



Krones filling systems for beer

Filling of glass containers and cans



 **KRONES**

Reliable filling of beer and flavoured beer



When filling beer, our systems impress with top performance, ingenious process technology and perfectly matched process steps. From craft breweries to mid-tier companies and corporate groups - every brewery will find just the right customised solution at KRONES: The filling systems of the Modulfill family set industry-wide standards for filling systems.

At a glance

- Processes glass containers and cans
- Available either as a block with a rinser or a stand-alone solution
- Consistently implemented hygienic design and well thought-out process steps
- Short change-over and cleaning times during conversions
- Maximum user friendliness with regard to accessibility, adjustment and maintenance
- Perfectly matched process technology

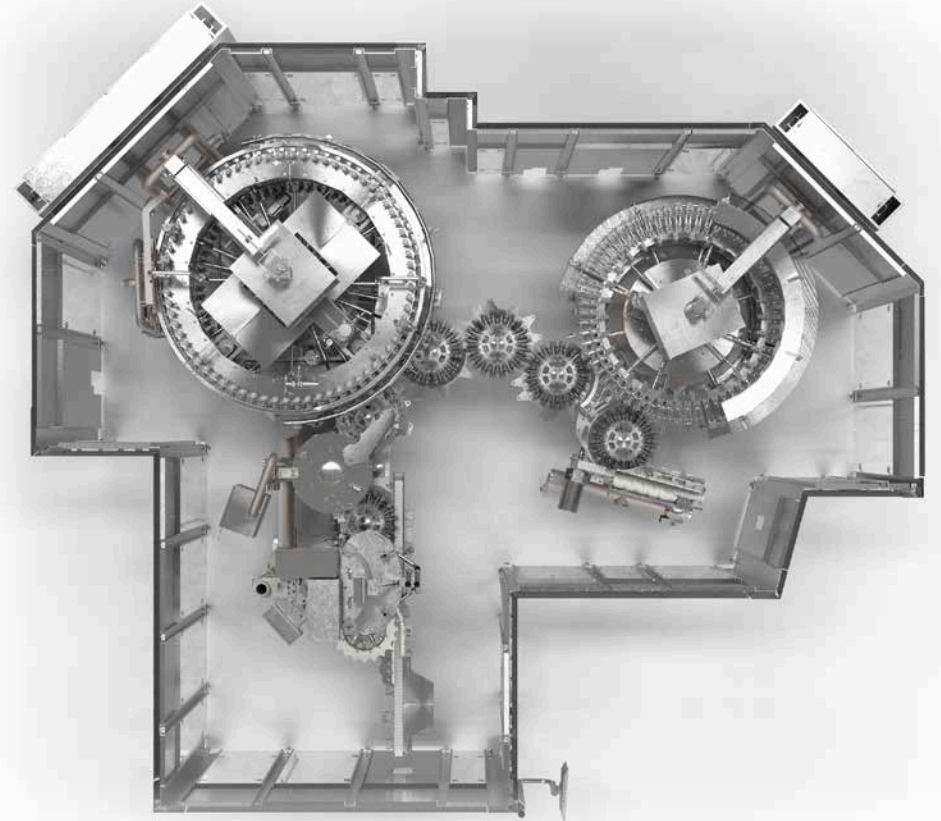


The Krones Modulfill family



Design features

- Design without table top thanks to the Monotec starwheel columns
 - Use from one side and with slanted table top possible if required
- Consistent use of servo motors
- Monitoring of the servo drives
- No lubrication of the drives required
- Stand-alone glass guards
- Main bearing in the oil bath
- High-precision pneumatic components with long service life
- Clean room enclosure as an option
- Modular design for easy expandability



Modulfill HES probe filler



Electronic filling system with probe technology

- Electronical determination of the fill level via probe
- End of filling after probe signal
- Low-oxygen filling through several pre-evacuation steps with intermediary CO₂ flushing
- Electropneumatic filling valve
- Two filling speeds

