

HELIX

PHOTOCATALYTIC AIR CLEANER



Photocatalytic air purifier with a unique bactericidal and virucidal FN NANO® surface. Highly effective in eliminating harmful substances and odours.

Photocatalytic air purifier HELIX

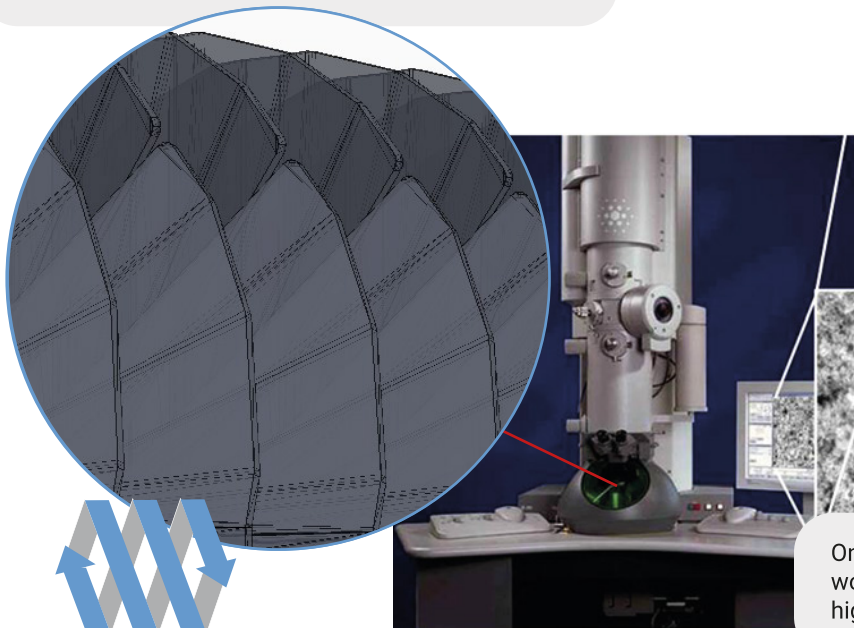
HELIX

The HELIX photocatalytic air purifier with UV-A 365nm LED activation has been developed mainly to clean quickly and efficiently contaminated air within confined spaces; for example, ambulances and areas or facilities demanding to be decontaminated from hazardous organic substances or viruses and bacteria.

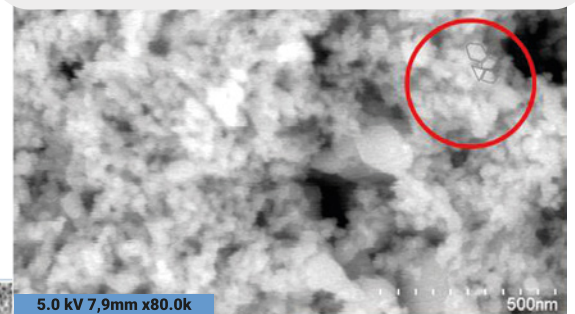
The FN NANO® photocatalysis-based technology is unique, as it does not require any filter replacement or manipulation; it is a self-cleaning technology based on TiO2 nanoparticles. Therefore, there is no waste, clogged filters or other hazardous material.

The FN NANO® photocatalytic surface offers one of the highest certified efficiency in the world.

The HELIX photocatalytic air purifier features a unique patented lamella arrangement maximising the surface available, facilitating the flowing air to come into close contact with the highly active photocatalytic layer



