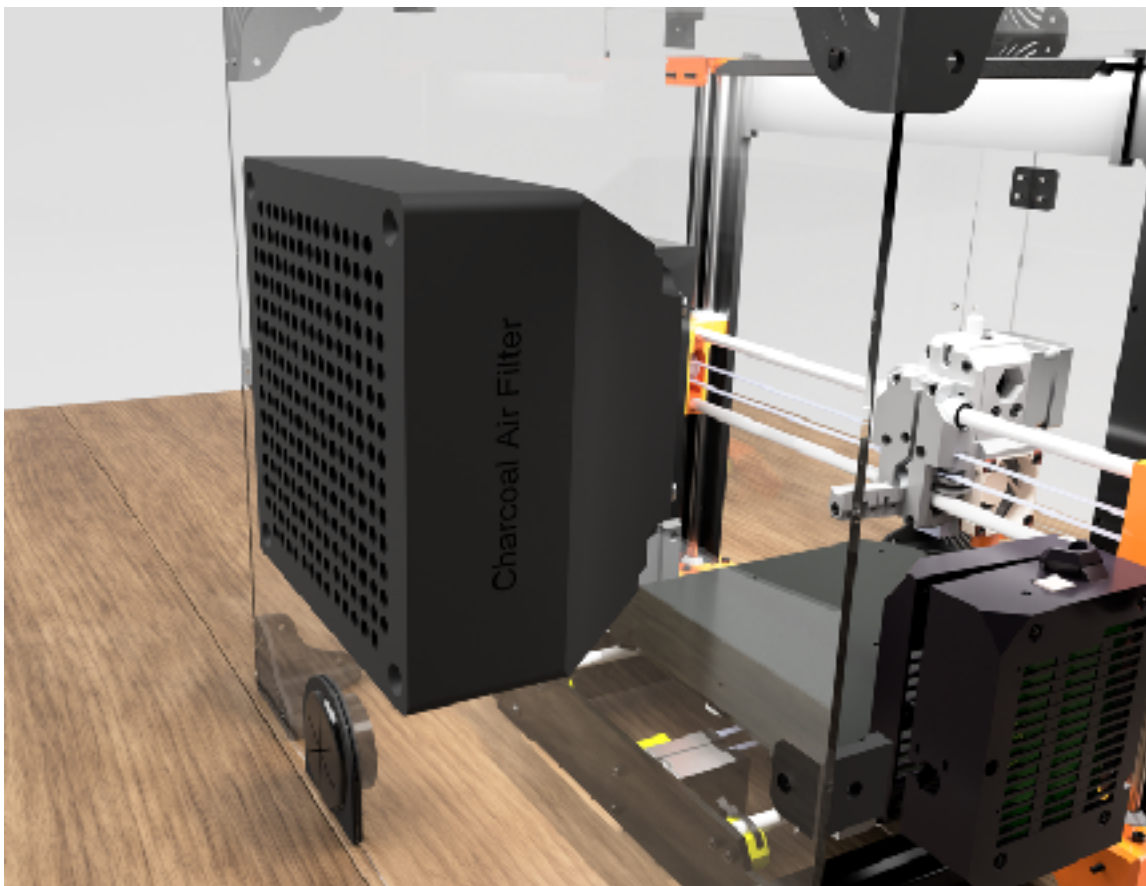


3D•UP

FITTERS

Air Filter & Vents

Installation Manual 4.1
October 2023

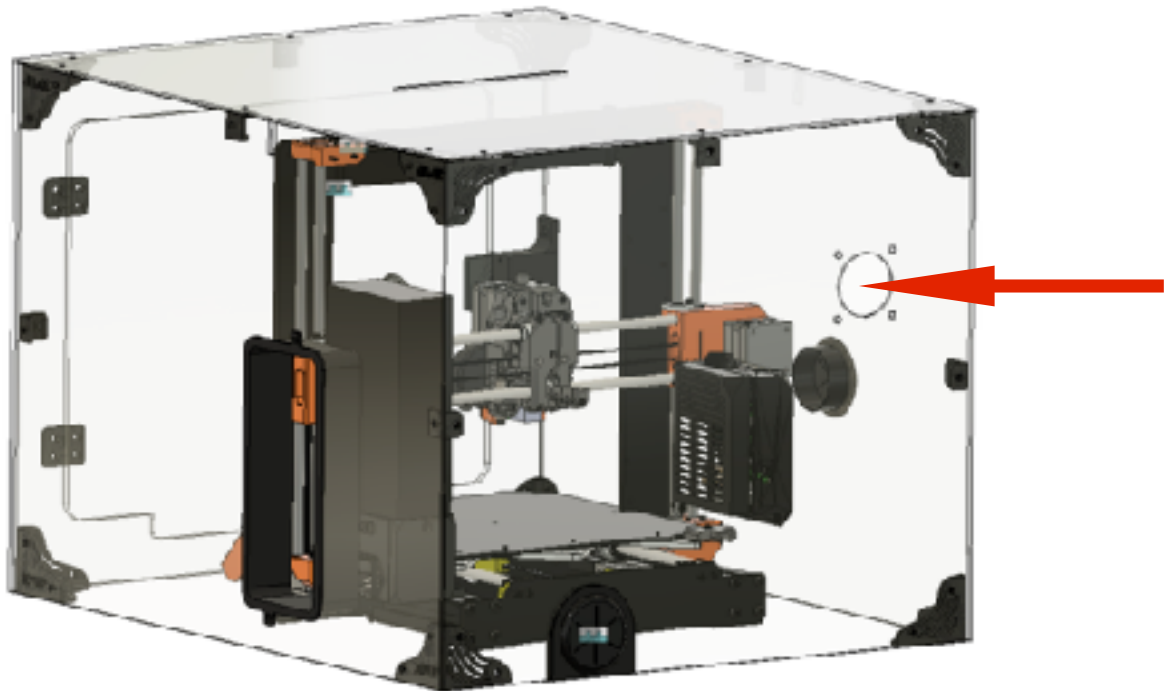


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Carbon Air Filter

Locate Mounting Point

If you've purchased an enclosure kit from 3DUpfitters the mounting point will be on the back panel when viewed from the back, as shown below.



