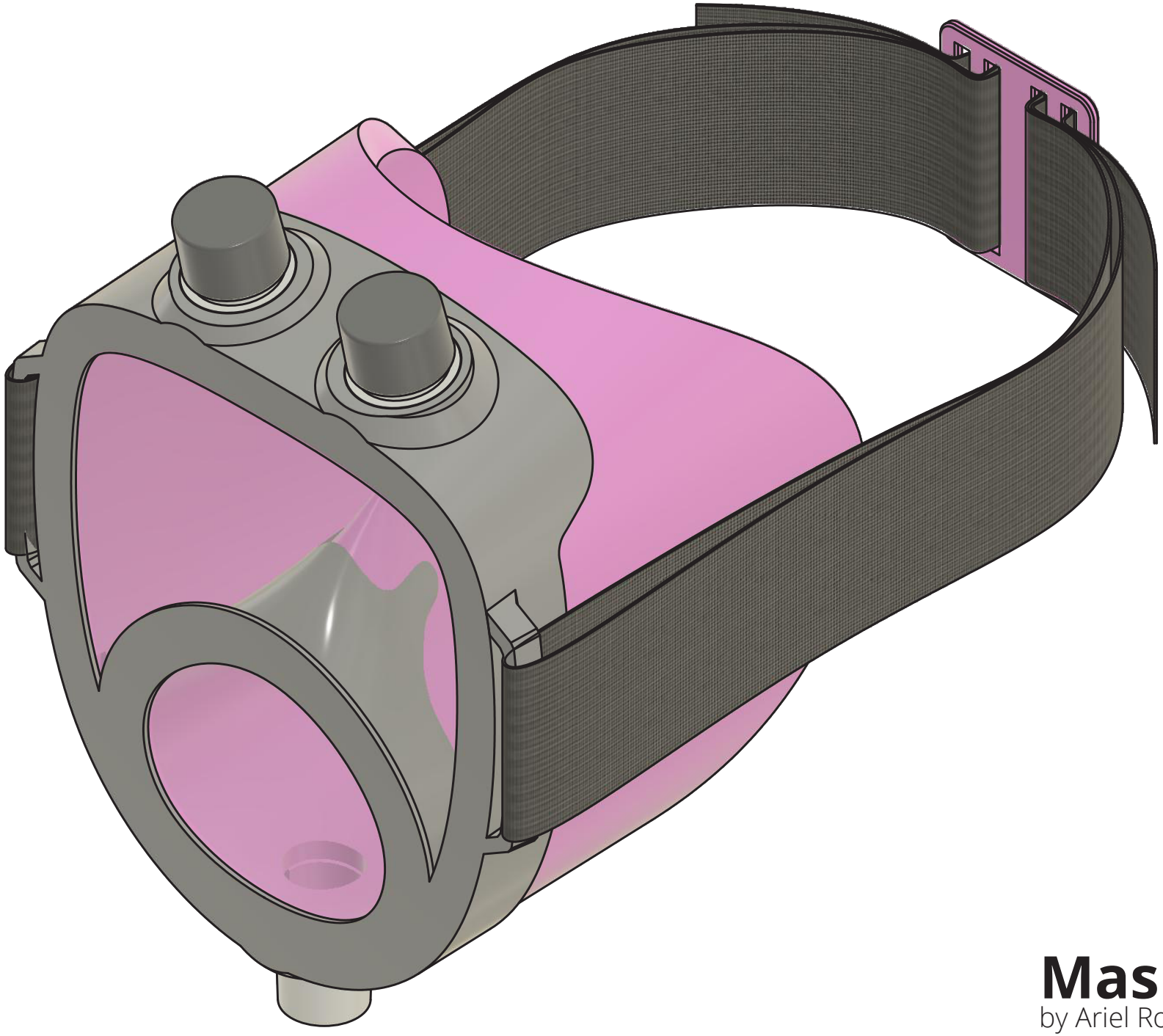

Mask V1

by Ariel Rojo Design Studio

PROJECT COVID-19

Design as a tool can help to create new realities, objects and spaces. With the arrival of the COVID 19 Virus new challenges for the healthcare sector arose. To cope with expected shortages of equipment, the Mexican community of makers and designers have joined to design and produce laser-cut or 3D-printed parts that can help in hospitals and homes to care for patients. Through the TOM Mexico organization, with Claudia Dorenbaum as coordinator, the pieces were funded, managed and distributed among the hospitals in Mexico City.

