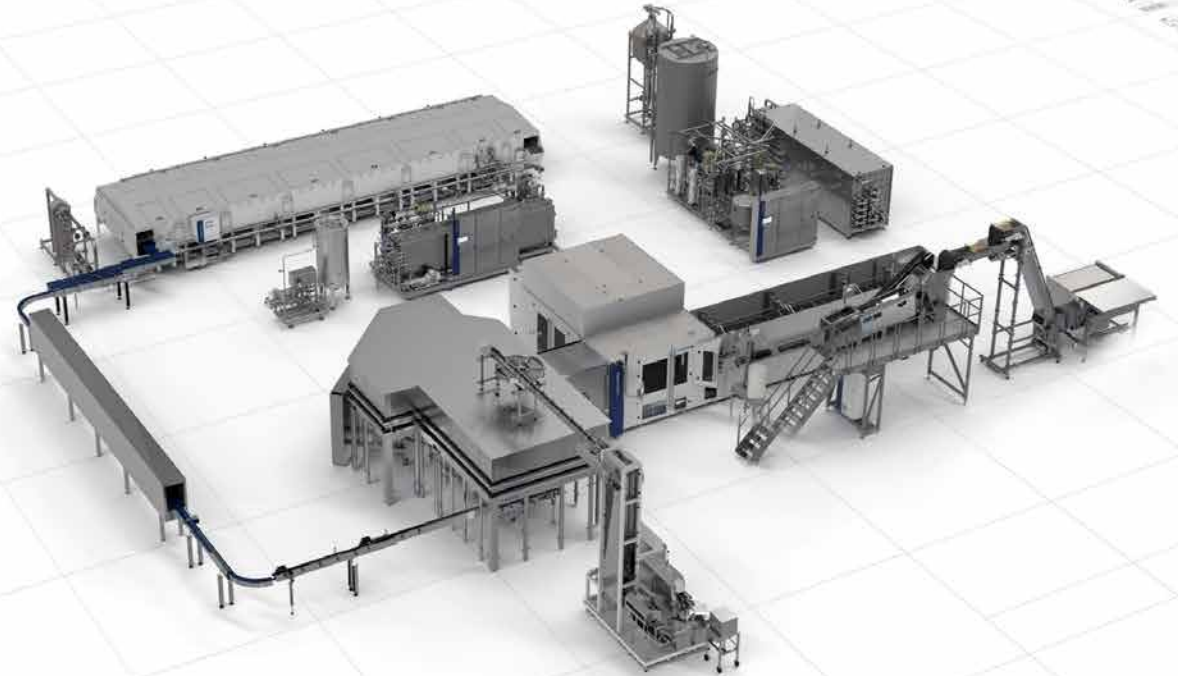




Dosing systems for particles

Filling with the twin-flow method



 **KRONES**

Treats juice and fruit pieces separately



The quality of juice is not only defined by its taste but also by the feeling in the mouth. The Krones dosing systems are the solution for all bottling plants that strive for top product quality and wish to lean on a high-standard fruit juice production as compared to the conventional hot filling process.

At a glance

- Application: Beverages with fruit components, such as premium fruit juices or mixed milk beverages
- Processes food pieces or fruit components of all kinds and consistencies
- Doses fruit pieces with a size of 10 x 10 x 10 millimetres independent from the aseptic filling or hot filling process
- Processes fruit and juice separately and therefore reduces damage on the fruit pieces to a minimum



Options for filling particles at a glance



Regardless of whether hotfill or aseptic system: Krones offers a large range of systems for filling fruit pieces with a size of up to 10 x 10 x 10 millimetres.

