



Assembly Instructions for Corran Face Shield

Background

Find out more about the Corran face shield here:

<https://www.4cengineering.co.uk/category-engineering/project-corrان/>

Certification Note

This design was produced with input from NHS ICU consultants and Infection Control Nursing staff, and has been approved for use in our local hospital.

It has not been assessed for certification to any formal standard. See below “before you start” instructions on cleanliness

We would strongly advise that the first devices are shared with clinicians who will use this , and that they are shown the provenance of the material and the assembly process (if possible) this will then give them full confidence in the following:

- a) Cleanliness
- b) Comfort – they can try them on
- c) Clarity – they can confirm that they have sufficient visibility through the shield
- d) Coverage – they can confirm that the coverage is sufficient in x, y and z
- e) Clearance – they can still move their head without catching the visor on their other PPE or fouling with their shoulder/neck etc

Doing this with the most senior person available increases the likelihood of quick adoption by other staff – we’ve found the senior medical staff to be pragmatic – if they can’t get a CE marked piece of equipment, then something local from improvised supply chain is certainly better than nothing, and giving the “5 Cs” confidence above should be sufficient.

This is an improvised design, which is to suit a local supply chain, as such there is no acceptance of liability by 4c Engineering, Aseptium or any of the other original designers – local makers and the end users must jointly satisfy themselves that the visors are fit for purpose to meet the unprecedented shortage.

Once this current crisis has passed/certified PPE becomes available, we recommend that these items are withdrawn from service.



We request that design credit is given to “4c Engineering and Aseptium Ltd”, modified designs have an equally open license and that manufacture is non-profit.



Before you start

Prepare yourself and your work area:

- Work area should be clean, give it a wipe down with a suitable cleaner
- Wash your hands
- Put on PPE to keep the visors and assembly area clean, we recommend
 - Tie back hair
 - Wear disposable gloves
 - Cover your clothing with a disposable apron

The aim here is to produce a macroscopically clean face shield, they do not have to be sterile. If you are supplying a health provider CHECK specific requirements and suitability with them before you order materials and start work.

We've suggested the simplest tools to use, if you have access to more advanced equipment, feel free to make use of it.

Raw Materials - 4 fundamental items

1. Foam – soft, open cell polyurethane foam (e.g. upholstery/packaging foam) or similar - 25mmx30mmx240mm
2. A4 PVC Clear Binding Cover or similar - recommended 250 microns
3. 19-25mm wide woven elastic - check the elasticity from different suppliers
4. Double sided tape - needs to be good stuff, in the UK, Toolstation sells Ultratape mounting tape - 25mmx 10m this is good, available and strong enough. [Update – we have encountered some variability depending on the tape used and how well the user has pressed the tape together. We have found that a firmly squeezed joint generally performs very well (with the elastic failing before the tape joint); however, adding a staple is a straightforward backup option if the tape alone is insufficient.]

1. Gather your tools & materials:

- Tape measure
- Scissors
- Tweezers (not essential but can help removing second side of double sided tape)
- A4 Paper (for cutting guides/jig with alignment marks)
- Pen/Pencil
- [Optional: stapler]



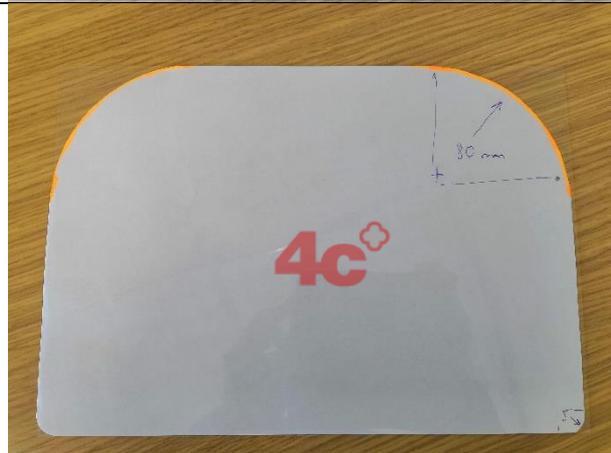
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2. Cut elastic tape to length using scissors and measuring tape
- We've used 350mm lengths for the standard shield and 400mm for large
 - Required length will be determined by the specific elastic you use.
 - You can start with an oversized band and clip/staple it until desired tension is reached. Measure the length and use that as a template

