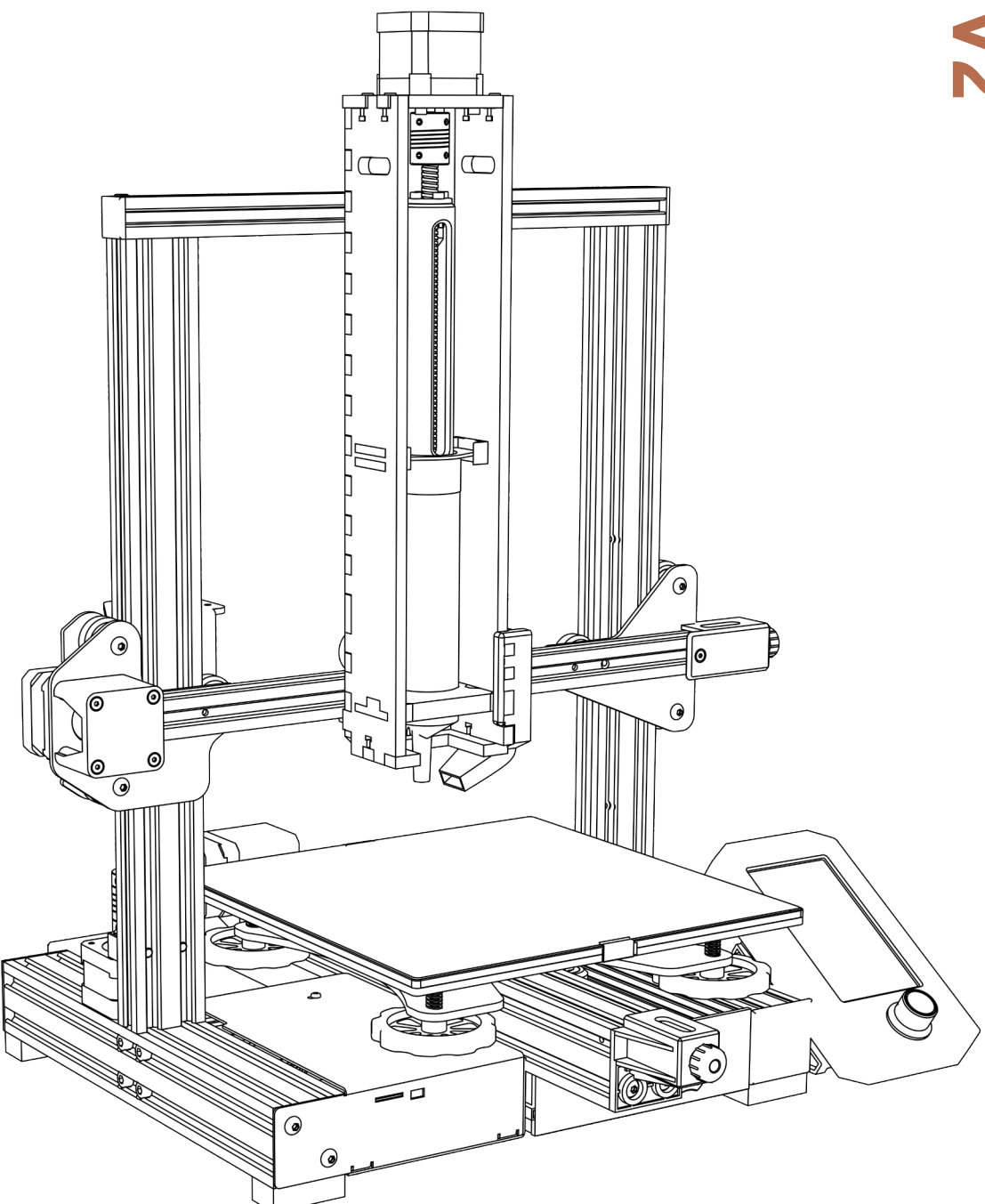




Mechanical Paste Extruder Assembly

Ender 3 V2

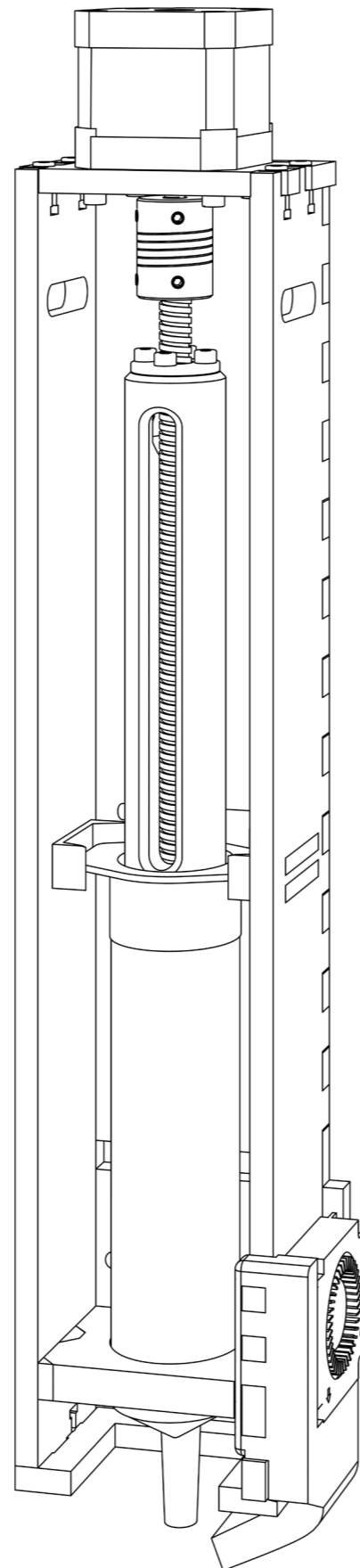




Junai has a mission to make Paste 3D printing as accessible as possible.

In order to achieve this goal we have worked on creating an extruder that is compatible with most pastes and desktop 3D printers on the market. After testing and evaluating other open-source designs, by mixing some parts and improving others we have created the current extruder. Its parts are carefully selected and widely available. The 3D printed parts are kept to a minimum and the lasercut press-fit design of the frame makes it more sustainable to produce and allows quick assembly.

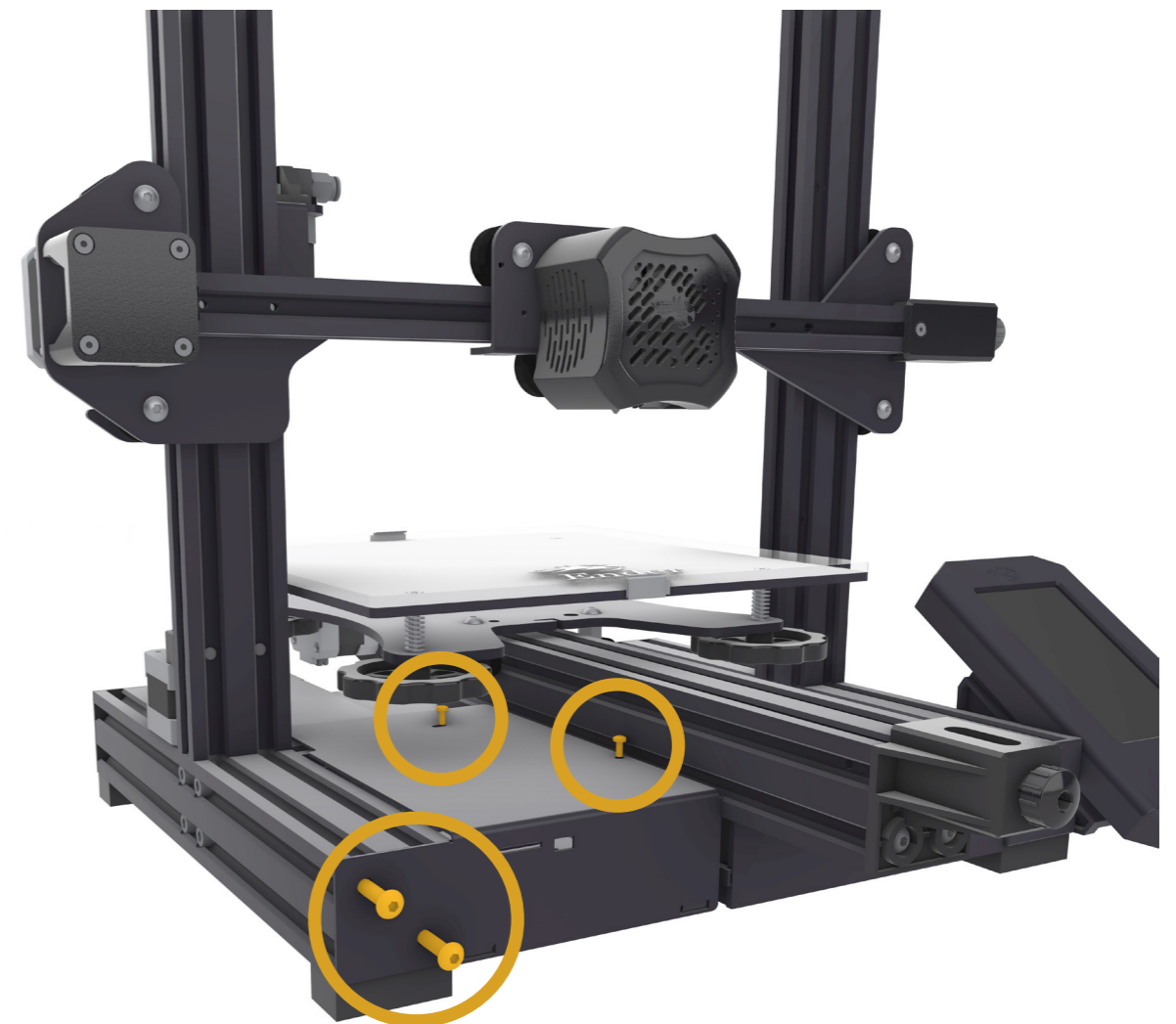
The current version is compatible with **Creality CR10 V3, Ender 3V2 and Ender 5 plus** 3D printers. Attachments for other brands and models will follow soon. If you would like to use it on a different printer setup, you can start by modifying the position of the screw holes on the back side of the extruder.



