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HONEYWELL TRANSNORM PARTNER ACADEMY

Increase Throughput and Streamline Operations in Tight Spaces

Enhance space efficiency and cost savings with high throughput sorting solutions in tight space

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MEET THE EXPERTS

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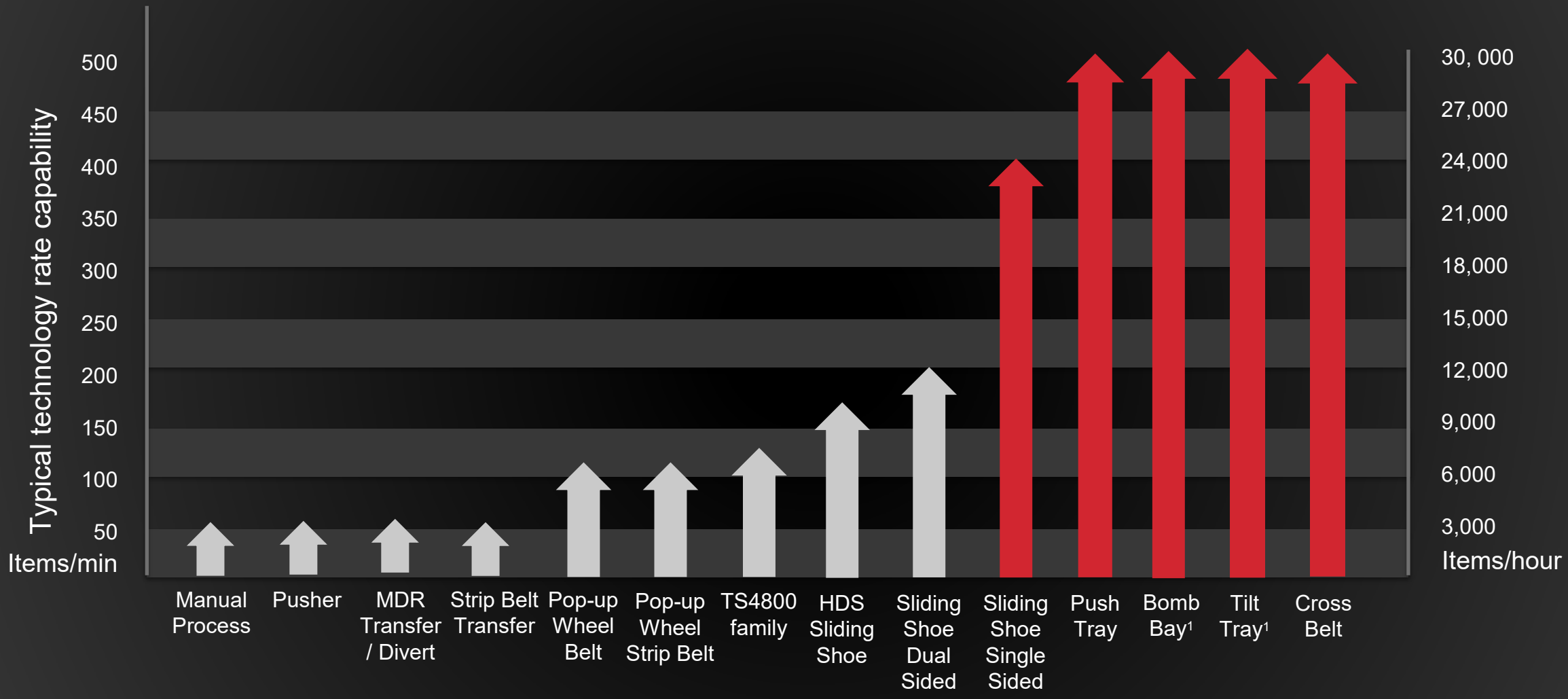
Agenda

1. Sortation solutions tailored for your problems
    - Throughput and Pitch
    - Varied MTBH
    - Other considerations
2. What features to look for in high throughput sorters?
3. Cart exchange
4. Optimizing layouts
5. Q&A

