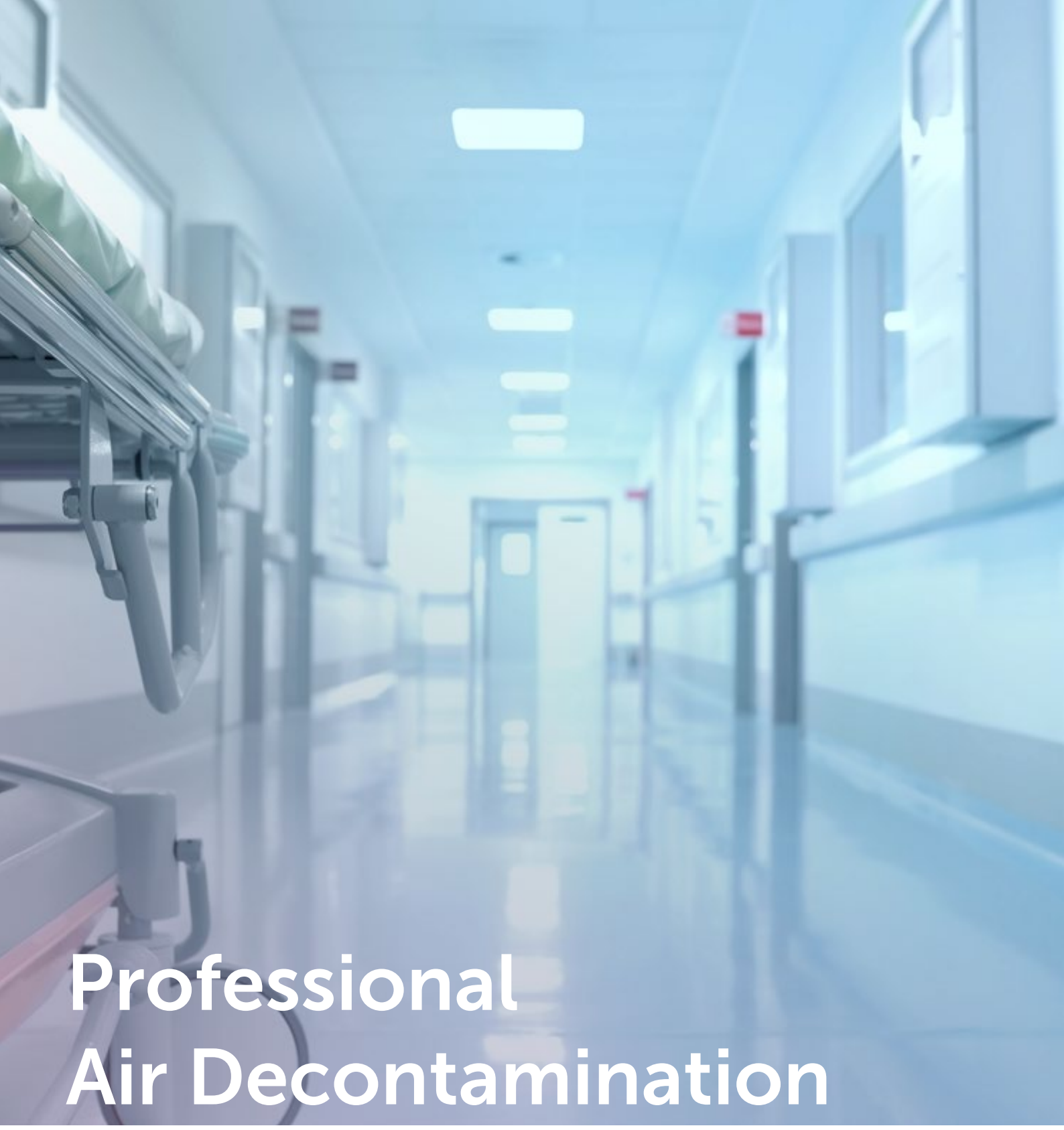


Professional Air Decontamination for Hospitals

Patient Protection | Isolation Wards | Critical Areas

Genano

Are You Aware of the Cost of Healthcare-Associated Infections (HAI)?

Of every 100 hospitalized patients, 7 in developed and 10 in developing countries will acquire at least one healthcare-associated infection, according to WHO.

