

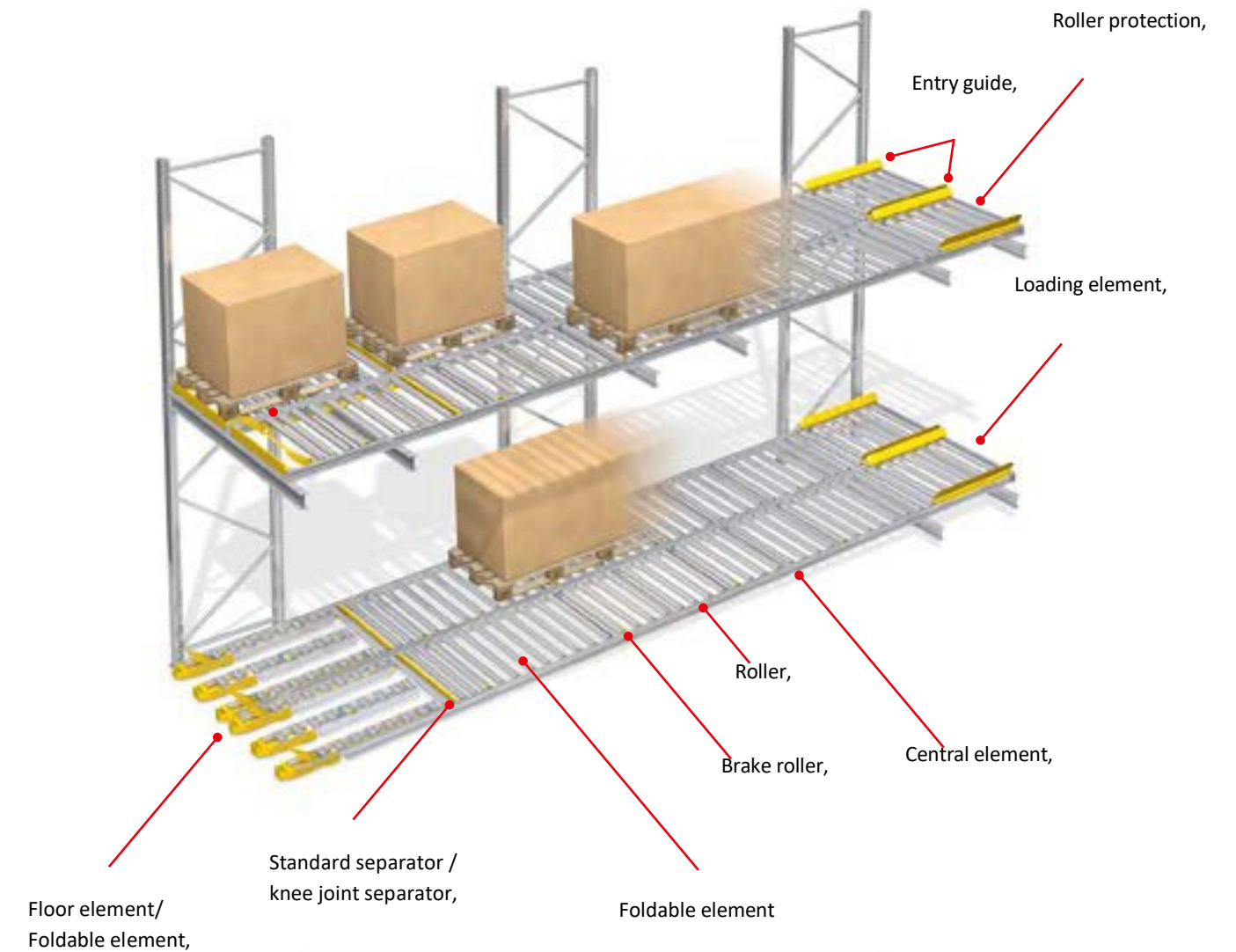
Roller conveyor technology



Versatile roller technology

Flow or push-back rack that can be optimally tailored to individual requirements.

The range of accessories at a glance:



Dynamic pallet racks



Loading and unloading are carried out spatially separately. The stock items are stored according to the FIFO principle. Sustainability data, batches and production series can thus be monitored very easily. The dynamic block position enables optimum use of space.

