Matthews
AUTOMATION

SOLUTIONS

Warehouse Execution System

Goods-to-Person Picking

INSTALLATION SCOPE

Matthews integrated to the customer's ERP host system for order data to supervise and direct:

- ► Wave downloads
- ► The system of record for storing inventory
- ► Goods-to-person picking
- ► Put away storage policies, location policies and zone management
- ► Clean room carton creation and induction
- ► Automated print and apply on empty cartons coming from the carton erector
- ► Conveyor leading to a robotic arm that places products into the empty cartons
- ► Carton sealing and induction
- ► Columbia palletizer interface for SKU-Lot runs
- ► Interface to Wulftek pallet finishing line
- ► ASRS putaway from the palletizer
- ► Induction to Kardex LR 35 vertical lift module
- ► Induction into Swisslog crane

Goods-to-Person for Medical Supplies

Matthews enabled a medical device supplier to reduce headcount by 75% and increase accuracy to 99.9%, drastically decreasing operations costs.

THE APPLICATION

A multinational provider of ventilation devices, technologies and consumables collaborated with Matthews Automation to engineer and implement cutting-edge automation in their U.S. manufacturing and distribution facility. The new systems enable the supplier to consistently package and ship orders with improved accuracy and less labor costs.

The broad scope of the project included:

- ► Inventory management through the WES
- ► Goods-to-person picking
- ► Automated print and apply labeling
- ► Robotic palletization

THE CHALLENGE

The company is a leading supplier of critical patient respiratory care products to ICU, NICU, MRI, ER, Transport and other medical operations. Delivering accurate and timely customer orders is essential. Yet employees – when they could be found in a difficult labor market – were making costly errors. This was especially challenging during the pandemic. The company was supplying COVD-19 tests for the global humanitarian supply chain, and had to manage a massive surge in production and fulfillment volume.

THE SOLUTION

Specialized Systems Enabled by MHE-Agnostic WES Software

These requirements called for a highly specialized system. Matthews Automation's experience engineering unique, flexible solutions enabled them to deliver the custom logic and functionality that was needed.

Also, Matthews' software is material handling equipment (MHE) agnostic. The Pyramid Director Warehouse Execution System was able to connect separate subsystems and effectively manage them as one cohesive, holistic system. This enabled the integrating partner to select the best warehouse automation technologies for the customer's unique project requirements, like Swisslog cranes and a Kardex vertical lift module.

Operational areas touched by this new automation system included:

- ▶ Waving
- ▶ Inventory
- ▶ Clean room induction and packaging via robotic arm
- ▶ Automated print and apply labeling
- ▶ Sorting to case storage with Kardex ASRS, VLM
- ▶ Columbia robotic palletization
- ▶ Wulftek post palletizer finishing
- ▶ Induction to pallet storage via Swisslog crane
- ▶ Picking
- ▶ Shipping

Typical warehouse automation deployments involve Warehouse Management System (WMS) or Enterprise Resource Planning (ERP) software to manage orders and allocate inventory. Yet this facility relies solely on Matthews' Pyramid Director Warehouse Execution System to interface with eight subsystems and improve material flow between them.

INVENTORY MODULE

System of Record

Matthews' Pyramid Director interfaces with the customer's Enterprise Resource Planning (ERP) system to get order data. Matthews is the system of record for storing inventory, as well as tracking lot codes, inventory statuses, and allocating inventory for picking. The WES keeps

WAREHOUSE EXECUTION SYSTEM

Matthews' Pyramid Director Warehouse Execution System (WES) provides a comprehensive suite of simple, easy-to-use graphical screens for management and users, as well as a central control dashboard. The dashboard's powerful, intuitive, and functionally complete tools support up-to-the-second status assessments of DC processes, wave execution, and MHE operations.

The Pyramid Director WES dashboard gives users complete, DC-wide visibility and control of inter-process routing of cases and totes. Screens are customized to provide:

1. Real-time visibility into all aspects of the DC's operational activity.
2. The ability to configure batches by specifying a number of characteristics including box and liner types, pick zones to include or exclude, SKU availability, and ship carriers and their associated order quantity limits.

