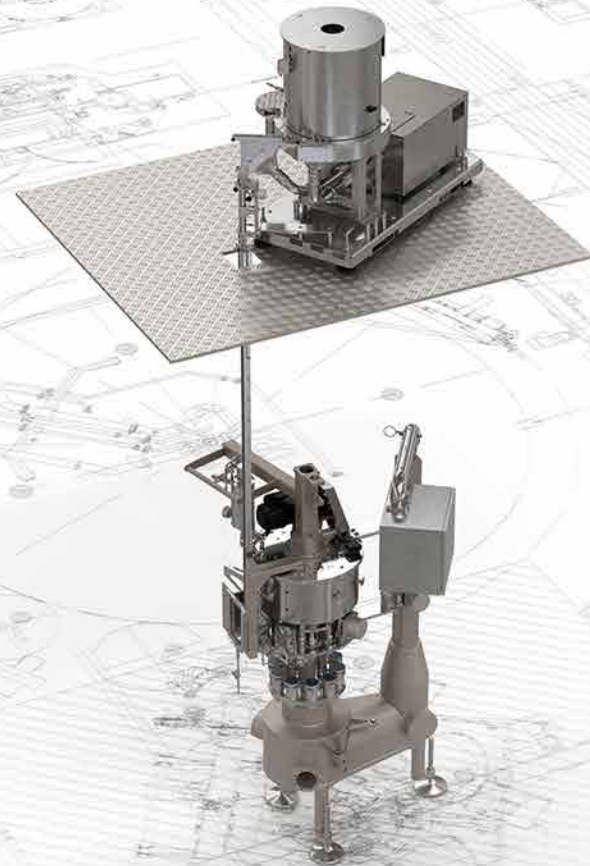




# Krones capping technology

Capper models for a wide range of applications



# Good, reliable sealing

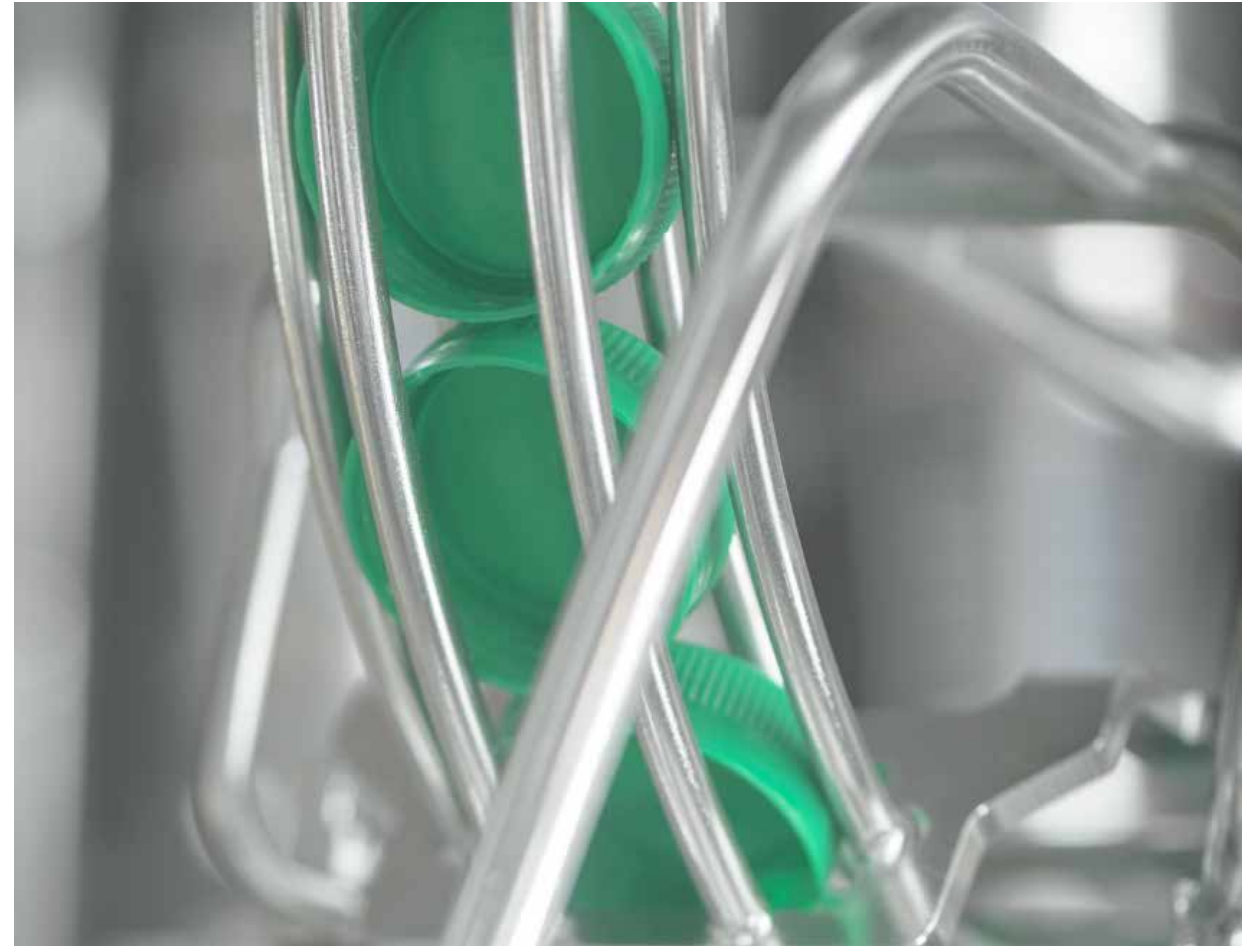


Beverage containers are used in various sizes and shapes worldwide and accordingly there is great diversity in container closures. With the Krones cappers, you can reliably apply all common cap types to containers.

## At a glance

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- Wide portfolio
  - Plastic screw caps (including tethered caps)
  - Crowns and ring-pull caps
  - Aluminium roll-on caps
  - Press-on caps
- Suitable for both neck handling and base handling



# Attached caps

## Tethered caps



To ensure that the caps on beverage containers of PET no longer get lost so easily and end up as waste in the environment, and as of 2024, in the EU, they will have to remain connected (tethered) to the packaging once opened.

### Basically, at tethered caps, a distinction must be made between hinged caps and screw caps:

- Hinged caps – also known as flip lids, flip tops or thumb-ups – have a design which keeps them permanently connected to the bottle right from the outset.
  - With screw caps, on the other hand, the connection between container and cap must be realised by an additional element.
- Krones offers just the right sorting and capping technology for every variant.



"Tethered" stands for connected: For caps, this means that they remain connected to the bottle even after opening.

# Modulcap CM\* screw capper for plastic caps



The Krones Modulcap CM capper processes a large number of plastic screw caps and applies them precisely on glass or PET bottles even at high outputs.

## Field of application

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Single-threaded and multi-threaded caps\*\*:

- Flat caps ranging in size from 26 - 43 mm
- Rotationally symmetric sports caps
- Tethered caps

## Output range

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Up to 84,000 containers/h (depending on the cap type)

\* C: Chucks (cap retainers), M: Mechanical | \*\* With the appropriate change parts





# Modulcap CM screw capper for plastic caps



## Method of operation

The screw caps are spaced and oriented in the sorter, and then fed to the capper from above. The cap retainer fixes the caps in the capping head. A tension belt and centre starwheel are used to prevent glass bottles and returnable PET containers from turning. PET bottles are held in place by spikes on the neck starwheel.

The capping head applies the cap. The cap is pressed onto the bottle by means of spring pressure. At the same time it is screwed onto the thread of the bottle neck finish. As soon as the rotation is ended and the required tightening torque is applied to the cap, a hysteresis clutch ends the capping process. This clutch enables smooth braking and a constant tightening torque at all filler speeds.



