

Micro Swiss NG™ Direct Drive Extruder for Creality Ender 6

INSTALLATION INSTRUCTIONS

TOOLS NEEDED

Gather the required tools before starting installation.

- Phillips-Head Screwdriver
- 3mm Allen wrench
- 2mm Allen wrench
- 1.5mm Allen wrench (included with the kit)
- Flush cutters



WHAT'S IN THE BOX

- 1x Master Extruder Assembly
- 1x Ender 6 Adaptation plate
- 1x LDO Stepper motor
- 1x Fan Shroud
- 1x Custom Extension Cable
- 1x Hotend Assembly
- 1x Printed PTFE Tube bracket

- 4x M2.2 x 8mm Thread Forming Screw for Plastic
- 4x M3 x 12mm Thread Forming Screw for Plastic
- 2x M3-0.50 x 6mm Button Head Socket Cap Screws
- 1x 7mm spanner wrench
- 1x 1.5mm Allen wrench
- 5x Zip Ties



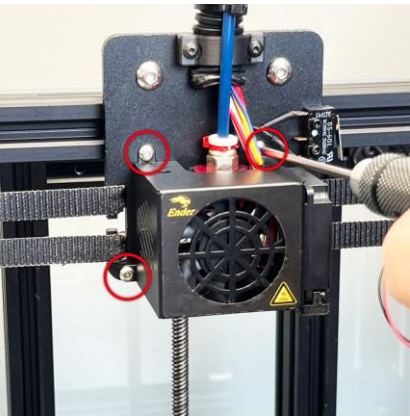
PREPARATION

Remove the filament from your original hotend and allow the printer to cool down completely.

Step 1 - SAFETY

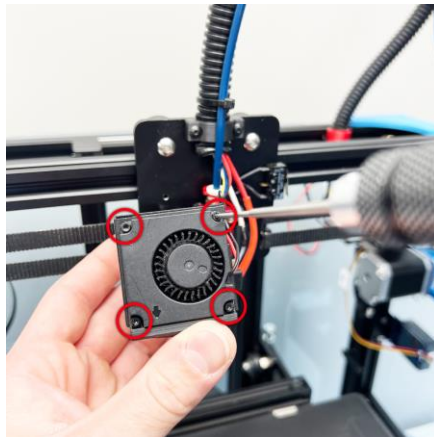
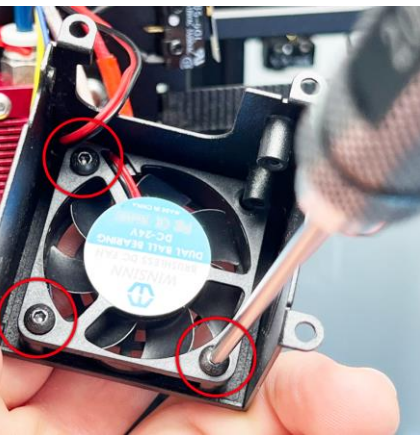
⚠ For your safety, turn off and unplug your printer.

Step 2 - REMOVE THE FAN SHROUD



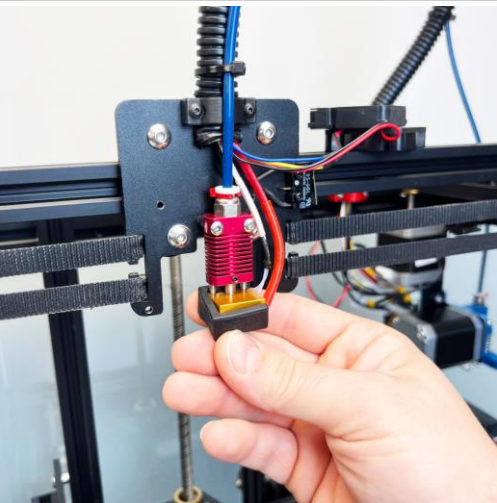
- Remove the fan shroud by unscrewing the three screws holding the shroud to the carriage plate

Step 3 – REMOVE THE FANS



- Detach the hotend fan from the original shroud by removing the three screws using a 2mm Allen wrench
- Detach the part cooling fan by removing the four screws using a 1.5mm Allen wrench