Views include:
- ▶ Item Master
- ▶ Clean Room Induction Screen
- ▶ MHE status and performance
- ▶ Communications status and statistics configurable security
- ▶ Parametric and diagnostic portals
- ▶ Up-to-the-minute information about vital aspects of the DC

Monitoring and Reporting
The WES provides complete visibility and control of all operations and tools to expedite inventory tracking. Its graphic user interface monitors MHE operations and real-time performance.

an item master table with SKU information, where the customer enters and maintains all SKU data. Within the inventory module, Matthews manages all the put away storage policies, location policies, and zone management. On the outbound side, the WES manages batching and waving.

INDUCTION FROM CLEAN ROOM

Carton Creation and Induction

Employees manufacture the medical supplier's products in a clean room, placing them into trays when completed. The trays go through a robotic packaging cell and are placed into boxes. Next, operators place the cartons onto a conveyor.

From that point forward, all material flow between the clean room and the shipping dock is 100% automated and doesn't require further employee involvement. Matthews controls the conveyor leading to the BPA cell and interfaces with the robotic arm, also managing the carton sealer, routing, and induction steps.

AUTOBOX AND PRINT AND APPLY LABELING

Carton Erection and Labeling

An automated print and apply (PANDA) line labels empty cartons after they exit a carton erector. Matthews' WES controls the PANDA process using the customer's order data.

Print and Apply Labeling Line

GOODS-TO-PERSON PICKING

Traditionally distribution centers operate a person-to-goods picking methodology, where employees travel to product storage locations to select items for orders. More DCs are moving towards goods-to-person (GTP) applications, where products required for an order are automatically transported to employees for picking.

When labor is difficult to find, GTP enhances employee productivity by allowing them to focus on picking or other value-added tasks while automation handles basic product movement. Goods-to-person systems are scalable to meet growing demand or SKU count. They also increase speed and efficiency in high-volume order fulfillment operations where customers expect immediate, flawless delivery.

The three printers in the line, each having a specific color of label stock, are managed by Matthews' Pyramid Director using ZPL files received from third-party NiceLabel software. Pyramid Director populates NiceLabel with data from entered work orders and the item master.

Once labeled, Matthews' WES decides if the carton is sent to case storage or pallet storage.

CASE STORAGE

Vertical Lift Module

Cartons for case storage go through an automated box lifter and are put in a tray, which is then inducted into a Kardex LR 35 vertical lift module.

## PALLETIZATION AND FINISHING

Columbia Palletizer

For pallet storage, cartons are diverted to a Columbia robotic palletizer to be stacked on a pallet. The Pyramid Director WES communicates when a SKU-Lot run is ending, and a new SKU-Lot becomes active.

The palletizer only has capacity for six active pallets, so if an unexpected SKU/Lot shows up, the line will be stopped for operator intervention.

Vertical Lift Module
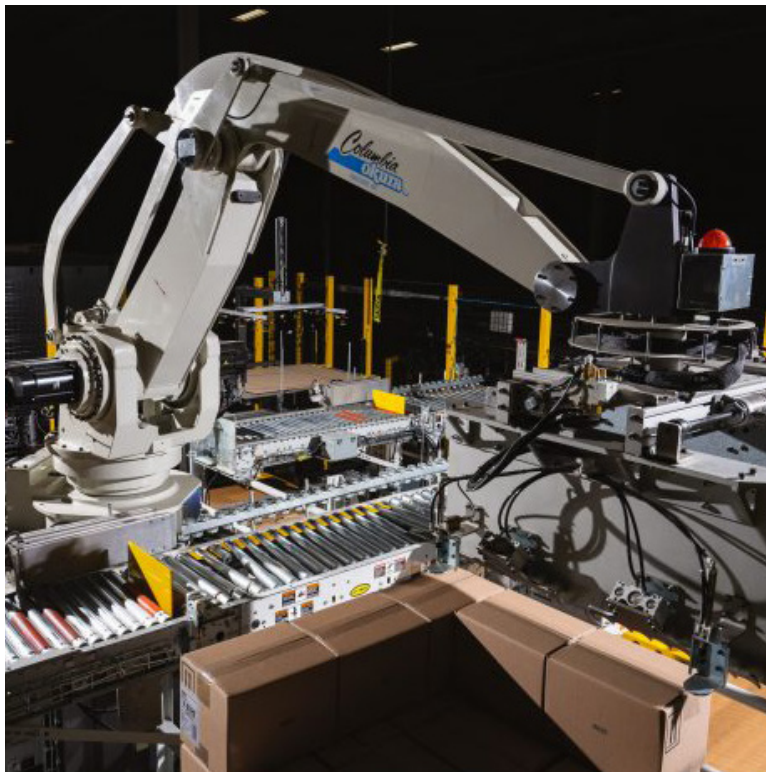
Robotic Palletizer

Wulftek Post-Palletizer Finishing

Matthews also provides the interface between the Columbia palletizer and the Wulftek automated wrapper. Pyramid Director passes data between the two systems and communicates whether a pallet should be wrapped or not, feeding pallets to Wulftek's autowrapper as needed.

