

Krones filling systems for CSD

Sparkling specialists for PET and glass containers and cans



Soft drinks - gentle, precise, reliable filling is a requirement



The world of soft drinks is sparkling, colourful and constantly in motion. New trends, types and packages are on the agenda - and it's no easy task for filling technology to keep pace here. But regardless of which products you create and which markets you want to capture: At Krones you will find the technology that will enable you to achieve your goals.

At a glance

Krones filling systems for CSD ...

- process PET and glass containers and cans.
- fill both hot and cold products.
- offer additional hygiene and filling stability.
- feature a consistent hygienic design.



For PET containers

Modulfill VFS with PFR valves



The multi-talent for hotfill and standard processes

- Perfect flow behaviour thanks to infinitely adjustable filling valve
- Precise determination of fill quantity via inductive flow meter
- Low-foam and low-turbulence filling via swirl insert in the valve
- Hygienic design
- Resource-saving filling thanks to product feed from above through adjacent product tank

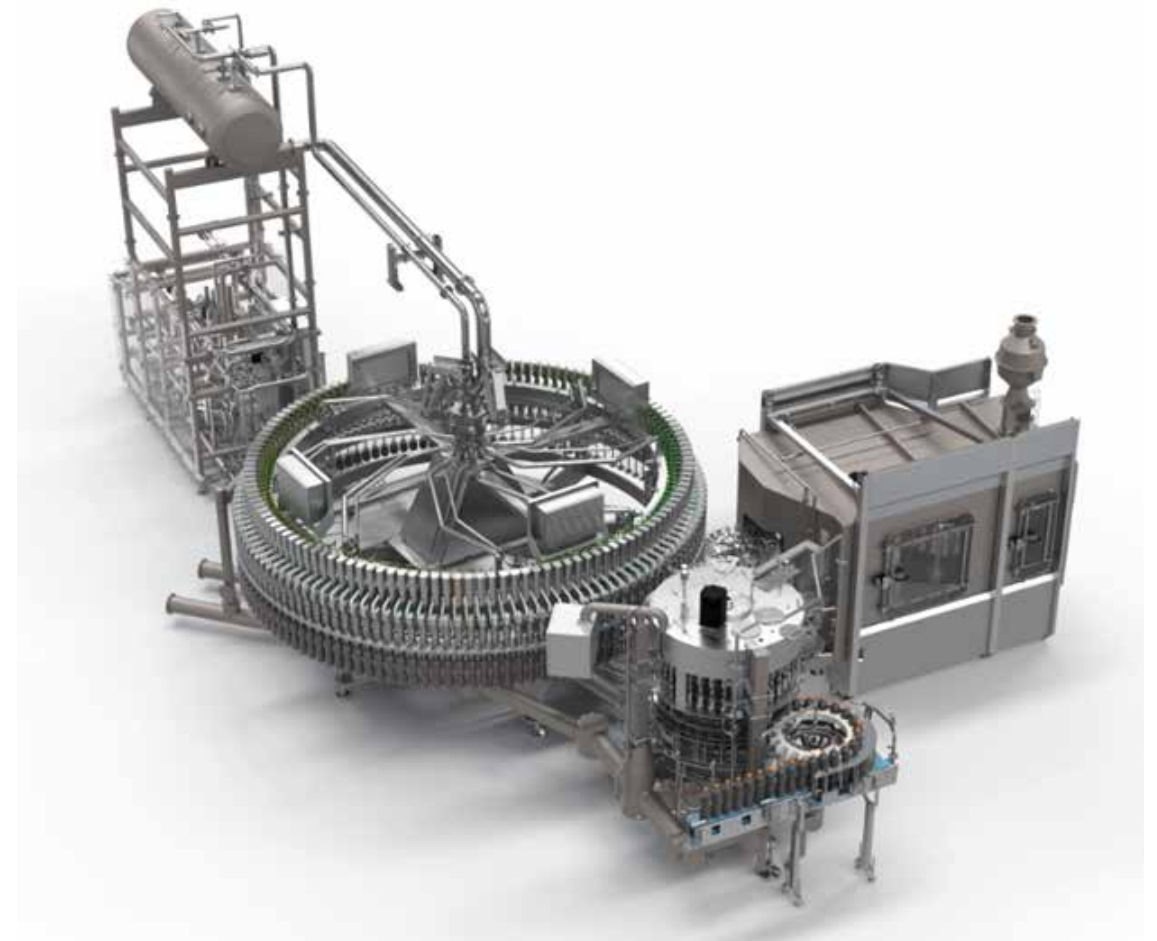
Optional

- Additional channel for hot filling
- Automatic CIP cups

Performance

Up to 81,000 containers per hour

VFS: Volumetric filling system, Flow meter, Short tube | PFR: Proportional Flow Regulator



For PET containers

Modulfill VFS with PFR valves



Method of operation

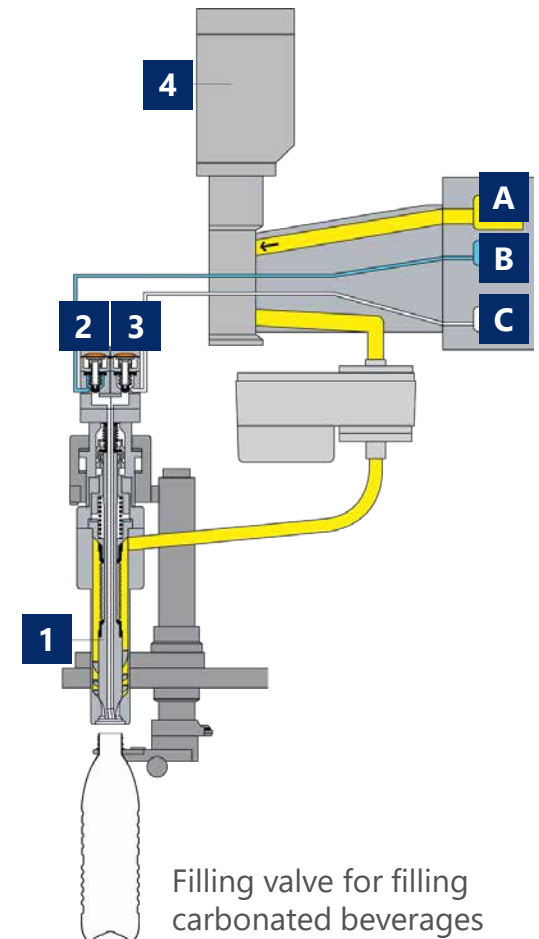
