VarioFlash B

Thermal product treatment for the best beer quality

KRONES

Natural, tasty and durable

Procedures for the product preservation and safe, hygienic sequences are essential factors when it comes to product manufacture – and this obviously also applies to beer. The Krones VarioFlash B flash pasteuriser guarantees the safe microbiological filling of beer. Since every product has its own requirements, Krones adjusts the machine individually to suit the respective applications.

At a glance

- Output range from 1,800 to 60,000 litres per hour
- Fields of application: beer, flavoured beer, wine and spritzers
- Enhanced beer quality with express pasteurisation
- If the line is stopped: "Eco-hygienic sleep mode" stand-by operation for minimal energy and water consumption
- Highest microbiological safety thanks to line sterilisation and variable PU control
- Intelligent use of surplus energy, such as from the bottle washer

The main components

Media connection

- Direct connection or via swing bend panel or valve manifold
  - Quality control possible during product change-overs
  - Possible integration of a venting lantern to discharge the released CO_2

Heat exchanger and heat retention section

- Hygienic plate heat exchanger constructed in accordance with Krones specifications
  - For gentle and reliable product heating
  - Heat retention with redundant temperature control

Integrated buffer tank

- Decouples the heating process from the filler
- Balances out production fluctuations
- Ensures an unvarying and consistent supply of the product to the filler

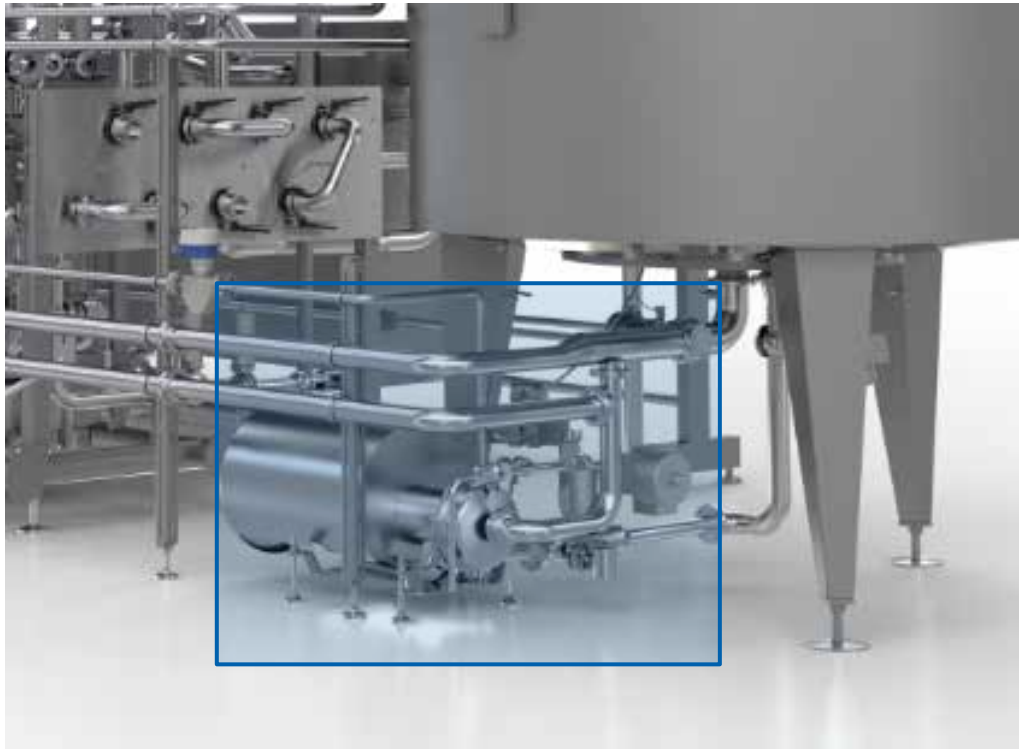
Optional additional module
Integrated carbonation

Krones is the **only manufacturer on the market** to integrate a module for **carbonation directly in the heating system**.