SORTATION TECHNOLOGIES - THROUGHPUT



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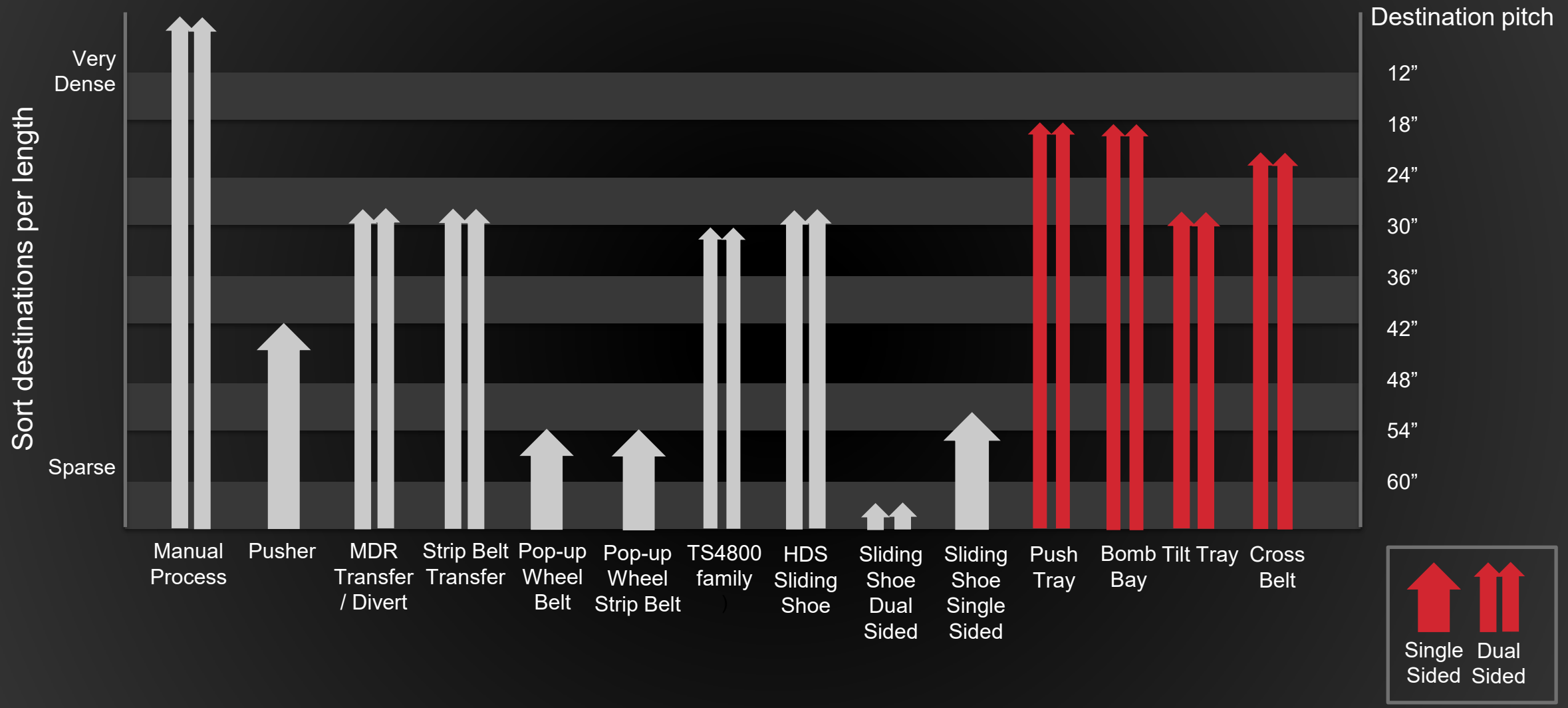
SORTATION TECHNOLOGIES – DESTINATION PITCH



