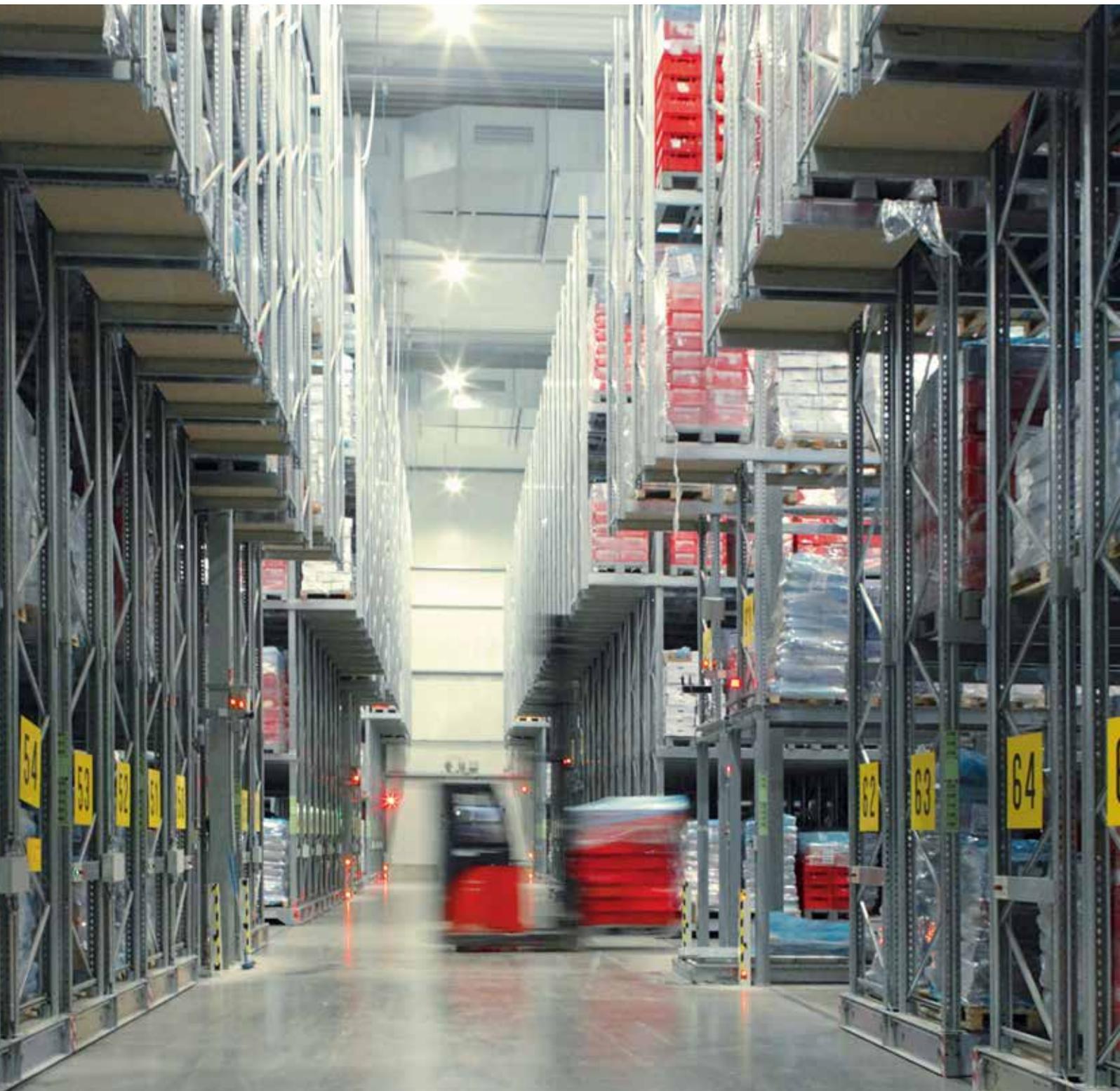


Pallet racking

and other racking systems





Introduction to pallet racking

Storing goods on pallets is the most common method to manage warehouse stock. Pallet racking is the most effective method of storing pallets, but understanding what type of structure is needed can sometimes be confusing.

Pallet racking is manufactured from steel, which can be a costly commodity. Having an extensive range of products to choose from, means that we can achieve the loading capacity you require, with a pallet racking structure that suits your operation, in a cost effective way.

Our systems can be easily configured in a variety of ways based on your needs and pallet load, to ensure a functional and logical warehouse storage solution for you.

Whatever the industry, there's a range of storage systems that can provide optimal storage economics. From Drive-in Racking or Mobile Racking (MOVO) for frozen and cold-store goods; to First-in, First-out (FIFO) Pallet-flow systems for bulk goods such as those with a "best before date".

System comparison and distinguishing characteristics

	Low investment	High floor utilisation	High volume utilisation	Easy to adjust and adapt	Good for individual pallet access	FIFO can be obtained	Good for handling large product range
Wide aisle (standard) pallet racking	●			●	●	●	●
Narrow aisle	●			●	●	●	●
Deepstore/Drive-in	●	●	●				
Pallet shuttle system	●	●	●			●	
Pallet flow FIFO		●	●			●	
Push back		●	●				●
Mobile pallet racking (MOVO)	●	●	●	●	●	●	●
Crane racking			●		●	●	●

● Best option ● A good option

See next pages to find out more about other racking systems and accessories we offer.

