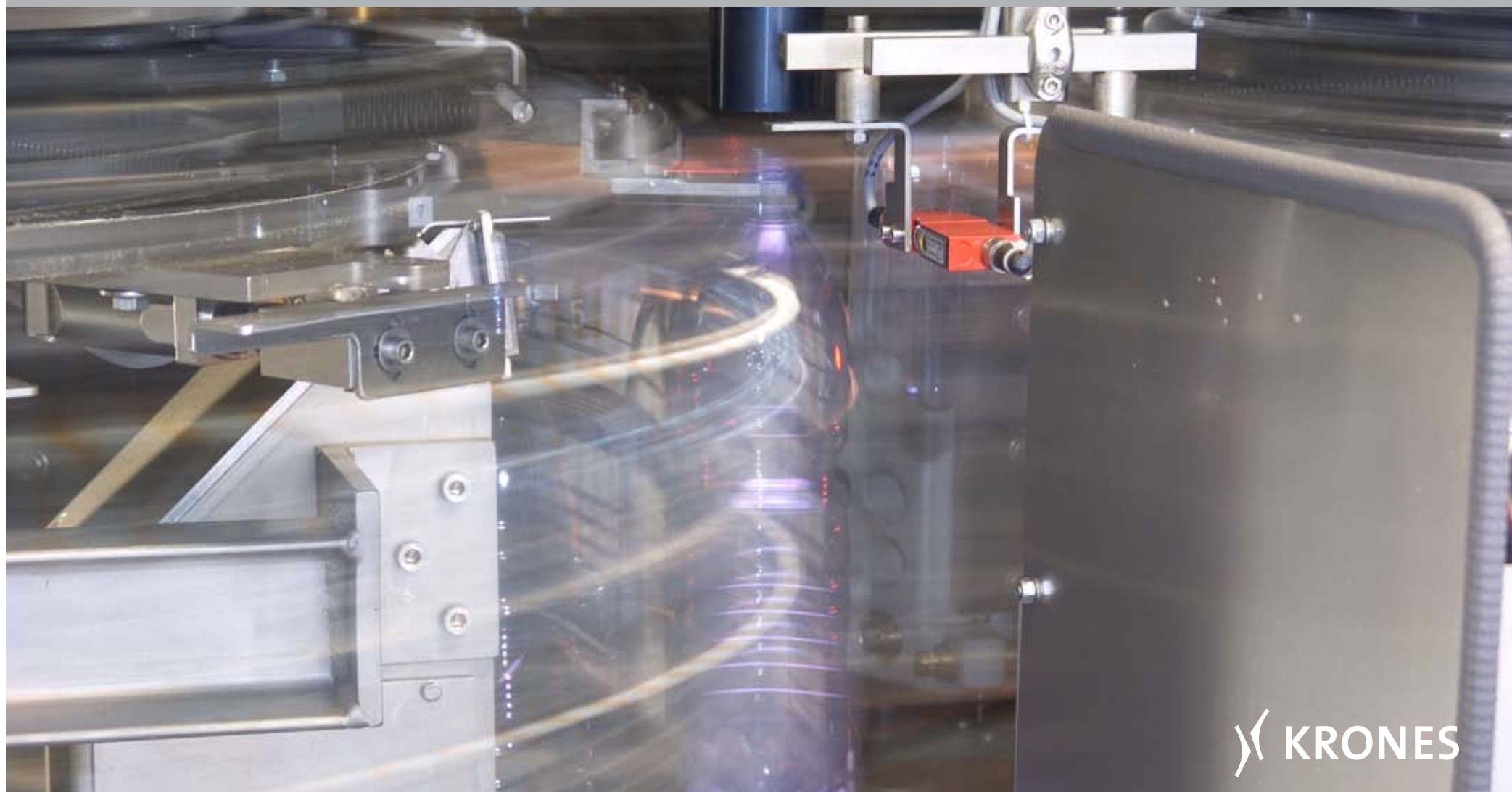


## KRONES PET-View

### Control modules in the stretch blow moulder



# Invisible quality spies

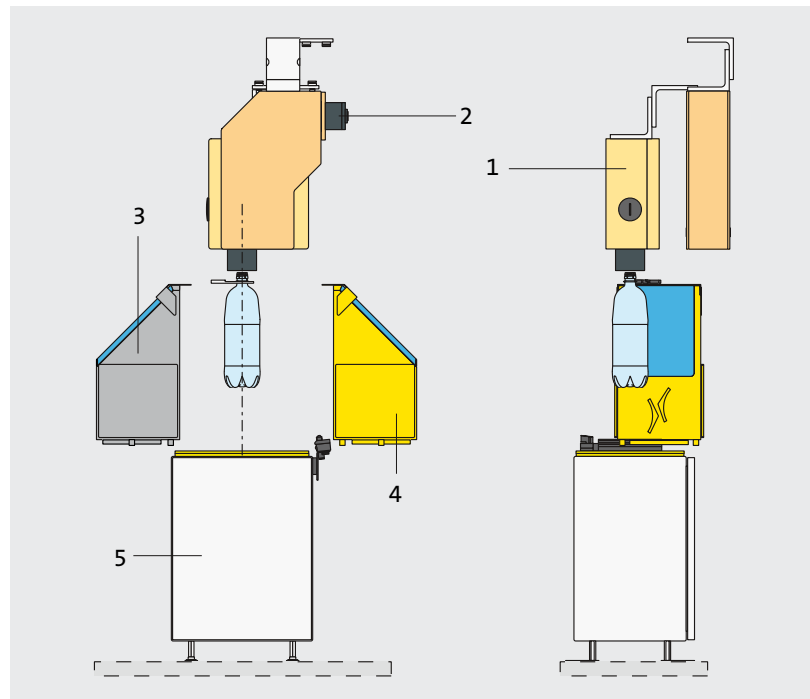
KRONES PET-View

Better safe than sorry. This is why PET-View checks not only the pre-forms entering the stretch blow moulder but also the finished bottles as they come out. This control system consists of five different modules, and all are integrated directly in the stretch blow moulder. Each module performs a different quality check. And together, they all ensure maximum process reliability, optimum container quality and high transparency in the blow moulder.



