# CLEAN AIR MAKES THE DIFFERENCE

## Lower the risk of infection and reduce absenteeism

VIROBUSTER®

THE AIR PURIFICATION SPECIALIST

# AIR HYGIENE FOR PEOPLE AND THE ENVIRONMENT

### In safe hands with VIROBUSTER®

VIROBUSTER® has been a specialist in UV-C air hygiene since the 2003 SARS coronavirus epidemic. We know the levels of efficacy, performance and safety required.
With our patented UVPE[1] technology, originally developed for the medical industry, we revolutionised the use of UV-C, meaning that we can offer a safe, highly effective solution that is proven to eliminate 99.99 % of coronaviruses[2]. Today, our technology is in high demand in a wide range of industries.

Whatever the field - medicine and care, local authorities, buildings, and industry - bacteria, viruses and mould accumulate in the air of closed rooms where air cannot circulate properly. In areas that are frequented by many people or have high through-traffic, these aerosols are also swirled around by the typical air circulation resulting from increasing warmth and movement. Now more than ever, it is essential that this risk is minimised in order to protect people and the environment.

## UV-C DISINFECTION - BETTER PROTECTION FOR ALL INDUSTRIES:

- **Lower risk of infection and illness for staff and customers**
- **99.99 % room air purification rate with just one cycle**
- **Increased protection from pandemics**
- **Proven better (room) air quality**
- **Safe for users and the environment**

## BUILDINGS:

- **Integration into existing air handling systems**
- **Retrofitting to existing air handling systems**

## MEDICINE AND CARE

- Fewer hospital-acquired infections
- Better protection in waiting rooms, hospital rooms and treatment rooms.
- Mobile solution that can be switched on and off (e.g. to create isolation rooms as required)
- Subsidy opportunities

## OFFICES, LOCAL AUTHORITIES, AND MANAGEMENT

- Increased productivity and staff protection
- Low noise levels
- Subsidy opportunities

## FOOD, TRADE, AND INDUSTRY

- Better product quality
- Longer storage life
- No need to use preservatives
- Profitability / cost savings

*1 Ultraviolet pathogen elimination, a mechanism developed by VIROBUSTER®*
*2 "Coronavirus surrogate inactivation rates", Elimination Study, Bermpohl 2020, Biotec GmbH, Gütersloh*

# UV-C – THE SAFEST ALTERNATIVE TO TRADITIONAL PROCESSES

**VIROBUSTER® systems use effective UV-C technology, and offer the safest and most efficient alternative to traditional processes.**

With a short wavelength of 254 nanometres, UV-C light is perfectly suited (when used safely, cleanly and at a suitable dose) to microbiological purification. Treatment with UV-C blocks the genetic material of micro-organisms such as viruses and bacteria, which prevents them from multiplying. This means that after treatment with UV-C, they are no longer infectious.

## UV-C is a tried-and-tested solution

UV-C has been known to be effective since 1901. It has been used for water sterilisation without the use of chemical additives, and for air purification in the medical industry.
With a combination of smart technology, high safety standards and the right UV-C dose, our floor devices eliminate 99.99 % of SARS-CoV2[1] virus in just one cycle - as proven in multiple scientific studies[1].

## UV-C is safe and efficient

Our devices work solely on the basis of UV-C. This means there are no filters or hazardous additions such as plasma (ozone) or ionisation, making it an emission-free solution that is safe for users and the environment[2].

## UV-C developed to perfection - The patented VIROBUSTER® UVPE[3] principle is superior to traditional UV-C technologies (UVGI[4])

How UV-C is used has changed significantly since it was first established.
The "open" UV-C method, which uses direct radiation of the area to be disinfected with UV-C light but is less effective and presents a health hazard due to ozone release, was still used until the SARS1 outbreak in 2003. After this method was officially rejected by the WHO and other health institutions, the now-standard (ozone-free) UV-C technology (UVGI) was developed, whereby the lamps are placed in the closed ventilation channels of air conditioning systems. While this eliminated the safety issue, it drastically reduced efficacy, as the air is not present in the plastic ventilation system long enough to be exposed to sufficient radiation. This is a major issue that VIROBUSTER® identified early on and has now effectively overcome with the UVPE method.

