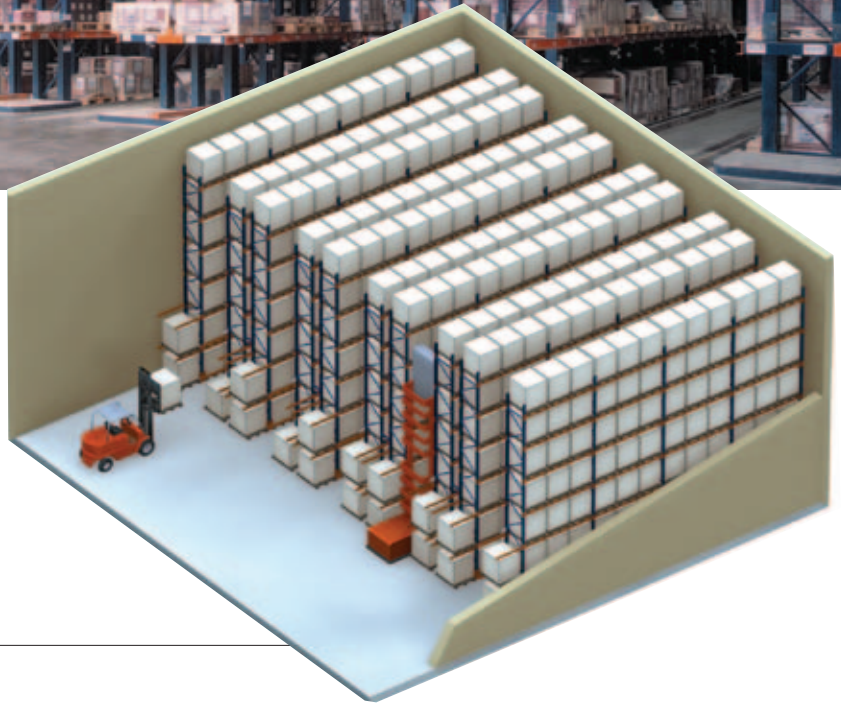




HIGH HEIGHT PALLETIZING RACKS

Interlake
 **MECALUX**



General features of the narrow aisle high height system

Warehouses are built with high height racks separated by narrow storage aisles.

The primary advantages are the proper use of the volume and direct access to any stored pallet.

In order to handle load units, forklift tower-type trucks or stacker cranes are used.

Racks for tower-type forklift trucks

Tower-type forklift trucks are machines designed to work in narrow aisles with racks that are generally high. These trucks must be guided inside the load pathways.

Outside the load aisles maneuvering is slow; for this reason, work is concentrated primarily in those aisles. They tend to be supported by other, more conventional trucks that deposit or pick up pallets from the rack ends.



