

Covid-19 Full Face P100 Respirator Mask - Info Document



Table of Contents

Katz Design / Protektair	1
Mechanics of the True Threat Reality	1
A Solution to the Real Threat	1
Product Features	2
Institutional and Government Sales	3
Pricing	3
Volume Incentive Rebate Programs	3
24/7 Support	3
Peer Reviewed Data	4



Executive Summary

Katz Design / Protektair

In times of need and for over 30 years Katz Design Inc. has been focused on designing innovative products resolving a wide array of problem sets successfully. From underwater cameras for Nikon® in the depths, to astronaut bio monitoring technologies flying on the International Space Station in the heights, and much in between.

In this time of global crisis Katz Design find's itself in a very fortuitous position of being able to make an important problem solving contribution to the Covid-19 PPE (personal protection equipment) realm. Katz Design, through a wholly owned subsidiary, Protektair™, is leveraging infrastructure and production networks already in place and running so as to supply an innovative full face respirator mask to solve yet unresolved problems with virus spread.

Mechanics of the True Threat Reality

Since SARS, the medical community has understood that aerosolized influenza viruses are the major source of transmission of such virus types of which Covid-19 (SARS-CoV-2) is part of. Surgical type respirator filter masks (FFR's) have become one of the most important PPE and are woefully short in supply. That said they are also inadequate regardless of filtration efficacy.

Today, FFR's are been used with eye shields or protective ventilated protective eyewear. This approach puts wearers at great risk of infection via aerosolized Covid-19 coming in contact with the wearer's eyes. Air movement around eye shields and through ventilated eye protection with breath vapors of infected individuals suspended in air from those infected, does nothing to stop contaminated air coming in contact with the eyes. Only **N95 or P100 filtered air** should be allowed to come **in contact with the eyes** to impede infection.

A protective eye shield or ventilated eyewear is in fact not completely effective and does not protect against the virus in aerosol form but only against a projectile such as a coughed or sneezed water droplet. What is only now being highlighted by media and medical experts is the exhaled breath of an infected patient fills their local area – and beyond - with virus pathogens in suspension in the air. Aerosolized Covid-19 virus will and does adhere to mucosae membranes. As the eyes are mucous tissue, they are as susceptible to this suspended aerosolized viruses as are the nose and mouth. Full eye protection, **segregating the eyes from ambient air** and bathing them only with N95 or P100 filtered air is **absolutely essential**. Numerous peer reviewed medical papers (**see Appendix "A"**) have recently exposed this fact related to Covid-19, and in the recent past for SARS.

One of many examples include: **Infection and Replication of Influenza Virus at the Ocular Surface** (*American Society of Microbiology – Journal of Virology*) Volume 92 Issue 7 e02192-17 which states:

Ocular and nonocular influenza viruses are capable of replication in primary human corneal epithelial cells. All viruses tested were able to replicate in primary human corneal epithelial cell monolayers subjected to aerosol inoculation... these infections are concerning due to the potential of the ocular surface to serve as a portal of entry for viruses that go on to establish respiratory infections.

A Solution to the Real Threat – A Far Better Choice and Why

The Protektair™ FrontLine™ family of full face respirator masks are coupled with the FrontLine™ P100 air filters. We have seen similar designs in social media posts and in the media. That said the FrontLine™ design has been generated by world class product developers knowing how to find problems, resolve them and render a fully function mass produced product solution.



Protokair™ FrontLine™ Series of Reusable Respirator Masks

Not only do the FrontLine™ series of masks provide full protection including ocular transmission, which has been alarmingly overlooked, but help solve the significant problem of PPE filter supply by doubling the rendering of a single filter pair pack as only one (1) filter is used and the second filter can be deployed to another health care worker / user. This is critically important in a time of significant undersupply, rationing and allocation.

The filter cartridges efficacy last significantly longer than a conventional FFR N95 surgical mask. Protokair™ protects at a very high level over a significantly longer effective use cycle. This is not only about value for procurement agencies, but about saving our critical health care workers and critical service providers.

With simple and effective decontamination procedures after a work shift, the FrontLine™ full face respirator masks can be used almost indefinitely. The cost of each use cycle can drop significantly under the cost of a N95 FFR surgical mask and save untold hours, days and weeks for procurement trying to perform an almost impossible task. Protokair™ offers security that no other head area PPE offers at levels of value not seen before. Supply can be 100,000+ units per month with delivery from order to fulfillment to any global address within 48 hours.

