Table of Contents

1. Introduction

STEP 1 All the required tools are included

- **The kit includes:**
- Needle-nose pliers (1x)
- Philips screwdriver (1x)
- Allen key (6x)
- **The printer's package contains a lubricant, which is intended for maintenance.** No need to use it now the bearings are lubricated. There is a dedicated online manual on how to clean the printer and apply the lubricant. See help.prusa3d.com/maintenance-tips

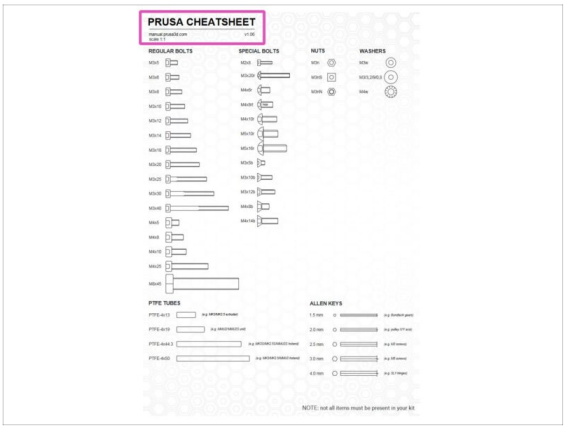
ⓘ No soldering is required.

ⓘ No wire crimping is required.

STEP 2 Labels guide

- All the boxes and bags including parts for the build are labelled.
- Number (or numbers) in the header tells you for which chapter you'll need that bag (or box).

STEP 3 Use labels for reference



ⓘ Most of the labels are scaled 1:1 and can be used to identify the part :-)

⬢ For the most common screws, nuts and PTFE tubes. You can also use the enclosed letter, which contains Prusa Cheatsheet on the other side.

ⓘ You can download it from our site help.prusa3d.com/cheatsheet. Print it at 100 %, don't rescale it, otherwise, it won't work.

STEP 4 Spare bag

⬢ Every type of fastener is included in a separate special bag.

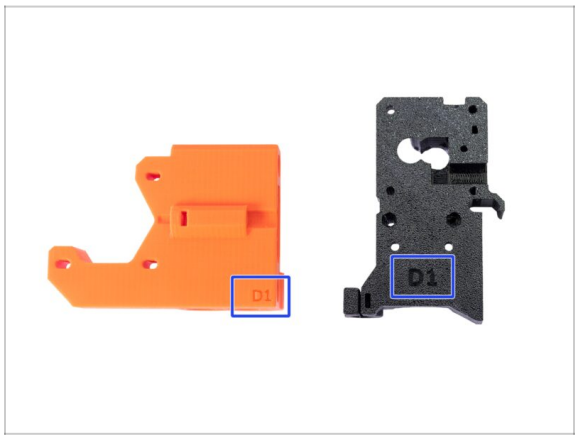
ⓘ If you lose a screw when building, use one from this bag.

STEP 5 View high resolution images

When you browse the guide on help.prusa3d.com, you can view the original images in high resolution for clarity.

- Just hover your cursor over the image and click the Magnifier button ("View original") in the top left corner.

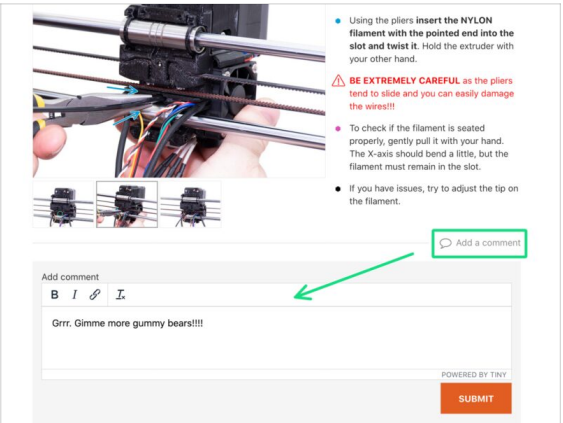
STEP 6 Printed parts - versioning

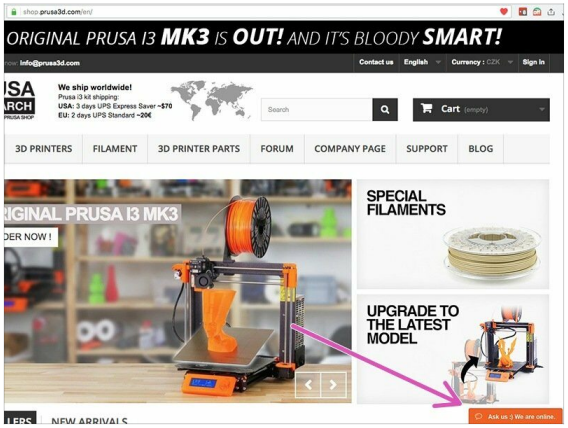


- Most of the 3D printed parts on Original Prusa i3 MK3S+ are marked with their version.
  - **A, B, C and Dx series** (e.g. D1) - those parts are printed on Prusa Research farm and are distributed with the kit.
  - **Rx series** (e.g. R6) - those parts are available for download at prusa3d.com/printable-parts. They are identical to the factory ones.

In case you have issues while assembling the printer with the certain printed part, please try to find this label and tell it to our support team.

STEP 7 We are here for you!





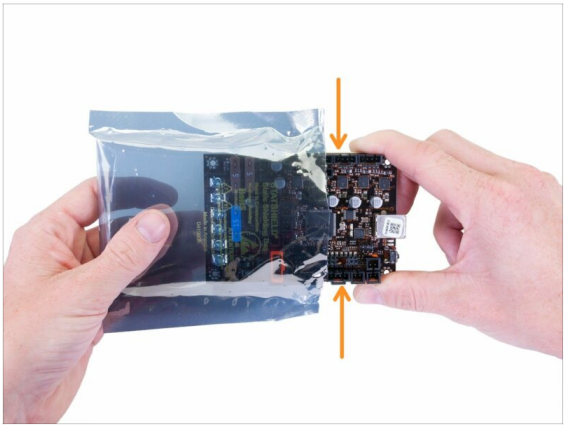
- Lost in the instructions, missing screw or cracked printed part? **Let us know!**
- You can contact us using following channels:
  - Using comments under each step.
  - Using our 24/7 live chat at shop.prusa3d.com
  - Writing an email to info@prusa3d.com

STEP 8 Pro tip: inserting the nuts

- 3D printed parts are very precise, however, there still might be a tolerance in the printed part and same goes for the size of the nut.
- Therefore it might happen, that the nut won't fit easily in or might be falling out. Let's see, how to fix it:
  - **Nut won't fit in**: use a screw with a thread along its entire length (typically: M3x10, M3x18) and screw it from the opposite side of the opening. While tightening the screw, the nut will be pulled in. Remove the screw afterwards.
  - **Nut keeps falling out**: Use a piece of tape to fix the nut temporarily in place, as soon as you insert the screw in, you can remove the tape. *Using glue isn't recommended as it can partly reach into the thread and you won't be able to tighten the screw properly.*
- Every time we recommend to use the "screw pulling technique", you will be reminded with Joe's avatar ;)

ⓘ Parts in the pictures are used as an example.

STEP 9 Important: Electronics protection



⚠ **WARNING:** Make sure to **protect the electronics against electrostatic discharge (ESD)**. Always unpack the electronics right before you need them!

- Here are some **tips to prevent damage to the electronics**:
  - **Keep the electronics inside the ESD bag** right until you are asked to install them.
  - **Always touch the sides of the board** while manipulating with it. Avoid touching the chips, capacitors and other parts of the electronics.
  - **Before you touch the electronics** use any conductive (steel) structure nearby to discharge yourself.
  - **Be extra cautious in the rooms with carpets**, which are a source of electrostatic energy.
  - Clothes from wool and certain synthetic fabrics can easily gather static electricity. It is safer to wear **cotton clothing**.

STEP 10 Reward yourself

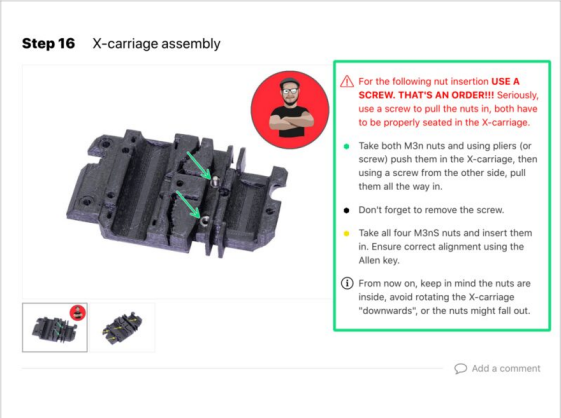
- Building the MK3S+ printer is a challenge unlike any other and you should treat yourself for every milestone you reach. That is why a bag of Haribo Bears is included!

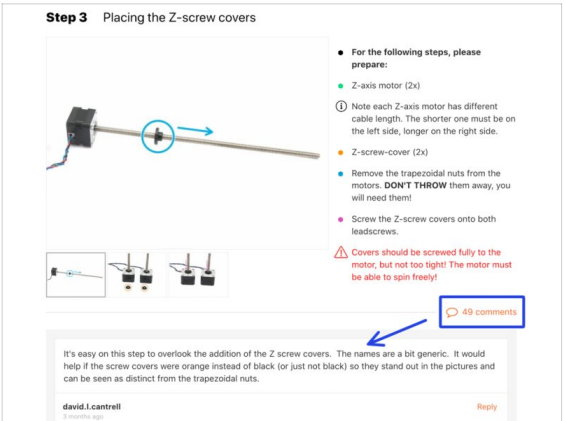
⚠ **The biggest issue from the previous builds** (MK3S, MK2S) which we had to address was inadequate bear consumption. Many of you didn't have enough bears for all chapters, some even ate them all before they started!

- I'm glad to announce that **after countless weeks of thorough scientific research** (hundreds of eaten bears), we came to a solution!
- At the end of each chapter, you will be told a specific amount of bears to consume.
- Eating more or less bears than prescribed in the manual might lead to fatigue or nausea. Please consult a professional in the closest candy store.

⚠ **Hide the Haribo for now!** From our experience an unattended bag with sweets tends to suddenly disappear. We are still investigating this phenomenon.

STEP 11 How to successfully finish the assembly

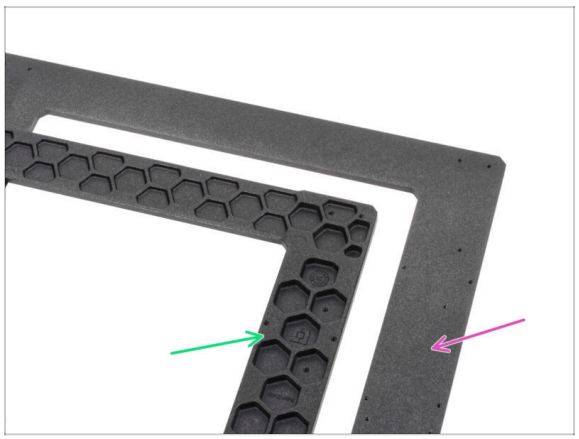




To successfully finish the assembly please follow all these:

- **Always read all the instructions at current step first**, it will help you to understand what you need to do. **Don't cut or trim unless you are told to!!!**
- **Don't follow pictures only!** It is not enough, the written instructions are as brief as they could be. Read them.
- **Read the comments** from the other users, they are great source of ideas. We read them too and based on your feedback improve the manual and the entire assembly.
- **Use a reasonable force**, the printed parts are tough, but not unbreakable. If it doesn't fit, check your approach twice.
- **Eat the gummy bears as instructed!** Disobedience won't be tolerated :D
- **Most important: Enjoy the build, have fun.** Cooperate with your kids, friends or partners. *However, we take no responsibility for possible fights ;)*

STEP 12 New vs old frame



⚠ **There are two variations of the printer frame and Y-carriage**, each with a different installation procedure.

- **Take a closer look at the printer frame and choose the appropriate instructions:**
  - **NEW frame** - there are hexagonal pockets on one side of the part. Go to chapter **2A. Y-axis assembly**
  - **OLD frame** - flat on both sides of the part. Go to chapter **2B. Y-axis assembly**

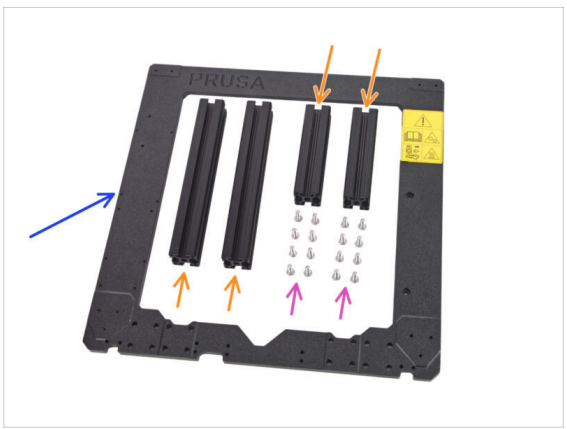
ⓘ Images in some chapters can differ slightly depending on the type of the frame used - since the assembly is mostly the same for both types.

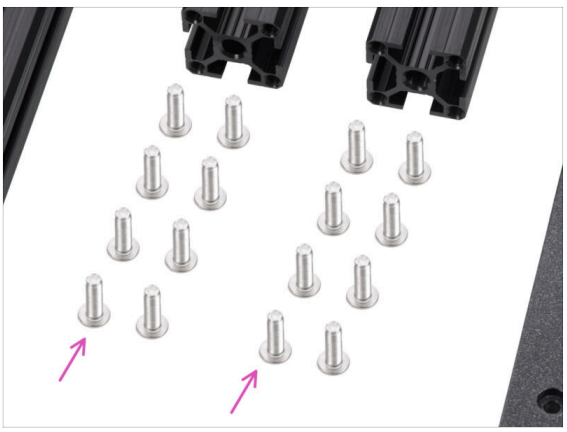
2A. Y-axis assembly

STEP 1 Tools necessary for this chapter

- Needle-nose pliers
- 2mm Allen key for nut alignment
- 2.5mm Allen key for M3 screws
- 3mm Allen key for M5 screws

STEP 2 YZ frame - preparing the components



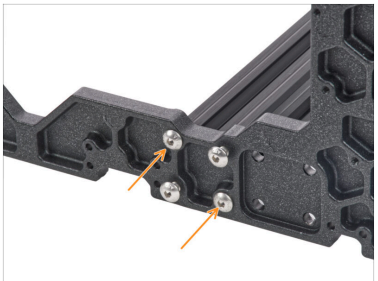


- **Prepare the following parts to build the YZ frame:**
- Aluminum extrusions (4x)
- Aluminum frame (1x)
- M5x16r screw (16x)

⚠ Before you proceed further, please place the frame on a **FLAT SURFACE** (this is crucial).

STEP 3 YZ frame - mounting the longer extrusions





- Take the **LONGER** aluminum extrusions and place them next to the frame.

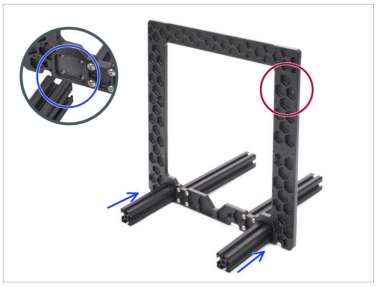
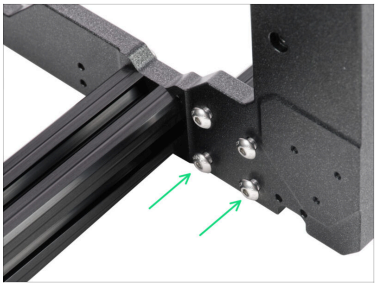
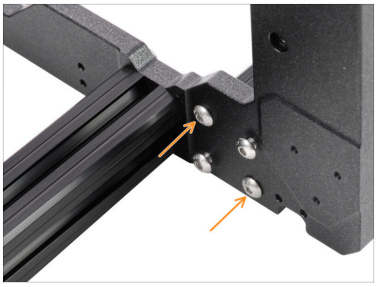
⚠ Make sure the engraved **PRUSA logo** (top left) and protruding parts at the bottom and top of the frame **ARE VISIBLE**!

ⓘ Note: screws are inserted from the opposite side of the frame. If you need to manipulate with the frame, make sure the extrusions are on the correct side.

- Ensure you are using the correct holes, see the second picture. Use the M5 screws to connect extrusions to the frame. Tighten the screws with the Allen key just slightly!
- Now, tighten the screws fully, but **ON A DIAGONAL**, see the last picture. As soon as you finish the first, tighten the second pair. Then proceed to the second long extrusion.

⚠ **Be cautious when tightening** these screws to avoid damaging the Allen key slot. **Ensure the Allen key is fully inserted into the screw head. Tighten the screw firmly but gently.**

STEP 4 YZ frame - mounting the shorter extrusions

- Take the **SHORTER** aluminum extrusions and place them next to the frame.

⚠ **Short extrusions must be placed on the side where are the hexagonal recesses.**

ⓘ Note: screws are inserted from the opposite side of the frame. If you need to manipulate with the frame, make sure the extrusions are on the correct side.

- Ensure you are using the correct holes, see the second picture. Use the M5x16 screws to connect extrusions to the frame. Tighten the screws just slightly!
- Now, tighten the screws fully, but **ON A DIAGONAL**, see the last picture. As soon as you finish the first, tighten the second pair. Then proceed to the second short extrusion.

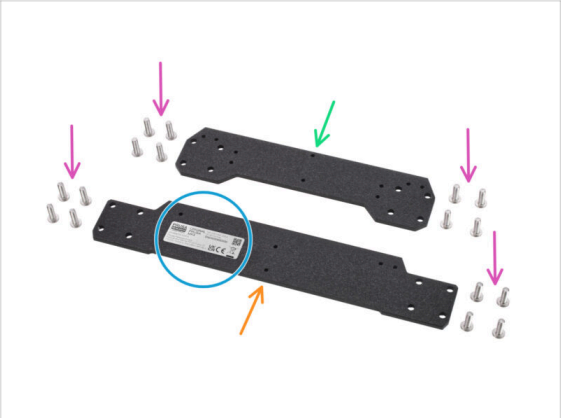
⚠ **Be cautious when tightening** these screws to avoid damaging the Allen key slot. **Ensure the Allen key is fully inserted into the screw head. Tighten the screw firmly but gently.**

STEP 5 YZ frame - final check

⚠ Before we proceed further, let's make a final check. **IT IS VERY IMPORTANT** to have extrusions on the correct side of the frame.

- **Long extrusions** - must be on the side of the frame **with the Prusa logo** and the **safety sticker**, also ensure longer extrusions are **closer together**.
- **Short extrusions** - must be on the side of the frame **with the hexagonal recesses**, also ensure shorter extrusions are **further away from each other**.

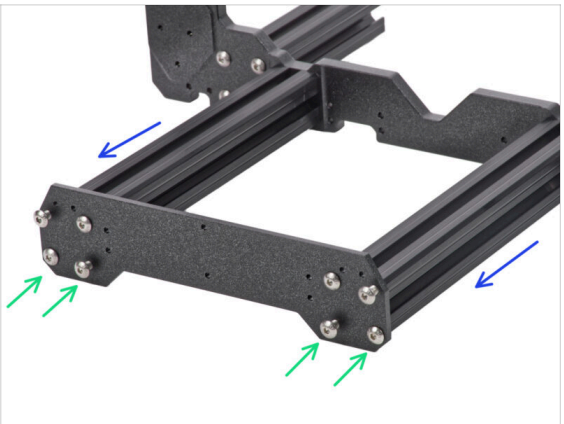
STEP 6 Y-axis: front and rear plate preparation

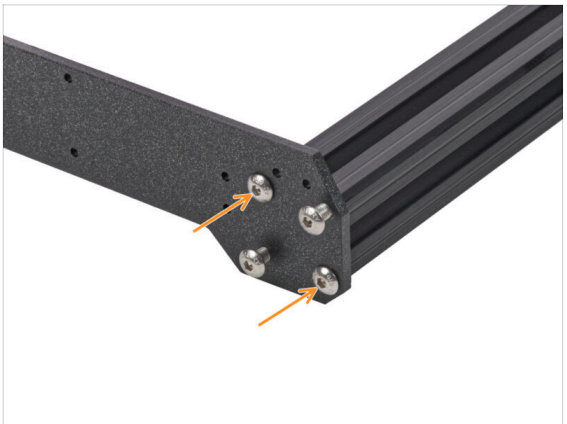


- **For the following steps, please prepare:**
- Front plate (1x)
- Rear plate (1x)
- There is a sticker with serial number on the rear plate. Keep it in mind, we use it as a guide to orient the part later on. **Do not remove the sticker!**
- M5x16r screw (16x)
- PSU holders M3nE (2x)

ⓘ The **latest kit units contain M3nEs nuts**. The M3nEs nut is slightly different, it has a sheet metal spring. However, the installation procedure is the same.

STEP 7 Y-axis: front plate assembly





- Rotate the frame with longer extrusions towards you.
- Place the front plate on the extrusions and secure it with M5x16r screws, **DON'T TIGHTEN** them yet!
- Now, tighten the screws fully, but **ON A DIAGONAL**, see the second picture. As soon as you finish the first, tighten the second pair. Then proceed to the second long extrusion.

⚠ **Be cautious when tightening** these screws to avoid damaging the Allen key slot. **Ensure the Allen key is fully inserted into the screw head. Tighten the screw firmly but gently.**

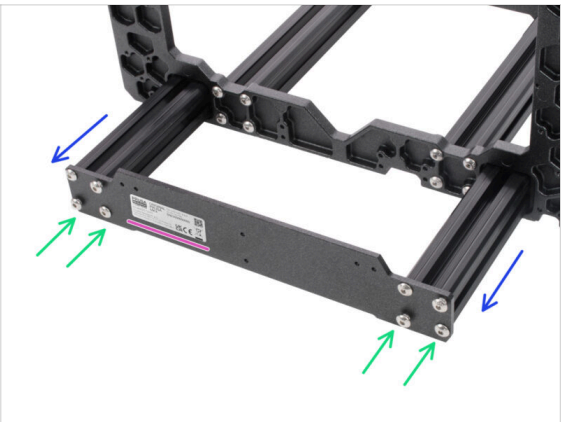
STEP 8 Y-axis: preparation for the PSU

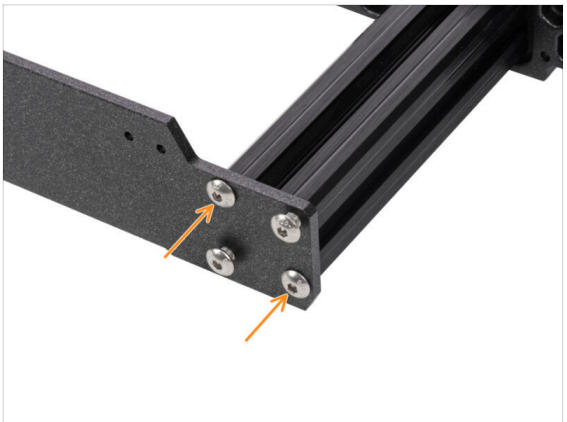
⚠ **THIS IS A VERY IMPORTANT STEP!** Incorrect placement of PSU holders will lead to issues later.

- Take the YZ frame and rotate it with the shorter extrusions towards you.
- Place the PSU holders (M3nE/M3nEs) in the extrusion, **use the side section**, ensure it is the correct extrusion. See the picture.

ⓘ Both the holders goes only into one of the extrusions. The exact spacing of the PSU holders doesn't matter, we will adjust them later.

STEP 9 Y-axis: rear plate assembly

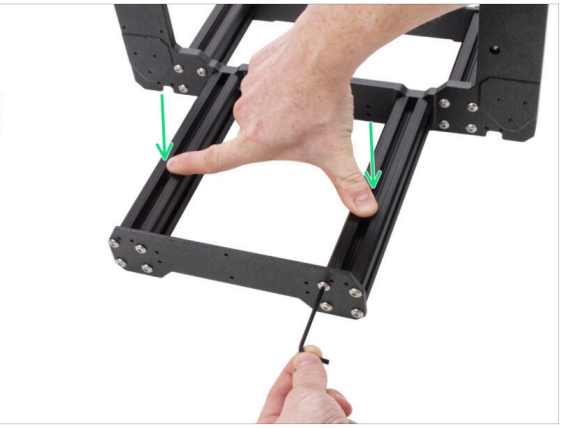




- Ensure the frame with shorter extrusions is rotated towards you.
- Place the rear plate on the extrusions and secure it with M5x16r screws, **DON'T TIGHTEN** them yet!
  - Orient the part so that the sticker is on the back of the printer.
- Now, tighten the screws fully, but **ON A DIAGONAL**, see the second picture. As soon as you finish the first, tighten the second pair. Then proceed to the second short extrusion.

  ⚠ **Be cautious when tightening** these screws to avoid damaging the Allen key slot. **Ensure the Allen key is fully inserted into the screw head. Tighten the screw firmly but gently.**

STEP 10 Y-axis: geometry check



⚠ Before you proceed further, please place the frame on a **FLAT SURFACE** (this is crucial).

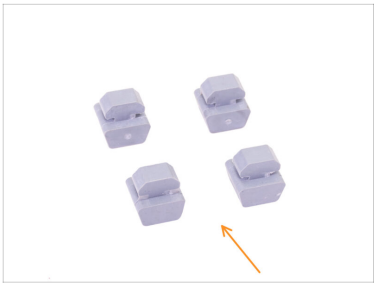
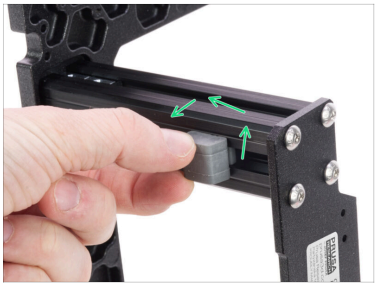
- All the components are cut or drilled by machine for highest precision, but with uneven tightening, it is possible to warp the frame.
- Using your hand, try to wiggle the frame side to side and check, whether some of the front or back corners are lifting up or not.

ⓘ Check the front and back corners only as the frame itself doesn't touch the surface.

- In case you find some imperfections, release the screws, press the extrusions against the FLAT SURFACE and tighten them again.

⚠ **IMPORTANT INFO**: the printer is capable of self-correcting a certain amount of the frame skew. Try getting the geometry as best as possible, however, if one of the corners keeps lifting up with values up to 2 mm (0.08 inch) you can proceed.

STEP 11 Mounting antivibration feet (optional)

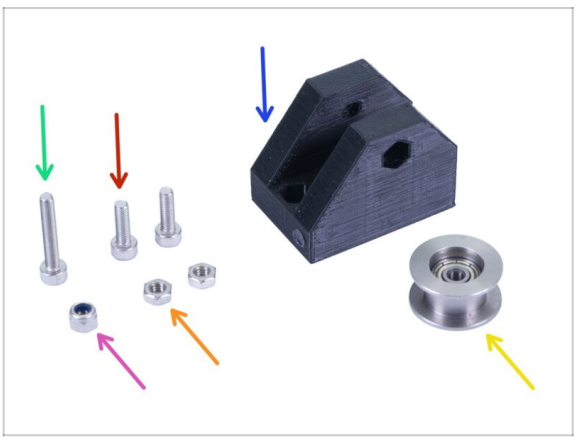




ⓘ Note this step is optional for now. **We recommend mounting the feet now to protect the surface on your table** (workbench). However, you need to lift the frame up before each turn.

ⓘ There will be extra step at the end of the assembly to remind you of the antivibration feet.

- **For this step, please prepare:**
  - Antivibration foot (4x)
- Turn the YZ frame on the side and insert the antivibration foot. Insert and turn 90 degrees to lock it in place.
- Repeat this process on all 4 feet. Place them 2-3 cm from the end of each extrusion.

STEP 12 Preparing Y-belt-idler (part 1)



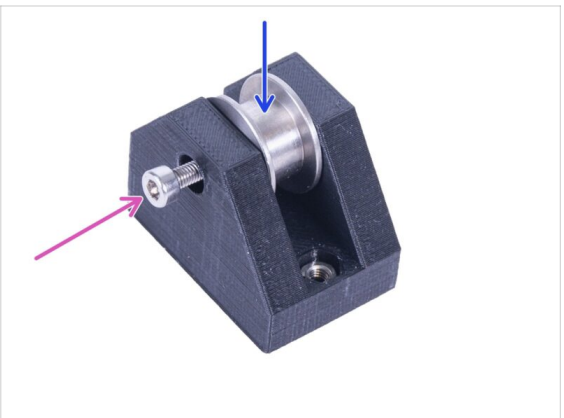
- **For the following steps, please prepare:**
- Y-belt-idler (1x)
- M3x18 screw (1x)
- M3x10 screw (2x)
- M3nN nyloc nut (1x)
- M3n nut (2x)
- 623h bearing housing (1x)

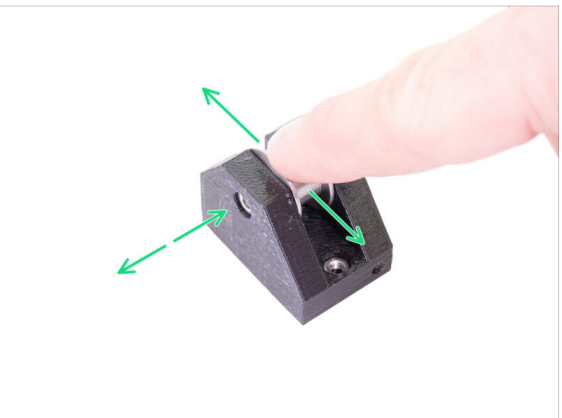
STEP 13 Preparing Y-belt-idler (part 2)

- Take the Y-belt-idler and insert two M3n nuts from the top.
- Turn the idler to the other side and insert the M3nN nyloc nut. The rubber inside the nut must be facing towards you. **BE CAREFUL**, don't over tighten the screw, you can break the part!
- Make sure all three nuts are all the way in.

ⓘ In case you can't press the nuts in, don't use excessive force. Take M3 screw thread it from the opposite side of the printed part, as you tighten the screw, it will pull the nut in. Be careful not to break the idler during tightening.

STEP 14 Preparing Y-belt-idler (part 3)



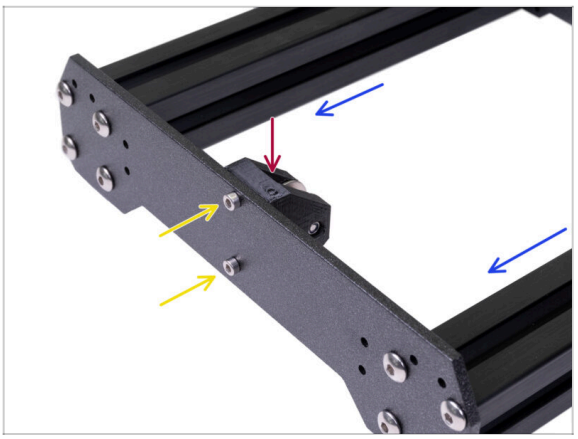


- Insert the prepared bearing in the Y-belt-idler.

ⓘ Bearing housing orientation doesn't matter.

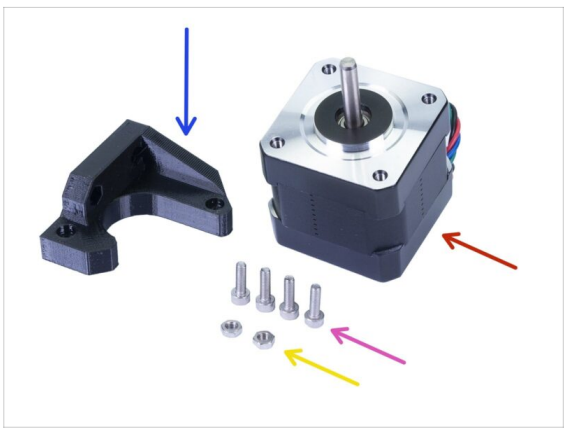
- Secure the bearing with the M3x18 screw. Don't fully tighten the screw.
- Place your finger on the bearing and ensure it can rotate freely. If needed adjust the screw.

STEP 15 Mounting the Y-belt-idler



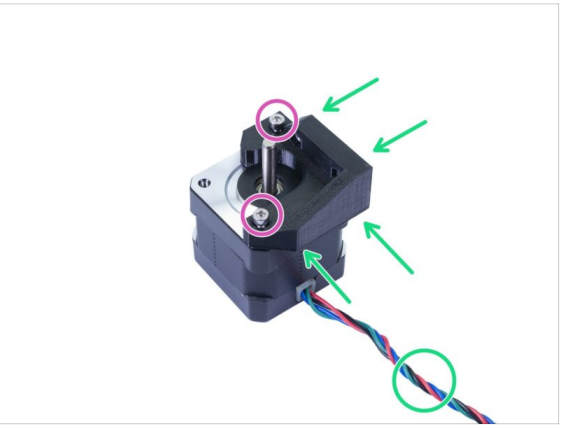
- Rotate the frame with longer extrusions towards you.
- ⚠ Take the Y-belt-idler and place it on the front plate. **Note there is a mark (circle) on the printed part facing up.**
- Secure the Y-belt-idler with two M3x10 screws. Tighten the screws until the printed part reaches the surface of the plate.

STEP 16 Y-axis: motor and motor holder



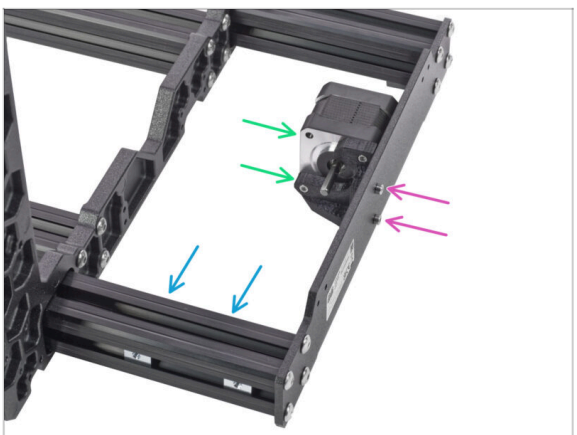
- **For the following steps, please prepare:**
- Y-axis motor (1x)
- Y-motor-holder (1x)
- M3x10 screw (4x)
- M3n nut (2x)
- ⚠ **Ensure you are using the correct motor**, there is a label on the bottom of the casing. The reason is, each motor has different cable length.

STEP 17 Preparing Y-motor-holder



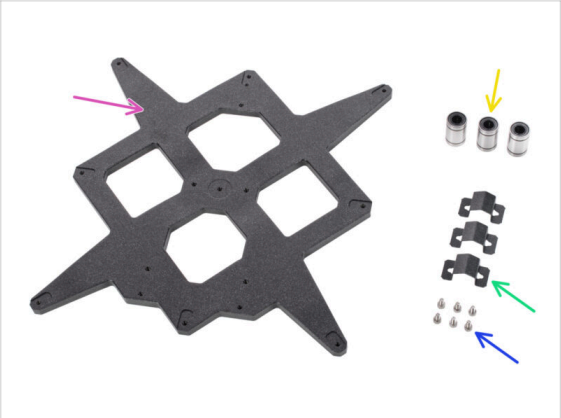
- Take the Y-motor-holder and insert two M3n nuts.
- In case you can't press the nuts in, don't use excessive force. Use an M3 screw from the other side and tighten it.
- Place the Y-motor-holder on the motor, ensure the correct orientation as in the picture (use the motor cable).
- Using two M3x10 screws tighten holder and motor together.

STEP 18 Mounting Y-motor-holder



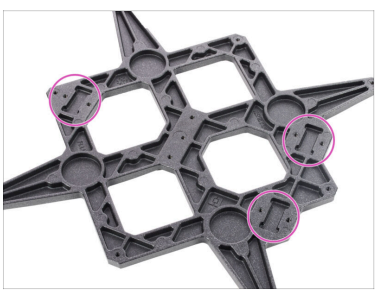
- Take the Y-motor-holder and place it on the rear plate (short extrusions).
- Ensure the correct orientation, the motor shaft must be facing towards the aluminium extrusion with the PSU holders.
- Secure Y-motor-holder with two screws M3x10.

STEP 19 Y-axis: Y-carriage



- **For the following steps, please prepare:**
- Y-carriage (1x)
- Linear bearing (3x)
- Bearing clip (3x)
- M3x6 screw (6x)
- **The printer's package contains a lubricant, which is intended for maintenance.** No need to use it now as the bearings are lubricated. There is a dedicated online manual on how to clean the printer and apply the lubricant. See help.prusa3d.com/maintenance-tips

STEP 20 Installing the bearing clip



- Insert two M3x6 screws into the bearing clip screw holes.
- Note the three pockets for the bearings in the Y-carriage.
- Attach the bearing clip on one of the cutout and tighten the screws only a few turns.

STEP 21 Inserting the bearings



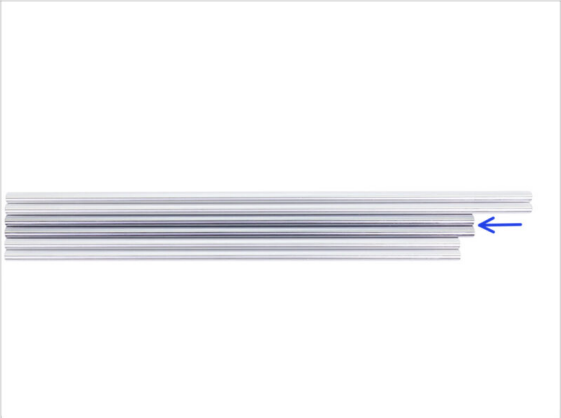
- Insert the bearing into the bearing clip and the pocket.
- **The correct bearing orientation**: When placing bearings onto the Y-carriage, **make sure that they are oriented as shown** in both pictures. The tracks (rows of balls) have to be on the sides.

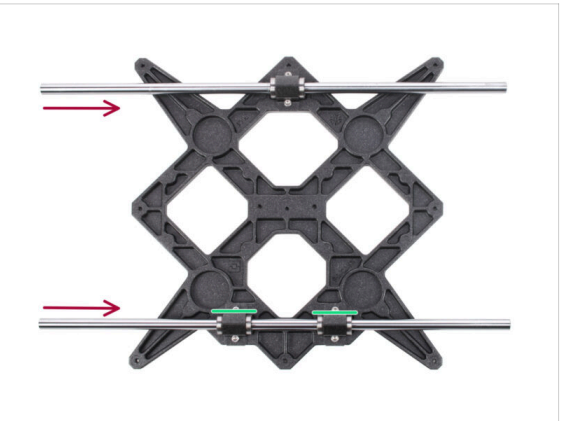
⚠ **The incorrect orientation: Avoid placing the bearing like in the last picture!** This orientation with a single row of balls in the center of the hole will later **increase the wear of the smooth rod**, possibly creating a groove in it.

STEP 22 Securing the bearings


- Align the bearing so that it is centered on the bearing clip. Approximately the same piece of bearing should be visible on each side.
- Maintain the bearing position and fully tighten both screws.
- After installing all the bearings, check their orientation again.

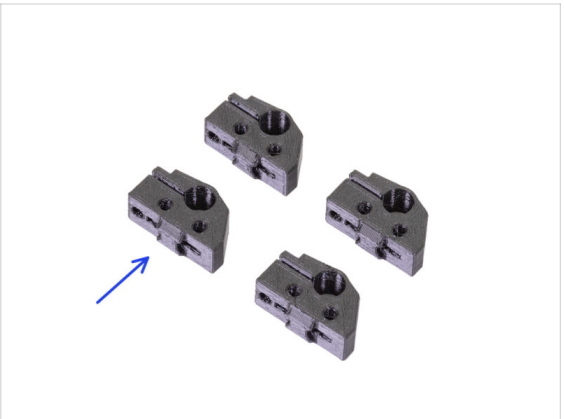
STEP 23 Inserting smooth rods into Y-carriage





- Take all the smooth rods and compare their lengths. For Y-carriage you need mid-sized rods (330 mm).
- ⚠ **NOW, PLEASE BE VERY CAREFUL!** Gently insert the rod straight into the bearings, do not apply too much force and do not tilt the rod!
- If you can't slide the smooth rod easily, check the two bearings are aligned properly.
- ⓘ In case you manage to push out balls from the bearings, please count them. One or two balls are ok, if there are more of them, please consider ordering new bearings.

STEP 24 Y-axis: smooth rods holders



- **For the following steps, please prepare:**
- Y-rod-holder (4x)
- M3x10 screw (12x)
- M3nS nut (12x)

STEP 25 Preparing Y-rod-holder

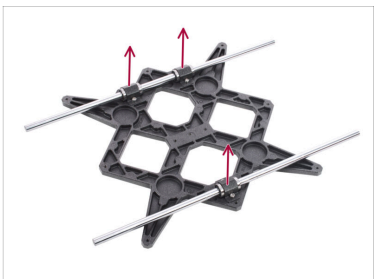
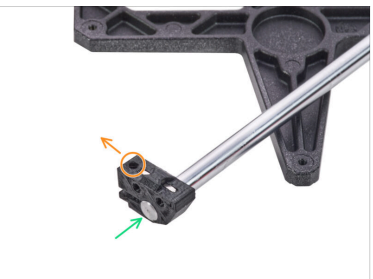
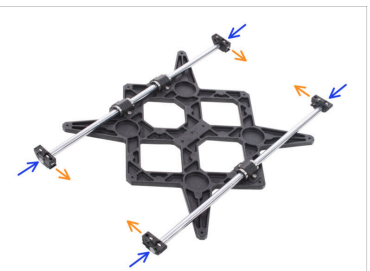


- Take one Y-rod-holder and insert two M3nS nuts.
- Make sure you've pressed the nuts all the way in. You can use pliers, **BUT** be careful, you can damage the printed part.

