

sterilAir®

hygiene solutions  *since 1939*

Your ticket into the world of disinfection
More than just «blue light»



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Disinfection systems

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Expertise in UVC disinfection from over 80 years of experience

With a market presence since 1939, the Swiss-based sterilAir AG is one of the world's oldest and most experienced companies regarding UVC disinfection. Our key competence are – besides off-the-shelf units – solution-oriented and tailor-made hygiene concepts.

The environmentally friendly sterilAir® UVC technology is used for the disinfection of air, surfaces and liquids in the complete range of food industry, air conditioning and building technology, laboratory and medicinal sector. With the know-how of 80 years experience we serve end customers, but also building planners and product manufacturers in a technically well-versed manner. This unique practical experience differentiates us from all competitors. We offer scientifically based solutions at the highest technical level.

In combination with the expertise of our microbiologists, engineers and designers, we focus our creativity on the development of innovative products and individual hygiene concepts. We are constantly evolving. With our knowledge, we regularly support and supervise Bachelor and Master theses as well as dissertations.

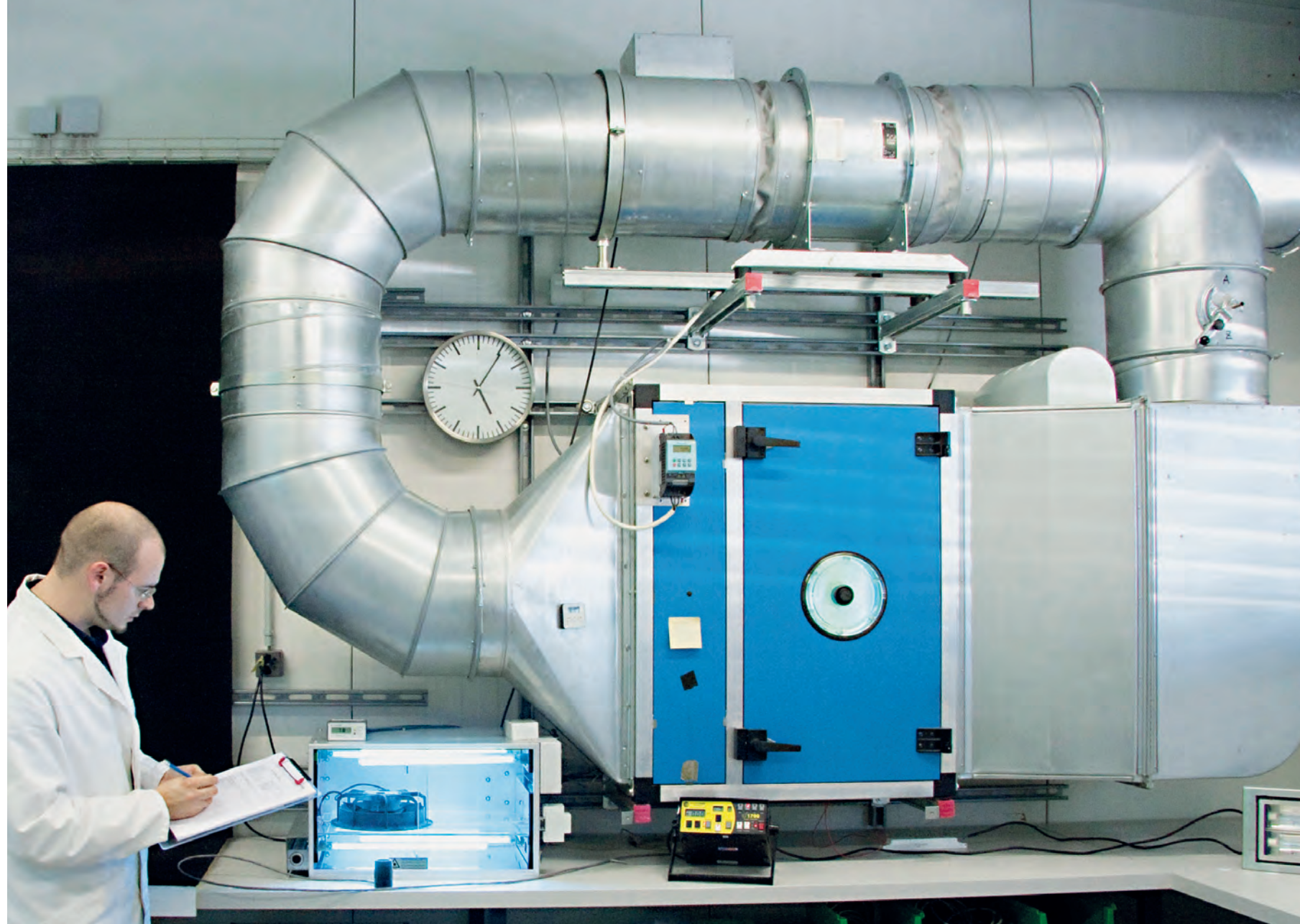
sterilAir AG is therefore well-known for reliable competence and quality in UVC technology.

We act responsibly

UVC technology provides the avoidance of toxic, aggressive or chemical additives for disinfection purposes. UVC-technology does not lead to any residue or risky degradation products. Our systems are invented and optimized for an outstanding energy efficiency in the branch.

To ensure safety for food and consumers, our products are compliant with the requirements of the HACCP concept and thus support IFS certification.

Being certified according to «DIN EN ISO 9001» and «DIN EN ISO 14001», we guarantee the professional disposal of returned UVC tubes.



Our know-how – your success

The selection of the appropriate UVC tube, the suitable electronics, the right system design, the required amount of radiation and the acquisition of the relevant process data – all this makes the difference with us.

