.4mm: 0.01mm
- Maximum heating bed temperature: 150°C
- Maximum print nozzle temperature: 420°C



Technical characteristics MK3:

- Power supply: 100-240V, 12A-6A, 47-63Hz
- Idle power consumption: <20W
- Power consumption in printing: <550W
- Dimensions: L54cm H50cm D48cm
- Weight: 31Kg
- Airborne noise generally noted (without cover): about 70db

Technical characteristics SC2:

- Power supply: 100-240V, 12A-6A, 47-63Hz
- Idle power consumption: <20W
- Power consumption in printing: <700W
- Dimensions: L54cm H50cm D48cm
- Weight: 32Kg
- Airborne noise generally observed (without cover): about 72db

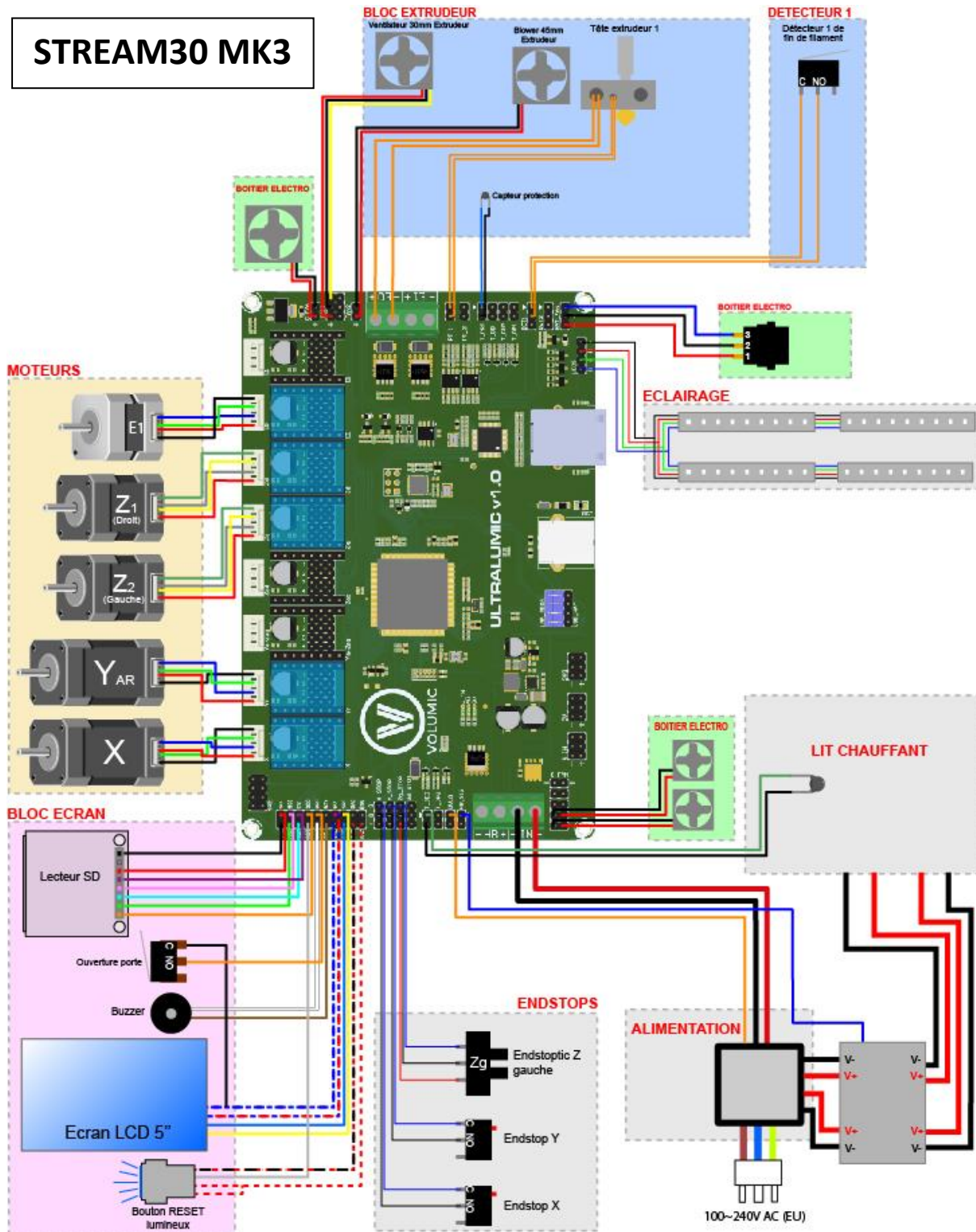
Technical characteristics SH65:

