Six Ways To Increase Inventory Control

White Paper

Whether you run a distribution and fulfillment operation, or a tooling and spare parts warehouse supporting manufacturing, learn how an automated storage and retrieval system with integrated inventory management software will enhance inventory control across six specific processes.

Introduction: Automated Storage Systems Deliver Inventory Control

Within the four walls of a manufacturing or distribution warehouse, being called an "inventory control freak" is definitely not an insult. After all, what could be more important than knowing exactly how many items—whether they're stock keeping units (SKUs) waiting to be picked for order fulfillment or expensive tooling or spare parts needed to keep an operation running at peak performance—are on hand, precisely where they are, and that they're in perfect condition?

One of the easiest ways to ensure maximum inventory control throughout an operation is to implement an automated storage and retrieval (AS/RS) system—such as horizontal carousels, vertical carousels, vertical lift modules (VLMs) or vertical buffer modules (VBMs) —with integrated inventory management software.

Inventory management software delivers the highest degree of picking control within an AS/RS by enabling smart functionality such as inventory monitoring. Whether an operation has a warehouse management system (WMS), enterprise resource planning (ERP) or manufacturing resource planning (MRP) system in place—or minimal to no inventory management system at all—the integrated software within horizontal carousels, vertical carousels and VLMs (and the machines themselves) address a variety of operational challenges associated with inventory control.

This white paper explores the six processes in which an investment in an AS/RS with integrated inventory management software increases inventory control within warehousing, distribution and manufacturing operations.

> *Added Bonus! Meet LEAN Initiatives*
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> *For better inventory control, automated storage and retrieval systems utilize software that closely monitors inventory levels, eliminating **overproduction** and unnecessary **motion**, such as conducting physical stock counts or **delays/waiting** required by searches for misplaced items.*

6 Inventory Control Processes Improved by AS/RS Software

1. Receiving

Determining how and where received inventory should be stored depends on many factors, including the types of products or parts and by frequency of picking/velocity of movement (fast, medium, slow or very slow). Most operations focus their inventory optimization efforts solely on their fast movers—which typically comprise just 20 percent of their inventory. That leaves 80 percent of inventory (medium and slow movers) available for further optimization and control through slotting. The slotting process determines the most appropriate place to store each item in a warehouse, including within an AS/RS, first based on pick velocity. This means fast and medium movers should be located in the most accessible areas, while slow and very slow movers should be stored in areas less accessible.

Information from a WMS, ERP or integrated AS/RS inventory management software can be leveraged and integrated with the slotting process for even greater inventory control. By ensuring these software systems are inter-connected for ongoing communication, repetitive—and potentially error-prone—data entry can be avoided. This also enables broader inventory visibility in real time, resulting in a reduction in search time through faster and easier accessibility. Finally, this integration enables the software to automatically reslot product as needed to accommodate changes in inventory, special promotions or seasonal peaks.

Added Bonus! Better Organization

To help find the items even faster, partitioned trays or totes can be used for better organization making it easy to locate small components. Further, the inventory management software monitors the status of every item to organize stored products by frequency of picking together, or by their usage association to individual pieces of automated equipment and the maintenance required.

2. Pick Accuracy

To ensure the right item is picked, AS/RS machines can be equipped with a range of validation equipment. This might include an RF barcode scanner used to capture barcode data associated with an item. The information captured by the scanner is relayed to the inventory management software, which verifies the picked part is the same one required by the order. For facilities requiring an operator to match part numbers or pick items from a specific batch, lot or serial number—visual verification can be tedious, time consuming and error-prone. For these applications, barcode scanning can be used to verify with the inventory management software that the correct item has been picked, saving time and ensuring accuracy.

Added Bonus! Item Protection

When stored on shelves, parts are exposed to dirt and dust common in distribution, warehousing and manufacturing operations. This shortens their useful life and renders them unsuitable for use—creating scrap and waste. Because AS/RS machines can be fully enclosed, the items they store are kept clean and protected. Not only does pick accuracy improve, but the parts picked are always in good usable condition.

Alternately, AS/RS machines can be equipped with indicator lights to illuminate the item's location and pick quantity required for even higher accuracy. This cuts the time spent searching for a specific stock keeping unit (SKU) within the storage tray. Options include:

Transaction Information Center: Applied to vertical carousels and VLMs, this dynamic pick-to-light system displays discrete item identification in 1/10-inch increments. The module displays descriptions, quantities and other messages to help an operator select the correct item and amount for order fulfillment.

Light Pointer: Used with VLMs, this system deploys an LED or laser light mounted on a slider that moves horizontally on a guiding system within the access opening of the storage and retrieval unit. Software-driven, the light pointer also swivels to project the light beam in the depth direction of the machine to illuminate any position within the storage tray. The light spot identifies the precise location of the item to be picked or replenished, eliminating search time.

Position Indicator Light Bar: Incorporated into the access openings of both vertical lift modules and vertical carousels, these LED lights illuminate in alignment with the position of the required item where it is stored in the tray.

Light Tower: When integrated with horizontal carousels, this unit houses picking display modules in extruded uprights (towers). The displays indicate the active carousel, shelf level, cell location and quantity to pick. Software-driven, a single light tower serves two horizontal carousels working together in a picking pod.

