

QZMini Extruder

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English



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Safety instructions

When using any electrical device, basic safety precautions should always be observed.

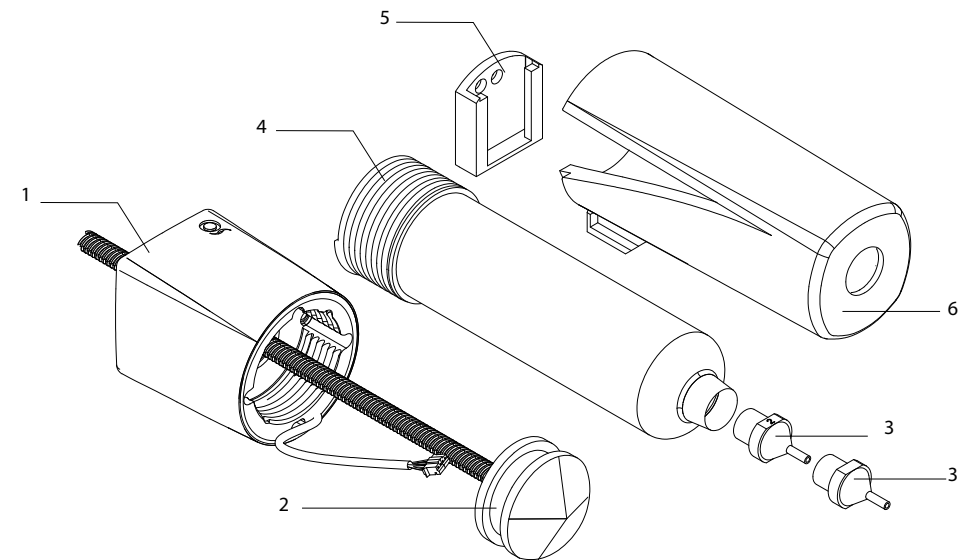
- 1) If the device has any defect, do not attempt to repair it yourself. Contact info@quasizero.design for appropriate repairs.
- 2) Regularly check that the cable and device are not damaged. Do not use the device if the cable shows signs of damage. If the cable is damaged, it must be replaced by the manufacturer, a technical service provider, or a similarly qualified person to avoid hazards.
- 3) Check that the power supply voltage corresponds to that shown on the device's manual user.
- 4) Ensure that the plug to be used has a ground connection.
- 5) Make sure your hands are dry before touching an electrical device, cable, or plug.
- 6) Do not immerse the device, cables, or plugs in water or any other liquid.
- 7) Unplug the device when it is not use.
- 8) Carefully clean the device after use.



Parts list

Inside the box you will find everything necessary to start printing with your printer:

1. Extruder Head
2. Piston
3. Nozzle diameter: 4.0 and 2.0
4. Syringe 150 ml
5. Holder for printer
6. Syringe holder





Starting protocol

Before getting started, it is important to make sure that everything is working correctly. For this reason, below you will find a step-by-step guide with the checks we recommend completing before starting your first print.

1) Before You Start

1. Create a Print File

To verify that the QZMini extruder works correctly with your 3D printer, you cannot use G-code generated with just any profile.

For this reason, we recommend creating or using a profile specifically configured for the QZMini extruder, using the OrcaSlicer software.

Download OrcaSlicer: [\[DOWNLOAD LINK\]](#)

1.1 Install OrcaSlicer

Once you have downloaded and installed OrcaSlicer, you can import the pre-configured QZMini profile. Download the QZMini profile: [\[DOWNLOAD LINK\]](#)

1.2 Import the QZMini Profile

Import the QZMini profile into OrcaSlicer by following the software's profile import procedure.

Once the profile has been imported, you can:

- Load the 3D model you want to print.
- Slice the model.
- Save the generated G-code.
- Transfer the G-code to your printer and start the print.

For the first test, we recommend using a very simple model, such as a cylinder or a cube, so that you can more easily verify that the extruder is working correctly.

WARNING: Printer Configuration

The OrcaSlicer profile provided has been configured using an Artillery 3D printer as a reference. Even if your printer is not an Artillery model, the profile can still be used as a starting point. You only need to modify the print area dimensions to match the actual dimensions of your printer.

Before generating the G-code, make sure that the print bed dimensions and the overall printable area correspond to those of your printer.

1.3 In Case of Compatibility Issues

If the QZMini profile is not compatible with your printer, you will need to create a new profile in OrcaSlicer and manually configure the required parameters.