# Modulcap CM screw capper for plastic caps



## Design features

- All main parts made of stainless steel AISI 304
- Height-adjustable pick station
- Torque and press-on force of the capping head are adjustable
- Flushable cap retainer
- Exchangeable cap retainer inserts
- Exchangeable spikes in neck support rings for PET bottles
- Motorised height adjustment of the capper top part with bottle pre-selection feature

Machine pitch	87	94	103	113	126	141	188	226	283
<b>Pitch diameter (mm)</b>									
<b>360</b>	13	12	11	10	9	8	6	5	4
<b>540</b>	–	18	–	15	–	12	9	–	–
<b>720</b>	26	24	22	20	18	16	12	10	–
<b>1,080</b>	39	36	33	30	27	24	18	15	–
<b>1,440</b>	52	48	44	40	36	32	24	20	16

# Modulcap CM screw capper for plastic caps



## Additional equipment

- Separate capping head drive for multi-threaded caps
- Separate capping head drive for the same rotational speed at different machine output levels
- Thread spraying and steaming
- Cap spraying and steaming
- Flushing equipment
- UV lamp for cap disinfection
- Dust blow-off with ionised air and suction
- Cap disinfection with H<sub>2</sub>O<sub>2</sub> or peracetic acid
- Sorting systems with camera technology for cap inspection prior to the application





# Modulcap CM screw capper for plastic caps

## Benefits to you

### **Caps are fitted perfectly**

Use of a hysteresis clutch ensures screw caps are applied at a constant force.

### **Can be optimally cleaned**

The capping heads can be cleaned perfectly with hot water or foam.



### **Requesting a new machine**

You can easily send a request for a non-binding quotation in our Krones.shop.





# Modulcap CS\* screw capper for plastic caps



The new generation of the servo motor screw capper Modulcap CS is particularly convincing due to its hygienic design: As with proven Krones aseptic lines, all mechanical components are located above the neck finish; bellows separate the mechanical environment from the production environment. This allows the capper top to be cleaned automatically via foam cleaning.

## Field of application

- Single-threaded and multi-threaded caps\*\*:
- Flat caps ranging in size from 26 - 43 mm
- Rotationally symmetric sports caps
- Press-on caps
- Tethered caps

## Output range

Up to 84,000 containers per hour

\* C: Chucks (cap retainers), S: Servo motor | \*\* With the appropriate change parts



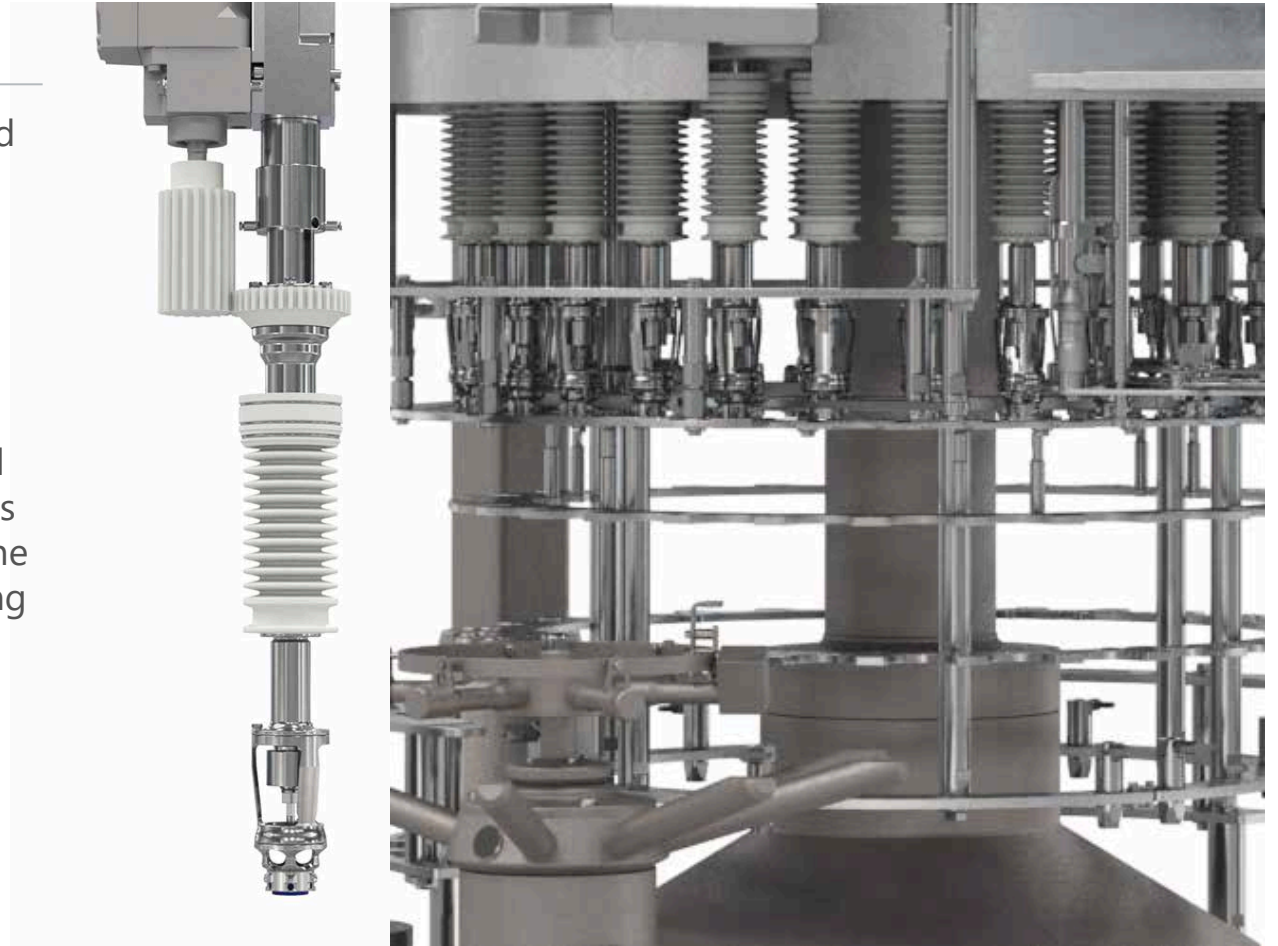
# Modulcap CS screw capper for plastic caps



