

Zion Solutions Group

ROBOTIC SORTATION: WHAT IS IT? WILL IT WORK FOR ME?



How Robotic Sortation can Lead to Flexibility, ROI, and Scalability

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Robotic Sortation Types



Unit Sortation



Outbound
Sortation



Parcel Sortation



Goods to Person

Sortation, almost everyone needs it. It's the heartbeat of a distribution center. It can be used in a variety of different ways and has endless advantages. While there are so many advantages, there is one major risk when designing and implementing any type of sortation. What is the max rate? When designing a sorter there are four main areas we look to understand:

- 1) What is the max parcels per minute in the design year?
- 2) What are the package sizes and types?
- 3) What is your forecasted growth?
- 4) How many diverts do we need?

Based on the above information, a sorter can be designed. But let's better understand the "grey" in these four main bullet points. First, how do we figure out the max parcels per minute? Well, we would start with your current rate, then add in forecasted growth to get a recommendation. What happens if your forecasted growth is less than anticipated? You overpay for a sorter. What happens if your forecasted growth is more than anticipated? You are unable to handle the volume resulting in a new DC or manual processes. To mitigate this risk, a safety factor and phased in options are identified. Key word there is mitigate, not eliminate. What about the packages sizes and types? What happens if polybags were never planned but a company was acquired? You find that there are transportation savings? Or customer feedback demands bags vs boxes? Not all sorters can handle polybags, so what do you do if this becomes a requirement? Traditionally you would add a new process for bags or handle those as one offs. Lastly, how many diverts are required? Are you zone skipping? Are you planning to add more stores? Are you doing last mile sortation? These are all questions that have to be identified up front when leveraging traditional sortation like, Narrow Belt Sorters, Shoe Sorters, Crossbelt Sorters, Tilt Tray Sorters, etc..

As mentioned before, traditional sortation has a lot of advantages and is still technology we do and will continue to recommend, but there are now alternatives that can help eliminate that risk. The answer? Robotic Sortation.

How Does Robotic Sortation Work?



UNIT SORTATION

Unit Sortation via Robotic Sortation is accomplished by using a robot like you see to the left. A small elevated platform is placed on the ground and operators have the ability to place units directly onto the tray. Once on the tray, the robot can go to one of several different destinations. You can sort to boxes, totes, and/or additional sortation technologies. Unit Sortation robots can be

used in a variety of different ways:

- 1) Sort to Store
- 2) Sort to Order
- 3) Goods to Person Picking
 - a. This particular category is beginning to gain a lot of attraction. When pairing Unit Sortation with Goods to Person technologies, you have the ability to create a very large “batch” or grouping of orders. Why is this important? If you have the opportunity to pick to 20 orders or 2000 orders, which option has a higher chance of having like SKU's? The 2000 order option will increase the number of units per presentation at the Goods to Person resulting in a more efficient overall system. This is one of many advantages robotics sortation can play in the distribution center.



PARCEL SORTATION

You will notice a difference from the unit sortation robot to the parcel sortation robot. Main difference being the height and a belt vs a tray. Why this difference? Robotic Parcel Sortation technology, as you see to the left, can be manually fed or automatically fed. Knowing that most DC's have a conveyor feeding an outbound sorter, these type of robots were made to attach to those existing conveyors. In the automated option, boxes are fed in, scanned, (weighed and dimensioned is also an option), and divert to the appropriate divert. That divert could be a chute (gaylord) or a conveyor (fluid load). In the manual option, or semi-automated option, operators would manually place packages on a small infeed conveyor. Once on that infeed conveyor, the process would continue like it does above. From a rate standpoint, the sky's the limit. From a weight and package type standpoint, there are different

types of robotic sortation resulting in different max dimensions and capacities. For the vast majority of distribution centers, parcel sortation robots would be able to handle the product mix with ease.

Risk – Eliminating It

How does Robotic Sortation eliminate the four areas referenced above?

1) What is the max parcels per minute in the design year?

While this is important to know up front, it is not what is used to recommend the initial size of the robotic sortation area. A large benefit of robotic sortation is the ability to phase in robots over time. Instead of buying and installing a sorter that you think will be good 5, 7 or 10 years from now, you can begin with what the next two years look like. This allows you to hang on to your cash longer and ensure you are not overpaying up front.

2) What are the package sizes and type?