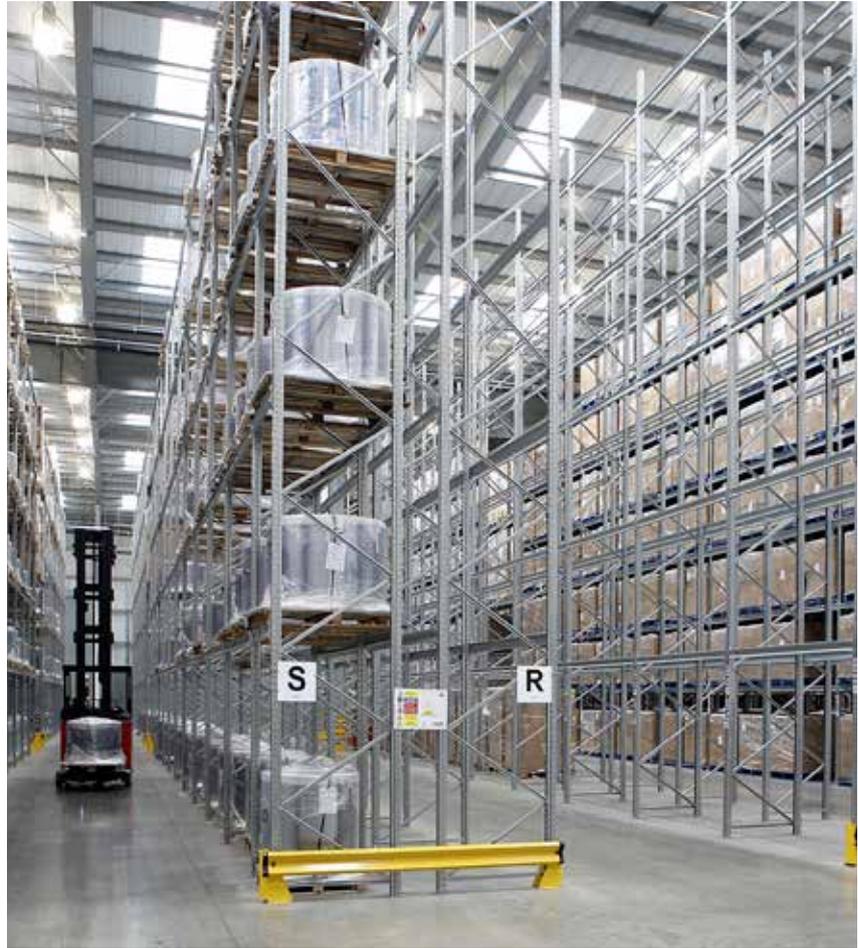
Wide aisle pallet racking

Core features

- Free and unrestricted access at all times
- Optimum adaption for the full range of pallets
- Rack heights of up to 15m and maximum bay loads of up to 30 tons
- P90 components are permanently protected against corrosion

Why wide aisle?

- It's suitable for bulky mixed pallet goods
- Our most popular racking solution has been sold for over 50 years
- It's suited to standard counter balance forklift trucks



P90 Wide Aisle Pallet Racking provides your warehousing teams with unrestricted access to all your pallets at all times. The system delivers versatility and assembly as single- or double-depth racks.

P90 Pallet Racking easily adapts to your specific warehouse and storage requirements, thanks to a variety of widths, depths and heights. In fact, P90 Racking will fit into any space available, and is suited to all kinds of pallets – whether they be Euro, Chep, disposable or captive pallets, mesh boxes or bins.

The modular, future-proof system adapts perfectly to your particular needs – thanks to different beams, angle supports and shelves and extensive accessories range.

Drive-in

Core features

- More storage per cubic metre than any other storage system
- High density storage - maximising floor and storage space
- Accessible by the LIFO principle
- Smooth pallet rails – for safe, snag-free load-bearing

Why drive-in?

- High density, high storage volume
- Limited stock rotation - ideal for seasonal goods and chilled storage



If you're storing large quantities of similar or identical goods, the P90 Drive-in Pallet Racking can free-up as much as 90% of existing floor space, compared to conventional pallet storage.

P90 Drive-in Pallet Racking creates efficiencies by reducing aisle loading and unloading times, yet allowing greater access compared to block-stacking. Positioning pallets on front-to-back rails allows rows to be stacked next to each other safely and efficiently; crucial for items regarded as fragile or unstable.

The Last-in, First-out (LIFO) principle means individual pallets can be accessed one-by-one from the front of the rack.

Mobile pallet racking (MOVVO)

Core features

- Save up to 50% of the space required by conventional pallet racking, and increase storage capacity by up to 80%
- Cuts energy, operating and cleaning costs; allowing for a good ROI
- 100% individual pallet access
- Suitable for any kind of warehouse goods
- Guaranteed operational safety of -30° C; ideal for use in cold-storage rooms

Why MOVVO?

- Ultra high density storage
- You need to increase your storage, but can't expand your warehouse
- It's great for the food industry, can be used in ambient or cold store



Mobile Racking (MOVVO) is a dynamic solution providing up to double the storage capacity in the same area, of conventional pallet racking. Offering technical superiority and total flexibility, MOVVO is suitable for every kind of stored goods, and has a wide range of accessories.

The electronically controlled MOVVO high-load racking system runs on in-ground rails and can carry bay loads of up to 24 tons at racking heights of up to 12 meters. While state-of-the-art sensor technology and variable control options ensure ease of operation and absolute safety.

Pallet shuttle

Core features

- Cost effective and time-saving; not requiring the use of special forklifts
- Low level of risks or damage to the equipment and operating staff
- Fast and sustainable; automatically handles pallet picking and retrieval
- Can pick up, deposit and re-organize pallets with great precision
- Operating temperature ST: 0°C to +45°C / BZ: -1°C to -30°C / Hybrid model can be used in both temperature ranges
- CE mark approved
- ATEX versions available