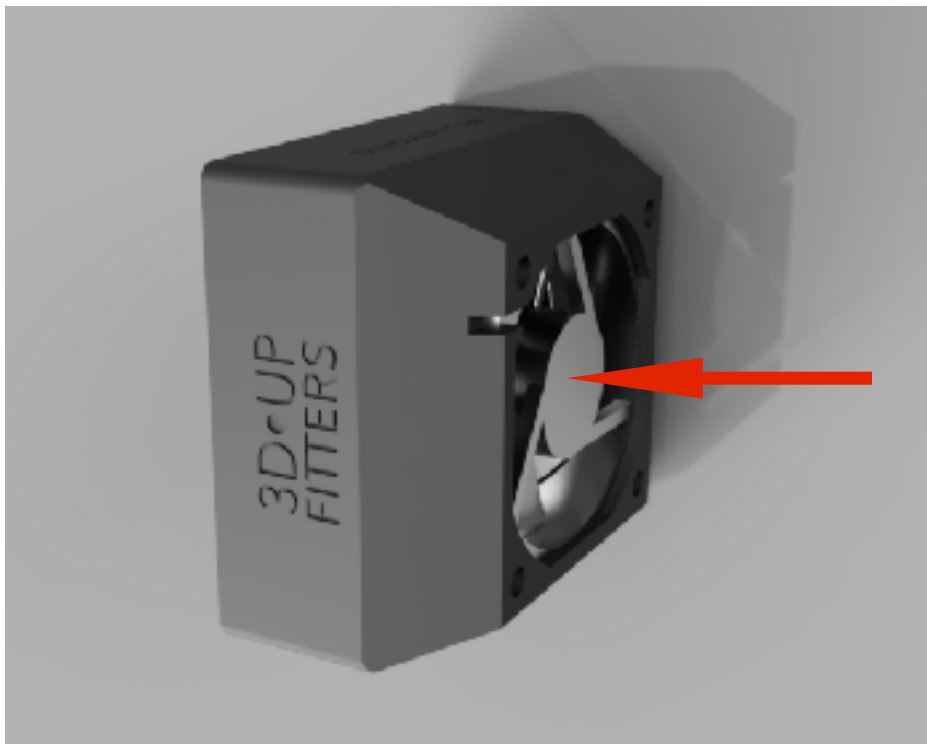
If you're already got an enclosure or are creating one for yourself, you'll need to cut a hole for air flow, and four holes to mount the filter and fan. The hole should be 78mm in diameter, and the holes are 70mm apart in a square pattern. There is a DXF file you can [download from the product page](#) on the website if you want to laser or CNC your



