

KRONES AirCo

The air conveyor for PET bottles



It's like the PET containers are floating on air

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Bottles made of plastic call for special handling. This is why the AirCo conveyor system does everything to ensure that these sensitive lightweights from the stretch blow moulder will reach the filler or labeller in a gentle and reliable way. And this is done at high speed so the bottles will have no time to get dirty on the way.

Yet the versatile conveyor can achieve much more than just bringing bottles from A to B. If there is an interruption at one of the downstream components, like a filler or a labeller, then AirCo acts as a buffer and will effectively bridge the downtime. It's not just the bottles that are kept high - AirCo keeps the overall plant efficiency high as well!



Applications

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Crucial for transporting PET containers are the shape, the weight, the material properties, the ambient conditions as well as the dimensional tolerances for the container. By using newly developed and thoroughly tested components like triangular chutes, clip neck-ring guides, multi-position cylinders, highly-efficient ventilator units, automatic pressure controllers and reliable ultrasonic sensors, KRONES air conveyors are able to fulfil all project-planning requirements.



Design features

- Floor, wall and ceiling mounting possible
- Robust box-type construction in stainless steel with a sheet thickness of 2 mm
- Neck-ring guides made of wear-resistant UHPE plastic
- Reliable guidance for the containers in a patented triangular chute
- Multi-position cylinders for exactness in setting the guide rails when changing formats
- Pneumatic cylinder for fully automatic adjustment of the guide rails when changing formats
- Communication between PLC and inverter over the bus system

Standard design

- Reliable and relatively hygienic transportation
- Retrofitting to Enhanced Hygienic Design is possible

Enhanced Hygienic Design

- Special filter concept for even better hygiene
- The entire conveyor route can be enclosed in see-through plastic panels
- The panels are easily opened for cleaning and inspection purposes

Additional equipment

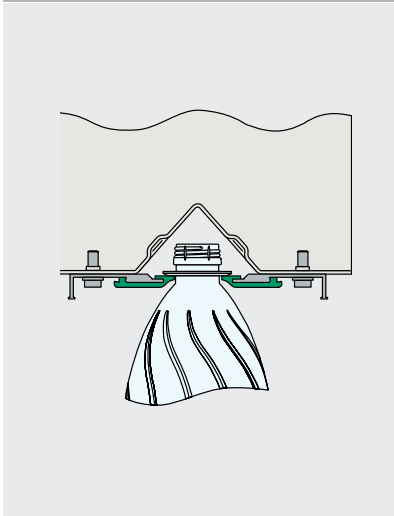
- Automatic adjustment of the neck-ring guides : The guides can be adjusted pneumatically when two different neck-ring diameters are being used.
- Pressure-regulated control: The speed of the radial blower is automatically adjusted depending on the amount of dirt in the filter.



AirCo standard design



AirCo for Enhanced Hygienic Design



Neck-ring guides

- The neck-ring guides made of robust PE are secured by the plugging or clipping. This means they can adapt perfectly to any container geometry.
- Replacing the guides needs no adjustment work whatsoever.
- The extremely low-friction material ensures continuous operation – even in the event of minor losses in the quality of the pre-forms, and for complex container shapes as well.



Multi-position cylinder

- Up to twelve positions are possible
- Exact rail settings without positioning cylinders
- Retrofitting for new containers is very straightforward



Triangular chute

- The triangular chute and the special nozzle system assure homogeneous distribution of the air and hence reliable continuous transportation.
- No bottles getting caught from containers “ascending” in the channel
- Mirror-polished surfaces ensure any sticking or wedge action is minimal.



Drive

- No vibrations: Motor and radial blower are balanced together.
- Energy-saving: Standard blower with a 1.5 kW motor, EHD blower with 2.2 kW motor
- Low noise: Max. 78 dB is lower than any noise protection requirements in force anywhere in the world.



Rail design

- Robust design for a long service life
- Adjustable to meet all container heights and container diameters
- Guide rails can be added at any time should the container assortment change.

Functional assemblies

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| Filter system | Main filter | Pre-filter | Eff. filter area | Applications |
|--------------------------|--|---|-------------------|---|
| F5 | Micro-fibreglass mat | | 11 m ² | Used in series-production operations |
| F5 With pre-filter G4 | Micro-fibreglass mat | Polyester-fibre non-woven with thermal bonding | | Production operations with high levels of coarse particles and soot, e.g. dry section |
| F8 With pre-filter G4 | Micro-fibreglass mat | Polyester-fibre non-woven with thermal bonding | 13 m ² | <ul style="list-style-type: none">■ High requirements on the purity of the blowing air■ Creation of optimum micro- biological conditions |
| HEPA | Submicron particulate air filter H13 | G4/F5 | 37 m ² | <ul style="list-style-type: none">■ Highest requirements on the removal performance for submicron particles |