First the PET container is pressed on and pressurised. The filling process will start as soon as the same pressure prevails in the product tank and in the PET bottle. The PFR control valve used here enables infinitely variable speed control and guarantees an optimum filling quality. An inductive flow meter monitors the fed filling quantity. The valve closes once the exact filling volume has been reached. After a settling phase, the pressure in the head space of the PET container is reduced via a snifting valve and the filled product exits the machine.

New: Electronic controller integrated directly in the valve

To decentralise the power supply to the electronics, the complete control block is now directly integrated in the valve. The conventional electronics cabinet is now no longer required.

Basic position

- 1** Product stem
- 2** Pressurisation and return gas valve
- 3** Snifting valve (CIP relief valve)
- 4** PFR control valve
- A** Product channel
- B** Pressurising and return gas channel
- C** Snifting channel (CIP return channel)



For PET containers

Modulfill VFS-M with PFR valves and integrated mixer



With the Modulfill VFS-M, the "M" stands for "Mixer" – which is directly connected to the filler. The product is fed via the raised carbonation tank directly into the manifold. The conventional filler bowl is no longer required.

Benefits to you

- **Highly precise dosing of syrup and CO₂**
Thanks to the high-precision dosing process the Contiflow reduces the syrup consumption by up to 0.2 percent (compared to conventional systems). This reduces the operating costs and your new investment will pay off within a short time.
- **Faster filling speeds**
The direct connection between the Modulfill VFS-M and the Contiflow mixer positively affects the filling duration. The integration in conjunction with the raised tank enables up to 250 millilitres to be filled per second. The block also reduces the loss of product.