## Additional equipment

The screw caps are spaced and oriented in the sorter, and then fed to the capper from above. The cap retainer fixes the caps in the capping head. A tension belt and centre starwheel are used to prevent glass bottles and returnable PET containers from turning. PET bottles are held in place by spikes on the neck starwheel.

The capping head applies the cap. The cap is pressed onto the bottle by means of spring pressure. At the same time it is screwed onto the thread of the bottle neck finish. As soon as the rotation is ended and the required tightening torque is applied to the cap, the servo drive ends the capping process. This enables smooth braking and a constant tightening torque at all filler speeds. The required torque of the servo drives for the respective cap to be processed will be automatically adjusted via type management.



# Modulcap CS screw capper for plastic caps



## Design features

- Machine is constructed from a selection of stainless steels optimised for relevant application
- Complete cleaning and sterilisation possible
- Ceramic machine bearings

Machine pitch	87	94	103	113	126	141	188	226	283
<b>Pitch diameter (mm)</b>									
<b>360</b>	13	12	11	10	9	8	6	5	4
<b>540</b>	–	18	–	15	–	12	9	–	6
<b>720</b>	26	24	22	20	18	16	12	10	8
<b>1,080</b>	39	36	33	30	27	24	18	15	12
<b>1,440</b>	52	48	44	40	36	32	24	20	16

# Modulcap CS screw capper for plastic caps



## Drive technology with servo motor

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- Saving of data tracking and monitoring of screw-on values by continuous documentation within the servo control
- Optimum application of multi-threaded caps with standing capping head
- Quick and hygienically safe adjustment of the tightening torque without accessing the machine for cap change-over
- Realisation of different capping head rotational speeds at different cap thread slants
- Permanent torque monitoring for even more precise screw-on values

## Additional equipment

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- **CapAsept D** Cap disinfection system based on dry sterilisation with hydrogen peroxide
- **CapAsept L** Cap disinfection system based on wet sterilisation with immersion bath



# Modulcap CS screw capper for plastic caps

## Benefits to you



### Hygienically optimised design

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The drives are positioned to reliably prevent germs from being spread into bottles while they are still open.

### Caps are fitted perfectly

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The servo controller for the capping process precisely monitors the application torque. This ensures that roll-on caps are applied at a constant force.

### Reliable cap feed

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The caps are hygienically conveyed to the pick station.

### Easy maintenance

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All component groups have a lubrication-free and maintenance-free design

### Can be optimally cleaned

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The machine can be cleaned very effectively with foam and spray disinfection. The open design of the pick station and capping cone ensures that individual parts are readily accessible.