Insertion pallet racks



The structure is similar to that of a flow rack. However, loading and off-loading take place from the same side, the rack can thus be directly on a wall.

This means that the stock items are entered according to the LIFO principle. Push-back racks allow the unmixed storage of various articles.

Continuous bearings with picking tunnel



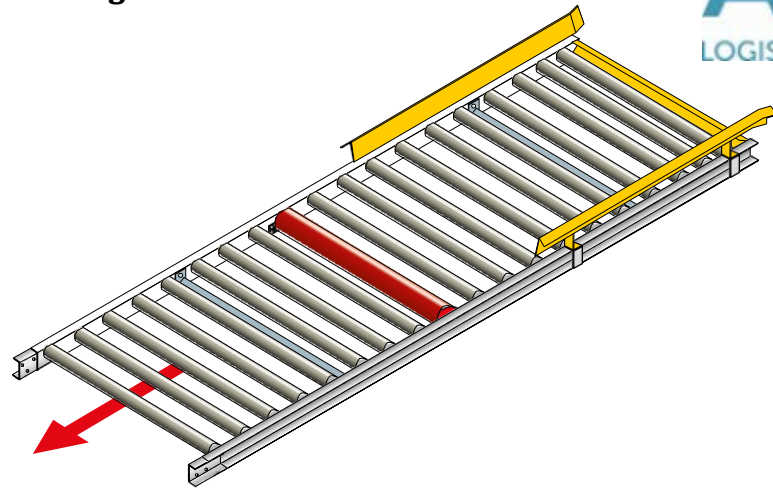
The example combines storage in the upper storage levels with picking in the center tunnel. The picking zone is fed from the outside – due to the spatial separation of picking and loading, the different processes do not hinder each other. Picking routes and times can be significantly shortened and handling times increased. The products can also be stored by type by channel.



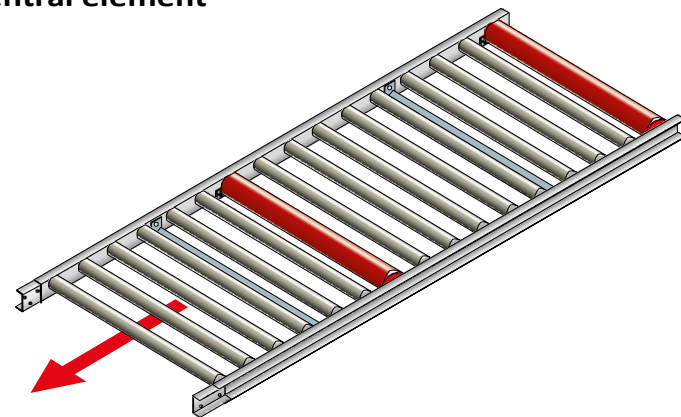
Roller conveyor



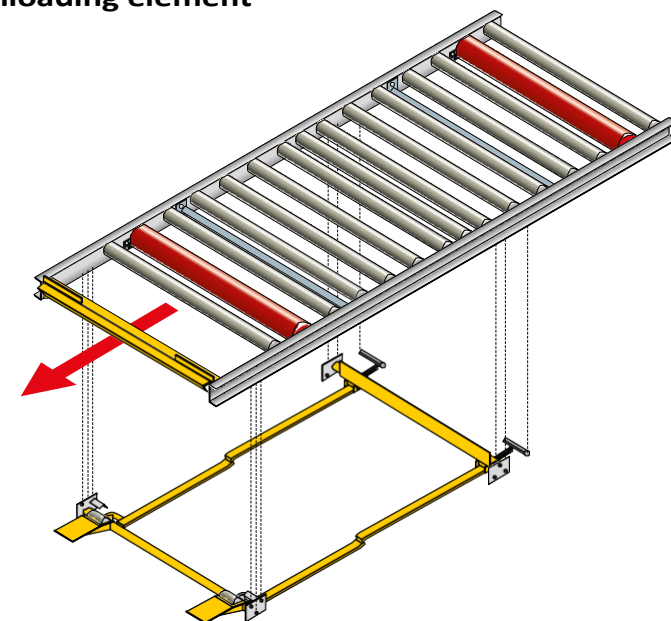
Loading element



Central element



Unloading element



The pallet conveyors are individually tailored to the type and weight of the pallet. They basically consist of maintenance-free standard elements for the task, storage or transport and removal. Depending on the requirements, the roller conveyor profiles are manufactured out of U or angle profiles. By default, the inclination of the roller conveyors is 4%. However, the inclination of the pallet roller conveyors – if the nature of the pallets requires it – can be adjusted.

