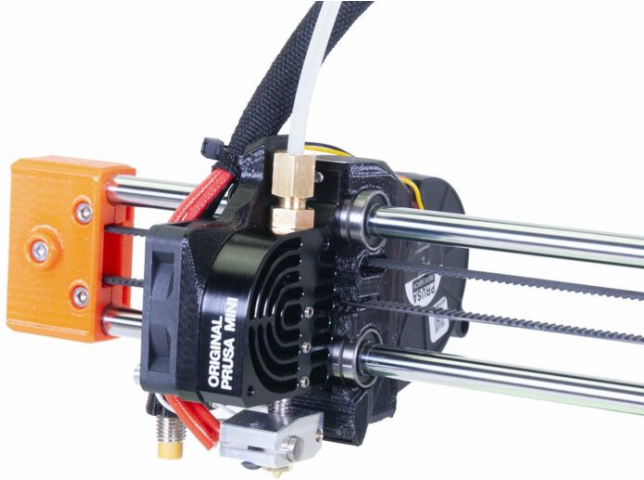


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# How to replace a heatsink (MINI/MINI+)



[help.prusa3d.com/g121780](https://help.prusa3d.com/g121780)

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

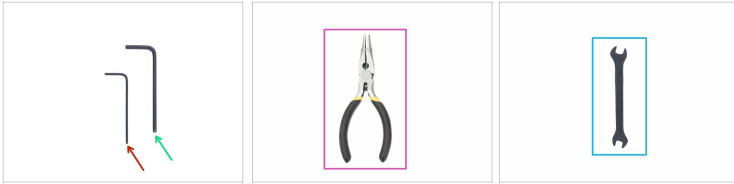


## STEP 1 Introduction



- ◆ This guide will take you through the replacement of the **heatsink** on the **Original Prusa MINI** and **MINI+**.
- ⓘ Some parts might slightly differ. However, it does not affect the procedure.
- ◆ All necessary parts are available in our eshop [shop.prusa3d.com](https://shop.prusa3d.com)
- ⓘ Note that you have to be logged in to have access to the spare parts section.

## STEP 2 Tools and fasteners necessary for this guide



- Allen key 1.5 mm (1x)
- Allen key 2.5 mm (1x)
- Needle-nose pliers for zip ties (1x)
- Wrench size 10 mm (1x)
- Cloth or piece of fabric 15x15cm (1x)

## STEP 3 Protecting the heatbed



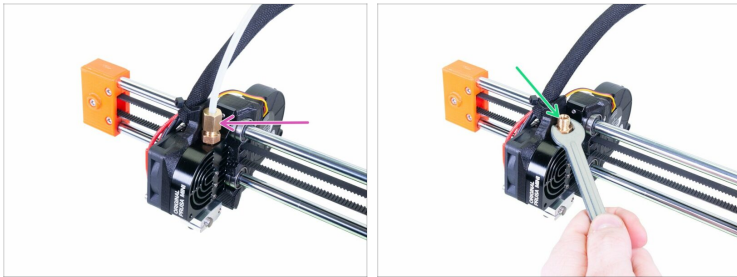
**⚠ Make sure the printer parts - print head and heatbed are cooled down at room temperature.**

**⚠ Turn the printer off and unplug it from the socket!**

**⚠ Before these steps, it is recommended to protect the heatbed!**

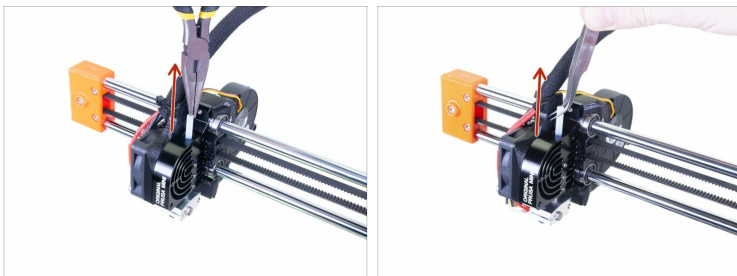
- ◆ Take off the flexible steel sheet.
- ◆ Use any cloth or piece of fabric, which is thick enough and cover the heatbed. This will ensure you won't damage (scratch) the surface during the disassembly.

## STEP 4 Disassembly of fittings



- Loosen the upper fitting and remove the long PTFE tube from the hotend.
- Release and remove the lower fitting from the heatsink.