ⓘ In case you can't press the nuts in, don't use excessive force. First, check if there isn't any obstacle in the nut trap.

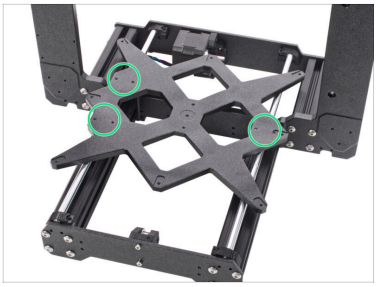
- Insert one M3nS nut from the side of the Y-rod-holder.
- Ensure and adjust the alignment of each nut with the 2mm Allen key.
- Repeat this step for the remaining Y-rod-holders.

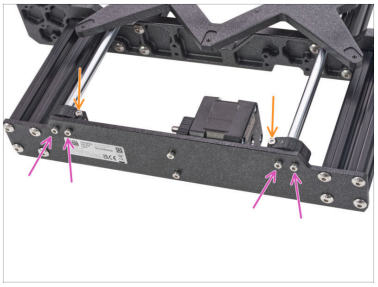
STEP 26 Mounting the Y-rod-holder parts

- Place the Y-carriage on a flat surface (table) with the bearings facing up.
- Push the Y-rod-holder on the rod. Align the front surface of the plastic part with the flat surface of the rod.
- Check the correct position of the Y-rod-holder. The screw hole must be facing up and on the "inner" side of the Y-carriage (see the picture).
- Repeat these steps for the remaining Y-rod-holders.

STEP 27 Installing the Y-carriage

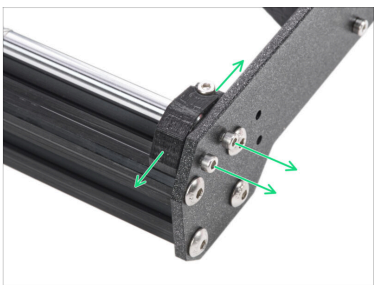
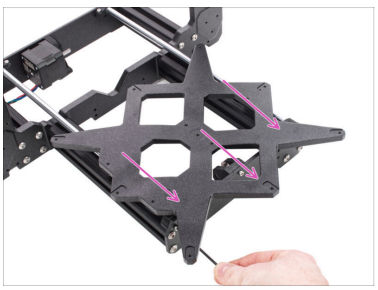




- Take the Y-carriage including smooth rods with rod holders and place them in YZ-frame. Make sure, that **two bearings are on the left side** (see the picture, there are two pairs of the screw holes on the left and one pair on the right).
- Secure each front holder with two M3x10 screws. **Tighten both screws equally, but not completely.** We will tighten them fully later on.
- Insert the M3x10 screw into the hole in each front holder and tighten it.
- Take the second pair of the Y-rod-holders and secure them with M3x10 screws on the rear plate (with shorter extrusions). Tighten both screws equally, but not completely. We will tighten them fully later on.
- Insert the M3x10 screw into the hole in each rear holder and tighten it.

ⓘ In case the M3nS nuts keep falling out, please flip the frame upside down. Tighten both printed parts and then return the frame to the previous position.

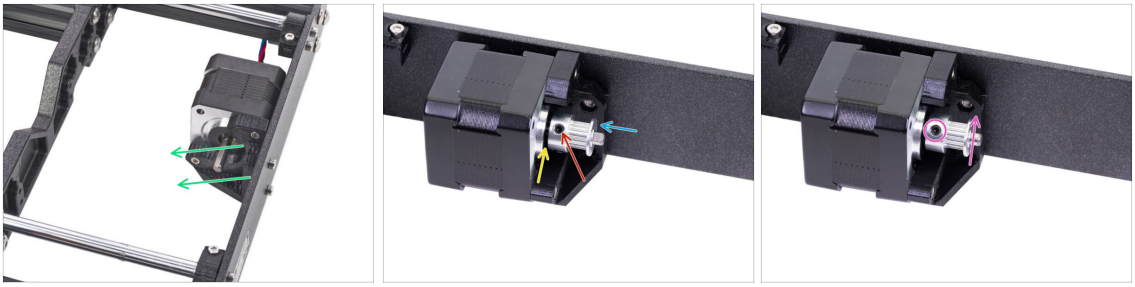
STEP 28 Aligning the smooth rods


⚠ **IMPORTANT:** proper alignment of the smooth rods is crucial to reduce noise and overall friction.

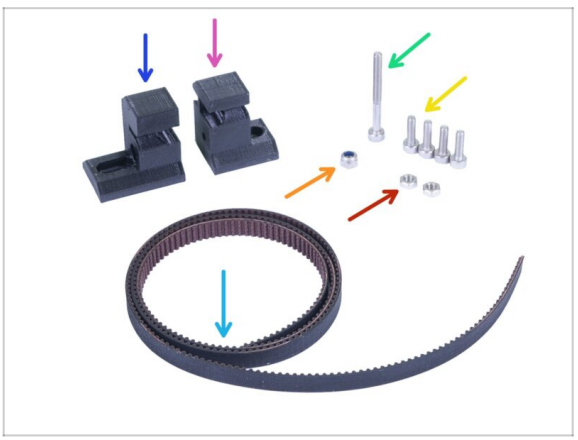
- Ensure all M3x10 screws on Y-holders are slightly loosened, so the printed parts are able to move.
- Move the Y-carriage back and forth across the entire length of the smooth rods to align them.
- Then move the carriage to the front plate and tighten all screws in the front-Y-holders.
- Move the Y-carriage to the rear plate and tighten all screws in the back-Y-holders.

STEP 29 Assembling the Y-motor pulley



- There is a flat part on the motor shaft, rotate it similarly to the first picture. See the direction of the arrows.
- Place a GT2-16 pulley on the Y-motor shaft as shown in the picture.
- Don't press the pulley against the motor. Leave a gap so the pulley can rotate freely.
- One of the screws must be facing directly against the pad (flat part) on the shaft. Slightly tighten the first screw.
- Turn the shaft and slightly tighten the second screw.
- ⓘ Don't tighten the pulley firmly yet, we'll get to that later.

STEP 30 Y-axis: Assembling the belt

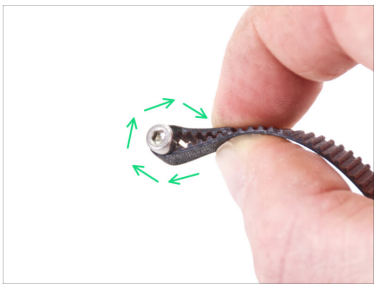


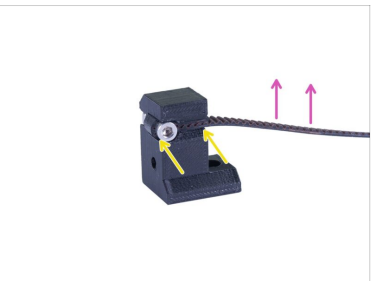
- **For the following steps, please prepare:**
- Y-belt-holder (1x) *smaller of two*
- Y-belt-tensioner (1x) *bigger of two*
- Y-axis belt 650 mm (1x)
- M3x30 screw (1x)
- M3x10 screw (4x)
- M3nN nyloc nut (1x)
- M3n nut (2x)

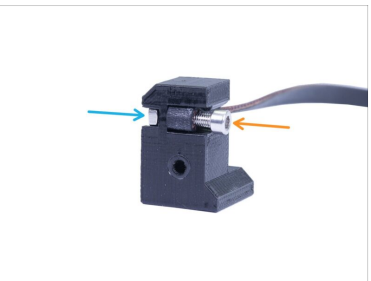
STEP 31 Y-axis: Assembling the belt

- Take the Y-belt-holder (smaller of the two printed parts).
- Insert M3n nut, all the way in.
- Insert M3nN nyloc nut, all the way in.
- Use the screw pulling technique.

STEP 32 Y-axis: Assembling the belt

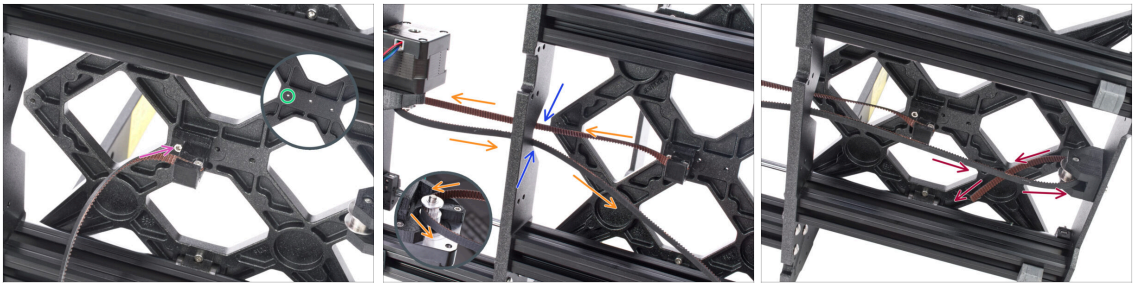






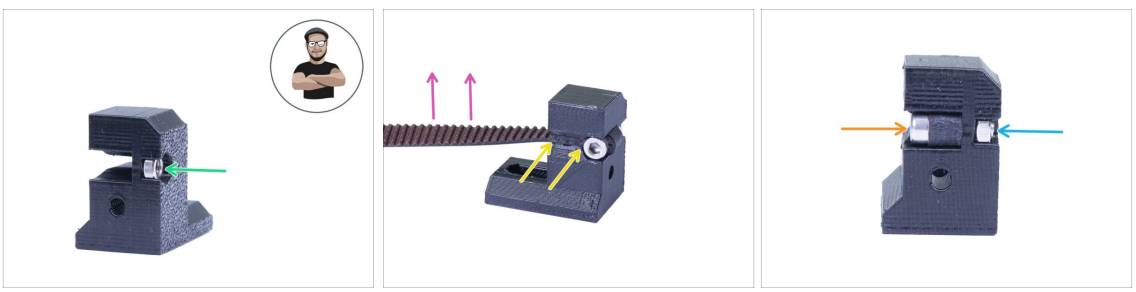
- Bend one end of the belt around M3x10 screw.
- Push it in the holder as in the picture. Use an Allen key to push the belt in.
- Make sure the bent part and the end are within the width of the printed part.
- Teeth on the belt must be facing up!
- Tighten the screw until you reach the nut, don't over tighten the screw, you will deform the belt.
- Hold the nut from the other side until the screw reaches its thread.

STEP 33 Y-axis: Assembling the belt



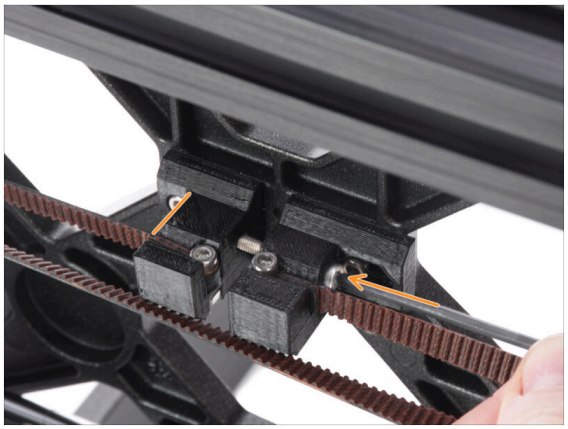
- Using M3x10 screw fix the Y-belt-holder to the Y-carriage. Tighten the screw and ensure the printed part is parallel with the "axis" between the Y-motor and Y-belt-idler.
- Use the hole on the left, see the picture.
- Guide the belt along the Y-axis, around the pulley on the Y-motor and back.
- Make sure the belt is inside the frame, not under!
- (i) Pro tip: Temporarily push the Y-axis motor cable into the bottom of the extrusion. It will make the assembly easier.
- Push the belt through the Y-belt-idler and back to the "center" of the Y-carriage.

STEP 34 Y-axis: Assembling the belt



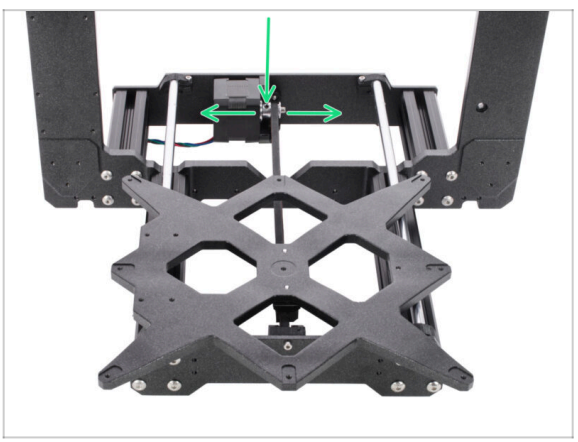
- Take the Y-belt-tensioner (bigger of the two printed parts).
- Insert M3n nut, all the way in.
- (i) Use the screw pulling technique.
- Bend second end of the belt around the screw and push it in the holder as in the picture. Use an Allen key to push the belt in.
- Make sure the bent part and the end are within the width of the printed part.
- Teeth on the belt must be facing up!
- Tighten the screw until you reach the nut, don't over tighten the screw, you will deform the belt.
- Hold the nut from the other side until the screw reaches its thread.

STEP 35 Y-axis: Assembling the belt



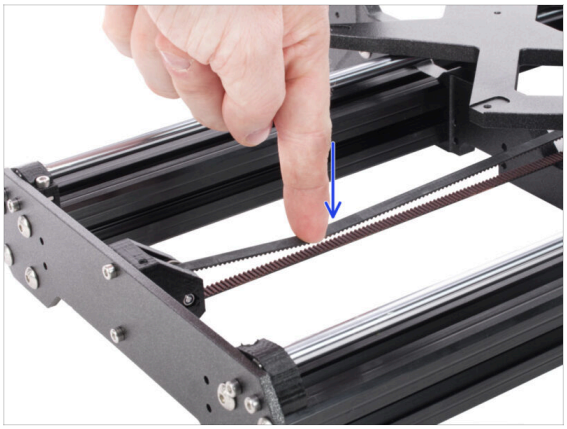
- Using M3x10 screw fix the Y-belt-tensioner to the Y-carriage. **Don't tighten the screw completely**, we need to adjust the position of the printed part.
- Use the hole on the right, see the picture.
- Insert the M3x30 screw through both printed parts. Start tightening until you reach the M3nN nyloc nut.

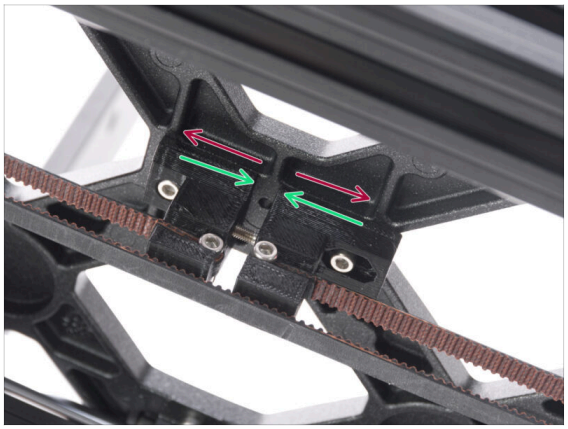
STEP 36 Aligning the Y-axis belt



- Make sure the belt is placed in the "axis" of the printer. Both top and bottom part of the belt should be parallel (above each other).
- To adjust the belt position, release screws on the pulley and slightly move with it, until you reach the best position.
- Tighten both screws on the pulley.

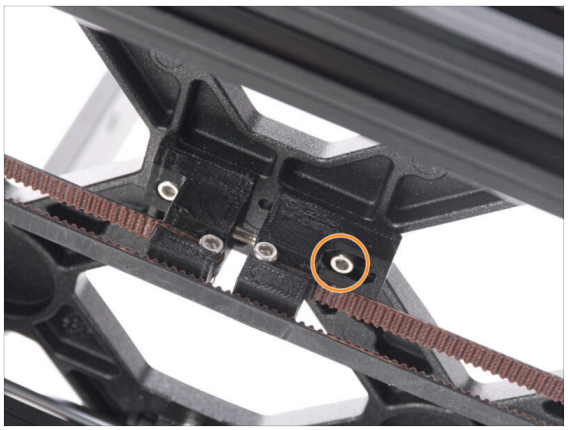
STEP 37 Tensioning the Y-axis belt





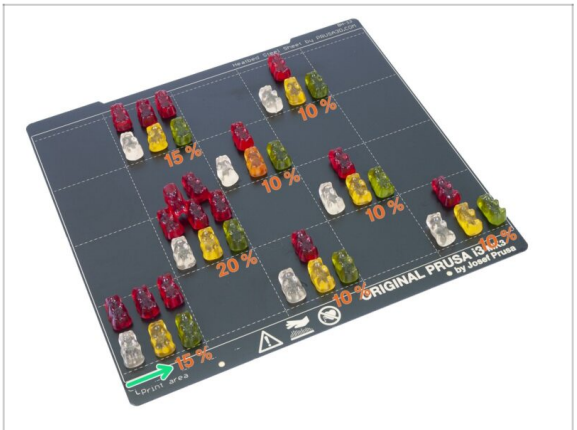
- Using a finger on your left hand push the belt down. Some force should be needed for bending the belt, BUT don't try to overstretch the belt as you might damage the printer.
- You can change the tension in the belt by adjusting the M3x30 screw below the Y-carriage.
  - **Tighten the screw**, bring the parts closer and thus increase the overall tension.
  - **Release the screw**, parts will move apart, the overall tension will decrease.

STEP 38 Testing the Y-axis belt



- Use the technique described below to test if the belt is properly stretched.
- Use pliers to hold the Y-axis motor shaft.
- Move the Y-carriage with your hand towards the Y-axis motor. Don't use excessive force.
- If the belt is stretched properly, you should feel a resistance and the Y-carriage won't move at all. If the belt is too loose, it will deform (create a "wave") and jump over the teeth on the pulley.
- After the proper tension is set, tighten the M3x10 screw.

STEP 39 Haribo time!



⚠ **Carefully and quietly** open the bag with the Haribo sweets. High level of **noise might attract nearby predators!**

- You need to split the bears into **8 groups** according to the upcoming chapters.
- Each chapter requires specific amount of bears, see the picture.
- For Y-axis you must eat 15 % of all the bears.

STEP 40 Y-axis is finished!

- **Y-axis is done**, great job!
- Check the final look, compare it to the picture.

ⓘ Note that you should feel some resistance while moving with the Y-carriage. It is due to the tightened belt and also the motor has some resistance.

- Ready for more? Lets move to chapter **3. X-axis assembly**.

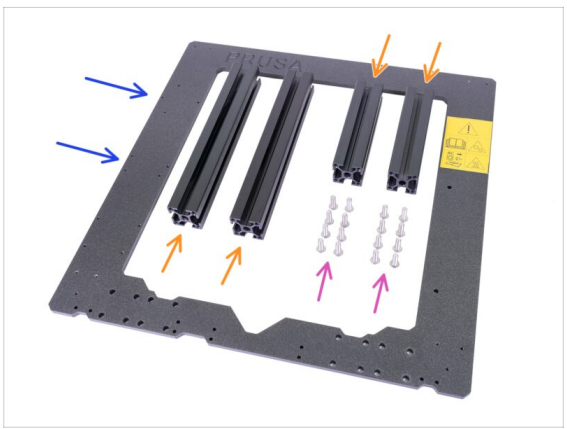
ⓘ Note: The following instructions are the same for both frame and Y-carriage variants.

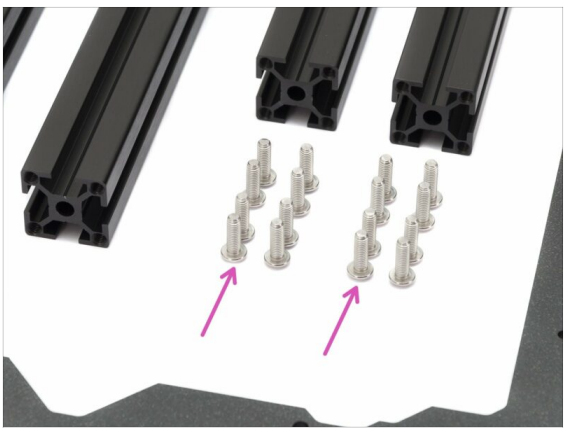
2B. Y-axis assembly

STEP 1 Tools necessary for this chapter

- Needle-nose pliers
- 2mm Allen key for nut alignment
- 2.5mm Allen key for M3 screws
- 3mm Allen key for M5 screws

STEP 2 YZ frame - preparing the components

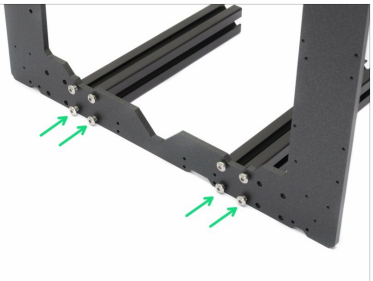
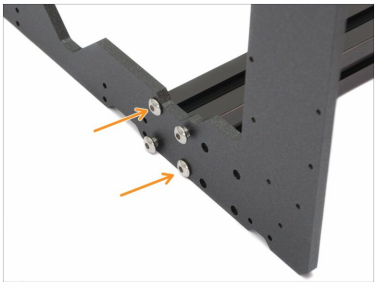




- **Prepare the following parts to build the YZ frame:**
- Aluminum extrusions (4x)
- Aluminum frame (1x)
- M5x16r screw (16x)

⚠ Before you proceed further, please place the frame on a **FLAT SURFACE** (this is crucial).

STEP 3 YZ frame - mounting the longer extrusions

- Take the **LONGER** aluminum extrusions and place them next to the frame.

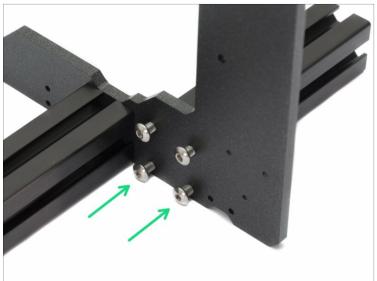
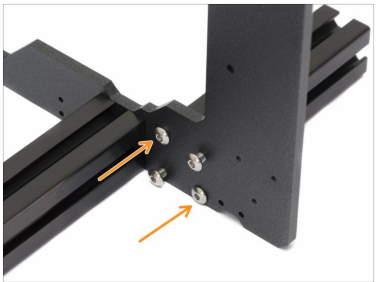
⚠ Make sure the engraved **PRUSA logo** (top left) and the **safety sticker** (right) on the frame **ARE VISIBLE**!

ⓘ Note: screws are inserted from the opposite side of the frame. If you need to manipulate with the frame, make sure the extrusions are on the correct side.

- Ensure you are using the correct holes, see the second picture. Use the M5 screws to connect extrusions to the frame. Tighten the screws with the Allen key just slightly!
- Now, tighten the screws fully, but **ON A DIAGONAL**, see the last picture. As soon as you finish the first, tighten the second pair. Then proceed to the second long extrusion.

⚠ **Be cautious when tightening** these screws to avoid damaging the Allen key slot. **Ensure the Allen key is fully inserted into the screw head. Tighten the screw firmly but gently.**

STEP 4 YZ frame - mounting the shorter extrusions

- Take the **SHORTER** aluminum extrusions and place them next to the frame.

⚠ Short extrusions must be placed on the side, where engraved **PRUSA logo** on the frame (top left) **IS NOT VISIBLE**.

ⓘ Note: screws are inserted from the opposite side of the frame. If you need to manipulate with the frame, make sure the extrusions are on the correct side.

- Ensure you are using the correct holes, see the second picture. Use the M5x16 screws to connect extrusions to the frame. Tighten the screws just slightly!
- Now, tighten the screws fully, but **ON A DIAGONAL**, see the last picture. As soon as you finish the first, tighten the second pair. Then proceed to the second short extrusion.

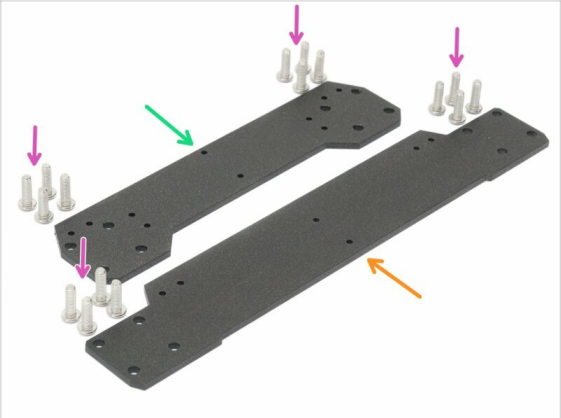
⚠ **Be cautious when tightening** these screws to avoid damaging the Allen key slot. **Ensure the Allen key is fully inserted into the screw head. Tighten the screw firmly but gently.**

STEP 5 YZ frame - final check

⚠ Before we proceed further, let's make a final check. **IT IS VERY IMPORTANT** to have extrusions on the correct side of the frame.

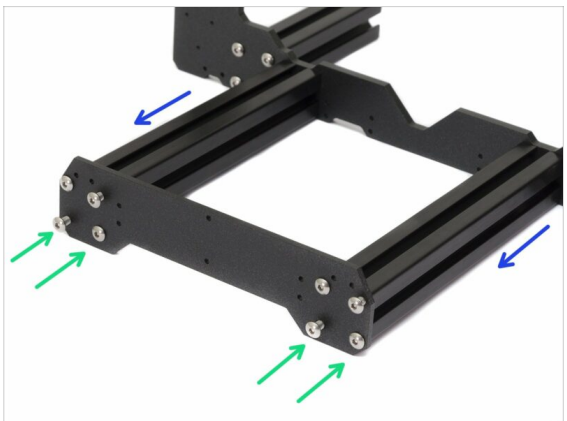
- **Long extrusions** - must be on the side of the frame **with the Prusa logo** and the **safety sticker**, also ensure longer extrusions are **closer together**.
- **Short extrusions** - must be on the side of the frame **without the Prusa logo**, also ensure shorter extrusions are **further away from each other**.

STEP 6 Y-axis: front and rear plate preparation



- **For the following steps, please prepare:**
- Front plate (1x)
- Rear plate (1x)
- M5x16r screw (16x)
- PSU holders M3nE (2x)

STEP 7 Y-axis: front plate assembly



- Rotate the frame with longer extrusions towards you.
- Place the front plate on the extrusions and secure it with M5x16r screws, **DON'T TIGHTEN** them yet!
- Now, tighten the screws fully, but **ON A DIAGONAL**, see the second picture. As soon as you finish the first, tighten the second pair. Then proceed to the second long extrusion.

  ⚠ **Be cautious when tightening** these screws to avoid damaging the Allen key slot. **Ensure the Allen key is fully inserted into the screw head. Tighten the screw firmly but gently.**

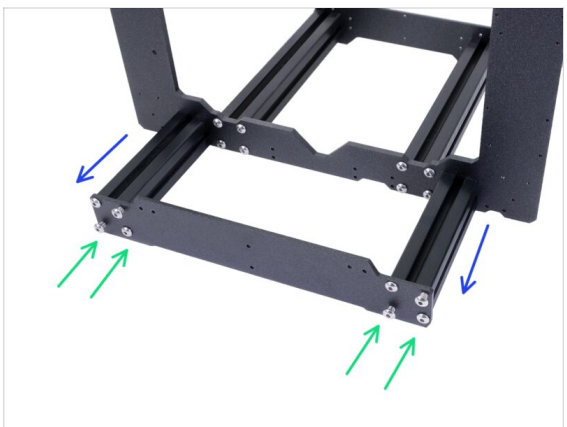
STEP 8 Y-axis: preparation for the PSU

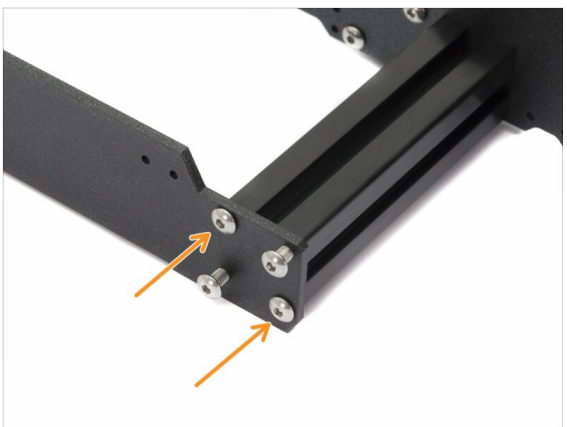
⚠ **THIS IS A VERY IMPORTANT STEP!** Incorrect placement of PSU holders will lead to issues later.

- Take the YZ frame and rotate it with the shorter extrusions towards you.
- Place the PSU holders (M3nE) in the extrusion, **use the side section**, ensure it is the correct extrusion. See the picture.

ⓘ Both the holders goes only into one of the extrusions. The exact spacing of the PSU holders doesn't matter, we will adjust them later.

STEP 9 Y-axis: rear plate assembly





- Ensure the frame with shorter extrusions is rotated towards you.
- Place the rear plate on the extrusions and secure it with M5x16r screws, **DON'T TIGHTEN** them yet!
- Now, tighten the screws fully, but **ON A DIAGONAL**, see the second picture. As soon as you finish the first, tighten the second pair. Then proceed to the second short extrusion.

⚠ **Be cautious when tightening** these screws to avoid damaging the Allen key slot. **Ensure the Allen key is fully inserted into the screw head. Tighten the screw firmly but gently.**

STEP 10 Y-axis: geometry check

⚠ Before you proceed further, please place the frame on a **FLAT SURFACE** (this is crucial).

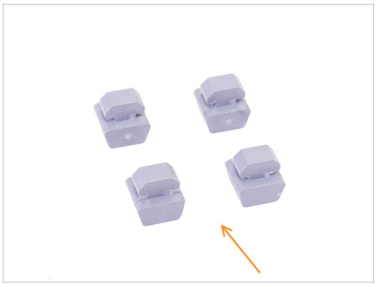
- All the components are cut or drilled by machine for highest precision, but with uneven tightening, it is possible to warp the frame.
- Using your hand, try to wiggle the frame side to side and check, whether some of the front or back corners are lifting up or not.

ⓘ Check the front and back corners only as the frame itself doesn't touch the surface.

- In case you find some imperfections, release the screws, press the extrusions against the FLAT SURFACE and tighten them again.

⚠ **IMPORTANT INFO**: the printer is capable of self-correcting a certain amount of the frame skew. Try getting the geometry as best as possible, however, if one of the corners keeps lifting up with values up to 2 mm (0.08 inch) you can proceed.

STEP 11 Mounting antivibration feet (optional)

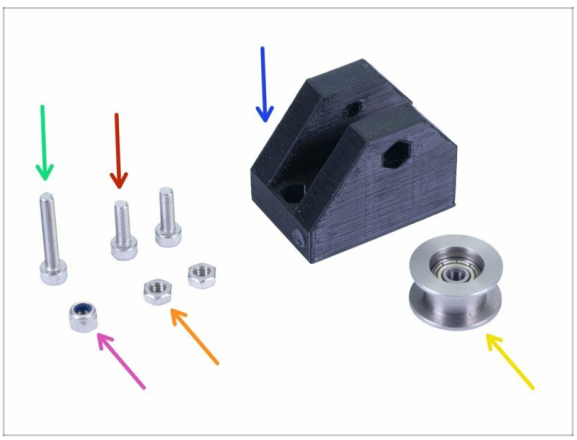


ⓘ Note this step is optional for now. **We recommend mounting the feet now to protect the surface on your table** (workbench). However, you need to lift the frame up before each turn.

ⓘ There will be extra step at the end of the assembly to remind you of the antivibration feet.

- **For this step, please prepare:**
  - Antivibration foot (4x)
- Turn the YZ frame on the side and insert the antivibration foot. Insert and turn 90 degrees to lock it in place.
- Repeat this process on all 4 feet. Place them 2-3 cm from the end of each extrusion.

STEP 12 Preparing Y-belt-idler (part 1)



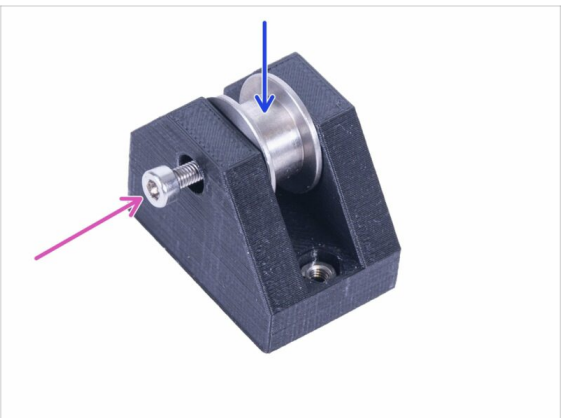
- **For the following steps, please prepare:**
- Y-belt-idler (1x)
- M3x18 screw (1x)
- M3x10 screw (2x)
- M3nN nyloc nut (1x)
- M3n nut (2x)
- 623h bearing housing (1x)

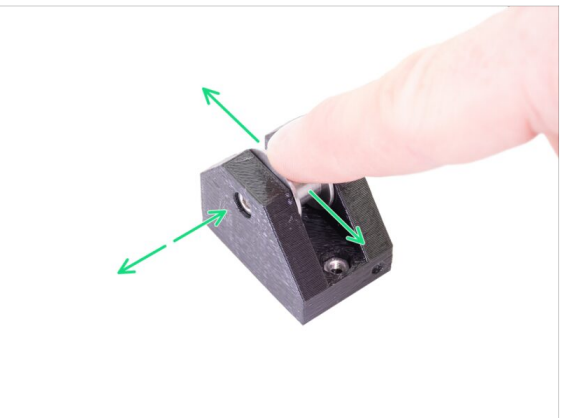
STEP 13 Preparing Y-belt-idler (part 2)

- Take the Y-belt-idler and insert two M3n nuts from the top.
- Turn the idler to the other side and insert the M3nN nyloc nut. The rubber inside the nut must be facing towards you. **BE CAREFUL**, don't over tighten the screw, you can break the part!
- Make sure all three nuts are all the way in.

ⓘ In case you can't press the nuts in, don't use excessive force. Take M3 screw thread it from the opposite side of the printed part, as you tighten the screw, it will pull the nut in. Be careful not to break the idler during tightening.

STEP 14 Preparing Y-belt-idler (part 3)



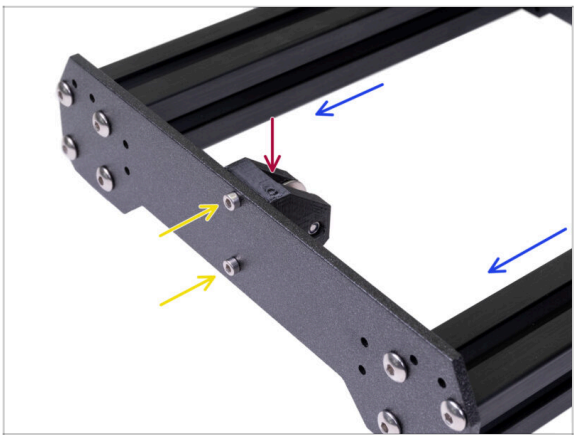


- Insert the prepared bearing in the Y-belt-idler.

ⓘ Bearing housing orientation doesn't matter.

- Secure the bearing with the M3x18 screw. Don't fully tighten the screw.
- Place your finger on the bearing and ensure it can rotate freely. If needed adjust the screw.

STEP 15 Mounting the Y-belt-idler

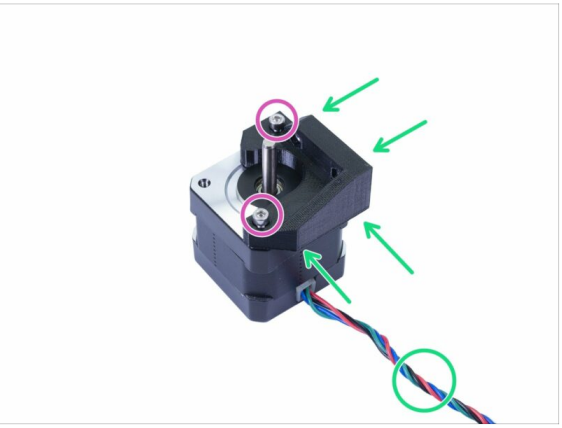


- Rotate the frame with longer extrusions towards you.
- ⚠ Take the Y-belt-idler and place it on the front plate. **Note there is a mark (circle) on the printed part facing up.**
- Secure the Y-belt-idler with two M3x10 screws. Tighten the screws until the printed part reaches the surface of the plate.

STEP 16 Y-axis: motor and motor holder

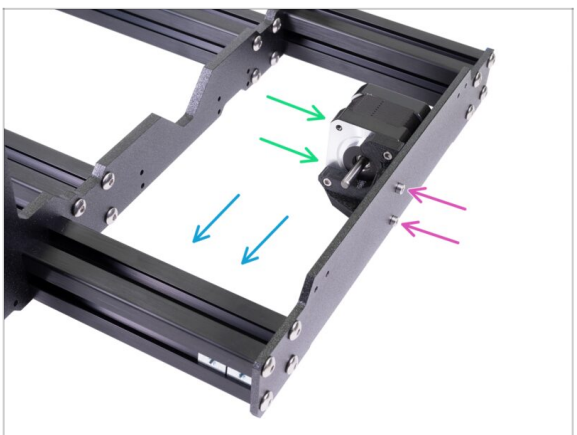
- **For the following steps, please prepare:**
- Y-axis motor (1x)
- Y-motor-holder (1x)
- M3x10 screw (4x)
- M3n nut (2x)
- ⚠ **Ensure you are using the correct motor**, there is a label on the bottom of the casing. The reason is, each motor has different cable length.

STEP 17 Preparing Y-motor-holder



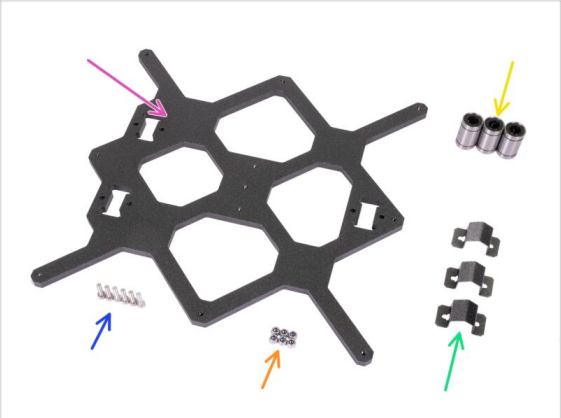
- Take the Y-motor-holder and insert two M3n nuts.
- In case you can't press the nuts in, don't use excessive force. Use an M3 screw from the other side and tighten it.
- Place the Y-motor-holder on the motor, ensure the correct orientation as in the picture (use the motor cable).
- Using two M3x10 screws tighten holder and motor together.

STEP 18 Mounting Y-motor-holder



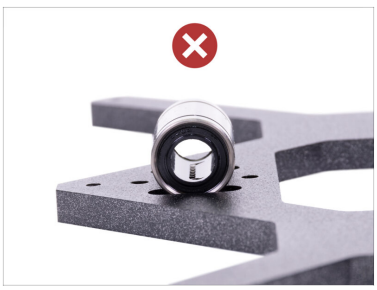
- Take the Y-motor-holder and place it on the rear plate (short extrusions).
- Ensure the correct orientation, the motor shaft must be facing towards the aluminium extrusion with the PSU holders.
- Secure Y-motor-holder with two screws M3x10.

STEP 19 Y-axis: Y-carriage



- **For the following steps, please prepare:**
- Y-carriage (1x)
- Linear bearing (3x)
- Bearing clip (3x)
- M3nN nyloc nut (6x)
- M3x12 screw (6x)
- **The printer's package contains a lubricant, which is intended for maintenance.** No need to use it now as the bearings are lubricated. There is a dedicated online manual on how to clean the printer and apply the lubricant. See help.prusa3d.com/maintenance-tips

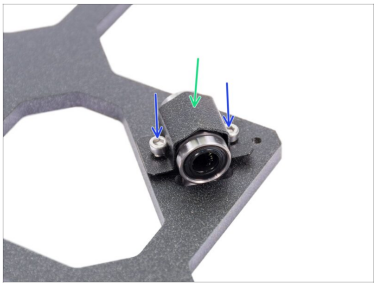
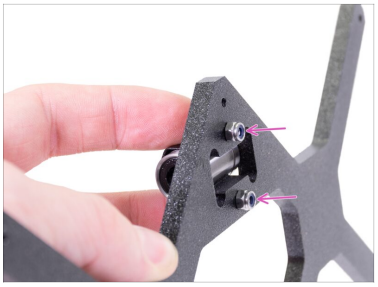
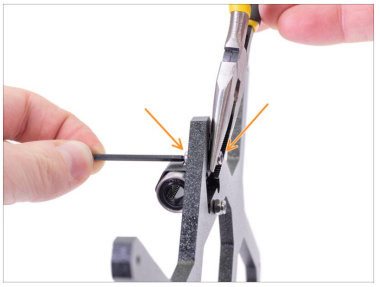
STEP 20 Correct bearing orientation



- **The correct orientation**: When placing bearings onto the Y-carriage, **make sure that they are oriented as shown** in both pictures. The tracks (rows of balls) have to be on the sides.