Healthcare-associated infections (HAI) are a huge cost for health care systems worldwide. It is estimated that in Europe alone, 16 million extra days of hospital stays and 37 000 unnecessary deaths yearly are due to HAI. Yearly financial losses are estimated to be at least 7 billion euros in Europe alone.

Micro-organisms or dust particles carrying infectious agents can remain airborne for an indefinite time when they are small enough. Current fiber filter (HEPA) based systems are not sufficient to prevent airborne transmission. Specialized air decontamination procedures are required to control infections.

Premium air quality prevents HAIs and is an investment that will pay itself back.

Genano Ltd

Genano Ltd is a high technology company founded in 1999 in Finland. Genano's expertise in air decontamination is used in various areas where ultrapure air is needed.

- In hospitals we focus on airborne infection isolation and protective environment rooms. Genano can also protect critical areas, such as ORs and ICUs, from airborne pathogens.

Learn more on pages 3–5 » » »

- The unique Genano Technology® decontaminates air from particles, down to nanosize. The patented technology also eliminates microbes such as viruses, bacteria and mould from the air, and removes gases and odours.

Learn more on page 6 » » »

Genano is active in more than 20 countries around the world. International sales are mostly realized by our dedicated local partners. The Genano headquarters are located in Finland and other offices in Sweden and Belgium.

The performance of Genano Technology has been tested and researched comprehensively in laboratory and real use conditions.

Our products are designed and manufactured in Finland.

