

Complete solutions from one supplier.

Racking is much more than just steel. Racking is the key to optimum throughput efficiency, because the efficiency of the entire material flow is optimised only through requirement-specific design of a racking system. Jungheinrich provides you with this key: Racking systems, mezzanines and self-supporting stores (silos). For the storage of pallets, containers and stillages – for cartons or long goods – Jungheinrich offers you the complete solution: comprehensive warehouse planning that sees racking and trucks/rack servicing cranes as one system working “hand in hand”. From initial

planning and projecting up to hand over. From consultation via tailor-made financing right up to one of the widest Service networks in Europe.

Experience makes perfect

As one of the leading industrial truck manufacturers, Jungheinrich is aware of the demands made on racking which is serviced by trucks. During the development of Jungheinrich racking systems, experience in planning, projecting, processing and commissioning gained in many thousands of warehouses throughout the world is utilised.

Excellent consultation

Jungheinrich Sales Executives know the requirements that have to be met for perfect fine-tuning of truck and racking. No matter whether working cycles are carried out with pedestrian trucks, front seat trucks, reach trucks or high rack stackers, rack servicing cranes or order pickers, Jungheinrich provides you with the complete solution package of truck and racking.



Jungheinrich AG
ISO 9001, ISO 14001
Certification of Quality and
Environment Management



Jungheinrich trucks conform to the
European Safety Requirements.

Jungheinrich UK Ltd.

Head Office:
Sherbourne House
Sherbourne Drive
Tilbrook
Milton Keynes MK7 8HX
Telephone 01908 363100
Fax 01908 363180

info@jungheinrich.co.uk
www.jungheinrich.co.uk

JUNGHEINRICH
Well worthwhile

6448.2.1.2008.r.r.s. Technical modifications reserved.



Racking systems and warehousing equipment.

The backbone of internal logistics.

JUNGHEINRICH

The tools for any storage job.

Application-specific, economical, reliable.

Pallet storage

- 1 Adjustable pallet racking
- 2 Adjustable pallet racking for narrow aisles
- 3 Single position racking
- 4 Clad rack silo
- 5 Mobile racking
- 6 Pallet live storage
- 7 Push back racking
- 8 Drive in/drive through racking
- 9 Channel racking DIS drive-in system

Container, stillage and carton storage

- 10 Shelving for storage and order picking
- 11 Carton live storage
- 12 Automatic small parts storage (mini load)

Long goods storage and platforms

- 13 Cantilever racking
- 14 Mezzanine platforms
- 15 Multi-tier shelving



Contents.

Pallet storage

Adjustable pallet racking

Adjustable pallet racking for narrow aisles

Single position racking

Clad rack silo

Mobile racking

Pallet live storage

Push back racking

Drive in/drive through racking

Channel racking DIS drive-in system

10–11

12–13

14–15

16–17

18–19

20–21

22–23

24–25

26–27

Container, stillage and carton storage

Shelving for storage and order picking

Carton live storage

Automatic small parts storage (mini load)

30–31

32–33

34–35

Long goods storage and platforms

Cantilever racking

Mezzanine platforms

Multi-tier shelving

Racking accessories

Complete truck range

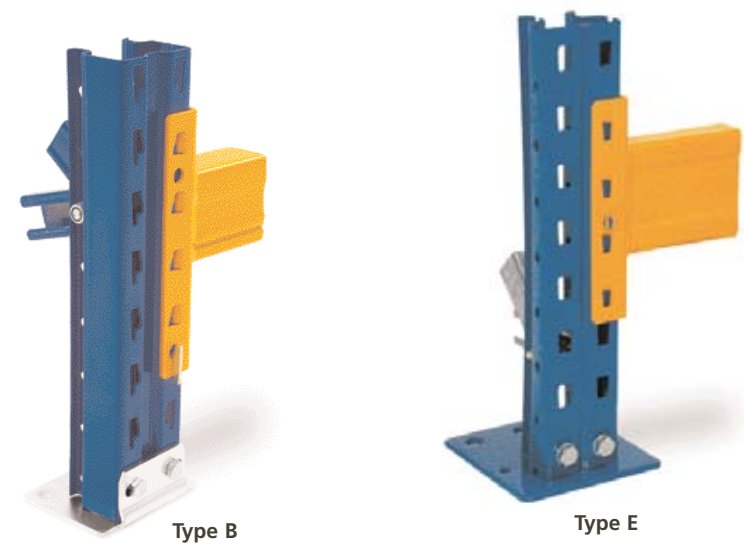
38–39

40–41

42–43

44–45

46–47





Adjustable pallet racking.

The classic among racking systems.

Characteristics

Adjustable pallet racking is the most common racking system. In contrast to single position racking, it carries several pallets between two uprights on every level. In standard design, it reaches heights of 8 to 10 m and it can also be raised to high racks with 12 m height and in automatic operation up to 30 m height.

