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October 2013

## Dansko: Distinctive Distribution

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# Dansko: Distinctive distribution

When Dansko designed a new distribution center, it went for efficiency, growth and a system as unique as its brand.

By Bob Trebilcock, Executive Editor

Say the words “distribution center” and adjectives like different, unique and distinctive aren’t the first descriptors that spring to mind. Instead, we use terms like efficient, cost-effective and lowest cost per touch—terms that could just as easily describe a table saw. A DC, after all, is a tool to manage inventory and fill orders as efficiently as possible.

Efficiency was important to Dansko LLC, a designer and distributor known for its comfortable and stylish shoes, when it designed a new 200,000-square-foot distribution center in West Grove, Pa., but so was the work environment. As an employee-owned company, or ESOP, improving the quality of life for associates who are also owners was at the top of the list. “When we began thinking about a new DC, we wanted to provide better service to our customers and create a better quality of life for our employee-owners,” says Mimi Curry, Dansko’s chief operating officer.

However, those weren’t enough. Dansko wanted a solution that would set it apart. “We consider ourselves a unique company,” says Curry. “We could have installed a picking mezzanine to handle our order fulfillment. However, we wanted a distinctive solution that

reflects who we are as a company.”

Working with a consultant and systems integrator (enVista, [envistacorp.com](http://envistacorp.com)), Dansko developed a solution that optimized storage and brought in a sophisticated warehouse control system (WCS) for its conveyor and sortation system. But, it also included a mobile robotic picking system for split case orders instead of a conventional pick module. The robots deliver inventory to goods-to-person workstations where associates pick items for as many as six orders at a time.

The solution is efficient. It also significantly reduces the amount of walking required during a shift, improving the quality of life. What’s more, it allowed Dansko to put its own distinctive stamp on the system.

Nearly a year after going live, Dansko is shipping some of the highest volume of shoes in its history while simultaneously improving customer service levels. “In the past, if you called me to place a rush order, I’d tell you that I was five to seven days behind,” says Curry. “Now, I can get a rush order out the door today—without stress.”

And, Dansko’s employee-owners have embraced the technology. “They have stepped up to the plate, taken



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**Dansko chose mobile robots because they were both efficient and a reflection of the company's unique brand, says Mimi Curry, chief operating officer.**

ownership of the system, and care about what's happening in the facility," she says. "When they ask me why we're doing something a certain way, I know they have an idea on how to improve it."

### **Getting the right DC fit**

Dansko got its start when wife and husband team Mandy Cabot and Peter Kjellerup went on a horse buying trip to Denmark. They were searching for horses, but instead found a clog in a tiny shop in Europe that made the perfect barn shoe. It was also the most comfortable shoe the couple had ever worn. Back in the U.S., they shared the find with their friends, who suggested the clogs to their friends. With that, a shoe company was born.

Dansko was incorporated in 1990 and began shipping to retailers in 1991. There have been a number of milestones along the way. In 1992, the company was awarded its first seal of acceptance by the American Podiatric Medical Association. In 1999, Dansko was included in *Inc. maga-*





Order picking lift trucks are used for carton putaway and picking (top left). Below, an associate picks replenishment orders from a mobile robot (bottom right).

zine's list of the 500 fastest-growing privately held companies. In 2002, it posted 46% growth, sold its millionth pair of shoes and launched the Dansk Foundation to facilitate charitable giving. In 2005, it launched an Employee Stock Ownership Program to celebrate the company's 15th anniversary.

Nearly 25 years after its founding, Dansk is 100% employee owned. In addition to its legendary clogs, it offers a selection of footwear that includes heels, boots, sandals, wedges and flats. "Our shoes are known for comfort and style," says Curry. "Once you put them on in the morning, you don't think about them for the rest of the day."

Dansk's success led to a problem all too familiar to fast-growing compa-

nies: Its shoes may be known for comfort, but its DC was a tight fit for its operations. The company ships product to stores such as Nordstrom by truckloads and also ships product to e-commerce consumers with FedEx and UPS. "We do a lot of split case picking," says Curry. "For some of the bigger department stores, we pack the orders by store, including split cases, and send full truckloads to a distribution center where they are sorted and redistributed. We do small orders that may be just a pair or two of any given style for the small retailers that are replenishing their stocks."



At one point in 2009, the company put a moratorium on opening new accounts because it couldn't fill orders in a timely and profitable fashion. "Space was a major concern," says Curry. At the time of the moratorium, Dansk was filling orders from an 80,000-square-foot distribution center. In addition, inventory was stored at two smaller facilities about 20 miles away and in 15 trailers in the lot. "We looked like a parking lot for freight forwarders," Curry says.