DIY enclosure. **Be sure to delete the dotted construction lines when configuring the laser or CNC control file.**

Notice Air Flow Direction

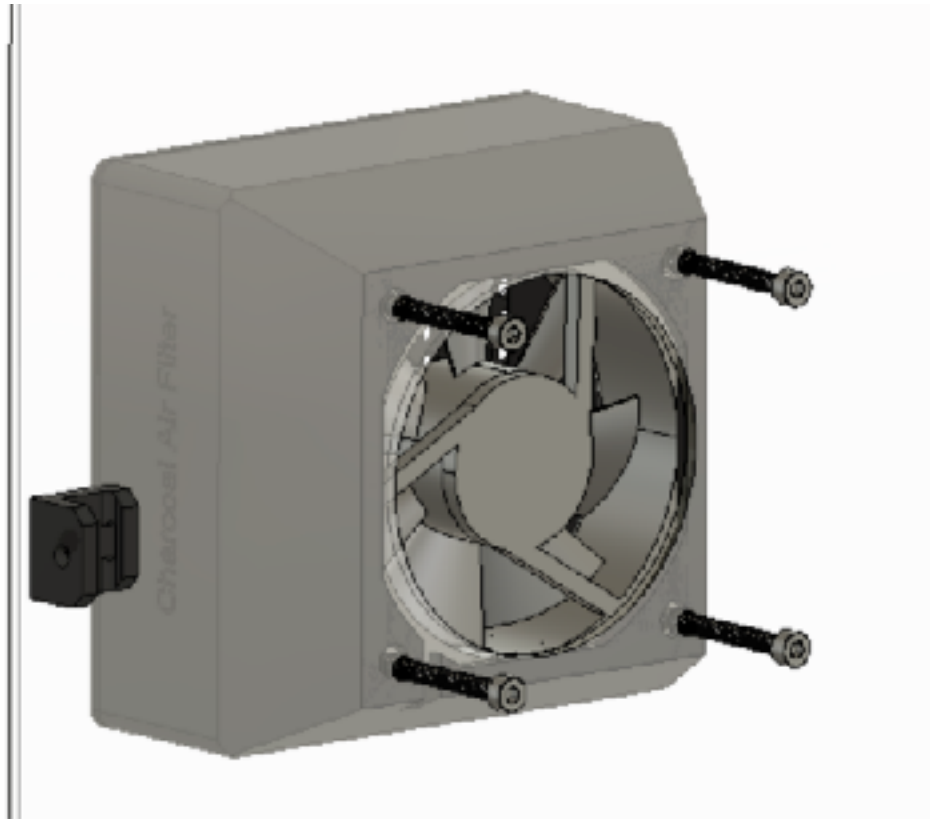
The fan is powered by a 5V USB power supply built into the filter. Plug in the fan and notice in which direction the air flows. You'll want to connect the fan to the filter so that the air is pulled **out** of the enclosure and **through** the filter.



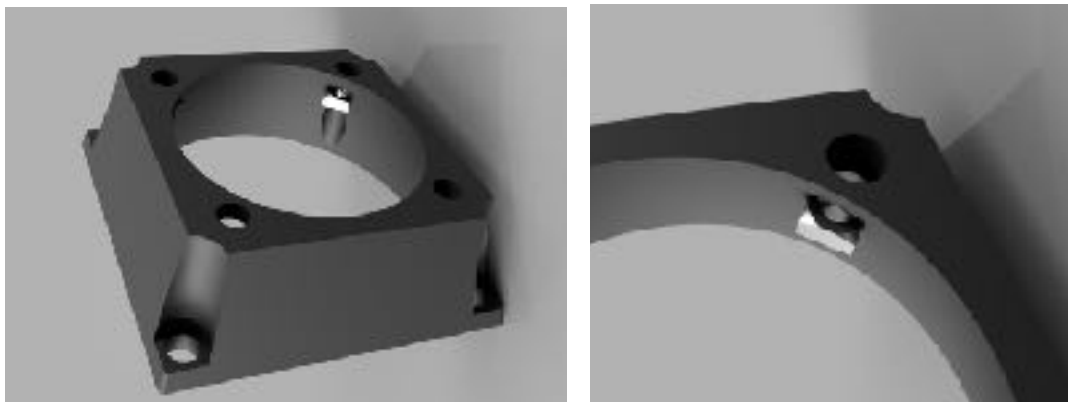
Attach the Filter to the Panel

There are two sizes of holes with 3DUPfitters enclosures for 60mm and 80mm fans. With the larger 80mm-sized holes the screws are inserted from inside the enclosure and through the nuts slotted into the filter itself as shown below. The filter is mounted on the **outside** of the enclosure.

