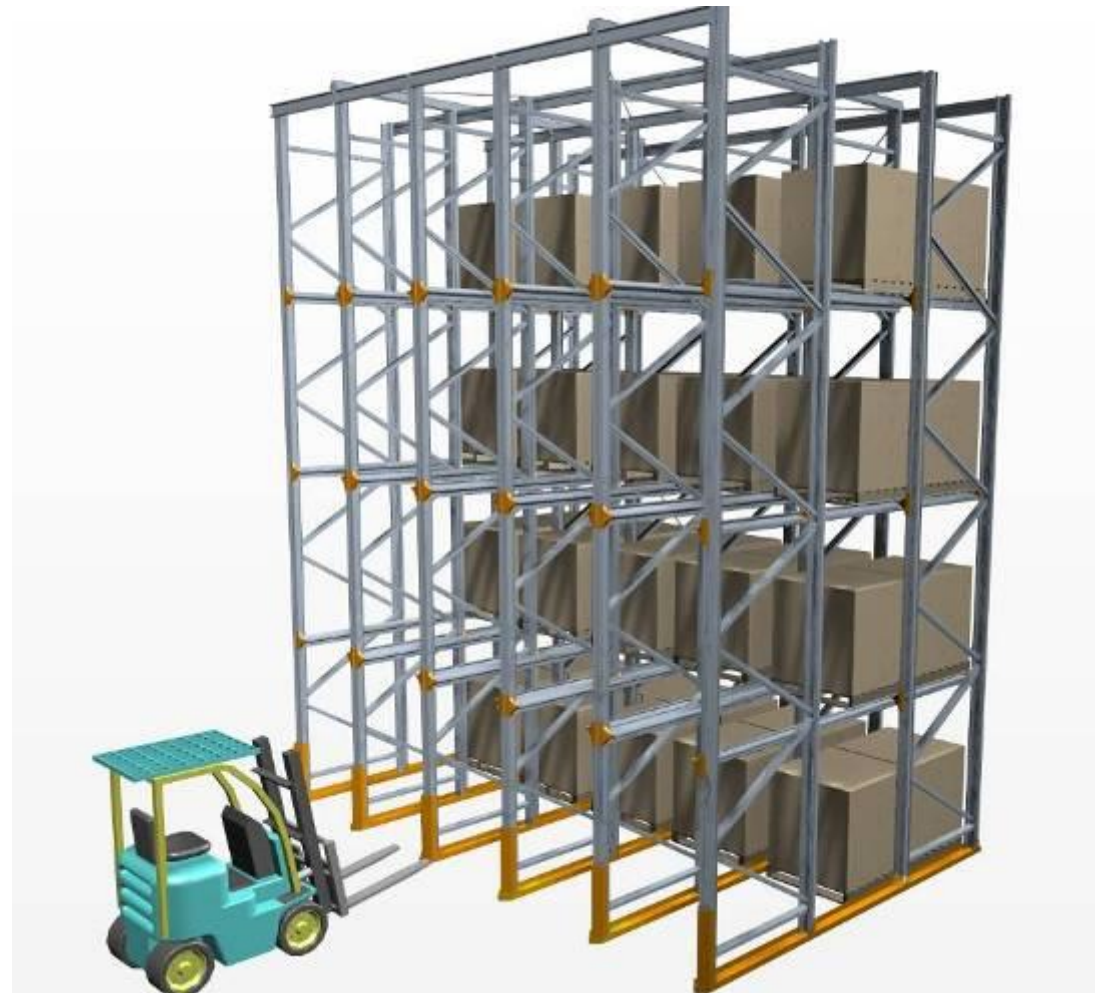




**“Drive-In Rack”**  
A Low Cost, Versatile Solution for High Density Pallet Storage ...



- › About Colby
- › Why use Drive-In Rack?
- › Drive-In Rack Advantages
- › The Colby DI Rack System
- › Application Examples



