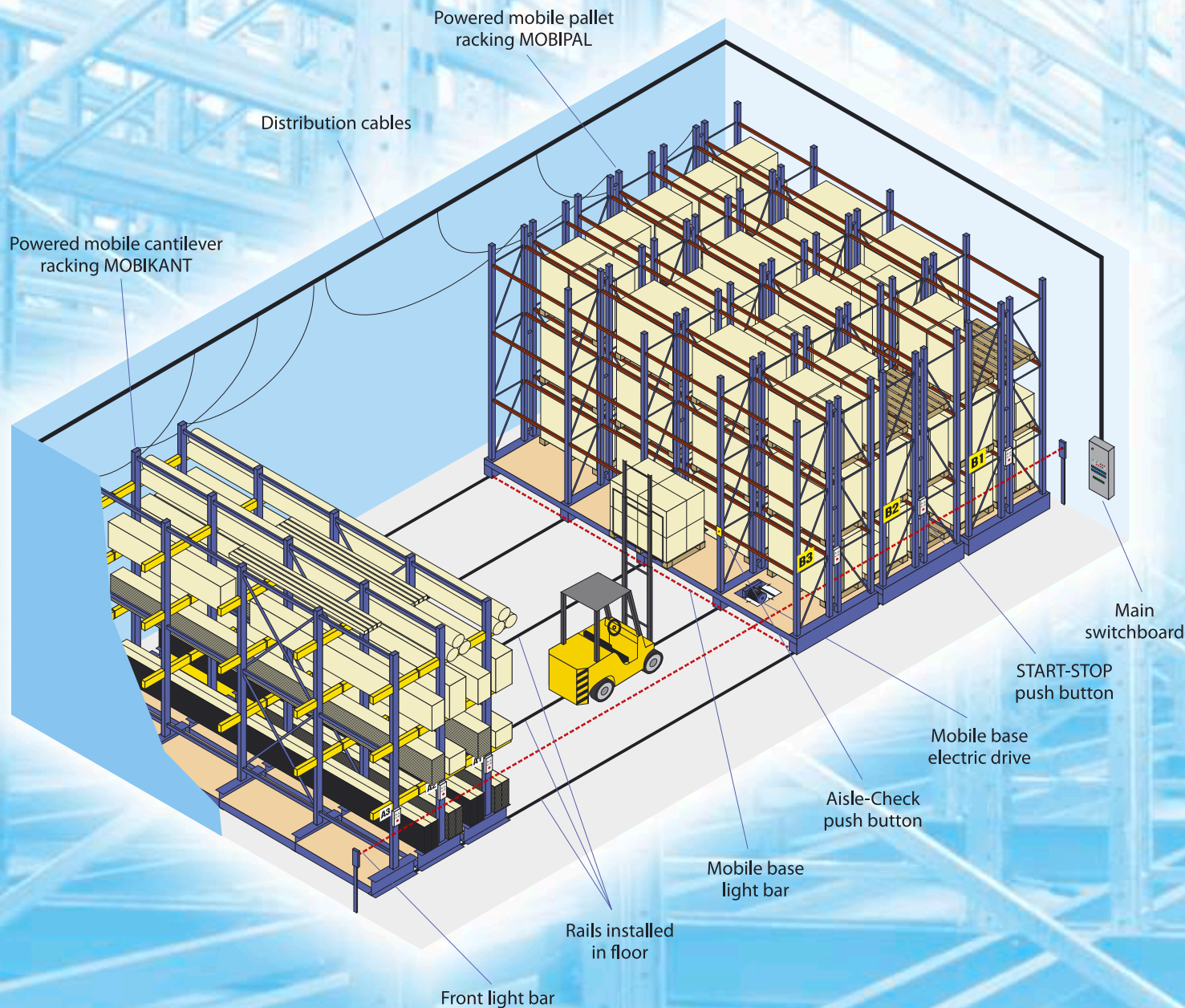


MOBIPAL

POWERED MOBILE PALLET RACKING



- > Powered mobile rack is a fixed storage rack installed as a superstructure on mobile base
- > Mobile racks are assembled into a block moving on one rail track
- > Access in to the only manipulation aisle is reached by means of moving requisite bases at required block location
- > Mobile racks move on rail track installed in the floor
- > Any type of storage rack as a superstructure can be installed on mobile base
- > Mobile racks can be installed both in existing and new buildings