- Power supply: 100-240V, 12.8A-7.8A, 47-63Hz
- Idle power consumption: <25W
- Power consumption in printing: <=950W
- Dimension: L90cm H56cm D55cm – With central reel: L90cm H90cm D55cm
- Weight: 64Kg
- Airborne noise generally observed (without cover): about 72db



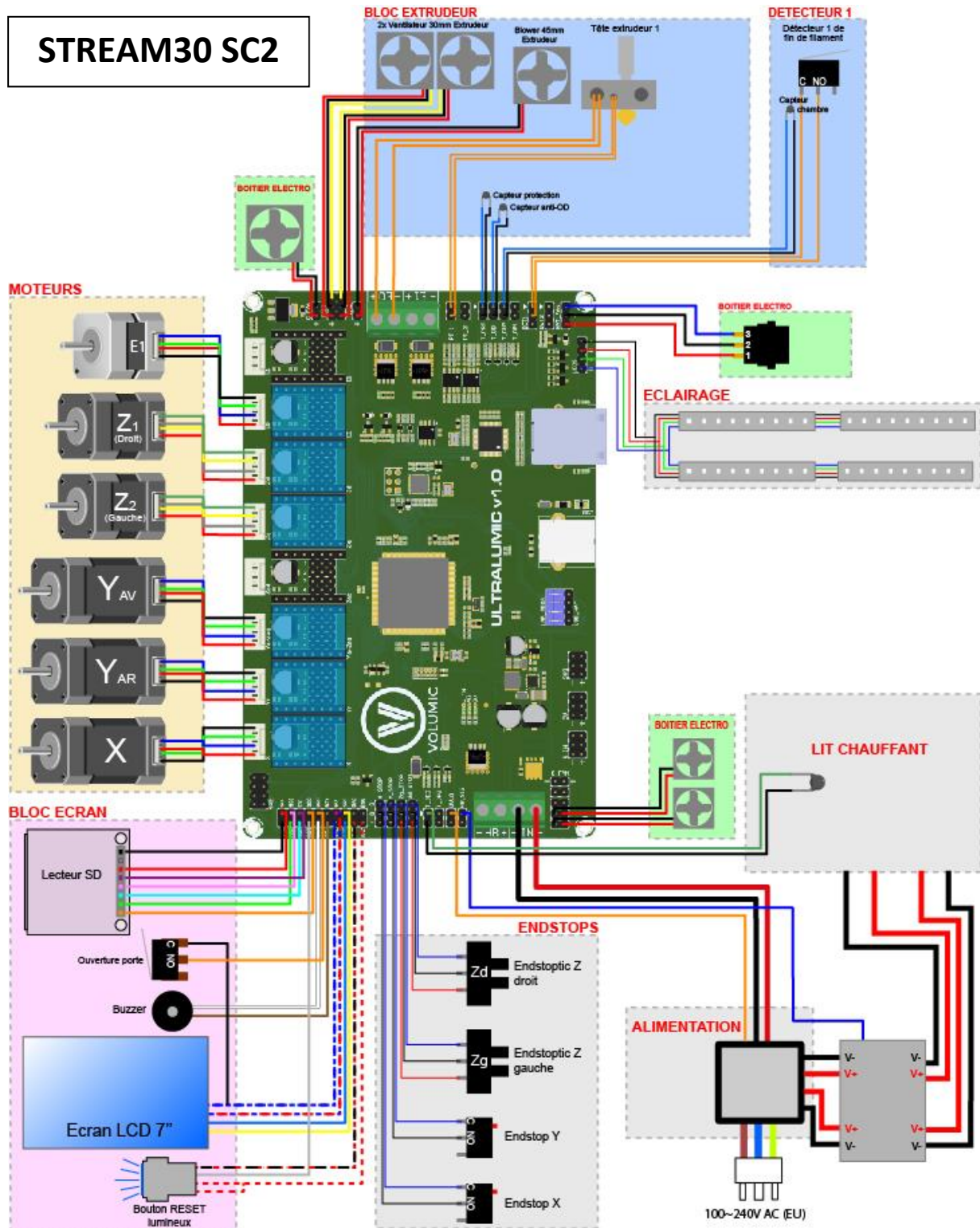
ELECTRICAL DIAGRAMS

The electrical diagrams below are given as an indication for troubleshooting purposes in good conditions. Any intervention is at your own risk and will invalidate the product warranty if it is still subject to it.



