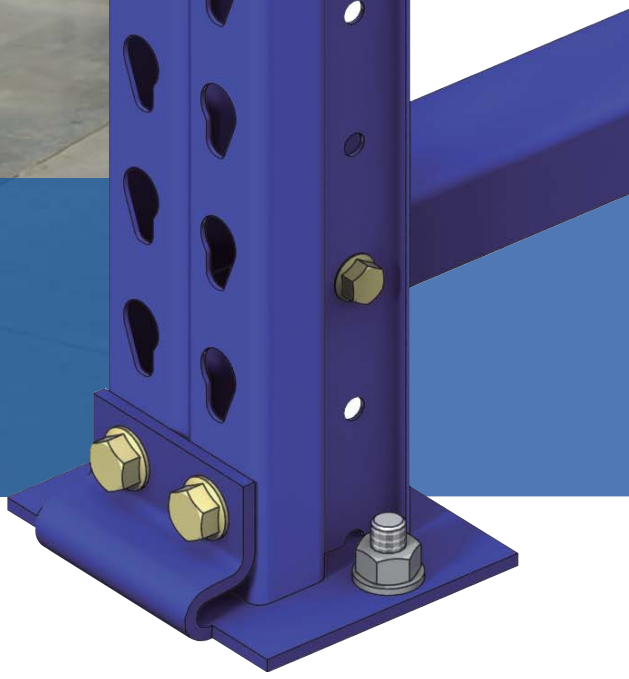
Bolted Rack Technology

The Advantages of Bolted Systems



Interlake MECALUX

Interlake Mecalux: the frontrunner who introduced bolted racking systems to the USA

Leaders are distinguished by their pioneering, innovative spirit. More than ten years ago, Interlake Mecalux was proud to introduce bolted rack systems to the market. Those who have done business with us have achieved a major growth spurt in their companies. Greater value. A competitive edge. Cost savings. It's all backed by the same quality, attention to detail and customer focus that have made Interlake Mecalux the leader in rack system technology for over 50 years.

Times change. Now, your racking system can too

Whereas systems with welded upright connections are restricted by nature, the bolted upright system features modular technology that allows our customers to modify and reconfigure their installation when necessary. For example, this may be the case when a new picking system is required, when there is a new odd-sized SKU, or even for a simple move to a new location.

This system is scalable and capable of growing and adapting to the needs of each customer.

A solid lifetime guarantee

This system is engineered to meet the RMI 2012 (Rack Manufacturers Institute) established standards.

The bolts used are designed to remain securely fastened after their installation. No maintenance is required over the life of the pallet racks.

Main differences between connection systems

Which vertical connection system gives more added value?	Bolted	Welded
Structural integrity	✔	✔
Full compatibility with other Interlake Mecalux products	✔	✔
Certified by AISI and the AISC*	✔	✔
Adaptability	✔	
Flexibility and easy to reconfigure	✔	
Easy to repair	✔	
Less expensive to ship	✔	
Lower ownership costs	✔	
Lower storage costs	✔	

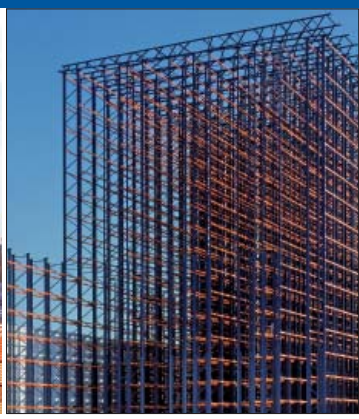
* American Iron and Steel Institute, and the American Institute of Steel Construction

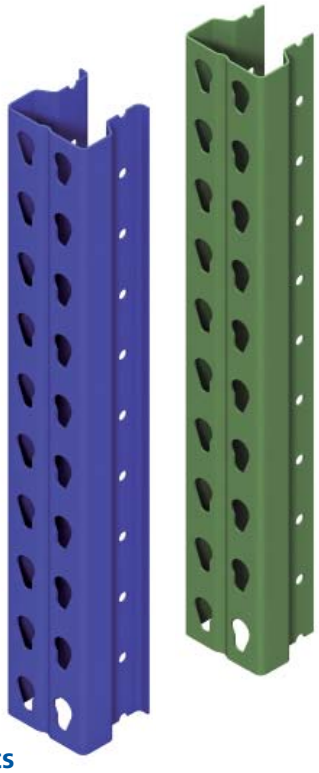
Key features
This storage system incorporates top quality components and meticulous engineering, designed to ensure the highest level of structural integrity.