Application

Adjustable pallet racking is particularly suitable for large quantities of individual, mainly palletised articles. In contrast to block stacking, there is no contact between pallets which allows direct access to all pallets. Easy adjustment of racking levels ensures optimum storage utilisation. Double-deep storage can also be realised.

Operation

The racking is loaded in the same way as single position racking with fork lift trucks or rack servicing cranes. Lengthways storage and retrieval is also possible by utilising narrow aisle trucks. This would reduce the aisle width required (narrow aisle on page 12).

Advantages

- Direct access to all articles
- Available for manual/automatic rack servicing
- Random storage position allocation





Adjustable pallet racking for narrow aisles.

The racking giant.

Application

Narrow aisle systems are the giants among multi-position racking systems. They have the performance characteristics of multi-position racking (see pages 10/11) at heights over 10 m and are free-standing. Reduced requirement for working aisles and extremely high lift heights are their distinguishing features. Narrow aisle systems are used specifically where a) the space is limited and b) it is necessary to increase throughput compared with multi-position racking. Here, narrow aisle stackers (rail or inductive guidance with the choice of automatic height selection) or rack servicing cranes (RBG) are utilised.

High rack stackers (rail or inductively guided) with automatic height selection or rack servicing cranes (pages 18 and 19) take on stacking and retrieval operations. Availability is ensured by cantilever arms at the head of the racking aisles. Jungheinrich high racks are free-standing. They are not a permanent part of the building and thus extremely adaptable during possible reorganisation.

Advantages

- Excellent space utilisation
- High throughput performance
- Low working aisle widths
- Gradual upgrading possibilities up to fully automatic operation





Single position racking.

Optimum space utilisation especially for box pallets.

Characteristics

Single position racking carries one load unit per bay between two uprights on every level. Angle profiles arranged in depth direction take on the shelf function – additional space is gained through the omission of beams.

Application

Single position racking is particularly suitable for storing ranges with large quantities per article and heavy goods. With the accessible arrangement of load units, single position racking is always advantageous when orders are picked straight from the pallet or box pallet.

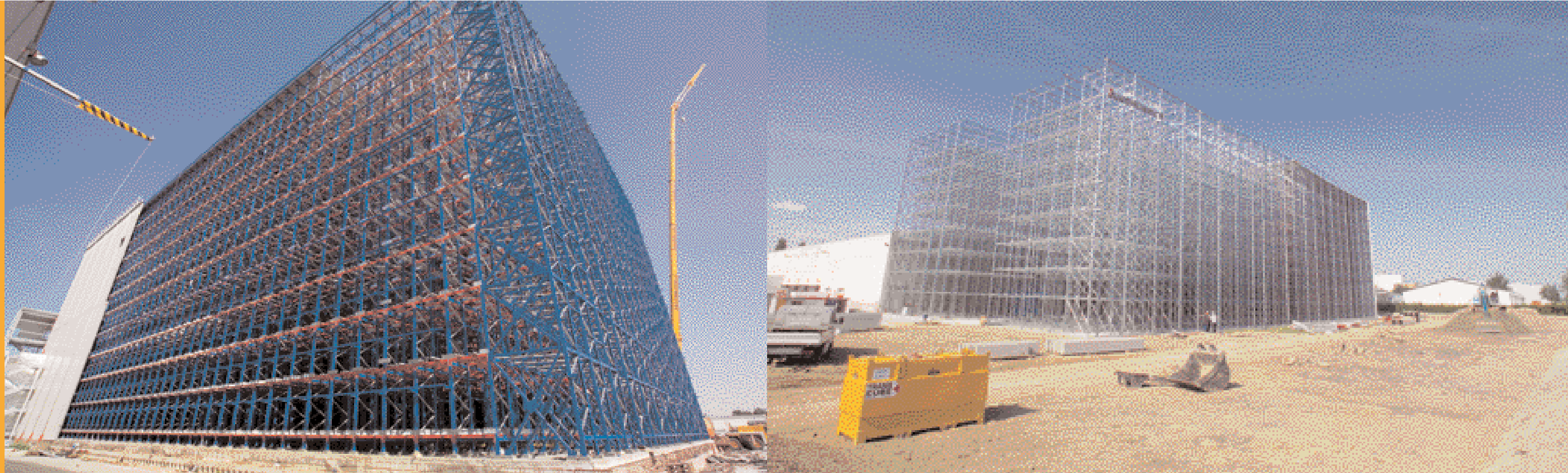
Operation

The operation of Jungheinrich single position racking can be either manual or automatic – using either stackers or rack servicing cranes. Due to low shelf heights, the stacking process is particularly speedy and safe. Compared with block stacking, direct access to all load units and safe stacking up to height is an advantage.

Advantages

- Direct access to all articles
- Available for manual or automatic rack servicing
- Random storage space allocation
- Operator-friendly order picking





High rack silo.

Storage in all dimensions.

Characteristics

Clad rack silos are racking constructions to which roof and walls are fixed. The stores are automatically controlled and reach heights up to 40 m. The silo design provides shortest construction times and offers interesting depreciation opportunities.