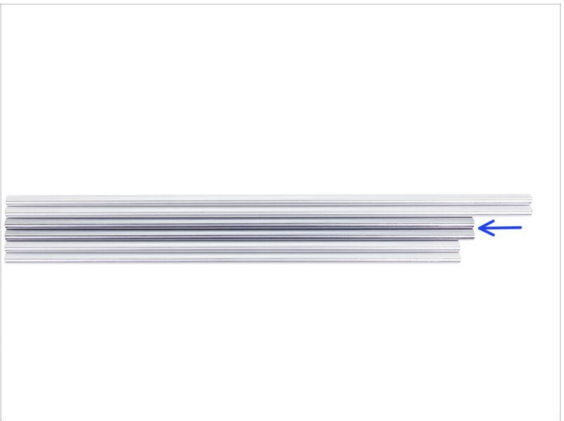
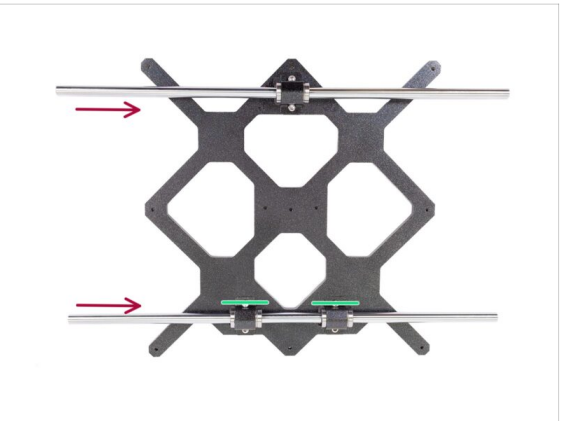
⚠ **The incorrect orientation: Avoid placing the bearing like in the last picture!** This orientation with a single row of balls in the center of the hole will later **increase the wear of the smooth rod**, possibly creating a groove in it.

STEP 21 Installing bearings on the Y-carriage

- Insert linear bearing in the cutout.
- Place the bearing clip over the bearing.
- Insert two M3x12 screws into the holes in the bearing clip.
- Hold by your fingers the heads of both screws and turn the Y-carriage. Place the nyloc nuts on both screws.
- Use the 2.5 mm Allen key and needle-nose pliers and tighten both nuts.
- Repeat these steps for the remaining two linear bearings.

STEP 22 Inserting smooth rods into Y-carriage

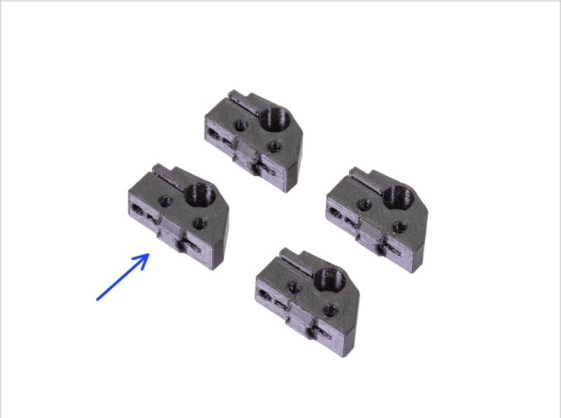
- Take all the smooth rods and compare their lengths. For Y-carriage you need mid-sized rods (330 mm).

⚠ **NOW, PLEASE BE VERY CAREFUL!** Gently insert the rod straight into the bearings, do not apply too much force and do not tilt the rod!

- If you can't slide the smooth rod easily, check the two bearings are aligned properly.

ⓘ In case you manage to push out balls from the bearings, please count them. One or two balls are ok, if there are more of them, please consider ordering new bearings.

STEP 23 Y-axis: smooth rods holders



- **For the following steps, please prepare:**
- Y-rod-holder (4x)
- M3x10 screw (12x)
- M3nS nut (12x)

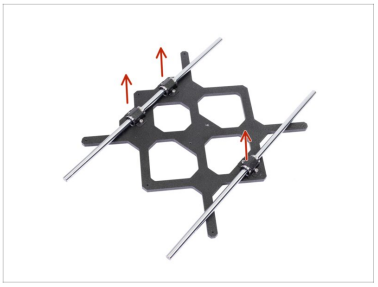
STEP 24 Preparing Y-rod-holder

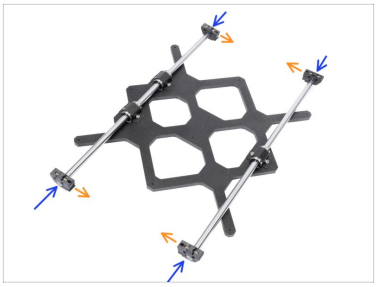
- Take one Y-rod-holder and insert two M3nS nuts.
- Make sure you've pressed the nuts all the way in. You can use pliers, **BUT** be careful, you can damage the printed part.

ⓘ In case you can't press the nuts in, don't use excessive force. First, check if there isn't any obstacle in the nut trap.

- Insert one M3nS nut from the side of the Y-rod-holder.
- Ensure and adjust the alignment of each nut with the 2mm Allen key.
- Repeat this step for the remaining Y-rod-holders.

STEP 25 Mounting the Y-rod-holder parts

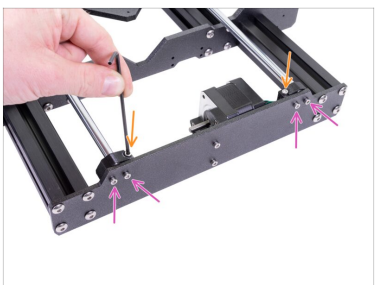




- Place the Y-carriage on a flat surface (table) with the bearings facing up.
- Push the Y-rod-holder on the rod. Align the front surface of the plastic part with the flat surface of the rod.
- Check the correct position of the Y-rod-holder. The screw hole must be facing up and on the "inner" side of the Y-carriage (see the picture).
- Repeat these steps for the remaining Y-rod-holders.

STEP 26 Installing the Y-carriage

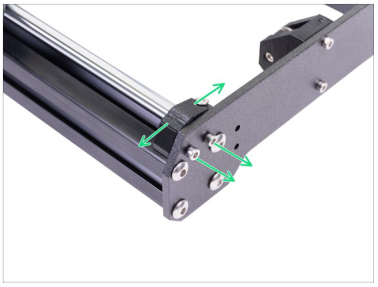
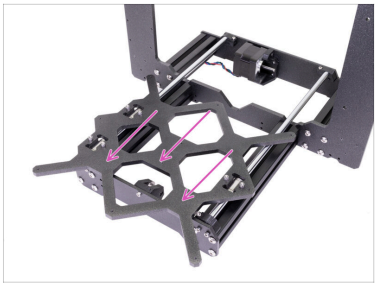




- Take the Y-carriage including smooth rods with rod holders and place them in YZ-frame. Make sure, that two **bearings are on the left side** (see the picture).
- Secure each front holder with two M3x10 screws. **Tighten both screws equally, but not completely.** We will tighten them fully later on.
- Insert the M3x10 screw into the hole in each front holder and tighten it.
- Take the second pair of the Y-rod-holders and secure them with M3x10 screws on the rear plate (with shorter extrusions). Tighten both screws equally, but not completely. We will tighten them fully later on.
- Insert the M3x10 screw into the hole in each rear holder and tighten it.

ⓘ In case the M3nS nuts keep falling out, please flip the frame upside down. Tighten both printed parts and then return the frame to the previous position.

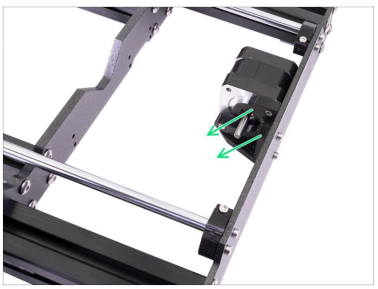
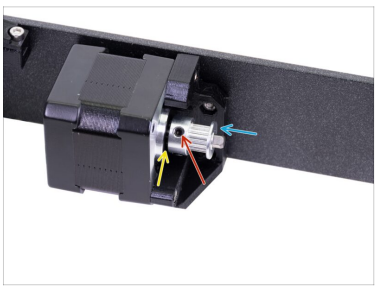
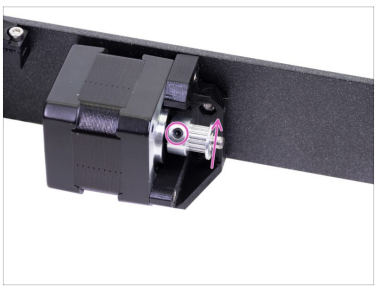
STEP 27 Aligning the smooth rods


⚠ **IMPORTANT:** proper alignment of the smooth rods is crucial to reduce noise and overall friction.

- Ensure all M3x10 screws on Y-holders are slightly loosened, so the printed parts are able to move.
- Move the Y-carriage back and forth across the entire length of the smooth rods to align them.
- Then move the carriage to the front plate and tighten all screws in the front-Y-holders.
- Move the Y-carriage to the rear plate and tighten all screws in the back-Y-holders.

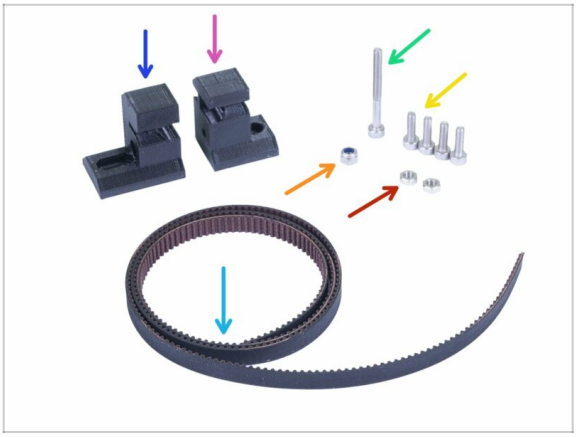
STEP 28 Assembling the Y-motor pulley

- There is a flat part on the motor shaft, rotate it similarly to the first picture. See the direction of the arrows.
- Place a GT2-16 pulley on the Y-motor shaft as shown in the picture.
- Don't press the pulley against the motor. Leave a gap so the pulley can rotate freely.
- One of the screws must be facing directly against the pad (flat part) on the shaft. Slightly tighten the first screw.
- Turn the shaft and slightly tighten the second screw.

ⓘ Don't tighten the pulley firmly yet, we'll get to that later.

STEP 29 Y-axis: Assembling the belt

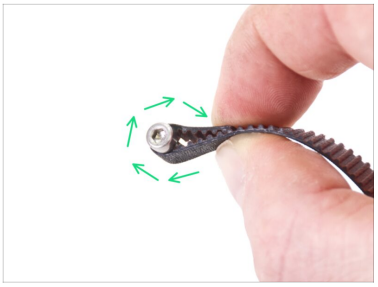
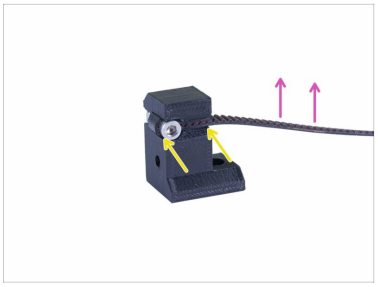
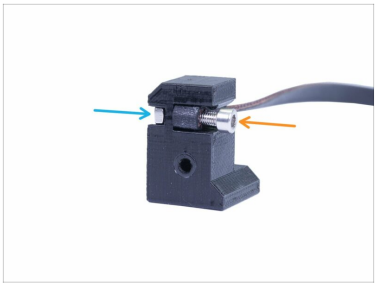


- **For the following steps, please prepare:**
- Y-belt-holder (1x) *smaller of two*
- Y-belt-tensioner (1x) *bigger of two*
- Y-axis belt 650 mm (1x)
- M3x30 screw (1x)
- M3x10 screw (4x)
- M3nN nyloc nut (1x)
- M3n nut (2x)

STEP 30 Y-axis: Assembling the belt

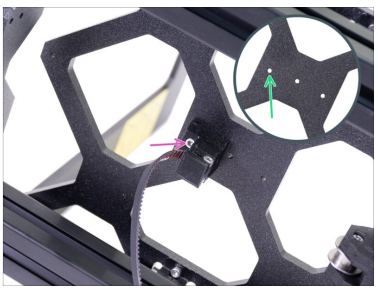
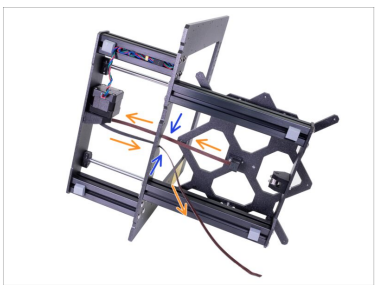
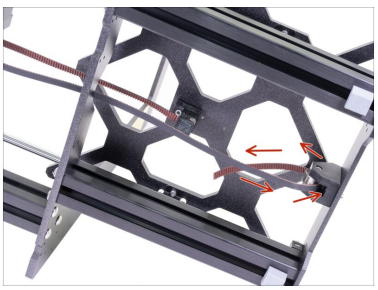
- Take the Y-belt-holder (smaller of the two printed parts).
- Insert M3n nut, all the way in.
- Insert M3nN nyloc nut, all the way in.
- Use the screw pulling technique.

STEP 31 Y-axis: Assembling the belt

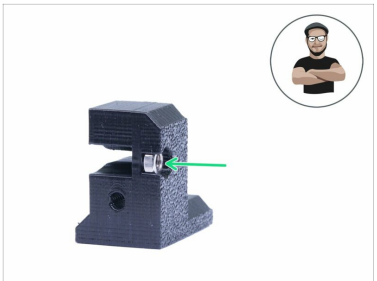
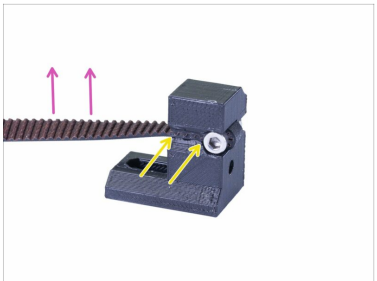
- Bend one end of the belt around M3x10 screw.
- Push it in the holder as in the picture. Use an Allen key to push the belt in.
- Make sure the bent part and the end are within the width of the printed part.
- Teeth on the belt must be facing up!
- Tighten the screw until you reach the nut, don't over tighten the screw, you will deform the belt.
- Hold the nut from the other side until the screw reaches its thread.

STEP 32 Y-axis: Assembling the belt

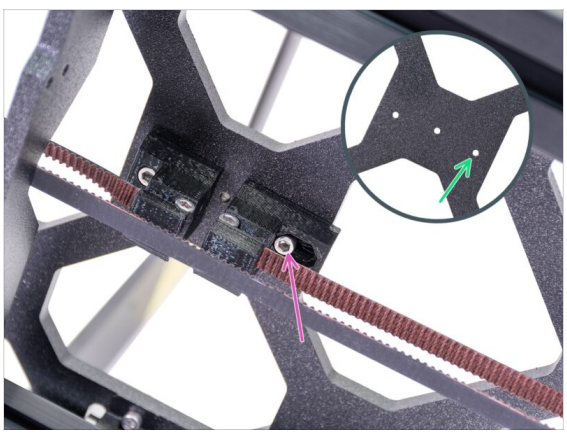
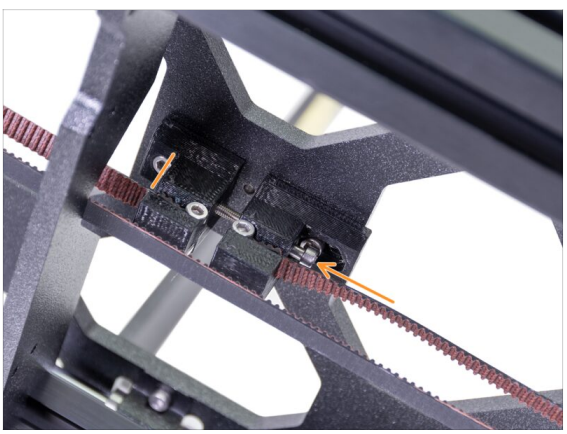
- Using M3x10 screw fix the Y-belt-holder to the Y-carriage. Tighten the screw and ensure the printed part is parallel with the "axis" between the Y-motor and Y-belt-idler.
- Use the hole on the left, see the picture.
- Guide the belt along the Y-axis, around the pulley on the Y-motor and back.
- Make sure the belt is inside the frame, not under!
- ⓘ Pro tip: Temporarily push the Y-axis motor cable into the bottom of the extrusion. It will make the assembly easier.
- Push the belt through the Y-belt-idler and back to the "center" of the Y-carriage.

STEP 33 Y-axis: Assembling the belt

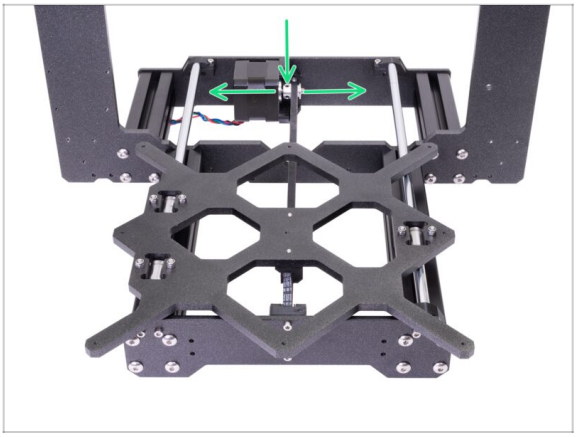

- Take the Y-belt-tensioner (bigger of the two printed parts).
- Insert M3n nut, all the way in.
- Use the screw pulling technique.
- Bend second end of the belt around the screw and push it in the holder as in the picture. Use an Allen key to push the belt in.
- Make sure the bent part and the end are within the width of the printed part.
- Teeth on the belt must be facing up!
- Tighten the screw until you reach the nut, don't over tighten the screw, you will deform the belt.
- Hold the nut from the other side until the screw reaches its thread.

STEP 34 Y-axis: Assembling the belt

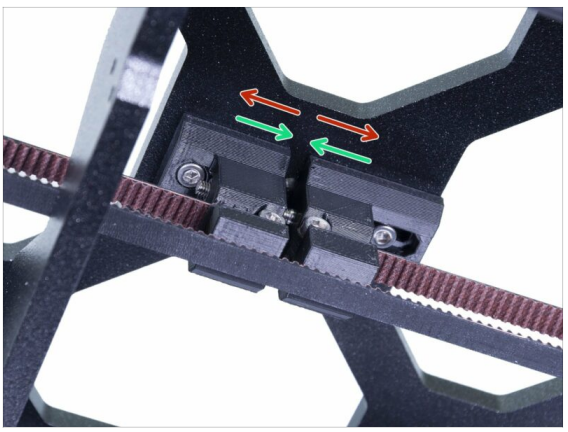
- Using M3x10 screw fix the Y-belt-tensioner to the Y-carriage. **Don't tighten the screw completely**, we need to adjust the position of the printed part.
- Use the hole on the right, see the picture.
- Insert the M3x30 screw through both printed parts. Start tightening until you reach the M3nN nyloc nut.

STEP 35 Aligning the Y-axis belt



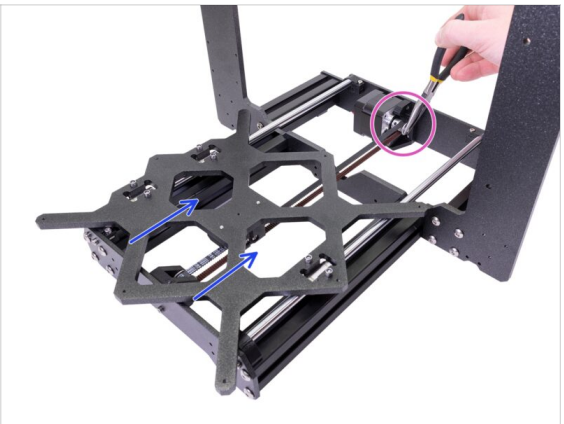
- Make sure the belt is placed in the "axis" of the printer. Both top and bottom part of the belt should be parallel (above each other).
- To adjust the belt position, release screws on the pulley and slightly move with it, until you reach the best position.
- Tighten both screws on the pulley.

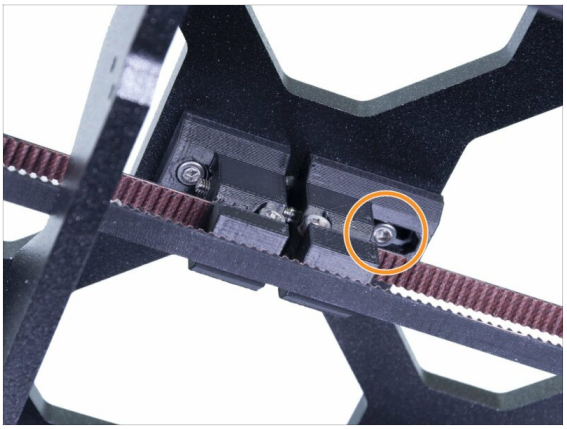
STEP 36 Tensioning the Y-axis belt



- Using a finger on your left hand push the belt down. Some force should be needed for bending the belt, BUT don't try to overstretch the belt as you might damage the printer.
- You can change the tension in the belt by adjusting the M3x30 screw below the Y-carriage.
  - **Tighten the screw**, bring the parts closer and thus increase the overall tension.
  - **Release the screw**, parts will move apart, the overall tension will decrease.

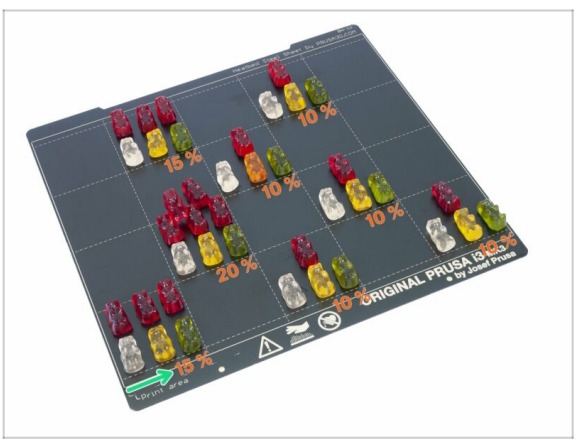
STEP 37 Testing the Y-axis belt





- Use the technique described below to test if the belt is properly stretched.
- Use pliers to hold the Y-axis motor shaft.
- Move the Y-carriage with your hand towards the Y-axis motor. Don't use excessive force.
- If the belt is stretched properly, you should feel a resistance and the Y-carriage won't move at all. If the belt is too loose, it will deform (create a "wave") and jump over the teeth on the pulley.
- After the proper tension is set, tighten the M3x10 screw.

STEP 38 Haribo time!



⚠ **Carefully and quietly** open the bag with the Haribo sweets. High level of **noise might attract nearby predators!**

- You need to split the bears into **8 groups** according to the upcoming chapters.
- Each chapter requires specific amount of bears, see the picture.
- For Y-axis you must eat 15 % of all the bears.

STEP 39 Y-axis is finished!

- **Y-axis is done**, great job!
- Check the final look, compare it to the picture.

ⓘ Note that you should feel some resistance while moving with the Y-carriage. It is due to the tightened belt and also the motor has some resistance.

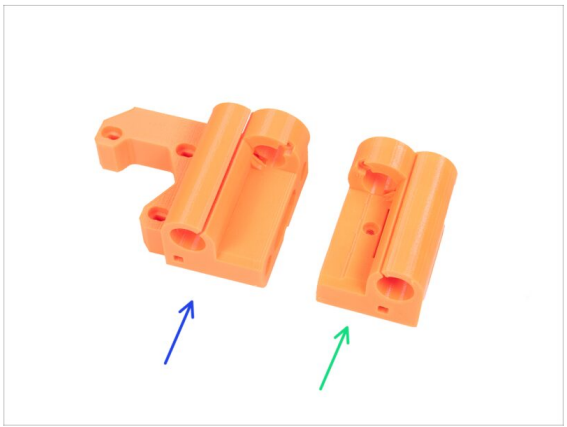
- Ready for more? Lets move to chapter **3. X-axis assembly**.

3. X-axis assembly

STEP 1 Tools necessary for this chapter

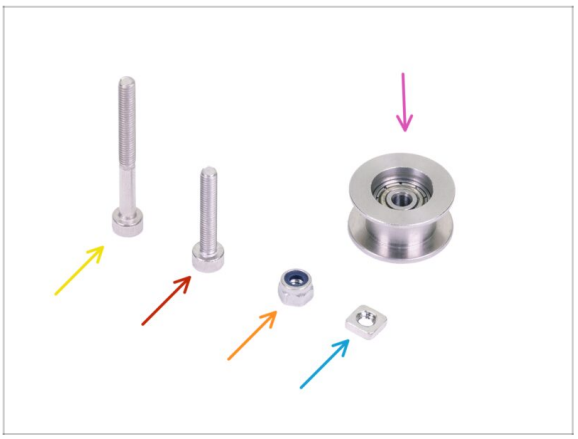
- 2mm Allen key for nut alignment
- 2.5mm Allen key for M3 screws

STEP 2 X-axis: x-end idler and motor holder



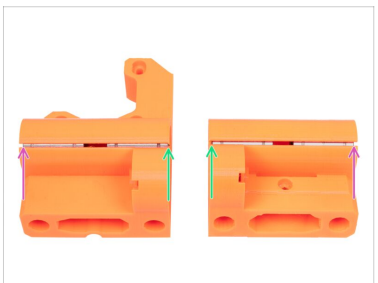
- **For the following steps, please prepare:**
- X-end-motor (1x)
- X-end-idler (1x)
- Linear bearing (4x)
- The list continues in the next step...

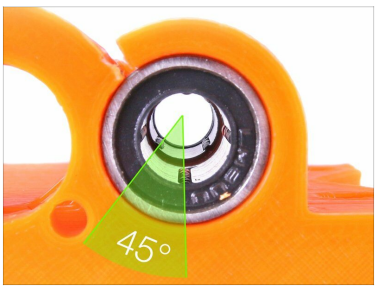
STEP 3 X-axis: x-end idler and motor holder



- M3x30 screw (1x)
- M3x18 screw (1x)
- M3nN nyloc nut (1x)
- M3nS nut (1x)
- 623h bearing with housing (1x)

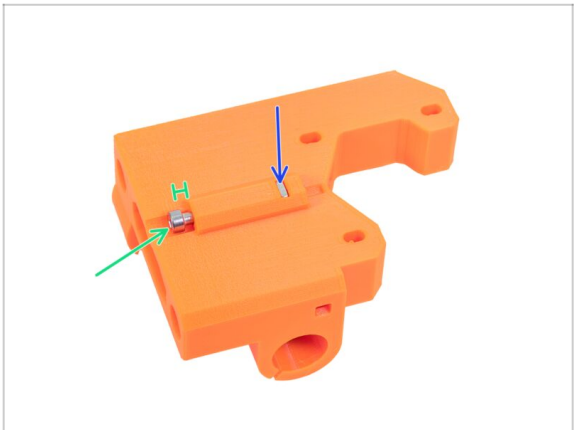
STEP 4 X-axis: inserting linear bearings





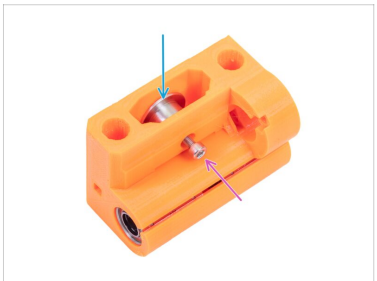
- Insert linear bearings into the printed parts (X-end-motor and X-end-idler) as shown in the picture. Make sure the first bearing in each printed part is pushed all the way down.
- ⚠ **DON'T TRY TO PUSH** the bearings from the other side. There is a rim (smaller diameter of the hole).
- First pair of bearings should be in line with the top surface on both X-ends.
- Second pair of bearings should be seated on the rim (close to the lower surface) on both X-ends.
- ⓘ You can press the bearings against a flat surface for easier insertion.
- ⓘ Place two bearings in a way that the inner balls of the second bearing are rotated 45° compared to the first. This way you will achieve greater contact with the smooth rod. See the third picture for more details.

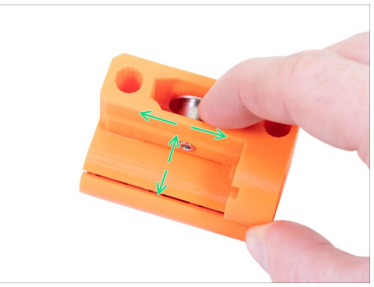
STEP 5 X-end-motor: tensioner assembly



- Insert the square nut all the way in.
- Insert the M3x30 screw. For now, we need the screw just to hold in place. Do not tighten the screw fully. Leave a 2 mm (0.079 inch) gap between the screw head and the plastic part. We will adjust the final position later.

STEP 6 X-end-idler: bearing assembly





⚠ **ATTENTION**: be very careful during the tightening, check the nut orientation and **DO NOT** use excessive force, you can break this part.

- Insert the M3nN nyloc nut in the X-end-idler.

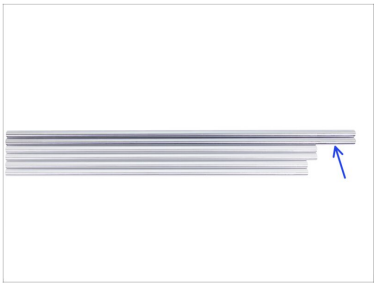
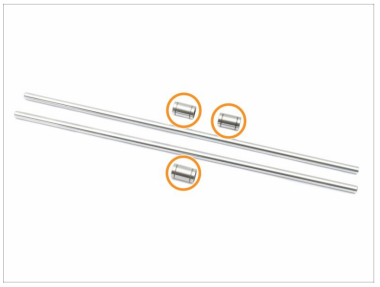
ⓘ In case you can't press the nut in, **don't use excessive force**. Leave the nut for now and proceed with the other components for this step.

- Insert the 623h bearing into the X-end idler.
- Secure it in place using an M3x18 screw.

ⓘ Now, if needed, use the M3 screw to pull the nut in.

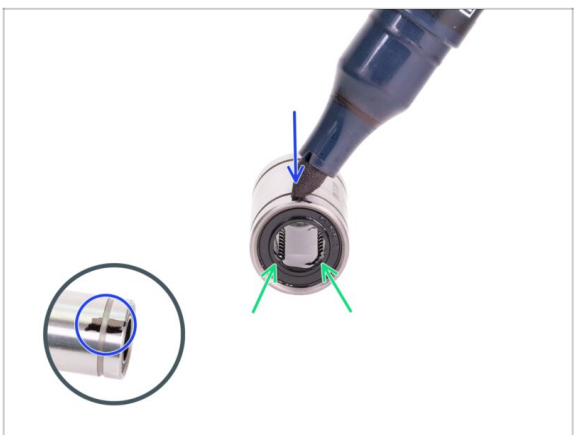
- Place your finger on the bearing and ensure it can rotate freely. If needed adjust the screw.

STEP 7 X-axis: smooth rods preassembly


- Take remaining smooth rods and compare their length. For X-axis you need longest rods (370 mm).
- Linear bearing (3x)
- Permanent marker (1x) *not included in the kit*
- Several paper towels to wipe oil and grease from the bearing surface.

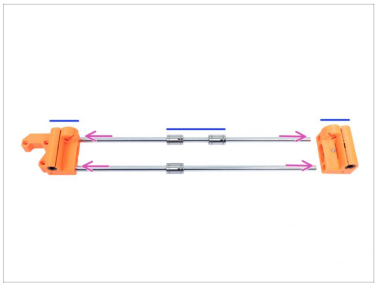
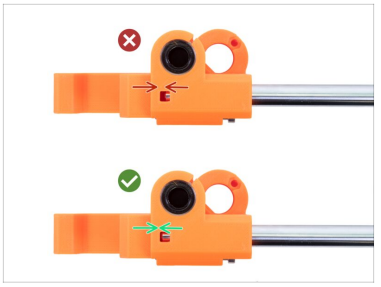
STEP 8 Marking the bearings



- Wipe grease from the outer surface of the bearing with a paper towel.
- Position the bearing so that you can see two rows of balls. Like in the picture.
- Make a mark with a permanent marker on the outer surface of the bearing, in the middle above two rows of balls.
- Use the same procedure for the remaining two bearings.

ⓘ We will use these markings in the upcoming chapters to achieve the desired bearing orientation.

STEP 9 X-axis: assembly

⚠ **NOW, PLEASE BE VERY CAREFUL!** Gently insert the rod straight into the bearings, do not apply too much force and do not tilt the rod!

ⓘ In case you manage to push out balls from the bearings, please count them. One or two balls are ok, if there are more of them, please consider ordering new bearings.

- Insert the rods with bearings fully into the printed parts. **The holes in the printed parts must be clean**. Inspect the holes inside for dirt or filament residue.

⚠ Insert the rods very carefully. Do not tilt the rods too much.

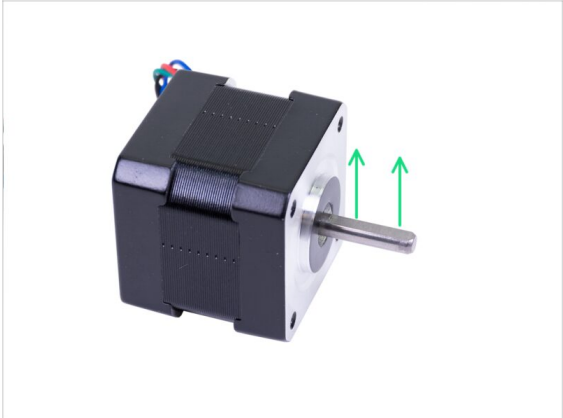
- Ensure the correct orientation of the parts and rods.
- There is a special opening in the top/bottom of both X-ends. Check if you pressed the smooth rod all the way in.

STEP 10 Assembling the X-axis motor pulley (part 1)


- **For the following steps, please prepare:**
- X-axis motor (1x)
- GT2-16 pulley (1x)

⚠ **Ensure you are using the correct motor**, there is a label on the bottom of the casing. The reason is, each motor has different cable length.

STEP 11 Assembling the X-axis motor pulley (part 2)

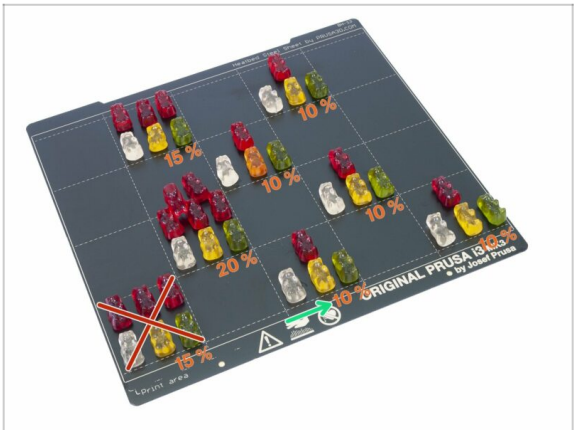


- There is a flat part on the motor shaft, rotate it upwards.
- ⚠ Slide the Pulley on, note the **CORRECT** orientation. Compare it with the second picture!
- One of the screws must be facing directly against the pad (flat part) on the shaft. Slightly tighten both screws.
- Don't press the pulley against the motor. Leave a gap so the pulley can rotate freely.
- ⓘ Don't tighten the pulley firmly yet, we'll get to that later.

STEP 12 X-axis: assembling the motor

- Prepare M3x18 screws (3x)
- Prepare the motor for X-axis with an assembled pulley.
- Place the X-axis on the motor as shown in the picture.
- Insert the M3x18 screws and tighten them so that their positions are at the back of the oval hole like in the picture.

STEP 13 Haribo time!



- This is an easy easy chapter, have a 10% dose of bears ;)

STEP 14 X-axis is finished!

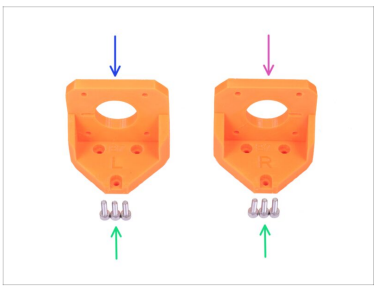
- **X-axis is done!**
- Check the final look, compare it to the picture.
- Checked everything? It's time for: **4. Z-axis assembly**.

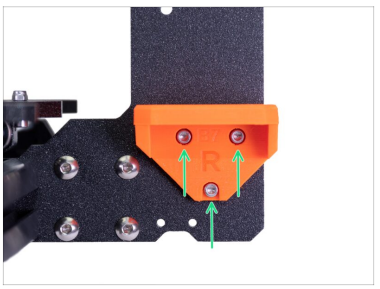
4. Z-axis assembly

STEP 1 Tools necessary for this chapter

- Needle-nose pliers for tension check.
- 2.5mm Allen key for M3 screws

STEP 2 Z-axis: assembling motor holders





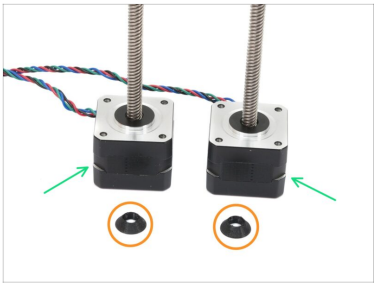
⚠ **WARNING: Printed parts aren't the same!** There is a left and right oriented piece. See the markings on the parts. Also note the correct orientation of the frame, the **"PRUSA" logo and the safety sticker must be facing towards you.**

- **For the following step, please prepare:**
- Z-axis-bottom-left (1x)
- Z-axis-bottom-right (1x)
- M3x10 screw (6x)

⚠ Place the printed parts next to the frame. See the left (**L**) and right (**R**) **marking on the printed parts**.

- Tighten each printed part with M3x10 screws. **Don't use excessive strength during tightening!** In case of increased resistance, try to place the screws from the other side to "clean up" the hole. Then return to the front side.

STEP 3 Placing the Z-screw covers



- **For the following steps, please prepare:**
- Z-axis motor (2x)

ⓘ Note each Z-axis motor has different cable length. The shorter one must be on the left side, longer on the right side.

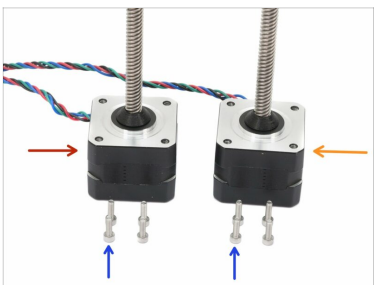
- Z-screw-cover (2x)
- Remove the trapezoidal nuts from the motors. **DON'T THROW** them away, you will need them!

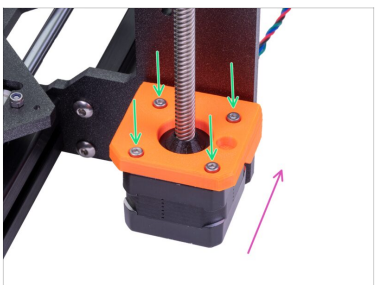
⚠ The **new kit units no longer have trapezoidal nuts on the motor rods**. They are included inside the motor kit box.

- Screw the Z-screw covers onto both leadscrews.

⚠ Covers should be screwed fully to the motor, but not too tight! The motor must be able to spin freely!

STEP 4 Z-axis: assembling the motors



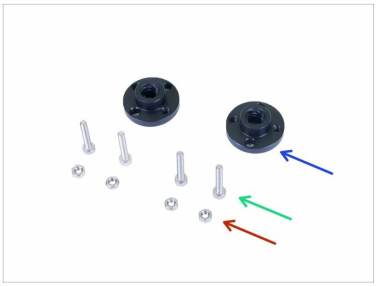
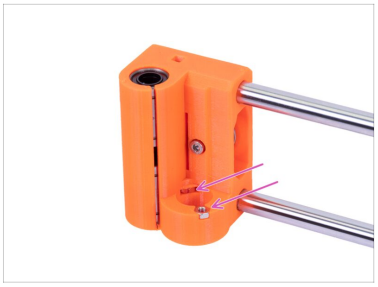
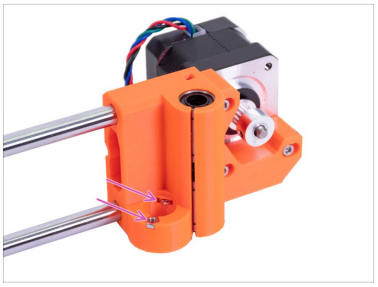


- **For the following step, please prepare:**
  - Z motor left (labeled Z axis left, shorter cable)
  - Z motor right (labeled Z axis right, longer cable)
  - M3x10 screw (8x)

⚠ See the second picture. The motor with the shorter cable (red arrow) is on the left, the motor with the longer cable (orange arrow) is on the right!

- **ATTENTION: Motor cables must be oriented towards the frame!** Adjust (rotate) the motor. There is a small cutout in the frame on the lower edge for each cable.
- Secure each motor with four M3x10 screws. Tighten evenly and carefully as you might break the printed parts.

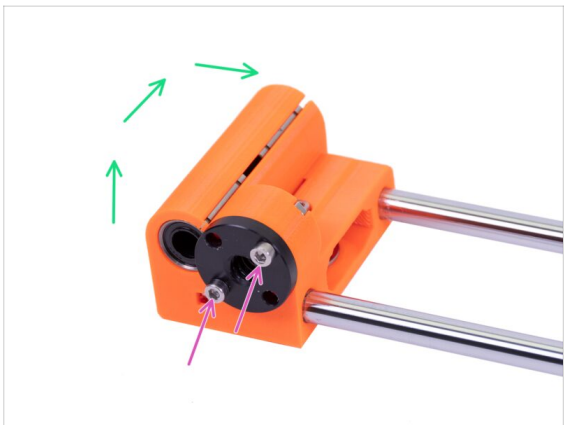
STEP 5 X-axis: trapezoidal nuts (part 1)

- **For the following step, please prepare:**
- Trapezoidal nut (2x)
- M3x18 screw (4x)
- M3n nut (4x)
- Turn the X-axis upside down and insert nuts into traps on both X-ends.

In case you can't press the nuts in, don't use excessive force. First, check that there isn't any obstacle in the nut trap.

