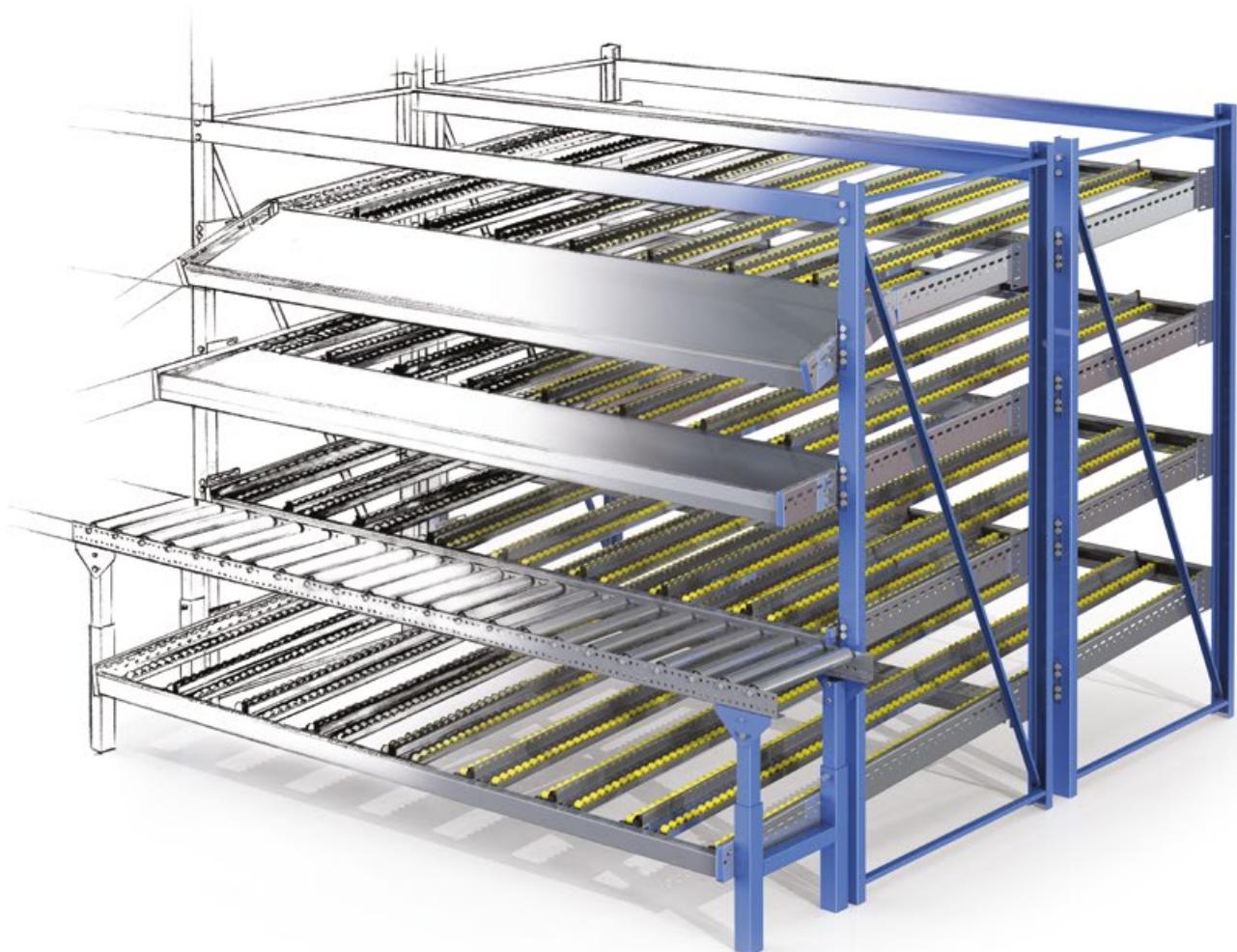


Smart gravity engineering

# Flow Systems for Cardboard Boxes and Containers

Carton Flow



**euroroll**

# Smart gravity engineering

## For a perfect storage and order picking system

At a time of increasingly tough international competition, both the price of goods and the speed with which customers' needs must be met, are becoming more and more important. In this context, a storage and order picking system, in which it is possible to store goods quickly, efficiently on a cost-effective basis and to access them conveniently, offers a substantial competitive advantage. With the help of Smart gravity engineering, Euroroll always finds the best solution for storage and order picking systems of all types and any size – for your company.

### What Smart gravity engineering means to your company:

#### Smart

The fact that Euroroll, together with you, finds the most favourably priced optimum solution for your storage and order picking technology.

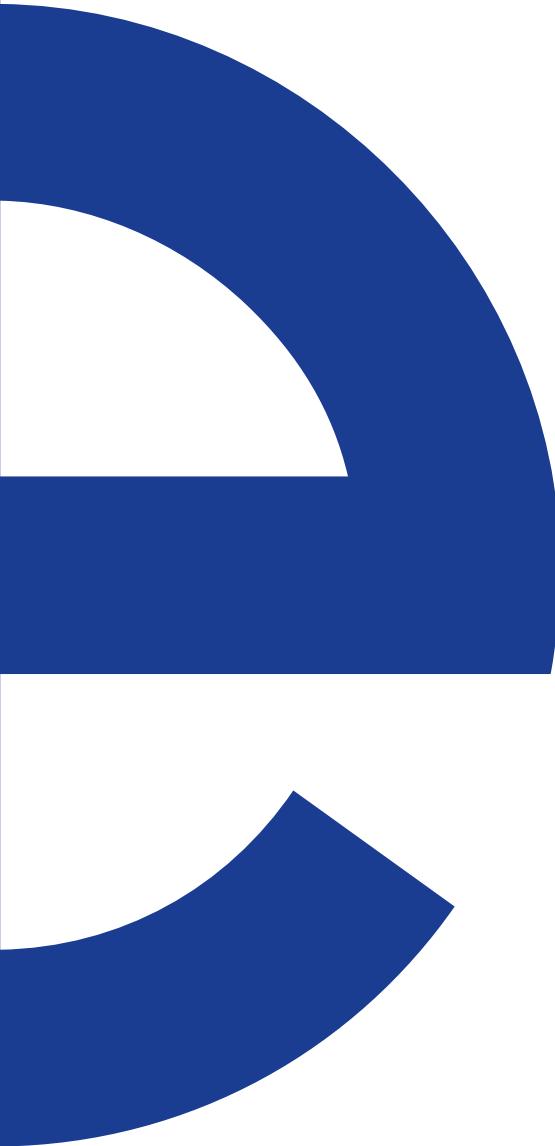
#### Gravity

In Euroroll flow systems for storage and order picking, we use only gravity-driven roller systems. This obviates the need for time-consuming electric cabling and avoids additional electricity costs.

#### Engineering

Euroroll's development specialists design the best possible solution for your flow system, based on your needs and requirements – regardless of the goods and products in question.

You can trust our experience: Euroroll has been one of the leading specialists in gravity-driven conveyor systems since 1983.



# The Euroroll System

Order Picking Flow Systems (KDS)	4
System Components & Modules	8
Roller Tracks & Components	16
Ergonomics	19
Designs	20
Sample Applications	22

# Euroroll Order Picking Flow Systems (KDS)

## Benefits your company

Working on a rational basis is essential in order picking – both for the company and for its employees. The company saves money, and employees have less strenuous work to do. As a result, employee absences are reduced. Euroroll's order picking flow systems (KDS), which are structured on the picker-to-part principle, optimize processes in several ways.

