Movirack Mobile Pallet Racking

Large-scale storage on mobile racking units

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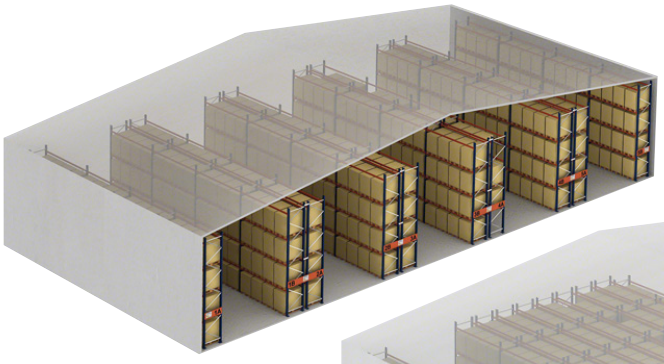
Movirack system: general features

With the Movirack system, racking 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.

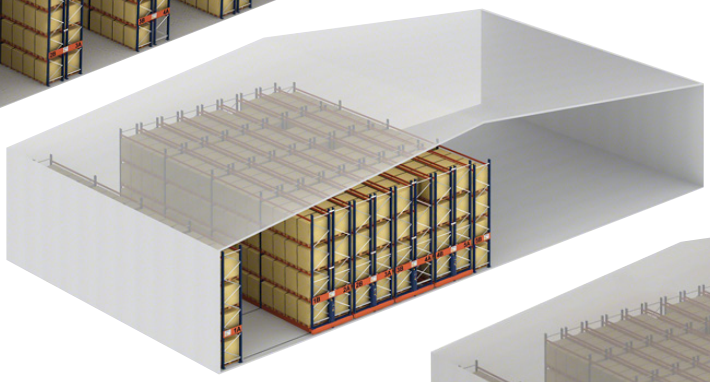
The racking units are installed over guided mobile bases that slide laterally, thus eliminating the need for aisles (which only open when accessed).

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

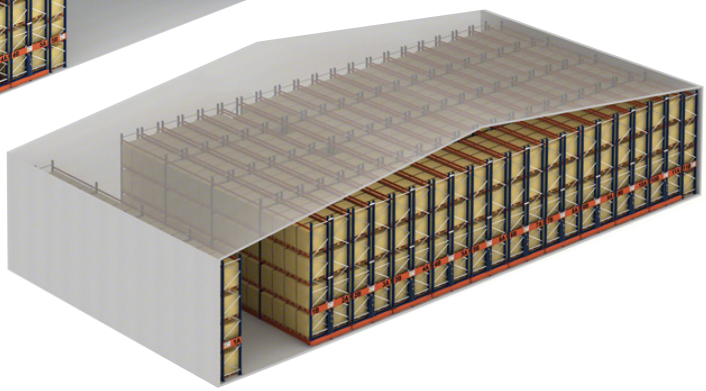
The mobile bases have motors, sliders, electronics and several safety systems to guarantee safe, efficient operation.



Warehouse using conventional pallet storage.



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



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

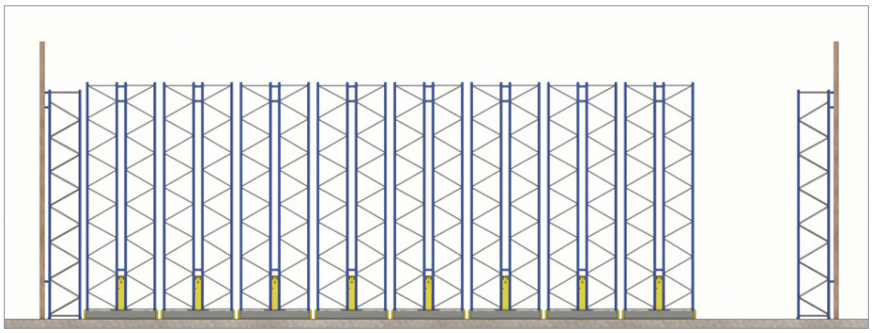
Key advantages

Direct access to any pallet in storage

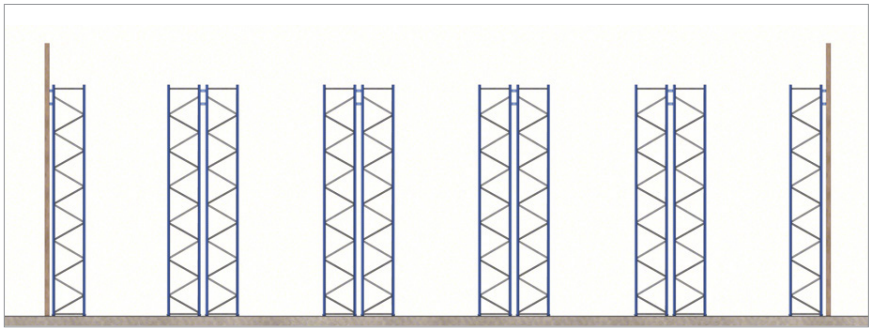
As these racking units are installed over bases, merely opening up the corresponding aisle provides direct access to the desired pallet.

