

Picking Robot

Robotic solution that completely automates order picking to maximise efficiency and productivity





The picking robot is a pick-and-place cobot (collaborative robot) designed to automate order picking. The robot retrieves products from a storage tote and deposits them in an order tote autonomously. Thanks to innovative deep learning-based vision software and a highly versatile gripping device, the robot handles a wide variety of items with absolute precision, regardless of size, shape or finish.

Advantages

High throughput

The cobot can achieve up to 1,000 picks/hour. Its operating speed and capacity to work uninterruptedly 24/7 significantly streamline order picking and boost productivity compared to manual solutions.

Maximum efficiency

Goods-to-robot order picking systems minimise the possibility of error and free operators from repetitive tasks.

Great flexibility

The gripping device adapts to the characteristics of the product to be handled. As a result, the cobot can work with a wide variety of items of different shapes, surface finishes and sizes.

Absolute precision

The vision software instantly calculates and identifies the best pick point for each product according to its attributes and position inside the tote.

Autonomous operations

Through the vision software's advanced AI algorithms, the robot can recognise unknown items without the need for prior training. This ensures immediate adaptation to warehouse inventory and variations in SKUs.

Integration and adaptability

The robot is compatible with other automated warehouse solutions, such as miniload and shuttle systems.

Enhanced safety

The cobot can detect the presence of humans and objects in its vicinity and adjust its working speed, making its environment extremely safe. It does not require a physical barrier around it.

Ease of use and implementation

Its intuitive user interface and simple installation ensure a quick system set-up.

Applications

Picking robots are ideal for facilities with large daily shipment volumes or high-intensity seasonal demand peaks.



Warehouses with intensive picking of multiple SKUs

Picking robots are perfect for logistics facilities that manage a large number of small-sized SKUs and a high volume of daily shipments.



E-commerce centres

Automated picking is the ideal solution for several key challenges faced by e-commerce companies, such as managing fast shipments and eliminating order picking errors.



Cosmetics and pharmaceutical facilities

The robot reliably handles items of various shapes and dimensions. This provides essential flexibility in the cosmetics and pharmaceutical industries, which often manage fragile and high-value products.



Food-industry warehouses

Automated picking enhances the effectiveness of order fulfilment for supermarkets and other food distribution companies in response to the rise of online sales.



Textile facilities

Picking robots streamline operations in the warehouses of fashion industry companies, as they can handle bagged garments.

Components



Camera. High-resolution camera mounted above the location of the storage bin containing SKUs. It takes a 2D colour image, complemented by a 3D point cloud of the inside of the bin.

Arm. Compact, high-performance robotic arm with a gripping device integrated at the end. It provides maximum operational efficiency and a long reach of up to 1,300 mm.

Rotoscan. Laser scanner that detects an operator's presence in the robot's working area, triggering the reduced operation mode. This slows down the cobot's speed to ensure the safety of humans in its vicinity.



Gripping device

Versatile, lightweight vacuum gripper that adapts to items of various shapes, surface finishes, weights and dimensions. It grips products optimally, ensuring delicate handling to prevent damage during pick-and-place operations.



Vision software

The SIMATIC Robot Pick AI vision software (from Siemens) processes the image captured by the camera. With an extremely high degree of precision, it determines the optimal picking point and the best orientation for the gripping device. Through CAD modelling, the software is capable of identifying any product without requiring prior training.



Easy WMS warehouse management system

The WMS controls inventory traceability and generates inbound and outbound orders, which are transmitted to the cobot.



Operation



1

Arrival of totes. The warehouse management system (WMS) sends a storage tote containing SKUs and one or more empty order totes for fulfilment. The WMS also tells the robot which type of gripper to use for that SKU.



2

Product identification. The vision system's camera takes a picture of the inside of the storage tote containing the SKUs. Then, the vision software analyses the picture captured to identify the silhouette of the product to be picked and determine the best way to do so.