### Requesting a new machine

You can easily send a request for a non-binding quotation in our Krones.shop.



# Modulcap GS\* screw capper for plastic caps



With the servo-driven screw capper for plastic caps, there is also an optional variant with gripper in addition to the one with cap retainer:

This way, non-rotationally symmetric caps such as caps with flaps or recessed grips can be processed as well. Tethered caps can also be processed with the Modulcap GS.

Apart from this special feature, this machine type is similar to the Modulcap CS in terms of design and mode of operation.



\* G: Grippers (gripping head), S: Servo motor

# Modulcap CP/GP\* press-on capper for plastic caps



## Method of operation

Besides screw caps, the Krones capper portfolio can also handle press-on caps. The machine type required for this can be built on the basis of both the Modulcap CM and the hygienically designed Modulcap CS/GS. This capper enables non-screw-on caps to be pressed onto the bottle with the aid of a cap retainer or a gripper on the capping head.

## Field of application

Non-screw caps

## Output range

Up to 84,000 containers per hour

\* CP: Chucks (cap retainers), Press-on cap | GP: Grippers (gripping head), Press-on cap



# Modulcap CP/GP press-on capper for plastic caps

## Design features and benefits



### Design features

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- Quick-change pick-and-place station
- Suitable for all machine sizes
- No replacement of the packing head necessary
- Integration into the clean room possible

### Benefits to you

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- Fully controllable capping process (at the version with servo drive)
- Version in hygienic design: Machine to be cleaned completely
- Robust design





# Modulcap CLR\* Krones screw capper with rotary lift motors



## Method of operation

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At its core, this model is based on the Modulcap CS and is suitable for capping PET containers. However, the lifting cam (responsible for the linear movement) and the servo motor (responsible for the rotary movement) are replaced here by lifting rotary motors.

## Field of application

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Screw and press-on caps (without orientation)

## Output range

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Up to 84,000 containers per hour

\* CLR: Chucks (cap retainers), Linear Rotary

# Modulcap CLR Krones screw capper with rotary lift motors

## Design features and benefits



- Linear and servo motor installed in a common housing, enabling lifting and rotary motion to be realised in one unit
- Each rotary lifting unit is equipped with a support for cap retainers or gripping head elements (depending on the application)
  - Movements either synchronised or independently linear and rotary
- Integrated MagSpring (motor shaft is pulled upwards in case of power failure)
- Integrated pneumatic cylinder: Shutter ejection or control of the grippers possible
- Programmable/measurable forces and torques
- Compact design

## Benefits to you

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- Freely programmable and individually adjustable capping movements (independent of contour and cap type)
  - Highest degree of freedom in cap design and unscrew values
  - Targeted data analysis possible
- Low installation height thanks to compact design
- Better heat dissipation due to optimised housing

# Modulcrown crowner



The Modulcrown crowner closes glass and PET bottles.

## Field of application

- Crowns
- Twist-off caps
- Ring-pull caps

## Output range

Between 10,000 and 120,900 bottles per hour



Machine pitch	87	94	103	113	126	141	188	226	283
Pitch diameter (mm)									
360	13	12	11	10	9	8	6	5	4
540	–	18	–	15	–	12	9	–	–
720	26	24	22	20	18	16	12	10	–
1,080	39	36	33	30	27	24	18	15	–