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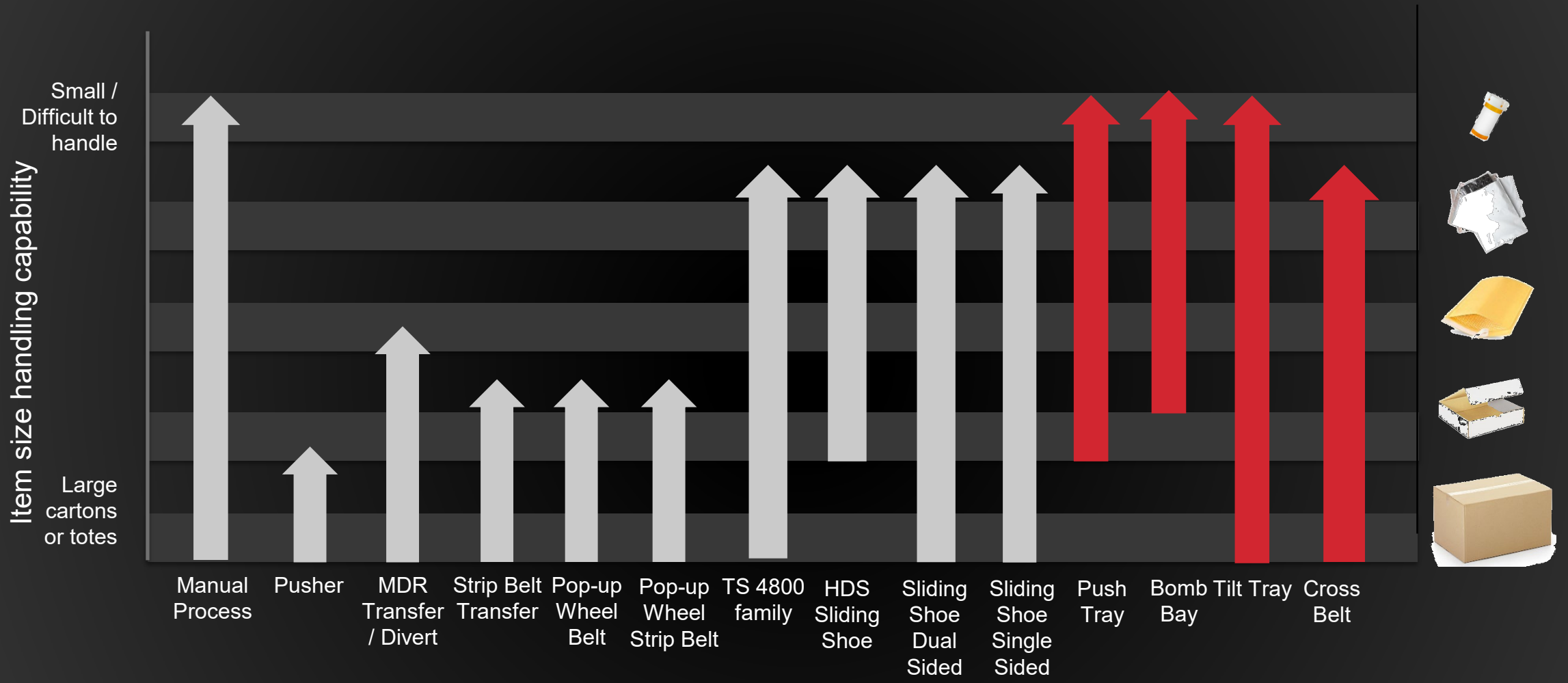
SORTATION TECHNOLOGIES - ITEM TYPE



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WHAT FEATURES TO LOOK FOR IN HIGH THROUGHPUT SORTERS?