For the complete procedure and the parameters that need to be modified, refer to the sections indicated at the end of the Manual.



2) Communication Test Between the Printer and the QZMini Extruder

We will now verify that the G-code is correctly read by the printer and that the motor command is correctly received by the QZMini extruder.

2.1 Locate the Extruder Motor Cable

Locate the extruder motor signal cable on your 3D printer.

The cable is generally located near the nozzle or extruder assembly, but its position may vary depending on the printer model.

We therefore recommend consulting your printer's technical documentation or user manual to correctly identify the cable.

2.2 Connect the QZMini Extruder

Once you have located the cable:

- Turn off the printer.
- Disconnect the motor cable from the original extruder.
- Connect the QZMini extruder cable in its place.
- Turn the printer back on.

You can now send the previously generated G-code to the printer and start the print. The QZMini extruder does not need to be physically mounted on the printer during this test. The purpose of this test is only to verify that the printer correctly sends the motor commands to the QZMini extruder.

2.3 What Should I Observe?

During the execution of the G-code, observe the movement of the QZMini extruder plunger.

YES: The plunger starts moving down

If the QZMini extruder plunger starts moving downward, this means that: the printer is correctly reading the G-code; the QZMini extruder is correctly receiving the motor command.

NO: The plunger moves upward

If the plunger moves in the opposite direction, meaning that it moves upward instead of downward, there is likely an issue with the motor cable configuration or wiring.

In this case, we recommend not proceeding with any further tests and contacting us for personalized technical assistance.

NO: The plunger does not move

If the printer does not activate the extruder motor and the G-code is not executed correctly, the problem may be related to the OrcaSlicer profile configuration.

Check the profile parameters again and make sure they are configured correctly.

If the problem persists after checking the parameters, we recommend contacting us for personalized technical assistance.



3) Mounting the QZMini Using the Support Bracket

Now that we have connected the QZMini extruder and verified that everything is working correctly, we can proceed with mounting it on the printer.

This step may vary depending on the printer model and your specific requirements. There are several possible mounting configurations. For example, you can:

- Keep the original extruder and install the QZMini next to it.
- Completely remove the original extruder and install the QZMini directly onto the mounting plate.

Choose the solution that best suits your printer, always making sure that the QZMini is securely mounted and properly aligned.

Included Mounting Bracket

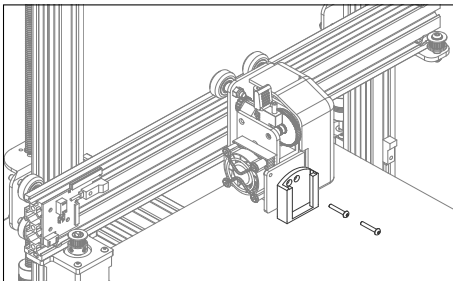
Inside the QZMini extruder package, you will find a mounting bracket.

The supplied bracket is designed to simplify installation, but it may not be compatible with all printers or mounting configurations.

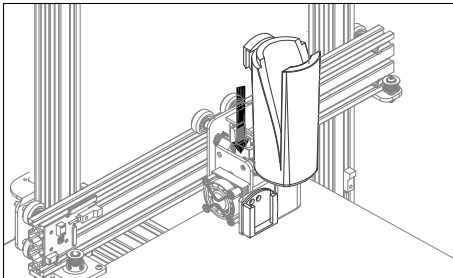
If the supplied bracket does not meet your requirements, you can modify it or create a customized version using the provided .OBJ file.

.OBJ file for modifying the mounting bracket: [\[FILE DOWNLOAD LINK\]](#)

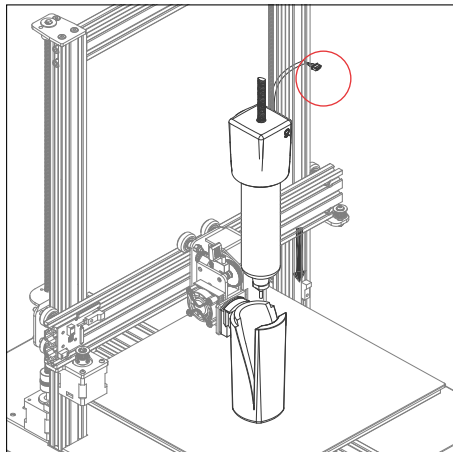
Assembling QZMini in a 3D Printer:



Step 1 - Attach the Holder to your printer.