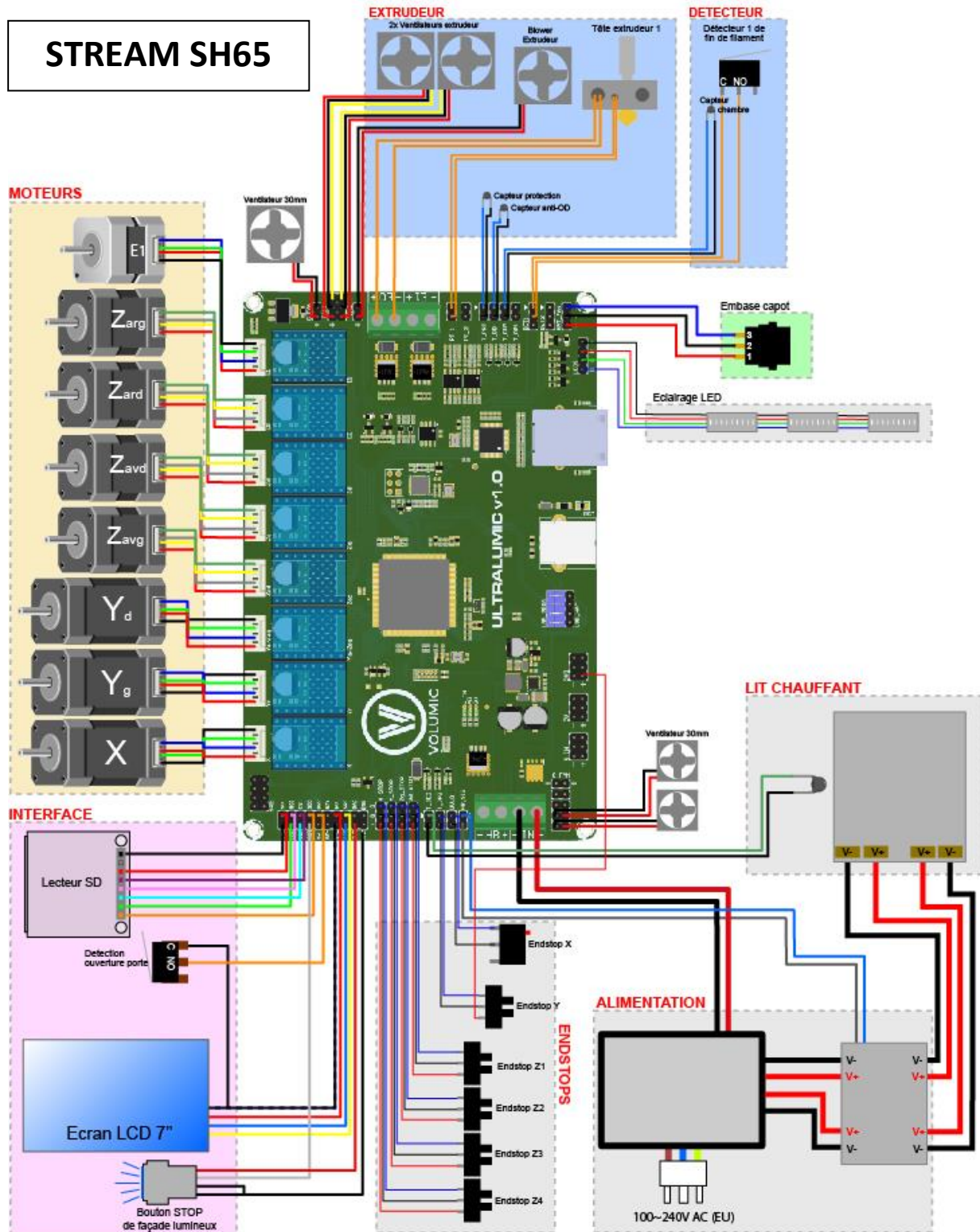
User Manual

Stream MK3/SC2/SH65 series



User Manual

Stream MK3/SC2/SH65 series





CE DECLARATION OF CONFORMITY

The undersigned manufacturer:

GEMEA - VOLUMIC, 12b rue Louis Garneray, 06300 NICE, France

Person authorized to compile the technical file:

Gerard Luppino, 12b rue Louis Garneray, 06300 NICE, France

Declares that the new machines designated below:

VOLUMIC Fused Deposition Modeling 3D printer, model SH65.