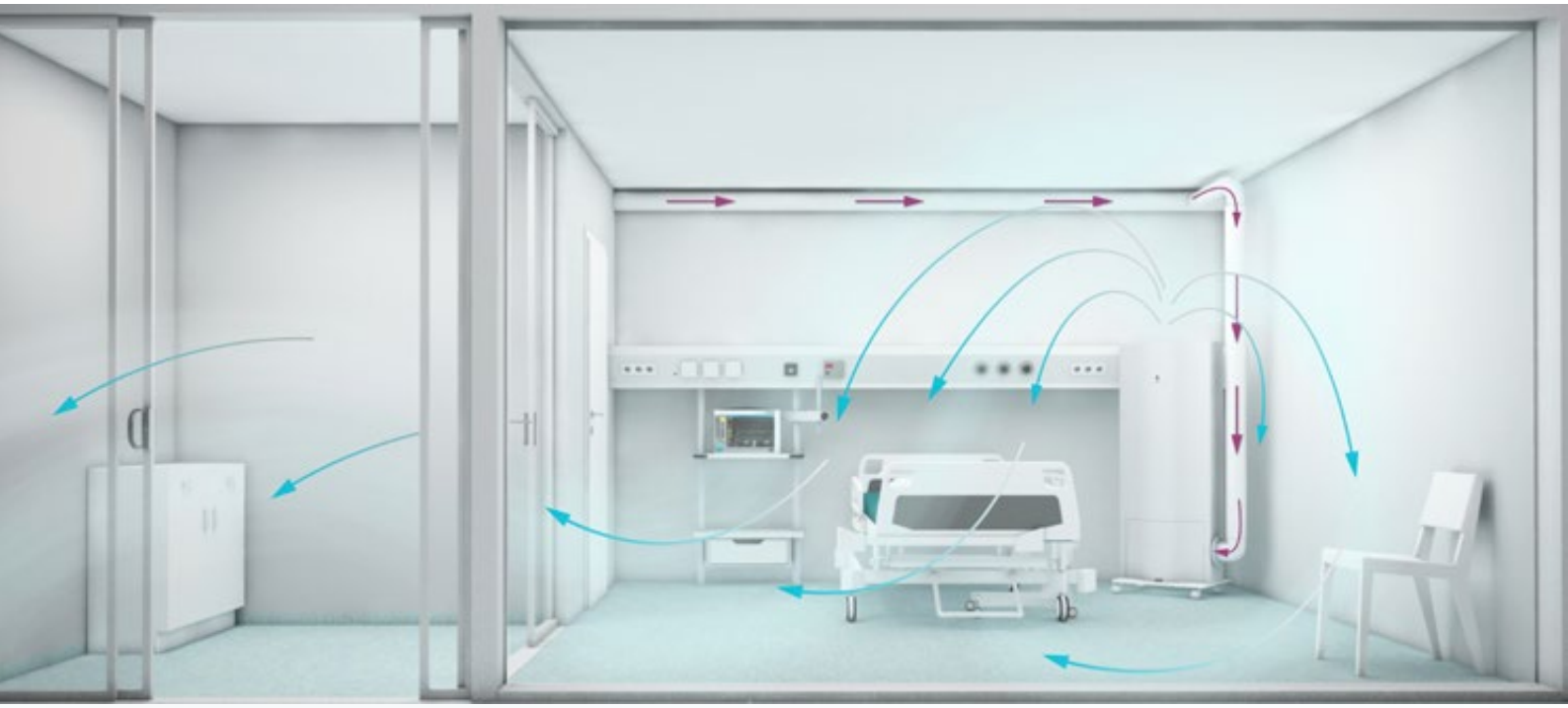
Find out more at **genano.com**

Genano

Member of CLEANTECH FINLAND

FiHTA Healthtech Finland

FinlandCare



Positive Pressure Isolation for Patient Protection

Positive pressure isolation is used to protect patients with weakened immune systems from airborne contaminants in the hospital environment. These immunocompromised patients include cancer, burn, leukemia and AIDS patients and those who have recently gone through bone marrow or organ transplantation.

How it Works

With Genano, all the air entering the room is decontaminated with the Genano unit (see picture above).

Genano Technology effectively collects airborne microbes and eliminates them inside the unit.

The unit can simultaneously be used to create positive air pressure inside the room. This prevents non-hygienic air from other premises from entering the room.

Technical Aspects

- The room must maintain a positive pressure (5–10 Pa) relative to adjacent spaces (corridor, toilet). Supply air should be at least 20 % more than the exhaust air. The actual air flow differential will need to be determined according to the situation.

- The supply air should be delivered into the room through a Genano air decontamination unit.

- This setup does not require an anteroom, unless simultaneous airborne infection isolation (negative pressure) is needed.

- For optimal results, the room should be equipped with an extra Genano unit to recycle the air and decontaminate all pathogens created inside the room.

- Air change rate should be 6–10 ACH.

Case: Protecting Patients in Polish Regional Hospitals

Poland has 38 large regional hospitals responsible for hematology and oncology. They have recognized the need for delivering ultrapure air for vulnerable patients.

We have delivered altogether over 150 units in Polish hospitals. Of the 16 regions in Poland, 13 are using Genano to protect patients with immunodeficiency, for example after cancer treatment.

Negative Pressure Isolation for Airborne Infection Control

Negative pressure isolation is required for patients with serious and infectious diseases, such as tuberculosis, MERS, SARS, Ebola, chickenpox, etc.

How it Works

Genano solution is a rapid and cost-efficient way to build isolation rooms. With Genano air decontamination units, existing rooms can be converted to isolation rooms and new ones can be built quickly and efficiently.

As in the picture above, a Genano unit is used to decontaminate the air exiting the room. Genano Technology effectively collects airborne microbes and eliminates them inside the unit.

Genano simultaneously creates negative air pressure in the room, preventing airborne decontamination from entering other premises.

Technical Aspects

- One person room, ca. 15–20 m^2, with access through an anteroom.
- All exhausted air should be delivered directly through a Genano decontamination unit.
- Optionally, the room can be equipped with an extra Genano unit to recycle and decontaminate the air inside the room.
- The room must maintain a negative pressure (5–10 Pa) relative to the corridor. Exhaust air should be 10–20 % more than the supply air. The actual air flow differential will need to be determined according to the situation.
- Separated HVAC system from the building HVAC.
- Air change rate should be 6–10 ACH.

Case: Fighting Against MERS in Saudi Arabia

MERS was first identified in 2012 in Saudi Arabia and has reached epidemic proportions in its country of origin. With the help of Genano, central hospitals in Saudi Arabia have been able to rapidly build new isolation rooms.

Several units have been installed in hospitals, for example in Dammam area, Jazzan and Al-Ahsa. Genano is also used in pathogen diagnostics facilities, and isolation rooms and PCR cleanrooms of the Ministries of Agriculture and Health.

After these experiences, the Saudi Arabian Ministry of Health has given an official recommendation for using Genano units in hospitals.

Temporary Isolation Wards

Temporary isolation wards offer hospitals the capacity to isolate a large number of infectious patients during sudden outbreaks. In certain areas, undiagnosed patients with high fever are rutinely isolated to prevent spreading of serious and infectious diseases. Temporary isolation is also regularly used for military purposes.