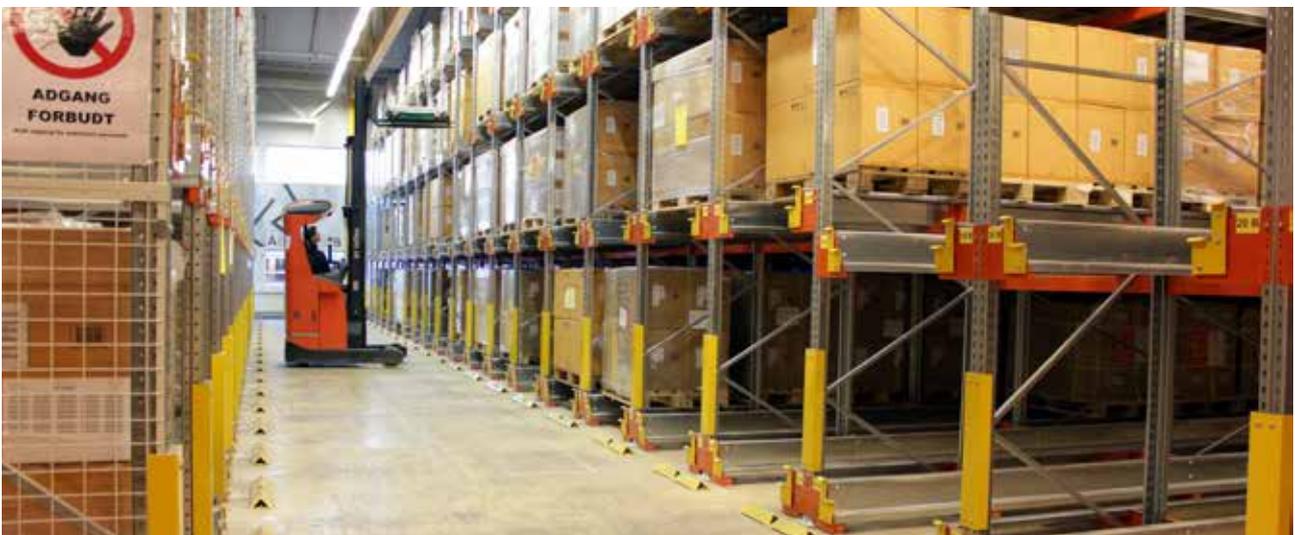
The Pallet Shuttle system is a semi-automated, high-density storage solution for the handling of goods inside channels similar to a drive-in or pallet-flow setup.

Cost-effective and time-saving, it removes the need for forklift trucks to enter the racks.

The remotely controlled Pallet Shuttle is a highly efficient alternative to live storage and drive-in racking. The Pallet Shuttle system works either as First in, First out (FIFO) or as Last in, First out (LIFO) for operations with a reduced number of product lines stored in high quantities.

Why pallet shuttle?

- Offers more effective, high-density storage
- Reduces the number of forklift trucks needed
- Long term storage



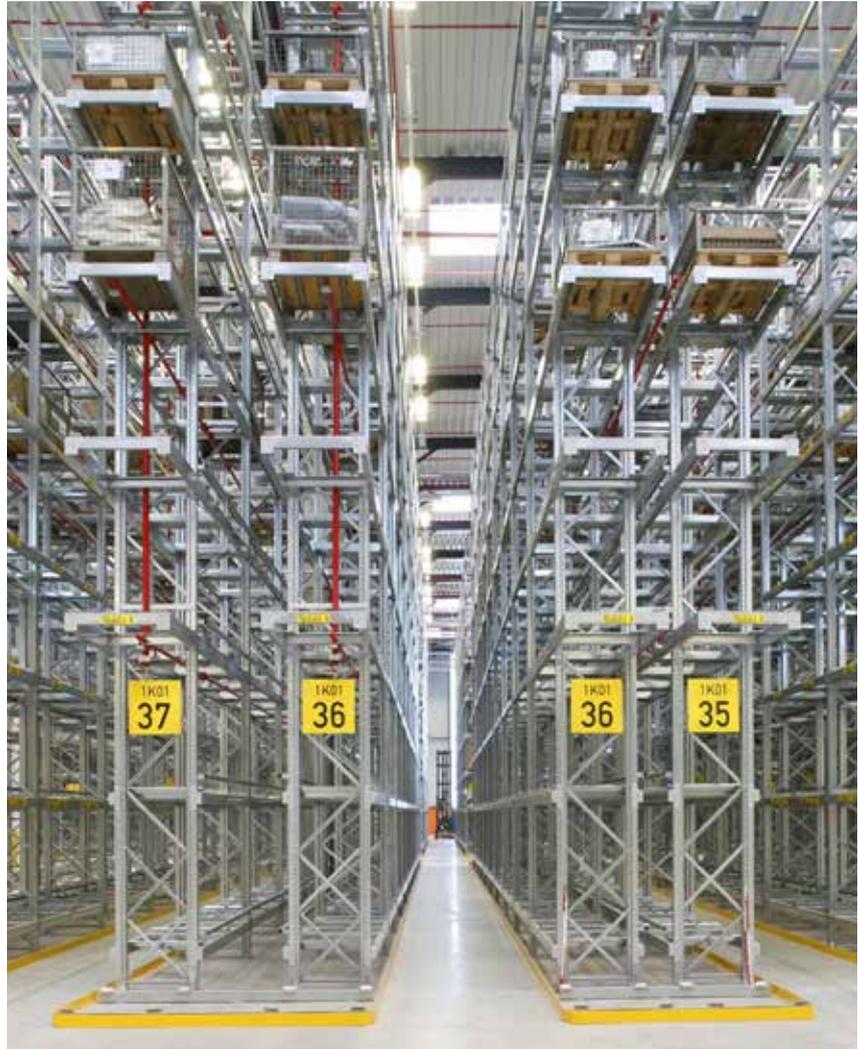
Narrow aisle

Core features

- Total and unrestricted accessibility to individual pallets
- Optimum configuration for maximum storage, density and efficiency
- Makes optimum use of any given floor area, storage space and warehouse height (up to 20m high)
- Any additional costs offset by added value of improved space
- Used in conjunction with very narrow aisle (VNA) trucks

Why narrow aisle?

- Holds more pallets in comparison to wide aisle
- You already have VNA trucks



Narrow Aisle Pallet Racking is your ultimate space-saving option if your warehousing or storage floor space is limited. It gives your teams maximum storage capacity, and allows for quick order-picking and fast accessibility to every pallet.

Narrow Aisle Pallet Racking combines a wealth of features to enable the best possible use of space, and fast order-picking. Compact and efficient, it's a construction set-up used in a wide variety of industries where warehousing space is limited.

Varying system heights and depths, together with height-adjustable supporting beams assure maximum flexibility with man-down, high-lift stackers, or man-up-order-picking stackers. It's a system perfectly suited for convenient pallet storage and retrieval or for fast order-picking straight from the pallet. Handling equipment is often highly automated, and guided by wire or rail.