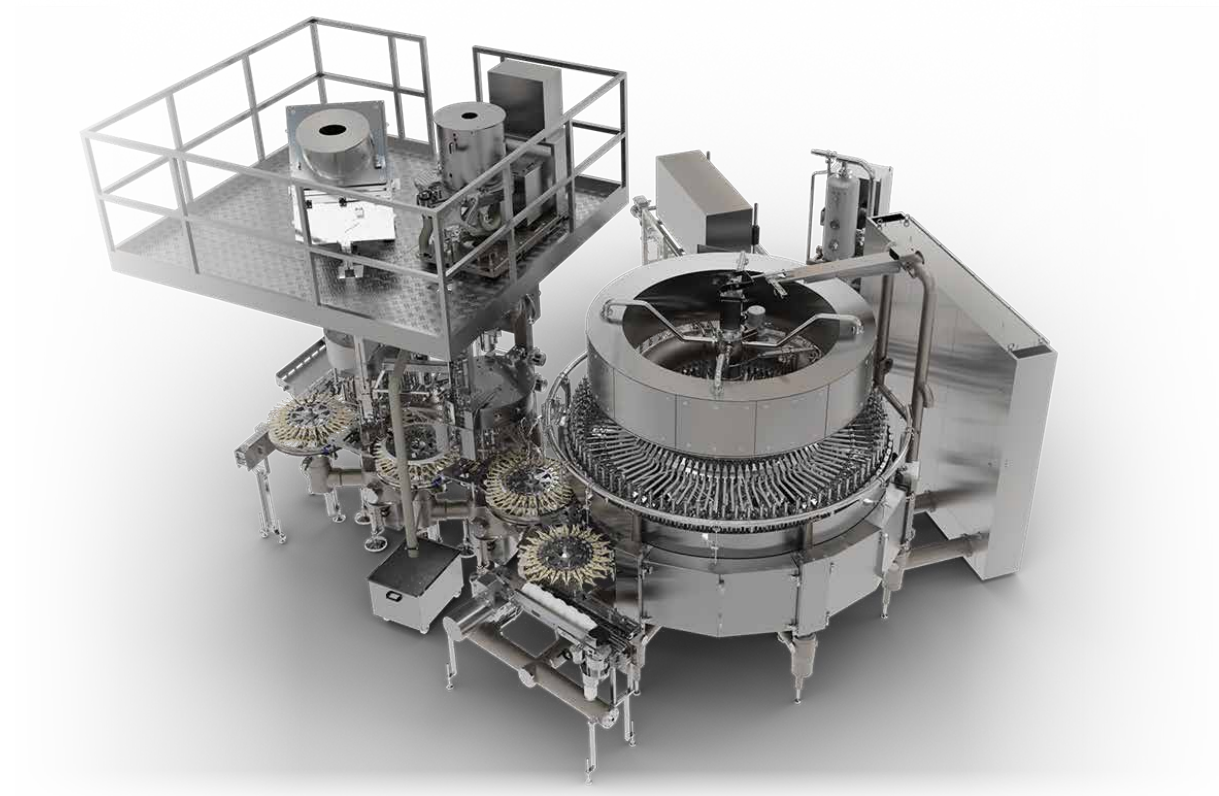
Field of applications

Suitable for all beer types

Performance

Up to 78,000 containers per hour

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



Modulfill HES probe filler



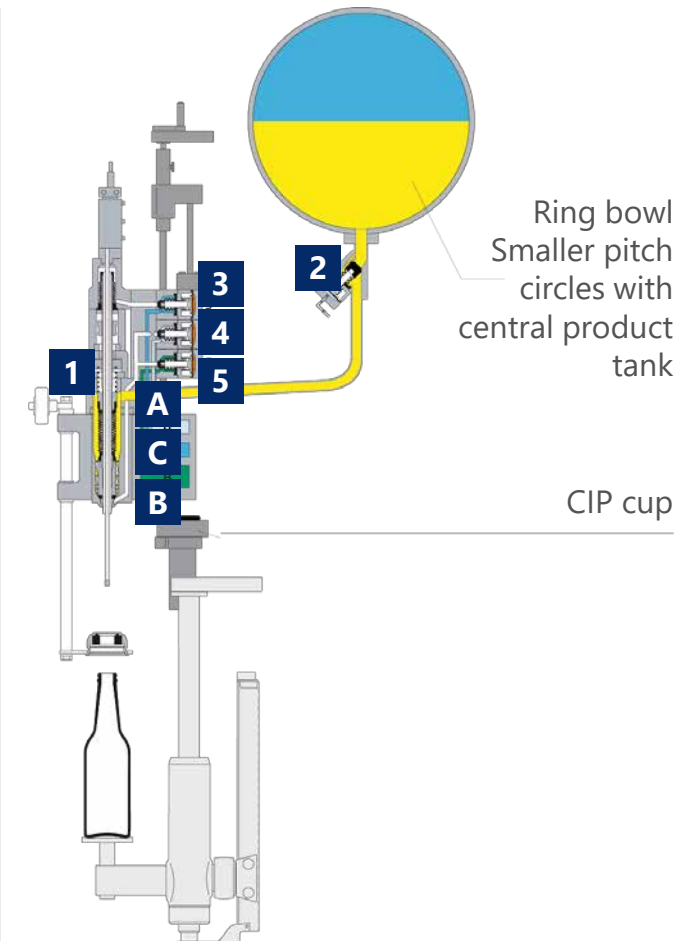
Functional principle of the valve

First the glass bottle is pressed on and then it is evacuated several times. The filling process will start as soon as the same pressure prevails in the ring bowl and the glass bottle. Two different filling speeds guarantee optimum flow. The valve closes if the liquid flowing in touches the probe mounted on the filling tube. After a settling phase, the pressure in the head space of the glass bottle is reduced via a snifling valve and the filled product exits the machine.