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Feeding and order picking are separate from one another, which means that employees do not get in each others' way.

Straight paths prevent employees from having to go unnecessary distances. This means that compared to conventional systems, the structure of the KDS saves up to 40% of time, increases employee productivity and not least helps to keep employees healthy.

Euroroll's KDS system reduces the amount of space that you need to store by up to one third.

Without needing any additional energy, the goods on the shelves run automatically, by means of the gravity-driven Euroroll conveyor system, from the loading side to the order picking side.

Due to these optimizations, the costs of an order picking flow system that is tailored to your company's individual needs, are paid off within a very short time period.

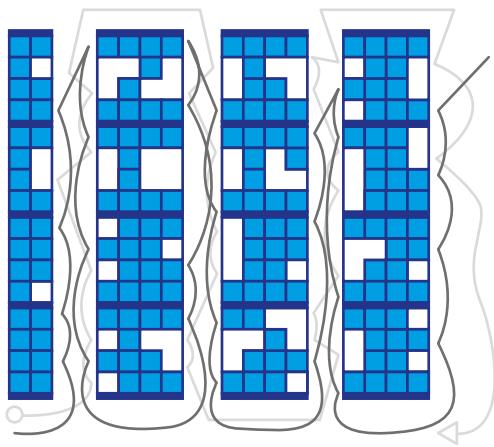
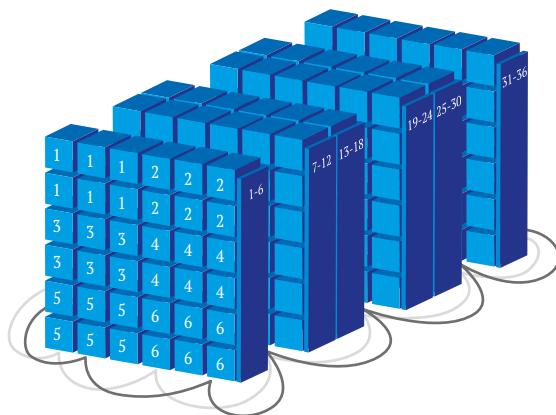




## Economical, practical, good: KDS by Euroroll

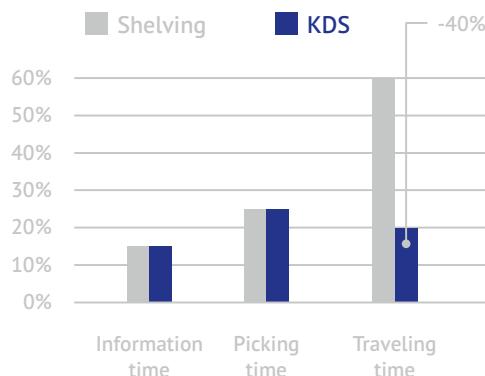
To be able to compete on a continuous basis, you must, above all, work economically. In this context, the internal logistics of a company play a significant part. Euroroll's order picking flow systems make order picking procedures easier, increase staff output, and reduce the space that is needed to store goods. The benefits of a Euroroll KDS system are particularly obvious when compared to conventional shelving.

### Shelving



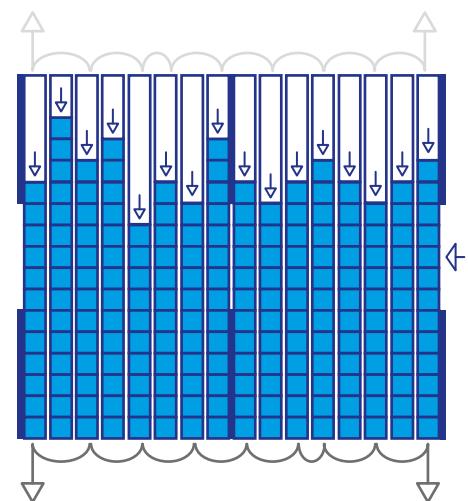
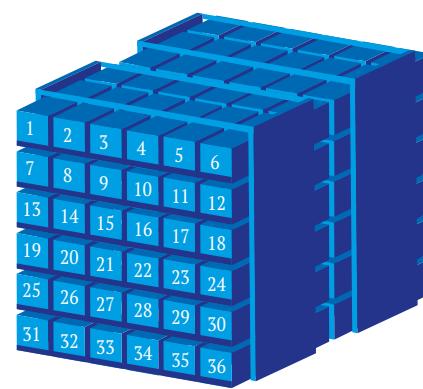
#### Short distances mean better productivity

Employees populate each shelving individually with goods. This means that employees often have to go long distances, and frequently get in each others' way, while picking and loading. By contrast, the KDS system is populated from one side. While this is being done, other employees can pick goods that are needed on the opposite side. This means that employees do not have to go long distances, and they are more productive.



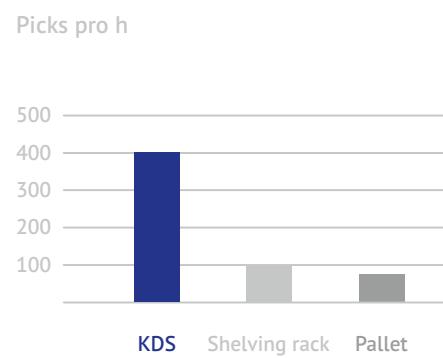
#### Less space required

With KDS, there are no aisles between the individual racks. This reduces the space that is required for goods storage by up to 30%.



#### No additional energy costs

KDS uses gravity to transport goods from the loading to removal face – No energy costs are incurred.



# Order Picking Flow Systems in Use

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Euroroll's order picking flow systems are suitable for storing and picking a vast range of containers. One of the main benefits is that at removal, the goods are always presented clearly, and in a space-saving way. Employees can see at a glance what goods are involved. This reduces error rates at removal.

Apart from this, there are many other benefits to using a KDS system:

- KDS systems can be used on a flexible basis, and you can adapt them to any type of goods.
- A-, B- and C-class articles can be sorted in an ergonomic way that is best for your employees. This increases your employees' satisfaction and makes them more productive.
- KDS systems work on the FIFO principle, which is important for monitoring use-by dates.

- Since there are no aisles, KDS systems increase the storage capacity while at the same time reducing the space that is needed for storage.
- Fewer aisles mean that employees have to cover distances that are up to 85% shorter, and that they have a better overview of goods. This increases the pick rate.

- The goods are loaded and removed in separate aisles, which guarantees trouble-free and efficient population and removal of goods.
- The goods run through Euroroll's conveyor system in the KDS system automatically, and with no additional energy consumption to picking face.

If somebody picks an article, the next one slides forward, so that the article is immediately available for the next picker. The gravity-driven Euroroll conveyor system saves energy, and is less susceptible to malfunctions. If required, it is possible to replace components quickly and easily.

Another benefit: Euroroll's KDS systems are tailor-made to meet the exact requirements of any company. You tell us what you need and in consultation with you, we develop the solution that is best and most economical for your company – Smart gravity engineering at its best.





## Incredibly variable – the Euroroll system

Euroroll's flow racks are a component of all KDS; they are fitted with roller tracks that are designed for the requirements in each case and make possible gravity-driven transportation of goods. Thanks to our experience – Euroroll has been manufacturing roller tracks since 1983 – we can offer just the right system for any requirements.

Economic and fast. Using Euroroll's flow systems, you can even carry out changeovers in ongoing operation. The majority of the components are compatible with one another.

