



# Handling parts for the non-returnable PET line

Krones Lifecycle Service

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# Top performance together



## What do you expect from a partner?

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That he exactly knows your requirements and needs and has the appropriate solutions down pat? That you understand each other without words and can rely on each other? That you achieve top outputs as a team? The Krones Lifecycle Service fulfils all of these requirements.

Krones is not only a service provider but also your partner who supports you even after the purchase of a new machine.

## Flexible with Krones handling parts

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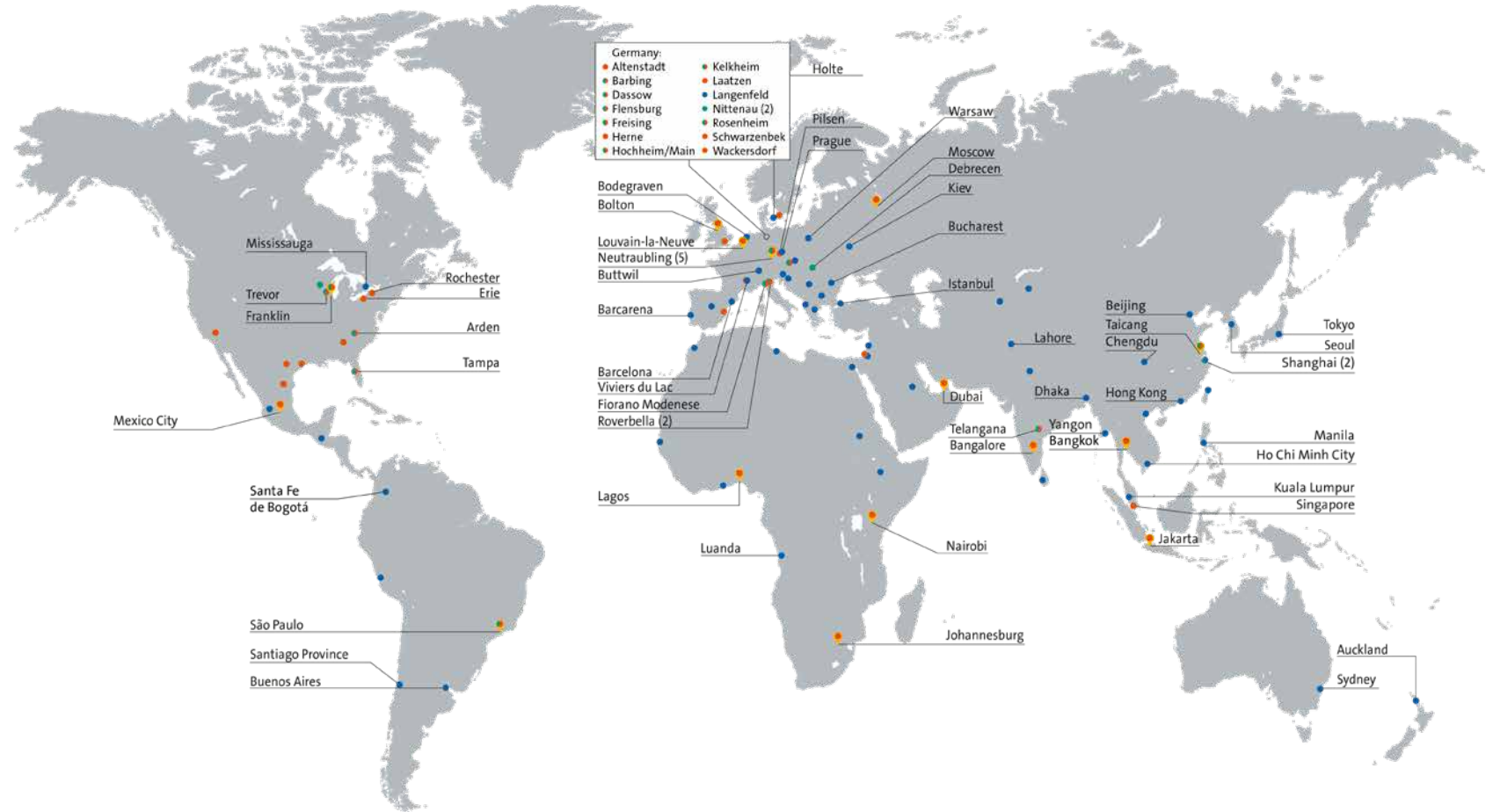
Handling parts are the perfect solution to adjust your existing line to new ideas: individual components are quickly and systematically removed and replaced in no time.



# The world as we see it



To provide you with even better support, we have set up Krones centres at various locations all round the world. Each of these »service nodes« is responsible for a separate set of countries and subsidiaries. This makes it possible for us to serve you quickly and systematically and provide exactly the services you need.