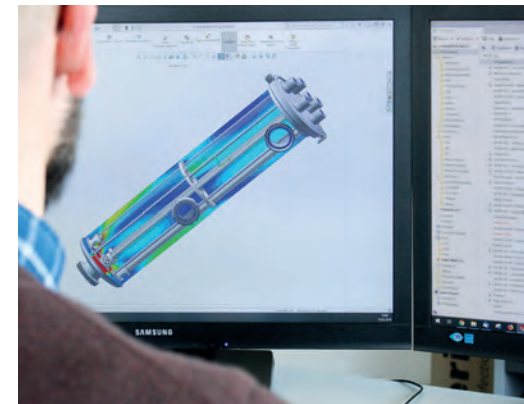
The holistic view of the production processes is an essential part of our solutions. Often the visible or measurable problems of our customers are only symptoms while the origin can be found elsewhere. Our determination therefore is always to identify the cause and start there. This method guarantees a long-term and sustainable success.

Our sterilAir® technicians, engineers and design engineers combine current expertise with the know-how of more than 80 years of UVC experience.

Calculation software

For calculation and conception of plants we use a unique, scientifically based simulation software, which sterilAir AG developed in cooperation with physicists at ETH Zurich. This results in maximum forecasting reliability.

A spectrophotometer allows us to measure the transmission of liquids at different wavelengths. By means of these measured values, first non-binding statements can be made as to whether the use of UVC makes sense. In the later design, the transmission value is included in the calculations.





Microbiology & Electrical Engineering

In the sterilAir® in-house microbiology laboratory, we determine reliable mortality rates as a function of surface and microorganism in order to validate the disinfection performance for partners and customers.

Since the food industry is an important sector for us, we consider it essential to work out valid lethal doses of the industry-specific target germs. Our S2-certified laboratory allows us to study even pathogenic microorganisms such as Salmonella or Listeria. Using air samplers, we can also measure the microbiological contamination of the air.

Our technical laboratory is used to invent the optimal configuration of the UVC units taking into account all external parameters. This is where the electronic parts of the ballasts are designed to form a perfect symbiosis between controller and UVC unit.

Permanent long-term and stress tests in our test benches ensure the highest level of quality and product safety, and guarantee an installation of the highest technical standard. We also run test series with regard to UVC resistance and reaction of various materials.



UV radiation

Three radiation ranges

- **UVA** (long wave): 400 to 315 nm

The long-wave UVA rays hit the earth's surface as part of the sun rays. They cause various photochemical processes, have a short-term pigment-forming effect (suntan) and can cause indirect DNA damage and melanoma. UVA rays penetrate glass and transparent plastics.

- **UVB** (medium wave): 315 to 280 nm

The medium-wave UVB rays show a delayed pigment-forming effect, which results in an increased melanin production. In addition, they can cause sunburn. UVB is also responsible for the formation of pre-vitamin D in the human body. This radiation is also used for therapeutic purposes. Already normal window glass is no longer permeable to these and shorter UVC rays.

- **UVC** (short wave): 280 to 100 nm

UVC rays have a shorter wavelength and are higher in energy than UVA and UVB rays. They cover most of UV range and have a strong germicidal effect at 260 nm. UVC rays decrease in intensity with increasing distance from the source. UVC inactivates germs reliably and in the short-

est possible time. UVC radiation damages the DNA of microbes and thereby inactivates them.

Safe use of UVC

Your sterilAir® consultant will always position an application in such a way that there is no danger for employees. Unlike UVA or UVB radiation, the penetration depth of UVC radiation into human skin is very low. In principle, UVC rays do not penetrate solid substances – not even window glass. Please follow these simple rules of conduct:

- never look directly into the UV source
- avoid open UV sources if possible
- wear safety goggles and protective gloves during maintenance or function check



Manufacturing

Committed to the reputation of a «Swiss quality product», we place utmost value on functionality, precise and first-class craftsmanship and a consistent hygienic design. In our in-house production these standards are implemented by our highly qualified employees.



Underestimated germ contamination without UVC

Problem

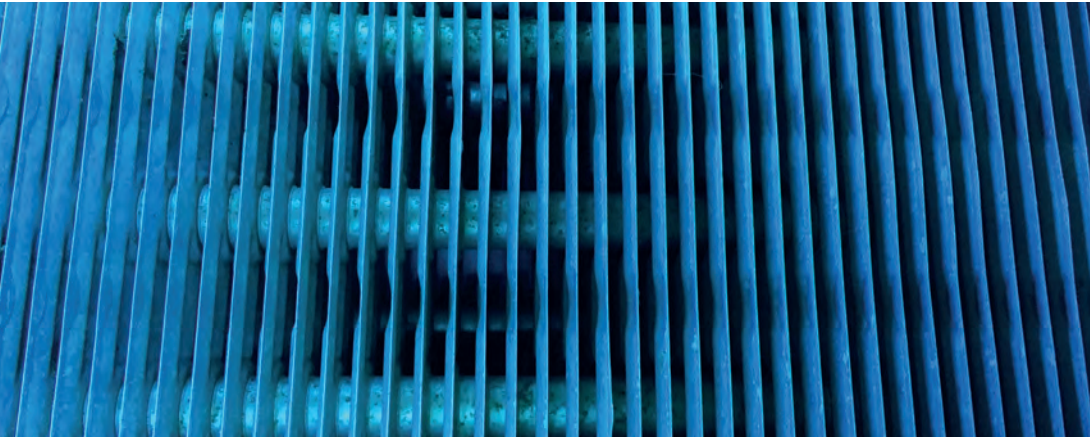
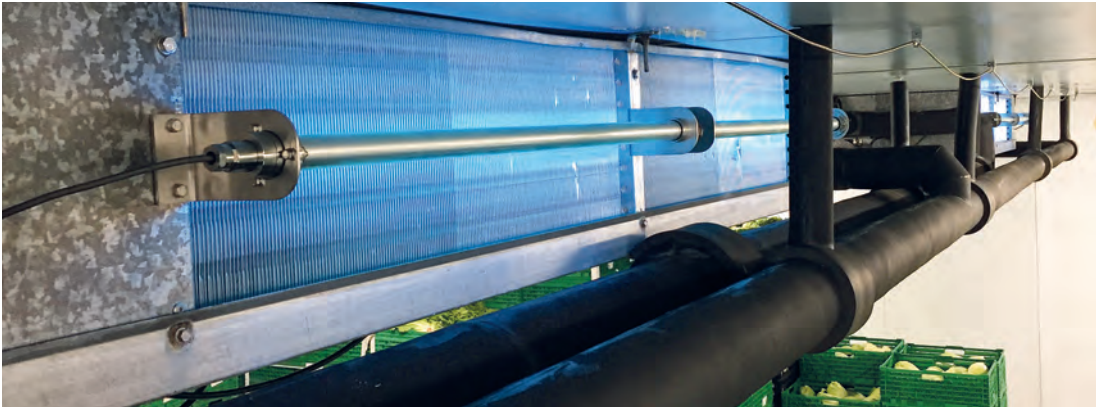
- unwanted microorganisms
- constantly increasing germ load
- endangered shelf life
- decreasing production safety
- risk of cross-contamination
- biofouling on various surfaces
- high cleaning effort
- increased use of aggressive chemicals
- interruptions of production
- product recalls

