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Reference: Configurable
Respirator



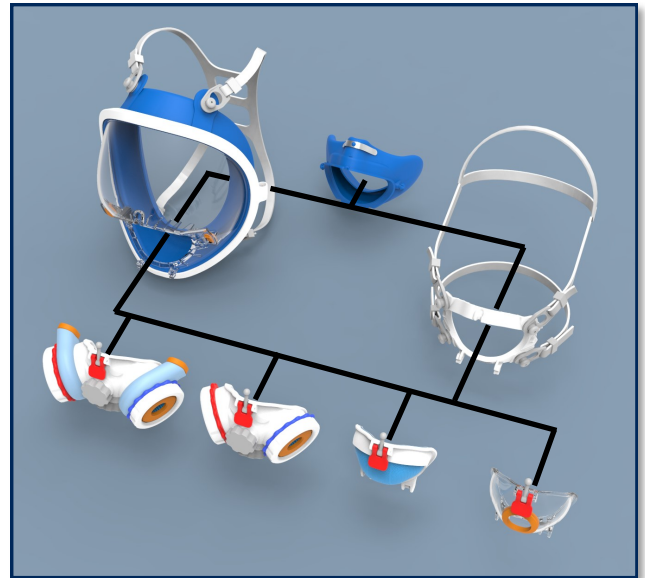
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Configurable and Serviceable Respirator

Auburn University is seeking a licensee or development partner for a respirator that is easy to service and sanitize, and with configurable components for different use requirements.

Overview:

Air-purifying respirators are a critical form of personal protective equipment that prevents the inhalation of unwanted particles and ensures individual safety in potentially hazardous environments. Our new respirator system features greater part interchangeability between half- and full-face configurations with an emphasis on standardized fittings and ease of assembly/disassembly. This results in a respirator system that may be configured to user needs and is easily broken down for servicing and cleaning, making it an ideal personal protective equipment design for medical, commercial, industrial, and personal use.



Family of Parts: Common oronasal masks and facepiece assemblies are interchangeable between half- and full-face frame assemblies.

Advantages:

- **ADAPTABLE** - Common family of mask components and facepiece assemblies can be configured for static filtering, PAPR, CPAP, BiPAP, and other powered filtering methods
- **REUSABLE** - The respirator can be partially or totally disassembled for easy cleaning or sterilizing parts based on situational needs
- **CONVENIENT** - Detachable parts and accessory ports allow a user to eat, drink, take medicines, or integrate voice amplification without removing the respirator from the user's head
- **COMFORTABLE** - More sizing options with better sealing against the user's face and a new air-flow routing method for anti-fogging in full-face configurations

Status:

- Subject of published US patent application [20220023674](#) and associated PCT application
- This technology is available for exclusive or non-exclusive licensing.
- Designs for the different respirator parts have been fabricated with 3D printing.

For a more detailed description, please see next page





Configurable and Serviceable Respirator (Cont'd)

Description:

This respirator incorporates standardized parts, compatible with both the half- and full-face respirator configurations. This reduces the number of unique parts needed for different filtering assemblies and use scenarios.

The oronasal mask covering the nose and mouth provides a standardized sealing for different facepiece assemblies and increases the range of sizing options beyond S, M, and L, providing a better fit. Additionally, the design can include ports that enable the wearer to eat, drink, or take medicine without removing the mask.

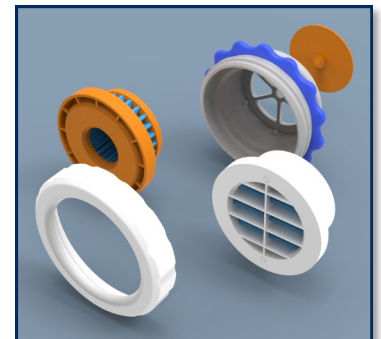
A simple hinge and latch design allows the user to easily replace or change facepiece assemblies, without tools. The limited number of hardware fasteners enable the respirator to be quickly broken down for cleaning, maintenance, or reconfiguration.

The facepiece assembly includes a cartridge, a static filter holder for fabric mask bodies, and ventilator-adaptive variations. By internally attaching the cartridge we improve the wearer's field of view. The design may be configured to filter both inhaled and exhaled air and can also utilize pleated filters, which would be smaller and allow for greater airflow.

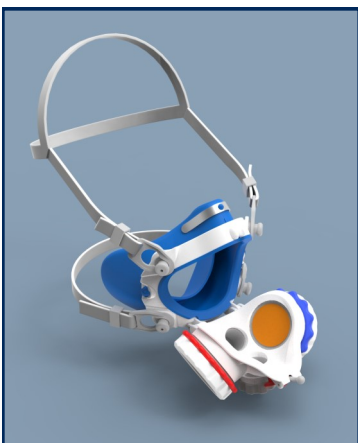
Finally, the proprietary airflow adapter allows the respirator to be used with standardized cartridges and facepieces for the full-face configuration use without requiring separately designed masks or parts.



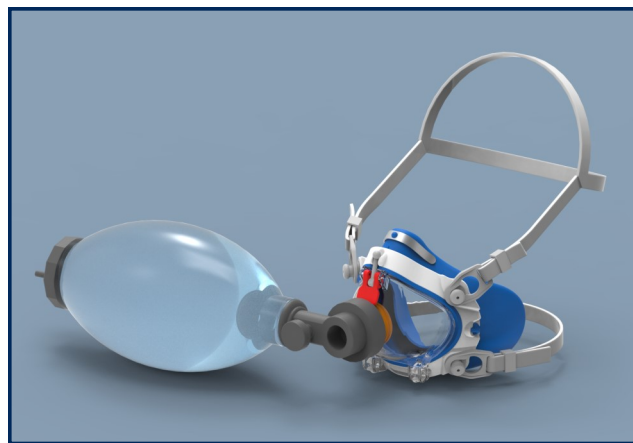
Full-face configuration (left) and half-face configuration (right)



Disassembled cartridge unit with filter options and check valve



Facepieces hinge open to allow for eating or replacement



Half-face respirator with ventilator faceplate and ambu bag attached. For expediency, the ambu bag may be stored on the ventilator facepiece.



Full-face respirator with anti-fog airflow adapters (in light blue)