For PET containers

Modulfill VFS with PFR valves – filling at ambient temperature



Thanks to the infinitely adjustable control of the filling process, the filling temperature can be increased to ambient temperature.

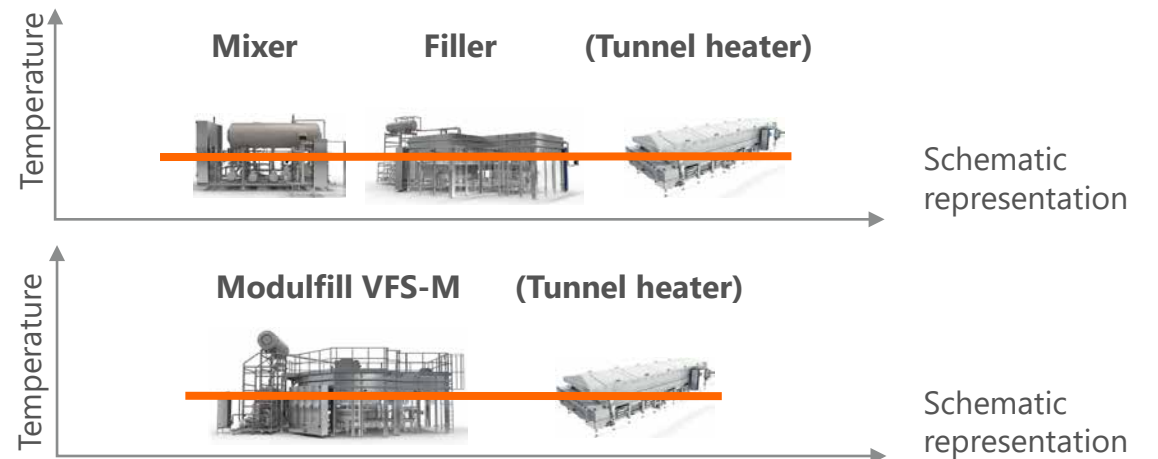
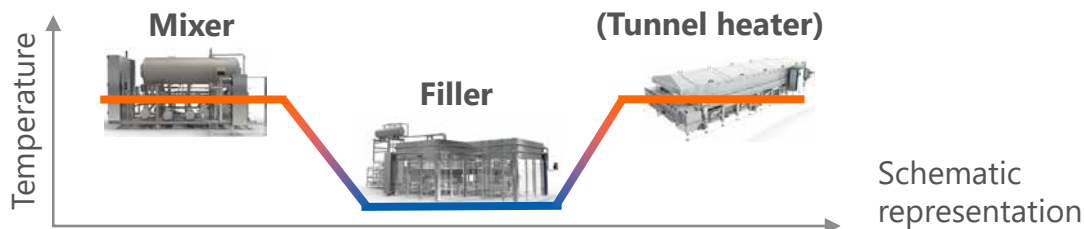
Cold filling (in comparison to filling at ambient temperature)

The product is cooled down to a lower temperature already in the mixer prior to filling.

Filling at ambient temperature

- If possible, the product is filled in the mixer without prior temperature reduction.
- This ensures a considerably lower energy consumption.

