Adjustable Pallet Racking

The Fundamentals...

- Adjustable beams
- 75mm adjustability
- Bolted frame
- Multiple frame and beam duties
- High visibility safety lock
- Wide range of accessories
- Can be manufactured to specific sizes at no additional cost

Wide Aisle Racking

- Good use of cube and floor space
- Suitable for counter balance or reach trucks
- Allows quick throughput
- Individual accessibility is excellent
- Good stock rotation

Very Narrow Aisle Racking

- Good use of cube and floor space
- Suitable for counter balance or reach trucks
- Allows quick throughput
- Individual accessibility is excellent
- Good stock rotation

High Bay Racking

- Excellent use of cube and floor space. Although aisles are only marginally narrower than for a VNA truck, stacking heights can be increased by up to a further 100%
- Aisles to suit automated or semi-automated stacker cranes
- Floor and top guidance are required
- Individual accessibility is excellent
- Good stock rotation

Push Back Racking

- The use of cubic and floor space is excellent
- Can be one of the most effective types of racking system
- Accessible using most types of truck
- Stock rotation is based upon ‘first-in’ - ‘last-out’ principle
- Stock rotation is based on a dedicated lane for each product - ideal for load marshalling

Pallet Live Racking

- The densest form of storage with guaranteed stock rotation
- Accessible using most types of truck
- Separate aisles for input and output operations
- Stock rotation operates on a ‘first-in’ - ‘last-out’ principle

Multi-tier Racking

- Additional floor levels provide enhanced cubic capacity
- Floors can be designed for pallet trucks
- Each floor usually provides access to all storage locations
- Stock rotation will depend upon the storage application

Adjustable Pallet Racking

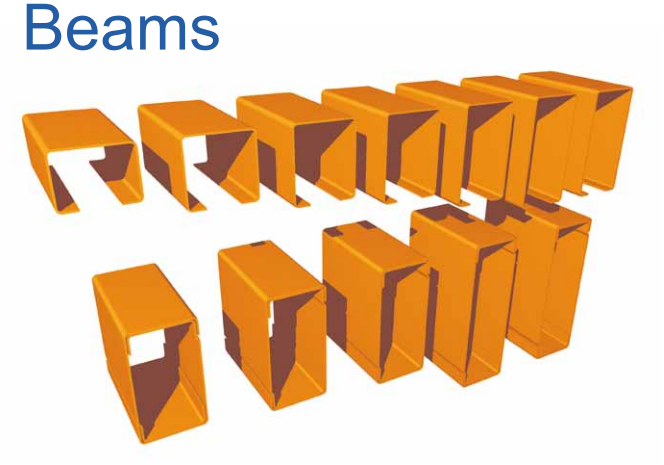
Frames

- From 450mm to 1750mm wide
- Bolted construction

Posts

- 4 Duties
- Louvres at 75mm pitch
- 80mm

Beams



U section beams
38mm, 50mm, 60mm, 70mm,
85mm, 100mm and 110mm deep
From 500mm to 4500mm long

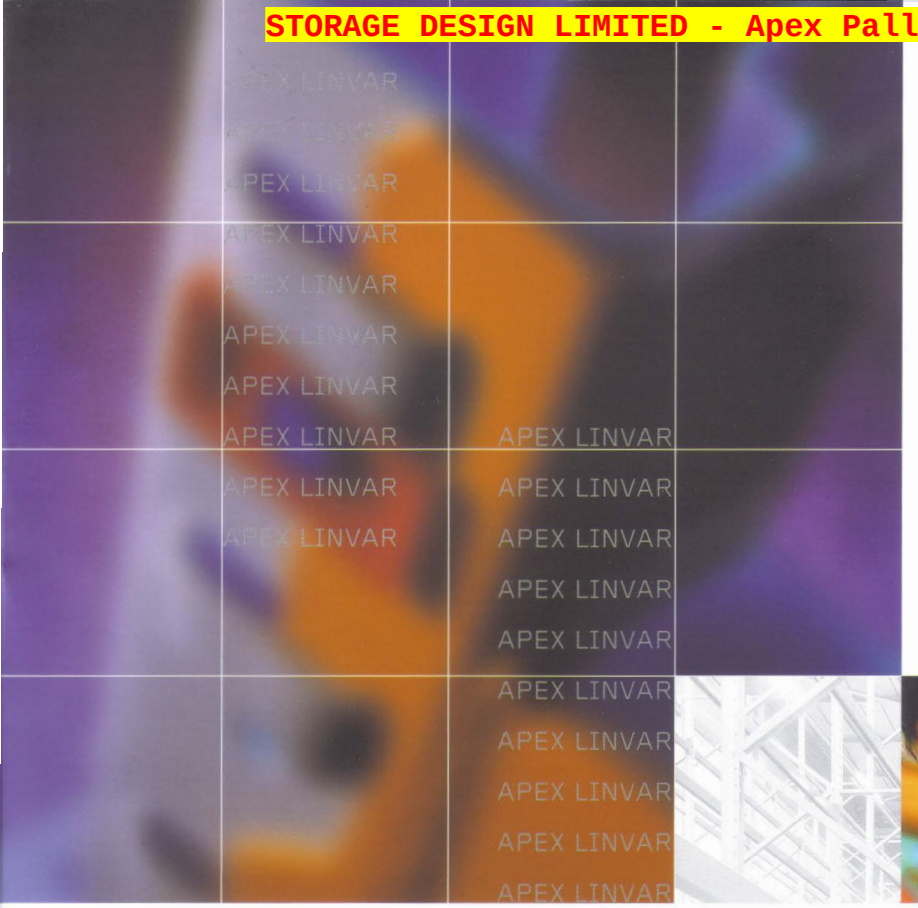
C section beams (Heavier Duty)
90mm, 100mm, 110mm and 150mm deep
From 500mm to 4500mm long