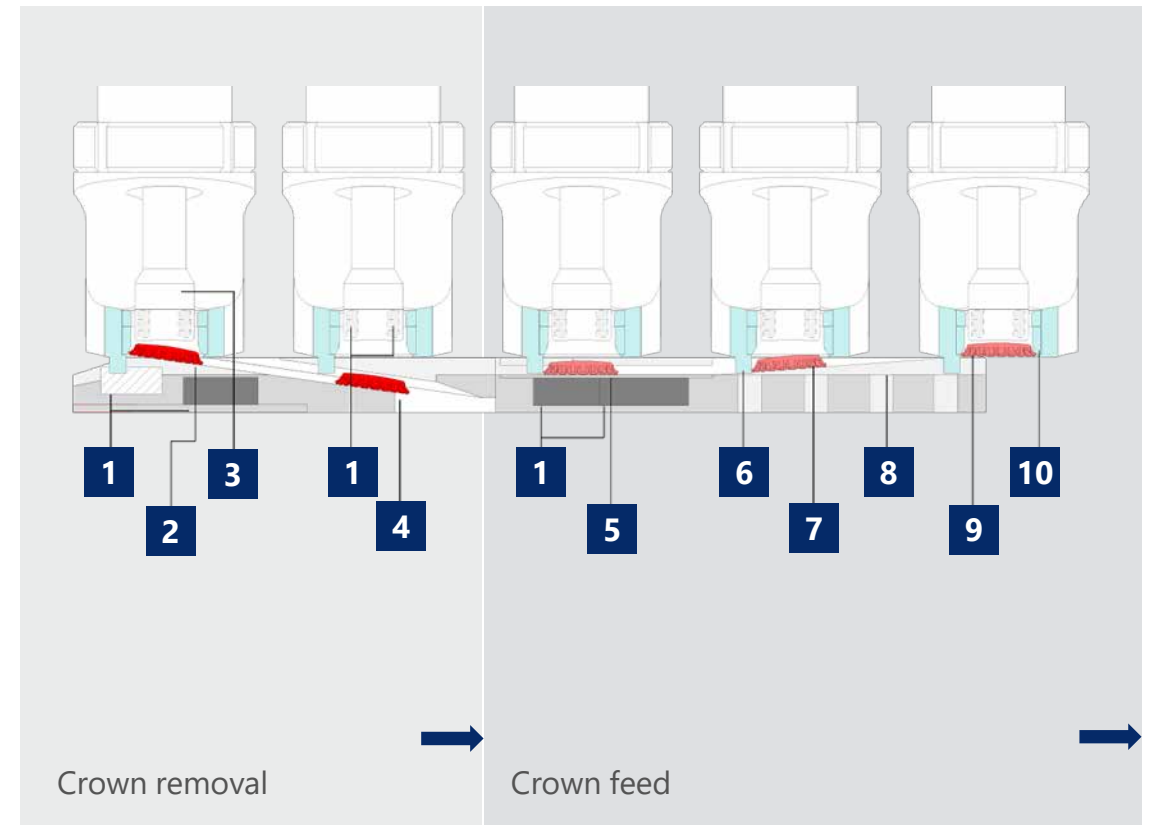
# Modulcrown crowner



## Method of operation

Once the crown has been fed from the crown chute into the transfer segment, a magnet is used for the further guidance of the crown. A pusher dog is then used to position the crown on the ejection plunger of the capping head. The crowning head is lowered until the crown in the crowning throat is placed on the bottle. The bottle then holds it in place. Afterwards only the crowning throat continues to be lowered. In the first phase, only the force of the guiding springs has any effect on the crown.

## Crowner: Crown transfer



### 1 Magnet

2 The **crown** is removed from the ejection plunger by magnets.

### 3 Ejection plunger

4 The pusher dog guides the **crown** downwards away from the strip-off wedge.

5 **Crown** in transfer position

### 6 Pusher dog

7 The pusher dog feeds the **crown** towards the ejection plunger.

### 8 Ramp

9 The **crown** rests against the ejection plunger and is held in position by the magnet.

10 **Crowning throat**



# Modulcrown crowner



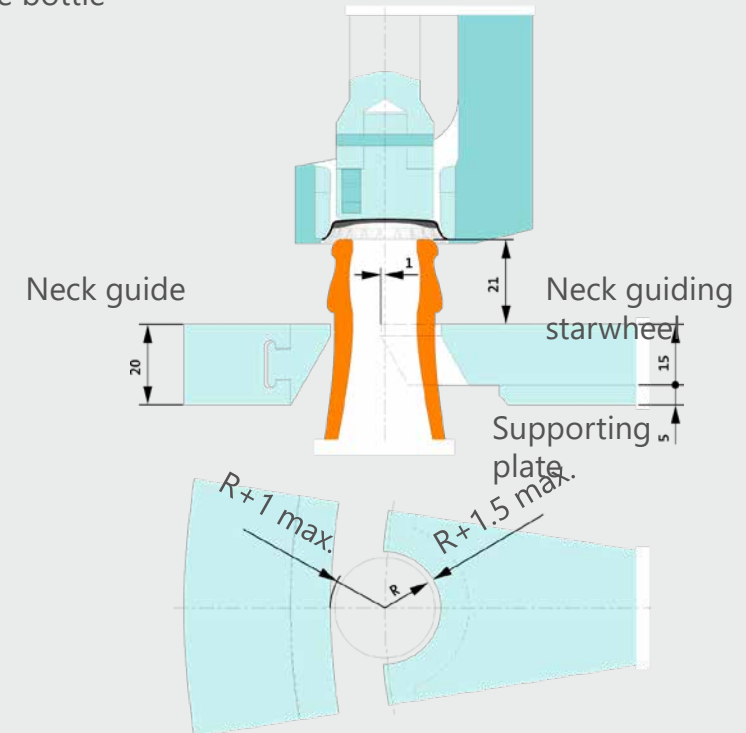
## Method of operation (continued)