Conductivity	> 50 $\mu\text{S}/\text{cm}$
Viscosity	< 10 mPa·s
Pulp	≤ 0.4 mm/proportional < 10 %
Fibres	1 x 5 mm/proportional < 5 %

Basic position

- 1** Control cylinder for liquid valve
- 2** Switching valve fast/slow
- 3** Pressurisation and return gas valve
- 4** Snifling valve
- 5** Vacuum and CIP return valve
- A** Snifling channel
- B** Vacuum channel
- C** Pressurisation channel



Modulfill HES probe filler

Optional with automatic probe adjustment and automatic CIP cup adjustment



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

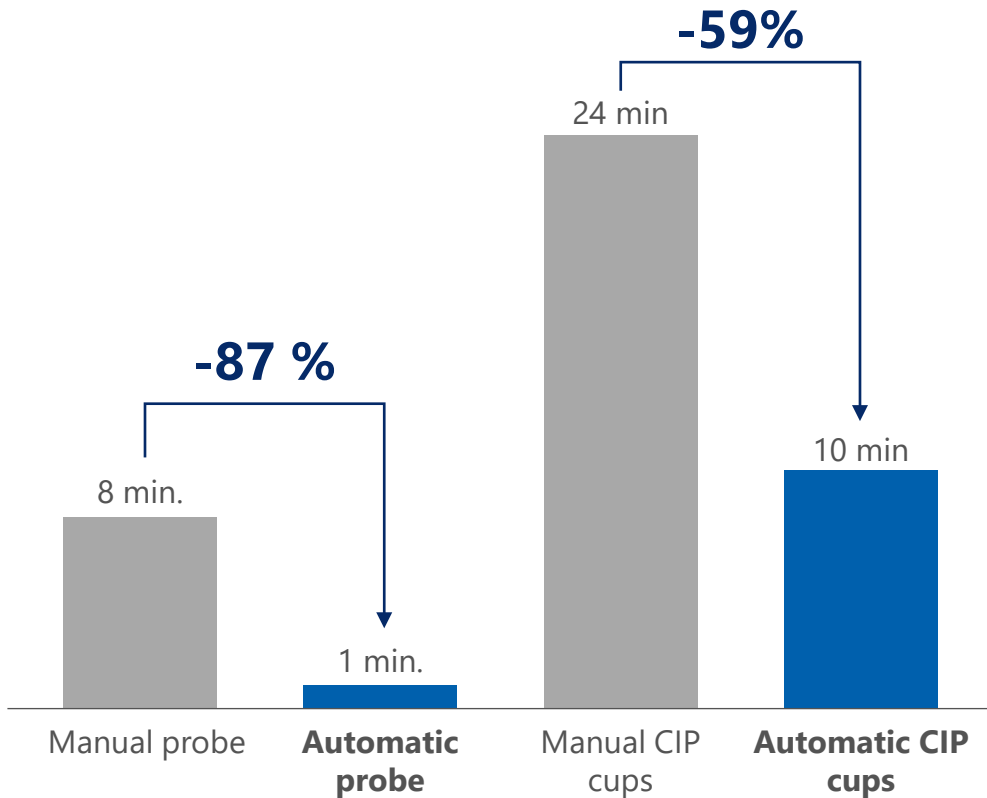


Modulfill HES probe filler

Optional with automatic probe adjustment and automatic CIP cup adjustment



Time saving during change-over:



Modulfill HES probe filler

Pump unit with dry-running vacuum pump

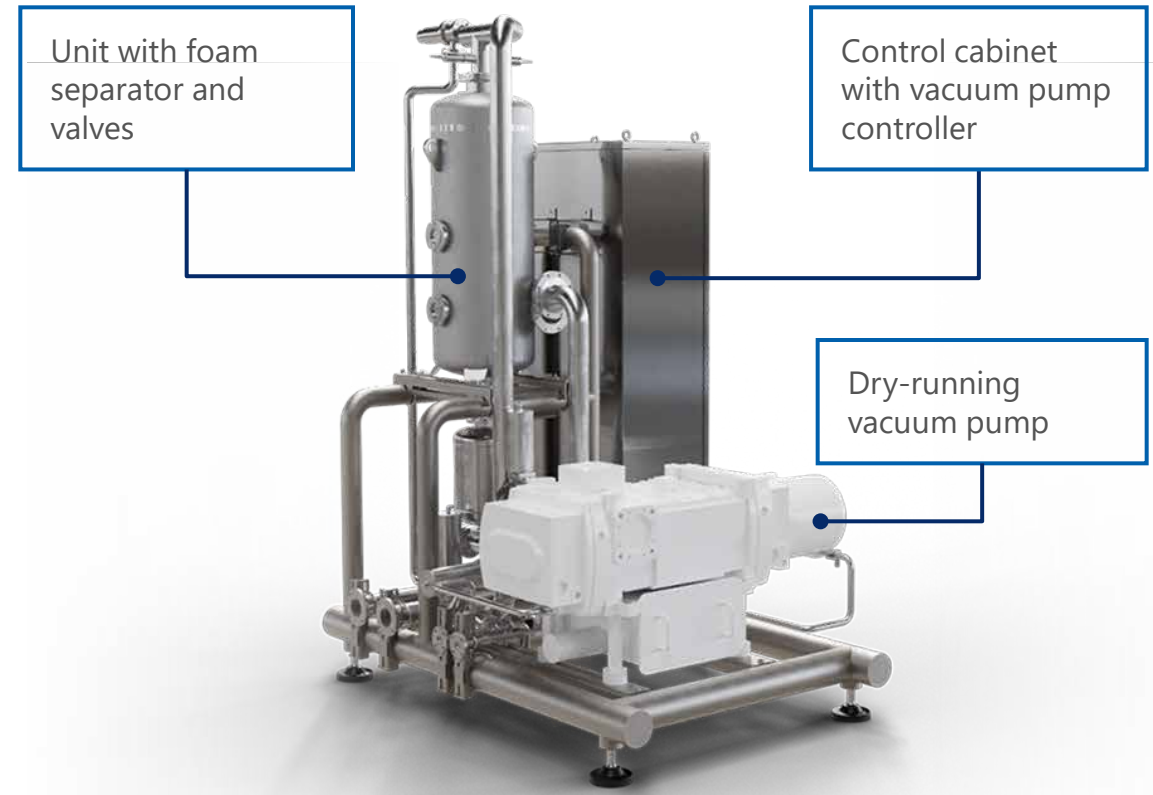


By using a dry-running vacuum pump, not only the production can be more sustainable, but also a higher product quality can be achieved when filling beer.

Benefits to you

- Realisation of lower vacuum values during filling
- Optimum hygiene conditions in the machine, since the piping and foam separator are integrated into the CIP circuit as usual
- Significant minimisation of the water consumption during production
- Reduced energy consumption by up to 25 percent*

* during the ongoing production, compared to a conventional liquid-ring vacuum pump with the same suction capacity



Modulfill HES probe filler

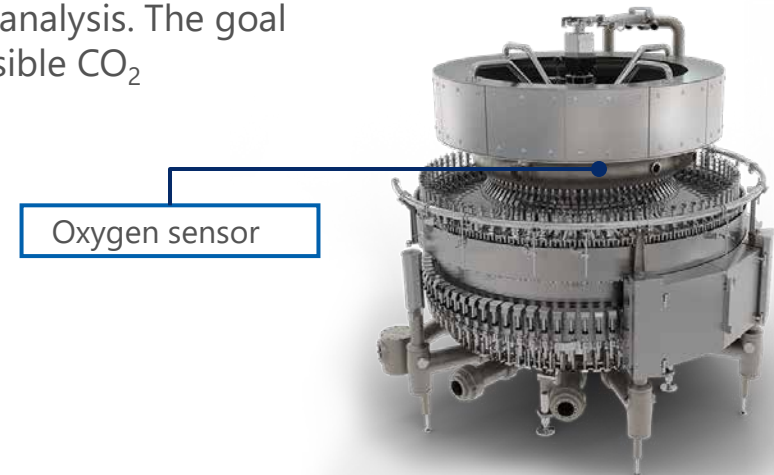
Intelligent process gas control system using an oxygen sensor



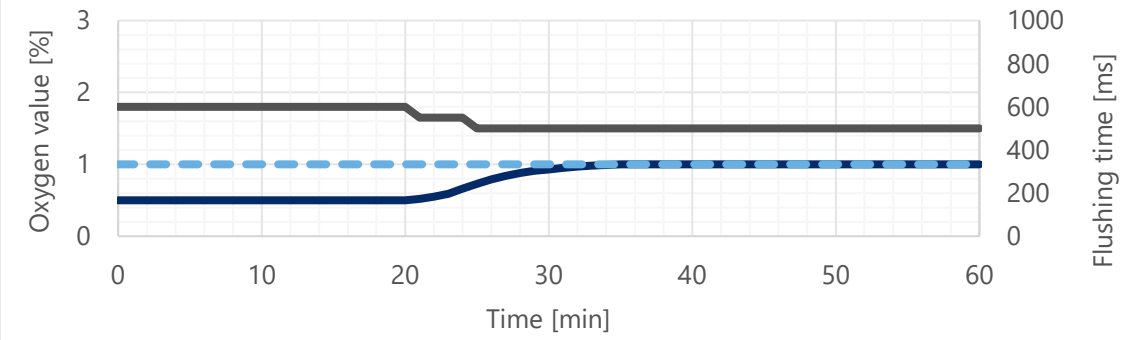
Continuous measurement of the residual oxygen in the gas space of the filler bowl and analysis. The goal is to achieve the lowest possible oxygen pick-up in the filled bottle with the lowest possible CO₂ consumption.

