Movirack Mobile Pallet Racking

Large-scale storage on mobile shelving units

MECALUX

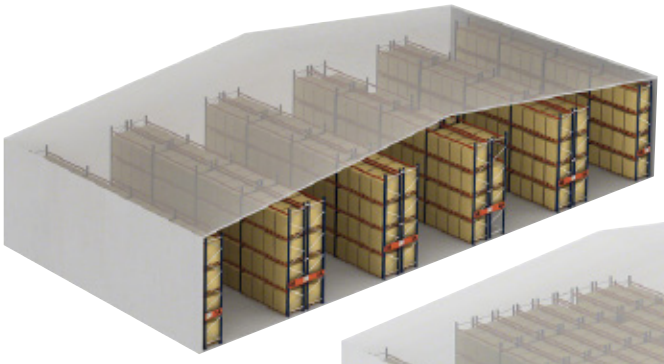
General Features of Movirack System

With the Movirack system, shelving units become more compact and their storage capacity considerably increased, particularly when using pallets. All this without giving up direct access to any item in stock.

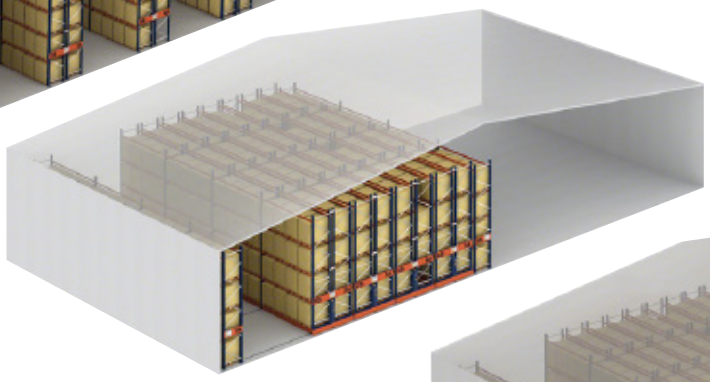
The shelving units are installed over guided mobile bases that slide laterally, thus eliminating the need for aisles, which open up only when accessed.

The operator gives the order to automatically open the unit, either by remote control or manually by flicking a switch.

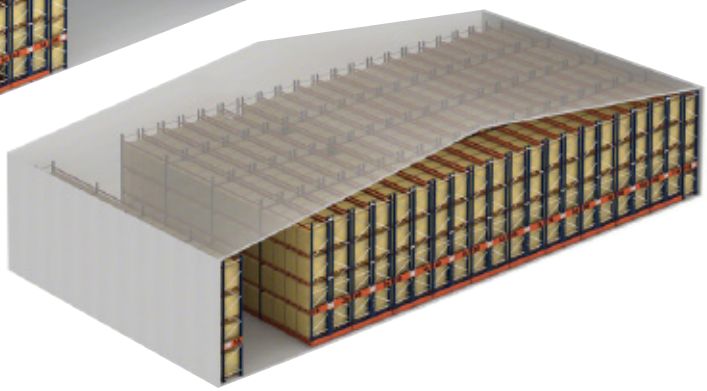
The mobile bases have motors, sliders, electronics and several safety systems to guarantee a safe, efficient operation.



Warehouse using conventional pallet storage.



Warehouse using mobile bases. The same capacity with a single aisle occupies less space.



Warehouse using mobile bases. Utilizing the most space possible considerably increases storage capacity.

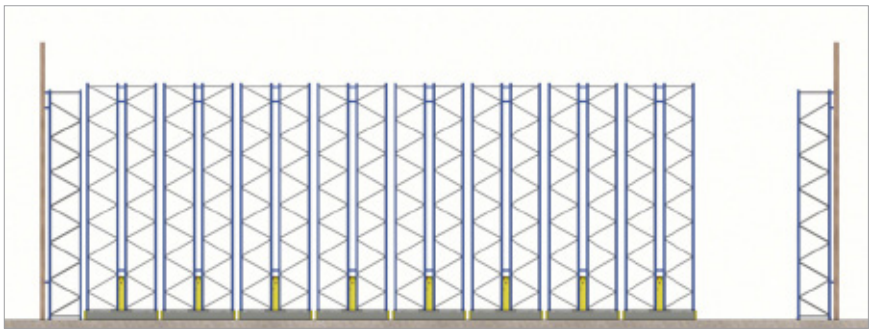
Most Outstanding Advantages

Direct access to any pallet in storage

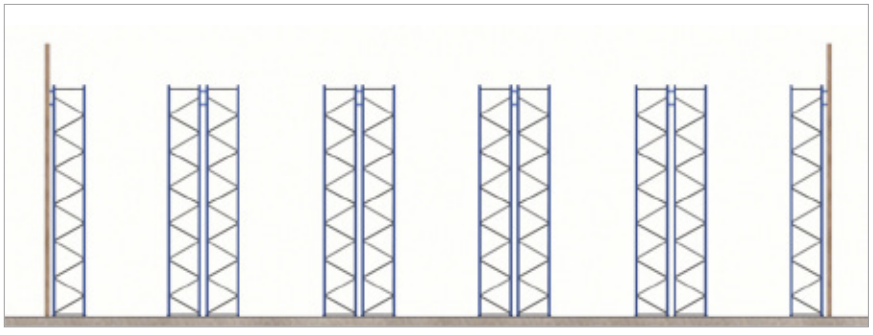
As these shelving units are installed over bases, merely by opening up the corresponding aisle provides direct access to the desired pallet.

Makes the most of your available space

This excellent utilization of available space is thanks to two basic premises: increasing the storage capacity and reducing the storage area to build.



Example of a pallet warehouse using mobile bases.
This figure illustrates the sizeable increase in capacity that a mobile base system provides (from 80% to 120% more than a conventional pallet system. The increase depends on the type of forklift being used, the facility size and the number of open aisles.



Example of a conventional pallet warehouse.