- Centre
- Engineering sites
- Production sites
- Krones subsidiaries and representative offices

# The KRONES handling parts business

## Your benefits



### Equipped for the future

- Tailor-made upgrades for your lines, e.g. to relieve the operator or save resources

### Reliable and safe during production

- Documentation of conversion measures for a holistic overhaul
- Administration of master data
- Creation of processing documents for each process step
- Guaranteed quality due to precise functional tests before delivery

### Economical with resources

- Checking existing handling parts for reusability



### Individual complete solutions

- View of the complete line including third-party machines
- Consulting with know-how
- Experienced engineering team for retrofitting
- Service engineers available all over the world
- Sophisticated colour and labelling concepts for marking handling parts

### Top performance all along the line

- Checking individual machines and the complete line for the required output
- Planning of conversion measures if required
- Testing new container and pack types for processibility in the complete line
- Fast change-over of the required handling parts

# The KRONES handling parts business

## Our principles



- 1** We consider the complete line.
- 2** We find the proper concept for you.
- 3** We check your parts for reusability.
- 4** We offer special identification marks.
- 5** We test your handling parts for functionality.
- 6** We inform you about our latest upgrades.





# The Kronos handling parts business – our principles



## 1 We consider the complete line.

The whole is always more than the mere sum of its parts: We therefore do not only consider each individual machine but check the complete line for its performance and for processability of the container and pack types.

### Our experts check ...

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- the container including the preform, cap and pack type, and whether it can be processed in the complete line.
- all customer objects for the complete line.
- the existing parts for reusability.
- important parameters, such as height, diameter, shape, neck radius, neck finish, cap and container contour.

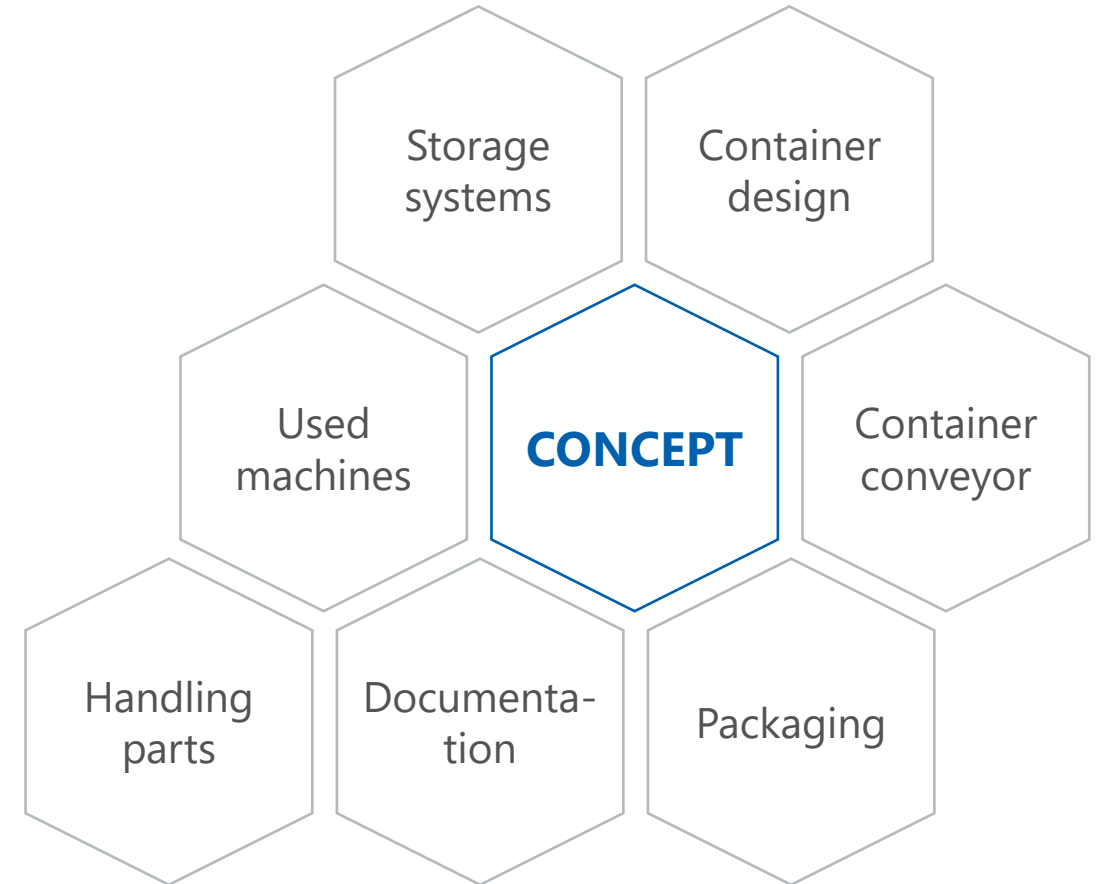


# The Krones handling parts business – our principles

## 2 We find the proper concept for you.



We contribute our ideas – in all possible directions. This means that we do not only design a tailor-made concept for a new container, but provide for all contingencies and adjoining process steps in our concept.



