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1. MMU3 Assembled Core One Introduction

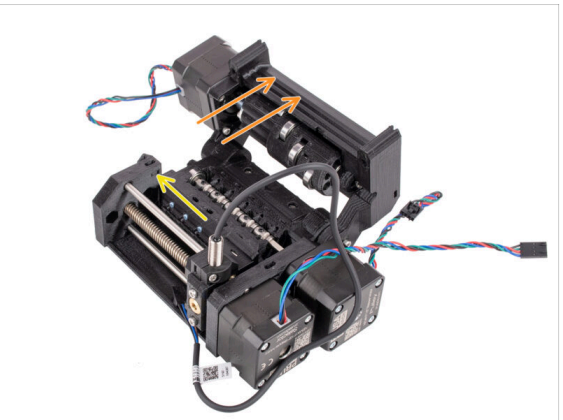
STEP 1 Introduction

- Welcome to the **MMU3 installation** guide.

  This guide focuses on installing the new **Assembled MMU3** unit onto your **CORE One** printer. However, note that the MMU3 is also compatible with other printer models.

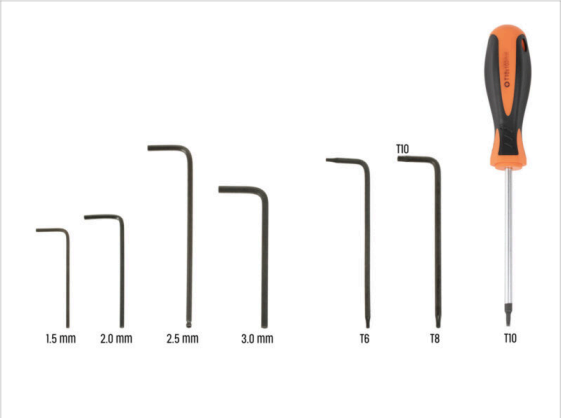
  For more info, visit the MMU3 Compatibility article.

STEP 2 Disclaimer



- **Make sure your printer** is fully assembled and **works perfectly** before you proceed to attach the MMU3 onto it. Make a few single material prints. If it has any issues, fix the issues first. Diagnosing printer issues can be harder with the MMU attached.
- As you embark upon the assembly process, we cannot stress enough the importance of carefully following each and every step.

STEP 3 Tools required



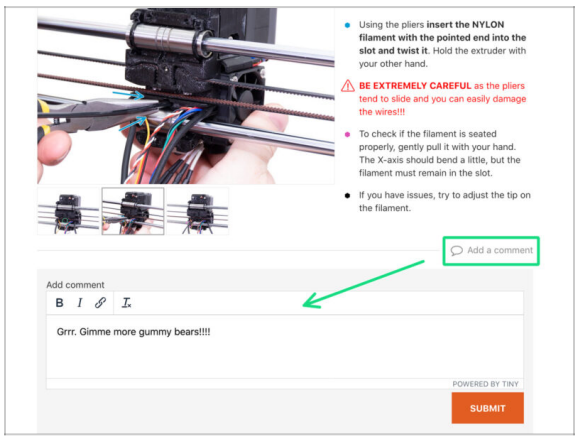
- The **tools needed** for the MMU3 Kit assembly are available as an **optional bundle**.
  - 2.5mm Allen key
  - T8 / T10 Torx key
  - T10 Torx Screwdriver

For some steps, we recommend having the following extras:
- Flush cutters

STEP 4 Labels guide

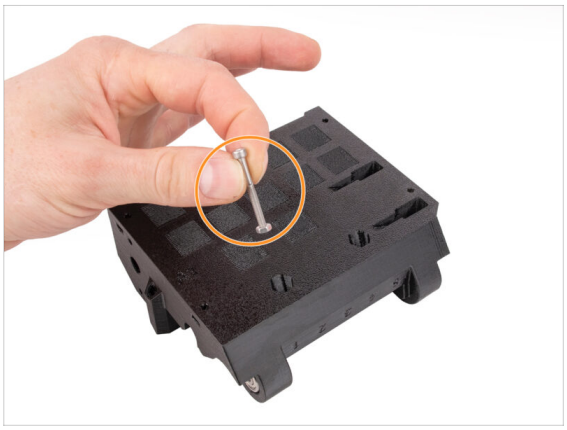
- All the boxes and bags containing the parts for the build are labeled.
- Most of the part drawings on the labels are scaled 1:1 and can be used to identify a part.
- You can download and 2D print a Prusa Cheatsheet with the 1:1 scaled fastener drawings. help.prusa3d.com/cheatsheet. Print it at 100 %, don't rescale it, otherwise, it won't work.

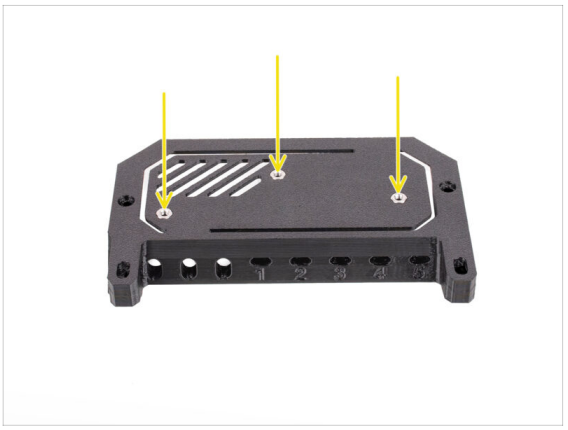
STEP 5 We are here for you!



- Lost in the instructions, missing screw or cracked printed part? **Let us know!**
- You can contact us using following channels:
  - Using our 24/7 live chat
  - Or by writing an email to info@prusa3d.com
  - Or, you can use the comments under each step.

STEP 6 Pro tip: inserting the nuts



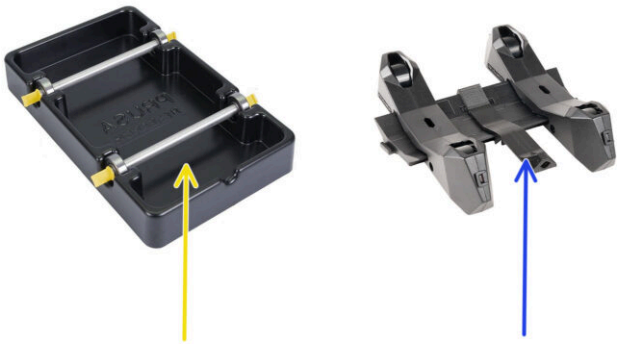


- For deep openings, use a long screw like the M3x30 as a handle to help position the nut.
- If a hex nut won't fit, use a fully threaded screw (e.g., M3x10, M3x18) and insert it from the opposite side to drive the nut into place.

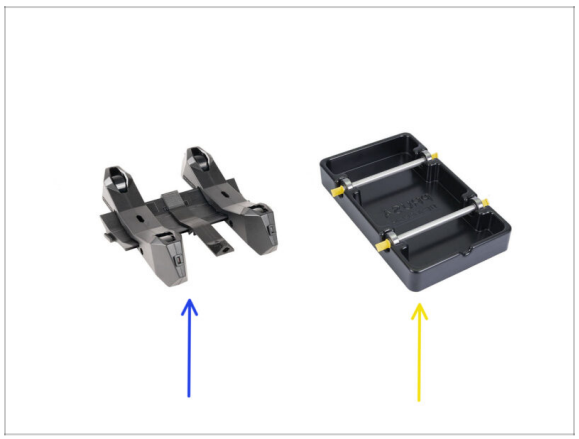
STEP 7 Prepare your desk

- Tidy up your desk! Tidying up decreases the probability of losing small parts.
- **Clear your workspace.** Make sure you have enough room. A nice clear flat workbench will get you the results you are aiming for.
- **Let there be light!** Make sure you are in a well-lit environment. Another lamp or even an extra flashlight will probably come in handy.
- Prepare something to contain the plastic bags and the removed packing materials so you can recycle them afterwards. Make sure there are no important parts being discarded.
- OK, we are ready. Let's start!

7. Spool holder Assembly



STEP 1 Two Spoolholder types



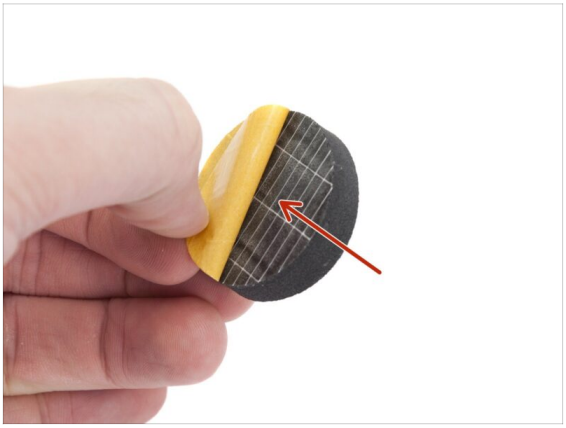
⚠ In this chapter, we will assemble the **spool holders**. Before proceeding, note that there are two types:

- **1. Current Injection-molded** spoolholder
  - Currently shipped in the MK4/S or CORE One versions. Continue to Injection molded spoolholder: parts preparation
- **2. Legacy vacuum-formed** spoolholder
  - This old version used to come with the first MK3S versions or older upgraded units.
    Continue to the Vacuum formed holder parts preparation
  - ⓘ If the large portion of the box is occupied by the rectangular black trays, you have the first version, the older vacuum-formed spoolholders.

STEP 2 Vacuum formed holder parts preparation

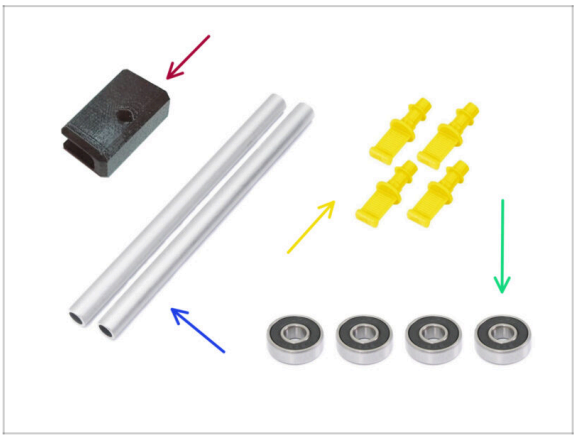
- **For the following steps, please prepare:**
- Spoolholder base (1x)
- Foam pad (4x)
  - ⓘ Note, this is a legacy version of the spool holder. If you have the newer injection-molded spool holders, skip these steps.

STEP 3 Foam pads installation



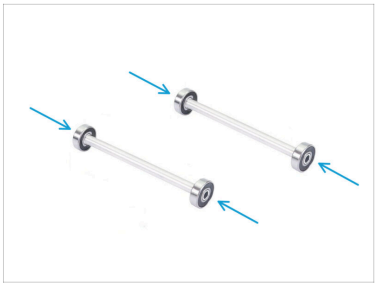
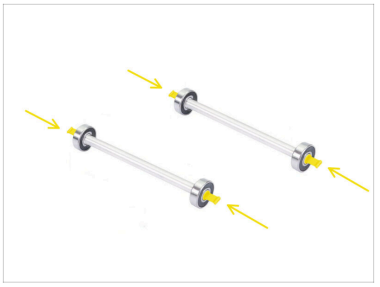
- Turn the spoolholder base upside down.
- Peel off the yellow protective layer off the foam pads.
- Attach the four foam pads into the bottom corners of the spoolholder base.

STEP 4 Rods, Bearings parts preparation



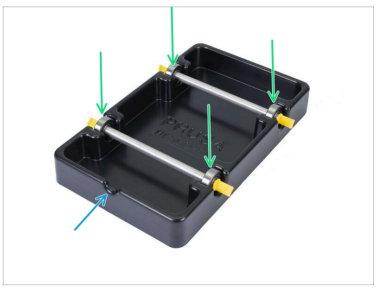
- **For the following steps, please prepare:**
- PTFE holder (1x)
- Shaft (2x)
- Plug (4x)
- Bearing (4x)

STEP 5 Rods and bearings assembly

- Attach a bearing onto each end of both rods.
- Attach the plugs onto the rod ends to fix the bearings on each rod.

STEP 6 Finishing up the Spoolholders (vac. form.)



- Attach the rods with bearings into the base part so that the bearings engage into the corresponding grooves on the base.
- There is a notch on the front part of the spoolholder.
- Attach the PTFE holder onto the notched front part of the spoolholder.
- Repeat the same steps to build the remaining spool holders until you finish all five.

STEP 7 Injection molded spoolholder: parts preparation

⚠ **If you have the injection-molded spoolholders instead, continue from here.**

- If you already assembled your **rectangular vacuum-formed spoolholders**, please, **skip to the next chapter.**

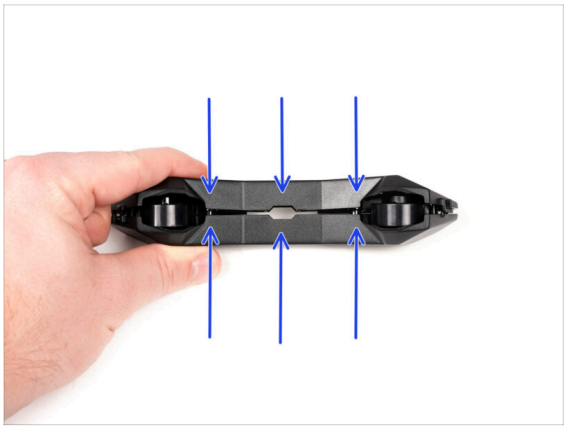
STEP 8 Injection molded holder parts preparation

- **For the following steps, please prepare:**
- Spool holder Base (4x)
- Spool holder Guide (1x)
- Spool holder Wheel (4x)
  - ⓘ Wheels shipped after April 2024 are made of POM. We recommend using this version over the earlier models made from ABS.
- sheet of Foam Pads (1x)
- PTFE holder (1x)

STEP 9 Base assembly (part 1)

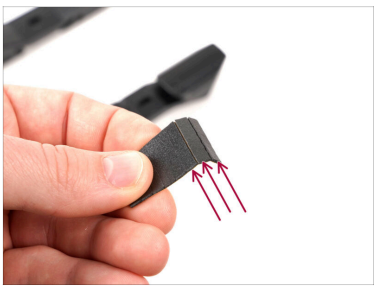
- Take one Base part. Arrange it as seen in the picture.
- Insert two wheels into the Base.
- Cover the assembly with another Base part on top.

STEP 10 Base assembly (part 2)



- Push both Base parts together until they fully engage one into the other.
- Verify the Base parts hold together properly.
- Repeat the same steps for the other side part of the spool holder, until you get two of these.

STEP 11 Foam pads installation (part 1)



- Take the foam pad sheet. Bend it to separate the individual foam pad strips.
- There is a bending line inside the inner opening on the bottom of the spoolholder side part.
- Attach an individual foam pad strip onto the middle of the bending line inside the opening, as seen in the picture.

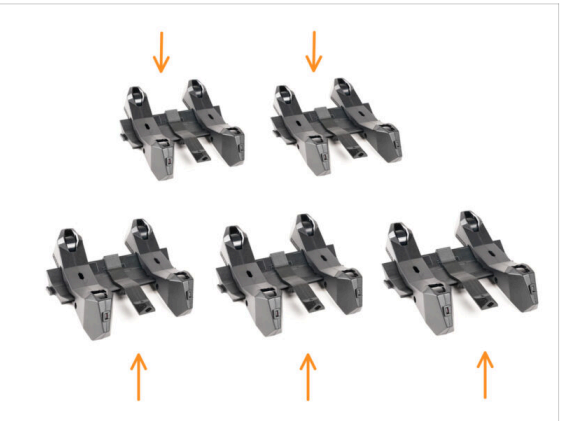
STEP 12 Foam pads installation (part 2)

- Attach another four foam pad strips onto the marked positions on the bottom of the spool holder side part.
- Install another six foam pad strips onto the other side part of the spool holder.

STEP 13 PTFE holder assembly

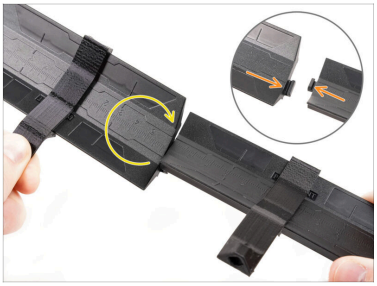
- Take the spoolholder Guide part. Hook the end of the PTFE holder onto the Guide
- Make sure the longer part of the PTFE holder is located at the narrower side of the Guide part.
- Push the PTFE holder down onto the Guide until it fully engages and locks in place.

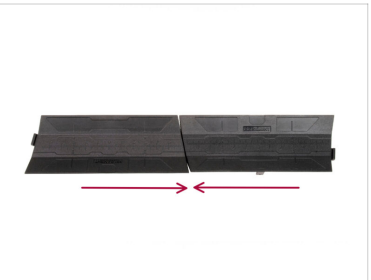
STEP 14 Finishing up the Spoolholders (inj. mol.)

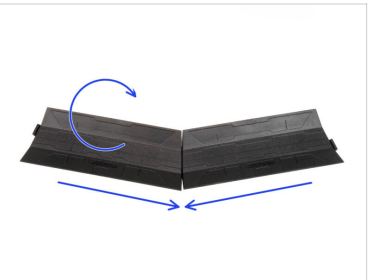


- Slide the side parts onto the Guide part.
- Repeat the same steps for the remaining Spool holders, until you assemble all five. (Don't forget about the foam pads on the bottom!)

STEP 15 Joining the Spoolholder Guides







- There are protrusions on each side of the Guide part.
- Using these protrusions, the Guide parts can be joined together. To join them together, simply tilt in the Guide parts one into the other until the protrusions click in.
- The Guides can be joined together in form of a straight line.
- Or, if you flip one of the Guides around, they can be joined in an arc pattern. This is handy to form an arc of spool holders around the Buffer so that each filament path is as straight as possible.

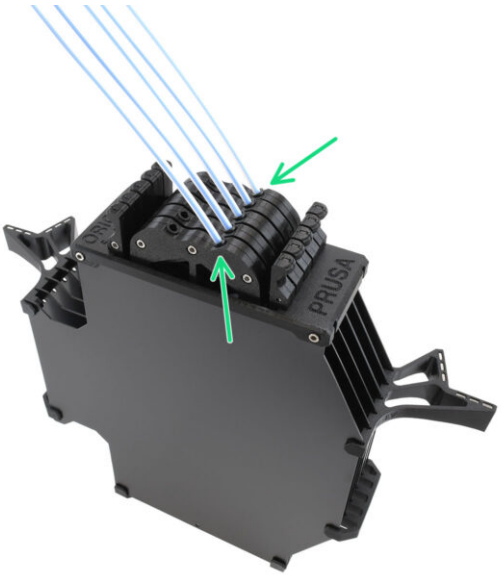
STEP 16 Buffer Types

- In the upcoming chapter, we will be assembling the **Buffer**. There are two basic types, depending on your printer.

Important note: If you ordered the assembled Original Prusa MMU3 for CORE One, **your package contains parts for both buffer variants** (for CORE One and for the MK4/S). This is done to simplify production. The correct parts for the CORE One are in a separate box.

