



SOFTWARE

WHITEPAPER

TOP SHELF AUTOMATION FOR BEVERAGE DISTRIBUTION

Bastian
SOLUTIONS

a TOYOTA ADVANCED LOGISTICS company

Executive Summary

Consumers are getting more tech savvy when it comes to purchasing goods. The common trend is to be faster, more accurate, and provide decision-making information on-demand. We utilize smartphone apps to find the best products for the best price to compare online sales with traditional brick-and-mortar sales. The market of purchasing wine and spirits is no different. So why have most wine and spirits distribution centers been using the same material handling equipment (MHE) design within their warehouses for decades?

A primary factor is that these layouts are relatively simple, well understood and repeatable, which makes them low cost. However, with increasing consumer demands, these traditional systems are often not able to keep up with throughput and changing order profiles.

More advanced material handling solutions have been widely implemented in distribution centers across the non-alcoholic beverage industry, but there has not been much interest in the wine and spirits industry until recently. The level of consolidation the wine and spirits industry has seen in the past few years has necessitated new developments and expansion of investment in more advanced material handling solutions.

Wine and spirits distribution companies have a unique set of requirements to maintain lean and efficient operations. Without the right solutions a company can quickly upset their customers by having inaccurate, damaged, or even late orders. When faced with the task of continuous improvement of customer satisfaction and throughput, the company needs to identify certain challenges and seek new solutions.



Business Challenges of Wine & Spirits

Intelligence, Speed & Flexibility

Within a warehouse, the most important goal is to get product out the door as fast as possible while remaining accurate. The beverage industry as a whole is no different but has a unique set of challenges that vary from other vertical markets. In the U.S., the beverage industry has remained stagnant in terms of adopting new technology within the four walls of a distribution center.

A typical beverage distribution center might include:

- Route-based waving software
- Label-based picking for full cases
- Paper or voice-picking for individual bottles
- Accumulating conveyor to a primary shipping merge
- Single sorter to sort cases to dock doors

There have been minor advancements in route-planning and labor planning, however, the physical layout of the DC remains the same. Only the largest facilities make use of higher levels of automation but that is all about to change.



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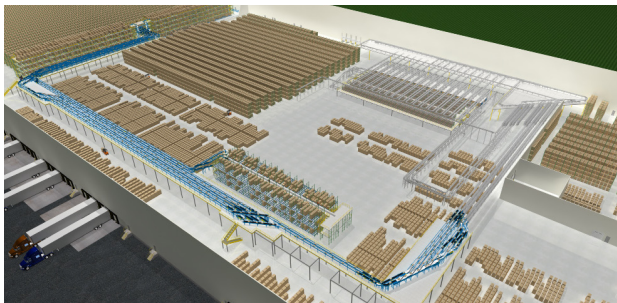
Balancing Labor and Technology

The traditional warehouse for beverage distributors has, at its heart, a central merge feeding a main shipping sorter. The merge allows cases picked in wave-sequence from different areas of the warehouse to combine in a favorable manner for the shipping sorter as each route is loaded in reverse-stop order.

As order volumes increase, due to consolidation of facilities and SKU growth, the traditional layout faces some challenges:

- Increased number of full case pick modules to accommodate higher SKU facings consumes more floor space and dramatically increases labor requirements
- The heart of the conveyor system, the merge and sorter, can quickly become a bottleneck if not designed to handle the rates necessary to prevent longer shifts
- Creating forward-looking material handling solutions and finding creative ways to augment existing systems is the key to longevity of the current beverage industry supply chain

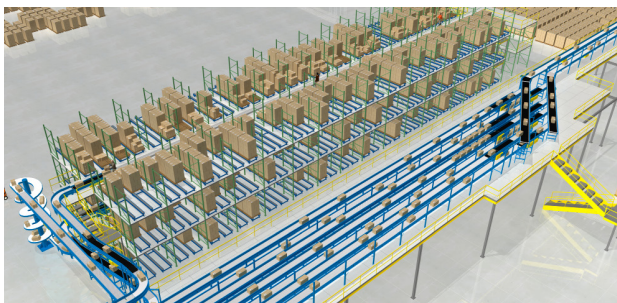
Below are examples of technology from our customer, Southern Glazer's Wine & Spirits.



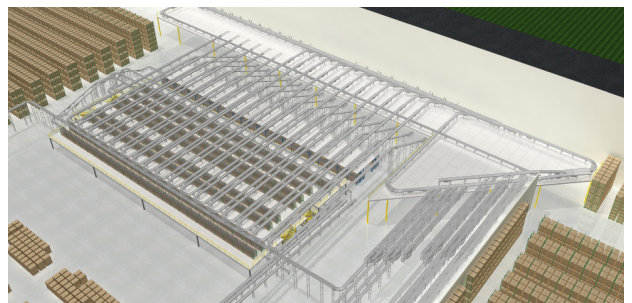
Overall System Layout



Conveyor Routing Software



Full Case Pick Module



Pick Module with Pick to Voice



ROI with AS/RS Technology

Automated Storage and Retrieval

Automated storage and retrieval systems (AS/RS) have been the forerunners of combining storage and retrieval into one complete package. These systems utilize less space than normal pallet rack which helps get more life out of existing building footprints. When planning new facilities, the amount of space needed will be much less.