STEP 6 X-axis: trapezoidal nuts (part 2)



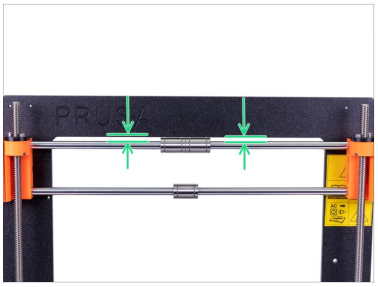

- Carefully rotate the X-axis onto its backside.
- Insert the trapezoidal nuts to each X-end.

Note the correct orientation of the trapezoidal motor nuts!

- Tighten the nuts with M3x18 screws.

You can use any of all four holes on the trapezoidal nuts.

STEP 7 Assembling the X-axis and smooth rods

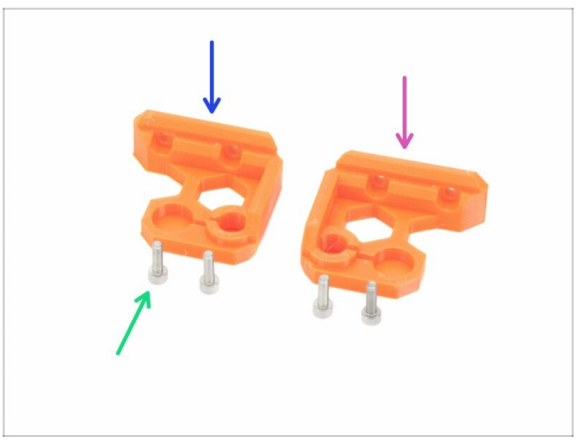

- **Besides the X-axis, please prepare for the following step:**
- Smooth rod 320 mm (2x)

⚠ **WARNING:** be very careful while installing the X-axis on the trapezoidal lead screws. The process should be smooth, **otherwise you might damage the thread** inside the plastic nut. Reseat the axis if necessary.

- Carefully slide the X-axis on the trapezoidal lead screws. By rotating both screws simultaneously let the X-axis slide until both trapezoidal lead screws are visible. If you feel any significant resistance, try to reseat the axis first.
- Make sure the top smooth rod of the X-axis and the lower edge of the frame are parallel.
- **NOW, PLEASE BE VERY CAREFUL!** Gently insert **the remaining smooth rods** through the bearings on the X-axis all the way down into printed parts, do not apply too much force and do not tilt the rod!

ⓘ In case you manage to push out balls from the bearings, please count them. One or two balls are ok, if there are more of them, please consider ordering new bearings

STEP 8 Placing the Z-axis-top parts (part 1)



- **For the following steps, please prepare:**
- Z-axis-top-left (1x)
- Z-axis-top-right (1x)
- M3x10 screw (4x)

STEP 9 Placing the Z-axis-top parts (part 2)

- Place the Z-axis-top-left part on the rods and align it with the frame.
- Ensure the holes in the printed part are fully aligned with the holes on the frame.
- Use two M3x10 screws to tighten the Z-axis-top-left part.

⚠ **Don't use excessive strength during tightening.** In case of increased resistance, try to place the screws from the other side to "clean up" the hole. Then return to the front side.

- Repeat this step on the other side of the frame with Z-axis-top-right printed part.

STEP 10 Haribo time!

- Z-axis was easy, have 10 % again.

STEP 11 Z-axis is finished!

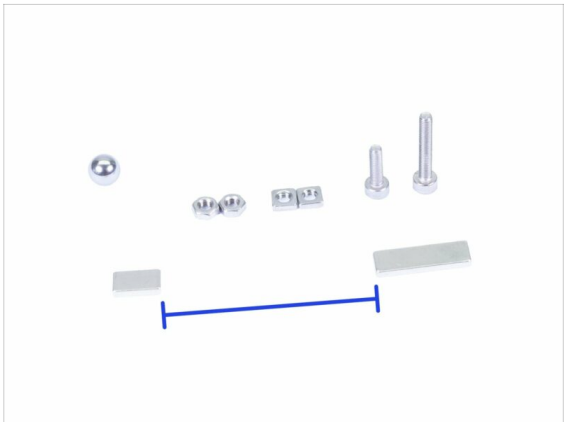
- **Now, the Z-axis is done too!**
- Check the final look, compare it to the picture.
- Checked everything? It's time for: **5. E-axis assembly**.

5. E-axis assembly

STEP 1 Tools necessary for this chapter

- Needle-nose pliers for zip tie trimming.
- 2.5mm Allen key for M3 screws
- 2mm Allen key for nut alignment
- 1.5mm Allen key for tightening the pulley

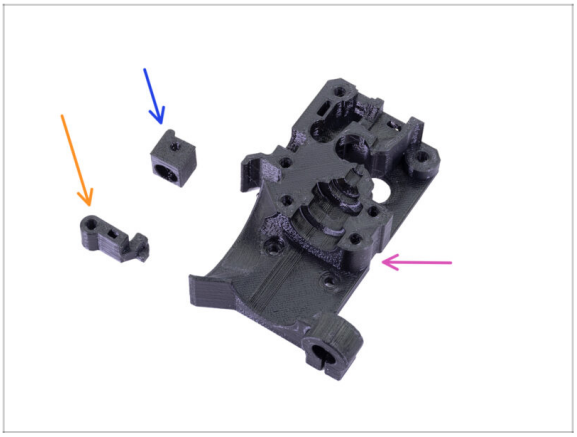
STEP 2 Few tips before we start



⚠ **This is the most important and hardest chapter**, take your time, don't rush. Properly assembled extruder is essential.

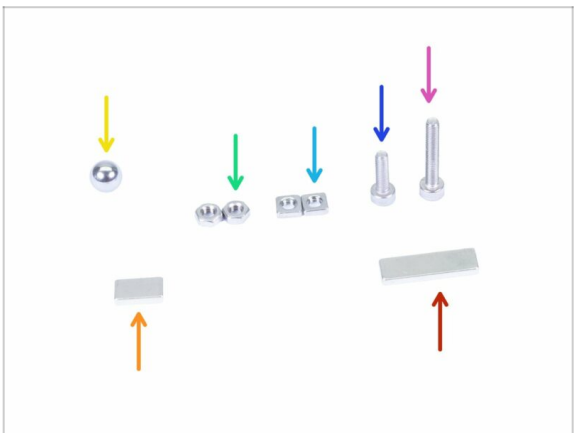
- **The bag with fasteners includes M3x20 and M3x18 screws make sure you won't mix them!** Pay attention to the instructions, when to use the M3x20.
- **Keep the magnets apart in a sufficient distance.** They can break each other!
- **The hotend for MK3S+ needs a shorter PTFE tube compared to the MK3S** (more info at help.prusa3d.com/PTFE-MK3S+).
- **Pay great attention to the cable management**, if you miss some important step you would need to disassemble the extruder.
- **This bag includes extra fasteners**. Don't worry if you finish with few unused screws and nuts.

STEP 3 Extruder-body parts preparation



- **For the following steps, please prepare:**
- Extruder-body (1x)
- Adapter-printer (1x)
- FS-lever (1x)
- The list continues in the next step.

STEP 4 Extruder-body parts preparation

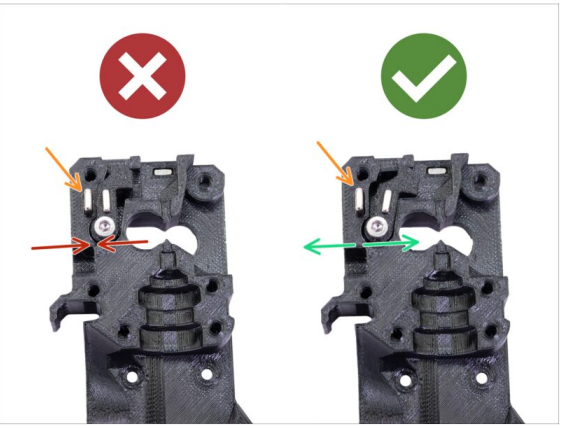


- **For the following steps, please prepare:**
- M3x18 screw (1x)
- M3x10 screw (1x)
- M3nS nut (2x)
- M3n nut (2x)
- Steel ball (1x)
- Magnet 10x6x2 (1x)
- Magnet 20x6x2 (1x)

STEP 5 Extruder-body assembly

- Take the M3nS nut and insert it in the Extruder-body. **Make sure the nut is all the way in.**
- ⓘ Ensure correct alignment of the nuts using the Allen key.
- Secure the nut using an M3x10 screw. *Tighten the screw just slightly, later on we need to add the SuperPINDA. sensor.*
- Take two M3n nuts and insert them in.
- ⓘ Use the screw pulling technique.
- Flip the Extruder-body and insert one M3nS nut all the way in the part.
- Take the smaller magnet (10x6x2) and insert it carefully in the FS-lever. Majority of the magnet will be hidden inside the printed part.

STEP 6 FS-lever assembly



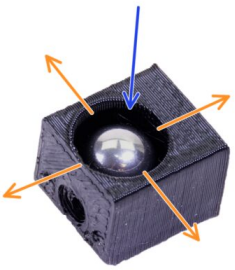
- Insert the FS-lever in the body.
- Secure the part with a M3x18. Tighten it, but ensure the lever can move freely.

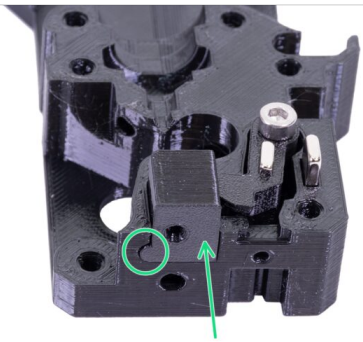
ⓘ The M3x18 screw is secured into the plastic part without the nut.

⚠ **WARNING:** make sure the following procedure is done right, otherwise the **filament sensor won't work!!!**

- Insert the bigger magnet (20x6x2) in the Extruder-body, it will stick out:
  - **Incorrect setup:** magnets are attracting each other, thus the **lever is pulled to the left**.
  - **Correct setup:** magnets are repelling each other, thus the **lever is pushed to the right**.

STEP 7 Steel ball assembly





- Take the printed part Adapter-printer and insert the steel ball in.
- Roll with the ball to all sides to ensure smooth movement.

ⓘ In case of any rough surface, remove the ball and clean the inside of the printed part.

- Place the printer part together with the steel ball in the Extruder-body. See the rounded protrusion on the printed part. It must fit to the groove in the Extruder-body. The surfaces of both parts should be almost aligned.

⚠ **DON'T** use any screw to secure the Adapter-printer. It should hold inside the Extruder-body by itself.

STEP 8 Extruder motor parts preparation

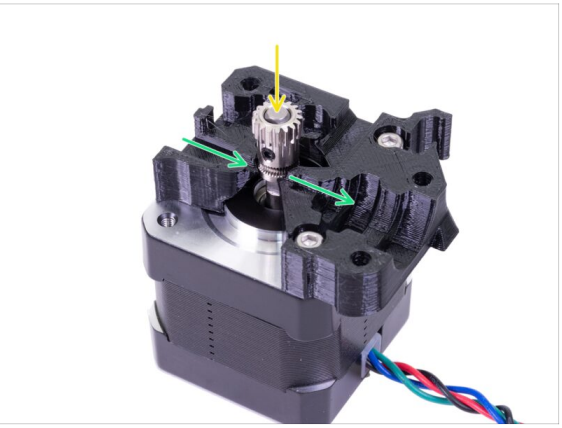
- **For the following steps, please prepare:**
- Extruder motor (1x)
- Extruder-motor-plate (1x)
- M3x10 screw (2x)

⚠ **ATTENTION:** there is a set of the Bondtech gears. Make sure you have all the parts and you are using correct ones.

  - **Use now:** Bondtech gear with a set screw. If the screw is out, gently screw it in (leave space inside for the shaft).
  - **Use later:** Bondtech without a set screw, bearings and a shaft. Keep the bearings somewhere safe, they tend to roll away ;)

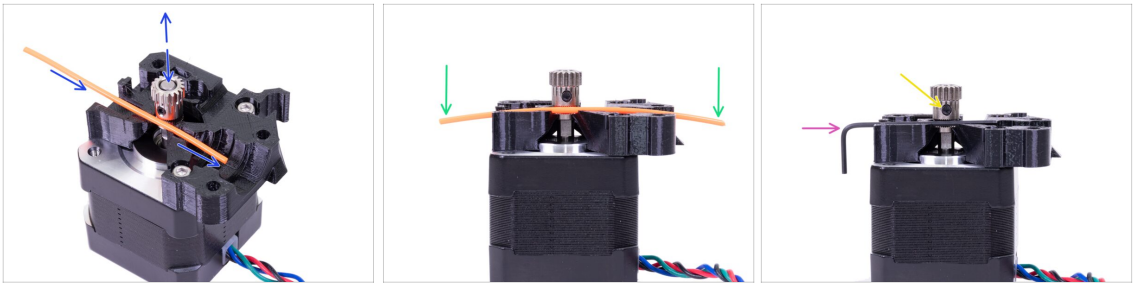
ⓘ In the upcoming steps, always check the pictures to **ensure the correct orientation of the Bondtech gears**. Always double-check your work.

STEP 9 Bondtech gear assembly



- Take the Extruder-motor-plate and secure it using **two M3x10 screws**. Use the cable as a guide to properly orient the part.
- Resist the temptation to place a screw in the third hole! Leave it for later ;)
- Rotate the shaft as in the picture. Flat part must face in the direction of the arrow.
- Slide the gear on the shaft, the set screw must be facing against the flat part of the shaft. Tighten the screw slightly.
- There is a "channel" for the filament inside the printed part. Align approximately the teeth on the gear with it.
- Don't tighten the screw fully yet. We must align the gear first. See the next step.

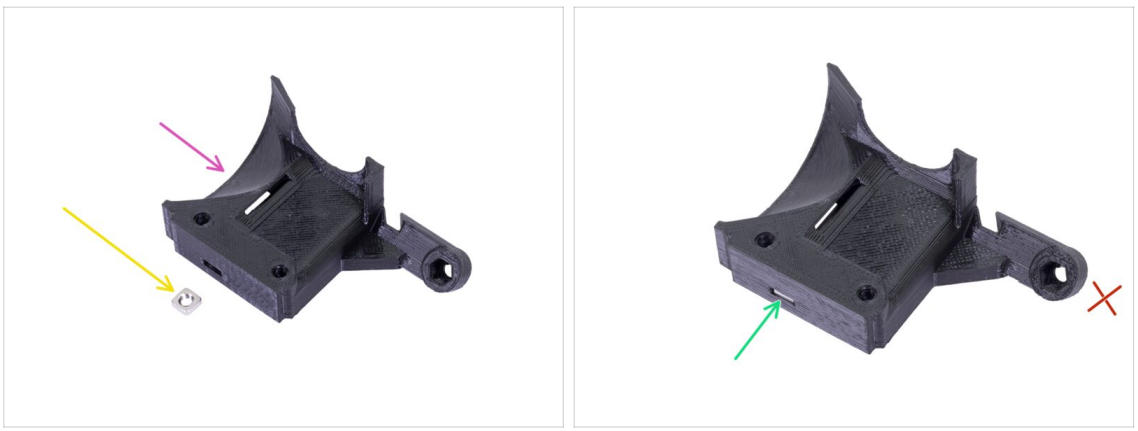
STEP 10 Bondtech gear alignment



- Take a piece of the 1.75 filament. You can use the bundled one 2x25g samples, don't use the black nylon, which is too thick. Straighten the filament as much as possible.
- Place the filament along the path and align the gear properly.
- The filament will be always slightly bent. Use it anyway for the initial alignment.
- For a final check replace the filament with an Allen key. Bear in mind, the key has slightly different size than the filament.
- Tighten the screw slightly to temporarily fix it, we will make the final check and tightening later on. **Be careful, you can strip the thread.**

ⓘ Don't use any glue to fix the screw in place, you won't be able to release it, in such case you might have to replace the entire motor.

STEP 11 Extruder-cover part preparation

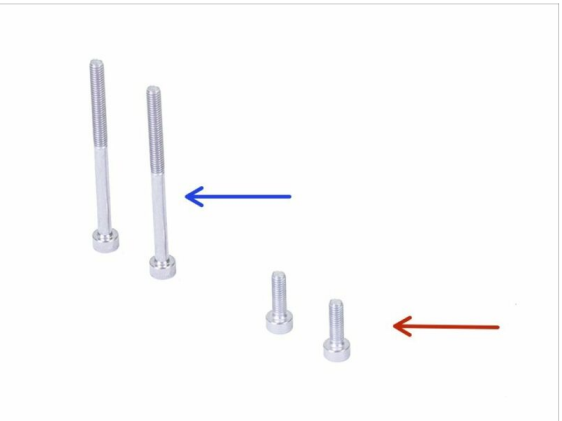


- **For this step, please prepare:**
- Extruder-cover (1x)
- M3nS nut (1x)
- Slide the nut all the way in.

ⓘ Ensure correct alignment using the Allen key.

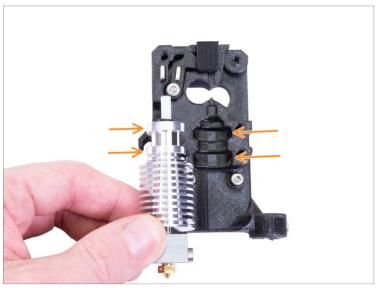
- Leave the hole on the "arm" empty for now. We will use it later, while assembling a print fan.

STEP 12 Hotend parts preparation



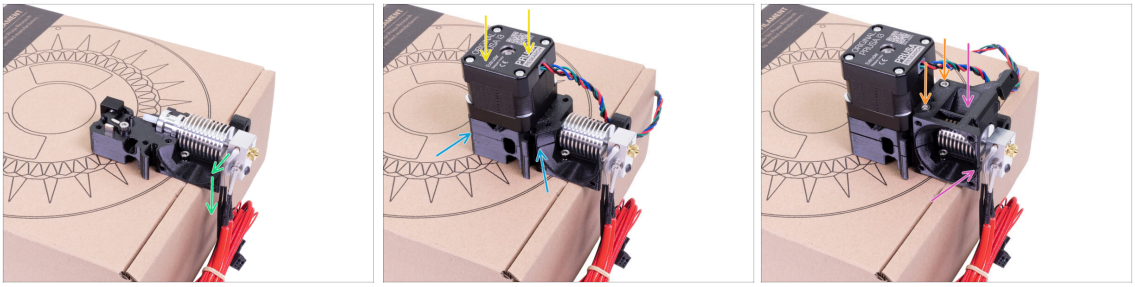
- **For the following steps, please prepare:**
- Hotend for the MK3S+ (1x)
- M3x40 screw (2x)
- M3x10 screw (2x)
- ⓘ We will use one M3x40 later on, keep it around.
- ⓘ Don't cut the main zip tie on the hotend cables, or remove the rubber band, it will make the assembly easier.

STEP 13 Hotend assembly



- Take two M3x10 screws and insert them in the holes. Doing this now makes the assembly slightly easier, but both holes are shallow and the screws might fall out. If this happens, you can continue without them and put them back later on (you will be notified later). *Also note, that in few upcoming pictures the screws might be missing.*
- Place the hotend next to the Extruder-body, see the grooves in the printed part, which are in the shape of the hotend.
- Correctly placed hotend. The hotend cables should point to the left, we will align them in the next step.

STEP 14 Extruder assembly



⚠ **In order to protect the hotend cables and ensure proper orientation**, it is highly recommended to use a box. Use the one provided in the kit.

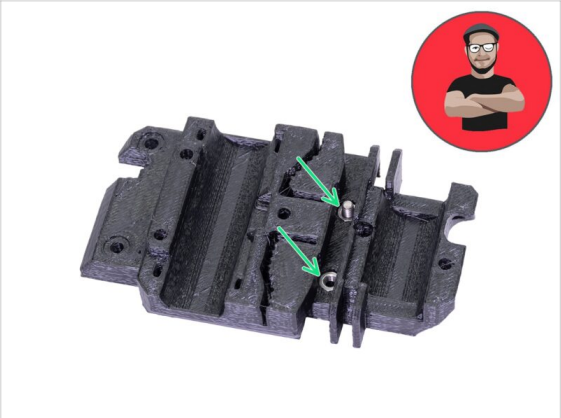
- Place the Extruder-body with the hotend on the box and make sure the cables are on the left side and pointing down.
- Place your finger temporarily on the longer magnet and place the extruder motor assembly on the Extruder-body. The Bondtech gear might pull the magnet out while assembling parts together.
- Make sure both parts are aligned.
- Place the Extruder-cover on the Extruder-body. Again, make sure that all three parts are properly aligned.
- Insert two M3x40 screws, you've prepared earlier. Tighten them, but be careful, they are slightly longer (2-3 mm), than the thickness of the entire assembly.

ⓘ Place the extruder aside for few steps, we need to prepare another part. Leave it on the box to prevent damaging the cables.

STEP 15 X-carriage parts preparation

- **For the following steps, please prepare:**
- X-carriage (1x)
- M3n nut (2x)
- M3nS nut (4x)
- IR-sensor cable (1x)

STEP 16 X-carriage assembly

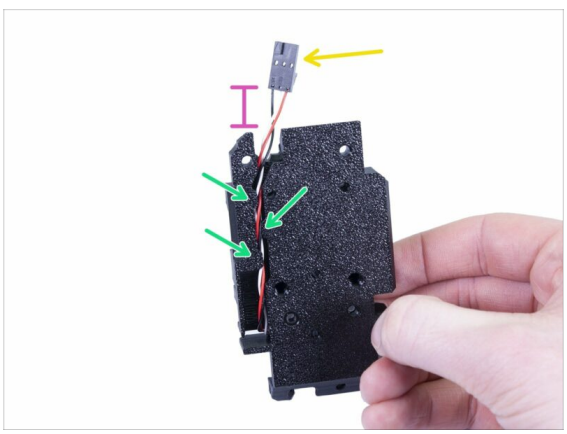


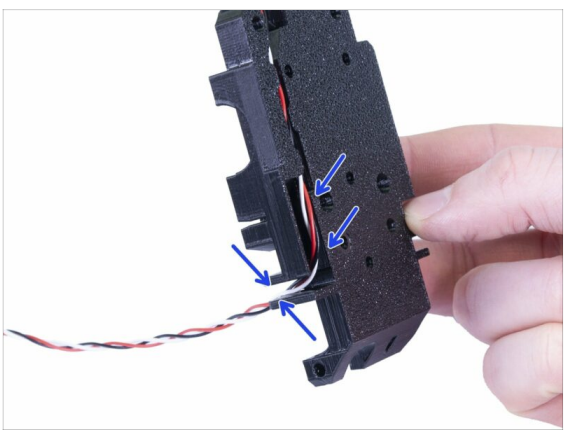
⚠ For the following nut insertion **USE A SCREW. THAT'S AN ORDER!!!** Seriously, use a screw to pull the nuts in, both have to be properly seated in the X-carriage.

- Take both M3n nuts and using pliers (or screw) push them in the X-carriage, then using a screw from the other side, pull them all the way in.
- Don't forget to remove the screw.
- Take all four M3nS nuts and insert them in. Ensure correct alignment using the Allen key.

ⓘ From now on, keep in mind the nuts are inside, avoid rotating the X-carriage "downwards", or the nuts might fall out.

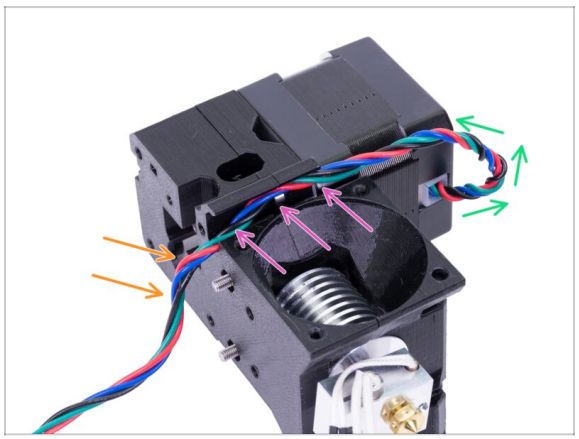
STEP 17 Assembling the IR-sensor cable





- Take the IR-sensor cable and **locate the end with the smaller connector**.
- Place cable in the X-carriage, use the small printed overhangs to keep the cable inside.
- The distance between the connector and the X-carriage should be around 15 mm (0.6 inch). We will adjust it later.
- Guide the cable through the slot. *Carefully inspect the slot to memorize its shape since it is the best visible now. You'll need to guide other cables through here later.*

STEP 18 Assembling the X-carriage

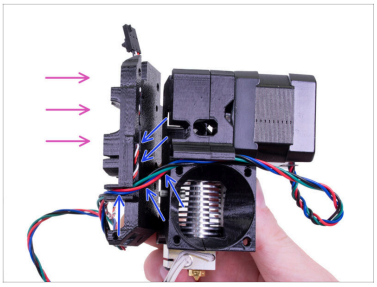
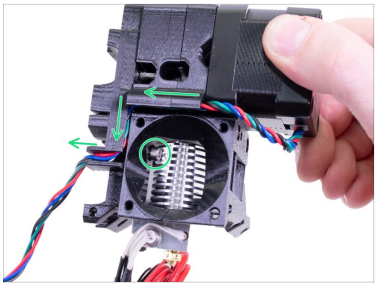
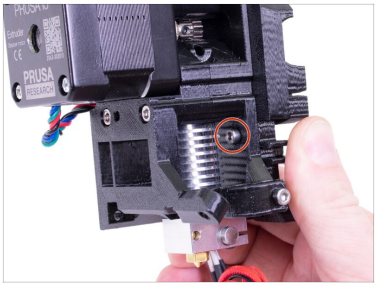


⚠ Following cable management is **CRUCIAL** for the extruder **TO WORK PROPERLY!** Read the instructions carefully.

- Start by making a small loop just below the extruder motor. Leave a slack about 2-3 cm (0.8 - 1.2 inch). *This is comes handy for easier disassembly in the future.*
- Then guide the cable in the "channel" all the way to the back.
- Slightly bend the cable down to form it around the edge.

ⓘ Also, prepare X-carriage, both M3x10 screws (if you haven't used them already) and the longest Allen key with the ball-end, you will need it.

STEP 19 Assembling the X-carriage

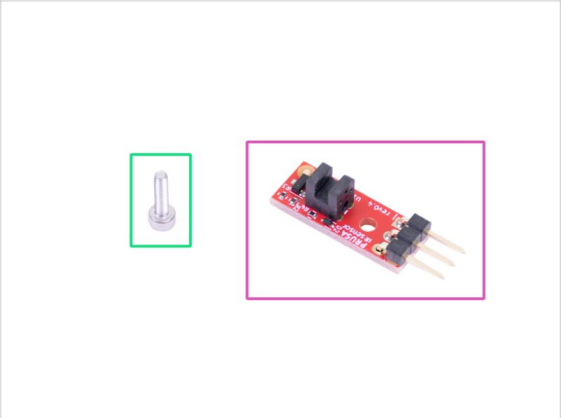
⚠ Following cable management is **CRUCIAL** for the extruder **TO WORK PROPERLY!** Read the instructions carefully.

⚠ Before you assemble the X-carriage, **check the nuts in the Extruder body are still in place**. The upper nut sometimes falls out.

- Grab the X-carriage and place it onto the back of the extruder assembly as shown in the picture.
- Make sure the motor cable follows the channel both in Extruder-body and X-carriage. In the X-carriage the motor cable will follow the path of the IR-sensor cable.
- **ENSURE NO WIRE IS PINCHED!** Then use the M3x10 screw and **Allen key with ball end** to connect both parts together. If you are inserting the screw at this moment, it will be slightly inclined in the beginning, but it will "straighten up" after few turns. Don't tighten the screw completely, we need to adjust the IR-sensor cable.
- Turn the extruder to the other side and if needed insert the second M3x10 screw. Don't tighten the screw, we need to adjust the IR-sensor cable.

ⓘ Good job! Grab one extra gummy bear ;)

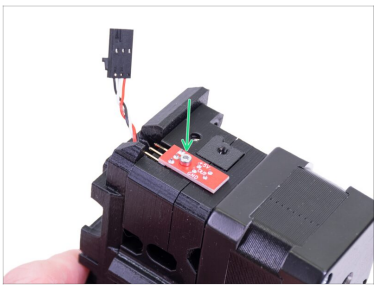
STEP 20 IR-sensor parts preparation

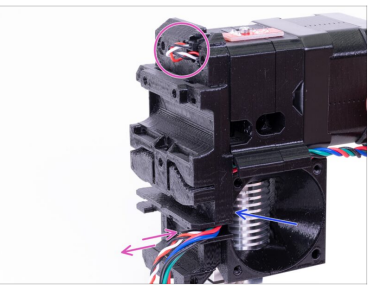


- **For the following steps, please prepare:**
- Prusa IR-sensor (1x)
- M2x8 screw (1x)
- M3x40 screw (1x)

⚠ **BE CAREFUL** with the filament sensor, do not touch the PCB nor the chips on it. Hold the PCB from sides.

STEP 21 IR-sensor assembly



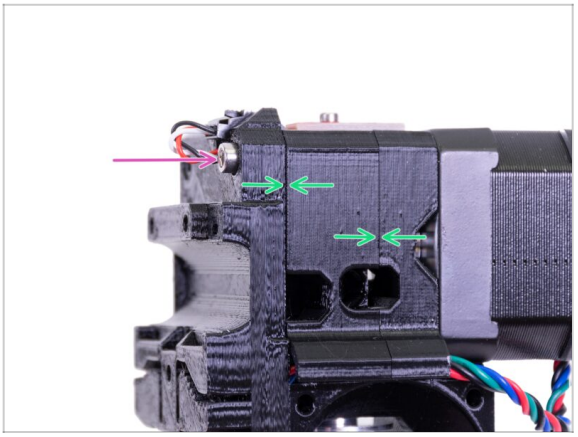


- Place the IR-sensor on the top of the Extruder-body and secure it with the M2x8. **Make sure the black plastic "u-shaped" part is facing down**.

ⓘ Tighten the M2x8 screw, the sensor shouldn't be able to move, but be careful the PCB isn't indestructible ;)

- Connect the cable, mind the correct orientation of the connector and wires.
- Leave a slack behind the sensor like in the picture. Don't create too big loop as it might interfere with the frame. If needed adjust the length by gently pulling/pushing the cable.
- Ready? Ok, check once more no cable is pinched and **tighten both M3x10 screws** installed previously.

STEP 22 IR-sensor assembly



- Finish the sensor assembly by inserting an M3x40 screw.
- Make sure all the gaps are gone.

STEP 23 Hotend fan parts preparation

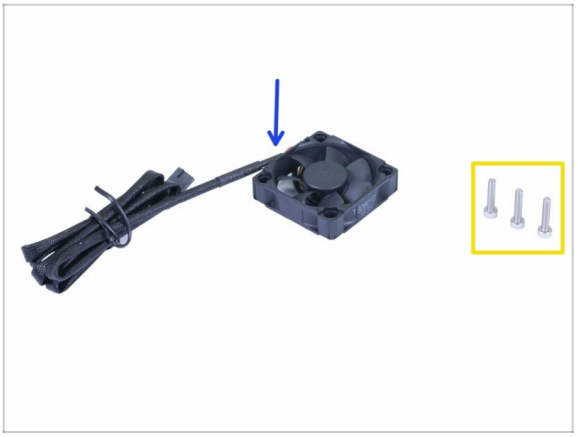
⚠ **IMPORTANT: The hotend fan is shipped in two versions.** Check carefully which version you have. Then follow the appropriate instructions:

- **Version A** - the fan cable bundle is covered in a black sleeve. If your kit includes this version, follow this step: Hotend fan parts preparation (version A)
- **Version B** - the fan cable bundle is not covered. There is a combination of blue, pink and black wires. If your kit includes this version, follow this step: Hotend fan parts preparation (version B)

- **Each fan uses different fasterners** (included in the package). You will be informed in the relevant steps. The assembly procedure is the same for both.

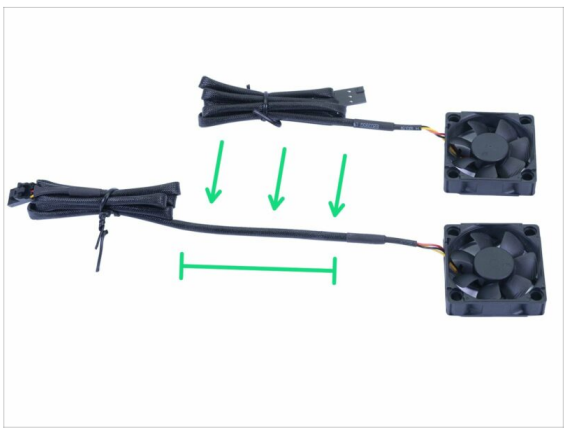
ⓘ The fans were tested and optimized to have the same cooling performance.

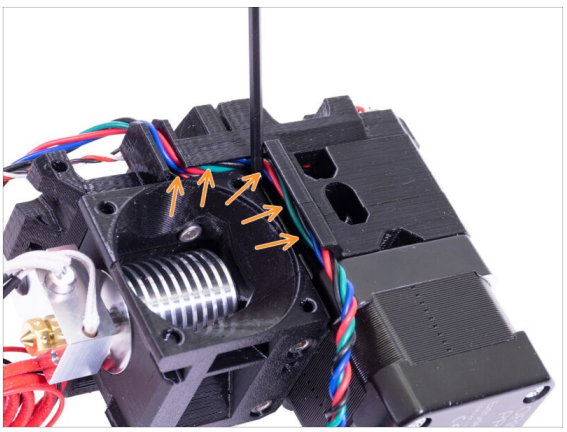
STEP 24 Hotend fan parts preparation (version A)



- **For the following steps, please prepare:**
- Hotend fan (1x)
- M3x14 screw (3x)
- ⚠ Make sure you are using the correct screws.
- ⓘ Keep the cable in a bundle for now.

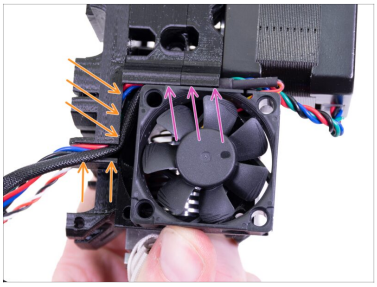
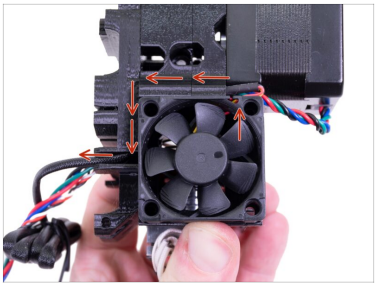
STEP 25 Hotend fan cable adjustment (version A)





- For easier fan installation, remove temporarily the black twist tie from the cable bundle and release at least one loop. Then tie the bundle back, see the picture.
- Before you move to the next step, take an Allen key and **GENTLY PUSH** the motor cable to the channel to create space for the fan cable.

STEP 26 Hotend fan assembly (version A)

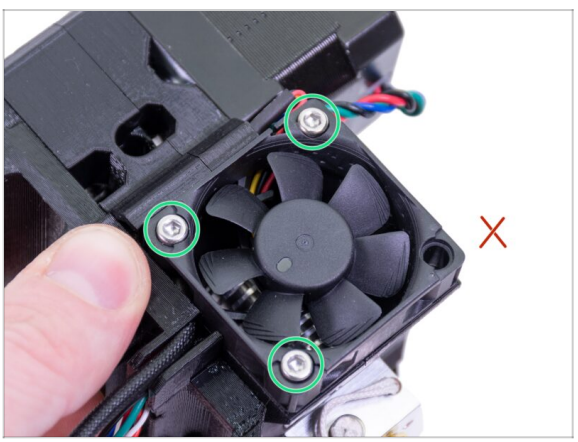




⚠ **The fan has two sides**, one has a sticker. Make sure, this side is facing inside the extruder.

- First, create a loop on the cable. Make sure the black protective wrap is close to the edge of the fan. See the picture.
- Place the fan on the extruder and proceed in the following way:
  - Start by placing the fan's cable in the upper channel
  - Slide the fan close to the X-carriage and **GENTLY PUSH** the cable in using an Allen key. Before you push the fan all the way to the left, place the cable in the X-carriage channel.

⚠ **FINAL CHECK!** The fan is oriented with the cable facing up, then the cable goes through the upper channel all the way to the X-carriage. In the X-carriage don't forget to use both channels. Make sure the **CABLE ISN'T PINCHED** along the way!

STEP 27 Hotend fan assembly (version A)

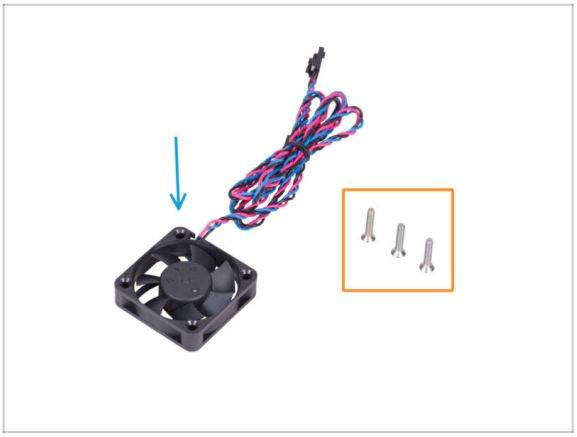


- Use the three M3x14 screws to fix the fan in place. Don't over tighten them, you can break the fan's plastic casing. Also make sure the fan can rotate freely.

ⓘ Note that the screws are "self-tapping" in the printed parts. There are no nuts.

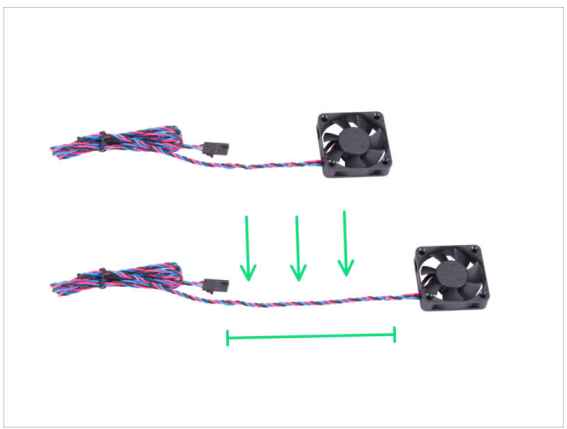
- Leave the last hole empty, for now.
- Now, go to Extruder-idler parts preparation (both fan versions)

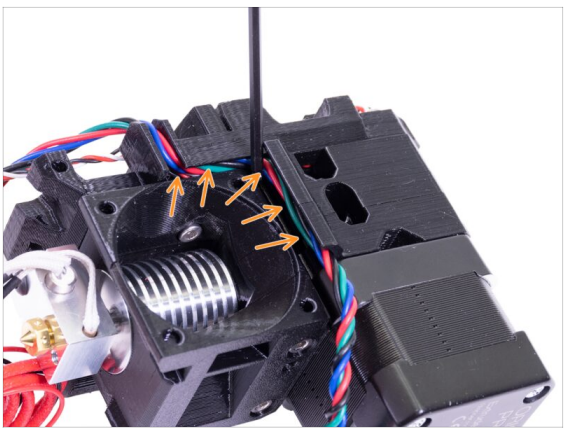
STEP 28 Hotend fan parts preparation (version B)



- **For the following steps, please prepare:**
- Hotend fan (1x)
- M3x16b countersunk screw (3x)
- ⚠ Make sure you are using the correct screws.
- ⓘ Keep the cable in a bundle for now.

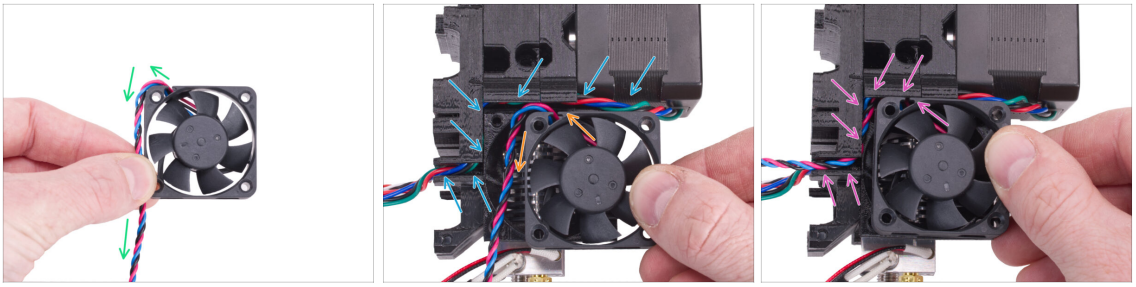
STEP 29 Hotend fan cable adjustment (version B)





- For easier fan installation, remove temporarily the black twist tie from the cable bundle and release at least one loop. Then tie the bundle back, see the picture.
- Before you move to the next step, take an Allen key and **GENTLY PUSH** the motor cable to the channel to create space for the fan cable.