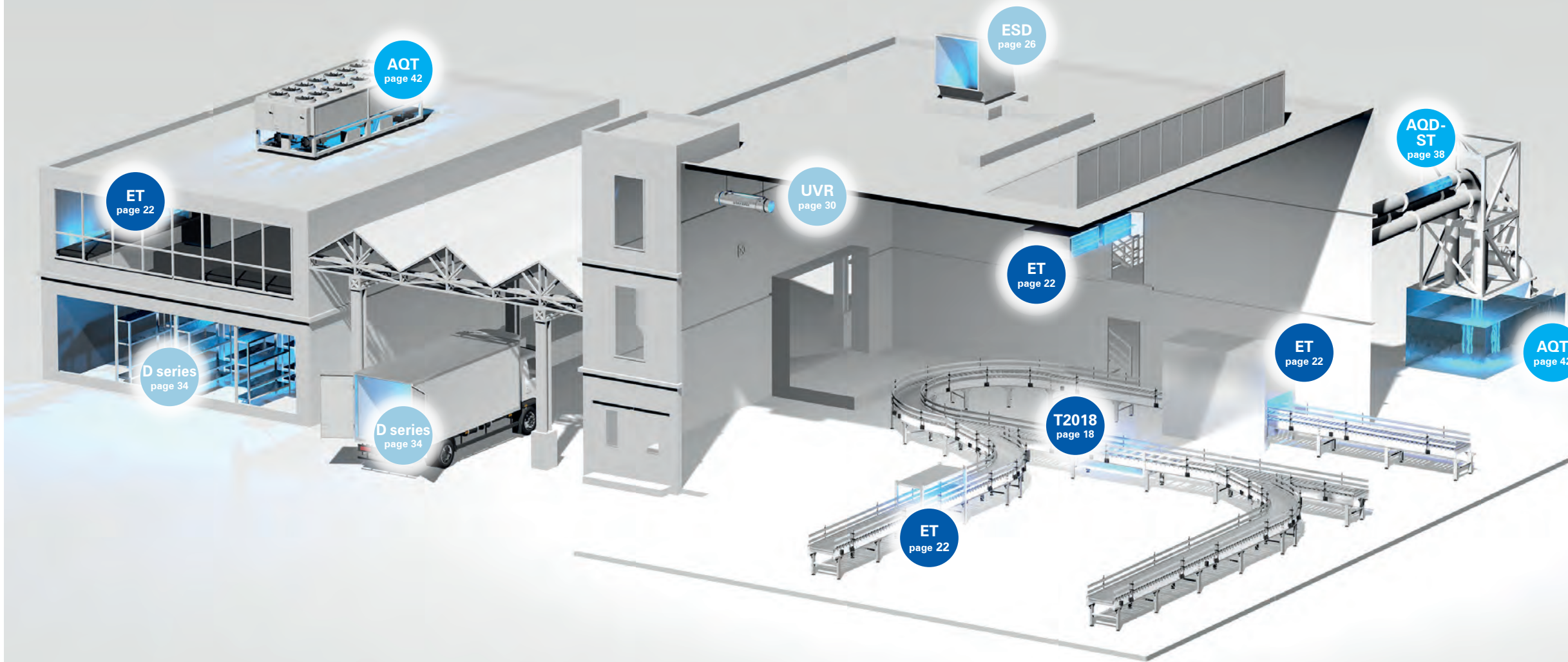


Maximum results with sustainable use of UVC

Solution

- UVC effectively inactivates microorganisms
- minimized germ load
- reduces food-borne illnesses
- extended shelf life
- improved production safety
- minimized cross-contamination risk
- better food quality
- no known formation of resistance
- environmentally friendly
- 24/7 during operation
- immediate and flexible applications





Radically better. Everywhere.

Here are our products used:

Surfaces

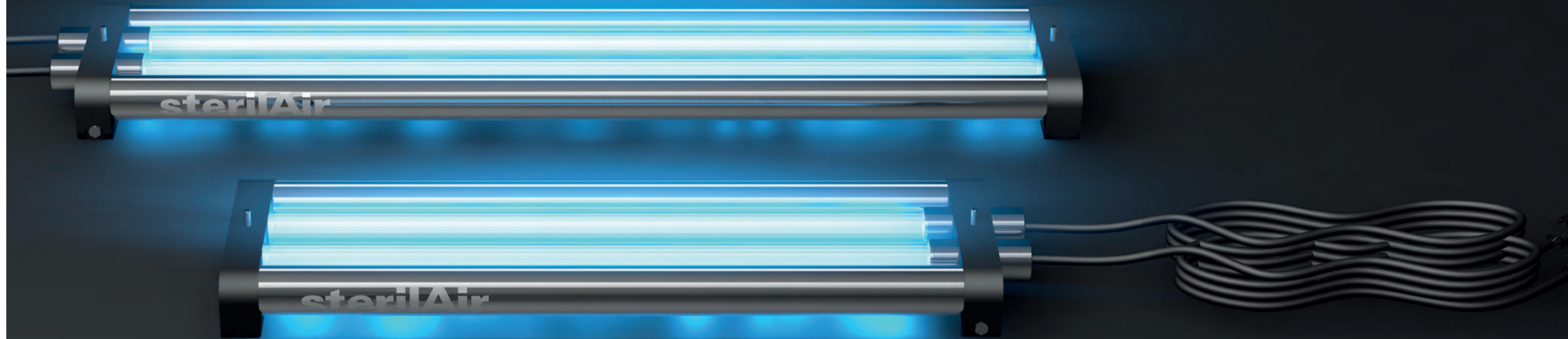
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T2018

