alk into any bar across America and there’s bound to be a bottle or two of bourbon, rye or vodka produced by Buffalo Trace Distillery. An American family-owned company based in Frankfort, Kentucky, the distillery’s tradition dates back to 1773 and includes such legends as E.H. Taylor, Jr., George T. Stagg, Albert B. Blanton, Orville Schupp, and Elmer T. Lee. Today, Buffalo Trace Distillery is a fully operational distillery, as well as a National Historic Landmark. However, when it came to the distribution of its fine whiskies, Buffalo Trace Distillery found that its historic buildings were simply not built to handle modern materials handling processes.

THE CHALLENGE

Buffalo Trace Distillery was using approximately 240,000 square feet of conventional warehouse storage, which mostly consisted of bulk storage with limited pallet racking. This included 50,000 square feet of off-site contractor space, and seven floors of space for bourbon barrel storage aging. The distillery handled and shipped a majority of inventory from a 51,840 square-foot main distribution center, equipped with eight docks with 21-foot-high ceilings. The distribution center was replenished from seven on-site locations and an off-site contractor location. Yet, the replenishment process included more than nine movements of the same pallet from the production line to loading the customer outbound trailer. Pallet movement was by trailer and often consisted of moving pallets from second floor storage via floor openings to the loading dock. This was not efficient in terms of time, cost and risk associated with inventory damage during movement.

In addition, consecutive high-volume shipping days resulted in intense efforts to replenish prime locations within the main distribution center. Due to limited space, a high product occupancy rate,
and short delivery window, Buffalo Trace Distillery faced challenges in meeting its first in first out (FIFO) goals. Another drawback in the distillery’s operations was the practice of double stacking pallets in storage. These pallets’ weight often exceeded 2,000 lbs., so storing them long term was not optimal.

In need of improving its storage capacity and streamlining its materials handling processes, Buffalo Trace Distillery sought to build a new, conventional warehouse with a traditional rack system. However, when it found that available space was limited, the distillery looked to an automated warehouse with an automated storage and retrieval system (AS/RS).

THE SOLUTION

Buffalo Trace Distillery selected Westfalia Technologies, Inc., to spearhead the construction of a new 83,000 square-foot facility. A leading provider of logistics solutions for manufacturers, warehouses and distribution centers, Westfalia first thoroughly analyzed Buffalo Trace Distillery’s current business and warehousing operations, and then developed an automated warehousing system with the right balance of throughput and storage to support the company’s projected growth needs.

Simulation software played a key role in developing the overall solution,
allowing efficient use of automation technology and the ability to prove the capability of Westfalia’s design to meet sustained system throughput rates.

Within the new distribution center, Westfalia’s AS/RS occupies 46,574 square feet and contains three storage and retrieval machines (S/RMs), or cranes, which operate in three aisles, serving storage lanes five deep, and storing pallets six levels high. Each crane can induct/output 55 pallets of finished goods per hour with a total of 165 pallets moving within the system. The AS/RS contains 20 pallet-staging lanes which can hold 180 total pallets. The AS/RS is integrated with Westfalia’s Savanna.NET® warehouse execution system (WES), which directs, controls and optimizes internal material flow, order picking and inventory management. The technology is linked with Buffalo Trace’s enterprise resource planning (ERP) system, providing real-time inventory accuracy and streamlining order processing.

Now, inventory is produced, moved and tracked via pallets affixed with barcoded tags. Forklifts move the produced inventory pallet from the trailer to the AS/RS induction conveyor. The conveyor transports and delivers the pallet to one of the 10,619 pallet locations. The pallet is positioned on its own platform, thus eliminating any possible risk associated with double stacking of pallets in storage. Then, upon the carrier’s driver arrival at the shipping dock, the dock coordinator inserts the trailer number and customer order number to the specific loading dock door into the WES. This automatically generates the commands to the AS/RS to select all full pallets associated with the order.

The AS/RS system logic is programmed to select the oldest inventory, thus enabling FIFO processes. Pallets are selected by one of three aisle cranes servicing pallet locations six high and five wide on each side of the aisle. The pallets are transferred from the crane to the outbound conveyor onto a transfer car. The transfer car moves two pallets at a time to three of 20 customer order staging lanes in front of the assigned outbound dock. Dock operators load and scan the pallet license plate from the staging lane, load the trailer, close and seal the trailer doors once the driver signs the Bill of Lading. All pallet movement is controlled by use of a RF pallet barcode both within the AS/RS and by the forklift operator.

RESULTS

One of the first spirits suppliers to use an AS/RS, Buffalo Trace Distillery is now more efficiently and effectively managing, moving, storing and retrieving pallets of finished goods. It is able to verify that the right products are retrieved at the right time to satisfy outbound or-
ders. Plus, Westfalia’s systems’ design ensures the secure storage of products. All pallets are triple-supported within the rack structure, eliminating pallet deflection/breakage and product loss.

Furthermore, the introduction of the AS/RS operation has significantly reduced Buffalo Trace Distillery’s footprint, centralized operations, decreased labor and equipment requirements, all while reducing the number of transactions associated with the distribution process. The S/RMs equipped with Satellite® technology and its ability to maximize storage density with variable-depth storage lanes allows Buffalo Trace Distillery to store more inventory in a smaller amount of space.

“Westfalia’s AS/RS significantly reduces the effort within our internal distribution stream system and has enhanced our ability to express our number one priority, which is customer service,” said Charles Harrison, distribution/traffic manager for Buffalo Trace Distillery. “Customers who visit take away the realization that we provide the proper storage and distribution care of their future inventory through a world-class, modern AS/RS operation. This is increasing our customer confidence in receiving shipments by Buffalo Trace Distillery as shown through quality order fulfillment.”

In addition, Westfalia’s solution is built with the flexibility to expand, supporting Buffalo Trace Distillery’s future growth and warehousing distribution needs, ensuring sustainable, long-term growth.