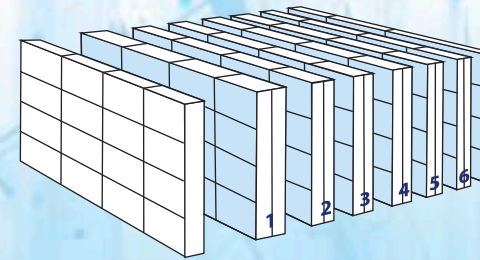
Features

- > The operation of the equipment is controlled by a contactless programmable system
- > Putting into motion can be done using push buttons installed on rack, remote control unit or an external control system
- > Individual racks are powered with electric drive units
- > Staff safety is ensured with a file of project and technical precautions
- > The equipment enables storage using the FIFO method
- > Maximum grade of utilization of storage space

Demonstration studies

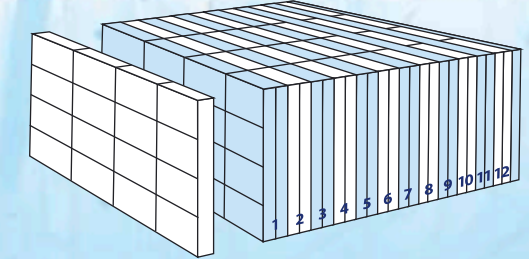
> Example 1: Storage capacity increase in an existing warehouse

Existing warehouse with static pallet racking



Storage capacity of the warehouse: **672 pallets**

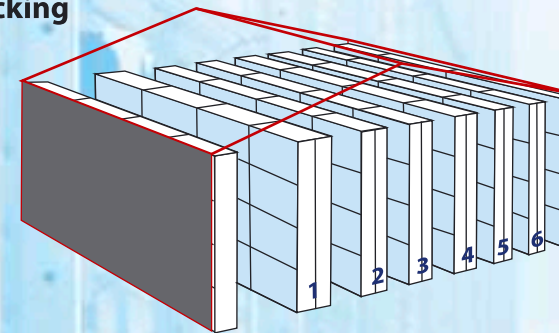
Existing warehouse after installation of powered mobile racking



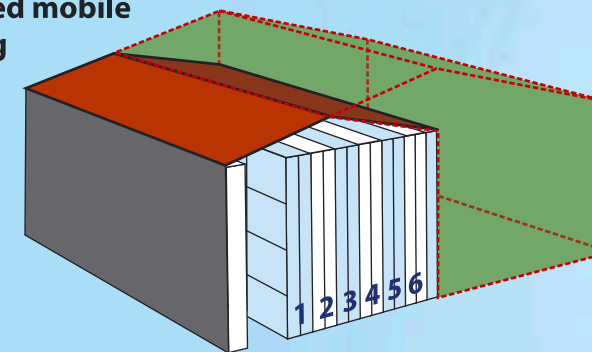
Storage capacity of the warehouse: **1248 pallets**

> Example 2: Investment cost comparison when establishing new storage areas

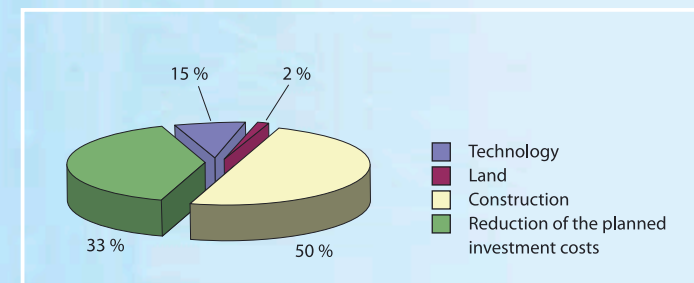
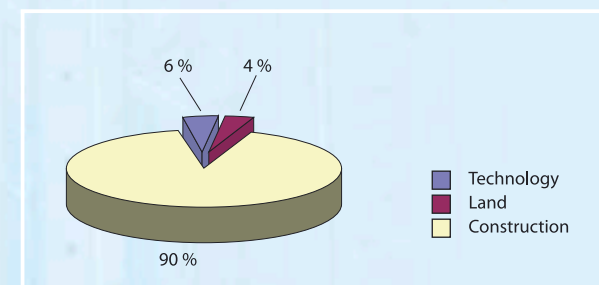
Static racking