Conveyor belt disinfection unit

The sterilAir® T2018 effectively prevents contact and smear infections of meat or any other fresh product. Conveyor belts and containers remain microbiologically safe despite multi-shift operation. This ensures perfect production hygiene and secures the best-before dates.

We set standards

The sterilAir® T2018 is a revolutionary new belt disinfection system. It sets new standards in disinfection performance, installation, handling, flexibility, hygiene and maintenance. The system was developed with experts from the meat industry.

More than 15 years ago, sterilAir AG established a widely used standard with the conception of the UVC sub-belt sterilizer.

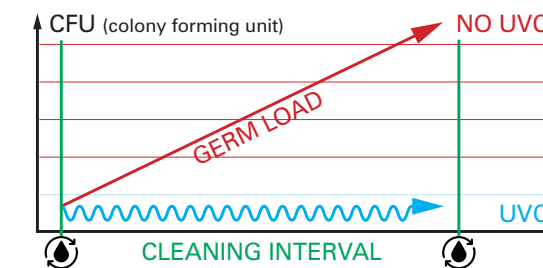


Food hygiene without compromises

The sterilAir® T2018 is water pressure-tight (IP69K) and impresses with its exterior simplicity in perfect hygienic design. The system can be installed flexible and quickly. An emitter change is possible at any time during operation, in less than two minutes and without disassembly. The UVC tubes are shatterproof and thus compliant to the HACCP requirements.

Applications

- for all types of conveyor belts
- for adverse operating conditions (IP69K)
- also for heat-sensitive surfaces

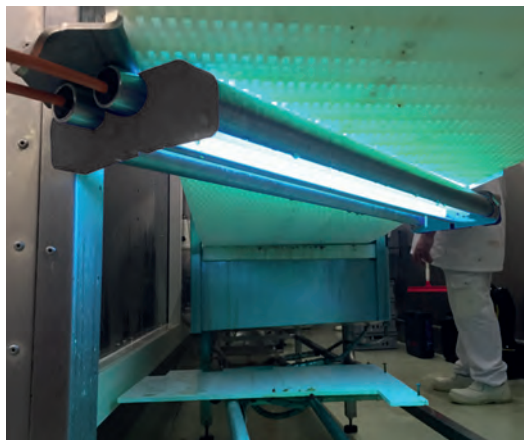


The sterilAir® T2018 ensures impeccable production hygiene and shelf life data.



Applications T2018

The sterilAir® T2018 is mounted under the conveyor belt using a two-point screw connection. The system can be optimally adapted to the various belt widths by inclined installation.





E series – ET

Surface emitter

Surface hygiene plays a key role in many areas. UVC components are therefore increasingly integrated directly into production machinery of the food industry.

sterilAir® UVC units are market-proven industrial components which meet highest standards. The stainless steel tube protects the emitter from breakage, dirt and moisture, and a radiation-reflector is also integrated. This combination enables maximum effect by directing the UVC rays towards a specific surface. Regardless of whether it is a conveyor belt, a fermenting cloth or the cooling coil of an evaporator.



Applications

- condenser/evaporator fins in cold rooms
- conveyor belts in production
- disinfection of films and packaging
- fermenting cloth or fermentation hangers
- locks for boxes or products
- installation in machines
- surfaces with risk of contamination

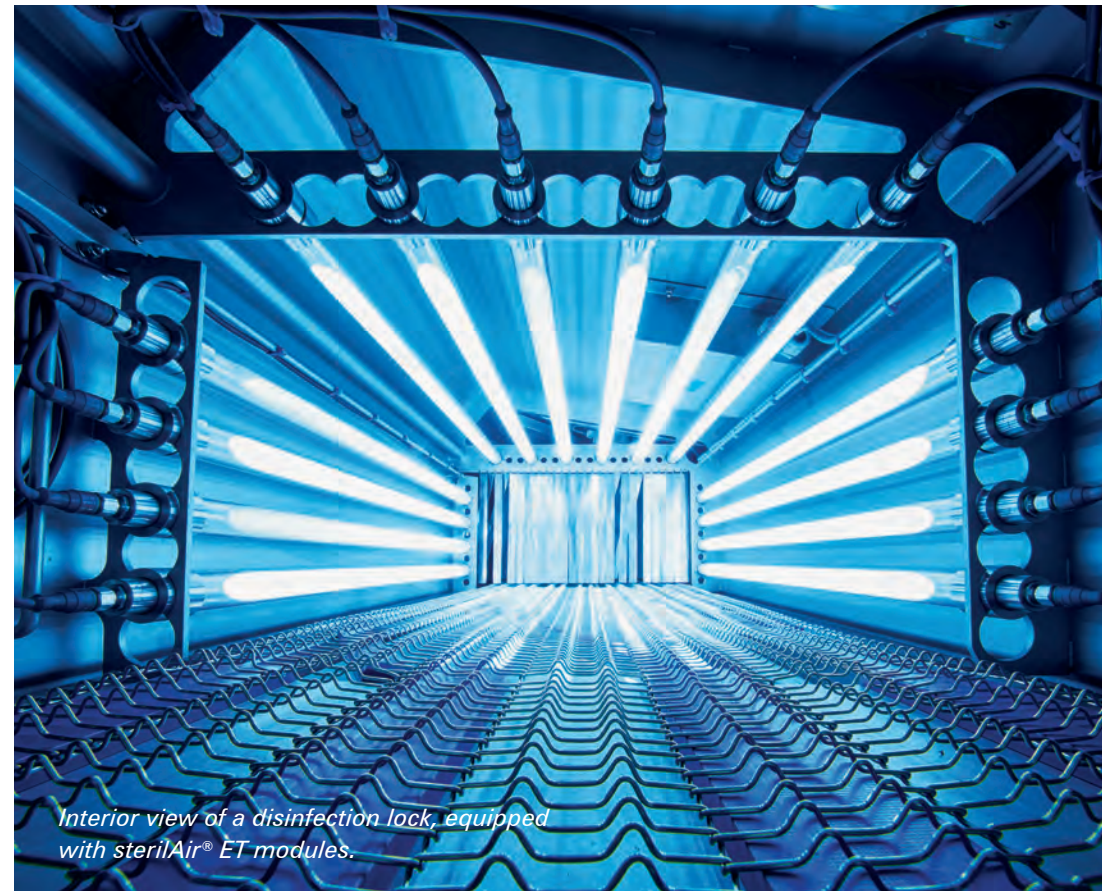
Lamella disinfection on a condenser unit with sterilAir® ET modules. Reduction of biofilm with a positive influence on room air quality.