Applications

Here we can see some examples of its multiple applications:

Palletized product storage

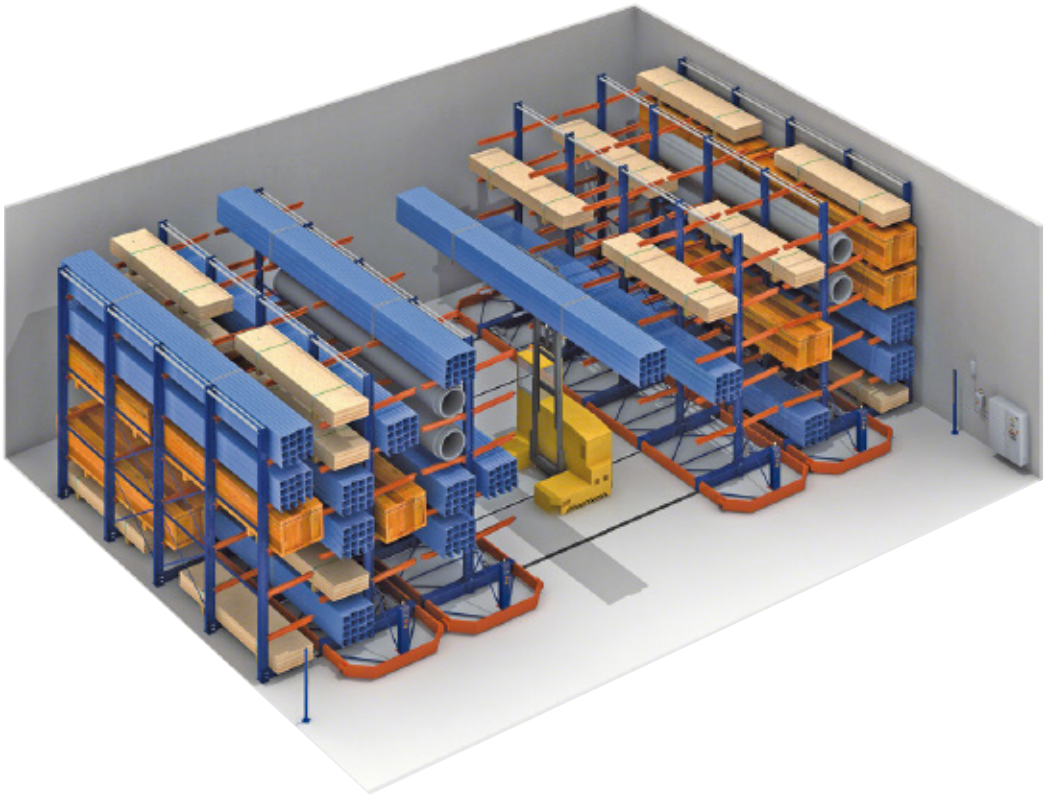
- General storage,
- products with average or low-level rotation,
- refrigerated storerooms,
- intermediary or shipping warehouses.

Warehouse with cantilever shelves

- For sheets, reels, and large or irregular-sized products.

In these cases, the same utilization criteria for palletized products is applied.

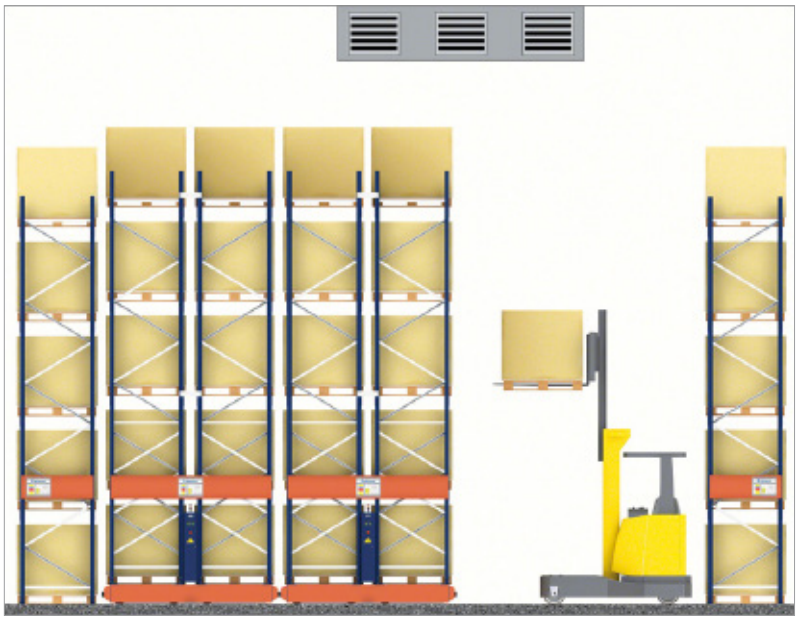
Conventional forklifts can be used (reach trucks) alternatively ones specially used for lengthy products (lateral load or four-way fork lifts).



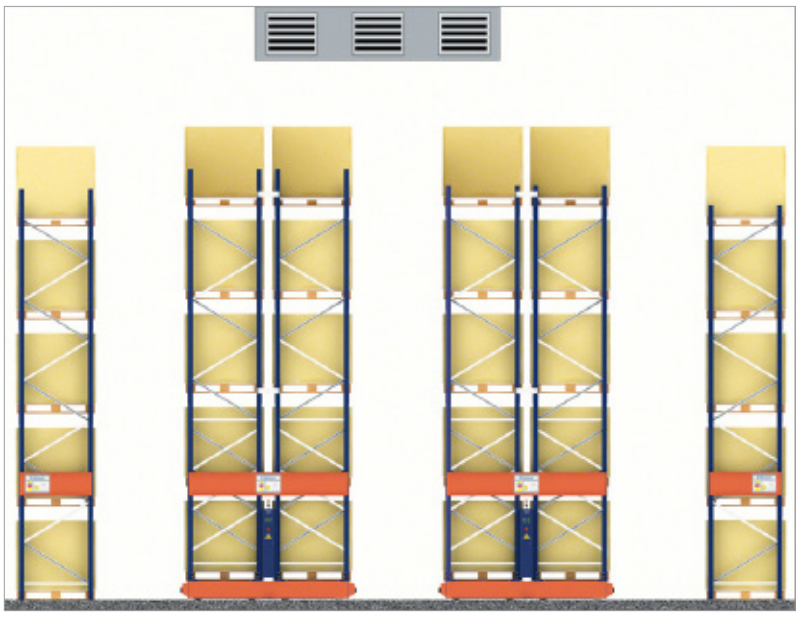
Refrigerated Storerooms

The Movirack System is ideal for low or medium-height refrigerated or freezer storerooms, as:

- Being a compact system, its investment is quickly recovered.
- Every pallet can be directly accessed: very useful when there are few pallets per item.
- The energy savings are increased in terms of generating cold air. The air is spread over a larger number of pallets in storage, thus reducing the expense per pallet.
- There is better air circulation in down times when using the parking option, which increases the separation between shelves to spread the aisle space more equidistantly.
- With the parking option, if enough space is available, aisles can be used to pick individual items from the lower shelves.
- The use of a conventional forklift allows for direct access from the dock area to different points on the shelving unit.



Option with a single open aisle.