### How your company can benefit from Euroroll flow racks

- You can quickly set up flow racks and, due to their robust screw or plug-in connections, they are particularly stable
- You can freely select the field widths and flow depths of the racks. With a minimum of effort, it is possible to adjust the height of the racks and adapt them to different requirements.
- You can choose roller tracks by the type of goods that you want to transport with them or the weight of the goods.
- The individual rollers are low-wear and have a high load-bearing capacity, which means that Euroroll's flow racks can bear weights of up to 1500 kg.
- Thanks to universal binders, the components are highly compatible with one another.



We are also happy to supply special designs: We're completely at your service and can, for example, produce movable live storage racks, long tracks, reinforced versions, sorter outfeeds, or anything else that you might request. But that's by no means everything ... just give us a try.



# Overview of System Components & Modules

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1 Flow racks with a 15° picking tray (300 mm, 400 mm and 600 mm deep)

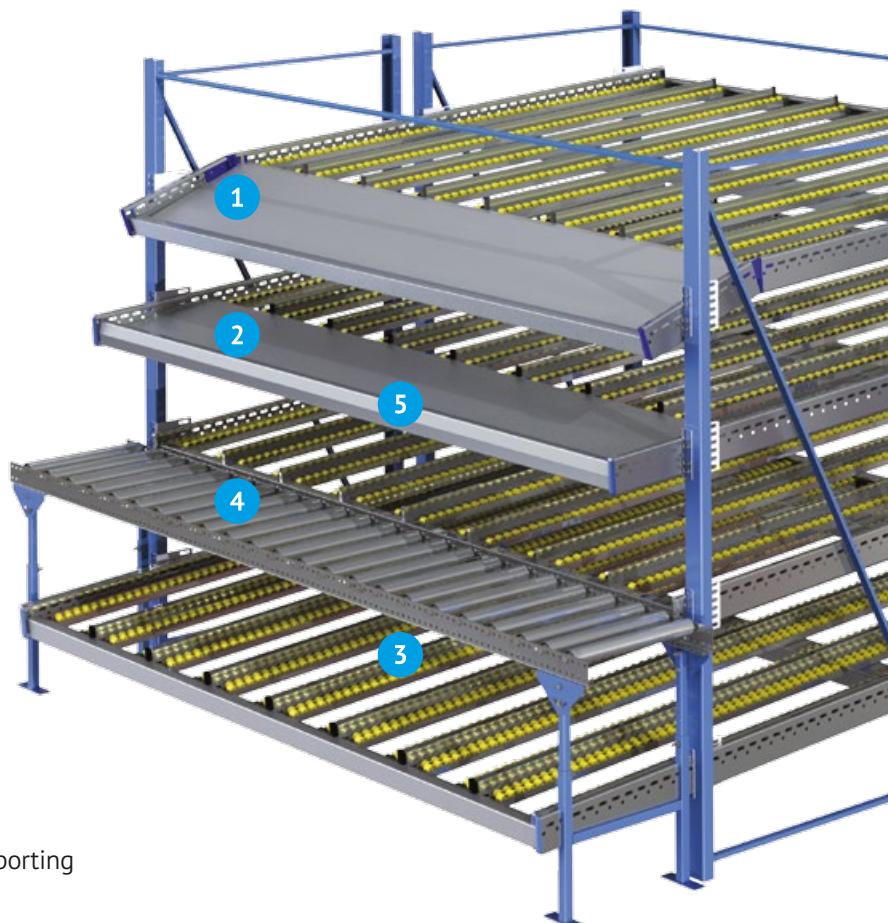
2 Flow racks with a 5° picking tray (300 mm, 400 mm and 600 mm deep)

3 Straight Flow racks

4 Height-adjustable sliding roller conveyor made of plastic and steel

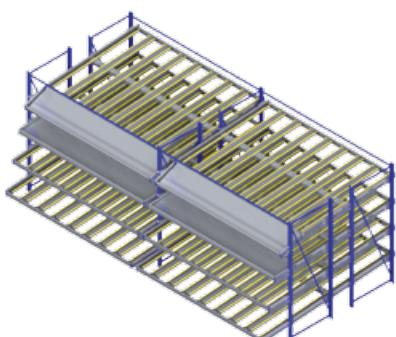
5 Bar-Code and Identification strips

6 Steps for convenient working

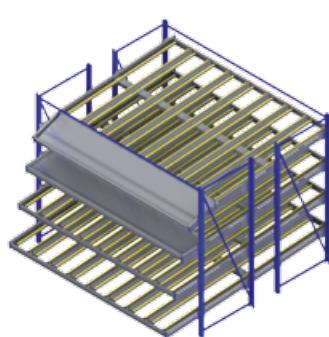


On request, available as a flow rack including supporting frame and reinforcement cross member.

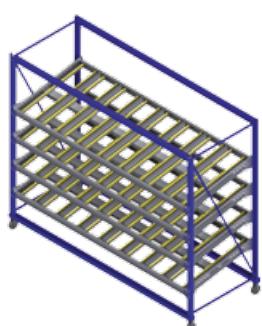
Also available as a rack row



Possible with two frame solutions



Available with a Mobile Base





## Flexible field width and depth

The width and depth of the flow racks can be tailored to your company's individual requirements:

Continuous flow racks are available in widths of between 300 mm and 3600 mm; in this orientation, the hole pitch for track and guide adjustment is 10 mm.

The depth of the racks varies between 800 mm and 5000 mm.

It is of course also possible to link racks with one another beyond the maximum length.



### Adaptable rack fronts

Three different versions of the KDS pick face are available, to ensure that pickers can recognize goods at a glance and remove them without any problems. Since the continuous flow racks are plugged in, it is possible to change them immediately if the strain on the picker is too great, if new goods are to be picked, or the loading of the goods on the rack changes. All of the components can be reused at any time.

### Galvanized surfaces

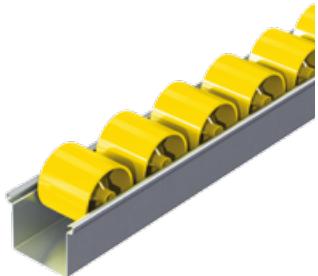
The standard version of Euroroll's continuous flow racks is galvanized. However, it is possible to paint the loading and pick profile in to a colour of your choice, to mark product groups in colour to make them easier to find for your pickers, for example.

### Always open to new ideas

Euroroll's development and test department is at your service, at all times, to realize your idea of Smart gravity engineering. If required, we can carry out trial runs and draw up video documentation. Whatever you want: We will be happy to advise you.



# Overview of System Components & Modules



## Roller track

Euroroll's roller tracks have a particularly high load-bearing capacity and are low-wear. A large number of different versions are available depending on the goods to be transported and the loads that the system needs to bear.