Due to modular design, the sterilAir® E-series is highly versatile.



Applications ET



Interior view of a disinfection lock, equipped with sterilAir® ET modules.



ESD/EX

Built-in modules for air ducts

Even the most modern filters can hardly stop airborne germs. With increasing filter class the costs for operation and maintenance rise. The filters retain dust, pollen and larger organisms. A UVC barrier then inactivates the smaller micro-organisms, which include most pathogens. UVC is therefore the perfect complement to filtration in HVAC systems and a highly effective measure against bacteria, viruses and phages.

Taking into account all relevant parameters such as volume flow and air temperature, sterilAir AG uses advanced software to calculate the required number of UVC tubes and their optimum arrangement.



Airflow disinfection without compromises

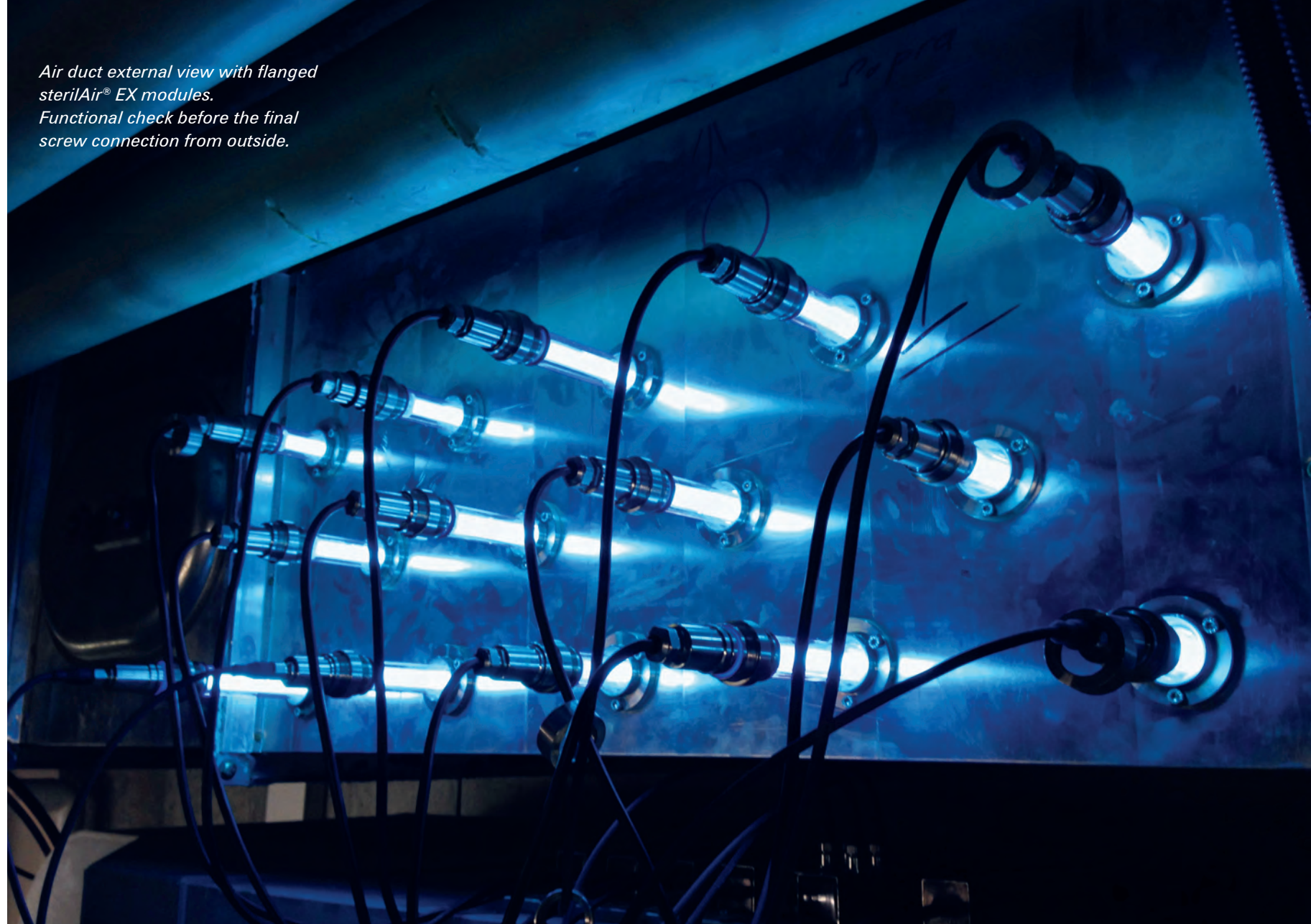
The **ESD** installation module is installed directly into the air duct as a ready-to-install unit with two UVC tubes. This allows easy retrofitting into existing systems.

