

Micro Swiss Direct Drive Extruder for CR-10 / Ender 3 Printers with Linear Rail Configuration

INSTALLATION INSTRUCTIONS

Tools needed

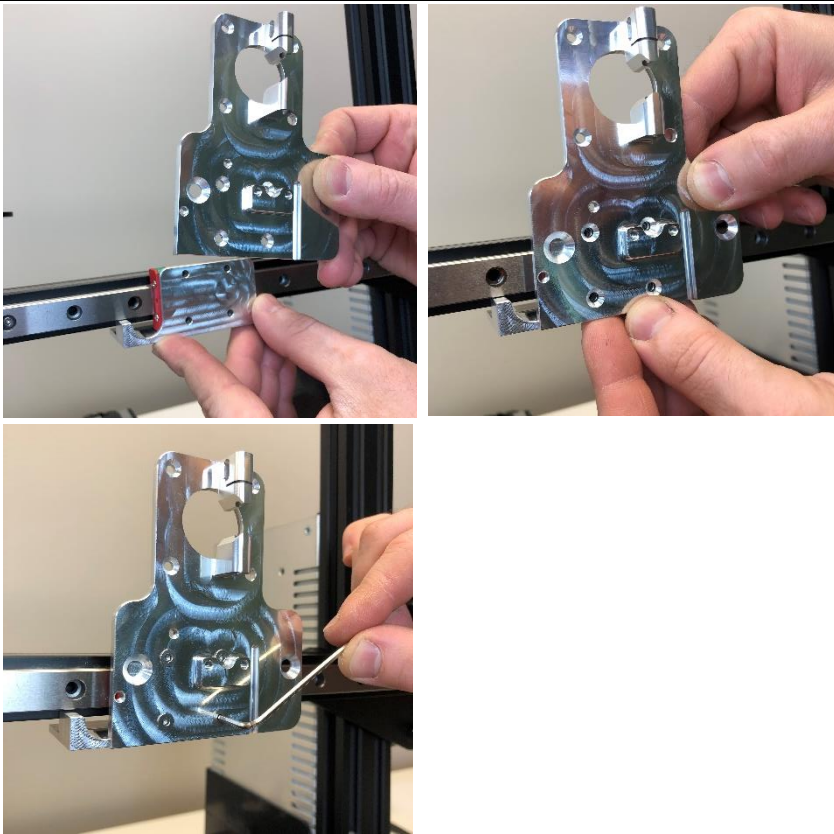
Gather the required tools before starting installation.

- Adjustable wrench
- Phillips-Head screwdriver
- 7mm socket wrench
- 7mm spanner wrench (supplied)
- 1.5mm Allen wrench (supplied)
- 2mm Allen wrench
- 2.5mm Allen wrench
- 3mm Allen wrench



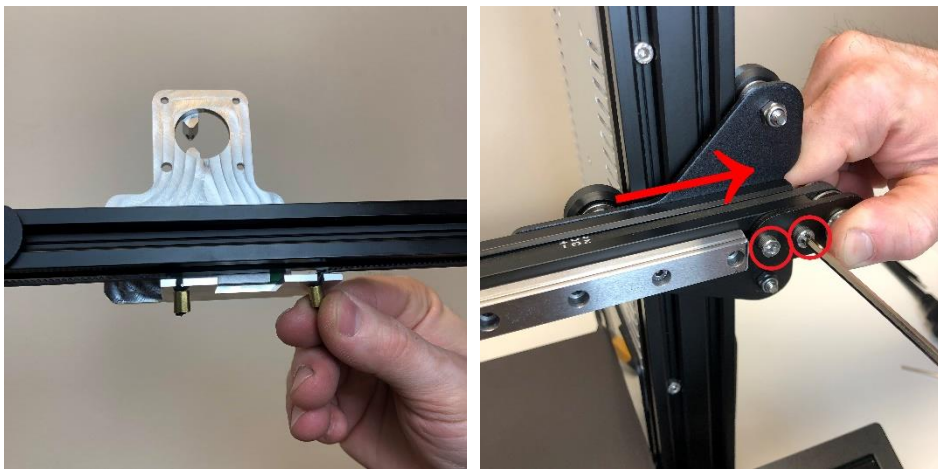
⚠ For your safety, turn off and unplug your printer.

