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How to lubricate linear bearing rails (HT90)

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STEP 1 Introduction

- This guide will take you through the lubrication of all **linear bearing rails** on the **HT90**.
- All necessary parts are available on our e-shop **prusa3d.com**.

The recommended lubrication interval for linear bearings is every 1000 printing hours. However, the printer itself will notify you of maintenance via firmware.

STEP 2 Tools necessary for this guide

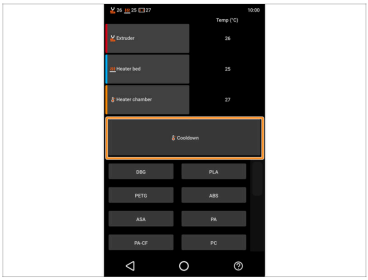
- **For this guide, please prepare:**
- Lubricant (1x)
- Syringe barrel (1x)
- Dosing needle (1x)
- Pair of nitrile gloves (1x)

STEP 3 Additional tools

Tools that are not supplied but can make maintenance easier.

- **Additional tools:**
- Paper towels *to wipe off grease.*
- Piece of cloth *to heatbed protection during assembly.*
- Flat screwdriver

STEP 4 Printer preparing



- Cool down the printer. Go to *More -> Temperature -> Cooldown*. Wait till the printer is cooled down!

⚠ Make sure the heatbed is cooled down to ambient temperature.

- Turn the power switch OFF (symbol "O").

ⓘ From now on we will demonstrate the lubrication of the linear bearing rails on the printer with the lights on for better visibility inside the printer. **Please note, do not switch ON the printer.** The printer in the pictures is shown with the lights on for better visualisation for customers.

STEP 5 Door opening stopper releasing

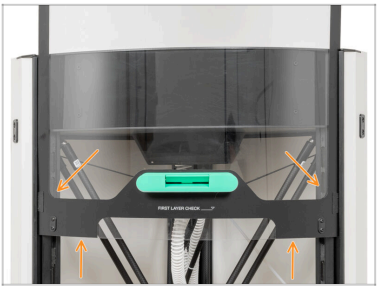
- Open the sliding door.
- Using a flat screwdriver, loosen the Door-opening-stopper by turning it 120° counter-clockwise.

  The Door-opening-stopper is a printed part, just a slight twist will loosen this part.

STEP 6 Door opening stopper removing

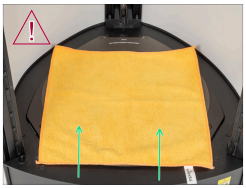
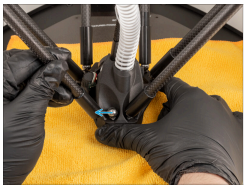
- Remove the Door-opening-stopper by pushing from the inside of the printer.
- Repeat the process on the second Door-opening-stopper on the other side of the lid.

STEP 7 Sliding door opening



- Slowly pull the sliding door up to the second step.

STEP 8 Print head releasing


- Before you proceed, it is recommended to protect the heatbed.
- ⚠ **Make sure the heatbed is cooled down to ambient temperature**. Place the cloth approximately to the front center part of the heatbed.
- Place the dust cloth approximately to the front center part of the heatbed.
- Put the gloves on both your hands.
- Carefully remove the first carbon rod from the print head magball by pulling it away.
- Remove all remaining carbon rods from the print head magballs.
- Leave the print head on the cloth.

STEP 9 Carbon rods removing

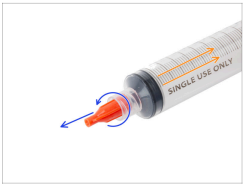


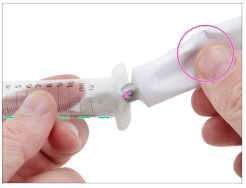
ⓘ Note that all carbon rods are numbered.

ⓘ The rods are attached to magnetic balls.

- Carefully remove the carbon rods 1 and 2 from the left carriage by pulling them away.
- Carefully remove the carbon rods 3 and 4 from the rear carriage by pulling them away.
- Carefully remove the carbon rods 5 and 6 from the right carriage by pulling them away.

STEP 10 Filling the barrel

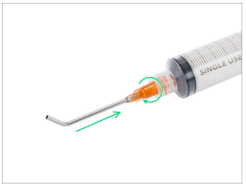


- Take the lubricant and open it.
- On the opposite side of the cap, there is a tip. Use the tip to puncture the protective seal in the tube opening.

  ⚠ **Do not squeeze the tube!** Otherwise, grease may leak out.
- Unscrew the protective cap from the syringe barrel.
- Remove the syringe plunger from the barrel.
- Hold the syringe barrel in a horizontal position.
- Squeeze out approximately 3-4 ml of lubricant from the tube into the barrel. ml of lubricant from the tube into the barrel.

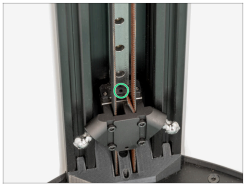
  ⓘ You can add more if needed, and any excess can be used in subsequent steps.

