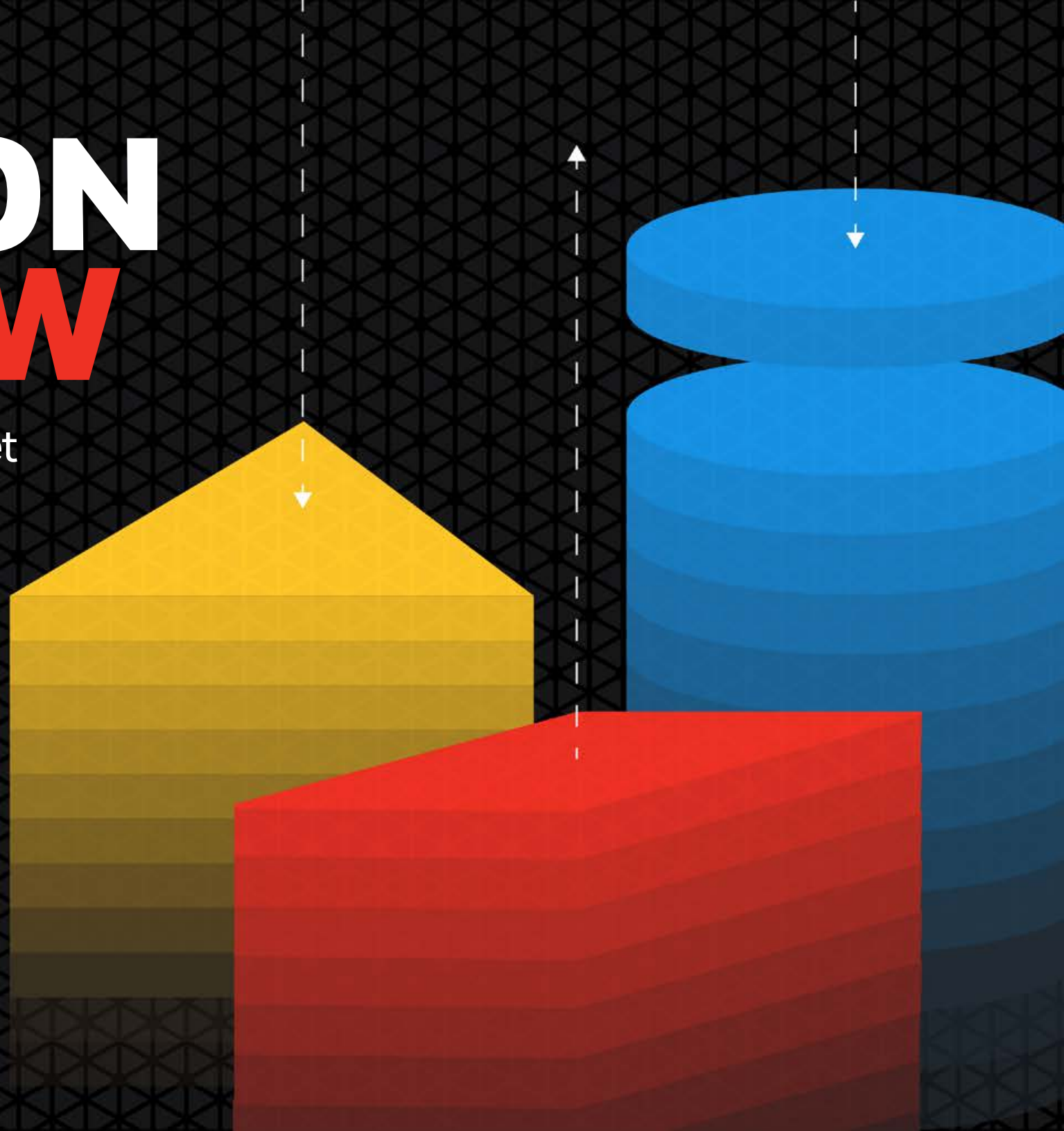


SORTATION **OVERVIEW**

Get the Throughput You Need to Meet
Today's E-commerce Challenges

Honeywell



CONTENTS

Click below to jump to a section of the book.

01 The Business Case for Sortation Solutions

02 What to Consider When Choosing a Sortation Solution

03 Handling Requirements

04 Other Considerations

05 Sortation Solutions

06 Manual Sortation

07 MDR Transfer

08 Sliding Shoe Sorter

09 HDS Sliding Shoe Sorter

10 Bomb Bay Sortation

11 Push-tray Sortation

12 Tilt-tray Sortation

13 Cross-belt Sortation

14 Conclusion

THE BUSINESS CASE FOR SORTATION SOLUTIONS

01

Today's logistics operations are facing increasing pressure on all sides. Service level agreements (SLAs) are getting tighter, even as volume dramatically increases. Customer expectations are rising, too, especially when it comes to fast, free delivery (sometimes even on the same day). What's more, the e-commerce boom and dimensional (DIM) pricing have led to a greater diversity of parcel types and individual items.

