



# Beverage Distribution Center Gives Loads a Smooth Ride With Stretch Wrapper Upgrade





THE SMOOTH CONVEYANCE OF ORION'S HEAVY DUTY DRAG CHAIN CONVEYOR SIGNIFICANTLY REDUCED DOWNTIME DUE TO SPILLED LOADS.

## EXECUTIVE SUMMARY

Crescent Crown Distributing, LLC, Phoenix, Arizona, annually provides over 16 million cases of beer, wine, and non-alcoholic beverages to liquor and grocery stores, restaurants, bars, and convenience stores in the greater Phoenix metro area.

As the second largest beer distributor in Arizona, the company knows that the success of a beverage distribution center hinges on speed. The ability to prepare and load customer orders on trucks in a specified timeframe is critical.

When Crescent Crown began designing its new 277,000-square-foot distribution center in Surprise, Arizona, its goal was to find a stretch wrapping/conveyor solution to achieve the necessary throughput of unstable and random mixed loads and minimize downtime caused by breakage.

## Customer Challenge

The company's Phoenix facility had been using pallet jacks to move pallets onto a roller conveyor for transport to a stretch wrapping machine from Orion Packaging Systems, a division of Pro Mach ([www.orionpackaging.com](http://www.orionpackaging.com)). Crescent Crown wanted to overcome the major problems the roller conveyor presented. Since the movement of roller feed conveyors is not smooth, particularly as they accumulate debris, pallets can shift and even fall off, causing machine jams prior to reaching the wrapping station. In the event that cases fall off the conveyor as they enter the loading zone, the equipment has to be shut down. While the area is being cleaned, cases have to be hand wrapped by order selection personnel to maintain necessary production schedules and throughput. This results in lower efficiency, as well as product damage. In addition, cleaning rollers becomes problematic because there is only about one inch of space between the conveyor's rollers and the floor.

As Crescent Crown investigated alternatives to the roller conveyors, it contacted a number of stretch wrapper manufacturers, including Orion, for a solution.

## The Solution

Crescent Crown's Vice President, Operations, Richard Marchant, explains, "The company found that other manufacturers wanted it to change its system to match what their machines could do, while Orion looked at the company's specific needs and engineered a solution that fit its application."

Orion collected information on Crescent Crown's specified load size, pass height, throughput requirements, and available footprint. It then developed a 7,500-pound capacity low-profile floor mounted chain conveyor, which has three rails, housing a triple strand chain. The chain conveyor has glides so that the pallets move forward smoothly. Since there is ample room between each of the chains, cleaning can be done easily. Using Orion's MA-DX Deluxe high speed rotary tower stretch wrapper with the unique low-profile conveyor system not only overcame the challenges inherent with roller conveyors, but also created a system capable of handling 60 pallets per hour. The MA-DX uses an Allen-Bradley MicroLogix 1400 PLC, variable frequency drives and PowerFlex 4 AC drives ([www.ab.rockwellautomation.com](http://www.ab.rockwellautomation.com)), and an Eaton color touch screen HMI ([www.eaton.com](http://www.eaton.com)) for operator access.

### THE NEW FACILITY

At the new Crescent Crown facility, which now accounts for 40 percent of the company's business in Arizona, order selectors using a three pallet walkie/rider sled receive orders wirelessly on a handheld voice pick system and instructions to build anywhere from one to three pallets. The pallets can contain one order or multiple orders, depending on how they are configured. The order selector is told which items to put on each pallet and in what sequence.

As distribution center personnel fill the orders, each item is scanned as it is placed on the pallet and the information is fed into the control system, enabling the integrated load scale to know how much the load should weigh, thus verifying that the customer's order is complete. After items are selected, the pallet is placed onto the chain conveyor, which has photo eyes along the length of both the infeed and exit to track the load's location, and the pallet automatically moves to the stretch wrapper.

The pallet is then weighed and subsequently labeled with a Model 250 label printer applicator from ID Technology, a division of Pro Mach ([www.idtechnology.com](http://www.idtechnology.com)). The label has information regarding which loading dock door the pallet is to be directed to, and where the pallet is to be ultimately delivered. The order selector picks up the wrapped pallet, delivers it to the dock, and calls for the next order on his headset.

The automatic system is fed by walkie/rider sled operators and unloaded the same way. It was designed to take a variable rate in and out and has seven buffer areas.

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Richard Marchant  
Crescent Crown  
Vice President - Operations



A LABEL IS APPLIED TO EACH PALLET AS IT EXITS THE STRETCH WRAPPER



SYSTEM IS CONTROLLED USING AN INTUITIVE COLOR TOUCH SCREEN PANEL

## RESULTS

Marchant reports, "With the combination of the automatic stretch wrapper and low-profile chain conveyor, it has a much more efficient operation with significant benefits. We have seen between 40 and 50 percent less breakage coming through the conveyor because pallets are transitioned smoothly into the wrap zone. This has led to one of the biggest savings — less machine downtime."

The automatic wrapping system, which only requires human intervention to reload film, has reduced Crescent Crown's labor costs because the floor-mounted conveyor eliminates the need for additional personnel to elevate the pallets for wrapping as well as the extra movement of the pallets required for hand wrapping. The change to automatic wrapping enables the company to buy 30 inch rolls of stretch film, replacing 20 inch rolls, which means faster throughput because fewer revolutions of stretch film are needed. Plus, the high performance Orion stretch wrapper achieves maximum stretch, helping Crescent Crown realize a 30 percent overall savings in stretch film material costs.

Since the system is designed to transition three pallets at a time, no matter what comes in on the front of the machine, it always waits to receive three pallets before moving them to the collection area on the other end of the wrap zone. As a result, Crescent Crown had a 20 percent reduction in trips to the loading dock door for offloading.

The chain conveyor's construction not only has fewer moving parts that need to be serviced, but also features ample room for cleaning and keeping the machine functioning properly. Since the drive components and dual stage gear reduction box are located outside the conveyor area where they can be serviced easily, existing concrete floors did not have to be modified.

"Using a chain drive is unique," adds Marchant. "It has allowed Crescent Crown to improve its speed. Each order selector is now moving 300 cases per hour, enabling the distribution center to process 25,000 cases in an eight-hour shift. The return on investment (ROI) was about 18 months, based on labor savings, speed, efficiency, and reduced stretch wrap needs."

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Crescent Crown  
Vice President - Operations



CRESCENT CROWN DRAMATICALLY INCREASED STRETCH WRAPPING EFFICIENCY AND REDUCED PRODUCT DAMAGE WITH THE LO-PRO CONVEYOR SYSTEM.

*For over 20 years Orion Packaging Systems, LLC, has been in the business of protecting customers' palletized products. As a leading manufacturer of heavy duty industrial stretch wrapping technology, our goal is to provide the highest quality stretch wrapping systems in the stretch packaging industry.*

*Orion offers the most comprehensive line of end-of-line stretch wrapping pallet packaging products available and continually set the standard for durability, efficiency, flexibility, reliability and performance. Special emphasis is placed on our advanced film prestretch system to assure the most efficient and cost effective use of every inch of stretch film.*

*Orion is an engineering-driven company, one with a progressive management system and a nationwide network of trained distributors. Our quality pallet packaging products, customer service and product support has helped make us the fastest growing manufacturer of stretch wrapping equipment in the world.*

*Our Alexandria, Minnesota headquarters has been specially designed as our epicenter for sales and service in the U.S. There we offer periodic training seminars for Orion distributor sales and service personnel, specific load testing and system demonstrations for customers, and a complete showroom of pallet packaging systems to help customers understand first hand which equipment is best for their applications.*

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