How to convert your Ender 3 V2 to Paste Extrusion?

1

Switch off and unplug your printer from the grid.
Open the control box by removing the 4 screws on the top and the one at the bottom of your printer base.



2

Nozzle heater



Hot end fan



Nozzle thermistor



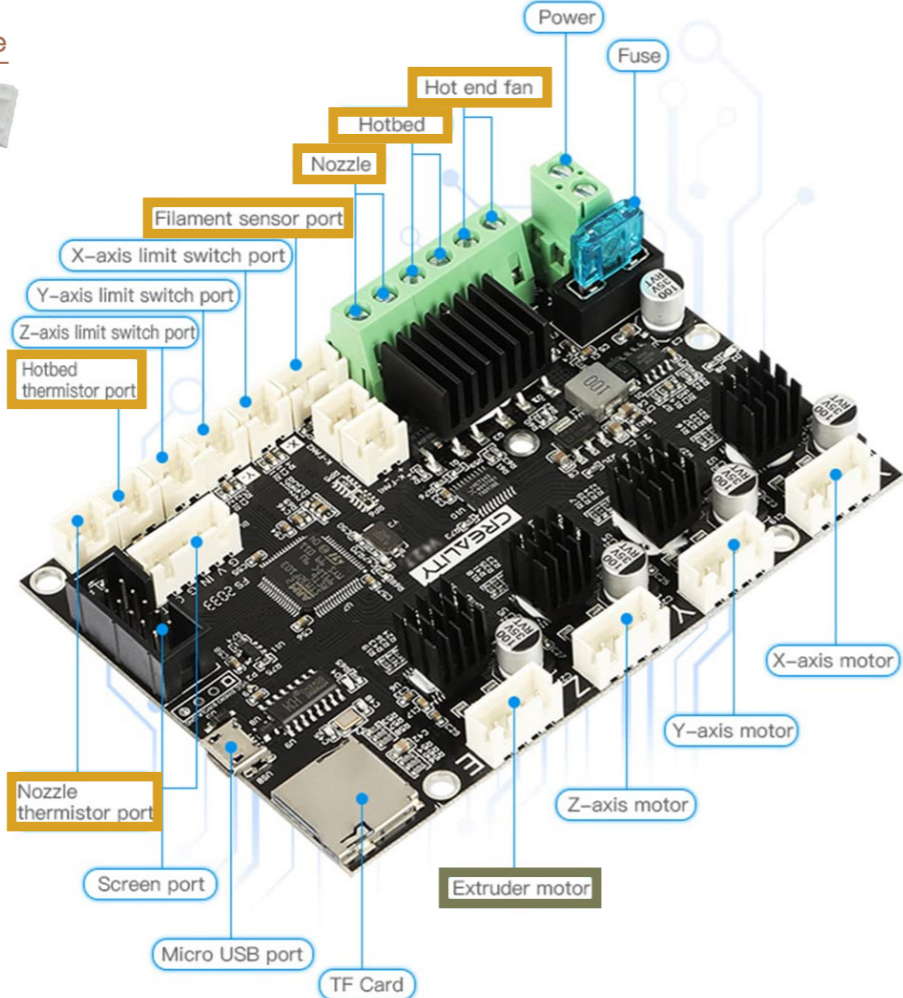
Bed thermistor & heating



Original extruder stepper motor cable



New extruder stepper motor cable



Disconnect the cables attached to your extruder bundle, such as the one for the stepper motor, nozzle heating and cooling, etc. (Marked in ●)

The only one which needs to stay in place is the one connected to the side fan, used to cool your prints.

Replace the original extruder motor cable with the new one. (Marked in ●)

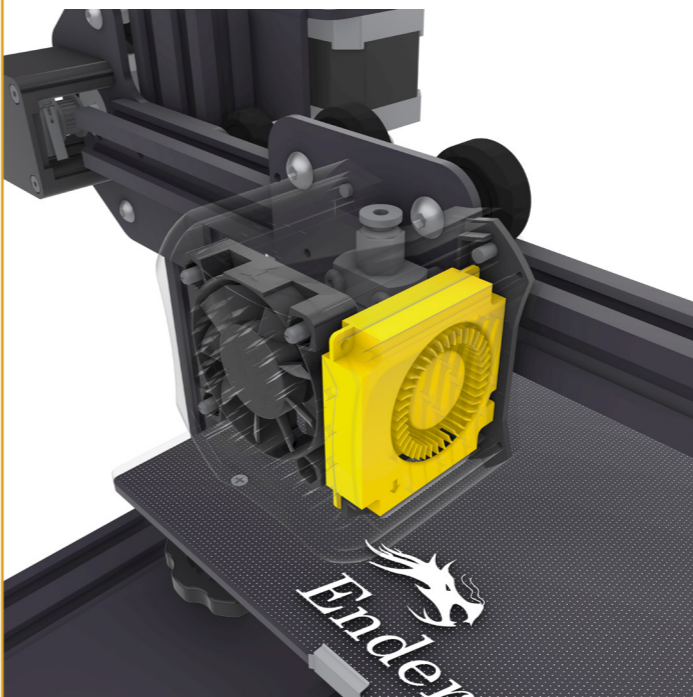


3

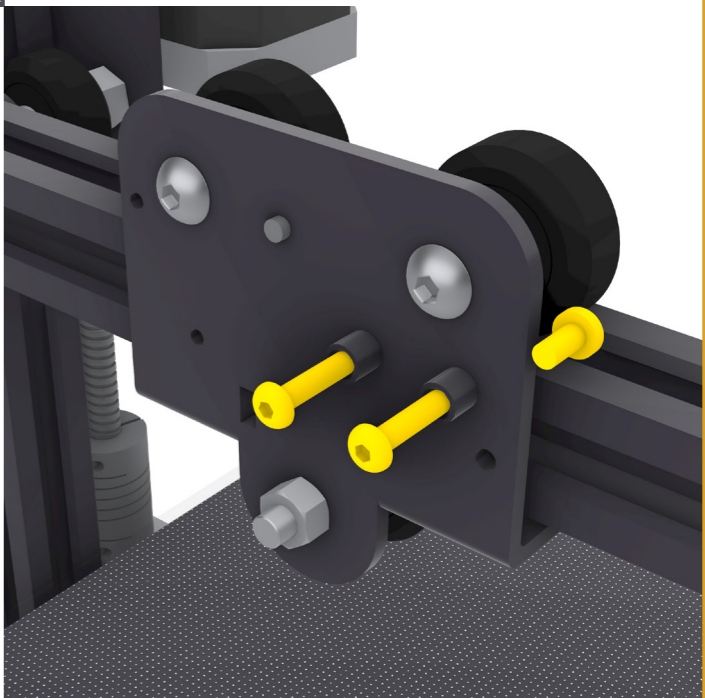
Remove the entire extruder and hot-end assembly except for the parts listed below.



Leave only the cooling fan for printed parts on the side of the hot end.



Keep the screws holding the hot-end attached to the frame for mounting the new extruder later on.