*"VIROBUSTER® can play a significant role in reducing the risk of infection."*

*Dr. Ron Hendrix, Hospital hygienist*
*Dutch NOS News,*
*26 May 2008*

*1 "Coronavirus surrogate inactivation rates", Elimination Study, Bermpohl 2020, Biotec GmbH, Gütersloh*
*2 TüV Air Purification Device Report R60024536*
*3 Ultraviolet pathogen elimination, a mechanism developed by VIROBUSTER®*
*4 Ultraviolet germicidal irradiation*

# THE **VIROBUSTER® UVPE** MECHANISM: THE NEXT GENERATION OF AIR DISINFECTION

*"VIROBUSTER has taken the lead in research and development in air sterilisation technologies"*

*Dr Wladyslaw Kowalski, UV expert*
*UVGI Handbook 2009*

### The new standard in UV-C air disinfection

VIROBUSTER® UVPE units are different to open or standard UV-C (UV-C lamps in air conditioning channels) - they bring together modular, highly-effective, high-dose UV-C technology and special reflectors with a targeted displacement current. This results in a powerful combination that clearly outperforms all other UV-C technologies currently on the market[5].

## OUR MODULES OFFER:

1. **Safety and Sustainability:** Emission-free (ozone-free) UV-C tubes are installed in closed ventilation ducts to ensure maximum safety for people and the environment, while simultaneously reducing the number of micro-organisms in air handling systems. In addition, UVPE technology requires fewer lamps than traditional systems, meaning that energy and maintenance costs are also lower.
2. **Maximum intensity versus UV-C:** The patented UVPE procedure uses specially arranged lamps and reflections to inactivate micro-organisms. It has shown a 3-log improvement on previously used UV-C technologies.
3. **Modular unit system for all:** Unit systems are standard modules with a single (technical) configuration and design that has been technically[6] and biologically[5] certified and validated by a recognised test centre. All unit systems can therefore be retrofitted and are interchangeable[7].
4. **Enhanced efficacy with the addition of filters:** The system can be combined with filters to handle larger inorganic particles.
5. **Flexible and easy to use:** The plug-and-play concept means that our modules can be used wherever they are needed - simply install them and switch them on and off as required. As the system is quiet[8], it can also be used long-term as a standalone or built-in solution in air handling systems.

*5 "Coronavirus surrogate inactivation rates", Elimination Study, Bermpohl 2020, Biotec GmbH, Gütersloh*
*6 TüV Air Purification Device Report R60024536*
*7 "Air Filtration Technologies for Pig Transport", Nielsen, Yigit LF 2015, Denmark*
*8 "VIROBUSTER® sound pressure measurement", Keller et. al, 2008, ebm-Papst, Mulfingen*

# STERIBASE® 300 PLUS – AN OVERALL WINNER

When comparing different floor device solutions, filter efficacy is only one factor to take into account. **VIROBUSTER® modules offer:**

1. **Device efficacy:** VIROBUSTER® offers proven efficacy of >99.99 % against SARS-CoV2[9]
2. **Space efficacy:** The combination of slow intake and a high output speed guarantees a reduction in microbial counts for the whole room - in just a few minutes.
3. **Device comfort:** The pedestal offers stability, and the fan it contains is extremely quiet given its air flow capacity[10]. It can therefore be used long term, for example in offices, hospital rooms and bedrooms.
4. **Safety and Sustainability:** Our devices work solely on the basis of UV-C. This means there are no filters or hazardous additions such as plasma (ozone) or ionisation, making it an emission-free solution that is safe for users and the environment.
5. **Cost-effectiveness:** As there are no filters that would require regular changing, maintenance is only required every 2-3 years[11]. Its low maintenance costs make STERIBASE® the perfect choice.