Particle size up to maximum:			
Process sequence	0 mm	5 x 5 x 5 mm	10 x 10 x 10 mm
Single-flow filling Single-flow process	Conventional filling (e.g. with preserving agents)		
	Hot filling		
Single-flow filling Single-flow process	Aseptic filling		
Twin-flow filling Twin-flow process	Aseptic: Double filling valve (filling valve with particle inline-dosing)		
	Hotfill: Krones FlexiFuit (pre-dosing system)		



The twin-flow method

The fruit juice flow



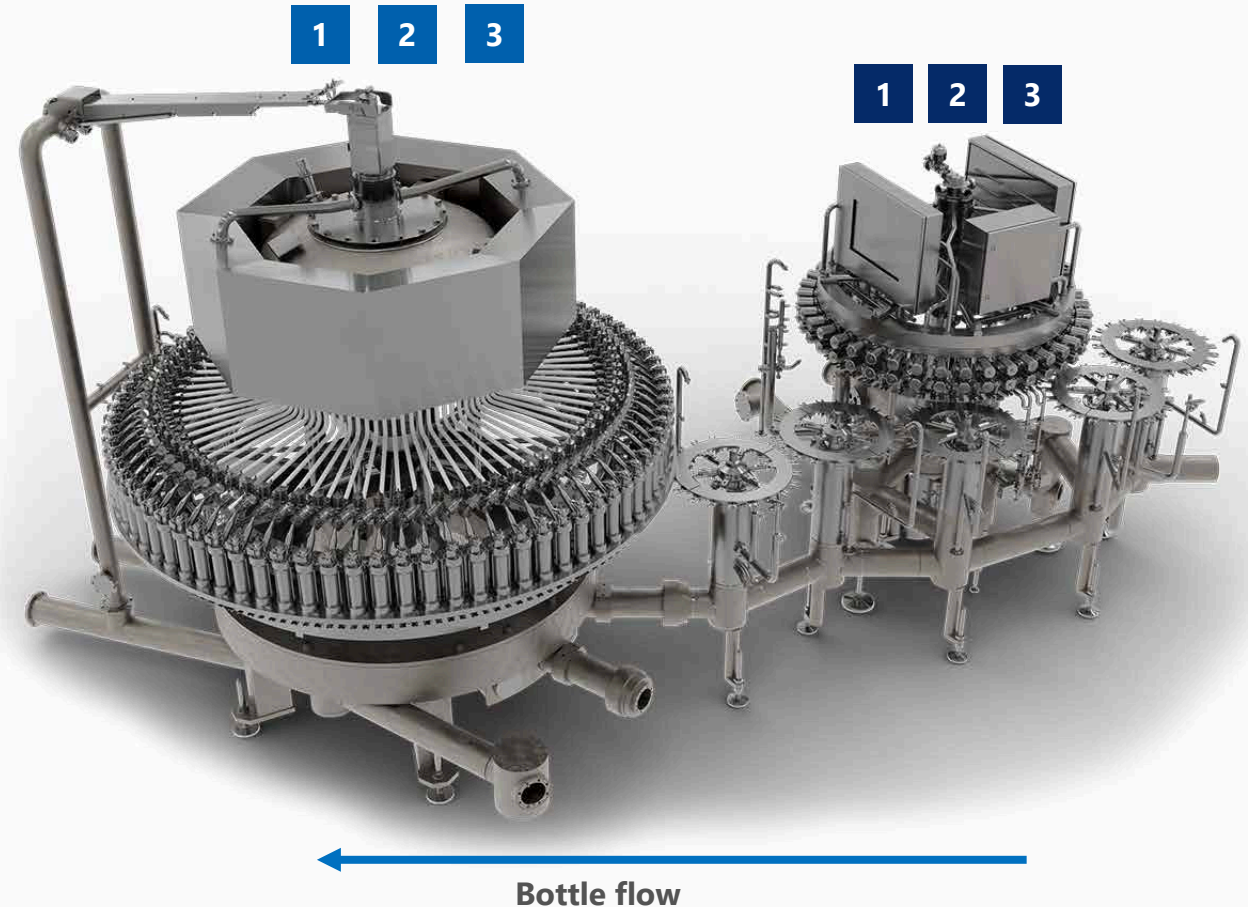
Krones FlexiFruit is an intelligent and self-adjusting pre-dosing system which controls the dosing quantity on its own via the Modulfill filler.

