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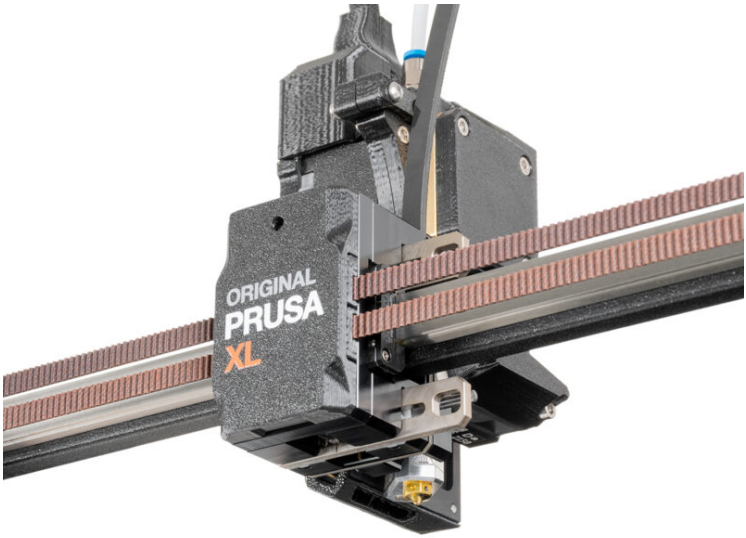
How to replace the Prusa Nozzle (XL multi-tool)



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STEP 1 Introduction

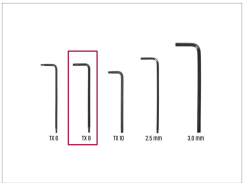
- This guide will take you through the replacement of the **Prusa Nozzle** on the **Original Prusa XL multi-tool**.
  - To replace the **Prusa Nozzle** on the **Original Prusa XL (single-tool)** go to How to replace the Prusa Nozzle (XL single-tool).
  - To replace the **Prusa Nozzle** on the **Original Prusa MK4** go to How to replace the Prusa Nozzle (MK4).

ⓘ The following instructions are compatible with all Prusa Nozzle diameters.

- All necessary parts are available in our eshop prusa3d.com.

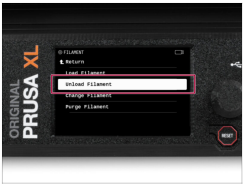
ⓘ Note that you have to be logged in to have access to the spare parts section.

STEP 2 Necessary tools



- **For this guide, please prepare:**
- TX 8 Torx key
- Wrench 13-16
- Universal wrench
- A cardboard box for use as a heatbed protection during the assembly. *Hint: use the Prusament box*.
- Small brass brush for *cleaning the nozzle*

STEP 3 Preparing the printer

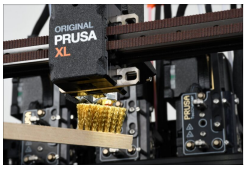


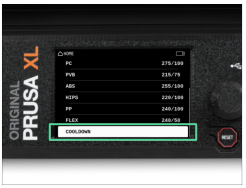
- On the printer screen, navigate to *Control ->Pick/Park Tool ->Pick tool*, and select the tool that has the nozzle to be changed.
- Move the extruder approximately to the center of the X-axis.
- If you have loaded the filament, unload it from the hotend. On the screen, navigate to *Filament -> Unload Filament*.

⚠ **WARNING: The hotend and heatbed are very HOT. Do not touch these parts!!!**

- Remove the filament from the hotend. It is not necessary to completely remove it from the printer. Just a few centimeters (inches) above the extruder.

STEP 4 Cleaning the hotend





⚠ **WARNING: The hotend and heatbed are very HOT. Do not touch these parts!!!**

For the following steps, it is necessary to have the heaterblock and the hotend clean from the remains of the filament. Otherwise, it can be difficult to release the nozzle.

If you have a Prusa hotend sock on the hotend, remove it.

- On the printer screen, go to Control -> Temperature and set the nozzle temperature to 250°C on the selected tool head.
- Wait at least 5 minutes. The remains of the filament must be warmed up slightly so that they can be removed more easily.
- Using the brass brush, carefully clean the heaterblock and the hotend from the filament residue. Avoid contact of the brush with the hotend cables, as this could cause a short circuit.
- When the heaterblock and the hotend are perfectly clean, cool down the printer. On the screen, navigate to *Preheat -> Cooldown*.

