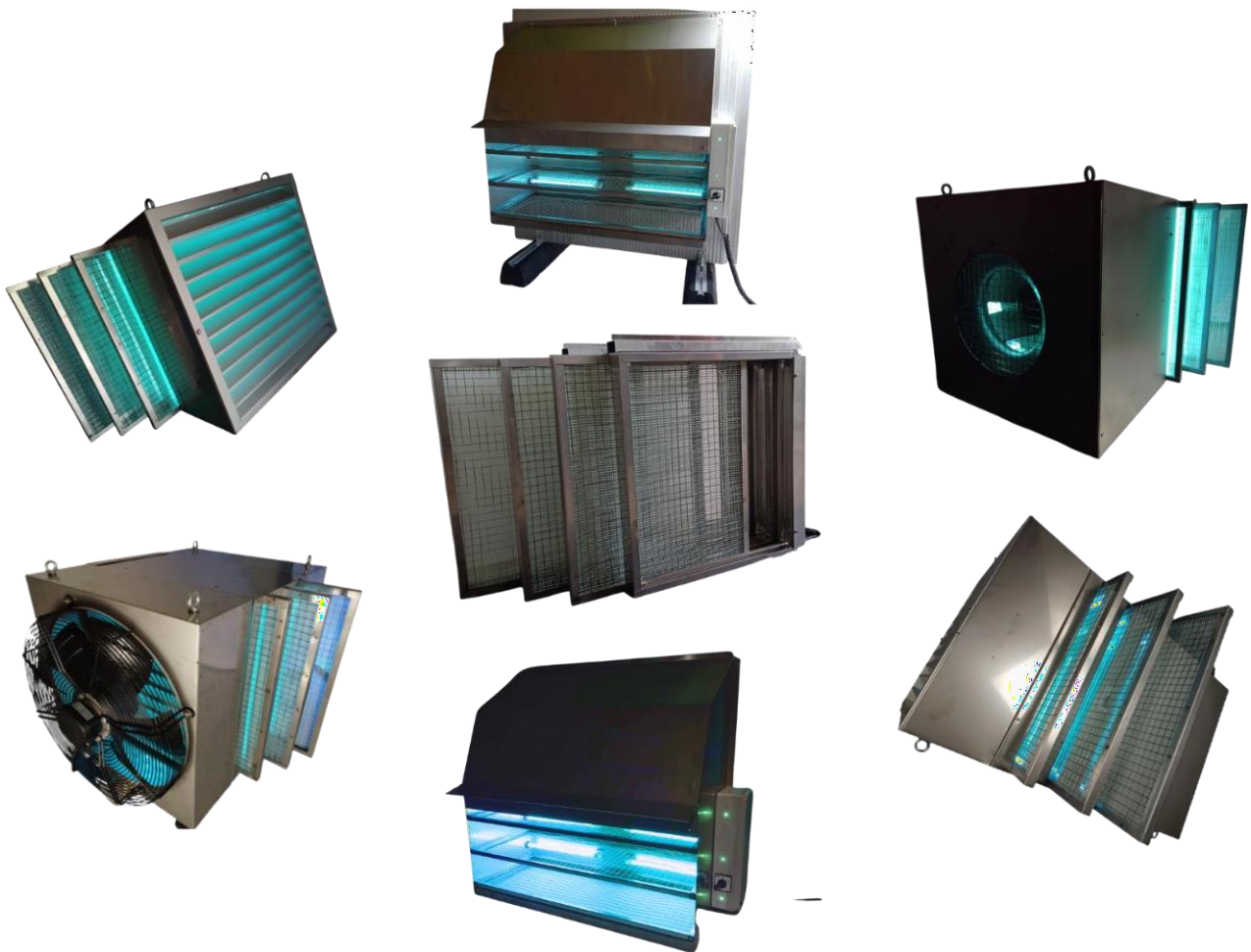


PHOTOCATALYTIC[®] GATE

AIR AND SURFACE DISINFECTION



SMART FARMING - HEALTHY FUTURE

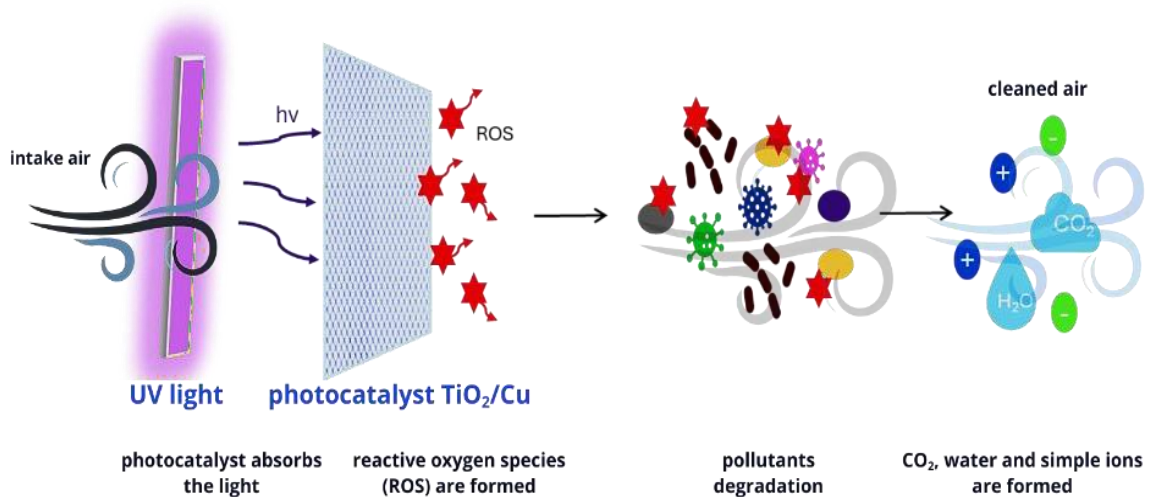
visit our website: www.photocatalyticgate.com

PHOTOCATALYTIC GATE AGRO

PHOTOCATALYTIC GATE[®] OPERATION

An air and **surface disinfection system** based on **PHOTOCATALYTIC GATE technology** (UVC + TiO₂ + O₃), which combines the phenomenon of **photocatalysis** (UVC + TiO₂) with a small dose of **ozone** (O₃). 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 while generating only minimal amounts of ozone.

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.



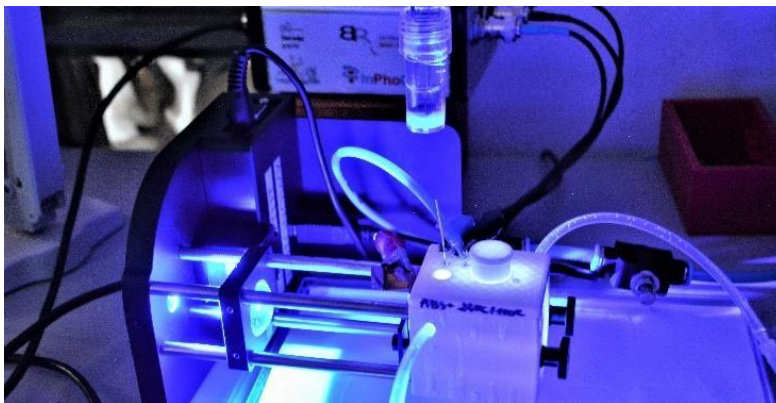
BENEFITS OF USING PHOTOCATALYTIC GATE[®] TECHNOLOGY

- ✓ 100% effectiveness against avian influenza (HPAI), Newcastle disease (ND), salmonellosis, and colibacteriosis
- ✓ Significant reduction in animal mortality
- ✓ Elimination or reduction of costly antibiotic treatments
- ✓ Improvement in animal health leading to proper weight gain
- ✓ Reduction of respirable dust particles
- ✓ Maintenance of a ventilation system free from bacteria, viruses, fungi, and mould
- ✓ Enhancement of biosecurity measures to prevent cross-contamination and transmission by staff
- ✓ Reduction of the risk of virus, bacteria, and spore spread, as well as mould and fungi
- ✓ Neutralisation of unpleasant odours in exhaust air



INNOVATIVE PHOTOCATALYTIC GATE[®]

- ✓ Photocatalytic process (UVC+TiO₂/Cu) with a minimal release of ozone (O₃)
- ✓ 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.