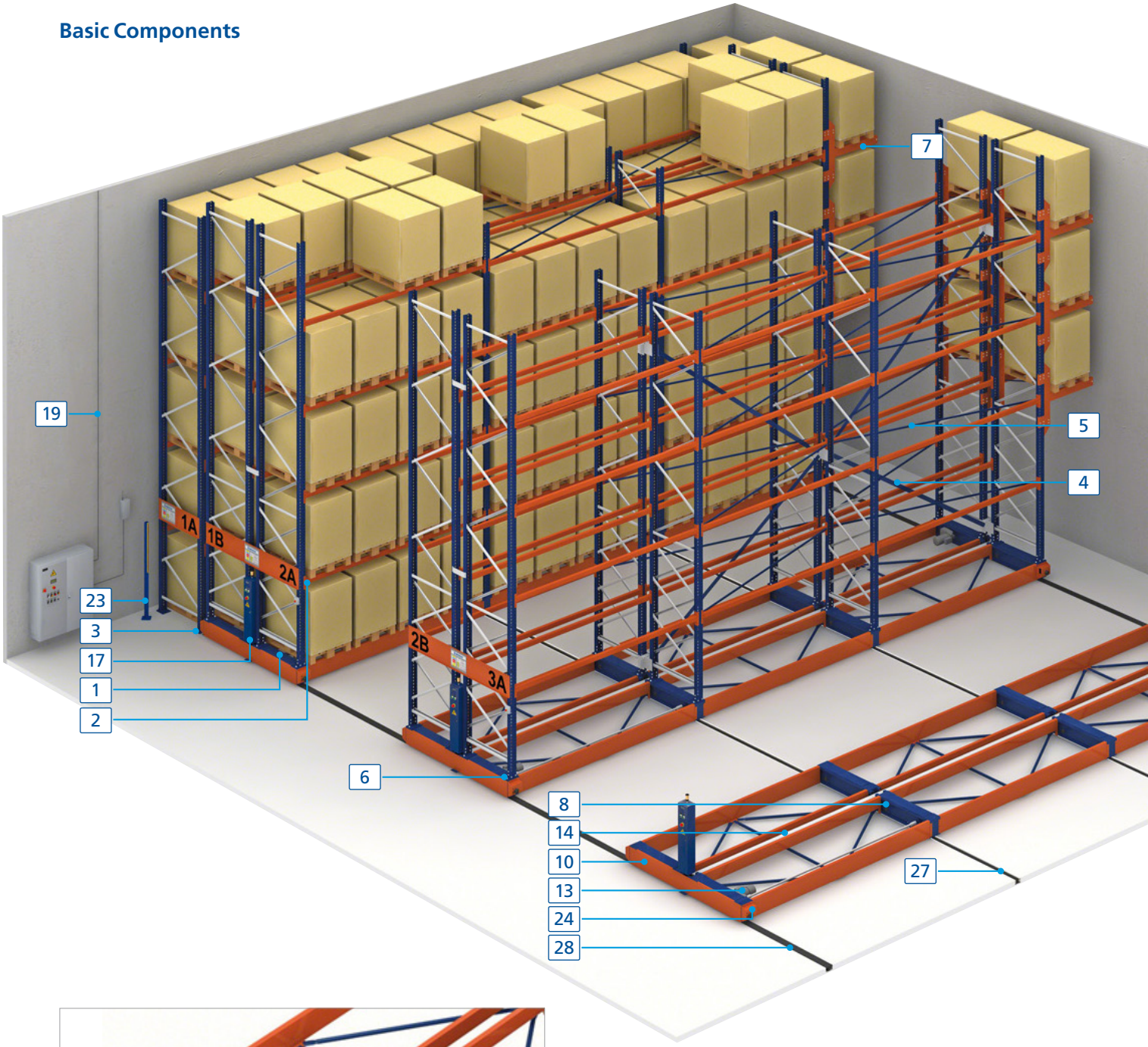
Option parking.

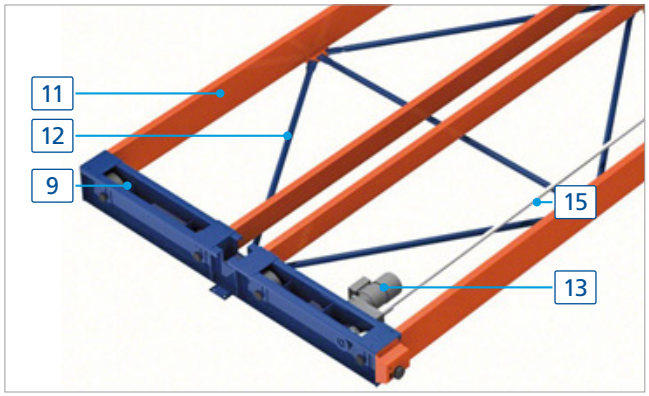
MECALUX
WAREHOUSE SOLUTIONS
7B
8A
15
16
8B
9A
17