Step 2 - Slide down the Syringe holder in to the printer holder



Step 3 - Connect the Head extruder cable to 3D Printer



WARNING: Nozzle Height

Before proceeding with printing, it is essential to check the height of the QZMini nozzle in relation to the original extruder nozzle.

The printer is configured based on the position of the original extruder. In particular, during startup, the printer may automatically perform a bed leveling procedure.

For this reason, the QZMini nozzle must be positioned at:

- the same height as the original nozzle,
- or slightly higher, so that it does not sit lower than the original nozzle during the bed leveling procedure.

Make sure that the QZMini nozzle is not lower than the original nozzle, as it could come into contact with the print bed during bed leveling.

If the QZMini is positioned lower than the original nozzle, this height difference must be taken into account when configuring the printer and during the printing procedure.

Before starting a complete print, always manually check the extruder movement and make sure that the nozzle cannot collide with the print bed or any other part of the printer.

Technical specifications

General specifications		
		Extruder
Dimension [H x W x D]		235 x 65 x 65 mm
Weight aprox.		555g
Connector		JST HX 2.54 mm 4 Pin Female
Body structure		PLA

Head Extruder specifications									
Technology	Liquid deposition material (LDM)								
Max dimension admissible grain	1 mm								
Availables Nozzle	4 mm, 2 mm								
Tank volume	150 ml								
Body Structure	Aluminium y PLA								
Motor	Stepper motor Nema 17 non captive								
Step Angle	1.8 grados								
Holding Torque	0.5 Nm (70.82 oz.in)								
Phase resistance	0.8 ohmios								
Inductance	1.8 mH ± 20%(1KHz)								
Connection diagram	<table><tr><td>A+</td><td>A-</td><td>B+</td><td>B-</td></tr><tr><td>Red</td><td>Red/Wht</td><td>Green</td><td>Green/Wht</td></tr></table>	A+	A-	B+	B-	Red	Red/Wht	Green	Green/Wht
A+	A-	B+	B-						
Red	Red/Wht	Green	Green/Wht						

Cleaning and maintenance

Syringe tank cleaning:

- 1) Move the piston to the beginning of the syringe.
- 2) Rotate the syringe anti clockwise to detach it from the extruder.
- 3) Clean the syringe and piston with water using a brush or cotton swab to remove material residue.

Control Box

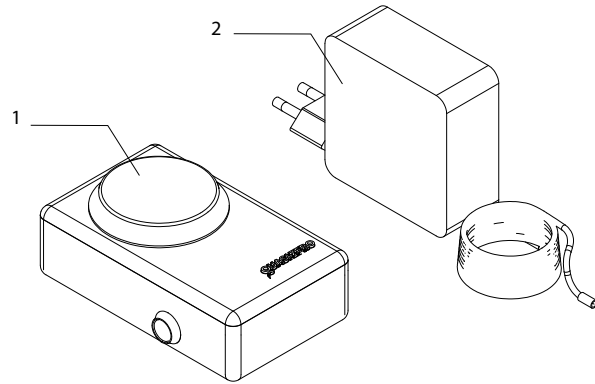




Parts list

The box contain:

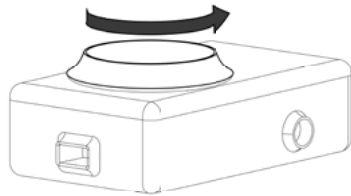
1. Control box
2. Power supply



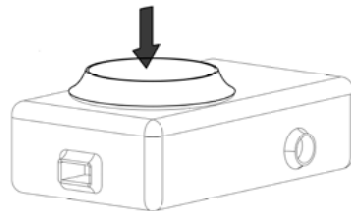
Control box functions

For manual use, the Control box is needed to power the QZMini extruder head and control the extrusion parameters, such as extrusion speed.

Control box panel operation:



EXTRUSION SPEED
Rotate the dial to increase or reduce the extrusion speed.



