KNAPP

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Streamline

The newest generation of conveyor systems

The conveyor system plays a very central role in an intralogistics system – it is the main artery of the system.

With new use cases and new demands, KNAPP has developed a new conveyor system concept based on proven technologies: Streamline. This system stands out not only because of its high level of **performance**, but also in terms of **variability, profitability, reliability, ease of maintenance, and efficiency.**

Innovation.
Design.
Performance.

Streamline.

Scope of application

Streamline is intended for versatile use throughout **picking and distribution centres**. Transport goods suited to the Streamline system include **containers, cartons, trays and soft packaging** up to **50 kg** with footprints of **180 mm x 180 mm to 850 mm x 850 mm.**

Structure and function

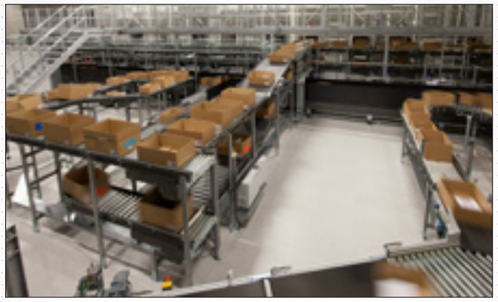
Streamline is an **all-in-one transport system** made up of **mechatronic components and control elements** and is designed in both roller conveyor and belt conveyor types.

Structure and function

Parts commonality and modular system design

The idea behind Streamline is to guarantee a standardized, end-to-end conceptual design. The system stands out with its high level of performance, energy efficiency, safety, simple maintenance and quiet operation. With Streamline, KNAPP focussed on the ideas of parts communality and modular system design – the conveyor system is modular, with one or more components available for every logistical function. The advantage of this modular system design is that the system is easily scaled up or down, which allows exact adaptation of the size and investment range, and which reduces the time for realization and makes future expansions much easier. The use of proven technologies in this modular system design guarantees a high standard of quality. The end-to-end parts commonality throughout the system greatly simplifies and streamlines spare parts management and maintenance.

Streamline designed as roller conveyor system



Scalable: the modular system design makes it possible to perfectly adapt Streamline to size and investment level

Overview of the modular set

- **Roller conveyor system**
  - Roller conveyor straight and curve
  - Driven roller conveyor straight and curve
  - Accumulation roller conveyor straight and curve
- **Belt conveyor system**
  - Horizontal
  - Ascending and descending lines
- **Transfer elements**
  - Infeed and outfeed 90°
  - Infeed and outfeed 30°
  - Cross-connections
  - Merge points: horizontal and vertical design
- **Handling of transport goods**
  - Positioning
  - Turning
  - Stopping
  - Clamping
- **Accessories**
  - Fastening elements for floors and ceiling suspension
  - Fastening elements for sensors
  - Side guide components
  - Safety devices

Advantages

Streamline – advantages at a glance

- **Maximum performance:** Streamline transfer elements achieve a throughput of up to 3,500 containers per hour.
- **Hybrid drive concept:** the combination of a three-phase asynchronous motor drive unit and a motorized roller drive unit ensures optimal performance.
- **Smart control concept:** the proven AS-i bus system
- **Scalable:** the modular system design makes it possible to perfectly adapt Streamline to size and investment level.
- **Strong and variable:** Streamline transports containers and cartons of up to 50 kg.
- **Process innovation:** shorter installation times and fast startup thanks to the high level of pre-assembly
- **Energy efficiency:** the revolutionary accumulation stop concept ensures minimal energy requirements combined with maximum reliability and performance.
- **Easy maintenance:** low number of spare parts due to parts commonality; rollers with clasps allow quick mounting and dismounting; entire modules can be replaced.

Performance

Streamline is distinguished by its optimal level of performance and is especially robust because of the rigid C-profile side element (only 95 mm high).
The innovative Streamline system offers a minimal nominal width (NW = 270 mm) and a low installation height (110 mm), allowing a very tight curve (inside radius = 300 mm). The powerful Streamline system transports goods of up to 35 kg at full performance – up to 50 kg are possible with reduced performance. The roller conveyor system has a transport speed of up to 1.25 m/s; the belt conveyor system features a speed of up to 2 m/s. High-performance transfer elements such as the high-speed roller switch and the belt transfer unit, achieve a throughput of up to 3,500 containers per hour.

Maximum performance: Streamline achieves a throughput of up to 3,500 containers per hour

Innovative drive concept

For Streamline, KNAPP is operating with a hybrid drive concept: a three-phase asynchronous motor drive and motorized roller drive are combined sensibly. The conveying speeds of the motor roller drive can be adapted individually. The accumulation stops operate with a new accumulation stop system (patented), design options including either pneumatic components or motorized roller. A high level of torque transmission is achieved by using an integrated self-tightening tension unit for the roller conveyor drive units. The innovative curve drive features a highly compact design and accumulation function.

