



Pallet Racking Explained

Your Guide to Understanding
Warehouse Storage Equipment



Pallet Racking Explained

The full range of opportunities that can be offered by a pallet racking solution can often be overlooked by clients. Thistle has established an enviable reputation for providing solutions as opposed to products.

We take the time to understand your needs, the available area and the stock rotation before designing a storage system that meets your requirements.

In this reference document we provide a simple guide to the range of racking solutions and the benefits of each.

If you would like to discuss your requirements with one of our project managers, please do not hesitate to contact me.

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STANDARD / WIDE AISLE

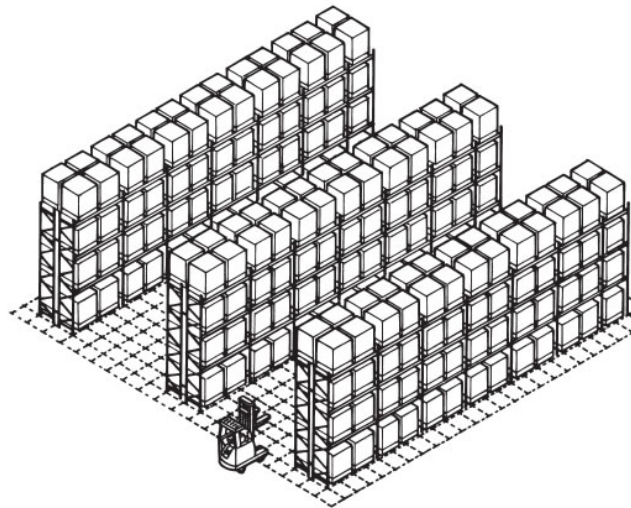
Easily installed, cost-effective and versatile, adjustable beam racking is the most widely used of pallet storage systems and allows direct access to each pallet stored.

With adjustable beams, racking can be re-configured to accommodate changes in the type of goods stored and wide aisles allow access by all types of truck, making specialised handling equipment unnecessary.

The versatility of adjustable pallet racking, and the experience of Thistle's Project Manager, allows warehouse and storage layouts to be supplied to customer's precise requirements.



Space utilisation of floor area	✓ ✓ ✓
Utilisation of cubic storage space	✓ ✓ ✓
Access to individual pallet loads	✓ ✓ ✓ ✓ ✓
Speed of access & throughput	✓ ✓ ✓
Efficiency in stock rotation	✓ ✓ ✓
Efficiency in stock control	✓ ✓ ✓ ✓
Specialised handling equipment	None required
Ease of re-location	✓ ✓ ✓ ✓ ✓
Ease & speed of installation	✓ ✓ ✓ ✓ ✓
Adjustability of beam positions	✓ ✓ ✓ ✓ ✓





Double Deep

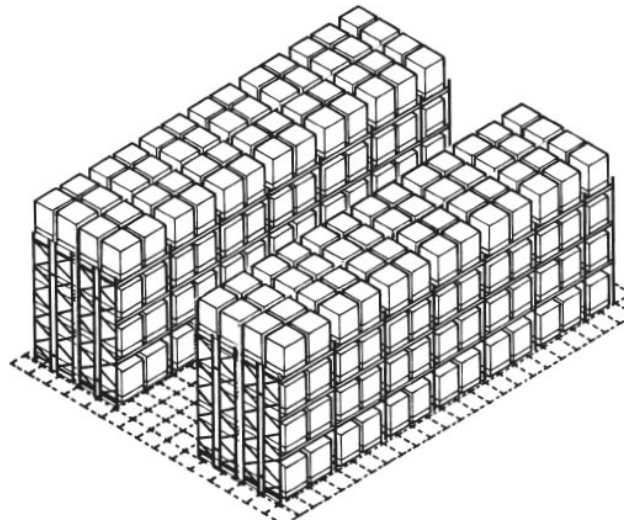
Double-deep pallet racking is a variant on standard adjustable beam racking that allows pallets to be stored two deep but still accessible from the same aisle.

By reducing the number of access aisles and using the space saved to accommodate additional racking, a Double-deep configuration provides a highly space-efficient storage system.

Although the speed of access to all of the pallet positions is restricted, with an efficient stock management system this can easily be compensated for to take advantage of the benefits of more storage space.