## STEP 5 Removing the hotend PTFE tube



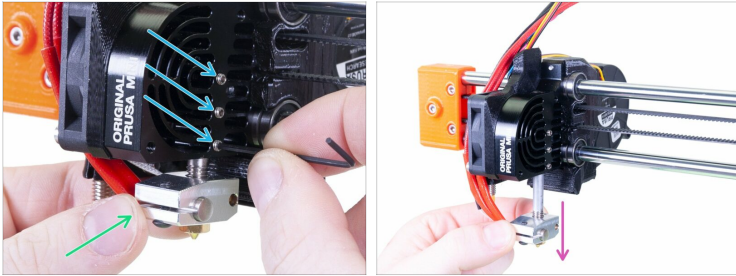
- Carefully pull out the PTFE tube from the heatsink using pliers or tweezers.
- i** Keep the PTFE tube for later use.


## STEP 6 Removing the textile sleeve






- i** There are two designs of the textile sleeve mount on the print head:
- ◆ The new design without a zip tie:** Gently pull out the textile sleeve from the MINI-fan-spacer-clip. **Do not pull on the cables!**
  - ◆ The old design with a zip tie:** Cut off the zip tie on the print head. **Avoid cutting the print fan cable!**
- ◆** Remove the textile sleeve all the way to the extruder.
- ⚠** **There is no need to cut any other zip ties!**

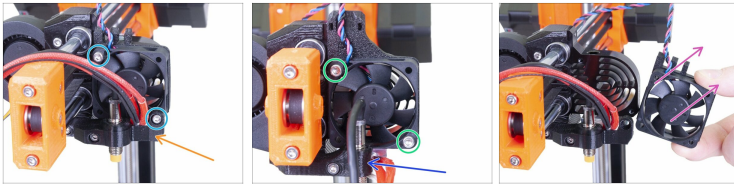
## STEP 7 Disassembly of the hotend



 **Loosen the hotend cables for this step.** Move the print head a few centimetres towards the center of the X-axis, see the picture.

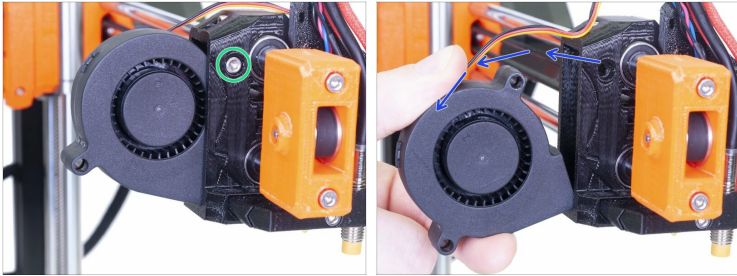
-  Loosen three screws on the side of the heatsink with the 1.5mm Allen key.
-  Hold the heaterblock with the other hand.
-  Gently slide out the heaterblock with the heatbreak from the heatsink.

## STEP 8 Removing the hotend fan



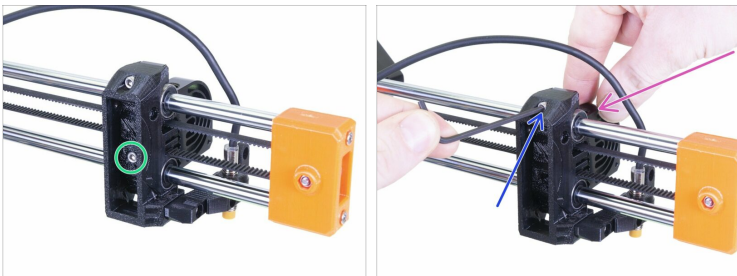
- ◆ **New design** - the MINI-minda-holder is mounted to the hotend fan.
  - ◆ Loosen and remove both screws on the fan and the MINI-minda-holder.
- ◆ **Old design** - MINI-minda-holder is not mounted on the fan.
  - ◆ Loosen and remove both screws on the fan.
- ◆ Remove the hotend fan together with the MINI-fan-spacer (the plastic part between the fan and the heatsink).
- ⓘ Keep the printed part for a later use.

## STEP 9 Removing the print fan



- ◆ Loosen and remove the screw from the x-carriage.
- ◆ Carefully pull the print fan from the x-carriage and remove it.