## STERIBASE® 300 PLUS

**Dimensions:** 500 x 600 x 1,640 mm (L x W x H)

**Performance:** 240 Watt, 230–240 V

**Airflow:**
3 levels, from 150 to 300 $m^3/h$

**Airflow/noise levels:**
Level 1: 150 $m^3/h$ / 29.4 dB(A)
Level 2: 225 $m^3/h$ / 40.5 dB(A)
Level 3: >300 $m^3/h$ / 47.2 dB(A)

**Integrated filter:**
3 washable stainless steel prefilters for large particles

**Biological reduction:** >99.99 %

**Maintenance:** after 9,000 hours

**Recommended use:**
Per device: Up to 20 people or surface area of 150 $m^2$

**Included:**
Plug-and-play, ready-to-use device

Made in Germany


## "IT WORKS" ISN'T GOOD ENOUGH FOR US. THE STERIBASE® RANGE ALSO OFFERS:

- **A < 30 dB(A) sleep mode**
- **No emissions (no use of ozone)**
- **An attractive design (Design Award Winner)**

*9 "Coronavirus surrogate inactivation rates", Elimination Study, Bermpohl 2020, Biotec GmbH, Gütersloh*
*10 The carefully designed air flow enables air mixing with almost no bypass, and thus the highest possible net air exchange per hour.*
*11 When used 10 hours per day, 280 days per year*

