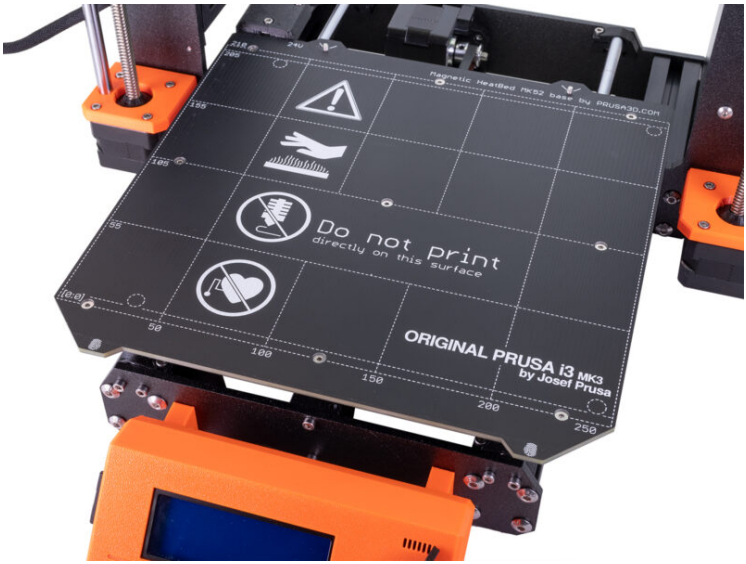
Table of Contents

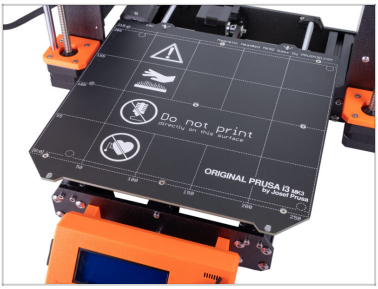
How to replace bearings on the Y-axis (MK3S+)



help.prusa3d.com/g210152

Scan the QR code to display the latest version of this chapter.

STEP 1 Introduction

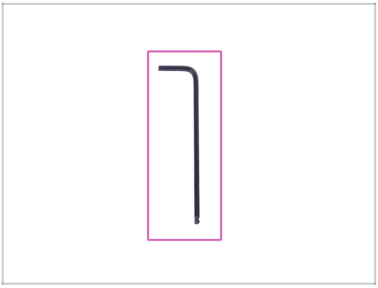


- This guide will take you through the replacement of the **Y-axis bearings** on the **Original Prusa i3 MK3S+**.
- All necessary parts are available in our eshop shop.prusa3d.com.

ⓘ Note that you have to be logged in to have access to the spare parts section.

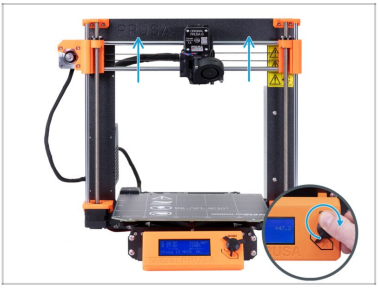
- For replacing X-axis bearings, please use this guide: How to replace bearings on the X-axis (MK3S+)

STEP 2 Tools necessary for this guide



- **For this chapter, please prepare:**
- 2.5mm Allen key *ball-end recommended*

STEP 3 Preparing the printer

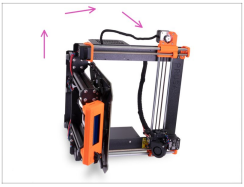


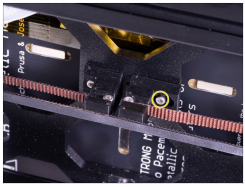
- Remove the steel sheet from the printer.
- Press the LCD knob for 1 second. Then release the knob and rotate to move the Z-axis all the way up.

⚠ **Make sure the printer is cooled to room temperature.** Check the temperatures on the printer display.

- Turn the printer OFF and unplug it.