Benefits to you

- **Considerably smaller footprint** (than if it were to be installed as an individual machine): no additional buffer tank needed as the existing product tank acts as a buffer
- **Everything in a single system:** Sanitisation is possible directly through the hot-water circuit in the VarioFlash B
- **Optimal microbiological conditions:** omission of unnecessary components after product heating
- **Highest CO_2 dosing accuracy:** ≦ 0.08 g/l (temperature-dependent, if production conditions remain consistent, described as sigma 1)
- **More flexible line concepts possible:** e. g. use of a less expensive free-flow plate heat exchanger (compared to the tubular heat exchanger)
- **Many years of experience:** more than 1,500* delivered Contiflow systems, allowing us to become familiar with the exact challenges presented by carbonation

* As of: June 2022

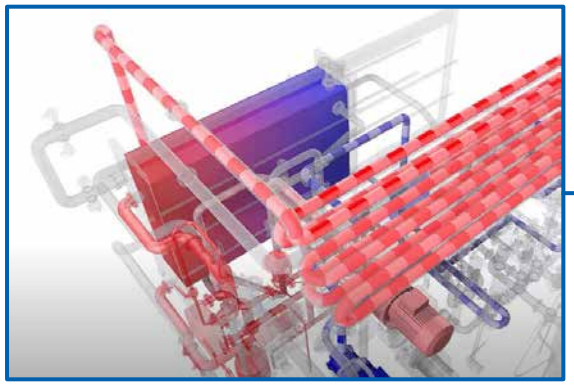


Applications:
- Sorghum beer
- High-gravity brewing
- Etc.

Additional feature
Hygiene concept for the filler

The use of a VarioClean CIP system in conjunction with the VarioFlash B makes it possible to create a total hygiene concept for cleaning the process section and filler. The rinsing water for the filler is always fed from the VarioFlash B under pasteurised conditions.

In addition to the SIP process during filler cooling, this VarioFlash B function can also be used during production preparations and product change-over.



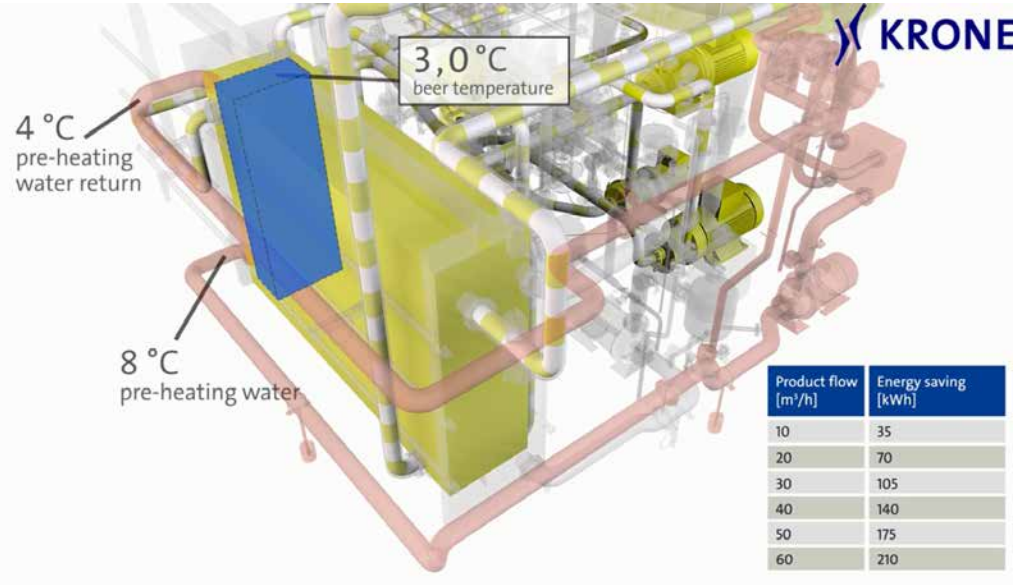
Benefits to you

- Low risk of the filler becoming re-infected during the cool-down phase of CIP cleaning
- Maximum microbiological safety, even during critical process steps

Additional feature: advantage for sustainability

System for energy recovery with the bottle washer

Warm rinsing water is produced in the last cleaning step of the bottle washer. It can be provided via a separate water circuit in the VarioFlash flash pasteuriser. All that is needed is an additional section in the heat exchanger, the heat can then be subsequently transferred to the product.



