

Roll on

Motor-driven roller conveyor is at the heart of a new order fulfillment system at Eagle Rock Distributing Company. The result is more space for storage and more efficient picking.

By Bob Trebilcock, Executive Editor

The economy has taken a toll on many companies. Still others have been taking market share by adding new products, buying up competitors and consolidating facilities for more efficient order fulfillment.

That trifecta describes Eagle Rock Distributing Co. in Stone Mountain, Ga. At one time, Eagle Rock was a distributor of Anheuser-Busch beer products to four counties on the east and northeastern side of Atlanta.

Beginning in 2007, the distributor rolled out a growth strategy that involved the addition of products from new breweries and a selection of distilled spirits, the acquisition of two distributors outside of Eagle Rock's traditional sales territory and a small distributor of wine.

Add it all up, and the distributor was carrying an additional 185 SKUs of beer along with 425 SKUs of wine and 30 SKUs of distilled spirits. Then, it closed one warehouse to consolidate operations in two facilities instead of three. "Our order profile and geography changed," says Fred Millard, vice president of operations. "Overnight, we had space problems as we tried to accommodate the additional SKUs and volume."

To meet those challenges, Eagle Rock worked with a systems integrator (Material Handling Technologies, www.materialhandlingtech.com) to implement an automated case picking solution that handles an estimated 5.8 million cases per year.

The new system introduced automation into an otherwise manual facility and includes features such as:

- A three-level picking area served by case handling and spiral conveyors featuring energy-saving motor-driven rollers (Interroll, www.interroll.com). Picking instructions are received on wrist-mounted mobile computers and fork truck

displays, replacing a paper-driven picking process. All told, there is approximately 3,000 feet of motor-driven roller conveyor.

- Lift trucks outfitted with layer-picking attachments to move layers of product from floor storage to an unscrambler that singulates the cases into a single line.

- A sequencing and buffering area where cases are temporarily staged before they are conveyed in order sequence to a manual palletizing area.

- Load building software that determines the pallet and cart building requirements to load customer's trucks in the right sequence for delivery.

The system went live in June 2011. As a result, Eagle Rock freed up 5,500 square feet of space for storage that had previously been used for picking. That created the room to bring in an additional 1,800 to 2,200 pallet spots of storage and expand the portfolio of products distributed from the facility. Meanwhile, the facility is handling the same number of cases it used to handle manually, but with fewer individuals and fewer picking errors.

Growing and expanding

Founded in 1930, Eagle Rock Distributing Co. was originally part of Atlanta Beverage Company. Back then, the company operated from a small warehouse in downtown Atlanta with a handful of employees.

By 1990, Atlanta Beverage had outgrown its original location and a branch warehouse outside of Atlanta and relocated to a new 100,000-square-foot facility in Stone Mountain. Eagle Rock

Distributing Co. was formed 10 years later as a separate company, marketing Anheuser-Busch products to four suburban Atlanta counties.

In 2007, Eagle Rock made a decision to expand its distribution beyond Anheuser-Busch products and become a beverage company. By 2008, Eagle Rock had added additional breweries, such as Magic Hat and D.G. Yuengling Brewery, to its portfolio of products.

The next year, it acquired a distributor in Rome, Ga. One year later, it purchased the Dalton Beverage Co. while continuing to expand the selection of imported beers, craft beers, ciders and non-alcoholic beverages.

Each of those acquired companies had their own distribution centers. In October 2009, the company decided to close the warehouse in Rome. Twenty-five percent of the volume was moved to the Stone Mountain facility.

The additional product and order volume put new pressures on the distributor. Millard and his team realized they could not accommodate the company's growth strategy and meet its usual 24-to-48-hour order turnaround times in the current configuration.

One option was to build a new, bigger facility. Another was to add to head count. "Prior to implementing this system, we filled orders like most beverage distributors," he explains. "We had three shifts to build and load pallets. One started at 10:00, one at 2:00 and one at 4:00. They worked from a sheet of paper on a walkie rider or lift truck."

All told, there were 35 individuals working in the facility. Without new processes, there would still be a space problem and the head count would rise. That led to a search for an automated solution. "We visited several other wholesalers with different types of automated systems, but we felt the cost of the alternatives was prohibitive," Millard says. "Then we found a solution that freed up the space we needed, allowed us to meet our growth and throughput goals and to control our head count."

The new system not only created enough room to add 1,800 to 2,200 additional pallet spots of beer in the warehouse, it also accommo-



Photos by Gary Campbell/Getty Images

GraphicCaption Feature



Caption

dated the recent acquisition of a small wine distributor in Stone Mountain and the addition of distilled spirits to the lineup.

All told, the facility added 185 SKUs of beer, 425 SKUs of wine and 30 SKUs of distilled spirits to the 348 SKUs of beer it had been carrying in the past. There are an additional 187 SKUs of other product in the facility.

More importantly, with the new system, Eagle Rock is operating the facility with two shifts and 25 employees. “The real question is: what would it have increased beyond 35 if we had continued with a conventional, paper-based approach?” Millard says.

