

PHOTOCATALYTIC[®] GATE

AIR AND SURFACE DISINFECTION

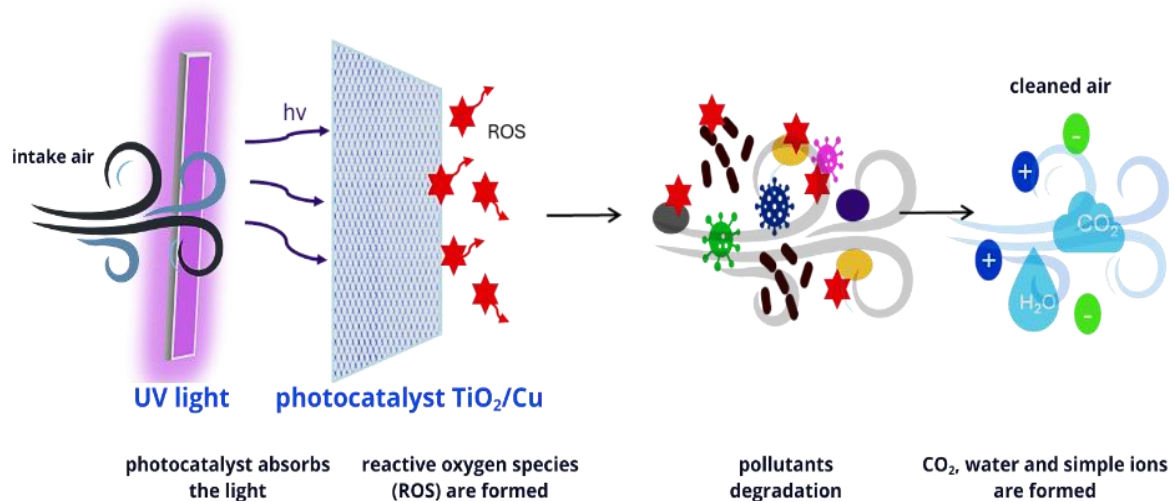


**PURITY AND SAFETY FOR
MEDICAL FACILITIES
PUBLIC FACILITIES
FOOD INDUSTRIES**

www.photocatalyticgate.com

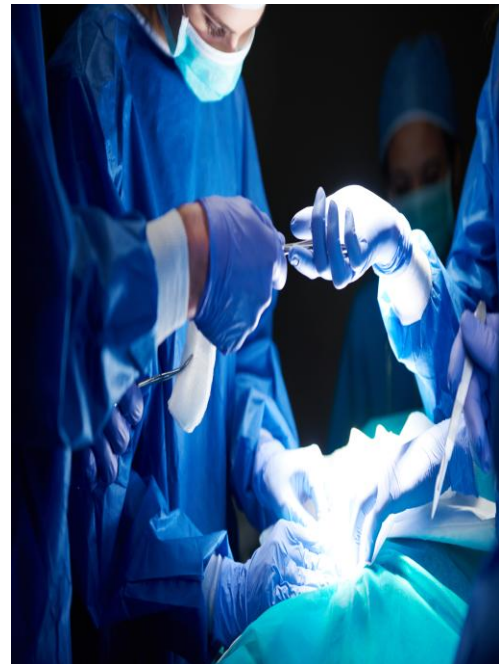
PHOTOCATALYTIC GATE[®] OPERATION

An air and **surface disinfection system** based on **PHOTOCATALYTIC GATE technology** (UVC+TiO₂/Cu). During the **photocatalytic** process, **reactive oxygen species** (ROS) such as hydroxyl radicals (HO[•]) and hydrogen peroxide (H₂O₂) are generated. A key factor in the effectiveness of the PHOTOCATALYTIC GATE is selecting a suitable UV light source, which enables oxidation reactions to occur. Contaminated air that comes into contact with the photoactive TiO₂-coated surface is purified. **Allergens, bacteria, moulds, yeasts, viruses, unpleasant odours**, and other **toxic compounds** are oxidised to simpler compounds – finally to **CO₂, water**, and simple inorganic ions.