Finish

- Epoxy powder coated posts, bases and beams
- Pre-galvanised bracing
- Available in combinations of 3 standard colours
- Other colour options available on request

Accessories

- Pallet support bars
- Pallet foot supports
- Upright guards
- Decks - Steel
- End barriers



STORAGE DESIGN LIMITED

INNOVATIVE SOLUTIONS IN PALLET RACKING SYSTEMS

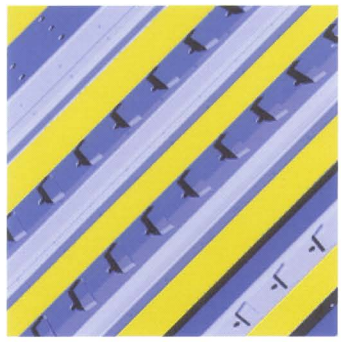
APEX + LINVAR
INNOVATIVE SOLUTIONS

A COMPREHENSIVE RANGE OF STORAGE & HANDLING SOLUTIONS FROM APEX LINVAR

Only the best design and production techniques are employed in the manufacture of Apex Pallet Racking systems. Our extensive state-of-the-art facilities at Milton Keynes include steel forming presses, specialist cold rolled steel rolling mills, automated welding machines and one of the largest epoxy polyester powder coating paint lines in Europe.
Upright frames are supplied in an unassembled bolted format enabling individual damaged uprights to be easily replaced, sometimes without the need to dismantle.

Beams are manufactured to high tolerances and are supplied in a variety of sizes and sections to suit customer requirements. When fitted to the uprights , Apex Pallet racking beams significantly increase the overall strength and rigidity of the structure by pulling the beams tight into the uprights as the weight loads are placed into the structure.
Our first class installation service, comprehensive after-sales support and wide range of systems ensure we can confidently offer our customers bespoke systems tailored specifically to their individual needs.

upright options



Uprights are produced from high yield, cold rolled, steel formed sections which together with bracing are fitted to foot plates and bolted together. There are 5 sections of uprights (80mm wide) to select from - dependent on application & total bay load required:

Frames	Width
Type 8 - Standard duty	80mm
Type 12 - Medium duty	80mm
Type 16 - Heavy duty	80mm
Type 20 - Extra heavy duty	80mm
Type 30 - For drive in and special applications	150mm

frame bracing

Designed for strength, durability and ease of assembly, Apex Pallet rack frames are derived from the Warren Girder configuration. This uses "C" section channel bracing with one end of each section swaged to allow two sections to nest together to form a node point, the assembly then being bolted together. This design aids the full transfer of loads directly into the uprights and down to the ground which is a sound engineering design.

pallet racking specifications

Pallet Racking is manufactured from the following standard range to suit individual requirements. Other specifications are available as required:

Frame heights - range from 1500 to 30,000mm
Frame depths - range from 450 to 1750mm
Frame bracing - channel section with swaged ends
Frame construction - Bolted Nyloc nuts
Upright post width - 80mm
Bay clear entry - range from 1200 to 3,900mm
Beam heights - 38, 50, 60, 70, 85, 90, 100, 110 and 150mm
Standard beam pitch - 75mm
Standard finish - Uprights - grey RAL7035, Beams - orange epoxy powder coated

Special colours and galvanised finishes are available on request at extra cost

beam options

There are two main beam options, both produced from cold rolled mild steel; - 1) inverted "U" or open beams and 2) closed or boxed hollow section formed from two interlocking channels for strength.

6 sizes of open section beams and 4 sizes of boxed section beams are all designed to efficiently support loads when used in pairs over specified lengths. All beams have the same style of end connectors (welded at each end) that are set down 73mm for maximum efficiency and weight distribution.

base plate options

Frames are mounted onto feet termed base plates. Apex pallet racking base plates are formed from steel coil 4mm thick and have a central spigot that is bolted into the upright post forming a strong, durable connection designed to withstand minor knocks and to distribute weight loads effectively into the floor.