Cold ← → Ambient temperature



For PET containers

Modulfill VFS with PFR valves for combined hot and cold filling



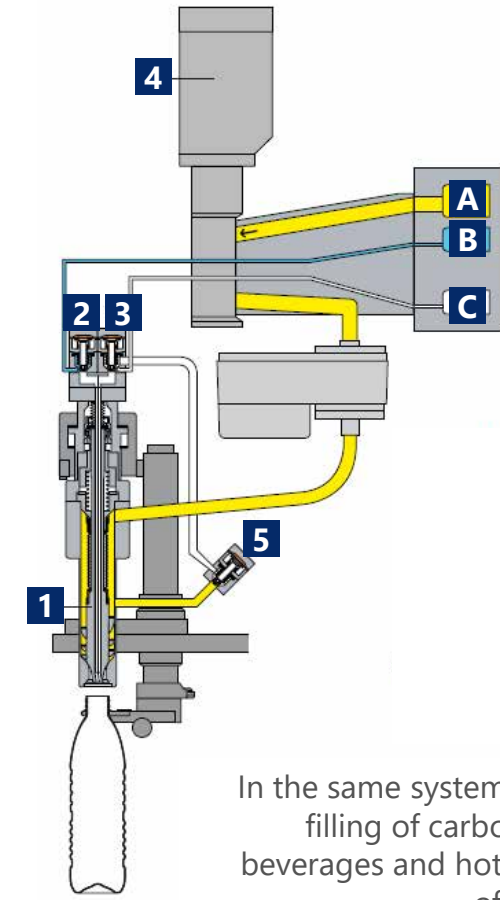
Field of applications

This variant of the Modulfill VFS with PFR valves was designed especially for cold filling of CSD in combination with hot filling of juice in PET containers.

For this purpose, a separate channel for product recirculation is integrated into the filling valve.

Basic position

- 1** Product stem
- 2** Pressurisation and return gas valve
- 3** Snifting valve (CIP relief valve)
- 4** PFR control valve
- 5** Hot return valve (CIP return valve)
- A** Product channel
- B** Pressurisation and return gas channel
- C** Snifting channel (CIP return channel)



In the same system: Cold filling of carbonated beverages and hot filling of juices

For PET containers

Modulfill VFS with PFR valves – benefits to you



Maximum flexibility

Non-carbonated, carbonated and optionally hot products can be filled on one system.

Enhanced product quality

The new PFR valve enables optimum adjustment of the filling speed to suit the particular product properties. Products which tend to foam excessively can be processed as well.

Increased output

The filler operates without a lifting cam, which increases the filling angle: This, in turn, increases the output for the same line size. Filling water with a PFR valve, for instance, will increase the annual output by up to 25 percent, that is 72 million bottles (based on 0.5 litre bottles and a pitch diameter of 4,320 mm).

New machine enquiry

You can easily enquire a non-binding quotation in our [Krones.shop](https://www.krones.com/shop).



For PET containers

Modulfill VFS with PFR valves – benefits to you



Saved energy and raw materials

The PFR valve operates electronically. This saves 30 percent of compressed air when compared to electropneumatic filling. Thanks to the infinitely adjustable control of the filling process, the filling temperature can be increased in comparison to similar systems.

Improved cleaning

The CIP cups automatically swing into place using a magnet. This contact-free process without pneumatic components optimises the hygienic conditions and enables the installation of more filling valves on a pitch diameter.

Adjacent product tank

Thanks to the adjacent product tank, the product can be fed to the filler from above, reducing product loss to a minimum (optional: Modulfill VFS-M with integrated mixer and raised carbonation tank).

New machine enquiry

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For glass containers

Modulfill HES



The intelligent probe system

- Precise determination of fill quantity with a probe
- Perfect flow characteristics through two filling speeds
- Turbulence-free switching between speeds thanks to diaphragm valve technology
- Low-foam filling via swirl insert in the valve
- Closed CIP circuit
- Hygienic design
- Electropneumatically controlled filling valve functions

