

PRESS RELEASE

A Round Subject

Moving multi-ton weights fluidly

With a retrofit and thorough automation concept, MKM Mansfelder Kupfer und Messing GmbH in Hettstedt is streamlining its internal storage logistics. The special feature: A floor-free, ceiling-guided warehouse handling machine with telescopic column takes care of moving the wire coils, which weigh up to 6 metric tons (6.6 US tons), in and out of storage. Instead of an exchange, the almost 20-year-old device was overhauled and modernized so that it now takes over the processes fully automatically. The most modern control software ensures fluid, rounded and thus low-strain motion cycles.

The ceiling-guided warehouse handling machine was originally made in the year 1998. Vollert Anlagenbau in Weinsberg had delivered the system once – and is now responsible again for the retrofit and the new overall concept. Then, as now, the warehouse handling machine installed in Hettstedt, with its 30 m (nearly 33 yd) range and 6 t cargo load, is one of the largest of its kind. It can be driven and rotates bi-directionally, and at the end of production, it takes over the storage of wire coils in the respective lane of the high-bay warehouse. MKM Mansfelder Kupfer und Messing has been manufacturing copper wire in Hettstedt since 1909 – in addition to other products like bands, sheets, pipes, rods and profiles. “We love copper” is the motto of the company, which is planning for vigorous growth in the coming years. The areas of growth include the automotive industry, among others – particularly the field of electromobility. The market is attractive: Already in conventional vehicles, up to six kilometers (3.7 miles) of wiring is installed in the on-board electrical system alone. And in the next few years, the amount of copper used in modern automobile concepts will increase markedly. In hybrid vehicles, the amount of copper is twice as high, and for vehicles with purely electric drive, the demand even triples.

Modernization instead of dismantling

The growth plans go along with investments in the production technology and the in-house business processes, which have to be adjusted to the growing production numbers. After nearly 20 years of use in the rough foundry environment, the telescopic column crane was significantly negatively affected. The extreme range and the high point load on the loading fork, put a great deal of stress on warehouse and drive. This frequently led to malfunctions and breakdowns, so that finally the entire system could no longer be used effectively. “In

the interim, even the complete dismantling and the switch to a manual flat storage was under consideration," says Jürgen Braun, responsible project manager from Vollert. But in light of the amounts produced, this would not be a sensible alternative. Together with MKM, therefore, the heavy load experts from Vollert developed a new storage concept – retaining and modernizing the existing telescopic warehouse handling device in combination with a new automated infeed and outfeed of the fully automated high-bay warehouse. An additional hall wall now separates the storage area from the foundry and thus protects reliably against dust and dirt.

Well-thought-out design – from floor to ceiling

The recommendations from Vollert, in addition to the actual retrofit of the warehouse handling device, the construction of a new optimized shelving system and the updating of the safety technology and CE-compliant certification, also included the construction of a conveyor line for the automated transport from the foundry to the high-bay warehouse. After the wire coils are wound and packaged, they now come via rollers to a lift table, which lifts the package onto a carriage. The movement goes through an automatic door in the hall wall to transfer the coils to the shelving system. There, depending on the order situation and requirement, the system independently decides whether to store the coil in the shelves or deliver it directly via roller conveyor for shipping. "The rails of the carriage, which are recessed and can thus be driven over, enable a free forklift and factory traffic despite the automated delivery. That was important to MKM and us, especially since there's no more space available in the hall overall," explains Jürgen Braun.

The trick with the controller: More tempo and fluid motions

The main focus of the modernization, in addition to the exchange of the warehouse, cables and rollers, lay primarily on the updating of the electrical system, the switch cabinets and the control of the telescopic warehouse handling device. Here, improved motion cycles promise a lasting protection of the material and thus a long-term reliable and error-free operation. For the previous manual control and the stiff movements of the device caused strong stresses due to the high load of 6 t placed on the end of the telescopic column. The full automation of the storage, new drives and a completely new controller should provide relief. Vollert thus relied on a modern iPos controller from SEW Eurodrive. With it, travel paths can be calculated in advance, whereby optimized fluid travel motions are possible in three axes simultaneously. The rounded motion cycles strain the material significantly less; at the same time, they shorten the travel paths and thus streamline the cycles. The

movement in and out of storage now also occurs in one step, so that wire coils can now be moved every 3-5 minutes without damage. The experts from Vollert took over the programming of the controller in-house, as well as the entire planning, development and production of the system technology.

Comprehensive service worldwide

As seen here at MKM, the modernization of central warehouse handling devices frequently enables significant capacity increases, since they most common form a central element in the production. The engineers at Vollert specialize in intralogistic solutions for large parts and heavy loads; the industry know-how in the metal and aluminum industry or for construction materials is correspondingly large. Over 200 high-bay warehouses and stacker cranes for loads up to 50 metric tons (55 US tons) from Vollert are in use around the world. In addition to the new development of system concepts, the retrofit of existing systems from Vollert and from third-party suppliers is an everyday affair. The Vollert retrofit team deals with six to seven larger projects every year. A requirement for the successful implementation is the many years of experience of the specialists. Frequently there are no longer replacement parts for older systems. Then new, precisely fitting and performance-focused components have to be found or made. However, Vollert not only takes over the modernization of systems worldwide but also carries out regular inspections and maintenance for numerous customers. The preventative inspections that are legally required for accident prevention (*Unfallverhütungs-Vorsorgeuntersuchungen*, UVV) are also part of the company's range of services. Through these tasks, the engineers in various international markets possess a comprehensive insight into the technology of the various systems. At the end of a project, the team creates a complete documentation that can be accessed later if necessary. Over 5,000 of these are already stored digitally in the in-house archive, since the archive goes back to 1960.

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Image 1



Image 2