# The Kronos handling parts business – our principles

## 3 We check your parts for reusability.

Based on our available data, we can check already while preparing the quotation whether existing handling parts from your line can be reused. It goes without saying that we will assist you in this process.

It is our target to quickly implement your ideas in order to prevent unnecessary extra costs for you.





# The Kronos handling parts business – our principles

## 4 We offer special identification marks.

We do not only enhance your machines to achieve top performance but contribute towards relieving your employees' day to day work. For quick and easy identification of the currently required handling parts, we offer special identification variants:

### Standard solutions

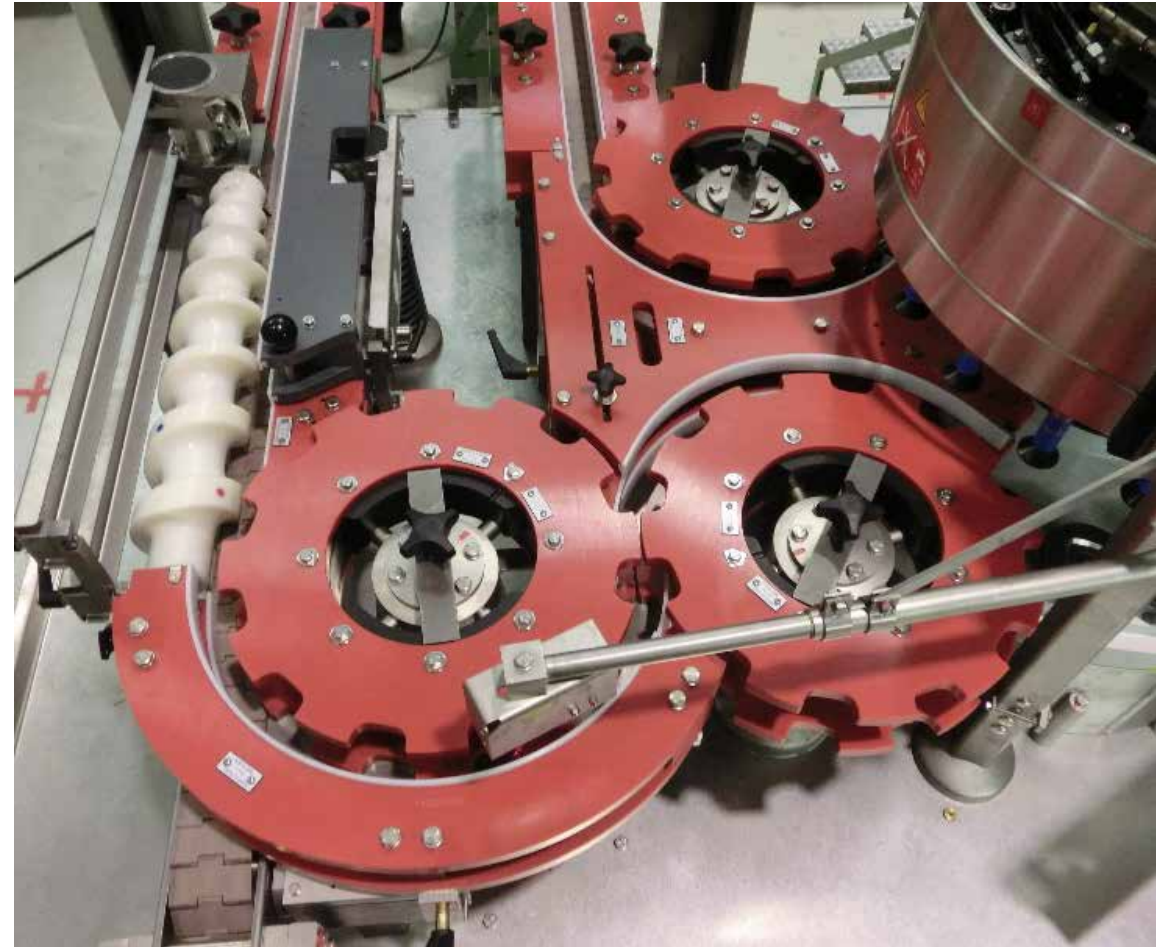
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- Labelling and numbering
- Coloured marks, such as identification plates and circular blanks

### Optional

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Completely coloured handling parts



# The Kronos handling parts business – our principles

## 5 We test your handling parts for functionality.



A matter of course for us: Prior to handling parts being delivered to our customers, they are subjected to comprehensive quality tests at Kronos.