Application

High rack silos are used for storing large quantities of high throughput articles.

Operation

The racking system is operated with automatic rack servicing cranes. Jungheinrich rack servicing cranes ensure operation up to a height of 40 m. They can transfer freely from one aisle to the next. Their curve-going ability linked with the Europe-wide patented points system is at the heart of aisle transfers. This system facilitates safe and fast aisle transfer effortlessly.

Advantages

- Utilisation of storage space to full height
- Reduction in the use of conventional buildings
- Reduced construction time





Mobile racking.

Optimum space utilisation with variable working aisles.

Characteristics

Mobile racking is mounted on motorised mobile bases. This facilitates the opening of a racking aisle at any position of the system.

Application

Mobile racking saves working aisles and created storage space (up to 90 % compared with traditional racking). It nonetheless provides access to every load unit. Mobile racking is particularly suitable for medium quantities of goods and a medium number of different articles with low access requirement.

Operation

Mobile racking is serviced by trucks in individual aisles. Racking aisles can be controlled locally from an individual rack or by remote control. Photoelectric safety barriers at both racking fronts activate an emergency stop as soon as they hit an obstacle.

Advantages

- Saving of up to 90 % racking aisles
- Better space utilisation
- High storage density





Pallet live storage.

Excellent space utilisation for Fifo method.

Characteristics

Jungheinrich pallet live storage consists of racking uprights forming a channel. Storage is carried out on one side and retrieval on the other side of racking. As soon as a pallet is retrieved, the other pallets move up automatically to the retrieval position on inclined roller conveyors. Brake rollers keep gravity under control and an automatic separating device ensures that the pallet at the front is never under impact pressure from the following pallet. Automatically operated roller conveyors within a channel are available as an option.

Application

Pallet live storage is suitable for large quantities of the same articles. In keeping with the Fifo method, they ensure that goods are rotated effectively.

Operation

Pallet live storage is serviced using conventional fork lift trucks.

Vorteile

- Optimised filling ratio
- Optimised space utilisation





Push-back racking.

Excellent space utilisation for Lifo method.

Characteristics

Jungheinrich push-back racking consists of racking uprights forming a channel. The conveyors slope between 3 and 5 %. Deposit and retrieval in this system is carried out on the same racking side. If there are already load units in one of the channels, the new load unit has to push the one previously deposited against the slope. Pallets already in the channel move up automatically when a pallet is retrieved. There are typically three pallets one behind the other in the channel.

Application

Push-back racking is suitable for storing medium quantities of the same articles.

Operation

Operated by fork lift trucks as well as support-wheel stackers.

Advantages

- Optimised filling ratio
- Optimised space utilisation





Drive-in / drive-through racking.

Compact storage system.

Characteristics

With drive-in and drive-through racking, load units are stored on the racking depth one after the other on two continuous shelves. A loading/unloading cycle per racking field from the top to the bottom (or the other way round) must be observed during depositing and retrieval. The trucks can drive into the racking lanes. With drive-in racking, rack servicing is only possible from one side (Lifo method). With drive-through racking in contrast, depositing can be carried out from one side and at the same

time retrieval from the other side (Fifo method). Compared with drive-in racking, throughput is therefore higher with drive-through racking.

Application

Drive-in and drive-through racking is ideally suitable for storing large quantities of goods with a low number of different articles. The racking system combines the advantages of block stacking and rack stacking: compact space utilisation at height and careful storage of goods.

Operation

Before entering the aisle, the truck lifts the pallet to the required racking level. The truck must not be wider than the pallet. Sideways seat stackers are particularly suitable as they provide the operator with unobstructed visibility also during reverse travel.

Advantages

- Excellent space utilisation
- Easy to expand
- Particularly suitable for the storage of seasonal goods





Channel racking for DIS drive-in system.

Optimum space utilisation.

Characteristics

In this system, load units are transported into the respective channel by a shuttle. The Jungheinrich DIS drive-in system is an autonomous, carrier truck-independent load shuttle that travels into pallet channels under its own power. Regarding area or space utilisation ratio, a high potential can be utilised. Fewer working aisles and more pallet positions can be accommodated in the same area and thus high, efficient filling ratios (especially with different articles) can be achieved.

Application

The application areas are the same as for drive-in and drive-through racking (see pages 24/25) with the added advantage that throughput of the DIS system is higher. Typical application areas are cold stores and production buffer storage.

Operation


The DIS drive-in system can be operated by any Jungheinrich stacker. Each truck can operate several load shuttles. The

highlight of the Jungheinrich DIS drive-in system: Carrier truck and shuttle are not permanently connected to each other. The shuttle's own power supply makes it independent of the carrier truck.

Advantages

- Very high throughput efficiency
- Very good area and space utilisation
- No limit for channel depth
- Every carrier trucks can also be utilised as "normal" stacker



A man in a dark suit and striped tie is sitting on a bright yellow sofa. He is smiling and looking towards the camera. The background is a large warehouse with high ceilings and numerous metal shelving units filled with cardboard boxes. The lighting is bright, coming from overhead fixtures.

