How do you unclog a Bambu Lab hotend?

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Abstract. Bambu Lab's guides heat the nozzle to 250 °C for PLA, run the included pin up and down in the tip, then cold pull. If the clog survives that, swap the hotend.

Keywords: pla, petg

Table 1. The number

Printer	Nozzle temperature for the pin	Tools Bambu lists	After the pin	How the hotend comes out
X1, X1C, P1P, P1S	250 °C for PLA, PETG, TPU and ABS; higher for hotter filaments	Included pin (skip it on 0.2 mm nozzles)	Manual cold pull: load at 220 °C, pull at 100 °C	Two screws, H2.0 Allen key, at 50 °C or below with the power off
A1, A1 mini	Slightly above the filament's temperature, 250 °C for PLA	Pin, pliers, oven glove, filament	Hotend out at 100 °C, pliers on the inlet, reload at 220 °C, pull at 100 °C	Buckle, no tools
H2D	250 °C to extrude, 220 °C for the pin (PLA)	Pin, pliers, oven glove, filament	Toolbox > Nozzle Cold Pull Maintenance	Buckle, no tools; move the flow blocker rod first
H2S	250 °C to extrude, 220 °C for the pin (PLA)	Pin, pliers, oven glove, filament	Toolbox > Nozzle Cold Pull Maintenance	Buckle, no tools
P2S	220 °C (PLA)	Needle, pliers, heat-resistant gloves, filament	Toolbox > Nozzle Cold Pull Maintenance	Clip, gloves only

1 How do you unclog a Bambu Lab hotend?

Heat the nozzle to 250 °C for PLA (polylactic acid) and try extruding from the screen. If nothing flows, run the included pin up and down in the tip a few times, pull it out and extrude again, then do a cold pull. Bambu Lab's guides follow that order. If the clog survives several rounds, swap the hotend.

1.1 The number

All rows come from Bambu Lab's wiki guides for each printer family, listed under Sources. PETG is glycol-modified polyethylene terephthalate, TPU thermoplastic polyurethane and ABS acrylonitrile butadiene styrene. The A1 and H2D guides add that the pin "does not work with nozzles smaller than 0.4mm." Cold pull steps for each model are on the Bambu Lab cold pull page.

1.2 How do you fix a clogged nozzle on a P1S or X1C?

The X1 and P1 share one guide.

1. **Heat.** Settings > Temperature/Axis, set the hotend to 250 °C.
2. **Lower the bed.** Tap -10 on the same screen until the bed sits mid-height.
3. **Pin the tip.** Move the pin through the nozzle tip a few times. Don't push it far: that drives molten filament higher and makes a harder clog.
4. **Extrude.** The strand should come out straight. A curling strand means debris is still at the tip.
5. **Cold pull.** Bambu recommends one after every cleaning.

If it still won't extrude, find out which part is blocked. With the nozzle at printing temperature, cut the filament, remove the two hotend screws and push a piece of filament through the hotend by hand. If it passes, the clog is in the extruder, not the hotend; see an extruder clicking with nothing coming out.

To swap an X1 or P1 hotend, cool it to 50 °C or below and power off. Unplug the heater, fan and thermistor; on the X1 and X1C, press the latch on the thermistor plug first. The bare hotend with nozzle fits both series; the complete assembly comes in separate X1 and P1 versions. It is one unit (heatsink, throat, heater block and nozzle), so it goes in cold.

1.3 How do you unclog a nozzle on an A1 or A1 mini?

Start the same way: 250 °C for PLA, extrude, then pin and extrude in cycles. With TPU, don't press the loading button more than three times. If that fails, Bambu's A1 guide adds a step:

1. Heat to 100 °C and lift the hotend out wearing an oven glove.
2. Pull the old filament out of the hotend inlet with pliers.
3. Refit it, set 220 °C and load a different color of the same filament.
4. Once only the new color comes out, drop to 100 °C and cold pull.