Maximisation of your available space

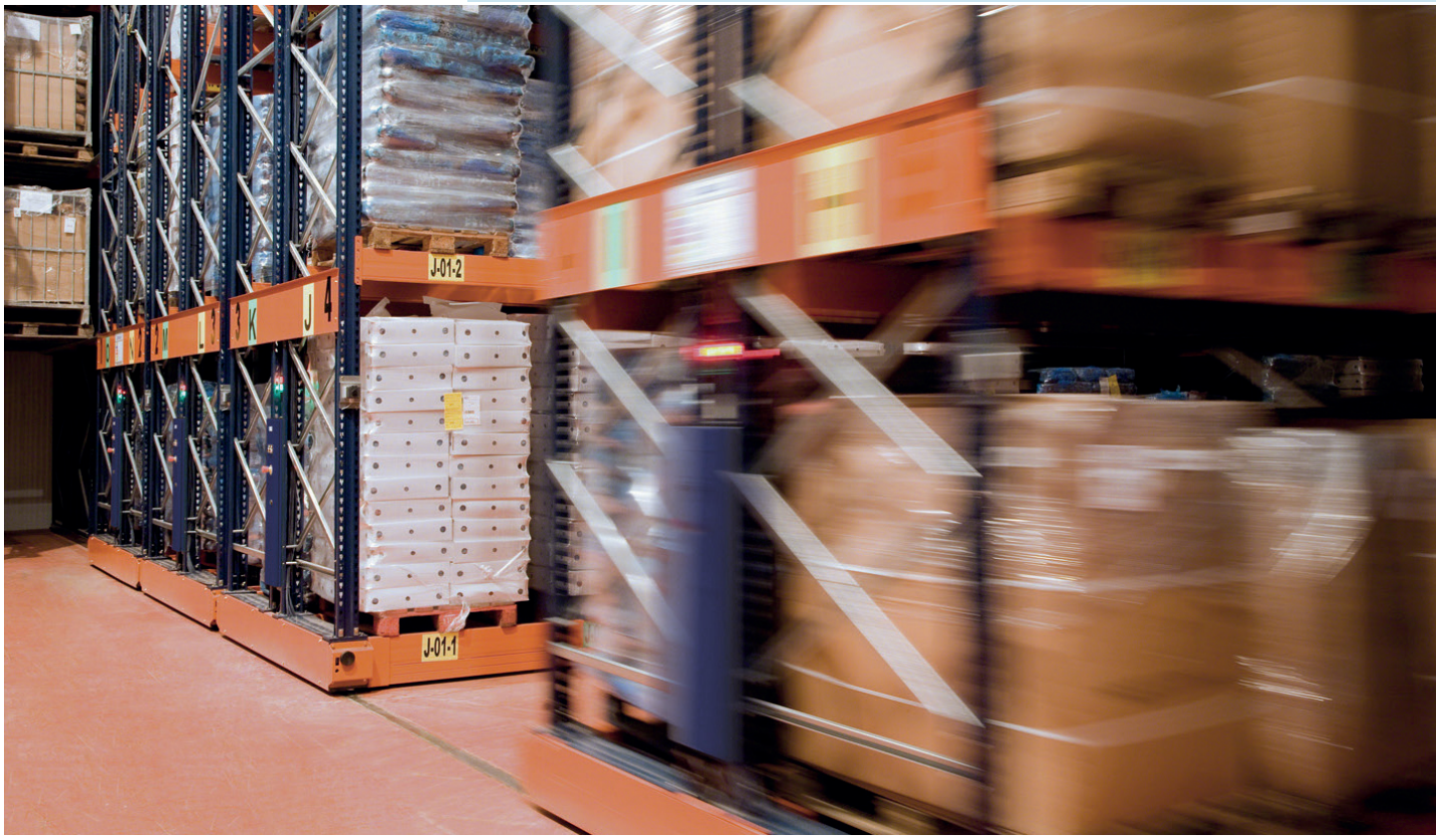
This excellent use of available space is thanks to two basic premises: increasing the storage capacity and reducing the storage area to be built.



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 pallet rack system). The increase depends on the type of forklift being used, the facility size and the number of open aisles.



Example of a warehouse with pallet racks.



Applications

These are some examples of the Movirack system's multiple applications:

Palletised product storage

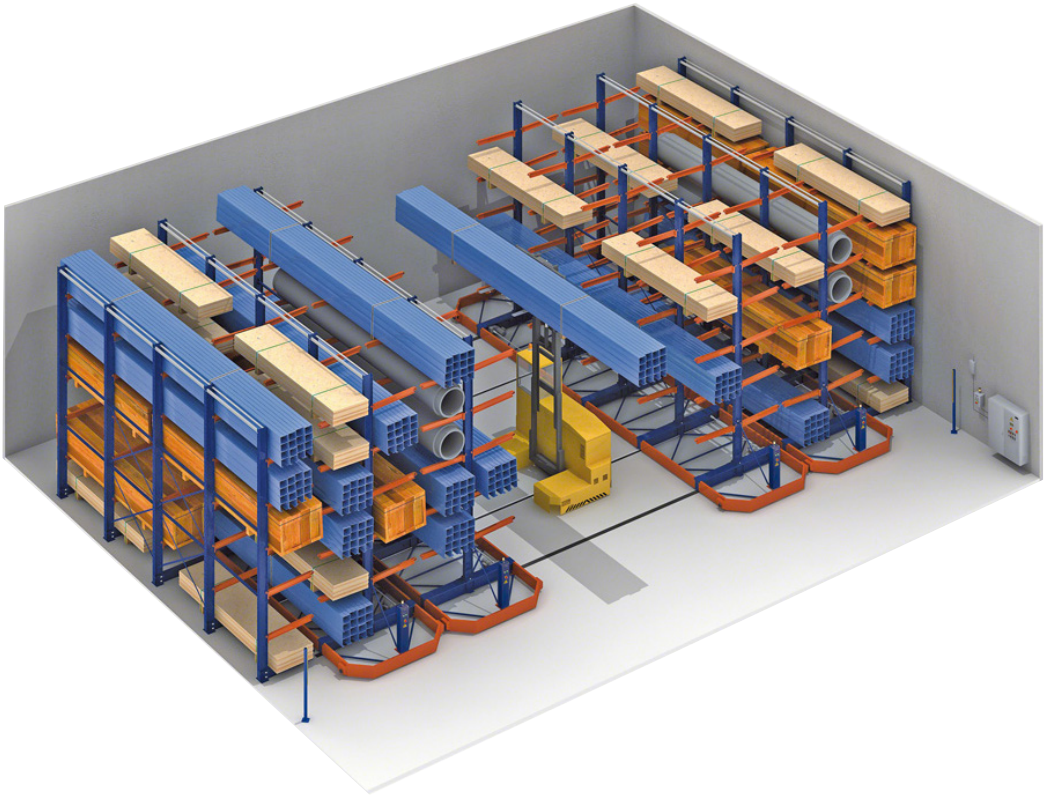
- General storage,
- products with average or low-level rotation,
- refrigerated storerooms,
- intermediary or shipping warehouses.

Warehouse with cantilever racks

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

In these cases, the same utilisation criteria for palletised products is applied.