## STERITUBE® AND BASICTUBE®

**Dimensions:** 1,000 x 200 x 230 mm (L x W x H)

**Performance:** 190 Watt, 230-240 V

**Airflow:**
From 150 up to 800 m³/h

**Pressure loss:**
300 m³/h / 13 Pa
400 m³/h / 23 Pa
800 m³/h / 85 Pa

**Integrated filter:** no

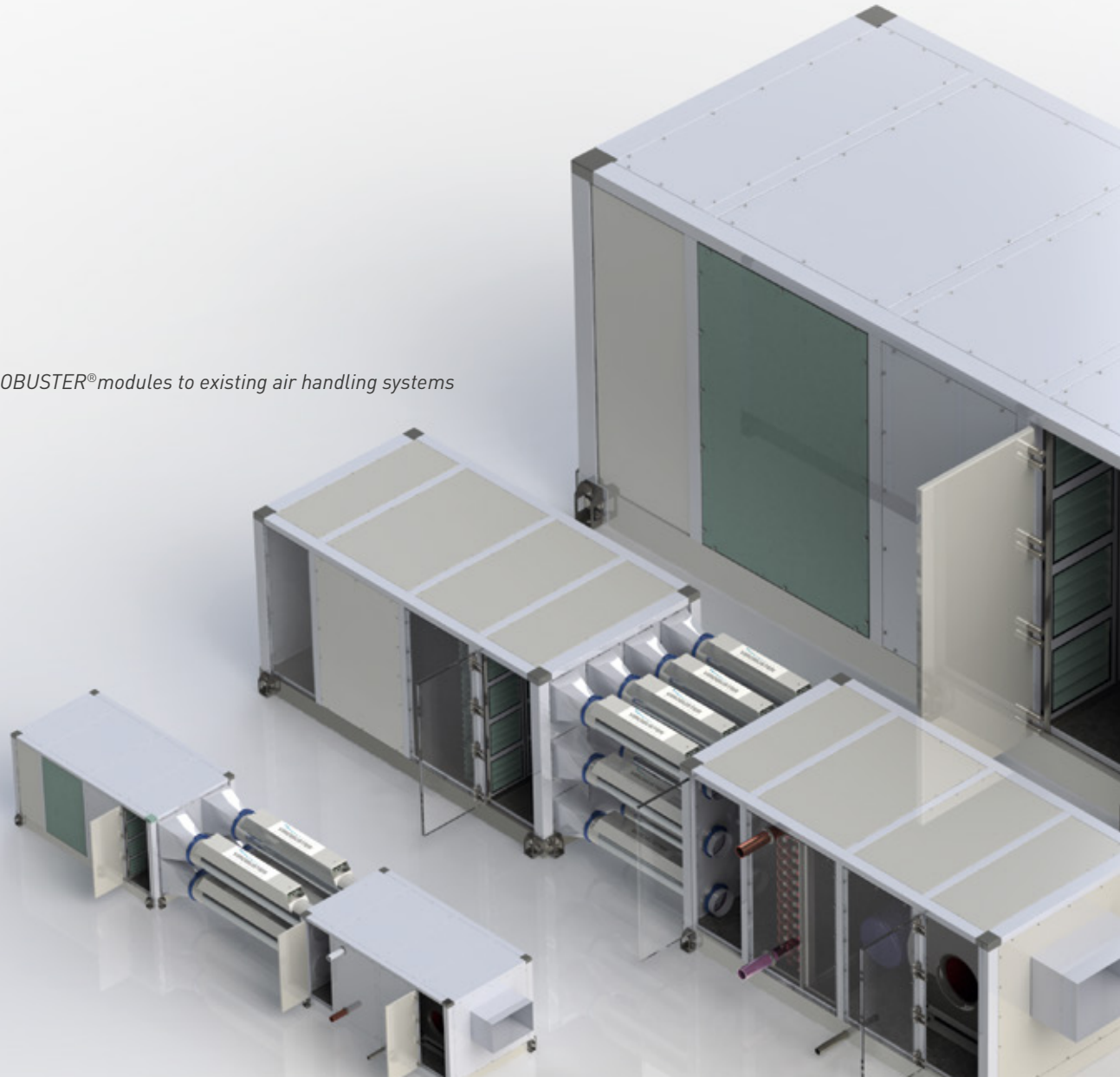
**Biological reduction:** >99.99 %

**Maintenance:** after 9,000 hours

**Recommended room size:**
The number of devices to be used depends on the air volumes of the air handling system.

**Included:**
Connecting cable, plug system and DN160 quick-release (provided loose)


Made in Germany

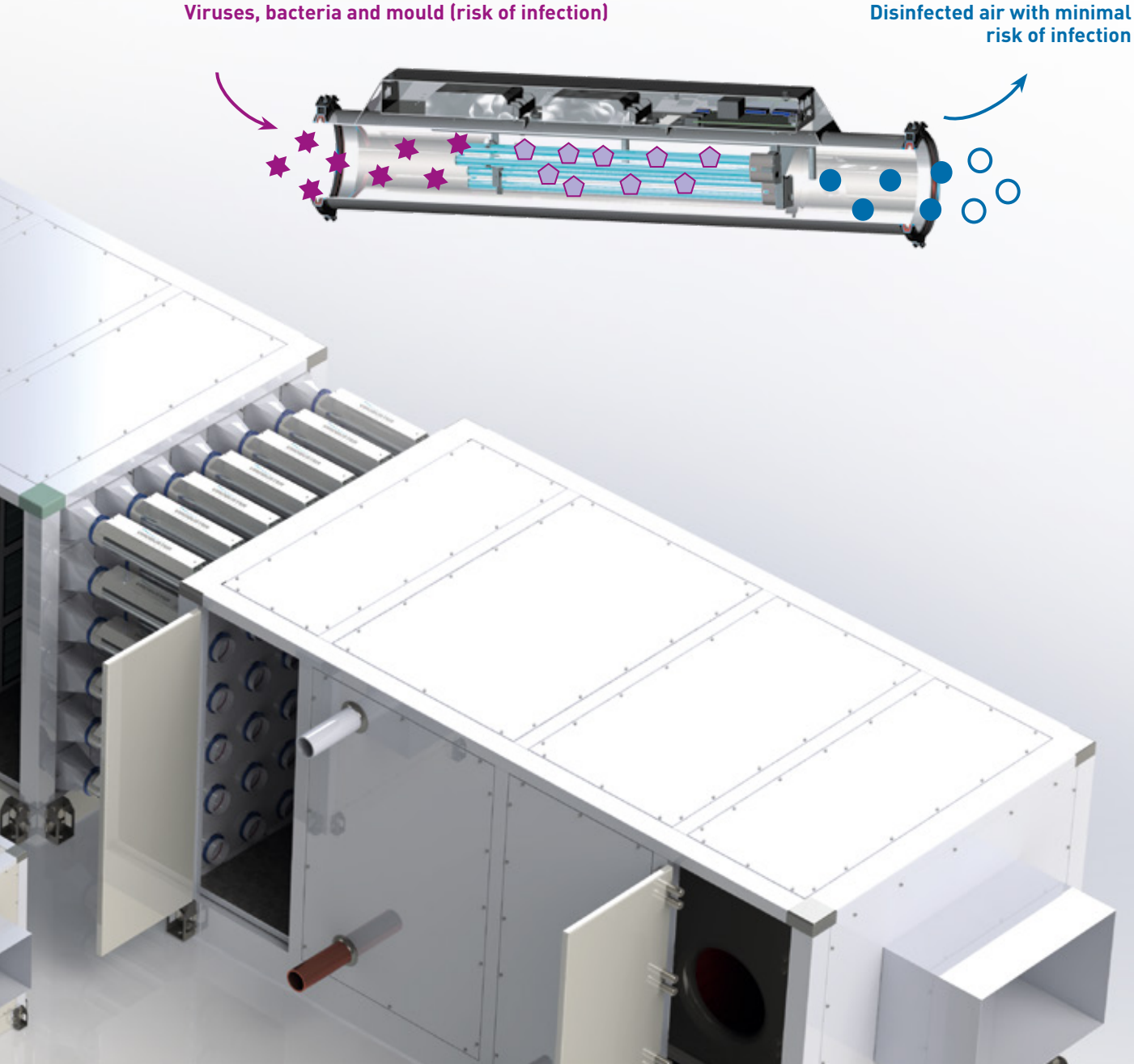


*Fitting VIROBUSTER® modules to existing air handling systems*

# STERITUBE® AND BASICTUBE® – FOR INTEGRATING INTO AIR HANDLING SYSTEMS

### The perfect building solution

Due to the constant pressure to make energy savings, minimum values