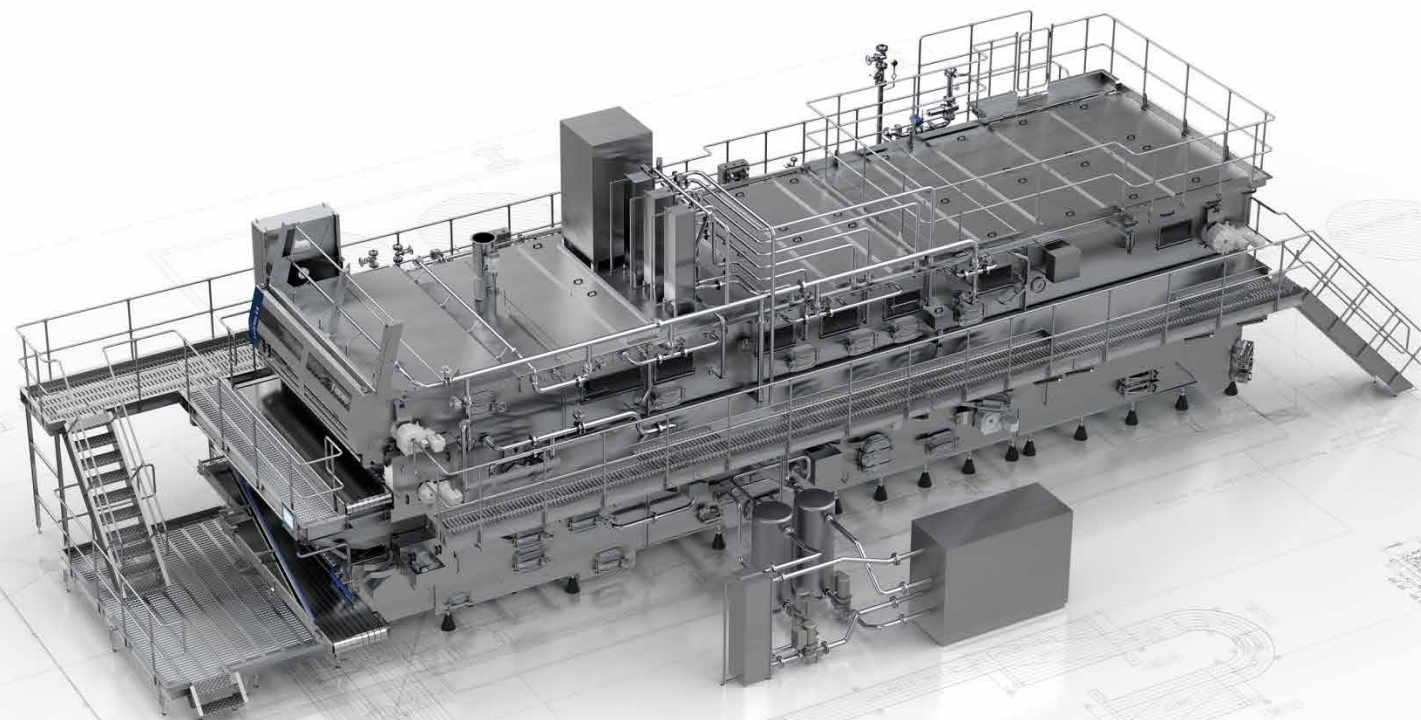




# KRONES Single-end bottle washers

The Lavatec E series





## Bottle washers for every situation

Whether for tight spaces, tricky cleaning tasks, as a multi-talented all-rounder or an inexpensive basic system: every Krones single-end bottle washer is an experienced specialist in its chosen field.

### At a glance

- Modular component system with freely combinable treatment units for a machine that is perfectly tailored to the cleaning task
- Machine design uses resources sparingly to minimise water consumption
- Water management program for the hot water zone
- Hot-caustic zone with special insulation for high energy efficiency
- Highly efficient caustic flow for quick label detachment
- Post-treatment zone in Clean Design for high hygiene standards