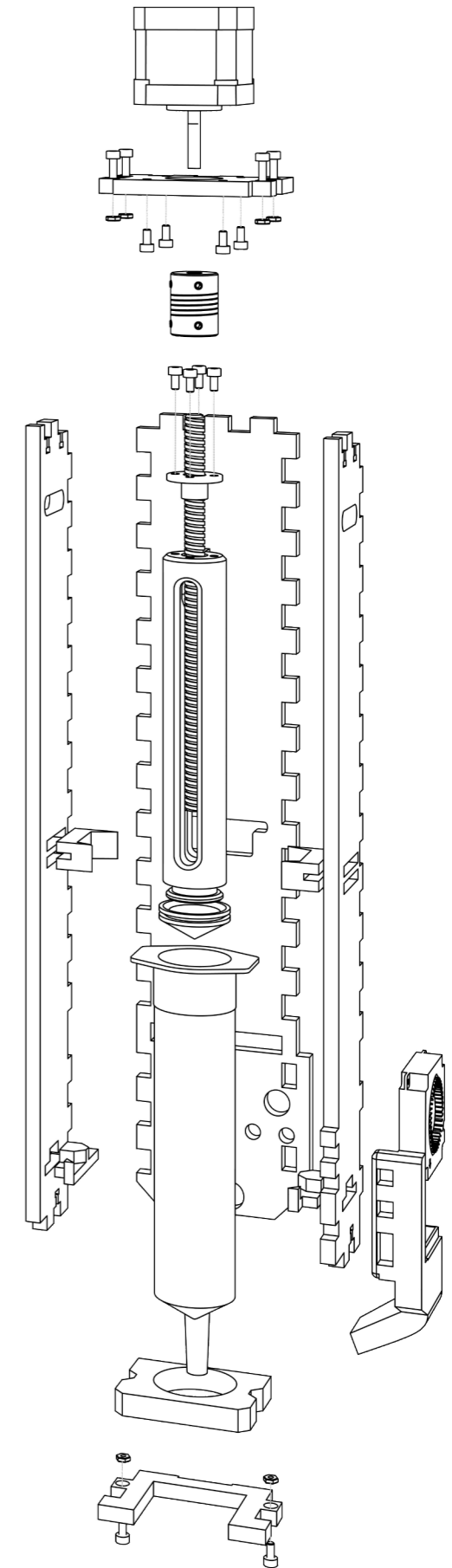




List of materials and components to purchase

In order to create your own extruder you will need to order certain components. To access the full list of parts, please follow this [link](#) or scan the QR Code below.

In case you have ordered your extruder from us, *skip* these steps and follow step 4 to finish your assembly.



List of parts to laser cut and 3D print

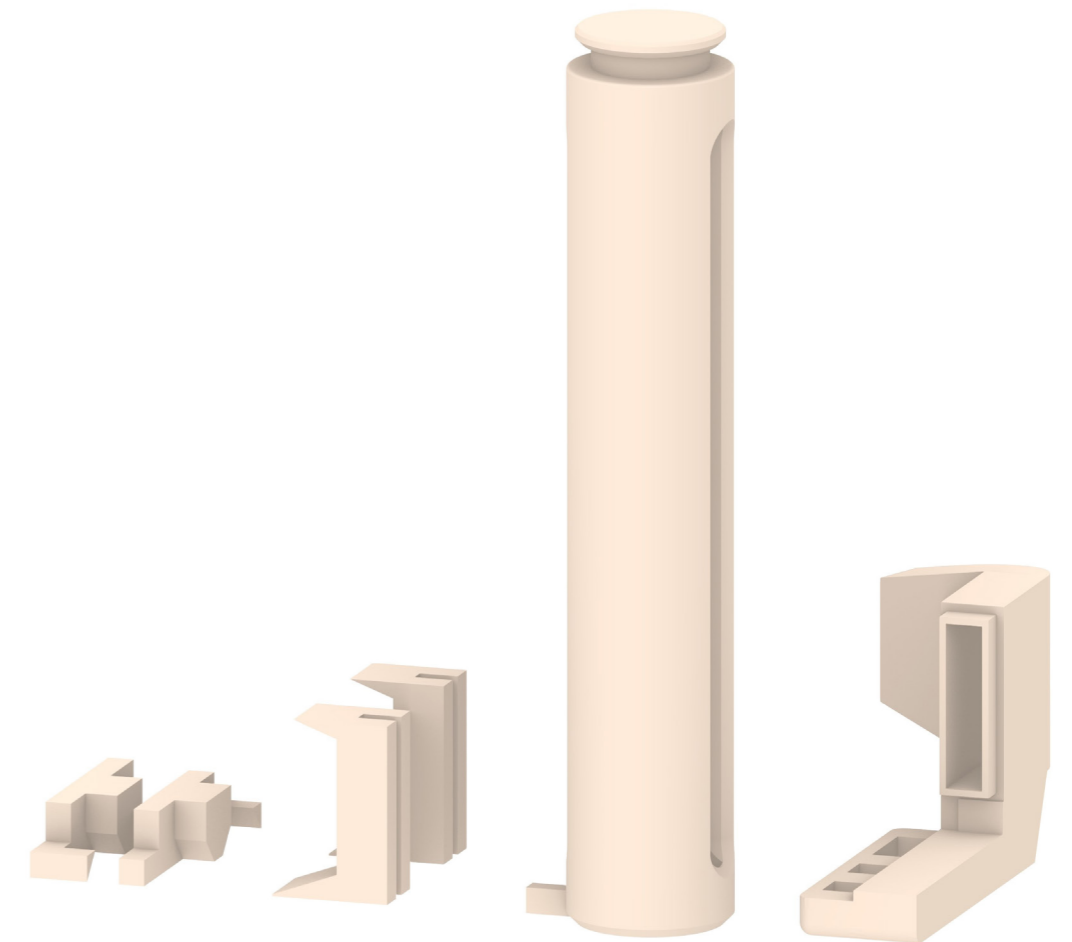
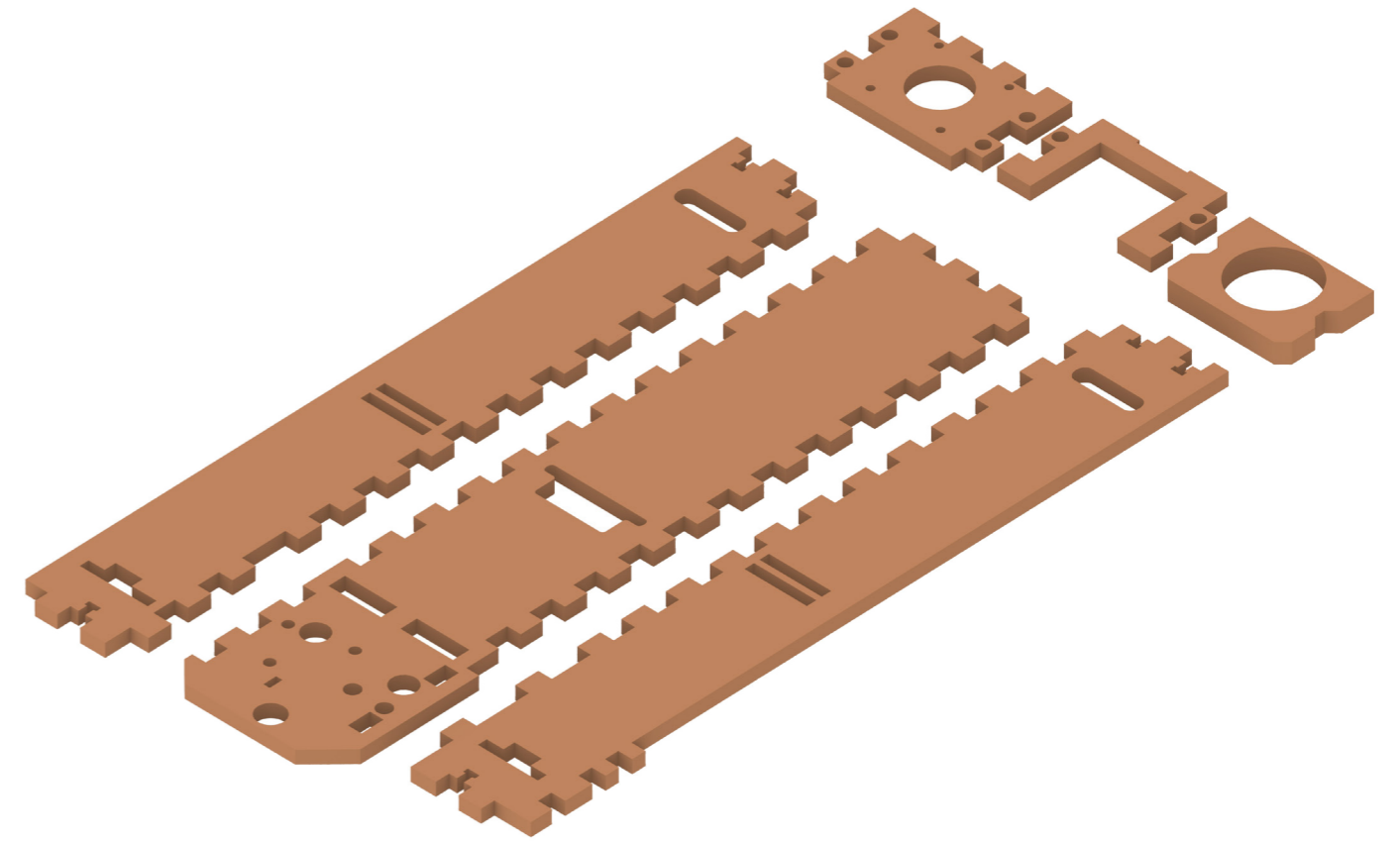
Follow this [link](#) or scan the QR Code below to access the parts you need to make.