for fresh air inflow in closed areas continue to be reduced. Higher percentages of circulating air lead to an increase in the accumulation of micro-organisms, VOCs (volatile organic compounds) and mould spores in the air, which can impact well-being and focus. In addition, 80 % of respiratory-related sick notes are due to viral infections. But traditional air handling systems are not able to filter viruses. When VIROBUSTER® modules are included in air handling systems, the accumulation of these pathogens is reduced, your employees are protected, productivity is increased and absenteeism is lowered for your company - over the long term.



# CERTIFIED, PROVEN AND TRIED-AND-TESTED

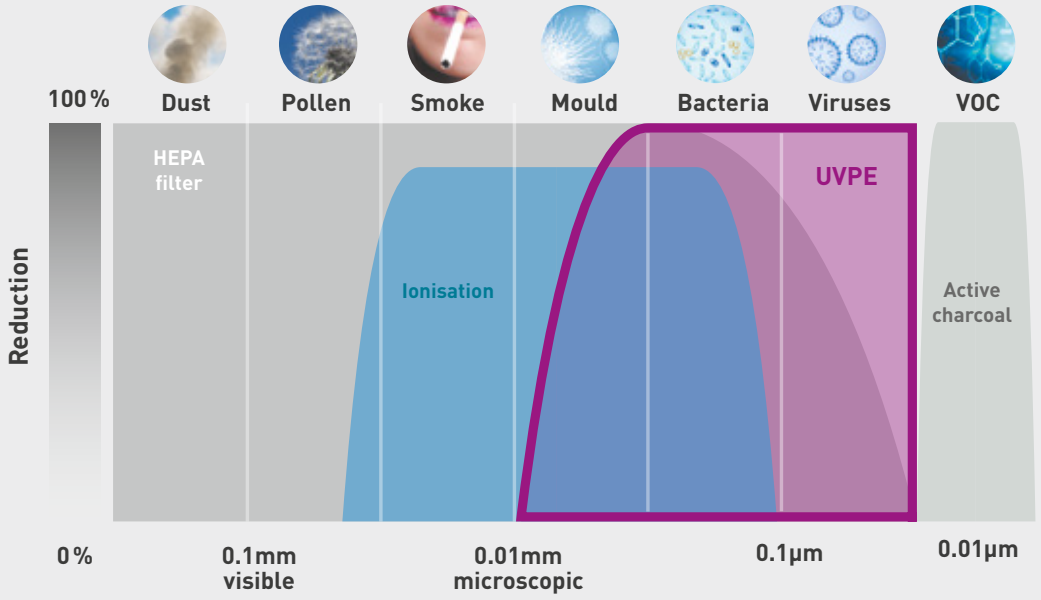
Some of our satisfied customers:

*"99.99 % for the coronavirus (surrogate Phi6) in one cycle. The system can be classified as 'very good'."*

