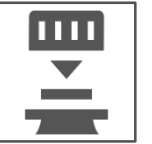


KRONES Capping Technology

Capper models for a wide range of applications





Good and reliable capping

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

At a glance:

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





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 applications

Single-threaded and multi-threaded cap types**:

- Flat caps size range from 26 – 43 millimetres
- Rotationally symmetric sports caps

Output range

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

* C = Chucks, M = mechanical

** With corresponding change parts





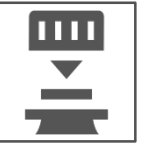
Modulcap CM screw capper for plastic caps

Method of operation

The screw caps are spaced and oriented in the sorter, and then fed to the capper from above. The chuck 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.



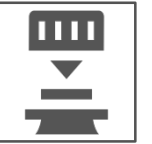


Modulcap CM screw capper for plastic caps

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 chuck
- Replaceable chuck inserts
- Exchangeable spikes in neck support rings for PET bottles
- Motorised height adjustment of the capper top part with bottle selection feature

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	–
1080	39	36	33	30	27	24	18	15	–
1440	52	48	44	40	36	32	24	20	16



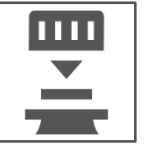
Modulcap CM screw capper for plastic caps

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 H₂O₂ 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



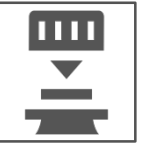
Caps are fitted perfectly

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.





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 applications

Single-threaded and multi-threaded cap types**:

- Flat caps size range from 26 – 43 millimetres
- Rotationally symmetric sports caps
- Press-on caps

Output range

Up to 84,000 containers per hour

* C = Chucks, S = servomotor

** With corresponding change parts





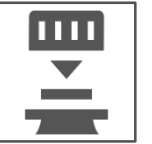
Modulcap CS screw capper for plastic caps

Method of operation

The screw caps are spaced and oriented in the sorter, and then fed to the capper from above. The chuck 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 disk.

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
Pitch diameter (mm)									
360	13	12	11	10	9	8	6	5	4
540	–	18	–	15	–	12	9	–	6
720	26	24	22	20	18	16	12	10	8
1080	39	36	33	30	27	24	18	15	12
1440	52	48	44	40	36	32	24	20	16



Modulcap CS screw capper for plastic caps

Drive system with servo motor

- Saving of data tracking and monitoring of screw-on values by continuous documentation within the servo control
- Optimum application of multi-threaded caps with stopped 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

- **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

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

Caps are fitted perfectly

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

Reliable cap feed

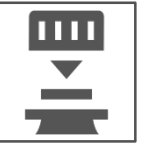
The caps are hygienically conveyed to the pick station.

Can be optimally cleaned

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

Easy maintenance

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

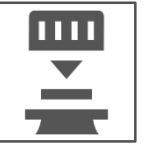


Modulcap GS screw capper for plastic caps

With the servo-driven screw capper for plastic caps, there is also an optional variant with gripper in addition to the one with chucks: This way, non-rotationally symmetric caps such as caps with flaps or gripping grooves can be processed as well.

Other than this special feature, the Modulcap GS structure and function is similar to the one of the CS.





KRONES Crowners

The crowners are masters of capping glass and PET bottles with exemplary precision.