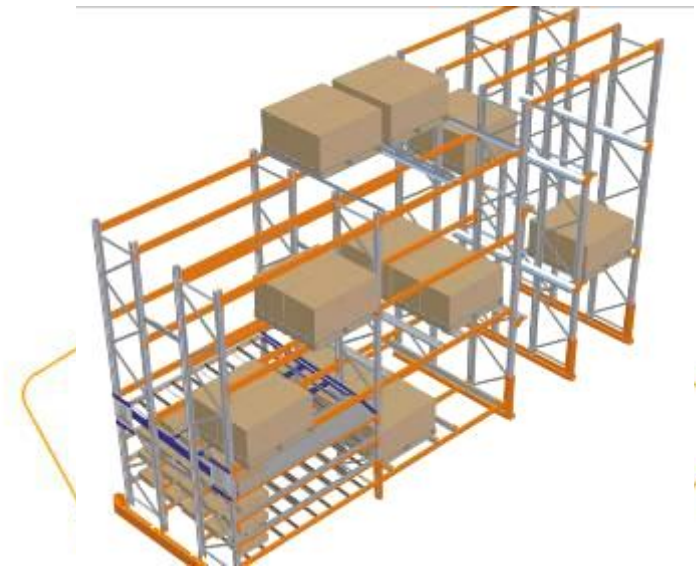
- ▶ Over 40 years Design and Manufacturing Experience in Australia
- ▶ National Network of Independent Distributors around Australia
- ▶ Backed by the resources of Intelligent Logistics Solutions Provider Dematic
- ▶ Innovative Comprehensive range of racking & shelving solutions



## More Storage for Your Money



- ▶ High quality, value for money and standardized products
- ▶ Helpful advice on storage system design, layout, equipment and occupational health and safety (OH&S)
- ▶ Reliable delivery, installation and backup service support
- ▶ Competitive pricing and excellent value for money

