

# Table of Contents

- How to lubricate linear bearing rails (XL) ..... 3**
  - Step 1 - Introduction ..... 4
  - Step 2 - Tools necessary for this manual ..... 5
  - Step 3 - Printer preparing ..... 6
  - Step 4 - CAUTION: Lubricant Handling ..... 7
  - Step 5 - Cartridge filling ..... 7
  - Step 6 - Needle attaching ..... 8
  - Step 7 - X-axis rails lubing ..... 8
  - Step 8 - Front Y-axis rails lubing ..... 9
  - Step 9 - Rear Y-axis rails lubing ..... 10
  - Step 10 - Bottom Z-axis rails lubing ..... 11
  - Step 11 - Z-axis moving ..... 12
  - Step 12 - Upper Z-axis rails lubing ..... 13
  - Step 13 - Good job! ..... 13



# How to lubricate linear bearing rails (XL)



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### STEP 1 Introduction



- This guide will take you through the lubrication of all **XL linear bearing rails** on the **Original Prusa XL**.
- ⓘ The following instructions are compatible with all Original Prusa XL versions.
- All necessary parts are available on our e-shop **prusa3d.com**.
- This manual is compatible with the Original Prusa XL Enclosure.
- ⓘ *The recommended lubrication interval for linear bearings is every 100 km (62.1 miles) or every 3–6 months, whichever comes first.*

## STEP 2 Tools necessary for this manual








- ◆ **For the following manual, please prepare:**
- ◆ Pair of nitrile gloves (1x)
- ◆ Microlube GL 261 20g (1x)
- ◆ Dosing needle (1x)
- ◆ Cartridge with manual piston (1x)
- ◆ Paper towels for cleaning the lubricant.

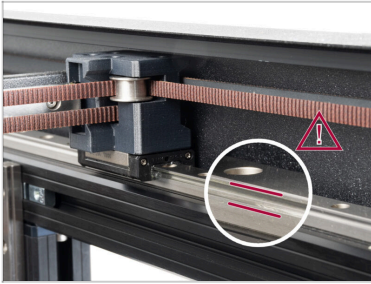
### STEP 3 Printer preparing



#### **Make sure the printer is cold.**

-  If not, go to *Control > Temperature > Cooldown*. **Wait for the printer to cool down.**
-  Auto home the printer. Go to *Control > Auto home*. **Wait for the printer to home. Do not touch the printer.**
-  Disable the motors. Go to *Control > Disable Motors*. Now the XY axes can be moved freely by hand.
-  Upon disabling the motors the heatbed will move down to prevent colliding with the nozzle.
-  Cover the heatbed with a piece of cardboard or a towel to prevent it from becoming greasy.

## STEP 4 CAUTION: Lubricant Handling



**⚠ CAUTION: Avoid direct skin contact with the lubricant used for the linear rails in this printer. If contact occurs, wash your hands immediately, especially before eating, drinking, or touching your face.**

◆ Lubricant accumulates in the printer's bearings, mainly in the linear rail channels.

## STEP 5 Cartridge filling



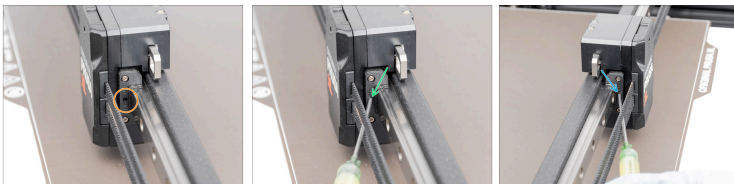
- ◆ Put the gloves on both your hands.
- ◆ Attach the Cartridge, gently squeeze the Microlube and fill the Cartridge with a tube of at least 2 ml.
- ◆ Check that there is enough Microlube on the Cartridge. Look at the picture.

## STEP 6 Needle attaching



- ◆ Attach and secure the needle by turning it clockwise.
- ◆ Wipe any remaining lubricant from the joint with a paper cloth.
- ◆ Squeeze the cartridge to remove the air from the needle as shown in the picture.