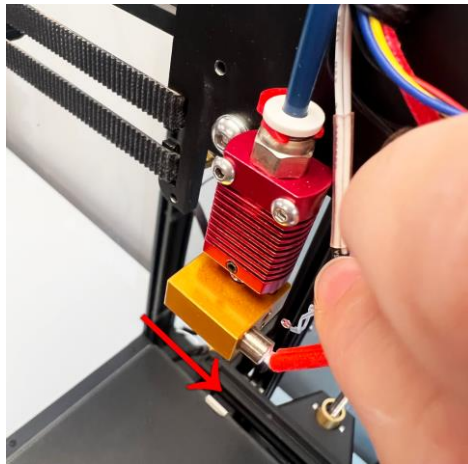
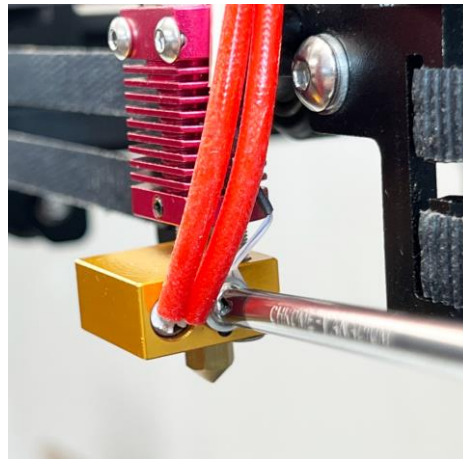
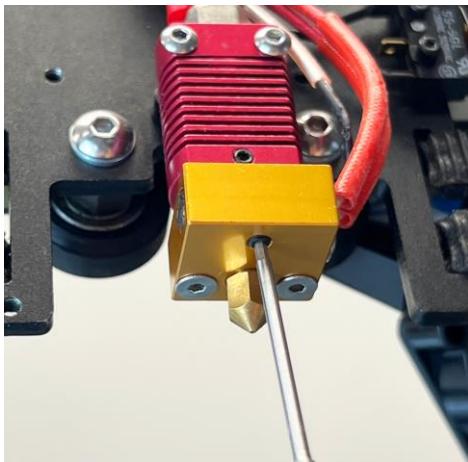
Step 4 – REMOVE THE SILICONE SOCK



⚠ Make sure the hotend is at room temperature!

- Remove the silicone sock from the heater block

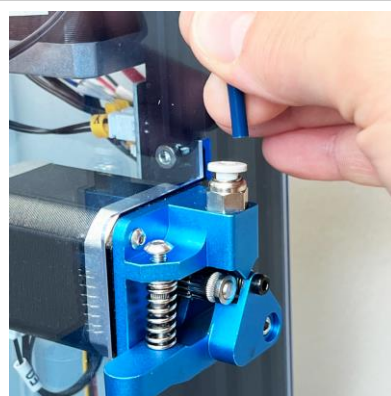
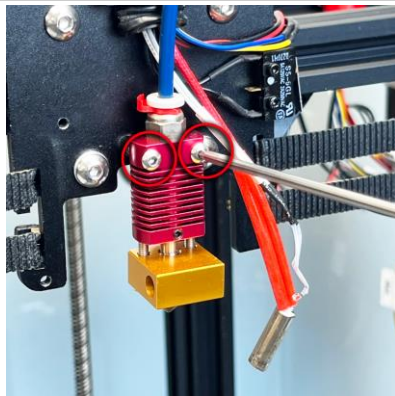
Step 5 – REMOVE THE HEATER CARTRIDGE AND THERMISTOR



- Remove the heater cartridge by loosening the set screw using 1.5mm Allen wrench
- Remove the thermistor screw using the Phillips-Head Screwdriver
- Gently pull the thermistor and heater cartridge out of the heater block

