



Innoclean



Bottle Rinsers
to Meet
Highest Demands

KHS Rinsing Technology – So that you are on the safe side

Would you like to reliably process a wide range of glass or plastic bottle types with different bottle mouth sizes? Then choose the rinsing technology you need from KHS. Based on extensive know-how, years of practical experience and integration with KHS filling technology, KHS rinsing technology offers maximum functionality and profitability and a top level of development. The technology is continuously developed further according to the demands of our customers and their markets. Mechanically or computer-controlled systems for one or several rinsing media – optimally tailored to meet your requirements.



The special features of KHS rinsing technology include:

- Valve control for mechanical rinsers. Variable rinsing angles, processing, and exposure times. No bottle, no rinse!
- Dry rinsing with ionized air.
- Computer-controlled Innoclean FR-DR rinser for ACF and ultra-clean applications.
- A completely newly designed special rinser for PET containers. State of the art. Simple design. Reliable rinsing quality.





Further details:

- Newly developed gripper for the PET rinser.
Plastic clip system for reliable bottle control.
- Foldable splash guard.
Optimum prerequisite for maximum CIP sanitizing reliability.
- Flow control at the spray tube.
Monitoring of rinsing media application.
- Cam-controlled liftable spray tube for gaseous media such as sterile air, steam, and nitrogen.
- Recycling capabilities with reusable disinfectants.
Significant cost savings.

Choose the optimum rinsing method for your application from the KHS product range.



KHS Rinsing Technology –

Here, you will find the right solution to all your rinsing needs



When selecting the right processing method, technological and microbiological factors must be taken into consideration along with the type of product and container.

Take advantage of our comprehensive know-how and experience. Get advice from the experts.





Product	Beer		Soft drinks		Carbonated water		Non-carbonated water		Juices, tea		Wine, sparkling wine	
	Glass	PET	Glass	PET	Glass	PET	Glass	PET	Glass	PET	Glass	PET
EM	●	■	●	●	●	●						●
ZM			■	■			●	●				
ER		●		●		●						
ZR							■	■	●			
DR							■				●	■
DR/ACF				●					●	●		

● Well suited ■ Possible

EM = single-chamber, mechanical
 ZM = two-chamber, mechanical
 ER = single-chamber, computer-controlled

ZR = two-chamber, computer-controlled
 DR = triple-chamber, computer-controlled
 DR/ACF = triple-chamber, computer-controlled aseptic

Innoclean PET Concept –

The rinser for pure PET bottle processing.

Part of the revolutionary KHS PET filling concept.



No more processing at a “snail’s pace”!

The bottles are guided by an infeed disk requiring no change parts.

Saves space, time, and money.

Newly developed plastic bottle grippers for direct bottle transfer from the infeed starwheel. Passive gripper system!

The high elasticity of the plastic ensures gentlest possible bottle control at all times.

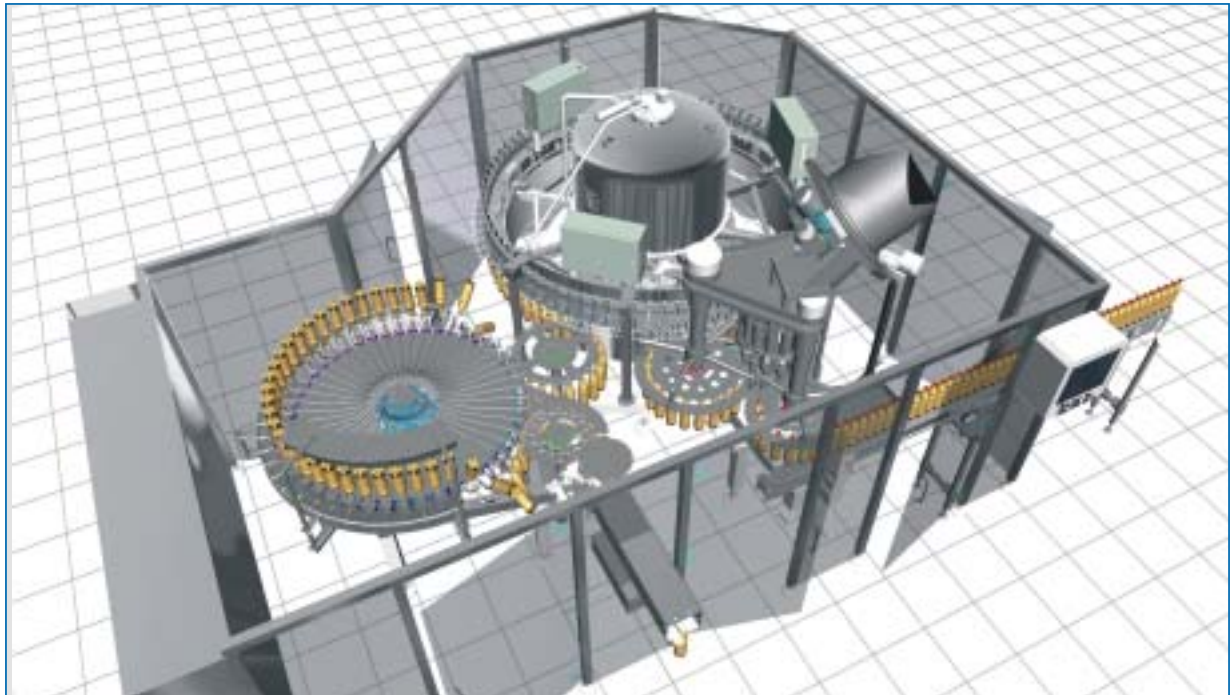
Considerably fewer change parts.