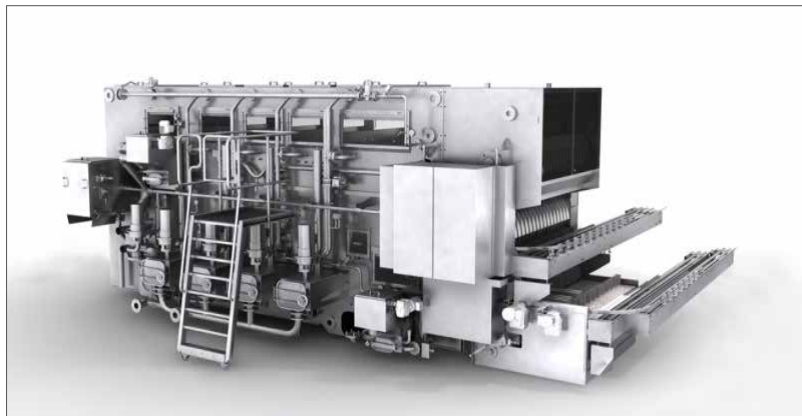


## Individual machine concept for every output range

From small to large: The single-end bottle washers in the Lavatec E series cover every output range. Depending on the output requirement and loop routing, the E2, E3 or E4 designs provide the appropriate machine concept for individual applications.

### Lavatec E2

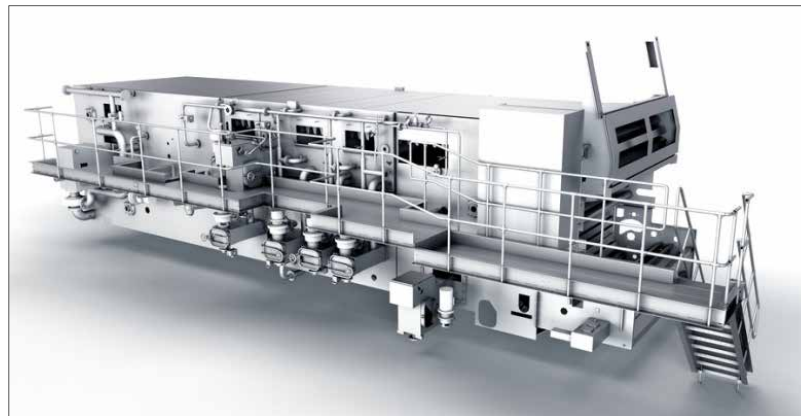
The “small” bottle washer with the advantages of its larger siblings



- Up to 25,000 bottles per hour
- Low space requirements
- Clean Design version

### Lavatec E3

The all-rounder for all output ranges



- Output ranges from 5,000 to 135,000 bottles per hour
- Classic caustic loop routing with label removal
- Clean Design version

### Lavatec E4

The specialist for tricky tasks



- Medium output range of up to 70,000 bottles per hour
- Modern loop routing with four label removal points
- Clean Design version



## Layout of a single-end bottle washer(E4)

### 1. Infeed

Double-finger infeed with overload protection for highly efficient bottle infeed

### 2. Modular pretreatment

Efficient pre-washing and pre-heating ensures a long service life for the caustic and minimises the use of resources

### 3. Modular loop routing

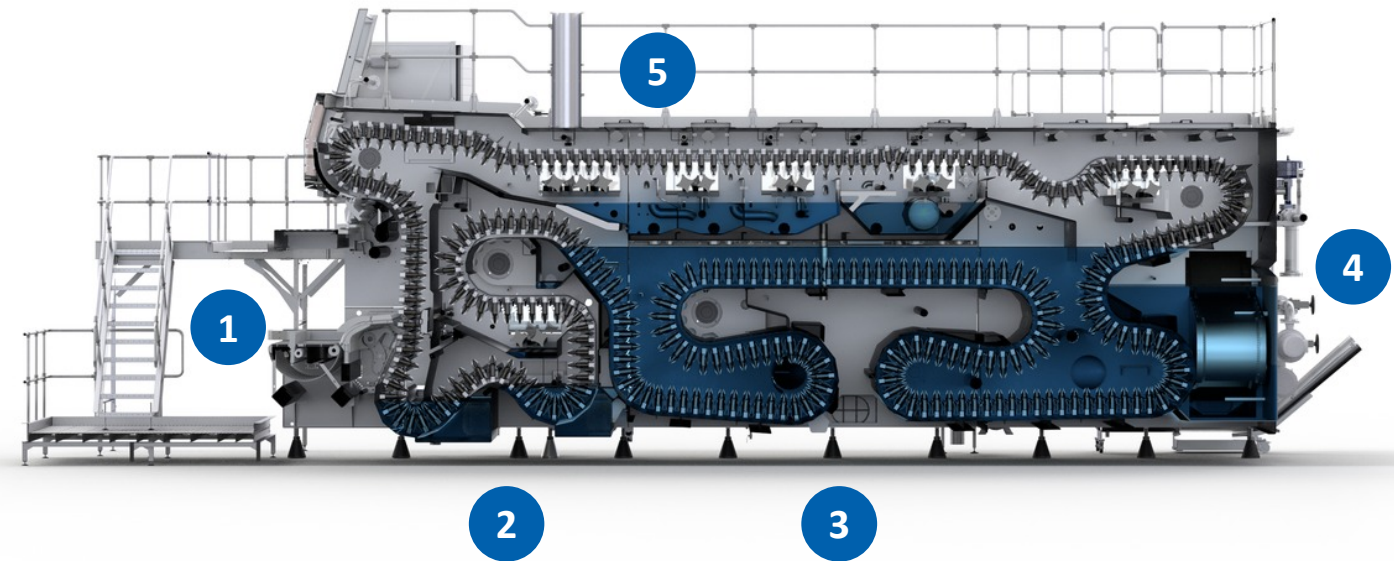
Optimised loop routing in the caustic section for longer treatment times