Manual labour is no longer sufficient to meet the needs of this demanding environment. The throughput and volume demands of e-commerce are simply too great for manual workers to keep up with. And that's if you can find enough workers to begin with — a growing challenge for any fulfilment operation.

There's a Solution for Every Sortation Challenge

Drawing on decades of sortation experience and thousands of installations, Honeywell offers a wide range of sortation products to optimise throughput for your unique product mix. These solutions deliver the highest throughput rates in the industry, plus gentle package handling options. In addition, Honeywell combines the latest technology with designs specifically engineered for low-maintenance operation, reducing your total cost of ownership (TCO).



WHAT TO CONSIDER WHEN CHOOSING A SORTATION SOLUTION

Throughput

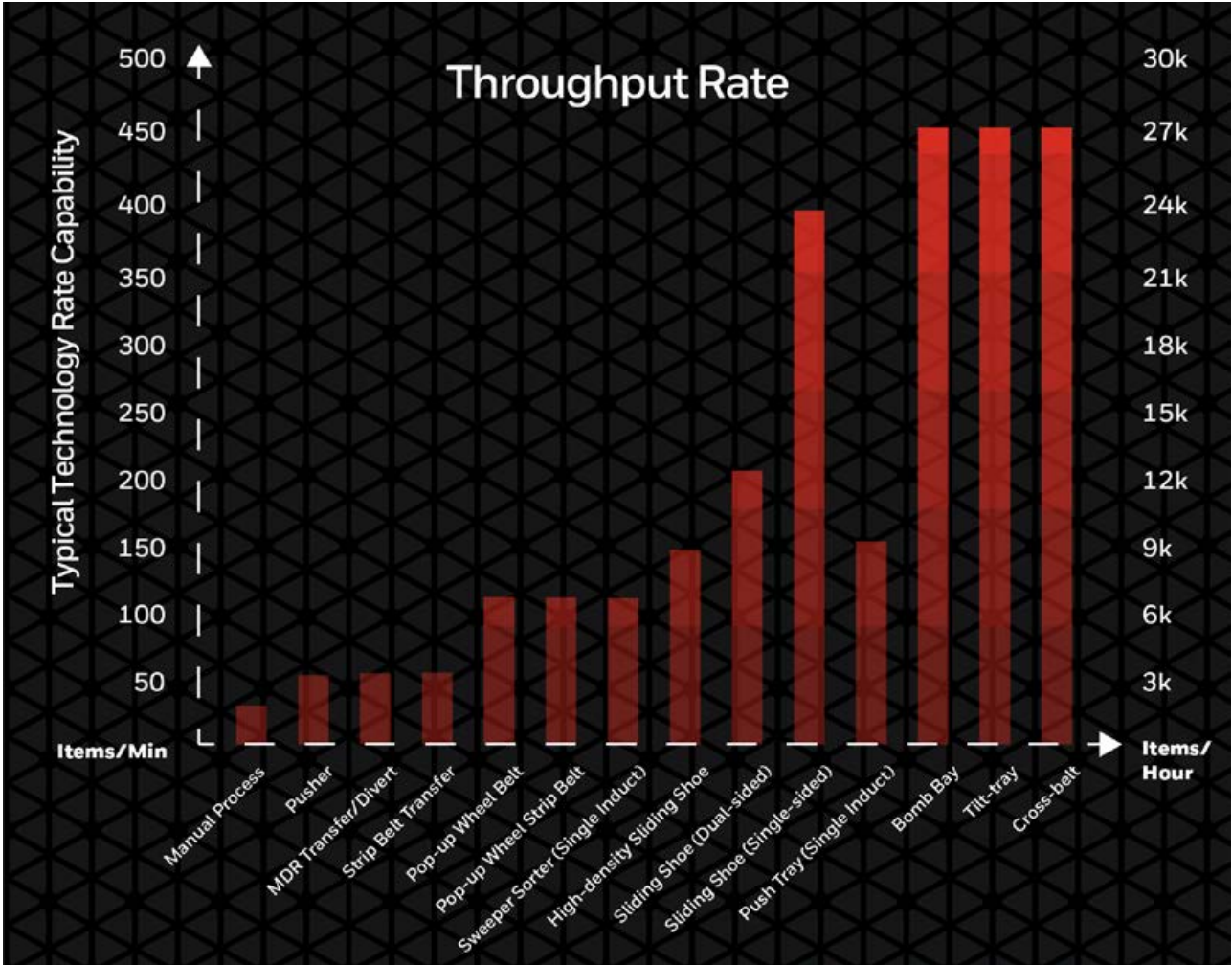
Throughput rates at both standard and peak periods are critical considerations when selecting the most optimal automated sortation technology. Throughput rates can fuel return on investment (ROI) calculations, as well as provide room for operations to scale for the future — a critical consideration for maximising long-term value.

