



Bambulab P1P Air Scrubber

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Summary

Filters (activated carbon and HEPA) and recirculates the air inside the building chamber using the AUX cooling fan.

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Update Jan 2024

Printing the Carbon-Compartment seems to cause some issues, so you can print the top and bottom as suggested in the comments.

Also some people experienced a collision with the print-head, so please be careful and be aware of the risk. Although I never had any issues with it.

Air Scrubber for the Bambulab P1P

I used a similar approach to Nevermore's and Sofronio's VOC air filter, but with a few key changes:

1. The air is sucked in from the top, right next to the VOC-emitting hot-end. This should increase the effectiveness of the air scrubber.

2. In addition to the activated carbon, a HEPA filter is used. It serves two purposes: the first one is obviously the filtering of small dust particles. The second one is a diffusion of the concentrated air stream, coming directly out of the fan. This way the air should reach the activated carbon more evenly.
3. The amount of carbon inside the filter is increased, in order to reach a higher contact area between air and carbon.

When you feel like not enough air is cycled through the scrubber, you can always play with the thickness of the carbon-cartridge or even remove the HEPA-Filter. And you might want to have an eye on the printing speed, because having the AUX-fan turned on seems to have an effect on the standard profiles of the printer. To make it easier for you to modify the models to your liking, I also included the .step-files if applicable.

Materials

Filament: I used PCTG-Filament from 3DJake, but any temperature-resistant material such as PETG, ABS or ASA should do the trick. Since the whole system only makes sense in an enclosed printer, I wouldn't recommend PLA. In total, you should need approximately 380g of material, depending on the infill.

Activated Carbon: Make sure to use high quality, acid free carbon. I first used this carbon (https://www.amazon.de/dp/B096DL3R2L?ref=ppx_yo2ov_dt_b_product_details&th=1), but later switched to a pellet version (https://www.amazon.de/dp/B095PZLXPQ?ref=ppx_yo2ov_dt_b_product_details&th=1). The problem with the first one was that it restricted the airflow too much for my liking.

HEPA-Filter: The whole geometry of the air scrubber is basically derived from the dimensions of the HEPA filter that I already had from my vacuum (https://www.amazon.de/dp/B07K3TYGX3?ref=ppx_yo2ov_dt_b_product_details&th=1). So If you use a different filter, make sure that it fits snugly into the housing (**80 mm x 42 mm x 15 mm**).

Printing:

I highly recommend using the newest version of orca slicer (<https://github.com/SoftFever/OrcaSlicer/releases/>), a forked version of the original Bambu Studio. I also recommend looking over the slice settings before printing and adjusting them to your personal preferences and material. On the last plate there is a small model, on which you can test what kind of support works best for you. For me, the tree support worked best on the "support" model, while the standard supports worked well on the "main

body". Oh and be careful whilst removing the supports of the main body, some of the bridges are very delicate and can break.

This remix is based on



Bambu Lab P1P AUX fan VOCs activated carbon filter - Nevermore like

by Sofronio

Model files



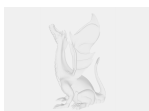
bambulab-air-scrubber.3mf



test.stp



lid.stp



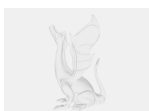
main-body.stp



support.stp



carbon-lid.3mf



carbon-main-body.3mf

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