Product flow [m³/h]	Energy saving [kWh]
10	35
20	70
30	105
40	140
50	175
60	210

Benefits to you

Considerable **heating energy savings** during flash pasteurisation

Sample calculation: up to 105 kWh of heating energy can be saved per hour at a production output of 30 m^3/h.

Additional feature: advantage for sustainability
"Eco-hygienic sleep mode" **stand-by operation**

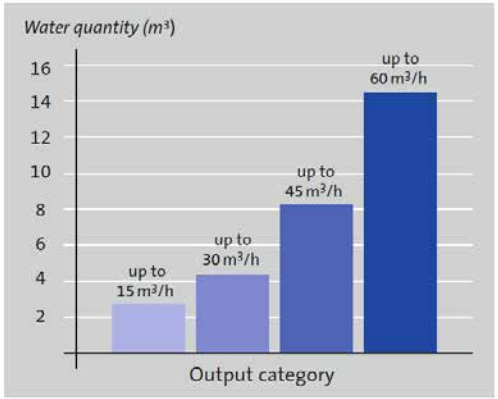
Application

If a filler is stopped, the VarioFlash circulates the water in a circuit under production conditions:

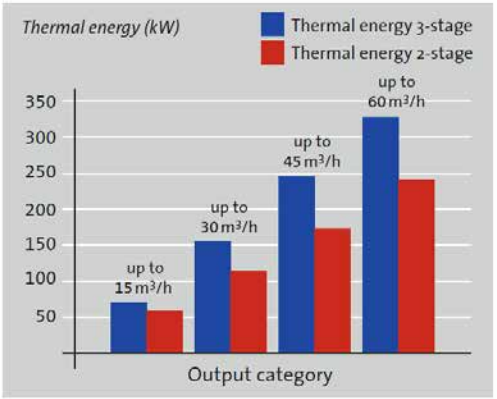
– In a 2-stage system, water must be supplied permanently to maintain the system production conditions (in this case, for cooling). The heated water is drained.
– In a 3-stage system, no additional water is required as the coolant can be used to keep the VarioFlash in its production condition.

However, thermal energy is required in both cases.