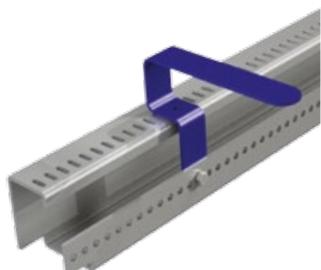
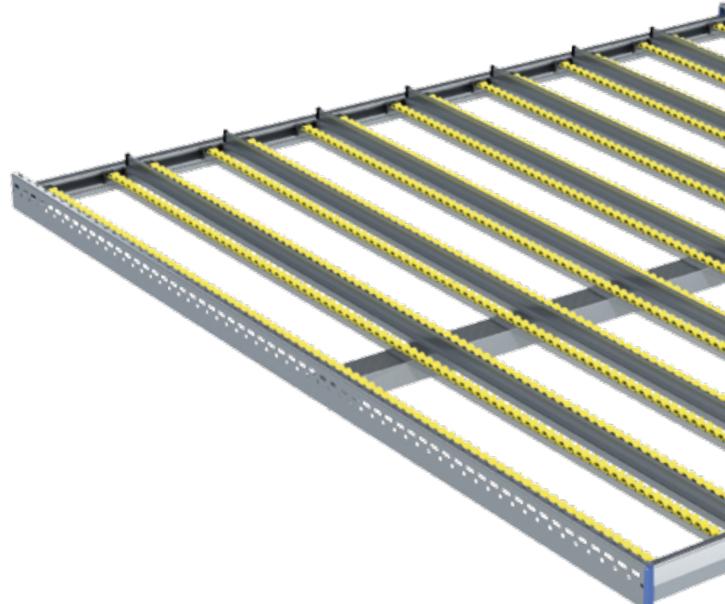
## Plastic connector (also connecting clip)

This component fixes roller tracks and guide rails to the ends of the continuous flow beds.



## Full Length Guide rail

Guide rails are made of galvanized steel plate and keep the goods on track from feeding to removal. They are of variable length.



## Entry Guides

Powder-coated deflectors ensure that the goods slide into the desired channel units.



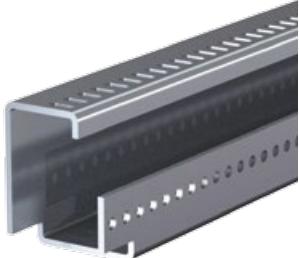
## End Bungs

End Bungs smooth the edges on the loading and spick faces, and play a part in occupational safety and health.



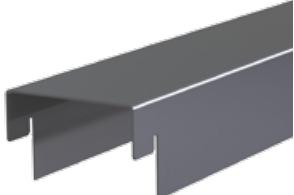
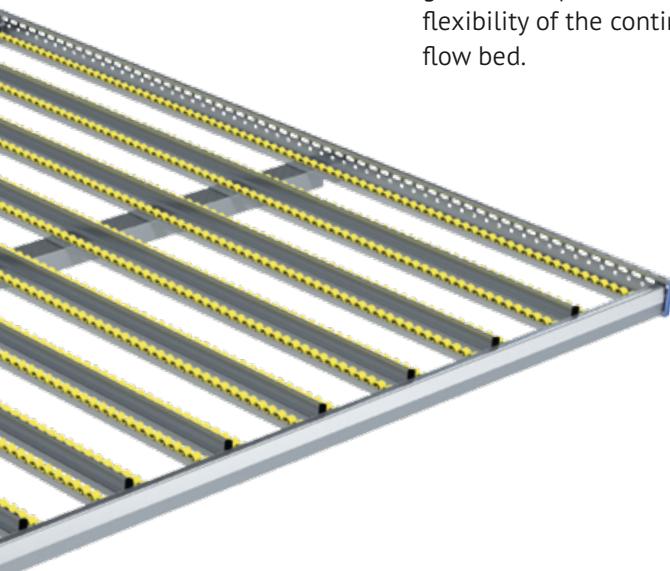
## Bolt

The use of bolts makes assembly easy. They make it possible to connect the side profiles firmly to the feeding and removal profiles and to unlock them again just as easily.



### Loading profile

The feed profile has been designed such that it provides stability to the continuous flow bed while at the same time having a low construction height. For versions with a storage and retrieval tray, an additional Loading profile is used as a receptacle for the roller tracks and the guide rails to guarantee optimum flexibility of the continuous flow bed.



### Cross member

The cross members are for stabilizing the continuous flow bed. Additional cross members increase the load-bearing capacity of the rack. Cross members are mounted without using screws.



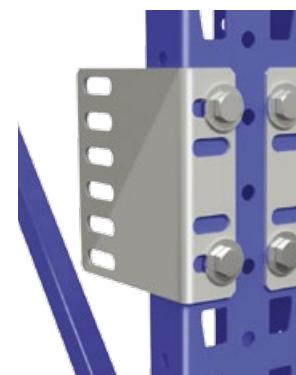
### Pick profile

The removal profile is reinforced and more stable, which means that the largest possible rack width is guaranteed even with heavy loads.



### Side profile

The side profiles are connected to the cross members and the feeding and removal profiles without using screws.



### Rack connection using an Adapter

Using an Adapter, you bolt a continuous flow bed to a rack. This Adapter is available

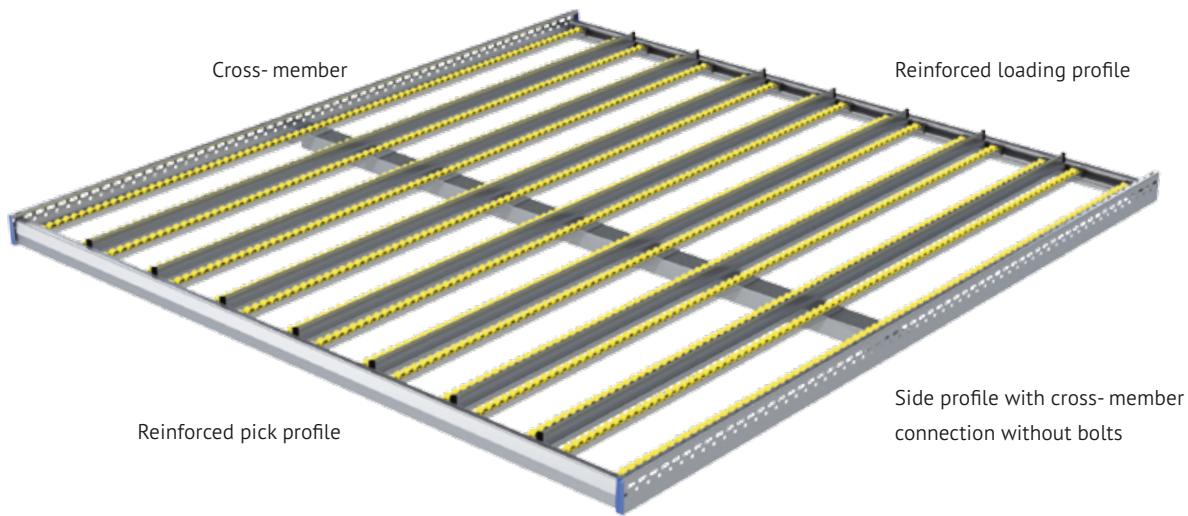
- a) for stands above 75 mm in size
- b) for stands between 50 mm and 75 mm in size
- c) On request, we can develop custom rack connections.

# Overview of System Components & Modules

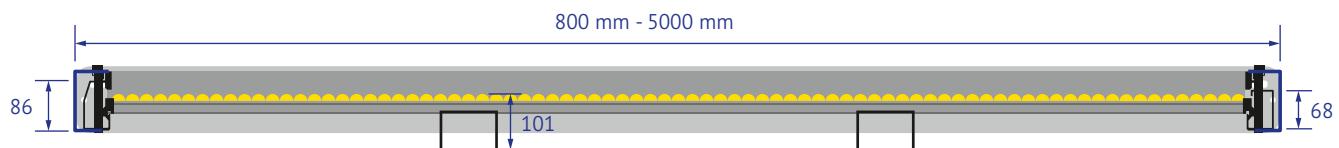
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## Standard continuous flow bed version

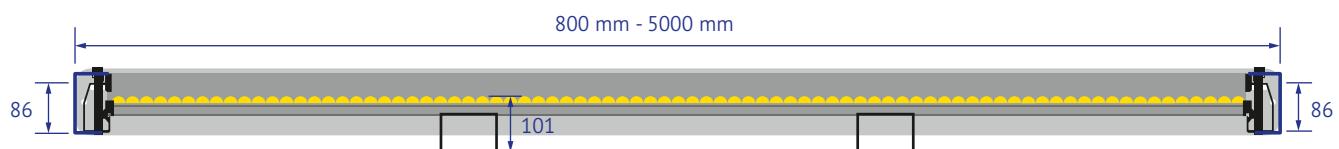
Standard continuous flow racks comprise a feed, removal, and side profile, cross members as well as roller tracks and guide rails.



