

RANDOM HOUSE, INC.

Order Fulfillment Sortation System Is a Great Story for Publisher

Case Study

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Honeywell Intelligrated's IntelliSort® TT Tilt-tray System Improves Order Turnaround Time by 50 Percent for the Leading Trade Book Publisher

Please note: "Honeywell Intelligrated" within this case study refers to Intelligrated, which Honeywell acquired in 2016.

The company's supply chain team recognized that automated fulfillment would enable Random House's third-party publishing arm to continue its growth.



Publishing Powerhouse Automates Fulfillment for Expanded Distribution

Random House, Inc, the world's largest English language trade book publisher, places a priority emphasis on its supply chain to ensure that its customers, including Barnes & Noble, Borders, Amazon, Ingram, Baker & Taylor, Books-a-Million and thousands of independent booksellers, get their orders correctly and on time. Named Amazon.com's "Distributor of the Year" for the past two years for its efforts on behalf of its third-party publishing clients, Random House prides itself on having the "finest distribution in book publishing" for both its widely admired core imprint publishing programs, which issue more than 9,000 new adult and children's hardcover and trade and mass-market paperbacks annually, and for more than two dozen third-party clients, who are overseen by its Random House Publisher Services group.

When the company's third-party publishing distribution service began to expand at a rapid pace, the Random House supply chain team recognized a potential logjam in its fulfillment process. The company's Westminster, Md., distribution center, the book publishing industry's largest at 1.3 million square feet, operated manual split-case picking fulfillment.

With more than 40,000 titles located across 26 manually picked aisles, a typical order could go between seven and 10 pick aisles. The loose picking area was a bottleneck for the facility, resulting in low throughput rates, slow order turnaround times and high labor costs.

Sorting Out Requirements and the Team

"With our diverse customer base and order profiles, as well as our company's desire to bring on more titles, we knew that we needed to revamp our fulfillment and sortation process," said Vince Annoreno, vice president of distribution at Random House. "After reviewing various options, we determined that a unit sortation system was the most efficient solution."

The system needed to alleviate the bottleneck in fulfillment, while still allowing Random House to offer split-case picking based on individual orders. Random House's team looked for a superior high-speed fulfillment solution that offered high throughput, accuracy, gentle handling and a compact footprint. To meet the needs of this complex system, Random House chose to collaborate with Honeywell Intelligated.

"We selected Honeywell Intelligated as our automated material handling partner because we were very impressed with their design and engineering team," said Annette Danek, vice president of fulfillment at Random House.



"Our team went to Honeywell Intelligated's Frederick test center and worked on our design until it was an absolutely perfect solution customized for our book handling operations," said Danek.

"The system is definitely exceeding our expectations. We anticipated an improvement in our turnaround time, but we did not foresee a 50 percent improvement. The system has added a great deal of flexibility to our operations."

– Annette Danek, Vice President of Fulfillment,
Random House



Custom double-level chutes maximize sortation destinations.

Make That a Single or a Double? Meeting Throughput on a Budget

As part of the design process, Honeywell Intelligrated offered several different options that varied in throughput capacity, chute destinations, footprint and cost. In order to meet throughput requirements, Honeywell Intelligrated initially suggested a double-tray sortation system complete with a custom-engineered, double-level book chute. The custom double-level chute design would greatly increase sortation destinations with a significantly reduced footprint.

However, due to budget requirements, the team decided that the Honeywell Intelligrated IntelliSort TT single-tray tilt-tray sorter, with the originally suggested double-level chutes, would be a viable, cost-effective solution.

System Testing: Finding the Best Angle

With such a wide range of items and an emphasis on eliminating damage to books, Honeywell Intelligrated undertook extensive prototyping at their Frederick, Md., facility. Testing more than 100 sample books varying from larger and heavier coffee-table to small pocket to textured children's books, the Honeywell Intelligrated team included the Random House staff in this process.

"Our team went to Honeywell Intelligrated's Frederick test center and worked on our design until it was an absolutely perfect solution customized for our book handling operations," said Danek. "They were willing to work closely with us to design the best layout that would meet the limitations of our physical space, and provide us with a solution that would prevent damage to our books."

"The relationship with Honeywell Intelligrated before and during our project was very good. They were very easy to work with, answered our questions and listened to our concerns," continued Ron Nawrot, director of plant engineering and maintenance at Random House. "Honeywell Intelligrated did a very nice job of meeting any needs we had."

System Overview: Random House Tilt-tray Increases Throughput Capacity

The sorter features two induction areas, each with six high-capacity singulated automatic induction stations. After a book is inducted onto a tray, scanners perform top-side scanning, reading a UPC barcode on the exterior of the item. The tilt-tray system determines the item's destination based on an algorithm that accounts for chute capacity, product demand and order information provided by the WMS prior to wave activation.

Items travel around the sorter and, upon arrival to tilt-tray-assigned chute location, the sortation control directs the tray to "tilt." At the same time, pneumatically controlled flippers direct the item to the correct chute, releasing down to divert to the bottom chute or remaining in place to divert to the top chute.

"The unique chute design allows us to maximize our chute count while handling the product safely and creating a comfortable environment for our employees," said Danek.

A Tight Squeeze: Space Restraints

"Our preferred location for the new sortation solution was on an existing 62,700-square-foot mezzanine," said Danek.

"Honeywell Intelligrated had to accommodate the varying ceiling heights, water pipes, I-beams and point loads. Despite all of the physical constraints, Honeywell Intelligrated developed a creative solution for installing the unit sorter in the desired location."

In order to make space for the sorter on a confined, existing mezzanine, Honeywell Intelligrated needed to get creative. Placing one induction platform inside of the sorter enabled the sorter to take up just 44,700 square feet of the available 62,700. Additionally, the sorter track varies in height so employees can easily and safely walk underneath to access interior chutes. "Honeywell Intelligrated worked with us to use every available inch of space," said Danek.

Results

Random House has seen an improvement in the overall efficiency and speed of its distribution operations since the sorter came online in September 2009. The sorter is reducing labor costs and increasing safety due to its ergonomic design features, and Random House has received many other benefits from the system.

"We have removed a significant bottleneck in our split-case picking operation and gained dramatic speed in our process. Our split-case picking metric has improved significantly, and our overall throughput has improved

by 40 to 50 percent. We have also dramatically increased flexibility of resources,” said Danek. “We are able to quickly adjust our resources to accommodate peaks in demand because people can be trained to induct or pack at the unit sorter in five minutes and can achieve production goals on day one.”

The tilt-tray sortation system offers Random House a definite improvement in its ability to respond to a quick customer order. Orders received by 2 p.m. are shipped the next day, and the sorter has allowed that to be done quickly, efficiently and accurately.

Supporting the System

Honeywell Intelligated continues to work with Random House, providing system maintenance.

“Honeywell Intelligated’s customer service has been exceptional. They understand the impact on our overall operation so issues are resolved in a timely manner,” said Annoreno. “Not only do they explain the issue, what caused it and how it was fixed, they also follow up to ensure the resolution is still working.”



Random House Sortation System At-a-Glance

Tilt tray

- IntelliSort TT – Single Tray
- 712 feet long

Induction stations

- 12 high-capacity singulated automatic inductions
- Number of induction belts per station: 4

Scanners

- Top-side scanning after each array of induction stations
- Reads UPC barcode on the exterior of the item

Discharge chutes

- 250 double-level chutes, 500 destinations
- 4 no-read destinations
- 8 jackpot destinations
- 16 RF guns for the packout operations

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