## STEP 10 Removing the heatsink



- ◆ Release the lower screw on the x-carriage.
- ◆ Hold the heatsink with hand.
- ◆ Use your other hand to release the upper screw on the x-carriage and remove the heatsink from the printer.

 **CAUTION: Don't drop the heatsink on the heatbed!**

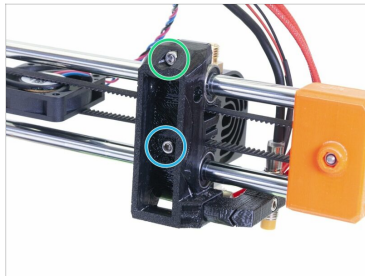
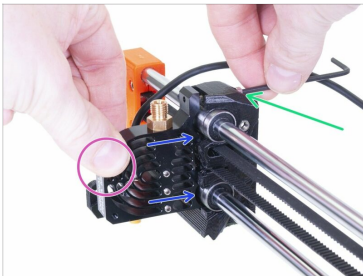
## STEP 11 Heatsink parts - preparation



◆ For the following steps, please prepare:

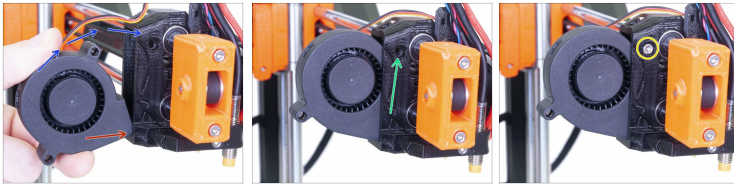
- ◆ New heatsink (1x)
- ◆ Thermal paste (1x)

## STEP 12 Heatsink installation



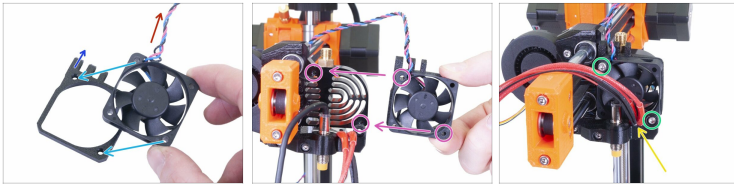
- ◆ Place the new heatsink to the x-carriage.
- ◆ Hold the heatsink with hand.
- ◆ Use the other hand to secure the heatsink with the upper M3x20 screw.
- ◆ Insert and tighten the lower M3x20 screw on the backside of the x-carriage.

## STEP 13 Print fan installation



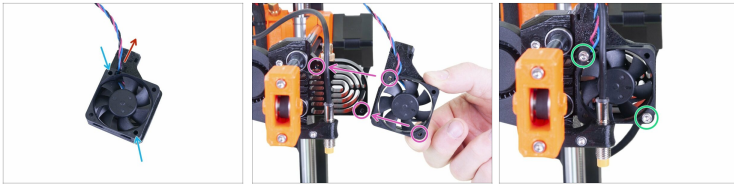
- ◆ Insert the edge of the fan's casing inside the bottom of the x-carriage.
- ◆ Rotate the fan into the x-carriage.
- ◆ Align the hole for the screw in the fan with the hole in the x-carriage.
- ◆ Insert and tighten the screw.

## STEP 14 Hotend fan installation (new design)



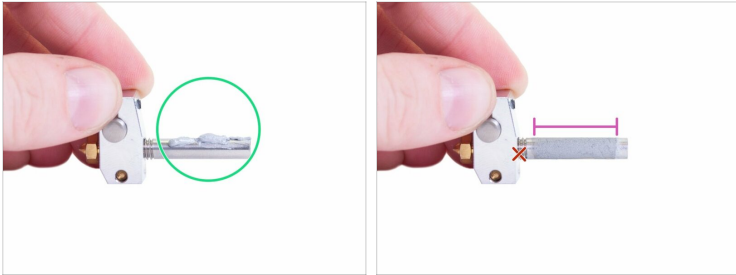
- ◆ Place the hotend fan on the MINI-fan-spacer. Align the holes against each other.
- ◆ Make sure the sticker on the fan is on the bottom side.
- ◆ The "teeth" for the MINI-fan-spacer-clip must be oriented upwards to the left.
- ◆ The fan cable must be facing the upper left.
- ◆ Place the hotend fan with MINI-fan-spacer on the heatsink. Align the holes for the screws on the fan with the holes on the heatsink.
- ◆ Secure fan and the spacer with two M3x20 screws.
- ◆ **Ensure no cable is pinched!!!**