Step 1 - Installing Micro Swiss cartridge on the rail block



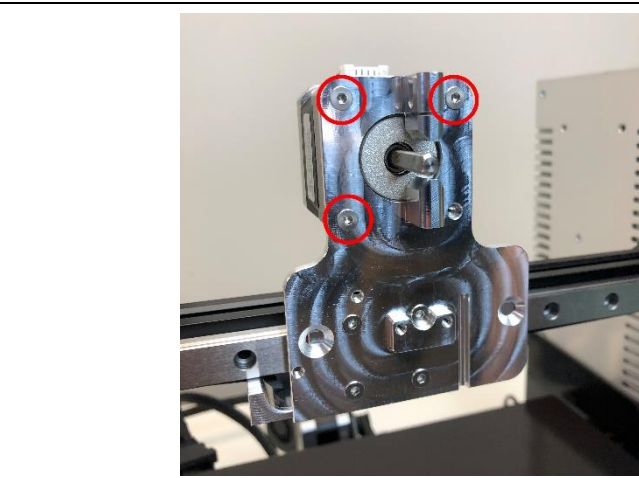
- Cartridge consist of 2 pieces
 - Main body
 - Belt mounting bracket
- Alight the belt mounting bracket with the linear rail block 4 mounting hole
- Alight the main body
- Use provided (4x) M3x8mm screws to mount the cartridge on the rail block

Step 2 – Reinstall the belt



- Reinstall the belt
- Tighten the belt by pulling on the belt tensioner

Step 3 – Install extruder motor



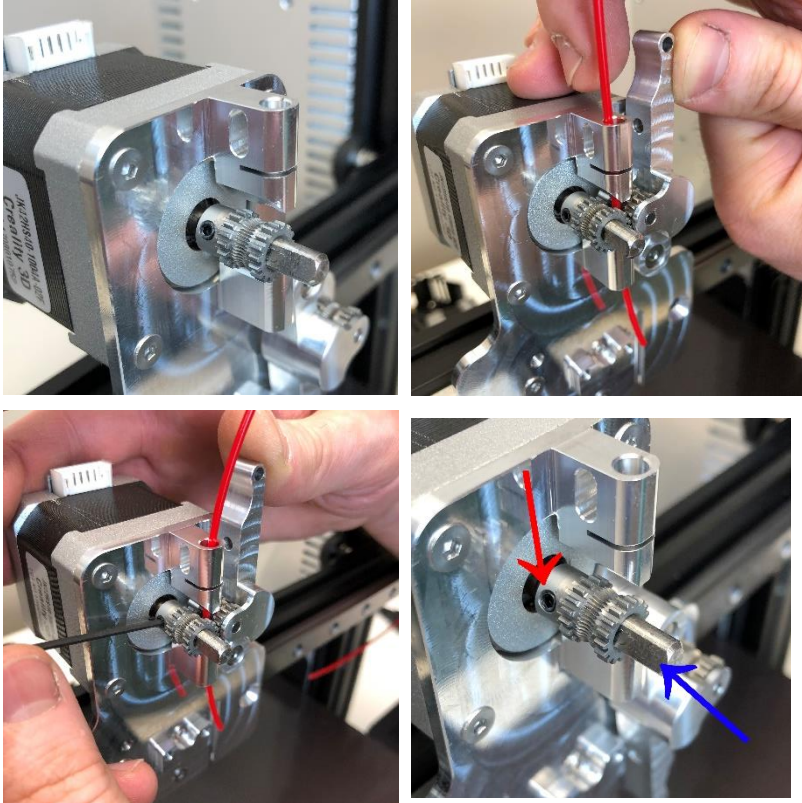
- Install the extruder motor on the aluminum cartridge
- Use the provided (3x) M3 screws
Make sure the motor connector is facing upwards.