“We could not do
without one cm^2 . The
system was tailor-made
for our requirements.”



Shelving for storage and order picking.

Optimum access to any article.

Characteristics

Shelving over multiple levels made of steel plate or wood is used for storage. Jungheinrich shelving is available as slot together or bolted style. It is also suitable for high rack installations over 12 m high.

Storage application

Jungheinrich shelving facilitates the storage of goods with large article ranges at small to medium quantities. The racking can be universally utilised in all industry branches for small parts but also for bulky parts.

Order picking application

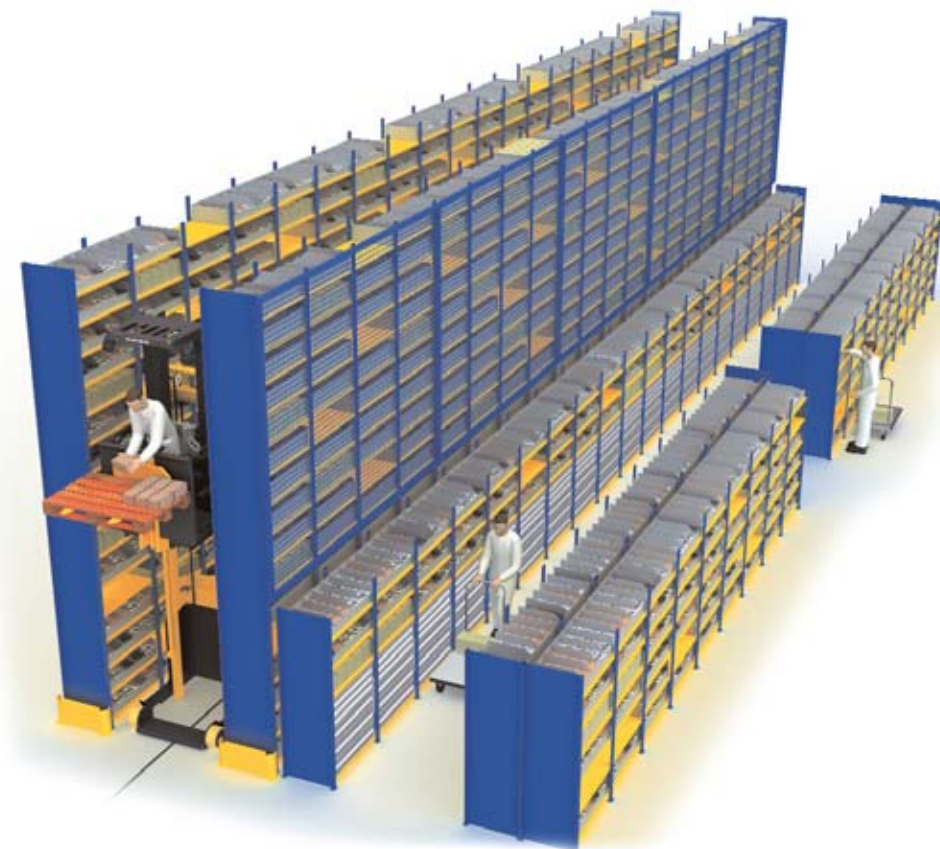
When making goods available – according to the “man to goods” principle – attention must be paid to goods being directly available for the order picker. The Jungheinrich order picking racking provides the best preconditions for this. Flexible in application and easily adjustable, it is particularly suitable for large volume, bulky goods and containers. Order picking by hand is easier, picking times are reduced.

Operation

By hand, with horizontal/vertical order pickers or rack servicing cranes (RBG).

Advantages

- Immediate access to all articles
- Flexible and expandable
- Easy to assemble





Carton live storage.

The solution for Fifo.

Characteristics

Drive-through racking works according to the Fifo method for small parts or packages of any size. Roller conveyors ensure that stored goods move forward automatically to the retrieval point. This strict adherence to sequence ensures that nothing gets out of date in drive-through racking.

Application

Drive-through racking is mainly utilised for order picking work. Roller conveyors can also be retrofitted in any standard racking and they are also available for cold stores. A pick-by-light solution can also be integrated in drive-through racking.

Operation

The racking is operated manually or with horizontal or vertical order pickers. Order picking platforms are inserted in multi-storey installations.

Advantages

- Fewer working aisles
- Continuous reserve zones
- Separate depositing and retrieval
- Retrofitting possible
- Fifo method





Automatic small parts storage (mini load).

Top performance in warehouses.

Characteristics

Automatic small parts storage ensures excellent space-saving storage of small parts in containers, stillages or cartons. These are stored on angled supports – with full utilisation of room height.