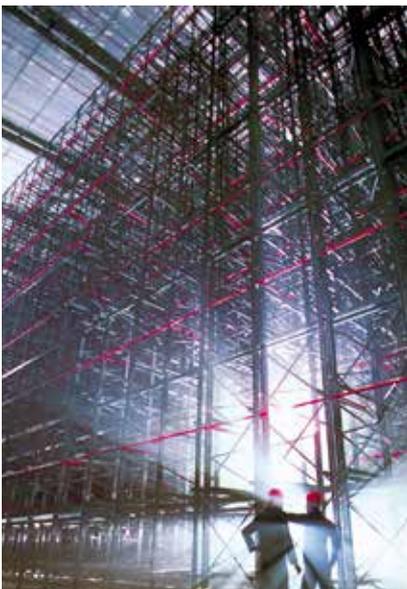
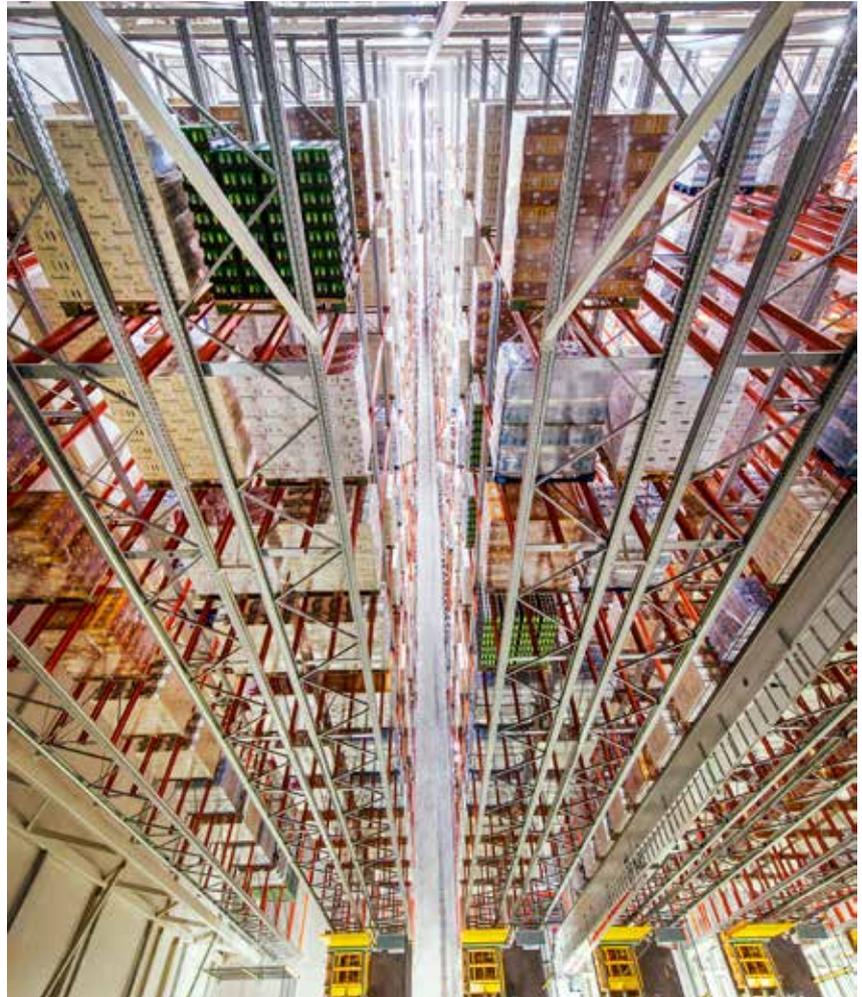
Crane racking

Core features

- High density storage - maximising floor and storage space
- Can be linked to WMS systems
- Accessible by the FIFO and LIFO principle
- Reduced pick and replenishment errors
- Maximise pallet movements per hour due to speed of cranes

Why crane racking?

- Very dense storage
- Ambient and freeze versions are available
- Big savings on labour costs
- Improved productivity and reduction in errors



Crane racking is a dynamic, semi or fully automated warehouse solution. Its high density, high throughput is suitable for all storage types.

The cranes are integrated with your warehouse management system and the racking can be configured as a single, double or multi deep system. The stacker crane runs on rails at heights up to 25m and can move up to 200 pallets per hour.

Multi-tier

Core features

- Combines wooden, mesh, grating or steel shelves depending on requirements
- Increased number of picking levels
- Can combine pallet storage and small goods storage
- Removes the need for a mezzanine floor
- Easily incorporates fire sprinkler and lighting systems

Why multi tier?

- Maximises use of the full height of the building
- Can't extend the warehouse outwards, but have height available
- Allows order-picking on multiple levels



With Multi-tier Pallet Racking from Constructor, you can create manual pick-lanes for your teams at various levels, by providing walkways built into the pallet racking structure.

Our Multi-tier Pallet Racking offers optimum use of space over that of traditional mezzanine flooring structures and layouts. This type of pallet racking structure creates a number of levels and walkways for storing and collecting goods – everything from cartons and boxes, to garment storage on hangers.

Multi-tier structures can either be installed directly from the floor or alternatively on top of a specially designed mezzanine structure – allowing for a multi-functional storage area below.