No changeover work necessary for switching bottle types.

The gripper element holds the bottle below the neck ring and provides additional support above the ring.

Bottles are held securely in place during the upending process.





Innoclean FR-EM als Rinssystem.
 Proven, mechanically controlled single-channel rinsing principle with water-rinsing for new bottles.
Dust and plastic particles are safely rinsed out.
Optimum solution for the required task.
Ideal price/performance ratio

Innoclean FR-EM rinsing system for plastic bottles.
 Mechanically controlled, two-channel rinsing principle with disinfectant and double sterile water rinsing.
Maximum hygienic safety even with a higher degree of bottle contamination.

Seamless integration into the KHS PET filling concept without a front table.
Optimum adaptation to your rinsing requirements.

Direct bottle transfer with newly developed plastic grippers.

Significant space and cost savings.

Powered by servo drives.

Fewer wear parts.

Automatic synchronization!



Innoclean FR-ER Ionization Rinsing –

Computer-controlled, single-channel rinsing for ionized air



Uses ionized air as the rinsing medium.
Ideal for non-refillable plastic bottles – no water needed for rinsing.

Any impurities are blown out of the bottle. Dry. Environment-friendly. Water-saving – totally!

Direct, loss-free injection of ionized air into the bottle.

Computer-controlled purging process with variable treatment times.

Perfect method of treatment – independent of the machine speed, bottle shapes, and sizes. Reproducible processes.

Ionized air and water may be used alternately.

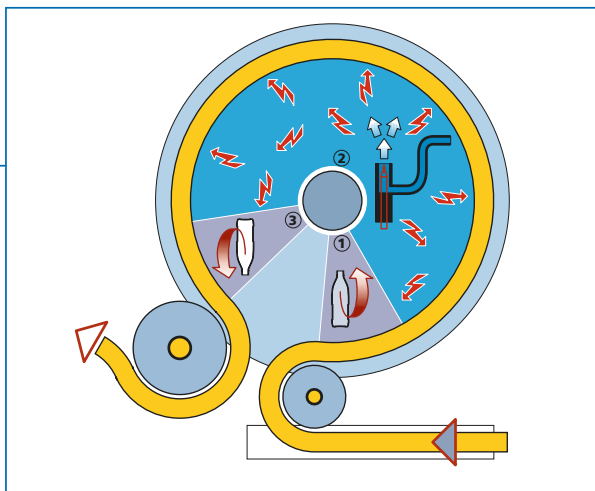
Ideal wherever PET and glass bottles are processed, or where plastic bottles are replenished from depalletizers or from a silo.

Short treatment times.

The desired output can be achieved with a machine that is up to 50% smaller, saving you space and cost of investment.

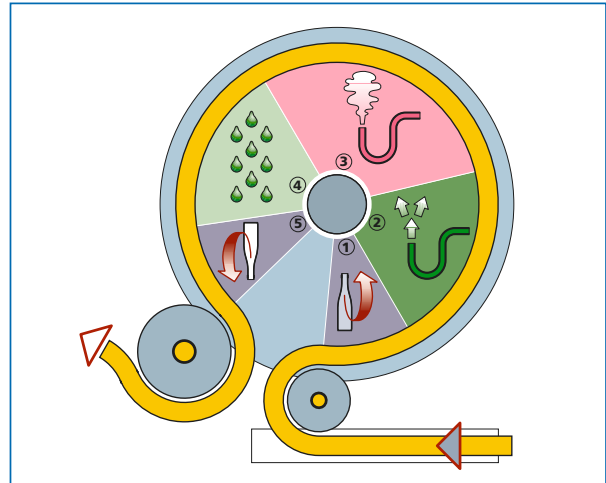
Possible utilization of MIS, the machine information system from KHS

Complete performance information available at all times. Enabling you to maintain a maximum level of efficiency for your line.