FlexiFruit pre-dosing system

- 1 Dosing of fruit pieces
- 2 Pipe draining
- 3 Drip-off time

Modulfill filler

- 1 Settling
- 2 Pre-dosing inspection
- 3 Juice filling



The twin-flow method

The fruit juice flow

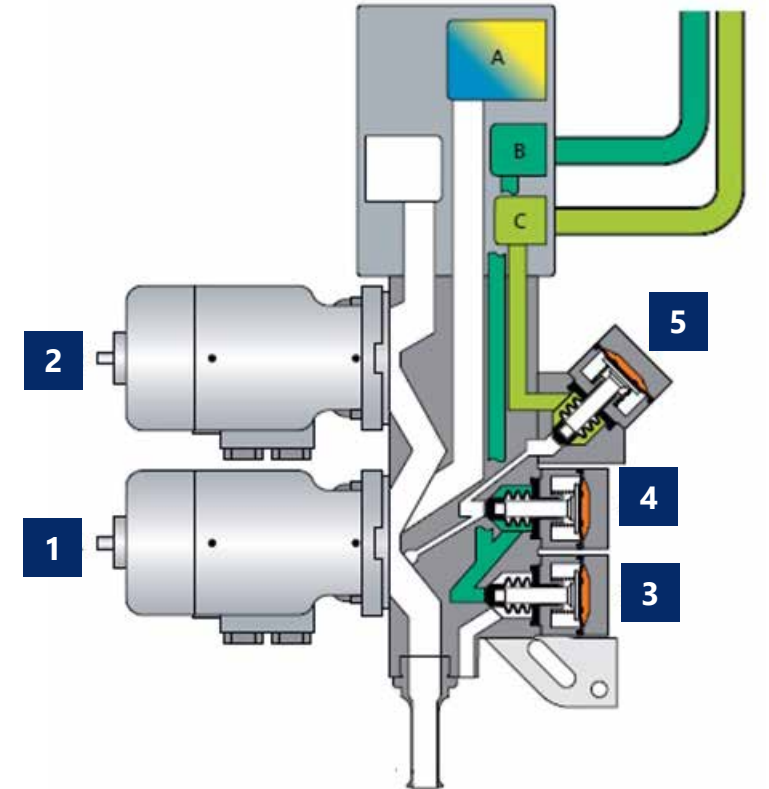
Hot filling

The FlexiFruit pre-dosing system ...

- doses the hot fruit stream into the bottle
- processes fruit pieces of up to 10 x 10 x 10 millimetres
- is also suitable for products with a higher viscosity
- works with diaphragm valves which are gentle on the product
- keeps the fruit pieces in their original shape and structure - even with highly sensitive sacs
- fills without contact in accordance with hygienic standards
- only opens the filling valve if there is a bottle positioned underneath it

Basic position

- 1** Filling valve
- 2** Circulation valve
- 3** Cleaning valve
- 4** Fine blower
- 5** Coarse blower
- A** Product channel
- B** High-pressure channel
- C** Low-pressure channel