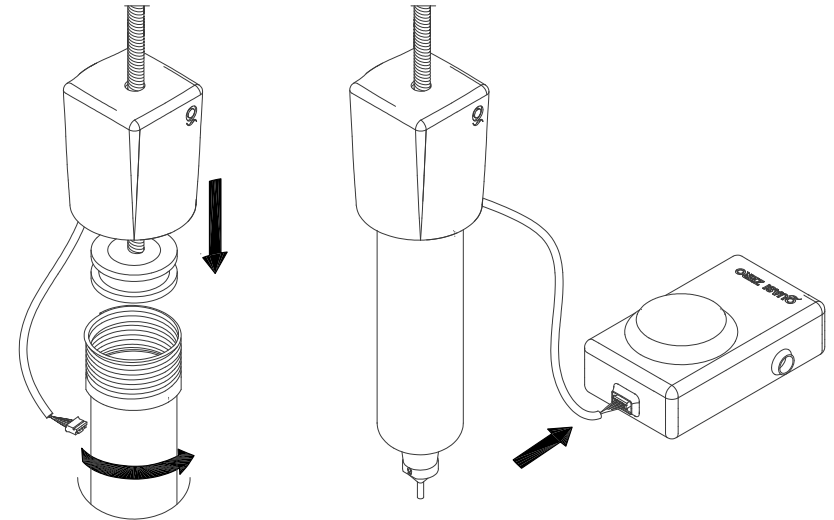
PAUSE / RESUME
Press one time the screen to activate the pause mode. Press again to resume.



Usage instructions

Before use, check that the piston slides smoothly inside the syringe. If it shows resistance, apply oily products such as vaseline or glycerine to facilitate movement.

- Step 1 – Fill the syringe with your material, being careful not to fill it completely. Leave some empty space so you can insert the plunger later.
- Step 2 – Insert the syringe into the lower part of the Head extruder and screw it in place.
- Step 3 – Connect the Head extruder cable to the control box.
- Step 4 – Start to printing



Technical specifications

General specifications		
	Control box	
Dimension [H x W x D]	120 x 60.5 x 35 mm	
Weight aprox.	140 g	
Connector	EU Plug	
	JST XH 2.54 mm 4 Pin Male	
Body structure	PLA	

Electrical specifications	
Voltage	5-27 V DC
Rated current/phase (motor)	2.5 A
Supply Voltage Max	24 A
Electrical network connection	Domestic electrical network 230 V AC

OrcaSlider

configuration



In compliance with Directives: 2012/19/EU and 2015/863/EU on the restriction of the use of dangerous substances in electric and electronic equipment as well as their waste disposal. The symbol with the crossed dustbin shown on the package indicates that the product at the end of its service life shall be collected as separate waste.

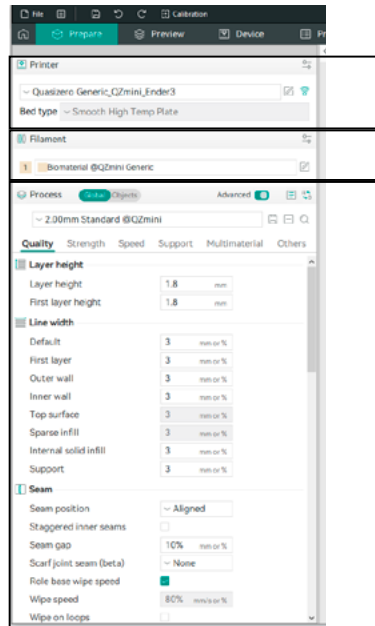
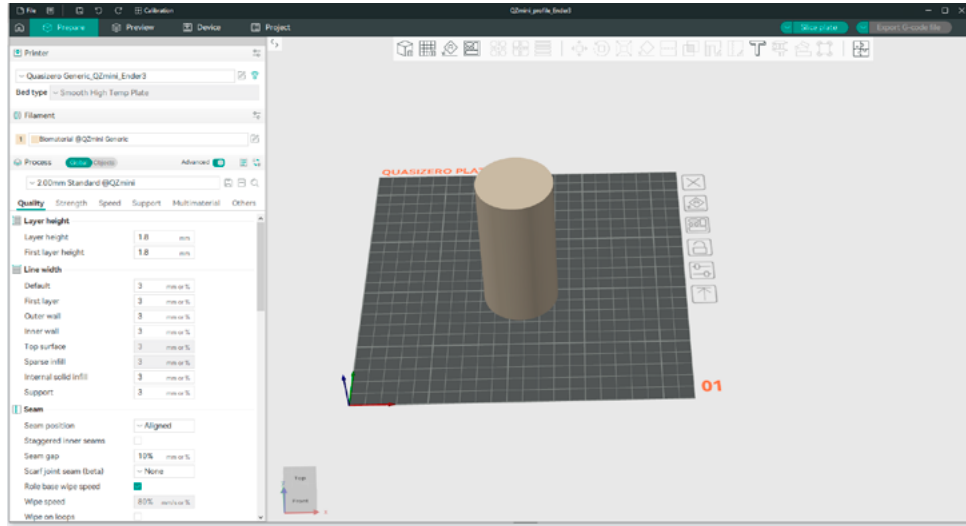
Therefore, any products that have reached the end of their useful life must be given to waste disposal centres specialising in separate collection of waste electrical and electronic equipment, or given back to the retailer at the time of purchasing new similar equipment, on a one for one basis.

