

**KRONES Sensometric VP and VPL**  
The intelligent probe filler systems



# Universally applicable

KRONES Sensometric VP and VPL

With the Sensometric VP and VPL series, KRONES offers electronically controlled all-round filler systems for a wide range of products: All conductive beverages, whether oxygen-sensitive, carbonated or non-carbonated, can be filled into containers of virtually any shape. The long-tube variant is suitable also for filling products containing pulp and fibre as well as for hot filling of non-carbonated beverages.

The fill level is defined on the Sensometric VP by a rod-type probe and on the Sensometric VPL by a probe built-in to the filling tube. As a result, the system reaches the desired fill level very precisely, always in keeping with the container shape used. With the long-tube filling valves on the Sensometric VPL the advantages of filling from the bottom can be fully utilised. This results in very low oxygen absorption by the beverage and prevents foaming. The electro-pneumatic control system enables preprogrammed and permanently reproducible filling steps tailored precisely to the beverage.



*Container infeed on the Sensometric VPL filler*

# Sensometric VP

## Figures, data, facts

KRONES Sensometric VP and VPL

### Method of operation

All variants of the Sensometric VP are short-tube fillers operating by the equal pressure principle. As soon as the bottle is pressed to the centring bell, filling can begin. Depending on the version, the bottle is first pressurised or pre-evacuated. Depending on the product, a single or double pre-evacuation with intermediate flushing can be employed. When equal pressure is reached in the ring bowl and bottle, the actual filling begins. Two filling speeds can be set by way of the control valves on the return air tubes.

The filling process is complete when the product touches the probe on the filling tube. After a settling phase, the pressure in the container's head space is taken off via the snifting valve and the bottle exits the filler. This snifting step can be adjusted to any product, any CO<sub>2</sub>-content and any filling temperature via 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, this system can fill up to 72,000 bottles per hour.

Model	Glass	PET	CSD	Beer	Water	Pressureless	Multi-chamber
VPI (20015)	X	X	X		X	X	
VPVI (20025)	X		X	X	X	X	
VPIM (20038)	X		X	X		X	X
VPVIM (20022)	X	X	X		X	X	X

		Vacuum							
Machine pitch		87	94	103	113	126	141	188	283
Type	Pitch circle diameter (mm)	Number of filling valves							
121									X
122	1,440		48	44	40		32	24	X 16
123	1,800		60	55	50	45	40		
124	2,160		78	72	66	60	54	48	
126	2,520		91	84	77	70	63	56	

# Sensometric VPL

## Figures, data, facts

KRONES Sensometric VP and VPL

### Method of operation

The lifting unit presses the bottle to the filling valve, making a gas-tight seal, and pressurises it. The long tube of the filling valve is inserted into the bottle almost as far as the base in the process. The pneumatic control cylinder opens the valve stem. The product flows past the valve stem and enters the bottle via the filling tube. The return gas escapes via the bottle neck and the return gas line into the ring bowl. The probe built-in to the filling tube signals reaching of the preset fill level to the electronic control system. This triggers closing of the valve stem and the product feed is stopped. The excess pressure still in the bottle neck and in the return gas line when the fill level is reached escapes via the snifting valves into the snifting line. The filling tube is drained into the bottle when the container is lowered by the lifting unit. The stored functions of the filling system can be called up via the central terminal. This means change-over to different products and bottles can be done quickly.

Filling of carbonated and non-carbonated beverages in glass and PET bottles, hot filling possible

### Output range

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

Model	Glass	PET	CSD	Beer	Water	Juice with fibres	Wine Sparkling wine	Pressure-less	Vacuum	Hot filling
VPL (20305)	X	X	X	X	X	X		X		X
VPL (20325)	X	X	X		X	X	X	X		X
VPL (20330)	X	X	X	X	X	X		X	X	X
VPL-PET (20400)		X	X		X	X		X		X
VPL-PET (20450)		X	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	24	16
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