### Measures

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- Exact adjustment to customer objects
- Quality assurance in design and manufacturing
- Test set-up for all container handling parts
- Functional tests
- Outgoing goods inspection



# The Kronos handling parts business – our principles

## 6 We inform you about our latest upgrades.

It is quite important to us, as an innovative company, to keep your machines and technologies up to date and to continuously improve them, even after the purchase. We therefore offer our tailor-made upgrades.

### Improvements

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- More efficiency of your machines
- Reduced consumption of energy and media
- Easier operation and high operational safety
- Higher product quality
- Improved hygiene standards

### My upgrades

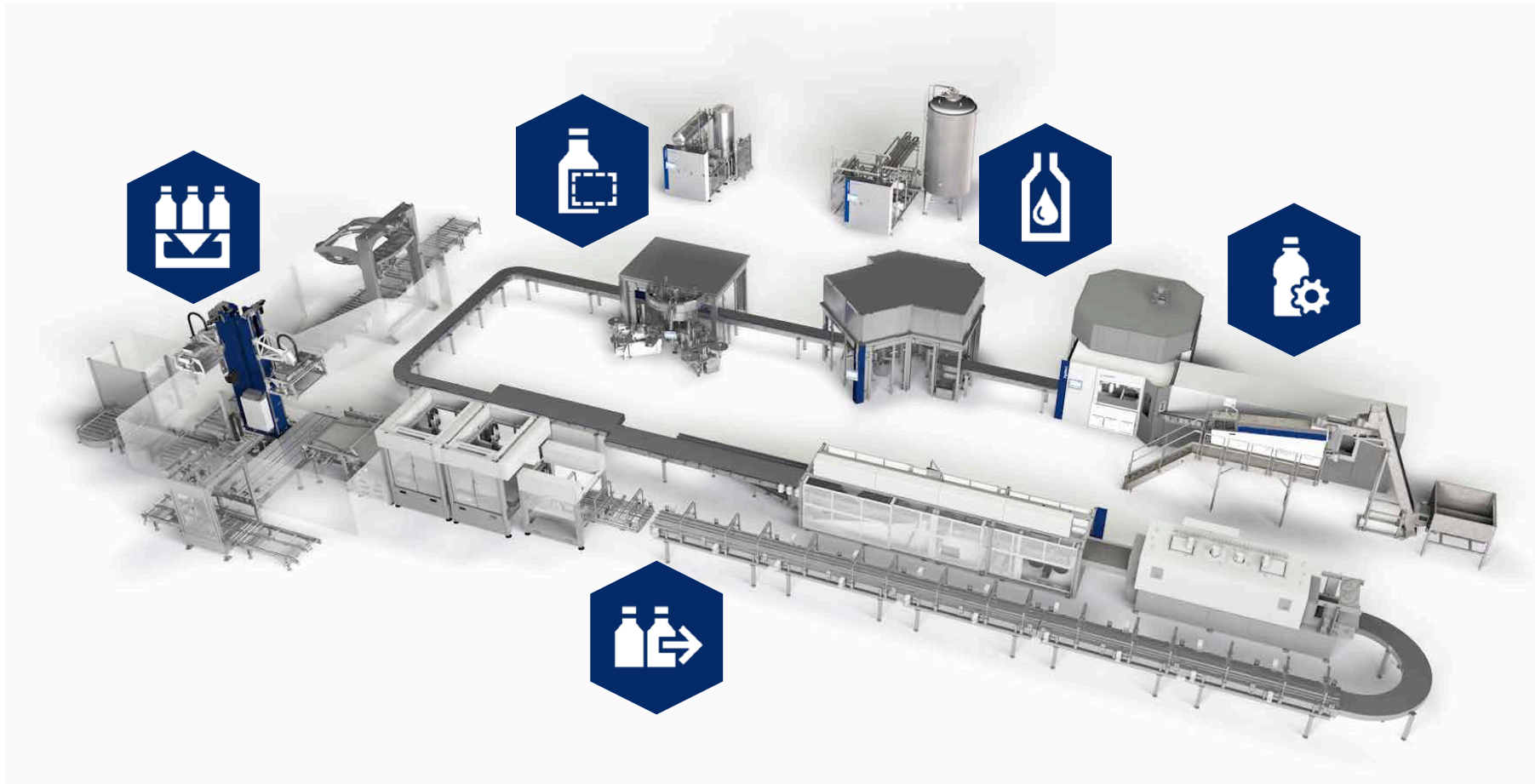
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For a personalised overview, customised to suit your line's requirements, see the Kronos.shop in "Product Upgrades" in your user account.



**Example of a schematic representation:**  
Conversion measures on the Contiform for the Air Wizard Plus upgrade

# Handling parts for your PET line for non-returnables



Storage



Container design



Plastics technology



Filling technology



Labelling technology



Packaging and palletising technology



Conveyor technology



# Storage of handling parts



Keeps production organised: Our specially developed carriages store your handling parts and moulds properly and optimally accessible for the operators.

