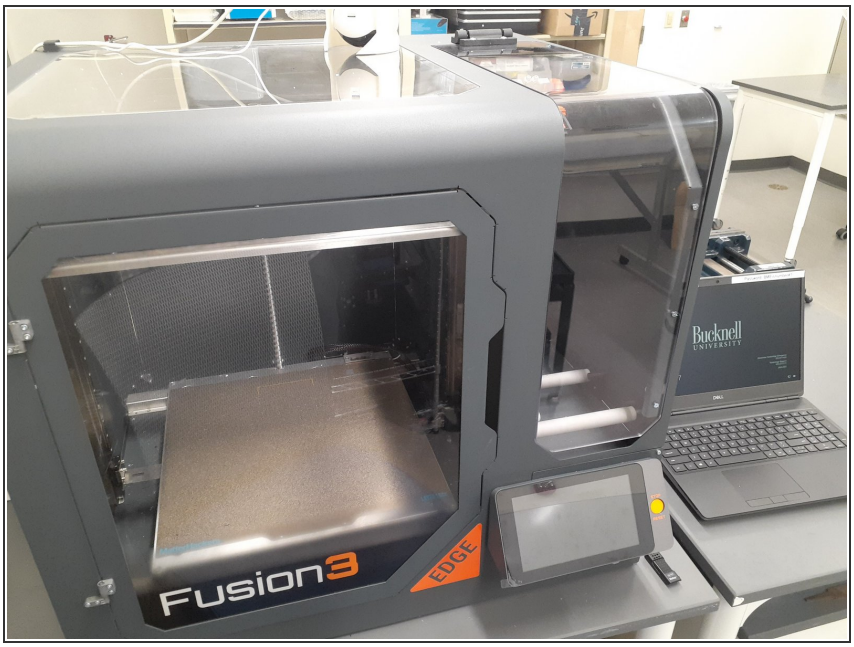
Changing Filament - Fusion3 EDGE

Written By: Jacob Nickle



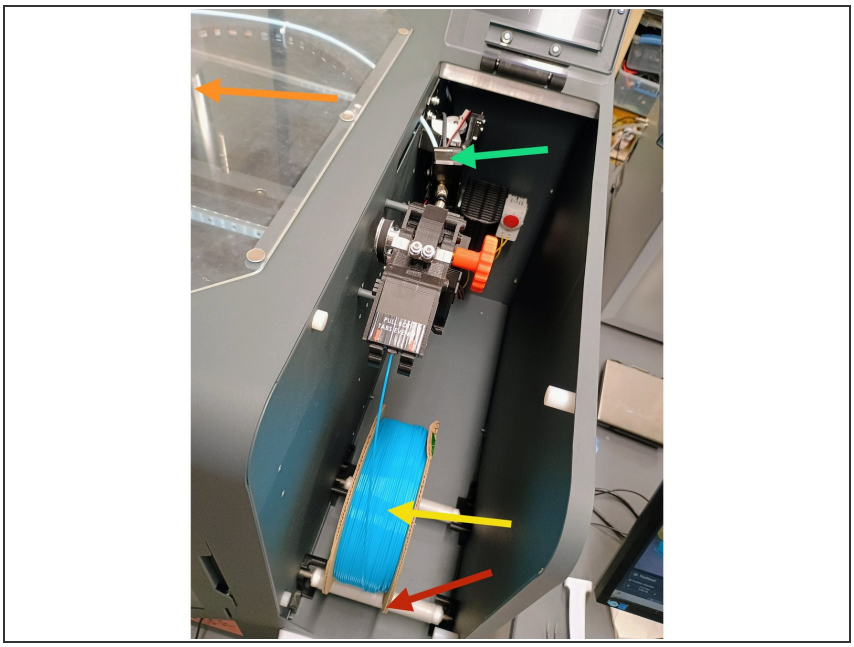
Step 1 — Introduction



ⓘ This filament changing tutorial is intended only for the Fusion3 EDGE printer in the fabrication lab (ACET 237). Other printers may require different instructions.

⚠ This tutorial only works for commonly used filament such as PLA, PETG and ABS. If an engineering-grade filament requiring higher temperatures or a flexible filament needs to be loaded, ask the lab director for assistance. This tutorial does not cover the needs these specialized filaments have.

Step 2 — Definitions



- Filament is defined as a thin (typically 1.75 mm in diameter) polymeric extrusion that is typically wound onto a spool.
- A spool is a plastic cylinder which conveniently stores wound up filament.
- A filament sensor notifies the printer when filament has run out or is not properly feeding through the extruder / hotend.
- An extruder is a stepper motor and other hardware that drives the filament through the hotend.
- The hotend heats up the filament until it can be extruded through a nozzle.

ⓘ Note that the colors in the images correspond to the definitions.