Innoclean FR-ZR –

Computer-controlled two-channel rinser
for refillable and non-refillable glass and plastic bottles



Computer-controlled rinsing process with variable processing times for both media.

High cleaning reliability – independent of the machine speed, bottle shapes, and sizes.

Reproducible processes.

Optionally with two-channel spray nozzles.

Two media such as disinfectant and sterile rinsing water can be supplied separately or together.

Consecutive hot water and steam rinsing.

The bottles are rinsed and preheated.

Significantly less broken glass for hot filling.

No bottle, no rinse function.

Possible utilization of MIS, the machine information system from KHS.

Permanent logging and comparison of performance data. Optimum line efficiency.



Innoclean FR-DR and FR-DR ACF –

For ultra-clean and aseptic cold filling

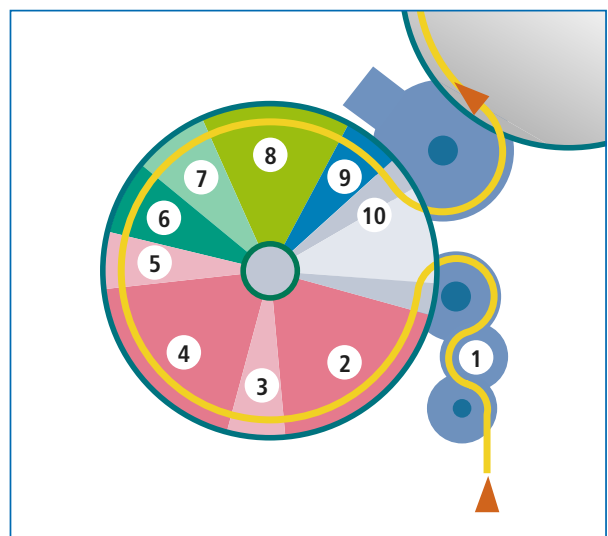


Computer-controlled triple-chamber rinser.
Freely parameterizable rinsing zones and times.
Optimum adaptation to bottle sizes and shapes.
Output-independent operation!

Innoclean rinser for three types of media such as
disinfectant, sterile water, and sterile air.
Sterile air assist for uniform bottle wetting.
Perfect sterilization. Perfect rinsing efficiency.

No bottle, no rinse and no rinse, no fill!
Each rinsing station is monitored by flowmeters.
**Each bottle that has not been properly rinsed is
channeled out before it reaches the filler.**

Circulation circuits with recycling of water and
disinfectants such as peracetic acid.
Low consumption and operating costs;
low environmental pollution.



Sterilization process (example)

- | | |
|-------------------------|-----------------------------|
| 1 Exterior disinfection | 6 Sterile water |
| 2 PAA (+sterile air) | 7 Drip-out |
| 3 Reaction period | 8 Sterile circulation water |
| 4 PAA (+sterile air) | 9 Sterile air |
| 5 Reaction period | 10 Drip-out |

Innoclean FR-EM and FR-ZM – Mechanical single- and two-channel rinsers



To rinse refillable and non-refillable glass and plastic bottles.

Wide range of applications.

Control disk used to control media.
Simple design with no-valve rinsing stations.

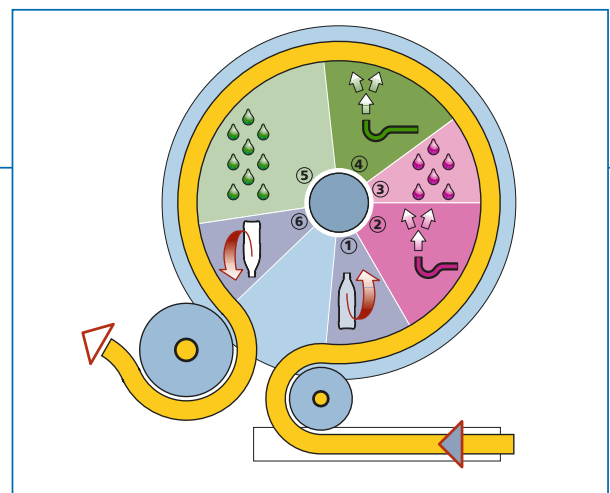
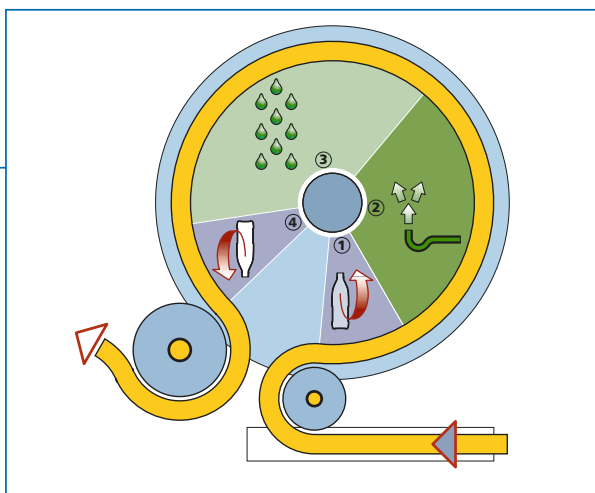
Saves you investment, operating, and maintenance costs.