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ADVANCED DRIVE TECHNOLOGIES

Technology	Brushless Motor and Wheels	Linear Synchronous Motor	Linear Induction Motor
Efficiency	Medium	Higher	High
Speed	High	Higher	High
Maintenance	Higher	High	Low
Cost	$$	$$$	$$

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POWER TRANSFER TO CARTS

Technology	Conductor Rail with brush	Wireless Power Transfer (WPT)
Safety	Exposed live rails	No exposed live parts
Maintenance	Medium to high	Very low
Cost	Low	High
Efficiency	High (95–98%)	Medium (85–90%)
Environment	Sensitive to contamination	Ideal for dusty/wet

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DISCHARGE LOGIC

Feature	Industry practice	Dynamic Discharge control DDC
Induction	Single scan in inducted position	RGB scan for precise location
Centering	Multiple belt moves	None required
Discharge Timing	Estimated based on last known position	Precise, based on real-time
Accuracy	High – wider divert needed	Higher accuracy even with narrow chutes
Chute density	Lower	Higher
Equipment Wear	Higher (more moves)	Reduced

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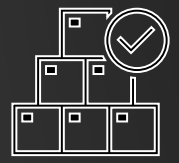
DYNAMIC DISCHARGE COMPENSATION (DDC)

DDC uses enhanced vision technology to detect each item's exact size and location on the belt, and automatically adjust discharge timing

99.99% divert accuracy

- DDC decreases the likelihood of divert errors, improves system efficiency



Increased chute density

- Enhanced level of divert precision = increase chute density and expand operational capacity.

Reduce equipment wear & improve energy efficiency

- No Two step motions to complete an induction-divert cycle
- Extended life of motors, bearings, belt components, etc
- Better TCO for the machine

DDC

- 2016 MHI innovation award winner
- Patented HON solution

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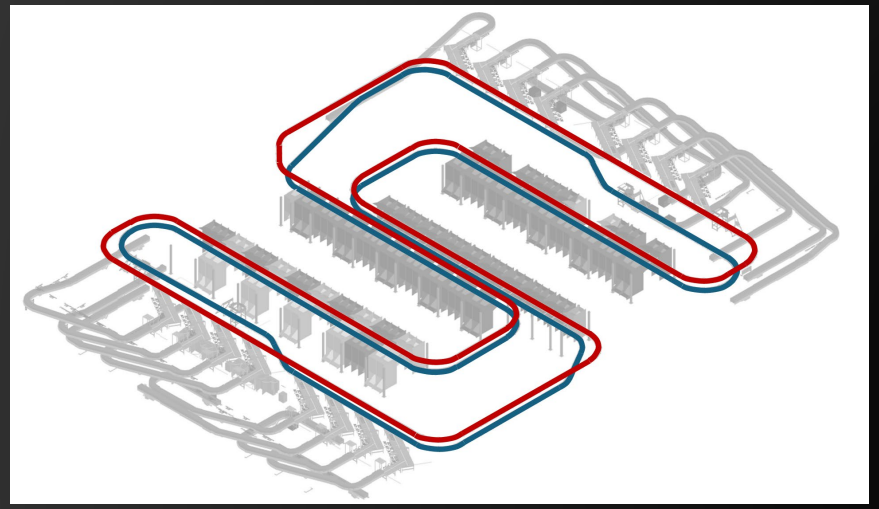
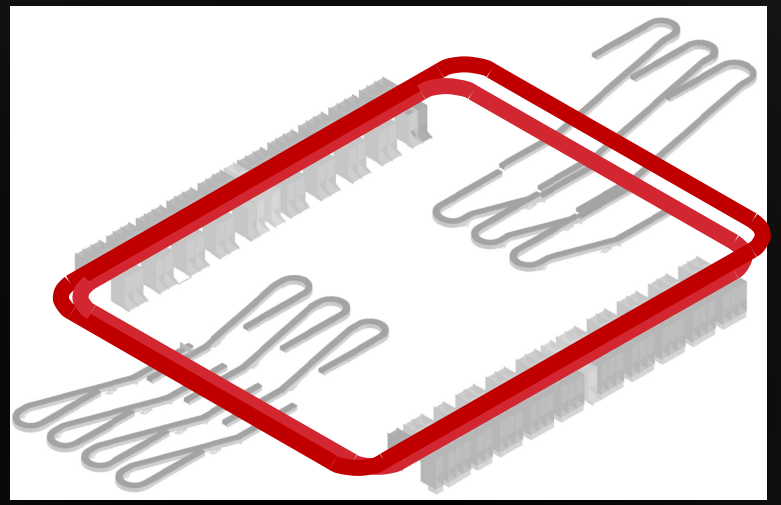
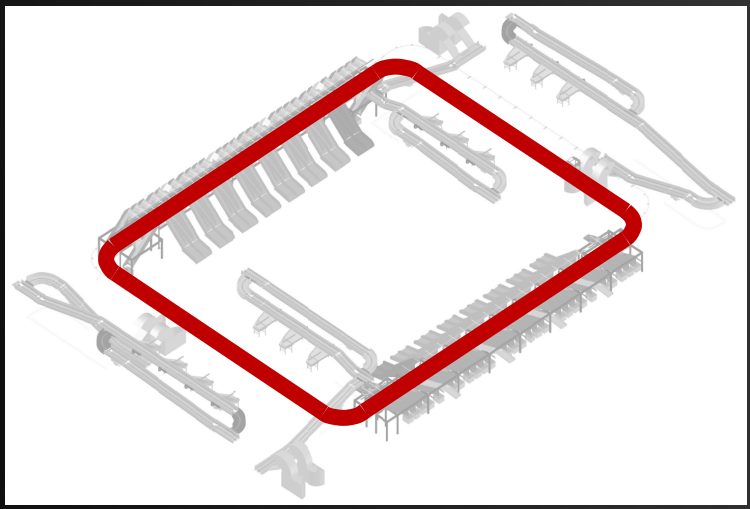
CUSTOMER FOCUSED SOLUTION – USE OUR DESIGN TEAM