3
6

6B
7A
7B
8A

Basic Components



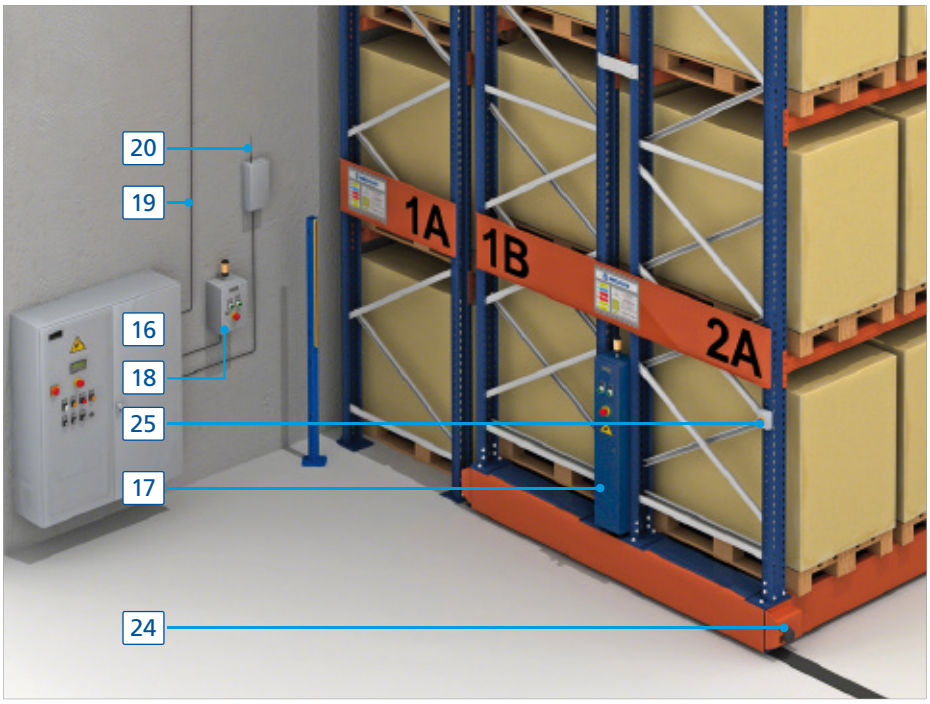


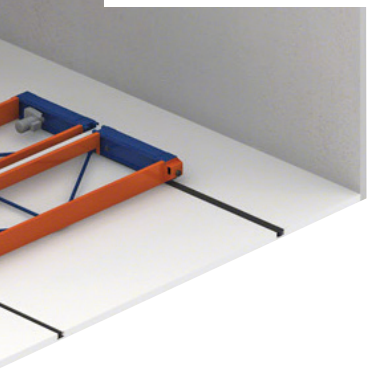
Shelves

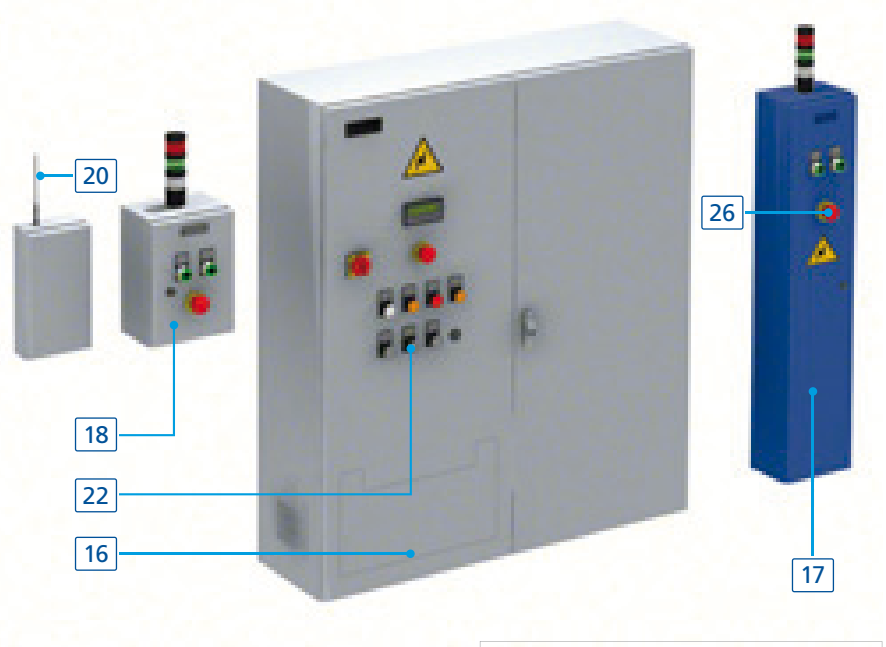
1. Chassis
2. Girder and mechanical safety lock
3. Anchorage and fasteners
4. Vertical brace
5. Horizontal brace
6. Base fasteners
7. Brackets (optional)

Mobile bases

8. Carrier roller / Carrier driver
9. Carrier guide
10. Carrier end
11. Base girder
12. Rigidity bracing
13. Motor
14. Cable channel
15. Drive shaft







Safety and control parts

16. Exterior main power panel
17. On-board control panel
18. Parking panel
19. Signal and power cables
20. Remote control antenna
21. Remote control
22. Control button pad
23. Exterior safety barrier
24. Interior safety barrier and proximity photocell
25. Reset button
26. Emergency button

Built-in tracks

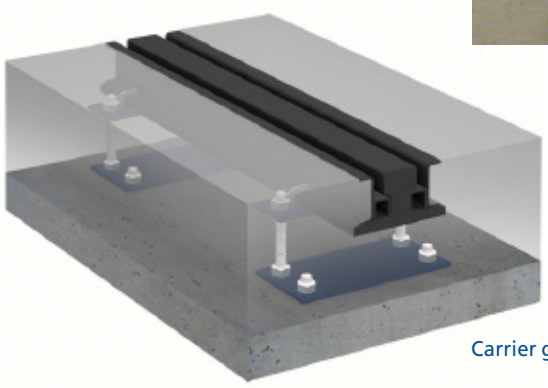
27. Roller tracks
28. Guide track

Building Systems

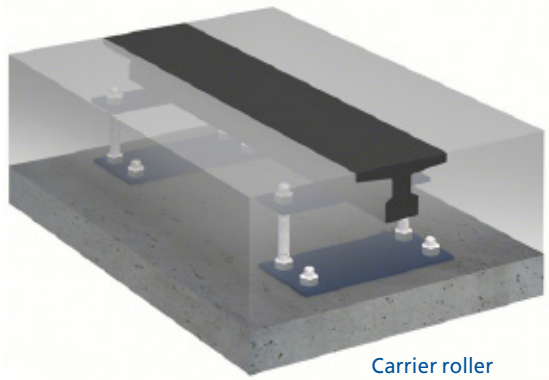
Built-in tracks
The moving shelving units travel over tracks which first have been leveled, fastened together and then sunk into the floor.

There are smooth tracks and guide tracks that match to the wheels on the carrier. The number of tracks depends on the characteristics of each facility.

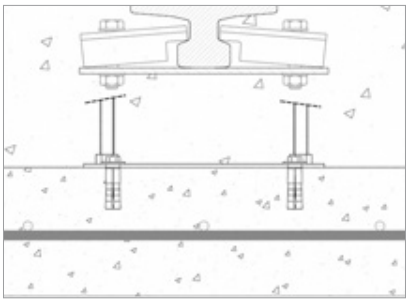
They can be installed in many different ways.



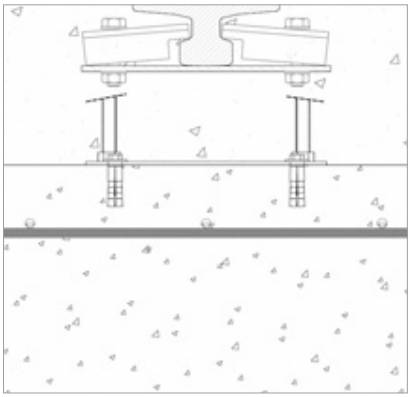
Carrier guide



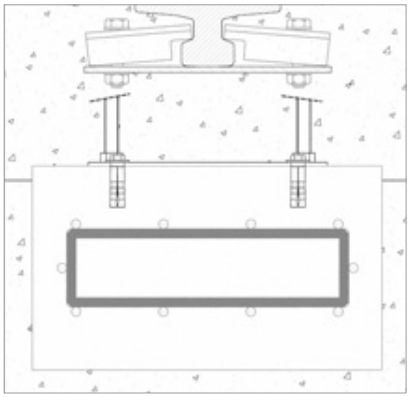
Carrier roller



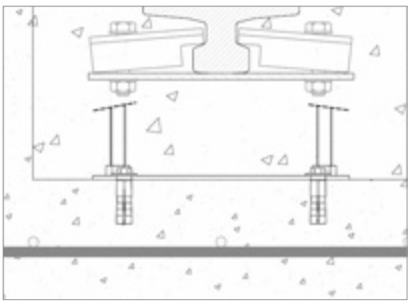
Over a concrete subfloor.
This system is most often used over a newly built floor.