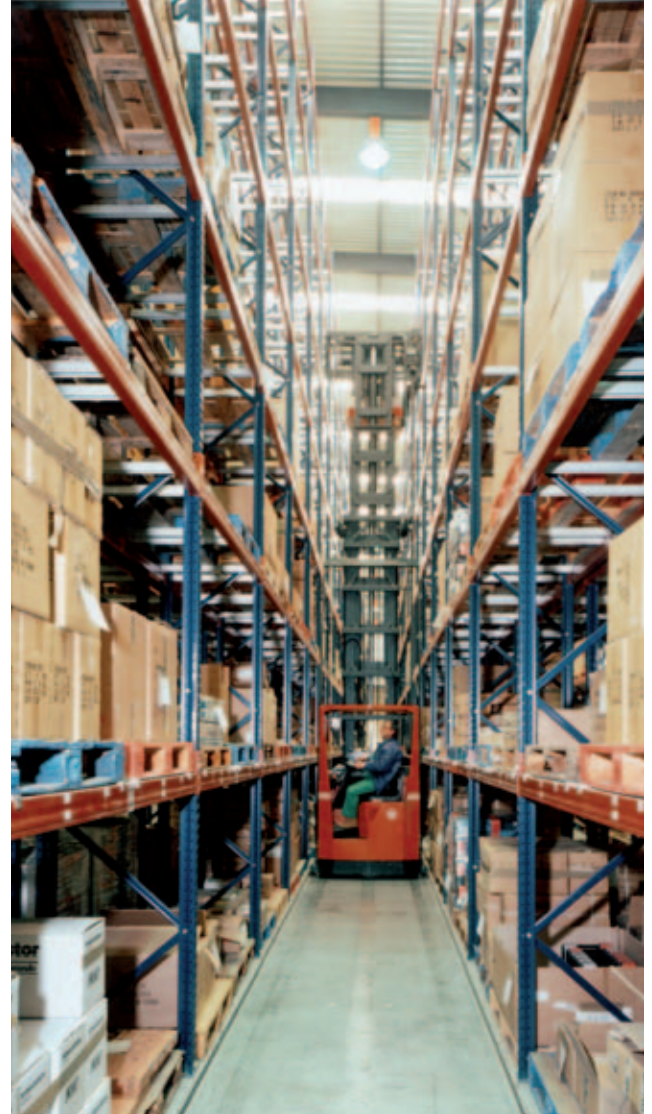
Tower-type forklift truck building systems



Man-up system (Class 300A)

Here, the driver of the forklift truck remains inside the cab, going up and down along with the merchandise. This allows for greater maneuverability and allows the operator to pick the pallets up directly

This system is called COMBI because it combines pallet storage and picking operations.



Man-down system (Class 300B)

This system is characterized by using a truck where the driver's cab remains immobile while the merchandise goes up and down.

Types of forklift

Extraction of merchandise can be done with two types of forklifts—trilateral and bilateral.



Bilateral forklift

A bilateral forklift must always pick up and put down pallets in an elevated position, being unable to remove them directly from the floor. The facility will be higher, but the aisles will be narrower.

Forklift in a depositing/extraction position



Trilateral forklift

A trilateral forklift allows pallets to be picked up and left on the ground in three positions—in front and on either side. It is equipped with a rotating head for this reason.

