

KRONES Modulfill VP

The modular probe filling system



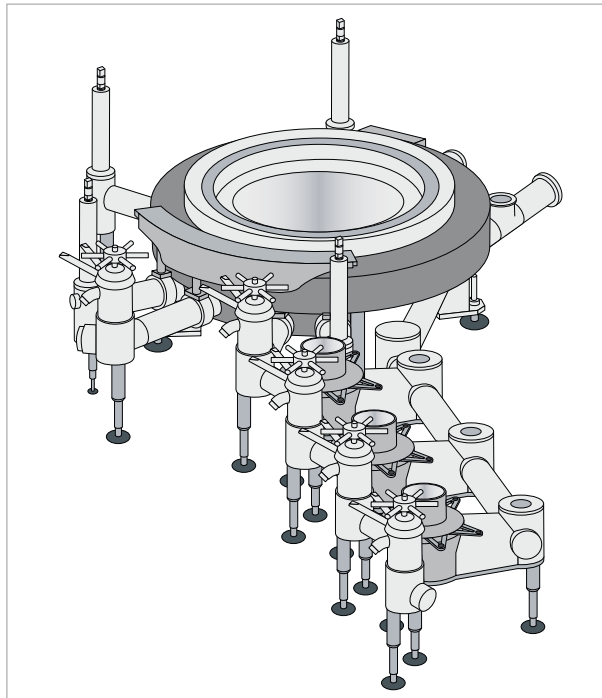
 **KRONES**

Hygienic and versatile

KRONES Modulfill VP

The concept for the Modulfill series of machine was designed for bottling specifically in a hygienic environment. The areas outside the filler are considerably smaller because of the free-standing Monotec transfer starwheels. This innovative construction also means the machine is easily accessed for maintenance purposes and also that expansion is possible at any time – for example to add an additional capper – without making any modifications.

With the model Modulfill VP KRONES is providing an all-round filling system for many conductive beverages irrespective of whether these are sensitive to oxygen, contain CO₂ or are non-carbonated. The system always fills to exactly the desired fill level regardless of the shape of the container to be filled because the fill level is defined by a probe. The electro-pneumatic controller makes it possible to use pre-programmed filling sections of exact reproducibility at any time; these can be adapted with precision to the particular beverage.



*Filler carousel with
Monotec starwheel columns*



*Filling valves in the
Modulfill VP*

Method of operation

The Modulfill VP is a short-tube filling system working according to the principle of equal pressure. Filling can begin as soon as the bottle is pressing against the centring bell. Depending on the version, the bottle is first of all pressurised or pre-evacuated. Depending on the product, a single or double pre-evacuation with intermediate rinsing can be employed. The actual filling operation begins once the pressure in the ring container and the bottle is the same – two filling rates can be set at the vent tubes from the control valves. The filling operation has finished when the product makes contact with the probe on the filling tube. After a settling phase, the pressure in the container head space is reduced by the snifting valve, and the bottle then leaves the filling machine. This snifting step can be adjusted to the requirements of any product, the particular CO₂ content and to any filling temperature by the electro-pneumatic controller.

Application

Filling of carbonated and non-carbonated beverages in glass and PET bottles

Output range

Depending on the product to be bottled, the system can fill up to 72,000 bottles per hour.

Type designation

- V Valve
- P Pneumatic
- V Pre-evacuation
- I Single chamber

Model	Glass	PET	CSD	Beer	Water	Pressureless	Vacuum
VPI (21015)	X	X	X		X	X	
VPVI (21025)	X		X	X	X	X	X

Machine pitch	87	94	103	113	126	141	188	283
Type	Pitch circle diameter (mm)		Number of filling valves					
121	1,440			48	44	40		32
122	1,800			60	55	50	45	40
123	2,160		78	72	66	60	54	48
124	2,520		91	84	77	70	63	56
126	2,880		104	96	88	80	72	64
129	3,600		130	120	110	100	90	80
131	4,320		156	144	132	120	108	96
132	5,040		182	168	154	140	126	112
136	5,760		208	192	176	160	144	128

