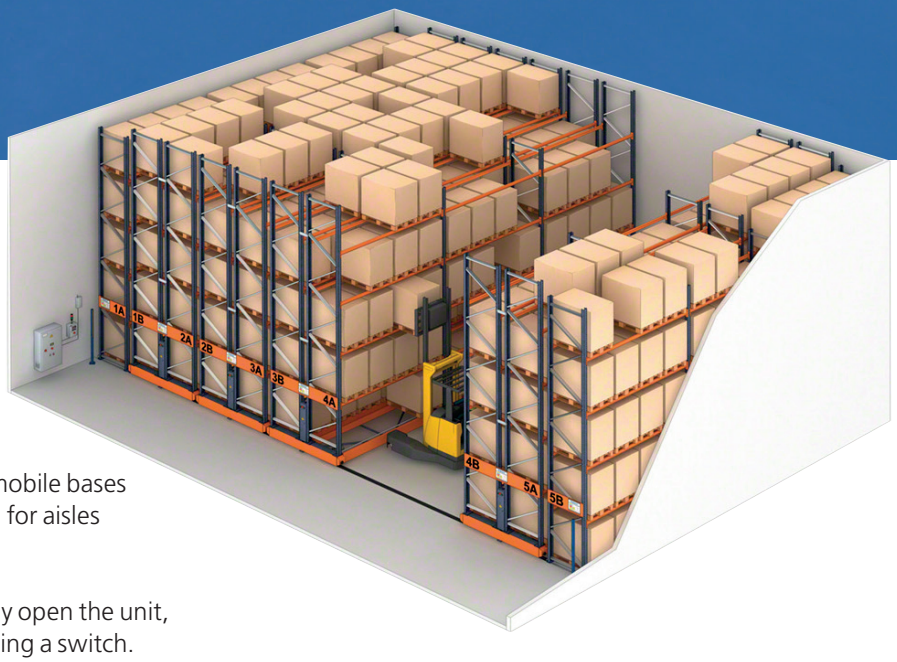
Movirack Mobile Pallet Racking

High-density storage on mobile racking units

MECALUX

Movirack system: general features



With the Movirack system, racking units become more compact and their storage capacity considerably increased — 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, travel elements, electronics and several safety systems to ensure 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.

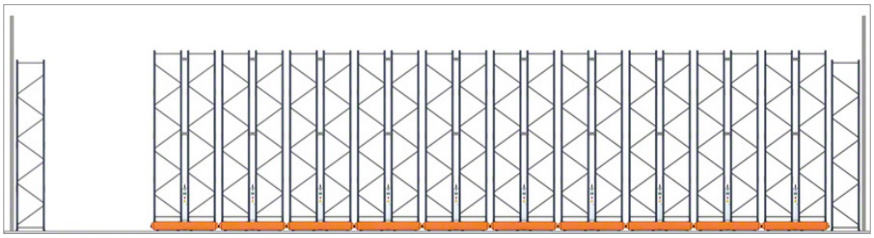
Key advantages

Direct access to any pallet in storage

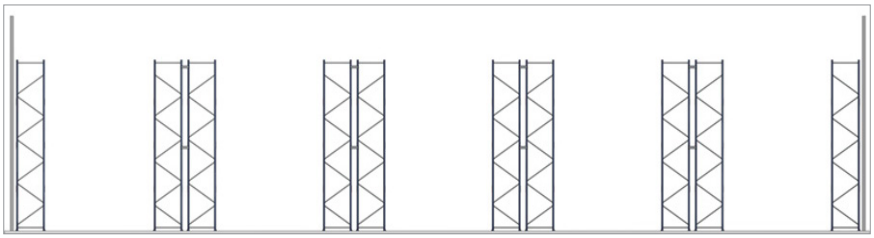
As these racking units are installed over bases, merely opening up the corresponding aisle provides direct access to the desired pallet.

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 racking system using mobile bases.
This figure illustrates the sizeable increase in capacity that a mobile base system provides (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.



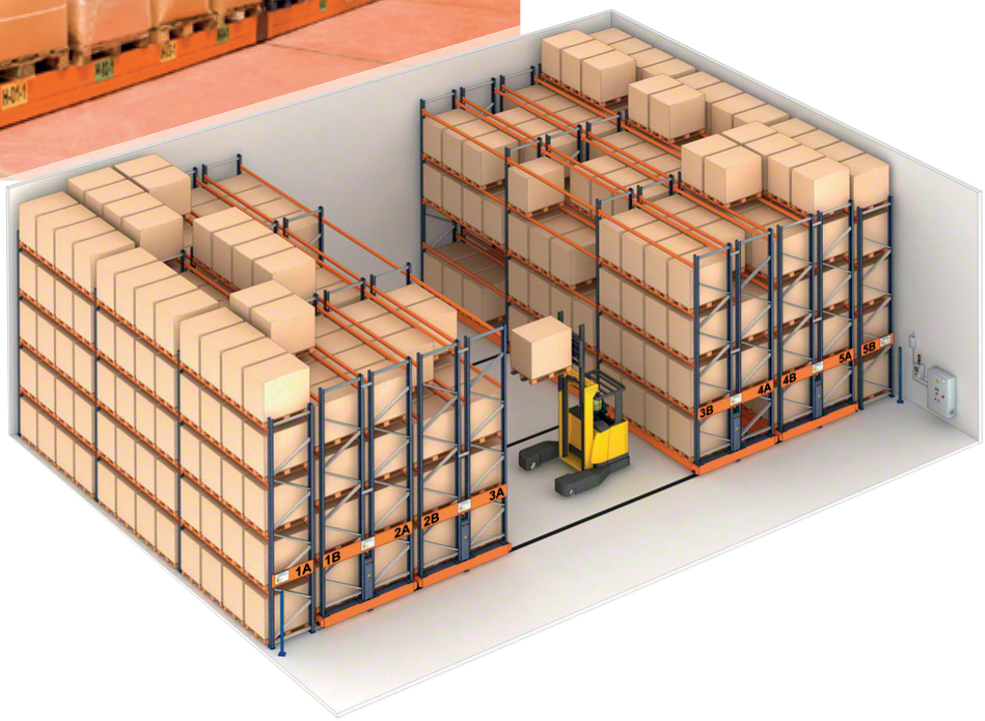
Example of a conventional pallet racking system.

Applications

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

Palletised product storage

- General storage,
- products with average or low-level turnover,
- refrigerated storerooms,
- interim or shipping warehouses.