Honeywell solutions are designed to deliver maximum throughput while operating at minimal machine speed. This strategy reduces wear and energy usage, increasing the service life of the equipment. It also ensures gentler handling of items while reducing the amount of noise in your facility.

Throughput vs. Speed

It's easy to confuse throughput with speed, but they're not the same thing. Focusing only on speed — without consideration of other factors such as gapping, gentle handling and accuracy — can lead to inefficient solutions that reduce your throughput.

The chart at right represents typical throughput rates by sortation technology. These rates assume average item sizes.



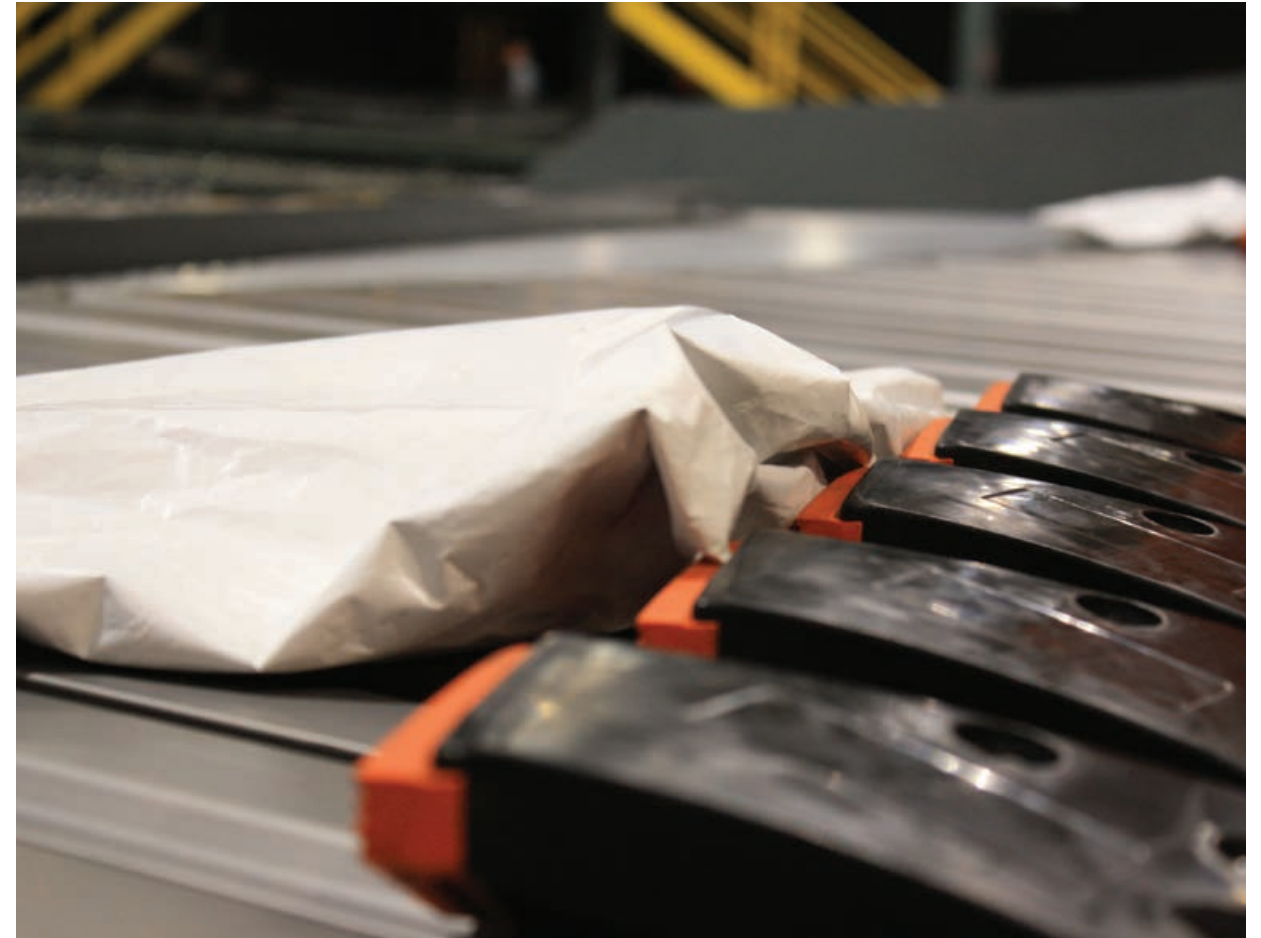
HANDLING REQUIREMENTS

03

Another critical factor to consider when choosing a sortation solution is your operation's unique product mix and the types of packaging you process most. When making your selection, consider your entire product mix — including your present and future needs.

