

KRONES Linatronic 774-FBI

The linear full bottle inspector



No room for stowaways

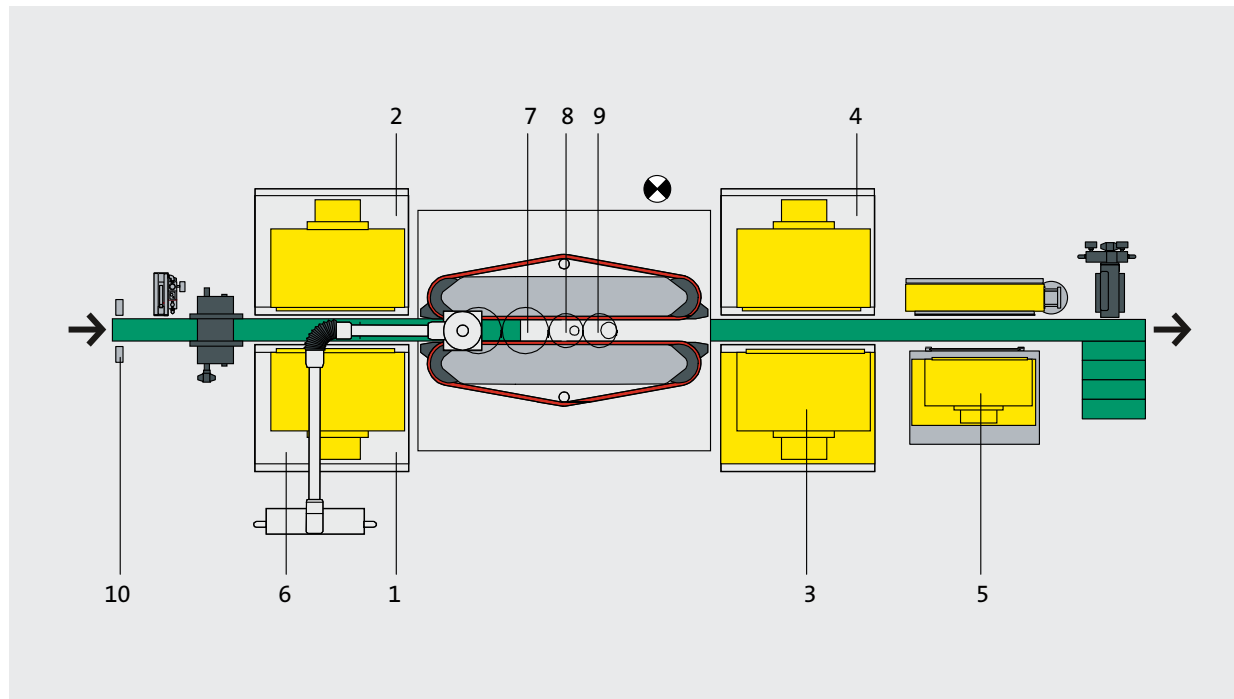
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The bottles have been filled and closed – what now? It's to be hoped that there are no "stowaways" inside them. Don't want to take that risk? Then you should rely on the Linatronic 774-FBI. The inspector checks full bottles for glass splinters, organic particles and other foreign objects. It can also be fitted with fill level and cap inspection units. For filling with zero-defect tolerance.



Design features

- Modular design
- Stop function before the machine infeed for containers which are too high or have fallen over
- Container guidance on conveyors in the machine infeed and discharge
- Container guidance in the basic machine by two distance and height adjustable belt pairs
- Enclosed, so wear-resistant and microbiologically safe belt surface
- Blower for removing foam and lubricant residues from the container base
- Blower nozzles to remove foam and lubricant residues from the protective glass covers of the light and dark field inspection unit
- Rejection by Ecopush



- 1 – 4 Detection of foreign objects lying on the container base
- 5 Detection of floating foreign objects
- 6 Fill level and slanted cap inspection
- 7 Detection of cap design
- 8 Base inspection (light field)
- 9 Base inspection (dark field)
- 10 Height detection by P.E. sensor