## STEP 15 Hotend fan installation (old design)



- ◆ Place the hotend fan on the fan-spacer and align the holes for the screws.
- ◆ Make sure the fan cable and fan-spacer protrusion is facing the upper left like in the picture.
- ◆ Place the hotend fan with fan-spacer on the heatsink. Align the holes for the screws on the fan with the holes on the heatsink.
- ◆ Insert and tighten the two M3x20 screws. **Tighten carefully, you can crack the plastic frame of the fan, also ensure no cable is pinched!!!**

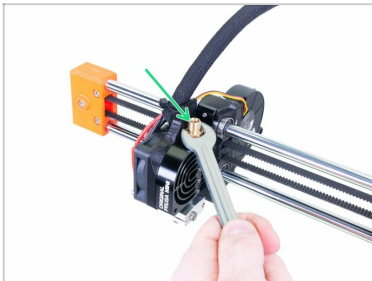
## STEP 16 Applying the thermal paste



- Apply almost half of the content of the thermal paste package on the heatbreak.
- Spread the paste evenly over the surface. Do not spread to the ends. Leave at least 2 mm from each end.

 **Do not apply the paste on the thread!**

## STEP 17 Removing the lower fitting



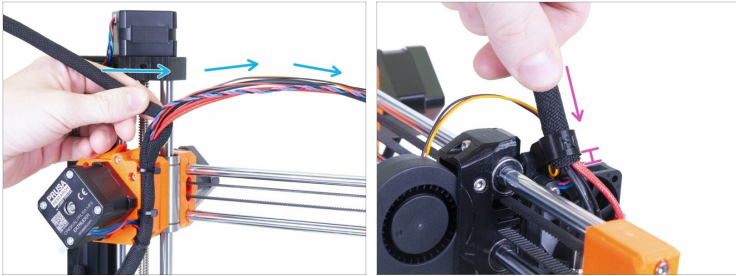
- Release and remove the "lower" fitting from the heatsink.

## STEP 18 Hotend installation



- ◆ Insert and gently slide the hotend into the heatsink. Make sure the nozzle cables are on the left side.
- ◆ Hold the heaterblock with the other hand.
- ◆ Slightly tighten three screws on the side. You will loosen them again later.
- ◆ Remove excess paste with a paper towel or a cotton bud.

## STEP 19 Covering the cables (new design)



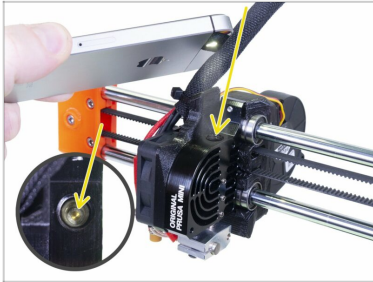
- i** If you have a version with the textile sleeve secured with a zip tie on the print head, **skip this step.**
- Wrap the cable bundle inside the textile sleeve.
- Slide the textile sleeve into the MINI-fan-spacer-clip so that it extends over the 2-5mm textile sleeve from the other side.
- Now skip to Hotend PTFE tube installation

## STEP 20 Covering the cables (old design)



- i This step is for the version with the textile sleeve secured with a zip tie on the print head.
- Wrap the cable bundle with the textile sleeve.
- ⚠ **WARNING: Don't overtighten the zip tie around cables, leave some slack or you might break some of them!**
- Secure with a zip tie to the fan-spacer.
- **Double-check all cables aren't stretched**, if so, please cut the zip tie, make them slightly more loose and tighten the zip tie again.

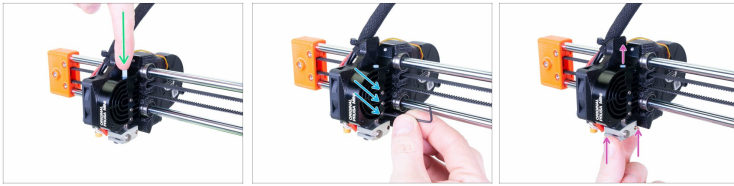
## STEP 21 Hotend PTFE tube installation



- ◆ Use your phone LED flash or similar device to shine into the hole from the top of the print head. Take a look inside and check there is no filament. It must be clean and you should see only the metal surface inside. Open the full-size image if needed.