### 4. Pipe bundle heat exchanger

Heat distribution via low-maintenance external pipe bundle heat exchanger

### 5. Post-treatment

Bottle rinsing system with fresh water uses state-of-the-art process engineering to minimise fresh water consumption

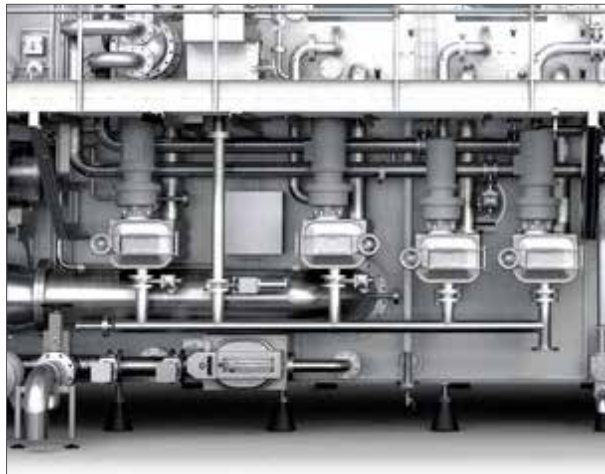




## Clean Design concept for the most stringent hygiene demands

To ensure that the bottle washer itself also sparkles with cleanliness, we use our revised Clean Design concept to ensure that even the most stringent quality and hygiene demands are met.

### Automated post-treatment section



- Self-cleaning pump sieves
- Reduced cleaning time
- Self-cleaning filters

### Optimum access



- Reduced cleaning time
- Thanks to the easy-to-open access points and the optional automatic lifting windows, personnel demands for cleaning are low