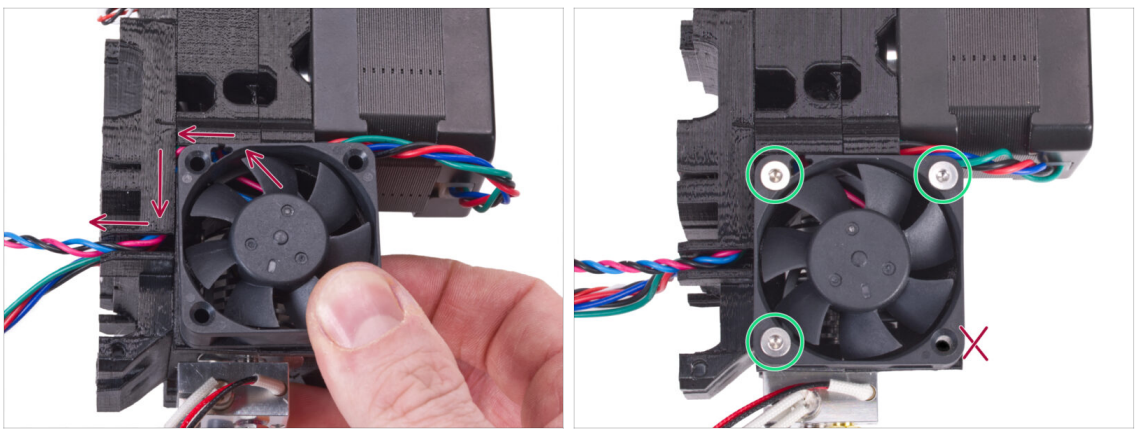
STEP 30 Hotend fan assembly (version B)



⚠ **The fan has two sides**, one has a sticker. Make sure, this side is facing inside the extruder.

- First, guide the fan cable as shown in the picture. Maintain this orientation.
- Place the fan on the extruder and proceed in the following way:
  - Make sure the motor cable is fully inserted in the channel
  - The hotend fan cable must be guiding from the top left around the corner down.
  - Slide the fan close to the X-carriage and **GENTLY PUSH** the cable in using an Allen key. Before you push the fan all the way to the left, place the cable in the X-carriage channel.

STEP 31 Hotend fan assembly (version B)



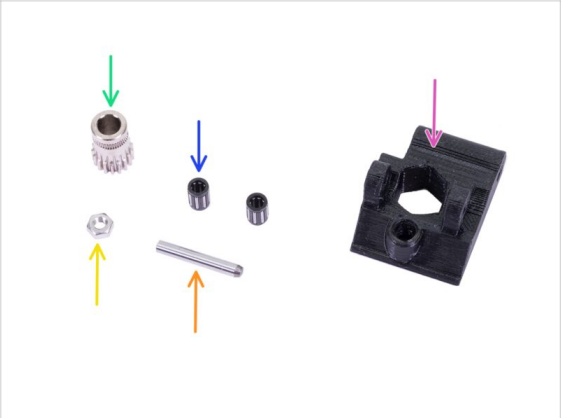
⚠ **FINAL CHECK!** The fan is oriented with the cable facing up, then the cable goes through the upper channel all the way to the X-carriage. In the X-carriage don't forget to use both channels. Make sure the **CABLE ISN'T PINCHED** along the way!

- Use the three M3x16b screws to fix the fan in place. Don't over tighten them, you can break the fan's plastic casing. Also make sure the fan can rotate freely.

ⓘ Note that the screws are "self-tapping" in the printed parts. There are no nuts.

- Leave the last hole empty, for now.

STEP 32 Extruder-idler parts preparation (both fan versions)

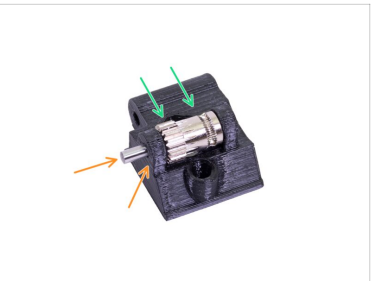


- **For the following steps, please prepare:**
- Extruder-idler (1x)
- Bondtech **WITHOUT** the hole for the set screw (1x)
- Bearing (2x) *might be stuck inside the gear*
- Shaft (1x)
- M3n nut (1x)
- M3x40 screw (2x)
- Idler spring (1x) *place the spring on the screw*

STEP 33 Bearing assembly

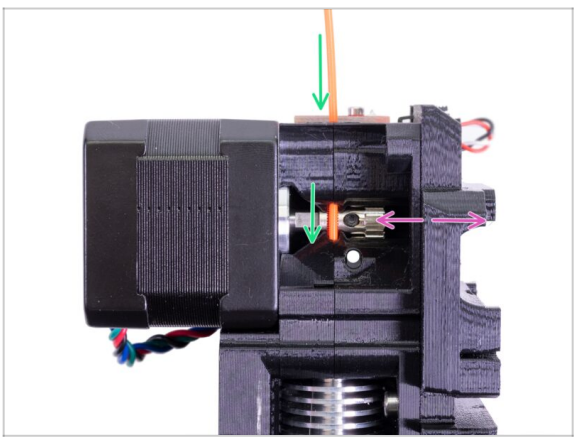
- **Insert both bearings** in the pulley. Be aware that bearings can slip out during assembly.

STEP 34 Extruder-idler assembly

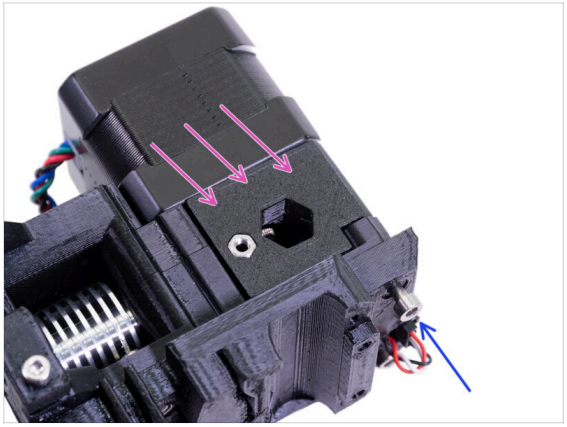

- Take M3n nut and place it in the Extruder-idler.
- Use the screw pulling technique.
- Insert the pulley in idler as shown in the picture.
- Slide the shaft through the idler and pulley. Use reasonable force or you will **BREAK** the printed part. The shaft should be flush with the surface of the printed part.
- Place your finger on the bearing and ensure it can rotate freely.

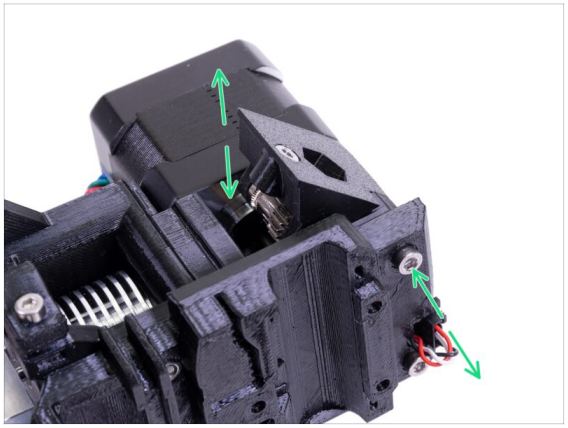
STEP 35 Filament alignment check



- Let's use this opportunity to check once more the proper alignment of the filament and the Bondtech gear.
- Push the filament from the top, through the Bondtech into the PTFE tube.
- Check the alignment and if needed, adjust the position.
- **Tighten the screw, but be careful**, you can easily strip it.
- **REMOVE** the filament.

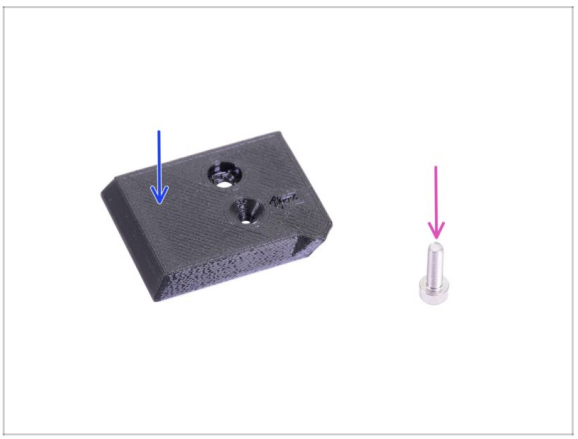
STEP 36 Extruder-idler mounting





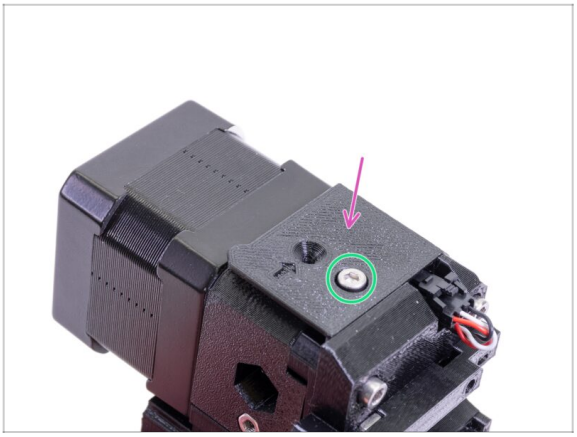
- Place the Extruder-idler in place.
- Secure it using the M3x40 screw.
- Don't tighten the screw too firmly, it serves as a shaft for the idler. Check that the idler can rotate freely.

STEP 37 FS-cover parts preparation



- **For the following steps, please prepare:**
- FS-cover (1x)
- M3x10 screw (1x)

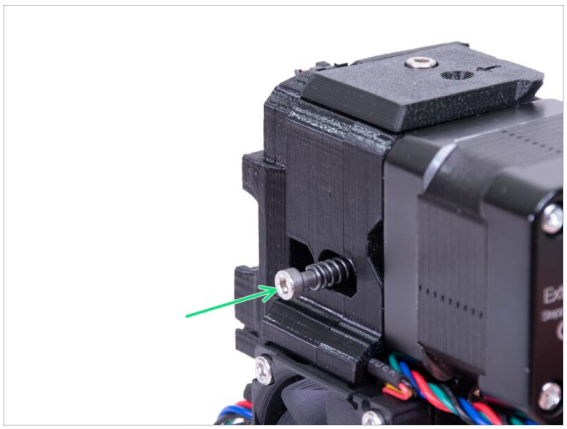
STEP 38 FS-cover assembly

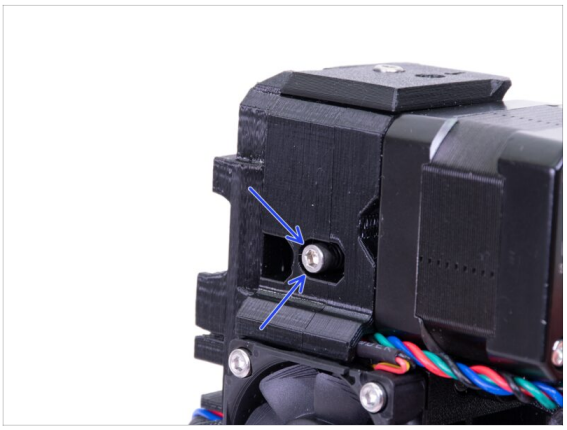


- Place the FS-cover on the extruder and align it according to the picture.
- Insert the M3x10 screw (mind the correct hole) and tighten it.

Tip: If you can't reach the nut, try to align it using an Allen key or pulling it up using a longer full-threaded screw from the spare bag.

STEP 39 Pretensioning the Extruder-idler



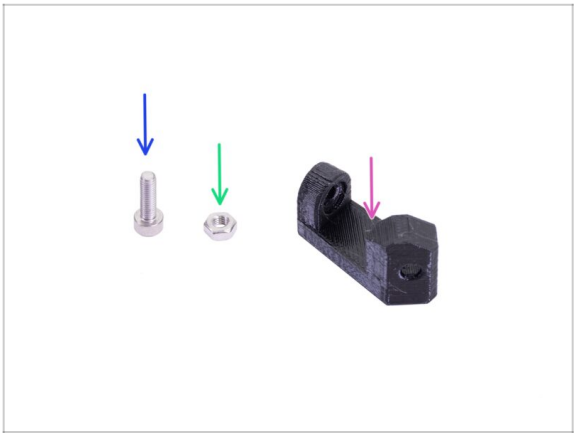


- Use the M3x40 screw with the spring to introduce tension to the Extruder-idler.

Hold the Extruder-idler on the other side, until the screw reaches the nut.

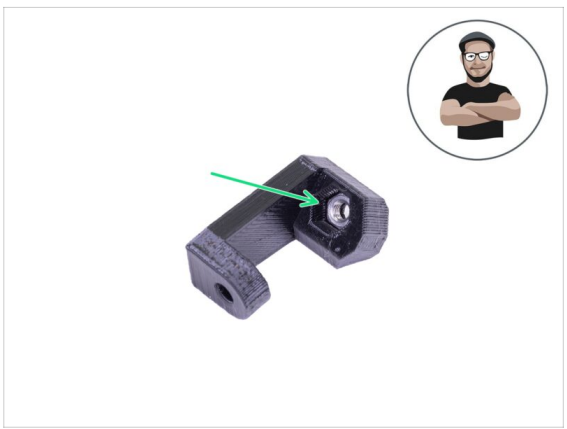
- Since there is only one screw, you need to introduce a large force. The head of the screw should be roughly aligned/flush with the surface. This can be adjusted later.

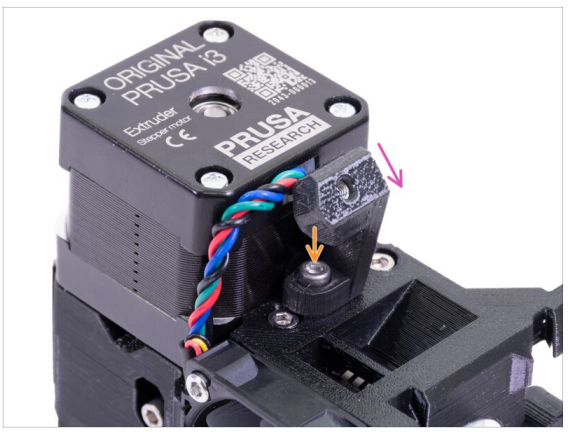
STEP 40 Print-fan-support parts preparation



- **For the following steps, please prepare:**
- Print-fan-support (1x)
- M3x10 screw (1x)
- M3n nut (1x)

STEP 41 Print-fan-support assembly





- Take the M3n nut and insert it all the way to the support. **It is crucial!**
- Use the screw pulling technique.
- Place the support on the extruder and ensure the inclined part is facing "down" (towards the nozzle)
- Secure the support using an M3x10 screw.

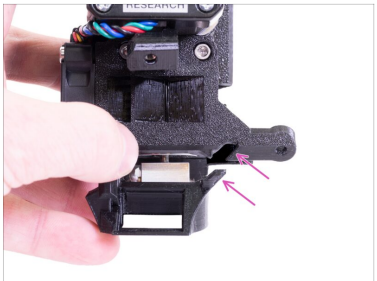
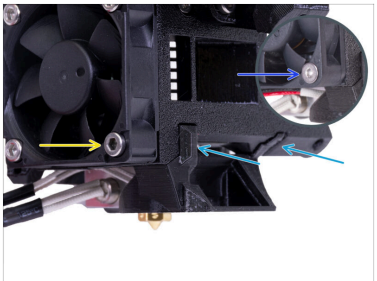
STEP 42 Fan-shroud parts preparation (both fan versions)

⚠ **IMPORTANT:** Similar to previous steps, there are two types of hotend fans. For this step, they **differ in the screw's length**. The remaining parts are the same.

- **Version A** - the fan cable bundle is covered in a black sleeve. Parts are shown in the **first picture**.
- **Version B** - the fan cable bundle is not covered. There is a combination of blue, pink and black wires. Parts are shown in the **second picture**.

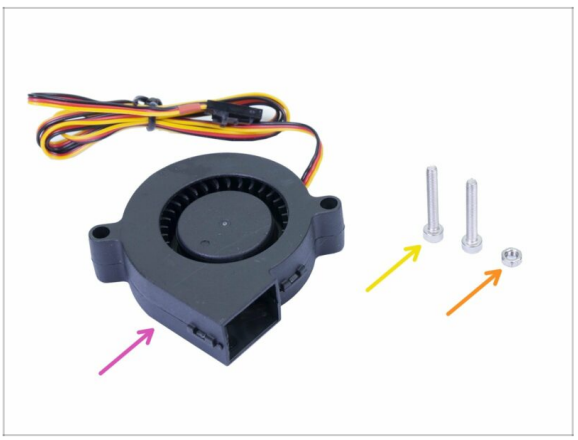
- **For the following steps, please prepare:**
- Fan-shroud (1x)
- M3nS nut (1x)
- M3x20 screw (1x) *version A, first picture*
- M3x22b screw (1x) *version B, second picture*

STEP 43 Fan-shroud assembly (both fan versions)

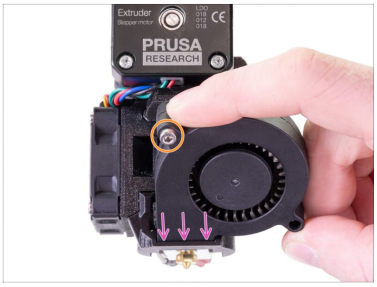
- Insert M3nS nut in the Fan-shroud, all the way in.
- Ensure correct alignment using the Allen key.
- See the protrusion on the Fan-shroud and the groove in the extruder.
- Slide the Fan-shroud into the extruder. Make sure that both protrusions on the Fan-shroud fit in the grooves on the extruder (see the picture).
- **To mount the fan-shroud, select the appropriate version according to the type of hotend fan:**
  - **Version A:** Secure it using the M3x20 screw. Don't overtighten the screw, you can break the plastic casing. Also make sure the fan can rotate freely.
  - **Version B:** Secure it using the M3x22b screw. Don't overtighten the screw, you can break the plastic casing. Also make sure the fan can rotate freely.

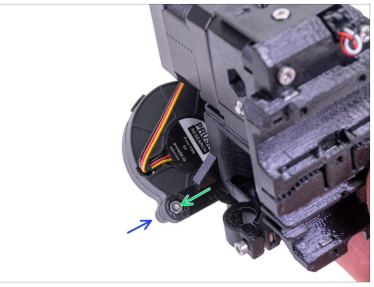
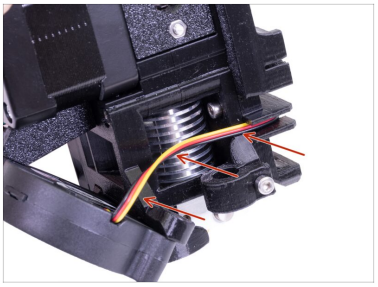
STEP 44 Print fan parts preparation



- **For the following steps, please prepare:**
- Print fan (1x)
- M3x20 screw (2x)
- M3n nut (1x)
- You need M3x20 screw due to its length. If you have used them accidentally somewhere else, head for the spare bag ;)

STEP 45 Print fan assembly



- First, slide the fan in the Fan-shroud and make sure it is aligned properly.
- Second, fix the fan in place using one M3x20 screw. **Tighten carefully**, or you will damage the fan's casing.
- Turn the extruder around and insert the M3n nut. No need to pull it in, we will use the screw.

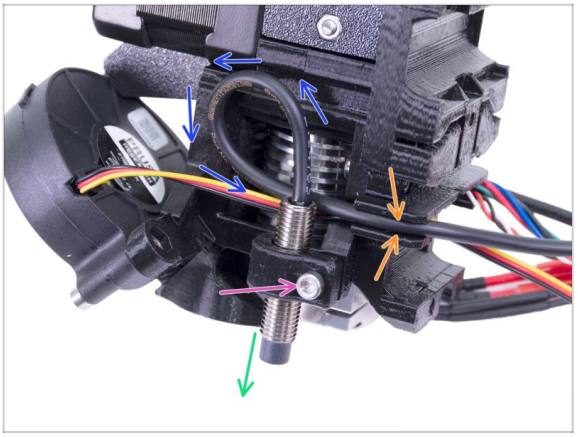
ⓘ If you have trouble inserting the nut, try pulling it in with the fan removed, by using a shorter screw from the SPARE bag. Be careful so the other nut doesn't fall off!

- Attach the remaining M3x20 screw from the other side of the print fan and tighten it up. **Be careful,** you might damage the fan casing.
- Guide the cable according to the picture in the channel. Bend it slightly towards the extruder. **DON'T stretch the cable!**

STEP 46 SuperPINDA sensor parts preparation

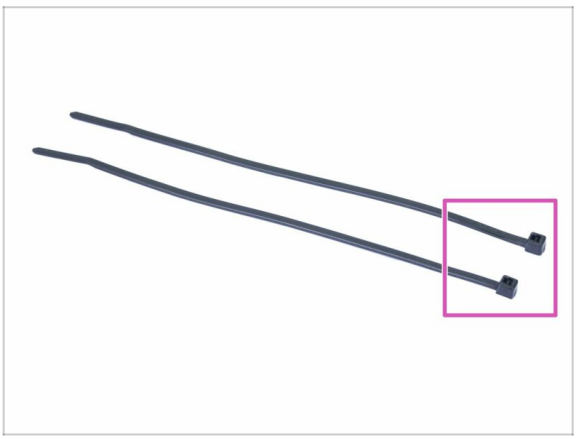
- **For the following steps, please prepare:**
- SuperPINDA sensor (1x)

STEP 47 SuperPINDA sensor assembly



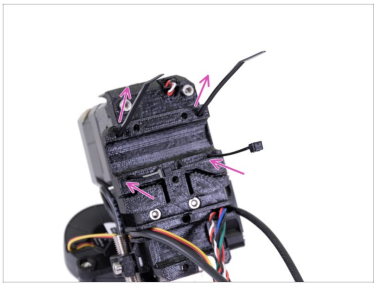
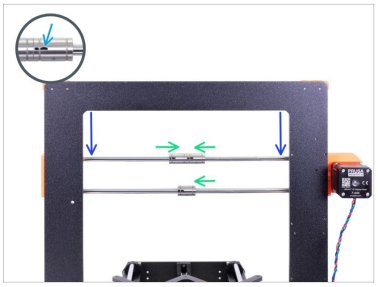
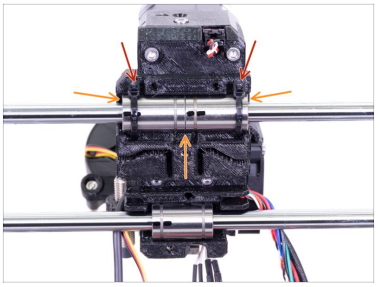
- Insert SuperPINDA sensor in the holder. Exact position doesn't matter, we will adjust it later.
- Tighten the M3x10 screw, but just slightly.
- Create a loop on the cable from the sensor.
- Push the cable in the channel together with the fan cable.

STEP 48 Extruder parts preparation



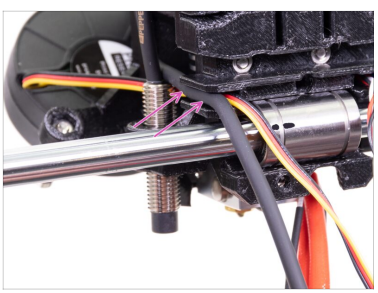
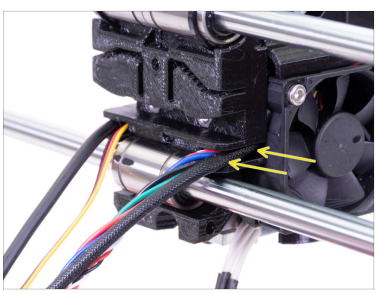
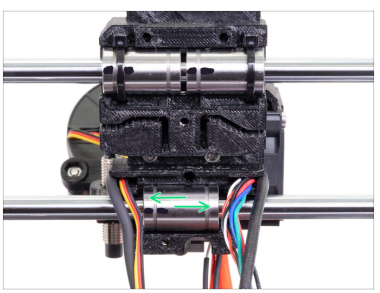
- **For the following steps, please prepare:**
- Zip tie (2x)

STEP 49 Extruder preparation and mounting

- Insert the zip ties in the X-carriage like in the picture.
- Lower the X-axis at about 1/3 from the top.
- Turn the printer like in the picture with X-axis motor and shorter extrusions facing towards you. Align the bearings similarly to the picture. The exact position of the lower bearing doesn't matter for now.
- Turn all three bearings so that the markings are facing you.
- Place the extruder onto the bearings from the other side. Make sure the bearing openings in the X-carriage are facing towards you (together with the shorter extrusions on the frame) and the top bearings fit perfectly into the groove.
- We will adjust the lower bearing later on.
- Tighten and cut the zip ties.

STEP 50 Extruder channels cable management

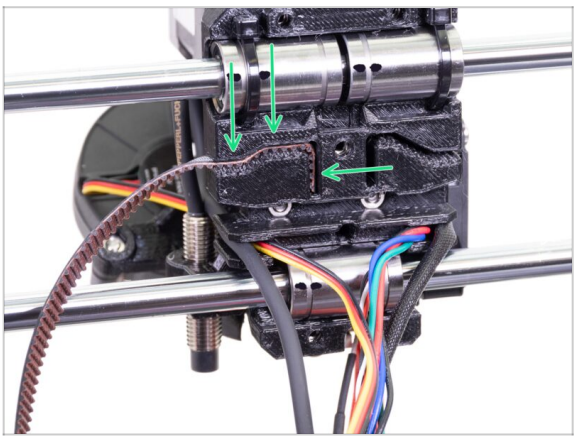




- Place the cables on the SuperPINDA sensor side over the lower smooth rod and push them back in the channel.
- Place the cables on the hotend fan side over the lower smooth rod and push them back in the channel.
- Align the bearing, so it fits nicely in the X-carriage.

STEP 51 X-axis belt parts preparation

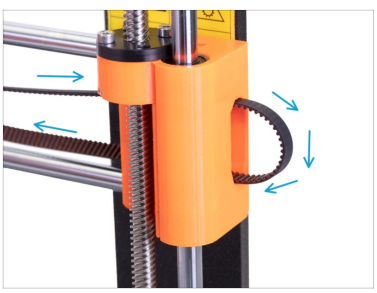
- **For the following steps, please prepare:**
- X-axis belt (850 mm)

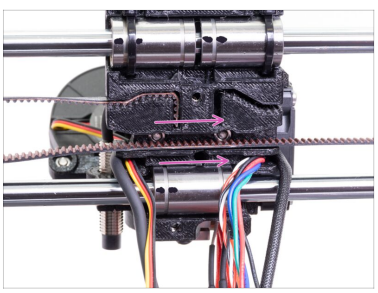
STEP 52 X-axis belt assembly

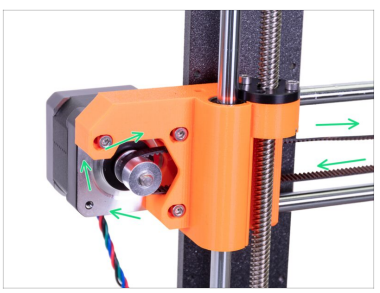


- Insert the flat part of the X-axis belt into the X-carriage as in the picture.
- Use a screwdriver or the smallest Allen key to push the belt in.

STEP 53 X-axis belt assembly

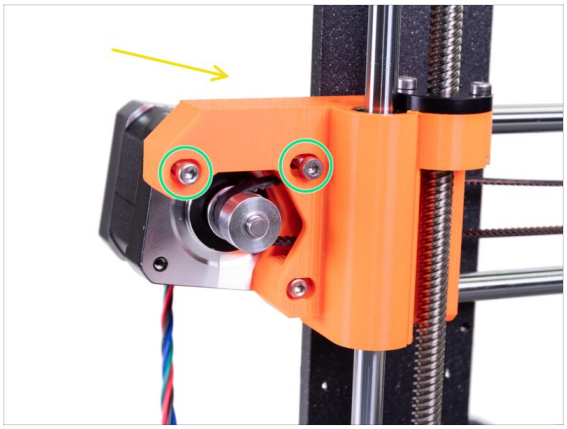


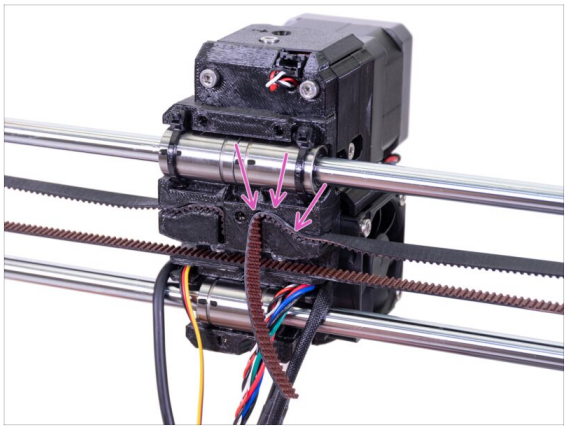




- Guide the X-axis belt through the X-end-idler, around the 623h bearing with the housing and back.
- Continue with the belt through the X-carriage.
- Guide the X-axis belt through the X-end-motor, around the GT2-16 pulley and back.

STEP 54 X-axis belt assembly



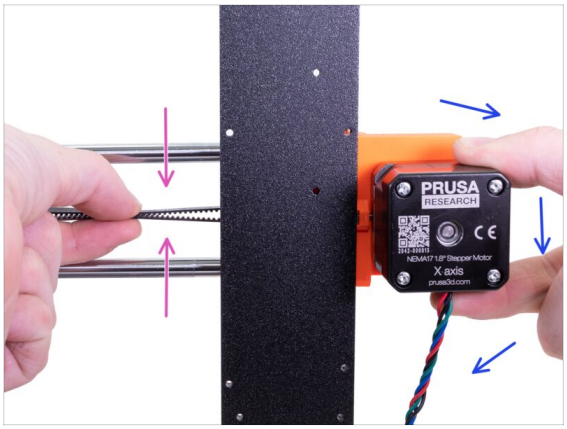


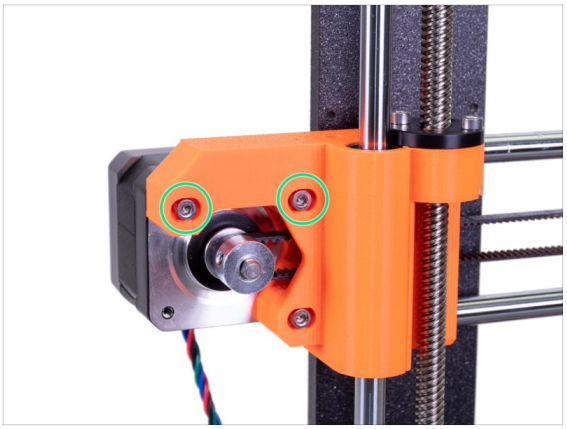
- Before you continue to guide the belt through the X-axis, please release two M3 screws on the X-end until they detach from the motor. It must be possible to move the motor freely to the sides.
- Rotate the X-axis motor as indicated towards the frame.
- Insert the flat part of the X-GT2 belt into the X-carriage as in the second picture.

Use a screwdriver or the smallest Allen key to push the belt in.

There will be belt overhang on this side, **DON'T TRIM IT** yet.

STEP 55 Tensioning the X-axis belt



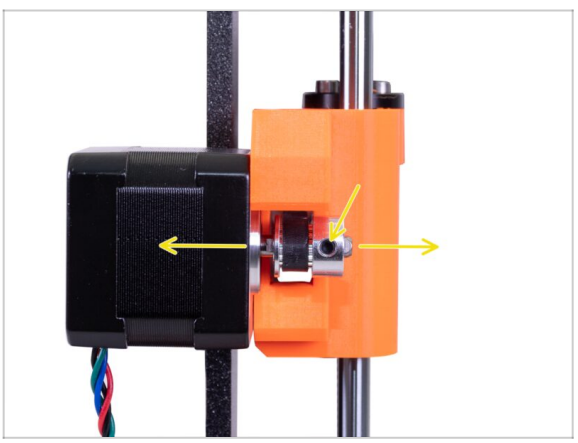


- Using right hand rotate the motor to its original position and hold it (tension is applied to the belt).
- Using two fingers on your left hand push the belt together. Very small force should be needed for bending the belt, BUT the belt shouldn't be bent by its own weight before being pressed with your fingers, it must be straight.

ⓘ If you are struggling to rotate the motor back into position, the belt tension is too high.

- Depending on the belt being under or overstretched, adjust the amount of the belt in the X-carriage.
- When done, rotate the motor to its original position and tighten the M3 screws again.

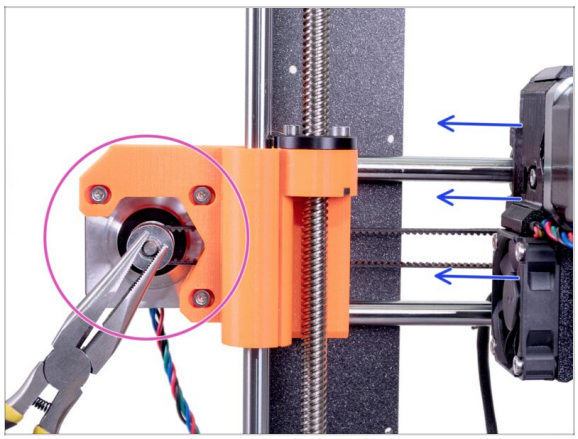
STEP 56 Aligning the X-axis belt



- Both top and bottom part of the belt should be parallel (above each other).
- To adjust the belt position, release the screws on the pulley and move it slightly until you reach the best position.
- Tighten both screws on the pulley.

ⓘ If you are having a problem with the belt alignment, check the orientation of the pulley. Make sure it is oriented in the same way as seen in the picture.

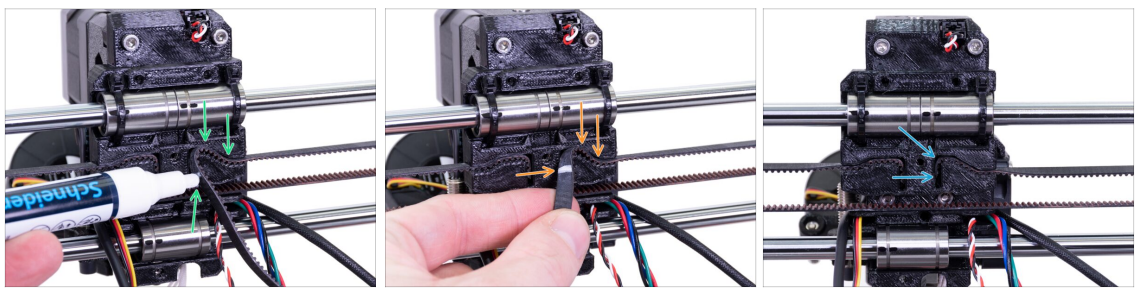
STEP 57 Testing the X-axis belt



- Use the technique described below to test if the belt is properly stretched.
- Use pliers to hold the X-axis motor shaft.
- Move the extruder towards the X-axis motor. Don't use excessive force.
- If the belt is stretched properly, you should feel a resistance and the extruder won't move at all. If the belt is too loose, it will deform (create a "wave") and jump over the teeth on the pulley.

ⓘ Belt too loose? Return to step 49 and repeat all steps until now. You have to rotate the motor and retighten the belt in the X-carriage. Shortening the belt length by moving one or two teeth outside X-carriage should be enough.

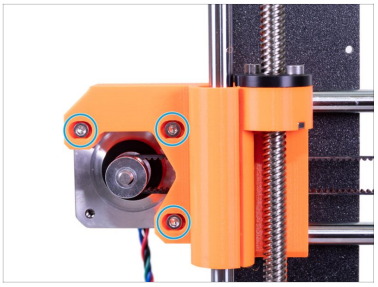
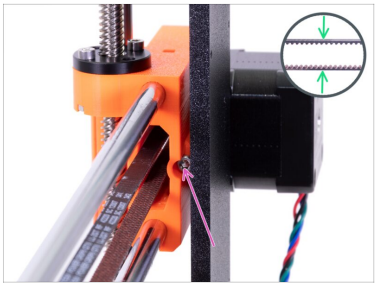
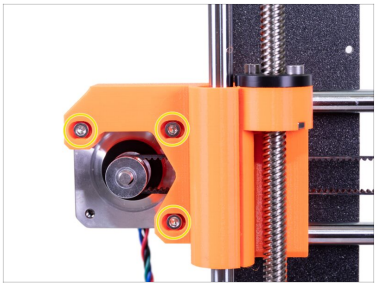
STEP 58 Trimming the X-axis belt



ⓘ For the following step we recommend getting a white marker, but you can also trim the belt without it.

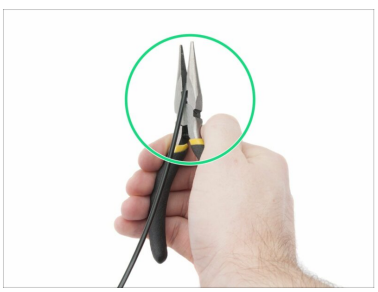
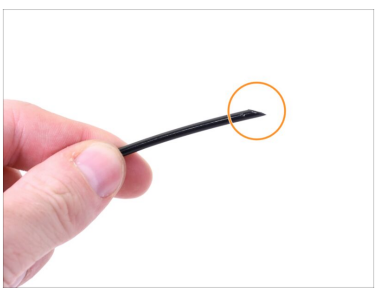
- Measure the part, which must be trimmed and gently take the end of the belt away, from the X-carriage, but make sure at least 3-4 teeth are still in the X-carriage, as you don't want to lose the tension. If possible make a mark, where to cut the belt.
- Ensure again your mark is in the correct position and the belt is still stretched.
- Using pliers cut the belt and push it inside X-carriage. Use screwdriver or Allen key, if needed.

STEP 59 Fine tuning the x-axis belt

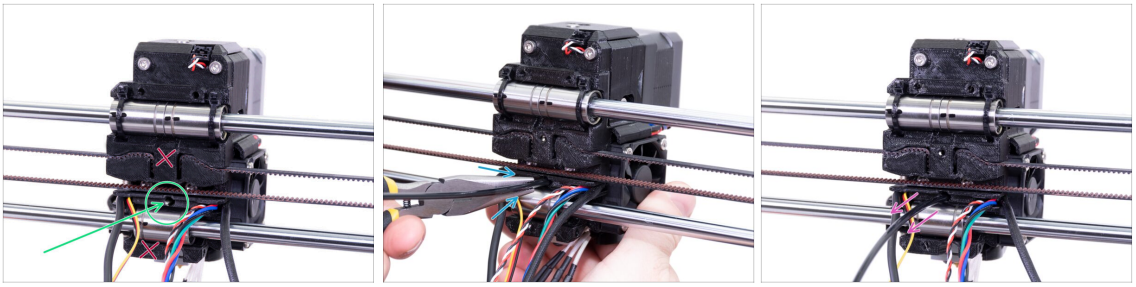
- In this step, we will finish tensioning the belt. Please read the instructions first, your belt might have proper tension already, then there is no need for additional screw adjustment.
- First, slightly release all the screws holding the motor, otherwise, the "tensioner" won't work (the motor must be able to move).
- Using ball-end Allen key start tightening the screw on the rear side of the X-end-motor, but after each turn or two check the tension in the belt.
- For the optimal performance, the belt must be a bit harder to press with your fingers. Move the extruder all the way to the X-end-idler and try the belt tension in the middle of the X-axis.
- When you achieve optimal tension, please tighten the screws again.
- In case you experience X-axis failure during calibration or skipped layers in the X direction, you can adjust this screw accordingly. Tightening the screw stretches the belt. Releasing the screw has opposite effect. Each time don't forget to release the screws on the motor first.

STEP 60 Nylon guide parts preparation

- It is recommended to wear **safety glasses** while cutting the nylon filament.
- **For the following steps, please prepare:**
- Black nylon filament 50 cm / 19.7 inch (1x)
- The black nylon filament is included in the MK3S+ Fasteners & ELE package.
- Using the pliers cut one end of the filament to create a tip.
- Check the tip is similar to the third picture.

STEP 61 Nylon guide assembly

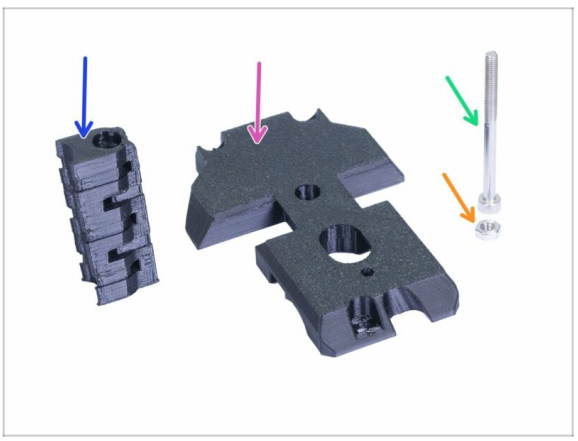


- **Locate the hole** for the NYLON filament just above the bottom bearing. **Refer to the picture to make sure it is the correct one.** Using the smallest Allen key, ensure there are no obstacles inside.
- Using the pliers **insert the NYLON filament with the pointed end into the slot.** Twist the filament while pushing it in. Hold the extruder with your other hand.

⚠ **BE EXTREMELY CAREFUL** as the pliers tend to slide and you can easily damage the wires!!!

- To check if the filament is seated properly, gently pull it with your hand. The X-axis should bend a little, but the filament must remain in the slot.
- If you have issues, try to adjust the tip on the filament.

STEP 62 X-carriage-back parts preparation



- **For the following steps, please prepare:**
- X-carriage-back (1x)
- Cable-holder (1x)
- M3x40 screw (1x)
- M3n nut (1x)

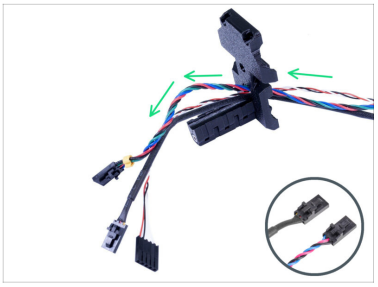
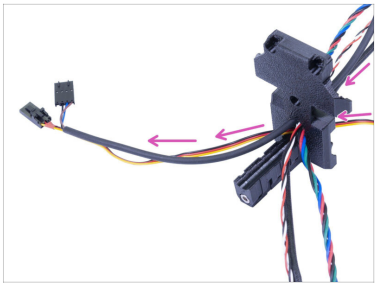
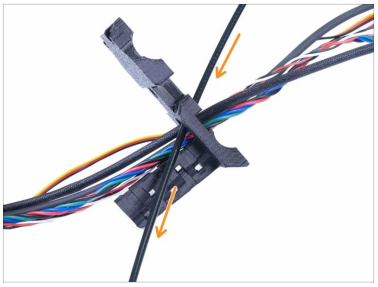
STEP 63 Cable-holder assembly

- Prepare the M3x40 screw and cable-holder from the previous step.
- Drive the screw all the way through the printed part.
- ⚠ Note there is a recess (slot) for the screw's head on one side of the printed part.