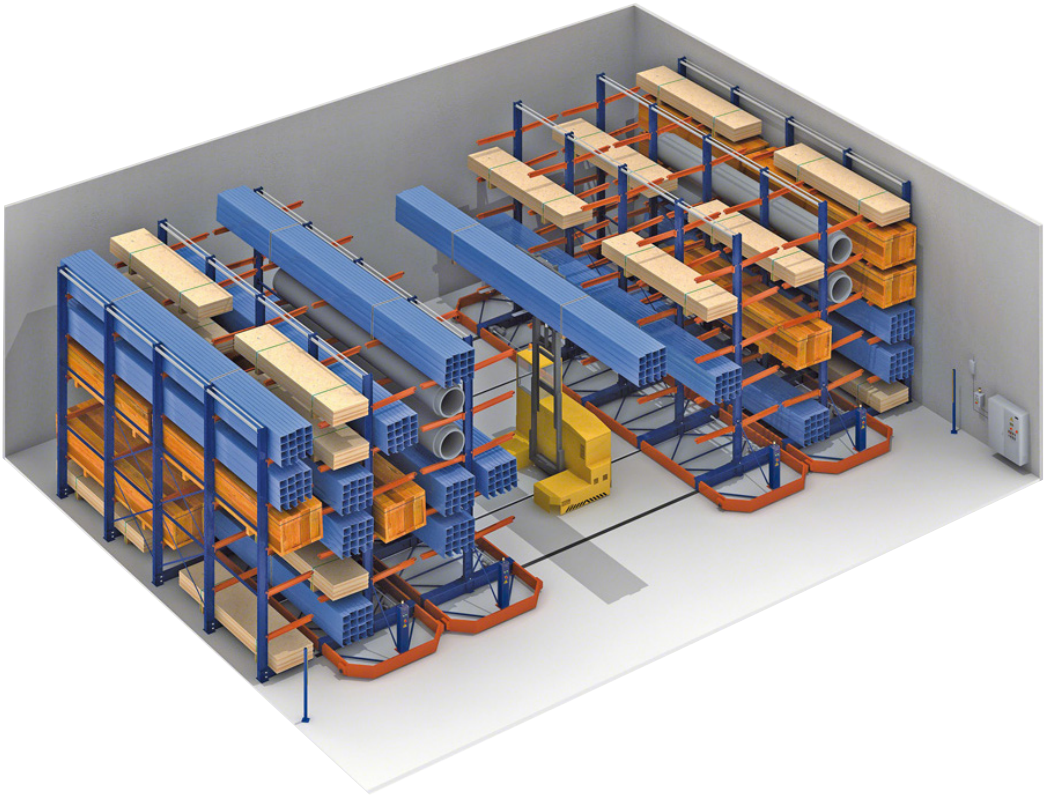


Warehouse with cantilever racks

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

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

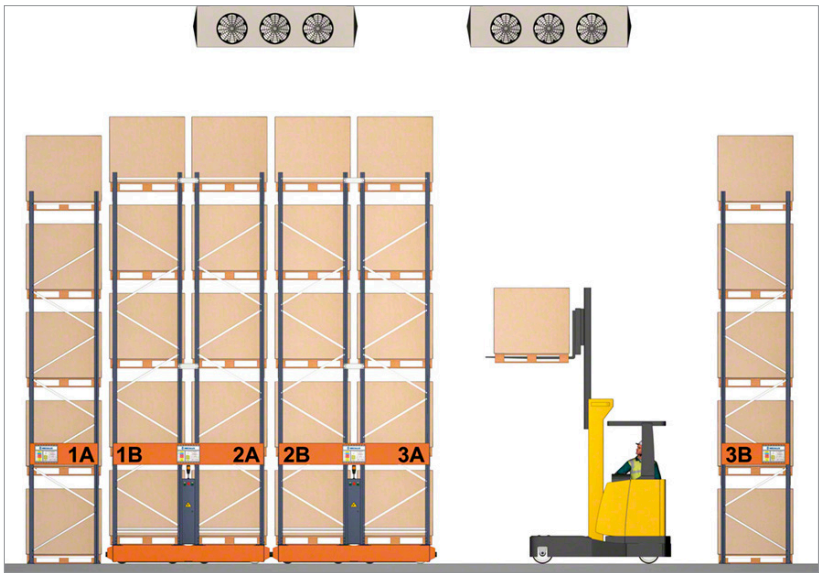
Both conventional forklifts (counterbalanced and reach trucks) and those used for lengthy products (side-loading and four-way forklifts) can be used.