### Simple and thorough cleaning



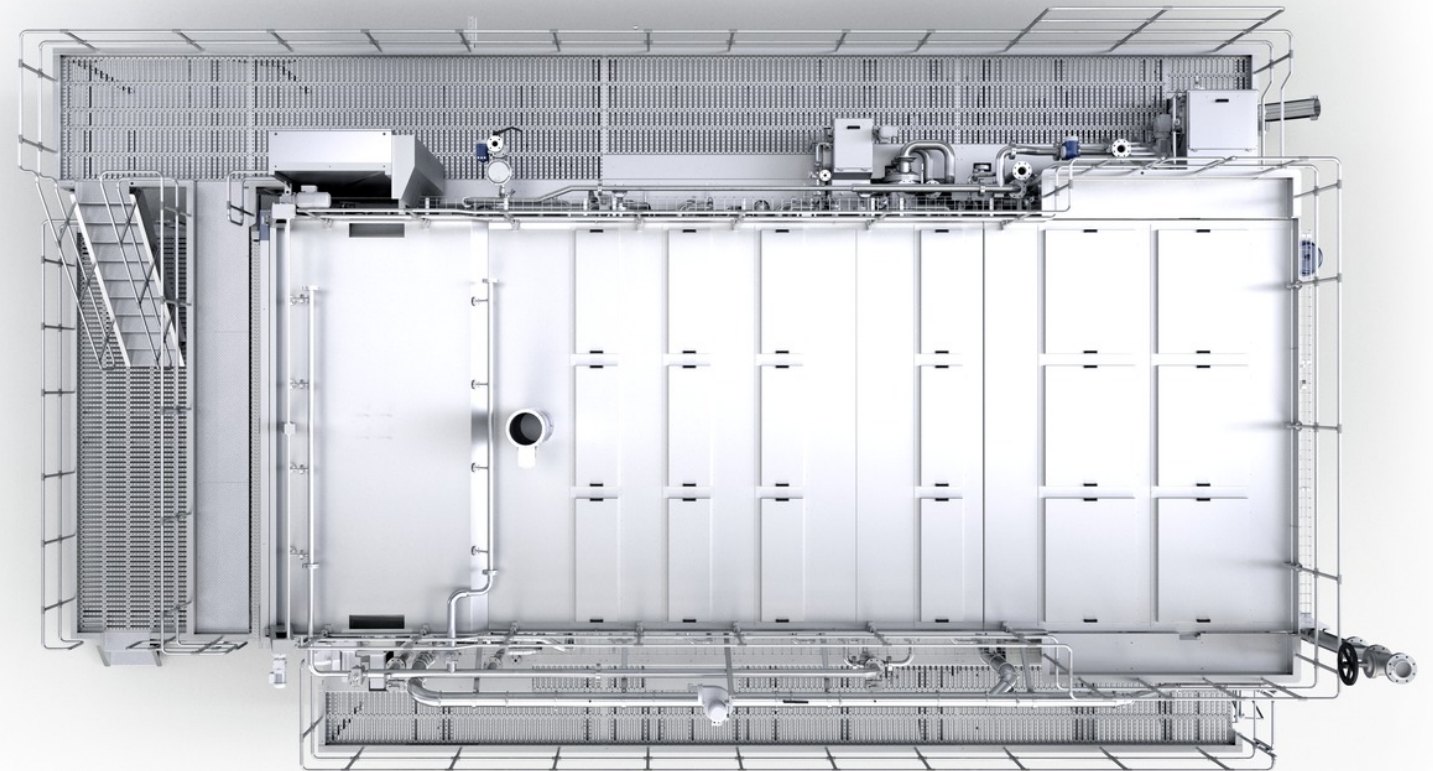
- Easily accessible zones enable fast and intensive cleaning
- Bottom troughs mounted with an incline
- Pumps run until completely empty
- Short drying times



## New walkway design

### The revised walkway design impresses with:

- Extra-wide walkways for optimised working areas
- No handrails on the inside – thus enabling unrestricted access to the wall of the machine and to the spray pipes
- Optional operating platform at the discharge
- Option of increased discharge for a larger maintenance area at the infeed