## Method of operation

Checking the preforms takes place in the heating oven of the stretch blow moulder: Two CCD cameras check the preforms on mandrels in the end-turning section of the heating tunnel. And so that only perfect preforms will be processed further, the system ejects all discrepant preforms immediately downstream of the oven. As they leave the stretch blow moulder, the freshly moulded bottles have to pass the modules for checking the base, the side wall, the sealing surfaces and the quality of the base. Containers found here to be discrepant are removed immediately by the machine's ejection unit.



- 1 Camera for inspecting the base (base and quality of the base)
- 2 Camera for inspecting the sealing surfaces
- 3 Camera for inspecting the side wall
- 4 Illumination for inspecting the side wall
- 5 Illumination for inspecting the base (base and quality of the base)

## Application

- Inspection of all common transparent preforms
- Control of the freshly moulded transparent PET bottles

## Output

Up to 72,000 preforms or PET containers per hour

## Design features

- Modular inspection units
- Non-contact control using CCD cameras
- Entire electronics integrated in the stretch blow moulder
- Maintenance-free LED-illumination in all modules

## Operation

- Central operation at the touch-screen for the stretch blow moulder
- Automatic recording of all operating data
- Operation and setting at separate access levels with user-defined transponders
- Ejection-trend analysis notes any changes in the preform pool, in the moulding process and in the ambient conditions on a module-specific basis
- Automatic warning for the operator – or even machine stop – if there is any extreme increase in the rejection rate
- Monitoring and maintenance per Teleservice is possible.



*Operation of the stretch blow moulder is from the central touch-screen.*

## Preform wall inspection

Several images are taken by two CCD cameras for all-round inspection of each preform. In the way the module detects:

- Contamination
- Checks
- Air inclusions
- Streaks
- Quality of the gate
- Contour and length of the preforms

## Base inspection

A CCD camera checks the position of the gate by imaging the base of the container through the neck finish. Any contamination or turbidity in the bottle base will be detected with certainty by this method.

## Side wall inspection

A CCD camera checks the contour of the bottle within an inspection area of 180 mm for turbidity and signs of contamination.

## Sealing surface inspection

Using special optics the CCD camera checks the neck finish for any out-of-roundness, damage and contamination.

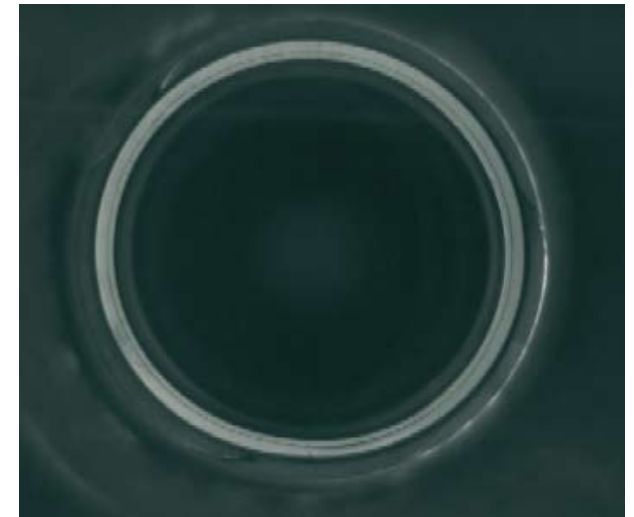
## Inspecting the quality of the base

Using a CCD camera, this inspection module analyses the material distribution in the base area and from this, computes with an accuracy of  $\pm 2\%$  a prediction for the weight of the base. The system also checks the bottles for pearlescence and overall symmetry.

It is suitable for checking the following types of bases:

- Still water
- Petaloid
- Hotfill

The system is excellently suited for process monitoring and for regulating the stretch blow moulder. The measured data for each cavity and container can be compiled in the Line Documentation System.



*Any wrinkling has a detrimental effect on the appeal of the bottle on the shelf.*

*A gate which is off-centre can impair the overall stability of the bottle (top left figure)*

*Oval neck finishes can prevent the bottle from being properly closed (Top right figure)*

## ■ Excellent bottle quality

PET-View screens the discrepant bottle preforms and bottles to requirements and ensures first-class container quality in this way.

## ■ Space-saving solution

Unlike free-standing inspection units, the PET-View does not need any space for setting up: The compact modules are simply integrated directly in the stretch blow moulder.

## ■ Process reliability

Faulty preforms constitute a considerable hazard for the stretch blow moulder. PET-View releases only perfect preforms for the moulding process and in this way ensure trouble-free operation of the blow moulder.

## ■ Data transparency

Controlling the quality of the bases gives you dependable information about the blow moulding process. Any errors in the settings made for the blow moulder can thus be seen immediately and accordingly rectified.

## ■ LED illumination

Illumination is by LEDs in all modules. This is characterised by uniformity in the luminescence, a long service life and the low energy consumption.

## ■ Remote diagnostics and maintenance per Teleservice

The KRONES Teleservice provides you with round-the-clock qualified advice and support. If necessary, a KRONES technician can access your inspector over a secure data line. In this way, parameter settings, software updates, and mal-function analyses can be carried out with absolute safety for cost effectiveness and quick response.

## ■ Standardised operating concept

For maximum user-friendliness, the same operating concept has been used for all KRONES machines.



*Control system for PET containers*