STEP 64 X-carriage-back assembly

- Take the M3n nut and place it in the printed part (all the way in).
- ⓘ Use the screw pulling technique.
- Rotate the X-carriage-back and tighten it together with the cable-holder.
- Check the "u-shaped" slot is aligned properly on both parts.

STEP 65 Mounting the X-carriage-back

- Push the cables from the Extruder **THROUGH** the X-carriage-back. Start with IR-sensor cable, then the extruder motor and hotend fan.

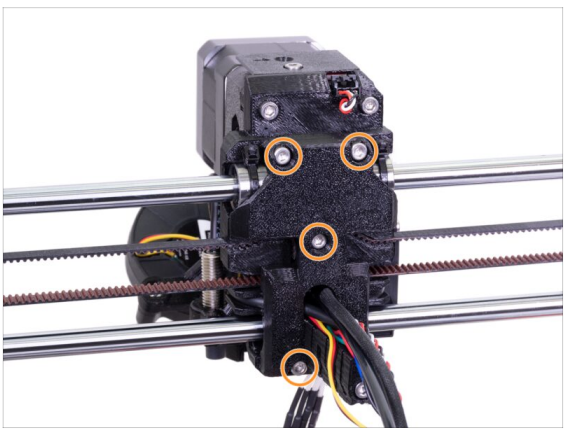
  ⓘ **There are two variants of the hotend fan cable**, see the detail. The connectors are the same.

- Next, add the print fan and SuperPINDA sensor cables.

⚠ Cables from hotend are **NOT GOING** through the X-carriage-back!

- Carefully insert the nylon filament and then slide the X-carriage-back towards the X-axis.

STEP 66 X-carriage-back assembly

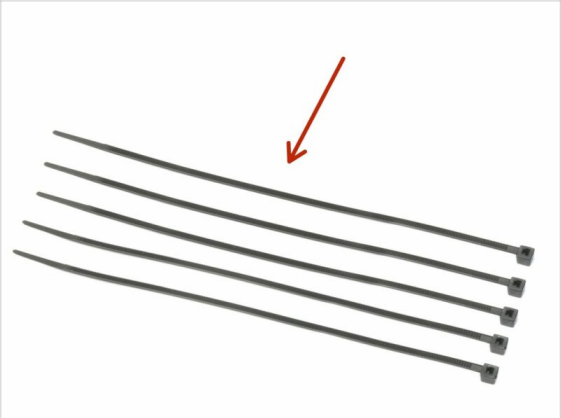
- **For this step, please prepare:**
- M3x10 screw (4x)

⚠ Before you tighten the X-carriage-back, arrange all cables, make sure none is pinched.

- Use all four screws and tighten the X-carriage-back.

⚠ **Tighten the screws with a reasonable force**, make sure you won't deform/squeeze the bearings between the printed parts.

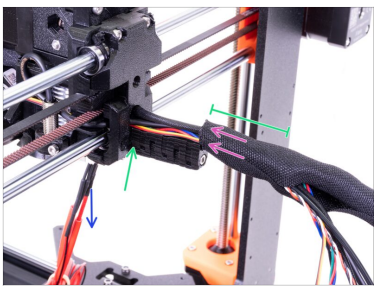
STEP 67 Textile sleeve parts preparation

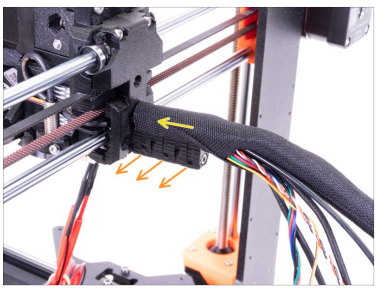


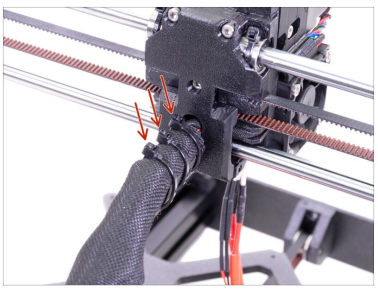
- **For the following steps, please prepare:**
- Zip tie (5x)
- Textile sleeve 13 x 490 mm (1x)

There are three textile sleeves in the package, use the largest one (both diameter and length).

STEP 68 Tightening the textile sleeve



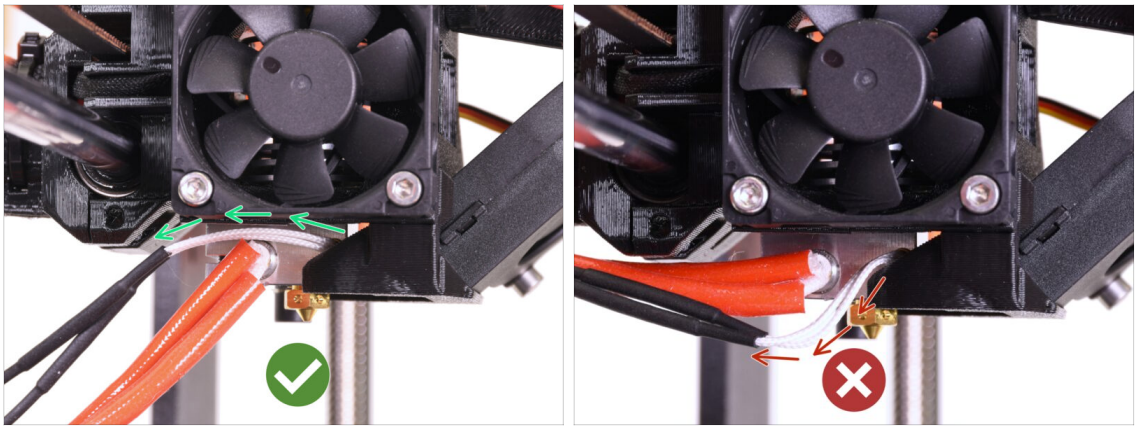




- Open one end of the textile sleeve and slide it on the cable bundle leading from the extruder. **Don't forget to include the black nylon filament inserted earlier!**
- Leave the cables from the hotend out for now.
- Length of the first wrap should be slightly longer than the cable-holder part, about 5 cm is enough.
- Gently twist the sleeve to make it smaller and tighter around the cables, orient the sleeve's seam downwards, then slide the sleeve towards the extruder.
- **Take 3 zip ties** and insert them into the **lower row** of holes on the cable-holder.
- Twist the sleeve again (without twisting the cables inside) and tighten the zip ties.

IMPORTANT: Cut the remaining part of each zip tie using pliers as closest to its head as possible. Note the correct position of each zip ties's head (slightly off-centre to the left).

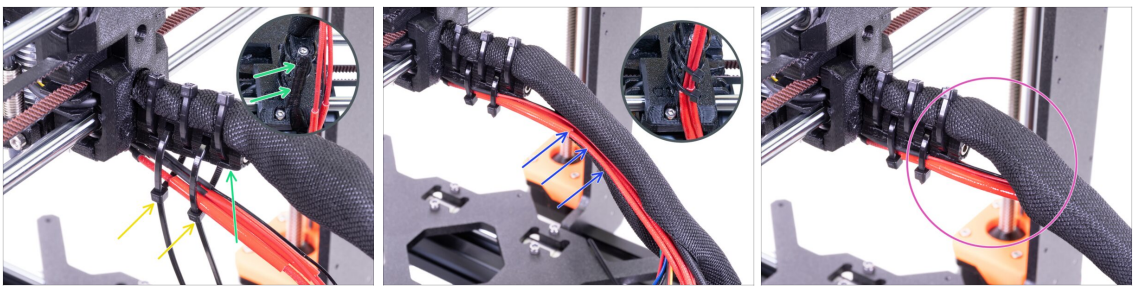
STEP 69 Guiding the hotend thermistor cables



- Make sure the hotend thermistor cables (thinner pair) are going above the heater cables. If not, guide them according to the picture.

⚠ **Guiding the thermistor cables below the heater cables may cause issues later.**

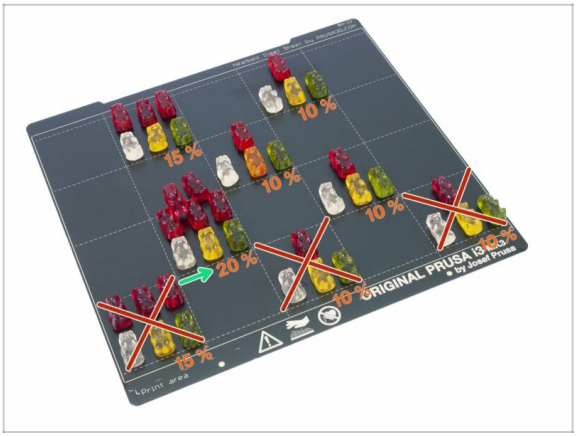
STEP 70 Tightening the hotend cables



- Use two zip ties and push them through the upper slots on the cable-holder.
- **ATTENTION!** Before tightening the zip ties add the cables from the hotend. Use the channel in the printed part to arrange them properly.
- Once the hotend cables are included, tighten the zip ties and cut remaining parts.
- Open the textile sleeve and insert the cables from the hotend.
- Compare the look of the cable management with the last picture.

⚠ The zip tie arrangement was tested with the injection molded double spool holder (provided in the kit and assembled later on). If you intend to use any other frame mounted type holder, make sure the zip ties won't crash into it, which might result in a print failure.

STEP 71 Haribo time!



- **Hats off! This was the toughest chapter in the history of Original Prusa i3 printers.** Have 20 % of bears and rest for a while ;)

STEP 72 E-axis is finished!

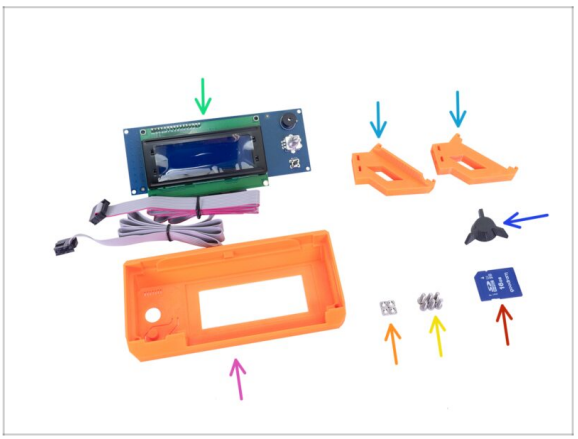
- **Are we there yet? Almost!**
- Check the final look, compare it to the picture.
- Checked everything? Let's move to: **6. LCD assembly.**

6. LCD assembly

STEP 1 Tools necessary for this chapter

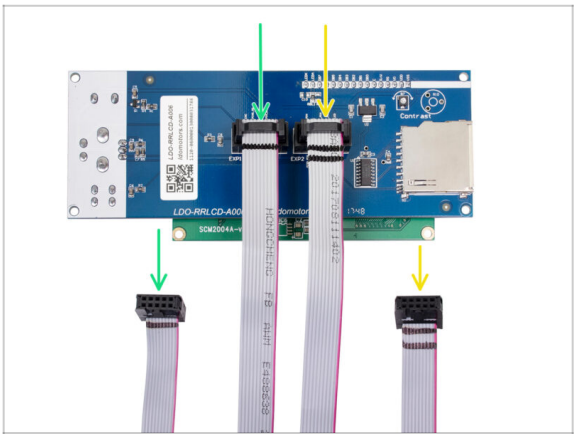
- 2mm Allen key for nut alignment
- 2.5mm Allen key for M3 screws
- Bag with fasteners for the LCD is usually taped to the LCD.

STEP 2 Preparing the LCD parts



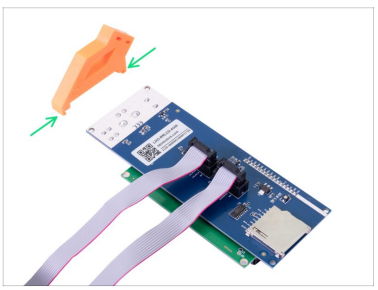
- **For the following steps, please prepare:**
- LCD-cover (1x)
- LCD-knob (1x)
- LCD-support (2x)
- LCD screen (1x)
- M3x10 screw (6x)
- M3nS nut (4x)
- SD card (1x)

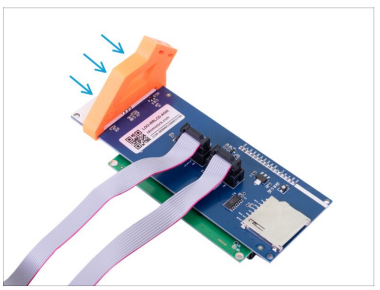
STEP 3 Checking the LCD cables

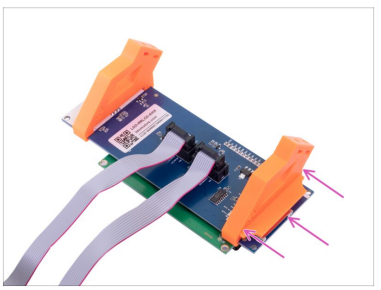


- Before you start, please ensure the cables are plugged in the correct order.
- To the slot called **EXP1** (see the board) must be connected cable with **ONE black stripe**.
- To the slot called **EPX2/EXP2** (see the board) must be connected cable with **TWO black stripes**.

STEP 4 Assembling the LCD supports







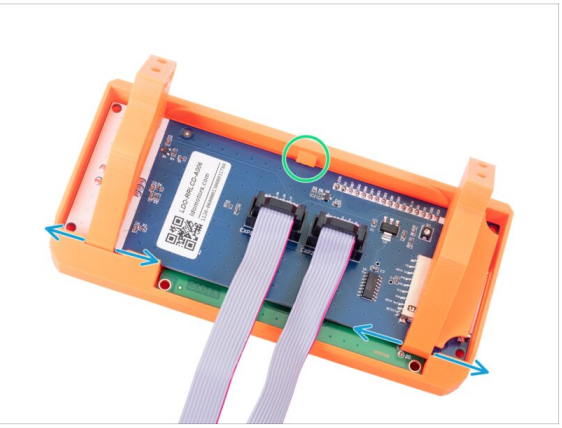
- Prepare the LCD controller and LCD-support printed part as shown in the picture.
- Slide the LCD-support parts on the LCD-controller.
- Repeat the steps above for the second support.

⚠ Ensure the correct orientation of parts and the LCD controller.

ⓘ The exact position will be adjusted later, no need to worry at this moment.

ⓘ You can now remove the protective foil from the screen. Don't throw it away, we will reapply it soon.

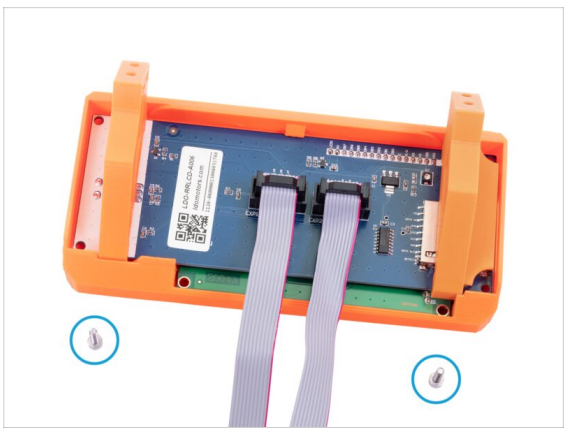
STEP 5 Assembling the LCD-cover

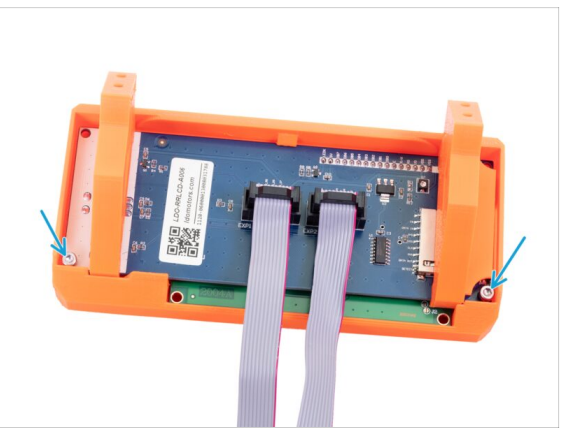


- Press the LCD controller with the LCD-support into the LCD-cover as shown in the picture. Be careful, there is a control knob on the other side!
- Adjust the position of the supports if needed.
- Press it as deep as possible.
- The LCD controller must click under support in the centre of the LCD-cover.

ⓘ Reapply the protective foil on the screen, make sure foil is clean without any particles or you might scratch the screen.

STEP 6 Securing the LCD controller



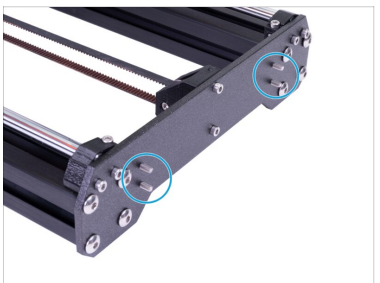


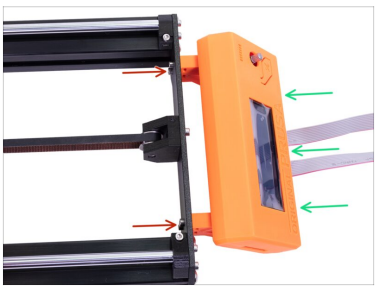
- Using the 2.5mm Allen key and two M3x10 screws, secure the LCD controller in place.

STEP 7 Preparing the supports for assembly

- Place four M3nS nuts in the prepared slots, all the way in.
- Check the proper alignment with Allen key.

STEP 8 Mounting the LCD display onto the printer





ATTENTION!!! In case you haven't assembled the anti-vibration feet yet, the front part of the printer will be resting on the mounted LCD. Apply the feet now or be very careful as you might damage the LCD holder. For assembly head back to Chapter 2 (Y-axis).

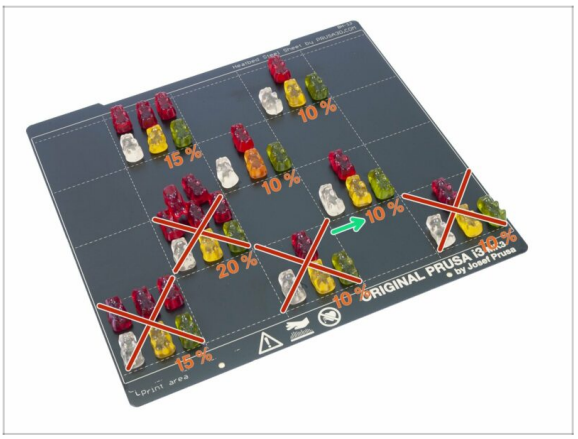
- Locate the holes for M3 screws on the front plate.
- Press through four M3x10 screws.
- Place the LCD assembly onto the front side of the Y-axis.
- Tighten all four screws.

STEP 9 Assembling the LCD knob

- Assemble the LCD-knob part as shown in the picture.

(i) Knob mounting orientation doesn't matter.

STEP 10 Haribo time!



- Compared to the previous chapter, this was extremely easy, right? Have 10 %, not more.

STEP 11 LCD is done!

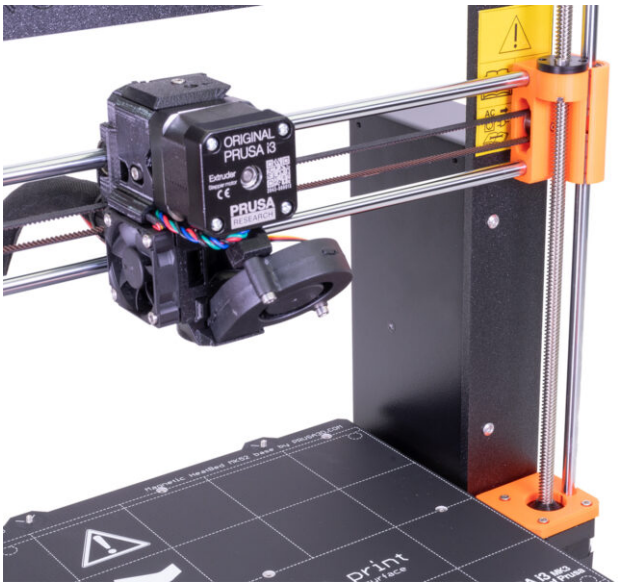
- **That was fast! Wasn't it?**
- Check the final look, compare it to the picture.

ⓘ You can now remove the protective foil from the LCD panel.

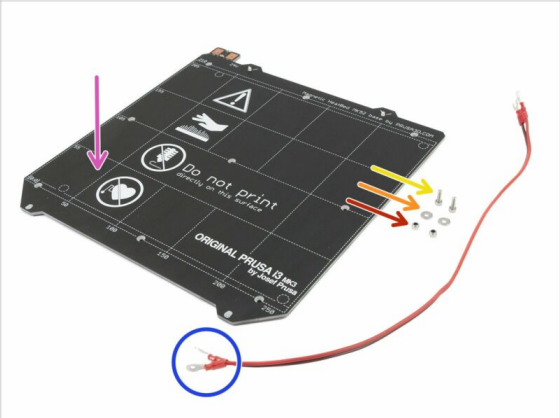
ⓘ You can slide the SD card in (from the left side). However, it is recommended to wait till the printer is completed.

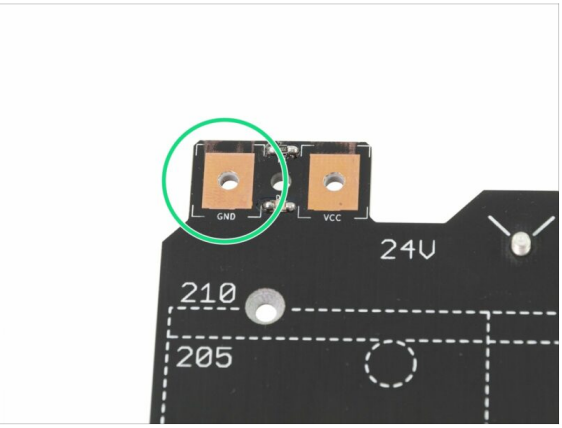
- Ready for the next chapter? Let's move to: **7. Heatbed & PSU assembly**.

7. Heatbed & PSU assembly



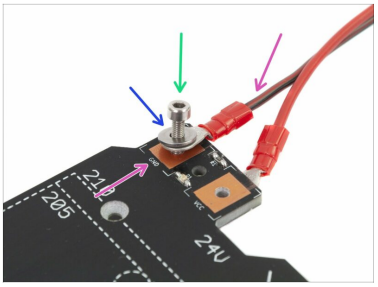
STEP 1 Heatbed cable assembly (part 1)

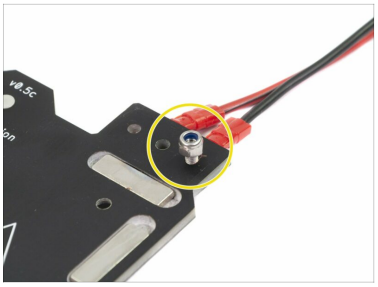
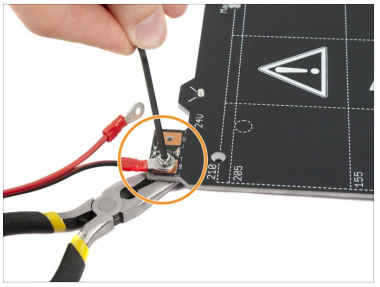




- **For the following step please prepare:**
- Heatbed MK52 24V (1x)
- Power cable (1x)
- M3x10 screw (2x)
- M3/3,2/9/0,8 washer (2x)
- M3nN nylock nut (2x)
- **IT IS VERY IMPORTANT** to connect the power cable correctly. Before you start the assembly have a look at the pins. The one on the left with "**GND**" sign must be connected to the **BLACK WIRE**.

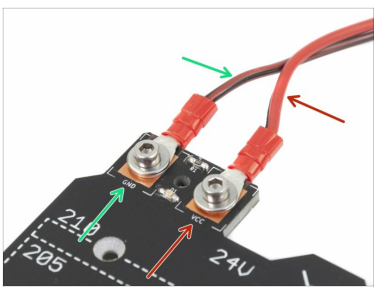
STEP 2 Heatbed cable assembly (part 2)

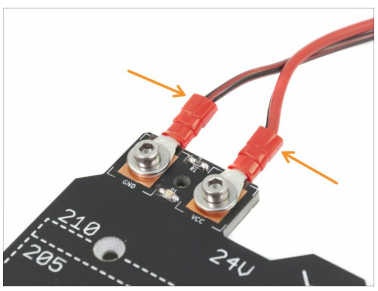


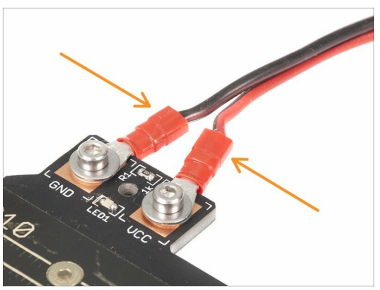



- Place the black wire above the pin with "GND" sign. Make sure you are using the **rounded connector**.
- Place the washer above the rounded cable connector.
- Press the M3x10 screw through all parts.
- Hold the screw and carefully turn the heatbed upside down.
- Place the M3nN Nylock nut on the top of the M3 screw and tighten it slightly.
- Turn the heatbed back, using pliers and Allen key tighten the screw. We need to adjust cable position in the next step, **therefore do not tighten the screw too firmly**.
- Repeat this procedure for the second (red) wire.

STEP 3 Heatbed cable assembly (part 3)







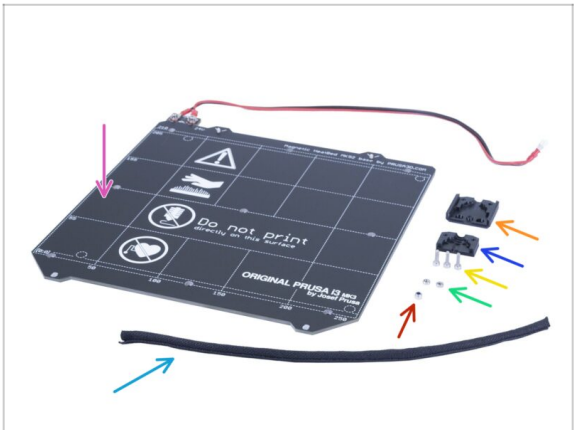
⚠ Before proceeding further, please check again the cable is connected with the correct polarity to the heatbed and properly tightened. **Otherwise, there is a risk of damage to the printer!**

- **BLACK** wire must be connected to the "**GND**"
- **RED** wire must be connected to the "**VCC**"
- The cable cover, which will be applied later requires the connectors to be slightly inclined towards each other. Press them gently, but leave a gap between them.

ⓘ Design of your heatbed might slightly differ from the last picture.

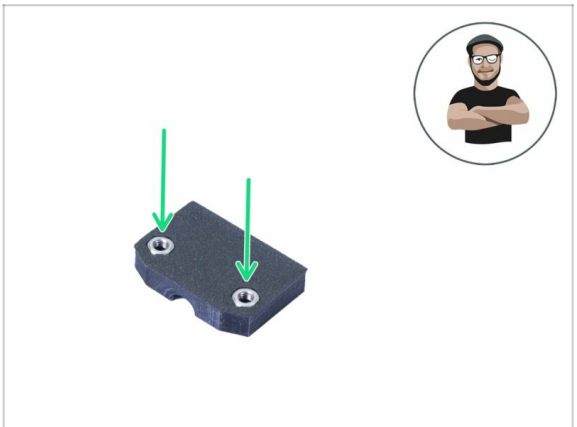
- Now, tighten both screws using the Allen key and the pliers.

STEP 4 Preparing the heatbed



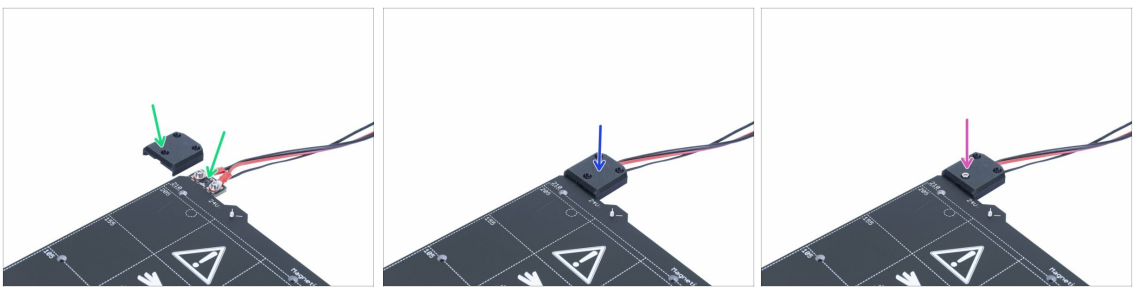
- **For the following steps, please prepare:**
- Heatbed MK52 (1x)
- Textile sleeve 5 x 300 mm (1x)
- M3nN nyloc nut (1x)
- M3n nut (2x)
- M3x10 screw (3x)
- Heatbed-cable-cover-clip (1x)
- Heatbed-cable-cover (1x)

STEP 5 Preparing the heatbed-cable-cover



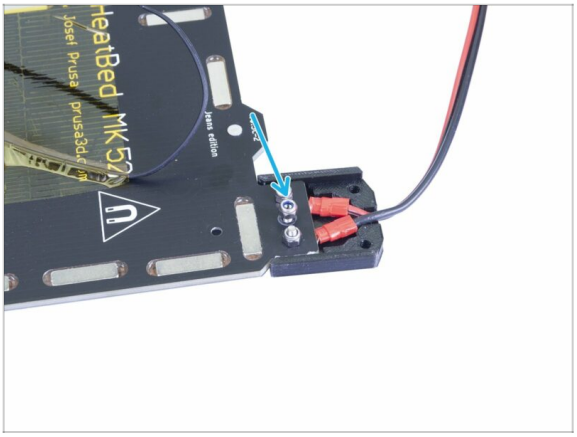
- Take the smaller part and insert M3n nuts.
- ⓘ Use the screw pulling technique.
- ⓘ Keep this part for later use.

STEP 6 Mounting the heatbed-cable-cover



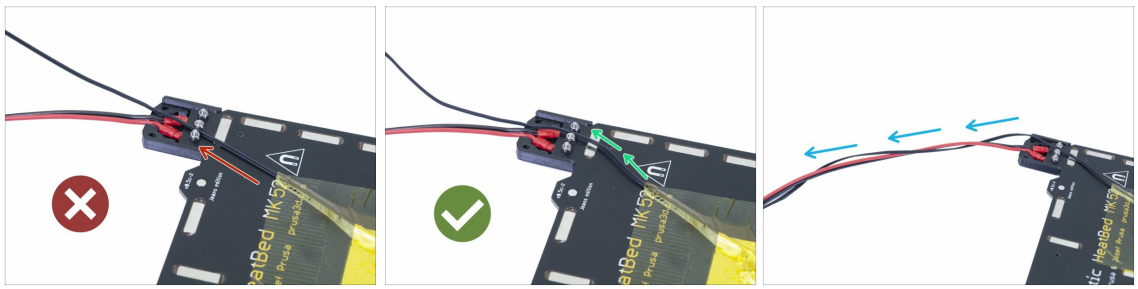
- Place the bigger heatbed-cable-cover next to the heatbed. See the hole, which has to match the one on the heatbed.
- Now, place the cover on the heatbed and align it.
- Use the M3x10 and push it through the cover.

STEP 7 Mounting the heatbed-cable-cover



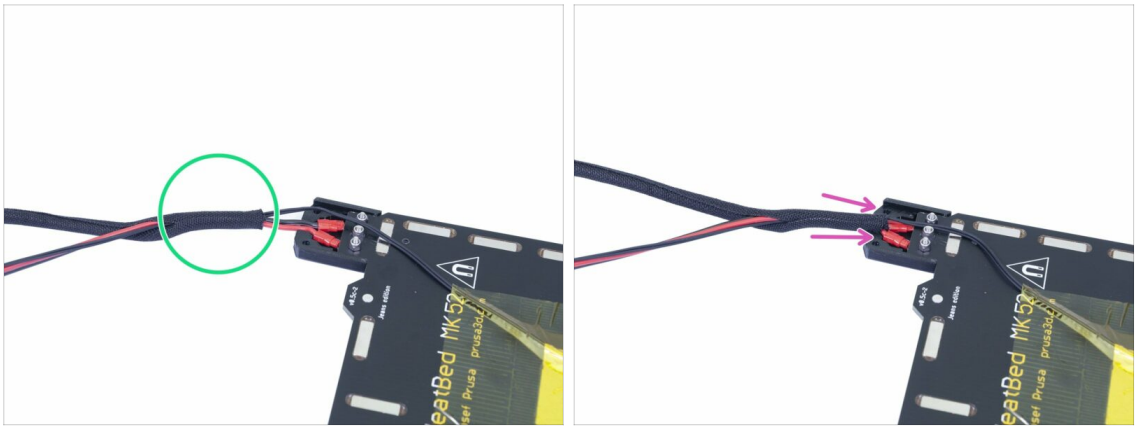
- Hold the screw with your thumb and flip the heatbed upside down.
- Use M3nN nyloc nut and tighten the screw.
- Use pliers and Allen key to tighten the nut with the screw.

STEP 8 Proper cable management



- Do not stretch the black thermistor cable, leave some slack under the heatbed, so when the heatbed moves during print, the cable won't get stretched resulting in disconnection from the center of the heatbed.
  - You can guide the thermistor cable, through both gaps between the heatbed cover screws.
- However, the slack shouldn't be causing the cable to sag down more than few millimetres. Otherwise, the cable might rub against the printer's frame and damage itself! Turn the heatbed upside-down to check this.
- Guide the black thermistor cable next to the heatbed heater cable and wrap it few times around (see the photo).

STEP 9 Wrapping the heatbed cables



- Use the textile sleeve and wrap the cables from the heatbed. Start by wrapping a few centimeters of the sleeve behind the heatbed cover.
- When the first "wrap" is ready, slide it inside the heatbed cover. Ensure it is at least 5-6 mm.
- Before you continue with wrapping the sleeve, we need to fix it in the cable cover. Please proceed to the next step.

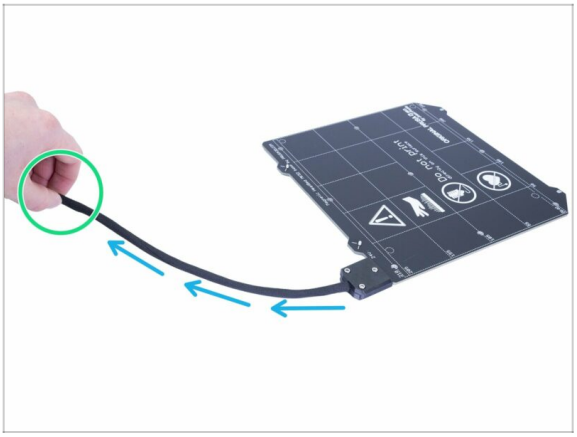
STEP 10 Securing the sleeve in place

- Take the smaller cover you have prepared earlier and place it like in the picture.
- Make sure the thermistor cable is in the middle going through a cutout in the printed part!!! **Otherwise, you will pinch and possibly break the cable!!!**
- Hold the cover and flip the heatbed back. Insert two screws M3x10 and tighten them, proceed with caution and tighten both screws equally.

⚠ Don't tighten the screw completely on one side and then on the other (see the second picture)!

- Your tightened cover should look like the last picture.

STEP 11 Finalizing the wrap



- Now, finish wrapping the cable into the textile sleeve.
- When done, slightly twist the sleeve (not the cables inside). The sleeve will evenly wrap all around the cable bundle.

STEP 12 Preparing the heatbed screws and spacers

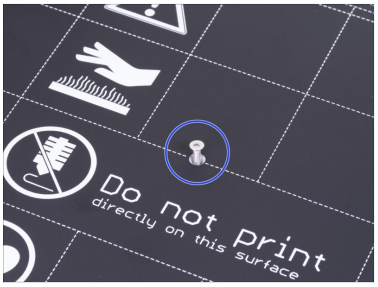
- **For the following steps, please prepare:**
- M3x12b screw (9x)
- 6x6x3t spacer (9x)

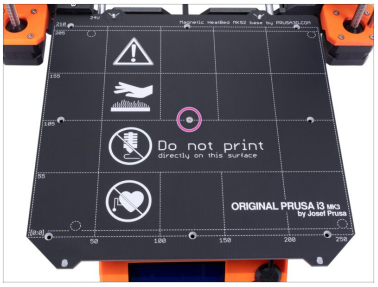
STEP 13 Mounting the heatbed (part 1)

- Push the Y-carriage to the front and place the Heatbed behind.
- Locate a hole in the centre of the Y-carriage.
- Place one spacer on the top of the hole.

ⓘ The exact position of the spacer will be adjusted in the next step.

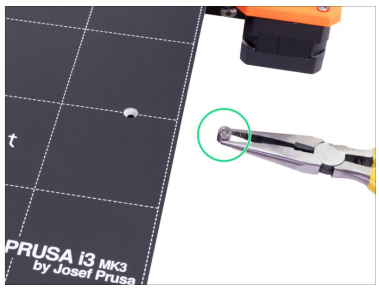
STEP 14 Mounting the heatbed (part 2)

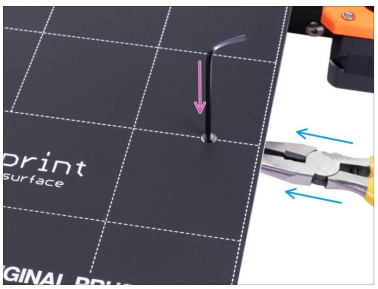




- Push the Allen key through the middle hole on the Heatbed and place it above the spacer. Use the Allen key to align all parts.
- After the alignment insert the M3x12b screw instead.
- Tighten the screw just slightly.

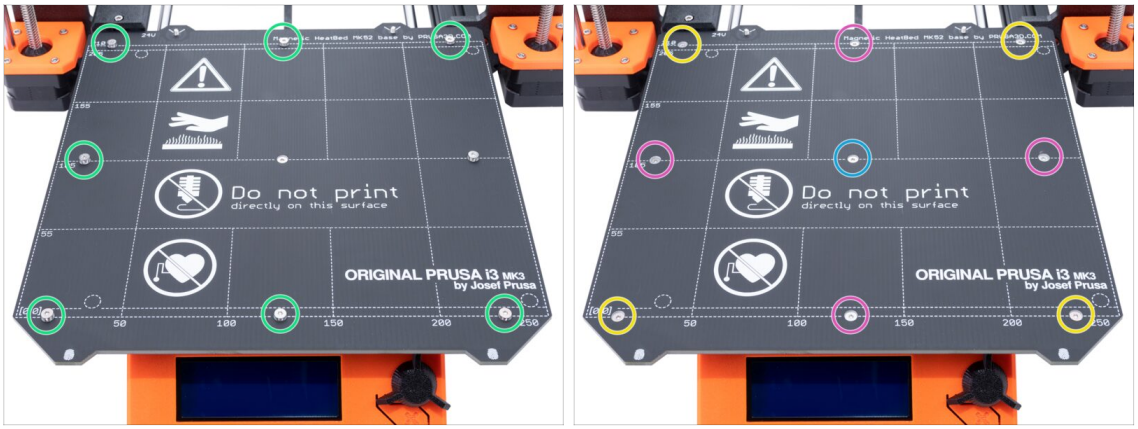
STEP 15 Mounting the heatbed (part 3)





- Move to the right side of the heatbed.
- Place another spacer with the pliers.
- Push the pliers between the heatbed and the Y-carriage.
- Use the Allen key to align the spacer.
- After the alignment insert the screw instead and tighten it slightly.

STEP 16 Mounting the heatbed (part 4)



- Using pliers insert spacers and screw into the remaining holes. DON'T fully tighten the screws.
- After all screws are in place, tighten them in the following order:
  - Center screw
  - First four screws (edges)
  - Last four screws (corners)

STEP 17 Preparing the PSU parts

- **For the following steps, please prepare:**
- 24V power supply (1x)
- Power panic cable (1x)
- PSU-cable (2x)
- M4x10r screw with dome head (2x)
- M3x10 screw (2x)

The PSU is designed to work worldwide and automatically switch to the local voltage.

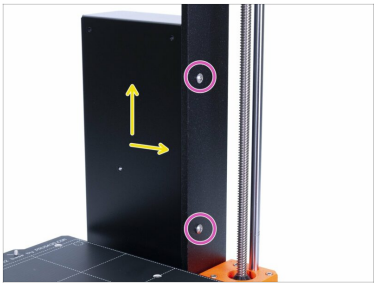
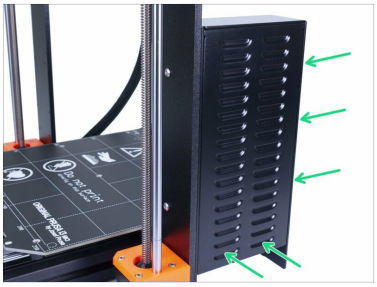
The cable terminals (connectors) have a different width, make sure you follow the instructions. The blue terminals won't fit the Einsy board.