Over an existing floor with posterior fill. Appropriate when the floor has adequate resistance but new flooring is to be laid.



Over an existing floor with channels and spreader beams. Appropriate when the floor resistance is insufficient or undetermined.



Over an existing floor with channels. Valid when the floor can handle the units without compromising its resistance.

Shelves

Facilities tend to be formed by fixed shelving units with access either on one side or both sides, or by mobile shelving units that always have access on both sides.

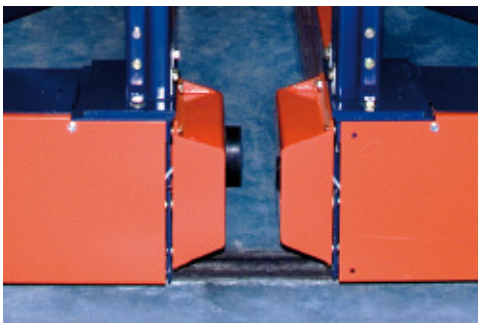
Both types have structural systems that are the same as convention pallet shelving units.

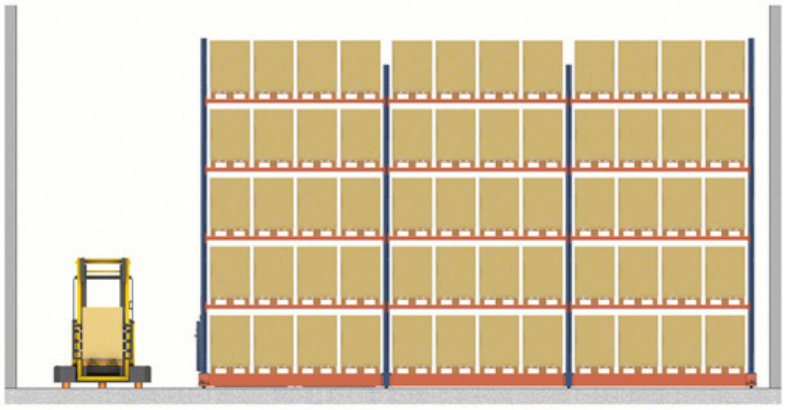
However, mobile shelving units must be equipped with rigidity bracing that provide them with better stability to withstand the forces produced by starting and stopping their movement.

There can be levels set for two, three or four pallets, depending on the size and load to be stored.

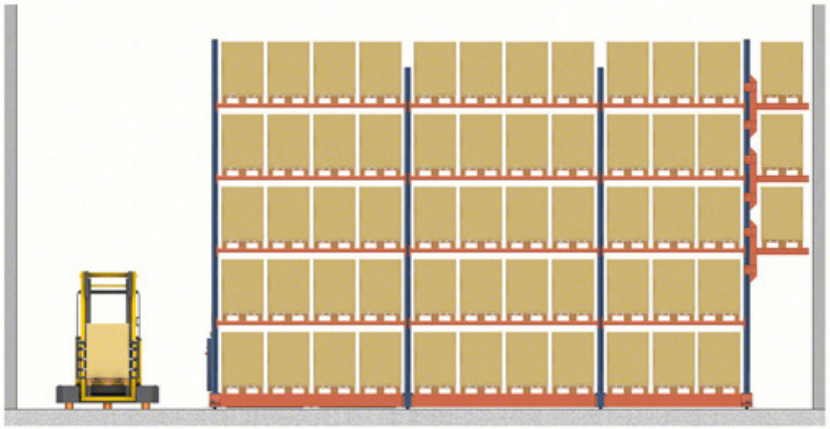
This figure shows the measurements and tolerance allowed in the direction of displacement.

Dimensions in mm





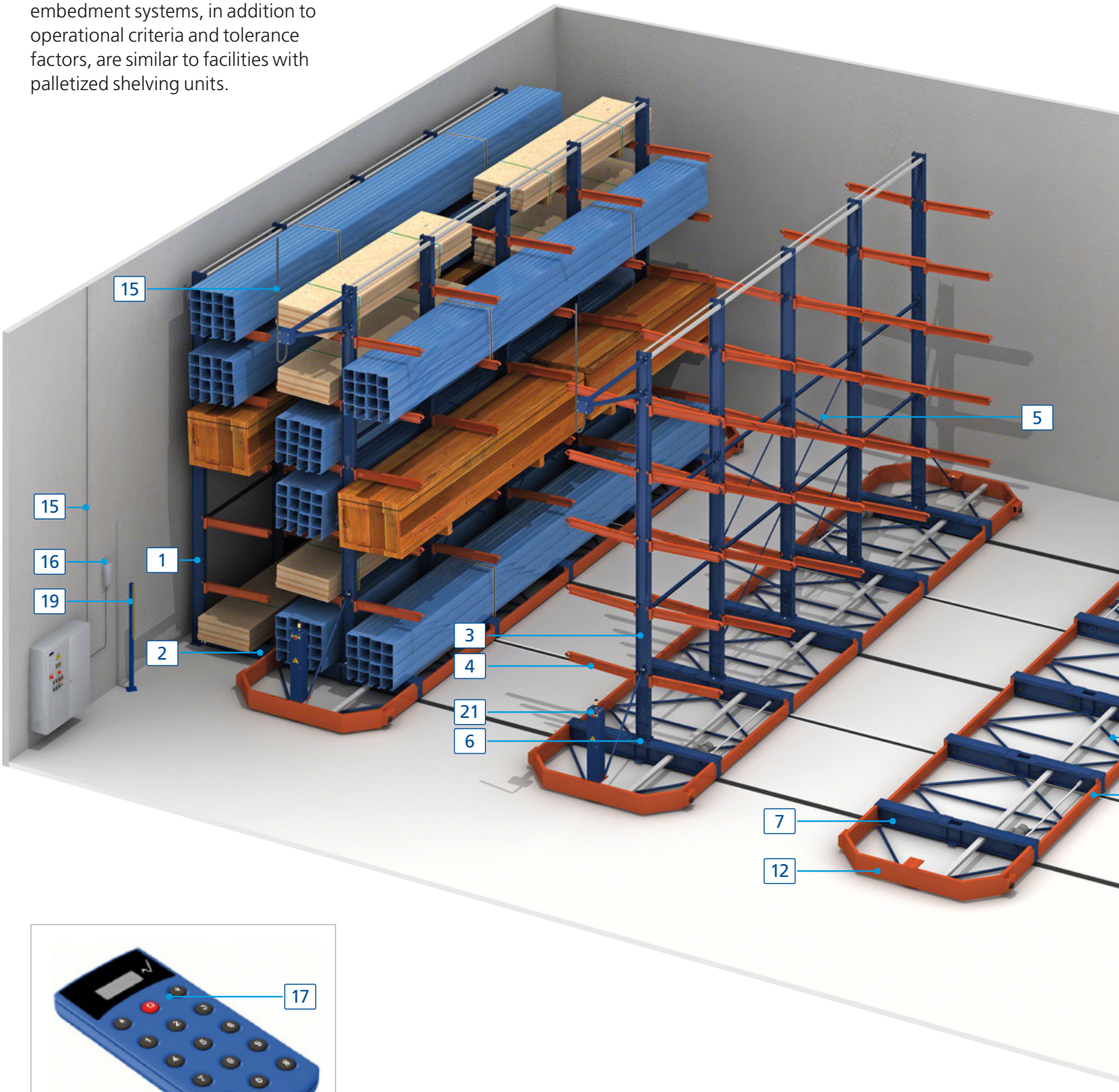
One-side access aisle
Most facilities require a single main aisle to maneuver in, so the shelving units are located perpendicular to it with a minimum distance from the sidewalls of 200 mm.