Water saved (2-stage) per hour of standstill time



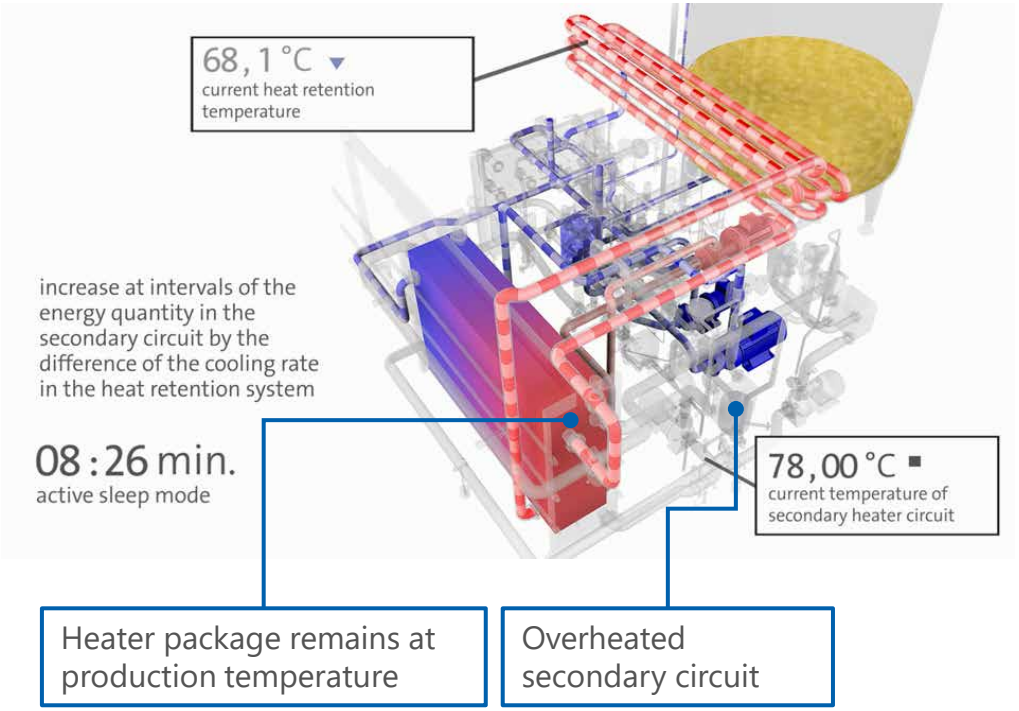
Thermal energy per hour of standstill time



"Eco-hygienic sleep mode" stand-by operation

Method of operation

- The water circuit stops.
- The system for energy recovery remains in stand-by mode and under beverage-sterile conditions.
- The temperature in the secondary circuit is permanently kept at a defined level. The heat exchanger package therefore serves as a temperature-controlled barrier between pasteurised and unpasteurised product.
- During restarting, the water circuit also starts up again slowly. At the heat exchanger discharge, the PU value does not drop too low as the secondary circuit still has enough residual energy.
- After a few minutes, the plant is ready for production again.



Benefits to you

Low energy and water consumption without water circulation

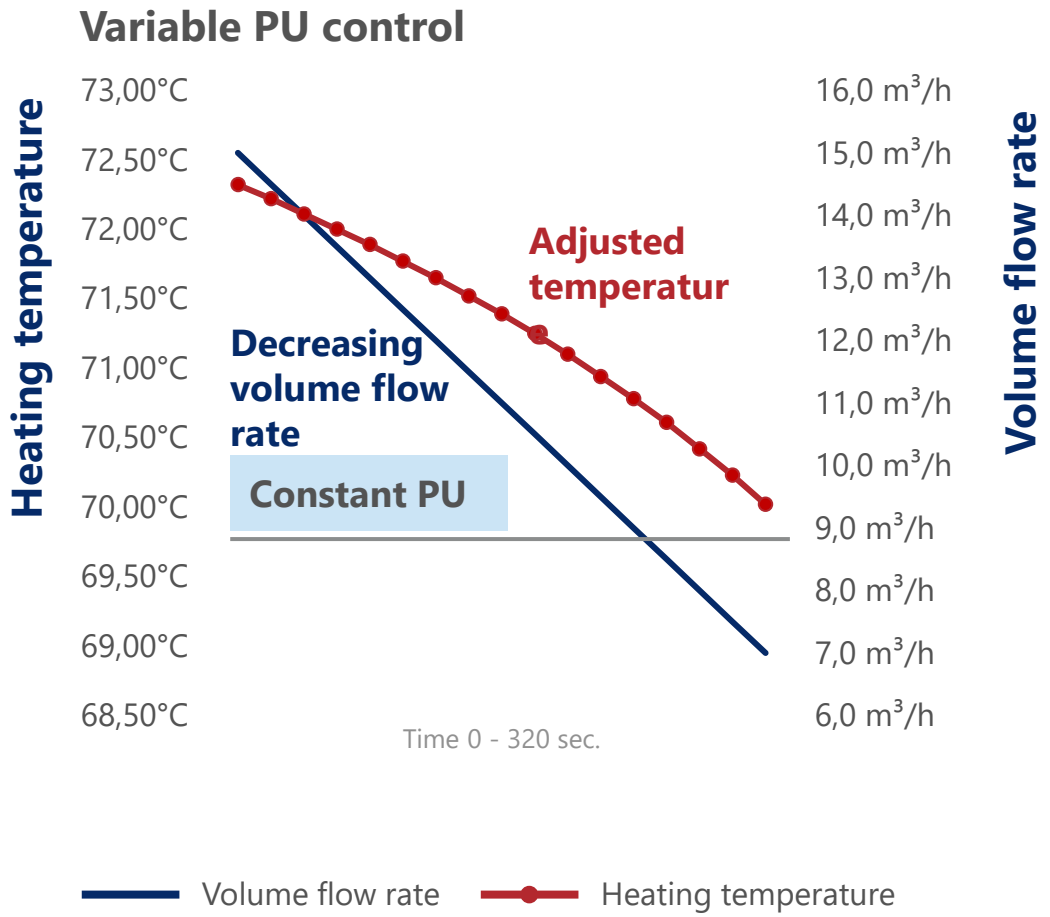
Additional feature
Dynamic buffer tank control