Design features

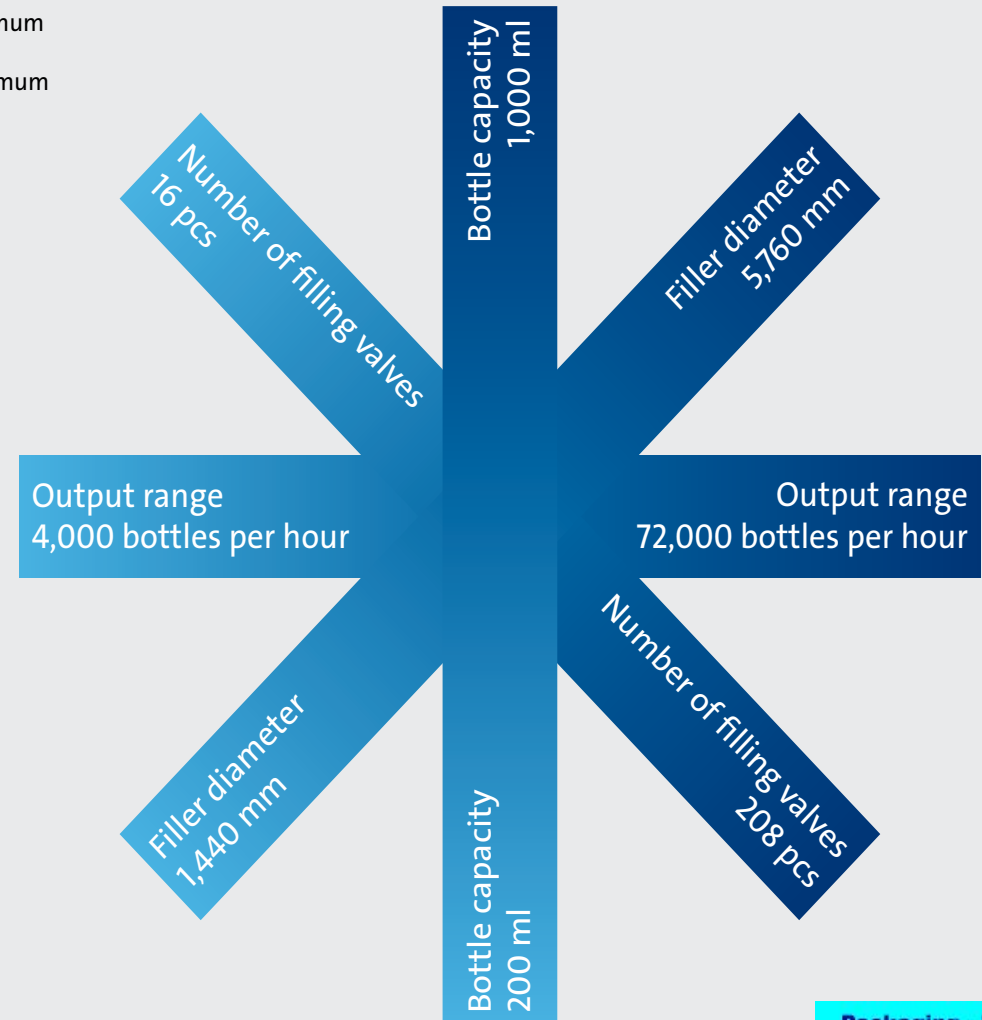
- Determining the fill level from the probe signal
- Probe can be adjusted manually when changing products
- Gentle feed of medium from the bottom by means of rotary media manifold and pipe joints
- Manifold as well as all parts coming into contact with the product or gas are made of high-grade tool steel AISI 304 grade or higher
- Monotec starwheel columns, free-standing or with an inclined front table, made entirely of stainless steel
- Servodrives at the axles instead of mechanical power transmission
- Quick-change Raptec handling parts of hygiene design
- Base frame and main bearing made of steel and painted
- Centre or tubular ring bowl with optimum conditions for internal and external cleaning
- Cleaning in the closed system by using CIP cup storage
- Latest safety requirements of the standard EN ISO 13849 have been implemented under supervision of TÜV technical inspection authority
- Up to three cappers can be integrated without needing to prepare or replace any assemblies



Monotec starwheel column

The Modulfill VP series provides a wide range of sizes, output and container sizes for processing. Furthermore, customised versions can be realised as well.

■ minimum
■ maximum



System variants

KRONES Modulfill VP

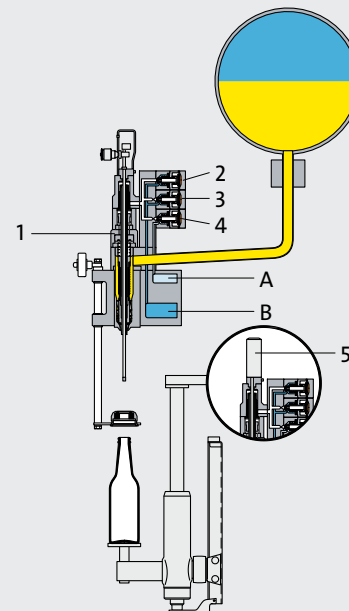
VPI – the CSD variant

The basic design is suitable for processing a wide variety of bottle and product types.