⚠ Be careful not to damage the delicate wires

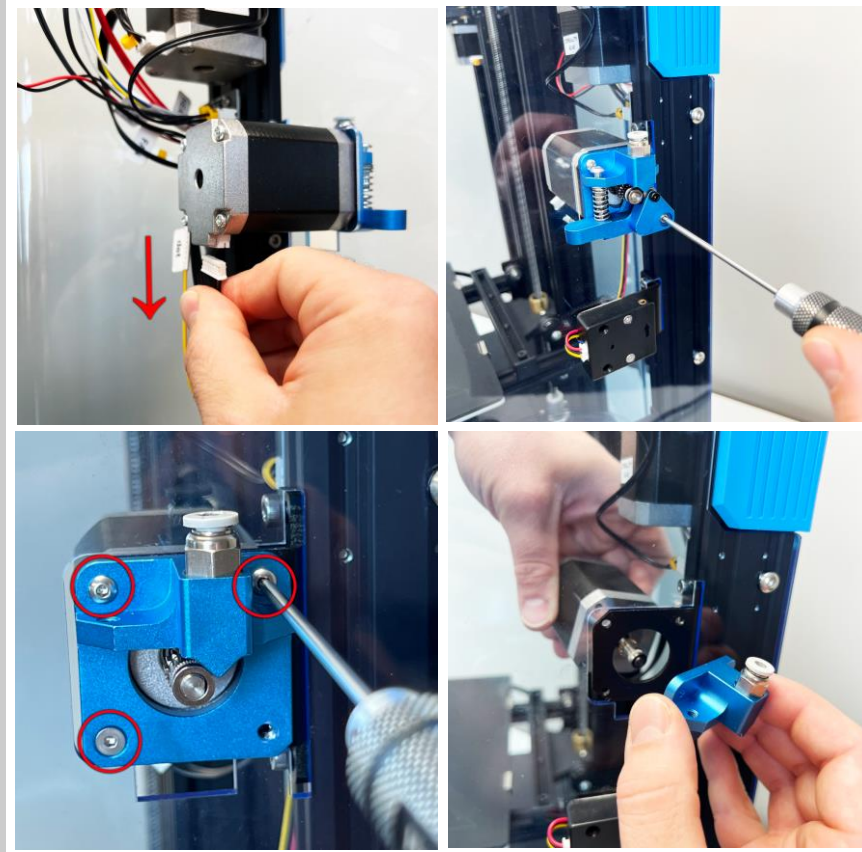
Step 6 – REMOVE THE HOTEND



- Remove the two screws holding the hotend using a 2mm Allen wrench
- Remove the retaining C-clip from the Bowden extruder
- Press the plastic Bowden Coupler lip down and pull the PTFE tube out of the original extruder
- Remove PTFE tube from the hotend