Space utilisation of floor area	✓ ✓ ✓ ✓
Utilisation of cubic storage space	✓ ✓ ✓ ✓
Access to individual pallet loads	✓ ✓ ✓
Speed of access & throughput	✓ ✓ ✓
Efficiency in stock rotation	✓ ✓ ✓
Efficiency in stock control	✓ ✓ ✓
Specialised handling equipment	Required
Ease of re-location	✓ ✓ ✓
Ease & speed of installation	✓ ✓ ✓ ✓
Adjustability of beam positions	✓ ✓ ✓ ✓





CRANE SERVED RACKING

Very narrow aisle and crane-served high bay racking provides the most space-efficient pallet storage systems of all, with working aisles reduced to the absolute minimum to save floor space and pallets stored at heights generally up to 30 metres.

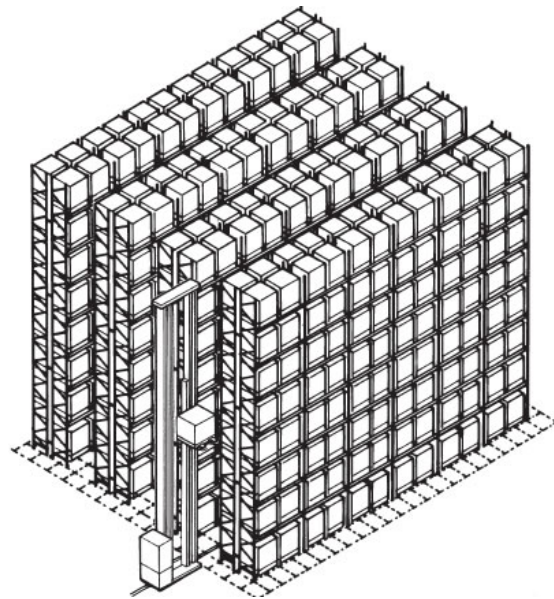
Providing the key central store as part of an integrated warehouse operation, these racking systems are served by order picking stacker cranes providing fast throughput and high accuracy in storage and retrieval.

Crane operation can be either fixed path or changing aisle, using curve travelling equipment or transfer cars.

Thistle can bring a wealth of expertise to the implementation of these complex and often technically challenging warehouse systems, not only through the high manufactured tolerances, reliability and structural integrity of XL pallet racking, but also in the skills of our design, production and installation personnel.



Space utilisation of floor area	✓ ✓ ✓ ✓ ✓ ✓
Utilisation of cubic storage space	✓ ✓ ✓ ✓ ✓ ✓
Access to individual pallet loads	✓ ✓ ✓ ✓ ✓ ✓
Speed of access & throughput	✓ ✓ ✓ ✓ ✓ ✓
Efficiency in stock rotation	✓ ✓ ✓ ✓ ✓ ✓
Efficiency in stock control	✓ ✓ ✓ ✓ ✓ ✓
Specialised handling equipment	Required
Ease of re-location	✓
Ease & speed of installation	✓
Adjustability of beam positions	Not required





NARROW AISLE PALLET RACKING

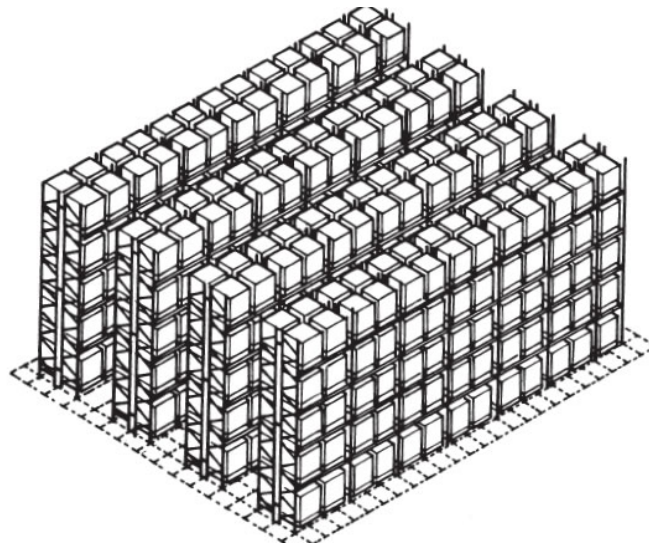
By allowing fork lift trucks to operate in aisles of up to half the width required in conventional adjustable beam pallet racking, Narrow aisle racking makes excellent use of floor space and maximises the height at which goods can be stacked.

Using specialised lift trucks in either 'man-down' or 'man-up' variants, narrow aisle racking is precision designed for safe, efficient load handling within the tight confines of these space-efficient aisles.