- Initial design w/ auto induction.
- Complicated layout, longer track (higher cost), less operation space



- R2 design after taking initial customer feedback. Simpler sorter layout w/ auto induction
- System ROM: **25% lower**



- R3 design after extensive customer engagement. Bulk flow + semi-auto induction design with more accumulation at chute & more space for operation.
- System ROM: **40% lower**

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OUR COMMITMENT TO YOUR SUCCESS

Support We Offer

- Data sheets / documentation
- Simplified layout models (STEP files)
- Layout planning assistance
- Performance calculation
- Sorter system design
- Electrical installation instructions
- Mech/Electrical installation
- Operating and maintenance manual
- Spare parts list (RSPL)
- Service Support

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Q&A

In your experience, what industries benefit most from loop sortation technology?

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Loop sortation technology delivers the strongest value in industries that deal with high throughput, large SKU diversity, and time-critical fulfillment.

Industries that benefit most include:

- E-commerce: With constantly changing order profiles, varying item sizes, and peak season surges, loop sorters provide the flexibility and speed required to keep fulfillment centers running efficiently. They excel at handling a wide mix of products while maintaining consistent throughput.

- Parcel & Courier Logistics: Parcel hubs depend on tight cut-off times and fast sortation of small items, polybags, cartons, and irregulars. Loop sorters maintain stable flow and allow continuous recirculation, which is ideal for operations where every second counts.

- Retail Distribution: Retail networks often require multi-destination sortation for stores, regional hubs, and replenishment centers. Loop sortation helps consolidate, batch, and route products efficiently across different channels.

Why these industries align well: Loop sorters shine where businesses need speed, flexibility, accuracy, and scalability—all of which are essential in these sectors, especially during peak volumes.

What are some of the things that can cause bottle necks?

