# What temperature to set the iron for heat-set inserts in PLA, PETG and ABS

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**Abstract.** Iron temperature per material for heat-set inserts: about 225 °C for PLA, 245 °C for PETG and 265 °C for ABS, from CNC Kitchen's printing temperature plus 10 to 20 °C.

**Keywords:** heat-set-inserts, pla, petg, abs

**Table 1.** The number

| Material | Nozzle temperature, Prusa Knowledge Base (°C) | Iron temperature, CNC Kitchen (°C) | Rule, CNC Kitchen and Prusa Research shop | Rule, Ruthex |
|---|---|---|---|---|
| PLA | 215 first layer, 210 other layers | about 225 | printing temperature + 10 to 20 °C | hotend temperature + 10 to 15 °C |
| PETG | 230 first layer, 240 other layers | 245 | printing temperature + 10 to 20 °C | hotend temperature + 10 to 15 °C |
| ABS | 255 | 265 | printing temperature + 10 to 20 °C | hotend temperature + 10 to 15 °C |

## 1 What temperature should the iron be for PLA, PETG and ABS inserts?

Set the iron 10 to 20 °C above the filament's printing temperature: about 225 °C for PLA (polylactic acid), 245 °C for PETG (glycol-modified PET) and 265 °C for ABS (acrylonitrile butadiene styrene), per CNC Kitchen. Prusa Research's shop gives the same plus 10 to 20 °C rule, and Ruthex says 10 to 15 °C above the hotend temperature.

### 1.1 The number

Iron figures are from CNC Kitchen's Tips & Tricks post. The rule appears in that post, on the Prusa Research shop page for CNC Kitchen inserts and on the Ruthex bundle page. Nozzle temperatures from the Prusa Knowledge Base material pages, included so you can apply the rule to your own filament. Ruthex does not publish per-material iron temperatures, only the rule. None of the three states an iron wattage or a dwell time.

### 1.2 Why

The insert has to melt a thin film of plastic around the hole, not cook the boss (the printed column the hole sits in). A soldering iron heats the brass, the brass heats the plastic it touches, and the plastic flows into the knurl, the ridged outer surface of the insert. Brass loses heat to the part as it goes in, so the iron runs a little hotter than the nozzle did. That is the whole logic of the plus 10 to 20 °C rule.

The rule also explains why the number moves with the filament. Your spool's printing temperature, not the material name, is the base: a PLA blend printed at 230 °C wants an iron around 240 to 250 °C. CNC Kitchen's own removal guide sets 240 °C for PLA, 20 °C above its printing temperature, when it needs the plastic to let go fast. The 225, 245 and 265 °C figures are worked examples, not limits.

Too cold and the insert stalls part way: the brass drags a cold ring of plastic down with it and the knurl never fills. You push harder, which is how inserts tilt. Too hot and the plastic goes runny. PLA discolors, PETG strings from the tip and ABS smokes. Molten plastic floods over the flange and into the thread. Get it wrong in either direction and the insert pulls out under the first screw or needs a tap run through before a screw will start.

### 1.3 How to check it on your own print

1. Read the printing temperature from your slicer profile or the spool, add 10 to 20 °C, and set the iron there. If the iron has no readout, fix that first: without one you cannot apply the rule at all.
2. Let the iron and tip stabilize, then sink one insert into a test boss printed in the same filament. Time it by feel: the insert should sink under the iron's weight in seconds, without pushing.
3. Look at the boss. A dull ring of pushed-up plastic with no discolouration is right. A stalled insert means go up 5 °C. Browning, stringing from the tip or plastic over the flange means go down 5 °C.
4. Let it cool fully, thread a screw in and pull hard by hand. Note the temperature that passed and keep it for that filament.