## Handling parts trolley

- Professional storage of unused handling parts
- Safe and ergonomic delivery and return during change-over
- Protection from damage
- Reduced change-over times due to format-specific storage
- Made of non-corroding material



# Storage of handling parts

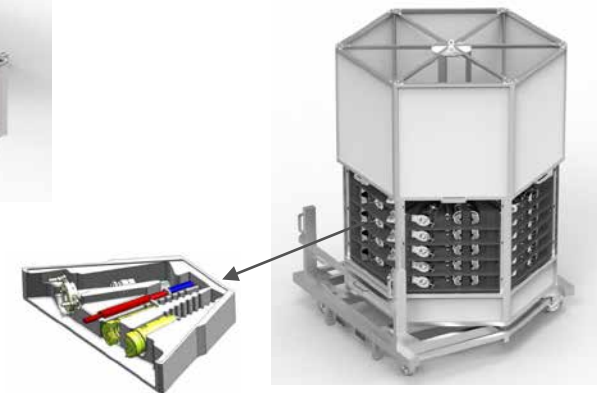


## Mould trolley

- Professional storage of moulds in a compact transport unit
- Protection of the moulds from damage – for an immaculate appearance of the containers
- Facilitated access for changing tasks

## MouldStar

- Ergonomic design of the mould trolley
- Simplified mould change-over
- Reduced conversion times





# From the idea to the marketable bottle



## Mould trolley

The Krones container design supports you with a comprehensive know-how about all Krones machines.

- Consulting with regard to design, material and technical realisation
- Optimisation of existing designs
- Increase of the bottle performance
- Improvement of existing processes for instance with Ultravent Base Design



## For change-over, we pay attention to:

- Product requirements, such as light barriers or protection from oxygen
- Machine and process technology requirements for Hotfill or aseptic systems
- Ecological and economic requirements with regard to material selection, recycling ability or weight optimisation
- If required, preform tests already during order preparation



# From the idea to the marketable bottle



## CONCEPT PHASE



Briefing



Creation of concept



Consulting

## DESIGN



Engineering



Visualisation



FEM simulation



3D mock-ups

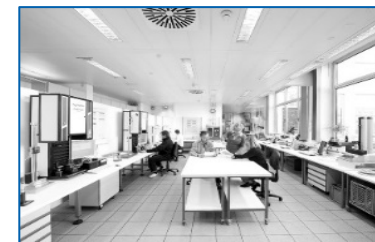
## ASSESSMENT



Preform dimensioning



Stretch blow moulding tests



Laboratory tests



Series product

# Plastics technology

## Our service



In the Krones laboratory, we produce sample containers and run various bottle tests. This optimises the moulding process and checks if the customer specification has been met.

### Technical centre with a variety of laboratory machines



**Laboratory Report - Mould Test**

**KRONES**

Customer: [ ]      Problem report: [ ]      Test report: [ ]      Date: [ ]

Container no.: [ ]      Problem change no.: [ ]      No. of samples: [ ]      Manufacture designer: [ ]

Mold no.: [ ]      Production order: [ ]      Production date: [ ]      Customer: [ ]

Box type: [ ]      Problem cat. no.: [ ]      Production line: [ ]      Test article no.: [ ]

Material: [ ]      Material type: [ ]      Material (type): [ ]      Material (weight) (g): [ ]

Order drawing no.: [ ]      Bottle type: [ ]      Change (to) (date): [ ]      Blow molding machine: [ ]

Mold no.: [ ]      Blow date: [ ]      No. part: [ ]      Remarks: [ ]

Plastic data sheet: [ ]

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**TEST 1 (Y) (CONFORMANCE) (1.5 to 2.0 bar)**

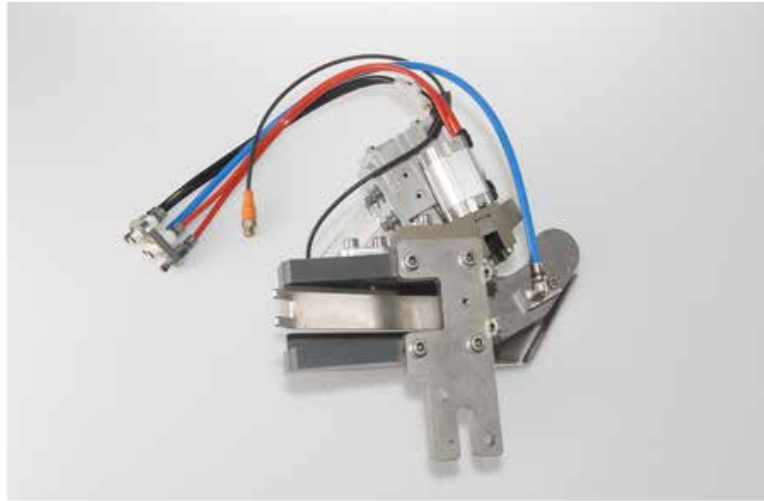
Item	Production at height (mm)	min	max	avg	std. dev.	tolerance	status	operator
Height								
Upper diameter								
Lower diameter								
Label diameter								
Neck diameter								
Neck diameter at base								
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# Plastics technology

