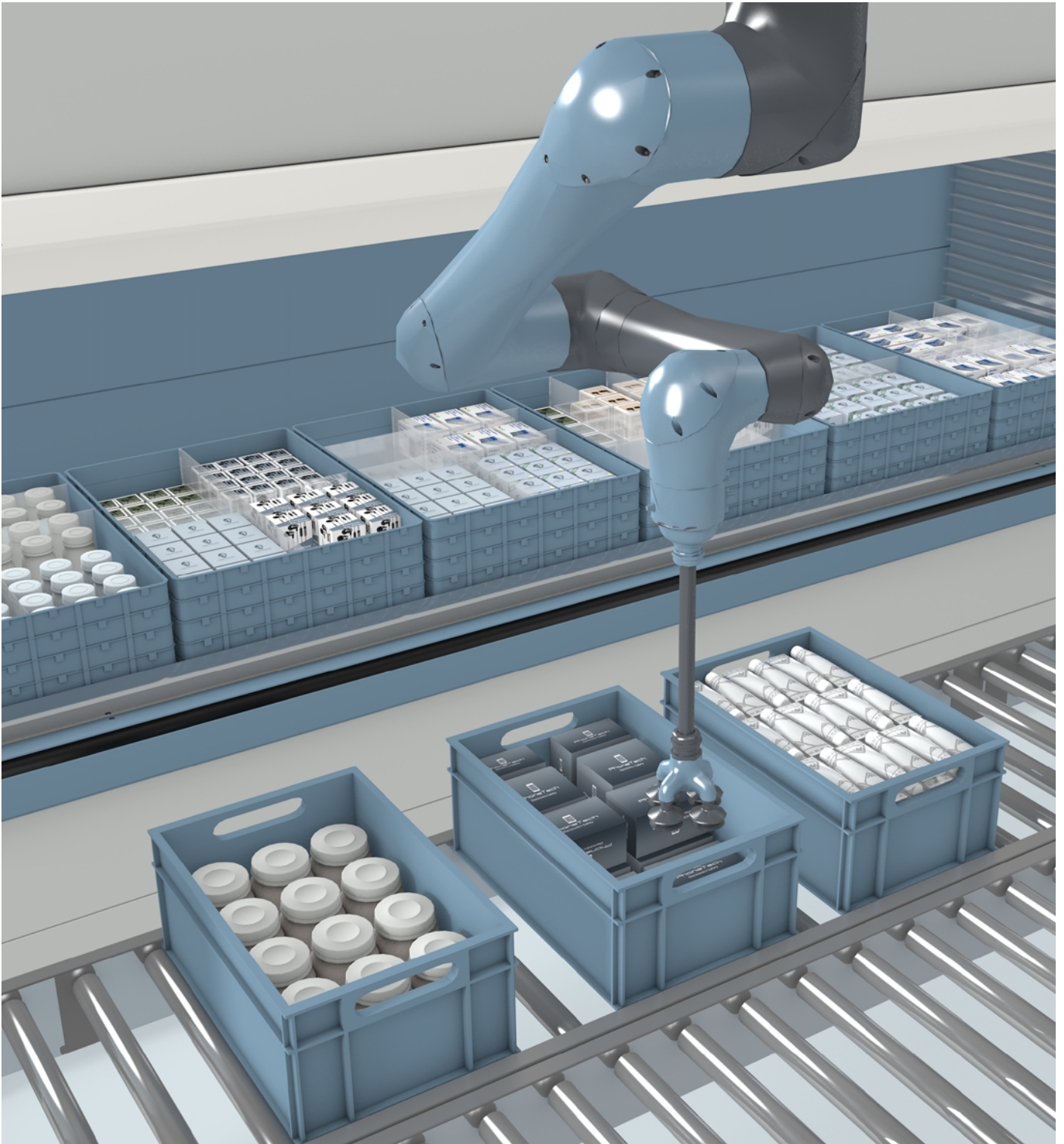Solution Guide

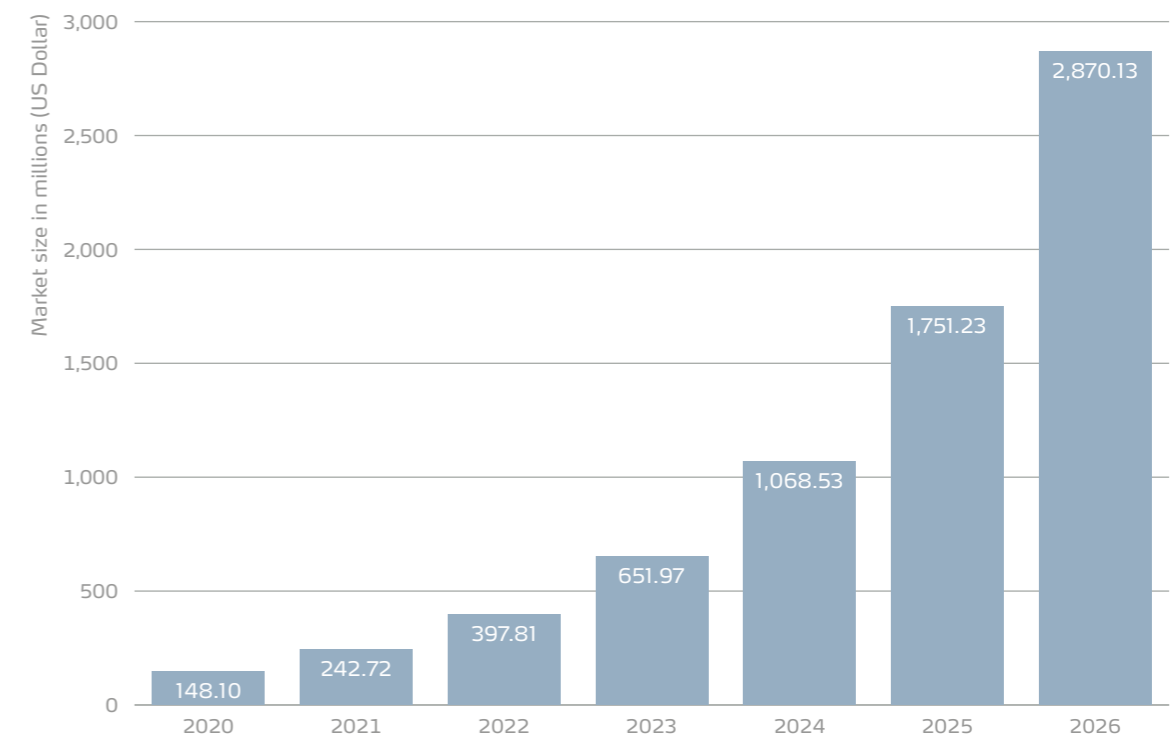# Integrating Pick and Place Robotics

kardex

Automated warehouse picking

Pick and place robotics are enabling warehouses to manage increased inventory stock, process more orders and meet shorter delivery times. In addition, pick and place robotics are helping counter labor shortages many warehouses are challenged with today.

The increasing global trend of robotics used in warehouses proves the adoption of pick and place robotics is happening globally. Intralogistics automation accounted for 9.88 billion US Dollar in Europe in 2021, with growth rates of over 5% forecast for the coming years. The opportunities for warehouse robotics in Europe in particular appear ideal: while its share of intralogistics automation in 2021 was only 1.5%, in Asia it was already 8.3%. In addition, the robotics sector within intralogistics demonstrated disproportionate growth, increasing by 21.9% in Europe last year. The potential of pick and place robots in intralogistics is clear.