The most common factors to consider include:

- **Types of items to be sorted** — Carton boxes, totes, polybags, bubble mailers, loose items, etc. Aspects such as size, weight, balance or shape of products to be sorted may rule out certain sortation technologies.
- **Item packaging types** — Cardboard, shrink-wrap case, bagged apparel, apparel on hangers, etc. The more item types the system can handle, the fewer non-conveyables there will be, increasing facility efficiency and shortening the payback of the investment.
- **Item diversity** — Many distribution sites handle multiple item types. Your breakdown might be 50% carton boxes, 25% bagged apparel, etc.
- **Item structural integrity** — How rigid and predictable the structure of the items is. Packaging integrity of the items, such as “perfect presentation” needs and durability concerns, must also be considered.

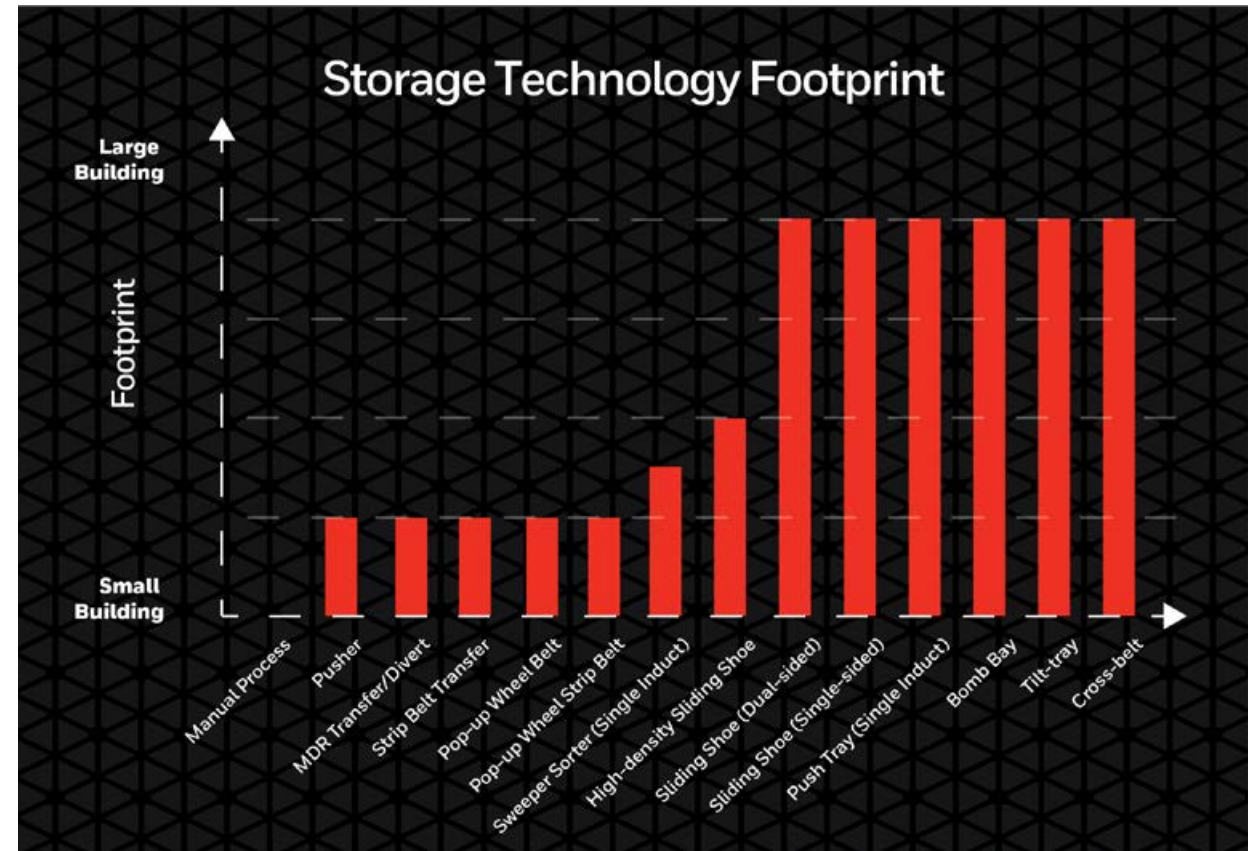


OTHER CONSIDERATIONS

04

In addition to handling, throughput and application requirements, several other factors can have a big impact upon your technology decision.

- **Floor space requirements** — Many facilities are looking to add e-commerce focused solutions in existing buildings, sometimes even in the back rooms of retail stores.
- **Operating noise levels** — Some sortation equipment operates at very low noise levels while maintaining very high rates, increasing ergonomic comfort while still maintaining throughput.
- **Investment level** — While some sortation systems require more substantial technologies and supporting subsystems, they can better prepare an operation for future growth.
- **Energy usage** — If energy usage is an important factor in your enterprise, be sure to share this concern with your materials handling equipment (MHE) vendor at the project outset, as energy usage can vary widely by technology and vendor.
- **Maintenance and operator skill levels** — The daily operation and maintenance tasks can vary widely by technology and by MHE vendor. Consider how your personnel will interact with the equipment and how your current staff will be able to maintain the system.
- **Future expansion** — If there is a possibility for future expansion, this should be taken under consideration at the project outset. Future expansion capabilities can be limited by the technology or initial system design.
- **Divert accuracy** — Divert accuracy and propensity for jams, hang-ups and mechanical problems can often be dependent upon the specific design details and gapping requirements designed for the system.