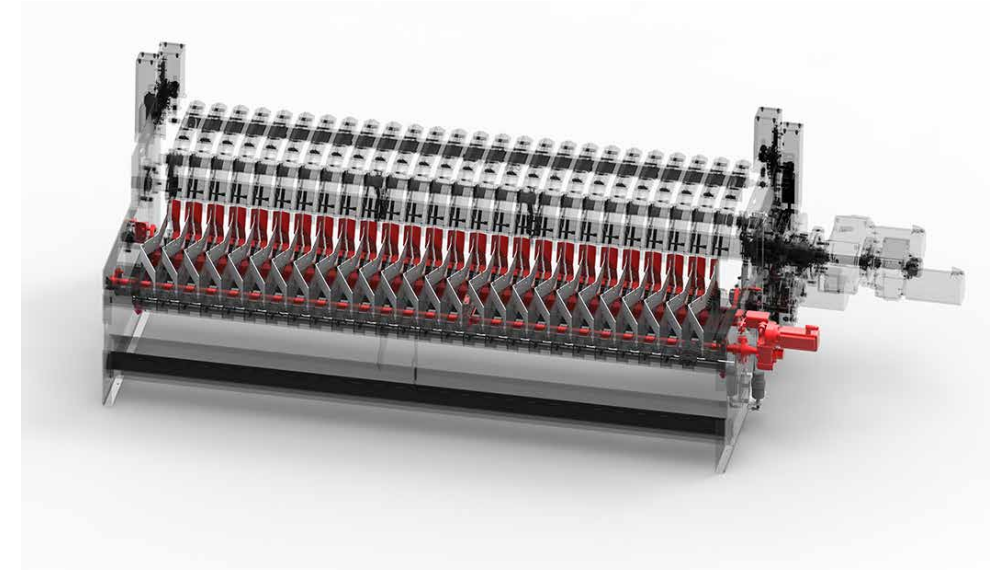
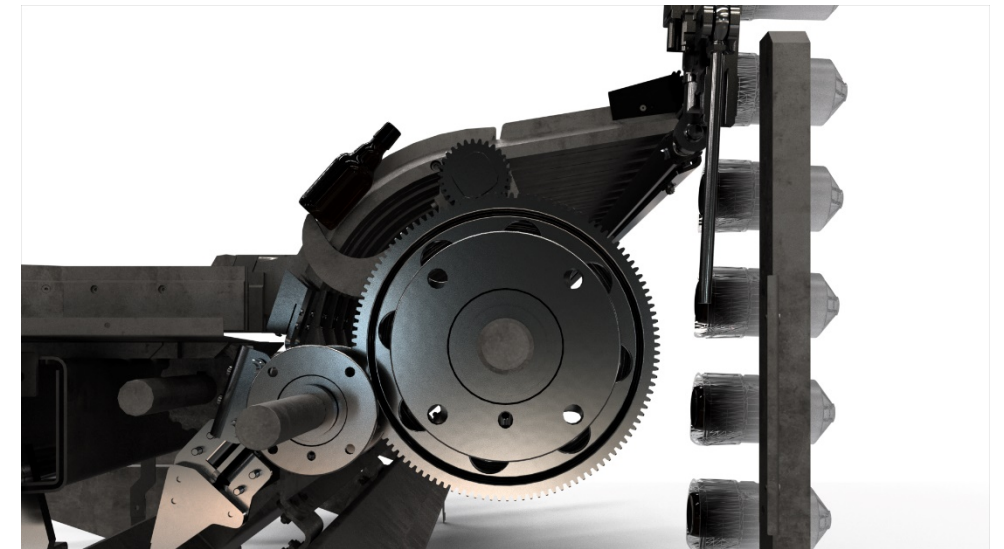


## Development project: Servo infeed

With the new bottle infeed with servo drive technology the infeed curve can be set individually for each container – and thus generate maximum flexibility.

### Benefits

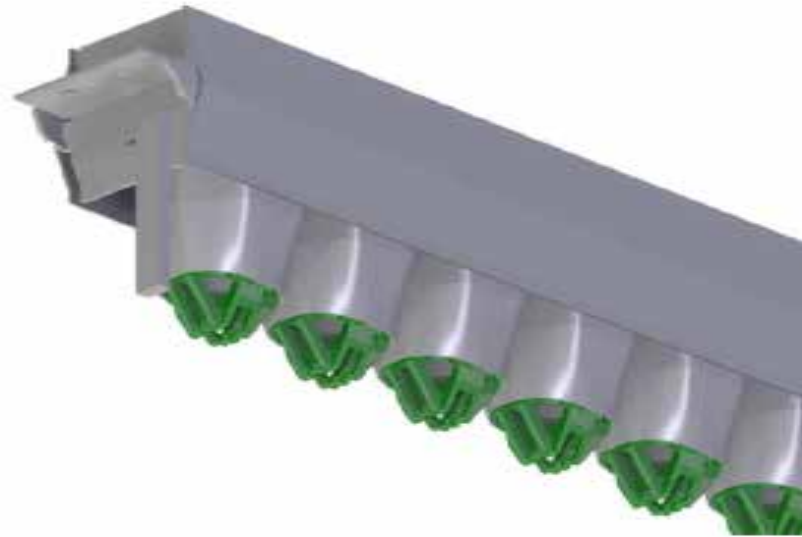
- Noise reduction: Empty bottle tilting in front of infeed
- Torque monitoring: Curve specifically designed to suit the bottle shape and weight
- User-friendliness: Easy fault reset through independent control of finger shaft and bottle transfer guides
- Gentle bottle handling: Reduced pressure on the bottles through controlled conveyors at the infeed





