

Small Air Purifier

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VIEW IN BROWSER

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Summary

This stylish air purifier can be used inside a 3d printing enclosure, on a desktop, or while soldering.

3D Printers > Accessories

Tags: filter smoke enclosure air easytoprint bathroom cleaning dust filters hepa breathing lackenclosure fumeextractor dustfilter portafilter easyassembly bathroomaccessories airfilter purifier fumecontrol fumefilter solderfumeextractor doityourself hepafilter solderingfumes particles airpurifier resinfume solderfumes bathroomaccessory particulate resinfilter easytoassemble resinprinting desktopfilter dustcontrol personalfilter enclosurefilter watercloset

I designed this small air purifier to go inside my 3d printer's enclosure. I wanted an air purifier to reduce the smell, fumes, dust, and small particles that come from printing different materials.

This design filters and circulates the air inside an enclosure without creating drafts of cooler external air that can ruin a 3d print. It can also be used to remove solder fumes, as a desktop air purifier, or to help reduce odors in a water closet. It could be coupled with an activated carbon pre-filter to further reduce hazardous VOCs.

Printing Instructions

The model is simple to print. If using inside a high-temp environment, like a 3d printing enclosure, be sure to print using a heat-tolerant filament like PETG. I suggest printing with 3-5 perimeters (outer walls) and at least 20% infill for strength.

Additional Parts

To complete the filter you will need the following parts. All parts can be sourced from Amazon.

- 80 x 80 x 25 mm DC Fan, Qty: 1
- 110 x 74 x 64 mm HEPA Air Filters, Qty: 2
- Threaded DC Power Adapter Socket or Threaded DC Power Adapter Socket, Qty: 1
- 2 Wire IDC Connector, Qty: 2
- 12v Power Supply, Qty: 1

Assembly Instructions

I have included pictures of most every step needed to assemble the air filter.

1. 3d print the Body and Top models included on this page
2. Cut off the fan's white wire connector. Cut the wire close to the connector to leave plenty of length.
3. Remove a small amount of wire jacket from the red and black wires on the fan and threaded DC power adapter.
4. Insert the fan wires through the power hole on the wall of the purifier body. Be sure the wires pass from inside the body to the outside.
5. Insert the red wires from the fan and the threaded DC power adapter into one of the yellow IDC connectors.
6. While holding the wires in the connector, use a pair of pliers to compress the yellow IDC button. This will connect the two inserted wires and create an electrical connection.
7. Repeat steps 5 and 6 using the black wires.
8. Screw the threaded DC power adapter into the hole on the wall of the purifier body using the pliers.

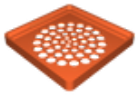
9. Insert the two air filters into the purifier body with the foam gasket facing the outside wall of the purifier body. **Note:** The filters will fit tightly so insert them slowly. It helps to compress the foam gasket while inserting. Take special care to not let the top of the gasket catch on the body.
10. Press the filter all the way to the bottom of the body.
11. Place the fan inside the purifier body. One side of the fan will have a frame. This side should be facing up and flush with the top of the purifier body.
12. Secure the purifier top to the purifier body. The purifier top connects to the body via a snap-fit feature. Be sure to line up the snap-fit connectors when attaching the top.
13. Plug the 12v power supply to the threaded DC power adapter and enjoy fresh air!

Happy Printing! :)

Model files



small_air_purifier_body.stl



small_air_purifier_top.stl

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