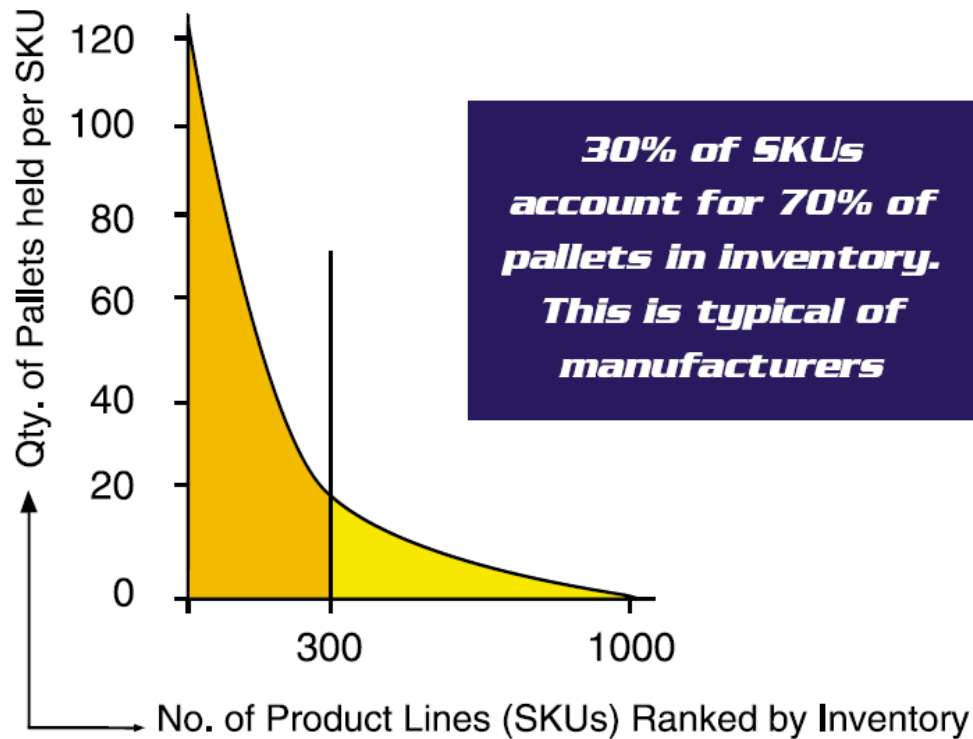




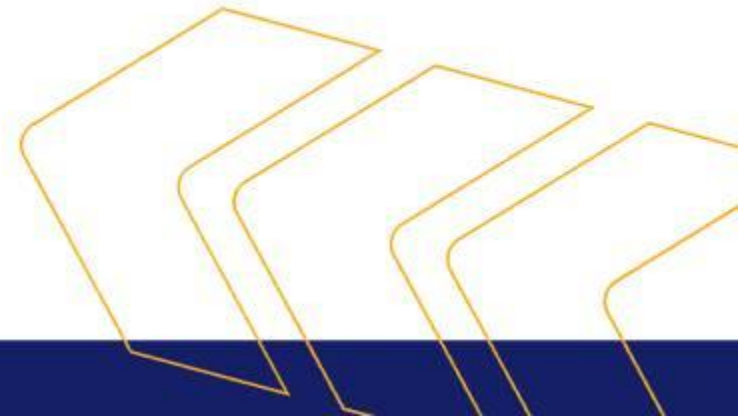
- Lowest cost, high density solution for pallet storage
- Maximises use of warehouse space
- Cost effective as there is no need for special equipment
  - Serviced by Reach Trucks and Counterbalanced Forklifts
- Ideal for:
  - First in, last out storage requirements
  - Storing a large amount of similar loads in a smaller area

Non-selective Rack suits customers who have:

## **A small number of SKUs & A large number of pallets per SKU**



“ A low cost, versatile  
solution for high density  
pallet storage ”



## 1. Cost effective design

- Uses fewer, but stronger and bigger structural components
- Intelligent design optimises the use of steel

## 2. Fast & easy installation

- Standardisation, modular components
- Fewer components to install

## 3. Flexible & Versatile

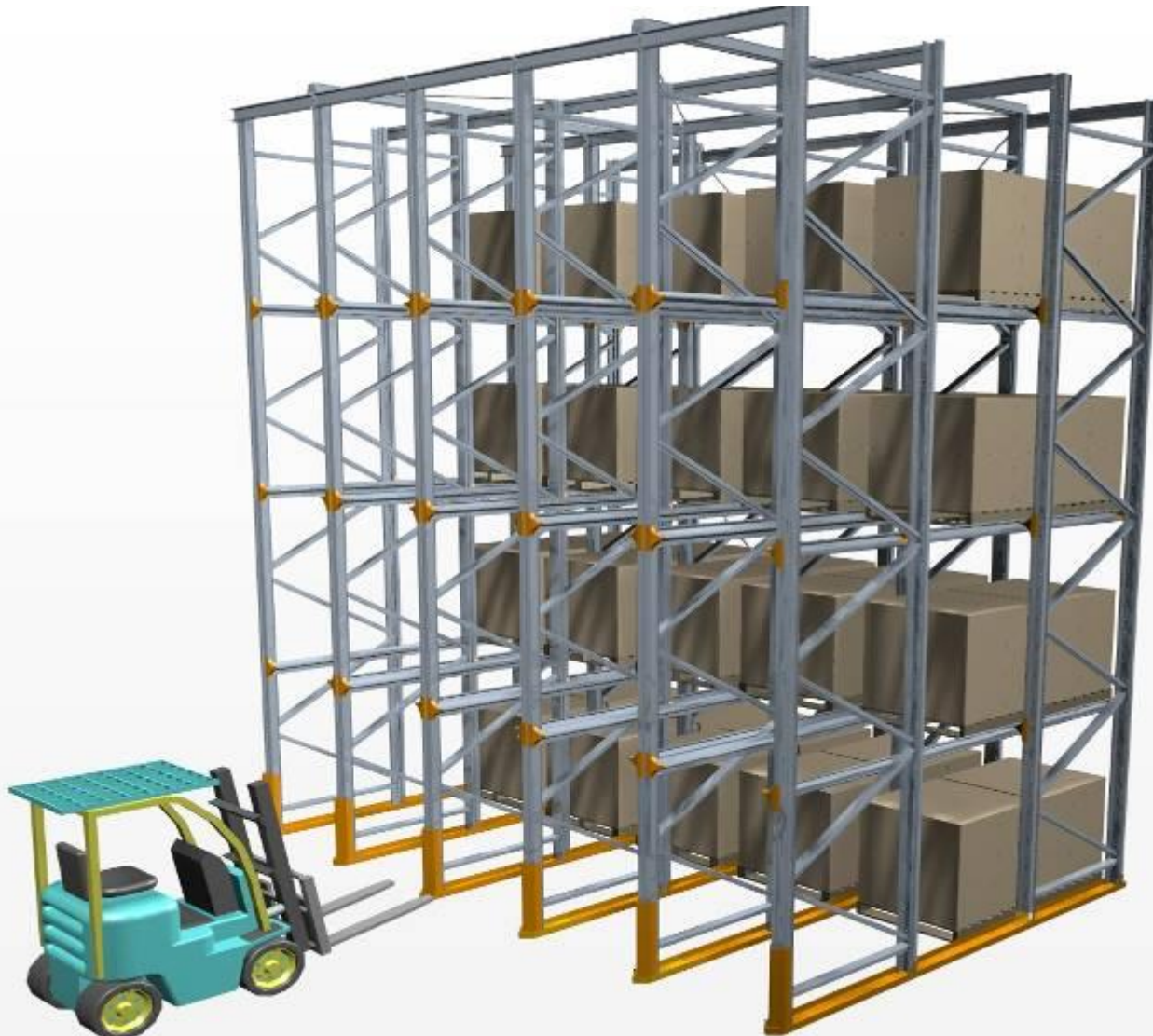
- Modular and highly configurable
- Single sided cantilever brackets allow for different levels if required

