White Paper

Leverage ASRS with WMS Integration



kardex remstar

Introduction

Deployment of automated storage and retrieval (ASRS) solutions has been delivering impressive improvements in labor and space savings within a facility for decades. For certain, being able to reduce the number of workers needed for picking or freeing up space by moving to high density storage are key areas of payoff, but the larger struggles for distribution center (DC) operations today tend to be around customer service expectations such as being able to process and ship item-level orders for next-day delivery.

Companies find themselves with several islands of automation, each providing the ROI to the intended area, but these disconnected islands make it difficult to meet bigger order fulfillment challenges. In short, connecting these existing islands of automation is the key to an efficient customer service process.

Companies see customer service expectations as one of the biggest challenges in logistics and supply chain execution. According to MHI's 2O21 Annual Industry Report, supply chain professionals surveyed named customer pricing pressure, demands for faster response times and rising customer expectations as three leading issues they find "very" or "extremely" challenging.



In this business climate, ASRS solutions, including their software and system integration capabilities, can enable a smoother, more accurate customer fulfillment process. To better integrate automation with other technology investments such as warehouse management systems (WMS) and enterprise resource planning (ERP) systems, software capabilities are increasingly important. Providers of ASRS solutions need to have software and services capable of ensuring ASRS integrates well with other picking methods and systems for inventory and order management.

Through customer examples, this white paper will examine how ASRS solutions function within a connected fulfillment process. More specifically, learn how solutions enable:



Rapid processing and picking of next-day shipments, while still being able to closely monitor and add to shipments while they are in progress.



Coordinating picking with host WMS or ERP systems so that picking from ASRS can be consolidated with manually picked items from other zones.



Integration with order requirements from host ERP or WMS systems to support batch or zone picking.

Integration with WMS

Kubota Canada

Much of the efficiency from ASRS equipment comes from replacing substantial amounts of picker travel and handling with a high-density, "goods-to-person" environment in which one or two pickers at a workstation follow pick-to-light instructions to rapidly pick orders. Of course, in many DCs, goods from ASRS zones need to be combined with goods picked from other areas of the warehouse.

To get ASRS zones working in concert with other zones of a DC, the key is software integration. For Kubota Canada's DC in Markham, Ontario, Canada, integration between its WMS and its Vertical Lift Module (VLM) Kardex Shuttles and Horizontal Carousel Modules (HCMs) from Kardex Remstar support the multi-zone picking and order consolidation that are part of its "pick-and-pass" method of order fulfillment.

Most part orders are for dealers of Kubota equipment, which spans a lineup of tractors, mowers and utility equipment used by contractors, farmers, equipment rental businesses and many other end users. "Our customers typically want service parts the next day, because if their vehicle isn't working, they are losing money," says Rick Lackner, parts warehouse supervisor for Kubota Canada.

The different zones of Kubota's warehouse hold different sized parts that move at different order frequencies. A bulk picking zone holds larger parts such as transmissions, while a prime zone consisting of high-bay shelving holds items that are either too bulky or are too slow of a mover for the HCMs or VLMs. The VLM zone uses four Kardex Shuttles that pick medium moving SKUs, while the HCM zone consisting of six Horizontal Carousel Modules holds and processes faster moving SKUs. A WMS solution orchestrates the zone picking, taking in order information from an AS/400-based enterprise system.



The WMS is integrated with the Kardex Power Pick System inventory management software that manages the VLMs and HCMs. The WMS coordinates the pick and pass process, taking in the order information from the enterprise system, managing priority codes for picks and passing order information down to the Kardex Power Pick System inventory management software for processing in the VLMs and HCM zones. A motorized conveyor connects the zones. Totes with a bar coded license plate identifying each order are used to pick parts into at the VLM and carousel zones.

The WMS organizes picks into groups of eight totes. The VLM zone is at the start point for the pick and pass process, so when the picker working the VLM workstation scans a group of totes into the system, that scan initiates the fulfillment process. The pick-to-light display guides the operator on what SKUs to place into each tote. When all the picks are exhausted, the picker is instructed to pass those totes via the conveyor to the next zone. The totes are scanned into the Kardex Power Pick System there, and due to the integration with WMS, it knows exactly which totes need additional SKUs from the HCM zone and which can go directly on to consolidation.

At the same time picks are being processed in the VLM and HCM zones, the WMS is directing RF-based picking from the prime and bulk zones so that goods needed from those zones can be brought to consolidation at about the same time. At consolidation, a scan of totes coming down the conveyor from the carousel zone instantly reveals if the tote's order still needs items from the bulk or prime zones, and these totes will be temporarily staged off to the side until the needed items arrive.



«With the integration we have, we can run things in parallel, [...] Picks are going on in multiple zones simultaneously, but it functions as one coordinated process.»

Rick Lackner. Parts Warehouse Supervisor for Kubota Canada

The overall zone picking solution of a RF-based WMS integrated with the VLMs and HCMs has allowed Kubota Canada to keep up with rapid growth. Sales for equipment have been expanding, leading the DC to increase its number of SKUs from 74,000 to 92,000 SKUs. Part inventory volume is up by more than 50 percent in this time span, says Lackner, as part of Kubota Canada's philosophy of always having parts in stock, even for older equipment.

"When you go out and buy a Kubota, you can be assured that in 15 or 20 years, we are going to have a part to service your vehicle," says Lackner. "We've been able to meet this goal and maintain our level of service during a time of strong growth, while having to add very little in labor resource, thanks in large part to our integrated systems."



Software Manages Fulfillment

Value Drug Mart

Value Drug Mart, a Canada-based association of pharmacies that is served by a DC in Edmonton, Alberta is another company benefitting from the goods to person efficiency of ASRS, while also being able to coordinate picks from its automated zone with picks from the other zones in its warehouse. The key to success here: software integration.

