

Solution Guide

# Automation for 3PL Warehouses

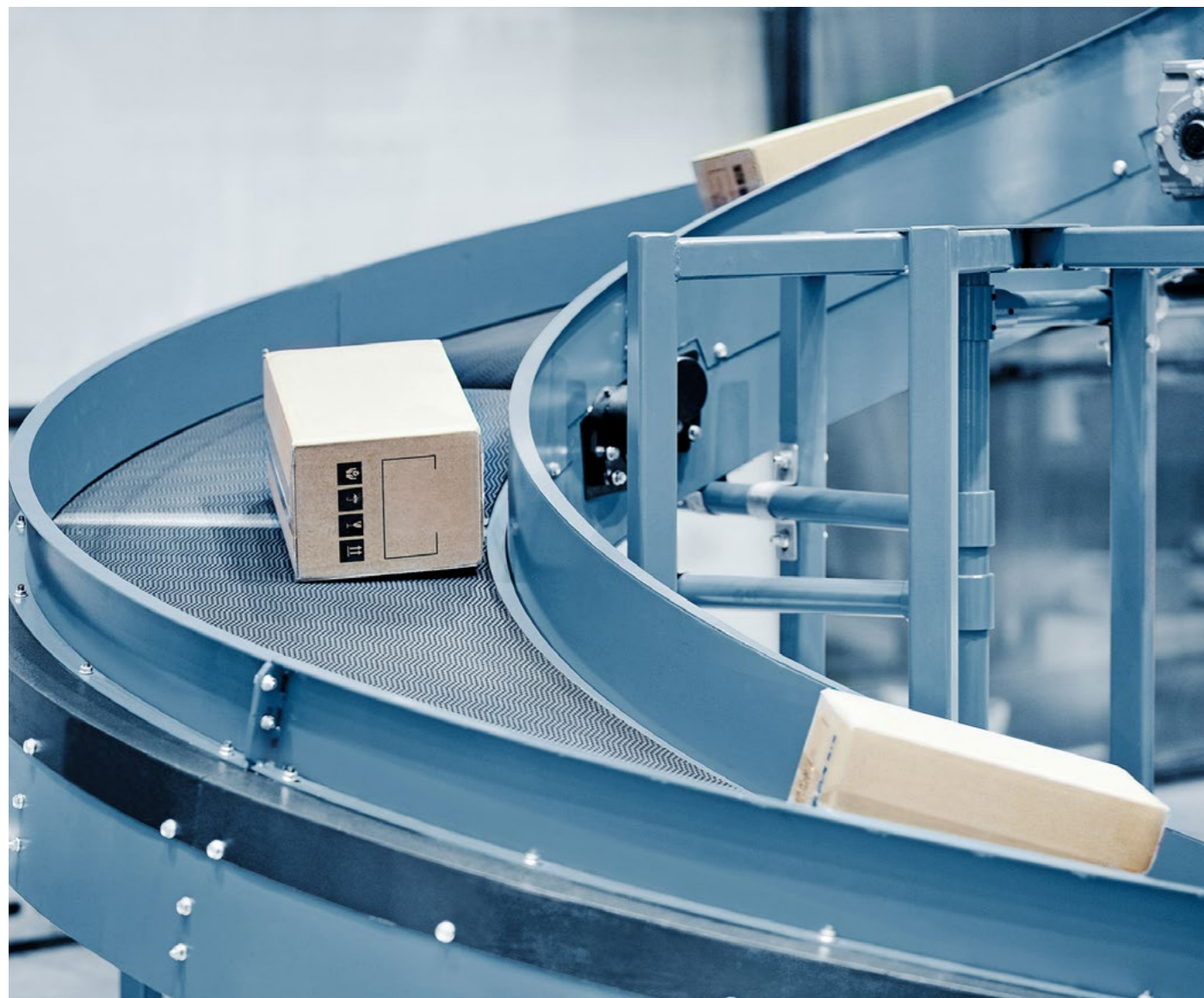




# Automation is key in meeting demands

**Digitization, globalization, rapidly evolving customer expectations, and growing e-commerce demands reinforce the need for many companies to outsource their intralogistics. In fact, a DHL Supply Chain research study released in early 2020 found that 48% of companies use a combination of internal and external logistics solutions, and at least 90% of Fortune 500 companies hire at least one third-party logistics (3PL) provider.**

In recent years, e-commerce sales have skyrocketed. Manufacturers must navigate escalating inventory needs, lack of space, new safety guidelines, and changing consumer behaviors. Consequently, intense pressure is put on 3PL providers and warehouses.



A 3PL provider allows its partners to focus on their core business without worrying about all the complex supply chain challenges. Because 3PL providers service several customers simultaneously, they need reliable, modular solutions capable of managing a wide range of goods and easily adapting as customers' needs change.

