SALINEN AUSTRIA EBENSEE/AUSTRIA

INTRALOGISTICS

SALINEN AUSTRIA

THE TASK

Austria's largest salt producer, Salinen Austria AG, has reacted decisively to the huge increase in demand over recent years and expanded production capacity at the Ebensee site from 750,000 tons of salt per year to more than a million tons.

The logistics infrastructure needed not only to be expanded to keep pace with this, but also to be systematically centralized and automated. Rigorous analysis revealed that the optimal solution was a new high-bay warehouse at the Salinen site in Ebensee.

The associated conversion from multi- to single-level distribution is aimed at saving up to 40 % in transport costs – which still make up a third of the company's total costs.

THE CHALLENGE: SALT

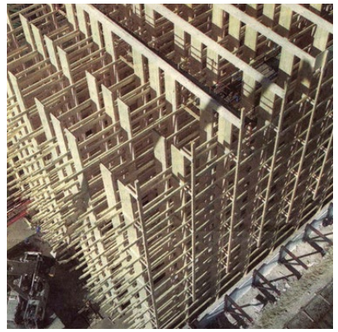
OUR RESPONSE: WOOD

The storage of salt demands elaborate corrosion protection measures – at least this is the case for steel which is traditionally used in the construction of high-bay warehouses.

As a general contractor for the intralogistics sector and working in collaboration with Kaufmann Bausysteme GmbH, LTW has developed a surprising alternative: even without any special treatment, wood is largely resistant to the environmental influences prevailing in salt warehouses.

As far as fire prevention is concerned, wood has obvious advantages due to its steady and predictable rate of combustion – sudden failure of the material does not occur in the case of wood.

The 25 m high and 110 m long, double-depth pallet racking was constructed entirely from glulam and as a silo structure, that is roof- and wall-bearing. In order to ensure that LTW storage and retrieval machines can be used, the construction elements were put through their paces in a model test at the Technical University of Graz and manufactured with computer-aided CNC precision.



No metal screw connections were permitted for reasons of corrosion protection. For this reason, Kaufmann drew on an old carpenter's tradition: the dovetail connection, the name deriving from the shape of the connecting parts. Stayers and bearers are merely glued together.

THE POTENTIAL

Its natural resistance makes wood an interesting option not only for storing chemicals such as acids and bases, but also for food.

As soon as high carrying capacities or custom-built constructions are required, wood yields cost savings in other areas as well. In addition to that, a high degree of prefabrication allows for a fast assembly which is nearly independent of the weather.

Thanks to the internationally renowned tradition in timber construction at our location in Vorarlberg, LTW has adequate partners for innovative constructions.

STORAGE AND RETRIEVAL MACHINES

The new triple-aisle high-bay warehouse is divided into two asymmetrical halves in the shape of a loop connected by material handling technology.

Six LTW storage and retrieval machines, each with an overall height of approx. 23 m, ensure the rapid flow of goods. With driving speeds of up to 4 m/s and hoisting speeds of up to 1.5 m/s, each storage and retrieval machine can move up to 92 pallets/hour.

In order to cope with the extensive requirements for corrosion protection, the storage and retrieval machines are hot-dip galvanized and also triple-coated. Components which were impossible to coat are mostly manufactured from stainless steel. No aluminium was used at all – for instance maintenance ladders are therefore made of wood. The power supply for the storage and retrieval machines (conductor lines at ground level) is equipped with a special covering to protect against contact with salt.

THE PERIPHERY

As far as automatic production connection is concerned, the high-bay warehouse is supplied by a central material handling loop. From this, each aisle is fed from separate incoming and outgoing branch lines.

A small proportion of the outgoing goods is allocated for rail transport. Most are transported by truck. Two transverse slide carriages in the area in front of the high-bay warehouse take the goods, distributing the pallets to eight exit stations, each with three gravity roller conveyors for the subsequent transport by truck.

In coordination with Salinen Austria AG, each truck driver is able to load his goods entirely independently. When a driver comes on to the Salinen Austria AG site to collect a consignment, he reports to an automatic control desk using a chip card and his transport order number and is allocated a particular loading ramp where the goods have been brought from the high-bay warehouse ready for loading. Then the driver reports to the control desk again on leaving and is given the relevant cargo documents in printed form.

Guidance and assistance for automatic loading has been translated with the customer into over ten languages.

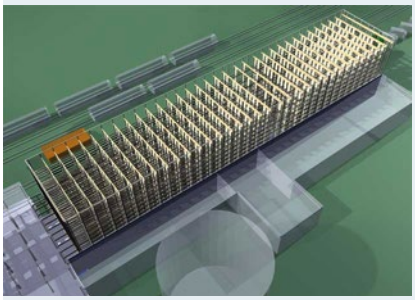
WAREHOUSE MANAGEMENT SYSTEM

Pulling all the strings in the background in this integrated solution is the LTW Warehouse Management System – creating perfect interaction between warehouse control unit and warehouse management unit.

In addition to the sophisticated control of the flow of materials, order picking and batch tracing have also been implemented at the customer's request.

PROJECT OUTLINE

YEAR OF CONSTRUCTION 2008



SHELVING STRUCTURE

- Made entirely from wood using glulam (GLT)
- Permanently corrosion-resistant
- Roof- and wall-bearing (silo)
- 11,200 pallet storage spaces
- Double-depth storage
- Triple pallet/shelf units
- 12 shelf levels

STORAGE AND RETRIEVAL MACHINES (SRM)

- Driving speed: 240 m/min
- Hoisting speed: 90 m/min
- Performance per machine: max. 92 pallets/hour
- Payload: 1,050 kg
- Overall height: 23 m
- High-quality corrosion protection

MATERIALS HANDLING TECHNOLOGY

- Automatic production connection
- Central loop
- 2 transverse slide carriages (redundant)
- 8 truck exit stations
- Rail transport connection
- Performance: max. 280 pallets/hour

SOFTWARE

- LTW warehouse management system
- Production planning
- Order picking
- Batch tracing
- Sophisticated control of the flow of materials
- Automatic loading with over ten user languages

LTW INTRALOGISTICS