## Available types of bottle carriers

**Standard bottle carrier**



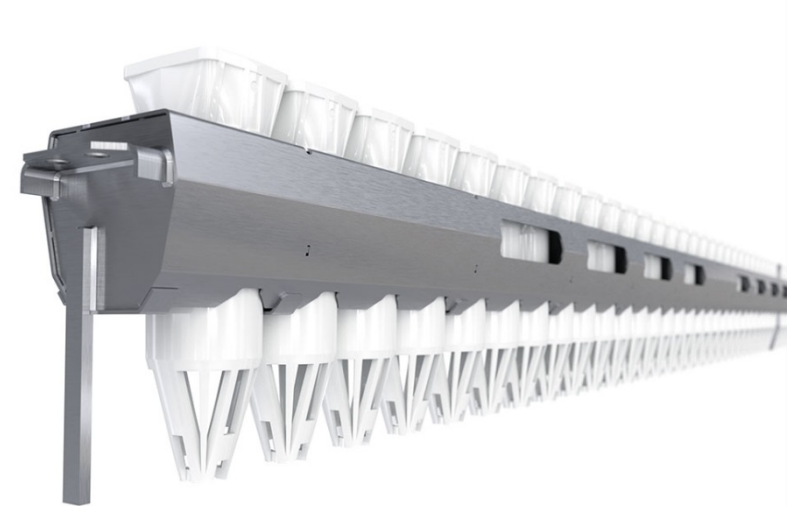
- Solid steel carrier with plastic insert