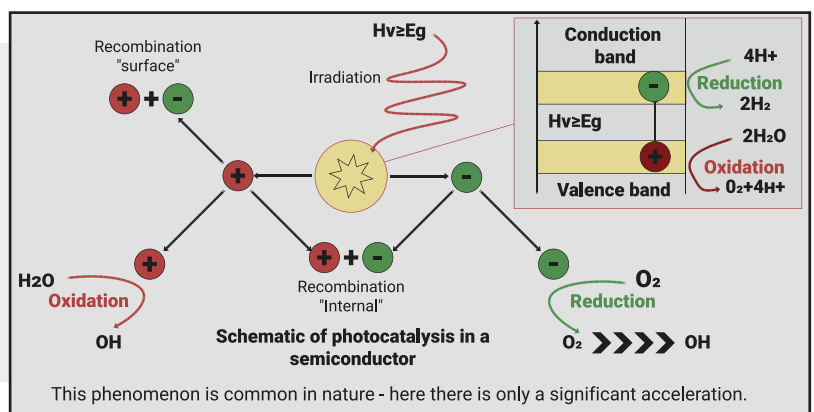
Detail of the highly porous nano-layer using an electron microscope:



One of the most efficient photocatalytic surfaces in the world with patented technology. It features several times higher efficiency than other photocatalytic coatings

PATENTED TECHNOLOGY

Photocatalysis is a photo process inherent to our lives. The light energy comes into contact with TiO2 semiconductor microcrystals and creates free electrons and electron holes on their surface, decomposing, in combination with oxygen, organic molecules into carbon dioxide and water molecules. This technology capitalises on the specific properties of the microscopic TiO2 crystal surface of fewer than 100 nanometres (nm) and the physical phenomena occurring at the atomic and subatomic levels. It is hence nanotechnology.



Photocatalytic surface activated by UV-A radiation guarantees a substantial cleaning and antimicrobial effect. Photocatalysis degrades harmful substances into harmless molecules.

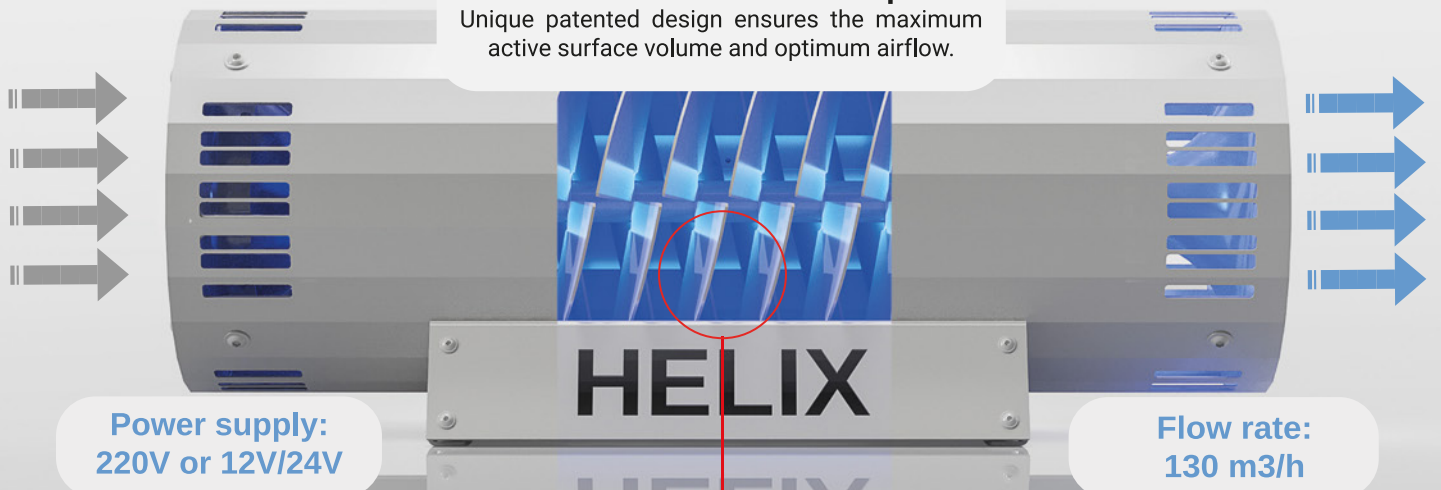
This process is comparable to a surface heated to temperatures reaching many thousands of degrees Celsius. Any piece of organic material that hits it burns immediately in this environment. Yet nothing settles on the surface itself.