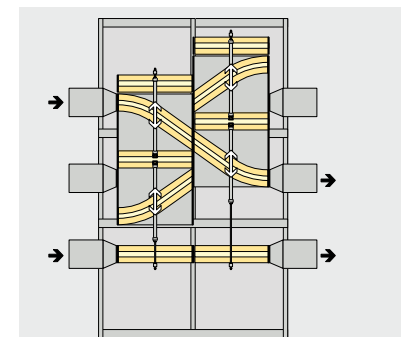
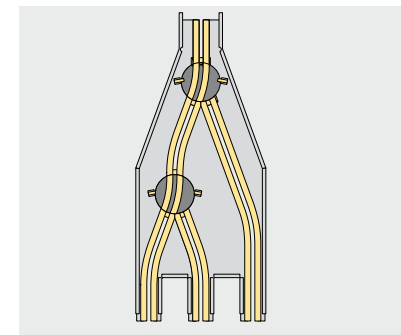
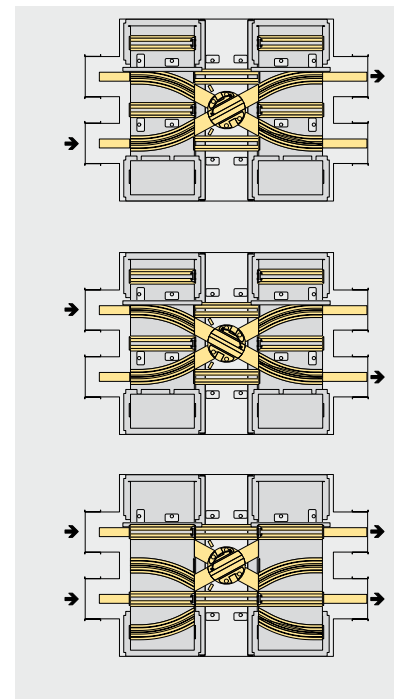
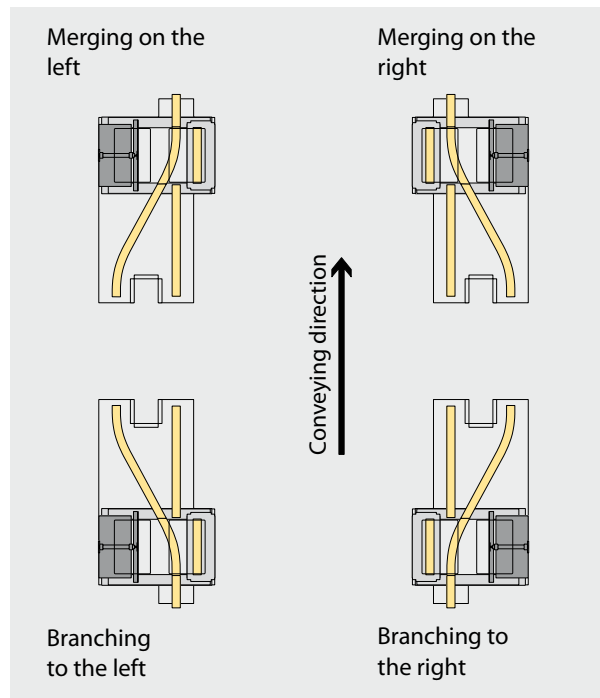


System components

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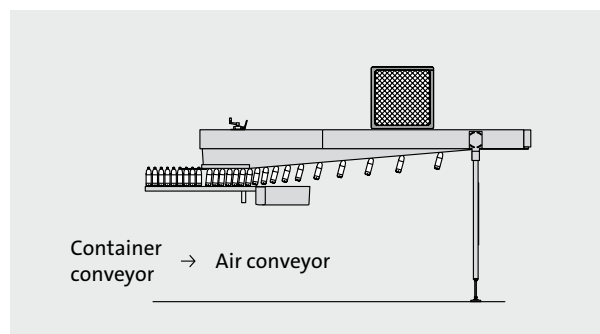
Points

- Pneumatic junction units join individual conveyor lines or branch these.
- Merging or branching from left to right or vice versa means each line can be matched individually to the particular spatial conditions.
- The construction of the points is kept simple for high reliability.



Inflow and outflow conveyor sections

- Manually adjustable inflow and outflow conveyor sections transfer the containers from the air conveyor to a conventional conveyor system and vice versa.
- The sections are suitable for an assortment of containers of different heights.



Operation

- Operation of the entire conveyor system from a central touch-screen is both comfortable and ergonomic.
- The well-designed menu with Windows interface is straightforward for the operator to use.
- Numerous diagrams and illustrations simplify operating the conveyor system.
- Causes for system standstill can be localised quickly from the graphics for visualising the line layout.

Controller

A smart controller for the whole system is a prerequisite for high service availability. This is why KRONES has developed a clearly-structured controller which by controlling the machines and conveyors, ensures optimum utilisation of the overall equipment capacity. Sensors continually measure the buffer capacity of the system. From these data, the output of the machines is accordingly adjusted to the momentary buffer capacity of the system.

When changing types, the air conveyors can already be changed over to the next container size while the conveyors in the other sections are still transporting the “old” type. The downtimes in the system can be reduced considerably in this way.

- All motors and frequency inverters can be individually controlled and parameterised from the touch-screen.
- All parameters are stored and backed up in the system.
- The frequency inverters are triggered by Profibus or DeviceNet.



- **Flexibility in setting up the system**

Depending on the spatial conditions, the conveyor can be installed on the floor, on the wall or be suspended from the ceiling.

- **Quick change-over**

Thanks to the pneumatic control for guiding the containers, the AirCo can be changed over within the shortest of times to convey containers of a different format.

- **High efficiency**

Using low-maintenance ultrasonic sensors ensures the overall efficiency of the system remains high.

- **Quick installation and commissioning**

Almost all components are already pre-assembled at the factory. This means the conveyor is ready for service within a very short time in line with the principle of "Plug and Play".

- **High hygienic**

For higher hygiene requirements the conveyor is also available as Enhanced Hygienic Design