The adequate separate collection for the subsequent start-up of the equipment sent to be recycled, treated and disposed of in an environmentally compatible way contributes to preventing possible negative effects on the environment and health and optimises the recycling and reuse of components making up the apparatus. Abusive disposal of the product by the user involves application of the administrative sanctions according to the laws



OrcaSlicer / Settings for LDM Printing

1) Importing Profile Files: Download the 3MF file and drag them into Orca to load the custom extruder profiles. [\[DOWNLOAD LINK\]](#)



3D PRINTER - Area to select printer and parameters configuration

MATERIAL - Area to configure the material

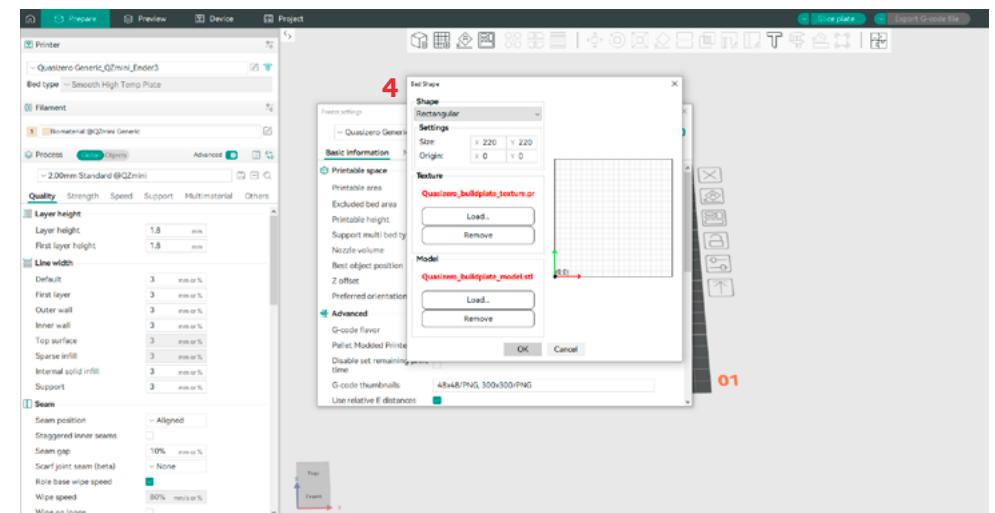
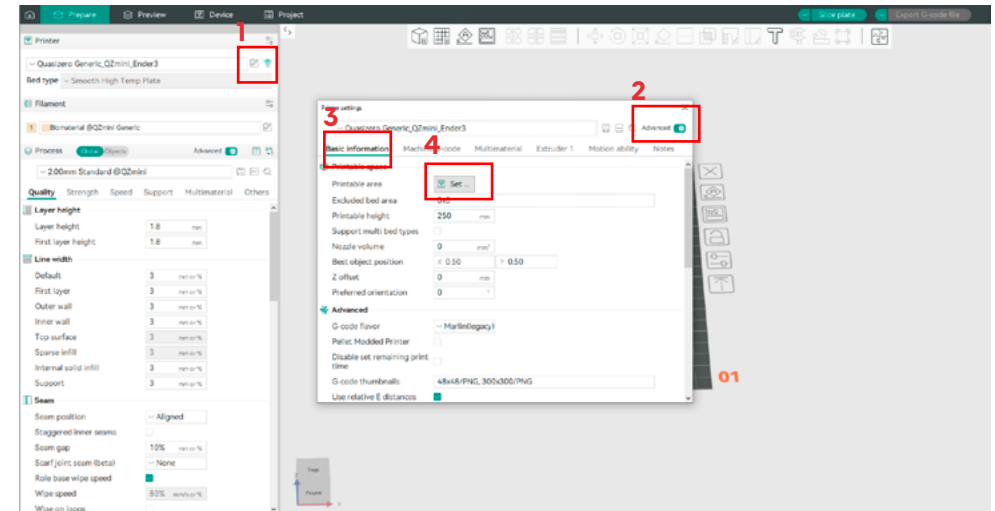
SLICING - Area to configure the geometry configuration



2) Printer Configuration

Configure the dimension of your printer in "Printing setting".