Application

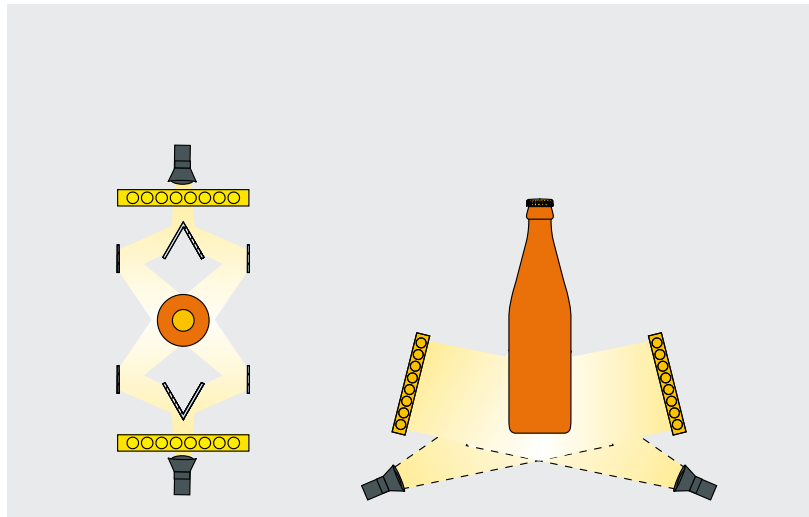
Inspection of filled and closed bottles with a diameter of up to 110 mm and a height of up to 400 mm

Output range

Rated output: 60,000 containers per hour

Detection of foreign objects on the base

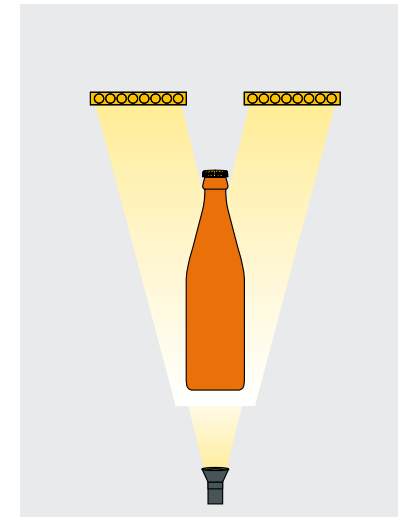
Three different mutually complementary modules are available for inspection of the container base:



Detection of foreign objects on the base

Inclined-angle base inspection

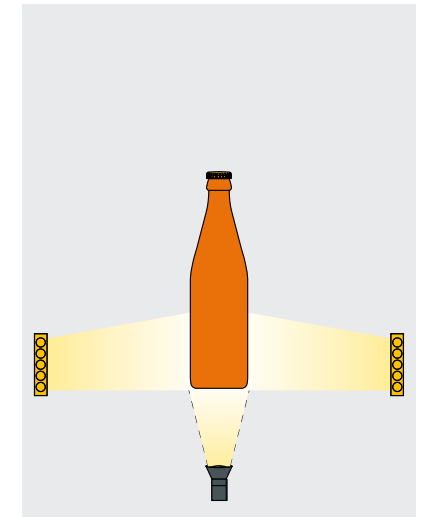
In order to reliably detect foreign objects, the bottles pass through two consecutive inspection modules. In each module there are two opposite CCD cameras pointed at the bottle. By way of a special optic, they capture images of the bottle base at an inclined angle and map it segment by segment. LED flash lamps provide the necessary brightness, illuminating the bottles uniformly as they pass by. To inspect the bottles from all sides, they are rotated through about 90° between the two modules.



Base inspection (light field)

Light field inspection

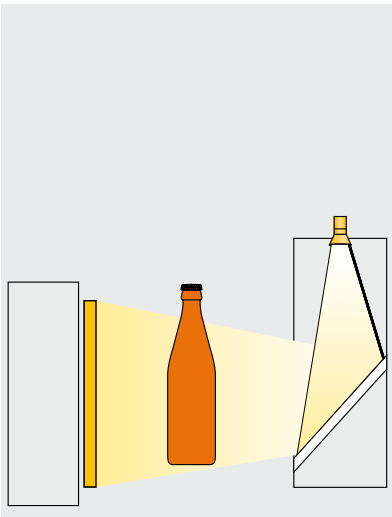
In a patented light field unit, a CCD camera inspects the bottle base by way of a special motorised optic.