Interlocking levelling plates are used under the base plates to take up any minor irregularities in the floor. All pallet rack base plates should be bolted to the floor in accordance with SEMA installation guide lines.

high visibility beam safety locks

Our unique plastic beam safety lock has all the qualities of other steel safety locks. However the red acetal lock has one major feature missing in many of its rivals- at a great height from the ground it can be easily seen! With the safety lock in its position you can be certain that its doing its job of retaining the beams, a major advantage when considering safety.

quality & safety

Meeting required legislative safety standards is critical for all our customers.

Apex Pallet racking equipment and accessories are designed and manufactured in accordance with all major European and British quality approval systems (IS0 9000) and meet (and in many cases exceed!) all standards set by SEMA (Storage Equipment Manufacturers' Association), FEM (European Federation of Handling Industries) and SHEDA (The Storage and Handling Equipment Distributor Association).

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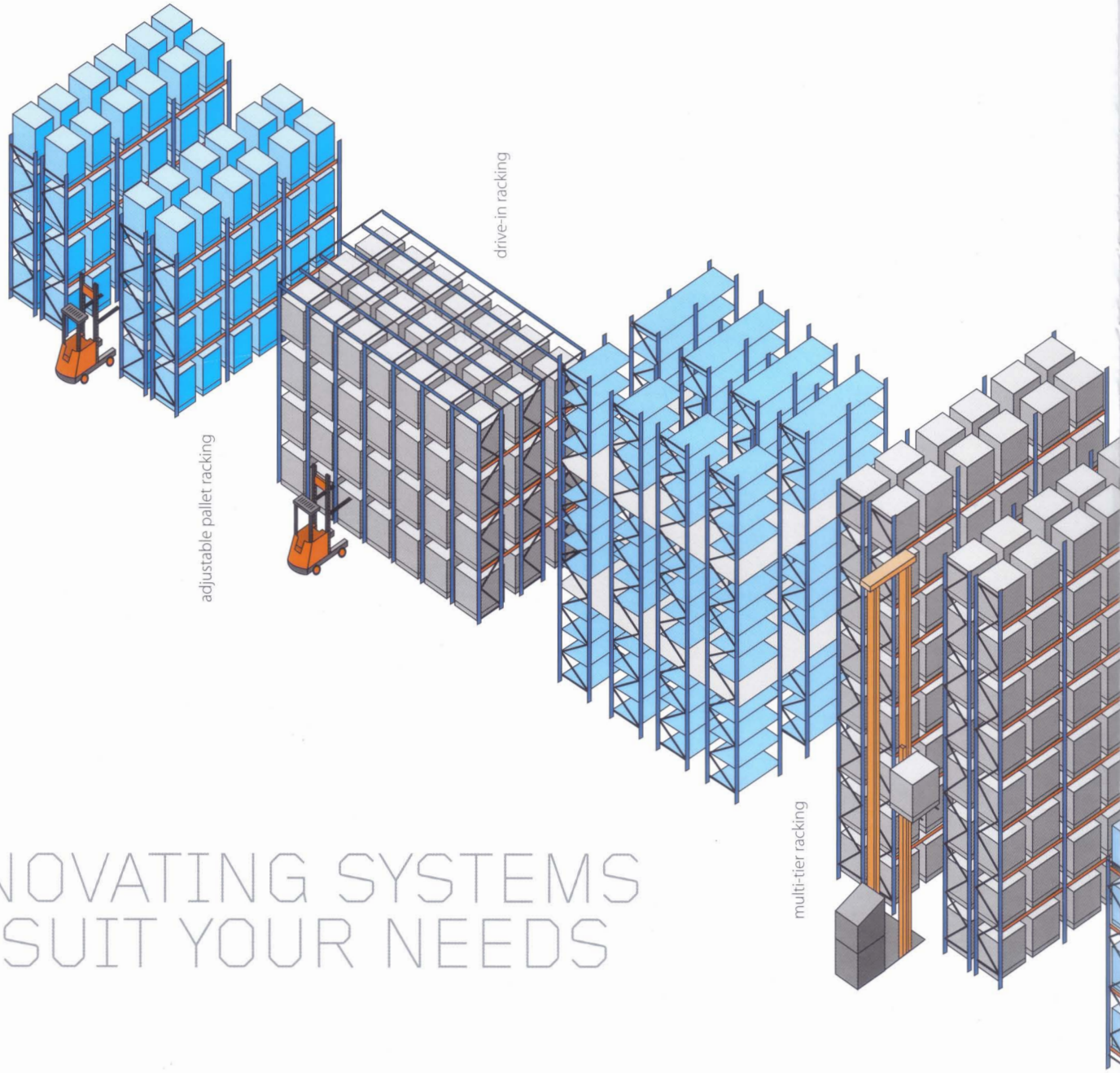


INNOVATING SYSTEMS TO SUIT YOUR NEEDS

Apex Pallet Racking Systems provide a wealth of versatile options to suit standard applications equally well as those tailor-made for high bay warehouse schemes. The broad range of configurations illustrated provide an excellent choice of storage solutions whilst still using the standard range of basic components.