STEP 18 Assembling the PSU

- Turn the back of the printer towards you and locate the PSU holders. Insert M3x10 screws into them. Make only 3-4 turns, it should be enough to hold the PSU for now.
- Take the PSU and place it above the screws. Adjust the span of the PSU holders.
- Slide the PSU on the screws and tighten them, but not too firmly. We need to adjust the position in the next steps.
- Make sure you can slide with the PSU up and down.

The screws should be able to hold the PSU in a "vertical" position for now.

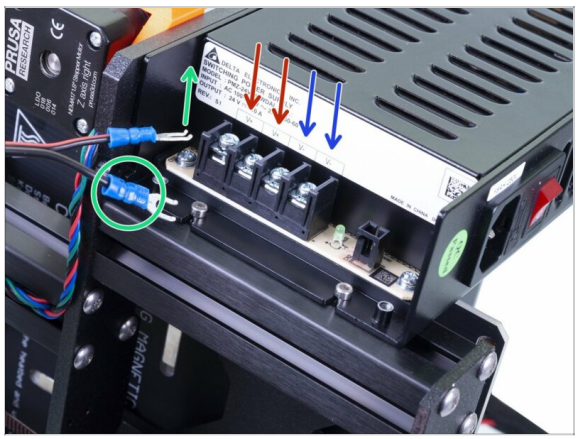
STEP 19 Assembling the PSU


⚠ **FOLLOW THE INSTRUCTIONS**, there is a risk of **DEFORMING THE FRAME!**

- Insert M4 screws in both holes in the frame.
- Adjust the position of the PSU, there are holes in the casing, which must align with the holes in the frame. By default the PSU is lower than needed, pull it slightly up.
- Tighten the M4 screws but not too firmly, wait for the next instruction.
- Before tightening the M4 screws, make sure the PSU is pressed against the printer (aluminium extrusion) and also in direct contact with the vertical frame.
- Everything aligned? Tighten the M4 screws.
- Now, tighten the M3 screws connecting the PSU with the extrusion.

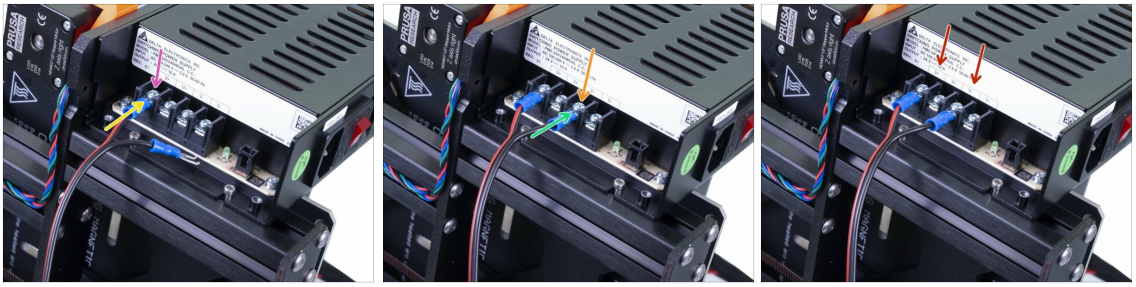
STEP 20 Connecting the power cables (CRITICAL)



⚠ **WARNING: Triple-check you have connected the cables correctly!!!** There is a risk of damaging the PSU or the printer itself, if the cables are connected incorrectly or not tightened properly!!!

- **Make sure the bent part of the cable connector is always facing up!!!** Use the side with the blue cover. These connectors are slightly wider and won't fit in the Einsy board.
- **Note that the polarity on the PSU is:**
  - Positive
  - Positive
  - Negative
  - Negative
- **Keep this in mind while connecting the cables!** The next step shows the correct wiring of the cables.

STEP 21 Connecting the power cables



- Release the screw on the **FIRST** (positive) slot from the left.
- Take the first power cable and choose the **RED** wire, slide it all the way in. Make sure the steel washer is above the "fork" connector.
- Tighten the screw firmly, but keep in mind some parts are made from plastic.
- Release the screw on the **THIRD** (negative) slot from the left.
- Take the same cable and choose the **BLACK** wire, slide it all the way in. Make sure the steel washer is above the "fork" connector.
- Tighten the screw firmly, but keep in mind some parts are made from plastic.

⚠ **Check the connection again!** The red wire is in the first slot and black in the third. Make sure that cables are properly tightened. Otherwise, there is a risk of damage to the printer!

STEP 22 Connecting the power cables

- Release the screw on the **SECOND** (positive) slot from the left.
- Take the second cable and choose the **RED** wire, slide it all the way in. Make sure the steel washer is above the "fork" connector.
- Tighten the screw firmly, but keep in mind some parts are made from plastic.
- Release the screw on the **FOURTH** (negative) slot from the left.
- Take the same cable and choose the **BLACK** wire, slide it all the way in. Make sure the steel washer is above the "fork" connector.
- Tighten the screw firmly, but keep in mind some parts are made from plastic.

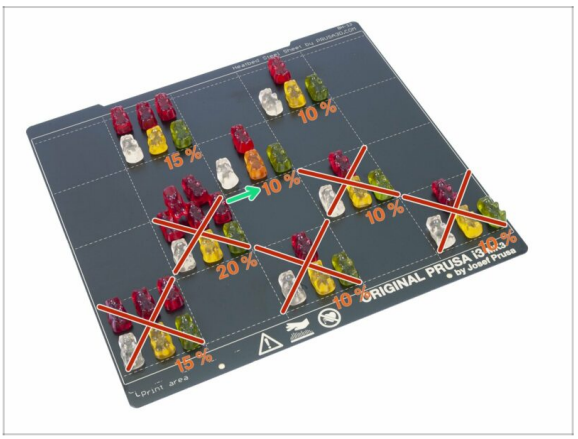
⚠ **Check the connection again!** The red wire is in the second slot and black in the fourth. Make sure that cables are properly tightened. Otherwise, there is a risk of damage to the printer!

STEP 23 Connecting the power panic

- Take the Power panic cable and connect it to the PSU. Both ends of the cable are the same, use any.
- Gently bend the Power panic cable and place it close to the power cables (PSU-cable). Be careful as you might snap the entire connector from the board, keep that in mind until the printer is fully assembled, **don't pull the cable.**
- Guide the cables to the other side of the printer. We will fix them to the frame later on.

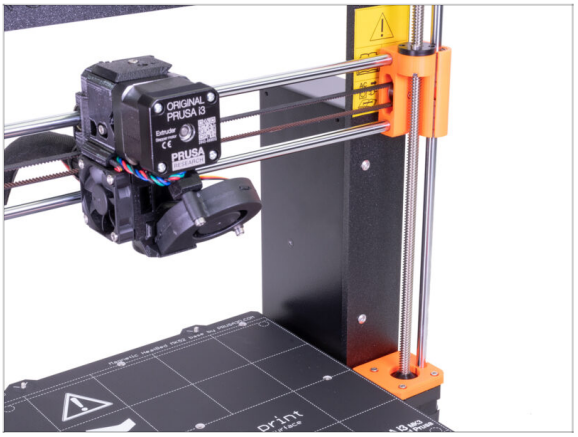
ⓘ Don't place the cover on the PSU, wait for the next chapter.

STEP 24 Haribo time!



- Slightly harder chapter, but have 10 %. We need to keep more for the next.

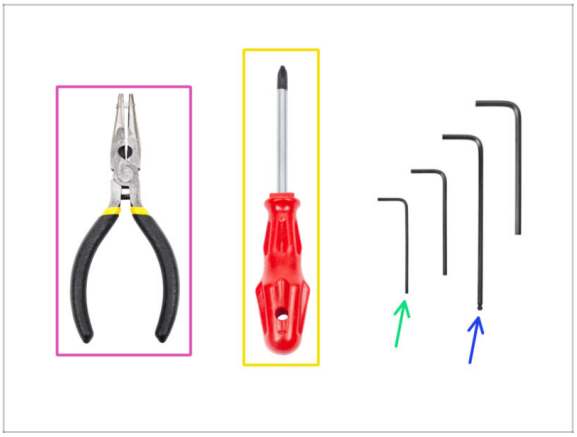
STEP 25 Heatbed and PSU are done!



- **You're getting closer!** Just one more chapter and the assembly is done!
- Check the final look, compare it to the picture.
- ⚠ **Don't place the steel sheet on the heatbed yet.** Wait for the instructions in the Wizard during the calibration process.
- Ready for the last assembly part? Let's jump into: **8. Electronics assembly**.

8. Electronics assembly

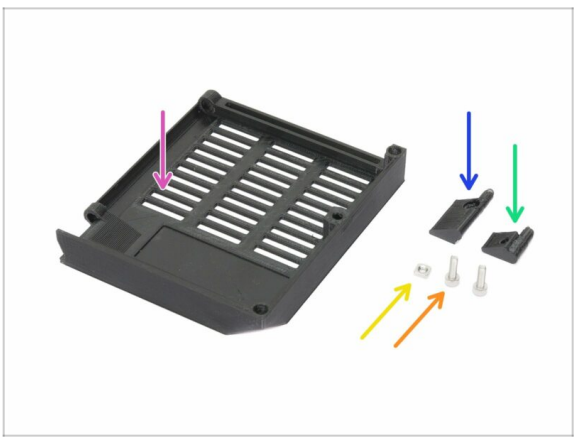
STEP 1 Tools necessary for this chapter



- Needle-nose pliers for zip tie trimming.
- Philips screwdriver to tighten PSU and HB cables
- 1.5mm Allen key for nut alignment
- 2.5mm Allen key for M3 screws

⚠ **WARNING:** Make sure to **protect the electronics against electrostatic discharge (ESD)**. Keep the Einsy board in the antistatic bag until it is needed for the assembly.

STEP 2 Preparing the Einsy-door (part 1)



- **For the following steps, please prepare:**
- Einsy-door (1x)
- Einsy-hinge-top (1x)
- Einsy-hinge-bottom (1x)
- M3nS nut (1x)
- M3x10 screw (2x)

STEP 3 Preparing the Einsy-door (part 2)

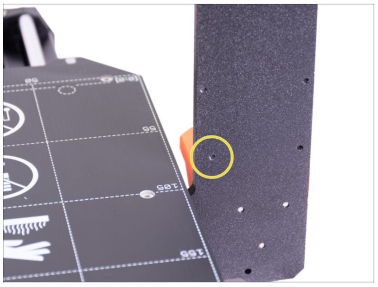
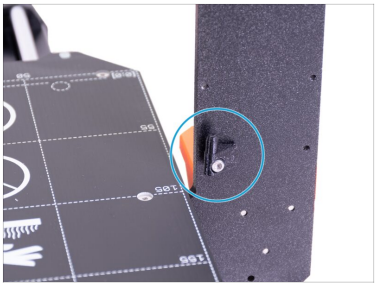
- Insert M3nS nut all the way in. You can use the small screw driver to push it down if needed.
- Check the proper alignment with the Allen key.

⚠ If this nut is **loose** in the slot then it can easily fall out and then possibly short some electrical contacts on the Einsy board whenever you open your Einsy case.

STEP 4 Identifying mount holes

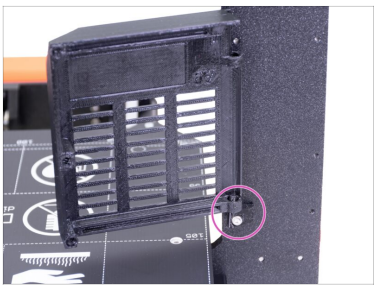
- Turn the rear side of the printer towards you.
- Holes with blue arrows will be used to mount the hinges for the Einsy-door.

STEP 5 Preparing the lower hinge

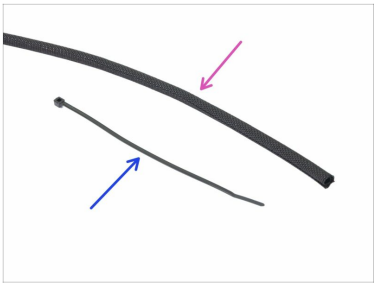
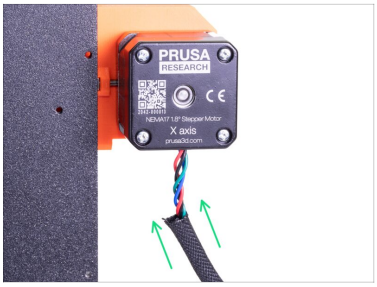
- Take the Einsy-hinge-bottom and push M3x10 screw through.
- Note there is a cutout for the screw's head in the printed part.
- Locate the hole for the lower hinge.
- Place the hinge on the frame and tighten the screw. The hinge must be facing upwards.

STEP 6 Einsy-door assembly



- Place the Einsy-door on the lower hinge.
- Take the Einsy-hinge-top and push M3x10 screw through.
- Assemble the Einsy-hinge-top in the door and mount it to the frame.

STEP 7 Wrapping X-axis cable

- **For the following step, please prepare:**
- Textile sleeve 5 x 300 mm (1x)
- Zip tie (1x)
- Wrap the sleeve around the X-axis motor cable. The sleeve is shorter, than the motor cable.
- Secure the sleeve using a zip tie, you have to tighten the zip tie firmly and it is only a temporary fix until the Einsy case is assembled, but you can leave the zip tie in place afterwards

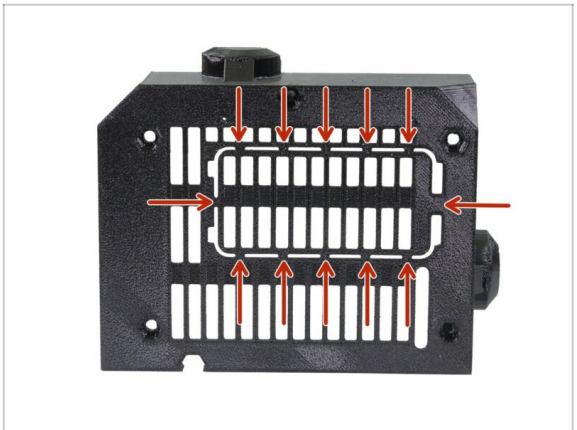
STEP 8 Preparing the Einsy-base (part 1)


- **For the following steps, please prepare:**
- Einsy-base (1x)
- M3x10 screw (6x)
- M3nS nut (4x)
- M3n nut (4x)
- EINSY RAMBo motherboard (1x) ***keep the silver label for later***

⚠ **New kit units are shipped with a silver label already affixed to the frame or on the rear plate.** Check the back of the frame to see if the label is already attached.

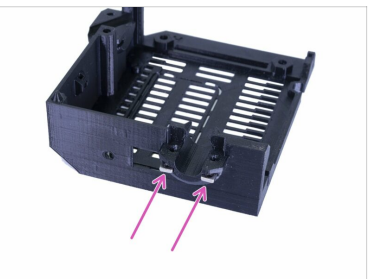
ⓘ Note that the anti-static bag will be opened upon arrival. Each board is taken out and tested before shipping.

STEP 9 Preparing the Einsy-base (part 2)



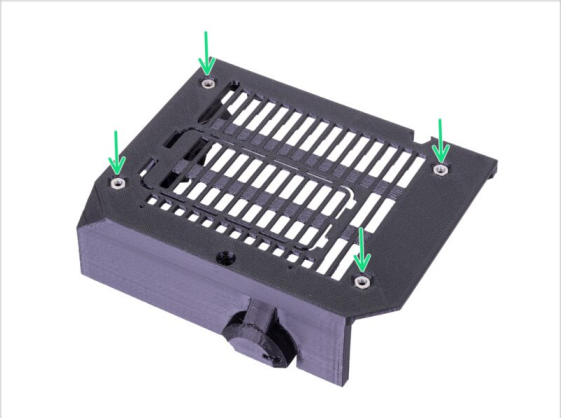
- Einsy-base has a maintenance opening for the RPi Zero W or RPi Zero 2 W. If you intend to use this mini computer, you can carefully cut the piece of the plastic now. More details here: help.prusa3d.com/article/prusaprint-rpi-zero-and-octoprint_2180

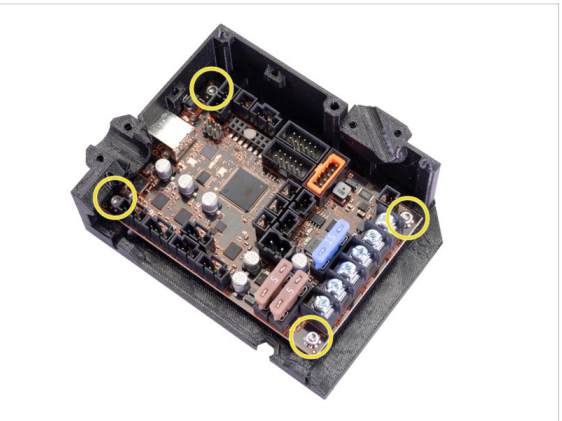
STEP 10 Preparing the Einsy-base (part 3)



- Take the four M3nS nuts you've prepared earlier and insert them in the Einsy case the following way:
  - Two nuts inside the heatbed holder (note one slot is from the inside of the cover)
  - Two nuts inside the extruder cable holder.
- Press the nuts all the way in.
- Check the proper alignment using an Allen key.

STEP 11 Preparing the Einsy-base (part 4)



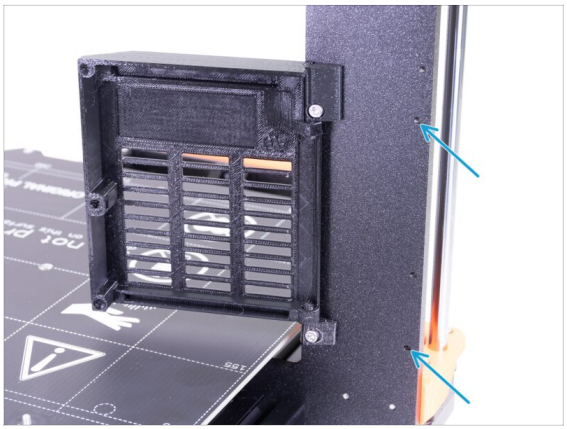


- Insert four M3n nuts in nut traps.
- Slide EINSY inside the base and tighten it with four M3x10 screws.

⚠ Tighten the screws carefully, you can damage the board.

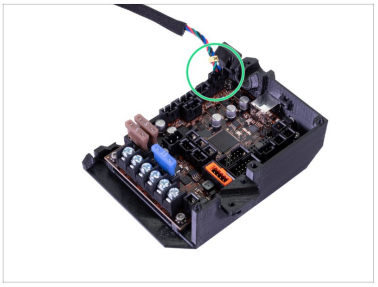
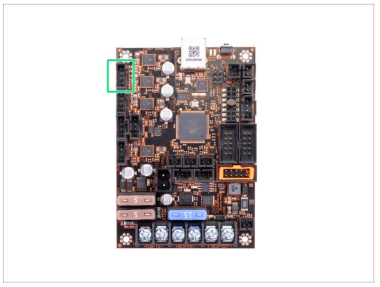
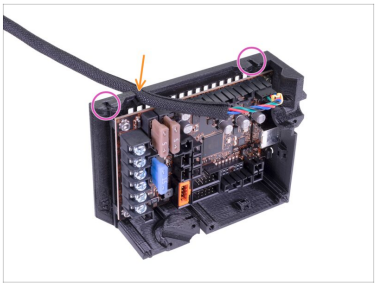
ⓘ Use the needle nose pliers to help with positioning the screws.

STEP 12 Mounting the Einsy-base (part 1)



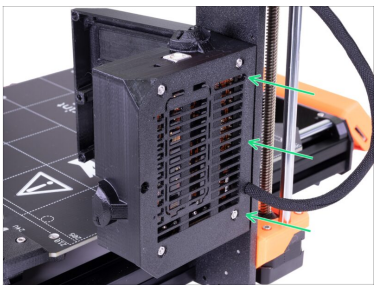
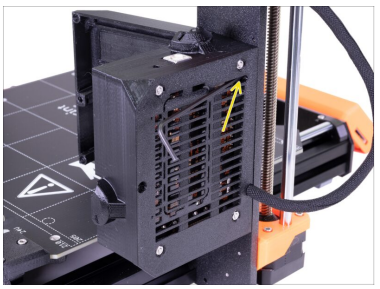
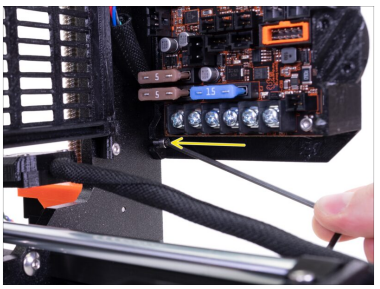
- Holes with blue arrows will be used to mount the Einsy-base.
- Insert M3x10 screws in the holes and tighten them just slightly. 3-4 turns are enough for now.

STEP 13 Mounting the Einsy-base (part 2)

- Before mounting the base on the frame, take the cable from X-axis motor (see the yellow label) and plug it in the EINSY.
- Push the textile sleeve in the slot and leave some slack of the cable along the board (don't stretch the cable).
- See the slots on the printed part, which will be used for the M3x10 screws (those are already on the frame).

STEP 14 Mounting the Einsy-base (part 3)

- Slide the Einsy-base on the prepared M3x10 screws and align it with the edge of the Z-axis frame.
- Using 2.5mm Allen key tighten both screws. See second and third picture.

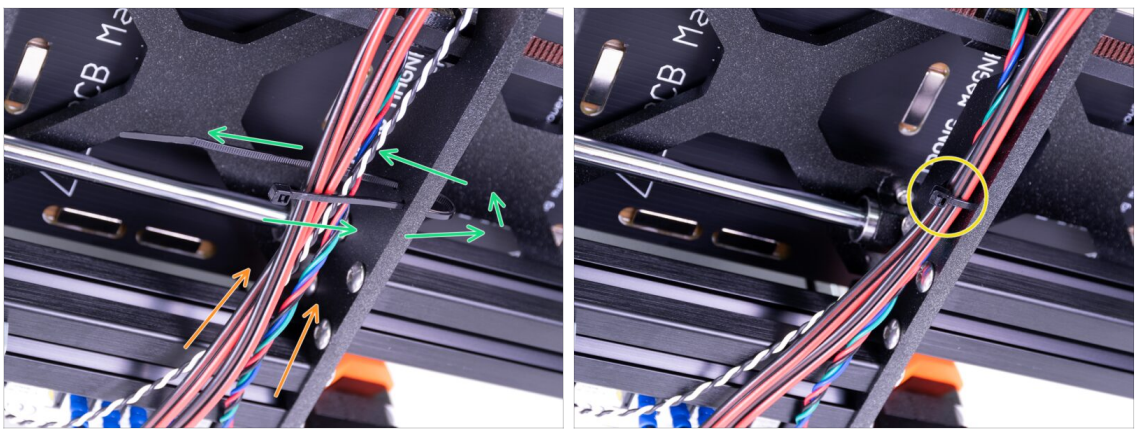
STEP 15 Cable management (part 1)

- In the following steps, we will manage all the cables on the printer. We've tested several ways and this seems to be the most efficient.

⚠ In the upcoming steps, **please tighten all zip ties carefully** as you might pinch/break the cables.

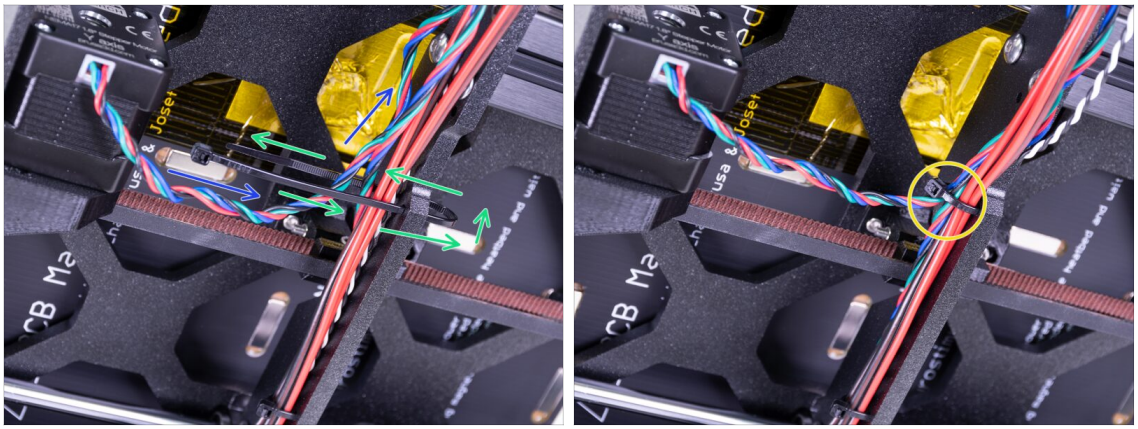
- Turn the printer on the PSU side, then guide the cables go below the extrusion.
- Start with the Z-axis motor (right).
- Slide the zip tie through the circular holes in the frame to create a loop.
- Push the cable gently in the zip tie and tighten it so it is snug and holding the wires. Be careful not to over tighten the tie as it can cut the wires . Cut the remaining part.

STEP 16 Cable management (part 2)



- Continue upwards and using another zip tie create the next loop.
- Insert Z-axis cable and all cables from the PSU. Make sure all the cables are below smooth rods and not interfering with the Y-carriage.
- Push the cable gently in the zip tie and tighten it so it is snug and holding the wires. Be careful not to over tighten the tie as it can cut the wires . Cut the remaining part.

STEP 17 Cable management (part 3)

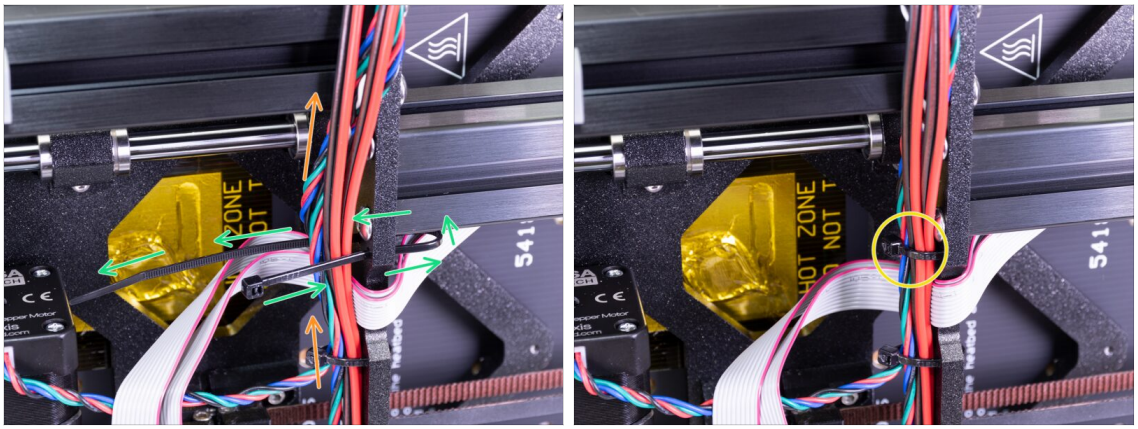


- Continue upwards and using another zip tie create the next loop.
- Insert Y-axis motor cable to the current bundle.
- Push the cable gently in the zip tie and tighten it so it is snug and holding the wires. Be careful not to over tighten the tie as it can cut the wires . Cut the remaining part.

STEP 18 Cable management (part 4)

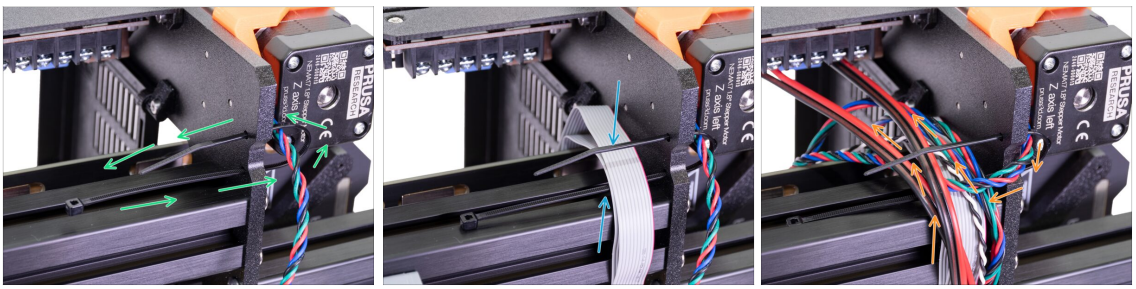
- Take the LCD cables and gently push them in the aluminum extrusion. Leave some slack, do not stretch the cables too much.
- Use the whole length of the extrusion.
- Bend the cable bundle down for now.
- Carefully fold the LCD cables around the frame.

STEP 19 Cable management (part 5)



- Continue upwards and using another zip tie create the next loop.
- Take the bundle of cables and place it over the LCD cables.
- Push the cables gently in the zip tie (excluding the LCD cables) and tighten it. Cut the remaining part.

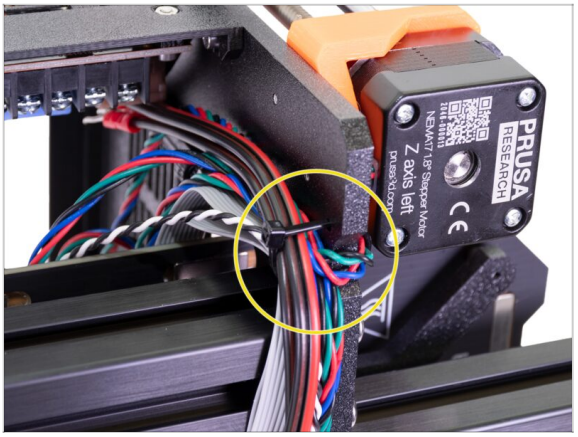
STEP 20 Cable management (part 6)



- Slide the zip tie through the circular holes in the frame to create a loop.
- This time place the LCD cables carefully in the zip tie.
- Insert the Z-axis left motor cable and all cables from the bundle.

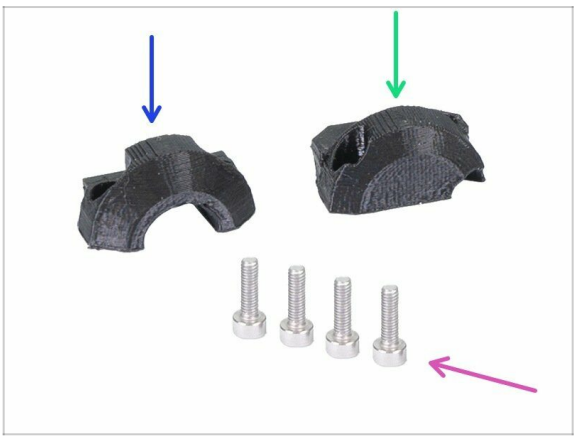
⚠ Don't tighten the zip tie! Wait for the next step.

STEP 21 Cable management (part 7)



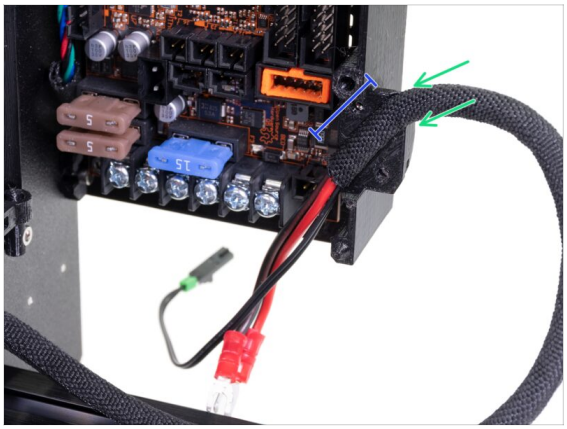
- Push the cables gently in the zip tie, before you tighten the zip tie, read the next point.
- ⚠ **This time be very careful!** Tighten the zip tie slightly or you will damage the LCD cables! The zip tie should be snug to hold the wires in place. Over tightening it can cut the wires!
- That's it! Cables are organised, let's connect them to the EINSY board. Now you can turn the printer back on its feet.

STEP 22 Connecting cable bundles



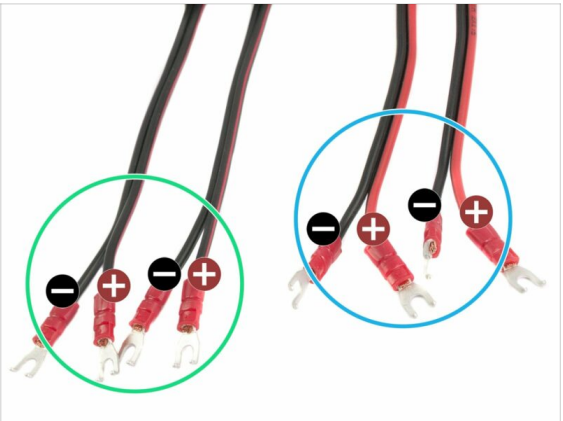
- **For the following steps, please prepare:**
- Extruder-cable-clip (1x)
- Heatbed-cable-clip (1x)
- M3x10 screw (4x)
- ⓘ Note the difference between both clips.

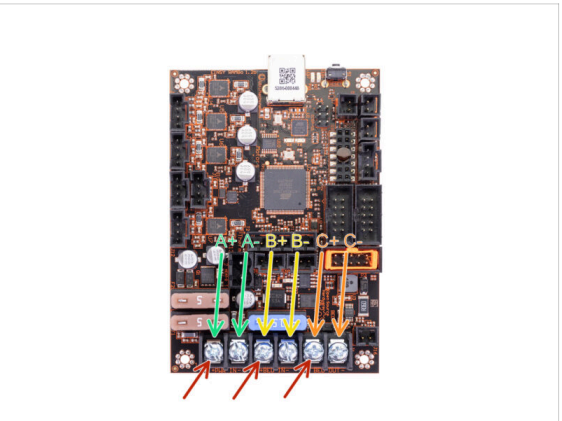
STEP 23 Connecting the heatbed cable bundle



- Insert the heatbed cable bundle including the textile sleeve in the Einsy-base.
- Make sure the sleeve is inside the holder, see the picture.
- Use the Heatbed-cable-clip and two M3x10 screws to fix the cable bundle in place. Note the correct orientation of the clip, try closing the door.

STEP 24 PSU and HB power cables





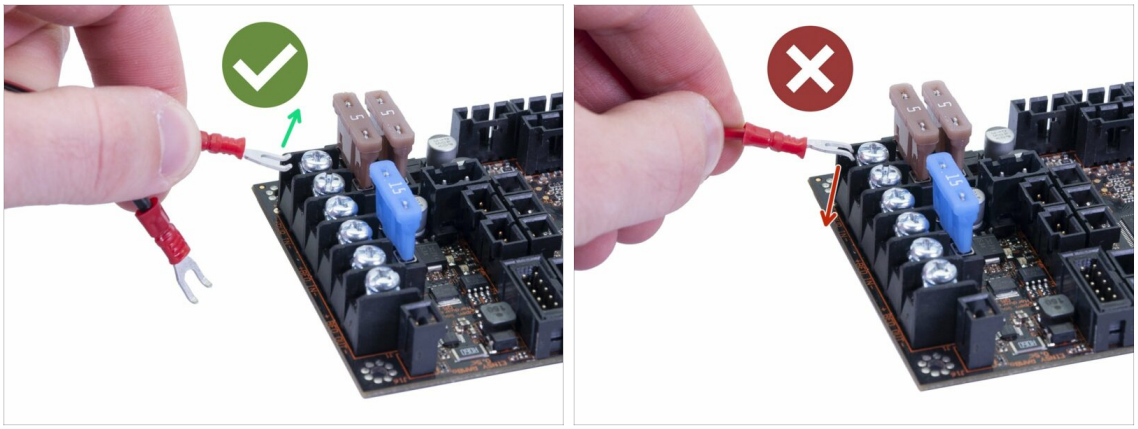
⚠ **IMPORTANT**: it is **CRUCIAL** to connect the PSU and HB cables in correct order to the EINSY board. **POSITIVE WIRE** must be connected to **POSITIVE SLOT**. There are **TWO VERSIONS** of the cables with different coloring system:

- **Version I**: either both wires on each pair are black, **POSITIVE WIRE** is marked with a **RED LINE**
- **Version II:** on each pair, there is a red and black wire. **POSITIVE WIRE** is **WHOLE RED**.

- Connect wires from PSU and HEATBED to the EINSY board in the following order (red arrows indicate positive slot):
- The first cable from the PSU (A+|A-).
- The second cable from the PSU (B+|B-).
- Cable from the heatbed (C+|C-).

ⓘ Both cables (two pairs) from the PSU are the same, their order doesn't matter, just ensure correct polarity.

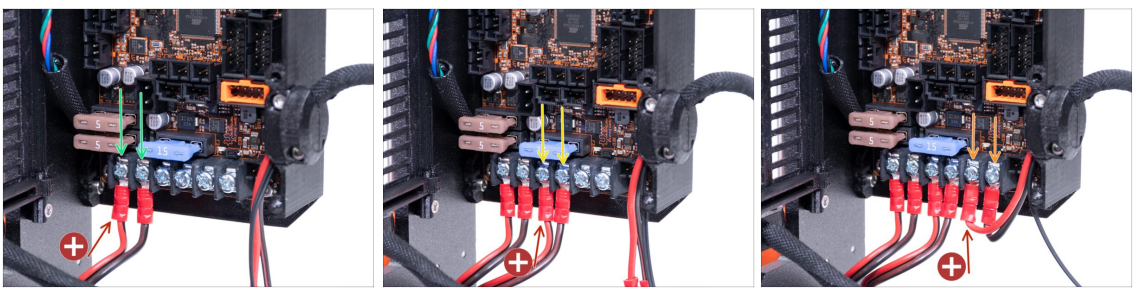
STEP 25 PSU and HB power cables



⚠ **PROPER ORIENTATION** of the **POWER CABLE** is **IMPORTANT!!!**

- **CORRECT**: Bent part of the connector is facing up. Push it below the square washer, all the way in.
- **INCORRECT**: Bent part of the connector is facing down. This will cause issues and might end up damaging the board!

STEP 26 PSU and HB power cables



⚠ Please make sure you have connected **POSITIVE** and **NEGATIVE polarity** as described in the previous step! Always place the wire with **POSITIVE** polarity in the positive slot on EINSY. See the pictures for red arrows.

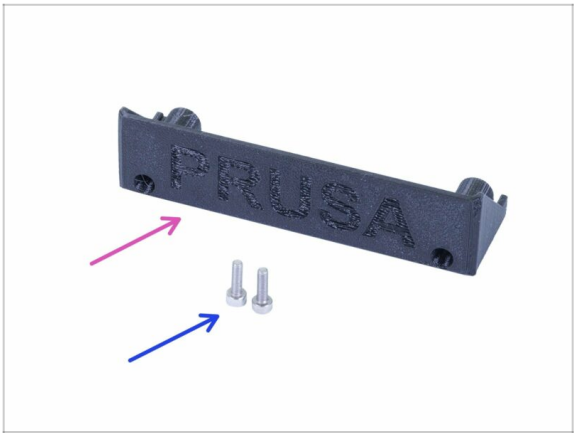
⚠ **Make sure the bent part of the cable connector is always facing up (away from the board)!!!** The same setup was used during the PSU assembly.

⚠ Check once more following setup:

- Take the first cable from the PSU and connect the pair of wires to the EINSY board. Use the bundled Philips screwdriver. **TIGHTEN** the screw firmly!
- Take the second cable from the PSU and connect the pair of wires to the EINSY board.
- The last pair of wires is from the heatbed. Connect them to the last two slots.

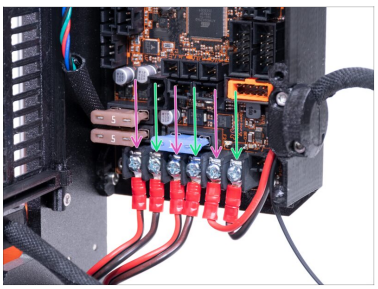
⚠ **Please note that not following these steps correctly could possibly void the warranty on the printer if any damage occurs!** Please take your time and double-check the correct connections and tighten the screws.

STEP 27 Preparing the PSU cover



- **For the following step please prepare:**
- PSU-cover-Delta (1x)
- M3x10 screw (2x)

STEP 28 PSU and HB - final check



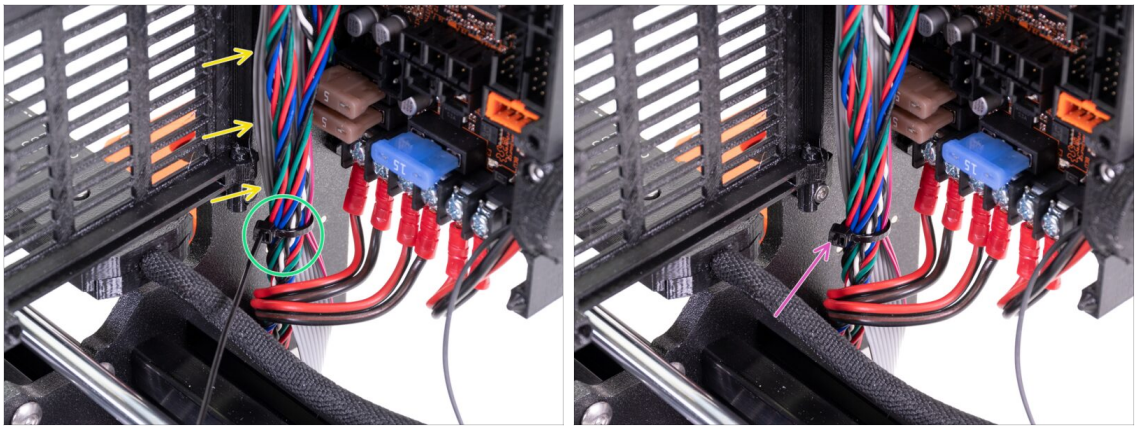
⚠ **Now it is time for the final check of the power cables**. Make sure you've connected the correct polarity and tightened the screws properly.