## Handling parts



Infeed guide



Infeed stop



Infeed sawtooth starwheel



Stretching rod



Mould

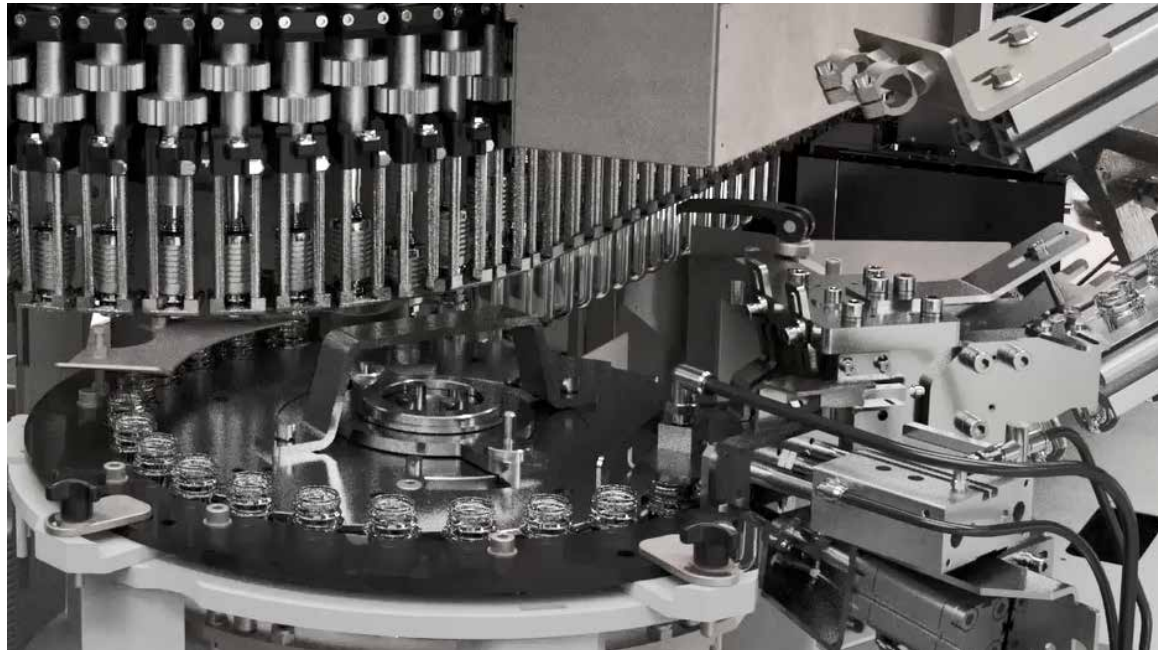


# Plastics technology

## Handling parts



### Assembly: infeed in heating module



### Assembly: transfer area of the Contiform



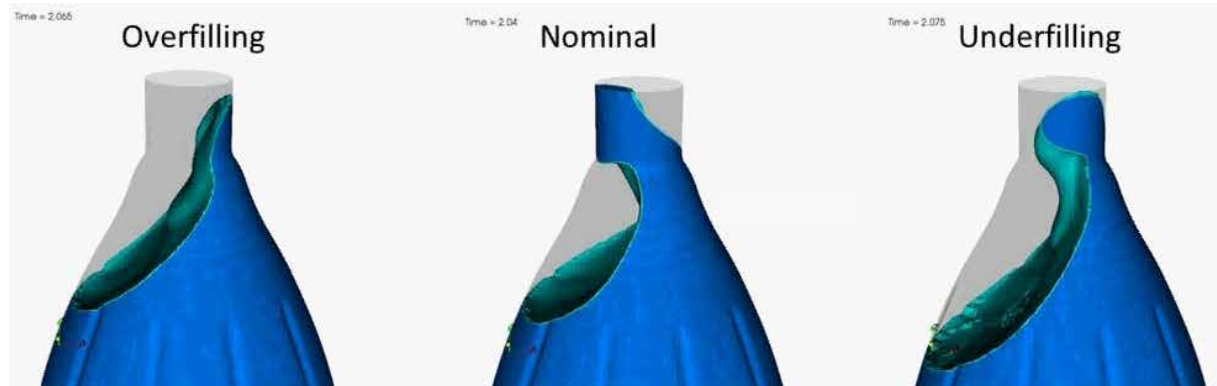
# Filling technology

## Our service



### Checking of containers, caps and filling medium

- Verification of changes in the design, already in the run-up using prototype containers:
  - Filling tests
  - Capping tests
  - Swashing simulation
- Checking the flow behaviour on the basis of the container contour
- Testing the caps according to various parameters, such as dimension, shape, colour or torque



