

SOLUTION

Pyramid Director WES

INSTALLATION SCOPE

Pyramid Director WES interfaces between a Manhattan Associates' WMS and 59 different control scan points for direct supervision (in real-time) of a variety of processes:

- Receiving: 4 fluid unloading auto-ASN check-in stations and 1 pop-up wheel sorter.
- Returns: 1 cross-belt sorter
- Inter-Process Routing: 1 high-speed shoe/slat sorter
- Wave/Order Staging: 1 mini-load AS/RS
- Replenishment: 3 pop-up wheel sorters and 8 right-angle transfer sorters
- Picking: 7 hold/release check points
- Wave Buffer: 2 pop-up wheel sorters and 22 hold/release check points
- Wave Control: 4 pop-up wheel sorters
- Packing: 2 cross-belt sorters
- Decoupled Packing: 2 pop-up wheel sorters and 4 right-angle transfer sorters
- Shipping: 1 tilt-tray sorter



Matthews
AUTOMATION



E-Commerce Apparel Retailer

Matthews WES optimizes order fulfillment across multiple technologies to deliver maximum efficiency and precise inventory control.

THE APPLICATION

A leading.com women's intimate apparel retailer needed a powerful, flexible warehouse execution system (WES) installed and customized for a facility-wide implementation within its new, greenfield, state-of-the-art order fulfillment distribution center (DC). As the company's only DC, the facility handles a variety of branded cosmetics, perfumes, personal care items, home décor, footwear, outerwear and women's clothing.

THE CHALLENGE

The WES must completely integrate all aspects of the DC's full range of material handling equipment (MHE) and technologies—from a variety of original equipment manufacturers (OEMs)—with its warehouse management system (WMS). It optimizes all DC processes and controls, front-to-back, to achieve management's goals for throughput, accuracy, efficiency, complete visibility and precise inventory control.

THE SOLUTION

The E-Commerce Apparel Retailer choose to implement Matthews WES to optimize all aspects of their only distribution center.

KEY FUNCTIONAL HIGHLIGHTS

Warehouse Management

Seamless integration with the facility's Manhattan Associates' WMS to route, process and/or store inventory in various stages of order completion, and to accurately report on inventory location and status throughout all points of the process.

Receiving

Fluid receiving with automatic case check-in, advance shipping notice (ASN), reconciliation by shipment, blind purchase order (PO) and stock keeping unit (SKU) receipt with "on-the-fly" camera-based data entry, and received case sortation based upon specific inventory disposition.



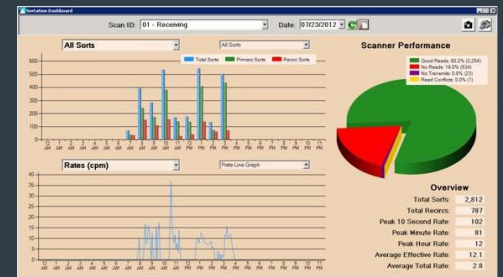
Pyramid Director WES supervises fluid receiving, check-in of shipments on an ASN or blind PO/SKU basis, and sorting of cases based upon their ultimate destination.

Returns Management

Supervision of customer returns is handled by a cross-belt sorter dedicated exclusively to this task. The WES directs the sorter's complex, five-step sorting and routing process involving a series of operator-attended workstations. These steps include:

- Diverts to workstations dedicated to opening returns and crediting customer accounts;
- Diverts to workstations for returned item inspections and folding;
- Diverts to workstations for inventory recovery and repackaging (or disposal);
- Automatic determination if a recovered item can be paired to an open order and automatically routed to packing; and
- Automatic determination if a recovered item should be routed to replenish forward picking or routed for return to inventory storage.

Pyramid Director User Interface and Dashboard



Pyramid's Warehouse Execution System solution provides a comprehensive suite of simple, easy-to-use graphical user interface (GUI) screens for management and users, as well as a central control dashboard.