- If you have the CORE One printer, continue to the 8B. Core One Buffer Assembly
- If you have the MK4/S, MK3.9/S, MK3.5/S or MK3S/+, continue to the 8A. Cassette Buffer Assembly

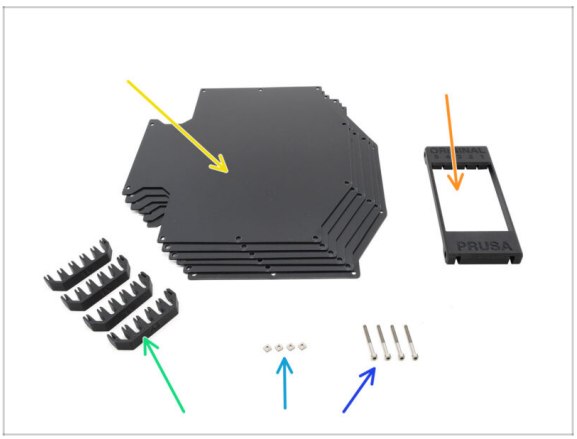
8B. CORE One Buffer Assembly



STEP 1 Tools necessary for this chapter

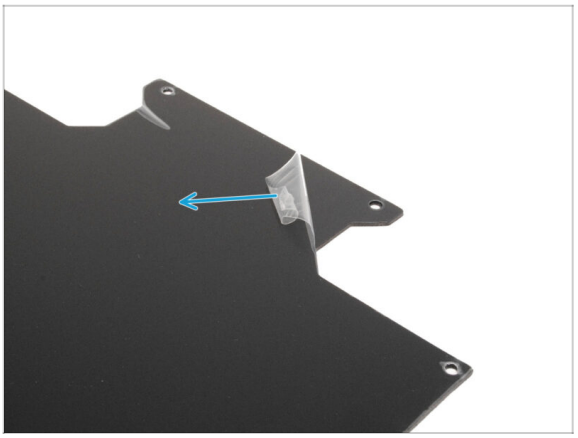
- **Please prepare tools for this chapter:**
  - 1.5mm Allen key for possible nut alignment
  - 2.5mm Allen key for M3 screws

STEP 2 Buffer Plates Preparation



- **For the following steps, prepare:**
- Buffer plate (6x)
- Segmenter (1x)
- Plate Holders (4x)
- M3x30 Screw (4x)
- M3nS nut (4x)

STEP 3 Plates Peeling

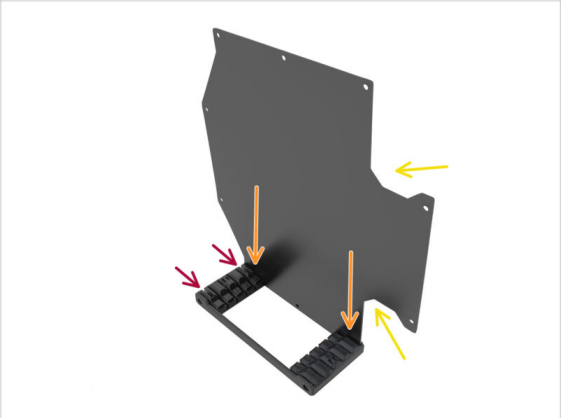


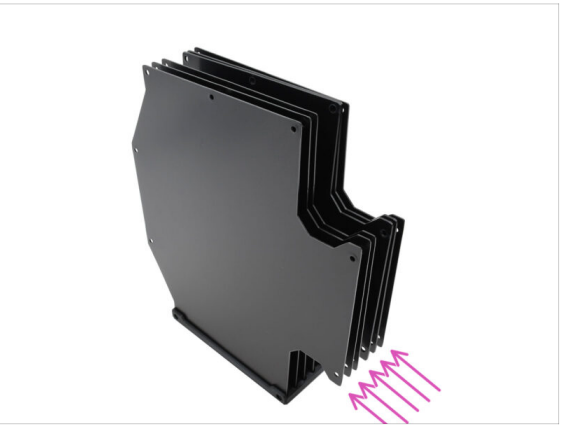
- Peel the **protective layers off the both sides** of the buffer plates.

STEP 4 Segmenter Nuts

- Take the Segmenter part and position it as shown in the picture.
  Lay it on its flat side and rotate it so the **larger cutouts face away** from you.
- Insert the four M3nS nuts into the correspoinding pockets in the center. Push them all the way in.

STEP 5 Plates Installation



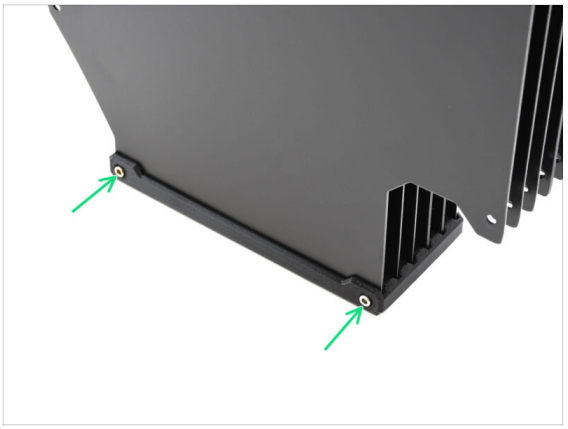


- Install the first buffer plate into the Segmenter.
  - Make sure the large cutouts in the plate are facing you.
  - Make sure the two larger slits in the Segmenter are facing away from you.
- Insert the remaining five sheets into the corresponding openings in the Segmenter.

STEP 6 Plate Holder Installation

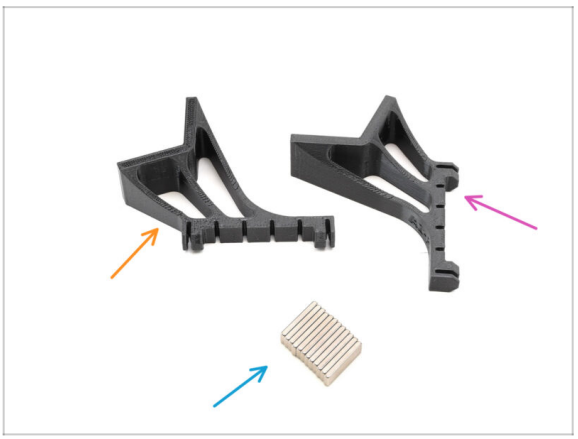
- Fix the plates together using the Plate holder in the marked position.
  - Make sure all the plates are seated properly.
- Install the remaining plate holders so that the assembly is held together in the marked positions.

STEP 7 Segmenter Screws



- Secure the plates to the Segmenter part using two M3x30 screws from one side.
  - ⓘ Tighten the screws in the position shown to prevent the M3nS nuts from falling out of the Segmenter part.
- Tighten the remaining two M3x30 screws from the other side.

STEP 8 Plate Holder L & R Preparation



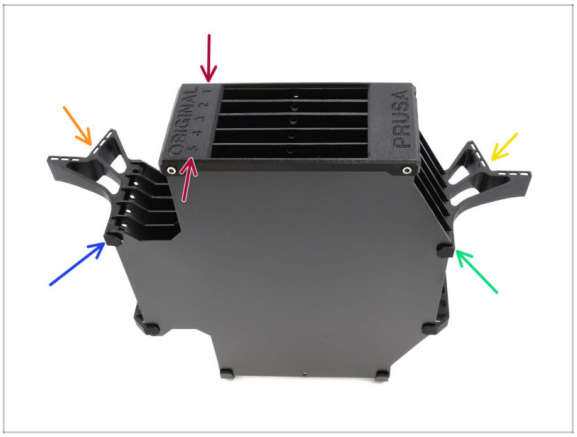
- **For the following steps, prepare:**
- Plate holder L (1x)
- Plate holder R (1x)
- Magnet 2x6x20 (12x)

STEP 9 Magnet Installation

- Install all twelve magnets into the marked openings on both the Plate holder L and R parts.

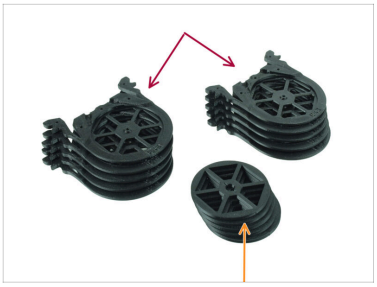
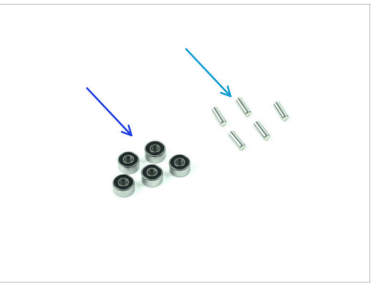
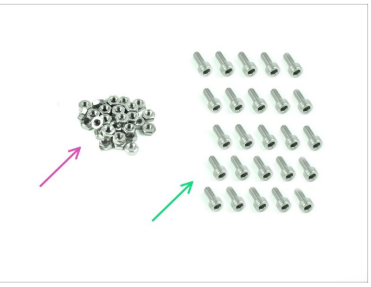
  ⓘ Make sure all the magnets are fully inserted.
  The orientation of the magnets is not important.

STEP 10 Plate Holder L & R Installation R Installation



- Orient the assembly so that the segmenter is on top, with the position labeled 1 facing away from you and position 5 toward you.
- Install the Plate Holder L onto the left side of the assembly.
  - The magnets should face away from you, toward position 1.
- Install the Plate Holder R onto the right side of the assembly.
  - The magnets should face away from you, toward position 1.

STEP 11 Buffer segment preparation

- **For the following steps, prepare:**
- Buffer Segment (10x)

  ⚠ Make sure you are using the latest version of the Buffer segment.
- Wheel (5x)
- Ball Bearing 693-2rs (5x)
- Shaft 2.9x8.5 (5x)
- M3n nut (15x)
- M3x6 screw (25x)

STEP 12 Segment assembly (part 1)


- Insert the bearing into the center opening in the wheel.
- Make sure the bearing is inserted all the way in, until flush with the surface.
- Repeat for the remaining four wheels.

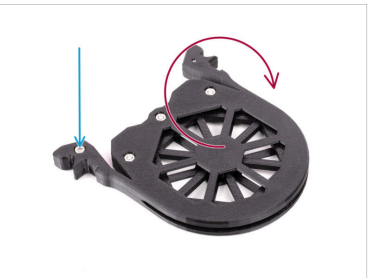
STEP 13 Segment assembly (part 2)



- Insert three M3n nuts into the marked openings on the Segment and push them all the way in.
- Add the wheel into the center of the segment.
- Push the Shaft all the way through the middle of the bearing, until it engages into the segment below.

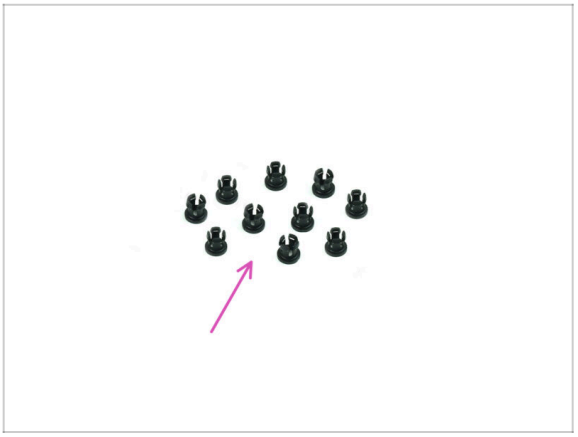
STEP 14 Segment assembly (part 3)





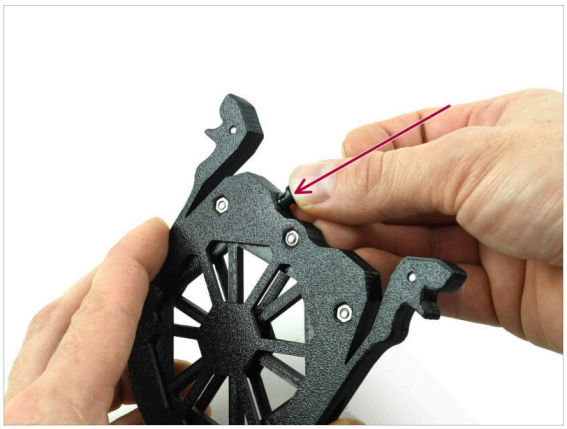
- Cover the assembly with another Segment part. Push both parts together to make sure the center shaft engaged into the top segment too.
- Join both parts together using four M3x6 screws.
- Turn the assembly around.
- Add the fifth M3x6 screw from the other side.
- Assemble all the remaining segments, using the same technique.

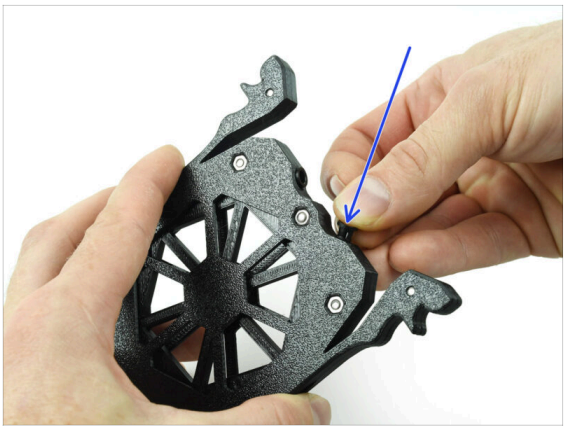
STEP 15 Collets: parts preparation



- **For the following steps, prepare:**
- Collet (10x)

STEP 16 Collet installation

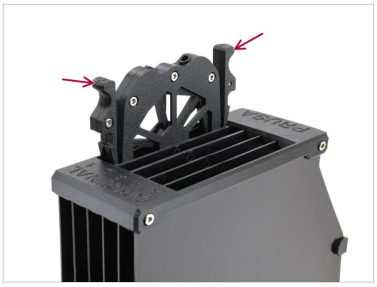
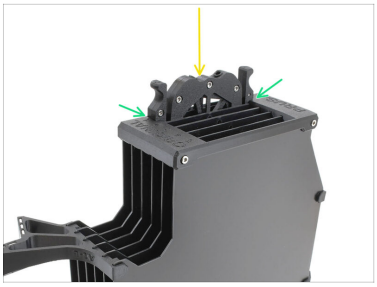




- Insert one of the collets into the marked position on the cartridge.

  ⚠ Note, for an easier instalation, you might want to squish the small fins together while you insert the collet into the opening. Otherwise, one of the fins might spread outwards, resulting in a damaged collet.
- Insert another collet into the other opening.
- Install collets into the remaining four cartridges too.

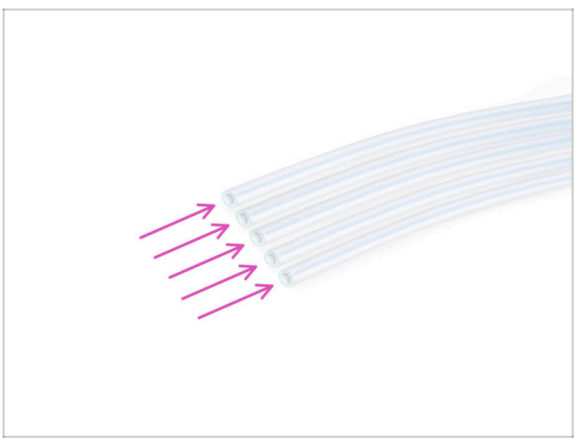
STEP 17 Cartridge installation


- Now, prepare all 5 cartridges and the buffer body.
- Take one of the cartridges and hold it by the two handles. Squish the handles together for insertion.
- Insert the cartridge into the buffer body.
- Make sure the cartridge is properly inserted.

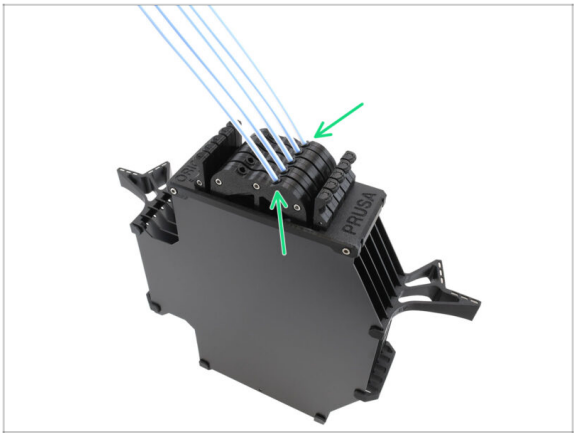
  For a later cartridge removal, squish the two handles together and pull it out.
- Insert all the cartridges into the buffer body.

STEP 18 PTFE tubes parts preparation



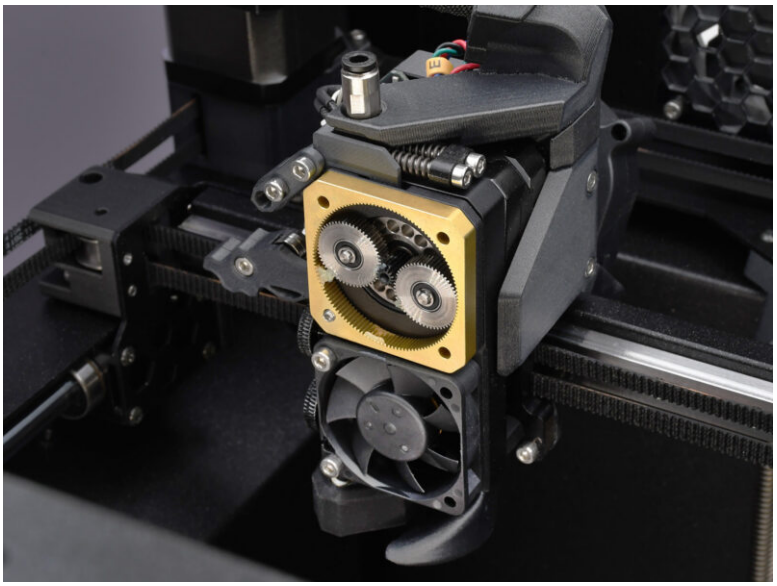
- **For the following steps, prepare:**
- PTFE 650mm (5x)

STEP 19 PTFE tubes installation

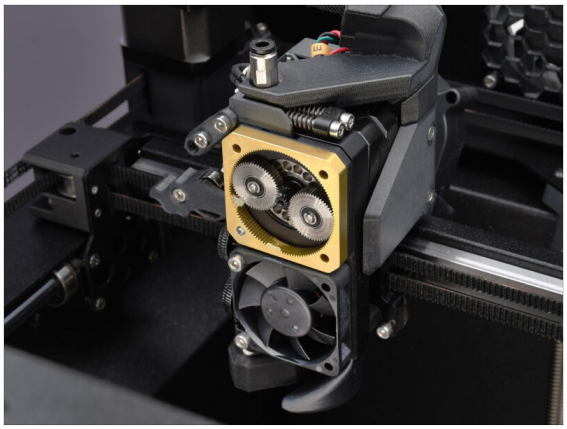


- Insert the PTFE tubes into the row of collets on the right of the cartridges. Push them all the way in.

9D. CORE One Nextruder mod



STEP 1 Introduction



- In this guide, we're going to **modify the Nextruder** on your **CORE One** to accomodate the MMU functionality.

⚠ Before continuing, make sure there is no filament loaded in the printer.

- Power off your printer and disconnect it from the power.

STEP 2 Spare parts bag

- During the conversion of the Nextruder to the multi-material version, you'll encounter similar but distinct parts. We suggest keeping a spare parts bag for components that will no longer be used.

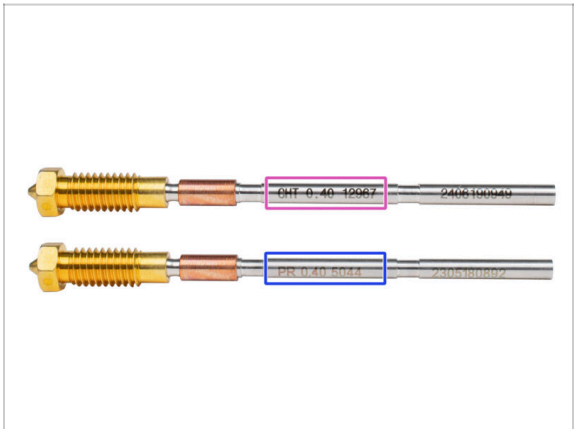
Don't worry, our guide will clearly show which parts to reuse and which to set aside.

- Let's begin!

