

PRESS RELEASE

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KRONEN UVC-Lock:

Highly efficient disinfection of salads, vegetables and packaging materials with UVC technology

Shelf life and food safety is a major requirement in the salads, vegetables and fruit processing Fresh-cut industry. Now, KRONEN has further developed its UVC disinfection lock adapting it to the needs of the users. By means of Ultraviolet-C radiation technology the surface of vegetable and fruit products as well as of packaging materials and tools passed through the lock is disinfected efficiently and without using heat or additives.

Precondition for food safety and shelf life of Fresh-cut products is a maximal hygienic processing and packaging. The UVC disinfection lock of KRONEN is suitable for both: The surface of processed fruit and vegetable products, but also of packaging materials such as crates, boxes, or even of tools used for the processing can be disinfected.

The UVC disinfection technology is based on the production of UV radiation with a wavelength from 280 to 100 nanometers. Light of this wavelength is germicidal, since it destroys the germs' DNA. By implementing so-called low pressure tubes or more powerful hybrid tubes the UVC light is created in the completely sealed casing of the disinfection lock. The germ reduction is indicated by the measuring unit of "Log₁₀" steps. If you have, for example, a number of 10⁷ germs per gram at the beginning and it will be reduced to 10² germs per gram by the means of disinfection; then, this is equivalent to a reduction by 5 Log₁₀ steps. Depending on the number and type of tubes and depending on the speed, which the lock is passed through with, the KRONEN UVC Lock can remove more than 6 Log₁₀ steps and thus, up to 99,9999 % per cent of the germs (example based on *Listeria monocytogenes* germs).

Thanks to the UVC treatment the products and boxes are disinfected efficiently, safely and reliably within very short times – and this is without using heat or any undesirable additives or residues. Input of unwanted microorganisms into sensitive production areas is reduced by the UVC disinfection. Shelf life of products is increased and value added is enhanced. Another benefit is that drying of containers – as it needed to be done after spray disinfection – is no longer necessary. And the UVC Lock is ideally suited for separation of two rooms, e.g. low and high care. It is also suitable for extreme application areas with wet cleaning and for all temperature ranges.

Performance range of KRONEN UVC disinfection lock

The KRONEN UVC Lock has been developed in close cooperation with sterilAir® from Weinfelden in Switzerland. Therefore, the UVC Lock is equipped with the latest UVC technology and is optimized in regards to hygiene, usability and easy maintenance.

The UVC Lock offers high throughput capacity and is highly efficient in killing germs. As a standard it is equipped with 12 or 20 ET 2236-4H tubes. Optionally the UVC Lock is available with a range from 6 to 26 tubes and high-performance hybrid tubes.

Due to the efficient positioning of the UVC tubes an irradiation almost of the entire area is guaranteed. The UVC technology of sterilAir[®] features long lifetimes of the UVC tubes, exemplary low energy consumption and low emitter temperature. Short contact times within the UVC Lock allow deployment with heat-sensitive products, too.

Benefits of the UVC Lock:

- **Easy, safe operation**

The fully enclosing UVC Lock casing with hood cover is made of stainless steel and guarantees safe use of UVC radiation. A switch panel allows easy operation, there is no display panel necessary, however it is offered optionally.

Just as the staff at the infeed belt, the staff at the outfeed side also has the option to stop the UVC Lock's conveyor belt. The according switch box can be installed flexibly at the wall in the high care. When stopping the belt it continuous running until the belt is completely cleared and free of products.

- **Flexible application and monitoring**

All materials with a size from 50 x 20 x 50 mm to 550 x 300 mm (BxHxL) can be locked through gently. Optionally an adjustable speed control is available. A simple tube control is possible by using the inspection windows at the front and rear side of the UVC Lock. Optionally each single UVC tube can be monitored via switch box and data can be readout on a computer or mobile device. By this means, the tubes' replacement interval can be identified. Besides, further machine status data can be collected (e.g. runtime or speed).

- **Optimum, hygienic design**

An perfectly designed interior and a base made of round tubes allows quick and easy cleaning and guarantees maximum hygiene. Optionally a base with castors is available as well.

The UVC Lock is equipped with a hood cover and a safety locking device. The handholds are attached in an ergonomic distance. The FDA approved shatter protection meets highest demands and safety regulations.

PRODUCT DATA: UVC Lock (12 ET tubes)	
Infeed + outfeed height:	750 mm
sterilAir[®] UVC components:	IP 65 protection
Voltage:	230V N/PE, 50-60 Hz
Energy consumption:	0,8 kW

Product size (WxHxL):	50x20x50 mm - 550x300x“variabel“ mm
Dimensions (LxWxH):	3044x960x1286 mm
Options:	Remote maintenance, individual configuration of UVC tubes (6-26 pieces)

Log Reduction Sample Calculation for Listeria LD90 (LD = 7.68mJ/cm²) ¹⁾

Product size (LxWxH):	600x400x145 mm
Belt speed:	0.10 m/s
Throughput capacity per hour:	ca. 400 pcs/h
Log Reduction ET 2236-4H tubes 12 or 20:	Log 3,58 or 5,18
Log Reduction ET 2236-4NA tubes 12 or 20:	> Log 6

¹⁾ Kim et al, „Effects of UV irradiation on selected pathogens in peptone water and on stainless steel and chicken meat“, 2002; sterilAir[®], 2018

About KRONEN GmbH

KRONEN develops and manufactures stand alone and special machines as well as complete processing lines according to the customers' requirements – high-duty machinery for washing, cutting, dividing, peeling, de-watering, drying, and packaging food.

Today, KRONEN has 100 employees and is a globally operating supplier of machines and systems for the Fresh-cut, convenience, catering, specialty food and food industry with representations in over 80 countries and is selling its solutions in over 100 countries worldwide.

Due to the close co-operation with our customers and international partners, we consider it our commitment to keep traditional values such as quality awareness but also to react creatively and actively to the challenges of the global market.

Wherever crisp salads, fine vegetables and appetizing fresh fruit are beautifully prepared in quantity – KRONEN machinery is there, around the world.

In 2018 the company celebrates a 'double' anniversary: 40 years of KRONEN and 20 years of Zillgith/KRONEN. In 1978 KRONEN GmbH was founded and in 1998 KRONEN was taken over by Rudolf Hans Zillgith as the Managing Director.

Further information: www.kronen.eu

Contact person:

KRONEN GmbH Nahrungsmitteltechnik
Römerstrasse 2a
77694 Kehl am Rhein

Esther Müller

Phone. + 49 (0)7854 9646-161
Fax: + 49 (0)7854 9646-5161
Email: esther.mueller@kronen.eu

Christina Maier

Phone. + 49 (0)7854 9646-160
Fax: + 49 (0)7854 9646-5160
Email: christina.maier@kronen.eu

Pictures:



New version: The UVC Disinfection Lock was further developed according to the users' needs (Optionally: base with castors)



The KRONEN UVC Lock is equipped with the latest UVC technology of sterilAir® – it offers high throughput capacity and highly efficient disinfection



With the UVC Lock all materials with a size from 50 x 20 x 50 mm to 550 x 300 mm (BxHxL) can be passed through gently



The fully enclosing UVC Lock casing is made of stainless steel and guarantees safe use of UVC radiation



The UVC Lock is optimized in regards to hygiene, usability and easy maintenance.

Just as the staff at the infeed belt, the staff at the outfeed side also has the option to stop the UVC Lock's conveyor belt. The according switch box can be installed flexibly at the wall in the high care.