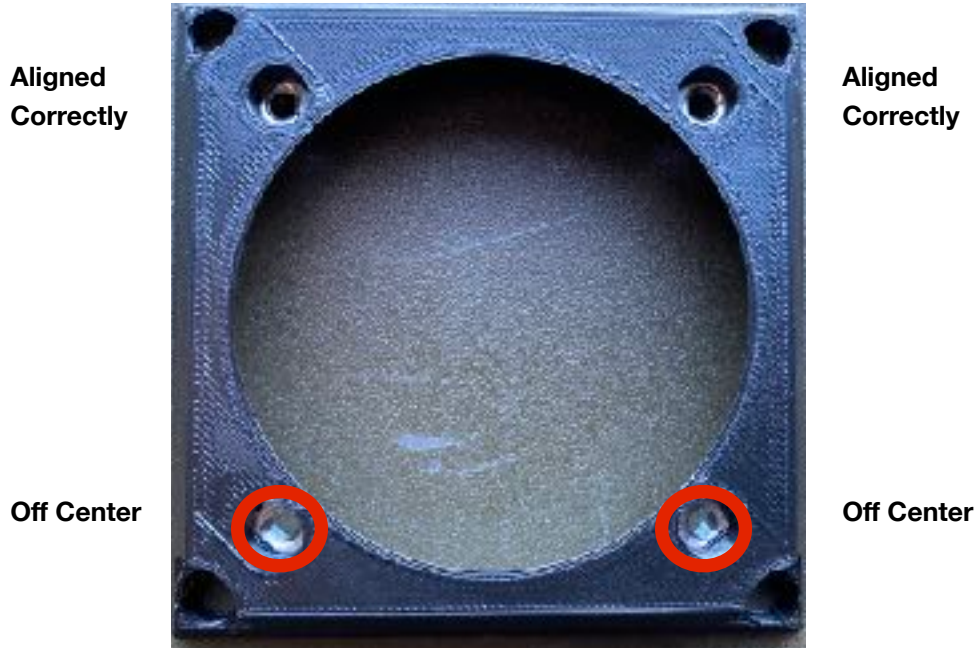
This view is from inside the enclosure looking at the filter attached to the outside. Insert the long 40mm M4 cap head screws from **inside** the enclosure into the holes in the filter on the **outside** of the enclosure. Insert the screws only *part way* into the filter to make sure the screw ends have caught into the nuts before starting to tighten.



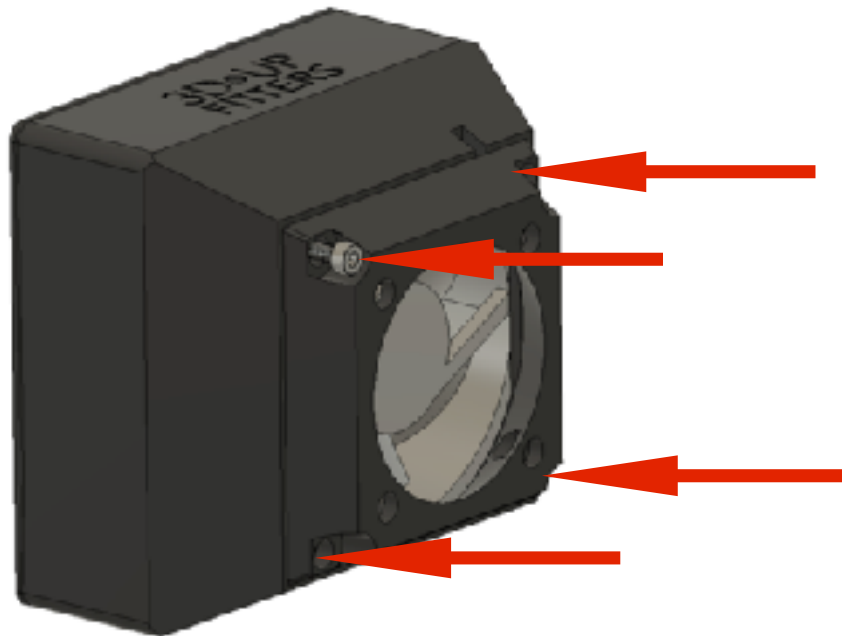
Smaller enclosures such as the Prusa have 60mm holes, and thus need an adapter. To prepare the 80mm to 60mm adapter insert an M4 square nut in each corner as shown below:



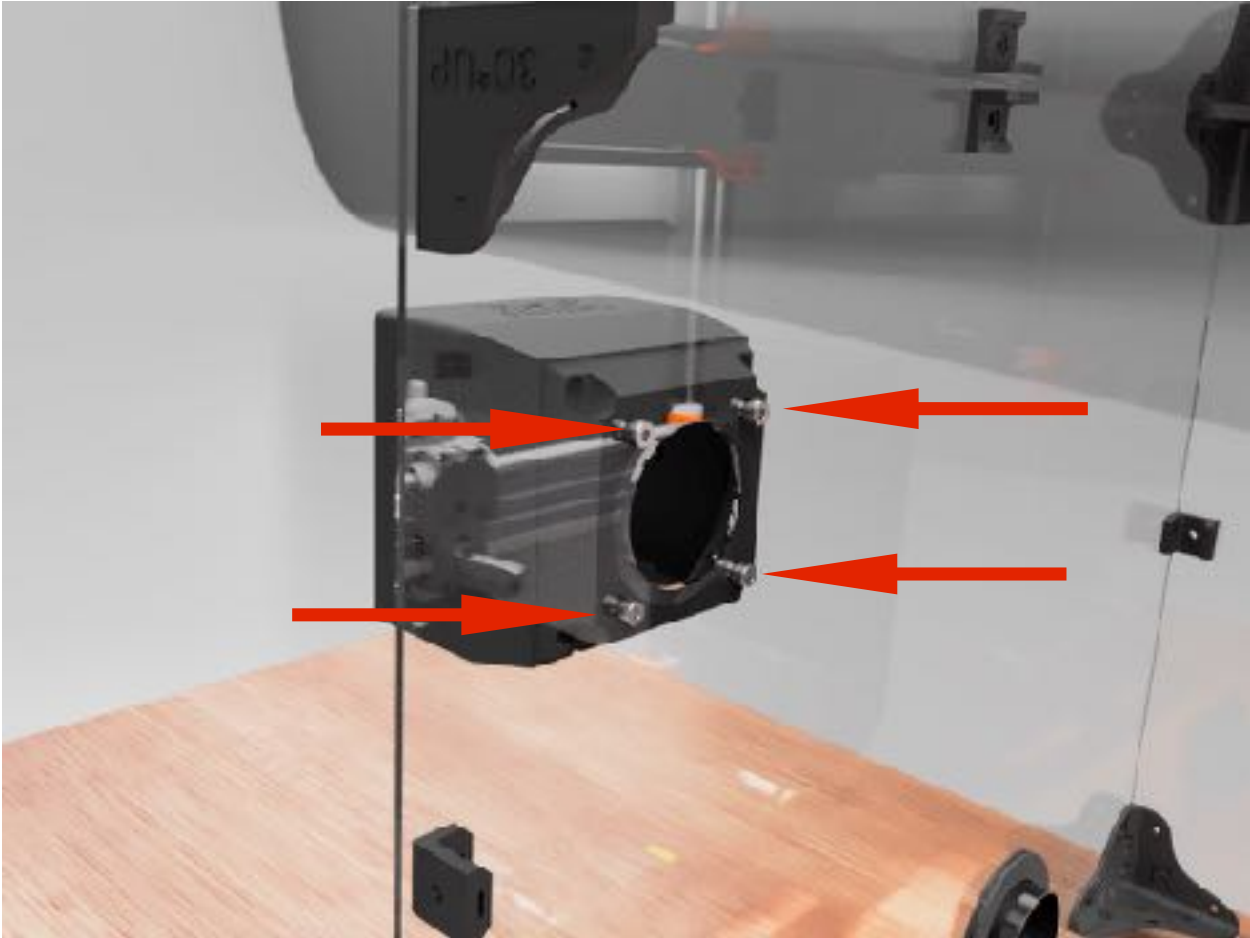
When inserting the hex nuts **be sure to center the nuts in the middle of the holes** so that they will align with the screws. You can use a needle nose pliers or even a pen tip to adjust the location.



The adapter is then connected to the fan/filter combination using 40mm M4 screws. Insert all 4 screws only a small way in before attempting to tighten.