- **Divert confirmation** — Confirming a divert can be a necessary step in some sortation processes, and the methods for doing so can vary by solution.
- **Depreciation schedule** — Some sortation technologies may have a longer expected lifespan, which will affect the depreciation schedule.

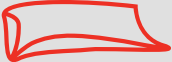
SORTATION SOLUTIONS

The following sections detail a broad range of sortation technologies, each designed specifically for distribution and fulfilment (D&F) operations. The chart at right provides a guide to typical “best fit” practices to help you match the best technology with varying item types.

In the pages that follow, you’ll also find infographics indicating the types of items that are supported by each technology. For the purpose of this e-book, items are divided into five categories. Click on any one of them for a short video overview of the technologies best-suited to handle each type:



Individual Items



Bags and Apparel



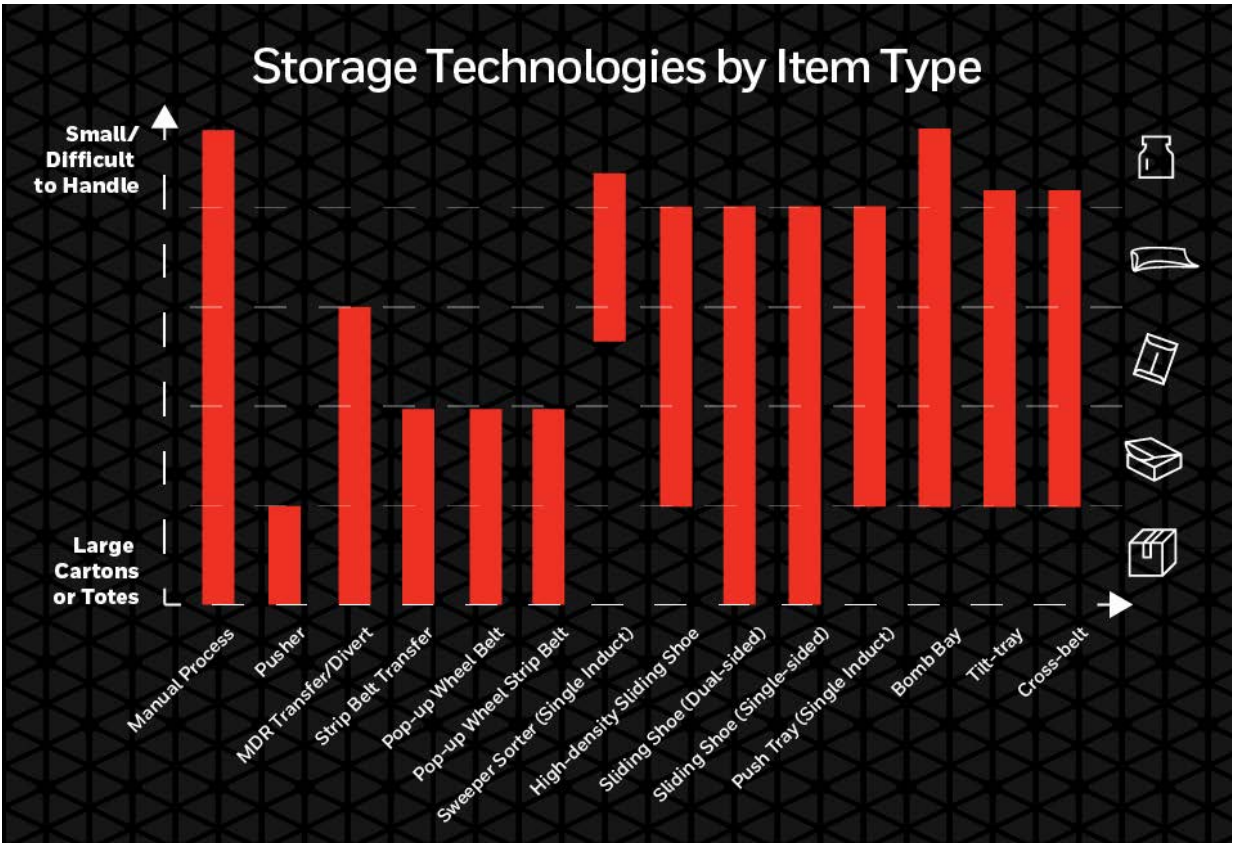
Small Cartons



Large Cartons and Totes



Heavy Items





MANUAL SORTATION

06

At peak performance, a sortation worker can achieve a manual maximum throughput of around 1,500 items per hour. That's simply not fast enough to keep up with increasing e-commerce demands — even if you *can* find enough people in today's historically tight labour market.