Base inspection (dark field)

Dark field inspection

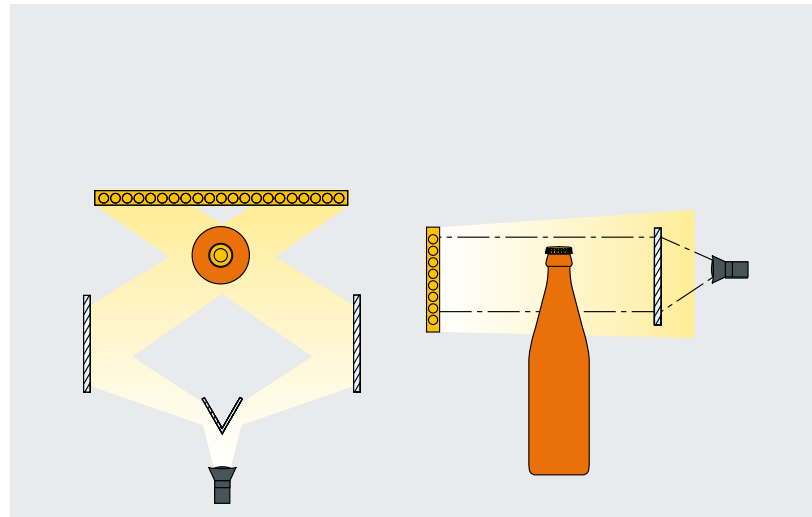
Downstream of the light field inspection an additional base inspection is carried out – again by CCD camera, but this time with dark field illumination. This method can also be used to safely detect transparent objects such as glass splinters.



Detection of floating foreign objects

Detection of floating foreign objects

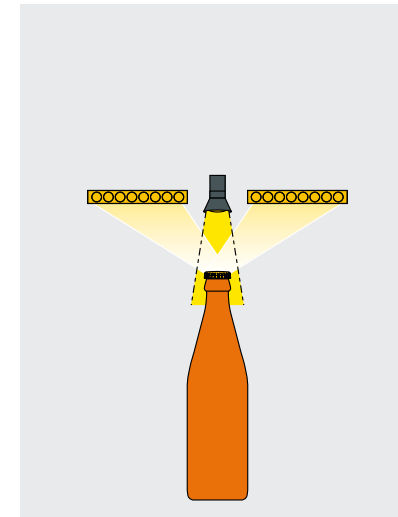
Using a special optic, a CCD camera captures three images of the bottle body illuminated all-round by an LED panel light.



Fill level and slanted cap inspection

Fill level and cap inspection

A CCD camera captures two images of the neck and cap area of the bottle using a special optic. The telecentric optic provides an ideal angle of view of the cap closure and the fill level. The camera checks that the bottle is correctly filled and also detects slanted or severely deformed crowns.



Detection of cap design

Detection of cap design

In order to detect wrong, damaged or incorrectly printed caps, a CCD camera inspects the containers from above. The intelligent system can also differentiate between cap logos as necessary.

Safety devices and other additional equipment

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Safety devices

- The machine is stopped if containers which are too high or have fallen down are fed into it
- Electronic function monitoring of the camera supporting plate, the inspection and lighting units, all P.E. sensor assemblies and all rejection systems
- Tracking of the container position in the machine according to the fail-safe principle

Additional equipment

- Interactive graphical malfunction diagnosis system
- Linadry blower module for inclined-angle base inspection in the machine infeed
- Machine network connection and remote visualisation





Teleservice

- An authorised person with a PC which is installed above the inspector can dial into the KRONES network via a telephone line or Internet/VPN.
- Monitoring and operation of the inspector via teleservice, display of all parameters and camera images
- Optimisation of the inspection units, retrofitting for new container types
- Quick fault diagnostics
- Shorter downtimes and fewer on-site service calls thanks to the 24-hour teleservice availability
- Practical training possible via teleservice



Screen

- 15 inch touch-screen
- Display of all relevant operating data including a rejection trend analysis with display of all camera images
- Operation and adjustments via individual access levels with user-defined transponders