Save the PTFE tube to be reused during the installation of the NG Extruder

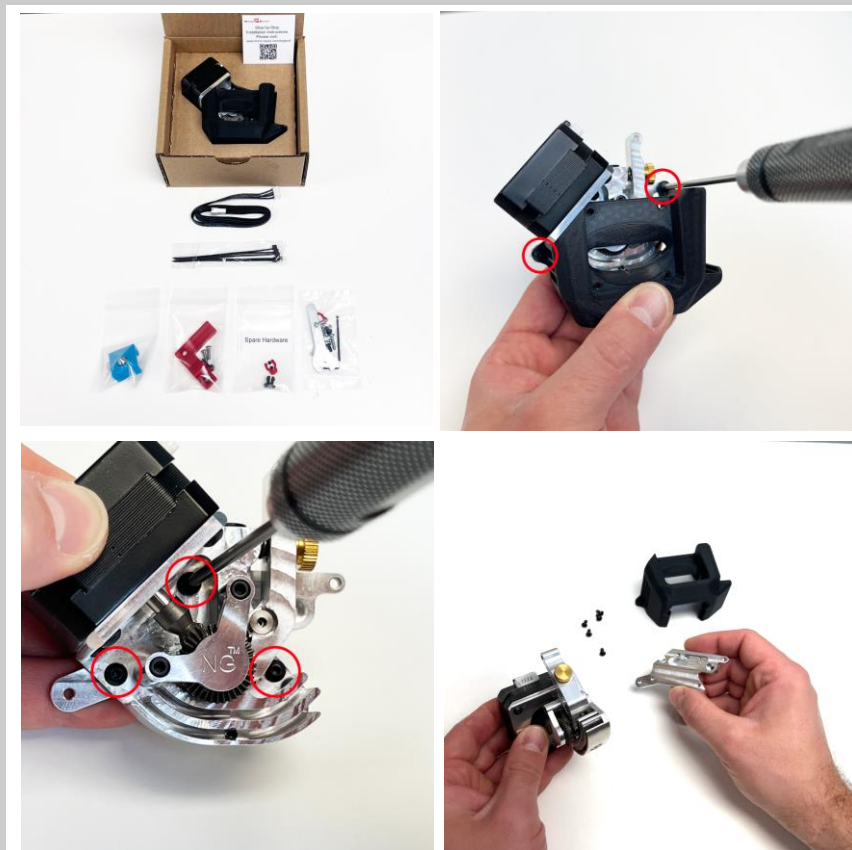
Step 7 – REMOVE THE ORIGINAL EXTRUDER



- Unplug the cable from the stepper motor
- Use the 2.5mm Allen wrench to remove the tension screw and then the extruder arm
- Use the 2mm Allen wrench to unscrew the Bowden extruder from a stepper motor

When removing the Bowden extruder, hold the stepper motor from the inside. This will prevent the stepper motor from falling out

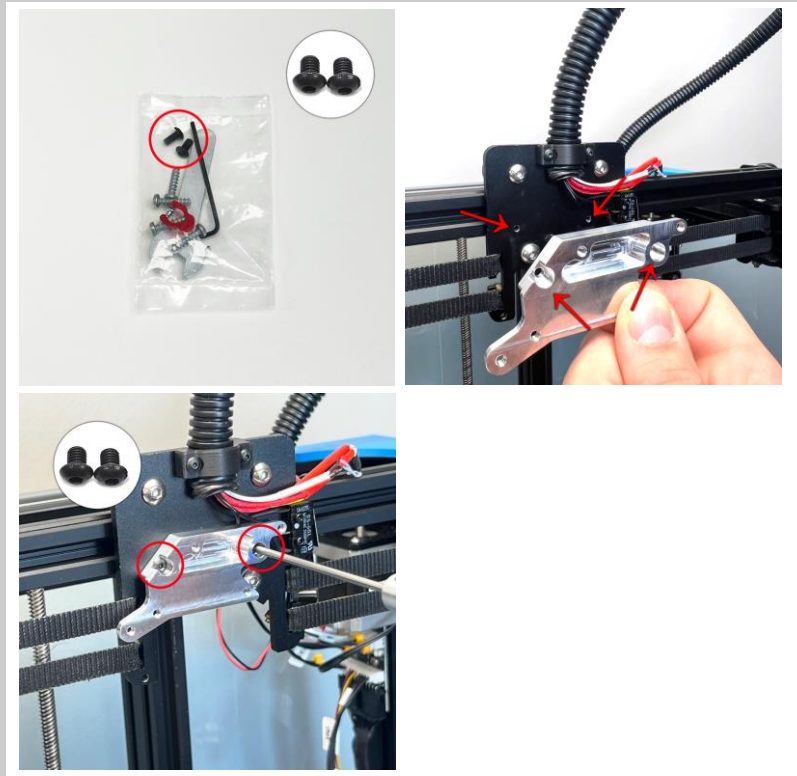
Step 8 – PREPARE THE NG ASSEMBLY



Prepare the NG extruder for assembly by removing the fan shroud and the adaptation plate.

- Use the 2mm Allen wrench to remove the fan shroud
- Use the 2mm Allen wrench to remove the Extruder body from the adaptation plate.

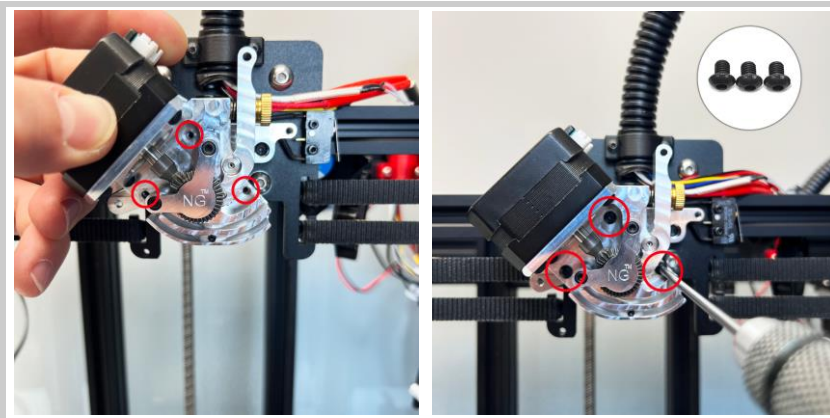
Step 9 – INSTALL THE ADAPTATION PLATE ON THE CARRIAGE