The twin-flow method

The fruit juice flow

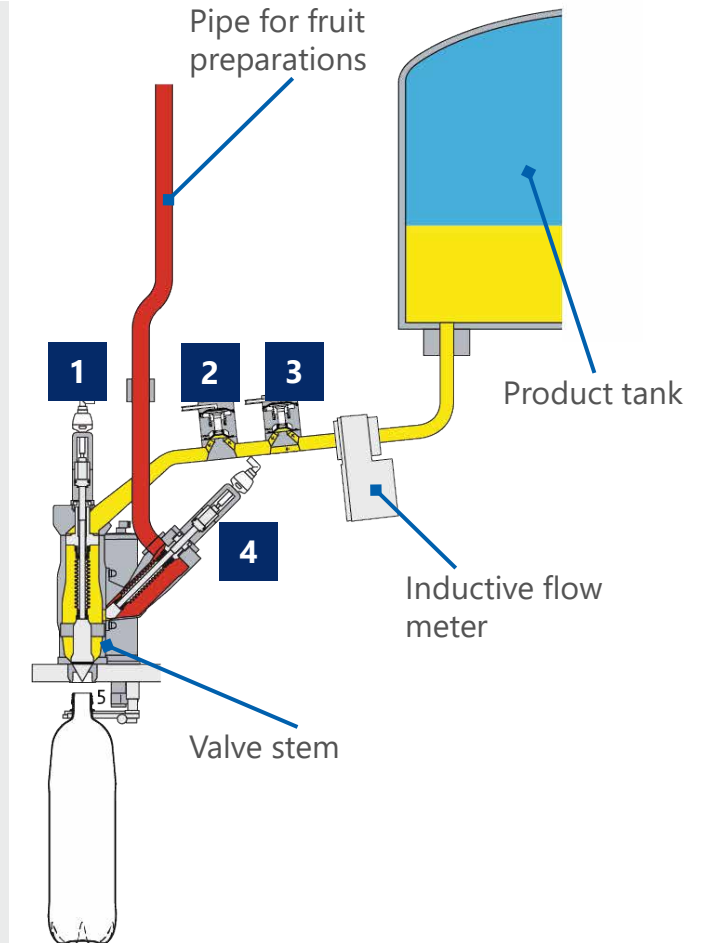
Aseptic filling

Modulfill VFJ-D filler

- Aseptic filling
- Doses the juice and fruits via the same valve
- Suitable for:
 - Particles up to 10 x 10 x 10 millimetres
 - Fibres up to 2 x 15 millimetres
 - Flavouring components
- Accurately calculates the fill quantity via inductive flow meter
- Keeps the fruit pieces in their original shape and structure - even with highly sensitive sacs
- Creates optimum flow characteristics with two different filling speeds

Basic position

- 1 Valve stem control cylinder
- 2 Product discharge valve
- 3 Switching valve fast/slow
- 4 Control cylinder dosing valve stem