Forklift in a circulating position



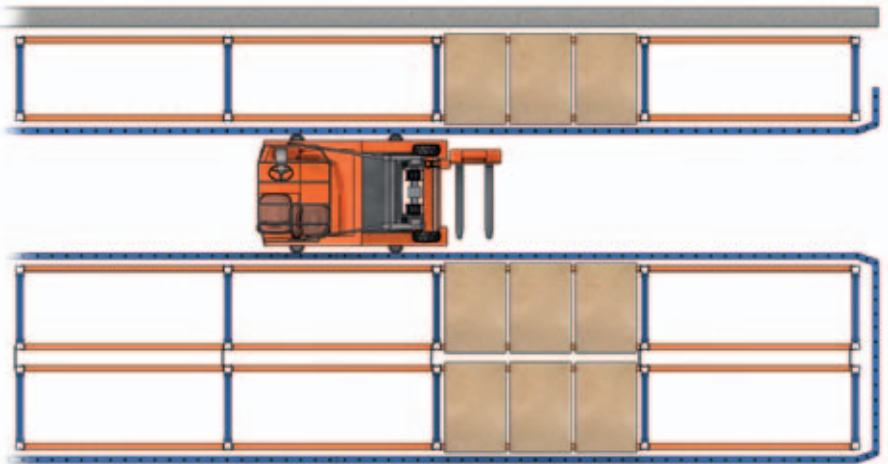


Guidance systems for tower-type forklift trucks

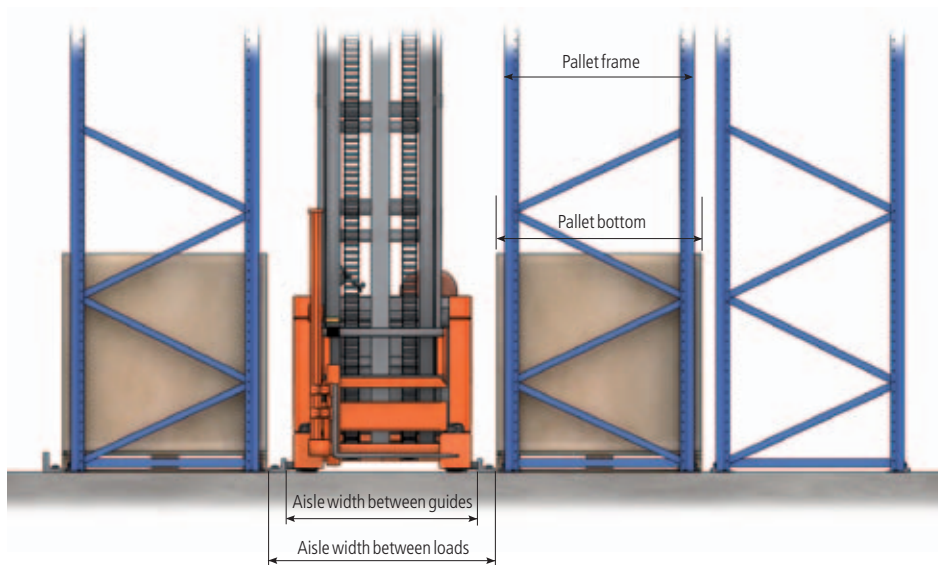
Tower-type forklift trucks must be guided inside the storage aisles.

Forklifts must be guided using a wire-guidance system, in which a wire embedded in the floor produces a magnetic field that directs the movement or mechanical guidance, utilizing appropriate profiles placed on both sides of the aisle and anchored in the floor.

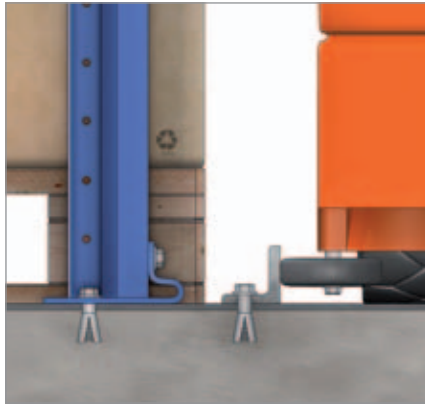
Each forklift model requires a different type of guide track and a different aisle width. The distance between the guide tracks and the distance between the loaded pallets must be defined in the aisle width.



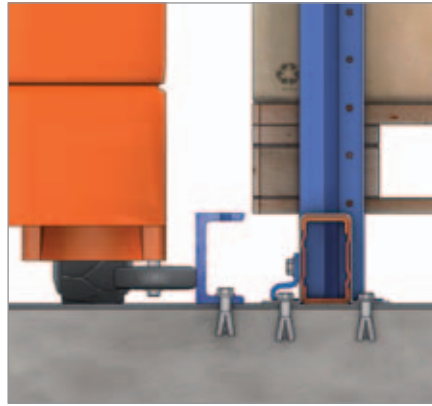
Mechanical guidance, general diagram



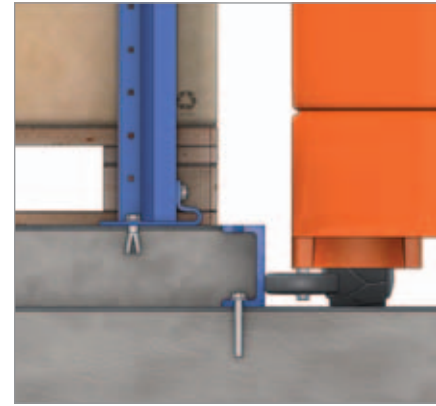
Mechanical guidance measurements to be taken into account.



Guided using LPM 50 profile
Pallets rest directly on the ground.



Guided using UPN 100 profile
Pallets rest on profiles placed on the ground or on the stringers.