All roller conveyor elements are usually equipped with the following safety devices in accordance with the regulation BGR 234 – depending on the safety devices:

- Roller protection
- Entry guides
- Brake rollers
- Separator
- End stop

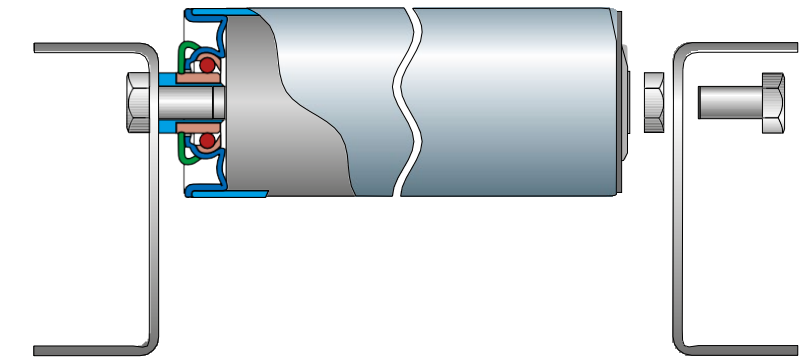
The required length of the roller conveyors can be easily calculated as follows:

Number of pallets x
Length of pallets + 400 mm

Roller conveyor technology

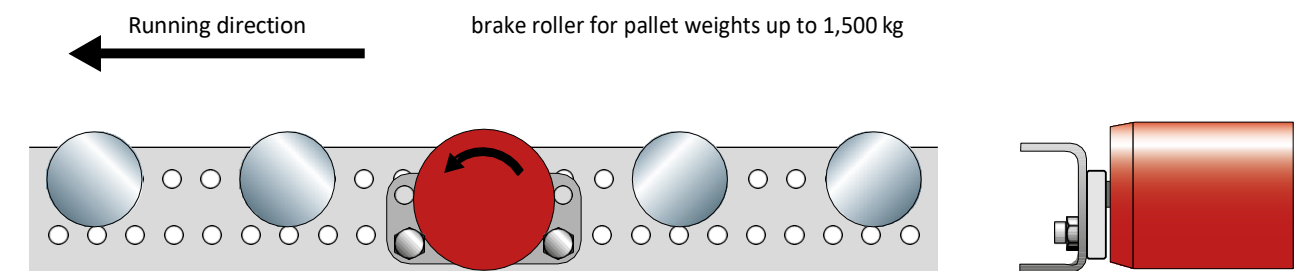
Roller

The support rollers consist of steel tube with a diameter of 60 mm and ball-bearing steel bearing floors. The use of precision ball bearings ensures an extremely easy start-up with high load capacity. Each roll carries 240 kg. In the standard version, the support rollers are galvanized as strip.



Brake rollers

The brake rollers ensure a controlled passage of the pallet through the channel. For this purpose, a three-stage planetary gearbox with progressive braking effect is installed in the brake roller tube. The rollers with a diameter of 89 mm are spring-loaded and installed 1.5 mm above roll level. Even at low loads, they are pushed to the roller level – this ensures permanent contact between the load carrier and the brake support roller and thus safe braking.