Ariel Rojo (ARDS), at the invitation of the architect Juan Carlos Baumgartner and Makers México, joined the community of makers who invested their creativity and machines at the service of the medical and social community. Anticipating a possible shortage of medical equipment in Mexico City due to the high population density. Inspired by existing medical tools and the first proposal presented by TOM Mexico, ARDS redesigns the Splitter. A piece that helps divide the airflow of a ventilator, so that it can be shared by two patients. The Part was redesigned to optimize airflow, mechanical strength, and ease of 3D printing. It should be mentioned that this Splitter is not perfect, however in times of crisis it is an acceptable option.

The team also designed hospital masks, for doctors and patients, with the ability to connect to different medical equipment like filters and valves. Both are designed for 3D production and to be shared with the world's maker community.
The emergency respirator/ ventilator mask is intended as a tool to deal with the problem of Covid-19 proliferation. This project was born from an initiative to use diving masks which were enhanced with adapters for medical equipment. However, the demand for this product is higher than the market can provide. The shape of the Mask is optimized for the 3D printers capacity. The mask features different outputs and inputs to connect to different medical equipment and/or to various respirator cartridges.

The team participating in this project are:
Architect Michel Rojkind who liaises with the specialized medical team, and Carsten Lemme as part of the ARDS team who collaborated in the development of these pieces.

This device is not certified. It is recommended, for those who want to use the documentation to replicate it, to avail themselves of the collaboration of specialized technical personnel for the realization and supervision of a doctor for the use. It is absolutely inadvisable to replicate it if you do not have such skills.

Ariel Rojo Design Studio declares that it releases the drawings, logics and any other intellectual property rights relating to Mask V1 device is released free of charge provided that it is NOT used for commercial purposes.