Adaptation plate is secured to the carriage using two 3mm screws as shown in the picture

- Install the adaptation plate on the carriage, using a 2mm Allen wrench

Step 10 – INSTALL THE EXTRUDER ONTO THE ADAPTATION PLATE



The Extruder is secured to the Adaptation Plate using three 3mm screws as shown in the picture

- Attach the Extruder to the adaptation plate using a 2mm Allen wrench

Step 11 – PREPARE THE HOTEND



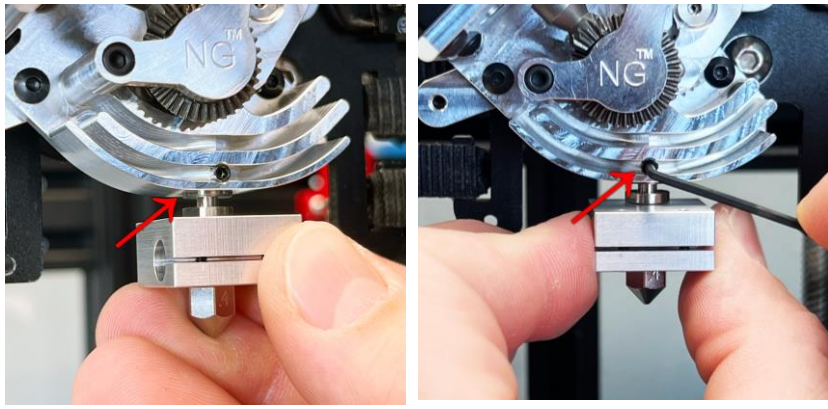
- Remove the silicone sock from an all metal hotend
- The included hotend has already been preheated and the nozzle has been tightened to spec at the factory

There is no need to do the nozzle tightening procedure on the new hotend unless you are replacing the nozzle

When replacing nozzles in the future, the hotend will need to be preheated to exactly 220C and the new nozzle should be torqued to 30-inch pounds

The thermal break needs to be fully seated before the nozzle is tightened down

Step 12 – INSTALL THE HOTEND

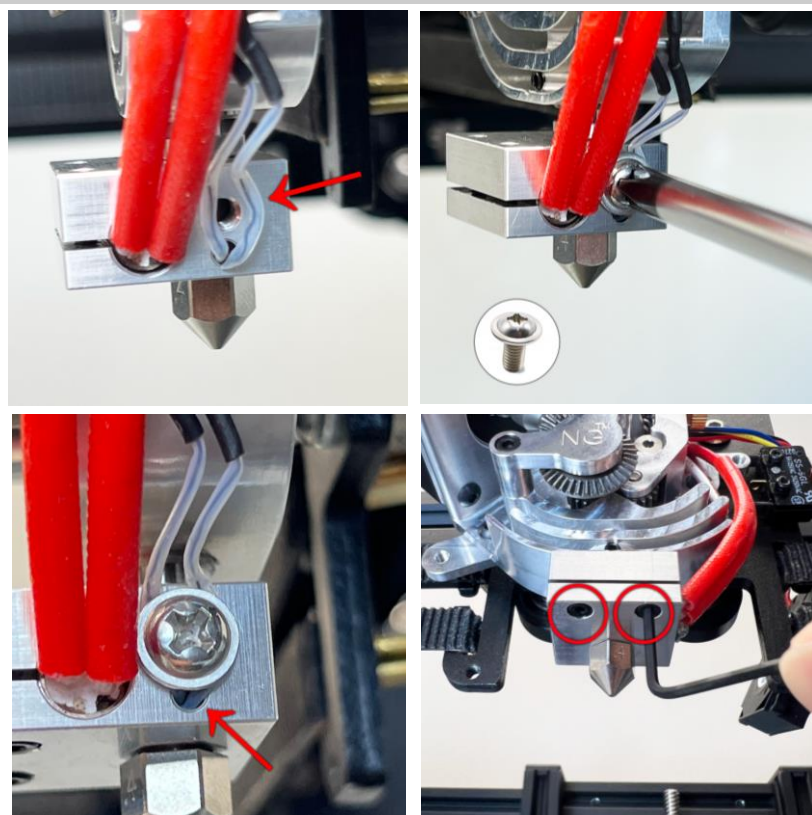


- Insert the hotend assembly into the extruder

Verify the thermal break is seated as deep as possible in the extruder (compare with reference image on the left)