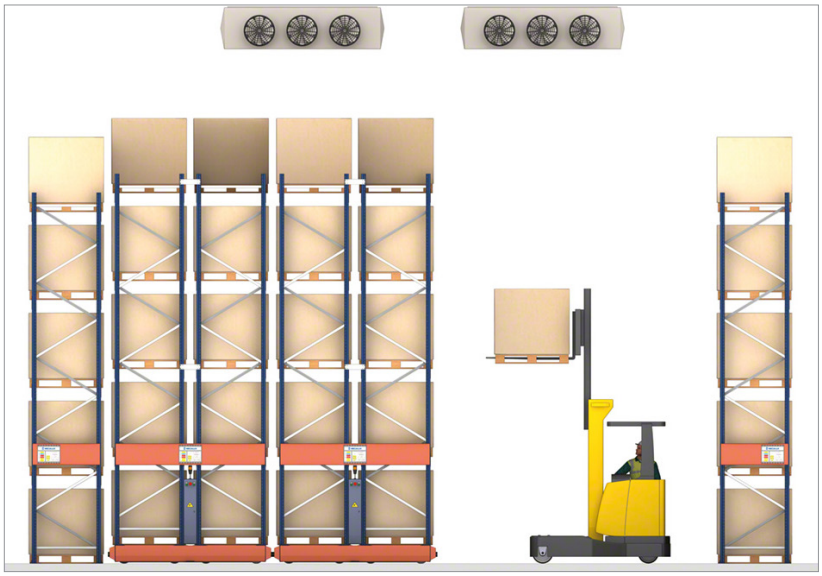
Both conventional forklifts (counterbalanced and reach trucks) and those used for lengthy products (lateral-load and four-way forklifts) can be used.



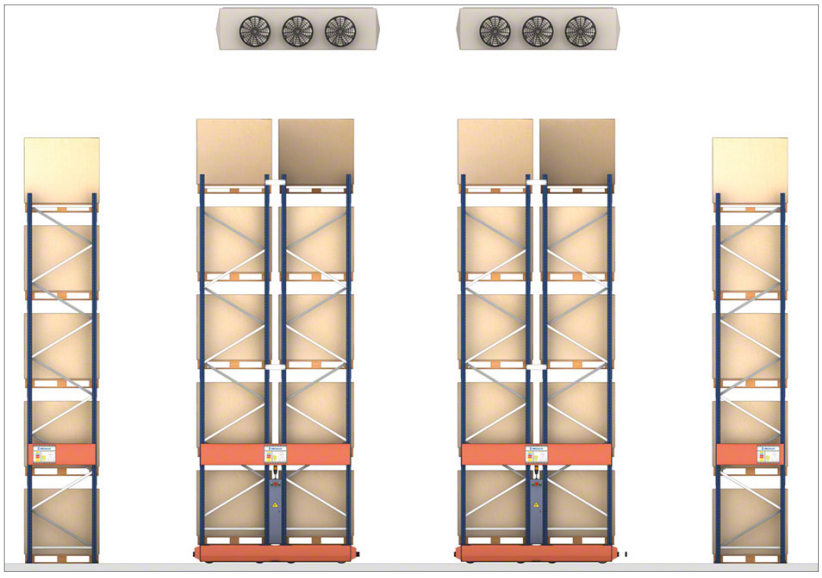
Refrigerated warehouses

The Movirack system is ideal for low or medium-height refrigerated or freezer warehouses because:

- Being a compact system, it has a quick return on investment.
- Every pallet can be directly accessed. This is very useful when there are few pallets per item.
- 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 racks 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 racks.
- The use of a conventional forklift allows for direct access from the dock area to different points on the racking unit.



Option with a single open aisle.



Parking option.

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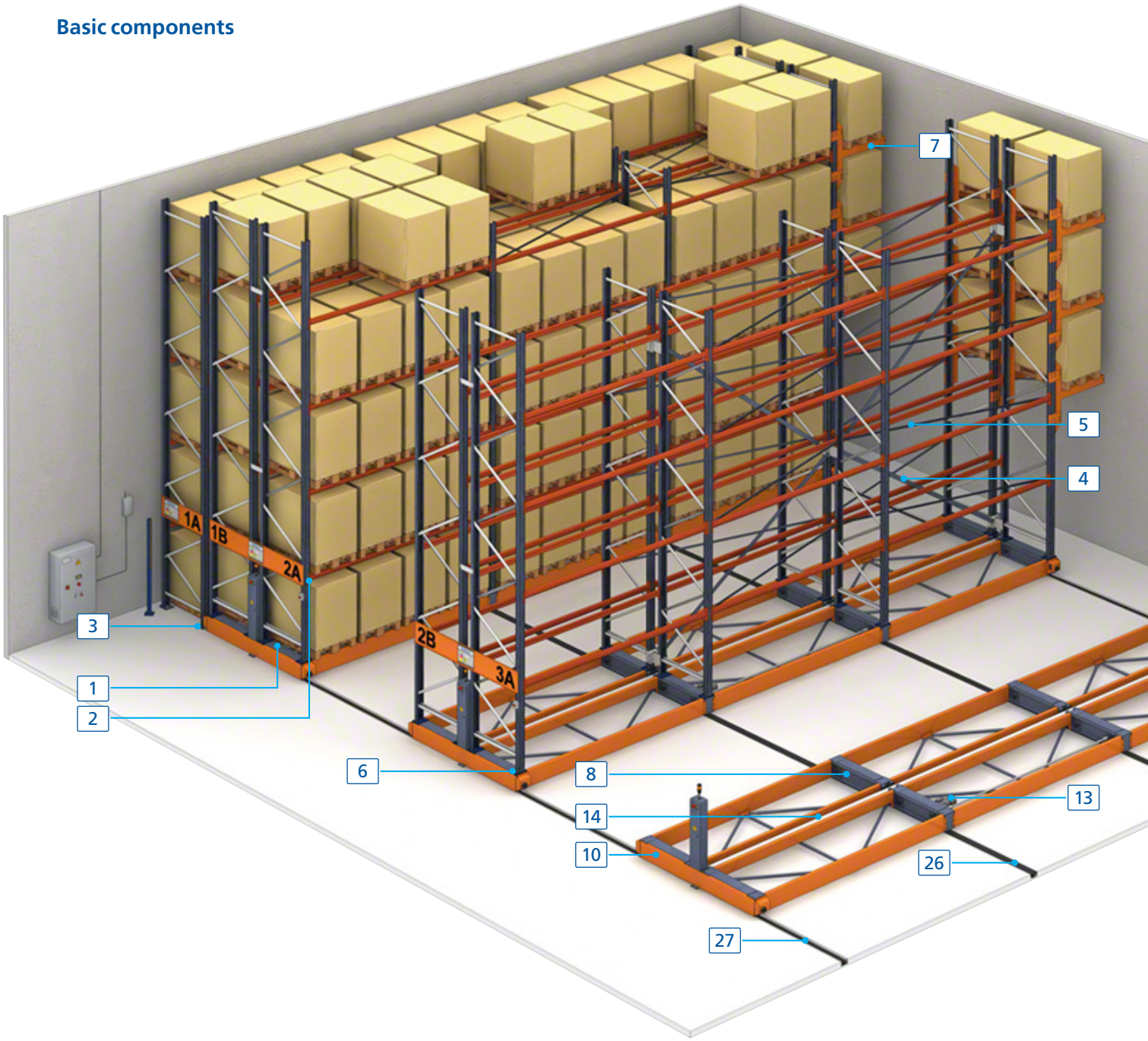
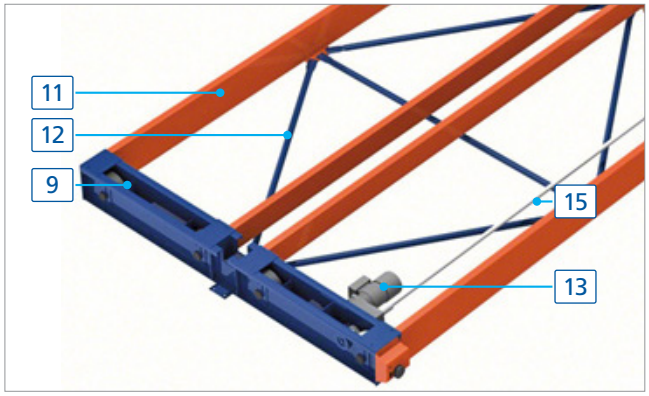
7A 13
14 7B
8A 15
16 8B
9A 17
22