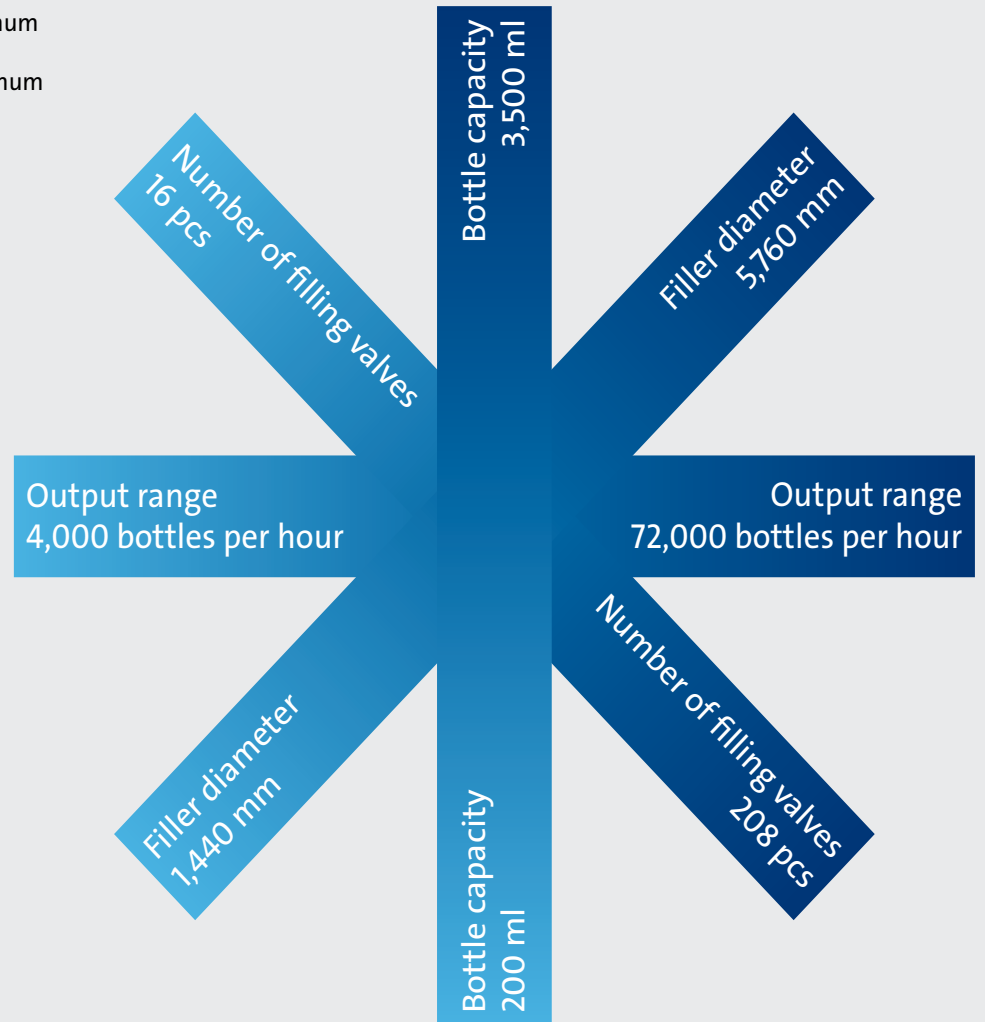
- Measurement of fill level by probe signal
- Probe manually adjustable/exchangeable on product change
- Gentle media feed from the bottom via rotary media manifold and pipe joints
- Distributor and all parts contacting product or gas are made of stainless steel AISI 304 or higher grade
- Automatic adjustment of the machine head with container preselection
- Quick-change type Raptec handling parts in hygienic design or neck-handling equipment
- Cleaning in the closed circuit via CIP cups
- New safety standards EN ISO 13849 with TÜV supervision (TÜV = technical inspection authority) completely applied
- Integration of up to three cappers possible
- Bloc arrangement with rinser, labeller, or blow moulder possible

## Type designation

- V** Valve
- P** Pneumatic
- V** Pre-evacuation
- I** Single-chamber
- M** Multi-chamber
- L** Long tube
- PET** Polyethylene terephthalate

*The Sensometric VP and VPL series offer a wide range of sizes, outputs, and container sizes to be processed. Furthermore, special designs can be realised as well.*

- minimum
- maximum



# Sensometric VP System variants

KRONES Sensometric VP and VPL

## For glass bottles

### 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.

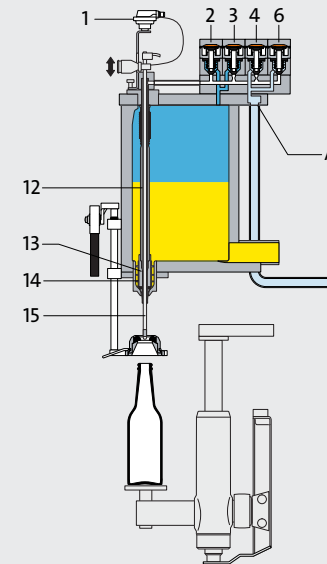
### VPIM – the CSD and water variant

With this variant, users can choose between single and multi-chamber mode. Multi-chamber mode is used in conjunction with microbiologically sensitive beverages.