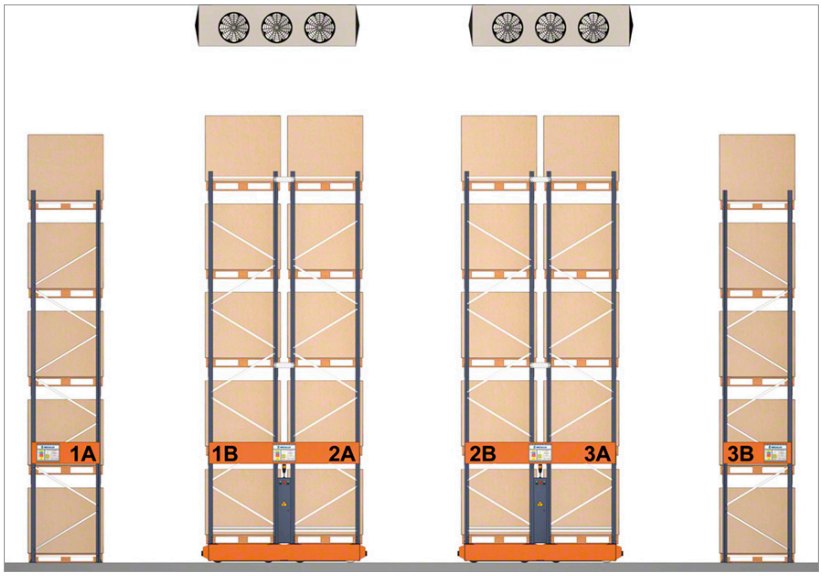
Refrigerated warehouses

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

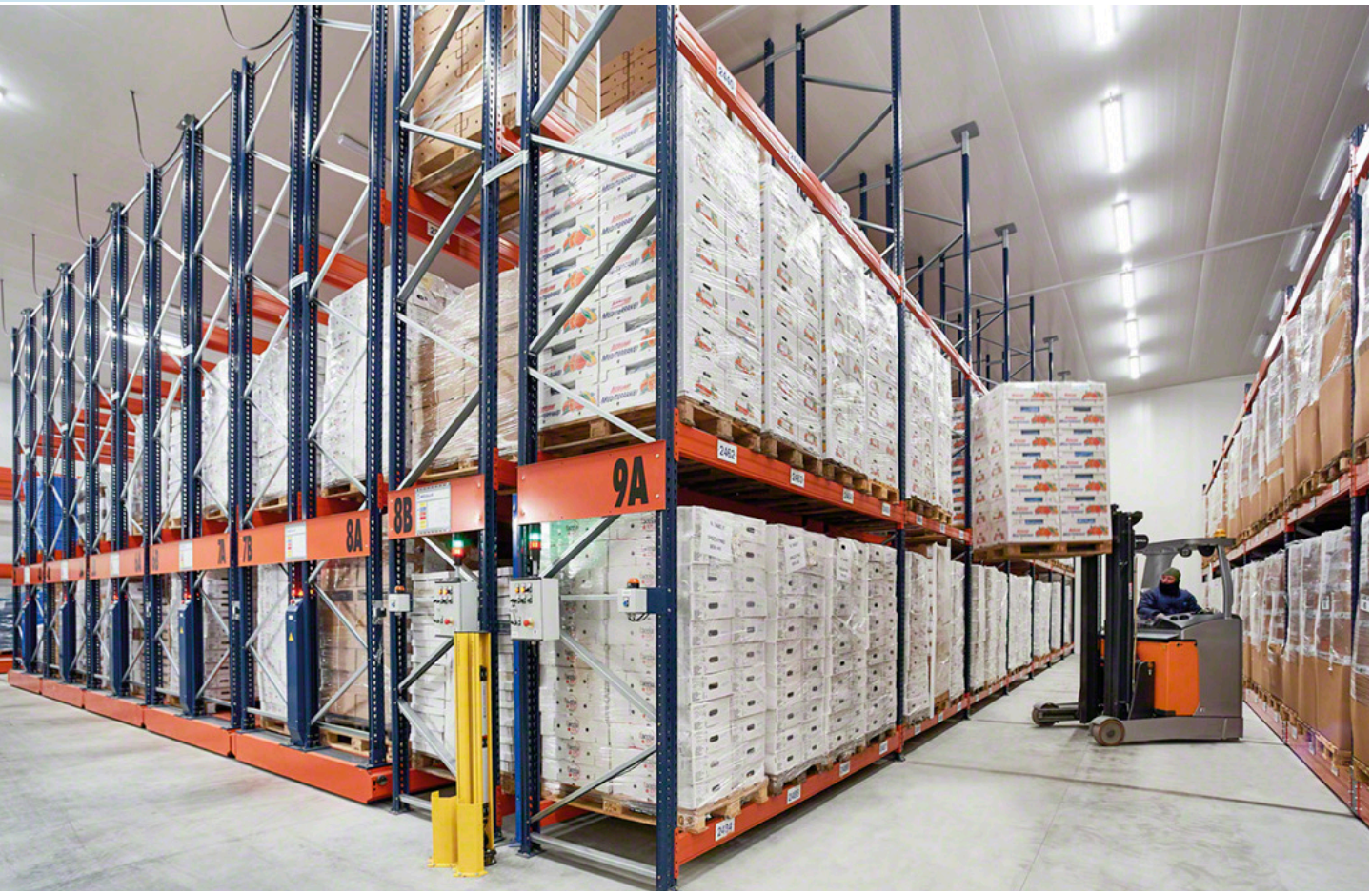
- As a high-density system, it has a **quick return** on investment.
- **Every pallet can be directly accessed**. This is very useful when there are few pallets per item.
- **Energy savings are increased** in terms of generating cold air. The air is spread over a larger number of pallets in storage, 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.



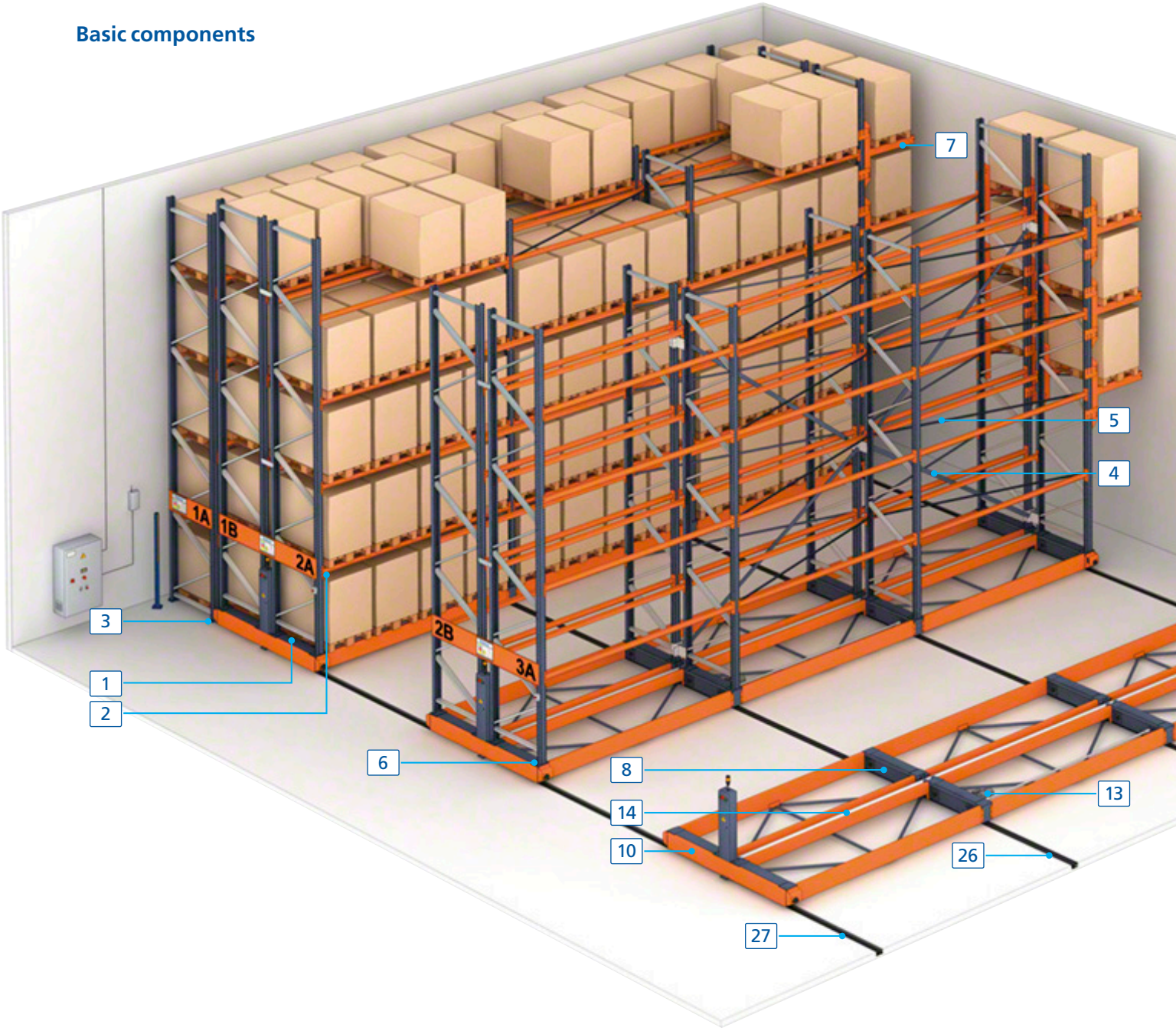
Parking option.

