



Increasing

# slot capacity and picking efficiency

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Create up to 140% more pick  
slots while minimizing travel  
and labor requirements

**Yale**   
People. Products. Productivity.™



In a distribution center, fast and accurate order fulfillment defines success. But as the need to serve multiple channels grows, SKU counts increase and order profiles change, racking and slotting systems that functioned adequately in the past may begin to compromise order fulfillment efficiency. Additionally, increased picking complexity and operator travel times mean distribution center managers face challenges of efficiently stocking, fulfilling and replenishing their ever-increasing SKU counts while controlling labor costs and maintaining high customer service delivery levels. It all adds up – order picking accounts for more than 50% of the typical warehouse's total operating costs.

This white paper discusses how an innovative multi-level lift truck design can expand the “golden zone” of the pick face, enabling new slotting strategies that increase capacity and picking efficiency, reduce labor and storage requirements and decrease overall materials handling costs.

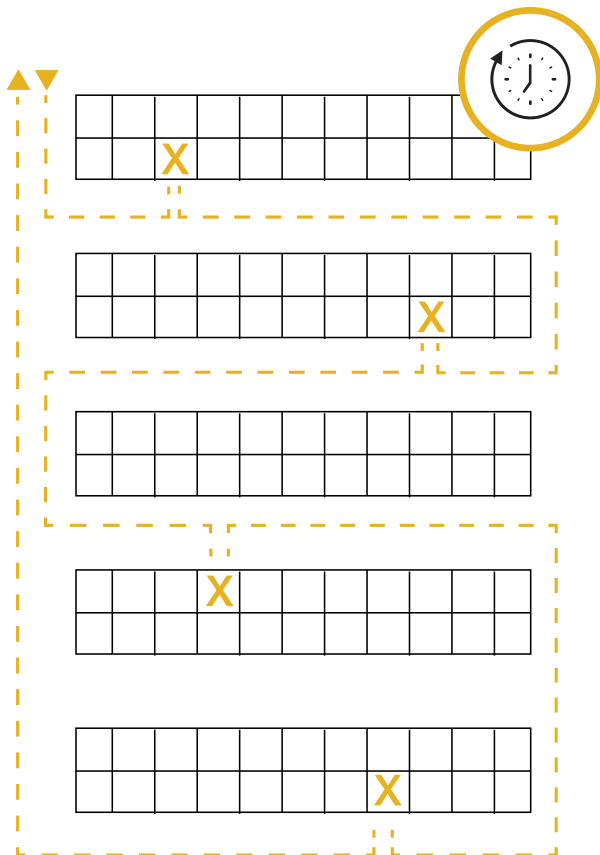


## Common challenges: High SKU base, intensive order picking applications

As SKU counts and order demands increase, companies will typically face four main challenges which compromise either space or efficiency. These include:

### LARGER PICKING FOOTPRINT

As travel of the pick path increases due to additional racks to store increased products, so do labor costs, cycle times and overtime potential. With labor accounting for more than 65% of a distribution centers operating costs, these are not trivial increases. Additionally, rack expansion can result in additional expenses and costly construction.



### MULTIPLE PICK ZONES / MULTIPLE PICK VEHICLES

From very narrow aisle (VNA) picking of slow movers to end rider picking of floor level items, multiple vehicles used to complete an order often result in a merge/consolidation process that increases total labor costs and reduces productivity. Additional product touches, increased potential for lost or damaged products and the ability to only pick to one pallet, further compromise the efficiency and effectiveness of this model to handle additional SKUs.

### SPLIT LOCATIONS AND UNDERSIZED SLOTS

With more items to slot, distribution centers commonly add slots by decreasing slot size, or by adding additional slots for the same item in another area of the warehouse. While these solutions may create more usable slots, they add considerable labor requirements due to more frequent replenishment of smaller slots and longer pick paths to reach the second location. Added touches can increase the potential for product damage.