Processes were labor intensive. Although the facility used a conveyor system for some movement, order selectors were walking 5 to 8 miles a day to fill orders in a facility that got very hot in the summer. That was no way to treat owners.

In 2009, Dansk first looked at retrofitting its existing facility. That was a temporary solution at best: Processes could be made more efficient, but it still wouldn't accommodate growth. Instead, the company bought land near its corporate office. The intent was to build a state-of-the-art facility for full and split case picking that would take full advantage of the size of the lot. "Instead of starting small and adding onto a building in the future, we wanted to put up the maximum size building we could build and then grow into it," Curry says. "The lot would accommodate 200,000 square feet.

### Bringing in robots

The first design proposed by the consultant included pallet rack and case storage, and a conveyor and sortation system to handle flow and methodologies for full and split case picking. The latter would have been handled in a conventional pick module. That was the sticking point. "We loved the full case pull solution, the conveyor and the rack system," Curry says.

"But, we wanted to see what else was available besides a conventional pick module."

Part of that was due to the uneven flow of orders through the facility, based on the introduction of new products and seasonal highs and lows. But part was also due to the company's personality. "We consider ourselves a unique company," Curry says. "We loved the idea of Kiva's mobile robots and asked them to talk to us."

While Dansk was game to implement robotics, there were challenges. For one, the solution was designed to optimize direct-to-consumer order fulfillment. It had never been applied to a wholesale operation that also included value-added services and specialized labeling between the picking and ship-



The units are stored in a central area prior to delivery to a goods-to-person workstation for picking.

ping areas. “Kiva is a fast process. It maximizes how many pairs of shoes you can pull in an hour and send to the shipping doors,” says Curry, adding that the system can look at a group of orders and tell Dankso how long it will take to get the work done. “However, we don’t go directly from picking to shipping.”

In a typical Kiva solution, shelving units, known as pods, store inventory and hold shipping cartons. Mobile robots deliver pods with inventory to a picking station, where associates are directed by lights to pick items from one pod and place them in a shipping container on another pod. When all the items for an order have been picked, the pod is delivered to a conveyor induction station and the containers go into a trailer for shipping.

However, in a wholesale distribution business like Dansko’s, orders often have to be customized to meet the retail customer’s requirements before they can be shipped.

To address those differences, Dansko designed a two-part process. The first is a goods-to-person order fulfillment process. Pods deliver

inventory to a tilted work table adjacent to a belt conveyor. The work table can hold up to six shipping cartons at one time, representing six orders. When the pod arrives, an associate may be directed to pull a case with eight pairs of shoes. Those pairs, in turn, will be distributed among the six orders on the work table. The process repeats until all the items required from that pod have been picked. Then, the next pod is delivered to the work table.

Once all of the product for an order has been pulled, shipping cartons are pushed onto the takeaway conveyor,

which delivers them to a processing area on the second level of the building.

On the conveyor, a license plate bar code label is automatically scanned and the case is sorted to one of the processing lanes. When it arrives at a workstation, the associate scans the label. Based on that scan, the system directs the associate on how to complete the order for shipping. Those steps may include applying a UCC shipping label to the carton; applying a company logo to a blank box for a drop shipment or adding paperwork to the order.

“The process allows us to maximize order picking and still meet our customer service requirements,” says Curry. “It’s all done very quickly.”

Most importantly, Curry adds, the solution addresses the quality of life issue that was so important. That is because the work is brought to the associates rather than them walking through the facility to pick items. Although some employees were skeptical at first, they have embraced the robots.



**Shelving units are replenished with inventory by associates.**



Orders are prepared for shipment in a value-added services area.

“Early on, one of my employees told me this system would never work,” Curry says. “A few months into the operation, I asked her how everything was going. She told me that for the first time, she had the energy to get down on the floor and play with her grandchildren after work. She was tired, but not exhausted.”

### Employee ownership is key

As an ESOP, keeping employees engaged in the process was an important consideration. According to Curry, employees have not only adapted to new processes, they have taken ownership of them.

“Moving into the new building, we had to change most of our operations with little time for training,” Curry says. “We shut the doors on one building on a Friday and opened in the new building on a Monday. We assigned people to their area of responsibility and asked for their help in setting up the processes.”

Eight months later, she adds, many of those processes have changed—for the better—as employees suggest ways to improve their work. One example involved a charge back issue Dansko had with one customer. Dansko was required to put bill of lading numbers on the UCC label. Associates were misreading the label

and putting the wrong shoes on some pallets. “We sat down as a team and came up with a new idea,” Curry says. “We now apply a separate bill of lading that is larger than the UCC label and easy to read. The customer doesn’t care as long as the UCC can still be read by their system.”

