**UC hygiene design: The development proceeds**

**GRUNWALD ultraclean (UC) hygiene design with advanced functions**

Those who produce food today sometimes have many concerns in the daily production of their products. The list of demands made by the trade on the dairy and food industry is very long. On the one hand, reliable and high product safety is required as well as exceptionally long shelf lives. In terms of economy and product development, it is indispensable to fill the products gently and weight accurately. On the part of the final consumer, there are also demands for more ecology in food production and the avoidance of chemical additives. In order to meet all these requirements, the machine manufacturers are no longer the typical

"suppliers", but partners for the dairy and food industry and thus have the duty as well as the responsibility to ensure, through the use of modern, advanced technologies, that the highest quality, food safety and hygiene standards are met with their filling lines. How this is implemented is demonstrated by the further developed machine generation of the GRUNWALD ultraclean inline machines for filling and packing cups.

Based on the previous GRUNWALD ultraclean technology, the development processes at GRUNWALD have been consistently advanced in the past few years. The ideas resulting from this and their technical implementation ultimately serve the productivity of the customers. The further development of the ultraclean(UC) inline machines resulted in the 10-lane GRUNWALD FOODLINER 30.000UC - the latest model of the ultraclean (UC) inline series.

**Filling and packing process fully monitored**

Flexible and reliable safety and monitoring systems are offered for the varopis filling and packaging processes. They are indispensable, especially for high-performance machines.

At this point fully-automatic monitoring systems are used for process and product safety in order to exclude any kind of product recalls and complaint rates. The basis is the ultraclean (UC) hygiene design developed by GRUNWALD with guaranteed sterilisation rates of at least log 4, which guarantees compliance with the legally prescribed hygiene regulations. Work and process safety is continuously monitored and evaluated automatically. This monitoring technology extends to product pipes, product paths and product containers which must be reliably cleaned and sterilised in order to achieve high shelf lives and prevent mould formation in the product.

Continuous monitoring of the CIP cleaning and the cleaning of the dosing system ensures that all parts and surfaces in contact with the product are 100 % sterile at the start of production. This is the only way the cleaning in the dosing area can meet the aseptic standard and is a further quality feature for the GRUNWALD ultraclean(UC) filling machines.

The camera system optionally installed on the 10-lane inline machine GRUNWALD-FOODLINER 30.000UC is another example of safe and modern monitoring technology. Each lane is monitored by a camera and reports any error due to incorrect operation or technical problems. The system checks, for example, whether all seal lids are placed with the correct decoration. It detects any incorrectly sorted or damaged seal lid just as reliably as an illegible or incorrectly printed date. If an error occurs, the machine stops so that the machine operator has to react. As a result, only those cups are delivered to the final consumer for which can be guaranteed that they were tightly sealed with the corresponding seal lid and with seal lids which were correctly and completely printed. Faulty cups are automatically discharged.

**"foreign body protection**

There are still further technical possibilities and design achievements that can be used to avoid technical risks and increase production and product safety. Additional X-ray equipment installed by the customer downstream of the filling line can be used to search for foreign body. Compared to the trade, this is a considerable additional benefit to guarantee product safety. However, it will be even safer if foreign body cannot get into the product at all, as it has been ensured for many years by the logical and safe design of the Grunwald ultraclean (UC) inline machines.

All UC machines are equipped with a special hygiene zone over their entire length. Our design engineers paid attention to the maximum possible minimisation of parts so that there are no small parts such as suspended screws in the area of the open cups and buckets. The risk of foreign body getting into the product in this closed area and causing expensive recalls is practically eliminated.

With the relocation of all safety-relevant parts, production safety has also been increased further. This means that all drive components, all supply pipes and almost every assembly group are consistently located outside the hygiene zone. Due to the minimisation of parts, the hygiene zone is clearly visible, easily accessible and therefore very easy to clean.

The utmost minimisation of parts has a noticeable, positive effect on maintenance and cleaning time and makes the machine operator's work much easier. In addition, downtimes are enormously reduced and the availability of the system is increased.

**Fully automatic cleaning of the hygiene tunnel**

In the new generation of GRUNWALD ultraclean (UC) inline machines, an externally provided foam cleaning system supports the cleaning of the filling units and the slat conveyor and starts automatically at the push of a button. For interior cleaning, the foam cleaner can be used in an individual and flexible way, depending on the customer‘s preference and the filling product. This system can also be used for individual, manual cleaning of the machine.

A small dosage is sufficient to achieve excellent cleaning power. The foam cleaner reduces the surface tension of the water and creates a creeping foam. Supported by the minimisation of parts in the hygiene area, the foam gets "into every corner"and eliminates any shadowing - for achieving an optimum cleaning result.

Due to the low dosage, the foam cleaner does not have negative effects on either the machine operator or the environment, so that the environment and occupational safety are also taken into account in this area.

**Innovation for filling nozzle cleaning**

In the hygiene zone of the recently developed GRUNWALD-FOODLINER 30.000UC, the filling nozzle area was revised. The innovation developed represents a real, important facilitation for the machine operator. Due to design optimisations, the filling nozzles of the filling station are also cleaned **during the automatic CIP cleaning of the hygiene zone while being mounted!**

Both disassembly and manual cleaning of the filling nozzles is no longer necessary. This is a considerable saving of time and a further optimisation for the already safe GRUNWALD hygiene design.

**Modern line concept**

Supplemented with an integrated and flexible tray packer, the inline cup filler FOODLINER 30.000UC is a versatile and flexible filling and packing line in ultraclean (UC) design to meet maximum requirements. This inline machine incorporates outstanding development work and process technology to a high degree which is in line with the highest standards of hygiene, production reliability and system optimisation. Cost reduction, environmental protection and occupational safety are taken into account to an extremely high degree.

**Maximum hygiene without peroxide**

In food production, high machine safety also considers, above all, the hygiene aspect. Already at the beginning of 2019, the engineering company set a clear signal for sustainability, for the protection of employees and for high environmental compatibility with the ultraClean (UC) hygiene concept developed in-house. The focus of this future-oriented technology is the pulsed-light high-performance UV(C) disinfection, which has been demonstrably certified by several independent German institutes as a guaranteed reliable disinfection process for GRUNWALD filling machines.

[www.grunwald-wangen.de](http://www.grunwald-wangen.de)

Photos and Captions



*The versatile and flexible 10-lane filling and packing line GRUNWALD-FOODLINER 30.000UC for the highest requirements;*

*In line with the highest hygiene standards, production reliability and system optimisation.*



Captions (pictures from left to right):

View into the fully automatically cleanable hygiene tunnel

Integrated tray packer of the GRUNWALD FOODLINER 30.000UC

View into the interior of the inline cup filling machine

View of the pre-filler