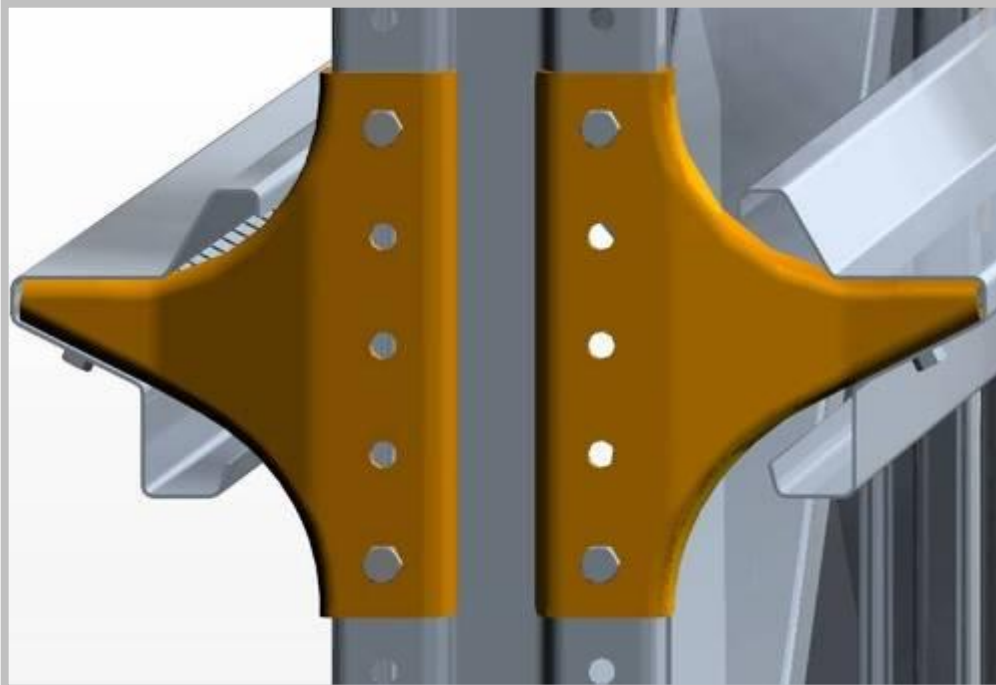
## 4. Safe in All Conditions

- Complete, integrated system of safety elements including:
- PAR, floor channel, stronger pallet runners, back stops, stronger spine and plan bracing