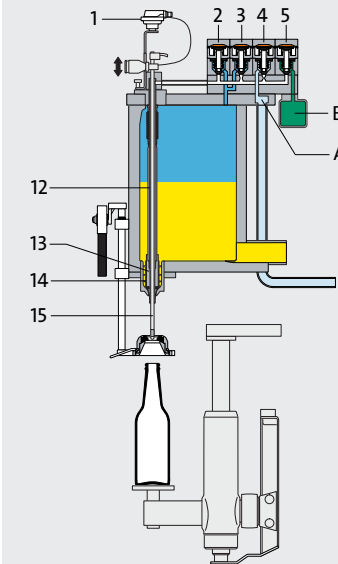
### VPVIM – the optimum solution for beer, CSD and water

Alongside single-chamber and multi-chamber modes, this variant also offers the option of carrying out pre-evacuation steps.

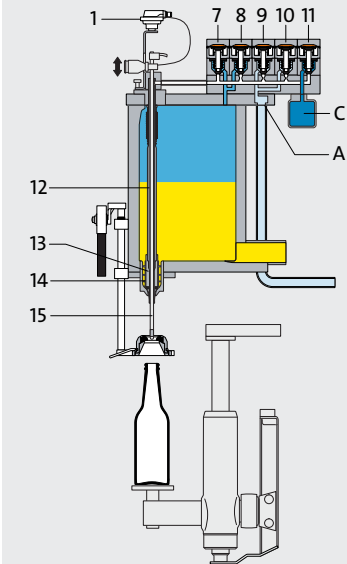
VPI (20015)



VPVI (20025)



VPIM (20038)



- 1 Control cylinder
- 2 Pressurisation and return gas valve, fast
- 3 Pressurisation and return gas valve, slow
- 4 Snifting valve
- 5 Vacuum and CIP valve
- 6 Additional cleaning control valve
- 7 Pressurisation and return gas valve, fast (single-chamber mode)
- 8 Pressurisation and return gas valve, slow (single-chamber mode)
- 9 Pressurisation and return gas valve, fast (multi-chamber mode)

- 10 Pressurisation and return gas valve, fast (multi-chamber mode)
- 11 Pressurisation valve, pure gas
- 12 Return air tube
- 13 Valve stem
- 14 Swirl insert
- 15 Probe

- A Snifting channel  
 B Vacuum and CIP return channel  
 C Pure gas and CIP return channel

# Sensometric VPL System variants

KRONES Sensometric VP and VPL

## For glass bottles

### VPL – the variant for CSD and juices containing fibres

The products are filled from the bottom – cold or hot – with the long filling tube.

### VPL – the variant for wine and sparkling wine

Flushing with ring bowl gas displaces the oxygen from the bottle prior to filling.

### VPL – the beer variant

Minimal oxygen absorption during filling is attained by multiple pre-evacuation steps.

## For PET bottles

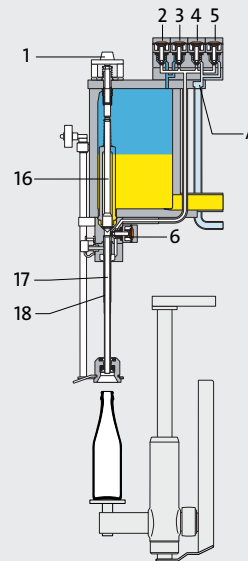
### VPL-PET – the variant for CSD and juices containing fibres

The products are filled from the bottom – cold or hot – with the long filling tube.

### VPL-PET – for beer in PET

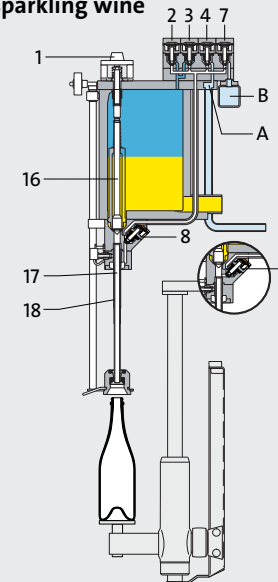
Several pre-evacuation steps and the bottle treatment with gas from the ring bowl ensure minimum oxygen pick-up during filling.