With the **EX** flange module, the UVC tubes are mounted into the air duct from outside. This is particularly advantageous for small ducts as maintenance is possible from outside without an inspection door.

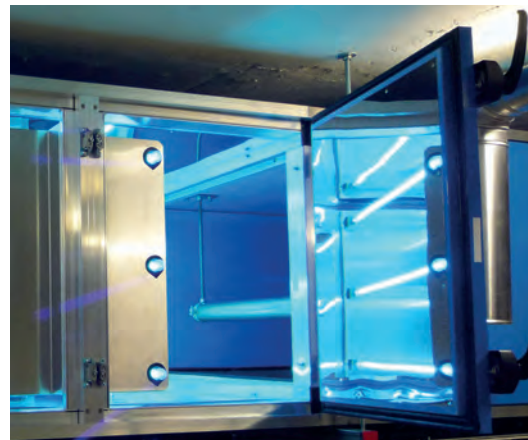
Application

- food production, processing and storage
- pharmaceutical sector
- hospitals, clinics
- office and administration buildings

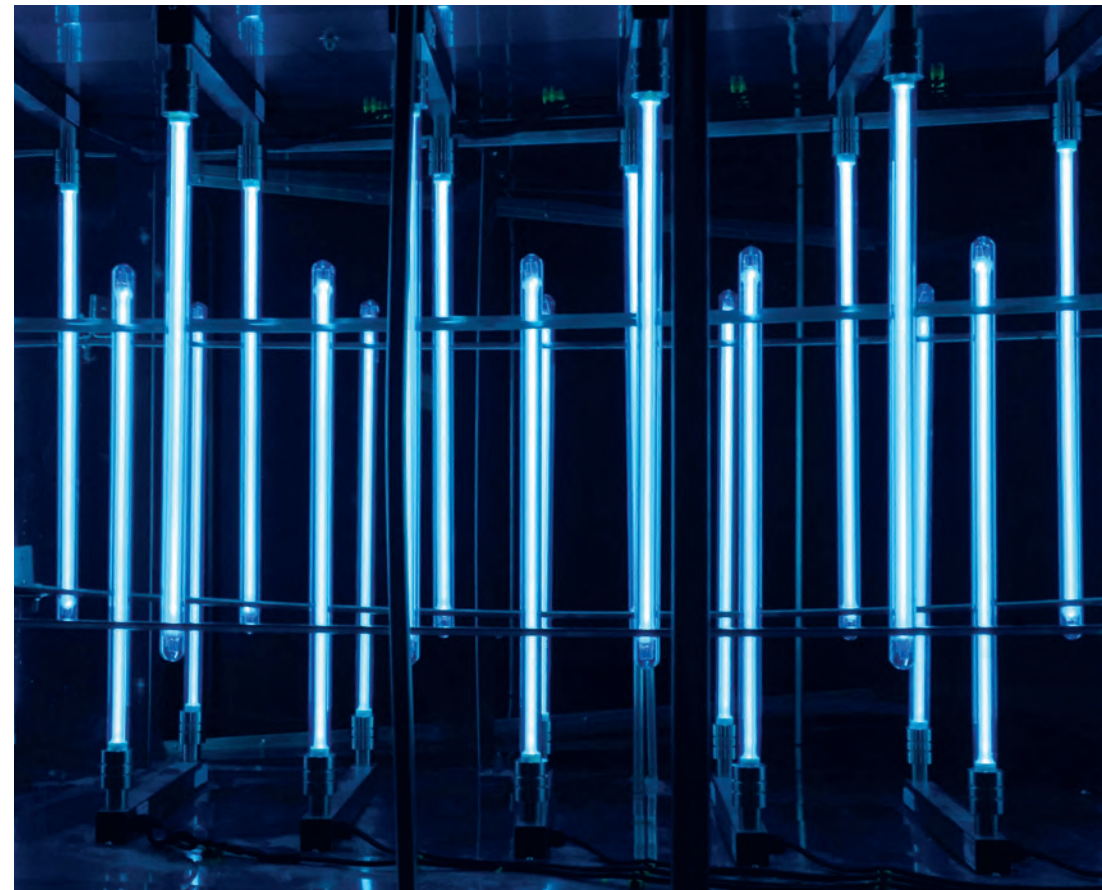
*Air duct external view with flanged
sterilAir® EX modules.
Functional check before the final
screw connection from outside.*



*sterilAir AG uses advanced software to cal-
culate the required number of UVC tubes and
their optimum arrangement, taking all relevant
parameters into account.*



Applications ESD/EX



UVR-4K

Industrial re-circulating air disinfection unit

Since airborne germs are not visible, the influence on ambient air and product quality is often considerably underestimated. This applies in particular to fungal spores, which spread almost exclusively through the air. Once in the air, mould can settle directly on the products and accelerate their spoilage. Packaging materials, machines, conveyor belts and work surfaces can be contaminated by the air as well.

Perfect air hygiene around the clock

Air disinfection systems from sterilAir® reliably inactivate airborne microorganisms. Even the most difficult mold spores are inactivated by >90% on a single pass.*



Hovering above your production

The sterilAir® UVR-4K can be used 24 hours a day thanks to special protective grilles. A corrosion-protected fan delivers a volume flow of 700 m³/h, which can optionally be throttled.