Step 4 – Install the lever



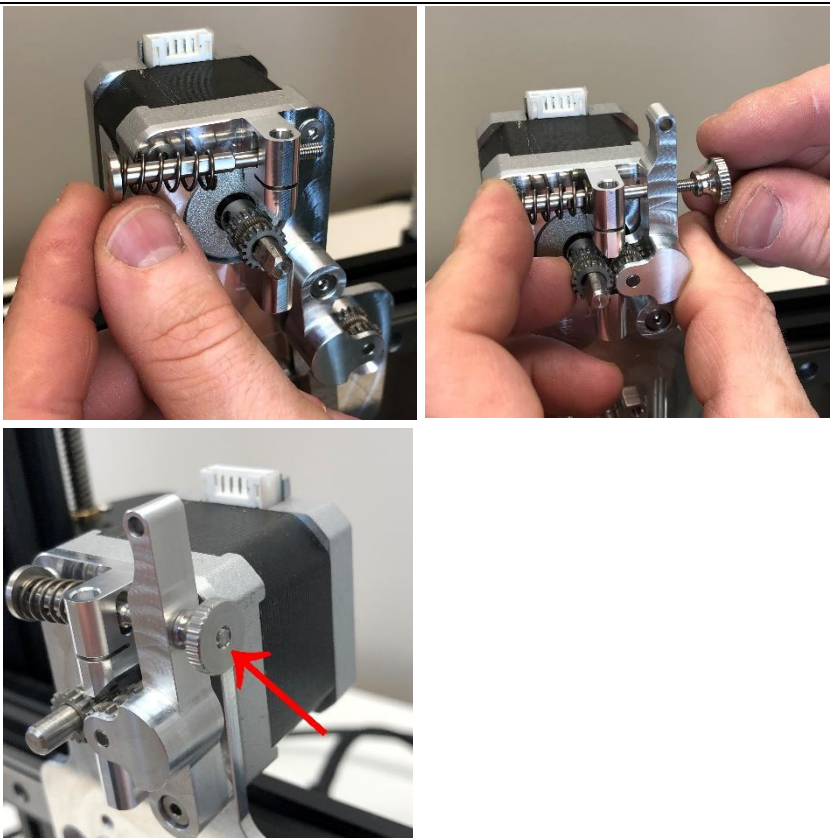
- Insert the precision shoulder screw into the lever
- Install the lever. Use the 2mm Allen wrench

Step 5 – Install the drive gear



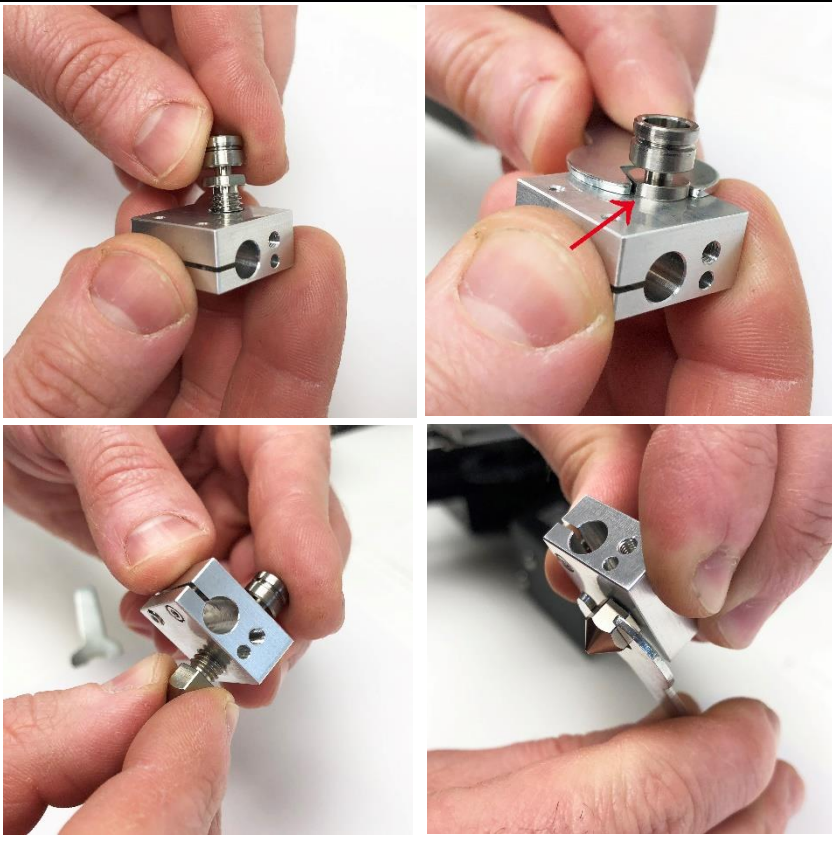
- Install the drive gear on the extruder motor. **Note the correct orientation - set screw against the flat part of the shaft**
- Engage the lever and insert a piece of filament, preferably rigid PLA. Use back and forth motion to align the center line of lever and drive gear
- Once aligned, keep applying pressure to the lever and tighten the grub screw
- Double check to see if the gears are centered
- Make sure the set screw is on the **flat part of the shaft** and when tightened, **should be flush with the gear shank**