Access aisle plus pedestrian walkway
When necessary, or for safety reasons, the module closest to the wall can be cantilevered to leave the space below free for a pedestrian walkway or a fire escape route.

Basic Components for Cantilevered Shelving Units

The structural system, guides and embedment systems, in addition to operational criteria and tolerance factors, are similar to facilities with palletized shelving units.

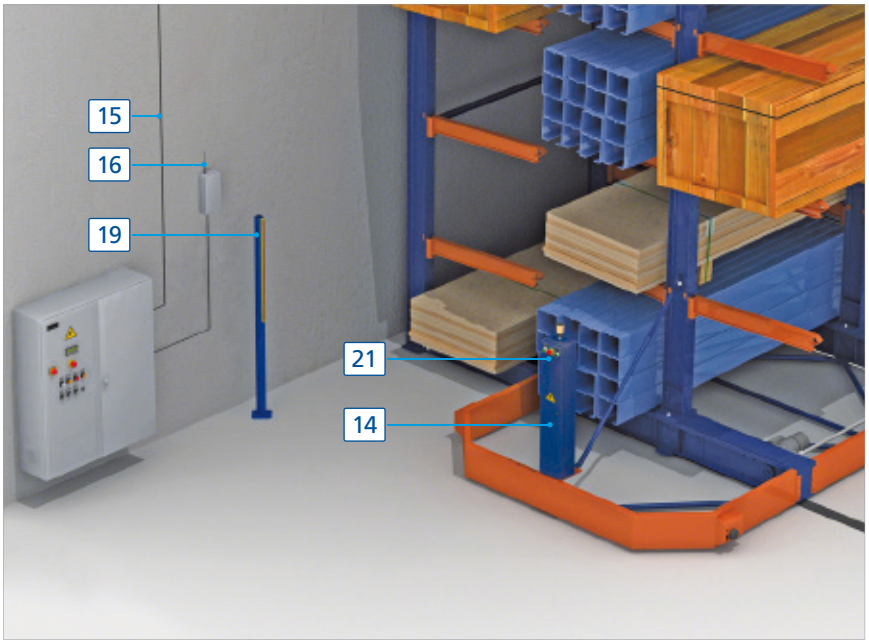


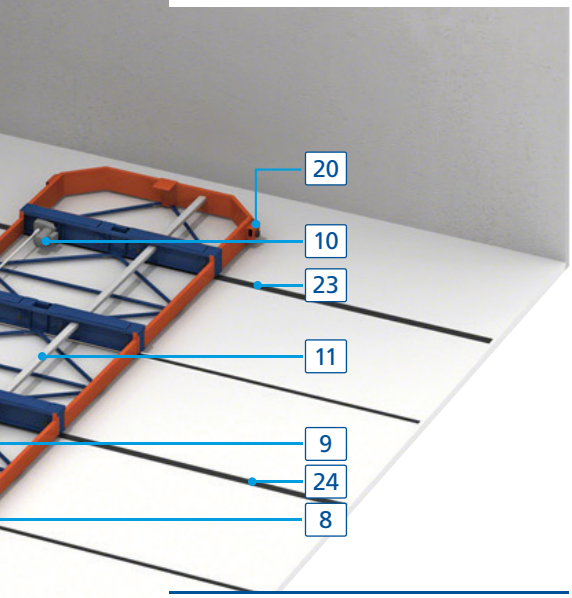
Shelves

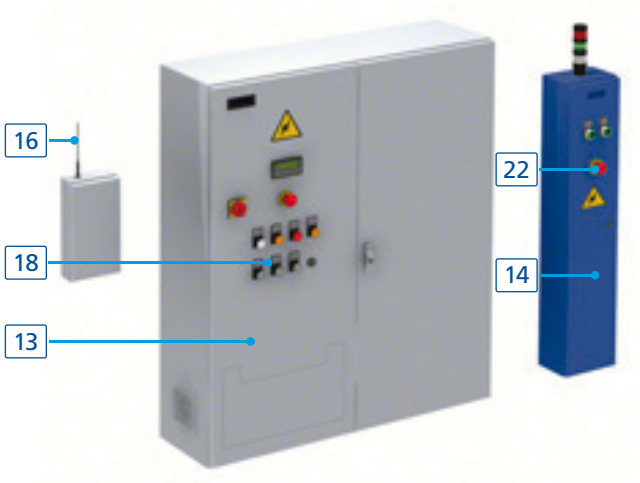
1. Single deep column
2. Cantilever baser
3. Double deep column
4. Cantilever arm
5. Set of vertical braces
6. Anchorage or fasteners

Mobile bases

7. Carrier roller / drive carrier
8. Base girder
9. Rigidity bracing
10. Motor
11. Cable channel
12. Set of base brackets







Safety and control parts

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20. Interior safety barrier and proximity photocell
21. Reset button
22. Emergency button

Built-in tracks

23. Roller tracks
24. Guide track

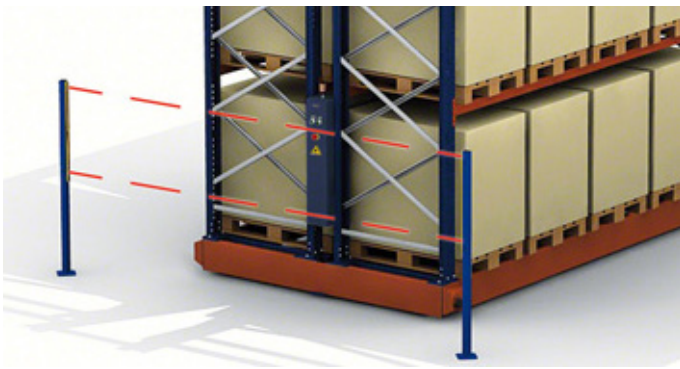
Exterior safety barrier

Controlling the Facility

The basic features of the control system are found in the main power panel and the on-board control panels.These ensure the mobile shelving units move safely and automatically.