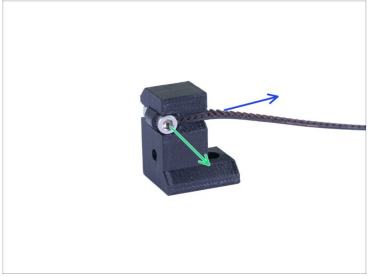
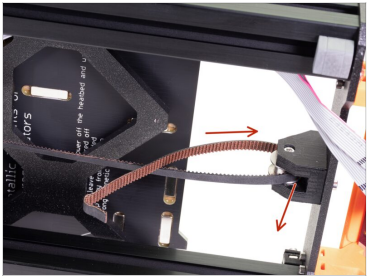
STEP 4 Removing the Y-axis belt





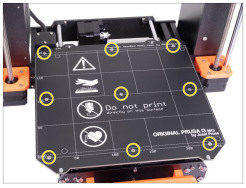
- Carefully turn the printer on the PSU side.
- Look at the bottom of the Y-carriage.
- Take a look at the y-belt-tensioner and release the long screw joining the belt tensioner and belt holder.
- Release the screw securing the tensioner to the Y-carriage and remove the tensioner with the belt from the Y-carriage.

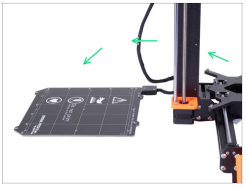
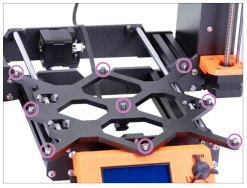
STEP 5 Removing the y-belt-tensioner

- Remove the screw from the y-belt-tensioner.
- Remove the belt from the y-belt-tensioner.
- Take the free end of the belt. Guide it through the y-belt-idler out from the printer.
- Leave the belt hanging loose.

STEP 6 Removing the heatbed



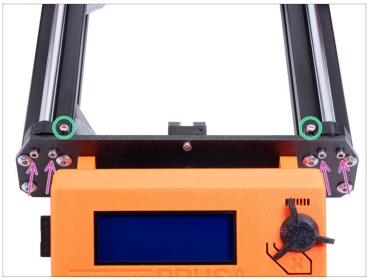



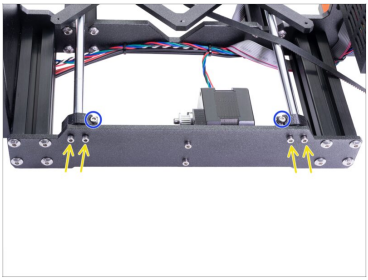
- Put the printer back on its feet.
- Release all nine screws from the heatbed.
- Place the heatbed next to the printer on a clean surface.
- Remove all nine heatbed spacers from the Y-carriage.

  If you are missing some, look under the printer or on the bottom of the heatbed. It is possible that it caught on the magnet.

Place the spacers and screws somewhere safe! In case you lose any of them it might be complicated to purchase new ones.

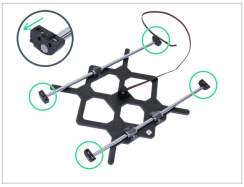
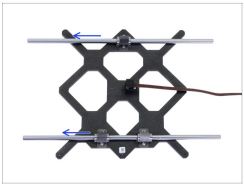
STEP 7 Removing the Y-carriage





- Release the screw on the top of each y-rod-holder.
- Remove four screws from the front plate.
- Turn the printer that Y-axis motor facing you.
- Release the screw on the top of each y-rod-holder.
- Remove four screws from the rear plate.

STEP 8 Disassembling the Y-carriage


- Place the Y-carriage with the top surface facing down. Like in the picture.
- Remove all four y-rod-holders from the smooth rods.
- Pull the smooth rods out of the bearings. It doesn't matter which direction.
- Release two screws on the bearing clip. Remove the bearing and the clip from the Y-carriage.
  - Use the same procedure for the remaining bearings.

STEP 9 New bearings: parts preparation

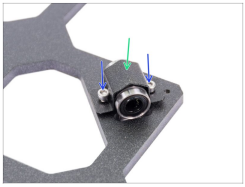
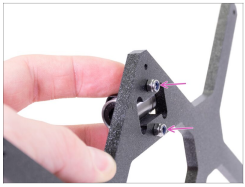
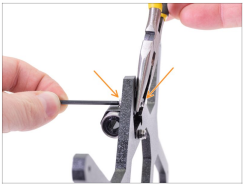

- **For the following steps, please prepare:**
- New linear bearing (3x)
- Several paper towels to wipe oil and grease from the bearing surface.