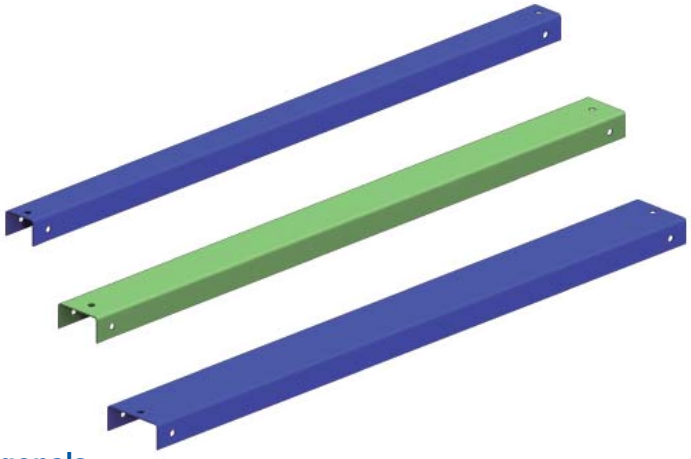
- All **bolts** are Grade 5 and zinc plated.
- A **limited thread design** prevents over-tightening of the bolt connection.
- **Nuts** have a serrated flange that creates positive engagement with the steel column and remain securely fastened after installation.
- The **nut and bolt connections** require no maintenance.
- A recessed channel in the **column's shape** keeps all bolts and nuts safely away from products and people, preventing unwanted contact.
- All **beams and accessories** this system uses are compatible with traditional systems, such as Selective, Drive-In, Push-Back, Pallet Flow, and Pick Modules.

Components

Technology that will make you stronger





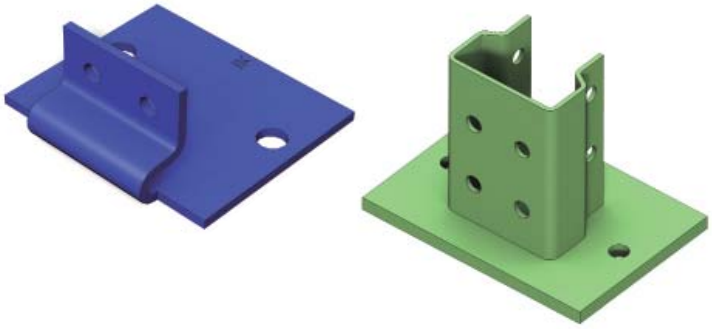


Uprights

These consist of open profiles with teardrop perforations on the front, whose purpose is to fit beams together. Interlake Mecalux manufactures different models, with spans and thicknesses that adapt to a wide range of loads.

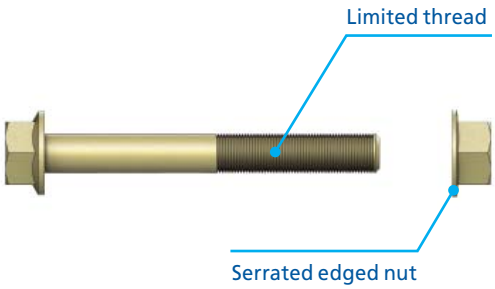
Diagonals

These are used to assemble frames and are available in different widths. Diagonals maximize rack efficiency and ensure the installation's structural integrity.



Frame foot plate

These are available in a wide range of sizes that adapt to the different uprights being fixed to the floor.

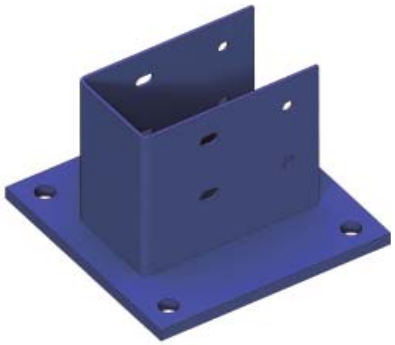


Bolts

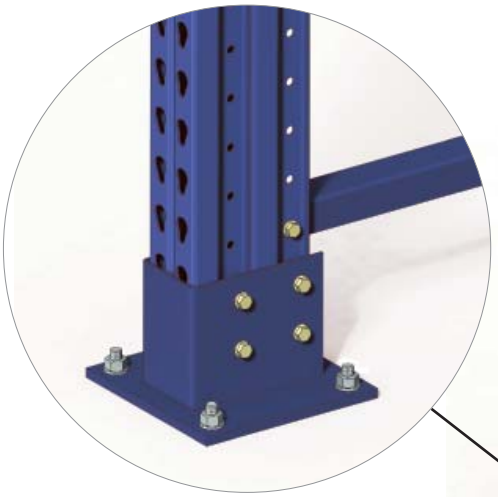
Zinc plated bolts with a limited thread design are fitted with serrated edged nuts, maintaining the bolts firmly in place.