Working with automation

The new system was designed to improve warehouse efficiency through four key areas.

- Automate operations wherever it was possible and cost-effective to improve pick rates per person.
- Reduce the size of the pick area from 20,000 square feet to 14,500 square feet to free up storage space for

additional pallets.

- Reduce pick errors and product damage.
- Reduce the potential for work

place injuries.

Automation was introduced through the addition of motor-driven roller conveyors for transport, a three-lane merge and the spiral conveyors that transport cases from the mezzanine to the buffering and sequencing area. The conveyor is zoned, which allows for faster conveyor speeds without the cases ever touching. That reduces the possibility of product damage from cases bumping into one another on the conveyor.

The system utilizes a rotating layer picker attached to a standard fork truck to pick layers of the fastest-moving product. This layer picker features customized pads that can pick a wide range of product from 8- and 16-ounce cans up to 40-ounce packages.

The layer picker is used to pick the fastest-moving products from floor-stored pallets. A custom-designed case unscrambler singulates a layer of cases into a single file that is conveyed to the



Caption

buffering and sequencing area.

Space was freed up by aggregating the slow- and medium-moving products in a vertical three-level pick module serviced by a three-level spiral merge. Medium movers are stored on double-deep pallet rack on the second and third levels and picked to a powered conveyor. The slowest-movers are stored in carton flow rack and picked to gravity conveyor. The spiral merge at the end of the pick modules transports cases up to the buffering and sequencing area. In that area, cases are sequenced in order for delivery and then conveyed to a manual palletizing and cart building area near the shipping area.

Although the facility does not use bar codes for automated data capture, paper-based picking instructions were replaced with the automatic delivery of tasks to wrist-mounted mobile computers or to truck-mounted displays. Pick verification is done by sensors that measure the package size. The verification system was recently enhanced with a camera-based verification system.

Now that Eagle Rock has worked with the system for nearly 15 months, Millard says learning to work differently with automation has been his biggest challenge.

“In a manual system, if one associate takes a break, the rest of the team continued to work on their piece,” he says. “Because this system is sequenced, we’re only as good as our weakest link. If one associate needs a break or slows down, it can slow down the overall system because everything works in sequence.”

That is one reason that Eagle Rock installed cameras that allow floor managers to monitor activities at all of the workstations throughout the facility. “A manager can see everything going on, no matter where he’s located,” Millard says. “If he sees that one of the workstations is getting slammed with product, he can proactively move someone into that area to help out before the line backs up.”

He has also learned to stagger start



Caption

times so that one work area is always ahead of the next work area in the sequence. Millard calls this priming the system. “We may bring in four individuals to work each level of the multi-level pick area and the claw,” Millard says. “Thirty minutes later, when the buffering and sequencing area is ready to start delivering cases, we’ll bring in builders for pallets and carts. Thirty minutes after that, we’ll bring in the wrappers and loaders.”

Growing the business without adding to head count has been an important improvement. But the biggest benefit has been the ability to add to the number of suppliers and SKUs distributed from the facility. “Many of the items we are now adding aren’t a lot of volume, but they are high-end products with good margins,” Millard says. “More importantly, we now have a distribution process that can keep up with our business strategy.”

Automation with a purpose

Layer picking lift trucks and motor-driven roller conveyor power Eagle Rock’s new order fulfillment system.

By Bob Trebilcock, Executive Editor

Eagle Rock’s order fulfillment system was designed to automate manual processes that could be cost-justified through the more efficient use of space and labor.

Receiving: Eagle Rock receives truckloads of beer in the receiving and shipping area (1) from the breweries it serves. Pallets are unloaded with a double-pallet handling

forklift to a drop-off location in the climate-controlled warehouse.

Putaway: Pallets are not bar code

Eagle Rock Distributing Co. Stone Mountain, Ga.