## FIFO standard version



## LIFO standard version



## What are the most in demand sizes?

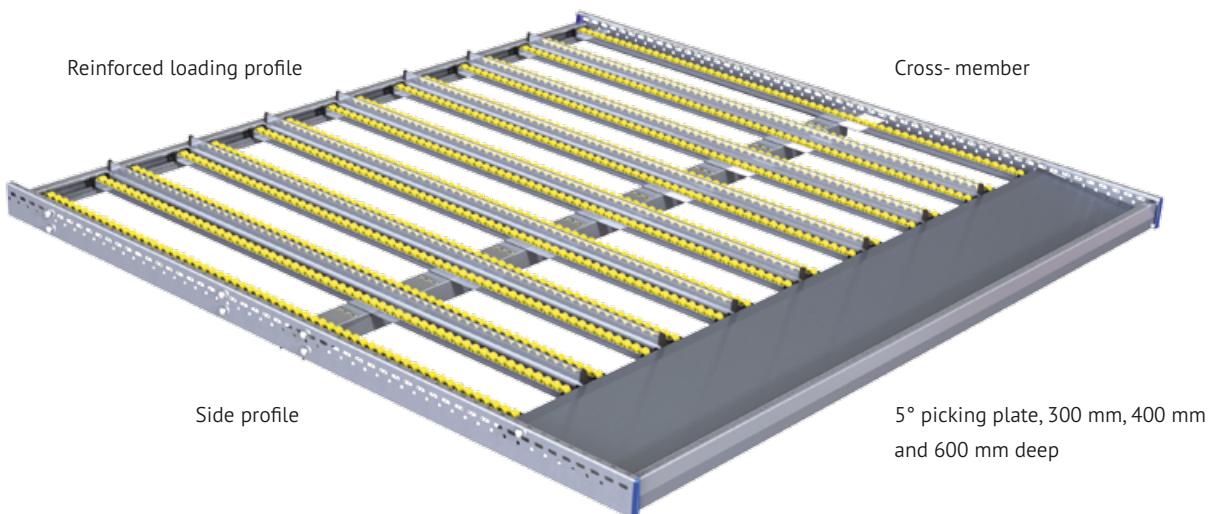
System	Container	Container	Container
Width	300 mm	400 mm	600 mm
1390 mm	4 channels	3 channels	2 channels
1790 mm	5 channels	4 channels	—
2690 mm	8 channels	6 channels	4 channels

In general, sizing of continuous flow beds is orientated towards the standards of the pallet racks in which they are installed. This yields the channel grid listed in the table.

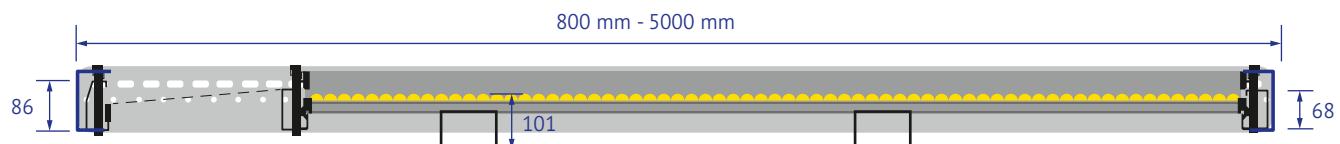


## Continuous flow bed with a 5° picking plate

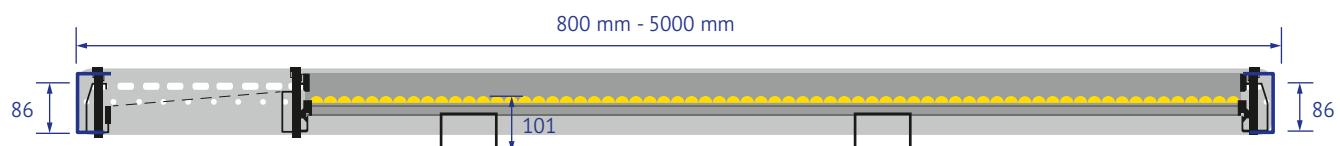
The 5° picking plate makes it easy to remove goods.



FIFO 5° picking plate version



LIFO 5° picking plate



### Conditions for smooth transportation of containers

- Individual containers may weigh a maximum of 25 kg. Using optional bracing attachments, you can increase the weight to 30 kg.

- The containers must be stable and their bases must be flat (with no cross ribs).

- Cardboard boxes must not be open with their flaps protruding.
- In general, roller pitch is 33 mm; with containers that have a depth of more than 500 mm roller pitch is 50 mm.

- If you intend to transport standardised containers, it is sensible to have a fixed channel width and to separate channels. If the container sizes are different, a roller carpet without channel separation is suitable.