In the second crowning phase, the ejection spring is pressed and the bottle is subjected to an increased amount of pressure. The crowning procedure is completed once the crown has been introduced 7.7 mm into the capping throat. In doing so, the crown is located 1 mm inside the cylindrical area of the crowning throat and the required crown diameter of between 28.6 and 28.7 mm has been exactly obtained. This completes the crowning procedure, and the crowning force is reduced again.

The delayed activity of the ejection spring guarantees high crowning quality while applying a low level of pressure on the bottle. The plunger is then blocked while the crowning throat is further lowered over the crown. At this time, the bottle height is also compensated. A bottle which is too tall presses the bottle plate downwards until the lowest area of the crowning head has been reached. Controlled by the lifting cam, the capping head moves back up and the guiding spring presses the ejection plunger back into the initial position.

## Crowner: Neck guide

Situation shortly before the crown is applied to the bottle



# Modulcrown crowner



Design features	Advantages
Agitator on a platform (optionally also on a clean room roof)	<ul style="list-style-type: none"><li>– Separation of capping area and production environment</li><li>– Improved accessibility</li></ul>
Agitator disk with pneumatically actuated rejection	Direct rejection or emptying of surplus caps
Feed chute for caps <ul style="list-style-type: none"><li>– With integrated pushing piece</li><li>– Open design</li></ul>	<ul style="list-style-type: none"><li>– Automatic height adjustment system</li><li>– Ease of cleaning</li></ul>
Rollers lubricated for service life, plus hardened lifting cam with automated single-point lubrication	Automatic lubrication of the lifting cam
Sheet metal construction <ul style="list-style-type: none"><li>– Guard around the capper carousel</li><li>– Horizontal plate between lubricating area and capping area</li></ul>	<ul style="list-style-type: none"><li>– Separation of capping area and production environment</li><li>– No lubrication media in the capping area</li></ul>
Ceramic capping throat with enlarged gap	Ease of cleaning

## Additional equipment

- Two-channel dust extraction system on the agitator
- Rinsable design of capping heads and bottle plates (incl. ceramic crowning throat)

# Modulcrown crowner

## Benefits to you



### Precision

Crowns enter the line with a defined alignment and are precisely positioned on the transfer plate by a draw-in magnet.

### Designed for practical applications

Bottle-neck centring ensures that even bottles with inaccurate dimensions are reliably sealed.

### Hygiene

Numerous refinements and optional equipment on the agitator, feed chute, top part and capping heads themselves deliver a major hygiene boost during production.

### Suitability for retrofitting

Numerous new features can also be retrofitted to existing crowners from Krones.



### Requesting a new machine

You can easily send a request for a non-binding quotation in our [Krones.shop](#).

# Modulcrown crowner

## Conversion to ring-pull caps



### Parts to be converted

- Capping head
- Sorter of ring-pull caps for correct alignment
  - Only required if there is a single tower for crowns and ring-pull caps
  - Mounted on platform
- Chute for positioning caps in infeed
  - Mounted parallel to chute for crowns
  - Can be adjusted to various bottle heights





# Modulcrown crowner

## Conversion to ring-pull caps



### Conversion process

- Removal of
  - Crown feed rail
  - Capping heads
- Installation of
  - Capping heads
  - Chute for ring-pull caps
- In addition, the cap mass-flow conveyors must be emptied and converted.

### Time required

Between 60 and 90 minutes (depending on the size of the crown)

There are restrictions in the bottle height, as the elements required for applying the crowns are of different lengths.