Benefits to you

- Revealing CO₂ savings potential
- Automatic quality control
- Detection of process faults
- Automatic optimisation of flushing and vacuum times

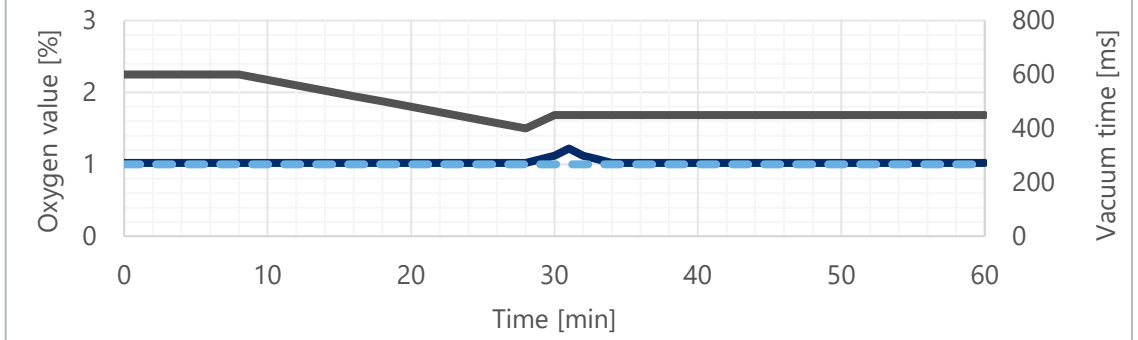


Process gas savings



■ Oxygen value ■ Target value ■ Flushing time

Optimisation of evacuation time



Modulfill HES probe filler

Optional with hygienically designed Kronos Modulcrown



- Capping head and bottle plates with rinsing window for optimum cleaning
- Lifetime-lubricated rollers
- Cam lubrication with automatic single-point lubrication system for optimal running conditions
- Mechanical separation between the process and drive area
- A 20 percent higher output



Modulfill HES probe filler

Optional with hygienic sorter



- Automatic extraction of the cap abrasion residue in the sorter
- Automatic cap emptying function
- Reduction of change-over times with two sorters on the platform
- Structure in hygienic design:
 - Twist tube in fully cleanable stainless steel design
 - Cap chute available with slide: Therefore the sorter can be positioned outside of the filling area, on a platform or a clean room roof



Modulfill HES probe filler

Optional with hygienic discharge conveyor



- Separation of filling area and exterior area
- Automatic cleaning through the connection to the foam cleaning system
- Reduced water consumption thanks to an optimised spraying pattern
- Integration of the bottle spraying system: No spray-cleaning water on the filler or other machines



Modulfill HES probe filler

Benefits to you



Best technological values

- Several pre-evacuations
- Optimal interconnected CO₂ flushing
- Pneumatically controlled high-pressure injection

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

Foam-free filling

Use of swirl inserts at the filling valve outlet

Perfect harmony between the pneumatic components and the electronic components

All processes 100 percent reproducible: No additional installations (e.g. pressure transducer with corresponding electronics) required

New machine enquiry

You can easily enquire a non-binding quotation in our Krones.shop.



Modulfill HES probe filler

Benefits to you



Precision and long service life

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

Maximum filling accuracy

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

High filling stability

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

New machine enquiry

You can easily enquire a non-binding quotation in our Krones.shop.



Modulfill HRS Short-Tube Filling System



Mechanical filling system

- Reliable fill level determination via the vent tube
- End of filling after liquid contact with vent tube
- Low-oxygen filling through several pre-evacuation steps with intermediary CO₂ flushing
- Electropneumatic filling valve
- One filling speed