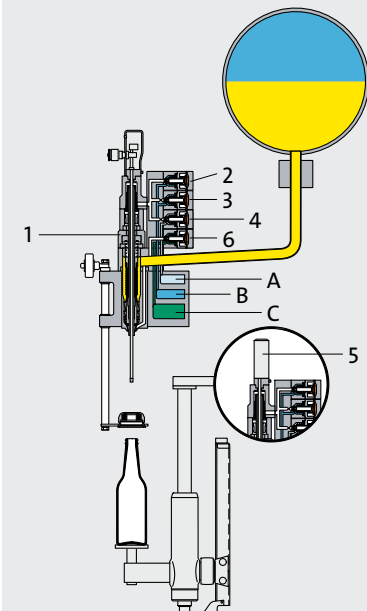
VPVI – the beer variant

Several pre-evacuation steps and the bottle treatment with gas from the ring bowl ensure minimum oxygen pick-up during filling.

VPI (21015)



VPVI (21025)



- 1 Control cylinder
- 2 Pressurising and return gas valve fast
- 3 Pressurising and return gas valve slow
- 4 Snifting valve
- 5 Automatic probe adjustment (option)
- 6 Vacuum and CIP return valve

- A Snifting channel
B Pressurising channel
C Vacuum channel

Screen

- Colour touch-screen
- Safe access to the user interface from separate transponders
- User-friendly menu guidance through the operating programme
- Task-orientated operating concept
- Easy-to-follow display of the current production data
- Filling steps can be set and saved individually for each product
- Malfunction display in plain text and graphic display
- Text displayed in the selected language
- Interface to higher-level systems like LDS (Line Data Storage System) or LMS (Line Management System)
- Remote maintenance possible



Touch-screen operation

Change-over

- Change the fill volume or filling programme by selection on the touch-screen
- Automatic adjustment of the height for the ring container and the capper
- Replaceable centring bells for different neck finish shapes
- Quick-change Raptec guidance handling parts



Raptec quick-change handling parts

Additional equipment

KRONES Modulfill VP

- Automatic probe adjustment
- Filler base frame made entirely of stainless steel
- Flushing system for cleaning the outside of the filler
- Fully automatic valve manifolds
- Measuring equipment in the product line, for example for O₂, CO₂, Brix value, product flows
- Consumption measurements, for example consumption of water or CO₂
- Spraying device in the ring container for optimum cleaning and rapid product changing
- Parts in contact with the product are made of tool steel AISI 316
- Manifolds with seals which can be rinsed from all sides or do not smear
- Product pumps
- Water-efficient vacuum pumps



Fully automated valve manifold

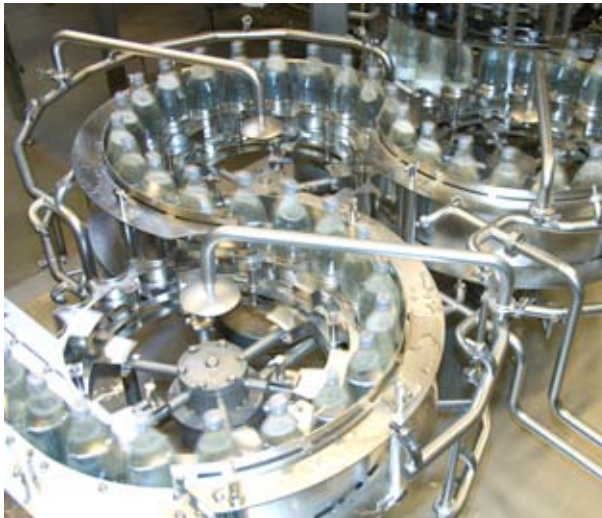


Flushing system for cleaning the outside

System expansions

KRONES Modulfill VP

- Foam cleaning system for cleaning the outside of the filler
- Clean room housing with HEPA filters
- Nitrogen injector
- KRONES Capcade – cascading sorting system for caps
- Cappers from other manufacturers
- Simple conversion to a block arrangement with rinser, blow moulder or labeller by exchanging Monotec modules is possible



System for foam cleaning



Cascade sorting system for caps

Your benefits

KRONES Modulfill VP

■ Versatility

This filling system is suitable for a wide spectrum of products: ranging from water to CSD and beer, right through to wine and sparkling wine.

■ Exact fill level

Because of the vacuum adjustment the system reaches the defined fill level with high accuracy

■ Flexibility

Any change-over to other products, a different CO₂ content, or filling temperature is quick, straightforward and reproducible.

■ Short change-over times

Raptec quick-change handling parts, quick exchange of the vent tube and easy selection of the filling programme make extremely short change-over times possible.

■ Hygienic bottling conditions

The areas outside the filler are considerably smaller because of the free-standing Monotec transfer starwheels. Mechanical drive units like gears and joint shafts have been superseded by closed servodrives.

■ Effective cleaning

Cleaning the inside in the closed circuit makes reliable process flows possible. There are no inbuilt springs in any product or gas channels and these can thus be kept clean to an optimum.

■ Simple maintenance

Access to the machine is simple so that all maintenance work and service jobs can be carried out easily.

■ Fit for the future

The modular design of the filler means a further capper can be subsequently fitted or that a bloc with rinser, blow moulder or labeler can be set up.

