



parametric vase mode funnel v2



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Summary

A vase mode funnel (low filament usage) with customizable size, air gap and "turbo" funnel

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Tags: [parametric](#) [funnel](#) [openscad](#) [turbo](#)

An OpenSCAD parametric funnel with some option like

- outer diameter, stem diameter, stem length, cone angle
- air gap (so air can escape while stuff flows in)
- "turbo" fins (number, angle, depth), also good for holding filtration paper away from the funnel walls

These are vase mode models, so they need only a few grams of filament and print fairly quickly. If they get messed up beyond cleaning, not much plastic is wasted.

To change sizes/air gap/"turbo" fins, download OpenSCAD (open source; Win/Mac/Linux), load the scad file and use the customizer on the right side to customize :)

I recommend a recent development snapshot; it's way faster in many cases.

Printing:

- use **vase mode**
- set **extrusion width to 0.7mm** (or more) for stability (0.4mm or 0.6mm nozzle)
- set bottom layers to 0
- to speed things up you can set filament settings → cooling → slow down if layer print time is below: 5s (or maybe 4s)

Turbo fins...?

I'd like to comment on those turbo fins: I consider them mostly useless. Some think that a vortex speeds up flow, but that is true only under some conditions: e.g. to get water out of a bottle. The vortex forms a stable air channel in the center, so air can get in while the liquid pours out. Without it the rising air bubbles get into the way of the falling liquid. The same problem can arise when funneling some liquid into a bottle and the funnel covers the whole bottleneck. Then a vortex can help – **if** it is strong enough to indeed form an air channel. I've seen “turbo” funnels, where those ‘turbo’ features are way too shallow to bring the vortex up to speed, and most design's vortex fins actually get very steep near the bottom and thus slow down any vortex motion...

If the funnel does NOT close up the bottle neck, air can escape at the side, and a vortex is not needed at all. Actually it's counterproductive, as the centrifugal force counteracts the water getting down.

My conclusion: If your funnel can block the bottleneck, use a funnel with a built-in air gap.

However, I implemented turbo fins for 2 reasons:

- For you to try out if they actually can help funneling. I also implemented a version with fins that do not get nearly vertical near the bottom.
- These fins can be useful for filtration. They keep a gap between filter and funnel wall and thus allow already filtered liquid coming out at the side to easily flow down. Many coffee machines use those fins, too.

Model files

parametric-funnel-2.scad



parametric-funnel-2-plain.stl



parametric-funnel-2-airgap.stl



parametric-funnel-2-fins.stl



parametric-funnel-2-airgap-and-fins.stl

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