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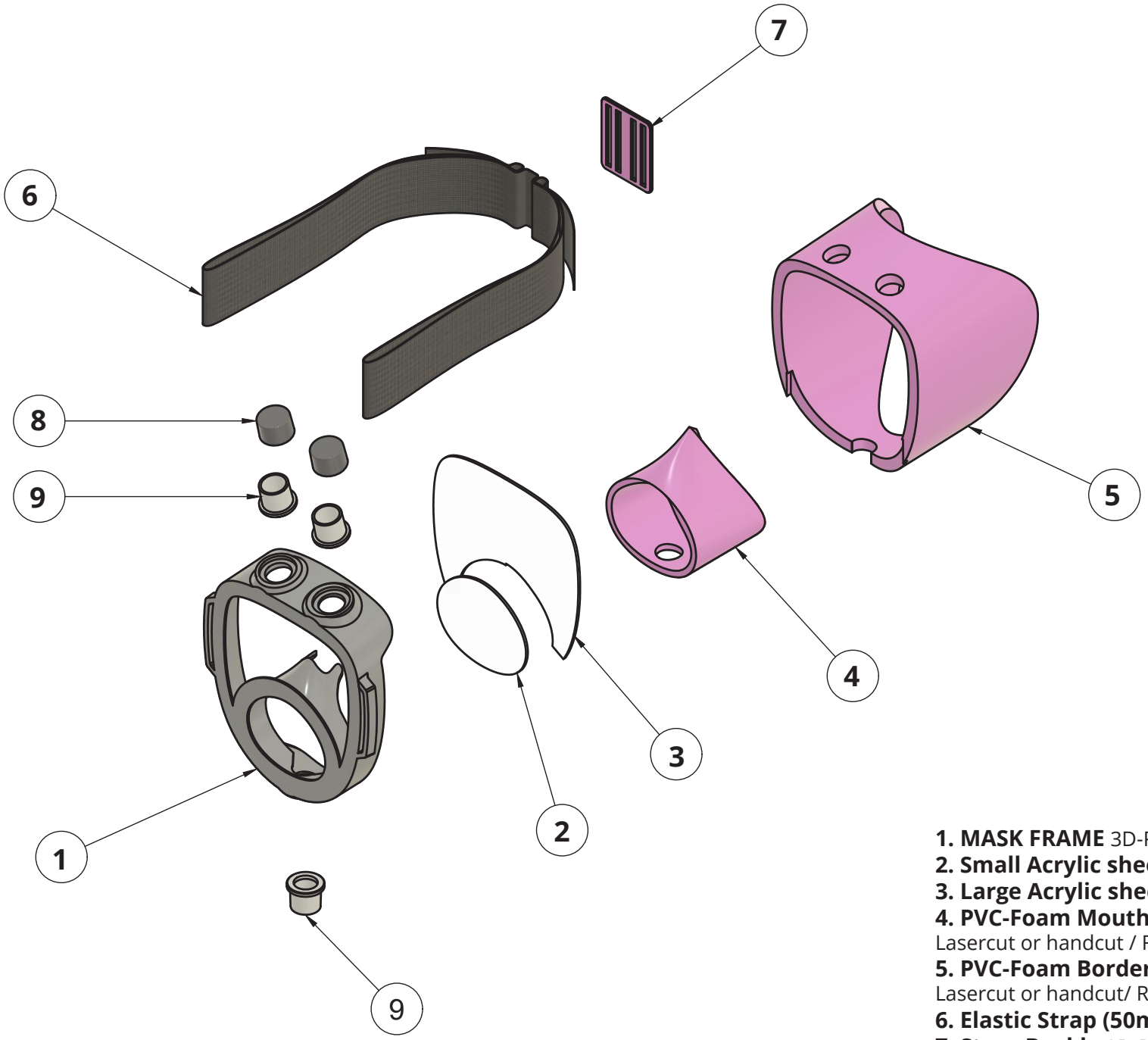
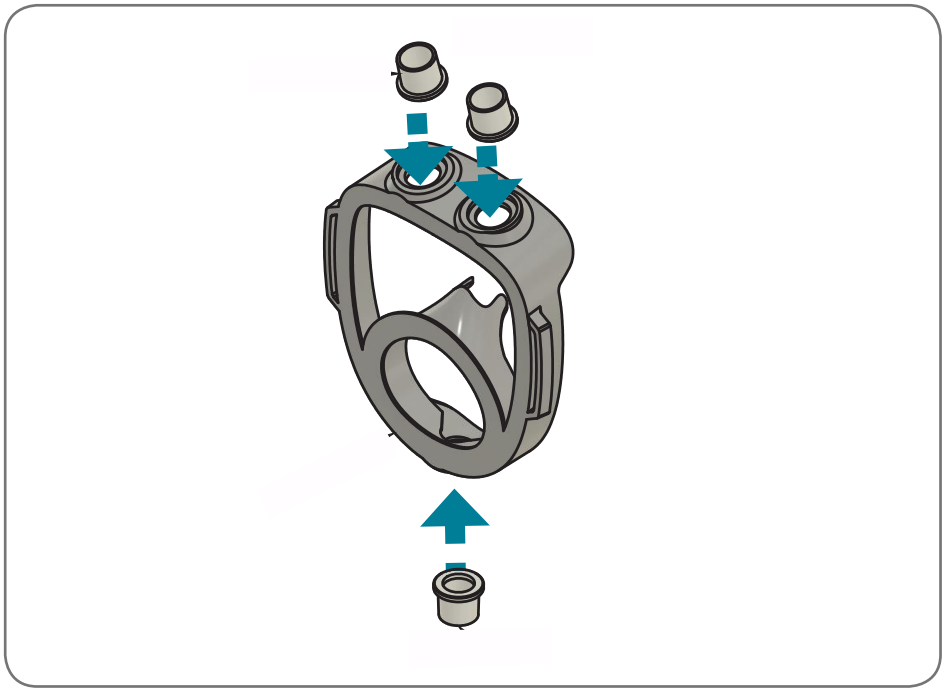
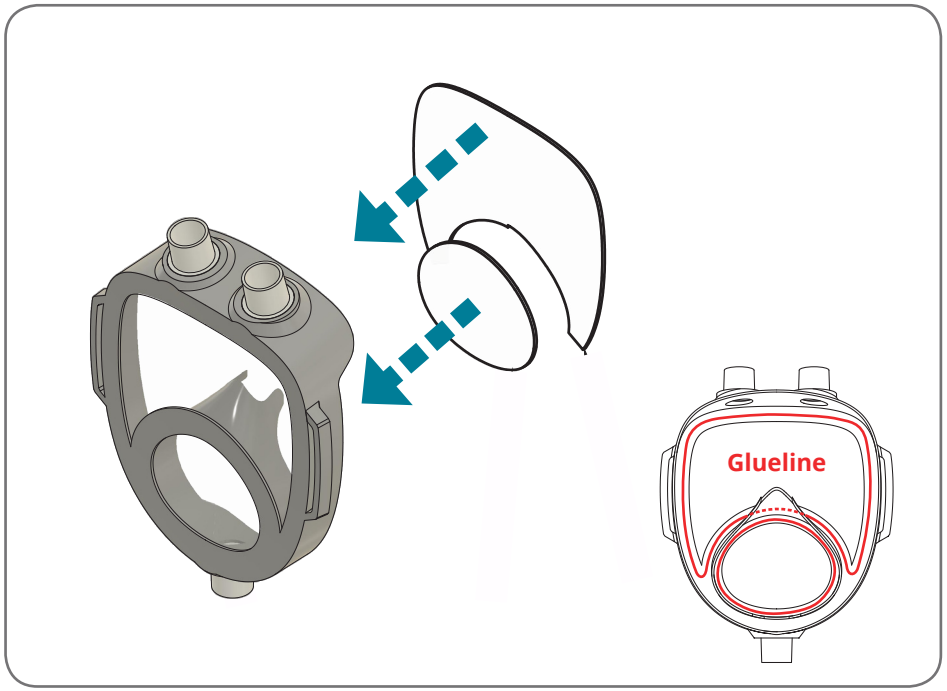