Matthews' interface also directs the automated addition of corner board, a banding machine and a load stacker.

Once wrapped and stacked, Pyramid Director inducts pallets into the Swisslog crane.

GOODS-TO-PERSON PICKING

ASRS Putaway, Picking and Shipping

After pallets complete all required finishing activities, they are put away in the Automated Storage and Retrieval System (ASRS). Matthews configures pallet positions associated with each of the lines, including optional floor staging.

Automated Pallet Wrapper

Once goods-to-person picking tasks are completed, Matthews manages the fully automated delivery of cases and pallets to the dock. This is where, for the first time since the clean room, human employees will touch them for loading into trucks.

THE OUTCOME

With Matthews software, the customer was able to completely automate their case labeling, put away, palletizing, and picking processes. With material handling equipment managed by instructions from Matthews, the medical products supplier was able to remove the element of human error and significantly increase distribution accuracy.

Along with a major boost to accuracy, warehouse automation enabled the customer to reduce headcount by 75%.
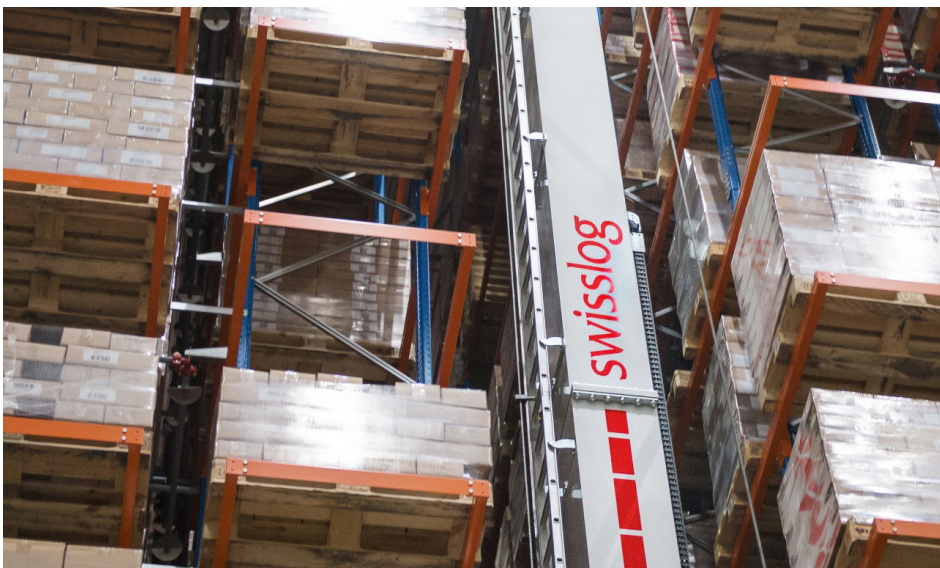
Pallet Stacking Crane

CONTINUED GROWTH

Matthews expanded this system with new induction areas to add additional capacity for pallet put away and retrieval.

A phase two expansion is underway to essentially double overall system capacity through the addition of another Swisslog crane on the back side.

LEARN WHAT A WES CAN DO FOR YOUR OPERATION

Visit https://matthewsautomation.com/ warehouse-execution-systems to download our eBook 5 Questions (and Answers) About Warehouse Execution Systems to see how WES software can benefit your distribution and fulfillment systems.

Software and Controls for Maximum Distribution and Fulfillment Center Performance

Matthews Automation provides Warehouse Control System (WCS) and Warehouse Execution System (WES) solutions that perfectly synchronize a wide array of material handling systems including motor-driven roller (MDR) conveyor, case sorters including sliding shoe, automated storage and retrieval systems (ASRS) and more.

Fully integrated with your WMS or ERP, our software and controls optimize wave creation logic and paperless pick/sort systems such as pick-to-light and put walls. Along with order finishing system controls for automated bagging, boxing and packing slip/marketing collateral document insertion, Matthews empowers your distribution center's transformation into a successful omnichannel fulfillment operation.

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