

ZERN ENGINEERING enthalpy heat exchangers: do not allow the SARS-CoV-2 virus, gases (CO₂/SF₆), bacteria, and other air pollutants to pass through

In the context of the global COVID-19 pandemic, the main places of use for ZERN ENGINEERING plate enthalpy heat exchangers are places of hygienically sensitive environments and concentration of people, such as:



**Residential
buildings**



Hospitals



Schools



Kindergartens



**Shopping
centres**

The main objective of ZERN ENGINEERING is to prevent the spread of the SARS-CoV-2 virus through ventilation systems, in particular, through enthalpy heat exchangers.

Our developments were focused on the membrane used in plate enthalpy heat exchangers to separate the intake clean air and stale extract air from the room.

The results of the research carried out in the ZERN ENGINEERING laboratory showed that the membrane:

- Has high thermal efficiency and moisture transfer.
- Blocks the transmission of the SARS-CoV-2 virus, bacteria, mould spores, gases (CO₂/SF₆) and odours.

The antibacterial polymer membrane used in plate enthalpy heat exchangers is made of a hybrid polymer material. The product has high thermal efficiency and moisture transfer, air tightness, as well as excellent mechanical strength, acid resistance and thermal stability.

MATERIAL

The membrane is a polymer material that has a high coefficient of thermal conductivity and moisture transfer.

ANTIBACTERIAL PROPERTIES

The membrane is capable of passing only water vapour and completely blocks the transfer of biological pollutants, viruses, gases and foreign odours.

RESISTANT COATING

The membrane has a special coating that is resistant to acids, alkalis and salts. This coating is necessary to ensure stable performance during membrane application.

STRENGTH

The membrane is both tear-resistant and puncture-resistant.

HEAT RESISTANCE

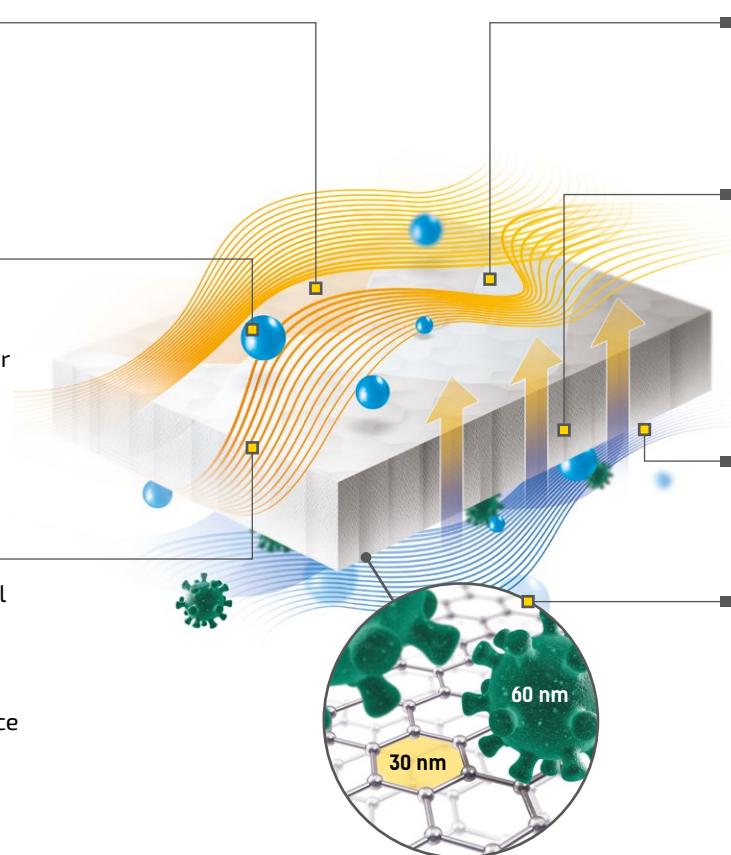
The membrane has excellent resistance to environmental influences and temperature fluctuations from -25 °C to +50 °C.

AIR LEAKAGE

The membrane ensures low air leakage.

PROTECTION

The membrane protects the premises from penetration of the SARS-CoV-2 virus, bacteria, mould spores, gases (CO₂/SF₆), and various odours due to its structural features. The membrane blocks the penetration of particles with a diameter of >30 nm. For information: the diameter of the SARS-CoV-2 virus ranges from 60 to 140 nm.



The special structure and composition of the ZERN ENGINEERING membrane allows maintaining a comfortable microclimate in the room by regulating the transfer of moisture between the intake and exhaust air ducts.

ZERN ENGINEERING recommends the use of plate enthalpy heat exchangers in the context of the global COVID-19 pandemic.