Step 6 – Install the lever pin



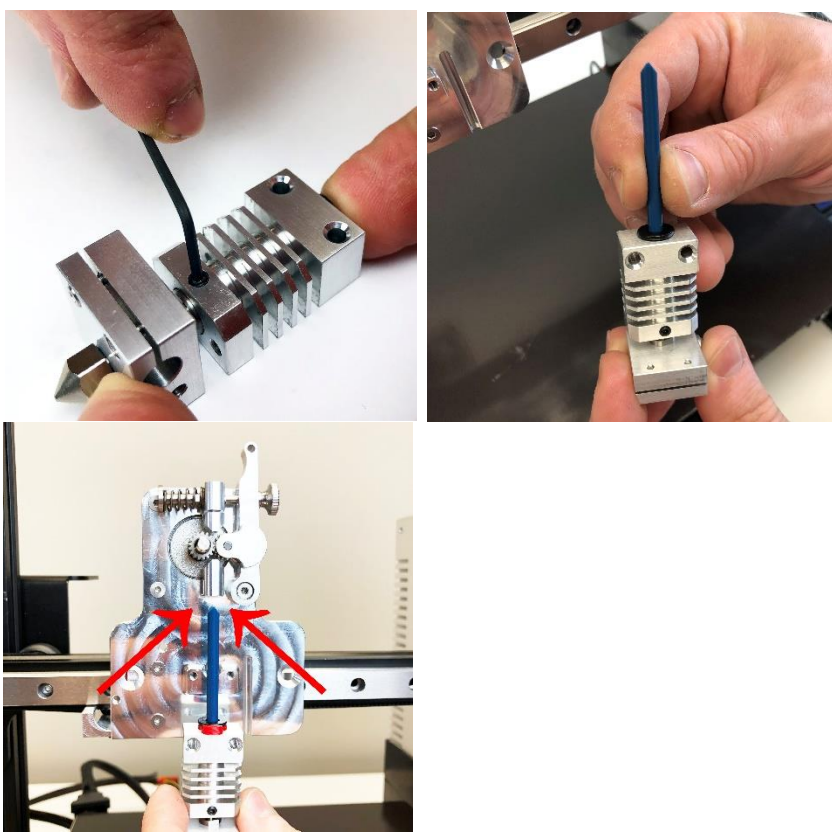
- Screw in the lever adjusting knob until the pin is flush with the knob. *This should be a good starting point for the filament grip*
- For Flexible filament, use less pressure