- Tighten the grub screw using a 1.5mm Allen wrench

Step 13 – INSTALL THE THERMISTOR AND HEATER CARTRIDGE



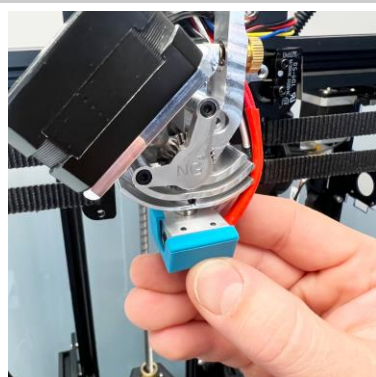
- Install the heater cartridge and the thermistor
- Secure the thermistor using the provided Washer Head Phillips screw

Be careful not to overtighten the screw as this can damage delicate wires

Make sure the thermistor sits all the way inside the thermistor hole. The glass bead of the thermistor should not be visible from the outside


- Tighten the two heater cartridge screws using the 1.5mm Allen wrench

Step 14 – INSTALL THE SILICONE SOCK



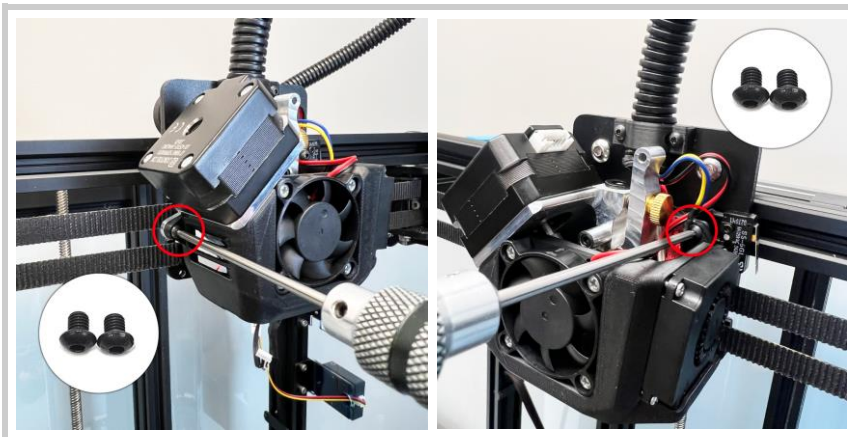
- Install the silicone sock

Step 15 – ATTACH THE FANS ONTO THE FAN SHROUD



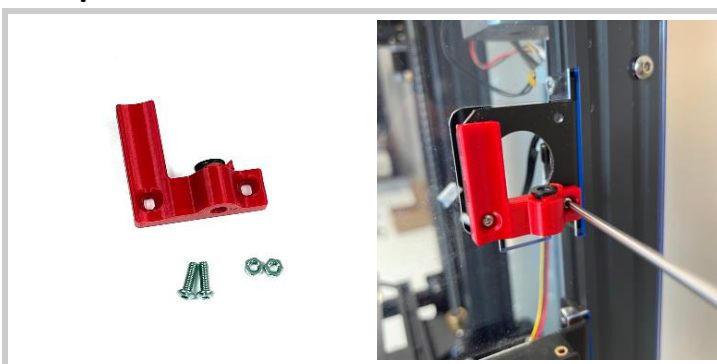
- Install the part cooling fan onto the fan shroud using the smaller of the four provided self-tapping screws
- Install the hotend cooling fan onto the fan shroud using the larger of the four provided self-tapping screws