Wait until the hot parts are cooled down to ambient temperature. It takes approximately 10 minutes.

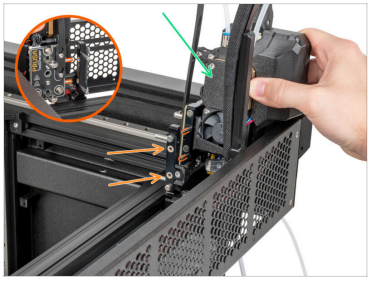
STEP 5 Parking the tool

- On the printer screen, navigate to *Control ->Pick/Park Tool ->Park Current Tool*.
- Turn the power switch OFF (symbol "O").
- From the rear side of the printer, unplug the PSU cable.

STEP 6 Protecting the heatbed

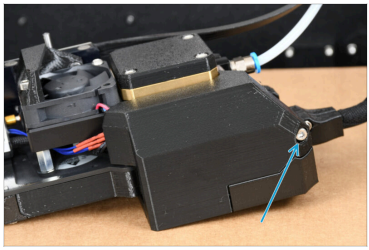
- Before you proceed, it is recommended to protect the heatbed.
- **Make sure the heatbed is cooled down** to ambient temperature. Place the empty cardboard box approximately to the front center part of the heatbed.

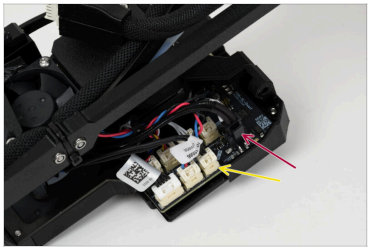
STEP 7 Removing the Nextruder



- Remove the Nextruder, by pulling it outwards from the metal inserts.
  - ⓘ Although a small resistance is expected, as the metal inserts are magnetic, **use moderate force**.
- Carefully place the Nextruder on the cardboard box.

STEP 8 Disconnecting the hotend



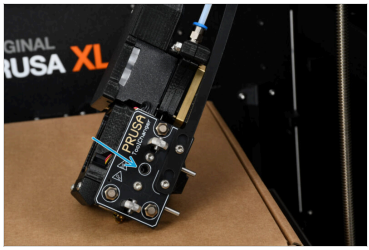


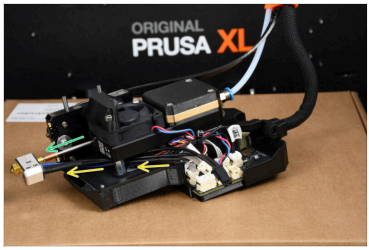
- Loosen the M3x12 screw to open the dwarf-cover-door.

⚠ Each connector has a safety latch. **It is necessary to press the latch before disconnecting**. Otherwise, the connector may get damaged.

- Disconnect the hotend thermistor cable.
- Disconnect the hotend heater cable.
- Leave both cables free for now.

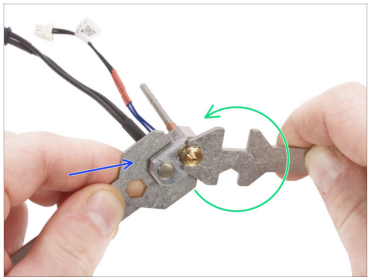
STEP 9 Removing the hotend

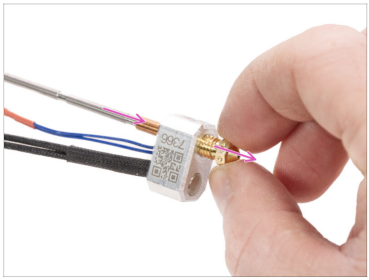




- Insert the Torx TX 8 key all the way through the Tool Plate until it reaches the grub screw in the extruder. Loosen the screw. **Do not remove the screw**, a few turns are enough!
- Carefully pull the hotend assembly out of the extruder.
- At the same time push the hotend cables behind the fan out of the extruder.

