What bed temperature should you use for ABS?

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Abstract. Use 90 to 100 °C for ABS: Bambu Lab's range on PEI and Engineering plates. Prusa defaults to 100 °C, and the Bambu Lab P1S bed tops out at 100 °C.

Keywords: abs, bed-adhesion, build-plates, warping

Table 1. The number

Filament	Build plate	Bed temperature	Source
ABS	Bambu Textured PEI, Smooth PEI or High Temperature, Engineering	90 to 100 °C	Bambu Lab Wiki filament guide
ABS	Bambu Cool Plate	Not recommended	Bambu Lab Wiki filament guide
ABS	Engineering, High Temperature or Textured PEI, with glue	80 to 100 °C	Bambu ABS data sheet
ABS	Bambu Studio default on all three plates	90 °C, first layer and the rest	Bambu Studio ABS profile
ABS	Prusa smooth or powder-coated PEI, with glue stick	100 °C; 80 to 110 °C by part size	Prusa Knowledge Base
PolyLite ABS	PC or textured PEI, glue when needed	90 to 100 °C	Polymaker data sheet
ABS-GF	Engineering, High Temperature or Textured PEI, with glue	80 to 100 °C	Bambu ABS-GF data sheet
CarbonX ABS+CF	Not stated	100 to 110 °C	3DXTech
Nanovia ABS CF	Not stated	100 to 110 °C	Nanovia
Limit: Bambu Lab P1S bed	Any	100 °C maximum	Bambu Lab P1S specifications
Limit: ABS heat deflection, 1.8 MPa	n/a	84 °C (ABS), 88 °C (ABS-GF)	Bambu ABS and ABS-GF data sheets
Limit: ABS glass transition	n/a	101 °C (PolyLite ABS); 110 °C (Nanovia ABS CF)	Polymaker data sheet, Nanovia

1 What bed temperature should you use for ABS?

Set the bed to 90 to 100 °C. That's Bambu Lab's range for ABS on its Textured PEI, smooth PEI and Engineering plates, and Prusa defaults to 100 °C. Carbon-fiber ABS data sheets ask 100 to 110 °C, which is more than a Bambu Lab P1S can give: its bed tops out at 100 °C.

1.1 The number

Each row names its source: the Bambu Lab Wiki and data sheets, Bambu Studio's ABS profile on GitHub, the Prusa Knowledge Base, Polymaker's PolyLite ABS data sheet, the 3DXTech and Nanovia product pages, and Bambu Lab's P1S specifications. ABS is acrylonitrile butadiene styrene and PEI is polyetherimide; GF and CF mean glass- and carbon-fiber filled. Bambu's data sheets list no glass transition for ABS, so that row uses Polymaker's and Nanovia's figures.

1.2 Why

ABS warps as it cools and shrinks. Bambu Lab blames that shrinkage, plus the internal stress that builds when a high glass transition plastic cools in cold air. A hot bed keeps the base close to its printing temperature, so less of that shrinkage pulls on the corners.

But the bed reaches only the bottom of the part. Ramian, Ramian and Dziob printed ABS on an open Ultimaker 3 with a 90 °C bed. The corners still lifted 0.86 mm on average on a 30 mm cube and 4.27 mm on a 120 mm bar.

Prusa ties the setting to size: "larger object means higher temperature," up to 110 °C. Bambu's advice for printers without chamber heating runs the same way: raise the bed instead. Warmer chamber air is the other lever, covered in what chamber temperature ABS needs.

1.3 What is the max bed temperature for ABS?

110 °C is the highest figure any maker here lists: Prusa's ceiling for large ABS parts, and the top of both carbon-fiber ABS ranges. Bambu Lab and Polymaker stop at 100 °C.

Those ceilings sit near the plastic's softening points. PolyLite ABS has a 101 °C glass transition, where it stops being rigid, and Bambu's ABS sheet puts heat deflection lower, at 84 °C. On a P1S the question is moot: the bed cannot be set past 100 °C.

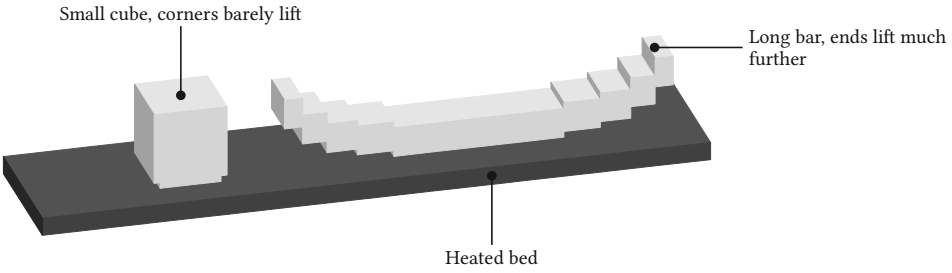


Figure 1. Even on a hot bed, ABS corners lift as the part cools, and a long bar lifts much further than a small cube.

1.4 ABS bed temperature on PEI

On PEI, the textured or smooth choice doesn't change the number. Bambu Lab gives 90 to 100 °C for both its Textured PEI and Smooth PEI plates. Polymaker gives 90 to 100 °C on textured PEI, and Prusa 100 °C on smooth or powder-coated PEI.

Use glue on either surface. Prusa asks for a glue stick with ABS on PEI. When a reader reported ABS tearing a chunk out of their sheet, a Prusa staff reply named PVA (polyvinyl alcohol) glue stick as the release agent. Bambu's guide also says glue protects the plate surface. To clean it, use dish soap and hot water, never acetone. More on glue on textured PEI and washing a PEI plate.

1.5 ABS-CF and ABS-GF bed temperature

Fiber-filled ABS runs as hot as plain ABS or hotter. Bambu's ABS-GF sheet repeats the 80 to 100 °C plain-ABS range and asks for glue; the Bambu Lab Wiki names its liquid glue for ABS-GF. 3DXTech and Nanovia both list 100 to 110 °C for their carbon-fiber ABS. Nanovia also asks for a 90 °C enclosure.

1.6 ABS bed temperature on a Bambu Lab P1S

Bambu Studio's ABS preset sets 90 °C on the Engineering, High Temperature and Textured PEI plates. The P1S bed can go to 100 °C, the top of Bambu's ABS range, but not to the 110 °C that carbon-fiber ABS data sheets allow. Bambu lists its Cool Plate as not recommended for ABS, and the preset leaves that plate at 0 °C, which Bambu Studio reports as incompatible.

In a cold room, Bambu suggests running the P1S bed at its maximum for 15 minutes before the print starts. The enclosure warms with it.

1.7 How to check it on your own print

- **Set it per plate.** In Bambu Studio the ABS filament preset holds a separate bed temperature for each plate type, with a separate first-layer value. Check the row for the plate you're printing on, not the first one in the list.
- **Start at 90 to 100 °C.** For a large part, go to 100 °C on a P1S, or up to Prusa's 110 °C on a printer that can reach it.
- **Prep the plate.** Wash it with dish soap and hot water, then apply glue stick before every ABS print.
- **Preheat in a cold room.** On an enclosed printer, run the bed at maximum for 15 minutes with the door shut.
- **Add a brim if the corners still lift at maximum bed.** Keep infill at or below 50 percent and walls at 6 or fewer, Bambu's shrinkage limits for ABS. Then turn to the chamber temperature.
- **Let it cool before removal.** Bambu advises waiting until the plate and part have fully cooled, then flexing the plate to release the print.

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