Swash simulation



Kronos filling laboratory



# Filling technology

## Handling parts



### Handling parts for the rinser



Infeed worms



Grippers



Curved infeed/discharge guide



Transfer starwheels to the filler



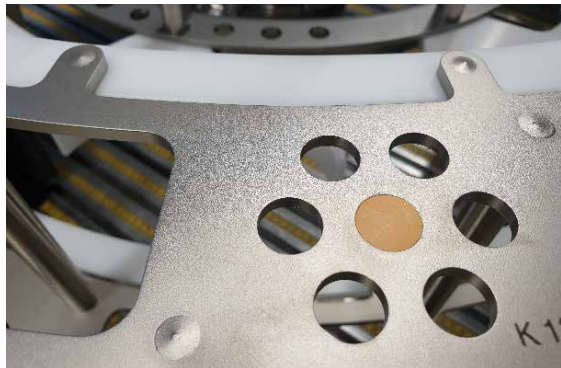
Sawtooth starwheel

# Filling technology

## Handling parts



### Handling parts for the filler



Guides and special starwheels



Vent tubes



Neck-handling starwheels



# Filling technology

## Handling parts



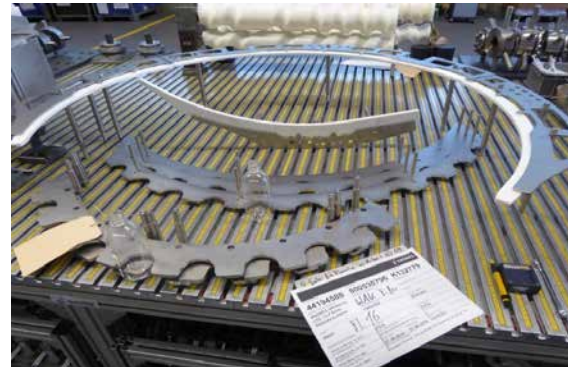
### Handling parts for the screw capper



Picking station for new cap type



Lowering starwheel with exterior guide



Container handling parts



Cap retainers

# Labelling technology

## Our service



### The Krones test centre at a glance

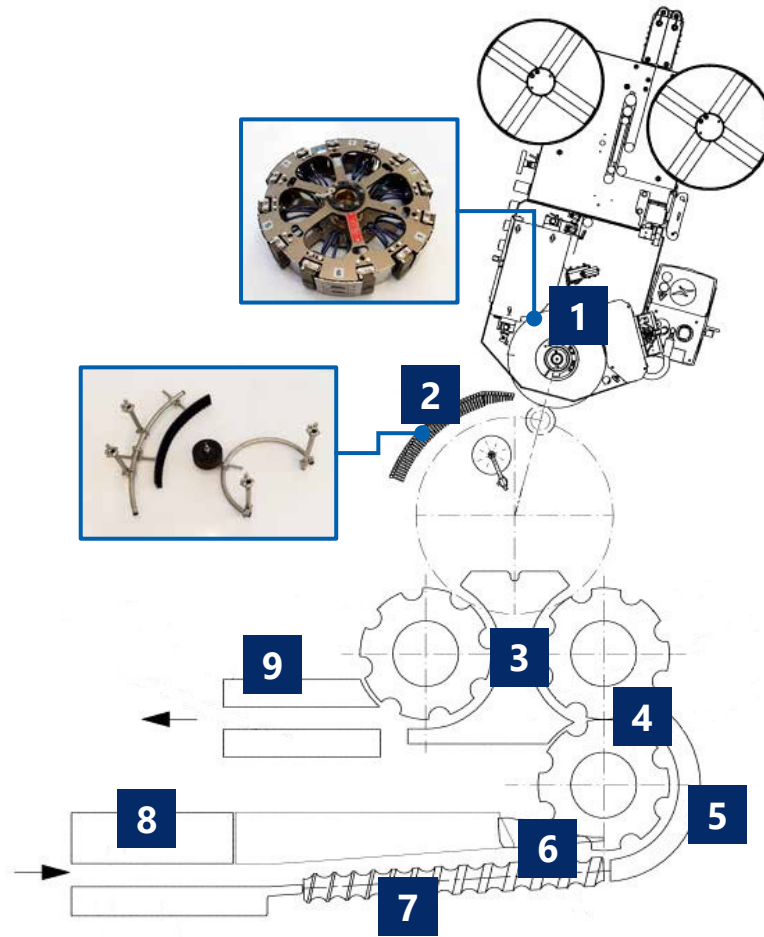
- Optimally equipped technical centre with the latest labellers:
  - Label testing for each type of technology (sleeves, pre-cut or plastic labels)
  - Checking the label specifications in the laboratory
  - Orientation tests for containers
- Execution of customer tests: Checking the labels for processability, shrink test, determination of the maximum splicing speed, checking of the label seat in a test loop
- Analysis of label shape, dimension and label seat on the original container
- Testing the glue for proper functioning and usability in close cooperation with KIC Krones

Krones offers comprehensive expertise with regard to the acquisition and stock keeping of labels. We are pleased to provide our collected know-how in our label specification or in the context of an individual consulting.