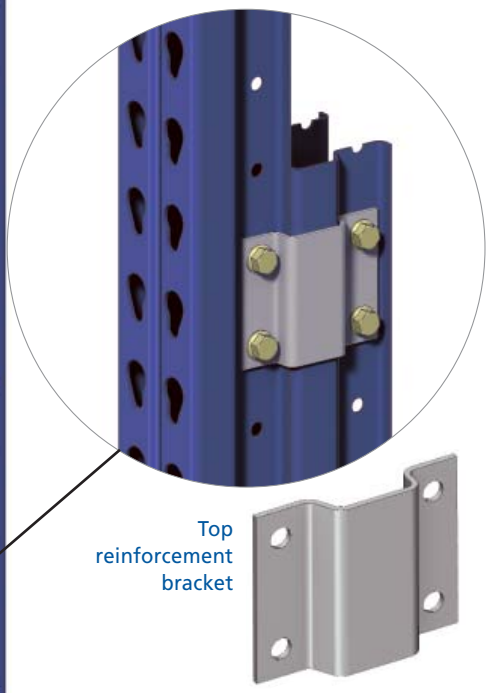
Reinforcing elements

Reinforcing profiles
Available to provide superior load capacity.



Seismic foot plate
When dealing with heavy loads, or when additional seismic protection is required, these elements are used to deliver high durability reinforcement. They are placed on the lower ends of uprights to facilitate frame-to-floor attachment.

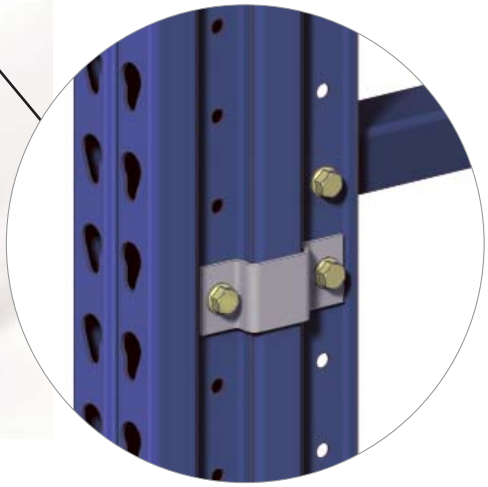




Top reinforcement bracket

Reinforcement bracket
Metal pieces with two or four drill holes that join the upright to the reinforcing profile, creating a sturdy and secure transverse connection.

Standard reinforcement bracket



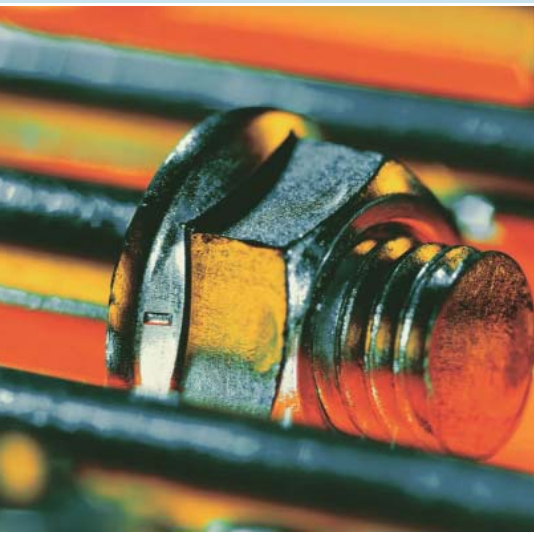
Why trust Interlake Mecalux?

The advantages of following a trailblazer: innovation, design and savings

Interlake Mecalux's mission is to develop innovative storage solutions. Although much has changed in the 50 years we have been in business, some things never change: our commitment to providing safe, durable and efficient storage systems that represent the absolute best value anywhere.

From selective pallet racking to state of the art automatic handling equipment, Interlake Mecalux makes its mark by delivering custom solutions to meet the unique needs of each and every customer. To do this, we use our own sophisticated development software to garner ideally sized storage structures. In this way, we achieve capacity and cost optimization in the warehouse, with the utmost safety in mind.

We are proud to have been the first company to offer bolted racking systems in the USA, which have become the market standard, and have demonstrated both efficiency and cost savings in Europe and around the world.