Principle brake roller



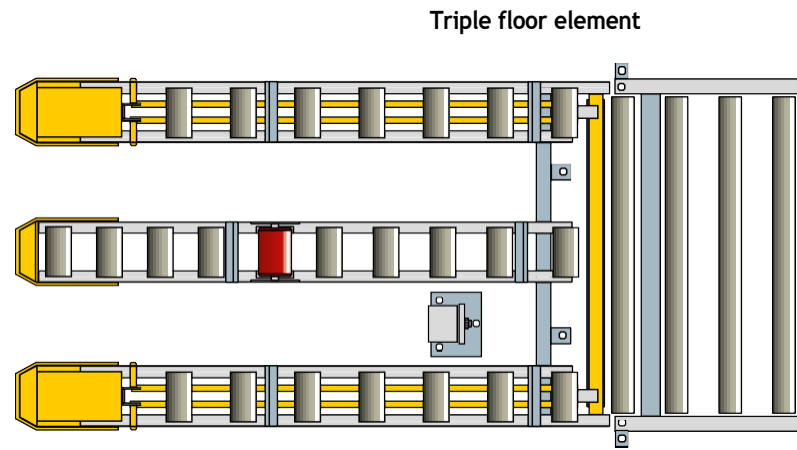
Braking body and counter bearing



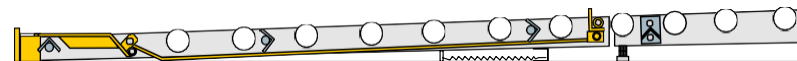
Components Roller Technology

Floor element

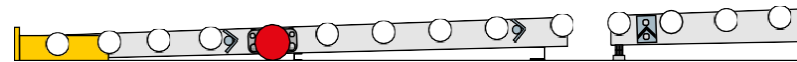
With a discharge height of 66 mm (top edge roll), the three-part bottom outlet allows the pallets to be easily removed with the hand pallet truck. Short brake rollers gently brake the pallets, a separating device separates the pallet to be removed. Collision protection and start-up puffer protect against damage.



External tack

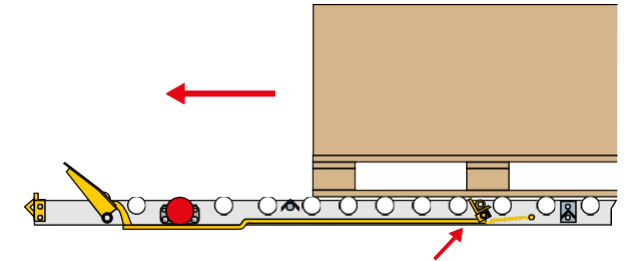


Central track

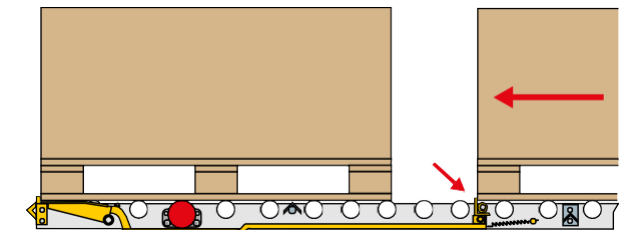
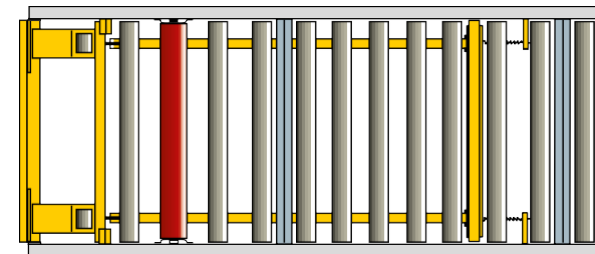


Standard separator

In order to prevent the pallets in the duct from exerting pressure on the front one, a separating device is installed in the removal area. This enables simple, accumulation pressure-free retrieval of the pallet. The separation device works mechatronically – the pallet running onto the removal point triggers the lock.

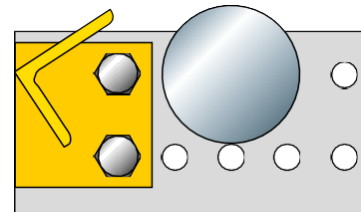


A brake roller installed in the unloading area gently brakes the pallets to be removed, even with different weights. This dynamic pre-stop positions the pallet in a precisely defined removal position at the end stop.



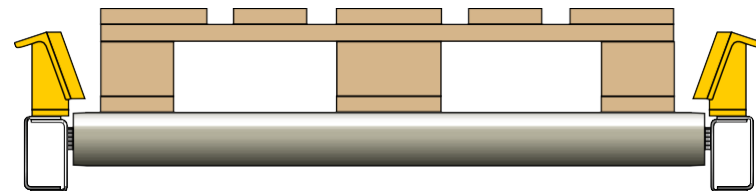
Roller protection

On the feed side there is a stable angle profile as protection against mechanical damage to the carriers by the forklift.