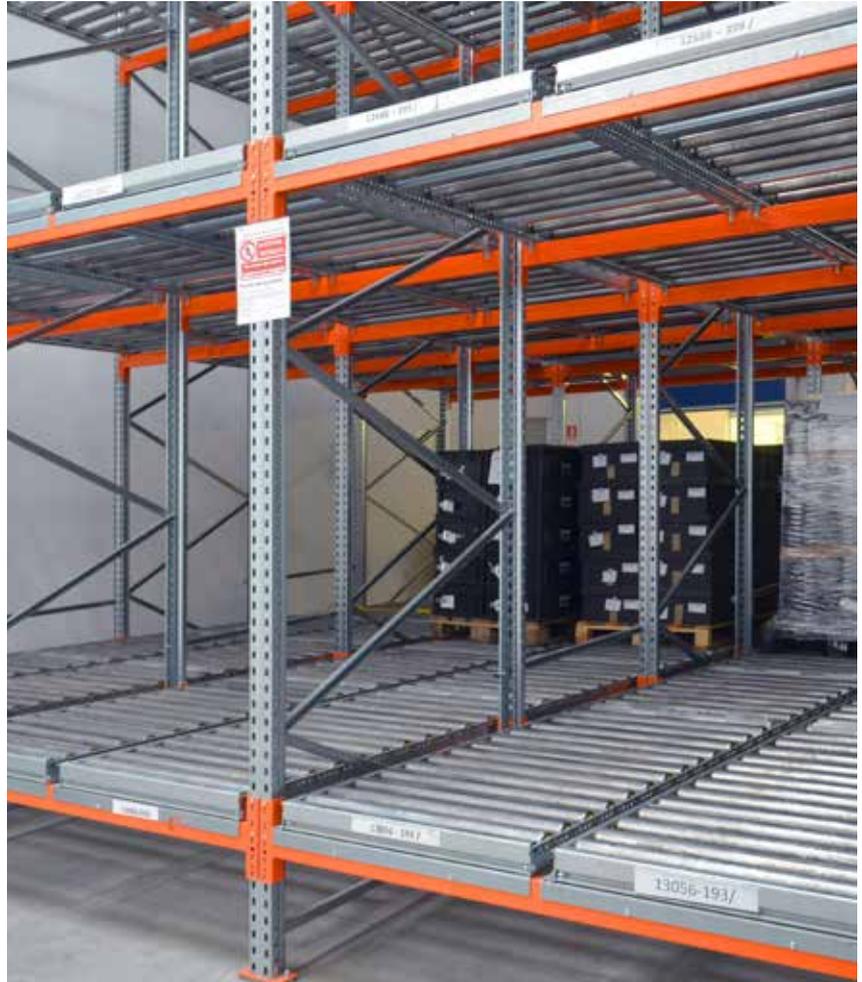
Pallet flow

Core features

- Dedicated load and retrieval means only two forklift truck aisles are required
- Uses up to 60% less floor space than conventional pallet racking
- FIFO operation – for automatic stock rotation
- Faster, more efficient warehouse picking speeds

Why pallet flow?

- Bulk/high density storage
- More efficient alternative to block stack
- Ideal for logistics flow in a warehouse or production facility



Pallet Flow Racking, or 'Pallet Live Storage' is ideal if you operate a First-in, First-out (FIFO) goods storage setup. With this system you can use up to 60% less space than if you were to use conventional pallet racking.

Our Pallet Flow system offers a dynamic storage solution with integrated conveyor modules to suit most pallet types and sizes. It's well-suited for the drinks industry or as a buffer storage facility in manufacturing.

Pallets travel smoothly on full-width or twin-track rollers. While the front pallet is removed on the front side of the rack, the rear pallet is held back. Pallet movement is always safe and smooth thanks to automatic braking, along with a combined load guide and end stop unit.

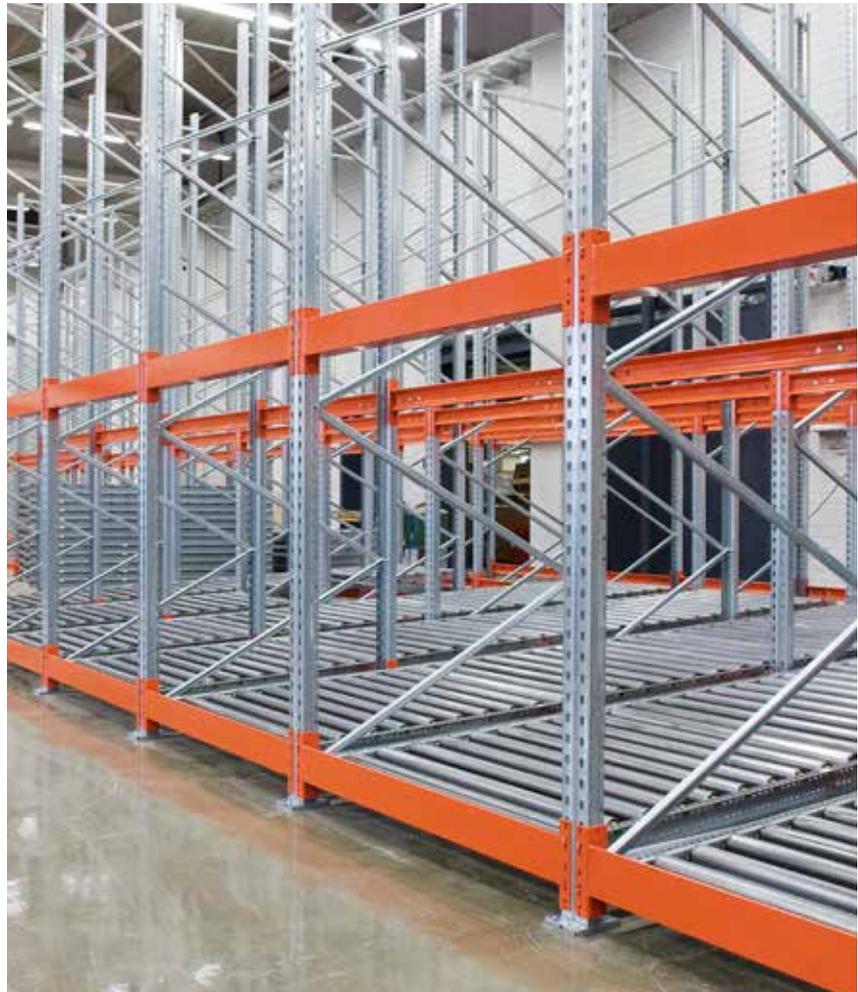
Push back rollers

Core features

- Up to 75% increase in storage capacity compared to conventional storage
- Operations reduced to a minimum
- Quick and easy access to all channels
- Ideal for bulk storage and cold store
- Accessible by LIFO principle
- Very high occupancy rates compared to Drive-in Racking or Block-stacking

Why push back rollers?

- High density, high storage volume



Push-back Rollers – a dynamic storage solution based on the P90 Pallet Racking System and including wheel/roller conveyors. Ideal if you're storing bulk goods on pallets according to the Last-in, First-out (LIFO) principle.

Once a pallet is picked from the pick-face, the rest roll forward automatically under a controlled speed. Up to 9 pallets can be stacked in this way.

