









B EING BUSY WITH OUTBOUND ORDER FULFILLMENT is a good thing for a warehouse. It means your assets and space will likely see high utilization, and every on-time shipment that delivers on your company's commitments keeps revenue flowing. But it also can come with a trouble-some side effect: a surge in returns.

Processing returns in a distribution center (DC) is a key aspect of what is known



BUT WITH E-COMMERCE ORDERS, THE RETURN RATE RANGES BETWEEN 15%_30% DEPENDING ON PRODUCT TYPE as reverse logistics. And with the rise of ecommerce, it's an expanding challenge facing the most successful warehouses. Historically, retail returns comprise 8% of total sales, but with ecommerce orders, the return rate ranges between 15% to 30%, depending on product type.¹ With ecommerce sales for the 2018 holiday season up by 16.5%, that equates to significant, growing stress on many DC operations.²

While some DCs have well-organized returns areas, for many operations, the returns process-

ing area can be chaotic, consuming added space and labor. "Most reverse logistics or returns operations are an afterthought," observes James Dolan, director of logistics at Vincennes University's Logistics Training and Education Center. "Very little planning or organization is provided to these areas." When considered as whole, addressing the challenge of returns involves many aspects, including better sales forecasting and product packaging, noting the reasons for returns early on at the retail level, and "triaging" returned goods when they arrive at DCs. To some extent, warns Dolan, returns management tends to be a labor-intensive proposition, though a well-organized DC stands a better chance of lessening this burden through techniques such reducing the number of touches on goods. Warehouses may not be in position to anticipate every spike in returns, since some factors, such as product recalls or overstocks from inaccurate forecasts, aren't under the control of the DC. However, DC managers should evaluate and put in place the best material flow design, storage infrastructure, and material handling equipment they need to make their returns areas as efficient as possible. This paper will examine some of these best practices, including types or racks and aisle configurations that can be used for returns areas, how to think about workflow steps such unloading, staging, and triage, and what types of material handling vehicles such as forklifts and end rider pallet jacks support efficiency.



INSTILLING ORDER

Processing returns is challenging for DCs because the operation may not be able to anticipate the volume or variety of goods it will receive. Some facilities may also need to process returns that come in full pallets, cases, cartons, or at the each/parcel level. The type of goods coming in will dictate the best layout, material flow, and equipment needed to try to minimize touches and human movement or "travel."

The more facility managers can determine the type of returns the warehouse or DC will have coming in, the better it's able

to establish an efficient returns process. Without any effort to prepare for returns, the default tends to be haphazard floor storage of pallets, cases, or totes with parcels and each. This leads to a "honeycomb" look to the floor storage, with gaps between pallets and randomly placed items blocking pathways that make goods difficult to access for the next phase of the disposition process (e.g., internal resale, recycle, sell to secondary market). This is especially true if no bar code tracking or other automatic data capture takes place when goods come in, notes Dave Morzella, warehouse product specialist with Toyota Material Handling.

"The most efficient facilities consider a wide range of functions and equipment. That includes aisle configurations, racking options, and forklift equipment," says Morzella. "By contrast, companies who show room for improvement tend to place units by hand onto ground level without racking. This can lead to honeycombed storage that becomes inefficient. Those inefficiencies have a financial impact and can clutter a facility so much that the facility has to find more space or outsource overflow." The first step to avoid an inefficient returns processing area is to think through the type of returned goods and unit load variations that will be coming back to a DC. Considerations include:

• Will the goods come back via full truck loads, less than truckload deliveries, or by parcel carrier trucks or vans?

• Will the returned goods come back in full pallets? If so, what size pallets, what will a full pallet typically weigh, and what are the typical pallet dimensions?

• If goods will come back, perhaps in parcel carrier vans or smaller trucks as eaches in totes or other containers, are there pallets that can be lifted off the truck, or do totes or bins need to be moved off the vehicle?

• If eaches or loose parcels/items are properly categorized and identified by disposition stream, will there be a flow and undamaged returns that could be built up onto pallets close to receiving/ unloading area, and then moved to longer term storage?

• Will some of the goods coming back have expiration dates or other factors that would require them to be easily accessible if you do store them on racks?