Documentation

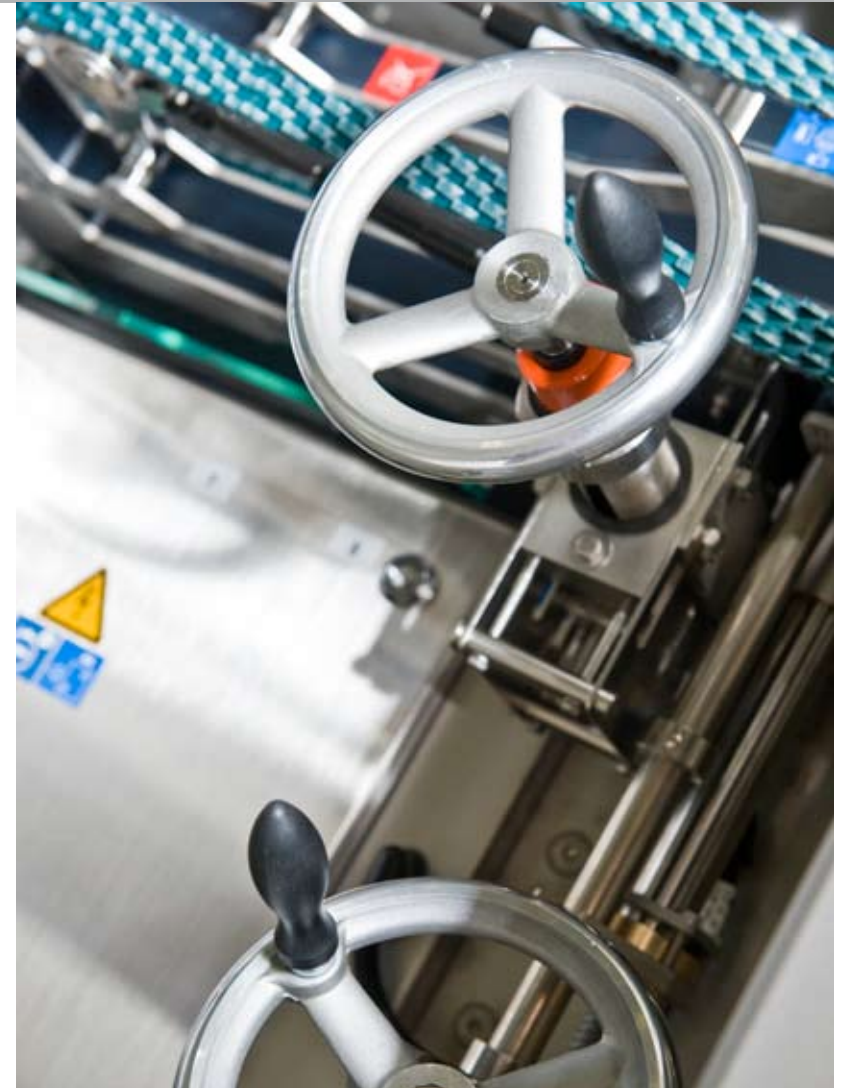
- Recording of all relevant operating and production data, e.g. changes to parameters and results of the test-container program
- Saving of all data with information regarding the times and operator names
- Possibility to transfer defined operating data to an operating data acquisition system (Weihenstephan protocol), to the customer's network, or to the customer's PC

Test container programme

- Semi-automatic function monitoring at regular intervals, as well as each time the machine is switched on and when it is changed over to a new container type
- A prepared assortment of test containers can be conveyed through the machine in any order
- The faults included on the test container are used to test if the individual inspection units are working properly.
- Results are saved and displayed.
- The data can be transferred to the operating data acquisition system, to a network, or to a printer

Type change

- Once a new container type has been selected on the touch-screen, the container parameters are changed automatically.
- Motorised adjustment of the camera support plates to the new bottle height.
- Adjustment of the guide belt's distance and height to the new bottle size using handwheels and counters.
- If very small containers are to be handled, the top pair of belts and their guides can be removed quickly and without the need for tools.



The belts can be adjusted to new bottle sizes using a crank.

System expansions Ecopush

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- Application:
rejection of containers
- Rejection onto a parallel conveyor,
onto a rejection table, or into a
collecting tank
- Compact design
- Cost-efficient system
- Very low maintenance
- Savings in energy, no air consumption
- Low noise level
- Output: 80,000 containers per
hour



*Ecopush safely
rejects defective
containers.*

■ Maximum safety

With the Linatronic 774-FBI you obtain maximum product safety and quality. You avoid claims and protect your product's brand value.

■ Modular design

There is a range of different inspection modules and detection systems available for the Linatronic 774-FBI. You can work together with our product specialists to select precisely which of the options you wish to use. Should your inspection requirements change at a later date, the machine can be simply equipped with additional modules.

■ LED illumination

LEDs illuminate all modules. They are distinguished by their even light distribution, long service life and low power consumption.

■ Ergonomic design

Everything in one place: the camera technology and all of the essential parameters can be adjusted at a central position at one machine side. To reduce the operator's work load even further, a major part of the adjustment and conversion work is automated.

■ Quick and simple change-over

When changing over to other container types, no change parts need to be exchanged. Furthermore, the parameters are changed over and the camera height adjusted automatically. This allows the entire change-over to be performed in a record time of just two to five minutes.

■ Durable and dirt repellent conveyor belts

Durability and microbiological safety are two key features of the conveyor belts: Their enclosed surfaces prevent them from against wear and prevent them from absorbing lubricants and liquids.

■ Uniform operating concept

All KRONES machines are equipped with a uniform operating concept for maximum user-friendliness.



Container guidance by adjustable belts