Powered mobile racking



Investment cost structure



Benefit

- > Increase of storage capacity for the existing warehouse with no constructional investment costs
- > Decrease of total investment costs when establishing new storage capacities
- > Significant decrease of operation costs related to heating, cooling, lighting, shortening communication routes
- > More auspicious structure of the investment considering tax deduction
- > Racks operating using standard or alternatively, current handling resources
- > Insignificant energy demand of the operation

- > Assembled from mobile bases and static pallet racking as a superstructure
- > Designed for storage of pallets on pallet beams
- > Handling by means of a high-lift truck
- > Size and configuration of the block of mobile bases always according to the customer's request
- > Dimensions and design of the racking always according to type of handling units stored
- > Equipment can be established in stages to increase warehouse capacity gradually

> Transport warehouse

Mobile rack shelf stand, 60 metres in length, is assembled from two mechanically separated parts. The parallel motion of both parts is synchronized electrically.



> Plastic package and granulated material warehouse

The warehouse capacity is 15 000 pallets and is formed by 7 blocks of mobile racks. The equipment is controlled using 8 remote controllers, each of which can control any block. There is an automatic fire extinguisher installed on the mobile racks.



> Bulk warehouse of electric material and components

This is formed by two blocks of mobile racks. The distribution cables are entirely independent of the building. The distribution cable channels are installed on the face of the mobile racks.



> Spare parts warehouse

System incorporates counting high-lift truck entries to and departures from manipulation aisle. The presence of the high-lift truck inside the aisle is indicated optically on the front of the rack at opened aisle.

> Plastic components warehouse

The mobile racking control system is connected to a superior information system. This monitors the status of the mobile racking and carries out preparation for operation at the determined position in the racks.

> Shipment warehouse

Devices for mobile bases accurate positioning when opening the aisle are incorporated. The high-lift truck is guided with an induction loop installed in the floor.



- > Assembled from mobile bases and cantilever static racks as a superstructure
- > Designed for the storage of long handling units, bar/rod and plate material
- > Operating with handling means, under suitable conditions, manual withdrawal of the separate items from the storage unit
- > Loading capacity design, implementation and special supplements always according to the characteristics of the stored goods
- > Size and block configuration always according to the customer's request

> Diesel engine component warehouse

Handling units – cases/containers are stored on the rack arms.



> Piping material warehouse

Packs of heating pipes are stored on the racks. Separate pieces can be withdrawn manually from the packs stored in accessible height.



> Non-woven textile roll warehouse

The rolls are stored on shelves formed on rack arms. The block of racks comes with two manipulation aisles.



> Warehouse for sheet coils

The coil weight can reach up to 3 tons. Material handling is performed using a high-lift truck or a crane. The motion of the crane and the rack is interlocked. The block of racks is installed in the space of a hall in a manner which enables that the manipulation aisle is accessible from both sides.

> Long profiles warehouse

On the rack arms, packs of profiles intended for manufacturing roller shutters and gates are stored. The separated profiles of the pack can be withdrawn manually from the face side of the block.

> Warehouse for racking components

All-purpose mobile cantilever rack with shelves intended for the storage of handling units with varying lengths.



Operating elements

> Control panel

The main controls, indicators and diagnostic elements are located on the control panel.



> Remote control

This enables putting into motion by means of one or more mobile remote control transmitters.



> Controls on the rack

The controls to start and stop motion are located on the particular mobile racks.



> Control using the superior system

The remote control and terminal inside the high-lift truck allow communication with the superior system.



Control

> Main switchboard

The main switchboard together with the control panel is installed in the close proximity of the operation area of the equipment.



> Control system

The modular assembly of the Simatic system and matching circuits are installed inside the main switchboard.



Safety

> Light bars

When the equipment is put into motion, the safety light bars system is activated.



The safety light bars are installed on each mobile rack as well as at the outer sides of the block of racks, at the entrances to the hazardous area.



Electric drive units

> Electric drive unit

The drive unit is formed by a three-phase motor with a closed gear box.

Drive power output and number of drive units are chosen according to the total charge on the mobile base.



> Mobile base drive

All the electric drive units are coupled to the driving shaft of the mobile base.

The driving shaft is coupled with the driving wheels via flange coupling.



Mobile base

> Carriages

These are two-wheel or four-wheel, equipped with plain or guide wheels.

Racking superstructure frames are attached with the carriages.



> External and internal support members

These are mounted on the wheeled carriages and together with a diagonal brace, they form the mobile base frame. They are also used as storage support members at the lowest storage level.



