



Filament Dust Filter (parametric)



Hapro

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updated 12. 4. 2022 | published 15. 10. 2020

Summary

Remodelled version of Filament Dust Filter by sneakypoo.

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Tags: [parametric](#) [filter](#) [small](#) [fusion360](#) [fastprint](#)
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Remodelled version of [Filament Dust Filter by sneakypoo](#). Almost identical to the original, but remodelled from scratch in Fusion 360 making it parametric so it's easy to tweak and sharing the F3D file so anyone can easily customize it.

This one (by default) has a bit tighter clearance to separate the parts (within the hinge) to make it less loose.

The only things I have tweaked in this so far (compared to the original design) are:

- hinge_support_angle to 55° (instead of original 40°) just to make it look a bit nicer imo (as long as your printer can handle a 55° overhang angle from the build plate). This is the slope that supports the hinge from the build plate.
- hinge_pin_cone_clearance to 0.15 (instead of original 0.2121). This is the gap between hinge pin cones and their socket that separates the

two halves of this part. This defines the shortest distance between the parts (perpendicular to the faces) as long as the hinge pin cones have a 45° angle.

So far I have test printed this part once and it came out better than the original exactly as I wanted so that the hinge is not so loose (and stays closed better) and it printed perfectly with my Original Prusa i3 MK3 without any issues. However there is still a bit of looseness in the hinge so I might adjust the parameters a bit later and make a new version.

If you are going to tweak some of the parameters in Fusion 360 (depending on which dimensions you change and how much) you might need to fix/redo some of the fillets (or just leave them unfilleted if they disappear) since many of them are as big as you can make them on these dimensions and they aren't constrained on the parameters.

Print instructions

Supports: No

Resolution: 0.2

Infill: 15%

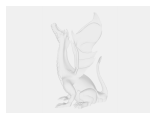
Parameters

This is the list of parameters available in the Fusion 360 file (F3D). Most useful parameters highlighted in bold. All lengths are in millimeters and angles in degrees.

- **container_cylinder_inner_diameter:** 13.6 (basically like "inner width")
- **container_cylinder_inner_length:** 22.6
- **container_inner_height:** 9.6
- shell_thickness: 1.2 (all around)
- **filament_hole_diameter:** 4
- gap_between_container_and_hinge: 0.5
- hinge_cylinder_outer_diameter: 5.6
- hinge_center_distance_from_container_center:
 $\text{container_cylinder_inner_diameter} / 2 + \text{shell_thickness} + \text{gap_between_container_and_hinge} + \text{hinge_cylinder_outer_diameter} / 2 = 11.3$
- hinge_length: 22.6
- hinge_end_piece_length: 4
- **hinge_support_angle:** 55° (from vertical plane, this was 40° in the original)
- **hinge_pin_cone_clearance:** 0.15 (gap between hinge pin cones and their socket, original was 0.2121)

- horizontal_gap_between_hinge_parts: hinge_pin_cone_clearance / 0.707
- hinge_pin_cone_angle: 45°
- hinge_pin_cone_outer_diameter: 4
- hinge_pin_cone_length: 1.5
- hinge_pin_socket_depth: 1.8
- tab_thickness: 2
- tab_circle1_diameter: 20
- tab_circle1_cut_angle: 26.7° (from horizontal plane)
- tab_circle2_diameter: 7.7
- tab_circle2_cut_angle: 42.9° (from horizontal plane)

Model files



filament_dust_filter_parametric_v1.f3d



filament_dust_filter_parametric_v1.stl

[Find source .stl files on Thingiverse.com](#)

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