



Case study: MGA

MGA has an efficient automated miniload warehouse coupled with conventional pallet racking

Location: France



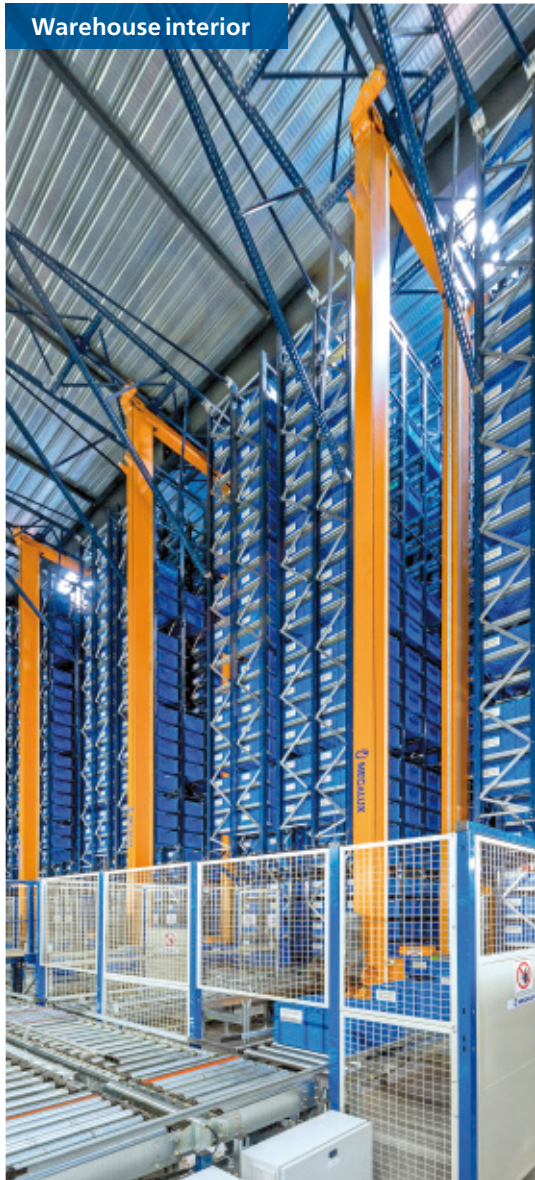
For the new logistics centre located in Saint-Quentin Fallavier, a town close to the city of Lyon, MGA chose Mecalux as provider of all management and storage systems, including an automated miniload warehouse with a capacity of 15,872 boxes.

MGA is an important spare parts distributor with regional warehouses in different cities within France. The priority of the company is to offer express delivery to its customers, generally automobile replacement part wholesalers.

In this logistics centre, Mecalux has installed an automated miniload warehouse

with a specific picking area and a warehouse for pallets placed on conventional type racks. It has also included the implementation of a Mecalux Easy WMS (warehouse management software), tasked with handling all operations, from the entry of goods till dispatch, previously passing through the storage and picking phases.

Warehouse interior



Conventional pallet racks

The conventional pallet rack warehouse is intended for bulkier products and items with greater turnover (A type) placed upon pallets. Racks have two lower levels to conduct direct picking from the pallets, while reserves are placed on upper levels.

This storage system is characterised by its simplicity and capacity to adapt itself to the needs of the company. In addition, conventional pallet racks make it possible to directly access each pallet, storing the maximum number of unit loads in a safe and organised way.

The miniload warehouse

A miniload warehouse with four aisles, and two double-deep racks (one per side), was installed, allowing storage of a total of 15,872 plastic euro-boxes, 600 x 400 x 320 mm in size. The height of the racks is 12.3 m and the total admissible weight per box is 50 kg.

All medium and small sized products are located in the miniload warehouse, generally B and C type items. These products are handled by four stacker cranes, three picking stations and a replenishment station, showing off the great versatility of the miniload system.



Connection between the warehouse and the picking area



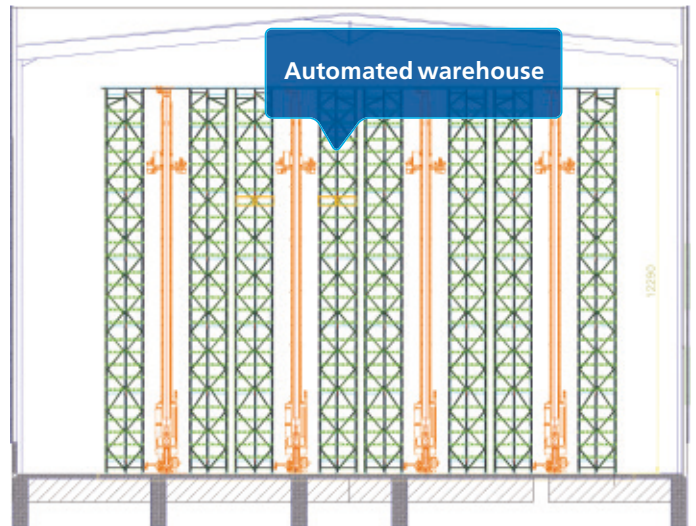
Warehouse for pallets: 'A' and bulky type product picking

The construction of the miniload warehouse was done in two phases, in accordance with the needs of MGA.