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Bottlenecks in loop sortation systems typically arise when flow control, induction, discharge logic, or system balancing is not optimized. Key causes include:

- Poor induction flow
  If items are not inducted at a consistent rate—either too slowly or too quickly—the overall system flow becomes unstable. Automated or semi-automated induction must be carefully controlled to feed the loop evenly.
- Uneven load distribution
  When certain sections of the loop become overloaded (e.g., too many items routed to one side), it restricts recirculation and slows down the entire system. This is usually caused by unbalanced destination assignments or uneven batch sizes.
- Limited or improperly placed discharge points
  If divert points do not match actual throughput patterns, queues form behind those locations. A mismatch between sorter capacity and discharge lane availability is one of the most common bottleneck sources.
- Insufficient buffering or recirculation capability
  When the system cannot temporarily hold items during peak bursts, the sorter slows down or stops to prevent overloading.
- Mechanical or control system delays
  Anything from slow divert mechanisms to control logic delays can create ripple effects that reduce total system performance.

Overall, bottlenecks are almost always about balance—ensuring induction, loop speed, and destination capacity work together harmoniously.

Do you think loop sortation is better suited for greenfield projects or retrofits? Why?

Loop sortation works in both scenarios, but it is generally better suited for greenfield projects due to the ability to optimize space, flow, and integration from scratch.

Why greenfield projects are a better fit:

- Optimal layout design:

Loop sorters require a continuous track with adequate straight sections and curves. Greenfield environments allow designers to place the loop where it works best rather than where space is left over.

- Easier integration with upstream and downstream systems:

Feed conveyors, induction lanes, accumulation zones, and discharge areas can be designed holistically rather than retrofitted into an existing footprint.

- Scalability planning from day one:

Greenfield projects enable future expansion zones, additional destinations, or larger loops without disruptive changes.

Retrofits are still possible, but typically involve:

- Reworking existing conveyor and racking layouts
- Managing structural constraints (columns, walls, mezzanines)
- Additional integration cost and complexity

In summary: Loop sorters thrive in greenfield environments, but with expert engineering they can also be successfully integrated into retrofit sites.

What role do you think predictive maintenance will play in improving uptime for loop sorters?

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Predictive maintenance will be a key driver of higher uptime, lower cost, and smoother operations in the next generation of loop sortation systems.

Key ways it improves uptime:

- Early detection of component wear and anomalies

Using sensors and data analytics, systems monitor vibration, temperature, motor load, and cycle counts in real time. Issues like bearing wear, belt tension loss, or motor degradation are flagged before failure occurs.

- Reduction in unplanned downtime

Instead of reacting to breakdowns, maintenance teams receive alerts that allow them to intervene during planned maintenance windows—greatly improving equipment availability.

- Optimized maintenance schedules

Maintenance is performed based on actual equipment condition rather than fixed intervals, reducing unnecessary service and extending the life of components.

- Better spare parts planning

Predictive insights help organizations stock the right parts at the right time rather than holding large inventories "just in case."

- Higher long-term throughput

A smoothly running loop sorter maintains consistent speed, reduces recirculation, and minimizes disruptions—directly improving overall facility performance.

Bottom line: Predictive maintenance transforms loop sortation from a reactive system into a proactive, data-driven, continuously optimized asset.

What's the most compelling ROI factor for adopting loop sortation technology?

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The most compelling ROI factor is the significant increase in throughput efficiency paired with reduced labor dependency, which directly lowers operational costs and improves order cycle time.

Why this drives ROI so strongly:

- Higher throughput with consistent performance:

Loop sorters maintain steady, high-speed flow even during peak periods, allowing facilities to process far more units per hour without adding shift labor or parallel systems.

- Labor optimization and reallocation:

By automating complex routing and reducing manual touches, companies can redeploy labor to higher-value tasks. This reduces reliance on temporary labor during peak, one of the biggest cost drivers in parcel and e-commerce operations.

- Space efficiency reduces cost per square foot:

Loop designs make excellent use of floor space, often replacing much larger conveyor footprints. More throughput in less space means better return on building and infrastructure investments.

- Lower error rates reduce rework and customer service costs:

The accuracy of loop sorters minimizes mis-sorts, returns, and customer dissatisfaction — each of which carries both a direct and hidden cost.

- Scalability protects long-term investment:

Loop sortation systems can be expanded with additional destinations, discharge points, or extended loops, which stretches the useful life of the system and enhances ROI over many years.

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To be continued…

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