STEP 3 Tools Necessary

- **For this chapter, please prepare:**
- 2.5mm Allen key
- T8 / T10 Torx key
- T10 Torx Screwdriver

STEP 4 Prusa Nozzle Info



- There are two main versions of the Prusa Nozzle that we ship with the printers:
  - **High Flow** Prusa Nozzle brass CHT (marked CHT)
  - **Regular** Prusa Nozzle brass (marked PR)
- The **CORE One** comes with the Prusa Nozzle CHT by default. However, for best MMU3 performance, **we recommend switching to a standard Prusa Nozzle.**

ⓘ High-flow nozzles are also usable, but they need specific HF Nozzle Slicer profiles with large purge volumes.

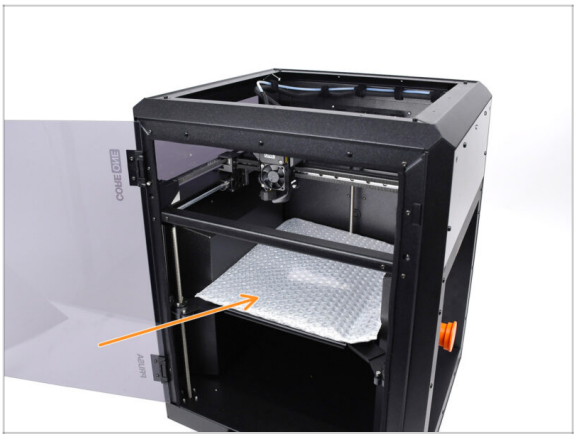
- To replace the nozzle, please follow the Nozzle Replacement guide.

⚠ Once completed, return to this manual to continue with the assembly.

STEP 5 Top Cover Removal

- Open the printer. From the inside, reach for the nylon rivets on the front right of the top cover. Push it out to unlock it.
- Then, remove the rivet from the outside.
- Remove the remaining nylon rivets on the top cover using the same technique.
- Remove the top cover and store it as a spare part.

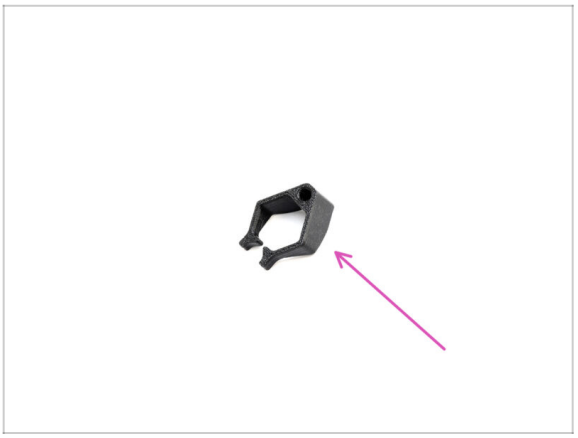
STEP 6 Heatbed Protection



⚠ Before proceeding any further, it is recommended to protect the heatbed first!

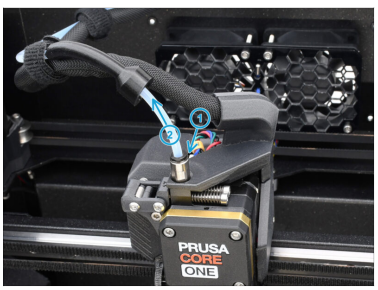
- Use a piece of fabric or other material thick enough to cover the heatbed. This will ensure you won't damage (scratch) the surface during the process.

STEP 7 PTFE Holder Preparation



- **For the following steps, prepare:**
- extruder_PTFE_holder (1x)

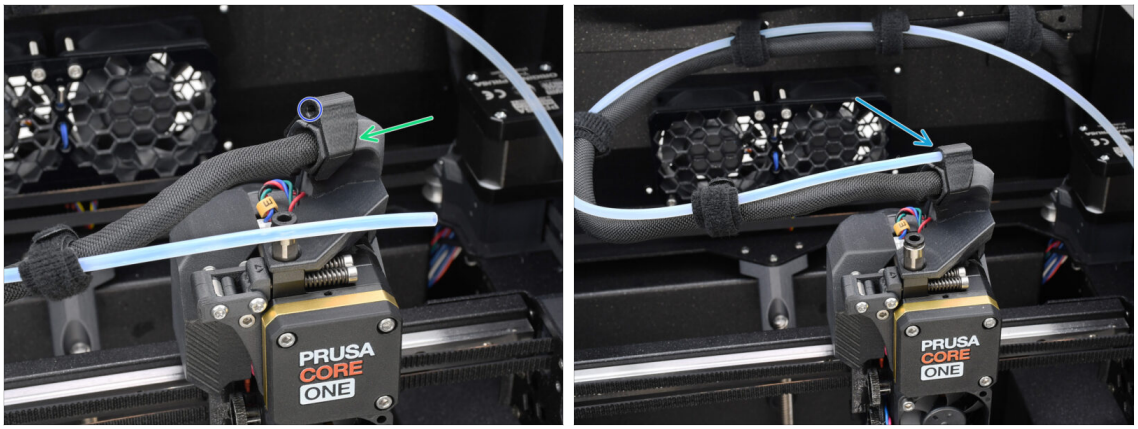
STEP 8 PTFE Tube Removal



- Lift the bowden-bend plastic part.
- Remove the PTFE tube from the extruder. by pushing the collet on the fitting, while pulling the PTFE tube.

  Press and hold the collet on the fitting. While holding it down, push the PTFE tube in, then pull it out.
- Remove the bowden-bend part and store it as a spare part.

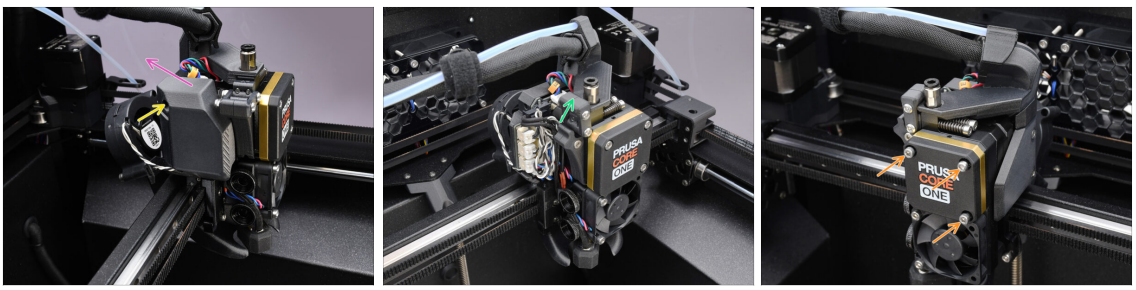
STEP 9 PTFE Holder Installation



- Install the extruder_PTFE_holder onto the main cable holder.
  - Make sure the part with the round opening faces the cable.
- Push the end of the PTFE tube into the holder.

ⓘ This way, the original single-material PTFE tube stays in place and can be reattached if you convert the printer back to a single-material setup.

STEP 10 Nextruder disassembly (part 1)

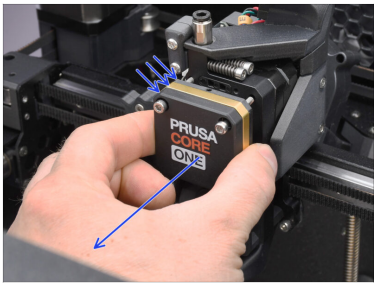


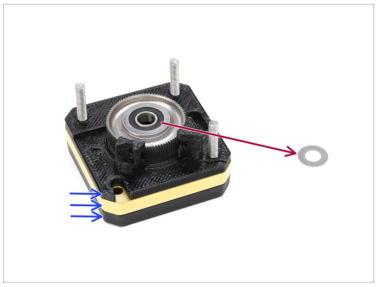
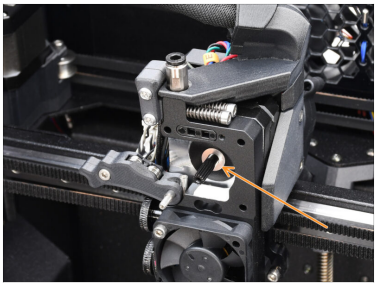
- Using the 2.5mm Allen key, remove the M3x10 screw holding the side cover.

ⓘ Some older printer versions might have two screws with a T10 head.

- Remove the cover.
- Open the Idler swivel.
- Fully loosen the M3x25 screws holding the gearbox cover.
  Leave the screws in place. Do not remove them entirely yet.

STEP 11 Nextruder disassembly (part 2)

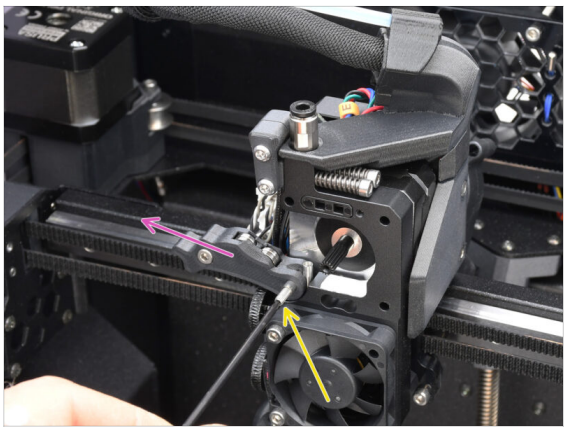
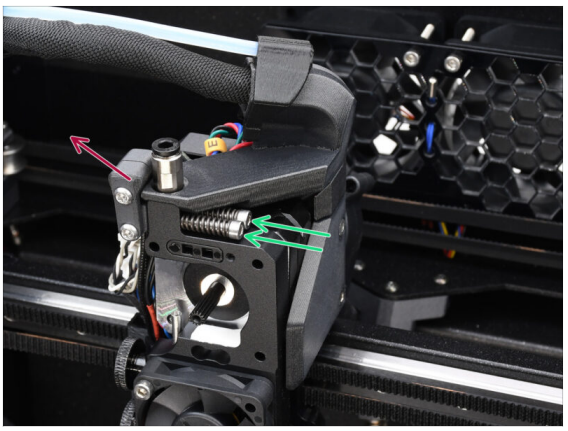


- Remove the whole **gearbox assembly** from the Nextruder.
- Locate the **metal washer** that should be between the gearbox and the motor. It might be stuck to the gearbox assembly.
- Reseat the washer / spacer on the motor shaft, in case it has come off the shaft.

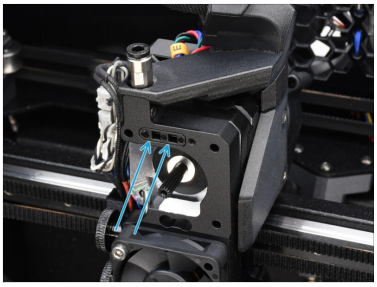
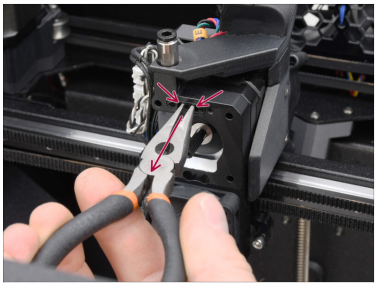
The parts might be greasy. Clean off any excess grease.

STEP 12 Nextruder disassembly (part 3)

- Using the 1.5mm Allen key, remove the **set screw**.
- Remove the Idler.
- Remove the two M3x30 screws with the springs.
- Remove the idler swivel assembly.

STEP 13 Nextruder disassembly (part 4)

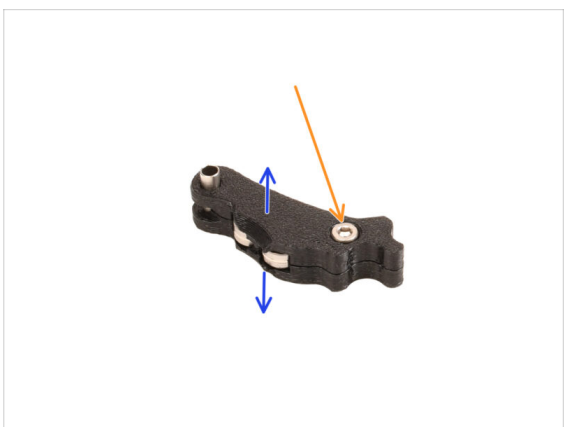




- On top of the **Nextruder heatsink**, there is a **filament sensor assembly**. We will need to remove it.
- Using the needle-nose pliers, gently pull the filament sensor assembly out of the heatsink.

  Proceed very carefully, there is a spring and a very tiny ball that can fall out!

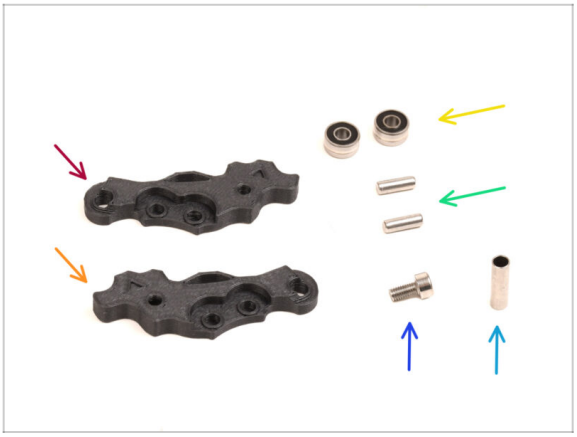
  In case the filament sensor assembly is hard to pull out, reach into the filament opening on top with the 2.5mm Allen key to push the steel ball inside the assembly in. Then, pull the filament sensor assembly out.
- This filament sensor assembly will not be used with the multi-material Nextruder. Store it in a spare parts bag.

STEP 14 Idler disassembly



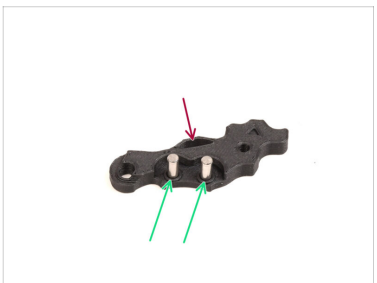

- We will need to take the Idler assembly apart.
- Remove the M3x6 screw.
- Split the printed parts to open it up.
- Set aside for later use: **Bearings, pins, spacer and the screw.**
- The printed parts won't be re-used. Set them aside so that they don't mix up with the new parts.

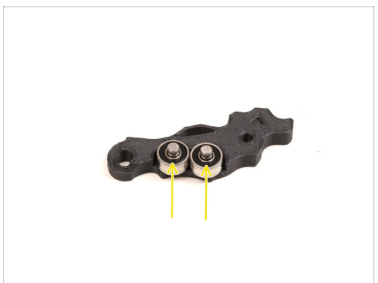
STEP 15 New Idler parts preparation



- **For the following steps, please prepare:**
- Idler-lever-a (1x) *the new part*
- Idler-lever-b (1x) *the new part*
- Bearing 693 2RS (2x) *you removed earlier*
- Pin 2.9x8.5 (2x) *you removed earlier*
- M3x6 screw (1x) *you removed earlier*
- Spacer tube 13.2x3.8x0.35 (1x) *you removed earlier*

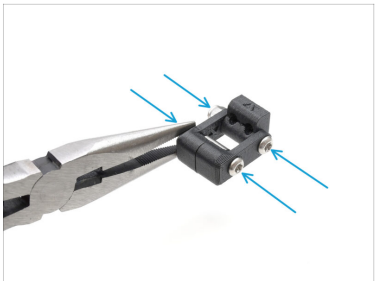
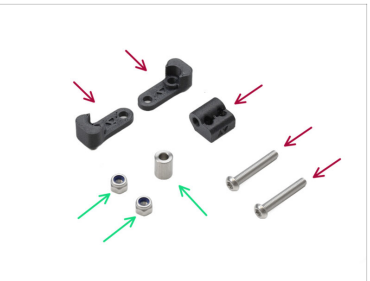
STEP 16 New Idler assembly





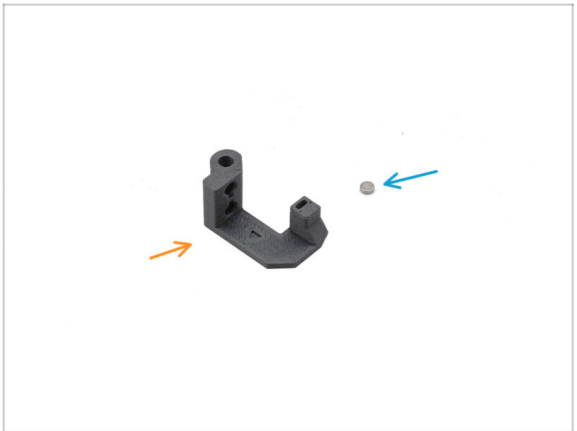
- Take the new Idler-lever-a part.
- Insert the two pins into the corresponding openings.
- Mount the bearings onto the pins.
- Cover the assembly with the Idler-lever-b part.
- Insert the spacer tube into the corresponding opening.
- Fix the assembly together using the M3x6 screw.

STEP 17 Swivel disassembly

- We will need to take the Swivel assembly apart.
- Using the T10 Torx key, remove the screws while you hold the nuts using the needle-nose pliers.
- Set aside for later use: **M3nN nuts and spacer**.
- The printed parts and the screws won't be re-used. Set them aside so that they don't mix up with the new parts.

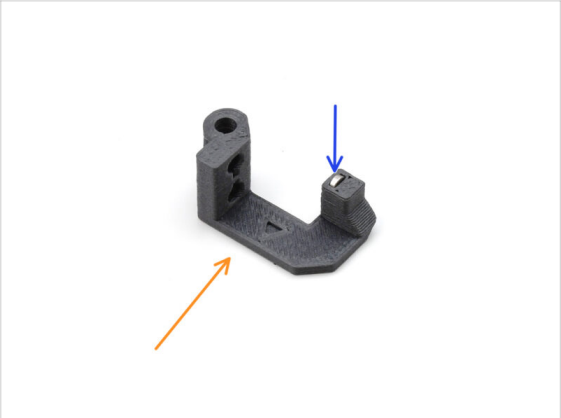
STEP 18 Idler nut FS parts preparation

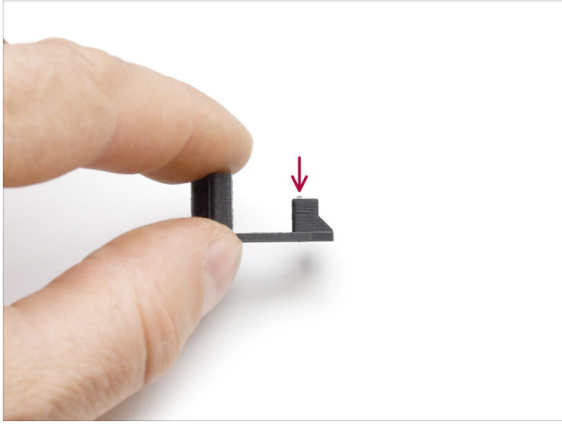


- **For the following steps, please prepare:**
- Idler nut FS (1x) the new part
- Magnet 3x1mm (1x)

ⓘ Two tiny magnets are included. Separate them and use only one; the other is a spare.

STEP 19 Idler nut FS assembly





- Arrange the **Idler nut FS** part as seen in the picture.
- Install the tiny 3x1mm magnet into the marked opening on the Idler nut FS part.
- Push the magnet all the way in, until it stops.

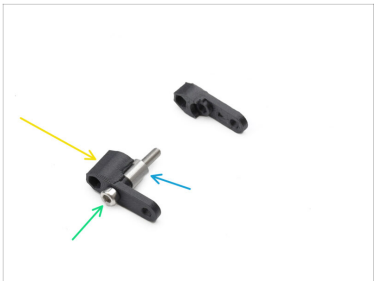
ⓘ The polarity / orientation of the magnet isn't important. The printer will automatically adapt to it during the filament sensor calibration process.