Step 7 - Assembling the hotend



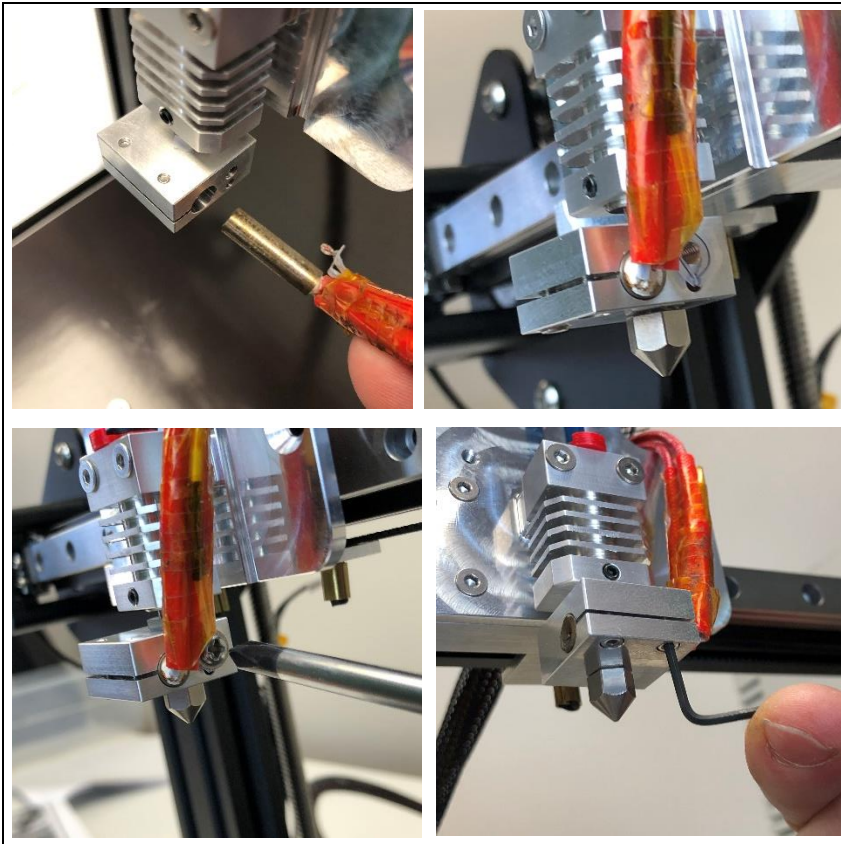
- Start by screwing in and tightening the titanium thermal break. **Make sure it is flush with the heater block.**
- Install the nozzle

Step 8 - Assembling the hotend



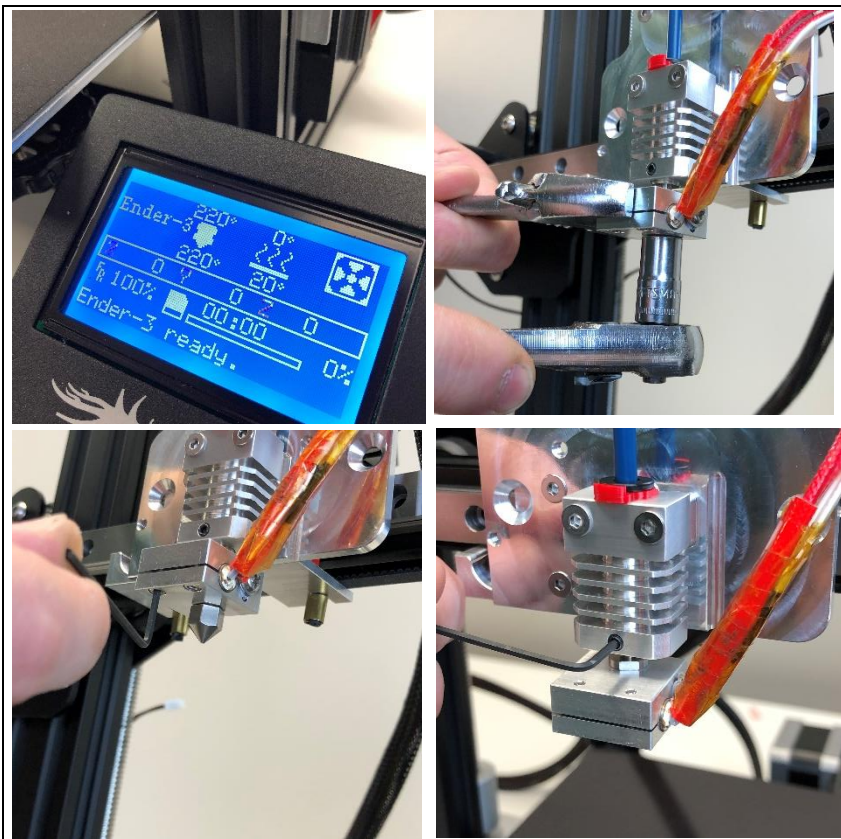
- Insert the heater block assembly into the cooling block and tighten the grub screw
- Insert the provided PTFE liner. Make sure the beveled edge is facing up
- Install the hotend assembly on the extruder plate. The beveled end of the tube should align with the extruder gear, to provide duly constrained filament path