In areas where space is at a premium, Apex racking offers unique solutions for bulk storage by using systems such as powered mobile or high rise installations to achieve maximum storage density. Whatever your requirement it can be achieved with Apex pallet racking solutions.

adjustable pallet racking

The most frequently used system for storing goods on wooden, steel and plastic pallets. This application can be accessed by most standard fork-lift trucks and tends not to require any specialist handling equipment.

drive-in racking

This system provides an ideal economical bulk storage system, and like the adjustable pallet storage system, doesn't usually need any specialised handling equipment.

multi-tier racking

Generally used in situations where there is good building height available that can't be effectively brought into use. For example in bulk storage situations where order picking is required and floor space is at a premium, this type of structure can double the amount of storage capacity of the floor area.

very narrow aisle racking

Generally used in applications where the criteria required is density of storage. This system fully utilises the building height and incorporating the use of specialist fork-lift trucks, high bay order picking equipment or cranes, enabling high capacities of storage of goods to be achieved.

push-back racking

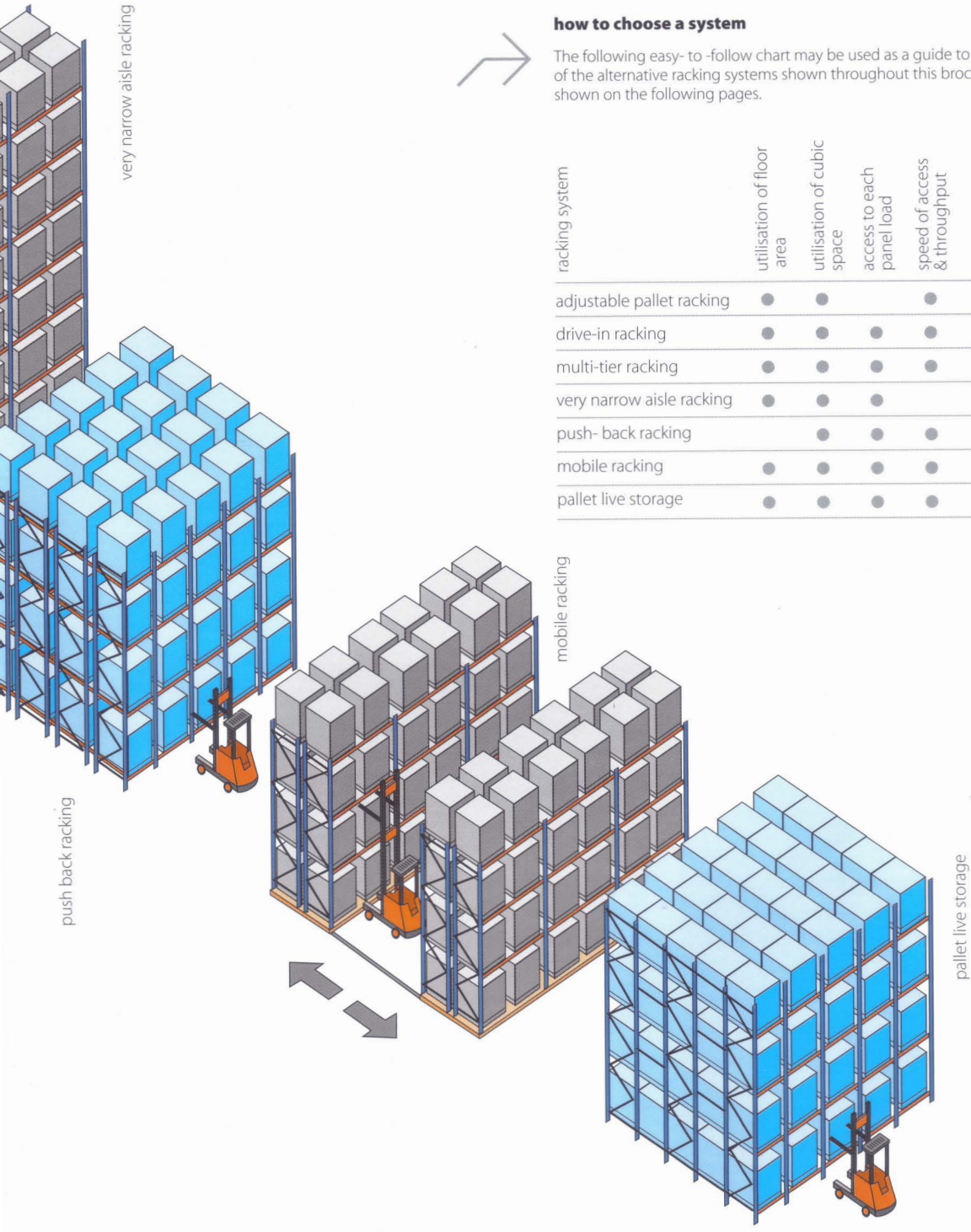
This system provides a method of storing pallets of varying types and sizes together, either two, three or four deep in dedicated lanes, allowing fast and easy access. Push back racking can be operated by standard fork lift trucks and does not require the use of specialist handling equipment.