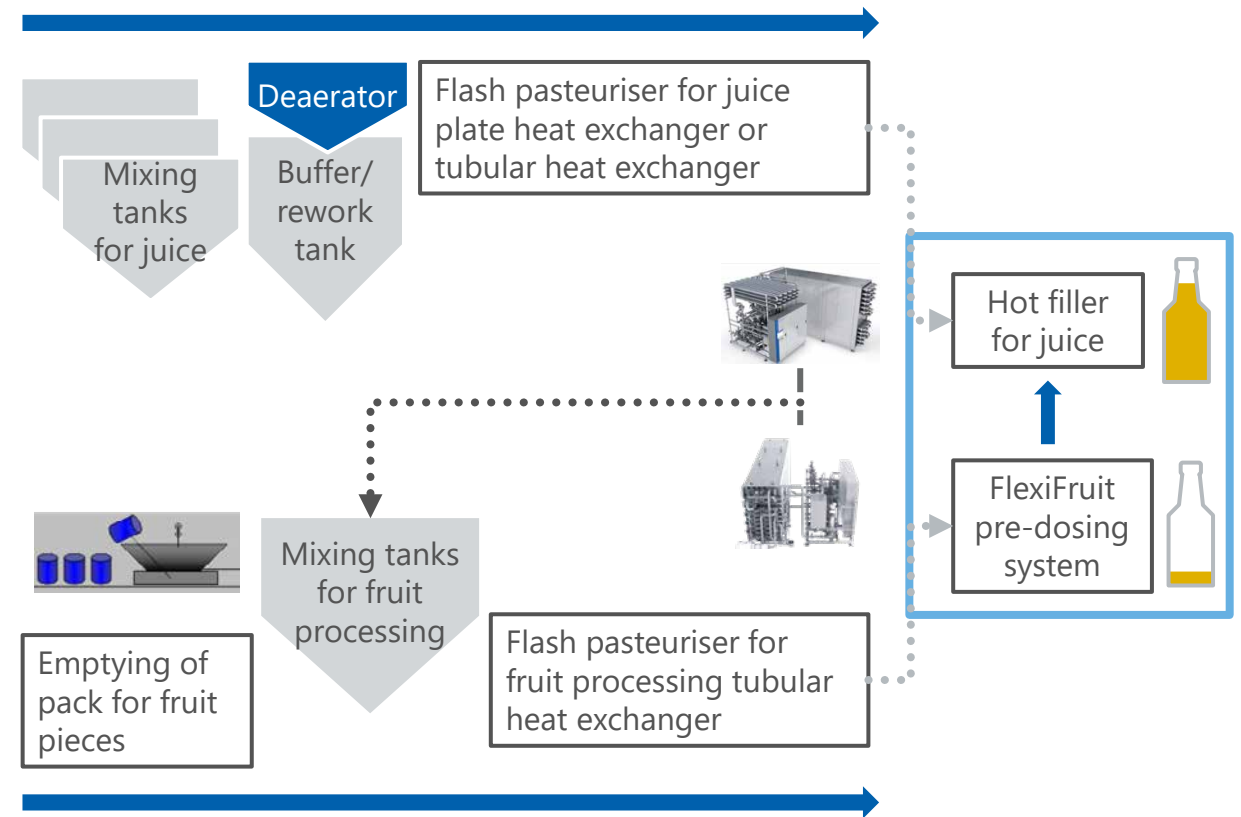


The Krones twin-flow method

Double protection: The double-flow method systematically prevents valuable fruit pieces from being overdosed in order to guarantee a specific volume in the bottle. At the same time, the fruit pieces are protected from being damaged through strong impacts.

Separate treatment of fruit and juice for:

- Least-possible strain on the fruit components
- Gentle deaeration of the juice flow without harming the product
- Top quality of the final product
- Low overall thermal load on the product by rapid heating and cooling of the main flow
- Maximum product and media efficiency
- Constant product homogeneity thanks to high-precision dosing of the fruit pieces



