



Capitalizing on Capacity

Interlake Mecalux Pallet Shuttle system maximizes storage capacity and productivity of Islandaire's distribution center

Islandaire in East Setauket, New York, is one of the fastest growing specialty air conditioning and heating manufacturers in North America. The company, founded in 1992 by Robert Hansen, has since grown into a multi-million dollar company over the past 24 years with more than \$50 million in sales. Islandaire designs and manufactures a full complement of custom high-quality through-the-wall replacement packaged terminal air conditioners, or PTACs, as well as heat pumps, vertical units, fan coils, water source heat

pumps and gas units. The company started out building replacement air conditioners for customers who owned units built by other companies that have since gone out of business. Islandaire now builds approximately 60,000 to 70,000 air conditioners per year, primarily for the replacement market. The company also builds units for the new construction market, mainly serving hotels and motels, nursing homes, hospitals and apartment buildings.

Customer's needs

Along with the expansion of the company came the need to build a new 40,000-square-foot distribution center that also serves as a new home for Islandaire's sheet metal operation. This meant that the company needed a plan to modernize its new storage facility. "We went through a number of iterations and a couple of different companies looking to maximize the amount of real estate that we could tie up for storing product," owner Robert Hansen said. "We run probably four million pounds of steel through this place and we're also storing a significant volume of units. There is probably \$6 million worth of inventory sitting in here." The new facility would also store units that arrive from overseas that the company uses in the new construction market, according to

Hansen. "So we needed a space that we could control and have inventory at our fingertips," he said. Hansen turned to industrial storage system integrator U.S. Industrial to devise a solution. The company worked with Islandaire to examine a number of different scenarios, such as a Drive-in/Drive-Thru Pallet Rack system or Push-Back Racks, but neither offered the storage capacity that Islandaire needed. "We just needed a high-density rack system where we could store a significant amount of units without having to break down the skids," Hansen said.

Interlake Mecalux's proposed solution

U.S. Industrial and Islandaire ultimately decided upon the highly cost effective semiautomatic high-density Pallet Shuttle system designed and manufactured by Interlake Mecalux. The system uses a motorized shuttle to carry pallets inside storage lanes. The carts move along rails inside of the lanes and follow orders sent by an operator using a Wi-Fi tablet. The Pallet Shuttle system is perfect for companies like Islandaire, which have a high volume of pallets per SKU and high loading and unloading activity. "The customer had a clear idea of the type of system that they wanted and also on the supplier that they wanted, trusting from the very beginning in U.S. Industrial and Interlake Mecalux to be their suppliers," said Albert Puignou of the Interlake Mecalux Robotics Department. "Our technical department worked in two main directions: achieving the layout of the system that would maximize the space according to the needs of the customer, and making a detailed analysis of the custom

TECHNICAL DETAILS

System Type:	Pallet Shuttle
Number of bays:	20 Bays Wide
Number of load levels:	3 High
Number of Pallet Shuttles:	2
Pallet positions:	720
Pallet type:	Custom (45" Wide X 46.5" Deep)
Pallets per level:	12 Deep
Rack Height:	354"
Max pallet weight:	1,800 lbs



dimensions of the pallet that Islandaire is using and the model of Pallet Shuttle that would be the best fit."

This Pallet Shuttle system offered the storage capacity that Islandaire required, without the need for aisles, which would have occupied valuable storage space, according to Roop Tawney, U.S. Industrial's director of industrial engineering and material handling. "This Pallet Shuttle system is 12 deep with 20 bays of three

levels each, and 5,000 square feet is holding 720 pallet positions, which is not easy to do with other systems," he said. Puignou said the Pallet Shuttle system allows Islandaire to maximize its storage capacity and offers greater diversification because each channel can store a different item. "This is the optimum high-density system for them, as they benefit from the deep lanes of pallets of the same SKU while maintaining selectivity per lane."

The Interlake Mecalux Pallet Shuttle system also eliminated the need for employees to drive forklifts into the rack system, thereby reducing potential risks to operators, loads and equipment. Instead, with the Pallet Shuttle system, the forklift places the motorized Pallet Shuttle in the lane. The forklift then positions pallets one by one in the level entrance, resting them on the load-bearing rails. The shuttle lifts the pallet slightly, and moves it horizontally until it reaches the deepest available location, where it deposits the pallet. The shuttle then returns to the channel entrance in order to repeat the movement with the next pallet. This sequence takes place as many times as necessary until the corresponding lane is full. "With this system, we minimize the amount of damage to the rack and thus to the product. It's convenient, simple and easy," Hansen said. He added that employees are no longer required to break down the pallets that arrive from shipping containers. "We literally can take them from a container and put them right on the rack system, so there is less handling, less damage and we've got them in a safe and secure location," he said.

Other advantages of the Interlake Mecalux Pallet Shuttle include increased productivity, as it optimizes operator movements by using the product-to-person system in which the load moves to the operator. While the Pallet Shuttle carries out a command, the operator collects another pallet, thereby achieving continuous movement. The system also increases the flow of incoming and outgoing goods.



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— Albert Puignou, Interlake Mecalux



In addition, the Pallet Shuttle system features a Wi-Fi control tablet that has an intuitive user interface with many advanced functionalities. This allows users to select the type of pallet they want to handle as well as the desired load management strategy, such as LIFO (Last In, First Out) or FIFO (First In, First Out). It also has an additional locking system that ensures a secure contact between the Pallet Shuttle and the lifting forks of the truck and lithium batteries that provide a battery life of a minimum of one work shift at full capacity.

The Pallet Shuttle is ideal for distribution centers like Islandaire's, which have a high density of products. As his company continues to expand rapidly, Hansen said the Pallet Shuttle system might also have to expand right along with it. "Initially, we reduced the capacity a little bit," Hansen said looking out of an office window at the distribution facility. "But as you can see from here, we probably shouldn't have because it's still not enough. It's almost filled to the brim and there's still more product coming in."

Advantages for the customer

- Enhanced storage capacity: Islandaire's new Pallet Shuttle system is 12 pallets deep with 20 lanes, allowing the company to store a significant volume of units.
- Increased safety: employees do not have to drive forklifts into the racking to store or retrieve product, as the Pallet Shuttle carries the pallets inside the storage lanes.



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— Robert Hansen, Islandaire Owner