Step 16 – INSTALL THE FAN SHROUD



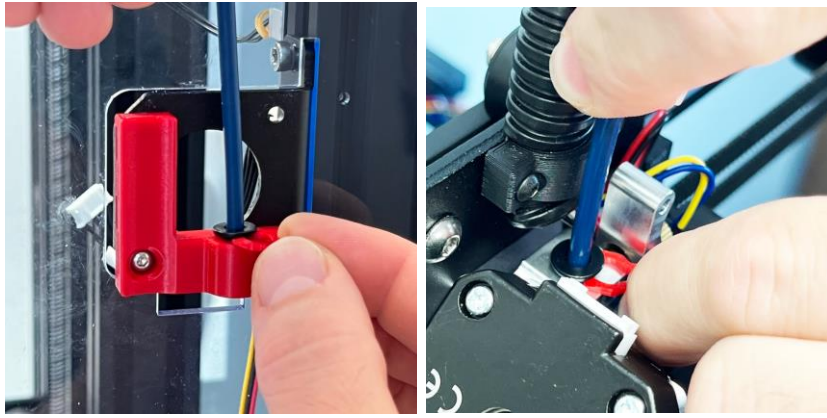
- Install the assembled fan shroud back on the NG Extruder

Step 17 – INSTALL THE FILAMENT GUIDE BRACKET



- Install the filament guide bracket where the original Bowden extruder used to sit, using provided M3 nuts and bolts

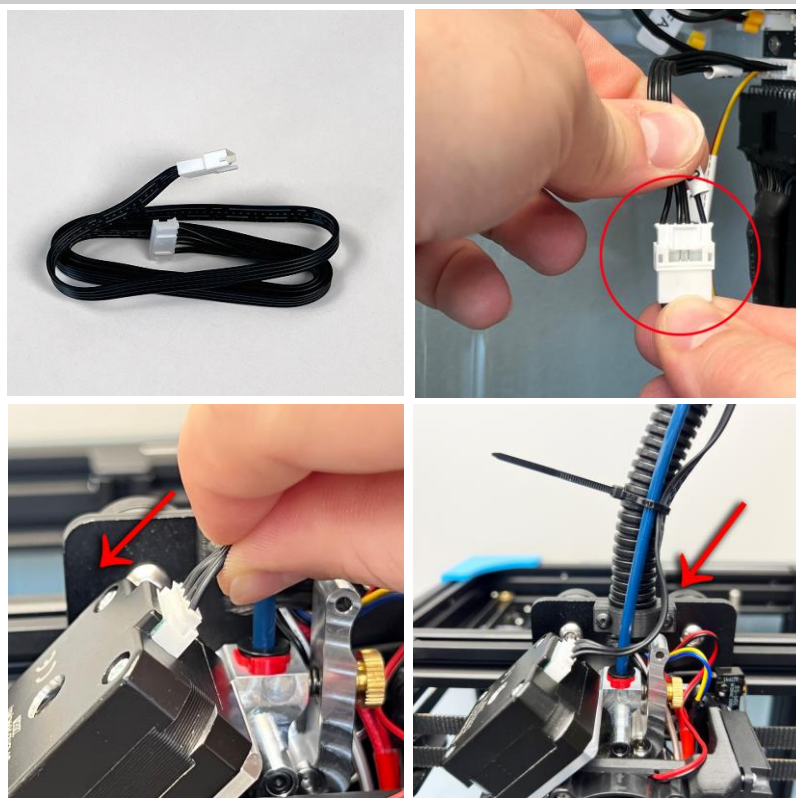
Step 18 – INSTALL THE FILAMENT GUIDE TUBE



The printer's original Bowden tube will be reused to help guide filament from the spool into the extruder.

- Insert the filament guide tube into the Filament Guide Bracket and secure it using one of the provided retaining clips
- Insert the other end of the filament guide tube into the top of the extruder and secure it using one of the provided retaining clips

Step 19 – INSTALL THE EXTENSION CABLE

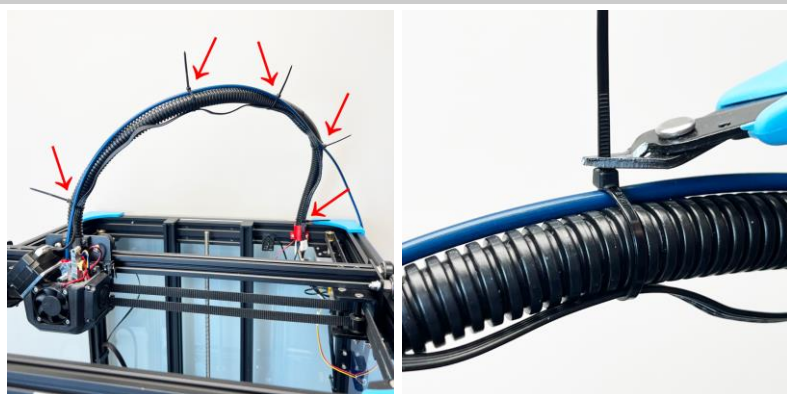


⚠ It is very important to use the provided extension cable.

