

Benchmark Briefing

# Sustainability into the Future





# Fit for the future in just 4 weeks

The almost 40-year-old high-bay warehouse of Südwestdeutsche Salzwerke AG was modernized.

Südwestdeutsche Salzwerke AG, based in Heilbronn, is one of the largest salt producers in Europe. The salt is extracted from the Heilbronn and Berchtesgaden salt mines and from the brine deposits in the Bad Reichenhall basin. The production capacity of the two shafts of the Heilbronn Rock Salt Mine is just under 5 million tons annually. The salt is processed and refined to produce evaporated salt at the Bad Friedrichshall and Bad Reichenhall Saltworks.

In just four weeks, Kardex Mlog installed new stacker cranes and converted the 40-year-old high-bay warehouse at Südwestdeutsche Salzwerke AG into a state-of-the-art facility.

33%  
higher performance

Extreme  
corrosion  
protection

Just 4 weeks  
of refurbishment

## Case at a glance

### Location

Bad Reichenhall

### Case

Replacement of three stacker cranes

### Solution

Three stacker cranes of type Kardex MSingle A1100 with special corrosion protection



# Implementing automation

In close cooperation with logistics consultant Bernhard Lechner, the decision was made to go with Kardex Mlog. The original stacker cranes had been supplied by a competitor of Kardex but, during the construction of an additional high-bay warehouse at the company's Reichenhall location, Kardex Mlog had proven itself as a reliable project partner.

The project was scheduled for August 2021. During the four-week conversion phase, the Euro pallets and plastic pallets containing packed goods were stored in an external warehouse.

In the first step, the Kardex Mlog team dismantled the existing machines and the aisle equipment. The original storage and retrieval machines were removed with a crane through an opening in the roof. The new stacker cranes of type Kardex MSingle A 1100 took the same route in the opposite direction.

## Challenges

The diagnosis was clear: after almost 40 years of deployment and countless storage and retrieval operations in salty air conditions, it was time to replace all three stacker cranes in the high-bay warehouse of Südwestdeutsche Salzwerte AG (SWS AG) at the company's location in Bad Reichenhall in Bavaria. The machine parts were showing severe wear and spare parts were extremely difficult to obtain.

Availability of the salt plant, which is operated in two shifts, could no longer be guaranteed. Against this background, the company looked for an experienced supplier to deliver three new stacker cranes and to carry out the entire conversion project including the latest control technology and IT connections as quickly as possible.



3 stacker cranes of type Kardex MSingle A 1100



Controls of type S7-1500 F and SEW Movi PLC



Kardex MVisu visualization system

# Features and background

**The high salt content in the work environment of the new stacker cranes required special adaptations.**

A special feature of this project is the extensive corrosion protection for the new stacker cranes, which far exceeds conventional standards. During their manufacturing in Neuenstadt, all galvanized parts were painted or powder coated.

The screws required for setting and adjustment are made from stainless V2A steel. A coating was applied to all other screws. The parts of the rails not used for travel were also coated.

The low-maintenance technology of the Kardex MSingle A enables a cost-effective automation variant coupled with high throughput performance and maximum space utilization. The machines supplied to SWS AG are 22.8 meters high and have a load capacity of 1,000 kilograms.

The compact tubular mast construction and the absence of an enclosed operator platform means that the Kardex MSingle A weighs less than conventional stacker cranes. As a result, the chassis and lift units require smaller drives consequently saving energy.

The slimline design also enables a narrower aisle width and very small dimensions for the chassis and lift units. A further design feature is the cable deflection at the column head: this is facilitated by two plastic pulleys fitted with roller bearings and ensures a longer service life for the lift cable.



## 33% performance increase

The storage and retrieval orders are transferred to the machines via a warehouse management computer. Kardex Mlog set up the necessary data interfaces for this data transfer. The lift carriages are fitted with a telescopic fork and two prongs for single-deep storage. Each stacker crane accelerates to a maximum of 100 meters per minute for travel and 60 meters per minute for lifting and has a capacity of approximately 35 double cycles per hour. This corresponds to a performance capacity of more than 100 storage and retrieval operations hourly in the warehouse.

"This means that we have increased the performance of the warehouse by approximately 33%," states Kardex Mlog project leader Sebastian Haist.



# Conversion in only four weeks

**The first three Kardex MSingle A 1100 machines were commissioned on August 18, 2021. The other two stacker cranes followed just days later.**

The complete conversion phase, including connection to the warehouse management system, was carried out within a four-week period. "We are very happy with the progress of the project. The Kardex Mlog team were very quick and professional and they kept us in the loop with regard to every step of the project," explains the project leader at Südwestdeutsche Salzwerke AG.

Each stacker crane has an on-board control box, which is fitted with a touch panel. This means that the stacker crane can be operated semi-automatically, manually, and in set-up mode. Implementation of the travel and lift commands is ensured via state-of-the-art controls of type Siemens S7-1500F and SEW Movi PLC. Cameras installed on the stacker cranes allow any errors or disruptions during operation to be identified and localized quickly and easily. The field of view of the cameras is illuminated for improved image presentation.

### Remote maintenance

In conjunction with the Kardex MVisu visualization system, it is possible to eliminate many disruptions remotely without the need of personnel entering the aisles. Kardex MVisu is a module of the Kardex Control Center. With this software, users graphically map the entire automated conveying system and stacker cranes to show their operating statuses.



## Prepared for the future

Summary: Following the refurbishment, the almost 40-year-old high-bay warehouse is once again a state-of-the-art system and is well equipped to face the next 40 years. The entire project maintains the sustainability principle Südwestdeutsche Salzwerte is committed to.