Application

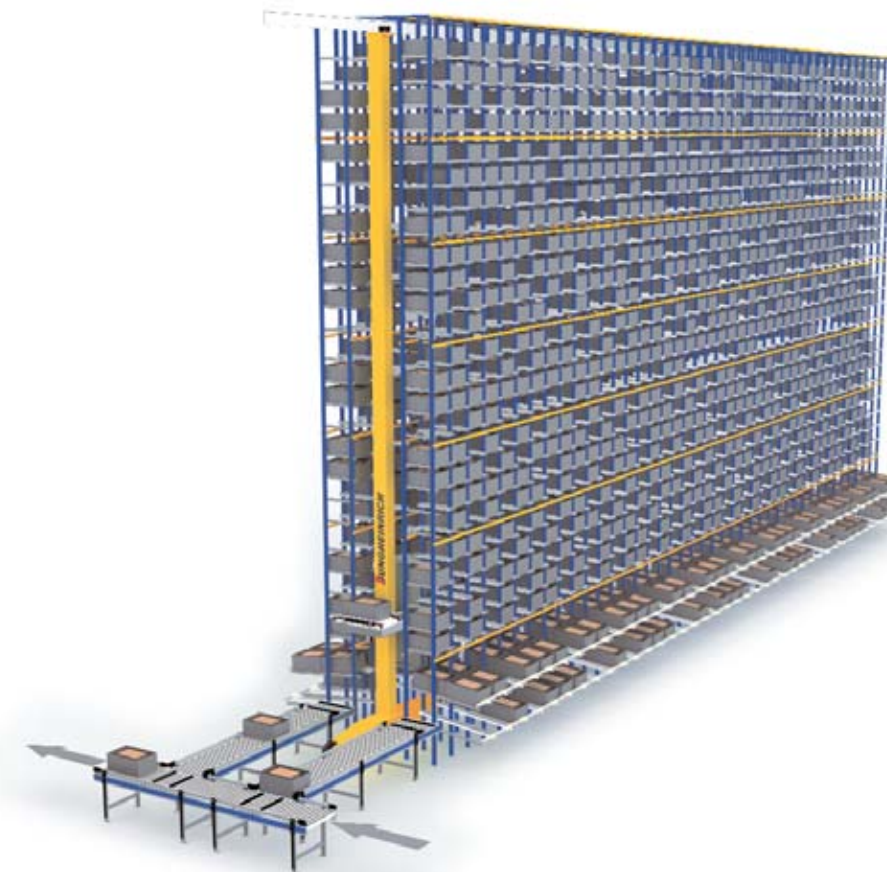
AKL mainly serves for the storage of small parts with large number of articles in limited unit numbers per article and with high throughput requirements.

Operation

Depositing and retrieval is carried out with automated rack servicing cranes.

Advantages

- Short picking times
- High throughput performance
- Optimum space utilisation
- Direct access to every article





“Cantilever racking plus
regular racking inspection.
That is the right package.”



Cantilever racking.

For long goods of any type.

Characteristics

There is practically no limit to the length of cantilever arm racking. This racking for the storage of long goods such as poles, pipes and boards. Each racking upright is equipped with several cantilever arms (supports) for carrying the load. The distance between uprights depends on the weight of the goods to be stored.

Application

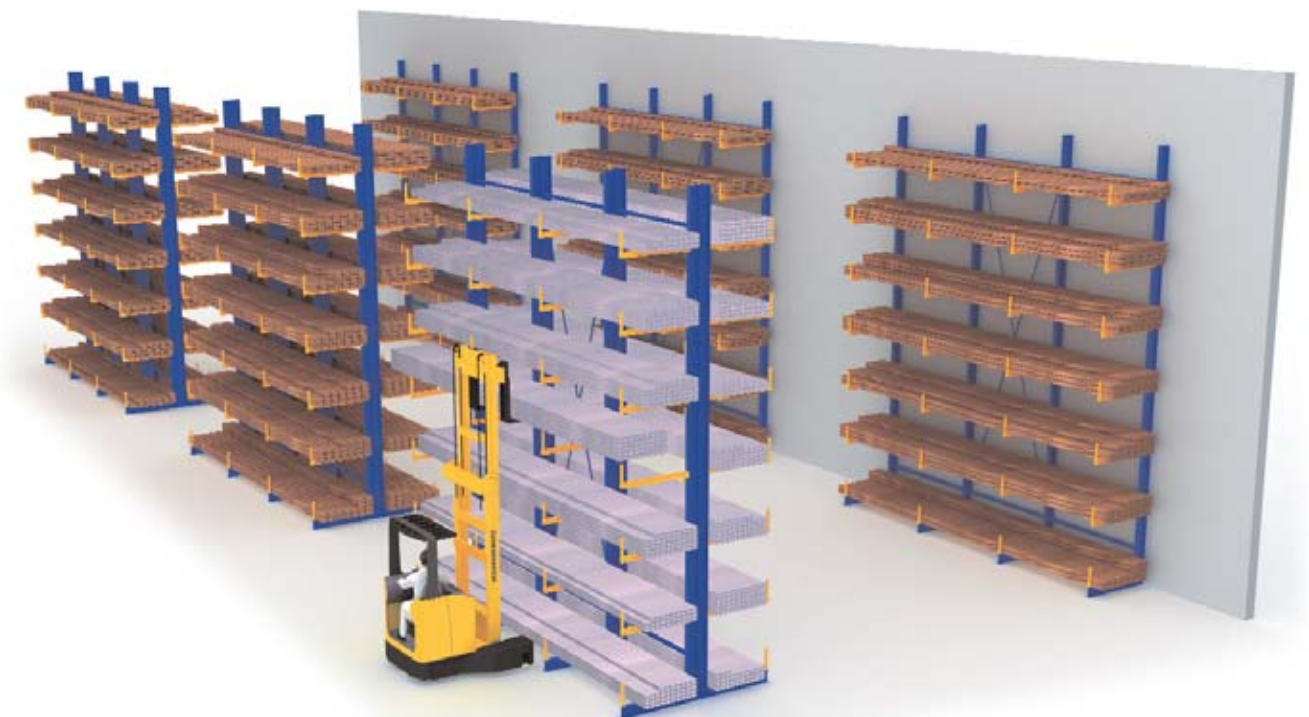
Goods which are heavy and small to large quantities per article at medium throughput are stored on cantilever arms.