Intake of polluted air

Purified air

Illustrative section of the HELIX air purifier:

Unique patented design ensures the maximum active surface volume and optimum airflow.



Power supply:
220V or 12V/24V

Flow rate:
130 m3/h

Bactericidal, virucidal and fungicidal protection

Photocatalysis provides effective destruction of viruses, bacteria, spores and other microorganisms. It reduces the risk of disease transmission. Very suitable for allergy and asthma sufferers.

UV-A 365nm source treated with FN-nano-technology is used to activate the internal surfaces of the purifier.

Harmless molecules

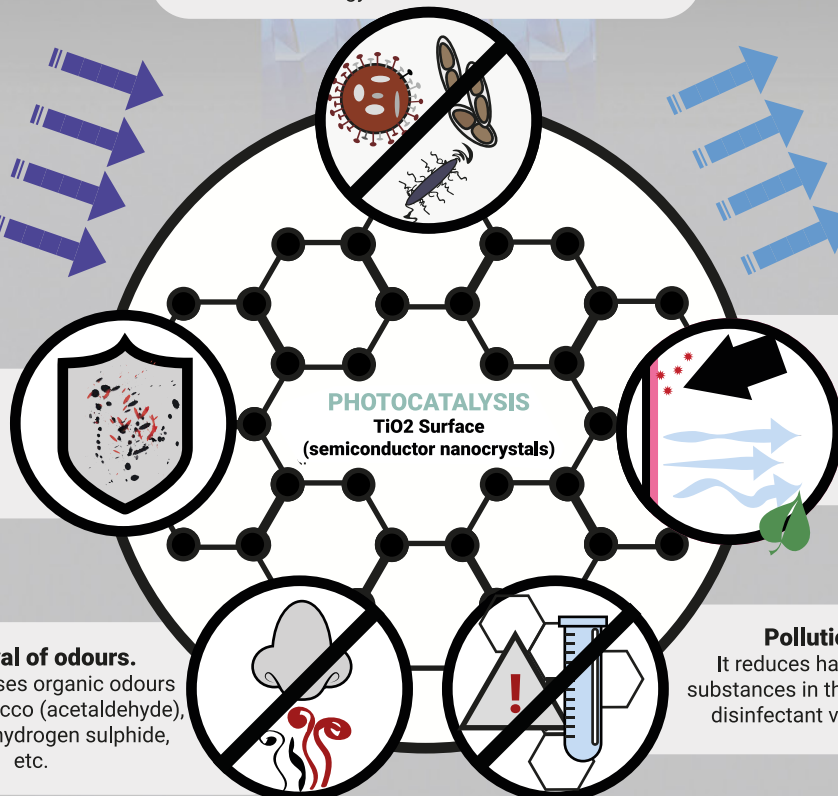
Protective function.
The photocatalytic surface is protected against gradual contamination by impurities.

PHOTOCATALYSIS
TiO₂ Surface
(semiconductor nanocrystals)

Air purification.
It destroys harmful substances, microorganisms and air pollutants such as NO_x, SO₂, CO, VOC etc. It reduces the number of allergens in the air.

Removal of odours.
It decomposes organic odours such as tobacco (acetaldehyde), ammonia, hydrogen sulphide, etc.

