



Eccentric Funnel



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Summary

Funnel with optimized flow orientated to one side for openings that are hard to reach or sit close to a wall/housing.

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Design

This is a one-sided/eccentric funnel for openings that are hard to reach or close to a wall/enclosure. This can be quite handy because normal funnels have a concentric entrance and exit hole. But this funnel was designed with the exit hole tangent to one side of the entrance so that it can be placed flush against a wall or enclosure of some sort.

The original reason for this design was to refill the water tank of an air conditioner, where the fill neck sits directly against the cabinet, making it unsuitable for a standard funnel (or requiring a second/third hand to hold the funnel in place).

To increase stability and optimize flow, I designed it to be kidney-shaped. This is especially useful if you want to print this in vase mode, where the rigidity comes from the shape and not from additional perimeters.

Model

There are several versions available with different input/output hole diameter ratios. Just use the one that suits your purpose best and scale it to your liking. I have also provided the CAD files so you can tinker with the model yourself.

The files follow the naming scheme:

`<RadiusOfInput>-<RadiusOfOutput>_<PrintModeToUse>.3mf`

The CAD and .step file are available for the variant with the largest output diameter, as you can just cut the model and create a shell object to your needs.

Printing

I printed the design in vase mode with a 1mm perimeter width. This can be done with a 0.4mm nozzle, but you might need to reduce the print speed a bit to avoid reaching the volumetric flow rate limit of your hot end. With this settings the funnel is rigid enough and watertight. Of course you can also use standard print settings, there are models for both standard and vase mode.

Place the funnel upside down on the print bed (with the large surface facing the print bed) and be sure to use a brim, whether you are printing in standard or vase mode.

Settings:

- 0.2-0.3mm layer height (no real point in smaller layers)
- 0.45mm perimter (standard, 3 perimeter) or 1mm (vase mode)
- 5mm brim (if placed inside it's easier to remove with a knife or deburring tool)
- no infill, no support

Model files



Standard (1.2mm wall thickness)

5 files



70-15_standard.3mf



70-20_standard.3mf



70-25_standard.3mf



70-30_standard.3mf



70-35_standard.3mf



Vase Mode

5 files



70-15_vasemode.3mf



70-20_vasemode.3mf



70-25_vasemode.3mf



70-30_vasemode.3mf



70-35_vasemode.3mf

exzentricfunnel_step.step

exzentricfunnel.sldprt

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