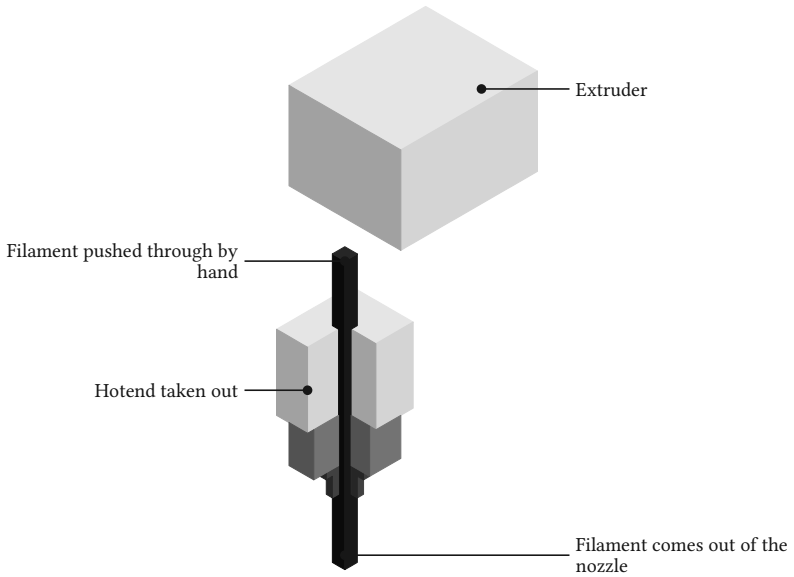


Figure 1. If filament pushed through the removed hotend by hand comes out of the nozzle, the clog is in the extruder, not the hotend.

To check whether the hotend is really the problem, remove it, enable maintenance mode on the Settings > Maintenance page and set 170 °C, the lowest extrudable temperature. If filament feeds cleanly without the hotend, the hotend is clogged. Also test with the toolhead over the purge wiper: on the A1, a nozzle set too close to the bed can block extrusion and pass for a clog.

1.4 How do you unclog an H2D, H2S or P2S?

All three pin the tip at 220 °C for PLA, then run the cold pull from the Toolbox menu. The P2S guide goes further. While the nozzle is hot, take it out, push the leftover filament through with the needle and pull it out with pliers. The H2D guide takes the hotend out at 100 °C for PLA and pulls the filament stuck in its inlet with pliers. If the H2D still won't extrude with the hotend removed, the clog is inside the extruder assembly.

1.5 When should you replace the hotend instead?

Bambu's guides say these methods "tend to clear out 99% of clogs," and list clogging or damage as reasons to swap the hotend. A 0.2 mm nozzle may need the whole cycle several times. Nozzles larger than 0.4 mm clog "a lot less," since larger particles pass through.

After any swap to a different size or material, update the nozzle on the printer's screen. From Bambu Studio V02.01.01.52, the Printer Parts page only displays it.

1.6 Why

Bambu lists five causes:

- particles bigger than the hole, from carbon fiber, glow-in-the-dark or sparkle filament
- heat creep: low glass transition filament softening in an enclosure
- oversized filament
- debris from the extruder
- a very different filament not purged out, such as PLA and PC (polycarbonate)

The pin only has to knock a particle loose so fresh filament can carry it out. Recurring clogs are covered on why a nozzle keeps clogging.

1.7 How to check it on your own print

- **Wear heat-resistant gloves and keep your face back.** Bambu warns that pressure behind a clog can spray molten filament when the pin frees it.
- **Watch the strand.** Straight and steady means clear. A curl means debris is left, so pin and extrude again.
- **Read the cold pull tip.** Repeat until it comes out clean, with no debris or traces of another material.
- **Separate hotend from extruder.** If filament feeds smoothly with the hotend removed but the extruder clicks with it fitted, the hotend is the clog.
- **Check the fit after a swap.** The hotend should not wobble.

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