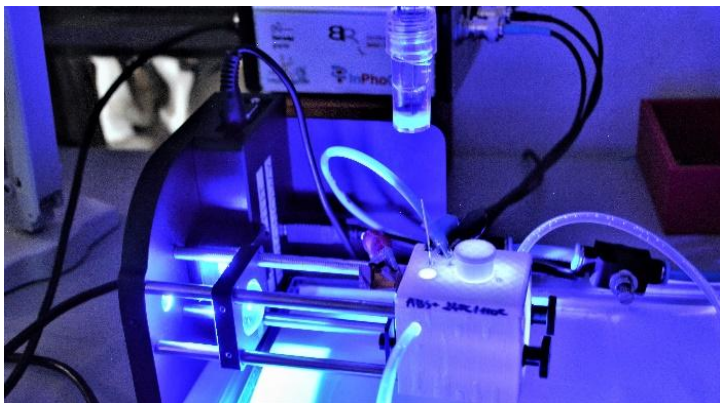
BENEFITS OF USING PHOTOCATALYTIC GATE[®] TECHNOLOGY

- ✓ purifies the air and usable surfaces, ensuring a higher level of hygiene in rooms
- ✓ protects the ventilation system against the growth of microorganisms and pollutants
- ✓ minimises the risk of airborne infections (SARS-CoV-2 viruses, influenza viruses, bacteria)
- ✓ limits the spread of pathogenic microorganisms, including bacteria (e.g. MRSA, Klebsiella pneumoniae NDM-1, Acinetobacter baumannii, Clostridioides difficile), spores and fungi – particularly important in protecting the hospital environment
- ✓ supports measures to prevent the development of antibiotic resistance
- ✓ provides an effective alternative to the costly disinfection of ventilation ducts required by law
- ✓ helps eliminate the so-called Sick Building Syndrome (SBS)
- ✓ neutralises unpleasant odours
- ✓ oxidises harmful chemical pollutants
- ✓ neutralises unpleasant odours in exhaust air



INNOVATIVE PHOTOCATALYTIC GATE[®]

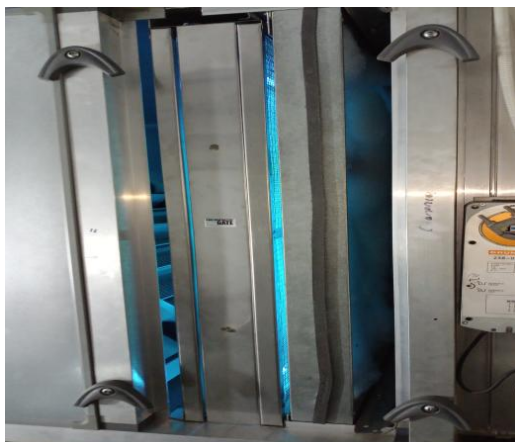
- ✓ Photocatalytic process (UVC+TiO₂/Cu)
- ✓ Complete air purification by ensuring the entire cross-section of the air flow in the supply duct or the cross-section of the ventilation unit
- ✓ Increase in the surface of photocatalytic matrices up to 3 rows
- ✓ The introduction of multi-rowing has improved the effectiveness of the operation
- ✓ High efficiency allows centralised installation of devices without the need to install additional duct devices on the mechanical ventilation system



The optimised photocatalytic coating is the outcome of comprehensive research and development work conducted by InPhoCat, using a photoactive suspension based on TiO₂ combined with a mixture of copper compounds that enhance its antibacterial and antifungal effects.

The construction of the PHOTOCATALYTIC GATE[®] AGRO has been designed to ensure simple and quick maintenance of the device:

- The cassettes containing the photocatalytic matrix are easily removable from the side of the device.
- The entire module slides on special guides towards the outside of the ventilation unit section, thus facilitating the replacement of the UVC/UVA lamps and power supplies.



SOLUTIONS FOR VENTILATION UNITS

PHOTOCATALYTIC GATE® – solutions individually designed for each facility and optimised according to the dimensions of the ventilation unit or supply duct.