STEP 10 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.

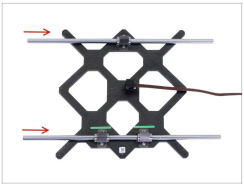
⚠ **The incorrect orientation: Avoid placing the bearing like in the last picture!** This orientation with a single row of balls in the center of the hole will later **increase the wear of the smooth rod**, possibly creating a groove in it.

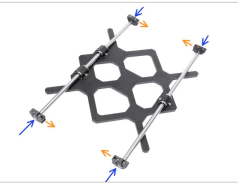
STEP 11 Installing bearings on the Y-carriage

- 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 12 Inserting smooth rod into Y-carriage





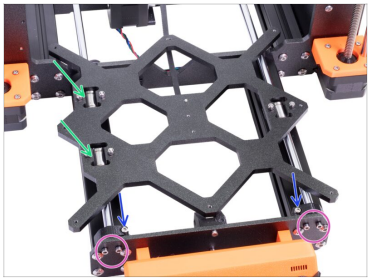
⚠ **NOW, PLEASE BE VERY CAREFUL!** Gently insert the rod straight into the bearings, do not apply too much force and do not tilt the rod!

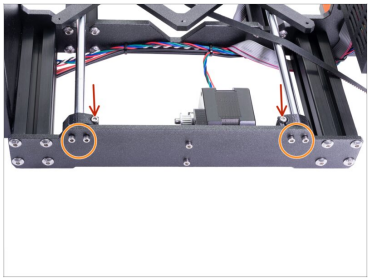
- If you can't slide the smooth rod easily, check the two bearings are aligned properly.

ⓘ 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.

- 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 13 Installing the Y-carriage





- Take the Y-carriage assembly and place it in the 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.
- Secure the second pair of the rod holders 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.

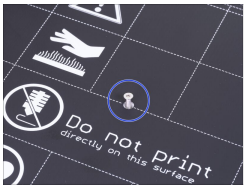
ⓘ In case the M3nS nuts keep falling out, please flip the frame upside down. Tighten both printed parts and then return the frame to the previous position.

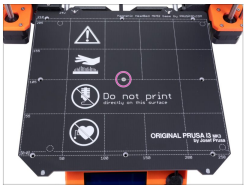
STEP 14 Mounting the heatbed

- 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.

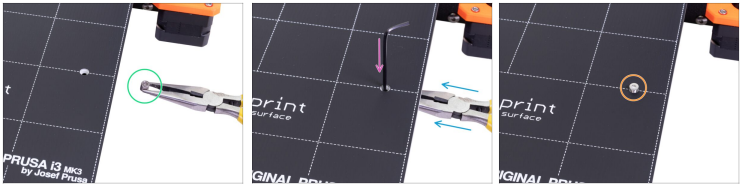
STEP 15 Mounting the heatbed





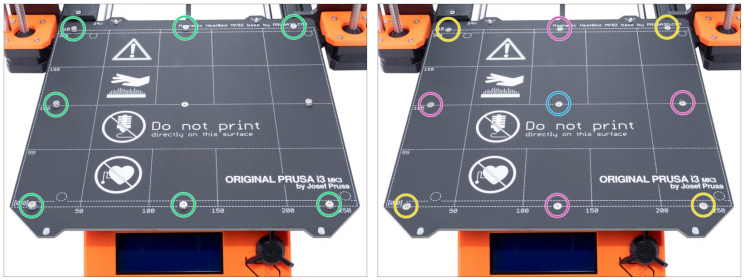
- Push the Allen key through the middle hole on the Heatbed and place it above the spacer. Use the Allen key to align all parts.
- After the alignment insert the M3x12b screw instead.
- Tighten the screw just slightly.

