Face shield information

**Warning:** This product has not been tested or approved by the American National Standards Institute (ANSI) or International Safety Equipment Association (ISEA). Use it at your own risk!

1) **Components (see Appendix for individual component photos)**

2) **Materials:**
   - **Shield:** 0.02-inch or .03-inch thick CLEAR PETG sheet (the blue in the picture is a protective film)
   - **Headband:** PETG or PLA
   - **Bottom support:** PETG or PLA (preferred); ABS also works
   - **Strap:** Tourniquet material or rubber band.

3) **Printing instructions:**
The 3D printed headband uses roughly 50g of filament per part, and it can be printed in either PETG or PLA. The outer envelope is 191 mm wide, 148.5mm long, 52.5mm tall. If your printer does not have enough build space **DO NOT SCALE**.

Preferred print settings to ensure structural integrity:
- Nozzle diameter: 0.4mm
- Extrusion width: 0.5mm
• Layer height: 0.3mm [some printers might not have option to change this or to make it .3mm]. It is fine to print with a smaller layer height but it is not recommended to go higher than .3mm.
• Shells: 3
• Infill: 30%
• Infill type: Grid. This could probably be any type of pattern without issue
• Solid Bottom layers: 3 (results in a 0.9 mm thick bottom)
• Solid top Layers: 3 (results in a 0.9 mm thick top)

These are preferred settings that have proven to produce a good, structurally sound part. If anybody has a printer that can’t match these exactly then the suggestion is to get as close as possible and perform a test print.

4) Installation instructions:
The installation of the shield is easy and fast. The print is designed to make use of a standard 3-hole paper punch. It is best to use an adjustable 3-hole punch that allows for moving the outer two holes slightly farther from the center one. The optimal space is 2.3 inches between hole centers for a very tight fit and 2.325 for a looser fit that is easier to snap on and off. The 3-hole punch just makes it easier to properly locate the holes. This could be done with careful measuring and a single hole punch or making a template to punch through.

Procedure:
• Wear gloves.
• Leave the protective coating on the shield material.
• Don’t twist and pry on the overhead shield to prevent damaging it.
• Mark the center line of the shield.
• Punch the three holes into top of the shield with one of the above methods.
• Peel back the protective coatings about an inch.
• Start on one end aligning the pins into the holes.
• Snap the shield into place over the third pin.
• Slide the bottom support onto the bottom of the shield.
• Make sure the shield is bottomed out in the slot.
• Align the support with the center of the sheet.
• Mark the three holes.
• Remove the bottom support.
• Punch the three holes with a single hole punch.
• Slide the bottom support in place until the locking nubs engage the holes.
• Bag the shield in a new press to close bag to keep it clean.

5) Cleaning instructions:
All components can be cleaned with alcohol. Other cleaning options can be explored by users at their own risk.

Contact information
Any further questions can be addressed by email to Charles Cornwall at cornwall@uidaho.edu.

Reference
Appendix: Component photos.

A1. Face shield components disassembled

A2. Head band
A3. Shield

A4. Tourniquet (rubber) band
A5. Packaged face shield