A variable PU control in conjunction with an output-controlled hot-water circuit makes it possible to heat beer and flavoured beers in a particularly gentle and reliable manner.

- Adjustment of the flow rate to the actual filling speed
- Adjustment of the heating temperature to the changing dwell time in the heat retention section
- Precision of the controller: +/- 0.3 to 0.5 °C

Benefits to you

Adjustment of the VarioFlash B output to the actual filler output: lowering the production speed extends the buffer time in the buffer tank, thus avoiding product displacements – and thus product losses.



Additional feature
Express pasteurisation

The procedure allows the heat retention time to be reduced from 30 to 10 seconds, thus further optimising the two process parameters for time and temperature.

Our concept

- The PU value of beer and its calculation basis as well as the reaction kinetics of the microorganisms (D-values) show that the traditional heat retention time of 30 seconds is not required for microbiological stabilisation.
- A shorter heat retention section (10 metres – 10 seconds) with a lower number of 90° pivoting bends reduces the distribution of the dwell time and lowers the time difference between the fastest and slowest particle when compared to a longer heat retention section (30 metres – 30 seconds)
- The homogeneous dwell time distribution in the short section therefore reduces the complete thermal stress on the product and increases the microbiological safety.

Express pasteurisation

Benefits to you of the shortened heat retention section:

From a process technology viewpoint

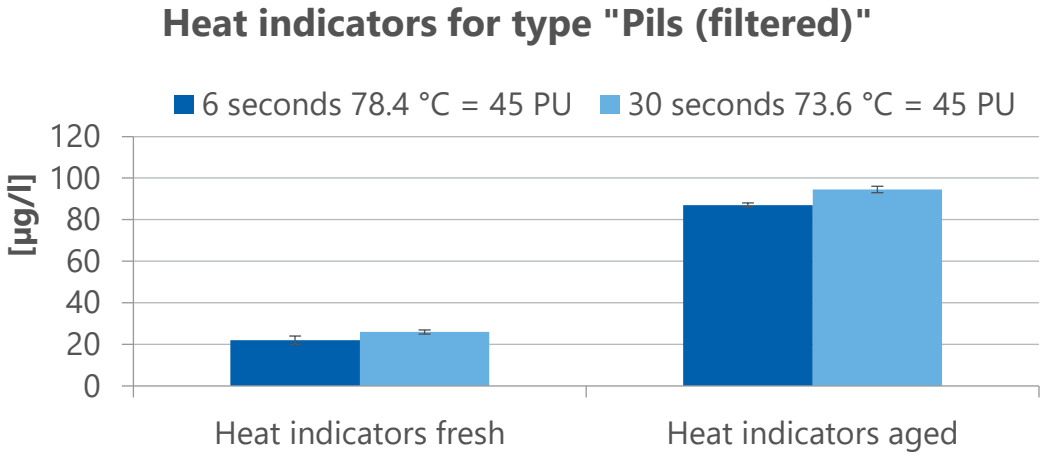
- Lowered microbiological risk
- Reduced mixing phases and product losses
- Lower pressure losses

