



DC Solutions | by Thomas G. Dolan

Stacker Cranes Cure Pallet Pain

Pharmaceutical
manufacturer
Catalent prescribed
an automated storage
and retrieval system to
treat inefficient pallet
storage in its high-bay
warehouse.

For companies with busy and complex warehousing operations, running short of inventory storage space can be a bitter pill to swallow. Through an imaginative approach to stacker crane use in a uniquely designed facility, pharmaceutical manufacturer Catalent Pharma Solutions maximized materials handling flexibility and efficiency to increase capacity at its Philadelphia packaging center.

Catalent develops and manufactures softgel capsules, modified release oral solids, and prefilled syringes in an extensive manufacturing facility network that includes more than 20 sites across five continents. Many of these facilities also provide commercial packaging services – filling bottles, pouches, and blister strips with tablets, powders, and liquid solutions – to the healthcare industry.

Catalent's Philadelphia facility is representative of the company's global distribution center (DC) operations. The site provides healthcare industry partners with a full solution, from primary package design and engineering to filling, assembling, and labeling packages,

and managing secondary packaging. The Philadelphia site specializes in cold chain biotech packaging, as well as bottling, blistering, and pouching.

To gain operations efficiency and storage space, Catalent dramatically renovated the facility. The first step in the project was partnering with materials handling equipment provider LTW Intralogistics, an Austrian company with U.S. headquarters in Emigsville, Pa. LTW manufactures automatic and manually operated stacker cranes, and delivers components including racking, conveyors, and warehouse management software for high-bay warehouse systems. The company also provides engineering



and project management for turnkey warehouse solutions, and specializes in handling loads from 20 to 20,000 pounds.

The Philadelphia facility presented an interesting design challenge. "Three existing buildings stood surrounding an empty space," says LTW's North American president, Daryl Hull. "We added a fourth building in the middle, and tore down walls to connect the existing buildings to it, creating a single facility that provided a more efficient workflow, increased warehouse density, and netted considerable electricity and refrigeration savings."

Ready to Move

To support the facility's cold chain activities, the renovated site features refrigerated storage for 880 pallets. It also houses a Class II vault for storing controlled drugs. The majority of the plant's packaged product, however, is stored in the high-bay warehouse system at an ambient temperature.

Workers box, label, palletize, and shrink-wrap products coming from the plant's 63 packaging suites, then move the pallets by lift truck to an automated storage and retrieval system (AS/RS) induction



A curved track allows stacker cranes in Catalent's facility to change aisles easily.

conveyor for storage in the high bay. This 54-foot-high, five-aisle bay holds 19,000 pallets, stacked nine pallets high.

"Software tracks pallet throughput around the clock," says Justin Smith, Catalent's logistics director of supply chain. "We can handle more than 630 pallet moves in a 24-hour period."

LTW assisted Catalent in designing the optimized AS/RS to meet the facility's needs, while keeping costs in check. For example, the DC's five aisles would

typically necessitate five automated cranes—one per aisle. On an average day, however, Catalent would use only 30 to 40 percent of the system's capacity to move its palletized product.

LTW designed a new version of the system that used only three cranes, instead of five, saving \$800,000 in equipment investment. "Matching the number of stacker cranes to the warehouse's throughput needs, instead of to the number of aisles, reduces capital investment and operating costs," Smith notes.

With up to 2,000-pound pallet payload capacity, the cranes manage not only all the facility's pallet handling, but also most of the materials receiving, and shipping for both finished products and waste materials.

An Easy Fix

Unlike conventional aisle-changing cranes, which are limited in flexibility, the cranes at the Catalent facility continue when they reach the end of an aisle, traveling on a curved 12-foot track that directs the crane into the next aisle to continue storing and retrieving pallets.

This flexibility also pays off when equipment fails. Repairing conventional stacker cranes can be difficult because they are often stuck in place when they malfunction. Repairs can be time-consuming, and the maintenance crew often must bore holes in the facility's roof to access the broken machine. The cranes in the Catalent facility, however, can be pushed off-track to a separate area for repair.

"These cranes virtually eliminate the supervision, equipment, and maintenance problems that plagued earlier aisle-changing cranes," Smith notes.

For Catalent, the new system was just what the doctor ordered. "Our Philadelphia facility now leverages fully automated warehousing, distribution, and packaging functions, thanks to the AS/RS and aisle-changing stacker cranes," Smith says. "We can move products from packaging into storage, then ship them to our clients or distribution centers with efficiency and flexibility."

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