3 6

6 B
7 A
7 B
8 A

Basic components



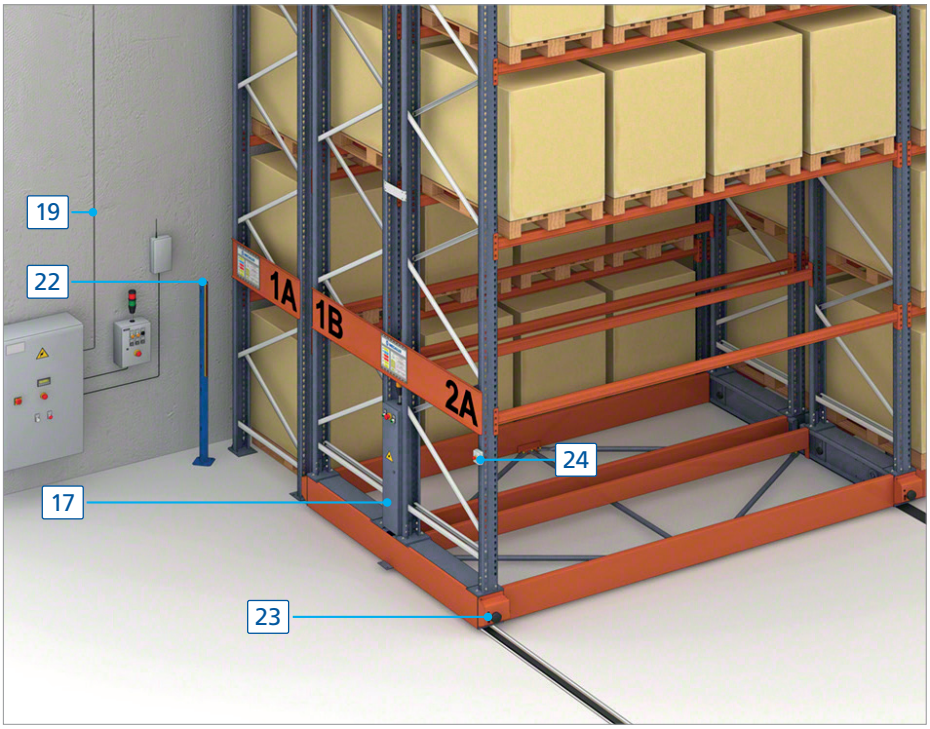


Racks

1. Frame
2. Beam
3. Anchorage
4. Vertical bracing
5. Horizontal bracing
6. Base fasteners
7. Brackets (optional)

Mobile bases

8. Roller carriage/drive carriage
9. Guide carriage
10. End of carriage
11. Base beam
12. Bracing set
13. Motor
14. Cable channel
15. Drive shaft



Control and safety elements

16. Main power panel
17. Onboard power panel
18. Control panel
19. Signal and power cables
20. Remote control
21. Control button pad
22. External safety barrier
23. Internal safety barrier and proximity photocell
24. Reset button
25. Emergency stop button

Embedded rails

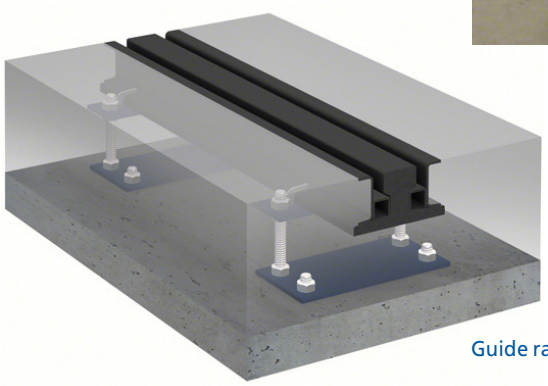
26. Guide rail
27. Roller rail

Building systems

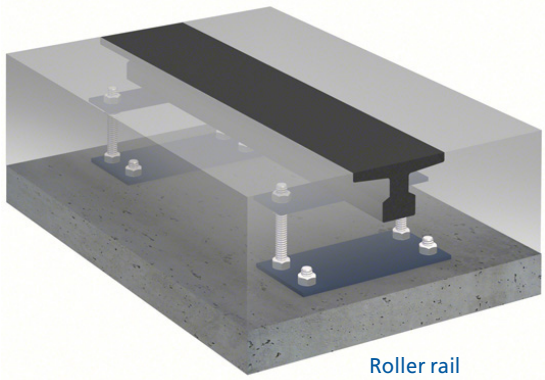
Embedded rails
The mobile racking units travel over rails that have first been levelled and anchored and then embedded in the floor.

There are smooth rails and guide rails that match the wheels on the carriage. The number of rails depends on the characteristics of each facility.

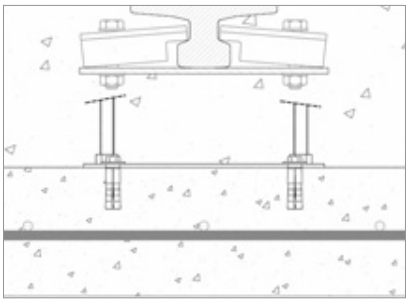
They can be installed in many different ways.