How it Works

Every patient has their individual local exhaust. The aim is to create a negative pressure zone around the patients.

Air from several patients can be decontaminated with a single Genano unit (see image). Optionally, each patient can have their own Genano unit attached to their exhaust.

Critical Areas

Critical areas, such as operating rooms and ICUs, are especially vulnerable for air impurities.

How it Works

In critical areas, the Genano air decontamination unit can function as the main system for air decontamination and ventilation, or it can complement an existing system.

References – Operating Theatres

Algeria, Nail Djelfa Hospital (see image)

Belgium, Wellness Klinik Hospital

Romania, Constanta District, Burghele, Colentina and St. Maria Hospitals

Ultrapure Air via Genano Technology®

The superior performance of Genano Technology® is based on a patented method for purification, which

- captures particles down to nanosize,
- eliminates and kills microbes, and
- removes gases and odours.

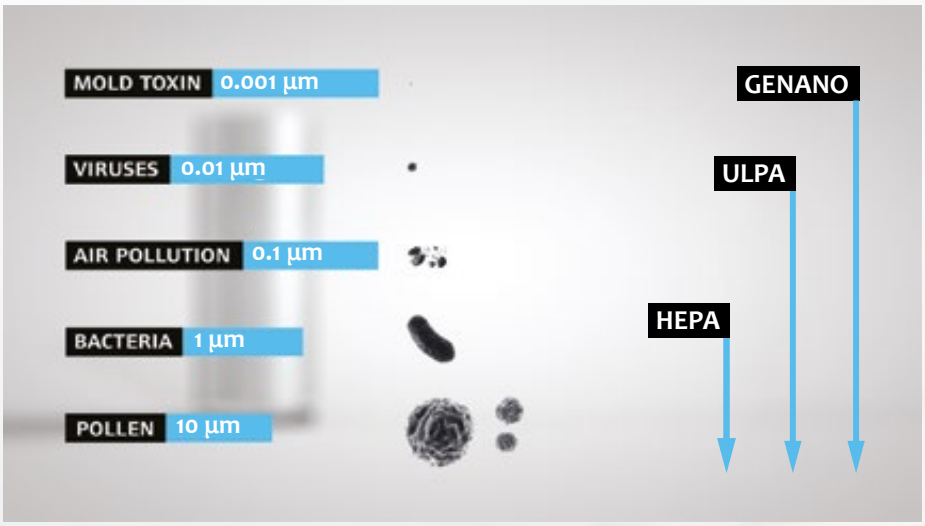
Genano Technology can remove particles down to nanometre size (1 nm = one millionth of a millimetre) from indoor air, unmatched by any other air purifying technology.

The powerful voltage inside the unit eliminates microbes, such as viruses, bacteria, moulds and yeast. Competitive devices based on fiber filters only collect these pathogens, and in the presence of heat and moisture may pose a great risk by releasing microbes or microbial toxins.

Genano units are equipped with an effective active carbon collector which removes gases, fumes and odours. Devices based on filter technologies are penalized to use such systems because of increased pressure drop from the additional filtering mechanism.

Genano Technology cleans the air in free air flow, so the air volume and the purification level are constant at all times. Genano air purifiers do not get clogged up by large amounts of particles as is the case with HEPA filters, and no exchange of expensive filters is required.

Genano is a durable, economical solution with low need for maintenance.



Comparison of particle size arrestance for Genano and competing filter technologies.

See Genano test & research results at **genano.com**

Genano® 5250

New Flagship Model

Genano® 5250 is our new premium model for demanding air decontamination. It delivers up to 500 m³ of ultrapure air in an hour.