Intelligent control concept

The control technology for Streamline is realized with an AS-i bus system. In using the AS-i bus system, KNAPP applies a proven and recognized industrial standard, which ensures a high level of supplier availability on the market. System control and emergency stop control are realized through the same AS-i bus system, which significantly reduces the required cabling. Full visualisation down to the individual input/output elements is possible – additional I/Os can be added as needed – and the standard AS-i I/O modules are fitted and integrated into the shape of the side profile. Tablet PCs are available for mobile monitoring and checks. The accumulation roller conveyors are also fully integrated into the control system. Another advantage is the flexible configuration, such as automatic scanner configuration after a scanner is replaced. The AS-i bus system features flexible and quick installation and expandability.

Smart control concept: the proven AS-i bus system

Rollers with clasps for fast replacement

Self-tightening tension unit at roller conveyor system

powerful
innovative
flexible

Streamline

Energy efficiency

In developing the Streamline system, KNAPP put a special focus on the energy efficiency of the conveyor system. Individual components can be configured according to the specific performance requirements, optimizing the system‘s energy consumption.

With the hybrid drive concept combining three-phase motor drive and motorized roller drive, each conveyor section is equipped with the ideal technology. Top-modern drive technology with high-performance belts and ball bearings with minimal resistance as well as direct power transmission permit energy efficiency.

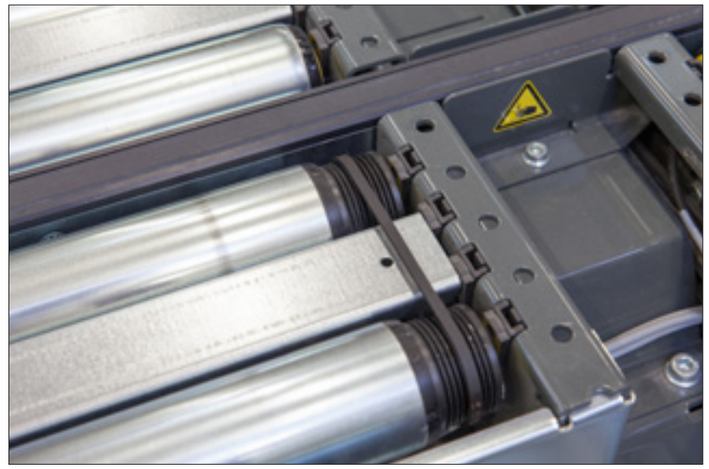
Streamline can also be equipped with a start-on-demand system for the central belt drive units – all of the motorized roller drives have energy-saving modes and energy recuperation. Streamline offers a revolutionary accumulation stop concept (patent published) with minimal energy requirements and maximum reliability.

Proven partnership

KNAPP relies on long-term partnerships and quality in selecting suppliers, so we can ensure our customers the lasting success and investment security that come with top-modern technologies. Only products from experienced industry partners are integrated in Streamline.

Process innovation

In designing Streamline, process innovation was in the foreground. The modular system design significantly shortens the planning and production phase. Streamline is delivered to the customer with a high degree of pre-assembly, a fact that greatly reduces the time for installation on site and ensures an efficient startup process with quick establishment of full system reliability.



Streamline

Data sheet | Streamline

Ease of maintenance

Streamline is designed with parts commonality in mind: the idea behind this modular component structure ensures easy scalability, streamlines spare parts management and also reduces costs. The system allows convenient maintenance access from above, which allows maintenance staff to replace entire modules – for example, the entire belt track of a belt transfer unit or the roller carriage of a high-speed roller switch – in just a few minutes getting Streamline back up to speed in no time. The rollers are fastened to the side component with clasps – elements are installed and removed quickly and easily. Streamline has a well thought through approach to maintenance that is geared towards lasting and optimal performance.

Overview of technical data

Nominal width	270/330/360/390/450/540/ 660/750/900 mm
Roller pitch	60/90/120 mm
Gap width	90/150/210 mm
Side component powder-coated	C-profile of 3 mm steel plate h = 95 mm w = 30 mm
Conveying speed	
Roller conveyor system Belt conveyor system	0.25/0.35/0.45/0.65/0.80/1.00/1.25 m/s an additional 1.50/2.00 m/s

Noise emission	68 dB(A) for running conveyor system (0.8 m/s) without transport goods
Protection class	IP54
Bus system	Profibus, AS-i (Actuator-Sensor-Interface)

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