



An automatic warehouse for the first automated wine production lines in the world.

The Company

Set up in 1950 for the wine-growers of Trento who wanted to offer top quality wines using a modern production process, today it represents over 4,500 wine-growers associated with 11 wine cellars and 65% of the Trento wine production (approximately 5,700 ha). Cavit collects, examines and selects the raw materials coming in from the best productions of the associated Wine-grower's Cooperatives subjecting them to strict tests in every phase: from refinement to bottling. Cavit was the first wine cellar in the world to have a fully automated production process.

The task

The design of the automated warehouse was guided by the need to optimise the existing volumes, speed up the production times and optimise product traceability by increasing the storage capacity and the handling flexibility. The customer also needed to increase the capacity of the existing line ends, which required moving the warehouse to a dedicated logistic unit using a part of the area previously occupied by manual logistics. The challenge during design of the new plant was to find a way to have the requirements in terms of shipping flows with the many different types of shipping required for the different markets served coexist with the spaces available while maintaining the required flexibility.



The Solution & the Result

The new warehouse is located in a building with an innovative design that hosts 6 stacker cranes (model NV) with a height between 19 and 20 metres, which operate on shelving double the normal depth and are split into 3 height classes: 2,250 mm, 1,830 mm and 1,680 mm with a maximum capacity of 1,150 kg. The warehouse provides a total of 13,468 pallet slots.

The entire system is dimensioned to be able to handle EPAL-based loading units of 800x1200 and "sleep sheet" pallets of 1,000 mm x 1,200 mm for loading in a container. Other types of pallets can also be handled, especially for export, using "slave pallets" of 1,000 mm x 1,200 mm. The seasonal variability of the mix of loading units in the warehouse required particular attention to the design of the storage cell in order not to limit the flexibility of use.

The new logistic unit is connected to production by means of a super-elevated tunnel through which the incoming finished products are conveyed to the warehouse on a continuous roller conveyor with a flow of 90 pallets/hour after checking the weight, shape, forkability and integrity of the pallet axes. A loop with 12 independent steering shuttles (SVL) connects the storage section in this part to all the system peripherals: entry bays from production, reject bays for non-conform products, entry bays from the outside, picking and shipping bays. The automatic warehouse also acts as meeting point between the full pallets and those prepared for picking: in this way, the arrival of the units at shipping can be sequenced correctly according to the right loading schedule.

There are 2 "goods to man" type bays for the picking activities configured in such a way as to allow reverse picking operations; they are equipped with dual pantograph platforms and a weight canceller to improve the ergonomics of the workstation. During development provision was made to add a third picking bay should Client's future operating conditions require, as well as the possibility to convert one or more manual stations into fully automatic bays by adding a layer picking robot. The pallets generated at picking are automatically conveyed to a station equipped with a rotary arm wrapper and automatic labelling.

The shipping operations are carried out in 5 double bays with an outgoing capacity of 134 pallets/hour, which serve 5 tippers used to load the truck: each shipping bay is equipped with a display for viewing the shipment and the load. The shipping phase follows the Just in Time philosophy, which means that the shipping units are called only when the carrier is physi-

cally present at the logistic unit; the warehouse continuously feeds the bays to avoid waiting times during truck loading. In this way, use of the shipping tippers is improved, at the same time saving useful surface area as no pre-staging is necessary.



TECHNICAL DATA

Main warehouse

Height: 19-20 metres

Length: approx. 100 metres

Storage section width: approx. 43 metres

Stacker cranes: 6 Model NV

SVL shuttles: 12

Picking bays: 2 + provision for 1 extra

Flows: 100 pallets/hour total in, 134 pallets/hour out

Picking flows: 60 loading units/hour