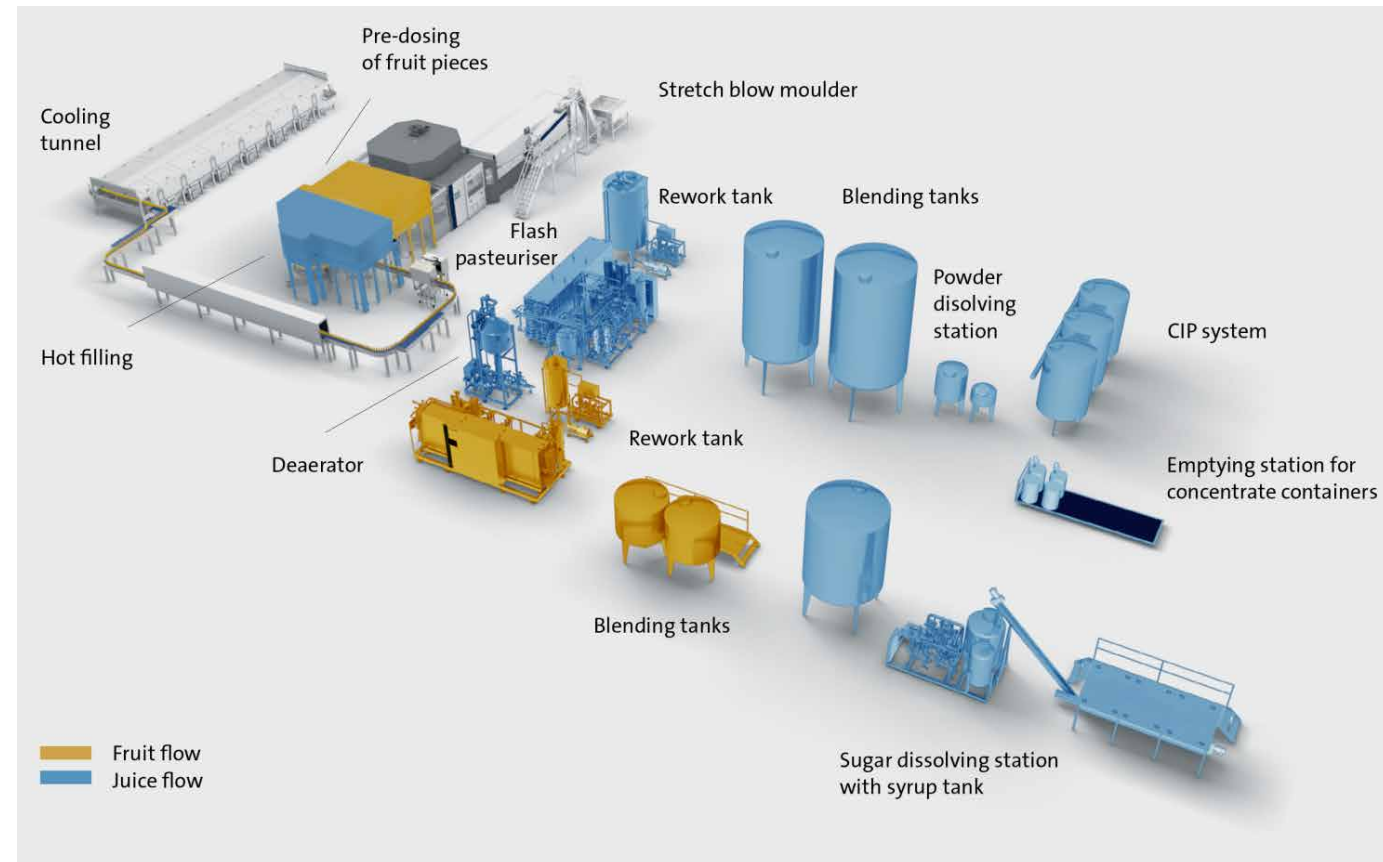
The principle of the twin-flow method



- The juice flow (main flow) is briefly and conventionally heated with the plate heat exchanger and deaerated to reduce oxidation products.
- At the same time, the flow of particles is heated separately in special tubular heat exchangers and fed by means of pumps that are gentle on the product.

Mixing of the two components:

- The FlexiFruit pre-dosing system doses fruit pieces with a size of up to 10 x 10 x 10 millimetres into the empty containers.
- The Modulfill filler fills the juice portion hot into the containers which already contain the fruit pieces.



The principle of the twin-flow method

The twin flow



Pack emptying station

- Emptying and processing of fresh or frozen raw materials
- Preparation of raw materials for the mixing tank

Mixing tanks

- Automatic mixing of the prepared fruit in a double-tank system
- Especially gentle treatment of the fruit pieces thanks to ...
 - a special bar agitator with reduced shear forces
 - slow agitation
- Inductive flow meter and load cells for ...
 - gentle product treatment and precise mixing results
 - uniform supply of the fruit flow

Flash pasteuriser

- Prevents clogging with special arrangement of the inner tubes
- Protection of the sensitive fruit pieces via especially gentle positive eccentric worm pumps
- Tubular heat exchanger with special cross-corrugated pipes for gentle product treatment
- Especially slowly rotating agitator

Rework tank

- Safe and hygienic buffering of the prepared fruit
- Prevents the loss of raw materials during production stops