The holes on the 60mm side will now align with the 60mm holes on your Prusa, Ender 3, or other small enclosure, and the filter can be attached with 12mm M4 screws.



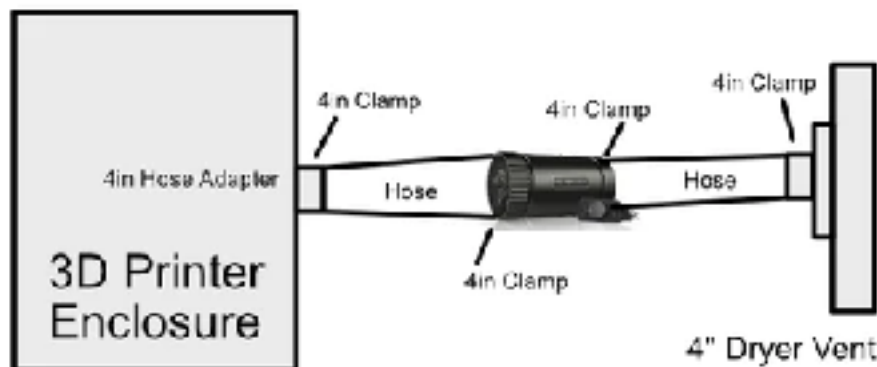
Vent Adapters

Many people find the smell of plastic from a 3D printer to be particularly noxious, but there hasn't been that much research on the long or short term health effects of exposure to 3D printer fumes. Because the differing nature of the particles and compounds put into the air by different filaments, there's no standard way of filtering everything, especially since the smallest particles can't be completely caught by even the best HEPA filter.

If you only print occasionally the risk is low, but if you are going to be printing a lot (and especially for multiple printers), what the [CDC recommends is to vent the 3D printer gasses to the outside](#), such as with one of our vents paired with a standard dryer hose. They can also hook to any DIY enclosure by simply creating the right size hole.

Inline Fan

Our latest venting kit features an inline fan that is both very powerful and adjustable. The general layout is shown below:



Ideally, you'll want to place the inline fan as close as possible to where it exits your workspace.

The idea is to keep as much as possible of the system pulling with negative pressure rather than pushing the air. The reason is with negative pressure if there are any air leaks that just means more air is drawn into the hose. With a positive pressure configuration, any air leaks would mean the contaminated air is being pushed out, defeating the purpose.

Note that the included 8 feet long hose will need to be cut in half. Four clamps are included to "splice" the vent into the hose as shown above.

DIY/Miscellaneous Vent Adapters

3DUPfitters has a wide variety of vents designed to meet your custom venting needs. They are designed to work with standard 3" or 4" clothes dryer hose available in any hardware store.

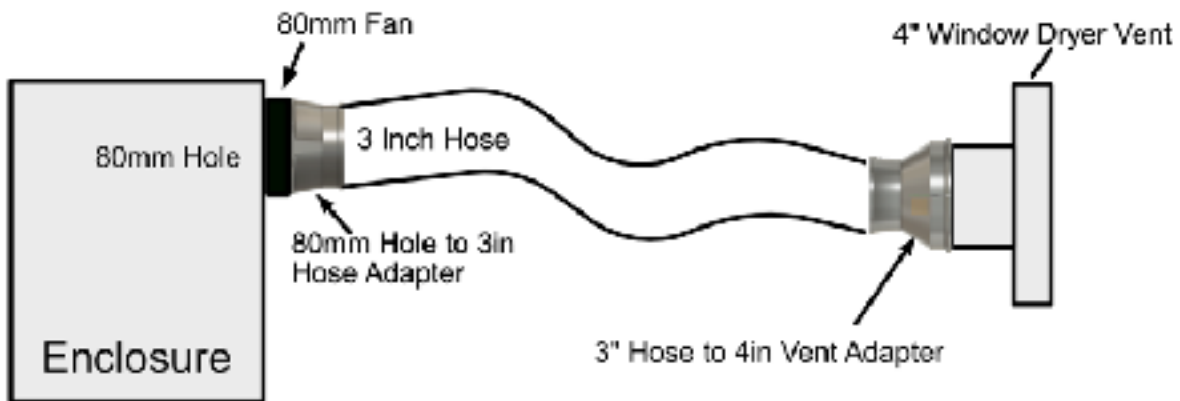
Adjust the hose clamp to be right next to the ridge for the best fit.