STEP 20 New Swivel Preparation

- **For the following steps, please prepare:**
- Idler nut FS (1x) *with the 3x1mm magnet installed*
- Swivel B (1x) *the new part*
- Swivel A (1x) the new part
- M3nN nut (2x)
- Spacer 6x3.1x8 (1x) *you removed earlier*
- M3x22 screw (2x)

⚠ This screw is a new type not previously used on a printer! Do not reuse old screws, as they are a different size and would not fit properly!

STEP 21 New Swivel Assembly 1



- Take the Swivel A part and orient it as seen in the picture.
- Insert the **M3x22 screw** into the opening near the thick part of the Swivel A.
- Slide the **spacer** onto the screw.
- Insert the second **M3x22 screw** into the other opening on the side.
- Slide the **Idler nut FS** part onto the other M3x22 screw.

STEP 22 New Swivel Assembly 2

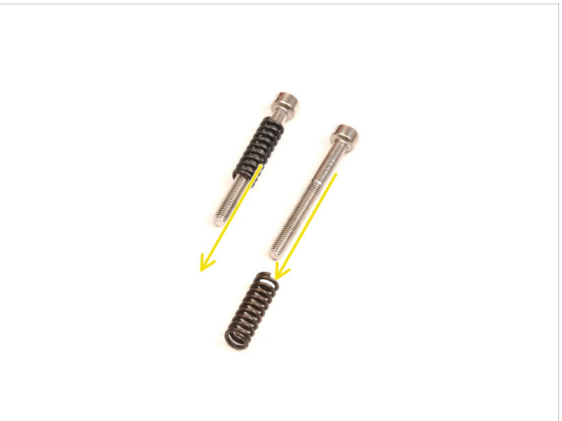


- Orient the Swivel assembly as seen in the picture.
- There is a tiny magnet in the Idler nut FS part. Make sure it is in place.

  ⓘ In case the magnet has fallen out, there is a replacement one in the package.
- Slide the **Swivel B** part onto the screws.
- Attach the M3nN nuts onto the screws. Tighten the screws gently while holding the nuts using the neeedle-nose pliers.

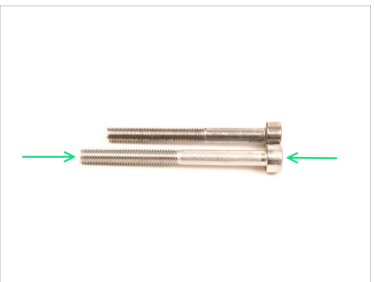
  ⚠ Do not overtighten the nuts. The Swivel must be able to move freely.

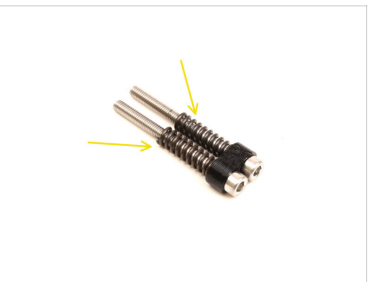
STEP 23 Tension screws parts preparation



- **For the following steps, please prepare:**
- **M3x30** screws with the springs (2x) *you have removed earlier*
  - ⓘ We will need the **springs alone**. The old M3x30 screws won't be re-used.
    - Remove the springs from the old M3x30 screws.
- **M3x35** screws (2x) *the new, slightly **longer** ones.*
  - ⚠ This screw is a new type not previously used on a printer! Do not reuse old screws, as they are a different size and would not fit properly!
- Screw guide (1x)

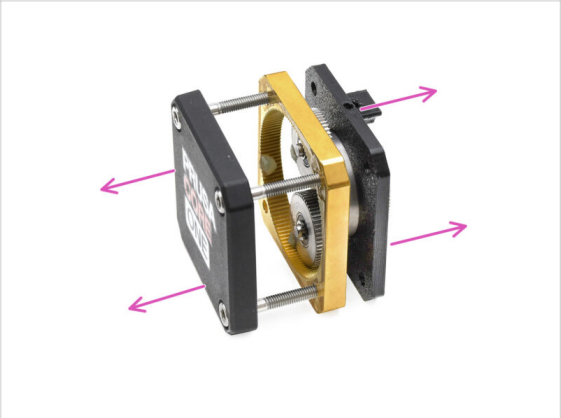
STEP 24 Tension screws assembly





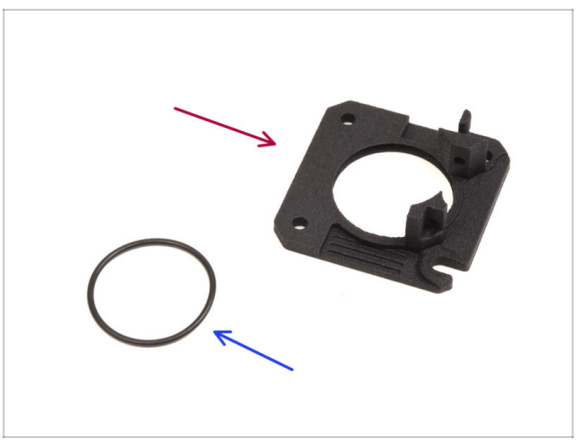
- Take the new M3x35 screws.
  - ⚠ Compare the size of the screws. Set the old M3x30 and the **new M3x35** screws apart so that they don't mix up.
    - The old shorter M3x30 screws won't be re-used.
- Push the M3x35 screws through the screw guide.
- Attach the springs onto the end of both the screws.

STEP 25 Gearbox disassembly



- Take the gearbox assembly and split it apart.
- The parts might be greasy. Clean off any excess grease.
- Set aside for later use: **PG-case, PG-ring, PG-assembly, M3x25 screws.**
- The printed main-plate won't be re-used. Set it aside so that it doesn't mix up with a new part.

STEP 26 Main Plate Preparation

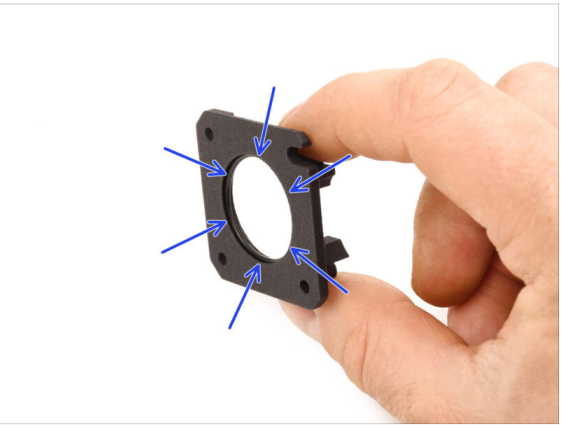


- **For the following steps, please prepare:**
- new Main Plate (1x)

  ⚠ We will need the newly supplied main-plate. It is different than the original one in the gearbox assembly, printed from PETG. Do not reuse the old main plate, as it may cause the printer to malfunction!

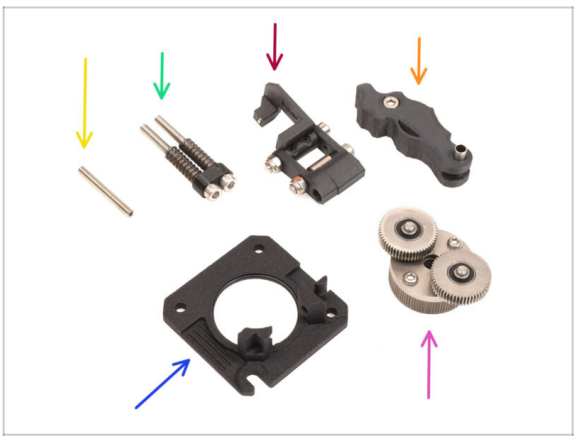
  ⓘ The new main plate is 3D printed using MJF technology. It cannot be replicated with the same quality using FDM printing.
- O-ring 24,5x1,5 (1x)

STEP 27 Main Plate Assembly



- The new main plate has a V-shaped groove inside its large round opening.
- Insert the O-ring into the groove, ensuring it's seated correctly.

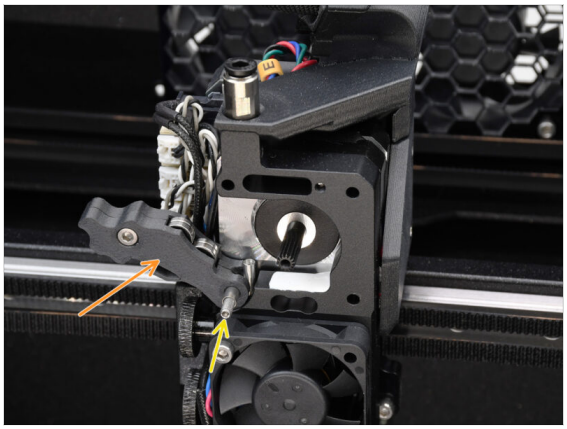
STEP 28 MMU Nextruder Preparation

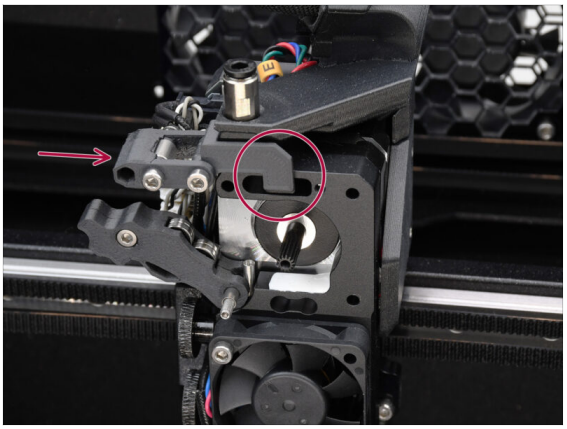


- **For the following steps, please prepare:**
- Set screw M3x25 (1x)

  ⓘ If you own the 4-screw version of the Nextruder, this specific type of set screw is not included.
- MMU Tension screws assembly (1x)
- MMU Swivel assembly (1x)
- MMU Idler assembly (1x)
- Main plate assembly (1x)
- PG-assembly (1x)

STEP 29 MMU Nextruder Assembly 1

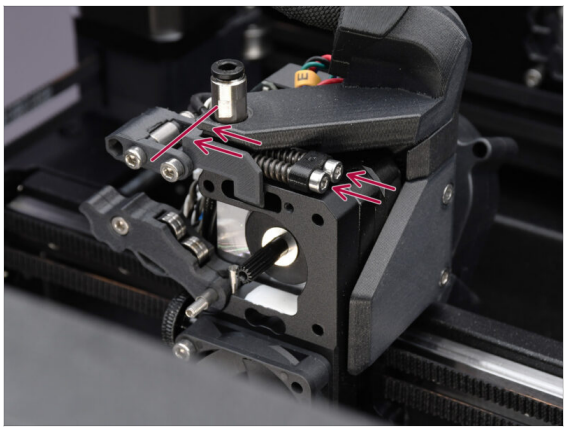


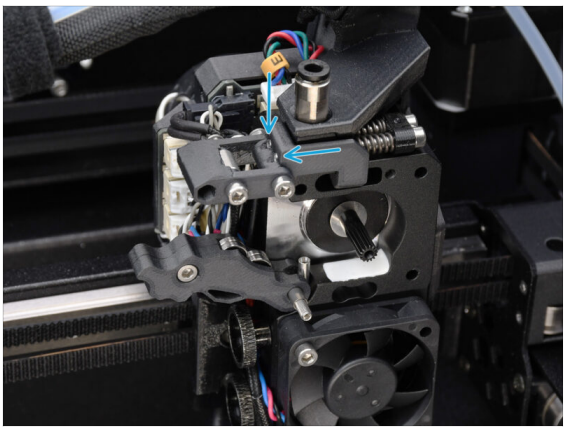


- Add the **Idler assembly** onto the extruder.
- Fix it in place using the **M3x25 Set screw**.

  ⓘ In case you have the 4-screw version of the Nextruder, you might use the M3x25 screw to temporarily hold the Idler assembly in place.
- Add the **Swivel assembly** onto the extruder. The protruding part of the Idler nut FS component should fit inside the filament sensor pocket in the heatsink, as seen in the picture.

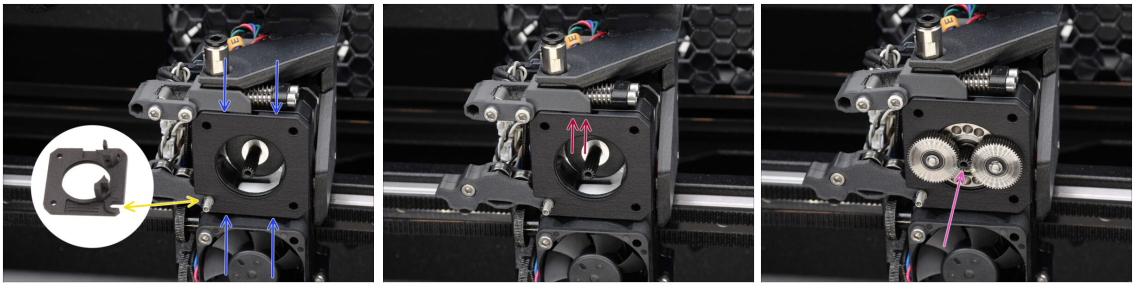
STEP 30 MMU Nextruder Assembly 2





- Insert the tension screw assembly through the heatsink and guide it towards the Swivel assembly.
- Gradually tighten the tension screws one at a time until their ends are flush with the surface of the Idler nut part on the other side, as shown.

STEP 31 MMU Nextruder Assembly 3



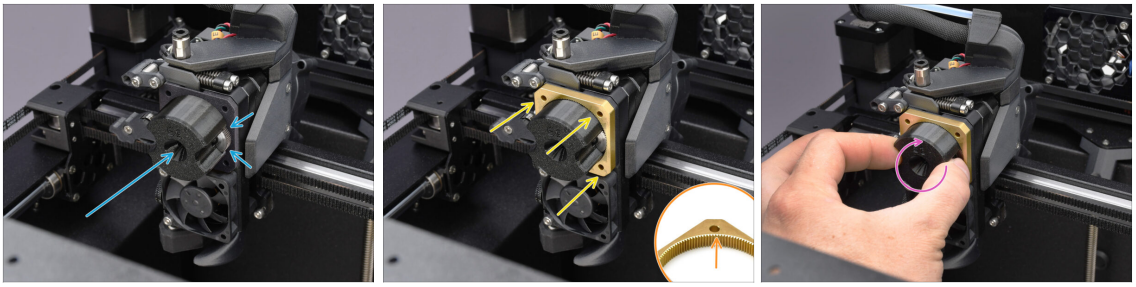
- Attach the new **main plate assembly** to the extruder, ensuring the protruding parts fit correctly into the heatsink.
  - The **notch** in one of the corners is designed to fit over the Idler spacer / set screw.
- Ensure the lever on the Swivel assembly fits correctly into the cutout on the main plate.
- Attach the **PG-assembly** to the motor shaft. Be very careful when inserting the assembly into the opening with the O-ring.

⚠ Watch out for any deformation or damage to the O-ring. **Ensure the O-ring stays properly seated** in its groove on the main plate. A slight wiggling motion, while inserting, can assist.

STEP 32 Gearbox Assembly Preparation

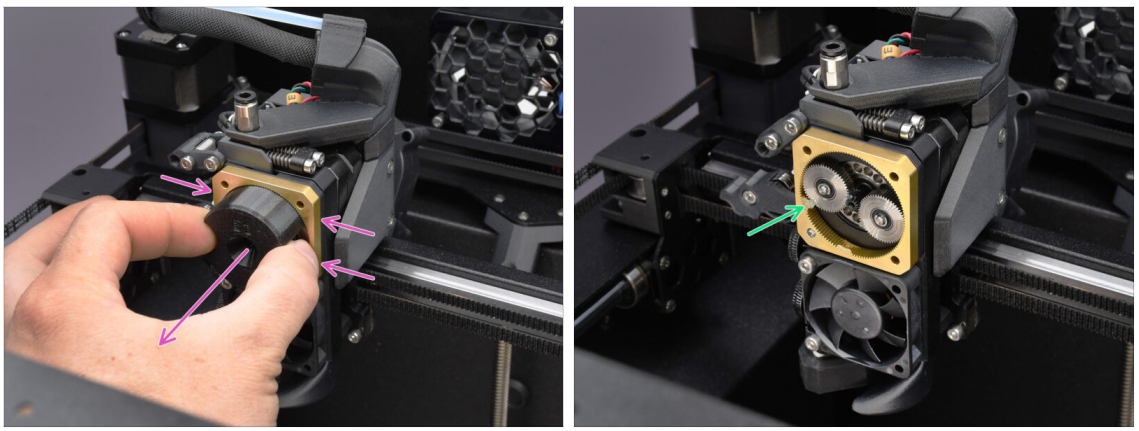
- **For the following steps, prepare:**
- PG-case assembly (1x)
- PG-ring (1x)
- M3x25 screws (3x)
- PG-assembly adapter (1x)

STEP 33 Gearbox Assembly 1



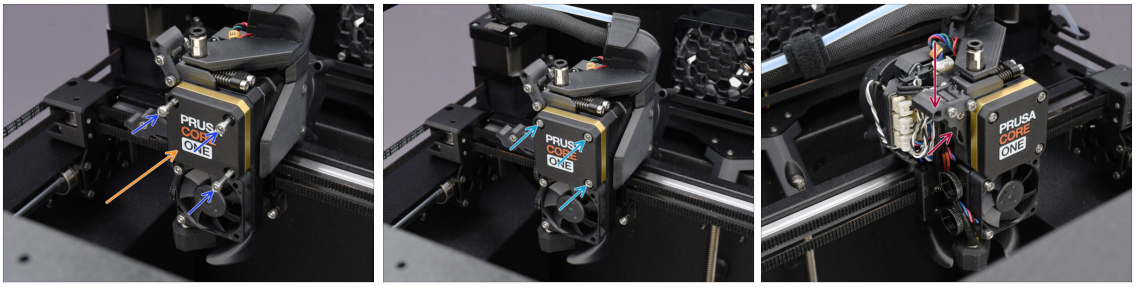
- Attach the **adapter** to the PG-assembly, making sure the spur gears are correctly aligned and fit snugly into the pockets on the adapter.
- Carefully slide the **PG-ring** onto the adapter, pushing it all the way in gently, until it locks onto the gears.
  - Note that the PG-ring has a chamfer on one side. This side should face the gears during insertion for easier assembly.
  - Gently rotate the adapter while sliding the PG-ring onto the gears to ensure proper gearbox alignment.

STEP 34 Gearbox Assembly 2



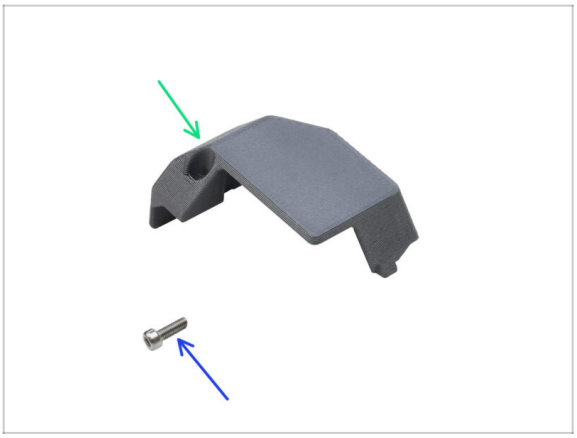
- Remove the adapter, while maintaining the gearbox assembly in place.
- Check the PG ring for adequate lubrication. If necessary, apply a slight amount of grease, as explained in the Nextruder Assembly guide.

