

Louvered Vent Cover Print & Fit Guide

Cover a raw hole-saw opening cleanly, and still let the air through.

[Two Versions](#)[175 mm Square](#)[2 h 44 m](#)

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You cut a hole for airflow and it works — but it looks like exactly what it is. This covers it, and the louvers keep the air moving.

In the download

File	What it is
vent-cover.3mf	Start here. Both versions, on two ready-made plates.
vent-cover-with-screw-holes.stl	Four countersunk corner holes.
vent-cover-without-screw-holes.STL	Plain panel, unbroken face.

1 · Pick your version first

The only real decision in the job, and it is about **how you intend to mount it** — not how it performs. The panels are otherwise identical: same 175 mm square, same 4 mm thickness, same louvers.

Version	Choose it when	Print
With screw holes	You can drive a screw into whatever surrounds the opening — cabinet side, door skin, plywood panel.	2 h 44 m 48.68 g
Without screw holes	You would rather not put fasteners through a visible face, or the surround is too thin to screw into. Adhesive, friction fit, or your own bracket.	2 h 39 m 48.48 g

The two versions differ by five minutes and a fifth of a gram

No "cheaper" option, no performance trade-off — the holes are the entire difference. Unsure? Print the screwed version: an unused hole is less annoying than needing one after the adhesive has gone off.

2 • Slice it

- 1 Open `vent-cover.3mf` in Creality Print, or any slicer that imports 3MF project files.
- 2 When it asks whether to load the project's print settings, **say yes**.
- 3 **Pick the plate for the version you chose on page 1.** Each plate carries one panel, so there is nothing to delete or rearrange.

Plate	What is on it	Time	Filament
1 · with screw holes	The screwed-down version	2 h 44 m	48.68 g
2 · without screw holes	The plain version	2 h 39 m	48.48 g

The project also contains an empty third plate. That is not a missing part — there are only two versions, and plate 3 simply has nothing on it.

3 • The profile baked into the 3MF

Quality	
Layer height	0.12 mm
Walls	3 loops
Top / bottom	5 / 3 layers
Infill	9 % gyroid
Supports	None
Brim	5 mm, outer only

Material & plate	
Filament	PLA as sliced
Nozzle temp	220 °C
Bed temp	60 °C
Sliced on	Creality Hi, 0.4 mm nozzle

The panel	
Size	175 × 175 mm
Thickness	4 mm
Bed needed	180 mm square, plus brim

Check your bed before you start — this is a big flat part

175 mm square plus a 5 mm brim needs about **185 mm** in both axes — fine on a 220 × 220, but it will *not* fit a 180 × 180 machine. There is no split version.

Supports really are off, and nothing here needs them

The louvers are self-supporting — each slat bridges off the one below rather than starting in mid-air, and the panel prints face-down as one flat slab. If your slicer offers to add supports, decline: they would fill every slot.

The 0.12 mm layer is deliberate on what looks like a candidate for a coarse one — the slats are the whole product, and a taller layer coarsens every angled underside.

4 • Fit it

- 1 **Pop the brim off.** It is a 5 mm outer brim and peels away with a thumbnail. Run a finger round the edge afterwards to catch any that stayed behind.
- 2 **Center it over the opening by eye.** The panel is square, so all four rotations work — pick the one where the louvers angle *downward* as you look at it, which sheds dust rather than collecting it.
- 3 **Mark through the holes** (screwed version) or **round the panel** (plain version), then fix it down. Details below.

The screw holes, measured

Hole geometry	
Through hole	4.5 mm
Countersink	8.5 mm
Centers, from each edge	10 mm
Hole pattern	155 mm square

Sized for a **#7 flat-head wood screw** — the same fastener the MakerX *Cable Clip for Printer Cable* uses, so if you have printed that one you already have the box. The countersink lets the head sit flush with the face instead of standing proud of it.

Length is yours to pick: the panel is 4 mm thick, so choose a screw long enough to get a solid bite into the surround and no longer.

Your opening has to be smaller than the hole pattern

The four screws sit on a **155 mm square**, 10 mm in from each edge. They need solid material underneath them, so the opening they surround must be comfortably smaller than that — aim for **150 mm or less** and every screw lands on the surround rather than in fresh air. If your hole is already bigger, use the plain version and adhesive: a screw with nothing to bite into holds nothing at all.

If you are using the plain version

- **Double-sided foam tape** round the back edge is the usual answer, and it is the one that comes off again without taking the finish with it.
- **Construction adhesive or CA** if it is going somewhere permanent. Key the back face with a few passes of sandpaper first — a smooth 0.12 mm top surface is not much for glue to hold on to.
- **A friction fit** works if you cut the opening yourself and can size it to the panel. That is the tidiest result and the least forgiving to get right.

5 • Making it yours

- **A different size.** A uniform scale moves the panel and the hole pattern together. Past about 120 % check the footprint against your bed first.
- **Somewhere warm.** PLA softens around **60 °C** — over a heat source or in long direct sun, print it in **PET-G or ASA**.
- **A size that is not here.** Send the dimensions; custom sizing is offered on the listing and it is a quick change at the CAD end.

Where precision meets the printer

Thanks for printing this one. It started with a desk fan hidden inside a cabinet and a hole saw — the airflow worked immediately, and the hole looked terrible.

For years my design world existed entirely behind a screen. As a mechanical engineer I spent countless hours building complex CAD models, but there was always a missing link — the ability to hold an idea in my hands. That changed in January 2026, when I went headfirst into 3D printing. The moment that first layer stuck to the bed, the gap between concept and reality vanished.

Coming from a background where precision is everything, tolerances aren't suggestions to me — they are a religion. I didn't want to print trinkets; I wanted to apply industrial engineering discipline to desktop manufacturing. Every wall count, every layer height and every infill percentage in this guide is a deliberate decision backed by testing.

Three principles behind every print

01

Functional Engineering

High-utility, real-world solutions rather than purely decorative models. If it doesn't solve a practical problem, it doesn't leave the workstation.

02

Rigorous Tolerances

Designed in professional CAD with mechanical intent — press-fits that click and assemblies that work straight off the build plate. No sanding, no filing, no guesswork.

03

Bridging the Gap

Industrial structural integrity at maker speed. Proving a desktop printer can produce parts worthy of real engineering applications is what drives every release.

The workshop

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IF THIS ONE EARNED ITS SPOT

A **Like** or a **Favorite** on the model page takes a second and genuinely helps. A **Boost** helps more than either — it is what puts a design in front of makers who would never otherwise come across it. And if you **Follow** me, new models land in your feed as they are released.

Got an opening that neither version suits? Drop the dimensions in a comment. That is where the next size starts.

Happy venting. — MakerX Designs · makerxdesigns.com · © 2026