# The Colby Drive-In Rack System





## Innovative Cantilever Brackets

- Unique, strong ONE PIECE design
- Eliminates rotation under load
- Single sided design provides versatility of setting different pallet levels in adjacent bays
- 5mm high tensile steel
- Bolted on 50mm pitch



## Robust Pallet Runner

- New patented design minimises vertical deflection & virtually eliminates horizontal deflection & twist
- Securely bolted from underneath, avoiding catchpoints
- Modular (simply cut to length) & adjustable at 50mm intervals for greater flexibility & space maximisation
- Spans up to 2400mm with 1200kg pallets
- Stronger, heavy duty 1.9 or 2.4mm thick G450 galvanised steel



## Stronger Uprights

- Wider, stronger uprights
- Optimised for structural efficiency – new shape increases the strength and stability of the upright
- 125 and 150mm wide
- Range of thicknesses 1.9 - 3Ømm
- Frame depths usually from 1200mm to 2400mm, depending on rack configuration





## Rigid Floor Channels

- “Lead in” nose & rigid channel design help guide the forklift into lane – ensuring quick and easy alignment with pallet
- Assists in safer handling and protection of the structure
- Punched at 50mm intervals – provides flexibility of frame depth
- 5mm steel, 75mm high
- Standard lengths are spliced together between uprights
- Can be configured as “toes up” or “toes down”





## Streamlined Protect-a-RACK

- Patented and registered design
- Manufactured from heavy duty steel
- Simple, fast and cost effective installation
- Streamlined design maximises clear bay entry
- Complements the existing Colby range
- Fits 125 and 150mm uprights

## Additional Structural Components



### Standardised Bolts

- Universal use of high-tensile M12 bolts throughout
- Avoids mistakes and simplifies assembly

# Additional Structural Components



## Frame Bracing

- New 'C' shape design
- Large, heavy duty build
- Increases strength and load carrying capacity whilst reducing the quantity of bracing required.
- Symmetrically connects to the upright with two bolts - no spacers are required!



## Additional Structural Components



### Plan & Spine Bracing

- Heavy duty galvanized pipe section bracing manufactured exactly to length
- The number of different lengths will be kept to a minimum to avoid confusion during installation

# Additional Structural Components

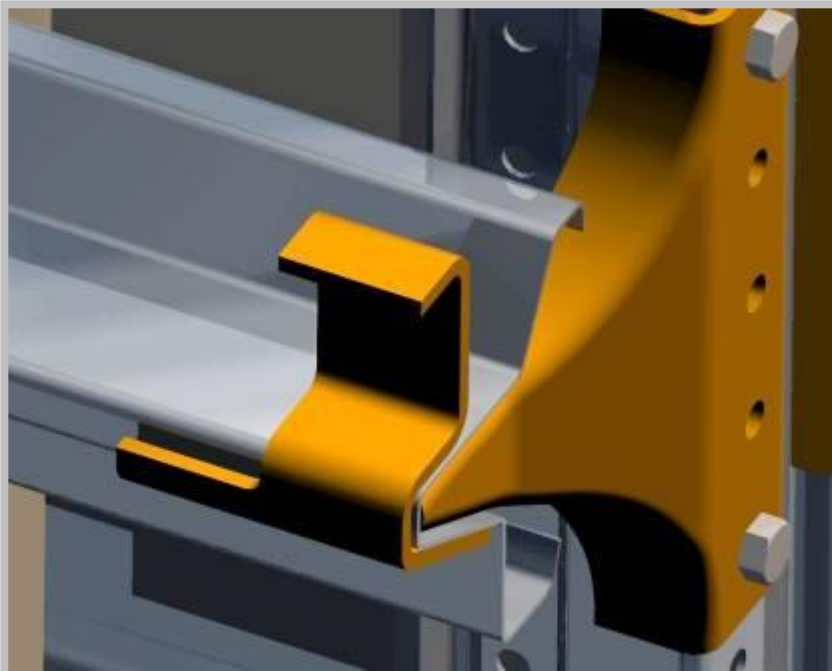


## Top Beam

- Robust Beam that is bolted securely into place, eliminating the possibility of accidental dislodgement
- Standard length that will become a stocked item



## Additional Safety Components



### **Backstop**

- Sits at the end of the pallet runner
- Improves safety by preventing pallet running off the end
- Eliminates potential damage to the spine bracing
- Improves ease of operation

# Application Examples



# Application Examples





# Colby Drive-In Rack in the trade press



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## World's first in drive-in systems

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**A**fter groundbreaking research and development, the structural design team at Dematic has created a new drive-in rack system. According to Dematic, the new drive-in system is the lowest cost solution for high-density storage in the market, and the new design has been optimized by using stronger and bigger components. See less of them!