mobile racking

With this system the use of cubic space is extremely good and incorporates individual pallet accessibility with good stock rotation qualities. Powered mobile racking can be accessed by most standard fork-lift trucks as well as Narrow Aisle trucks.

pallet live storage

Adjustable pallet rack materials can be used as a framework to support gravity tracks (wheels or roller) allowing boxes or cartons to be densely stored. Stock rotation is automatic, as the first box/carton/pallet in, is the first to be picked. This system can be used in conjunction with most standard fork-lift trucks.



how to choose a system

The following easy- to -follow chart may be used as a guide to highlight the main features and benefits of the alternative racking systems shown throughout this brochure. More detalis of each system are shown on the following pages.

racking system	utilisation of floor area	utilisation of cubic space	access to each panel load	speed of access & throughput	stock rotation	stock control & management	specialised handling equipment	ease of relocation	speed of installation	adjustability of beam positions
adjustable pallet racking	●	●		●	●	●		●	●	●
drive-in racking	●	●	●	●	●	●			●	●
multi-tier racking	●	●	●	●	●	●		●	●	●
very narrow aisle racking	●	●	●		●	●	●	●	●	●
push- back racking		●	●	●	●	●		●	●	●
mobile racking	●	●	●	●	●	●		●	●	●
pallet live storage	●	●	●	●	●			●	●	●

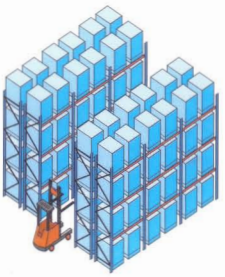
WIDE AISLE ADJUSTABLE PALLET RACKING

Adjustable beam pallet racking is the most popular form of storage for palletised loads and is widely specified in virtually every industry and easily adapts to the vast range of products needing to be stored.

All kinds of palletised loads can be accommodated and as the beams are adjustable, the racking can be adapted to cater for changes in the type or size of goods stored. This heavy duty storage system is easily installed and highly versatile, giving direct access to individual pallets. This type of racking is often designed around the customer's existing handling system.

features checklist

utilisation of floor area	● ●
utilisation of cubic space	● ● ●
access to each panel load	● ● ● ● ●
speed of access & throughput	● ● ●
stock rotation	● ● ●
stock control & management	● ● ●
specialised handling equipment	not essential
ease of relocation	● ● ● ● ●
speed of installation	● ● ● ● ●
adjustability of beam positions	● ● ● ● ●



DOUBLE DEEP RACKING

Based on the concept of wide aisle adjustable beam pallet racking, this system offers greater pallet storage density by eliminating a number of truck aisles and by moving together back-to-back bays to give access to 4 pallets depth per aisle.

The advantages of the system are its increased storage capacity. However although standard fork-lift trucks can be used to pick from the racking, to reach into the depth a specialist attachment (pantograph reach truck) is required which increases the investment required for this type of system. Storage is suited to uniform pallet loads and the first pallet into the system per lane would be the last to be picked and would not be suitable where stock rotation was an important requirement.

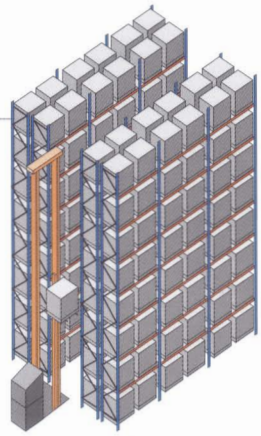
features checklist

utilisation of floor area	● ●
utilisation of cubic space	● ● ●
access to each panel load	● ● ● ● ●
speed of access & throughput	● ● ●
stock rotation	● ● ●
stock control & management	● ● ●
specialised handling equipment	●
ease of relocation	● ● ● ● ●
speed of installation	● ● ● ● ●
adjustability of beam positions	● ● ● ● ●

NARROW AISLE RACKING

Through the use of specialist handling equipment the operating aisle between racking faces can be greatly reduced, thereby increasing the density of storage to utilise floor area and building height more efficiently. The individual accessibility of pallets and goods is excellent and as storage locations can only be accessed using specialist equipment then the security for valuable stock is increased. In addition, the more sophisticated handling features of the very narrow aisle trucks improve the safety of load handling within the racking system.