Entry guide

The insert hopper enables the pallets to be set down in a centric manner and is particularly stable for rough everyday operation.



Knee-joint separator

The separating device with knee-joint mechanism is specially designed for extreme loads caused by high pallet weights. Because of the design, the shift rod of the separator remains completely pressure-free even at high pressure due to the trailing pallets.

Manual release

For unlocking the separator by hand. The pallets in the channel only run after the manual release has been activated.

Foot release

To unlock the separator with the foot.

Accessories **Roller**

Foldable conveyor

For thorough cleaning of the entire storage area, the floor element can be folded up. Optional gas springs make it easier to fold up.

Flanged rollers

The guide rollers mounted on the sides of the channels prevent tilting of the loading aids (in case of carton boxes).



Maintenance basket

The maintenance basket is used for maintenance and repair work in the channels. Its construction is adapted to the slope of the roller conveyors, so that a flat work surface is available. The basket is moved along the roller conveyor with a winch.



Wheel stop rail

The wheel stop rail prevents damage to the racking components caused by the forklift chassis. It is anchored to the floor on the loading side in front of the rack so that the industrial truck holds at a fixed distance in front of the rack.

Safety fence

The safety fence is mounted on the sides of the flow rack system and prevents access to the channels during operation. The fence complies with the professional cooperative rules for occupational safety in storage facilities (BGR 234).



Technology Application **Examples**



Pneumatic separation device

The pneumatic separation device is used for particularly heavily stressed removal paths. Here, the separation is not controlled by a mechanism, but sensors recognize the individual loading aids and trigger the separation device. By adapting the control technology accordingly, it is possible to produce pallets of different lengths and weights (e.g. Euro and Düsseldorf pallets) can be reliably separated. Düsseldorf pallets can thus be made available for removal individually or in pairs on request.

Floor elements with automatic loading

Here, the pallets are distributed to floor element by means of a transverse carriage. The loading aids are then removed by hand pallet truck or forklift.



Application Examples

FIFO flow storage

The gravity roller conveyor as a continuous storage is the classic insertion. In the warehouse of this beverage wholesaler, the flow storage on the goods receipt side is stored as "Fast takeover system" for the delivered goods. On the outgoing goods side, the flow storage is used to pick up the goods for the tours.



LIFO push back storage



The push back storage – here at one of the leading hygienic article manufacturers – offers a space-saving storage option according to the Last-in-first-out principle. Depending on the thrust of the forklift, several pallets can be stored in depth. The article-pure - batch-by-batch – storage of products is the ideal application area of this type of storage.

Dynamic flow storage with picking tunnel



The flow storage levels and picking channels is one of the most compact methods for storage and picking according to the first-in-first-out principle. The picking tunnel with commission channels on both sides is located at ground level. These are fed from the storage area above.

Stacker crane operated picking roller conveyor

The picking warehouse with gravity roller conveyors in two levels represents a complex and efficient system. A complete truck load is pre-commissioned on each roller conveyor. The loading of the warehouse is carried out by rail-bound high-bay forklifts or, as here, by rail-bound, fully automatic stacker cranes (RBG).

The typical dynamic pre-stop always ensures an easy rolling of the pallet to the stop.



Application Examples

Picking station

This solution enables particularly ergonomic commissioning directly from the pallet. Since pallets with a depth of only 800 mm are used instead of the conventional 1,200 mm, the products are more easily accessible. The triple track roller conveyors support the pallet skids, so that deflections and thus operational disruptions are prevented.

The small roller pitch of T=52 mm as well as short roller lengths (74 mm on the outer tracks, 150 mm on the middle track) enable particularly good running characteristics. The separating device can be equipped with a foot release, so a comfortable and safe (because jam-pressure-free) removal of the empty pallets is possible.

In addition, the floor between and under the tracks is easily accessible and can therefore be cleaned very easily.



Roller conveyors in dispatch area

In this project, the right roller conveyor was designed for the transport of pallets with extra wide. At the same time, trolleys can also be provided on the railway – for this purpose, the railway has been equipped with additional guide rails. Intermediate separation devices integrated into the web reduce the dynamic pressure



Conveyor without slope



Roller conveyor without slope in a deployment zone



Conveyor for order picking



Mounting on a mezzanine