In order to successfully produce your new paste extruder, please follow the instructions on the “Ender3v2-5plus-2dparts.dxf” file. The tolerances for the press-fit design will vary depending on the lasercutter used, so in order to avoid creating waste, please make a small sample first. Then adjust the lines and cut the parts.

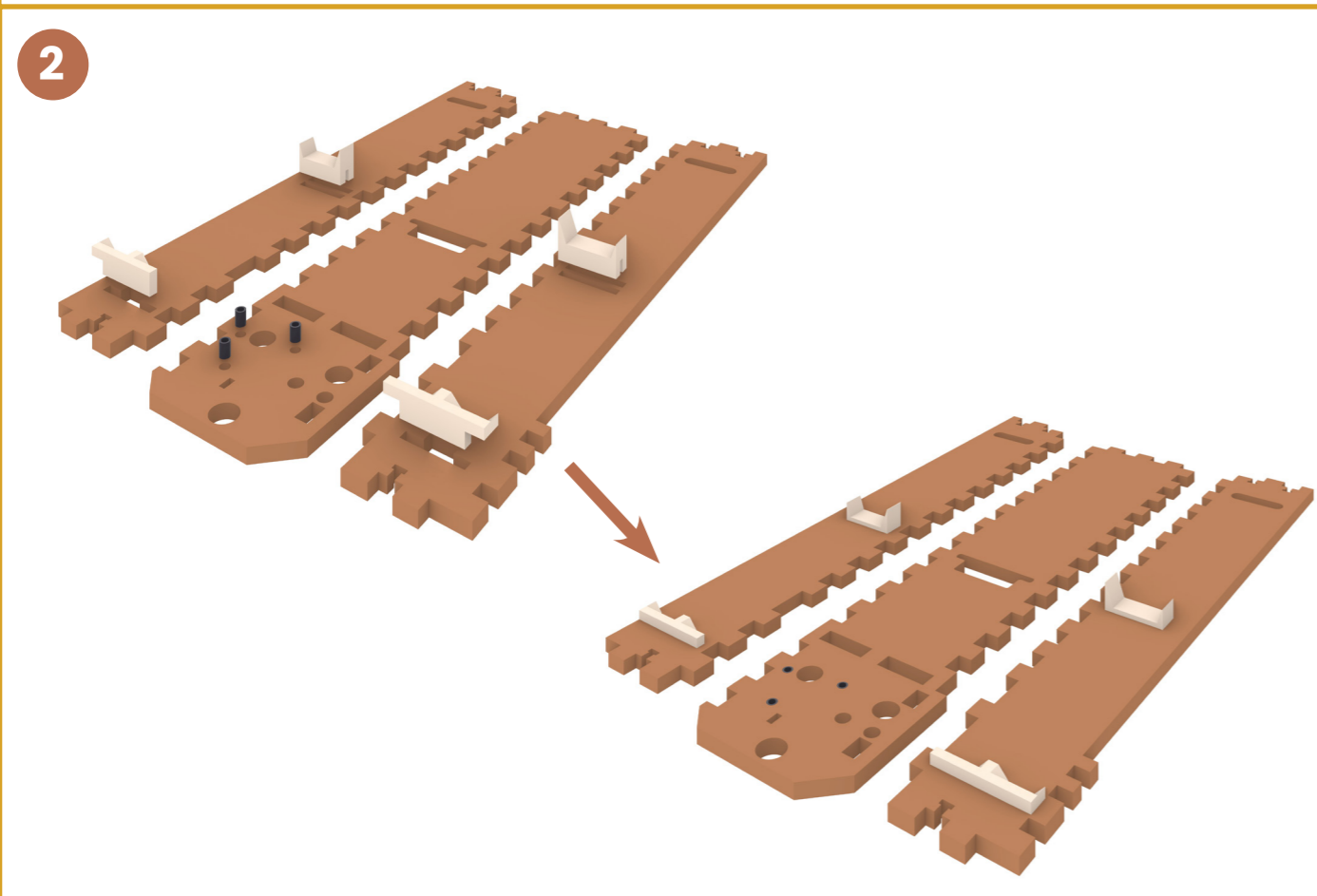
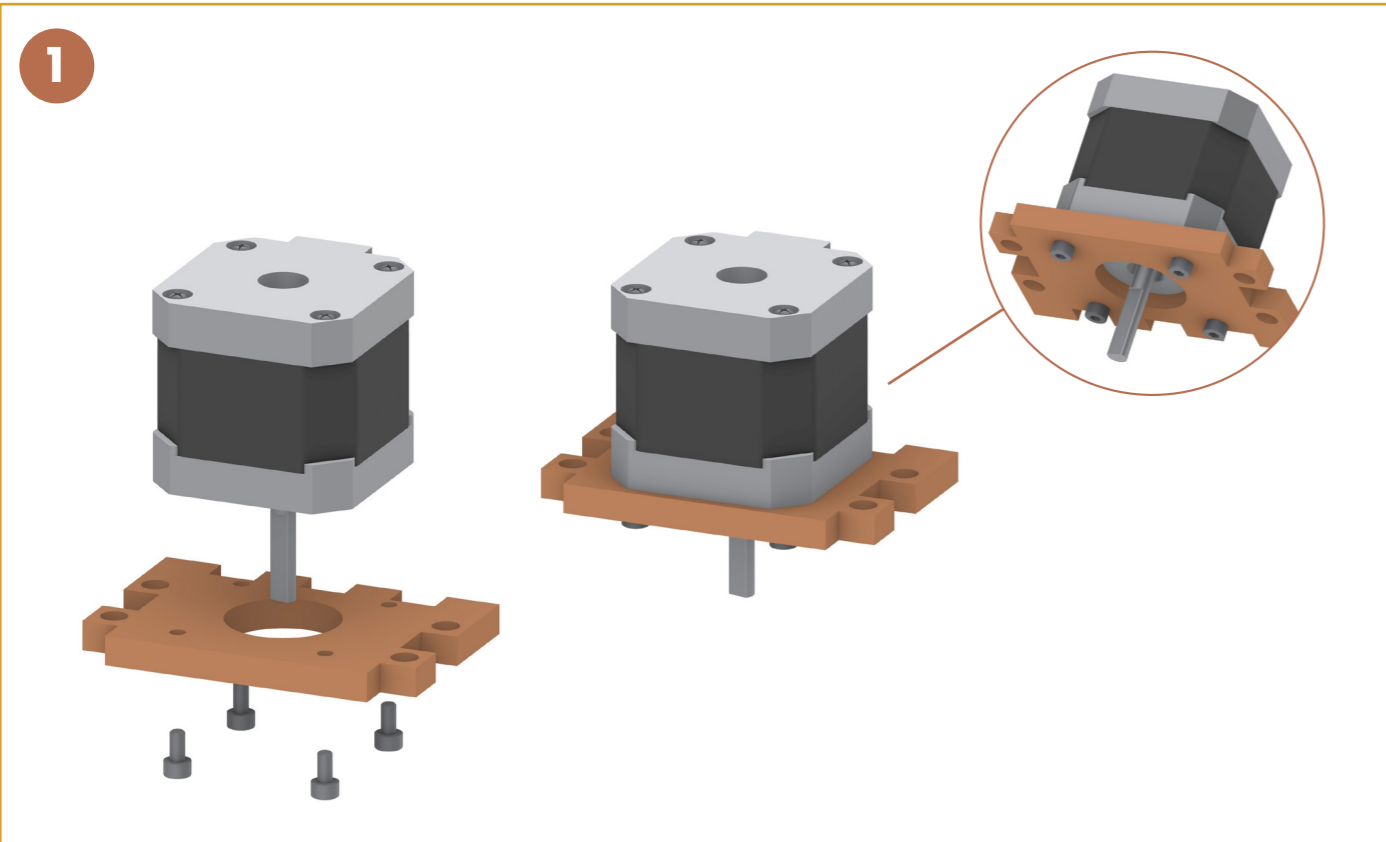
For the 3D printed parts, we recommend the following settings:

Nozzle size: 0.4
Layer Height: 0.28
Number of walls: 3 (6 for “plunger”)
Infill: 20%
Top/Bottom layers: 3
Supports: for “fanV2” only