Performance

Up to 78,000 containers per hour

HES: Height filling system, Electronic fill height measuring, Short tube



For glass containers

Modulfill HES



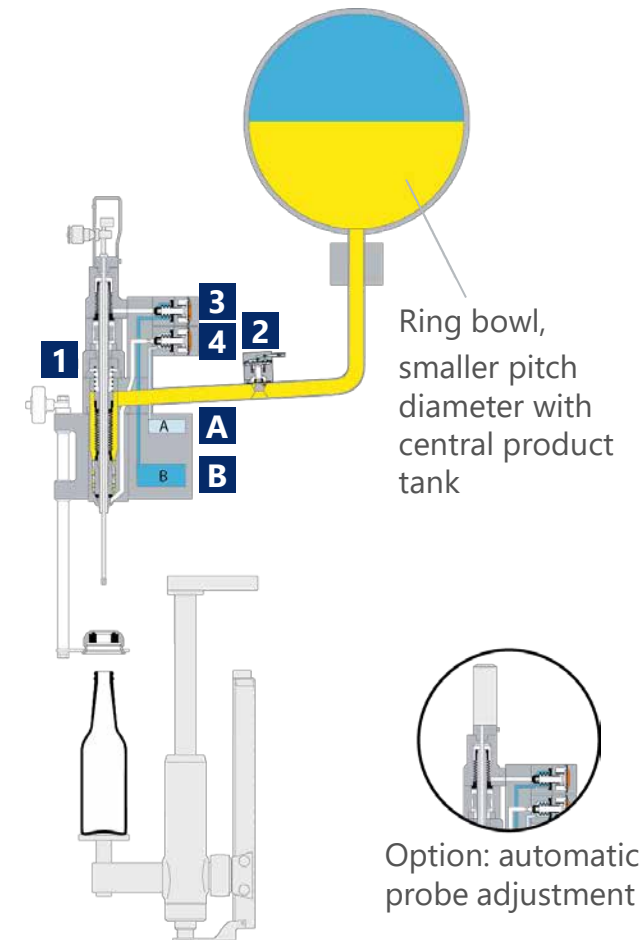
Method of operation

First the glass bottle is pressed on and pressurised. The filling process will start as soon as the same pressure prevails in the ring bowl and the bottle. Two different filling speeds guarantee optimum flow. If the inflowing liquid touches the probe integrated in the filling tube, the valve closes. After a settling phase, the pressure in the head space of the glass bottle is reduced via a snifting valve and the filled product exits the machine.

Clever: Two gas channels – double hygiene

The containers are pressurised and snifted via two separate gas channels. This separation prevents liquid from escaping from the filled container into the pressurisation channel, providing considerable advantages with regard to filling stability and hygiene.

- 1** Control cylinder for liquid valve
- 2** Switching valve fast/slow
- 3** Pressurisation and return gas valve
- 4** Snifting valve
- A** Snifting channel
- B** Pressurisation channel



For glass containers – Modulfill HES

Optionally available with automatic probe adjustment and automatic CIP cup system



Optional: automatic probe adjustment

- The system can be equipped with an automatic probe adjustment function
- For each filling valve: Change-over to other sizes without manual probe adjustment
- Automatic probe adjustment to the filling valves via the operator panel (for each bottle type)

Optional: automatic CIP cup system

- The system is equipped with automatically positioned CIP cups
- Available from a pitch of 87 millimetres
- Automatic pressing-on of the CIP cups: the pivoting mechanism of the bottle plate is used to move the CIP cup against the centring bell and the filling valve