Fitted with guidance rails or wires at floor level, trucks are precisely guided into position, thereby improving safety, whilst minimising the incidence of accidental damage to racking and improving the speed and accuracy of load handling.



Space utilisation of floor area	✓ ✓ ✓ ✓
Utilisation of cubic storage space	✓ ✓ ✓ ✓
Access to individual pallet loads	✓ ✓ ✓ ✓
Speed of access & throughput	✓ ✓ ✓ ✓
Efficiency in stock rotation	✓ ✓ ✓ ✓
Efficiency in stock control	✓ ✓ ✓ ✓
Specialised handling equipment	Dedicated trucks
Ease of re-location	✓ ✓ ✓
Ease & speed of installation	✓ ✓ ✓
Adjustability of beam positions	✓ ✓ ✓



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Drive In Racking

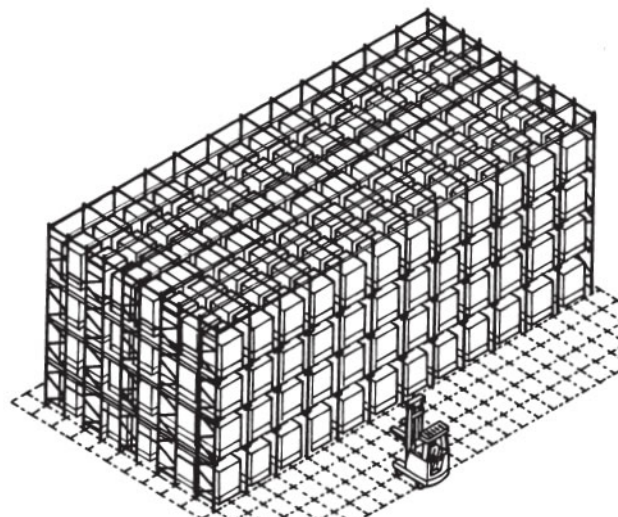
Using minimal space for access aisles and lanes, Drive-in racking provides a high-density, space-efficient bulk storage system.

With the first pallet into a lane being the last out, stock selectivity is restricted, but when loads are delivered and dispatched in batches, this is not a difficulty. Pallets are stored on runners in the depth of the racking and trucks enter to deposit or retrieve loads. For maximum utilisation of both cubic and floor space by providing pallet storage at up to 11 metres.



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Space utilisation of floor area	✓ ✓ ✓ ✓ ✓ ✓
Utilisation of cubic storage space	✓ ✓ ✓ ✓ ✓ ✓
Access to individual pallet loads	✓
Speed of access & throughput	✓
Efficiency in stock rotation	✓ ✓
Efficiency in stock control	✓ ✓
Specialised handling equipment	
Ease of re-location	✓ ✓ ✓
Ease & speed of installation	✓ ✓ ✓
Adjustability of beam positions	✓



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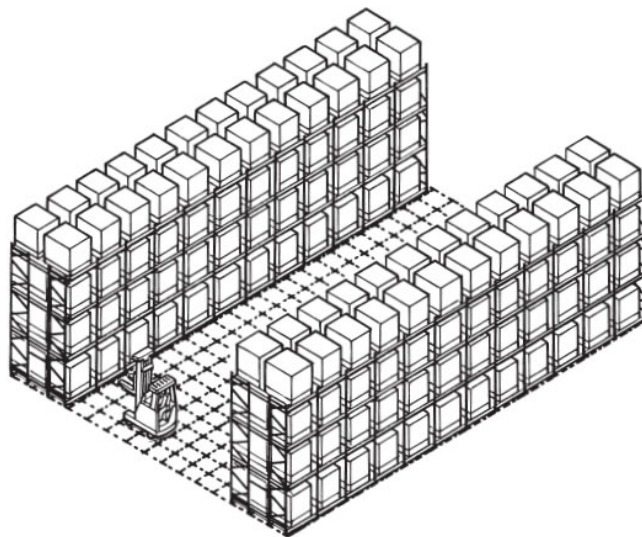


Push Back Racking

Push-back racking is amongst the most space and time-efficient pallet storage systems available. Pallets are loaded in sequence onto wheeled carriers of differing heights and are pushed back along inclined steel guide channels to utilise the full depth of the racking. Pallets can be stored up to four deep and when a load is retrieved the remaining pallets roll forward into position at the picking face. Selectivity is 'first-in, last-out' and with each product having a dedicated lane, dynamic Push-back racking is particularly useful in marshalling areas, and for bulk storage and handling.