**Grid bottle carrier**



- Reduced-weight version of the standard carrier
- Lower drive loads

**Lightweight bottle carrier**



- Lightweight bottle carrier with plastic cells
- Lower drive loads





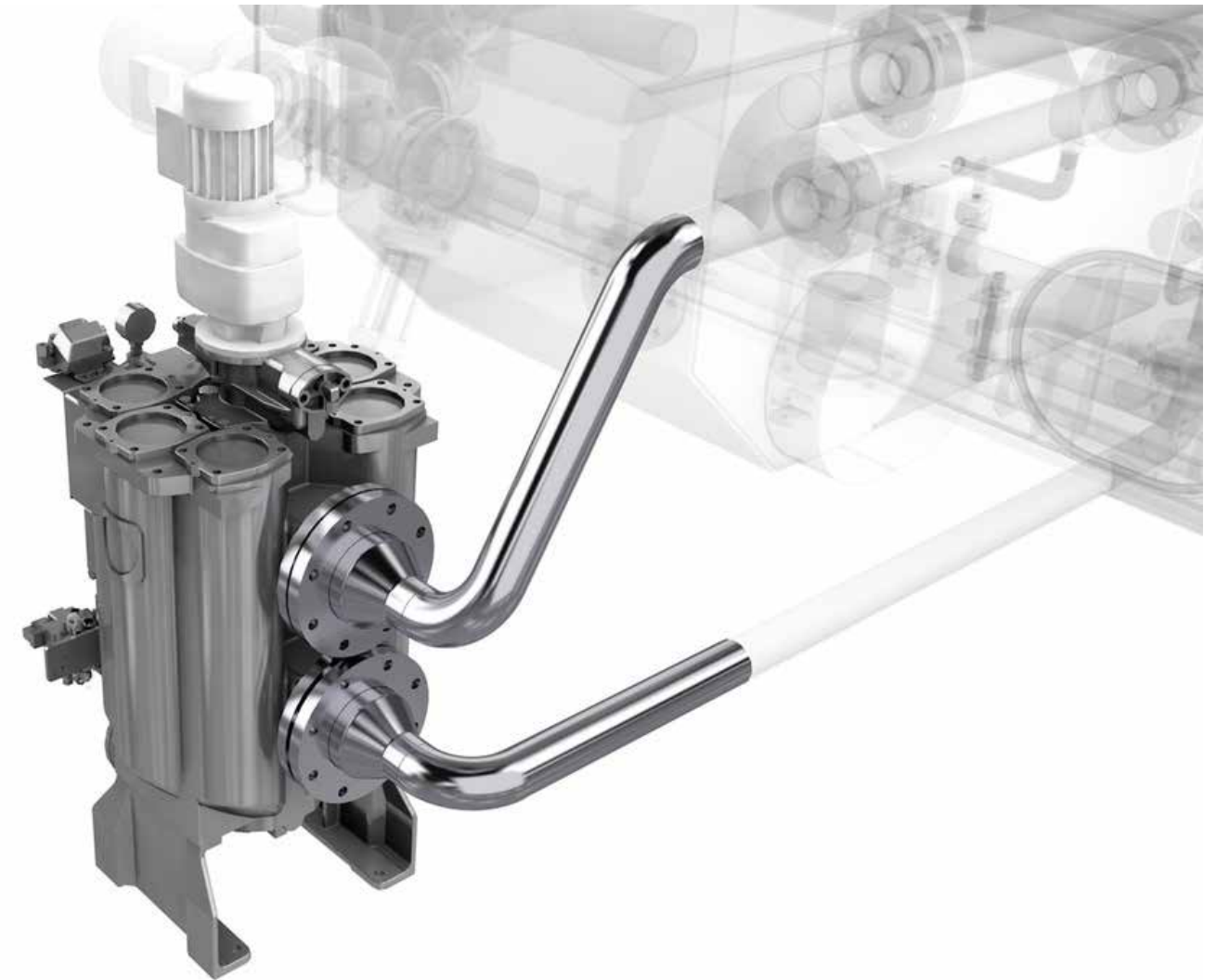
## Filtration options

### Caustic management

- Caustic filtration:
  - Longer caustic lifetime
  - Continuous filtration
  - Automatic backflushing

### Microparticle management

- Post-caustic filtration:
  - Continuous filtration
  - Automatic backflushing
- Microfiltration of cold water:
  - Continuous filtration
  - Automatic backflushing
- Nanofiltration of cold water:
  - Additional continuous filtration





## Reduced consumption data thanks to optional equipment packages

### For fresh water savings

- Pressure regulating valve for limited fresh water throughput
- Fresh water cooling via glycol
- Use of innovative carrier systems

### For thermal energy savings

- Complete insulation of the machine
- Use of a regenerative heat exchanger
- Optimised pre-heating of the bottles in a pre-heating module

### For electrical energy savings

- Strategic energy management

### Alternative heating concepts

- Connection of the plant to a combined heat and power station
- Heating via a solar thermal energy system
- Use of heat pumps
- Direct gas heating





## Benefits to you

### **Highest microbiological safety**

The Lavatec series guarantees optimum hygiene in the machine thanks to its Clean Design water zones and self-cleaning pump sieves.