- Maximum height for a bottle with crown: 360 mm
- Maximum height for a bottle with ring-pull cap: 340 mm



# Krones roll-on capper for aluminium caps



Capping of glass bottles with aluminium roll-on caps is a standard procedure in many areas of beverage bottling. The design of the roll-on capper implements the latest knowledge from capping technology and hygiene:

## Field of application

- Pilfer-proof and Stelcap caps
- Sizes: 28 mm and 31.5 mm

## Output range

Between 10,000 and 60,000 bottles per hour



# Krones roll-on capper for aluminium caps



## Method of operation

After they have been sorted according to their positions in the sorter, the caps are fed to the capper via an open chute. A towing shoe positions the caps, which are then directly picked up by the bottle. If a cap is missing, a safety plunger prevents contact between the rollers and the bottle neck finish. Depending on the cap type, a “fixed” or a deep-drawing plunger is used for press-on and shaping. The thread is rolled out via moveable arms, and if necessary, the tamper-evident band is flanged. The lateral pressure can be easily readjusted with adjusting screws.



# Krones roll-on capper for aluminium caps



## Design features

- Structure completely designed in stainless steel
- Plastic guide bushes and lifting cylinders
- Maintenance-free cam roller
- Capping heads with maintenance-free ceramic ball bearings
- Grease-free and therefore low-maintenance lifting elements and capping heads
- Safety plungers prevent damage on the neck finish when cap is missing
- Entire capper can be flushed
- Adjustment of capping heads via set screws
- Side pressure can be adjusted quickly and easily
- Quick and easy change-over and adjustment of thread and bead roller arms

Machine pitch	94	103	113	126	141	188	226	283
<b>Pitch diameter (mm)</b>								
<b>360</b>	12	11	10	9	8	6	5	4
<b>540</b>	18	–	15	–	12	–	–	–
<b>720</b>	24	22	20	18	16	12	–	–
<b>1,080</b>	36	–	30	–	24	–	–	–

# Krones roll-on capper for aluminium caps **Optionally with quick-change** Optionally with quick-change capping head (with switch-over function)



## **Optional additional equipment** **Quick-change capping head**

- Field of application: When different capping diameters are processed on an aluminium roll-on capper
- No modifications to the capper necessary (except for changing the capping head)
  - Replacement of capping head without tools
- Benefits to you
  - Shorter change-over times
  - Flexibility for different cap variants
  - User friendliness

## **Quick-change capping head with "flanging" to "non-flanging" switch-over function**

- Tool-free switch-over
- Processing of different aluminium caps possible with one capping head (e.g. also Talog caps)





# Krones roll-on capper for aluminium caps

## Benefits to you



### Flexibility

The thread and tuck-under roller arms can be quickly adjusted to the plunger dimension.

### Can be optimally cleaned

The capping heads can be cleaned perfectly with hot water or foam.

### Retains its value

The stainless steel design of the roll-on capper is highly resistant to cleaning agents and disinfectants.



### Requesting a new machine

You can easily send a request for a non-binding quotation in our Krones.shop.





# Everything from a single source



## Training courses at the Krones Academy – trained personnel will increase your line efficiency

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The multifaceted offer by the Krones Academy ranges from operation, servicing and maintenance courses through to management training. We will gladly also create your individual training programme.

## KIC Krones cleaning agents make your machine shine

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An immaculate production environment is essential if your product is to shine. KIC Krones provides you with the optimum cleaning agents and disinfectants for each individual production step.

## KIC Krones lubricants – for each production step

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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.

## Krones Lifecycle Service – Partner for Performance

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It goes without saying that also after the purchase of new machines, Krones takes care of your lines: The Krones LCS experts are always there to help you reaching your goals and turn your wishes into optimal LCS solutions.

## High-quality components from Evoguard and Ampco

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Are you looking for shut-off, separation or control valves? For hygienic or aseptic applications? Would you like to have pump technology that perfectly fits into your machines? You will find exactly what you are looking for at Evoguard and Ampco Pumps. The two Krones subsidiaries cover the entire spectrum of process technology components that you need for high-quality production.

**SOLUTIONS  
BEYOND  
TOMORROW**