Distribution cables

> Distribution cables

These are used for interconnection of the main switchboard and particular mobile bases. The flexible cables are distributed to mobile bases from the cable channels installed on the building construction, from the ceilings, from the channels in the floor or from the supporting cable channels.



> Flexible cables

Flexible cables distributed from the cable channel carried by mobile rack construction. The distribution cables have no connection to the building construction.



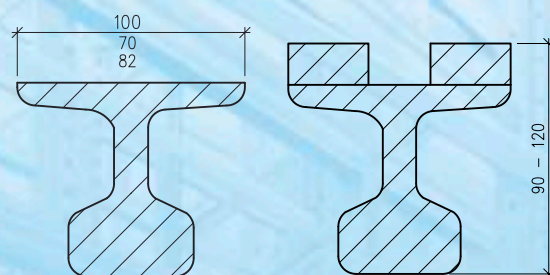
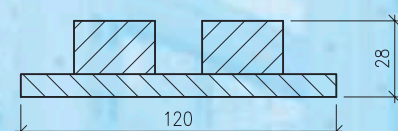
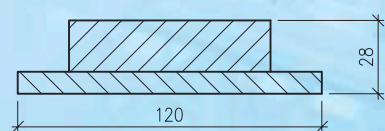
> Group of mobile bases

Block of assembled mobile bases during installation procedure.

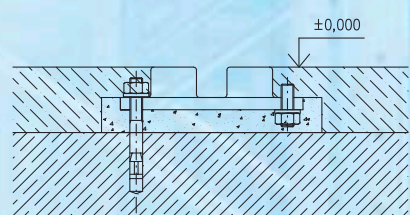


- > Mobile racks move on rail track installed in the floor
- > The rails are attached with floor, levelled, and then surrounded by concrete to rail level
- > Rail track is a group of plain and guiding rails
- > The rails can be installed in to existing floor or on to floor base concrete slab

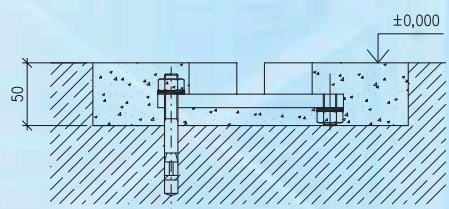
Rail designs



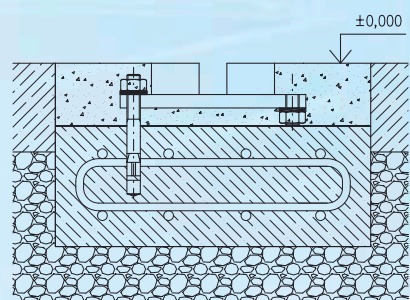
Installation of rails - existing floor



On top of the existing floor when establishing a new, final layer of the floor

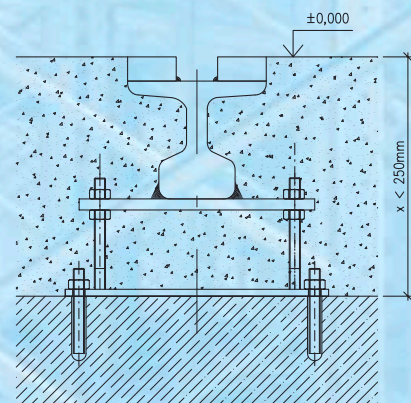


In to a groove in the existing floor

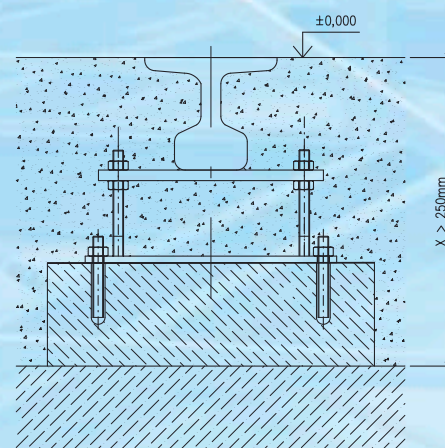


Installation on concrete foundation strip in cases when bearing capacity of existing floor is not known

Installation on base concrete slab



At a final floor layer height up to 250 mm



At a final floor layer height above 250 mm

Cold stores



Piping material warehouse



Pharmaceuticals warehouse



Metallurgical material warehouse



Hoop iron coil warehouse



Textile warehouse



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