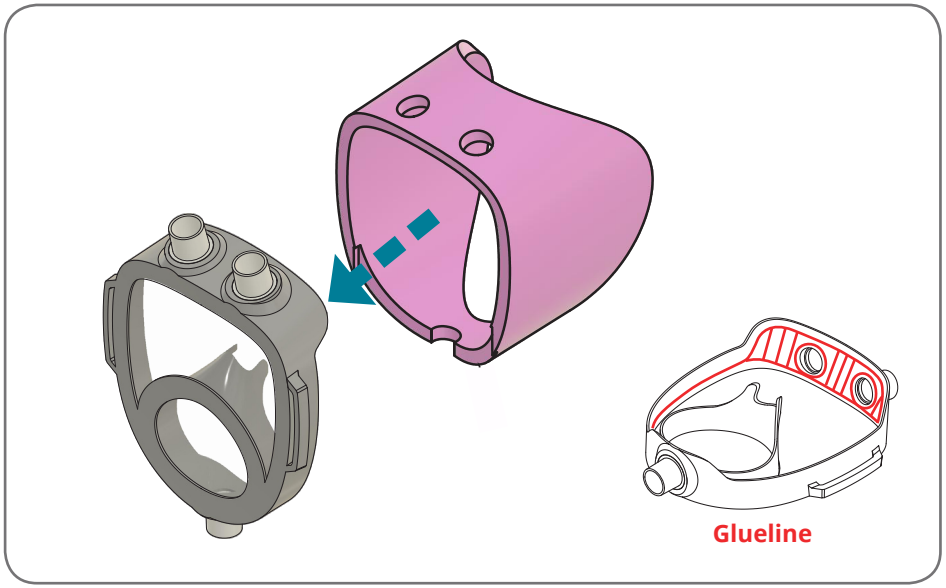
1. MASK FRAME 3D-Printed
2. Small Acrylic sheet (1.5-2mm) Lasercut
3. Large Acrylic sheet (1.5-2mm) Lasercut
4. PVC-Foam Mouth shield (6mm)
Lasercut or handcut / Rolled up and glued
5. PVC-Foam Border (3/8")
Lasercut or handcut/ Rolled up and glued
6. Elastic Strap (50mm)120cm long
7. Strap Buckle 3D-Printed
8. Cap 3D-Printed
9. Connector 3D-Printed