Field of applications

Suitable for all beer types

Performance

Up to 78,000 containers per hour



Modulfill HRS Short-Tube Filling System



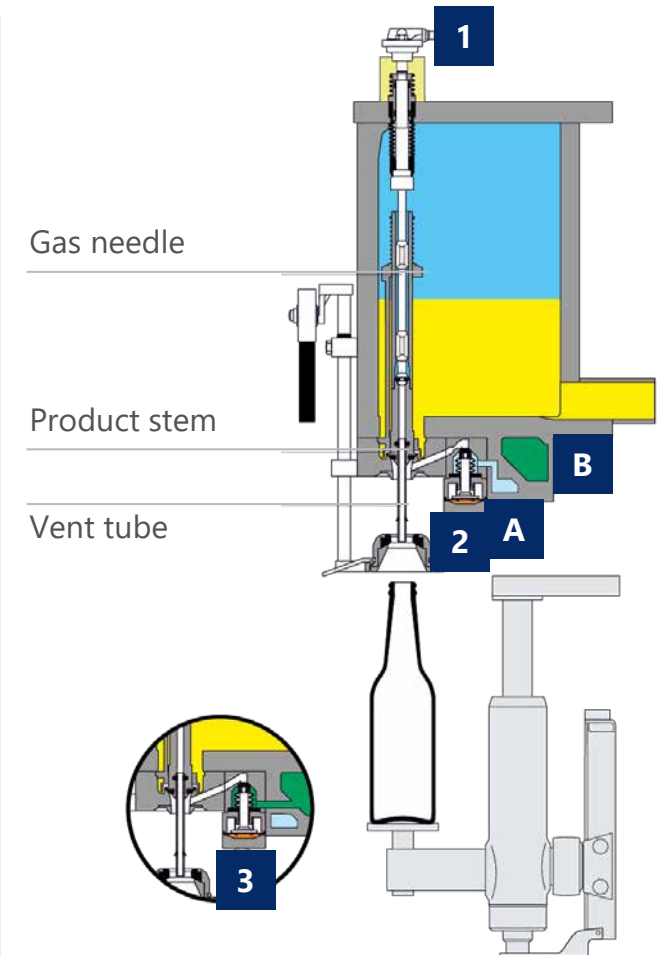
Functional principle of the valve

First the glass bottle is pressed on and then it is pre-evacuated several times. The filling process will start as soon as the same pressure prevails in the ring bowl and the bottle. If the liquid level reaches the end of the vent tube, no more gas can escape from the bottle - and the filling valve closes. After a settling phase, the pressure in the head space of the bottle is released via the snifting valve and the filled product exits the machine.

Viscosity	< 10 mPa·s
Pulp	≤ 0.4 mm/proportional < 10 %
Fibres	1 x 5 mm/proportional < 5 %

Functions

- 1** Gas needle
Product stem
- 2** Snifting
- 3** Vacuum
- A** Snifting/CIP
- B** Vacuum



Modulfill HRS short-tube filling system

Benefits to you



Best technological values

- Several pre-evacuations
- Optimal interconnected CO₂ flushing

Hygienic design

- Self-draining surfaces
- Clean pneumatic components hosing and electrical wiring

Precision and long service life

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



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Modulfill VFS-C can filler



Volumetric can filler

- For both small and large output range
- 28 to 182 filling valves integrated
- Can heights between 80 and 200 mm*

Field of applications

Suitable for all beer types

Performance

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



* Other can heights possible on request | ** Depending on the current can format | VFS C: Volumetric filling, Flow meter, Short tube, Can

Modulfill VFS-C can filler



The method of operation of the new filling valve

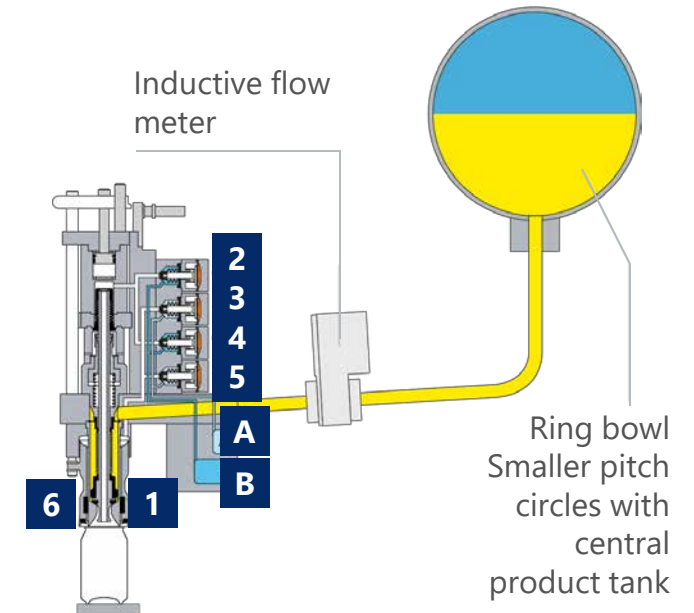
The can is fed into the filler and positioned underneath the filling valve. The valve is pneumatically lowered onto the can for pressing-on. Thanks to a differential pressure chamber, the cans are centred and pressed onto the valve with particular care. The filling process begins immediately after flushing. 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
- Parallel interior and exterior cleaning thanks to the isolator design

Basic position

- 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



Modulfill VFS-C can filler

Benefits to you



Best hygiene conditions

- Hygienic filling valve
- Machine concept without a front table but with a consistent use of 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

