

# Modular Systems Bring Efficiency to Apparel e-Fulfillment

Above: The Dematic Multishuttle stores medium to low velocity inventory in a high density configuration and supports the goods-to-person workstations.

A major American retailer of women's apparel supports accurate same-day shipments to e-commerce customers using a modern fulfillment center that processes thousands of orders per day. Serving the direct-to-customer channel, this dedicated e-commerce distribution center supports an overall omni-channel strategy that provides customers access to their favorite brand whenever and wherever they please.

To ensure quick delivery for a wide variety of customer choices, the retailer stocks more than 90,000 SKUs in its Midwest distribution center. Orders received by 3:00 p.m., ship the same day. Most orders include 3 to 4 items; approximately 25% are single line orders. Orders are packed and shipped in a poly bag; however, approximately 10% are packed in a carton.

# **Operational Vision**

To support the customer-direct e-commerce channel, the retailer previously picked, packed and shipped e-commerce orders at five separate operations, all using different processes and systems.

The retailer needed a centralized, best-in-class distribution center that combined all brands into one operation, dedicated to the e-commerce channel. Furthermore, the center needed to support future growth and high order/inventory accuracy while increasing productivity and operational efficiency.

# Solution

The process begins with order processing requests from the retailer's ERP business system. The Warehouse Management System (WMS) allocates the inventory to orders, generates packing waves and determines outbound shipping requirements. The Warehouse Control System (WCS) directs and optimizes operational processes from receiving to shipping, including wave control.



Crossbelt Sorter diverts bags to gaylords on pallets for parcel shipping provider (FedEx Ground, FedEx Smart Post, UPS Express, USPS).



The donor tote (blue) is stored in the Dematic Multishuttle automated storage & retrieval system and presented to the operator. Items are transferred to the batch tote (gray).



Totes are buffered on convey system prior to sortation.

# **Receive, Put-Away & Decanting**

Cartons are fluid unloaded at receiving, scanned and then sorted to the carton reserve storage area. Cartons may also be directed to de-canting (transfer items from cartons to totes), value-added services area, Cubiscan workstation, returns processing area or quality control audit area.

#### Reserve, Active & Dematic Multishuttle Storage

SKU velocity determines the put-away strategy for the active inventory.

- Carton reserve storage feeds the active pick areas.
- Higher velocity items are placed into flow rack or slant rack.
- Medium to low velocity items are stored in the Dematic Multishuttle.
- Slow moving items are located on shelving.

### Piece Pick, Consolidate & Sort

Pick carts are used for piece picking, in a voice-directed batch-pick configuration. All items are barcoded. Pickers scan location, scan item, and then put items to a tote on the pick cart.

The Dematic Multishuttle sub-system supports other piece picking. Inventory totes are retrieved from the Dematic Multishuttle and conveyed to goods-toperson workstations. Operators at the workstations pick items from the donor tote (blue) and then place items into a batch tote (gray).

Next, the gray batch totes are conveyed to the "bombay" style consolidation sorters. Each item in the tote is inducted into the sorter. Items are sorted into a tote containing up to six customer orders. The totes are conveyed to the packing workstations.







The Decanting operation includes the removal of inventory from cartons and placement into totes.



Each tote is scanned prior to automatic storage in the Dematic Multishuttle.

#### **Pack Stations & Shipping Sorters**

Each item is removed from the tote, scanned and directed by light display to one of six order compartments at the workstation. Operator place items into shipping bags or cartons, scan the packing slip, add coupons and print shipping labels. Single line orders flow to an auto-bagger station: drops items into bag, inserts documents, prints shipping label.

Up to 90% of the orders are packed into bags; the balance are packed in a carton. The bags and cartons are conveyed to shipping and sorted to a trailer loader for fluid loading or sorted directly into gaylord containers by the crossbelt sorter.

# Results

The transition to advanced e-fulfillment processing is now complete. Five separate distribution centers are consolidated into one high-performance operation. The retailer can accommodate up to 100,000 orders per day thereby meeting current and future capacity, including peak conditions.

The system achieves the business objectives to ship orders the same day received while supporting high productivity. Order accuracy is extremely high as each item is scanned at the packing workstations. Furthermore, the system meets the logistics objective of reducing the "cost per order" and the overall business objective: keep costs low and prices competitive for the customer.

Key Facts

- → e-Fulfillment center
- → Supports 5 retail brands
- → 90,000 stock keeping units
- → 100,000 orders/day capacity
- → 1st shift: receive & put-away
- → 1st & 2nd shifts: pick, pack, & ship
- → 65% of staff on 2nd shift
- → Free shipping to stores: 27% of orders to stores
- → Return rate: 3% to retail stores, 80% back to stock



The Auto Bagger accomodates single order items.



Items for up to six orders are scanned and consolidated to a bag or carton at the packing workstations using Put-to-Light. A Pick-to-Light supports the document insert process.



Cartons flow into the distribution center on an extendable conveyor.



The receiving sorter directs cases to reserve storage and decanting totes are sorted to processing modules.



At shipping, cartons and bags are fluid loaded onto truck trailers.