Push-back Rollers can also be used to provide additional storage space in otherwise unusable areas, such as above cross-aisles or around dock-levellers.

Carton flow

The Carton Flow Picking Unit system is a fast and flexible solution for you to transport components to assembly stations without interruption. You can also easily adjust the shelves and wheels to ensure efficient movement of various sized packages.

The Carton Flow Picking Unit system is flexible enough to allow for changing and evolving warehouse layouts, thanks to the fact that it can be built as a stationary unit, or supplied with lockable wheels.

Alternatively it could also be integrated into pallet racking on any lower levels, below bulk storage, for example.



Core features

- Adjustable, ergonomic racks – for ultimate handler efficiency
- Separate loading and unloading – picking can be carried out uninterrupted on either side
- High packing-density for carton storage – meaning more floor space
- Simple, fast installation
- Straightforward, modular system

Why carton flow?

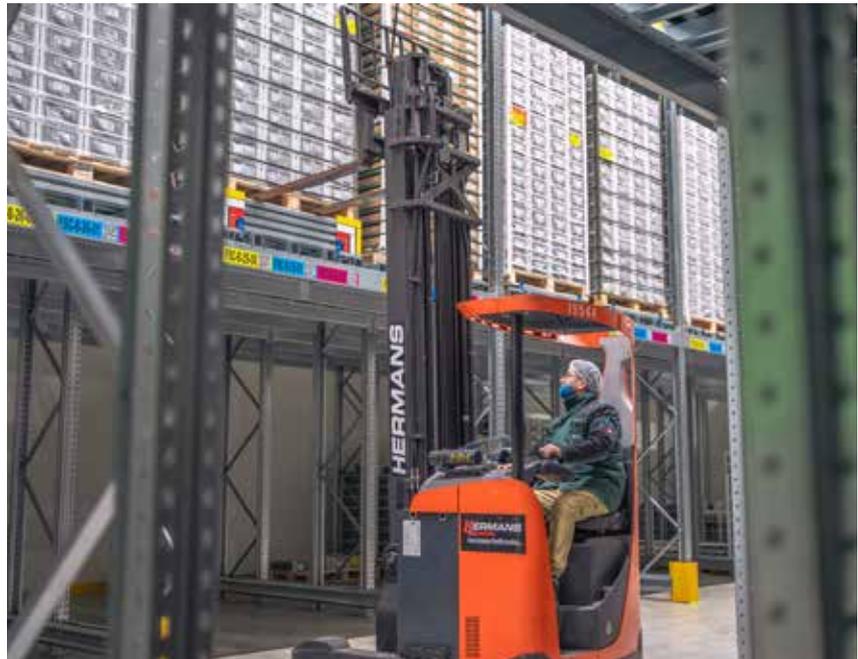
- Great for line side production
- Reduces travel distances and picking times

Cart push-back trolleys

Cart Push-back Trolleys provide your teams with high-density live storage so they can have quick and easy access to loads in warehouse environments. They can load and unload pallets from the same aisle face; reducing truck travel distances and cutting cycle times.

A range of trolley sizes is available to suit all types and sizes of pallets. Colour coding of trolleys and a unique multi-wheel design aid stock identification and ensure trolleys run smoothly and reliably – even in the demanding environment of a cold stores.

Cart Push-back Trolleys can also be used to provide additional storage space in otherwise unusable areas, such as above cross-aisles or around dock-levellers.



Why push back carts?

- A cheaper alternative to push back rollers
- Ideal for bulk storage/ cold store

Core features

- Quick and easy access to all storage lanes
- Pallets automatically presented at the rack pick face
- Accessible by Last-in, First-out (LIFO) principle
- Up to 6 pallets deep
- Very high occupancy rates, compared to Drive-in Racking or Block Stacking

Pull out units

Our Pallet Pull-Out Units let your teams move pallets back and forth like drawers, even with a full load up to 1000kg. With such efficient storage, they can free up the excessive clearance distance needed above pallets.

The Pallet Pull-Out Unit saves both time and space to ensure an efficient working environment and ergonomic picking. By installing pull-out units in your pallet racking, the number of pallet and picking locations can be increased, while still taking up the same space as before.

What's more, shorter operation distances allow for faster and more efficient picking, while at the same time freeing up valuable floor space.



Core features

- Increase storage capacity
- Create space
- Allow easy access
- Increase picking rates

Why pull-out units?

- Highly improved ergonomics for your workers
- Suitable for picking parts from a pallet

Accessories

If you're looking for racking for your warehouse or storage facility that's a little less 'off-the-shelf', Constructor are the team that can provide you with a truly tailor-made solution.

Thanks to our extensive range of accessories and optional add-ons, our pallet-racking range can be easily tailored in a variety of ways, and integrated in a variety of existing systems and set-ups. Whatever your requirements or pallet load.

Whether you're using our Drive-in racking, Mobile racking (MOVO), or storing bulk goods, for us it's all about providing you with optimal storage economics, so you can achieve the perfect balance between investment, volume and handling.



Sprinkler bracket

The rise in popularity of in-rack fire sprinklers has produced many benefits for warehouse safety.

Available in two sizes to reflect the different loading requirements, the P90 Sprinkler bracket is one-sided and can be installed directly onto the upright.



Load and assembly signs

Signage for loading and assembly instructions, which can be mounted on the racks.

All warehouses must have a sign and marking system. It is the basis for an effective handling system within a warehouse, giving correct and fast identification for picking as well as loading of goods.

Accessories



Cross beam / pallet support

To support pallets in front-to-back direction directly on the beam (without front to back base boards).



Barrel support / chock

These parts are used for storage of barrels, drums and cable reels in the racks in a similar way as pallets.



Cable reel suspension

For storage of larger cable reels or carpet rolls that are supported on an axle through their center to be stored in the rack.



Pull out unit with casters

Pull-out unit which can be secured to the floor, with casters at the front, enabling floor level pallets to be pulled out.

Accessories



Grating module

Manufactured from steel strips that are press locked together, these grating modules are suitable for both light and heavy duty applications from small cartons to heavy industrial tooling. Their shaped profile ensures that the grating module will not easily dislocate from the pallet racking beams.



