How hot can a 3D printer heated bed get?

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Abstract. Consumer heated beds top out at 80 to 120 °C: Bambu A1 mini 80 °C, P1S 100 °C, X1C 110 °C, Ender-3 110 °C, and H2D, Prusa MK4S and CORE One+ 120 °C.

Keywords: build-plates, abs, polycarbonate, nylon

1 How hot can a 3D printer heated bed get?

On makers' spec pages, most consumer heated beds max out at 100 to 120 °C. Bambu Lab's A1 mini stops at 80 °C, the A1 and P1S at 100 °C, and the X1C at 110 °C. The original Ender-3 reaches 110 °C. The Bambu H2D, Prusa MK4S, Prusa CORE One+ and Creality K2 Plus go to 120 °C.

1.1 The number

Table 1. The number

Printer	Maximum bed temperature	Where the figure comes from
Bambu Lab A1 mini	80 °C	Bambu wiki firmware limit
Bambu Lab A1	100 °C	Bambu wiki firmware limit
Bambu Lab P1S (and P1P)	100 °C	P1S spec table; Bambu wiki firmware limit for the P1 series
Bambu Lab P2S	110 °C	Bambu wiki P2S FAQ
Bambu Lab X1C	110 °C on 220 V, 120 °C on 110 V (spec sheet); 110 °C (firmware limit for the X1 series)	X1-Carbon spec sheet; Bambu wiki
Bambu Lab H2D	120 °C	Bambu wiki H2D introduction
Prusa MK4S	120 °C	Prusa product page
Prusa CORE One+	120 °C	Prusa product page
Creality Ender-3 (original)	110 °C	Creality store Ender-3 guide
Creality Ender-3 V3	110 °C	Creality support specs
Creality Ender-3 V3 SE	100 °C	Creality support specs
Creality K1	100 °C	Creality support specs
Creality K2	100 °C	Creality K2 series comparison
Creality K2 Pro	110 °C	Creality K2 series comparison
Creality K2 Plus	120 °C	Creality K2 series comparison
Elegoo Centauri Carbon	110 °C at 25 °C room temperature	Elegoo product page
Anycubic Kobra 3 Combo	110 °C	Anycubic product page
Anycubic Kobra S1	120 °C	Anycubic product page
Qidi Q1 Pro	120 °C or less	Qidi product page

Every figure comes from the maker's own documentation: Bambu Lab's wiki, store page and X1-Carbon spec sheet, Prusa Research's product pages, Creality's support specs, K2 series comparison and store guide, and the Elegoo, Anycubic

and Qidi product pages. The X1C row carries two figures, explained below.

1.2 What max bed temp does the X1C have?

Bambu publishes two figures. The X1-Carbon spec sheet lists a maximum build plate temperature of “110 @220 V, 120 @110 V”. Bambu’s wiki page on heated-bed limit warnings gives one number for the whole X1 series: 110 °C. Above that number the firmware lowers the bed to the limit and shows a warning.

Plan on 110 °C. That covers ABS (acrylonitrile butadiene styrene) and ASA (acrylonitrile styrene acrylate), and it reaches the middle of the 100 to 120 °C range Bambu gives for PC (polycarbonate) and PA (polyamide, nylon).

1.3 What max bed temperature does an Ender 3 have?

110 °C for the original Ender-3, the ceiling in Creality’s own Ender-3 guide. The Ender-3 V3 is also 110 °C. The Ender-3 V3 SE stops at 100 °C.

Community Marlin firmware sets its own limit. Marlin’s example configuration for the Ender-3 sets `BED_MAXTEMP` to 125 °C, which is the shutdown point. `BED_OVERSHOOT` is 10 °C, so the firmware refuses any target above 115 °C.

1.4 Which filaments does each maximum cover?

Bambu Lab’s filament guide gives these bed ranges for the Smooth and Textured PEI (polyetherimide) plates:

Table 2. Which filaments does each maximum cover?

Bed maximum	Full recommended range reached	Bottom of the range only
80 °C	PLA (polylactic acid) 45 to 65 °C, TPU (thermoplastic polyurethane) 35 to 45 °C, PETG (glycol-modified polyethylene terephthalate) 60 to 80 °C	none
100 °C	All of the above, plus ABS and ASA 90 to 100 °C	PC, PA and PA-CF, PET-CF, PPA-CF and PPS, all 100 to 120 °C
110 °C	The same as 100 °C	PC, PA and the other 100 to 120 °C grades, up to 110 °C
120 °C	Every material in Bambu’s table, including PC, PA, PPA and PPS at 100 to 120 °C	none

CF marks carbon-fiber grades. PPA is polyphthalamide and PPS is polyphenylene sulfide.