Drive-in pallet racking is the lowest cost and most popular form of high-density pallet storage. While providing excellent storage capacity, drive-in racking does require aisles, with the first pallet to be the last pallet out. Drive-in racking is used for many industry sectors including general manufacturing, food manufacturing and the cold storage industry.

According to Dr. Mark A. Clarke, Dematic's structural design manager, the challenge for the design team was to maximize weight efficiency, the structural efficiency of the system and standardizing the component designs and manufacturing processes without compromising on load capacity or safety.

"Two years ago we sat down with a blank sheet of paper and we were trying to figure out how to make the drive-in system bigger, better and stronger, while reducing the number of components in storage to minimize our footprint," said Clarke.

"We started the key components and looked at ways of simplifying their design and manufacture, as well as installation. We started with the uprights, which were previously available in 55 mm and 75 mm configurations, and increased these to 102 mm and 150 mm in width. This has enabled us to reduce the number of uprights, cantilever brackets and beams in a system. At the same time, the components we have designed have applications in other areas such as mezzanine floors and high-bay racking as well," he said.

Probably the most innovative element of the new system is the new and patented pallet runner. According to Dr. Paul Berry, senior structural engineer, the new pallet runner is the result of extensive theoretical analysis, supported by prototype testing, to optimize the design.

"We spent many hours examining the shape and configuration of the pallet runner, and we are confident we have designed the most advanced one in the world," said Berry. "The new patented design is capable of large spans, easily managing spans of 2400 mm, and it minimizes the vertical deflection and virtually eliminates torsional deflection and twist. Also, the pallet runner is built from underneath, avoiding any cantilevers, and has holes punched at 50 mm intervals, providing greater flexibility in frame depth," he said.

The new system also includes innovative, one-piece, formed cantilever brackets that wrap securely around the upright, avoiding 'right-angle' rotation under load. The stream-lined 'Protect-a-Rack' design allows the base of the upright, with the original profile defining supports and the occasional design measuring clear-bay entry.

Heavy-duty bracing connects perpendicular to the upright, which increases the strength and load-carrying capacity while reducing the amount of bracing needed. A bracing pin is positioned at the end of the pallet runner to prevent pallets being pushed too far into the depth of the rack, minimizing potential damage to space bracing and further increasing safety. Heavy-duty, purpose-engineered floor channels help guide the forklift, ensuring quick and easy alignment, safer handling, and ground protection of the rack.

"The inherent flexibility with the system design makes it modular and capable of accommodating most customer requirements, including custom pallets," said Berry. "For example, we've had great success in the cold storage industry where pallet density is the key issue and we've had to construct the drive-in around cooling fans. It hasn't been a problem, and because everything is so modular we're able to provide faster installation times," he said.

An additional tool developed by the Dematic team is the sophisticated design software program 'Rackman', used by rack managers.

"The Rackman program provides Dematic and the Colby distributor network with a very valuable tool and a marked competitive advantage," said Clarke. "By entering the customer's requirements, we are able to configure the best and most cost-effective storage solution. Rackman captures the system and carries out advanced structural calculations to ensure it is compliant with design standards.

"The customer can tweak the design and change the height and weight of pallets, and the program will check the design and calculate the required floor loading. Finally, the cost of the storage system is calculated, all in a matter of a few minutes. The tool has been found not as long ago," he said.

The market has responded in a positive manner to the new drive-in rack and we already have a number of happy customers in a range of installations, across a number of industries," said Clarke. ■

**Competitive Advantage**

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