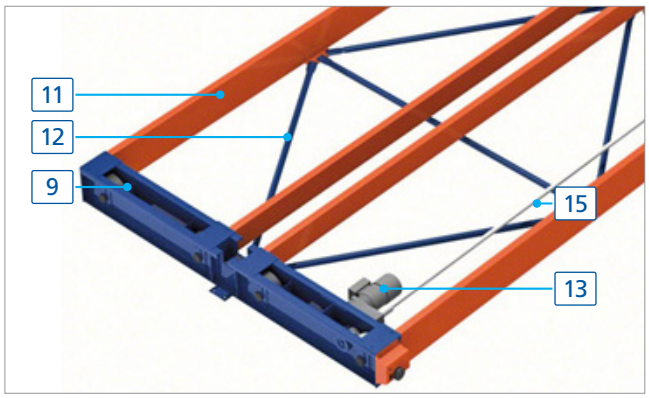

9A
8B
8A

3 6

6 B
7 A
7 B
8 A

Basic components



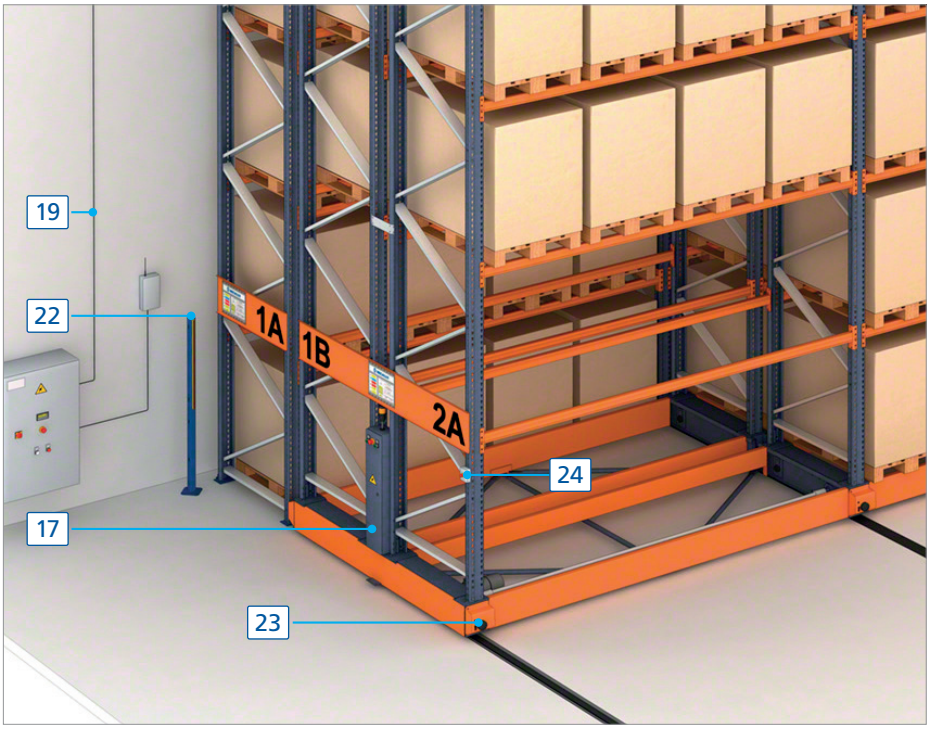


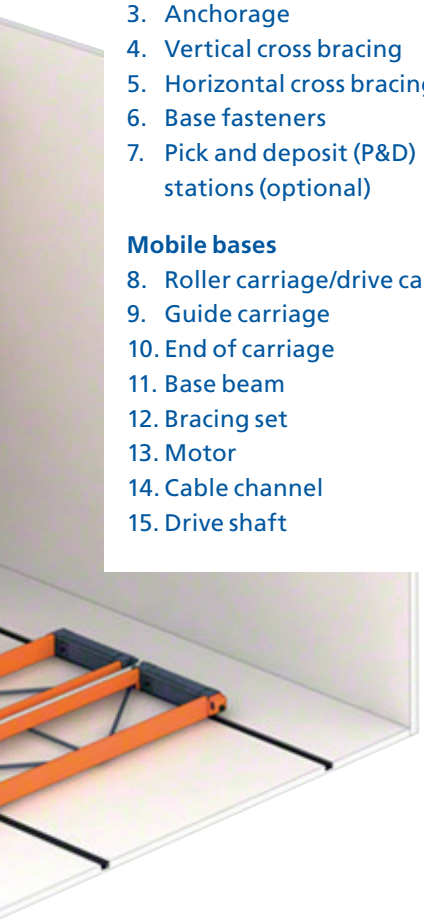
Racks

1. Frame
2. Beam
3. Anchorage
4. Vertical cross bracing
5. Horizontal cross bracing
6. Base fasteners
7. Pick and deposit (P&D) stations (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. Roller rail
27. Guide rail

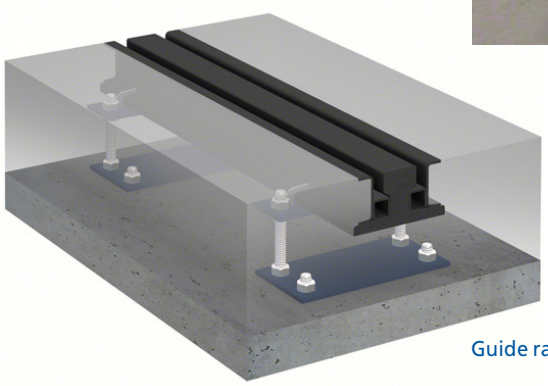
Building systems

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

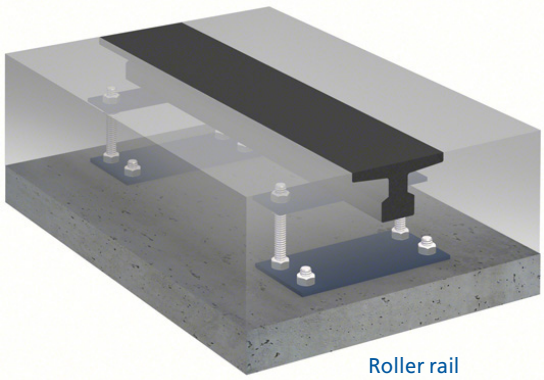
The solution features smooth rails and guide rails that match the wheels on the carriage. The number of rails depends on the characteristics of each storage system.

They can be installed in many different ways:

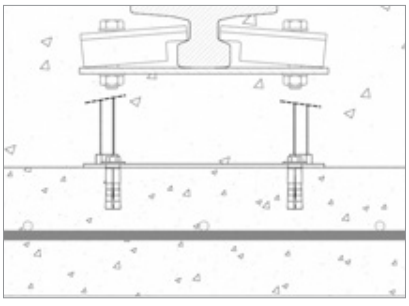
- Over a concrete slab foundation.
- Over an existing floor with backfilling.
- Over an existing floor with channels and support joists.
- Over an existing floor with channels.



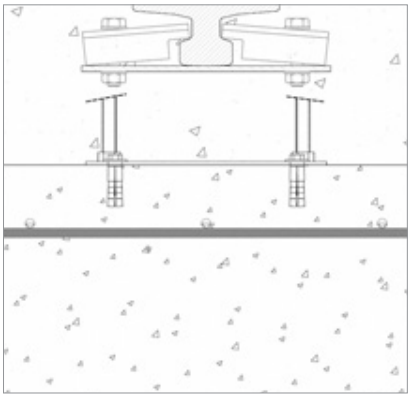
Guide rail



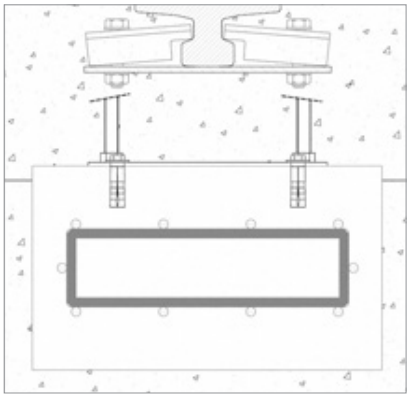
Roller rail



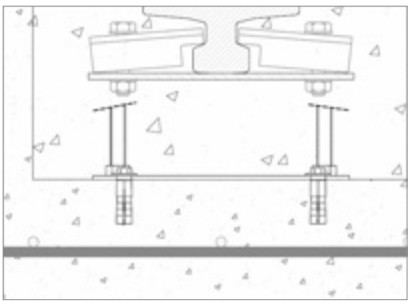
Over a concrete slab foundation.
This system is most often used over a newly built floor.