Operation

The racking is serviced by fork lift trucks such as Jungheinrich multiway reach trucks. They work without turning in the aisle and therefore only require very narrow aisle widths.

Advantages

- Extendable to any length and expandable
- Flexible adjustment to changes in the range of goods





Mezzanine platforms.

Additional storage space in existing buildings.

Characteristics

The mezzanine platform is a self-supporting walk-on steel construction. It is erected in an existing building.

Application

Mezzanine platforms create additional storage areas on the platform itself and at the same time room underneath – e.g. for production. Compared with integral mezzanine floors, racking platforms offer many individual design options. For instance, they can also be used as order picking platforms.

Operation

Mezzanine platforms can be designed so that not only hand pallet trucks but also electric fork lift trucks can work on them. Fork lift trucks or conveyors take care of the material flow from ground level to the platform. Personnel access is provided by stairs.

Advantages

- Extension of storage area
- Efficient utilisation of room height
- Flexibility on/underneath platform





Multi-tier shelving.

Mezzanine platform with integral shelving.

Characteristics

Dependent on the type of goods, operational capacity and available picking time, a combination of two existing systems often provides an economic solution. Best example: Order picking platforms, i.e. a combination of shelving and storage platform. This multi-tier construction has the main advantage of operators being able to retrieve stored goods on several levels simultaneously.

Application

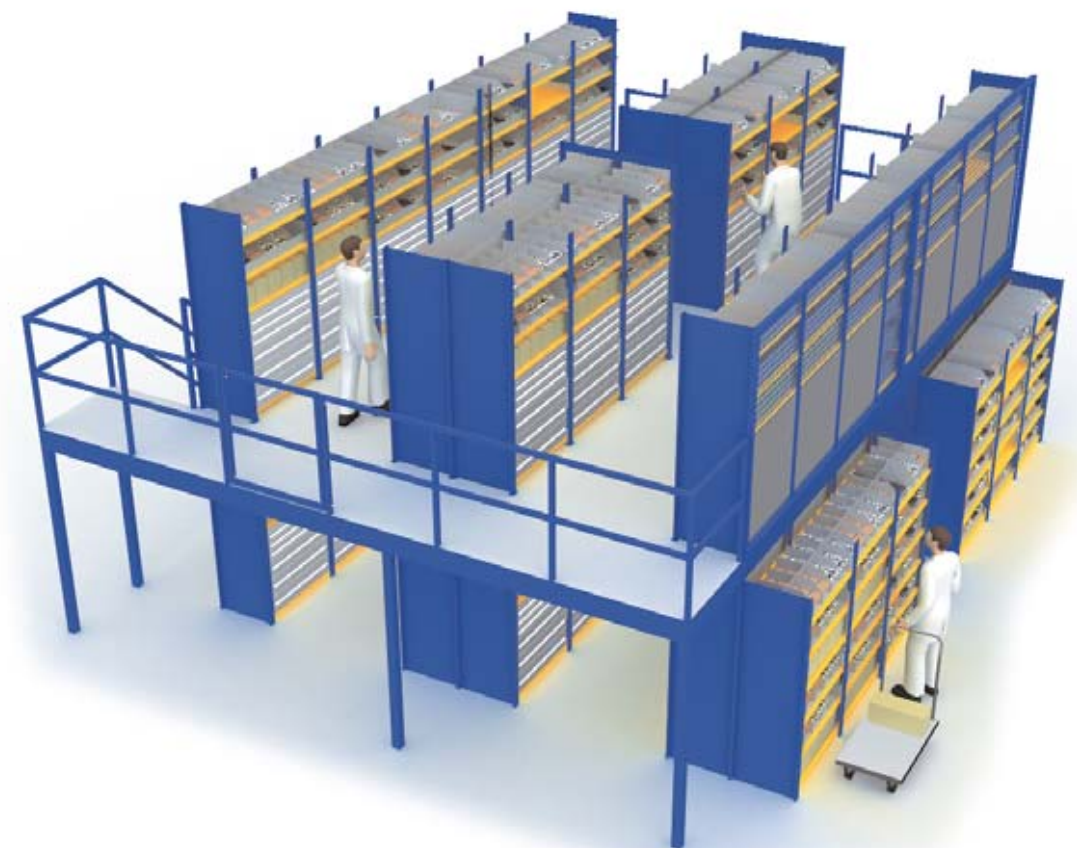
Order picking platforms incorporate the upper levels into the order picking zone. The utilisation of vertical order pickers is therefore not required.