STEP 35 Gearbox Assembly 3



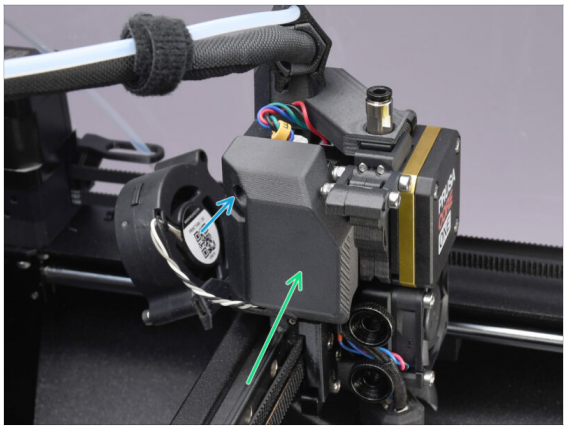
- Cover the gearbox using the **PG-case.**
  - Fix it in place using the three M3x25 screws.
  - Tighten the screws just lightly, for now.
- Close the Idler and secure it using the Swivel.

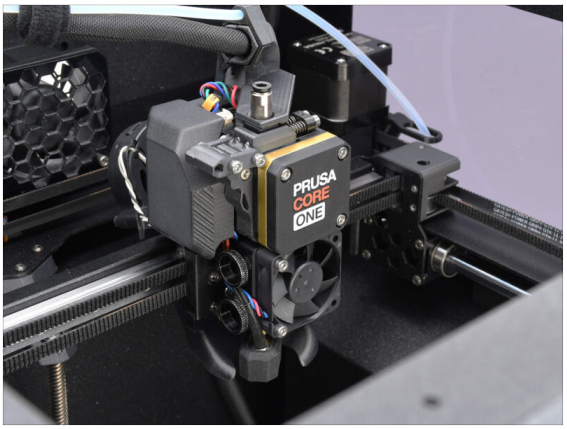
STEP 36 Nextruder Side Cover Preparation



- **For the following steps, prepare:**
- Nextruder Side Cover (1x) *you removed earlier*
- M3x10 screw (1x) *you removed earlier*

STEP 37 Nextruder Side Cover Installation

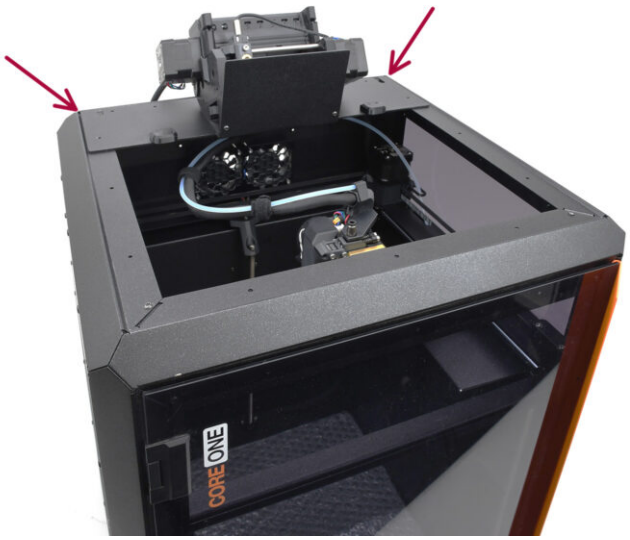




- Re-install the side cover. First, hook it on the bottom, then push the top towards the Nextruder.
- Fix it in place using the M3x10 screw.

⚠ Congratulations. Your Nextruder has been successfully reworked into the MMU version.

10D. CORE One Setup and Calibration



STEP 1 Top Cover

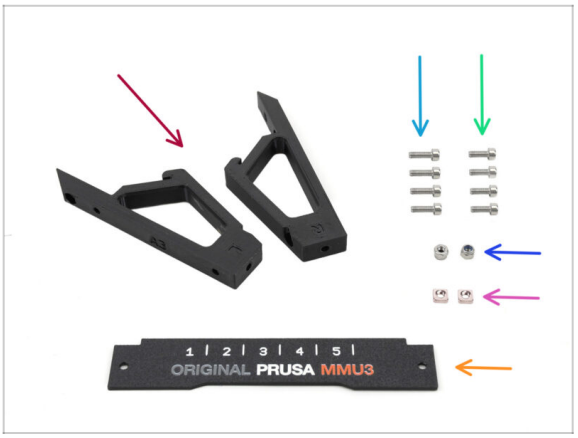
- Before installing the MMU unit, remove the printer's top cover if it hasn't been removed already.

STEP 2 Core One MMU3 Types

⚠ There are **two official versions** of the MMU3 for CORE One:

- the **Lite**
  - ⚠ If you have this version, continue to the next step.
- the **Enclosed** *with the Top Cover.*
  - ⚠ If you have this version, continue to the Top Cover Preparation.

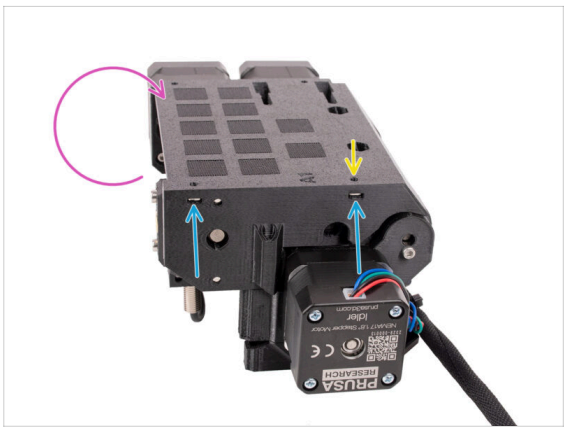
STEP 3 (LITE) MMU Holder Preparation

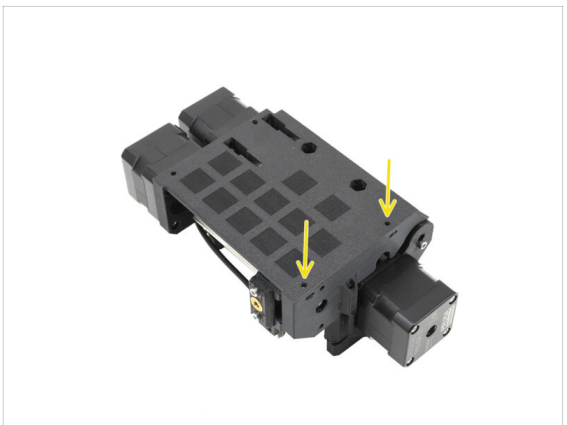


⚠ These steps are valid for the Lite version.

- **For the following steps, prepare:**
- CO_MMU_Holder (2x)
- M3x10 screw (4x)
- M3x8 screw (2x)
- M3nS nut (2x)
- M3nN nut (2x)
- Label Plate (1x)

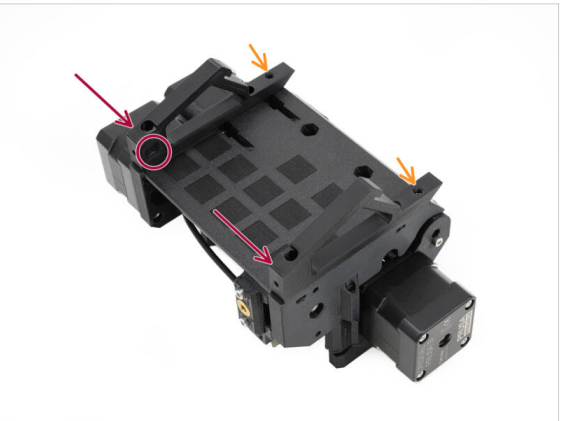
STEP 4 (LITE) M3nS Installation





- Turn the unit around.
- Insert the two **M3nS** nuts into the marked openings on the side of the unit. Push the nuts all the way in using the 1.5mm Allen key.
- Check the nut alignment from above. Use the 1.5mm Allen key to center the nut, if necessary.

STEP 5 (LITE) MMU Holder Installation 1



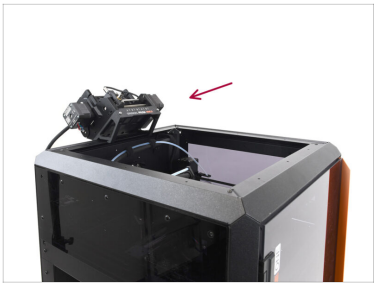
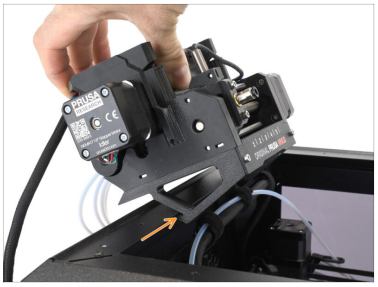
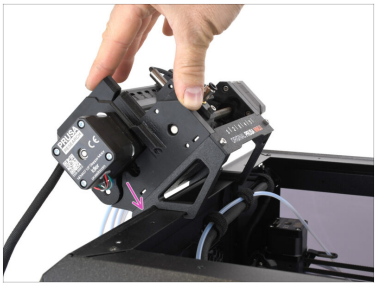
- Insert the M3nN nuts into the hexagonal openings in the Holders. Make sure the flat part goes in first!
- Add the Holders onto the unit and align them with the assembly.
  - Ensure the holder marked R is on the unit's right side (sides are reversed when the unit is upside down).
  - Ensure the part with the M3nN nuts faces the back.

⚠ Watch out! the nuts might keep falling out.

STEP 6 (LITE) MMU Holder Installation 2

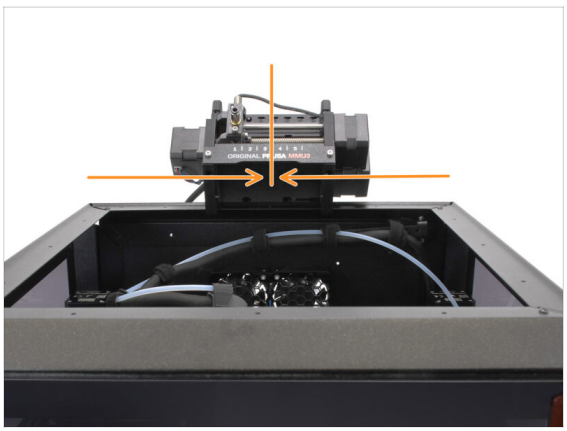
- Fix the holders to the unit using four M3x10 screws.
- Align the Label plate with the front part of the MMU unit. Fix it to the holders using two M3x8 screws.

STEP 7 (LITE) MMU Placement 1

- Now, we will place the MMU assembly onto the top back part of the printer.
- Hook the notch on the MMU holders to the front part of the metal profile.
- Lean the MMU against the profile.

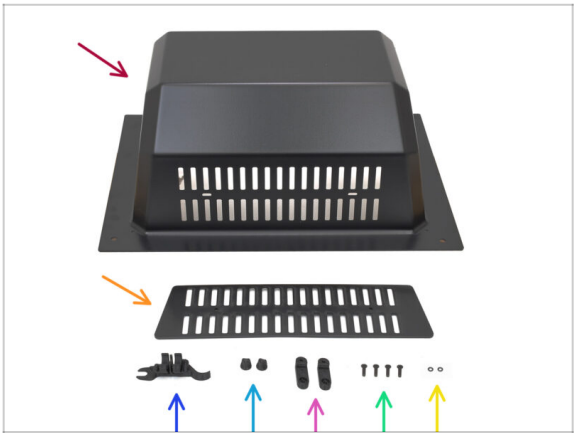
STEP 8 (LITE) MMU Placement 2




- Center the unit on the printer to align the screw holes.
- Reach inside the printer to secure the unit with the two M3x8 screws.

⚠ Your MMU3 Lite is now securely attached.
Continue to the Back Cover Removal step.

STEP 9 (ENC) Top Cover Preparation



⚠ These steps are valid for the Enclosed version.

Skip if you use the Lite.

- For the following steps, prepare:
  - MMU Top Cover (1x)
  - Vent Cover (1x)
  - CORE ONE ASSEMBLY MULTI TOOL (1x) *version E2 or newer*
  - Vent Nut (2x)
  - Top Cover Lock (2x)
  - M3x10rT (4x)
  - O-ring (2x)

STEP 10 (ENC) Top Cover Assembly 1

- Take the Vent Cover part.
  - Push the two M3x10rT screws through the openings.
- Install the Vent Cover to the inside of the Top Cover, making sure the screws go all the way through.
  - From the other side, attach the o-rings onto the screws.

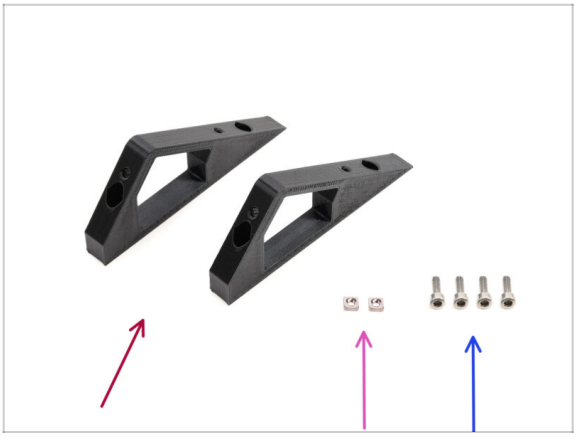
STEP 11 (ENC) Top Cover Assembly 2

- Tighten the screws against the Vent Nuts
  - Use the Assembly Multi Tool to hold the nuts while tightening.
  - Tighten the screws just so that the vent cover holds in place when moved to a side. Make sure it is still easy to slide.

STEP 12 (ENC) Top Cover Assembly 3

- Attach the Locks onto the bottom part of the Top Cover.
  - Make sure the Locks are oriented as seen in the picture. Then, fix them in place using two M3x10rT screws.
  - Tighten the locks just until snug. They should be movable with reasonable force.

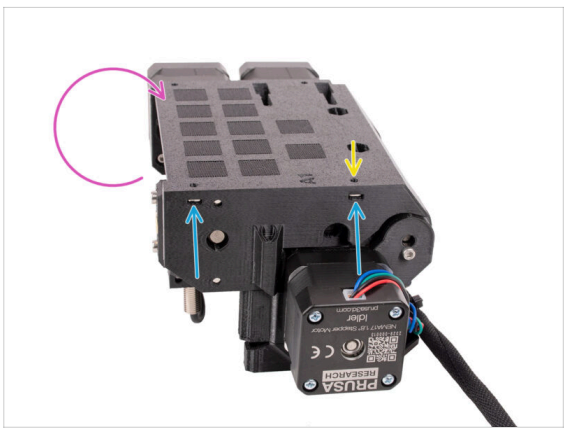
STEP 13 (ENC) MMU Holder Preparation

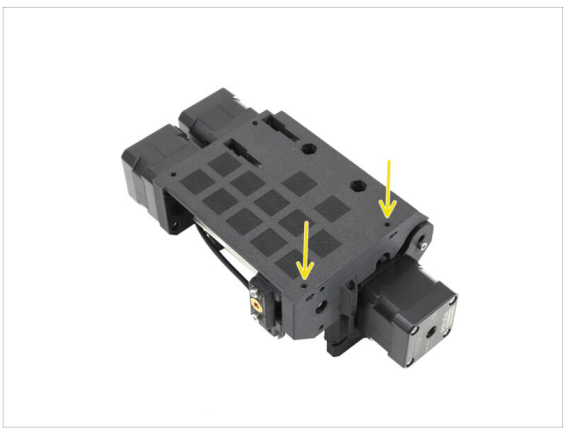


- **For the following steps, prepare:**
- CO_MMU_Holder (2x)
- M3nS nuts (2x)
- M3x10 screw (4x)

⚠ Some versions of the assembled unit may already have these holders pre-installed. If so, you can skip the holder installation steps.

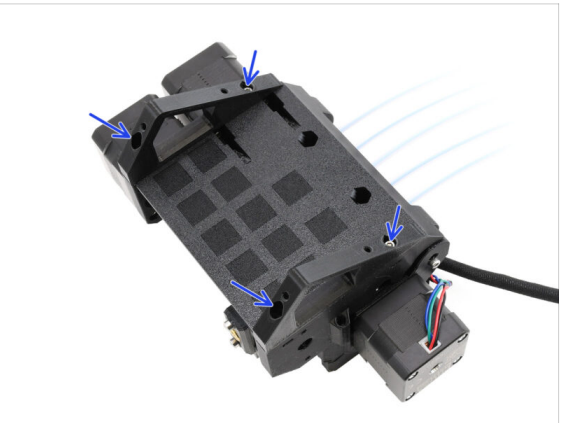
STEP 14 (ENC) M3nS Installation





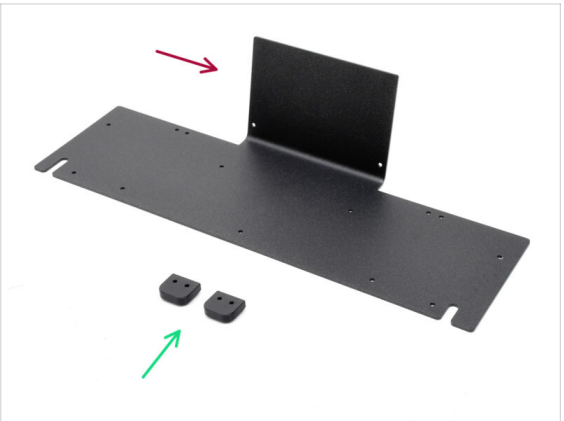
- Turn the MMU unit around.
- Insert the two **M3nS** nuts into the marked openings on the side of the unit. Push the nuts all the way in using the 1.5mm Allen key.
- Check the nut alignment from above. Use the 1.5mm Allen key to center the nut, if necessary.

STEP 15 (ENC) MMU Holders Installation



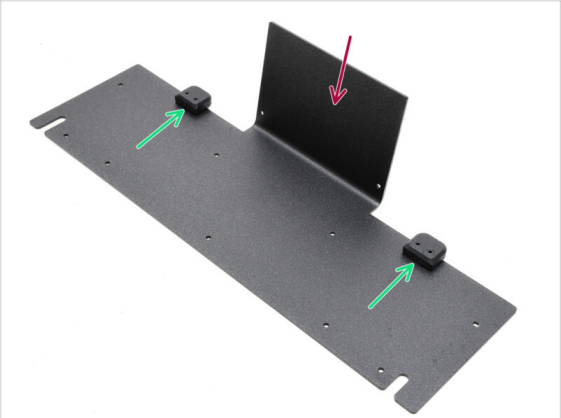
- Take the MMU unit and flip it upside down.
- Add the holders onto the bottom part.
- Align the flat front of the holders with the unit.
- Attach the holders using four M3x10 screws.

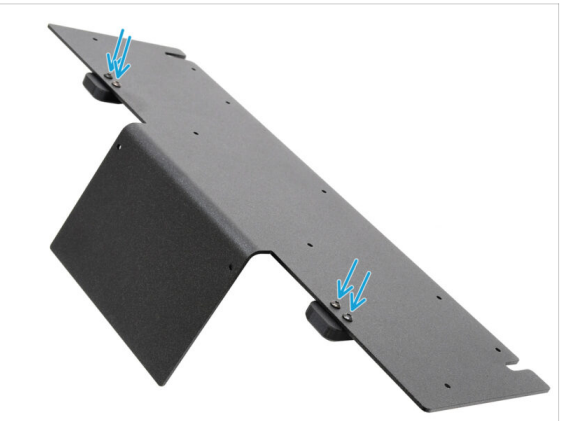
STEP 16 (ENC) Metal Holder Preparation



- **For the following steps, prepare:**
- MMU Metal Holder (1x)
- Top Cover Holder (2x)
- M3x10rT screws (8x)

STEP 17 (ENC) Metal Holder Assembly

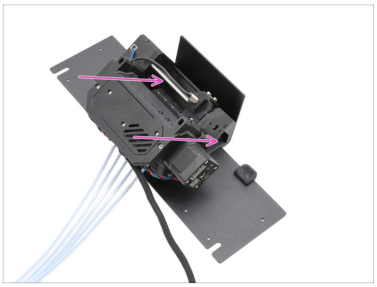


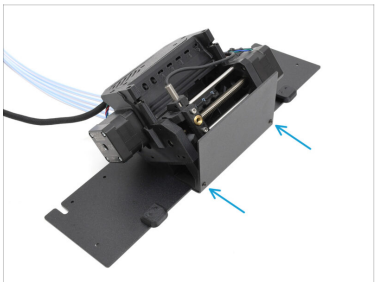


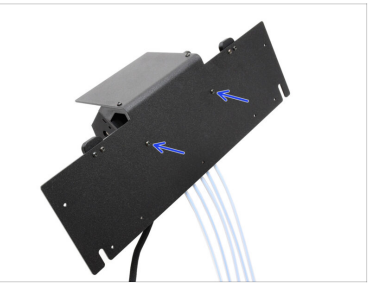
- Orient the metal holder with the bent part facing up as shown.
- Instal the plastic holders onto the metal using the four M3x10rT screws.