Promoting energy efficiency

Use of servo drive technology

New machine enquiry

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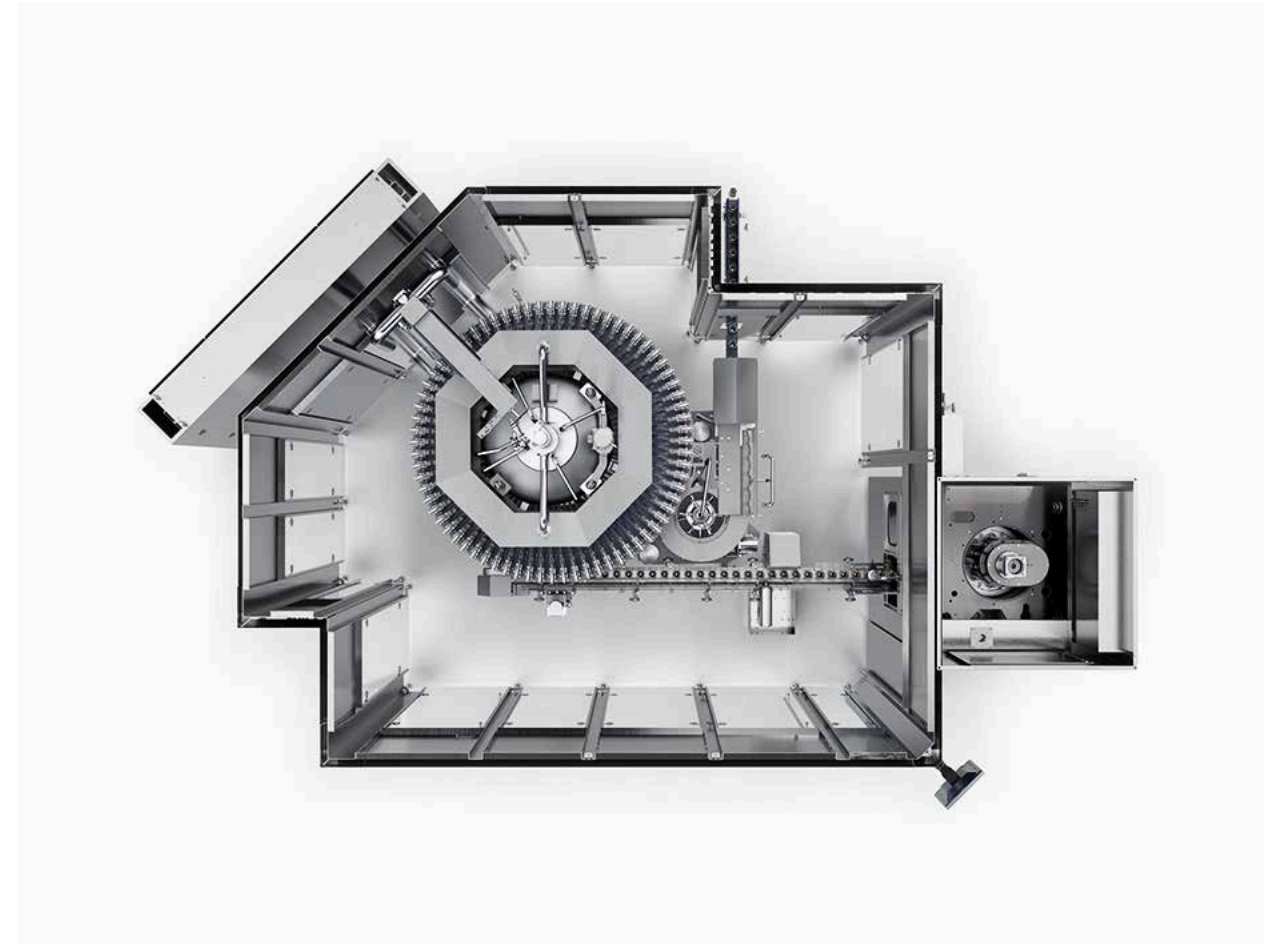
Modulfill Bloc FS-C in standard design