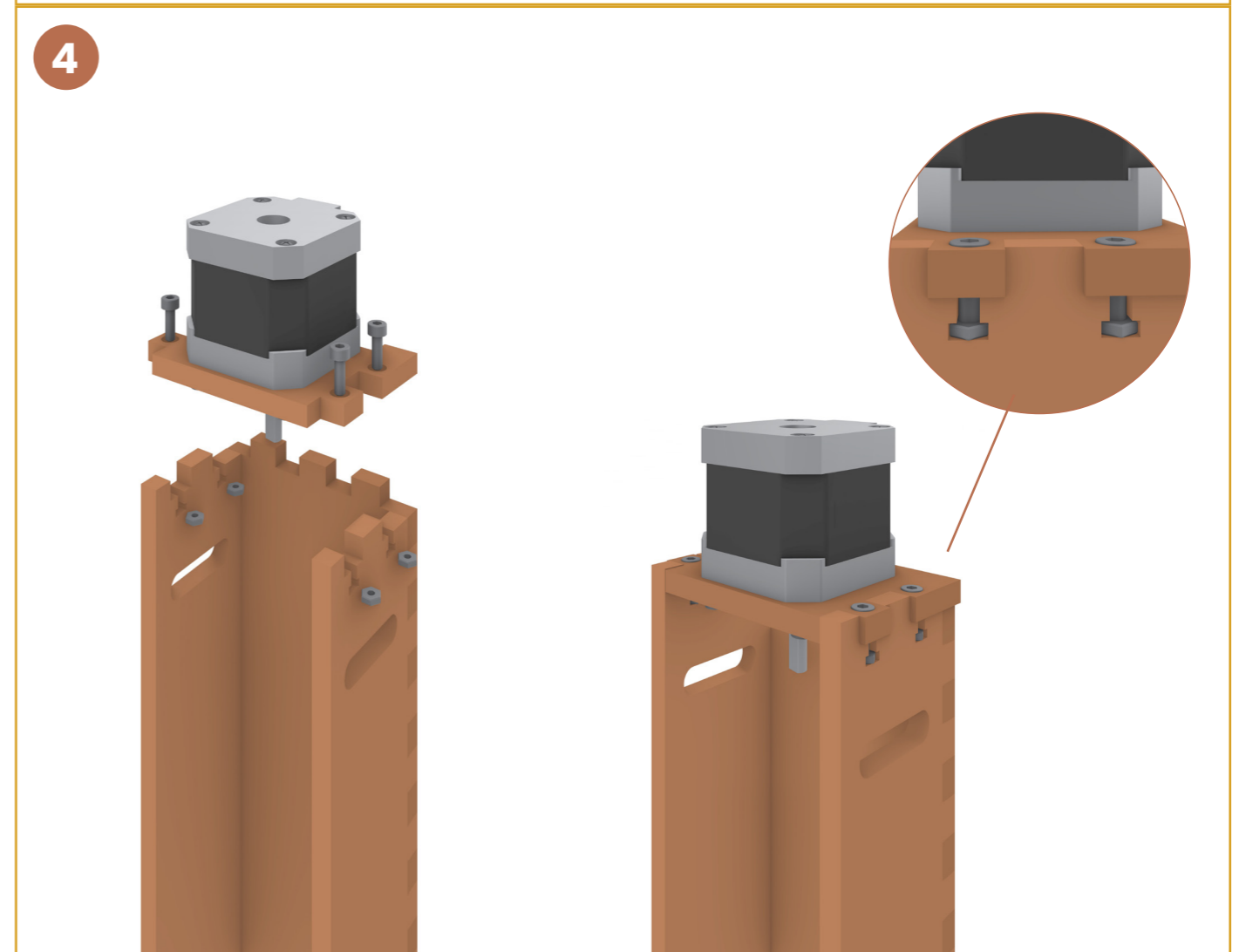
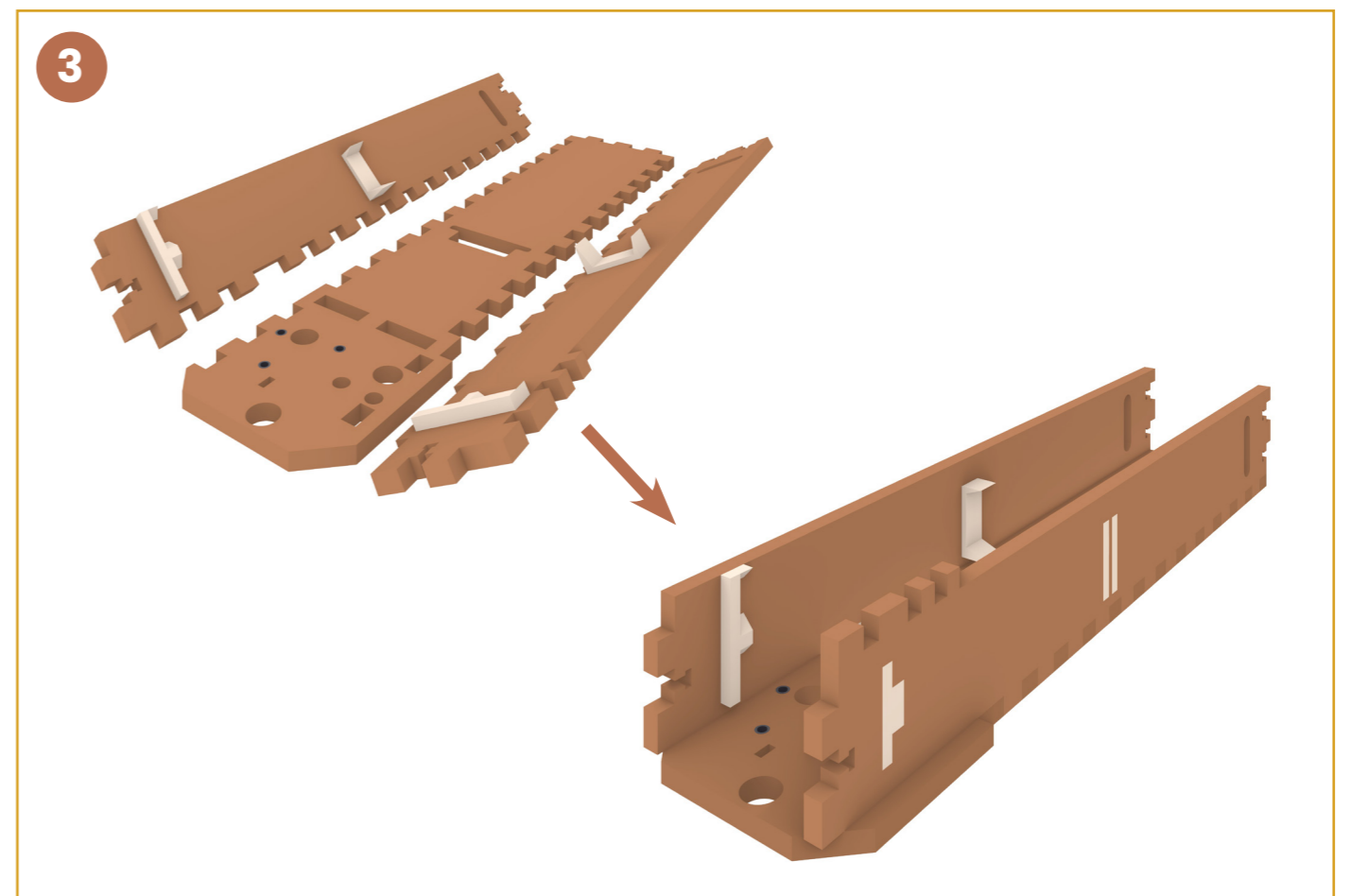
We strongly recommend using scrap materials and recycled filament for the making of the extruder.



