Can you dry filament while printing?

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Abstract. Yes, on dryers built for it. Bambu Lab's AMS 2 Pro and AMS HT drop to 45 °C with PLA and 55 °C with PETG once a print starts; standalone dryers hold their setting.

Keywords: petg, nylon, tpu

Table 1. The number

Unit	Setting when not printing	Setting during a print	What the maker says it does
Bambu Lab AMS 2 Pro, 65 °C max	PLA 45 °C, PETG 65 °C, 12 h each; TPU 65 °C, 12 h, may not dry fully; nylon composites not compatible	Lowered automatically: 45 °C if PLA is drying or printing, 55 °C if PETG is	Lowers the heat "usually below the filament's softening point, to prevent clogging in the AMS"
Bambu Lab AMS HT, 85 °C max	PLA 45 °C, PETG 65 °C, 12 h; TPU 75 °C, 18 h; ABS, ASA 80 °C, 8 h; PA6-CF, PAHT-CF 85 °C, 12 h	Same rule: drying ABS during a PETG print runs at 55 °C. No figure published for hotter filaments printing alone	Keeps the chamber under "the minimum softening temperature of the filament in the AMS chamber"
Polymaker PolyDryer	Level 1 (about 50 °C at the dock outlet): PLA 6 h. Level 2 (about 60 °C): PETG 6 h, TPU 12 h. Level 3 (about 70 °C): PA 18 h	Unchanged: Continuous Mode holds the chosen level until you stop it	Filament can be pre-dried before printing, or dried in Continuous Mode "for drying while printing"
Sunlu FilaDryer S2, 70 °C max	One-key presets per filament	Unchanged: no separate print setting published	Filament continues "to dry in the dryer as it's being fed to the printer"

1 Can you dry filament while printing?

Yes, on dryers built for it. The Polymaker PolyDryer and Sunlu FilaDryer S2 keep heating at your setting while filament feeds out to the printer. Bambu Lab's AMS 2 Pro and AMS HT lower the heat once a print starts: 45 °C if PLA is drying or printing, 55 °C for PETG, down from 65 °C.

1.1 The number

Bambu Lab rows come from its Filament Drying Recommendations wiki and AMS drying guide, the PolyDryer row from Polymaker's manual and FAQ, the S2 row from Sunlu's product page. Polymaker rates its dock by power level, not chamber temperature; its wiki puts the hottest zone inside the box at 68 to 73 °C.

1.2 Why

In an AMS, loaded filament sits in the feeder gears inside the heated chamber. Bambu Lab lowers the heat during a print so it can't soften and get "crushed by the feeding gears." The softest filament inside sets the cap: 45 °C for PLA (polylactic acid), 55 °C for PETG (glycol-modified polyethylene terephthalate). A standalone dryer has no feed gears, and neither Polymaker nor Sunlu publishes a lower print setting.

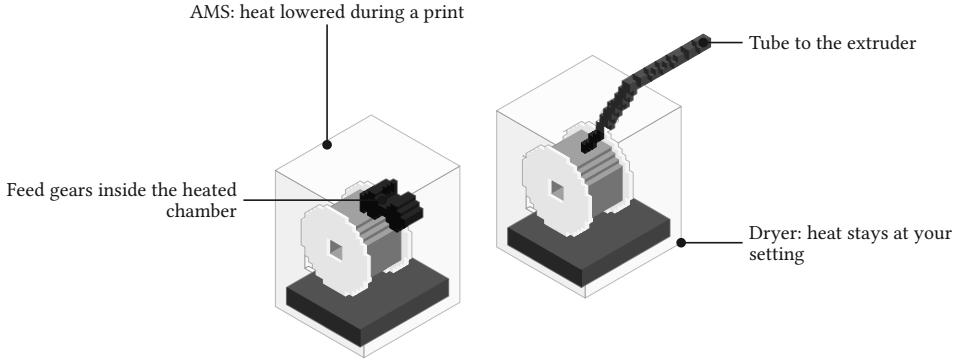


Figure 1. In an AMS the loaded filament sits in the feed gears inside the heated chamber, so the heat drops during a print, while a standalone dryer has no feed gears.