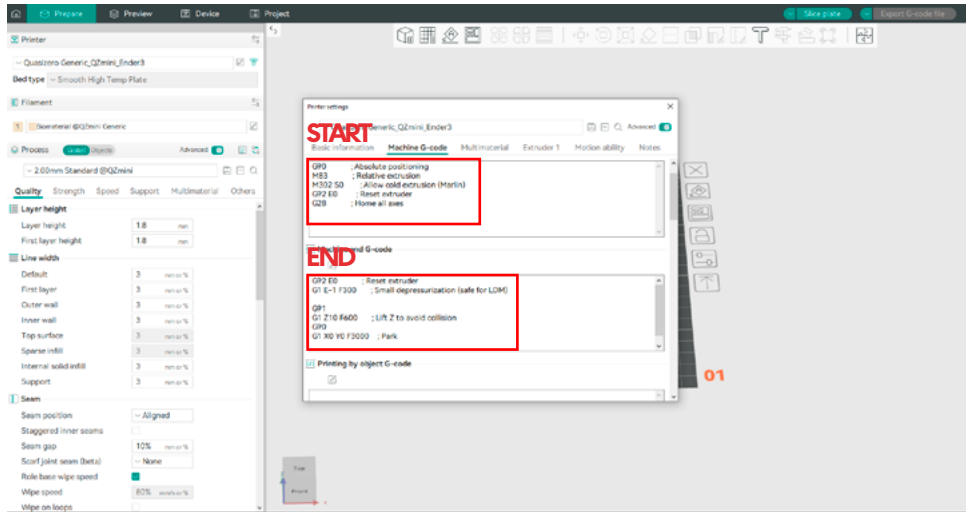
Advanced settings: To visualize all the parameter enable "Advanced" mode.





3) Firmware

In case you are creating a new profile copy this protocol for the START and END.



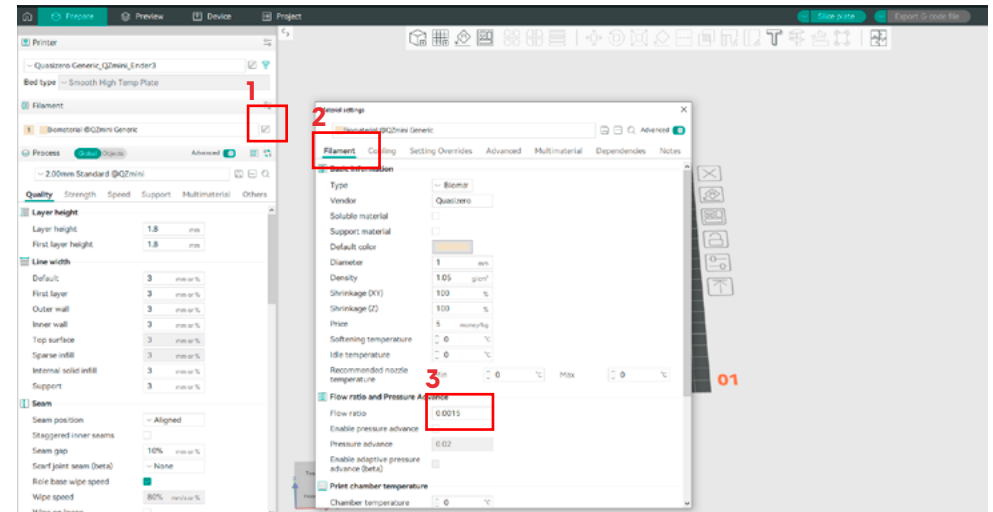
G90	; Absolute positioning	G92 E0	; Reset extruder
M83	; Relative extrusion	G1 E-1 F300	; Small depressurization (safe for LDM)
M302 S0	; Allow cold extrusion (Marlin)	G91	
G92 E0	; Reset extruder	G1 Z10 F600	; Lift Z to avoid collision
G28	; Home all axes	G90	
		G1 X0 Y0 F3000	; Park



4) Filament and Material Configuration

The extrusion of a biobased material will depend on its density and viscosity; therefore, you need to set the **flow rate** accordingly. These values, such as 0.0015, determine the pressure applied by the extruder. For instance, a biocomposite may require more pressure than a biogel.

Run a few tests with a full syringe to find the optimal settings. Increase or decrease this value in small steps of ± 0.0010 until you achieve the desired extrusion.



QUASI ZERO

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