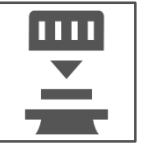
Applications

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

Service portfolio

Between 10,000 and 78,000 bottles per hour



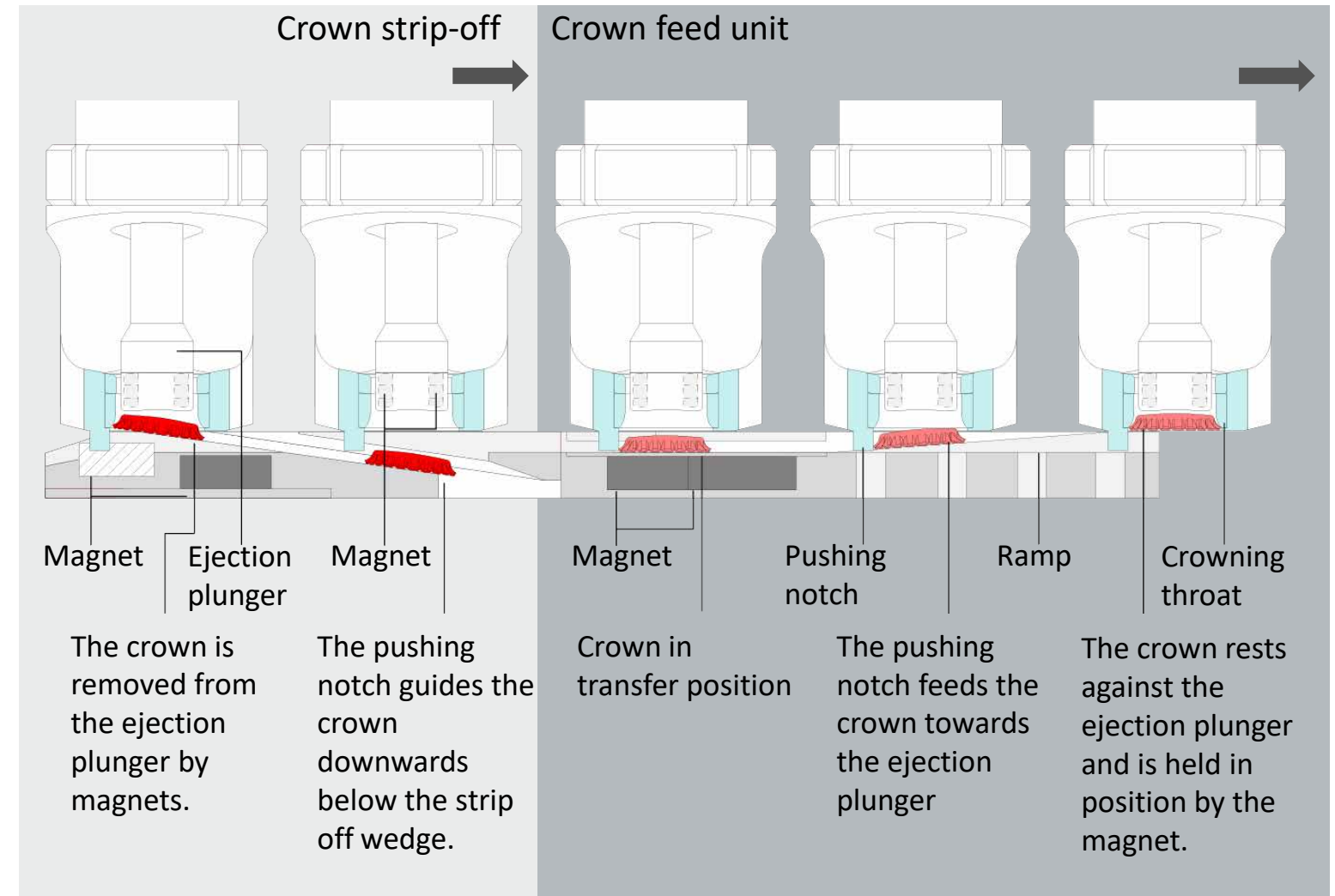


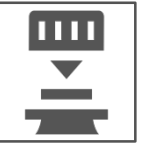
KRONES Crowners

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 pushing notch 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.