Facts and figures



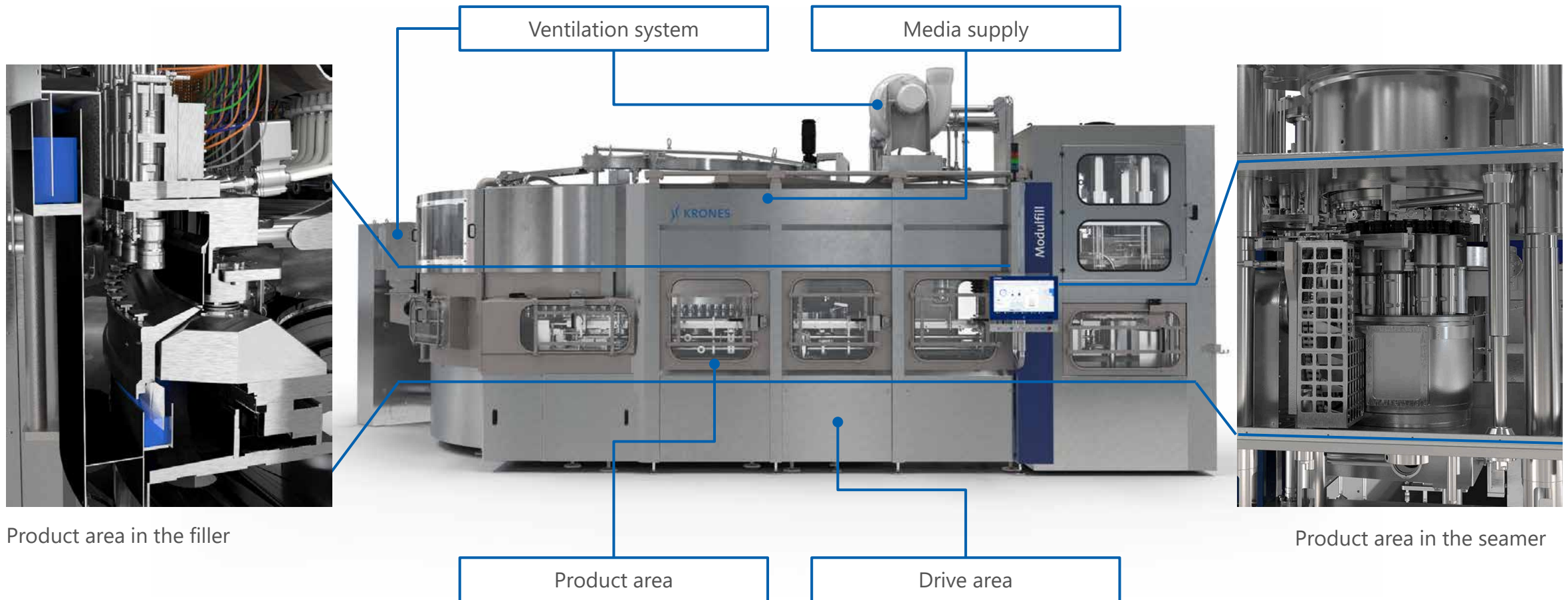
Performance	Up to 135,000 cans per hour*
Efficiency	> 98 percent
CO₂ consumption	Reduction by up to 40 percent**
CO₂ loss	0.1 g/l
Standard deviation	1.0 ml (for a can size of 500 ml)
Product change-over with Kronos Contiflow mixer	10 minutes

* Depending on the current can format, only with third-party capper | ** Compared to conventional filling and capping systems | Afore-mentioned values are examples taken from measurements recorded at customer facilities and cannot be viewed as being the general rule.



Modulfill Bloc FS-C with compact clean room

The structure



Modulfill Bloc FS-C with compact clean room

Benefits to you



Everything from a single source

With its Modulfill Bloc FS-C design including compact clean room, Kronos is providing a block solution for the can filling & seaming of products with high demands on hygiene (e.g. without the use of preserving agents).

Minimisation of the sensible filling and capping area

Thanks to the isolator design, the sensitive product area can be reduced to a minimum compared to conventional filling technology. Decentralised filter units ensure controlled overpressure in the filler area.

Ease of operation

The machines in the block share a joint control panel and the controller.

Low space requirement

The footprint can be reduced to up to 35 percent compared to an arrangement with conventional, stand-alone machine guards.

Improved cleaning

A closed cleaning system ensures simultaneous exterior and interior cleaning of the treatment area, filling valves and additional pipe system. The use of caustic and acid instead of foam means that both the quantity and variance of the cleaning media are reduced.

Product quality

The volumetric filling valve with inductive flow meter ensures the highest accuracy during filling – and keeps the product quality high. Low oxygen values combined with a 40 percent lower CO₂ consumption ensure that the product quality is high while the media consumption remains low. A variety of products can also be manufactured without a tunnel pasteuriser and with only one flash pasteuriser.

New machine enquiry

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



Modulfill Bloc FS-C with compact clean room

Facts and figures



Performance	Up to 135,000 cans per hour*
Efficiency	> 98 percent
Footprint	Reduced by up to 35 percent**
Cleaning media	Acid and caustic instead of foam
Cleaning time	Reduction by up to one hour***
Clean room class	ISO 5 possible
Volume of sensitive product area	10 percent compared to the large clean room



* Depending on the current can format, only with Krones Modulseam | ** Compared to separate designs | *** For approximately three cleaning processes per day, depending on the shift model

Moduleseam can seamer



Krones integrated its many years of experience in the filling and capping technology sectors in the Moduleseam. The key factor: the can seamer is precisely designed to complement the Modulfill VFS-C filler – and therefore works hand in hand with it.

The following features are integrated as standard:

- Bubble breaker
- Under-lid gassing with CO₂
- CIP cleaning
- Quick-change handling parts
- Servo drive concept
- Central lubrication system

Optional

Design with compact clean room



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: 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
- Beer: enhanced beer quality with express pasteurisation



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**