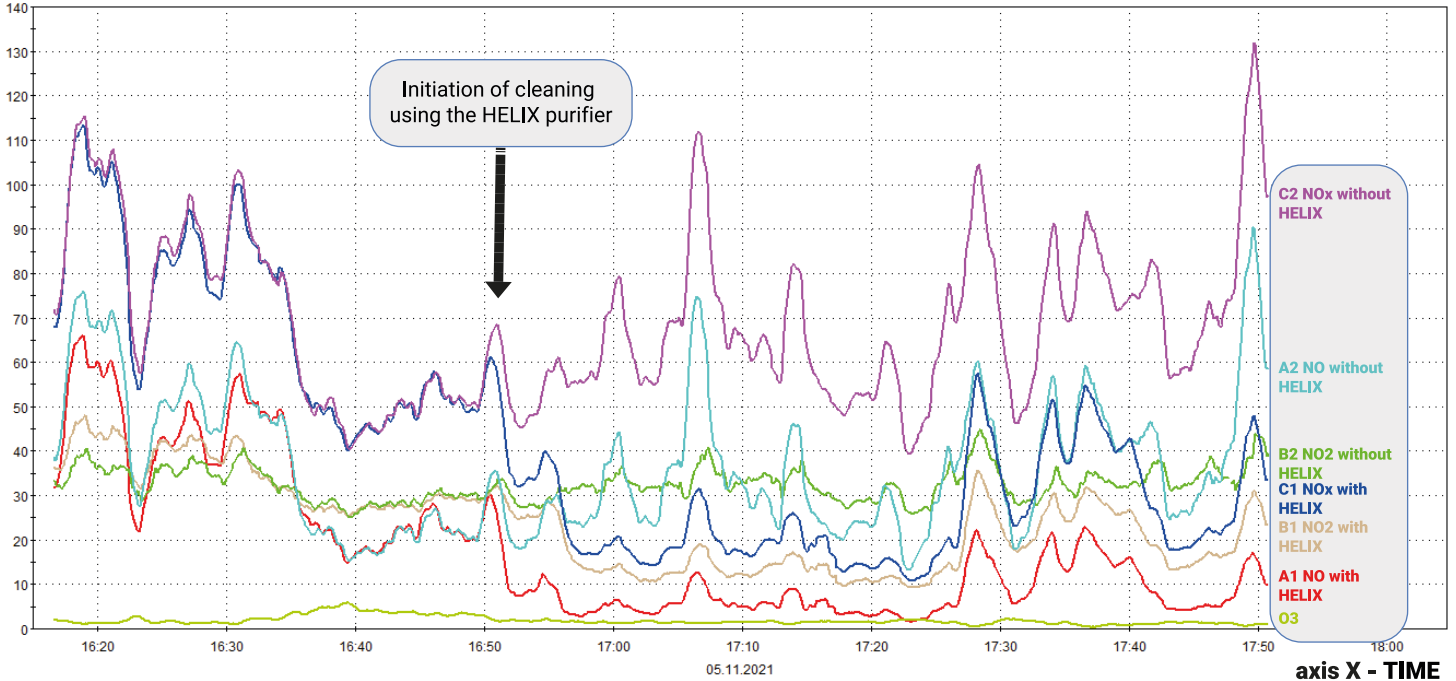
Pollution control
It reduces hazardous organic substances in the air. It can remove disinfectant vapours very well.



Photocatalytic air purifier HELIX

MEASURING THE EFFICIENCY OF THE HELIX PURIFIER WITH FN NANO® TECHNOLOGY USING HORIBA APNA-370 ANALYSERS

axis Y - PPBV parts per billion by volume - Measurement of NOx particulates from automobile traffic. One pass through the air purifier



— NO [ppb] — NO2 [ppb] — NO2_2 [ppb] — NO_2 [ppb] — NOx [ppb] — NOx_2 [ppb] — O3 [ppb]

A1 NO - Nitric oxide
Reading in the environment using the HELIX purifier

B1 NO2 - Nitrogen dioxide
Reading in the environment using the HELIX purifier

B2 Nitrogen dioxide
Reading in the environment without the HELIX purifier

A2 Nitric oxide
Reading in the environment without the HELIX purifier

C1 NOx emissions
Reading in the environment using the HELIX purifier

C2 NOx emissions
Reading in the environment without the HELIX purifier

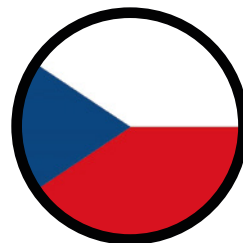
Ozone



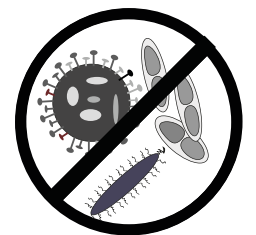
NO FILTERS OR MANIPULATION WITH HAZARDOUS MATERIALS