VOLUMIC Fused Deposition Modeling 3D printer, model STREAM30 PRO MK3.

VOLUMIC Fused Deposition Modeling 3D printer, model STREAM30 ULTRA SC2.

Are compliant:

- To the regulatory provisions defined by appendix I of European directive 2006/42/CE

On 01/18/2021

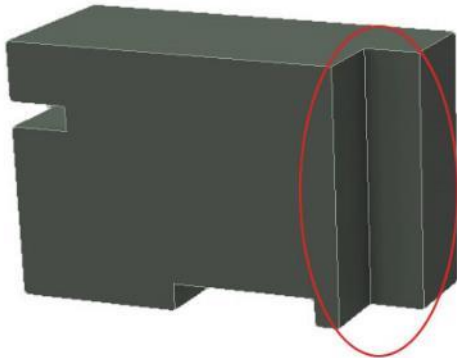
Gérard Luppino / Manager

PACKING INSTRUCTIONS

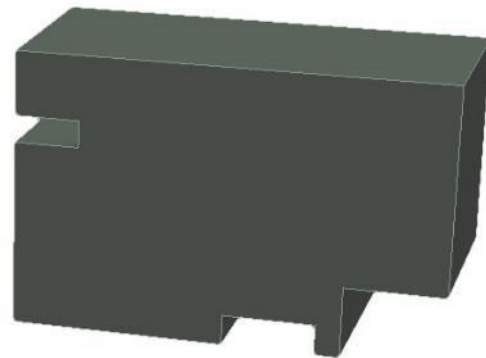
Here are the instructions that must be followed to ensure that your machine is as secure as possible for transport:



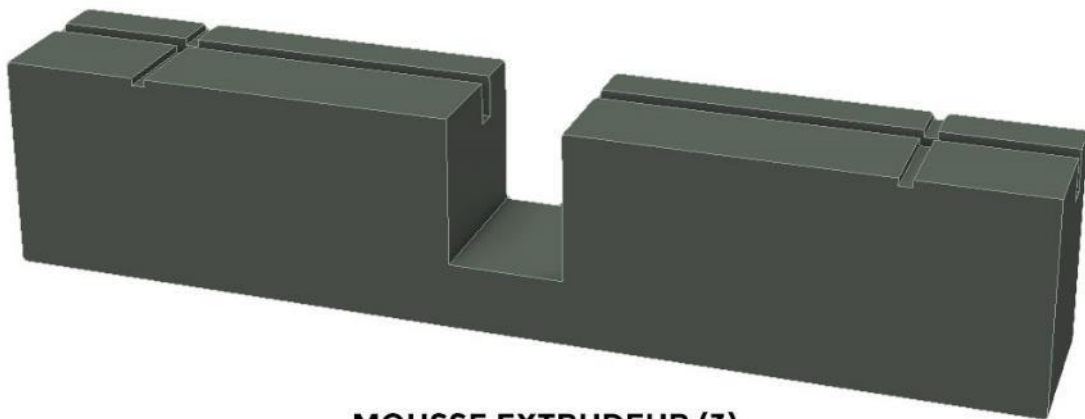
IMPORTANT: Only return the machine itself, without any accessories, cables or the like, not even the glass plate. Any accessory present with the machine will not be returned.



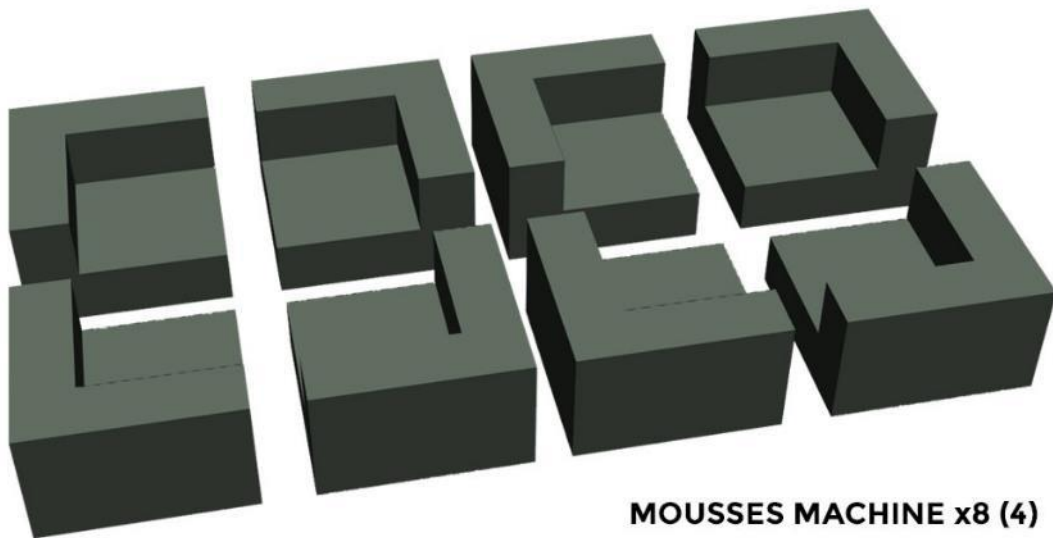
MOUSSE PLATEAU AVANT (1)