POULTRY HATCHERY SOLUTIONS - EFFICIENCY OF THE 99.99%

The PHOTOCATALYTIC GATE[®] AGRO for poultry hatcheries is individually designed and optimised according to the dimensions of the ventilation unit or the supply ventilation duct.

PARAMETERS

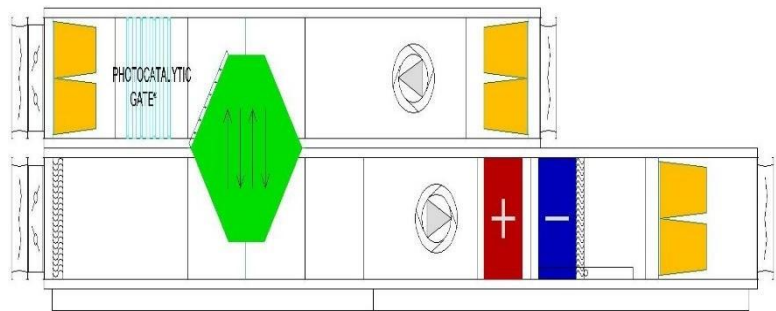
Model	PHOTOCATALYTIC GATE [®] AGRO PG-1000	PHOTOCATALYTIC GATE [®] AGRO PG-2000	PHOTOCATALYTIC GATE [®] AGRO PG-3000	PHOTOCATALYTIC GATE [®] AGRO PG-4000
Airflow range	500-10000 m ³ /h	10000-20000 m ³ /h	20000-30000 m ³ /h	30000-40000 m ³ /h
Technology	PHOTOCATALYSIS (UVC + TiO ₂ /Cu + O ₃)			
flow resistance	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 to +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 185 nm / Ozone emission below 0.1 ppm (0.15 mg/m³) of the permissible value of the Highest Allowable Concentration, so-called ozonating lamps - 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

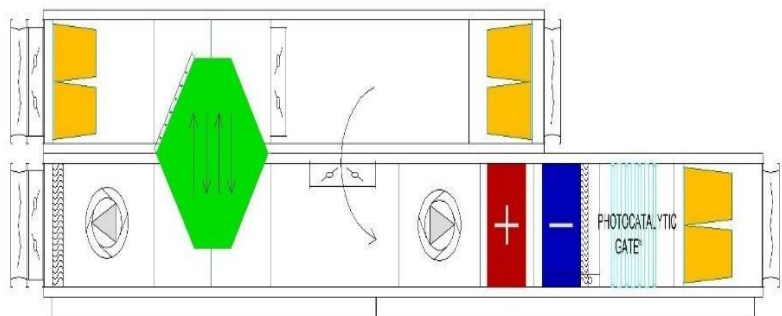
**BENEFITS - CONTINUOUS
SANITIZATION OF THE AIR SUPPLY
PART OF THE UNIT**

(heat recovery exchanger, chiller, heater)



Installation on the air supply side from the air outlet

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



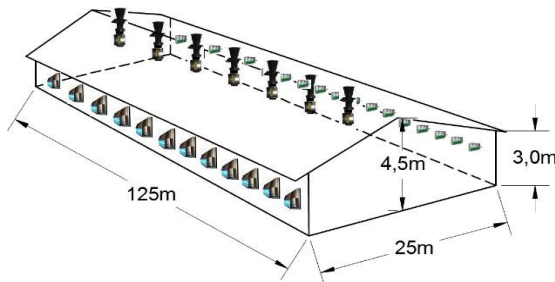
SOLUTIONS FOR POULTRY FARMING AGRO FARM INLET/OUTLET EFFICIENCY OF 99.99%

Dedicated air inlet covers with PHOTOCATALYTIC GATE and duct devices for sanitisation and odour neutralisation from exhaust air.

