Say YES to Automation and NO to Static: Why Vertical Lift Modules are the Shelving of the Future

Presented by:
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Seminar Overview

• Say YES to Automation and NO to Static: Why Vertical Lift Modules are the Shelving of the Future
• Sponsor: MHI
• Speakers
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  • Russ Cruse – Southeast Regional Manager, Hänel
• Date: Monday, April 9. 2018
• Time: 3:45 PM – 4:30 PM
• Theater: Theater D
Agenda

- What is a Vertical Lift Module (VLM)?
- Picker-to-Part vs. Part-to-Picker (Static vs. Automated)
- VLM Benefits – Space, Productivity, Accuracy, Safety, Ergonomics
- Five Typical Misconceptions of Vertical Automated Storage Solutions
- VLM Industries – Common Applications
- Case Studies
What is a Vertical Lift Module (VLM)?
What is a VLM?

A Vertical Lift Module (VLM) is an enclosed system of vertically arranged trays located on two sides of a central column, which contains an “extractor.” This mechanism retrieves trays holding stored items and delivers them to an operator at the optimum ergonomic height.
What is a VLM?
What is a VLM?

- Thousands of units in operation worldwide
- Available in various heights and widths to meet every application
- Utilizing the floor-to-ceiling height and storing trays in height optimized positions allows the VLM to save up to 85% floor space. The VLM enables organizations to:
  - Expand operations internally without new construction
  - Consolidate multiple facilities
What is a VLM?

• Batch picking can fulfill multiple orders at once, for maximum throughput
• Compact design and tray height optimization
• Integrates with pick-to-light technology
What is a VLM?

- Software provides password protection and transaction tracking
- Safety light curtain with emergency stop
- Stored items are delivered to an ergonomic work counter
- Delivers stored items directly to the operator
Picker-to-Part vs. Part-to-Picker
(Static vs. Automated)
Picker-to-Part vs. Part-to-Picker

Storage & picking operations can be generally divided in two main categories: **Static and Automated**. The difference is in how the stored items are accessed by the operator.

**Static (picker-to-part):** The warehouse operator travels to a storage location to retrieve or replenish parts.

**Automated (part-to-picker):** The system delivers the items to a fixed operator`s location where the picking or replenishment operations take place.
Picker-to-Part vs. Part-to-Picker
Picker-to-Part vs. Part-to-Picker
Vertical Lift Module (VLM) Benefits
VLM Benefits

• Space savings & recovery of valuable floor space
• Increased productivity
• Increased inventory security
• Ergonomics & employee safety
• Improved inventory accuracy
Space Savings & Recovery of Valuable Floor Space

• Approximately 85% of valuable floor space savings compared to traditional static storage methods.
Space Savings & Recovery of Valuable Floor Space

- By using the full ceiling height of a facility, VLMs maximize the storage potential
- Configuration settings can be adjusted at any time to accommodate changes in the size or quantity of the stored items
Space Savings & Recovery of Valuable Floor Space

• The VLM optimizes storage to provide maximum storage capacity in a minimal footprint.
• Each time a tray is stored, the height of the product on the tray is scanned. The VLM optimizes the tray height and stores it using the least amount of space required for maximum storage density.
Increased Productivity

• Faster access to inventory
• Up to 3.5 times greater productivity than static storage solutions
• Time saved searching for items means more items can be picked in less time.
• Pull the right parts for each job, every time.
• Batch jobs can be combined for even greater speed.
Increased Productivity

Manual vs. Automated Picking: % of time spent picking

Automated Picking
- Rec. Instructions & Equipment
- Travel
- Locate & Recognize
- Pick
- Wait, Mark, & Dispose

Manual Picking
Increased Inventory Security

- Fully enclosed storage system
- Physical locks
- Additional security to machine, individual shelves and/or part numbers
  - Via passcode access, card swipe, RFID
- Avoid damage from dust and environment
- Increase shelf life
Ergonomics & Employee Safety

• Vertical lift modules automatically delivers parts to the picker at an ergonomic height, rather than having the picker need to locate the parts within long aisles of shelving and cabinets.

• Walking time for parts retrieval is reduced up to 70%, when compared to static shelving.

• Avoid lifting, carrying, climbing, stooping, as well as potential for slips, falls and collisions.
Improved Inventory Accuracy

- **Improved accountability** – User information is tracked and units are logged into using unique user passwords and/or through user authentication devices.
- Avoid overstocking or expired inventory
- Reduce rush charges, missed orders, production delays, shutdowns and time wasted on searching for items
Improved Inventory Accuracy

- Increased accuracy with light directed picking
- In this case, the correct cell is illuminated to show the pick location. The display alerts the user to the quantity and a photo of the part.
Return on Investment (ROI)

- VLM Benefits
- Financial Justification
  - Reduce costs
  - Avoid unplanned expenses
  - Increase revenue
- Additional Benefits
  - Competitive advantage
  - Reduced environmental impact
  - Enhanced image and reputation
  - Increased employee retention
  - Preparation for future growth
Return on Investment (ROI) = 
\[ \frac{\text{Gain from investment} - \text{Cost of Investment}}{\text{Cost of Investment}} \]
Return on Investment (ROI)