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MATERIAL HANDLING

REVERSE LOGISTICS: BEST PRACTICES AND EQUIPMENT FOR EFFICIENT DISTRIBUTION CENTER RETURNS

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Answers to questions such as these will greatly influence the type of processes, equipment, and racks a DC would need to make returns processing as efficient as possible. For example, loose goods in totes or cartons which come back in relatively high volume might be addressed by using an extendable unloading conveyor that reaches into trucks, so that goods can be quickly unloaded and conveyed to a processing area with just one touch. At the processing area, it's possible that some carton flow rack could be used to hold goods before they are further processed and build up into pallets. From there, a forklift could move the pallets into longer term storage.

In another scenario, a DC might be getting some returned shipments that are undamaged goods in full pallets, which could be moved straight to long-term storage. If these pallets have an expiration concern or need to move out of rack storage relatively soon, selective racks may be the best choice, as these are only one pallet deep and always accessible from the aisle without having to move pallets out of the way.

There are a wide variety of scenarios and configurations that call for different approaches to returned goods processes. That's why successful facilities begin with an audit of their current processes to develop a clear plan of action.



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REVERSE LOGISTICS:

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IMPROVING MATERIAL FLOW

Just as DCs have applied specific types of rack infrastructure, equipment, and a material flow strategy to put away, storage, picking, packing, and shipping of outbound orders, they can apply a similar approach to returns processing and storage. There are many possible scenarios for how to layout a returns area, as well choosing which infrastructure and equipment to use, depending on the nature of the goods and factors like pallet weights and sizes.

POSSIBILITIES INCLUDE:

• Establishing a staging area for triaging arriving returns and determining where they go next. Rather than using a larger forklift for this initial unloading step, a pallet jack might be ideal because they can do their tasks in tight spaces and can limit operating costs. However, if the staging area is more than 50 feet from the dock area used to unload returns, a more ergonomic and effective piece of equipment could be an electric end rider pallet jack.

 Goods that are returned at the each or item level can be labor intensive to process, even with the right infrastructure. But certain choices can minimize touches, human labor, and travel and lifting by warehouse associates. For example, an extendable conveyor could facilitate unloading of bins with filled with each-level returns to a short conveyor that moves totes or cartons to processing area. At that processing area, carton flow racking could be used to temporarily store returned bins so that goods can be efficiently examined, sorted, and built up into cartons or pallets for movement to bulk storage or to a shipping dock to move to another facility or for sale/shipment to secondary market or recycler.

• For full pallets of undamaged goods that have already been identified as undamaged and palletized with a new identifying bar code for the pallet, the best process flow might be to go fully dockto-stock using a riding forklift. The weight and dimensions of the pallets, as well as the distance involved, will influence what class and type or material handling vehicle best suits the dock-to-stock scenario. Some end riders, however, have carry capacity of up to 8,000 pounds and have an interlock feature, enabling the operator to cover a longer distance without continuously pressing a button.

Of course, the best layout for a returns area will greatly depend on factors including the volume of returns that need to be stored, how long they will be stored, expiration date concerns, and how much space is available in the warehouse. These factors will influence the best rack choices or mix of rack types needed for the various parts of the returns area. It may be the multiple types of rack are needed.

LEVERAGE TECHNOLOGY

Poorly organized storage areas for returned goods not only tend to waste space, they make goods hard to find. If goods are honeycombed onto the floor with no bar coding tracking or other automatic means of tracking where items were placed, they'll be hard to find when it comes time to consolidate goods onto a pallet, or move them to the next step in a resale, recycle, or disposal process.

Just as barcoding is used in outbound processes to track when goods moving from receiving, to storage, to forward pick locations, bar codes or radio frequency identification (RFID) tags can be used to track the flow of returned goods.

"This principle of minimizing touches applies as much to returns as to another other supply chain product flow. One of the main keys to an efficient supply chain is to minimize the number of touches. So, touch it once to analyze it and put it where it needs to go, then don't touch it again, if possible."

> — James Dolan Director of Logistics, Vincennes University

For most any returns operation, there is a payoff to using bar code scanning and data collection to manage inventory in the returns area. Conventional bar code scanning can be used to accurately capture every return entering the facility, and if returns are processed and built into pallets, it makes sense to apply a new pallet bar code label to track exactly where the pallet is being put away.