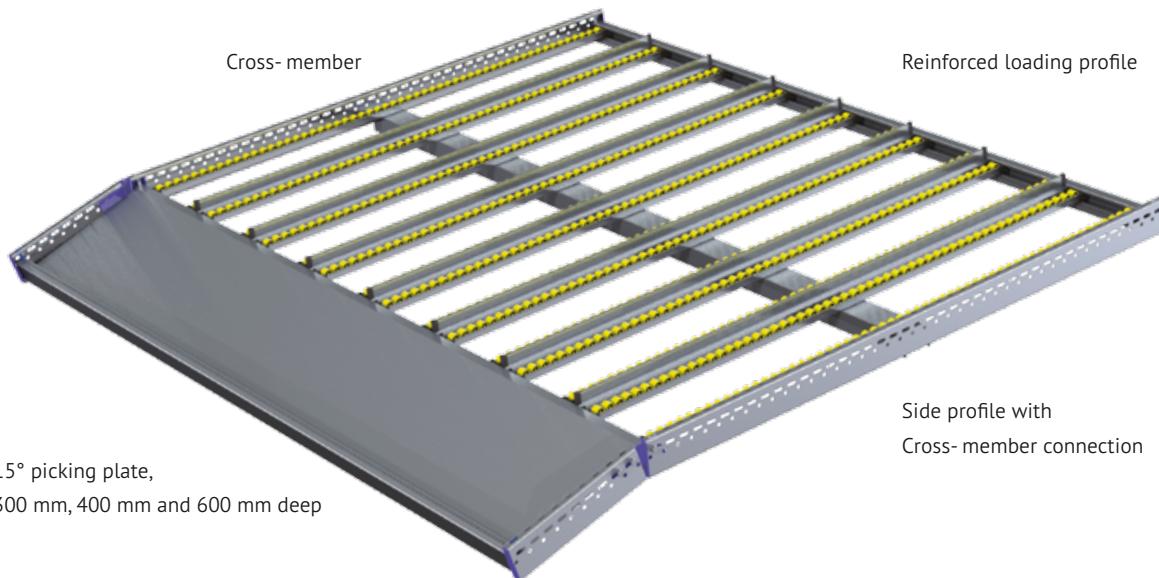


# System Components & Modules

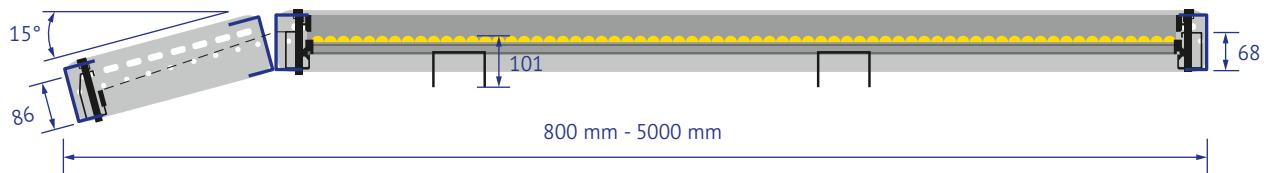


## Continuous flow bed with a 15° picking tray

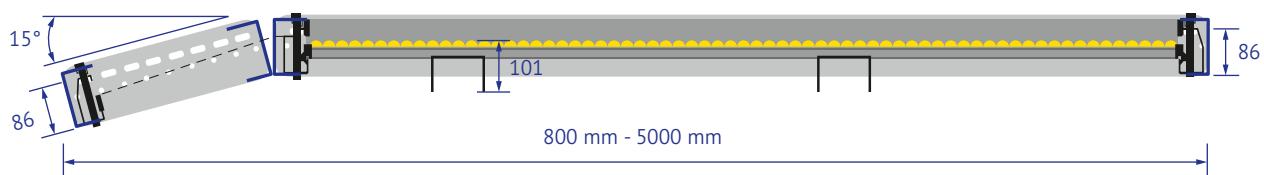
The 15° picking plate allows people to work ergonomically.



FIFO 15° picking tray version



LIFO 15° picking tray version



## Guides when transporting the goods through separating strips

When transporting goods via continuous flow beds good guides are very important. Euroroll's standard guides with their guide height of 30 mm above the roller tracks guarantee safe transportation from the loading profile to the picking profile.

They are suitable for virtually any types of container (cardboard, plastic, steel) and any shapes of container (cube, tray, grid) and they can be used on a universal basis with continuous flow rack depth of up to 5000 mm.

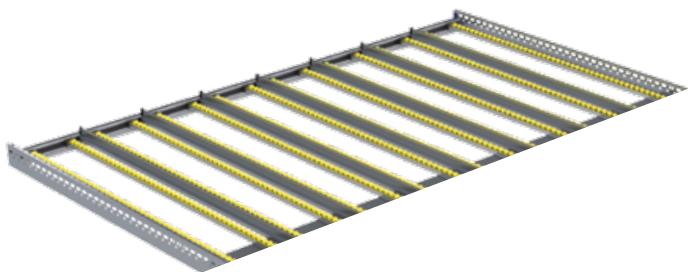


## Continuous flow racks – overview of versions

The various versions of Euroroll continuous flow racks differ by virtue of the feed and removal sides.

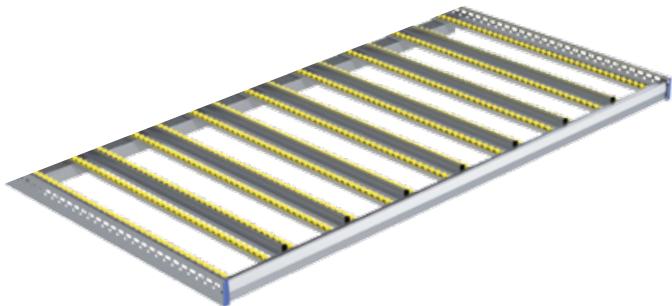
### INPUT

#### 1. FIFO Standard



### REMOVAL PROFILE

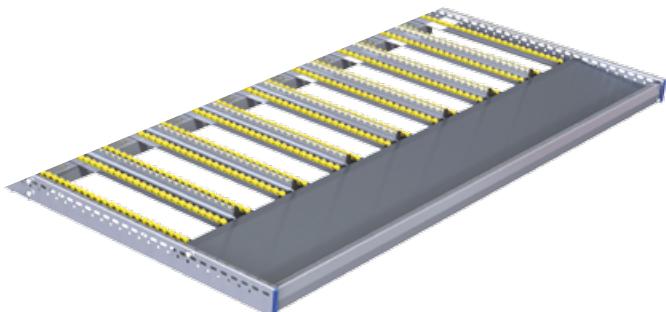
#### 1. FIFO and LIFO Standard



#### 2. LIFO Standard



#### 2. 5° picking tray 300 mm, 400 mm and 600 mm



#### 3. Loading plate of different sizes



#### 3. 15° picking tray 300 mm, 400 mm and 600 mm deep

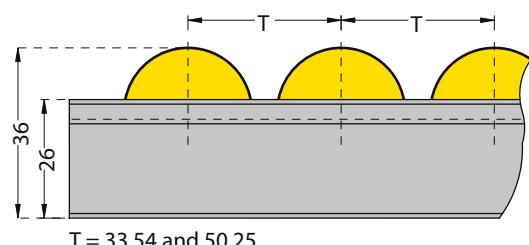
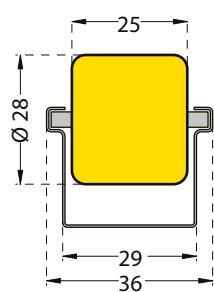


# Roller Tracks and Components

Euroroll's roller tracks have long service lives and due to their good start-up and running characteristics slide the goods to be picked quickly and smoothly from the feed position to the removal position. The roller tracks are available in divisions of 33 mm (roller track AN 33) and 50 mm (roller track AN 50).

## The most important facts about AN 33 and AN 50 roller tracks

- The roller tracks are suitable for transporting cardboard boxes/containers weighing up to 25 kg.
  - The rollers run in a stable, torsionally stiff profile made of galvanized steel plate.
  - Depending on your requirements, the rails are available in lengths between 700 mm and 5,000 mm.
  - The overall height of the roller tracks is 36 mm.
  - The rollers themselves are made of high-quality plastic and are 28 mm in diameter. They can be used in a temperature range between -30 °C and +100 °C.
  - The dynamic load-bearing capacity of the rollers is 10 kg.
  - To guarantee good stability and load-bearing capacity, the rollers run on bearings on steel axles with a diameter of 3 mm that play their part in providing good start-up characteristics for the rollers and guarantee high levels of force absorption.
- The roller tracks are optionally available as a high sliding capability version, the rollers themselves can be supplied in different colours



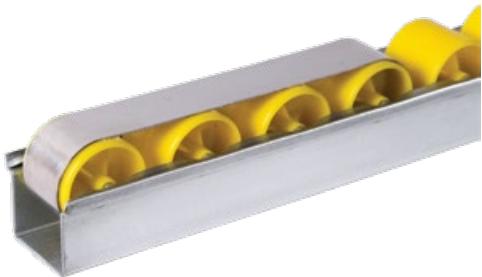
**Steel axles**

*Steel pins with a diameter of 3 mm ensure roller track stability and long service lives.*





#### Brake plate



The brake plate made of spring steel brakes the goods on a friction basis using four 33 mm pitch rollers. There is no restarting.

#### Push-back blocker



The push-back blocker, which prevents the goods from running backwards, is suitable for automatic placement and for insertion systems.