Swiss quality down to the smallest detail

- optionally with HACCP compliant glass shatter protection
- maximum safety by protective grilles
- corrosion-free special reflector
- all functional parts made of stainless steel
- particularly easy to maintain
- hygienic design

Application

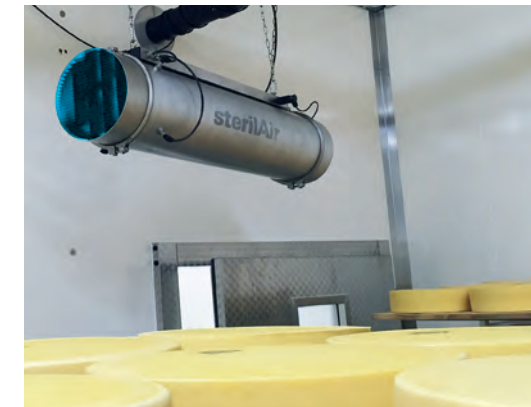
- production rooms
- packaging rooms
- ripening rooms
- cooling and storage rooms
- rooms with high humidity
- laboratories

*Master's thesis, Carolin Josephina Schiffer: Designing and validating a test system for determining the inactivation efficiency of airborne microorganisms in an industrial ultraviolet germicidal irradiation unit.

The sterilAir® industrial air re-circulation unit UVR-4K can be used quickly and easily in the most diverse areas with an outstanding UVC disinfection performance.



Applications UVR-4K



Mounted at two fixed points, the sterilAir® UVR-4K ensures optimum air quality.



D series

Ceiling installation devices

The sterilAir® D series offers a wide range of applications and technical choices. Various emitter types are available, each adapted to the respective room climate conditions. Protective shields or reflectors can be selected according to the situation.

Destroys bacteria and spores uncompromisingly

Systems without a protective screen can only be used under certain conditions due to the freely radiating UVC tube. UVC resistant materials are just as important as the protection of personnel. The unit must be switched off automatically if staff enter the room. Otherwise it may only be switched on at night.

Mould reduction in ripening rooms

Devices with a protective screen provide a germ barrier in the overhead area without impairing the products below. The air passing through this area is disinfected. At the same time, the ceiling and wall surfaces are continuously irradiated: mould growth is inhibited right at the source.



Simple and effective

- reduction of cross-contamination
- constant low bacterial load in the air and on surfaces
- optionally with HACCP compliant glass shatter protection
- easy installation and maintenance
- reflector or protective cover available
- for different temperature ranges

Versatile fields of application

- maturing and storage rooms
- areas without staff traffic
- laboratories in the night hours
- truck loading areas

*sterilAir® D series in ripening room
equipped with shatter protected UVC
tubes.*



Applications D series

*sterilAir® D series improve the hygiene in
storage rooms and laundry transport.*





AQD-ST

Stainless steel flow-through systems

In circulated water microorganisms find ideal growth conditions. Chemical disinfectants lead to a number of undesirable side effects, such as changes in surface tension, corrosion, foam and odour formation. The UVC treatment of water does not have such problems. It is a purely physical process without chemical residues. At the same time, the cost efficiency of this disinfection method is impressive.

Superior technology for sterility

sterilAir® photoreactors have been specially developed for demanding applications. The ingenious flow turbulence always achieves maximum disinfection performance, so that even turbid liquids such as cheese brines can be treated effectively.

In addition, thanks to the clamp mechanism, the systems are extremely quick and easy to clean, which has met with great approval in the food industry.



- **AQD-ST1** with 1 tube for up to 2 500 l/h
- **AQD-ST3** with 3 tubes for up to 10 000 l/h
- **AQD-ST6** with 6 tubes for up to 20 000 l/h

Shatterproof? Crystal clear!

If the glass tubes make you shy away from possible glass breakage, it's not a problem either: sterilAir AG has a patented, innovative special screw connection for the use of UVC tubes with splinter protection.

Applications

- for turbid process liquids
- grey water and process water
- specific treatment of brine

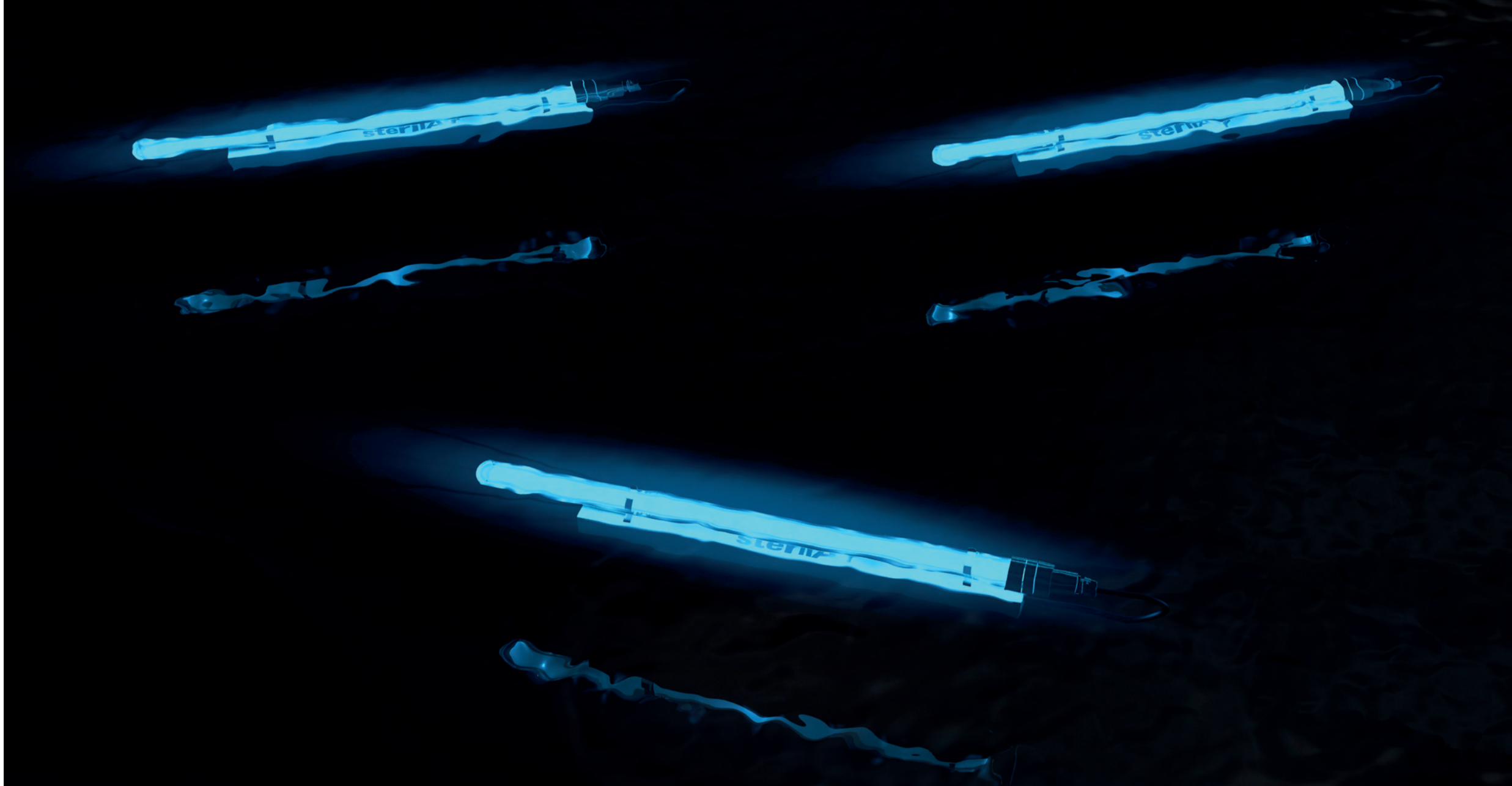
sterilAir® AQD-ST for optimized brine in cheese production.



