KRONES Lavatec D4/D5
The double-end bottle washer
“Less is often more” – the new and improved Lavatec series pays heed to this motto more consistently than ever. The KRONES bottle washer surprises with its thrifty water and energy budget. And it proves that “highest-quality hygiene” can be achieved without a “chemical cudgel”. The Lavatec’s economical treatment of resources is due to its clever construction as a double-end machine with vertical loops and continuous debris removal. This is explained precisely on the following pages.
Method of operation
In order to spatially separate contaminated and clean bottles from one another, the Lavatec was designed according to the "double-end" principle: The bottles are fed and discharged at different locations, thus ensuring the best possible hygienic conditions. The pre-cleaning unit heats the bottles and removes glass fragments and debris. Subsequently the bottles run through a number of caustic baths in vertical loops, in order to completely wash away dirt or labels. Before the bottles leave the machine, they are cooled in the post-treatment zones with a small quantity of fresh water and freed of any remaining dirt or caustic residues.

Application
Food-grade cleaning of returnable glass containers

Service portfolio

<table>
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<tr>
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<th>Speed (bottles per hour)</th>
<th>Residual draining</th>
<th>Pre-treatment-levels</th>
<th>Heat recovery</th>
<th>Caustic tanks</th>
<th>Post-caustic immersion bath</th>
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<tr>
<td>D4</td>
<td>20,000 – 135,000</td>
<td>X</td>
<td>2 – 3</td>
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<td>D5</td>
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<td>X</td>
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Design features
- Dimensions:
  width 2,450 – 6,300 mm, height 4,200 or 5,200 mm
- Spatial separation of infeed and discharge of the bottles
- “Clean-design” construction
- Automatic tank filling system
- Steel bottle carriers with plastic insert
- Efficient heating system
- Conductivity measurement in the main caustic baths
- Weekly operation
- Discharge area in stainless steel
- Touch-screen operator control
- Synchronous drive
- Coarse and fine particle filtration
- Automatic debris removal

Layout variants
The KRONES cleaning technology is modularly structured: Single elements for the pre-soak tank, loop guide and post-treatment system are combined to form an individual bottle washing system. Depending on the requirements, further elements such as a high-pressure jetting system, heat recovery system and label removal unit in the pre-soak tank can be added. For optimal utilisation of the available space, the Lavatec is available in different machine heights and widths.

Custom-made:
The model variants ideally fit into the space available.
Infeed
At the infeed, fingers pick up the bottles from the conveyor and transport them safely and precisely to the bottle carriers.

Discharge
Special discharge fingers transport containers of all shapes and sizes securely and quietly onto the conveyor.
Drive technology

- Together with a central frequency inverter, the high-performance synchronous drives allow precise control of the main chain and gentle bottle conveyance.

- All drive sprockets and end-turning devices are divided - this is a significant advantage for later maintenance jobs.

*Synchronous drive motor*  
*Split sprockets facilitate maintenance*
Figures, data, facts

**Interior cleaning**
Rotating spraying nozzles clean the insides of the bottles from different angles of incidence.

**Exterior cleaning**
The bottle exteriors are cleaned from above using special jetting units.

*Self-cleaning rotary jetting unit*
Clean design

- The housing and piping guide systems fulfil the highest hygienic demands and are equipped with central draining points.
- The combined coarse and fine filtration renders the use of sieving conveyors and detachable sieves superfluous and ensures high post-caustic purity.
- The open bottle slide made of one-piece, germ-resistant plastic sections guarantees the best possible hygienic conditions.
- The easily accessible discharge area enables fast, intensive cleaning.
Extensions
The Lavatec D4 and D5 can be individually equipped for the area of application. The spectrum includes the following options, among others:

- High-pressure pre-jetting
- Modules for heat recovery
- Bottle infeed area in stainless steel
- Stainless steel parts at the bottle infeed and discharge
- Label removal in the main caustic baths
- PSL package for washing bottles with self-adhesive plastic labels
- Label press
- Module for rinsing and disinfecting
- Construction as rinser for non-returnable bottles
Extensions

- Extraction at the infeed and discharge units and in the caustic baths
- Debris removal in the pre-soak tank
- Conductivity controlled post-caustic tank
- Central lubrication system
- Automatic chain adjustment
- Connection to water recycling systems
- Connection to alternative heating systems

Automatic debris removal in the pre-soak tank

Connection to alternative heating systems possible, e.g., solar energy

Nozzle for interior machine cleaning
Your benefits

- **Highest hygiene**
  Construction according to the double-end principle and clean design assures maximum hygiene and safety.

- **Operational reliability**
  Thanks to its improved mechanical components and continuous debris removal, the Lavatec operates safely and reliably even in 24-hour operation cycles.

- **Less water and fewer chemical additives**
  The continuous debris removal and the multiple-bath design with vertical loops result in enormous savings with respect to the consumption of water and chemicals.

- **Efficient use of energy**
  The heating system supplies the best results in heat transmission and reduces energy costs substantially.

- **Gentle bottle conveyance**
  Special carrier systems guide the bottles gently and safely through the machine. The bottles are discharged quietly and without them falling over. Synchronous drives and chain rollers with plastic bushings guarantee accurate bottle conveyance.

- **Relieves pressure on operators**
  The inside of the machine is easily accessible and can be cleaned in an optimal manner.
IT solutions

The SitePilot modular system includes IT solutions which we developed especially for the beverage and food industry. Whether you want to increase the utilisation of your line capacity, monitor product quality, or make spare parts handling more efficient: With SitePilot, you will always get the best result.

Lifecycle Service

Your company is unique – why be satisfied with conventional solutions? The KRONES Lifecycle Service will support you and your production also after the purchase of new machines. These are services which are individually tailor-made to suit your products and location.

KRONES Service Line

You need support with a technical problem? Or you have an urgent question about your line? No problem: We are just a call away from you. Dial +49 9401 708090 to get quick and straightforward assistance – in several languages around the clock!

enviro

High-performance technology with low consumption of resources offering safety for humans and the environment – this is all guaranteed by the enviro sign. TÜV SÜD (technical control board) as an impartial assessor has confirmed, that the enviro method leads to energy- and media-efficient and environment-compatible machines and lines.

KRONES Academy

Make your colleagues high performers: The training of KRONES Academy provides first-hand trade information proven in field. You will find the suitable know-how package for almost any field and hierarchy level ranging from technical courses to management training.