The adapters are intended to be flexible so you can design a configuration that's best for your situation. Here's an example setup with the CR-10/Taz6/Ender 5 Plus vent kit. For this you'd need to order a hose, clamps, and dryer window vent from your hardware store.

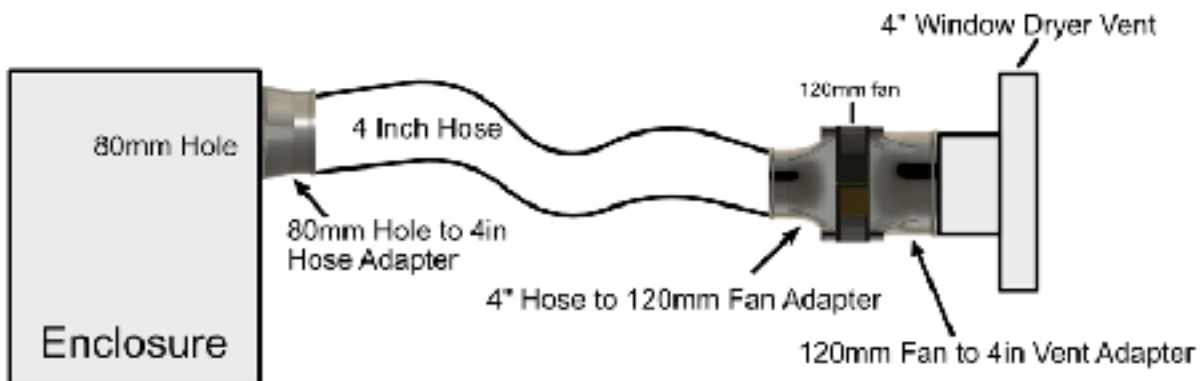
The Prusa/Ender setup is a bit more complicated since window inserts are all 4", while the hose we recommend is 3". This setup adds an 3"->4" hose adapter, and the 3" hose is small and doesn't overwhelm the small enclosure. Note that with this setup you need 2 3" clamps and 1 4" clamp.

80mm Fan Vent Setup



The latest addition to the vent lineup is the 120mm fan/vent combo. In this setup the fan is positioned at the window side of the hose.

120mm Fan Vent Setup



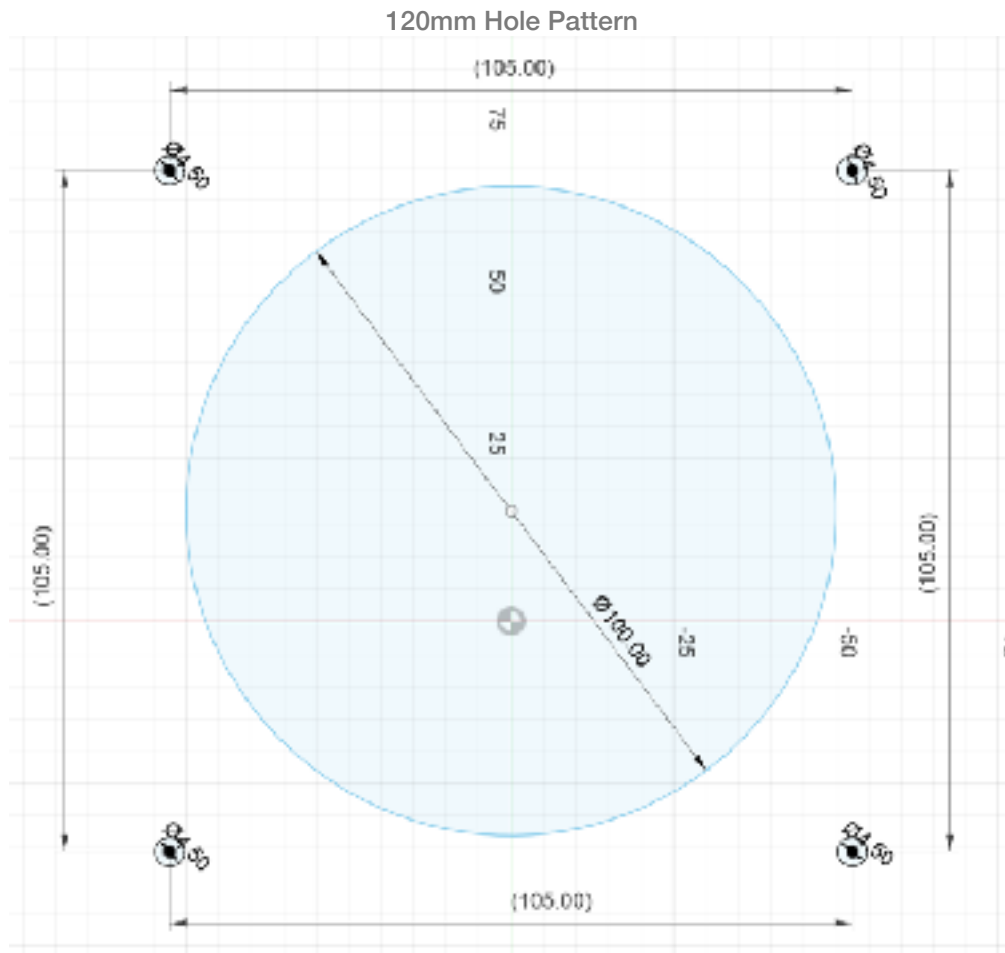
To complete venting to the outside with parts that aren't included in the kits you can find [flexible 4" dryer duct hoses](#) or [flexible 3" hoses](#) online or at most hardware stores. This can be connected to the outside using the same techniques you'd use for a clothes dryer, or you can purchase one of the many compatible [window-venting kits](#). These items are not included and