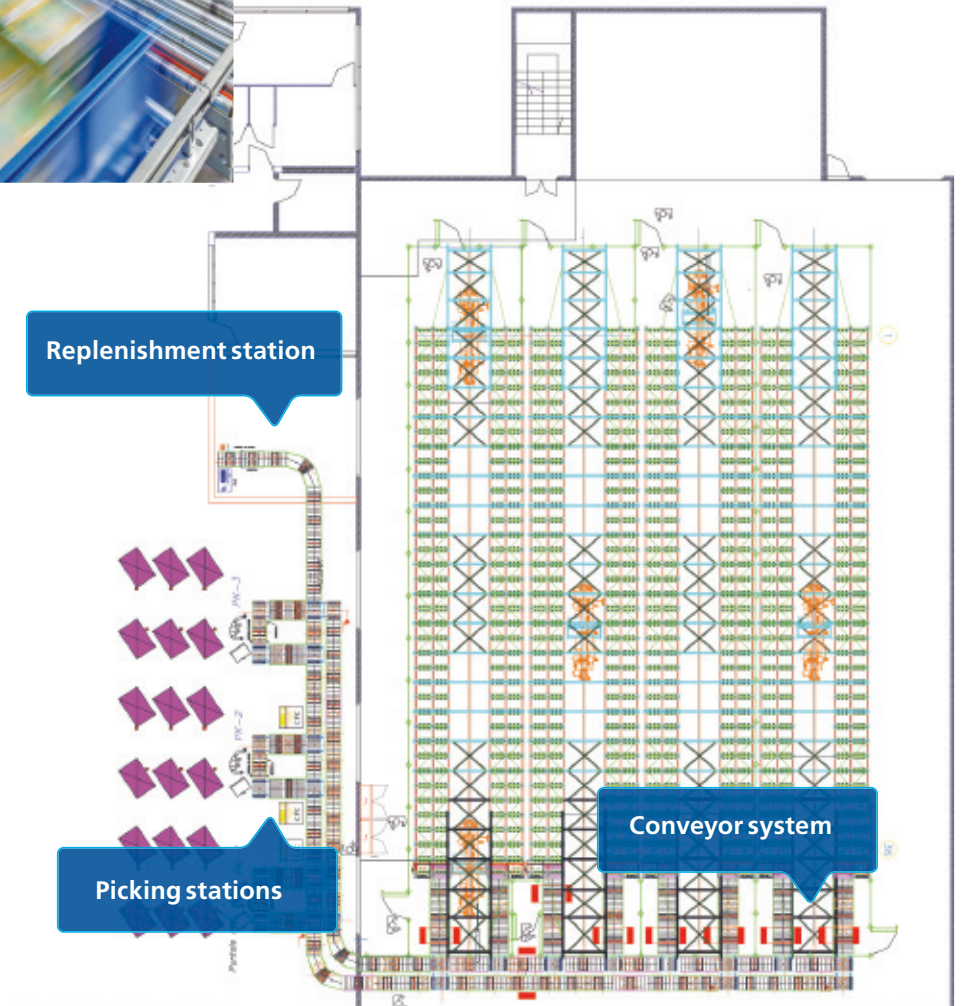
If we analyse the parts that the facility is composed of, represented by the images on this page, you will see the following:

The first included three storage aisles with three stacker cranes and three picking stations, while in the second they installed four aisles, set up a new stacker crane and completed the replenishment station.

- A. An automated warehouse
- B. Automated warehouse conveyors
- C. Three pick stations
- D. A replenishment station



The MGA miniload warehouse can store 15,872 plastic euro-boxes





Two box extractions



Miniload with conveyors inside the warehouse



Double-mast stacker cranes were installed; the extraction system placed in the cradle is a double box and double-deep, being capable of handling two boxes at a time.

The extractor is formed by a fork and two independently moving belts that allow them to interchangeably pick boxes from one or another side, first moving to the contrary side where you are going to make the second extraction.

The conveyor system has been sized to move great quantities of boxes that may coincide with times of higher demand, while the travel speed, and mainly the stacker crane's lifting speed, were adjusted to the characteristics of this warehouse.