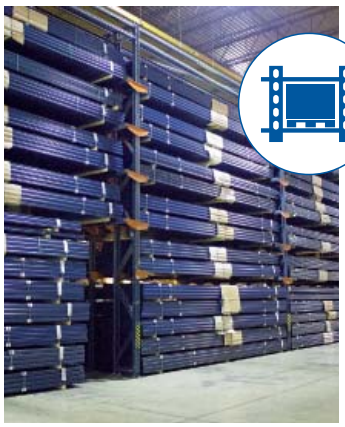


10 Advantages of bolted systems

1 Up to 60% savings in transportation costs

The savings in transportation surpass the additional costs of installation.

Welded	Bolted
20,000 lbs.	45,000 lbs.
64 frames 378 beams	151 frames 775 beams



2 Greater storage space

The modular design of the bolted system allows the storage of up to 6.3 times more product in the same space.

Welded	Bolted
11,000 sq.ft 263 MT	11,000 sq.ft 1,658 MT

3 Easy to assemble

Welded
Frames are assembled in the production center. This requires certified welder or automatic robots.

Bolted
Frames can be assembled on-site during an installation, thereby saving transportation costs. Any operator with minimal training can carry out the assembly.

4 Easy, economical repairs

Welded
Repairs involve replacing the entire frame and installing a complete kit, meaning extra costs. In addition, to be able to weld in a customer's facility, a safety perimeter must be set up. These can hinder workflows and operations.

Bolted
If a component is damaged, only that element needs to be replaced. This is done both quickly and easily.

5 Safety

How do you verify if the connection is flawless?

Welded
Analyzing the weld

Bolted
Is the bolt in place?

6 Versatility

Racks have a flexible configuration and are easy to modify, adapting to new requirements.

7 A high-precision connection

Limited thread bolts prevent over-tightening. Nuts with a serrated flange remain securely fastened, with no need for maintenance.

8 An optimal system for seismic hazard zones

Reinforced profiles, numerous safety accessories, and having a non-rigid structure allows for the rack to perform better against any seismic movements.

9 Logistics

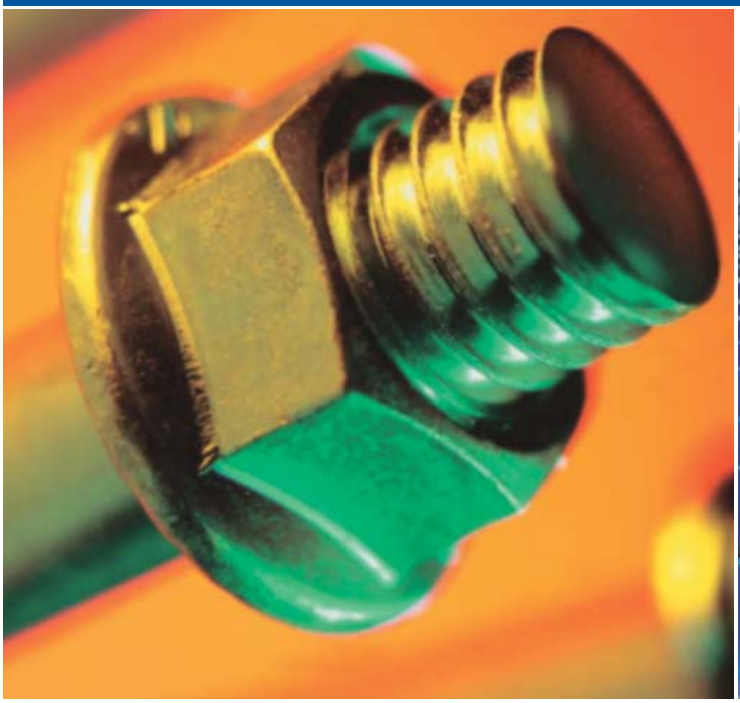
The modular system enables faster order processing, the ability to store more stock, reduce shipping times and, consequently, shorter shipping dates.