STEP 10 Removing the Prusa Nozzle



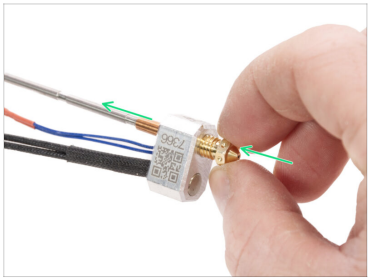


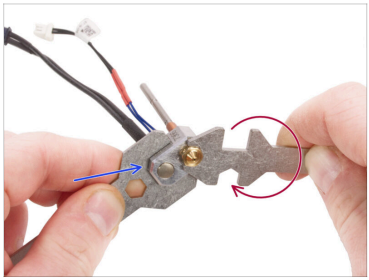
- Using the wrench 13-16 grasp the heaterblock.
- Using the 7mm cutout in the universal wrench, grasp the nozzle and loosen it.
- Manually release and remove the Prusa Nozzle from the hotend assembly.

STEP 11 Installing the Prusa Nozzle: parts preparation

- For the following steps, please prepare:
- New Prusa Nozzle (1x)

STEP 12 Installing the Prusa Nozzle

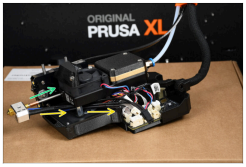


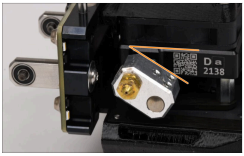
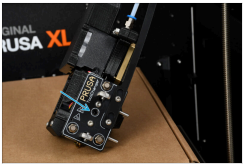


- Insert the nozzle all the way into the heaterblock until the nozzle touches the heaterblock surface.
- Grasp the heaterblock with the wrench 13-16.
- Using the 7mm cutout in the universal wrench, tighten the nozzle against the heaterblock. **Do not use any extra force!**

  ⓘ The specified torque value is 1.5 Nm (13.3 lb-in).

STEP 13 Inserting the hotend



- Push the hotend cable behind the heatsink fan up to the electronics.
- Locate the hole in the heatsink from the bottom of the extruder and insert the hotend nub into the heatsink.
- Push the hotend assembly all the way into the heatsink.
- Rotate the heaterblock as in the picture. There must be approximately 35° - 40° angle to avoid damaging the hotend cables. (picture of angle)

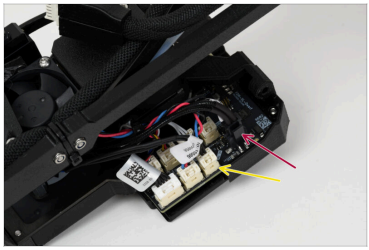
⚠ **Verify that the nozzle is fully inserted into the heatsink!** If not fully inserted, the nozzle can cause poor heat transfer, potentially leading to clogs.

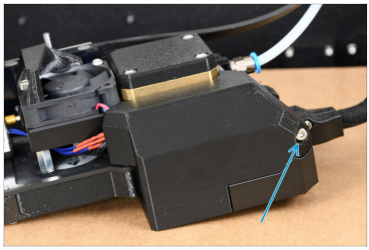
ⓘ To adjust the nozzle, loosen the thumbscrews, reposition it until the copper ring on the nozzle is not visible, and then retighten the screws.

- Maintain the position and using the TX 8 Torx key carefully tighten the grub screw to secure the hotend.

📌 **Do not use extra force while tightening; it may damage the hotend tube.**

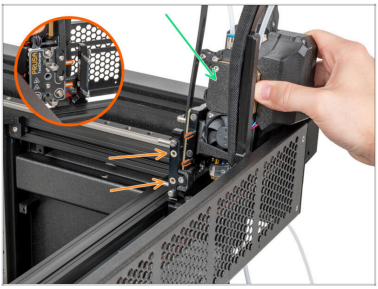
STEP 14 Connecting the hotend





- Connect the hotend heater to the upper slot on the electronics board.
- Connect the hotend thermistor to the lower slot on the electronics board.
- Tighten the M3x12 screw and close the dwarf-cover-door.
- Remove the cardboard box from the heatbed.

STEP 15 Docking the Nextruder



- Take the Nextruder and place it carefully next to the dock.
- Place the two metal inserts through the white holes in the dock. The magnets will help you dock the Nextruder.