Truck guides within the aisles (usually a floor mounted rail or wire guidance) also help to reduce the risk of rack damage therefore resulting in improved maintenance costs.



features checklist

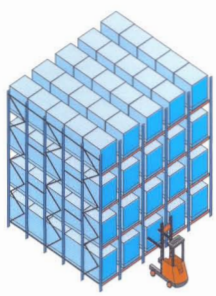
utilisation of floor area	● ●
utilisation of cubic space	● ● ● ●
access to each panel load	● ● ● ● ●
speed of access & throughput	● ● ● ●
stock rotation	● ● ●
stock control & management	● ● ●
specialised handling equipment	●
ease of relocation	● ● ● ●
speed of installation	● ● ● ●
adjustability of beam positions	● ● ● ●

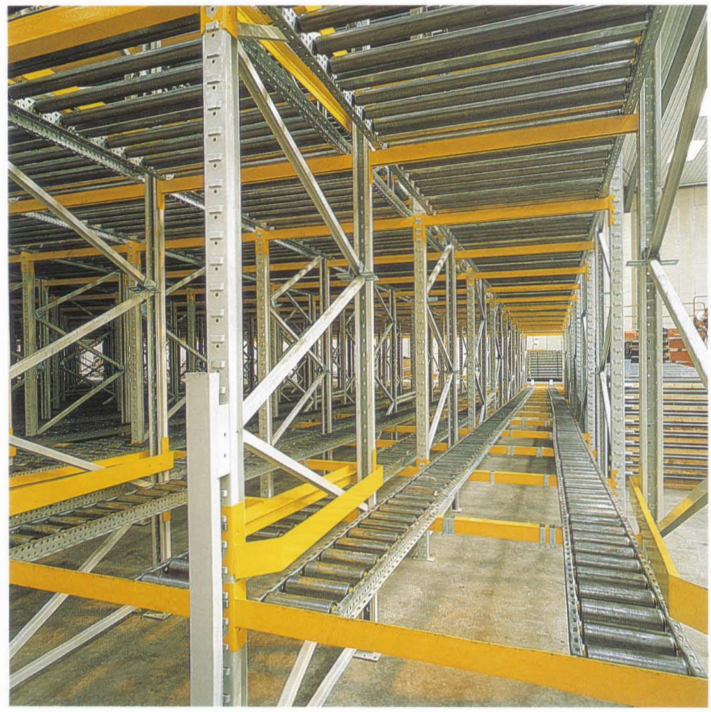
PALLET LIVE RACKING

Order picking and live storage systems:-
Apex pallet racking is often used for supporting dynamic equipment which provides either carton-live storage or pallet-live storage solutions. The principle of bringing the goods to the operator works extremely well, the system working on a first-in /first-out basis (F.I.F.O) with one face used for feeding in goods, and another face for picking. Very dense storage is achieved along with time savings and greater accuracy in order picking plus an overall improvement in organisation and productivity. Order picking can be a combined operation utilising the features ofother types of pallet storage described such as Push-back racking; Double Deep racking and standard adjustable beam pallet racking.

features checklist

utilisation of floor area	● ●
utilisation of cubic space	● ● ●
access to each panel load	● ● ● ● ●
speed of access & throughput	● ● ●
stock rotation	● ● ●
stock control & management	● ● ●
specialised handling equipment	not required
ease of relocation	● ● ● ● ●
speed of installation	● ● ● ● ●
adjustability of beam positions	





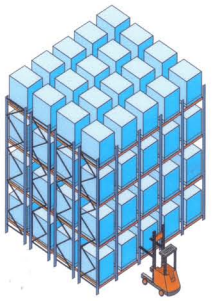
PUSH BACK PALLET RACKING

Push-back racking provides fast pallet access and gives up to 25% more storage, the system allows pallets of varying types and sizes to be stored together, two three or four deep with quick and easy access to all lanes. Apex push-back racking offers maximum use of floor space by getting more pallets into a given area. Pallets are loaded in sequence onto wheeled carriers of varying heights which are 'pushed back' on inclined steel channels that utilise the full depth of the racking. When pallets are retrieved, those remaining roll forward into position at the picking face.

This system uses standard fork-lift trucks and doesn't require specialist handling equipment. Suitable for load marshalling, bulk storage such as in cold stores or for bulk handling.

features checklist

utilisation of floor area	● ●
utilisation of cubic space	● ● ●
access to each panel load	● ● ● ● ●
speed of access & throughput	● ● ●
stock rotation	● ● ●
stock control & management	● ● ●
specialised handling equipment	not required
ease of relocation	● ● ● ● ●
speed of installation	● ● ● ● ●
adjustability of beam positions	● ● ● ● ●



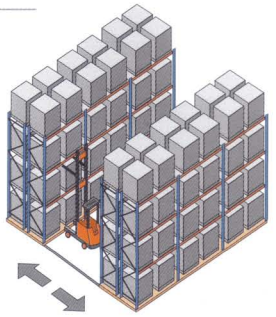
POWERED & MOBILE PALLET RACKING

Apex pallet racking can provide the storage solution to many applications whether for holding pallets or where used as a heavy duty shelving system. Mounting the racking onto mobile bases can condense existing storage space or provide more storage in areas where space is limited.