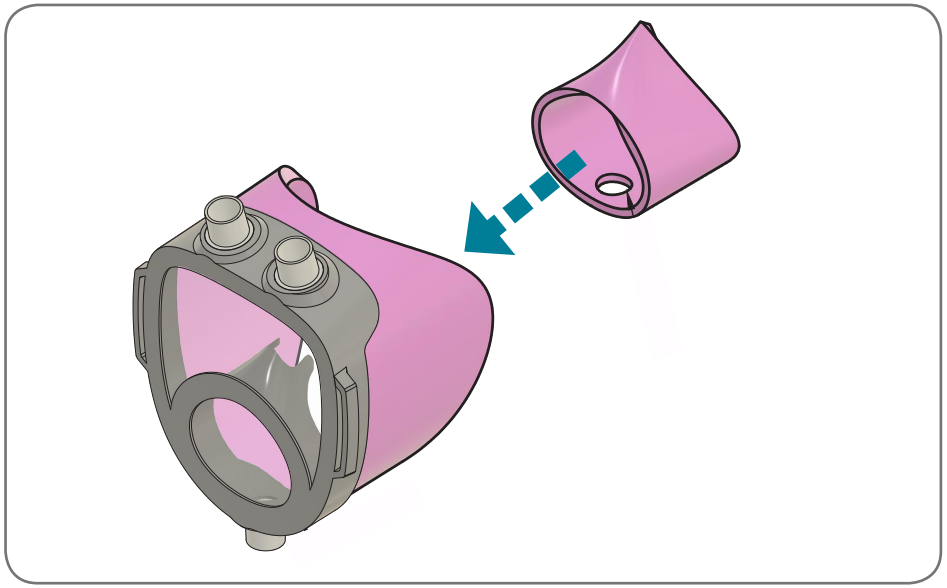
STEP 1. Glue 3d Printed Connector to Mask Frame.
Use SuperGlue (Resistol 911 or Epoxy-Glue) Make sure its a perfect seal!