The principal control features found in the panel are:

- The PLC controller, the brains behind the facility and where the operational logic is programmed.
- Power converters (synchronize the operations of the different motors on the base, which provide a boost of acceleration and a smooth stop). These also lengthen the lifespan of several different components (motors, wheels, guides, etc.).
- Error control screen.
- Aisle lighting panel (optional).



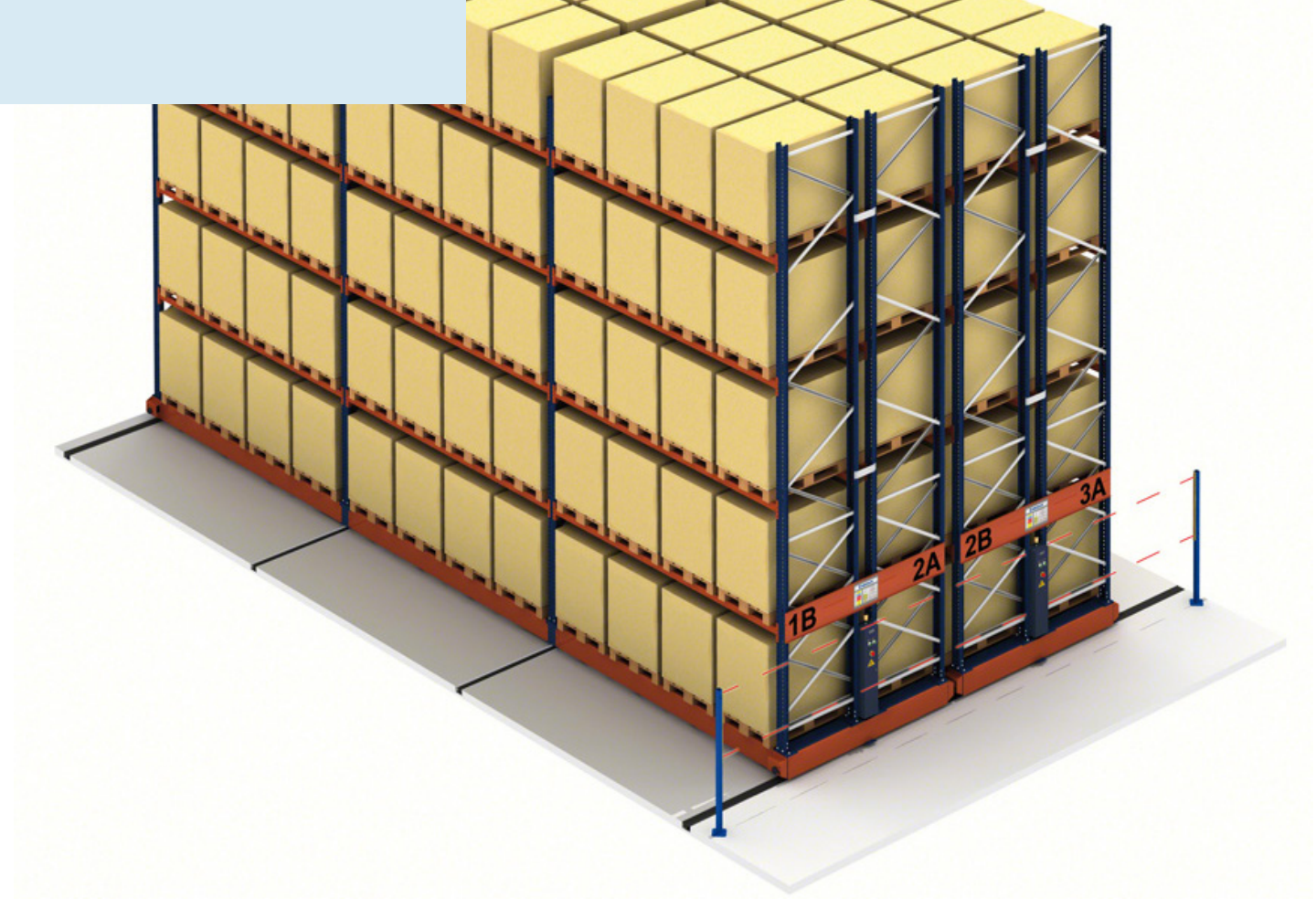
Remote control
Controls opening/closing and can reset the system without having to get down from the forklift.

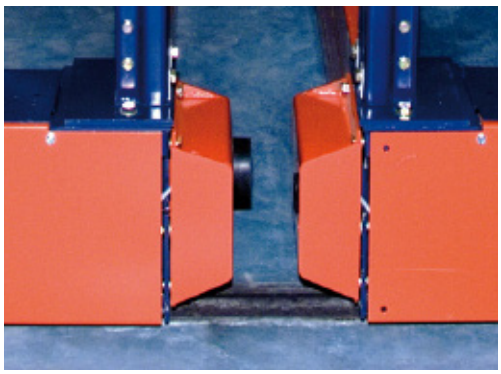
Safety devices
The many built-in safety devices conform to current safety standards and guarantee the mobile equipment are operated safely. Some of these include:

Exterior safety barrier
When open during operations in the aisle, anyone passing through the work aisle, either on foot on in the forklift, will automatically cut the power to the shelving units, impeding their movement.

It can only be reset manually be pressing the reset button located at the top of the aisle or by remote control, once the safety protocol has been applied.

This ensures that there are no operators working inside.