MOUSSE PLATEAU ARRIERE (2)



MOUSSE EXTRUDEUR (3)



MOUSSES MACHINE x8 (4)

STEP 1 :

User Manual

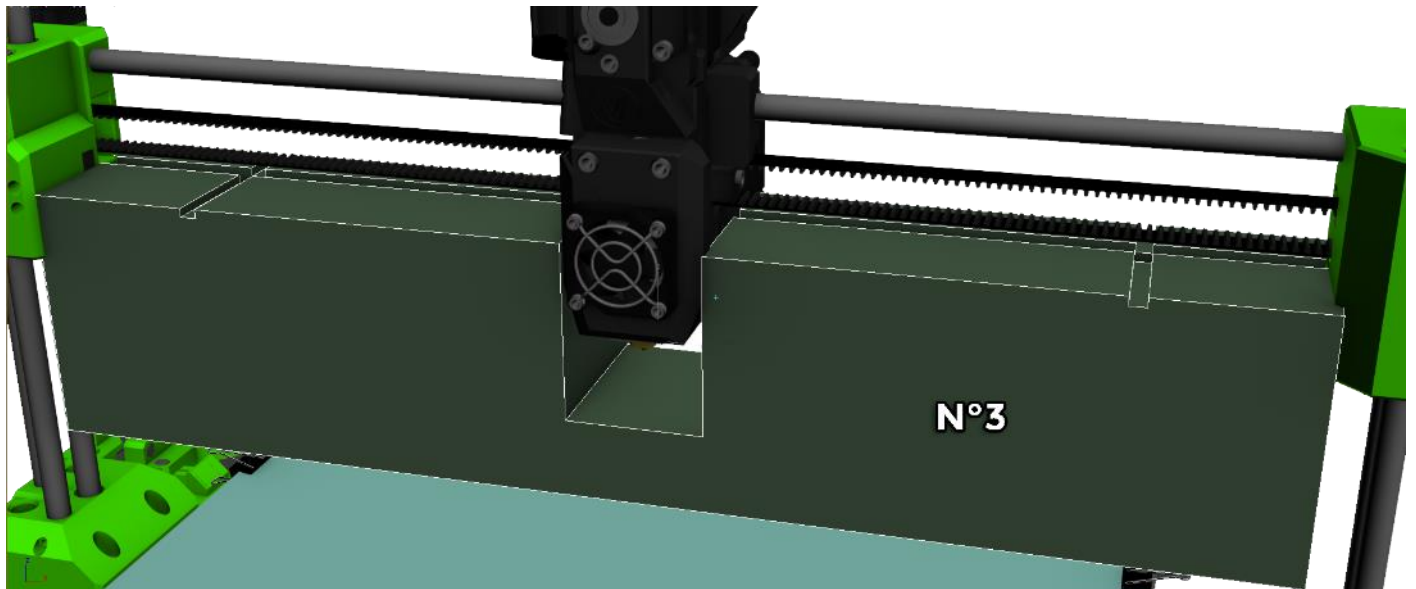
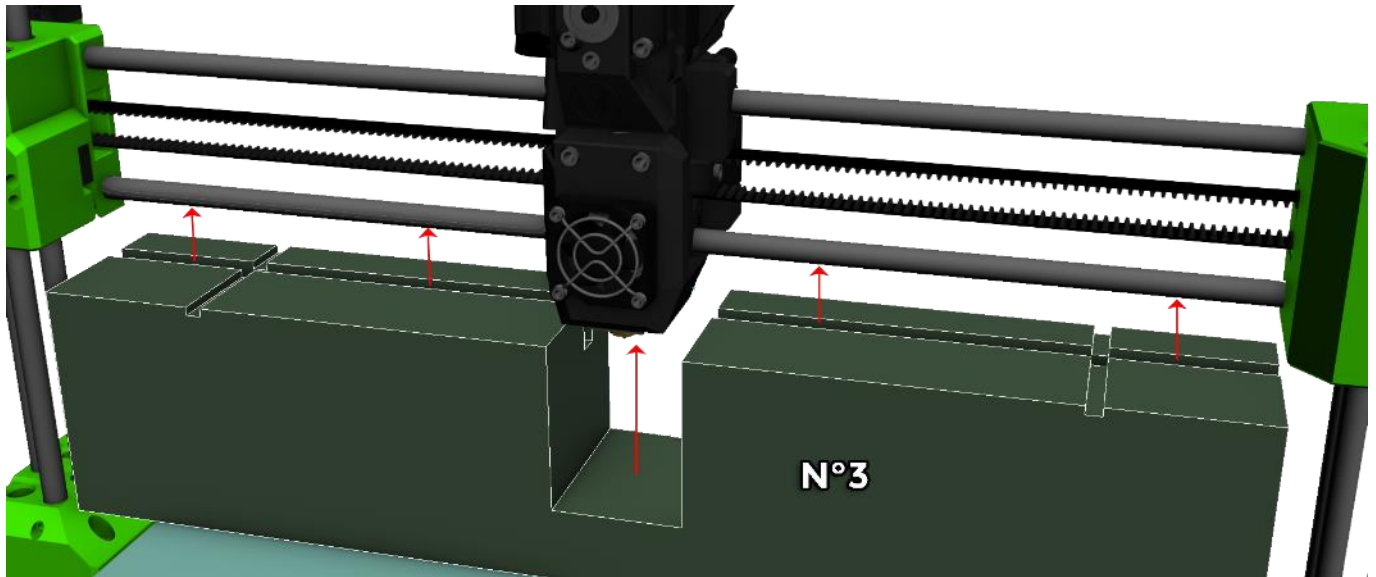
Stream MK3/SC2/SH65 series