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

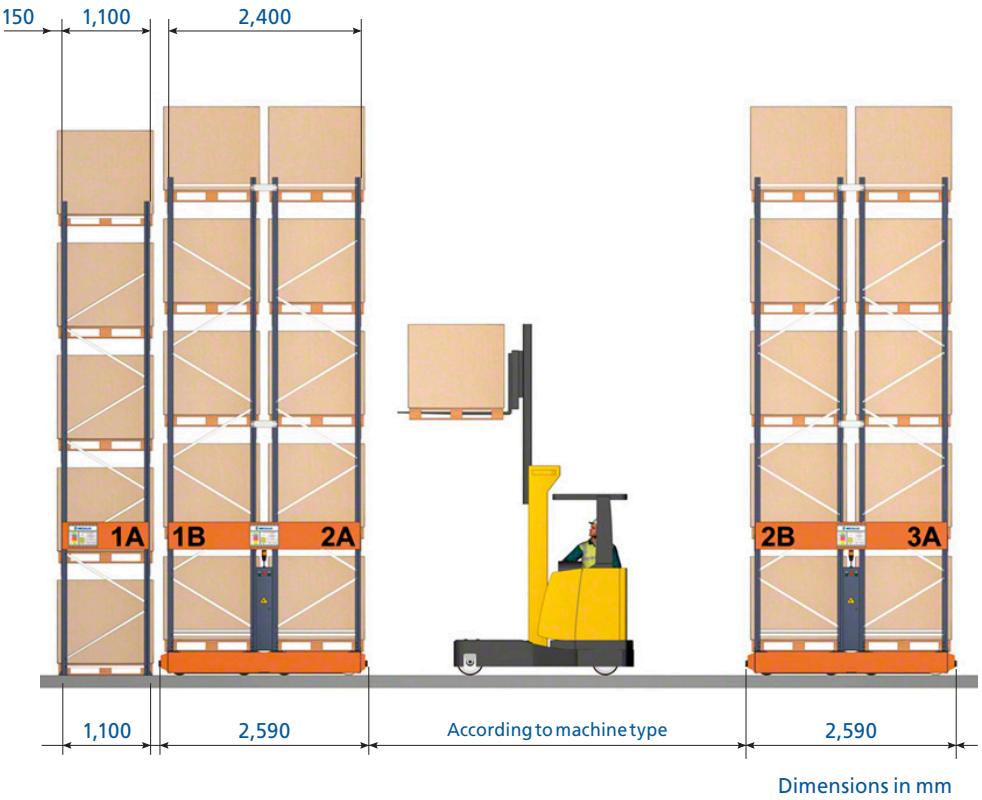
The storage systems tend to be formed by fixed racking units with access on either one or both sides, and by mobile racking units that always have access on both sides.

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

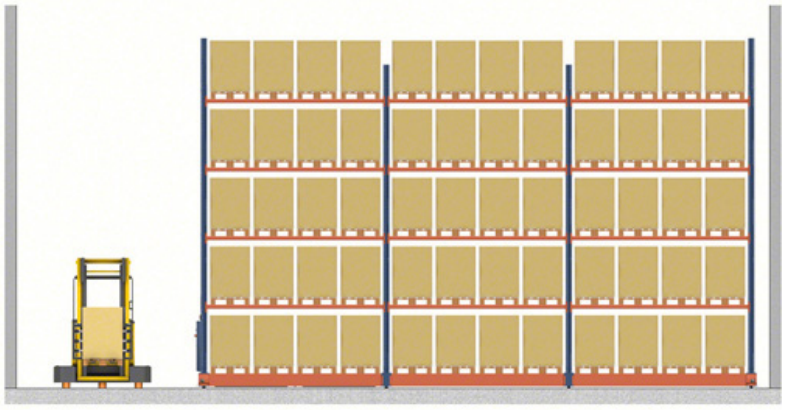
However, when calculating the mobile racking system, it is important to take into account the dynamic forces produced by the starting and stopping movements.

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

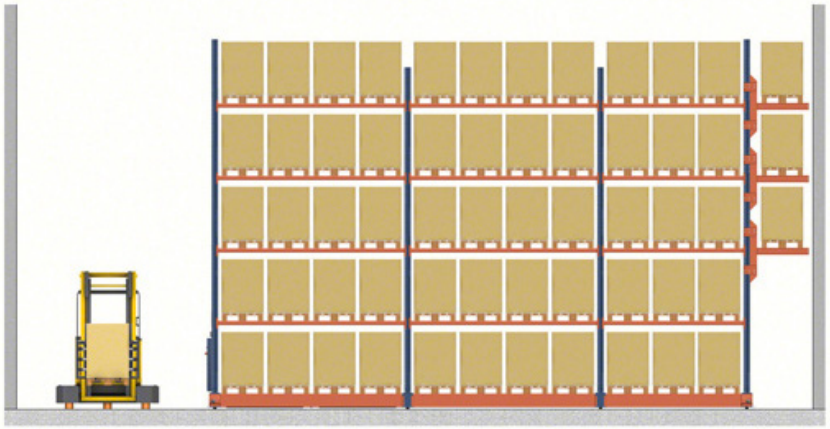
This figure represents the depth of the racks as viewed from the side.