SIZE: 75,000 square feet plus 23,000 square feet of reserve storage

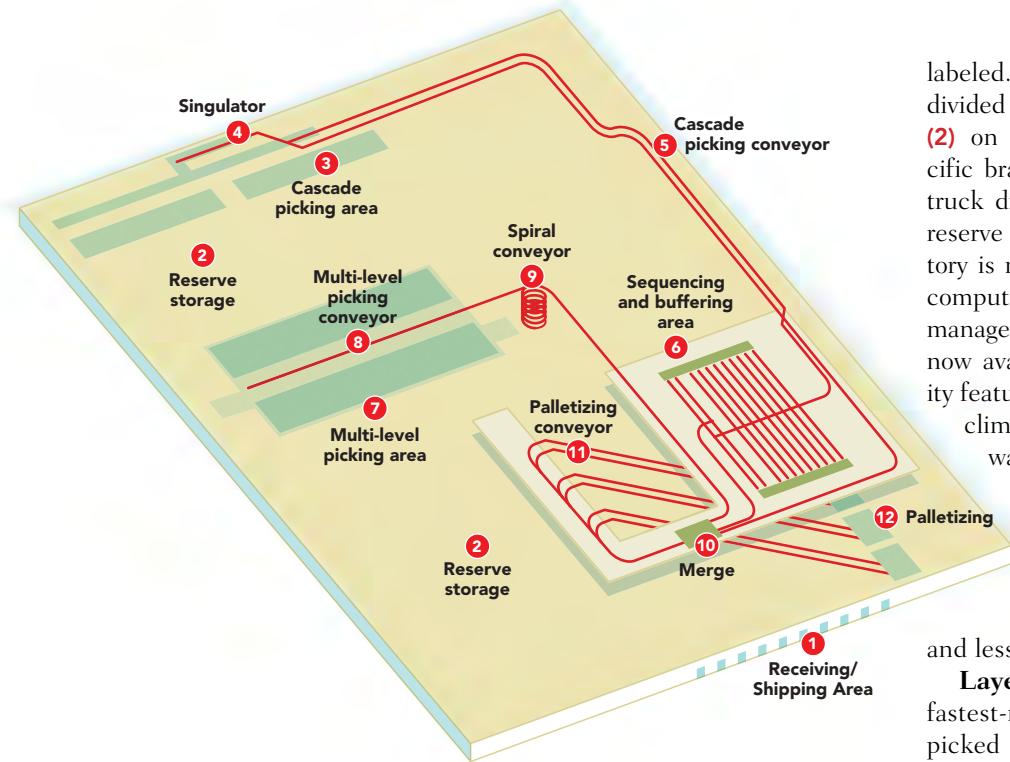
PRODUCTS: 57 different brands of beer and wine and spirits

STOCK KEEPING UNITS: 1,175 SKUs

THROUGHPUT: 5.7 to 5.8 million cases per year

WAREHOUSE EMPLOYEES: 25 employees

SHIFTS PER DAY/DAYS PER WEEK: Morning shift, 6 days a week for receiving and putaway; evening shift for picking and shipping, 5 days a week



labeled. Instead, the warehouse is divided up into reserve storage areas (2) on the floor designated for specific brands and products. Once a lift truck driver puts a pallet away into a reserve storage location (2), the inventory is manually entered into a mobile computer, which updates the inventory management system. That product is now available to fill orders. The facility features pallet rack storage in a non-climate controlled portion of the warehouse (not shown) for products that aren't temperature sensitive.

Picking: There are two picking processes at Eagle Rock, layer quantity picking and less-than layer quantity picking.

Layer quantity picking: The fastest-moving high volume items are picked from floor-level storage locations in the Cascade picking area (3).

The work area is named after the layer-picking attachment that enables lift trucks to pick a layer of product at a time. The layer is deposited on an unscrambler and singularator (4). This device unscrambles a layer of cases into a single file that is then conveyed (5) one case at a time to a sequencing and buffering area (6) located on a mezzanine above the floor. There, product is staged for delivery in sequence to a palletizing area (12) on the floor level. If an order does not use all of the cases in the layer, the remaining cases are temporarily stored in the buffering area until the next order.

Less-than layer quantity picking: Slow- and medium-moving cases that are generally ordered in less-than-layer quantities are picked from a multi-level picking area (7). The second and third levels have two-deep pallet positions for medium-moving items. The floor level has traditional carton flow rack for the slowest-moving items. Picking instructions are transmitted to mobile wrist computers worn by order selectors in the three-level mezzanine. The order selectors pick from a pallet rack to a conveyor (8) serving that area. The cases travel to the end of the mezzanine where they are transported by a spiral conveyor (9) up to the sequencing and buffering area (6). Once they reach the sequencing and buffering area, the warehouse management system (WMS) sequences the delivery of cases in the order they will be palletized. A three-lane merge (10) inducts the cases onto one of six lanes of palletizing conveyor (11) that delivers them to a palletizing area (12) on the floor level.

Packing/shipping: Cases are manually palletized (12) or stacked on a customer cart near the receiving and shipping area (1). Carts hold up to 25 cases of bottles and up to 50 cases of cans. Once a pallet or cart is complete, it is taken by a walkie rider or pallet truck to the receiving and shipping area (1), where it is staged, stretch-wrapped and loaded in the reverse order of how pallets or carts will be removed from the truck on a delivery route. □

System suppliers

SYSTEM INTEGRATOR, MOTOR-DRIVEN ROLLER CONVEYOR, SPIRAL CONVEYOR AND PICKING SOFTWARE: Material Handling Technologies, Inc., www.materialhandlingtech.com

MOTOR-DRIVEN ROLLERS AND GRAVITY PALLET CONVEYOR: Interroll, www.interroll.us

LAYER PICKER: Cascade Corp., www.cascorp.com/americas/en

PALLET RACK: Unarco Material Handling, www.unarcorack.com

LIFT TRUCKS: Hyster, www.hyster.com

MOBILE WRIST COMPUTERS: Motorola Solutions, www.motorolasolutions.com