With an AS/RS or shuttle based system, savings will also be reflected in labor—not in a reduction of employees but making their jobs more ergonomic and streamlined. Instead of having employee's waste time walking the floor to fulfill orders, they are now standing at a workstation where cranes or robots deliver the goods to them or deliver the cases directly to an outbound conveyor. This equals faster, more accurate picking and less work organizing picking labels. Employees will also no longer have to lift heavy boxes of liquor.

High-strength robotic palletizers and depalletizers are also key pieces of advanced automation that eliminate the need for employees to maneuver heavy product which can often be back-breaking labor.



Robotic Palletizers



Servus Retrieval



Vanderlande Adpto



Perfect Pick Shuttle System

How the World's Largest Wine & Spirits Distribution Center Ships 25 Million Cases Each Year

Southern Glazer's Wine and Spirits is the largest wine and spirits distributor in the U.S. with operations in thirty-five states. After consolidating all the inventory and functions of its Florida facilities into a single location, Southern Glazer's Lakeland, Florida facility is now the largest spirits and wine distribution hub on the planet, standing at an impressive one million and ninety thousand square feet.



To maximize the space and productivity of this location, Bastian Solutions and Southern Glazer's worked together to develop an advanced material handling system that could manage more than twelve thousand SKUs supported at this facility. Every year this facility ships twenty-five and a half million cases of premium spirits and wine.

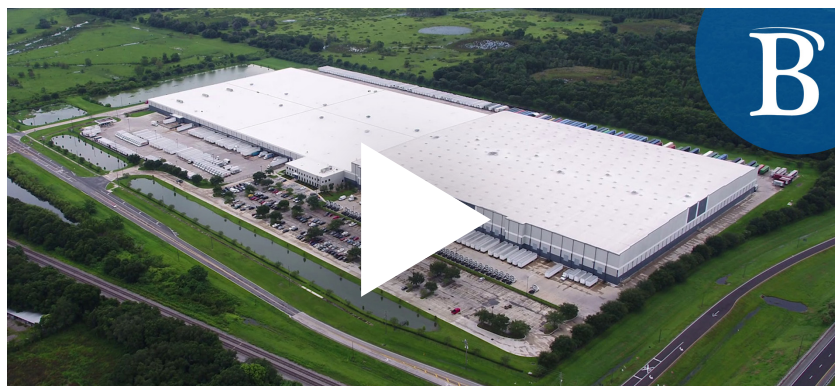
Business Objectives

- Consolidate the tasks of multiple facilities into a single hub servicing the entire state of Florida
- Increase material handling system capacity and order throughput
- Improve order accuracy for better customer service
- Increase picking efficiency
- Increase storage capacity and eliminate the use of outside warehouse storage

Results

With the right people, processes, and material handling solutions, SGWS can now accommodate its customers better than ever before.

- **25.5 million cases shipped every year**
- **System manages over 12,000 SKUs**
- **Increased storage capacity from 2.2 million cases to 6.4 million (~190% increase)**
- **22% increase in overall cases picked per hour**
- **Forklift traffic minimized using automated pallet conveyor systems for replenishment**
- **Two 5-level pick modules handle 80% of nightly order volume with minimum footprint and operator travel time**



Case Study: SGWS Lakeland

Case Study of Material Handling Solutions:

Voice Picking

Voice picking is designed to keep an operator's hands and eyes free, allowing them to focus more on the task at hand. Each operator is equipped with a mobile device or voice dedicated terminal and a headset with microphone. A barcode scanner (wired or wireless) can be added to increase accuracy and productivity. Easy-to-understand voice prompts direct operators to locations and instruct them as to what task needs to be performed. Multi-modal feedback via an operator's voice, a barcode scan or direct text entry provides additional operational flexibility.

At SGWS, voice picking is utilized for individual bottle picking for mixed SKU cases. Delivering more picking flexibility within the facility.



Label Picking

In the full case picking areas, picking labels are generated to direct the operators to pick locations, label the cases and get them onto the conveyor system. The labels are printed in pick location sequence to help operators efficiently walk the pick modules and keep the case sequence optimized for downstream sortation and loading into the trucks. Although this solution isn't cutting edge, it's very cost-efficient and flexible.



