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Over the past few days we've presented the Air-Wave.org Protector and informed through this channel about the progress we're making on a daily basis. Before this product can be used universally and safely in healthcare, it will have to go through several tests. We would like to use this post today to explain which components the Air-Wave.org Protector is composed of and why this solution is certainly innovative compared to other solutions that use the same snorkel mask.

This Air-Wave.org Protector uses an industrial fan & filter unit (PAPR - Powered AirPurifying Respirator) to provide personal protection to our healthcare professionals. This in combination with an easy to obtain "snorkel mask" makes it an "off theshelf" solution.

This combination has successfully passed a series of required tests and is expected to become available soon for the various hospitals in the Netherlands and then also "open source" for other professionals in our country and abroad.

For the success of this Air-Wave.org project and to be able to offer this solution as soon as possible, we are still looking for hospitals in the Netherlands to test the Air-Wave.org Protector in practice.

This not-for-profit concept is an initiative of a consortium of Dutch industries supported by some 30 companies of all kinds, top tech university and medical specialists. All of them are united in the Air-Wave.org Foundation (www.air-wave.org).

The main objective of the foundation is to offer an alternative solution to the worldwide shortage of safe mouth masks. In doing so, it uses components that are available in sufficient numbers in the market and industry. This product is intended for use by healthcare professionals during the COVID-19 crisis.

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Photo 1. Complete Air-Wave Protector combination

Photo 2. Snorkel mask model Easybreath (Decathlon).

Photo 3.3D-printed connector between hose and mask.

Photo 4. Hose for transport of air from airpump to mask.

Photo 5. Airpump or P.A.P.R. (Powered Air Purifying Respirator). Works with a battery.

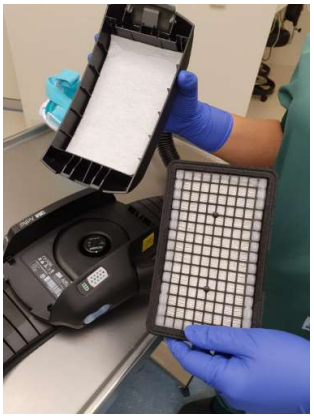

Photo 6. Filters in airpump.

Description of the components of the Air-Wave.org Protector:

Air-Wave.org Protector (Photo 1).

TheAir-Wave.org Protector is a combination of components currently available in the market and in the industry, connected by a 3D printed connector.

The mask (Photo 2).

It is based on Decathlon's widely known snorkel mask Easybreath. This mask is sufficiently available in the market to guarantee a quick rollout of Air-Wave.org Protector. If another mask would have been chosen, we would probably have to deal with large delivery times. This is mainly due to the large number of these masks that would be needed for introduction in Dutch hospitals.

The mask is praised for its wearing comfort by the vast majority of healthcare professionals testing the Air-Wave.org Protector in a real-world working environment.

Sterilization of the mask can be done using existing techniques available in hospitals.

The Connector (Photo 3).

The connector between the mask and tubing is specially designed for the Air-Wave.org Protector and is produced by 3D printing and coated with a special coating. The design files required to print the connector will be made available online for general use.

The Hose (Photo 4)

The hose connects the mask to the air pump by means of the special connector. For this we use an extra long hose, which is well available in the industry.

The Airpump – PAPR (Photo 5)

During the #COVID19 crisis we have already seen many innovations based on Deathlon's Easybreath snorkel mask. However, the approach Air-Wave.org has chosen is radically different from the other products.

By adding an air pump, or PAPR (Powered Air Purifying Respirator) from the welding industry, the Air-Wave Protector creates a continuous filtered airflow. This creates a number of advantages.

Some advantages are:

1. The air flow makes breathing easier.
2. The mask does not fog up.
3. The slight overpressure counteracts the influx of unfiltered air from outside.
4. There is no CO2 accumulation in the user, preventing dizziness and headaches.

The filters (Photo 6).

The filter in the air pump (PAPR) is of the same class as the filter in an FFP2 mask. With additional filters, the filter class can be further increased.