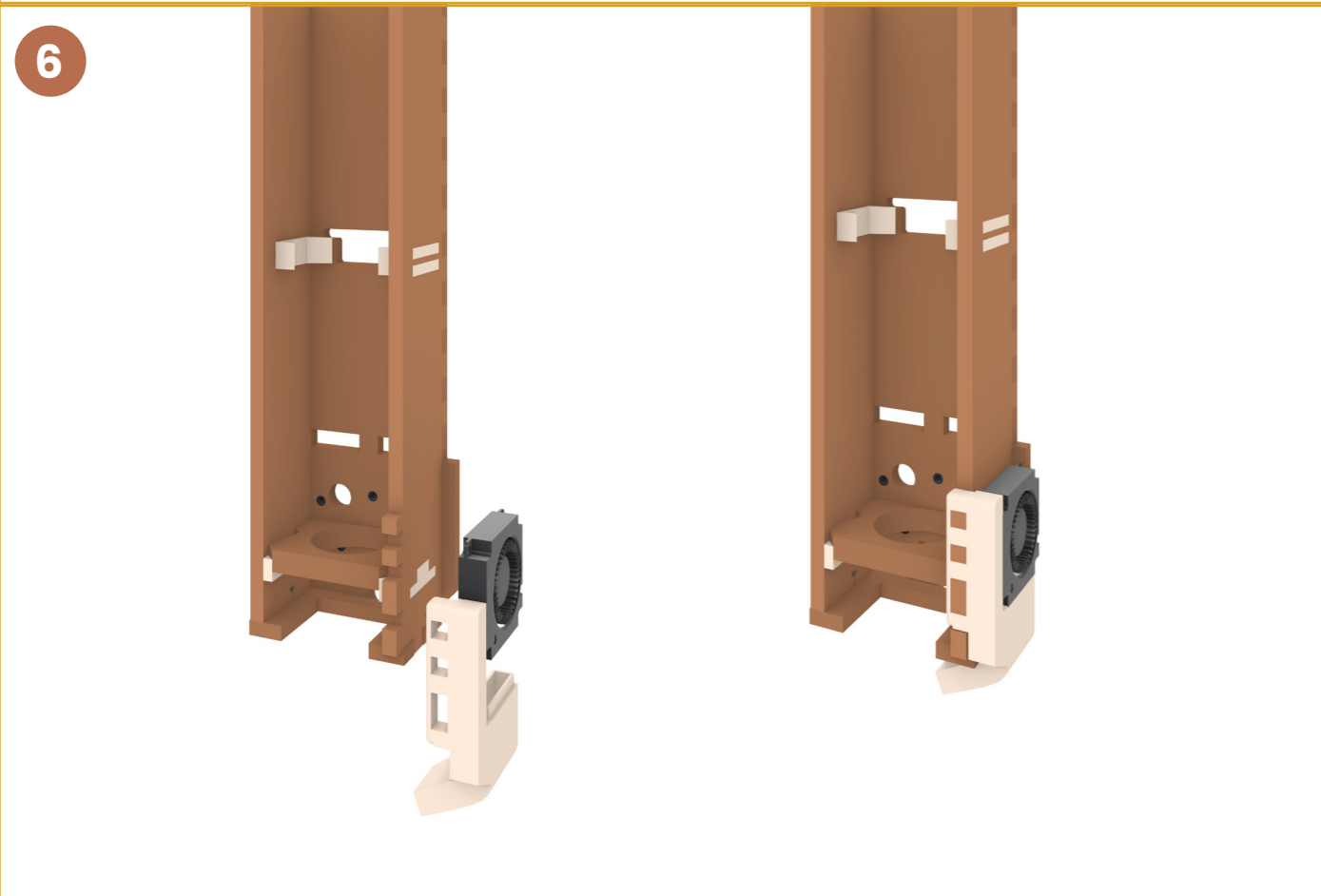
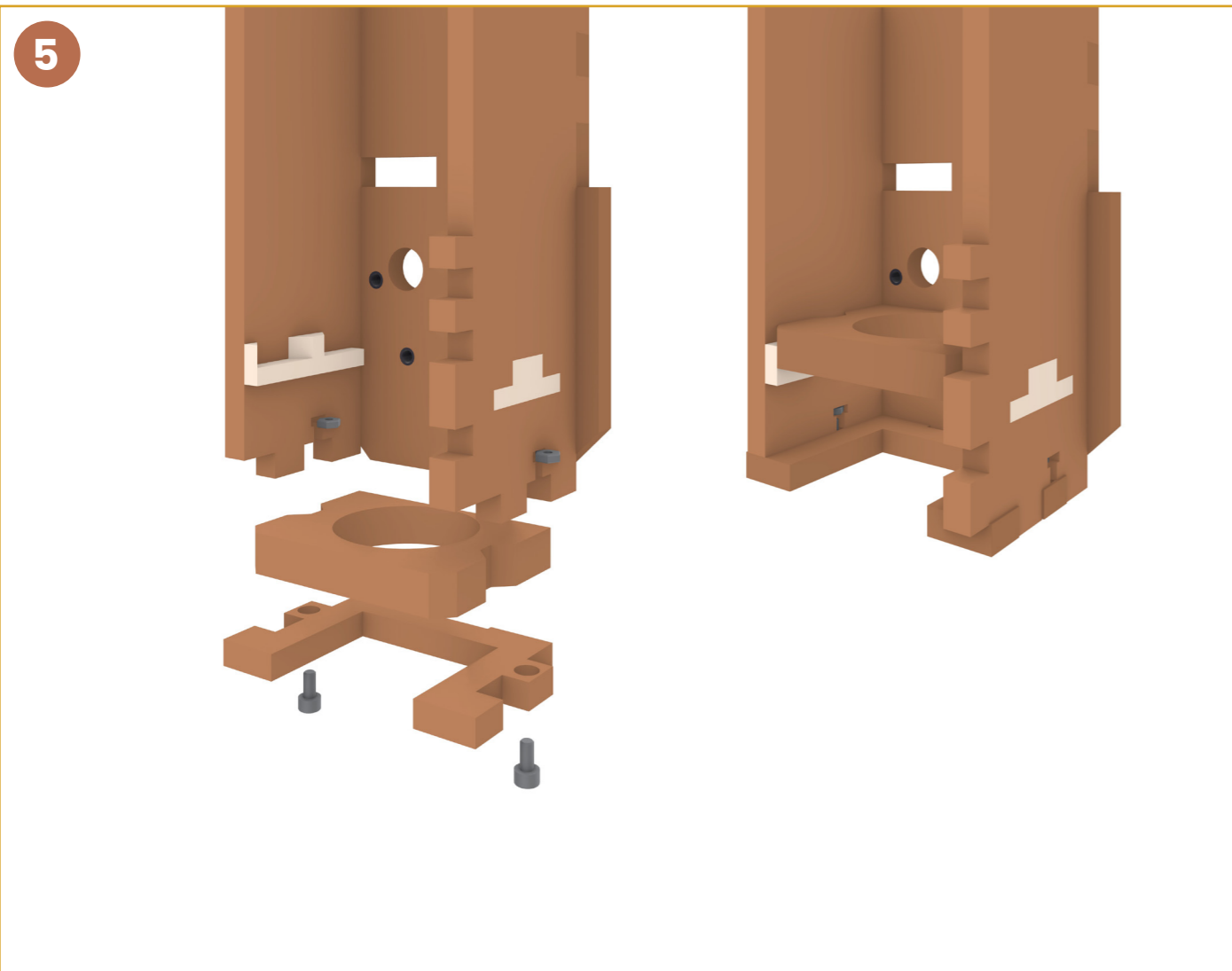
Assembling instructions