Today you are 100% corrugated boxes, next year you find yourself having 50% boxes and 50% bags. Does your current sorter work with bags and boxes? With robotic sortation, this isn't a problem. With belts being used on the parcel sortation robots, you are able to use boxes, bags, units, totes, really whatever you would like. This allows you to be truly flexible when evaluating what is best for your business and your customers.

3) What is your forecasted growth?

When looking forecasted growth, there are multiple different ways a DC can grow:

- 1) Outbound Carton Volume
- 2) SKU Growth
- 3) Inventory Growth
- 4) Unit Growth

All of those may impact what an outbound sorter needs to handle. Furthermore, if you find your order profile changing to a smaller Units per Order resulting higher carton volume, can your sorter handle it? These are all areas that are difficult to "guess." With robotic sortation, you can scale your DC up as things change and shift. You don't have to be perfect. There's comfort in that.

4) How many diverts do we need?

This question is most applicable to Omni-Channel or Retail/Wholesale customers. Another difficult item to predict is the number of pallets required on an outbound dock. This calculation is typically driven from the number of stores and/or the number of orders currently being processed in a wave. As you add sortation to help this process, you may find the outbound dock becoming more efficient. You may decide to take the labor you had on the outbound dock and have them assist in picking. To keep everyone busy with work, additional orders may be included in the waves. This means more pallets need to be staged on the outbound dock. Was this built into the plan? Once again, the theme here is flexibility and scalability. Additional robots can be added and/or additional destinations can be added. Robotic Sortation allows us to put what we think makes sense in play, learn from the solution, and adapt accordingly.



Scalability / Flexibility – Two Hot Topics. Robotic Sortation = Scalability / Flexibility.

Conclusion

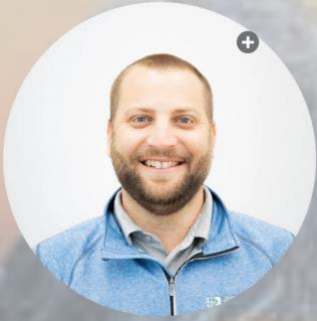
We hear the words Scalability and Flexibility tossed around a lot in our industry. While there are more and more technologies entering the space, few are truly scalable and flexible at a low cost point and a short lead time. Robotic Sortation finds itself in the category of few. When designing a distribution centers, the standard was evaluating data, understanding to the minute surges, identifying bottlenecks, aligning on growth, aligning on safety factors, and ultimately install a system based on those exact parameters. While detailed data is still important, it can't be the only factor. Every operation is different, every operations leader has their own style. Robotic Sortation allows us to take some of the guesswork out of the equation, we can get to a spot where everyone is comfortable, and then learn from the operations. Learn from the team. And ultimately, use the technology to grow with your business.

Getting started is simple. Don't let robotics, technology, and software deter you from learning more. Sometimes technology is scary as you can't see how everything works, when it comes to robotic sortation, everything is right in front of you. Get a trusted partner, start the conversation, and begin the process of leveraging truly scalable and flexible technology.

WHO WE ARE



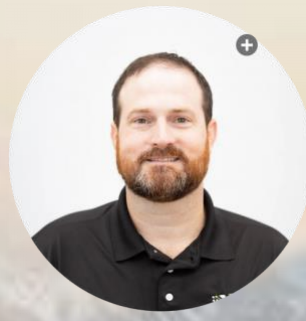
The Zion Solutions Group is a full-service Supply Chain Integration Group, focused on a singular message: Deliver Memorable Experiences and Guide Intelligent Change. With over 90 years of experience in Material Handling Integration, Supply Chain Consulting and Operations, the group has a simple goal: help customers with their Supply Chain related transformation needs by guiding intelligent change.



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90+ Years of Experience

Our team has actual, hands-on experience with the Supply Chain issues that most organizations face on a daily basis. Whether it's solving inventory challenges, understanding software requirements, or designing an omni-channel facility, we have the experience to help.

150+ Completed Projects

Whether greenfield or brownfield - or simply improving a process - the team has successfully completed over 150 projects. That experience is critical to understanding customer needs.

AOK Zion Foundation

We care greatly - about our families, our people, our business partners, and our customers. We also realize the importance of celebrating success with others. Through Acts of Kindness (AOK) ZION is on a mission to make an impact on the supply chain and world.

"If you want to mix the newest technologies with people that still do it the right way, then partner with Zion Solutions Group"
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