Space utilisation of floor area	✓ ✓ ✓ ✓ ✓ ✓
Utilisation of cubic storage space	✓ ✓ ✓ ✓ ✓
Access to individual pallet loads	✓ ✓ ✓
Speed of access & throughput	✓ ✓
Efficiency in stock rotation	✓ ✓ ✓ ✓
Efficiency in stock control	✓ ✓
Specialised handling equipment	None required
Ease of re-location	✓
Ease & speed of installation	✓ ✓
Adjustability of beam positions	Not required



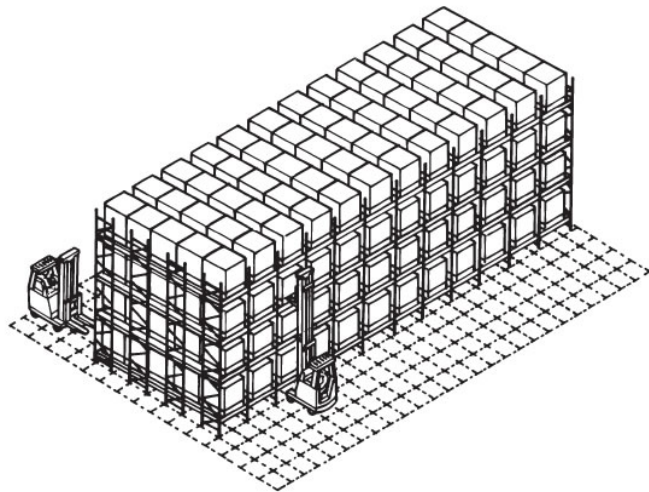


PALLET LIVE STORAGE

Pallets are loaded onto dedicated lanes of inclined gravity rollers which are set at a fixed gradient. When a load is taken from the picking face, the next pallet rolls into position, with replenishment stock loaded at the opposite (upper) end of the lane.

Pallet movement is regulated by brakes and speed controllers fitted within the roller tracks. Working on a first-in, first-out basis, Pallet Live storage racking provides extremely high levels of storage density in a given area, and provides automatic stock rotation, with the minimum of fork lift truck movements required to handle the flow of goods.

Space utilisation of floor area	✓ ✓ ✓ ✓ ✓
Utilisation of cubic storage space	✓ ✓ ✓ ✓ ✓
Access to individual pallet loads	✓ ✓ ✓ ✓
Speed of access & throughput	✓ ✓ ✓ ✓ ✓
Efficiency in stock rotation	✓ ✓ ✓ ✓ ✓
Efficiency in stock control	✓ ✓ ✓ ✓ ✓
Specialised handling equipment	Not required
Ease of re-location	✓
Ease & speed of installation	✓
Adjustability of beam positions	Not required



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Carton Live Storage

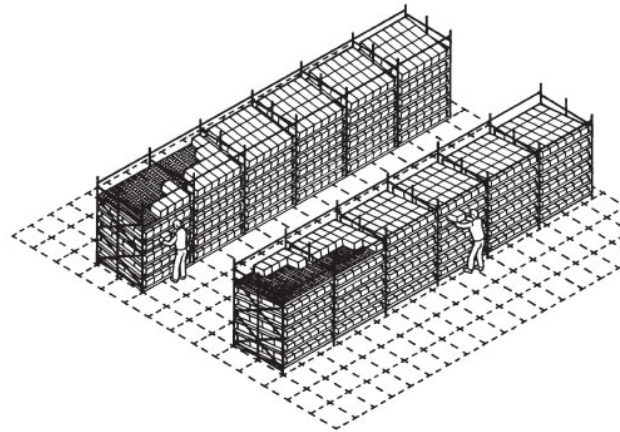
Carton live storage or 'flow racking' operates on the same principle as pallet live storage, but is used for stock which needs to be hand-loaded and picked.

Inclined trays of roller tracks, set at levels in the storage bays, allow goods to roll under gravity down dedicated lanes within the trays, from the loading to the picking face .

By using live storage systems, order picking times are reduced and errors minimised, as not only are items presented precisely at the picking face, but also effective management of the throughput and stock levels of goods can be easily maintained. Carton flow racking provides an excellent, labour and space-efficient method of 'first-in, first-out' storage, particularly in areas handling and using fast moving product lines, for example assembly, packing and despatch.