### **Compact machine with an individual design**

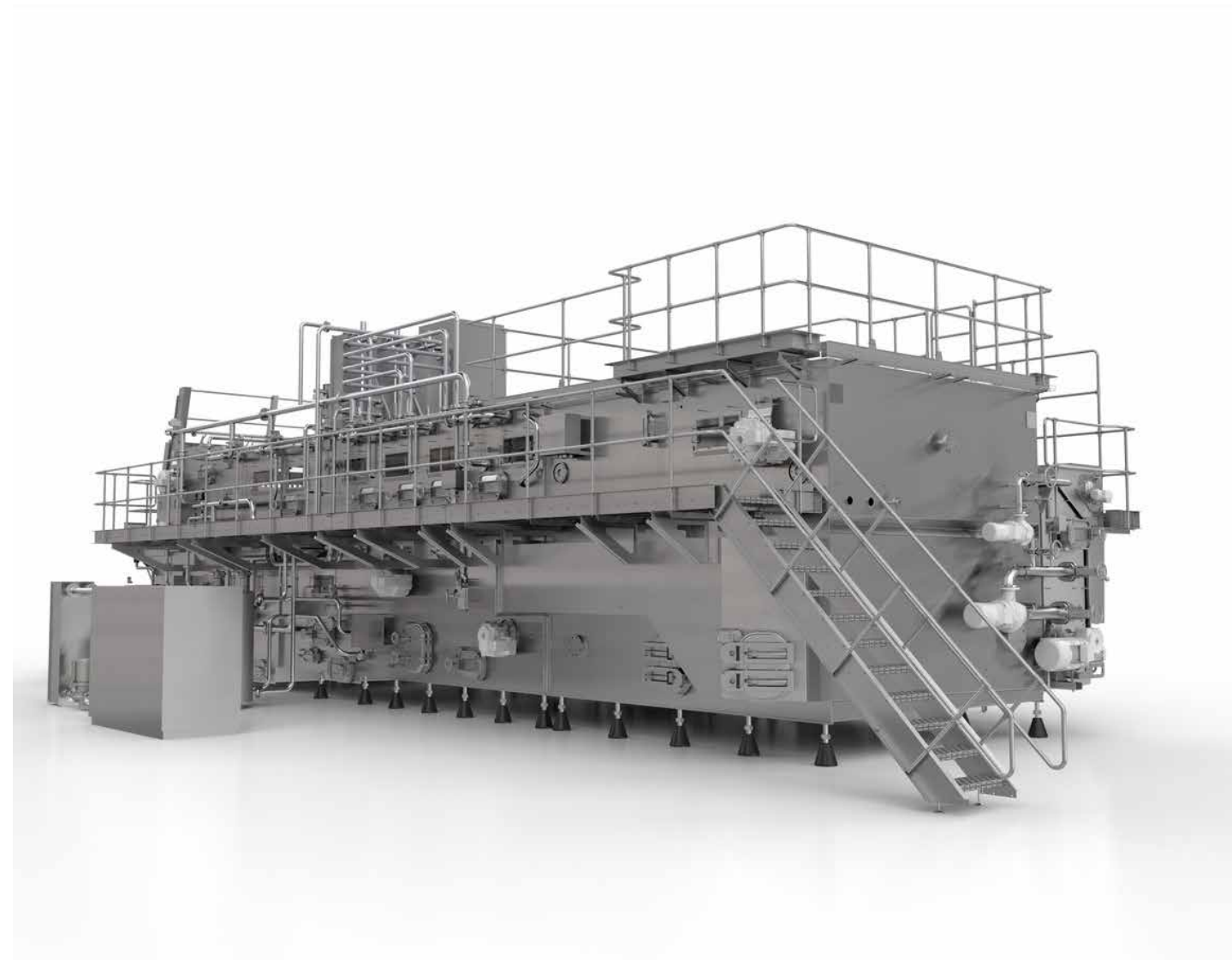
The effective loop routing in the single-end machine concept and the modular layout of the machine sections combine to keep installation space requirements to a minimum. Thanks to the high-pressure pre-jetting, heat recovery and label removal, these systems can be perfectly tailored to individual cleaning requirements.

### **Efficient in terms of operating costs**

The intelligent water management, separation of hot and cold zones by design and the individually configured additional equipment save both energy and resources.

### **Low cleaning requirements**

With good accessibility, an open design and self-cleaning pump sieves for fully-automated removal of dirt, operating effort and cleaning requirements are both kept to a minimum.



## Certified ecological efficiency: machines with enviro label



At Krones, the blue enviro label stands for excellent ecological efficiency. Products that bear the enviro label have proven in an objective test procedure that they use energy and media efficiently, and that they produce in an environmentally-friendly way. The requirements are defined by the EME standard that has been developed by the TÜV SÜD (technical inspection authority) for assessing production plants. The enviro test procedure has also been certified by TÜV SÜD as an independent expert. Therefore, you can be sure that an enviro label stands for ecological efficiency.

### How does the enviro label apply to the Lavatec series?

#### Energy efficiency

- Low consumption of thermal energy thanks to the use of insulation, regenerative heat exchangers and grid or lightweight bottle carriers
- Frugal water consumption thanks to optimised water routing, pressure regulation and fresh water cooling concepts

#### Environmental compatibility

- Minimised consumption of water and lubricants thanks to the use of high-quality plastics





## Everything from a single source

### **Training sessions at the KRONES Academy – trained personnel increases your line efficiency**

The versatile training offer ranges from operation, servicing and maintenance to management training. We will gladly also establish your individual training programme.

### **KRONES Lifecycle Service – partner for performance**

Also after having purchased a new machine, KRONES will take care of your line; the LCS experts are always ready to consult you and translate your goals and wishes into optimal LCS solutions.

### **KIC KRONES cleaning agents make your machine shine**

Only if the production environment is immaculate, can your product be brilliant. KIC KRONES provides you with the optimum cleaning agents and disinfectants for each individual production step.

### **Lubricants from KIC KRONES for every 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.



Digitalisation



Process  
technology



Bottling and  
packaging equipment



Intralogistics



Lifecycle  
Service

We do more.

 **KRONES**