

ENDER 3 S1 40MM NOCTUA PART COOLING DUCT



Bruneau00

[VIEW IN BROWSER](#)

updated 12. 8. 2022 | published 12. 8. 2022

Summary

This is a quick and dirty fan duct that allows a 40mm Noctua fan to cool extruded filament

[3D Printers](#) > [3D Printers - Upgrades](#)

Tags: [coolingduct](#) [coolingfan](#) [ender3](#) [ender3s1](#) [ender3s1pro](#) [noctua](#) [noctua40mm](#) [silent](#) [silentfan](#) [upgrade](#)

This is a quick and dirty fan duct that allows a 40mm Noctua fan to actually cool extruded filament as opposed to numerous designs with undersized outlets. Its not the prettiest thing but I managed to get better performance than the stock part fan using 100% fan speed and a resistor to lower the voltage. Its adjustable in both X and Y so you can aim the duct to find the sweet spot. As an added benefit the model can be printed without support structure in as little as 2 hours.

Pictured is a Fan Duct printed using a prior version of itself and 2 calibration cubes : Left is from stock fan and right is from new fan. There are slight improvements on the bottom of the split in the Y and X.

I'm planning a V2 to reduce the footprint of the duct as well as another Noctua cooling solution to cool the heatsink (its very tricky/impossible with an axial flow fan)

A note to anyone designing 40mm Noctua cooling ducts for any and all printers : Make sure to not under size the outlet and avoid bends as much as possible. The smaller the outlet the more effective the boundary layer of air is at increasing static pressure requirement and it ends up shooting right back out the way it came.

Required Hardware :
40mm Noctua Fan
Resistors or 24v to 12v convertor

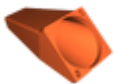
2 M3x8mm bolts
2 M3x6mm bolts
2 M3x3 threaded inserts
2 M3x4 threaded inserts

If you do not have a soldering iron for the inserts you can heat your printer's nozzle to 10 degrees lower than the printing temp of the material and use it as a die to press them in.

Model files



fan-mount-v8.stl



fan-duct-v8.stl

License

This work is licensed under a
[Creative Commons \(4.0 International License\)](https://creativecommons.org/licenses/by-sa/4.0/)



Attribution-ShareAlike

- ✘ | Sharing without ATTRIBUTION
- ✔ | Remix Culture allowed
- ✔ | Commercial Use
- ✔ | Free Cultural Works
- ✔ | Meets Open Definition