Dimensions in mm



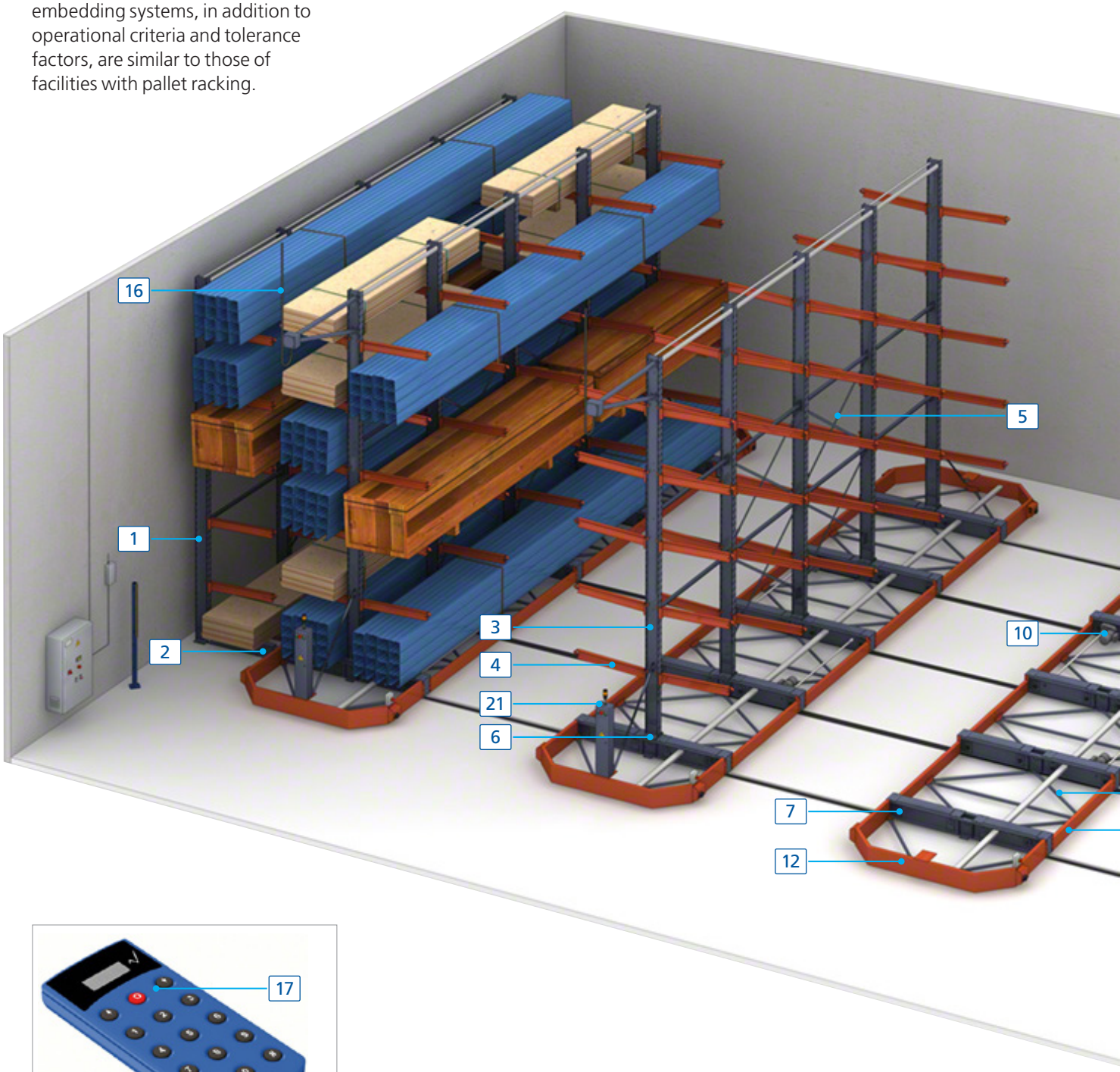
Single-access aisle
Most systems require a single main aisle to maneuver in, so the racking units are located perpendicular to it with a minimum distance from the side walls of 200 mm.



Access aisle plus pedestrian walkway
When necessary, or for safety reasons, the unit 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 pallet racking.

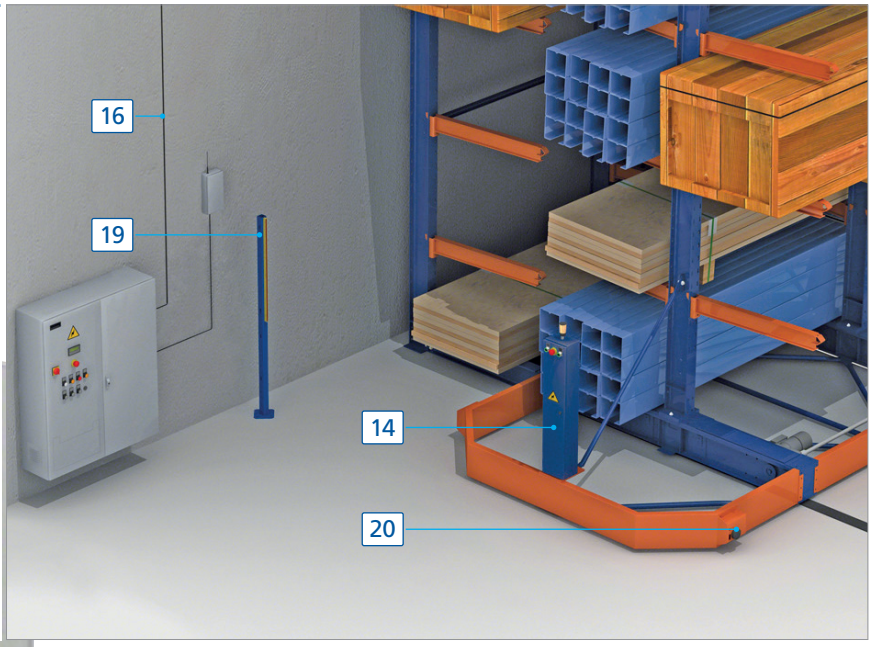


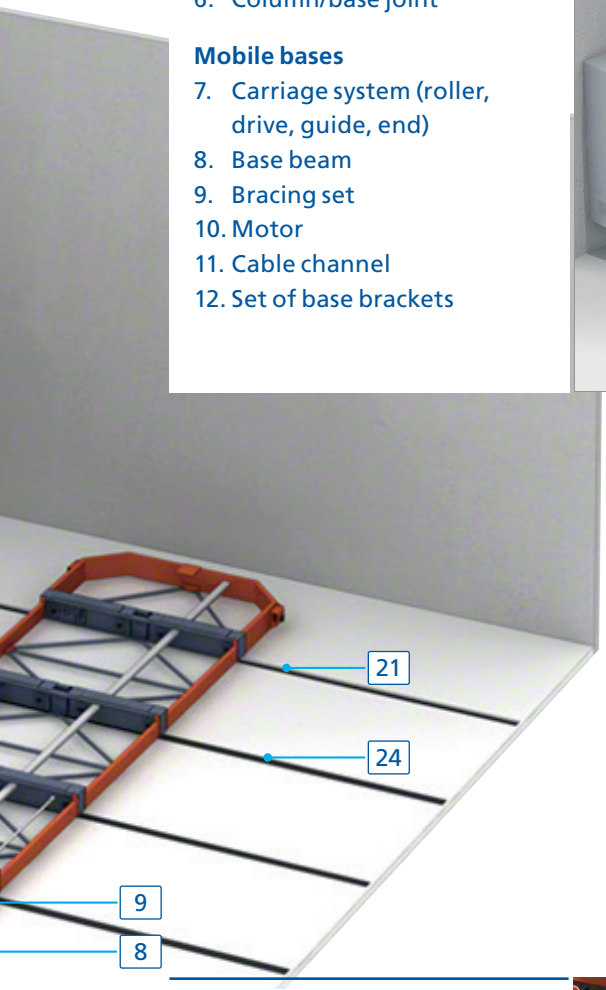
Racks

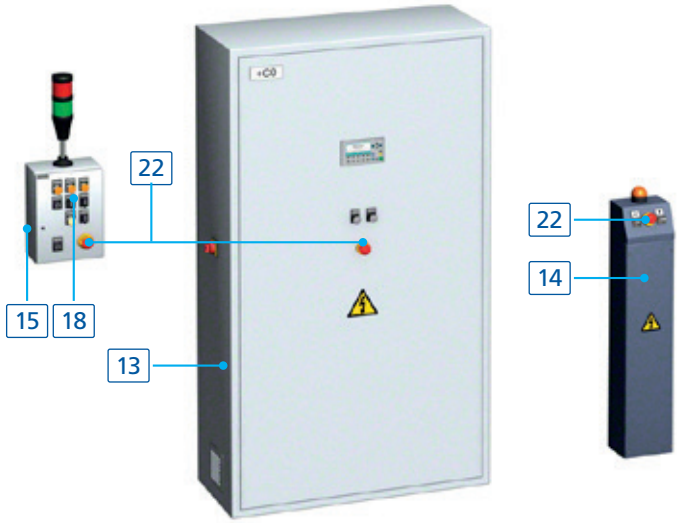
1. Single-deep column
2. Cantilever base
3. Double-deep column
4. Cantilever arm
5. Vertical cross bracing set
6. Column/base joint

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

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21. Reset button
22. Emergency stop button

Embedded rails

23. Guide rail
24. Roller 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** to 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**.