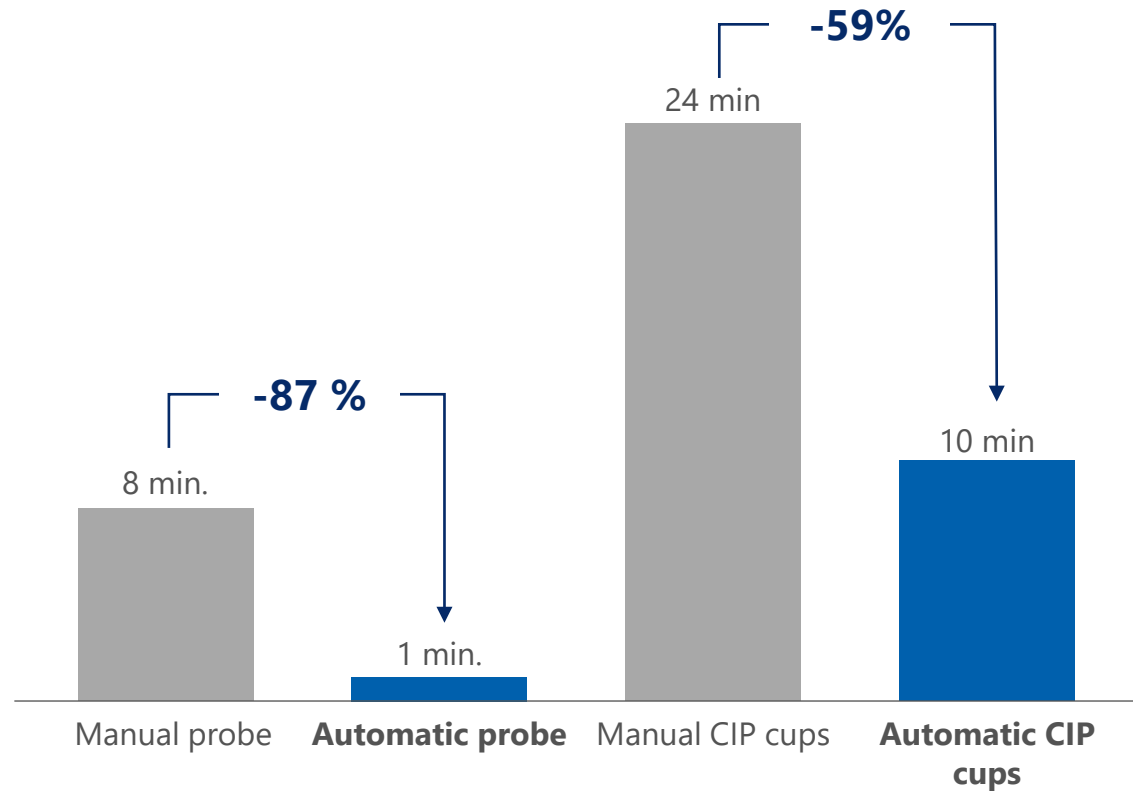


For glass containers – Modulfill HES

Optionally available with automatic probe adjustment and automatic CIP cup system



Time saving during change-over



For glass containers

Modulfill HES – benefits to you



Foam-free filling

- Use of swirl inserts at the filling valve outlet

Precision and long service life

Use of special pneumatic components with a significantly higher life cycle than the one of conventional switching valves

Hygienic design

- No installed parts in the tubular ring bowl
- Press-on cam in drip-proof design
- Vacuum pump integrated in the CIP circuit
- Height-adjustable splinter washout system
- Oil-free lift cylinders
- Self-draining surfaces
- Clean pneumatic components hosing and electrical wiring

High filling stability

- Separation of the pressurisation channel and the snifting channel
- Absolutely dry pressurisation without any aerosol carry-over

Maximum filling accuracy

- Krones probe technology
- Turbulence-free change between two filling speeds through the use of membrane technology

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For cans

Modulfill Bloc FS-C



Volumetric can filler VFS-C

- For both small and large output range
- 28 to 182 filling valves integrated
- Can heights between 80 and 200 millimetres*
- Pneumatic pressing-on and centring

Modulseam can seamer

- Capper area separated from the working environment
- Inclined table top: Cables and supply hoses outside of the process area
- Foam cleaning of all gas channels possible