Step 9 - Reinstall the heater cartridge and thermistor



- Reinstall the heater cartridge and thermistor
- Tighten the heater cartridge using the 1.5mm Allen wrench
- Secure the thermistor. **Be careful not to overtighten the screw as this can damage delicate wires**

Step 10 - Fully seat the nozzle



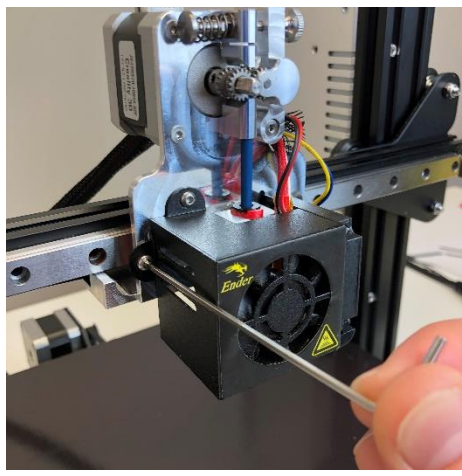
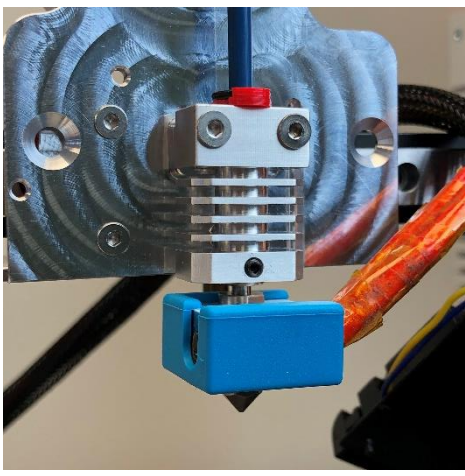
- Turn on the printer and preheat the hotend to 220 degrees Celsius
- **⚠ The hotend is now at 220 degrees Celsius. Be extremely careful not to burn your fingers when tightening the nozzle and the grub screws**
- Hold the heater block with the adjustable wrench and use the 7mm socket wrench to tighten the nozzle. If using torque wrench, set it to 30in-lb setting
- The heater cartridge might become loose after initial heat up. Make sure it is fully tightened. **Be careful not to burn your fingers!**
- Tighten the grub screws on the cooling block. **Again, be careful not to burn your fingers!**

Step 11 – Cool down your printer



- Cool down your printer and shut it off
- **⚠ Make sure the printer is fully cooled down. Turn off and unplug your printer before finishing installation**

Step 12 – Reinstall the fan



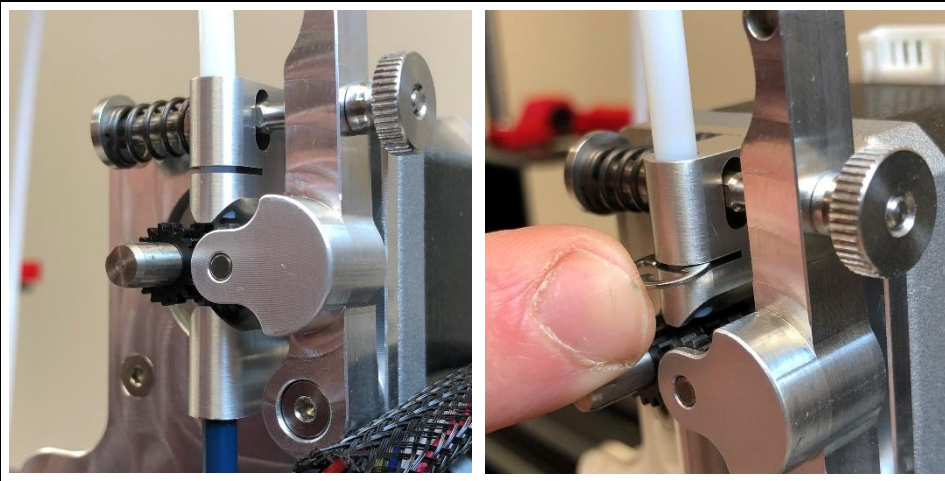
- Install the silicone sock
- Reinstall the cooling fan shroud