STEP 16 Mounting the heatbed



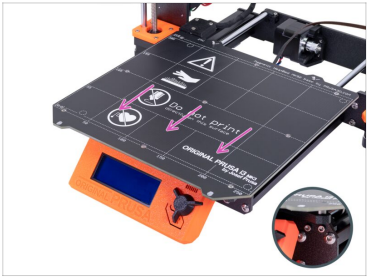
- Move to the right side of the heatbed.
- Place another spacer with the pliers.
- Push the pliers between the heatbed and the Y-carriage.
- Use the Allen key to align the spacer.
- After the alignment insert the screw instead and tighten it slightly.

STEP 17 Mounting the heatbed



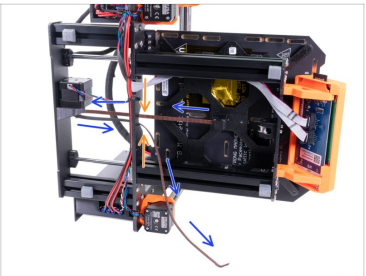
- Using pliers insert spacers and screw into the remaining holes. DON'T fully tighten the screws.
- After all screws are in place, tighten them in the following order:
  - Center screw
  - First four screws (edges)
  - Last four screws (corners)

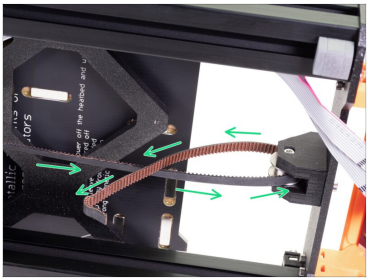
STEP 18 Aligning the smooth rods



- 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 four screws in the front-Y-holders.
- Move the Y-carriage to the rear plate and tighten all four screws in the back-Y-holders.

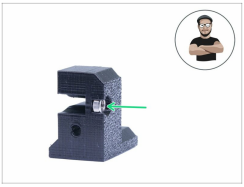
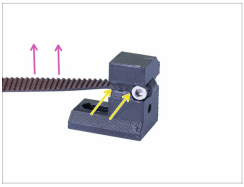
STEP 19 Assembling the belt





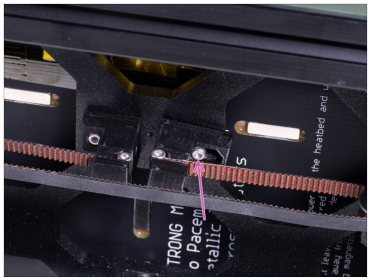
- Guide the belt along the Y-axis, around the pulley on the Y-motor and back.
- Make sure the belt is inside the frame, not under!
- Push the belt through the Y-belt-idler and back to the "center" of the Y-carriage.

STEP 20 Assembling the belt

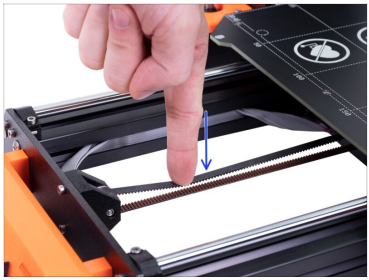

- Take the Y-belt-tensioner (bigger of the two printed parts).
- Insert M3n nut, all the way in.
- Use the screw pulling technique.
- Bend second end of the belt around the screw and push it in the holder as in the picture. Use an Allen key to push the belt in.
- Make sure the bent part and the end are 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 21 Assembling the belt



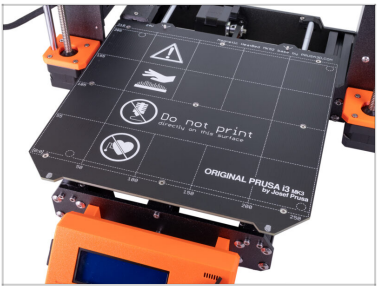
- Using the M3x10 screw fix the Y-belt-tensioner to the Y-carriage. **Don't tighten the screw completely**, we need to adjust the position of the printed part.
- Insert the M3x30 screw through both printed parts. Start tightening until you reach the M3nN nyloc nut.

STEP 22 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 23 It is done!



- **Congratulation!** You just successfully replaced the bearings on the Y-axis.

Notes:

Notes:

Notes:

Notes: