

Media Release



Following a high-tech extension of its existing facility to include six SRMs to three existing aisles, the automated small parts warehouse of a Munich-based truck and bus manufacturer is now optimally equipped for further growth. Source: Kardex Mlog

Kardex Mlog / Automotive Industry

Storage and retrieval machines: From three to six

Neuenstadt, September 22, 2021 – After ten years of use, the requirements for the automated small parts warehouse of a Munich-based truck and bus manufacturer had changed significantly. With a unique concept, Kardex Mlog doubled the performance capability during ongoing operations and integrated an additional storage and retrieval machine into each of the plant's three aisles.

In the main plant of a South German truck and bus manufacturer, heavy trucks, driver cabs, axles and transmissions are produced for the entire company group. The number of products and variants had increased continuously over time and, with it, the requirements on production logistics. It was becoming necessary to stage a growing number of articles such as screws, bearings or electronic components at continuously shorter intervals.

More than 55,000 storage spaces

The company's intralogistics were faced with a major challenge: The core of the plant is a 24-meter high automated small parts warehouse with a capacity of more than 55,000 storage spaces for small load carriers. Each of the three aisles were served by a storage and retrieval machine (SRM), and these were replaced with state-of-the-art machines by Kardex Mlog in 2008, as part of a refurbishment during ongoing operations.

The machines feature mounted turntable-telescopic forks, with which the SRMs can each pick up, retrieve and turn double-deep positioned load carriers. If the required container is in the rear position, it can be moved to the front by the telescopic fork turning it, and the small load carrier that is not required is placed back on the rack. "This means that in each storage space, we can store two different articles, one behind the other. This adds significant flexibility to our small parts storage", explains Project Leader Jens Kuppelhuber.

Requirement doubled

With the previous setup, approximately 32 double cycles were possible each hour and this more than satisfied the requirements – until 2018. "Our customer extended their product portfolio and, within a short time, the capacity requirements on our small parts warehouse almost doubled", remembers Kuppelhuber and he adds: "It was not possible to add space to our 45-meter long and almost 9-meter wide warehouse." That's when we had the idea to increase the number of SRMs from three to six, so that there would be two in each aisle. In December 2018, Kardex Mlog was commissioned to start work on the project.

Introducing additional SRMs into an existing rack aisle is not an everyday event and certain safety rules must be observed. For example, a distance of at least 7.4 meters must be maintained between the machines at all times. For this reason, the existing SRMs had to be equipped with reflectors and laser distance measuring devices. Also, an additional anti-tilt mechanism was installed as well as a new conductor line and new current collectors.

Safety through redundancy

Each SRM has its own controls and, at the terminal, receives instructions from the higher-level system via an optical sensor. This means that the devices can substitute for each other and ensure a seamless and continuous supply if, for example, one of the SRMs is switched off for maintenance purposes. In the event that the programmed security mechanisms fail, the single-mast machines also have an on-board monitored mechanical buffer, which functions as a shock absorber in emergency situations and absorbs the kinetic energy of the other device. Another challenge for Kardex Mlog was to ensure that the new SRMs matched the development status of the 10-year old devices in order to keep the customer's stock of required spare parts to a minimum. As a German manufacturer with a high level of vertical integration, Kardex Mlog was able to comply with this request and still meet current safety regulations.

"In the design of the extended plant, the priority was on emergency escape routes for employees", says Kuppelhuber. In this context, the company developed a new space-saving solution for the control boxes mounted on the side of the SRMs. The maintenance platform mounted below the control boxes can be folded up to save space. Thanks to these measures, there is now sufficient space between the SRMs and the racking so that employees can get past in an emergency.

Uninterrupted operations

To avoid disrupting operations in the warehouse during the introduction, installation and test phases, temporary intermediate doors were installed in all three aisles following numerous strategic planning sessions. These split each aisle into a front and rear section. "At that time, the warehouse was only half full and it was possible to keep all articles in the front area of the aisles", reports Kuppelhuber. This meant Kardex Mlog would be able to work on installing the new SRMs (MSingle A type) in the rear of the aisles without disrupting ongoing operations. "We took advantage of the weekends to remove the intermediate doors and test the interaction of the two SRMs in each aisle", explains the project leader, who handed over the plant on time to the truck and bus manufacturer.

Open for further growth

Since the refurbishment, the small parts warehouse has a capacity of 64 instead of 32 double cycles per hour, which represents an increase of 100 percent. The peak value is achieved when the two SRMs do not have to enter each other's safety zone and thus 'displacement trips' are avoided. Thanks to intelligent control of the transport orders, this is the norm.

Summary: As the result of a high-tech extension of its existing facility to include six SRMs in three aisles, the automated small parts warehouse is now optimally equipped for further growth.

For more information, see:

www.kardex.com

About Kardex Mlog

Kardex Mlog (www.kardex.com) with a head office in Neuenstadt am Kocher, Germany, is one of the leading suppliers of integrated material flow systems and high-bay warehouses.

The company has more than 50 years of experience in the planning, implementation and maintenance of fully automated logistics solutions. The three business sectors - Greenfield Installation, Modernization and Life Cycle Service – draw upon its in-house manufacturing facility in Neuenstadt. Kardex Mlog is part of the Kardex Group and employs 290 people. In 2020 the company achieved revenues of €73 million.

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