

Drive technology TODAY

LCS/CADEL: With automatic conveyor systems, the warehouse of the future is flexible, networked and intelligent.

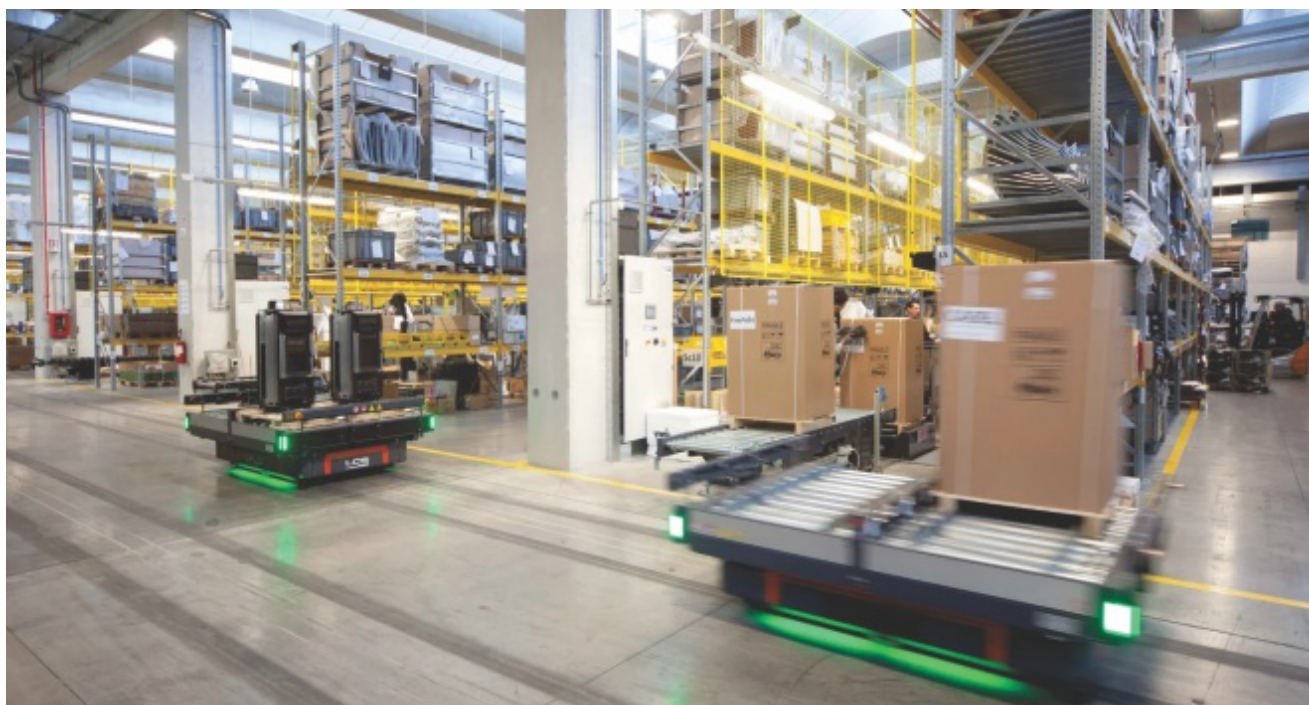
Automated transport with logistics assistant for warehouse 4.0.
LCS and SEW-EURODRIVE have developed a complete solution for bearing 4.0 for the smart factory from CADEL.

Overview

► LCS S.p.A. has been designing, producing, installing and maintaining automatic warehouses and material flow systems since 1989. The company, with offices in Usmate Velate (MB) and Castelnovo ne' Monti (RE), has been designing customized solutions and automatic storage systems for customers for more than 30 years that guarantee efficient operation and constant monitoring of all movements of stored goods in real time to ensure an optimized logistics service and therefore complete, fast and punctual deliveries.

LCS solutions – especially for the manufacturing, logistics, food and beverage industries – are designed to increase service levels, reduce costs thanks to automated high-bay warehouses in a smaller space, and avoid waste and errors in material handling and management.

The company combines its expertise in the field of mechanics with the development of software that ensures the full functionality of automatic storage systems in their various forms: Automatic warehouses for pallets and crates, for cartons and containers, warehouses with storage/rack conveyor systems or Miniload and Multi Depot. LCS also offers electromechanical, software and IT support and maintenance services around the clock with preventive maintenance and technological renewal measures to extend the solution's life cycle with regard to industrial sustainability. ►



Customer requirements

The manufacturing industry increasingly needs efficient intralogistics with reliable, flexible and scalable solutions that can adapt to changing market needs while ensuring an appropriate time to market and a high degree of competitiveness. Storage has become a critical success factor for companies and requires efficient and flexible processing solutions: Just-in-time deliveries are becoming increasingly a key element in customer loyalty, which is why optimal management of inventory, storage and handling is required.

LCS has developed a complete and modular storage system for CADEL, an Italian company that designs and manufactures high-quality pellet stoves based in Santa Lucia di Piave (TV), for a new-generation integrated factory. The partnership with SEW-EURODRIVE has managed to offer itself as the only contact person for the project and to respond in 360 degrees to the internal and external requirements for handling the new warehouse: A collaboration that has led to revolutionizing the warehouse with a networked system, a reliable and modular system, in order to become the constant development of goals and possible future extensions.

At the heart of the project is the automatic transport system with AGVs (Automated Guided Vehicle Systems), intelligent vehicles with contactless energy transfer for managing internal material flows.

The CADEL production center, which covers an area of approximately 18,000 square meters, integrates the entire production process for chimney stoves – from raw material to finished product, from storage to shipping to retailers and/or wholesalers – in a single location. To improve production efficiency and workflow management, and to promote collaboration and integration between humans and machines. The chimney stoves are manufactured on 10 assembly lines for semi-finished products, 7 lines for product refinement and 1 line for assembly of kits. The automatic warehouse has a 21-meter-high, self-supporting structure with 10 storage levels, 3 aisles, which are operated by just as many storage/retrieval systems, and is connected to the various areas of the factory by a fleet of 9 AGVs.

The shuttles facilitate integration between the production lines and the warehouse by connecting the various areas, even far apart, on an inductive track to connect the lines and the shipping area over 500 meters back and forth.



Solution

SEW-EURODRIVE supported LCS in the Smart Factory 4.0 project for CADEL with a package of automation solutions that were designed for the various handling requirements of the system. The project was not limited to simple dimensioning, but examined together with the end customer, thus increasing the quality level and attention to detail.

Our technology has enabled us to renew our fleet of Automated Guided Vehicles (AGVs), which are used to transport automated internal material flows and take handling to a new level of development thanks to their integration into the entire process at plant and factory level. The AGVs move with the aid of a ground-based induction system with contactless electrical energy transfer, which also offers advantages in terms of environmental compatibility.

The storage/retrieval systems for the warehouse are driven by gearmotors controlled by the compact MOVIDRIVE® multi-axis system, which is part of the MOVI-C® modular automation platform, a flexible, modular system in a single, connected platform that was the ideal choice for the project to ensure reliability, quick and easy startup and open connection to common control systems.

The MOVIKIT® StackerCrane effiDRIVE® package, which was specially developed for the optimized control of storage/retrieval systems, takes over the software management of the drive.

This solution is able to optimize the lifting and travel cycles and thus achieve energy savings of up to 25%. Numerous features make startup easy: Anti-sway algorithms, MultiAxisController, cable strain compensation and the simple parameterization of advanced safety functions.

The handling system is connected to the bearing head, which is equipped with state-of-the-art MOVIMOT® decentralized inverter gearmotors that simplify and accelerate installation and electrical cabling on site thanks to the integrated PROFINET communication.

By combining the expertise of LCS and SEW-EURODRIVE, CADEL was able to realize an example of an integrated factory with high-tech, reliable and scalable solutions for the Smart Factory 4.0 warehouse of the future. ◀

