DESIGN GUIDELINE

Wall Thickness & Minimum Feature Size Guide

A model that looks fine on screen can print with missing walls, broken pins and blurry text, usually because a feature is smaller than the nozzle can print. Set wall thickness and fine details by this guide and they will come out clean and strong.

01 · SIZE CHART

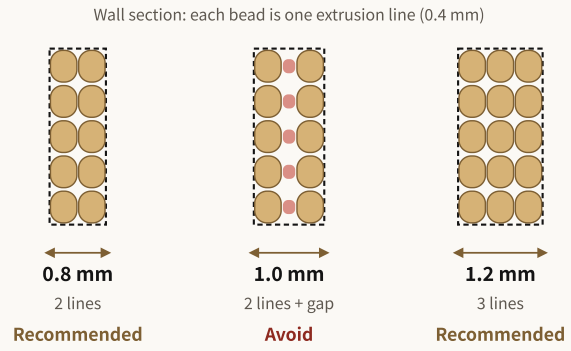
Minimum size chart

Feature	FDM minimum printable	FDM recommended strong, reliable	Resin minimum	Notes
Outer walls	**0.8**	1.2–2.0	0.6	Use multiples of the 0.4 line width: 0.8, 1.2, 1.6, 2.0
Free-standing walls / ribs	**0.8**	1.2	0.5	Unsupported walls no taller than 10× their thickness
Pins / posts	**2.0**	3.0+	0.8	Thin posts break easily and wobble while printing
Holes	**1.0**	2.0+	0.5	Holes under 2 mm are best drilled to size after printing
Embossed text	**stroke 0.6**	stroke 0.8, 0.6 high	stroke 0.3	Letter height: FDM ≥ 4 mm, resin ≥ 2 mm
Engraved text	**stroke 0.6**	stroke 0.8, 0.6 deep	stroke 0.3	Text is sharpest on top faces, then side faces
Gap between parts	**0.3**	0.4–0.5	0.2	Print-in-place moving parts; see the tolerance guide
Unsupported overhang	**45°**	under 45°	—	Angle from vertical; resin is always supported
Unsupported bridge	**10 mm**	within 5 mm	—	Horizontal span supported at both ends
Hollow resin parts	—	—	wall 2.0, hole 3.5	Shell thickness and drain hole diameter when hollowed

Units: mm. FDM values assume a 0.4 mm nozzle. With a 0.2 mm fine nozzle most minimums roughly halve, at the cost of longer print time (pick the nozzle under "Advanced settings" on the quote page).
"Minimum" is the smallest size that prints; strength and finish are not guaranteed. Use the recommended column for load-bearing or long-life parts.

02 · LINE WIDTH

Wall thickness and line width



- **0.8** Exactly 2 lines: the thinnest practical wall, fine for enclosures that carry no load.
- **1.0** Not a multiple of the line width: leaves a gap or needs filler lines, weaker and rougher.
- **1.2+** 3 lines or more (1.2, 1.6, 2.0) are strongest; use these for most parts.

03 · RULES

Four basic rules

01 **Use multiples of the line width**: 0.8, 1.2, 1.6, 2.0 mm; avoid 1.0 or 1.4, which leave gaps.

02 **Keep walls even**: Keep thick and thin sections within 2× of each other. Sudden thick sections cool unevenly and warp or sink.

03 **No need for solid**: Thick sections are filled with infill; set walls and infill under "Advanced settings" on the quote page. Solid parts are heavier, cost more and warp more.

04 **Stiffen thin walls with ribs**: Add ribs 0.5–0.8× the wall thickness and no taller than 3× the wall. Lighter and stiffer than thickening the whole wall.

04 · DESIGN TIPS

Design tips

Text and logos

- Text is sharpest on **top faces**; downward faces carry support marks.
- Thin strokes in serif fonts disappear; use a bold sans-serif.
- Embossed text prints more easily; engraved text wears better.

Thin pins and small holes

- Tall thin pins (over 5× their diameter) wobble while printing; thicken them, fillet or add ribs at the base.
- Holes under 2 mm close up or shrink; drill them to size if they must be accurate.
- For pin and screw holes see the screw hole guide.

Large flat areas and warping

- Large flat plates lift at the edges; add ribs, round the corners and avoid big flat ABS plates.
- Long thin parts lift at both ends; give the long edge some height or split it.
- If a flat face must sit flush against another part, say so in the notes.

Overhangs and supports

- Overhangs past 45° and long bridges need supports, which add cost and leave marks.
- Turning an overhang into a 45° slope or chamfer often removes the need for supports.
- On the quote page you can choose the orientation and preview the one with the least support.

05 · MATERIALS

Material notes

Good	**PLA / PLA+**	Sharpest detail; the minimums apply. Good for small text and thin ribs.
Good	**PETG**	Strings slightly; use the recommended column for strokes and gaps.
Caution	**ABS / ASA**	Shrinks more, so thin walls and large plates warp; use 1.6 mm or more for outer walls.
Caution	**TPU**	Soft; walls at least 1.2 mm. Thin pins and small text are hard to print well.
Caution	**PA-CF / carbon fibre**	Needs a larger nozzle; walls and strokes at least 1.2 mm.
Good	**Resin**	Finest detail, down to 0.3 mm strokes. Hollow large parts and add drain holes.

06 · CHECKLIST

Pre-submission checklist

- ☐ Outer walls at least 0.8 mm, 1.2 mm+ for load-bearing parts
- ☐ Pins at least 2 mm in diameter
- ☐ Text strokes at least 0.6 mm, letters at least 4 mm tall
- ☐ Overhangs past 45° are sloped or supports are accepted
- ☐ Wall thickness is a multiple of 0.4
- ☐ Holes at least 1 mm; accurate holes are noted
- ☐ Walls are fairly even with no needless solid blocks
- ☐ Large resin parts are hollowed with drain holes

Questions about your design? Send it to us first

Attach your file or a screenshot and we will check walls and fine details

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