Operation

Hand pallet trucks and electric fork lift trucks support the order picking process. Chutes or conveyor belts take goods to the ground floor. The racking is fed from the outside with fork lift trucks.

Advantages

- Optimum space utilisation
- Short order picking routes

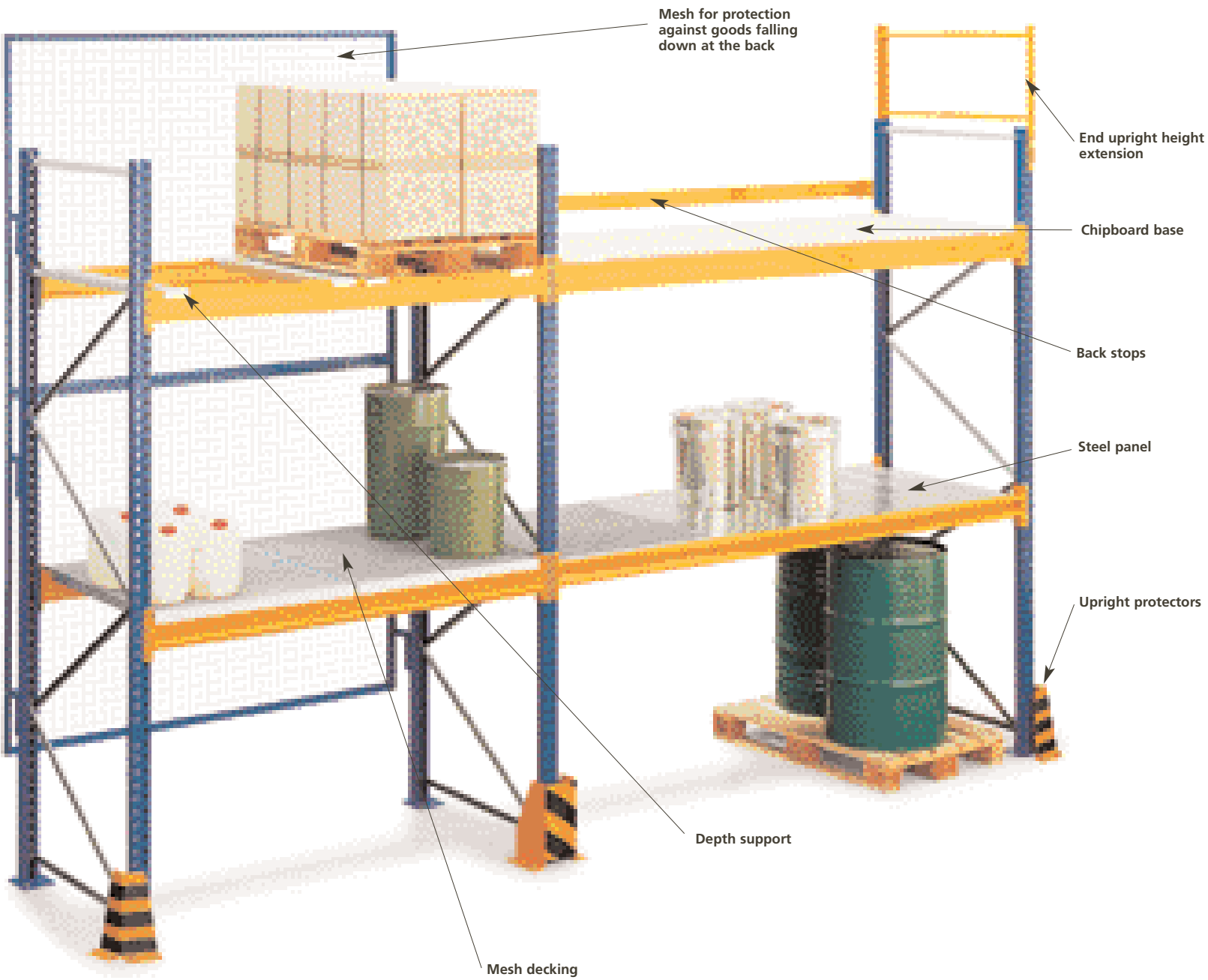


Racking accessories.