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

1. Real-time visibility into all aspects of the DC's operational activity.
2. The ability to directly control the flow of inventory through the DC by wave, tote, case and more.

Views include:

- Process status performance metrics
- Exception reporting
- Inventory status and location
- 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

KEY FUNCTIONAL HIGHLIGHTS

(continued from page 2)

Picking

Planning and scheduling of waves for picking, and the controlled release of waves from picking to packing based upon schedule.

Replenishment

Supervision of the replenishment of the forward picking area through the routing and sorting of inventory from high-rise, longer term storage.

Order Management

Inter-process routing of cases, totes, waves and order aggregates (group of customer orders—by tote—that share common order processing requirements) throughout the DC based upon specific WMS inventory processing parameters. The WES tracks the status and location of all unitized (case, tote and parcel) inventory in real-time throughout the DC.

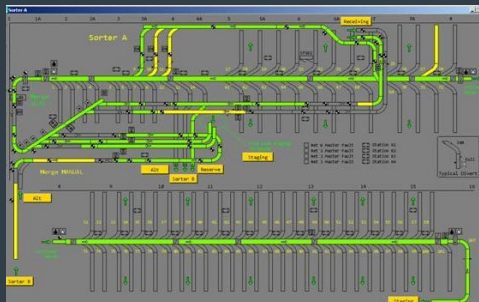
Packing

Planning and scheduling of waves for the packing sorter, controlled routing, buffering and release of waves into the packing sorter.

Pack Name	Packing Station	Packing Status	Totes Picked	Totes in Line	Totes in Buffer	Totes in Release	Totes in Packing	Totes in Shipping	Release Date
201104010001	Buffering	Buffering	10	0	0	0	0	0	08/18 PM / 08:18 PM
201104010002	Buffering	Buffering	10	0	0	0	0	0	08/18 PM / 08:18 PM
201104010003	Buffering	Buffering	10	0	0	0	0	0	08/18 PM / 08:18 PM
201104010004	Buffering	Buffering	10	0	0	0	0	0	08/18 PM / 08:18 PM
201104010005	Buffering	Buffering	10	0	0	0	0	0	08/18 PM / 08:18 PM

Total Wave Control

Director WES's dashboard displays the status of the wave buffer and packing sorter operations, and supports wave control throughout the DC.



Pallet Group	Status	Total Positions	Enabled Positions	Active Positions	Building Positions	Closed Positions
PAG001	Active	100	100	100	0	0
PAG002	Active	100	100	100	0	0
PAG003	Active	100	100	100	0	0
PAG004	Active	100	100	100	0	0
PAG005	Active	100	100	100	0	0



Pyramid Director WES

Pyramid Director Warehouse Execution System (WES) completely integrates the facility's MHE and technologies with the warehouse management system (WMS). Director WES's functionality allows you to fully leverage your WMS—along with your personnel and operations—to most efficiently manage resources and take complete control of your supply chain.

Director WES integrates all aspects of a DC. This allows inventory to be tracked, viewed and controlled across the entire DC, including:

- Cross-belt sorters
- Tilt-tray sorters
- High-speed slat/shoe sorters
- Pop-up wheel sorters
- Right angle transfer sorters
- Mini-load automated storage and retrieval systems (AS/RS)
- Multi-line hold and release buffers with n:1 merges, camera-based automatic identification (auto-ID), and more



Pyramid Director WES routes customer orders to a network of 80 packing workstations, based upon packing attribute and workload balancing by workstation.

KEY FUNCTIONAL HIGHLIGHTS

(continued from page 3)

The buffering software technology was developed by Pyramid especially for this application to add advanced management features, including: dynamic buffering line allocation; backfilling (multiple waves per line simultaneously); “leap-frogging” of scheduled wave sequence in release to the packing sorter; and either fully automatic “lights-out,” or manual, control.