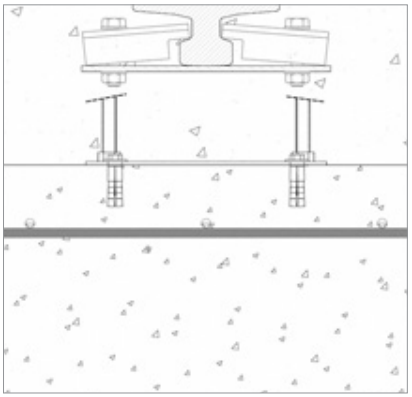
Guide rail



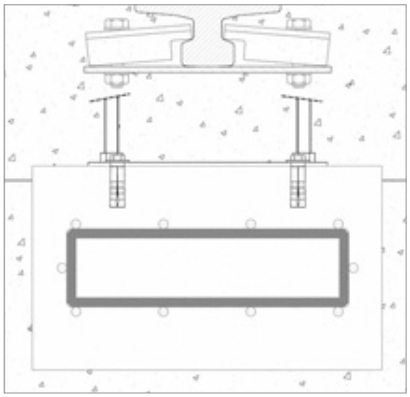
Roller rail



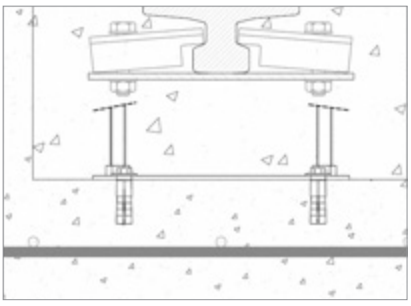
Over a concrete subfloor. This system is most often used over a newly built floor.



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



Over an existing floor with channels and support joists. 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.

Racks

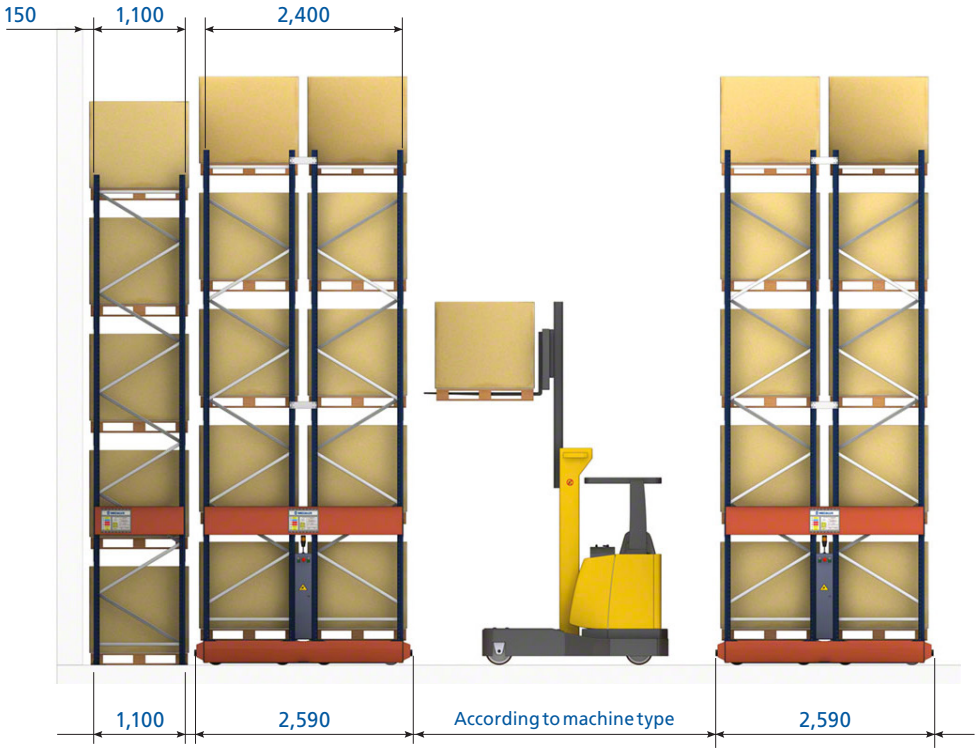
Facilities tend to be formed by fixed racking units with access either on one side or both sides, and by mobile racking units that always have access on both sides.

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

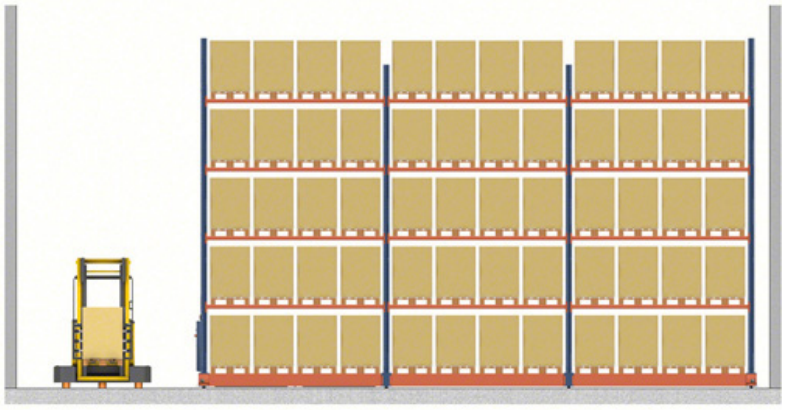
However, mobile racking units must be equipped with rigidity bracing that provide them with better stability to withstand the forces produced by starting and stopping their movement.

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

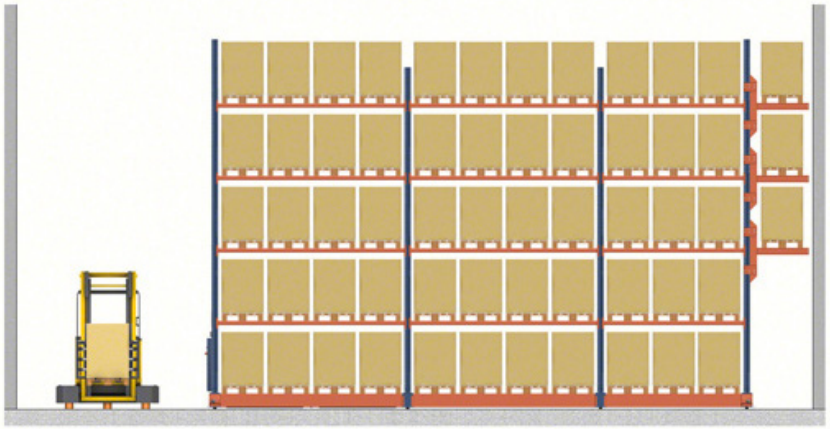
This figure represents the depth of the racks as viewed from the side.