To some extent, these steps require labor (e.g. a bar-code scan or a label application) but the alternative is using paper-based records

of what is in the returns area. While paper-based means of tracking returns inventory and honey-combed floor storage may work for the DCs when they have few returns, today's DCs needs to leverage some data collection technology to be responsive to the reverse trend. Otherwise when it's time to transfer a batch of returns goods or move them out of DC, large amounts of labor time can be wasted simply trying to find and identify goods. It's not just the DC level where technology needs to be leveraged to track returns. The process of categorizing reasons for returns, classifying them, and routing them, should begin at the store and continue through the DC network. By properly assessing returns goods, tracking and routing them by disposition stream, and building them up into efficient pallets for storage whenever possible, companies minimize the number of touches, thus reducing labor and making better use of warehouse space.



As Vincennes University's James Dolan explains, this principle of minimizing touches applies as much to returns as to another other supply chain product flow. "One of the main keys to an efficient supply chain is to minimize the number of touches. So, touch it once to analyze it and put it where it needs to go, then don't touch it again, if possible."



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HELP FROM WAREHOUSE SPECIALISTS

Toyota Material Handling, as a leading provider of forklifts and other material handling vehicles such as end riders, order pickers, and tuggers, can bring in-depth knowledge to help DC operators select the right mix of vehicles for reverse logistics. Through its experience as a manufacturer and the industry knowledge of its dealer network, Toyota can find the right mix of equipment for any given returns processing workflow.

Toyota's dealer product specialists also extend their knowledge to solution elements, such as warehouse racking, to help organizations determine the best combination of rack and vehicles to match the nature of the returned goods.

In many cases, Toyota's dealers also have rack expertise in-house or partner with rack providers. Between the knowledge of Toyota Materials Handling, its dealers, and these associated rack providers, recommendations can be made on the best mix of racks, aisle layouts, and material handling equipment for a returns processing area. To a significant extent, it will depend on site-specific factors such as what type of goods are returning, how are they coming in, and, for longer term storage, what are the pallet sizes, weights, and dimensions.

While DC level returns seem to involve a dizzying array of variables, the challenges can be streamlined via the following common-sense steps:

• Assess what type of goods typically will be coming back, including which units of measure/transport they'll be coming back in and if certain goods at the case or each level can be processed into pallets for storage. Knowing pallet sizes and weights will drive the best rack and equipment choices.

• Think about the unloading area in which goods can be received. How much room is available nearby for staging, triaging, or pallet

building that needs to take place before storing returned goods in bulk? This triage process may also determine what goods should immediately move out of the facility for disposal or are ready to go straight to another entity like a recycler or a liquidator.

• Devise a layout for longer term storage of returns in racks and devise a workflow for moving goods from the staging area to rack storage.

• Apply Auto ID technology such as bar code tracking for each key step in your returns process.

• Work with material handling vehicle experts to determine the best mix of forklifts, end riders, pallet jacks or other equipment that matches the nature of your returned goods, workflows and distances, size/weight of loads, as well as space limitations.

As material handling solution providers, Toyota Material Handling and its dealers can help warehouse operators make plans that address these considerations. It's not a matter of single piece of equipment, or a certain type of rack, that will bring order to the potential returns chaos. Instead, it's a matter of assessing what needs to be processed and how it should be stored, then matching the most suitable mix of vehicles and rack infrastructure to the material flow to minimize the space and labor requirements. An integrated approach like this one can help solve what has become a growing challenge for many warehouse operations.



ABOUT TOYOTA MATERIAL HANDLING

Toyota Material Handling offers a full line of material handling products proudly assembled in the United States, including forklifts, reach trucks, order pickers, pallet jacks, container handlers, automated guided vehicles, and tow tractors, along with aerial work platforms, fleet management services, and advanced automation engineering and design. Toyota's commitment to quality, reliability, and customer satisfaction, the hallmark of the Toyota Production System, extends throughout more than 230 locations across North America.

For more information, visit: ToyotaForklift.com

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FOOTNOTES

1) Return to Sender: Holiday Season Heightens Challenge of Online Returns for Retail Supply Chains. CBRE Industrial & Logistics ViewPoint, December 2018.

2) Adobe Analytics Holiday Recap 2018. Data also reported in Jan 16, 2019 Business Insider story.