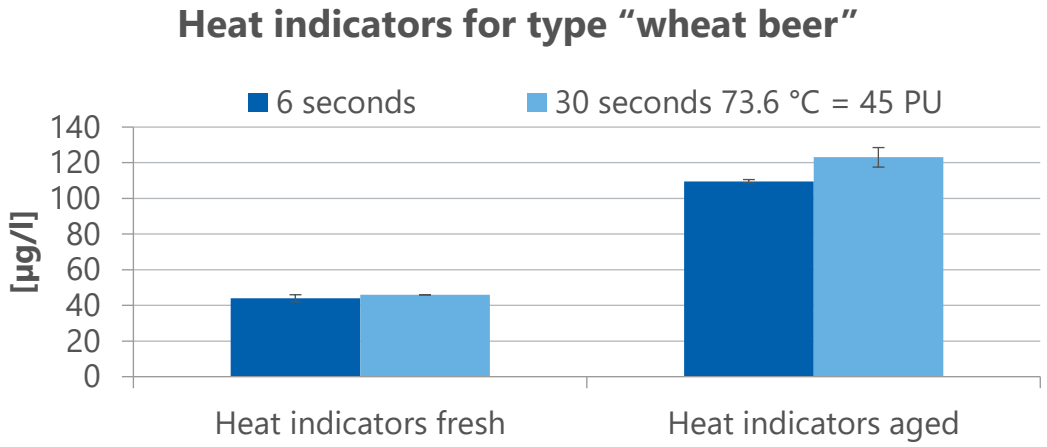
From a technological viewpoint

- Improved beer quality thanks to a more favourable temperature-to-time ratio
- Is gentle on the product and saves energy: use of high temperatures at shorter heat retention time (10 seconds at 76 °C)
- One single optimum heat retention process for the production of cloudy beers (e.g. wheat beer) and filtered beers
- Good haze stability without excessive pasteurisation of the beer (e. g. wheat beer)

Design

- Minimised space requirement
- Reduced maintenance





Benefits to you

High accuracy and product safety

The high-precision PU control provides guaranteed microbiological quality by using the maximum buffer capacity. The exact adherence of the selected heating temperature is redundantly monitored.

Flexibility in the production process

Product changes can be realised within just 30 minutes (between the last and the first bottle) with intermediate water rinsing and appropriate hardware and software.

Hundreds of satisfied customers

The VarioFlash is a model for success: With more than 250* reference customers, this system is one of our most-built units, guaranteeing best product quality worldwide.

Precise tracking of all operation steps

All process-relevant parameters are saved and archived by an electronic data writer.

* As of: June 2022

Hygienic design

The compact and hygienic design ensures high process safety, eases maintenance and reduces the loss of product through reduced mixing phases during the start and stop phases.

Economic efficiency and best product quality

Our systems for energy recovery and the patented standby mode reduce the consumption of energy. Innovative procedures like the express pasteurisation provide improved beer quality on top.

Requesting a new machine
You can easily send a request for
a non-binding quotation in our Krones.shop.

Certified ecological efficiency
Machines with enviro seal

At Krones, the enviro label stands for excellent ecological efficiency. Products that bear the enviro label have proven in an objective test procedure that they efficiently use energy and media, and that they produce in an environmentally-friendly way. The requirements are defined by the EME standard that has been developed by TÜV SÜD (technical inspection authority) for assessing production plants. The enviro test procedure, too, has been certified by TÜV SÜD as an independent expert. Therefore, you can be sure that: an enviro label stands for ecological efficiency.