WARRANTY ON THE PHOTOCATALYTIC EFFICIENCY OF THE PURIFIER

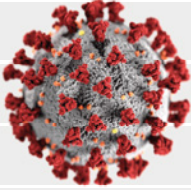


CZECH PATENTED TECHNOLOGY AND DESIGN



EFFICIENCY HAS BEEN VERIFIED BY LABORATORY TESTS AND MEASUREMENTS UNDER FIELD CONDITIONS

ANTIBACTERIAL AND VIRUCID EFFECTIVENESS of FN NANO® technology

Type		Mikroorganism	Product	Time	UV Intensity	% Reduction
Bacteria		Staphylococcus aureus	FN NANO® 2	60 min	0,05-0,1 mW/cm²	99,999 %
		Methicillin-resistant Staphylococcus aureus, MRSA	FN NANO® 2	8 hours	0,05-0,1 mW/cm²	99,490 %
		Methicillin-resistant Staphylococcus aureus, MRSA	FN NANO® 3	8 hours	0,05-0,1 mW/cm²	98,364 %
		Escherichia coli	FN NANO® 2	8 hours	0,05-0,1 mW/cm²	99,993 %
		Escherichia coli	FN NANO® 3	8 hours	0,05-0,1 mW/cm²	99,967 %
		Salmonella enterica	FN NANO® 2	8 hours	0,05-0,1 mW/cm²	99,658 %
		Salmonella enterica	FN NANO® 3	8 hours	0,05-0,1 mW/cm²	99,865 %
		Pseudomonas aeruginosa	FN NANO® 2	120 min	0,05-0,1 mW/cm²	100,000 %
		Enterococcus faecalis	FN NANO® 2	120 min	0,1-0,3 mW/cm²	99,999 %
	Viruses		SARS-CoV-2; COVID-19	FN NANO® 2	10 min	0,35-0,5 mW/cm²
SARS-CoV-2; COVID-19			FN NANO® 2	30 min	0,35-0,5 mW/cm²	99,990 %
SARS-CoV-2; COVID-19			FN NANO® 2	60 min	0,35-0,5 mW/cm²	100,000 %
Residual viral COVID-19 RNA copies			FN NANO® 2	120 min	0,35-0,5 mW/cm²	100,000 %
Bakteriophage E.coli ΦX 174 (model virus)			FN NANO® 2	60 min	0,05-0,1 mW/cm²	99,997 %
Yeast		Candida albicans	FN NANO® 2	120 min	0,05-0,1 mW/cm²	100,000 %



EMSL ANALYTICAL, INC.



The device eliminates harmful microorganisms and airborne pollutants from the indoor environment of hospitals, school facilities and other confined spaces with a higher concentration of people; however, it is also suitable for households. Several professional institutions in the Czech Republic and abroad have tested and verified the photocatalytic efficiency regarding the organic decomposition and conversion of inorganic substances and the destruction of microorganisms.