Crowners: Crown transfer





KRONES Crowners

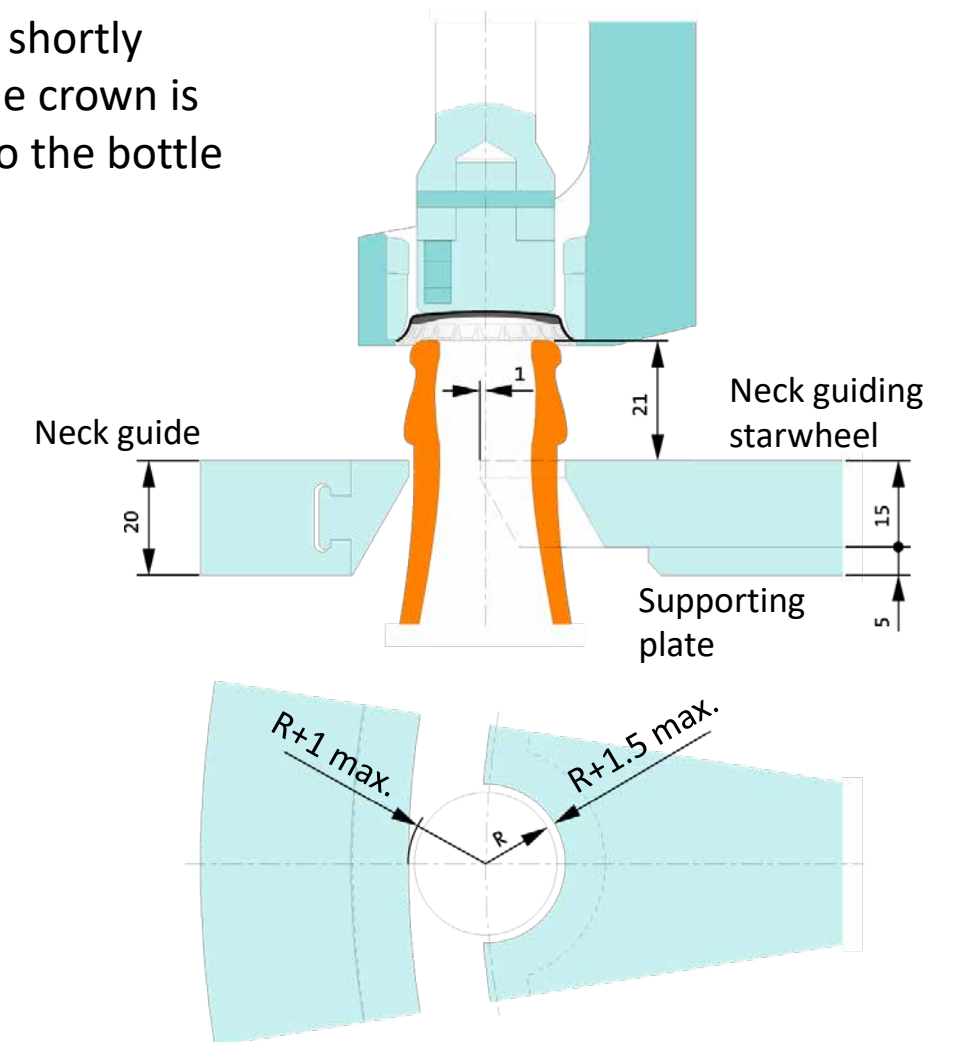
Method of operation (continued)

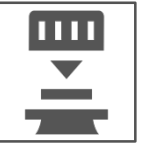
In the second crowning phase, the ejection spring is pressed and the bottle is subjected to an increased amount of pressure. The crowning procedure is completed once the crown has been introduced 7.7 mm into the capping throat. In doing so, the crown is located 1 mm inside the cylindrical area of the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

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, now the crowning head moves upward again and the guiding spring presses the ejection plunger back into the starting position.

Crowners: Neck guide

Situation shortly before the crown is applied to the bottle





KRONES Crowners

Design features

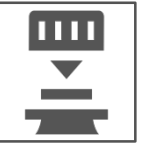
- All main parts made of stainless steel AISI 304
- Flushing of cap transfer unit and capping head
- Motorised height adjustment of the capper top part with bottle selection feature

Additional equipment

- UV lamp for cap disinfection
- Dust blow-off with ionised air and suction
- Additional flushing equipment

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	
1080	39	36	33	30	27	24	18	15	

KRONES Crowners Your Advantages



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

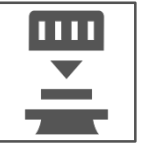
Bottle-neck centring ensures that even bottles with inaccurate dimensions are reliably sealed.

Can be optimally cleaned

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



KRONES Crowners Conversion to Ring-Pull Caps



Parts to be converted

- Capping head
- Sorter of ring-pull caps for correct alignment
 - Only required in case of 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