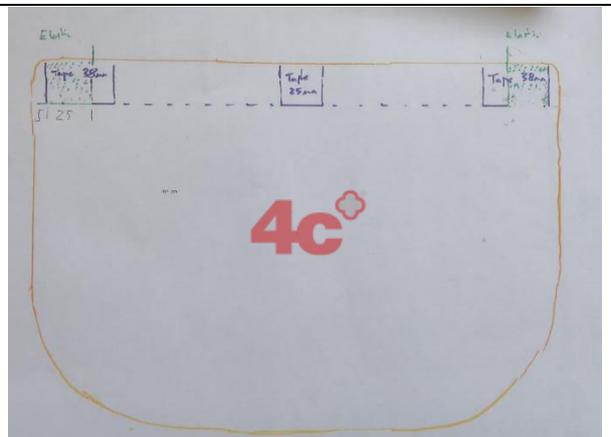


3. Mark out or print a cutting guide for the visor material then use this to cut the visor to shape. The clear visor material can sit on top of this to show the guide marks below
- 80mm radius on two corners
 - If it's not exactly 80mm radius, don't worry, the main goals are to remove sharp corners and give increased clearance to allow movement of head
 - Remember to snip or round the other corners as well – we recommend a 5mm radius, but anything to take the corner off will help.



4. Prepare a template to help you align:
- Double sided tape
 - Elastic
 - Foam

The clear visor material can sit on top of this to show the guide marks below



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<p>5. Cut the double sided tape to length and apply to visor material using template</p> <ul style="list-style-type: none">• We've used:<ul style="list-style-type: none">○ 2 x 38 mm for sides○ 1 x 25 mm for centre• Leave a 5mm gap between sides of visor and double sided tape• If you have enough tape you can just put a single strip right across (leaving the final 5mm gaps on each side)	
<p>6. Stick on the elastic</p> <ul style="list-style-type: none">• Remove protective tape from 2 x side pieces of double sided tape• Overlap the tape 25mm with the elastic (edge of elastic 30mm from edge of visor)• Press down firmly, ensuring good adherence between tape and elastic.	
<p>7. Attach the foam</p> <ul style="list-style-type: none">• Peel off the remaining protective tape from the central piece of double sided tape• The 25mm high face of the foam will be stuck to the visor (30mm standoff from forehead)• Centralise the foam with the visor, then press down firmly	
<p>8. Check tension on elastic, and that the tape has bonded the elastic properly to the visor. [We have found that a firmly squeezed joint generally performs very well (with the elastic failing before the tape joint); however, adding a staple is a straightforward backup option if the tape alone is insufficient.]</p>	



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9. Visor is now ready for use
- If assembling large orders, place visors into bags (bin bags will work, clear bags are better) and then into boxes



CORRAN

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We want you to be able to share this but ask you to attribute the design to "4c Engineering & Aseptium Ltd" both of Inverness, Scotland.

The license allows you to sell any face shield you make; however, we wouldn't want to see them being sold at an excessive rate. We'd strongly urge you to just cover your material & labour costs, and sell at production cost. If quantities and material cost allows and you want to donate some to those who really need them, all the better!

The license also allows you to modify the design but not to license the new design with a more restrictive license. Full details of the license can be found at the link below:

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Further Information

If you want to know more, or to let us know that you've been able to produce your own Corran face shield, please get in touch, we'd love to hear from you:

corran@4cengineering.co.uk



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