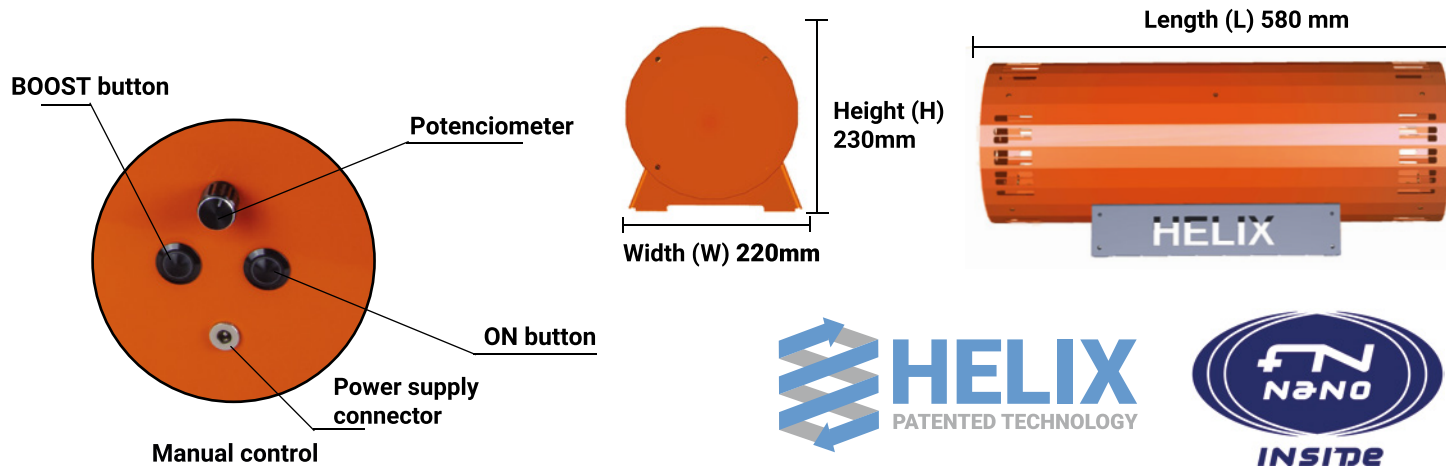
The high level of FN® technology effectiveness against viruses has been confirmed by the state authorities, such as ZUOVA (Public Health Institute Ostrava) and NIPH (National Institute of Public Health) and the University of Nevada, USA. As one of the few facilities in the world that can test for human coronavirus, it has confirmed deactivation within 10 minutes without applying disinfectants, ozone, harmful chemicals or hard ultraviolet radiation.

Photocatalytic air purifier HELIX



Technical data - HELIX - H1 / NCT HELIX H1

Maintenance	Without filter - see instructions for use for more information
Service	5 years warranty on the photocatalytic surface 2 years on electrical components
Maximum power consumption	24W
Standby power consumption	1W<
Voltage	12VDC / 24VDC
Weight	9.300g with protective cover / 6.200g without protective cover
Dimensions (LxWxH)	500x260x230 mm
Color	White, Orange
Maximum noise level	60,5 db
Setting options	Manual control / application control
Mode of operation - Manual control	ON button (50%*) / BOOST button (100%*) / Status LEDs
Operating mode - Application control	0 - 100% / Night / Boost / On (Modes are app adjustable) / Weekly calendar / Device operation data
Adapter cable length	60 cm (twisted cable)
Connection options	Bluetooth
airflow	130 m3/h
Materials	Aluminium, Metal



Technical data - HELIX - C1 / NCT HELIX C1

Maintenance	Without filter - see instructions for use for more information
Service	5 years warranty on the photocatalytic surface 2 years on electrical components
Maximum power consumption	24W
Standby power consumption	1W<
Voltage	100-240VAC, 50/60Hz, 1,5A
Weight	7700g
Dimensions (DxWxH)	580x220x230mm
Color	White, Orange
Maximum noise level	60,5 db
Setting options	Manual control / application control
Mode of operation - Manual control	ON button (50%*) / BOOST button (100%*) / Status LEDs / Potentiometer 0-100%
Operating mode - Application control	0 - 100% / Night / Boost / On (Modes are app adjustable) / Weekly calendar / Device operation data
Adapter cable length	110 cm
Connection options	Bluetooth
airflow	130 m3/h
Materials	Aluminium, Metal