10 Design and innovation

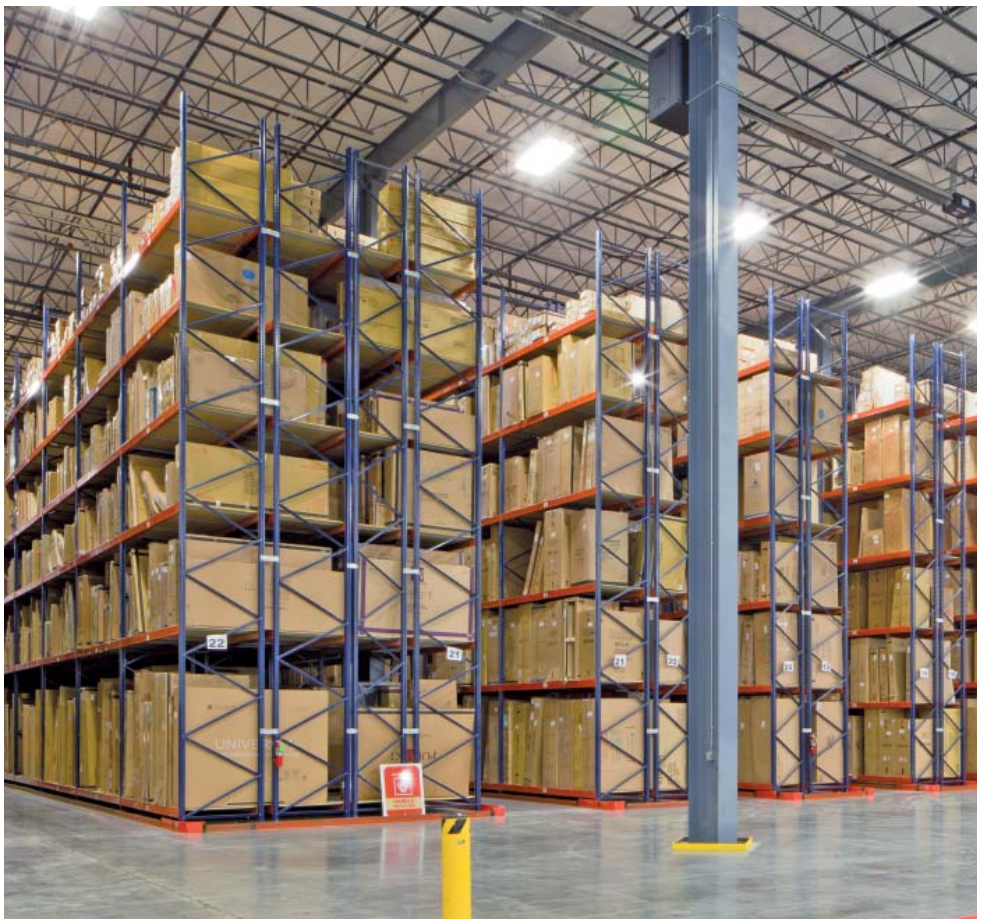
The modular bolted system allows us to offer more creative, custom, fast and efficient solutions. The R&D department at Interlake Mecalux is continually working towards improving rack performance and reducing costs.

Common perceptions explored

Main concerns in choosing bolted or welded racking systems



Overall design	
Perception	**Fact**
A bolted connection will become loose over time, requiring additional maintenance and inspection.	If the bolted connection is properly designed and installed, no additional inspections or repairs are necessary. The Interlake Mecalux connection uses a nut with a serrated flange to ensure long-lasting tightness. The nut requires 30% more effort to remove than it needs to install. Interlake's most complex storage systems, such as the drive-in, push-back, pallet flow or rack supported systems, utilize bolted connections with total efficiency.
Over-tightening the bolted connection will cause the column to deform.	Interlake Mecalux uses a bolt with limited thread length to ensure that it cannot be over-tightened and deform key components of the rack structure.
An upright that utilizes welded connections is more structurally sound than one that utilizes bolted connections.	A properly designed bolted connection offers as much protection as a system that uses welded connections. As with welded, the bolted design connection meets the same Rack Manufacturers Institute (RMI) 2012 and 2001 AISI standards that govern steel design and construction.
A bolted rack system will have sharp edges where products and pallets could be damaged and personal injury may occur.	The unique Interlake Mecalux design locates all upright bolts and nuts in recessed channels to eliminate interaction with products, pallets and operations personnel.



Installation considerations	
Perception	**Fact**
Uprights may be difficult to fit together in the assembly process.	Proper upright fitting is determined primarily by component design and manufacturing processes. Interlake Mecalux products are designed with rigid tolerances and manufactured according to the meticulous standards set by the ISO 9000:2001, which ensures high quality and strength.
The additional step of upright assembly will add time and cost to the project.	Installation time is a function of labor. While it typically requires more labor to assemble the structure prior to installation, this additional cost is more than offset by the savings in transportation costs and favorable product pricing resulting from the modular design of the Interlake Mecalux uprights.

interlake MECALUX

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