• Need for More Space – New Construction
  • Building expansion = $2,000,000
  • Investment of 4 VLMs = $400,000
  • Savings = $1,600,000
  • ROI = 400%
Return on Investment (ROI)

• Need for Greater Inventory Accuracy and/or Inventory Security
  • Inventory Loss = $500,000
  • Investment of 2 VLMs = $200,000
  • ROI = 150%
Return on Investment (ROI)

• Greater Inventory Accuracy or Security Needed
  • Inventory Loss = $500,000
  • Investment of 2 VLMs = $200,000
  • ROI = 150%
Five Typical Misconceptions of Vertical Automated Storage Solutions
1. Flexibility and Ease of Implementation

- Automated storage solutions can’t offer the flexibility required, and may not be able to store items due to their size or varied shape.
- Static solutions can be implemented much easier.
2. Installation Time

- Automated storage solutions are too complex to install.
- Installation will take several weeks or months, and will cause delays in our production or shutdown of our operations.
3. Software Integration

- The installation and integration of automated storage solutions may not fit or be compatible with our existing software.
4. High Cost & Long ROI

• Automated storage solutions are economical only in large installations, and it will take many months or years to secure a return on investment (ROI).
6. Impact on the Workforce

• Automated storage solutions raise many concerns about their impact on the labor force. Employees will need special training, which will take too much of their time from production.
Vertical Lift Module (VLM) Industries
Common Industry Applications

- **Automotive**
  - Efficient spare parts storage
  - Optimized dealership service department
  - Central dispensary for specialized tools
  - More space allows dealerships to optimize their customer care areas or add more service bays.
  - Integration with DMS software
Common Industry Applications

• Pharmaceutical
  • Production and packaging of medications
  • For every batch of medicine produced, reference samples must be stored in case retesting is required.
  • Laboratory samples may need to be kept at controlled or refrigerated temperatures.
  • Hospital pharmacies require controlled storage and retrieval of medications.
Common Industry Applications

- **Electronics**
  - Storage of circuit boards and other small components
  - Replacement for decentralized areas where items are manually assembled
  - Storage for individual parts, partial or complete assemblies
  - Protection from electrostatic discharge (ESD)
  - Gentle handling of fragile glass components
Common Industry Applications

• Aerospace
  • Storage of aircraft replacement parts, hardware and tools for MRO operations
  • Bulky goods, such as landing gear or cable drums, can be stored in extra-wide lifts or utilize extra-high access points.
  • Sensitive components are protected from dust and potential damage.
Common Industry Applications

- **Metalworking & Tooling**
  - MRO storeroom/tool crib to effectively and efficiently store expensive specialty items
  - Storage of heavy dies, fixtures, and change parts
  - Tool dispenser with access control
Common Industry Applications

• Distribution and Fulfillment
  • Massive amount of storage capacity
  • Error-free order picking for items in even the smallest compartments with targeted light beams
  • Enables operations to pick more parts in less time, with fewer people
  • Prevents bottlenecks from occurring, even when orders are at their peak.
Case Studies
Case Study – Automotive Parts

- **Application** – Storage of automotive parts. Orders require organized and secure storage & quick and accurate picking.

- **Solution:**
  - 9 VLMs -11,000 unique storage locations
  - 17,722 sq. ft. of storage in only 958 sq. ft. 1,600 lines picked per day

- **Justification:**
  - 3 pods of 3 VLMs each with a put-to-light batch picking system. 60 orders processed at one time.
  - Error-free picking
  - Space savings
Case Study – Medical Devices

- Application – Storage of medical prostheses
- Solution:
  - 2 VLMs
  - Illuminated pick location
  - SAP software integration
- Justification:
  - Software manages inventory on static shelves as well as VLMs
  - Error-free picking
  - Space savings
Case Study – Machine Tools

• Application – CNC machine spare parts distribution

• Solution:
  • 3 VLMs
  • Inventory management software

• Justification:
  • 66% more floor space
  • Increased productivity
  • Improved worker ergonomics
  • Tighter inventory control
Case Study – Electrical parts

• Application – electrical controls and automation components distributor

• Running out of space and in need to optimize the shipping & receiving process to meet the increasing number of orders.

• Solution:
  • 1 VLM - 85% of their products are now stored in less than 96 sq.ft
  • Internal Dual tray delivery + Put to Light - Batch Order Picking System

• Justification:
  • Picking time is cut in half. Remarkable increase in productivity and accuracy
  • Space savings

“It is a great product. It has been a key in terms of our future growth. We can do an awful lot more, a lot better with a lot less”
Case Study – Building Materials

Application – Storage of small parts, cabinet hinges and hardware

Solution:
- 1 VLM
- Illuminated pick location

Justification:
- Increased capacity
- Increased accuracy
- Faster pick times
- Saves production space
Case Study – Equipment Wholesaler

- Application – Order fulfillment and distribution of scuba supplies
- Solution:
  - 3 VLMs
  - Inventory management software
- Justification:
  - Expanded inventory
  - Recovered 92% floor space
  - Increased productivity by 460%
For More Information:

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