This cable has a special pinout required to use the NG Extruder's LDO motor on the Ender-6

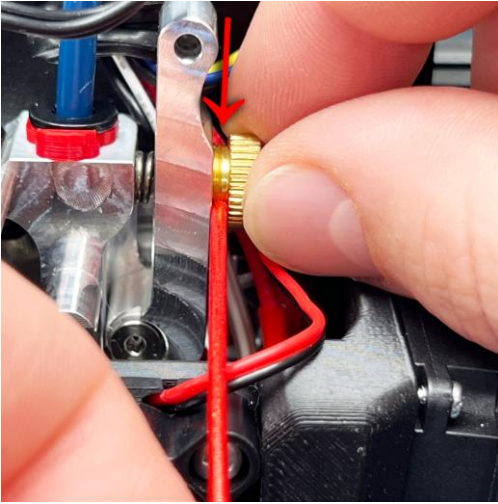
- Connect one end of the extension cable to the original E motor cable and the other end to the LDO stepper motor
- Make sure to give the extension cable some slack near the stepper motor

Step 20 – CABLE MANAGEMENT



- Use provided zip ties for cable management

Step 21 – GEAR TENSION



- Adjust the gear tension by rotating the brass knob

The gear tension can be gauged by measuring how much of the brass knob's threads are exposed. (Distance from the head of the brass knob to the aluminum extruder arm)

The good starting point for stiff filaments such as PLA, PTEG, ABS is 1.75mm of exposed threads (use a piece of 1.75mm filament as a gauge as shown in the image on the left)

For flexible filaments such as TPU, loosen the knob until about 2.75mm of the threads are exposed. (Loosen the knob two full turns, if starting from 1.75mm)

Step 22 – POWER ON THE PRINTER



- Plug the power cable in and turn the printer on

Step 23 – UPDATE E-STEPS



The E-steps will need to be set to 400 in the printer settings by printing a g-code file

- Download the Esteps G-code [\(click here\)](#)
- Copy the Esteps G-code file onto your printer's SD card
- “Print” the Esteps G-code using the printer menu, as you would with a regular G-code that was made using a slicer

Step 24 – CONFIGURE SLICER SETTINGS

Material	<
Speed	<
Travel	∨
Enable Retraction	<input checked="" type="checkbox"/>
Retract at Layer Change	<input type="checkbox"/>
Retraction Distance	<input type="text" value="1.0"/> mm
Retraction Speed	45.0 mm/s
Retraction Retract Speed	45.0 mm/s
Retraction Prime Speed	45.0 mm/s
Retraction Extra Prime Amount	0.0 mm ³
Retraction Minimum Travel	1.5 mm

- Set the **Retraction Distance to 1.0mm** in your slicer software

Do not use any g-codes that were sliced with a Retraction Distance higher than 1.5mm.

INSTALLATION COMPLETE

Service Tips

Removing Filament

- Preheat the hotend to printing temperature
- Press the extruder arm to release the gear tension
- Purge the nozzle by manually pushing the filament down about 10mm to extrude any melted plastic
- Quickly pull the filament out of the extruder

Loading Filament

- Preheat the hotend to printing temperature
- Cut the tip of the filament at a 45-degree angle
- Straighten the tip of the filament out
- Using the printer menus issue an Extrude command
- Insert the filament into the extruder as the gears are rotating

When loading filament initially do not press the extruder arm until after the filament has made it into the tube below the extruder gears. After that you can then either continue to issue more Extrude commands using the printer menu or press the extruder arm back and push the filament down manually until you see melted filament coming out of the hot nozzle.

Nozzle Replacement Procedure

- Preheat the hotend to exactly **220C**
- Remove the filament from the hotend
- Unscrew the old nozzle, while holding the heater block in position using an adjustable wrench
- Screw in the new **MK8** nozzle and torque it to 30-inch pounds, while holding the heater block in position using an adjustable wrench

Verify that the thermal break is still seated flush on top of the heater block after installation