Dimensions in mm



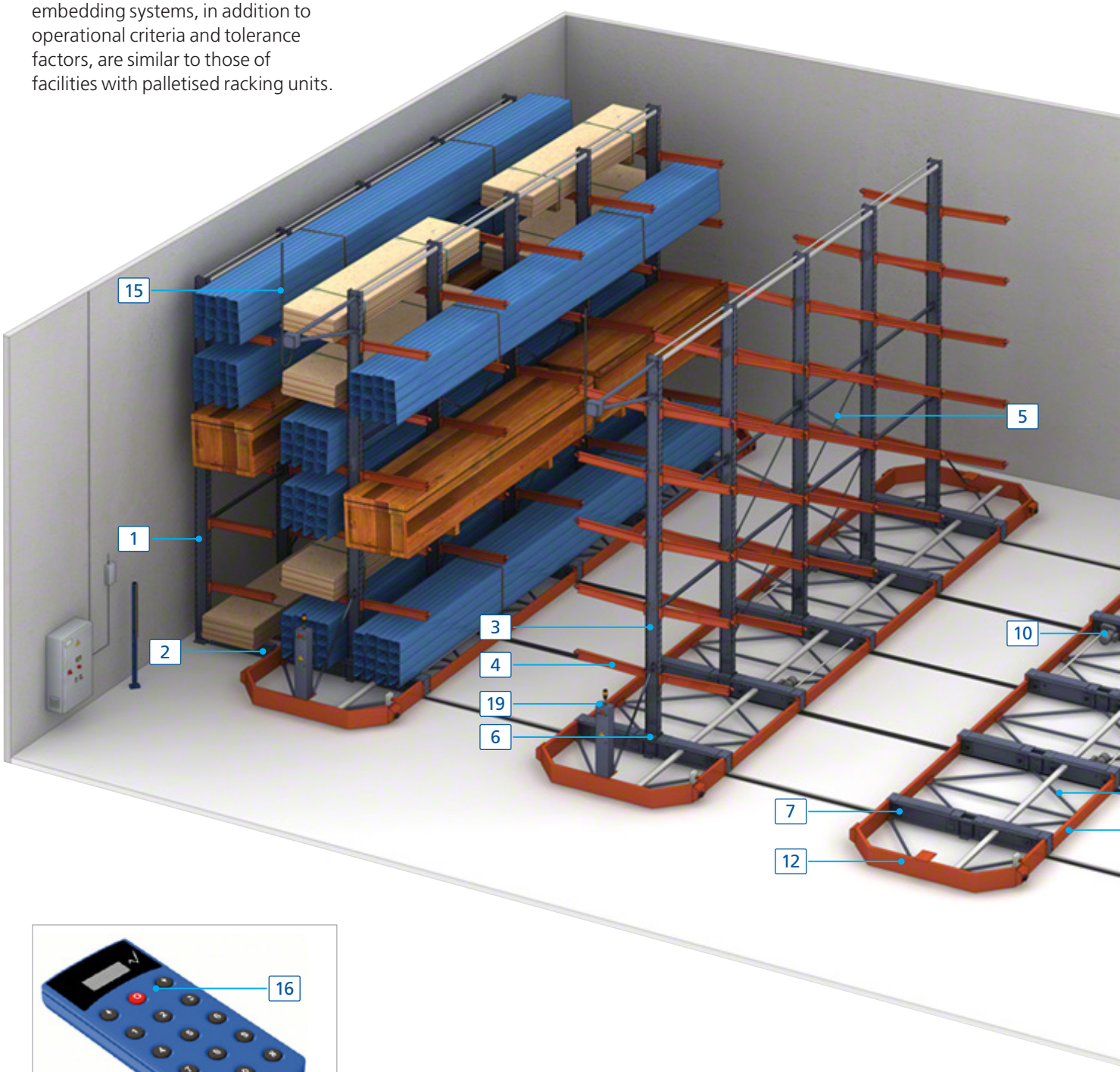
Single access aisle
Most facilities require a single main aisle to maneuver in, so the racking units are located perpendicular to it with a minimum distance from the side walls of 200 mm.



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 racking units

The structural system, guides and embedding systems, in addition to operational criteria and tolerance factors, are similar to those of facilities with palletised racking units.