There are 29-member shareholder stores under the Value Drug Mart banner, as well as 10 Apple Drugs stores, 10 Rxellence Professional Dispensaries and over 300 affiliated stores—all serviced by the Edmonton DC. To efficiently fulfill orders for both pharmaceuticals and retail items for this customer base, Value Drug Mart relies on automated, Horizontal Carousel Modules from Kardex that are integrated with a host WMS to manage inventory and consolidate orders in efficient batches to meet the multiple orders each store might place daily.

The 6 HCMs Value Drug Mart has in its DC today are arranged in "pods" of three carousels each. The Kardex Power Pick System inventory management software manages the HCMs integrated with data from the WMS to batch the picks for multiple order picking. Once completed, the picked totes are sent to a consolidation area where they meet up with items picked from other zones via other picking methods governed by the WMS, explains Dwayne Bilawchuk, operations manager.

The HCMs are an efficient way to pick goods because they rotate to bring the goods required for picking to the operator. The Kardex Power Pick System controls the units and manages the inventory. The solution is smart enough to coordinate batch picking as order requirements come down from the WMS.

«We looked at different technologies to help automate our picking, but I have yet to find a technology as efficient as Kardex Horizontal Carousel Modules, especially for a unit pick facility such as ours.»

Dwayne Bilawchuk, operations manager at Value Drug Mart

Pick-to-light displays guide accurate pick and place movements for the pickers. That means pickers don't have to travel down aisles of shelving to pick orders, and with batch picking logic, the HCMs only spin once to a location to retrieve items for multiple orders. "We looked at different technologies to help automate our picking, but I have yet to find a technology as efficient as Horizontal Carousel Modules, especially for a unit pick facility such as ours," says Bilawchuk. "It's pick-to-light, and put-to-light, done in batches."



The automation journey for Value Drug Mart began over 10 years ago with two carousels and within a few short years, was expanded to six units. The six carousels are double stacked, with the lower pod of three HCMs dedicated to retail or "front of store" items, and the second level pod of three HCMs handling picking of pharmaceutical items.

Due to rapid growth for Value Drug Mart, fueled in part by a successful "Back to School Solutions" program which has grown to over 6,000 school kits, Value Drug Mart needed to be able to efficiently handle many more orders for front-of-store items. "This is a growing seasonal program that we would not have been able expand without the addition of the Horizontal Carousel Modules," said Bilawchuk.

Before implementing HCMs, Value Drug Mart used paper pick lists and manual picking processes from shelving to fulfill items now picked from the carousels. The HCMs have increased picking productivity by 90 percent, and also reduced the square footage that was devoted to shelving by nearly 60 percent.

However, the carousels have done more than bring an isolated space efficiency gain. Via integration to the WMS, and support for batch picking within the Kardex Power Pick System, the carousels support efficient order flow and consolidation. The customized WMS manages wireless, radio-frequency (RF) based picking from the other zones of the warehouse that hold bulk goods, cases and pallets. Pickers using RF units bring goods to the consolidation area via lift trucks or carts, while a motorized conveyor brings picked totes from the carousels to the consolidation area.

"I often refer to what we do here with order fulfillment as looking like an hourglass, because we can take multiple orders from a customer during the day, narrow that down to what, for the purposes of picking, is essentially one order, but still generate an invoice for every order the customer places," says Bilawchuk. The Kardex Power Pick System controls the inventory levels on the HCMs, with reorder points coordinated with the WMS. If a customer places a big order for an item that exceeds the amount in the carousel, Value Drug Mart can use the WMS to trigger a "hot-shot" replenishment process to quickly add more of that item to the carousel. The integration between the two systems is reliably flat file data transfer. Reports can be run periodically to ensure the inventory levels in the two systems match up.

With this reliable integration between WMS and the HCMs, Value Drug Mart has been able to take on more business without scrambling to add more labor or space. The efficiency of the carousels also have allowed Value Drug Mart to significantly reduce labor costs through attrition. The DC used to require 80 full and part-time workers to fulfill orders and run the DC under its more manual processes and strict order picking, but today with HCMs, pick/put-to-light and batch picking, 30 full and part-time staff are able to keep pace with fulfillment needs.

«We're happy with how well this technology has fit in with Value Drug Mart's operations.»

Dwayne Bilawchuk, operations manager at Value Drug Mart



In sum, the point efficiencies of ASRS offer real payback, but at the same time, ASRS software integration helps companies meet more strategic goals around customer fulfillment, without having to ramp up the labor force.

As Value Drug Mart's Bilawchuk observes, the HCM pods in its DC have set a foundation for highly efficient picking, even in the face of continued growth.

"We're happy with how well this technology has fit in with Value Drug Mart's operations," says Bilawchuk. "We are well positioned to carry out more business efficiently. If we are approached with another big program or with continued growth, or take on new products, we're confident we can do that without really batting an eye. The systems and processes we have in place now can be ramped up to handle more growth without having to add a lot of labor."

About Kardex

Kardex is a global industry partner for intralogistics solutions and a leading supplier of automated storage solutions and material handling systems. The Group consists of two entrepreneurially managed divisions, Kardex Remstar and Kardex Mlog.

Kardex Remstar develops, produces, and maintains dynamic storage and retrieval systems and Kardex Mlog offers integrated materials handling systems and automated high-bay warehouses.

The two divisions are partners for their customers over the entire life cycle of a product or solution. This begins with the assessment of customer requirements and continues through planning, realization, and maintenance of customer-specific systems. It ensures a high level of availability combined with low total cost of ownership and operation.



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