Intelligent Software & Processes

Southern Glazer's Lakeland facility required upgrades to its existing warehouse control system to support the material handling system expansion. Bastian Solutions' ExactaBEV software merges four standard waves into a single picking wave to increase picking efficiency. The expanded conveyor system is controlled by ExactaBEV to merge and re-sort the picking waves back out into the standard wave sequence prior to the main shipping sorters. The trucks are still loaded in the correct, reverse-stop sequence to maintain delivery efficiency, but the pickers are significantly more efficient; being able to pick those four waves in a single pick path through the warehouse.



If the new conveyor system is the heart of the Lakeland expansion, the software upgrades from Bastian Solutions provided the brains to deliver the increased picker efficiency, accuracy and overall system throughput required to transform the facility into the largest wine and spirits distribution center on earth.

Human Machine Interface

Southern Glazer's Human Machine Interface, or HMI, provides easy access to real-time information such as system status, shipping and sortation statistics and live video monitoring. Multiple 3-D screens display a detailed view of how the system is operating, and color association for conveyor sections make the information easy to comprehend.



Warehouse Execution System Modules



INTERFACES

Robust interfaces to both upstream Warehouse Management System (WMS) and downstream (Machine Control) make a Warehouse Execution System (WES) the heart of any automated distribution center. Information from the WMS and feedback from the lower level systems allow the WES to optimize material flow.



WAVING

Waving is the process of grouping orders and activating them for processing. Together, the waving suite of programs, wave planning, wave management and wave closeout with exception handling provide end-to-end control and visibility for order processing.



PICK MODULES

With a number of hardware solutions, it is critical to have the proper software to coordinate and communicate to each picking process. The right software can increase throughput while providing insights such as picker productivity.



AUTOMATION CONTROL

Flexibility to interface with and control different automation systems (conveyor, robotic, goods-to-person systems, etc.) gives operations the flexibility to invest in the right combination of technologies to best meet their unique needs.



QUALITY CONTROL

The WES checks cases at the shipping sorter to ensure that the picking label was applied to the correct SKU. Any mismatches are sent to a hospital station for further investigation. Any confirmed mispicks can have a replacement pick label automatically generated for faster error resolution.



Partner Selection

Material Handling Systems Integrator

Picking the perfect wine should be effortless, in a restaurant or in the warehouse, which means an effective beverage distribution software package should improve visibility, speed, and accuracy. It should also be flexible and modular to ensure your facilities specific needs and business goals are met. Choosing a partner is important because this relationship is going to be for years to come. Whether that is support of the system or sales team to accommodate for growth.

Items to consider when choosing a material handling partner:

- Find a partner that shares your values and vision for the future of your business
- Does the company have prior experience in your niche?
- What is the size of the support group?
- Who will be your direct contacts within the company?
- Can this company integrate with current and third-party applications?

Summary

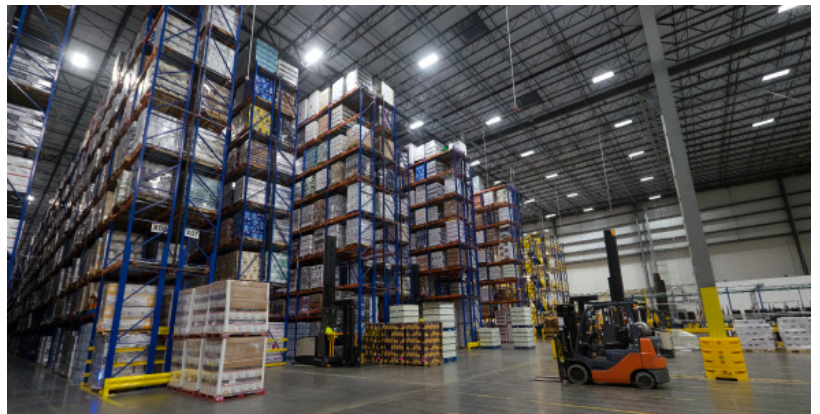
The beverage industry is experiencing rapid growth and a consolidation of major distributors. Forward thinking companies need to evaluate new automation equipment paired with a powerful software package. Beverage distribution companies are turning to material handling integrators to develop new solutions to maintain this growth. These systems can increase overall throughput and help shave hours off normal shift times and labor costs, reducing employee overtime while increasing the volume of orders shipped.

Implementing advanced automation systems and powerful software suites, such as [ExactaBEV](#) are helping companies hold on to their real estate longer in scenarios where space is limited, or labor rates are high. They also provide new opportunities for growth when planning out new facilities, while also providing complete visibility into operations.

Contact Us Today

Call for additional information
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Learn more about Bastian Solutions
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The logo for Bastian Solutions, featuring the word "Bastian" in a large, white, serif font with a swoosh above the "i", and the word "SOLUTIONS" in a smaller, white, sans-serif font below it.

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