STEP 11 Priming the syringe



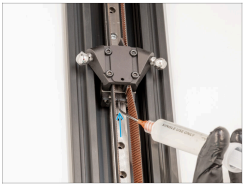
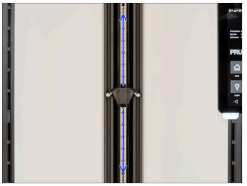
- Insert the syringe plunger into the barrel. Keep the syringe in a **horizontal position**.
  - **Slowly** press the plunger to push the lubricant toward the bottom of the syringe.
- As the plunger approaches the bottom, make sure no large air bubble forms in the lubricant.
- Expel a small amount of lubricant together with any excess air.
  - Wipe off any excess lubricant from the barrel opening.
- Screw the dosing needle onto the syringe barrel.

STEP 12 Upper rail lubing



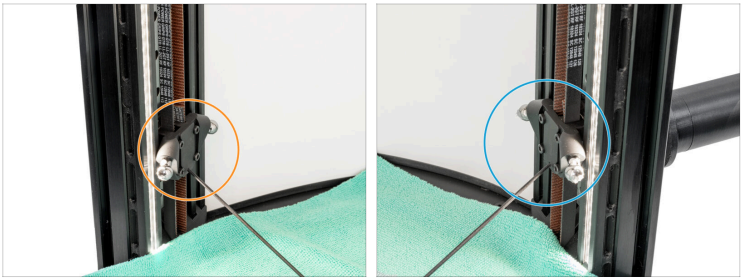
- On the top of the carriage:
- Each carriage has a small hole for lubrication highlighted in the picture.
- Insert the needle and squeeze the cartridge. Squeeze out at least 0.5 ml of lubricant or until lubricant comes out of the hole.
- Manually move the carriage up.

STEP 13 Bottom rails lubing

- On the undreside of the carriage:
- Each carriage has a small hole for lubrication highlighted in the picture.
- Insert the needle and squeeze the cartridge. Squeeze out at least 0.5 ml of lubricant or until lubricant comes out of the hole.
- Manually move the carriage up and down to spread the lubricant around the balls.

STEP 14 Left & right rails lubing



- Repeat steps 11 and 12 for a **left** linear rail.
- Repeat steps 11 and 12 for a **right** linear rail.

STEP 15 Carbon rods attaching

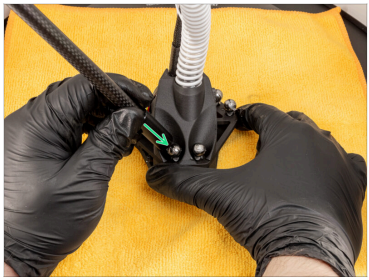


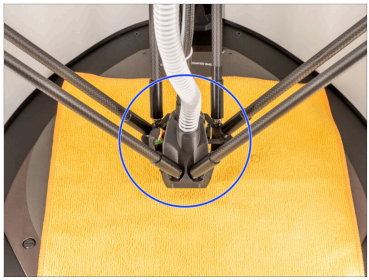
Note that all carbon rods are numbered.

Follow the same numerical order as the instructions.

- Carefully attach the **first** carbon rod to the **front** magball and the **second** carbon rod to the **rear** magball on the left carriage.
- Carefully attach the **third** carbon rod to the **left** magball and the **fourth** carbon rod to the **right** magball on the rear carriage.
- Carefully attach the **fifth** carbon rod to the **rear** magball and the **sixth** carbon rod to the **front** magball on the right carriage.
- Wipe off excess lubricant from surrounding parts to avoid greasing the printing plate.

STEP 16 Print head attaching



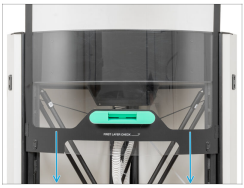


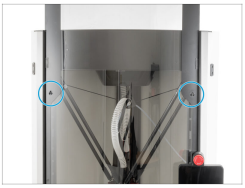
- Attach the carbon rods one by one to the print head magballs.
- Attach remaining carbon rods (2-6).

⚠ Wipe off excess lubricant from surrounding parts using a paper towel to avoid greasing the printing sheet.

- Remove the dust cloth from the bottom.

STEP 17 Sliding door closing





⚠ Before pulling down the sliding door, check that the plastic Door-guides on both sides are inserted into the rails. See the picture.

- Now slowly pull the sliding door downwards until the plastic cut-outs for the Door-opening-stopper are under the top panel. See the picture.

STEP 18 Door opening stopper securing



- Using a flat screwdriver, secure the Door-opening-stopper by turning it clockwise.

  The Door-opening-stopper is a printed part, just a slight twist will secure this part.

- Repeat this process on the left side of the sliding door.
- Close the sliding door.

STEP 19 Printer connecting

- Turn the power switch ON (symbol "I").

STEP 20 Well done!

- Good job! The linear rails are lubricated. Happy printing!

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