### REDUCED INVENTORY IN THE PICK SLOT

Cutting the available inventory in half increases the potential for stock "outages" or "short orders" which can negatively impact customer service levels and future revenue. In addition, poor ergonomics/access and risk of damage can increase the cost per case shipped and erode profit margins.

## Innovative multi-level lift trucks enable efficient slotting strategies for growing warehouses

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Managers often delay solving the space vs. efficiency challenge due to the perception that the entire distribution center must be overhauled or expanded, and associated costs prohibit or delay proceeding with a solution. However, the use of multi-level lift trucks with a slotting strategy optimized for their picking range can reduce pick time, rack requirements, operators and overall cost per case in and out the door. Let's take a closer look at both the truck and the slotting methodology.

### The multi-level lift truck solution

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Facing SKU proliferation, space and efficiency challenges, warehouse and distribution center operators look to materials handling suppliers to engineer a scalable solution. Working from a typical customer warehouse slotted for use with an end rider and/or a high-level order selector, an innovative low-level order picker solution coupled with a new slotting strategy provides an affordable and scalable solution.

Based on a center-controlled rider, the simple, effective truck design features a rider platform that elevates 39 inches off the floor, resulting in an expanded "golden zone" picking range from zero to 10 feet. Coupled with the ability to pick to multiple high cube pallets like an end-rider, the low-level order picker enables distribution center managers to slot fast movers in the 0-6 foot zone, and slow movers in the 6-10 foot zone, all quickly accessible by one operator on one truck. The truck is also available with longer forks, enabling operators to pick multiple pallets at the same time, further increasing labor efficiency and overall output.

By integrating a low-level order picker into your racking and slotting methodology, you can create 33% more available space in the pick which can yield between 30% and 140% more slots within the same footprint. The result is the ability to efficiently handle increased SKU counts and more orders in the same facility, with minimal cost and maximum productivity.



# Slotting for success: How to optimize slotting for speed and efficiency

The following pictures show examples of some of the slot profiles that have been designed with a low-level order picker in mind as compared to a conventional pick, which limits the selector to six feet at floor level.



## Turning two slots to four

In this scenario, the two slots formerly available for picking by the end rider operator expand vertically to add another two slots accessible by the low-level order picker operator, increasing pick slot capacity by 100%.



## Turning four slots to six

In this scenario, the four slots formerly available for picking by the end rider operator expand vertically to add another two slots accessible by the low-level order picker operator, increasing pick slot capacity by 50%.



## Turning four slots to eight

In this scenario, the four slots formerly available for picking by the end rider operator expand vertically to add another four slots accessible by the low-level order picker operator, increasing pick slot capacity by 100%.



## Turning fifteen slots to twenty-five

In this scenario, the fifteen hand-stacked slots formerly available for picking by the end rider operator expand vertically to add another ten slots accessible by the low-level order picker operator, increasing pick slot capacity by 66%.



## Summing it up: Solving the space versus efficiency challenge

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From grocery and freezer applications to consumer packaged goods, from store replenishment to high-velocity e-commerce and multichannel operations, a low-level order picker coupled with a simple re-slotting strategy can deliver a competitive advantage to companies by increasing pick slot capacity and efficiency. As this innovative approach to lift truck and slotting optimization gains widespread adoption, the following results have been reported, all of which have assisted with growth and picking efficiency, and helped minimize cost per case in and out the door:

- Added 33-45% more pick positions and decreased operating costs by 25%
- Number of actual pick aisles reduced from 28 to 21, resulting in a substantial reduction in travel time (miles) required to complete the pick
- A reduction of seven operators and associated equipment, resulting in projected savings of \$2 million over five years
- Completion of entire order with one pick vehicle eliminates need for a VNA planned inventory retrieval (PIR) system and no requirement for a merge operation

To learn more about how Yale's low-level order picker helped a customer accommodate a surge in SKUs without increasing the size of the facility, [click here](#).