© 2025

Step 3 — Unload



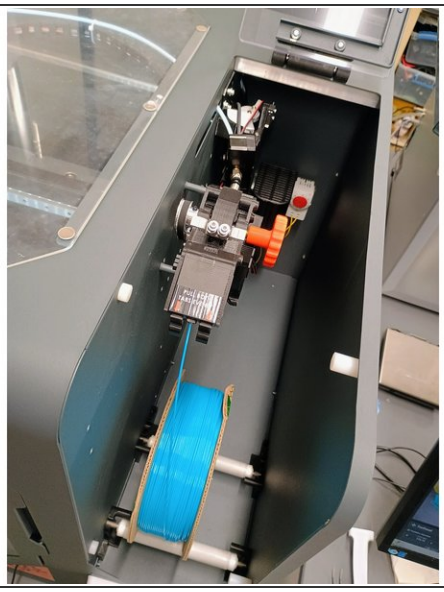




- On the Fusion3 EDGE touchscreen, select "Extrude"
  - If the printer is paused, select the back arrow found on the top left of the screen.
- Select "Unload".
- Wait until the hotend reaches the target temperature and the filament is automatically pulled out of the extruder.
- The extruder will start backing out the filament. Gently roll the spool backwards so that the filament remains tight.
- Once the automated unloading procedure is finished, pull out the filament.
- Remove the spool of filament from the holder.
- Secure the end of the filament through the side holes of the spool as shown in the third image.

Step 4 — Load Preparation

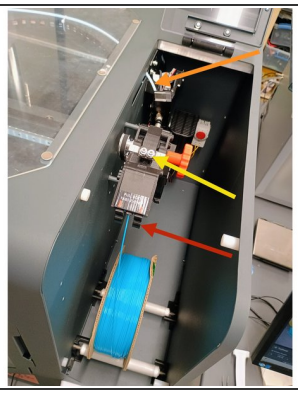


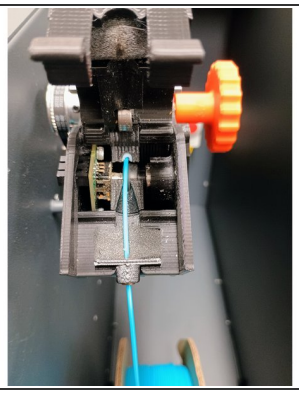


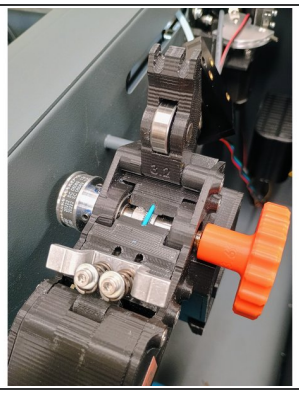
- Grab another spool of filament.
- Take the end of the filament out of the holes that secured it.
- Cut the end of the filament at a 45° angle.
  - ⓘ This can make feeding the filament through the tube, extruder and hotend easier.
- Place the new filament spool on the holder in an orientation such that the filament can easily feed through the filament sensor. Reference the 2nd image as needed.

© 2025

Step 5 — Load Preparation 2

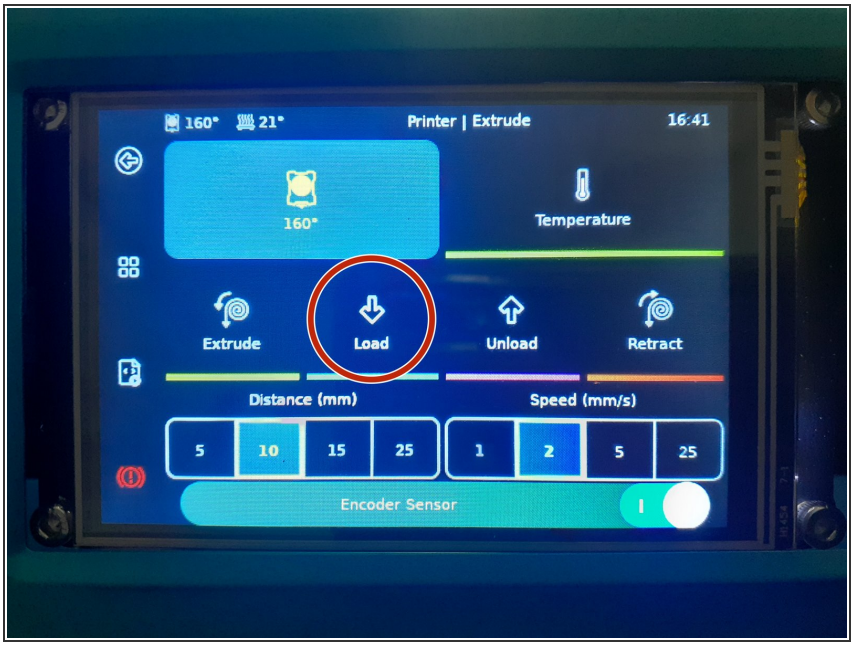






- Thread the filament through the extruder using the following steps and image as a reference.
  - Pull tabs (red arrow) revealing internal area.
  - Feed the filament through the entrance hole and through the next hole now visible, as seen in the second image.
  - Pull forward the spring-loaded metallic handle (yellow arrow) and open the plastic part revealing the gripping gear as seen in the third image.
  - Feed filament through this area.
  - replace plastic part and metallic handle as before as well as the tabs that were opened at first.
  - Rotate the orange knob where the top of the knob is moving forward (clockwise) until the filament passes through the filament sensor all the way to the orange arrow (about 2 mm past the filament sensor).

Step 6 — Load



- Select 'Extrude' on the touchscreen
- Select 'Load'.
- Wait for the nozzle to heat up.
- Watch for the polymer to extrude out of the nozzle to verify that the filament has been successfully loaded.
- The print can now be started or resumed.
- If there are any issues, contact the Lab Director for assistance.