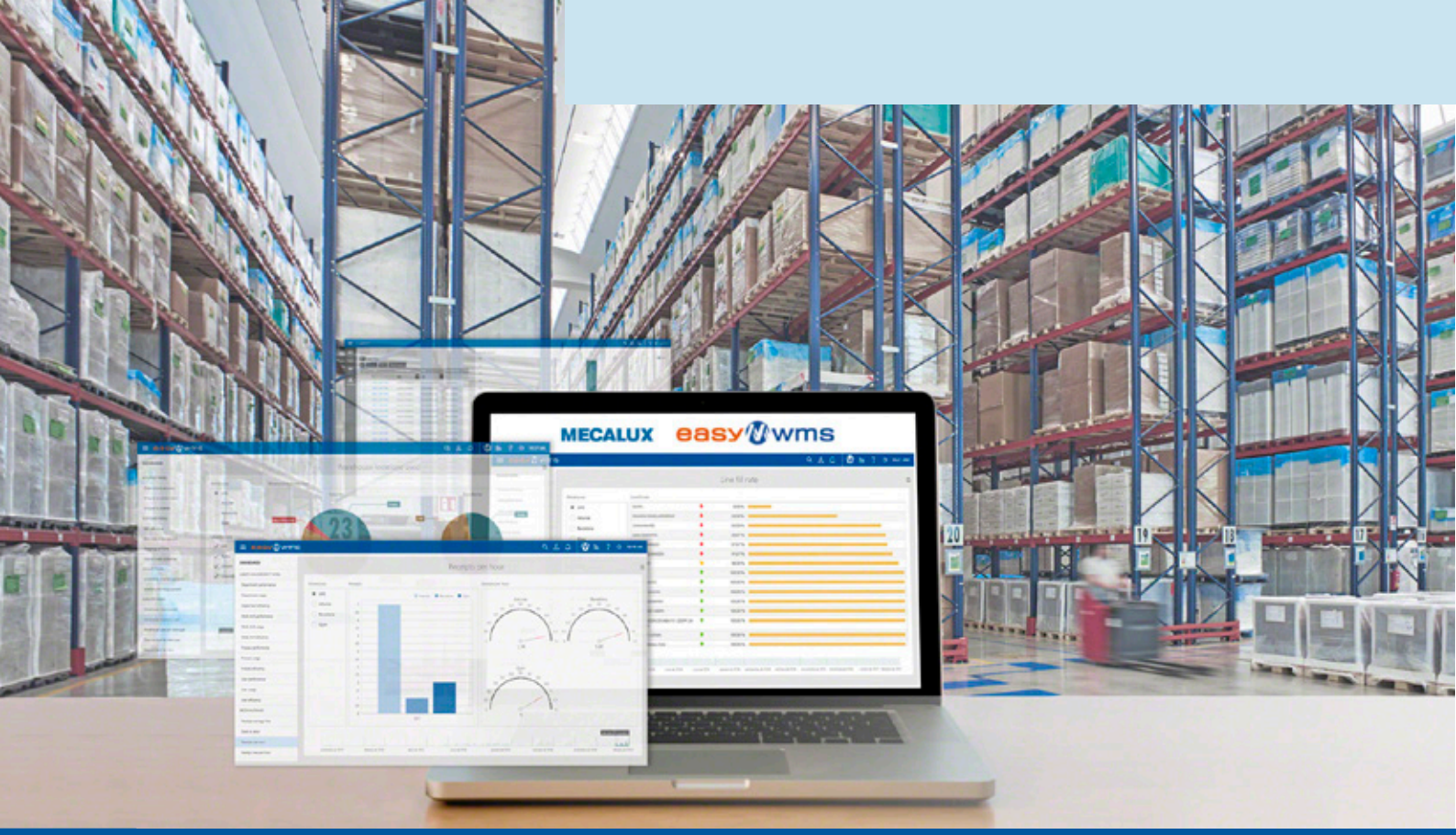


Interior safety barrier
On either side of the bases are longitudinal optic safety barriers which cover the entire front of the mobile shelving unit. In event of an emergency, the bases can be stopped if the beam of light is interrupted, with your foot for example. What's more, this barrier detects the presence of foreign objects in the aisle which may impede safe operation.

Proximity photocell
This ensures a smooth, safe stop at the pre-programmed separation distance.

Reset buttons
These are located at the top of the aisle.

Emergency buttons
These are located in the on-board control panels and can stop the moving shelves in an emergency.



Easy WMS Warehouse Management System

The brain of the installation

Easy WMS is a powerful, versatile, scalable and flexible software program that can manage a manually operated warehouse (paper or radiofrequency device run), a mixed facility or a large automated warehouse with the same efficiency.

Use it to streamline physical product flows and document management, from warehouse inputs to dispatches, for guaranteed full end-to-end traceability.

Advantages

- Receive real-time stock control
- Lower logistics costs
- Increase storage capacity
- Reduce handling tasks
- Eliminate errors
- Get precise, high-speed picking
- Adapt to new ecommerce needs
- Manage omnichannel operations
- Achieve a fast ROI (in 12-18 months)

Mecalux works with leading suppliers that attest to the quality, reliability and technical level of the Easy WMS platform:

SAP Certified Integration with SAP Applications · ORACLE Gold Partner Specialized Oracle Database · Microsoft Partner Gold Application Development · ZEBRA TECHNOLOGIES SEE MORE. DO MORE.

Interconnected solutions for your supply chain

WMS for Ecommerce

Ensures efficient multichannel logistics. Optimises the logistics operations of online shops, regardless of their size, number of daily orders or storage capacity.

Multi Carrier Shipping Software

Automates product packaging, labelling and shipping. Coordinates direct communication between the warehouse and the various transport agencies.

Store Fulfillment

Synchronises inventory and workflows to ensure optimal stock management between the central warehouse and the network of brick-and-mortar shops.

WMS for Manufacturing

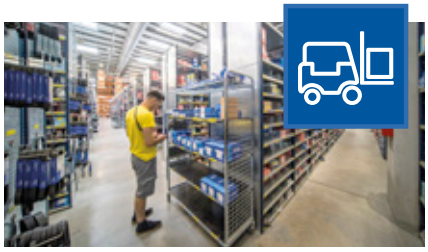
Facilitates traceability in manufacturing processes. Guarantees the continuous supply of raw materials to the production lines.

Supply Chain Analytics Software

Analyses the thousands of pieces of data generated daily in a warehouse, allowing the manager to make strategic decisions based on the real throughput of operations.

Marketplaces & Ecommerce Platforms Integration

Synchronises the stock in the warehouse with the online catalogue in real time.
Easy WMS automatically connects to the main digital sales platforms and marketplaces such as **Amazon, eBay** and **PrestaShop.**



3PL Warehouse Managemment Software

Manages billing between a 3PL and its customers. A dedicated access platform provides information on stock condition and how to place orders or request customised shipments.

Labor Management System (LMS)

Maximises operational productivity. It objectively measures the throughput of operators, detecting opportunities for improvement for the company.

Warehouse de Slotting Software

Optimises slotting management in the warehouse. It determines the optimal slotting for each SKU based on a set of predetermined rules and criteria (historic, current and future demand).

Yard Management System

Supervises the movement of vehicles in the yard at the warehouse or distribution centre. Optimises loading dock operations to improve vehicle flow and avoid bottlenecks with entering and exiting goods.

Easy WMS in the cloud

- **Lower initial investment** since in-house servers are not needed.
- Faster, simpler **implementation**.
- Easier, more affordable **technical support and maintenance**. Total security with Microsoft Azure.
- Software **version up-to-date** at all times.
- **Maximum availability** to guarantee business continuity.
- **Fees adapted** to the needs of each business.

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