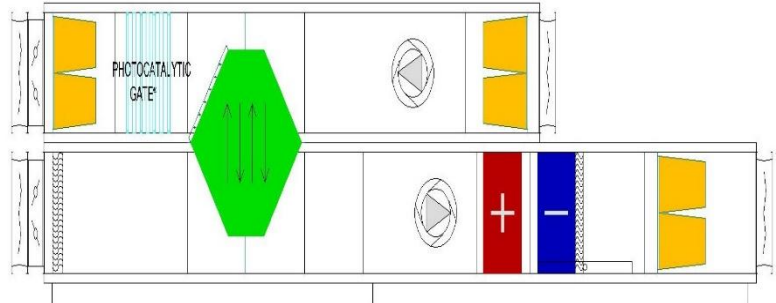
PARAMETERS

C	PHOTOCATALYTIC GATE® PG-1000	PHOTOCATALYTIC GATE® PG-2000	PHOTOCATALYTIC GATE® PG-3000	PHOTOCATALYTIC GATE® PG-4000
Airflow range	500-10000 m ³ /h	10000-20000 m ³ /h	20000-30000 m ³ /h	30000-40000 m ³ /h
Technology	PHOTOCATALYSIS (UVC + TiO ₂ /Cu)			
flow resistance	Airflow resistance from 20 to 60 Pa			
Power	5-25W	25-50W	50-100W	100-200W
Power supply	230V 50/60Hz			
Operating temperature	-5°C do +45°C			
Weight	10-20 kg	20-30 kg	30-40 kg	40-60 kg
Features	<ul style="list-style-type: none"> • Lamp type: UVC 253.7 nm /Ozone emission ≤ 0.003 mg/m³, so-called lamps without ozone • UVC lamp life: 24 months • TiO₂/Cu catalyst life: 24 months 			
Additional	<ul style="list-style-type: none"> • Monitoring of operation/failure from BMS level • Operating time counter • On/off switch 			

INSTALLATION

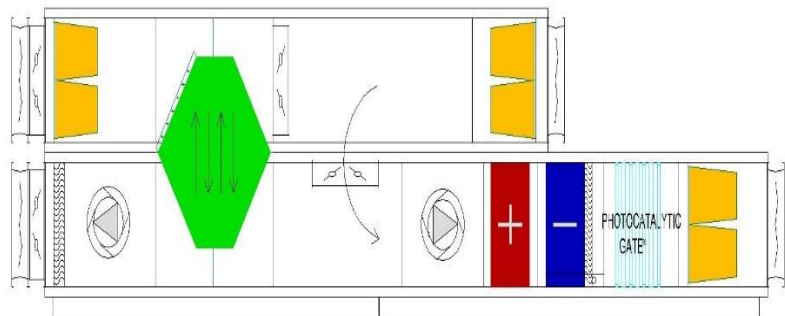
Installation on the supply air from the suction side, immediately behind the external air filter

**BENEFITS - CONTINUOUS
SANITIZATION OF THE AIR SUPPLY
PART OF THE UNIT**
(heat recovery exchanger, chiller, heater)



Installation on the air supply side from the air outlet

**BENEFITS - sanitisation of the
circulating air - unit with mixing
chamber**



SOLUTIONS FOR VENTILATION DUCTS

PHOTOCATALYTIC GATE® IN DUCT – designed for installation in supply air ducts, dedicated to both circular and rectangular ducts.

PARAMETERS

Model	PHOTOCATALYTIC GATE® PG-1000/100-125-160	PHOTOCATALYTIC GATE® PG-1000/200	PHOTOCATALYTIC GATE® PG-1000/250	PHOTOCATALYTIC GATE® PG-1000/315
Airflow range	300-600m ³ /h	450-900m ³ /h	650-1300m ³ /h	1150-2300m ³ /h
Technology	PHOTOCATALYSIS (UVC + TiO ₂ /Cu)			
Flow resistance	Airflow resistance from 20 to 60 Pa			
Power	5-25W	25-50W	50-100W	100-200W
Power supply	230V 50/60Hz			
Operating temperature	-5°C do +45°C			
Dimensions	200x200x180 without nozzles	250x250x380 without nozzles	300x300x380 without nozzles	355x355x380 without nozzles
Weight	5kg	8kg	10 kg	12 kg
Features	<ul style="list-style-type: none"> • Type of lamp: UVC 253.7 nm / Ozone emission ≤ 0.003 mg/m³ (ozone-free lamps) • UVC lamp lifespan: 24 months • TiO₂/Cu catalyst lifespan: 24 months • Entire unit made of galvanised steel sheet and insulated with 9–19 mm rubber mat using technology that prevents the growth of bacteria and fungi 			
Additional	<ul style="list-style-type: none"> • Monitoring of operation/failure from BMS level • Operating time counter • On/off switch 			

INSTALLATION



EXAMPLE APPLICATION – VENTILATION DUCTS

- **Healthcare:** medical offices, hospital isolation rooms, treatment and diagnostic rooms
- **Public infrastructure:** technical rooms, circulation areas (e.g. waiting rooms, corridors), public utility buildings
- **Industry:** technological and production rooms, packaging zones, cold storage and warehouses



SOLUTIONS FOR DUCTED AIR CONDITIONERS

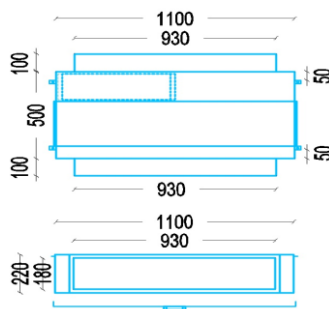
PHOTOCATALYTIC GATE® HEPA - designed specifically for ducted air conditioning units, ideal wherever air conditioning is required alongside strict air cleanliness standards. Featuring H13-H14 filtration for rooms with elevated hygiene requirements, this solution provides continuous purification of both air and surfaces within the space.