j



j

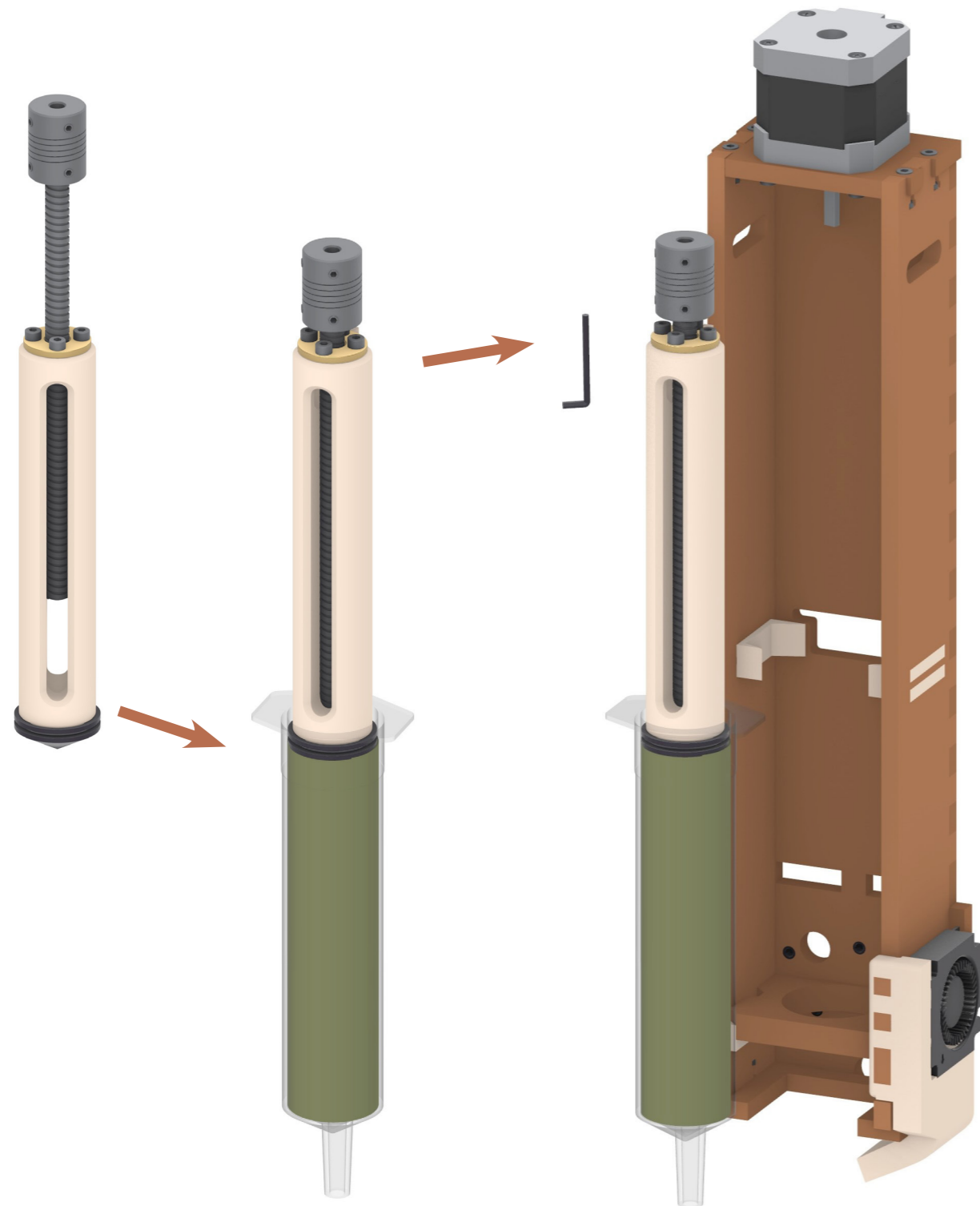


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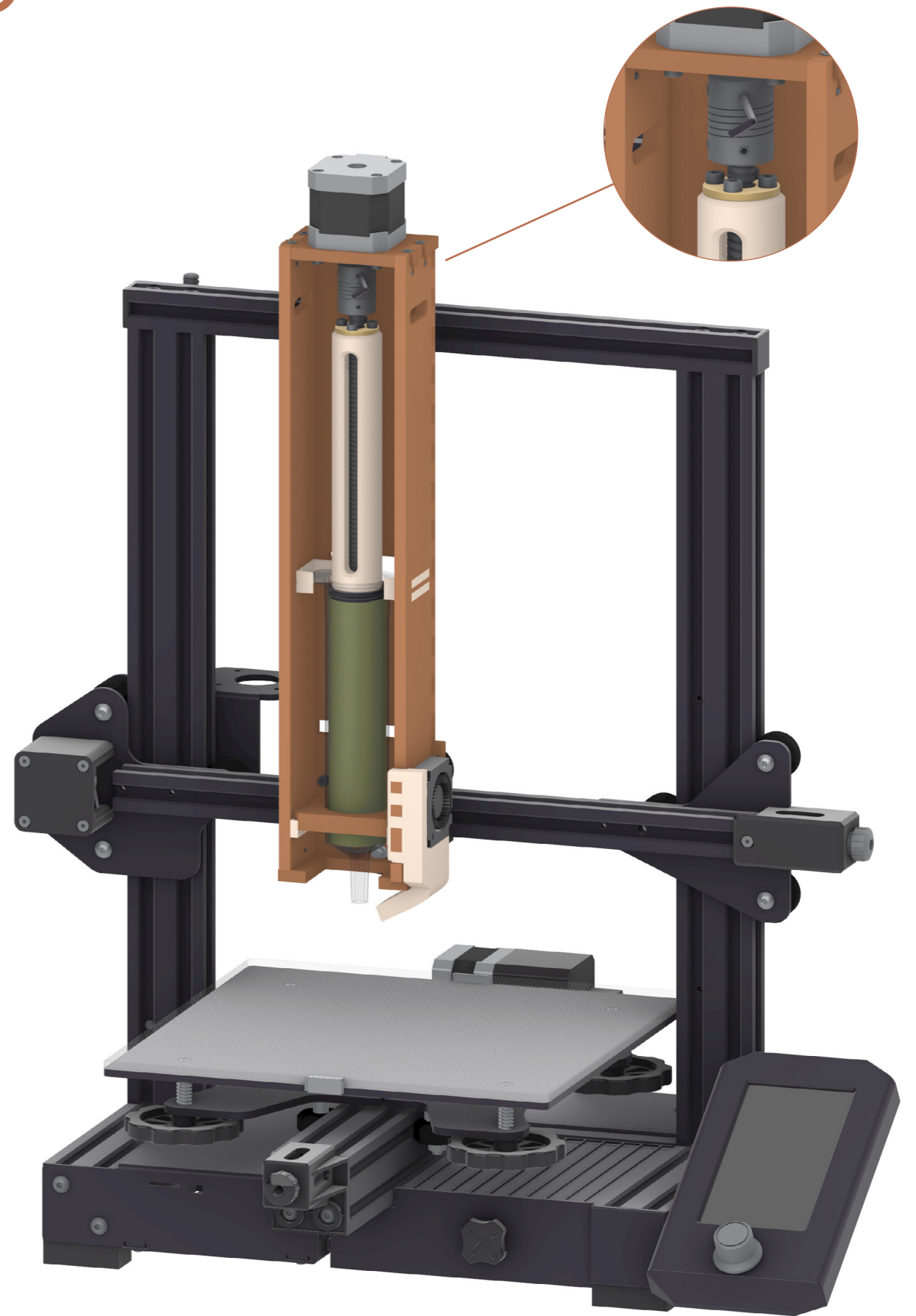
j

9



j

10



j

Firmware update

Please scan the QR code below to access the files needed to complete this step located in a shared drive folder. To access them directly, please follow the link below:

Ender 3 V2 firmware [link](#)

At this moment you will need to upload new firmware to your printer by using a memory card. Before starting, please make sure it is empty and format the card. (Fat32) Download the .bin file and place it in the sd card. Switch off your 3D printer if it was on and plug it off the electricity. Place the sd card in the slot located on your printer and turn the printer on. Wait for around 2 minutes until the firmware is updated. You will see when the process is completed on the screen.

Bed Leveling

Just like with a normal plastic printing setup you have to place a piece of paper under the nozzle and with the help of the screws located on the 4 corners below the bed, you can manually adjust the position of your printing surface. This step is crucial in order to avoid damaging your extruder or print bed.

Note: The height at which you set the nozzle will be recorded as the zero point for the Z axis when you power on the printer. These settings will be reset if you switch off the printer.

After updating the firmware and leveling the bed upload our sample file to an sd card and place it on the dedicated slot. Turn the printer on and start your first print!

[Sample print link](#)



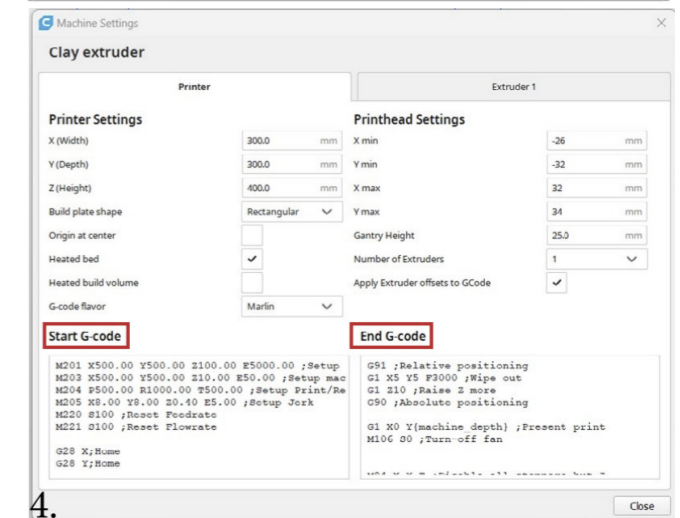
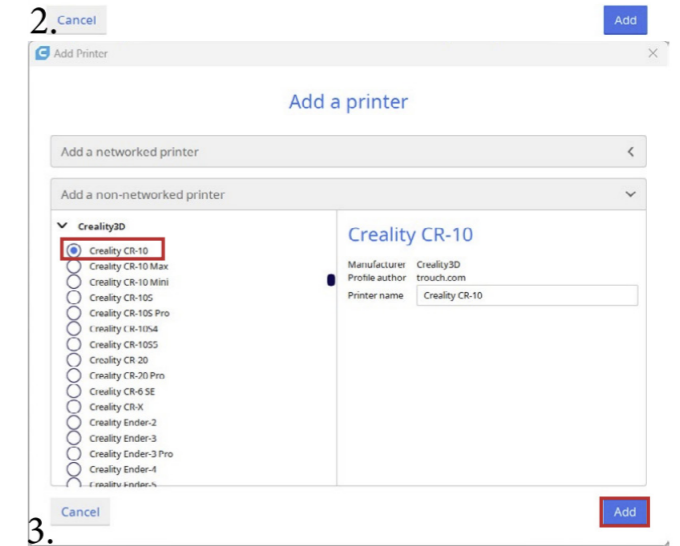
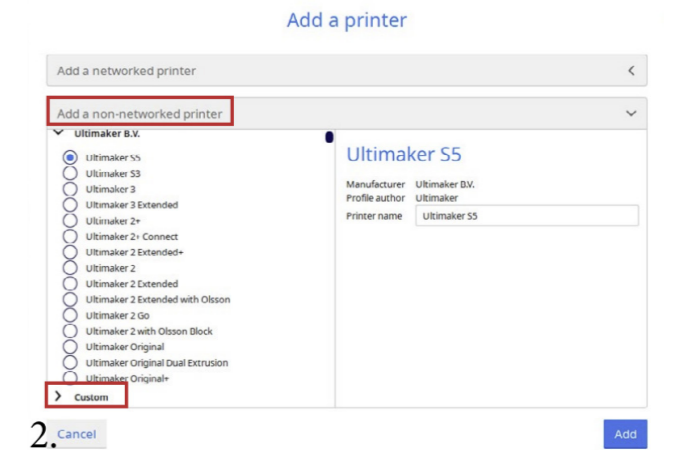
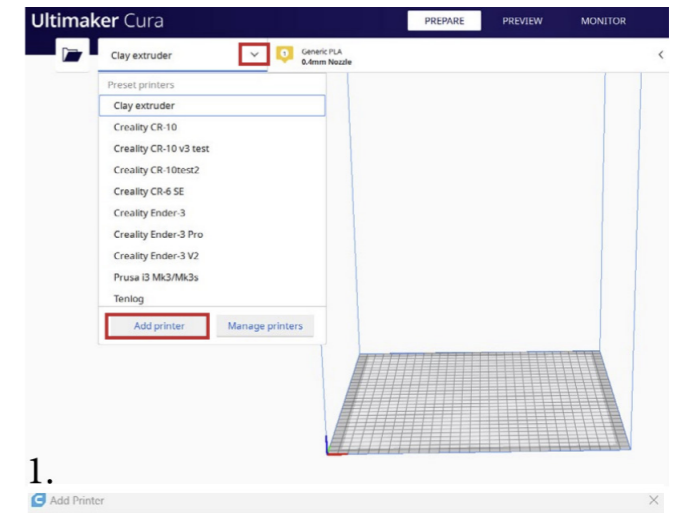
Slicing