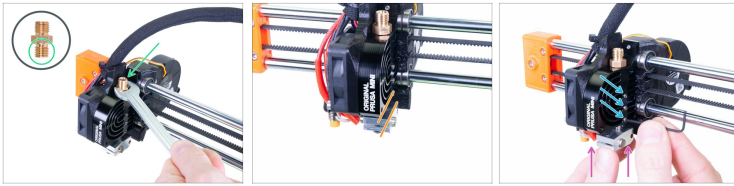
⚠ **A clean print head is essential for successful prints.** Double-check, there is no filament inside!!!

## STEP 22 Hotend PTFE tube installation



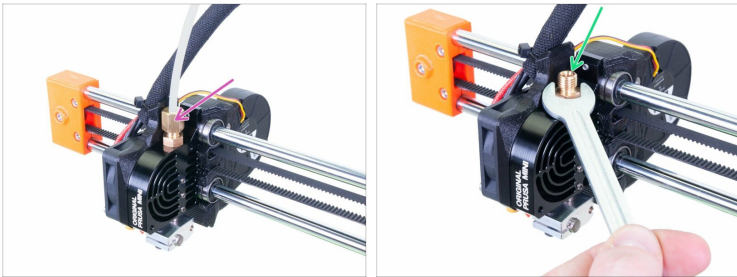
- ◆ Insert and push the PTFE tube into the heatbreak all the way down.
- ⓘ Orientation of the PTFE tube installation does not matter. Both ends are symmetrical.
- ◆ Loosen tree screws on the side of the heatsink with 1.5 Allen key.
- ◆ Push the nozzle up. You must see the PTFE tube moving up a bit.

## STEP 23 Hotend PTFE tube installation



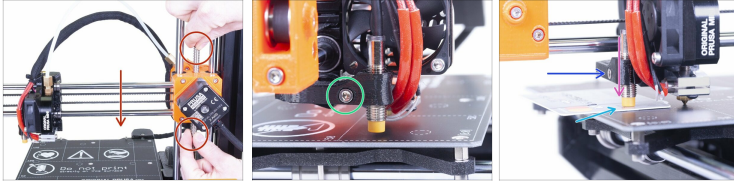
- ◆ Mount the "lower" fitting to the top of the heatsink. Screw it all the way, but don't tighten it. As soon as you reach the end of the thread, release it by a full turn (360°).
- ⚠ **Pay attention to the correct orientation of the fitting.** Insert the coarse thread into the heatsink.
- ◆ Push the heaterblock up against the fitting with a reasonable force. No need to bend the entire axis. This will pre-stress the PTFE tube inside. **Now, it is important to keep the pressure.**
- ◆ Make sure the heaterblock is aligned with the heatsink. If not, realign it, but keep the pressure.
- ◆ While holding the heaterblock from below (pressing the tube inside), tighten all three grub screws.
- ◆ Now, you can release the heaterblock. Make sure it doesn't move. If so, the grub screws were not tightened properly. Release them and return to the beginning of this step.
- ⚠ **It is crucial there is no gap between the PTFE tube and other parts of the hotend.** This is why we are "pre-stressing" it.

## STEP 24 Hotend PTFE tube installation



- ◆ Finish tightening of the "lower fitting", you should do a full turn to compensate for the turn we did in the previous step.
- ◆ Mount and tighten the upper fitting with the long PTFE tube.

## STEP 25 M.I.N.D.A./SuperPINDA sensor height adjustment



- ◆ Using your fingers turn the lead screw and move the entire X-axis down. **Stop when the hotend touches the heatbed! Avoid bending the heatbed!**
- ◆ Release slightly the screw on the minda-holder so you are able to adjust position of the M.I.N.D.A./SuperPINDA sensor.
- ◆ Place a credit card under the M.I.N.D.A./SuperPINDA sensor or use a tip of the bundled zip tie.
- ◆ Gently press the M.I.N.D.A./SuperPINDA sensor down against the credit card.
- ◆ Tighten the screw on the minda-holder. **Do not use an excessive force, you can break the printed part!**
- ◆ Rotate the lead screw manually in the opposite direction to move the axis at least 5 mm up.
- ◆ Now, please follow the instructions for the First Layer Calibration (i3).
- ◆ ...and it's done! Enjoy your printer ;)



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