Clamping jaws are attached using ball catches.
Time-saving changing capabilities without tools.

Innoclean FR-EM, single-channel rinser for water as the rinsing medium at a fixed rinsing angle.

Innoclean FR-ZM, a two-channel rinser for pre-rinsing with water or disinfectant. Final rinsing with water.

Improved rinsing effect and higher safety for your product quality.

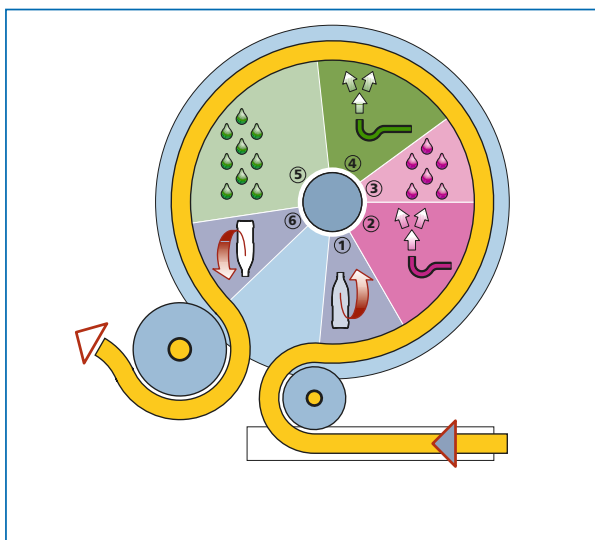


Innoclean FR-EMV and FR-ZMV – Mechanical single- and two-channel rinsers with valve control



Valve control unit for mechanical FR-EMV and FR-ZMV rinsers.

**Variable rinsing angles, freely selectable processing methods, and exposure times.
No bottle, no rinse!**



For rinsing refillable and non-refillable glass and plastic bottles.

Wide range of applications.

Innoclean FR-EMV, single-channel rinser for using water as the rinsing medium.

Variable processing times.

Pneumatic cylinder used for 'no bottle, no rinse' function.





The cam-controlled spray tube

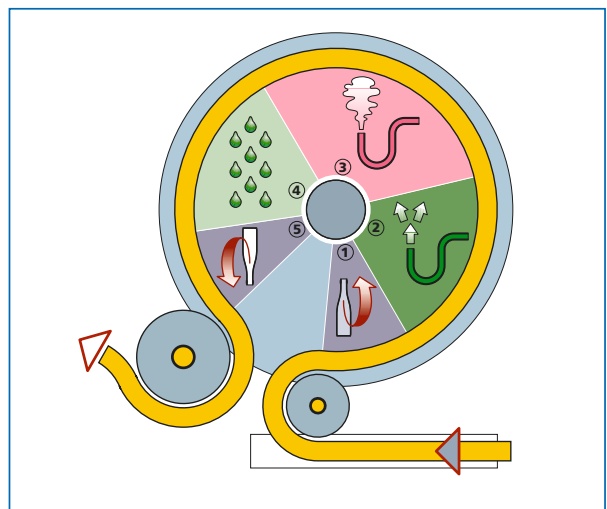


Innoclean FR-ZMV, two-channel rinser for pre-rinsing with water or disinfectant, final rinsing with water.

Freely selectable processing times.

Cam-controlled, liftable spray tube.

Enables application of gaseous rinsing media – also for mechanical rinsers.



Many Benefits in Detail –

Cost-cutting, creative innovations that make your work easier, safer, and provide more application flexibility



Proven, hygienic front table design developed by KHS.

No corners, recesses, dead spaces.

No chance for microbiological contamination.

Seamless round-shaped, easy to clean surfaces.

Facilitates the entire sanitizing process.



Foldable splash guard.

Fast preparation for CIP.

Perfect sanitizing.



Sophisticated, safe system for recycling of disinfectants integrated into the overall process.

You save on disinfectant consumption and disposal and also contribute towards environmental protection.

Adjustable grippers to handle various bottle mouth diameters.

Fast, time-saving changeover to other bottle styles. No additional cost of investing in and storing different gripper kits.



No rinse, no fill.

Flow controls integrated into the rinsing channels signal whether or not the flow of rinsing medium was sufficient.

Verifiable conclusions can be drawn on the rinsing process actually being carried out. Maximum safety for your product quality.



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