⚠ Note that the PSU and Einsy board have different order of the polarities, **ALWAYS look for the + / - signs!**

- **Red wire** - positive polarity (+)
- **Black wire** - negative polarity (-)

- Slide the cover on the cables from the top. Make sure the "PRUSA" logo is facing up.
- Secure the cover using two M3x10 screws. Note that the holes are quite deep.

STEP 29 Cable management

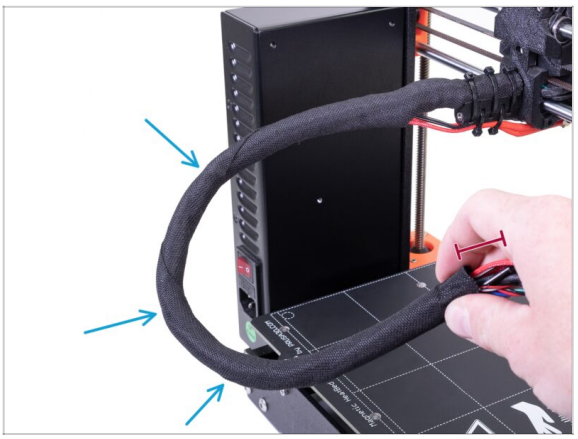


- Merge all cables leading from below the printer to the electronics. Guide the LCD cables along with the frame behind this cable bundle.
- Tie all the cables together. **Do not overtighten the zip-tie, you can damage the cables!**
- Cut the remaining part of the zip-tie.

STEP 30 Connecting the extruder cable bundle

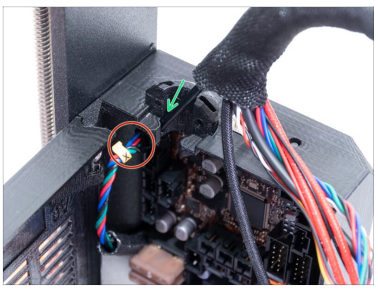
- Find the slot for the NYLON filament, you will need it in the next step.

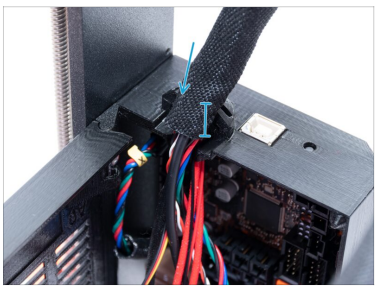
STEP 31 Wrapping the cable bundle

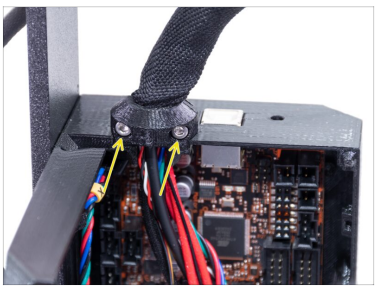


- Before we proceed further, we need to twist the textile sleeve. This will prevent the cables inside to slip out during the printing.
- Using your fingers gently twist the sleeve (not the cables) and create several wraps.
- Twisting the sleeve will effectively shorten its length. In the next steps you might need to twist the sleeve slightly back to elongate it.

STEP 32 Connecting the extruder cable bundle



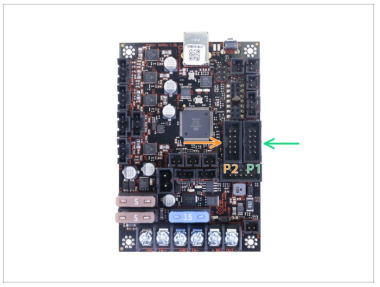




- Separate the nylon filament slightly from the rest of the cables. No need to unwrap the sleeve.
- Slide the NYLON filament in the hole.
- ⓘ If the nylon is hidden inside the textile sleeve, use the technique in the previous step to reach it.
- Make sure the filament isn't pushing into the X-axis motor cable, which would indicate it is too long and you need to slightly unwrap the sleeve and push the filament back.
- Slide the sleeve in the holder at least 3/4 of the holder's height.
- ⚠ Again, ensure the filament isn't pushing the motor cables and if needed slightly unwrap the sleeve and push the filament up.
- Use the Extruder-cable-clip and two M3x10 screws to fix the cable bundle in place

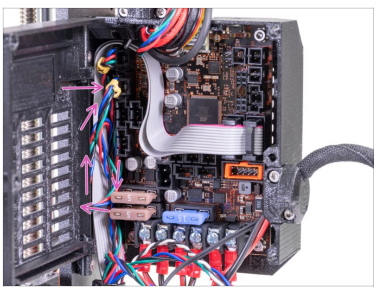
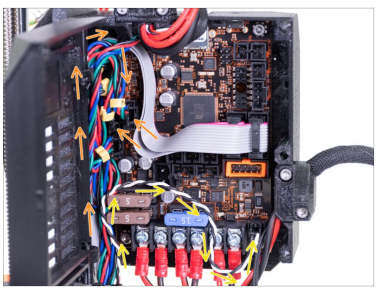
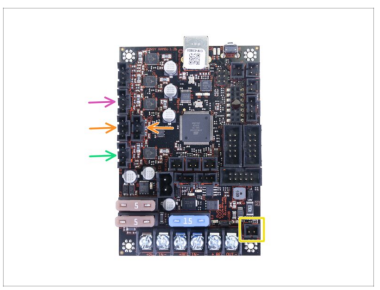
STEP 33 Connecting the LCD cables





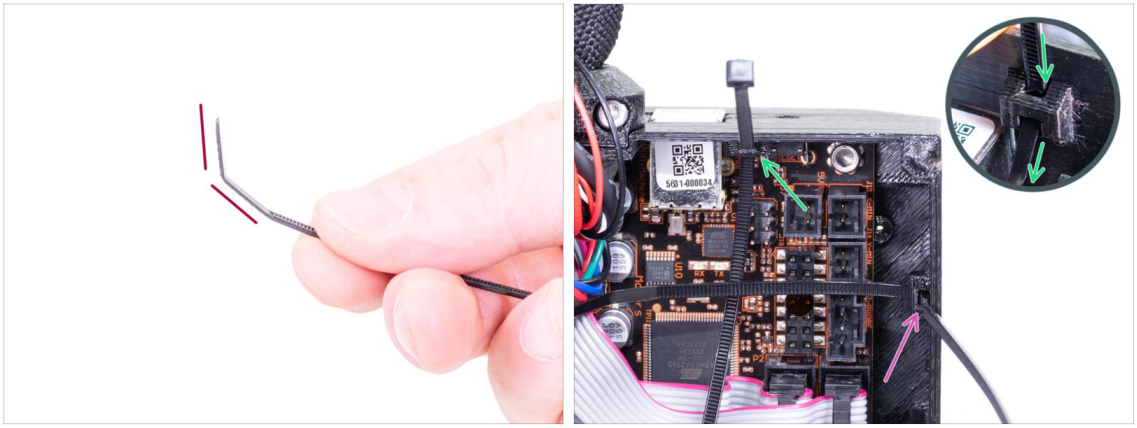
- Guide both LCD cables like in the picture. Push the cables behind the nylon filament.
- Take the LCD cables and see the marking on both cables.
  - Connect the LCD cable with **TWO** stripes to the left connector (P2)
  - Connect the LCD cable with **ONE** stripe to the right connector (P1)

STEP 34 Connecting the motor cables

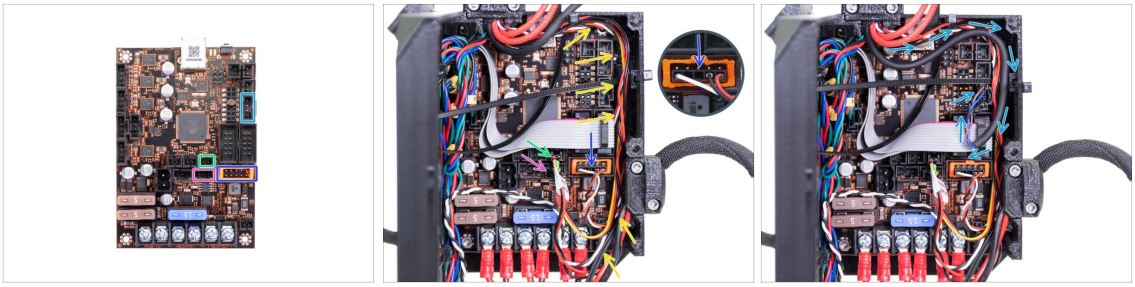
- X-axis motor is already connected.
- Connect the Y-axis motor cable (labelled Y) and make a loop with the cable like in the picture.
- Connect both Z-axis motors (labeled Z). The order doesn't matter. Make similar loops with the cables.
- Connect the Extruder motor cable (labelled E).
- Guide the Power Panic cable like in the picture and plug into the connector in the right bottom corner.

STEP 35 Preparing the zip ties



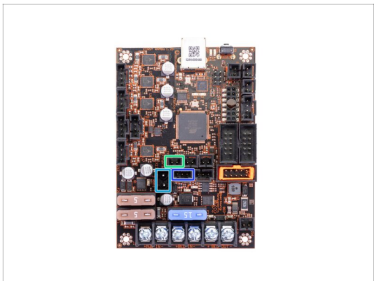
- Slightly bend the tip on two zip ties.
- There are two perforations in the right corner of the Einsy base. We will use them for securing the cable bundle.
  - Push the zip tie through the upper perforation.
  - Push the zip tie through the lower perforation.

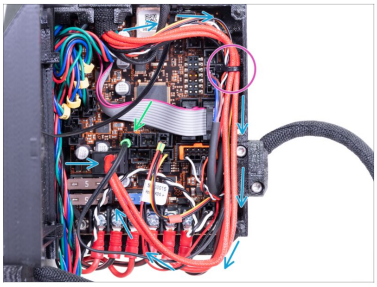
STEP 36 Hotend cable management (part 1)

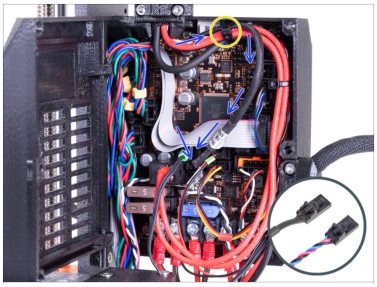


- Connect the IR filament sensor cable to the **lower row** of the connector. **That is crucial! Otherwise you can burn the sensor.**
- Verify the IR filament sensor plug orientation is the same as seen in the picture.
- Connect the print fan cable to the connector.
- Connect the hotend thermistor to the connector.
- Guide all these cables along the sides of the Einsy base box. Make sure they are guided inside both zip ties, so they can be tied later on.
- Guide the SuperPINDA sensor cable along the sides and connect it to the Einsy board.

STEP 37 Hotend cable guiding (part 2)







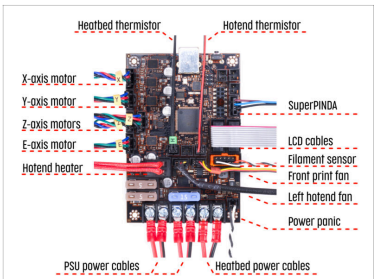
- Connect the heatbed thermistor cable (labelled H) to the Einsy board. Leave a slack on the cable.
- Connect the hotend heater cable to the Einsy board. Guide the cable like in the picture.
- Slightly tie the cable bundle with the lower zip tie. **Do not overtighten the zip tie!**
- Connect the hotend fan cable to the Einsy.

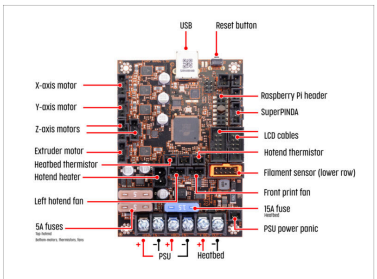
ⓘ **There are two variants of the hotend fan cable,** see the detail.

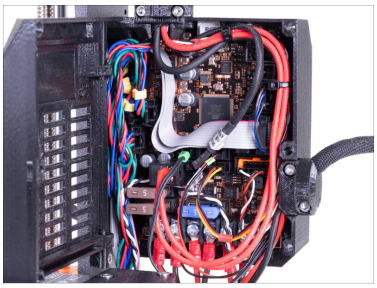
- The version with blue-pink-black cable bundle is longer. Create a larger loop with the cable.

- Tie the cable bundle with the upper zip tie. Make sure the hotend fan cable is included. **Do not overtighten the zip tie!**

STEP 38 Verify all connections once more!





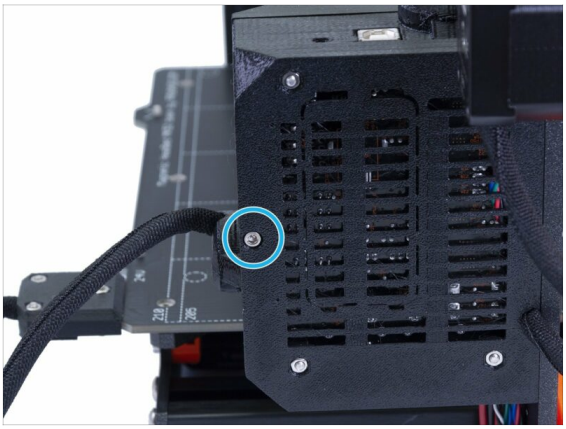


- Check your electronics connection with the first picture.
- Compare your cable management with the picture.

⚠ Make sure once more the Filament sensor cable is connected to all pins!
Misalignment might lead to permanently damaging the sensor.

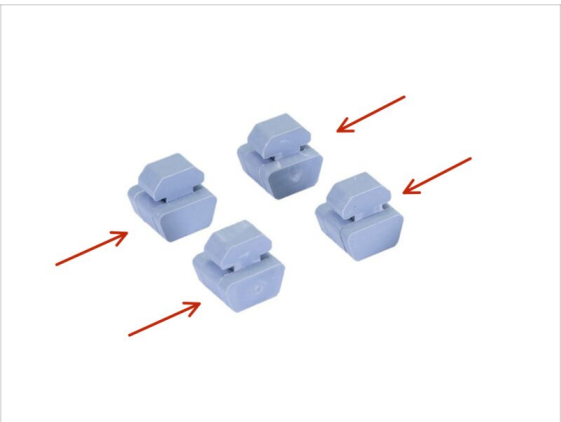
⚠ Make sure that all connectors are fully inserted and PSU cables properly tightened.
Otherwise, there is a risk of damage to the printer!

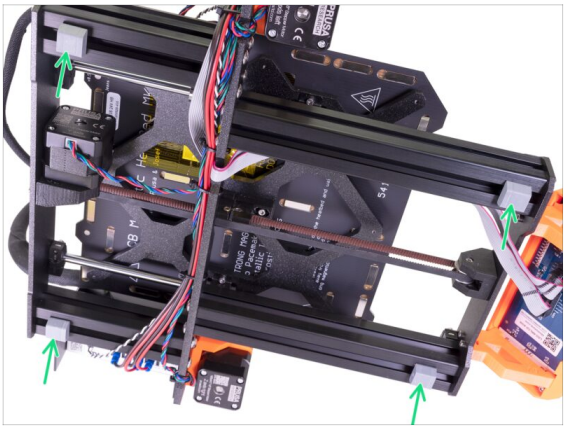
STEP 39 Finalizing the Einsy-case



- **For this step, please prepare:**
- M3x40 screw (1x)
- Close the Einsy-door.
- ⚠ Make sure that no wire is pinched!
- Tighten the M3x40 screw.

STEP 40 Mounting antivibration feet



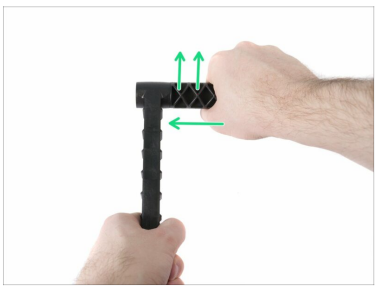


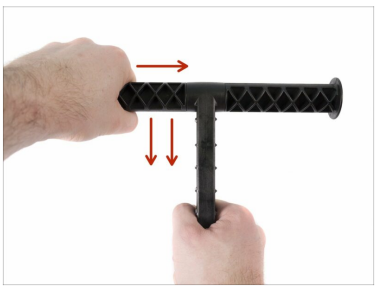
- If you've assembled the feet in the second chapter, you can skip this step.
- Antivibration feet (4x)
- Turn the frame on its side, insert feet and turn 90 degrees to lock them in place.
- Repeat this process on all 4 feet. Place them 2-3 cm from the end of each extrusion.

STEP 41 Assembling the double spool holder (part 1)

- **For the following steps, please prepare:**
- Centre part (1x)
- Side arm (2x)

STEP 42 Assembling the double spool holder (part 2)





⚠ **Don't use excessive force during the assembly**, or you might damage the spool holder locking system.

- Place all three parts in front of you. Note both "arms" are identical. Make sure the C shaped part, which will snap on the printer's frame is facing towards you.
- Take the "arm" on the right side, insert it gently in the main part and start to rotate clockwise (away from you). It should take about half the turn to lock the part in place.
- Take the "arm" on the left side, insert it gently in the main part and start to rotate anticlockwise (towards you). It should take about half the turn to lock the part in place.

ⓘ The assembly requires a very small force (torque). If you experience issues, check first the locking mechanism for obstacles.

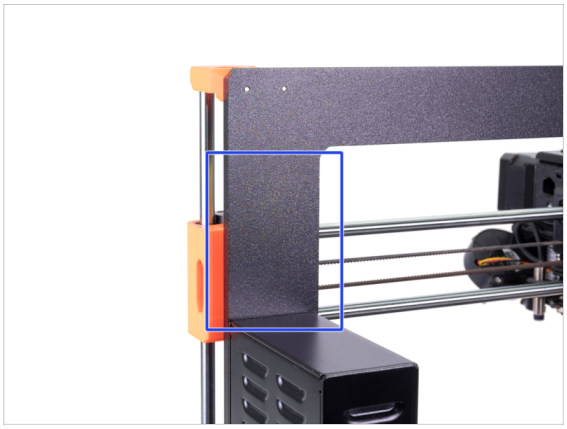
STEP 43 Mounting the double spool holder



- To properly mount the spool holder, let the "tooth" sit on the frame (in the middle) and then press in the direction of the arrows (push backwards, while slightly pressing downwards).

⚠ Don't try to assemble spool holder by pushing it only from the top. More force is needed and you may damage the holder.

STEP 44 Attaching the silver label



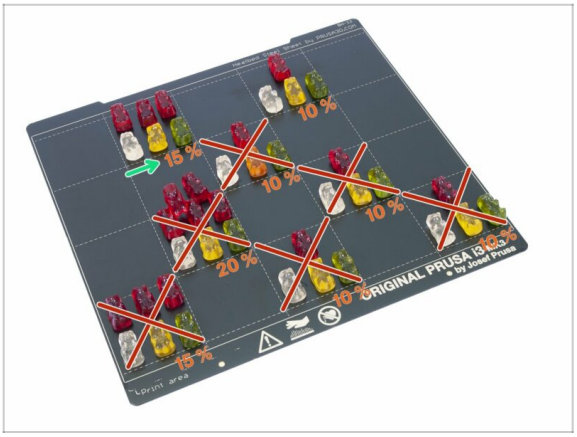

⚠ **New kit units are shipped with a silver label already affixed to the frame or the rear Y-axis plate.** If you already have a label affixed by us, skip this step.

⚠ **WARNING:** This step is important, don't skip it! The silver label includes the printer's serial number and other important information. Its presence is necessary for any warranty claim. **In case the label is already on the frame, please skip this step.**

ⓘ The **silver label with the serial number is placed on the bag with EINSY RAMBo** electronics, which you prepared at the beginning of this chapter.

- Rotate the printer, so that the rear side with the PSU and electronics faces towards you.
- Locate the part of the frame above the PSU, if possible clean this area to remove any dirt or grease.
- Carefully peel off the protective layer and attach the label onto the frame. Ensure there is no air trapped below the label.

STEP 45 Haribo time!

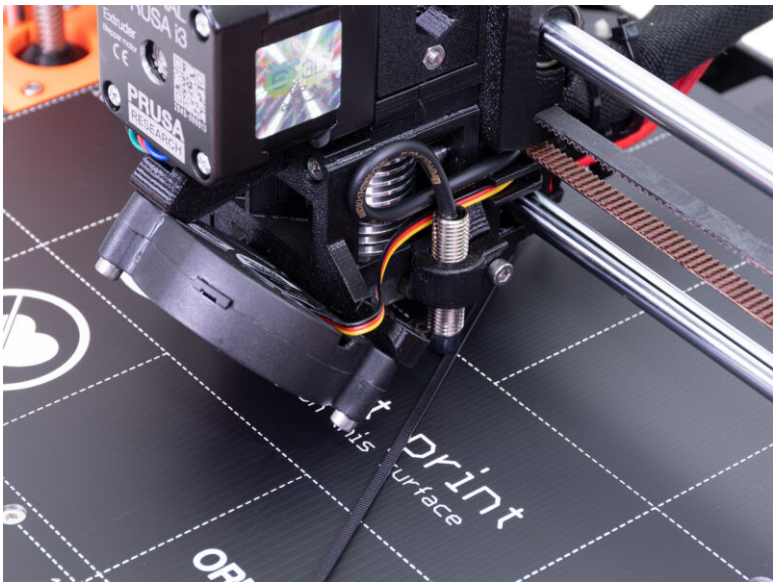


- Phew! That was a lot of work to do. Eat 15 % of the bears.

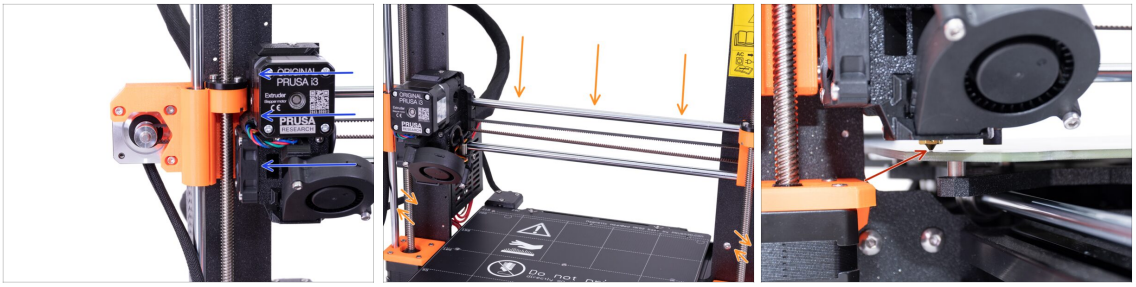
STEP 46 Hooray!

- Congratulations, you've just assembled the **Original Prusa i3 MK3S+** 3D printer!
- You're almost there... Just finish the chapter **9. Preflight check**.

9. Preflight check



STEP 1 SuperPINDA adjustment (part 1)



⚠ Ensure the printer is turned off and not plugged in.

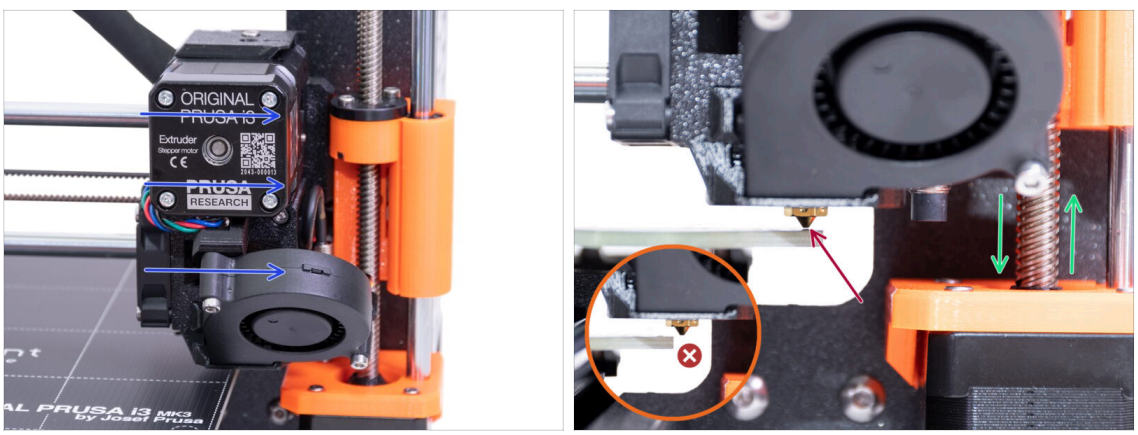
ⓘ While moving with the extruder, the X-axis motor works as a generator. You will create a small amount of electricity and the LCD might flicker. Move with the extruder reasonably slowly and in the future always use the printer's controls.

- Move the extruder manually all the way to the left.
- By rotating BOTH threaded rods at the same time on the Z-axis move the nozzle until you reach the heatbed. Try rotating both the rods equally!

⚠ Check again from a different angle the nozzle is touching slightly the heatbed. Don't bend the heatbed!

ⓘ Don't place the steel sheet on the heatbed during the entire SuperPINDA sensor adjustment process. Wait for the XYZ calibration.

STEP 2 SuperPINDA adjustment (part 2)

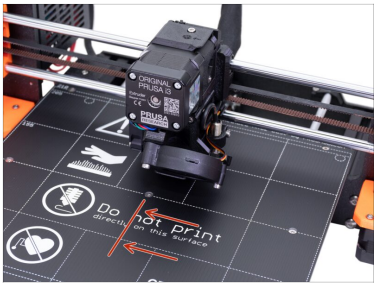
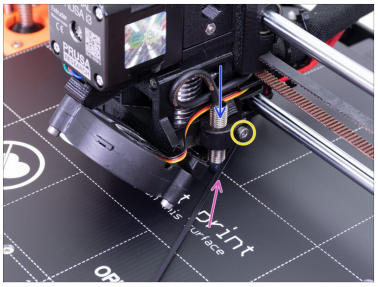
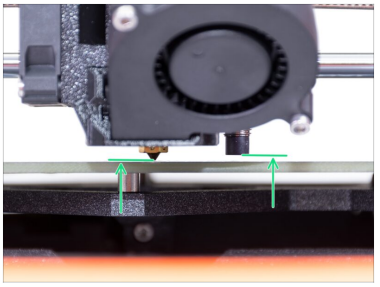


- Move the extruder carefully to the right so that the nozzle is still above the heatbed area just before its edge. **Not out of the heatbed area!**

⚠ Make sure that the nozzle is not scratching the surface during the movement! If it does, rise the right side of the X-axis by rotating the right Z motor (threaded rod) slightly clockwise.

- If an adjustment is needed, you can lower the nozzle height by rotating the right Z motor (threaded rod) counter-clockwise.

STEP 3 SuperPINDA adjustment (part 3)

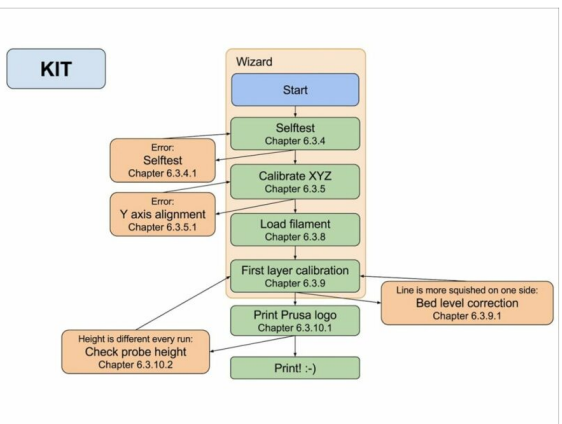




- Move the extruder to the centre of the X-axis.
- Take a zip tie from the package and place it under the SuperPINDA sensor. Use the middle part of the zip tie, not the tip.
- Release the screw holding the SuperPINDA sensor and gently press it against the zip tie.
- Tighten the screw on the SuperPINDA holder again.

⚠ **!!! DO NOT use glue to fix SuperPINDA sensor** in the new type of holder with the M3 screw, you won't be able to release it again !!!

- A correct height of the SuperPINDA sensor compared to the nozzle should be similar to the last picture.

STEP 4 Quick guide for your first prints

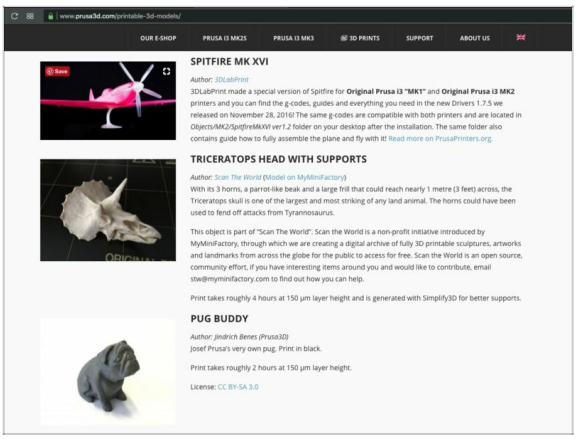


ⓘ See our free **3D Printing Handbook** - prusa3d.com/3dhandbookMK3S+

- Read the chapters *Disclaimer* and *Safety* instructions
- Read the chapter *Setup before printing*.

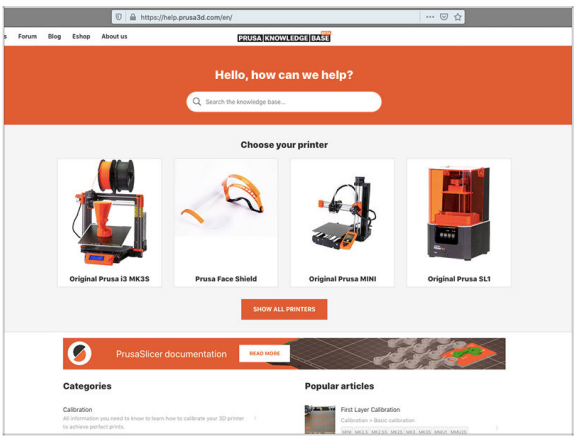
⚠ Calibrate the printer by following the chapter *Calibration flow and wizard*. Please follow the steps exactly, otherwise you can permanently damage the print surface!

STEP 5 Printable 3D models



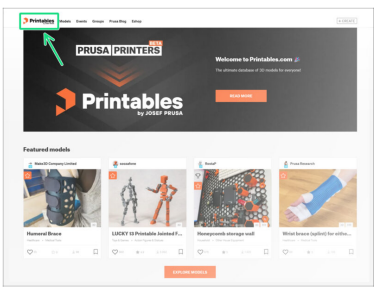
- Read the chapter *Printing* in 3D Printing Handbook.
- **Congratulations! You should be ready to print by now ;-)**
- You can start by printing some of our test objects bundled on the included SD card - you can check them out here prusa3d.com/printable-3d-models

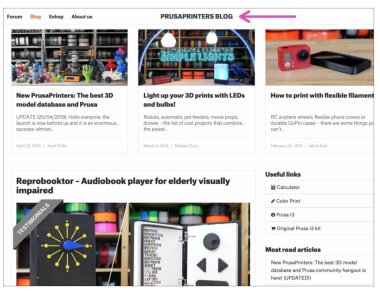
STEP 6 Prusa knowledge base

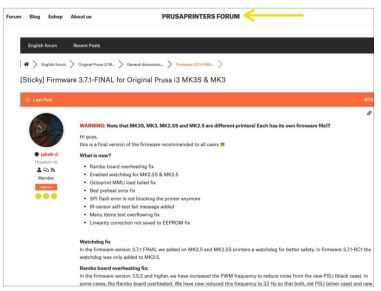


- If you encounter any problems at all, don't forget you can always check out our knowledge base at help.prusa3d.com
- We're adding new topics every day!

STEP 7 Join Printables!

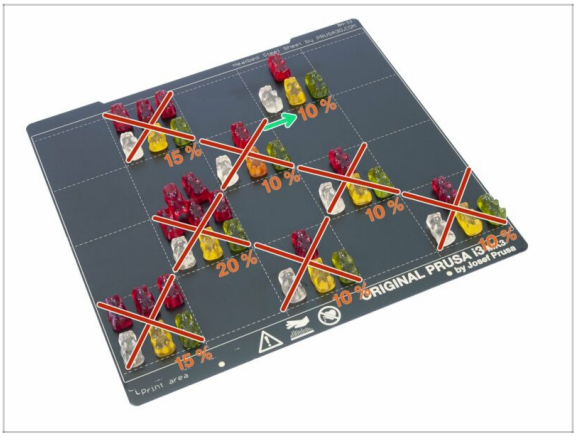






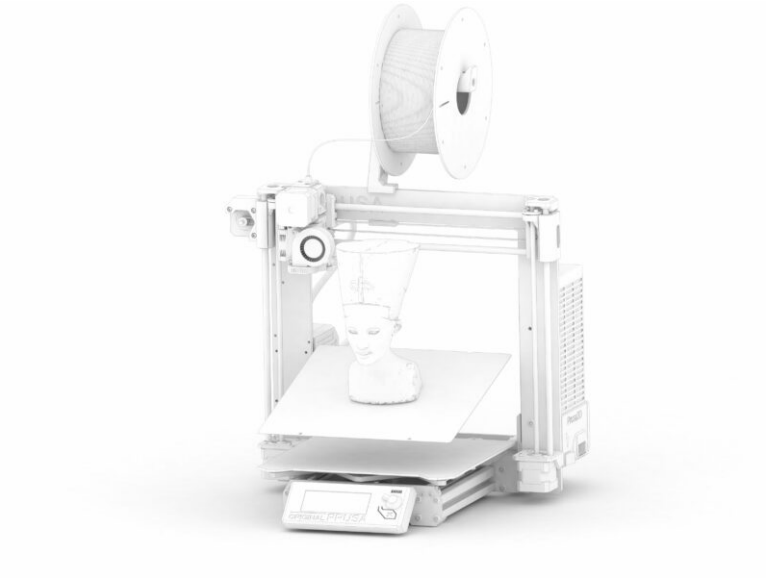
- **Don't forget to join the biggest Prusa community! Download the latest models in STL or G-code tailored for your printer. Register at Printables.com**
- Looking for an inspiration on new projects? Check our blog with weekly updates.
- If you need help with the build, check out our forum with great community :-)
- ⓘ All services share one account.

STEP 8 Haribo time!

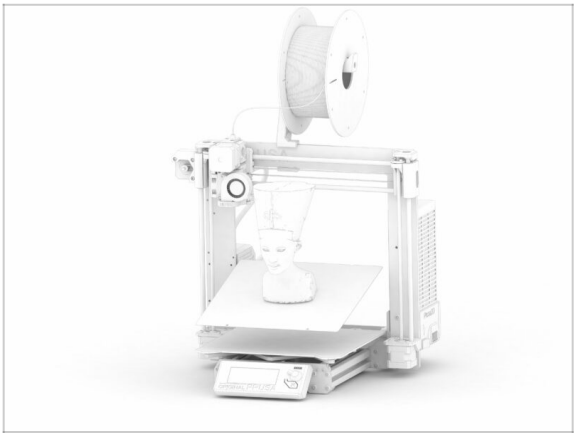


- **That's it, the assembly is over.** Calibrate the printer according to the Handbook and you are ready to print!
- Eat the remaining bunch of bears.
- **We hope, you've enjoyed the build. Don't forget to leave feedback and see you in the next one :)**

Manual changelog MK3S+ kit

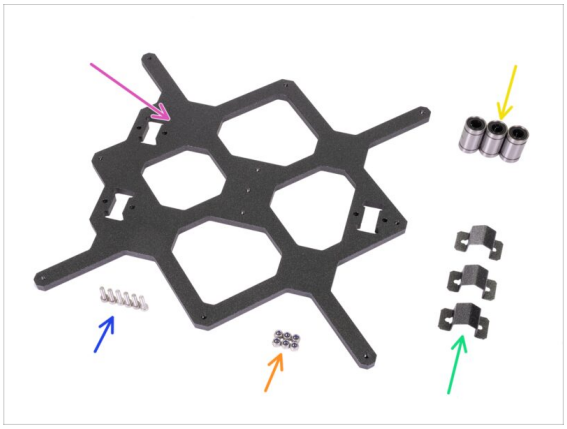


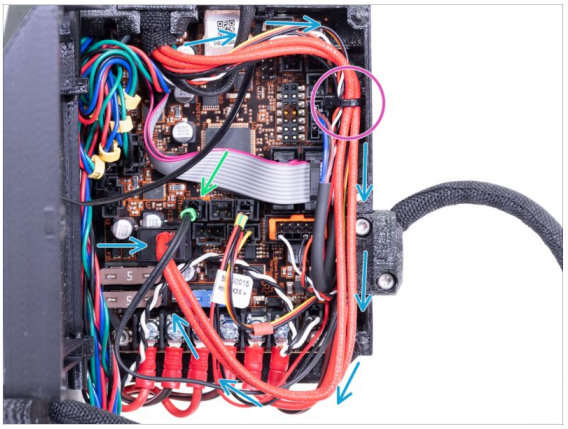
STEP 1 Versions history



- **Versions of the MK3S+ manual:**
  - 11/2020 - Initial version 3.20
  - 01/2021 - Updated to version 3.21
  - 02/2021 - Updated to version 3.22
  - 09/2021 - Updated to version 3.23
  - 11/2021 - Updated to version 3.24
  - 12/2021 - Updated to version 3.25
  - 4/2023 - Updated to version 3.26

STEP 2 Changes to the manual (1)

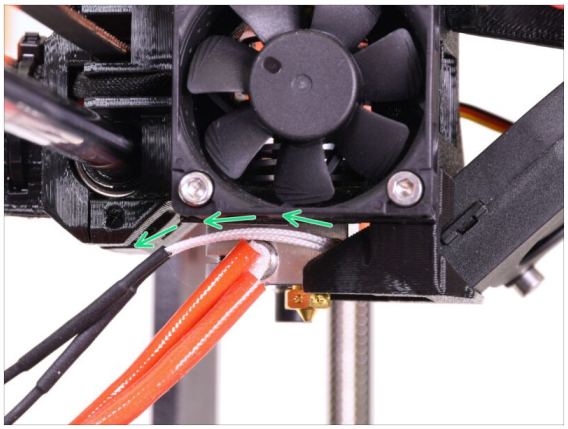




- 11/2020 - Y-axis assembly
  - The screw length has been changed. Current size M3x12.
- 11/2020 - Electronics assembly
  - Added description of the hotend heater cable connection, which was missing in the previous version.

ⓘ Manual version 3.21

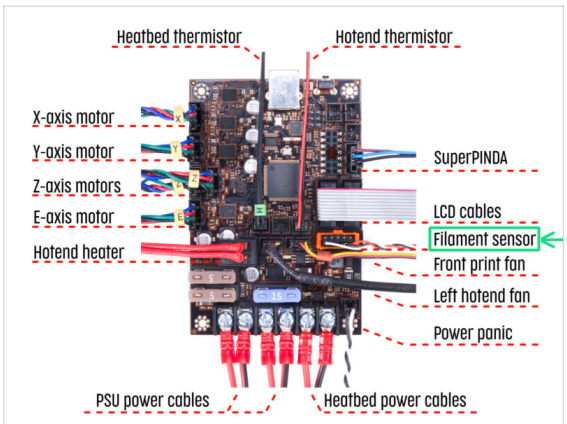
STEP 3 Changes to the manual (2)

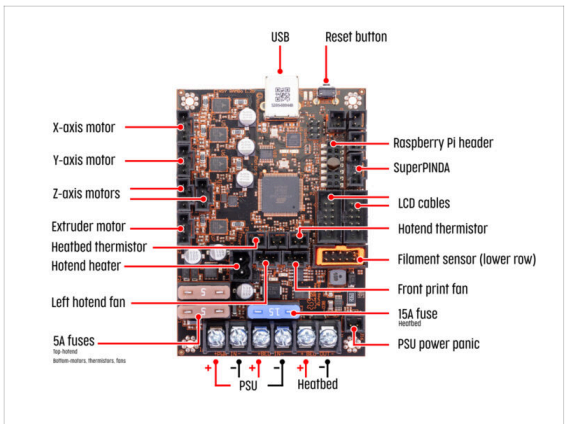


- 02/2021 - Y-axis assembly
  - New orientation of the X-axis bearings.
  - Added instructions of the proper hotend thermistor cable guidance.

ⓘ Manual version 3.22

STEP 4 Changes to the manual (3)





- 09/2021 - Electronics assembly
  - Updated wiring diagrams.

ⓘ Manual version 3.23

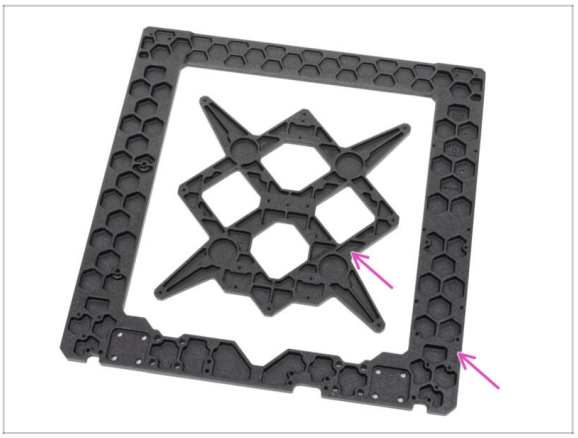
STEP 5 Changes to the manual (4)

- 11/2021 - Electronics assembly
  - New kit units are shipped with a silver label already affixed to the frame.
- Manual version 3.24

STEP 6 Changes to the manual (5)

- 12/2021 - E-axis assembly
  - New kits are supplied with a hotend fan from another vendor. Added instructions for this version of the hotend fan.
- Manual version 3.25

STEP 7 Changes to the manual (6)



- 04/2023 - Y-axis assembly
  - Added instructions for assembling the new version of the frame and Y-carriage.
- Manual version 3.26

Notes:

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