#### Roller



The sturdy plastic rollers have long service lives and are available in yellow, orange, red, white and black.

#### Bracing attachment



Attaching additional bracing attachments on the feed side of the roller track increases the load-bearing capacity per container of the tracks to 30 kg.

#### Spring clip



The spring clip fastens roller tracks to the cross members. They make long continuous flow racks more stable and guarantee goods transportation even in deep channels.

#### Connector



Roller tracks are connected to one another by means of connectors. In this way, you can extend channels.



# Roller Tracks and Components

**Mini brake**



By slightly braking the goods, the mini brake controls the speed on a slope. It is suitable for braking cardboard boxes weighing between 2 kg and 50 kg and is used above all with deep and steep order picking flow systems as well as with automatic systems and different weights of goods. An adapter integrates the mini brake directly into the roller track. The following versions are available: light, light with grip, heavy, heavy with grip and with a diameter of 32.5 mm.

**Mini**



The spaces between the rollers are reduced (minimum pitch of 16 mm), which means that even the smallest cardboard boxes can be conveyed safely.

**Wheel flange**



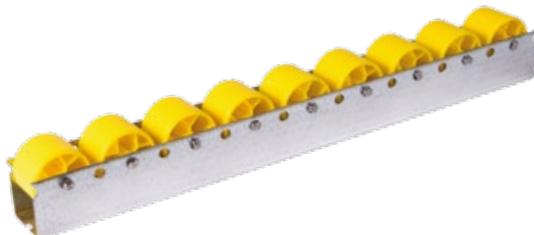
The roller tracks with a minimum roller pitch of 50 mm and a wheel flange keep cardboard boxes in the right track.

**Mini wheel flange**



This wheel flange with its roller pitch of 33 mm mainly keeps small cardboard boxes and containers safely in their track.

**Superfix**



The guide rail, which is particularly sturdy, has a profile width of 1.5 mm and the steel axes are reinforced from 3 mm to 5 mm, which means that they can bear containers weighing up to 80 kg.

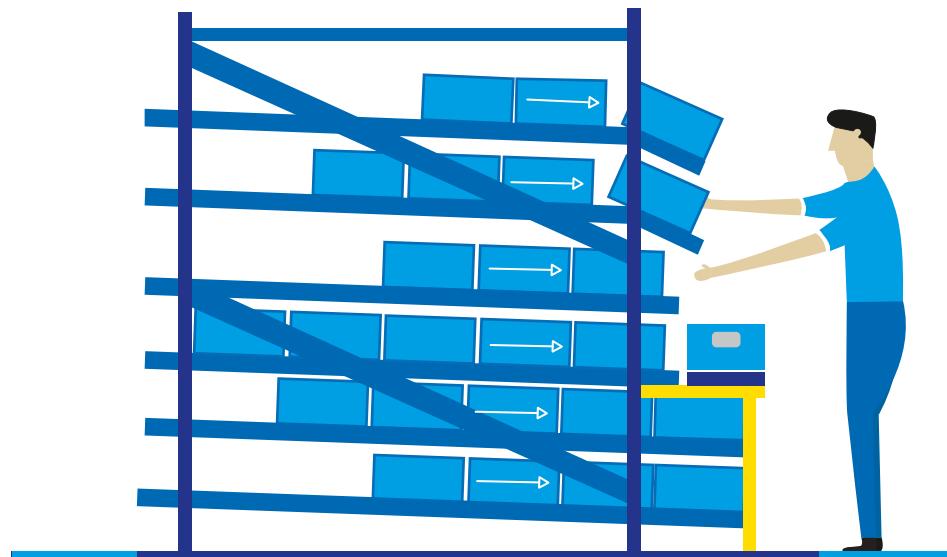
# Ergonomics

In order picking, healthy and motivated employees make a major contribution to the economic success of your company. This means that ergonomic work places, which reduce physical stress and make workflows easier, are an absolute must. They raise productivity by 20%, reduce the number of days missed because of illness and lower order picking errors, all of which leads to increased employee satisfaction. And satisfied employees are the best ambassadors for your company.

## Solutions for all order picking work places

Euroroll systems are tailored to the needs of employees – regardless of whether they work in goods loading or goods picking. If job requirements change, it is very easy to modify the systems such that the ergonomics of the work place are of the same standard. Because Euroroll systems are so flexible, that you can quickly adapt them to new demands.

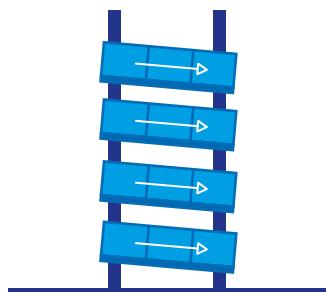
- This means that angled picking trays at the end of the continuous flow beds make it possible to lift medium-sized and large articles out of cardboard boxes easily from the top.
- Continuous flow beds without picking trays make it easy to remove complete cardboard boxes/containers as well as smaller articles from the front opening of the containers.
- If pickers put together different articles per order, it is possible to integrate roller conveyors in the frame front. This means that the staff in order picking do not need to turn to a transport track or a truck.
- By contrast with shelving racks, in Euroroll's flow systems the goods are removed from one side only. This means less walking.
- You can modify all the continuous flow racks at any time if new goods are picked or if the type of order picking changes.



The Euroroll team specialises in the development of order picking flow systems for any purpose, and we will be glad to advise you on how to design the work places in your company on an ergonomic basis and how to benefit from this. In conjunction with you, we will find the best and most economical solution for you.

# Designs

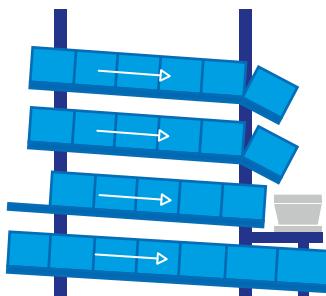
Order picking flow systems are equally suitable for small product containers and for large articles. The only condition: The design of the KDS must be adapted to the goods – if only to make access for pickers easier.



## Straight design

In the case of the straight design, the individual continuous flow beds are placed precisely above one another. This means that they start at the same point and are of the same length without being at an oblique angle at the end. This alignment is particularly suitable for complete storage units with viewing ports that pickers can recognize at a glance which is the article in question.

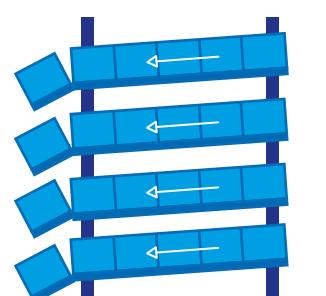
*Advantage of this design:* Optimum use of space.



## Design with a conveyor system

In the case of this design, a roller conveyor is fitted on the removal front, which makes the work of pickers easier if they have to remove different goods on one line.

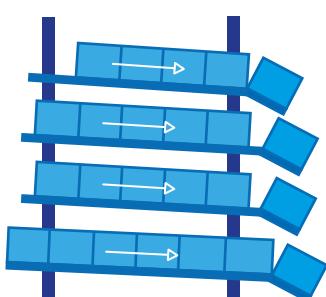
*Advantage of this design:* It makes possible rapid ergonomic working, since it is not necessary to place goods on separate trucks; rather, order picking is possible with a minimum of effort.



## Angled presentation design

The continuous flow beds are of the same length; however, with this design, the removal side is at an angle, which make it easy to access and view the goods. The angled design is particularly suitable for medium-sized containers.