Plug in and turn on your VOLUMIC printer. Do a HOME Z, then go up 100mm. Turn off and unplug your VOLUMIC printer.

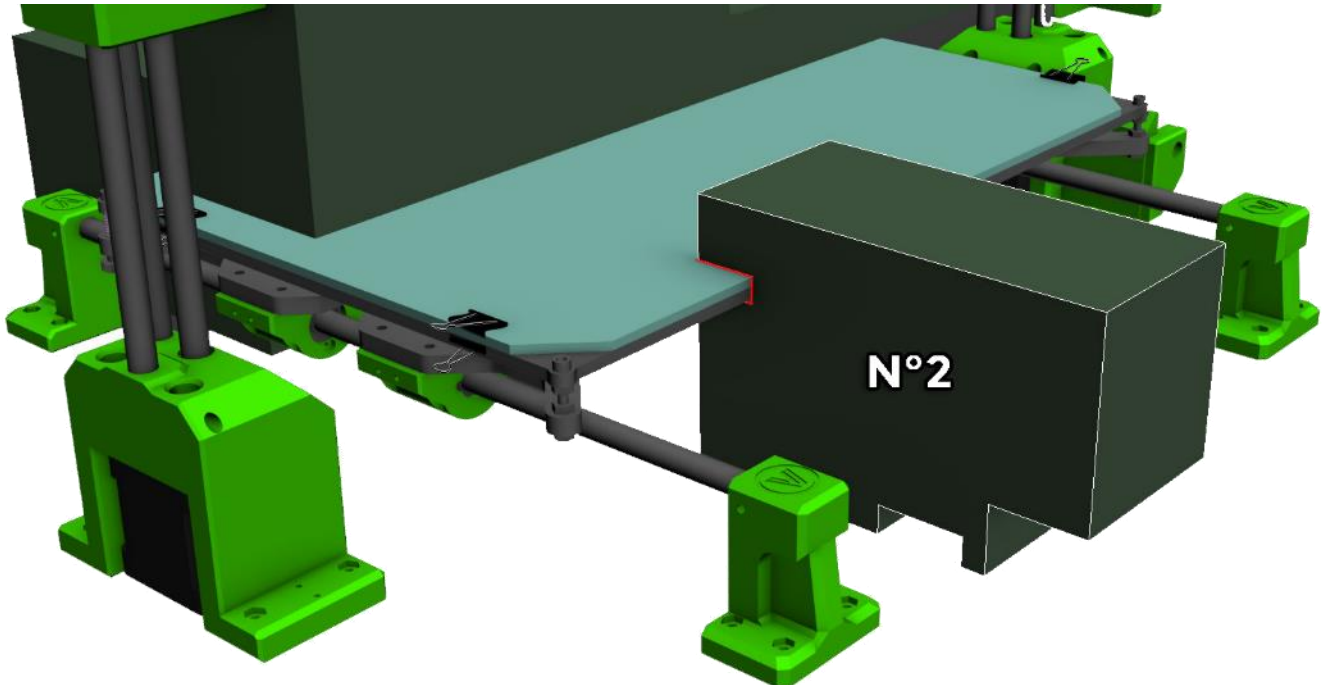
2ND STEP :