The same criteria applies to pallet storage where the system can be fitted to wheeled bases which run on tracks set in the floor. The bases are operated electrically to gain access to aisles which gives quick and easy access to all locations. This system offers substantial increases in storage capacity and can be used by all types of standard or specialised fork-lift trucks including narrow aisle equipment.

features checklist

utilisation of floor area	● ●
utilisation of cubic space	● ● ●
access to each panel load	● ● ● ● ●
speed of access & throughput	● ● ●
stock rotation	● ● ●
stock control & management	● ● ●
specialised handling equipment	not essential
ease of relocation	● ● ● ● ●
speed of installation	● ● ● ● ●
adjustability of beam positions	● ● ● ● ●



DRIVE-IN PALLET RACKING

Apex drive-in racking has been purposely developed for handling products in situations where maximum density and economical storage is more critical than stock selectivity or stock rotation.

This extremely strong system uses the minimum amount of components to allow maximum cost effectiveness as well as maximum use of the available cubic space to store a greater quantity of pallets overall. Other than block stacking pallets there is no other more effective palletised storage method at using both floor space and cubic capacity.

Drive-in racking is especially suitable for easily damaged or fragile loads that can not be block stacked. Drive-in racking is commonly used in cold storage applications and is also suitable for all bulk storage situations.

features checklist

utilisation of floor area	●	●			
utilisation of cubic space	●	●	●	●	
access to each panel load	●	●	●	●	●
speed of access & throughput	●	●	●	●	
stock rotation	●	●	●		
stock control & management	●	●	●		
specialised handling equipment	not required				
ease of relocation	●	●	●	●	
speed of installation	●	●	●	●	
adjustability of beam positions	●	●	●	●	

MULTI-TIER PALLET RACKING

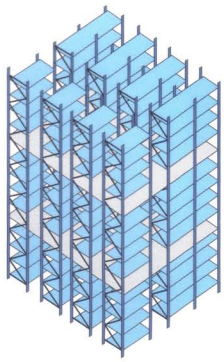
Within any warehouse space utilisation, is floor space taken and height used, is an important factor in judging the efficiency of an installation.

Muli-tier racking whether used as an independent solution or as part of a facility comprising different storage techniques, Multi-tier racking increases space utilisation and becomes a very economical solution.

Components of the system used serve as integral and supporting elements of gangways or flooring to be fitted at varying heights. A raised storage platform using Apex adjustable beam pallet racking makes good use of building headroom and effectively doubles storage capacity. Additional floor levels or tiers can provide even greater utilisation of the cubic area. Multi-tier structures lend themselves to applications where manual bulk picking of large and bulky items, by size or weight, become unsuitable for storage within a shelving or long span system.