Shelf dividers/partition

Used to separate stored items and create smaller shelf locations by compartmentalising the storage level.



Horizontal divider

Ideal for segregating vertical standing goods in standard pallet racking.

Horizontal Dividers are made to order and customised to suit your products. They are fixed to a beam at the rear of the bay and project forwards into the bay creating individual fixed or adjustable compartments for different stock lines.



Safety insert

To support pallets 600 x 800 mm (= half EURO pallet).

The spacers positioned in down-aisle direction are designed to provide support for unbound or damaged pallets.

The guard is not designed as a safety net to collect loose boxes or cartons that may fall from a pallet.

Accessories



Sign and marking systems

The sign and marking system consist of information notice boards, aisle signs, labels and holders for marking of beams in pallet racking and shelving systems.



Wire mesh shelf

Mesh decking/shelving sits on the pallet racking beams and acts as a shelf. It is suitable for small carton storage at picking levels, storage of non standard pallet sizes and to offer protection for operatives and fork lift truck drivers working under tunnel bays.

Mesh Shelving is ideal for use in ambient warehousing as well as chill stores and freezers as it allows the even distribution of air and thus temperature.



Steel shelf panels

These panels are placed across BX-beams to provide a heavy-duty steel shelving surface for hand-loading.

They are not designed to support pallets.



Wooden decking

Slatted softwood timber panels placed over the pallet racking beams to support small goods, damaged or undersized pallets.

Wooden decking is suitable for both loading by hand or by warehouse handling equipment such as forklift trucks.

Safety accessories

All our storage solutions are manufactured to the highest quality and designed to stand the test of time, even in the most intense of operating environments.

Our range of safety accessories, designed to complement and further customise an existing set-up, mean you have the assurance that your operatives are safe, and that you comply with all necessary regulations.

What's more, with our ongoing support, guidance, safety inspections and comprehensive audits, you're always ready for what the industry throws at you – without ever having to compromise on the strength, stability and integrity of the solutions you have installed, or on the health & safety of your teams.



Anti-collapse mesh

Anti-collapse mesh attaches to the backend of your warehouse's pallet racking and shelving to provide your operatives protection against any falling objects. It's also great as fencing to warn and protect your teams against machinery or hazardous materials.



Floor mounted column guards – inside fix

Increased protection for pallet racking uprights without outside floor fixings.

Inside Fix has been developed in response to demand from customers. It incorporates all the protection features of the existing Column Guards but by having the fixings inside the guard, it also prevents possible pallet damage. These internal fixings include rubber bushings which act as shock absorbers to minimize the effect of any impact.

Safety accessories



Floor mounted column guards

A substantial form of protection for pallet racking uprights, protects against low level impact damage caused by forklift trucks.



Column guard with foam

Metal column protection that's attached to the upright with shock absorbing foam inside.



Snap on column guard

Protect-it™ can absorb large impacts and easily attach to a column without additional fasteners.



Rack end protectors

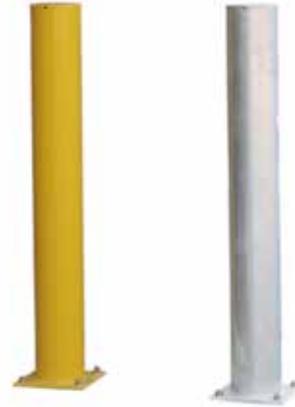
A robust barrier, ideal for protecting vulnerable areas from forklift truck damage and impacts.

Safety accessories



Vertical back stops

A useful safety feature which prevents pallets from falling from the back of the rack.



Metal bollards

Metal safety bollards are available either painted or galvanised. Manufactured from robust steel tube, these 164mm diameter barriers are available in a range of heights.

Introduction to long goods storage

If you're looking for safe, organised storage of your long and heavy goods, then why not try our made-to-measure Cantilever systems for size.

Designed to meet nothing less than your precise requirements, our Cantilevers are exceedingly versatile whatever your work environment, and with no front uprights, all levels are available to forklifts.

We have other systems available that are also designed to store long goods. Our Cantilever Racking, Rollrack, Timber locker, and A-rack* are all specially designed to store various length items – steel bars, pipes, tubes, furniture, packs of timber; as well as boards, metal sheets, crates and boxes, or white goods.



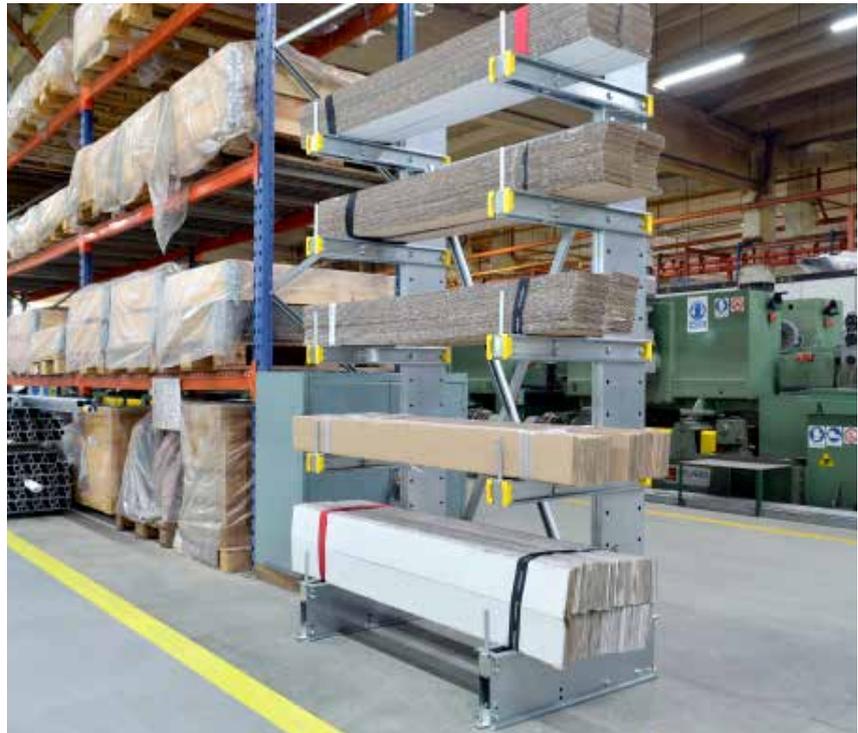
Light duty cantilever

Core features

- No limitation to products length
- Suited to interior installations
- Easily adjustable arm distances

Why light duty cantilever?