The principle of the twin-flow method

The juice flow



Sugar processing system

- Bulk-material receiving station for liquid sugar or silo
- Preferably a continuous warm or hot sugar solution
- Solution processes in a batch system or as a continuous procedure, depending on the quantity, profitability assessment and customer requirement

Concentrate and powder ingredients

- Processing of ready-made concentrates and essences
- Dissolving of crystalline or powdered edible acids
- Storage area for concentrate or powder

Mixing tank for the preparation of the finished juice

- Controlling and dosing of all the ingredients via mass and inductive flow meters

Flash pasteuriser

- Low operating costs thanks to plate heat exchanger
- Option: Tubular heat exchanger for more flexibility and lower maintenance costs

Deaerator

Prevents the fruit pieces from floating in the container

- Protects the flavour and colour of the juice
- Stabilisation of the product
- Gentle and foam-free distribution of the product with patented swirl nozzles which ...
 - do not require mechanical parts and
 - any additional maintenance



Filling systems for hotfill applications



- Highest product reliability thanks to automatic heating circulation in all production conditions
- Highest hygiene level thanks to the Monotec design

For PET: Modulfill VFJ

- Lowest product losses thanks to the product being fed from above
- Short cleaning duration thanks to automatically positioned CIP cups and automated exterior cleaning



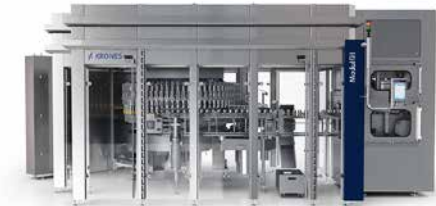
For glass: Modulfill HES

- Minimum change-over times thanks to automatic probe adjustment and handling parts that can be changed without tools
- Short cleaning duration thanks to an automated exterior cleaning system



For cans: Modulfill VFS-C

- Minimum change-over times achieved through guidance handling parts that can be changed without tools
- Multiple can formats without change parts thanks to combined centring bells with flexible formats
- Short cleaning duration thanks to an automated exterior cleaning system
- Servo drive technology for a lower energy consumption and higher flexibility
- Available in a block arrangement with the Krones Modulseam
- Option: Compact clean room for increased hygiene requirements



Benefits to you



Top product quality

Separate processing of fruit and juice reduces the damage rate to an absolute minimum. thus allowing even highly sensitive sacs to be filled into the bottle in a good condition.

Low operating costs

The entire line has four clever details which provide a media, raw material and energy-efficient production such as smooth operating agitators which prevents product loss or protects the flash pasteurisers for separate treatment of the product flows.

High-precision dosing quantity

The fruit pieces are dosed to the products not earlier than at the point of filling. This way, predefined quantities can be exactly maintained and cost-intensive overdosing is no longer an issue.

Complete line from a single source

The twin-flow procedure is designed as a complete solution and it is equipped with uniform materials, recurring components and a consistent software solution. Process and filling technology seamlessly integrate into each other to one perfect unit.

Requesting a new machine

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



Certified ecological efficiency

Machines with enviro seal



At Krones, the enviro label stands for excellent ecological efficiency. Products that bear the enviro label have proven in an objective test procedure that they efficiently use energy and media, and that they produce in an environmentally-friendly way. The requirements are defined by the EME standard that has been developed by TÜV SÜD (technical inspection authority) for assessing production plants. The enviro test procedure, too, has been certified by TÜV SÜD as an independent expert. Therefore, you can be sure that: an enviro label stands for ecological efficiency.

This is why the FlexiFruit is enviro-classified:

Energy efficiency

- Heat exchangers with high energy recovery customised to the customers' products

Media efficiency

- Minimum use of raw materials thanks to a high homogeneity during the process and precise dosing directly into the empty container



Everything from a single source



Training sessions at the Krones Academy – trained personnel for an increased efficiency of your line

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

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

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

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

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**