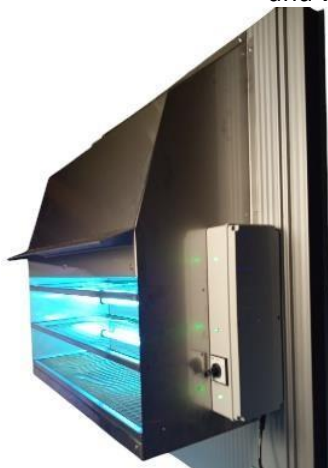
PARAMETERS

Model	PHOTOCATALYTIC GATE [®] PG-1000 AGRO FARM INLET	PHOTOCATALYTIC GATE [®] PG-1000 AGRO FARM OUTLET
Airflow range	1500-3500 m ³ /h	1500-3500 m ³ /h
Technology	PHOTOCATALYSIS (UV + TiO ₂ /Cu + O ₃)	
flow resistance	Airflow resistance from 20 to 40 Pa	
Power	3 x 33W (99W)	3 x 33W (99W)
Power supply	230V 50/60Hz	
Operating temperature	-5°C to +45°C	
Weight	900x900x300	500x800x300
Features	<ul style="list-style-type: none"> Lamp type: - UVC 185 nm / Ozone emission below 0.1 ppm (0.15 mg/m³) of the permissible value of the Highest Allowable Concentration, so-called ozonating lamps - 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 of the air intake cover with the PHOTOCATALYTIC GATE – it must be fixed to the wall in place of traditional covers and connection of the power supply
 Assembly of the PG AGRO FAFARM OUTLET – it must be connected to the appliance at the ventilation chimney and with the connection of the power supply



SOLUTIONS FOR POULTRY FARMING - EFFICIENCY OF 60%

Monobloc units feature a built-in fan that actively drives air circulation.

PARAMETERS

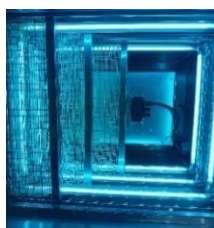
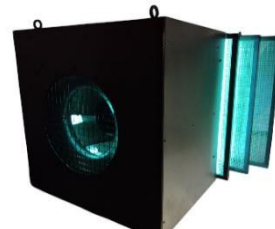
Model	PHOTOCATALYTIC GATE [®] AGRO FARM EC PG-1000	PHOTOCATALYTIC GATE [®] AGRO FARM AC PG-1000
Airflow range	5000 m ³ /h	2500 m ³ /h
Technology	PHOTOCATALYSIS (UV + TiO ₂ /Cu + O ₃)	
flow resistance	1.07 kW	0.49kW
Power	400V 50/60Hz	230V 50/60Hz
Power supply	77 dB(A)	70 dB(A)
Operating temperature	-5°C to +45°C	
Weight	70 kg	40 kg
Features	<ul style="list-style-type: none"> Lamp type: - UVC 185 nm / Ozone emission below 0.1 ppm (0.15 mg/m³) of the permissible value of the Highest Allowable Concentration, so-called ozonating lamps - 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 	

PHOTOCATALYTIC GATE[®] AGRO FARM EC
doors are equipped with an energy-saving **EC radial motor**

PHOTOCATALYTIC GATE[®] AGRO FARM AC
systems are built starting from an **axial fan**

PHOTOCATALYTIC GATE[®] AGRO FARM are
equipped with an innovative **UVC FILTER** that
protects against the emission of **UVC radiation**
outside the device

UVC fluorescent lamps are used as a light
source to **induce the photocatalysis** process



INSTALLATION

The device is suspended from the roof or ceiling
structure with mounting brackets and chains



The device is equipped with anti-vibration rubber
feet when mounted on a wall support structure.