Step 13 – Install the filament guide bracket



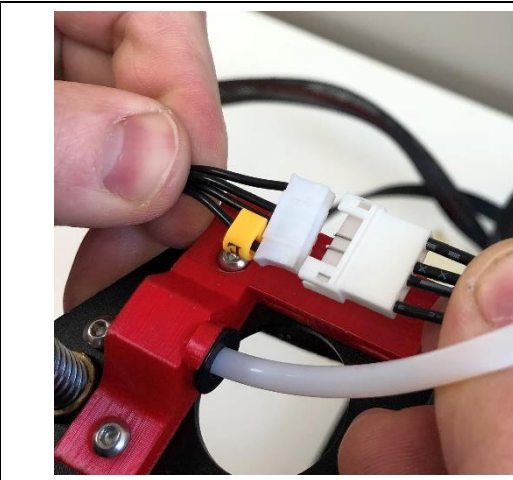
- Install the filament guide bracket using provided M3 bolts and nuts

Step 14 – Install the filament guide tube



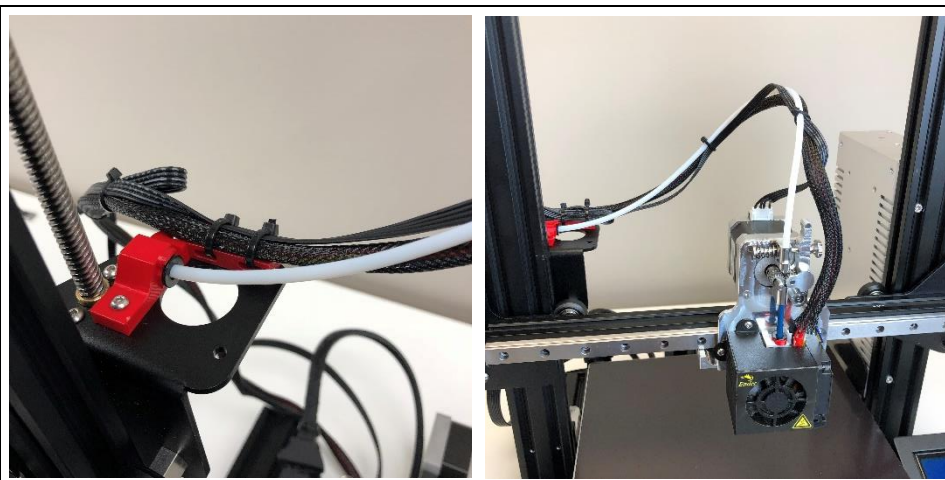
- Insert the filament guide tube and secure it with the provided retaining clip

Step 15 – Connect the motor



- Connect the extruder motor with the provided custom extension cord

Step 16 – Finishing the installation



- Secure the cables and filament guide tube with zip ties

Step 17 – Fine tune



Extruder steps/mm needs to be calibrated.
Good starting point is 130 steps/mm

- Download this custom [G-code](#) file to your SD card and run it in your printer. This will set the steps/mm to 130.
- For best results, you will have to fine tune the extrusion multiplier/flow rate in your slicer.

The installation is now complete!

Tips and Tricks

- **Reduce the retraction amount. Maximum recommended retraction is 1.5mm @ 35mm/sec.**
- With All Metal Hotend, the nozzle temperature might need to be increased by 5-10 °C.
- Make sure the Z-axis rail wheels are adjusted properly to eliminate rail sagging.
- Download and print the [Extruder Knob](#) from Thingiverse. This makes the manual filament changing process very easy.