Insert under the extruder the protective foam No. 3, the widest part of the top towards the front of the machine, and the groove in the axis of the bottom:



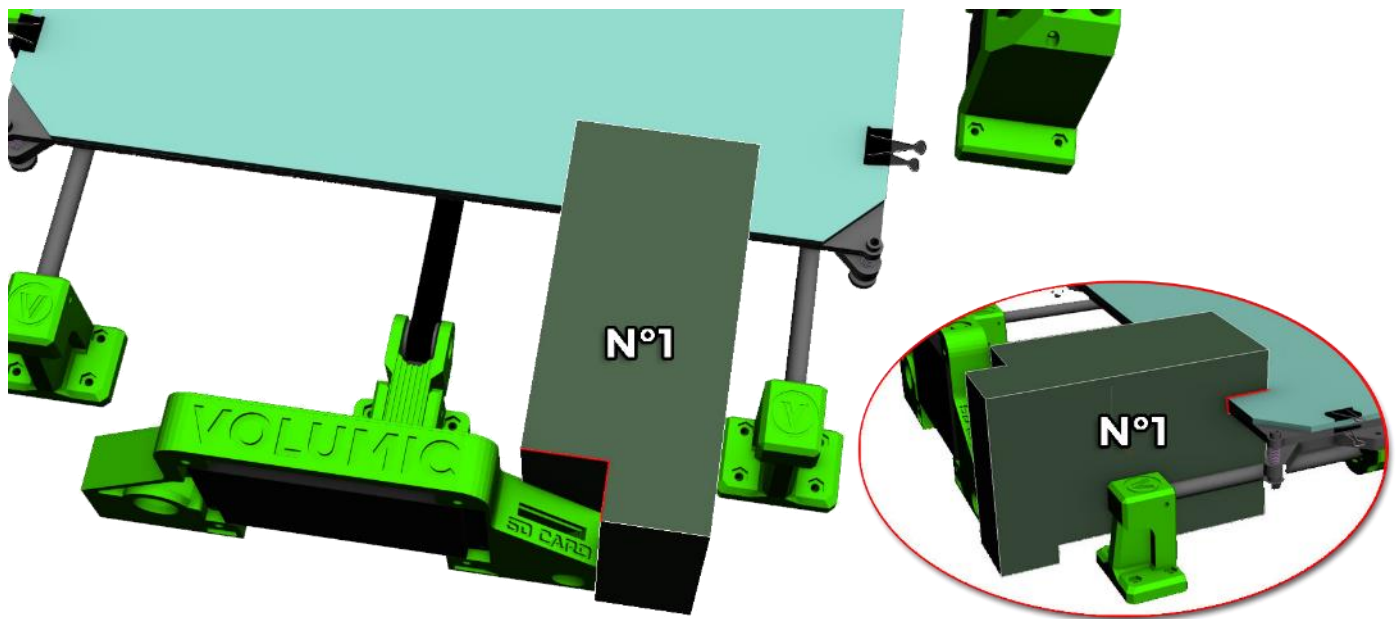
STEP 3 (MK3 and SC2 only):

Insert the rear bed blocking foam No. 2 as in the image below, at the rear of the machine, the notch fitting on the bed:



STEP 4 (MK3 and SC2 only):

Insert the front bed blocking foam No. 1 as shown in the image below, at the front of the machine, the front notch fitting on the bed, and the angle cut to release the screen assembly :