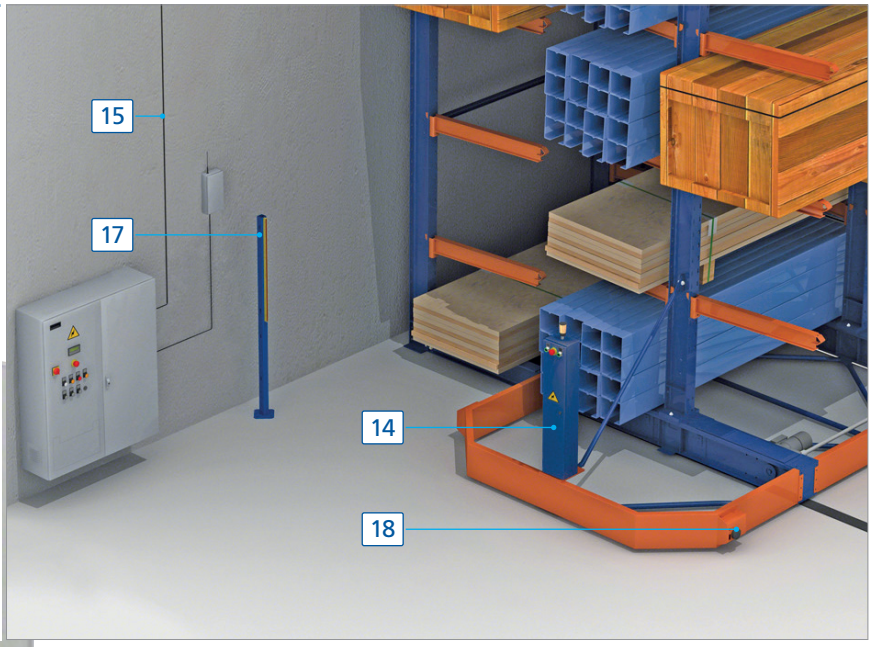


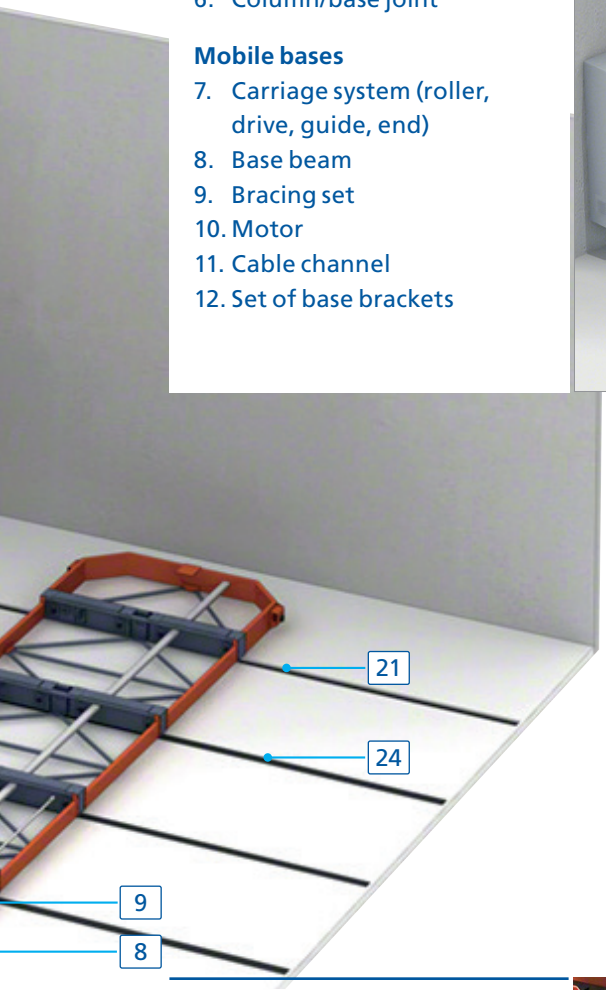
Racks

1. Single-deep column
2. Cantilever base
3. Double-deep column
4. Cantilever arm
5. Set of vertical braces
6. Column/base joint

Mobile bases

7. Carriage system (roller, drive, guide, end)
8. Base beam
9. Bracing set
10. Motor
11. Cable channel
12. Set of base brackets





Control and safety elements

13. Main power panel
14. Onboard power panel
15. Signal and power cables
16. Remote control
17. External safety barrier
18. Internal safety barrier and proximity photocell
19. Reset button
20. Emergency stop button

Embedded rails

21. Roller rail
22. Guide rail

External safety barrier

Controlling the facility

The basic features of the control system are found in the main power panel and the onboard control panels. These ensure the mobile racking units move safely and automatically.

The main control features found in the panel are:

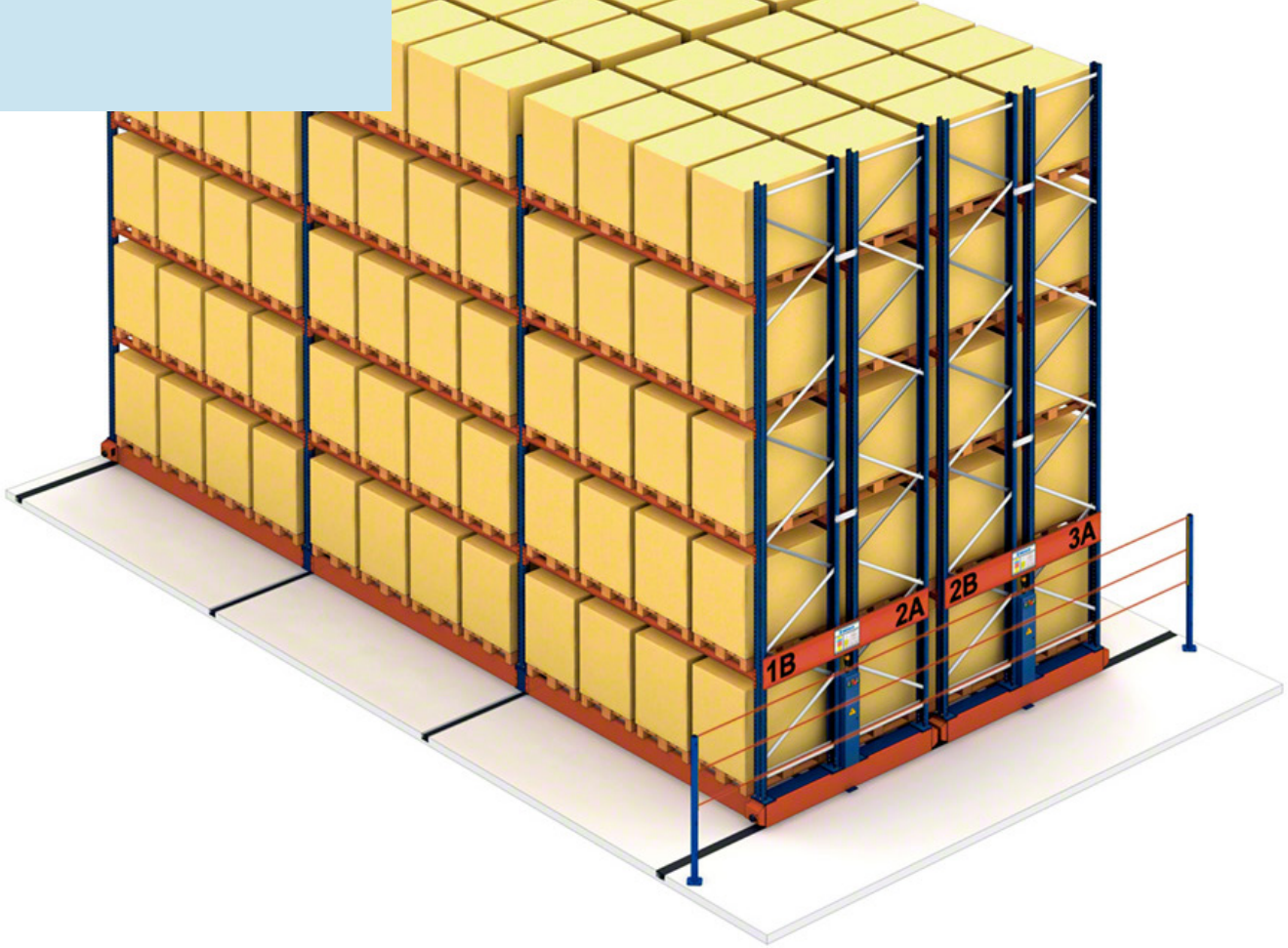
- The PLC controller, the brains behind the facility and where the operational logic is programmed.
- Power converters (synchronise the operations of the different motors on the base, which provide a boost of acceleration and a smooth stop). These also lengthen the lifespan of several different components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

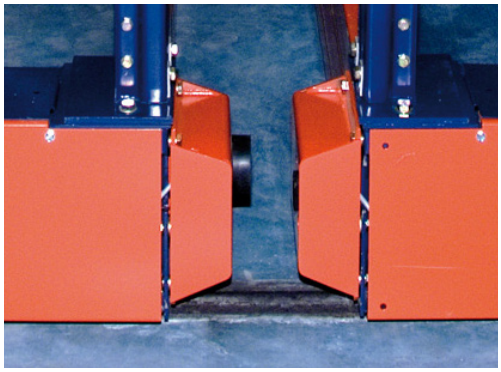
Remote control
Controls opening/closing and can reset the system without having to get down from the forklift.