Human workers aren't going to go away as automation becomes increasingly essential to today's distribution centres (DCs); their roles are changing. The most efficient way to utilise labour is to automate sortation tasks that require speed, accuracy and repetitive actions, while moving scarce workers into more satisfying and higher-value jobs.

PACKAGE TYPES SUPPORTED:



Individual
Items



Bags and
Apparel



Small
Cartons



Large Cartons
and Totes



Heavy
Items

Unfilled supply chain jobs are at their highest level since 2001, even as DCs struggle to keep up with a new boom in consumer demand.



MDR TRANSFER

07

Up to 3,000 items/hour

Motor-driven roller (MDR) sortation solutions utilise individually powered zones and multiple transfer belts to facilitate changes in direction. This innovative design enables bi-directional operation while maintaining increased item control and throughput. In addition, MDR zones only run on-demand, reducing energy use by up to 50%.

A relatively simple and safe sortation option, MDR transfers are good for products requiring zero-contact accumulation. They're especially good for totes, which are often loaded or unloaded manually, because they offer a high degree of safety and simple operation for workers in close proximity.

Great for tight spaces

MDR systems usually achieve the best payback when there is a high concentration of divert and merge operations in a small footprint. Since MDR systems typically handle one item per zone, sortation rates can be limited.

PACKAGE TYPES SUPPORTED:



Individual
Items



Bags and
Apparel



Small
Cartons



Large Cartons
and Totes



Heavy
Items



SLIDING SHOE SORTER

08

Up to 24,000 items/hour

Pioneered by Honeywell in the 1980s, the innovative sliding shoe sorter combines one of the highest throughput rates in the industry with the most accurate product handling.

Diverting “shoes” attached to the conveyor surface positively divert items onto an aftersort conveyor. A patented “soft touch” divert system provides fast, gentle control and accuracy, reducing item impact speed by 500%. Ongoing refinements have made the latest generation of shoe sorters quieter than ever, while offering the flexibility of modular design.

Fast, accurate handling of diverse items

Fed by a single stream of products merged from multiple areas of a building upstream, sliding shoe sorters are a popular choice for shipping sorters, as they can provide high rates with predictable divert accuracy for a wide range of items. They’re also a great choice for operations that handle polybags, jiffy bags and bubble mailers, because their innovative design eliminates potential pinch points.

PACKAGE TYPES SUPPORTED:



Individual
Items



Bags and
Apparel



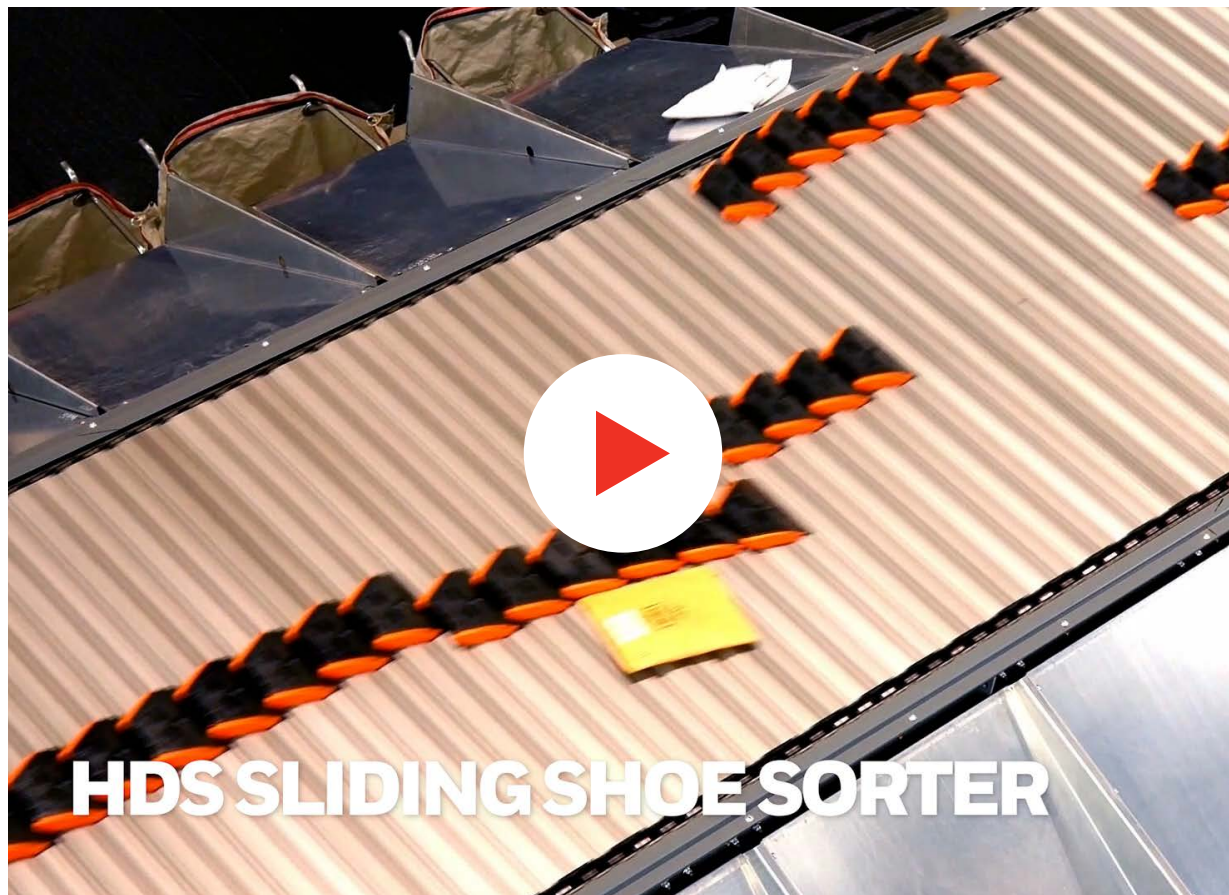
Small
Cartons



Large Cartons
and Totes



Heavy
Items



HDS SLIDING SHOE SORTER

09

Up to 10,000 items/hour

For applications that need to fit in limited spaces, the high density sliding shoe sorter (HDS) features a dual-sided design that accommodates more divert chutes in a smaller footprint.

This configuration enables fast, precise diverts of a wide variety of product and packaging types — including polybags — while supporting zone-skipping strategies.

PACKAGE TYPES SUPPORTED:



Individual
Items



Bags and
Apparel



Small
Cartons



Large
Cartons



Heavy
Items



BOMB BAY SORTATION

10

Up to 24,000 items/hour

Ideal for high-throughput, e-commerce operations, quiet, high-capacity bomb bay sorters run in a continuous loop, dropping items into cartons, totes or engineered packaging chutes.

The flat carrying surface reliably handles polybags, round items that roll, non-conveyables, multimedia, mail and more.

Bomb bay sortation solutions are available with single, dual or heavy-duty, split-tray styles.

PACKAGE TYPES SUPPORTED:



Individual
Items



Bags and
Apparel



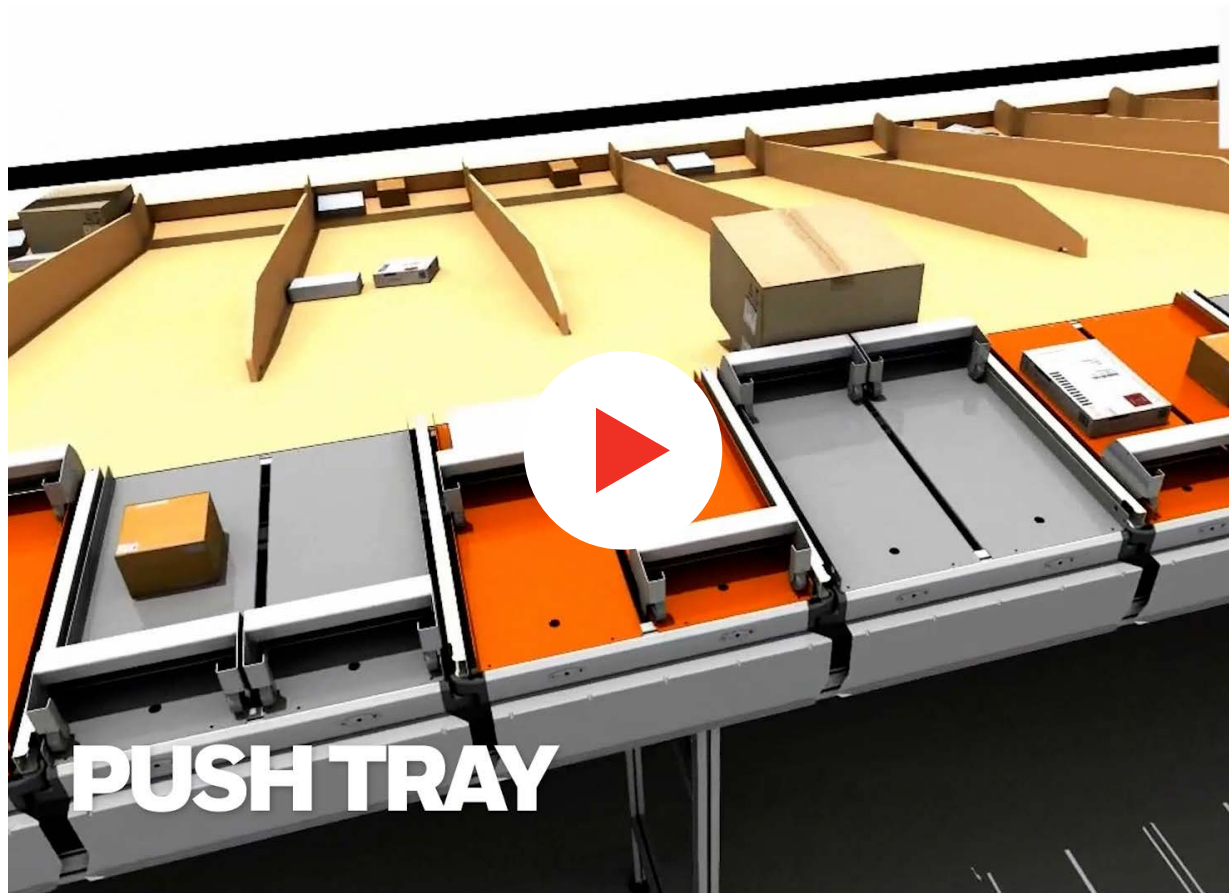
Small
Cartons



Large
Cartons



Heavy
Items



PUSH-TRAY SORTATION

11

Up to 24,000 items/hour

Honeywell's award-winning push-tray sorter is one of the most flexible mid-capacity solutions in the industry. Items are inducted onto carts running around a continuous loop, before being pushed off by a sliding bar.

Push-tray technology combines the benefits of sliding shoe and tilt-tray sorters. A twin-tray design enables the handling of nearly all packaging types and sizes, from 200 g polybags to 20 kg cartons. In many cases, this versatile solution can even handle products that traditionally required manual sorting.

PACKAGE TYPES SUPPORTED:



Individual
Items



Bags and
Apparel



Small
Cartons



Large
Cartons



Heavy
Items



TILT-TRAY SORTATION

12

Up to 27,000 items/hour

Tilt-tray sorters are engineered for critical high-capacity, high-speed sorting applications. Trays mounted to carts running on a continuous-loop conveyor “tilt” and transfer items down into a chute when an item reaches its sorting destination. Items are inducted either manually or automatically onto the trays via induction stations at multiple locations throughout the loop.

Durable, low-maintenance tilt-trays accommodate nearly all item sizes, deliver high throughput and accuracy, and are ideal for applications that require a high number of sort locations. Low noise levels make a tilt-tray sorter a good solution for operators who work in close proximity to a machine. In addition, virtual sorter capability enables dual-purpose operation for peak capacity and high-volume runs.

Flexible performance in tight spaces

The low-profile frame of the tilt-tray sorter allows for clearance in otherwise tight locations. Its modular design enables the system to scale easily, accommodating future expansion or seamless integration into existing facilities.

PACKAGE TYPES SUPPORTED:



Individual
Items



Bags and
Apparel



Small
Cartons



Large
Cartons



Heavy
Items



CROSS-BELT SORTATION

13

Up to 27,000 items/hour

Honeywell's high-capacity, flexible cross-belt sorter is designed to handle fragile and high-friction items of virtually any size. Motorized belt conveyors are mounted onto carts running on a continuous loop conveyor and transfer items down into a chute when an item reaches its sorting destination.

Two belt units per cart — which give the cross-belt sorter its name — can handle large items while increasing capacity for small- to medium-size items. The system's flexible modular design easily scales and adapts to your operation's current and future needs.

Tilt-tray or cross-belt?

While cross-belt technology offers similar functionality and features as tilt-tray sorters, they provide more predictable divert reliability for certain types of products and packaging. They provide unmatched throughput for high-friction pieces or those that need gentle handling, including tricky items like letters, flats, books, CDs and DVDs.

PACKAGE TYPES SUPPORTED:



Individual
Items



Bags and
Apparel



Small
Cartons



Large Cartons
and Totes



Heavy
Items

CONCLUSION

Sorting out Your Options

The relentless pace of e-commerce acceleration, combined with intense competition pressures, require today's fulfilment operations to squeeze out as much sortation capacity as possible. In this environment, automation is no longer a luxury reserved for the largest operations. It's quickly becoming a necessity for any logistics company that hopes to remain competitive.

While many providers offer sortation solutions, only Honeywell delivers the fastest throughput speeds and gentlest package handling options in the industry. And with more than a century of end-to-end experience in materials handling, we offer expertise that goes beyond the latest technology to deliver measurable real-world results.

Honeywell is a leading single-source provider of intelligent automated material handling solutions that drive fulfilment productivity for post and parcel, 3PLs, distribution and e-commerce retailers globally. We offer a broad portfolio of automation equipment, software, service and support. [Learn more.](#)

To learn more about how Honeywell sortation solutions can benefit your unique operation, or to consult experienced experts on the ideal solutions for your sortation challenges, contact us at <https://sps.honeywell.com/gb/en/contact-us/automation> today.

Honeywell

Honeywell House, Skimped Hill Lane
Bracknell, Berkshire
RG12 1EB United Kingdom
+44 (0)1344 656000
info@intelligrated.com
sps.honeywell.com

Follow us on Twitter: twitter.com/intelligrated
Learn more on YouTube: [HoneywellIntelligrated](https://www.youtube.com/HoneywellIntelligrated)

SOEB (EN/EU) | 01/22
© 2022 Honeywell International Inc.

Honeywell