Applications **AQD-ST**



sterilAir® AQD-ST in use for disinfecting spring water, salad washing water and process water.



AQT/EQ

Submersion systems

Water is a precious commodity. The economical handling thus protects the environment and saves costs. Reuse makes process water susceptible to microbiological contamination. Germ growth is often compounded by high temperatures, long service life periods or entry of impurities.

Lowens germs and costs

sterilAir® submersion systems reliably reduce the germ load of process water. By positioning them directly in the container, they also provide clean surfaces without biofilm. It is a purely physical process: safe, sustainable and without residues. sterilAir® submersion systems are an economical and environmentally friendly alternative to chemical disinfection methods.



Versatile. Into cold water!

sterilAir® AQT submersion devices can be integrated easily into existing systems. They are submerged including electronics.

sterilAir® EQ submersion lamps are the modular alternative. Here only the UVC emitters are submerged. The electronics, equipped with detachable connectors, are available as a mono or duo version.

Applications

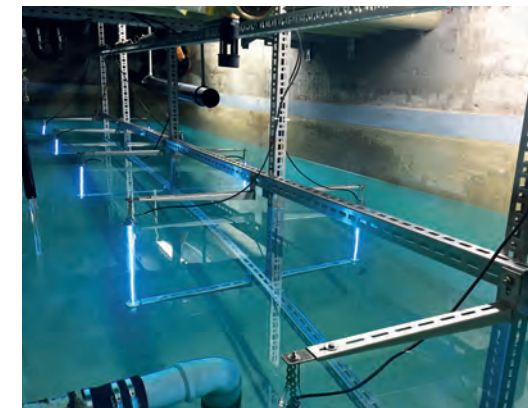
- wet and hybrid cooling towers
- evaporative cooling systems
- air washers
- humidifiers
- CIP tanks
- cisterns
- painting systems

sterilAir® AQT water disinfection in Shopville Zurich main station.

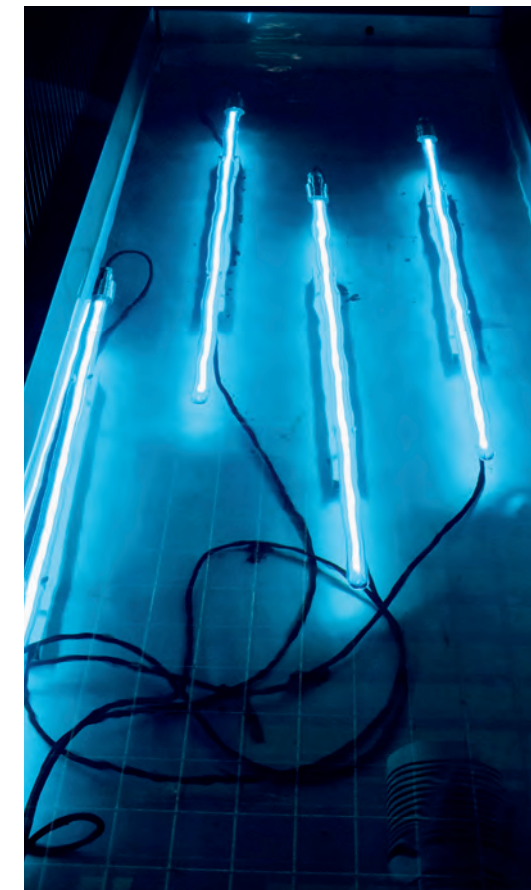
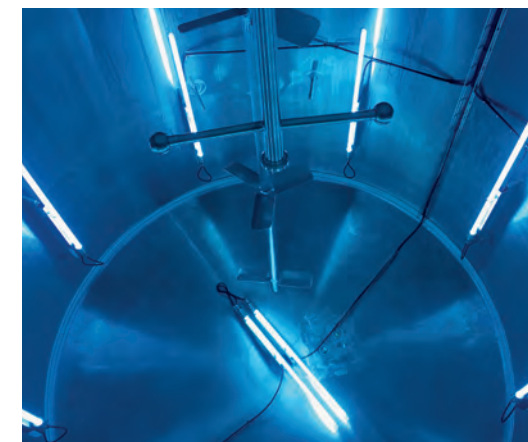


Applications **AQT/EQ**

sterilAir® EQ modules integrated into a water reservoir.



sterilAir® AQT water disinfection in CIP tank and air washer.





Your ticket into the world of disinfection
More than just «blue light»

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