## The challenges for 3PLs

Warehouses that oversee order fulfillment, including receiving, processing, delivering, picking, replenishing, and packing, must execute the combined processes perfectly. However, this is not so simple, especially if they must also juggle a wide range of goods, various-sized products, diverse client portfolios, and seasonal spikes.

One of the more significant challenge for 3PLs is the replenishment process. They get a lot material back. At first, you want to avoid this by increasing picking accuracy. Secondly, once these goods come back, there needs to be a solution to either get these products back in the regular stock or set up a separate stream of this replenished material.

### What activates your stress buttons?



Adapting to changing customer behavior.



Disorganization caused by fluctuating demand, multiple clients, and seasonal spikes.



Inaccurate and inefficient inventory management.



Chaotic order fulfillment caused by managing various types of products.

# Navigate complex warehouse challenges

Efficient 3PL warehouse solutions should be flexible, scalable, and measurable. In combination, these three characteristics enable maximum performance, error-free operations, and long-term financial gain.

## Flexible

To enable future growth, it is essential to have a storage system that flexibly services multiple clients and handles frequently changing stock. Automated solutions store various products and diverse-sized goods and adapt as needed (e.g., height modification, stock rotations, new customers).

## Scalable

Modular and scalable systems allow businesses to start small and with basic functions. Automated storage and retrieval solutions expand easily when order volume increases and the company grows.

## Measurable

Automated solutions show fantastic results and a fast ROI. They reduce the storage space needed by up to 85%, improve accuracy rates by up to 99.9%, and picking performance (throughput) by up to 400%.

## Flexible

Today's production portfolios are expected to change drastically in the 3PL industry. The ability to reconfigure the solution at any time is critical.

Kardex's automated solutions are extremely flexible. Their dimensions and throughput adapt as needed and may be combined with stand-alone software or connect to an existing system (e.g., SAP, ERP). Whether for seasonal peaks, product size changes (e.g., from small to large or light to heavy), client acquisitions, relocations, or new business growth, automated solutions are easily repurposed.

## Scalable

Most businesses start small and gradually grow over time. Unfortunately, many supply chain departments don't plan for this and fall into the same trap: sales increase, but intralogistics can't match the spike. Space also becomes an issue. The client list can't grow without having the space to accommodate new inventory. Ultimately, this results in customer dissatisfaction.

Scalable, modular solutions are the secret safety net to prevent this. Automation enables businesses to expand their intralogistics as demands grow. Step by step, warehouses can add and modify. Automation starts small and then expands when and as necessary.

## Measurable

ROI is, without a doubt, essential! However, what is doubtful, is how to guarantee it. Automation clearly outperforms manual solutions in day-to-day measurements, such as throughput rates and picking performance. Automation also matches long-term, strategic benchmarks such as reductions in property costs.

For example, automation optimizes floor-to-ceiling storage space (saving up to 85% of space) and enables multi-access entry points. It's interchangeable, flexible, and suits various clients and products (e.g., small to large). With less space required and the ability to easily transition for new clients / products, fixed real estate costs decrease.



# Automated solutions

## Which automated solution meets your individual needs?

The following solutions offered by Kardex perfectly align with 3PLs. Their features enable warehouses to simplify complex logistics and efficiently manage a wide range of goods and customers. They are all extremely flexible and seamlessly connect to existing warehouse solutions. They help you to improve your warehouse processes with the following:



Partial or fully automated processes and goods-to-person systems



Improved material flow



Sustainable growth



Solutions that easily integrate with existing systems (e.g., multilevel shelf systems)



## Solution #1: Kardex Miniload-in-a-Box\* in combination with the Kardex Frame Pick System

### Vertical Buffer Module Kardex Miniload-in-a-Box

The Vertical Buffer Module Kardex Miniload-in-a-Box stores and picks small parts quickly and efficiently.

#### Key benefits

1. Easily connects to existing systems (e.g., multilevel shelf systems)
2. Flexible system with multiple options for equipment and picking stations with several access openings
3. Fast order picking with accuracy rates of up to 99.9%

### Kardex Frame Pick System

It flawlessly manages a wide range of goods, numerous order lines, and fluctuating order demands.

#### Key benefits

1. Reduces labor costs
2. Reduces travel and search times to accelerate order picking
3. Connects to a Kardex system or existing warehouse solution





## Solution #2: Kardex Shuttle with additional flexible picking solutions

### **Vertical Lift Module Kardex Shuttle**

The Vertical Lift Module Kardex Shuttle stores a wide range of goods, allowing access to various weights and sizes while saving space and time.

#### **Key benefits**

1. 99.9% pick accuracy, 67% labor force reduction, 100% ergonomic access, and 85% floor space savings
2. Ideal for managing a wide range of products with various tray types and travel speeds. For example, sensitive articles travel at slower speeds
3. Both expandable and scalable

**There are different options to increase the productivity of the picking process:**

### **Kardex Color Pick System**

The Kardex Color Pick System adds colored lights to the batch-picking process allowing multiple operators to pick from one work zone.

