



March 26, 2020

Re: Support the Healthcare PPE Supply Chain Shortage by Producing Face Shields

Dear Customer,

EOS is actively engaged with its AM community, government bodies and medical institutions to provide immediate support during the COVID-19 crisis. One of these initiatives is to overcome the shortages of Personal Protection Equipment (PPE). And we can do this right away. To quickly ramp up production of face shields, we want to provide a packaged solution to get your manufacturing capacity utilized as quickly as possible.

This package includes:

1. Print Files
2. Production Requirements
3. Assembly and Care Instructions
4. EOS Commercial Support Offer
5. An Opportunity for Further Exchange

## 1. Print Files

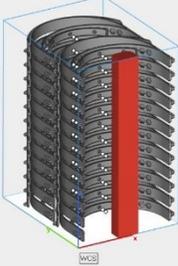
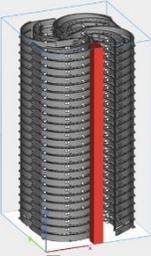
We know that there are thousands of files online and thus we want to emphasize that even as time seems to be most critical, quality and some level of standardization are key to the sustained health of our community. Over the past days, EOS has worked with partners including the University of Texas as well as the Dell Seton Medical Center to test and assess various designs of the face shield. After thorough evaluation, we base our package on the original files coming from the PRUSA research group.

Please note: We do not want to claim inventor ship on any of this, but in the spirit of a collective effort, we built our suggestions and instructions on the ideas of others. We ask everyone to do the same and provide feedback wherever possible.

## 2. Production Requirements

Any of your EOS SLS equipment is capable of manufacturing these face shields. We recommend using an EOS P110, P396 or P770. We further recommend producing the face shield with EOS PA2200 material due to its clinical history for skin contact and ability to be cleaned and sterilized. For further information on this, please reach out to [support\\_covid@eos.info](mailto:support_covid@eos.info)

For those of you, who want to get going as quickly as possible, we have prepared ready to go job files. You can also use the original STL files and modify the job layout based on your manufacturing expertise and standard operating procedures.

P110	P396	P770
 <p>Platform volume utilization: 6.00 % Current nesting density: 6.35 % Build height: 312.00 mm</p> <p>Volume: Part(s): 990.787 805 mm<sup>3</sup> Support: 0.000 mm<sup>3</sup> Base Plate: 0.000 mm<sup>3</sup> Total: 990.787 805 mm<sup>3</sup></p>	 <p>Platform volume utilization: 5.53 % Current nesting density: 5.88 % Build height: 602.00 mm</p> <p>Volume: Part(s): 396.214 399 mm<sup>3</sup> Support: 0.000 mm<sup>3</sup> Base Plate: 0.000 mm<sup>3</sup> Total: 396.214 399 mm<sup>3</sup></p>	 <p>Platform volume utilization: 4.71 % Current nesting density: 4.93 % Build height: 552.00 mm</p> <p>Volume: Part(s): 770.286 4 216 mm<sup>3</sup> Support: 0.000 mm<sup>3</sup> Total: 770.286 4 216 mm<sup>3</sup></p>
24 face shields	96 face shields	176 face shields
Build time approx. 14.5 hrs	Build time approx. 26 hrs	Build time approx. 26 hrs
8 kg material	34.5 kg material	80 kg material

### 3. Assembly and Care Instructions

The face shield consists of four different components:

- Head Bracket (3D-Printed)
- Chin Bracket (3D-printed)
- Shield (Clear Plastic)
- Head Strap (Rubber band or elastic band)

A continuously updated assembly guide, you can find here:

<https://manual.prusa3d.com/Guide/How+to+assemble+the+Prusa+Face+Shield+-+RC1-RC2/1527>



In short:

#### Head Bracket

The design has 4 circular pins (protrusions) on the front to hang the shield in place and hooks on sides to fasten the strap

**Shield**

To create the shield, you can use a sheet of 0.5 mm (0.02") clear plastic. You can order the sheets from suppliers such as McMaster-Carr (e.g. products 85585K15, 87875K17) and USPlastic (e.g. Stock 50091, 50092). Use hole punches to punch the holes at the very top of the face shield to attach it to the head bracket and at the bottom to click-on the chin bracket.

**Chin Bracket**

Assemble the chin on the lower edge with 3 holes and push it gently. Both parts should "click".

**Head Strap**

You can use any elastic bands with decent durability and comfort. A suitable one, you can order again at McMaster-Carr (e.g. product 3029t52 or similar). Loop the band ends onto the hooks provided at the ends of the bracket.

**End-User Instructions**

Once the headband attachment is complete, you can put on the face shield with the inner bracket resting against the forehead. Strap the rubber / elastic band loops around the head to ensure that the face shield is fixed onto the forehead.

**Use and Re-Use of Face Shields**

Face shields delivered to facilities should be considered non-sterile. Cleaning and sterilization can follow the standard hospital procedure for face equipment. We expect people to re-use the face shield and recommend disinfecting the transparent film as well as the head and chin bracket of the face shield before and after use.

**4. Commercial Support Offer**

In order to support your effort, we provide you with special discounts for our PA2200 material. Please reach out to your local Life Cycle Solutions Specialist, as we offer various discounts across the globe.

**5. An Opportunity for Further Exchange**

It has been great to see how the manufacturing community as a whole collectively has stood up and wants to support. At the same time, we witness a level of information overflow, misleading information and loose ends. With our years of experience in the medical industry and deep relationships to regulatory and government bodies, we do our best to orchestrate these efforts, connect the right people and focus our activities on creating valuable impact for the healthcare workers and patients.

If you are not already in touch with your local hospitals and medical institutions, please reach out to us and we try to facilitate. In parallel, we are connecting with federal and local bodies to steer the demand and supply most efficiently.

If you in turn have valuable information, ideas and contacts to share, please reach out to [support\\_covid@eos.info](mailto:support_covid@eos.info). We will make this information available to the broader audience and government bodies and foster the exchange.

Kind regards,

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