There may be comments that the FrontLine™ mask is less comfortable than a standard N95 surgical mask used with protective ventilated eyewear or a standard face shield. That said, even potential contact at well over 2 meters distance with an infected Covid-19 individual should be considered as a life or death situation as the data irrefutably states (**see appendix A**). Anyone put in the vicinity of a Covid-19 infected person is highly susceptible to contracting Covid-19 if their eye tissue is not fully **protected from ambient air**. The eyes need to be treated the same way as the nose or mouth. **Protokair is here to help our procurement agencies fully understand and accept this critical reality without delay.**

Protokair™ FrontLine™ full-face respirator mask features include:

- NIOSH certification in process
- Protects ALL susceptible mucus membranes (eyes, nose, mouth) from Covid-19 transmission
- ISO 13485:2016 Medical Product Certification - in process
- CE Certified ensuring quality control standards
- Easily decontaminated using standard techniques and solutions for extended service life
- Optimizing Scarce Supply of PPE Filters – single filter only needed. 2nd filter in pack can be used with additional mask
- Significantly longer effective filtration efficacy cycle compared to standard N95 FFR surgical masks.
- Can be used with all hooded PPE coveralls of all kinds.
- Robust reusable design
- 3 sizes to ensure a well sealed fit
- Medical grade hypoallergenic pliable silicone rubber seals
- 4 point strap system for comfortable and precise fit
- Internal vapor baffle stops fogging
- Medical grade packaging and labeling
- Large scale supply available (100,000+ units per month)
- 1-2 day government / institutional order fulfillment globally
- Patent Pending

Institutional and Government Sales

Protektair is able to supply government authorities and hospitals directly, with large scale supply. We project a 48 hour lead time to have goods shipped to the address needed.

Pricing

Protektair™ FrontLine™ full-face respirator masks are designed to be delivered at competitive prices far less than competing masks. Protektair understands that battling Covid-19 has been depleting cash reserves for this unplanned global challenge. Bring not only true protection to front line workers, but value as well, is our mission.

Volume Incentive Rebate Programs

Further to the value proposition provided, volume incentive rebate programs help governments and institutions manage cash flows and reserves.

24/7 Support

Protektair is there to support our clients 24/7. Phone support, email support and chats are offered to ensure our clients needs are responded to in the shortest time possible.

Please also review our USER INSTRUCTIONS as well as our medical format product labeling included in this authorization submission package. For more information, please feel free to contact the undersigned at your convenience.

Robert Katz
President / CEO

Protektair™
www.protektair.com

1) March 29, 2020 – WHO - Modes of transmission of virus causing COVID-19: implications for IPC precaution recommendations

Droplet transmission occurs where a person is in close contact with someone who has respiratory symptoms and is therefore at risk of having his/her mucosae (mouth and nose) **or conjunctiva (eyes)** exposed to potentially infective respiratory droplets... Airborne transmission... refers to... particles <5µm in diameter, (and) can remain in the air for long periods of time and be transmitted to others over distances greater than 1 m.

Full article: <https://www.who.int/news-room/commentaries/detail/modes-of-transmission-of-virus-causing-covid-19-implications-for-ipc-precaution-recommendations>

2) American Society of Microbiology – Journal of Virology, April 2018 Volume 92 Issue 7 e02192-17 Infection and Replication of Influenza Virus at the Ocular Surface

Hannah M. Creager, Amrita Kumar, Hui Zeng, Taronna R. Maines, Terrence M. Tumpey, Jessica A. Belser

Ocular and nonocular influenza viruses are capable of replication in primary human corneal epithelial cells. All viruses tested were able to replicate in primary human corneal epithelial cell monolayers subjected to aerosol inoculation. ...these infections are concerning due to the potential of the ocular surface to serve as a portal of entry for viruses that go on to establish respiratory infections.

Full article: <https://jvi.asm.org/content/jvi/92/7/e02192-17.full.pdf>

3) March 26, 2020 - Journal of American Medical Association – Insights Turbulent Gas Clouds and Respiratory Pathogen Emissions - Potential Implications for Reducing Transmission of COVID-19 - [Lydia Bourouiba, PhD¹](#)

... isolated droplets are emitted upon exhalation... Droplets that settle along the trajectory can contaminate surfaces, while the rest remain trapped and clustered in the moving cloud. Eventually the cloud and its droplet payload lose momentum and coherence, and the remaining droplets within the cloud evaporate, producing residues or droplet nuclei that may stay suspended in the air for hours, following airflow patterns imposed by ventilation or climate-control systems.

A 2020 report from China demonstrated that severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) virus particles could be found in the ventilation systems in hospital rooms of patients with COVID-19.5

For the entire report: <https://jamanetwork.com/journals/jama/fullarticle/2763852>

4) Ocular Tropism of Respiratory Viruses

Article· Literature Review in [Microbiology and molecular biology reviews: MMBR](#) 77(1):144-56 · March 2013 with 90 Reads

DOI: 10.1128/MMBR.00058-12 · Source: PubMed

We are not giving full attention to what we already know about ocular and respiratory transmission of aerosol viruses. The American Society of Microbiology - Journal of Virology clearly stated “In the absence of eye protection, the human ocular surface remains vulnerable to infection with aerosolized respiratory viruses.” And “influenza virus receptors are not limited to respiratory tract tissues. Corneal and conjunctival epithelial cells also possess glycoconjugates bearing terminal sialic acids, as does the lining of the nasolacrimal duct, which provides an anatomical bridge between the respiratory and ocular systems (1, 2). Numerous respiratory pathogens, including influenza virus, adenovirus, and respiratory syncytial virus (RSV), have been shown to replicate specifically within ocular tissue and to use the eye as a gateway for the establishment of a productive respiratory infection...