Pick and Place Robotics – Global Market, 2020–2026

Year	Market size in millions (US Dollar)
2020	148.10
2021	242.72
2022	397.81
2023	651.97
2024	1,068.53
2025	1,751.23
2026	2,870.13

How robotics ensure greater efficiency

Today's intralogistics require automated picking technologies that deliver fast and reliable results as well as a proven return on investment. Pick and place robotics successfully meet the growing demands in a warehouse and in order processing. They can fully automate order picking, (de-)palletizing, and putaway/replenishment by picking, handling and placing individual items as well as cartons and entire totes.

Pick and place robotics seamlessly integrate with existing systems as needed. For example, a handling robot that travels along an aisle with lift systems can easily pick individual items or entire bins from the access opening and put them in order totes, a conveyor belt or pallet.

Robotics are ideal to support

(De-)palletizing

Replenishment

Order picking

(De-)palletizing

Automated depalletizing after the incoming goods area is one of the most established applications using pick and place robotics. Robots can pick items or cartons and place them in standard bins. This process can easily be combined with replenishment.

Palletizing is often a very critical work step from an ergonomic point of view and frequently associated with only moderate efficiency. Pick and place robotics can change that. Many warehouses have fully automated this process step by using robotics to palletize after packaging. The robots can either palletize on a pallet, roll cage trolley or a container (which is common in e-commerce).

Replenishment

Easy to combine with the depalletizing process, pick and place robotics can be used to complete the replenishing task. They can automatically pick articles from pallets and store them in an automated storage system (e.g. AutoStore or Vertical Lift Module). This means one single process step for both depalletizing and replenishment.

Warehouses often separate the replenishment process from the order picking process. In this case, the robots will support replenishment before or after peak order picking times.

In addition to placing individual articles in a storage system, the pick and place robots can also manage cartons or totes for improved efficiency and ergonomics.

Tip
Pick and place robots use a single part gripper or a gripper for cartons and entire bins. They can automatically change the gripper when necessary.

Order picking

In addition to (de-)palletizing and replenishment, pick and place robotics are also used for order picking. The robots pick individual parts from a storage system and place them in a bin or on a conveyor for efficient and fully automated order picking. Integrating pick and place robotics into an order picking process provides a fully automated flexible and scalable solution that can be easily adapted as business requirements grow or change.

In a fast-growing market, such as e-commerce, short delivery times are critical. Pick and place robotics are often used to achieve much higher throughput meeting the delivery times the market requires. Further, they are extremely precise and accurate – reducing the amount of returns caused by incorrectly picked and delivered goods.

Tip
Combine pick and place robotics with automated transport systems like a conveyor system, AGVs or AMRs. This automates processes even further, reduces manual steps to a minimum and maximizes the robot's full potential (high picking rates and fast transport).

i Learn more about oder picking with robotics

Conclusion

More and more companies are searching for automated picking systems. By implementing pick and place robotics, they alleviate efficiency and labor challenges. As evidenced by the predicted growth rates, this is a trend warehouse managers should not ignore when optimizing their intralogistics processes. Especially in the wholesale, retail, e-commerce industry as well as in manufacturing – pick and place robotics prove to be very efficient. Picking robots are also profitable for small and medium-sized companies.

Following this trend, Kardex offers smart pick and place robotics in cooperation with experienced partners. Customers can expect fully integrated robotics solutions from a single source. The robots use a smart 3D vision software that enables fast detection, measurement and separation of items as well as volume-optimized placement into totes or cartons. This enables the robots to pick and place items quickly and precisely without any teach in processes.

It is also possible to incorporate cobots (collaborative robots) to combine manual und automated picking. Implemented within automated picking processes, cobot technologies work alongside workers to process larger quantities with fewer personnel, 24/7 and with nearly 100 percent precision.

Kardex is a leading Intralogistics solution provider of automated storage, retrieval, and material handling systems. Supported by robotics experts, Kardex develops and delivers robotic applications that help customers lower operational costs with automated pick and place solutions.

ⓘ Watch the AutoStore® meets Robomotive video to learn more

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