Performance

18,000 to 135,000 cans/hour**

* Other can heights possible on request | ** Depending on the current can format



For cans

Modulfill VFS-C



The method of operation of the new filling valve

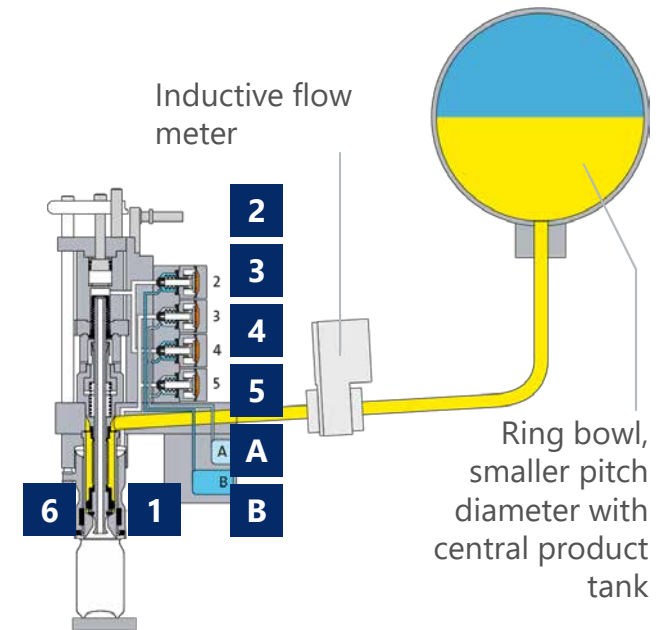
The can is fed into the filler and positioned underneath the filling valve. The valve is pneumatically lowered onto the can for pressing-on. Thanks to a differential pressure chamber, the cans are also centred and pressed onto the valve with extreme care. The filling process begins immediately after rinsing. An inductive flow meter monitors the fed filling quantity. The valve closes once the specified filling volume has been reached.

Optional

- Cleaning in a closed system using automatically positioned CIP cups
- Design in the isolator

VFS-C: Volumetric filling, Flow meter, Short tube, Can

- 1 Product stem
- 2 Flushing valve
- 3 Snifting valve, rinsing
- 4 Pressurisation and return gas valve
- 5 Valve for snifting can headroom
- 6 Centring bell
- A Snifting channel
- B Pressurisation channel



For cans

Modulfill VFS-C – benefits to you



Best hygiene conditions

- Hygienic filling valve
- Machine concept without a front table but with a consistent use of Krones Monotec starwheel columns
- Grease-free main bearing with automatic oil-circulating lubrication system

Reliable filling procedure

- Separated gas channels for pressurisation and sniffing
- Pneumatic pressing-on and centring
- Flushing is performed when pressed on

Operator convenience

- Format-flexible pressing-on unit: Several can formats can be handled without handling parts
- Quick-change handling parts

Operator convenience

Use of servo drive technology



New machine enquiry

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For cans

Modulfill Bloc FS-C – optional with small clean room



Volumetric can filler in isolator design

- Dry floor concept
- Reduced quantity and variance of the cleaning media
- Saving of cleaning time thanks to parallel interior and exterior cleaning
- Reduced footprint by up to 35 percent compared to conventional installation with free-standing machine guards
- Minimised sensible filling and capping area
- Controlled overpressure prevents contamination with unclean ambient air

Performance

Up to 135,000 cans per hour*

* Depending on the current can format



Contiflow mixer



Non-alcoholic refreshment drinks are becoming a hit with consumers. As a result, more and more flavour combinations are appearing on the market and arousing consumer curiosity. A flexible line technology providing maximum leeway for the beverage manufacturers is thus required.

At a glance

- Deaerators, mixers and carbonators for the production of different beverage types
- Up to five different sizes with variable outputs (33 to 100 percent) of 15, 30, 45, 60 and 90 m³/h are available.
- Extremely precise dosing of syrup and CO₂
- Depending on your demands:
 - 2-components mixer (water + syrup + CO₂)
 - Multiple-components mixer for up to 8 components
- Optional: Integration in the Modulfill VFS-M through the elimination of the interface between the filler and the mixer



VarioFlash B and J flash pasteurisers



Processes aimed at preservation and safe hygienic processes are key factors in the manufacture of a product. The Krones VarioFlash flash pasteuriser guarantees the microbiologically safe filling of your product. Since every product has its own requirements, Krones adjusts the machines individually to their respective applications.

At a glance

- Output range from 1,800 to 60,000 litres per hour
- Fields of application: Beer, beer-based beverages, wines and spritzers, carbonated soft drinks, juices
- 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



Everything from a single source



Training courses at the Krones Academy – trained personnel will increase your line efficiency

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.

KIC Krones lubricants – for each production step

Whether for gears, chains or central lubrication systems – our greases and oils are true all-round talents. They can reach every lubrication point, protect your line and ensure gentle treatment for your products thanks to their food-grade quality.

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**