must be purchased separately. We don't bother to stock them since they're readily available at local hardware stores.

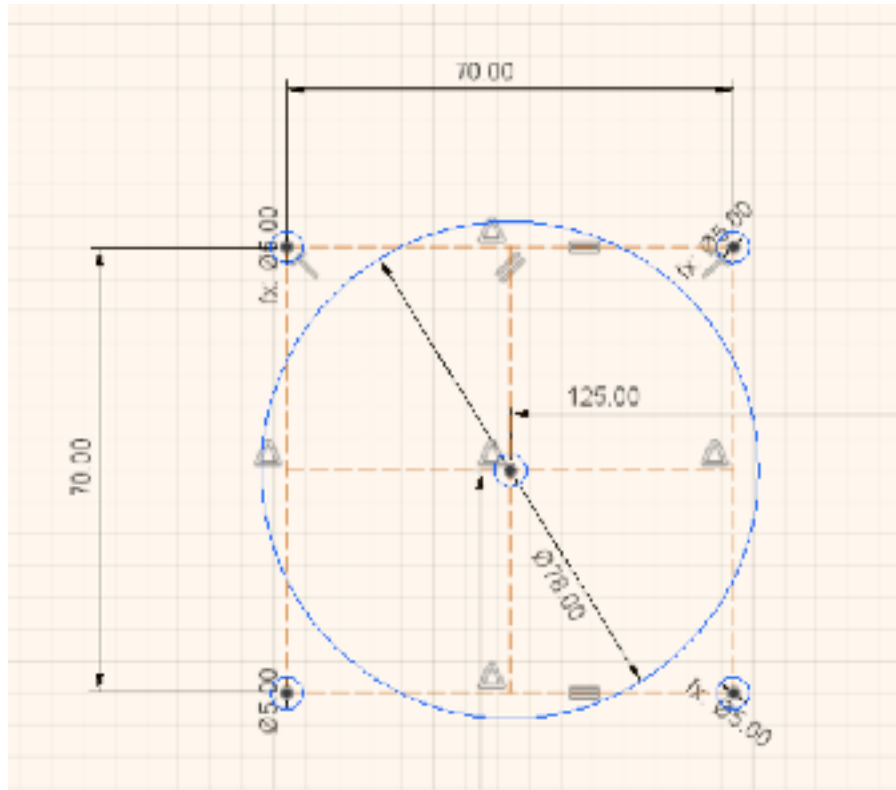
The fan can either be plugged into a USB power supply (not included) or the wires stripped and connected directly into some models of 3D printer.

Hole Patterns

If you are doing a DIY project then you'll need to cut your own holes to fit the hose adapters. This pattern shows the distance, but the size of the mounting holes is up to you depending on the screws you want to use. A DXF file setup for standard M4 screws is available on the adapter product page.



80 mm Hole Pattern



Mind the Flap

Note that the 60mm and 80mm fans are not powerful enough to blow open most flaps and ducts. The window venting kid mentioned in the previous paragraph either needs to have the flap taped up or removed.

Air Vent with default Flag



Air Flag Taped Out of the Way