#### **Key benefits**

1. ROI in less than two years
2. Fast & accurate picking
3. Ideal for managing fluctuating, unpredictable demand

#### **Did you know?**

This solution saves picking time. The Kardex Color Pick System can process over 300 order lines per hour per operator.

### **Display LED-Navigator**

The Display LED-Navigator is a picking assistance system that provides event-related information at exactly the right moment.

#### **Key benefits**

1. High-picking performance
2. Intuitive operator guidance
3. Multi-functional LED display

#### **Did you know?**

The LED technology provides operators with additional guidance. It requires minimal training and increases picking accuracy.



## Solution #3: Order consolidation

**After picking the different customer orders, a consolidation buffer often makes sense to match items picked from other areas or zones of the warehouse.**

For automated and efficient order consolidation in the packaging or shipping area, Kardex recommends their Vertical Buffer Module Kardex Miniload-in-a-Box. It easily stores the often-used 600 × 400 mm Euro bins, guarantees smooth material flow, and just-in-time, sequential retrieval of orders by easily connecting with conveyor systems or automated guided vehicles (AGVs).

The buffer system stores all items temporarily before packing. As soon as the entire order is ready for packing, the system automatically retrieves the items in the correct sequence and transports them to the packing station.

Also, consolidation buffers can be used as shipping buffers. In this case, the system buffers finish orders (mostly cartons) temporarily after packing and before shipping and provide them on demand and in the correct sequence.

### Key benefits

1. Fast and accurate handling of order totes – no searching, no waiting, no idle time, only just-in-time retrieval
2. High storage capacity in a reduced footprint for the consolidation area
3. Intuitive connection to a customer host system and transparent inventory management





## Solution #4: Fully automated high-bay warehouse: high performance, reliable processes, and flexible pallet handling

### **Automated high-bay warehouse**

The high-bay warehouse frees up personnel capacities for more demanding value-added services by ensuring extraordinarily flexible and efficient processes with minimal manual intervention.

Automation impacts incoming goods processing, storage, and outgoing goods processing. However, the level of automation can vary.

### **Incoming goods processing**

As an essential first step, efficient reception of goods means high-quality, correctly selected incoming load carriers.

### **Key benefits**

1. Time saved by automatic truck unloading
2. Various pallet types can be handled due to the sub-palletizing of pallets
3. Camera-based system for automatic identification of the loading units

### **Did you know?**

Automated unloading takes just three minutes per truck – significantly faster than conventional unloading. This is an attractive solution, especially for regularly operating shuttles which can also handle pallets of unknown and poor quality.

### **Storage**

Large overall height and a double-deep rack design enable compact storage of many pallets, each accessible in a few minutes.

### **Key benefits**

1. High-bay warehouse of 50,000+ pallets – a versatile solution
2. Multiclient, chaotic storage due to Warehouse Management Software
3. Real-time monitoring of material flow processes through a visualization system



### **Outgoing goods processing**

Customized, value-added services and reliable implementation make it possible to meet the demands of outsourced logistics. Sequenced provision of shipping pallets ensures efficient loading with low space requirements.

### **Key benefits**

1. Integrated logistics area for manual picking and packing operations
2. Sequenced retrieval of 200 pal/h
3. Short loading times and small footprint



## Solution #5: AutoStore™ integrated with Pick & Place Robotics

### **AutoStore™ – Automated storage and retrieval system**

The flexible and scalable cube storage automation system AutoStore enables high-density storage in the smallest possible space. Battery-powered high-speed robots handle storage bins and present them to ergonomically designed workstations for picking and replenishment.

### **Key benefits**

1. 4 × the capacity in the same space compared to manual storage
2. 10 × higher throughput without additional staff
3. Global average system availability of 99.6%

### **Optional picking tool: Integrated Pick & Place Robotics**

AutoStore workstations can also be operated fully automatically by integrated Pick and Place Robots. Using 3D vision software, these robots can precisely pick, process and place single items, carton boxes, or full cases to and from AutoStore workstations.

### **Key benefits**

1. Operate 24/7, offering speed and accuracy
2. Reduce operating costs
3. Ensure secure warehouse storage

### **Did you know?**

Pick and Place Robots can run various AutoStore processes, including pick to tote, pick to belt, pick to pallet, consolidation, depalletizing, and replenishment. One robot can even serve several AutoStore workstations using a gantry solution.







## About Kardex

Kardex is a leading intralogistics solution provider of automated storage, retrieval, and material handling systems. With two entrepreneurially managed divisions, Kardex Remstar and Kardex Mlog, as well as corporate ventures offering complimentary cutting-edge technology, Kardex has developed into a global industry partner.

Kardex Remstar is a global market leader for dynamic storage, retrieval, and material handling solutions. Kardex Mlog has a leading position in Central Europe for stacker cranes, conveyor systems, and automated material handling systems. The two divisions are unified under a strong group brand. With over 140,000 installations, Kardex has a broad existing customer base that counts on first-class after-sales services.

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