# Labelling technology

## Handling parts



- 1** Vacuum-grip cylinder
- 2** Brushing-on/rolling-on station
- 3** Central curved infeed/discharge guide
- 4** Infeed starwheel 1 and 2
- 5** Curved infeed guide
- 6** Infeed flap with stop starwheel
- 7** Infeed worm
- 8** Infeed guide
- 9** Discharge guide
- 10** Centring bell
- 11** Centring plate



# Packing and palletising technology

## Our service



### Packaging

- Simulations of
  - film wrapping
  - horizontal folding (wrap-around processing)
- Film analysis
- Creation of drawings with suggestions (in the case of an order) and checking of customer specifications for:
  - film, wrap-around, tray and pad blanks
  - integrated handle applicators and pre-shrink adhesive tapes for Variostick



### Palletising

- Development of suggestions for layer patterns
- Consulting with regard to customer's suggested layer patterns





# Packing and palletising technology

## Handling parts



Item separation and guidance



Type expansion



Spacing bars with spacing fingers for various packagings



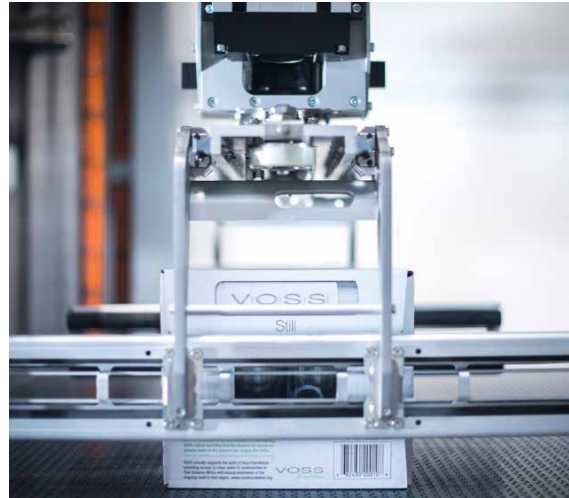
Handling parts for the container infeed

# Packing and palletising technology

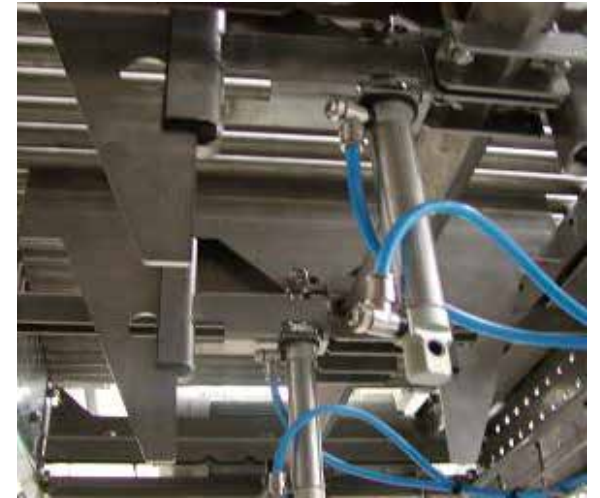
## Handling parts



Clamping plates for gripper units of Robobox and Tripod



Type expansion



Spacing devices from bottom (90° grouping station)



# Conveyor technology

## Our service



The settings and parameters of the conveyors are compared to the characteristics of new customer objects and modified in such a way that they ensure optimum processing.

### Air conveyor

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Possible modifications:

- Replacement of the neck-ring guides
- Exchange of the nozzle duct
- Rail adjustment depending on the container shape and size
- Adjustment of the air output

### Container conveyors

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Possible modifications:

- Conversion to an adjustable rail (longer locking pins or set collars)
- Adjustment of the wear strip to protect the labels
- Rail adjustment depending on the container shape and size



# Conveyor technology

## Our service



### Pack conveyor

Possible modifications:

- Conversion to an adjustable rail (longer locking pins or set collars)
- Pointers and colour charts for new pack dimensions

### Pallet conveyor

Possible modifications:

- Adjustment or conversion of the functional groups (stopper, centring unit, pallet magazine, pallet inspection unit)
- Rail adjustment depending on the pallet characteristics



**SOLUTIONS  
BEYOND  
TOMORROW**