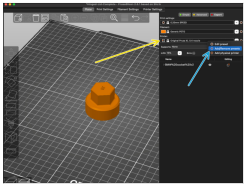
ⓘ Check that the Nozzle seal lightly touches the nozzle.

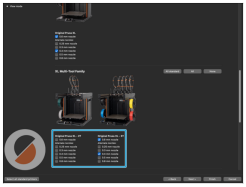
STEP 16 Final check

- On the printer screen, navigate to *Control -> Pick/Park Tool -> Pick tool*, and pick the tool with the replaced nozzle.
- Go to *Preheat* and select any of the material temperatures (e.g. ABS with 255°C on hotend)
- Go back to the main screen and watch on the bottom bar to see if the temperature rises.
- Before you proceed to the next step, cool down the printer. On the screen, navigate to *Preheat -> Cooldown*.

⚠ **Wait until the hot parts are cooled down** to ambient temperature. It takes approximately 10 minutes.

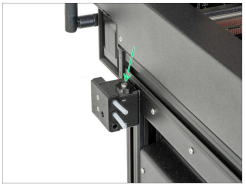
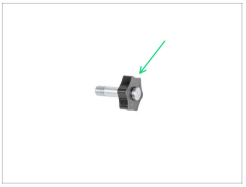
STEP 17 Setting the nozzle diameter





- If you have replaced your nozzle twith the one having a different diameter, you have to change the **nozzle diameter** setting in the printer's menu too.
- Go to **Settings > Tools > Tool** ***> Nozzle Diameter*** and set it to the corresponding size.
- When slicing in PrusaSlicer, make sure to have the correct nozzle diameter selected in the **Printer:** menu.
  - To add other nozzle diameter versions of the printer profile in PrusaSlicer, hit the small cog icon and select **Add/Remove Presets**. Then, select the nozzle diameters you are going to use.

STEP 18 Tool Offset Calibration

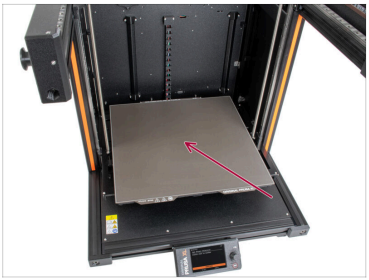



- Navigate to *>Control >Calibrations & Tests > Tool Offset Calibration*.

During offset calibration, you will need to screw the calibration pin into the center of the heatbed.

- Click on *Continue* to start the Tool Offsets Calibration.
- Extract the calibration pin from the side filament sensor.

STEP 19 Tool Offset Calibration - Sheet install

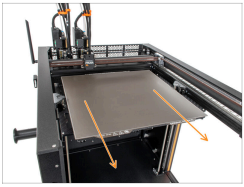
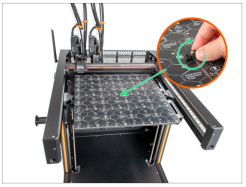


Follow the instructions on the screen.

- Place the steel sheet on the heatbed.

Now, the printer starts short calibration.

STEP 20 Tool Offset Calibration - pin installation

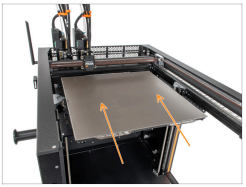



Follow the wizard instructions on the screen.

- Take off the steel sheet from the heatbed.
- Install the calibration pin into the middle of the heatbed. Turn the pin clockwise.

Now, the printer will calibrate all five tool heads.

STEP 21 Tool Offset Calibration - Done

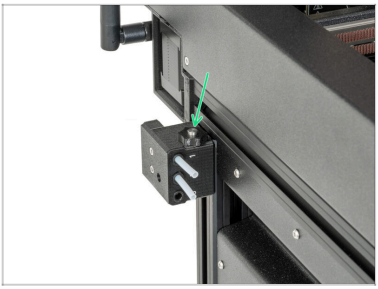
Follow the wizard instructions on the screen.

- Untighten the calibration pin from the heatbed and take it off. Rotate counterclockwise.
- Place the steel sheet on the heatbed.

The printer will finish the calibration.

- Good job! The offset calibration is done.

STEP 22 Calibration pin



- Insert the calibration pin into the side filament sensor.

STEP 23 It's done

- **That's it, good job!** You just successfully installed the Prusa Nozzle on your Original Prusa XL.

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