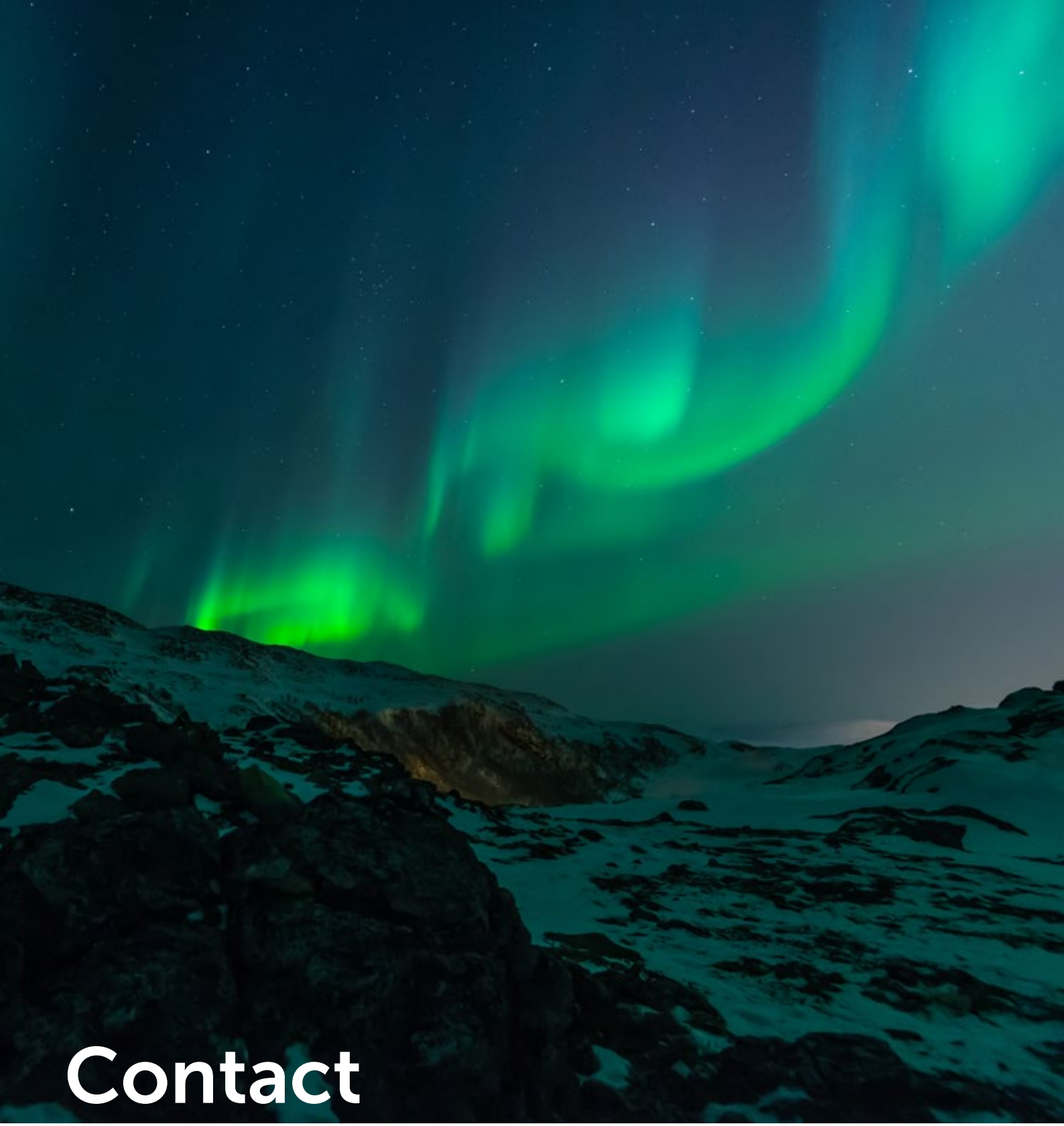
Genano 5250 has versatile settings designed for hospital use.

- User rights can be controlled so that users cannot access the settings.
- Continuous stepless speed setting makes the unit a suitable choice for various spaces.
- Weekly program takes care of needed changes in air supply, according to your needs.
- Default language is English – with many other language options available.

Adjustable stepless speed control ✓
Weekly program ✓
User right control ✓

	Genano® 5250
Cleaning capacity	max. 500 m³/h
Particle size arrestance	> 0.003 µm
Microbial cleaning efficiency	99.9 %
Gas removal	Included: 800 g activated carbon, 60 mm
Installation	Mobile
Negative / positive adaptor kits	Optional
Cleaning	Automatic or manual
Washing liquid	10 L container, for 6 months
Fan speed	Stepless speed control
Size (w x d x h)	600 x 600 x 1680 mm
Weight	91 kg
Construction	Painted galvanized steel
Operating voltage	200–240 V, 50/60 Hz
Power consumption	90–260 W
Usage temperature	+5...+60 °C
Sound level	30–42 L_{pA} (dBa)
Manufactured in	EU, Finland

Complete list of product models available at **genano.com**



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