features checklist

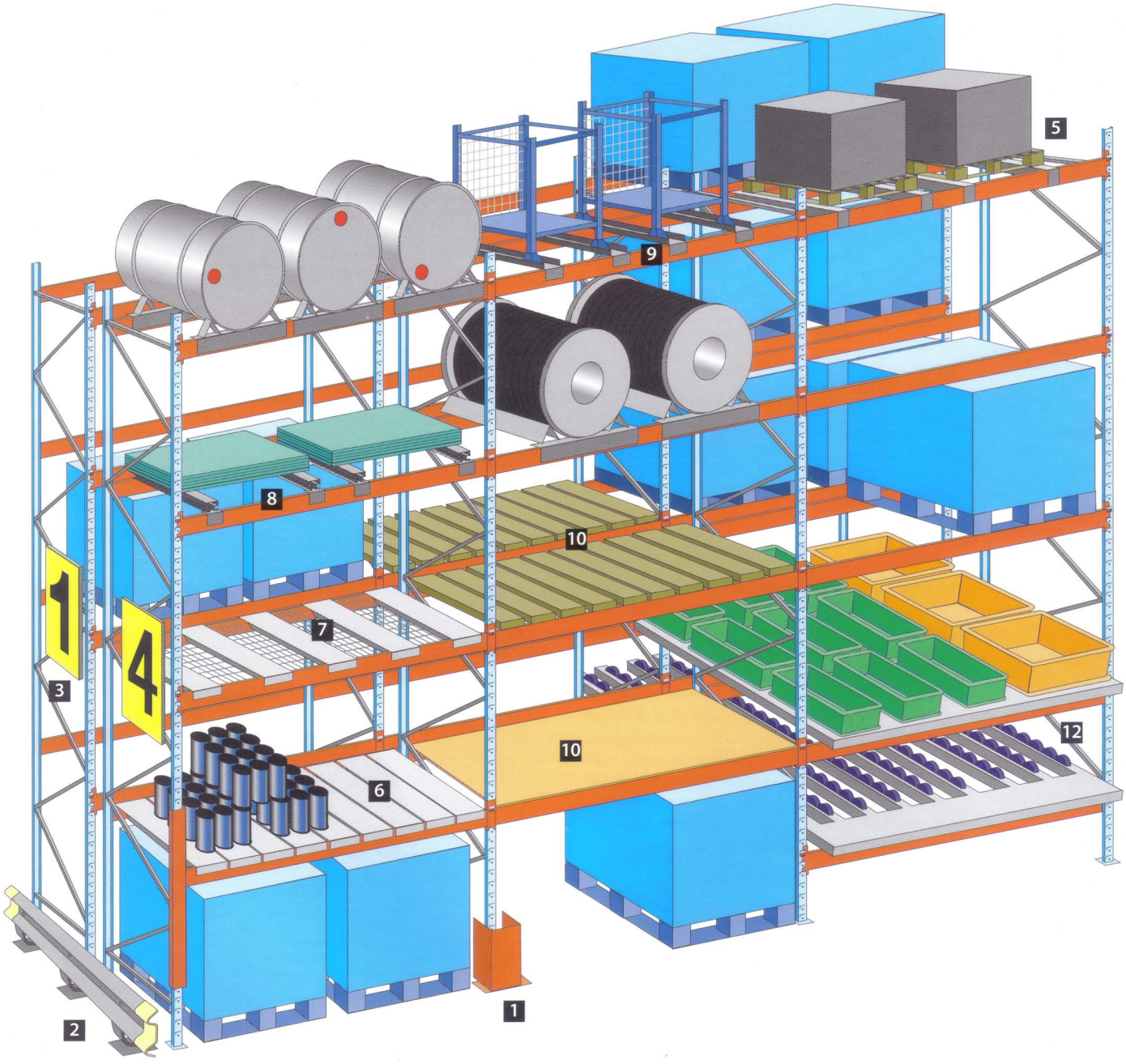
utilisation of floor area	●	●			
utilisation of cubic space	●	●	●		
access to each panel load	●	●	●	●	●
speed of access & throughput	●	●	●		
stock rotation	●	●	●		
stock control & management	●	●	●		
specialised handling equipment	not required				
ease of relocation	●	●	●	●	●
speed of installation	●	●	●	●	●
adjustability of beam positions					



RACKING SYSTEMS ACCESSORIES

To provide versatility in storage palletised loads and other goods, whether required for reasons of safety (e.g. load notices) or product identification through labelling, a wide variety of accessories is available for use within Apex systems.

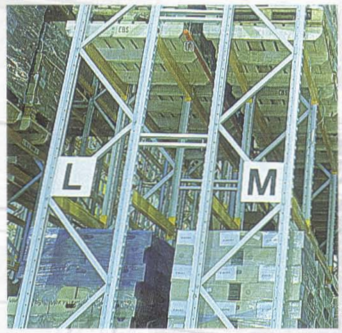
All our accessories can be adapted to transform the system into a complete storage facility designed to meet individual requirements.
The following indicates the accessories most often requested by our customers, any other special requirements can be catered for upon request.



ACCESSORY DETAILS

1 Column guards - two design options help to protect base of uprights

2 Aisle protectors - help to protect the racking bays from accidental damage

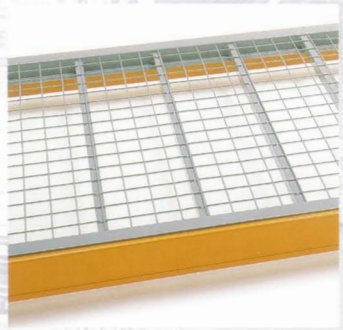


3 Signs and labelling - for end of rows, individual bays or shelf locations

4 Safety mesh cladding - often used where a walkway is near stored pallets

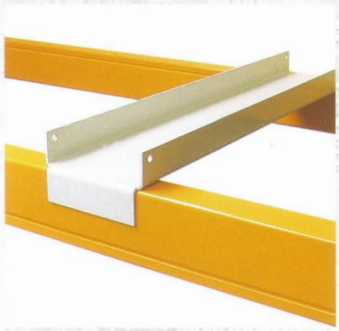
5 Pallet supports - able to accept undersize pallets within a system

6 Steel shelf panels - simply fit over beams to create a shelf



7 Mesh shelf panels - creates shelves - often used with sprinkler systems

8 Fork spacers - allow flat, unpalletised loads to be stored within the system



9 Skid channels - provide storage for stillages within the racking system

10 Wooden shelf panels - in a variety of timber options to suit the application

11 Garment hanging rails - fit into the system to provide clothes storage

12 Carton live storage - integrated at ground or raised picking levels

STORAGE DESIGN LIMITED

STORAGE DESIGN LIMITED
Primrose Hill
Cowbridge
South Wales
CF71 7DU
Tel: 01446 772614
Fax: 01446 774770
email: info@storage-design.co.uk
web 1: www.storage-design.co.uk
web 2: www.storage-design.ltd.uk

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