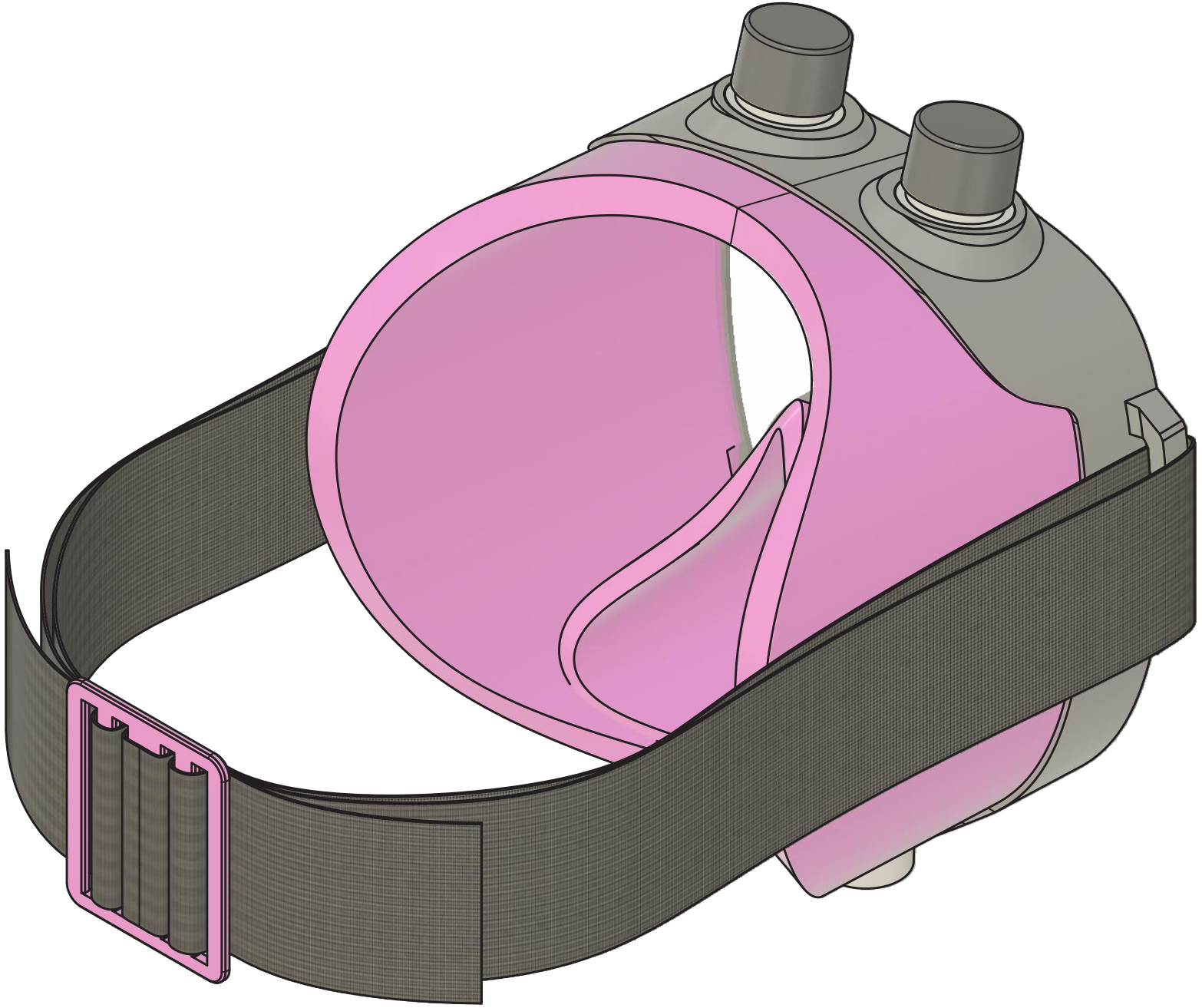
STEP 2. Glue Acrylic Parts to Mask Frame
Use General Purpose Silicon Glue (Sista F109) Make sure its a perfect seal!



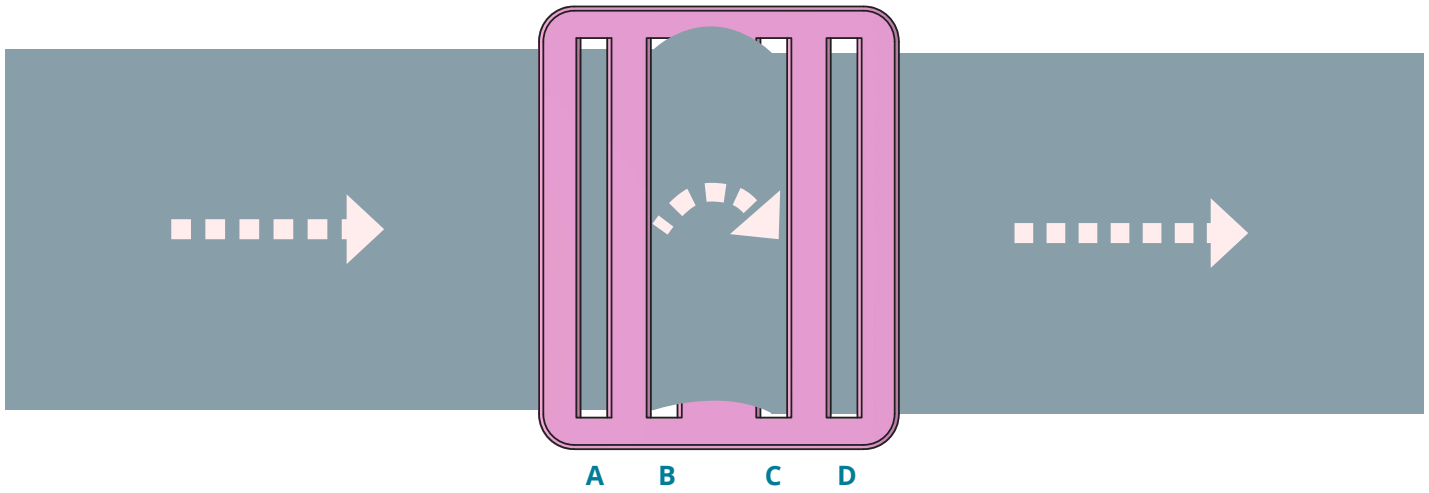
STEP 2. Glue Foam Skirt to Mask.
Use super glue and let try 24h. (Resistol 911 or similar) Make sure its a perfect seal!