3

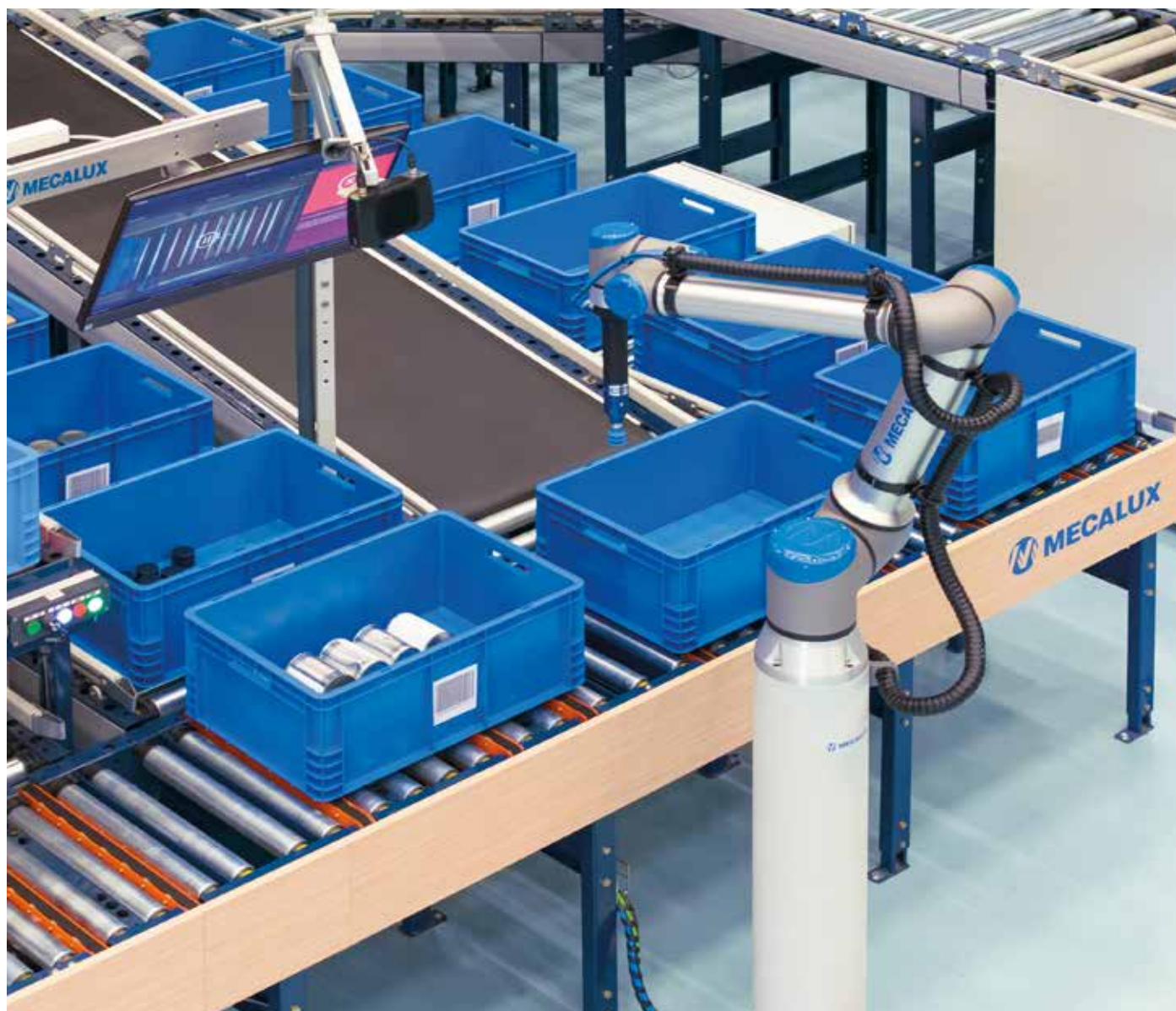
Product picking and placing. Using the data provided by the Siemens vision software, the robotic arm picks the selected product and places it in the corresponding order tote.



4

Picked order. Once picking has finished, conveyors transport the tote containing the order to another area in the facility (consolidation, dispatch, etc.).





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