Supervision of the packing sorter operation, and integration of a complex sorting process by wave across two cross-belt sorters. This involves the sortation of individual merchandise items (picked by wave) to be paired up with their required parent customer orders. At this location, customer orders are directly packed for shipment, or they are placed into totes with other orders of similar order processing requirements (order aggregate by tote).

Supervision of the decoupled packing operation, consisting of a network of 80 packer workstations serviced by a series of five sorters. The sorters route order aggregates (created at the packing sorter) to the workstations based upon their specific type, status and available work in queue, or to a mini-load AS/RS for temporary storage to maintain a balance in the supply/demand relative to workload.

Packing Operation Status

The dashboard gives a comprehensive at-a-glance status of the decoupled packing operation (which contains a network of 80 packing workstations) and allows users to control the flow of orders.



Totes of picked customer orders are routed across a high-speed slat sorter by Director WES for temporary storage or buffering into the packing sorter based upon critical flow optimization algorithms.

KEY FUNCTIONAL HIGHLIGHTS

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Lights-out wave and order aggregate packing demand balancing via supervision of a mini-load AS/RS:

- If a wave is picked, but not ready to be packed, it is temporarily stored in the AS/RS. The WES automatically retrieves waves from the AS/RS when scheduled for release to the packing sorter.
- If an order aggregate is sorted to a tote at the packing sorter, but is not needed in the decoupled packing operation, then it is temporarily stored in the AS/RS. The WES automatically retrieves order aggregates from the AS/RS when there is available capacity in decoupled packing to support their processing.

Shipping

Supervision of the shipping operation, and integration of a complex process of sorting by customer order across a tilt-tray sorter. The WES supervises the tracking, sortation and reporting of individual customer orders based upon WMS requirements.

Occupied Packing Attribute Configuration Statistics													
Attribute		High % Boundary				Low % Boundary							
Staffing Factor	Resource Pick	Optimized	Resource Factor										Adm
Color Key													
Attr	Attribute	Status	Special	Waste	In	On	In	Net	Total	%	%	Eligible	
Name	Description		Cap	Waste	Cont	Handload	Scan	Use	In No	Start	Cap	For	
									Factor	Util	Storage		
00	License Bay Orders	Retrieving	No	0	0	0	0	0	1	0	0	Yes	
0B	Third Bay Orders	Retrieving	No	10	5	0	0	0	5	200	50	No	
0C	Autobagger Multi	Sorting	No	0	0	0	0	0	0	0	100	Yes	
0E	Canadian Orders	Sorting	No	0	0	0	50	1	51	0	999	Yes	
0F	Clear Up	Retrieving	No	0	0	0	0	0	0	0	0	No	
0G	Gift Wrap	Sorting	No	0	0	0	0	0	0	0	0	Yes	
0H	Domestic Bay	Sorting	No	0	0	0	0	0	0	0	0	Yes	
0I	International	Sorting	Yes	0	0	0	60	0	60	0	0	Yes	
0J	Late Pick Late	Retrieving	No	0	0	0	0	0	0	0	0	No	
0K	Nonshipping Singles	Sorting	No	0	0	0	20	0	20	0	0	Yes	
0L	Next Bay Orders	Retrieving	No	0	0	0	0	0	0	0	0	No	
0M	Regular	Sorting	No	100	10	0	222	0	371	27	100	Yes	
0N	Autobagger Singles	Sorting	No	10	5	0	0	0	11	0	0	No	
0O	Sort to Order Lines	Sorting	No	0	0	0	0	0	0	0	0	Yes	
0P	Priority Orders	Sorting	No	0	0	0	0	0	0	0	0	Yes	
0Q	International Exped	Sorting	No	0	0	0	20	2	31	0	0	Yes	
Totals					140	100	55	400	11	574			

Order Profile Visibility

Director WES gives complete visibility into order profiles based on packing attributes, and optimizes both workload and customer order routing.

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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