  Ensure the rounded part overhangs, as in the picture.
- Tighten the screws.

STEP 18 (ENC) Unit Assembly



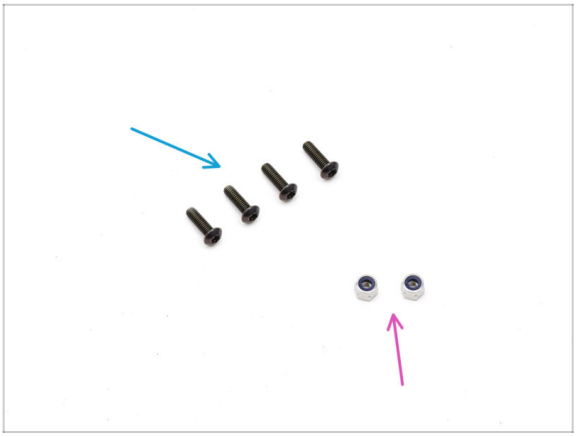




- Move the MMU unit onto the Metal holder, aligning its plastic holders with the bent part.
- Attach the MMU unit to the metal with two M3x10rT screws at the front.

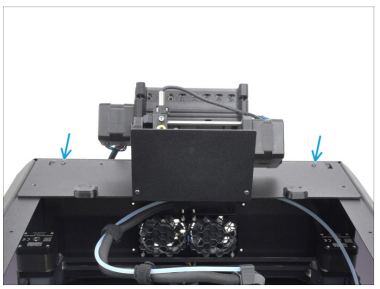
  Tighten the screws with reasonable force to avoid stripping the self-tapped plastic thread.
- Fix the unit using the other two M3x10rT screws at the bottom.

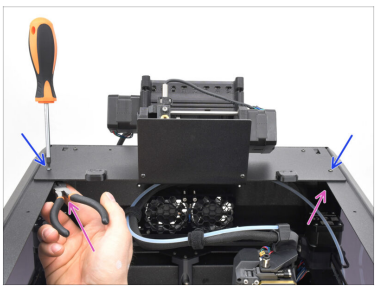
STEP 19 (ENC) MMU Placement Preparation



- **For the following steps, prepare:**
- M3x10rT screws (4x)
- M3nN nuts (2x)

STEP 20 (ENC) MMU Assembly Placement





- Place the MMU assembly with the metal holder onto the printer. Make sure it sits in the back of the top recess, with the MMU facing the front of the printer.
  - Fix it to the metal profiles in the back using two M3x10rT screws.
  - Tighten two M3x10rT screws on sides against the M3nN nuts held with needle-nose pliers.

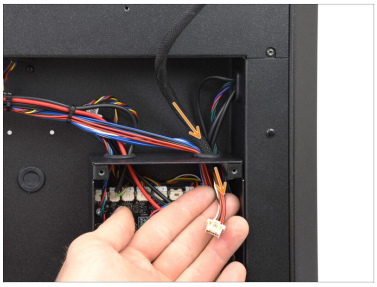
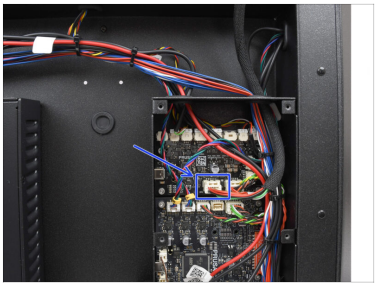
STEP 21 Back Cover Removal 1

- On the inside of the printer, remove the two screws holding the back cover.
- On the back of the printer, slide the center cover downwards.
- Pull the bottom part of the cover outward while tilting the top toward the printer. This will unhook it from the cable bundle behind. Remove the cover.

STEP 22 Back Cover Removal 2

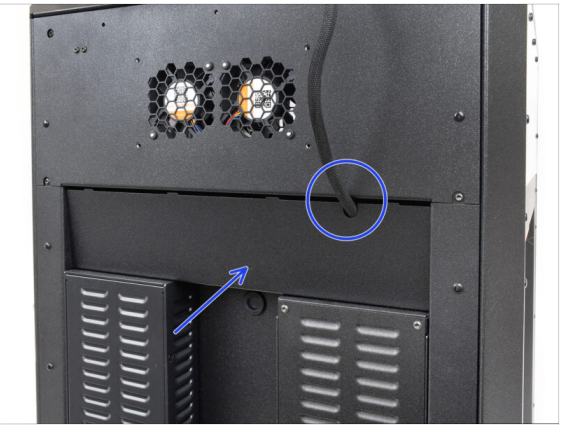
- Remove the six screws holding the xBuddy cover.
- Remove the cover by sliding it out.

STEP 23 MMU Cable Connection

- Guide the MMU cable towards the electronics box.
- Pull the cable through the top cable opening into the xBuddy box.
- Connect the cable to the dedicated MMU port on the xBuddy Extension board.

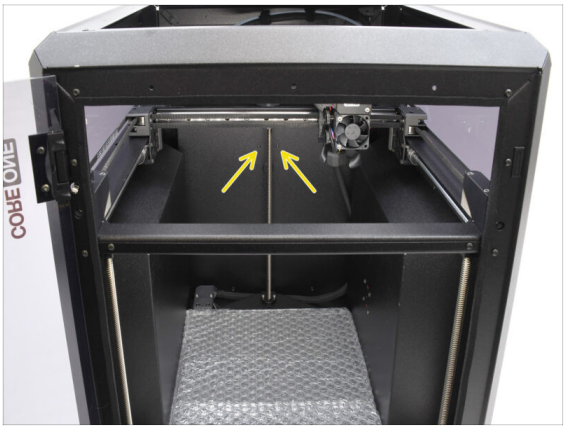
STEP 24 Back Cover Installation 1

- Attach the xBuddy box cover using the 6 M3x4rT screws.

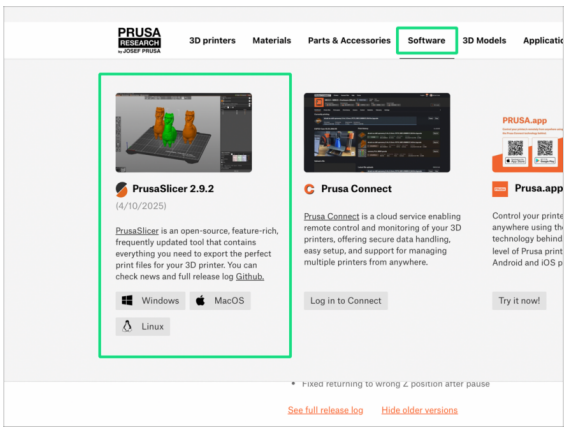
  ⓘ Make sure no cable is getting pinched.
- Re-install the back cover, making sure the MMU cable fits through the mousehole opening on top.

STEP 25 Back Cover Installation 2



- Push the cover up, so that the four tabs on top engage into the recesses.
- While pushing the cover up, fix it in place using two M3x4bT screws from the inside of the printer.

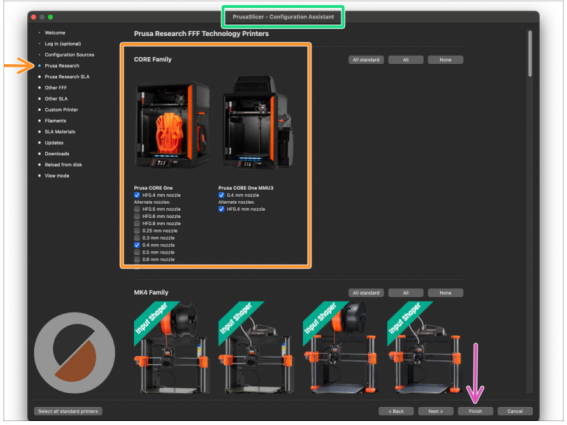
STEP 26 Software Download

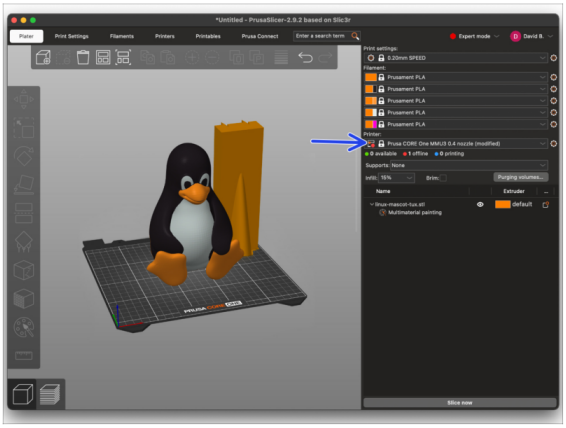


- Visit Prusa3D.com
- Download the latest **PrusaSlicer** from the Software tab.

  ⚠ **MMU3 on CORE One** requires PrusaSlicer version 2.9.2 or newer.
- Install the latest **PrusaSlicer** and open it.

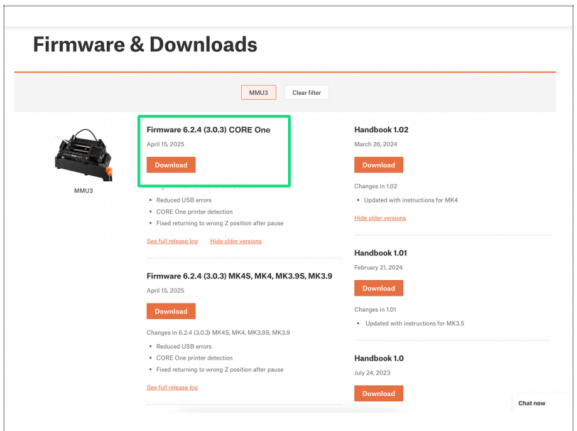
STEP 27 PrusaSlicer setup for MMU3





- Open the PrusaSlicer Wizard/Assistant. (from the menu **Configuration > Configuration Wizard/Assistant)**
- Open the **Prusa Research** printer list and select **MMU version** of your printer.
  - **Select the nozzle** type and size in the list below.
- Click Finish to save the settings.
- In **Printer:** menu, select the **MMU3** printer profile for future slicing.

STEP 28 Firmware files download

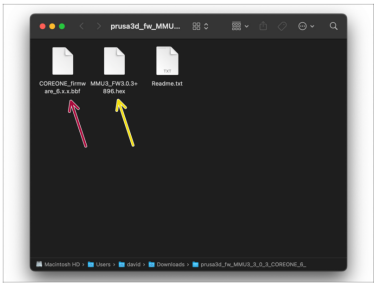


⚠ You will need to update the **firmware** for both the **printer** and the **MMU** unit. Each device has a **separate firmware file** that needs to be flashed. Always use only the newest compatible firmware versions together.

⚠ For more info, see the MMU3 Firmware Compatibility article.

- Visit the MMU3 Downloads page on Help.Prusa3D.com
- Download the **lastest Firmware** package **for your printer** model.

STEP 29 Firmware Upgrade: Printer



- **Printer's firmware - .bbf file**
  for the CORE One control board:
  (e.g. COREONE_firmware_6.x.x.bbf)
- **MMU3 control board firmware:**
  (e.g. MMU3_FW3.0.3+896.hex)
  - This firmware update must be applied directly to the MMU unit using a computer. **We will flash the MMU unit firmware in the upcoming steps.**
- Update the printer's firmware. First, transfer the firmware file onto a USB drive.
- Turn on the printer and connect the USB drive into it. Press the RESET button to restart it. Then, select the FLASH option on the screen to begin the update.

STEP 30 Turning the MMU on

⚠ After finishing the firmware update, **make sure there are no filaments loaded** neither in the extruder, or in the MMU unit.

- Navigate to the **LCD menu > Settings > MMU**

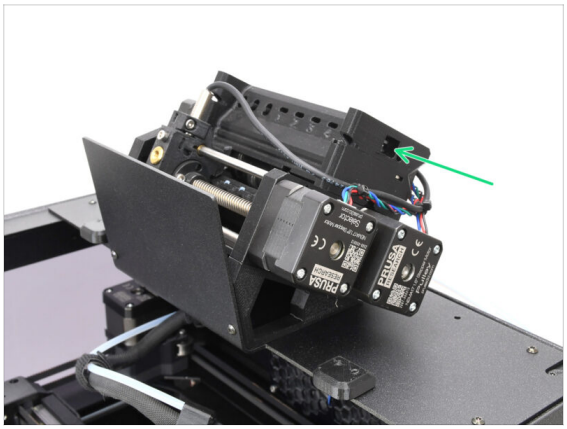
  and make sure the **MMU** is turned **on**.

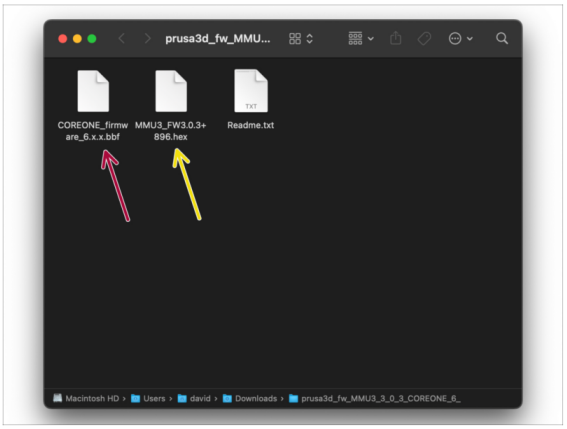
  This option enables the MMU functionality in the firmware and turns on the power for the MMU unit, which is needed for a firmware update.

  The MMU unit will now perform a self-test (flashing LEDs). **Wait until it boots up completely** before issuing any commands. By the way, from now on, the printer's reset button will also reset the MMU unit.

- Since you've converted the extruder to the MMU version, when prompted to reconfigure the filament sensor's behavior, which should appear immediately, choose '**Continue**'.

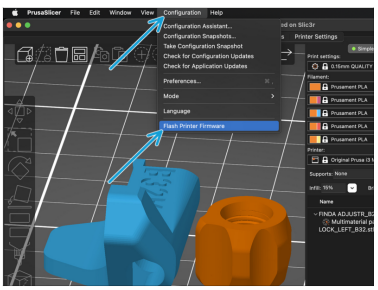
STEP 31 MMU3 Firmware flashing (part 1)

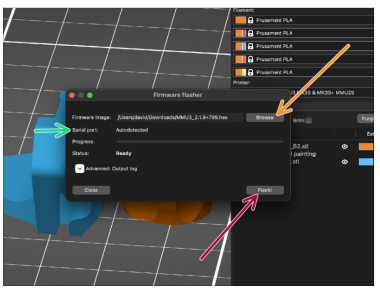


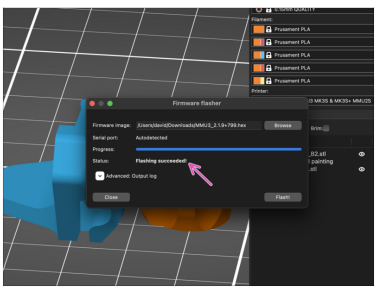


- The MMU3 firmware file needs to be flashed into the MMU unit itself. Find the **microUSB** connector on the right side of the MMU3 unit.
- Connect the unit to your computer using the bundled microUSB cable.
- On your computer, select the appropriate **MMU firmware file** compatible with your printer model.

STEP 32 MMU3 Firmware flashing (part 2)







- Open PrusaSlicer and select **Configuration ->Flash Printer Firmware** from the top menu.
- Hit **Browse** and select the MMU3 firmware image file on your computer. (e.g. MMU3_FW3.0.3+895.hex)
- Serial port should be auto-detected.

  Hit **Rescan** if your printer is not listed in the Serial port: column
- Hit the **Flash** button.
- Wait until the **Flashing Succeeded**! message appears.
- After the flashing finishes, disconnect the USB cable.

In case of any issues with flashing the firmware please visit our troubleshooting article.

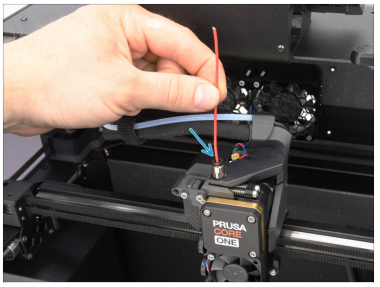
STEP 33 Gears calibration

- Now, we need to calibrate the planetary gearbox in the Nextruder.
- Go to the Home screen and navigate to *Control -> Calibrations & Tests,* scroll down and select **Gears Calibration**.
  - Once you get to the Gearbox Alignment part, select **Continue** and follow the on-screen instructions.

STEP 34 Gearbox Alignment

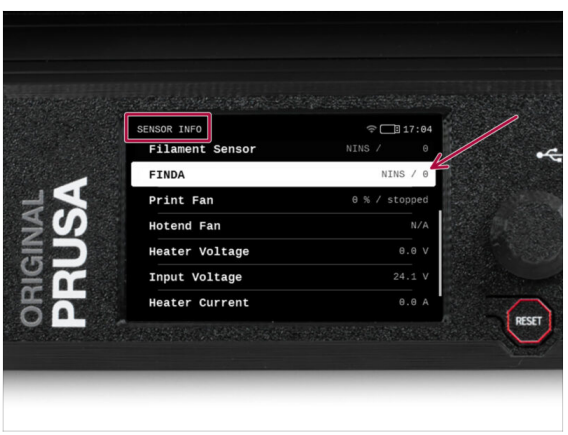
- During the **Gear calibration** process, you will be prompted to:
  - Make sure the **Idler lock** (swivel) is in the open position - lifted up.
  - Loosen the three screws on the front of the gearbox by 1.5 turns.
  - ⓘ The printer will go through the automatic gearbox alignment. This process can't be seen from the outside.
  - Once prompted, tighten the screws in the pattern indicated on the screen.

STEP 35 MMU Filament sensor calibration

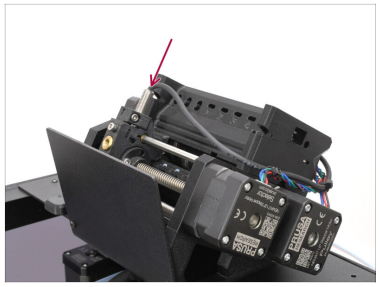
- After completing the Gearbox Alignment, you should be prompted to continue to the **filament sensor calibration**.
  - ⓘ Start with no filament in the extruder.
- Close the **Idler lock** (swivel).
- For the calibration, prepare a filament and hit **Continue**.
  - ⚠ Don't insert the filament before being prompted to do so!
- Once prompted to, insert the filament.
- After successful calibration, remove the filament.

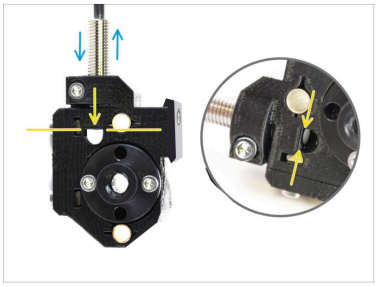
STEP 36 Footer Status Bar

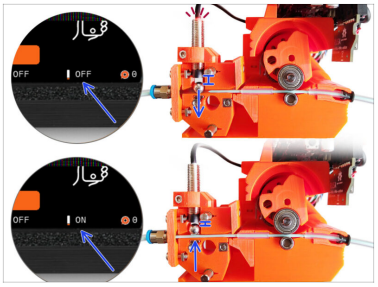


- Turning on the MMU unit automatically displays the filament sensor and Finda sensor information on the footer status bar.
  - To change the settings, visit **Settings > User Interface > Footer** menu.
- The sensor values are also shown in the **Info > Sensor Info** menu.