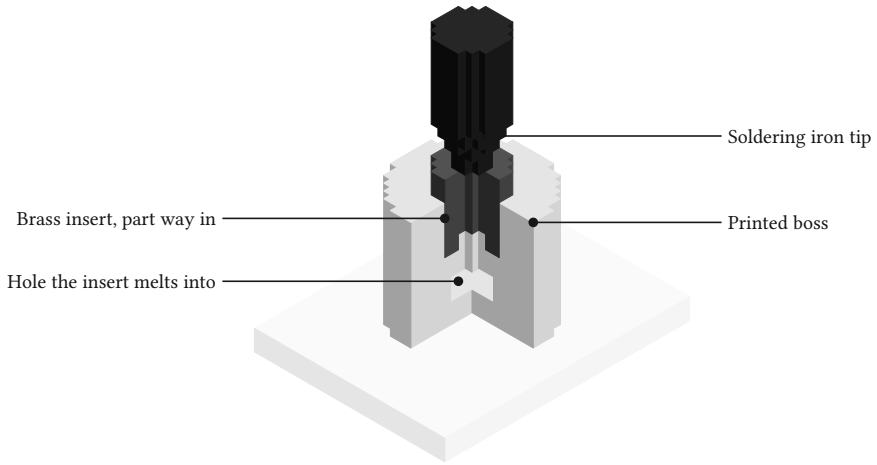



**Figure 1.** The iron heats the brass, the brass melts the plastic it touches, and the insert sinks into the hole.

**Table 2.** The number

| Material | Nozzle temperature, Prusa Knowledge Base (°C) | Iron temperature, CNC Kitchen rule (°C) | Iron temperature, Ruthex rule (°C) |
|---|---|---|---|
| ASA | 260 | 270 to 280 | 270 to 275 |
| PC | 275 | 285 to 295 | 285 to 290 |
| Nylon | 285 | 295 to 305 | 295 to 300 |

## 2 What temperature should the iron be for ASA, nylon and polycarbonate inserts?

Set the iron 10 to 20 °C above the printing temperature, per CNC Kitchen. On Prusa Research's nozzle figures that is about 270 to 280 °C for ASA (acrylonitrile styrene acrylate), 285 to 295 °C for PC (polycarbonate) and 295 to 305 °C for nylon (polyamide). PC and nylon pass the 280 °C maximum for CNC Kitchen's brass tips.

### 2.1 The number

Nozzle temperatures are from the Prusa Knowledge Base pages for ASA, polycarbonate and polyamide. The iron columns apply CNC Kitchen's printing temperature plus 10 to 20 °C rule and Ruthex's hotend temperature plus 10 to 15 °C rule to those figures. Neither CNC Kitchen nor Ruthex publishes an iron temperature for these three materials, so treat the columns as worked examples. The 280 °C tip limit comes from 3DJake's listing for CNC Kitchen's V2 soldering tips.

### 2.2 Why

ASA takes almost the same iron as ABS. Prusa Research calls ASA a successor to ABS and lists 260 °C for it against 255 °C for ABS. The ASA iron therefore sits 5 °C above the ABS figure in the first table.

PC and nylon need dry filament before you print the boss. Prusa calls polyamide hygroscopic (it absorbs moisture from the air): stored badly, it can take up water weighing up to 10% of the filament. Its advice is to dry nylon for at least 4 hours below 90 °C before printing, because moist filament makes bubbles and uneven layers. Prusa calls most polycarbonates extremely hygroscopic and says to dry them in the oven before printing.

Their high nozzle temperatures push the iron past 280 °C. That is the maximum recommended operating temperature 3DJake lists for CNC Kitchen's V2 brass installation tips. Check your own tips' rating before you go higher. Your spool's printing temperature is still the base: a nylon printed at 260 °C wants an iron around 270 to 280 °C, inside that limit.

## References

[1] Tips & Tricks for Heat-Set Inserts used in 3D printing, CNC Kitchen. https://www.cnckitchen.com/blog/tipps-amp-tricks-fr-gewindeeinstze-im-3d-druck-3awey. Accessed September 21, 2026.
[2] Heat Set Inserts - M3 standard 100 pcs (Prusa Research e-shop, CNC Kitchen inserts). https://www.prusa3d.com/product/heat-set-inserts-m3-standard-100-pcs/. Accessed September 21, 2026.
[3] ruthex M3S + M4S + M5S short thread insert bundle with soldering tip set, product page. https://www.ruthex.de/en/products/ruthex-m3s-m4s-m5s-short-gewindeeinsatz-bundle-lotspitzen-set-100-50-50-stuck-gewindebuchsen-aus-messing. Accessed September 21, 2026.
[4] PLA (Prusa Knowledge Base). https://help.prusa3d.com/article/pla_2062. Accessed September 21, 2026.
[5] PETG (Prusa Knowledge Base). https://help.prusa3d.com/article/petg_2059. Accessed September 21, 2026.
[6] ABS (Prusa Knowledge Base). https://help.prusa3d.com/article/abs_2058. Accessed September 21, 2026.
[7] How to use our Threaded-Insert Removal Tool, CNC Kitchen. https://www.cnckitchen.com/blog/how-to-use-our-threaded-insert-removal-tool. Accessed September 21, 2026.
[8] ASA (Prusa Knowledge Base). https://help.prusa3d.com/article/asa_1809. Accessed October 10, 2026.

[9] Polycarbonate (PC) (Prusa Knowledge Base). https://help.prusa3d.com/article/polycarbonate-pc_165812. Accessed October 10, 2026.
[10] Polyamide (Nylon) (Prusa Knowledge Base). https://help.prusa3d.com/article/polyamide-nylon_167188. Accessed October 10, 2026.
[11] CNC Kitchen Soldering Tips + 900M & T18 adapter, 3DJake product page. https://www.3djake.com/cnc-kitchen/soldering-tips-v2. Accessed October 10, 2026.

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