## VPL (20305) for CSD and juice



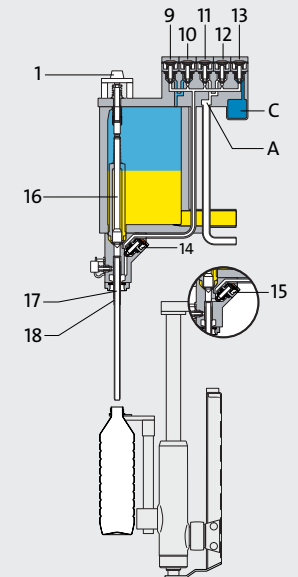
- 1 Control cylinder
- 2 Pressurisation and return gas valve, fast
- 3 Pressurisation and return gas valve, slow
- 4 Snifting valve
- 5 CIP valve
- 6 Tube ventilation control valve
- 7 Snifting valve
- 8 Control valve for flushing the bottle with gas
- 9 Pressurisation and return gas valve, fast (single-chamber mode)

## VPL (20325) for wine and sparkling wine



- 10 Pressurisation and return gas valve, slow (single-chamber mode)
- 11 Return gas valve, fast, snifting valve (multi-chamber mode)
- 12 Return gas valve, slow, snifting valve (multi-chamber mode)
- 13 Pressurisation valve, pure gas
- 14 Control valve, atmosphere
- 15 Pipe draining
- 16 Valve stem
- 17 Filling tube
- 18 Probe

## VPL-PET (20450) for beer



- A Snifting channel
- B Snifting channel (pressure-controlled)
- C Pure gas channel

# Operation and change-over

KRONES Sensometric VP and VPL

## Screen

- Colour touch-screen
- Secure access to the user interface using individual transponders
- User-friendly menu setup in the operating programme
- Task-oriented user concept
- Easy-to-follow display of the current production data
- Filling steps can be adjusted individually and saved for any product
- Malfunction display in plain text and graphic display
- Text displayed in the set 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

- With lifting cylinder variants: automatic height adjustment of the ring bowl and the capper
- Replaceable centring bells for changes of the neck finish shape
- Base handling: Quick replacement of the Rapterc handling parts
- Neck-handling device: with the same neck-finish diameter and changes of the container height and diameter, merely the capper starwheel and lowering starwheel must be replaced
- Optional: special design for successive change-over of mixer and filler making product change-overs within 10 minutes possible



*Rapterc quick-change handling parts*



*Neck-handling clamps*

# Additional equipment

KRONES Sensometric VP and VPL

- Design with gable-type table top
- Flushing system for exterior cleaning of filler
- Fully automated valve manifold
- Measuring devices for product pipe, for example O<sub>2</sub>, CO<sub>2</sub>, Brix value, product flow
- Consumption measurement, for example of water or CO<sub>2</sub>
- Spray balls in the ring bowl for optimal cleaning and quick product changes
- Product contact parts in AISI 316
- Distributor with gaskets that can be rinsed from behind or that are lubricant-free
- Product pumps
- Water-saving vacuum pumps



*Fully automated valve manifold*



*Sensometric VP in gable-type table design*

# System expansions

KRONES Sensometric VP and VPL

- Foam cleaning system for exterior cleaning of filler
- Clean room housing with HEPA filters
- Nitrogen dropper
- Velcorin dosing
- KRONES Capcade – cascade sorter for caps
- Cappers from other manufacturers
- Aluminium seal machines



*System for foam cleaning*



*Clean room housing*



*Cascade sorting system for caps*

# Your benefits

KRONES Sensometric VP and VPL

- **Versatility**  
This filling system is suitable for a wide range of products: ranging from water to CSD, juice with pulp, beer, all the way to wine and sparkling wine.
- **Exact fill level**  
Thanks to the probe control system, the system reaches the pre-programmed fill level with a high degree of precision.
- **Product-preserving filling**  
With the long-tube variant, the beverage is filled in a particularly gentle, non-damaging way.
- **Flexibility**  
Change-over to other products, CO<sub>2</sub>-contents, or filling temperatures is done quickly, easily, and it is reproducible.
- **Short change-over times**  
Short change-over times possible through Raptec quick-change handling parts or neck-handling equipment and easy selection of filling programme.

- **Effective cleaning**  
The interior cleaning in a closed cycle enables a safe process, and smooth as well as easy-to-clean outer surfaces provide a hygienic environment. All product and gas lines are free of spring fittings and so are very easy to keep clean.
- **Easy maintenance**  
This machine is well accessible so that all maintenance and service jobs can be performed easily.