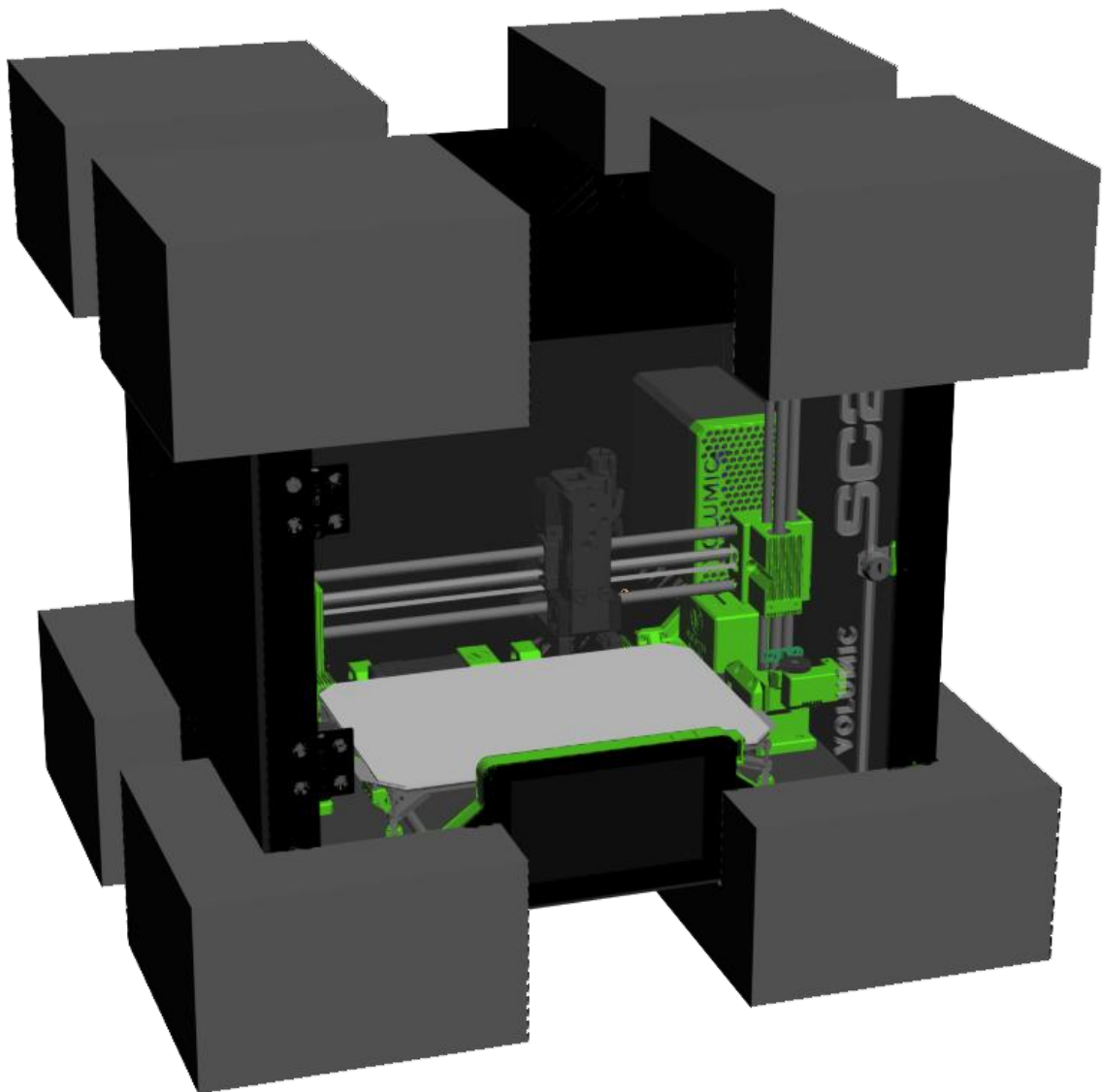




Check that there are no loose objects inside the machine. This could seriously damage the machine during transport. Do not leave any accessories, cables or trays in or with the machine.

STEP 5:

Put four foams of angles in each corner of the carton at the bottom, put the machine in the carton resting on the four foams, then put the other 4 angles in the other direction on the top of the machine, and close the carton tightly.



Warning: If you no longer have the original packaging, please contact your reseller or Volumic, a new packaging package will be offered to you to return your machine in the best conditions.



V O L U M I C
I M P R I M A N T E S 3 D

VOLUMIC 3D PRINTERS
MADE IN FRANCE
© VOLUMIC 2022

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