An 80 °C bed (A1 mini) cannot reach the 90 °C minimum Bambu gives for ABS and ASA. A 100 °C bed (A1, P1S, K1) covers ABS and ASA but only touches the bottom of the PC and nylon ranges. Prusa runs polycarbonate at 110 °C for the first layer and 115 °C after that, above what a 110 °C bed can reach. Every filament is on the bed temperature chart.

1.5 Why each bed stops where it does

Three things set the ceiling: heater power, the firmware limit and the plate on top.

Heater power against heat loss. A bed holds a temperature only while its heater can replace the heat it loses to the room. Prusa warns that below 18 °C room temperature a printer running PC may fail to hold its bed temperature and stop with a “Bed thermal runaway” error. Elegoo qualifies its 110 °C figure with “Ambient Temperature 25 °C”. Mains voltage matters too: the X1C spec sheet rates the printer at up to 1,000 W on 220 V but 350 W on 110 V.

The firmware limit. Each firmware enforces a cutoff. Bambu firmware clamps any higher G-code value to the

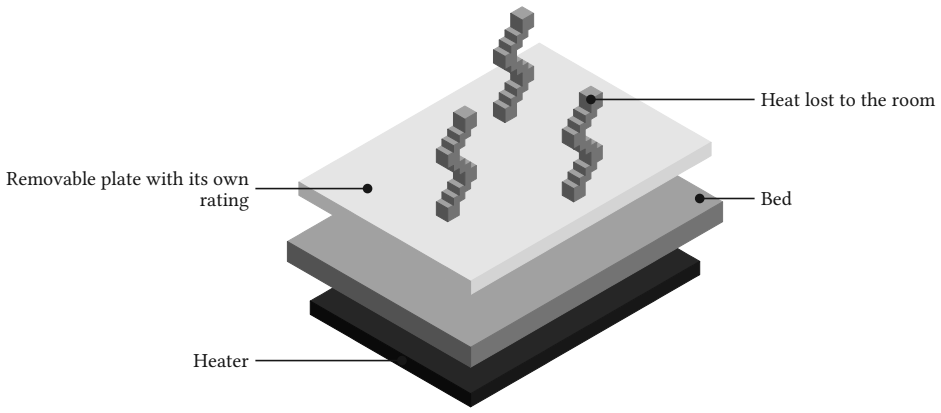


Figure 1. The heater has to replace the heat the bed loses to the room, and the plate on top has to be rated for the temperature it reaches.

model's limit and shows a warning. Marlin refuses targets within `BED_OVERSHOOT` of `BED_MAXTEMP`. Klipper's `max_temp` under `[heater_bed]` is a safety range: if the measured temperature goes past it, the microcontroller shuts down.

The plate. The maximum on the spec sheet assumes a plate rated for it. Bambu's filament guide marks its Cool Plate "not recommended" for every material except PLA grades and PVA (polyvinyl alcohol). It asks you to keep to the profile temperatures "to protect the Cool Plate." Its Engineering, Smooth PEI and Textured PEI plates cover the full 100 to 120 °C range.

1.6 How to check it on your own print

- **Find the model's limit.** Use the maker's spec page, or the table above. On Bambu printers, a G-code bed temperature over the limit triggers warning code HMS_0300-0100-0003-0008 and the printer drops to its maximum.
- **Check the firmware value on modified printers.** In Marlin, the limit is `BED_MAXTEMP` minus `BED_OVERSHOOT`. In Klipper, it is `max_temp` under `[heater_bed]`. Raising either moves a safety cutoff. It adds no heater power.
- **Match the plate to the temperature.** Above 65 °C, use an Engineering, Smooth PEI or Textured PEI plate on a Bambu printer, not the Cool Plate.
- **Watch the room.** If the bed stalls a few degrees short of its maximum, or throws a thermal runaway error during a PC print, warm the room above 18 °C or enclose the printer. Unheated rooms are covered in 3D printing in a cold garage.
- **Measure the plate, not just the display.** The method for checking that the build surface reaches your set number is on the bed surface temperature page.

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