## STEP 7 X-axis rails lubing



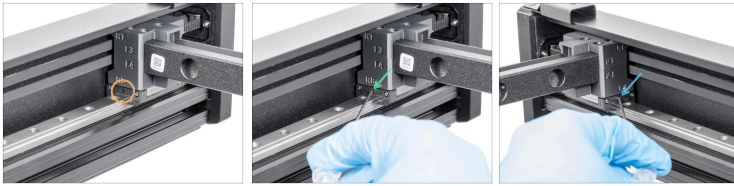
- ① The XY-axis can be moved freely.
- ◆ Each carriage has a small hole for lubrication highlighted in the picture.
- ◆ On the right X-axis rail:
  - ◆ Insert the needle and squeeze the cartridge.  
**Squeeze out exactly 0.1 ml Microlube.**
- ◆ On the left X-axis rail:
  - ◆ Insert the needle and squeeze the cartridge.  
**Squeeze out exactly 0.1 ml Microlube.**

## STEP 8 Front Y-axis rails lubing



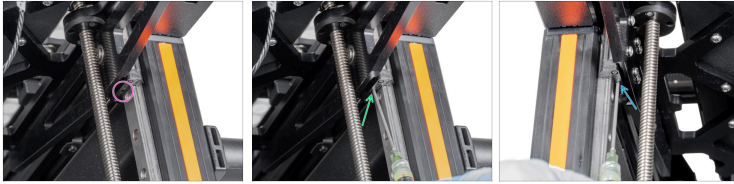
- Each carriage has a small hole for lubrication highlighted in the picture.
- On the right front Y-axis rail:
  - Insert the needle and squeeze the cartridge. **Squeeze out exactly 0.1 ml Microlube.**
- On the left front Y-axis rail:
  - Insert the needle and squeeze the cartridge. **Squeeze out exactly 0.1 ml Microlube.**

## STEP 9 Rear Y-axis rails lubing



- Manually move the Y-axis to the front of the printer.
- Each carriage has a small hole for lubrication highlighted in the picture.
- On the right front Y rail:
  - Insert the needle and squeeze the cartridge. **Squeeze out exactly 0.1 ml Microlube.**
- On the left front Y rail:
  - Insert the needle and squeeze the cartridge. **Squeeze out exactly 0.1 ml Microlube.**

## STEP 10 Bottom Z-axis rails lubing



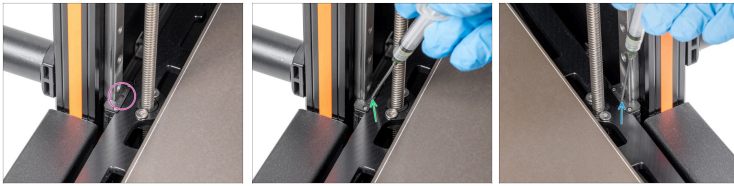
- On the underside of the Z-axis carriage:
- Each carriage has a small hole for lubrication highlighted in the picture.
- On the right Z-axis:
- Insert the needle and squeeze the cartridge. **Squeeze out exactly 0.1 ml Microlube.**
- On the left Z-axis:
- Insert the needle and squeeze the cartridge. **Squeeze out exactly 0.1 ml Microlube.**

### STEP 11 Z-axis moving



- Now we have to move the Z-axis down.
- On the xLCD, go to *Control > Move axis > Move Z* and set 350mm.
- Wait until the Z-axis is moved down. Then proceed to the next step.

## STEP 12 Upper Z-axis rails lubing



- On the top of the Z-axis carriage:
- Each carriage has a small hole for lubrication highlighted in the picture.
- On the left Z-axis:
- Insert the needle and squeeze the cartridge. **Squeeze out exactly 0.1 ml Microlube.**
- On the right Z-axis:
- Insert the needle and squeeze the cartridge. **Squeeze out exactly 0.1 ml Microlube.**

## STEP 13 Good job!



- Nice work! The printer is now ready to print.



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