*Advantage of this design:* Optimum use of space is combined with ergonomic access for pickers



## Angled, offset presentation design

The continuous flow beds are of different lengths, which means that they are offset slightly from the top to the bottom in each case. With angled racks, it is possible to easily recognize and remove even large goods in this way.

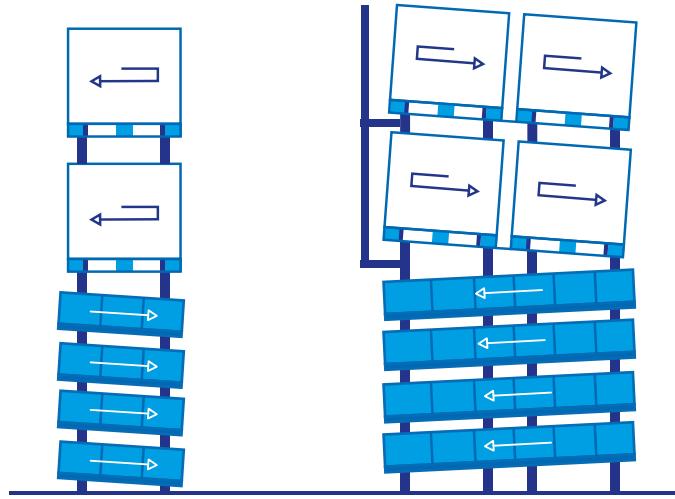
*Advantage of this design:* It makes it easy to access large containers.



## Order picking flow system with pallet storage system

Using universal adapters, it is possible to integrate order picking flow systems into existing pallet racks. This makes it possible to adapt the storage technology to different goods ranges in the storage facility.

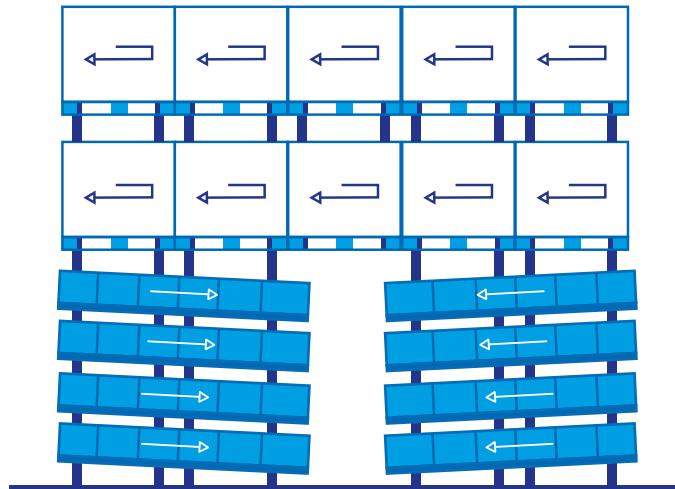
*Advantages of this design:* A relatively small amount of space is needed, popular goods can be retrieved quickly. Pickers who remove goods from pallets do not get in the way of the staff on the continuous flow racks.



## Flow system with order picking tunnel and pallet storage system

Two KDS systems face one another, such that this results in a pick aisle in the middle – the order picking tunnel – in which the goods are removed. The insertion or flow buffer store is located above the KDS beds and the passage.

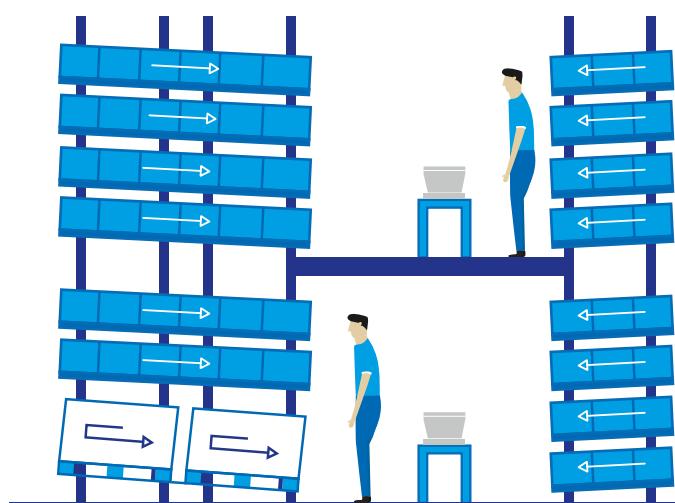
*Advantages of this design:* The existing storage space is used perfectly, there are separate routes for pickers, and the staff who remove goods from the pallets. This guarantees rapid goods availability.



## Multi-storey order picking flow system

In high stores, multi-storey order picking is possible on several levels. Conveyor sections in the order picking area make work easier.

*Advantages of this design:* Good use of space and, if required, more pickers increase goods turnover. Separate routes for feeding and removal guarantee smooth workflows.



# Sample Applications

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Euroroll gravity conveyor systems have been used all over Europe since 1983. It is not just leading companies in the online and food retail sectors and the consumer goods industry who place their trust in our products, they are also used by car manufacturers and their suppliers, pharmaceutical companies and numerous other companies in a wide range of different sectors of industry.



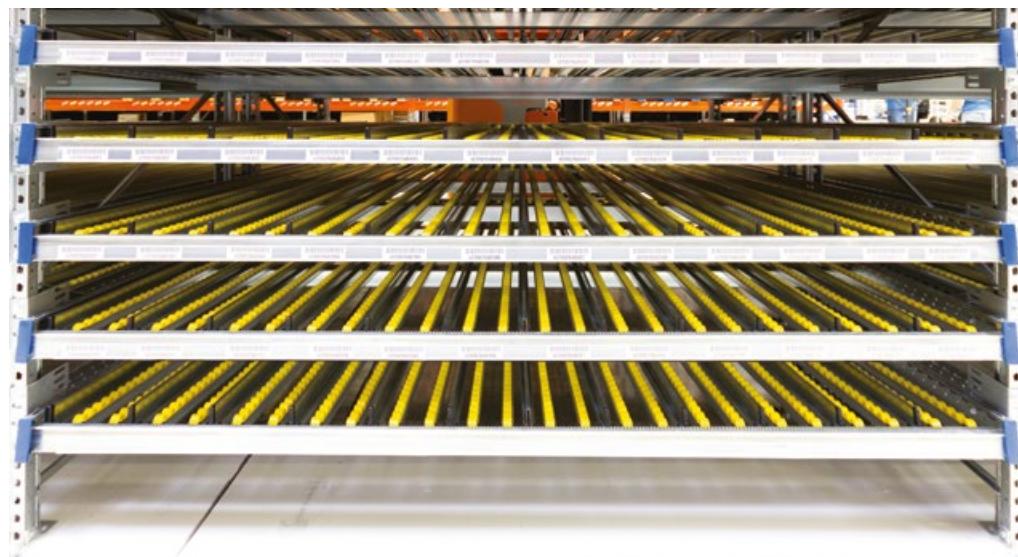
## What our customers appreciate about us

**Expert advice:** Each company is unique and needs custom logistical solutions. Euroroll's team finds out what your company's needs are and advises you about the possibilities of deploying gravity conveyor systems in your company on a profitable basis.





**Optimum technical solutions:** Euroroll finds the best technical solution for every company. When doing this, our development specialists always focus on the goods to be transported, the company's human resources and the premises that are involved as well as cost effectiveness.



**Consistent after-sales service:** Even after completing your order, our team won't leave you on your own. We are there for you if you have any queries or problems – and if you need us, at your location too.



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