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

External safety barrier
When anyone crosses the external safety barrier of an open working aisle, either on foot or in a forklift, the power is automatically cut. This prevents the racking units from moving while someone is operating in the aisle.

It can only be reset manually by 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.



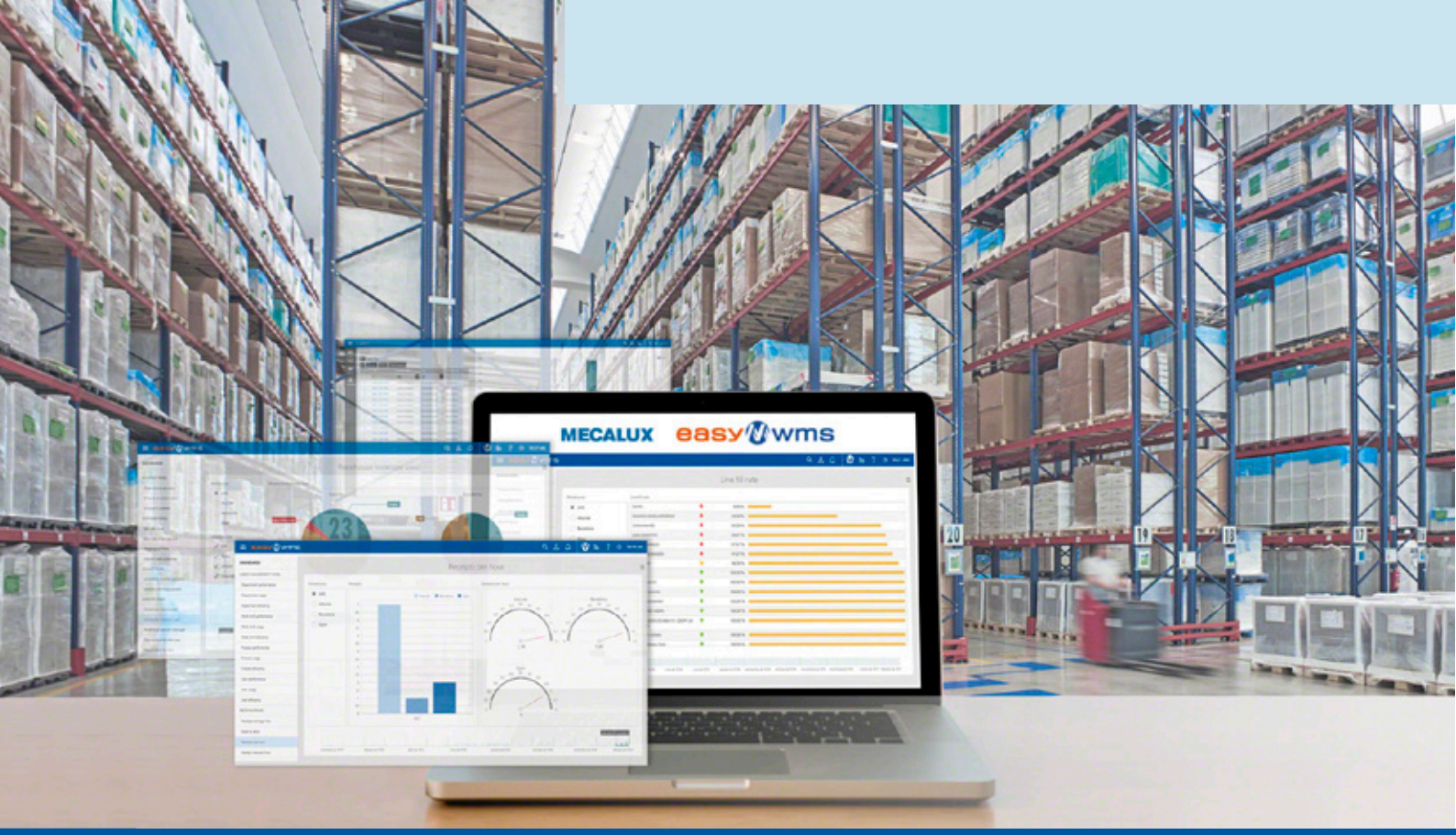


Internal safety barrier
On either side of the bases are longitudinal safety light barriers which cover the entire front of the mobile racking unit. In event of an emergency, the bases can be stopped by interrupting the beam of light with one's foot, for example. Moreover, this barrier detects the presence of foreign objects in the aisle that 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 onboard control panels and can stop the moving racks 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. DIt 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.

e-mail: info@mecalux.pl - mecalux.pl

ЗАВОД
ГЛИВИЦЕ
tel.: (+48) 32-331 69 66
ul. Wyczółkowskiego 125
44-109 Gliwice

КОММЕРЧЕСКИЕ ОТДЕЛЫ
ВАРШАВА
tel.: (+48) 22-654 56 81
e-mail: warszawa@mecalux.com

КРАКОВ
tel.: (+48) 12-686 38 70 (71)
e-mail: krakow@mecalux.com

ПОЗНАНЬ
tel.: (+48) 61-665 97 87
e-mail: poznan@mecalux.com

ВРОЦЛАВ
tel.: (+48) 71-793 88 29
e-mail: wroclaw@mecalux.com

ГДЫНЯ
tel.: (+48) 58-761 80 80
e-mail: gdansk@mecalux.com

Mecalux присудствует в более чем 70 странах мира

Офисы в: АРГЕНТИНА - БЕЛЬГИЯ - БРАЗИЛИЯ - ЧЕХИЯ - ЧИЛИ - ФРАНЦИЯ - ИСПАНИЯ - ГОЛЛАНДИЯ - КАНАДА - КОЛУМБИЯ МЕКСИКА - ГЕРМАНИЯ - ПЕРУ - ПОЛЬША - ПОРТУГАЛИЯ - СЛОВАКИЯ - ТУРЦИЯ - США - ВЕЛИКОБРЫТАНИЯ - ИТАЛИЯ - УРУГВАЙ