- There are various arm lengths available
- Fully modular, with extra sections available as you need them



The Light Duty Cantilever is ideal if you're having to store long and difficult items such as steel bars, piping, tubes or timber. Storage is horizontal so you can handle things manually or by forklift.

The Light Duty Cantilever is a versatile, modular system for storage of long goods. With no front uprights obstructing load-placing and retrieval, all levels are available for DIY, Manufacturing, Plumbing & Pipework, and workshop environments.

Additional arms, uprights and braces can be added as storage requirements change, while single- and double-sided configurations provide maximum storage capacity on a single central column, or to fit flush against a wall.

Heavy duty cantilever

Core features

- Totally bespoke system according to user requirements
- Columns, bases and horizontal arms – creating a complete structure
- Ideal for safe and efficient storage of long or large goods
- Adjustable length and spacing between profiles

Why heavy duty cantilever?

- Maximises horizontal space
- Can be installed on a MOVO heavy duty mobile trolley



The Medium & Heavy Duty Cantilever is ideal if you need to store long and difficult items such as steel bars, piping, tubes or timber. Storage is horizontal, so can be handled manually or by forklift.

The Medium & Heavy Duty Cantilever is a versatile, modular system for storage of long or large goods. It's perfect for all types of warehousing environments, and with no front uprights obstructing load placing and retrieval, all levels are available to a forklift.

Additional arms, uprights and braces can be added as storage requirements change, while single- and double-sided configurations provide maximum storage capacity – be it on a single central column, or fitting tightly against a wall.

Cantilever accessories



**Heavy duty cantilever -
Fixed end stopper**

Welded end plates are used as a heavy duty solution for stopping the stored items from rolling off the rack.



**Heavy duty cantilever -
Removable round stoppers**

Preventing items from rolling off the end of the arm and can be removed for improved access to goods.



**Heavy duty cantilever -
Cantilever mobile bases**

Cantilever racking can be mounted on mobile bases saving space while still allowing access to individual items.



**Heavy duty cantilever -
Cantilever roof, side and back cladding**

A light weight roof and cladding can be added to protect the racking and goods from the elements.

Cantilever accessories



Heavy duty cantilever - Steel grating

Can be placed on the arms and bases to make the cantilever more versatile, allowing storage of pallets, awkward shaped goods and many others.



Light duty cantilever - Removable end stopper

Removable stoppers at the end of each arm to prevent goods falling down.



Light duty cantilever - Dividers

These removable dividers can help organise and store multiple items on one level.



Light duty cantilever - Steel shelves

The Steel Shelves are available for all the standard arm lengths (by combining the two available dimensions) but only for 1000mm C/C distance between columns.

Rack inspection

Constructor racking is manufactured to the highest quality and is designed to give you years of use. But racking can get damaged or misaligned, making it a danger to both your staff and your business.

The constant loading and unloading of pallets can compromise the strength, stability and integrity of any storage system which is why they need to be inspected regularly for signs of wear and tear.

Inspections can:

- Prevent damage to people or goods
- Extend the life span of facilities
- Minimise future repair costs by discovering risks early
- Offer a speedy repair service

Regular Rack inspections are not only sound business practice, they are also a legal requirement. All companies are legally obliged to ensure their employees work in a safe environment with safe equipment.

Failure to comply can cause serious personal injury and even death of operatives, reduced productivity and lead to:

- Expensive and disruptive legal proceedings
- Higher insurance premiums
- Damage to reputation



We offer Annual and Weekly inspections.

Contact us to find out more!

Consulting services

When finding the right storage solution, it's always reassuring to have an expert by your side. Our experienced and knowledgeable sales and design team give you a world-class blend of valuable insight, guidance and practical assistance.

Looking for a much more in-depth review of your warehouse or storage facility? Constructor provides analysis, advice and ongoing support to give you just that.

Analysis & Advice

We don't just offer general advice and guidance about your storage requirements; we go further to provide you with practical assistance and advice with a more detailed analysis of your storage requirements.

Our own in-house Analysis & Simulation Tools will translate your storage needs into a specification report, evaluating all areas of your warehouse, including:

- The layout & storage equipment you require
- Your material storage locations
- The optimal material handling processes & picking speeds
- Inventory levels to achieve your required service levels
- Purchasing & replenishment strategies



Service and maintenance

Guaranteeing ongoing safe operations means accepting your legal responsibility to ensure your storage products are regularly inspected and maintained. Our experienced teams are here to help.

Our expert teams of skilled service & maintenance inspectors can be by your side; carrying out any remedial work required and providing ongoing servicing and support of all our products within your facility.

You want to make sure your business is always operating at its safest and most efficient. We provide this assurance by:

- Offering a maintenance or service contract to your specific requirements
- Carrying out maintenance in line with your service plan
- Using certified service technicians
- Conducting systematic follow-ups of inspections and repairs
- Upgrading existing facilities with repairs or new technology
- Monitoring and following-up existing legislation, regulations & norms
- Training your staff in the use of our equipment



About us

Constructor has strong roots dating back to 1856, with the glass factory Høvik Verk in Norway. The production of shelves started a century later, which forms the basis for Constructor's position as a leading supplier of warehouse and logistics solutions.

Since January 2018, Constructor has been part of Gonvarri Material Handling (GMH), which is one of the world's leading suppliers of logistics solutions.

With a total of 6 production sites in Germany, Romania, Finland, Sweden and Czech Republic, we supply our customers worldwide with tailor-made logistics solutions. From static racking to fully automated storage solutions, we provide our customers worldwide with complete solutions for their warehouse.

We employ 1,300 people in Europe. We are also represented in Europe and in large parts of the world such as Africa, the Middle East, the USA and South America with an extensive distribution network. No matter where you are, as a global player we are always close at hand.



Inhouse testing lab



6 manufacturing facilities



Ethical commitment



400 customer facing staff