PARAMETERS

Model	PHOTOCATALYTIC GATE® PG-1000 /1100x220/930x180/H13
Airflow range	400-1200 m ³ /h
Technology	PHOTOCATALYSIS (UVC + TiO ₂ /Cu)
Flow resistance	Airflow resistance from 20 to 60 Pa
HVAC requirements	Airflow Vmax = 1200 m ³ /h Cooling/heating capacity 7.0 / 7.6 kW Available static pressure min. 160 Pa Air outlet dimensions 930 x 180 mm
Power	48 W
Power supply	230V 50/60Hz
Operating temperature	-5°C do +45°C
Weight	25 kg
Features	<ul style="list-style-type: none"> Type of lamp: UVC 253.7 nm / Ozone emission ≤ 0.003 mg/m³ (ozone-free lamps) UVC lamp lifespan: 24 months TiO₂/Cu catalyst lifespan: 24 months Entire unit made of galvanised steel sheet and insulated with 9–19 mm rubber mat using technology that prevents the growth of bacteria and fungi
Additional	<ul style="list-style-type: none"> Monitoring of operation/failure from BMS level Operating time counter On/off switch

INSTALLATION

PHOTOCATALYTIC GATE® HEPA units are installed on the air outlet side of the ducted air conditioner. This ensures that the air from the air conditioner becomes completely microbiologically safe..



EXAMPLE APPLICATION – DUCTED AIR CONDITIONERS

- Hospitals and medical facilities:** operating theatres, treatment rooms, intensive care units, transplant wards, neonatal units, oncology wards
- Pharmaceutical industry, biological and microbiological laboratories:** clean zones
- Food industry:** meat and sausage production, milk and dairy product manufacturing, ready-to-eat meal production (without thermal processing), baby food production



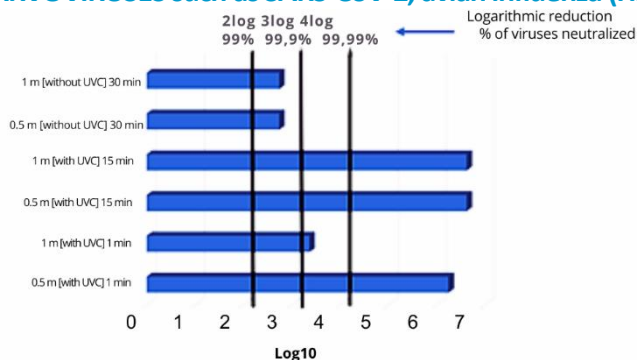
PHOTOCATALYTIC GATE® - PROVEN EFFECTIVENESS

Coating Adhesion Tests performed by the Central Institute for Labour Protection (CIOP) - National Research Institute, No: 309/PZ/2023/NC Tests confirming that TiO₂/Cu coating particles do not penetrate the room with ventilation air

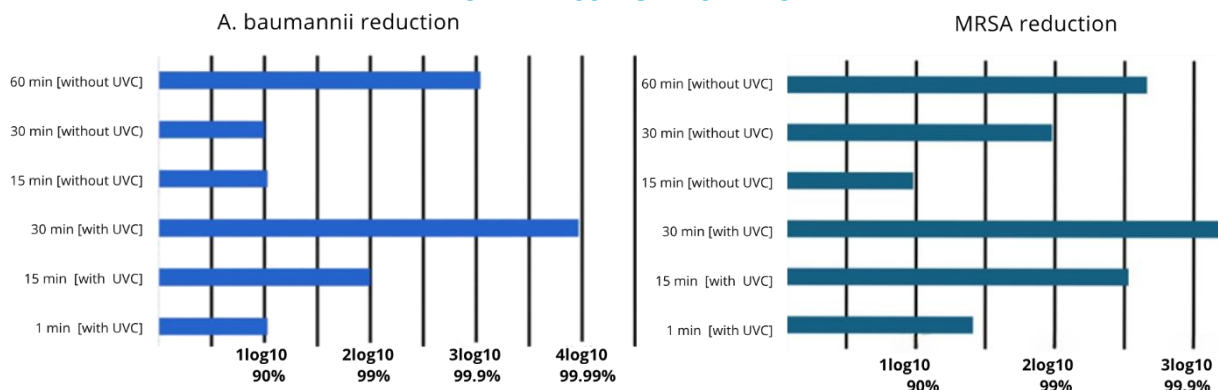
PHOTOCATALYTIC GATE® IS EFFECTIVE AGAINST:

- **Bacteria:** Klebsiella pneumoniae NDM-1, Acinetobacter baumannii, P. aeruginosa, S. aureus MRSA, Enterococcus hirae, E. coli, Clostridium difficile, Legionella pneumophila, L. brevis
- **Viruses:** coronaviruses (e.g. SARS-CoV-2), measles virus, varicella virus, influenza virus, HIV, hepatitis C, hepatitis B, hepatitis D, EBOLA and Marburg, Adenovirus type 5, Poliovirus type 1, Murine norovirus, Bacteriophage P001 and P008
- **Mycobacterium tuberculosis:** Mycobacterium terrae, M. avium
- **Fungi:** Candida albicans, Aspergillus brasiliensis, Aspergillus albicans, Aspergillus niger
- **Spores:** Clostridium difficile, Bacillus subtilis, B. cereus

EFFECTIVENESS AGAINST PARVOVIRUSES such as SARS-CoV-2, avian influenza (HPAI), Newcastle disease (ND)



EFFECTIVENESS AGAINST BACTERIA



COOPERATION

- Jagiellonian University
- University of Agriculture in Kraków
- Polish Society of Hospital Infections
- InPhoCat – Innovative Photocatalytic Solutions Sp. z o.o.
- Medisept - Research and Development Centre

CERTIFICATES & IP PROTECTION



PRODUKT Z ATESTEM
Nr B.BK.60112.0130.2023
ważny do: 06.07.2028r.



URZĄD PATENTOWY
RZECZYPOSPOLITEJ POLSKIEJ



HYGIENE CERTIFICATE PZH-NATIONAL INSTITUTE OF PUBLIC HEALTH

No. **B.BK.60112.0130.2023** valid until: 06.07.2028 – with unrestricted use in healthcare facilities, approved for air cleanliness class S1 rooms (all types of operating suites), as well as public utility facilities, laboratories, offices, hotels, the pharmaceutical and food industries, catering establishments, and livestock facilities.

PHOTOCATALYTIC GATE[®]- PROTECTION of IP

- EU Industrial Design FOTOCATALYTIC GATE 2- ROW No. 009063357-0001
- EU Industrial Design FOTOCATALYTIC GATE 3- ROW No. 009159403-0001
- EU Industrial Design PHOTOCATALYTIC GATE IN DUCT No. 015049166-0001
- EU Industrial Design PHOTOCATALYTIC GATE HEPA No. 015053665-0001
- EU Trademark "PHOTOCATALYTIC GATE" No. 018760536
- **Patent No. P.441199 Patent Office PL** "Photocatalytic gate for disinfection of air and surfaces" dated 05/16/2022
- PTC Application - World Intellectual Property Organisation WIPO No. PCT/IB2023/053731 dated 04/12/2023
- Application at the European Patent Office EPO, No. 23807114.6-1014 PCT/IB2023053731 dated 12/16/2024 (protection in 39 European countries + Turkey)

EXAMPLES OF IMPLEMENTATION

- ✓ *Regional Oncology Clinic, Pharmacy, Interventional Radiology, Oncology Admissions Department, M. Kopernik Regional Multispecialty Oncology and Traumatology Centre in Łódź*
- ✓ *Department and Clinic of Pulmonary Diseases and Tuberculosis, Faculty of Medical Sciences in Zabrze, Silesian Medical University*
- ✓ *Gastrointestinal Endoscopy Unit – Professor K. Gibiński University, Clinical Centre, Silesian Medical University in Katowice*
- ✓ *Department of Internal, Autoimmune and Metabolic Diseases – Professor K. Gibiński University, Clinical Centre, Silesian Medical University in Katowice*
- ✓ *DĘBSKI Clinic – Norblin Factory, Warsaw*
- ✓ *OKO-TEST Ophthalmology Clinic, Nowy Targ*
- ✓ *Central Admissions Department – Professor K. Gibiński University, Clinical Centre, Silesian Medical University in Katowice*
- ✓ *Emergency Department, Specialist Hospital in Radom*
- ✓ *Regional Oncology Clinic, Pharmacy, Interventional Radiology, Oncology Admissions Department, M. Kopernik Regional Multispecialty Oncology and Traumatology Centre in Łódź*
- ✓ *Polmlek Group – Cheese Producer from Goliszew - Ceko Sp. z o.o. Goliszew*
- ✓ *Elimex Jacek Pabis Traditional Butcher Shop, Trzebinia*
- ✓ *Frezja Florist, Flower cooler, Trzebinia*

PHOTOCATALYTIC GATE[®] SMART TECHNOLOGY. NATURAL SAFETY



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