



COVID-19 MASK - Hospital Edition - No supports - V 1.2.2



Joe

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Summary

CURRENT VERSION: 1.2.2 RE-CAPPED (Old Version is here: <https://www.thingiverse.com/thing:4281937>) UPDATE 1.2.2: April...

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***CURRENT VERSION: 1.2.2* RE-CAPPED (Old Version is here: <https://www.thingiverse.com/thing:4281937>)**

UPDATE 1.2.2: April 29, 2020

I added a hole to the strap support area. This allows for you to pull the elastic back through and it makes it where you can adjust the tightness by pulling the strap. I also adjusted the nose area adding a chamfer to the ridge that will help those with larger noses.

GCODE is for ENDER 3/PRO only. I cant verify it will work on any other printers

Lafactoria design is significantly changed now so these designs are no longer compatible.

People were asking for the files pre-sliced for Ender 3. They are included here as well. I sliced this on Simplify 3D and these settings work perfectly for me printing PLA/PETG (May need to tune the nozzle temp up for PETG)

MASK UPDATE 1.2

Will be shipping out this new design this week: <https://www.youtube.com/watch?v=swaG40BBdKc>

Legal:

I designed this mask in March of 2020. Right as the quarantine hit. I used to be a nurse here in my city. Many of my nursing school friends are still nurses and they reached out to me to make them masks. I am not an engineer. This mask may or may not protect you against the coronavirus. This design was out of desperation to help those who were forced to work around patients with NO PPE whatsoever. I make no claims of its effectiveness.

THIS IS A REMIX - ORIGINAL THING: [*https://www.thingiverse.com/thing:4225667*](https://www.thingiverse.com/thing:4225667)

How this version came to be:

I have been cranking out the original at a pretty fast pace. Giving these to our local hospitals. The feedback I am getting is that they really need some space for glasses. Even if they do not wear glasses they are often wearing goggles. The original is just too thick on the nose piece. Also, the original looked very Bane/Vader and it was bothering some of the Nurses so I changed the cap to be a grid.

All parts are interchangeable with the original mask.

Because I am making these in volume I added some text to delineate the size I am printing at. **SMALL - Reduce by 10% fits small adults and larger children MEDIUM - Reduce by 5% fits smaller adults LARGE - This is the default size. Fits adults and men with beards XL - Up the scale by 10% - Fits larger adults**

Best way to ensure a good fit is to add the weatherproofing to the rim.

This is the weatherproofing I use (no affiliate links) <https://www.amazon.com/Pres-P8225RL00-50XOH-Neoprene-Foam-Black/dp/B01G382DX4>

Old Updates:

UPDATE: After 2 test prints I decided to clip the nose back a bit more. Glasses/Goggles now fit much better. Will reinforce that area with more weatherproofing.

UPDATE 2: Added a tiny bit of material to the chin. Even though this is support free the angle was every so acute and the chin looked rough. Will print to see how it works. Total masks printed 24.

UPDATE3: April 5 2020 - The ridge at the back is causing some issues with some printers. I am including the OBJ file if you would like to take this into meshmixer and fiddle with it.

Found that BLUE SHOP TOWELS the paper kind are an amazingly effective filter element. A roll can do several hundred masks. We now have 4 printers going full time 3 more coming next week.

We have printed over 50 masks and delivered them all over NY State. Thanks everyone for sharing.

UPDATE 4 - April 9 2020 - Next iteration. This one is D. I thickened the walls of the cap doubled it in size because after almost 75 prints it is apparent it was too thin at the base. I also trimmed the sharper area around the nose back a bit.

Side note: Confirmed BLUE SHOP TOWELS can be used as a filtration device. Watch my video above. Thanks, everyone.

UPDATE 5 - APRIL 9 2020. I decided to make a drastic change to the file. I was having micro cracks happen on the front clip and it didnt really serve a good purpose. So I removed that completely and now have a small clip for the front and back of the mask. Changing filter material should probably be done from the inside but the whole thing comes apart. Print time reduced over an hour and a half for a large. Mediums now take 2.5 hours! Smalls 2 Hours. Not bad. I will keep iterating as needed.

UPDATE 6. Version 1.1. Front clip is gone now. This should shave time off the print. I included some cut-outs in the inner clip so that a person can pry it out to change filter. This simplifies the design significantly. Only 2 parts now.

UPDATE 7. Version 1.1a Added 2mm of height to the "snout" of the mask. Some people remarked it was too thin around the hex area and it would snap. I also added a very slight ridge to the front as well. My goal was always to make the masks interchangeable with the older design. The longer snout should allow for the original mask clip to slide on. I will test it.

Update 1.2 - April 19 2020 - The snub-nosed version, while it worked ok for under PPE masks through a bunch of testing and a few comments (thanks tr0789), I redesigned the whole front part.

I wore the snub nosed mask for over 2 hours on a hike and on the flat spots it was ok, going up hills I found I was struggling to breathe. Result, we needed more holes.

I added the cap back. What I did however was shorten the nose from the original mask and then add in a cross support + sizing.

Print Settings

Printer:

Ender 3

Rafts:

No

Supports:

No

Resolution:

0.22

Infill:

100%

Filament: Any PLA/PETG

Notes:

This requires a fairly level bed. I would shy away from a raft. If your bed is not able to be leveled do print with a raft but make sure you have the separation set up correctly otherwise it might stick to the grid.

Print times:

Large - 5 hours

Medium 3.5 Hours

Small 2.5 hours

Post-Printing

Instructions for final assembly

***Video of final assembly:** <https://www.youtube.com/watch?v=EHSbhi7KawM>

Here is the weatherstripping I use. It is incredibly sticky <https://www.amazon.com/Pres-P8225RL00-50XOH-Neoprene-Foam-Black/dp/B01G382DX4>

Blue shop towels confirmed to be an excellent filtration media https://www.washingtonpost.com/lifestyle/wellness/masks-diy-coronavirus/2020/04/01/20830f5e-7420-11ea-85cb-8670579b863d_story.html

How I Designed This

Design software

I designed this in Tinker Cad. It is not particularly amazing modeling program but it does an ok job.

ORIGINAL - <https://www.thingiverse.com/thing:4225667>

Category: Other

Model files



covid_mask_-_g_cap_12.stl



covid_mask_122.stl

[Find source .stl files on Thingiverse.com](https://www.thingiverse.com)

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