This is why the VarioFlash B is enviro-classified:

Energy efficiency

- Patented "Eco-hygienic Sleep Mode" stand-by operation for minimal energy and water consumption
- Heat regeneration through the bottle washer
- Heat exchanger designed for the product of each customer
- Internal heat recovery of up to 95 percent

Media efficiency

- Intelligent buffer tank control reduces the consumption of CO_2

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Compact variant of the VarioFlash B
Specifically for craft brewers

The small variant of the VarioFlash B is one of the modules available in the Krones portfolio for small breweries – and is particularly suitable for the 18 to 45 hectolitre-per-hour output range.

Benefits to you

- Thanks to its compact size, the entire flash pasteurising system fits in just one container and thus makes installation and commissioning noticeably easier.
- Thanks to its compact design, product losses during type change-over are proportionally low.
- The reduced number of components combined with the robust technology reduces the maintenance costs.
- The horizontal buffer tank ensures that the output is automatically adjusted during production fluctuations and thus minimises product loss and media consumptions.

Model of the VarioFlash B for 18 to 45 hl/h

Krones total expertise
Filling systems suitable for craft beer

The Craftmate series

- High flexibility also in the low output range
- Cost-efficient filling technology in the quality you are used to from Krones
- High filling quality with guarantee values comparable with high-performance machines
- Compact design

For cans: Craftmate C

- For filling beer, carbonated soft drinks and wine
- Output range: up to 17,500 cans per hour (depending on the can volume and diameter)
- Volumetric filling system with inductive flow meter
- Four-head capper can be integrated

For glass: Craftmate G

- For filling beer and carbonated soft drinks
- Output range: up to 24,000 containers per hour
- Counter-pressure filler with vent tube
- Up to two cappers can be integrated (crowns, screw caps or aluminium roll-on caps)

Suitable filling systems for beer and carbonated soft drinks

For PET: Modulfill VFS with PFR valves

- More flexible and faster thanks to PFR (Proporational Flow Regulator) technology
- Highest hygiene level thanks to the Monotec design
- Beer filling with a minimum oxygen absorption and the lowest CO_2 consumption
- **Modulfill VFS-M:** Block synchronisation with mixer for minimum product losses

For glass: Modulfill HES

- Beer filling with a minimum oxygen absorption and the lowest CO_2 consumption
- Minimum change-over times thanks to automatic probe adjustment and handling parts that can be changed without tools
- Short cleaning duration thanks to an automated exterior cleaning system
- Highest hygiene level thanks to the Monotec design

For cans: Modulfill FS-C

- Available both for craft beers and for outputs of up to 135,000 containers per hour
- Multiple can formats without change parts thanks to combined centring bells with flexible formats
- Servo drive technology for a lower energy consumption and higher flexibility
- Low-maintenance, grease-free main bearing with automatic oil-circulating lubrication system
- Available in a block arrangement with the Krones Modulseam
- Option: Compact clean room for increased hygiene requirements

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Everything from a single source

Training sessions at the Krones Academy – trained personnel for an increased efficiency of your line

The multifaceted offer by the Krones Academy ranges from operation, servicing and maintenance courses through to management training. We will gladly also create your individual training programme.

KIC Krones cleaning agents make your machine shine

An immaculate production environment is essential if your product is to shine. KIC Krones provides you with the optimum cleaning agents and disinfectants for each individual production step.

Krones Lifecycle Service – Partner for Performance

It goes without saying that also after the purchase of new machines, Krones takes care of your lines: The Krones LCS experts are always there to help you reaching your goals and turn your wishes into optimal LCS solutions.

High-quality components from Evoguard and Ampco

Are you looking for shut-off, separation or control valves? For hygienic or aseptic applications? Would you like to have pump technology that perfectly fits into your machines? You will find exactly what you are looking for at Evoguard and Ampco Pumps. The two Krones subsidiaries cover the entire spectrum of process technology components that you need for high-quality production.

SOLUTIONS BEYOND TOMORROW

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