Space utilisation of floor area	✓ ✓ ✓
Utilisation of cubic storage space	✓ ✓
Access to individual loads	✓ ✓ ✓ ✓
Speed of access & throughput	✓ ✓ ✓ ✓ ✓ ✓
Efficiency in stock rotation	✓ ✓ ✓ ✓ ✓ ✓
Efficiency in stock control	✓ ✓ ✓ ✓ ✓ ✓
Specialised handling equipment	Hand loaded
Ease of re-location	✓ ✓ ✓
Ease & speed of installation	✓ ✓ ✓



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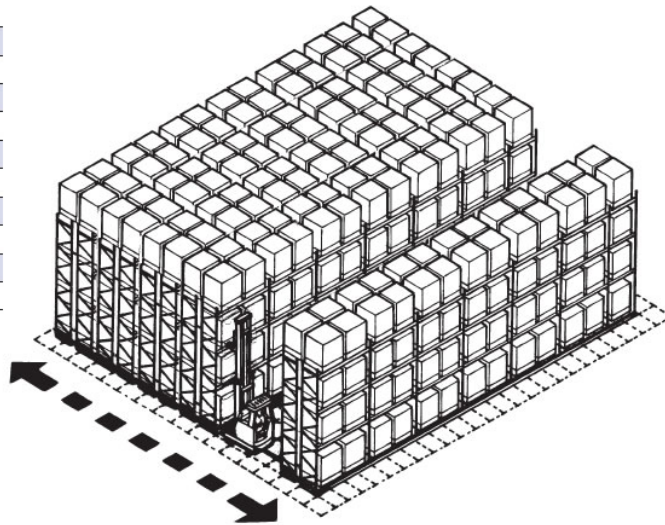
Mobile Racking Systems

Thistle's racking is easily configured for space-saving mobile storage. With the racking mounted on mobile chassis which move along guide tracks set into the floor, the floor space for only one 'moving' operating aisle is required to access all pallet locations.

This space-saving design makes mobile pallet racking particularly suited to cold stores, as the maximum amount of space can be utilised for storage.



Space utilisation of floor area	✓ ✓ ✓ ✓ ✓
Utilisation of cubic storage space	✓ ✓ ✓ ✓ ✓
Access to individual pallet loads	✓ ✓ ✓ ✓ ✓
Speed of access & throughput	✓
Efficiency in stock rotation	✓ ✓
Efficiency in stock control	✓ ✓ ✓ ✓
Specialised handling equipment	None required
Ease of re-location	✓ ✓
Ease & speed of installation	✓ ✓
Adjustability of beam positions	✓ ✓ ✓





Mezzanine Flooring

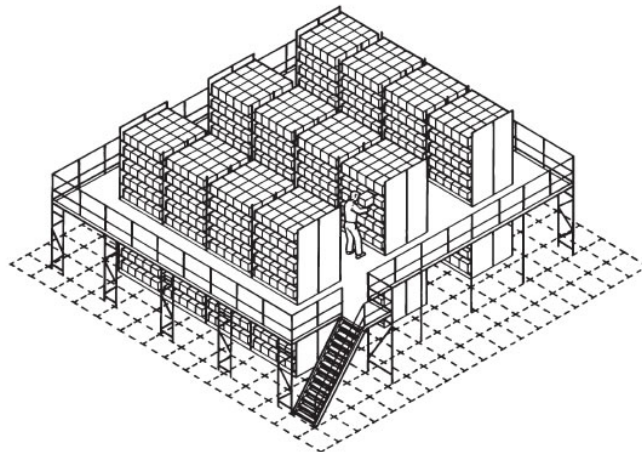
Thistle's mezzanine floors and 'tiered' shelving systems provide a cost-effective means of utilising the height of a building for storage, thereby effectively doubling the capacity of a given floor area.

With integral walkways, stairs, safety rails and any number of shelf positions, these raised storage structures can be used as finished goods or component stores and also for order picking, where powered or gravity.

Conveyors can be incorporated to move the selected goods swiftly through and on to despatch. The strength, structural integrity and versatility of these structures is provided Longspan heavy duty shelving ranges which can also be used to create versatile wide-bay open shelving or binning systems in conventional floor-level configurations.



Space utilisation of floor area	✓ ✓ ✓ ✓
Utilisation of cubic storage space	✓ ✓ ✓ ✓ ✓
Access to individual loads	✓ ✓ ✓ ✓
Speed of access & throughput	✓ ✓ ✓ ✓
Efficiency in stock rotation	✓ ✓ ✓ ✓ ✓
Efficiency in stock control	✓ ✓ ✓ ✓ ✓
Specialised handling equipment	Hand loaded
Ease of re-location	Variable
Ease & speed of installation	Varies on size



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