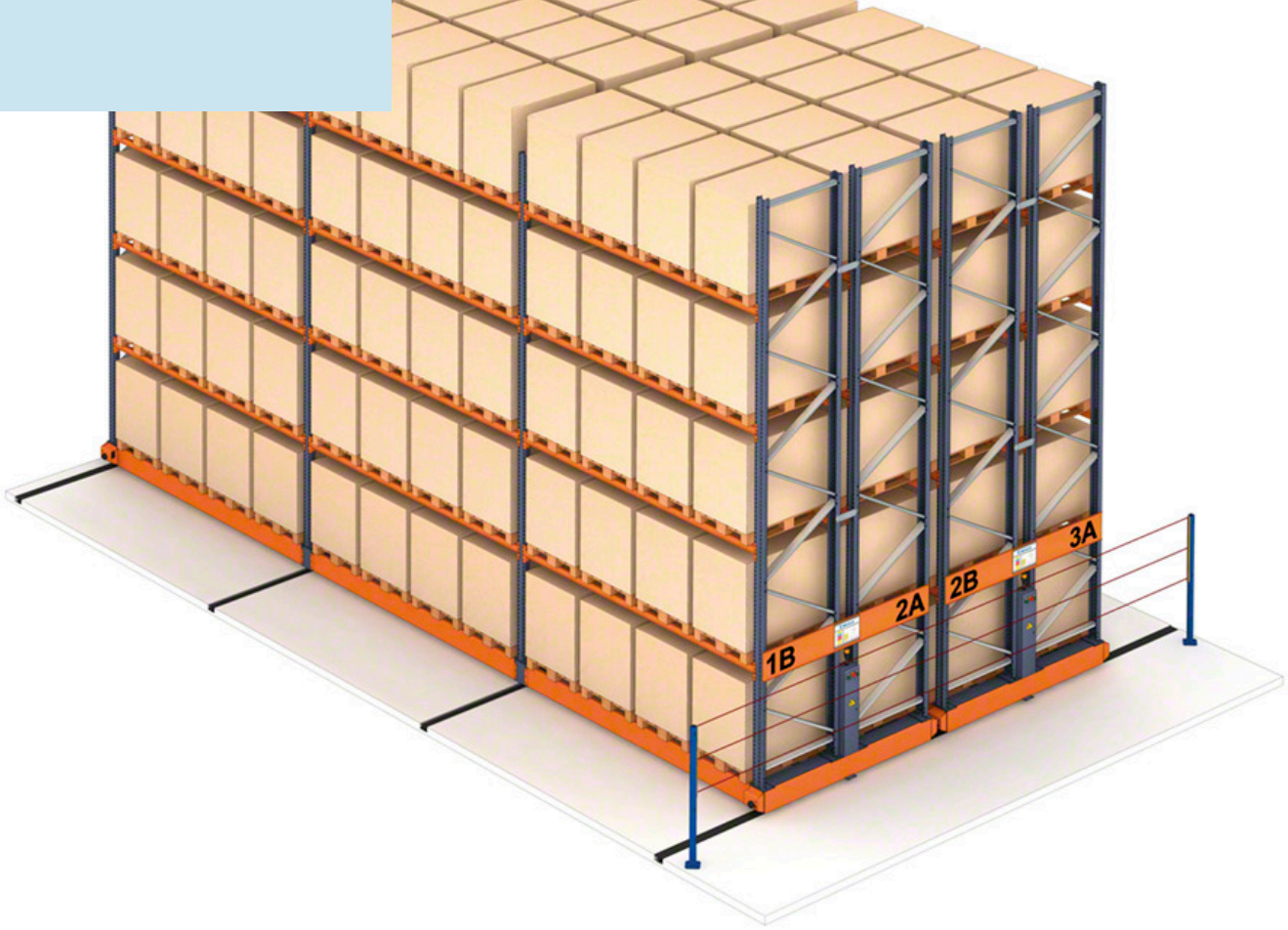
- Aisle **lighting control panel** (optional).

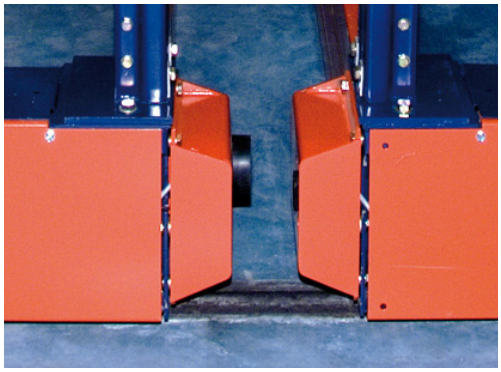
Remote control
Controls opening/closing and can reset the system without having to get down from the forklift.

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.

The system 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.