STEP 37 SuperFINDA sensor calibration info







- If you built the MMU3, the **SuperFINDA sensor** inside the selector must be calibrated.

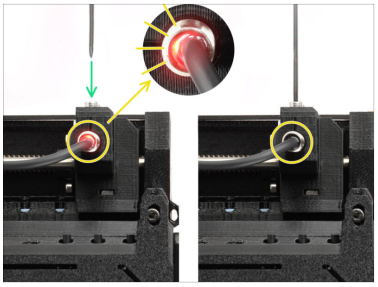
  For **factory-assembled MMU3** units, you can skip the calibration steps.

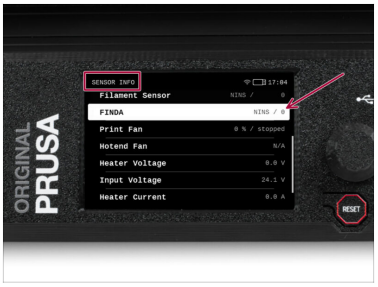
- In the next step, we'll calibrate the sensor's position.

It is CRITICAL that both the **filament sensor in the extruder and the SuperFINDA sensor function accurately**. Otherwise, you will have trouble with the device.

- Use the inspection window on the selector to align the bottom of the sensor with the top of the window, as a starting point.
- When filament is in the selector, the steel ball rises and should be detected by the SuperFINDA sensor. Ensure the distance between the ball and the sensor is perfectly calibrated.

STEP 38 SuperFINDA calibration





- Insert filament with a sharp tip into the brass opening at the front.
- Take a look at SuperFINDA from above and watch for the little red light inside the sensor to turn off when the filament raises the steel ball inside.
  - **Red light** = no filament detected = **FINDA 0 / OFF**

    No light = filament detected = **FINDA 1 / ON**
- If the light is still on, lower the SuperFINDA slightly.

  If the light doesn't ever go on, raise the SuperFINDA probe by releasing the screw by its side, moving the probe, and tightening the screw back up.
- Watch the **sensor readings on the LCD** (Info > Sensor Info -> FINDA) Note, there is a slight lag in the sensor's readings on the LCD; proceed slowly.

⚠ Repeat the test, adjusting SuperFINDA height **until consistent readings occur when inserting and removing filament.**

STEP 39 Side Filament Sensor Check

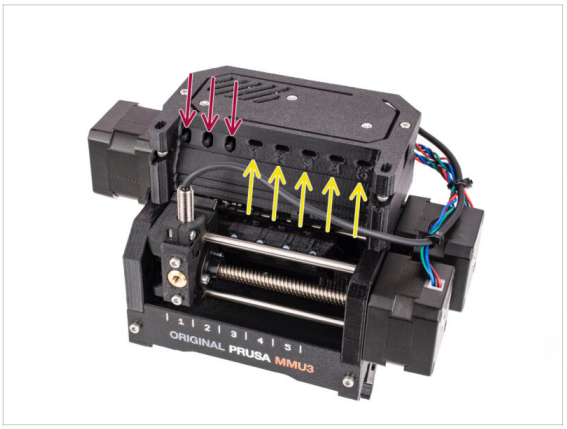
- Visit the menu ***Settings > Filament Sensors*** and verify the ***Side Filament Sensor*** is turned on.

  ⓘ Even if the sensor is not used, it must remain enabled; otherwise, the printer may falsely trigger the FSENSOR TOO EARLY error.
- Make sure no filament is physically inserted into the side sensor.

STEP 40 Error code details (Part 1)

- Later on, an **MMU error screen** will show up if something goes wrong during the operation. See the example image; the first line describes briefly, what's the error about.
  - prusa.io/04101 is a web address, where you can view a detailed article about the exact issue, and how to fix it.
  - The QR Code gets you the detailed description.
- The status of the filament sensor is always displayed in the Footer section of the error screen to assist in diagnosis.
- Adjacent to it, you will find the status of the Finda sensor.
  - (Note the FINDA status reading on the LCD has a slight delay.)

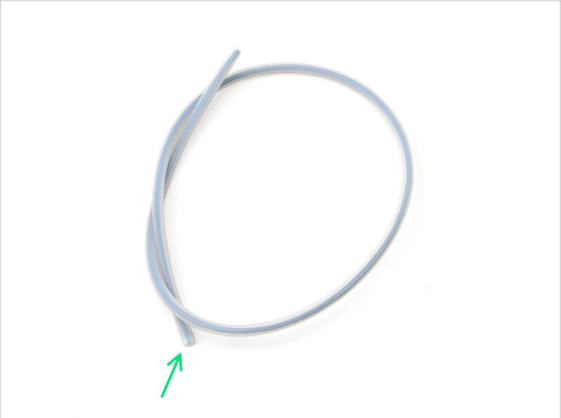
STEP 41 Error code details (Part 2)



- The bottom line are the **solution buttons**. Some errors have multiple solutions.
- You can also visit a detailed error description page via the QR code.
- MMU unit being in an **error state** is also indicated by its LED lights flashing.
- While in an ERROR state, the buttons on the MMU unit can be used to resolve the error too.
  - The **middle button** usually replicates the LCD solution buttons function.

⚠ Note, if the MMU unit is in **IDLE state**, the buttons **have a different functions**; For example; If there is no filament loaded, the side buttons can be used to move the selector right and left. But more on that later.

STEP 42 MMU-to-Extruder PTFE tube parts preparation

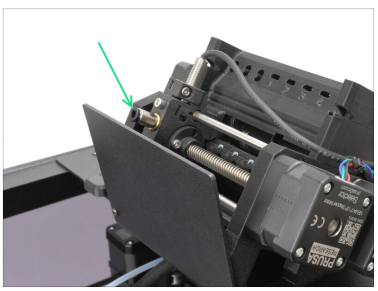


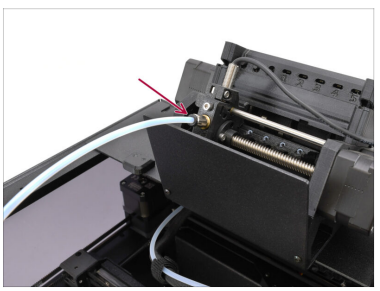
- **For the following steps, please prepare:**
  - MMU-Extruder PTFE tube (1x)

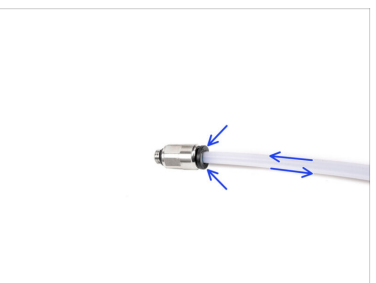
    ⚠ Use only the supplied PTFE tube.
    Enclosed version: **390mm.**
    Lite version: **450mm.**
    Do not reuse the shorter 360mm tube from MK4/S or other printers!
  - M5-4 fitting (1x)

    ⓘ The fitting might look slightly different if you are reusing the one from the MK4S.
  - Fitting Cover (1x) *required for the Enclosed version only.*
  - Collet (1x) *required for the Enclosed version only.*

STEP 43 MMU-to-Extruder PTFE tube 1

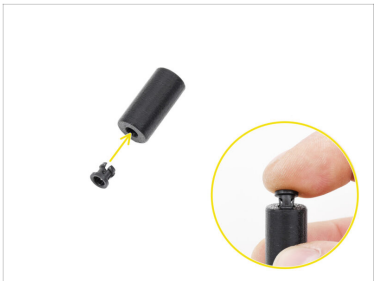


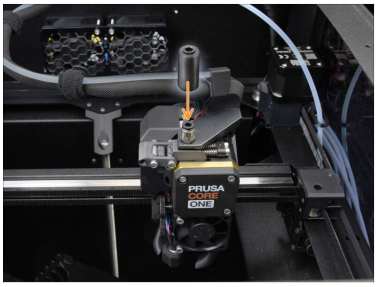


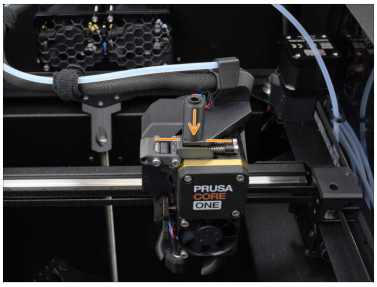


- Attach the M5-4 fitting onto the Selector and tighten it up using the Uniwrench.
- Connect the MMU-Extruder PTFE tube into the Selector. Make sure to push the tube all the way into the fitting.
  - Quick tip: **If you need to remove the PTFE tube** from the fitting, press the collet in. While the collet is pressed, first press the PTFE tube in, then pull it out entirely.

STEP 44 Fitting Cover. (ENC)



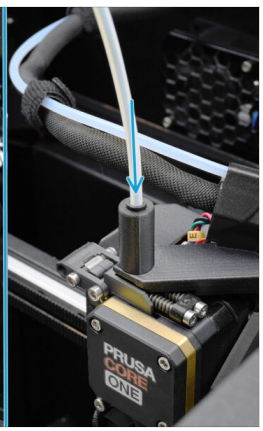


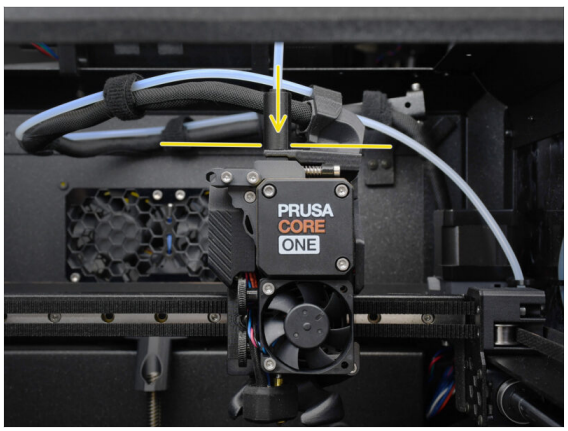


⚠ This step is required for the Enclosed version only.

- Insert the collet into the smaller opening on the Fitting cover.
  - ⓘ The individual fins on the collet must be pressed together in order to fit into the fitting cover.
- Attach the fitting cover onto the fitting on the extruder.

STEP 45 MMU-to-Extruder PTFE tube 2





- Attach the end of the tube into the extruder.
  - Make sure it is pushed all the way in.

STEP 46 PTFE Length Calibration

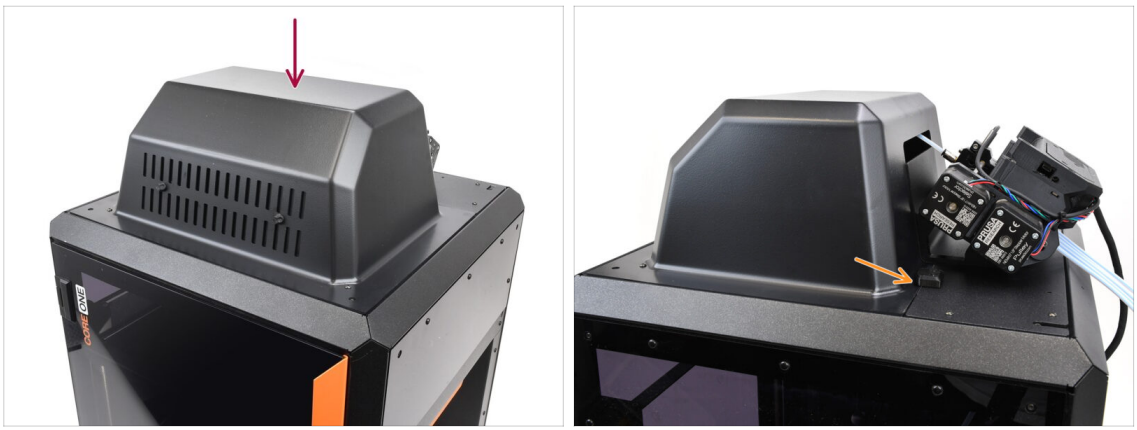
⚠ The MMU-to-Extruder PTFE tube length needs to be set in the firmware.

- Visit the menu **Settings>Hardware>MMU**
- Set the length:

  Enclosed version: **390mm**.

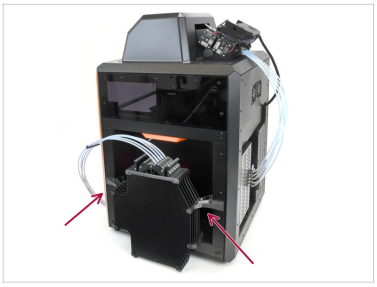
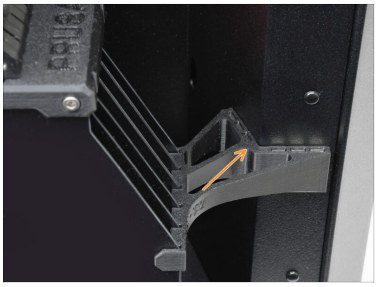
  Lite version: **450mm**.

STEP 47 (ENC) Top Cover Installation



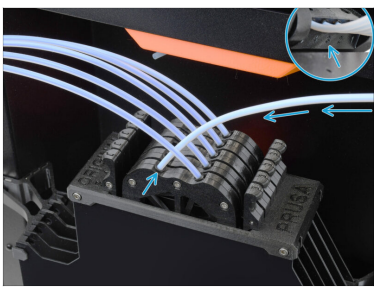
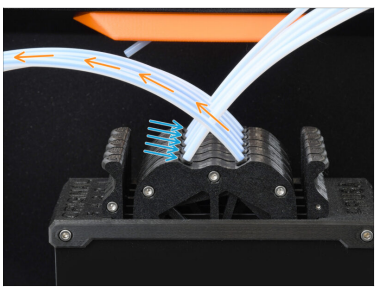
- If you use the Enclosed version, cover the printer with the Top Cover.
  - First, hook it at the back, then lean it onto the printer.

STEP 48 Buffer Attachment


- Attach the buffer assembly onto the right side of the printer.
  - Make sure the magnets are attached properly into the recessed side panel on the printer.

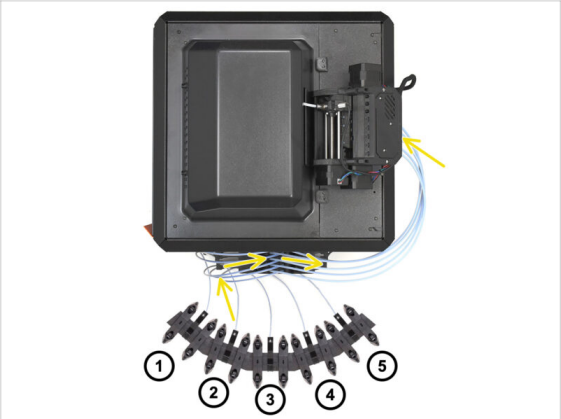
STEP 49 PTFE tubes connection


- Connect the five PTFE tubes **from the MMU** unit to the **free row of collets** on the buffer, ensuring you match the numbering on both the buffer and the MMU unit.
- The other PTFE tubes from the Buffer go to the Spool holders.

ⓘ We will attach the spool holders in the upcoming step.

STEP 50 Spoolholders setup



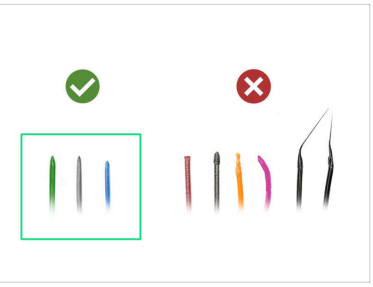
Congratulations! The hardest part is over.

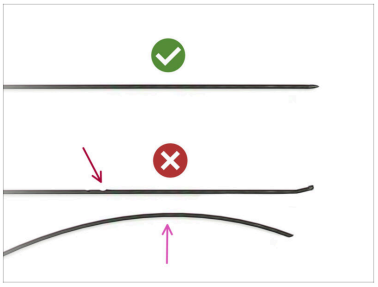
- The Buffer and spools setup in the picture is the one we will be trying to achieve. Arrange the **spool holders** and the **buffer** as seen in the picture.
  - The PTFE tubes should go from the spoolholders to the buffer. Then, from the buffer to the back of the MMU.
  - Connect the PTFE tubes from the buffer onto each of the spool holder.

Note the spool holder positioning. It is important that filament has **as straight path as possible** and that nothing interferes. PTFE tubes should **not be bent too much**. Otherwise, the filaments will jam.

11. First Flight

STEP 1 Filament preparation



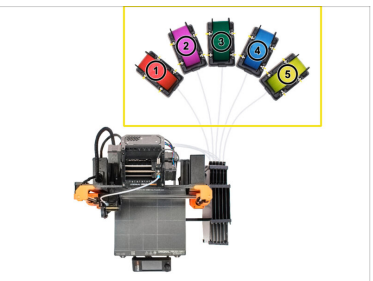


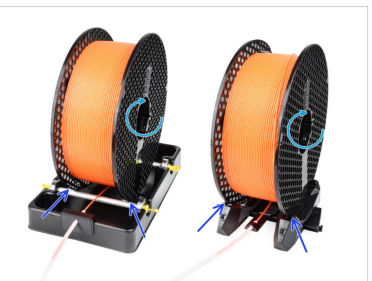
We can now move on to loading the filaments in and printing the test object! But first;

- Please prepare at least **five different PLA filaments** and **cut off the ends** to form a round **sharp tip** on each - as seen in the picture.
- The filaments must have a **sharp tip** in order to load properly into the MMU as well as into the printer. If the tip is deformed, bent or larger in diameter, it won't load properly.
- Inspect the last **40cm** (15") of each filament. Make sure there are **no dents** in it. Sometimes, if filament got jammed before, the pulley wheel makes an indent in it. This part of the filament can no longer be grabbed and moved by the MMU unit and must be cut off.
- If the filament end is bent, straighten it. **It must be perfectly straight.**

Use only high-quality filament with guaranteed low diameter deviation. In case you have filament loading / unloading issues in the future, re-visit this step as well. Make sure the filament is dried up. Moisture-sensitive filaments can be problematic during the MMU operation.

STEP 2 Suggested filament layout

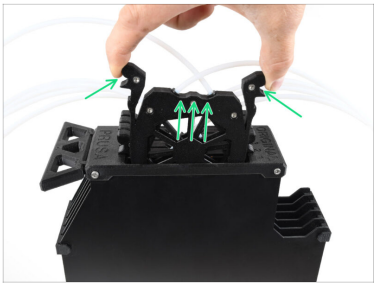
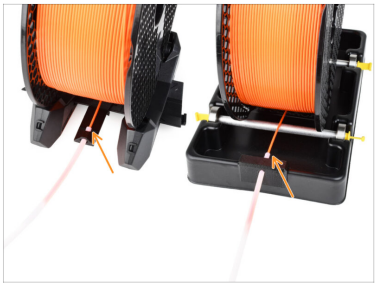
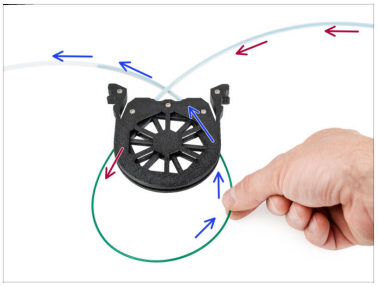




- Lay down the five filaments onto the spool holders. Make sure the spools do not interfere one with another.
- Adjust each spool holder so that the spool fits the rollers correctly.
- Verify the spool is **able to rotate freely** and nothing interferes.

