VarioFlash B
Thermal product treatment for the best beer quality
Natural, tasty and durable

Procedures for the preservation and safe hygiene are the key factors for product manufacture which goes for beer just alike. The KRONES VarioFlash B flash pasteuriser guarantees safe microbiological filling of beer. Since every product has its own requirements, KRONES adjusts the machines individually to 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
- Upon line standstills: Standby mode "Eco-hygienic sleep mode" for minimal energy and water consumption
- Highest microbiological safety thanks to line sterilisation and variable PU control
- Intelligent use of excessive energy such as from the bottle washer
Components

Media connection
- Direct connection via swing bend panel or valve manifold
- Quality control possible during product change-overs

Heat exchanger and heat retention section
- Gentle and safe product heating
  - Hygienic plate heat exchanger constructed in accordance with KRONES specifications
  - Heat retention with redundant temperature control

Buffer tank
- Automatic speed adjustment during production deviations
  - Vacuum-resistant buffer tank after the heat treatment
  - Avoidance of recontamination through contaminated air

Heat regeneration through the bottle washer
- Heating of beer by means of excessive energy
  - Energy savings of up to 105 kWh at an output of 30 m³/h
Components

Hygienic filler design

- The rinsing water for the filler is always supplied under pasteurised conditions:
  - After the SIP process during filler cooling
  - Upon start-up production
  - Upon temperature changes

- Maximum microbiological safety also during critical process steps
Components

Energy recovery system
– Optimised interface to the KRONES bottle washers
– Energy savings of up to 210 kWh

Integrated buffer tank
– Automatically adjusts the speed upon deviations during the production
– Reduces start and stop procedures
– Minimised product loss and media consumption
Standby mode "Eco-hygienic sleep mode"

- Upon line standstills: this mode ensures minimum energy and water consumption without running water circulation
- Savings of water and energy of up to 90 percent without any microbiological risks
**Integrated carbonation unit**

High-pressure carbonation unit
- Add-on for the buffer tank
- Independent module (aseptic and EHF)

Applications:
- Sorghum beer
- Production of flavoured beer
  (blending without the Contiflow mixer)
- High-gravity brewing

Carbonation accuracy $\leq 0.08$ g/l
*(depending on the temperature at a constant process with sigma 1)*
Facts and figures

- Design parameters
  - CO₂ content
  - Alcohol content
  - pH-value
- Customer specification regarding the
  - heat treatment (e.g. 30 seconds at 72 °C = approx. 27 PU)
  - Energy recovery
- Treatment of additional products such as soft drinks possible

<table>
<thead>
<tr>
<th>Overview of the outputs*</th>
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<td><strong>Output:</strong> 1.8 to 4.5/8/15/30/45/60 m³/h</td>
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<td><strong>Operating time prior to CIP/SIP cleaning:</strong> up to 120 hours (depending on the beverage type)</td>
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<td><strong>Plate heat exchanger:</strong> 2-stage or 3-stage design</td>
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<td><strong>Implementation of the customers' special requirements:</strong> Integration of e.g. gas filter, separate CIP system for the tank, optional control measurement</td>
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* Depending on the customer requirement
Facts and figures

Microbiological safety at maximum flexibility

- Variable PU control and speed-controlled hot-water circuit for gentle and safe heating of beer and flavoured beer

- Flow rate adjustment to the actual filling speed; accuracy of the control of +/-0.3 – 0.5 °C
Express pasteurisation

Is it possible to reduce the heat retention time from 30 to 10 seconds and optimise the two process parameters for time and temperature even more? KRONES says: yes - it is!

The challenge
- Optimum foam stability requires a heating temperature of > 80 °C.
- With only one constant retention time of 30 seconds, wheat beer will always be over-pasteurised (PU > 380, required: PEmax = 220).

The goal
- Lowest possible influence on the beer quality due to pasteurisation
- Good haze stability without excessive pasteurisation of the beer (e.g. wheat beer)
- Designing compact pasteurisation modules
- Limitation to one optimum heat retention process for the production of hazy beer (e.g. wheat beer) and filtered beer
Express pasteurisation

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 reduces the time difference between the fastest and the slowest particle as compared to a longer heat retention section (30 metres – 30 seconds)

− The number of particles leaving the dwell time before the calculated time (10 or 30 seconds) is lower in the short heat retention pipe.

➢ The homogeneous dwell time distribution in the short section reduces the complete thermal stress on the product and increases the microbiological safety.
Express pasteurisation

Advantages of the shortened heat retention section

Process technology:
- Reduced mixing phases and product loss
- Reduced mixing phases and lost product
- Low pressure loss

Technology:
- Improved beer quality thanks to optimal relation between temperature and time
- Gentle to the product and saves energy: Use of high temperatures at shorter heat retention time (10 seconds at 76 °C)

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.

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.

Flexibility in the production process
Short change-over times (between the first and the last bottle) can be realised within 30 minutes with intermediate water flushing and the respective hardware and software.

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.

Precise tracking of all operation steps
All process-relevant parameters are saved and archived by an electronic data writer.

References
The VarioFlash is a model for success all the way. With more than 200 reference customers, this machine is one of our most-built units guaranteeing best product quality worldwide.
Certified ecological efficiency: Machines with enviro certification

At KRONES, the blue 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 the TÜV SÜD (technical inspection authority) for assessing production plants. The enviro test procedure has also 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
- Standby mode "Eco-hygienicsleep mode" 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 CO₂ consumption
Everything from a single source

Training sessions at the KRONES Academy – trained personnel increases your line efficiency
The versatile training offer ranges from operation, servicing and maintenance to management training. We will gladly also establish your individual training programme.

KIC KRONES cleaning agents make your machine shine
Only if the production environment is immaculate, can your product be brilliant. KIC KRONES provides you with the optimum cleaning agents and disinfectants for each individual production step.

KRONES Lifecycle Service – partner for performance
Also after having purchased a new machine, KRONES will take care of your line; the LCS experts are always ready to consult you and translate your goals and wishes into optimal LCS solutions.

EVOGUARD – excellent valve technology all along the line
The valve series of EVOGUARD comprises a modular system with hygienic and aseptic components which contributes to every point of the production line with increased performance and which has the perfect solution for every process step.

EVOGUARD – pumps for absolute process safety
In addition to the separation and locking of a line, one thing is particularly important - and that is the reliable conveyance of your product. This is why EVOGUARD also offers innovative centrifugal pumps in addition to high-quality valves.