KRONES Crowners Conversion to Ring-Pull Caps



Conversion process

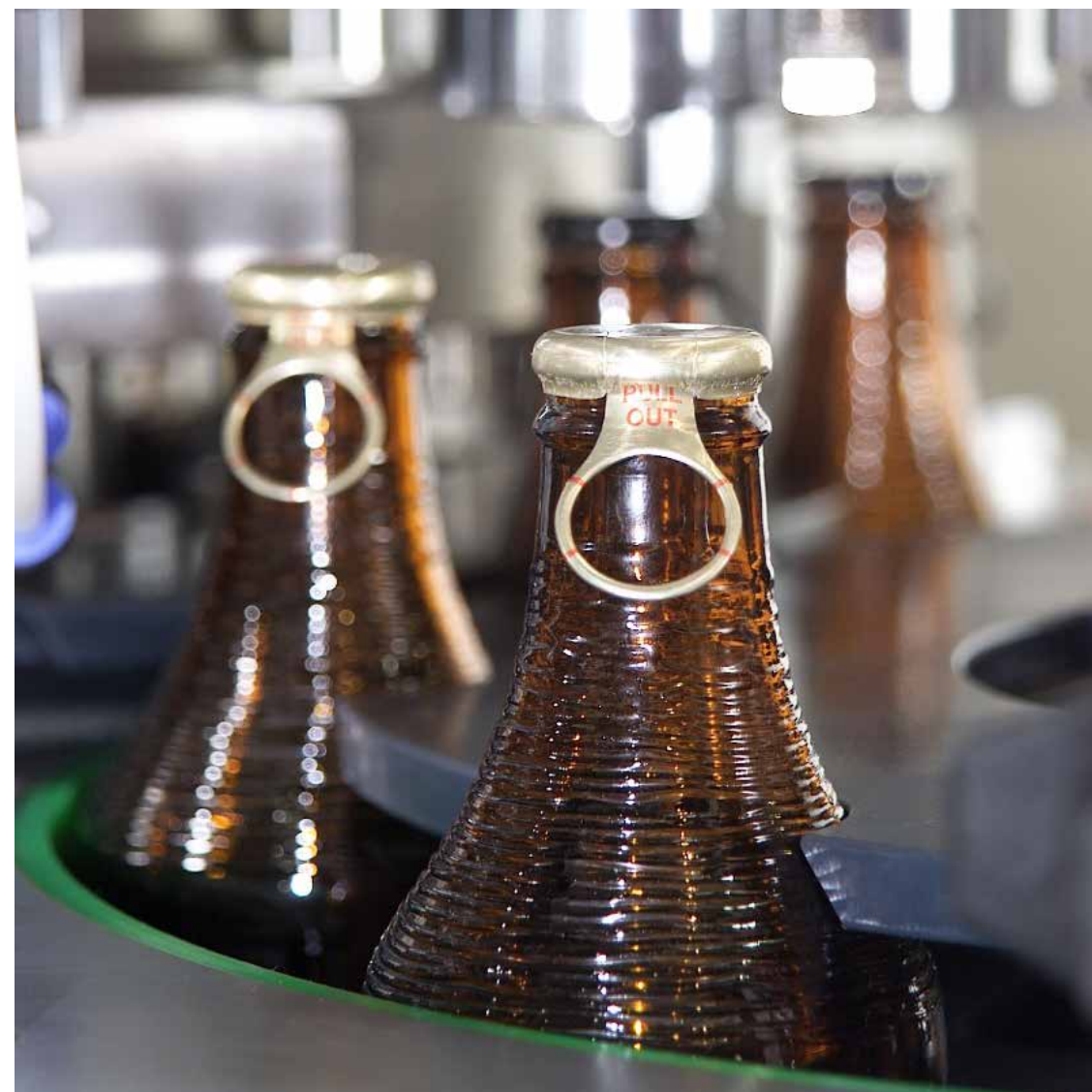
- Removal of
 - Crown feed rail
 - Capper heads
- Installation of
 - Capper heads
 - Chute for ring-pull caps
- In addition, the cap mass-flow conveyors must be emptied and converted.

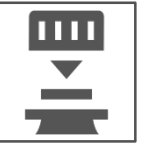
Time required

Between 60 and 90 minutes (depending on size of 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 Aluminium Roll-On Capper

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:

Applications

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

Service portfolio

Between 10,000 and 60,000 bottles per hour



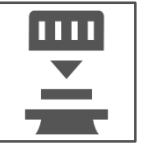


KRONES Aluminium Roll-On Capper

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 Aluminium Roll-On Capper

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 changeover and adjustment of thread and tuck-under roller arms

Machine pitch	94	103	113	126	141	188	226	283
Pitch diameter (mm)								
360	12	11	10	9	8	6	5	4
540	18		15		12			
720	24	22	20	18	16	12		
1080	36		30		24			

KRONES Aluminium Roll-On Cappers Your Advantages

Flexibility

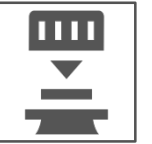
The thread and tuck-under roller arms can be quickly adjusted to the plunger dimension.

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.





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

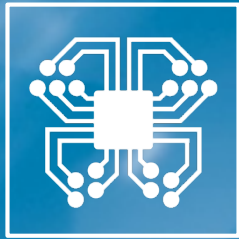
Also after having purchased a new machine, KRONES will take care of your line; the LCS experts are always ready to consult you and translate your goals and wishes into optimal LCS solutions.

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**