Access doors to the stacker cranes



Interior of the stacker crane aisle

Thanks to the four stacker cranes and the high number of boxes that they operate with, MGA ensures the liquidity of the flow of movements

In addition, a cantilevered structure has been made above the loading and unloading stations, managing to increase capacity by 320 more boxes.

In the rear, equipped with a large maintenance area, there are reference devices for the position of the stacker crane. The whole space is enclosed with mesh panels and safety doors that will individually disconnect the machines in case they are opened.



Cantilevered storage levels



Rear area of the warehouse



Main picking area circuit

Picking stations

The enclosure where the main warehouse is located is independent of other buildings and, in particular, from the picking station, which was installed on the side of the warehouse.

The picking stations, in the shape of a “U”, are located terraced perpendicularly to the main conveyors.

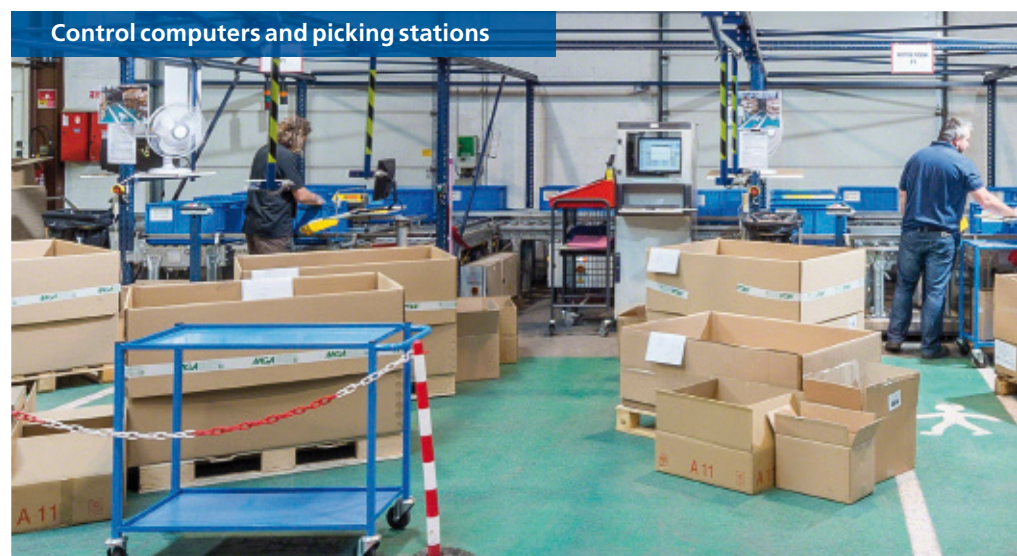
These conveyors are comprised of a double circuit that allows both the re-circulation of boxes, as well as the connection to the warehouse and the replenishment station. Moving boxes to either of the two main conveyors is direct, thus avoiding unnecessary movements.

Each station, with capacity for three boxes on hold plus the one which is being processed, is run by an operator, who in turn is able to prepare waves of six orders at the same time. To that end, there is a computer connected to the Mecalux Easy WMS (warehouse management software) and different support devices for picking. For example, put to light devices placed on top of the containers of each order, indicating

to the operator which order each item corresponds to.

On the pallets/containers of each order, the item location in the pallet racks has been previously introduced, that is to say, this same zone serves as an order consolidation area. In this way, fast and agile order preparation has been achieved.

Three picking stations, a replenishment station and the consolidation area were set up throughout the facility



Control computers and picking stations



Conveyors in the picking station



Put to light device

Easy WMS

The Mecalux Easy WMS (warehouse management software) is the nerve centre that manages all the necessary functions for the general operations of any type of warehouse, regardless of its complexity.

Easy WMS controls: all the inbound processes, the warehouse locations, stocks, location rules, storage and extraction, the pallets that have to go to picking stations, the picking itself, returns to the warehouse, etc. It is also able to analyse the state of distinct parts or areas via query and reporting tools, as well as the devices that operate in it.

Easy WMS is in bidirectional and permanent connection with the customer's SAP ERP, exchanging information and the orders necessary for the proper functioning and control of the various operations.





Advantages for MGA

- **Improved storage capacity:** the MGA miniload warehouse offers a storage capacity of 15,872 boxes.
- **Increased productivity:** thanks to the high level of warehouse automation, the speed of order preparation has increased.
- **Perfect stock control:** thanks to the Mecalux Easy WMS, the company MGA can manage all movements, processes and operations that take place within their warehouse.



Technical data

Storage capacity	15,872 boxes	Miniload warehouse height	12.3 m
Maximum weight per box	50 kg	Picking stations	3
No. of stacker cranes	4	Replenishment stations	1
Type of stacker crane	double-mast	Pallet capacity	1,480 pallets
Extraction system	double-deep, two boxes	Maximum weight per pallet	1,000 kg