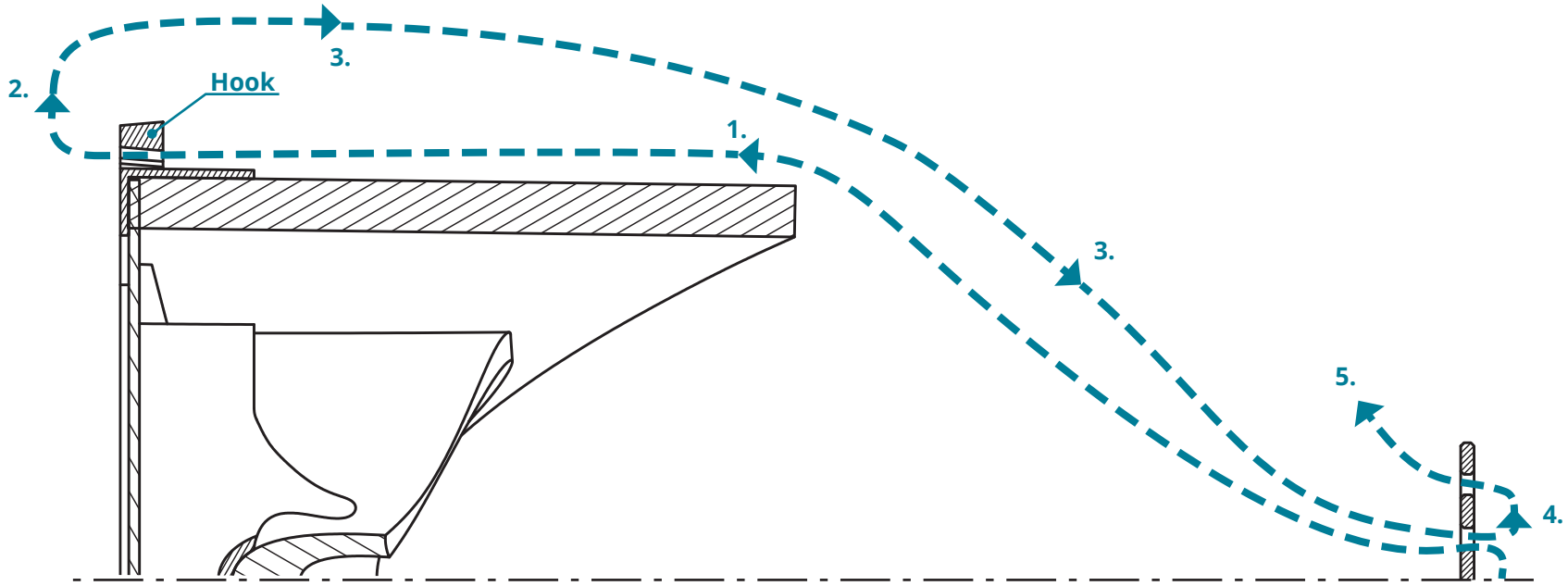
STEP 3. Press Mouth shield into its position. No need for glue



Mask Strap-assembly
See next page for assembly steps.



STEP 4. Loop elastic strap through the buckle. Use only the two slots in the center (Slot B and C). Adjust the strap so the be buckle sits in the middle of the strap.



STEP 5. Loop elastic strap through the hook on the side of the mask. Return to the buckle and feed it through the slot C back. Feed the strap through slot D and pull the strap tight. Repeat for the other side.

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