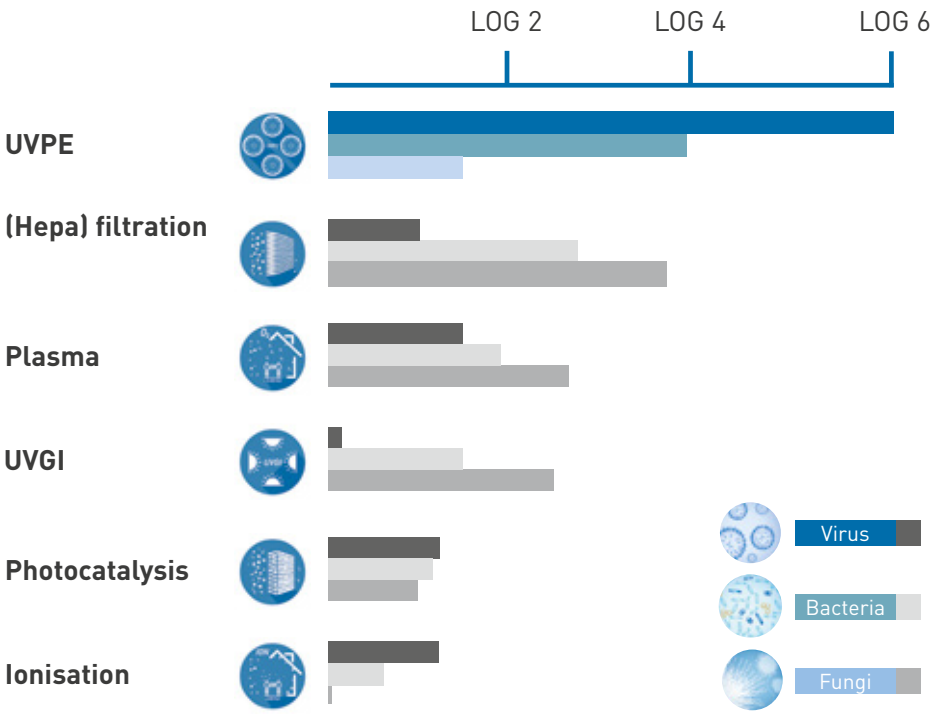
*Dr Andreas Bermpohl, Biotec GmbH 2020*

# VIROBUSTER® UVPE VERSUS OTHER TECHNOLOGIES

## APPLICATIONS OF AIR PURIFIERS - AN OVERVIEW




## DEVICE EFFICIENCY IN ONE CYCLE



# ABOUT VIROBUSTER®

## Our mission statement:
## "Scientifically proven innovations for high quality products, effective air hygiene and safety."

For over 15 years, VIROBUSTER® International GmbH, based in Windhagen, Germany, has specialised in UV-C air disinfection. In 2003, we established the first patent in the world for technology based on UVPE (originally developed for medical use), which continues to be our USP to this day.

## From medicine to industry

The first SARS-coronavirus/H5N1 avian influenza threats, and the later H1N1 influenza pandemic, have shown the whole world that airborne diseases can have a significant social and economic impact. Most recently, with the COVID-19 pandemic, this has affected every single household. The importance of cleaner air - more precisely, the risk of infection from pathogens in the air - cannot be overstated. And this risk is what we have transformed into an opportunity.

Today, VIROBUSTER® has developed partnerships across a wide range of industries in over 25 countries, and increasing demand from many other industries shows that VIROBUSTER® disinfection technology is effective and practical beyond medical applications. In particular, industries such as food production (industrial bakeries, delicatessens, fruit and vegetables, etc.), veterinary services, schools, government offices and transport and logistics are already successfully using our UVPE technology.

***We represent the new generation of disinfection.***

*The patented VIROBUSTER® UVPE process achieves 99.99 % purification rates in just one cycle, providing a significant improvement in air quality without the need for additives. The devices offer unrivalled efficiency, low noise levels, compatibility with current hygiene measures, no emissions and complete safety for people, animals and the environment - while maintaining unbeatable levels of performance. Our modular solution is scientifically proven and meets even the most demanding customer requirements.*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CE

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• BAUART GEPRÜFT
• TYPE APPROVED