UltiMaker Cura

Next, **load the custom Cura profile and paste the start and end .gcode** we have placed in the drive folder. Simply open your Cura slicing software and follow the instructions shown in these images.

*In step 3 choose the type of printer you are currently working with - Ender 3

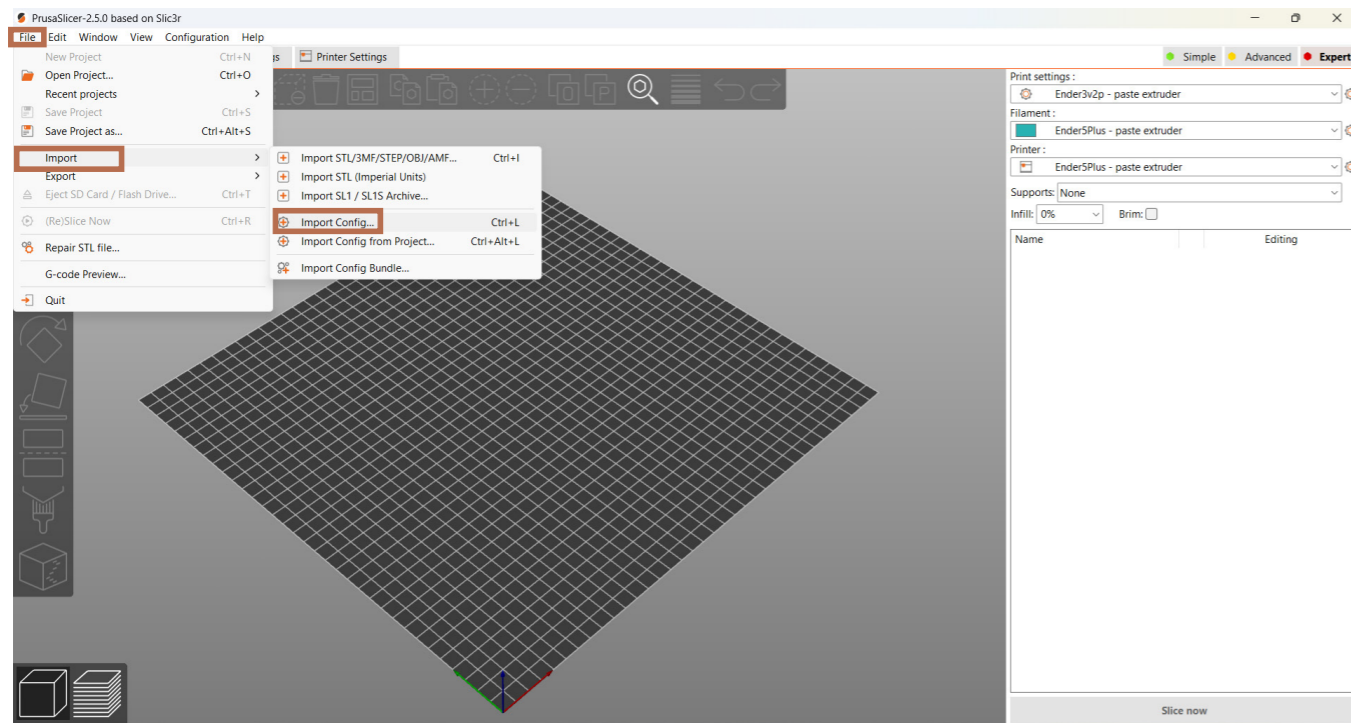
[Cura start&end .gcode link](#)
[Paste extruder cura profile link](#)



PrusaSlicer

If you prefer to slice with Prusa slicer, simply open the software and **load the configuration bundle** we have prepared for you. The process is described with images in the following pages.

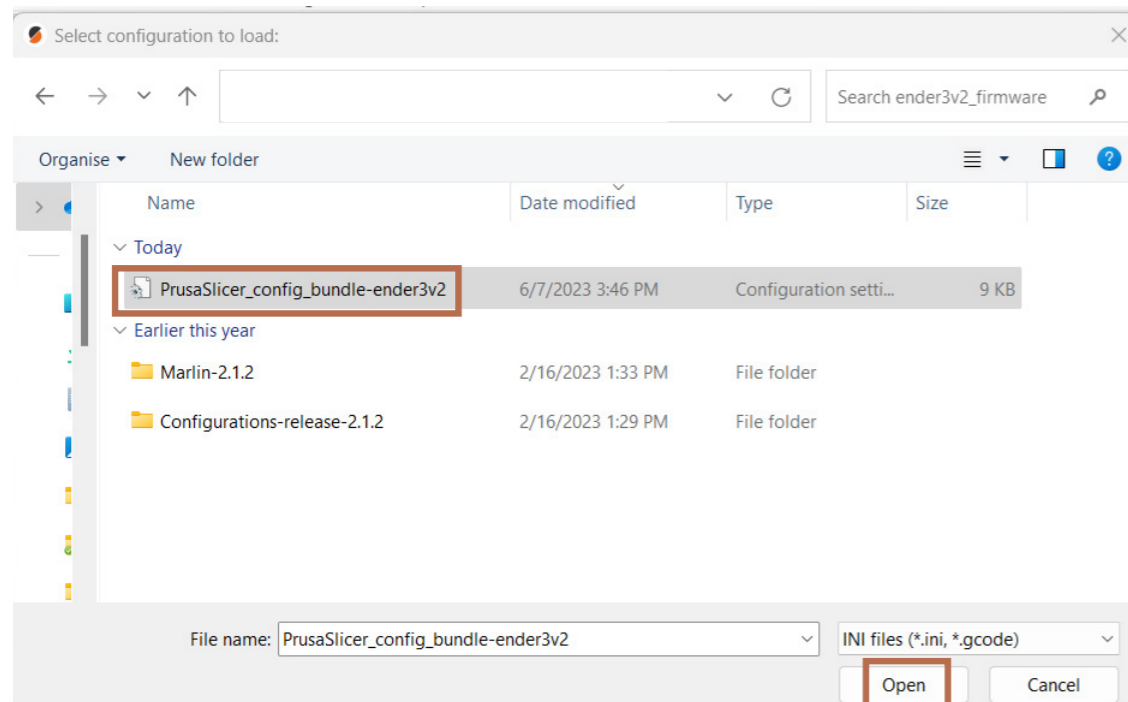
Prusa configuration bundle [link](#)



After setting up the printer and loading the profile, you can upload your file and slice it. Feel free to change the settings according to your wish and printing material. You will need to fine-tune the numbers with every different material in order to make the perfect print. Upload the .gcode to the memory card included in the box and place it in the sd card reader slot on the printer's control box.

Finally, you can start your print file.
That's all!

Happy printing!





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