Bambu Lab says freshly dried filament at about 55 percent RH (relative humidity) can pick up enough moisture to hurt print quality within 2 to 12 hours, so heat during a long print earns its keep. But 55 °C is 10 °C below Bambu's own PETG setting, and Bambu gives no drying time at the lowered temperatures. Treat in-print heat as a way to keep a dry spool dry. Dry a wet one before you start.

1.3 How do you print directly from a filament dryer?

1. **Check the dryer reaches your filament's drying temperature.** Prusa says to check a box's specifications against your filament's drying temperature.
2. **Thread the filament before you close the box.** Polymaker's quick start threads the end through the outlet plug first, then seats the spool. Keep the spool tightly wound: a loose end can block the heating vent, which the manual calls a fire risk.
3. **Run a PTFE (polytetrafluoroethylene) tube from the outlet to the extruder.** The PolyDryer ships a 50 cm tube; replacements are 4 mm inside, 6 mm outside diameter.
4. **Let the spool turn freely.** The extruder drags it round through the tube. Seat it on the PolyDryer Box's central holder, or on the included spool roller if the spool's edge is damaged.
5. **Switch on the print mode.** On the PolyDryer, long-press the power-level button for Continuous Mode. Polymaker says never to leave the dryer unattended in this mode, so it doesn't suit an overnight print.
6. **On a Bambu Lab printer, check firmware and power.** It needs firmware 01.03.00.00 on the H2D, 01.02.00.00 on the H2S and P2S, and 01.01.00.00 on the X2D and A2L. The P1S, P1P, X1C, A1 and A1 mini aren't supported yet. Without the AMS power adapter, an H2-series printer cuts drying power to 86 percent, and a P2S or X2D can't heat or move while an AMS dries.

TPU (thermoplastic polyurethane) feeds from the AMS HT's rear outlet, pushed to the extruder by hand. Bambu's drying guide says the AMS HT can dry during that print on every printer; its store FAQ says it can't. Either way, Bambu marks every TPU as needing drying before use, so dry it first.

1.4 What temperature dries PETG while printing?

In an AMS 2 Pro or AMS HT, PETG dries at 55 °C once the print starts, or at 45 °C if PLA is part of the print. Idle, Bambu Lab dries PETG at 65 °C for 12 hours in either unit, so dry it at that setting first, then let the print run at 55 °C. On a PolyDryer, PETG stays at level 2 through the print.

Makers disagree on what PETG needs. Prusa dries Prusament PETG at 55 °C for 6 hours, while Bambu's oven setting is 60 to 65 °C for 8 hours. So the AMS print setting matches Prusa's full drying temperature but sits below Bambu's.

1.5 Do you have to print nylon from a dryer?

Polymaker says yes for carbon-fiber nylon (PA-CF), which "should only be printed while kept in a heated filament dryer the entire time you print." Its Fiberon PA6-CF20 and PolyMide CoPA data sheets say to store and use them below 20 percent RH. Both sheets give 100 °C drying (10 and 8 hours), well above the PolyDryer's top level of about 70 °C at the outlet. So dry nylon to its data sheet first, then print it from a heated dryer.

Bambu Lab requires drying before use and desiccant during use for PA6-CF and PAHT-CF. Of its AMS units, only the AMS HT can dry them, at 85 °C for 12 hours.

1.6 How to check it on your own print

- **Watch the drying temperature after the print starts.** Bambu Studio warns that "the drying temperature will be lowered during printing." The AMS shows live temperature and humidity on the printer, in Bambu Studio and in Bambu Handy.
- **Read the hygrometer.** Aim below 20 percent RH, Bambu Lab's storage figure and Polymaker's nylon limit. The PolyDryer's hygrometer reads no lower than 10 percent.
- **Take PLA and TPU out before drying hotter filament.** Bambu warns that drying ABS (acrylonitrile butadiene styrene) or PETG takes the AMS past their softening temperature, and they can deform.
- **Listen at the nozzle.** Polymaker says popping or cracking means the filament needs drying. Stop, dry the spool at its full setting from the table, and reprint. Other moisture symptoms are on the wet filament clog page.

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