From “upright protectors” for the protection of racking to numbering the entire racking installation, Jungheinrich provides you with everything you require for optimum interface of truck and racking: signage for racking rows, racking aisles and racking positions, warning signs, information signs, directional and prohibiting signs, load guards, mesh and chipboard bases. Accessories we are unable to offer will have to be invented first!



Jungheinrich warehouse signs: numbering is the first step for getting a warehouse under control. Organisational numbering from Jungheinrich is also the basis for manual and IT-supported management systems.



For every warehouse suitable racking. For every racking a suitable truck.

Pallet Trucks



Hand pallet truck
AM 2200
travel distance: short
capacity: 2200 kg



Electric pedestrian
pallet truck
EJE 116-120
travel distance: short
max. capacity: 2000 kg



Electric pedestrian
pallet truck
EJE C20
travel distance: short
capacity: 2000 kg



Electric pedestrian
pallet truck
EJE 220-230
travel distance: short
max. capacity: 3000 kg



Electric pedestrian
pallet truck with operator
stand-on platform
ERE 120
travel distance: medium
capacity: 2000 kg



Electric pedestrian
pallet truck with operator
stand-on platform
ERE 224
travel distance: medium
capacity: 2400 kg



Electric stand-on/seat
pallet truck
ESE 120
travel distance: medium/long
capacity: 2000 kg



Electric sideways
seat pallet truck
ESE 220-530
travel distance: long
max. capacity: 3000 kg

Support Arm Stackers



Electric pedestrian stacker
EMC 110
max. lift height: 2000 mm
capacity: 1000 kg



Electric pedestrian stacker
EJC 110-112
max. lift height: 3600 mm
max. capacity: 1200 kg



Electric pedestrian stacker
EJC 212-220
max. lift height: 5350 mm
max. capacity: 2000 kg



Electric pedestrian
stacker with operator
stand-on platform
ERC 212-216
max. lift height: 5350 mm
max. capacity: 1600 kg



Electric sideways
seat stacker
ESC 213-216
max. lift height: 5250 mm
max. capacity: 1600 kg



Electric pedestrian
pallet truck/stacker
for doubledeck loading
EJD 220
max. lift height: 2560 mm
max. capacity: 2000 kg

Counterbalance Trucks



Electric 3-wheel counterbalance
truck with rear wheel drive
EFG 110-115
max. lift height: 6500 mm
max. capacity: 1500 kg



Electric 3-wheel counterbalance
truck with front wheel drive
EFG 213-220
max. lift height: 6500 mm
max. capacity: 2000 kg



Electric 4-wheel
counterbalance truck
EFG 316-320
max. lift height: 6500 mm
max. capacity: 2000 kg



Electric 4-wheel
counterbalance truck
EFG 425-430
EFG 535-550
max. lift height: 7000 mm
max. capacity: 5000 kg



Electric 4-wheel counterbalance
truck with rotating cab
EFG D30
max. lift height: 7000 mm
max. capacity: 3000 kg



Diesel/LPG stacker
DFG/TFG 316s-435s
hydrostatisch
max. lift height: 7000 mm
max. capacity: 5000 kg



Diesel/LPG stacker
DFG/TFG 316-550,
hydrodynamisch
max. lift height: 7000 mm
max. capacity: 5000 kg



Diesel/LPG stacker
DFG/TFG 660-690
max. lift height: 6600 mm
max. capacity: 9000 kg

Reach Trucks



Reach truck Range 1
ETV 110/112/114/116
max. lift height: 8420 mm
max. capacity: 1600 kg



Reach truck Range 2
ETM/ETV 214/216
max. lift height: 10250 mm
max. capacity: 1600 kg



Reach truck Range 3
ETM/ETV 320/325
max. lift height: 12020 mm
max. capacity: 2500 kg



Reach truck Range C
ETV C16/C20
max. lift height: 7400 mm
max. capacity: 2000 kg



Multi-way stacker Range Q
ETV Q20/Q25
max. lift height: 9620 mm
max. capacity: 2500 kg



Ranges 1 to 3 can
also be equipped with
cold store cabs.

Order Pickers



Horizontal order picker
ECE 118
max. picking height:
1st level
capacity: 1800 kg



Horizontal order picker
ECE 220
max. picking height:
2nd level
capacity: 2000 kg



Vertical order picker
EKS 110
max. picking height:
4600 mm
capacity: 1000 kg



Vertical order picker
EKS 310
max. picking height:
10,390 mm
capacity: 1000 kg

Tractors



Tractor
EZS 130
tractive power:
3000 kg



Tractor
EZS 350
tractive power:
5000 kg

High Rack Stackers

Order picker/tri-lateral stacker
EKX 410
max. lift height: 7750 mm
max. capacity: 1000 kg



Order picker/tri-lateral stacker
EKX 513-515
max. lift height: 14250 mm
max. capacity: 1500 kg



Tri-lateral stacker
EFX 410-413
max. lift height: 7000 mm
max. capacity: 1250 kg



Tri-lateral stacker
ETX 513-515
max. lift height: 13000 mm
max. capacity: 1500 kg