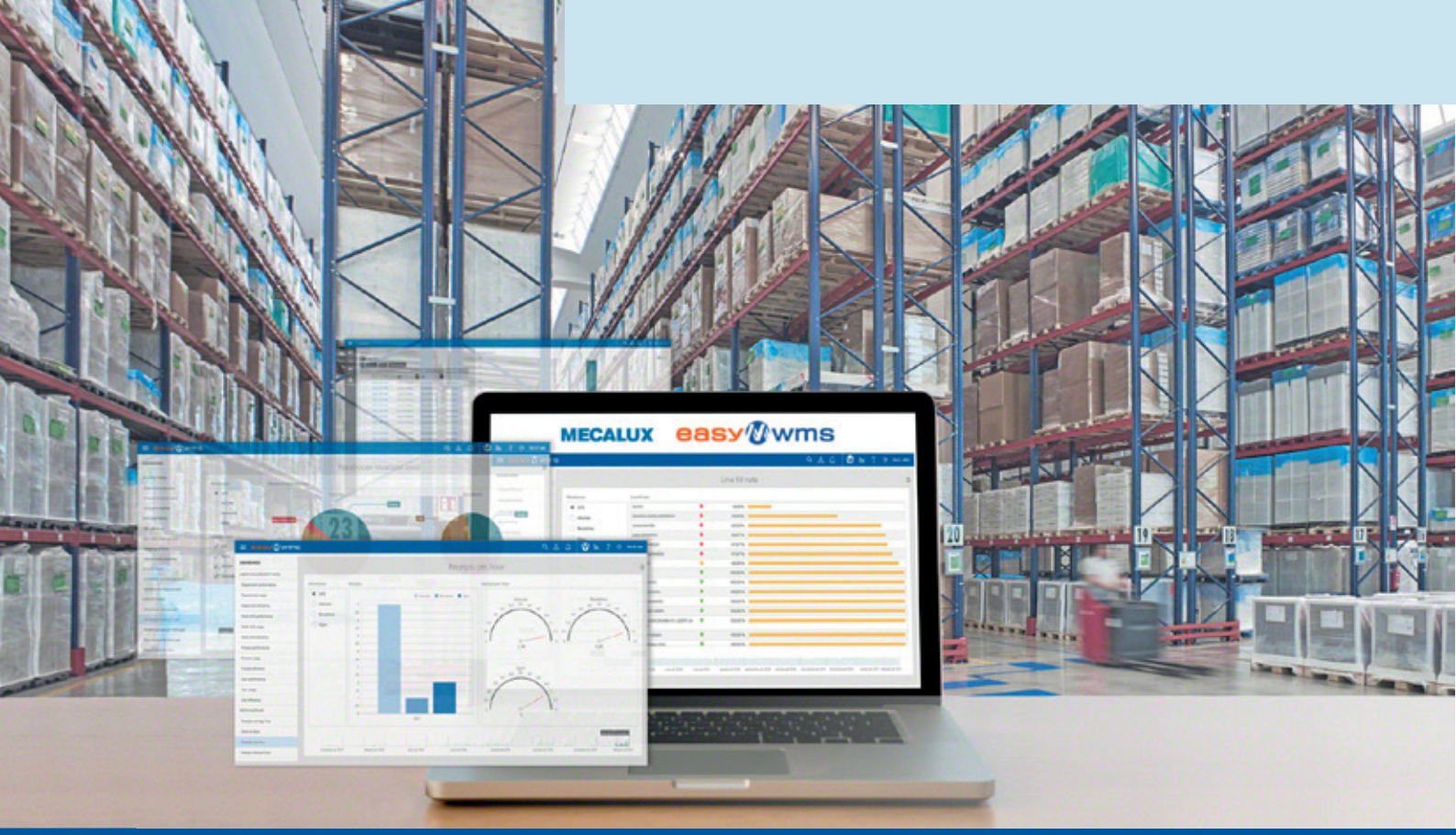


Internal safety barrier
On either side of the bases are longitudinal safety light barriers which cover the entire front of the mobile racking unit. In event of an emergency, the bases can be stopped by interrupting the beam of light with one's foot, for example. Moreover, this barrier detects the presence 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 entrance of the aisle.

Emergency buttons
These are located in the onboard control panels and can stop the moving racks in an emergency.



Warehouse Management Systeem Easy WMS

Het brein van de installatie

Easy WMS is een krachtige, veelzijdige en flexibele software dat een handmatig magazijn (met papieren orderverzameling of met radio-frequency identification (RFID)), een half-automatisch magazijn of een groot volledig geautomatiseerd entrepot, met dezelfde doeltreffendheid kan beheren.

Wordt gebruikt om de product- en documentenstroom te kanaliseren, van ontvangst tot verzending waardoor de traceerbaarheid gegarandeerd is.

Voordelen

> Real-time voorraadbeheer
> Minder logistieke kosten
> Grotere opslagcapaciteit
> Minder afhandelingstaken
> Foutloos
> Precieze high-speed order picking
> Geschikt voor nieuwe e-commerce behoeften
> Beheren omni-channel activiteiten
> ROI snel behaald (in 12-18 maanden)

Mecalux werkt samen met toonaangevende leveranciers die de kwaliteit, de betrouwbaarheid en het technische niveau van het Easy WMS waarborgen

ORACLE Partner · SAP Partner · Microsoft Partner · ZEBRA TECHNOLOGIES

Onderling gekoppelde oplossingen voor uw bevoorradingsketen

WMS voor e-commerce
Een efficiënte omnichannel logistiek. Optimaliseert de logistiek van online winkels ongeacht hun omvang, aantal dagelijkse bestellingen of opslagcapaciteit.

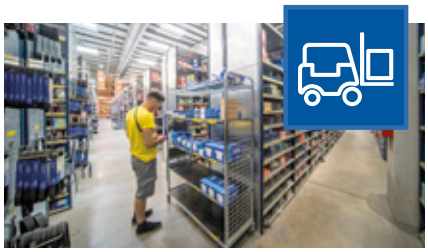
Multi Carrier Verzendsoftware
Automatiseert het verpakken, etiketteren en verzenden van producten. Coördineert de directe communicatie tussen het magazijn en de verschillende transportbedrijven.

Store Fulfillment
Synchroniseert de voorraden en de werkstromen om een optimaal voorraadbeheer tussen het centrale magazijn en het netwerk van fysieke winkels te garanderen.

WMS voor Productie
Maakt de traceerbaarheid in de productieprocessen mogelijk. Garandeert een continue bevoorrading van grondstoffen aan de productielijnen.

Supply Chain Analytics Software
Analyseert de duizenden data die dagelijks in een magazijn worden gegenereerd waardoor de verantwoordelijken strategische beslissingen kunnen nemen, gebaseerd op het reële rendement van de verrichtingen.

Marketplaces & Ecommerce Platforms Integration
Synchroniseert de voorraad in het magazijn met de *online catalogus*. Easy WMS maakt dagelijks automatisch contact met de belangrijkste digitale verkoop- en marktplaatsplatforms zoals **Amazon**, **eBay** of **Prestashop**.



WMS voor Logistieke Dienstverleners (3PL)
Beheert de facturering tussen een 3PL en zijn klanten. Een platform met exclusieve toegang biedt informatie over de voorraadstatus en over de manier waarop bestellingen kunnen worden geplaatst of gepersonaliseerde zendingen kunnen worden aangevraagd.

Labour Management Systeem (LMS)
Maximaliseert de productiviteit van de verrichtingen. Meet op een objectieve manier het rendement van de magazijnmedewerkers om kansen voor verbeteringen voor het bedrijf te kunnen opsporen.

Slotting Software voor Magazijnen
Automatiseert het locatiebeheer van uw magazijn. BBepaalt de optimale locatie voor elke referentie (of SKU) op basis van een aantal door de logistieke verantwoordelijke vooraf vastgestelde regels en criteria.

Yard Management Systeem (YMS)
Houdt toezicht op de bewegingen van de voertuigen op het terrein van het magazijn of distributiecentrum. Optimaliseert de verrichtingen op de laadperrons om de doorstroming van de voertuigen te verbeteren en knelpunten bij inkomende en uitgaande goederen te voorkomen.

Easy WMS in de cloud

- **Lagere initiële investering** omdat er geen eigen servers nodig zijn.
- **Implementatie** sneller en eenvoudiger.
- **Eenvoudiger, goedkopere technische** ondersteuning en onderhoud. Totale veiligheid met Microsoft Azure.
- Altijd **actuele software.**
- **Optimale beschikbaarheid** om de continuïteit van uw bedrijf te garanderen.
- **Tarieven aangepast** aan de behoeften van elk bedrijf.

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BELGIË

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Mecalux is wereldwijd in meer dan 70 landen vertegenwoordigd

Onze kantoren: Argentinië - België - Brazilië - Canada - Chili - Colombia - Duitsland - Frankrijk - Italië - Kroatië - Mexico Nederland Polen - Portugal - Roemenië - Slovenië - Slowakije - Spanje - Tsjechië - Turkije - Uruguay - Verenigd Koninkrijk Verenigde Staten