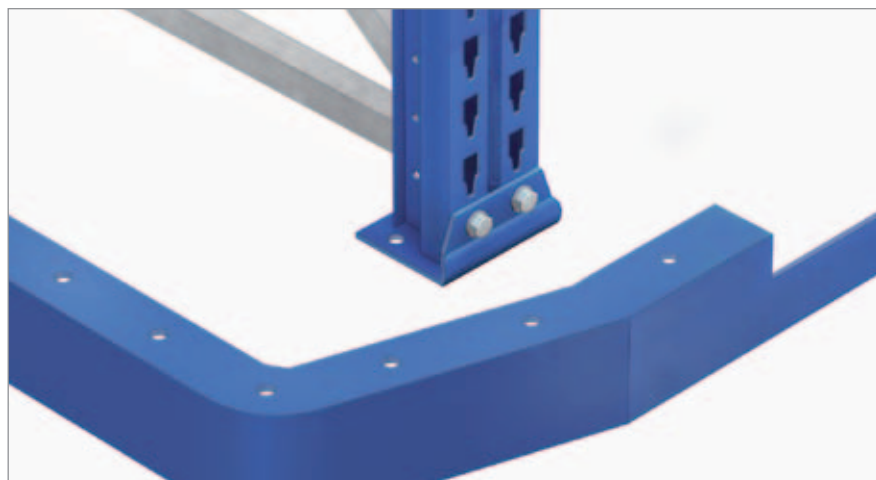


Guided using UPN 100 profile in order to form islands
The space between the aisle guides over where the racks are placed is filled with concrete.



Wire-guided guidance
A wire embedded in the floor produces the magnetic field that guides the forklift.

At aisle entrances, with mechanical guidance, entry profiles are placed at the opening in order to facilitate the centering of the forklift.





