

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



E-Commerce Apparel Retailer.

Pyramid Director 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



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.



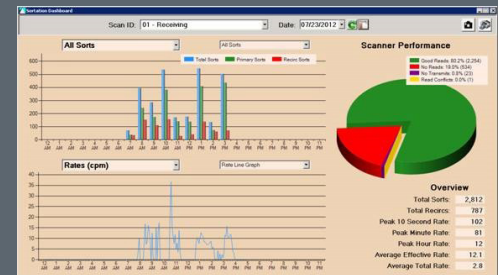
Pyramid Director WES supervises fluid receiving, check-in of shipments on an ASN or blind PO/SKU basis, and sorting of cases based upon their ultimate destination.

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

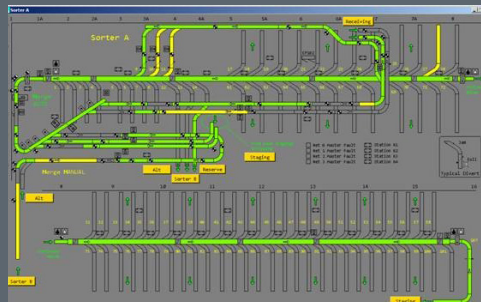
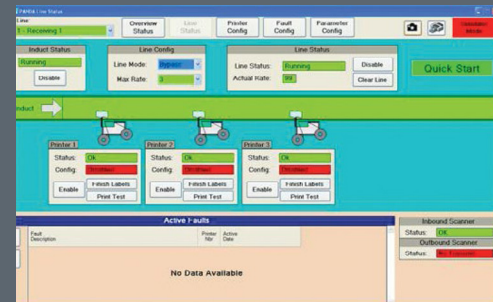
Inter-process routing of cases, totes, waves and order aggregates (group of customer orders—by tote—that share common order processing requirements) throughout the DC based upon specific WMS inventory processing parameters. The WES tracks the status and location of all unitized (case, tote and parcel)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

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.

Pyramid Director WES

Pyramid Director Warehouse Execution System (WES) completely integrates the facility's MHE and technologies with the warehouse management system (WMS). Director WCS'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

(continued from page 4)

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.

Decoupled Packing Attribute Configuration Statistics												
Attribute		High % Boundary				Low % Boundary						
Staffing Factor		Resource Pick				Optimized				Resource Factor		
Color Key												
WTR	Attribute	Status	Special	Waste	In	On	In	Not	Total	%	Eligible	
Name	Description			Cap	White	Cont	Revised	Ret	In	Cap	For	Storage
10	Second Day Orders	Retrieving	No	0	0	0	0	0	0	0	0	Yes
10	Third Day Orders	Retrieving	No	10	5	0	0	0	0	5	200	Yes
0	Autobagger Multi	Sorting	No	0	0	0	0	0	0	0	N/A	Yes
0	Canadian Orders	Sorting	No	0	0	0	50	1	51	0	999	Yes
0	Clean Up	Retrieving	No	0	0	0	0	0	0	0	N/A	Yes
0	Gift Wrap	Sorting	No	0	0	0	0	0	0	0	999	Yes
0	Domestic Bag	Sorting	No	0	0	0	0	0	0	0	N/A	Yes
0	International	Sorting	Yes	0	0	0	60	0	60	0	999	Yes
0	Lat Pick Late	Retrieving	No	0	0	0	0	0	0	0	N/A	Yes
0	Nonreturning Singles	Sorting	No	0	0	0	20	0	20	0	999	Yes
0	Next Day Orders	Retrieving	No	0	0	0	0	0	0	0	N/A	Yes
0	Regular	Sorting	No	100	10	0	220	0	330	0	144	Yes
0	Autobagger Singles	Sorting	No	10	5	0	0	0	15	0	99	Yes
0	Sort to Order Boxes	Sorting	No	0	0	0	0	0	0	0	N/A	Yes
0	Priority Orders	Sorting	No	0	0	0	0	0	0	0	N/A	Yes
0	International Expedite	Sorting	No	0	0	0	20	0	20	0	999	Yes
Totals				100	100	55	400	11	576			
List Top Page Up Page Down List End												

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.



Pyramid, a Matthews Automation Solutions fulfillment systems brand, 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 (AS/RS) and more. Pyramid's turnkey loop sorter control solutions maximize performance and reduce downtime for new tilt-tray, bomb-bay and cross-belt sorters. We also revitalize existing loop sorter productivity with advanced system re-control solutions.

Fully integrated with your WMS or ERP, our 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, Pyramid empowers your distribution center's transformation into a successful omnichannel fulfillment operation.

Pyramid | A part of Matthews Automation Solutions

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