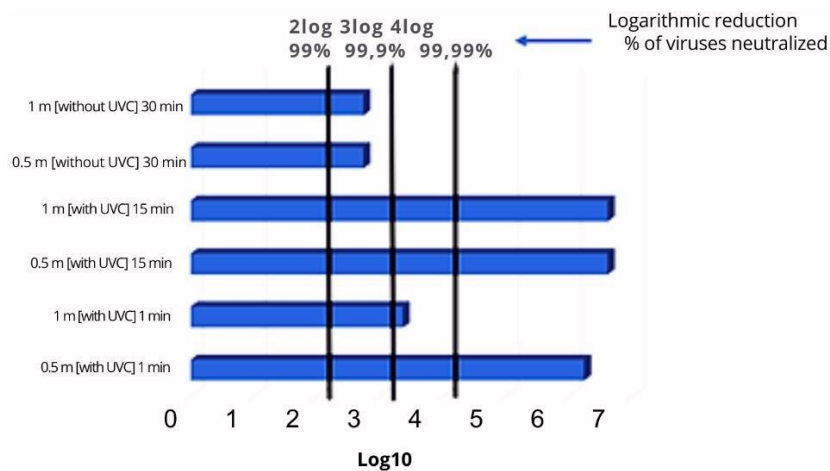
PHOTOCATALYTIC GATE[®] - PROVEN EFFECTIVENESS

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

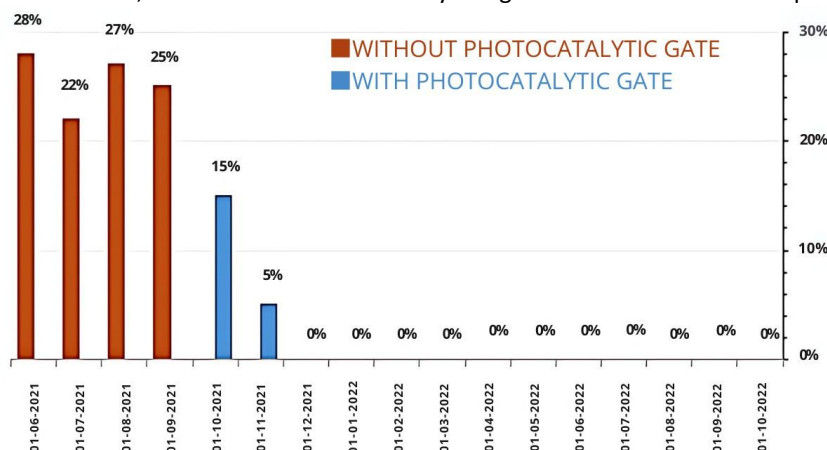
PHOTOCATALYTIC GATE is effective against:

- **Bacteria:** Klebsiella pneumoniae NDM-1, Acinetobacter baumannii, P. aeruginosa, S. aureus MRSA, Enterococcus hire, E. coli, Clostridium difficile, Legionella pneumophila, L. brevis
- **Viruses:** coronaviruses (e.g. SARS-CoV-2), measles virus, varicella virus, influenza virus, HIV virus, 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

Efficacy against parvoviruses such as: avian influenza (HPAI), Newcastle disease (ND), SARS-CoV-2



Microbiological effectiveness in real conditions confirmed by scientific and research work under the supervision of Eng. Prof. Marcin Lis, conducted at the University of Agriculture in Krakow at the poultry hatchery.



CERTIFICATES & IP PROTECTION



HYGIENE CERTIFICATE PZH-NATIONAL INSTITUTE OF PUBLIC HEALTH

No.: B.BK.60112.0130.2023 valid until 06.07.2028 without restrictions for use in livestock facilities (version with UVC 253.7 nm lamps - so-called ozone-free lamps)

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 Industrial Design PHOTOCATALYTIC GATE AGRO FARM No. 015080057-0001-3
- EU Industrial Design PHOTOCATALYTIC GATE AGRO INLET No.
- 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 Organization 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)

SCIENTIFIC COOPERATION

- Jagiellonian University
- University of Agriculture in Kraków
- The Polish Headquarters of the World's Poultry Science Association (WPSA)



EXAMPLES OF IMPLEMENTATION

- ✓ Poultry Hatchery and Farm Sławomir Pastuszek Szastarka
- ✓ 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[®]

is safe for people and animals



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