Put/Batch Lights: Used with both horizontal and vertical carousels, as well as VLMs, these light-directed picking modules direct an operator to put or store items in a specific or active location when replenishing stock. They can also be used for order consolidation, batch picking and sortation at workstations located near the automated storage and retrieval units.

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3. Track-and-Trace

For highly regulated industries—such as medical devices—the same AS/RS inventory management software functionality can be leveraged for its track-and-trace capabilities. That's because the software maintains a record of the item, the date it was picked, the operator who picked it and the order it fulfilled. Should a defect be identified, or a recall required, the software can quickly determine the locations of both stocked and shipped products.

The inventory management software also provides traceability. To access stored contents, authorized operators can be required to first input a software-traceable personal login and password. For operations wishing to keep track of consumables (such as lubricants and filters) or shared tools and gear (from screwdrivers and ratchets to welding helmets and other safety items) required to service equipment, this additional measure of accountability allows depleted, missing or misplaced items to be quickly traced back to an individual.

Added Bonus! Theft Prevention

In contrast to open shelving, which allows anyone passing by the opportunity to grab something off the shelf, an AS/RS machine can be secured, requiring a software-traceable personal login before operation. This allows missing or misplaced goods to be traced back to an individual. The enhanced level of accountability and security eliminates inventory shrink and its negative impact on the bottom line.

4. Replenishment

Because an AS/RS' inventory management software keeps track of every item within the machine, it can be pre-programmed to send an alert when an item is approaching out-of-stock, triggering a call for replenishment from safety stock stored elsewhere. Upon placement of replenishment inventory into the machine, the software leverages barcode recognition by requiring the operator to scan both the item and its destination to verify placement into the correct storage location. This creates additional inventory control, preventing replenishment errors.

5. Inventory Turn

With integrated inventory management software, an AS/RS system ensures items are picked by pre-set standards to optimize inventory turn. This ensures product is used well before its expiration date, or the oldest items are used first by directing first in, first out (FIFO) or last in, first out (LIFO) picking.

6. Cycle Counting

In open shelving spread across hundreds or thousands of square feet, items can simply get lost. It can be a challenge to know how many items are in stock, and their precise location. Regular cycle counts can help account for items but are time-consuming and not up-to-the-minute current. Because an AS/RS with integrated inventory management software tracks every item stored within the machine, managers can closely monitor stock levels in real time—and potentially eliminate physical counts—to reduce the amount of inventory they must have on hand.

The Solution: Software Delivers Inventory Control

Whether an operation has a WMS, ERP or MRP system in place—or minimal to no inventory management system at all—an AS/RS with inventory management software, such as Kardex Remstar's Power Pick Global, delivers a greater degree of inventory control. Scalable, it draws information from one or more machines, as well as can be used as a stand-alone WMS to direct manual picking in static shelving and pallet rack storage applications. Implementing such a software solution gives users enhanced inventory control throughout the six key processes outlined above.

Automated Storage and Retrieval Systems Defined

Horizontal Carousels – Consisting of bins mounted on an oval track rotate horizontally to deliver stored items to an operator. These automated storage and retrieval systems save up to 60% of floor space when compared to standard shelving and rack.

Vertical Carousels – Comprised of a series of shelves rotating around a track—similar to a Ferris wheel—these automated storage and retrieval systems quickly deliver stored items to an ergonomically positioned work counter at the operator's command. When compared to static shelving and rack, they save up to 75% of floor space.

Vertical Lift Modules (VLMs) – An enclosed automated storage and retrieval system that incorporates of two columns of trays with a central inserter/ extractor that automatically locates and retrieves stored trays from both columns, then presents them to the operator at a waist-high pick window. These systems save up to 85% of floor space compared to static shelving and rack.

Vertical Buffer Modules (VBM) –In the middle of a multi-segment shelving system is an aisle, where a moveable mast with a telescopic gripper operates. The control unit sets the gripper in motion picking a bin and transporting it to a picking station.

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Case Study: Increased Inventory Control with Automated Storage

Jazz Aviation

The 6,900-square-foot maintenance stockroom for Jazz Aviation, in Toronto, Ontario, is responsible for around-the-clock repairs to the airline's fleet of 125 planes. That means the facility has to keep close watch over the 20,000 SKUs in inventory.

Further, safety is the top priority at Jazz. The protection of inventory is crucial to keeping airplanes at peak performance. To secure parts and keep better track of them, the company consolidated half of its total SKUs into two VLMs. The VLMs' integrated inventory management software ensures all transactions are logged and traceable, keeping airplanes and passengers safe.

Every SKU received into inventory has a batch, or lot, number. The batch number must be traceable throughout the distribution channel, because it is crucial to know what part number and batch number was used in each airplane. Upon picking, the operator must pick a specific part and a specific batch number. This allows Jazz to trace what batch number is put into each order and used on each plane.

To verify the pick based on the batch number, the operator scans the part before it goes into the order tote, ensuring they have picked not only the right part number, but also the correct batch number. Due to the batch picking and validation process, accuracy has increased to more than 99%.

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About Kardex Remstar

Kardex Remstar, LLC, a company of the Kardex Group, is a leading provider of automated storage and retrieval systems for manufacturing, distribution, warehousing, offices and institutions. For information about the company's dynamic storage solutions visit www.kardexremstar.com.

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