The system went live at the end of 2012. As of this past August, Dansko is meeting its customer service requirements, filling orders in a timely fashion and taking on new accounts. “With a new warehouse control system and Kiva, our customer service representatives know where we are in the order fulfillment process and can tell their customers with confidence that a shipment will go out on a truck today,” says Curry.

“We’re satisfying our customers. We’re satisfying our employees who are also our owners. We’re positioned for growth,” she adds. “And, we’ve greatly reduced the level of stress.”

That’s a combination that’s as comfortable as a pair of Dansko shoes.

## Optimized storage and fast picking

In Dansko’s new 200,000-square-foot distribution center, conventional full case picking and mobile robotic split case picking come together for an efficient, ergonomic and unique solution.

**Receiving:** When containers arrive at the receiving dock (1), cases are unloaded onto a conveyor and delivered to a quality assurance and staging area (2). Once the cases are opened and the contents verified, they are scanned by an inventory control associate and palletized 28 cases to a pallet. A license plate bar code label is applied and completed pallets are staged for put-away into storage.

**Storage:** The warehouse management system (WMS) determines if the

product will be sent to reserve storage (3) or is needed to replenish the mobile robot Kiva picking system (5).

- **Reserve storage:** Storage in the reserve area (3) is not directed by the WMS. Instead, an associate scans a pallet in the staging area, chooses an open storage location in the pallet rack and then scans the location bar code on the rack to confirm the storage location and completion of the task. The pallet is now available in the WMS. Some items are stored in a slow-moving stor-

age and picking area (4).

**Mobile robotic picking system:** Pallets with product for the Kiva picking system (5) are delivered to a replenishment station (6) and dropped onto an accumulation conveyor. An operator scans the bar code label on a pallet and the label on a case. The operator then places an electronic puck on the case that communicates with the Kiva system. The system sends the appropriate storage pod for that case. When the pod arrives, a laser light indicates which

### Dansko LLC, West Grove, Pa.

**SIZE:** 200,000 square feet

**PRODUCTS:** Shoes and promotional items

**SKUs:** 4,000 active SKUs

**THROUGHPUT:** 1,500 cartons per day, which equals 18,000 to 20,000 pairs of shoes per day

**EMPLOYEES:** 70

**SHIFTS PER DAY/DAYS PER WEEK:** 1.5 shifts, 5 days per week.

shelf the case should be placed on for storage. The operator confirms the task by pressing a button on the pod. The inventory is now available in the WMS.

**Picking:** Just as there are two storage processes, there are also two picking processes: One for full case picking from the reserve storage area (3) and another for split case picking from the Kiva picking system (5).

- **Full case picking:** Pick tickets with storage locations for the cases required for an order are distributed to order selectors. Cases are picked to a pallet from the reserve storage area (3) and are then dropped at an induction station (7) for a spiral conveyor. The conveyor transports cases to an order processing area (8) on the mezzanine. Some items will be picked from the slow-moving storage area (4).

## System suppliers

**Systems integrator and warehouse control system:** enVista, envistacorp.com

**Picking system:** Kiva Systems, kivasystems.com

**Conveyor/sortation:** Hytrol, hytrol.com

**ERP:** Microsoft Dynamics (Navision), microsoft.com/dynamics/en/gulf/products/nav-overview.aspx

**WMS:** Lanham Associates, lanhamassoc.com

**Lift trucks:** Crown, crown.com

**Mobile computing and bar code scanning:** Motorola Solutions, motorolasolutions.com

**Rack:** REB Storage Systems, rebsteel.com

- **Mobile robotic picking system:** Orders for mixed cases are filled by the Kiva picking system (5). Mobile robots bring storage pods to a work station area (9) where order selectors work on six orders at a time. Lights point to a shelf on the inventory pod while a display

indicates how many items are required for the order. Once a shipping case is complete, the order selector places it on a conveyor (10) that will transport it to the mezzanine level for order processing (8).

**Processing:** Once an order is complete, cases are sent to the order processing area on the mezzanine (8) where cartons are finalized with any customer service requirements. Once that is complete, parcel shipments are conveyed (11) to a manifest station (12) where a FedEx or UPS shipping label is applied.

Orders that are shipped by truck are automatically taped and then sorted to one of five shipping lanes (13) based on the shipping method.

UPS orders are conveyed directly into a trailer (14). FedEx or truck shipments are manually palletized and loaded onto a trailer. □