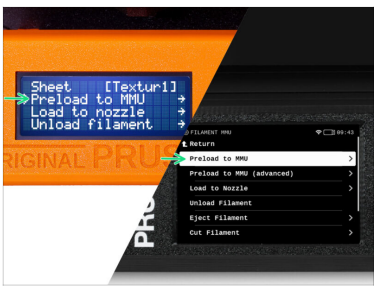
Keep in mind that the MMU3 works with several printer models, so the parts in the pictures might look slightly different from yours. However, the general steps are the same.

STEP 3 Loading a filament through the buffer

- Take the cassette for **filament 1** out of the buffer.
- Insert the **tip of the filament** into the bottom PTFE tube attached to the spoolholder.
- Keep pushing the filament into the PTFE tube until it appears in the corresponding buffer cassette.
- Take the tip and insert it through the cassette into the other PTFE tube, which goes into the MMU unit. Don't push it all the way into the MMU yet.

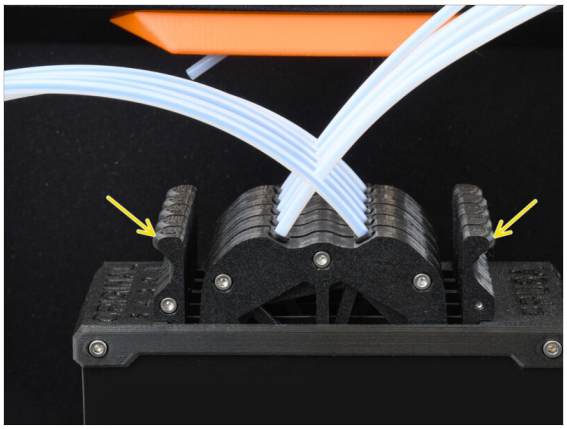
STEP 4 Preloading a filament to MMU




- On the printer, go to the **Filament -> Preload to MMU** (Menu -> Preload to MMU on MK3S/+)
- Select **Filament slot 1**. The MMU unit will engage the idler into the first position and start rotating the pulley until the filament is loaded in.
- Keep pushing the corresponding filament end into the PTFE tube from the buffer into the MMU, until you feel the filament being pulled in.

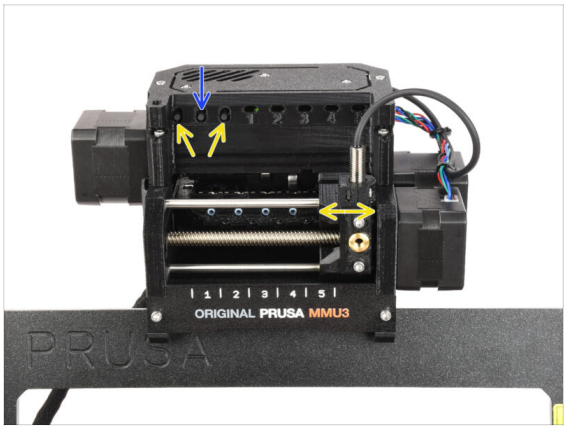
⚠ Remember, the filament tip must be straight and sharp in order to load it properly.

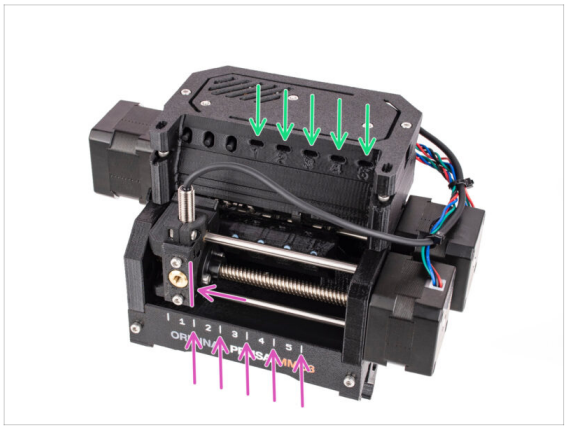
STEP 5 Closing the buffer



- After a given filament is successfully loaded into the MMU, return its cassette back into the buffer.
- Repeat the same process for the other filament positions, until you successfully load **all five filaments** into the MMU.

STEP 6 Pro tip: Loading using the buttons.



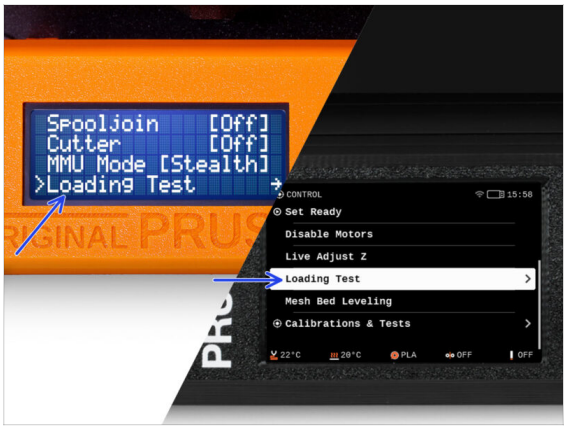


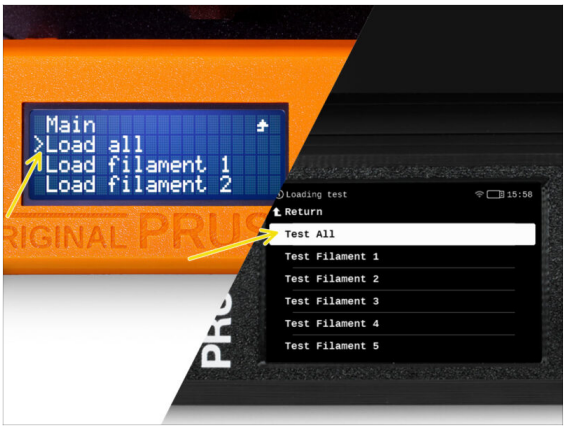
- You can also load a filament into the MMU using the buttons on the unit. Next time you load a filament, use the method you prefer. Either from the LCD menu, or using the physical buttons.
  - **While the MMU is idle**; (indicated by ALL LED lights OFF)
  - **The middle button** starts or aborts the filament preloading to MMU.
  - The **side buttons** move the selector left and right to switch filament positions.
- Use the side buttons to move the selector onto the desired filament position indicated by the selector being aligned with one of the lines on the label-plate.
- The ongoing **loading** process is indicated by a **blinking green LED** light for the respective filament position.

ⓘ **Stable green LED** light means the given filament is loaded to extruder.

Note, after you issue a command to the MMU unit, wait and let it finish the operation. Don't rush. Don't play around with the printer in the meanwhile. **Let it finish first if the MMU unit does something (homing, loading, unloading).**

STEP 7 Loading test (part 1)





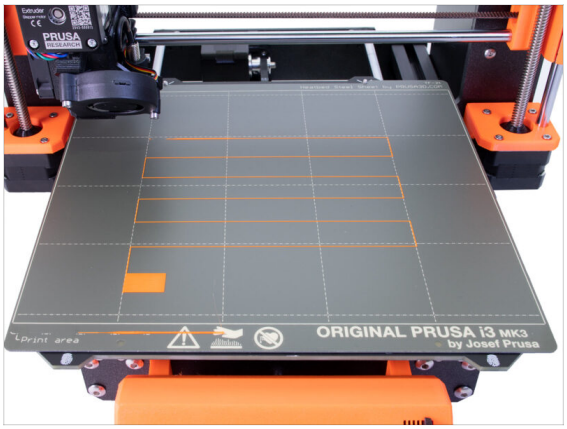
- Go to the **Control > Loading test**
  (Menu > Settings > Loading Test on MK3S/+)
- Select the filament type to preheat (PLA)
- Select **Test All** / Load all
  Or test all the filaments from 1 to 5 manually

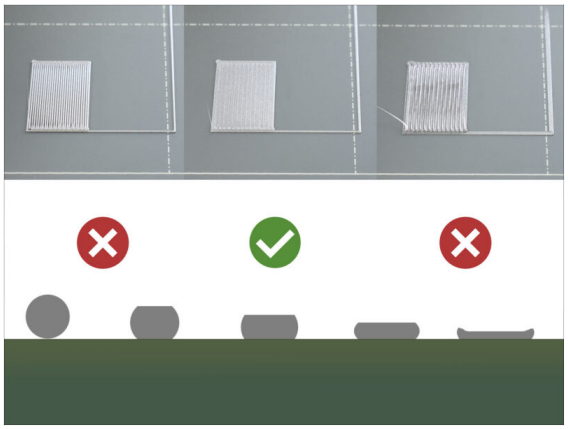
The MMU unit will now load and then unload all five filaments to see if all work correctly.

STEP 8 Loading test (part 2)

- You can check the **filament sensor** status in the "**footer**" area of the LCD screen to see if it's detecting the filament correctly.
- On **MK3S+,** while loading a filament into the extruder, the loading check displays **solid blocks** at the bottom of the LCD if the IR filament sensor detects filament.
  - If **lines** appear instead of solid blocks, the filament sensor in the extruder is providing an intermittent reading and **may require additional tuning.**
  - In case several loading retries fail, a corresponding error screen is shown.

STEP 9 Z axis and first layer calibration (optional)

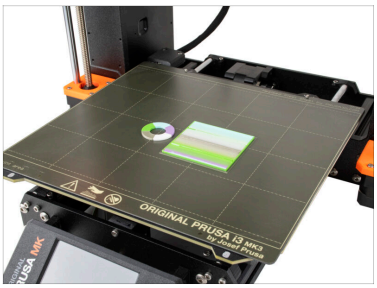


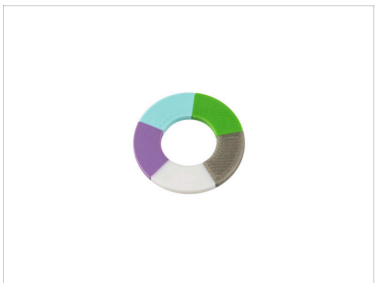


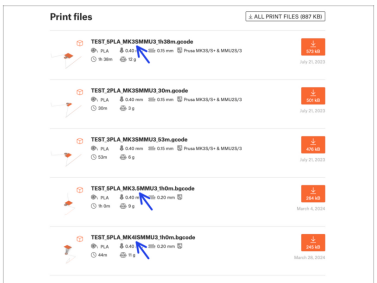
⚠ **IMPORTANT:** This step is necessary for the **MK3S+ / MK3.5** if you worked on the extruder head previously. If you only upgraded the old chimney to the new one, you can skip to the next step and use the **Live Adjust Z** function as usual to fine-tune the first layer.

- Go to **LCD Menu - Calibration - Calibrate Z.**
- Then run the First Layer Calibration.

STEP 10 Printing a test object



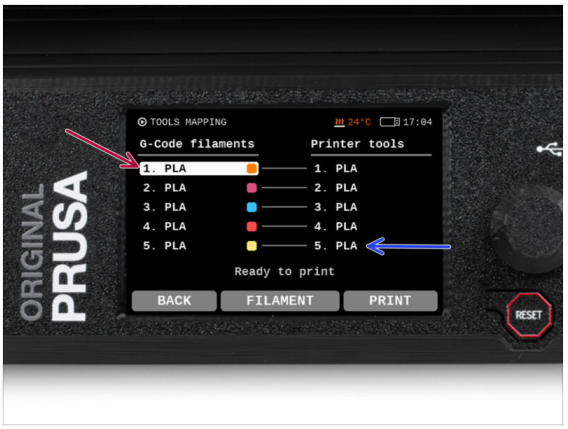




ⓘ We need to print a test object to verify that everything works correctly. Don't worry, it will be a quick print.

- Visit MMU3 Test objects on Printables.com
  - In the Print files section, download a G-code file pre-sliced for your **printer model.**
  - Save the **.gcode** or **.bgcode** file onto a storage media and print the test object.

STEP 11 Tools Mapping (CORE/ MK3.5 / MK4S)



- When you start a print, the **Tools Mapping** screen appears. This allows you to reassign the extruders with the specified color to another one as needed.
  - On the left side, you'll see a list of the required materials and their colors, as specified in the G-code file.
  - On the right side, you'll find a list of materials currently available on the printer, that will be used to print the object.

  For example, if the G-code requires orange filament in the first position, but you have orange loaded in the fifth position, select the first position on the left menu and then assign it to the fifth position on the right.

  Double-tap the filament positions or use the encoder to select the filament number.

STEP 12 Printable 3D models

- To further test your new MMU3, have a look at MMU3 Test Objects Collection on Printables.

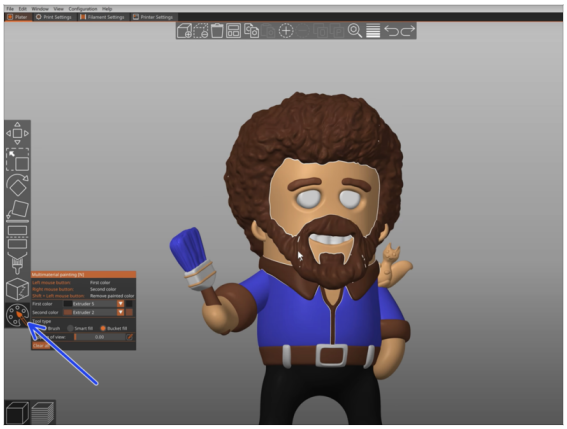
  We recommend printing the cute sheep, which has been the MMU mascot since the beginning.

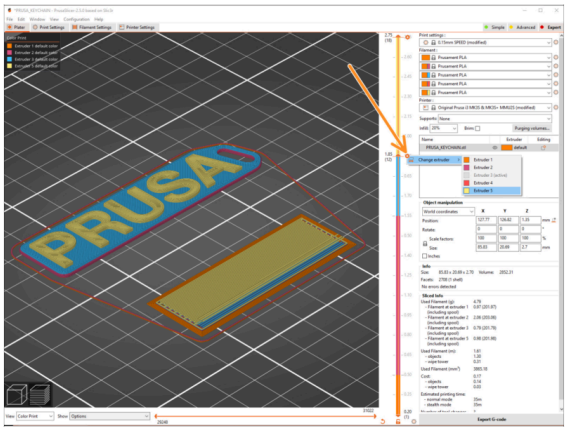
STEP 13 Print & Follow the Handbook.

- Start the print and wait until it finishes. In the meantime you can take a look at the **printed Handbook**.
- All the information regarding calibration, how to organise the printer, buffer, spools, or troubleshooting tips are all in the printed or online Handbook.

  To download the **Handbook** or if you encounter any issues, please visit our knowledge base at: http://help.prusa3d.com/en/tag/mmu3/
- If you are having any issues while printing, follow the on-screen instructions or visit the link from the LCD screen.

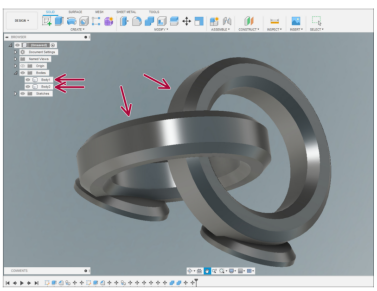
STEP 14 G-code preparation / Custom model preparation

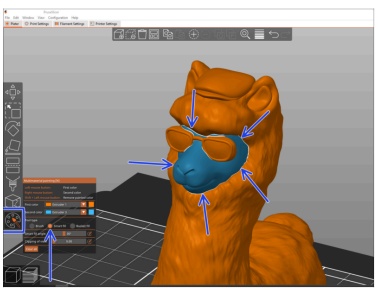


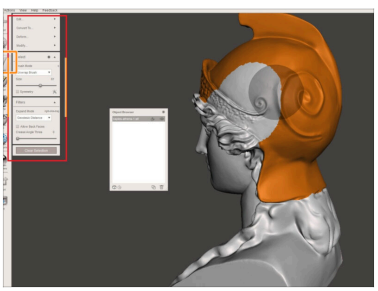


- Already printed all the bundled multi-material models from us as well as those seen at http://Printables.com? **Time to print your own designs!**
- The simpliest way of making a single-body object colorful is the MMU Painting function in PrusaSlicer.
- Basic steps for the manual method are described in our G-code preparation for multi material print section.
- For printing logos or text labels, you might also find the automatic color change at a given layer height useful. Simply, slice an object, select a certain layer height, click the small orange "+" icon next to the height marker and select the desired MMU filament position (Extruder number).

STEP 15 Making your own Multi-material models

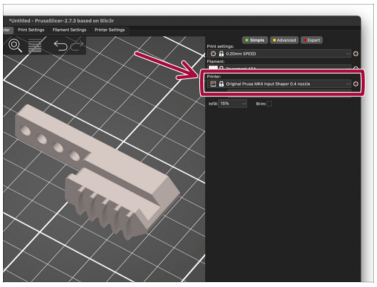
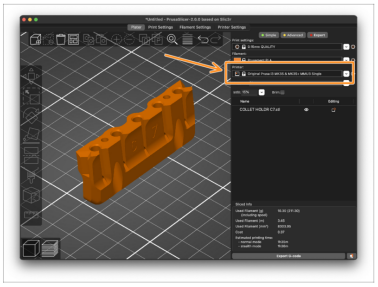
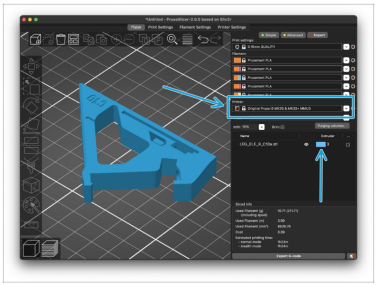






- If you have designed a model with multiple bodies, you may find the Exporting model from Fusion 360 guide useful.
- If you are designing a single-body model, part of which should be MMU-Painted, make sure there is a sharp line surrounding each distinct part so that you can use the **MMU Painting**'s **Smart-fill** function later on in **PrusaSlicer**.
- If you have an intricate STL file that can't be MMU-Painted easily, you can try the more sophisticated way of Splitting STL with single compact part or Splitting STL into multiple parts using MeshMixer.

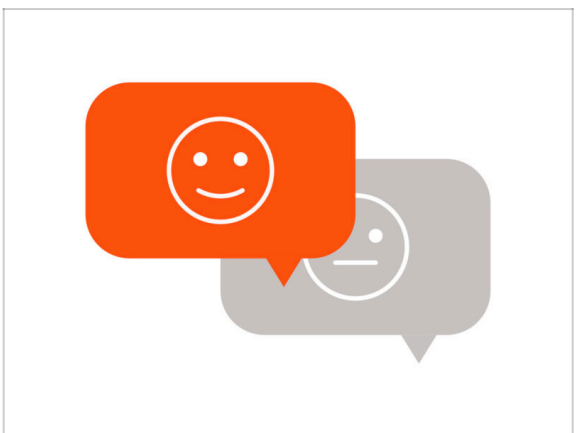
STEP 16 MMU Single material operation

Did you know that MMU3 unit can also be used to make **single-material printing** more convenient too?

- You can keep up to five of your favorite materials loaded into the MMU unit.
  - On the **CORE**/MK3.5/MK4S, use the regular **CORE**/MK3.5/MK4S **profile**, when slicing. The printer will allow you to choose which filament to use.
  - On the **MK3S+**, Slice an object with the MMU3 Single profile and start the print. Then, choose which filament to use from the LCD.
- If you know which of the five materials to use already while slicing, you can use the **MMU3 profile** and assign a single color (Extruder number) to the object.
- If a filament runs out, your print can continue automatically using the **SpoolJoin** function. For more information, refer to the SpoolJoin article.

STEP 17 Give us feedback



- We know you're eager to start printing, but we'd really appreciate it if you could take 3–4 minutes to **share your thoughts** on this manual: how clear it was, how easy it was to follow, and any ideas to improve it.

  This feedback is a little different from the usual comments you might leave on individual steps.
- **Share your feedback here.**
- Thank you for helping us make our manuals even better!

STEP 18 Reward yourself

⚠ We know you've been waiting for this! Sounds like a well-deserved break! Enjoy those Haribos and watching your printer in action. By the way, what are you printing?

Notes:

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