Brackets without centering devices



Brackets with centering devices



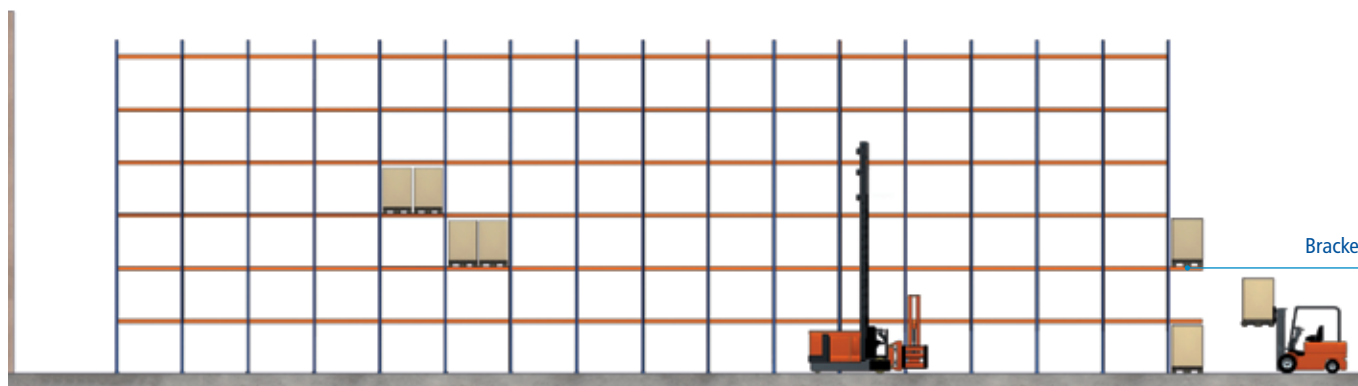
Entry brackets

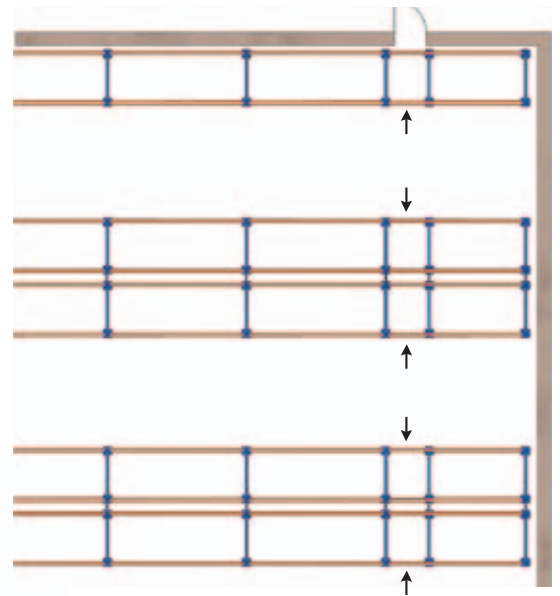
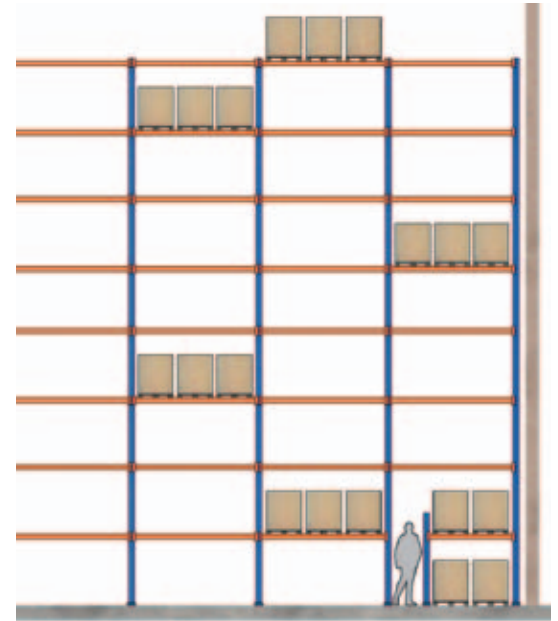
When the number of movements requires it, brackets are placed on the rack headers so that pallets can be deposited there temporarily.

Tower-type forklifts, designed primarily to work inside aisles, extract and deposit pallets inside them. Other more conventional forklifts are responsible for handling pallets from these points.

There are several types of brackets designed for different needs, height requirements, dimensions, load capacity, etc. Brackets, in turn, may be equipped with pallet centering devices that allow them to be positioned with greater accuracy, thereby facilitating their placement in places with a smaller margin of tolerance.

When guidance is mechanical, pallet support profiles must also be placed on the headers.





Safety Complements

Safety crossing

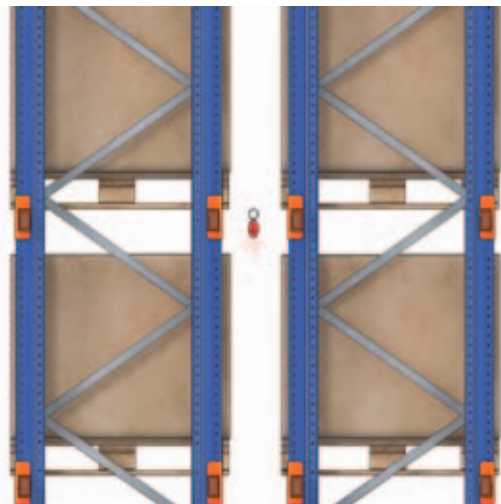
For security reasons, the installation might need some safety crossings in the lower rack levels to serve as emergency exits.



Top Portico

In shelving of a certain height, there is the possibility of connecting them on the top level to give the group more stability.

These porticos must be above the maximum height of the machines, including the mast and the cradle.



Fire Protection Systems

It is common in high shelving to integrate a fire protection system into the shelf.

In this case, the shelving capacity and the distance between levels have to be recalculated for the proper installation of tubes and sprinklers.

The tubes and sprinkler heads will coincide with the space occupied by the beams.



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